# *Carol Glover BP*
# *DEQ Task Order No. 71-18-29*
# *LUST Number 36-93-4164*
# *SI & ABCA Report*
# *Yamhill, Oregon*

Prepared for:
Oregon Department of Environmental Quality

January 5, 2022
2659-00/Task 6

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# 1.0 Introduction

This Site Investigation and Analysis of Brownfield Cleanup Alternatives (SI/ABCA) Report (Report) presents the results of the site investigation and the subsequent analysis of brownfield cleanup alternatives for the Carol Glover BP Site (Site) located at 185 S Maple Street in Yamhill, Oregon (Figures 1 and 2). The Report presents activities performed in July 2021 to investigate the presence or absence of impacts associated with the five on-site underground storage tanks (USTs) and potential off-Site sources. This Report was prepared for the Oregon Department of Environmental Quality (DEQ) under Task 5 of Task Order 71-18-29.

The Site operated as a service station between around 1954 and 1998. Prior environmental assessment work has been conducted at the Site, and petroleum contamination has been identified in soil and groundwater samples collected between 1993 and 2002. Additional site assessment work was identified as being necessary to further assess the Site conditions and identify the appropriate measures needed to restore the Site to a condition protective of future development.

## 1.1 Purpose

This Report presents the results of the July 2021 implementation of the SI & ABCA Work Plan (Apex, 2021). The data are compared to DEQ risk-based concentration screening levels (RBCs) to fill data gaps and characterize the nature and extent of contamination in soil and groundwater at the Site, evaluate risks to human and ecological receptors, and develop applicable cleanup alternatives to reduce and/or eliminate hazardous substances in soil and groundwater at the Site. These activities will provide information to determine the presence or absence of impacts associated with the five USTs on Site and potential off-Site sources and allow development of the ABCA.

## 1.2 Scope of Work

To accomplish the above objectives, the scope of work included the following tasks:

- Completion of one day of direct-push drilling (eight soil borings) to collect soil and groundwater samples;
- Analysis of those samples for petroleum constituents to investigate the presence or absence of impacts associated with the five USTs, suspected former UST pit, and potential off-Site sources;
- Completion of a hazardous building material (HBM) survey to investigate the presence or absence of HBMs in the one on-site building; and
- Preparation of this Report to document the sampling activities and analytical results and provide an analysis of the most reasonable cleanup alternatives applicable to the conditions encountered at the Site.

# 2.0 Background

This section includes a description of the Site, land use, history, and geology and hydrogeology. Background information pertaining to prior site investigation activities is described in the SI & ABCA Work Plan (Apex, 2021).

## 2.1 Site Location and History

This section presents a description of the Site location and Site history.

### *2.1.1 Location*

The former Carol Glover BP site is located in downtown Yamhill, Oregon. This former service station site is small (about 0.12 acres) and situated on the northwest corner of the intersection of E 1st Street and S Maple Street (also known as Tualatin Valley Highway/Hwy 47). The site is identified in DEQ's Leaking Underground Storage Tank (LUST) database as site number 36-93-4164.

The Site is located at 185 S Maple Street, Yamhill, Yamhill County, Oregon (Figures 1 and 2), and is identified as Tax Lot 1500 on assessor's map No. 3 4 04AC. Properties to the north and east include residential properties located along S Maple and E 1st Street; to the south is Yamhill City Hall; to the west are restaurants and retail space; and to the southwest is the former Yamhill Station site (formerly known as Senz Automotive Service; LUST 36-06-2111, LUST 36-88-4062, and ECSI 4923).

### *2.1.2 Land Use*

Land use in the vicinity of the Site is a mix of residential and commercial; the Site is zoned as General Commercial (GC) and is currently vacant. Historical use has been commercial, although residential use is permitted. The Site has one single story building (approximately 1,200 $ft^2$) and is currently paved with asphalt and concrete. The Site is within the downtown commercial district of the City of Yamhill in an area of mixed retail, city government, and residential use. The Yamhill Station site (LUST 36-06-2111, LUST 36-88-4062, and ECSI 4923) is located on the opposite corner of the intersection (southwest of the Site). There were significant releases of petroleum hydrocarbons and associated investigations conducted by DEQ and others at the Yamhill Station site. Groundwater monitoring from the Yamhill Station site has shown a consistent groundwater flow and relatively steep gradient to the west and southwest, away from the Site.

### *2.1.3 Site History*

The first records of the site indicate that by the 1890s, the property was developed as a residential property, which included a house to the north of the Site along Main Street and a shed along the eastern property line. The property is also shown as a residential property in a 1902 Sanborn insurance map (Apex, 2021). By the time of the 1913 insurance map, the residential property had been subdivided, the Site had been redeveloped

into the Hotel Royal, and part of the hotel had burned down. In the 1920s, the property had been converted into apartments which remained at least into the 1930s.

Aerial photos suggest the current Site building was in place by 1954, consistent with use as an automotive service station. Based on available UST records, it is assumed that service station operations began some time prior to 1964.

In 1993, soil contamination was identified during the installation of a new water line to the site building (Pacific Northern Environmental [PNE], 1993). The 1998 city directory lists the site as a "beauty shop" called Main Line Services. Most recently, the site was reportedly used as a restaurant; the 2018 city directory indicates that two businesses were located within the site, Bella Luna Patisserie and Yamhill Chocolate N Wine Gallery. In February 2018, Yamhill County foreclosed on the site property and it has been unoccupied since then.

Based on the construction date and type of building, hazardous building materials (HBMs) including asbestos-containing materials (ACM) and lead-based paint may reasonably be present.

### *2.1.4 Geology and Hydrogeology*

According to the Geologic Map of Oregon (DOGAMI, 2001) and the United States Geological Survey (USGS, 2001), the Site is underlain by Pleistocene lacustrine and fluvial material consisting of unconsolidated to semiconsolidated lacustrine clay, silt, sand, and gravel. The Site is located within the North Yamhill River drainage, which is a tributary to the Yamhill River in the Northern Oregon Coast Range. The topography of the Site is relatively flat with a slight downward slope to the south and west towards the North Yamhill River. The Site is located approximately 187 feet above mean sea level (MSL).

Based on the recently conducted Site investigation activities, subsurface soils at the Site consist of silt, silty sand, and silty clay from the surface to approximately 12 feet below ground surface (bgs) and silty clay and clay from 12 to 20 feet bgs. Fill materials were observed from the ground surface to a depth of approximately 3 feet bgs in several locations. Groundwater was encountered in one boring at 13 feet bgs. Groundwater monitoring from an adjacent site (Yamhill Station site) has shown a consistent groundwater flow and relatively steep gradient to the west and southwest.

## 2.2 Historical Site Assessment Work

According to DEQ, the first environmental assessment of the site was performed in July 1993, when gasoline and diesel contamination in soil was identified within 2 feet of a new water service line. Soil sampling confirmed gasoline and diesel contamination (33 and 118 mg/kg, respectively; PNE, 1993). The scope of work during this period did not include sampling or assessment of the Site tank nest or other product lines.

In 2001 and 2002, DEQ conducted an assessment to investigate the abandoned on-site tanks (DEQ, 2002). This work utilized LUST Trust funds and was limited in its scope. Contractors emptied and rinsed the USTs, removing 701 gallons of product and creating 3,120 gallons of rinsate and water which were also removed. A focused site investigation included the completion of five borings utilizing direct push drilling techniques. Petroleum hydrocarbons (total petroleum hydrocarbons as gasoline [TPHg], total petroleum hydrocarbons as diesel [TPHd], and volatile organic compounds [VOCs]) were detected in soil samples, and petroleum VOCs were detected in groundwater. Benzene concentrations in soil and groundwater were present at concentrations above RBCs for residential vapor intrusion and leaching to groundwater, and TPHg was present at concentrations that exceeded soil matrix cleanup concentrations. In addition, 1,1-dicholoroethane and vinyl chloride were detected in groundwater at concentrations that were below RBCs.

## 2.3 Historical and Database Records Review

Apex obtained and reviewed environmental databases and readily available historical records to characterize the obvious and apparent uses of the Site. Apex retained Environmental Risk Information Services (ERIS) to conduct a search of regulatory databases and provide historical resources for review.

### *2.3.1 Environmental Records*

As part of the Work Plan, ERIS conducted a search of ASTM E1527-13 standard and non-ASTM environmental and regulatory databases. The full ERIS environmental database records report, including the explanation of each of the abbreviated database names, is included in that Work Plan (Apex, 2021).

Apex reviewed the ERIS report for listings involving the Site and adjacent properties. The Site was listed in four databases: DEQ's LUST, DEQ's UST, DEQ's Drinking Water Protection UST (UST DWP), and Facility Index System/Facility Registry Service (FINDS/FRS). Information available from the three DEQ lists had already been provided to Apex and information from those listings was included in the Work Plan and other planning for the Site. The FINDS/FRS entry indicates that this Site listing was created in April 2003 and last updated in January 2009. FINDS indicates that the Site is a gasoline station with convenience store.

Adjacent Sites of Interest:

- Yamhill Central Office – 211 1st Street, Yamhill, Oregon. This site is located approximately 75 feet southeast of the Site. Records for this property were listed in the FINDS/FRS, LUST, UST, and DEQ Delisted Storage Tank (DTNK) databases. The site is listed under several names, including the GTE Yamhill Office and Frontier Communications. From review of the available records, the site has known releases to soil and groundwater from diesel storage tanks. Releases and contamination were identified during tank decommissioning. A cleanup was started in early 1998 and was reportedly completed in February 1999. According to DEQ's LUST database, the site was issued a No Further Action (NFA) determination.

- Senz Auto Service (Yamhill Station) – 210 S Maple Street, Yamhill, Oregon. This site is located approximately 90 feet southwest of the Site. Records for this property were listed in the FINDS/FRS, LUST, UST, SPILLS, Historical Hazardous Materials (HIST HAZMAT), DEQ Environmental Cleanup Site Information (ECSI), HAZMAT, and Aboveground Storage Tank (AST) databases. The site is listed under several names and is also called the Yamhill Station and North Yamhill Gas Station. From review of the available records, the site has known releases to soil and groundwater from storage tanks. Releases and contamination were identified after an uncontrolled release to the city storm sewers was reported (GeoEngineers, 2008). Remediation of the site was undertaken, and regular groundwater monitoring was conducted until 2011 (GeoEngineers, 2011). The site remains listed in DEQ databases as requiring further investigation, and as of December 2020, the property was under a consent order. At the time of the most recent groundwater monitoring, the property's consultant indicated that offsite soil, groundwater, and soil vapor concentrations exceed human health risk concentrations. Sampling from this site indicates that groundwater primarily moves toward the southwest, away from the Site.

### 2.4 Geophysical Survey – April 2021

On April 1, 2021, Don Hanson and Bill Brady (DEQ), Sam Jackson (Apex), and Ralph Soule (Geopotential) performed a site visit and geophysical survey. The geophysical survey of the Site was performed using ground-penetrating radar (GPR) and included an assessment of: (1) the number and location of USTs; (2) limitations imposed by physical obstructions (e.g., buildings or other structures, asphalt, concrete, etc.) that may hinder site investigation and UST decommissioning activities; and (3) subsurface or overhead utilities that may interfere with or prevent investigation activities and UST decommissioning activities.

Following the site visit, Apex provided an email summary, photo logs, and Site figures to depict the findings; that summary is included in the Work Plan (Apex, 2021). The geophysical survey findings confirmed that five USTs were present. As shown in Figure 2, geophysical survey findings indicated that: the locations of the USTs were closer to the building than anticipated; public and private utilities had been installed over the USTs; and two suspected vehicle hoists were located in the building. The proximity of USTs to the building and underground utility conflicts were considered during the Site assessment activities and would also need to be addressed prior to any future UST decommissioning activities. Assessment of potential impacts associated with the indoor vehicle hoists will require use of a limited access push-probe unit and would have required a separate mobilization. As it is anticipated that those impacts would be limited in magnitude and extent, the investigation of those potential impacts was not included in the scope of this Site investigation.

## *3.0 Site Investigation Activities*

The site investigation scope of work included soil and groundwater sampling and analysis and performance of an HBM Survey. The soil and groundwater field and sampling procedures included installation of eight soil

borings via direct-push methods for the collection of grab soil and groundwater samples, as well as sample management (i.e. containers, storage, and shipment), decontamination, and the handling of investigation-derived wastes [IDW]). The sections below describe each of the site investigation activities. Detailed field notes and boring logs related to the soil and groundwater investigation are provided in Appendix A, the analytical laboratory report is provided in Appendix B, and the HBM Survey report is provided in Appendix C.

## 3.1 Preparatory Activities

Site Health and Safety Plan. A Site-specific health and safety plan (HASP) was prepared for the site investigation activities and provided within the Work Plan. The HASP was prepared in general accordance with the Occupational Safety and Health Administration (OSHA) and the Oregon Administrative Rules (OAR). A copy of the HASP was maintained on-site during the field activities. Prior to performing any on-site work, Apex prepared a Job Safety Analysis (JSA) guiding task-specific activities, risks, and safety protocols for each task. All field staff supporting the project were required to review and follow the HASP and JSAs; the HASP addressed precautions to be taken at the Site due to the current COVID-19 pandemic. A daily tailgate form was completed and signed by all attendees.

Cultural Consultations. An Inadvertent Discovery Plan (IDP) was developed as part of the SI & ABCA Work Plan (Apex, 2021) to address potential cultural and archaeological resources if encountered during the investigation. The IDP was prepared to protect cultural resources that could be significant to local tribes and to develop a plan to proceed with site investigation activities while avoiding and minimizing impacts to cultural resources. The IDP was followed during the site investigation activities and was reviewed with the drillers and field staff prior to the work. Cultural artifacts were not observed during the completed site investigation activities.

Natural Resource Review. Readily available data were reviewed prior to the work to determine the listed status of the area or county with respect to the presence of threatened or endangered species listed in the Endangered Species Act (ESA). Data sources reviewed included: the U.S Fish and Wildlife Service endangered species protection program database; the Oregon Biodiversity Information Center's (ORBIC) Rare, Threatened, and Endangered Species of Oregon list for Yamhill County, Oregon; and the Grande Ronde Tribe, which was contacted to provide any natural resource concerns related to the project. The Grand Ronde Tribe requested that Oregon DEQ provide project status updates; however, no response related to natural resource concerns has been received.

