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RE: Soil and Groundwater Investigation Report, Properties at 760 22nd Street and 2201 Brush Street, Oakland, California 94612.
Fuel Leak Case No. RO0003153
Geotracker Global ID T10000006348

Dear Alameda County Environmental Health:

Please find attached for your review the following document:

- Soil and Groundwater Investigation Report, Properties at 760 22nd Street and 2201 Brush Street, Oakland, California 94612. (ACEH Document No. RO3153_SWI_R_2016-03-31)

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

Please call Everett Cleveland at (510) 287-5353 ext. 339 if you have any questions.

Sincerely,

Jared Wright
Assistant Project Manager



SOIL AND GROUND-WATER INVESTIGATION REPORT

**PROPERTIES AT
760 22ND STREET AND 2201 BRUSH STREET
OAKLAND, CALIFORNIA 94612**

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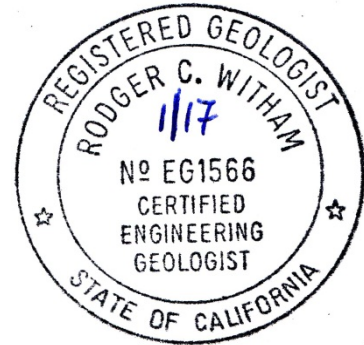
March 31, 2016



**SOIL AND GROUND-WATER INVESTIGATION REPORT
PROPERTIES
AT
760 22ND STREET AND 2201 BRUSH STREET
OAKLAND, CALIFORNIA 94612**

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**SOIL AND GROUND-WATER INVESTIGATION REPORT
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1.0 INTRODUCTION

East Bay Asian Local Development Corporation (EBALDC) has requested that Essel Environmental Consulting (Essel) perform further soil, soil vapor, and ground-water environmental investigation on two adjacent properties located at 760 22nd Street and 2201 Brush Street in Oakland, California. This work was performed according to a Revised Work Plan prepared by Essel (2016) and conditionally approved by Alameda County Environmental Health (ACEH) via electronic mail to EBALDC on January 29, 2016.

Diesel and gasoline underground storage tanks (USTs) were formerly located on and adjacent to the 760 22nd Street property and releases of petroleum product to the underlying soil were discovered at the time the two USTs were removed in 1986. A prior owner of the property submitted a request (associated with another property address) to the ACEH to close the leaking UST case and, based on the soil laboratory analytical data, the ACEH granted case closure on December 8, 1997. The closure was contingent on a continued commercial use of the property. In October 2014, EBALDC submitted to the ACEH additional supporting documentation and a request to close the leaking UST case with regard to redeveloping and using the two properties for residential purposes. The ACEH responded in March 2015 indicating that additional investigation of the extent of petroleum hydrocarbons in soil, soil vapor, and ground water beneath the properties was necessary to enable ACEH to evaluate EBALDC's request for closure under the State Water Resources Control Board's 2011 Low-Threat Underground Storage Tank Case Closure Policy (low-threat UST closure policy).

On behalf of EBALDC, Essel conducted a subsurface investigation at the site in September and October 2015 (Essel, 2015a) to evaluate impact related to the former USTs, former fueling facilities, and former vehicle maintenance operations. The findings of this investigation identified relatively elevated petroleum hydrocarbon concentrations in local areas (the former UST and fuel dispenser locations and the west-central edge of the site) and showed that the site appears to meet most of the general and media-specific criteria of the low-threat UST closure policy. The depth of the significant contamination and the absence of health-risk indicator petroleum constituents in either soil or ground water indicate little potential for risks to human health or the environment. Essel concluded that investigation of the potential presence of a UST and the extent of petroleum-hydrocarbon contaminants at the west-central edge (geophysical anomaly area) of the site was warranted. In subsequent meetings, the ACEH also expressed concern about the presence of chlorinated solvents (particularly vinyl chloride) in soil vapor in

the former UST and fuel dispenser areas; that a source or sources for these contaminants had not been identified at the site; that a potential for vapor intrusion risk might be present in the former UST area where elevators for the future building are to be constructed; and that potential impact to the subsurface in the area of an oil changing pit had not been adequately investigated. The ACEH requested that further investigation be performed to address these concerns. In the Revised Work Plan, Essel (2016) proposed work to delineate the extent of contaminants in the geophysical anomaly area and address the ACEH concerns.

This report presents findings of the further soil, soil vapor, and ground-water investigation. Section 1.0 of this report presents information on location, description, and background information about the properties; Section 2.0 describes the field and laboratory work performed for this investigation; and Section 3.0 presents the results of the field and laboratory work. Section 4.0 presents a discussion of the environmental data collected at the site in relation to criteria of the low-threat UST closure policy and Section 5.0 presents conclusions and recommendation with regard to a future course of action.

1.1 Site Location, Description, and Planned Development

The two properties are located at the addresses of 760 22nd Street and 2201 Brush Street in Oakland, California and are a short distance to the southwest of the intersection of West Grand Avenue, San Pablo Avenue, and Interstate Highway 980. The adjacent and abutting properties are on the west side of Brush Street between West Grand Avenue on the north and 22nd Street on the south. Plate 1 shows the locations of the properties and the features of the regional and local vicinities and Plate 2 shows the configuration of the two properties.

At present, the northernmost property at 760 22nd Street is occupied by a metal frame/metal siding shop building, contains two mobile trailers and a number of parked buses, and is paved with concrete. A below grade pit, historically used for servicing large vehicles (trucks and buses) and referred to as the oil-changing pit, is located in the northern portion of the shop building. This pit, which is integral with the surrounding concrete floor of the building, is constructed of concrete with dimensions of 3½ feet wide by 15½ feet long by 4½ feet deep. The south-adjacent and abutting property at 2201 Brush Street is unpaved and also used to park buses. A 7,000-gallon diesel UST and a 2,000-gallon gasoline UST formerly were located at and next to (off-site, beneath the city sidewalk) the northeastern corner of the site, respectively. A small, raised concrete pedestal located at the east-central edge of the property is the location of a former fuel dispenser. During geophysical utility locating work in September 2015, an area of unusually low-density soil and a nearby standpipe indicative of a UST vent pipe were identified at the west-central edge of the site. This area is referred to as the geophysical anomaly area. Plate 2 shows the current locations of the shop building, oil-changing pit, and fuel dispenser pedestal; the approximate locations of the former USTs; and the location of the geophysical anomaly area at the west-central edge of the property.

East Bay Asian Local Development Corporation plans to redevelop the 760 22nd Street/2201 Brush Street properties with a multistory residential structure containing 59 residential living units. Preliminary architectural plans show that the building will cover the entire property. The building will include a podium garage with parking at ground level and below ground level. Two, 3-car-high puzzle lifts will be constructed near the center of the property for below ground parking (total of 45 parking spaces). Below grade parking will involve excavation of soil beneath this central portion of the property to an approximate depth of 9 feet below the ground surface. Two elevators and two stairwells are proposed to be located at the northeastern corner of the

building, which will overlie the location of the former diesel UST. One elevator and two stairwells are proposed to be located in the southeastern portion of the building in an area straddling the line between the two properties. Architectural drawings are, at present, preliminary; however elevator shafts may extend to a depth of 7 feet below the ground surface. Essel understands that the stairwells will not extend below grade. In addition, concrete footings for the building's foundation may extend to a maximum depth of 4 feet below the current ground surface.

The ground floor of the proposed structure will contain offices, lobbies, an employee break room, conference room, and child-care reception area, which will be located along the northern and eastern sides of the building. The entire second floor is planned as a child day-care center and higher floors will be used for residential living. The elevators will extend to all floors. In addition to the former and current site features, Plate 2 shows the planned ground floor and below ground development.

1.2 Previous Work

Previous environmental work has included underground storage tank (UST) removal, Phase I Environmental Site Assessments (ESAs), and subsurface investigations related to the former USTs and former fuel dispenser. These activities, described below, took place between 1986 and 2012 and are described in more detail in previous documents (Essel, 2015b). A summary of the findings and conclusions of Essel's September/October 2015 subsurface investigation is also presented below.

1.2.1 Underground Storage Tank Removal

Four USTs, associated with a Bekins Van & Storage (Bekins) warehouse located at 2227 San Pablo Avenue, were removed from the 760 22nd Street location and vicinity in 1986 (PES Environmental, Inc. [PES], 1997). Two of the tanks included the 7,000-gallon diesel UST that was located on the 760 22nd Street property and the 2,000-gallon gasoline UST that was located beneath the adjacent sidewalk along Brush Street. After tank removal, soil samples reportedly, were collected beneath both ends of the diesel and gasoline USTs at depths of 12 to 13 feet below the ground surface and submitted for laboratory analysis. Concentrations of 80 to 250 milligrams per kilogram (mg/kg) total petroleum hydrocarbons as diesel (TPHd) were present in soil beneath the 7,000-gallon diesel UST and 1.8 and 70 mg/kg total petroleum hydrocarbons as gasoline (TPHg) were present in soil beneath the adjacent gasoline UST. Plates 2 and 3 show the locations of the former gasoline and diesel USTs and Table 1 presents the results of the laboratory analyses of the soil samples.

1.2.2 PES Environmental, Inc.

PES Environmental, Inc. (PES) performed three Phase I Environmental Site Assessments (ESAs), two subsurface environmental investigations, and two geophysical surveys at the site.

Phase I Environmental Site Assessments

PES (2005a, 2007, 2011a) performed Phase I ESAs of the subject properties in 2005, 2007, and 2011. In the reports of the assessments, PES variously describes the presence and removal of USTs, closure of the UST contamination case at the 760 22nd Street property, observing oil staining in the concrete trench of the shop building, and the presence of petroleum hydrocarbons

in the soil and ground water at concentrations greater than residential cleanup goals. According to PES, these issues represented recognized environmental conditions in connection with the 760 22nd Street property.

Subsurface Investigations

PES (2005b) performed a subsurface soil and ground-water quality investigation at the 760 22nd Street property in September 2005 and additional subsurface soil investigation at the property in October 2011 (PES, 2011b). In 2005, borings B-1 through B-6 were advanced to depths of 12 to 16 feet below grade at locations near the former USTs and fuel dispenser, inside the shop building, and at the southern and northern ends of the property. Soil samples were collected from borings B-2, B-3, B-4, and B-5 at depths between 5 and 12 feet below the ground surface. Concentrations of 190 mg/kg TPHg and 230 mg/kg TPHd were detected in soil at 8 feet below the ground surface in boring B-4, located near the former fuel dispenser. Concentrations of TPHg and TPHd were less than 25 mg/kg or were not detected in the other soil samples. No benzene, toluene, ethylbenzene, total xylenes (BTEX) or methyl tertiary butyl ether (MTBE) was detected in the soil samples. Ground water was reportedly encountered at depths of 12 to 13 feet below the ground surface and grab ground-water samples were collected from borings B-1, B-2, B-5, and B-6. Total petroleum hydrocarbons as diesel were detected in water samples from the four borings at concentrations of 170 to 3,200 micrograms per liter ($\mu\text{g/L}$) and TPH as motor oil (TPHmo) was found at concentrations of 190 to 490 $\mu\text{g/L}$ in water samples from three of the four borings. No BTEX or MTBE was detected in ground-water samples, except for a trace 0.61- $\mu\text{g/L}$ MTBE in boring B-1.

In 2011, borings SB1 through SB6 were advanced to depths of 10 to 11 feet below grade at locations from 10 to 15 feet west and south of borings B-2, B-3, and B-4, which were located near the former USTs and dispenser island. PES collected soil samples from the borings at various depths from 2 to 10 feet below the ground surface. No TPHg or BTEX was found in any soil sample and low levels of TPHd (1.2 to 12 mg/kg) were detected in 10 of the 17 soil samples analyzed. Plates 2 and 3 show the locations of borings advanced by PES during the two subsurface investigations. Table 1 presents the results of laboratory analyses of the soil samples and Table 2 presents the results of laboratory analyses of the ground-water samples.

Geophysical Surveys

PES (2011b, 2012) conducted two geophysical surveys of the northeastern portion of the 760 22nd Street property in October 2011 and April 2012 to evaluate the presence of subsurface features related to the former fuel facilities. The results of these surveys detected various underground utility pipes, but did not find indications of additional USTs. A shallow triangular-shaped metallic anomaly was identified approximately 10 feet west of the former dispenser island.

1.2.3 Essel Environmental Consulting

Essel (2015a) performed additional subsurface investigation in September and October 2015 to characterize the nature and extent of petroleum hydrocarbons in soil, soil vapor, and ground water at the site and off-site in relation to the criteria of the low-threat UST closure policy. Fourteen soil borings (ECB-1 through ECB-14) were advanced to depths of 17 to 20 feet below grade to assess contaminants in soil and ground water in the areas of the two former USTs and dispenser island, near the oil changing pit, along the western edge of the property, and to the northwest and west of the site along West Grand Avenue and 22nd Street. Two soil vapor wells were also

installed at the former locations of the USTs and fuel dispenser to evaluate contaminant levels in soil vapor.

Medium bluish-gray discolored sediments, some associated with petroleum odor, were encountered between 5 and 17 feet below the ground surface in borings advanced at the locations of the former USTs and fuel dispenser and between approximately 13 and 16 feet below grade at the locations of west central borings ECB-9 and ECB-10 near the geophysical anomaly. Elevated concentrations (95 to 1,600 mg/kg) of TPHg, TPHd, and TPHmo were found in soil within a relatively narrow zone at and below the ground-water surface at the former gasoline UST pit; at depths of 8 to 15 feet below grade beneath the former fuel dispenser; and at the ground-water surface (14-foot depth) at the west-central edge of the site (geophysical anomaly). Outside these local areas/depth zones, TPHg, TPHd, and TPHmo were primarily not detected. No BTEX, MTBE, naphthalene, other volatile organic compounds (VOCs), or polynuclear aromatic hydrocarbons (PAHs) were at levels greater than the laboratory detection limit in 31 soil samples analyzed.

Ground water was measured in the borings at depths ranging from 12 to 20 feet below the ground surface, but was most frequently found in the 13½- to 14½-foot-depth interval. High concentrations of TPHg, TPHd, and TPHmo were found in ground water in the areas of high soil impact. Free phase petroleum product was not encountered in these or other borings advanced during the investigation. Other than trace to low concentrations of xylenes and tert-butyl alcohol in two water samples, BTEX, MTBE and other fuel oxygenates were not detected and naphthalene was not detected in water samples collected from the 14 borings. The non-chlorinated solvents acetone and methyl ethyl ketone (MEK) were detected in most water samples at relatively low concentrations, a few petroleum-related VOCs and other non-chlorinated solvent VOCs were sporadically detected, and the chlorinated solvents *cis*-1,2-dichloroethene and vinyl chloride were detected at trace levels in one water sample. The PAH compounds acenaphthene, phenanthrene, and 1-methylnaphthalene were also detected at trace to low concentrations in two of the 14 water samples. Concentrations of TPHg, TPHd, and TPHmo in the UST, fuel dispenser, and west-central areas of the site were notably greater than corresponding default environmental screening levels (ESL) and the trace concentration of vinyl chloride found in ground water in the UST area was slightly greater than the ESL. Other detected compounds were at concentrations less than applicable ESLs.

A number of petroleum-related VOCs were detected in soil vapor at the location of the former USTs (well SV-1) and none was at a concentration greater than applicable ESLs for vapor-intrusion risk. The chlorinated solvents *cis*-1,2-dichloroethene and vinyl chloride were also detected, with vinyl chloride at a concentration slightly greater than the applicable ESL. Soil vapor sampled at the location of the former fuel dispenser (SV-2) did not contain detectable levels of petroleum hydrocarbon constituents. Tetrachloroethene was detected, but not at a concentration greater than the applicable ESL.

Essel concluded that the notable concentrations of TPHg, TPHd, and TPHmo detected in soil and ground water beneath the site were relatively localized in lateral and vertical extent to the areas of the former UST excavation, the former fuel dispenser, and the west-central edge of the site. Soil and ground water beneath the site and off-site to the west and west-northwest also appeared to be minimally impacted by petroleum-related VOCs and PAHs and non-petroleum VOCs, including in the areas of elevated levels of total petroleum hydrocarbons. The geophysical anomaly, standpipe, and notably higher concentrations of TPHmo relative to TPHg and TPHd at the west

central edge of the site further suggested the former or existing presence of an underground storage tank that may have been used to store waste oil.

The investigation results showed the site met the general and media-specific criteria of the low-threat UST closure policy, except for the presence of secondary source soil at the three locations of elevated TPHg, TPHd, and TPHmo. Based on depth (13 to 16 feet below the ground surface) to the source material, localized on-site impact to ground water, absence of nearby sensitive receptors, and absence of the health-risk-indicator petroleum constituents in soil, soil vapor, or ground water, the secondary source material was judged to result in little potential for risks to human health or the environment.

2.0 FIELD AND LABORATORY WORK

Essel's September/October 2015 soil and ground-water investigation filled the data gaps identified by the ACEH in technical report requests transmitted to EBALDC in March and July 2015. The investigation results; however, identified an additional data gap related to the unexpected discovery of elevated petroleum hydrocarbons in soil and ground water at the west-central edge of the site (geophysical anomaly). The results also elicited ACEH concerns that the presence of vinyl chloride in soil vapor (former UST area) near the location of proposed future elevator shafts might present a potential future vapor intrusion risk and the lack of access to the oil changing pit prevented investigation of the potential impact beneath this feature. In the investigation report, Essel (2015a) concluded that additional investigation of the extent of petroleum hydrocarbons in the geophysical anomaly area was warranted. In addition, the ACEH requested investigation to identify the source or sources of the vinyl chloride and other chlorinated solvents, sampling of the two existing soil vapor wells to evaluate seasonal changes in soil vapor concentrations, performing a focused human health risk assessment to evaluate vapor intrusion risk at the proposed elevator shafts, and investigation of potential soil impact beneath the oil-changing pit.

In the Revised Work Plan, Essel (2016) proposed to advance up to seven borings at and around the surface expression of the previously identified geophysical anomaly; sample the two existing soil vapor wells and install and sample five additional soil vapor wells in the vicinities of the former USTs and fuel dispenser; perform a focused human health risk assessment for vapor intrusion risk in the area of the former USTs and future elevators; and sample soil at up to four locations beneath the oil changing pit. The following sections briefly describe the field and laboratory work performed. Detailed field procedures are included in Appendix A.

2.1 Pre-Field Activities

Pre-field activities included obtaining a drilling permit, surveying proposed boring locations for the presence of subsurface utilities, and updating the existing health and safety plan (see Appendix A). In January 2016, Essel submitted a permit application to advance borings and install the soil vapor wells to the Alameda County Public Works Agency (Public Works). Public Works issued Water Resources Well Permit numbers W2016-0059 and W2016-0060 on February 1, 2016. A copy of the well permit is included in Appendix B.

Essel subcontracted with a utility locator to clear the proposed boring locations with respect to underground utilities. The utility locator used electromagnetic and ground-penetrating radar (GPR) equipment to survey the boring and vapor well locations on February 10, 2016. The GPR equipment was also used to define and mark the surface expression of the previously identified

geophysical anomaly. The depth to the top of the anomaly was indicated to be approximately 3 feet below the ground surface. The geophysical equipment operator indicated that the GPR display did not suggest that a buried metallic object, such as a UST, was present in this area.

Essel updated the site-specific Health and Safety Plan (Plan) prepared for the project. A site safety meeting was conducted at the start of each workday to review the contents of the plan and apprise Essel and subcontractor personnel of potential on-site hazards.

2.2 Locations of Borings

Geophysical Anomaly Area

Six borings, ECB-15 through ECB-20, were advanced in the geophysical anomaly area to delineate the extent of the elevated petroleum hydrocarbon concentrations found at the location of boring ECB-10 in September 2015. Boring ECB-15 was placed in the center of the surface expression of the geophysical anomaly. Borings ECB-16, ECB-17, and ECB-18 were placed at respective locations approximately 15 feet to the west, south, and east of boring ECB-15; boring ECB-19 was placed beyond previous boring ECB-10 a distance of 25 feet north of ECB-15; and boring ECB-20 was placed beyond ECB-17 approximately 25 feet to the south of ECB-15.

Soil Vapor Investigation

The borings for soil vapor wells SV-3 through SV-7 were advanced at locations in the northeastern portion of the site to assess the lateral extent and possible sources of vinyl chloride, previously detected in vapor well SV-1, and tetrachloroethene, previously detected in vapor well SV-2. The borings for vapor wells SV-3, SV-4, and SV-5 were placed at locations from 15 to 20 feet north, west, and south, respectively of soil vapor well SV-1 and the former locations of the USTs. Borings for soil vapor wells SV-6 and SV-7 were placed at locations approximately 15 to 20 feet northwest and southwest of soil vapor well SV-2 and the former fuel dispenser. In addition, two borings, B-SV1 and B-SV2, were advanced next to wells SV-1 and SV-2, respectively to collect samples for testing soil physical characteristics, which would be used in the focused human health risk assessment.

Oil-Changing Pit

Borings HA-1, HA-2, and HA-3 were hand-augered to assess contaminant impact beneath the concrete oil-changing pit. The three borings were placed at approximately equal-spaced locations along the centerline of the 15½-foot-long pit.

Plates 2 and 3 show the locations of borings ECB-15 through ECB-20, soil vapor wells SV-3 through SV-7, and hand-auger borings HA-1 through HA-3.

2.3 Drilling Borings and Sampling Soil and Ground Water

Field work to advance borings, collect soil and ground-water samples, and install vapor wells took place on February 15 and 16, 2016. PeneCore Drilling of Woodland, California (C-57 license number 906899) used a Geoprobe 6610DT, track-mounted, direct-push drill rig to advance borings ECB-15 through ECB-20 and B-SV1 through B-SV7. On February 15, borings B-SV1 and B-SV2 were advanced to 14 feet below grade, borings B-SV3, B-SV4, and B-SV5 were advanced to depths

of 17½ to 20 feet below grade, and borings B-SV6 and B-SV7 were advanced to respective depths of 12 and 11 feet below the ground surface. Borings ECB-15 through ECB-20 were advanced on February 16 to a total depth of 20 feet below the ground surface.

Continuous soil cores were collected from the borings for description of sediments, screening for evidence of contaminants (photoionization detector readings, discoloration, odors), and selection of samples for laboratory analysis. Based on field evidence, from one to four discrete-depth soil samples were collected from each boring for laboratory analyses.

Temporary wells, consisting of ¾-inch-diameter polyvinyl chloride pipe, were placed in the boreholes of ECB-15 through ECB-20 to sample the ground water in the geophysical anomaly area. Before sampling, the wells were checked for the presence of free-phase petroleum product and the depth to ground water was measured through the casings using an electronic oil-water interface probe.

Essel returned to the site on February 23, 2016 to hand auger borings HA-1 through HA-3 in the oil-changing pit. These borings were augered and sampled to depths of 3 to 3½ feet below the bottom of the concrete floor of the pit, equivalent to depths of 8½ to 9 feet below the ground surface. Two soil samples were collected from each boring; one from a depth of 1 foot below the bottom of the concrete (6 feet below grade) and one from depths of 3 to 3½ feet below the bottom of the concrete (8 to 8½ feet below grade). Samples were collected using a slide-hammer sampling tool that was fitted with clean brass sleeves.

2.4 Installing Soil Vapor Wells and Sampling Soil Vapor

Permanent soil vapor wells SV-3, SV-4S, SV-4D, SV-5, SV-6, and SV-7 were installed to respective depths 11, 6½, 12, 10, 12, and 11 feet below the ground surface on February 15, 2016. Soil cores collected from the vapor-well boreholes showed that clay underlay the well locations from near the ground surface to approximately 9 feet below grade. In the areas of wells SV-3 through SV-5, units of silt, sand, silty sand, and clayey sand were generally encountered in the borings in the 9- to 13-foot-depth interval and silty clay was generally encountered between the 13-foot depth and the ground-water surface. These more permeable units were not encountered at the locations of wells SV-6 and SV-7. The soil vapor wells were constructed using stainless-steel filter screens connected to ¼-inch-diameter Teflon tubing, which extended to the ground surface. The top of each tubing was capped with a valve to prevent atmospheric air from entering the probe hole and a 6-inch-diameter, steel well box was placed around each probe tubing and secured in place with concrete.

Subsurface conditions were allowed to equilibrate for a period of at least 1 week before sampling the soil vapor wells. Essel purged and sampled soil vapor wells SV-1, SV-3, and SV-5 on February 23, vapor well SV-2 on March 1, and vapor wells SV-4D, SV-6, and SV-7 on March 24, 2016. The purging and sampling system consisted of a 6-liter purging Summa canister; a 1-liter sampling Summa canister; and a manifold containing vacuum gauges, a flow controller, and moisture filter. Sampling procedures, described in Appendix A, were consistent with the final vapor intrusion guidance developed by the California Department of Toxic Substances Control (DTSC, 2011). At the completion of sampling, the Teflon tubing of each vapor probe was recapped and the well boxes were closed.

2.5 Laboratory Analyses

Thirty-three soil samples and six water samples were delivered to McCampbell Analytical, Inc. (McCampbell [Laboratory Certificate No. 1644]) in Pittsburg, California for analysis. McCampbell analyzed all soil and water samples for TPHg using United States Environmental Protection Agency (USEPA) Method 8015Bm; TPHd and TPHmo using USEPA Method 8015B; and VOCs using USEPA Method 8260B. Select soil and water samples were also analyzed for PAHs using USEPA Method 8270C-Selective Ion Monitoring (SIM). Two soil samples from boring ECB-15, advanced through the geophysical anomaly, and one sample each from hand auger borings HA-1, HA-2, and HA-3, collected beneath the oil-changing pit, were analyzed for polychlorinated biphenyls (PCBs) using USEPA Method 8082 and the metals cadmium, chromium, lead, nickel, and zinc using USEPA Method 6020. Water samples from borings ECB-15, ECB-16, and ECB-19 were, in addition, analyzed for PCBs.

Two soil samples from boring B-SV1 and two soil samples from boring B-SV2, advanced next to soil vapor wells SV-1 and SV-2, respectively, were submitted to PTS Laboratories, Inc. in Santa Fe Springs, California for analysis for soil physical parameters. PTS Laboratories, Inc. tested the samples for the physical properties of moisture content, bulk density, porosity (air filled and water filled), and particle size distribution.

Soil-vapor samples from wells SV-1, SV-2, SV-3, and SV-5 were delivered to BC Laboratories Inc. in Bakersfield, California and samples from soil-vapor wells SV-4D, SV-6, and SV-7 were delivered to Eurofins-Air Toxics, Inc. laboratory in Folsom, California for analysis. The laboratories analyzed the vapor samples for total petroleum hydrocarbons-gasoline range using USEPA Modified Method TO-3; for VOCs using USEPA Method TO-15; and for methane and the fixed gases oxygen, nitrogen, and carbon dioxide using American Society for Testing & Materials Method D-1946.

3.0 RESULTS OF INVESTIGATION

3.1 Geology and Ground Water

Unconsolidated sediments encountered in borings advanced during the September 2015 and February 2016 investigations include near-surface silt or fill underlain by alternating and interbedded units of clay, silt, sand, and occasionally gravel. Fill, consisting of brownish-black to dusky yellowish-brown clay, silt, silty fine-grained sand, and fine- to coarse-grained sand was observed in some borings from the base of the concrete to depths ranging from a few inches up to approximately 6 feet below the ground surface. At the locations of the former USTs, fill materials, consisting of bluish-gray-discolored silty clay and silt underlain by lifts of fine-grained sand and fine- to coarse-grained sand with gravel that showed no discoloration, were encountered to 13 feet below the ground surface in borings ECB-2 and B-SV1 (diesel UST location), and 10½ feet below the ground surface in boring ECB-3 (gasoline UST location). The sand backfill was directly underlain by bluish-gray discolored silty clay in the three borings indicating the bottoms of the former diesel and gasoline USTs were at approximate depths of 12 and 10½ feet, respectively.

Outside the former UST excavations, a near-surface silt unit, up to 4 feet thick, and underlying relatively thick silty clay were encountered in borings to depths generally from 8 to 10 feet below

grade. This silt/clay unit appears to be laterally extensive beneath much of the site in the 0- to 10-foot-depth interval; however, was observed to extend as deep as 17 feet below grade in boring ECB-5, advanced next to the former fuel dispenser. The silt/clay is inferred to be of similar thickness to the south of the fuel dispenser area. Units of silt, more predominant units of clayey sand, silty sand, sand (some units containing gravel), and occasional units of clayey gravel, with subordinate interbeds of clay, are present beneath the silty clay (8 to 10 feet below grade) to depths ranging from 17½ to more than 20 feet below the ground surface. The silt/sand/gravel zone also appears to be laterally continuous beneath the site, but is thinner (2 to 3 feet thick) beneath the eastern portion of the properties and becomes notably thicker (more than 10 feet) along the western side of the site. Silty clay was encountered beneath the silt/sand/gravel zone in many but not all borings advanced to 20 feet below the ground surface. This unit appears to be laterally continuous beneath much of the site, except along the western edge.

The sediments were observed to be various shades of yellowish-brown (pale to dark) with varying degrees of reddish-brown and yellowish-orange oxidation staining and dusky brown staining resulting from weathering of sand grains or decomposition of plant material. A zone of medium bluish-gray discolored sediments (with associated petroleum odor) was observed in a number of borings. In the vicinity of the former USTs and fuel dispenser (borings ECB-1 through ECB-5), this discolored zone was observed between depths of 5 and 17 feet below the ground surface. Bluish-gray discolored soil was also observed in west-central borings advanced at and near the location of the geophysical anomaly at various depths within the general interval between 3 and 17 feet below the ground surface. Gray, discolored appearing soil was also observed in off-site western boring ECB-14 (22nd Street) at depths of 17½ to 18½ feet below grade during the September 2015 investigation.

Depth to ground water was measured in the temporary wells installed in borings ECB-1 through ECB-20. In September 2015, the ground-water surface ranged from 12.41 feet below grade in off-site western boring ECB-14 to 20.19 feet below the ground surface in slant boring ECB-7, located in the central portion of the site. Depth to water in most temporary wells averaged approximately 14¼ feet below grade in September 2015 and, in general, the ground water was at a greater depth in northern wells and at a shallower depth in the southern wells. In February 2016, ground water was measured in temporary wells placed in borings ECB-15 through ECB-20, and varied from 12.8 to 13.25 feet below the ground surface. The ground water surface beneath this west-central portion of the site rose from 1 to 1½ feet between September 2015 and February 2016. No free-phase petroleum product was measured on the ground water in any of the 20 temporary wells placed during the two investigations.

Plates 4, 5, 6, and 7 are geologic cross sections A-A', B-B', C-C', and D-D', respectively. The plates present the distribution of geologic units, depths of ground water, and an approximate extent of discolored soil observed in sediment cores. Plate 3 shows the locations of the cross sections. Table 3 presents the ground-water data for borings ECB-1 through ECB-20. Appendix C (Figures C-1 through C-29) contains a Unified Soil Classification System key and logs of borings for ECB-15 through ECB-20, B-SV1, B-SV2, SV-3 through SV-7, and hand auger borings HA-1 through HA-3. The boring logs include descriptions of sediments encountered, photoionization detector readings, depths at which soil samples were collected, and approximate depths to ground water in the borings.

3.2 Geophysical Anomaly Area

3.2.1 Soil Laboratory Analytical Results

Borings ECB-15 through ECB-20 were advanced through and around the geophysical anomaly identified at the west-central edge of the site to delineate the vertical and lateral extent of elevated total petroleum hydrocarbons detected in boring ECB-10 in September 2015. Each boring was advanced to 20 feet below the ground surface. Boring ECB-15 was advanced through the center of the anomaly area and notable bluish-gray discolored soil and petroleum odor were noted between 2½ and 15½ feet below grade. Four soil samples were collected at depths of 4, 9½, 12½, and 18 feet below grade and were analyzed for TPHg, TPHd, TPHmo, and VOCs. In addition, the three uppermost samples from this boring were analyzed for PAHs and samples from the 4- and 9½-foot depths were analyzed for PCBs and cadmium, chromium, lead, nickel, and zinc. Soil samples from step-out borings ECB-16 through ECB-20 were collected at depths between 9 and 17 feet below the ground surface, corresponding to depths of the highest PID readings, within the zone of bluish-gray discolored soil, and below the visible bluish-gray discoloration. These samples were analyzed for TPHg, TPHd, TPHmo, and VOCs. The samples exhibiting the highest PID readings from borings ECB-16 and ECB-19 were also analyzed for PAHs.

Elevated concentrations of TPHg (790 to 1,100 mg/kg), TPHd (730 to 2,300 mg/kg), and TPHmo (5,200 to 16,000 mg/kg) were detected in soil collected at the 12½- to 13½-foot depths in central boring ECB-15 and borings ECB-16 and ECB-17, located approximately 15 feet to the west and south of boring ECB-15, respectively. In September 2015, concentrations of 360, 210, and 1,600 mg/kg TPHg, TPHd, and TPHmo were found at the 14½-foot depth in boring ECB-10, located approximately 10 feet north of the anomaly area. Boring ECB-19 was advanced in February 2016 at a location between 10 and 15 feet north of boring ECB-10 and notably lower concentrations (44, 56, and 430 mg/kg) of the three ranges of petroleum hydrocarbons were detected at the 14½-foot depth. No TPHg, TPHd, or TPHmo was detected in samples collected above or below the 12- to 15-foot depth interval in the five above-described borings and none of the three ranges of petroleum hydrocarbons was detected in soil samples from boring ECB-18, located less than 15 feet to the east of ECB-15, or ECB-20, located approximately 25 feet south of ECB-15. As noted for the concentrations detected in soil collected from boring ECB-10, laboratory results show notably higher concentrations of the motor-oil-range hydrocarbons relative to gasoline and diesel range hydrocarbons in the four soil samples from borings ECB-15, ECB-16, ECB-17, and ECB-19.

Several VOCs and PAHs were variously detected in the samples containing the detectable total petroleum hydrocarbon concentrations in borings ECB-15, ECB-16, ECB-17, and ECB-19. Xylenes (1.5 to 2.6 mg/kg), naphthalene (2.7 to 15 mg/kg), and 2-methylnaphthalene (1.3 and 3.1 mg/kg) were present at concentrations greater than the current default environmental screening levels (ESLs) published by the San Francisco Bay Regional Water Quality Control Board (2016). Other VOCs detected included n-butyl benzene, sec-butyl benzene, n-propyl benzene, and 1,2,4- and 1,3,5-trimethylbenzene. Benzene, toluene, ethylbenzene, and MTBE were not detected in the soil samples. Other PAHs detected included 1-methylnaphthalene, phenanthrene, and pyrene. Polychlorinated biphenyls (aroclor) and cadmium were not detected in soil from the 4- and 9½-foot depths in boring ECB-15 and chromium, lead, nickel, and zinc were found at concentrations well below applicable ESLs and indicative of naturally-occurring concentrations. Table 1 presents the results of laboratory analyses of soil samples collected from borings ECB-15 through ECB-20 and samples collected elsewhere during the current and previous investigations.

Appendix D contains copies of the Chain-of-Custody forms and laboratory analytical report for the soil samples analyzed during the current investigation.

3.2.2 Ground Water Laboratory Analytical Results

Ground-water samples collected from borings ECB-15 through ECB-20 were analyzed for TPHg, TPHd, TPHmo, VOCs, and PAHs. Samples collected from borings ECB-15, ECB-16, and ECB-19 were also analyzed for PCBs.

Elevated concentrations of TPHg (120 to 850 µg/L), TPHd (310 to 3,400 µg/L), and TPHmo (2,000 to 24,000 µg/L) were detected in water samples from boring ECB-15, ECB-16, ECB-17, and ECB-19. Detectable, but notably lower concentrations of BTEX and other petroleum-related VOCs, naphthalene, 1- and 2-methylnaphthalene, and phenanthrene were found associated with the high total petroleum hydrocarbon concentrations. None of the three ranges of total petroleum hydrocarbons, VOCs (except 3.0 µg/L tert butyl alcohol in boring ECB-20), or PAHs was detected in water samples from borings ECB-18 or ECB-20, located east and south of the anomaly, respectively. In addition, PCBs (aroclor) were not detected in water samples from borings ECB-15, ECB-16, or ECB-19. Chlorinated hydrocarbons and the fuel oxygenate MTBE were not detected in the six water samples.

Several compounds were detected at concentrations that are higher than applicable ESLs or the California maximum contaminant levels (MCLs) for drinking water, where available. Concentrations of TPHg, TPHd, and TPHmo were greater than the corresponding ESLs at the locations of borings ECB-15 through ECB-17 and ECB-19. In borings ECB-15, ECB-16, and ECB-17, xylenes, naphthalene, 2-methylnaphthalene, and phenanthrene were variously detected at levels greater than the default ESLs and in boring ECB-16, benzene was at a concentration greater than the MCL. None of the individual compounds was found in the ground water at a concentration that would indicate a vapor intrusion health risk is present in the geophysical anomaly area. Table 2 presents the results of analyses of ground water samples collected from borings ECB-15 through ECB-20 and samples collected during previous investigations at the site. Appendix D contains copies of the Chain-of-Custody form and laboratory analytical report for the six water samples.

3.2.3 Distribution of Petroleum Hydrocarbons in Geophysical Anomaly Area

Laboratory analytical data show high concentrations of total petroleum hydrocarbons, principally in the motor-oil range, are present in soil directly beneath the geophysical anomaly. These elevated concentrations are estimated to extend approximately 25 feet north of the anomaly to a point between borings ECB-19 and ECB-9; extend approximately 20 feet south of the anomaly to a point between borings ECB-17 and ECB-20; and extend an estimated 20 feet west of the anomaly beyond boring ECB-16 and a short distance beneath the adjacent residential and commercial properties. The absence of detectable petroleum hydrocarbons in soil from boring ECB-18 indicates the impact to soil does not extend more than a few feet to the east of the anomaly. The vertical extent of the elevated levels appears to be restricted to an interval between 12 and 16 feet below the ground surface. Plate 8 presents the distribution of petroleum hydrocarbons in soil at the site and Plate 9 presents this distribution in the geophysical anomaly area. These plates present the laboratory analytical data collected during the September 2015 and February 2016 investigations. Plates 5 (Cross Section B-B') and 6 (Cross Section C-C') show the vertical distribution of TPHg, TPHd, and TPHmo in the geophysical anomaly area from data generated during both investigations.

In ground water, high total petroleum hydrocarbon levels were found in an area equivalent to the area of elevated soil impact. As in soil, the highest total petroleum hydrocarbon concentrations were detected at boring ECB-15. Total petroleum hydrocarbons were not detected in ground water at the locations of borings ECB-9 (north), ECB-18 (east), ECB-20 (south) or ECB-11 (southwest) and these borings defined the extent of impact to ground water in these directions. Detectable concentrations of the three ranges of total petroleum hydrocarbons likely extend a short distance to the west (beyond boring ECB-16) and northwest of the anomaly area beneath the adjacent residential and commercial properties. Plates 10, 11, 12, and 13 are contour maps that show the distributions of TPHg, TPHd, TPHmo, and naphthalene in ground water in the geophysical anomaly area. The contours indicate a northerly to northwesterly orientation of the contaminant plume.

3.3 Soil Vapor Investigation and Assessment of Vapor Intrusion Risk

3.3.1 Analyses of Soil Samples

Borings B-SV1 and B-SV2 were advanced to a depth of 14 feet below grade adjacent to soil vapor wells SV-1 and SV-2, respectively and soil samples were collected for physical and chemical analyses. Well SV-1 is located in the former UST excavation and well SV-2 is located next to the former fuel dispenser.

Soil samples for physical testing were collected at the 5- and 5½-foot depths, to represent the near surface silty clay unit that caps the site, and at the 9-foot depth, to represent soil at the depth of the two vapor wells. Laboratory physical test results indicate that the median grain size of the samples from the 5- to 5½-foot depths and the sample from the 9-foot depth from B-SV2 is silt and the particle size distribution falls within the area of silty clay loam on the United States Soil Conservation Service (SCS) classification system. The median grain size of the 9-foot depth sample from B-SV1 (mistakenly labeled S-9-BSV5), which is imported backfill placed in the former UST excavation, is medium sand and this soil is classified as sand in the SCS system. Total porosity of the silty clay loam varied from 36.5 to 38.3 percent, with most pores spaces filled with water. Testing showed a 43.2 percent total porosity for the backfill sand sample with the majority of the pore space filled with air. Dry bulk density varied from 1.63 to 1.68 grams per cubic centimeter for the silty clay loam and was 1.54 grams per cubic centimeter for the sand. The total organic carbon content in the four samples was less than 0.1 percent. The laboratory test results indicate the silty clay loam is the more representative soil type for this northeastern area of the site and the values of the lowest bulk density and water content were used in modeling vapor intrusion for the site-specific health risk assessment. The laboratory report presenting the physical test results is included in Appendix D.

Soil samples from the 4- and 13-foot depths in boring B-SV1 and the 12-foot depth in boring B-SV2 were analyzed for TPHg, TPHd, TPHmo, and VOCs. Concentrations of 42 mg/kg TPHg and 7.1 mg/kg TPHd, and trace concentrations of n-butyl benzene and n-propyl benzene were detected in the 4-foot depth sample from B-SV1. Low concentrations of 9.5 mg/kg TPHg and 1.7 mg/kg TPHd were detected at 12 feet below grade in B-SV2. No TPHmo or other VOC was found in the three samples.

Soil samples collected at depths of 5½ to 16 feet below the ground surface in the borings advanced for soil vapor wells SV-3 through SV-7 were analyzed for the three ranges of total petroleum hydrocarbons and VOCs. None of the analytes was detected in soil samples from the borings for wells SV-3, SV-4, SV-6, or SV-7. In the boring for well SV-5, located approximately

10 to 15 feet south of the former UST excavation, 21 to 73 mg/kg TPHg, TPHd, and TPHmo were detected at 12 feet below the ground surface and 48 to 190 mg/kg of the three ranges of petroleum hydrocarbons were detected at 15 feet below the ground surface. The laboratory analytical data for soil from boring ECB-1 and borings advanced at the locations of vapor wells SV-3 and SV-4 define the lateral extent of the zone of elevated petroleum hydrocarbon impact to the north, northwest, and west of the former UST excavation. Table 1 presents the petroleum hydrocarbon and VOC laboratory analytical results of the soil samples collected from the above-described borings and Plate 8 shows the distribution of the three ranges of petroleum hydrocarbons in these and other borings at the site. Appendix D contains copies of the Chain-of-Custody forms and the laboratory analytical reports for the soil samples.

3.3.2 Analysis of Soil Vapor Samples

Wells SV-1 and SV-2 were sampled to provide seasonal trends in VOC concentrations in soil vapor at the location of the former UST excavation and next to the former fuel dispenser. Soil vapor wells SV-3 through SV-7 were installed and sampled to assess the potential lateral extent of VOCs, particularly vinyl chloride, in the areas around the former USTs and fuel dispenser. The wells were installed within a narrow range of depths between 9 and 12 feet below the ground surface. Soil vapor samples were analyzed for TPHg, VOCs, methane, and the fixed gases oxygen, nitrogen, and carbon dioxide.

In October 2015, total petroleum hydrocarbons-gasoline range; the aromatic gasoline constituents BTEX; the fuel oxygenate MTBE; and other petroleum-related VOCs were detected in soil vapor at well SV-1, located in the UST excavation. Total petroleum hydrocarbons-gasoline range was found at a concentration of 64,000 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) and the various petroleum constituents were detected at concentrations ranging from 22 to 1,400 $\mu\text{g}/\text{m}^3$. In addition, the chlorinated hydrocarbons *cis*-1,2-dichloroethene and vinyl chloride were detected at concentrations of 110 and 31 $\mu\text{g}/\text{m}^3$, respectively. Except for vinyl chloride and total petroleum hydrocarbons-gasoline range, none of the detected compounds was at a concentration greater than the corresponding default ESLs for vapor intrusion risk. Laboratory analytical results for the soil vapor sample collected from well SV-1 on February 23, 2016 showed a notably lower concentration of 20,000 $\mu\text{g}/\text{m}^3$ total petroleum hydrocarbons-gasoline range and no detected concentrations of the analytes found in October 2015, including *cis*-1,2-dichloroethene and vinyl chloride.

Soil vapor wells SV-3, SV-4D, and SV-5 were installed to the northwest, west, and south of the former UST excavation and well SV-1, respectively. Well SV-4D also was placed within a few feet of an exposed sanitary sewer cleanout sump that was noted to contain both sewage and rainwater. The soil vapor sample collected from northwestern well SV-3 did not contain detectable total petroleum hydrocarbons-gasoline range or VOCs. The vapor sample collected from western well SV-4D contained 100,000 $\mu\text{g}/\text{m}^3$ total petroleum hydrocarbons-gasoline range and several individual VOCs ranging in concentration from 15 to 5,400 $\mu\text{g}/\text{m}^3$. Notable VOCs found in the vapor sample from this well included benzene, xylenes, MTBE, *cis*-1,2-dichloroethene and vinyl chloride. Benzene, at 66 $\mu\text{g}/\text{m}^3$, and vinyl chloride, at 46 $\mu\text{g}/\text{m}^3$, were at concentrations modestly higher than were detected in well SV-1 in October 2015 and both analytes were detected during the recent sampling event at levels greater than applicable vapor intrusion ESLs. At well SV-5, the vapor sample contained an elevated concentration of 400,000 $\mu\text{g}/\text{m}^3$ total petroleum hydrocarbons-gasoline range, but no detectable concentrations of individual VOCs.

In well SV-2, located next to the former fuel dispenser, a significantly lower concentration of 450 $\mu\text{g}/\text{m}^3$ total petroleum hydrocarbons-gasoline range was found and no petroleum-related VOCs were detected in soil vapor in October 2015. The chlorinated hydrocarbon tetrachloroethene was detected at a concentration of 150 $\mu\text{g}/\text{m}^3$, which is less than the applicable ESL for vapor intrusion. Carbon disulfide and chloroform were also detected at concentrations less than applicable vapor intrusion ESLs. The February 23, 2016 sample from this well did not contain detectable total petroleum hydrocarbons-gasoline range or petroleum-related VOCs. Tetrachloroethene was found at a lower concentration of 110 $\mu\text{g}/\text{m}^3$ and chloroform was detected at a higher concentration of 130 $\mu\text{g}/\text{m}^3$, which is greater than the vapor intrusion ESL for this compound. Higher laboratory detection limits were reported for soil vapor samples collected from wells SV-1, SV-3, and SV-5 on February 23 and from well SV-2 on March 1, 2016 as a result of dilution of the samples by the laboratory; however, the reporting limits for most of the analytes previously detected are less than corresponding vapor intrusion ESLs.

Wells SV-6 and SV-7 were installed to the northwest and southwest of well SV-2, respectively, at locations where the upper silty clay extends to greater depth. Low concentrations of benzene, toluene, xylenes, and other petroleum-related VOCs were detected in the sample from well SV-6. None of the petroleum-related VOCs was detected in the sample from well SV-7; however, a relatively elevated concentration of 420 $\mu\text{g}/\text{m}^3$ chloroform, which is greater than the applicable ESL for this compound, was detected in this well. Tetrachloroethene, which was found in nearby well SV-2, was not detected in either well SV-6 or SV-7. The tracer gas isopropyl alcohol (2-propanol) was detected in samples from wells SV-6 (840 $\mu\text{g}/\text{m}^3$) and SV-7 (5,400 $\mu\text{g}/\text{m}^3$) indicating some leakage of atmospheric air into the sampling stream. This leakage; however, is not likely to have diluted concentrations of contaminants to below detection limits or to otherwise have significantly affected the analytical results.

Analytical results show relatively low oxygen content (1.4 to 1.9 percent) in soil vapor at the locations of wells SV-1, SV-3, and SV-4, near the former USTs, and notably higher oxygen content of 11 to 18 percent in soil vapor at the locations of SV-2 and SV-5, near the former fuel dispenser. Nitrogen (79 to 94 percent) and carbon dioxide (2.4 to 6.1 percent) concentrations of the soil vapor samples were relatively uniform in the four wells sampled, both spatially and temporally. Methane was detected at very low concentrations or was not detected in the four vapor samples suggesting methane generation is not of concern at the site. The vapor samples from southern wells SV-6 and SV-7 were not analyzed for methane or the fixed gases because very low flow conditions prevented collecting a full liter sample.

Table 4 presents the cumulative laboratory analytical results of soil vapor samples collected at the site in October 2015 and February and March 2016. Appendix D contains copies of the Chain-of-Custody forms and the laboratory analytical reports for the soil vapor samples.

3.3.3 Human Health Risk Assessment

Essel subcontracted with the Source Group, Inc. of Pleasant Hill, California to perform a focused assessment of human health risk from vapor intrusion risk in the area of the former USTs and fuel dispenser. The Source Group, Inc. used the laboratory results of the physical testing of samples from borings B-SV1 and B-SV2 and the chemical analyses of soil vapor samples from wells SV-1 through SV-7 to select exposure point concentrations, model vapor migration and mixing, and assess inhalation health risk using current toxicities of the detected contaminants. The maximum concentration of each VOC detected in the soil vapor samples was selected as the exposure point concentration, silty clay loam was selected as the typical soil type, and the

shallowest depth well and most conservative physical properties of the silty clay loam were used in the assessment.

The assessment models vapor intrusion risk of a future resident receptor at ground level. The risk assessment report indicates that currently available vapor intrusion models do not allow for evaluating vapor intrusion through elevator shafts (i.e., preferential pathways) or into upper floors of multi-story buildings. Indoor air concentrations of potential contaminants; however, are expected to be significantly lower above the ground floor of the future building due to mixing and consequent dispersion of contaminants by atmospheric air. The assessment; therefore, very likely overestimates the potential vapor intrusion risk to actual receptors of the future site building that would include ground-floor office and child-care workers, second-floor day care center occupants, third floor and higher floor residential occupants, and elevator occupants.

The results of the focused human health risk assessment show an acceptable non-cancer risk (hazard index less than 1.0) and an excess cancer risk less than 1×10^{-6} for the ground floor resident receptor. Potential vapor intrusion health risk to actual receptors of the future building is likely to be less. Appendix E contains a copy of The Source Group, Inc.'s focused human health risk assessment.

3.4 Investigation of Oil Changing Pit

Essel inspected the belowground oil-changing pit during the February 15 and 16, 2016 field investigation. The concrete of the pit was observed to be integral with the concrete floor of the shop building and no cracks, seams, or drains were observed on the bottom or sidewalls of the structure. The floor of the pit was also observed to be moderately stained. A wood-framed structure had been constructed over the pit and vehicle maintenance activities have not taken place in the pit for a number of years.

Soil samples from hand-auger borings HA-1 through HA-3 were collected on February 23, 2016. Samples collected at the 1-foot depth were analyzed for TPHg, TPHd, TPHmo, VOCs, PAHs, PCBs, and cadmium, chromium, lead, nickel, and zinc. Samples from the 3 to 3½-foot depths were analyzed for TPHg, TPHd, TPHmo, and VOCs.

No field evidence of contaminant impact (i.e., odor or discoloration) was observed in soil removed from the three borings. Laboratory analytical results show that none of the six samples from HA-1 through HA-3 contained a detectable concentration of TPHg, TPHd, TPHmo, or VOCs. None of the three soil samples collected from a depth of 1 foot below the bottom of the concrete contained a detectable concentration of PAHs, PCBs, or cadmium. The detected concentrations of chromium, lead, nickel, and zinc in the three shallower samples are less than applicable default ESLs and the relatively uniform concentrations among the three samples suggest the metals are at naturally-occurring levels. Table 1 presents the laboratory analytical results of the soil samples collected from borings HA-1, HA-2, and HA-3 and Appendix D contains copies of the Chain-of-Custody form and laboratory analytical report. Plate 6 (Cross Section C-C') shows the locations of the three borings and soil samples with the analytical results for TPHg, TPHd, and TPHmo.

4.0 LOW-THREAT UNDERGROUND STORAGE TANK CLOSURE POLICY

The results of Essel's the September/October subsurface investigation and information presented to ACEH during subsequent meetings resolved the previously identified data deficiencies conveyed by ACEH in letters to EBALDC on March 2, and July 1, 2015. A new data gap was identified during the 2015 investigation related to delineating the petroleum-hydrocarbon impact to soil and ground water in the geophysical anomaly area. The extent of this impact has been delineated during the current investigation. Additional investigation performed in the former UST and fuel dispenser areas did not identify a source area or areas for vinyl chloride or tetrachloroethene and did not find impact to soil underlying the oil-changing pit. The initial focused health risk assessment did not find significant vapor-intrusion health risk from the few chlorinated hydrocarbons and other petroleum-related VOCs detected in soil vapor at the site. The following sections discuss the data generated during previous and the current subsurface investigations as these data relate to the low threat UST closure policy. Updated Conceptual Site Model and Data Gap Tables presenting the below-described information are included in Appendix F.

4.1 General Criteria

Seven general criteria are discussed as follows.

4.1.1. The Unauthorized Release is Located Within the Service Area of a Public Water System.

East Bay Municipal Utility District provides the public water supply to businesses and residences in the site vicinity. Essel accessed the State Water Resources Control Board's GeoTracker Groundwater Ambient Monitoring and Assessment (GAMA) Program website, which provides the locations of ground-water-monitoring and ground-water-supply wells. The GAMA website shows that no ground-water-supply wells are located within ¼-mile (1,320 feet) of the Site. Three groups of environmental monitoring wells, related to leaking underground storage tank properties, are located at distances of 600 feet south-southeast, 900 feet west-northwest, and 1,350 feet south of the Site. Essel also submitted a request to the Alameda County Public Works Agency (Public Works) for records of water-supply wells located within 2,000 feet of the site. Records provided by Public Works show the nearest water-supply wells are located more than 2,000 feet to the north of the Site. A map showing the locations of the water wells relative to the site was previously provided to ACEH.

4.1.2 The Unauthorized Release Consists only of Petroleum

Soil, ground water, and soil vapor samples were analyzed for the full range of total petroleum hydrocarbons and VOCs. Selected samples collected from borings advanced in the former UST and fuel dispenser areas, oil-changing pit, and geophysical anomaly area were also analyzed for PAHs, which are constituents of diesel and motor oil. A few samples collected from borings advanced in the geophysical anomaly area and the oil-changing pit were analyzed for PCBs and the metals cadmium, chromium, lead, nickel, and zinc. These constituents may have been associated with waste automotive oil possibly stored or used at the two locations. The results of laboratory analyses performed during both subsurface investigations show that the contaminants present in soil, ground water, and soil vapor comprise primarily total petroleum hydrocarbons in

the gasoline, diesel, and motor oil ranges and secondarily individual petroleum fuel constituents. Incidental concentrations of petroleum solvents, chlorinated solvents, and an insecticide were detected in ground water and soil vapor. Re-sampling of existing soil vapor wells SV-1 and SV-2 and sampling of additional soil vapor wells SV-3 through SV-7 did not identify a significant source of the previously detected chlorinated hydrocarbons vinyl chloride and tetrachloroethene. The detected concentration of tetrachloroethene in well SV-2 was lower in March 2016 than in October 2015 and the previously detected vinyl chloride in well SV-1 was not detected when this well was re-sampled in February 2016. A modestly higher concentration of vinyl chloride was found in soil vapor well SV-4 located west of well SV-1 and near an exposed sanitary sewer cleanout; however, this higher concentration does not suggest a significant source area for the vinyl chloride is located at the site.

4.1.3 The Unauthorized Release has been Stopped

Available historical records show that the 7,000-gallon on-site diesel UST and the 2,000-gallon off-site gasoline UST were removed in October 1986. The fuel dispenser and fuel piping were presumably removed at the same time. No USTs were encountered in borings advanced in the former tank area during the 2015 and 2016 subsurface investigations.

4.1.4 Free Product Has Been Removed to the Maximum Extent Practicable

Essel used an electronic oil-water interface probe to check borings ECB-1 through ECB-20 for free-phase petroleum product on the ground water. No petroleum product was detected in any of the borings (see Table 3).

4.1.5 A Conceptual Site Model Has Been Developed

The Conceptual Site Model is presented in Table 5 in Appendix F.

4.1.6 Secondary Source Removal Has Been Addressed

As indicated above, free phase petroleum product was not found in any of the 20 borings and dissolved gasoline, diesel, and motor oil concentrations appear not to be sufficiently elevated to result in free product on the ground water. Moderately abundant to pervasive bluish-gray discolored soil (and associated petroleum odor) was observed between the depths of approximately 5 and 17½ feet below the ground surface in borings ECB-1 through ECB-5 located at the former UST and fuel dispenser locations and variously at depths as shallow as 3 feet to as deep as 17 feet below the ground surface in borings ECB-10 and ECB-15 through ECB-19 advanced in the geophysical anomaly area. The discoloration was particularly visible in the clay and silt. Except for the soil sample from the 8-foot depth in boring ECB-5, discolored soil samples collected from the depth interval of 4 to 12 feet below the ground surface in borings advanced at the site did not contain elevated levels of petroleum hydrocarbons. Although discolored, the shallower soil in the areas of the former USTs, fuel dispenser, and geophysical anomaly would not appear to be secondary source material.

The discolored soil was observed to extend below the ground-water surface (maximum depth of 17½ feet below grade) in borings ECB-1 through ECB-5, ECB-10, ECB-15 through ECB-17, and ECB-19 and elevated concentrations of TPHg, TPHd, and TPHmo were detected in soil samples collected from these borings at depths of 12½ to 16 feet below grade. Secondary source petroleum-contaminated soil appears to be restricted to the 12- to 17-foot depths (just above and

just below the ground-water surface) in the vicinity of the former USTs, near the former fuel dispenser, and in the vicinity of the geophysical anomaly. This secondary source material has impacted ground water; however, the horizontal extent of ground-water impact appears to be localized as separate plumes in the former UST/fuel dispenser area and geophysical anomaly area. Within this restricted vertical depth zone, petroleum-impacted soil and ground water appear to extend a short distance to the west of the geophysical anomaly area beneath the adjacent commercial and residential properties.

Direct exposure to this secondary source soil is not likely as the deepest excavation of the planned development will extend to a maximum 9 feet below the ground surface. Soil with a moderately high concentration of TPHg (130 mg/kg) is present at 8 feet below grade at the former dispenser location. The maximum depth of excavation in this area may extend to 4 feet below grade for a footing of the future building's foundation. In addition, no volatile petroleum hydrocarbon compounds are present in the soil or ground water beneath the site that would indicate a vapor intrusion hazard or an outdoor air health risk.

4.1.7 Soil and Groundwater Have Been Tested for MTBE and Results Reported in Accordance with Health and Safety Code Section 25296.15.

All soil, ground-water, and soil vapor samples collected during the September/October 2015 and February/March 2016 investigations were analyzed for MTBE using USEPA Method 8260B. Methyl tertiary butyl ether was not detected in soil or ground water during these investigations, but was detected at a concentration of 110 µg/m³ in the soil vapor sample collected from well SV-1 in October 2015 and at 86 µg/m³ in the soil vapor sample collected from well SV-4D in March 2016. The concentrations of MTBE detected were less than the applicable ESL for vapor intrusion risk. A trace concentration of MTBE was detected in a water sample from boring B-1, advanced at the northern edge of the site in 2005.

4.2 Media-Specific Criteria

4.2.1 Ground Water

To satisfy the media-specific criteria for ground water, a petroleum-contaminant plume must be stable or decreasing in areal extent and meet the stated characteristics of one of the five classes of petroleum-release sites described in the low-threat UST closure policy. Ground-water data at the site most closely satisfies the first listed class of site described in the policy document; that is:

- The contaminant plumes are less than 100 feet in length;
- There is no free product; and
- The nearest existing water supply well and/or surface water body is greater than 250 feet from the defined plume boundary.

Laboratory analysis of ground-water samples collected by PES Environmental, Inc. in 2005 showed a concentration of 3,200 µg/L TPHd at the former diesel UST and concentrations of 170 to 530 µg/L TPHg, TPHd, and TPHmo at presumably downgradient boring locations (B-1, B-5, and B-6) in the north-central and south-central portions of the site. Laboratory analytical data from the September 2015 investigation show notably higher concentrations of TPHg, TPHd, and TPHmo at the locations of the former USTs and in the geophysical anomaly area, but no detectable concentrations of the three ranges of petroleum hydrocarbons beneath the shop

building or along the southern and western (except ECB-10) edges of the site. The data indicate ground-water impacts at the UST and dispenser source areas have not migrated off the site. None of the more mobile petroleum hydrocarbon constituents (BTEX, MTBE, etc.) was found in the ground water during the September 2015 subsurface investigation. Relatively low levels of BTEX were detected in the geophysical anomaly area during the February 2016 investigation.

Elevated concentrations of TPH_{mo} relative to TPH_g and TPH_d in ground water at ECB-10, ECB-15 through ECB-17, and ECB-19 indicate a separate source of petroleum contaminants in the geophysical anomaly area than detected at the UST and fuel dispenser locations. The lateral extent of this ground-water impact is defined by borings ECB-9 (north), ECB-18 (east), ECB-20 (south) and ECB-11 (southwest), which do not contain detectable petroleum hydrocarbons. The western edge of this impact is beyond the location of boring ECB-16; however, based on the extent defined by the above borings, the hydrocarbon plume is inferred to have migrated only a short distance to the west and northwest beneath the adjacent residential and commercial properties (see Plates 10 through 13).

Records available on the GeoTracker GAMA website do not show any water-supply wells within 250 feet of the site and Public Works records show the closest water-supply wells are located more than 2,000 feet to the north of the site. The closest surface water to the site is Lake Merritt, which is approximately 3,900 feet to the east.

4.2.2 Petroleum Vapor Intrusion to Indoor Air

Site-specific conditions at a petroleum release site must satisfy all characteristics and screening criteria of one of four scenarios (as applicable) presented in the low-threat UST closure policy document. The scenarios include: 1) unweathered non-aqueous phase liquid (LNAPL) in ground water; 2) unweathered LNAPL in soil; 3) dissolved phase benzene concentrations only in ground water; or 4) direct measurement of soil gas concentrations.

Soil, ground water, and soil vapor data obtained during the 2015 and 2016 investigations show the site substantially satisfies Scenarios 3 and 4. Under Scenario 3, assuming no bioattenuation zone (oxygen content less than 4 percent) is present, dissolved phase benzene concentrations in ground water that are less than 100 µg/L must be separated from the foundation of an existing or a future building a minimum of 5 vertical feet. Under Scenario 4, with no bioattenuation zone, soil gas concentrations of benzene and naphthalene must be less than the residential screening levels of 85 and 93 µg/m³, respectively. In both scenarios, the total concentration of TPH_g and TPH_d must be less than 100 mg/kg within the 5-foot bioattenuation zone. Site data show that no benzene is present in ground water, which was found at 13 to 14 feet below the ground surface and that benzene (maximum 66 µg/m³) and naphthalene (not detected) in soil vapor are less than the applicable residential screening levels. Except at the location of the former fuel dispenser, none of the soil samples collected during PES Environmental, Inc.'s 2011 investigation or the current investigations at depths less than 5 feet below the proposed future foundation contained a combined TPH_g+TPH_d concentration greater than 100 mg/kg. Furthermore, the focused human health risk assessment found no significant cumulative vapor-intrusion risk from multiple petroleum-hydrocarbon and chlorinated-hydrocarbon VOCs detected in the area of the former USTs and fuel dispenser.

At the location of the former fuel dispenser, TPH_g+TPH_d concentrations greater than 100 mg/kg are present in soil at 8 feet below the ground surface. A concrete footing of the future building

may be placed at a depth of 4 feet below grade at this location, indicating a potential separation distance of less than 5 feet.

4.2.3 Direct Contact and Outdoor Air Exposure

Criteria for direct contact and outdoor air exposure meet low-threat policy requirements if concentrations of benzene, naphthalene, and PAHs in soil are less than or equal to the following respective concentrations.

- 2.3, 13, and 0.038 mg/kg in soil from 0 to 5 feet below the ground surface.
- 100, 1,500, and 7.5 mg/kg in soil from 5 to 10 feet below the ground surface.

Laboratory analytical results for soil samples collected in the UST, fuel dispenser, oil changing pit, and geophysical anomaly areas show no detectable concentrations of benzene, naphthalene, or any PAH analyte in the two above-defined depth intervals. The site satisfies the low-threat UST closure criteria for direct contact and outdoor air exposure.

5.0 FINDINGS AND CONCLUSIONS

5.1 Findings

Following is a summary of the findings of the additional subsurface environmental investigation.

- Unconsolidated sediments encountered in borings advanced at the site include a near-surface silt unit, up to 4 feet thick, or fill from the ground surface to as much as 6 feet below the ground surface. A relatively thick unit of clay is present from the base of the silt and fill to depths mostly of 8 to 10 feet, but also up to 17 feet below grade in the southeastern portion of the site. Units of silt, more predominant units of clayey sand, silty sand, sand (some units containing gravel), and occasional units of clayey gravel, with subordinate interbeds of clay, are present beneath the silty clay to depths ranging from 17½ to more than 20 feet below the ground surface. Silty clay was encountered beneath the silt/sand/gravel zone in many but not all borings advanced to the 20-foot depth. The shallow clay and underlying silt/sand/gravel zone appear to be laterally continuous beneath the site. The silt/sand/gravel zone is thinner (2 to 3 feet thick) beneath the eastern portion of the properties and becomes notably thicker (more than 10 feet) along the western side of the site. The lowest clay unit appears to be laterally continuous beneath much of the site, except along the western edge.
- Ground water was measured in the borings at depths of 12.41 to 20.19 feet below the ground surface in September 2015 and was at 13 feet below grade in the geophysical anomaly area in February 2016. Water level data suggest ground water rose approximately 1½ feet between September 2015 and February 2016. In general, ground water was at greater depth beneath the northern portion of the site relative to the southern portion of the site.
- Bluish-gray discolored soil, with associated petroleum odor, was encountered in a number of borings advanced at the site. The maximum vertical extent was observed in

the areas of the former USTs (5 to 17 feet below the ground surface) and the geophysical anomaly (3 to 17 feet below the ground surface).

- Free phase petroleum product was not encountered on the ground water in the 20 on-site and off-site borings advanced during the two investigations.
- In soil, relatively high concentrations of TPHg, TPHd, and TPHmo were found within a relatively narrow vertical zone (12 to 16 feet below grade) at and below the ground-water surface in borings ECB-3 and ECB-4, advanced at and near the former gasoline UST pit; at a depth of 8 feet below grade and at the ground-water surface in boring ECB-5, advanced at the former fuel dispenser; and at the ground-water surface in borings ECB-10, ECB-15 through ECB-17, and ECB-19 advanced around the geophysical anomaly at the west-central edge of the site. Eight of 64 soil samples submitted for laboratory analysis variously contained TPHg, TPHd, or TPHmo at concentrations greater than the corresponding ESLs. A few VOC and PAH compounds were detected in several soil samples collected in February 2016, with total xylenes and naphthalene in three samples at levels greater than applicable default ESLs.
- Total petroleum hydrocarbons, VOCs, PAHs, and PCBs were not detected in soil samples collected beneath the oil-changing pit.
- In ground water, high concentrations of TPHg, TPHd, and TPHmo were found in the areas of high soil impact, namely the former UST area, the former fuel dispenser area, and the geophysical anomaly area. Concentrations of the three ranges of petroleum hydrocarbons were substantially greater than the applicable direct exposure ESL. Other than trace to low concentrations of xylenes and tert-butyl alcohol in two water samples, BTEX, MTBE and other fuel oxygenates, and naphthalene were not detected in water samples collected from the 14 borings advanced during the September 2015 investigation. Relatively low levels of BTEX and naphthalene were found in ground water in the geophysical anomaly area during the February 2016 investigation, with benzene in one sample, total xylenes in two samples, and naphthalene in three samples at levels greater than the applicable ESLs. A number of other petroleum-related VOCs, non-chlorinated VOCs, and the chlorinated VOCs *cis*-1,2-dichloroethene and vinyl chloride were sporadically detected at low concentrations. The PAH compounds acenaphthene, phenanthrene, and 1- and 2-methylnaphthalene were detected in some water samples collected during the two investigations, with the relatively higher concentrations found in the vicinity of the geophysical anomaly.
- A number of petroleum-related and a few non-petroleum-related VOCs were detected in soil vapor in the areas of the former USTs and fuel dispenser. Benzene in one soil vapor sample, vinyl chloride in two soil vapor samples, and chloroform in two vapor samples were at concentrations greater than default ESLs for vapor intrusion health risk. A focused human health risk assessment; however, did not find significant cancer or non-cancer risk from vapor intrusion in the former UST and fuel dispenser areas.
- The site appears to meet most of the general criteria of the low-threat UST closure policy in that the site and surrounding area are served by a municipal water supplier and water wells are not nearby the site, the unauthorized release consists of petroleum and has been stopped; no free-phase petroleum product is present on the ground water, and all media samples have been tested for MTBE.

- Secondary source soil is present within a narrow vertical zone at the ground-water surface at the locations of the former USTs and fuel dispenser. The lateral extent of impacted soil in this northeastern portion of the site appears to be restricted to the areas of these former facilities and impacted ground water has not migrated off the site. The depth of the source material (13 to 16 feet below the ground surface) and the absence of health-risk indicator petroleum constituents in either soil or ground water indicate little potential for risks to human health or the environment.
- Secondary source soil is also present in the vicinity of geophysical anomaly located at the west-central edge of the site. The extent of soil and ground-water impact, which has extended off-site a short distance, has been substantially defined within an approximately 40- by 60-foot-square area around boring ECB-15. Although relatively low levels of the health-risk indicator petroleum constituents in soil and ground water are present, the greater than 10-foot depth of this source material also indicates little potential for risks to human health or the environment.
- The site appears to meet the media-specific criteria of the low-threat UST closure policy in that the petroleum hydrocarbon plume is less than 100 feet in length, contains no free-phase product, and is not near water-supply wells or surface water; soil vapor data indicate no vapor intrusion health risk is present; and soil data indicate no direct contact or outdoor air health risks are present.

5.2 Conclusions

Based on the findings of the two subsurface investigations, Essel concludes the following.

- The notable concentrations of TPHg, TPHd, and TPHmo in soil and ground water beneath the site appear to be relatively localized in lateral and vertical extent to the areas of the former UST excavations, the former fuel dispenser, and the geophysical anomaly area at the west-central edge of the site. Although risk to human health or the environment is likely not present, focused remedial actions may be warranted in one or more of these areas to reduce petroleum-hydrocarbon concentrations in the soil and ground water. Remedial alternatives may likely include soil excavation and dewatering of the excavations or in-situ injection of products designed to enhance chemical degradation or biodegradation.
- Soil and ground water beneath the site and off-site to the west and west-northwest appear to be minimally impacted by petroleum-related VOCs and PAHs and non-petroleum VOCs, including in the areas of elevated levels of total petroleum hydrocarbons.
- The soil, ground water, and soil vapor data do not indicate that a significant source or sources of vinyl chloride or tetrachloroethene are present in the subsurface at the site.

Limitations to this investigation are included in Appendix G.

6.0 REFERENCES CITED

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TABLE 1
Concentrations of Organic Compounds in Soil Samples
Properties at 760 22nd Street and 2201 Brush Street, Oakland, California

Location	Date Sampled	Sample Designation	Sample Depth (feet)	Total Petroleum Hydrocarbons			Volatile Organic Compounds										Polynuclear Aromatic Hydrocarbons						PCBs	Metals						
				Gasoline	Diesel	Motor Oil	B	T	E	X	MTBE	Naphth	n-Butyl	s-Butyl	n-Propyl	1,2,4-TMB	1,3,5-TMB	Fluoran	Fluorene	1-Methyl	2-Methyl	Naphth	Phenan	Pyrene	Total	Cd	Cr	Lead	Nickel	Zinc
Underground Storage Tank Removal - 760 22nd Street and Adjacent Sidewalk																														
2K Gasoline UST-north end	Oct-86	S-1	12	70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
2K Gasoline UST-south end	Oct-86	S-3	12	1.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
7K Diesel UST-north end	Oct-86	S-5	12	--	250	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
7K Diesel UST-north end	Oct-86	S-8	13	--	220	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
7K Diesel UST-south end	Oct-86	S-2	12	--	80	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
2005 Subsurface Investigation (PES Environmental, Inc.)																														
B-2	9/8/05	B-2-7.5	7½	<1.0	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
	9/8/05	B-2-12	12	<1.0	1.5	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
B-3	9/8/05	B-3-5.0	5	<1.0	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
	9/8/05	B-3-11.5	11½	1.6	23	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
B-4	9/8/05	B-4-8.0	8	190	230	<1.0	<0.025	<0.025	<0.025	<0.025	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
	9/8/05	B-4-12	12	6.6	23	<1.0	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
B-5	9/8/05	B-5-5.0	5	<1.0	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
	9/8/05	B-5-11.5	11½	<1.0	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
2011 Subsurface Investigation (PES Environmental, Inc.)																														
SB1	10/20/11	SB1-4.0	4	<1.0	<1.0	--	<0.0050	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
	10/20/11	SB1-10.0	10	<1.0	<1.0	--	<0.0050	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
SB2	10/20/11	SB2-2.0	2	<1.0	1.7	--	<0.0050	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
	10/20/11	SB2-4.0	4	<1.0	4.3	--	<0.0050	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
SB3	10/20/11	SB2-8.0	8	<1.0	<1.0	--	<0.0050	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
	10/20/11	SB3-2.0	2	<1.0	3.1	--	<0.0050	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
SB4	10/20/11	SB3-4.0	4	<1.0	<1.0	--	<0.0050	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
	10/20/11	SB3-8.0	8	<1.0	<1.0	--	<0.0050	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
SB5	10/20/11	SB4-2.0	2	<1.0	2.1	--	<0.0050	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
	10/20/11	SB4-4.0	4	<1.0	1.2	--	<0.0050	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
SB6	10/20/11	SB4-8.0	8	<1.0	5.0	--	<0.0050	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
	10/20/11	SB5-2.0	2	<1.0	1.9	--	<0.0050	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
SB7	10/20/11	SB5-4.0	4	<1.0	<1.0	--	<0.0050	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
	10/20/11	SB5-8.0	8	<1.0	<1.0	--	<0.0050	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
SB8	10/20/11	SB6-2.0	2	<1.0	12	--	<0.0050	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
	10/20/11	SB6-4.0	4	<1.0	2.2	--	<0.0050	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
SB9	10/20/11	SB6-8.0	8	<1.0	9.3	--	<0.0050	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
	SFBRWQCB Environmental Screening Level (Residential)																													
Tier 1				100	230	5,100	0.044	2.9	1.4	2.3	0.023	0.023	NA	NA	NA	NA	NA	60	8.9	NA	0.25	0.023	11	85	0.25	39	NA	80	83	23,000
Human Health (direct exposure)				740	230	11,000	0.23	970	5.1	560	42	1.8	NA	NA	NA	NA	NA	2,400	2,400	NA	240	1.8	NA	1,800	0.25	39	NA	80	820	23,000

TABLE 2
Concentrations of Organic Compounds in Ground-Water Samples
Properties at 760 22nd Street and 2201 Brush Street, Oakland, California

Boring Sample Number Date Sampled	PES Environmental, Inc.				Essel Environmental Consulting								MCL	ESL	ESL VI
	B-1	B-2	B-5	B-6	ECB-1	ECB-2	ECB-3	ECB-4	ECB-5	ECB-6	ECB-7	ECB-8			
	B-1	B-2	B-5	B-6	W-ECB1	W-ECB2	W-ECB3	W-ECB4	W-ECB5	W-ECB6	W-ECB7	W-ECB8			
	9/8/05	9/8/05	9/8/05	9/8/05	9/25/15	9/25/15	9/24/15	9/24/15	9/25/15	9/25/15	9/25/15	9/25/15			
Analyte															
Petroleum Hydrocarbons															
TPH-gas	<50	<50	<50	<50	<50	330	710	1,200	430	<50	<50	<50	NA	100	No Value
TPH-diesel	360	3,200	530	170	<50	4,900	24,000	3,100	100	<50	<50	<50	NA	100	No Value
TPH-motor oil	190	<100	490	230	<250	1,700	7,300	780	<250	<250	<250	<250	NA	100	No Value
VOCs															
Benzene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1.0	1.0	30
Toluene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	150	40	10,000
Ethylbenzene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	300	13	370
Xylenes	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.56	<0.50	<0.50	<0.50	1,750	20	38,000
Methyl tertiary butyl ether	0.61	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	13	5.0	15,000
tert-Butyl alcohol	--	--	--	--	3.9	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	NA	12	No Value
Naphthalene	--	--	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA	0.12	180
Acetone	--	--	--	--	92	42	18	<10	12	<10	14	25	NA	1,500	140,000,000
Bromomethane	--	--	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.59	<0.50	NA	7.5	NA
2-Butanone (MEK)	--	--	--	--	11	6.6	<2.0	<2.0	3.6	<2.0	3.8	4.7	NA	5,600	22,000,000
n-Butyl benzene	--	--	--	--	<0.50	<0.50	0.91	1.4	0.92	<0.50	<0.50	<0.50	NA	NA	NA
sec-Butyl benzene	--	--	--	--	<0.50	<0.50	1.4	2.0	1.4	<0.50	<0.50	<0.50	NA	NA	NA
tert-Butyl benzene	--	--	--	--	<0.50	<0.50	<0.50	0.71	<0.50	<0.50	<0.50	<0.50	NA	NA	NA
2-Hexanone	--	--	--	--	2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA	NA	NA
Isopropylbenzene	--	--	--	--	<0.50	<0.50	<0.50	2.0	1.1	<0.50	<0.50	<0.50	NA	NA	NA
4-Isopropyl toluene	--	--	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	--	--	--	--	<0.50	0.78	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA	120	11,000,000
n-Propyl benzene	--	--	--	--	<0.50	<0.50	0.67	1.8	1.3	<0.50	<0.50	<0.50	NA	NA	NA
1,2,4-Trimethylbenzene	--	--	--	--	<0.50	<0.50	<0.50	<0.50	0.62	<0.50	<0.50	<0.50	NA	NA	NA
1,3,5-Trimethylbenzene	--	--	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA	NA	NA
cis-1,2-Dichloroethene	--	--	--	--	<0.50	<0.50	<0.50	1.0	<0.50	<0.50	<0.50	<0.50	6.0	6.0	15,000
Vinyl chloride	--	--	--	--	<0.50	<0.50	<0.50	0.67	<0.50	<0.50	<0.50	<0.50	0.5	0.061	2.0
PAHs															
Acenaphthene	--	--	--	--	--	<0.50	1.9	--	<0.50	--	<0.50	<0.50	NA	20	No Value
1-Methylnaphthalene	--	--	--	--	--	<0.50	<0.50	--	<0.50	--	<0.50	<0.50	NA	NA	NA
2-Methylnaphthalene	--	--	--	--	--	<0.50	<0.50	--	<0.50	--	<0.50	<0.50	NA	2.1	NA
Naphthalene	--	--	--	--	--	<0.50	<0.50	--	<0.50	--	<0.50	<0.50	NA	0.12	180
Phenanthrene	--	--	--	--	--	<0.50	3.3	--	<0.50	--	<0.50	<0.50	NA	4.6	No Value
Polychlorinated Biphenyls															
Aroclors (individual)	--	--	--	--	--	--	--	--	--	--	--	--	NA	NA	NA
Total PCBs	--	--	--	--	--	--	--	--	--	--	--	--	0.50	0.0019	No Value
See Notes on Page 2 of 2.															

TABLE 2
Concentrations of Organic Compounds in Ground-Water Samples
Properties at 760 22nd Street and 2201 Brush Street, Oakland, California

Boring Sample Number Date Sampled	Essel Environmental Consulting												MCL	ESL	ESL VI
	ECB-9	ECB-10	ECB-11	ECB-12	ECB-13	ECB-14	ECB-15	ECB-16	ECB-17	ECB-18	ECB-19	ECB-20			
	W-ECB9 9/25/15	W-ECB10 9/25/15	W-ECB11 9/25/15	W-ECB12 9/25/15	W-ECB13 9/24/15	W-ECB14 9/24/15	W-ECB15 2/16/16	W-ECB16 2/16/16	W-ECB17 2/16/16	W-ECB18 2/16/16	W-ECB19 2/16/16	W-ECB20 2/16/16			
Analyte															
Petroleum Hydrocarbons															
TPH-gas	<50	98	<50	<50	<50	<50	120	850	550	<50	140	<50	NA	100	No Value
TPH-diesel	<50	3,100	<50	<50	<50	56	3,400	870	780	<50	310	<100	NA	100	No Value
TPH-motor oil	<250	17,000	<250	<250	<250	<250	24,000	6,300	4,800	<250	2,000	<500	NA	100	No Value
VOCs															
Benzene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.54	7.2	<1.2	<0.50	<0.50	<0.50	1.0	1.0	30
Toluene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1.3	<5.0	2.4	<0.50	0.58	<0.50	150	40	10,000
Ethylbenzene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	2.1	<0.50	<0.50	<0.50	300	13	370
Xylenes	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	4.6	28	24	<0.50	<0.50	<0.50	1,750	20	38,000
Methyl tertiary butyl ether	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<1.2	<0.50	<0.50	<0.50	13	5.0	15,000
tert-Butyl alcohol	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	3.0	NA	12	No Value
Naphthalene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6.1	25	31	<0.50	<0.50	<0.50	NA	0.12	180
Acetone	27	19	<10	<10	11	<10	<10	<100	<25	<10	<10	<10	NA	1,500	140,000,000
Bromomethane	<0.50	<0.50	0.67	<0.50	<0.50	<0.50	<0.50	<5.0	<1.2	<0.50	<0.50	<0.50	NA	7.5	NA
2-Butanone (MEK)	4.9	4.8	2.6	2.2	2.8	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	NA	5,600	22,000,000
n-Butyl benzene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1.1	<5.0	6.0	<0.50	0.67	<0.50	NA	NA	NA
sec-Butyl benzene	<0.50	0.67	<0.50	<0.50	<0.50	<0.50	0.63	<5.0	3.1	<0.50	1.3	<0.50	NA	NA	NA
tert-Butyl benzene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<1.2	<0.50	<0.50	<0.50	NA	NA	NA
2-Hexanone	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<1.2	<0.50	<0.50	<0.50	NA	NA	NA
Isopropylbenzene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.95	<5.0	4.4	<0.50	0.83	<0.50	NA	NA	NA
4-Isopropyl toluene	<0.50	<0.50	<0.50	0.99	<0.50	<0.50	1.9	7.1	9.2	<0.50	<0.50	<0.50	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	<0.50	0.99	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<1.2	<0.50	<0.50	<0.50	NA	120	11,000,000
n-Propyl benzene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1.3	6.0	7.3	<0.50	0.56	<0.50	NA	NA	NA
1,2,4-Trimethylbenzene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	19	78	96	<0.50	0.69	<0.50	NA	NA	NA
1,3,5-Trimethylbenzene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	2.2	9.9	16	<0.50	<0.50	<0.50	NA	NA	NA
cis-1,2-Dichloroethene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<1.2	<0.50	<0.50	<0.50	6.0	6.0	15,000
Vinyl chloride	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<1.2	<0.50	<0.50	<0.50	0.5	0.061	2.0
PAHs															
Acenaphthene	--	<0.50	--	<0.50	--	--	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	20	No Value
1-Methylnaphthalene	--	0.57	--	<0.50	--	--	15	52	15	<5.0	<5.0	<5.0	NA	NA	NA
2-Methylnaphthalene	--	<0.50	--	<0.50	--	--	19	60	<5.0	<5.0	<5.0	<5.0	NA	2.1	NA
Naphthalene	--	<0.50	--	<0.50	--	--	36	89	38	<5.0	<5.0	<5.0	NA	0.12	180
Phenanthrene	--	<0.50	--	<0.50	--	--	<5.0	6.1	<5.0	<5.0	<5.0	<5.0	NA	4.6	No Value
Polychlorinated Biphenyls															
Aroclors (individual)	--	--	--	--	--	--	<25	<25	--	--	<25	--	NA	NA	NA
Total PCBs	--	--	--	--	--	--	<25	<25	--	--	<25	--	0.50	0.0019	No Value

Results and health-risk screening levels are in micrograms per liter = parts per billion.
Detectable concentrations are shaded gray.
Detectable concentrations that are greater than an applicable health-risk standard are shaded yellow.
TPH = total petroleum hydrocarbons
VOCs = volatile organic compounds
PAHs - polynuclear aromatic hydrocarbons
MCL = California Maximum Contaminant Level taken from California Department of Public Health website, updated September 23, 2015
ESL = Environmental Screening Level
ESL VI = Environmental Screening Level for evaluation of the potential for vapor intrusion at residential properties underlain by mixed fine- and coarse-grained sediment.
< = less than
-- = not analyzed
NA = not available
Environmental screening levels for drinking water and vapor intrusion risk are taken from San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, February 2016.

TABLE 3
Ground-Water Data
Properties at 760 22nd Street and 2201 Brush Street, Oakland, California

Boring	Date	Depth of Boring (feet below ground surface)	Depth to Water (feet below ground surface)	Free Phase Product (feet)
ECB-1	9/25/15	20	16.2	0.0
ECB-2	9/25/15	20	14.24	0.0
ECB-3	9/24/15	20	14.34	0.0
ECB-4	9/24/15	20	14.3	0.0
ECB-5	9/25/15	20	14.61	0.0
ECB-6	9/25/15	20	14.1	0.0
ECB-7	9/25/15	20.8	20.19	0.0
ECB-8	9/25/15	20	17.26	0.0
ECB-9	9/25/15	20	17.95	0.0
ECB-10	9/25/15	20	14.4	0.0
ECB-11	9/25/15	17	14.29	0.0
ECB-12	9/25/15	20	13.69	0.0
ECB-13	9/24/15	20	19.85	0.0
ECB-14	9/24/15	20	12.41	0.0
ECB-15	2/16/16	20	12.97	0.0
ECB-16	2/16/16	20	12.95	0.0
ECB-17	2/16/16	20	12.96	0.0
ECB-18	2/16/16	20	12.99	0.0
ECB-19	2/16/16	20	13.25	0.0
ECB-20	2/16/16	20	12.8	0.0

TABLE 4
Concentrations of Volatile Organic Compounds in Soil-Vapor Samples
Properties at 760 22nd Street and 2201 Brush Street, Oakland, California

Soil Probe	SV-1		SV-2		SV-3	SV-4D	SV-5	SV-6	SV-7	SFBRWQCB Screening Levels	USEPA/DTSC Screening Levels
	Date	10/08/15	02/23/16	10/08/15	03/01/16	02/23/16	03/24/16	02/23/16	03/24/16		
Sample Number	SV-1	SV-1	SV-2	SV-2	SV-3	SV-4D	SV-5	SV-6	SV-7		
Depth of Sample (feet)	9.50	9.50	9.25	9.25	10.75	11.75	9.75	11.75	10.75	Residential	Residential
Analyte											
Benzene	28	<27	<3.7	<23	<26	66	<22	43	<8.2	48	97
Ethylbenzene	39	<36	<5.0	<31	<35	<12	<30	<9.6	<11	560	1,100
Toluene	<8.7	<31	<4.3	<27	<30	<11	<26	47	<9.7	160,000	310,000
m,p-xylene	130	<36	<5.0	<31	<35	15	<31	23	<11	52,000	100,000
o-xylene	68	<36	<5.0	<31	<35	<12	<31	26	<11	52,000	100,000
Methyl tertiary butyl ether	110	<30	<4.1	<26	<29	86	<25	<8.0	<9.3	5,400	11,000
Naphthalene	<24	<330	<12	<290	<320	<30	<270	<23	<27	41	83
Heptane	260	<34	<4.7	<29	<33	37	<28	26	<10	--	--
Hexane	460	<59	<4.0	<50	<57	530	<48	85	<9.1	--	730,000
Cumene (isopropylbenzene)	22	NA	<5.6	NA	NA	<14	NA	<11	<13	--	420,000
Cyclohexane	240	<29	<4.0	<25	<28	800	<23	28	<8.9	--	6,300,000
4-ethyltoluene	240	<41	<5.6	<35	<40	<14	<33	<11	<13	--	--
Propylbenzene	83	NA	<5.6	NA	NA	<14	NA	<11	<13	--	1,000,000
1,3-dichlorobenzene		<50	<4.3	<48	<48	<17	<41	13	<15	--	--
1,2,4-trimethylbenzene	280	<41	<5.6	<35	<40	<14	<33	15	<13	--	7,300
1,3,5-trimethylbenzene	79	<41	<5.6	<35	<40	<14	<33	<11	<13	--	42,000
2,2,4-trimethylpentane	1,400	NA	<5.4	NA	NA	5,400	NA	14	<12	--	--
cis-1,2-dichloroethene	110	<33	<4.6	<28	<32	560	<27	<8.8	<10	4,200	8,300
Tetrachloroethene	<16	<56	150	110	<55	<20	<46	<15	<17	240	480
Trichloroethene	<12	<45	<6.2	<38	<43	<16	<37	<12	<14	340	480
Vinyl chloride	31	<21	<2.9	<18	<21	46	<17	<5.7	<6.6	4.7	10
2-propanol (isopropyl alcohol)	<23	<20	<11	<18	<20	<28	<17	840	5,800	--	--
Carbon disulfide	<29	<26	15	<22	<25	<36	<21	370	56	--	730,000
Chloroform	<11	<41	34	130	<39	<14	<33	<11	420	61	120
Dichlorodifluoromethane (Freon-12)	<11	27J	<5.7	<35	<40	<14	<34	<11	<13	--	100,000
Methyl ethyl ketone (2-butanone)		<24		<21	<24	<34	<20	530	<30	2,600,000	
TPH as gasoline	64,000	20,000	450	<4,100	<4,100	100,000	400,000	11,000	770	50,000	--
Oxygen (percent)	1.6	1.3	14	18	1.4	1.9	11	NA	NA	--	--
Nitrogen (percent)	92	93	81	79	94	93	87	NA	NA	--	--
Methane (percent)	0.013	0.016	<0.00023	<0.00020	0.019	0.068	0.019	NA	NA	--	--
Carbon Dioxide (percent)	6.1	5.8	5.2	3.1	4.7	4.7	2.4	NA	NA	--	--

Results for volatile organic compounds and screening levels and numbers are in micrograms per cubic meter.

Results for TPH as gasoline are in micrograms per cubic meter.

Soil gas numbers for volatile chemicals below buildings constructed with engineered fill below sub-slab gravel.

Detectable concentrations are shaded gray. Concentrations greater than applicable screening levels are shaded yellow.

< = less than the laboratory reporting limit shown.

-- = no value available.

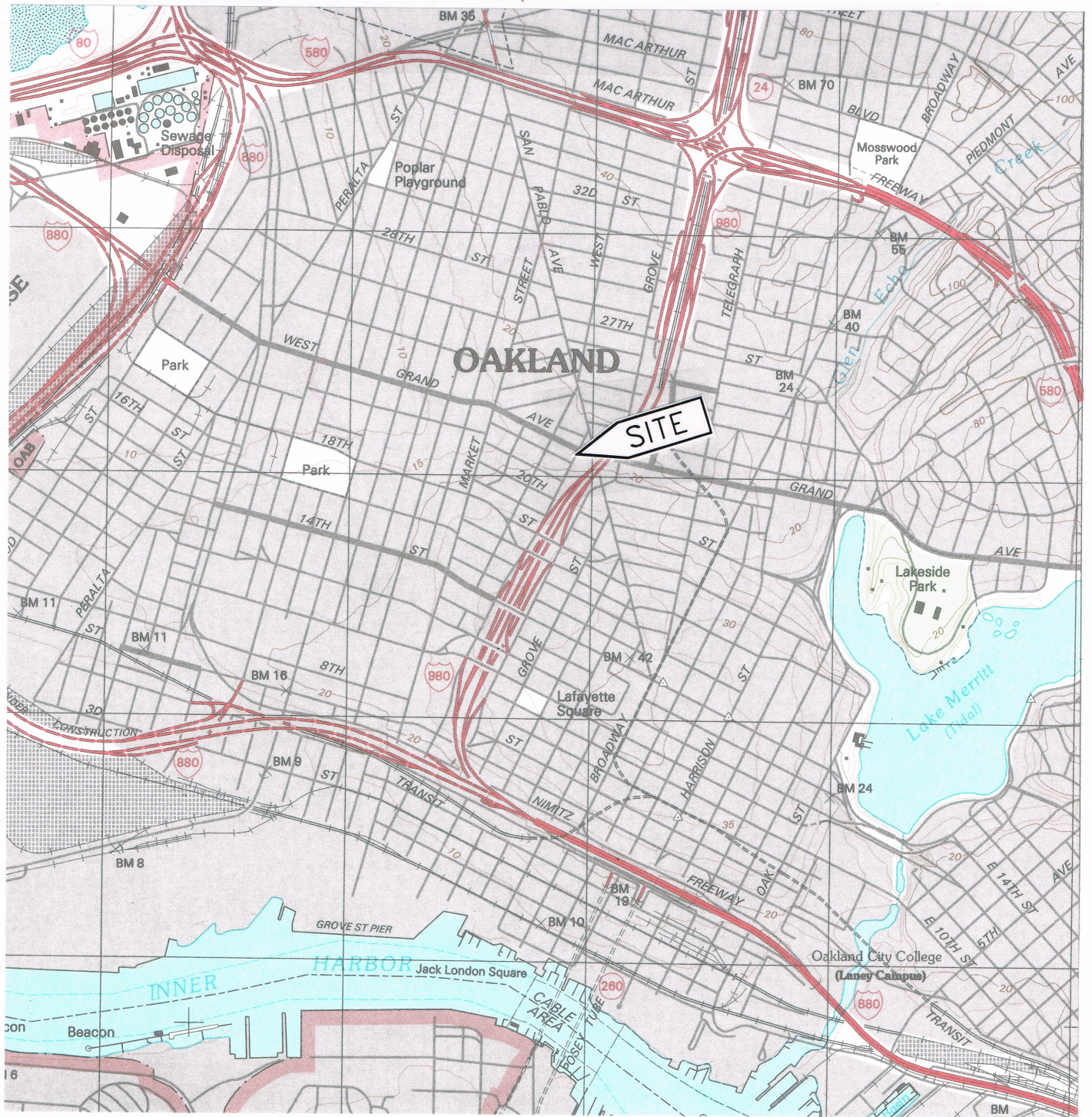
NA = not analyzed.

J = estimated concentration that is less than the practical quantitation limit and equal to or greater than the method detection limit.

TPH = total petroleum hydrocarbons

SFBRWQCB = San Francisco Bay Regional Water Quality Control Board

OEHHA = Office of Environmental Health Hazard Assessment



Scale: 0 2000 feet 4000 feet



Source: USGS 7 1/2-Minute Quadrangle, Oakland West, California 1993



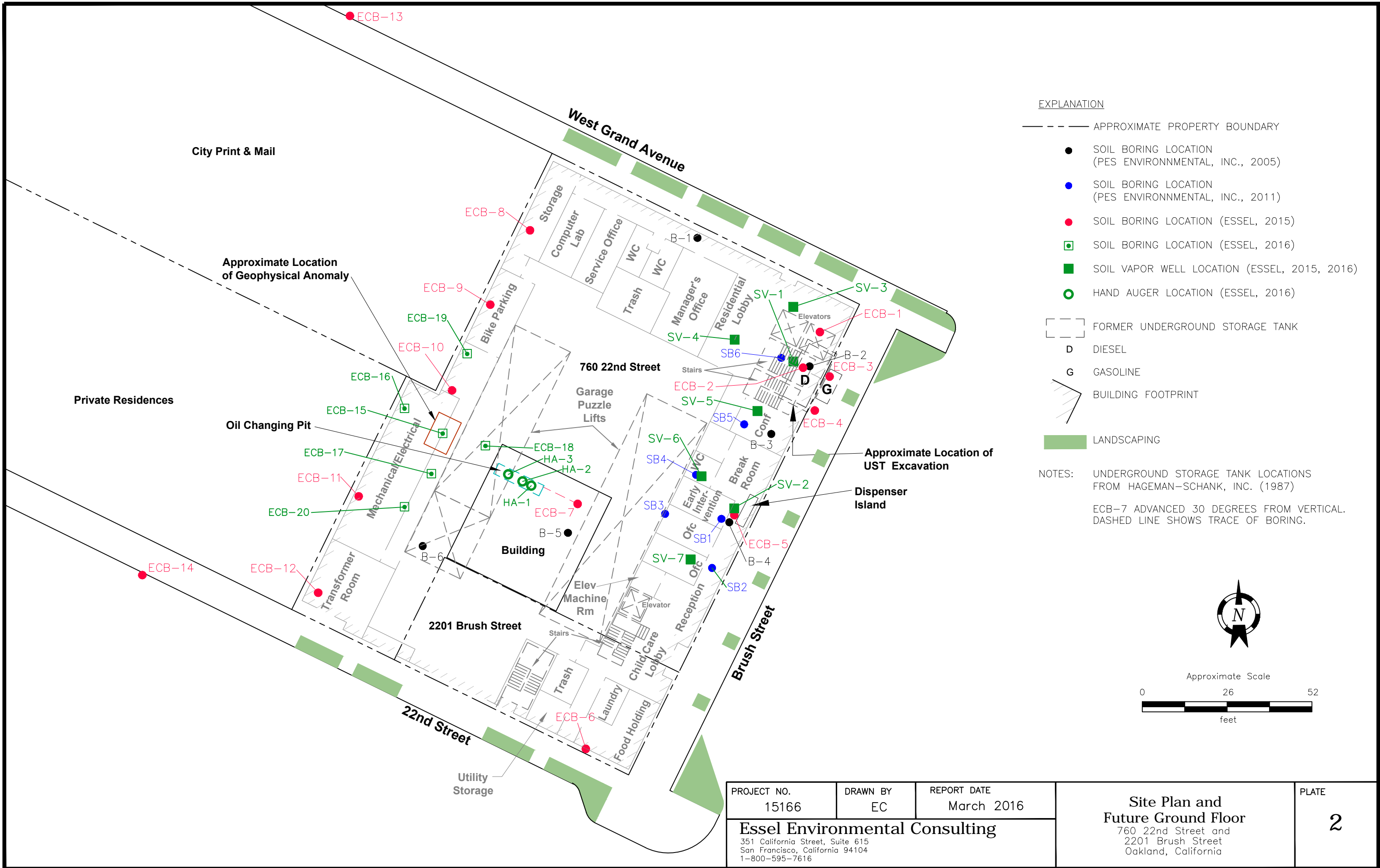
PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616		

Site Vicinity Map

760 22nd Street and
2201 Brush Street
Oakland, California

PLATE

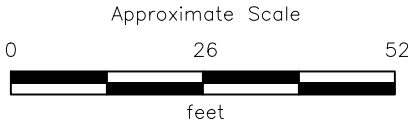
1



EXPLANATION

- APPROXIMATE PROPERTY BOUNDARY
- SOIL BORING LOCATION (PES ENVIRONMENTAL, INC., 2005)
- SOIL BORING LOCATION (PES ENVIRONMENTAL, INC., 2011)
- SOIL BORING LOCATION (ESSEL, 2015)
- SOIL BORING LOCATION (ESSEL, 2016)
- SOIL VAPOR WELL LOCATION (ESSEL, 2015, 2016)
- HAND AUGER LOCATION (ESSEL, 2016)
- FORMER UNDERGROUND STORAGE TANK
- D DIESEL
- G GASOLINE
- ▧ BUILDING FOOTPRINT
- LANDSCAPING

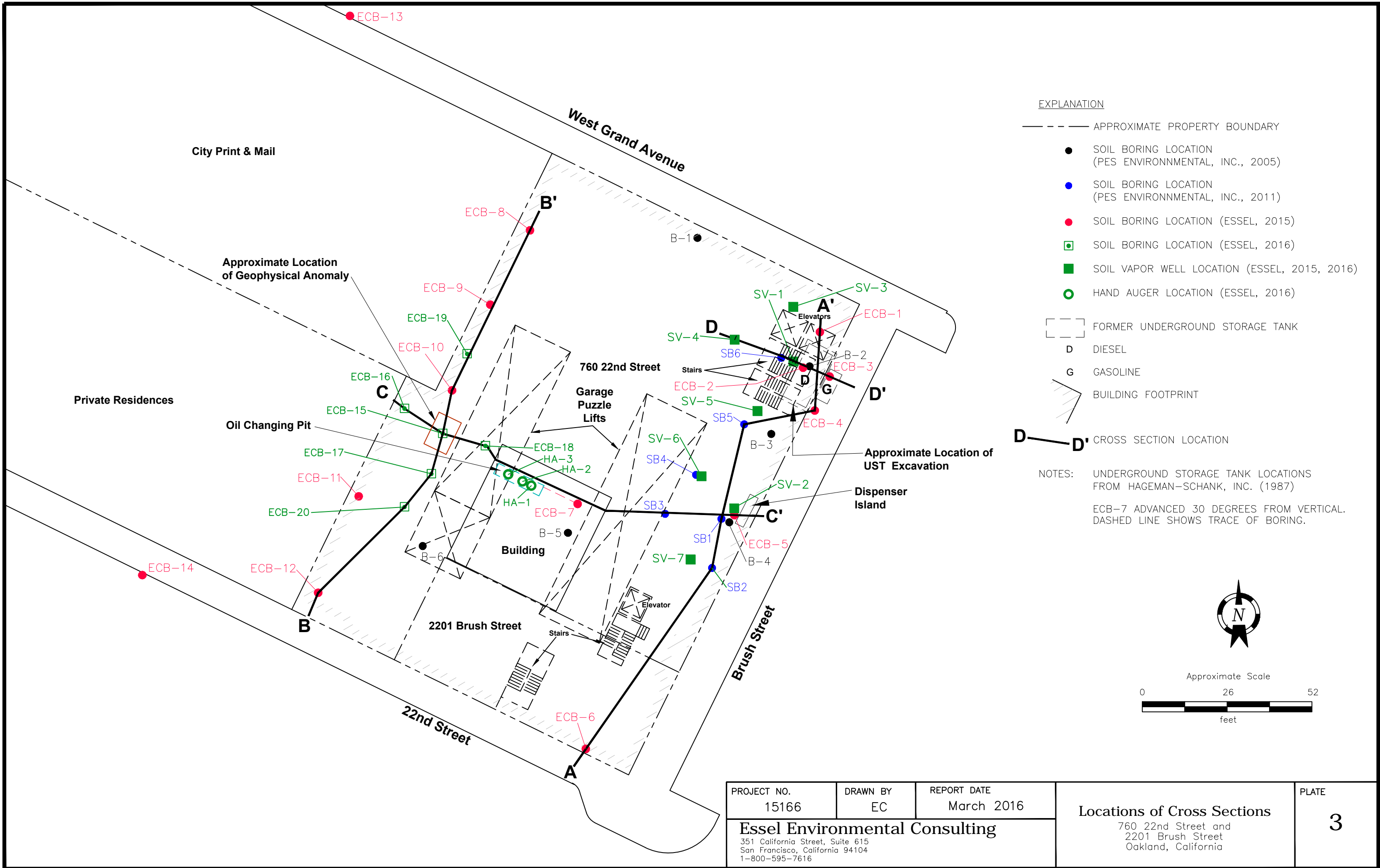
NOTES: UNDERGROUND STORAGE TANK LOCATIONS FROM HAGEMAN-SCHANK, INC. (1987)
 ECB-7 ADVANCED 30 DEGREES FROM VERTICAL. DASHED LINE SHOWS TRACE OF BORING.



PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616		

**Site Plan and
Future Ground Floor**
 760 22nd Street and
 2201 Brush Street
 Oakland, California

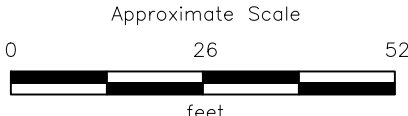
PLATE
2



EXPLANATION

- APPROXIMATE PROPERTY BOUNDARY
- SOIL BORING LOCATION (PES ENVIRONMENTAL, INC., 2005)
- SOIL BORING LOCATION (PES ENVIRONMENTAL, INC., 2011)
- SOIL BORING LOCATION (ESSEL, 2015)
- SOIL BORING LOCATION (ESSEL, 2016)
- SOIL VAPOR WELL LOCATION (ESSEL, 2015, 2016)
- HAND AUGER LOCATION (ESSEL, 2016)
- FORMER UNDERGROUND STORAGE TANK
- D DIESEL
- G GASOLINE
- ▭ BUILDING FOOTPRINT
- D—D' CROSS SECTION LOCATION

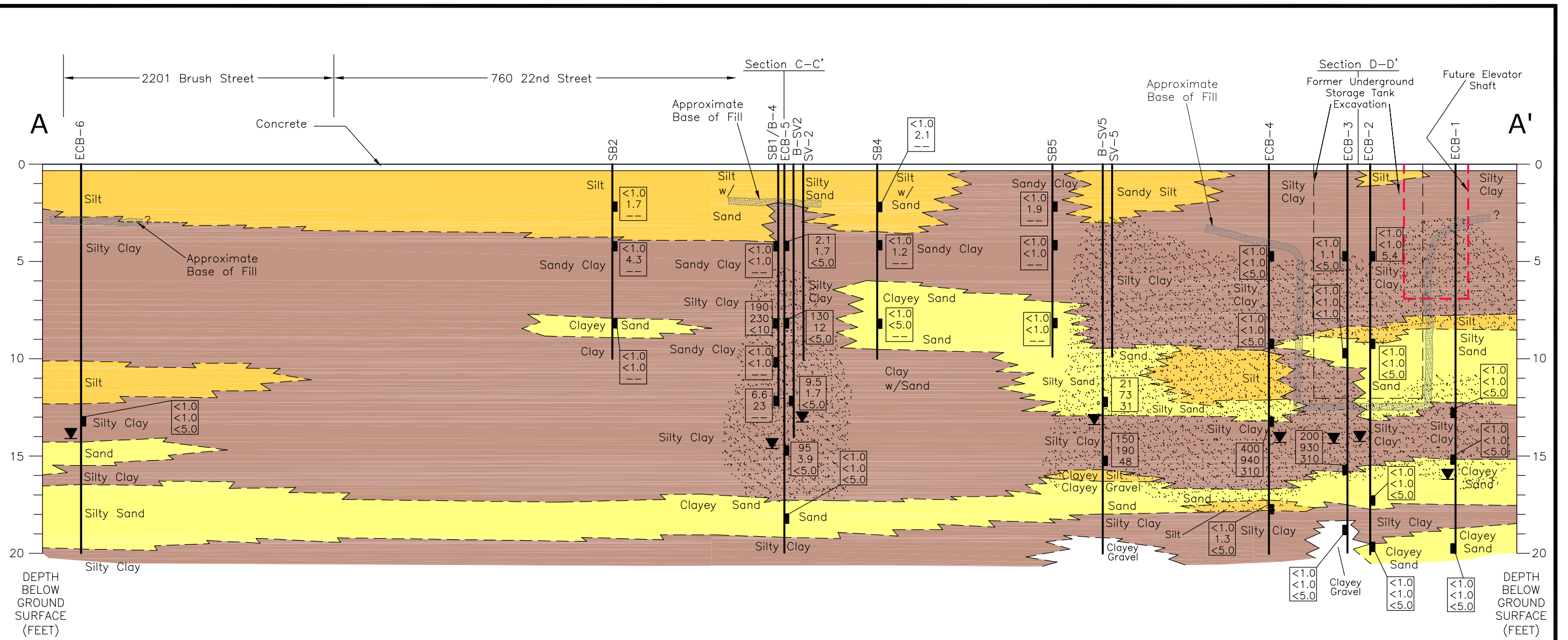
NOTES:
 UNDERGROUND STORAGE TANK LOCATIONS FROM HAGEMAN-SCHANK, INC. (1987)
 ECB-7 ADVANCED 30 DEGREES FROM VERTICAL. DASHED LINE SHOWS TRACE OF BORING.



PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016
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Locations of Cross Sections
 760 22nd Street and
 2201 Brush Street
 Oakland, California

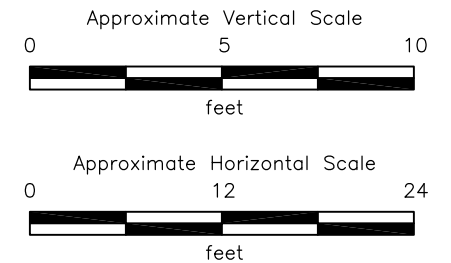
PLATE
3



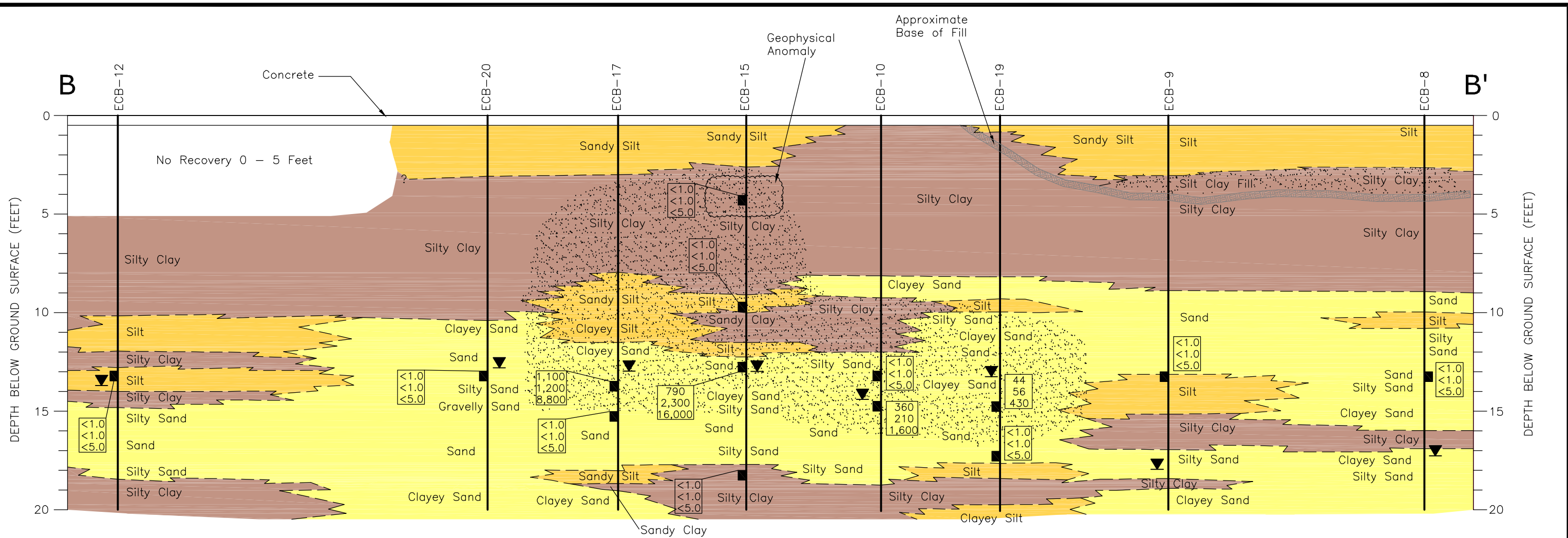
EXPLANATION

- SAMPLE LOCATION
- ▼ WATER LEVEL
- 400 TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
- 940 TOTAL PETROLEUM HYDROCARBONS AS DIESEL
- 310 TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL
- TOTAL PETROLEUM HYDROCARBON CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM
- < LESS THAN
- NOT ANALYZED
- DISCOLORED SOIL

SEE PLATE 3 FOR LOCATION OF CROSS SECTION



PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	Cross Section A - A' 760 22nd Street and 2201 Brush Street Oakland, California	PLATE 4
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616				



EXPLANATION

■ SAMPLE LOCATION

▼ WATER LEVEL

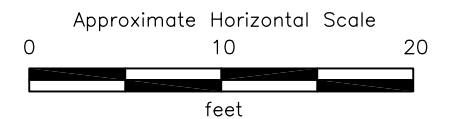
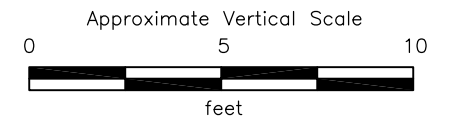
790	TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
2,300	TOTAL PETROLEUM HYDROCARBONS AS DIESEL
16,000	TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL

 TOTAL PETROLEUM HYDROCARBON CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM

< LESS THAN

 DISCOLORED SOIL

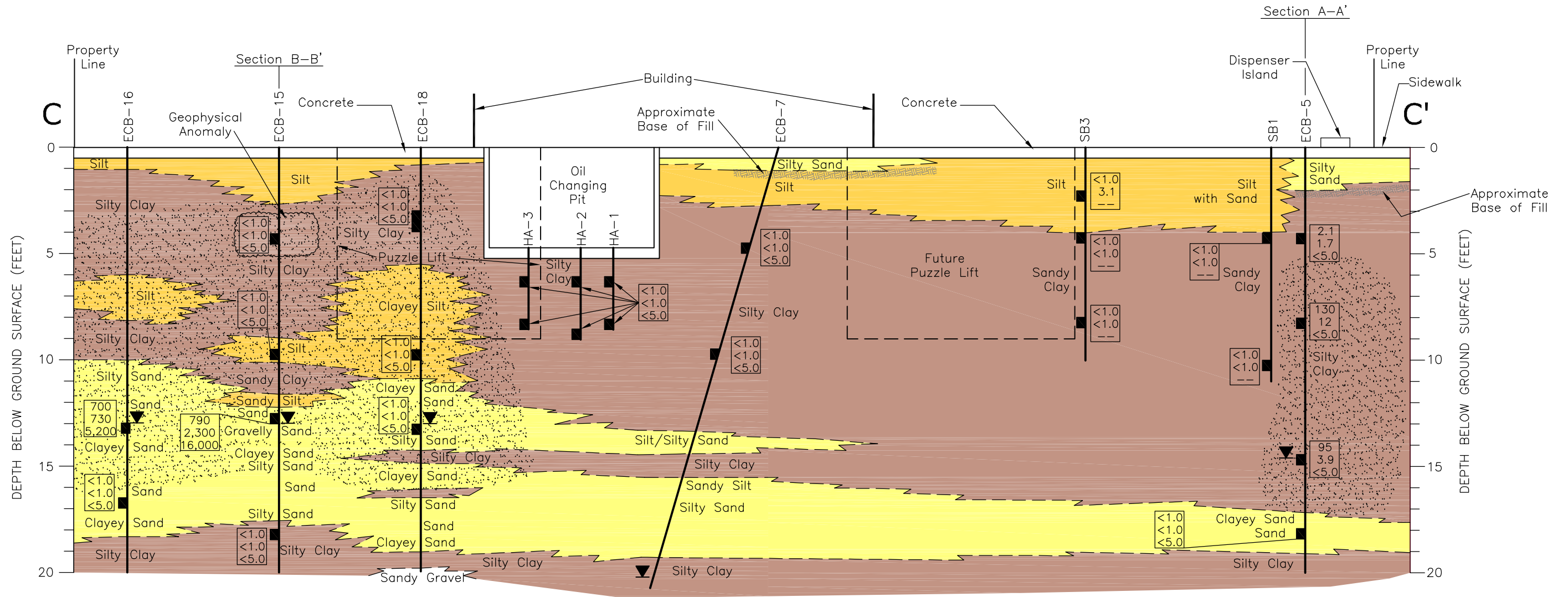
SEE PLATE 3 FOR LOCATION OF CROSS SECTION



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Cross Section B - B'
760 22nd Street and
2201 Brush Street
Oakland, California

PLATE
5



EXPLANATION

■ SAMPLE LOCATION

▼ WATER LEVEL

790 TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
 2,300 TOTAL PETROLEUM HYDROCARBONS AS DIESEL
 16,000 TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL

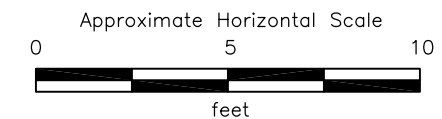
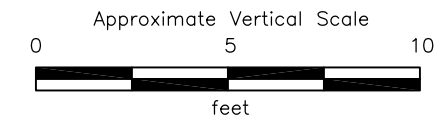
TOTAL PETROLEUM HYDROCARBON CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM

< LESS THAN

-- NOT ANALYZED

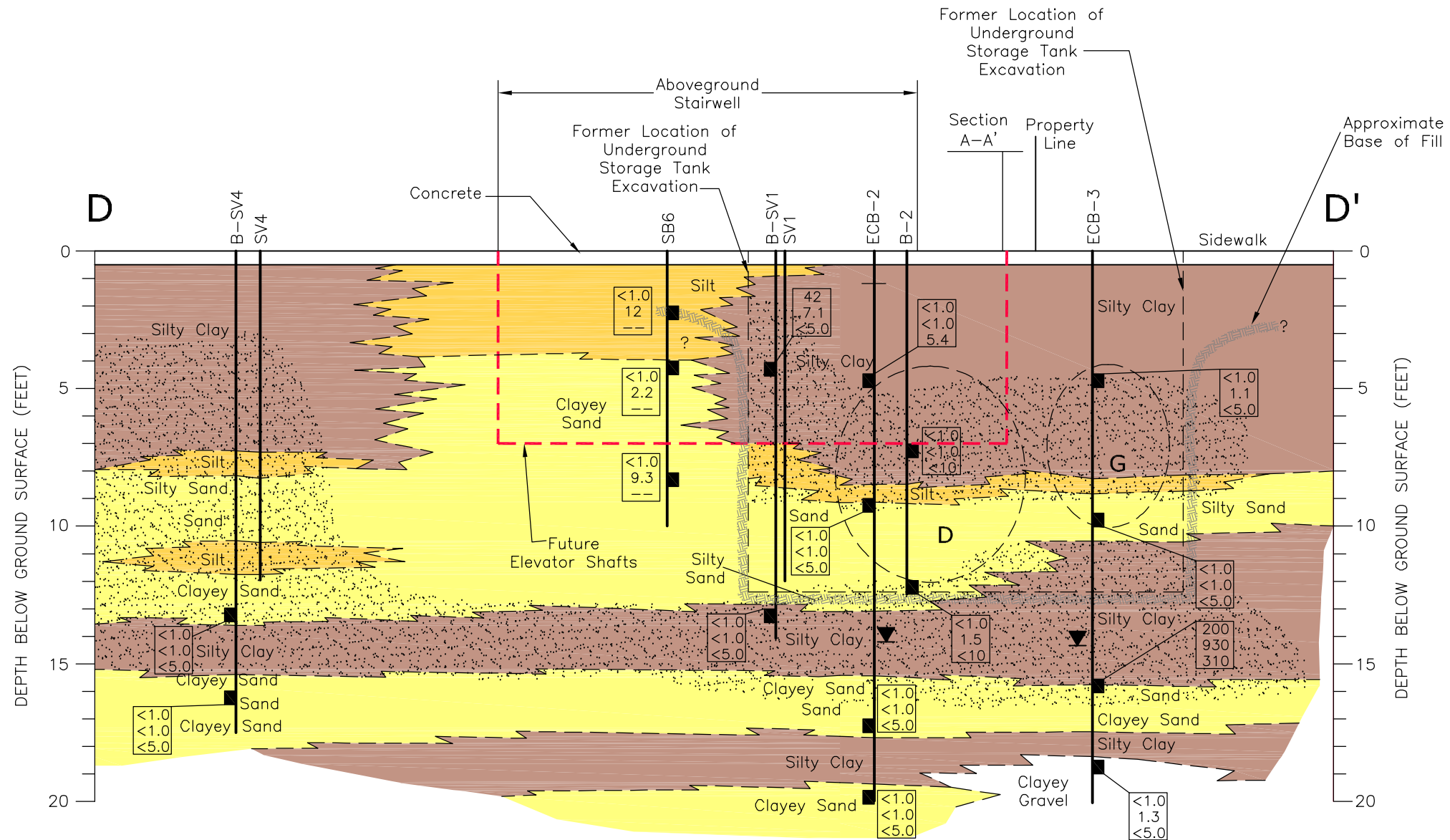
DISCOLORED SOIL

SEE PLATE 3 FOR LOCATION OF CROSS SECTION



PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016
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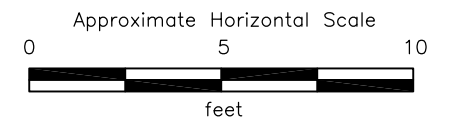
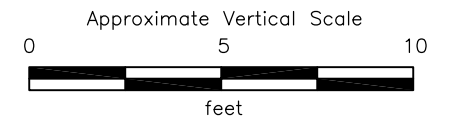
Cross Section C - C' 760 22nd Street and 2201 Brush Street Oakland, California	PLATE 6
--	-------------------



EXPLANATION

- SAMPLE LOCATION
- ▼ WATER LEVEL
- 200 TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
- 930 TOTAL PETROLEUM HYDROCARBONS AS DIESEL
- 310 TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL
- TOTAL PETROLEUM HYDROCARBON CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM
- D 7,000-GALLON DIESEL UST (ESTIMATED FORMER LOCATION)
- G 2,000-GALLON GASOLINE UST (ESTIMATED FORMER LOCATION)
- < LESS THAN
- NOT ANALYZED

SEE PLATE 3 FOR LOCATION OF CROSS SECTION

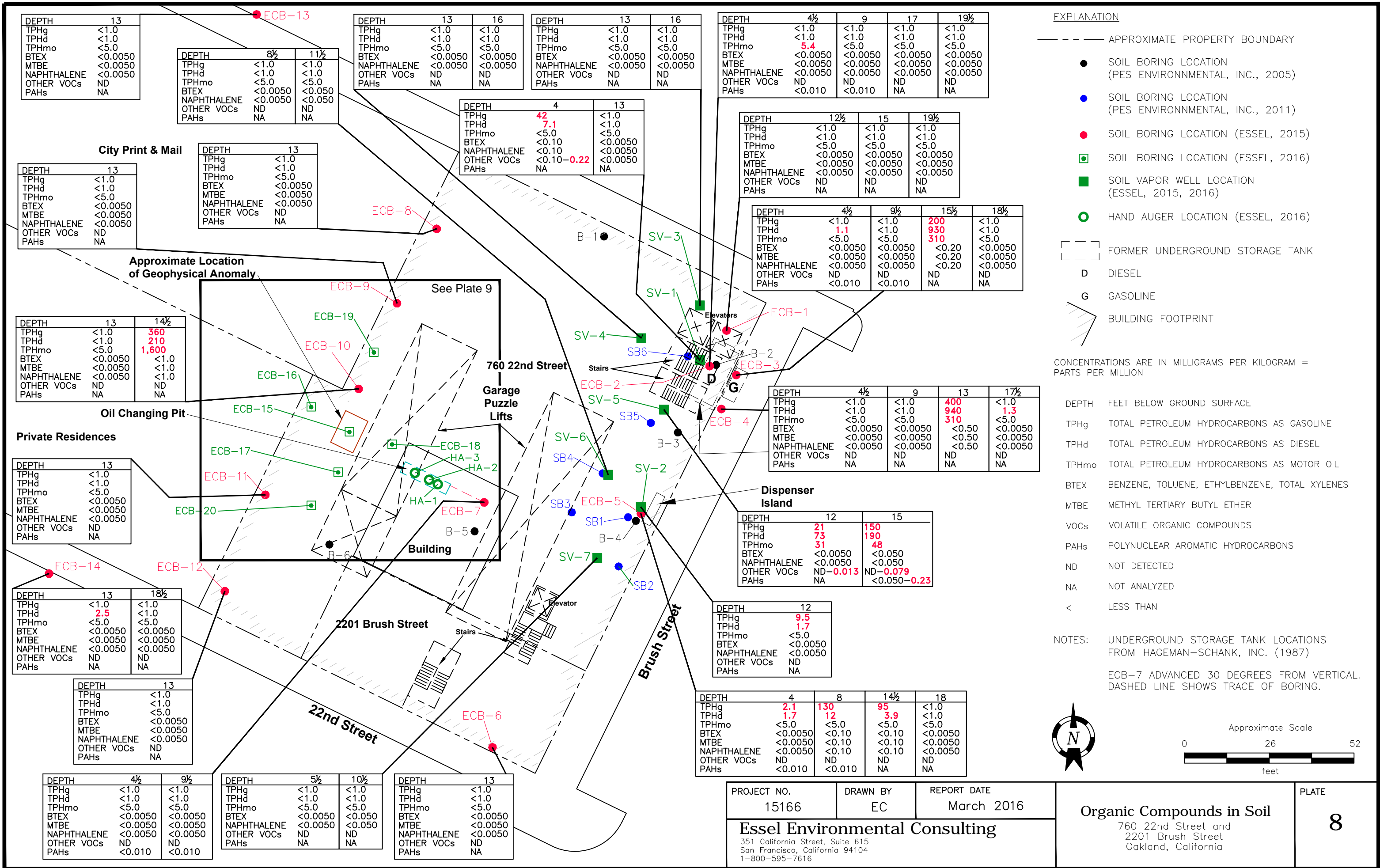


PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016
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Cross Section D - D'
760 22nd Street and
2201 Brush Street
Oakland, California

PLATE

7



DEPTH	13
TPHg	<1.0
TPHd	<1.0
TPHmo	<5.0
BTEX	<0.0050
MTBE	<0.0050
NAPHTHALENE	<0.0050
OTHER VOCs	ND
PAHs	NA

DEPTH	8½	11½
TPHg	<1.0	<1.0
TPHd	<1.0	<1.0
TPHmo	<5.0	<5.0
BTEX	<0.0050	<0.0050
NAPHTHALENE	<0.0050	<0.0050
OTHER VOCs	ND	ND
PAHs	NA	NA

DEPTH	13	16
TPHg	<1.0	<1.0
TPHd	<1.0	<1.0
TPHmo	<5.0	<5.0
BTEX	<0.0050	<0.0050
NAPHTHALENE	<0.0050	<0.0050
OTHER VOCs	ND	ND
PAHs	NA	NA

DEPTH	13	16
TPHg	<1.0	<1.0
TPHd	<1.0	<1.0
TPHmo	<5.0	<5.0
BTEX	<0.0050	<0.0050
NAPHTHALENE	<0.0050	<0.0050
OTHER VOCs	ND	ND
PAHs	NA	NA

DEPTH	4½	9	17	19½
TPHg	<1.0	<1.0	<1.0	<1.0
TPHd	<1.0	<1.0	<1.0	<1.0
TPHmo	5.4	<5.0	<5.0	<5.0
BTEX	<0.0050	<0.0050	<0.0050	<0.0050
MTBE	<0.0050	<0.0050	<0.0050	<0.0050
NAPHTHALENE	<0.0050	<0.0050	<0.0050	<0.0050
OTHER VOCs	ND	ND	ND	ND
PAHs	<0.010	<0.010	NA	NA

DEPTH	13
TPHg	<1.0
TPHd	<1.0
TPHmo	<5.0
BTEX	<0.0050
MTBE	<0.0050
NAPHTHALENE	<0.0050
OTHER VOCs	ND
PAHs	NA

DEPTH	13
TPHg	<1.0
TPHd	<1.0
TPHmo	<5.0
BTEX	<0.0050
MTBE	<0.0050
NAPHTHALENE	<0.0050
OTHER VOCs	ND
PAHs	NA

DEPTH	4	13
TPHg	42	<1.0
TPHd	7.1	<1.0
TPHmo	<5.0	<5.0
BTEX	<0.10	<0.0050
NAPHTHALENE	<0.10	<0.0050
OTHER VOCs	<0.10-0.22	<0.0050
PAHs	NA	NA

DEPTH	12½	15	19½
TPHg	<1.0	<1.0	<1.0
TPHd	<1.0	<1.0	<1.0
TPHmo	<5.0	<5.0	<5.0
BTEX	<0.0050	<0.0050	<0.0050
MTBE	<0.0050	<0.0050	<0.0050
NAPHTHALENE	<0.0050	<0.0050	<0.0050
OTHER VOCs	ND	ND	ND
PAHs	NA	NA	NA

DEPTH	4½	9½	15½	18½
TPHg	<1.0	<1.0	200	<1.0
TPHd	1.1	<1.0	930	<1.0
TPHmo	<5.0	<5.0	310	<5.0
BTEX	<0.0050	<0.0050	<0.20	<0.0050
MTBE	<0.0050	<0.0050	<0.20	<0.0050
NAPHTHALENE	<0.0050	<0.0050	<0.20	<0.0050
OTHER VOCs	ND	ND	ND	ND
PAHs	<0.010	<0.010	NA	NA

DEPTH	13	14½
TPHg	<1.0	360
TPHd	<1.0	210
TPHmo	<5.0	1,600
BTEX	<0.0050	<1.0
MTBE	<0.0050	<1.0
NAPHTHALENE	<0.0050	<1.0
OTHER VOCs	ND	ND
PAHs	NA	NA

DEPTH	4½	9	13	17½
TPHg	<1.0	<1.0	400	<1.0
TPHd	<1.0	<1.0	940	1.3
TPHmo	<5.0	<5.0	310	<5.0
BTEX	<0.0050	<0.0050	<0.50	<0.0050
MTBE	<0.0050	<0.0050	<0.50	<0.0050
NAPHTHALENE	<0.0050	<0.0050	<0.50	<0.0050
OTHER VOCs	ND	ND	ND	ND
PAHs	NA	NA	NA	NA

DEPTH	13
TPHg	<1.0
TPHd	<1.0
TPHmo	<5.0
BTEX	<0.0050
MTBE	<0.0050
NAPHTHALENE	<0.0050
OTHER VOCs	ND
PAHs	NA

DEPTH	12	15
TPHg	21	150
TPHd	73	190
TPHmo	31	48
BTEX	<0.0050	<0.050
NAPHTHALENE	<0.0050	<0.050
OTHER VOCs	ND-0.013	ND-0.079
PAHs	NA	<0.050-0.23

DEPTH	13	18½
TPHg	<1.0	<1.0
TPHd	2.5	<1.0
TPHmo	<5.0	<5.0
BTEX	<0.0050	<0.0050
MTBE	<0.0050	<0.0050
NAPHTHALENE	<0.0050	<0.0050
OTHER VOCs	ND	ND
PAHs	NA	NA

DEPTH	12
TPHg	9.5
TPHd	1.7
TPHmo	<5.0
BTEX	<0.0050
NAPHTHALENE	<0.0050
OTHER VOCs	ND
PAHs	NA

DEPTH	13
TPHg	<1.0
TPHd	<1.0
TPHmo	<5.0
BTEX	<0.0050
MTBE	<0.0050
NAPHTHALENE	<0.0050
OTHER VOCs	ND
PAHs	NA

DEPTH	4	8	14½	18
TPHg	2.1	130	95	<1.0
TPHd	1.7	12	3.9	<1.0
TPHmo	<5.0	<5.0	<5.0	<5.0
BTEX	<0.0050	<0.10	<0.10	<0.0050
MTBE	<0.0050	<0.10	<0.10	<0.0050
NAPHTHALENE	<0.0050	<0.10	<0.10	<0.0050
OTHER VOCs	ND	ND	ND	ND
PAHs	<0.010	<0.010	NA	NA

DEPTH	4½	9½
TPHg	<1.0	<1.0
TPHd	<1.0	<1.0
TPHmo	<5.0	<5.0
BTEX	<0.0050	<0.0050
MTBE	<0.0050	<0.0050
NAPHTHALENE	<0.0050	<0.0050
OTHER VOCs	ND	ND
PAHs	<0.010	<0.010

DEPTH	5½	10½
TPHg	<1.0	<1.0
TPHd	<1.0	<1.0
TPHmo	<5.0	<5.0
BTEX	<0.0050	<0.050
NAPHTHALENE	<0.0050	<0.050
OTHER VOCs	ND	ND
PAHs	NA	NA

DEPTH	13
TPHg	<1.0
TPHd	<1.0
TPHmo	<5.0
BTEX	<0.0050
MTBE	<0.0050
NAPHTHALENE	<0.0050
OTHER VOCs	ND
PAHs	NA

DEPTH	14½	17
TPHg	44	<1.0
TPHd	56	<1.0
TPHmo	430	<5.0
BTEX	<0.0050	<0.0050
NAPHTHALENE	<0.0050	<0.0050
OTHER VOCs	ND	ND-0.067
PAHs	<0.010	NA

DEPTH	13
TPHg	<1.0
TPHd	<1.0
TPHmo	<5.0
BTEX	<0.0050
NAPHTHALENE	<0.0050
OTHER VOCs	ND
PAHs	NA

DEPTH	13	14½
TPHg	<1.0	360
TPHd	<1.0	210
TPHmo	<5.0	1,600
BTEX	<0.0050	<1.0
NAPHTHALENE	<0.0050	<1.0
OTHER VOCs	ND	ND
PAHs	NA	NA

DEPTH	13	16½
TPHg	700	<1.0
TPHd	730	<1.0
TPHmo	5,200	<5.0
BTEX	<1.0-2.6	<0.0050
NAPHTHALENE	7.6	<0.0050
OTHER VOCs	<1.0-7.4	<0.0050
PAHs	<0.010	NA

DEPTH	4	9½	12½	18
TPHg	<1.0	<1.0	790	<1.0
TPHd	<1.0	<1.0	2,300	<1.0
TPHmo	<5.0	<5.0	16,000	<5.0
BTEX	<0.0050	<0.0050	<1.0-2.5	<0.0050
NAPHTHALENE	<0.0050	<0.0050	15	<0.0050
OTHER VOCs	<0.0050	<0.0050	<1.0-18	<0.0050
PAHs	<0.010	<0.010	<0.05-2.8	NA

DEPTH	13
TPHg	<1.0
TPHd	<1.0
TPHmo	<5.0
BTEX	<0.0050
NAPHTHALENE	<0.0050
OTHER VOCs	ND
PAHs	NA

DEPTH	13
TPHg	<1.0
TPHd	<1.0
TPHmo	<5.0
BTEX	<0.0050
NAPHTHALENE	<0.0050
OTHER VOCs	ND
PAHs	NA

DEPTH	13½	15
TPHg	1,100	<1.0
TPHd	1,200	<1.0
TPHmo	8,800	<5.0
BTEX	<1.0-1.5	<0.0050
NAPHTHALENE	4.9	<0.0050
OTHER VOCs	1.5-13	ND
PAHs	NA	NA

DEPTH	3	9½	13
TPHg	<1.0	<1.0	<1.0
TPHd	<1.0	<1.0	<1.0
TPHmo	<5.0	<5.0	<5.0
BTEX	<0.0050	<0.0050	<0.0050
NAPHTHALENE	<0.0050	<0.0050	<0.0050
OTHER VOCs	<0.0050	<0.0050	<0.0050
PAHs	NA	NA	NA

EXPLANATION

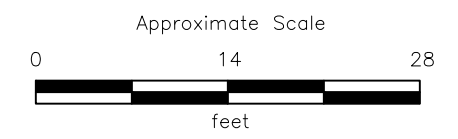
- APPROXIMATE PROPERTY BOUNDARY
- SOIL BORING LOCATION (PES ENVIRONMENTAL, INC., 2005)
- SOIL BORING LOCATION (PES ENVIRONMENTAL, INC., 2011)
- SOIL BORING LOCATION (ESSEL, 2015)
- SOIL BORING LOCATION (ESSEL, 2016)
- SOIL VAPOR WELL LOCATION (ESSEL, 2015, 2016)
- HAND AUGER LOCATION (ESSEL, 2016)
- FORMER UNDERGROUND STORAGE TANK
- D DIESEL
- G GASOLINE
- ▧ BUILDING FOOTPRINT

CONCENTRATIONS ARE IN MILLIGRAMS PER KILOGRAM = PARTS PER MILLION

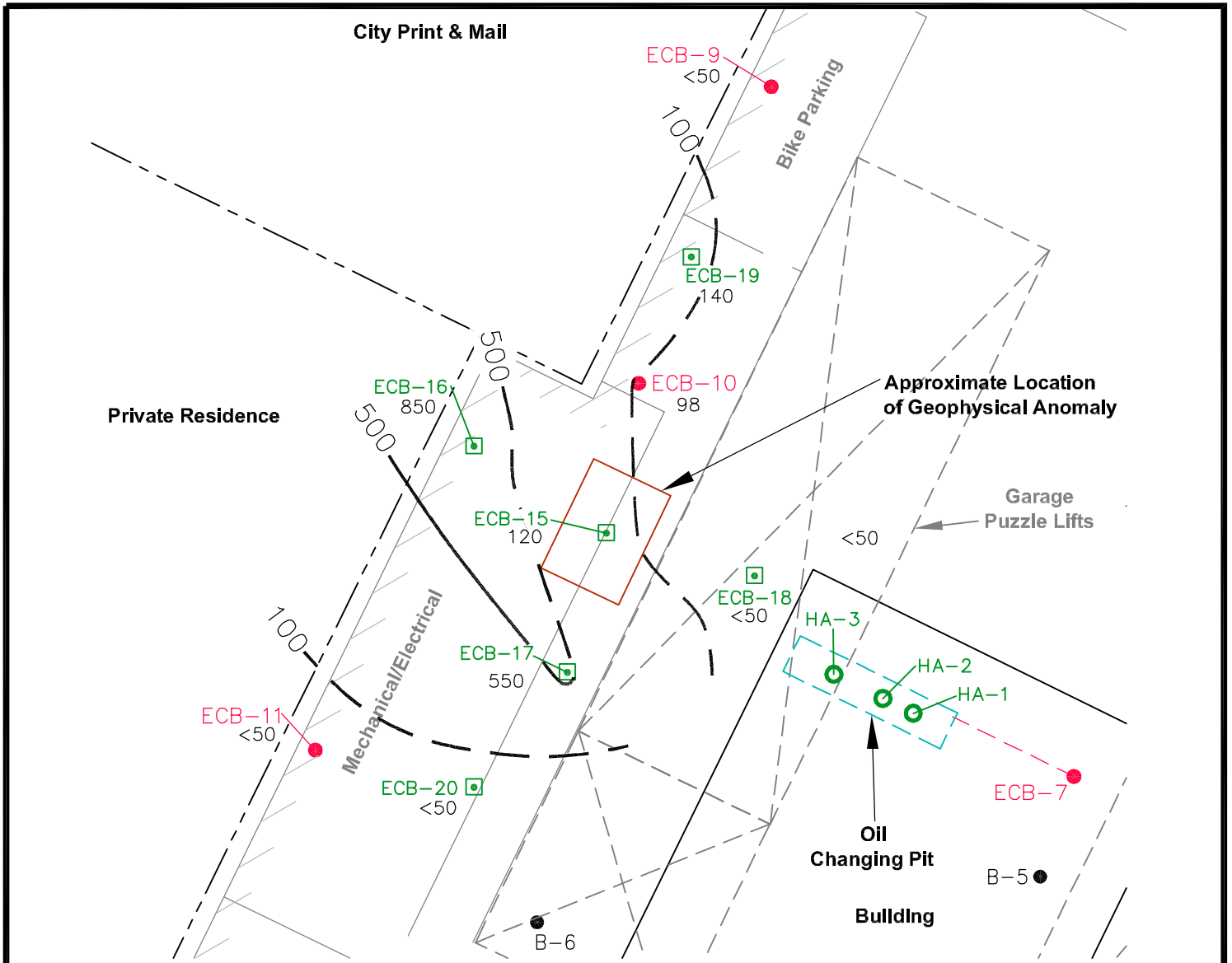
- DEPTH FEET BELOW GROUND SURFACE
- TPHg TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
- TPHd TOTAL PETROLEUM HYDROCARBONS AS DIESEL
- TPHmo TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL
- BTEX BENZENE, TOLUENE, ETHYLBENZENE, TOTAL XYLENES
- VOCs VOLATILE ORGANIC COMPOUNDS
- PAHs POLYNUCLEAR AROMATIC HYDROCARBONS
- ND NOT DETECTED
- NA NOT ANALYZED
- < LESS THAN

NOTES: UNDERGROUND STORAGE TANK LOCATIONS FROM HAGEMAN-SCHANK, INC. (1987)

ECB-7 ADVANCED 30 DEGREES FROM VERTICAL. DASHED LINE SHOWS TRACE OF BORING.

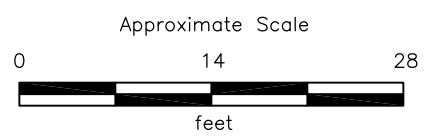


PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	Organic Compounds in Soil Geophysical Anomaly Area 760 22nd Street and 2201 Brush Street Oakland, California	PLATE 9
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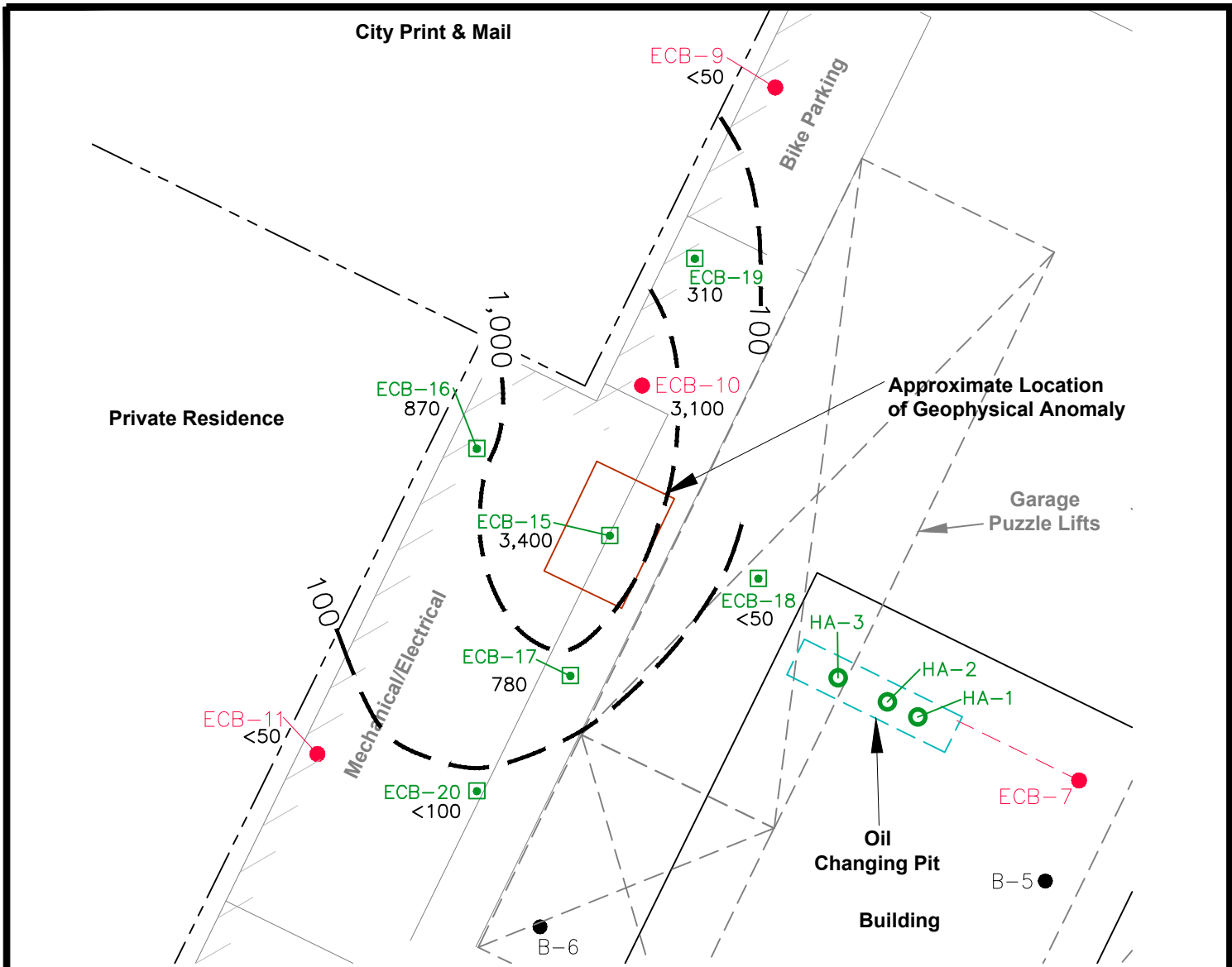


EXPLANATION

- APPROXIMATE PROPERTY BOUNDARY
- SOIL BORING LOCATION (PES ENVIRONMENTAL, INC., 2005)
- SOIL BORING LOCATION (ESSEL, 2015)
- SOIL BORING LOCATION (ESSEL, 2016)
- HAND AUGER LOCATION (ESSEL, 2016)
- ▨ BUILDING FOOTPRINT
- 500 — LINE OF EQUAL CONCENTRATION IN MICROGRAMS PER LITER = PARTS PER BILLION
- 850 CONCENTRATION IN MICROGRAMS PER LITER = PARTS PER BILLION
- < LESS THAN
- TPHg TOTAL PETROLEUM HYDROCARBONS AS GASOLINE

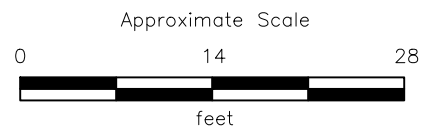


PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	TPHg in Ground Water Geophysical Anomaly Area 760 22nd Street and 2201 Brush Street Oakland, California	PLATE
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616				10

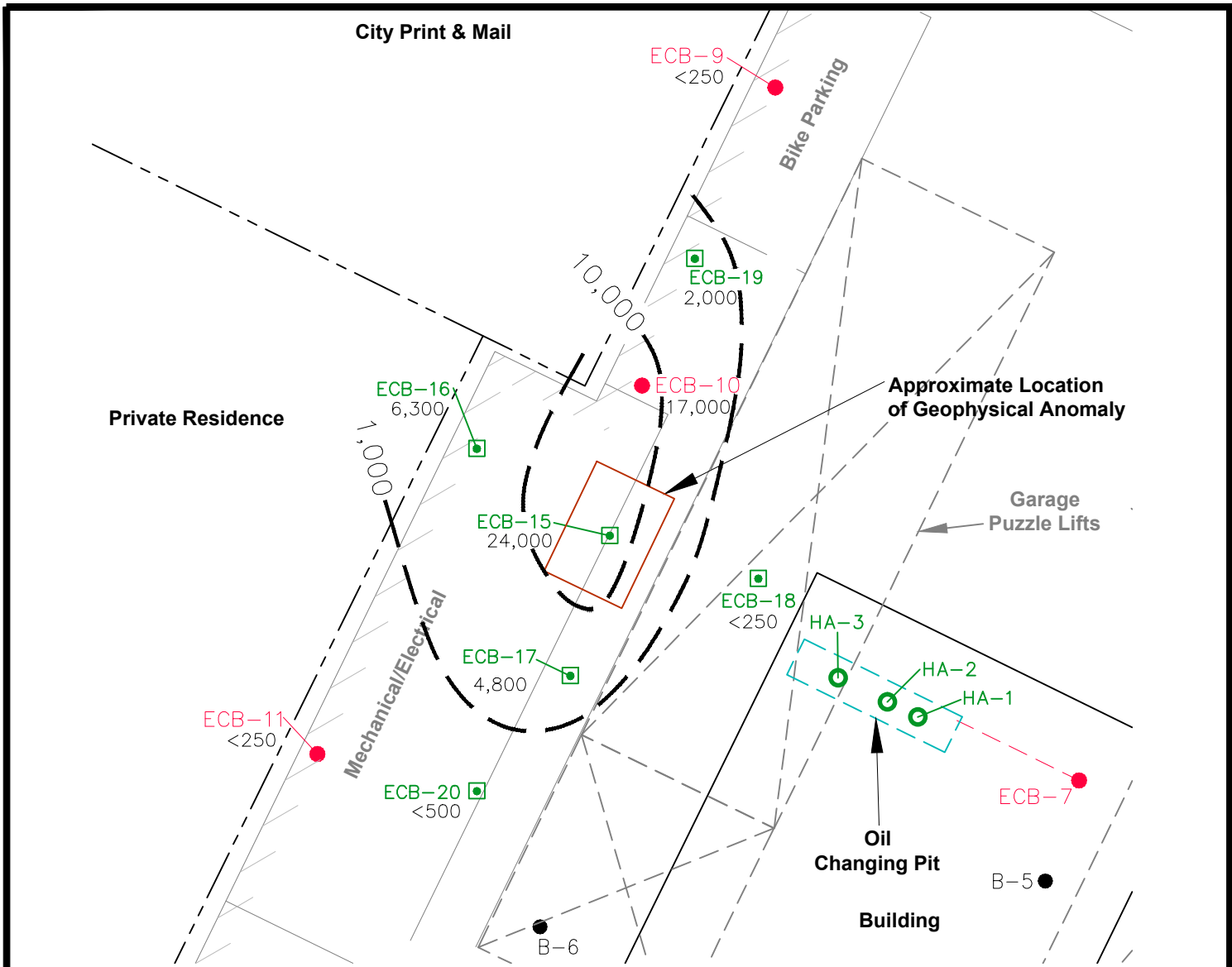


EXPLANATION

- APPROXIMATE PROPERTY BOUNDARY
- SOIL BORING LOCATION (PES ENVIRONMENTAL, INC., 2005)
- SOIL BORING LOCATION (ESSEL, 2015)
- SOIL BORING LOCATION (ESSEL, 2016)
- HAND AUGER LOCATION (ESSEL, 2016)
- ▭ BUILDING FOOTPRINT
- 1,000 — LINE OF EQUAL CONCENTRATION IN MICROGRAMS PER LITER = PARTS PER BILLION
- 3,400 CONCENTRATION IN MICROGRAMS PER LITER = PARTS PER BILLION
- < LESS THAN
- TPHd TOTAL PETROLEUM HYDROCARBONS AS DIESEL

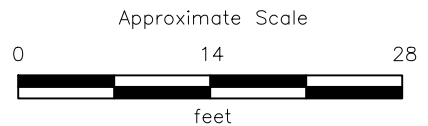


PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	TPHd in Ground Water Geophysical Anomaly Area 760 22nd Street and 2201 Brush Street Oakland, California	PLATE
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616				11



EXPLANATION

- APPROXIMATE PROPERTY BOUNDARY
- SOIL BORING LOCATION (PES ENVIRONMENTAL, INC., 2005)
- SOIL BORING LOCATION (ESSEL, 2015)
- SOIL BORING LOCATION (ESSEL, 2016)
- HAND AUGER LOCATION (ESSEL, 2016)
- ▭ BUILDING FOOTPRINT
- 10,000 — LINE OF EQUAL CONCENTRATION IN MICROGRAMS PER LITER = PARTS PER BILLION
- 24,000 CONCENTRATION IN MICROGRAMS PER LITER = PARTS PER BILLION
- < LESS THAN
- TPHmo TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL



PROJECT NO.
15166

DRAWN BY
EC

REPORT DATE
March 2016

**TPHmo in Ground Water
Geophysical Anomaly Area**

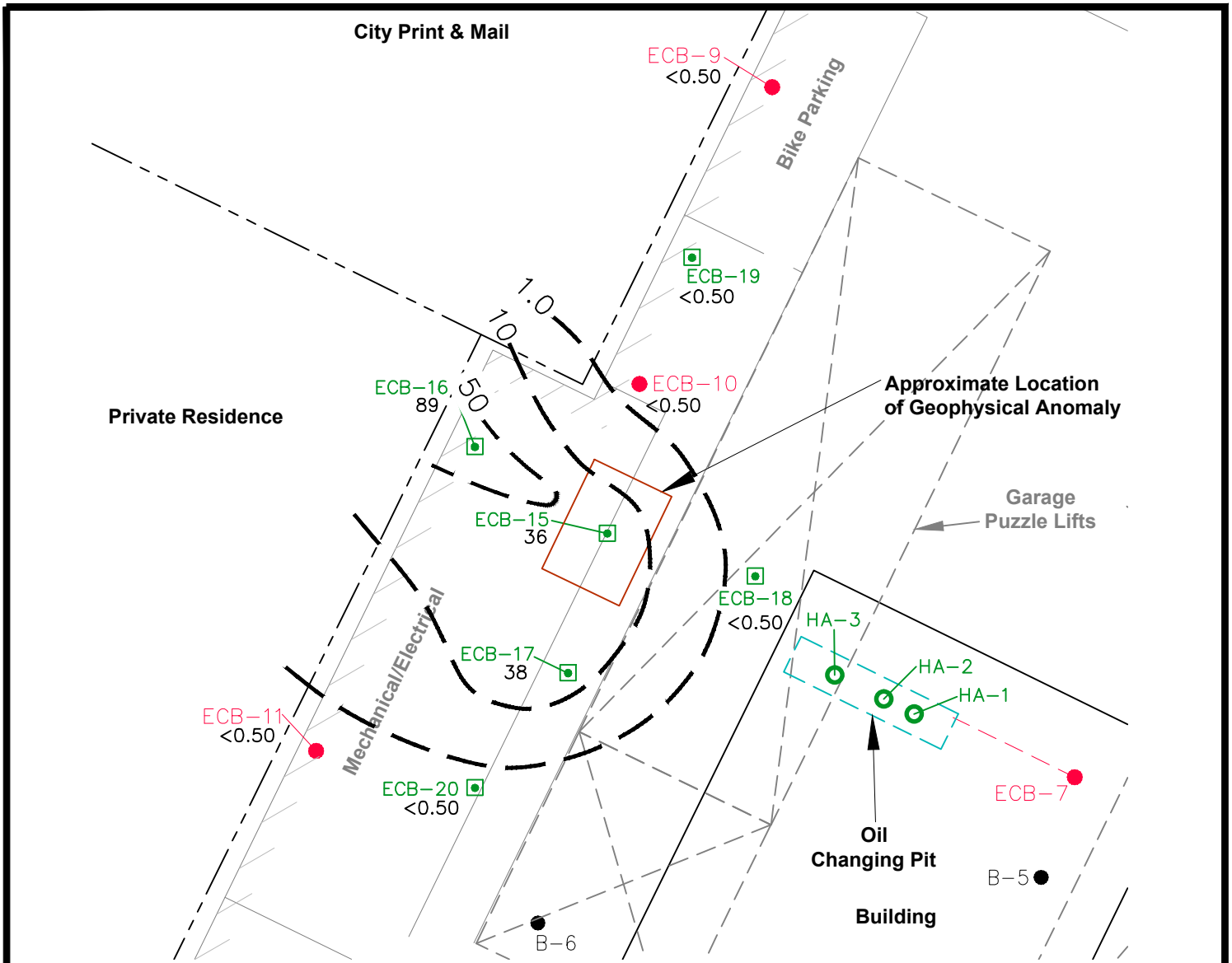
PLATE

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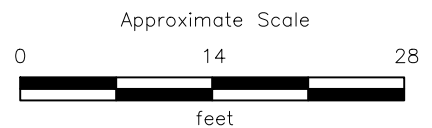
760 22nd Street and
2201 Brush Street
Oakland, California

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EXPLANATION

- APPROXIMATE PROPERTY BOUNDARY
- SOIL BORING LOCATION (PES ENVIRONMENTAL, INC., 2005)
- SOIL BORING LOCATION (ESSEL, 2015)
- SOIL BORING LOCATION (ESSEL, 2016)
- HAND AUGER LOCATION (ESSEL, 2016)
- ▧ BUILDING FOOTPRINT
- 50 — LINE OF EQUAL CONCENTRATION IN MICROGRAMS PER LITER = PARTS PER BILLION
- 89 CONCENTRATION IN MICROGRAMS PER LITER = PARTS PER BILLION
- < LESS THAN



PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	Naphthalene in Ground Water Geophysical Anomaly Area 760 22nd Street and 2201 Brush Street Oakland, California	PLATE
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APPENDIX A

FIELD PROCEDURES

FIELD PROCEDURES

Permits and Utility Clearance

Essel submitted an application to advance the borings and install soil vapor wells to the Alameda County Public Works Agency (ACPWA) and the ACPWA issued Water Resources Well Permit Numbers W2016-0059 and W2016-0060 on February 1, 2016. A copy of the approved drilling permit is included in Appendix B.

Essel marked the proposed boring locations and notified Underground Services Alert of Northern California and Nevada on February 10, 2016 of the planned drilling activities. This notification occurred more than 48 hours before drilling began. Essel also subcontracted with West Coast Locators, Inc. (West Coast) of San Francisco, California to clear boring locations with respect to subsurface utilities. On February 10, 2016, West Coast used electromagnetic and ground-penetrating radar (GPR) equipment to identify potential subsurface utilities or other obstructions at the proposed boring locations.

Essel prepared a site-specific Health and Safety Plan (Plan) before conducting fieldwork and this Plan was available at the site during field activities. Essel and subcontractor personnel were apprised of potential on-site hazards during a field orientation meeting that was conducted before field work began.

Drilling Borings and Sampling Soil

Field work to advance borings, collect soil and ground-water samples, and install vapor wells took place on February 15 and 16, 2016. PeneCore Drilling of Woodland, California (C-57 license number 906899) used a Geoprobe 6610DT, track-mounted, direct-push drill rig to advance borings ECB-15 through ECB-20 and B-SV1 through B-SV7. The thirteen vertical borings were advanced to depths of 11 to 20 feet below the ground surface. Drilling equipment was decontaminated (i.e., steam cleaned) between boring locations to avoid potential cross-contamination of samples.

Continuous soil cores were collected from the borings using a 2½-inch-outside-diameter, hollow steel rod fitted with a 1½-inch-outside-diameter by 5-foot-long, clear plastic sleeve. The plastic sleeve was removed from the core barrel after each sampling interval and replaced with a clean plastic sleeve for the next lower sampling interval. Soil cores contained in the plastic sleeves were cut into 1- to 2-foot lengths for field screening for contaminants, identifying and describing sediments, and selecting samples for laboratory analysis. Samples retrieved from the borings were screened for potential contaminants using a photoionization detector, through visual observation of the soil for discoloration, and noting any odors in the soil.

As described above, Essel retained from one to four soil samples from each boring for laboratory analysis. A minimum 6-inch-long section of the plastic sleeve was cut at the selected sample depth and the ends of each sleeve were covered with Teflon sheets, sealed with plastic caps, and wrapped with duct tape. Each sample was then labeled and placed on ice in a cooler pending delivery to the laboratory. Essel prepared Chain-of-Custody forms for the soil samples and these forms accompanied the samples to the laboratory. Copies of the Chain-of-Custody forms are included in Appendix D.

Sampling Ground Water

Water samples were collected from borings ECB-15 through ECB-20 through ¾-inch-diameter polyvinyl chloride (PVC) casings that were placed in the boreholes. Before sampling, the depth to any free-phase petroleum product and the depth to ground water were measured through the temporary casings using an electronic oil-water interface probe. Water samples were collected through ¼-inch-diameter polyethylene tubing, which was inserted into the PVC casings and attached to a peristaltic pump. The water samples were placed into 40-milliliter clear glass vials containing hydrochloric acid as a preservative, 40-milliliter amber glass vials that contained no preserving solution, and 1-liter amber glass bottles that also contained no preserving solution. The sample containers were filled completely to eliminate air bubbles and were sealed with Teflon-lined caps, labeled, and placed on ice in a closed cooler. Essel completed Chain-of-Custody forms for the water samples and these forms accompanied the samples to the laboratory. Copies of the Chain-of-Custody forms are contained in Appendix D.

After drilling and sampling, the boreholes for ECB-15 through ECB-20, B-SV1, and B-SV2 were backfilled with neat cement slurry from the total depth to the ground surface. A representative of the ACPWA was present to observe backfilling of several boreholes to confirm the procedure conformed to the requirements of the drilling permit. Essel provided the ACPWA with photographs of the remaining backfilled borings.

Installing Soil Vapor Wells and Sampling Soil Vapor

Permanent soil vapor wells SV-3 through SV-7 were installed on in borings B-SV3 through B-SV7 on February 15, 2016. The boreholes for the wells were advanced to depths of 10 to 12 feet below grade. The vapor wells consist of a stainless-steel filter screen inserted into ¼-inch-diameter Teflon tubing. The filter screens were suspended at depths approximately 3 inches above the bottom of the boreholes. The vapor wells were completed by placing 3 inches of #3 Monterey sand below and 3 inches of sand above the filter screen, placing 1 foot of dry granular bentonite above the sand, and placing granular bentonite in lifts to the ground surface. Each lift of bentonite was hydrated with clean water to provide an airtight seal above the sand and filter screens and around the tubing to a few inches below the ground surface. The top end of each tubing was capped with a valve to prevent atmospheric air from entering the probe hole. A 6-inch-diameter, steel well box was placed around each probe tubing and secured in place with concrete.

Subsurface conditions were allowed to equilibrate for a period of at least 1 week before soil vapor wells SV-1 through SV-7 were purged and sampled. The vapor wells were variously purged and sampled on February 23, March 1, and March 24, 2016, as allowed by dry weather and equipment availability. The soil-vapor probe purging and sampling system consisted of a 6-liter purging Summa canister; a 1-liter sampling Summa canister; and a manifold containing vacuum gauges, a flow controller, and moisture filter. The laboratory evacuated each Summa canister to a negative pressure (i.e. vacuum) of approximately 30 inches of mercury. Before purging the soil vapor wells, Essel performed a shut-in test of each purging and sampling canister and connecting manifold assembly to check for potential leaks in the system. The shut-in test was performed for a period slightly longer than 1 minute and no loss in vacuum was observed. The 6-liter purge and 1-liter sampling Summa canisters along with the manifold assembly were then connected to the soil vapor probe tubing using additional Teflon tubing. Each soil vapor probe was purged one volume (tubing and void space around the sand grains) using the 6-liter Summa canister. A total of 300 milliliters of air was purged from each vapor probe.

After purging, the valve on the purging canister was closed and a box (i.e., shroud) was placed over all of the sampling assembly, except the sampling canister. A small open cup of isopropyl alcohol was placed inside the shroud to provide a tracer gas during sampling. The tracer was allowed to volatilize for a few minutes before the valve on the 1-liter sampling Summa canister was opened to collect each vapor sample. Soil-vapor samples were collected at a maximum controlled flow rate between 100 and 200 milliliters per minute. Sampling was completed when the vacuum gauges indicated that the negative pressure in the canisters was at 5 inches of mercury. Low formation permeability prevented collected of full liters of vapor from wells SV-6 and SV-7. At the completion of sampling, the valves on the sampling canisters were closed, the manifold assemblies were disconnected, and the canisters were packaged in boxes. Essel prepared Chain-of-Custody forms for the vapor samples and this form accompanied the samples to the laboratory.

At the completion of sampling, the Teflon tubing of each vapor probe was recapped and the wells boxes were closed. Future vapor sampling may be performed if necessary.

APPENDIX B

DRILLING PERMIT

Alameda County Public Works Agency - Water Resources Well Permit



Public Works Agency
— Alameda County —

399 Elmhurst Street
Hayward, CA 94544-1395
Telephone: (510)670-6633 Fax:(510)782-1939

Application Approved on: 02/01/2016 By jamesy

Permit Numbers: W2016-0059 to W2016-0060
Permits Valid from 02/15/2016 to 02/17/2016

Application Id: 1452643420901
Site Location: 760 22nd Street (APN 3-25-10) and 2201 Brush Street (APN 3-25-11).
Project Start Date: 02/15/2016
Assigned Inspector: Contact Lindsay Furuyama at (925) 956-2311 or Lfuruyama@groundzonees.com

City of Project Site:Oakland

Completion Date:02/17/2016

Applicant: Essel Environmental Consulting - Hugo Phone: 415-960-9528

Mendoza
351 California Street, Suite 615, San Francisco, CA 94104

Property Owner: E. B.A.L.D.C. Phone: 510-287-5383

1825 San Pablo, Suite 200, Oakland, CA 94612

Client: ** same as Property Owner **

Contact: Hugo Mendoza

Phone: --
Cell: --

Receipt Number: WR2016-0043 Total Due: \$530.00
Payer Name : Sagnik Lahiri Total Amount Paid: \$530.00
Paid By: VISA PAID IN FULL

Works Requesting Permits:

Borehole(s) for Investigation-Environmental/Monitorinig Study - 13 Boreholes

Driller: Penecore Drilling, Inc. - Lic #: 906899 - Method: DP

Work Total: \$265.00

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2016-0059	02/01/2016	05/15/2016	13	2.50 in.	20.00 ft

Specific Work Permit Conditions

1. Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings. All cuttings remaining or unused shall be containerized and hauled off site. The containers shall be clearly labeled to the ownership of the container and labeled hazardous or non-hazardous.
2. Boreholes shall not be left open for a period of more than 24 hours. All boreholes left open more than 24 hours will need approval from Alameda County Public Works Agency, Water Resources Section. All boreholes shall be backfilled according to permit destruction requirements and all concrete material and asphalt material shall be to Caltrans Spec or County/City Codes. No borehole(s) shall be left in a manner to act as a conduit at any time.
3. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.
4. Applicant shall contact assigned inspector listed on the top of the permit at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.
5. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of \$500.00.

Alameda County Public Works Agency - Water Resources Well Permit

6. Electronic Reporting Regulations (Chapter 30, Division 3 of Title 23 & Division 3 of Title 27, CCR) require electronic submission of any report or data required by a regulatory agency from a cleanup site. Submission dates are set by a Regional Water Board or by a regulatory agency. Once a report/data is successfully uploaded, as required, you have met the reporting requirement (i.e. the compliance measure for electronic submittals is the actual upload itself). The upload date should be on or prior to the regulatory due date.

7. NOTE:

Under California laws, the owner/operator are responsible for reporting the contamination to the governmental regulatory agencies under Section 25295(a). The owner/operator is liable for civil penalties under Section 25299(a)(4) and criminal penalties under Section 25299(d) for failure to report a leak. The owner/operator is liable for civil penalties under Section 25299(b)(4) for knowing failure to ensure compliance with the law by the operator. These penalty provisions do not apply to a potential buyer.

8. Prior to any drilling activities onto any public right-of-ways, it shall be the applicants responsibilities to contact and coordinate a Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits required for that City or to the County and follow all City or County Ordinances. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County a Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.

9. Permit is valid only for the purpose specified herein. No changes in construction procedures, as described on this permit application. Boreholes shall not be converted to monitoring wells, without a permit application process.

Well Construction-Vapor monitoring well-Vapor monitoring well - 5 Wells

Driller: Pencore Drilling - Lic #: 906899 - Method: DP

Work Total: \$265.00

Specifications

Permit #	Issued Date	Expire Date	Owner Well Id	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth
W2016-0060	02/01/2016	05/15/2016	SVP-1	2.50 in.	0.25 in.	1.00 ft	12.00 ft
W2016-0060	02/01/2016	05/15/2016	SVP-2	2.50 in.	0.25 in.	1.00 ft	12.00 ft
W2016-0060	02/01/2016	05/15/2016	SVP-3	2.50 in.	0.25 in.	1.00 ft	12.00 ft
W2016-0060	02/01/2016	05/15/2016	SVP-4	2.50 in.	0.25 in.	1.00 ft	12.00 ft
W2016-0060	02/01/2016	05/15/2016	SVP-5	2.50 in.	0.25 in.	1.00 ft	12.00 ft

APPENDIX C

LOGS OF BORINGS

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS	LTR	DESCRIPTION	MAJOR DIVISIONS	LTR	DESCRIPTION		
Coarse-grained soils	Gravel and gravelly soils	GW	Well-graded gravels or gravel-sand mixtures, little or no fines	Fine-grained soils	Sils and clays LL<50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		GP	Poorly-graded gravels or gravel-sand mixtures, little or no fines			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		GM	Silty gravels, gravel-sand-silt mixtures			OL	Organic silts and organic silt-clays of low plasticity
		GC	Clayey gravels, gravel-sand-clay mixtures			Sils and clays LL>50	MH
	Sand and sandy soils	SW	Well-graded sand or gravelly sands, little or no fines		CH		Inorganic clays of high plasticity, fat clays
		SP	Poorly-graded sands or gravelly sands, little or no fines		OH		Organic clays of medium to high plasticity, organic silts
		SM	Silty sands, sand-silt mixtures		Highly organic soils		PT
		SC	Clayey sands, sand-clay mixtures				



Depth through which sampler is driven



Relatively undisturbed sample retained for analysis



No sample recovered



Static water level observed in well



Initial water level observed in boring

PID

Photoionization Detector (readings in ppm)



Sand pack



Bentonite



Neat cement



Caved or backfilled native soil



Blank PVC



Machine-slotted PVC



Concrete

BLOWS REPRESENT THE NUMBER OF BLOWS OF A 140-POUND HAMMER FALLING 30 INCHES TO DRIVE THE SAMPLER THROUGH EACH 6 INCHES OF AN 18-INCH PENETRATION. THE INTERVAL LENGTH IS SHOWN WHERE LESS THAN 6 INCHES WAS PENETRATED WITH THE MAXIMUM 50 BLOWS.

DASHED LINES SEPARATING UNITS ON THE LOG REPRESENT APPROXIMATE BOUNDARIES ONLY. ACTUAL BOUNDARIES MAY BE GRADUAL. LOGS REPRESENT SUBSURFACE CONDITIONS AT THE BORING LOCATION AT THE TIME OF DRILLING ONLY.

NAMES AND NUMERICAL DESIGNATIONS OF COLORS ARE FROM THE ROCK-COLOR CHART (GEOLOGICAL SOCIETY OF AMERICA, 1984)

PERCENT BY WEIGHT DESIGNATION

TRACE	0-5 PERCENT
SOME	5-15 PERCENT
WITH	15-30 PERCENT
-Y (EX., SANDY)	30-45 PERCENT
AND	45-50 PERCENT

PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	UNIFIED SOIL CLASSIFICATION SYSTEM AND SYMBOL KEY 760 22nd Street and 2201 Brush Street Oakland, California	FIGURE C-1
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616				

Total depth of boring: 20 feet
 Diameter of boring: 2 1/2 inches
 Date drilled: 02/16/16
 Drilling Company: PeneCore Drilling
 Driller: Carlos
 Drilling method: Direct push
 Sample diameter: 1 1/4 inches
 Field Geologist: Rodger Witham

Casing diameter: NA
 Casing material: NA
 Slot size: NA
 Sand size: NA
 Blank casing from NA to NA
 Perforated casing from NA to NA
 Annular seal from NA to NA
 Bentonite plug from NA to NA
 Sand pack from NA to NA

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
				Concrete.	▽▽▽▽
1		0.3	ML	Fine-grained sandy silt, some medium- to coarse-grained sand, dusky yellowish-brown (10YR 2/2), damp. Some fine- to medium-grained sand at 1 foot, very moist, medium stiff.	▽▽▽▽
2		0.0			▽▽▽▽
3		0.1	CH	Silty clay, some fine- to coarse-grained sand, trace gravel, dark yellowish-brown (10YR 4/2), pervasive medium bluish-gray (5B 5/1) discoloration, minor dark yellowish-orange (10YR 6/6) staining around weathered sand grains, damp, high plasticity, petroleum odor.	▽▽▽▽
4	S-4	0.0			▽▽▽▽
5		0.0		Moderate yellowish brown (10YR 5/4) at 5 feet, some medium bluish-gray (5B 5/1) discoloration, some dusky yellowish-brown (10YR 2/2) staining around weathered sand grains.	▽▽▽▽
6		0.0			▽▽▽▽
7		0.0			▽▽▽▽
8		0.0		Abundant medium bluish-gray (5B 5/1) discoloration at 8 feet.	▽▽▽▽
9		0.0	ML	Clayey silt, some fine- to medium-grained sand, pervasive medium bluish-gray (5B 5/1) discoloration, moist, medium plasticity, petroleum odor.	▽▽▽▽
10	S-9 1/2	0.0	CL/SC	Very fine- to fine-grained sandy silty clay, trace coarse-grained sand, trace gravel, pervasive medium bluish-gray (5B 5/1) discoloration, moist, medium plasticity, petroleum odor. Grades downward to clayey fine- to medium-grained sand, trace coarse-grained sand, pervasive medium bluish-gray (5B 5/1) discoloration, petroleum odor.	▽▽▽▽
		0.7			▽▽▽▽

PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	LOG OF BORING ECB-15 760 22nd Street and 2201 Brush Street Oakland, California	FIGURE C-2
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616				

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
12	S-12 1/2	2.5	SC	Clayey fine- to medium-grained sand, trace coarse-grained sand, pervasive medium bluish-gray (5B 5/1) discoloration, moist, petroleum odor.	▽▽▽▽
			ML	Very fine- to fine-grained sandy silt, abundant medium bluish-gray (5B 5/1) discoloration, some dark yellowish-orange (10YR 6/6) staining, moist, low plasticity.	▽▽▽▽
13	S-12 1/2	52.6	SP	Very fine- to fine-grained sand, some silt, dark yellowish-brown (10YR 4/2), minor medium bluish-gray (5B 5/1) discoloration, wet, strong petroleum odor.	▽▽▽▽
			SW	Gravelly fine- to coarse-grained sand, with clay, dark yellowish-brown (10YR 4/2), abundant to pervasive medium bluish-gray (5B 5/1) discoloration, wet, petroleum odor.	▽▽▽▽
14	S-12 1/2	33.7			▽▽▽▽
					▽▽▽▽
15	S-12 1/2	24.0	SC	Clayey very fine- to fine-grained sand, moderate yellowish-brown (10YR 5/4), abundant medium bluish-gray (5B 5/1) discoloration, wet, petroleum odor.	▽▽▽▽
			SM	Silty very fine- to fine-grained sand, some clay, moderate yellowish-brown (10YR 5/4), abundant medium bluish-gray (5B 5/1) discoloration, wet, petroleum odor.	▽▽▽▽
16	S-12 1/2	2.4	SP/SM	Very fine- to fine-grained sand, trace medium grained sand, trace gravel, dark yellowish-brown (10YR 4/2), wet.	▽▽▽▽
				Abundant dark reddish-brown (10R 3/4) staining at 16 feet 3 inches to 16 feet 7 inches.	▽▽▽▽
17	S-12 1/2	0.4		Grades downward to silty sand at 17 feet 3 inches.	▽▽▽▽
					▽▽▽▽
18	S-18	0.2			▽▽▽▽
					▽▽▽▽
19	S-18	0.0	CL	Fine- and coarse-grained sandy silty clay, trace gravel, moderate yellowish-brown (10YR 5/4), moderately abundant dark yellowish-orange (10YR 6/6) and moderate reddish-brown (10R 4/6) staining, wet, medium plasticity.	▽▽▽▽
				With gravel at 19 to 20 feet.	▽▽▽▽
20	S-18	0.0			▽▽▽▽
					▽▽▽▽
20				Total Depth = 20 feet. Ground water measured at 12.97 feet.	
21					
22					
23					
24					

PROJECT NO.
15166

DRAWN BY
EC

REPORT DATE
March 2016

LOG OF BORING ECB-15

FIGURE

Essel Environmental Consulting

351 California Street, Suite 615
San Francisco, California 94104
1-800-595-7616

760 22nd Street and
2201 Brush Street
Oakland, California

C-3

Total depth of boring: 20 feet
 Diameter of boring: 2 1/2 inches
 Date drilled: 02/16/16
 Drilling Company: PeneCore Drilling
 Driller: Carlos
 Drilling method: Direct push
 Sample diameter: 1 1/4 inches
 Field Geologist: Rodger Witham

Casing diameter: NA
 Casing material: NA
 Slot size: NA
 Sand size: NA
 Blank casing from NA to NA
 Perforated casing from NA to NA
 Annular seal from NA to NA
 Bentonite plug from NA to NA
 Sand pack from NA to NA

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
1		0.0		Concrete.	▽▽▽▽
			ML	Clayey silt, some fine- to coarse-grained sand, dusky yellowish-brown (10YR 2/2) damp, medium plasticity.	▽▽▽▽
2			CL/CH	Silty clay, trace fine- to coarse-grained sand, trace gravel, dark yellowish-brown (10YR 4/2), some dark yellowish-orange (10YR 6/6), dusky yellowish-brown (10YR 2/2), and moderate reddish-brown (10R 4/6) staining, trace filamentous rootlets, damp, medium to high plasticity.	▽▽▽▽
3				Some medium bluish-gray (5B 5/1) irregular discoloration at 3 feet.	▽▽▽▽
4					▽▽▽▽
5		0.0		Moderate yellowish-brown (10YR 5/4) and medium bluish-gray (5B 5/1) irregularly mottled at 5 to 6 feet.	▽▽▽▽
6		0.0	ML	Clayey silt, some very fine-grained sand, damp, pervasive medium bluish-gray (5B 5/1) discoloration, faint petroleum odor.	▽▽▽▽
7		0.0		Minor medium bluish-gray (5B 5/1) discoloration at 7 to 8 feet.	▽▽▽▽
8		0.0	CH/CL	Silty clay, trace fine- to coarse-grained sand, dark yellowish-brown (10YR 4/2), pervasive medium bluish-gray (5B 5/1) discoloration, moist, high plasticity, petroleum odor.	▽▽▽▽
9		2.7		Increase silt and sand content downward, medium plasticity.	▽▽▽▽
10		3.5	SM	Silty very fine- to fine-grained sand, some clay, trace medium- to coarse-grained sand, trace gravel, pale yellowish-brown (10YR 6/2), abundant medium bluish-gray (5B 5/1) discoloration, moist, petroleum odor, trace partly decomposed plant material.	▽▽▽▽
		61.3			▽▽▽▽

PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	LOG OF BORING ECB-16 760 22nd Street and 2201 Brush Street Oakland, California	FIGURE C-4
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616				

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
12	S-13	50.1	SM	Silty very fine- to fine-grained sand, some clay, trace medium- to coarse-grained sand, trace gravel, pale yellowish-brown (10YR 6/2), abundant medium bluish-gray (5B 5/1) discoloration, moist, petroleum odor, trace partly decomposed plant material.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽
			SP	Very fine- to fine-grained sand, some silt, trace medium- to coarse-grained sand, trace gravel, medium dark gray (N4), wet, strong petroleum odor.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽
13	S-13	33.4			▽▽▽▽ ▽▽▽▽ ▽▽▽▽
		85	▼ =		▽▽▽▽ ▽▽▽▽ ▽▽▽▽
14	S-13	130	SC	Clayey fine- to coarse-grained sand, some gravel, dark yellowish-brown (10YR 4/2) and medium bluish-gray (5B 5/1) irregularly mottled, trace dark yellowish-orange (10YR 6/6) and moderate reddish-brown (10R 4/6) staining, wet, petroleum odor.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽
		85.1		Uneven distribution of medium bluish-gray (5B 5/1) discoloration from none to pervasive between 14 and 15 feet.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽
15		49.4			▽▽▽▽ ▽▽▽▽ ▽▽▽▽
16	S-16 1/2	0.0	SP	Very fine- to fine-grained sand, trace coarse-grained sand, medium dark gray (N4), wet, petroleum odor. Pale yellowish-brown (10YR 6/2) at 16 feet.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽
				Abundant dark reddish-brown (10R 3/4) staining at 16 feet 2 inches to 16 feet 6 inches. Some silt at 17 feet.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽
17		0.0	SC	Clayey fine-grained sand, trace coarse-grained sand, trace gravel, pale brown (5YR 5/2), abundant moderate reddish-brown (10R 4/6) staining, wet, no odor.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽
18		0.0			▽▽▽▽ ▽▽▽▽ ▽▽▽▽
19		0.0	CL	Silty clay, some fine-grained sand, some gravel, trace medium- to coarse-grained sand, dark yellowish-brown (10YR 4/2), some dark yellowish-orange (10YR 6/6) staining, wet, medium plasticity, no odor.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽
20		0.0			▽▽▽▽ ▽▽▽▽ ▽▽▽▽
20				Total Depth = 20 feet. Ground water measured at 12.95 feet.	
21					
22					
23					
24					

PROJECT NO.
15166

DRAWN BY
EC

REPORT DATE
March 2016

LOG OF BORING ECB-16

FIGURE

Essel Environmental Consulting

351 California Street, Suite 615
San Francisco, California 94104
1-800-595-7616

760 22nd Street and
2201 Brush Street
Oakland, California

C-5

Total depth of boring: 20 feet
 Diameter of boring: 2 1/2 inches
 Date drilled: 02/16/16
 Drilling Company: PeneCore Drilling
 Driller: Carlos
 Drilling method: Direct push
 Sample diameter: 1 1/4 inches
 Field Geologist: Rodger Witham

Casing diameter: NA
 Casing material: NA
 Slot size: NA
 Sand size: NA
 Blank casing from NA to NA
 Perforated casing from NA to NA
 Annular seal from NA to NA
 Bentonite plug from NA to NA
 Sand pack from NA to NA

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
				Concrete.	▽▽▽▽
1		0.0	ML	Fine- to medium-grained sandy silt, trace coarse-grained sand, dusky yellowish-brown (10YR 2/2), damp, no plasticity.	▽▽▽▽
2		0.0			▽▽▽▽
3		0.0			▽▽▽▽
4		0.0	CH	Silty clay, trace fine- to coarse-grained sand, trace gravel, dusky yellowish-brown (10YR 2/2), abundant medium bluish-gray (5B 5/1) discoloration, damp, high plasticity, petroleum odor.	▽▽▽▽
5		0.0		Moderate yellowish-brown (10YR 5/4) and medium bluish-gray (5B 5/1) mottled at 5 feet.	▽▽▽▽
6		0.0		Some medium bluish-gray (5B 5/1) discoloration at 5 to 6 feet, trace moderate reddish-brown (10R 4/6) staining, with white gravel clasts at 5 feet 4 inches to 5 feet 6 inches.	▽▽▽▽
7		0.0		Abundant medium bluish-gray discoloration at 6 to 7 feet, petroleum odor.	▽▽▽▽
8		0.0		Minor medium bluish-gray discoloration at 7 to 7½ feet.	▽▽▽▽
9		0.0	ML	No medium bluish-gray discoloration at 7½ to 8 feet, some dusky yellowish-brown (10YR 2/2) and dark yellowish-orange (10YR 6/6) staining in small patches.	▽▽▽▽
10		0.0		Fine- to coarse-grained sandy silt, with clay, dark yellowish-brown (10YR 4/2), pervasive medium bluish-gray (5B 5/1) discoloration, some dark yellowish-orange (10YR 6/6) irregular staining, moist, low plasticity, slight petroleum odor.	▽▽▽▽
		0.0		Clayey silt at 10 to 11½ feet, some fine-grained sand, pervasive medium bluish-gray discoloration.	▽▽▽▽

PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	LOG OF BORING ECB-17 760 22nd Street and 2201 Brush Street Oakland, California	FIGURE C-6
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616				

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
12		0.0	ML	Clayey silt at 10 to 11½ feet, some fine-grained sand, pervasive medium bluish-gray discoloration.	▽▽▽▽
			SC	Clayey very fine- to fine-grained sand, pale yellowish-brown (10YR 6/2), pervasive medium bluish-gray (5B 5/1) discoloration, very moist, trace plant rootlets, petroleum odor.	▽▽▽▽
13		3.2	SP/SW	Fine-grained sand, pale yellowish-brown (10YR 6/2), abundant medium bluish-gray (5B 5/1) discoloration, wet, petroleum odor.	▽▽▽▽
			SC	Fine- to coarse-grained sand lens at 12 feet 10 inches to 13 feet, some gravel, some clay, dark yellowish-brown (10YR 4/2), moderately abundant medium bluish-gray (5B 5/1) discoloration, wet, petroleum odor.	▽▽▽▽
14	S-13 1/2	52.7		Clayey fine-grained sand, trace coarse-grained sand, pervasive medium bluish-gray (5B 5/1) discoloration, wet, petroleum odor.	▽▽▽▽
15	S-15	4.0		Clayey fine- to coarse-grained sand, with gravel at 14 feet 2 inches to 15 feet 4 inches, pervasive medium bluish-gray (5B 5/1) discoloration, petroleum odor.	▽▽▽▽
			SP	Very fine- to fine-grained sand, trace to some silt, dark yellowish-brown (10YR 4/2), abundant moderate reddish-brown (10R 4/6) and dark yellowish-orange (10YR 6/6) staining, wet.	▽▽▽▽
16		0.0			▽▽▽▽
17		0.0			▽▽▽▽
18		0.0	ML	Very fine- to fine-grained sandy silt, dark yellowish-brown (10YR 4/2), abundant moderate reddish-brown (10R 4/6) and dark yellowish-orange (10YR 6/6) staining, wet.	▽▽▽▽
			CL	Fine- to coarse-grained sandy clay, some gravel, dark yellowish-brown (10YR 4/2), wet, medium plasticity.	▽▽▽▽
19		0.0	SC	Clayey fine- to coarse-grained sand, some gravel, dark yellowish-brown (10YR 4/2), some dark yellowish-orange (10YR 6/6) staining, wet.	▽▽▽▽
20		0.0		Total Depth = 20 feet. Ground water measured at 12.96 feet.	▽▽▽▽
21					
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PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	LOG OF BORING ECB-17 760 22nd Street and 2201 Brush Street Oakland, California	FIGURE
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616				C-7

Total depth of boring: 20 feet
 Diameter of boring: 2 1/2 inches
 Date drilled: 02/16/16
 Drilling Company: PeneCore Drilling
 Driller: Carlos
 Drilling method: Direct push
 Sample diameter: 1 1/4 inches
 Field Geologist: Rodger Witham

Casing diameter: NA
 Casing material: NA
 Slot size: NA
 Sand size: NA
 Blank casing from NA to NA
 Perforated casing from NA to NA
 Annular seal from NA to NA
 Bentonite plug from NA to NA
 Sand pack from NA to NA

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
				Concrete.	▽▽▽▽
1		0.0	ML CL/CH	Fine- to coarse-grained sandy silt, some gravel, dusky yellowish-brown (10YR 2/2), damp. Silty clay, trace fine- to coarse-grained sand, trace gravel, medium bluish-gray (5B 5/1), small patches and streaks of dark yellowish-orange (10YR 6/6) staining along filamentous rootlets, damp, medium to high plasticity, very stiff, no odor, moderately abundant slightly decomposed plant roots.	▽▽▽▽
2		0.0			▽▽▽▽
3		0.0			▽▽▽▽
4	S-3	0.0		Abundant slightly decomposed plant roots at 4 feet to 5 feet 1 inch.	▽▽▽▽
5		0.0		Clayey coarse-grained sand and gravel lens at 5 feet 2 inches to 5 feet 6 inches, trace plant roots.	▽▽▽▽
6		0.0	ML	Clayey silt, trace fine- to coarse-grained sand, trace gravel, medium bluish-gray (5B 5/1), damp, medium plasticity, trace filamentous plant roots. Abundant plant roots at 5 feet 10 inches to 6 feet. Medium gray (N5), some scattered moderate reddish-brown (10YR 4/6) to dark reddish-brown (10R 3/4) weathered sand grains at 6 to 7 feet.	▽▽▽▽
7		0.0		Some fine-grained sand at 7 to 8 feet, moderately abundant filamentous plant rootlets. White irregular deposits at 7½ feet to 8 feet 2 inches.	▽▽▽▽
8		0.0		Moderately abundant, slightly decomposed plant roots at 8 to 9 feet.	▽▽▽▽
9		0.0			▽▽▽▽
10	S-9 1/2	0.0		Medium gray (N5) with irregular dark yellowish-orange (10YR 6/6) cast, trace plant rootlets at 9 to 9½ feet.	▽▽▽▽
		0.0	SC	Clayey very fine- to fine-grained sand, trace coarse-grained sand, trace gravel, medium gray (N5), trace to some moderate reddish-brown (10R 4/6) and dark yellowish-orange (10YR 6/6) irregular staining, trace plant roots, no odor.	▽▽▽▽

PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	LOG OF BORING ECB-18 760 22nd Street and 2201 Brush Street Oakland, California	FIGURE C-8
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616				

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
12	S-13	0.0	SC	Clayey very fine- to fine-grained sand, trace coarse-grained sand, trace gravel, medium gray (N5), trace to some moderate reddish-brown (10R 4/6) and dark yellowish-orange (10YR 6/6) irregular staining, trace plant roots, no odor.	▽▽▽▽
			SP	Very fine- to fine-grained sand, trace clay, medium gray (N5), moist to wet, petroleum odor. Moderate yellowish-brown (10YR 5/4) at 12 feet 3 inches, no odor.	▽▽▽▽
SM ▼ ≡			Silty fine-grained sand, trace medium-grained sand, moderate yellowish-brown (10YR 5/4), wet, no odor.	▽▽▽▽	
CL			Silty clay, trace fine- to coarse-grained sand, moderate yellowish-brown (10YR 5/4), moderately abundant irregular dark yellowish-orange (10YR 6/6) and dusky yellowish-brown (10YR 2/2) staining, trace moderate reddish-brown (10R 4/6) staining, wet, medium plasticity, no odor.	▽▽▽▽	
SC			Clayey very fine- to fine-grained sand, trace medium-grained sand, pale yellowish-brown (10YR 6/2), moderately abundant dark yellowish-orange (10YR 6/6) and moderate reddish-brown irregular staining, wet, no odor.	▽▽▽▽	
CL			Fine-grained sandy clay, pale yellowish-brown (10YR 6/2), abundant moderate reddish-brown (10R 4/6) and black (N1) irregular staining, wet, medium plasticity.	▽▽▽▽	
SM/SP/SC			Silty fine-grained sand at 16½ feet, trace medium- to coarse-grained sand, abundant dark reddish-brown (10R 3/4) staining, wet. Fine-grained sand at 16 feet 9 inches, pale yellowish-brown (10YR 6/2).	▽▽▽▽	
CL			Clayey fine-grained sand at 17 feet 7 inches, some gravel, pale yellowish-brown (10YR 6/2), moderately abundant dark yellowish-orange (10YR 6/6) and moderate reddish-brown (10R 4/6) irregular staining. Dark yellowish-brown (10YR 4/2) at 18 feet 3 inches.	▽▽▽▽	
CL			Silty clay, some fine- to coarse-grained sand, with gravel, dark yellowish-brown (10YR 4/2), trace dark yellowish-orange (10YR 6/6) staining.	▽▽▽▽	
GP			Fine- to coarse-grained sandy gravel, trace silt, dark yellowish brown (10YR 4/2), wet.	▽▽▽▽	
20				Total Depth = 20 feet. Ground water measured at 12.99 feet.	
21					
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PROJECT NO.
15166

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EC

REPORT DATE
March 2016

LOG OF BORING ECB-18

FIGURE

Essel Environmental Consulting

351 California Street, Suite 615
San Francisco, California 94104
1-800-595-7616

760 22nd Street and
2201 Brush Street
Oakland, California


C-9

Total depth of boring: 20 feet
 Diameter of boring: 2 1/2 inches
 Date drilled: 02/16/16
 Drilling Company: PeneCore Drilling
 Driller: Carlos
 Drilling method: Direct push
 Sample diameter: 1 1/4 inches
 Field Geologist: Rodger Witham

Casing diameter: NA
 Casing material: NA
 Slot size: NA
 Sand size: NA
 Blank casing from NA to NA
 Perforated casing from NA to NA
 Annular seal from NA to NA
 Bentonite plug from NA to NA
 Sand pack from NA to NA

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
				Concrete.	▽▽▽▽
1		0.0	ML	Fine- to medium-grained sandy silt, dusky yellowish-brown (10YR 2/2), damp.	▽▽▽▽
			CH/CL	Silty clay, trace fine-grained sand, pervasive medium bluish-gray (5B 5/1) discoloration, damp, high plasticity, trace rootlets and partly decomposed organic material.	▽▽▽▽
2		0.2			▽▽▽▽
3		0.1		Light olive gray (5Y 5/2) at 3 feet.	▽▽▽▽
4		0.1		Moderate yellowish-brown (10YR 5/4) at 3 feet 10 inches.	▽▽▽▽
				Some dusky yellowish-brown (10YR 2/2) and dark yellowish-orange (10YR 6/6) staining in small patches at 4 to 7 feet.	▽▽▽▽
5		0.1		White gravel clasts at 5 feet 5 inches to 5 feet 9 inches.	▽▽▽▽
6		0.0		With very fine- to fine-grained sand, trace coarse-grained sand at 6 feet to 8 feet 2 inches, medium plasticity.	▽▽▽▽
7		0.0		Moderately abundant dusky yellowish-brown (10YR 2/2) and dark yellowish-orange (10YR 6/6) staining at 7 feet to 8 feet 2 inches.	▽▽▽▽
8		0.0		Increasing sand content downward, grades to:	▽▽▽▽
			SC	Clayey very fine- to fine-grained sand, trace medium- to coarse-grained sand, trace gravel, pale yellowish-brown (10YR 6/2), abundant dark yellowish-orange (10YR 6/6) staining, some dusky yellow-brown (10YR 2/2) weathered specks and small patches.	▽▽▽▽
9		0.0	ML	Silt, trace very fine-grained sand, moderate yellowish-brown (10YR 5/4), moist, low plasticity.	▽▽▽▽
			SM	Silty very fine- to fine-grained sand, moderate yellowish-brown (10YR 5/4), moderately abundant dark yellowish-orange (10YR 6/6) staining, moist. Some medium bluish-gray (5B 5/1) discoloration at 10 feet 3 inches. Silt lens at 10 feet 3 inches to 10 feet 7 inches	▽▽▽▽
10		0.4	SC	Clayey very fine- to fine-grained sand, moderate yellowish-brown (10YR 5/4), moderately abundant medium bluish-gray (5B 5/1) discoloration, moist.	▽▽▽▽

PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	LOG OF BORING ECB-19 760 22nd Street and 2201 Brush Street Oakland, California	FIGURE C-10
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616				

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.	
12			SM	Silty very fine- to fine-grained sand, trace medium- to coarse-grained sand, pervasive medium bluish-gray (5B 5/1) discoloration, moist, petroleum odor.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽	
			SP	Very fine- to fine-grained sand, some medium- to coarse-grained sand, some gravel, dark yellowish-brown (10YR 4/2), abundant medium bluish-gray (5B 5/1) discoloration, very moist, petroleum odor.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽	
13			2.3	 Clayey fine- to coarse-grained sand, with gravel at 13 feet, some moderate reddish-brown (10R 4/6) staining, petroleum odor.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽	
			2.1			
14			11.9		▽▽▽▽ ▽▽▽▽ ▽▽▽▽	
15	S-14 1/2		15.2		▽▽▽▽ ▽▽▽▽ ▽▽▽▽	
16			0.3	Very fine- to fine-grained sand, some silt, trace medium- to coarse-grained sand, trace gravel, moderate yellowish-brown (10YR 5/4), abundant medium bluish-gray (5B 5/1) discoloration, some dark yellowish-orange (10YR 6/6) staining, wet, petroleum odor. Some medium bluish-gray (5B 5/1) discoloration at 15½ feet to 16 feet 2 inches, moderately abundant dark yellowish-orange (10YR 6/6) staining Trace silt, pervasive medium bluish-gray (5B 5/1) discoloration at 16 feet 2 inches to 16 feet 9 inches, petroleum odor. Moderate yellowish-brown (10YR 5/4) at 16 feet 9 inches, moderately abundant dark yellowish-orange (10YR 6/6) staining, no odor.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽	
17	S-17		0.3		▽▽▽▽ ▽▽▽▽ ▽▽▽▽	
18			0.3		▽▽▽▽ ▽▽▽▽ ▽▽▽▽	
			0.2	ML	Silt, with very fine- to fine-grained sand, moderate yellowish-brown (10YR 5/4), some dark yellowish-orange (10YR 6/6) staining, low plasticity, wet.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽
19			0.4	CL/CH	Silty clay, trace fine- to medium-grained sand, trace gravel, dark yellowish-brown (10YR 4/2), moderately abundant dark yellowish-orange (10YR 6/6) and moderate reddish-brown (10R 4/6) staining, wet, medium to high plasticity. Some staining at 19 feet.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽
			0.1	ML	Clayey silt, trace fine- to coarse-grained sand, trace gravel, dark yellowish-brown (10YR 4/2), some dark yellowish-orange (10YR 6/6) and moderate reddish-brown (10R 4/6) staining, wet, medium plasticity.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽
20				Total Depth = 20 feet. Ground water measured at 13.25 feet.		
21						
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PROJECT NO.
15166

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EC

REPORT DATE
March 2016

LOG OF BORING ECB-19

FIGURE

Essel Environmental Consulting

351 California Street, Suite 615
San Francisco, California 94104
1-800-595-7616

760 22nd Street and
2201 Brush Street
Oakland, California

C-11

Total depth of boring: 20 feet
 Diameter of boring: 2 1/2 inches
 Date drilled: 02/16/16
 Drilling Company: PeneCore Drilling
 Driller: Carlos
 Drilling method: Direct push
 Sample diameter: 1 1/4 inches
 Field Geologist: Rodger Witham

Casing diameter: NA
 Casing material: NA
 Slot size: NA
 Sand size: NA
 Blank casing from NA to NA
 Perforated casing from NA to NA
 Annular seal from NA to NA
 Bentonite plug from NA to NA
 Sand pack from NA to NA

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
				Concrete.	▽▽▽▽
1		0.0	SM	Silty fine- to coarse-grained sand, dusky yellowish-brown (10YR 2/2), damp.	▽▽▽▽
			ML	Fine-grained sandy silt, trace medium- to coarse-grained sand, dusky yellowish-brown (10YR 2/2), damp, low plasticity.	▽▽▽▽
2		0.0		Decrease sand content (very fine- to fine-grained), increase clay content at 1 1/2 feet, trace minute patches of dark yellowish-orange (10YR 6/6) staining, low to medium plasticity.	▽▽▽▽
3		0.0			▽▽▽▽
4		0.0	CH/CL	Silty clay, some fine-grained sand, dark greenish-gray (5G 4/1), trace minute patches of dark yellowish-orange (10YR 6/6) staining, damp, high plasticity.	▽▽▽▽
				Trace fine-grained sand at 4 feet.	▽▽▽▽
5		0.0		Trace plant roots at 4 feet 7 inches. Dark yellowish-brown (10YR 4/2) at 4 feet 8 inches, some pale yellowish-brown (10YR 6/2) mottling, some small patches and specks of dusky yellowish-brown (10YR 2/2) decomposed organic material. Trace white weathered sand grains from 5 to 6 1/2 feet, white gravel clast at 5 1/2 feet.	▽▽▽▽
6		0.0		Increase silt content at 5 feet 10 inches, moderate yellowish-brown (10YR 5/4), some dark yellowish-orange (10YR 6/6) staining, some small patches and specks of dusky yellowish-brown (10YR 2/2) decomposed organic material, medium plasticity.	▽▽▽▽
7		0.0		Pale yellowish-brown (10YR 6/2) at 7 to 9 feet, abundant dark yellowish-orange (10YR 6/6) staining at 7 to 8 feet, moist.	▽▽▽▽
8		0.0		Trace minute dark reddish-brown (10R 3/4) patches at 8 to 9 feet.	▽▽▽▽
9		0.0		Trace fine- to medium-grained sand at 9 feet, trace gravel, moderate yellowish-brown (10YR 5/4), trace dark yellowish-orange (10YR 6/6), dusky yellowish-brown (10YR 2/2), and dark reddish-brown (10R 3/4) staining as minute patches and specks.	▽▽▽▽
10		0.0			▽▽▽▽
		0.0	SC	Clayey very fine- to fine-grained sand, pale yellowish-brown (10YR 6/2), moderately abundant dark yellowish-orange (10YR 6/6) staining, trace dusky yellowish-brown (10YR 2/2) specks, moist	▽▽▽▽

PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	LOG OF BORING ECB-20 760 22nd Street and 2201 Brush Street Oakland, California	FIGURE C-12
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616				

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
12	S-13	0.0	SC	Clayey very fine- to fine-grained sand, pale yellowish-brown (10YR 6/2), moderately abundant dark yellowish-orange (10YR 6/6) staining, trace dusky yellowish-brown (10YR 2/2) specks, moist.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽
13			SP	Very fine- to fine-grained sand, trace medium- to coarse-grained sand, trace gravel, trace silt and clay, moderate yellowish-brown (10YR 5/4), moderately abundant dark yellowish-orange (10YR 6/6) staining, very moist to wet.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽ ▽▽▽▽ ▽▽▽▽
			▼ ≡	Clayey at 12 feet 10 inches to 12 feet 11 inches.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽
14			SM	Silty fine-grained sand, trace medium- to coarse-grained sand, trace gravel, pale yellowish-brown (10YR 6/2), abundant moderate reddish-brown (10R 4/6) staining, wet.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽ ▽▽▽▽ ▽▽▽▽
15			SW	Gravelly fine- to coarse-grained sand, dark yellowish-brown (10YR 4/2), wet.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽
16			SP	Very fine- to fine-grained sand, trace silt, dark yellowish-brown (10YR 4/2), wet. Pale yellowish-brown (10YR 6/2) at 15 feet 8 inches.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽ ▽▽▽▽ ▽▽▽▽
17				Abundant moderate reddish-brown (10R 4/6) staining at 16 feet 6 inches to 16 feet 11 inches.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽ ▽▽▽▽
18				Dark yellowish-brown (10YR 4/2) at 17½ feet.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽
19		Pale yellowish-brown (10YR 6/2) at 18 feet, moderately abundant dark yellowish-orange (10YR 6/6) staining. Increase silt content (some) at 18½ feet.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽ ▽▽▽▽		
20		0.0	SC	Clayey gravelly fine- to coarse-grained sand, dark yellowish-brown (10YR 4/2), some dark yellowish-orange (10YR 6/6) staining, angular to subangular gravel clasts, wet.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽ ▽▽▽▽
20		0.0		Total depth = 20 feet. Ground water encountered at 12.8 feet.	
21					
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PROJECT NO.
15166

DRAWN BY
EC

REPORT DATE
March 2016

LOG OF BORING ECB-20

FIGURE

Essel Environmental Consulting

351 California Street, Suite 615
San Francisco, California 94104
1-800-595-7616

760 22nd Street and
2201 Brush Street
Oakland, California

C-13

Total depth of boring: 14 feet
 Diameter of boring: 2 1/2 inches
 Date drilled: 02/15/16
 Drilling Company: PeneCore Drilling
 Driller: Carlos
 Drilling method: Direct push
 Sample diameter: 1 1/4 inches
 Field Geologist: Rodger Witham

Casing diameter: NA
 Casing material: NA
 Slot size: NA
 Sand size: NA
 Blank casing from NA to NA
 Perforated casing from NA to NA
 Annular seal from NA to NA
 Bentonite plug from NA to NA
 Sand pack from NA to NA

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
				Concrete.	▽▽▽▽
1			SW	Fine- to coarse-grained sand (Fill), some silt, dark yellowish-brown (10YR 4/2), damp.	▽▽▽▽
			ML		▽▽▽▽
			CH		▽▽▽▽
2				Silt (Fill), trace fine- and coarse-grained sand, dusky yellowish-brown (10YR 2/2), trace dark yellowish-orange (10YR 6/6) staining as minute patches, damp, low plasticity.	▽▽▽▽
				Silty clay (Fill), trace fine- and coarse-grained sand, dark bluish-gray (5B 4/1), some dark yellowish-orange (10YR 6/6) and moderate reddish-brown (10R 4/6) staining as stringers and small patches, damp, high plasticity.	▽▽▽▽
3		0.2		Dark greenish-gray (5G 4/1) at 3 feet, trace partly decomposed plant roots, increase silt content downward, petroleum odor.	▽▽▽▽
4	S-4	3.0			▽▽▽▽
5		2.5		Pocket of white, weathered fine- to coarse-grained sand at 5 feet to 5 feet 3 inches, decrease silt content downward.	▽▽▽▽
		0.3		Pale yellowish-brown (10YR 6/2) at 5 feet 3 inches, abundant medium bluish-gray (5B 5/1) discoloration.	▽▽▽▽
6	S-5 1/2	0.1			▽▽▽▽
7		0.0			▽▽▽▽
			ML	Silt (Fill), with very fine- to fine-grained sand, some clay, moderate yellowish-brown (10YR 5/4), abundant medium bluish-gray (5B 5/1) discoloration, moist, low plasticity.	▽▽▽▽
8		0.1			▽▽▽▽
			SW	Fine- to coarse-grained sand (Fill), trace silt, some gravel, dark yellowish-brown (10YR 4/2), trace dark yellowish-orange (10YR 6/6) and moderate reddish-brown (10R 4/6) staining, moist, no discoloration.	▽▽▽▽
9		1.0			▽▽▽▽
	S-9				▽▽▽▽
10		0.6		Dusky yellowish-brown at 10 feet.	▽▽▽▽
			SP	Very fine- to fine-grained sand (Fill), trace medium- to coarse-grained sand, light olive gray (5Y 5/2), very moist.	▽▽▽▽
		0.1			▽▽▽▽

PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	LOG OF BORING B-SV1 760 22nd Street and 2201 Brush Street Oakland, California	FIGURE C-14
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616				

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
12	S-13	0.1	SP	Very fine- to fine-grained sand (Fill), trace medium- to coarse-grained sand, light olive gray (5Y 5/2), very moist.	▽▽▽▽
			SW	Fine- to coarse-grained sand (Fill), with gravel, dark yellowish-brown (10YR 4/2), moist.	▽▽▽▽
0.0		Bottom of former underground storage tank pit at 12 feet 10 inches.			▽▽▽▽
		CH	Silty clay, trace fine- and coarse-grained sand, medium bluish-gray (5B 5/1) discolored, with irregular dark yellowish-orange (10YR 6/6) staining, moist, high plasticity, petroleum odor.	▽▽▽▽	
13				With very fine- to fine-grained sand at 13 feet 9 inches.	▽▽▽▽
14				Total depth = 14 feet. No ground water encountered.	▽▽▽▽
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PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	LOG OF BORING B-SV1 760 22nd Street and 2201 Brush Street Oakland, California	FIGURE C-15
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616				

Total depth of boring: 14 feet
 Diameter of boring: 2 1/2 inches
 Date drilled: 02/15/16
 Drilling Company: PeneCore Drilling
 Driller: Carlos
 Drilling method: Direct push
 Sample diameter: 1 1/4 inches
 Field Geologist: Rodger Witham

Casing diameter: NA
 Casing material: NA
 Slot size: NA
 Sand size: NA
 Blank casing from NA to NA
 Perforated casing from NA to NA
 Annular seal from NA to NA
 Bentonite plug from NA to NA
 Sand pack from NA to NA

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
				Concrete.	▽▽▽▽
1		0.1	ML	Fine- to medium-grained sandy silt, some clay, dusky yellowish-brown (10YR 2/2), trace dark yellowish-orange (10YR 6/6) and moderate reddish-brown (10R 4/6) staining as very small irregular patches, damp, low plasticity, trace carbonized wood fragment.	▽▽▽▽
2		0.2			▽▽▽▽
3		0.2	CH	Silty clay, trace fine-grained sand, dark gray (N3), some moderate reddish-brown (10R 4/6) and trace dark yellowish-orange (10YR 6/6) staining as small patches and stringers, increasing downward to moderately abundant staining between 3 and 4 feet, damp, high plasticity.	▽▽▽▽
4		0.0		Grayish-black (N2) at 4 to 5 feet, trace coarse-grained sand.	▽▽▽▽
5	S-5	0.0			▽▽▽▽
6		0.2		Moderate yellowish-brown (10YR 5/4) at 5½ feet, some very fine- to fine-grained sand, trace medium- to coarse-grained sand, trace dark yellowish-brown (10YR 6/6), moderate reddish-brown (10R 4/6), and dusky yellowish-brown (10YR 2/2) staining as minute to small patches, increasing downward to some staining. Minor medium bluish-gray (5B 5/1) discoloration at 6 feet 2 inches to 6 feet 7 inches.	▽▽▽▽
7		0.2		Abundant dusky yellowish-brown (10YR 2/2) staining as large patches and filamentous stringers at 7 feet to 7 feet 5 inches. Pocket of medium- to coarse-grained sand and gravel at 7 feet 5 inches to 7 feet 7 inches.	▽▽▽▽
8		0.5		Abundant medium bluish-gray (5B 5/1) discoloration at 7 feet 7 inches, moist. Pervasive medium bluish-gray (5B 5/1) discoloration at 8 to 9 feet, petroleum odor.	▽▽▽▽
9	S-9	1.0			▽▽▽▽
10		0.0		Decrease in silt content at 10 feet, moderately abundant medium bluish-gray (5B 5/1) discoloration.	▽▽▽▽
		0.0			▽▽▽▽

PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	LOG OF BORING B-SV2 760 22nd Street and 2201 Brush Street Oakland, California	FIGURE C-16
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616				

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
12	S-12	0.1	CH	Silty clay, some very fine- to fine-grained sand, medium bluish-gray (5B 5/1) discoloration. Increasing abundance of medium bluish-gray (5B 5/1) discoloration from moderate to abundant between 11 feet and 13 feet 10 inches, some dark yellowish-orange (10YR 6/6) staining as irregular patches, petroleum odor. Near vertical seam of partly decomposed plant material at 11 feet 4 inches to 12 feet 9 inches.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽ ▽▽▽▽ ▽▽▽▽ ▽▽▽▽ ▽▽▽▽
13		0.0	▼ ≡	Wet at approximately 13¼ feet. Patch of partly decomposed plant material at 13 feet 8 inches.	▽▽▽▽ ▽▽▽▽ ▽▽▽▽ ▽▽▽▽
14		0.3	SC	Clayey very fine- to fine-grained sand, medium bluish-gray (5B 5/1), wet, petroleum odor.	▽▽▽▽
15				Total depth = 14 feet. Ground water encountered at 13 1/4 feet..	
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22					
23					
24					

Total depth of boring: 20 feet
 Diameter of boring: 2 1/2 inches
 Date drilled: 02/15/16
 Drilling Company: PeneCore Drilling
 Driller: Carlos
 Drilling method: Direct push
 Sample diameter: 1 1/4 inches
 Field Geologist: Rodger Witham

Casing diameter: NA
 Casing material: NA
 Slot size: NA
 Sand size: NA
 Blank casing from NA to NA
 Perforated casing from NA to NA
 Annular seal from NA to NA
 Bentonite plug from NA to NA
 Sand pack from NA to NA

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
				Concrete.	
1		0.4	ML	Silt, trace fine- and coarse-grained sand, dusky yellowish-brown (10YR 2/2), some dark yellowish-orange (10YR 6/6) staining as small to minute patches, damp, low plasticity, trace plant roots.	
2		10.1	CH	Silty clay, trace very fine- to fine-grained sand, pale yellowish-brown (10YR 6/2) with dusky yellowish-brown (10YR 2/2) mottling, some dark yellowish-orange (10YR 6/6) stained stringers and specks, damp, high plasticity.	
3		1.7			
4		0.0		Fine- to coarse-grained sandy clay at 3 feet 6 inches to 4 feet 5 inches, some gravel.	
5		2.3		Dark greenish-gray (5G 4/1) at 4 feet 5 inches, trace fine- to medium-grained sand.	
6		0.8		Moderate yellowish-brown (10YR 5/4) at 5 feet, some dusky yellowish-brown (10YR 2/2) staining as small patches and specks, trace coarse-grained sand.	
7		0.3	ML	Silt, with clay, some fine-grained sand, moderate yellowish-brown (10YR 5/4), minor to abundant medium bluish-gray (5B 5/1) discoloration (increasing abundance downward), trace dark yellowish-orange (10YR 6/6) staining as stringers and specks, moist, low plasticity.	
8		0.9		Grades downward to very fine- to fine-grained sandy silt.	
9		0.6	SW	Fine- to coarse-grained sand, with gravel, some clay, dark yellowish-brown (10YR 4/2), moist.	
10		2.0	ML	Very fine- to fine-grained sandy silt, dark bluish-gray (5B 4/1), some irregular dark yellowish-orange (10YR 6/6) staining, moist, low plasticity.	
		3.9		Gravel clast at 10 feet 10 inches.	

PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	LOG OF BORING FOR WELL SV-3 760 22nd Street and 2201 Brush Street Oakland, California	FIGURE C-18
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616				

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
			SM	Silty fine- to medium-grained sand, some coarse-grained sand, trace gravel, dark yellowish-brown (10YR 4/2), very moist.	
12		1.3	CL	Very fine- to fine-grained sandy clay, trace medium- to coarse-grained sand, moderate yellowish-brown (10YR 5/4), minor irregular medium bluish-gray (5B 5/1) discoloration, moist, medium plasticity. Moderately abundant medium bluish-gray discoloration at 12 feet 4 inches to 13 feet, some dusky yellowish-brown (10YR 2/2) and dark yellowish-orange (10YR 6/6) staining as small patches.	
13		1.7			
14	S-13	2.2	ML	Very fine- to fine-grained sandy silt, trace medium- to coarse-grained sand, medium bluish-gray (5B 5/1), wet.	
15		0.0	SC	Clayey fine- to coarse-grained sand, some gravel, medium bluish-gray (5B 5/1), wet, petroleum odor. Dark yellowish-brown (10YR 4/2) at 15 feet 2 inches, some moderate reddish-brown (10R 4/6) and dark yellowish-orange (10YR 6/6) staining as irregular patches.	
16		0.3			
16	S-16	0.3			
17			CL	Very fine- to fine-grained sandy clay, trace medium- to coarse-grained sand, trace gravel, dark yellowish-brown (10YR 4/2), wet, medium plasticity.	
18		1.2			
19		0.0	ML	Very fine- to fine-grained sandy silt, trace medium- to coarse-grained sand, trace gravel, dark yellowish-brown (10YR 4/2), moderately abundant irregular dark yellowish-orange (10YR 6/6) staining, wet, low plasticity.	
19			SC	Clayey fine- to coarse-grained sand, with gravel, dark yellowish-brown (10YR 4/2), trace dark yellowish-orange (10YR 6/6) staining, wet. Decrease clay content downward.	
20		0.0			
20				Total depth = 20 feet. Ground water encountered at 14 feet.	
21					
22					
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24					

PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	LOG OF BORING FOR WELL SV-3	FIGURE
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616			760 22nd Street and 2201 Brush Street Oakland, California	C-19

Total depth of boring: 17 1/2 feet
 Diameter of boring: 2 1/2 inches
 Date drilled: 02/15/16
 Drilling Company: PeneCore Drilling
 Driller: Carlos
 Drilling method: Direct push
 Sample diameter: 1 1/4 inches
 Field Geologist: Rodger Witham

Casing diameter: NA
 Casing material: NA
 Slot size: NA
 Sand size: NA
 Blank casing from NA to NA
 Perforated casing from NA to NA
 Annular seal from NA to NA
 Bentonite plug from NA to NA
 Sand pack from NA to NA

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
				Concrete.	
1		0.1	SP	Fine- to coarse-grained sand (Fill), some gravel, trace silt, light gray (N7), damp.	
			CH	Silty clay, trace fine- to coarse-grained sand, medium bluish-gray (5B 5/1), trace dark yellowish-orange (10YR 6/6) staining as small patches, damp, high plasticity, trace plant roots. Medium bluish-gray (5B 5/1) and dusky brown (5YR 2/2) mottled from 1 foot to 2 feet 4 inches.	
2		0.6		Fine- to coarse-grained sandy at 2 feet 3 inches to 2 feet 6 inches.	
3		0.4		Dark yellowish-brown (10YR 4/2) and medium bluish-gray (5B 5/1) mottled at 3 feet, trace minute dark yellowish-orange (10YR 6/6) and moderate reddish-brown (10R 4/6) patches.	
4		0.3			
5		0.3			
6		0.8		With fine- to coarse-grained sand, trace gravel at 5 feet 11 inches to 6 feet 4 inches. Some partly decomposed plant material at 6 1/2 to 7 feet, increase in dark yellowish-orange (10YR 6/6) and moderate reddish-brown (10R 4/6) staining at sand grains and gravel clasts.	
7		0.9		Decrease in medium bluish-gray (5B 5/1) mottling to some between 6 and 7 feet. Fine- to coarse-grained sandy clay lens at 7 feet 2 inches to 7 feet 4 inches.	
8		1.2	ML	Silt, some very fine- to fine-grained sand, trace coarse-grained sand, dark yellowish-brown (10YR 4/2) with medium bluish-gray (5B 5/1) mottling, moist, low plasticity.	
			SM	Silty fine- to medium-grained sand, trace coarse-grained sand, dark yellowish-brown (10YR 4/2), minor medium bluish-gray (5B 5/1) discoloration, moist.	
9		0.1			
			SW	Fine- to coarse-grained sand, with gravel, trace silt, trace clay, dark yellowish-brown (10YR 4/2), minor medium bluish-gray (5B 5/1) discoloration, some dark yellowish-orange (10YR 6/6) and moderate reddish-brown (10R 4/6) staining at sand grains and gravel clasts.	
10		0.1			
		4.1	ML	Silt, some very fine- to fine-grained sand, light olive gray (5Y 5/2), abundant medium bluish-gray (5B 5/1) discoloration, moist.	