The Site was developed as a residential area in the 1890s and has been in continuous use as a residential, retail, and commercial property. Three endangered species were identified during data source review presented in the Work Plan (Apex, 2021); however, those species are considered incompatible with the habitats encountered in the vicinity of the Site.

Site Access and Permitting. Apex obtained a City of Yamhill Right of Way (ROW) permit to drill soil borings within the sidewalk ROW adjacent to the Site. In accordance with the permit, Apex provided City personnel notification at least 48 hours in advance of the field work.

Subcontractor Procurement. Apex solicited subcontractor bids for direct push drilling services, utility locating services, and disposal of IDW. Bids were evaluated and Apex provided vendor recommendations for each subcontractor service to DEQ. Laboratory analytical services were provided by Environmental Science Corporation (ESC; dba Pace Analytical National) under their existing Price Agreement with the State of Oregon.

Underground Utility Location. Apex contacted the Oregon Utility Notification Center for a public mark-out of underground utilities. A private utility locator (NW Locates) also field-marked utilities on-site prior to commencing the field work.

## 3.2 Field Activities

Field activities included collection of soil and groundwater samples and performance of an HBM Survey.

Soil Boring Completion and Grab Soil and Groundwater Sample Collection. On July 22, Apex oversaw the completion of eight soil borings to investigate the presence or absence of impacts associated with the USTs. The borings were advanced using direct push drilling methods, and as many borings were completed as could be done in one day. The soil boring locations are presented on Figure 3. The locations were adjusted in the field based on the utility mark-out for safety purposes; soil borings were advanced a minimum of 3 feet from identified utilities and USTs.

Eight soil borings (SB-1 through SB-8) were advanced at the locations shown on Figure 3. The boring locations were at the proposed locations presented in the Work Plan, with two exceptions:

- The proposed boring between UST 3 and the building was not advanced. The private utility locator, the driller, and Apex determined that there was insufficient space among the building, vent lines, and UST 3 to advance the boring safely.
- The proposed boring location on the east side of UST 2 (SB-7) was moved to the east approximately 7 feet. The private utility locator, the driller, and Apex determined that there was insufficient space among the vent lines, sewer cleanout, UST 2, and UST 1 to advance the boring safely at the originally proposed location.

Borings SB-1 through SB-8 were advanced to equipment refusal depth (between 3 and 20 feet bgs). Observed soil consisted of silt, silty sand, and silty clay from the surface to approximately 12 feet bgs and silty clay and clay from 12 to 20 feet bgs. Fill materials were observed from the ground surface to a depth of approximately 3 feet bgs in several locations. Below is a summary of observations at each boring:

- SB-1 (northeast corner of the building): no petroleum impacts were noted. Two soil samples were collected (at depths of 3 to 4 feet and 13 to 14 feet bgs, respectively). Water was not present at this location; therefore, no groundwater sample was collected (note that this is a deviation from the Work Plan, as SB-1 was proposed as a soil and groundwater boring location). The total depth of the boring was 20 feet bgs.
- SB-2 (north side of the pump island): petroleum impacts (elevated photoionization detector [PID] readings) were noted from the surface to approximately 10 feet bgs; in the interval of 10 to 20 feet bgs, PID readings were below 10 parts per million (ppm). Two soil samples were collected (2 to 3 feet and 13 to 14 feet bgs). The total depth of the boring was 20 feet bgs.
- SB-3 (product line between USTs and pump island): petroleum impacts (elevated PID readings) were noted from the surface to approximately 7 feet bgs; in the interval of 8 to 15 feet bgs, PID readings were below 10 ppm. Two soil samples were collected (2 to 3 feet and 9 to 10 feet bgs). The total depth of the boring was 15 feet bgs.
- SB-4 (north side of UST 4): the driller encountered refusal at 3 feet bgs. No petroleum impacts were noted and no soil sample was collected. Drilling at this location would require use of a more aggressive drilling method such as a hollow-stem auger (HSA) or sonic drilling rig.
- SB-5 (west side of UST 4): petroleum impacts (elevated PID readings) were noted from the surface to approximately 10 feet bgs; in the interval of 11 to 18 feet bgs, PID readings were below 10 ppm. Three soil samples were collected (4 to 5 feet, 9 to 10 feet, and 12 to 13 feet bgs). Groundwater was not observed at this location; therefore, no groundwater sample was collected (note that this is a deviation from the Work Plan, as SB-5 was proposed as a soil and groundwater boring location). The total depth of the boring was 18 feet bgs.
- SB-6 (east side of UST 1): no petroleum impacts were noted. One soil sample was collected (8 to 9 feet bgs). Because groundwater was present in this boring, a groundwater sample was collected at 12 feet bgs (note that this is a deviation from the Work Plan, as SB-5 was proposed only as a soil boring location). The total depth of the boring was 15 feet bgs.
- SB-7 (north side of UST 1): no petroleum impacts were noted. Two soil samples were collected (7 to 8 feet and 14 to 15 feet bgs). Groundwater was observed in this boring at 15 feet bgs, but not enough groundwater volume was present to collect a sample (note that this is a deviation from the Work Plan, as SB-7 was proposed as a soil and groundwater boring location). The total depth of the boring was 18 feet bgs.
- SB-8 (south side of UST 2): no petroleum impacts were noted. Two soil samples were collected (4 to 5 feet and 14 to 15 feet bgs). No groundwater was observed in this boring. The total depth of the boring was 18 feet bgs.

Continuous soil samples were collected during the advancement of each boring.

Samples were collected in accordance with DEQ's UST Program Quality Assurance Project Plan (QAPP) dated June 20, 2016 (DEQ, 2016).

Samples were placed into laboratory-supplied containers, stored at 4 degrees Celsius (°C), and submitted to Pace Analytical Laboratories under chain-of-custody protocol. Sampling was consistent with the methods described in the Sampling and Analysis Plan (SAP) included in the Work Plan (Apex, 2021). After completion of the soil and groundwater sampling, the location of each soil boring was recorded by measuring off fixed features and using a hand-held global positioning system (GPS). Following the completion of the sample collection, the boreholes were properly abandoned, including patching the finished surfaces to match the surrounding surface.

## 3.3 Hazardous Building Material Survey

An HBM Survey was performed on November 2, 2021; the HBM Survey Report is included in Appendix C. No asbestos-containing materials were identified in the structure, and toxicity characteristic leaching procedure (TCLP) analysis indicated that the building material is not considered hazardous waste. Two paint samples collected from exterior metal siding were identified as lead-based paint, so building demolition planning and execution will require appropriate handling of this material.

The HBM Survey included a visual inspection for the potential presence of hazardous materials such as polychlorinated biphenyls (PCBs), fluorescent light tubes, and ballasts. The following hazardous materials were identified: three fluorescent light fixtures containing six fluorescent tubes; and one in-wall air-conditioning unit.

## 3.4 Investigation-Derived Waste

IDW consisted of a small amount of purge and decontamination water and soil cuttings. IDW was placed in two properly labeled Oregon Department of Transportation (ODOT)-approved drums. The drums were transferred to a designated storage area and stored pending receipt of chemical data. Based on the results of the chemical analysis, the IDW was profiled as non-hazardous and transported to Hillsboro Landfill for disposal. Sampling materials and personal protective equipment (PPE) were disposed of as solid waste.

Quality Assurance/Quality Control. Quality assurance/quality control (QA/QC) procedures were used throughout this project and are in accordance with the DEQ UST QAPP. The SAP provided in the Work Plan (Apex, 2021) includes the QA plan for this project. The plan includes sampling and custody procedures, QA sampling analyses, detection limit goals, laboratory QC, and QA reporting. A review of QA/QC procedures is provided in Appendix B.

# 4.0 Site Investigation Results

The following sections present the analyses performed and the analytical results of the submitted soil and groundwater samples. Laboratory data packages and a QA/QC review are provided in Appendix B.

## 4.1 Analyses Performed

Chemical analyses were performed on the collected soil and groundwater samples. Samples were submitted to the analytical laboratory using standard chain-of-custody procedures and analyzed on a standard turnaround time (TAT; 10 business days). The contaminants of interest for this project are associated with the historical use of the Site as a service station and include: TPH Gx, TPH Dx, VOCs, lead, and, in the vicinity of the waste oil tank, polycyclic aromatic hydrocarbons (PAHs), PCBs, cadmium, chromium, and methyl tert-butyl ether (MTBE). Therefore, the collected soil, groundwater, and QA/QC samples were submitted for the following analyses:

- Diesel-range and oil-range hydrocarbons by Northwest Method NWTPH-Dx;
- Gasoline-range hydrocarbons by Northwest Method NWTPH-Gx;
- VOCs by EPA Method 8260D; and
- Total lead by EPA Method 6020B.

Soil locations near the waste oil tank were submitted for the following analyses:

- Diesel-range and oil-range hydrocarbons by Northwest Method NWTPH-Dx;
- Gasoline-range hydrocarbons by Northwest Method NWTPH-Gx;
- VOCs by EPA Method 8260D;
- Lead, cadmium, and chromium by EPA Method 6020B;
- Polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270E-SIM; and
- PCBs by EPA Method 8082A.

Field indications of petroleum impacts (elevated PID readings) were observed in shallow soil near the pump island in SB-2 and SB-3 and west of UST 4 in SB-5. Petroleum impacts were not observed at depths greater than 10 feet bgs in those borings. To define the vertical extent of petroleum impacts in those locations, we selected one shallow and one deep soil sample from each location (sample SB-2 [2-3], SB-2 [13-14], SB-3 [2-3], SB-3 [9-10], SB-5 [4-5], and SB-5 [12-13]) and submitted them for analyses. In boring locations with no indications of petroleum impacts (SB-1 and SB-6 through SB-8), one soil sample from each boring was submitted for analyses (SB-1 [13-14], SB-6 [8-9], SB-7 [7-8], and SB-8 [14-15]).

Because SB-7 is closest to the waste oil tank, one soil sample from that boring (located closest to the base of the waste oil tank) was also submitted for the following analyses: PAHs, PCBs, cadmium, and chromium.

The soil sample at location SB-7 did not contain concentrations of PAHs, PCBs, cadmium, and chromium at concentrations above RBCs (as discussed below); therefore, the groundwater sample was not submitted for analyses of those constituents.

QA/QC procedures were used throughout this project. The SAP provided in the Work Plan included the QA plan for this project. The plan included sampling and custody procedures, QA sampling analyses, detection limit goals, laboratory QC, and QA reporting. Data generated were generally of sufficient quality for use on this project. A review of QA/QC procedures is provided in Appendix B.

### 4.2 Chemical Results

The analytical results are summarized in Tables 1 and 2 and presented on Figure 4. The results were screened against Oregon DEQ RBCs with the most likely risk exposure pathways at the Site based on the current and proposed future uses (see Section 5.5). A discussion of the soil and groundwater results is provided below.

Soil. Concentrations of select VOCs were detected in each of the analyzed soil samples, but at concentrations below their respective applicable Oregon DEQ RBCs. In two of the samples, SB-5 (4-5) and SB-7 (7-8), diesel-range hydrocarbons and gasoline-range hydrocarbons were detected at concentrations below RBCs.

In sample SB-2 (2-3), diesel-range hydrocarbons exceeded the RBCs for direct contact in a residential scenario, and gasoline-range hydrocarbons exceeded the RBCs for soil leaching to groundwater and vapor intrusion into buildings for residential and occupational scenarios. In sample SB-3 (2-3), gasoline-range hydrocarbons exceeded the RBCs for vapor intrusion into buildings for residential and occupational scenarios and leaching to groundwater. Lead was detected in sample SB-3 (2-3) at a concentration exceeding the soil leaching to groundwater RBC and the corresponding DEQ background metals concentration.

Groundwater. Gasoline-range hydrocarbons and VOCs were not detected in the grab groundwater sample from SB-6; however, lead was detected at a concentration above the RBCs for ingestion and inhalation.

## *5.0 Conceptual Site Model*

A Conceptual Site Model (CSM) considers physical properties, the nature and extent of contamination, and potential exposure pathways under current and potential future uses. This section presents a CSM for the Site based on the information gathered during the site investigation activities.

## 5.1 Physical Model

Site geology and hydrogeology are summarized in Section 2.1.4. In general, subsurface soils at the Site were silt, silty sand, and silty clay from the surface to approximately 12 feet bgs and silty clay and clay from 12 to 20 feet bgs. Fill materials were observed from the ground surface to a depth of approximately 3 feet bgs in several locations. During this work, groundwater was encountered in only one boring (SB-6) at 13 feet bgs. Historical groundwater monitoring at an adjacent site (Yamhill Station site) encountered groundwater at depths from 12 to 15 feet bgs, and has shown a consistent groundwater flow and relatively steep gradient to the west and southwest. Based upon the relatively steep gradient to the west and southwest observed at the Yamhill Station site, depth to groundwater at the Site was lower than anticipated.

## 5.2 Contaminants of Potential Concern

Petroleum hydrocarbons and lead have been previously detected in soil and groundwater at the Site and are attributable to one or more historical USTs and the vehicle hoists. Therefore, the contaminants of potential concern (COPCs) for the Site include petroleum hydrocarbons and associated constituents (TPHg, TPHd, petroleum VOCs, and lead). A summary of specific analytes detected above RBCs by media is provided below.

Groundwater. The groundwater sample contained lead above RBCs for ingestion and inhalation. TPHg and VOCs were not detected in the groundwater sample.

Soil. Concentrations of select VOCs were detected in soil samples below their respective applicable Oregon DEQ RBCs. TPHg, TPHd, and lead have been detected above RBCs in shallow soil (2-3 feet bgs) adjacent to the UST line and pump island:

- TPHg concentrations exceed the RBC for soil vapor intrusion into buildings and soil leaching to groundwater;
- TPHd concentrations exceed the RBC for direct contact in a residential setting; and
- Lead concentrations exceed the RBC for soil leaching to groundwater.

At depths greater than 3 feet bgs, those contaminants were not detected, or were detected at concentrations below the RBCs. The vertical separation between the deepest petroleum impacts encountered in soil (3 feet bgs) and shallowest encountered groundwater (13 feet bgs) suggests that these petroleum releases would not have impacted groundwater.

Hazardous Building Materials. No asbestos-containing materials were identified in the structure, and TCLP analysis indicated that the building material is not considered hazardous waste. Two paint samples collected from exterior metal siding were identified as lead-based paint. A visual inspection for the potential presence of hazardous materials such as PCBs, fluorescent light tubes, and ballasts indicated the following potentially

hazardous materials: three fluorescent light fixtures containing six fluorescent tubes; and one in-wall air-conditioning unit.

## 5.3 Nature and Extent of Contamination

COPCs have been detected in shallow soil in the immediate vicinity of the UST lines near the former pump island at depths between 2 and 3 feet bgs. In soil samples collected at depths greater than 3 feet bgs, COPCs were not detected or were detected at concentrations lower than RBCs. One COPC (lead) is present in groundwater on the southern boundary of the site, but groundwater sampling was limited due to equipment refusal during drilling and additional groundwater contamination may exist. Soil samples were also not collected from beneath the USTs as they remain in place at the Site, so additional soil contamination may be present in the immediate vicinity of the USTs.

## 5.4 Locality of the Facility

The locality of the facility (LOF) is defined as locations where a human or ecological receptor contacts or is reasonably likely to come into contact with facility-related hazardous substances. The term "Facility" is defined (in both ORS 465.200 and OAR 340-122-0115) to include the equipment or property where the release occurred and where the release has come to be located. Based on the conservative evaluation of the chemical data discussed above, the LOF is contained within the property boundary shown on Figure 3.

## 5.5 Beneficial Land and Water Use

Current and future land uses were assessed to develop a model describing potentially complete exposure pathways for human and ecological receptors at the Site. The potentially complete pathways established in this section will be used in conjunction with contaminant concentrations to evaluate risk at the Site.

### *5.5.1 Summary of Land Use*

The following section describes current and reasonably likely potential future land uses.

Current Use. The Site is zoned as GC and is currently vacant. The Site is within the downtown commercial district of the City of Yamhill in an area of mixed retail, city government, and residential use. Historical use has been commercial, although residential use is permitted. The Site is currently paved with asphalt and concrete; therefore, no long-term direct-contact exposure to soil is feasible with the current Site condition. Short-term exposure to construction or excavation workers is reasonable to expect.

Future Use. The Site is likely to be redeveloped as mixed retail, city government, or residential use; these uses are consistent with current and anticipated uses for adjacent properties. Site development could reasonably result in either short-term or long-term exposure to soil if not addressed.

### 5.5.2 Summary of Water Use

The Site and surrounding properties are supplied with water from the City municipal supply (which is sourced from an intake on Turner Creek). After performing a well search with the Oregon Water Resource Department well record database, no residential water wells or drinking water supply wells have been identified within 500 feet of the Site.

The nearest surface water bodies are Rowland Creek, which is located approximately 0.20 miles west of the Site, and Yamhill Creek, which is located approximately 0.25 miles south of the Site. Based on a search of the Oregon Water Resource Department water right database, there are several permitted diversion points from Rowland Creek and Yamhill Creek for irrigation uses. Contamination migrating through groundwater from the Site would not be able to impact the surface water due to the low contaminant concentrations and the significant distance between the creeks and the Site. This water use is therefore not at risk from Site contaminants.

A map of on-site utilities is provided in Figure 3. Downgradient utilities include municipal stormwater and water supply lines and a stormwater collection catch basin. The municipal water lines are the shallowest public utilities in the vicinity of the Site, with an invert elevation of approximately 3 feet bgs. The stormwater lines are the deepest utilities in the vicinity of the Site, with an invert elevation of approximately 15 feet bgs. The topography of the Site is generally flat, and surfaces are paved with concrete and asphalt. Surface water at the Site is collected within at least three stormwater catch basins.

The presence of the utilities adjacent to (and downgradient of) the Site is not considered a significant pathway for the plume migration because the shallower utilities (i.e. municipal water supply and UST lines) are located entirely above the depth to groundwater, and the deeper sanitary sewer utilities would only intersect the groundwater table during seasonally high groundwater conditions. The observed concentrations of COPCs on the site are not likely to be mobile.

### 5.5.3 Exposure Pathway Analysis

Potential Receptors. Potential human receptors at the Site include those that may be exposed to the COPCs under the current or reasonably likely future land and water use scenarios. The following potential receptors were identified:

- Residential (potential future exposure);
- Occupational workers;
- Construction workers; and
- Excavation workers.

Because the Site is located in downtown Yamhill and is fully developed with pavement and minimal landscaping and has no surface water exposure, there is no viable ecological habitat of significance on the site or within the LOF. Surface water bodies are at least 0.20 miles from the Site and outside the extent of contaminated groundwater. Additionally, the minimal contamination present in surface soil is currently covered by asphalt/concrete, and not likely to be exposed to terrestrial receptors. Therefore, exposure pathways for ecological receptors are considered incomplete.

Exposure Pathways for Soil. Exposure pathways describe the physical connection or potential connection between a receptor and a potential contaminant source. Identifying a pathway as complete or potentially complete does not, by itself, indicate that there is an unacceptable risk, only that a receptor could be exposed to a contaminant source if such a source exists. Potentially complete exposure pathways for soil are listed below.

- *Direct Contact (Soil Ingestion, Dermal Contact, and Inhalation)*. This pathway is potentially complete for residential, occupational, and construction workers in future likely scenarios. Currently, the Site is completely covered in pavement and shallow soil is not readily accessible to normal Site users. Construction worker and excavation worker exposures are potentially complete for both surface soil and subsurface soil (such as for utility maintenance or future redevelopment of the property), and residential exposure is potentially complete if the property is redeveloped as a residence. The concentrations of COPCs for construction workers and occupational workers are below applicable RBCs; however, the TPHd concentration exceeds the RBC for direct contact in a residential scenario.
- *Vapor Intrusion into Buildings*. This pathway is potentially complete under future land uses. Shallow soil in the vicinity of the pump island contains concentrations of TPHg above the RBC for soil vapor intrusion into buildings for residential use.
- *Volatilization to Outdoor Air*. This pathway is potentially complete under current and future land uses as COPCs have been detected in soil and groundwater at the Site. However, detected COPCs in all three media are below the applicable RBCs.
- *Leaching to Groundwater*. This pathway is considered incomplete under current and reasonably likely future land use as groundwater in the vicinity of the Site is not being used and would not be suitable for groundwater production, and the City of Yamhill provides municipal water supply to the Site.

Exposure Pathways for Groundwater. Potentially complete exposure pathways for groundwater are listed below.

- *Groundwater Ingestion and Inhalation*. This pathway is incomplete as groundwater in the vicinity of the Site is not used and would not be suitable for groundwater use due to low groundwater production from the fine-grained silt matrix encountered in the shallow aquifer; the City of Yamhill provides municipal water supply to the Site.

- *Vapor Intrusion into Buildings*. This pathway is potentially complete under future land uses. However, detected groundwater concentrations of COPCs are below applicable RBCs.
- *Volatilization to Outdoor Air*. This pathway is potentially complete under current and future land uses as COPCs have been detected in soil, groundwater, and soil vapor at the Site. However, detected COPCs in all three media are below applicable RBCs.
- *Groundwater in Excavations*. This pathway is complete for construction and excavation worker exposures as groundwater at the Site is typically encountered at reasonable excavation depths. However, detected COPCs in Site groundwater are below applicable RBCs.
- *Groundwater Discharge to Surface Water*. This pathway is incomplete since the nearest surface water body is more than 0.20 miles from the Site and outside the potential extent of the contaminated groundwater plume.

# *6.0 Applicable Regulations and Cleanup Standards*

As outlined in previous sections of this document, constituents of concern (COCs) have been detected in both soil and structural building materials, at concentrations exceeding State and/or EPA screening criteria. Exceedances of these levels indicate potential risk to human health and the environment; therefore, remediation of these environmental impacts will be required to support the redevelopment of this property. The following describes applicable regulations and cleanup standards that will apply to future remediation efforts.

## 6.1 Cleanup Oversight Authority

The DEQ will have oversight of the cleanup activities at the subject site. Additionally, work plans and cleanup activities conducted throughout the implementation of this project will be overseen by qualified professional geologists and/or professional engineers licensed in the state of Oregon.

## 6.2 Cleanup Standards for Major Contaminants

As future Site use will likely include redevelopment, the screening levels applicable to the site are: direct contact for residential, construction worker, excavation worker, and occupational worker exposure; and soil vapor intrusion for residential uses. Those applicable Oregon DEQ RBCs will be used to evaluate the effectiveness of remedial actions. Metals concentrations will be compared to the South Willamette Region Default Background concentrations.

## 6.3 Laws and Regulations Applicable to the Cleanup

The applicable cleanup standards are:

- OAR 333, Division 068 to 070 – Lead Requirements: the rules established under these chapters establish the requirements for the abatement of lead paint-containing materials.

  Lead-based paint (paint containing lead concentrations over 5,000 ppm) as defined by EPA (40 CFR 745) was identified at the Site. OSHA requires specific practices when a worker may be exposed to lead (OSHA 1926). Contractors should be notified of the possible lead concentrations, and best management practices (BMPs) and appropriate engineering controls (OSHA 1926.62[e][1]) should be used to reduce possible lead exposure during re-development activities.

- OAR 340 Division 122 – Environmental Cleanup Rules: the rules established under this chapter establish $1\times10^{-6}$ as the maximum excess lifetime cancer risk for hazardous substances (including asbestos), and a hazard index of 1 for non-cancer-causing substances.

- Based on data collected during Site Assessment and historical soil samples, impacted soil would be classified as non-hazardous solid waste. Contaminated soil removed from the Site would be disposed of at a U.S. Resource Conservation and Recovery Act (RCRA) Subtitle D facility, such as the Republic Services' Coffin Butte Subtitle D landfill in Corvallis, Oregon.

- 36 CFR Part 800 – Protection of Historic Properties: Section 106 of the National Historic Preservation Act requires agencies to account for the effects of their undertakings on historic properties and afford State Historical Preservation Office (SHPO) a reasonable opportunity to comment on such undertakings. The alternatives presented herein are considered federal undertakings as federal funding sources would be involved.

Additionally, demolition of the wood and concrete structures at the Site will be conducted in accordance with applicable federal, state, and local laws, rules and regulations by a licensed demolition contractor. Information regarding which screening levels were chosen is provided in the sections below.

Required Permits and Notifications. Permits and notifications required for the recommended alternative include:

- Demolition Permit Application Form – Yamhill County (Appendix D);
- Consultation with the Oregon SHPO; and
- The following UST Decommissioning forms and notifications:
  - UST Decommissioning/Change-in-Service 30-Day Notice Form must be submitted a minimum of 30 days before starting any decommissioning work;
  - Notification to the Local DEQ Regional Office must be made by telephone a minimum of three days before starting any decommissioning work; and
  - A UST Decommissioning Checklist and Site Assessment Report must be submitted to the DEQ Regional Office within 30 days after completing the decommissioning.

## 6.4 Ecologic and Cultural Resource Considerations

Ecologic Considerations. A review for threatened and endangered (T&E) species at or near the vicinity of the Site was prepared by Apex in preparation for the Site Investigation (Apex, 2021), in accordance with the ESA. Based on the list of threatened and engendered species within the county, Apex believes it is unlikely that they will be present on the Site; however, all work conducted at the Site will be assessed for potential to impact these species during the planning and implementation stages.

Effects on Cultural Resources. An IDP was prepared and implemented during the August 2021 site investigation activities (included in the Work Plan). No cultural resources were encountered during the work, the Site has been fully developed, and a specific cultural resources review has not been completed for the Site. Implementation of the cleanup alternatives is not expected to have an impact on any potential cultural resources; however, the cleanup alternatives include building demolition and potential excavation and will require project review with the Oregon SHPO.

Consistent with Section 106 of the National Historic Preservation Act, the project review will be performed in coordination with the Oregon SHPO to determine if the proposed alternative would have impacts on properties of historic significance. To initiate the project review, Oregon SHPO requires notification of the agencies involved in the project and a brief description of the proposed activity. This information will be provided to SHPO after DEQ review of public comments (comments were received on December 31, 2021) and their final decision regarding the cleanup alternatives presented herein. Within 30 days of submittal of that information, the Oregon SHPO will provide direction to advise on avoidance or minimization of project impacts to properties of historic significance, if applicable.

## 6.5 Screening of Site Data

To assess the potential risks associated with current Site conditions, the data collected at the Site in July 2021 for soil and groundwater have been screened against the May 2018 RBCs that correspond to the potentially complete exposure pathways identified above. The data are summarized in Tables 1 and 2. Soil and groundwater data are further depicted on Figure 4.

Data collected on-site were screened against the Occupational and Residential RBCs, as well as the less conservative Construction and Excavation Worker RBCs.

## 6.6 Analytical Data and Risk-Based Screening

The following COPCs in soil were detected at concentrations that exceed the applicable RBCs:

- Soil
    - TPHg – exceeds RBCs for soil vapor intrusion into buildings for residential scenario

- TPHd – exceeds RBCs for direct contact for residential scenario

- Hazardous Building Materials
    - Lead-based paint is present on exterior metal siding. The presence of lead-based paint will require lead awareness training for the demolition workers; however, it does not present an unacceptable risk in-place.

The exceedances above present potentially unacceptable risk associated with soil at the Site. As site conditions precluded the collection of several groundwater samples, and the presence of the USTs prevented sampling directly beneath the tanks, the potential exists for additional contamination to be present at the Site, but these potential impacts would likely be present in the immediate vicinity of the USTs.

# 7.0 Cleanup Alternatives

The purpose of this section is to define and evaluate applicable cleanup alternatives that reduce contaminant concentrations at the Site to levels protective of human health and the environment. This ABCA was completed in general accordance with EPA guidelines for conducting an ABCA [NCP 300.415(4)(i)] and Oregon Administrative Rules for conducting feasibility studies (OAR 340-122-085). This ABCA contains the following elements:

- Remedial action areas;
- Evaluation of proposed cleanup alternatives;
- Presentation of the recommended alternative; and
- Discussion of the residual risks associated with the recommended alternative.