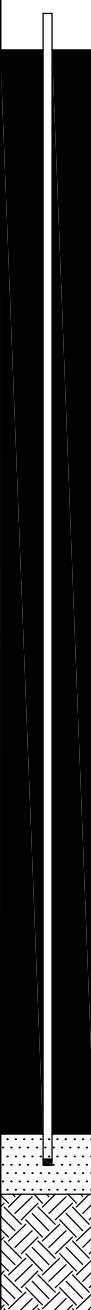
PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	LOG OF BORING FOR WELL SV-4S/SV-4D 760 22nd Street and 2201 Brush Street Oakland, California	FIGURE C-20
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616				

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
12	S-13	3.6	ML	Silt, some very fine- to fine-grained sand, light olive gray (5Y 5/2), abundant medium bluish-gray (5B 5/1) discoloration, moist. With gravel at 11 feet 6 inches to 11 feet 9 inches.	
			SC	Clayey very fine- to fine-grained sand, trace medium- to coarse-grained sand, medium bluish-gray (5B 5/1), some stringers and small patches of dark yellowish-orange (10YR 6/6) staining, very moist.	
13		3.1			
14		12.5	CH	Silty clay, some very fine- to fine-grained sand, trace coarse-grained sand, trace gravel, medium bluish-gray (5B 5/1), moderately abundant dark yellowish-orange (10YR 6/6) mottling, very moist to wet, high plasticity.	
15		9.0		Pale yellowish-brown (10YR 6/2) at 15 feet, moderately abundant medium bluish-gray (5B 5/1) discoloration.	
16		1.5	SC	Clayey, gravelly fine- to coarse-grained sand, dark yellowish-brown (10YR 4/2), moderately abundant dark yellowish-orange (10YR 6/6) and moderate reddish-brown (10R 4/6) staining at sand grains and gravel clasts, wet.	
16			SW	Gravelly fine- to coarse-grained sand, trace silt and clay, dark yellowish-brown (10YR 4/2), wet.	
17	0.4	SC	Clayey fine- to coarse-grained sand, with gravel, dark yellowish-brown (10YR 4/2), some irregular dark reddish-brown (10R 3/4) and dark yellowish-orange (10YR 6/6) staining, wet.		
17	2.2				
18				Total Depth = 17½ feet. Ground water encountered at approximately 15 feet.	
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21					
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23					
24					

PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	LOG OF BORING FOR WELL SV-4S/SV-4D	FIGURE
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616			760 22nd Street and 2201 Brush Street Oakland, California	C-21

Total depth of boring: 20 feet
 Diameter of boring: 2 1/2 inches
 Date drilled: 02/15/16
 Drilling Company: PeneCore Drilling
 Driller: Carlos
 Drilling method: Direct push
 Sample diameter: 1 1/4 inches
 Field Geologist: Rodger Witham

Casing diameter: NA
 Casing material: NA
 Slot size: NA
 Sand size: NA
 Blank casing from NA to NA
 Perforated casing from NA to NA
 Annular seal from NA to NA
 Bentonite plug from NA to NA
 Sand pack from NA to NA

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
				Concrete.	
1		0.4	ML	Very fine- to fine-grained sandy silt, trace medium- to coarse-grained sand, dusky yellowish-brown (10YR 2/2), trace small patches of dark yellowish-orange (10YR 6/6) staining, low plasticity, damp.	
2		0.3			
3		0.0	CH	Silty clay, trace fine- to coarse-grained sand, dark bluish-gray (5B 4/1), damp, high plasticity.	
4		0.0		Fine- to coarse-grained sandy (white grains) at 4 feet 4 inches, dark greenish-gray (5G 4/1).	
5		0.0		Moderate yellowish-brown (10YR 5/4) at 5 feet, abundant irregular medium bluish-gray (5B 5/1) discoloration, trace dark yellowish-orange (10YR 6/6) and moderate reddish-brown (10R 4/6) staining in small patches.	
6		0.0		Angular gravel clast at 5 feet 10 inches. Increase very fine- to fine-grained sand content (some) at 5 feet 11 inches.	
7		0.0			
8		0.0		Dark bluish-gray (5B 4/1) discoloration at 8 feet. Medium bluish-gray (5B 5/1) discoloration at 8 feet 5 inches.	
9		0.0		Fine- to medium-grained sandy at 9 feet. Fine- to coarse-grained sandy at 9 feet 4 inches.	
10		0.2	SP	Fine- to medium-grained sand, trace coarse-grained sand, moderate yellowish-brown (10YR 5/4) abundant moderate reddish-brown (10R 4/6) staining, moist. Dark bluish-gray (5B 4/1) at 9 feet 10 inches.	
		0.0	SM	Silty very fine- to fine-grained sand, trace coarse-grained sand, medium bluish-gray (5B 5/1), moist.	

PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	LOG OF BORING FOR WELL SV-5 760 22nd Street and 2201 Brush Street Oakland, California	FIGURE C-22
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616				

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.	
12	S-12	1.6	SM	Silty very fine- to fine-grained sand, trace coarse-grained sand, dark bluish-gray (5B 5/1), moist. Wet at 12½ feet, petroleum odor.		
13			CH ▼ ≡	Silty clay, with very fine- to fine-grained sand, trace medium-grained sand, trace gravel, medium bluish-gray (5B 5/1), moderately abundant irregular dark yellowish-orange (10YR 6/6) staining, moist, high plasticity.		
14	1.8					
15	S-15	28.3				
16			0.3	ML		Clayey silt, with very fine- to medium-grained sand, medium bluish-gray (5B 5/1), abundant dark yellowish-orange (10YR 6/6) staining, wet, low plasticity, petroleum odor.
17			0.4	GC		Clayey fine- to coarse-grained sandy gravel, dark bluish-gray (5B 4/1), wet, petroleum odor.
18			0.7	SW		Fine- to coarse-grained sand, with gravel, dark yellowish-brown (10YR 4/2), wet.
19			5.5	SC		Clayey fine- to medium-grained sand, some coarse-grained sand, moderate yellowish-brown (10YR 5/4), abundant dark reddish-brown (10R 3/4) and moderate reddish-brown (10R 4/6) staining, wet.
19			CH	Silty clay, with very fine- to medium-grained sand, trace gravel, moderate yellowish-brown (10YR 6/6) and moderate reddish-brown (10R 4/6) staining, wet, high plasticity.		
20		2.2	GC	Clayey fine- to coarse-grained sandy gravel, dark yellowish-brown (10YR 4/2), some moderate reddish-brown (10R 4/6) staining, wet.		
20				Total Depth = 20 feet. Ground water measured at 13.4 feet.		
21						
22						
23						
24						

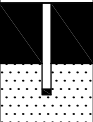
PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	LOG OF BORING FOR WELL SV-5 760 22nd Street and 2201 Brush Street Oakland, California	FIGURE
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616				C-23

Total depth of boring: 12 feet
 Diameter of boring: 2 1/2 inches
 Date drilled: 02/15/16
 Drilling Company: PeneCore Drilling
 Driller: Carlos
 Drilling method: Direct push
 Sample diameter: 1 1/4 inches
 Field Geologist: Rodger Witham

Casing diameter: NA
 Casing material: NA
 Slot size: NA
 Sand size: NA
 Blank casing from NA to NA
 Perforated casing from NA to NA
 Annular seal from NA to NA
 Bentonite plug from NA to NA
 Sand pack from NA to NA

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
				Concrete.	
1		0.0	SW SM CH/CL	Fine- to coarse-grained sand (Fill), light gray (N7), damp Silty very fine- to fine-grained sand, dusky yellowish-brown (10YR 2/2), damp. Silty clay, trace very fine- to fine-grained sand, dusky yellowish-brown (10YR 2/2), some dark yellowish-orange (10YR 6/6) and moderate reddish-brown (10R 4/6) staining as small patches and stringers, moist, high plasticity, trace partly decomposed plant roots. Brownish-gray (5YR 4/1) at 1 to 2 feet, stiff. Medium dark gray (N4) at 2 to 3 feet, very stiff.	
2		0.0			
3		0.0		Dark greenish-gray (5G 4/1) at 3 feet to 3 feet 9 inches, trace gravel.	
4		0.0		Weathered, white fine- to coarse-grained sand at 3 feet 9 inches to 4 feet 1 inch, dark yellowish-brown (10YR 4/2), some dusky yellowish-brown (10YR 2/2) decomposed plant material as small patches.	
5		0.0		Pale yellowish-brown (10YR 6/2) at 4 1/2 feet, some patches and seams of dusky yellowish-brown (10YR 2/2) staining, trace irregular dark yellowish-orange (10YR 6/6) and moderate reddish-brown (10R 4/6) staining, stiff.	
6		0.0		With very fine- to medium-grained sand at 5 feet, trace coarse-grained sand, trace gravel, dark yellowish-brown (10YR 4/2), abundant medium bluish-gray (5B 5/1) discoloration, trace dark yellowish-orange (10YR 6/6) and moderate reddish-brown (10R 4/6) staining as small to minute patches and along partings, petroleum odor. Trace decomposed plant material at 5 feet to 5 feet 2 inches.	
7		0.0		Some partly decomposed plant roots at 6 feet 8 inches to 7 feet.	
8		0.0	SC	Clayey very fine- to fine-grained sand, medium bluish-gray (5B 5/1), moist, some partly decomposed plant roots, petroleum odor.	
9	S-8 1/2	0.0	CH	Grades to very fine- to fine-grained sand, trace clay at 9 feet. Silty clay, some very fine- to fine-grained sand, dark bluish-gray (5B 5/1), trace dark yellowish-orange (10YR 6/6) staining at weathered sand grains, moist, high plasticity. Decreasing abundance of medium bluish-gray (5B 5/1) discoloration from pervasive to some discoloration between 9 and 10 feet, increasing percentage of moderate yellowish-brown (10YR 5/4) color, decrease very fine- to fine-grained sand to trace, trace coarse-grained sand. Some dusky yellowish-brown (10YR 2/2) staining as small irregular patches at 10 to 10 1/2 feet, trace partly decomposed plant roots, some medium bluish-gray (5B 5/1) discoloration. Moderately abundant medium bluish-gray (5B 5/1) discoloration at 10 1/2 feet, petroleum odor.	
10		0.0			

PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	LOG OF BORING FOR WELL SV-6 760 22nd Street and 2201 Brush Street Oakland, California	FIGURE C-24
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616				

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
12	S-11 1/2	0.0	CH	Silty clay, trace very fine- to fine-grained sand, moderate yellowish-brown (10YR 5/4), some irregular medium bluish-gray (5B 5/1) discoloration, trace dark yellowish-orange (10YR 6/6) and moderate reddish-brown (10R 4/6) staining, moist, high plasticity.	
13				Total depth = 12 feet. No ground water encountered.	
14					
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23					
24					

PROJECT NO.
15166

DRAWN BY
EC

REPORT DATE
March 2016

LOG OF BORING FOR WELL SV-6

FIGURE

Essel Environmental Consulting

351 California Street, Suite 615
San Francisco, California 94104
1-800-595-7616

760 22nd Street and
2201 Brush Street
Oakland, California

C-25

Total depth of boring: 11 feet
 Diameter of boring: 2 1/2 inches
 Date drilled: 02/15/16
 Drilling Company: PeneCore Drilling
 Driller: Carlos
 Drilling method: Direct push
 Sample diameter: 1 1/4 inches
 Field Geologist: Rodger Witham

Casing diameter: NA
 Casing material: NA
 Slot size: NA
 Sand size: NA
 Blank casing from NA to NA
 Perforated casing from NA to NA
 Annular seal from NA to NA
 Bentonite plug from NA to NA
 Sand pack from NA to NA

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
				Concrete.	▽▽▽▽
1		0.0	SM	Silty very fine- to fine-grained sand, trace medium- to coarse-grained sand, dusky yellowish-brown (10YR 2/2), some dark yellowish-orange (10YR 6/6) and moderate reddish-brown (10YR 4/6) staining as small patches, damp.	▽▽▽▽
2		0.0	ML	Silt, some clay, dusky yellowish-brown (10YR 2/2), some small irregular dark yellowish-orange (10YR 6/6) and moderate reddish-brown (10R 4/6) patches, damp.	▽▽▽▽
3		0.0	CH	Silty clay, trace fine- to coarse-grained sand, trace gravel, dusky yellowish-brown (10YR 2/2), some dark yellowish-orange (10YR 6/6) and moderate reddish-brown (10R 4/6) staining as small patches and stringers, moist, high plasticity, trace partly decomposed plant roots.	▽▽▽▽
4		0.0			▽▽▽▽
5		0.0		Pale yellowish-brown at 4 feet 9 inches, moderately abundant white staining as weathered patches and weathered sand grains. Moderate yellowish-brown (10YR 5/4) at 5 feet, some fine- to coarse-grained sand, trace to some minute to small patches of dark yellowish orange (10YR 6/6), moderate reddish-brown (10R 4/6), and dusky yellowish-brown (10YR 2/2) staining.	▽▽▽▽
6	S-5 1/2	0.0			▽▽▽▽
7		0.0			▽▽▽▽
8		0.0			▽▽▽▽
9		0.0		Moderately abundant large dusky yellowish-brown (10YR 2/2) patches at 8 feet 6 inches to 8 feet 9 inches.	▽▽▽▽
10		0.0			▽▽▽▽
11	S-10 1/2	0.0		Minor light bluish-gray (5B 7/1) mottling from 10 to 11 feet.	▽▽▽▽
				Total depth = 11 feet. No ground water encountered.	

PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	LOG OF BORING FOR WELL SV-7 760 22nd Street and 2201 Brush Street Oakland, California	FIGURE C-26
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616				

Total depth of boring: 8 1/2 feet
 Diameter of boring: 3 inches
 Date drilled: 02/23/16
 Drilling Company: NA
 Driller: Trevor Marion
 Drilling method: Hand Auger
 Sample diameter: 2 inches
 Field Geologist: Rodger Witham

Casing diameter: NA
 Casing material: NA
 Slot size: NA
 Sand size: NA
 Blank casing from NA to NA
 Perforated casing from NA to NA
 Annular seal from NA to NA
 Bentonite plug from NA to NA
 Sand pack from NA to NA

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
1				Oil changing pit.	
2					
3					
4					
5				Concrete floor.	▽▽▽▽
6	S-1		CL/CH	Silty clay, trace coarse-grained sand, moderate yellowish-brown (10YR 5/4) and pale yellowish-brown (10 YR 6/2) mottled, some irregular patches and specks of dusky yellowish-brown (10YR 2/2) staining, damp, medium to high plasticity, no odor.	▽▽▽▽
7					▽▽▽▽
8	S-3				▽▽▽▽
9				Total depth = 8 1/2 feet. No ground water encountered.	
10					
11					

PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	LOG OF BORING HA-1 760 22nd Street and 2201 Brush Street Oakland, California	FIGURE C-27
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616				

Total depth of boring: 9 feet
 Diameter of boring: 3 inches
 Date drilled: 02/23/16
 Drilling Company: NA
 Driller: Trevor Marion
 Drilling method: Hand Auger
 Sample diameter: 2 inches
 Field Geologist: Rodger Witham

Casing diameter: NA
 Casing material: NA
 Slot size: NA
 Sand size: NA
 Blank casing from NA to NA
 Perforated casing from NA to NA
 Annular seal from NA to NA
 Bentonite plug from NA to NA
 Sand pack from NA to NA

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
1				Oil changing pit.	
2					
3					
4					
5				Concrete floor.	▽▽▽▽
6	S-1		CL/CH	Silty clay, trace coarse-grained sand, moderate yellowish-brown (10YR 5/4) and pale yellowish-brown (10 YR 6/2) mottled, some irregular patches and specks of dusky yellowish-brown (10YR 2/2) staining, damp, medium to high plasticity, no odor.	▽▽▽▽
7					▽▽▽▽
8					▽▽▽▽
9	S-3 1/2				▽▽▽▽
10				Total depth = 9 feet. No ground water encountered.	
11					

PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	LOG OF BORING HA-2 760 22nd Street and 2201 Brush Street Oakland, California	FIGURE C-28
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616				

Total depth of boring: 8 1/2 feet
 Diameter of boring: 3 inches
 Date drilled: 02/23/16
 Drilling Company: NA
 Driller: Trevor Marion
 Drilling method: Hand Auger
 Sample diameter: 2 inches
 Field Geologist: Rodger Witham

Casing diameter: NA
 Casing material: NA
 Slot size: NA
 Sand size: NA
 Blank casing from NA to NA
 Perforated casing from NA to NA
 Annular seal from NA to NA
 Bentonite plug from NA to NA
 Sand pack from NA to NA

Depth	Sample No.	PID in PPM	USCS Code	Description	Well Const.
1				Oil changing pit.	
2					
3					
4					
5				Concrete floor.	▽▽▽▽
6	S-1		CL/CH	Silty clay, trace coarse-grained sand, moderate yellowish-brown (10YR 5/4) and pale yellowish-brown (10 YR 6/2) mottled, some irregular patches and specks of dusky yellowish-brown (10YR 2/2) staining, damp, medium to high plasticity, no odor.	▽▽▽▽
7					▽▽▽▽
8	S-3				▽▽▽▽
9				Total depth = 8 1/2 feet. No ground water encountered.	
10					
11					

PROJECT NO. 15166	DRAWN BY EC	REPORT DATE March 2016	LOG OF BORING HA-3 760 22nd Street and 2201 Brush Street Oakland, California	FIGURE C-29
Essel Environmental Consulting 351 California Street, Suite 615 San Francisco, California 94104 1-800-595-7616				

APPENDIX D

CHAIN-OF-CUSTODY FORMS AND LABORATORY ANALYTICAL REPORTS



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1602626

Report Created for: Essel Environmental Consulting
564 Market Street
San Francisco, CA 94104

Project Contact: Nik Lahiri
Project P.O.:
Project Name: 15166; EBALDC

Project Received: 02/17/2016

Analytical Report reviewed & approved for release on 02/26/2016 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: Essel Environmental Consulting
Project: 15166; EBALDC
WorkOrder: 1602626

Glossary Abbreviation

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
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: Essel Environmental Consulting
Project: 15166; EBALDC
WorkOrder: 1602626

Analytical Qualifiers

S Surrogate spike recovery outside accepted recovery limits
c2 surrogate recovery outside of the control limits due to matrix interference.
c4 surrogate recovery outside of the control limits due to coelution with another peak(s) / cluttered chromatogram.
d7 strongly aged gasoline or diesel range compounds are significant in the TPH(g) chromatogram
e2 diesel range compounds are significant; no recognizable pattern
e7 oil range compounds are significant
e11 stoddard solvent/mineral spirit (?)

Quality Control Qualifiers

F1 MS/MSD recovery and/or RPD is out of acceptance criteria; LCS validated the prep batch.
F8 MS/MSD recovery and/or RPD was out of acceptance criteria; PDS validated the prep batch. If PDS recovery was out of acceptance criteria, DLT validated the prep batch.



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
Extraction Method: SW3550B
Analytical Method: SW8082
Unit: mg/kg

Polychlorinated Biphenyls (PCBs) Aroclors

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4-ECB15	1602626-001A	Soil	02/16/2016 08:30	GC5A	116709

Analytes	Result	RL	DF	Date Analyzed
Aroclor1016	ND	0.050	1	02/18/2016 10:50
Aroclor1221	ND	0.050	1	02/18/2016 10:50
Aroclor1232	ND	0.050	1	02/18/2016 10:50
Aroclor1242	ND	0.050	1	02/18/2016 10:50
Aroclor1248	ND	0.050	1	02/18/2016 10:50
Aroclor1254	ND	0.050	1	02/18/2016 10:50
Aroclor1260	ND	0.050	1	02/18/2016 10:50
PCBs, total	ND	0.050	1	02/18/2016 10:50

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	85	70-130	02/18/2016 10:50

Analyst(s): SS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-9½-ECB15	1602626-002A	Soil	02/16/2016 08:41	GC5A	116709

Analytes	Result	RL	DF	Date Analyzed
Aroclor1016	ND	0.050	1	02/18/2016 05:06
Aroclor1221	ND	0.050	1	02/18/2016 05:06
Aroclor1232	ND	0.050	1	02/18/2016 05:06
Aroclor1242	ND	0.050	1	02/18/2016 05:06
Aroclor1248	ND	0.050	1	02/18/2016 05:06
Aroclor1254	ND	0.050	1	02/18/2016 05:06
Aroclor1260	ND	0.050	1	02/18/2016 05:06
PCBs, total	ND	0.050	1	02/18/2016 05:06

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	91	70-130	02/18/2016 05:06

Analyst(s): SS



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-4-ECB15	1602626-001A	Soil	02/16/2016 08:30	GC18	116778

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/20/2016 17:29
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/20/2016 17:29
Benzene	ND	0.0050	1	02/20/2016 17:29
Bromobenzene	ND	0.0050	1	02/20/2016 17:29
Bromochloromethane	ND	0.0050	1	02/20/2016 17:29
Bromodichloromethane	ND	0.0050	1	02/20/2016 17:29
Bromoform	ND	0.0050	1	02/20/2016 17:29
Bromomethane	ND	0.0050	1	02/20/2016 17:29
2-Butanone (MEK)	ND	0.020	1	02/20/2016 17:29
t-Butyl alcohol (TBA)	ND	0.050	1	02/20/2016 17:29
n-Butyl benzene	ND	0.0050	1	02/20/2016 17:29
sec-Butyl benzene	ND	0.0050	1	02/20/2016 17:29
tert-Butyl benzene	ND	0.0050	1	02/20/2016 17:29
Carbon Disulfide	ND	0.0050	1	02/20/2016 17:29
Carbon Tetrachloride	ND	0.0050	1	02/20/2016 17:29
Chlorobenzene	ND	0.0050	1	02/20/2016 17:29
Chloroethane	ND	0.0050	1	02/20/2016 17:29
Chloroform	ND	0.0050	1	02/20/2016 17:29
Chloromethane	ND	0.0050	1	02/20/2016 17:29
2-Chlorotoluene	ND	0.0050	1	02/20/2016 17:29
4-Chlorotoluene	ND	0.0050	1	02/20/2016 17:29
Dibromochloromethane	ND	0.0050	1	02/20/2016 17:29
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/20/2016 17:29
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/20/2016 17:29
Dibromomethane	ND	0.0050	1	02/20/2016 17:29
1,2-Dichlorobenzene	ND	0.0050	1	02/20/2016 17:29
1,3-Dichlorobenzene	ND	0.0050	1	02/20/2016 17:29
1,4-Dichlorobenzene	ND	0.0050	1	02/20/2016 17:29
Dichlorodifluoromethane	ND	0.0050	1	02/20/2016 17:29
1,1-Dichloroethane	ND	0.0050	1	02/20/2016 17:29
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/20/2016 17:29
1,1-Dichloroethene	ND	0.0050	1	02/20/2016 17:29
cis-1,2-Dichloroethene	ND	0.0050	1	02/20/2016 17:29
trans-1,2-Dichloroethene	ND	0.0050	1	02/20/2016 17:29
1,2-Dichloropropane	ND	0.0050	1	02/20/2016 17:29
1,3-Dichloropropane	ND	0.0050	1	02/20/2016 17:29
2,2-Dichloropropane	ND	0.0050	1	02/20/2016 17:29

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-4-ECB15	1602626-001A	Soil	02/16/2016 08:30	GC18	116778

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/20/2016 17:29
cis-1,3-Dichloropropene	ND	0.0050	1	02/20/2016 17:29
trans-1,3-Dichloropropene	ND	0.0050	1	02/20/2016 17:29
Diisopropyl ether (DIPE)	ND	0.0050	1	02/20/2016 17:29
Ethylbenzene	ND	0.0050	1	02/20/2016 17:29
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/20/2016 17:29
Freon 113	ND	0.0050	1	02/20/2016 17:29
Hexachlorobutadiene	ND	0.0050	1	02/20/2016 17:29
Hexachloroethane	ND	0.0050	1	02/20/2016 17:29
2-Hexanone	ND	0.0050	1	02/20/2016 17:29
Isopropylbenzene	ND	0.0050	1	02/20/2016 17:29
4-Isopropyl toluene	ND	0.0050	1	02/20/2016 17:29
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/20/2016 17:29
Methylene chloride	ND	0.0050	1	02/20/2016 17:29
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/20/2016 17:29
Naphthalene	ND	0.0050	1	02/20/2016 17:29
n-Propyl benzene	ND	0.0050	1	02/20/2016 17:29
Styrene	ND	0.0050	1	02/20/2016 17:29
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/20/2016 17:29
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/20/2016 17:29
Tetrachloroethene	ND	0.0050	1	02/20/2016 17:29
Toluene	ND	0.0050	1	02/20/2016 17:29
1,2,3-Trichlorobenzene	ND	0.0050	1	02/20/2016 17:29
1,2,4-Trichlorobenzene	ND	0.0050	1	02/20/2016 17:29
1,1,1-Trichloroethane	ND	0.0050	1	02/20/2016 17:29
1,1,2-Trichloroethane	ND	0.0050	1	02/20/2016 17:29
Trichloroethene	ND	0.0050	1	02/20/2016 17:29
Trichlorofluoromethane	ND	0.0050	1	02/20/2016 17:29
1,2,3-Trichloropropane	ND	0.0050	1	02/20/2016 17:29
1,2,4-Trimethylbenzene	ND	0.0050	1	02/20/2016 17:29
1,3,5-Trimethylbenzene	ND	0.0050	1	02/20/2016 17:29
Vinyl Chloride	ND	0.0050	1	02/20/2016 17:29
Xylenes, Total	ND	0.0050	1	02/20/2016 17:29

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-4-ECB15	1602626-001A	Soil	02/16/2016 08:30	GC18	116778

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	113	70-130		02/20/2016 17:29
Toluene-d8	118	70-130		02/20/2016 17:29
4-BFB	88	70-130		02/20/2016 17:29
Benzene-d6	135	60-140		02/20/2016 17:29
Ethylbenzene-d10	127	60-140		02/20/2016 17:29
1,2-DCB-d4	134	60-140		02/20/2016 17:29

Analyst(s): AK



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-9½-ECB15	1602626-002A	Soil	02/16/2016 08:41	GC18	116778

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/20/2016 18:07
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/20/2016 18:07
Benzene	ND	0.0050	1	02/20/2016 18:07
Bromobenzene	ND	0.0050	1	02/20/2016 18:07
Bromochloromethane	ND	0.0050	1	02/20/2016 18:07
Bromodichloromethane	ND	0.0050	1	02/20/2016 18:07
Bromoform	ND	0.0050	1	02/20/2016 18:07
Bromomethane	ND	0.0050	1	02/20/2016 18:07
2-Butanone (MEK)	ND	0.020	1	02/20/2016 18:07
t-Butyl alcohol (TBA)	ND	0.050	1	02/20/2016 18:07
n-Butyl benzene	ND	0.0050	1	02/20/2016 18:07
sec-Butyl benzene	ND	0.0050	1	02/20/2016 18:07
tert-Butyl benzene	ND	0.0050	1	02/20/2016 18:07
Carbon Disulfide	ND	0.0050	1	02/20/2016 18:07
Carbon Tetrachloride	ND	0.0050	1	02/20/2016 18:07
Chlorobenzene	ND	0.0050	1	02/20/2016 18:07
Chloroethane	ND	0.0050	1	02/20/2016 18:07
Chloroform	ND	0.0050	1	02/20/2016 18:07
Chloromethane	ND	0.0050	1	02/20/2016 18:07
2-Chlorotoluene	ND	0.0050	1	02/20/2016 18:07
4-Chlorotoluene	ND	0.0050	1	02/20/2016 18:07
Dibromochloromethane	ND	0.0050	1	02/20/2016 18:07
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/20/2016 18:07
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/20/2016 18:07
Dibromomethane	ND	0.0050	1	02/20/2016 18:07
1,2-Dichlorobenzene	ND	0.0050	1	02/20/2016 18:07
1,3-Dichlorobenzene	ND	0.0050	1	02/20/2016 18:07
1,4-Dichlorobenzene	ND	0.0050	1	02/20/2016 18:07
Dichlorodifluoromethane	ND	0.0050	1	02/20/2016 18:07
1,1-Dichloroethane	ND	0.0050	1	02/20/2016 18:07
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/20/2016 18:07
1,1-Dichloroethene	ND	0.0050	1	02/20/2016 18:07
cis-1,2-Dichloroethene	ND	0.0050	1	02/20/2016 18:07
trans-1,2-Dichloroethene	ND	0.0050	1	02/20/2016 18:07
1,2-Dichloropropane	ND	0.0050	1	02/20/2016 18:07
1,3-Dichloropropane	ND	0.0050	1	02/20/2016 18:07
2,2-Dichloropropane	ND	0.0050	1	02/20/2016 18:07

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-9½-ECB15	1602626-002A	Soil	02/16/2016 08:41	GC18	116778

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/20/2016 18:07
cis-1,3-Dichloropropene	ND	0.0050	1	02/20/2016 18:07
trans-1,3-Dichloropropene	ND	0.0050	1	02/20/2016 18:07
Diisopropyl ether (DIPE)	ND	0.0050	1	02/20/2016 18:07
Ethylbenzene	ND	0.0050	1	02/20/2016 18:07
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/20/2016 18:07
Freon 113	ND	0.0050	1	02/20/2016 18:07
Hexachlorobutadiene	ND	0.0050	1	02/20/2016 18:07
Hexachloroethane	ND	0.0050	1	02/20/2016 18:07
2-Hexanone	ND	0.0050	1	02/20/2016 18:07
Isopropylbenzene	ND	0.0050	1	02/20/2016 18:07
4-Isopropyl toluene	ND	0.0050	1	02/20/2016 18:07
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/20/2016 18:07
Methylene chloride	ND	0.0050	1	02/20/2016 18:07
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/20/2016 18:07
Naphthalene	ND	0.0050	1	02/20/2016 18:07
n-Propyl benzene	ND	0.0050	1	02/20/2016 18:07
Styrene	ND	0.0050	1	02/20/2016 18:07
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/20/2016 18:07
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/20/2016 18:07
Tetrachloroethene	ND	0.0050	1	02/20/2016 18:07
Toluene	ND	0.0050	1	02/20/2016 18:07
1,2,3-Trichlorobenzene	ND	0.0050	1	02/20/2016 18:07
1,2,4-Trichlorobenzene	ND	0.0050	1	02/20/2016 18:07
1,1,1-Trichloroethane	ND	0.0050	1	02/20/2016 18:07
1,1,2-Trichloroethane	ND	0.0050	1	02/20/2016 18:07
Trichloroethene	ND	0.0050	1	02/20/2016 18:07
Trichlorofluoromethane	ND	0.0050	1	02/20/2016 18:07
1,2,3-Trichloropropane	ND	0.0050	1	02/20/2016 18:07
1,2,4-Trimethylbenzene	ND	0.0050	1	02/20/2016 18:07
1,3,5-Trimethylbenzene	ND	0.0050	1	02/20/2016 18:07
Vinyl Chloride	ND	0.0050	1	02/20/2016 18:07
Xylenes, Total	ND	0.0050	1	02/20/2016 18:07

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-9½-ECB15	1602626-002A	Soil	02/16/2016 08:41	GC18	116778

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	115	70-130		02/20/2016 18:07
Toluene-d8	117	70-130		02/20/2016 18:07
4-BFB	86	70-130		02/20/2016 18:07
Benzene-d6	125	60-140		02/20/2016 18:07
Ethylbenzene-d10	113	60-140		02/20/2016 18:07
1,2-DCB-d4	116	60-140		02/20/2016 18:07

Analyst(s): AK



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-12½-ECB15	1602626-003A	Soil	02/16/2016 08:58	GC18	116778

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	20	200	02/20/2016 19:24
tert-Amyl methyl ether (TAME)	ND	1.0	200	02/20/2016 19:24
Benzene	ND	1.0	200	02/20/2016 19:24
Bromobenzene	ND	1.0	200	02/20/2016 19:24
Bromochloromethane	ND	1.0	200	02/20/2016 19:24
Bromodichloromethane	ND	1.0	200	02/20/2016 19:24
Bromoform	ND	1.0	200	02/20/2016 19:24
Bromomethane	ND	1.0	200	02/20/2016 19:24
2-Butanone (MEK)	ND	4.0	200	02/20/2016 19:24
t-Butyl alcohol (TBA)	ND	10	200	02/20/2016 19:24
n-Butyl benzene	1.9	1.0	200	02/20/2016 19:24
sec-Butyl benzene	ND	1.0	200	02/20/2016 19:24
tert-Butyl benzene	ND	1.0	200	02/20/2016 19:24
Carbon Disulfide	ND	1.0	200	02/20/2016 19:24
Carbon Tetrachloride	ND	1.0	200	02/20/2016 19:24
Chlorobenzene	ND	1.0	200	02/20/2016 19:24
Chloroethane	ND	1.0	200	02/20/2016 19:24
Chloroform	ND	1.0	200	02/20/2016 19:24
Chloromethane	ND	1.0	200	02/20/2016 19:24
2-Chlorotoluene	ND	1.0	200	02/20/2016 19:24
4-Chlorotoluene	ND	1.0	200	02/20/2016 19:24
Dibromochloromethane	ND	1.0	200	02/20/2016 19:24
1,2-Dibromo-3-chloropropane	ND	0.80	200	02/20/2016 19:24
1,2-Dibromoethane (EDB)	ND	0.80	200	02/20/2016 19:24
Dibromomethane	ND	1.0	200	02/20/2016 19:24
1,2-Dichlorobenzene	ND	1.0	200	02/20/2016 19:24
1,3-Dichlorobenzene	ND	1.0	200	02/20/2016 19:24
1,4-Dichlorobenzene	ND	1.0	200	02/20/2016 19:24
Dichlorodifluoromethane	ND	1.0	200	02/20/2016 19:24
1,1-Dichloroethane	ND	1.0	200	02/20/2016 19:24
1,2-Dichloroethane (1,2-DCA)	ND	0.80	200	02/20/2016 19:24
1,1-Dichloroethene	ND	1.0	200	02/20/2016 19:24
cis-1,2-Dichloroethene	ND	1.0	200	02/20/2016 19:24
trans-1,2-Dichloroethene	ND	1.0	200	02/20/2016 19:24
1,2-Dichloropropane	ND	1.0	200	02/20/2016 19:24
1,3-Dichloropropane	ND	1.0	200	02/20/2016 19:24
2,2-Dichloropropane	ND	1.0	200	02/20/2016 19:24

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-12½-ECB15	1602626-003A	Soil	02/16/2016 08:58	GC18	116778

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	1.0	200	02/20/2016 19:24
cis-1,3-Dichloropropene	ND	1.0	200	02/20/2016 19:24
trans-1,3-Dichloropropene	ND	1.0	200	02/20/2016 19:24
Diisopropyl ether (DIPE)	ND	1.0	200	02/20/2016 19:24
Ethylbenzene	ND	1.0	200	02/20/2016 19:24
Ethyl tert-butyl ether (ETBE)	ND	1.0	200	02/20/2016 19:24
Freon 113	ND	1.0	200	02/20/2016 19:24
Hexachlorobutadiene	ND	1.0	200	02/20/2016 19:24
Hexachloroethane	ND	1.0	200	02/20/2016 19:24
2-Hexanone	ND	1.0	200	02/20/2016 19:24
Isopropylbenzene	ND	1.0	200	02/20/2016 19:24
4-Isopropyl toluene	ND	1.0	200	02/20/2016 19:24
Methyl-t-butyl ether (MTBE)	ND	1.0	200	02/20/2016 19:24
Methylene chloride	ND	1.0	200	02/20/2016 19:24
4-Methyl-2-pentanone (MIBK)	ND	1.0	200	02/20/2016 19:24
Naphthalene	15	1.0	200	02/20/2016 19:24
n-Propyl benzene	1.6	1.0	200	02/20/2016 19:24
Styrene	ND	1.0	200	02/20/2016 19:24
1,1,1,2-Tetrachloroethane	ND	1.0	200	02/20/2016 19:24
1,1,2,2-Tetrachloroethane	ND	1.0	200	02/20/2016 19:24
Tetrachloroethene	ND	1.0	200	02/20/2016 19:24
Toluene	ND	1.0	200	02/20/2016 19:24
1,2,3-Trichlorobenzene	ND	1.0	200	02/20/2016 19:24
1,2,4-Trichlorobenzene	ND	1.0	200	02/20/2016 19:24
1,1,1-Trichloroethane	ND	1.0	200	02/20/2016 19:24
1,1,2-Trichloroethane	ND	1.0	200	02/20/2016 19:24
Trichloroethene	ND	1.0	200	02/20/2016 19:24
Trichlorofluoromethane	ND	1.0	200	02/20/2016 19:24
1,2,3-Trichloropropane	ND	1.0	200	02/20/2016 19:24
1,2,4-Trimethylbenzene	18	1.0	200	02/20/2016 19:24
1,3,5-Trimethylbenzene	4.5	1.0	200	02/20/2016 19:24
Vinyl Chloride	ND	1.0	200	02/20/2016 19:24
Xylenes, Total	2.5	1.0	200	02/20/2016 19:24

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-12½-ECB15	1602626-003A	Soil	02/16/2016 08:58	GC18	116778

Analytes	Result		RL	DF	Date Analyzed
Surrogates	REC (%)	Qualifiers	Limits		
Dibromofluoromethane	118		70-130		02/20/2016 19:24
Toluene-d8	99		70-130		02/20/2016 19:24
4-BFB	84		70-130		02/20/2016 19:24
Benzene-d6	107		60-140		02/20/2016 19:24
Ethylbenzene-d10	163	S	60-140		02/20/2016 19:24
1,2-DCB-d4	304	S	60-140		02/20/2016 19:24

Analyst(s): AK

Analytical Comments: c2



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-18-ECB15	1602626-004A	Soil	02/16/2016 09:01	GC18	116778

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/20/2016 20:02
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/20/2016 20:02
Benzene	ND	0.0050	1	02/20/2016 20:02
Bromobenzene	ND	0.0050	1	02/20/2016 20:02
Bromochloromethane	ND	0.0050	1	02/20/2016 20:02
Bromodichloromethane	ND	0.0050	1	02/20/2016 20:02
Bromoform	ND	0.0050	1	02/20/2016 20:02
Bromomethane	ND	0.0050	1	02/20/2016 20:02
2-Butanone (MEK)	ND	0.020	1	02/20/2016 20:02
t-Butyl alcohol (TBA)	ND	0.050	1	02/20/2016 20:02
n-Butyl benzene	ND	0.0050	1	02/20/2016 20:02
sec-Butyl benzene	ND	0.0050	1	02/20/2016 20:02
tert-Butyl benzene	ND	0.0050	1	02/20/2016 20:02
Carbon Disulfide	ND	0.0050	1	02/20/2016 20:02
Carbon Tetrachloride	ND	0.0050	1	02/20/2016 20:02
Chlorobenzene	ND	0.0050	1	02/20/2016 20:02
Chloroethane	ND	0.0050	1	02/20/2016 20:02
Chloroform	ND	0.0050	1	02/20/2016 20:02
Chloromethane	ND	0.0050	1	02/20/2016 20:02
2-Chlorotoluene	ND	0.0050	1	02/20/2016 20:02
4-Chlorotoluene	ND	0.0050	1	02/20/2016 20:02
Dibromochloromethane	ND	0.0050	1	02/20/2016 20:02
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/20/2016 20:02
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/20/2016 20:02
Dibromomethane	ND	0.0050	1	02/20/2016 20:02
1,2-Dichlorobenzene	ND	0.0050	1	02/20/2016 20:02
1,3-Dichlorobenzene	ND	0.0050	1	02/20/2016 20:02
1,4-Dichlorobenzene	ND	0.0050	1	02/20/2016 20:02
Dichlorodifluoromethane	ND	0.0050	1	02/20/2016 20:02
1,1-Dichloroethane	ND	0.0050	1	02/20/2016 20:02
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/20/2016 20:02
1,1-Dichloroethene	ND	0.0050	1	02/20/2016 20:02
cis-1,2-Dichloroethene	ND	0.0050	1	02/20/2016 20:02
trans-1,2-Dichloroethene	ND	0.0050	1	02/20/2016 20:02
1,2-Dichloropropane	ND	0.0050	1	02/20/2016 20:02
1,3-Dichloropropane	ND	0.0050	1	02/20/2016 20:02
2,2-Dichloropropane	ND	0.0050	1	02/20/2016 20:02

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Project: 15166; EBALDC

WorkOrder: 1602626
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
S-18-ECB15	1602626-004A	Soil	02/16/2016 09:01	GC18	116778

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/20/2016 20:02
cis-1,3-Dichloropropene	ND	0.0050	1	02/20/2016 20:02
trans-1,3-Dichloropropene	ND	0.0050	1	02/20/2016 20:02
Diisopropyl ether (DIPE)	ND	0.0050	1	02/20/2016 20:02
Ethylbenzene	ND	0.0050	1	02/20/2016 20:02
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/20/2016 20:02
Freon 113	ND	0.0050	1	02/20/2016 20:02
Hexachlorobutadiene	ND	0.0050	1	02/20/2016 20:02
Hexachloroethane	ND	0.0050	1	02/20/2016 20:02
2-Hexanone	ND	0.0050	1	02/20/2016 20:02
Isopropylbenzene	ND	0.0050	1	02/20/2016 20:02
4-Isopropyl toluene	ND	0.0050	1	02/20/2016 20:02
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/20/2016 20:02
Methylene chloride	ND	0.0050	1	02/20/2016 20:02
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/20/2016 20:02
Naphthalene	ND	0.0050	1	02/20/2016 20:02
n-Propyl benzene	ND	0.0050	1	02/20/2016 20:02
Styrene	ND	0.0050	1	02/20/2016 20:02
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/20/2016 20:02
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/20/2016 20:02
Tetrachloroethene	ND	0.0050	1	02/20/2016 20:02
Toluene	ND	0.0050	1	02/20/2016 20:02
1,2,3-Trichlorobenzene	ND	0.0050	1	02/20/2016 20:02
1,2,4-Trichlorobenzene	ND	0.0050	1	02/20/2016 20:02
1,1,1-Trichloroethane	ND	0.0050	1	02/20/2016 20:02
1,1,2-Trichloroethane	ND	0.0050	1	02/20/2016 20:02
Trichloroethene	ND	0.0050	1	02/20/2016 20:02
Trichlorofluoromethane	ND	0.0050	1	02/20/2016 20:02
1,2,3-Trichloropropane	ND	0.0050	1	02/20/2016 20:02
1,2,4-Trimethylbenzene	ND	0.0050	1	02/20/2016 20:02
1,3,5-Trimethylbenzene	ND	0.0050	1	02/20/2016 20:02
Vinyl Chloride	ND	0.0050	1	02/20/2016 20:02
Xylenes, Total	ND	0.0050	1	02/20/2016 20:02

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Analytical Report

Client: Essel Environmental Consulting
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Project: 15166; EBALDC

WorkOrder: 1602626
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
S-18-ECB15	1602626-004A	Soil	02/16/2016 09:01	GC18	116778

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	116	70-130		02/20/2016 20:02
Toluene-d8	116	70-130		02/20/2016 20:02
4-BFB	85	70-130		02/20/2016 20:02
Benzene-d6	120	60-140		02/20/2016 20:02
Ethylbenzene-d10	107	60-140		02/20/2016 20:02
1,2-DCB-d4	106	60-140		02/20/2016 20:02

Analyst(s): AK



Analytical Report

Client: Essel Environmental Consulting
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WorkOrder: 1602626
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
S-13-ECB16	1602626-005A	Soil	02/16/2016 10:55	GC18	116778

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	20	200	02/20/2016 20:41
tert-Amyl methyl ether (TAME)	ND	1.0	200	02/20/2016 20:41
Benzene	ND	1.0	200	02/20/2016 20:41
Bromobenzene	ND	1.0	200	02/20/2016 20:41
Bromochloromethane	ND	1.0	200	02/20/2016 20:41
Bromodichloromethane	ND	1.0	200	02/20/2016 20:41
Bromoform	ND	1.0	200	02/20/2016 20:41
Bromomethane	ND	1.0	200	02/20/2016 20:41
2-Butanone (MEK)	ND	4.0	200	02/20/2016 20:41
t-Butyl alcohol (TBA)	ND	10	200	02/20/2016 20:41
n-Butyl benzene	ND	1.0	200	02/20/2016 20:41
sec-Butyl benzene	ND	1.0	200	02/20/2016 20:41
tert-Butyl benzene	ND	1.0	200	02/20/2016 20:41
Carbon Disulfide	ND	1.0	200	02/20/2016 20:41
Carbon Tetrachloride	ND	1.0	200	02/20/2016 20:41
Chlorobenzene	ND	1.0	200	02/20/2016 20:41
Chloroethane	ND	1.0	200	02/20/2016 20:41
Chloroform	ND	1.0	200	02/20/2016 20:41
Chloromethane	ND	1.0	200	02/20/2016 20:41
2-Chlorotoluene	ND	1.0	200	02/20/2016 20:41
4-Chlorotoluene	ND	1.0	200	02/20/2016 20:41
Dibromochloromethane	ND	1.0	200	02/20/2016 20:41
1,2-Dibromo-3-chloropropane	ND	0.80	200	02/20/2016 20:41
1,2-Dibromoethane (EDB)	ND	0.80	200	02/20/2016 20:41
Dibromomethane	ND	1.0	200	02/20/2016 20:41
1,2-Dichlorobenzene	ND	1.0	200	02/20/2016 20:41
1,3-Dichlorobenzene	ND	1.0	200	02/20/2016 20:41
1,4-Dichlorobenzene	ND	1.0	200	02/20/2016 20:41
Dichlorodifluoromethane	ND	1.0	200	02/20/2016 20:41
1,1-Dichloroethane	ND	1.0	200	02/20/2016 20:41
1,2-Dichloroethane (1,2-DCA)	ND	0.80	200	02/20/2016 20:41
1,1-Dichloroethene	ND	1.0	200	02/20/2016 20:41
cis-1,2-Dichloroethene	ND	1.0	200	02/20/2016 20:41
trans-1,2-Dichloroethene	ND	1.0	200	02/20/2016 20:41
1,2-Dichloropropane	ND	1.0	200	02/20/2016 20:41
1,3-Dichloropropane	ND	1.0	200	02/20/2016 20:41
2,2-Dichloropropane	ND	1.0	200	02/20/2016 20:41

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-13-ECB16	1602626-005A	Soil	02/16/2016 10:55	GC18	116778

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	1.0	200	02/20/2016 20:41
cis-1,3-Dichloropropene	ND	1.0	200	02/20/2016 20:41
trans-1,3-Dichloropropene	ND	1.0	200	02/20/2016 20:41
Diisopropyl ether (DIPE)	ND	1.0	200	02/20/2016 20:41
Ethylbenzene	ND	1.0	200	02/20/2016 20:41
Ethyl tert-butyl ether (ETBE)	ND	1.0	200	02/20/2016 20:41
Freon 113	ND	1.0	200	02/20/2016 20:41
Hexachlorobutadiene	ND	1.0	200	02/20/2016 20:41
Hexachloroethane	ND	1.0	200	02/20/2016 20:41
2-Hexanone	ND	1.0	200	02/20/2016 20:41
Isopropylbenzene	ND	1.0	200	02/20/2016 20:41
4-Isopropyl toluene	ND	1.0	200	02/20/2016 20:41
Methyl-t-butyl ether (MTBE)	ND	1.0	200	02/20/2016 20:41
Methylene chloride	ND	1.0	200	02/20/2016 20:41
4-Methyl-2-pentanone (MIBK)	ND	1.0	200	02/20/2016 20:41
Naphthalene	7.6	1.0	200	02/20/2016 20:41
n-Propyl benzene	ND	1.0	200	02/20/2016 20:41
Styrene	ND	1.0	200	02/20/2016 20:41
1,1,1,2-Tetrachloroethane	ND	1.0	200	02/20/2016 20:41
1,1,2,2-Tetrachloroethane	ND	1.0	200	02/20/2016 20:41
Tetrachloroethene	ND	1.0	200	02/20/2016 20:41
Toluene	ND	1.0	200	02/20/2016 20:41
1,2,3-Trichlorobenzene	ND	1.0	200	02/20/2016 20:41
1,2,4-Trichlorobenzene	ND	1.0	200	02/20/2016 20:41
1,1,1-Trichloroethane	ND	1.0	200	02/20/2016 20:41
1,1,2-Trichloroethane	ND	1.0	200	02/20/2016 20:41
Trichloroethene	ND	1.0	200	02/20/2016 20:41
Trichlorofluoromethane	ND	1.0	200	02/20/2016 20:41
1,2,3-Trichloropropane	ND	1.0	200	02/20/2016 20:41
1,2,4-Trimethylbenzene	7.4	1.0	200	02/20/2016 20:41
1,3,5-Trimethylbenzene	1.9	1.0	200	02/20/2016 20:41
Vinyl Chloride	ND	1.0	200	02/20/2016 20:41
Xylenes, Total	2.6	1.0	200	02/20/2016 20:41

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-13-ECB16	1602626-005A	Soil	02/16/2016 10:55	GC18	116778

Analytes	Result		RL	DF	Date Analyzed
Surrogates	REC (%)	Qualifiers	Limits		
Dibromofluoromethane	120		70-130		02/20/2016 20:41
Toluene-d8	100		70-130		02/20/2016 20:41
4-BFB	86		70-130		02/20/2016 20:41
Benzene-d6	131		60-140		02/20/2016 20:41
Ethylbenzene-d10	248	S	60-140		02/20/2016 20:41
1,2-DCB-d4	537	S	60-140		02/20/2016 20:41

Analyst(s): AK

Analytical Comments: c2



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-16½-ECB16	1602626-006A	Soil	02/16/2016 10:59	GC18	116778

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/20/2016 21:20
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/20/2016 21:20
Benzene	ND	0.0050	1	02/20/2016 21:20
Bromobenzene	ND	0.0050	1	02/20/2016 21:20
Bromochloromethane	ND	0.0050	1	02/20/2016 21:20
Bromodichloromethane	ND	0.0050	1	02/20/2016 21:20
Bromoform	ND	0.0050	1	02/20/2016 21:20
Bromomethane	ND	0.0050	1	02/20/2016 21:20
2-Butanone (MEK)	ND	0.020	1	02/20/2016 21:20
t-Butyl alcohol (TBA)	ND	0.050	1	02/20/2016 21:20
n-Butyl benzene	ND	0.0050	1	02/20/2016 21:20
sec-Butyl benzene	ND	0.0050	1	02/20/2016 21:20
tert-Butyl benzene	ND	0.0050	1	02/20/2016 21:20
Carbon Disulfide	ND	0.0050	1	02/20/2016 21:20
Carbon Tetrachloride	ND	0.0050	1	02/20/2016 21:20
Chlorobenzene	ND	0.0050	1	02/20/2016 21:20
Chloroethane	ND	0.0050	1	02/20/2016 21:20
Chloroform	ND	0.0050	1	02/20/2016 21:20
Chloromethane	ND	0.0050	1	02/20/2016 21:20
2-Chlorotoluene	ND	0.0050	1	02/20/2016 21:20
4-Chlorotoluene	ND	0.0050	1	02/20/2016 21:20
Dibromochloromethane	ND	0.0050	1	02/20/2016 21:20
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/20/2016 21:20
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/20/2016 21:20
Dibromomethane	ND	0.0050	1	02/20/2016 21:20
1,2-Dichlorobenzene	ND	0.0050	1	02/20/2016 21:20
1,3-Dichlorobenzene	ND	0.0050	1	02/20/2016 21:20
1,4-Dichlorobenzene	ND	0.0050	1	02/20/2016 21:20
Dichlorodifluoromethane	ND	0.0050	1	02/20/2016 21:20
1,1-Dichloroethane	ND	0.0050	1	02/20/2016 21:20
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/20/2016 21:20
1,1-Dichloroethene	ND	0.0050	1	02/20/2016 21:20
cis-1,2-Dichloroethene	ND	0.0050	1	02/20/2016 21:20
trans-1,2-Dichloroethene	ND	0.0050	1	02/20/2016 21:20
1,2-Dichloropropane	ND	0.0050	1	02/20/2016 21:20
1,3-Dichloropropane	ND	0.0050	1	02/20/2016 21:20
2,2-Dichloropropane	ND	0.0050	1	02/20/2016 21:20

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-16½-ECB16	1602626-006A	Soil	02/16/2016 10:59	GC18	116778

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/20/2016 21:20
cis-1,3-Dichloropropene	ND	0.0050	1	02/20/2016 21:20
trans-1,3-Dichloropropene	ND	0.0050	1	02/20/2016 21:20
Diisopropyl ether (DIPE)	ND	0.0050	1	02/20/2016 21:20
Ethylbenzene	ND	0.0050	1	02/20/2016 21:20
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/20/2016 21:20
Freon 113	ND	0.0050	1	02/20/2016 21:20
Hexachlorobutadiene	ND	0.0050	1	02/20/2016 21:20
Hexachloroethane	ND	0.0050	1	02/20/2016 21:20
2-Hexanone	ND	0.0050	1	02/20/2016 21:20
Isopropylbenzene	ND	0.0050	1	02/20/2016 21:20
4-Isopropyl toluene	ND	0.0050	1	02/20/2016 21:20
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/20/2016 21:20
Methylene chloride	ND	0.0050	1	02/20/2016 21:20
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/20/2016 21:20
Naphthalene	ND	0.0050	1	02/20/2016 21:20
n-Propyl benzene	ND	0.0050	1	02/20/2016 21:20
Styrene	ND	0.0050	1	02/20/2016 21:20
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/20/2016 21:20
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/20/2016 21:20
Tetrachloroethene	ND	0.0050	1	02/20/2016 21:20
Toluene	ND	0.0050	1	02/20/2016 21:20
1,2,3-Trichlorobenzene	ND	0.0050	1	02/20/2016 21:20
1,2,4-Trichlorobenzene	ND	0.0050	1	02/20/2016 21:20
1,1,1-Trichloroethane	ND	0.0050	1	02/20/2016 21:20
1,1,2-Trichloroethane	ND	0.0050	1	02/20/2016 21:20
Trichloroethene	ND	0.0050	1	02/20/2016 21:20
Trichlorofluoromethane	ND	0.0050	1	02/20/2016 21:20
1,2,3-Trichloropropane	ND	0.0050	1	02/20/2016 21:20
1,2,4-Trimethylbenzene	ND	0.0050	1	02/20/2016 21:20
1,3,5-Trimethylbenzene	ND	0.0050	1	02/20/2016 21:20
Vinyl Chloride	ND	0.0050	1	02/20/2016 21:20
Xylenes, Total	ND	0.0050	1	02/20/2016 21:20

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-16½-ECB16	1602626-006A	Soil	02/16/2016 10:59	GC18	116778

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	116	70-130		02/20/2016 21:20
Toluene-d8	112	70-130		02/20/2016 21:20
4-BFB	86	70-130		02/20/2016 21:20
Benzene-d6	108	60-140		02/20/2016 21:20
Ethylbenzene-d10	98	60-140		02/20/2016 21:20
1,2-DCB-d4	97	60-140		02/20/2016 21:20

Analyst(s): AK



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-13½-ECB17	1602626-007A	Soil	02/16/2016 10:00	GC16	116778

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	20	200	02/20/2016 19:01
tert-Amyl methyl ether (TAME)	ND	1.0	200	02/20/2016 19:01
Benzene	ND	1.0	200	02/20/2016 19:01
Bromobenzene	ND	1.0	200	02/20/2016 19:01
Bromochloromethane	ND	1.0	200	02/20/2016 19:01
Bromodichloromethane	ND	1.0	200	02/20/2016 19:01
Bromoform	ND	1.0	200	02/20/2016 19:01
Bromomethane	ND	1.0	200	02/20/2016 19:01
2-Butanone (MEK)	ND	4.0	200	02/20/2016 19:01
t-Butyl alcohol (TBA)	ND	10	200	02/20/2016 19:01
n-Butyl benzene	1.6	1.0	200	02/20/2016 19:01
sec-Butyl benzene	ND	1.0	200	02/20/2016 19:01
tert-Butyl benzene	ND	1.0	200	02/20/2016 19:01
Carbon Disulfide	ND	1.0	200	02/20/2016 19:01
Carbon Tetrachloride	ND	1.0	200	02/20/2016 19:01
Chlorobenzene	ND	1.0	200	02/20/2016 19:01
Chloroethane	ND	1.0	200	02/20/2016 19:01
Chloroform	ND	1.0	200	02/20/2016 19:01
Chloromethane	ND	1.0	200	02/20/2016 19:01
2-Chlorotoluene	ND	1.0	200	02/20/2016 19:01
4-Chlorotoluene	ND	1.0	200	02/20/2016 19:01
Dibromochloromethane	ND	1.0	200	02/20/2016 19:01
1,2-Dibromo-3-chloropropane	ND	0.80	200	02/20/2016 19:01
1,2-Dibromoethane (EDB)	ND	0.80	200	02/20/2016 19:01
Dibromomethane	ND	1.0	200	02/20/2016 19:01
1,2-Dichlorobenzene	ND	1.0	200	02/20/2016 19:01
1,3-Dichlorobenzene	ND	1.0	200	02/20/2016 19:01
1,4-Dichlorobenzene	ND	1.0	200	02/20/2016 19:01
Dichlorodifluoromethane	ND	1.0	200	02/20/2016 19:01
1,1-Dichloroethane	ND	1.0	200	02/20/2016 19:01
1,2-Dichloroethane (1,2-DCA)	ND	0.80	200	02/20/2016 19:01
1,1-Dichloroethene	ND	1.0	200	02/20/2016 19:01
cis-1,2-Dichloroethene	ND	1.0	200	02/20/2016 19:01
trans-1,2-Dichloroethene	ND	1.0	200	02/20/2016 19:01
1,2-Dichloropropane	ND	1.0	200	02/20/2016 19:01
1,3-Dichloropropane	ND	1.0	200	02/20/2016 19:01
2,2-Dichloropropane	ND	1.0	200	02/20/2016 19:01

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-13½-ECB17	1602626-007A	Soil	02/16/2016 10:00	GC16	116778

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	1.0	200	02/20/2016 19:01
cis-1,3-Dichloropropene	ND	1.0	200	02/20/2016 19:01
trans-1,3-Dichloropropene	ND	1.0	200	02/20/2016 19:01
Diisopropyl ether (DIPE)	ND	1.0	200	02/20/2016 19:01
Ethylbenzene	ND	1.0	200	02/20/2016 19:01
Ethyl tert-butyl ether (ETBE)	ND	1.0	200	02/20/2016 19:01
Freon 113	ND	1.0	200	02/20/2016 19:01
Hexachlorobutadiene	ND	1.0	200	02/20/2016 19:01
Hexachloroethane	ND	1.0	200	02/20/2016 19:01
2-Hexanone	ND	1.0	200	02/20/2016 19:01
Isopropylbenzene	ND	1.0	200	02/20/2016 19:01
4-Isopropyl toluene	ND	1.0	200	02/20/2016 19:01
Methyl-t-butyl ether (MTBE)	ND	1.0	200	02/20/2016 19:01
Methylene chloride	ND	1.0	200	02/20/2016 19:01
4-Methyl-2-pentanone (MIBK)	ND	1.0	200	02/20/2016 19:01
Naphthalene	4.9	1.0	200	02/20/2016 19:01
n-Propyl benzene	1.3	1.0	200	02/20/2016 19:01
Styrene	ND	1.0	200	02/20/2016 19:01
1,1,1,2-Tetrachloroethane	ND	1.0	200	02/20/2016 19:01
1,1,2,2-Tetrachloroethane	ND	1.0	200	02/20/2016 19:01
Tetrachloroethene	ND	1.0	200	02/20/2016 19:01
Toluene	ND	1.0	200	02/20/2016 19:01
1,2,3-Trichlorobenzene	ND	1.0	200	02/20/2016 19:01
1,2,4-Trichlorobenzene	ND	1.0	200	02/20/2016 19:01
1,1,1-Trichloroethane	ND	1.0	200	02/20/2016 19:01
1,1,2-Trichloroethane	ND	1.0	200	02/20/2016 19:01
Trichloroethene	ND	1.0	200	02/20/2016 19:01
Trichlorofluoromethane	ND	1.0	200	02/20/2016 19:01
1,2,3-Trichloropropane	ND	1.0	200	02/20/2016 19:01
1,2,4-Trimethylbenzene	13	1.0	200	02/20/2016 19:01
1,3,5-Trimethylbenzene	2.6	1.0	200	02/20/2016 19:01
Vinyl Chloride	ND	1.0	200	02/20/2016 19:01
Xylenes, Total	1.5	1.0	200	02/20/2016 19:01

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-13½-ECB17	1602626-007A	Soil	02/16/2016 10:00	GC16	116778

Analytes	Result		RL	DF	Date Analyzed
Surrogates	REC (%)	Qualifiers	Limits		
Dibromofluoromethane	105		70-130		02/20/2016 19:01
Toluene-d8	100		70-130		02/20/2016 19:01
4-BFB	98		70-130		02/20/2016 19:01
Benzene-d6	610	S	60-140		02/20/2016 19:01
Ethylbenzene-d10	567	S	60-140		02/20/2016 19:01
1,2-DCB-d4	261	S	60-140		02/20/2016 19:01

Analyst(s): AK

Analytical Comments: c2



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-15-ECB17	1602626-008A	Soil	02/16/2016 10:06	GC16	116778

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/20/2016 19:41
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/20/2016 19:41
Benzene	ND	0.0050	1	02/20/2016 19:41
Bromobenzene	ND	0.0050	1	02/20/2016 19:41
Bromochloromethane	ND	0.0050	1	02/20/2016 19:41
Bromodichloromethane	ND	0.0050	1	02/20/2016 19:41
Bromoform	ND	0.0050	1	02/20/2016 19:41
Bromomethane	ND	0.0050	1	02/20/2016 19:41
2-Butanone (MEK)	ND	0.020	1	02/20/2016 19:41
t-Butyl alcohol (TBA)	ND	0.050	1	02/20/2016 19:41
n-Butyl benzene	ND	0.0050	1	02/20/2016 19:41
sec-Butyl benzene	ND	0.0050	1	02/20/2016 19:41
tert-Butyl benzene	ND	0.0050	1	02/20/2016 19:41
Carbon Disulfide	ND	0.0050	1	02/20/2016 19:41
Carbon Tetrachloride	ND	0.0050	1	02/20/2016 19:41
Chlorobenzene	ND	0.0050	1	02/20/2016 19:41
Chloroethane	ND	0.0050	1	02/20/2016 19:41
Chloroform	ND	0.0050	1	02/20/2016 19:41
Chloromethane	ND	0.0050	1	02/20/2016 19:41
2-Chlorotoluene	ND	0.0050	1	02/20/2016 19:41
4-Chlorotoluene	ND	0.0050	1	02/20/2016 19:41
Dibromochloromethane	ND	0.0050	1	02/20/2016 19:41
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/20/2016 19:41
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/20/2016 19:41
Dibromomethane	ND	0.0050	1	02/20/2016 19:41
1,2-Dichlorobenzene	ND	0.0050	1	02/20/2016 19:41
1,3-Dichlorobenzene	ND	0.0050	1	02/20/2016 19:41
1,4-Dichlorobenzene	ND	0.0050	1	02/20/2016 19:41
Dichlorodifluoromethane	ND	0.0050	1	02/20/2016 19:41
1,1-Dichloroethane	ND	0.0050	1	02/20/2016 19:41
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/20/2016 19:41
1,1-Dichloroethene	ND	0.0050	1	02/20/2016 19:41
cis-1,2-Dichloroethene	ND	0.0050	1	02/20/2016 19:41
trans-1,2-Dichloroethene	ND	0.0050	1	02/20/2016 19:41
1,2-Dichloropropane	ND	0.0050	1	02/20/2016 19:41
1,3-Dichloropropane	ND	0.0050	1	02/20/2016 19:41
2,2-Dichloropropane	ND	0.0050	1	02/20/2016 19:41

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-15-ECB17	1602626-008A	Soil	02/16/2016 10:06	GC16	116778
Analytes	Result	RL	DF	Date Analyzed	
1,1-Dichloropropene	ND	0.0050	1	02/20/2016 19:41	
cis-1,3-Dichloropropene	ND	0.0050	1	02/20/2016 19:41	
trans-1,3-Dichloropropene	ND	0.0050	1	02/20/2016 19:41	
Diisopropyl ether (DIPE)	ND	0.0050	1	02/20/2016 19:41	
Ethylbenzene	ND	0.0050	1	02/20/2016 19:41	
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/20/2016 19:41	
Freon 113	ND	0.0050	1	02/20/2016 19:41	
Hexachlorobutadiene	ND	0.0050	1	02/20/2016 19:41	
Hexachloroethane	ND	0.0050	1	02/20/2016 19:41	
2-Hexanone	ND	0.0050	1	02/20/2016 19:41	
Isopropylbenzene	ND	0.0050	1	02/20/2016 19:41	
4-Isopropyl toluene	ND	0.0050	1	02/20/2016 19:41	
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/20/2016 19:41	
Methylene chloride	ND	0.0050	1	02/20/2016 19:41	
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/20/2016 19:41	
Naphthalene	ND	0.0050	1	02/20/2016 19:41	
n-Propyl benzene	ND	0.0050	1	02/20/2016 19:41	
Styrene	ND	0.0050	1	02/20/2016 19:41	
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/20/2016 19:41	
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/20/2016 19:41	
Tetrachloroethene	ND	0.0050	1	02/20/2016 19:41	
Toluene	ND	0.0050	1	02/20/2016 19:41	
1,2,3-Trichlorobenzene	ND	0.0050	1	02/20/2016 19:41	
1,2,4-Trichlorobenzene	ND	0.0050	1	02/20/2016 19:41	
1,1,1-Trichloroethane	ND	0.0050	1	02/20/2016 19:41	
1,1,2-Trichloroethane	ND	0.0050	1	02/20/2016 19:41	
Trichloroethene	ND	0.0050	1	02/20/2016 19:41	
Trichlorofluoromethane	ND	0.0050	1	02/20/2016 19:41	
1,2,3-Trichloropropane	ND	0.0050	1	02/20/2016 19:41	
1,2,4-Trimethylbenzene	ND	0.0050	1	02/20/2016 19:41	
1,3,5-Trimethylbenzene	ND	0.0050	1	02/20/2016 19:41	
Vinyl Chloride	ND	0.0050	1	02/20/2016 19:41	
Xylenes, Total	ND	0.0050	1	02/20/2016 19:41	

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-15-ECB17	1602626-008A	Soil	02/16/2016 10:06	GC16	116778

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	102	70-130		02/20/2016 19:41
Toluene-d8	115	70-130		02/20/2016 19:41
4-BFB	118	70-130		02/20/2016 19:41
Benzene-d6	96	60-140		02/20/2016 19:41
Ethylbenzene-d10	98	60-140		02/20/2016 19:41
1,2-DCB-d4	66	60-140		02/20/2016 19:41

Analyst(s): AK



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-3-ECB18	1602626-009A	Soil	02/16/2016 10:15	GC16	116778

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/20/2016 20:21
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/20/2016 20:21
Benzene	ND	0.0050	1	02/20/2016 20:21
Bromobenzene	ND	0.0050	1	02/20/2016 20:21
Bromochloromethane	ND	0.0050	1	02/20/2016 20:21
Bromodichloromethane	ND	0.0050	1	02/20/2016 20:21
Bromoform	ND	0.0050	1	02/20/2016 20:21
Bromomethane	ND	0.0050	1	02/20/2016 20:21
2-Butanone (MEK)	ND	0.020	1	02/20/2016 20:21
t-Butyl alcohol (TBA)	ND	0.050	1	02/20/2016 20:21
n-Butyl benzene	ND	0.0050	1	02/20/2016 20:21
sec-Butyl benzene	ND	0.0050	1	02/20/2016 20:21
tert-Butyl benzene	ND	0.0050	1	02/20/2016 20:21
Carbon Disulfide	ND	0.0050	1	02/20/2016 20:21
Carbon Tetrachloride	ND	0.0050	1	02/20/2016 20:21
Chlorobenzene	ND	0.0050	1	02/20/2016 20:21
Chloroethane	ND	0.0050	1	02/20/2016 20:21
Chloroform	ND	0.0050	1	02/20/2016 20:21
Chloromethane	ND	0.0050	1	02/20/2016 20:21
2-Chlorotoluene	ND	0.0050	1	02/20/2016 20:21
4-Chlorotoluene	ND	0.0050	1	02/20/2016 20:21
Dibromochloromethane	ND	0.0050	1	02/20/2016 20:21
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/20/2016 20:21
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/20/2016 20:21
Dibromomethane	ND	0.0050	1	02/20/2016 20:21
1,2-Dichlorobenzene	ND	0.0050	1	02/20/2016 20:21
1,3-Dichlorobenzene	ND	0.0050	1	02/20/2016 20:21
1,4-Dichlorobenzene	ND	0.0050	1	02/20/2016 20:21
Dichlorodifluoromethane	ND	0.0050	1	02/20/2016 20:21
1,1-Dichloroethane	ND	0.0050	1	02/20/2016 20:21
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/20/2016 20:21
1,1-Dichloroethene	ND	0.0050	1	02/20/2016 20:21
cis-1,2-Dichloroethene	ND	0.0050	1	02/20/2016 20:21
trans-1,2-Dichloroethene	ND	0.0050	1	02/20/2016 20:21
1,2-Dichloropropane	ND	0.0050	1	02/20/2016 20:21
1,3-Dichloropropane	ND	0.0050	1	02/20/2016 20:21
2,2-Dichloropropane	ND	0.0050	1	02/20/2016 20:21

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-3-ECB18	1602626-009A	Soil	02/16/2016 10:15	GC16	116778

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/20/2016 20:21
cis-1,3-Dichloropropene	ND	0.0050	1	02/20/2016 20:21
trans-1,3-Dichloropropene	ND	0.0050	1	02/20/2016 20:21
Diisopropyl ether (DIPE)	ND	0.0050	1	02/20/2016 20:21
Ethylbenzene	ND	0.0050	1	02/20/2016 20:21
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/20/2016 20:21
Freon 113	ND	0.0050	1	02/20/2016 20:21
Hexachlorobutadiene	ND	0.0050	1	02/20/2016 20:21
Hexachloroethane	ND	0.0050	1	02/20/2016 20:21
2-Hexanone	ND	0.0050	1	02/20/2016 20:21
Isopropylbenzene	ND	0.0050	1	02/20/2016 20:21
4-Isopropyl toluene	ND	0.0050	1	02/20/2016 20:21
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/20/2016 20:21
Methylene chloride	ND	0.0050	1	02/20/2016 20:21
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/20/2016 20:21
Naphthalene	ND	0.0050	1	02/20/2016 20:21
n-Propyl benzene	ND	0.0050	1	02/20/2016 20:21
Styrene	ND	0.0050	1	02/20/2016 20:21
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/20/2016 20:21
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/20/2016 20:21
Tetrachloroethene	ND	0.0050	1	02/20/2016 20:21
Toluene	ND	0.0050	1	02/20/2016 20:21
1,2,3-Trichlorobenzene	ND	0.0050	1	02/20/2016 20:21
1,2,4-Trichlorobenzene	ND	0.0050	1	02/20/2016 20:21
1,1,1-Trichloroethane	ND	0.0050	1	02/20/2016 20:21
1,1,2-Trichloroethane	ND	0.0050	1	02/20/2016 20:21
Trichloroethene	ND	0.0050	1	02/20/2016 20:21
Trichlorofluoromethane	ND	0.0050	1	02/20/2016 20:21
1,2,3-Trichloropropane	ND	0.0050	1	02/20/2016 20:21
1,2,4-Trimethylbenzene	ND	0.0050	1	02/20/2016 20:21
1,3,5-Trimethylbenzene	ND	0.0050	1	02/20/2016 20:21
Vinyl Chloride	ND	0.0050	1	02/20/2016 20:21
Xylenes, Total	ND	0.0050	1	02/20/2016 20:21

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-3-ECB18	1602626-009A	Soil	02/16/2016 10:15	GC16	116778

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	102	70-130		02/20/2016 20:21
Toluene-d8	117	70-130		02/20/2016 20:21
4-BFB	112	70-130		02/20/2016 20:21
Benzene-d6	103	60-140		02/20/2016 20:21
Ethylbenzene-d10	111	60-140		02/20/2016 20:21
1,2-DCB-d4	72	60-140		02/20/2016 20:21

Analyst(s): AK



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-9½-ECB18	1602626-010A	Soil	02/16/2016 10:18	GC16	116778

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/20/2016 21:01
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/20/2016 21:01
Benzene	ND	0.0050	1	02/20/2016 21:01
Bromobenzene	ND	0.0050	1	02/20/2016 21:01
Bromochloromethane	ND	0.0050	1	02/20/2016 21:01
Bromodichloromethane	ND	0.0050	1	02/20/2016 21:01
Bromoform	ND	0.0050	1	02/20/2016 21:01
Bromomethane	ND	0.0050	1	02/20/2016 21:01
2-Butanone (MEK)	ND	0.020	1	02/20/2016 21:01
t-Butyl alcohol (TBA)	ND	0.050	1	02/20/2016 21:01
n-Butyl benzene	ND	0.0050	1	02/20/2016 21:01
sec-Butyl benzene	ND	0.0050	1	02/20/2016 21:01
tert-Butyl benzene	ND	0.0050	1	02/20/2016 21:01
Carbon Disulfide	ND	0.0050	1	02/20/2016 21:01
Carbon Tetrachloride	ND	0.0050	1	02/20/2016 21:01
Chlorobenzene	ND	0.0050	1	02/20/2016 21:01
Chloroethane	ND	0.0050	1	02/20/2016 21:01
Chloroform	ND	0.0050	1	02/20/2016 21:01
Chloromethane	ND	0.0050	1	02/20/2016 21:01
2-Chlorotoluene	ND	0.0050	1	02/20/2016 21:01
4-Chlorotoluene	ND	0.0050	1	02/20/2016 21:01
Dibromochloromethane	ND	0.0050	1	02/20/2016 21:01
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/20/2016 21:01
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/20/2016 21:01
Dibromomethane	ND	0.0050	1	02/20/2016 21:01
1,2-Dichlorobenzene	ND	0.0050	1	02/20/2016 21:01
1,3-Dichlorobenzene	ND	0.0050	1	02/20/2016 21:01
1,4-Dichlorobenzene	ND	0.0050	1	02/20/2016 21:01
Dichlorodifluoromethane	ND	0.0050	1	02/20/2016 21:01
1,1-Dichloroethane	ND	0.0050	1	02/20/2016 21:01
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/20/2016 21:01
1,1-Dichloroethene	ND	0.0050	1	02/20/2016 21:01
cis-1,2-Dichloroethene	ND	0.0050	1	02/20/2016 21:01
trans-1,2-Dichloroethene	ND	0.0050	1	02/20/2016 21:01
1,2-Dichloropropane	ND	0.0050	1	02/20/2016 21:01
1,3-Dichloropropane	ND	0.0050	1	02/20/2016 21:01
2,2-Dichloropropane	ND	0.0050	1	02/20/2016 21:01

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-9½-ECB18	1602626-010A	Soil	02/16/2016 10:18	GC16	116778

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/20/2016 21:01
cis-1,3-Dichloropropene	ND	0.0050	1	02/20/2016 21:01
trans-1,3-Dichloropropene	ND	0.0050	1	02/20/2016 21:01
Diisopropyl ether (DIPE)	ND	0.0050	1	02/20/2016 21:01
Ethylbenzene	ND	0.0050	1	02/20/2016 21:01
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/20/2016 21:01
Freon 113	ND	0.0050	1	02/20/2016 21:01
Hexachlorobutadiene	ND	0.0050	1	02/20/2016 21:01
Hexachloroethane	ND	0.0050	1	02/20/2016 21:01
2-Hexanone	ND	0.0050	1	02/20/2016 21:01
Isopropylbenzene	ND	0.0050	1	02/20/2016 21:01
4-Isopropyl toluene	ND	0.0050	1	02/20/2016 21:01
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/20/2016 21:01
Methylene chloride	ND	0.0050	1	02/20/2016 21:01
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/20/2016 21:01
Naphthalene	ND	0.0050	1	02/20/2016 21:01
n-Propyl benzene	ND	0.0050	1	02/20/2016 21:01
Styrene	ND	0.0050	1	02/20/2016 21:01
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/20/2016 21:01
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/20/2016 21:01
Tetrachloroethene	ND	0.0050	1	02/20/2016 21:01
Toluene	ND	0.0050	1	02/20/2016 21:01
1,2,3-Trichlorobenzene	ND	0.0050	1	02/20/2016 21:01
1,2,4-Trichlorobenzene	ND	0.0050	1	02/20/2016 21:01
1,1,1-Trichloroethane	ND	0.0050	1	02/20/2016 21:01
1,1,2-Trichloroethane	ND	0.0050	1	02/20/2016 21:01
Trichloroethene	ND	0.0050	1	02/20/2016 21:01
Trichlorofluoromethane	ND	0.0050	1	02/20/2016 21:01
1,2,3-Trichloropropane	ND	0.0050	1	02/20/2016 21:01
1,2,4-Trimethylbenzene	ND	0.0050	1	02/20/2016 21:01
1,3,5-Trimethylbenzene	ND	0.0050	1	02/20/2016 21:01
Vinyl Chloride	ND	0.0050	1	02/20/2016 21:01
Xylenes, Total	ND	0.0050	1	02/20/2016 21:01

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-9½-ECB18	1602626-010A	Soil	02/16/2016 10:18	GC16	116778

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	102	70-130		02/20/2016 21:01
Toluene-d8	118	70-130		02/20/2016 21:01
4-BFB	107	70-130		02/20/2016 21:01
Benzene-d6	116	60-140		02/20/2016 21:01
Ethylbenzene-d10	120	60-140		02/20/2016 21:01
1,2-DCB-d4	73	60-140		02/20/2016 21:01

Analyst(s): AK



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-13-ECB18	1602626-011A	Soil	02/16/2016 10:27	GC16	116778
Analytes	Result	RL	DF	Date Analyzed	
Acetone	ND	0.10	1	02/20/2016 21:41	
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/20/2016 21:41	
Benzene	ND	0.0050	1	02/20/2016 21:41	
Bromobenzene	ND	0.0050	1	02/20/2016 21:41	
Bromochloromethane	ND	0.0050	1	02/20/2016 21:41	
Bromodichloromethane	ND	0.0050	1	02/20/2016 21:41	
Bromoform	ND	0.0050	1	02/20/2016 21:41	
Bromomethane	ND	0.0050	1	02/20/2016 21:41	
2-Butanone (MEK)	ND	0.020	1	02/20/2016 21:41	
t-Butyl alcohol (TBA)	ND	0.050	1	02/20/2016 21:41	
n-Butyl benzene	ND	0.0050	1	02/20/2016 21:41	
sec-Butyl benzene	ND	0.0050	1	02/20/2016 21:41	
tert-Butyl benzene	ND	0.0050	1	02/20/2016 21:41	
Carbon Disulfide	ND	0.0050	1	02/20/2016 21:41	
Carbon Tetrachloride	ND	0.0050	1	02/20/2016 21:41	
Chlorobenzene	ND	0.0050	1	02/20/2016 21:41	
Chloroethane	ND	0.0050	1	02/20/2016 21:41	
Chloroform	ND	0.0050	1	02/20/2016 21:41	
Chloromethane	ND	0.0050	1	02/20/2016 21:41	
2-Chlorotoluene	ND	0.0050	1	02/20/2016 21:41	
4-Chlorotoluene	ND	0.0050	1	02/20/2016 21:41	
Dibromochloromethane	ND	0.0050	1	02/20/2016 21:41	
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/20/2016 21:41	
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/20/2016 21:41	
Dibromomethane	ND	0.0050	1	02/20/2016 21:41	
1,2-Dichlorobenzene	ND	0.0050	1	02/20/2016 21:41	
1,3-Dichlorobenzene	ND	0.0050	1	02/20/2016 21:41	
1,4-Dichlorobenzene	ND	0.0050	1	02/20/2016 21:41	
Dichlorodifluoromethane	ND	0.0050	1	02/20/2016 21:41	
1,1-Dichloroethane	ND	0.0050	1	02/20/2016 21:41	
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/20/2016 21:41	
1,1-Dichloroethene	ND	0.0050	1	02/20/2016 21:41	
cis-1,2-Dichloroethene	ND	0.0050	1	02/20/2016 21:41	
trans-1,2-Dichloroethene	ND	0.0050	1	02/20/2016 21:41	
1,2-Dichloropropane	ND	0.0050	1	02/20/2016 21:41	
1,3-Dichloropropane	ND	0.0050	1	02/20/2016 21:41	
2,2-Dichloropropane	ND	0.0050	1	02/20/2016 21:41	

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-13-ECB18	1602626-011A	Soil	02/16/2016 10:27	GC16	116778

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/20/2016 21:41
cis-1,3-Dichloropropene	ND	0.0050	1	02/20/2016 21:41
trans-1,3-Dichloropropene	ND	0.0050	1	02/20/2016 21:41
Diisopropyl ether (DIPE)	ND	0.0050	1	02/20/2016 21:41
Ethylbenzene	ND	0.0050	1	02/20/2016 21:41
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/20/2016 21:41
Freon 113	ND	0.0050	1	02/20/2016 21:41
Hexachlorobutadiene	ND	0.0050	1	02/20/2016 21:41
Hexachloroethane	ND	0.0050	1	02/20/2016 21:41
2-Hexanone	ND	0.0050	1	02/20/2016 21:41
Isopropylbenzene	ND	0.0050	1	02/20/2016 21:41
4-Isopropyl toluene	ND	0.0050	1	02/20/2016 21:41
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/20/2016 21:41
Methylene chloride	ND	0.0050	1	02/20/2016 21:41
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/20/2016 21:41
Naphthalene	ND	0.0050	1	02/20/2016 21:41
n-Propyl benzene	ND	0.0050	1	02/20/2016 21:41
Styrene	ND	0.0050	1	02/20/2016 21:41
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/20/2016 21:41
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/20/2016 21:41
Tetrachloroethene	ND	0.0050	1	02/20/2016 21:41
Toluene	ND	0.0050	1	02/20/2016 21:41
1,2,3-Trichlorobenzene	ND	0.0050	1	02/20/2016 21:41
1,2,4-Trichlorobenzene	ND	0.0050	1	02/20/2016 21:41
1,1,1-Trichloroethane	ND	0.0050	1	02/20/2016 21:41
1,1,2-Trichloroethane	ND	0.0050	1	02/20/2016 21:41
Trichloroethene	ND	0.0050	1	02/20/2016 21:41
Trichlorofluoromethane	ND	0.0050	1	02/20/2016 21:41
1,2,3-Trichloropropane	ND	0.0050	1	02/20/2016 21:41
1,2,4-Trimethylbenzene	ND	0.0050	1	02/20/2016 21:41
1,3,5-Trimethylbenzene	ND	0.0050	1	02/20/2016 21:41
Vinyl Chloride	ND	0.0050	1	02/20/2016 21:41
Xylenes, Total	ND	0.0050	1	02/20/2016 21:41

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-13-ECB18	1602626-011A	Soil	02/16/2016 10:27	GC16	116778

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	101	70-130		02/20/2016 21:41
Toluene-d8	119	70-130		02/20/2016 21:41
4-BFB	102	70-130		02/20/2016 21:41
Benzene-d6	104	60-140		02/20/2016 21:41
Ethylbenzene-d10	105	60-140		02/20/2016 21:41
1,2-DCB-d4	69	60-140		02/20/2016 21:41

Analyst(s): AK



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-14½-ECB19	1602626-012A	Soil	02/16/2016 08:14	GC10	116790

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/22/2016 22:56
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/22/2016 22:56
Benzene	ND	0.0050	1	02/22/2016 22:56
Bromobenzene	ND	0.0050	1	02/22/2016 22:56
Bromochloromethane	ND	0.0050	1	02/22/2016 22:56
Bromodichloromethane	ND	0.0050	1	02/22/2016 22:56
Bromoform	ND	0.0050	1	02/22/2016 22:56
Bromomethane	ND	0.0050	1	02/22/2016 22:56
2-Butanone (MEK)	ND	0.020	1	02/22/2016 22:56
t-Butyl alcohol (TBA)	ND	0.050	1	02/22/2016 22:56
n-Butyl benzene	0.026	0.0050	1	02/22/2016 22:56
sec-Butyl benzene	0.067	0.0050	1	02/22/2016 22:56
tert-Butyl benzene	ND	0.0050	1	02/22/2016 22:56
Carbon Disulfide	ND	0.0050	1	02/22/2016 22:56
Carbon Tetrachloride	ND	0.0050	1	02/22/2016 22:56
Chlorobenzene	ND	0.0050	1	02/22/2016 22:56
Chloroethane	ND	0.0050	1	02/22/2016 22:56
Chloroform	ND	0.0050	1	02/22/2016 22:56
Chloromethane	ND	0.0050	1	02/22/2016 22:56
2-Chlorotoluene	ND	0.0050	1	02/22/2016 22:56
4-Chlorotoluene	ND	0.0050	1	02/22/2016 22:56
Dibromochloromethane	ND	0.0050	1	02/22/2016 22:56
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/22/2016 22:56
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/22/2016 22:56
Dibromomethane	ND	0.0050	1	02/22/2016 22:56
1,2-Dichlorobenzene	ND	0.0050	1	02/22/2016 22:56
1,3-Dichlorobenzene	ND	0.0050	1	02/22/2016 22:56
1,4-Dichlorobenzene	ND	0.0050	1	02/22/2016 22:56
Dichlorodifluoromethane	ND	0.0050	1	02/22/2016 22:56
1,1-Dichloroethane	ND	0.0050	1	02/22/2016 22:56
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/22/2016 22:56
1,1-Dichloroethene	ND	0.0050	1	02/22/2016 22:56
cis-1,2-Dichloroethene	ND	0.0050	1	02/22/2016 22:56
trans-1,2-Dichloroethene	ND	0.0050	1	02/22/2016 22:56
1,2-Dichloropropane	ND	0.0050	1	02/22/2016 22:56
1,3-Dichloropropane	ND	0.0050	1	02/22/2016 22:56
2,2-Dichloropropane	ND	0.0050	1	02/22/2016 22:56

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-14½-ECB19	1602626-012A	Soil	02/16/2016 08:14	GC10	116790
Analytes	Result	RL	DF	Date Analyzed	
1,1-Dichloropropene	ND	0.0050	1	02/22/2016 22:56	
cis-1,3-Dichloropropene	ND	0.0050	1	02/22/2016 22:56	
trans-1,3-Dichloropropene	ND	0.0050	1	02/22/2016 22:56	
Diisopropyl ether (DIPE)	ND	0.0050	1	02/22/2016 22:56	
Ethylbenzene	ND	0.0050	1	02/22/2016 22:56	
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/22/2016 22:56	
Freon 113	ND	0.0050	1	02/22/2016 22:56	
Hexachlorobutadiene	ND	0.0050	1	02/22/2016 22:56	
Hexachloroethane	ND	0.0050	1	02/22/2016 22:56	
2-Hexanone	ND	0.0050	1	02/22/2016 22:56	
Isopropylbenzene	ND	0.0050	1	02/22/2016 22:56	
4-Isopropyl toluene	ND	0.0050	1	02/22/2016 22:56	
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/22/2016 22:56	
Methylene chloride	ND	0.0050	1	02/22/2016 22:56	
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/22/2016 22:56	
Naphthalene	ND	0.0050	1	02/22/2016 22:56	
n-Propyl benzene	ND	0.0050	1	02/22/2016 22:56	
Styrene	ND	0.0050	1	02/22/2016 22:56	
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/22/2016 22:56	
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/22/2016 22:56	
Tetrachloroethene	ND	0.0050	1	02/22/2016 22:56	
Toluene	ND	0.0050	1	02/22/2016 22:56	
1,2,3-Trichlorobenzene	ND	0.0050	1	02/22/2016 22:56	
1,2,4-Trichlorobenzene	ND	0.0050	1	02/22/2016 22:56	
1,1,1-Trichloroethane	ND	0.0050	1	02/22/2016 22:56	
1,1,2-Trichloroethane	ND	0.0050	1	02/22/2016 22:56	
Trichloroethene	ND	0.0050	1	02/22/2016 22:56	
Trichlorofluoromethane	ND	0.0050	1	02/22/2016 22:56	
1,2,3-Trichloropropane	ND	0.0050	1	02/22/2016 22:56	
1,2,4-Trimethylbenzene	ND	0.0050	1	02/22/2016 22:56	
1,3,5-Trimethylbenzene	ND	0.0050	1	02/22/2016 22:56	
Vinyl Chloride	ND	0.0050	1	02/22/2016 22:56	
Xylenes, Total	ND	0.0050	1	02/22/2016 22:56	

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-14½-ECB19	1602626-012A	Soil	02/16/2016 08:14	GC10	116790

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	105	70-130		02/22/2016 22:56
Toluene-d8	117	70-130		02/22/2016 22:56
4-BFB	110	70-130		02/22/2016 22:56
Benzene-d6	107	60-140		02/22/2016 22:56
Ethylbenzene-d10	117	60-140		02/22/2016 22:56
1,2-DCB-d4	111	60-140		02/22/2016 22:56

Analyst(s): KF



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-17-ECB19	1602626-013A	Soil	02/16/2016 08:16	GC18	116790

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/18/2016 14:17
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/18/2016 14:17
Benzene	ND	0.0050	1	02/18/2016 14:17
Bromobenzene	ND	0.0050	1	02/18/2016 14:17
Bromochloromethane	ND	0.0050	1	02/18/2016 14:17
Bromodichloromethane	ND	0.0050	1	02/18/2016 14:17
Bromoform	ND	0.0050	1	02/18/2016 14:17
Bromomethane	ND	0.0050	1	02/18/2016 14:17
2-Butanone (MEK)	ND	0.020	1	02/18/2016 14:17
t-Butyl alcohol (TBA)	ND	0.050	1	02/18/2016 14:17
n-Butyl benzene	ND	0.0050	1	02/18/2016 14:17
sec-Butyl benzene	ND	0.0050	1	02/18/2016 14:17
tert-Butyl benzene	ND	0.0050	1	02/18/2016 14:17
Carbon Disulfide	ND	0.0050	1	02/18/2016 14:17
Carbon Tetrachloride	ND	0.0050	1	02/18/2016 14:17
Chlorobenzene	ND	0.0050	1	02/18/2016 14:17
Chloroethane	ND	0.0050	1	02/18/2016 14:17
Chloroform	ND	0.0050	1	02/18/2016 14:17
Chloromethane	ND	0.0050	1	02/18/2016 14:17
2-Chlorotoluene	ND	0.0050	1	02/18/2016 14:17
4-Chlorotoluene	ND	0.0050	1	02/18/2016 14:17
Dibromochloromethane	ND	0.0050	1	02/18/2016 14:17
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/18/2016 14:17
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/18/2016 14:17
Dibromomethane	ND	0.0050	1	02/18/2016 14:17
1,2-Dichlorobenzene	ND	0.0050	1	02/18/2016 14:17
1,3-Dichlorobenzene	ND	0.0050	1	02/18/2016 14:17
1,4-Dichlorobenzene	ND	0.0050	1	02/18/2016 14:17
Dichlorodifluoromethane	ND	0.0050	1	02/18/2016 14:17
1,1-Dichloroethane	ND	0.0050	1	02/18/2016 14:17
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/18/2016 14:17
1,1-Dichloroethene	ND	0.0050	1	02/18/2016 14:17
cis-1,2-Dichloroethene	ND	0.0050	1	02/18/2016 14:17
trans-1,2-Dichloroethene	ND	0.0050	1	02/18/2016 14:17
1,2-Dichloropropane	ND	0.0050	1	02/18/2016 14:17
1,3-Dichloropropane	ND	0.0050	1	02/18/2016 14:17
2,2-Dichloropropane	ND	0.0050	1	02/18/2016 14:17

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-17-ECB19	1602626-013A	Soil	02/16/2016 08:16	GC18	116790

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/18/2016 14:17
cis-1,3-Dichloropropene	ND	0.0050	1	02/18/2016 14:17
trans-1,3-Dichloropropene	ND	0.0050	1	02/18/2016 14:17
Diisopropyl ether (DIPE)	ND	0.0050	1	02/18/2016 14:17
Ethylbenzene	ND	0.0050	1	02/18/2016 14:17
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/18/2016 14:17
Freon 113	ND	0.0050	1	02/18/2016 14:17
Hexachlorobutadiene	ND	0.0050	1	02/18/2016 14:17
Hexachloroethane	ND	0.0050	1	02/18/2016 14:17
2-Hexanone	ND	0.0050	1	02/18/2016 14:17
Isopropylbenzene	ND	0.0050	1	02/18/2016 14:17
4-Isopropyl toluene	ND	0.0050	1	02/18/2016 14:17
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/18/2016 14:17
Methylene chloride	ND	0.0050	1	02/18/2016 14:17
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/18/2016 14:17
Naphthalene	ND	0.0050	1	02/18/2016 14:17
n-Propyl benzene	ND	0.0050	1	02/18/2016 14:17
Styrene	ND	0.0050	1	02/18/2016 14:17
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/18/2016 14:17
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/18/2016 14:17
Tetrachloroethene	ND	0.0050	1	02/18/2016 14:17
Toluene	ND	0.0050	1	02/18/2016 14:17
1,2,3-Trichlorobenzene	ND	0.0050	1	02/18/2016 14:17
1,2,4-Trichlorobenzene	ND	0.0050	1	02/18/2016 14:17
1,1,1-Trichloroethane	ND	0.0050	1	02/18/2016 14:17
1,1,2-Trichloroethane	ND	0.0050	1	02/18/2016 14:17
Trichloroethene	ND	0.0050	1	02/18/2016 14:17
Trichlorofluoromethane	ND	0.0050	1	02/18/2016 14:17
1,2,3-Trichloropropane	ND	0.0050	1	02/18/2016 14:17
1,2,4-Trimethylbenzene	ND	0.0050	1	02/18/2016 14:17
1,3,5-Trimethylbenzene	ND	0.0050	1	02/18/2016 14:17
Vinyl Chloride	ND	0.0050	1	02/18/2016 14:17
Xylenes, Total	ND	0.0050	1	02/18/2016 14:17

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-17-ECB19	1602626-013A	Soil	02/16/2016 08:16	GC18	116790

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	115	70-130		02/18/2016 14:17
Toluene-d8	115	70-130		02/18/2016 14:17
4-BFB	86	70-130		02/18/2016 14:17
Benzene-d6	115	60-140		02/18/2016 14:17
Ethylbenzene-d10	102	60-140		02/18/2016 14:17
1,2-DCB-d4	103	60-140		02/18/2016 14:17

Analyst(s): KF



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-13-ECB20	1602626-014A	Soil	02/16/2016 09:29	GC16	116790

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/20/2016 22:20
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/20/2016 22:20
Benzene	ND	0.0050	1	02/20/2016 22:20
Bromobenzene	ND	0.0050	1	02/20/2016 22:20
Bromochloromethane	ND	0.0050	1	02/20/2016 22:20
Bromodichloromethane	ND	0.0050	1	02/20/2016 22:20
Bromoform	ND	0.0050	1	02/20/2016 22:20
Bromomethane	ND	0.0050	1	02/20/2016 22:20
2-Butanone (MEK)	ND	0.020	1	02/20/2016 22:20
t-Butyl alcohol (TBA)	ND	0.050	1	02/20/2016 22:20
n-Butyl benzene	ND	0.0050	1	02/20/2016 22:20
sec-Butyl benzene	ND	0.0050	1	02/20/2016 22:20
tert-Butyl benzene	ND	0.0050	1	02/20/2016 22:20
Carbon Disulfide	ND	0.0050	1	02/20/2016 22:20
Carbon Tetrachloride	ND	0.0050	1	02/20/2016 22:20
Chlorobenzene	ND	0.0050	1	02/20/2016 22:20
Chloroethane	ND	0.0050	1	02/20/2016 22:20
Chloroform	ND	0.0050	1	02/20/2016 22:20
Chloromethane	ND	0.0050	1	02/20/2016 22:20
2-Chlorotoluene	ND	0.0050	1	02/20/2016 22:20
4-Chlorotoluene	ND	0.0050	1	02/20/2016 22:20
Dibromochloromethane	ND	0.0050	1	02/20/2016 22:20
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/20/2016 22:20
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/20/2016 22:20
Dibromomethane	ND	0.0050	1	02/20/2016 22:20
1,2-Dichlorobenzene	ND	0.0050	1	02/20/2016 22:20
1,3-Dichlorobenzene	ND	0.0050	1	02/20/2016 22:20
1,4-Dichlorobenzene	ND	0.0050	1	02/20/2016 22:20
Dichlorodifluoromethane	ND	0.0050	1	02/20/2016 22:20
1,1-Dichloroethane	ND	0.0050	1	02/20/2016 22:20
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/20/2016 22:20
1,1-Dichloroethene	ND	0.0050	1	02/20/2016 22:20
cis-1,2-Dichloroethene	ND	0.0050	1	02/20/2016 22:20
trans-1,2-Dichloroethene	ND	0.0050	1	02/20/2016 22:20
1,2-Dichloropropane	ND	0.0050	1	02/20/2016 22:20
1,3-Dichloropropane	ND	0.0050	1	02/20/2016 22:20
2,2-Dichloropropane	ND	0.0050	1	02/20/2016 22:20

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-13-ECB20	1602626-014A	Soil	02/16/2016 09:29	GC16	116790
Analytes	Result	RL	DF	Date Analyzed	
1,1-Dichloropropene	ND	0.0050	1	02/20/2016 22:20	
cis-1,3-Dichloropropene	ND	0.0050	1	02/20/2016 22:20	
trans-1,3-Dichloropropene	ND	0.0050	1	02/20/2016 22:20	
Diisopropyl ether (DIPE)	ND	0.0050	1	02/20/2016 22:20	
Ethylbenzene	ND	0.0050	1	02/20/2016 22:20	
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/20/2016 22:20	
Freon 113	ND	0.0050	1	02/20/2016 22:20	
Hexachlorobutadiene	ND	0.0050	1	02/20/2016 22:20	
Hexachloroethane	ND	0.0050	1	02/20/2016 22:20	
2-Hexanone	ND	0.0050	1	02/20/2016 22:20	
Isopropylbenzene	ND	0.0050	1	02/20/2016 22:20	
4-Isopropyl toluene	ND	0.0050	1	02/20/2016 22:20	
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/20/2016 22:20	
Methylene chloride	ND	0.0050	1	02/20/2016 22:20	
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/20/2016 22:20	
Naphthalene	ND	0.0050	1	02/20/2016 22:20	
n-Propyl benzene	ND	0.0050	1	02/20/2016 22:20	
Styrene	ND	0.0050	1	02/20/2016 22:20	
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/20/2016 22:20	
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/20/2016 22:20	
Tetrachloroethene	ND	0.0050	1	02/20/2016 22:20	
Toluene	ND	0.0050	1	02/20/2016 22:20	
1,2,3-Trichlorobenzene	ND	0.0050	1	02/20/2016 22:20	
1,2,4-Trichlorobenzene	ND	0.0050	1	02/20/2016 22:20	
1,1,1-Trichloroethane	ND	0.0050	1	02/20/2016 22:20	
1,1,2-Trichloroethane	ND	0.0050	1	02/20/2016 22:20	
Trichloroethene	ND	0.0050	1	02/20/2016 22:20	
Trichlorofluoromethane	ND	0.0050	1	02/20/2016 22:20	
1,2,3-Trichloropropane	ND	0.0050	1	02/20/2016 22:20	
1,2,4-Trimethylbenzene	ND	0.0050	1	02/20/2016 22:20	
1,3,5-Trimethylbenzene	ND	0.0050	1	02/20/2016 22:20	
Vinyl Chloride	ND	0.0050	1	02/20/2016 22:20	
Xylenes, Total	ND	0.0050	1	02/20/2016 22:20	

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-13-ECB20	1602626-014A	Soil	02/16/2016 09:29	GC16	116790

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	101	70-130		02/20/2016 22:20
Toluene-d8	116	70-130		02/20/2016 22:20
4-BFB	101	70-130		02/20/2016 22:20
Benzene-d6	103	60-140		02/20/2016 22:20
Ethylbenzene-d10	102	60-140		02/20/2016 22:20
1,2-DCB-d4	69	60-140		02/20/2016 22:20

Analyst(s): AK



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/18/16-2/22/16
Project: 15166; EBALDC

WorkOrder: 1602626
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode by GC/MS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4-ECB15	1602626-001A	Soil	02/16/2016 08:30	GC35	116892

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/19/2016 00:37
Acenaphthylene	ND	0.010	1	02/19/2016 00:37
Anthracene	ND	0.010	1	02/19/2016 00:37
Benzo (a) anthracene	ND	0.010	1	02/19/2016 00:37
Benzo (a) pyrene	ND	0.010	1	02/19/2016 00:37
Benzo (b) fluoranthene	ND	0.010	1	02/19/2016 00:37
Benzo (g,h,i) perylene	ND	0.010	1	02/19/2016 00:37
Benzo (k) fluoranthene	ND	0.010	1	02/19/2016 00:37
Chrysene	ND	0.010	1	02/19/2016 00:37
Dibenzo (a,h) anthracene	ND	0.010	1	02/19/2016 00:37
Fluoranthene	ND	0.010	1	02/19/2016 00:37
Fluorene	ND	0.010	1	02/19/2016 00:37
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/19/2016 00:37
1-Methylnaphthalene	ND	0.010	1	02/19/2016 00:37
2-Methylnaphthalene	ND	0.010	1	02/19/2016 00:37
Naphthalene	ND	0.010	1	02/19/2016 00:37
Phenanthrene	ND	0.010	1	02/19/2016 00:37
Pyrene	ND	0.010	1	02/19/2016 00:37
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	117	30-130		02/19/2016 00:37
2-Fluorobiphenyl	111	30-130		02/19/2016 00:37

Analyst(s): HK



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/18/16-2/22/16
Project: 15166; EBALDC

WorkOrder: 1602626
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode by GC/MS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-9½-ECB15	1602626-002A	Soil	02/16/2016 08:41	GC35	116899

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/19/2016 15:23
Acenaphthylene	ND	0.010	1	02/19/2016 15:23
Anthracene	ND	0.010	1	02/19/2016 15:23
Benzo (a) anthracene	ND	0.010	1	02/19/2016 15:23
Benzo (a) pyrene	ND	0.010	1	02/19/2016 15:23
Benzo (b) fluoranthene	ND	0.010	1	02/19/2016 15:23
Benzo (g,h,i) perylene	ND	0.010	1	02/19/2016 15:23
Benzo (k) fluoranthene	ND	0.010	1	02/19/2016 15:23
Chrysene	ND	0.010	1	02/19/2016 15:23
Dibenzo (a,h) anthracene	ND	0.010	1	02/19/2016 15:23
Fluoranthene	ND	0.010	1	02/19/2016 15:23
Fluorene	ND	0.010	1	02/19/2016 15:23
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/19/2016 15:23
1-Methylnaphthalene	ND	0.010	1	02/19/2016 15:23
2-Methylnaphthalene	ND	0.010	1	02/19/2016 15:23
Naphthalene	ND	0.010	1	02/19/2016 15:23
Phenanthrene	ND	0.010	1	02/19/2016 15:23
Pyrene	ND	0.010	1	02/19/2016 15:23
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	116	30-130		02/19/2016 15:23
2-Fluorobiphenyl	109	30-130		02/19/2016 15:23

Analyst(s): HK



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/18/16-2/22/16
Project: 15166; EBALDC

WorkOrder: 1602626
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode by GC/MS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-12½-ECB15	1602626-003A	Soil	02/16/2016 08:58	GC35	116899

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.50	50	02/19/2016 16:42
Acenaphthylene	ND	0.50	50	02/19/2016 16:42
Anthracene	ND	0.50	50	02/19/2016 16:42
Benzo (a) anthracene	ND	0.50	50	02/19/2016 16:42
Benzo (a) pyrene	ND	0.50	50	02/19/2016 16:42
Benzo (b) fluoranthene	ND	0.50	50	02/19/2016 16:42
Benzo (g,h,i) perylene	ND	0.50	50	02/19/2016 16:42
Benzo (k) fluoranthene	ND	0.50	50	02/19/2016 16:42
Chrysene	ND	0.50	50	02/19/2016 16:42
Dibenzo (a,h) anthracene	ND	0.50	50	02/19/2016 16:42
Fluoranthene	ND	0.50	50	02/19/2016 16:42
Fluorene	ND	0.50	50	02/19/2016 16:42
Indeno (1,2,3-cd) pyrene	ND	0.50	50	02/19/2016 16:42
1-Methylnaphthalene	2.8	0.50	50	02/19/2016 16:42
2-Methylnaphthalene	1.3	0.50	50	02/19/2016 16:42
Naphthalene	5.2	0.50	50	02/19/2016 16:42
Phenanthrene	0.52	0.50	50	02/19/2016 16:42
Pyrene	ND	0.50	50	02/19/2016 16:42

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
1-Fluoronaphthalene	442	S	30-130	02/19/2016 16:42
2-Fluorobiphenyl	111		30-130	02/19/2016 16:42

Analyst(s): HK

Analytical Comments: c4



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/18/16-2/22/16
Project: 15166; EBALDC

WorkOrder: 1602626
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode by GC/MS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-13-ECB16	1602626-005A	Soil	02/16/2016 10:55	GC35	116899

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.20	20	02/19/2016 17:07
Acenaphthylene	ND	0.20	20	02/19/2016 17:07
Anthracene	ND	0.20	20	02/19/2016 17:07
Benzo (a) anthracene	ND	0.20	20	02/19/2016 17:07
Benzo (a) pyrene	ND	0.20	20	02/19/2016 17:07
Benzo (b) fluoranthene	ND	0.20	20	02/19/2016 17:07
Benzo (g,h,i) perylene	ND	0.20	20	02/19/2016 17:07
Benzo (k) fluoranthene	ND	0.20	20	02/19/2016 17:07
Chrysene	ND	0.20	20	02/19/2016 17:07
Dibenzo (a,h) anthracene	ND	0.20	20	02/19/2016 17:07
Fluoranthene	ND	0.20	20	02/19/2016 17:07
Fluorene	ND	0.20	20	02/19/2016 17:07
Indeno (1,2,3-cd) pyrene	ND	0.20	20	02/19/2016 17:07
1-Methylnaphthalene	1.7	0.20	20	02/19/2016 17:07
2-Methylnaphthalene	3.1	0.20	20	02/19/2016 17:07
Naphthalene	2.7	0.20	20	02/19/2016 17:07
Phenanthrene	0.33	0.20	20	02/19/2016 17:07
Pyrene	0.22	0.20	20	02/19/2016 17:07