## 7.1 Remedial Action Area

The remedial action area is described below:

Impacted Soil Areas – Approximately 600 square feet of impacted soil were observed near the USTs and associated infrastructure (legacy piping) in the vicinity of the fuel island at depths of 2 to 3 feet bgs. TPHg and TPHd were detected in one or more samples above their respective RBCs. This impacted soil is associated with the UST systems (likely related to surface releases [overfilling] in the vicinity of the pump island and presumable release[s] from the UST line near the pump island). That impacted soil volume is less than 50 cubic yards and the impacts are limited to 3 feet in depth. The site investigation performed in July 2021 did not evaluate soil within 3 feet of the USTs (due to safety concerns associated with drilling near the USTs). Indications of petroleum (high PID readings and petroleum odor) were noted in some samples near the USTs, though concentrations were lower than applicable RBCs. However, due to the age and presumed condition of the USTs, there may be limited petroleum impacts with soil above applicable RBCs in the

immediate vicinity of or below the USTs. The cleanup alternatives developed in the following sections will address both areas (fuel island area and UST area).

## 7.2 Cleanup Alternative Considerations

Cleanup alternatives are evaluated in Section 7.3. Below are elements that should be considered in that evaluation.

- UST Decommissioning – Petroleum-impacted soil was observed mainly in the vicinity of the former dispenser areas. Decommissioning of the USTs is necessary, which can be achieved either by removal or by decommissioning in-place. It has been determined that the presence of the Site structure would complicate the removal of USTs and potential vehicle hoists and complicate any future site redevelopment. Yamhill County agreed in concept to the removal of the site building because it would facilitate cleanup and save cleanup costs. Therefore, the removal of this structure is necessary to safely remove the USTs and potential vehicle hoists, as well as to assess impacts, if any, associated with these features that would be discoverable upon removal (such as contaminated soil directly beneath the USTs).
- Suspected Vehicle Hoists – The geophysical survey findings indicated the potential presence of two suspected vehicle hoists located in the building. The vehicle hoists must be decommissioned as part of the selected alternative, and further assessment will be needed for these activities.

## 7.3 Evaluation of Cleanup Alternatives

The evaluation of potential cleanup alternatives included screening of potentially viable technologies to identify those remediation strategies that would be most applicable to the Site given the Site conditions and types and extent of the contamination. Table 3 provides an initial screening and evaluation of technologies for soil, including the rationale for the inclusion or exclusion of each technology. Technologies remaining after the initial screening include:

| General Response Action | Technology |
|---|---|
| Institutional Controls | Deed Restrictions/Soil Management Plan<br>Monitoring |
| Engineering Controls | Access Restrictions/Vapor Barrier |
| Containment | Capping |
| Removal/Off-Site Disposal | Excavation<br>Off-Site Disposal |
| *In Situ* Physical/Chemical/Thermal Treatment | Soil Vapor Extraction or Chemical Oxidation |
| *In Situ* Biological Treatment | Monitored Natural Attenuation (MNA) |

The assessment of cleanup alternatives also included a Baseline or No Action alternative. However, the No-Action alternative is not considered protective to human exposure pathways and was not kept for further review. The institutional and engineering controls (i.e., vapor barrier and capping) are potentially applicable to any action at the Site and are not considered separately (instead are assumed to be included in any soil cleanup action). Likewise, monitored natural attenuation (MNA) is included not as a stand-alone technology, but only to address residual contamination that remains following the implementation of a cleanup action, and is therefore assumed to be included in any soil cleanup action.

As discussed in Section 7.2, each alternative assumes that the USTs will be decommissioned. If that decommissioning is to be done by removal, the Site structure will also need to be removed. Due to the presence of lead-based paint, demolition service personnel would require lead awareness training to safely remove the structure and no other alternative is considered for this action. The management of lead-based paint during on-site building demolition will be performed in accordance with applicable regulations.

The following sections detail the review of the applicable technologies for the remedial action area.

### *7.3.1 On-Site Building Removal*

Alternative 1 – Demolition. If needed, the building will be demolished using conventional excavators with buckets and thumbs. Any wood that can be recycled through hog fueling or recycling for re-use will be processed accordingly.

The building demolition will be relatively easy to implement. Removal of the building will allow safer and more cost-effective removal of the USTs and potential vehicle hoists, as well as assessment of impacts, if any, associated with these features. Personnel with specialized lead-awareness training and equipment will be necessary to perform the building demolition, but these personnel and equipment are readily available. All demolition debris will be recycled or hauled to a licensed construction/demolition landfill or a Subtitle D Landfill. An approved Yamhill County Demolition Permit is required; that application form is included in Appendix D.

### *7.3.2 Soil Area*

Alternative 1 – UST Decommissioning by Removal; Excavation and Off-Site Disposal of Petroleum-Impacted Soil. In this alternative, the USTs will be decommissioned by removal, and the coincident petroleum-impacted soil will be removed by excavation and off-site disposal. The suspected vehicle hoists will be located (if present), and assessment of impacts, if any, associated with this feature will be characterized and removed by excavation and off-site disposal as appropriate. For the purpose of the alternative, it is assumed a total of 110 cubic yards of soil will be removed by excavation and disposed of off-site (approximately 50 cubic yards in the vicinity of the fuel island, approximately 50 cubic yards in the vicinity of the USTs, and approximately 10 cubic yards in the vicinity of the vehicle hoists). Confirmation sampling will be performed after soil removal to demonstrate adequate cleanup. This alternative includes import of 365 tons of three-quarter-inch minus structural backfill to fill the void of the excavation volume and match the

existing surface. It is anticipated that removal of soil in the immediate vicinity of the UST system (tanks and piping) will be sufficient to achieve the Site cleanup goals and no other active treatment would be needed (any residual contamination would be addressed by MNA).

Alternative 2 – UST Decommissioning in Place; Excavation and Off-Site Disposal of Petroleum-Impacted Soil from the Fuel Island Area. In this alternative, the USTs will be decommissioned in place, and the petroleum-impacted soil in the vicinity of the fuel island will be removed by excavation and off-site disposal. The suspected vehicle hoists will be located (if present); assessment of soil impacts, if any, associated with this feature will be characterized; and the soil will be removed by excavation and off-site disposal. For the purpose of the alternative, it is assumed a total of 50 cubic yards of soil in the vicinity of the fuel island and approximately 10 cubic yards in the vicinity of the vehicle hoists will be removed by excavation and disposed of off-site. Confirmation sampling will be performed after soil removal to demonstrate adequate cleanup. This alternative includes import of 165 tons of three-quarter-inch minus structural backfill to fill the void of the excavation volume and match the existing surface. As residual contamination will likely remain at the Site in the vicinity of the USTs, a Contaminated Media Management Plan (CMMP) should be prepared to address the proper handling and disposal of any contaminated soil that may be encountered during future construction or development at the Site. It would be expected that natural attenuation and biodegradation would result in reaching cleanup goals in 15 years (depending on the extent of contamination immediately surrounding the USTs). Confirmation sampling would be performed to confirm that soil concentrations are below residential RBCs. The continued presence of the UST shells may interfere with future development of the Site (such as for new building foundations), so additional planning may be needed to accommodate the tanks in place.

Alternative 3 – UST Decommissioning in Place; *In-Situ* Treatment of Petroleum-Impacted Soil and Land Use Restrictions. In this alternative, the USTs will be decommissioned in place, and the petroleum-impacted soil in the vicinity of the fuel island will be treated *in-situ*. For the purpose of the alternative, the *in-situ* technology is soil vapor extraction (SVE; an *in-situ* alternative that is likely to be cost-effective given the Site conditions), and it is assumed a total of 50 cubic yards of soil near the fuel island will be treated *in-situ*. This alternative would require the construction and operation of a treatment system (essentially comprised of a vacuum blower, moisture separator, and potentially vapor treatment such as activated carbon vessels). Land use restrictions and monitoring would be required until soil cleanup goals are met. As residual contamination will remain at the Site in the vicinity of the USTs, a CMMP should be prepared to address the proper handling and disposal of any contaminated soil that may be encountered during future construction or development at the Site. It would be expected that operation of an SVE system would achieve cleanup goals in three to five years (depending on the extent of contamination immediately surrounding the USTs). Confirmation sampling would be performed to confirm adequate treatment to below residential RBCs. Alternative *in-situ* treatment technologies such as chemical oxidation may achieve the cleanup goals sooner, but would also be less cost-effective.

## 7.4 Effectiveness

Alternative 1. Decommissioning the USTs by removal and removing petroleum-impacted soil by excavation and off-site disposal is an effective alternative to address the risk of human contact with the impacted soil (both the soil in the vicinity of the fuel island and the likely petroleum-contaminated soil near the USTs). Off-site disposal has the benefit that known and suspected petroleum-contaminated soil associated with the USTs will be removed from the Site and disposed of offsite at a Subtitle D landfill, eliminating risk associated with contaminated soil. In addition, the removal of the USTs will facilitate Site redevelopment.

Alternative 2. Decommissioning the USTs in place, implementing institutional/engineering controls (use restrictions and CMMP), and excavation and disposal of approximately 50 cubic yards of soil near the fuel island would effectively remove the petroleum-contaminated soil near the fuel island. Confirmation sampling would be performed after soil removal to demonstrate adequate cleanup. However, this alternative would not address the potential residual petroleum-contaminated soil within a few feet of or below the USTs. In addition, the presence of the decommissioned USTs may constitute a barrier to Site redevelopment by potentially interfering with development construction. Institutional controls (i.e., CMMP) and engineering controls (i.e., vapor barriers beneath new construction) would need to be maintained to remain effective.

Alternative 3. Decommissioning the USTs in place, implementing institutional/engineering controls (use restrictions and CMMP), and treating approximately 100 cubic yards of soil would effectively treat the petroleum-contaminated soil near the fuel island and potential petroleum-contaminated soil within a few feet of the USTs. However, the presence of the decommissioned USTs may constitute a barrier to Site redevelopment by potentially interfering with development construction. Institutional controls (i.e., CMMP) and engineering controls (i.e., vapor barriers beneath new construction) would need to be maintained to remain effective. Confirmation sampling would be performed after soil treatment to demonstrate adequate cleanup.

Comparison. Based on a review of the effectiveness for the three alternatives for mitigating the impacted soil areas, Alternative 1 is the most effective. This alternative addresses the known petroleum-contaminated soil in the vicinity of the fuel island and the suspected petroleum-contaminated soil in the vicinity of the USTs. Alternative 2 would not address the suspected petroleum-contaminated soil in the vicinity of the USTs and rely on institutional and engineering controls to remain protective. Alternative 3 would address the suspected petroleum-contaminated soil in the vicinity of the USTs; however, this alternative would rely on institutional and engineering controls to remain protective during the implementation process.

## 7.5 Implementability

Alternative 1. The tasks associated with this alternative are commonly performed by a large number of contractors and would be easy to implement. They include: decommissioning the USTs and piping by removal; removing coincident petroleum-contaminated soil by excavation and off-site disposal; evaluating for

presence of the suspected vehicle hoists; removing vehicle hoists, if any; and assessing impacts, if any, associated with this feature. Implementation involves conventional construction equipment and methods. This alternative is easy to coordinate with removal of the on-site building and can be combined into a single mobilization. Implementation involves transportation of contaminated soils on public roads for potentially long distances.

Alternative 2. The tasks associated with this alternative are commonly performed by a large number of contractors and would be easy to implement. They include: decommissioning the USTs in place; removing petroleum-contaminated soil (approximately 50 cubic yards of surface soil near the fuel island) by excavation and off-site disposal; evaluating for the presence of the suspected vehicle hoists; removing vehicle hoists, if any; and assessing impacts, if any, associated with this feature. Implementation involves conventional construction equipment and methods; it would be easy to coordinate with removal of site structures and may be combined into a single mobilization. This alternative includes the development of long-term controls (e.g. site use restrictions, CMMP, and potentially the implementation of vapor controls on new construction). Those long-term controls make implementation more difficult and require significant coordination and long-term maintenance and upkeep to be protective.

Alternative 3. Decommissioning the USTs in place, implementation of institutional/engineering controls (CMMP and use restrictions), and *in-situ* treatment of approximately 100 cubic yards of surface soil near the fuel island would effectively treat petroleum-contaminated soil near the fuel island and potential-petroleum contaminated soil within a few feet of the USTs. Specialized equipment, potential treatment of vapors from an engineered system, permitting in a mixed-use downtown area, and enforcement of land use restrictions during the cleanup phase would be difficult. Operation and maintenance of the system for an expected period of three to five years will require long-term coordination, power usage, and multiple site mobilizations.

Comparison. Based on a review of the ease of implementation for the three alternatives for mitigating the impacted soil areas, Alternatives 1 and 2 are reasonably easy to implement, but Alternative 1 would be implemented over a shorter period and therefore would be preferred. Alternatives 2 and 3 would require long-term controls that need to be reviewed periodically, which complicates implementation of those alternatives.

## 7.6 Cost

The costs associated with implementing Alternatives 1 through 3 are summarized below; detailed costs for the implementation of the selected alternatives are presented in Tables 4 through 6, respectively.

Alternative 1. The cost for implementing the alternative for UST decommissioning by removal; excavating and disposing of coincident petroleum-impacted soil (up to 100 cubic yards); locating suspected vehicle hoists; assessing their impacts; and removing (up to 10 cubic yards) by excavation and off-site disposal is estimated

to be about $145,000 (including the demolition of the site structure and sampling to confirm that cleanup standards are met).

Alternative 2. The cost for implementing the alternative for decommissioning the USTs in place; removing approximately 50 cubic yards of petroleum-contaminated surface soil near the fuel island; locating suspected vehicle hoists; assessing their impacts; and removing (up to 10 cubic yards) by excavation and off-site disposal is estimated to be about $166,000 (the demolition of the site structure, long term care costs for a 15-year period, and additional site work costs required to lift the restrictions are included in this alternative). The decommissioned-in-place USTs would constitute a barrier to redevelopment and it is expected that a decrease in the resulting property value would reflect that barrier.