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
1-Fluoronaphthalene	265	S	30-130	02/19/2016 17:07
2-Fluorobiphenyl	123		30-130	02/19/2016 17:07

Analyst(s): HK

Analytical Comments: c4



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/18/16-2/22/16
Project: 15166; EBALDC

WorkOrder: 1602626
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode by GC/MS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-14½-ECB19	1602626-012A	Soil	02/16/2016 08:14	GC35	117050

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/26/2016 11:20
Acenaphthylene	ND	0.010	1	02/26/2016 11:20
Anthracene	ND	0.010	1	02/26/2016 11:20
Benzo (a) anthracene	ND	0.010	1	02/26/2016 11:20
Benzo (a) pyrene	ND	0.010	1	02/26/2016 11:20
Benzo (b) fluoranthene	ND	0.010	1	02/26/2016 11:20
Benzo (g,h,i) perylene	ND	0.010	1	02/26/2016 11:20
Benzo (k) fluoranthene	ND	0.010	1	02/26/2016 11:20
Chrysene	ND	0.010	1	02/26/2016 11:20
Dibenzo (a,h) anthracene	ND	0.010	1	02/26/2016 11:20
Fluoranthene	ND	0.010	1	02/26/2016 11:20
Fluorene	ND	0.010	1	02/26/2016 11:20
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/26/2016 11:20
1-Methylnaphthalene	ND	0.010	1	02/26/2016 11:20
2-Methylnaphthalene	ND	0.010	1	02/26/2016 11:20
Naphthalene	ND	0.010	1	02/26/2016 11:20
Phenanthrene	ND	0.010	1	02/26/2016 11:20
Pyrene	ND	0.010	1	02/26/2016 11:20
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	96	30-130		02/26/2016 11:20
2-Fluorobiphenyl	74	30-130		02/26/2016 11:20

Analyst(s): REB



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16-2/22/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-4-ECB15	1602626-001A	Soil	02/16/2016 08:30	GC3	117034

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/23/2016 05:26
MTBE	---	0.050	1	02/23/2016 05:26
Benzene	---	0.0050	1	02/23/2016 05:26
Toluene	---	0.0050	1	02/23/2016 05:26
Ethylbenzene	---	0.0050	1	02/23/2016 05:26
Xylenes	---	0.015	1	02/23/2016 05:26
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorotoluene	86	70-130		02/23/2016 05:26

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-9½-ECB15	1602626-002A	Soil	02/16/2016 08:41	GC3	116754

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/20/2016 19:58
MTBE	---	0.050	1	02/20/2016 19:58
Benzene	---	0.0050	1	02/20/2016 19:58
Toluene	---	0.0050	1	02/20/2016 19:58
Ethylbenzene	---	0.0050	1	02/20/2016 19:58
Xylenes	---	0.015	1	02/20/2016 19:58
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorotoluene	87	70-130		02/20/2016 19:58

Analyst(s): IA



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16-2/22/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-12½-ECB15	1602626-003A	Soil	02/16/2016 08:58	GC19	116754

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	790	200	200	02/18/2016 00:43
MTBE	---	10	200	02/18/2016 00:43
Benzene	---	1.0	200	02/18/2016 00:43
Toluene	---	1.0	200	02/18/2016 00:43
Ethylbenzene	---	1.0	200	02/18/2016 00:43
Xylenes	---	3.0	200	02/18/2016 00:43

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	119	70-130	02/18/2016 00:43

Analyst(s): TD

Analytical Comments: d7

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-18-ECB15	1602626-004A	Soil	02/16/2016 09:01	GC3	116789

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/20/2016 20:28
MTBE	---	0.050	1	02/20/2016 20:28
Benzene	---	0.0050	1	02/20/2016 20:28
Toluene	---	0.0050	1	02/20/2016 20:28
Ethylbenzene	---	0.0050	1	02/20/2016 20:28
Xylenes	---	0.015	1	02/20/2016 20:28

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	88	70-130	02/20/2016 20:28

Analyst(s): IA



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16-2/22/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-13-ECB16	1602626-005A	Soil	02/16/2016 10:55	GC7	116789

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	700	200	200	02/19/2016 11:23
MTBE	---	10	200	02/19/2016 11:23
Benzene	---	1.0	200	02/19/2016 11:23
Toluene	---	1.0	200	02/19/2016 11:23
Ethylbenzene	---	1.0	200	02/19/2016 11:23
Xylenes	---	3.0	200	02/19/2016 11:23

Surrogates	REC (%)	Limits	Date Analyzed
aaa-TFT	89	70-130	02/19/2016 11:23

Analyst(s): IA

Analytical Comments: d7

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-16½-ECB16	1602626-006A	Soil	02/16/2016 10:59	GC3	116789

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/20/2016 22:28
MTBE	---	0.050	1	02/20/2016 22:28
Benzene	---	0.0050	1	02/20/2016 22:28
Toluene	---	0.0050	1	02/20/2016 22:28
Ethylbenzene	---	0.0050	1	02/20/2016 22:28
Xylenes	---	0.015	1	02/20/2016 22:28

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	76	70-130	02/20/2016 22:28

Analyst(s): IA



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16-2/22/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-13½-ECB17	1602626-007A	Soil	02/16/2016 10:00	GC7	116789

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	1100	200	200	02/19/2016 11:53
MTBE	---	10	200	02/19/2016 11:53
Benzene	---	1.0	200	02/19/2016 11:53
Toluene	---	1.0	200	02/19/2016 11:53
Ethylbenzene	---	1.0	200	02/19/2016 11:53
Xylenes	---	3.0	200	02/19/2016 11:53

Surrogates	REC (%)	Limits	Date Analyzed
aaa-TFT	87	70-130	02/19/2016 11:53

Analyst(s): IA

Analytical Comments: d7

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-15-ECB17	1602626-008A	Soil	02/16/2016 10:06	GC3	116789

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/20/2016 22:58
MTBE	---	0.050	1	02/20/2016 22:58
Benzene	---	0.0050	1	02/20/2016 22:58
Toluene	---	0.0050	1	02/20/2016 22:58
Ethylbenzene	---	0.0050	1	02/20/2016 22:58
Xylenes	---	0.015	1	02/20/2016 22:58

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	80	70-130	02/20/2016 22:58

Analyst(s): IA



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16-2/22/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-3-ECB18	1602626-009A	Soil	02/16/2016 10:15	GC3	116789

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/20/2016 23:28
MTBE	---	0.050	1	02/20/2016 23:28
Benzene	---	0.0050	1	02/20/2016 23:28
Toluene	---	0.0050	1	02/20/2016 23:28
Ethylbenzene	---	0.0050	1	02/20/2016 23:28
Xylenes	---	0.015	1	02/20/2016 23:28
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorotoluene	88	70-130		02/20/2016 23:28

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-9½-ECB18	1602626-010A	Soil	02/16/2016 10:18	GC3	116789

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/21/2016 00:27
MTBE	---	0.050	1	02/21/2016 00:27
Benzene	---	0.0050	1	02/21/2016 00:27
Toluene	---	0.0050	1	02/21/2016 00:27
Ethylbenzene	---	0.0050	1	02/21/2016 00:27
Xylenes	---	0.015	1	02/21/2016 00:27
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorotoluene	89	70-130		02/21/2016 00:27

Analyst(s): IA



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16-2/22/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-13-ECB18	1602626-011A	Soil	02/16/2016 10:27	GC3	116789

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/21/2016 00:57
MTBE	---	0.050	1	02/21/2016 00:57
Benzene	---	0.0050	1	02/21/2016 00:57
Toluene	---	0.0050	1	02/21/2016 00:57
Ethylbenzene	---	0.0050	1	02/21/2016 00:57
Xylenes	---	0.015	1	02/21/2016 00:57
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorotoluene	89	70-130		02/21/2016 00:57

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-14½-ECB19	1602626-012A	Soil	02/16/2016 08:14	GC19	116789

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	44	10	10	02/22/2016 13:26
MTBE	---	0.50	10	02/22/2016 13:26
Benzene	---	0.050	10	02/22/2016 13:26
Toluene	---	0.050	10	02/22/2016 13:26
Ethylbenzene	---	0.050	10	02/22/2016 13:26
Xylenes	---	0.15	10	02/22/2016 13:26
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorotoluene	99	70-130		02/22/2016 13:26

Analyst(s): IA

Analytical Comments: d7

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16-2/22/16
Project: 15166; EBALDC

WorkOrder: 1602626
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
S-17-ECB19	1602626-013A	Soil	02/16/2016 08:16	GC3	116789

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/21/2016 01:27
MTBE	---	0.050	1	02/21/2016 01:27
Benzene	---	0.0050	1	02/21/2016 01:27
Toluene	---	0.0050	1	02/21/2016 01:27
Ethylbenzene	---	0.0050	1	02/21/2016 01:27
Xylenes	---	0.015	1	02/21/2016 01:27
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorotoluene	85	70-130		02/21/2016 01:27

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-13-ECB20	1602626-014A	Soil	02/16/2016 09:29	GC3	116789

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/21/2016 02:56
MTBE	---	0.050	1	02/21/2016 02:56
Benzene	---	0.0050	1	02/21/2016 02:56
Toluene	---	0.0050	1	02/21/2016 02:56
Ethylbenzene	---	0.0050	1	02/21/2016 02:56
Xylenes	---	0.015	1	02/21/2016 02:56
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorotoluene	80	70-130		02/21/2016 02:56

Analyst(s): IA



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

LUFT 5 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4-ECB15	1602626-001A	Soil	02/16/2016 08:30	ICP-MS2	116776

Analytes	Result	RL	DF	Date Analyzed
Cadmium	ND	0.25	1	02/18/2016 19:15
Chromium	60	0.50	1	02/18/2016 19:15
Lead	5.1	0.50	1	02/18/2016 19:15
Nickel	49	0.50	1	02/18/2016 19:15
Zinc	29	5.0	1	02/18/2016 19:15

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	111	70-130	02/18/2016 19:15

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-9½-ECB15	1602626-002A	Soil	02/16/2016 08:41	ICP-MS2	116776

Analytes	Result	RL	DF	Date Analyzed
Cadmium	ND	0.25	1	02/18/2016 19:21
Chromium	52	0.50	1	02/18/2016 19:21
Lead	4.5	0.50	1	02/18/2016 19:21
Nickel	68	0.50	1	02/18/2016 19:21
Zinc	32	5.0	1	02/18/2016 19:21

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	104	70-130	02/18/2016 19:21

Analyst(s): BBO



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
Extraction Method: SW3550B/3630C
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons with Silica Gel Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4-ECB15	1602626-001A	Soil	02/16/2016 08:30	GC9a	116740

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/20/2016 18:23
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/20/2016 18:23

Surrogates	REC (%)	Limits	Date Analyzed
C9	90	70-130	02/20/2016 18:23

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-9½-ECB15	1602626-002A	Soil	02/16/2016 08:41	GC9b	116740

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/18/2016 05:08
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/18/2016 05:08

Surrogates	REC (%)	Limits	Date Analyzed
C9	96	70-130	02/18/2016 05:08

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-12½-ECB15	1602626-003A	Soil	02/16/2016 08:58	GC2A	116740

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	2300	50	50	02/19/2016 05:10
TPH-Motor Oil (C18-C36)	16,000	250	50	02/19/2016 05:10

Surrogates	REC (%)	Limits	Date Analyzed
C9	116	70-130	02/19/2016 05:10

Analyst(s): TK

Analytical Comments: e7,e11

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
Extraction Method: SW3550B/3630C
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons with Silica Gel Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-18-ECB15	1602626-004A	Soil	02/16/2016 09:01	GC9b	116740

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/22/2016 17:26
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/22/2016 17:26
Surrogates	REC (%)	Limits		Date Analyzed
C9	98	70-130		02/22/2016 17:26

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-13-ECB16	1602626-005A	Soil	02/16/2016 10:55	GC9b	116740

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	730	50	50	02/20/2016 05:27
TPH-Motor Oil (C18-C36)	5200	250	50	02/20/2016 05:27
Surrogates	REC (%)	Limits		Date Analyzed
C9	125	70-130		02/20/2016 05:27

Analyst(s): TK

Analytical Comments: e7,e2,e8,e11/e4

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-16½-ECB16	1602626-006A	Soil	02/16/2016 10:59	GC9b	116740

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/18/2016 03:12
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/18/2016 03:12
Surrogates	REC (%)	Limits		Date Analyzed
C9	97	70-130		02/18/2016 03:12

Analyst(s): TK

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
Extraction Method: SW3550B/3630C
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons with Silica Gel Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-13½-ECB17	1602626-007A	Soil	02/16/2016 10:00	GC2A	116791

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	1200	50	50	02/19/2016 08:59
TPH-Motor Oil (C18-C36)	8800	250	50	02/19/2016 08:59
Surrogates	REC (%)	Limits		
C9	89	70-130		02/19/2016 08:59

Analyst(s): TK Analytical Comments: e7,e11

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-15-ECB17	1602626-008A	Soil	02/16/2016 10:06	GC9b	116791

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/18/2016 02:34
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/18/2016 02:34
Surrogates	REC (%)	Limits		
C9	97	70-130		02/18/2016 02:34

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3-ECB18	1602626-009A	Soil	02/16/2016 10:15	GC9b	116791

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/22/2016 18:05
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/22/2016 18:05
Surrogates	REC (%)	Limits		
C9	95	70-130		02/22/2016 18:05

Analyst(s): TK

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
Extraction Method: SW3550B/3630C
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons with Silica Gel Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-9½-ECB18	1602626-010A	Soil	02/16/2016 10:18	GC9b	116791

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/20/2016 04:10
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/20/2016 04:10
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
C9	97	70-130		02/20/2016 04:10

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-13-ECB18	1602626-011A	Soil	02/16/2016 10:27	GC9b	116791

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/18/2016 03:51
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/18/2016 03:51
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
C9	97	70-130		02/18/2016 03:51

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-14½-ECB19	1602626-012A	Soil	02/16/2016 08:14	GC9b	116791

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	56	1.0	1	02/18/2016 08:22
TPH-Motor Oil (C18-C36)	430	5.0	1	02/18/2016 08:22
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
C9	100	70-130		02/18/2016 08:22

Analyst(s): TK Analytical Comments: e7,e2,e11

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 9:55
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602626
Extraction Method: SW3550B/3630C
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons with Silica Gel Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-17-ECB19	1602626-013A	Soil	02/16/2016 08:16	GC9a	116791

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/18/2016 02:34
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/18/2016 02:34
Surrogates	REC (%)	Limits		
C9	86	70-130		02/18/2016 02:34

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-13-ECB20	1602626-014A	Soil	02/16/2016 09:29	GC9b	116791

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/20/2016 17:44
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/20/2016 17:44
Surrogates	REC (%)	Limits		
C9	97	70-130		02/20/2016 17:44

Analyst(s): TK



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/16/16
Date Analyzed: 2/16/16
Instrument: GC5A
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602626
BatchID: 116709
Extraction Method: SW3550B
Analytical Method: SW8082
Unit: mg/kg
Sample ID: MB/LCS-116709
 1602525-001AMS/MSD

QC Summary Report for SW8082

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Aroclor1016	ND	-	0.050	-	-	-	-
Aroclor1221	ND	-	0.050	-	-	-	-
Aroclor1232	ND	-	0.050	-	-	-	-
Aroclor1242	ND	-	0.050	-	-	-	-
Aroclor1248	ND	-	0.050	-	-	-	-
Aroclor1254	ND	-	0.050	-	-	-	-
Aroclor1260	ND	0.161	0.050	0.15	-	108	70-130
PCBs, total	ND	-	0.050	-	-	-	-

Surrogate Recovery

Decachlorobiphenyl	0.0436	0.0450		0.050	87	90	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
Aroclor1260	0.117	0.132	0.15	ND	78	88	70-130	12.4	30

Surrogate Recovery

Decachlorobiphenyl	0.0521	0.0511	0.050		104	102	70-130	1.86	30
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Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/16/16
Date Analyzed: 2/18/16
Instrument: ICP-MS2
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602626
BatchID: 116776
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg
Sample ID: MB/LCS-116776
 1602623-001AMS/MSD
 1602623-001APDS

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Cadmium	ND	51.7	0.25	50	-	103	75-125
Chromium	ND	54.8	0.50	50	-	110	75-125
Lead	ND	52.9	0.50	50	-	106	75-125
Nickel	ND	54.7	0.50	50	-	109	75-125
Zinc	ND	536	5.0	500	-	107	75-125

Surrogate Recovery

Terbium	499	533		500	100	107	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
Cadmium	55.5	54.8	50	0.2684	110	109	75-125	1.20	20
Chromium	158	165	50	128.8	58,F8	73,F8	75-125	4.64	20
Lead	56.5	53.5	50	4.480	104	98	75-125	5.42	20
Nickel	144	142	50	85.55	117	113	75-125	1.40	20
Zinc	608	597	500	66.54	108	106	75-125	1.79	20

Surrogate Recovery

Terbium	545	515	500		109	103	70-130	5.57	20
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Analyte	PDS Result	SPK Val	SPKRef Val	PDS %REC	PDS Limits
Chromium	180	50	128.8	102	80-120



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/16/16
Date Analyzed: 2/17/16
Instrument: GC16
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602626
BatchID: 116778
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-116778
 1602617-001AMS/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	0.0439	0.0050	0.050	-	88	53-116
Benzene	ND	0.0481	0.0050	0.050	-	96	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	0.228	0.050	0.20	-	114	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	0.0472	0.0050	0.050	-	94	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	0.0455	0.0040	0.050	-	91	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	0.0528	0.0040	0.050	-	106	58-135
1,1-Dichloroethene	ND	0.0465	0.0050	0.050	-	93	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	-	-	-	-

(Cont.)



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/16/16
Date Analyzed: 2/17/16
Instrument: GC16
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602626
BatchID: 116778
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-116778
 1602617-001AMS/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	0.0479	0.0050	0.050	-	96	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0476	0.0050	0.050	-	95	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	0.0471	0.0050	0.050	-	94	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	0.0492	0.0050	0.050	-	98	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	0.0472	0.0050	0.050	-	94	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	-	-	-	-

(Cont.)



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/16/16
Date Analyzed: 2/17/16
Instrument: GC16
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602626
BatchID: 116778
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-116778
 1602617-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.123	0.127		0.12	99	101	70-130
Toluene-d8	0.145	0.152		0.12	116	121	70-130
4-BFB	0.0143	0.0153		0.012	114	123	70-130
Benzene-d6	0.0991	0.112		0.10	99	112	60-140
Ethylbenzene-d10	0.111	0.134		0.10	111	134	60-140
1,2-DCB-d4	0.0733	0.0772		0.10	73	77	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)	NR	NR	0.050	ND<100	NR	NR	56-94	NR	20
Benzene	NR	NR	0.050	ND<0.10	NR	NR	60-106	NR	20
t-Butyl alcohol (TBA)	NR	NR	0.20	ND<1000	NR	NR	56-140	NR	20
Chlorobenzene	NR	NR	0.050	ND<100	NR	NR	61-108	NR	20
1,2-Dibromoethane (EDB)	NR	NR	0.050	ND<0.080	NR	NR	54-119	NR	20
1,2-Dichloroethane (1,2-DCA)	NR	NR	0.050	ND<0.10	NR	NR	48-115	NR	20
1,1-Dichloroethene	NR	NR	0.050	ND<0.10	NR	NR	46-111	NR	20
Diisopropyl ether (DIPE)	NR	NR	0.050	ND<100	NR	NR	53-111	NR	20
Ethyl tert-butyl ether (ETBE)	NR	NR	0.050	ND<100	NR	NR	61-104	NR	20
Methyl-t-butyl ether (MTBE)	NR	NR	0.050	3.810	NR	NR	58-107	NR	20
Toluene	NR	NR	0.050	ND<0.10	NR	NR	64-114	NR	20
Trichloroethene	NR	NR	0.050	ND<100	NR	NR	60-116	NR	20
Surrogate Recovery									
Dibromofluoromethane	NR	NR	0.12		NR	NR	70-130	NR	20
Toluene-d8	NR	NR	0.12		NR	NR	70-130	NR	20
4-BFB	NR	NR	0.012		NR	NR	88-121	NR	20
Benzene-d6	NR	NR	0.10		NR	NR	60-140	NR	20
Ethylbenzene-d10	NR	NR	0.10		NR	NR	60-140	NR	20
1,2-DCB-d4	NR	NR	0.10		NR	NR	60-140	NR	20

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Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/17/16
Date Analyzed: 2/18/16
Instrument: GC16
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602626
BatchID: 116790
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/Kg
Sample ID: MB/LCS-116790
 1602626-013AMS/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	0.0435	0.0050	0.050	-	87	53-116
Benzene	ND	0.0480	0.0050	0.050	-	96	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	0.223	0.050	0.20	-	111	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	0.0461	0.0050	0.050	-	92	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	0.0438	0.0040	0.050	-	88	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	0.0501	0.0040	0.050	-	100	58-135
1,1-Dichloroethene	ND	0.0449	0.0050	0.050	-	90	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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Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/17/16
Date Analyzed: 2/18/16
Instrument: GC16
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602626
BatchID: 116790
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/Kg
Sample ID: MB/LCS-116790
 1602626-013AMS/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	0.0483	0.0050	0.050	-	97	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0474	0.0050	0.050	-	95	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	0.0462	0.0050	0.050	-	92	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	0.0485	0.0050	0.050	-	97	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	0.0469	0.0050	0.050	-	94	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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Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/17/16
Date Analyzed: 2/18/16
Instrument: GC16
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602626
BatchID: 116790
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/Kg
Sample ID: MB/LCS-116790
 1602626-013AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.122	0.126		0.12	97	101	70-130
Toluene-d8	0.153	0.152		0.12	123	122	70-130
4-BFB	0.0133	0.0153		0.012	106	122	70-130
Benzene-d6	0.102	0.110		0.10	102	110	60-140
Ethylbenzene-d10	0.110	0.131		0.10	110	131	60-140
1,2-DCB-d4	0.0718	0.0779		0.10	72	78	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)	0.0556	0.0565	0.050	ND	111,F1	113,F1	56-94	1.68	20
Benzene	0.0532	0.0540	0.050	ND	106	108,F1	60-106	1.52	20
t-Butyl alcohol (TBA)	0.229	0.233	0.20	ND	115	117	56-140	1.78	20
Chlorobenzene	0.0490	0.0504	0.050	ND	98	101	61-108	2.69	20
1,2-Dibromoethane (EDB)	0.0504	0.0509	0.050	ND	101	102	54-119	0.863	20
1,2-Dichloroethane (1,2-DCA)	0.0514	0.0523	0.050	ND	103	105	48-115	1.74	20
1,1-Dichloroethene	0.0468	0.0478	0.050	ND	94	96	46-111	2.04	20
Diisopropyl ether (DIPE)	0.0560	0.0571	0.050	ND	112,F1	114,F1	53-111	1.82	20
Ethyl tert-butyl ether (ETBE)	0.0553	0.0564	0.050	ND	111,F1	113,F1	61-104	1.89	20
Methyl-t-butyl ether (MTBE)	0.0528	0.0537	0.050	ND	106	107	58-107	1.71	20
Toluene	0.0458	0.0474	0.050	ND	92	95	64-114	3.38	20
Trichloroethene	0.0515	0.0517	0.050	ND	103	103	60-116	0	20

Surrogate Recovery									
Dibromofluoromethane	0.146	0.145	0.12		117	116	70-130	0.385	20
Toluene-d8	0.126	0.127	0.12		100	102	70-130	1.23	20
4-BFB	0.0126	0.0125	0.012		101	100	88-121	1.02	20
Benzene-d6	0.107	0.108	0.10		107	108	60-140	1.67	20
Ethylbenzene-d10	0.103	0.105	0.10		103	105	60-140	1.42	20
1,2-DCB-d4	0.101	0.105	0.10		101	105	60-140	4.52	20



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/18/16
Date Analyzed: 2/19/16
Instrument: GC35
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602626
BatchID: 116892
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg
Sample ID: MB/LCS-116892
 1602582-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	-	0.010	-	-	-	-
Acenaphthylene	ND	-	0.010	-	-	-	-
Anthracene	ND	-	0.010	-	-	-	-
Benzo (a) anthracene	ND	-	0.010	-	-	-	-
Benzo (a) pyrene	ND	0.255	0.010	0.20	-	127	30-130
Benzo (b) fluoranthene	ND	-	0.010	-	-	-	-
Benzo (g,h,i) perylene	ND	-	0.010	-	-	-	-
Benzo (k) fluoranthene	ND	-	0.010	-	-	-	-
Chrysene	ND	0.162	0.010	0.20	-	81	30-130
Dibenzo (a,h) anthracene	ND	-	0.010	-	-	-	-
Fluoranthene	ND	-	0.010	-	-	-	-
Fluorene	ND	-	0.010	-	-	-	-
Indeno (1,2,3-cd) pyrene	ND	-	0.010	-	-	-	-
1-Methylnaphthalene	ND	0.184	0.010	0.20	-	92	30-130
2-Methylnaphthalene	ND	0.186	0.010	0.20	-	93	30-130
Naphthalene	ND	-	0.010	-	-	-	-
Phenanthrene	ND	0.165	0.010	0.20	-	82	30-130
Pyrene	ND	0.182	0.010	0.20	-	91	30-130
Surrogate Recovery							
1-Fluoronaphthalene	0.531	0.518		0.50	106	104	30-130
2-Fluorobiphenyl	0.508	0.478		0.50	102	96	30-130



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/18/16
Date Analyzed: 2/19/16
Instrument: GC35
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602626
BatchID: 116892
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg
Sample ID: MB/LCS-116892
 1602582-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Benzo (a) pyrene	NR	NR		ND<0.05	NR	NR	-	NR	
Chrysene	NR	NR		ND<0.05	NR	NR	-	NR	
1-Methylnaphthalene	NR	NR		ND<0.05	NR	NR	-	NR	
2-Methylnaphthalene	NR	NR		ND<0.05	NR	NR	-	NR	
Phenanthrene	NR	NR		ND<0.05	NR	NR	-	NR	
Pyrene	NR	NR		ND<0.05	NR	NR	-	NR	
Surrogate Recovery									
1-Fluoronaphthalene	NR	NR			NR	NR	-	NR	
2-Fluorobiphenyl	NR	NR			NR	NR	-	NR	



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/18/16
Date Analyzed: 2/19/16
Instrument: GC35
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602626
BatchID: 116899
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg
Sample ID: MB/LCS-116899
 1602626-003AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	-	0.010	-	-	-	-
Acenaphthylene	ND	-	0.010	-	-	-	-
Anthracene	ND	-	0.010	-	-	-	-
Benzo (a) anthracene	ND	-	0.010	-	-	-	-
Benzo (a) pyrene	ND	0.136	0.010	0.20	-	68	30-130
Benzo (b) fluoranthene	ND	-	0.010	-	-	-	-
Benzo (g,h,i) perylene	ND	-	0.010	-	-	-	-
Benzo (k) fluoranthene	ND	-	0.010	-	-	-	-
Chrysene	ND	0.158	0.010	0.20	-	79	30-130
Dibenzo (a,h) anthracene	ND	-	0.010	-	-	-	-
Fluoranthene	ND	-	0.010	-	-	-	-
Fluorene	ND	-	0.010	-	-	-	-
Indeno (1,2,3-cd) pyrene	ND	-	0.010	-	-	-	-
1-Methylnaphthalene	ND	0.163	0.010	0.20	-	81	30-130
2-Methylnaphthalene	ND	0.166	0.010	0.20	-	83	30-130
Naphthalene	ND	-	0.010	-	-	-	-
Phenanthrene	ND	0.165	0.010	0.20	-	82	30-130
Pyrene	ND	0.151	0.010	0.20	-	75	30-130
Surrogate Recovery							
1-Fluoronaphthalene	0.550	0.523		0.50	110	105	30-130
2-Fluorobiphenyl	0.531	0.506		0.50	106	101	30-130



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/18/16
Date Analyzed: 2/19/16
Instrument: GC35
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602626
BatchID: 116899
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg
Sample ID: MB/LCS-116899
 1602626-003AMS/MSD

QC Summary Report for SW8270C

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Benzo (a) pyrene	NR	NR		ND<0.5	NR	NR	-	NR	
Chrysene	NR	NR		ND<0.5	NR	NR	-	NR	
1-Methylnaphthalene	NR	NR		2.8	NR	NR	-	NR	
2-Methylnaphthalene	NR	NR		1.3	NR	NR	-	NR	
Phenanthrene	NR	NR		0.52	NR	NR	-	NR	
Pyrene	NR	NR		ND<0.5	NR	NR	-	NR	
Surrogate Recovery									
1-Fluoronaphthalene	NR	NR			NR	NR	-	NR	
2-Fluorobiphenyl	NR	NR			NR	NR	-	NR	



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/22/16
Date Analyzed: 2/23/16
Instrument: GC35
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602626
BatchID: 117050
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg
Sample ID: MB/LCS-117050
 1602626-012AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	-	0.010	-	-	-	-
Acenaphthylene	ND	-	0.010	-	-	-	-
Anthracene	ND	-	0.010	-	-	-	-
Benzo (a) anthracene	ND	-	0.010	-	-	-	-
Benzo (a) pyrene	ND	0.168	0.010	0.20	-	84	30-130
Benzo (b) fluoranthene	ND	-	0.010	-	-	-	-
Benzo (g,h,i) perylene	ND	-	0.010	-	-	-	-
Benzo (k) fluoranthene	ND	-	0.010	-	-	-	-
Chrysene	ND	0.156	0.010	0.20	-	78	30-130
Dibenzo (a,h) anthracene	ND	-	0.010	-	-	-	-
Fluoranthene	ND	-	0.010	-	-	-	-
Fluorene	ND	-	0.010	-	-	-	-
Indeno (1,2,3-cd) pyrene	ND	-	0.010	-	-	-	-
1-Methylnaphthalene	ND	0.170	0.010	0.20	-	85	30-130
2-Methylnaphthalene	ND	0.171	0.010	0.20	-	85	30-130
Naphthalene	ND	-	0.010	-	-	-	-
Phenanthrene	ND	0.159	0.010	0.20	-	79	30-130
Pyrene	ND	0.161	0.010	0.20	-	80	30-130
Surrogate Recovery							
1-Fluoronaphthalene	0.515	0.507		0.50	103	101	30-130
2-Fluorobiphenyl	0.470	0.469		0.50	94	94	30-130



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/22/16
Date Analyzed: 2/23/16
Instrument: GC35
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602626
BatchID: 117050
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg
Sample ID: MB/LCS-117050
 1602626-012AMS/MSD

QC Summary Report for SW8270C

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Benzo (a) pyrene	0.194	0.141	0.20	ND	97	71	30-130	31.8,F1	30
Chrysene	0.158	0.140	0.20	ND	79	70	30-130	12.5	30
1-Methylnaphthalene	0.198	0.163	0.20	ND	97	80	30-130	19.7	30
2-Methylnaphthalene	0.195	0.161	0.20	ND	98	80	30-130	19.5	30
Phenanthrene	0.176	0.141	0.20	ND	88	71	30-130	21.8	30
Pyrene	0.183	0.140	0.20	ND	87	66	30-130	26.5	30
Surrogate Recovery									
1-Fluoronaphthalene	0.629	0.525	0.50		126	105	30-130	18.1	30
2-Fluorobiphenyl	0.514	0.410	0.50		103	82	30-130	22.7	30



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/16/16
Date Analyzed: 2/17/16
Instrument: GC19
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602626
BatchID: 116754
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS-116754
 1602582-018AMS/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	0.543	0.40	0.60	-	90	70-130
MTBE	ND	0.0777	0.050	0.10	-	78	70-130
Benzene	ND	0.0999	0.0050	0.10	-	100	70-130
Toluene	ND	0.101	0.0050	0.10	-	101	70-130
Ethylbenzene	ND	0.102	0.0050	0.10	-	102	70-130
Xylenes	ND	0.331	0.015	0.30	-	110	70-130

Surrogate Recovery

2-Fluorotoluene	0.109	0.108		0.10	109	108	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)	0.540	0.563	0.60	ND	90	94	70-130	4.11	20
MTBE	0.0740	0.0737	0.10	ND	74	74	70-130	0	20
Benzene	0.0949	0.0968	0.10	ND	95	97	70-130	1.97	20
Toluene	0.0966	0.0983	0.10	ND	97	98	70-130	1.79	20
Ethylbenzene	0.0976	0.0998	0.10	ND	98	100	70-130	2.14	20
Xylenes	0.316	0.321	0.30	ND	105	107	70-130	1.39	20

Surrogate Recovery

2-Fluorotoluene	0.0998	0.101	0.10		100	101	70-130	1.23	20
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Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/17/16
Date Analyzed: 2/17/16
Instrument: GC19
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602626
BatchID: 116789
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS-116789
 1602626-007AMS/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	0.584	0.40	0.60	-	97	70-130
MTBE	ND	0.0841	0.050	0.10	-	84	70-130
Benzene	ND	0.103	0.0050	0.10	-	103	70-130
Toluene	ND	0.105	0.0050	0.10	-	105	70-130
Ethylbenzene	ND	0.105	0.0050	0.10	-	105	70-130
Xylenes	ND	0.338	0.015	0.30	-	113	70-130
Surrogate Recovery							
2-Fluorotoluene	0.118	0.109		0.10	118	109	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		ND<80	NR	NR	-	NR	
MTBE	NR	NR		ND<10	NR	NR	-	NR	
Benzene	NR	NR		ND<1	NR	NR	-	NR	
Toluene	NR	NR		ND<1	NR	NR	-	NR	
Ethylbenzene	NR	NR		ND<1	NR	NR	-	NR	
Xylenes	NR	NR		ND<3	NR	NR	-	NR	
Surrogate Recovery									
2-Fluorotoluene	NR	NR			NR	NR	-	NR	



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/22/16
Date Analyzed: 2/23/16
Instrument: GC7
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602626
BatchID: 117034
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS-117034
 1602616-001BMS/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	0.547	0.40	0.60	-	91	70-130
MTBE	ND	0.0763	0.050	0.10	-	76	70-130
Benzene	ND	0.0946	0.0050	0.10	-	95	70-130
Toluene	ND	0.0926	0.0050	0.10	-	93	70-130
Ethylbenzene	ND	0.0936	0.0050	0.10	-	94	70-130
Xylenes	ND	0.296	0.015	0.30	-	99	70-130

Surrogate Recovery

2-Fluorotoluene	0.102	0.106		0.10	101	106	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)	0.508	0.491	0.60	ND	85	82	70-130	3.33	20
MTBE	0.0753	0.0761	0.10	ND	72	73	70-130	1.13	20
Benzene	0.0857	0.0919	0.10	ND	86	92	70-130	7.02	20
Toluene	0.0849	0.0913	0.10	ND	84	90	70-130	7.30	20
Ethylbenzene	0.0870	0.0945	0.10	ND	87	95	70-130	8.24	20
Xylenes	0.271	0.295	0.30	ND	89	97	70-130	8.50	20

Surrogate Recovery

2-Fluorotoluene	0.0985	0.108	0.10		99	108	70-130	9.37	20
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Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/16/16
Date Analyzed: 2/17/16
Instrument: GC2A, GC9b
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602626
BatchID: 116740
Extraction Method: SW3550B/3630C
Analytical Method: SW8015B
Unit: mg/Kg
Sample ID: MB/LCS-116740
 1602542-010AMS/MSD

QC Report for SW8015B with Silica Gel Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	47.2	1.0	40	-	118	70-130
TPH-Motor Oil (C18-C36)	ND	-	5.0	-	-	-	-
Surrogate Recovery							
C9	23.4	22.8		25	93	91	62-139

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	NR	NR		25	NR	NR	-	NR	
Surrogate Recovery									
C9	NR	NR			NR	NR	-	NR	

(Cont.)



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/17/16
Date Analyzed: 2/18/16
Instrument: GC9b
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602626
BatchID: 116791
Extraction Method: SW3550B/3630C
Analytical Method: SW8015B
Unit: mg/Kg
Sample ID: MB/LCS-116791
 1602626-012AMS/MSD

QC Report for SW8015B with Silica Gel Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	45.9	1.0	40	-	115	70-130
TPH-Motor Oil (C18-C36)	ND	-	5.0	-	-	-	-
Surrogate Recovery							
C9	24.2	24.2		25	97	97	62-139

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	79.9	80.3	40	56.00	60,F1	61,F1	70-130	0.414	30
Surrogate Recovery									
C9	24.8	24.8	25		99	99	70-130	0	30



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

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1602626

ClientCode: ESL

WaterTrax WriteOn EDF Excel EQUIS Email HardCopy ThirdParty J-flag

Report to:

Nik Lahiri
Essel Environmental Consulting
564 Market Street
San Francisco, CA 94104
(707) 494-4883 FAX: 510-380-6610

Email: nlahiri@esseltek.com
cc/3rd Party:
PO:
ProjectNo: 15166; EBALDC

Bill to:

Nik Lahiri
Essel Environmental Consulting
564 Market Street
San Francisco, CA 94104
nlahiri@esseltek.com

Requested TAT: 5 days;

Date Received: 02/16/2016

Date Logged: 02/17/2016

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
1602626-001	S-4-ECB15	Soil	2/16/2016 8:30	<input type="checkbox"/>	A	A	A	A	A	A						
1602626-002	S-9½-ECB15	Soil	2/16/2016 8:41	<input type="checkbox"/>	A	A	A	A	A	A						
1602626-003	S-12½-ECB15	Soil	2/16/2016 8:58	<input type="checkbox"/>		A	A	A		A						
1602626-004	S-18-ECB15	Soil	2/16/2016 9:01	<input type="checkbox"/>		A		A		A						
1602626-005	S-13-ECB16	Soil	2/16/2016 10:55	<input type="checkbox"/>		A	A	A		A						
1602626-006	S-16½-ECB16	Soil	2/16/2016 10:59	<input type="checkbox"/>		A		A		A						
1602626-007	S-13½-ECB17	Soil	2/16/2016 10:00	<input type="checkbox"/>		A		A		A						
1602626-008	S-15-ECB17	Soil	2/16/2016 10:06	<input type="checkbox"/>		A		A		A						
1602626-009	S-3-ECB18	Soil	2/16/2016 10:15	<input type="checkbox"/>		A		A		A						
1602626-010	S-9½-ECB18	Soil	2/16/2016 10:18	<input type="checkbox"/>		A		A		A						
1602626-011	S-13-ECB18	Soil	2/16/2016 10:27	<input type="checkbox"/>		A		A		A						
1602626-012	S-14½-ECB19	Soil	2/16/2016 8:14	<input type="checkbox"/>		A	A	A		A						
1602626-013	S-17-ECB19	Soil	2/16/2016 8:16	<input type="checkbox"/>		A		A		A						
1602626-014	S-13-ECB20	Soil	2/16/2016 9:29	<input type="checkbox"/>		A		A		A						

Test Legend:

1	8082_PCB_S	2	8260B_S	3	8270_PNA_S	4	G-MBTEX_S
5	LUFTMS_6020_TTLC_S	6	TPH(DMO)WSG_S	7		8	
9		10		11		12	

Prepared by: Maria Venegas

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A, 010A, 011A, 012A, 013A, 014A contain testgroup.

Comments:

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: ESSEL ENVIRONMENTAL CONSULTING

QC Level: LEVEL 2

Work Order: 1602626

Project: 15166; EBALDC

Client Contact: Nik Lahiri

Date Logged: 2/17/2016

Comments:

Contact's Email: nlahiri@esseltek.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
1602626-001A	S-4-ECB15	Soil	SW6020 (LUFT)	1	Acetate Liner	<input type="checkbox"/>	2/16/2016 8:30	5 days		<input type="checkbox"/>	
			Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8270C (PAHs/PNAs)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8082 (PCBs Only)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
1602626-002A	S-9½-ECB15	Soil	SW6020 (LUFT)	1	Acetate Liner	<input type="checkbox"/>	2/16/2016 8:41	5 days		<input type="checkbox"/>	
			Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8270C (PAHs/PNAs)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8082 (PCBs Only)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
1602626-003A	S-12½-ECB15	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up	1	Acetate Liner	<input type="checkbox"/>	2/16/2016 8:58	5 days		<input type="checkbox"/>	
			SW8270C (PAHs/PNAs)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
1602626-004A	S-18-ECB15	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up	1	Acetate Liner	<input type="checkbox"/>	2/16/2016 9:01	5 days		<input type="checkbox"/>	
			SW8260B (VOCs)			<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: ESSEL ENVIRONMENTAL CONSULTING

QC Level: LEVEL 2

Work Order: 1602626

Project: 15166; EBALDC

Client Contact: Nik Lahiri

Date Logged: 2/17/2016

Comments:

Contact's Email: nlahiri@esseltex.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
1602626-005A	S-13-ECB16	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up SW8270C (PAHs/PNAs) SW8260B (VOCs)	1	Acetate Liner	<input type="checkbox"/>	2/16/2016 10:55	5 days		<input type="checkbox"/>	
						<input type="checkbox"/>		5 days		<input type="checkbox"/>	
						<input type="checkbox"/>		5 days		<input type="checkbox"/>	
1602626-006A	S-16½-ECB16	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up SW8260B (VOCs)	1	Acetate Liner	<input type="checkbox"/>	2/16/2016 10:59	5 days		<input type="checkbox"/>	
						<input type="checkbox"/>		5 days		<input type="checkbox"/>	
1602626-007A	S-13½-ECB17	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up SW8260B (VOCs)	1	Acetate Liner	<input type="checkbox"/>	2/16/2016 10:00	5 days		<input type="checkbox"/>	
						<input type="checkbox"/>		5 days		<input type="checkbox"/>	
1602626-008A	S-15-ECB17	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up SW8260B (VOCs)	1	Acetate Liner	<input type="checkbox"/>	2/16/2016 10:06	5 days		<input type="checkbox"/>	
						<input type="checkbox"/>		5 days		<input type="checkbox"/>	
1602626-009A	S-3-ECB18	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up SW8260B (VOCs)	1	Acetate Liner	<input type="checkbox"/>	2/16/2016 10:15	5 days		<input type="checkbox"/>	
						<input type="checkbox"/>		5 days		<input type="checkbox"/>	
1602626-010A	S-9½-ECB18	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up SW8260B (VOCs)	1	Acetate Liner	<input type="checkbox"/>	2/16/2016 10:18	5 days		<input type="checkbox"/>	
						<input type="checkbox"/>		5 days		<input type="checkbox"/>	
1602626-011A	S-13-ECB18	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up	1	Acetate Liner	<input type="checkbox"/>	2/16/2016 10:27	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: ESSEL ENVIRONMENTAL CONSULTING

QC Level: LEVEL 2

Work Order: 1602626

Project: 15166; EBALDC

Client Contact: Nik Lahiri

Date Logged: 2/17/2016

Comments:

Contact's Email: nlahiri@esseltex.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
1602626-011A	S-13-ECB18	Soil	SW8260B (VOCs)	1	Acetate Liner	<input type="checkbox"/>	2/16/2016 10:27	5 days		<input type="checkbox"/>	
1602626-012A	S-14½-ECB19	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up SW8270C (PAHs/PNAs) SW8260B (VOCs)	1	Acetate Liner	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	2/16/2016 8:14	5 days 5 days 5 days		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
1602626-013A	S-17-ECB19	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up SW8260B (VOCs)	1	Acetate Liner	<input type="checkbox"/> <input type="checkbox"/>	2/16/2016 8:16	5 days 5 days		<input type="checkbox"/> <input type="checkbox"/>	
1602626-014A	S-13-ECB20	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up SW8260B (VOCs)	1	Acetate Liner	<input type="checkbox"/> <input type="checkbox"/>	2/16/2016 9:29	5 days 5 days		<input type="checkbox"/> <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.

McCAMPBELL ANALYTICAL, INC.

1534 WILLOW PASS ROAD
PITTSBURG, CA 94565-1701

Website: www.mccampbell.com Email: main@mccampbell.com

Telephone: (877) 252-9262 Fax: (925) 252-9269

1602626

CHAIN OF CUSTODY RECORD

TURN AROUND TIME

RUSH 24 HR 48 HR 72 HR **5 DAY**

GeoTracker EDF PDF Excel Write On (DW)

Check if sample is effluent and "J" flag is required

Report To: Nik Lahiri Bill To: Samhita Lahiri
Company: Essel Technology Services, Inc
351 California Street, Suite 615
San Francisco, California 94104 E-Mail: nlahiri@esseltex.com
Tele: (925) 413-5511 Fax: (510) 380-6610
Project #: 15166 Project Name: EBALDC
Project Location: West Grand Avenue and Brush Street, Oakland, California 94612
Sampler Signature: *Rodger C. Witham*

Analysis Request

Other **Comments**

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED								
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO ₃	Other					
S-4-ECB13	ECB-15	2/16/16	9:30 a.m.	1	P	X					X								
S-9 1/2-ECB15	ECB-15	2/16/16	8:41 a.m.	1	P	X					X								
S-12 1/2-ECB15	ECB-15	2/16/16	8:58 a.m.	1	P	X					X								
S-18-ECB15	ECB-15	2/16/16	9:01 a.m.	1	P	X					X								
S-13-ECB16	ECB-16	2/16/16	10:55 a.m.	1	P	X					X								
S-16 1/2-ECB16	ECB-16	2/16/16	10:59 a.m.	1	P	X					X								
S-13 1/2-ECB17	ECB-17	2/16/16	10:00 a.m.	1	P	X					X								
S-15-ECB17	ECB-17	2/16/16	10:06 a.m.	1	P	X					X								
S-3-ECB18	ECB-18	2/16/16	10:15 a.m.	1	P	X					X								
S-9 1/2-ECB18	ECB-18	2/16/16	10:18 a.m.	1	P	X					X								
S-13-ECB18	ECB-18	2/16/16	10:27 a.m.	1	P	X					X								

BTEX & TPH as Gas (602 / 8021 + 8015) / MTBE	TPH as Gasoline, Diesel, Motor Oil (8015)	Total Petroleum Oil & Grease (1664 / 5520 E/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 502.2 / 601 / 8010 / 8021 (HVOCs)	MTBE / BTEX ONLY (EPA 602 / 8021)	EPA 505/608 / 8081 (CI Pesticides)	EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners	EPA 507 / 8141 (NP Pesticides)	EPA 515 / 8151 (Acidic CI Herbicides)	EPA 524.2 / 624 / 8260 (VOCs)	EPA 525.2 / 625 / 8270 (SVOCs)	EPA 8270 SIM / 8310 (PAHs / PNAs)	CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)	LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)	Lead (200.7 / 200.8 / 6010 / 6020)	Filter sample for DISSOLVED metals analysis
--	---	--	--------------------------------------	---------------------------------------	-----------------------------------	------------------------------------	---	--------------------------------	---------------------------------------	-------------------------------	--------------------------------	-----------------------------------	---	---	------------------------------------	---

**Indicate here if these samples are potentially dangerous to handle:

Silica gel cleanup before diesel/motor oil analysis

**MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate \$250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

Relinquished By: <i>Rodger C. Witham</i>	Date: 2/16/16	Time: 3:40 p.m.	Received By: <i>[Signature]</i>
Relinquished By: <i>[Signature]</i>	Date: 2/16/16	Time: 5:40 p.m.	Received By: <i>[Signature]</i>
Relinquished By:	Date:	Time:	Received By:

ICE/° *3.9*

GOOD CONDITION _____

HEAD SPACE ABSENT _____

DECHLORINATED IN LAB _____

APPROPRIATE CONTAINERS _____

PRESERVED IN LAB _____

VOAS O&G METALS OTHER
PRESERVATION pH<2

COMMENTS:

McCAMPBELL ANALYTICAL, INC.

1534 WILLOW PASS ROAD
PITTSBURG, CA 94565-1701

Website: www.mccampbell.com Email: main@mccampbell.com
Telephone: (877) 252-9262 Fax: (925) 252-9269

CHAIN OF CUSTODY RECORD

TURN AROUND TIME

RUSH 24 HR 48 HR 72 HR **5 DAY**

GeoTracker EDF PDF Excel Write On (DW)

Check if sample is effluent and "J" flag is required

Report To: Nik Lahiri Bill To: Samhita Lahiri

Company: Essel Technology Services, Inc

351 California Street, Suite 615

San Francisco, California 94104 E-Mail: nlahiri@esseltek.com

Tele: (925) 413-5511 Fax: (510) 380-6610

Project #: 15168 Project Name: EBALDC

Project Location: West Grand Avenue and Brush Street, Oakland, California 94612

Sampler Signature: *Rodger C. Witham*

Analysis Request

Other

Comments

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED											
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO ₃	Other								
S-14 1/2-ECB19	ECB-19	2/16/16	8:14 a.m.	1	P	X					X											
S-17-ECB19	ECB-19	2/16/16	8:16 a.m.	1	P	X					X											
S-13-ECB20	ECB-20	2/16/16	9:29 a.m.	1	P	X					X											

BTEX & TPH as Gas (602 / 8021 + 8015) / MTBE																							
TPH as Gasoline, Diesel, Motor Oil (8015)																							
Total Petroleum Oil & Grease (1664 / 5520 E/B&F)																							
Total Petroleum Hydrocarbons (418.1)																							
EPA 502.2 / 601 / 8010 / 8021 (HVOCs)																							
MTBE / BTEX ONLY (EPA 602 / 8021)																							
EPA 505/608 / 8081 (CI Pesticides)																							
EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners																							
EPA 507 / 8141 (NP Pesticides)																							
EPA 515 / 8151 (Acidic CI Herbicides)																							
EPA 524.2 / 624 / 8260 (VOCs)																							
EPA 525.2 / 625 / 8270 (SVOCs)																							
EPA 8270 SIM / 8310 (PAHs / PNAs)																							
CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)																							
LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)																							
Lead (200.7 / 200.8 / 6010 / 6020)																							
Filter sample for DISSOLVED metals analysis																							

**Indicate here if these samples are potentially dangerous to handle:

Silica gel cleanup before diesel/motor oil analysis

**MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate \$250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

Relinquished By: <i>Rodger C. Witham</i>	Date: 2/16/16	Time: 3:40 p.m.	Received By: <i>[Signature]</i>
Relinquished By: <i>[Signature]</i>	Date: 2/16/16	Time: 5:40 p.m.	Received By: <i>[Signature]</i>
Relinquished By:	Date:	Time:	Received By:

COMMENTS:

ICE/# _____
 GOOD CONDITION _____
 HEAD SPACE ABSENT _____
 DECHLORINATED IN LAB _____
 APPROPRIATE CONTAINERS _____
 PRESERVED IN LAB _____

VOAS O&G METALS OTHER
 PRESERVATION pH<2



Sample Receipt Checklist

Client Name: **Essel Environmental Consulting**
 Project Name: **15166; EBALDC**
 WorkOrder No: **1602626** Matrix: Soil
 Carrier: Client Drop-In

Date and Time Received: **2/16/2016 17:40**
 Date Logged: **2/17/2016**
 Received by: **Maria Venegas**
 Logged by: **Maria Venegas**

Chain of Custody (COC) Information

Chain of custody present? Yes No
 Chain of custody signed when relinquished and received? Yes No
 Chain of custody agrees with sample labels? Yes No
 Sample IDs noted by Client on COC? Yes No
 Date and Time of collection noted by Client on COC? Yes No
 Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
 Shipping container/cooler in good condition? Yes No
 Samples in proper containers/bottles? Yes No
 Sample containers intact? Yes No
 Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No
 Sample/Temp Blank temperature Temp: 3.9°C NA
 Water - VOA vials have zero headspace / no bubbles? Yes No NA
 Sample labels checked for correct preservation? Yes No
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 Samples Received on Ice? Yes No

(Ice Type: WET ICE)

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

* NOTE: If the "No" box is checked, see comments below.

 Comments:



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1602628

Report Created for: Essel Environmental Consulting
564 Market Street
San Francisco, CA 94104

Project Contact: Nik Lahiri
Project P.O.:
Project Name: 15166; EBALDC

Project Received: 02/17/2016

Analytical Report reviewed & approved for release on 02/26/2016 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: Essel Environmental Consulting
Project: 15166; EBALDC
WorkOrder: 1602628

Glossary Abbreviation

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
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: Essel Environmental Consulting
Project: 15166; EBALDC
WorkOrder: 1602628

Analytical Qualifiers

S	Surrogate spike recovery outside accepted recovery limits
a3	sample diluted due to high organic content.
b1	aqueous sample that contains greater than ~1 vol. % sediment
b6	lighter than water immiscible sheen/product is present
c1	surrogate recovery outside of the control limits due to the dilution of the sample.
d1	weakly modified or unmodified gasoline is significant
d7	strongly aged gasoline or diesel range compounds are significant in the TPH(g) chromatogram
d9	no recognizable pattern
e2	diesel range compounds are significant; no recognizable pattern
e4/e8	gasoline range compounds are significant.; and/or kerosene/kerosene range/jet fuel range
e7	oil range compounds are significant
e11/e8	stoddard solvent/mineral spirit (?); and/or kerosene/kerosene range/jet fuel range
e11	stoddard solvent/mineral spirit (?)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602628
Extraction Method: SW3510C
Analytical Method: SW8082
Unit: µg/L

Polychlorinated Biphenyls (PCBs) Aroclors

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
W-ECB15	1602628-001C	Water	02/16/2016 13:30	GC20	116801

Analytes	Result	RL	DF	Date Analyzed
Aroclor1016	ND	25	50	02/18/2016 22:48
Aroclor1221	ND	25	50	02/18/2016 22:48
Aroclor1232	ND	25	50	02/18/2016 22:48
Aroclor1242	ND	25	50	02/18/2016 22:48
Aroclor1248	ND	25	50	02/18/2016 22:48
Aroclor1254	ND	25	50	02/18/2016 22:48
Aroclor1260	ND	25	50	02/18/2016 22:48
PCBs, total	ND	25	50	02/18/2016 22:48

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	95	70-130	02/18/2016 22:48

Analyst(s): CK

Analytical Comments: b6,b1

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
W-ECB16	1602628-002C	Water	02/16/2016 13:45	GC20	116801

Analytes	Result	RL	DF	Date Analyzed
Aroclor1016	ND	25	50	02/18/2016 23:44
Aroclor1221	ND	25	50	02/18/2016 23:44
Aroclor1232	ND	25	50	02/18/2016 23:44
Aroclor1242	ND	25	50	02/18/2016 23:44
Aroclor1248	ND	25	50	02/18/2016 23:44
Aroclor1254	ND	25	50	02/18/2016 23:44
Aroclor1260	ND	25	50	02/18/2016 23:44
PCBs, total	ND	25	50	02/18/2016 23:44

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	94	70-130	02/18/2016 23:44

Analyst(s): CK

Analytical Comments: b6,b1

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602628
Extraction Method: SW3510C
Analytical Method: SW8082
Unit: µg/L

Polychlorinated Biphenyls (PCBs) Aroclors

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
W-ECB19	1602628-005C	Water	02/16/2016 14:15	GC20	116801

Analytes	Result	RL	DF	Date Analyzed
Aroclor1016	ND	25	50	02/19/2016 00:40
Aroclor1221	ND	25	50	02/19/2016 00:40
Aroclor1232	ND	25	50	02/19/2016 00:40
Aroclor1242	ND	25	50	02/19/2016 00:40
Aroclor1248	ND	25	50	02/19/2016 00:40
Aroclor1254	ND	25	50	02/19/2016 00:40
Aroclor1260	ND	25	50	02/19/2016 00:40
PCBs, total	ND	25	50	02/19/2016 00:40

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	90	70-130	02/19/2016 00:40

Analyst(s): CK

Analytical Comments: b6,b1



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/20/16
Project: 15166; EBALDC

WorkOrder: 1602628
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
W-ECB15	1602628-001B	Water	02/16/2016 13:30	GC28	116946

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	10	1	02/20/2016 00:47
tert-Amyl methyl ether (TAME)	ND	0.50	1	02/20/2016 00:47
Benzene	0.54	0.50	1	02/20/2016 00:47
Bromobenzene	ND	0.50	1	02/20/2016 00:47
Bromochloromethane	ND	0.50	1	02/20/2016 00:47
Bromodichloromethane	ND	0.50	1	02/20/2016 00:47
Bromoform	ND	0.50	1	02/20/2016 00:47
Bromomethane	ND	0.50	1	02/20/2016 00:47
2-Butanone (MEK)	ND	2.0	1	02/20/2016 00:47
t-Butyl alcohol (TBA)	ND	2.0	1	02/20/2016 00:47
n-Butyl benzene	1.1	0.50	1	02/20/2016 00:47
sec-Butyl benzene	0.63	0.50	1	02/20/2016 00:47
tert-Butyl benzene	ND	0.50	1	02/20/2016 00:47
Carbon Disulfide	ND	0.50	1	02/20/2016 00:47
Carbon Tetrachloride	ND	0.50	1	02/20/2016 00:47
Chlorobenzene	ND	0.50	1	02/20/2016 00:47
Chloroethane	ND	0.50	1	02/20/2016 00:47
Chloroform	ND	0.50	1	02/20/2016 00:47
Chloromethane	ND	0.50	1	02/20/2016 00:47
2-Chlorotoluene	ND	0.50	1	02/20/2016 00:47
4-Chlorotoluene	ND	0.50	1	02/20/2016 00:47
Dibromochloromethane	ND	0.50	1	02/20/2016 00:47
1,2-Dibromo-3-chloropropane	ND	0.20	1	02/20/2016 00:47
1,2-Dibromoethane (EDB)	ND	0.50	1	02/20/2016 00:47
Dibromomethane	ND	0.50	1	02/20/2016 00:47
1,2-Dichlorobenzene	ND	0.50	1	02/20/2016 00:47
1,3-Dichlorobenzene	ND	0.50	1	02/20/2016 00:47
1,4-Dichlorobenzene	ND	0.50	1	02/20/2016 00:47
Dichlorodifluoromethane	ND	0.50	1	02/20/2016 00:47
1,1-Dichloroethane	ND	0.50	1	02/20/2016 00:47
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	02/20/2016 00:47
1,1-Dichloroethene	ND	0.50	1	02/20/2016 00:47
cis-1,2-Dichloroethene	ND	0.50	1	02/20/2016 00:47
trans-1,2-Dichloroethene	ND	0.50	1	02/20/2016 00:47
1,2-Dichloropropane	ND	0.50	1	02/20/2016 00:47
1,3-Dichloropropane	ND	0.50	1	02/20/2016 00:47
2,2-Dichloropropane	ND	0.50	1	02/20/2016 00:47

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/20/16
Project: 15166; EBALDC

WorkOrder: 1602628
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
W-ECB15	1602628-001B	Water	02/16/2016 13:30	GC28	116946
Analytes	Result	RL	DF	Date Analyzed	
1,1-Dichloropropene	ND	0.50	1	02/20/2016 00:47	
cis-1,3-Dichloropropene	ND	0.50	1	02/20/2016 00:47	
trans-1,3-Dichloropropene	ND	0.50	1	02/20/2016 00:47	
Diisopropyl ether (DIPE)	ND	0.50	1	02/20/2016 00:47	
Ethylbenzene	ND	0.50	1	02/20/2016 00:47	
Ethyl tert-butyl ether (ETBE)	ND	0.50	1	02/20/2016 00:47	
Freon 113	ND	0.50	1	02/20/2016 00:47	
Hexachlorobutadiene	ND	0.50	1	02/20/2016 00:47	
Hexachloroethane	ND	0.50	1	02/20/2016 00:47	
2-Hexanone	ND	0.50	1	02/20/2016 00:47	
Isopropylbenzene	0.95	0.50	1	02/20/2016 00:47	
4-Isopropyl toluene	1.9	0.50	1	02/20/2016 00:47	
Methyl-t-butyl ether (MTBE)	ND	0.50	1	02/20/2016 00:47	
Methylene chloride	ND	0.50	1	02/20/2016 00:47	
4-Methyl-2-pentanone (MIBK)	ND	0.50	1	02/20/2016 00:47	
Naphthalene	6.1	0.50	1	02/20/2016 00:47	
n-Propyl benzene	1.3	0.50	1	02/20/2016 00:47	
Styrene	ND	0.50	1	02/20/2016 00:47	
1,1,1,2-Tetrachloroethane	ND	0.50	1	02/20/2016 00:47	
1,1,2,2-Tetrachloroethane	ND	0.50	1	02/20/2016 00:47	
Tetrachloroethene	ND	0.50	1	02/20/2016 00:47	
Toluene	1.3	0.50	1	02/20/2016 00:47	
1,2,3-Trichlorobenzene	ND	0.50	1	02/20/2016 00:47	
1,2,4-Trichlorobenzene	ND	0.50	1	02/20/2016 00:47	
1,1,1-Trichloroethane	ND	0.50	1	02/20/2016 00:47	
1,1,2-Trichloroethane	ND	0.50	1	02/20/2016 00:47	
Trichloroethene	ND	0.50	1	02/20/2016 00:47	
Trichlorofluoromethane	ND	0.50	1	02/20/2016 00:47	
1,2,3-Trichloropropane	ND	0.50	1	02/20/2016 00:47	
1,2,4-Trimethylbenzene	19	0.50	1	02/20/2016 00:47	
1,3,5-Trimethylbenzene	2.2	0.50	1	02/20/2016 00:47	
Vinyl Chloride	ND	0.50	1	02/20/2016 00:47	
Xylenes, Total	4.6	0.50	1	02/20/2016 00:47	

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/20/16
Project: 15166; EBALDC

WorkOrder: 1602628
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
W-ECB15	1602628-001B	Water	02/16/2016 13:30	GC28	116946

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	116	70-130		02/20/2016 00:47
Toluene-d8	112	70-130		02/20/2016 00:47
4-BFB	89	70-130		02/20/2016 00:47

Analyst(s): AK

Analytical Comments: b1



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/20/16
Project: 15166; EBALDC

WorkOrder: 1602628
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
W-ECB16	1602628-002B	Water	02/16/2016 13:45	GC28	116946
Analytes	Result	RL	DF	Date Analyzed	
Acetone	ND	100	10	02/20/2016 16:36	
tert-Amyl methyl ether (TAME)	ND	5.0	10	02/20/2016 16:36	
Benzene	7.2	5.0	10	02/20/2016 16:36	
Bromobenzene	ND	5.0	10	02/20/2016 16:36	
Bromochloromethane	ND	5.0	10	02/20/2016 16:36	
Bromodichloromethane	ND	5.0	10	02/20/2016 16:36	
Bromoform	ND	5.0	10	02/20/2016 16:36	
Bromomethane	ND	5.0	10	02/20/2016 16:36	
2-Butanone (MEK)	ND	20	10	02/20/2016 16:36	
t-Butyl alcohol (TBA)	ND	20	10	02/20/2016 16:36	
n-Butyl benzene	ND	5.0	10	02/20/2016 16:36	
sec-Butyl benzene	ND	5.0	10	02/20/2016 16:36	
tert-Butyl benzene	ND	5.0	10	02/20/2016 16:36	
Carbon Disulfide	ND	5.0	10	02/20/2016 16:36	
Carbon Tetrachloride	ND	5.0	10	02/20/2016 16:36	
Chlorobenzene	ND	5.0	10	02/20/2016 16:36	
Chloroethane	ND	5.0	10	02/20/2016 16:36	
Chloroform	ND	5.0	10	02/20/2016 16:36	
Chloromethane	ND	5.0	10	02/20/2016 16:36	
2-Chlorotoluene	ND	5.0	10	02/20/2016 16:36	
4-Chlorotoluene	ND	5.0	10	02/20/2016 16:36	
Dibromochloromethane	ND	5.0	10	02/20/2016 16:36	
1,2-Dibromo-3-chloropropane	ND	2.0	10	02/20/2016 16:36	
1,2-Dibromoethane (EDB)	ND	5.0	10	02/20/2016 16:36	
Dibromomethane	ND	5.0	10	02/20/2016 16:36	
1,2-Dichlorobenzene	ND	5.0	10	02/20/2016 16:36	
1,3-Dichlorobenzene	ND	5.0	10	02/20/2016 16:36	
1,4-Dichlorobenzene	ND	5.0	10	02/20/2016 16:36	
Dichlorodifluoromethane	ND	5.0	10	02/20/2016 16:36	
1,1-Dichloroethane	ND	5.0	10	02/20/2016 16:36	
1,2-Dichloroethane (1,2-DCA)	ND	5.0	10	02/20/2016 16:36	
1,1-Dichloroethene	ND	5.0	10	02/20/2016 16:36	
cis-1,2-Dichloroethene	ND	5.0	10	02/20/2016 16:36	
trans-1,2-Dichloroethene	ND	5.0	10	02/20/2016 16:36	
1,2-Dichloropropane	ND	5.0	10	02/20/2016 16:36	
1,3-Dichloropropane	ND	5.0	10	02/20/2016 16:36	
2,2-Dichloropropane	ND	5.0	10	02/20/2016 16:36	

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/20/16
Project: 15166; EBALDC

WorkOrder: 1602628
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
W-ECB16	1602628-002B	Water	02/16/2016 13:45	GC28	116946

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	5.0	10	02/20/2016 16:36
cis-1,3-Dichloropropene	ND	5.0	10	02/20/2016 16:36
trans-1,3-Dichloropropene	ND	5.0	10	02/20/2016 16:36
Diisopropyl ether (DIPE)	ND	5.0	10	02/20/2016 16:36
Ethylbenzene	ND	5.0	10	02/20/2016 16:36
Ethyl tert-butyl ether (ETBE)	ND	5.0	10	02/20/2016 16:36
Freon 113	ND	5.0	10	02/20/2016 16:36
Hexachlorobutadiene	ND	5.0	10	02/20/2016 16:36
Hexachloroethane	ND	5.0	10	02/20/2016 16:36
2-Hexanone	ND	5.0	10	02/20/2016 16:36
Isopropylbenzene	ND	5.0	10	02/20/2016 16:36
4-Isopropyl toluene	7.1	5.0	10	02/20/2016 16:36
Methyl-t-butyl ether (MTBE)	ND	5.0	10	02/20/2016 16:36
Methylene chloride	ND	5.0	10	02/20/2016 16:36
4-Methyl-2-pentanone (MIBK)	ND	5.0	10	02/20/2016 16:36
Naphthalene	25	5.0	10	02/20/2016 16:36
n-Propyl benzene	6.0	5.0	10	02/20/2016 16:36
Styrene	ND	5.0	10	02/20/2016 16:36
1,1,1,2-Tetrachloroethane	ND	5.0	10	02/20/2016 16:36
1,1,2,2-Tetrachloroethane	ND	5.0	10	02/20/2016 16:36
Tetrachloroethene	ND	5.0	10	02/20/2016 16:36
Toluene	ND	5.0	10	02/20/2016 16:36
1,2,3-Trichlorobenzene	ND	5.0	10	02/20/2016 16:36
1,2,4-Trichlorobenzene	ND	5.0	10	02/20/2016 16:36
1,1,1-Trichloroethane	ND	5.0	10	02/20/2016 16:36
1,1,2-Trichloroethane	ND	5.0	10	02/20/2016 16:36
Trichloroethene	ND	5.0	10	02/20/2016 16:36
Trichlorofluoromethane	ND	5.0	10	02/20/2016 16:36
1,2,3-Trichloropropane	ND	5.0	10	02/20/2016 16:36
1,2,4-Trimethylbenzene	78	5.0	10	02/20/2016 16:36
1,3,5-Trimethylbenzene	9.9	5.0	10	02/20/2016 16:36
Vinyl Chloride	ND	5.0	10	02/20/2016 16:36
Xylenes, Total	28	5.0	10	02/20/2016 16:36

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/20/16
Project: 15166; EBALDC

WorkOrder: 1602628
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
W-ECB16	1602628-002B	Water	02/16/2016 13:45	GC28	116946

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	117	70-130		02/20/2016 16:36
Toluene-d8	115	70-130		02/20/2016 16:36
4-BFB	89	70-130		02/20/2016 16:36

Analyst(s): AK

Analytical Comments: b1



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/20/16
Project: 15166; EBALDC

WorkOrder: 1602628
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
W-ECB17	1602628-003B	Water	02/16/2016 13:59	GC28	116946

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	25	2.5	02/20/2016 17:15
tert-Amyl methyl ether (TAME)	ND	1.2	2.5	02/20/2016 17:15
Benzene	ND	1.2	2.5	02/20/2016 17:15
Bromobenzene	ND	1.2	2.5	02/20/2016 17:15
Bromochloromethane	ND	1.2	2.5	02/20/2016 17:15
Bromodichloromethane	ND	1.2	2.5	02/20/2016 17:15
Bromoform	ND	1.2	2.5	02/20/2016 17:15
Bromomethane	ND	1.2	2.5	02/20/2016 17:15
2-Butanone (MEK)	ND	5.0	2.5	02/20/2016 17:15
t-Butyl alcohol (TBA)	ND	5.0	2.5	02/20/2016 17:15
n-Butyl benzene	6.0	1.2	2.5	02/20/2016 17:15
sec-Butyl benzene	3.1	1.2	2.5	02/20/2016 17:15
tert-Butyl benzene	ND	1.2	2.5	02/20/2016 17:15
Carbon Disulfide	ND	1.2	2.5	02/20/2016 17:15
Carbon Tetrachloride	ND	1.2	2.5	02/20/2016 17:15
Chlorobenzene	ND	1.2	2.5	02/20/2016 17:15
Chloroethane	ND	1.2	2.5	02/20/2016 17:15
Chloroform	ND	1.2	2.5	02/20/2016 17:15
Chloromethane	ND	1.2	2.5	02/20/2016 17:15
2-Chlorotoluene	ND	1.2	2.5	02/20/2016 17:15
4-Chlorotoluene	ND	1.2	2.5	02/20/2016 17:15
Dibromochloromethane	ND	1.2	2.5	02/20/2016 17:15
1,2-Dibromo-3-chloropropane	ND	0.50	2.5	02/20/2016 17:15
1,2-Dibromoethane (EDB)	ND	1.2	2.5	02/20/2016 17:15
Dibromomethane	ND	1.2	2.5	02/20/2016 17:15
1,2-Dichlorobenzene	ND	1.2	2.5	02/20/2016 17:15
1,3-Dichlorobenzene	ND	1.2	2.5	02/20/2016 17:15
1,4-Dichlorobenzene	ND	1.2	2.5	02/20/2016 17:15
Dichlorodifluoromethane	ND	1.2	2.5	02/20/2016 17:15
1,1-Dichloroethane	ND	1.2	2.5	02/20/2016 17:15
1,2-Dichloroethane (1,2-DCA)	ND	1.2	2.5	02/20/2016 17:15
1,1-Dichloroethene	ND	1.2	2.5	02/20/2016 17:15
cis-1,2-Dichloroethene	ND	1.2	2.5	02/20/2016 17:15
trans-1,2-Dichloroethene	ND	1.2	2.5	02/20/2016 17:15
1,2-Dichloropropane	ND	1.2	2.5	02/20/2016 17:15
1,3-Dichloropropane	ND	1.2	2.5	02/20/2016 17:15
2,2-Dichloropropane	ND	1.2	2.5	02/20/2016 17:15

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/20/16
Project: 15166; EBALDC

WorkOrder: 1602628
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
W-ECB17	1602628-003B	Water	02/16/2016 13:59	GC28	116946
Analytes	Result	RL	DF	Date Analyzed	
1,1-Dichloropropene	ND	1.2	2.5	02/20/2016 17:15	
cis-1,3-Dichloropropene	ND	1.2	2.5	02/20/2016 17:15	
trans-1,3-Dichloropropene	ND	1.2	2.5	02/20/2016 17:15	
Diisopropyl ether (DIPE)	ND	1.2	2.5	02/20/2016 17:15	
Ethylbenzene	2.1	1.2	2.5	02/20/2016 17:15	
Ethyl tert-butyl ether (ETBE)	ND	1.2	2.5	02/20/2016 17:15	
Freon 113	ND	1.2	2.5	02/20/2016 17:15	
Hexachlorobutadiene	ND	1.2	2.5	02/20/2016 17:15	
Hexachloroethane	ND	1.2	2.5	02/20/2016 17:15	
2-Hexanone	ND	1.2	2.5	02/20/2016 17:15	
Isopropylbenzene	4.4	1.2	2.5	02/20/2016 17:15	
4-Isopropyl toluene	9.2	1.2	2.5	02/20/2016 17:15	
Methyl-t-butyl ether (MTBE)	ND	1.2	2.5	02/20/2016 17:15	
Methylene chloride	ND	1.2	2.5	02/20/2016 17:15	
4-Methyl-2-pentanone (MIBK)	ND	1.2	2.5	02/20/2016 17:15	
Naphthalene	31	1.2	2.5	02/20/2016 17:15	
n-Propyl benzene	7.3	1.2	2.5	02/20/2016 17:15	
Styrene	ND	1.2	2.5	02/20/2016 17:15	
1,1,1,2-Tetrachloroethane	ND	1.2	2.5	02/20/2016 17:15	
1,1,2,2-Tetrachloroethane	ND	1.2	2.5	02/20/2016 17:15	
Tetrachloroethene	ND	1.2	2.5	02/20/2016 17:15	
Toluene	2.4	1.2	2.5	02/20/2016 17:15	
1,2,3-Trichlorobenzene	ND	1.2	2.5	02/20/2016 17:15	
1,2,4-Trichlorobenzene	ND	1.2	2.5	02/20/2016 17:15	
1,1,1-Trichloroethane	ND	1.2	2.5	02/20/2016 17:15	
1,1,2-Trichloroethane	ND	1.2	2.5	02/20/2016 17:15	
Trichloroethene	ND	1.2	2.5	02/20/2016 17:15	
Trichlorofluoromethane	ND	1.2	2.5	02/20/2016 17:15	
1,2,3-Trichloropropane	ND	1.2	2.5	02/20/2016 17:15	
1,2,4-Trimethylbenzene	96	1.2	2.5	02/20/2016 17:15	
1,3,5-Trimethylbenzene	16	1.2	2.5	02/20/2016 17:15	
Vinyl Chloride	ND	1.2	2.5	02/20/2016 17:15	
Xylenes, Total	24	1.2	2.5	02/20/2016 17:15	

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/20/16
Project: 15166; EBALDC

WorkOrder: 1602628
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
W-ECB17	1602628-003B	Water	02/16/2016 13:59	GC28	116946

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	116	70-130		02/20/2016 17:15
Toluene-d8	112	70-130		02/20/2016 17:15
4-BFB	92	70-130		02/20/2016 17:15

Analyst(s): AK

Analytical Comments: b1



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/20/16
Project: 15166; EBALDC

WorkOrder: 1602628
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
W-ECB18	1602628-004B	Water	02/16/2016 13:21	GC28	116946

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	10	1	02/20/2016 17:53
tert-Amyl methyl ether (TAME)	ND	0.50	1	02/20/2016 17:53
Benzene	ND	0.50	1	02/20/2016 17:53
Bromobenzene	ND	0.50	1	02/20/2016 17:53
Bromochloromethane	ND	0.50	1	02/20/2016 17:53
Bromodichloromethane	ND	0.50	1	02/20/2016 17:53
Bromoform	ND	0.50	1	02/20/2016 17:53
Bromomethane	ND	0.50	1	02/20/2016 17:53
2-Butanone (MEK)	ND	2.0	1	02/20/2016 17:53
t-Butyl alcohol (TBA)	ND	2.0	1	02/20/2016 17:53
n-Butyl benzene	ND	0.50	1	02/20/2016 17:53
sec-Butyl benzene	ND	0.50	1	02/20/2016 17:53
tert-Butyl benzene	ND	0.50	1	02/20/2016 17:53
Carbon Disulfide	ND	0.50	1	02/20/2016 17:53
Carbon Tetrachloride	ND	0.50	1	02/20/2016 17:53
Chlorobenzene	ND	0.50	1	02/20/2016 17:53
Chloroethane	ND	0.50	1	02/20/2016 17:53
Chloroform	ND	0.50	1	02/20/2016 17:53
Chloromethane	ND	0.50	1	02/20/2016 17:53
2-Chlorotoluene	ND	0.50	1	02/20/2016 17:53
4-Chlorotoluene	ND	0.50	1	02/20/2016 17:53
Dibromochloromethane	ND	0.50	1	02/20/2016 17:53
1,2-Dibromo-3-chloropropane	ND	0.20	1	02/20/2016 17:53
1,2-Dibromoethane (EDB)	ND	0.50	1	02/20/2016 17:53
Dibromomethane	ND	0.50	1	02/20/2016 17:53
1,2-Dichlorobenzene	ND	0.50	1	02/20/2016 17:53
1,3-Dichlorobenzene	ND	0.50	1	02/20/2016 17:53
1,4-Dichlorobenzene	ND	0.50	1	02/20/2016 17:53
Dichlorodifluoromethane	ND	0.50	1	02/20/2016 17:53
1,1-Dichloroethane	ND	0.50	1	02/20/2016 17:53
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	02/20/2016 17:53
1,1-Dichloroethene	ND	0.50	1	02/20/2016 17:53
cis-1,2-Dichloroethene	ND	0.50	1	02/20/2016 17:53
trans-1,2-Dichloroethene	ND	0.50	1	02/20/2016 17:53
1,2-Dichloropropane	ND	0.50	1	02/20/2016 17:53
1,3-Dichloropropane	ND	0.50	1	02/20/2016 17:53
2,2-Dichloropropane	ND	0.50	1	02/20/2016 17:53

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/20/16
Project: 15166; EBALDC

WorkOrder: 1602628
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
W-ECB18	1602628-004B	Water	02/16/2016 13:21	GC28	116946
Analytes	Result	RL	DF	Date Analyzed	
1,1-Dichloropropene	ND	0.50	1	02/20/2016 17:53	
cis-1,3-Dichloropropene	ND	0.50	1	02/20/2016 17:53	
trans-1,3-Dichloropropene	ND	0.50	1	02/20/2016 17:53	
Diisopropyl ether (DIPE)	ND	0.50	1	02/20/2016 17:53	
Ethylbenzene	ND	0.50	1	02/20/2016 17:53	
Ethyl tert-butyl ether (ETBE)	ND	0.50	1	02/20/2016 17:53	
Freon 113	ND	0.50	1	02/20/2016 17:53	
Hexachlorobutadiene	ND	0.50	1	02/20/2016 17:53	
Hexachloroethane	ND	0.50	1	02/20/2016 17:53	
2-Hexanone	ND	0.50	1	02/20/2016 17:53	
Isopropylbenzene	ND	0.50	1	02/20/2016 17:53	
4-Isopropyl toluene	ND	0.50	1	02/20/2016 17:53	
Methyl-t-butyl ether (MTBE)	ND	0.50	1	02/20/2016 17:53	
Methylene chloride	ND	0.50	1	02/20/2016 17:53	
4-Methyl-2-pentanone (MIBK)	ND	0.50	1	02/20/2016 17:53	
Naphthalene	ND	0.50	1	02/20/2016 17:53	
n-Propyl benzene	ND	0.50	1	02/20/2016 17:53	
Styrene	ND	0.50	1	02/20/2016 17:53	
1,1,1,2-Tetrachloroethane	ND	0.50	1	02/20/2016 17:53	
1,1,2,2-Tetrachloroethane	ND	0.50	1	02/20/2016 17:53	
Tetrachloroethene	ND	0.50	1	02/20/2016 17:53	
Toluene	ND	0.50	1	02/20/2016 17:53	
1,2,3-Trichlorobenzene	ND	0.50	1	02/20/2016 17:53	
1,2,4-Trichlorobenzene	ND	0.50	1	02/20/2016 17:53	
1,1,1-Trichloroethane	ND	0.50	1	02/20/2016 17:53	
1,1,2-Trichloroethane	ND	0.50	1	02/20/2016 17:53	
Trichloroethene	ND	0.50	1	02/20/2016 17:53	
Trichlorofluoromethane	ND	0.50	1	02/20/2016 17:53	
1,2,3-Trichloropropane	ND	0.50	1	02/20/2016 17:53	
1,2,4-Trimethylbenzene	ND	0.50	1	02/20/2016 17:53	
1,3,5-Trimethylbenzene	ND	0.50	1	02/20/2016 17:53	
Vinyl Chloride	ND	0.50	1	02/20/2016 17:53	
Xylenes, Total	ND	0.50	1	02/20/2016 17:53	

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/20/16
Project: 15166; EBALDC

WorkOrder: 1602628
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
W-ECB18	1602628-004B	Water	02/16/2016 13:21	GC28	116946

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	117	70-130		02/20/2016 17:53
Toluene-d8	117	70-130		02/20/2016 17:53
4-BFB	89	70-130		02/20/2016 17:53

Analyst(s): AK

Analytical Comments: b1



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/20/16
Project: 15166; EBALDC

WorkOrder: 1602628
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
W-ECB19	1602628-005B	Water	02/16/2016 14:15	GC28	116946

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	10	1	02/20/2016 03:19
tert-Amyl methyl ether (TAME)	ND	0.50	1	02/20/2016 03:19
Benzene	ND	0.50	1	02/20/2016 03:19
Bromobenzene	ND	0.50	1	02/20/2016 03:19
Bromochloromethane	ND	0.50	1	02/20/2016 03:19
Bromodichloromethane	ND	0.50	1	02/20/2016 03:19
Bromoform	ND	0.50	1	02/20/2016 03:19
Bromomethane	ND	0.50	1	02/20/2016 03:19
2-Butanone (MEK)	ND	2.0	1	02/20/2016 03:19
t-Butyl alcohol (TBA)	ND	2.0	1	02/20/2016 03:19
n-Butyl benzene	0.67	0.50	1	02/20/2016 03:19
sec-Butyl benzene	1.3	0.50	1	02/20/2016 03:19
tert-Butyl benzene	ND	0.50	1	02/20/2016 03:19
Carbon Disulfide	ND	0.50	1	02/20/2016 03:19
Carbon Tetrachloride	ND	0.50	1	02/20/2016 03:19
Chlorobenzene	ND	0.50	1	02/20/2016 03:19
Chloroethane	ND	0.50	1	02/20/2016 03:19
Chloroform	ND	0.50	1	02/20/2016 03:19
Chloromethane	ND	0.50	1	02/20/2016 03:19
2-Chlorotoluene	ND	0.50	1	02/20/2016 03:19
4-Chlorotoluene	ND	0.50	1	02/20/2016 03:19
Dibromochloromethane	ND	0.50	1	02/20/2016 03:19
1,2-Dibromo-3-chloropropane	ND	0.20	1	02/20/2016 03:19
1,2-Dibromoethane (EDB)	ND	0.50	1	02/20/2016 03:19
Dibromomethane	ND	0.50	1	02/20/2016 03:19
1,2-Dichlorobenzene	ND	0.50	1	02/20/2016 03:19
1,3-Dichlorobenzene	ND	0.50	1	02/20/2016 03:19
1,4-Dichlorobenzene	ND	0.50	1	02/20/2016 03:19
Dichlorodifluoromethane	ND	0.50	1	02/20/2016 03:19
1,1-Dichloroethane	ND	0.50	1	02/20/2016 03:19
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	02/20/2016 03:19
1,1-Dichloroethene	ND	0.50	1	02/20/2016 03:19
cis-1,2-Dichloroethene	ND	0.50	1	02/20/2016 03:19
trans-1,2-Dichloroethene	ND	0.50	1	02/20/2016 03:19
1,2-Dichloropropane	ND	0.50	1	02/20/2016 03:19
1,3-Dichloropropane	ND	0.50	1	02/20/2016 03:19
2,2-Dichloropropane	ND	0.50	1	02/20/2016 03:19

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/20/16
Project: 15166; EBALDC

WorkOrder: 1602628
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
W-ECB19	1602628-005B	Water	02/16/2016 14:15	GC28	116946
Analytes	Result	RL	DF	Date Analyzed	
1,1-Dichloropropene	ND	0.50	1	02/20/2016 03:19	
cis-1,3-Dichloropropene	ND	0.50	1	02/20/2016 03:19	
trans-1,3-Dichloropropene	ND	0.50	1	02/20/2016 03:19	
Diisopropyl ether (DIPE)	ND	0.50	1	02/20/2016 03:19	
Ethylbenzene	ND	0.50	1	02/20/2016 03:19	
Ethyl tert-butyl ether (ETBE)	ND	0.50	1	02/20/2016 03:19	
Freon 113	ND	0.50	1	02/20/2016 03:19	
Hexachlorobutadiene	ND	0.50	1	02/20/2016 03:19	
Hexachloroethane	ND	0.50	1	02/20/2016 03:19	
2-Hexanone	ND	0.50	1	02/20/2016 03:19	
Isopropylbenzene	0.83	0.50	1	02/20/2016 03:19	
4-Isopropyl toluene	ND	0.50	1	02/20/2016 03:19	
Methyl-t-butyl ether (MTBE)	ND	0.50	1	02/20/2016 03:19	
Methylene chloride	ND	0.50	1	02/20/2016 03:19	
4-Methyl-2-pentanone (MIBK)	ND	0.50	1	02/20/2016 03:19	
Naphthalene	ND	0.50	1	02/20/2016 03:19	
n-Propyl benzene	0.56	0.50	1	02/20/2016 03:19	
Styrene	ND	0.50	1	02/20/2016 03:19	
1,1,1,2-Tetrachloroethane	ND	0.50	1	02/20/2016 03:19	
1,1,2,2-Tetrachloroethane	ND	0.50	1	02/20/2016 03:19	
Tetrachloroethene	ND	0.50	1	02/20/2016 03:19	
Toluene	0.58	0.50	1	02/20/2016 03:19	
1,2,3-Trichlorobenzene	ND	0.50	1	02/20/2016 03:19	
1,2,4-Trichlorobenzene	ND	0.50	1	02/20/2016 03:19	
1,1,1-Trichloroethane	ND	0.50	1	02/20/2016 03:19	
1,1,2-Trichloroethane	ND	0.50	1	02/20/2016 03:19	
Trichloroethene	ND	0.50	1	02/20/2016 03:19	
Trichlorofluoromethane	ND	0.50	1	02/20/2016 03:19	
1,2,3-Trichloropropane	ND	0.50	1	02/20/2016 03:19	
1,2,4-Trimethylbenzene	0.69	0.50	1	02/20/2016 03:19	
1,3,5-Trimethylbenzene	ND	0.50	1	02/20/2016 03:19	
Vinyl Chloride	ND	0.50	1	02/20/2016 03:19	
Xylenes, Total	ND	0.50	1	02/20/2016 03:19	

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/20/16
Project: 15166; EBALDC

WorkOrder: 1602628
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
W-ECB19	1602628-005B	Water	02/16/2016 14:15	GC28	116946

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	117	70-130		02/20/2016 03:19
Toluene-d8	113	70-130		02/20/2016 03:19
4-BFB	102	70-130		02/20/2016 03:19

Analyst(s): AK

Analytical Comments: b1



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/20/16
Project: 15166; EBALDC

WorkOrder: 1602628
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
W-ECB20	1602628-006B	Water	02/16/2016 14:10	GC28	116946

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	10	1	02/20/2016 03:57
tert-Amyl methyl ether (TAME)	ND	0.50	1	02/20/2016 03:57
Benzene	ND	0.50	1	02/20/2016 03:57
Bromobenzene	ND	0.50	1	02/20/2016 03:57
Bromochloromethane	ND	0.50	1	02/20/2016 03:57
Bromodichloromethane	ND	0.50	1	02/20/2016 03:57
Bromoform	ND	0.50	1	02/20/2016 03:57
Bromomethane	ND	0.50	1	02/20/2016 03:57
2-Butanone (MEK)	ND	2.0	1	02/20/2016 03:57
t-Butyl alcohol (TBA)	3.0	2.0	1	02/20/2016 03:57
n-Butyl benzene	ND	0.50	1	02/20/2016 03:57
sec-Butyl benzene	ND	0.50	1	02/20/2016 03:57
tert-Butyl benzene	ND	0.50	1	02/20/2016 03:57
Carbon Disulfide	ND	0.50	1	02/20/2016 03:57
Carbon Tetrachloride	ND	0.50	1	02/20/2016 03:57
Chlorobenzene	ND	0.50	1	02/20/2016 03:57
Chloroethane	ND	0.50	1	02/20/2016 03:57
Chloroform	ND	0.50	1	02/20/2016 03:57
Chloromethane	ND	0.50	1	02/20/2016 03:57
2-Chlorotoluene	ND	0.50	1	02/20/2016 03:57
4-Chlorotoluene	ND	0.50	1	02/20/2016 03:57
Dibromochloromethane	ND	0.50	1	02/20/2016 03:57
1,2-Dibromo-3-chloropropane	ND	0.20	1	02/20/2016 03:57
1,2-Dibromoethane (EDB)	ND	0.50	1	02/20/2016 03:57
Dibromomethane	ND	0.50	1	02/20/2016 03:57
1,2-Dichlorobenzene	ND	0.50	1	02/20/2016 03:57
1,3-Dichlorobenzene	ND	0.50	1	02/20/2016 03:57
1,4-Dichlorobenzene	ND	0.50	1	02/20/2016 03:57
Dichlorodifluoromethane	ND	0.50	1	02/20/2016 03:57
1,1-Dichloroethane	ND	0.50	1	02/20/2016 03:57
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	02/20/2016 03:57
1,1-Dichloroethene	ND	0.50	1	02/20/2016 03:57
cis-1,2-Dichloroethene	ND	0.50	1	02/20/2016 03:57
trans-1,2-Dichloroethene	ND	0.50	1	02/20/2016 03:57
1,2-Dichloropropane	ND	0.50	1	02/20/2016 03:57
1,3-Dichloropropane	ND	0.50	1	02/20/2016 03:57
2,2-Dichloropropane	ND	0.50	1	02/20/2016 03:57

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/20/16
Project: 15166; EBALDC

WorkOrder: 1602628
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
W-ECB20	1602628-006B	Water	02/16/2016 14:10	GC28	116946

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.50	1	02/20/2016 03:57
cis-1,3-Dichloropropene	ND	0.50	1	02/20/2016 03:57
trans-1,3-Dichloropropene	ND	0.50	1	02/20/2016 03:57
Diisopropyl ether (DIPE)	ND	0.50	1	02/20/2016 03:57
Ethylbenzene	ND	0.50	1	02/20/2016 03:57
Ethyl tert-butyl ether (ETBE)	ND	0.50	1	02/20/2016 03:57
Freon 113	ND	0.50	1	02/20/2016 03:57
Hexachlorobutadiene	ND	0.50	1	02/20/2016 03:57
Hexachloroethane	ND	0.50	1	02/20/2016 03:57
2-Hexanone	ND	0.50	1	02/20/2016 03:57
Isopropylbenzene	ND	0.50	1	02/20/2016 03:57
4-Isopropyl toluene	ND	0.50	1	02/20/2016 03:57
Methyl-t-butyl ether (MTBE)	ND	0.50	1	02/20/2016 03:57
Methylene chloride	ND	0.50	1	02/20/2016 03:57
4-Methyl-2-pentanone (MIBK)	ND	0.50	1	02/20/2016 03:57
Naphthalene	ND	0.50	1	02/20/2016 03:57
n-Propyl benzene	ND	0.50	1	02/20/2016 03:57
Styrene	ND	0.50	1	02/20/2016 03:57
1,1,1,2-Tetrachloroethane	ND	0.50	1	02/20/2016 03:57
1,1,2,2-Tetrachloroethane	ND	0.50	1	02/20/2016 03:57
Tetrachloroethene	ND	0.50	1	02/20/2016 03:57
Toluene	ND	0.50	1	02/20/2016 03:57
1,2,3-Trichlorobenzene	ND	0.50	1	02/20/2016 03:57
1,2,4-Trichlorobenzene	ND	0.50	1	02/20/2016 03:57
1,1,1-Trichloroethane	ND	0.50	1	02/20/2016 03:57
1,1,2-Trichloroethane	ND	0.50	1	02/20/2016 03:57
Trichloroethene	ND	0.50	1	02/20/2016 03:57
Trichlorofluoromethane	ND	0.50	1	02/20/2016 03:57
1,2,3-Trichloropropane	ND	0.50	1	02/20/2016 03:57
1,2,4-Trimethylbenzene	ND	0.50	1	02/20/2016 03:57
1,3,5-Trimethylbenzene	ND	0.50	1	02/20/2016 03:57
Vinyl Chloride	ND	0.50	1	02/20/2016 03:57
Xylenes, Total	ND	0.50	1	02/20/2016 03:57

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/20/16
Project: 15166; EBALDC

WorkOrder: 1602628
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
W-ECB20	1602628-006B	Water	02/16/2016 14:10	GC28	116946

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	116	70-130		02/20/2016 03:57
Toluene-d8	117	70-130		02/20/2016 03:57
4-BFB	91	70-130		02/20/2016 03:57

Analyst(s): AK

Analytical Comments: b1



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/22/16
Project: 15166; EBALDC

WorkOrder: 1602628
Extraction Method: SW3510C
Analytical Method: SW8270C-SIM
Unit: µg/L

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode by GC/MS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
W-ECB15	1602628-001D	Water	02/16/2016 13:30	GC35	117042

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	5.0	10	02/26/2016 12:10
Acenaphthylene	ND	5.0	10	02/26/2016 12:10
Anthracene	ND	5.0	10	02/26/2016 12:10
Benzo (a) anthracene	ND	5.0	10	02/26/2016 12:10
Benzo (a) pyrene	ND	5.0	10	02/26/2016 12:10
Benzo (b) fluoranthene	ND	5.0	10	02/26/2016 12:10
Benzo (g,h,i) perylene	ND	5.0	10	02/26/2016 12:10
Benzo (k) fluoranthene	ND	5.0	10	02/26/2016 12:10
Chrysene	ND	5.0	10	02/26/2016 12:10
Dibenzo (a,h) anthracene	ND	5.0	10	02/26/2016 12:10
Fluoranthene	ND	5.0	10	02/26/2016 12:10
Fluorene	ND	5.0	10	02/26/2016 12:10
Indeno (1,2,3-cd) pyrene	ND	5.0	10	02/26/2016 12:10
1-Methylnaphthalene	15	5.0	10	02/26/2016 12:10
2-Methylnaphthalene	19	5.0	10	02/26/2016 12:10
Naphthalene	36	5.0	10	02/26/2016 12:10
Phenanthrene	ND	5.0	10	02/26/2016 12:10
Pyrene	ND	5.0	10	02/26/2016 12:10

Surrogates	REC (%)	Limits	Date Analyzed
1-Fluoronaphthalene	130	30-130	02/26/2016 12:10
2-Fluorobiphenyl	72	30-130	02/26/2016 12:10

Analyst(s): REB

Analytical Comments: b1



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/22/16
Project: 15166; EBALDC

WorkOrder: 1602628
Extraction Method: SW3510C
Analytical Method: SW8270C-SIM
Unit: µg/L

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode by GC/MS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
W-ECB16	1602628-002D	Water	02/16/2016 13:45	GC35	117042

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	5.0	10	02/26/2016 12:35
Acenaphthylene	ND	5.0	10	02/26/2016 12:35
Anthracene	ND	5.0	10	02/26/2016 12:35
Benzo (a) anthracene	ND	5.0	10	02/26/2016 12:35
Benzo (a) pyrene	ND	5.0	10	02/26/2016 12:35
Benzo (b) fluoranthene	ND	5.0	10	02/26/2016 12:35
Benzo (g,h,i) perylene	ND	5.0	10	02/26/2016 12:35
Benzo (k) fluoranthene	ND	5.0	10	02/26/2016 12:35
Chrysene	ND	5.0	10	02/26/2016 12:35
Dibenzo (a,h) anthracene	ND	5.0	10	02/26/2016 12:35
Fluoranthene	ND	5.0	10	02/26/2016 12:35
Fluorene	ND	5.0	10	02/26/2016 12:35
Indeno (1,2,3-cd) pyrene	ND	5.0	10	02/26/2016 12:35
1-Methylnaphthalene	52	5.0	10	02/26/2016 12:35
2-Methylnaphthalene	60	5.0	10	02/26/2016 12:35
Naphthalene	89	5.0	10	02/26/2016 12:35
Phenanthrene	6.1	5.0	10	02/26/2016 12:35
Pyrene	ND	5.0	10	02/26/2016 12:35

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
1-Fluoronaphthalene	160	S	30-130	02/26/2016 12:35
2-Fluorobiphenyl	64		30-130	02/26/2016 12:35

Analyst(s): REB

Analytical Comments: c1,b1



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/22/16
Project: 15166; EBALDC

WorkOrder: 1602628
Extraction Method: SW3510C
Analytical Method: SW8270C-SIM
Unit: µg/L

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode by GC/MS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
W-ECB17	1602628-003C	Water	02/16/2016 13:59	GC35	117042

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	5.0	10	02/26/2016 13:00
Acenaphthylene	ND	5.0	10	02/26/2016 13:00
Anthracene	ND	5.0	10	02/26/2016 13:00
Benzo (a) anthracene	ND	5.0	10	02/26/2016 13:00
Benzo (a) pyrene	ND	5.0	10	02/26/2016 13:00
Benzo (b) fluoranthene	ND	5.0	10	02/26/2016 13:00
Benzo (g,h,i) perylene	ND	5.0	10	02/26/2016 13:00
Benzo (k) fluoranthene	ND	5.0	10	02/26/2016 13:00
Chrysene	ND	5.0	10	02/26/2016 13:00
Dibenzo (a,h) anthracene	ND	5.0	10	02/26/2016 13:00
Fluoranthene	ND	5.0	10	02/26/2016 13:00
Fluorene	ND	5.0	10	02/26/2016 13:00
Indeno (1,2,3-cd) pyrene	ND	5.0	10	02/26/2016 13:00
1-Methylnaphthalene	15	5.0	10	02/26/2016 13:00
2-Methylnaphthalene	ND	5.0	10	02/26/2016 13:00
Naphthalene	38	5.0	10	02/26/2016 13:00
Phenanthrene	ND	5.0	10	02/26/2016 13:00
Pyrene	ND	5.0	10	02/26/2016 13:00

Surrogates	REC (%)	Limits	Date Analyzed
1-Fluoronaphthalene	113	30-130	02/26/2016 13:00
2-Fluorobiphenyl	69	30-130	02/26/2016 13:00

Analyst(s): REB

Analytical Comments: b1

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/22/16
Project: 15166; EBALDC

WorkOrder: 1602628
Extraction Method: SW3510C
Analytical Method: SW8270C-SIM
Unit: µg/L

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode by GC/MS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
W-ECB18	1602628-004C	Water	02/16/2016 13:21	GC35	117042

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	5.0	10	02/25/2016 01:00
Acenaphthylene	ND	5.0	10	02/25/2016 01:00
Anthracene	ND	5.0	10	02/25/2016 01:00
Benzo (a) anthracene	ND	5.0	10	02/25/2016 01:00
Benzo (a) pyrene	ND	5.0	10	02/25/2016 01:00
Benzo (b) fluoranthene	ND	5.0	10	02/25/2016 01:00
Benzo (g,h,i) perylene	ND	5.0	10	02/25/2016 01:00
Benzo (k) fluoranthene	ND	5.0	10	02/25/2016 01:00
Chrysene	ND	5.0	10	02/25/2016 01:00
Dibenzo (a,h) anthracene	ND	5.0	10	02/25/2016 01:00
Fluoranthene	ND	5.0	10	02/25/2016 01:00
Fluorene	ND	5.0	10	02/25/2016 01:00
Indeno (1,2,3-cd) pyrene	ND	5.0	10	02/25/2016 01:00
1-Methylnaphthalene	ND	5.0	10	02/25/2016 01:00
2-Methylnaphthalene	ND	5.0	10	02/25/2016 01:00
Naphthalene	ND	5.0	10	02/25/2016 01:00
Phenanthrene	ND	5.0	10	02/25/2016 01:00
Pyrene	ND	5.0	10	02/25/2016 01:00

Surrogates	REC (%)	Limits	Date Analyzed
1-Fluoronaphthalene	108	30-130	02/25/2016 01:00
2-Fluorobiphenyl	84	30-130	02/25/2016 01:00

Analyst(s): REB

Analytical Comments: a3,b1



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/22/16
Project: 15166; EBALDC

WorkOrder: 1602628
Extraction Method: SW3510C
Analytical Method: SW8270C-SIM
Unit: µg/L

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode by GC/MS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
W-ECB19	1602628-005D	Water	02/16/2016 14:15	GC35	117042

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	5.0	10	02/25/2016 01:25
Acenaphthylene	ND	5.0	10	02/25/2016 01:25
Anthracene	ND	5.0	10	02/25/2016 01:25
Benzo (a) anthracene	ND	5.0	10	02/25/2016 01:25
Benzo (a) pyrene	ND	5.0	10	02/25/2016 01:25
Benzo (b) fluoranthene	ND	5.0	10	02/25/2016 01:25
Benzo (g,h,i) perylene	ND	5.0	10	02/25/2016 01:25
Benzo (k) fluoranthene	ND	5.0	10	02/25/2016 01:25
Chrysene	ND	5.0	10	02/25/2016 01:25
Dibenzo (a,h) anthracene	ND	5.0	10	02/25/2016 01:25
Fluoranthene	ND	5.0	10	02/25/2016 01:25
Fluorene	ND	5.0	10	02/25/2016 01:25
Indeno (1,2,3-cd) pyrene	ND	5.0	10	02/25/2016 01:25
1-Methylnaphthalene	ND	5.0	10	02/25/2016 01:25
2-Methylnaphthalene	ND	5.0	10	02/25/2016 01:25
Naphthalene	ND	5.0	10	02/25/2016 01:25
Phenanthrene	ND	5.0	10	02/25/2016 01:25
Pyrene	ND	5.0	10	02/25/2016 01:25
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	128	30-130		02/25/2016 01:25
2-Fluorobiphenyl	77	30-130		02/25/2016 01:25

Analyst(s): REB

Analytical Comments: a3,b1

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/22/16
Project: 15166; EBALDC

WorkOrder: 1602628
Extraction Method: SW3510C
Analytical Method: SW8270C-SIM
Unit: µg/L

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode by GC/MS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
W-ECB20	1602628-006C	Water	02/16/2016 14:10	GC35	117042

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	5.0	10	02/25/2016 01:50
Acenaphthylene	ND	5.0	10	02/25/2016 01:50
Anthracene	ND	5.0	10	02/25/2016 01:50
Benzo (a) anthracene	ND	5.0	10	02/25/2016 01:50
Benzo (a) pyrene	ND	5.0	10	02/25/2016 01:50
Benzo (b) fluoranthene	ND	5.0	10	02/25/2016 01:50
Benzo (g,h,i) perylene	ND	5.0	10	02/25/2016 01:50
Benzo (k) fluoranthene	ND	5.0	10	02/25/2016 01:50
Chrysene	ND	5.0	10	02/25/2016 01:50
Dibenzo (a,h) anthracene	ND	5.0	10	02/25/2016 01:50
Fluoranthene	ND	5.0	10	02/25/2016 01:50
Fluorene	ND	5.0	10	02/25/2016 01:50
Indeno (1,2,3-cd) pyrene	ND	5.0	10	02/25/2016 01:50
1-Methylnaphthalene	ND	5.0	10	02/25/2016 01:50
2-Methylnaphthalene	ND	5.0	10	02/25/2016 01:50
Naphthalene	ND	5.0	10	02/25/2016 01:50
Phenanthrene	ND	5.0	10	02/25/2016 01:50
Pyrene	ND	5.0	10	02/25/2016 01:50
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	108	30-130		02/25/2016 01:50
2-Fluorobiphenyl	86	30-130		02/25/2016 01:50

Analyst(s): REB

Analytical Comments: a3,b1



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/22/16-2/23/16
Project: 15166; EBALDC

WorkOrder: 1602628
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: µg/L

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

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
W-ECB15	1602628-001A	Water	02/16/2016 13:30	GC3	117045

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	120	50	1	02/23/2016 23:51
MTBE	---	5.0	1	02/23/2016 23:51
Benzene	---	0.50	1	02/23/2016 23:51
Toluene	---	0.50	1	02/23/2016 23:51
Ethylbenzene	---	0.50	1	02/23/2016 23:51
Xylenes	---	1.5	1	02/23/2016 23:51

Surrogates	REC (%)	Limits	Date Analyzed
aaa-TFT	101	70-130	02/23/2016 23:51

Analyst(s): IA

Analytical Comments: d1,b1

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
W-ECB16	1602628-002A	Water	02/16/2016 13:45	GC3	117045

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	850	50	1	02/22/2016 21:57
MTBE	---	5.0	1	02/22/2016 21:57
Benzene	---	0.50	1	02/22/2016 21:57
Toluene	---	0.50	1	02/22/2016 21:57
Ethylbenzene	---	0.50	1	02/22/2016 21:57
Xylenes	---	1.5	1	02/22/2016 21:57

Surrogates	REC (%)	Limits	Date Analyzed
aaa-TFT	100	70-130	02/22/2016 21:57

Analyst(s): IA

Analytical Comments: d1,d7,b1

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/22/16-2/23/16
Project: 15166; EBALDC

WorkOrder: 1602628
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: µg/L

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

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
W-ECB17	1602628-003A	Water	02/16/2016 13:59	GC3	117045

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	550	50	1	02/22/2016 22:27
MTBE	---	5.0	1	02/22/2016 22:27
Benzene	---	0.50	1	02/22/2016 22:27
Toluene	---	0.50	1	02/22/2016 22:27
Ethylbenzene	---	0.50	1	02/22/2016 22:27
Xylenes	---	1.5	1	02/22/2016 22:27
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
aaa-TFT	95	70-130		02/22/2016 22:27

Analyst(s): IA

Analytical Comments: d7,d9,b1

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
W-ECB18	1602628-004A	Water	02/16/2016 13:21	GC3	117045

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	50	1	02/23/2016 02:56
MTBE	---	5.0	1	02/23/2016 02:56
Benzene	---	0.50	1	02/23/2016 02:56
Toluene	---	0.50	1	02/23/2016 02:56
Ethylbenzene	---	0.50	1	02/23/2016 02:56
Xylenes	---	1.5	1	02/23/2016 02:56
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
aaa-TFT	109	70-130		02/23/2016 02:56

Analyst(s): IA

Analytical Comments: b1

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/22/16-2/23/16
Project: 15166; EBALDC

WorkOrder: 1602628
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: µg/L

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

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
W-ECB19	1602628-005A	Water	02/16/2016 14:15	GC3	117045

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	140	50	1	02/22/2016 22:57
MTBE	---	5.0	1	02/22/2016 22:57
Benzene	---	0.50	1	02/22/2016 22:57
Toluene	---	0.50	1	02/22/2016 22:57
Ethylbenzene	---	0.50	1	02/22/2016 22:57
Xylenes	---	1.5	1	02/22/2016 22:57

Surrogates	REC (%)	Limits	Date Analyzed
aaa-TFT	104	70-130	02/22/2016 22:57

Analyst(s): IA

Analytical Comments: d7,b1

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
W-ECB20	1602628-006A	Water	02/16/2016 14:10	GC3	117045

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	50	1	02/22/2016 23:27
MTBE	---	5.0	1	02/22/2016 23:27
Benzene	---	0.50	1	02/22/2016 23:27
Toluene	---	0.50	1	02/22/2016 23:27
Ethylbenzene	---	0.50	1	02/22/2016 23:27
Xylenes	---	1.5	1	02/22/2016 23:27

Surrogates	REC (%)	Limits	Date Analyzed
aaa-TFT	100	70-130	02/22/2016 23:27

Analyst(s): IA

Analytical Comments: b1



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602628
Extraction Method: SW3510C/3630C
Analytical Method: SW8015B
Unit: µg/L

Total Extractable Petroleum Hydrocarbons w/ SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
W-ECB15	1602628-001A	Water	02/16/2016 13:30	GC2A	116755

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	3400	2000	20	02/19/2016 19:11
TPH-Motor Oil (C18-C36)	24,000	10,000	20	02/19/2016 19:11
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
C9	101	70-130		02/19/2016 19:11
<u>Analyst(s):</u> TK		<u>Analytical Comments:</u> e7,e2,b1		

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
W-ECB16	1602628-002A	Water	02/16/2016 13:45	GC2A	116755

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	870	500	5	02/22/2016 19:11
TPH-Motor Oil (C18-C36)	6300	2500	5	02/22/2016 19:11
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
C9	93	70-130		02/22/2016 19:11
<u>Analyst(s):</u> TK		<u>Analytical Comments:</u> e7,e11/e8,b1		

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
W-ECB17	1602628-003A	Water	02/16/2016 13:59	GC2B	116755

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	780	100	1	02/18/2016 21:33
TPH-Motor Oil (C18-C36)	4800	500	1	02/18/2016 21:33
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
C9	96	70-130		02/18/2016 21:33
<u>Analyst(s):</u> TK		<u>Analytical Comments:</u> e7,e11,b1		

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 12:15
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602628
Extraction Method: SW3510C/3630C
Analytical Method: SW8015B
Unit: µg/L

Total Extractable Petroleum Hydrocarbons w/ SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
W-ECB18	1602628-004A	Water	02/16/2016 13:21	GC9a	116755

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	50	1	02/18/2016 04:30
TPH-Motor Oil (C18-C36)	ND	250	1	02/18/2016 04:30
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
C9	86	70-130		02/18/2016 04:30
<u>Analyst(s):</u> TK		<u>Analytical Comments:</u> b1		

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
W-ECB19	1602628-005A	Water	02/16/2016 14:15	GC9a	116755

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	310	50	1	02/18/2016 05:08
TPH-Motor Oil (C18-C36)	2000	250	1	02/18/2016 05:08
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
C9	90	70-130		02/18/2016 05:08
<u>Analyst(s):</u> TK		<u>Analytical Comments:</u> e7,e2,e4/e8,b1		

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
W-ECB20	1602628-006A	Water	02/16/2016 14:10	GC9a	116755

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	100	1	02/19/2016 20:25
TPH-Motor Oil (C18-C36)	ND	500	1	02/19/2016 20:25
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
C9	73	70-130		02/19/2016 20:25
<u>Analyst(s):</u> TK		<u>Analytical Comments:</u> a3,b1		



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/17/16
Date Analyzed: 2/18/16
Instrument: GC20
Matrix: Water
Project: 15166; EBALDC

WorkOrder: 1602628
BatchID: 116801
Extraction Method: SW3510C
Analytical Method: SW8082
Unit: µg/L
Sample ID: MB/LCS-116801

QC Summary Report for SW8082

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Aroclor1016	ND	-	0.50	-	-	-	-
Aroclor1221	ND	-	0.50	-	-	-	-
Aroclor1232	ND	-	0.50	-	-	-	-
Aroclor1242	ND	-	0.50	-	-	-	-
Aroclor1248	ND	-	0.50	-	-	-	-
Aroclor1254	ND	-	0.50	-	-	-	-
Aroclor1260	ND	4.06	0.50	3.75	-	108	70-130
PCBs, total	ND	-	0.50	-	-	-	-
Surrogate Recovery							
Decachlorobiphenyl	1.32	1.37		1.25	106	110	70-130



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/19/16
Date Analyzed: 2/19/16
Instrument: GC28
Matrix: Water
Project: 15166; EBALDC

WorkOrder: 1602628
BatchID: 116946
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS-116946
 1602624-006AMS/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	9.92	0.50	10	-	99	54-140
Benzene	ND	11.6	0.50	10	-	116	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	49.1	2.0	40	-	123	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	10.9	0.50	10	-	109	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	11.4	0.50	10	-	114	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	11.0	0.50	10	-	110	66-125
1,1-Dichloroethene	ND	11.3	0.50	10	-	113	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.)