Alternative 3. The cost for implementing the alternative for decommissioning the USTs in place, treating the soil on site with a soil vapor extraction system or equivalent, and implementing institutional/engineering controls (vapor barrier and use restrictions) is estimated to be about $251,000 (the demolition of the site structure, long term care costs for a 5-year period, and additional site work costs required to lift the restrictions are included in this alternative). In addition, the decommissioned-in-place USTs and engineering system would constitute barriers to redevelopment and the property value would reflect those barriers.

Comparison. Based on a review of the estimated cost for the three alternatives for mitigating the impacted soil areas, Alternative 1 is the least costly to implement. The presence of the decommissioned-in-place USTs and land use restrictions in Alternatives 2 and 3 would also constitute barriers to redevelopment that would decrease the resulting property value and limit site redevelopment options.

# 8.0 Conclusions and Recommendations

Based on the current and proposed future Site uses, the primary risk exposures of potential concern related to the contamination encountered at the Site are limited to soil vapor intrusion and direct contact with soil for residential uses. To address these potential future risks, an assessment of feasible cleanup alternatives was completed. Based on that assessment, Apex recommends that the areas of impacted soil be addressed with the implementation of Alternative 1 (UST Decommissioning by Removal; Excavation and Off-Site Disposal of Petroleum-Impacted Soil). With this alternative (including the removal of the Site building coincident with the UST removals), impacted soil near the fuel island and the suspected petroleum contaminated soil coincident with the USTs will be removed by excavation and disposed at an off-site regulated Subtitle D landfill. Alternative 1 is lower cost, and would be more effective and implementable compared to Alternatives 2 and 3. In addition, the presence of decommissioned-in-place USTs in Alternatives 2 and 3 would constitute barriers to redevelopment that would decrease the resulting property value and limit site redevelopment options, whereas Alternative 1 allows for unrestricted redevelopment of the site. The total estimated cost associated with implementation of this scope of work is $145,000.

Recognizing that potential future Site uses may not be residential in nature, the potential for more significant contamination in the immediate vicinity of the USTs may also affect occupational uses of the Site. However, further characterization of that area would still require removal of the USTs, which would not be feasible without the removal of the Site building due to the proximity of the building to the USTs. As the activities necessary to pursue further characterization of contamination in the immediate vicinity of the USTs are consistent with the implementation of cleanup Alternative 1 (differing only in the potential volume of soil that may need to be removed), and Alternative 1 was determined to be the most appropriate alternative for addressing the potential Site risks, it is recommended that Alternative 1 (UST Decommissioning by Removal; Excavation and Off-Site Disposal of Petroleum-Impacted Soil) be considered for the Site. This would eliminate the need for additional characterization and restore the Site to a condition that would be protective of any future development of the property.

# 9.0 References


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Table 1
Soil Analytical Results
Carol Glover BP
Yamhill, Oregon

| Sample ID: | SB-1 (13-14) | SB-2 (2-3) | SB-2 (13-14) | SB-3 (2-3) | SB-3 (9-10) | SB-5 (4-5) | SB-5 (12-13) | SB-6 (8-9) | SB-7 (7-8) | SB-8 (14-15) | South Willamette Background Metals Concentrations | DEQ RBCs | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Direct Contact | | | | | Soil Volatilization to Outdoor Air | | | Soil Vapor Intrusion into Buildings | | |
| Sample Depth (feet bgs): | 13-14 | 2-3 | 13-14 | 2-3 | 9-10 | 4-5 | 12-13 | 8-9 | 7-8 | 14-15 | | Residential | Urban Residential | Occupational | Construction Worker | Excavation Worker | Residential | Urban Residential | Occupational | Residential | Urban Residential | Occupational |
| Sample Date: | 07/22/2021 | 07/22/2021 | 07/22/2021 | 07/22/2021 | 07/22/2021 | 07/22/2021 | 07/22/2021 | 07/22/2021 | 07/22/2021 | 07/22/2021 | | | | | | | | | | | | |
| *Total Petroleum Hydrocarbons (TPH) by NWTPH-Gx and NWTPH-Dx in mg/kg* | | | | | | | | | | | | | | | | | | | | | | |
| Gasoline Range Organics | <4.97 | 718 | <4.07 | 349 | <4.54 | 1.89 J | <4.78 | <3.46 | 2.43 J | <4.46 | -- | 1200 | 2500 | 20000 | 9700 | -- | 5900 | 5900 | 69000 | 94 | 94 | -- |
| Diesel Range Organics | <5.46 | 1120 | <5.21 | 4.80 J | <5.39 | <5.62 | <5.59 | <4.68 | 2.43 J | <5.34 | -- | 1100 | 2200 | 14000 | 4600 | -- | -- | -- | -- | -- | -- | -- |
| Residual Range Organics | <13.6 | <13.6 | <13.0 | 7.16 J | <13.5 | <14.1 | <14.0 | <11.7 | <13.6 | <13.3 | -- | 1100 | 2200 | 14000 | 4600 | -- | -- | -- | -- | -- | -- | -- |
| *Polycyclic Aromatic Hydrocarbons (PAHs) by EPA Method 8270E-SIM* | | | | | | | | | | | | | | | | | | | | | | |
| Anthracene | -- | -- | -- | -- | -- | -- | -- | -- | <0.00814 | -- | -- | 23000 | 47000 | 350000 | 110000 | -- | -- | -- | -- | -- | -- | -- |
| Acenaphthene | -- | -- | -- | -- | -- | -- | -- | -- | <0.00814 | -- | -- | 4700 | 9400 | 70000 | 21000 | 590000 | -- | -- | -- | -- | -- | -- |
| Acenaphthylene | -- | -- | -- | -- | -- | -- | -- | -- | <0.00814 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | -- | -- | -- | <0.00814 | -- | -- | 1.1 | 2.5 | 21 | 170 | 4800 | -- | -- | -- | -- | -- | -- |
| Benzo(a)pyrene | -- | -- | -- | -- | -- | -- | -- | -- | <0.00814 | -- | -- | 0.11 | 0.25 | 2.1 | 17 | 490 | -- | -- | -- | -- | -- | -- |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | -- | -- | -- | <0.00814 | -- | -- | 1.1 | 2.5 | 21 | 170 | 4900 | -- | -- | -- | -- | -- | -- |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | -- | -- | -- | <0.00814 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | -- | -- | -- | <0.00814 | -- | -- | 11 | 25 | 210 | 1700 | 49000 | -- | -- | -- | -- | -- | -- |
| Chrysene | -- | -- | -- | -- | -- | -- | -- | -- | <0.00814 | -- | -- | 110 | 250 | 2100 | 17000 | 490000 | -- | -- | -- | -- | -- | -- |
| Dibenz(a,h)anthracene | -- | -- | -- | -- | -- | -- | -- | -- | <0.00814 | -- | -- | 0.11 | 0.25 | 2.1 | 17 | 490 | -- | -- | -- | -- | -- | -- |
| Fluoranthene | -- | -- | -- | -- | -- | -- | -- | -- | <0.00814 | -- | -- | 2400 | 4800 | 30000 | 10000 | 280000 | -- | -- | -- | -- | -- | -- |
| Fluorene | -- | -- | -- | -- | -- | -- | -- | -- | <0.00814 | -- | -- | 3100 | 6300 | 47000 | 14000 | 390000 | -- | -- | -- | -- | -- | -- |
| Indeno(1,2,3-cd)pyrene | -- | -- | -- | -- | -- | -- | -- | -- | <0.00814 | -- | -- | 1.1 | 2.5 | 21 | 170 | 4900 | -- | -- | -- | -- | -- | -- |
| Naphthalene | -- | -- | -- | -- | -- | -- | -- | -- | <0.0271 | -- | -- | 5.3 | 25 | 23 | 580 | 16000 | 6.4 | 15 | 83 | 6.4 | 15 | 83 |
| Phenanthrene | -- | -- | -- | -- | -- | -- | -- | -- | <0.00814 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Pyrene | -- | -- | -- | -- | -- | -- | -- | -- | <0.00814 | -- | -- | 1800 | 3600 | 23000 | 7500 | 210000 | -- | -- | -- | -- | -- | -- |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | -- | -- | -- | 0.0767 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | -- | -- | -- | 0.0980 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2-Chloronaphthalene | -- | -- | -- | -- | -- | -- | -- | -- | <0.0271 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| *Polychlorinated Biphenyls (PCBs) by EPA Method 8082A in mg/kg* | | | | | | | | | | | | | | | | | | | | | | |
| PCB 1016 | -- | -- | -- | -- | -- | -- | -- | -- | <0.0461 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| PCB 1221 | -- | -- | -- | -- | -- | -- | -- | -- | <0.0461 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| PCB 1232 | -- | -- | -- | -- | -- | -- | -- | -- | <0.0461 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| PCB 1242 | -- | -- | -- | -- | -- | -- | -- | -- | <0.0461 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| PCB 1248 | -- | -- | -- | -- | -- | -- | -- | -- | <0.0231 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| PCB 1254 | -- | -- | -- | -- | -- | -- | -- | -- | <0.0231 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| PCB 1260 | -- | -- | -- | -- | -- | -- | -- | -- | <0.0231 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Total PCBs | -- | -- | -- | -- | -- | -- | -- | -- | <0.0461 | -- | -- | 0.23 | 0.33 | 0.59 | 4.9 | 140 | -- | -- | -- | -- | -- | -- |
| *Total Metals by EPA Method 6020B in mg/kg* | | | | | | | | | | | | | | | | | | | | | | |
| Lead | 14.9 | 13.1 | 13.4 | 85.6 | 12.3 | 12.4 | 15.9 | 1.59 J | 11.7 | 14.8 | 28 | 400 | 400 | 800 | 800 | 800 | -- | -- | -- | -- | -- | -- |
| Cadmium | -- | -- | -- | -- | -- | -- | -- | -- | 0.148 J | -- | 1.6 | 78 | 160 | 1100 | 350 | 9700 | -- | -- | -- | -- | -- | -- |
| Chromium | -- | -- | -- | -- | -- | -- | -- | -- | 28.4 | -- | 100 | 120000 | 230000 | -- | 530000 | -- | -- | -- | -- | -- | -- | -- |