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/19/16
Date Analyzed: 2/19/16
Instrument: GC28
Matrix: Water
Project: 15166; EBALDC

WorkOrder: 1602628
BatchID: 116946
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS-116946
 1602624-006AMS/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	12.0	0.50	10	-	120	57-136
Ethylbenzene	ND	-	0.50	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	10.9	0.50	10	-	109	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	10.8	0.50	10	-	108	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	11.1	0.50	10	-	111	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	11.6	0.50	10	-	116	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.)



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/19/16
Date Analyzed: 2/19/16
Instrument: GC28
Matrix: Water
Project: 15166; EBALDC

WorkOrder: 1602628
BatchID: 116946
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS-116946
 1602624-006AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	28.7	28.3		25	115	113	70-130
Toluene-d8	29.2	28.9		25	117	116	70-130
4-BFB	2.08	2.54		2.5	83	102	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)	9.92	10.2	10	ND	99	102	69-139	2.46	20
Benzene	10.6	10.4	10	ND	106	104	69-141	1.73	20
t-Butyl alcohol (TBA)	48.4	42.9	40	ND	121	107	41-152	11.9	20
Chlorobenzene	9.56	9.43	10	ND	96	94	77-120	1.34	20
1,2-Dibromoethane (EDB)	10.4	10.4	10	ND	104	104	76-135	0	20
1,2-Dichloroethane (1,2-DCA)	10.5	10.3	10	ND	105	103	73-139	1.68	20
1,1-Dichloroethene	10.6	10.2	10	ND	106	101	59-140	4.42	20
Diisopropyl ether (DIPE)	11.2	10.9	10	ND	112	109	72-140	3.22	20
Ethyl tert-butyl ether (ETBE)	10.5	10.8	10	ND	105	109	71-140	3.71	20
Methyl-t-butyl ether (MTBE)	10.8	10.8	10	ND	108	108	73-139	0	20
Toluene	9.75	9.44	10	ND	98	94	71-128	3.30	20
Trichloroethene	10.5	10.5	10	ND	105	105	64-132	0	20
Surrogate Recovery									
Dibromofluoromethane	29.2	29.3	25		117	117	70-130	0	20
Toluene-d8	28.1	28.1	25		112	112	70-130	0	20
4-BFB	2.41	2.53	2.5		96	101	70-130	4.88	20



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/22/16
Date Analyzed: 2/24/16
Instrument: GC35
Matrix: Water
Project: 15166; EBALDC

WorkOrder: 1602628
BatchID: 117042
Extraction Method: SW3510C
Analytical Method: SW8270C-SIM
Unit: µg/L
Sample ID: MB/LCS-117042

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	-	0.50	-	-	-	-
Acenaphthylene	ND	-	0.50	-	-	-	-
Anthracene	ND	-	0.50	-	-	-	-
Benzo (a) anthracene	ND	-	0.50	-	-	-	-
Benzo (a) pyrene	ND	8.52	0.50	10	-	85	30-130
Benzo (b) fluoranthene	ND	-	0.50	-	-	-	-
Benzo (g,h,i) perylene	ND	-	0.50	-	-	-	-
Benzo (k) fluoranthene	ND	-	0.50	-	-	-	-
Chrysene	ND	7.64	0.50	10	-	76	30-130
Dibenzo (a,h) anthracene	ND	-	0.50	-	-	-	-
Fluoranthene	ND	-	0.50	-	-	-	-
Fluorene	ND	-	0.50	-	-	-	-
Indeno (1,2,3-cd) pyrene	ND	-	0.50	-	-	-	-
1-Methylnaphthalene	ND	9.16	0.50	10	-	92	30-130
2-Methylnaphthalene	ND	9.16	0.50	10	-	92	30-130
Naphthalene	ND	-	0.50	-	-	-	-
Phenanthrene	ND	8.38	0.50	10	-	84	30-130
Pyrene	ND	8.08	0.50	10	-	81	30-130
Surrogate Recovery							
1-Fluoronaphthalene	25.1	25.6		25	100	102	30-130
2-Fluorobiphenyl	21.0	22.2		25	84	89	30-130



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/22/16
Date Analyzed: 2/22/16
Instrument: GC3
Matrix: Water
Project: 15166; EBALDC

WorkOrder: 1602628
BatchID: 117045
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: µg/L
Sample ID: MB/LCS-117045
 1602596-002BMS/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	56.7	40	60	-	95	70-130
MTBE	ND	7.30	5.0	10	-	73	70-130
Benzene	ND	9.92	0.50	10	-	99	70-130
Toluene	ND	10.1	0.50	10	-	101	70-130
Ethylbenzene	ND	10.1	0.50	10	-	101	70-130
Xylenes	ND	30.6	1.5	30	-	102	70-130

Surrogate Recovery

aaa-TFT	9.87	10.7		10	99	107	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)	NR	NR		110	NR	NR	-	NR	
MTBE	NR	NR		ND	NR	NR	-	NR	
Benzene	NR	NR		67	NR	NR	-	NR	
Toluene	NR	NR		3.5	NR	NR	-	NR	
Ethylbenzene	NR	NR		1.6	NR	NR	-	NR	
Xylenes	NR	NR		14	NR	NR	-	NR	

Surrogate Recovery

aaa-TFT	NR	NR			NR	NR	-	NR	
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Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/16/16
Date Analyzed: 2/17/16
Instrument: GC39B, GC9a
Matrix: Water
Project: 15166; EBALDC

WorkOrder: 1602628
BatchID: 116755
Extraction Method: SW3510C/3630C
Analytical Method: SW8015B
Unit: µg/L
Sample ID: MB/LCS-116755

QC Report for SW8015B w/ SG Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	1070	50	1000	-	107	59-151
TPH-Motor Oil (C18-C36)	ND	-	250	-	-	-	-
Surrogate Recovery							
C9	529	641		625	85	103	65-122



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

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1602628

ClientCode: ESL

WaterTrax
 WriteOn
 EDF
 Excel
 EQUIS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

Nik Lahiri
Essel Environmental Consulting
564 Market Street
San Francisco, CA 94104
(707) 494-4883 FAX: 510-380-6610

Email: nlahiri@esseltek.com
cc/3rd Party:
PO:
ProjectNo: 15166; EBALDC

Bill to:

Nik Lahiri
Essel Environmental Consulting
564 Market Street
San Francisco, CA 94104
nlahiri@esseltek.com

Requested TAT: 5 days;

Date Received: 02/16/2016

Date Logged: 02/17/2016

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	
1602628-001	W-ECB15	Water	2/16/2016 13:30	<input type="checkbox"/>	C	B	D	A	A								
1602628-002	W-ECB16	Water	2/16/2016 13:45	<input type="checkbox"/>	C	B	D	A	A								
1602628-003	W-ECB17	Water	2/16/2016 13:59	<input type="checkbox"/>		B	C	A	A								
1602628-004	W-ECB18	Water	2/16/2016 13:21	<input type="checkbox"/>		B	C	A	A								
1602628-005	W-ECB19	Water	2/16/2016 14:15	<input type="checkbox"/>	C	B	D	A	A								
1602628-006	W-ECB20	Water	2/16/2016 14:10	<input type="checkbox"/>		B	C	A	A								

Test Legend:

1	8082_PCB_W	2	8260B_W	3	8270_PNA_W	4	G-MBTEX_W
5	TPH(DMO)WSG_W	6		7		8	
9		10		11		12	

Project Manager:

The following SamplIDs: 001A, 002A, 003A, 004A, 005A, 006A contain testgroup.

Prepared by: Maria Venegas

Comments:

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: ESSEL ENVIRONMENTAL CONSULTING

QC Level: LEVEL 2

Work Order: 1602628

Project: 15166; EBALDC

Client Contact: Nik Lahiri

Date Logged: 2/17/2016

Comments:

Contact's Email: nlahiri@esseltex.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
1602628-001A	W-ECB15	Water	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up	6	2 VOAs w/HCL + 2-aVOAs (multi-range)	<input type="checkbox"/>	2/16/2016 13:30	5 days	5%+	<input type="checkbox"/>	
1602628-001B	W-ECB15	Water	SW8260B (VOCs)	2	VOA w/ HCl	<input type="checkbox"/>	2/16/2016 13:30	5 days	5%+	<input type="checkbox"/>	
1602628-001C	W-ECB15	Water	SW8082 (PCBs Only)	2	aVOA	<input type="checkbox"/>	2/16/2016 13:30	5 days	5%+	<input type="checkbox"/>	
1602628-001D	W-ECB15	Water	SW8270C (PAHs/PNAs)	1	ILA	<input type="checkbox"/>	2/16/2016 13:30	5 days	5%+	<input type="checkbox"/>	
1602628-002A	W-ECB16	Water	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up	6	2 VOAs w/HCL + 2-aVOAs (multi-range)	<input type="checkbox"/>	2/16/2016 13:45	5 days	10%+	<input type="checkbox"/>	
1602628-002B	W-ECB16	Water	SW8260B (VOCs)	2	VOA w/ HCl	<input type="checkbox"/>	2/16/2016 13:45	5 days	10%+	<input type="checkbox"/>	
1602628-002C	W-ECB16	Water	SW8082 (PCBs Only)	2	aVOA	<input type="checkbox"/>	2/16/2016 13:45	5 days	10%+	<input type="checkbox"/>	
1602628-002D	W-ECB16	Water	SW8270C (PAHs/PNAs)	1	ILA	<input type="checkbox"/>	2/16/2016 13:45	5 days	10%+	<input type="checkbox"/>	
1602628-003A	W-ECB17	Water	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up	6	2 VOAs w/HCL + 2-aVOAs (multi-range)	<input type="checkbox"/>	2/16/2016 13:59	5 days	10%+	<input type="checkbox"/>	
1602628-003B	W-ECB17	Water	SW8260B (VOCs)	2	VOA w/ HCl	<input type="checkbox"/>	2/16/2016 13:59	5 days	10%+	<input type="checkbox"/>	
1602628-003C	W-ECB17	Water	SW8270C (PAHs/PNAs)	1	ILA	<input type="checkbox"/>	2/16/2016 13:59	5 days	10%+	<input type="checkbox"/>	
1602628-004A	W-ECB18	Water	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up	6	2 VOAs w/HCL + 2-aVOAs (multi-range)	<input type="checkbox"/>	2/16/2016 13:21	5 days	10%+	<input type="checkbox"/>	
1602628-004B	W-ECB18	Water	SW8260B (VOCs)	2	VOA w/ HCl	<input type="checkbox"/>	2/16/2016 13:21	5 days	10%+	<input type="checkbox"/>	
1602628-004C	W-ECB18	Water	SW8270C (PAHs/PNAs)	1	ILA	<input type="checkbox"/>	2/16/2016 13:21	5 days	10%+	<input type="checkbox"/>	
1602628-005A	W-ECB19	Water	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up	6	2 VOAs w/HCL + 2-aVOAs (multi-range)	<input type="checkbox"/>	2/16/2016 14:15	5 days	10%+	<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: ESSEL ENVIRONMENTAL CONSULTING

QC Level: LEVEL 2

Work Order: 1602628

Project: 15166; EBALDC

Client Contact: Nik Lahiri

Date Logged: 2/17/2016

Comments:

Contact's Email: nlahiri@esseltex.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
1602628-005B	W-ECB19	Water	SW8260B (VOCs)	2	VOA w/ HCl	<input type="checkbox"/>	2/16/2016 14:15	5 days	10%+	<input type="checkbox"/>	
1602628-005C	W-ECB19	Water	SW8082 (PCBs Only)	2	aVOA	<input type="checkbox"/>	2/16/2016 14:15	5 days	10%+	<input type="checkbox"/>	
1602628-005D	W-ECB19	Water	SW8270C (PAHs/PNAs)	1	1LA	<input type="checkbox"/>	2/16/2016 14:15	5 days	10%+	<input type="checkbox"/>	
1602628-006A	W-ECB20	Water	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up	6	2 VOAs w/HCL + 2-aVOAs (multi-range)	<input type="checkbox"/>	2/16/2016 14:10	5 days	10%+	<input type="checkbox"/>	
1602628-006B	W-ECB20	Water	SW8260B (VOCs)	2	VOA w/ HCl	<input type="checkbox"/>	2/16/2016 14:10	5 days	10%+	<input type="checkbox"/>	
1602628-006C	W-ECB20	Water	SW8270C (PAHs/PNAs)	1	1LA	<input type="checkbox"/>	2/16/2016 14:10	5 days	10%+	<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.

McCAMPBELL ANALYTICAL, INC.

1534 WILLOW PASS ROAD
PITTSBURG, CA 94565-1701

Website: www.mccampbell.com Email: main@mccampbell.com
Telephone: (877) 252-9262 Fax: (925) 252-9269

1602628

CHAIN OF CUSTODY RECORD

TURN AROUND TIME

RUSH 24 HR 48 HR 72 HR **5 DAY**
GeoTracker EDF PDF Excel Write On (DW)
Check if sample is effluent and "J" flag is required

Report To: Nik Lahiri Bill To: Samhita Lahiri
Company: Essel Technology Services, Inc
351 California Street, Suite 615
San Francisco, California 94104 E-Mail: nlahiri@esseltek.com
Tele: (925) 413-5511 Fax: (510) 380-6610
Project #: 15166 Project Name: EBALDC
Project Location: West Grand Avenue and Brush Street, Oakland, California 94612
Sampler Signature: *[Signature]*

Analysis Request										Other	Comments						
BTEX & TPH as Gas (602 / 8021 + 8015) / MTBE	TPH as Gasoline, Diesel, Motor Oil (8015)	Total Petroleum OH & Grease (1664 / 5520 E/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 502.2 / 601 / 8010 / 8021 (HVOCS)	MTBE / BTEX ONLY (EPA 602 / 8021)	EPA 505/ 608 / 8081 (CI Pesticides)	EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners	EPA 507 / 8141 (NP Pesticides)	EPA 515 / 8151 (Acidic CI Herbicides)	EPA 524.2 / 624 / 8260 (VOCs)	EPA 525.2 / 625 / 8270 (SVOCs)	EPA 8270 SIM / 8310 (PAHs / PNAs)	CAMI 17 Metals (200.7 / 200.8 / 6010 / 6020)	LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)	Lead (200.7 / 200.8 / 6010 / 6020)	Filter sample for DISSOLVED metals analysis	**Indicate here if these samples are potentially dangerous to handle:

+5
+10
+10
+10
+10

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED						
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO ₃	Other			
W-ECB15	ECB-15	2/16/16	1:30 p.m.	11	G	X					X	X	X				
W-ECB16	ECB-16	2/16/16	1:45 p.m.	11	G	X					X	X	X				
W-ECB17	ECB-17	2/16/16	1:59 p.m.	8	G	X					X	X	X				
W-ECB18	ECB-18	2/16/16	1:21 p.m.	8	G	X					X	X	X				
W-ECB19	ECB-19	2/16/16	2:15 p.m.	11	G	X					X	X	X				
W-ECB20	ECB-20	2/16/16	2:10 p.m.	8	G	X					X	X	X				

Silica gel
cleanup
before diesel
motor oil
analysis

**MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate \$250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

Relinquished By: <i>[Signature]</i>	Date: 02/16/16	Time: 5:45	Received By: <i>[Signature]</i>	ICE/4.5 GOOD CONDITION HEAD SPACE ABSENT DECHLORINATED IN LAB APPROPRIATE CONTAINERS PRESERVED IN LAB	COMMENTS:
Relinquished By:	Date:	Time:	Received By:	VOAS O&G METALS OTHER PRESERVATION pH<2	
Relinquished By:	Date:	Time:	Received By:		



Sample Receipt Checklist

Client Name:	Essei Environmental Consulting	Date and Time Received:	2/16/2016 17:40
Project Name:	15166; EBALDC	Date Logged:	2/17/2016
WorkOrder №:	1602628	Matrix:	<u>Water</u>
Carrier:	<u>Client Drop-In</u>	Received by:	Maria Venegas
		Logged by:	Maria Venegas

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 checked="" type="checkbox"/>	No <input 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 checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample/Temp Blank temperature		Temp: 4.5°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 type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" 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"/>

* NOTE: If the "No" box is checked, see comments below.

Comments:



8100 Secura Way • Santa Fe Springs, CA 90670
Telephone (562) 347-2500 • Fax (562) 907-3610

February 26, 2016

Rodger Witham
Essel Environmental Consulting
351 California St, Suite 615
San Francisco, CA 94104

Re: PTS File No: 46112
Physical Properties Data
EBALDC West Grand & Brush; 15166

Dear Mr. Witham:

Please find enclosed report for Physical Properties analyses conducted upon samples received from your EBALDC West Grand & Brush; 15166 project. All analyses were performed by applicable ASTM, EPA, or API methodologies. The samples are currently in storage and will be retained for thirty days past completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples.

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please give me a call at (562) 347-2502.

Sincerely,
PTS Laboratories, Inc.

Michael Mark Brady, P.G.
Laboratory Director

Encl.

Project Name: EBALDC West Grand & Brush
Project Number: 15166

PTS File No: 46112
Client: Essel Environmental Consulting

TEST PROGRAM - 20160219

CORE ID	Depth ft.	Core Recovery ft.	CAL-EPA DTSC Vapor Intrusion						Comments
		Plugs:	Various						
Date Received: 20160218									
S-5 1/2 - BSV1	5.5-6.5	1.00	X						
S-9-BSV5	9-10	0.90	X						
S-5-BSV2	5-6	0.90	X						
S-9-BSV2	9-10	1.10	X						
TOTALS:	4 cores	3.90	4						4

Laboratory Test Program Notes

Contaminant identification: _____

Standard TAT for basic analysis is 10 business days.

CAL-EPA DTSC Vapor Intrusion: Bulk & grain density, total porosity, moisture content, volumetric air & moisture, TOC/foc, and grain size distribution.

5 Day Rush TAT results by COB 2/25/16 requested per H. Mendoza / Essel Environmental Consulting 20160219

PTS File No: 46112
 Client: Essel Environmental Consulting
 Report Date: 02/26/16

PHYSICAL PROPERTIES DATA - CAL-EPA DTSC Vapor Intrusion Package

Project Name: EBALDC West Grand & Brush
 Project No: 15166

SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	METHODS: API RP40/ASTM D2216		API RP 40		API RP 40		
				MOISTURE CONTENT,		DENSITY		POROSITY, (2)		
				% weight	cm ³ /cm ³	DRY BULK, g/cm ³	GRAIN, g/cm ³	TOTAL, cm ³ /cm ³	AIR-FILLED, cm ³ /cm ³	WATER-FILLED, cm ³ /cm ³
S-5 1/2 - BSV1	6.3	V	20160220	18.5	0.302	1.63	2.64	0.382	0.080	0.302
S-9-BSV5	9.7	V	20160220	9.3	0.143	1.54	2.66	0.423	0.281	0.143
S-5-BSV2	5.7	V	20160220	18.4	0.300	1.63	2.64	0.383	0.083	0.300
S-9-BSV2	9.9	V	20160220	18.9	0.318	1.68	2.65	0.365	0.047	0.318

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

(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.

Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PARTICLE SIZE SUMMARY
(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: EBALDC West Grand & Brush
PROJECT NO: 15166

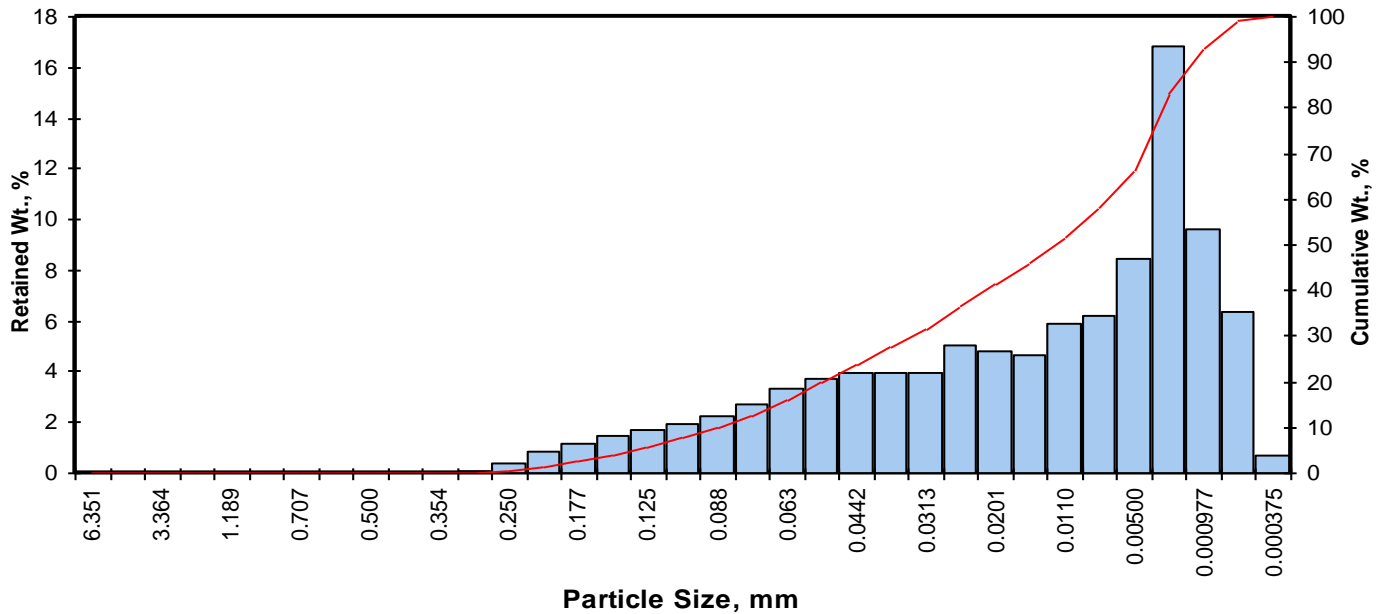
Sample ID	Depth, ft.	Mean Grain Size Description (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
S-5 1/2 - BSV1	6.15	Silt	0.012	0.00	0.00	0.00	12.61	53.85	33.54	87.39
S-5-BSV2	5.55	Silt	0.017	0.00	0.00	0.00	12.68	57.76	29.56	87.32
S-9-BSV2	9.75	Silt	0.018	0.00	0.00	0.00	12.91	59.42	27.67	87.09

(1) Based on Mean from Trask

Client: Essel Environmental Consulting
Project: EBALDC West Grand & Brush
Project No: 15166

PTS File No: 46112
Sample ID: S-5 1/2 - BSV1
Depth, ft: 6.15

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening		Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.06	0.06	0.06
0.0098	0.250	2.00	60	0.38	0.38	0.44
0.0083	0.210	2.25	70	0.88	0.88	1.32
0.0070	0.177	2.50	80	1.20	1.20	2.52
0.0059	0.149	2.75	100	1.44	1.44	3.96
0.0049	0.125	3.00	120	1.71	1.71	5.67
0.0041	0.105	3.25	140	1.96	1.96	7.63
0.0035	0.088	3.50	170	2.25	2.25	9.88
0.0029	0.074	3.75	200	2.73	2.73	12.61
0.0025	0.063	4.00	230	3.32	3.32	15.93
0.0021	0.053	4.25	270	3.75	3.75	19.68
0.00174	0.0442	4.50	325	3.92	3.92	23.60
0.00146	0.0372	4.75	400	3.92	3.92	27.52
0.00123	0.0313	5.00	450	3.95	3.95	31.47
0.000986	0.0250	5.32	500	5.06	5.06	36.53
0.000790	0.0201	5.64	635	4.78	4.78	41.31
0.000615	0.0156	6.00		4.63	4.63	45.94
0.000435	0.0110	6.50		5.89	5.89	51.83
0.000308	0.00781	7.00		6.20	6.20	58.03
0.000197	0.00500	7.65		8.43	8.43	66.46
0.000077	0.00195	9.00		16.80	16.80	83.26
0.000038	0.000977	10.00		9.63	9.63	92.89
0.000019	0.000488	11.00		6.39	6.39	99.28
0.000015	0.000375	11.38		0.72	0.72	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	2.90	0.0053	0.134
10	3.51	0.0035	0.088
16	4.00	0.0025	0.062
25	4.59	0.0016	0.042
40	5.55	0.0008	0.021
50	6.34	0.0005	0.012
60	7.15	0.0003	0.007
75	8.33	0.0001	0.003
84	9.08	0.0001	0.002
90	9.70	0.0000	0.001
95	10.33	0.0000	0.001

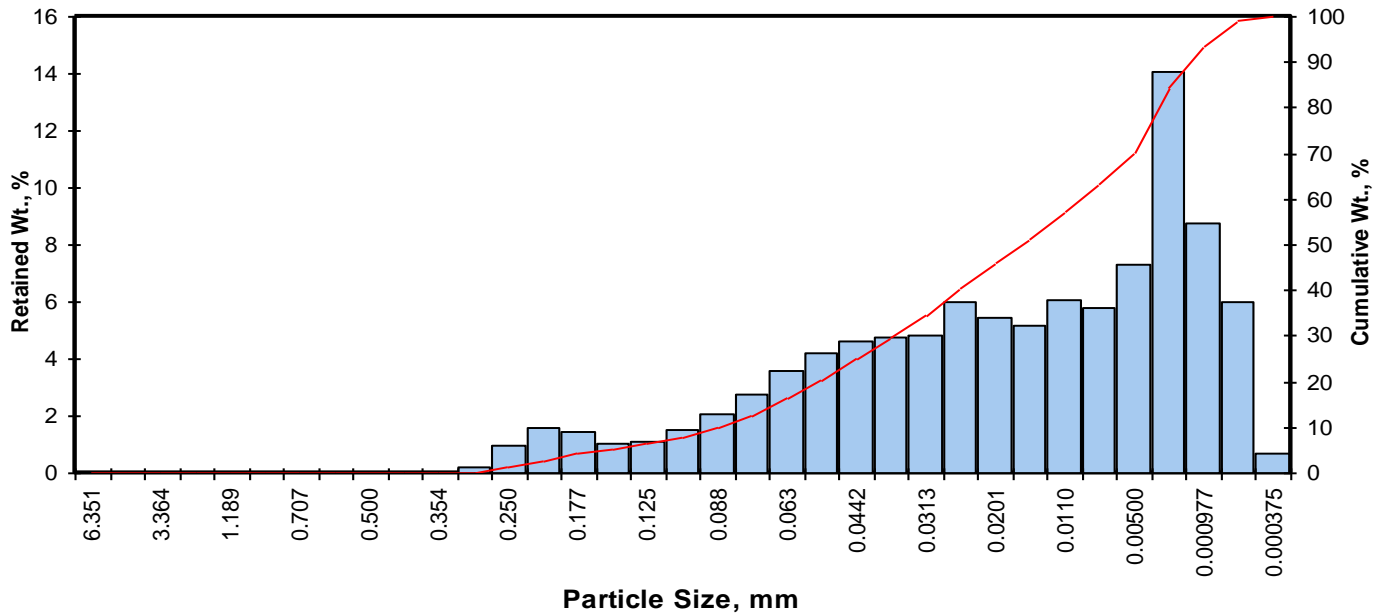
Measure	Trask	Inman	Folk-Ward
Median, phi	6.34	6.34	6.34
Median, in.	0.0005	0.0005	0.0005
Median, mm	0.012	0.012	0.012
Mean, phi	5.49	6.54	6.48
Mean, in.	0.0009	0.0004	0.0004
Mean, mm	0.022	0.011	0.011
Sorting	3.661	2.536	2.393
Skewness	0.922	0.077	0.075
Kurtosis	0.222	0.464	0.813
Grain Size Description (ASTM-USCS Scale)	Silt (based on Mean from Trask)		

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	12.61
Silt	>0.005 mm	53.85
Clay	<0.005 mm	33.54
Total		100

Client: Essel Environmental Consulting
Project: EBALDC West Grand & Brush
Project No: 15166

PTS File No: 46112
Sample ID: S-5-BSV2
Depth, ft: 5.55

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening		Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.20	0.20	0.20
0.0098	0.250	2.00	60	0.94	0.94	1.14
0.0083	0.210	2.25	70	1.60	1.60	2.74
0.0070	0.177	2.50	80	1.42	1.42	4.16
0.0059	0.149	2.75	100	1.02	1.02	5.18
0.0049	0.125	3.00	120	1.12	1.12	6.30
0.0041	0.105	3.25	140	1.54	1.54	7.84
0.0035	0.088	3.50	170	2.07	2.07	9.91
0.0029	0.074	3.75	200	2.77	2.77	12.68
0.0025	0.063	4.00	230	3.57	3.57	16.25
0.0021	0.053	4.25	270	4.21	4.21	20.46
0.00174	0.0442	4.50	325	4.62	4.62	25.08
0.00146	0.0372	4.75	400	4.77	4.77	29.85
0.00123	0.0313	5.00	450	4.82	4.82	34.67
0.000986	0.0250	5.32	500	6.02	6.02	40.69
0.000790	0.0201	5.64	635	5.47	5.47	46.16
0.000615	0.0156	6.00		5.14	5.14	51.30
0.000435	0.0110	6.50		6.09	6.09	57.39
0.000308	0.00781	7.00		5.78	5.78	63.16
0.000197	0.00500	7.65		7.28	7.28	70.44
0.000077	0.00195	9.00		14.10	14.10	84.54
0.000038	0.000977	10.00		8.78	8.78	93.32
0.000019	0.000488	11.00		6.01	6.01	99.33
0.000015	0.000375	11.38		0.67	0.67	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	2.71	0.0060	0.153
10	3.51	0.0035	0.088
16	3.98	0.0025	0.063
25	4.50	0.0017	0.044
40	5.28	0.0010	0.026
50	5.91	0.0007	0.017
60	6.73	0.0004	0.009
75	8.08	0.0001	0.004
84	8.95	0.0001	0.002
90	9.62	0.0000	0.001
95	10.28	0.0000	0.001

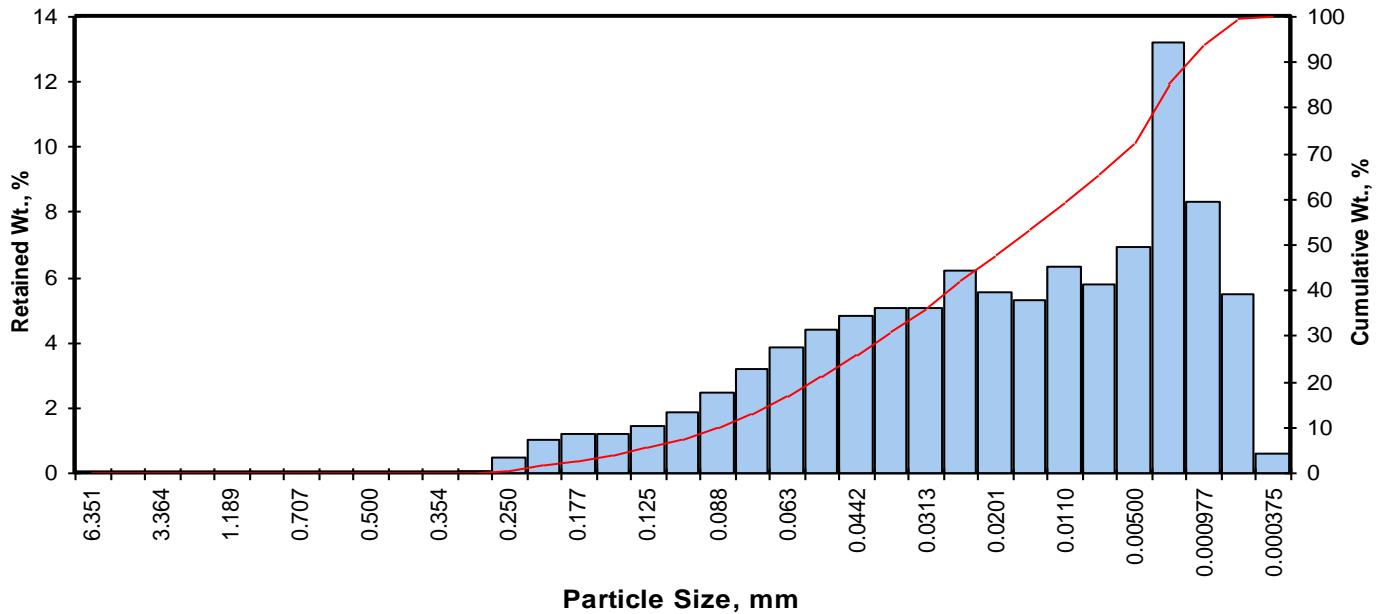
Measure	Trask	Inman	Folk-Ward
Median, phi	5.91	5.91	5.91
Median, in.	0.0007	0.0007	0.0007
Median, mm	0.017	0.017	0.017
Mean, phi	5.38	6.47	6.28
Mean, in.	0.0009	0.0004	0.0005
Mean, mm	0.024	0.011	0.013
Sorting	3.467	2.483	2.389
Skewness	0.768	0.224	0.189
Kurtosis	0.235	0.525	0.865
Grain Size Description		Silt	
(ASTM-USCS Scale)		(based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	12.68
Silt	>0.005 mm	57.76
Clay	<0.005 mm	29.56
Total		100

Client: Essel Environmental Consulting
Project: EBALDC West Grand & Brush
Project No: 15166

PTS File No: 46112
Sample ID: S-9-BSV2
Depth, ft: 9.75

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening		Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.08	0.08	0.08
0.0098	0.250	2.00	60	0.50	0.50	0.58
0.0083	0.210	2.25	70	1.03	1.03	1.61
0.0070	0.177	2.50	80	1.18	1.18	2.79
0.0059	0.149	2.75	100	1.18	1.18	3.97
0.0049	0.125	3.00	120	1.42	1.42	5.39
0.0041	0.105	3.25	140	1.87	1.87	7.26
0.0035	0.088	3.50	170	2.47	2.47	9.73
0.0029	0.074	3.75	200	3.18	3.18	12.91
0.0025	0.063	4.00	230	3.88	3.88	16.79
0.0021	0.053	4.25	270	4.42	4.42	21.21
0.00174	0.0442	4.50	325	4.83	4.83	26.04
0.00146	0.0372	4.75	400	5.04	5.04	31.08
0.00123	0.0313	5.00	450	5.09	5.09	36.17
0.000986	0.0250	5.32	500	6.24	6.24	42.40
0.000790	0.0201	5.64	635	5.58	5.58	47.98
0.000615	0.0156	6.00		5.30	5.30	53.28
0.000435	0.0110	6.50		6.32	6.32	59.60
0.000308	0.00781	7.00		5.78	5.78	65.38
0.000197	0.00500	7.65		6.95	6.95	72.33
0.000077	0.00195	9.00		13.20	13.20	85.53
0.000038	0.000977	10.00		8.34	8.34	93.87
0.000019	0.000488	11.00		5.52	5.52	99.39
0.000015	0.000375	11.38		0.61	0.61	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	2.93	0.0052	0.131
10	3.52	0.0034	0.087
16	3.95	0.0025	0.065
25	4.45	0.0018	0.046
40	5.20	0.0011	0.027
50	5.78	0.0007	0.018
60	6.53	0.0004	0.011
75	7.92	0.0002	0.004
84	8.84	0.0001	0.002
90	9.54	0.0001	0.001
95	10.20	0.0000	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	5.78	5.78	5.78
Median, in.	0.0007	0.0007	0.0007
Median, mm	0.018	0.018	0.018
Mean, phi	5.32	6.40	6.19
Mean, in.	0.0010	0.0005	0.0005
Mean, mm	0.025	0.012	0.014
Sorting	3.332	2.447	2.325
Skewness	0.755	0.253	0.235
Kurtosis	0.243	0.486	0.858
Grain Size Description		Silt	
(ASTM-USCS Scale)		(based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	12.91
Silt	>0.005 mm	59.42
Clay	<0.005 mm	27.67
Total		100

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422M)

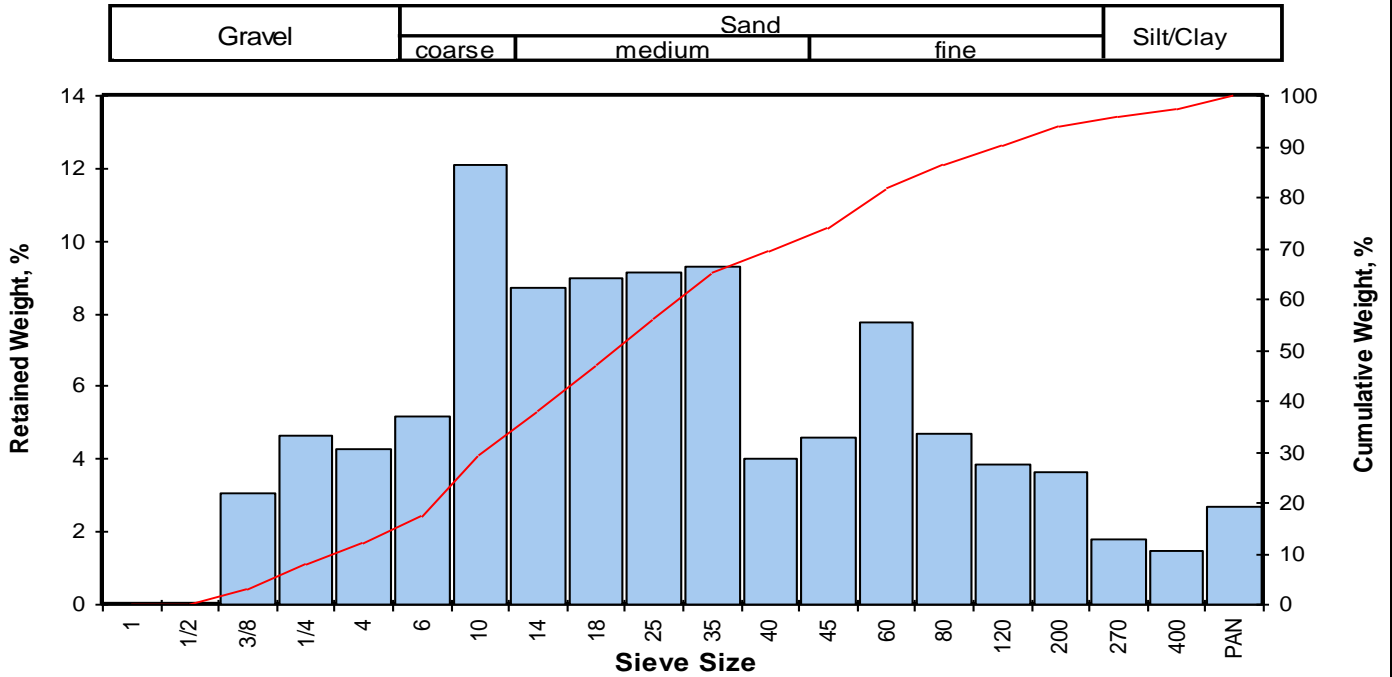
PROJECT NAME: EBALDC West Grand & Brush
 PROJECT NO: 15166

Sample ID	Depth, ft.	Mean Grain Size Description USCS/ASTM (1)	Median Grain Size, mm	Particle Size Distribution, wt. percent				
				Gravel	Sand Size			Silt/Clay
					Coarse	Medium	Fine	
S-9-BSV5	9.5	Medium sand	0.892	12.03	17.26	40.13	24.59	5.99

(1) Based on Mean from Trask

Client: Essel Environmental Consulting
Project: EBALDC West Grand & Brush
Project No: 15166

PTS File No: 46112
Sample ID: S-9-BSV5
Depth, ft: 9.5



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	2.54	3.08	3.08
0.2500	6.351	-2.67	1/4	3.84	4.66	7.74
0.1873	4.757	-2.25	4	3.54	4.29	12.03
0.1324	3.364	-1.75	6	4.25	5.16	17.19
0.0787	2.000	-1.00	10	9.98	12.11	29.29
0.0557	1.414	-0.50	14	7.19	8.72	38.02
0.0394	1.000	0.00	18	7.40	8.98	46.99
0.0278	0.707	0.50	25	7.55	9.16	56.15
0.0197	0.500	1.00	35	7.65	9.28	65.43
0.0166	0.420	1.25	40	3.29	3.99	69.42
0.0139	0.354	1.50	45	3.77	4.57	73.99
0.0098	0.250	2.00	60	6.42	7.79	81.78
0.0070	0.177	2.50	80	3.89	4.72	86.50
0.0049	0.125	3.00	120	3.18	3.86	90.36
0.0029	0.074	3.75	200	3.01	3.65	94.01
0.0021	0.053	4.25	270	1.48	1.80	95.80
0.0015	0.037	4.75	400	1.22	1.48	97.28
			PAN	2.24	2.72	100.00
TOTALS				82.44	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	-3.01	0.3169	8.048
10	-2.45	0.2147	5.454
16	-1.87	0.1434	3.643
25	-1.27	0.0947	2.405
40	-0.39	0.0516	1.310
50	0.16	0.0351	0.892
60	0.71	0.0241	0.612
75	1.56	0.0133	0.338
84	2.24	0.0084	0.212
90	2.95	0.0051	0.129
95	4.03	0.0024	0.061

Measure	Trask	Inman	Folk-Ward
Median, phi	0.16	0.16	0.16
Median, in.	0.0351	0.0351	0.0351
Median, mm	0.892	0.892	0.892
Mean, phi	-0.46	0.18	0.18
Mean, in.	0.0540	0.0346	0.0348
Mean, mm	1.372	0.880	0.884
Sorting	2.667	2.050	2.091
Skewness	1.010	0.010	0.054
Kurtosis	0.194	0.716	1.019

Grain Size Description (ASTM-USCS Scale) Medium sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	12.03
Coarse Sand	10	17.26
Medium Sand	40	40.13
Fine Sand	200	24.59
Silt/Clay	<200	5.99
Total		100

PTS File No: 46112
 Client: Essel Environmental Consulting
 Report Date: 02/26/16

ORGANIC CARBON DATA - TOC (foc)
 (Methodology: Walkley-Black)

Project Name: EBALDC West Grand & Brush
 Project No: 15166

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	SAMPLE MATRIX	TOTAL ORGANIC CARBON, mg/kg	FRACTION ORGANIC CARBON, g/g
S-5 1/2 - BSV1	6.05	20160223	1255	SOIL	370	3.70E-04
S-9-BSV5	9.35	20160223	1255	SOIL	530	5.30E-04
S-5-BSV2	5.5	20160223	1255	SOIL	750	7.50E-04
S-9-BSV2	9.7	20160223	1255	SOIL	370	3.70E-04

Blank	N/A	20160223	1255	BLANK	ND	ND
SRM D089-542	N/A	20160223	1255	SRM	5540	5.54E-03

Reporting Limit: 100 1.00E-04

QC DATA

SRM ID/Lot No.	REC (%)	Control Limits	Certified Concentration mg/kg	QC Performance	
				Acceptance Limits, mg/kg Lower	Upper
SRM D089-542	99	75-125	5610	4208	7013

ND = Not Detected



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1602627

Report Created for: Essel Environmental Consulting

564 Market Street
San Francisco, CA 94104

Project Contact: Nik Lahiri

Project P.O.:

Project Name: 15166; EBALDC

Project Received: 02/17/2016

Analytical Report reviewed & approved for release on 02/23/2016 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: Essel Environmental Consulting
Project: 15166; EBALDC
WorkOrder: 1602627

Glossary Abbreviation

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
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: Essel Environmental Consulting
Project: 15166; EBALDC
WorkOrder: 1602627

Analytical Qualifiers

S	Surrogate spike recovery outside accepted recovery limits
a2	sample diluted due to cluttered chromatogram
c2	surrogate recovery outside of the control limits due to matrix interference.
c4	surrogate recovery outside of the control limits due to coelution with another peak(s) / cluttered chromatogram.
d7	strongly aged gasoline or diesel range compounds are significant in the TPH(g) chromatogram
d9	no recognizable pattern
e1	unmodified or weakly modified diesel is significant
e4	gasoline range compounds are significant.
e8/e4	kerosene/kerosene range/jet fuel range; and/or gasoline range compounds are significant.
e8	kerosene/kerosene range/jet fuel range
e11	stoddard solvent/mineral spirit (?)

Quality Control Qualifiers

F1	MS/MSD recovery and/or RPD is out of acceptance criteria; LCS validated the prep batch.
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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-4-BSV1	1602627-001A	Soil	02/15/2016 07:55	GC16	116790

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	2.0	20	02/20/2016 23:00
tert-Amyl methyl ether (TAME)	ND	0.10	20	02/20/2016 23:00
Benzene	ND	0.10	20	02/20/2016 23:00
Bromobenzene	ND	0.10	20	02/20/2016 23:00
Bromochloromethane	ND	0.10	20	02/20/2016 23:00
Bromodichloromethane	ND	0.10	20	02/20/2016 23:00
Bromoform	ND	0.10	20	02/20/2016 23:00
Bromomethane	ND	0.10	20	02/20/2016 23:00
2-Butanone (MEK)	ND	0.40	20	02/20/2016 23:00
t-Butyl alcohol (TBA)	ND	1.0	20	02/20/2016 23:00
n-Butyl benzene	0.22	0.10	20	02/20/2016 23:00
sec-Butyl benzene	ND	0.10	20	02/20/2016 23:00
tert-Butyl benzene	ND	0.10	20	02/20/2016 23:00
Carbon Disulfide	ND	0.10	20	02/20/2016 23:00
Carbon Tetrachloride	ND	0.10	20	02/20/2016 23:00
Chlorobenzene	ND	0.10	20	02/20/2016 23:00
Chloroethane	ND	0.10	20	02/20/2016 23:00
Chloroform	ND	0.10	20	02/20/2016 23:00
Chloromethane	ND	0.10	20	02/20/2016 23:00
2-Chlorotoluene	ND	0.10	20	02/20/2016 23:00
4-Chlorotoluene	ND	0.10	20	02/20/2016 23:00
Dibromochloromethane	ND	0.10	20	02/20/2016 23:00
1,2-Dibromo-3-chloropropane	ND	0.080	20	02/20/2016 23:00
1,2-Dibromoethane (EDB)	ND	0.080	20	02/20/2016 23:00
Dibromomethane	ND	0.10	20	02/20/2016 23:00
1,2-Dichlorobenzene	ND	0.10	20	02/20/2016 23:00
1,3-Dichlorobenzene	ND	0.10	20	02/20/2016 23:00
1,4-Dichlorobenzene	ND	0.10	20	02/20/2016 23:00
Dichlorodifluoromethane	ND	0.10	20	02/20/2016 23:00
1,1-Dichloroethane	ND	0.10	20	02/20/2016 23:00
1,2-Dichloroethane (1,2-DCA)	ND	0.080	20	02/20/2016 23:00
1,1-Dichloroethene	ND	0.10	20	02/20/2016 23:00
cis-1,2-Dichloroethene	ND	0.10	20	02/20/2016 23:00
trans-1,2-Dichloroethene	ND	0.10	20	02/20/2016 23:00
1,2-Dichloropropane	ND	0.10	20	02/20/2016 23:00
1,3-Dichloropropane	ND	0.10	20	02/20/2016 23:00
2,2-Dichloropropane	ND	0.10	20	02/20/2016 23:00

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-4-BSV1	1602627-001A	Soil	02/15/2016 07:55	GC16	116790

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.10	20	02/20/2016 23:00
cis-1,3-Dichloropropene	ND	0.10	20	02/20/2016 23:00
trans-1,3-Dichloropropene	ND	0.10	20	02/20/2016 23:00
Diisopropyl ether (DIPE)	ND	0.10	20	02/20/2016 23:00
Ethylbenzene	ND	0.10	20	02/20/2016 23:00
Ethyl tert-butyl ether (ETBE)	ND	0.10	20	02/20/2016 23:00
Freon 113	ND	0.10	20	02/20/2016 23:00
Hexachlorobutadiene	ND	0.10	20	02/20/2016 23:00
Hexachloroethane	ND	0.10	20	02/20/2016 23:00
2-Hexanone	ND	0.10	20	02/20/2016 23:00
Isopropylbenzene	ND	0.10	20	02/20/2016 23:00
4-Isopropyl toluene	ND	0.10	20	02/20/2016 23:00
Methyl-t-butyl ether (MTBE)	ND	0.10	20	02/20/2016 23:00
Methylene chloride	ND	0.10	20	02/20/2016 23:00
4-Methyl-2-pentanone (MIBK)	ND	0.10	20	02/20/2016 23:00
Naphthalene	ND	0.10	20	02/20/2016 23:00
n-Propyl benzene	0.15	0.10	20	02/20/2016 23:00
Styrene	ND	0.10	20	02/20/2016 23:00
1,1,1,2-Tetrachloroethane	ND	0.10	20	02/20/2016 23:00
1,1,2,2-Tetrachloroethane	ND	0.10	20	02/20/2016 23:00
Tetrachloroethene	ND	0.10	20	02/20/2016 23:00
Toluene	ND	0.10	20	02/20/2016 23:00
1,2,3-Trichlorobenzene	ND	0.10	20	02/20/2016 23:00
1,2,4-Trichlorobenzene	ND	0.10	20	02/20/2016 23:00
1,1,1-Trichloroethane	ND	0.10	20	02/20/2016 23:00
1,1,2-Trichloroethane	ND	0.10	20	02/20/2016 23:00
Trichloroethene	ND	0.10	20	02/20/2016 23:00
Trichlorofluoromethane	ND	0.10	20	02/20/2016 23:00
1,2,3-Trichloropropane	ND	0.10	20	02/20/2016 23:00
1,2,4-Trimethylbenzene	ND	0.10	20	02/20/2016 23:00
1,3,5-Trimethylbenzene	ND	0.10	20	02/20/2016 23:00
Vinyl Chloride	ND	0.10	20	02/20/2016 23:00
Xylenes, Total	ND	0.10	20	02/20/2016 23:00

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-4-BSV1	1602627-001A	Soil	02/15/2016 07:55	GC16	116790

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	104	70-130		02/20/2016 23:00
Toluene-d8	99	70-130		02/20/2016 23:00
4-BFB	101	70-130		02/20/2016 23:00
Benzene-d6	131	60-140		02/20/2016 23:00
Ethylbenzene-d10	136	60-140		02/20/2016 23:00
1,2-DCB-d4	120	60-140		02/20/2016 23:00

Analyst(s): AK

Analytical Comments: a2



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-13-BSV1	1602627-002A	Soil	02/15/2016 07:59	GC16	116790

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/20/2016 23:40
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/20/2016 23:40
Benzene	ND	0.0050	1	02/20/2016 23:40
Bromobenzene	ND	0.0050	1	02/20/2016 23:40
Bromochloromethane	ND	0.0050	1	02/20/2016 23:40
Bromodichloromethane	ND	0.0050	1	02/20/2016 23:40
Bromoform	ND	0.0050	1	02/20/2016 23:40
Bromomethane	ND	0.0050	1	02/20/2016 23:40
2-Butanone (MEK)	ND	0.020	1	02/20/2016 23:40
t-Butyl alcohol (TBA)	ND	0.050	1	02/20/2016 23:40
n-Butyl benzene	ND	0.0050	1	02/20/2016 23:40
sec-Butyl benzene	ND	0.0050	1	02/20/2016 23:40
tert-Butyl benzene	ND	0.0050	1	02/20/2016 23:40
Carbon Disulfide	ND	0.0050	1	02/20/2016 23:40
Carbon Tetrachloride	ND	0.0050	1	02/20/2016 23:40
Chlorobenzene	ND	0.0050	1	02/20/2016 23:40
Chloroethane	ND	0.0050	1	02/20/2016 23:40
Chloroform	ND	0.0050	1	02/20/2016 23:40
Chloromethane	ND	0.0050	1	02/20/2016 23:40
2-Chlorotoluene	ND	0.0050	1	02/20/2016 23:40
4-Chlorotoluene	ND	0.0050	1	02/20/2016 23:40
Dibromochloromethane	ND	0.0050	1	02/20/2016 23:40
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/20/2016 23:40
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/20/2016 23:40
Dibromomethane	ND	0.0050	1	02/20/2016 23:40
1,2-Dichlorobenzene	ND	0.0050	1	02/20/2016 23:40
1,3-Dichlorobenzene	ND	0.0050	1	02/20/2016 23:40
1,4-Dichlorobenzene	ND	0.0050	1	02/20/2016 23:40
Dichlorodifluoromethane	ND	0.0050	1	02/20/2016 23:40
1,1-Dichloroethane	ND	0.0050	1	02/20/2016 23:40
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/20/2016 23:40
1,1-Dichloroethene	ND	0.0050	1	02/20/2016 23:40
cis-1,2-Dichloroethene	ND	0.0050	1	02/20/2016 23:40
trans-1,2-Dichloroethene	ND	0.0050	1	02/20/2016 23:40
1,2-Dichloropropane	ND	0.0050	1	02/20/2016 23:40
1,3-Dichloropropane	ND	0.0050	1	02/20/2016 23:40
2,2-Dichloropropane	ND	0.0050	1	02/20/2016 23:40

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-13-BSV1	1602627-002A	Soil	02/15/2016 07:59	GC16	116790
Analytes	Result	RL	DF	Date Analyzed	
1,1-Dichloropropene	ND	0.0050	1	02/20/2016 23:40	
cis-1,3-Dichloropropene	ND	0.0050	1	02/20/2016 23:40	
trans-1,3-Dichloropropene	ND	0.0050	1	02/20/2016 23:40	
Diisopropyl ether (DIPE)	ND	0.0050	1	02/20/2016 23:40	
Ethylbenzene	ND	0.0050	1	02/20/2016 23:40	
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/20/2016 23:40	
Freon 113	ND	0.0050	1	02/20/2016 23:40	
Hexachlorobutadiene	ND	0.0050	1	02/20/2016 23:40	
Hexachloroethane	ND	0.0050	1	02/20/2016 23:40	
2-Hexanone	ND	0.0050	1	02/20/2016 23:40	
Isopropylbenzene	ND	0.0050	1	02/20/2016 23:40	
4-Isopropyl toluene	ND	0.0050	1	02/20/2016 23:40	
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/20/2016 23:40	
Methylene chloride	ND	0.0050	1	02/20/2016 23:40	
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/20/2016 23:40	
Naphthalene	ND	0.0050	1	02/20/2016 23:40	
n-Propyl benzene	ND	0.0050	1	02/20/2016 23:40	
Styrene	ND	0.0050	1	02/20/2016 23:40	
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/20/2016 23:40	
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/20/2016 23:40	
Tetrachloroethene	ND	0.0050	1	02/20/2016 23:40	
Toluene	ND	0.0050	1	02/20/2016 23:40	
1,2,3-Trichlorobenzene	ND	0.0050	1	02/20/2016 23:40	
1,2,4-Trichlorobenzene	ND	0.0050	1	02/20/2016 23:40	
1,1,1-Trichloroethane	ND	0.0050	1	02/20/2016 23:40	
1,1,2-Trichloroethane	ND	0.0050	1	02/20/2016 23:40	
Trichloroethene	ND	0.0050	1	02/20/2016 23:40	
Trichlorofluoromethane	ND	0.0050	1	02/20/2016 23:40	
1,2,3-Trichloropropane	ND	0.0050	1	02/20/2016 23:40	
1,2,4-Trimethylbenzene	ND	0.0050	1	02/20/2016 23:40	
1,3,5-Trimethylbenzene	ND	0.0050	1	02/20/2016 23:40	
Vinyl Chloride	ND	0.0050	1	02/20/2016 23:40	
Xylenes, Total	ND	0.0050	1	02/20/2016 23:40	

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-13-BSV1	1602627-002A	Soil	02/15/2016 07:59	GC16	116790

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	101	70-130		02/20/2016 23:40
Toluene-d8	120	70-130		02/20/2016 23:40
4-BFB	104	70-130		02/20/2016 23:40
Benzene-d6	111	60-140		02/20/2016 23:40
Ethylbenzene-d10	113	60-140		02/20/2016 23:40
1,2-DCB-d4	70	60-140		02/20/2016 23:40

Analyst(s): AK



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-12-BSV2	1602627-003A	Soil	02/15/2016 13:04	GC16	116790

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/21/2016 00:19
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/21/2016 00:19
Benzene	ND	0.0050	1	02/21/2016 00:19
Bromobenzene	ND	0.0050	1	02/21/2016 00:19
Bromochloromethane	ND	0.0050	1	02/21/2016 00:19
Bromodichloromethane	ND	0.0050	1	02/21/2016 00:19
Bromoform	ND	0.0050	1	02/21/2016 00:19
Bromomethane	ND	0.0050	1	02/21/2016 00:19
2-Butanone (MEK)	ND	0.020	1	02/21/2016 00:19
t-Butyl alcohol (TBA)	ND	0.050	1	02/21/2016 00:19
n-Butyl benzene	ND	0.0050	1	02/21/2016 00:19
sec-Butyl benzene	ND	0.0050	1	02/21/2016 00:19
tert-Butyl benzene	ND	0.0050	1	02/21/2016 00:19
Carbon Disulfide	ND	0.0050	1	02/21/2016 00:19
Carbon Tetrachloride	ND	0.0050	1	02/21/2016 00:19
Chlorobenzene	ND	0.0050	1	02/21/2016 00:19
Chloroethane	ND	0.0050	1	02/21/2016 00:19
Chloroform	ND	0.0050	1	02/21/2016 00:19
Chloromethane	ND	0.0050	1	02/21/2016 00:19
2-Chlorotoluene	ND	0.0050	1	02/21/2016 00:19
4-Chlorotoluene	ND	0.0050	1	02/21/2016 00:19
Dibromochloromethane	ND	0.0050	1	02/21/2016 00:19
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/21/2016 00:19
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/21/2016 00:19
Dibromomethane	ND	0.0050	1	02/21/2016 00:19
1,2-Dichlorobenzene	ND	0.0050	1	02/21/2016 00:19
1,3-Dichlorobenzene	ND	0.0050	1	02/21/2016 00:19
1,4-Dichlorobenzene	ND	0.0050	1	02/21/2016 00:19
Dichlorodifluoromethane	ND	0.0050	1	02/21/2016 00:19
1,1-Dichloroethane	ND	0.0050	1	02/21/2016 00:19
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/21/2016 00:19
1,1-Dichloroethene	ND	0.0050	1	02/21/2016 00:19
cis-1,2-Dichloroethene	ND	0.0050	1	02/21/2016 00:19
trans-1,2-Dichloroethene	ND	0.0050	1	02/21/2016 00:19
1,2-Dichloropropane	ND	0.0050	1	02/21/2016 00:19
1,3-Dichloropropane	ND	0.0050	1	02/21/2016 00:19
2,2-Dichloropropane	ND	0.0050	1	02/21/2016 00:19

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-12-BSV2	1602627-003A	Soil	02/15/2016 13:04	GC16	116790

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/21/2016 00:19
cis-1,3-Dichloropropene	ND	0.0050	1	02/21/2016 00:19
trans-1,3-Dichloropropene	ND	0.0050	1	02/21/2016 00:19
Diisopropyl ether (DIPE)	ND	0.0050	1	02/21/2016 00:19
Ethylbenzene	ND	0.0050	1	02/21/2016 00:19
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/21/2016 00:19
Freon 113	ND	0.0050	1	02/21/2016 00:19
Hexachlorobutadiene	ND	0.0050	1	02/21/2016 00:19
Hexachloroethane	ND	0.0050	1	02/21/2016 00:19
2-Hexanone	ND	0.0050	1	02/21/2016 00:19
Isopropylbenzene	ND	0.0050	1	02/21/2016 00:19
4-Isopropyl toluene	ND	0.0050	1	02/21/2016 00:19
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/21/2016 00:19
Methylene chloride	ND	0.0050	1	02/21/2016 00:19
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/21/2016 00:19
Naphthalene	ND	0.0050	1	02/21/2016 00:19
n-Propyl benzene	ND	0.0050	1	02/21/2016 00:19
Styrene	ND	0.0050	1	02/21/2016 00:19
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/21/2016 00:19
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/21/2016 00:19
Tetrachloroethene	ND	0.0050	1	02/21/2016 00:19
Toluene	ND	0.0050	1	02/21/2016 00:19
1,2,3-Trichlorobenzene	ND	0.0050	1	02/21/2016 00:19
1,2,4-Trichlorobenzene	ND	0.0050	1	02/21/2016 00:19
1,1,1-Trichloroethane	ND	0.0050	1	02/21/2016 00:19
1,1,2-Trichloroethane	ND	0.0050	1	02/21/2016 00:19
Trichloroethene	ND	0.0050	1	02/21/2016 00:19
Trichlorofluoromethane	ND	0.0050	1	02/21/2016 00:19
1,2,3-Trichloropropane	ND	0.0050	1	02/21/2016 00:19
1,2,4-Trimethylbenzene	ND	0.0050	1	02/21/2016 00:19
1,3,5-Trimethylbenzene	ND	0.0050	1	02/21/2016 00:19
Vinyl Chloride	ND	0.0050	1	02/21/2016 00:19
Xylenes, Total	ND	0.0050	1	02/21/2016 00:19

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-12-BSV2	1602627-003A	Soil	02/15/2016 13:04	GC16	116790

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Qualifiers</u>	<u>Limits</u>	
Dibromofluoromethane	100		70-130	02/21/2016 00:19
Toluene-d8	111		70-130	02/21/2016 00:19
4-BFB	149	S	70-130	02/21/2016 00:19
Benzene-d6	111		60-140	02/21/2016 00:19
Ethylbenzene-d10	119		60-140	02/21/2016 00:19
1,2-DCB-d4	75		60-140	02/21/2016 00:19

Analyst(s): AK

Analytical Comments: c2



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
B-13-BSV3	1602627-004A	Soil	02/15/2016 10:12	GC16	116790

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/21/2016 00:59
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/21/2016 00:59
Benzene	ND	0.0050	1	02/21/2016 00:59
Bromobenzene	ND	0.0050	1	02/21/2016 00:59
Bromochloromethane	ND	0.0050	1	02/21/2016 00:59
Bromodichloromethane	ND	0.0050	1	02/21/2016 00:59
Bromoform	ND	0.0050	1	02/21/2016 00:59
Bromomethane	ND	0.0050	1	02/21/2016 00:59
2-Butanone (MEK)	ND	0.020	1	02/21/2016 00:59
t-Butyl alcohol (TBA)	ND	0.050	1	02/21/2016 00:59
n-Butyl benzene	ND	0.0050	1	02/21/2016 00:59
sec-Butyl benzene	ND	0.0050	1	02/21/2016 00:59
tert-Butyl benzene	ND	0.0050	1	02/21/2016 00:59
Carbon Disulfide	ND	0.0050	1	02/21/2016 00:59
Carbon Tetrachloride	ND	0.0050	1	02/21/2016 00:59
Chlorobenzene	ND	0.0050	1	02/21/2016 00:59
Chloroethane	ND	0.0050	1	02/21/2016 00:59
Chloroform	ND	0.0050	1	02/21/2016 00:59
Chloromethane	ND	0.0050	1	02/21/2016 00:59
2-Chlorotoluene	ND	0.0050	1	02/21/2016 00:59
4-Chlorotoluene	ND	0.0050	1	02/21/2016 00:59
Dibromochloromethane	ND	0.0050	1	02/21/2016 00:59
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/21/2016 00:59
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/21/2016 00:59
Dibromomethane	ND	0.0050	1	02/21/2016 00:59
1,2-Dichlorobenzene	ND	0.0050	1	02/21/2016 00:59
1,3-Dichlorobenzene	ND	0.0050	1	02/21/2016 00:59
1,4-Dichlorobenzene	ND	0.0050	1	02/21/2016 00:59
Dichlorodifluoromethane	ND	0.0050	1	02/21/2016 00:59
1,1-Dichloroethane	ND	0.0050	1	02/21/2016 00:59
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/21/2016 00:59
1,1-Dichloroethene	ND	0.0050	1	02/21/2016 00:59
cis-1,2-Dichloroethene	ND	0.0050	1	02/21/2016 00:59
trans-1,2-Dichloroethene	ND	0.0050	1	02/21/2016 00:59
1,2-Dichloropropane	ND	0.0050	1	02/21/2016 00:59
1,3-Dichloropropane	ND	0.0050	1	02/21/2016 00:59
2,2-Dichloropropane	ND	0.0050	1	02/21/2016 00:59

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
B-13-BSV3	1602627-004A	Soil	02/15/2016 10:12	GC16	116790

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/21/2016 00:59
cis-1,3-Dichloropropene	ND	0.0050	1	02/21/2016 00:59
trans-1,3-Dichloropropene	ND	0.0050	1	02/21/2016 00:59
Diisopropyl ether (DIPE)	ND	0.0050	1	02/21/2016 00:59
Ethylbenzene	ND	0.0050	1	02/21/2016 00:59
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/21/2016 00:59
Freon 113	ND	0.0050	1	02/21/2016 00:59
Hexachlorobutadiene	ND	0.0050	1	02/21/2016 00:59
Hexachloroethane	ND	0.0050	1	02/21/2016 00:59
2-Hexanone	ND	0.0050	1	02/21/2016 00:59
Isopropylbenzene	ND	0.0050	1	02/21/2016 00:59
4-Isopropyl toluene	ND	0.0050	1	02/21/2016 00:59
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/21/2016 00:59
Methylene chloride	ND	0.0050	1	02/21/2016 00:59
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/21/2016 00:59
Naphthalene	ND	0.0050	1	02/21/2016 00:59
n-Propyl benzene	ND	0.0050	1	02/21/2016 00:59
Styrene	ND	0.0050	1	02/21/2016 00:59
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/21/2016 00:59
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/21/2016 00:59
Tetrachloroethene	ND	0.0050	1	02/21/2016 00:59
Toluene	ND	0.0050	1	02/21/2016 00:59
1,2,3-Trichlorobenzene	ND	0.0050	1	02/21/2016 00:59
1,2,4-Trichlorobenzene	ND	0.0050	1	02/21/2016 00:59
1,1,1-Trichloroethane	ND	0.0050	1	02/21/2016 00:59
1,1,2-Trichloroethane	ND	0.0050	1	02/21/2016 00:59
Trichloroethene	ND	0.0050	1	02/21/2016 00:59
Trichlorofluoromethane	ND	0.0050	1	02/21/2016 00:59
1,2,3-Trichloropropane	ND	0.0050	1	02/21/2016 00:59
1,2,4-Trimethylbenzene	ND	0.0050	1	02/21/2016 00:59
1,3,5-Trimethylbenzene	ND	0.0050	1	02/21/2016 00:59
Vinyl Chloride	ND	0.0050	1	02/21/2016 00:59
Xylenes, Total	ND	0.0050	1	02/21/2016 00:59

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
B-13-BSV3	1602627-004A	Soil	02/15/2016 10:12	GC16	116790

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	103	70-130		02/21/2016 00:59
Toluene-d8	115	70-130		02/21/2016 00:59
4-BFB	111	70-130		02/21/2016 00:59
Benzene-d6	107	60-140		02/21/2016 00:59
Ethylbenzene-d10	110	60-140		02/21/2016 00:59
1,2-DCB-d4	72	60-140		02/21/2016 00:59

Analyst(s): AK



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
B-16-BSV3	1602627-005A	Soil	02/15/2016 10:16	GC16	116790

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/21/2016 01:39
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/21/2016 01:39
Benzene	ND	0.0050	1	02/21/2016 01:39
Bromobenzene	ND	0.0050	1	02/21/2016 01:39
Bromochloromethane	ND	0.0050	1	02/21/2016 01:39
Bromodichloromethane	ND	0.0050	1	02/21/2016 01:39
Bromoform	ND	0.0050	1	02/21/2016 01:39
Bromomethane	ND	0.0050	1	02/21/2016 01:39
2-Butanone (MEK)	ND	0.020	1	02/21/2016 01:39
t-Butyl alcohol (TBA)	ND	0.050	1	02/21/2016 01:39
n-Butyl benzene	ND	0.0050	1	02/21/2016 01:39
sec-Butyl benzene	ND	0.0050	1	02/21/2016 01:39
tert-Butyl benzene	ND	0.0050	1	02/21/2016 01:39
Carbon Disulfide	ND	0.0050	1	02/21/2016 01:39
Carbon Tetrachloride	ND	0.0050	1	02/21/2016 01:39
Chlorobenzene	ND	0.0050	1	02/21/2016 01:39
Chloroethane	ND	0.0050	1	02/21/2016 01:39
Chloroform	ND	0.0050	1	02/21/2016 01:39
Chloromethane	ND	0.0050	1	02/21/2016 01:39
2-Chlorotoluene	ND	0.0050	1	02/21/2016 01:39
4-Chlorotoluene	ND	0.0050	1	02/21/2016 01:39
Dibromochloromethane	ND	0.0050	1	02/21/2016 01:39
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/21/2016 01:39
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/21/2016 01:39
Dibromomethane	ND	0.0050	1	02/21/2016 01:39
1,2-Dichlorobenzene	ND	0.0050	1	02/21/2016 01:39
1,3-Dichlorobenzene	ND	0.0050	1	02/21/2016 01:39
1,4-Dichlorobenzene	ND	0.0050	1	02/21/2016 01:39
Dichlorodifluoromethane	ND	0.0050	1	02/21/2016 01:39
1,1-Dichloroethane	ND	0.0050	1	02/21/2016 01:39
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/21/2016 01:39
1,1-Dichloroethene	ND	0.0050	1	02/21/2016 01:39
cis-1,2-Dichloroethene	ND	0.0050	1	02/21/2016 01:39
trans-1,2-Dichloroethene	ND	0.0050	1	02/21/2016 01:39
1,2-Dichloropropane	ND	0.0050	1	02/21/2016 01:39
1,3-Dichloropropane	ND	0.0050	1	02/21/2016 01:39
2,2-Dichloropropane	ND	0.0050	1	02/21/2016 01:39

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
B-16-BSV3	1602627-005A	Soil	02/15/2016 10:16	GC16	116790
Analytes	Result	RL	DF	Date Analyzed	
1,1-Dichloropropene	ND	0.0050	1	02/21/2016 01:39	
cis-1,3-Dichloropropene	ND	0.0050	1	02/21/2016 01:39	
trans-1,3-Dichloropropene	ND	0.0050	1	02/21/2016 01:39	
Diisopropyl ether (DIPE)	ND	0.0050	1	02/21/2016 01:39	
Ethylbenzene	ND	0.0050	1	02/21/2016 01:39	
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/21/2016 01:39	
Freon 113	ND	0.0050	1	02/21/2016 01:39	
Hexachlorobutadiene	ND	0.0050	1	02/21/2016 01:39	
Hexachloroethane	ND	0.0050	1	02/21/2016 01:39	
2-Hexanone	ND	0.0050	1	02/21/2016 01:39	
Isopropylbenzene	ND	0.0050	1	02/21/2016 01:39	
4-Isopropyl toluene	ND	0.0050	1	02/21/2016 01:39	
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/21/2016 01:39	
Methylene chloride	ND	0.0050	1	02/21/2016 01:39	
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/21/2016 01:39	
Naphthalene	ND	0.0050	1	02/21/2016 01:39	
n-Propyl benzene	ND	0.0050	1	02/21/2016 01:39	
Styrene	ND	0.0050	1	02/21/2016 01:39	
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/21/2016 01:39	
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/21/2016 01:39	
Tetrachloroethene	ND	0.0050	1	02/21/2016 01:39	
Toluene	ND	0.0050	1	02/21/2016 01:39	
1,2,3-Trichlorobenzene	ND	0.0050	1	02/21/2016 01:39	
1,2,4-Trichlorobenzene	ND	0.0050	1	02/21/2016 01:39	
1,1,1-Trichloroethane	ND	0.0050	1	02/21/2016 01:39	
1,1,2-Trichloroethane	ND	0.0050	1	02/21/2016 01:39	
Trichloroethene	ND	0.0050	1	02/21/2016 01:39	
Trichlorofluoromethane	ND	0.0050	1	02/21/2016 01:39	
1,2,3-Trichloropropane	ND	0.0050	1	02/21/2016 01:39	
1,2,4-Trimethylbenzene	ND	0.0050	1	02/21/2016 01:39	
1,3,5-Trimethylbenzene	ND	0.0050	1	02/21/2016 01:39	
Vinyl Chloride	ND	0.0050	1	02/21/2016 01:39	
Xylenes, Total	ND	0.0050	1	02/21/2016 01:39	

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
B-16-BSV3	1602627-005A	Soil	02/15/2016 10:16	GC16	116790

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	102	70-130		02/21/2016 01:39
Toluene-d8	117	70-130		02/21/2016 01:39
4-BFB	105	70-130		02/21/2016 01:39
Benzene-d6	101	60-140		02/21/2016 01:39
Ethylbenzene-d10	103	60-140		02/21/2016 01:39
1,2-DCB-d4	67	60-140		02/21/2016 01:39

Analyst(s): AK



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-13-BSV4	1602627-006A	Soil	02/15/2016 09:20	GC16	116790
Analytes	Result	RL	DF	Date Analyzed	
Acetone	ND	0.10	1	02/21/2016 02:18	
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/21/2016 02:18	
Benzene	ND	0.0050	1	02/21/2016 02:18	
Bromobenzene	ND	0.0050	1	02/21/2016 02:18	
Bromochloromethane	ND	0.0050	1	02/21/2016 02:18	
Bromodichloromethane	ND	0.0050	1	02/21/2016 02:18	
Bromoform	ND	0.0050	1	02/21/2016 02:18	
Bromomethane	ND	0.0050	1	02/21/2016 02:18	
2-Butanone (MEK)	ND	0.020	1	02/21/2016 02:18	
t-Butyl alcohol (TBA)	ND	0.050	1	02/21/2016 02:18	
n-Butyl benzene	ND	0.0050	1	02/21/2016 02:18	
sec-Butyl benzene	ND	0.0050	1	02/21/2016 02:18	
tert-Butyl benzene	ND	0.0050	1	02/21/2016 02:18	
Carbon Disulfide	ND	0.0050	1	02/21/2016 02:18	
Carbon Tetrachloride	ND	0.0050	1	02/21/2016 02:18	
Chlorobenzene	ND	0.0050	1	02/21/2016 02:18	
Chloroethane	ND	0.0050	1	02/21/2016 02:18	
Chloroform	ND	0.0050	1	02/21/2016 02:18	
Chloromethane	ND	0.0050	1	02/21/2016 02:18	
2-Chlorotoluene	ND	0.0050	1	02/21/2016 02:18	
4-Chlorotoluene	ND	0.0050	1	02/21/2016 02:18	
Dibromochloromethane	ND	0.0050	1	02/21/2016 02:18	
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/21/2016 02:18	
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/21/2016 02:18	
Dibromomethane	ND	0.0050	1	02/21/2016 02:18	
1,2-Dichlorobenzene	ND	0.0050	1	02/21/2016 02:18	
1,3-Dichlorobenzene	ND	0.0050	1	02/21/2016 02:18	
1,4-Dichlorobenzene	ND	0.0050	1	02/21/2016 02:18	
Dichlorodifluoromethane	ND	0.0050	1	02/21/2016 02:18	
1,1-Dichloroethane	ND	0.0050	1	02/21/2016 02:18	
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/21/2016 02:18	
1,1-Dichloroethene	ND	0.0050	1	02/21/2016 02:18	
cis-1,2-Dichloroethene	ND	0.0050	1	02/21/2016 02:18	
trans-1,2-Dichloroethene	ND	0.0050	1	02/21/2016 02:18	
1,2-Dichloropropane	ND	0.0050	1	02/21/2016 02:18	
1,3-Dichloropropane	ND	0.0050	1	02/21/2016 02:18	
2,2-Dichloropropane	ND	0.0050	1	02/21/2016 02:18	

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-13-BSV4	1602627-006A	Soil	02/15/2016 09:20	GC16	116790

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/21/2016 02:18
cis-1,3-Dichloropropene	ND	0.0050	1	02/21/2016 02:18
trans-1,3-Dichloropropene	ND	0.0050	1	02/21/2016 02:18
Diisopropyl ether (DIPE)	ND	0.0050	1	02/21/2016 02:18
Ethylbenzene	ND	0.0050	1	02/21/2016 02:18
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/21/2016 02:18
Freon 113	ND	0.0050	1	02/21/2016 02:18
Hexachlorobutadiene	ND	0.0050	1	02/21/2016 02:18
Hexachloroethane	ND	0.0050	1	02/21/2016 02:18
2-Hexanone	ND	0.0050	1	02/21/2016 02:18
Isopropylbenzene	ND	0.0050	1	02/21/2016 02:18
4-Isopropyl toluene	ND	0.0050	1	02/21/2016 02:18
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/21/2016 02:18
Methylene chloride	ND	0.0050	1	02/21/2016 02:18
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/21/2016 02:18
Naphthalene	ND	0.0050	1	02/21/2016 02:18
n-Propyl benzene	ND	0.0050	1	02/21/2016 02:18
Styrene	ND	0.0050	1	02/21/2016 02:18
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/21/2016 02:18
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/21/2016 02:18
Tetrachloroethene	ND	0.0050	1	02/21/2016 02:18
Toluene	ND	0.0050	1	02/21/2016 02:18
1,2,3-Trichlorobenzene	ND	0.0050	1	02/21/2016 02:18
1,2,4-Trichlorobenzene	ND	0.0050	1	02/21/2016 02:18
1,1,1-Trichloroethane	ND	0.0050	1	02/21/2016 02:18
1,1,2-Trichloroethane	ND	0.0050	1	02/21/2016 02:18
Trichloroethene	ND	0.0050	1	02/21/2016 02:18
Trichlorofluoromethane	ND	0.0050	1	02/21/2016 02:18
1,2,3-Trichloropropane	ND	0.0050	1	02/21/2016 02:18
1,2,4-Trimethylbenzene	ND	0.0050	1	02/21/2016 02:18
1,3,5-Trimethylbenzene	ND	0.0050	1	02/21/2016 02:18
Vinyl Chloride	ND	0.0050	1	02/21/2016 02:18
Xylenes, Total	ND	0.0050	1	02/21/2016 02:18

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-13-BSV4	1602627-006A	Soil	02/15/2016 09:20	GC16	116790

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	100	70-130		02/21/2016 02:18
Toluene-d8	117	70-130		02/21/2016 02:18
4-BFB	100	70-130		02/21/2016 02:18
Benzene-d6	113	60-140		02/21/2016 02:18
Ethylbenzene-d10	120	60-140		02/21/2016 02:18
1,2-DCB-d4	73	60-140		02/21/2016 02:18

Analyst(s): AK



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-16-BSV4	1602627-007A	Soil	02/15/2016 09:24	GC16	116790

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/21/2016 02:57
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/21/2016 02:57
Benzene	ND	0.0050	1	02/21/2016 02:57
Bromobenzene	ND	0.0050	1	02/21/2016 02:57
Bromochloromethane	ND	0.0050	1	02/21/2016 02:57
Bromodichloromethane	ND	0.0050	1	02/21/2016 02:57
Bromoform	ND	0.0050	1	02/21/2016 02:57
Bromomethane	ND	0.0050	1	02/21/2016 02:57
2-Butanone (MEK)	ND	0.020	1	02/21/2016 02:57
t-Butyl alcohol (TBA)	ND	0.050	1	02/21/2016 02:57
n-Butyl benzene	ND	0.0050	1	02/21/2016 02:57
sec-Butyl benzene	ND	0.0050	1	02/21/2016 02:57
tert-Butyl benzene	ND	0.0050	1	02/21/2016 02:57
Carbon Disulfide	ND	0.0050	1	02/21/2016 02:57
Carbon Tetrachloride	ND	0.0050	1	02/21/2016 02:57
Chlorobenzene	ND	0.0050	1	02/21/2016 02:57
Chloroethane	ND	0.0050	1	02/21/2016 02:57
Chloroform	ND	0.0050	1	02/21/2016 02:57
Chloromethane	ND	0.0050	1	02/21/2016 02:57
2-Chlorotoluene	ND	0.0050	1	02/21/2016 02:57
4-Chlorotoluene	ND	0.0050	1	02/21/2016 02:57
Dibromochloromethane	ND	0.0050	1	02/21/2016 02:57
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/21/2016 02:57
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/21/2016 02:57
Dibromomethane	ND	0.0050	1	02/21/2016 02:57
1,2-Dichlorobenzene	ND	0.0050	1	02/21/2016 02:57
1,3-Dichlorobenzene	ND	0.0050	1	02/21/2016 02:57
1,4-Dichlorobenzene	ND	0.0050	1	02/21/2016 02:57
Dichlorodifluoromethane	ND	0.0050	1	02/21/2016 02:57
1,1-Dichloroethane	ND	0.0050	1	02/21/2016 02:57
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/21/2016 02:57
1,1-Dichloroethene	ND	0.0050	1	02/21/2016 02:57
cis-1,2-Dichloroethene	ND	0.0050	1	02/21/2016 02:57
trans-1,2-Dichloroethene	ND	0.0050	1	02/21/2016 02:57
1,2-Dichloropropane	ND	0.0050	1	02/21/2016 02:57
1,3-Dichloropropane	ND	0.0050	1	02/21/2016 02:57
2,2-Dichloropropane	ND	0.0050	1	02/21/2016 02:57

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-16-BSV4	1602627-007A	Soil	02/15/2016 09:24	GC16	116790

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/21/2016 02:57
cis-1,3-Dichloropropene	ND	0.0050	1	02/21/2016 02:57
trans-1,3-Dichloropropene	ND	0.0050	1	02/21/2016 02:57
Diisopropyl ether (DIPE)	ND	0.0050	1	02/21/2016 02:57
Ethylbenzene	ND	0.0050	1	02/21/2016 02:57
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/21/2016 02:57
Freon 113	ND	0.0050	1	02/21/2016 02:57
Hexachlorobutadiene	ND	0.0050	1	02/21/2016 02:57
Hexachloroethane	ND	0.0050	1	02/21/2016 02:57
2-Hexanone	ND	0.0050	1	02/21/2016 02:57
Isopropylbenzene	ND	0.0050	1	02/21/2016 02:57
4-Isopropyl toluene	ND	0.0050	1	02/21/2016 02:57
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/21/2016 02:57
Methylene chloride	ND	0.0050	1	02/21/2016 02:57
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/21/2016 02:57
Naphthalene	ND	0.0050	1	02/21/2016 02:57
n-Propyl benzene	ND	0.0050	1	02/21/2016 02:57
Styrene	ND	0.0050	1	02/21/2016 02:57
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/21/2016 02:57
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/21/2016 02:57
Tetrachloroethene	ND	0.0050	1	02/21/2016 02:57
Toluene	ND	0.0050	1	02/21/2016 02:57
1,2,3-Trichlorobenzene	ND	0.0050	1	02/21/2016 02:57
1,2,4-Trichlorobenzene	ND	0.0050	1	02/21/2016 02:57
1,1,1-Trichloroethane	ND	0.0050	1	02/21/2016 02:57
1,1,2-Trichloroethane	ND	0.0050	1	02/21/2016 02:57
Trichloroethene	ND	0.0050	1	02/21/2016 02:57
Trichlorofluoromethane	ND	0.0050	1	02/21/2016 02:57
1,2,3-Trichloropropane	ND	0.0050	1	02/21/2016 02:57
1,2,4-Trimethylbenzene	ND	0.0050	1	02/21/2016 02:57
1,3,5-Trimethylbenzene	ND	0.0050	1	02/21/2016 02:57
Vinyl Chloride	ND	0.0050	1	02/21/2016 02:57
Xylenes, Total	ND	0.0050	1	02/21/2016 02:57

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-16-BSV4	1602627-007A	Soil	02/15/2016 09:24	GC16	116790

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	100	70-130		02/21/2016 02:57
Toluene-d8	115	70-130		02/21/2016 02:57
4-BFB	97	70-130		02/21/2016 02:57
Benzene-d6	105	60-140		02/21/2016 02:57
Ethylbenzene-d10	111	60-140		02/21/2016 02:57
1,2-DCB-d4	70	60-140		02/21/2016 02:57

Analyst(s): AK



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-12-BSV5	1602627-008A	Soil	02/15/2016 10:22	GC10	116790

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/22/2016 23:36
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/22/2016 23:36
Benzene	ND	0.0050	1	02/22/2016 23:36
Bromobenzene	ND	0.0050	1	02/22/2016 23:36
Bromochloromethane	ND	0.0050	1	02/22/2016 23:36
Bromodichloromethane	ND	0.0050	1	02/22/2016 23:36
Bromoform	ND	0.0050	1	02/22/2016 23:36
Bromomethane	ND	0.0050	1	02/22/2016 23:36
2-Butanone (MEK)	ND	0.020	1	02/22/2016 23:36
t-Butyl alcohol (TBA)	ND	0.050	1	02/22/2016 23:36
n-Butyl benzene	0.011	0.0050	1	02/22/2016 23:36
sec-Butyl benzene	0.013	0.0050	1	02/22/2016 23:36
tert-Butyl benzene	ND	0.0050	1	02/22/2016 23:36
Carbon Disulfide	ND	0.0050	1	02/22/2016 23:36
Carbon Tetrachloride	ND	0.0050	1	02/22/2016 23:36
Chlorobenzene	ND	0.0050	1	02/22/2016 23:36
Chloroethane	ND	0.0050	1	02/22/2016 23:36
Chloroform	ND	0.0050	1	02/22/2016 23:36
Chloromethane	ND	0.0050	1	02/22/2016 23:36
2-Chlorotoluene	ND	0.0050	1	02/22/2016 23:36
4-Chlorotoluene	ND	0.0050	1	02/22/2016 23:36
Dibromochloromethane	ND	0.0050	1	02/22/2016 23:36
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/22/2016 23:36
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/22/2016 23:36
Dibromomethane	ND	0.0050	1	02/22/2016 23:36
1,2-Dichlorobenzene	ND	0.0050	1	02/22/2016 23:36
1,3-Dichlorobenzene	ND	0.0050	1	02/22/2016 23:36
1,4-Dichlorobenzene	ND	0.0050	1	02/22/2016 23:36
Dichlorodifluoromethane	ND	0.0050	1	02/22/2016 23:36
1,1-Dichloroethane	ND	0.0050	1	02/22/2016 23:36
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/22/2016 23:36
1,1-Dichloroethene	ND	0.0050	1	02/22/2016 23:36
cis-1,2-Dichloroethene	ND	0.0050	1	02/22/2016 23:36
trans-1,2-Dichloroethene	ND	0.0050	1	02/22/2016 23:36
1,2-Dichloropropane	ND	0.0050	1	02/22/2016 23:36
1,3-Dichloropropane	ND	0.0050	1	02/22/2016 23:36
2,2-Dichloropropane	ND	0.0050	1	02/22/2016 23:36

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-12-BSV5	1602627-008A	Soil	02/15/2016 10:22	GC10	116790
Analytes	Result	RL	DF	Date Analyzed	
1,1-Dichloropropene	ND	0.0050	1	02/22/2016 23:36	
cis-1,3-Dichloropropene	ND	0.0050	1	02/22/2016 23:36	
trans-1,3-Dichloropropene	ND	0.0050	1	02/22/2016 23:36	
Diisopropyl ether (DIPE)	ND	0.0050	1	02/22/2016 23:36	
Ethylbenzene	ND	0.0050	1	02/22/2016 23:36	
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/22/2016 23:36	
Freon 113	ND	0.0050	1	02/22/2016 23:36	
Hexachlorobutadiene	ND	0.0050	1	02/22/2016 23:36	
Hexachloroethane	ND	0.0050	1	02/22/2016 23:36	
2-Hexanone	ND	0.0050	1	02/22/2016 23:36	
Isopropylbenzene	ND	0.0050	1	02/22/2016 23:36	
4-Isopropyl toluene	ND	0.0050	1	02/22/2016 23:36	
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/22/2016 23:36	
Methylene chloride	ND	0.0050	1	02/22/2016 23:36	
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/22/2016 23:36	
Naphthalene	ND	0.0050	1	02/22/2016 23:36	
n-Propyl benzene	0.0076	0.0050	1	02/22/2016 23:36	
Styrene	ND	0.0050	1	02/22/2016 23:36	
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/22/2016 23:36	
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/22/2016 23:36	
Tetrachloroethene	ND	0.0050	1	02/22/2016 23:36	
Toluene	ND	0.0050	1	02/22/2016 23:36	
1,2,3-Trichlorobenzene	ND	0.0050	1	02/22/2016 23:36	
1,2,4-Trichlorobenzene	ND	0.0050	1	02/22/2016 23:36	
1,1,1-Trichloroethane	ND	0.0050	1	02/22/2016 23:36	
1,1,2-Trichloroethane	ND	0.0050	1	02/22/2016 23:36	
Trichloroethene	ND	0.0050	1	02/22/2016 23:36	
Trichlorofluoromethane	ND	0.0050	1	02/22/2016 23:36	
1,2,3-Trichloropropane	ND	0.0050	1	02/22/2016 23:36	
1,2,4-Trimethylbenzene	ND	0.0050	1	02/22/2016 23:36	
1,3,5-Trimethylbenzene	ND	0.0050	1	02/22/2016 23:36	
Vinyl Chloride	ND	0.0050	1	02/22/2016 23:36	
Xylenes, Total	ND	0.0050	1	02/22/2016 23:36	

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-12-BSV5	1602627-008A	Soil	02/15/2016 10:22	GC10	116790

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	102	70-130		02/22/2016 23:36
Toluene-d8	120	70-130		02/22/2016 23:36
4-BFB	120	70-130		02/22/2016 23:36
Benzene-d6	100	60-140		02/22/2016 23:36
Ethylbenzene-d10	118	60-140		02/22/2016 23:36
1,2-DCB-d4	95	60-140		02/22/2016 23:36

Analyst(s): KF



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-15-BSV5	1602627-009A	Soil	02/15/2016 10:28	GC18	116790

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	1.0	10	02/23/2016 13:08
tert-Amyl methyl ether (TAME)	ND	0.050	10	02/23/2016 13:08
Benzene	ND	0.050	10	02/23/2016 13:08
Bromobenzene	ND	0.050	10	02/23/2016 13:08
Bromochloromethane	ND	0.050	10	02/23/2016 13:08
Bromodichloromethane	ND	0.050	10	02/23/2016 13:08
Bromoform	ND	0.050	10	02/23/2016 13:08
Bromomethane	ND	0.050	10	02/23/2016 13:08
2-Butanone (MEK)	ND	0.20	10	02/23/2016 13:08
t-Butyl alcohol (TBA)	ND	0.50	10	02/23/2016 13:08
n-Butyl benzene	0.059	0.050	10	02/23/2016 13:08
sec-Butyl benzene	ND	0.050	10	02/23/2016 13:08
tert-Butyl benzene	ND	0.050	10	02/23/2016 13:08
Carbon Disulfide	ND	0.050	10	02/23/2016 13:08
Carbon Tetrachloride	ND	0.050	10	02/23/2016 13:08
Chlorobenzene	ND	0.050	10	02/23/2016 13:08
Chloroethane	ND	0.050	10	02/23/2016 13:08
Chloroform	ND	0.050	10	02/23/2016 13:08
Chloromethane	ND	0.050	10	02/23/2016 13:08
2-Chlorotoluene	ND	0.050	10	02/23/2016 13:08
4-Chlorotoluene	ND	0.050	10	02/23/2016 13:08
Dibromochloromethane	ND	0.050	10	02/23/2016 13:08
1,2-Dibromo-3-chloropropane	ND	0.040	10	02/23/2016 13:08
1,2-Dibromoethane (EDB)	ND	0.040	10	02/23/2016 13:08
Dibromomethane	ND	0.050	10	02/23/2016 13:08
1,2-Dichlorobenzene	ND	0.050	10	02/23/2016 13:08
1,3-Dichlorobenzene	ND	0.050	10	02/23/2016 13:08
1,4-Dichlorobenzene	ND	0.050	10	02/23/2016 13:08
Dichlorodifluoromethane	ND	0.050	10	02/23/2016 13:08
1,1-Dichloroethane	ND	0.050	10	02/23/2016 13:08
1,2-Dichloroethane (1,2-DCA)	ND	0.040	10	02/23/2016 13:08
1,1-Dichloroethene	ND	0.050	10	02/23/2016 13:08
cis-1,2-Dichloroethene	ND	0.050	10	02/23/2016 13:08
trans-1,2-Dichloroethene	ND	0.050	10	02/23/2016 13:08
1,2-Dichloropropane	ND	0.050	10	02/23/2016 13:08
1,3-Dichloropropane	ND	0.050	10	02/23/2016 13:08
2,2-Dichloropropane	ND	0.050	10	02/23/2016 13:08

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-15-BSV5	1602627-009A	Soil	02/15/2016 10:28	GC18	116790

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.050	10	02/23/2016 13:08
cis-1,3-Dichloropropene	ND	0.050	10	02/23/2016 13:08
trans-1,3-Dichloropropene	ND	0.050	10	02/23/2016 13:08
Diisopropyl ether (DIPE)	ND	0.050	10	02/23/2016 13:08
Ethylbenzene	ND	0.050	10	02/23/2016 13:08
Ethyl tert-butyl ether (ETBE)	ND	0.050	10	02/23/2016 13:08
Freon 113	ND	0.050	10	02/23/2016 13:08
Hexachlorobutadiene	ND	0.050	10	02/23/2016 13:08
Hexachloroethane	ND	0.050	10	02/23/2016 13:08
2-Hexanone	ND	0.050	10	02/23/2016 13:08
Isopropylbenzene	ND	0.050	10	02/23/2016 13:08
4-Isopropyl toluene	ND	0.050	10	02/23/2016 13:08
Methyl-t-butyl ether (MTBE)	ND	0.050	10	02/23/2016 13:08
Methylene chloride	ND	0.050	10	02/23/2016 13:08
4-Methyl-2-pentanone (MIBK)	ND	0.050	10	02/23/2016 13:08
Naphthalene	ND	0.050	10	02/23/2016 13:08
n-Propyl benzene	0.079	0.050	10	02/23/2016 13:08
Styrene	ND	0.050	10	02/23/2016 13:08
1,1,1,2-Tetrachloroethane	ND	0.050	10	02/23/2016 13:08
1,1,2,2-Tetrachloroethane	ND	0.050	10	02/23/2016 13:08
Tetrachloroethene	ND	0.050	10	02/23/2016 13:08
Toluene	ND	0.050	10	02/23/2016 13:08
1,2,3-Trichlorobenzene	ND	0.050	10	02/23/2016 13:08
1,2,4-Trichlorobenzene	ND	0.050	10	02/23/2016 13:08
1,1,1-Trichloroethane	ND	0.050	10	02/23/2016 13:08
1,1,2-Trichloroethane	ND	0.050	10	02/23/2016 13:08
Trichloroethene	ND	0.050	10	02/23/2016 13:08
Trichlorofluoromethane	ND	0.050	10	02/23/2016 13:08
1,2,3-Trichloropropane	ND	0.050	10	02/23/2016 13:08
1,2,4-Trimethylbenzene	ND	0.050	10	02/23/2016 13:08
1,3,5-Trimethylbenzene	ND	0.050	10	02/23/2016 13:08
Vinyl Chloride	ND	0.050	10	02/23/2016 13:08
Xylenes, Total	ND	0.050	10	02/23/2016 13:08

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-15-BSV5	1602627-009A	Soil	02/15/2016 10:28	GC18	116790

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	118	70-130		02/23/2016 13:08
Toluene-d8	96	70-130		02/23/2016 13:08
4-BFB	87	70-130		02/23/2016 13:08
Benzene-d6	117	60-140		02/23/2016 13:08
Ethylbenzene-d10	128	60-140		02/23/2016 13:08
1,2-DCB-d4	134	60-140		02/23/2016 13:08

Analyst(s): KF



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-8½-BSV6	1602627-010A	Soil	02/15/2016 13:35	GC10	116790

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/22/2016 15:30
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/22/2016 15:30
Benzene	ND	0.0050	1	02/22/2016 15:30
Bromobenzene	ND	0.0050	1	02/22/2016 15:30
Bromochloromethane	ND	0.0050	1	02/22/2016 15:30
Bromodichloromethane	ND	0.0050	1	02/22/2016 15:30
Bromoform	ND	0.0050	1	02/22/2016 15:30
Bromomethane	ND	0.0050	1	02/22/2016 15:30
2-Butanone (MEK)	ND	0.020	1	02/22/2016 15:30
t-Butyl alcohol (TBA)	ND	0.050	1	02/22/2016 15:30
n-Butyl benzene	ND	0.0050	1	02/22/2016 15:30
sec-Butyl benzene	ND	0.0050	1	02/22/2016 15:30
tert-Butyl benzene	ND	0.0050	1	02/22/2016 15:30
Carbon Disulfide	ND	0.0050	1	02/22/2016 15:30
Carbon Tetrachloride	ND	0.0050	1	02/22/2016 15:30
Chlorobenzene	ND	0.0050	1	02/22/2016 15:30
Chloroethane	ND	0.0050	1	02/22/2016 15:30
Chloroform	ND	0.0050	1	02/22/2016 15:30
Chloromethane	ND	0.0050	1	02/22/2016 15:30
2-Chlorotoluene	ND	0.0050	1	02/22/2016 15:30
4-Chlorotoluene	ND	0.0050	1	02/22/2016 15:30
Dibromochloromethane	ND	0.0050	1	02/22/2016 15:30
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/22/2016 15:30
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/22/2016 15:30
Dibromomethane	ND	0.0050	1	02/22/2016 15:30
1,2-Dichlorobenzene	ND	0.0050	1	02/22/2016 15:30
1,3-Dichlorobenzene	ND	0.0050	1	02/22/2016 15:30
1,4-Dichlorobenzene	ND	0.0050	1	02/22/2016 15:30
Dichlorodifluoromethane	ND	0.0050	1	02/22/2016 15:30
1,1-Dichloroethane	ND	0.0050	1	02/22/2016 15:30
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/22/2016 15:30
1,1-Dichloroethene	ND	0.0050	1	02/22/2016 15:30
cis-1,2-Dichloroethene	ND	0.0050	1	02/22/2016 15:30
trans-1,2-Dichloroethene	ND	0.0050	1	02/22/2016 15:30
1,2-Dichloropropane	ND	0.0050	1	02/22/2016 15:30
1,3-Dichloropropane	ND	0.0050	1	02/22/2016 15:30
2,2-Dichloropropane	ND	0.0050	1	02/22/2016 15:30

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-8½-BSV6	1602627-010A	Soil	02/15/2016 13:35	GC10	116790

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/22/2016 15:30
cis-1,3-Dichloropropene	ND	0.0050	1	02/22/2016 15:30
trans-1,3-Dichloropropene	ND	0.0050	1	02/22/2016 15:30
Diisopropyl ether (DIPE)	ND	0.0050	1	02/22/2016 15:30
Ethylbenzene	ND	0.0050	1	02/22/2016 15:30
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/22/2016 15:30
Freon 113	ND	0.0050	1	02/22/2016 15:30
Hexachlorobutadiene	ND	0.0050	1	02/22/2016 15:30
Hexachloroethane	ND	0.0050	1	02/22/2016 15:30
2-Hexanone	ND	0.0050	1	02/22/2016 15:30
Isopropylbenzene	ND	0.0050	1	02/22/2016 15:30
4-Isopropyl toluene	ND	0.0050	1	02/22/2016 15:30
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/22/2016 15:30
Methylene chloride	ND	0.0050	1	02/22/2016 15:30
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/22/2016 15:30
Naphthalene	ND	0.0050	1	02/22/2016 15:30
n-Propyl benzene	ND	0.0050	1	02/22/2016 15:30
Styrene	ND	0.0050	1	02/22/2016 15:30
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/22/2016 15:30
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/22/2016 15:30
Tetrachloroethene	ND	0.0050	1	02/22/2016 15:30
Toluene	ND	0.0050	1	02/22/2016 15:30
1,2,3-Trichlorobenzene	ND	0.0050	1	02/22/2016 15:30
1,2,4-Trichlorobenzene	ND	0.0050	1	02/22/2016 15:30
1,1,1-Trichloroethane	ND	0.0050	1	02/22/2016 15:30
1,1,2-Trichloroethane	ND	0.0050	1	02/22/2016 15:30
Trichloroethene	ND	0.0050	1	02/22/2016 15:30
Trichlorofluoromethane	ND	0.0050	1	02/22/2016 15:30
1,2,3-Trichloropropane	ND	0.0050	1	02/22/2016 15:30
1,2,4-Trimethylbenzene	ND	0.0050	1	02/22/2016 15:30
1,3,5-Trimethylbenzene	ND	0.0050	1	02/22/2016 15:30
Vinyl Chloride	ND	0.0050	1	02/22/2016 15:30
Xylenes, Total	ND	0.0050	1	02/22/2016 15:30

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-8½-BSV6	1602627-010A	Soil	02/15/2016 13:35	GC10	116790

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	106	70-130		02/22/2016 15:30
Toluene-d8	121	70-130		02/22/2016 15:30
4-BFB	93	70-130		02/22/2016 15:30
Benzene-d6	112	60-140		02/22/2016 15:30
Ethylbenzene-d10	127	60-140		02/22/2016 15:30
1,2-DCB-d4	103	60-140		02/22/2016 15:30

Analyst(s): AK



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-11½-BSV6	1602627-011A	Soil	02/15/2016 13:39	GC10	116790
Analytes	Result	RL	DF	Date Analyzed	
Acetone	ND	0.10	1	02/22/2016 19:35	
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/22/2016 19:35	
Benzene	ND	0.0050	1	02/22/2016 19:35	
Bromobenzene	ND	0.0050	1	02/22/2016 19:35	
Bromochloromethane	ND	0.0050	1	02/22/2016 19:35	
Bromodichloromethane	ND	0.0050	1	02/22/2016 19:35	
Bromoform	ND	0.0050	1	02/22/2016 19:35	
Bromomethane	ND	0.0050	1	02/22/2016 19:35	
2-Butanone (MEK)	ND	0.020	1	02/22/2016 19:35	
t-Butyl alcohol (TBA)	ND	0.050	1	02/22/2016 19:35	
n-Butyl benzene	ND	0.0050	1	02/22/2016 19:35	
sec-Butyl benzene	ND	0.0050	1	02/22/2016 19:35	
tert-Butyl benzene	ND	0.0050	1	02/22/2016 19:35	
Carbon Disulfide	ND	0.0050	1	02/22/2016 19:35	
Carbon Tetrachloride	ND	0.0050	1	02/22/2016 19:35	
Chlorobenzene	ND	0.0050	1	02/22/2016 19:35	
Chloroethane	ND	0.0050	1	02/22/2016 19:35	
Chloroform	ND	0.0050	1	02/22/2016 19:35	
Chloromethane	ND	0.0050	1	02/22/2016 19:35	
2-Chlorotoluene	ND	0.0050	1	02/22/2016 19:35	
4-Chlorotoluene	ND	0.0050	1	02/22/2016 19:35	
Dibromochloromethane	ND	0.0050	1	02/22/2016 19:35	
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/22/2016 19:35	
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/22/2016 19:35	
Dibromomethane	ND	0.0050	1	02/22/2016 19:35	
1,2-Dichlorobenzene	ND	0.0050	1	02/22/2016 19:35	
1,3-Dichlorobenzene	ND	0.0050	1	02/22/2016 19:35	
1,4-Dichlorobenzene	ND	0.0050	1	02/22/2016 19:35	
Dichlorodifluoromethane	ND	0.0050	1	02/22/2016 19:35	
1,1-Dichloroethane	ND	0.0050	1	02/22/2016 19:35	
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/22/2016 19:35	
1,1-Dichloroethene	ND	0.0050	1	02/22/2016 19:35	
cis-1,2-Dichloroethene	ND	0.0050	1	02/22/2016 19:35	
trans-1,2-Dichloroethene	ND	0.0050	1	02/22/2016 19:35	
1,2-Dichloropropane	ND	0.0050	1	02/22/2016 19:35	
1,3-Dichloropropane	ND	0.0050	1	02/22/2016 19:35	
2,2-Dichloropropane	ND	0.0050	1	02/22/2016 19:35	