*Please see notes at end of table.*

Table 1
Soil Analytical Results
Carol Glover BP
Yamhill, Oregon

| Sample ID: | SB-1 (13-14) | SB-2 (2-3) | SB-2 (13-14) | SB-3 (2-3) | SB-3 (9-10) | SB-5 (4-5) | SB-5 (12-13) | SB-6 (8-9) | SB-7 (7-8) | SB-8 (14-15) | South Willamette Background Metals Concentrations | DEQ RBCs | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Direct Contact | | | | | Soil Volatilization to Outdoor Air | | | Soil Vapor Intrusion into Buildings | | |
| Sample Depth (feet bgs): | 13-14 | 2-3 | 13-14 | 2-3 | 9-10 | 4-5 | 12-13 | 8-9 | 7-8 | 14-15 | | Residential | Urban Residential | Occupational | Construction Worker | Excavation Worker | Residential | Urban Residential | Occupational | Residential | Urban Residential | Occupational |
| Sample Date: | 07/22/2021 | 07/22/2021 | 07/22/2021 | 07/22/2021 | 07/22/2021 | 07/22/2021 | 07/22/2021 | 07/22/2021 | 07/22/2021 | 07/22/2021 | | | | | | | | | | | | |
| *Volatile Organic Compounds (VOCs) by EPA Method 8260D in mg/kg* | | | | | | | | | | | | | | | | | | | | | | |
| Acetone | <0.0993 | <0.711 | <0.0814 | <0.0869 | <0.0907 | <0.0977 | <0.0956 | <0.0692 | <0.0913 | <0.0891 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Acrylonitrile | <0.0249 | <0.178 | <0.0203 | <0.0217 | <0.0227 | <0.0244 | <0.0239 | <0.0173 | <0.0228 | <0.0223 | -- | 0.86 | 2.5 | 4 | 40 | 1100 | 1.3 | 3.1 | 5.8 | 0.079 | 0.19 | 1 |
| Benzene | <0.00199 | <0.0142 | <0.00163 | 0.00384 | <0.00181 | <0.00195 | <0.00191 | <0.00138 | <0.00183 | <0.00178 | -- | 8.2 | 24 | 37 | 380 | 11000 | 11 | 27 | 50 | 0.16 | 0.38 | 2.1 |
| Bromobenzene | <0.0249 | <0.178 | <0.0203 | <0.0217 | <0.0227 | <0.0244 | <0.0239 | <0.0173 | <0.0228 | <0.0223 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Bromodichloromethane | <0.00496 | <0.0356 | <0.00407 | <0.00434 | <0.00454 | <0.00488 | <0.00478 | <0.00346 | <0.00457 | <0.00446 | -- | 3.4 | 12 | 15 | 230 | 6300 | 2.4 | 5.7 | 11 | 0.041 | 0.096 | 0.53 |
| Bromoform | <0.0496 | <0.356 | <0.0407 | <0.0434 | <0.0454 | <0.0488 | <0.0478 | <0.0346 | <0.0457 | <0.0446 | -- | 57 | 170 | 260 | 2700 | 74000 | 81 | 190 | 360 | 8.2 | 19 | 110 |
| Bromomethane | <0.0249 UJ | <0.178 UJ | <0.0203 UJ | <0.0217 UJ | <0.0227 UJ | <0.0244 UJ | <0.0239 UJ | <0.0173 UJ | <0.0228 UJ | <0.0223 UJ | -- | 46 | 92 | 750 | 370 | 10000 | 170 | 170 | 700 | 1.3 | 1.3 | 17 |
| n-Butylbenzene | <0.0249 | 0.313 | <0.0203 | 0.243 | <0.0227 | <0.0244 | <0.0239 | <0.0173 | <0.0228 | <0.0223 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| sec-Butylbenzene | <0.0249 | 0.533 | <0.0203 | 0.356 | 0.0106 J | <0.0244 | <0.0239 | <0.0173 | 0.00702 J | <0.0223 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| tert-Butylbenzene | <0.00993 | <0.0711 | <0.00814 | <0.00869 | <0.00907 | <0.00977 | <0.00956 | <0.00692 | <0.00913 | <0.00891 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbon Disulfide | <0.0249 UJ | <0.178 UJ | <0.0203 UJ | <0.0217 UJ | <0.0227 UJ | <0.0244 UJ | <0.0239 UJ | <0.0173 UJ | <0.0228 UJ | <0.0223 UJ | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbon Tetrachloride | <0.00993 | <0.0711 | <0.00814 | <0.00869 | <0.00907 | <0.00977 | <0.00956 | <0.00692 | <0.00913 | <0.00891 | -- | 7.5 | 21 | 34 | 320 | 8900 | 15 | 35 | 65 | 0.12 | 0.28 | 1.6 |
| Chlorobenzene | <0.00496 | <0.0356 | <0.00407 | <0.00434 | <0.00454 | <0.00488 | <0.00478 | <0.00346 | <0.00457 | <0.00446 | -- | 530 | 1100 | 8700 | 4700 | 130000 | -- | -- | -- | 77 | 77 | -- |
| Chlorodibromomethane | <0.00496 | <0.0356 | <0.00407 | <0.00434 | <0.00454 | <0.00488 | <0.00478 | <0.00346 | <0.00457 | <0.00446 | -- | 3.7 | 12 | 17 | 210 | 5800 | 3.3 | 7.8 | 14 | 0.22 | 0.53 | 2.9 |
| Chloroethane | <0.00993 UJ | <0.0711 UJ | <0.00814 UJ | <0.00869 UJ | <0.00907 UJ | <0.00977 UJ | <0.00956 UJ | <0.00692 UJ | <0.00913 UJ | <0.00891 UJ | -- | 160000 | 320000 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chloroform | <0.00496 | <0.0356 | <0.00407 | <0.00434 | <0.00454 | <0.00488 | <0.00478 | <0.00346 | <0.00457 | <0.00446 | -- | 5.8 | 22 | 26 | 410 | 11000 | 3.9 | 9.2 | 17 | 0.031 | 0.074 | 0.41 |
| Chloromethane | <0.0249 UJ | <0.178 UJ | <0.0203 UJ | <0.0217 UJ | <0.0227 UJ | <0.0244 UJ | <0.0239 UJ | <0.0173 UJ | <0.0228 UJ | <0.0223 UJ | -- | 1400 | 2900 | 25000 | 25000 | 700000 | -- | -- | -- | 24 | 24 | 300 |
| 2-Chlorotoluene | <0.00496 | <0.0356 | <0.00407 | <0.00434 | <0.00454 | <0.00488 | <0.00478 | <0.00346 | <0.00457 | <0.00446 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 4-Chlorotoluene | <0.00993 | <0.0711 | <0.00814 | <0.00869 | <0.00907 | <0.00977 | <0.00956 | <0.00692 | <0.00913 | <0.00891 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,2-Dibromo-3-Chloropropane | <0.0496 UJ | <0.356 UJ | <0.0407 UJ | <0.0434 UJ | <0.0454 UJ | <0.0488 UJ | <0.0478 UJ | <0.0346 UJ | <0.0457 UJ | <0.0446 UJ | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,2-Dibromoethane | <0.00496 | <0.0356 | <0.00407 | <0.00434 | <0.00454 | <0.00488 | <0.00478 | <0.00346 | <0.00457 | <0.00446 | -- | 0.16 | 0.53 | 0.73 | 9 | 250 | 0.15 | 0.35 | 0.65 | 0.012 | 0.028 | 0.16 |
| Dibromomethane | <0.00993 | <0.0711 | <0.00814 | <0.00869 | <0.00907 | <0.00977 | <0.00956 | <0.00692 | <0.00913 | <0.00891 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,2-Dichlorobenzene | <0.00993 | <0.0711 | <0.00814 | <0.00869 | <0.00907 | <0.00977 | <0.00956 | <0.00692 | <0.00913 | <0.00891 | -- | 2200 | 4400 | 36000 | 20000 | 560000 | -- | -- | -- | -- | -- | -- |
| 1,3-Dichlorobenzene | <0.00993 | <0.0711 | <0.00814 | <0.00869 | <0.00907 | <0.00977 | <0.00956 | <0.00692 | <0.00913 | <0.00891 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,4-Dichlorobenzene | <0.00993 | <0.0711 | <0.00814 | <0.00869 | <0.00907 | <0.00977 | <0.00956 | <0.00692 | <0.00913 | <0.00891 | -- | 14 | 62 | 64 | 1300 | 36000 | 8.1 | 19 | 36 | 0.99 | 2.3 | 13 |
| Dichlorodifluoromethane | <0.00496 | <0.0356 | <0.00407 | <0.00434 | <0.00454 | <0.00488 | <0.00478 | <0.00346 | <0.00457 | <0.00446 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,1-Dichloroethane | <0.00496 | <0.0356 | <0.00407 | <0.00434 | <0.00454 | <0.00488 | <0.00478 | <0.00346 | <0.00457 | <0.00446 | -- | 58 | 190 | 260 | 3200 | 89000 | 56 | 130 | 240 | 0.45 | 1.1 | 5.9 |
| 1,2-Dichloroethane | <0.00496 | <0.0356 | <0.00407 | <0.00434 | <0.00454 | <0.00488 | <0.00478 | <0.00346 | <0.00457 | <0.00446 | -- | 3.6 | 12 | 16 | 200 | 5600 | 3.4 | 8.1 | 15 | 0.077 | 0.18 | 1 |
| 1,1-Dichloroethene | <0.00496 | <0.0356 | <0.00407 | <0.00434 | <0.00454 | <0.00488 | <0.00478 | <0.00346 | <0.00457 | <0.00446 | -- | 1800 | 3500 | 29000 | 13000 | 370000 | -- | -- | -- | 54 | 54 | 680 |
| cis-1,2-Dichloroethene | <0.00496 | <0.0356 | <0.00407 | <0.00434 | <0.00454 | <0.00488 | <0.00478 | <0.00346 | <0.00457 | <0.00446 | -- | 160 | 310 | 2300 | 710 | 20000 | -- | -- | -- | -- | -- | -- |
| trans-1,2-Dichloroethene | <0.00993 | <0.0711 | <0.00814 | <0.00869 | <0.00907 | <0.00977 | <0.00956 | <0.00692 | <0.00913 | <0.00891 | -- | 1600 | 3100 | 23000 | 7100 | 200000 | -- | -- | -- | -- | -- | -- |
| 1,2-Dichloropropane | <0.00993 | <0.0711 | <0.00814 | <0.00869 | <0.00907 | <0.00977 | <0.00956 | <0.00692 | <0.00913 | <0.00891 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,1-Dichloropropene | <0.00496 | <0.0356 | <0.00407 | <0.00434 | <0.00454 | <0.00488 | <0.00478 | <0.00346 | <0.00457 | <0.00446 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,3-Dichloropropane | <0.00993 | <0.0711 | <0.00814 | <0.00869 | <0.00907 | <0.00977 | <0.00956 | <0.00692 | <0.00913 | <0.00891 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| cis-1,3-Dichloropropene | <0.00496 | <0.0356 | <0.00407 | <0.00434 | <0.00454 | <0.00488 | <0.00478 | <0.00346 | <0.00457 | <0.00446 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| trans-1,3-Dichloropropene | <0.00993 | <0.0711 | <0.00814 | <0.00869 | <0.00907 | <0.00977 | <0.00956 | <0.00692 | <0.00913 | <0.00891 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2,2-Dichloropropane | <0.00496 | <0.0356 | <0.00407 | <0.00434 | <0.00454 | <0.00488 | <0.00478 | <0.00346 | <0.00457 | <0.00446 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| di-Isopropyl Ether | <0.00199 | <0.0142 | <0.00163 | <0.00174 | <0.00181 | <0.00195 | <0.00191 | <0.00138 | <0.00183 | <0.00178 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Ethylbenzene | <0.00496 | <0.0356 | <0.00407 | 0.00987 | <0.00454 | <0.00488 | <0.00478 | <0.00346 | <0.00457 | <0.00446 | -- | 34 | 110 | 150 | 1700 | 49000 | 36 | 85 | 160 | 1.3 | 3 | 17 |
| Hexachloro-1,3-Butadiene | <0.0496 | <0.356 | <0.0407 | <0.0434 | <0.0454 | <0.0488 | <0.0478 | <0.0346 | <0.0457 | <0.0446 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Isopropylbenzene | <0.00496 | 0.0752 | <0.00407 | 0.130 | 0.00126 J | <0.00488 | <0.00478 | <0.00346 | <0.00457 | <0.00446 | -- | 3500 | 7000 | 57000 | 27000 | 750000 | -- | -- | -- | -- | -- | -- |
| p-Isopropyltoluene | <0.00993 | <0.0711 | <0.00814 | <0.00869 | <0.00907 | <0.00977 | <0.00956 | <0.00692 | <0.00913 | <0.00891 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2-Butanone (MEK) | 0.235 | <1.42 | 0.189 | 0.138 J | 0.147 J | 0.157 J | <0.191 | 0.0923 J | <0.183 | 0.175 J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Methylene Chloride | <0.0496 UJ | <0.356 UJ | <0.0407 UJ | <0.0434 UJ | <0.0454 UJ | <0.0488 UJ | <0.0478 UJ | <0.0346 UJ | <0.0457 UJ | <0.0446 UJ | -- | 76 | 170 | 1600 | 2100 | 58000 | -- | -- | -- | 26 | 48 | 950 |
| 4-Methyl-2-Pentanone (MIBK) | <0.0496 | 0.990 | <0.0407 | 0.323 | <0.0454 | <0.0488 | <0.0478 | <0.0346 | <0.0457 | <0.0446 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Methyl tert-Butyl Ether | <0.00199 UJ | <0.0142 UJ | <0.00163 UJ | <0.00174 UJ | <0.00181 UJ | <0.00195 UJ | <0.00191 UJ | <0.00138 UJ | <0.00183 UJ | <0.00178 UJ | -- | 250 | 730 | 1100 | 12000 | 320000 | 340 | 810 | 1500 | 8.5 | 20 | 110 |
| Naphthalene | <0.0249 UJ | <0.178 UJ | <0.0203 UJ | <0.0217 UJ | <0.0227 UJ | <0.0244 UJ | <0.0239 UJ | <0.0173 UJ | <0.0228 UJ | <0.0223 UJ | -- | 5.3 | 25 | 23 | 580 | 16000 | 6.4 | 15 | 83 | 6.4 | 15 | 83 |
| n-Propylbenzene | <0.00993 | 0.102 | <0.00814 | 0.297 | 0.00575 J | <0.00977 | <0.00956 | <0.00692 | <0.00913 | <0.00891 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Styrene | <0.0249 | <0.178 | <0.0203 | <0.0217 | <0.0227 | <0.0244 | <0.0239 | <0.0173 | <0.0228 | <0.0223 | -- | 7900 | 16000 | 130000 | 56000 | -- | -- | -- | -- | -- | -- | -- |
| 1,1,1,2-Tetrachloroethane | <0.00496 | <0.0356 | <0.00407 | <0.00434 | <0.00454 | <0.00488 | <0.00478 | <0.00346 | <0.00457 | <0.00446 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

*Please see notes at end of table.*

Table 1
Soil Analytical Results
Carol Glover BP
Yamhill, Oregon

| Sample ID: | SB-1 (13-14) | SB-2 (2-3) | SB-2 (13-14) | SB-3 (2-3) | SB-3 (9-10) | SB-5 (4-5) | SB-5 (12-13) | SB-6 (8-9) | SB-7 (7-8) | SB-8 (14-15) | South Willamette Background Metals Concentrations | DEQ RBCs | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Direct Contact | | | | | Soil Volatilization to Outdoor Air | | | Soil Vapor Intrusion into Buildings | | |
| Sample Depth (feet bgs): | 13-14 | 2-3 | 13-14 | 2-3 | 9-10 | 4-5 | 12-13 | 8-9 | 7-8 | 14-15 | | Residential | Urban Residential | Occupational | Construction Worker | Excavation Worker | Residential | Urban Residential | Occupational | Residential | Urban Residential | Occupational |
| Sample Date: | 07/22/2021 | 07/22/2021 | 07/22/2021 | 07/22/2021 | 07/22/2021 | 07/22/2021 | 07/22/2021 | 07/22/2021 | 07/22/2021 | 07/22/2021 | | | | | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | <0.00496 | <0.0356 | <0.00407 | <0.00434 | <0.00454 | <0.00488 | <0.00478 | <0.00346 | <0.00457 | <0.00446 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,1,2-Trichlorotrifluoroethane | <0.00496 | <0.0356 | <0.00407 | <0.00434 | <0.00454 | <0.00488 | <0.00478 | <0.00346 | <0.00457 | <0.00446 | -- | 400000 | 800000 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Tetrachloroethene | <0.00496 | <0.0356 | <0.00407 | <0.00434 | <0.00454 | <0.00488 | <0.00478 | <0.00346 | <0.00457 | <0.00446 | -- | 220 | 540 | 1000 | 1800 | 50000 | -- | -- | -- | 2.8 | 6.6 | 36 |
| Toluene | <0.00993 | <0.0711 | <0.00814 | 0.00629 J | <0.00907 | <0.00977 | <0.00956 | <0.00692 | <0.00913 | <0.00891 | -- | 5800 | 12000 | 88000 | 28000 | 770000 | -- | -- | -- | -- | -- | -- |
| 1,2,3-Trichlorobenzene | <0.0249 UJ | <0.178 UJ | <0.0203 UJ | <0.0217 UJ | <0.0227 UJ | <0.0244 UJ | <0.0239 UJ | <0.0173 UJ | <0.0228 UJ | <0.0223 UJ | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,2,4-Trichlorobenzene | <0.0249 UJ | <0.178 UJ | <0.0203 UJ | <0.0217 UJ | <0.0227 UJ | <0.0244 UJ | <0.0239 UJ | <0.0173 UJ | <0.0228 UJ | <0.0223 UJ | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,1,1-Trichloroethane | <0.00496 | <0.0356 | <0.00407 | <0.00434 | <0.00454 | <0.00488 | <0.00478 | <0.00346 | <0.00457 | <0.00446 | -- | 53000 | 110000 | 870000 | 470000 | -- | -- | -- | -- | -- | -- | -- |
| 1,1,2-Trichloroethane | <0.00496 | <0.0356 | <0.00407 | <0.00434 | <0.00454 | <0.00488 | <0.00478 | <0.00346 | <0.00457 | <0.00446 | -- | 3.2 | 6.3 | 26 | 54 | 1500 | 5.6 | 6.7 | 24 | 0.32 | 0.38 | 4.2 |
| Trichloroethene | <0.00199 | <0.0142 | <0.00163 | <0.00174 | <0.00181 | <0.00195 | <0.00191 | <0.00138 | <0.00183 | <0.00178 | -- | 6.7 | 17 | 51 | 130 | 3700 | 15 | 33 | 96 | 0.12 | 0.26 | 2.3 |
| Trichlorofluoromethane | <0.00496 UJ | <0.0356 UJ | <0.00407 UJ | <0.00434 UJ | <0.00454 UJ | <0.00488 UJ | <0.00478 UJ | <0.00346 UJ | <0.00457 UJ | <0.00446 UJ | -- | 7600 | 15000 | 130000 | 69000 | -- | -- | -- | -- | 190 | 190 | -- |
| 1,2,3-Trichloropropane | <0.0249 | <0.178 | <0.0203 | <0.0217 | <0.0227 | <0.0244 | <0.0239 | <0.0173 | <0.0228 | <0.0223 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,2,4-Trimethylbenzene | <0.00993 | <0.0711 | <0.00814 | <0.00869 | <0.00907 | <0.00977 | <0.00956 | <0.00692 | <0.00913 | <0.00891 | -- | 430 | 860 | 6900 | 2900 | 81000 | -- | -- | -- | 140 | 140 | -- |
| 1,2,3-Trimethylbenzene | <0.00993 | <0.0711 | <0.00814 | 0.0542 | <0.00907 | <0.00977 | <0.00956 | <0.00692 | <0.00913 | <0.00891 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,3,5-Trimethylbenzene | <0.00993 | <0.0711 | <0.00814 | <0.00869 | <0.00907 | <0.00977 | <0.00956 | <0.00692 | <0.00913 | <0.00891 | -- | 430 | 860 | 6900 | 2900 | 81000 | -- | -- | -- | 98 | 98 | -- |
| Vinyl Chloride | <0.00496 UJ | <0.0356 UJ | <0.00407 UJ | <0.00434 UJ | <0.00454 UJ | <0.00488 UJ | <0.00478 UJ | <0.00346 UJ | <0.00457 UJ | <0.00446 UJ | -- | 0.36 | 0.8 | 4.4 | 34 | 950 | 5.3 | 6.5 | 89 | 0.043 | 0.053 | 2.2 |
| Xylenes, Total | <0.0129 | <0.0924 | <0.0106 | 0.0308 | <0.0118 | 0.00192 J | <0.0124 | <0.00899 | <0.0119 | <0.0116 | -- | 1400 | 2900 | 25000 | 20000 | 560000 | -- | -- | -- | 160 | 160 | -- |