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-11½-BSV6	1602627-011A	Soil	02/15/2016 13:39	GC10	116790

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/22/2016 19:35
cis-1,3-Dichloropropene	ND	0.0050	1	02/22/2016 19:35
trans-1,3-Dichloropropene	ND	0.0050	1	02/22/2016 19:35
Diisopropyl ether (DIPE)	ND	0.0050	1	02/22/2016 19:35
Ethylbenzene	ND	0.0050	1	02/22/2016 19:35
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/22/2016 19:35
Freon 113	ND	0.0050	1	02/22/2016 19:35
Hexachlorobutadiene	ND	0.0050	1	02/22/2016 19:35
Hexachloroethane	ND	0.0050	1	02/22/2016 19:35
2-Hexanone	ND	0.0050	1	02/22/2016 19:35
Isopropylbenzene	ND	0.0050	1	02/22/2016 19:35
4-Isopropyl toluene	ND	0.0050	1	02/22/2016 19:35
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/22/2016 19:35
Methylene chloride	ND	0.0050	1	02/22/2016 19:35
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/22/2016 19:35
Naphthalene	ND	0.0050	1	02/22/2016 19:35
n-Propyl benzene	ND	0.0050	1	02/22/2016 19:35
Styrene	ND	0.0050	1	02/22/2016 19:35
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/22/2016 19:35
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/22/2016 19:35
Tetrachloroethene	ND	0.0050	1	02/22/2016 19:35
Toluene	ND	0.0050	1	02/22/2016 19:35
1,2,3-Trichlorobenzene	ND	0.0050	1	02/22/2016 19:35
1,2,4-Trichlorobenzene	ND	0.0050	1	02/22/2016 19:35
1,1,1-Trichloroethane	ND	0.0050	1	02/22/2016 19:35
1,1,2-Trichloroethane	ND	0.0050	1	02/22/2016 19:35
Trichloroethene	ND	0.0050	1	02/22/2016 19:35
Trichlorofluoromethane	ND	0.0050	1	02/22/2016 19:35
1,2,3-Trichloropropane	ND	0.0050	1	02/22/2016 19:35
1,2,4-Trimethylbenzene	ND	0.0050	1	02/22/2016 19:35
1,3,5-Trimethylbenzene	ND	0.0050	1	02/22/2016 19:35
Vinyl Chloride	ND	0.0050	1	02/22/2016 19:35
Xylenes, Total	ND	0.0050	1	02/22/2016 19:35

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-11½-BSV6	1602627-011A	Soil	02/15/2016 13:39	GC10	116790

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	107	70-130		02/22/2016 19:35
Toluene-d8	120	70-130		02/22/2016 19:35
4-BFB	91	70-130		02/22/2016 19:35
Benzene-d6	115	60-140		02/22/2016 19:35
Ethylbenzene-d10	130	60-140		02/22/2016 19:35
1,2-DCB-d4	106	60-140		02/22/2016 19:35

Analyst(s): KF



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-5½-BSV7	1602627-012A	Soil	02/15/2016 14:16	GC10	116790

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/20/2016 19:49
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/20/2016 19:49
Benzene	ND	0.0050	1	02/20/2016 19:49
Bromobenzene	ND	0.0050	1	02/20/2016 19:49
Bromochloromethane	ND	0.0050	1	02/20/2016 19:49
Bromodichloromethane	ND	0.0050	1	02/20/2016 19:49
Bromoform	ND	0.0050	1	02/20/2016 19:49
Bromomethane	ND	0.0050	1	02/20/2016 19:49
2-Butanone (MEK)	ND	0.020	1	02/20/2016 19:49
t-Butyl alcohol (TBA)	ND	0.050	1	02/20/2016 19:49
n-Butyl benzene	ND	0.0050	1	02/20/2016 19:49
sec-Butyl benzene	ND	0.0050	1	02/20/2016 19:49
tert-Butyl benzene	ND	0.0050	1	02/20/2016 19:49
Carbon Disulfide	ND	0.0050	1	02/20/2016 19:49
Carbon Tetrachloride	ND	0.0050	1	02/20/2016 19:49
Chlorobenzene	ND	0.0050	1	02/20/2016 19:49
Chloroethane	ND	0.0050	1	02/20/2016 19:49
Chloroform	ND	0.0050	1	02/20/2016 19:49
Chloromethane	ND	0.0050	1	02/20/2016 19:49
2-Chlorotoluene	ND	0.0050	1	02/20/2016 19:49
4-Chlorotoluene	ND	0.0050	1	02/20/2016 19:49
Dibromochloromethane	ND	0.0050	1	02/20/2016 19:49
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/20/2016 19:49
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/20/2016 19:49
Dibromomethane	ND	0.0050	1	02/20/2016 19:49
1,2-Dichlorobenzene	ND	0.0050	1	02/20/2016 19:49
1,3-Dichlorobenzene	ND	0.0050	1	02/20/2016 19:49
1,4-Dichlorobenzene	ND	0.0050	1	02/20/2016 19:49
Dichlorodifluoromethane	ND	0.0050	1	02/20/2016 19:49
1,1-Dichloroethane	ND	0.0050	1	02/20/2016 19:49
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/20/2016 19:49
1,1-Dichloroethene	ND	0.0050	1	02/20/2016 19:49
cis-1,2-Dichloroethene	ND	0.0050	1	02/20/2016 19:49
trans-1,2-Dichloroethene	ND	0.0050	1	02/20/2016 19:49
1,2-Dichloropropane	ND	0.0050	1	02/20/2016 19:49
1,3-Dichloropropane	ND	0.0050	1	02/20/2016 19:49
2,2-Dichloropropane	ND	0.0050	1	02/20/2016 19:49

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-5½-BSV7	1602627-012A	Soil	02/15/2016 14:16	GC10	116790

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/20/2016 19:49
cis-1,3-Dichloropropene	ND	0.0050	1	02/20/2016 19:49
trans-1,3-Dichloropropene	ND	0.0050	1	02/20/2016 19:49
Diisopropyl ether (DIPE)	ND	0.0050	1	02/20/2016 19:49
Ethylbenzene	ND	0.0050	1	02/20/2016 19:49
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/20/2016 19:49
Freon 113	ND	0.0050	1	02/20/2016 19:49
Hexachlorobutadiene	ND	0.0050	1	02/20/2016 19:49
Hexachloroethane	ND	0.0050	1	02/20/2016 19:49
2-Hexanone	ND	0.0050	1	02/20/2016 19:49
Isopropylbenzene	ND	0.0050	1	02/20/2016 19:49
4-Isopropyl toluene	ND	0.0050	1	02/20/2016 19:49
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/20/2016 19:49
Methylene chloride	ND	0.0050	1	02/20/2016 19:49
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/20/2016 19:49
Naphthalene	ND	0.0050	1	02/20/2016 19:49
n-Propyl benzene	ND	0.0050	1	02/20/2016 19:49
Styrene	ND	0.0050	1	02/20/2016 19:49
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/20/2016 19:49
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/20/2016 19:49
Tetrachloroethene	ND	0.0050	1	02/20/2016 19:49
Toluene	ND	0.0050	1	02/20/2016 19:49
1,2,3-Trichlorobenzene	ND	0.0050	1	02/20/2016 19:49
1,2,4-Trichlorobenzene	ND	0.0050	1	02/20/2016 19:49
1,1,1-Trichloroethane	ND	0.0050	1	02/20/2016 19:49
1,1,2-Trichloroethane	ND	0.0050	1	02/20/2016 19:49
Trichloroethene	ND	0.0050	1	02/20/2016 19:49
Trichlorofluoromethane	ND	0.0050	1	02/20/2016 19:49
1,2,3-Trichloropropane	ND	0.0050	1	02/20/2016 19:49
1,2,4-Trimethylbenzene	ND	0.0050	1	02/20/2016 19:49
1,3,5-Trimethylbenzene	ND	0.0050	1	02/20/2016 19:49
Vinyl Chloride	ND	0.0050	1	02/20/2016 19:49
Xylenes, Total	ND	0.0050	1	02/20/2016 19:49

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-5½-BSV7	1602627-012A	Soil	02/15/2016 14:16	GC10	116790

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	105	70-130		02/20/2016 19:49
Toluene-d8	123	70-130		02/20/2016 19:49
4-BFB	92	70-130		02/20/2016 19:49
Benzene-d6	114	60-140		02/20/2016 19:49
Ethylbenzene-d10	132	60-140		02/20/2016 19:49
1,2-DCB-d4	107	60-140		02/20/2016 19:49

Analyst(s): AK



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-10½-BSV7	1602627-013A	Soil	02/15/2016 14:20	GC10	116790

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/22/2016 18:15
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/22/2016 18:15
Benzene	ND	0.0050	1	02/22/2016 18:15
Bromobenzene	ND	0.0050	1	02/22/2016 18:15
Bromochloromethane	ND	0.0050	1	02/22/2016 18:15
Bromodichloromethane	ND	0.0050	1	02/22/2016 18:15
Bromoform	ND	0.0050	1	02/22/2016 18:15
Bromomethane	ND	0.0050	1	02/22/2016 18:15
2-Butanone (MEK)	ND	0.020	1	02/22/2016 18:15
t-Butyl alcohol (TBA)	ND	0.050	1	02/22/2016 18:15
n-Butyl benzene	ND	0.0050	1	02/22/2016 18:15
sec-Butyl benzene	ND	0.0050	1	02/22/2016 18:15
tert-Butyl benzene	ND	0.0050	1	02/22/2016 18:15
Carbon Disulfide	ND	0.0050	1	02/22/2016 18:15
Carbon Tetrachloride	ND	0.0050	1	02/22/2016 18:15
Chlorobenzene	ND	0.0050	1	02/22/2016 18:15
Chloroethane	ND	0.0050	1	02/22/2016 18:15
Chloroform	ND	0.0050	1	02/22/2016 18:15
Chloromethane	ND	0.0050	1	02/22/2016 18:15
2-Chlorotoluene	ND	0.0050	1	02/22/2016 18:15
4-Chlorotoluene	ND	0.0050	1	02/22/2016 18:15
Dibromochloromethane	ND	0.0050	1	02/22/2016 18:15
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/22/2016 18:15
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/22/2016 18:15
Dibromomethane	ND	0.0050	1	02/22/2016 18:15
1,2-Dichlorobenzene	ND	0.0050	1	02/22/2016 18:15
1,3-Dichlorobenzene	ND	0.0050	1	02/22/2016 18:15
1,4-Dichlorobenzene	ND	0.0050	1	02/22/2016 18:15
Dichlorodifluoromethane	ND	0.0050	1	02/22/2016 18:15
1,1-Dichloroethane	ND	0.0050	1	02/22/2016 18:15
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/22/2016 18:15
1,1-Dichloroethene	ND	0.0050	1	02/22/2016 18:15
cis-1,2-Dichloroethene	ND	0.0050	1	02/22/2016 18:15
trans-1,2-Dichloroethene	ND	0.0050	1	02/22/2016 18:15
1,2-Dichloropropane	ND	0.0050	1	02/22/2016 18:15
1,3-Dichloropropane	ND	0.0050	1	02/22/2016 18:15
2,2-Dichloropropane	ND	0.0050	1	02/22/2016 18:15

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-10½-BSV7	1602627-013A	Soil	02/15/2016 14:20	GC10	116790

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/22/2016 18:15
cis-1,3-Dichloropropene	ND	0.0050	1	02/22/2016 18:15
trans-1,3-Dichloropropene	ND	0.0050	1	02/22/2016 18:15
Diisopropyl ether (DIPE)	ND	0.0050	1	02/22/2016 18:15
Ethylbenzene	ND	0.0050	1	02/22/2016 18:15
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/22/2016 18:15
Freon 113	ND	0.0050	1	02/22/2016 18:15
Hexachlorobutadiene	ND	0.0050	1	02/22/2016 18:15
Hexachloroethane	ND	0.0050	1	02/22/2016 18:15
2-Hexanone	ND	0.0050	1	02/22/2016 18:15
Isopropylbenzene	ND	0.0050	1	02/22/2016 18:15
4-Isopropyl toluene	ND	0.0050	1	02/22/2016 18:15
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/22/2016 18:15
Methylene chloride	ND	0.0050	1	02/22/2016 18:15
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/22/2016 18:15
Naphthalene	ND	0.0050	1	02/22/2016 18:15
n-Propyl benzene	ND	0.0050	1	02/22/2016 18:15
Styrene	ND	0.0050	1	02/22/2016 18:15
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/22/2016 18:15
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/22/2016 18:15
Tetrachloroethene	ND	0.0050	1	02/22/2016 18:15
Toluene	ND	0.0050	1	02/22/2016 18:15
1,2,3-Trichlorobenzene	ND	0.0050	1	02/22/2016 18:15
1,2,4-Trichlorobenzene	ND	0.0050	1	02/22/2016 18:15
1,1,1-Trichloroethane	ND	0.0050	1	02/22/2016 18:15
1,1,2-Trichloroethane	ND	0.0050	1	02/22/2016 18:15
Trichloroethene	ND	0.0050	1	02/22/2016 18:15
Trichlorofluoromethane	ND	0.0050	1	02/22/2016 18:15
1,2,3-Trichloropropane	ND	0.0050	1	02/22/2016 18:15
1,2,4-Trimethylbenzene	ND	0.0050	1	02/22/2016 18:15
1,3,5-Trimethylbenzene	ND	0.0050	1	02/22/2016 18:15
Vinyl Chloride	ND	0.0050	1	02/22/2016 18:15
Xylenes, Total	ND	0.0050	1	02/22/2016 18:15

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-10½-BSV7	1602627-013A	Soil	02/15/2016 14:20	GC10	116790

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
Dibromofluoromethane	106	70-130		02/22/2016 18:15
Toluene-d8	119	70-130		02/22/2016 18:15
4-BFB	90	70-130		02/22/2016 18:15
Benzene-d6	97	60-140		02/22/2016 18:15
Ethylbenzene-d10	117	60-140		02/22/2016 18:15
1,2-DCB-d4	101	60-140		02/22/2016 18:15

Analyst(s): KF



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/18/16
Project: 15166; EBALDC

WorkOrder: 1602627
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode by GC/MS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-15-BSV5	1602627-009A	Soil	02/15/2016 10:28	GC35	116899

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.050	5	02/19/2016 16:17
Acenaphthylene	ND	0.050	5	02/19/2016 16:17
Anthracene	ND	0.050	5	02/19/2016 16:17
Benzo (a) anthracene	ND	0.050	5	02/19/2016 16:17
Benzo (a) pyrene	ND	0.050	5	02/19/2016 16:17
Benzo (b) fluoranthene	ND	0.050	5	02/19/2016 16:17
Benzo (g,h,i) perylene	ND	0.050	5	02/19/2016 16:17
Benzo (k) fluoranthene	ND	0.050	5	02/19/2016 16:17
Chrysene	ND	0.050	5	02/19/2016 16:17
Dibenzo (a,h) anthracene	ND	0.050	5	02/19/2016 16:17
Fluoranthene	0.058	0.050	5	02/19/2016 16:17
Fluorene	0.068	0.050	5	02/19/2016 16:17
Indeno (1,2,3-cd) pyrene	ND	0.050	5	02/19/2016 16:17
1-Methylnaphthalene	ND	0.050	5	02/19/2016 16:17
2-Methylnaphthalene	ND	0.050	5	02/19/2016 16:17
Naphthalene	ND	0.050	5	02/19/2016 16:17
Phenanthrene	0.23	0.050	5	02/19/2016 16:17
Pyrene	0.079	0.050	5	02/19/2016 16:17

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
1-Fluoronaphthalene	137	S	30-130	02/19/2016 16:17
2-Fluorobiphenyl	106		30-130	02/19/2016 16:17

Analyst(s): HK

Analytical Comments: c4



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-4-BSV1	1602627-001A	Soil	02/15/2016 07:55	GC19	116789

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	42	5.0	5	02/22/2016 12:55
MTBE	---	0.25	5	02/22/2016 12:55
Benzene	---	0.025	5	02/22/2016 12:55
Toluene	---	0.025	5	02/22/2016 12:55
Ethylbenzene	---	0.025	5	02/22/2016 12:55
Xylenes	---	0.075	5	02/22/2016 12:55

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	124	70-130	02/22/2016 12:55

Analyst(s): IA

Analytical Comments: d7,d9

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-13-BSV1	1602627-002A	Soil	02/15/2016 07:59	GC19	116789

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/20/2016 14:57
MTBE	---	0.050	1	02/20/2016 14:57
Benzene	---	0.0050	1	02/20/2016 14:57
Toluene	---	0.0050	1	02/20/2016 14:57
Ethylbenzene	---	0.0050	1	02/20/2016 14:57
Xylenes	---	0.015	1	02/20/2016 14:57

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	98	70-130	02/20/2016 14:57

Analyst(s): IA

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-12-BSV2	1602627-003A	Soil	02/15/2016 13:04	GC19	116789

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	9.5	1.0	1	02/20/2016 15:27
MTBE	---	0.050	1	02/20/2016 15:27
Benzene	---	0.0050	1	02/20/2016 15:27
Toluene	---	0.0050	1	02/20/2016 15:27
Ethylbenzene	---	0.0050	1	02/20/2016 15:27
Xylenes	---	0.015	1	02/20/2016 15:27

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	89	70-130	02/20/2016 15:27

Analyst(s): IA Analytical Comments: d7

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-13-BSV3	1602627-004A	Soil	02/15/2016 10:12	GC19	116789

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/20/2016 15:58
MTBE	---	0.050	1	02/20/2016 15:58
Benzene	---	0.0050	1	02/20/2016 15:58
Toluene	---	0.0050	1	02/20/2016 15:58
Ethylbenzene	---	0.0050	1	02/20/2016 15:58
Xylenes	---	0.015	1	02/20/2016 15:58

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	96	70-130	02/20/2016 15:58

Analyst(s): IA

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
B-16-BSV3	1602627-005A	Soil	02/15/2016 10:16	GC19	116789

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/20/2016 16:29
MTBE	---	0.050	1	02/20/2016 16:29
Benzene	---	0.0050	1	02/20/2016 16:29
Toluene	---	0.0050	1	02/20/2016 16:29
Ethylbenzene	---	0.0050	1	02/20/2016 16:29
Xylenes	---	0.015	1	02/20/2016 16:29
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorotoluene	99	70-130		02/20/2016 16:29

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-13-BSV4	1602627-006A	Soil	02/15/2016 09:20	GC19	116789

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/20/2016 16:59
MTBE	---	0.050	1	02/20/2016 16:59
Benzene	---	0.0050	1	02/20/2016 16:59
Toluene	---	0.0050	1	02/20/2016 16:59
Ethylbenzene	---	0.0050	1	02/20/2016 16:59
Xylenes	---	0.015	1	02/20/2016 16:59
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorotoluene	105	70-130		02/20/2016 16:59

Analyst(s): IA



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-16-BSV4	1602627-007A	Soil	02/15/2016 09:24	GC19	116793

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/20/2016 17:30
MTBE	---	0.050	1	02/20/2016 17:30
Benzene	---	0.0050	1	02/20/2016 17:30
Toluene	---	0.0050	1	02/20/2016 17:30
Ethylbenzene	---	0.0050	1	02/20/2016 17:30
Xylenes	---	0.015	1	02/20/2016 17:30
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorotoluene	102	70-130		02/20/2016 17:30

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-12-BSV5	1602627-008A	Soil	02/15/2016 10:22	GC19	116793

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	21	10	10	02/22/2016 13:56
MTBE	---	0.50	10	02/22/2016 13:56
Benzene	---	0.050	10	02/22/2016 13:56
Toluene	---	0.050	10	02/22/2016 13:56
Ethylbenzene	---	0.050	10	02/22/2016 13:56
Xylenes	---	0.15	10	02/22/2016 13:56
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorotoluene	116	70-130		02/22/2016 13:56

Analyst(s): IA

Analytical Comments: d7



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-15-BSV5	1602627-009A	Soil	02/15/2016 10:28	GC19	116793

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	150	10	10	02/22/2016 14:27
MTBE	---	0.50	10	02/22/2016 14:27
Benzene	---	0.050	10	02/22/2016 14:27
Toluene	---	0.050	10	02/22/2016 14:27
Ethylbenzene	---	0.050	10	02/22/2016 14:27
Xylenes	---	0.15	10	02/22/2016 14:27

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
2-Fluorotoluene	192	S	70-130	02/22/2016 14:27

Analyst(s): IA **Analytical Comments:** d7,d9,c4

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-8½-BSV6	1602627-010A	Soil	02/15/2016 13:35	GC19	116793

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/20/2016 18:00
MTBE	---	0.050	1	02/20/2016 18:00
Benzene	---	0.0050	1	02/20/2016 18:00
Toluene	---	0.0050	1	02/20/2016 18:00
Ethylbenzene	---	0.0050	1	02/20/2016 18:00
Xylenes	---	0.015	1	02/20/2016 18:00

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	100	70-130	02/20/2016 18:00

Analyst(s): IA

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-11½-BSV6	1602627-011A	Soil	02/15/2016 13:39	GC19	116793

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/20/2016 14:26
MTBE	---	0.050	1	02/20/2016 14:26
Benzene	---	0.0050	1	02/20/2016 14:26
Toluene	---	0.0050	1	02/20/2016 14:26
Ethylbenzene	---	0.0050	1	02/20/2016 14:26
Xylenes	---	0.015	1	02/20/2016 14:26
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorotoluene	99	70-130		02/20/2016 14:26

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5½-BSV7	1602627-012A	Soil	02/15/2016 14:16	GC19	116793

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/20/2016 18:44
MTBE	---	0.050	1	02/20/2016 18:44
Benzene	---	0.0050	1	02/20/2016 18:44
Toluene	---	0.0050	1	02/20/2016 18:44
Ethylbenzene	---	0.0050	1	02/20/2016 18:44
Xylenes	---	0.015	1	02/20/2016 18:44
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorotoluene	100	70-130		02/20/2016 18:44

Analyst(s): IA

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
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
S-10½-BSV7	1602627-013A	Soil	02/15/2016 14:20	GC19	116793

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/20/2016 19:14
MTBE	---	0.050	1	02/20/2016 19:14
Benzene	---	0.0050	1	02/20/2016 19:14
Toluene	---	0.0050	1	02/20/2016 19:14
Ethylbenzene	---	0.0050	1	02/20/2016 19:14
Xylenes	---	0.015	1	02/20/2016 19:14

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	95	70-130	02/20/2016 19:14

Analyst(s): IA



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
Extraction Method: SW3550B/3630C
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons with Silica Gel Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4-BSV1	1602627-001A	Soil	02/15/2016 07:55	GC9a	116791

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	7.1	1.0	1	02/18/2016 14:14
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/18/2016 14:14
Surrogates	REC (%)	Limits		
C9	89	70-130		02/18/2016 14:14
Analyst(s): TK		Analytical Comments: e11,e8		

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-13-BSV1	1602627-002A	Soil	02/15/2016 07:59	GC9a	116791

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/18/2016 14:52
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/18/2016 14:52
Surrogates	REC (%)	Limits		
C9	88	70-130		02/18/2016 14:52
Analyst(s): TK				

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-12-BSV2	1602627-003A	Soil	02/15/2016 13:04	GC9a	116791

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	1.7	1.0	1	02/20/2016 15:48
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/20/2016 15:48
Surrogates	REC (%)	Limits		
C9	89	70-130		02/20/2016 15:48
Analyst(s): TK		Analytical Comments: e8/e4		

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
Extraction Method: SW3550B/3630C
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons with Silica Gel Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-13-BSV3	1602627-004A	Soil	02/15/2016 10:12	GC9a	116791

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/20/2016 16:26
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/20/2016 16:26

Surrogates	REC (%)	Limits	Date Analyzed
C9	89	70-130	02/20/2016 16:26

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-16-BSV3	1602627-005A	Soil	02/15/2016 10:16	GC9a	116791

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/20/2016 17:44
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/20/2016 17:44

Surrogates	REC (%)	Limits	Date Analyzed
C9	89	70-130	02/20/2016 17:44

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-13-BSV4	1602627-006A	Soil	02/15/2016 09:20	GC9b	116791

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/19/2016 19:46
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/19/2016 19:46

Surrogates	REC (%)	Limits	Date Analyzed
C9	97	70-130	02/19/2016 19:46

Analyst(s): TK

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
Extraction Method: SW3550B/3630C
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons with Silica Gel Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-16-BSV4	1602627-007A	Soil	02/15/2016 09:24	GC9b	116791
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)	ND		1.0	1	02/19/2016 20:25
TPH-Motor Oil (C18-C36)	ND		5.0	1	02/19/2016 20:25
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
C9	97		70-130		02/19/2016 20:25
<u>Analyst(s):</u> TK					

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-12-BSV5	1602627-008A	Soil	02/15/2016 10:22	GC9a	116791
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)	73		1.0	1	02/18/2016 03:12
TPH-Motor Oil (C18-C36)	31		5.0	1	02/18/2016 03:12
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
C9	87		70-130		02/18/2016 03:12
<u>Analyst(s):</u> TK	<u>Analytical Comments:</u> e1				

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-15-BSV5	1602627-009A	Soil	02/15/2016 10:28	GC9b	116791
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)	190		1.0	1	02/18/2016 01:55
TPH-Motor Oil (C18-C36)	48		5.0	1	02/18/2016 01:55
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
C9	103		70-130		02/18/2016 01:55
<u>Analyst(s):</u> TK	<u>Analytical Comments:</u> e1,e8,e4				

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
Extraction Method: SW3550B/3630C
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons with Silica Gel Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-8½-BSV6	1602627-010A	Soil	02/15/2016 13:35	GC9a	116791

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/18/2016 08:22
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/18/2016 08:22
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
C9	86	70-130		02/18/2016 08:22

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-11½-BSV6	1602627-011A	Soil	02/15/2016 13:39	GC9a	116791

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/18/2016 09:01
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/18/2016 09:01
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
C9	87	70-130		02/18/2016 09:01

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5½-BSV7	1602627-012A	Soil	02/15/2016 14:16	GC9b	116791

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/19/2016 21:04
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/19/2016 21:04
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
C9	97	70-130		02/19/2016 21:04

Analyst(s): TK

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/17/16 10:22
Date Prepared: 2/17/16
Project: 15166; EBALDC

WorkOrder: 1602627
Extraction Method: SW3550B/3630C
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons with Silica Gel Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-10½-BSV7	1602627-013A	Soil	02/15/2016 14:20	GC9a	116792

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/18/2016 12:17
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/18/2016 12:17

Surrogates	REC (%)	Limits	Date Analyzed
C9	97	70-130	02/18/2016 12:17

Analyst(s): TK



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/17/16
Date Analyzed: 2/18/16
Instrument: GC16
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602627
BatchID: 116790
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/Kg
Sample ID: MB/LCS-116790
 1602626-013AMS/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	0.0435	0.0050	0.050	-	87	53-116
Benzene	ND	0.0480	0.0050	0.050	-	96	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	0.223	0.050	0.20	-	111	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	0.0461	0.0050	0.050	-	92	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	0.0438	0.0040	0.050	-	88	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	0.0501	0.0040	0.050	-	100	58-135
1,1-Dichloroethene	ND	0.0449	0.0050	0.050	-	90	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	-	-	-	-

(Cont.)



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/17/16
Date Analyzed: 2/18/16
Instrument: GC16
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602627
BatchID: 116790
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/Kg
Sample ID: MB/LCS-116790
 1602626-013AMS/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	0.0483	0.0050	0.050	-	97	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0474	0.0050	0.050	-	95	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	0.0462	0.0050	0.050	-	92	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	0.0485	0.0050	0.050	-	97	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	0.0469	0.0050	0.050	-	94	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	-	-	-	-

(Cont.)



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/17/16
Date Analyzed: 2/18/16
Instrument: GC16
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602627
BatchID: 116790
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/Kg
Sample ID: MB/LCS-116790
 1602626-013AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.122	0.126		0.12	97	101	70-130
Toluene-d8	0.153	0.152		0.12	123	122	70-130
4-BFB	0.0133	0.0153		0.012	106	122	70-130
Benzene-d6	0.102	0.110		0.10	102	110	60-140
Ethylbenzene-d10	0.110	0.131		0.10	110	131	60-140
1,2-DCB-d4	0.0718	0.0779		0.10	72	78	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)	0.0556	0.0565	0.050	ND	111,F1	113,F1	56-94	1.68	20
Benzene	0.0532	0.0540	0.050	ND	106	108,F1	60-106	1.52	20
t-Butyl alcohol (TBA)	0.229	0.233	0.20	ND	115	117	56-140	1.78	20
Chlorobenzene	0.0490	0.0504	0.050	ND	98	101	61-108	2.69	20
1,2-Dibromoethane (EDB)	0.0504	0.0509	0.050	ND	101	102	54-119	0.863	20
1,2-Dichloroethane (1,2-DCA)	0.0514	0.0523	0.050	ND	103	105	48-115	1.74	20
1,1-Dichloroethene	0.0468	0.0478	0.050	ND	94	96	46-111	2.04	20
Diisopropyl ether (DIPE)	0.0560	0.0571	0.050	ND	112,F1	114,F1	53-111	1.82	20
Ethyl tert-butyl ether (ETBE)	0.0553	0.0564	0.050	ND	111,F1	113,F1	61-104	1.89	20
Methyl-t-butyl ether (MTBE)	0.0528	0.0537	0.050	ND	106	107	58-107	1.71	20
Toluene	0.0458	0.0474	0.050	ND	92	95	64-114	3.38	20
Trichloroethene	0.0515	0.0517	0.050	ND	103	103	60-116	0	20

Surrogate Recovery									
Dibromofluoromethane	0.146	0.145	0.12		117	116	70-130	0.385	20
Toluene-d8	0.126	0.127	0.12		100	102	70-130	1.23	20
4-BFB	0.0126	0.0125	0.012		101	100	88-121	1.02	20
Benzene-d6	0.107	0.108	0.10		107	108	60-140	1.67	20
Ethylbenzene-d10	0.103	0.105	0.10		103	105	60-140	1.42	20
1,2-DCB-d4	0.101	0.105	0.10		101	105	60-140	4.52	20



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/18/16
Date Analyzed: 2/19/16
Instrument: GC35
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602627
BatchID: 116899
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg
Sample ID: MB/LCS-116899
 1602626-003AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	-	0.010	-	-	-	-
Acenaphthylene	ND	-	0.010	-	-	-	-
Anthracene	ND	-	0.010	-	-	-	-
Benzo (a) anthracene	ND	-	0.010	-	-	-	-
Benzo (a) pyrene	ND	0.136	0.010	0.20	-	68	30-130
Benzo (b) fluoranthene	ND	-	0.010	-	-	-	-
Benzo (g,h,i) perylene	ND	-	0.010	-	-	-	-
Benzo (k) fluoranthene	ND	-	0.010	-	-	-	-
Chrysene	ND	0.158	0.010	0.20	-	79	30-130
Dibenzo (a,h) anthracene	ND	-	0.010	-	-	-	-
Fluoranthene	ND	-	0.010	-	-	-	-
Fluorene	ND	-	0.010	-	-	-	-
Indeno (1,2,3-cd) pyrene	ND	-	0.010	-	-	-	-
1-Methylnaphthalene	ND	0.163	0.010	0.20	-	81	30-130
2-Methylnaphthalene	ND	0.166	0.010	0.20	-	83	30-130
Naphthalene	ND	-	0.010	-	-	-	-
Phenanthrene	ND	0.165	0.010	0.20	-	82	30-130
Pyrene	ND	0.151	0.010	0.20	-	75	30-130
Surrogate Recovery							
1-Fluoronaphthalene	0.550	0.523		0.50	110	105	30-130
2-Fluorobiphenyl	0.531	0.506		0.50	106	101	30-130



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/18/16
Date Analyzed: 2/19/16
Instrument: GC35
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602627
BatchID: 116899
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg
Sample ID: MB/LCS-116899
 1602626-003AMS/MSD

QC Summary Report for SW8270C

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Benzo (a) pyrene	NR	NR		ND<0.5	NR	NR	-	NR	
Chrysene	NR	NR		ND<0.5	NR	NR	-	NR	
1-Methylnaphthalene	NR	NR		2.8	NR	NR	-	NR	
2-Methylnaphthalene	NR	NR		1.3	NR	NR	-	NR	
Phenanthrene	NR	NR		0.52	NR	NR	-	NR	
Pyrene	NR	NR		ND<0.5	NR	NR	-	NR	
Surrogate Recovery									
1-Fluoronaphthalene	NR	NR			NR	NR	-	NR	
2-Fluorobiphenyl	NR	NR			NR	NR	-	NR	



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/17/16
Date Analyzed: 2/17/16
Instrument: GC19
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602627
BatchID: 116789
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS-116789
 1602626-007AMS/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	0.584	0.40	0.60	-	97	70-130
MTBE	ND	0.0841	0.050	0.10	-	84	70-130
Benzene	ND	0.103	0.0050	0.10	-	103	70-130
Toluene	ND	0.105	0.0050	0.10	-	105	70-130
Ethylbenzene	ND	0.105	0.0050	0.10	-	105	70-130
Xylenes	ND	0.338	0.015	0.30	-	113	70-130
Surrogate Recovery							
2-Fluorotoluene	0.118	0.109		0.10	118	109	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		ND<80	NR	NR	-	NR	
MTBE	NR	NR		ND<10	NR	NR	-	NR	
Benzene	NR	NR		ND<1	NR	NR	-	NR	
Toluene	NR	NR		ND<1	NR	NR	-	NR	
Ethylbenzene	NR	NR		ND<1	NR	NR	-	NR	
Xylenes	NR	NR		ND<3	NR	NR	-	NR	
Surrogate Recovery									
2-Fluorotoluene	NR	NR			NR	NR	-	NR	



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/17/16
Date Analyzed: 2/18/16
Instrument: GC7
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602627
BatchID: 116793
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS-116793
 1602627-012AMS/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	0.560	0.40	0.60	-	93	70-130
MTBE	ND	0.0773	0.050	0.10	-	77	70-130
Benzene	ND	0.0998	0.0050	0.10	-	100	70-130
Toluene	ND	0.0963	0.0050	0.10	-	96	70-130
Ethylbenzene	ND	0.0981	0.0050	0.10	-	98	70-130
Xylenes	ND	0.314	0.015	0.30	-	105	70-130

Surrogate Recovery

2-Fluorotoluene	0.106	0.110		0.10	106	110	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)	0.552	0.558	0.60	ND	92	93	70-130	1.06	20
MTBE	0.0754	0.0704	0.10	ND	75	70	70-130	6.90	20
Benzene	0.0946	0.0958	0.10	ND	95	96	70-130	1.29	20
Toluene	0.0958	0.0983	0.10	ND	96	98	70-130	2.58	20
Ethylbenzene	0.0970	0.100	0.10	ND	97	100	70-130	3.41	20
Xylenes	0.312	0.323	0.30	ND	104	108	70-130	3.43	20

Surrogate Recovery

2-Fluorotoluene	0.0990	0.101	0.10		99	101	70-130	1.93	20
-----------------	--------	-------	------	--	----	-----	--------	------	----



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/17/16
Date Analyzed: 2/18/16
Instrument: GC9b
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602627
BatchID: 116791
Extraction Method: SW3550B/3630C
Analytical Method: SW8015B
Unit: mg/Kg
Sample ID: MB/LCS-116791
 1602626-012AMS/MSD

QC Report for SW8015B with Silica Gel Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	45.9	1.0	40	-	115	70-130
TPH-Motor Oil (C18-C36)	ND	-	5.0	-	-	-	-
Surrogate Recovery							
C9	24.2	24.2		25	97	97	62-139

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	79.9	80.3	40	56.00	60,F1	61,F1	70-130	0.414	30
Surrogate Recovery									
C9	24.8	24.8	25		99	99	70-130	0	30



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/17/16
Date Analyzed: 2/18/16
Instrument: GC2A, GC9a
Matrix: Soil
Project: 15166; EBALDC

WorkOrder: 1602627
BatchID: 116792
Extraction Method: SW3550B/3630C
Analytical Method: SW8015B
Unit: mg/Kg
Sample ID: MB/LCS-116792
 1602627-013AMS/MSD

QC Report for SW8015B with Silica Gel Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	45.6	1.0	40	-	114	70-130
TPH-Motor Oil (C18-C36)	ND	-	5.0	-	-	-	-
Surrogate Recovery							
C9	22.4	23.8		25	90	95	62-139

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	41.5	41.5	40	ND	104	104	70-130	0	30
Surrogate Recovery									
C9	22.0	22.3	25		88	89	70-130	1.30	30

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

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1602627

ClientCode: ESL

WaterTrax WriteOn EDF Excel EQUIS Email HardCopy ThirdParty J-flag

Report to:

Nik Lahiri
Essel Environmental Consulting
564 Market Street
San Francisco, CA 94104
(707) 494-4883 FAX: 510-380-6610

Email: nlahiri@esseltek.com
cc/3rd Party:
PO:
ProjectNo: 15166; EBALDC

Bill to:

Nik Lahiri
Essel Environmental Consulting
564 Market Street
San Francisco, CA 94104
nlahiri@esseltek.com

Requested TAT: 5 days;

Date Received: 02/16/2016

Date Logged: 02/17/2016

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
1602627-001	S-4-BSV1	Soil	2/15/2016 7:55	<input type="checkbox"/>	A		A	A								
1602627-002	S-13-BSV1	Soil	2/15/2016 7:59	<input type="checkbox"/>	A		A	A								
1602627-003	S-12-BSV2	Soil	2/15/2016 13:04	<input type="checkbox"/>	A		A	A								
1602627-004	B-13-BSV3	Soil	2/15/2016 10:12	<input type="checkbox"/>	A		A	A								
1602627-005	B-16-BSV3	Soil	2/15/2016 10:16	<input type="checkbox"/>	A		A	A								
1602627-006	S-13-BSV4	Soil	2/15/2016 9:20	<input type="checkbox"/>	A		A	A								
1602627-007	S-16-BSV4	Soil	2/15/2016 9:24	<input type="checkbox"/>	A		A	A								
1602627-008	S-12-BSV5	Soil	2/15/2016 10:22	<input type="checkbox"/>	A		A	A								
1602627-009	S-15-BSV5	Soil	2/15/2016 10:28	<input type="checkbox"/>	A	A	A	A								
1602627-010	S-8½-BSV6	Soil	2/15/2016 13:35	<input type="checkbox"/>	A		A	A								
1602627-011	S-11½-BSV6	Soil	2/15/2016 13:39	<input type="checkbox"/>	A		A	A								
1602627-012	S-5½-BSV7	Soil	2/15/2016 14:16	<input type="checkbox"/>	A		A	A								
1602627-013	S-10½-BSV7	Soil	2/15/2016 14:20	<input type="checkbox"/>	A		A	A								

Test Legend:

1	8260B_S	2	8270_PNA_S	3	G-MBTEX_S	4	TPH(DMO)WSG_S
5		6		7		8	
9		10		11		12	

Project Manager:

The following SamplIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A, 010A, 011A, 012A, 013A contain testgroup.

Prepared by: Maria Venegas

Comments:

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: ESSEL ENVIRONMENTAL CONSULTING

QC Level: LEVEL 2

Work Order: 1602627

Project: 15166; EBALDC

Client Contact: Nik Lahiri

Date Logged: 2/17/2016

Comments:

Contact's Email: nlahiri@esseltex.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
1602627-001A	S-4-BSV1	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up SW8260B (VOCs)	1	Acetate Liner	<input type="checkbox"/>	2/15/2016 7:55	5 days		<input type="checkbox"/>	
1602627-002A	S-13-BSV1	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up SW8260B (VOCs)	1	Acetate Liner	<input type="checkbox"/>	2/15/2016 7:59	5 days		<input type="checkbox"/>	
1602627-003A	S-12-BSV2	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up SW8260B (VOCs)	1	Acetate Liner	<input type="checkbox"/>	2/15/2016 13:04	5 days		<input type="checkbox"/>	
1602627-004A	B-13-BSV3	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up SW8260B (VOCs)	1	Acetate Liner	<input type="checkbox"/>	2/15/2016 10:12	5 days		<input type="checkbox"/>	
1602627-005A	B-16-BSV3	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up SW8260B (VOCs)	1	Acetate Liner	<input type="checkbox"/>	2/15/2016 10:16	5 days		<input type="checkbox"/>	
1602627-006A	S-13-BSV4	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up SW8260B (VOCs)	1	Acetate Liner	<input type="checkbox"/>	2/15/2016 9:20	5 days		<input type="checkbox"/>	
1602627-007A	S-16-BSV4	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up SW8260B (VOCs)	1	Acetate Liner	<input type="checkbox"/>	2/15/2016 9:24	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: ESSEL ENVIRONMENTAL CONSULTING

QC Level: LEVEL 2

Work Order: 1602627

Project: 15166; EBALDC

Client Contact: Nik Lahiri

Date Logged: 2/17/2016

Comments:

Contact's Email: nlahiri@esseltex.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
1602627-008A	S-12-BSV5	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up SW8260B (VOCs)	1	Acetate Liner	<input type="checkbox"/>	2/15/2016 10:22	5 days		<input type="checkbox"/>	
1602627-009A	S-15-BSV5	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up SW8270C (PAHs/PNAs) SW8260B (VOCs)	1	Acetate Liner	<input type="checkbox"/>	2/15/2016 10:28	5 days		<input type="checkbox"/>	
1602627-010A	S-8½-BSV6	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up SW8260B (VOCs)	1	Acetate Liner	<input type="checkbox"/>	2/15/2016 13:35	5 days		<input type="checkbox"/>	
1602627-011A	S-11½-BSV6	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up SW8260B (VOCs)	1	Acetate Liner	<input type="checkbox"/>	2/15/2016 13:39	5 days		<input type="checkbox"/>	
1602627-012A	S-5½-BSV7	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up SW8260B (VOCs)	1	Acetate Liner	<input type="checkbox"/>	2/15/2016 14:16	5 days		<input type="checkbox"/>	
1602627-013A	S-10½-BSV7	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up SW8260B (VOCs)	1	Acetate Liner	<input type="checkbox"/>	2/15/2016 14:20	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.

McCAMPBELL ANALYTICAL, INC.

1534 WILLOW PASS ROAD
PITTSBURG, CA 94565-1701

Website: www.mccampbell.com Email: main@mccampbell.com
Telephone: (877) 252-9262 Fax: (925) 252-9269

CHAIN OF CUSTODY RECORD

TURN AROUND TIME

RUSH 24 HR 48 HR 72 HR **5 DAY**

GeoTracker EDF PDF Excel Write On (DW)

Check if sample is effluent and "J" flag is required

Report To: Nik Lahiri		Bill To: Samhita Lahiri		Analysis Request												Other	Comments																																				
Company: Essel Technology Services, Inc				<table border="1"> <tr><td><input type="checkbox"/></td><td>BTEX & TPH as Gas (602 / 8021 + 8015) / MTBE</td></tr> <tr><td><input type="checkbox"/></td><td>TPH as Gasoline, Diesel, Motor Oil (8015)</td></tr> <tr><td><input type="checkbox"/></td><td>Total Petroleum Oil & Grease (1664 / 5520 E/B&F)</td></tr> <tr><td><input type="checkbox"/></td><td>Total Petroleum Hydrocarbons (418.1)</td></tr> <tr><td><input type="checkbox"/></td><td>EPA 502.2 / 601 / 8010 / 8021 (HVOCs)</td></tr> <tr><td><input type="checkbox"/></td><td>MTBE / BTEX ONLY (EPA 602 / 8021)</td></tr> <tr><td><input type="checkbox"/></td><td>EPA 505/608 / 8081 (CI Pesticides)</td></tr> <tr><td><input type="checkbox"/></td><td>EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners</td></tr> <tr><td><input type="checkbox"/></td><td>EPA 507 / 8141 (NP Pesticides)</td></tr> <tr><td><input type="checkbox"/></td><td>EPA 515 / 8151 (Acidic CI Herbicides)</td></tr> <tr><td><input type="checkbox"/></td><td>EPA 524.2 / 624 / 8260 (VOCs)</td></tr> <tr><td><input type="checkbox"/></td><td>EPA 525.2 / 625 / 8270 (SVOCs)</td></tr> <tr><td><input type="checkbox"/></td><td>EPA 8270 SIM / 8310 (PAHs / PNAs)</td></tr> <tr><td><input type="checkbox"/></td><td>CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)</td></tr> <tr><td><input type="checkbox"/></td><td>LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)</td></tr> <tr><td><input type="checkbox"/></td><td>Lead (200.7 / 200.8 / 6010 / 6020)</td></tr> <tr><td><input type="checkbox"/></td><td>Filter sample for DISSOLVED metals analysis</td></tr> </table>															<input type="checkbox"/>	BTEX & TPH as Gas (602 / 8021 + 8015) / MTBE	<input type="checkbox"/>	TPH as Gasoline, Diesel, Motor Oil (8015)	<input type="checkbox"/>	Total Petroleum Oil & Grease (1664 / 5520 E/B&F)	<input type="checkbox"/>	Total Petroleum Hydrocarbons (418.1)	<input type="checkbox"/>	EPA 502.2 / 601 / 8010 / 8021 (HVOCs)	<input type="checkbox"/>	MTBE / BTEX ONLY (EPA 602 / 8021)	<input type="checkbox"/>	EPA 505/608 / 8081 (CI Pesticides)	<input type="checkbox"/>	EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners	<input type="checkbox"/>	EPA 507 / 8141 (NP Pesticides)	<input type="checkbox"/>	EPA 515 / 8151 (Acidic CI Herbicides)	<input type="checkbox"/>	EPA 524.2 / 624 / 8260 (VOCs)	<input type="checkbox"/>	EPA 525.2 / 625 / 8270 (SVOCs)	<input type="checkbox"/>	EPA 8270 SIM / 8310 (PAHs / PNAs)	<input type="checkbox"/>	CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)	<input type="checkbox"/>	LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)	<input type="checkbox"/>	Lead (200.7 / 200.8 / 6010 / 6020)	<input type="checkbox"/>	Filter sample for DISSOLVED metals analysis	**Indicate here if these samples are potentially dangerous to handle:
<input type="checkbox"/>	BTEX & TPH as Gas (602 / 8021 + 8015) / MTBE																																																				
<input type="checkbox"/>	TPH as Gasoline, Diesel, Motor Oil (8015)																																																				
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351 California Street, Suite 615																																																					
San Francisco, California 94104		E-Mail: nlahiri@esseltek.com																																																			
Tele: (925) 413-5511		Fax: (510) 380-6610																																																			
Project #: 15166		Project Name: EBALDC																																																			
Project Location: West Grand Avenue and Brush Street, Oakland, California 94612																																																					
Sampler Signature: <i>Rodger C. Witham</i>																																																					
SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED				Other	Comments																																					
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO ₃	Other																																							
S-5 1/2-BSV7	B-SV7	2/15/16	2:10pm	1	P	X					X						Silica gel cleanup before diesel/motor analysis																																				
S-10 1/2-BSV7	B-SV7	2/15/16	2:20pm	1	P	X					X																																										
<p>**MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate \$250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.</p>																																																					

Relinquished By: <i>Rodger C. Witham</i>	Date: 2/16/16	Time: 3:40pm	Received By: <i>[Signature]</i>	ICE/r° _____ GOOD CONDITION _____ HEAD SPACE ABSENT _____ DECHLORINATED IN LAB _____ APPROPRIATE CONTAINERS _____ PRESERVED IN LAB _____ VOAS O&G METALS OTHER PRESERVATION pH<2	COMMENTS:
Relinquished By: <i>[Signature]</i>	Date: 2/16/16	Time: 5:40pm	Received By: <i>[Signature]</i>		
Relinquished By:	Date:	Time:	Received By:		



Sample Receipt Checklist

Client Name: Essel Environmental Consulting
Project Name: 15166; EBALDC
WorkOrder No: 1602627 Matrix: Soil
Carrier: Client Drop-In

Date and Time Received: 2/16/2016 17:40
Date Logged: 2/17/2016
Received by: Maria Venegas
Logged by: Maria Venegas

Chain of Custody (COC) Information

Chain of custody present? Yes [checked] No []
Chain of custody signed when relinquished and received? Yes [checked] No []
Chain of custody agrees with sample labels? Yes [checked] No []
Sample IDs noted by Client on COC? Yes [checked] No []
Date and Time of collection noted by Client on COC? Yes [checked] No []
Sampler's name noted on COC? Yes [checked] No []

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes [] No [] NA [checked]
Shipping container/cooler in good condition? Yes [checked] No []
Samples in proper containers/bottles? Yes [checked] No []
Sample containers intact? Yes [checked] No []
Sufficient sample volume for indicated test? Yes [checked] No []

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes [checked] No []
Sample/Temp Blank temperature Temp: 3.9°C NA []
Water - VOA vials have zero headspace / no bubbles? Yes [] No [] NA [checked]
Sample labels checked for correct preservation? Yes [checked] No []
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes [] No [] NA [checked]
Samples Received on Ice? Yes [checked] No []
(Ice Type: WET ICE)

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes [] No [] NA [checked]
Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes [] No [] NA [checked]

* NOTE: If the "No" box is checked, see comments below.

Comments:



Date of Report: 03/04/2016

Nik Lahiri

Essel Environmental Consulting
351 California Street, Suite 615
San Francisco, CA 94104

Client Project: 15166
BCL Project: West Grand & Brush
BCL Work Order: 1605661
Invoice ID: B228688

Enclosed are the results of analyses for samples received by the laboratory on 2/24/2016. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Christina Herndon
Client Service Rep

Authorized Signature

Certifications: CA ELAP #1186; NV #CA00014; OR ELAP #4032-001; AK UST101

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Fixed Gases by GC/TCD (ASTM D1946)

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Essel Environmental Consulting
351 California Street, Suite 615
San Francisco, CA 94104

Reported: 03/04/2016 16:08
Project: West Grand & Brush
Project Number: 15166
Project Manager: Nik Lahiri

Laboratory / Client Sample Cross Reference

Laboratory ID	Client Sample Information			
1605661-01	COC Number:	---	Receive Date:	02/24/2016 10:38
	Project Number:	---	Sampling Date:	02/23/2016 09:17
	Sampling Location:	---	Sample Depth:	---
	Sampling Point:	SV-1	Lab Matrix:	Air
	Sampled By:	Hugo Mendoza	Sample Type:	Vapor or Air
1605661-02	COC Number:	---	Receive Date:	02/24/2016 10:38
	Project Number:	---	Sampling Date:	02/23/2016 12:52
	Sampling Location:	---	Sample Depth:	---
	Sampling Point:	SV-3	Lab Matrix:	Air
	Sampled By:	Hugo Mendoza	Sample Type:	Vapor or Air
1605661-03	COC Number:	---	Receive Date:	02/24/2016 10:38
	Project Number:	---	Sampling Date:	02/23/2016 14:03
	Sampling Location:	---	Sample Depth:	---
	Sampling Point:	SV-5	Lab Matrix:	Air
	Sampled By:	Hugo Mendoza	Sample Type:	Vapor or Air
1605661-04	COC Number:	---	Receive Date:	02/24/2016 10:38
	Project Number:	---	Sampling Date:	02/23/2016 16:00
	Sampling Location:	---	Sample Depth:	---
	Sampling Point:	SV-6	Lab Matrix:	Air
	Sampled By:	Hugo Mendoza	Sample Type:	Vapor or Air
1605661-05	COC Number:	---	Receive Date:	02/24/2016 10:38
	Project Number:	---	Sampling Date:	02/23/2016 16:01
	Sampling Location:	---	Sample Depth:	---
	Sampling Point:	SV-7	Lab Matrix:	Air
	Sampled By:	Hugo Mendoza	Sample Type:	Vapor or Air

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Essel Environmental Consulting
351 California Street, Suite 615
San Francisco, CA 94104

Reported: 03/04/2016 16:08
Project: West Grand & Brush
Project Number: 15166
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-3)

BCL Sample ID: 1605661-01	Client Sample Name: SV-1, 2/23/2016 9:17:00AM, Hugo Mendoza
----------------------------------	--

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Total Petroleum Hydrocarbons	20000	ug/m3	4100	860	EPA-TO-3	ND		1
4-Bromofluorobenzene (Surrogate)	85.3	%	70 - 130 (LCL - UCL)		EPA-TO-3			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-TO-3	02/25/16	02/25/16 12:44	jh2	MS-A3	1	BZB2739

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Essel Environmental Consulting
351 California Street, Suite 615
San Francisco, CA 94104

Reported: 03/04/2016 16:08
Project: West Grand & Brush
Project Number: 15166
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-15)

Table with columns: BCL Sample ID, Client Sample Name, Constituent, Result, Units, PQL, MDL, Method, MB Bias, Lab Quals, Run #. Lists various compounds like Acetone, Benzene, Chloroform, etc.

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San Francisco, CA 94104

Reported: 03/04/2016 16:08
Project: West Grand & Brush
Project Number: 15166
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-15)

BCL Sample ID: 1605661-01		Client Sample Name: SV-1, 2/23/2016 9:17:00AM, Hugo Mendoza						
Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Ethyl acetate	ND	ug/m3	30	7.8	EPA-TO-15	ND	A01	1
Ethylbenzene	ND	ug/m3	36	4.6	EPA-TO-15	ND	A01	1
1-Ethyl-4-methylbenzene	ND	ug/m3	41	7.8	EPA-TO-15	ND	A01	1
n-Heptane	ND	ug/m3	34	8.2	EPA-TO-15	ND	A01	1
Hexachlorobutadiene	ND	ug/m3	89	8.9	EPA-TO-15	ND	A01	1
Hexane	ND	ug/m3	59	7.6	EPA-TO-15	ND	A01	1
2-Hexanone	ND	ug/m3	34	3.4	EPA-TO-15	ND	A01	1
Isopropyl alcohol	ND	ug/m3	20	7.8	EPA-TO-15	ND	A01	1
Methylene chloride	ND	ug/m3	29	12	EPA-TO-15	ND	A01	1
Methyl ethyl ketone	ND	ug/m3	24	4.4	EPA-TO-15	ND	A01	1
Methyl isobutyl ketone	ND	ug/m3	34	8.8	EPA-TO-15	ND	A01	1
Methyl t-butyl ether	ND	ug/m3	30	4.2	EPA-TO-15	ND	A01	1
Propylene	ND	ug/m3	14	4.6	EPA-TO-15	ND	A01	1
Styrene	ND	ug/m3	35	3.5	EPA-TO-15	ND	A01	1
1,1,2,2-Tetrachloroethane	ND	ug/m3	57	9.6	EPA-TO-15	ND	A01	1
Tetrachloroethene	ND	ug/m3	56	16	EPA-TO-15	ND	A01	1
Tetrahydrofuran	ND	ug/m3	24	5.9	EPA-TO-15	ND	A01	1
Toluene	ND	ug/m3	31	5.3	EPA-TO-15	ND	A01	1
1,2,4-Trichlorobenzene	ND	ug/m3	120	120	EPA-TO-15	ND	A01	1
1,1,1-Trichloroethane	ND	ug/m3	45	14	EPA-TO-15	ND	A01	1
1,1,2-Trichloroethane	ND	ug/m3	45	14	EPA-TO-15	ND	A01	1
Trichloroethene	ND	ug/m3	45	12	EPA-TO-15	ND	A01	1
Trichlorofluoromethane	ND	ug/m3	47	25	EPA-TO-15	ND	A01	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/m3	64	17	EPA-TO-15	ND	A01	1
1,2,4-Trimethylbenzene	ND	ug/m3	41	4.1	EPA-TO-15	ND	A01	1
1,3,5-Trimethylbenzene	ND	ug/m3	41	5.5	EPA-TO-15	ND	A01	1
Vinyl acetate	ND	ug/m3	29	8.2	EPA-TO-15	ND	A01	1
Vinyl chloride	ND	ug/m3	21	8.1	EPA-TO-15	ND	A01	1
p- & m-Xylenes	ND	ug/m3	36	10	EPA-TO-15	ND	A01	1
o-Xylene	ND	ug/m3	36	4.1	EPA-TO-15	ND	A01	1
Total Xylenes	ND	ug/m3	72	14	EPA-TO-15	ND	A01	1
4-Bromofluorobenzene (Surrogate)	115	%	70 - 130 (LCL - UCL)		EPA-TO-15			1

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San Francisco, CA 94104

Reported: 03/04/2016 16:08
Project: West Grand & Brush
Project Number: 15166
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-15)

BCL Sample ID: 1605661-01	Client Sample Name: SV-1, 2/23/2016 9:17:00AM, Hugo Mendoza
----------------------------------	--

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-TO-15	03/03/16	03/03/16 16:30	MJB	MS-A1	16.600	BZC0316

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Reported: 03/04/2016 16:08
Project: West Grand & Brush
Project Number: 15166
Project Manager: Nik Lahiri

Fixed Gases by GC/TCD (ASTM D1946)

BCL Sample ID: 1605661-01	Client Sample Name: SV-1, 2/23/2016 9:17:00AM, Hugo Mendoza							
Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Carbon dioxide (CO2)	5.8	% by Vol.	0.10	0.060	ASTM-D1946	ND		1
Carbon monoxide (CO)	ND	% by Vol.	0.050	0.032	ASTM-D1946	ND		1
Methane (CH4)	0.016	% by Vol.	0.00020	0.00020	ASTM-D1946	ND		1
Nitrogen (N2)	93	% by Vol.	5.0	3.9	ASTM-D1946	ND		1
Oxygen (O2)	1.3	% by Vol.	0.020	0.016	ASTM-D1946	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	ASTM-D1946	02/25/16	02/25/16 13:20	jh2	GC-A1	1	BZB2719

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Reported: 03/04/2016 16:08
Project: West Grand & Brush
Project Number: 15166
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-3)

BCL Sample ID: 1605661-02	Client Sample Name: SV-3, 2/23/2016 12:52:00PM, Hugo Mendoza
----------------------------------	---

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Total Petroleum Hydrocarbons	ND	ug/m3	4100	860	EPA-TO-3	ND		1
4-Bromofluorobenzene (Surrogate)	79.1	%	70 - 130 (LCL - UCL)		EPA-TO-3			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-TO-3	02/25/16	02/25/16 13:07	jh2	MS-A3	1	BZB2739

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Reported: 03/04/2016 16:08
Project: West Grand & Brush
Project Number: 15166
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-15)

BCL Sample ID:	1605661-02		Client Sample Name:	SV-3, 2/23/2016 12:52:00PM, Hugo Mendoza				
Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acetone	ND	ug/m3	38	5.0	EPA-TO-15	ND	A01	1
Acrylonitrile	ND	ug/m3	35	5.6	EPA-TO-15	ND	A01	1
Allyl chloride	ND	ug/m3	25	4.6	EPA-TO-15	ND	A01	1
Benzene	ND	ug/m3	26	6.7	EPA-TO-15	ND	A01	1
Benzyl chloride	ND	ug/m3	83	4.2	EPA-TO-15	ND	A01	1
Bromodichloromethane	ND	ug/m3	54	13	EPA-TO-15	ND	A01	1
Bromoform	ND	ug/m3	83	10	EPA-TO-15	ND	A01	1
Bromomethane	ND	ug/m3	31	10	EPA-TO-15	ND	A01	1
1,3-Butadiene	ND	ug/m3	18	6.4	EPA-TO-15	ND	A01	1
Carbon disulfide	ND	ug/m3	25	6.0	EPA-TO-15	ND	A01	1
Carbon tetrachloride	ND	ug/m3	51	17	EPA-TO-15	ND	A01	1
Chlorobenzene	ND	ug/m3	37	13	EPA-TO-15	ND	A01	1
Chloroethane	ND	ug/m3	21	10	EPA-TO-15	ND	A01	1
Chloroform	ND	ug/m3	39	12	EPA-TO-15	ND	A01	1
Chloromethane	ND	ug/m3	17	6.3	EPA-TO-15	ND	A01	1
Cyclohexane	ND	ug/m3	28	4.4	EPA-TO-15	ND	A01	1
Dibromochloromethane	ND	ug/m3	69	22	EPA-TO-15	ND	A01	1
1,2-Dibromoethane	ND	ug/m3	62	15	EPA-TO-15	ND	A01	1
1,2-Dichlorobenzene	ND	ug/m3	48	4.8	EPA-TO-15	ND	A01	1
1,3-Dichlorobenzene	ND	ug/m3	48	5.5	EPA-TO-15	ND	A01	1
1,4-Dichlorobenzene	ND	ug/m3	48	4.8	EPA-TO-15	ND	A01	1
Dichlorodifluoromethane	ND	ug/m3	40	18	EPA-TO-15	ND	A01	1
1,1-Dichloroethane	ND	ug/m3	33	9.1	EPA-TO-15	ND	A01	1
1,2-Dichloroethane	ND	ug/m3	33	8.5	EPA-TO-15	ND	A01	1
1,1-Dichloroethene	ND	ug/m3	32	10	EPA-TO-15	ND	A01	1
cis-1,2-Dichloroethene	ND	ug/m3	32	6.2	EPA-TO-15	ND	A01	1
trans-1,2-Dichloroethene	ND	ug/m3	32	8.3	EPA-TO-15	ND	A01	1
1,2-Dichloropropane	ND	ug/m3	37	11	EPA-TO-15	ND	A01	1
cis-1,3-Dichloropropene	ND	ug/m3	37	4.2	EPA-TO-15	ND	A01	1
trans-1,3-Dichloropropene	ND	ug/m3	37	5.3	EPA-TO-15	ND	A01	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	ug/m3	56	16	EPA-TO-15	ND	A01	1
1,4-Dioxane	ND	ug/m3	29	7.0	EPA-TO-15	ND	A01	1
Ethanol	ND	ug/m3	30	9.7	EPA-TO-15	ND	A01	1

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San Francisco, CA 94104

Reported: 03/04/2016 16:08
Project: West Grand & Brush
Project Number: 15166
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-15)

BCL Sample ID: 1605661-02		Client Sample Name: SV-3, 2/23/2016 12:52:00PM, Hugo Mendoza						
Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Ethyl acetate	ND	ug/m3	29	7.5	EPA-TO-15	ND	A01	1
Ethylbenzene	ND	ug/m3	35	4.5	EPA-TO-15	ND	A01	1
1-Ethyl-4-methylbenzene	ND	ug/m3	40	7.5	EPA-TO-15	ND	A01	1
n-Heptane	ND	ug/m3	33	7.9	EPA-TO-15	ND	A01	1
Hexachlorobutadiene	ND	ug/m3	86	8.6	EPA-TO-15	ND	A01	1
Hexane	ND	ug/m3	57	7.4	EPA-TO-15	ND	A01	1
2-Hexanone	ND	ug/m3	33	3.3	EPA-TO-15	ND	A01	1
Isopropyl alcohol	ND	ug/m3	20	7.5	EPA-TO-15	ND	A01	1
Methylene chloride	ND	ug/m3	28	11	EPA-TO-15	ND	A01	1
Methyl ethyl ketone	ND	ug/m3	24	4.2	EPA-TO-15	ND	A01	1
Methyl isobutyl ketone	ND	ug/m3	33	8.6	EPA-TO-15	ND	A01	1
Methyl t-butyl ether	ND	ug/m3	29	4.1	EPA-TO-15	ND	A01	1
Propylene	ND	ug/m3	14	4.4	EPA-TO-15	ND	A01	1
Styrene	ND	ug/m3	34	3.4	EPA-TO-15	ND	A01	1
1,1,2,2-Tetrachloroethane	ND	ug/m3	55	9.3	EPA-TO-15	ND	A01	1
Tetrachloroethene	ND	ug/m3	55	15	EPA-TO-15	ND	A01	1
Tetrahydrofuran	ND	ug/m3	24	5.7	EPA-TO-15	ND	A01	1
Toluene	ND	ug/m3	30	5.1	EPA-TO-15	ND	A01	1
1,2,4-Trichlorobenzene	ND	ug/m3	120	110	EPA-TO-15	ND	A01	1
1,1,1-Trichloroethane	ND	ug/m3	44	13	EPA-TO-15	ND	A01	1
1,1,2-Trichloroethane	ND	ug/m3	44	14	EPA-TO-15	ND	A01	1
Trichloroethene	ND	ug/m3	43	11	EPA-TO-15	ND	A01	1
Trichlorofluoromethane	ND	ug/m3	45	24	EPA-TO-15	ND	A01	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/m3	62	16	EPA-TO-15	ND	A01	1
1,2,4-Trimethylbenzene	ND	ug/m3	40	4.0	EPA-TO-15	ND	A01	1
1,3,5-Trimethylbenzene	ND	ug/m3	40	5.3	EPA-TO-15	ND	A01	1
Vinyl acetate	ND	ug/m3	28	7.9	EPA-TO-15	ND	A01	1
Vinyl chloride	ND	ug/m3	21	7.8	EPA-TO-15	ND	A01	1
p- & m-Xylenes	ND	ug/m3	35	9.8	EPA-TO-15	ND	A01	1
o-Xylene	ND	ug/m3	35	4.0	EPA-TO-15	ND	A01	1
Total Xylenes	ND	ug/m3	70	14	EPA-TO-15	ND	A01	1
4-Bromofluorobenzene (Surrogate)	83.9	%	70 - 130 (LCL - UCL)		EPA-TO-15			1

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351 California Street, Suite 615
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Reported: 03/04/2016 16:08
Project: West Grand & Brush
Project Number: 15166
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-15)

BCL Sample ID: 1605661-02	Client Sample Name: SV-3, 2/23/2016 12:52:00PM, Hugo Mendoza
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Run #	Method	Prep Date	Run		Analyst	Instrument	Dilution	QC
			Date/Time					Batch ID
1	EPA-TO-15	03/03/16	03/03/16	17:02	MJB	MS-A1	16.100	BZC0316

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Reported: 03/04/2016 16:08
Project: West Grand & Brush
Project Number: 15166
Project Manager: Nik Lahiri

Fixed Gases by GC/TCD (ASTM D1946)

BCL Sample ID: 1605661-02	Client Sample Name: SV-3, 2/23/2016 12:52:00PM, Hugo Mendoza
----------------------------------	---

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Carbon dioxide (CO2)	4.7	% by Vol.	0.10	0.060	ASTM-D1946	ND		1
Carbon monoxide (CO)	ND	% by Vol.	0.050	0.032	ASTM-D1946	ND		1
Methane (CH4)	0.019	% by Vol.	0.00020	0.00020	ASTM-D1946	ND		1
Nitrogen (N2)	94	% by Vol.	5.0	3.9	ASTM-D1946	ND		1
Oxygen (O2)	1.4	% by Vol.	0.020	0.016	ASTM-D1946	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	ASTM-D1946	02/25/16	02/25/16 13:40	jh2	GC-A1	1	BZB2719

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Reported: 03/04/2016 16:08
Project: West Grand & Brush
Project Number: 15166
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-3)

BCL Sample ID: 1605661-03	Client Sample Name: SV-5, 2/23/2016 2:03:00PM, Hugo Mendoza
----------------------------------	--

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Total Petroleum Hydrocarbons	400000	ug/m3	4100	860	EPA-TO-3	ND		1
4-Bromofluorobenzene (Surrogate)	98.7	%	70 - 130 (LCL - UCL)		EPA-TO-3			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-TO-3	02/25/16	02/25/16 13:30	jh2	MS-A3	1	BZB2739

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Reported: 03/04/2016 16:08
Project: West Grand & Brush
Project Number: 15166
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-15)

Table with columns: BCL Sample ID, Client Sample Name, Constituent, Result, Units, PQL, MDL, Method, MB Bias, Lab Quals, Run #. Lists various compounds like Acetone, Acrylonitrile, Benzene, etc.

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Reported: 03/04/2016 16:08
Project: West Grand & Brush
Project Number: 15166
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-15)

BCL Sample ID: 1605661-03		Client Sample Name: SV-5, 2/23/2016 2:03:00PM, Hugo Mendoza						
Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Ethyl acetate	ND	ug/m3	25	6.4	EPA-TO-15	ND	A01	1
Ethylbenzene	ND	ug/m3	30	3.8	EPA-TO-15	ND	A01	1
1-Ethyl-4-methylbenzene	ND	ug/m3	33	6.4	EPA-TO-15	ND	A01	1
n-Heptane	ND	ug/m3	28	6.7	EPA-TO-15	ND	A01	1
Hexachlorobutadiene	ND	ug/m3	73	7.3	EPA-TO-15	ND	A01	1
Hexane	ND	ug/m3	48	6.2	EPA-TO-15	ND	A01	1
2-Hexanone	ND	ug/m3	28	2.8	EPA-TO-15	ND	A01	1
Isopropyl alcohol	ND	ug/m3	17	6.4	EPA-TO-15	ND	A01	1
Methylene chloride	ND	ug/m3	24	9.4	EPA-TO-15	ND	A01	1
Methyl ethyl ketone	ND	ug/m3	20	3.6	EPA-TO-15	ND	A01	1
Methyl isobutyl ketone	ND	ug/m3	28	7.2	EPA-TO-15	ND	A01	1
Methyl t-butyl ether	ND	ug/m3	25	3.4	EPA-TO-15	ND	A01	1
Propylene	ND	ug/m3	12	3.7	EPA-TO-15	ND	A01	1
Styrene	ND	ug/m3	29	2.9	EPA-TO-15	ND	A01	1
1,1,2,2-Tetrachloroethane	ND	ug/m3	47	7.8	EPA-TO-15	ND	A01	1
Tetrachloroethene	ND	ug/m3	46	13	EPA-TO-15	ND	A01	1
Tetrahydrofuran	ND	ug/m3	20	4.8	EPA-TO-15	ND	A01	1
Toluene	ND	ug/m3	26	4.3	EPA-TO-15	ND	A01	1
1,2,4-Trichlorobenzene	ND	ug/m3	100	97	EPA-TO-15	ND	A01	1
1,1,1-Trichloroethane	ND	ug/m3	37	11	EPA-TO-15	ND	A01	1
1,1,2-Trichloroethane	ND	ug/m3	37	12	EPA-TO-15	ND	A01	1
Trichloroethene	ND	ug/m3	37	9.5	EPA-TO-15	ND	A01	1
Trichlorofluoromethane	ND	ug/m3	38	21	EPA-TO-15	ND	A01	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/m3	52	14	EPA-TO-15	ND	A01	1
1,2,4-Trimethylbenzene	ND	ug/m3	33	3.3	EPA-TO-15	ND	A01	1
1,3,5-Trimethylbenzene	ND	ug/m3	33	4.5	EPA-TO-15	ND	A01	1
Vinyl acetate	ND	ug/m3	24	6.7	EPA-TO-15	ND	A01	1
Vinyl chloride	ND	ug/m3	17	6.6	EPA-TO-15	ND	A01	1
p- & m-Xylenes	ND	ug/m3	30	8.3	EPA-TO-15	ND	A01	1
o-Xylene	ND	ug/m3	30	3.4	EPA-TO-15	ND	A01	1
Total Xylenes	ND	ug/m3	59	12	EPA-TO-15	ND	A01	1
4-Bromofluorobenzene (Surrogate)	75.4	%	70 - 130 (LCL - UCL)		EPA-TO-15			1

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Project: West Grand & Brush
Project Number: 15166
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-15)

BCL Sample ID: 1605661-03 **Client Sample Name:** SV-5, 2/23/2016 2:03:00PM, Hugo Mendoza

Run #	Method	Prep Date	Run		Analyst	Instrument	Dilution	QC
			Date/Time					Batch ID
1	EPA-TO-15	03/03/16	03/03/16	17:34	MJB	MS-A1	13.600	BZC0316

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Essel Environmental Consulting
351 California Street, Suite 615
San Francisco, CA 94104

Reported: 03/04/2016 16:08
Project: West Grand & Brush
Project Number: 15166
Project Manager: Nik Lahiri

Fixed Gases by GC/TCD (ASTM D1946)

BCL Sample ID: 1605661-03 **Client Sample Name:** SV-5, 2/23/2016 2:03:00PM, Hugo Mendoza

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Carbon dioxide (CO2)	2.4	% by Vol.	0.10	0.060	ASTM-D1946	ND		1
Carbon monoxide (CO)	ND	% by Vol.	0.050	0.032	ASTM-D1946	ND		1
Methane (CH4)	0.019	% by Vol.	0.00020	0.00020	ASTM-D1946	ND		1
Nitrogen (N2)	87	% by Vol.	5.0	3.9	ASTM-D1946	ND		1
Oxygen (O2)	11	% by Vol.	0.020	0.016	ASTM-D1946	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	ASTM-D1946	02/25/16	02/25/16 13:59	jh2	GC-A1	1	BZB2719

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Reported: 03/04/2016 16:08
Project: West Grand & Brush
Project Number: 15166
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-3)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BZB2739						
Total Petroleum Hydrocarbons	BZB2739-BLK1	ND	ug/m3	4100	860	
4-Bromofluorobenzene (Surrogate)	BZB2739-BLK1	76.0	%	70 - 130 (LCL - UCL)		

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Reported: 03/04/2016 16:08
Project: West Grand & Brush
Project Number: 15166
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-3)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits		Lab	Quals
								Percent Recovery	RPD		
QC Batch ID: BZB2739											
4-Bromofluorobenzene (Surrogate)	BZB2739-BS1	LCS	7120	7160	ug/m3	99.5		70 - 130			
	BZB2739-BSD1	LCSD	7050	7160	ug/m3	98.5	1.0	70 - 130			

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Reported: 03/04/2016 16:08
Project: West Grand & Brush
Project Number: 15166
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-15)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BZC0316						
Acetone	BZC0316-BLK1	ND	ug/m3	2.4	0.31	
Acrylonitrile	BZC0316-BLK1	ND	ug/m3	2.2	0.35	
Allyl chloride	BZC0316-BLK1	ND	ug/m3	1.6	0.29	
Benzene	BZC0316-BLK1	ND	ug/m3	1.6	0.42	
Benzyl chloride	BZC0316-BLK1	ND	ug/m3	5.2	0.26	
Bromodichloromethane	BZC0316-BLK1	ND	ug/m3	3.4	0.80	
Bromoform	BZC0316-BLK1	ND	ug/m3	5.2	0.63	
Bromomethane	BZC0316-BLK1	ND	ug/m3	1.9	0.62	
1,3-Butadiene	BZC0316-BLK1	ND	ug/m3	1.1	0.40	
Carbon disulfide	BZC0316-BLK1	ND	ug/m3	1.6	0.37	
Carbon tetrachloride	BZC0316-BLK1	ND	ug/m3	3.1	1.1	
Chlorobenzene	BZC0316-BLK1	ND	ug/m3	2.3	0.83	
Chloroethane	BZC0316-BLK1	ND	ug/m3	1.3	0.63	
Chloroform	BZC0316-BLK1	ND	ug/m3	2.4	0.73	
Chloromethane	BZC0316-BLK1	ND	ug/m3	1.0	0.39	
Cyclohexane	BZC0316-BLK1	ND	ug/m3	1.7	0.28	
Dibromochloromethane	BZC0316-BLK1	ND	ug/m3	4.3	1.4	
1,2-Dibromoethane	BZC0316-BLK1	ND	ug/m3	3.8	0.92	
1,2-Dichlorobenzene	BZC0316-BLK1	ND	ug/m3	3.0	0.30	
1,3-Dichlorobenzene	BZC0316-BLK1	ND	ug/m3	3.0	0.34	
1,4-Dichlorobenzene	BZC0316-BLK1	ND	ug/m3	3.0	0.30	
Dichlorodifluoromethane	BZC0316-BLK1	ND	ug/m3	2.5	1.1	
1,1-Dichloroethane	BZC0316-BLK1	ND	ug/m3	2.0	0.57	
1,2-Dichloroethane	BZC0316-BLK1	ND	ug/m3	2.0	0.53	
1,1-Dichloroethene	BZC0316-BLK1	ND	ug/m3	2.0	0.63	
cis-1,2-Dichloroethene	BZC0316-BLK1	ND	ug/m3	2.0	0.38	
trans-1,2-Dichloroethene	BZC0316-BLK1	ND	ug/m3	2.0	0.52	
1,2-Dichloropropane	BZC0316-BLK1	ND	ug/m3	2.3	0.69	
cis-1,3-Dichloropropene	BZC0316-BLK1	ND	ug/m3	2.3	0.26	
trans-1,3-Dichloropropene	BZC0316-BLK1	ND	ug/m3	2.3	0.33	
1,2-Dichloro-1,1,2,2-tetrafluoroethane	BZC0316-BLK1	ND	ug/m3	3.5	0.98	
1,4-Dioxane	BZC0316-BLK1	ND	ug/m3	1.8	0.43	
Ethanol	BZC0316-BLK1	ND	ug/m3	1.9	0.60	
Ethyl acetate	BZC0316-BLK1	ND	ug/m3	1.8	0.47	

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351 California Street, Suite 615
San Francisco, CA 94104

Reported: 03/04/2016 16:08
Project: West Grand & Brush
Project Number: 15166
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-15)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BZC0316						
Ethylbenzene	BZC0316-BLK1	ND	ug/m3	2.2	0.28	
1-Ethyl-4-methylbenzene	BZC0316-BLK1	ND	ug/m3	2.5	0.47	
n-Heptane	BZC0316-BLK1	ND	ug/m3	2.0	0.49	
Hexachlorobutadiene	BZC0316-BLK1	ND	ug/m3	5.3	0.53	
Hexane	BZC0316-BLK1	ND	ug/m3	3.5	0.46	
2-Hexanone	BZC0316-BLK1	ND	ug/m3	2.0	0.20	
Isopropyl alcohol	BZC0316-BLK1	ND	ug/m3	1.2	0.47	
Methylene chloride	BZC0316-BLK1	ND	ug/m3	1.7	0.69	
Methyl ethyl ketone	BZC0316-BLK1	ND	ug/m3	1.5	0.26	
Methyl isobutyl ketone	BZC0316-BLK1	ND	ug/m3	2.0	0.53	
Methyl t-butyl ether	BZC0316-BLK1	ND	ug/m3	1.8	0.25	
Propylene	BZC0316-BLK1	ND	ug/m3	0.86	0.28	
Styrene	BZC0316-BLK1	ND	ug/m3	2.1	0.21	
1,1,2,2-Tetrachloroethane	BZC0316-BLK1	ND	ug/m3	3.4	0.58	
Tetrachloroethene	BZC0316-BLK1	ND	ug/m3	3.4	0.95	
Tetrahydrofuran	BZC0316-BLK1	ND	ug/m3	1.5	0.35	
Toluene	BZC0316-BLK1	ND	ug/m3	1.9	0.32	
1,2,4-Trichlorobenzene	BZC0316-BLK1	ND	ug/m3	7.4	7.1	
1,1,1-Trichloroethane	BZC0316-BLK1	ND	ug/m3	2.7	0.82	
1,1,2-Trichloroethane	BZC0316-BLK1	ND	ug/m3	2.7	0.87	
Trichloroethene	BZC0316-BLK1	ND	ug/m3	2.7	0.70	
Trichlorofluoromethane	BZC0316-BLK1	ND	ug/m3	2.8	1.5	
1,1,2-Trichloro-1,2,2-trifluoroethane	BZC0316-BLK1	ND	ug/m3	3.8	1.0	
1,2,4-Trimethylbenzene	BZC0316-BLK1	ND	ug/m3	2.5	0.25	
1,3,5-Trimethylbenzene	BZC0316-BLK1	ND	ug/m3	2.5	0.33	
Vinyl acetate	BZC0316-BLK1	ND	ug/m3	1.8	0.49	
Vinyl chloride	BZC0316-BLK1	ND	ug/m3	1.3	0.49	
p- & m-Xylenes	BZC0316-BLK1	ND	ug/m3	2.2	0.61	
o-Xylene	BZC0316-BLK1	ND	ug/m3	2.2	0.25	
Total Xylenes	BZC0316-BLK1	ND	ug/m3	4.3	0.87	
4-Bromofluorobenzene (Surrogate)	BZC0316-BLK1	71.7	%	70 - 130 (LCL - UCL)		

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San Francisco, CA 94104

Reported: 03/04/2016 16:08
Project: West Grand & Brush
Project Number: 15166
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-15)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits		Lab Quals
								Percent Recovery	RPD	
QC Batch ID: BZC0316										
Benzene	BZC0316-BS1	LCS	16.929	15.974	ug/m3	106		70 - 130		
	BZC0316-BSD1	LCSD	17.015	15.974	ug/m3	107	0.5	70 - 130		30
Chloroform	BZC0316-BS1	LCS	28.548	24.413	ug/m3	117		70 - 130		
	BZC0316-BSD1	LCSD	28.856	24.413	ug/m3	118	1.1	70 - 130		30
Ethylbenzene	BZC0316-BS1	LCS	29.279	21.711	ug/m3	135		70 - 130		
	BZC0316-BSD1	LCSD	30.547	21.711	ug/m3	141	4.2	70 - 130		30
Tetrachloroethene	BZC0316-BS1	LCS	41.177	33.913	ug/m3	121		70 - 130		
	BZC0316-BSD1	LCSD	41.516	33.913	ug/m3	122	0.8	70 - 130		30
Toluene	BZC0316-BS1	LCS	22.618	18.842	ug/m3	120		70 - 130		
	BZC0316-BSD1	LCSD	23.172	18.842	ug/m3	123	2.4	70 - 130		30
Trichloroethene	BZC0316-BS1	LCS	32.758	26.869	ug/m3	122		70 - 130		
	BZC0316-BSD1	LCSD	33.167	26.869	ug/m3	123	1.2	70 - 130		30
Trichlorofluoromethane	BZC0316-BS1	LCS	33.626	28.092	ug/m3	120		70 - 130		
	BZC0316-BSD1	LCSD	33.687	28.092	ug/m3	120	0.2	70 - 130		30
1,1,2-Trichloro-1,2,2-trifluoroethane	BZC0316-BS1	LCS	40.219	38.318	ug/m3	105		70 - 130		
	BZC0316-BSD1	LCSD	40.977	38.318	ug/m3	107	1.9	70 - 130		30
p- & m-Xylenes	BZC0316-BS1	LCS	65.679	43.421	ug/m3	151		70 - 130		
	BZC0316-BSD1	LCSD	67.946	43.421	ug/m3	156	3.4	70 - 130		30
o-Xylene	BZC0316-BS1	LCS	33.183	21.711	ug/m3	153		70 - 130		
	BZC0316-BSD1	LCSD	33.925	21.711	ug/m3	156	2.2	70 - 130		30
Total Xylenes	BZC0316-BS1	LCS	98.862	65.132	ug/m3	152		70 - 130		
	BZC0316-BSD1	LCSD	101.87	65.132	ug/m3	156	3.0	70 - 130		30
4-Bromofluorobenzene (Surrogate)	BZC0316-BS1	LCS	66.4	71.6	ug/m3	92.8		70 - 130		
	BZC0316-BSD1	LCSD	78.0	71.6	ug/m3	109	16.0	70 - 130		

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Reported: 03/04/2016 16:08
Project: West Grand & Brush
Project Number: 15166
Project Manager: Nik Lahiri

Fixed Gases by GC/TCD (ASTM D1946)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BZB2719						
Carbon dioxide (CO2)	BZB2719-BLK1	ND	% by Vol.	0.10	0.060	
Carbon monoxide (CO)	BZB2719-BLK1	ND	% by Vol.	0.050	0.032	
Methane (CH4)	BZB2719-BLK1	ND	% by Vol.	0.00020	0.00020	
Nitrogen (N2)	BZB2719-BLK1	ND	% by Vol.	5.0	3.9	
Oxygen (O2)	BZB2719-BLK1	ND	% by Vol.	0.020	0.016	

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Reported: 03/04/2016 16:08
Project: West Grand & Brush
Project Number: 15166
Project Manager: Nik Lahiri

Fixed Gases by GC/TCD (ASTM D1946)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits		Lab
								Percent Recovery	RPD	
QC Batch ID: BZB2719										
Carbon dioxide (CO ₂)	BZB2719-BS1	LCS	6.4690	6.0000	% by Vol.	108		70 - 130		
	BZB2719-BSD1	LCSD	6.4320	6.0000	% by Vol.	107	0.6	70 - 130	30	
Carbon monoxide (CO)	BZB2719-BS1	LCS	2.5780	2.8000	% by Vol.	92.1		70 - 130		
	BZB2719-BSD1	LCSD	2.5920	2.8000	% by Vol.	92.6	0.5	70 - 130	30	
Methane (CH ₄)	BZB2719-BS1	LCS	2.0260	1.8000	% by Vol.	113		70 - 130		
	BZB2719-BSD1	LCSD	2.0170	1.8000	% by Vol.	112	0.4	70 - 130	30	
Nitrogen (N ₂)	BZB2719-BS1	LCS	23.396	27.800	% by Vol.	84.2		70 - 130		
	BZB2719-BSD1	LCSD	23.364	27.800	% by Vol.	84.0	0.1	70 - 130	30	
Oxygen (O ₂)	BZB2719-BS1	LCS	1.7120	1.6000	% by Vol.	107		70 - 130		
	BZB2719-BSD1	LCSD	1.7110	1.6000	% by Vol.	107	0.1	70 - 130	30	

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351 California Street, Suite 615
San Francisco, CA 94104

Reported: 03/04/2016 16:08
Project: West Grand & Brush
Project Number: 15166
Project Manager: Nik Lahiri

Notes And Definitions

- J Estimated Value (CLP Flag)
- MDL Method Detection Limit
- ND Analyte Not Detected
- PQL Practical Quantitation Limit
- A01 Detection and quantitation limits are raised due to sample dilution.



Date of Report: 03/04/2016

Nik Lahiri

Essel Environmental Consulting
351 California Street, Suite 615
San Francisco, CA 94104

Client Project: [none]
BCL Project: West Grand & Brush
BCL Work Order: 1606298
Invoice ID: B228682

Enclosed are the results of analyses for samples received by the laboratory on 3/2/2016. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Christina Herndon
Client Service Rep

Authorized Signature

Certifications: CA ELAP #1186; NV #CA00014; OR ELAP #4032-001; AK UST101

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Essel Environmental Consulting
351 California Street, Suite 615
San Francisco, CA 94104

Reported: 03/04/2016 11:36
Project: West Grand & Brush
Project Number: [none]
Project Manager: Nik Lahiri

Laboratory / Client Sample Cross Reference

Laboratory ID	Client Sample Information		Receive Date:	
1606298-01	COC Number:	---	03/02/2016	10:45
	Project Number:	---	Sampling Date:	03/01/2016 14:17
	Sampling Location:	---	Sample Depth:	---
	Sampling Point:	SV-2	Lab Matrix:	Air
	Sampled By:	Hugo Mendoza	Sample Type:	Vapor or Air

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Essel Environmental Consulting
351 California Street, Suite 615
San Francisco, CA 94104

Reported: 03/04/2016 11:36
Project: West Grand & Brush
Project Number: [none]
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-3)

BCL Sample ID: 1606298-01	Client Sample Name: SV-2, 3/1/2016 2:17:00PM, Hugo Mendoza
----------------------------------	---

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Total Petroleum Hydrocarbons	ND	ug/m3	4100	860	EPA-TO-3	ND		1
4-Bromofluorobenzene (Surrogate)	85.2	%	70 - 130 (LCL - UCL)		EPA-TO-3			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-TO-3	03/02/16	03/02/16 14:32	jh2	MS-A3	1	BZC0337

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San Francisco, CA 94104

Reported: 03/04/2016 11:36
Project: West Grand & Brush
Project Number: [none]
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-15)

BCL Sample ID: 1606298-01 Client Sample Name: SV-2, 3/1/2016 2:17:00PM, Hugo Mendoza

Table with 9 columns: Constituent, Result, Units, PQL, MDL, Method, MB Bias, Lab Quals, Run #. Lists various chemical compounds and their test results.

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San Francisco, CA 94104

Reported: 03/04/2016 11:36
Project: West Grand & Brush
Project Number: [none]
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-15)

Table with columns: BCL Sample ID, Client Sample Name, Constituent, Result, Units, PQL, MDL, Method, MB Bias, Lab Quads, Run #. Lists various VOCs like Ethyl acetate, Ethylbenzene, etc., with their respective results and detection limits.

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351 California Street, Suite 615
San Francisco, CA 94104

Reported: 03/04/2016 11:36
Project: West Grand & Brush
Project Number: [none]
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-15)

BCL Sample ID: 1606298-01	Client Sample Name: SV-2, 3/1/2016 2:17:00PM, Hugo Mendoza
----------------------------------	---

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-TO-15	03/03/16	03/03/16 18:05	MJB	MS-A1	14.300	BZC0316

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San Francisco, CA 94104

Reported: 03/04/2016 11:36
Project: West Grand & Brush
Project Number: [none]
Project Manager: Nik Lahiri

Fixed Gases by GC/TCD (ASTM D1946)

BCL Sample ID: 1606298-01	Client Sample Name: SV-2, 3/1/2016 2:17:00PM, Hugo Mendoza							
Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Carbon dioxide (CO2)	3.1	% by Vol.	0.10	0.060	ASTM-D1946	ND		1
Carbon monoxide (CO)	ND	% by Vol.	0.050	0.032	ASTM-D1946	ND		1
Methane (CH4)	ND	% by Vol.	0.00020	0.00020	ASTM-D1946	ND		1
Nitrogen (N2)	79	% by Vol.	5.0	3.9	ASTM-D1946	ND		1
Oxygen (O2)	18	% by Vol.	0.020	0.016	ASTM-D1946	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	ASTM-D1946	03/02/16	03/02/16 14:23	jh2	GC-A1	1	BZC0320

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Essel Environmental Consulting
351 California Street, Suite 615
San Francisco, CA 94104

Reported: 03/04/2016 11:36
Project: West Grand & Brush
Project Number: [none]
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-3)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BZC0337						
Total Petroleum Hydrocarbons	BZC0337-BLK1	ND	ug/m3	4100	860	
4-Bromofluorobenzene (Surrogate)	BZC0337-BLK1	81.1	%	70 - 130 (LCL - UCL)		

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351 California Street, Suite 615
San Francisco, CA 94104

Reported: 03/04/2016 11:36
Project: West Grand & Brush
Project Number: [none]
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-3)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits		Lab	Quals
								Percent Recovery	RPD		
QC Batch ID: BZC0337											
4-Bromofluorobenzene (Surrogate)	BZC0337-BS1	LCS	6800	7160	ug/m3	95.1		70 - 130			
	BZC0337-BSD1	LCSD	6830	7160	ug/m3	95.5	0.4	70 - 130			

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351 California Street, Suite 615
San Francisco, CA 94104

Reported: 03/04/2016 11:36
Project: West Grand & Brush
Project Number: [none]
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-15)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BZC0316						
Acetone	BZC0316-BLK1	ND	ug/m3	2.4	0.31	
Acrylonitrile	BZC0316-BLK1	ND	ug/m3	2.2	0.35	
Allyl chloride	BZC0316-BLK1	ND	ug/m3	1.6	0.29	
Benzene	BZC0316-BLK1	ND	ug/m3	1.6	0.42	
Benzyl chloride	BZC0316-BLK1	ND	ug/m3	5.2	0.26	
Bromodichloromethane	BZC0316-BLK1	ND	ug/m3	3.4	0.80	
Bromoform	BZC0316-BLK1	ND	ug/m3	5.2	0.63	
Bromomethane	BZC0316-BLK1	ND	ug/m3	1.9	0.62	
1,3-Butadiene	BZC0316-BLK1	ND	ug/m3	1.1	0.40	
Carbon disulfide	BZC0316-BLK1	ND	ug/m3	1.6	0.37	
Carbon tetrachloride	BZC0316-BLK1	ND	ug/m3	3.1	1.1	
Chlorobenzene	BZC0316-BLK1	ND	ug/m3	2.3	0.83	
Chloroethane	BZC0316-BLK1	ND	ug/m3	1.3	0.63	
Chloroform	BZC0316-BLK1	ND	ug/m3	2.4	0.73	
Chloromethane	BZC0316-BLK1	ND	ug/m3	1.0	0.39	
Cyclohexane	BZC0316-BLK1	ND	ug/m3	1.7	0.28	
Dibromochloromethane	BZC0316-BLK1	ND	ug/m3	4.3	1.4	
1,2-Dibromoethane	BZC0316-BLK1	ND	ug/m3	3.8	0.92	
1,2-Dichlorobenzene	BZC0316-BLK1	ND	ug/m3	3.0	0.30	
1,3-Dichlorobenzene	BZC0316-BLK1	ND	ug/m3	3.0	0.34	
1,4-Dichlorobenzene	BZC0316-BLK1	ND	ug/m3	3.0	0.30	
Dichlorodifluoromethane	BZC0316-BLK1	ND	ug/m3	2.5	1.1	
1,1-Dichloroethane	BZC0316-BLK1	ND	ug/m3	2.0	0.57	
1,2-Dichloroethane	BZC0316-BLK1	ND	ug/m3	2.0	0.53	
1,1-Dichloroethene	BZC0316-BLK1	ND	ug/m3	2.0	0.63	
cis-1,2-Dichloroethene	BZC0316-BLK1	ND	ug/m3	2.0	0.38	
trans-1,2-Dichloroethene	BZC0316-BLK1	ND	ug/m3	2.0	0.52	
1,2-Dichloropropane	BZC0316-BLK1	ND	ug/m3	2.3	0.69	
cis-1,3-Dichloropropene	BZC0316-BLK1	ND	ug/m3	2.3	0.26	
trans-1,3-Dichloropropene	BZC0316-BLK1	ND	ug/m3	2.3	0.33	
1,2-Dichloro-1,1,2,2-tetrafluoroethane	BZC0316-BLK1	ND	ug/m3	3.5	0.98	
1,4-Dioxane	BZC0316-BLK1	ND	ug/m3	1.8	0.43	
Ethanol	BZC0316-BLK1	ND	ug/m3	1.9	0.60	
Ethyl acetate	BZC0316-BLK1	ND	ug/m3	1.8	0.47	

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351 California Street, Suite 615
San Francisco, CA 94104

Reported: 03/04/2016 11:36
Project: West Grand & Brush
Project Number: [none]
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-15)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BZC0316						
Ethylbenzene	BZC0316-BLK1	ND	ug/m3	2.2	0.28	
1-Ethyl-4-methylbenzene	BZC0316-BLK1	ND	ug/m3	2.5	0.47	
n-Heptane	BZC0316-BLK1	ND	ug/m3	2.0	0.49	
Hexachlorobutadiene	BZC0316-BLK1	ND	ug/m3	5.3	0.53	
Hexane	BZC0316-BLK1	ND	ug/m3	3.5	0.46	
2-Hexanone	BZC0316-BLK1	ND	ug/m3	2.0	0.20	
Isopropyl alcohol	BZC0316-BLK1	ND	ug/m3	1.2	0.47	
Methylene chloride	BZC0316-BLK1	ND	ug/m3	1.7	0.69	
Methyl ethyl ketone	BZC0316-BLK1	ND	ug/m3	1.5	0.26	
Methyl isobutyl ketone	BZC0316-BLK1	ND	ug/m3	2.0	0.53	
Methyl t-butyl ether	BZC0316-BLK1	ND	ug/m3	1.8	0.25	
Propylene	BZC0316-BLK1	ND	ug/m3	0.86	0.28	
Styrene	BZC0316-BLK1	ND	ug/m3	2.1	0.21	
1,1,2,2-Tetrachloroethane	BZC0316-BLK1	ND	ug/m3	3.4	0.58	
Tetrachloroethene	BZC0316-BLK1	ND	ug/m3	3.4	0.95	
Tetrahydrofuran	BZC0316-BLK1	ND	ug/m3	1.5	0.35	
Toluene	BZC0316-BLK1	ND	ug/m3	1.9	0.32	
1,2,4-Trichlorobenzene	BZC0316-BLK1	ND	ug/m3	7.4	7.1	
1,1,1-Trichloroethane	BZC0316-BLK1	ND	ug/m3	2.7	0.82	
1,1,2-Trichloroethane	BZC0316-BLK1	ND	ug/m3	2.7	0.87	
Trichloroethene	BZC0316-BLK1	ND	ug/m3	2.7	0.70	
Trichlorofluoromethane	BZC0316-BLK1	ND	ug/m3	2.8	1.5	
1,1,2-Trichloro-1,2,2-trifluoroethane	BZC0316-BLK1	ND	ug/m3	3.8	1.0	
1,2,4-Trimethylbenzene	BZC0316-BLK1	ND	ug/m3	2.5	0.25	
1,3,5-Trimethylbenzene	BZC0316-BLK1	ND	ug/m3	2.5	0.33	
Vinyl acetate	BZC0316-BLK1	ND	ug/m3	1.8	0.49	
Vinyl chloride	BZC0316-BLK1	ND	ug/m3	1.3	0.49	
p- & m-Xylenes	BZC0316-BLK1	ND	ug/m3	2.2	0.61	
o-Xylene	BZC0316-BLK1	ND	ug/m3	2.2	0.25	
Total Xylenes	BZC0316-BLK1	ND	ug/m3	4.3	0.87	
4-Bromofluorobenzene (Surrogate)	BZC0316-BLK1	71.7	%	70 - 130 (LCL - UCL)		

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351 California Street, Suite 615
San Francisco, CA 94104

Reported: 03/04/2016 11:36
Project: West Grand & Brush
Project Number: [none]
Project Manager: Nik Lahiri

Volatile Organic Compounds by GC/MS (EPA Method TO-15)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits		Lab Quals
								Percent Recovery	RPD	
QC Batch ID: BZC0316										
Benzene	BZC0316-BS1	LCS	16.929	15.974	ug/m3	106		70 - 130		
	BZC0316-BSD1	LCSD	17.015	15.974	ug/m3	107	0.5	70 - 130		30
Chloroform	BZC0316-BS1	LCS	28.548	24.413	ug/m3	117		70 - 130		
	BZC0316-BSD1	LCSD	28.856	24.413	ug/m3	118	1.1	70 - 130		30
Ethylbenzene	BZC0316-BS1	LCS	29.279	21.711	ug/m3	135		70 - 130		
	BZC0316-BSD1	LCSD	30.547	21.711	ug/m3	141	4.2	70 - 130		30
Tetrachloroethene	BZC0316-BS1	LCS	41.177	33.913	ug/m3	121		70 - 130		
	BZC0316-BSD1	LCSD	41.516	33.913	ug/m3	122	0.8	70 - 130		30
Toluene	BZC0316-BS1	LCS	22.618	18.842	ug/m3	120		70 - 130		
	BZC0316-BSD1	LCSD	23.172	18.842	ug/m3	123	2.4	70 - 130		30
Trichloroethene	BZC0316-BS1	LCS	32.758	26.869	ug/m3	122		70 - 130		
	BZC0316-BSD1	LCSD	33.167	26.869	ug/m3	123	1.2	70 - 130		30
Trichlorofluoromethane	BZC0316-BS1	LCS	33.626	28.092	ug/m3	120		70 - 130		
	BZC0316-BSD1	LCSD	33.687	28.092	ug/m3	120	0.2	70 - 130		30
1,1,2-Trichloro-1,2,2-trifluoroethane	BZC0316-BS1	LCS	40.219	38.318	ug/m3	105		70 - 130		
	BZC0316-BSD1	LCSD	40.977	38.318	ug/m3	107	1.9	70 - 130		30
p- & m-Xylenes	BZC0316-BS1	LCS	65.679	43.421	ug/m3	151		70 - 130		
	BZC0316-BSD1	LCSD	67.946	43.421	ug/m3	156	3.4	70 - 130		30
o-Xylene	BZC0316-BS1	LCS	33.183	21.711	ug/m3	153		70 - 130		
	BZC0316-BSD1	LCSD	33.925	21.711	ug/m3	156	2.2	70 - 130		30
Total Xylenes	BZC0316-BS1	LCS	98.862	65.132	ug/m3	152		70 - 130		
	BZC0316-BSD1	LCSD	101.87	65.132	ug/m3	156	3.0	70 - 130		30
4-Bromofluorobenzene (Surrogate)	BZC0316-BS1	LCS	66.4	71.6	ug/m3	92.8		70 - 130		
	BZC0316-BSD1	LCSD	78.0	71.6	ug/m3	109	16.0	70 - 130		

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351 California Street, Suite 615
San Francisco, CA 94104

Reported: 03/04/2016 11:36
Project: West Grand & Brush
Project Number: [none]
Project Manager: Nik Lahiri

Fixed Gases by GC/TCD (ASTM D1946)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BZC0320						
Carbon dioxide (CO2)	BZC0320-BLK1	ND	% by Vol.	0.10	0.060	
Carbon monoxide (CO)	BZC0320-BLK1	ND	% by Vol.	0.050	0.032	
Methane (CH4)	BZC0320-BLK1	ND	% by Vol.	0.00020	0.00020	
Nitrogen (N2)	BZC0320-BLK1	ND	% by Vol.	5.0	3.9	
Oxygen (O2)	BZC0320-BLK1	ND	% by Vol.	0.020	0.016	

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San Francisco, CA 94104

Reported: 03/04/2016 11:36
Project: West Grand & Brush
Project Number: [none]
Project Manager: Nik Lahiri

Fixed Gases by GC/TCD (ASTM D1946)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits		Lab Quals
								Percent Recovery	RPD	
QC Batch ID: BZC0320										
Carbon dioxide (CO ₂)	BZC0320-BS1	LCS	5.8250	6.0000	% by Vol.	97.1		70 - 130		
	BZC0320-BSD1	LCSD	5.8240	6.0000	% by Vol.	97.1	0.0	70 - 130	30	
Carbon monoxide (CO)	BZC0320-BS1	LCS	2.4440	2.8000	% by Vol.	87.3		70 - 130		
	BZC0320-BSD1	LCSD	2.4530	2.8000	% by Vol.	87.6	0.4	70 - 130	30	
Methane (CH ₄)	BZC0320-BS1	LCS	1.8660	1.8000	% by Vol.	104		70 - 130		
	BZC0320-BSD1	LCSD	1.8670	1.8000	% by Vol.	104	0.1	70 - 130	30	
Nitrogen (N ₂)	BZC0320-BS1	LCS	23.284	27.800	% by Vol.	83.8		70 - 130		
	BZC0320-BSD1	LCSD	23.290	27.800	% by Vol.	83.8	0.0	70 - 130	30	
Oxygen (O ₂)	BZC0320-BS1	LCS	2.0070	1.6000	% by Vol.	125		70 - 130		
	BZC0320-BSD1	LCSD	2.0100	1.6000	% by Vol.	126	0.1	70 - 130	30	

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351 California Street, Suite 615
San Francisco, CA 94104

Reported: 03/04/2016 11:36
Project: West Grand & Brush
Project Number: [none]
Project Manager: Nik Lahiri

Notes And Definitions

- MDL Method Detection Limit
- ND Analyte Not Detected
- PQL Practical Quantitation Limit
- A01 Detection and quantitation limits are raised due to sample dilution.

3/29/2016

Jaime Warren
Essel Environmental Consultants
351 California St. Suite 615

San Francisco CA 94104

Project Name: WG&B
Project #: 15166
Workorder #: 1603487A

Dear Jaime Warren

The following report includes the data for the above referenced project for sample(s) received on 3/25/2016 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free the Project Manager: Kyle Vagadori at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Kyle Vagadori
Project Manager

WORK ORDER #: 1603487A

Work Order Summary

CLIENT:	Jaime Warren Essel Environmental Consultants 351 California St. Suite 615 San Francisco, CA 94104	BILL TO:	Jaime Warren Essel Environmental Consultants 351 California St. Suite 615 San Francisco, CA 94104
PHONE:	510-878-0389	P.O. #	15166
FAX:		PROJECT #	15166 WG&B
DATE RECEIVED:	03/25/2016	CONTACT:	Kyle Vagadori
DATE COMPLETED:	03/29/2016		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SV-4D	TO-15	4.3 "Hg	14.5 psi
02A	SV-6	TO-15	16.5 "Hg	14.7 psi
03A	SV-7	TO-15	18.4 "Hg	14.6 psi
04A	Lab Blank	TO-15	NA	NA
05A	CCV	TO-15	NA	NA
06A	LCS	TO-15	NA	NA
06AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 
 Technical Director

DATE: 03/29/16

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**LABORATORY NARRATIVE
EPA Method TO-15
Essel Environmental Consultants
Workorder# 1603487A**

Three 1 Liter Summa Canister samples were received on March 25, 2016. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

Samples SV-6 and SV-7 were received with significant vacuum remaining in the canister. The residual canister vacuum resulted in elevated reporting limits.

Analytical Notes

Dilution was performed on sample SV-4D due to the presence of high level target species.

2-Propanol exceeded the instrument's calibration range for sample SV-7 and was flagged accordingly.

All Quality Control Limit exceedances and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page. Target compound non-detects in the samples that are associated with high bias in QC analyses have not been flagged.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Summary of Detected Compounds

EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SV-4D

Lab ID#: 1603487A-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	2.9	18	7.4	46
Methyl tert-butyl ether	2.9	24	10	86
Hexane	2.9	150	10	530
cis-1,2-Dichloroethene	2.9	140	11	560
Cyclohexane	2.9	230	10	800
2,2,4-Trimethylpentane	2.9	1100	14	5400
Benzene	2.9	20	9.3	66
Heptane	2.9	9.1	12	37
m,p-Xylene	2.9	3.4	12	15

Client Sample ID: SV-6

Lab ID#: 1603487A-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	8.9	100	17	200
Acetone	22	660	53	1600
2-Propanol	8.9	340	22	840
Carbon Disulfide	8.9	120	28	370
Hexane	2.2	24	7.8	85
2-Butanone (Methyl Ethyl Ketone)	8.9	180	26	530
Cyclohexane	2.2	8.0	7.6	28
2,2,4-Trimethylpentane	2.2	3.0	10	14
Benzene	2.2	13	7.1	43
Heptane	2.2	6.4	9.1	26
Toluene	2.2	12	8.4	47
m,p-Xylene	2.2	5.4	9.6	23
o-Xylene	2.2	5.9	9.6	26
1,2,4-Trimethylbenzene	2.2	3.0	11	15
1,3-Dichlorobenzene	2.2	2.2	13	13

Client Sample ID: SV-7

Lab ID#: 1603487A-03A

**Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: SV-7

Lab ID#: 1603487A-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	10	21	19	40
Acetone	26	58	61	140
2-Propanol	10	2400 E	25	5800 E
Carbon Disulfide	10	18	32	56
Tetrahydrofuran	2.6	2.6 J	7.6	7.5 J
Chloroform	2.6	86	12	420
Bromodichloromethane	2.6	3.9	17	26



Air Toxics

Client Sample ID: SV-4D

Lab ID#: 1603487A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3032626	Date of Collection:	3/24/16 12:07:00 PM
Dil. Factor:	5.80	Date of Analysis:	3/26/16 11:21 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	2.9	Not Detected	14	Not Detected
Freon 114	2.9	Not Detected	20	Not Detected
Chloromethane	29	Not Detected	60	Not Detected
Vinyl Chloride	2.9	18	7.4	46
1,3-Butadiene	2.9	Not Detected	6.4	Not Detected
Bromomethane	29	Not Detected	110	Not Detected
Chloroethane	12	Not Detected	31	Not Detected
Freon 11	2.9	Not Detected	16	Not Detected
Ethanol	12	Not Detected	22	Not Detected
Freon 113	2.9	Not Detected	22	Not Detected
1,1-Dichloroethene	2.9	Not Detected	11	Not Detected
Acetone	29	Not Detected	69	Not Detected
2-Propanol	12	Not Detected	28	Not Detected
Carbon Disulfide	12	Not Detected	36	Not Detected
3-Chloropropene	12	Not Detected	36	Not Detected
Methylene Chloride	29	Not Detected	100	Not Detected
Methyl tert-butyl ether	2.9	24	10	86
trans-1,2-Dichloroethene	2.9	Not Detected	11	Not Detected
Hexane	2.9	150	10	530
1,1-Dichloroethane	2.9	Not Detected	12	Not Detected
2-Butanone (Methyl Ethyl Ketone)	12	Not Detected	34	Not Detected
cis-1,2-Dichloroethene	2.9	140	11	560
Tetrahydrofuran	2.9	Not Detected	8.6	Not Detected
Chloroform	2.9	Not Detected	14	Not Detected
1,1,1-Trichloroethane	2.9	Not Detected	16	Not Detected
Cyclohexane	2.9	230	10	800
Carbon Tetrachloride	2.9	Not Detected	18	Not Detected
2,2,4-Trimethylpentane	2.9	1100	14	5400
Benzene	2.9	20	9.3	66
1,2-Dichloroethane	2.9	Not Detected	12	Not Detected
Heptane	2.9	9.1	12	37
Trichloroethene	2.9	Not Detected	16	Not Detected
1,2-Dichloropropane	2.9	Not Detected	13	Not Detected
1,4-Dioxane	12	Not Detected	42	Not Detected
Bromodichloromethane	2.9	Not Detected	19	Not Detected
cis-1,3-Dichloropropene	2.9	Not Detected	13	Not Detected
4-Methyl-2-pentanone	2.9	Not Detected	12	Not Detected
Toluene	2.9	Not Detected	11	Not Detected
trans-1,3-Dichloropropene	2.9	Not Detected	13	Not Detected
1,1,2-Trichloroethane	2.9	Not Detected	16	Not Detected
Tetrachloroethene	2.9	Not Detected	20	Not Detected
2-Hexanone	12	Not Detected	48	Not Detected



Client Sample ID: SV-4D

Lab ID#: 1603487A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3032626	Date of Collection:	3/24/16 12:07:00 PM
Dil. Factor:	5.80	Date of Analysis:	3/26/16 11:21 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	2.9	Not Detected	25	Not Detected
1,2-Dibromoethane (EDB)	2.9	Not Detected	22	Not Detected
Chlorobenzene	2.9	Not Detected	13	Not Detected
Ethyl Benzene	2.9	Not Detected	12	Not Detected
m,p-Xylene	2.9	3.4	12	15
o-Xylene	2.9	Not Detected	12	Not Detected
Styrene	2.9	Not Detected	12	Not Detected
Bromoform	2.9	Not Detected	30	Not Detected
Cumene	2.9	Not Detected	14	Not Detected
1,1,2,2-Tetrachloroethane	2.9	Not Detected	20	Not Detected
Propylbenzene	2.9	Not Detected	14	Not Detected
4-Ethyltoluene	2.9	Not Detected	14	Not Detected
1,3,5-Trimethylbenzene	2.9	Not Detected	14	Not Detected
1,2,4-Trimethylbenzene	2.9	Not Detected	14	Not Detected
1,3-Dichlorobenzene	2.9	Not Detected	17	Not Detected
1,4-Dichlorobenzene	2.9	Not Detected	17	Not Detected
alpha-Chlorotoluene	2.9	Not Detected	15	Not Detected
1,2-Dichlorobenzene	2.9	Not Detected	17	Not Detected
1,2,4-Trichlorobenzene	12	Not Detected	86	Not Detected
Hexachlorobutadiene	12	Not Detected	120	Not Detected
Naphthalene	5.8	Not Detected	30	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	106	70-130
1,2-Dichloroethane-d4	114	70-130
4-Bromofluorobenzene	122	70-130



Air Toxics

Client Sample ID: SV-6

Lab ID#: 1603487A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3032627	Date of Collection:	3/24/16 3:20:00 PM
Dil. Factor:	4.44	Date of Analysis:	3/26/16 11:48 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	2.2	Not Detected	11	Not Detected
Freon 114	2.2	Not Detected	16	Not Detected
Chloromethane	22	Not Detected	46	Not Detected
Vinyl Chloride	2.2	Not Detected	5.7	Not Detected
1,3-Butadiene	2.2	Not Detected	4.9	Not Detected
Bromomethane	22	Not Detected	86	Not Detected
Chloroethane	8.9	Not Detected	23	Not Detected
Freon 11	2.2	Not Detected	12	Not Detected
Ethanol	8.9	100	17	200
Freon 113	2.2	Not Detected	17	Not Detected
1,1-Dichloroethene	2.2	Not Detected	8.8	Not Detected
Acetone	22	660	53	1600
2-Propanol	8.9	340	22	840
Carbon Disulfide	8.9	120	28	370
3-Chloropropene	8.9	Not Detected	28	Not Detected
Methylene Chloride	22	Not Detected	77	Not Detected
Methyl tert-butyl ether	2.2	Not Detected	8.0	Not Detected
trans-1,2-Dichloroethene	2.2	Not Detected	8.8	Not Detected
Hexane	2.2	24	7.8	85
1,1-Dichloroethane	2.2	Not Detected	9.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	8.9	180	26	530
cis-1,2-Dichloroethene	2.2	Not Detected	8.8	Not Detected
Tetrahydrofuran	2.2	Not Detected	6.5	Not Detected
Chloroform	2.2	Not Detected	11	Not Detected
1,1,1-Trichloroethane	2.2	Not Detected	12	Not Detected
Cyclohexane	2.2	8.0	7.6	28
Carbon Tetrachloride	2.2	Not Detected	14	Not Detected
2,2,4-Trimethylpentane	2.2	3.0	10	14
Benzene	2.2	13	7.1	43
1,2-Dichloroethane	2.2	Not Detected	9.0	Not Detected
Heptane	2.2	6.4	9.1	26
Trichloroethene	2.2	Not Detected	12	Not Detected
1,2-Dichloropropane	2.2	Not Detected	10	Not Detected
1,4-Dioxane	8.9	Not Detected	32	Not Detected
Bromodichloromethane	2.2	Not Detected	15	Not Detected
cis-1,3-Dichloropropene	2.2	Not Detected	10	Not Detected
4-Methyl-2-pentanone	2.2	Not Detected	9.1	Not Detected
Toluene	2.2	12	8.4	47
trans-1,3-Dichloropropene	2.2	Not Detected	10	Not Detected
1,1,2-Trichloroethane	2.2	Not Detected	12	Not Detected
Tetrachloroethene	2.2	Not Detected	15	Not Detected
2-Hexanone	8.9	Not Detected	36	Not Detected



Client Sample ID: SV-6

Lab ID#: 1603487A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3032627	Date of Collection:	3/24/16 3:20:00 PM
Dil. Factor:	4.44	Date of Analysis:	3/26/16 11:48 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	2.2	Not Detected	19	Not Detected
1,2-Dibromoethane (EDB)	2.2	Not Detected	17	Not Detected
Chlorobenzene	2.2	Not Detected	10	Not Detected
Ethyl Benzene	2.2	Not Detected	9.6	Not Detected
m,p-Xylene	2.2	5.4	9.6	23
o-Xylene	2.2	5.9	9.6	26
Styrene	2.2	Not Detected	9.4	Not Detected
Bromoform	2.2	Not Detected	23	Not Detected
Cumene	2.2	Not Detected	11	Not Detected
1,1,2,2-Tetrachloroethane	2.2	Not Detected	15	Not Detected
Propylbenzene	2.2	Not Detected	11	Not Detected
4-Ethyltoluene	2.2	Not Detected	11	Not Detected
1,3,5-Trimethylbenzene	2.2	Not Detected	11	Not Detected
1,2,4-Trimethylbenzene	2.2	3.0	11	15
1,3-Dichlorobenzene	2.2	2.2	13	13
1,4-Dichlorobenzene	2.2	Not Detected	13	Not Detected
alpha-Chlorotoluene	2.2	Not Detected	11	Not Detected
1,2-Dichlorobenzene	2.2	Not Detected	13	Not Detected
1,2,4-Trichlorobenzene	8.9	Not Detected	66	Not Detected
Hexachlorobutadiene	8.9	Not Detected	95	Not Detected
Naphthalene	4.4	Not Detected	23	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	107	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	97	70-130



Air Toxics

Client Sample ID: SV-7

Lab ID#: 1603487A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3032628	Date of Collection:	3/24/16 2:40:00 PM
Dil. Factor:	5.15	Date of Analysis:	3/27/16 12:14 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	2.6	Not Detected	13	Not Detected
Freon 114	2.6	Not Detected	18	Not Detected
Chloromethane	26	Not Detected	53	Not Detected
Vinyl Chloride	2.6	Not Detected	6.6	Not Detected
1,3-Butadiene	2.6	Not Detected	5.7	Not Detected
Bromomethane	26	Not Detected	100	Not Detected
Chloroethane	10	Not Detected	27	Not Detected
Freon 11	2.6	Not Detected	14	Not Detected
Ethanol	10	21	19	40
Freon 113	2.6	Not Detected	20	Not Detected
1,1-Dichloroethene	2.6	Not Detected	10	Not Detected
Acetone	26	58	61	140
2-Propanol	10	2400 E	25	5800 E
Carbon Disulfide	10	18	32	56
3-Chloropropene	10	Not Detected	32	Not Detected
Methylene Chloride	26	Not Detected	89	Not Detected
Methyl tert-butyl ether	2.6	Not Detected	9.3	Not Detected
trans-1,2-Dichloroethene	2.6	Not Detected	10	Not Detected
Hexane	2.6	Not Detected	9.1	Not Detected
1,1-Dichloroethane	2.6	Not Detected	10	Not Detected
2-Butanone (Methyl Ethyl Ketone)	10	Not Detected	30	Not Detected
cis-1,2-Dichloroethene	2.6	Not Detected	10	Not Detected
Tetrahydrofuran	2.6	2.6 J	7.6	7.5 J
Chloroform	2.6	86	12	420
1,1,1-Trichloroethane	2.6	Not Detected	14	Not Detected
Cyclohexane	2.6	Not Detected	8.9	Not Detected
Carbon Tetrachloride	2.6	Not Detected	16	Not Detected
2,2,4-Trimethylpentane	2.6	Not Detected	12	Not Detected
Benzene	2.6	Not Detected	8.2	Not Detected
1,2-Dichloroethane	2.6	Not Detected	10	Not Detected
Heptane	2.6	Not Detected	10	Not Detected
Trichloroethene	2.6	Not Detected	14	Not Detected
1,2-Dichloropropane	2.6	Not Detected	12	Not Detected
1,4-Dioxane	10	Not Detected	37	Not Detected
Bromodichloromethane	2.6	3.9	17	26
cis-1,3-Dichloropropene	2.6	Not Detected	12	Not Detected
4-Methyl-2-pentanone	2.6	Not Detected	10	Not Detected
Toluene	2.6	Not Detected	9.7	Not Detected
trans-1,3-Dichloropropene	2.6	Not Detected	12	Not Detected
1,1,2-Trichloroethane	2.6	Not Detected	14	Not Detected
Tetrachloroethene	2.6	Not Detected	17	Not Detected
2-Hexanone	10	Not Detected	42	Not Detected



Client Sample ID: SV-7

Lab ID#: 1603487A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3032628	Date of Collection:	3/24/16 2:40:00 PM
Dil. Factor:	5.15	Date of Analysis:	3/27/16 12:14 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	2.6	Not Detected	22	Not Detected
1,2-Dibromoethane (EDB)	2.6	Not Detected	20	Not Detected
Chlorobenzene	2.6	Not Detected	12	Not Detected
Ethyl Benzene	2.6	Not Detected	11	Not Detected
m,p-Xylene	2.6	Not Detected	11	Not Detected
o-Xylene	2.6	Not Detected	11	Not Detected
Styrene	2.6	Not Detected	11	Not Detected
Bromoform	2.6	Not Detected	27	Not Detected
Cumene	2.6	Not Detected	13	Not Detected
1,1,2,2-Tetrachloroethane	2.6	Not Detected	18	Not Detected
Propylbenzene	2.6	Not Detected	13	Not Detected
4-Ethyltoluene	2.6	Not Detected	13	Not Detected
1,3,5-Trimethylbenzene	2.6	Not Detected	13	Not Detected
1,2,4-Trimethylbenzene	2.6	Not Detected	13	Not Detected
1,3-Dichlorobenzene	2.6	Not Detected	15	Not Detected
1,4-Dichlorobenzene	2.6	Not Detected	15	Not Detected
alpha-Chlorotoluene	2.6	Not Detected	13	Not Detected
1,2-Dichlorobenzene	2.6	Not Detected	15	Not Detected
1,2,4-Trichlorobenzene	10	Not Detected	76	Not Detected
Hexachlorobutadiene	10	Not Detected	110	Not Detected
Naphthalene	5.2	Not Detected	27	Not Detected

E = Exceeds instrument calibration range.

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	116	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	100	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1603487A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3032607	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	3/26/16 11:37 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	Not Detected	12	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected

Client Sample ID: Lab Blank

Lab ID#: 1603487A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3032607	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/26/16 11:37 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected
Naphthalene	1.0	Not Detected	5.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	108	70-130
1,2-Dichloroethane-d4	105	70-130
4-Bromofluorobenzene	97	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1603487A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3032602	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/26/16 08:38 AM

Compound	%Recovery
Freon 12	90
Freon 114	83
Chloromethane	100
Vinyl Chloride	90
1,3-Butadiene	85
Bromomethane	90
Chloroethane	86
Freon 11	86
Ethanol	93
Freon 113	80
1,1-Dichloroethene	86
Acetone	99
2-Propanol	93
Carbon Disulfide	88
3-Chloropropene	85
Methylene Chloride	96
Methyl tert-butyl ether	86
trans-1,2-Dichloroethene	90
Hexane	93
1,1-Dichloroethane	96
2-Butanone (Methyl Ethyl Ketone)	96
cis-1,2-Dichloroethene	101
Tetrahydrofuran	105
Chloroform	101
1,1,1-Trichloroethane	92
Cyclohexane	99
Carbon Tetrachloride	93
2,2,4-Trimethylpentane	109
Benzene	112
1,2-Dichloroethane	102
Heptane	97
Trichloroethene	99
1,2-Dichloropropane	100
1,4-Dioxane	92
Bromodichloromethane	102
cis-1,3-Dichloropropene	102
4-Methyl-2-pentanone	94
Toluene	98
trans-1,3-Dichloropropene	102
1,1,2-Trichloroethane	97
Tetrachloroethene	94
2-Hexanone	91



Air Toxics

Client Sample ID: CCV

Lab ID#: 1603487A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3032602	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/26/16 08:38 AM

Compound	%Recovery
Dibromochloromethane	97
1,2-Dibromoethane (EDB)	98
Chlorobenzene	95
Ethyl Benzene	94
m,p-Xylene	96
o-Xylene	94
Styrene	90
Bromoform	98
Cumene	95
1,1,2,2-Tetrachloroethane	96
Propylbenzene	94
4-Ethyltoluene	89
1,3,5-Trimethylbenzene	92
1,2,4-Trimethylbenzene	92
1,3-Dichlorobenzene	92
1,4-Dichlorobenzene	90
alpha-Chlorotoluene	96
1,2-Dichlorobenzene	90
1,2,4-Trichlorobenzene	135 Q
Hexachlorobutadiene	136 Q
Naphthalene	102

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	108	70-130
1,2-Dichloroethane-d4	95	70-130
4-Bromofluorobenzene	100	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1603487A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3032604	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/26/16 09:31 AM

Compound	%Recovery	Method Limits
Freon 12	92	70-130
Freon 114	88	70-130
Chloromethane	100	70-130
Vinyl Chloride	94	70-130
1,3-Butadiene	84	70-130
Bromomethane	89	70-130
Chloroethane	89	70-130
Freon 11	87	70-130
Ethanol	96	70-130
Freon 113	78	70-130
1,1-Dichloroethene	84	70-130
Acetone	91	70-130
2-Propanol	97	70-130
Carbon Disulfide	76	70-130
3-Chloropropene	80	70-130
Methylene Chloride	95	70-130
Methyl tert-butyl ether	84	70-130
trans-1,2-Dichloroethene	91	70-130
Hexane	92	70-130
1,1-Dichloroethane	95	70-130
2-Butanone (Methyl Ethyl Ketone)	89	70-130
cis-1,2-Dichloroethene	92	70-130
Tetrahydrofuran	100	70-130
Chloroform	94	70-130
1,1,1-Trichloroethane	92	70-130
Cyclohexane	97	70-130
Carbon Tetrachloride	92	70-130
2,2,4-Trimethylpentane	108	70-130
Benzene	92	70-130
1,2-Dichloroethane	87	70-130
Heptane	92	70-130
Trichloroethene	95	70-130
1,2-Dichloropropane	104	70-130
1,4-Dioxane	81	70-130
Bromodichloromethane	88	70-130
cis-1,3-Dichloropropene	80	70-130
4-Methyl-2-pentanone	85	70-130
Toluene	82	70-130
trans-1,3-Dichloropropene	98	70-130
1,1,2-Trichloroethane	92	70-130
Tetrachloroethene	91	70-130
2-Hexanone	97	70-130



Client Sample ID: LCS

Lab ID#: 1603487A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3032604	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/26/16 09:31 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	95	70-130
1,2-Dibromoethane (EDB)	94	70-130
Chlorobenzene	92	70-130
Ethyl Benzene	91	70-130
m,p-Xylene	92	70-130
o-Xylene	92	70-130
Styrene	92	70-130
Bromoform	97	70-130
Cumene	93	70-130
1,1,2,2-Tetrachloroethane	95	70-130
Propylbenzene	93	70-130
4-Ethyltoluene	90	70-130
1,3,5-Trimethylbenzene	94	70-130
1,2,4-Trimethylbenzene	93	70-130
1,3-Dichlorobenzene	90	70-130
1,4-Dichlorobenzene	89	70-130
alpha-Chlorotoluene	98	70-130
1,2-Dichlorobenzene	89	70-130
1,2,4-Trichlorobenzene	93	70-130
Hexachlorobutadiene	93	70-130
Naphthalene	91	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	93	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: LCS D

Lab ID#: 1603487A-06AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3032605	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/26/16 10:14 AM

Compound	%Recovery	Method Limits
Freon 12	103	70-130
Freon 114	96	70-130
Chloromethane	110	70-130
Vinyl Chloride	104	70-130
1,3-Butadiene	91	70-130
Bromomethane	98	70-130
Chloroethane	100	70-130
Freon 11	96	70-130
Ethanol	107	70-130
Freon 113	92	70-130
1,1-Dichloroethene	97	70-130
Acetone	102	70-130
2-Propanol	100	70-130
Carbon Disulfide	88	70-130
3-Chloropropene	95	70-130
Methylene Chloride	109	70-130
Methyl tert-butyl ether	90	70-130
trans-1,2-Dichloroethene	101	70-130
Hexane	100	70-130
1,1-Dichloroethane	105	70-130
2-Butanone (Methyl Ethyl Ketone)	97	70-130
cis-1,2-Dichloroethene	95	70-130
Tetrahydrofuran	104	70-130
Chloroform	100	70-130
1,1,1-Trichloroethane	95	70-130
Cyclohexane	97	70-130
Carbon Tetrachloride	94	70-130
2,2,4-Trimethylpentane	105	70-130
Benzene	97	70-130
1,2-Dichloroethane	99	70-130
Heptane	95	70-130
Trichloroethene	96	70-130
1,2-Dichloropropane	99	70-130
1,4-Dioxane	90	70-130
Bromodichloromethane	101	70-130
cis-1,3-Dichloropropene	94	70-130
4-Methyl-2-pentanone	99	70-130
Toluene	96	70-130
trans-1,3-Dichloropropene	100	70-130
1,1,2-Trichloroethane	92	70-130
Tetrachloroethene	91	70-130
2-Hexanone	99	70-130

Client Sample ID: LCSD

Lab ID#: 1603487A-06AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3032605	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/26/16 10:14 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	94	70-130
1,2-Dibromoethane (EDB)	95	70-130
Chlorobenzene	92	70-130
Ethyl Benzene	92	70-130
m,p-Xylene	93	70-130
o-Xylene	95	70-130
Styrene	94	70-130
Bromoform	97	70-130
Cumene	92	70-130
1,1,2,2-Tetrachloroethane	94	70-130
Propylbenzene	93	70-130
4-Ethyltoluene	90	70-130
1,3,5-Trimethylbenzene	95	70-130
1,2,4-Trimethylbenzene	93	70-130
1,3-Dichlorobenzene	90	70-130
1,4-Dichlorobenzene	88	70-130
alpha-Chlorotoluene	99	70-130
1,2-Dichlorobenzene	88	70-130
1,2,4-Trichlorobenzene	96	70-130
Hexachlorobutadiene	96	70-130
Naphthalene	97	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	109	70-130
1,2-Dichloroethane-d4	106	70-130
4-Bromofluorobenzene	100	70-130

Sample Transportation Notice

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FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Page ___ of ___

Project Manager Nik Lahiri
 Collected by: (Print and Sign) Hugo Mendosa
 Company Esse Environmental Email h.mendosa@esse.com
 Address 351 CALIFORNIA City San Francisco State CA Zip 94104
 Phone (415) 960-9528 Fax _____

Project Info:
 P.O. # 15166
 Project # 15166
 Project Name UG & B

Turn Around Time:
 Normal
 Rush
49 Hr
specify

Lab Use Only
 Pressurized by:
 Date:
 Pressurization Gas:
 N₂ He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum			
						Initial	Final	Receipt	Final (psi)
01A	SV-4 D	9494	03/24/16	12:07 pm	TPH _g (TO-3), VOCs (TO-15) <small>ASTM D-1946</small>	-31.0	-5.0		
02A	SV-6	37343	03/24/16	3:20 pm	TPH _g (TO-3) VOCs (TO-15)	-32.0			
03A	SV-7	12808	03/24/16	2:40 pm	TPH _g (TO-3) VOCs (TO-15)	-33.0	-22.9		

Relinquished by: (signature) [Signature] Date/Time 03/24/16
 Relinquished by: (signature) _____ Date/Time _____
 Relinquished by: (signature) _____ Date/Time _____

Received by: (signature) [Signature] Date/Time 3/25/16 1030
 Received by: (signature) _____ Date/Time _____
 Received by: (signature) _____ Date/Time _____

Notes:
 SV-4D - ASTM D1946 (O₂, N₂, CH₄ and CO₂)
 SV-6 & SV-7 - TO-3 & TO-15 only
 [Analyze for Naphthalene for all]

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fed Ex		NA	Good	Yes No <u>None</u>	1603487

3/29/2016

Jaime Warren
Essel Environmental Consultants
351 California St. Suite 615

San Francisco CA 94104

Project Name: WG&B
Project #: 15166
Workorder #: 1603487B

Dear Jaime Warren

The following report includes the data for the above referenced project for sample(s) received on 3/25/2016 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-3 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free the Project Manager: Kyle Vagadori at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Kyle Vagadori
Project Manager

WORK ORDER #: 1603487B

Work Order Summary

CLIENT:	Jaime Warren Essel Environmental Consultants 351 California St. Suite 615 San Francisco, CA 94104	BILL TO:	Jaime Warren Essel Environmental Consultants 351 California St. Suite 615 San Francisco, CA 94104
PHONE:	510-878-0389	P.O. #	15166
FAX:		PROJECT #	15166 WG&B
DATE RECEIVED:	03/25/2016	CONTACT:	Kyle Vagadori
DATE COMPLETED:	03/29/2016		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SV-4D	Modified TO-3	4.3 "Hg	14.5 psi
02A	SV-6	Modified TO-3	16.5 "Hg	14.7 psi
03A	SV-7	Modified TO-3	18.4 "Hg	14.6 psi
04A	Lab Blank	Modified TO-3	NA	NA
05A	LCS	Modified TO-3	NA	NA
05AA	LCSD	Modified TO-3	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 03/29/16

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc. certifies that the test results contained in this report meet all requirements of the NELAC standards

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LABORATORY NARRATIVE
Modified TO-3
Essel Environmental Consultants
Workorder# 1603487B

Three 1 Liter Summa Canister samples were received on March 25, 2016. The laboratory performed analysis for volatile organic compounds in air via modified EPA Method TO-3 using gas chromatography with flame ionization detection. The TPH results are calculated using the response of Gasoline. A molecular weight of 100 is used to convert the TPH ppmv result to ug/L. The method involves concentrating up to 200 mL of sample. The concentrated aliquot is then dry purged to remove water vapor prior to entering the chromatographic system.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-3</i>	<i>ATL Modifications</i>
Daily Calibration Standard Frequency	Prior to sample analysis and every 4 - 6 hrs	Prior to sample analysis and after the analytical batch ≤ 20 samples.
Initial Calibration Calculation	4-point calibration using a linear regression model	5-point calibration using average Response Factor
Initial Calibration Frequency	Weekly	When daily calibration standard recovery is outside 75 - 125 %, or upon significant changes to procedure or instrumentation
Moisture Control	Nafion system	Sorbent system
Minimum Detection Limit (MDL)	Calculated using the equation $DL = A + 3.3S$, where A is intercept of calibration line and S is the standard deviation of at least 3 reps of low level standard	40 CFR Pt. 136 App. B
Preparation of Standards	Levels achieved through dilution of gas mixture	Levels achieved through loading various volumes of the gas mixture

Receiving Notes

Samples SV-6 and SV-7 were received with significant vacuum remaining in the canister. The residual canister vacuum resulted in elevated reporting limits.

Analytical Notes

The recovery of surrogate Fluorobenzene in sample SV-4D was outside control limits due to high level hydrocarbon matrix interference. Data is reported as qualified.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:

- B - Compound present in laboratory blank greater than reporting limit.
- J - Estimated value.
- E - Exceeds instrument calibration range.
- S - Saturated peak.
- Q - Exceeds quality control limits.
- U - Compound analyzed for but not detected above the detection limit.
- M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:

- a-File was requantified
- b-File was quantified by a second column and detector
- r1-File was requantified for the purpose of reissue

**Summary of Detected Compounds
MODIFIED EPA METHOD TO-3 GC/FID**

Client Sample ID: SV-4D

Lab ID#: 1603487B-01A

Compound	Rpt. Limit (ppmv)	Rpt. Limit (ug/L)	Amount (ppmv)	Amount (ug/L)
TPH (Gasoline Range)	0.058	0.24	25	100

Client Sample ID: SV-6

Lab ID#: 1603487B-02A

Compound	Rpt. Limit (ppmv)	Rpt. Limit (ug/L)	Amount (ppmv)	Amount (ug/L)
TPH (Gasoline Range)	0.11	0.46	2.7	11

Client Sample ID: SV-7

Lab ID#: 1603487B-03A

Compound	Rpt. Limit (ppmv)	Rpt. Limit (ug/L)	Amount (ppmv)	Amount (ug/L)
TPH (Gasoline Range)	0.13	0.52	0.19	0.77



Air Toxics

Client Sample ID: SV-4D

Lab ID#: 1603487B-01A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	d032804	Date of Collection:	3/24/16 12:07:00 PM	
Dil. Factor:	2.32	Date of Analysis:	3/28/16 12:31 PM	

Compound	Rpt. Limit (ppmv)	Rpt. Limit (ug/L)	Amount (ppmv)	Amount (ug/L)
TPH (Gasoline Range)	0.058	0.24	25	100

Q = Exceeds Quality Control limits, possibly due to matrix effects.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	169 Q	75-150



Air Toxics

Client Sample ID: SV-6

Lab ID#: 1603487B-02A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	d032805	Date of Collection:	3/24/16 3:20:00 PM	
Dil. Factor:	4.45	Date of Analysis:	3/28/16 01:08 PM	

Compound	Rpt. Limit (ppmv)	Rpt. Limit (ug/L)	Amount (ppmv)	Amount (ug/L)
TPH (Gasoline Range)	0.11	0.46	2.7	11

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	106	75-150



Air Toxics

Client Sample ID: SV-7

Lab ID#: 1603487B-03A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	d032806	Date of Collection:	3/24/16 2:40:00 PM	
Dil. Factor:	5.14	Date of Analysis:	3/28/16 02:14 PM	

Compound	Rpt. Limit (ppmv)	Rpt. Limit (ug/L)	Amount (ppmv)	Amount (ug/L)
TPH (Gasoline Range)	0.13	0.52	0.19	0.77

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	102	75-150



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1603487B-04A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	d032803	Date of Collection:	NA	
Dil. Factor:	1.00	Date of Analysis:	3/28/16 11:14 AM	

Compound	Rpt. Limit (ppmv)	Rpt. Limit (ug/L)	Amount (ppmv)	Amount (ug/L)
TPH (Gasoline Range)	0.025	0.10	Not Detected	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	103	75-150



Air Toxics

Client Sample ID: LCS

Lab ID#: 1603487B-05A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	d032802	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/28/16 10:32 AM

Compound	%Recovery	Method Limits
TPH (Gasoline Range)	80	75-125

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	112	75-150



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1603487B-05AA

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	d032811	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/28/16 06:56 PM

Compound	%Recovery	Method Limits
TPH (Gasoline Range)	81	75-125

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	105	75-150

Sample Transportation Notice

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FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Project Manager Nik Lahiri
 Collected by: (Print and Sign) Hugo Mendora
 Company Esse Environmental Email h.mendora@esse.com
 Address 351 CALIFORNIA City San Francisco State CA Zip 94104
 Phone (415) 960-9528 Fax _____

Project Info:
 P.O. # 15166
 Project # 15166
 Project Name UG & B

Turn Around Time:
 Normal
 Rush
49 Hr
specify

Lab Use Only
 Pressurized by:
 Date:
 Pressurization Gas:
 N₂ He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum			
						Initial	Final	Receipt	Final (psi)
01A	SV-4 D	9494	03/24/16	12:07 pm	TPH _g (TO-3), VOCs (TO-15) <small>ASTM D-1946</small>	-31.0	-5.0		
02A	SV-6	37343	03/24/16	3:20 pm	TPH _g (TO-3) VOCs (TO-15)	-32.0			
03A	SV-7	12808	03/24/16	2:40 pm	TPH _g (TO-3) VOCs (TO-15)	-33.0	-22.9		

Relinquished by: (signature) [Signature] Date/Time 03/24/16
 Relinquished by: (signature) _____ Date/Time _____
 Relinquished by: (signature) _____ Date/Time _____

Received by: (signature) [Signature] Date/Time 3/25/16 1030
 Received by: (signature) _____ Date/Time _____
 Received by: (signature) _____ Date/Time _____

Notes:
 SV-4D - ASTM D1946 (O₂, N₂, CH₄ and CO₂)
 SV-6 & SV-7 - TO-3 & TO-15 only
 Analyze for Naphthalene for all

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fed Ex		NA	Good	Yes No <u>None</u>	1603487

3/29/2016

Jaime Warren
Essel Environmental Consultants
351 California St. Suite 615

San Francisco CA 94104

Project Name: WG&B
Project #: 15166
Workorder #: 1603487C

Dear Jaime Warren

The following report includes the data for the above referenced project for sample(s) received on 3/25/2016 at Air Toxics Ltd.

The data and associated QC analyzed by Modified ASTM D-1946 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free the Project Manager: Kyle Vagadori at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Kyle Vagadori
Project Manager

WORK ORDER #: 1603487C

Work Order Summary

CLIENT:	Jaime Warren Essel Environmental Consultants 351 California St. Suite 615 San Francisco, CA 94104	BILL TO:	Jaime Warren Essel Environmental Consultants 351 California St. Suite 615 San Francisco, CA 94104
PHONE:	510-878-0389	P.O. #	15166
FAX:		PROJECT #	15166 WG&B
DATE RECEIVED:	03/25/2016	CONTACT:	Kyle Vagadori
DATE COMPLETED:	03/29/2016		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SV-4D	Modified ASTM D-1946	4.3 "Hg	14.5 psi
02A	Lab Blank	Modified ASTM D-1946	NA	NA
03A	LCS	Modified ASTM D-1946	NA	NA
03AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 03/29/16

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc. certifies that the test results contained in this report meet all requirements of the NELAC standards

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LABORATORY NARRATIVE
Modified ASTM D-1946
Essel Environmental Consultants
Workorder# 1603487C

One 1 Liter Summa Canister sample was received on March 25, 2016. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

Since Nitrogen is used to pressurize samples, the reported Nitrogen values are calculated by adding all the sample components and subtracting from 100%.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>ASTM D-1946</i>	<i>ATL Modifications</i>
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A minimum of 5-point calibration curve is performed. Quantitation is based on average Response Factor.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a $\geq 95\%$ accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections $> 5 X$'s the RL.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:

B - Compound present in laboratory blank greater than reporting limit.

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the detection limit.

M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: SV-4D

Lab ID#: 1603487C-01A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.23	1.9
Nitrogen	0.23	93
Methane	0.00023	0.068
Carbon Dioxide	0.023	4.7



Air Toxics

Client Sample ID: SV-4D

Lab ID#: 1603487C-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	10032805	Date of Collection:	3/24/16 12:07:00 PM
Dil. Factor:	2.32	Date of Analysis:	3/28/16 11:17 AM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.23	1.9
Nitrogen	0.23	93
Methane	0.00023	0.068
Carbon Dioxide	0.023	4.7

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1603487C-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	10032803	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/28/16 10:25 AM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	Not Detected
Nitrogen	0.10	Not Detected
Methane	0.00010	Not Detected
Carbon Dioxide	0.010	Not Detected

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: LCS

Lab ID#: 1603487C-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	10032802	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	3/28/16 09:48 AM

Compound	%Recovery	Method Limits
Oxygen	99	85-115
Nitrogen	92	85-115
Methane	103	85-115
Carbon Dioxide	98	85-115

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1603487C-03AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	10032815	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/28/16 04:41 PM

Compound	%Recovery	Method Limits
Oxygen	99	85-115
Nitrogen	92	85-115
Methane	101	85-115
Carbon Dioxide	100	85-115

Container Type: NA - Not Applicable



Sample Transportation Notice

Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Page ____ of ____

Project Manager Nik Linnik
 Collected by: (Print and Sign) [Signature]
 Company USA Environmental Email [Email]
 Address 531 Alameda St City San Francisco State CA Zip 94104
 Phone (415) 960-5528 Fax _____

Project Info: P.O. # <u>15166</u> Project # <u>15166</u> Project Name <u>LOG & B</u>	Turn Around Time: <input type="checkbox"/> Normal <input checked="" type="checkbox"/> Rush <small>specify</small>	<small>Lab Use Only</small> Pressurized by: Date: Pressurization Gas: N ₂ He
	<small>specify</small>	

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum			
						Initial	Final	Receipt	Final (ps)
01A	SV-4D	9494	03/24/16	12:07 pm	TPH, (10-3) V, (10-15)	-31.0	-5.0		
Z	SV-6	37343	02/24/16	3:22 pm	TPH, (10-3) V, (10-15)	-32.0			
	SV-7	12808	02/24/16	2:41 pm	TPH, (10-3) V, (10-15)	-33.0	-22.9		

Relinquished by: (signature) <u>[Signature]</u> Date/Time <u>02/24/16</u>	Received by: (signature) <u>[Signature]</u> Date/Time <u>3/25/16 1030</u>	Notes: 05062.07 - TP-3 & TO 15 only Analyze for Naphthalene for all
Relinquished by: (signature) _____ Date/Time _____	Received by: (signature) _____ Date/Time _____	
Relinquished by: (signature) _____ Date/Time _____	Received by: (signature) _____ Date/Time _____	

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fed Ex		NA	Good	Yes No <u>None</u>	1603457



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1602965

Report Created for: Essel Environmental Consulting
564 Market Street
San Francisco, CA 94104

Project Contact: Nik Lahiri
Project P.O.:
Project Name: EBALDC

Project Received: 02/24/2016

Analytical Report reviewed & approved for release on 03/01/2016 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: Essel Environmental Consulting
Project: EBALDC
WorkOrder: 1602965

Glossary Abbreviation

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
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)

Analytical Qualifiers

S	Surrogate spike recovery outside accepted recovery limits
c2	surrogate recovery outside of the control limits due to matrix interference.



Glossary of Terms & Qualifier Definitions

Client: Essel Environmental Consulting
Project: EBALDC
WorkOrder: 1602965

Quality Control Qualifiers

- F1 MS/MSD recovery and/or RPD is out of acceptance criteria; LCS validated the prep batch.
- F8 MS/MSD recovery and/or RPD was out of acceptance criteria; PDS validated the prep batch. If PDS recovery was out of acceptance criteria, DLT validated the prep batch.



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
Extraction Method: SW3550B
Analytical Method: SW8082
Unit: mg/kg

Polychlorinated Biphenyls (PCBs) Aroclors

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1-HA1	1602965-001A	Soil	02/23/2016 08:23	GC23	117129

Analytes	Result	RL	DF	Date Analyzed
Aroclor1016	ND	0.050	1	02/24/2016 22:23
Aroclor1221	ND	0.050	1	02/24/2016 22:23
Aroclor1232	ND	0.050	1	02/24/2016 22:23
Aroclor1242	ND	0.050	1	02/24/2016 22:23
Aroclor1248	ND	0.050	1	02/24/2016 22:23
Aroclor1254	ND	0.050	1	02/24/2016 22:23
Aroclor1260	ND	0.050	1	02/24/2016 22:23
PCBs, total	ND	0.050	1	02/24/2016 22:23

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	77	70-130	02/24/2016 22:23

Analyst(s): SS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1-HA2	1602965-003A	Soil	02/23/2016 08:29	GC23	117129

Analytes	Result	RL	DF	Date Analyzed
Aroclor1016	ND	0.050	1	02/25/2016 00:15
Aroclor1221	ND	0.050	1	02/25/2016 00:15
Aroclor1232	ND	0.050	1	02/25/2016 00:15
Aroclor1242	ND	0.050	1	02/25/2016 00:15
Aroclor1248	ND	0.050	1	02/25/2016 00:15
Aroclor1254	ND	0.050	1	02/25/2016 00:15
Aroclor1260	ND	0.050	1	02/25/2016 00:15
PCBs, total	ND	0.050	1	02/25/2016 00:15

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	77	70-130	02/25/2016 00:15

Analyst(s): SS

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
Extraction Method: SW3550B
Analytical Method: SW8082
Unit: mg/kg

Polychlorinated Biphenyls (PCBs) Aroclors

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1-HA3	1602965-005A	Soil	02/23/2016 08:37	GC23	117129

Analytes	Result	RL	DF	Date Analyzed
Aroclor1016	ND	0.050	1	02/25/2016 04:00
Aroclor1221	ND	0.050	1	02/25/2016 04:00
Aroclor1232	ND	0.050	1	02/25/2016 04:00
Aroclor1242	ND	0.050	1	02/25/2016 04:00
Aroclor1248	ND	0.050	1	02/25/2016 04:00
Aroclor1254	ND	0.050	1	02/25/2016 04:00
Aroclor1260	ND	0.050	1	02/25/2016 04:00
PCBs, total	ND	0.050	1	02/25/2016 04:00

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	85	70-130	02/25/2016 04:00

Analyst(s): SS



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
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
S-1-HA1	1602965-001A	Soil	02/23/2016 08:23	GC16	117127
Analytes	Result	RL	DF	Date Analyzed	
Acetone	ND	0.10	1	02/29/2016 14:00	
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/29/2016 14:00	
Benzene	ND	0.0050	1	02/29/2016 14:00	
Bromobenzene	ND	0.0050	1	02/29/2016 14:00	
Bromochloromethane	ND	0.0050	1	02/29/2016 14:00	
Bromodichloromethane	ND	0.0050	1	02/29/2016 14:00	
Bromoform	ND	0.0050	1	02/29/2016 14:00	
Bromomethane	ND	0.0050	1	02/29/2016 14:00	
2-Butanone (MEK)	ND	0.020	1	02/29/2016 14:00	
t-Butyl alcohol (TBA)	ND	0.050	1	02/29/2016 14:00	
n-Butyl benzene	ND	0.0050	1	02/29/2016 14:00	
sec-Butyl benzene	ND	0.0050	1	02/29/2016 14:00	
tert-Butyl benzene	ND	0.0050	1	02/29/2016 14:00	
Carbon Disulfide	ND	0.0050	1	02/29/2016 14:00	
Carbon Tetrachloride	ND	0.0050	1	02/29/2016 14:00	
Chlorobenzene	ND	0.0050	1	02/29/2016 14:00	
Chloroethane	ND	0.0050	1	02/29/2016 14:00	
Chloroform	ND	0.0050	1	02/29/2016 14:00	
Chloromethane	ND	0.0050	1	02/29/2016 14:00	
2-Chlorotoluene	ND	0.0050	1	02/29/2016 14:00	
4-Chlorotoluene	ND	0.0050	1	02/29/2016 14:00	
Dibromochloromethane	ND	0.0050	1	02/29/2016 14:00	
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/29/2016 14:00	
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/29/2016 14:00	
Dibromomethane	ND	0.0050	1	02/29/2016 14:00	
1,2-Dichlorobenzene	ND	0.0050	1	02/29/2016 14:00	
1,3-Dichlorobenzene	ND	0.0050	1	02/29/2016 14:00	
1,4-Dichlorobenzene	ND	0.0050	1	02/29/2016 14:00	
Dichlorodifluoromethane	ND	0.0050	1	02/29/2016 14:00	
1,1-Dichloroethane	ND	0.0050	1	02/29/2016 14:00	
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/29/2016 14:00	
1,1-Dichloroethene	ND	0.0050	1	02/29/2016 14:00	
cis-1,2-Dichloroethene	ND	0.0050	1	02/29/2016 14:00	
trans-1,2-Dichloroethene	ND	0.0050	1	02/29/2016 14:00	
1,2-Dichloropropane	ND	0.0050	1	02/29/2016 14:00	
1,3-Dichloropropane	ND	0.0050	1	02/29/2016 14:00	
2,2-Dichloropropane	ND	0.0050	1	02/29/2016 14:00	

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
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
S-1-HA1	1602965-001A	Soil	02/23/2016 08:23	GC16	117127
Analytes	Result	RL	DF	Date Analyzed	
1,1-Dichloropropene	ND	0.0050	1	02/29/2016 14:00	
cis-1,3-Dichloropropene	ND	0.0050	1	02/29/2016 14:00	
trans-1,3-Dichloropropene	ND	0.0050	1	02/29/2016 14:00	
Diisopropyl ether (DIPE)	ND	0.0050	1	02/29/2016 14:00	
Ethylbenzene	ND	0.0050	1	02/29/2016 14:00	
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/29/2016 14:00	
Freon 113	ND	0.0050	1	02/29/2016 14:00	
Hexachlorobutadiene	ND	0.0050	1	02/29/2016 14:00	
Hexachloroethane	ND	0.0050	1	02/29/2016 14:00	
2-Hexanone	ND	0.0050	1	02/29/2016 14:00	
Isopropylbenzene	ND	0.0050	1	02/29/2016 14:00	
4-Isopropyl toluene	ND	0.0050	1	02/29/2016 14:00	
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/29/2016 14:00	
Methylene chloride	ND	0.0050	1	02/29/2016 14:00	
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/29/2016 14:00	
Naphthalene	ND	0.0050	1	02/29/2016 14:00	
n-Propyl benzene	ND	0.0050	1	02/29/2016 14:00	
Styrene	ND	0.0050	1	02/29/2016 14:00	
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/29/2016 14:00	
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/29/2016 14:00	
Tetrachloroethene	ND	0.0050	1	02/29/2016 14:00	
Toluene	ND	0.0050	1	02/29/2016 14:00	
1,2,3-Trichlorobenzene	ND	0.0050	1	02/29/2016 14:00	
1,2,4-Trichlorobenzene	ND	0.0050	1	02/29/2016 14:00	
1,1,1-Trichloroethane	ND	0.0050	1	02/29/2016 14:00	
1,1,2-Trichloroethane	ND	0.0050	1	02/29/2016 14:00	
Trichloroethene	ND	0.0050	1	02/29/2016 14:00	
Trichlorofluoromethane	ND	0.0050	1	02/29/2016 14:00	
1,2,3-Trichloropropane	ND	0.0050	1	02/29/2016 14:00	
1,2,4-Trimethylbenzene	ND	0.0050	1	02/29/2016 14:00	
1,3,5-Trimethylbenzene	ND	0.0050	1	02/29/2016 14:00	
Vinyl Chloride	ND	0.0050	1	02/29/2016 14:00	
Xylenes, Total	ND	0.0050	1	02/29/2016 14:00	

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
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
S-1-HA1	1602965-001A	Soil	02/23/2016 08:23	GC16	117127

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	104	70-130		02/29/2016 14:00
Toluene-d8	120	70-130		02/29/2016 14:00
4-BFB	124	70-130		02/29/2016 14:00
Benzene-d6	95	60-140		02/29/2016 14:00
Ethylbenzene-d10	101	60-140		02/29/2016 14:00
1,2-DCB-d4	68	60-140		02/29/2016 14:00

Analyst(s): KF



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
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
S-3-HA1	1602965-002A	Soil	02/23/2016 09:35	GC16	117127
Analytes	Result	RL	DF	Date Analyzed	
Acetone	ND	0.10	1	02/29/2016 14:40	
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/29/2016 14:40	
Benzene	ND	0.0050	1	02/29/2016 14:40	
Bromobenzene	ND	0.0050	1	02/29/2016 14:40	
Bromochloromethane	ND	0.0050	1	02/29/2016 14:40	
Bromodichloromethane	ND	0.0050	1	02/29/2016 14:40	
Bromoform	ND	0.0050	1	02/29/2016 14:40	
Bromomethane	ND	0.0050	1	02/29/2016 14:40	
2-Butanone (MEK)	ND	0.020	1	02/29/2016 14:40	
t-Butyl alcohol (TBA)	ND	0.050	1	02/29/2016 14:40	
n-Butyl benzene	ND	0.0050	1	02/29/2016 14:40	
sec-Butyl benzene	ND	0.0050	1	02/29/2016 14:40	
tert-Butyl benzene	ND	0.0050	1	02/29/2016 14:40	
Carbon Disulfide	ND	0.0050	1	02/29/2016 14:40	
Carbon Tetrachloride	ND	0.0050	1	02/29/2016 14:40	
Chlorobenzene	ND	0.0050	1	02/29/2016 14:40	
Chloroethane	ND	0.0050	1	02/29/2016 14:40	
Chloroform	ND	0.0050	1	02/29/2016 14:40	
Chloromethane	ND	0.0050	1	02/29/2016 14:40	
2-Chlorotoluene	ND	0.0050	1	02/29/2016 14:40	
4-Chlorotoluene	ND	0.0050	1	02/29/2016 14:40	
Dibromochloromethane	ND	0.0050	1	02/29/2016 14:40	
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/29/2016 14:40	
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/29/2016 14:40	
Dibromomethane	ND	0.0050	1	02/29/2016 14:40	
1,2-Dichlorobenzene	ND	0.0050	1	02/29/2016 14:40	
1,3-Dichlorobenzene	ND	0.0050	1	02/29/2016 14:40	
1,4-Dichlorobenzene	ND	0.0050	1	02/29/2016 14:40	
Dichlorodifluoromethane	ND	0.0050	1	02/29/2016 14:40	
1,1-Dichloroethane	ND	0.0050	1	02/29/2016 14:40	
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/29/2016 14:40	
1,1-Dichloroethene	ND	0.0050	1	02/29/2016 14:40	
cis-1,2-Dichloroethene	ND	0.0050	1	02/29/2016 14:40	
trans-1,2-Dichloroethene	ND	0.0050	1	02/29/2016 14:40	
1,2-Dichloropropane	ND	0.0050	1	02/29/2016 14:40	
1,3-Dichloropropane	ND	0.0050	1	02/29/2016 14:40	
2,2-Dichloropropane	ND	0.0050	1	02/29/2016 14:40	

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
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
S-3-HA1	1602965-002A	Soil	02/23/2016 09:35	GC16	117127

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/29/2016 14:40
cis-1,3-Dichloropropene	ND	0.0050	1	02/29/2016 14:40
trans-1,3-Dichloropropene	ND	0.0050	1	02/29/2016 14:40
Diisopropyl ether (DIPE)	ND	0.0050	1	02/29/2016 14:40
Ethylbenzene	ND	0.0050	1	02/29/2016 14:40
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/29/2016 14:40
Freon 113	ND	0.0050	1	02/29/2016 14:40
Hexachlorobutadiene	ND	0.0050	1	02/29/2016 14:40
Hexachloroethane	ND	0.0050	1	02/29/2016 14:40
2-Hexanone	ND	0.0050	1	02/29/2016 14:40
Isopropylbenzene	ND	0.0050	1	02/29/2016 14:40
4-Isopropyl toluene	ND	0.0050	1	02/29/2016 14:40
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/29/2016 14:40
Methylene chloride	ND	0.0050	1	02/29/2016 14:40
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/29/2016 14:40
Naphthalene	ND	0.0050	1	02/29/2016 14:40
n-Propyl benzene	ND	0.0050	1	02/29/2016 14:40
Styrene	ND	0.0050	1	02/29/2016 14:40
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/29/2016 14:40
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/29/2016 14:40
Tetrachloroethene	ND	0.0050	1	02/29/2016 14:40
Toluene	ND	0.0050	1	02/29/2016 14:40
1,2,3-Trichlorobenzene	ND	0.0050	1	02/29/2016 14:40
1,2,4-Trichlorobenzene	ND	0.0050	1	02/29/2016 14:40
1,1,1-Trichloroethane	ND	0.0050	1	02/29/2016 14:40
1,1,2-Trichloroethane	ND	0.0050	1	02/29/2016 14:40
Trichloroethene	ND	0.0050	1	02/29/2016 14:40
Trichlorofluoromethane	ND	0.0050	1	02/29/2016 14:40
1,2,3-Trichloropropane	ND	0.0050	1	02/29/2016 14:40
1,2,4-Trimethylbenzene	ND	0.0050	1	02/29/2016 14:40
1,3,5-Trimethylbenzene	ND	0.0050	1	02/29/2016 14:40
Vinyl Chloride	ND	0.0050	1	02/29/2016 14:40
Xylenes, Total	ND	0.0050	1	02/29/2016 14:40

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
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
S-3-HA1	1602965-002A	Soil	02/23/2016 09:35	GC16	117127

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	103	70-130		02/29/2016 14:40
Toluene-d8	116	70-130		02/29/2016 14:40
4-BFB	108	70-130		02/29/2016 14:40
Benzene-d6	94	60-140		02/29/2016 14:40
Ethylbenzene-d10	100	60-140		02/29/2016 14:40
1,2-DCB-d4	65	60-140		02/29/2016 14:40

Analyst(s): KF



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
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
S-1-HA2	1602965-003A	Soil	02/23/2016 08:29	GC16	117154
Analytes	Result	RL	DF	Date Analyzed	
Acetone	ND	0.10	1	02/29/2016 15:20	
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/29/2016 15:20	
Benzene	ND	0.0050	1	02/29/2016 15:20	
Bromobenzene	ND	0.0050	1	02/29/2016 15:20	
Bromochloromethane	ND	0.0050	1	02/29/2016 15:20	
Bromodichloromethane	ND	0.0050	1	02/29/2016 15:20	
Bromoform	ND	0.0050	1	02/29/2016 15:20	
Bromomethane	ND	0.0050	1	02/29/2016 15:20	
2-Butanone (MEK)	ND	0.020	1	02/29/2016 15:20	
t-Butyl alcohol (TBA)	ND	0.050	1	02/29/2016 15:20	
n-Butyl benzene	ND	0.0050	1	02/29/2016 15:20	
sec-Butyl benzene	ND	0.0050	1	02/29/2016 15:20	
tert-Butyl benzene	ND	0.0050	1	02/29/2016 15:20	
Carbon Disulfide	ND	0.0050	1	02/29/2016 15:20	
Carbon Tetrachloride	ND	0.0050	1	02/29/2016 15:20	
Chlorobenzene	ND	0.0050	1	02/29/2016 15:20	
Chloroethane	ND	0.0050	1	02/29/2016 15:20	
Chloroform	ND	0.0050	1	02/29/2016 15:20	
Chloromethane	ND	0.0050	1	02/29/2016 15:20	
2-Chlorotoluene	ND	0.0050	1	02/29/2016 15:20	
4-Chlorotoluene	ND	0.0050	1	02/29/2016 15:20	
Dibromochloromethane	ND	0.0050	1	02/29/2016 15:20	
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/29/2016 15:20	
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/29/2016 15:20	
Dibromomethane	ND	0.0050	1	02/29/2016 15:20	
1,2-Dichlorobenzene	ND	0.0050	1	02/29/2016 15:20	
1,3-Dichlorobenzene	ND	0.0050	1	02/29/2016 15:20	
1,4-Dichlorobenzene	ND	0.0050	1	02/29/2016 15:20	
Dichlorodifluoromethane	ND	0.0050	1	02/29/2016 15:20	
1,1-Dichloroethane	ND	0.0050	1	02/29/2016 15:20	
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/29/2016 15:20	
1,1-Dichloroethene	ND	0.0050	1	02/29/2016 15:20	
cis-1,2-Dichloroethene	ND	0.0050	1	02/29/2016 15:20	
trans-1,2-Dichloroethene	ND	0.0050	1	02/29/2016 15:20	
1,2-Dichloropropane	ND	0.0050	1	02/29/2016 15:20	
1,3-Dichloropropane	ND	0.0050	1	02/29/2016 15:20	
2,2-Dichloropropane	ND	0.0050	1	02/29/2016 15:20	

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
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
S-1-HA2	1602965-003A	Soil	02/23/2016 08:29	GC16	117154
Analytes	Result	RL	DF	Date Analyzed	
1,1-Dichloropropene	ND	0.0050	1	02/29/2016 15:20	
cis-1,3-Dichloropropene	ND	0.0050	1	02/29/2016 15:20	
trans-1,3-Dichloropropene	ND	0.0050	1	02/29/2016 15:20	
Diisopropyl ether (DIPE)	ND	0.0050	1	02/29/2016 15:20	
Ethylbenzene	ND	0.0050	1	02/29/2016 15:20	
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/29/2016 15:20	
Freon 113	ND	0.0050	1	02/29/2016 15:20	
Hexachlorobutadiene	ND	0.0050	1	02/29/2016 15:20	
Hexachloroethane	ND	0.0050	1	02/29/2016 15:20	
2-Hexanone	ND	0.0050	1	02/29/2016 15:20	
Isopropylbenzene	ND	0.0050	1	02/29/2016 15:20	
4-Isopropyl toluene	ND	0.0050	1	02/29/2016 15:20	
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/29/2016 15:20	
Methylene chloride	ND	0.0050	1	02/29/2016 15:20	
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/29/2016 15:20	
Naphthalene	ND	0.0050	1	02/29/2016 15:20	
n-Propyl benzene	ND	0.0050	1	02/29/2016 15:20	
Styrene	ND	0.0050	1	02/29/2016 15:20	
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/29/2016 15:20	
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/29/2016 15:20	
Tetrachloroethene	ND	0.0050	1	02/29/2016 15:20	
Toluene	ND	0.0050	1	02/29/2016 15:20	
1,2,3-Trichlorobenzene	ND	0.0050	1	02/29/2016 15:20	
1,2,4-Trichlorobenzene	ND	0.0050	1	02/29/2016 15:20	
1,1,1-Trichloroethane	ND	0.0050	1	02/29/2016 15:20	
1,1,2-Trichloroethane	ND	0.0050	1	02/29/2016 15:20	
Trichloroethene	ND	0.0050	1	02/29/2016 15:20	
Trichlorofluoromethane	ND	0.0050	1	02/29/2016 15:20	
1,2,3-Trichloropropane	ND	0.0050	1	02/29/2016 15:20	
1,2,4-Trimethylbenzene	ND	0.0050	1	02/29/2016 15:20	
1,3,5-Trimethylbenzene	ND	0.0050	1	02/29/2016 15:20	
Vinyl Chloride	ND	0.0050	1	02/29/2016 15:20	
Xylenes, Total	ND	0.0050	1	02/29/2016 15:20	

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
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
S-1-HA2	1602965-003A	Soil	02/23/2016 08:29	GC16	117154

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	103	70-130		02/29/2016 15:20
Toluene-d8	110	70-130		02/29/2016 15:20
4-BFB	106	70-130		02/29/2016 15:20
Benzene-d6	85	60-140		02/29/2016 15:20
Ethylbenzene-d10	93	60-140		02/29/2016 15:20
1,2-DCB-d4	62	60-140		02/29/2016 15:20

Analyst(s): KF



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
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
S-3 1/2-HA2	1602965-004A	Soil	02/23/2016 09:59	GC18	117154
Analytes	Result	RL	DF	Date Analyzed	
Acetone	ND	0.10	1	02/29/2016 17:41	
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/29/2016 17:41	
Benzene	ND	0.0050	1	02/29/2016 17:41	
Bromobenzene	ND	0.0050	1	02/29/2016 17:41	
Bromochloromethane	ND	0.0050	1	02/29/2016 17:41	
Bromodichloromethane	ND	0.0050	1	02/29/2016 17:41	
Bromoform	ND	0.0050	1	02/29/2016 17:41	
Bromomethane	ND	0.0050	1	02/29/2016 17:41	
2-Butanone (MEK)	ND	0.020	1	02/29/2016 17:41	
t-Butyl alcohol (TBA)	ND	0.050	1	02/29/2016 17:41	
n-Butyl benzene	ND	0.0050	1	02/29/2016 17:41	
sec-Butyl benzene	ND	0.0050	1	02/29/2016 17:41	
tert-Butyl benzene	ND	0.0050	1	02/29/2016 17:41	
Carbon Disulfide	ND	0.0050	1	02/29/2016 17:41	
Carbon Tetrachloride	ND	0.0050	1	02/29/2016 17:41	
Chlorobenzene	ND	0.0050	1	02/29/2016 17:41	
Chloroethane	ND	0.0050	1	02/29/2016 17:41	
Chloroform	ND	0.0050	1	02/29/2016 17:41	
Chloromethane	ND	0.0050	1	02/29/2016 17:41	
2-Chlorotoluene	ND	0.0050	1	02/29/2016 17:41	
4-Chlorotoluene	ND	0.0050	1	02/29/2016 17:41	
Dibromochloromethane	ND	0.0050	1	02/29/2016 17:41	
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/29/2016 17:41	
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/29/2016 17:41	
Dibromomethane	ND	0.0050	1	02/29/2016 17:41	
1,2-Dichlorobenzene	ND	0.0050	1	02/29/2016 17:41	
1,3-Dichlorobenzene	ND	0.0050	1	02/29/2016 17:41	
1,4-Dichlorobenzene	ND	0.0050	1	02/29/2016 17:41	
Dichlorodifluoromethane	ND	0.0050	1	02/29/2016 17:41	
1,1-Dichloroethane	ND	0.0050	1	02/29/2016 17:41	
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/29/2016 17:41	
1,1-Dichloroethene	ND	0.0050	1	02/29/2016 17:41	
cis-1,2-Dichloroethene	ND	0.0050	1	02/29/2016 17:41	
trans-1,2-Dichloroethene	ND	0.0050	1	02/29/2016 17:41	
1,2-Dichloropropane	ND	0.0050	1	02/29/2016 17:41	
1,3-Dichloropropane	ND	0.0050	1	02/29/2016 17:41	
2,2-Dichloropropane	ND	0.0050	1	02/29/2016 17:41	

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
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
S-3 1/2-HA2	1602965-004A	Soil	02/23/2016 09:59	GC18	117154
Analytes	Result	RL	DF	Date Analyzed	
1,1-Dichloropropene	ND	0.0050	1	02/29/2016 17:41	
cis-1,3-Dichloropropene	ND	0.0050	1	02/29/2016 17:41	
trans-1,3-Dichloropropene	ND	0.0050	1	02/29/2016 17:41	
Diisopropyl ether (DIPE)	ND	0.0050	1	02/29/2016 17:41	
Ethylbenzene	ND	0.0050	1	02/29/2016 17:41	
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/29/2016 17:41	
Freon 113	ND	0.0050	1	02/29/2016 17:41	
Hexachlorobutadiene	ND	0.0050	1	02/29/2016 17:41	
Hexachloroethane	ND	0.0050	1	02/29/2016 17:41	
2-Hexanone	ND	0.0050	1	02/29/2016 17:41	
Isopropylbenzene	ND	0.0050	1	02/29/2016 17:41	
4-Isopropyl toluene	ND	0.0050	1	02/29/2016 17:41	
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/29/2016 17:41	
Methylene chloride	ND	0.0050	1	02/29/2016 17:41	
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/29/2016 17:41	
Naphthalene	ND	0.0050	1	02/29/2016 17:41	
n-Propyl benzene	ND	0.0050	1	02/29/2016 17:41	
Styrene	ND	0.0050	1	02/29/2016 17:41	
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/29/2016 17:41	
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/29/2016 17:41	
Tetrachloroethene	ND	0.0050	1	02/29/2016 17:41	
Toluene	ND	0.0050	1	02/29/2016 17:41	
1,2,3-Trichlorobenzene	ND	0.0050	1	02/29/2016 17:41	
1,2,4-Trichlorobenzene	ND	0.0050	1	02/29/2016 17:41	
1,1,1-Trichloroethane	ND	0.0050	1	02/29/2016 17:41	
1,1,2-Trichloroethane	ND	0.0050	1	02/29/2016 17:41	
Trichloroethene	ND	0.0050	1	02/29/2016 17:41	
Trichlorofluoromethane	ND	0.0050	1	02/29/2016 17:41	
1,2,3-Trichloropropane	ND	0.0050	1	02/29/2016 17:41	
1,2,4-Trimethylbenzene	ND	0.0050	1	02/29/2016 17:41	
1,3,5-Trimethylbenzene	ND	0.0050	1	02/29/2016 17:41	
Vinyl Chloride	ND	0.0050	1	02/29/2016 17:41	
Xylenes, Total	ND	0.0050	1	02/29/2016 17:41	

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
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
S-3 1/2-HA2	1602965-004A	Soil	02/23/2016 09:59	GC18	117154

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Qualifiers</u>	<u>Limits</u>		
Dibromofluoromethane	120		70-130		02/29/2016 17:41
Toluene-d8	131	S	70-130		02/29/2016 17:41
4-BFB	81		70-130		02/29/2016 17:41
Benzene-d6	131		60-140		02/29/2016 17:41
Ethylbenzene-d10	121		60-140		02/29/2016 17:41
1,2-DCB-d4	109		60-140		02/29/2016 17:41

Analyst(s): AK

Analytical Comments: c2



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
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
S-1-HA3	1602965-005A	Soil	02/23/2016 08:37	GC18	117154
Analytes	Result	RL	DF	Date Analyzed	
Acetone	ND	0.10	1	02/29/2016 18:19	
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/29/2016 18:19	
Benzene	ND	0.0050	1	02/29/2016 18:19	
Bromobenzene	ND	0.0050	1	02/29/2016 18:19	
Bromochloromethane	ND	0.0050	1	02/29/2016 18:19	
Bromodichloromethane	ND	0.0050	1	02/29/2016 18:19	
Bromoform	ND	0.0050	1	02/29/2016 18:19	
Bromomethane	ND	0.0050	1	02/29/2016 18:19	
2-Butanone (MEK)	ND	0.020	1	02/29/2016 18:19	
t-Butyl alcohol (TBA)	ND	0.050	1	02/29/2016 18:19	
n-Butyl benzene	ND	0.0050	1	02/29/2016 18:19	
sec-Butyl benzene	ND	0.0050	1	02/29/2016 18:19	
tert-Butyl benzene	ND	0.0050	1	02/29/2016 18:19	
Carbon Disulfide	ND	0.0050	1	02/29/2016 18:19	
Carbon Tetrachloride	ND	0.0050	1	02/29/2016 18:19	
Chlorobenzene	ND	0.0050	1	02/29/2016 18:19	
Chloroethane	ND	0.0050	1	02/29/2016 18:19	
Chloroform	ND	0.0050	1	02/29/2016 18:19	
Chloromethane	ND	0.0050	1	02/29/2016 18:19	
2-Chlorotoluene	ND	0.0050	1	02/29/2016 18:19	
4-Chlorotoluene	ND	0.0050	1	02/29/2016 18:19	
Dibromochloromethane	ND	0.0050	1	02/29/2016 18:19	
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/29/2016 18:19	
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/29/2016 18:19	
Dibromomethane	ND	0.0050	1	02/29/2016 18:19	
1,2-Dichlorobenzene	ND	0.0050	1	02/29/2016 18:19	
1,3-Dichlorobenzene	ND	0.0050	1	02/29/2016 18:19	
1,4-Dichlorobenzene	ND	0.0050	1	02/29/2016 18:19	
Dichlorodifluoromethane	ND	0.0050	1	02/29/2016 18:19	
1,1-Dichloroethane	ND	0.0050	1	02/29/2016 18:19	
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/29/2016 18:19	
1,1-Dichloroethene	ND	0.0050	1	02/29/2016 18:19	
cis-1,2-Dichloroethene	ND	0.0050	1	02/29/2016 18:19	
trans-1,2-Dichloroethene	ND	0.0050	1	02/29/2016 18:19	
1,2-Dichloropropane	ND	0.0050	1	02/29/2016 18:19	
1,3-Dichloropropane	ND	0.0050	1	02/29/2016 18:19	
2,2-Dichloropropane	ND	0.0050	1	02/29/2016 18:19	

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
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
S-1-HA3	1602965-005A	Soil	02/23/2016 08:37	GC18	117154
Analytes	Result	RL	DF	Date Analyzed	
1,1-Dichloropropene	ND	0.0050	1	02/29/2016 18:19	
cis-1,3-Dichloropropene	ND	0.0050	1	02/29/2016 18:19	
trans-1,3-Dichloropropene	ND	0.0050	1	02/29/2016 18:19	
Diisopropyl ether (DIPE)	ND	0.0050	1	02/29/2016 18:19	
Ethylbenzene	ND	0.0050	1	02/29/2016 18:19	
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/29/2016 18:19	
Freon 113	ND	0.0050	1	02/29/2016 18:19	
Hexachlorobutadiene	ND	0.0050	1	02/29/2016 18:19	
Hexachloroethane	ND	0.0050	1	02/29/2016 18:19	
2-Hexanone	ND	0.0050	1	02/29/2016 18:19	
Isopropylbenzene	ND	0.0050	1	02/29/2016 18:19	
4-Isopropyl toluene	ND	0.0050	1	02/29/2016 18:19	
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/29/2016 18:19	
Methylene chloride	ND	0.0050	1	02/29/2016 18:19	
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/29/2016 18:19	
Naphthalene	ND	0.0050	1	02/29/2016 18:19	
n-Propyl benzene	ND	0.0050	1	02/29/2016 18:19	
Styrene	ND	0.0050	1	02/29/2016 18:19	
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/29/2016 18:19	
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/29/2016 18:19	
Tetrachloroethene	ND	0.0050	1	02/29/2016 18:19	
Toluene	ND	0.0050	1	02/29/2016 18:19	
1,2,3-Trichlorobenzene	ND	0.0050	1	02/29/2016 18:19	
1,2,4-Trichlorobenzene	ND	0.0050	1	02/29/2016 18:19	
1,1,1-Trichloroethane	ND	0.0050	1	02/29/2016 18:19	
1,1,2-Trichloroethane	ND	0.0050	1	02/29/2016 18:19	
Trichloroethene	ND	0.0050	1	02/29/2016 18:19	
Trichlorofluoromethane	ND	0.0050	1	02/29/2016 18:19	
1,2,3-Trichloropropane	ND	0.0050	1	02/29/2016 18:19	
1,2,4-Trimethylbenzene	ND	0.0050	1	02/29/2016 18:19	
1,3,5-Trimethylbenzene	ND	0.0050	1	02/29/2016 18:19	
Vinyl Chloride	ND	0.0050	1	02/29/2016 18:19	
Xylenes, Total	ND	0.0050	1	02/29/2016 18:19	

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
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
S-1-HA3	1602965-005A	Soil	02/23/2016 08:37	GC18	117154

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Qualifiers</u>	<u>Limits</u>		
Dibromofluoromethane	121		70-130		02/29/2016 18:19
Toluene-d8	133	S	70-130		02/29/2016 18:19
4-BFB	78		70-130		02/29/2016 18:19
Benzene-d6	138		60-140		02/29/2016 18:19
Ethylbenzene-d10	128		60-140		02/29/2016 18:19
1,2-DCB-d4	112		60-140		02/29/2016 18:19

Analyst(s): AK

Analytical Comments: c2



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
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
S-3-HA3	1602965-006A	Soil	02/23/2016 11:06	GC18	117154
Analytes	Result	RL	DF	Date Analyzed	
Acetone	ND	0.10	1	02/29/2016 15:38	
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/29/2016 15:38	
Benzene	ND	0.0050	1	02/29/2016 15:38	
Bromobenzene	ND	0.0050	1	02/29/2016 15:38	
Bromochloromethane	ND	0.0050	1	02/29/2016 15:38	
Bromodichloromethane	ND	0.0050	1	02/29/2016 15:38	
Bromoform	ND	0.0050	1	02/29/2016 15:38	
Bromomethane	ND	0.0050	1	02/29/2016 15:38	
2-Butanone (MEK)	ND	0.020	1	02/29/2016 15:38	
t-Butyl alcohol (TBA)	ND	0.050	1	02/29/2016 15:38	
n-Butyl benzene	ND	0.0050	1	02/29/2016 15:38	
sec-Butyl benzene	ND	0.0050	1	02/29/2016 15:38	
tert-Butyl benzene	ND	0.0050	1	02/29/2016 15:38	
Carbon Disulfide	ND	0.0050	1	02/29/2016 15:38	
Carbon Tetrachloride	ND	0.0050	1	02/29/2016 15:38	
Chlorobenzene	ND	0.0050	1	02/29/2016 15:38	
Chloroethane	ND	0.0050	1	02/29/2016 15:38	
Chloroform	ND	0.0050	1	02/29/2016 15:38	
Chloromethane	ND	0.0050	1	02/29/2016 15:38	
2-Chlorotoluene	ND	0.0050	1	02/29/2016 15:38	
4-Chlorotoluene	ND	0.0050	1	02/29/2016 15:38	
Dibromochloromethane	ND	0.0050	1	02/29/2016 15:38	
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/29/2016 15:38	
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/29/2016 15:38	
Dibromomethane	ND	0.0050	1	02/29/2016 15:38	
1,2-Dichlorobenzene	ND	0.0050	1	02/29/2016 15:38	
1,3-Dichlorobenzene	ND	0.0050	1	02/29/2016 15:38	
1,4-Dichlorobenzene	ND	0.0050	1	02/29/2016 15:38	
Dichlorodifluoromethane	ND	0.0050	1	02/29/2016 15:38	
1,1-Dichloroethane	ND	0.0050	1	02/29/2016 15:38	
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/29/2016 15:38	
1,1-Dichloroethene	ND	0.0050	1	02/29/2016 15:38	
cis-1,2-Dichloroethene	ND	0.0050	1	02/29/2016 15:38	
trans-1,2-Dichloroethene	ND	0.0050	1	02/29/2016 15:38	
1,2-Dichloropropane	ND	0.0050	1	02/29/2016 15:38	
1,3-Dichloropropane	ND	0.0050	1	02/29/2016 15:38	
2,2-Dichloropropane	ND	0.0050	1	02/29/2016 15:38	

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
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
S-3-HA3	1602965-006A	Soil	02/23/2016 11:06	GC18	117154
Analytes	Result	RL	DF	Date Analyzed	
1,1-Dichloropropene	ND	0.0050	1	02/29/2016 15:38	
cis-1,3-Dichloropropene	ND	0.0050	1	02/29/2016 15:38	
trans-1,3-Dichloropropene	ND	0.0050	1	02/29/2016 15:38	
Diisopropyl ether (DIPE)	ND	0.0050	1	02/29/2016 15:38	
Ethylbenzene	ND	0.0050	1	02/29/2016 15:38	
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/29/2016 15:38	
Freon 113	ND	0.0050	1	02/29/2016 15:38	
Hexachlorobutadiene	ND	0.0050	1	02/29/2016 15:38	
Hexachloroethane	ND	0.0050	1	02/29/2016 15:38	
2-Hexanone	ND	0.0050	1	02/29/2016 15:38	
Isopropylbenzene	ND	0.0050	1	02/29/2016 15:38	
4-Isopropyl toluene	ND	0.0050	1	02/29/2016 15:38	
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/29/2016 15:38	
Methylene chloride	ND	0.0050	1	02/29/2016 15:38	
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/29/2016 15:38	
Naphthalene	ND	0.0050	1	02/29/2016 15:38	
n-Propyl benzene	ND	0.0050	1	02/29/2016 15:38	
Styrene	ND	0.0050	1	02/29/2016 15:38	
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/29/2016 15:38	
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/29/2016 15:38	
Tetrachloroethene	ND	0.0050	1	02/29/2016 15:38	
Toluene	ND	0.0050	1	02/29/2016 15:38	
1,2,3-Trichlorobenzene	ND	0.0050	1	02/29/2016 15:38	
1,2,4-Trichlorobenzene	ND	0.0050	1	02/29/2016 15:38	
1,1,1-Trichloroethane	ND	0.0050	1	02/29/2016 15:38	
1,1,2-Trichloroethane	ND	0.0050	1	02/29/2016 15:38	
Trichloroethene	ND	0.0050	1	02/29/2016 15:38	
Trichlorofluoromethane	ND	0.0050	1	02/29/2016 15:38	
1,2,3-Trichloropropane	ND	0.0050	1	02/29/2016 15:38	
1,2,4-Trimethylbenzene	ND	0.0050	1	02/29/2016 15:38	
1,3,5-Trimethylbenzene	ND	0.0050	1	02/29/2016 15:38	
Vinyl Chloride	ND	0.0050	1	02/29/2016 15:38	
Xylenes, Total	ND	0.0050	1	02/29/2016 15:38	

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
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
S-3-HA3	1602965-006A	Soil	02/23/2016 11:06	GC18	117154

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	122	70-130		02/29/2016 15:38
Toluene-d8	128	70-130		02/29/2016 15:38
4-BFB	82	70-130		02/29/2016 15:38
Benzene-d6	139	60-140		02/29/2016 15:38
Ethylbenzene-d10	130	60-140		02/29/2016 15:38
1,2-DCB-d4	116	60-140		02/29/2016 15:38

Analyst(s): AK



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/25/16
Project: EBALDC

WorkOrder: 1602965
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode by GC/MS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1-HA1	1602965-001A	Soil	02/23/2016 08:23	GC35	117256

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/26/2016 18:24
Acenaphthylene	ND	0.010	1	02/26/2016 18:24
Anthracene	ND	0.010	1	02/26/2016 18:24
Benzo (a) anthracene	ND	0.010	1	02/26/2016 18:24
Benzo (a) pyrene	ND	0.010	1	02/26/2016 18:24
Benzo (b) fluoranthene	ND	0.010	1	02/26/2016 18:24
Benzo (g,h,i) perylene	ND	0.010	1	02/26/2016 18:24
Benzo (k) fluoranthene	ND	0.010	1	02/26/2016 18:24
Chrysene	ND	0.010	1	02/26/2016 18:24
Dibenzo (a,h) anthracene	ND	0.010	1	02/26/2016 18:24
Fluoranthene	ND	0.010	1	02/26/2016 18:24
Fluorene	ND	0.010	1	02/26/2016 18:24
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/26/2016 18:24
1-Methylnaphthalene	ND	0.010	1	02/26/2016 18:24
2-Methylnaphthalene	ND	0.010	1	02/26/2016 18:24
Naphthalene	ND	0.010	1	02/26/2016 18:24
Phenanthrene	ND	0.010	1	02/26/2016 18:24
Pyrene	ND	0.010	1	02/26/2016 18:24

Surrogates	REC (%)	Limits	Date Analyzed
1-Fluoronaphthalene	97	30-130	02/26/2016 18:24
2-Fluorobiphenyl	82	30-130	02/26/2016 18:24

Analyst(s): REB



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/25/16
Project: EBALDC

WorkOrder: 1602965
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode by GC/MS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1-HA2	1602965-003A	Soil	02/23/2016 08:29	GC35	117256

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/26/2016 16:13
Acenaphthylene	ND	0.010	1	02/26/2016 16:13
Anthracene	ND	0.010	1	02/26/2016 16:13
Benzo (a) anthracene	ND	0.010	1	02/26/2016 16:13
Benzo (a) pyrene	ND	0.010	1	02/26/2016 16:13
Benzo (b) fluoranthene	ND	0.010	1	02/26/2016 16:13
Benzo (g,h,i) perylene	ND	0.010	1	02/26/2016 16:13
Benzo (k) fluoranthene	ND	0.010	1	02/26/2016 16:13
Chrysene	ND	0.010	1	02/26/2016 16:13
Dibenzo (a,h) anthracene	ND	0.010	1	02/26/2016 16:13
Fluoranthene	ND	0.010	1	02/26/2016 16:13
Fluorene	ND	0.010	1	02/26/2016 16:13
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/26/2016 16:13
1-Methylnaphthalene	ND	0.010	1	02/26/2016 16:13
2-Methylnaphthalene	ND	0.010	1	02/26/2016 16:13
Naphthalene	ND	0.010	1	02/26/2016 16:13
Phenanthrene	ND	0.010	1	02/26/2016 16:13
Pyrene	ND	0.010	1	02/26/2016 16:13
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	123	30-130		02/26/2016 16:13
2-Fluorobiphenyl	106	30-130		02/26/2016 16:13

Analyst(s): REB

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Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/25/16
Project: EBALDC

WorkOrder: 1602965
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode by GC/MS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1-HA3	1602965-005A	Soil	02/23/2016 08:37	GC35	117256

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.010	1	02/26/2016 16:38
Acenaphthylene	ND	0.010	1	02/26/2016 16:38
Anthracene	ND	0.010	1	02/26/2016 16:38
Benzo (a) anthracene	ND	0.010	1	02/26/2016 16:38
Benzo (a) pyrene	ND	0.010	1	02/26/2016 16:38
Benzo (b) fluoranthene	ND	0.010	1	02/26/2016 16:38
Benzo (g,h,i) perylene	ND	0.010	1	02/26/2016 16:38
Benzo (k) fluoranthene	ND	0.010	1	02/26/2016 16:38
Chrysene	ND	0.010	1	02/26/2016 16:38
Dibenzo (a,h) anthracene	ND	0.010	1	02/26/2016 16:38
Fluoranthene	ND	0.010	1	02/26/2016 16:38
Fluorene	ND	0.010	1	02/26/2016 16:38
Indeno (1,2,3-cd) pyrene	ND	0.010	1	02/26/2016 16:38
1-Methylnaphthalene	ND	0.010	1	02/26/2016 16:38
2-Methylnaphthalene	ND	0.010	1	02/26/2016 16:38
Naphthalene	ND	0.010	1	02/26/2016 16:38
Phenanthrene	ND	0.010	1	02/26/2016 16:38
Pyrene	ND	0.010	1	02/26/2016 16:38
Surrogates	REC (%)	Limits		
1-Fluoronaphthalene	119	30-130		02/26/2016 16:38
2-Fluorobiphenyl	102	30-130		02/26/2016 16:38

Analyst(s): REB



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
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
S-1-HA1	1602965-001A	Soil	02/23/2016 08:23	GC19	117120

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/25/2016 21:16
MTBE	---	0.050	1	02/25/2016 21:16
Benzene	---	0.0050	1	02/25/2016 21:16
Toluene	---	0.0050	1	02/25/2016 21:16
Ethylbenzene	---	0.0050	1	02/25/2016 21:16
Xylenes	---	0.015	1	02/25/2016 21:16
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorotoluene	110	70-130		02/25/2016 21:16

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3-HA1	1602965-002A	Soil	02/23/2016 09:35	GC7	117153

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/25/2016 14:27
MTBE	---	0.050	1	02/25/2016 14:27
Benzene	---	0.0050	1	02/25/2016 14:27
Toluene	---	0.0050	1	02/25/2016 14:27
Ethylbenzene	---	0.0050	1	02/25/2016 14:27
Xylenes	---	0.015	1	02/25/2016 14:27
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorotoluene	77	70-130		02/25/2016 14:27

Analyst(s): IA

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
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
S-1-HA2	1602965-003A	Soil	02/23/2016 08:29	GC19	117153

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/25/2016 22:17
MTBE	---	0.050	1	02/25/2016 22:17
Benzene	---	0.0050	1	02/25/2016 22:17
Toluene	---	0.0050	1	02/25/2016 22:17
Ethylbenzene	---	0.0050	1	02/25/2016 22:17
Xylenes	---	0.015	1	02/25/2016 22:17
Surrogates	REC (%)	Limits		
2-Fluorotoluene	106	70-130		02/25/2016 22:17

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 1/2-HA2	1602965-004A	Soil	02/23/2016 09:59	GC19	117153

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/25/2016 23:18
MTBE	---	0.050	1	02/25/2016 23:18
Benzene	---	0.0050	1	02/25/2016 23:18
Toluene	---	0.0050	1	02/25/2016 23:18
Ethylbenzene	---	0.0050	1	02/25/2016 23:18
Xylenes	---	0.015	1	02/25/2016 23:18
Surrogates	REC (%)	Limits		
2-Fluorotoluene	104	70-130		02/25/2016 23:18

Analyst(s): IA

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
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
S-1-HA3	1602965-005A	Soil	02/23/2016 08:37	GC19	117153

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/25/2016 23:49
MTBE	---	0.050	1	02/25/2016 23:49
Benzene	---	0.0050	1	02/25/2016 23:49
Toluene	---	0.0050	1	02/25/2016 23:49
Ethylbenzene	---	0.0050	1	02/25/2016 23:49
Xylenes	---	0.015	1	02/25/2016 23:49
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorotoluene	109	70-130		02/25/2016 23:49

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3-HA3	1602965-006A	Soil	02/23/2016 11:06	GC19	117153

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	02/26/2016 00:19
MTBE	---	0.050	1	02/26/2016 00:19
Benzene	---	0.0050	1	02/26/2016 00:19
Toluene	---	0.0050	1	02/26/2016 00:19
Ethylbenzene	---	0.0050	1	02/26/2016 00:19
Xylenes	---	0.015	1	02/26/2016 00:19
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorotoluene	110	70-130		02/26/2016 00:19

Analyst(s): IA



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

LUFT 5 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1-HA1	1602965-001A	Soil	02/23/2016 08:23	ICP-MS1	117133
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Cadmium	ND		0.25	1	02/25/2016 20:26
Chromium	55		0.50	1	02/25/2016 20:26
Lead	5.9		0.50	1	02/25/2016 20:26
Nickel	87		0.50	1	02/25/2016 20:26
Zinc	38		5.0	1	02/25/2016 20:26
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
Terbium	111		70-130		02/25/2016 20:26
<u>Analyst(s):</u> DVH					

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1-HA2	1602965-003A	Soil	02/23/2016 08:29	ICP-MS3	117133
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Cadmium	ND		0.25	1	02/25/2016 10:09
Chromium	77		0.50	1	02/25/2016 10:09
Lead	7.3		0.50	1	02/25/2016 10:09
Nickel	110		0.50	1	02/25/2016 10:09
Zinc	52		5.0	1	02/25/2016 10:09
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
Terbium	110		70-130		02/25/2016 10:09
<u>Analyst(s):</u> BBO					

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1-HA3	1602965-005A	Soil	02/23/2016 08:37	ICP-MS3	117133
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Cadmium	ND		0.25	1	02/25/2016 10:15
Chromium	65		0.50	1	02/25/2016 10:15
Lead	6.6		0.50	1	02/25/2016 10:15
Nickel	92		0.50	1	02/25/2016 10:15
Zinc	58		5.0	1	02/25/2016 10:15
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
Terbium	112		70-130		02/25/2016 10:15
<u>Analyst(s):</u> BBO					



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
Extraction Method: SW3550B/3630C
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons with Silica Gel Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1-HA1	1602965-001A	Soil	02/23/2016 08:23	GC39A	117121

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/24/2016 19:07
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/24/2016 19:07
Surrogates	REC (%)	Limits		Date Analyzed
C9	101	70-130		02/24/2016 19:07

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3-HA1	1602965-002A	Soil	02/23/2016 09:35	GC39A	117121

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/24/2016 22:01
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/24/2016 22:01
Surrogates	REC (%)	Limits		Date Analyzed
C9	105	70-130		02/24/2016 22:01

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1-HA2	1602965-003A	Soil	02/23/2016 08:29	GC39A	117121

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/24/2016 22:40
TPH-Motor Oil (C18-C36)	ND	5.0	1	02/24/2016 22:40
Surrogates	REC (%)	Limits		Date Analyzed
C9	101	70-130		02/24/2016 22:40

Analyst(s): TK

(Cont.)



Analytical Report

Client: Essel Environmental Consulting
Date Received: 2/24/16 11:49
Date Prepared: 2/24/16
Project: EBALDC

WorkOrder: 1602965
Extraction Method: SW3550B/3630C
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons with Silica Gel Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 1/2-HA2	1602965-004A	Soil	02/23/2016 09:59	GC39A	117121
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)	ND		1.0	1	02/24/2016 23:18
TPH-Motor Oil (C18-C36)	ND		5.0	1	02/24/2016 23:18
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
C9	100		70-130		02/24/2016 23:18
<u>Analyst(s):</u> TK					

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1-HA3	1602965-005A	Soil	02/23/2016 08:37	GC39A	117121
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)	ND		1.0	1	02/25/2016 13:06
TPH-Motor Oil (C18-C36)	ND		5.0	1	02/25/2016 13:06
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
C9	101		70-130		02/25/2016 13:06
<u>Analyst(s):</u> TK					

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3-HA3	1602965-006A	Soil	02/23/2016 11:06	GC39A	117121
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)	ND		1.0	1	02/25/2016 00:36
TPH-Motor Oil (C18-C36)	ND		5.0	1	02/25/2016 00:36
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
C9	100		70-130		02/25/2016 00:36
<u>Analyst(s):</u> TK					



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/23/16
Date Analyzed: 2/25/16
Instrument: GC19
Matrix: Soil
Project: EBALDC

WorkOrder: 1602965
BatchID: 117120
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS-117120
 1602938-001AMS/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	0.688	0.40	0.60	-	115	70-130
MTBE	ND	0.0824	0.050	0.10	-	82	70-130
Benzene	ND	0.111	0.0050	0.10	-	111	70-130
Toluene	ND	0.112	0.0050	0.10	-	112	70-130
Ethylbenzene	ND	0.114	0.0050	0.10	-	114	70-130
Xylenes	ND	0.369	0.015	0.30	-	123	70-130

Surrogate Recovery

2-Fluorotoluene	0.111	0.121		0.10	111	121	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)	NR	NR		ND	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		0.022	NR	NR	-	NR	

Surrogate Recovery

2-Fluorotoluene	NR	NR			NR	NR	-	NR	
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Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/23/16
Date Analyzed: 2/24/16
Instrument: GC2B
Matrix: Soil
Project: EBALDC

WorkOrder: 1602965
BatchID: 117121
Extraction Method: SW3550B/3630C
Analytical Method: SW8015B
Unit: mg/Kg
Sample ID: MB/LCS-117121
 1602919-001AMS/MSD

QC Report for SW8015B with Silica Gel Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	45.6	1.0	40	-	114	70-130
TPH-Motor Oil (C18-C36)	ND	-	5.0	-	-	-	-
Surrogate Recovery							
C9	22.4	22.5		25	90	90	62-139

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	NR	NR	40	36.88	NR	NR	70-130	NR	30
Surrogate Recovery									
C9	22.3	22.4	25		89	90	70-130	0.528	30



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/23/16
Date Analyzed: 2/25/16
Instrument: GC5A
Matrix: Soil
Project: EBALDC

WorkOrder: 1602965
BatchID: 117129
Extraction Method: SW3550B
Analytical Method: SW8082
Unit: mg/kg
Sample ID: MB/LCS-117129
 1602965-001AMS/MSD

QC Summary Report for SW8082

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Aroclor1016	ND	-	0.050	-	-	-	-
Aroclor1221	ND	-	0.050	-	-	-	-
Aroclor1232	ND	-	0.050	-	-	-	-
Aroclor1242	ND	-	0.050	-	-	-	-
Aroclor1248	ND	-	0.050	-	-	-	-
Aroclor1254	ND	-	0.050	-	-	-	-
Aroclor1260	ND	0.152	0.050	0.15	-	101	70-130
PCBs, total	ND	-	0.050	-	-	-	-

Surrogate Recovery

Decachlorobiphenyl	0.0466	0.0471		0.050	93	94	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
Aroclor1260	0.152	0.154	0.15	ND	101	103	70-130	1.43	30

Surrogate Recovery

Decachlorobiphenyl	0.0386	0.0388	0.050		77	78	70-130	0.531	30
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Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/23/16
Date Analyzed: 2/25/16
Instrument: ICP-MS2
Matrix: Soil
Project: EBALDC

WorkOrder: 1602965
BatchID: 117133
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg
Sample ID: MB/LCS-117133
 1602947-001AMS/MSD
 1602947-001APDS

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Cadmium	ND	49.1	0.25	50	-	98	75-125
Chromium	ND	51.8	0.50	50	-	104	75-125
Lead	ND	50.0	0.50	50	-	100	75-125
Nickel	ND	50.8	0.50	50	-	102	75-125
Zinc	ND	502	5.0	500	-	100	75-125

Surrogate Recovery

Terbium	521	510		500	104	102	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
Cadmium	49.3	55.5	50	ND	98	111	75-125	11.8	20
Chromium	86.0	101	50	32.15	108	137,F8	75-125	15.8	20
Lead	69.7	83.8	50	18.94	101	130,F8	75-125	18.4	20
Nickel	85.7	101	50	29.96	111	143,F8	75-125	16.8	20
Zinc	550	627	500	45.68	101	116	75-125	13.1	20

Surrogate Recovery

Terbium	494	568	500		99	114	70-130	13.9	20
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Analyte	PDS Result	SPK Val	SPKRef Val	PDS %REC	PDS Limits
Chromium	88.8	50	32.15	113	80-120
Lead	74.3	50	18.94	111	80-120
Nickel	88.1	50	29.96	116	80-120

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Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/24/16
Date Analyzed: 2/25/16
Instrument: GC19
Matrix: Soil
Project: EBALDC

WorkOrder: 1602965
BatchID: 117153
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS-117153
 1602965-002AMS/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	0.654	0.40	0.60	-	109	70-130
MTBE	ND	0.0812	0.050	0.10	-	81	70-130
Benzene	ND	0.106	0.0050	0.10	-	106	70-130
Toluene	ND	0.106	0.0050	0.10	-	106	70-130
Ethylbenzene	ND	0.107	0.0050	0.10	-	107	70-130
Xylenes	ND	0.343	0.015	0.30	-	114	70-130

Surrogate Recovery

2-Fluorotoluene	0.116	0.114		0.10	116	114	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)	0.474	0.495	0.60	ND	79	83	70-130	4.46	20
MTBE	0.0770	0.0767	0.10	ND	77	77	70-130	0	20
Benzene	0.0856	0.0858	0.10	ND	86	86	70-130	0	20
Toluene	0.0759	0.0767	0.10	ND	73	74	70-130	0.993	20
Ethylbenzene	0.0859	0.0871	0.10	ND	86	87	70-130	1.35	20
Xylenes	0.271	0.275	0.30	ND	90	92	70-130	1.66	20

Surrogate Recovery

2-Fluorotoluene	0.105	0.106	0.10		105	105	70-130	0	20
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Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/25/16
Date Analyzed: 2/26/16
Instrument: GC35
Matrix: Soil
Project: EBALDC

WorkOrder: 1602965
BatchID: 117256
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg
Sample ID: MB/LCS-117256
 1602A42-002AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	-	0.010	-	-	-	-
Acenaphthylene	ND	-	0.010	-	-	-	-
Anthracene	ND	-	0.010	-	-	-	-
Benzo (a) anthracene	ND	-	0.010	-	-	-	-
Benzo (a) pyrene	ND	0.108	0.010	0.20	-	54	30-130
Benzo (b) fluoranthene	ND	-	0.010	-	-	-	-
Benzo (g,h,i) perylene	ND	-	0.010	-	-	-	-
Benzo (k) fluoranthene	ND	-	0.010	-	-	-	-
Chrysene	ND	0.133	0.010	0.20	-	66	30-130
Dibenzo (a,h) anthracene	ND	-	0.010	-	-	-	-
Fluoranthene	ND	-	0.010	-	-	-	-
Fluorene	ND	-	0.010	-	-	-	-
Indeno (1,2,3-cd) pyrene	ND	-	0.010	-	-	-	-
1-Methylnaphthalene	ND	0.153	0.010	0.20	-	76	30-130
2-Methylnaphthalene	ND	0.153	0.010	0.20	-	76	30-130
Naphthalene	ND	-	0.010	-	-	-	-
Phenanthrene	ND	0.145	0.010	0.20	-	73	30-130
Pyrene	ND	0.135	0.010	0.20	-	68	30-130
Surrogate Recovery							
1-Fluoronaphthalene	0.520	0.500		0.50	104	100	30-130
2-Fluorobiphenyl	0.440	0.416		0.50	88	83	30-130



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/25/16
Date Analyzed: 2/26/16
Instrument: GC35
Matrix: Soil
Project: EBALDC

WorkOrder: 1602965
BatchID: 117256
Extraction Method: SW3550B
Analytical Method: SW8270C-SIM
Unit: mg/kg
Sample ID: MB/LCS-117256
 1602A42-002AMS/MSD

QC Summary Report for SW8270C

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Benzo (a) pyrene	0.0674	0.0989	0.20	ND	34	49	30-130	37.8,F1	30
Chrysene	0.0862	0.116	0.20	ND	43	58	30-130	29.4	30
1-Methylnaphthalene	0.100	0.133	0.20	ND	50	66	30-130	28.4	30
2-Methylnaphthalene	0.101	0.136	0.20	ND	51	68	30-130	29.7	30
Phenanthrene	0.0958	0.128	0.20	ND	48	64	30-130	28.8	30
Pyrene	0.0865	0.116	0.20	ND	43	58	30-130	29.3	30
Surrogate Recovery									
1-Fluoronaphthalene	0.465	0.610	0.50		93	122	30-130	26.9	30
2-Fluorobiphenyl	0.382	0.514	0.50		76	103	30-130	29.4	30



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/23/16
Date Analyzed: 2/24/16
Instrument: GC16
Matrix: Soil
Project: EBALDC

WorkOrder: 1602965
BatchID: 117127
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-117127
 1602941-011AMS/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	0.0388	0.0050	0.050	-	78	53-116
Benzene	ND	0.0432	0.0050	0.050	-	86	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	0.207	0.050	0.20	-	104	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	0.0438	0.0050	0.050	-	88	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	0.0460	0.0040	0.050	-	92	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	0.0454	0.0040	0.050	-	91	58-135
1,1-Dichloroethene	ND	0.0413	0.0050	0.050	-	83	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	-	-	-	-

(Cont.)



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/23/16
Date Analyzed: 2/24/16
Instrument: GC16
Matrix: Soil
Project: EBALDC

WorkOrder: 1602965
BatchID: 117127
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-117127
 1602941-011AMS/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	0.0428	0.0050	0.050	-	86	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0426	0.0050	0.050	-	85	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	0.0419	0.0050	0.050	-	84	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	0.0452	0.0050	0.050	-	90	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	0.0456	0.0050	0.050	-	91	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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Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/23/16
Date Analyzed: 2/24/16
Instrument: GC16
Matrix: Soil
Project: EBALDC

WorkOrder: 1602965
BatchID: 117127
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-117127
 1602941-011AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.123	0.129		0.12	98	103	70-130
Toluene-d8	0.156	0.160		0.12	125	128	70-130
4-BFB	0.0140	0.0158		0.012	112	126	70-130
Benzene-d6	0.0949	0.101		0.10	95	101	60-140
Ethylbenzene-d10	0.106	0.117		0.10	106	117	60-140
1,2-DCB-d4	0.0679	0.0752		0.10	68	75	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)	0.0488	0.0503	0.050	ND	98	101	70-130	3.09	20
Benzene	0.0452	0.0469	0.050	ND	90	94	70-130	3.75	20
t-Butyl alcohol (TBA)	0.196	0.200	0.20	ND	98	100	70-130	2.20	20
Chlorobenzene	0.0434	0.0443	0.050	ND	87	89	70-130	1.86	20
1,2-Dibromoethane (EDB)	0.0439	0.0456	0.050	ND	88	91	70-130	3.85	20
1,2-Dichloroethane (1,2-DCA)	0.0446	0.0459	0.050	ND	89	92	70-130	2.77	20
1,1-Dichloroethene	0.0374	0.0398	0.050	ND	75	80	70-130	6.24	20
Diisopropyl ether (DIPE)	0.0488	0.0507	0.050	ND	98	101	70-130	3.88	20
Ethyl tert-butyl ether (ETBE)	0.0479	0.0496	0.050	ND	96	99	70-130	3.35	20
Methyl-t-butyl ether (MTBE)	0.0460	0.0475	0.050	ND	92	95	70-130	3.01	20
Toluene	0.0393	0.0408	0.050	ND	79	82	70-130	3.71	20
Trichloroethene	0.0430	0.0446	0.050	ND	86	89	70-130	3.66	20

Surrogate Recovery									
Dibromofluoromethane	0.147	0.146	0.12		117	117	70-130	0	20
Toluene-d8	0.129	0.130	0.12		103	104	70-130	0.503	20
4-BFB	0.0122	0.0122	0.012		98	98	70-130	0	20
Benzene-d6	0.0950	0.0996	0.10		95	100	60-140	4.72	20
Ethylbenzene-d10	0.0907	0.0948	0.10		91	95	60-140	4.40	20
1,2-DCB-d4	0.0904	0.0942	0.10		90	94	60-140	4.15	20

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Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/24/16
Date Analyzed: 2/25/16
Instrument: GC16, GC28
Matrix: Soil
Project: EBALDC

WorkOrder: 1602965
BatchID: 117154
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-117154
 1602965-003AMS/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	0.0391	0.0050	0.050	-	78	53-116
Benzene	ND	0.0408	0.0050	0.050	-	82	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	0.197	0.050	0.20	-	99	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	0.0474	0.0050	0.050	-	95	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	0.0470	0.0040	0.050	-	94	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	0.0422	0.0040	0.050	-	84	58-135
1,1-Dichloroethene	ND	0.0382	0.0050	0.050	-	76	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	-	-	-	-

(Cont.)



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/24/16
Date Analyzed: 2/25/16
Instrument: GC16, GC28
Matrix: Soil
Project: EBALDC

WorkOrder: 1602965
BatchID: 117154
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-117154
 1602965-003AMS/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	0.0391	0.0050	0.050	-	78	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0388	0.0050	0.050	-	78	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	0.0378	0.0050	0.050	-	76	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	0.0469	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	0.0422	0.0050	0.050	-	84	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	-	-	-	-

(Cont.)



Quality Control Report

Client: Essel Environmental Consulting
Date Prepared: 2/24/16
Date Analyzed: 2/25/16
Instrument: GC16, GC28
Matrix: Soil
Project: EBALDC

WorkOrder: 1602965
BatchID: 117154
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-117154
 1602965-003AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.136	0.116		0.12	109	93	70-130
Toluene-d8	0.157	0.161		0.12	125	129	70-130
4-BFB	0.0125	0.0151		0.012	100	121	70-130
Benzene-d6	0.113	0.0914		0.10	113	91	60-140
Ethylbenzene-d10	0.127	0.129		0.10	127	129	60-140
1,2-DCB-d4	0.0883	0.0758		0.10	88	76	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)	0.0380	0.0382	0.050	ND	76	76	56-94	0	20
Benzene	0.0411	0.0417	0.050	ND	82	83	60-106	1.50	20
t-Butyl alcohol (TBA)	0.205	0.202	0.20	ND	103	101	56-140	1.52	20
Chlorobenzene	0.0440	0.0449	0.050	ND	88	90	61-108	2.00	20
1,2-Dibromoethane (EDB)	0.0427	0.0437	0.050	ND	85	87	54-119	2.27	20
1,2-Dichloroethane (1,2-DCA)	0.0448	0.0456	0.050	ND	90	91	48-115	1.66	20
1,1-Dichloroethene	0.0390	0.0396	0.050	ND	78	79	46-111	1.32	20
Diisopropyl ether (DIPE)	0.0415	0.0413	0.050	ND	83	83	53-111	0	20
Ethyl tert-butyl ether (ETBE)	0.0410	0.0415	0.050	ND	82	83	61-104	1.21	20
Methyl-t-butyl ether (MTBE)	0.0402	0.0404	0.050	ND	80	81	58-107	0.343	20
Toluene	0.0428	0.0440	0.050	ND	86	88	64-114	2.75	20
Trichloroethene	0.0429	0.0436	0.050	ND	86	87	60-116	1.60	20

Surrogate Recovery									
Dibromofluoromethane	0.131	0.130	0.12		105	104	70-130	0.586	20
Toluene-d8	0.156	0.162	0.12		125	129	70-130	3.87	20
4-BFB	0.0152	0.0150	0.012		121	120	88-121	1.22	20
Benzene-d6	0.0970	0.0972	0.10		97	97	60-140	0	20
Ethylbenzene-d10	0.112	0.114	0.10		112	114	60-140	1.39	20
1,2-DCB-d4	0.0711	0.0728	0.10		71	73	60-140	2.38	20



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

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1602965

ClientCode: ESL

WaterTrax
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 EDF
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 EQUIS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

Nik Lahiri
Essel Environmental Consulting
564 Market Street
San Francisco, CA 94104
(707) 494-4883 FAX: 510-380-6610

Email: nlahiri@esseltek.com
cc/3rd Party:
PO:
ProjectNo: EBALDC

Bill to:

Nik Lahiri
Essel Environmental Consulting
564 Market Street
San Francisco, CA 94104
nlahiri@esseltek.com

Requested TAT: 5 days;

Date Received: 02/24/2016

Date Logged: 02/24/2016

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
1602965-001	S-1-HA1	Soil	2/23/2016 8:23	<input type="checkbox"/>	A	A	A	A	A	A						
1602965-002	S-3-HA1	Soil	2/23/2016 9:35	<input type="checkbox"/>		A		A		A						
1602965-003	S-1-HA2	Soil	2/23/2016 8:29	<input type="checkbox"/>	A	A	A	A	A	A						
1602965-004	S-3 1/2-HA2	Soil	2/23/2016 9:59	<input type="checkbox"/>		A		A		A						
1602965-005	S-1-HA3	Soil	2/23/2016 8:37	<input type="checkbox"/>	A	A	A	A	A	A						
1602965-006	S-3-HA3	Soil	2/23/2016 11:06	<input type="checkbox"/>		A		A		A						

Test Legend:

1	8082_PCB_S	2	8260B_S	3	8270_PNA_S	4	G-MBTEX_S
5	LUFTMS_6020_TTLC_S	6	TPH(DMO)WSG_S	7		8	
9		10		11		12	

Project Manager:

The following SamplIDs: 001A, 002A, 003A, 004A, 005A, 006A contain testgroup.

Prepared by: Briana Cutino

Comments:

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: ESSEL ENVIRONMENTAL CONSULTING

QC Level: LEVEL 2

Work Order: 1602965

Project: EBALDC

Client Contact: Nik Lahiri

Date Logged: 2/24/2016

Comments:

Contact's Email: nlahiri@esseltex.com

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 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
1602965-001A	S-1-HA1	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up	1	Brass tube 2"x6"	<input type="checkbox"/>	2/23/2016 8:23	5 days		<input type="checkbox"/>	
			SW6020 (LUFT)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8021B/8015Bm (G/MBTEX)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8270C (PAHs/PNAs)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8082 (PCBs Only)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
1602965-002A	S-3-HA1	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up	1	Brass tube 2"x6"	<input type="checkbox"/>	2/23/2016 9:35	5 days		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
1602965-003A	S-1-HA2	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up	1	Brass tube 2"x6"	<input type="checkbox"/>	2/23/2016 8:29	5 days		<input type="checkbox"/>	
			SW6020 (LUFT)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8021B/8015Bm (G/MBTEX)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8270C (PAHs/PNAs)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8082 (PCBs Only)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
1602965-004A	S-3 1/2-HA2	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up	1	Brass tube 2"x6"	<input type="checkbox"/>	2/23/2016 9:59	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: ESSEL ENVIRONMENTAL CONSULTING

QC Level: LEVEL 2

Work Order: 1602965

Project: EBALDC

Client Contact: Nik Lahiri

Date Logged: 2/24/2016

Comments:

Contact's Email: nlahiri@esseltex.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
1602965-004A	S-3 1/2-HA2	Soil	SW8260B (VOCs)	1	Brass tube 2"x6"	<input type="checkbox"/>	2/23/2016 9:59	5 days		<input type="checkbox"/>	
1602965-005A	S-1-HA3	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up	1	Brass tube 2"x6"	<input type="checkbox"/>	2/23/2016 8:37	5 days		<input type="checkbox"/>	
			SW6020 (LUFT)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8021B/8015Bm (G/MBTEX)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8270C (PAHs/PNAs)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8260B (VOCs)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8082 (PCBs Only)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
1602965-006A	S-3-HA3	Soil	Multi-Range TPH(g,d,mo) w/ S.G. Clean-Up	1	Brass tube 2"x6"	<input type="checkbox"/>	2/23/2016 11:06	5 days		<input type="checkbox"/>	
			SW8260B (VOCs)			<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: **Essei Environmental Consulting**
 Project Name: **EBALDC**
 WorkOrder №: **1602965** Matrix: Soil
 Carrier: Client Drop-In

Date and Time Received: **2/24/2016 11:20**
 Date Logged: **2/24/2016**
 Received by: Briana Cutino
 Logged by: Briana Cutino

Chain of Custody (COC) Information

Chain of custody present? Yes No
 Chain of custody signed when relinquished and received? Yes No
 Chain of custody agrees with sample labels? Yes No
 Sample IDs noted by Client on COC? Yes No
 Date and Time of collection noted by Client on COC? Yes No
 Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
 Shipping container/cooler in good condition? Yes No
 Samples in proper containers/bottles? Yes No
 Sample containers intact? Yes No
 Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No
 Sample/Temp Blank temperature Temp: 1.5°C NA
 Water - VOA vials have zero headspace / no bubbles? Yes No NA
 Sample labels checked for correct preservation? Yes No
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 Samples Received on Ice? Yes No
 (Ice Type: WET ICE)

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

* NOTE: If the "No" box is checked, see comments below.

Comments:

APPENDIX E

FOCUSED HUMAN HEALTH RISK ASSESSMENT



March 30, 2016

Mr. Nik Lahiri
Essel Environmental Engineering & Consulting
564 Market Street, Suite 160
San Francisco, CA 94104

Subject: Focused Human Health Risk Assessment for Impacts to Indoor Air
760 22nd Street and 2201 Brush Street
Oakland, California

Dear Mr. Lahiri:

At your request, The Source Group, Inc. a division of Apex Companies, LLC. (SGI) has performed an evaluation of the soil vapor data collected at the property located at 760 22nd Street and 2201 Brush Street in Oakland, California (the Site). The two adjacent properties are bordered by West Grand Avenue to the north, Brush Street to the east, and 22nd Street to the south. The Site is surrounded by both residential and commercial/industrial land use.

The proposed redevelopment of the Site includes a multi-story building with mixed use (i.e., offices, child-care facility, and residences). Preliminary architectural plans indicate that the proposed building and associated parking will cover the entire Site. Therefore, exposure via direct contact with soil or groundwater is not anticipated. This focused human health risk assessment (HHRA) was conducted to estimate potential adverse noncancer health effects and excess cancer risks associated with the chemicals of potential concern (COPCs) in soil vapor near the former underground storage tank (UST) and dispenser island areas. Although the proposed building will include office and child-care worker receptors, the estimated risks for these occupational receptors would be less than the estimated risks for a resident receptor. Consequently, this HHRA was conducted to estimate potential indoor air concentrations and associated human health risks from vapor intrusion of COPCs into future onsite residences. Although the preliminary architectural plans indicate that the residences will be located above the second floor, currently available vapor intrusion models do not allow for the evaluation of multi-story building or elevator exposure scenarios. Therefore, this HHRA conservatively assumes that the future onsite resident receptors are located at ground surface. The uncertainties in this HHRA will be discussed further in the uncertainty analysis section.