*Notes:*

1. mg/kg = Milligrams per kilogram.
2. feet bgs = Feet below ground surface.
3. DEQ RBCs = Oregon Department of Environmental Quality's Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, revised May 2018.
4. Bold values indicate concentration detected above the method detection limit.
5. Shaded values indicate concentrations detected above one or more applicable RBC.
6. < = Concentration was not detected above the shown minimum reporting limit.
7. -- = Not analyzed or not available.
8. J = Result is an estimated value.
9. UJ = The result is not detected but the reporting limit is estimated.

Table 2
Groundwater Analytical Results
Carol Glover BP
Yamhill, Oregon

| | | DEQ Risk-Based Concentrations | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample ID: | SB-6 | Volatilization to Outdoor Air | | | Vapor Intrusion into Buildings | | | |
| Sample Date: | 7/22/2021 | Residential | Urban Residential | Occupational | Residential | Urban Residential | Occupational | Construction and Excavation Worker |
| *Total Petroleum Hydrocarbons (TPH) by NWTPH-Gx and NWTPH-Dx in µg/L* | | | | | | | | |
| Gasoline Range Organics | <100 | -- | -- | -- | 22000 | 22000 | -- | 14000 |
| *Total Metals by EPA Method 6020B in µg/L* | | | | | | | | |
| Lead | 53.8 | -- | -- | -- | -- | -- | -- | -- |
| *Volatile Organic Compounds (VOCs) by EPA Method 8260D in µg/L* | | | | | | | | |
| Acetone | <100 UJ | -- | -- | -- | -- | -- | -- | -- |
| Acrolein | <100 UJ | -- | -- | -- | -- | -- | -- | -- |
| Acrylonitrile | <20.0 | 2200 | 5300 | 9800 | 700 | 1700 | 9200 | 250 |
| Benzene | <2.00 | 3100 | 7400 | 14000 | 210 | 510 | 2800 | 1800 |
| Bromobenzene | <2.00 | -- | -- | -- | -- | -- | -- | -- |
| Bromodichloromethane | <2.00 | 1400 | 3200 | 6000 | 180 | 420 | 2300 | 450 |
| Bromoform | <2.00 | 130000 | 300000 | 550000 | 36000 | 85000 | 470000 | 14000 |
| Bromomethane | <10.0 | 32000 | 32000 | 130000 | 2100 | 2100 | 27000 | 1200 |
| n-Butylbenzene | <2.00 | -- | -- | -- | -- | -- | -- | -- |
| sec-Butylbenzene | <2.00 | -- | -- | -- | -- | -- | -- | -- |
| tert-Butylbenzene | <2.00 | -- | -- | -- | -- | -- | -- | -- |
| Carbon Disulfide | <2.00 | -- | -- | -- | -- | -- | -- | -- |
| Carbon Tetrachloride | <2.00 | 1800 | 4200 | 7700 | 92 | 220 | 1200 | 1800 |
| Chlorobenzene | <2.00 | -- | -- | -- | 67000 | 67000 | -- | 10000 |
| Chlorodibromomethane | <2.00 | 3900 | 9300 | 17000 | 980 | 2300 | 13000 | 610 |
| Chloroethane | <10.0 | -- | -- | -- | 2800000 | 2800000 | -- | 2400000 |
| Chloroform | <10.0 | 1400 | 3400 | 6300 | 120 | 290 | 1600 | 720 |
| Chloromethane | <5.00 UJ | 440000 | 440000 | 1800000 | 26000 | 26000 | 330000 | 22000 |
| 2-Chlorotoluene | <2.00 | -- | -- | -- | -- | -- | -- | -- |
| 4-Chlorotoluene | <2.00 | -- | -- | -- | -- | -- | -- | -- |
| 1,2-Dibromo-3-Chloropropane | <10.0 | -- | -- | -- | -- | -- | -- | -- |
| 1,2-Dibromoethane | <2.00 | 180 | 430 | 790 | 45 | 110 | 590 | 27 |
| Dibromomethane | <2.00 | -- | -- | -- | -- | -- | -- | -- |
| 1,2-Dichlorobenzene | <2.00 | -- | -- | -- | -- | -- | -- | 37000 |
| 1,3-Dichlorobenzene | <2.00 | -- | -- | -- | -- | -- | -- | -- |
| 1,4-Dichlorobenzene | <2.00 | 4900 | 12000 | 21000 | 540 | 1300 | 7100 | 1500 |
| Dichlorodifluoromethane | <10.0 | -- | -- | -- | -- | -- | -- | -- |
| 1,1-Dichloroethane | <2.00 | 16000 | 37000 | 68000 | 1100 | 2600 | 14000 | 10000 |
| 1,2-Dichloroethane | <2.00 | 2100 | 4900 | 9000 | 300 | 700 | 3900 | 630 |
| 1,1-Dichloroethene | <2.00 | 570000 | 570000 | 2400000 | 29000 | 29000 | 360000 | 44000 |
| cis-1,2-Dichloroethene | <2.00 | -- | -- | -- | -- | -- | -- | 18000 |
| trans-1,2-Dichloroethene | <2.00 | -- | -- | -- | -- | -- | -- | 180000 |
| 1,2-Dichloropropane | <2.00 | -- | -- | -- | -- | -- | -- | -- |
| 1,1-Dichloropropene | <2.00 | -- | -- | -- | -- | -- | -- | -- |
| 1,3-Dichloropropane | <2.00 | -- | -- | -- | -- | -- | -- | -- |
| cis-1,3-Dichloropropene | <2.00 | -- | -- | -- | -- | -- | -- | -- |
| trans-1,3-Dichloropropene | <2.00 | -- | -- | -- | -- | -- | -- | -- |
| 2,2-Dichloropropane | <2.00 | -- | -- | -- | -- | -- | -- | -- |
| di-Isopropyl Ether | <2.00 | -- | -- | -- | -- | -- | -- | -- |
| Ethylbenzene | <2.00 | 9900 | 23000 | 43000 | 620 | 1500 | 8200 | 4500 |
| Hexachloro-1,3-Butadiene | <2.00 | -- | -- | -- | -- | -- | -- | -- |
| Isopropylbenzene | <2.00 | -- | -- | -- | -- | -- | -- | 51000 |
| P-Isopropyltoluene | <2.00 | -- | -- | -- | -- | -- | -- | -- |
| 2-Butanone (MEK) | <20.0 | -- | -- | -- | -- | -- | -- | -- |
| Methylene Chloride | <10.0 | 1000000 | 2000000 | 13000000 | 90000 | 160000 | 3300000 | 79000 |
| 4-Methyl-2-Pentanone (MIBK) | <20.0 | -- | -- | -- | -- | -- | -- | -- |
| Methyl tert-Butyl Ether | <2.00 | 350000 | 830000 | 1500000 | 67000 | 160000 | 870000 | 63000 |
| Naphthalene | <10.0 | 3600 | 8500 | 16000 | 840 | 2000 | 11000 | 500 |
| n-Propylbenzene | <2.00 | -- | -- | -- | -- | -- | -- | -- |
| Styrene | <2.00 | -- | -- | -- | -- | -- | -- | 170000 |
| 1,1,1,2-Tetrachloroethane | <2.00 | -- | -- | -- | -- | -- | -- | -- |

*Please see notes at end of table.*

Table 2
Groundwater Analytical Results
Carol Glover BP
Yamhill, Oregon

| | | | DEQ Risk-Based Concentrations | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | SB-6 | | Volatilization to Outdoor Air | | | Vapor Intrusion into Buildings | | | |
| Sample Date: | 7/22/2021 | | Residential | Urban Residential | Occupational | Residential | Urban Residential | Occupational | Construction and Excavation Worker |
| *Total Petroleum Hydrocarbons (TPH) by NWTPH-Gx and NWTPH-Dx in µg/L* | | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | <2.00 | | -- | -- | -- | -- | -- | -- | -- |
| 1,1,2-Trichlorotrifluoroethane | <2.00 | | -- | -- | -- | -- | -- | -- | -- |
| Tetrachloroethene | <2.00 | | 64000 | 150000 | -- | 3700 | 8700 | 48000 | 5600 |
| Toluene | <2.00 | | -- | -- | -- | -- | -- | -- | 220000 |
| 1,2,3-Trichlorobenzene | <2.00 | UJ | -- | -- | -- | -- | -- | -- | -- |
| 1,2,4-Trichlorobenzene | <2.00 | UJ | -- | -- | -- | -- | -- | -- | -- |
| 1,1,1-Trichloroethane | <2.00 | | -- | -- | -- | -- | -- | -- | 1100000 |
| 1,1,2-Trichloroethane | <2.00 | | 4700 | 5600 | 21000 | 870 | 1000 | 11000 | 49 |
| Trichloroethene | <2.00 | | 3300 | 6900 | 20000 | 200 | 430 | 3700 | 430 |
| Trichlorofluoromethane | <10.0 | UJ | 780000 | 780000 | -- | 36000 | 36000 | 460000 | 160000 |
| 1,2,3-Trichloropropane | <5.00 | | -- | -- | -- | -- | -- | -- | -- |
| 1,2,4-Trimethylbenzene | <2.00 | | -- | -- | -- | 50000 | 50000 | -- | 6300 |
| 1,2,3-Trimethylbenzene | <2.00 | | -- | -- | -- | -- | -- | -- | -- |
| 1,3,5-Trimethylbenzene | <2.00 | | -- | -- | -- | 36000 | 36000 | -- | 7500 |
| Vinyl Chloride | <2.00 | UJ | 350 | 430 | 5900 | 17 | 21 | 880 | 960 |
| Xylenes, Total | <6.00 | | -- | -- | -- | 86000 | 86000 | -- | 23000 |

*Notes:*

1. µg/L = Micrograms per liter.
2. DEQ Risk-Based Concentrations from Oregon Department of Environmental Quality's *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites* , revised May 2018.
3. Bold values indicate concentration detected above the method detection limit.
4. Shaded values indicate concentrations detected above one or more applicable RBC.
5. < = Concentration was not detected above the shown minimum reporting limit.
6. -- = Not analyzed or not available.
7. UJ = The result is not detected but the reporting limit is estimated.