The remainder of this report is presented as follows:

- Site Land Use;
- Data Evaluation;
- Exposure Assessment and Vapor Intrusion Modeling;
- Toxicity Assessment;
- Risk Characterization;
- Uncertainty Analysis;
- Results;

- Summary and Conclusions; and
- References.

Site Land Use

Previous land uses of the Site were commercial/industrial. A below grade pit, reportedly used for servicing large vehicles (trucks and buses), is located in the northern portion of the existing onsite building. A 7,000-gallon diesel UST and a 2,000-gallon gasoline UST were previously located adjacent to the northeastern corner of the Site. A small, raised concrete pedestal located at the east-central edge of the property is the location of a former fuel dispenser island.

Currently, the 760 22nd Street property consists of a building constructed with a metal frame and metal siding and the remainder of the Site is paved with concrete. In addition, there are two mobile trailers and a number of parked buses onsite. The south-adjacent and abutting property at 2201 Brush Street is unpaved and is used to park buses.

Future redevelopment plans include demolition of existing structures and construction of a multi-story building containing offices, residential living units and a child-care facility. Preliminary architectural plans indicate that the proposed building will cover the entire property and will include a podium garage with parking at ground level and below ground level. The first floor of the proposed building will contain offices, lobbies, an employee break room, conference room, and child-care reception area, which will be located along the northern and eastern sides of the building. The entire second floor is planned as a child-care facility and higher floors will be used for residential living. Preliminary architectural plans indicate that the elevator shafts in the northeastern and southeastern portions of the Site may extend from 7 feet below the ground surface (bgs) to all above-ground floors.

Data Evaluation

Two soil vapor investigations were conducted at the Site. For both investigations, soil vapor samples were analyzed for total petroleum hydrocarbons-gasoline range (TPHg) using United States Environmental Protection Agency (USEPA) Method TO-3, volatile organic compounds (VOCs) using USEPA Method TO-15, and methane, oxygen, nitrogen, and carbon dioxide using American Society for Testing and Materials Method D-1946. The results from the soil vapor investigations were compared with both San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels (ESLs; SFRWQCB, 2016) and U.S. Environmental Protection Agency Regional Screening Levels (RSLs; USEPA, 2015) and Department of Toxic Substances Control (DTSC) alternative screening levels (CalEPA, 2016). The SFRWQCB Tier 1 ESLs are calculated by dividing the indoor air screening level for residential air by the DTSC default attenuation factor of 0.002 for existing residential building type (CalEPA, 2011). Since, this project involves new residential buildings, the DTSC default attenuation factor of 0.001 for future residential building type is more appropriate. As presented in Table 1, the SFRWQCB ESLs and USEPA/DTSC screening levels for soil gas were calculated by dividing the indoor air screening level for residential air by the DTSC default attenuation factor of 0.001 (future residential building type [CalEPA, 2011]).

In October 2015, soil vapor samples were collected from probes SV-1 at 9.5 feet bgs (former UST area) and SV-2 at 9.25 feet bgs (former dispenser island area). Various VOCs were detected in soil vapor samples from probes SV-1 and SV-2; however, only vinyl chloride and TPHg were detected at concentrations exceeding the soil vapor screening level for residential land use. Vinyl chloride was detected at a concentration of 31 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) and TPHg was detected at a concentration of 64,000 $\mu\text{g}/\text{m}^3$ in probe SV-1.

In February and March 2016, four soil vapor samples were collected. In the former UST area, a soil vapor sample was collected from probe SV-1 and two additional soil vapor samples to the north and south of probe SV-1 were collected from probe SV-3 at 10.75 feet bgs and probe SV-5 at 9.75 feet bgs. Soil vapor samples were unable to be collected from soil vapor probe SV-4, located east of probe SV-1. In the former dispenser island area, a soil vapor sample was collected from probe SV-2 but soil vapor samples to the north and south of probe SV-2 (i.e., probes SV-6 and SV-7) were unable to be sampled. Only chloroform and TPHg were detected at concentrations exceeding the soil vapor screening level for residential land use. Chloroform was detected at a concentration of 130 $\mu\text{g}/\text{m}^3$ in probe SV-2 and TPHg was detected at a concentration of 400,000 $\mu\text{g}/\text{m}^3$ in probe SV-5.

On March 24, 2016, a second attempt was made to collect soil vapor samples from probes SV-4, SV-6, and SV-7. In soil vapor sample SV-4D, vinyl chloride was detected at 46 $\mu\text{g}/\text{m}^3$, which exceeded the soil vapor screening level for residential land use. In soil vapor sample SV-7, chloroform was detected at 420 $\mu\text{g}/\text{m}^3$, which exceeded the soil vapor screening level for residential land use. No other VOCs were detected in soil vapor samples SV-4D, SV-6 or SV-7 at concentrations exceeding the soil vapor screening levels.

Typically, only the most toxic, persistent, and prevalent site-related chemicals detected at a site are fully evaluated in a risk assessment. In this way, the assessment can focus solely on those chemicals that are expected to account for the majority of the estimated health impacts at the Site. These selected chemicals are known as COPCs. In order to provide a conservative and complete characterization of potential risks associated with exposures at the Site, all detected VOCs were retained as COPCs.

Generally, the evaluation of TPHg in a risk assessment includes the evaluation of its components most likely to reflect risk (i.e., benzene, toluene, ethylbenzene, xylenes [BTEX], methyl tertiary butyl ether [MTBE], and naphthalene). It is unlikely that other less toxic components of TPHg will drive the overall risk at a site. According to CalEPA Department of Toxic Substances Control (DTSC) Human Health Risk Assessment Note No. 4 (CalEPA, 2015), the DTSC's Interim Guidance for Evaluating Human Health Risks from TPH dated June 16, 2009 is no longer active or available. DTSC recommends using data for specific toxic constituents of TPH. Although TPHg was detected in soil vapor at concentrations exceeding the soil vapor screening level for residential land use, TPHg as a mixture is not evaluated further in this risk evaluation. However, BTEX and MTBE were detected in one or more soil vapor samples and were included in this risk evaluation to estimate cumulative potential adverse noncancer health effects and excess cancer risks associated with the COPCs in soil vapor. Naphthalene was not detected above the reporting limit in the soil vapor samples collected from the Site.

Exposure Assessment and Vapor Intrusion Modeling

This section describes the methods used to estimate exposures for potential human receptors at the Site, including the conceptual approach to vapor intrusion modeling and model input parameters. The methods used to conduct this risk assessment are consistent with CalEPA DTSC *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air* (Vapor Intrusion Guidance; CalEPA, 2011). The CalEPA DTSC modified version of the USEPA Johnson and Ettinger (1991; J/E) model (CalEPA, 2014) was used to estimate potential indoor air concentrations and associated health risks from soil vapor intrusion into indoor air. A detailed description of the equations used in this model is provided in the *User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings* (USEPA, 2004).

The CalEPA DTSC J/E model (2014) was used to evaluate volatilization of chemicals from soil vapor, migration of vapors to the ground surface, and mixing with indoor air for the future onsite resident receptor. This model estimates vapor concentrations in indoor air directly from source vapor concentrations, accounting for advection and diffusion in the vadose zone and building foundation and mixing in the building interior. Vapor emissions were modeled for the Site using source concentrations from soil vapor ($EPC_{\text{soil vapor}}$).

The following sections discuss the input parameters used in the fate and transport modeling for vapor migration from soil vapor to indoor air.

Source Concentrations

Vapor emissions were modeled for the Site using source concentrations from soil vapor ($EPC_{\text{soil vapor}}$). Soil vapor EPCs are summarized in Table 1. Based on the assumption that portions of the building may be located over maximum COPC concentrations in soil vapor, it is assumed that hypothetical resident receptors reside over maximum detected concentrations. Therefore, the maximum detected concentration was selected as the soil vapor EPC to be used in mathematical fate and transport models to estimate COPC concentrations in indoor air. The resulting modeled indoor air EPCs ($EPC_{\text{indoor air}}$) are presented in Table 1.

Site-Specific and Chemical-Specific Properties

In addition to the chemical concentrations measured in soil vapor, site-specific soil physical properties were used as input parameters for the vapor intrusion model. In February 2016, four soil samples were collected and analyzed for physical soil property characterization. Two soil samples were collected near soil vapor probe SV-1 at 6.3 feet bgs and 9.7 feet bgs. Two soil samples were collected near soil vapor probe SV-2 at 5.7 feet bgs and 9.9 feet bgs. Each soil sample was analyzed for particle size distribution, dry bulk density, and porosity by a State-certified laboratory. The soil characterization analytical report is provided in Attachment A.

The results from the February 2016 soil physical properties analyses were used to determine the appropriate soil conservation service (SCS) soil textural classification within the Site. For three out of four soil samples, the particle size distribution analysis indicates that Site soils most closely fit with the "silty clay loam" SCS soil textural classification. This classification is consistent with the

soils observed during previous investigations, which were predominately silty clay. The soil classification for the remaining soil sample was “sand” at probe SV-5 at 9.7 feet bgs. Based on the other soil samples, this sand zone is not indicative of the predominant soil type within the vadose zone. As a result, silty clay loam was selected as the Vadose Zone SCS Soil Type input parameter for the vapor intrusion model. The reported values for dry bulk density (1.63 gram per cubic centimeter [g/cm^3]), total porosity (0.383), and water-filled porosity (0.300) were used as model input parameters, which represents the more conservative values for the three “silty clay loam” samples. In accordance with CalEPA (DTSC, 2014), default values of 24 degrees Celsius for average soil temperature and 15 centimeters (cm) for depth to the bottom of an enclosed space floor for slab-on-grade construction were used as vapor intrusion model input parameters. A soil vapor sampling depth of 9.25 feet bgs was used in the model based on the shallowest depth sampled.

Default chemical properties supplied by the CalEPA DTSC J/E model (CalEPA, 2014) were used for the dimensionless Henry’s Law constant, organic carbon-water partition coefficient (Koc), and molecular diffusion coefficients in air and water, D_i and D_w , for each COPC.

The following table summarizes the Site-specific and chemical-specific properties input into the CalEPA DTSC J/E model (CalEPA, 2014) for vapor migration from soil vapor to indoor air.

Equation Variables – Vapor Migration from Soil Vapor to Indoor Air		
Properties	Symbol	Assumed Value
Depth Below Grade to Bottom of Enclosed Space Floor (default)	L_F	15 cm
Soil Vapor Sampling Depth Below Grade – 9.25 feet bgs	L_S	282 cm
Average Soil Temperature (default)	T_s	24°C
Vadose Zone SCS Soil Type (site-specific)	--	Silty Clay Loam (SiCL)
Vadose Zone Soil Dry Bulk Density (site-specific)	ρ_b	1.63 g/cm^3
Vadose Zone Soil Total Porosity (site-specific)	θ_T	0.383
Vadose Zone Soil Water-Filled Porosity (site-specific)	θ_w	0.300
Average Vapor Flow Rate into Building (default)	Q_{soil}	5 L/m
Residential Land Use		
Averaging Time for Carcinogens	AT_C	70 years
Averaging Time for Noncarcinogens	AT_{NC}	26 years
Exposure Duration	ED	26 years
Exposure Frequency	EF	350 days/year
Exposure Time	ET	24 hours/day
Air Exchange Rate	ACH	0.5 hour^{-1}

The spreadsheets containing the input parameters and results of the CalEPA DTSC J/E model (CalEPA, 2014) for subsurface vapor intrusion into buildings are provided in Attachment B.

Toxicity Assessment

Toxicity values are combined with exposure factors to estimate adverse noncancer health effects and excess cancer risks. Toxicity values include inhalation reference concentrations (RfCs) and inhalation unit risk factors (IURs). Toxicity values supplied by the CalEPA DTSC J/E model (2014) were used.

Risk Characterization

The risk characterization process incorporates data from the exposure and toxicity assessments to estimate noncancer adverse health effects and excess cancer risks. To estimate noncancer effects, the chronic daily intake is divided by the RfC. The resulting value is referred to as a hazard quotient (HQ). Exposures to multiple chemicals were evaluated by summing the HQs for each COPC, resulting in a hazard index (HI). A HI less than or equal to 1 indicates that no adverse noncancer health effects are expected to occur (USEPA, 1989). Consistent with USEPA (1989) risk assessment guidelines, carcinogenic effects are typically evaluated by multiplying the IUR by the chronic daily intake averaged over 70 years to estimate lifetime excess cancer risk. The resulting values are referred to as excess cancer risks. These potential excess cancer risks are compared to the CalEPA risk management range of one-in-one-million (1×10^{-6}) to one-in-ten thousand (1×10^{-4}).

Consistent with USEPA (1989; 1991) guidelines, the following general equations were used to estimate excess cancer risks and noncancer adverse health effects (expressed as a HQ):

$$\text{For carcinogens: } Risk = \frac{C_{building} \times EF \times ED \times ET \times IUR}{AT_c}$$

$$\text{For noncarcinogens: } HQ = \frac{C_{building} \times EF \times ED \times ET \times \frac{1}{RfC}}{AT_n}$$

Where:

$C_{building}$ = Chemical concentration in indoor air ($EPC_{indoor\ air}$; $\mu\text{g}/\text{m}^3$).

EF = Exposure frequency.

ED = Exposure duration.

ET = Exposure time.

AT = Averaging time (days).

For noncarcinogenic effects, $AT = ED \times 365 \text{ days/year} \times 24 \text{ hours/day}$.

For carcinogenic effects, $AT = 70 \text{ years} \times 365 \text{ days/year} \times 24 \text{ hours/day}$.

IUR = Inhalation unit risk for carcinogenic chemicals ($\mu\text{g}/\text{m}^3$)⁻¹.

RfC = Inhalation reference concentration for noncarcinogenic chemicals ($\mu\text{g}/\text{m}^3$).

Using the exposure factors defined above and toxicity values, as supplied by the CalEPA DTSC J/E model (CalEPA, 2014), the model estimates the HQ and excess cancer risk for COPCs detected in soil vapor. Risk characterization results for the hypothetical future indoor resident receptor based on soil vapor data are presented in Table 1. The spreadsheets containing the results of the CalEPA DTSC J/E model for residential exposures are presented in Attachment B.

Uncertainty Analysis

Quantifying uncertainty is an essential element of the risk assessment process. According to the USEPA Guidance on Risk Characterization for Risk Managers and Risk Assessors, point estimates of risk “do not fully convey the range of information considered and used in developing the assessment” (USEPA, 1992). This section presents the major sources of uncertainty associated with the HHRA.

This HHRA was conducted to estimate potential indoor air concentrations and associated human health risks from vapor intrusion of COPCs from the subsurface into future onsite residences. Preliminary architectural plans indicate that the residences will be located above the second floor within a multi-story building. For the proposed redevelopment plans, subsurface vapors would potentially enter the first floor of the building (i.e., lobby and offices) or elevator shaft, then diffuse in ambient air, then potentially migrate upwards towards the second floor of the building (i.e., offices and child care facility), then diffuse in ambient air, and then potentially migrate upwards towards the third floor of the building (i.e., residences). Currently available vapor intrusion models do not allow for evaluation of multi-story building or elevator exposure scenarios. Therefore, this HHRA estimates potential adverse noncancer health effects and excess cancer risks for the future resident receptor, assuming the receptor is located at ground surface in a single-story residence. Although vapor intrusion via upward migration or preferential pathways (i.e., elevator shafts) into residential spaces may be a complete exposure pathway, indoor air concentrations are expected to be significantly lower than estimated indoor air concentrations for a residence in direct contact with ground surface due to dispersion. Therefore, this HHRA likely overestimates Site-related noncancer hazards and excess cancer risks for the future onsite resident receptor.

A summary of the Site-specific uncertainties of this HHRA is presented in the following table.

Assumption	Potential to Overestimate Risk	Potential to Underestimate Risk	Comments
A single family residence at ground surface.	High	Low	Proposed architectural plans indicated the residences will be located above the second floor, within a multi-story building.
Minor or secondary exposure pathways (e.g., elevator) may exist but often cannot be evaluated using the available data.	Low	Low	Secondary pathways are unlikely to contribute significantly to the overall risk Although an elevator shaft may represent a preferential pathway for vapors, assumed exposure parameters in an elevator exposure scenario (e.g., 0.5 hours per day for 30 years) would be significantly less than for a long-term receptor (8 hours per day for 25 years for occupational worker receptor and 24 hours per day for 30 years for resident receptor).

Assumption	Potential to Overestimate Risk	Potential to Underestimate Risk	Comments
Although proposed architectural plans include a multi-story building with mixed use (i.e., offices, child-care facility, and residences), only a future onsite resident receptor was evaluated.	Moderate-High	Low	Chronic daily intake for a future onsite resident receptor will overestimate exposures for other occupational receptors and early child-care receptors.
A single representative concentration (i.e., maximum detected concentration) for each COPC was used for the Site.	Moderate	Low	Using a single upperbound concentration to represent an entire site will likely result in an overestimate of exposures for the majority of the site.

Notes:

The potential for under- or overestimation of risk (low, moderate, high) associated with each uncertainty item is based on the professional judgment of the risk assessor.

A summary of general uncertainties of this HHRA is presented in the following table.

Assumption	Potential to Overestimate Risk	Potential to Underestimate Risk	Comments
COPCs in soil vapor were considered at steady-state concentrations throughout the duration of the exposure.	Moderate	Low	Conservative intake assumptions are used, likely resulting in an overestimate of risks. No mass reduction over time is assumed.
EPCs in indoor air were modeled using a variety of conservative assumptions. These conservative assumptions included assuming low building air exchange rates and high amounts of foundation cracking.	High	Low	Assumptions used to address uncertainty are conservative and multiplicative.
Default input parameters recommended by the regulatory agencies were used to estimate exposures. The input parameters may not represent actual receptor intakes.	Moderate-High	Low	Chronic daily intake likely does not accurately reflect actual exposure for most receptors.

Notes:

The potential for under- or overestimation of risk (low, moderate, high) associated with each uncertainty item is based on the professional judgment of the risk assessor.

Mathematical models were used to estimate concentrations of contaminants in indoor air. The CalEPA DTSC J/E model (2014) model used for this HHRA has been accepted by regulatory agencies and tends to yield conservative EPC values and as a result overestimates the EPCs used in the HHRA. The conservatism inherent to the formulation of these models is supplemented by additional conservatism associated with selection of model input data and conceptualization of site conditions used by model users. As a result of this multilevel

conservatism, actual EPCs and corresponding health risks are likely to be significantly lower than were estimated for the inhalation exposure pathway.

Some of the conservative aspects of the model include the following assumptions,

- No loss mechanisms, such as biodegradation and vapor-phase adsorption result in overestimation of vapor emissions to ambient air, yielding higher EPCs.
- No depletion of contaminant source, a constant source results in an unlimited supply of contaminated vapor and an overestimation of vapor emissions to ambient air, yielding higher EPCs.
- No water movement (and dissolved chemical) movement through unsaturated soil results in an overestimation of chemical mass in vapor-phase available for transport to ambient air, yielding higher EPCs.
- No positive pressure on buildings, which neglects significant periods where neutral or positive pressurized conditions exist, thereby over-estimating advective transport of contaminated vapors to ambient air, yielding higher EPCs.
- Vapor transport only occurs under a single (vertical) dimension, which ignores the potential for vapor migration in multiple directions away from the source area, resulting in an overestimation of vapor emissions and higher EPCs.
- Various model input data and building parameters used in this analysis correspond to conservative default values adopted by CalEPA (2014).
- Indoor points of exposure (buildings) are assumed to directly overlie locations of maximum detected concentrations in soil vapor.
- COPCs are assumed to be uniformly distributed in soil vapor, with no spatial and temporal changes in concentrations.

As shown on Table 1, the model-derived soil vapor to indoor air attenuation factors were slightly less than 6×10^{-5} (a threshold value that DTSC considers “reasonable” [CalEPA, 2014]). In these cases, DTSC recommends that the use of attenuation factors less than 6×10^{-5} should be fully explained and justified with site-specific information and a weight-of-evidence approach. As mentioned previously, three of the four geotechnical data indicated a “silty clay loam” soil classification with high water-filled porosity and low air-filled porosity. Using the site-specific soil property data, the attenuation factors ranged from 9.7×10^{-6} to 2.0×10^{-5} . Although the model-derived attenuation factors were low, the model was based on site-specific data from three soil samples. In accordance with the Vapor Intrusion Guidance (CalEPA, 2011), DTSC recommends no less than three sieve analyses (grain size distribution determination) to classify each soil layer that is used for modeling purposes.

The analysis of uncertainties associated with the HHRA indicates that noncancer adverse health effects as well as excess cancer risk estimates will overestimate actual impacts to human health. Although many factors can contribute to the potential for over- or underestimating risk, a mixture of conservative and upper-bound input values were identified to estimate potential exposures.

Compounding conservative and upper-bound input values in the risk assessment process is intended to yield maximum, health-conservative estimates.

Human Health Risk Evaluation Results

A human health risk evaluation was performed using the CalEPA DTSC J/E model (CalEPA, 2014) to assess potential human health risks associated with vapor intrusion to indoor air. USEPA guidance on risk and exposure levels considered protective of human health is presented to provide context for interpretation of the estimates of noncancer hazard and excess cancer risk presented in this HHRA. Adverse noncancer effects are compared to the USEPA and CalEPA recommended target HI of one (1; USEPA, 1989). Excess cancer risks are compared to the CalEPA risk management range of one-in-one-million (1×10^{-6}) to one-in-ten thousand (1×10^{-4}).

Individual, pathway-specific risk characterization results for this receptor, showing estimated HIs and excess cancer risks are presented in Table 1. The summary table below presents the cumulative HI and excess cancer risk results of the evaluation using the maximum detected concentrations for COPCs in soil vapor samples.

Exposure Pathway	Hazard Index (HI)	Excess Cancer Risk (CR)	Comments
Inhalation of COPCs Volatilizing from Soil Vapor (9.25 feet bgs) into Indoor Air	0.002	1×10^{-7}	HI does not exceed USEPA/CalEPA target level. CR is below CalEPA's risk management range.

For inhalation of COPCs volatilizing from soil vapor into indoor air, the HI estimates do not exceed the USEPA and CalEPA target level of one and the excess cancer risk estimates are below CalEPA's risk management range of 1×10^{-6} to 1×10^{-4} . Therefore, COPCs do not pose a risk to the hypothetical future onsite resident receptor.

Summary and Conclusions

This focused HHRA was conducted to estimate potential adverse noncancer health effects and excess cancer risks for hypothetical future onsite resident receptors potentially exposed to COPCs in soil vapor near the former UST and dispenser island areas. The proposed redevelopment of the Site includes a multi-story building with mixed use (i.e., offices, child care facility, and residences). Although the proposed building will include office and child-care worker receptors, the estimated risk for these occupational receptors would be less than the estimated risks for a resident receptor. Currently available vapor intrusion models do not allow for evaluation of multi-story building or preferential pathway (i.e., elevator) exposure scenarios. Therefore, this HHRA conservatively assumes that the hypothetical future onsite resident receptors are located at ground surface.

Based on the soil vapor data collected at the Site in October 2015 and February and March 2016, the HI estimates do not exceed the USEPA and CalEPA target level of one and the excess cancer risk estimates are below 1×10^{-6} , which is the most stringent end of CalEPA's risk management

range of 1×10^{-6} to 1×10^{-4} . Generally, an excess cancer risk below 1×10^{-6} is acceptable for unrestricted or residential land use.

As mentioned previously, this HHRA assumes the future resident receptor resides over maximum detected COPC concentrations in soil vapor beneath a single-story residence. Under proposed development plans, the future onsite resident receptor would be located on the third floor or higher floor of a multi-story building. Therefore, the results of this HHRA likely overestimate actual risk.

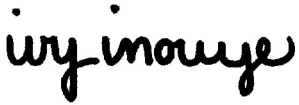
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Mr. Nik Lahiri
March 30, 2016
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Sincerely,

The Source Group, Inc.

A handwritten signature in black ink that reads "ivy inouye". The letters are lowercase and written in a cursive, flowing style.

Ivy Inouye
Senior Toxicologist

Table 1 Risk Characterization for Inhalation of COPCs Volatilizing from Soil Vapor into
Indoor Air for the Hypothetical Future Onsite Resident Receptor

Attachment A Soil Characterization Analytical Report

Attachment B CALEPA DTSC Johnson and Ettinger Model Spreadsheets

TABLE

Table 1
Risk Characterization for Inhalation of COPCs Volatilizing from Soil Vapor into Indoor Air
for the Hypothetical Onsite Resident Receptor
760 22nd Street and 2201 Brush Street
Oakland, CA

Chemical of Potential Concern	Soil Vapor - 9.25 feet bgs	Residential ¹	Residential ¹	Indoor Air ²		Cancer Risk (unitless)	Noncancer Hazard (unitless)
	MDC EPC _{soil vapor} (µg/m ³)	SFBRWQCB ESLs (µg/m ³)	USEPA/DTSC Screening Levels (µg/m ³)	Soil Vapor to Indoor Air Attenuation Factor (unitless)	EPC _{indoor air} (µg/m ³)		
Volatile Organic Compounds (VOCs)							
Acetone	1,600	32,000,000	32,000,000	1.3E-04	2.0E-01	NA	6.3E-06
Benzene	66	97	97	1.7E-05	1.2E-03	1.2E-08	3.7E-04
Bromodichloromethane	26	76	76	1.2E-05	3.2E-04	4.2E-09	4.4E-06
Carbon disulfide	370	NA	730,000	2.0E-05	7.5E-03	NA	1.0E-05
Chloroform	420	120	120	1.6E-05	6.5E-03	5.3E-08	6.4E-05
Cumene (isopropylbenzene)	22	NA	420,000	1.2E-05	2.6E-04	NA	6.1E-07
Cyclohexane	800	NA	6,300,000	1.5E-05	1.2E-02	NA	1.9E-06
1,3-Dichlorobenzene	13	NA	130,000	1.2E-05	1.5E-04	NA	1.4E-06
Dichlorodifluoromethane (Freon-12)	27	NA	100,000	1.4E-05	3.9E-04	NA	3.7E-06
cis-1,2-Dichloroethene	560	8,300	8,300	1.8E-05	9.8E-03	NA	1.3E-03
Ethanol	200	NA	NA	--	--	--	--
Ethylbenzene	39	1,100	1,100	1.3E-05	5.2E-04	4.6E-10	5.0E-07
4-Ethyltoluene ³	240	NA	NA	1.5E-05	3.6E-03	NA	1.2E-05
Heptane ⁴	260	NA	NA	1.4E-05	3.6E-03	NA	4.9E-06
Hexane	530	NA	730,000	1.4E-05	7.3E-03	NA	1.0E-05
Methyl ethyl ketone	530	5,200,000	5,200,000	7.7E-05	4.1E-02	NA	7.9E-06
Methyl tertiary butyl ether	110	11,000	11,000	1.9E-05	2.1E-03	2.0E-10	6.7E-07
Naphthalene	ND	83	83	--	--	--	--
2-Propanol (isopropyl alcohol)	ND	NA	NA	--	--	--	--
Propylbenzene	83	NA	1,000,000	1.2E-05	9.6E-04	NA	9.2E-07
Tetrachloroethene	150	480	480	9.7E-06	1.5E-03	3.1E-09	4.0E-05
Tetrahydrofuran	7.5	NA	2,100,000	6.9E-05	5.2E-04	NA	2.5E-07
Toluene	47	310,000	310,000	1.5E-05	7.1E-04	NA	2.3E-06
Trichloroethene	ND	480	480	--	--	--	--
1,2,4-Trimethylbenzene	280	NA	7,300	1.2E-05	3.3E-03	NA	4.6E-04
1,3,5-Trimethylbenzene	79	NA	42,000	1.2E-05	9.2E-04	NA	2.5E-05
2,2,4-Trimethylpentane ⁵	5,400	NA	NA	1.5E-05	8.4E-02	NA	8.0E-05
Vinyl chloride	46	9.5	10	2.0E-05	9.3E-04	2.6E-08	8.9E-06
m,p-Xylene	130	100,000	100,000	1.3E-05	1.7E-03	NA	1.7E-05
o-Xylene	68	100,000	100,000	1.4E-05	9.2E-04	NA	8.8E-06
Total						1 E-07	2 E-03

Notes:

feet bgs = feet below ground surface.

MDC = maximum detected concentration.

EPC = exposure point concentration.

µg/m³ = micrograms per cubic meter.

SFBRWQCB Screening Levels = San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels (ESLs; SFBRWQCB, February 2016)

USEPA/DTSC Screening Levels = U.S. Environmental Protection Agency Regional Screening Levels (RSLs; USEPA, November 2015) and Department of Toxic Substances Control alternative screening levels (DTSC, January 2016)

Bold font indicates value exceeds screening level.

¹ The soil gas screening level is calculated by dividing the air screening level for residential air by the California Department of Toxic Substances Control (DTSC, 2011) default attenuation factor of 0.001 (new residential building).

² EPCs in soil vapor (EPC_{soil vapor}) were coupled with vapor intrusion model to estimate attenuation factors and EPCs in indoor air.

³ Toluene was used as a surrogate for 4-ethyltoluene in vapor intrusion model.

⁴ Hexane was used as a surrogate for heptane in vapor intrusion model.

⁵ n-Pentane was used as a surrogate for 2,2,4-trimethylpentane in vapor intrusion model.

ATTACHMENT A
SOIL CHARACTERIZATION ANALYTICAL REPORT



8100 Secura Way • Santa Fe Springs, CA 90670
Telephone (562) 347-2500 • Fax (562) 907-3610

February 26, 2016

Rodger Witham
Essel Environmental Consulting
351 California St, Suite 615
San Francisco, CA 94104

Re: PTS File No: 46112
Physical Properties Data
EBALDC West Grand & Brush; 15166

Dear Mr. Witham:

Please find enclosed report for Physical Properties analyses conducted upon samples received from your EBALDC West Grand & Brush; 15166 project. All analyses were performed by applicable ASTM, EPA, or API methodologies. The samples are currently in storage and will be retained for thirty days past completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples.

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please give me a call at (562) 347-2502.

Sincerely,
PTS Laboratories, Inc.

Michael Mark Brady, P.G.
Laboratory Director

Encl.

Project Name: EBALDC West Grand & Brush
Project Number: 15166

PTS File No: 46112
Client: Essel Environmental Consulting

TEST PROGRAM - 20160219

CORE ID	Depth ft.	Core Recovery ft.	CAL-EPA DTSC Vapor Intrusion						Comments
		Plugs:	Various						
Date Received: 20160218									
S-5 1/2 - BSV1	5.5-6.5	1.00	X						
S-9-BSV5	9-10	0.90	X						
S-5-BSV2	5-6	0.90	X						
S-9-BSV2	9-10	1.10	X						
TOTALS:	4 cores	3.90	4						4

Laboratory Test Program Notes

Contaminant identification: _____

Standard TAT for basic analysis is 10 business days.

CAL-EPA DTSC Vapor Intrusion: Bulk & grain density, total porosity, moisture content, volumetric air & moisture, TOC/foc, and grain size distribution.

5 Day Rush TAT results by COB 2/25/16 requested per H. Mendoza / Essel Environmental Consulting 20160219

PTS File No: 46112
 Client: Essel Environmental Consulting
 Report Date: 02/26/16

PHYSICAL PROPERTIES DATA - CAL-EPA DTSC Vapor Intrusion Package

Project Name: EBALDC West Grand & Brush
 Project No: 15166

SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	METHODS: API RP40/ASTM D2216		API RP 40		API RP 40		
				MOISTURE CONTENT,		DENSITY		POROSITY, (2)		
				% weight	cm ³ /cm ³	DRY BULK, g/cm ³	GRAIN, g/cm ³	TOTAL, cm ³ /cm ³	AIR-FILLED, cm ³ /cm ³	WATER-FILLED, cm ³ /cm ³
S-5 1/2 - BSV1	6.3	V	20160220	18.5	0.302	1.63	2.64	0.382	0.080	0.302
S-9-BSV5	9.7	V	20160220	9.3	0.143	1.54	2.66	0.423	0.281	0.143
S-5-BSV2	5.7	V	20160220	18.4	0.300	1.63	2.64	0.383	0.083	0.300
S-9-BSV2	9.9	V	20160220	18.9	0.318	1.68	2.65	0.365	0.047	0.318

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

(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.

Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PARTICLE SIZE SUMMARY
(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: EBALDC West Grand & Brush
PROJECT NO: 15166

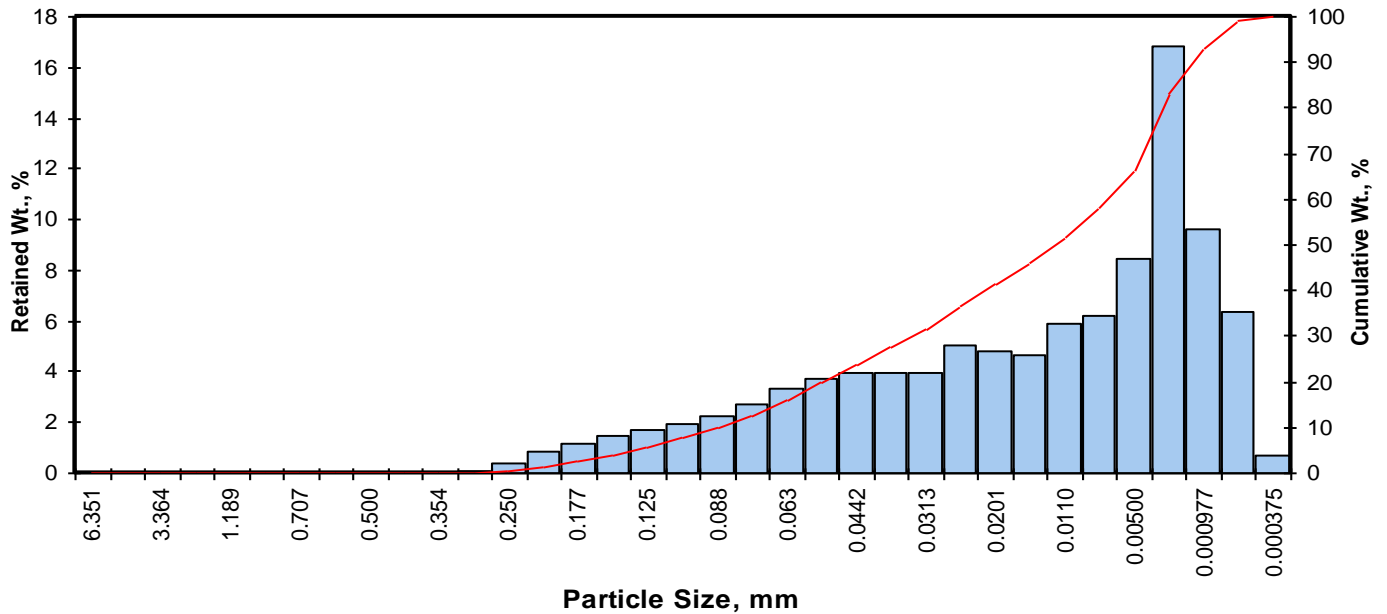
Sample ID	Depth, ft.	Mean Grain Size Description (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
S-5 1/2 - BSV1	6.15	Silt	0.012	0.00	0.00	0.00	12.61	53.85	33.54	87.39
S-5-BSV2	5.55	Silt	0.017	0.00	0.00	0.00	12.68	57.76	29.56	87.32
S-9-BSV2	9.75	Silt	0.018	0.00	0.00	0.00	12.91	59.42	27.67	87.09

(1) Based on Mean from Trask

Client: Essel Environmental Consulting
Project: EBALDC West Grand & Brush
Project No: 15166

PTS File No: 46112
Sample ID: S-5 1/2 - BSV1
Depth, ft: 6.15

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening		Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.06	0.06	0.06
0.0098	0.250	2.00	60	0.38	0.38	0.44
0.0083	0.210	2.25	70	0.88	0.88	1.32
0.0070	0.177	2.50	80	1.20	1.20	2.52
0.0059	0.149	2.75	100	1.44	1.44	3.96
0.0049	0.125	3.00	120	1.71	1.71	5.67
0.0041	0.105	3.25	140	1.96	1.96	7.63
0.0035	0.088	3.50	170	2.25	2.25	9.88
0.0029	0.074	3.75	200	2.73	2.73	12.61
0.0025	0.063	4.00	230	3.32	3.32	15.93
0.0021	0.053	4.25	270	3.75	3.75	19.68
0.00174	0.0442	4.50	325	3.92	3.92	23.60
0.00146	0.0372	4.75	400	3.92	3.92	27.52
0.00123	0.0313	5.00	450	3.95	3.95	31.47
0.000986	0.0250	5.32	500	5.06	5.06	36.53
0.000790	0.0201	5.64	635	4.78	4.78	41.31
0.000615	0.0156	6.00		4.63	4.63	45.94
0.000435	0.0110	6.50		5.89	5.89	51.83
0.000308	0.00781	7.00		6.20	6.20	58.03
0.000197	0.00500	7.65		8.43	8.43	66.46
0.000077	0.00195	9.00		16.80	16.80	83.26
0.000038	0.000977	10.00		9.63	9.63	92.89
0.000019	0.000488	11.00		6.39	6.39	99.28
0.000015	0.000375	11.38		0.72	0.72	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	2.90	0.0053	0.134
10	3.51	0.0035	0.088
16	4.00	0.0025	0.062
25	4.59	0.0016	0.042
40	5.55	0.0008	0.021
50	6.34	0.0005	0.012
60	7.15	0.0003	0.007
75	8.33	0.0001	0.003
84	9.08	0.0001	0.002
90	9.70	0.0000	0.001
95	10.33	0.0000	0.001

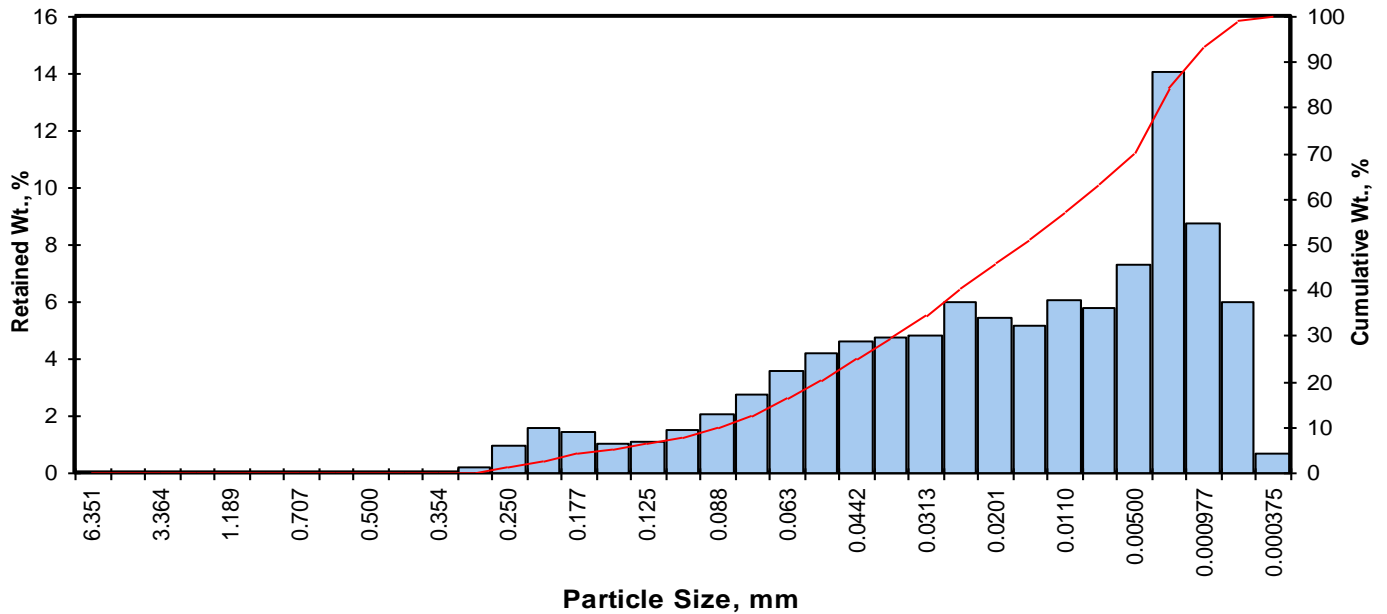
Measure	Trask	Inman	Folk-Ward
Median, phi	6.34	6.34	6.34
Median, in.	0.0005	0.0005	0.0005
Median, mm	0.012	0.012	0.012
Mean, phi	5.49	6.54	6.48
Mean, in.	0.0009	0.0004	0.0004
Mean, mm	0.022	0.011	0.011
Sorting	3.661	2.536	2.393
Skewness	0.922	0.077	0.075
Kurtosis	0.222	0.464	0.813
Grain Size Description		Silt	
(ASTM-USCS Scale)		(based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	12.61
Silt	>0.005 mm	53.85
Clay	<0.005 mm	33.54
Total		100

Client: Essel Environmental Consulting
Project: EBALDC West Grand & Brush
Project No: 15166

PTS File No: 46112
Sample ID: S-5-BSV2
Depth, ft: 5.55

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening		Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.20	0.20	0.20
0.0098	0.250	2.00	60	0.94	0.94	1.14
0.0083	0.210	2.25	70	1.60	1.60	2.74
0.0070	0.177	2.50	80	1.42	1.42	4.16
0.0059	0.149	2.75	100	1.02	1.02	5.18
0.0049	0.125	3.00	120	1.12	1.12	6.30
0.0041	0.105	3.25	140	1.54	1.54	7.84
0.0035	0.088	3.50	170	2.07	2.07	9.91
0.0029	0.074	3.75	200	2.77	2.77	12.68
0.0025	0.063	4.00	230	3.57	3.57	16.25
0.0021	0.053	4.25	270	4.21	4.21	20.46
0.00174	0.0442	4.50	325	4.62	4.62	25.08
0.00146	0.0372	4.75	400	4.77	4.77	29.85
0.00123	0.0313	5.00	450	4.82	4.82	34.67
0.000986	0.0250	5.32	500	6.02	6.02	40.69
0.000790	0.0201	5.64	635	5.47	5.47	46.16
0.000615	0.0156	6.00		5.14	5.14	51.30
0.000435	0.0110	6.50		6.09	6.09	57.39
0.000308	0.00781	7.00		5.78	5.78	63.16
0.000197	0.00500	7.65		7.28	7.28	70.44
0.000077	0.00195	9.00		14.10	14.10	84.54
0.000038	0.000977	10.00		8.78	8.78	93.32
0.000019	0.000488	11.00		6.01	6.01	99.33
0.000015	0.000375	11.38		0.67	0.67	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	2.71	0.0060	0.153
10	3.51	0.0035	0.088
16	3.98	0.0025	0.063
25	4.50	0.0017	0.044
40	5.28	0.0010	0.026
50	5.91	0.0007	0.017
60	6.73	0.0004	0.009
75	8.08	0.0001	0.004
84	8.95	0.0001	0.002
90	9.62	0.0000	0.001
95	10.28	0.0000	0.001

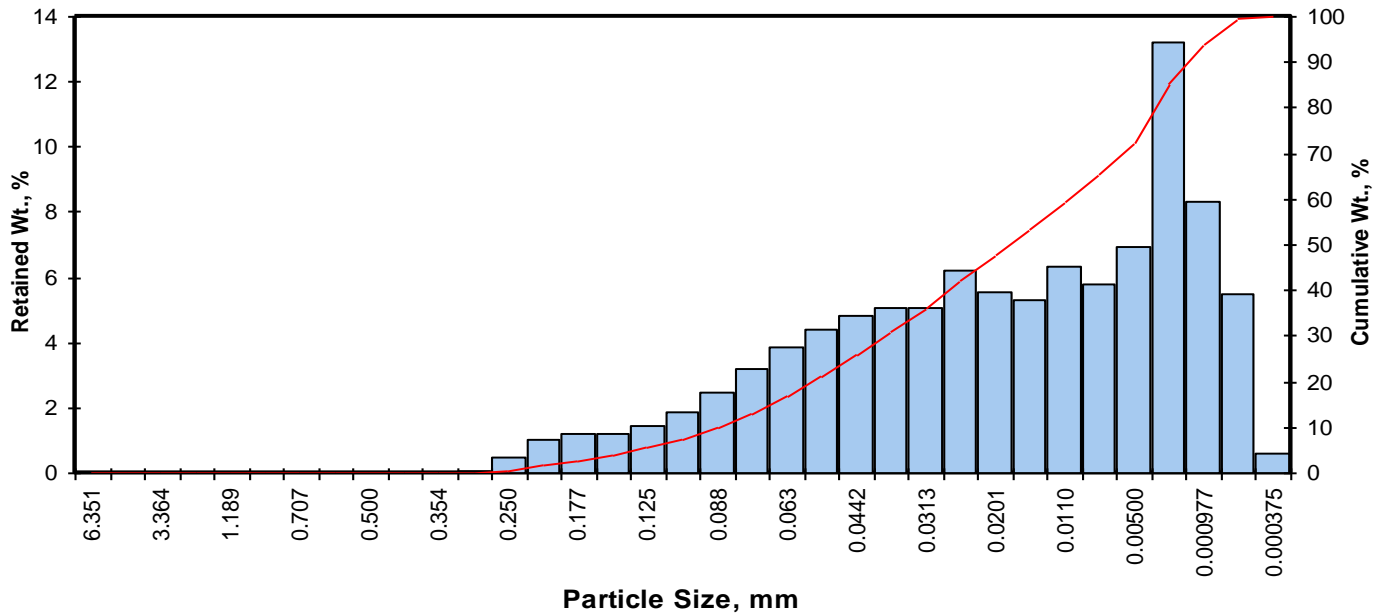
Measure	Trask	Inman	Folk-Ward
Median, phi	5.91	5.91	5.91
Median, in.	0.0007	0.0007	0.0007
Median, mm	0.017	0.017	0.017
Mean, phi	5.38	6.47	6.28
Mean, in.	0.0009	0.0004	0.0005
Mean, mm	0.024	0.011	0.013
Sorting	3.467	2.483	2.389
Skewness	0.768	0.224	0.189
Kurtosis	0.235	0.525	0.865
Grain Size Description (ASTM-USCS Scale)		Silt (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	12.68
Silt	>0.005 mm	57.76
Clay	<0.005 mm	29.56
Total		100

Client: Essel Environmental Consulting
Project: EBALDC West Grand & Brush
Project No: 15166

PTS File No: 46112
Sample ID: S-9-BSV2
Depth, ft: 9.75

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening		Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.08	0.08	0.08
0.0098	0.250	2.00	60	0.50	0.50	0.58
0.0083	0.210	2.25	70	1.03	1.03	1.61
0.0070	0.177	2.50	80	1.18	1.18	2.79
0.0059	0.149	2.75	100	1.18	1.18	3.97
0.0049	0.125	3.00	120	1.42	1.42	5.39
0.0041	0.105	3.25	140	1.87	1.87	7.26
0.0035	0.088	3.50	170	2.47	2.47	9.73
0.0029	0.074	3.75	200	3.18	3.18	12.91
0.0025	0.063	4.00	230	3.88	3.88	16.79
0.0021	0.053	4.25	270	4.42	4.42	21.21
0.00174	0.0442	4.50	325	4.83	4.83	26.04
0.00146	0.0372	4.75	400	5.04	5.04	31.08
0.00123	0.0313	5.00	450	5.09	5.09	36.17
0.000986	0.0250	5.32	500	6.24	6.24	42.40
0.000790	0.0201	5.64	635	5.58	5.58	47.98
0.000615	0.0156	6.00		5.30	5.30	53.28
0.000435	0.0110	6.50		6.32	6.32	59.60
0.000308	0.00781	7.00		5.78	5.78	65.38
0.000197	0.00500	7.65		6.95	6.95	72.33
0.000077	0.00195	9.00		13.20	13.20	85.53
0.000038	0.000977	10.00		8.34	8.34	93.87
0.000019	0.000488	11.00		5.52	5.52	99.39
0.000015	0.000375	11.38		0.61	0.61	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	2.93	0.0052	0.131
10	3.52	0.0034	0.087
16	3.95	0.0025	0.065
25	4.45	0.0018	0.046
40	5.20	0.0011	0.027
50	5.78	0.0007	0.018
60	6.53	0.0004	0.011
75	7.92	0.0002	0.004
84	8.84	0.0001	0.002
90	9.54	0.0001	0.001
95	10.20	0.0000	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	5.78	5.78	5.78
Median, in.	0.0007	0.0007	0.0007
Median, mm	0.018	0.018	0.018
Mean, phi	5.32	6.40	6.19
Mean, in.	0.0010	0.0005	0.0005
Mean, mm	0.025	0.012	0.014
Sorting	3.332	2.447	2.325
Skewness	0.755	0.253	0.235
Kurtosis	0.243	0.486	0.858
Grain Size Description		Silt	
(ASTM-USCS Scale)		(based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	12.91
Silt	>0.005 mm	59.42
Clay	<0.005 mm	27.67
Total		100

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422M)

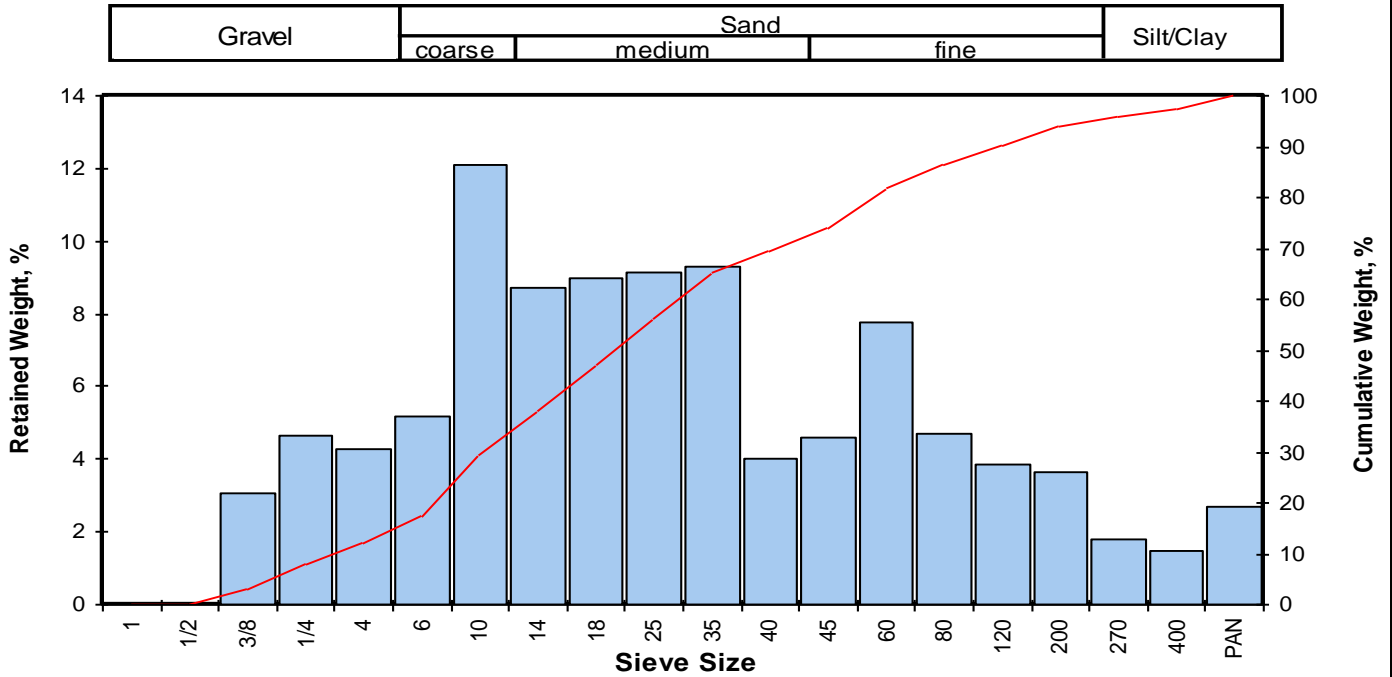
PROJECT NAME: EBALDC West Grand & Brush
 PROJECT NO: 15166

Sample ID	Depth, ft.	Mean Grain Size Description USCS/ASTM (1)	Median Grain Size, mm	Particle Size Distribution, wt. percent				
				Gravel	Sand Size			Silt/Clay
					Coarse	Medium	Fine	
S-9-BSV5	9.5	Medium sand	0.892	12.03	17.26	40.13	24.59	5.99

(1) Based on Mean from Trask

Client: Essel Environmental Consulting
 Project: EBALDC West Grand & Brush
 Project No: 15166

PTS File No: 46112
 Sample ID: S-9-BSV5
 Depth, ft: 9.5



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	2.54	3.08	3.08
0.2500	6.351	-2.67	1/4	3.84	4.66	7.74
0.1873	4.757	-2.25	4	3.54	4.29	12.03
0.1324	3.364	-1.75	6	4.25	5.16	17.19
0.0787	2.000	-1.00	10	9.98	12.11	29.29
0.0557	1.414	-0.50	14	7.19	8.72	38.02
0.0394	1.000	0.00	18	7.40	8.98	46.99
0.0278	0.707	0.50	25	7.55	9.16	56.15
0.0197	0.500	1.00	35	7.65	9.28	65.43
0.0166	0.420	1.25	40	3.29	3.99	69.42
0.0139	0.354	1.50	45	3.77	4.57	73.99
0.0098	0.250	2.00	60	6.42	7.79	81.78
0.0070	0.177	2.50	80	3.89	4.72	86.50
0.0049	0.125	3.00	120	3.18	3.86	90.36
0.0029	0.074	3.75	200	3.01	3.65	94.01
0.0021	0.053	4.25	270	1.48	1.80	95.80
0.0015	0.037	4.75	400	1.22	1.48	97.28
			PAN	2.24	2.72	100.00
TOTALS				82.44	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	-3.01	0.3169	8.048
10	-2.45	0.2147	5.454
16	-1.87	0.1434	3.643
25	-1.27	0.0947	2.405
40	-0.39	0.0516	1.310
50	0.16	0.0351	0.892
60	0.71	0.0241	0.612
75	1.56	0.0133	0.338
84	2.24	0.0084	0.212
90	2.95	0.0051	0.129
95	4.03	0.0024	0.061

Measure	Trask	Inman	Folk-Ward
Median, phi	0.16	0.16	0.16
Median, in.	0.0351	0.0351	0.0351
Median, mm	0.892	0.892	0.892
Mean, phi	-0.46	0.18	0.18
Mean, in.	0.0540	0.0346	0.0348
Mean, mm	1.372	0.880	0.884
Sorting	2.667	2.050	2.091
Skewness	1.010	0.010	0.054
Kurtosis	0.194	0.716	1.019

Grain Size Description (ASTM-USCS Scale) Medium sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	12.03
Coarse Sand	10	17.26
Medium Sand	40	40.13
Fine Sand	200	24.59
Silt/Clay	<200	5.99
Total		100

PTS File No: 46112
 Client: Essel Environmental Consulting
 Report Date: 02/26/16

ORGANIC CARBON DATA - TOC (foc)
 (Methodology: Walkley-Black)

Project Name: EBALDC West Grand & Brush
 Project No: 15166

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	SAMPLE MATRIX	TOTAL ORGANIC CARBON, mg/kg	FRACTION ORGANIC CARBON, g/g
S-5 1/2 - BSV1	6.05	20160223	1255	SOIL	370	3.70E-04
S-9-BSV5	9.35	20160223	1255	SOIL	530	5.30E-04
S-5-BSV2	5.5	20160223	1255	SOIL	750	7.50E-04
S-9-BSV2	9.7	20160223	1255	SOIL	370	3.70E-04


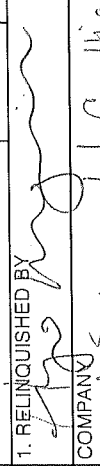
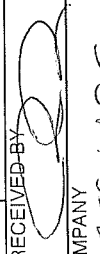
Blank	N/A	20160223	1255	BLANK	ND	ND
SRM D089-542	N/A	20160223	1255	SRM	5540	5.54E-03

Reporting Limit: 100 1.00E-04

QC DATA

SRM ID/Lot No.	REC (%)	Control Limits	Certified Concentration mg/kg	QC Performance	
				Acceptance Limits, mg/kg	
				Lower	Upper
SRM D089-542	99	75-125	5610	4208	7013

ND = Not Detected

COMPANY EsSEL Environmental Consulting ADDRESS 351 California Street, Suite 615 San Francisco 94104 PROJECT MANAGER Rodger Witham/Nik Lahiri email: nlahiri@esseltel.com PROJECT NAME EBALDC West Grand & Brush PHONE NUMBER 510-366-8054 PROJECT NUMBER 15166 SITE LOCATION 22nd Street and Brush Street, Oakland, California SAMPLER SIGNATURE 		ZIP CODE 94104 email nlahiri@esseltel.com PHONE NUMBER 510-366-8054 FAX NUMBER 15166		ANALYSIS REQUEST SOIL PROPERTIES PACKAGE HYDRAULIC CONDUCTIVITY PACKAGE PORE FLUID SATURATIONS PACKAGE TCE/OTNRCC PROPERTIES PACKAGE CAPILLARITY PACKAGE FLUID PROPERTIES PACKAGE PHOTOLOG: CORE PHOTOGRAPHY VAPOR TRANSPORT PACKAGE POROSITY: TOTAL, AIR FILLED, WATER FILLED POROSITY: EFFECTIVE, ASTM D425M SPECIFIC GRAVITY, ASTM D854 BULK DENSITY (DRY), API RP40 or ASTM D2937 AIR PERMEABILITY, API RP40 HYDRAULIC CONDUCTIVITY, EPA9100/API RP40 or D5084 GRAIN SIZE DISTRIBUTION, ASTM D422 or 4464M TOC: WALKLEY-BLACK ATTERBERG LIMITS, ASTM D4318 VAPOR INTRUSION PACKAGE FREE PRODUCT MOBILITY PACKAGE												PO# 15166 TURNAROUND TIME 24 HOURS <input type="checkbox"/> 5 DAYS <input type="checkbox"/> 72 HOURS <input type="checkbox"/> NORMAL <input checked="" type="checkbox"/> OTHER: _____ SAMPLE INTEGRITY (CHECK) INTACT <input checked="" type="checkbox"/> TEMP (F) 67 PTS QUOTE NO. _____ PTS FILE: 46112 COMMENTS									
SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	SOIL PROPERTIES PACKAGE	HYDRAULIC CONDUCTIVITY PACKAGE	PORE FLUID SATURATIONS PACKAGE	TCE/OTNRCC PROPERTIES PACKAGE	CAPILLARITY PACKAGE	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	VAPOR TRANSPORT PACKAGE	POROSITY: TOTAL, AIR FILLED, WATER FILLED	POROSITY: EFFECTIVE, ASTM D425M	SPECIFIC GRAVITY, ASTM D854	BULK DENSITY (DRY), API RP40 or ASTM D2937	AIR PERMEABILITY, API RP40	HYDRAULIC CONDUCTIVITY, EPA9100/API RP40 or D5084	GRAIN SIZE DISTRIBUTION, ASTM D422 or 4464M	TOC: WALKLEY-BLACK	ATTERBERG LIMITS, ASTM D4318	VAPOR INTRUSION PACKAGE	FREE PRODUCT MOBILITY PACKAGE		
S-5/2 - BSV1	2/15/16	7:55 a.m.	5 1/2 - 6 1/2	1																					
S-9 - BSV5	2/15/16	8:01 a.m.	9-10	1																		X			
S-5 - BSV2	2/15/16	11:12 a.m.	5-6	1																		X			
S-9 - BSV2	2/15/16	11:16 a.m.	9-10	1																		X			
				1. RELINQUISHED BY  COMPANY EsSEL Environmental Consulting				2. RECEIVED-BY  COMPANY PTS LABS				3. RELINQUISHED BY COMPANY DATE 2/17/16 3:00pm				4. RECEIVED BY COMPANY DATE 2/18/16 13:15									

ATTACHMENT B
CALEPA DTSC JOHNSON AND ETTINGER MODEL SPREADSHEETS

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

Scenario: Residential
Chemical: Acetone

DATA ENTRY SHEET

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C _g (µg/m ³)	OR	ENTER Soil gas conc., C _g (ppmv)	Chemical
67641	1.60E+03			Acetone

Results Summary				
Soil Gas Conc. (µg/m ³)	Attenuation Factor (unitless)	Indoor Air Conc. (µg/m ³)	Cancer Risk	Noncancer Hazard
1.60E+03	1.3E-04	2.0E-01	NA	6.3E-06

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L _F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L _S (cm)	ENTER Average soil temperature, T _S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k _v (cm ²)
15	282	24	SICL		

MORE
↓

ENTER Vadose zone SCS soil type <small>Lookup Soil Parameters</small>	ENTER Vadose zone soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Vadose zone soil total porosity, n ^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ _w ^V (cm ³ /cm ³)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q _{soil} (L/m)
SICL	1.63	0.383	0.3	5

MORE
↓

Lookup Receptor
Parameters

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{Nc} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH (hour) ⁻¹
70	26	26	350	24 (NEW)	0.5 (NEW)

NEW=> Residential

END

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

Scenario: Residential
Chemical: Benzene

DATA ENTRY SHEET

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C _g (µg/m ³)	OR	ENTER Soil gas conc., C _g (ppmv)	Chemical
71432	6.60E+01			Benzene

Results Summary				
Soil Gas Conc. (µg/m ³)	Attenuation Factor (unitless)	Indoor Air Conc. (µg/m ³)	Cancer Risk	Noncancer Hazard
6.60E+01	1.7E-05	1.2E-03	1.2E-08	3.7E-04

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

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

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L _F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L _S (cm)	ENTER Average soil temperature, T _S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k _v (cm ²)
15	282	24	SICL		

MORE
↓

ENTER Vadose zone SCS soil type <small>Lookup Soil Parameters</small>	ENTER Vadose zone soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Vadose zone soil total porosity, n ^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ _w ^V (cm ³ /cm ³)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q _{soil} (L/m)
SICL	1.63	0.383	0.3	5

MORE
↓

Lookup Receptor Parameters

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{Nc} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH (hour) ⁻¹
70	26	26	350	24 (NEW)	0.5 (NEW)

NEW=> Residential

END

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

Scenario: Residential
Chemical: Bromodichloromethane

DATA ENTRY SHEET

Reset to Defaults

Soil Gas Concentration Data				
ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu\text{g}/\text{m}^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75274	2.60E+01			Bromodichloromethane

Results Summary				
Soil Gas Conc. ($\mu\text{g}/\text{m}^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu\text{g}/\text{m}^3$)	Cancer Risk	Noncancer Hazard
2.60E+01	1.2E-05	3.2E-04	4.2E-09	4.4E-06

MESSAGE: Risk and/or hazard quotient is based on route-to-route extrapolation.
MESSAGE: Attenuation factor < 6E-05 is unreasonably low.

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L_f (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s ($^{\circ}\text{C}$)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	282	24	SICL		

MORE
↓

ENTER Vadose zone SCS soil type <small>Lookup Soil Parameters</small>	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)		ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SICL	1.63	0.383	0.3		5

MORE
↓

Lookup Receptor Parameters

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

NEW=> Residential

END

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

Scenario: Residential
Chemical: Carbon disulfide

DATA ENTRY SHEET

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C _g ($\mu\text{g}/\text{m}^3$)	OR	ENTER Soil gas conc., C _g (ppmv)	Chemical
75150	3.70E+02			Carbon disulfide

Results Summary				
Soil Gas Conc. ($\mu\text{g}/\text{m}^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu\text{g}/\text{m}^3$)	Cancer Risk	Noncancer Hazard
3.70E+02	2.0E-05	7.5E-03	NA	1.0E-05

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

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L _F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L _S (cm)	ENTER Average soil temperature, T _S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k _v (cm ²)
15	282	24	SICL		

MORE
↓

ENTER Vadose zone SCS soil type <small>Lookup Soil Parameters</small>	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm ³)	ENTER Vadose zone soil total porosity, n ^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm ³ /cm ³)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q _{soil} (L/m)
SICL	1.63	0.383	0.3	5

MORE
↓

Lookup Receptor
Parameters

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{Nc} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH (hour) ⁻¹
70	26	26	350	24 (NEW)	0.5 (NEW)

NEW=> Residential

END

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

Scenario: Residential
Chemical: Chloroform

DATA ENTRY SHEET

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu\text{g}/\text{m}^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67663	4.20E+02			Chloroform

Results Summary				
Soil Gas Conc. ($\mu\text{g}/\text{m}^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu\text{g}/\text{m}^3$)	Cancer Risk	Noncancer Hazard
4.20E+02	1.6E-05	6.5E-03	5.3E-08	6.4E-05

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

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L_f (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s ($^{\circ}\text{C}$)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	282	24	SICL		

MORE
↓

ENTER Vadose zone SCS soil type <small>Lookup Soil Parameters</small>	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SICL	1.63	0.383	0.3	5

MORE
↓

Lookup Receptor
Parameters

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

NEW=> Residential

END

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

Scenario: Residential
Chemical: Cumene

DATA ENTRY SHEET

Reset to
Defaults

Soil Gas Concentration Data				
ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C _g (µg/m ³)	OR	ENTER Soil gas conc., C _g (ppmv)	Chemical
98828	2.20E+01			Cumene

Results Summary				
Soil Gas Conc. (µg/m ³)	Attenuation Factor (unitless)	Indoor Air Conc. (µg/m ³)	Cancer Risk	Noncancer Hazard
2.20E+01	1.2E-05	2.6E-04	NA	6.1E-07

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

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

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L _F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L _S (cm)	ENTER Average soil temperature, T _S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k _v (cm ²)
15	282	24	SICL		

MORE
↓

ENTER Vadose zone SCS soil type <small>Lookup Soil Parameters</small>	ENTER Vadose zone soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Vadose zone soil total porosity, n ^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ _w ^V (cm ³ /cm ³)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q _{soil} (L/m)
SICL	1.63	0.383	0.3	5

MORE
↓

Lookup Receptor
Parameters

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH (hour) ⁻¹
70	26	26	350	24 (NEW)	0.5 (NEW)

NEW=> Residential

END

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

Scenario: Residential
Chemical: Cyclohexane

DATA ENTRY SHEET

Reset to Defaults

Soil Gas Concentration Data				
ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C _g ($\mu\text{g}/\text{m}^3$)	OR	ENTER Soil gas conc., C _g (ppmv)	Chemical
110827	8.00E+02			Cyclohexane

Results Summary				
Soil Gas Conc. ($\mu\text{g}/\text{m}^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu\text{g}/\text{m}^3$)	Cancer Risk	Noncancer Hazard
8.00E+02	1.5E-05	1.2E-02	NA	1.9E-06

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

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L _F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L _S (cm)	ENTER Average soil temperature, T _S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k _v (cm ²)
15	282	24	SICL		

MORE
↓

ENTER Vadose zone SCS soil type <small>Lookup Soil Parameters</small>	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm ³)	ENTER Vadose zone soil total porosity, n ^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm ³ /cm ³)		ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q _{soil} (L/m)
SICL	1.63	0.383	0.3		5

MORE
↓

Lookup Receptor
Parameters

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH (hour) ⁻¹
70	26	26	350	24 (NEW)	0.5 (NEW)

NEW=> Residential

END

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

Scenario: Residential
Chemical: 1,3-Dichlorobenzene

DATA ENTRY SHEET

Reset to Defaults

Soil Gas Concentration Data				
ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu\text{g}/\text{m}^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
541731	1.30E+01			1,3-Dichlorobenzene

Results Summary				
Soil Gas Conc. ($\mu\text{g}/\text{m}^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu\text{g}/\text{m}^3$)	Cancer Risk	Noncancer Hazard
1.30E+01	1.2E-05	1.5E-04	NA	1.4E-06

MESSAGE: Risk and/or hazard quotient is based on route-to-route extrapolation.
MESSAGE: Attenuation factor < 6E-05 is unreasonably low.

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L_f (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s ($^{\circ}\text{C}$)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	282	24	SICL		

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

MORE
↓

ENTER Vadose zone SCS soil type <small>Lookup Soil Parameters</small>	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SICL	1.63	0.383	0.3	5

MORE
↓

Lookup Receptor Parameters

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

NEW=> Residential

END

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

Scenario: Residential
Chemical: Dichlorodifluoromethane

DATA ENTRY SHEET

Reset to Defaults

Soil Gas Concentration Data				
ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu\text{g}/\text{m}^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75718	2.70E+01			Dichlorodifluoromethane

Results Summary				
Soil Gas Conc. ($\mu\text{g}/\text{m}^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu\text{g}/\text{m}^3$)	Cancer Risk	Noncancer Hazard
2.70E+01	1.4E-05	3.9E-04	NA	3.7E-06

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

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L_f (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s ($^{\circ}\text{C}$)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	282	24	SICL		

MORE
↓

ENTER Vadose zone SCS soil type <small>Lookup Soil Parameters</small>	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SICL	1.63	0.383	0.3	5

MORE
↓

Lookup Receptor Parameters

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

NEW=> Residential

END

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

Scenario: Residential
Chemical: cis-1,2-Dichloroethylene

DATA ENTRY SHEET

Reset to Defaults

Soil Gas Concentration Data				
ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu\text{g}/\text{m}^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
156592	5.60E+02			cis-1,2-Dichloroethylene

Results Summary				
Soil Gas Conc. ($\mu\text{g}/\text{m}^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu\text{g}/\text{m}^3$)	Cancer Risk	Noncancer Hazard
5.60E+02	1.8E-05	9.8E-03	NA	1.3E-03

MESSAGE: Risk and/or hazard quotient is based on route-to-route extrapolation.
MESSAGE: Attenuation factor < 6E-05 is unreasonably low.

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L_f (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s ($^{\circ}\text{C}$)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	282	24	SICL		

MORE
↓

ENTER Vadose zone SCS soil type <small>Lookup Soil Parameters</small>	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)		ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SICL	1.63	0.383	0.3		5

MORE
↓

Lookup Receptor Parameters

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

NEW=> Residential

END

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

Scenario: Residential
Chemical: Ethylbenzene

DATA ENTRY SHEET

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C _g ($\mu\text{g}/\text{m}^3$)	OR	ENTER Soil gas conc., C _g (ppmv)	Chemical
100414	3.90E+01			Ethylbenzene

Results Summary				
Soil Gas Conc. ($\mu\text{g}/\text{m}^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu\text{g}/\text{m}^3$)	Cancer Risk	Noncancer Hazard
3.90E+01	1.3E-05	5.2E-04	4.6E-10	5.0E-07

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

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L _F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L _S (cm)	ENTER Average soil temperature, T _S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k _v (cm ²)
15	282	24	SICL		

MORE
↓

ENTER Vadose zone SCS soil type <small>Lookup Soil Parameters</small>	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm ³)	ENTER Vadose zone soil total porosity, n ^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm ³ /cm ³)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q _{soil} (L/m)
SICL	1.63	0.383	0.3	5

MORE
↓

Lookup Receptor Parameters

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{Nc} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH (hour) ⁻¹
70	26	26	350	24	0.5

NEW=>

Residential

(NEW)

(NEW)

END

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

Scenario: Residential
Chemical: Toluene (Surrogate for 4-ethyltoluene)

DATA ENTRY SHEET

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C _g (µg/m ³)	OR	ENTER Soil gas conc., C _g (ppmv)	Chemical
108883	2.40E+02			Toluene (Surrogate for 4-Ethyltoluene)

Results Summary				
Soil Gas Conc. (µg/m ³)	Attenuation Factor (unitless)	Indoor Air Conc. (µg/m ³)	Cancer Risk	Noncancer Hazard
2.40E+02	1.5E-05	3.6E-03	NA	1.2E-05

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

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L _F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L _S (cm)	ENTER Average soil temperature, T _S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k _v (cm ²)
15	282	24	SICL		

MORE
↓

ENTER Vadose zone SCS soil type Lookup Soil Parameters	ENTER Vadose zone soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Vadose zone soil total porosity, n ^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ _w ^V (cm ³ /cm ³)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q _{soil} (L/m)
SICL	1.63	0.383	0.3	5

MORE
↓

Lookup Receptor
Parameters

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{Nc} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH (hour) ⁻¹
70	26	26	350	24 (NEW)	0.5 (NEW)

NEW=> Residential

END

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

Scenario: Residential
Chemical: Hexane (Surrogate for Heptane)

DATA ENTRY SHEET

Reset to Defaults

Soil Gas Concentration Data

ENTER	ENTER	OR	ENTER	
Chemical CAS No. (numbers only, no dashes)	Soil gas conc., C_g ($\mu\text{g}/\text{m}^3$)		Soil gas conc., C_g (ppmv)	Chemical
110543	2.60E+02			Hexane (Surrogate for Heptane)

Results Summary				
Soil Gas Conc. ($\mu\text{g}/\text{m}^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu\text{g}/\text{m}^3$)	Cancer Risk	Noncancer Hazard
2.60E+02	1.4E-05	3.6E-03	NA	4.9E-06

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

MORE ↓

ENTER	ENTER	ENTER	ENTER	OR	ENTER
Depth below grade to bottom of enclosed space floor, L_f (15 or 200 cm)	Soil gas sampling depth below grade, L_s (cm)	Average soil temperature, T_s ($^{\circ}\text{C}$)	Vadose zone SCS soil type (used to estimate soil vapor permeability)		User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	282	24	SICL		

MORE ↓

ENTER	ENTER	ENTER	ENTER	ENTER
Vadose zone SCS soil type <small>Lookup Soil Parameters</small>	Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	Vadose zone soil total porosity, n^V (unitless)	Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SICL	1.63	0.383	0.3	5

MORE ↓

Lookup Receptor Parameters

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

NEW=>

Residential

END

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

Scenario: Residential
Chemical: Hexane

DATA ENTRY SHEET

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C _g ($\mu\text{g}/\text{m}^3$)	OR	ENTER Soil gas conc., C _g (ppmv)	Chemical
110543	5.30E+02			Hexane

Results Summary				
Soil Gas Conc. ($\mu\text{g}/\text{m}^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu\text{g}/\text{m}^3$)	Cancer Risk	Noncancer Hazard
5.30E+02	1.4E-05	7.3E-03	NA	1.0E-05

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

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L _F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L _S (cm)	ENTER Average soil temperature, T _S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k _v (cm ²)
15	282	24	SICL		

MORE
↓

ENTER Vadose zone SCS soil type <small>Lookup Soil Parameters</small>	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm ³)	ENTER Vadose zone soil total porosity, n ^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm ³ /cm ³)		ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q _{soil} (L/m)
SICL	1.63	0.383	0.3		5

MORE
↓

Lookup Receptor
Parameters

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH (hour) ⁻¹
70	26	26	350	24 (NEW)	0.5 (NEW)

NEW=> Residential

END

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

Scenario: Residential
Chemical: Methyleneketone (2-butanone)

DATA ENTRY SHEET

Reset to Defaults

Soil Gas Concentration Data				
ENTER	ENTER	OR	ENTER	
Chemical CAS No. (numbers only, no dashes)	Soil gas conc., C_g ($\mu\text{g}/\text{m}^3$)		Soil gas conc., C_g (ppmv)	Chemical
78933	5.30E+02			Methyleneketone (2-butanone)

Results Summary				
Soil Gas Conc. ($\mu\text{g}/\text{m}^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu\text{g}/\text{m}^3$)	Cancer Risk	Noncancer Hazard
5.30E+02	7.7E-05	4.1E-02	NA	7.9E-06

MORE
↓

ENTER	ENTER	ENTER	ENTER	OR	ENTER
Depth below grade to bottom of enclosed space floor, L_f (15 or 200 cm)	Soil gas sampling depth below grade, L_s (cm)	Average soil temperature, T_s ($^{\circ}\text{C}$)	Vadose zone SCS soil type (used to estimate soil vapor permeability)		User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	282	24	SICL		

MORE
↓

ENTER	ENTER	ENTER	ENTER	ENTER
Vadose zone SCS soil type <small>Lookup Soil Parameters</small>	Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	Vadose zone soil total porosity, n^V (unitless)	Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SICL	1.63	0.383	0.3	5

MORE
↓

Lookup Receptor Parameters

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

NEW=> Residential

END

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

Scenario: Residential
Chemical: MTBE (methyl-tert-butyl ether)

DATA ENTRY SHEET

Reset to Defaults

Soil Gas Concentration Data

ENTER	ENTER	OR	ENTER	
Chemical CAS No. (numbers only, no dashes)	Soil gas conc., C_g ($\mu\text{g}/\text{m}^3$)		Soil gas conc., C_g (ppmv)	Chemical
1634044	1.10E+02			MTBE (methyl-tert-butyl ether)

Results Summary				
Soil Gas Conc. ($\mu\text{g}/\text{m}^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu\text{g}/\text{m}^3$)	Cancer Risk	Noncancer Hazard
1.10E+02	1.9E-05	2.1E-03	2.0E-10	6.7E-07

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

MORE
↓

ENTER	ENTER	ENTER	ENTER	OR	ENTER
Depth below grade to bottom of enclosed space floor, L_f (15 or 200 cm)	Soil gas sampling depth below grade, L_s (cm)	Average soil temperature, T_s ($^{\circ}\text{C}$)	Vadose zone SCS soil type (used to estimate soil vapor permeability)		User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	282	24	SICL		

MORE
↓

ENTER	ENTER	ENTER	ENTER	ENTER
Vadose zone SCS soil type <small>Lookup Soil Parameters</small>	Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	Vadose zone soil total porosity, n^V (unitless)	Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SICL	1.63	0.383	0.3	5

MORE
↓

Lookup Receptor Parameters

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

NEW=> Residential

END

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

Scenario: Residential
Chemical: n-Propylbenzene

DATA ENTRY SHEET

Reset to Defaults

Soil Gas Concentration Data				
ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C _g (µg/m ³)	OR	ENTER Soil gas conc., C _g (ppmv)	Chemical
103651	8.30E+01			n-Propylbenzene

Results Summary				
Soil Gas Conc. (µg/m ³)	Attenuation Factor (unitless)	Indoor Air Conc. (µg/m ³)	Cancer Risk	Noncancer Hazard
8.30E+01	1.2E-05	9.6E-04	NA	9.2E-07

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

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L _F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L _S (cm)	ENTER Average soil temperature, T _S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k _v (cm ²)
15	282	24	SICL		

MORE
↓

ENTER Vadose zone SCS soil type Lookup Soil Parameters	ENTER Vadose zone soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Vadose zone soil total porosity, n ^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ _w ^V (cm ³ /cm ³)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q _{soil} (L/m)
SICL	1.63	0.383	0.3	5

MORE
↓

Lookup Receptor
Parameters

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{Nc} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH (hour) ⁻¹
70	26	26	350	24 (NEW)	0.5 (NEW)

NEW=> Residential

END

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

Scenario: Residential
Chemical: Tetrachloroethylene

DATA ENTRY SHEET

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu\text{g}/\text{m}^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	1.50E+02			Tetrachloroethylene

Results Summary				
Soil Gas Conc. ($\mu\text{g}/\text{m}^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu\text{g}/\text{m}^3$)	Cancer Risk	Noncancer Hazard
1.50E+02	9.7E-06	1.5E-03	3.1E-09	4.0E-05

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

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L_f (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	282	24	SICL		

MORE
↓

ENTER Vadose zone SCS soil type <small>Lookup Soil Parameters</small>	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SICL	1.63	0.383	0.3	5

MORE
↓

Lookup Receptor
Parameters

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

NEW=> Residential

END

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

Scenario: Residential
Chemical: Tetrahydrofuran

DATA ENTRY SHEET

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C _g ($\mu\text{g}/\text{m}^3$)	OR	ENTER Soil gas conc., C _g (ppmv)	Chemical
109999	7.50E+00			Tetrahydrofuran

Results Summary				
Soil Gas Conc. ($\mu\text{g}/\text{m}^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu\text{g}/\text{m}^3$)	Cancer Risk	Noncancer Hazard
7.50E+00	6.9E-05	5.2E-04	NA	2.5E-07

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

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L _F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L _S (cm)	ENTER Average soil temperature, T _S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k _v (cm ²)
15	282	24	SICL		

MORE
↓

ENTER Vadose zone SCS soil type <small>Lookup Soil Parameters</small>	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm ³)	ENTER Vadose zone soil total porosity, n ^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm ³ /cm ³)		ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q _{soil} (L/m)
SICL	1.63	0.383	0.3		5

MORE
↓

Lookup Receptor
Parameters

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH (hour) ⁻¹
70	26	26	350	24 (NEW)	0.5 (NEW)

NEW=> Residential

END

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

Scenario: Residential
Chemical: Toluene

DATA ENTRY SHEET

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C _g ($\mu\text{g}/\text{m}^3$)	OR	ENTER Soil gas conc., C _g (ppmv)	Chemical
108883	4.70E+01			Toluene

Results Summary				
Soil Gas Conc. ($\mu\text{g}/\text{m}^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu\text{g}/\text{m}^3$)	Cancer Risk	Noncancer Hazard
4.70E+01	1.5E-05	7.1E-04	NA	2.3E-06

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

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L _F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L _S (cm)	ENTER Average soil temperature, T _S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k _v (cm ²)
15	282	24	SICL		

MORE
↓

ENTER Vadose zone SCS soil type <small>Lookup Soil Parameters</small>	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm ³)	ENTER Vadose zone soil total porosity, n ^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm ³ /cm ³)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q _{soil} (L/m)
SICL	1.63	0.383	0.3	5

MORE
↓

Lookup Receptor
Parameters

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{Nc} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH (hour) ⁻¹
70	26	26	350	24 (NEW)	0.5 (NEW)

NEW=> Residential

END

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

Scenario: Residential
Chemical: 1,2,4-Trimethylbenzene

DATA ENTRY SHEET

Reset to Defaults

Soil Gas Concentration Data				
ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C _g (µg/m ³)	OR	ENTER Soil gas conc., C _g (ppmv)	Chemical
95636	2.80E+02			1,2,4-Trimethylbenzene

Results Summary				
Soil Gas Conc. (µg/m ³)	Attenuation Factor (unitless)	Indoor Air Conc. (µg/m ³)	Cancer Risk	Noncancer Hazard
2.80E+02	1.2E-05	3.3E-03	NA	4.6E-04

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

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L _F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L _S (cm)	ENTER Average soil temperature, T _S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k _v (cm ²)
15	282	24	SICL		

MORE
↓

ENTER Vadose zone SCS soil type <small>Lookup Soil Parameters</small>	ENTER Vadose zone soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Vadose zone soil total porosity, n ^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ _w ^V (cm ³ /cm ³)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q _{soil} (L/m)
SICL	1.63	0.383	0.3	5

MORE
↓

Lookup Receptor
Parameters

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{Nc} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH (hour) ⁻¹
70	26	26	350	24 (NEW)	0.5 (NEW)

NEW=> Residential

END

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

Scenario: Residential
Chemical: 1,3,5-Trimethylbenzene

DATA ENTRY SHEET

Reset to
Defaults

Soil Gas Concentration Data				
ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C _g (µg/m ³)	OR	ENTER Soil gas conc., C _g (ppmv)	Chemical
108678	7.90E+01			1,3,5-Trimethylbenzene

Results Summary				
Soil Gas Conc. (µg/m ³)	Attenuation Factor (unitless)	Indoor Air Conc. (µg/m ³)	Cancer Risk	Noncancer Hazard
7.90E+01	1.2E-05	9.2E-04	NA	2.5E-05

MESSAGE: Risk and/or hazard quotient is based on route-to-route extrapolation.
MESSAGE: Attenuation factor < 6E-05 is unreasonably low.

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L _F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L _S (cm)	ENTER Average soil temperature, T _S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k _v (cm ²)
15	282	24	SICL		

MORE
↓

ENTER Vadose zone SCS soil type <small>Lookup Soil Parameters</small>	ENTER Vadose zone soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Vadose zone soil total porosity, n ^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ _w ^V (cm ³ /cm ³)		ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q _{soil} (L/m)
SICL	1.63	0.383	0.3		5

MORE
↓

Lookup Receptor
Parameters

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{Nc} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH (hour) ⁻¹
70	26	26	350	24 (NEW)	0.5 (NEW)

NEW=> Residential

END

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

Scenario: Residential
Chemical: Pentane, n- (Surrogate for 2,2,4-Trimethylpentane)

DATA ENTRY SHEET

Reset to Defaults

Soil Gas Concentration Data				
ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C _g (µg/m ³)	OR	ENTER Soil gas conc., C _g (ppmv)	Chemical
109660	5.40E+03			Pentane, n- (Surrogate for 2,2,4-Trimethylpentane)

Results Summary				
Soil Gas Conc. (µg/m ³)	Attenuation Factor (unitless)	Indoor Air Conc. (µg/m ³)	Cancer Risk	Noncancer Hazard
5.40E+03	1.5E-05	8.4E-02	NA	8.0E-05

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

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L _F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L _S (cm)	ENTER Average soil temperature, T _S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k _v (cm ²)
15	282	24	SICL		

MORE
↓

ENTER Vadose zone SCS soil type <small>Lookup Soil Parameters</small>	ENTER Vadose zone soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Vadose zone soil total porosity, n ^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ _w ^V (cm ³ /cm ³)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q _{soil} (L/m)
SICL	1.63	0.383	0.3	5

MORE
↓

Lookup Receptor
Parameters

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH (hour) ⁻¹
70	26	26	350	24 (NEW)	0.5 (NEW)

NEW=> Residential

END

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

Scenario: Residential
Chemical: Vinyl chloride (chloroethene)

DATA ENTRY SHEET

Reset to Defaults

Soil Gas Concentration Data

ENTER	ENTER	OR	ENTER	
Chemical CAS No. (numbers only, no dashes)	Soil gas conc., C_g ($\mu\text{g}/\text{m}^3$)		Soil gas conc., C_g (ppmv)	Chemical
75014	4.60E+01			Vinyl chloride (chloroethene)

Results Summary				
Soil Gas Conc. ($\mu\text{g}/\text{m}^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu\text{g}/\text{m}^3$)	Cancer Risk	Noncancer Hazard
4.60E+01	2.0E-05	9.3E-04	2.6E-08	8.9E-06

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

MORE
↓

ENTER	ENTER	ENTER	ENTER	OR	ENTER
Depth below grade to bottom of enclosed space floor, L_f (15 or 200 cm)	Soil gas sampling depth below grade, L_s (cm)	Average soil temperature, T_s ($^{\circ}\text{C}$)	Vadose zone SCS soil type (used to estimate soil vapor permeability)		User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	282	24	SICL		

MORE
↓

ENTER	ENTER	ENTER	ENTER	ENTER
Vadose zone SCS soil type <small>Lookup Soil Parameters</small>	Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	Vadose zone soil total porosity, n^V (unitless)	Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SICL	1.63	0.383	0.3	5

MORE
↓

Lookup Receptor Parameters

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

NEW=> Residential

END

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

Scenario: Residential
Chemical: m-Xylene

DATA ENTRY SHEET

Reset to Defaults

Soil Gas Concentration Data				
ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C _g (µg/m ³)	OR	ENTER Soil gas conc., C _g (ppmv)	Chemical
108383	1.30E+02			m-Xylene

Results Summary				
Soil Gas Conc. (µg/m ³)	Attenuation Factor (unitless)	Indoor Air Conc. (µg/m ³)	Cancer Risk	Noncancer Hazard
1.30E+02	1.3E-05	1.7E-03	NA	1.7E-05

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

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L _F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L _S (cm)	ENTER Average soil temperature, T _S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k _v (cm ²)
15	282	24	SICL		

MORE
↓

ENTER Vadose zone SCS soil type Lookup Soil Parameters	ENTER Vadose zone soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Vadose zone soil total porosity, n ^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ _w ^V (cm ³ /cm ³)		ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q _{soil} (L/m)
SICL	1.63	0.383	0.3		5

MORE
↓

Lookup Receptor
Parameters

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{Nc} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH (hour) ⁻¹
70	26	26	350	24 (NEW)	0.5 (NEW)

NEW=> Residential

END

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

Scenario: Residential
Chemical: o-Xylene

DATA ENTRY SHEET

Reset to
Defaults

Soil Gas Concentration Data				
ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C _g ($\mu\text{g}/\text{m}^3$)	OR	ENTER Soil gas conc., C _g (ppmv)	Chemical
95476	6.80E+01			o-Xylene

Results Summary				
Soil Gas Conc. ($\mu\text{g}/\text{m}^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu\text{g}/\text{m}^3$)	Cancer Risk	Noncancer Hazard
6.80E+01	1.4E-05	9.2E-04	NA	8.8E-06

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

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L _F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L _S (cm)	ENTER Average soil temperature, T _S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k _v (cm ²)
15	282	24	SICL		

MORE
↓

ENTER Vadose zone SCS soil type <small>Lookup Soil Parameters</small>	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm ³)	ENTER Vadose zone soil total porosity, n ^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm ³ /cm ³)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q _{soil} (L/m)
SICL	1.63	0.383	0.3	5

MORE
↓

Lookup Receptor
Parameters

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{Nc} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH (hour) ⁻¹
70	26	26	350	24 (NEW)	0.5 (NEW)

NEW=> Residential

END

APPENDIX F

CONCEPTUAL SITE MODEL AND DATA GAP TABLES

Table 5
Conceptual Site Model

CSM Element	CSM Sub-Element	Description	Data Gap Item #	Resolution
Geology and Hydrogeology	Regional	<p>The Site is located on the East Bay Plain, which consists of a series of alluvial fans and dune sands that were deposited on a westward sloping bedrock surface. This bedrock is presumed to consist of rocks of the Jurassic to Cretaceous-age Franciscan complex. The alluvial fan and dune sand deposits that overlie the Franciscan complex rocks are Pleistocene to Holocene in age and, from oldest to youngest, include the Santa Clara, Alameda, and Temescal Formations. The early Pleistocene-age Santa Clara Formation contains semi-consolidated units of conglomerate, sandstone, siltstone, and claystone. The Alameda Formation, of Pleistocene to Holocene age, comprises lower unnamed units and several upper members that include the Yerba Buena mud (black, organic-rich clay); a sequence of alluvial fan and eolian deposits (sand, gravel, silt) referred to as the San Antonio/Merritt/Posey member, and the Young Bay mud (black, organic-rich clay). The Temescal Formation is early Holocene in age and is an alluvial deposit consisting of silt and clay. The total thickness of these Pleistocene to Holocene sediments in the general area is reported to range from 450 to 500 feet (California Regional Water Quality Control Board, San Francisco Bay Region [RWQCB], 1999).</p> <p>The RWQCB considers regional shallow ground-water-bearing units to be those that are above the Yerba Buena mud (i.e., San Antonio, Merritt, and Posey members of the Alameda Formation; Temescal Formation) and deeper regional ground water to be below the Yerba Buena mud (i.e., lower unnamed units of the Alameda Formation; Santa Clara Formation). The direction of ground-water flow in the area of the Site varies, but is generally westward, consistent with the surface topographic slope.</p>	None	NA

Table 5
Conceptual Site Model (Continued)

CSM Element	CSM Sub-Element	Description	Data Gap Item #	Resolution
Geology and Hydrogeology	Site	<p>Graymer (2000) shows surface sediments on the Site and to the south to be the Merritt sand, which is a fine-grained, very well sorted, well-drained eolian deposit, and surface sediments on adjacent West Grand Avenue and areas to the north to be Holocene-age alluvial fan and fluvial deposits, which are equivalent to the Temescal Formation. PES Environmental, Inc. (PES, 2005; 2011) describes the sediments encountered in borings drilled at the Site as:</p> <ul style="list-style-type: none"> • 0 to 8 feet - black to dark greenish gray clay, sandy clay, silt • 8 to 12 feet - dark greenish gray to brown sand, clayey sand • 12 to 16 feet - dark greenish-gray to brown clay • <p>Sediments encountered during the current (Essel, 2015) investigation are described as:</p> <ul style="list-style-type: none"> • Fill, consisting of brownish-black to dusky yellowish-brown clay, silt or silty fine-grained sand from the base of the concrete to depths of a few inches to as much as 6 feet below the ground surface. • Silty clay from the base of the fill generally to depths of 8 to 10 feet below grade. • Units of silt, clayey sand, silty sand, and sand (some units containing gravel), with subordinate interbeds of clay from the bottom of the silty clay to depths of 17½ to greater than 20 feet below grade. • Silty clay was generally encountered in borings beneath the sand/silt zone to the maximum depth explored of 20.8 feet below the ground surface. <p>The sediments were observed to be various shades of yellowish-brown (pale to dark) with varying degrees of reddish-brown and yellowish-orange oxidation staining. A zone of medium bluish-gray</p>	None	NA

**Table 5
Conceptual Site Model (Continued)**

CSM Element	CSM Sub-Element	Description	Data Gap Item #	Resolution
		<p>discolored sediments (with associated petroleum odor) was observed between 5 and 17 feet below grade in borings (ECB-1 through ECB-5) advanced near the former USTs and fuel dispenser. Bluish-gray discolored soil was observed in borings ECB-9, ECB-10, and ECB-15 through ECB-19 in the geophysical anomaly area in the depth interval from as shallow as 3 feet to as deep as 17 feet below the ground surface, which is across the ground-water surface. Gray, discolored appearing soil was observed in off-site western boring ECB-14 (22nd Street) at depths of 17½ to 18½ feet below grade (below the ground-water surface).</p> <p>PES encountered ground water in borings at the Site in 2005 at 12 to 13 feet below the ground surface. In September 2015, ground water was measured in temporary wells at depths of 12.41 to 20.19 feet below the ground surface. In February 2016, ground water beneath the geophysical anomaly area was 13 feet below grade.</p> <p>Based on the orientation of TPHg, TPHd, TPHmo, and naphthalene plumes in the geophysical anomaly area, the direction of ground-water flow is inferred to be between north-northwest and northwest.</p>		
Surface Water Bodies		Lake Merritt is located approximately 3,900 feet east-southeast and Oakland Inner Harbor is located approximately 6,700 feet south of the Site.	None	NA
Nearby Wells		The State Water Resources Control Board's GeoTracker GAMA website provides the locations of ground-water-monitoring and ground-water-supply wells. The GAMA website shows that no ground-water-supply wells are located within ¼-mile (1,320 feet) of the Site. Three groups of environmental monitoring wells, related to leaking underground storage tank properties, are located at distances of 600 feet south-southwest, 900 feet west-northwest, and 1,350 feet south of the Site. Well records provided by the Alameda County Public Works Agency show the nearest water-supply wells are more than 2,000 feet north of the Site.	None	NA

Table 5
Conceptual Site Model (Continued)

CSM Element	CSM Sub-Element	Description	Data Gap Item #	Resolution
Release Source and Volume		<p>The release sources include:</p> <ul style="list-style-type: none"> • One 7,000-gallon diesel underground storage tank (UST) formerly located in the northeastern corner of the Site; • A fuel dispenser island located in the east-central portion of the Site; and • One 2,000-gallon gasoline UST formerly located off-Site beneath the sidewalk adjacent to the diesel UST. • A presumed UST, possibly waste oil, formerly located in the west-central edge of the Site. <p>The two USTs were removed in October 1986. No description of the conditions of the tanks or observations of the tank excavations is available. The volume of the release is not known. No record exists with regard to the possible UST at the west-central edge of the Site, but investigation shows that a UST is not present in the geophysical anomaly area.</p>	None	NA
LNAPL		<p>An electronic oil-water interface probe was used to check the presence of LNAPL in on-site borings ECB-1 through ECB-12 and ECB-15 through ECB-20, and off-site borings ECB-13 and ECB-14. No LNAPL was detected in any boring using the interface probe and no LNAPL was observed during grab ground-water sampling of the 14 borings.</p>	None	NA
Source Removal Activities		<p><u>Primary sources:</u> The USTs were removed in October 1986.</p> <p><u>Secondary sources:</u> No free-phase petroleum product was found on the ground water in borings ECB-1 through ECB-20.</p> <p>Secondary source soil with elevated concentrations of TPHg, TPHd, and TPHmo is present in the 12 to 16 foot-depth interval (at and below the ground-water surface) in the areas of the former USTs and the geophysical anomaly. The vertical and lateral extent</p>	None	NA

Table 5
Conceptual Site Model (Continued)

CSM Element	CSM Sub-Element	Description	Data Gap Item #	Resolution
		<p>of this impacted soil has been delineated and is restricted to the vicinity of the former UST excavation and within an approximately 40 by 60 foot area around boring ECB-15 at the geophysical anomaly. Moderate concentrations of petroleum hydrocarbons are present in the depth interval of 8 to 13 feet below the ground surface near the former fuel dispenser. Based on depth to this impacted soil, the local impact to ground water, and the lack of health-risk indicator constituents (benzene, naphthalene, PAHs), secondary source soil at the former USTs, fuel dispenser, and geophysical anomaly area is not considered to be of risk to human health or the environment.</p> <p>The extent of petroleum hydrocarbon impact to soil and ground water in the geophysical anomaly area has been delineated.</p>		
Contaminants of Concern		<p>Historical records indicate diesel and gasoline USTs were present at and adjacent to the site and that the present-day shop building was used for vehicle oil changes. Previous analyses of soil and ground-water samples were restricted to TPH, BTEX, and MTBE.</p> <p>Soil and ground-water samples from ECB-1 through ECB-20 and borings advanced for soil vapor wells SV-1 through SV-7 were analyzed for the full range of petroleum hydrocarbons and VOCs. Selected soil and ground-water samples were also analyzed for PAHs. Elevated concentrations of TPHg, TPHd, and TPHmo were found in eight of 64 soil samples and nine of the 20 ground-water samples. Minor concentrations of BTEX, MTBE, other petroleum-related VOCs, and PAHs have been detected in soil and ground water in the geophysical anomaly area. Individual VOC and PAH compounds have been detected only sporadically and at low or trace concentrations elsewhere in soil and ground water.</p> <p>Non-chlorinated hydrocarbon solvents acetone, methyl ethyl ketone (MEK), 2-hexanone, methyl isobutyl ketone (MIBK), and 4-isopropyl</p>	None.	NA

**Table 5
Conceptual Site Model (Continued)**

CSM Element	CSM Sub-Element	Description	Data Gap Item #	Resolution
		<p>toluene; the chlorinated hydrocarbons <i>cis</i>-1,2-dichloroethene and vinyl chloride; and the insecticide bromomethane were also detected in water samples in September 2015. Acetone was detected at the highest concentrations (11 to 92 µg/L) in nine of the 14 water samples and MEK was detected most frequently (10 water samples) at concentrations of 2.2 to 11 µg/L. Other compounds were sporadically detected in the water samples. Except for vinyl chloride, none of the compounds detected was at a concentration greater than applicable screening levels or maximum contaminant levels for drinking water. A number of petroleum-related VOCs were detected in ground water in the geophysical anomaly area in February 2016, with 1,2,4-trimethylbenzene detected at the highest concentration (96 µg/L).</p> <p>In soil gas, TPH-gasoline range, BTEX, MTBE, other fuel constituents and vinyl chloride were detected in soil-vapor samples from wells SV-1 and SV-4, located within and to the west of the former UST excavation. Benzene and vinyl chloride were found at levels greater than applicable screening levels for vapor intrusion. In soil vapor wells SV-2, SV-3, SV-5, SV-6, and SV-7, petroleum hydrocarbon constituents were either not detected or were detected at low levels below applicable screening levels. The chlorinated solvent tetrachloroethene was found during two sampling events in well SV-2 (below the vapor intrusion screening level), but was not detected in nearby vapor wells SV-6 or SV-7. Sampling of soil vapor wells SV-1 through SV-7 in February and March 2016 did not suggest a significant on-site source area or areas for the chlorinated solvents vinyl chloride or tetrachloroethene.</p>		
Petroleum Hydrocarbons in Soil		The results of subsurface investigations performed by PES in 2005 and 2011 found relatively localized concentrations of TPHg and TPHd in soil above the ground-water surface at levels greater than applicable environmental screening levels (ESLs). The current investigations were performed to further delineate the extent of petroleum contaminants, particularly at and below the ground-water	2. None	NA

**Table 5
Conceptual Site Model (Continued)**

CSM Element	CSM Sub-Element	Description	Data Gap Item #	Resolution
		<p>surface.</p> <p><u>TPHg</u>: Detectable levels of TPHg were found in the two soil samples collected from the gasoline UST pit in 1986 and in three of 25 soil samples collected from borings advanced in 2005 and 2011. Soil collected at a depth of 8 feet below the ground surface in boring B-4, advanced next to the former fuel island, was the only sample containing TPHg at a concentration (190 mg/kg) greater than the applicable ESL. During the 2015 and 2016 subsurface investigations, elevated levels of TPHg were detected at and just below the ground-water surface (depth interval of 13 to 16 feet) in borings advanced in or very near the former gasoline UST and borings advanced at the west-central edge of the site. Concentrations of 130 and 95 mg/kg TPHg were detected at the 8 and 14½ feet below grade in boring ECB-5, located next to the former fuel dispenser and previous boring B-4. A low 2.1 mg/kg TPHg was detected at the 4-foot depth in boring ECB-5. No TPHg was detected in other soil sample tested.</p> <p><u>TPHd</u>: Concentrations of 250 and 220 milligrams per kilogram (mg/kg) TPHd were found in 1986 at the northern end of the on-site 7,000-gallon diesel UST at respective depths of 12 and 13 feet below the ground surface and 80 mg/kg TPHd was detected at 12 feet below grade beneath the southern end of the former UST. A concentration of 230 mg/kg TPHd, associated with the elevated TPHg, was also detected in the soil sample collected at the 8-foot depth in boring B-4, advanced next to the former fuel dispenser. This concentration dropped to 23 mg/kg at the 12-foot depth in boring B-4. In 2015 and 2016, elevated concentrations of TPHd (190 to 1,200 mg/kg) were found in borings ECB-3, ECB-4, ECB-10, ECB-15, ECB-16, and ECB-17 within the depth interval of 13 to 16 feet below the ground surface. Either no TPHd was detected or low concentrations were found in other soil samples tested.</p>		

Table 5
Conceptual Site Model (Continued)

CSM Element	CSM Sub-Element	Description	Data Gap Item #	Resolution
		<p><u>TPHmo</u>: TPHmo was not been detected in soil samples during previous investigations, including two samples collected from boring B-5, advanced in the former oil changing building. In 2015 and elevated concentrations of 310 and 16,000 mg/kg TPHmo were detected within the 13- to 16-foot-depth interval in borings advanced in the former UST and geophysical anomaly areas. No TPHmo was detected in the two samples collected at 4½ and 9½ feet below grade from slant boring ECB-7, advanced beneath the vehicle maintenance trench and none was detected in other soil samples tested.</p> <p>The vertical extent of the three TPH ranges in the former UST, fuel dispenser, and geophysical anomaly areas is at 17½ feet below the ground surface. The lateral extent appears to be localized to the vicinities of the former USTs, dispenser, and the geophysical anomaly. The vertical and lateral extent of TPHg, TPHd, and TPHmo has been defined at the location of the geophysical anomaly.</p> <p><u>Individual Constituents</u>: No BTEX has been detected in the total 56 soil samples and no MTBE has been detected in the total 39 soil samples collected during the previous and 2015 investigations. During the current investigation (2016), relatively low levels of BTEX, naphthalene and a few other VOCs and PAHs were detected in soil in the geophysical anomaly.</p>		

**Table 5
Conceptual Site Model (Continued)**

CSM Element	CSM Sub-Element	Description	Data Gap Item #	Resolution
Petroleum Hydrocarbons in Groundwater		<p>PES sampled ground water from borings B-1, B-2, B-5, and B-6 in 2005 and concentrations of TPHd and TPHmo were greater than current applicable ESLs. No TPHg or BTEX was detected in water samples and trace MTBE (0.61 ug/L) was found in one grab ground-water sample. Both TPHd and TPHmo were present across the site and, possibly may have migrated off-site to the northwest.</p> <p>Elevated levels of TPHg, TPHd, and TPHmo were detected in water samples collected from borings ECB-2 through ECB-5 (USTs and fuel dispenser) and borings advanced in the geophysical anomaly area. No TPHg, TPHd, or TPHmo was found in water samples from central boring ECB-7, perimeter borings ECB-6, ECB-8, ECB-9, ECB-11, and ECB-12, or off-site boring ECB-13. These results suggest the elevated levels detected in the areas of the former USTs and fuel dispenser have not migrated to the western edge of the site. Elevated TPHg, TPHd, and TPHmo in ground water in the geophysical anomaly area have migrated a short distance off-site to the northwest. Trace to low and sporadic concentrations of petroleum fuel constituents and PAHs were detected in water samples and minor concentrations of non-chlorinated solvents and chlorinated solvents indicated incidental releases of these contaminants occurred.</p>	None	NA
Vapor Intrusion to Indoor Air		<p>Detectable concentrations of TPH-gasoline range hydrocarbons, benzene, ethylbenzene, xylenes, MTBE and other petroleum fuel constituents were found in several soil vapor wells SV-1 located near the former USTs and fuel dispenser. Naphthalene was not detected in any soil vapor sample. Except for benzene, vinyl chloride, and chloroform, none of the detected concentrations was greater than applicable screening levels for potential vapor intrusion risk. An initial human health risk assessment suggests vapor intrusion risk in the former UST area is not present.</p>	None. No vapor intrusion risk appears to be present.	NA

Table 5
Conceptual Site Model (Continued)

CSM Element	CSM Sub-Element	Description	Data Gap Item #	Resolution
Direct Contact and Outdoor Air		<p>Soil samples collected within the 0- to 5-foot and 5- to 10-foot depth intervals have been analyzed for benzene. Benzene was not detected in soil samples collected within the two depth intervals.</p> <p>During the 2015 and 2016 investigations, soil samples collected within the above-described depth intervals in the UST, fuel dispenser, geophysical anomaly area, and oil-changing pit were analyzed for benzene, naphthalene, and PAHs. Laboratory analytical results show no detectable concentrations of benzene, naphthalene, or any PAH analyte.</p>	None.	NA
Risk Evaluation		<p>The Source Group, Inc. performed an initial focused human health risk assessment for the former UST area to assess vapor intrusion risk from vinyl chloride and other VOCs found in soil vapor. The assessment did not find significant health risk from the contaminants present in soil vapor in this area. Additional soil vapor data is presently being evaluated to update the initial risk assessment.</p>	Evaluation of additional soil vapor data to be performed.	

Table 6
Data Gaps Summary and Proposed Investigation

Item	Data Gap Item #	Proposed Investigation	Rationale	Analyses
1	1. None.	None.	None.	None.

APPENDIX G

LIMITATIONS

LIMITATIONS

The environmental investigation described in this report has been conducted in accordance with current regulatory guidance and the standards of environmental and geological practice performed in the general project area. No warranty, expressed or implied, is made regarding the professional opinions presented in the report.

Essel Environmental Consulting's descriptions, conclusions, and recommendations in the report, with respect to environmental conditions, are based on a limited number of sampling points and chemical analyses. Field observations made during the investigation and the samples collected and submitted for testing are considered to be representative of the area evaluated. Subsurface soil and ground-water conditions; however, may vary between and beyond sampling or observation points. Additional work, including further subsurface investigation, can reduce the inherent uncertainties associated with this type of investigation.

The interpretations and opinions contained in this report are based on the results of laboratory tests and analyses intended to detect the presence and concentration of specific chemical or physical constituents in samples collected from the subject site. Chemical testing was conducted by an analytical laboratory that is certified by the state of California to perform the analyses requested for this investigation. Essel Environmental Consulting is not associated with the laboratory that performed the analyses and claims no responsibility for any inaccuracy in laboratory results.

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