Table 3
ABCA Screening and Evaluation of Technologies for Soil
Former Carol Glover BP
Yamhill, Oregon

| General Response Actions | Technology | Description | Screening Criteria | | | Screening Comments |
|---|---|---|---|---|---|---|
| | | | Effectiveness | Implementability | Cost | |
| NO ACTION | None | No Action | Not effective in achieving RAOs. | Easy to implement. | No capital or O&M costs incurred. | Not effective. |
| INSTITUTIONAL CONTROLS | Deed Restrictions/ Soil Management Plan | Can prevent disturbance of engineering controls, address notification of site hazards, and ensure proper controls are implemented during future site activities. | Effective at regulating human health direct contact on-site. Requires adherence to restrictions. | Easy to implement on-site, but difficult to enforce and maintain due to remote nature of site and lack of supervision. | Low costs associated with implementing soil management plan. | May be effective to preclude other site uses or disturbance of contaminated soil. Soil management plan may be appropriate for potential future on-site construction activities. |
| | Monitoring | Laboratory analysis of soil samples. | Effective for documenting site conditions to evaluate current and potential future site risks. Does not affect potential contaminant exposures. | Easy to implement for shallow soil. | Low to moderate costs for monitoring. | Applicable to document site conditions and effectiveness of any treatment. |
| ENGINEERING CONTROLS | Access Restrictions | Use of fencing or other controls to limit access to soil contamination. | Effective at preventing human health direct contact, but does not affect contaminant mass or concentration. | Reasonable to implement at Site, but not efficient given scattered small areas of contaminated soil. Difficult to enforce and maintain due to remote nature of site and lack of supervision. | Low to moderate costs associated with implementing controls. Will likely require regular maintenance of control structures. | May be applicable for specific conditions for limiting access to contaminated soil not addressed by other technologies. |
| | Control of Building HVAC System | Use HVAC system to maintain positive pressure in buildings for the purpose of reducing vapor intrusion. | Is suitable only for volatile contamination beneath buildings. Would not be effective for contaminants encountered at the Site. | Removal of site structures precludes implementation for current use. Could be implemented for potential future use. | Generally moderate capital and O&M costs for installing new HVAC equipment, if needed. | Not applicable to site contaminants or current conditions. |
| | Vapor Barriers | Installation of low-permeability barriers beneath structures to prevent vapor intrusion. | Is suitable for volatile contamination beneath buildings. | Could be implemented for potential future use. | Moderate cost for surface application. | Applicable for future site redevelopment. |
| | Sub-Slab Depressurization or Sub-Floor Venting | Installation of sub-slab venting systems or suction pits to create negative pressures beneath structures to prevent vapor migration to ambient air. Vapors are collected in the suction pit or venting pipes below the building and vented to the outside of the building, either passively or with fans. | Is suitable only for volatile contamination beneath buildings. Would not be effective at the Site. | Removal of site structures precludes implementation for current use. Could be implemented for potential future use. | Generally low to moderate costs for installing vent fans beneath new structures. | Not applicable to site contaminants or current conditions. |
| CONTAINMENT | Capping | Installation of cap (e.g., soil, asphalt, impermeable liner) over impacted soils. | Effective at preventing direct contact to contaminated soils. Low-permeability caps can reduce rainwater infiltration thereby reducing the potential for contaminants leaching from soil. May not control exposure to burrowing animals, but armored caps would minimize potential for disturbance. | Reasonably easy to implement at Site. Periodic inspection and maintenance of cap would be required. Scattered nature of shallow soil contamination could be addressed with multiple small caps; this would constitute a barrier to redevelopment. | Moderate costs to install new cap(s). Low to moderate costs for upkeep and maintenance of cap(s). | No applicable due to distribution of contaminants. |
| REMOVAL/OFF-SITE DISPOSAL | Excavation | Excavate contaminated soils with off-site disposal. | Effective for removing contaminated soil from site. Addresses direct exposure pathways for human health and ecological exposures by removing contaminant concentrations and mass from the Site. | Implementation involves conventional construction equipment and methods. Easy to coordinate with removal of site structures. | Low to moderate costs for excavation of shall soil. Will be less efficient with scattered small areas of contamination. | Applicable to shallow soil contamination. |
| | Off-site Disposal | Off-site disposal at licensed landfill. Soils would require characterization to determine type of disposal facility (hazardous or non-hazardous). | Effective for containing contaminated soils and reducing risks associated with direct exposure. | Implementation involves transportation of contaminated soils on public roads for potentially long distances. | Moderate to high costs depending upon soil volumes. | Applicable to excavated soil. |

*Please refer to note at end of table.*

Table 3
ABCA Screening and Evaluation of Technologies for Soil
Former Carol Glover BP
Yamhill, Oregon

| General Response Actions | Technology | Description | Screening Criteria | | | Screening Comments |
|---|---|---|---|---|---|---|
| | | | Effectiveness | Implementability | Cost | |
| *IN SITU* PHYSICAL/ CHEMICAL/ THERMAL TREATMENT | Soil Vapor Extraction (SVE) | SVE involves extraction of vapors from vadose zone using system of vertical wells or horizontal vents and vacuum pumps/blowers. | Highly effective at removing volatile organic compounds (VOCs) from unsaturated soils and controlling vapor migration. | Conventional technologies available for implementation. | Generally moderate to high capital and O&M costs. Treatment of vapors increases costs significantly. | Retained for comparison. |
| | Electrokinetic Separation | Application of a low-intensity direct current through the soil between electrodes that are divided into a cathode array and an anode array. This mobilizes charged species, causing ions and water to move toward the electrodes. | Effective for removing inorganic ions and polar organics from saturated soil. Most effective in low permeability soils (particularly clays). | Would require saturation of shallow soils (not practical at the Site). | High implementation cost. | Not suitable to site conditions (including soil type). |
| | Fracturing | Development of cracks in low permeability or overconsolidated soils to create passageways that increase the effectiveness of other in-situ processes and extraction technologies. | Only effective in conjunction with other technologies (e.g., vapor extraction) in deep fine-grained or consolidated soils. Not effective with shallow soil. | Specialized equipment and personnel needed to safely implement. | Moderate implementation cost. | Not suitable to site conditions (including soil type). |
| | Chemical Oxidation | Chemically converts hazardous contaminants to less toxic compounds. Effective in destroying organic contaminants and oxidizing inorganic contaminants to less toxic/less mobile forms. Can include oxidant chemicals such as peroxides, permanganates, or ozone. | Can be highly effective at destruction of organic contaminants. Can be difficult to achieve full coverage (contact between oxidant and COIs), particularly in shallow unsaturated soils. | Equipment and vendors are readily available. Oxidation most efficient for areas of high concentration. Would likely require multiple applications. | High to Very High implementation cost. | Potentially applicable to site contaminants; however, would be difficult to safely implement for scattered areas of shallow soil, and costs would be very high. Likely would require multiple oxidation events. Retained for comparison purposes. |
| | Soil Flushing | Water (or water containing an additive to enhance contaminant solubility) is circulated through the soil to desorb contaminants, recovered, and treated. Single-well implementation can involve injection followed by removal (such as via vacuum truck). | Less effective for organic contaminants and would require water extraction/treatment operation. | Difficult to implement for scattered areas of shallow soil. Extracted water would require treatment and disposal. | High implementation cost. | Not suitable for site conditions (shallow unsaturated soil contamination). |
| | Solidification/ Stabilization/ Vitrification | Contaminants are physically bound or enclosed within a stabilized mass (solidification and vitrification), or chemical reactions are induced between the stabilizing agent and contaminants to reduce their mobility (stabilization). | Most suitable to inorganic contaminants to prevent leaching. | Coverage of impacted depth of vadose zone would be difficult and expensive. | High implementation cost. | Less suitable to site contaminants and difficult to implement with site conditions. Would be better suited to protect groundwater, if needed. |
| | Thermally Enhanced Removal | High energy injection (steam/hot air, electrical resistance, electromagnetic, fiber optic, radio frequency) is used to increase the recovery rate of semi-volatile or non-volatile compounds to facilitate extraction (enhanced volatilization or decreased viscosity). | Most suitable to semi-volatile organic contaminants or viscous compounds that are not otherwise extractable with vapor extraction or fluid extraction technologies. | Generally used in conjunction with soil vapor extraction system or other recovery system (i.e., groundwater extraction). Has high energy requirements. | High implementation cost. | Difficult to implement for scattered shallow unsaturated soil contamination. No benefit to the high additional cost. |
| *IN SITU* BIOLOGICAL TREATMENT | Bioventing | Bioventing involves inducing air or oxygen flow in the unsaturated zone to promote biodegradation of hydrocarbons and VOCs. Applications include injection of air or oxygen into subsurface, or extraction of air at rates lower than SVE. | Effective in reducing contaminant concentrations in deeper unsaturated soils. Not suitable for site conditions. | Not suitable to address shallow soil. | Generally has moderate capital and O&M costs. | Not suitable for site conditions (shallow unsaturated soil contamination). |

*Please refer to note at end of table.*

Table 3
ABCA Screening and Evaluation of Technologies for Soil
Former Carol Glover BP
Yamhill, Oregon

| General Response Actions | Technology | Description | Screening Criteria | | | Screening Comments |
|---|---|---|---|---|---|---|
| | | | Effectiveness | Implementability | Cost | |
| *IN SITU* BIOLOGICAL TREATMENT - CONTINUED | Enhanced Bioremediation (Bioaugmentation, Biostimulation) | Adding nutrients, electron acceptor, or other amendments to enhance bioremediation. | Effective for saturated soils with addition of suitable amendments. Would require saturation of shallow soil to be effective. | To be efficient as a standalone technology would require saturation of vadose soil, which would not be practical at the Site. | Generally low to moderate costs depending on number of injection events required. | Not practical for unsaturated soil. |
| | Land Treatment | Combination of aeration (tilling) and amendments to enhance bioremediation in surface soils. | Effective for organic contaminants in shallow soil that can be degraded aerobically. Less effective for heavy organics encountered at the Site. | Reasonable implemenation in shallow soil using readily available equipment. Would require frequent trips to the remote site. Heavy-chain organics would degrade slowly. | Low to moderate implementation cost for shallow soils. | Impractical to implement at remote site for types of contamination found in shallow soil. |
| | Monitored Natural Attenuation | Using natural processes to reduce contaminant concentrations to acceptable levels. Process is closely monitored to verify exposures are acceptable prior to concentrations reaching acceptable levels. | May be effective, especially in areas of low concentrations, but is dependant upon site conditions. Not efficient for source areas; other technologies will likely be required. | Easy to implement. Monitoring of unsaturated soil may require repeated intrusive sampling events. Likely will require significant timeframe to reach cleanup goals. | Low costs for monitoring. | May be applicable to address residual low-concentration organic contamination not efficiently addressed by active remediation. |
| | Phytoremediation | Phytoremediation is a process that uses plants to remove, transfer, stabilize, and destroy contaminants in soil or sediment. | Can be effective at removing a variety of organic and inorganic compounds from soil through plant uptake in vicinity of roots (rhizosphere). | Can be implemented for shallow soil contamination but would likely require irrigation; difficult to maintain in remote semi-arid site conditions. Would require frequent maintenance of plants until established. Would likely not be compatible with potential future site uses. | Moderate implementation cost. | Difficult to establish with site conditions and unlikely to be compatible with potential future site uses. |
| *EX SITU* PHYSICAL/ CHEMICAL/ THERMAL TREATMENT | Chemical Extraction | Excavated soil is mixed with an extractant which dissolves the contaminants. The resultant solution is placed in a separator to remove the contaminant/extractant mixture for treatment. | Most suitable to removal of semi-volatile and inorganic contamination from excavated soil. | Can be effective in removing most organic contaminants from soil. Difficult to remove all contaminant/extractant mixture from soil - would likely require finish treatment. Requires area for soil treatment or transport to off-site facility. Extractant fluid would need subsequent treatment process or disposal. | High to very high implementation cost. | Additional treatment would be required for both soil and recovered extractant. Not cost effective for types of contamination and volume of excavated soil. |
| | Dehalogenation | Reagents are added to soils contaminated with halogenated organics to remove halogen molecules. | Effective at detoxifying halogenated organic compounds in excavated soil. Not suitable to Site contaminants. | Requires area for soil treatment or transport to off-site facility. Risks associated with handling of reagents. Not effective for site contaminants. | Moderate to high implementation cost. | Not suitable for site contaminants. |
| | Incineration | High temperatures are used to combust (in the presence of oxygen) organic constituents in hazardous wastes. | Effective at removing organic contaminants from excavated soil. | Requires transport to off-site facility (long-distance transport). | High implementation cost. | Significant cost for transportation and treatment and not cost effective for types of contamination (no benefit of significantly higher cost over disposal alternative) |
| | Soil Washing | Contaminants are separated from the excavated soil with wash-water augmented with additives to help remove organics. | Most suitable for semi-volatile organics or inorganic contamination. | Requires area for soil treatment or transport to off-site facility. Resultant fluid would need subsequent treatment process or disposal. | Moderate to high implementation cost. | Additional treatment would be required for recovered extractant. Not cost effective for types of contamination and volume of excavated soil. |

*Please refer to note at end of table.*

Table 3
ABCA Screening and Evaluation of Technologies for Soil
Former Carol Glover BP
Yamhill, Oregon

| General Response Actions | Technology | Description | Screening Criteria | | | Screening Comments |
|---|---|---|---|---|---|---|
| | | | Effectiveness | Implementability | Cost | |
| | Solar Detoxification | Contaminants are destroyed by photochemical and thermal reactions using ultraviolet energy in sunlight or artificial UV light. Usually involves application of catalyst agent. | Can be effective at treating a variety of organic compounds. Most effective when used with catalyst agent (e.g., titanium dioxide). | Implementation with sunlight limited by availability (not effective during nighttime and limited effectiveness in cloudy/wet seasons). Requires significant area for treatment or transport to off-site facility. Existing shallow soil has had long-term exposure to sunlight without sufficient improvement. | Moderate to high implementation cost. | Would require significant processing and management of soil during treatment. No commercial treatment facility available. |
| | Thermal Desorption/ Pyrolysis/ Hot Gas Decontamination | Waste soils are heated to either volatilize (desorption and hot gas) or to anaerobically decompose (pyrolysis) organic contaminants.<br>Off-gas is collected and treated. | Effective at removing organic materials from excavated soil (particularly volatile organics). Pyrolysis generally used for semi-volatiles or pesticide wastes. | Requires transport to off-site treatment facility. Treatment of chlorinated hydrocarbons difficult (may generate acid in off-gas). Off-gas treatment required. | Moderate to high implementation cost. | Significant cost for transportation and treatment and not cost effective for types of contamination (no benefit of significantly higher cost over disposal alternative) |
| *EX SITU* PHYSICAL/ CHEMICAL/ THERMAL TREATMENT - CONTINUED | Separation | Separation techniques concentrate contaminated solids through physical, magnetic, and/or chemical means. These processes remove solid-phase contaminants from the soil matrix. | Effective only for removal of solids with distinct physical characteristics (size, density, composition, etc). | Commercial equipment available for separation by size (sieving) or for removing iron (magnetic removal). | Low to moderate cost. | Not compatible with site contaminants. |
| | Vapor Phase Oxidation | Chemicals in the vapor stream are oxidized in the presence of elevated temperatures (thermal oxidation), or with the addition of a catalyst (catalytic oxidation). | Effective at removal of organics from a vapor stream. | Commercial equipment available for vapor phase oxidation. Requires energy source (electric or flammable gas). | Moderate capital cost; low to moderate O&M costs. | Not applicable without vapor extraction technology. |
| | Vapor Phase Adsorption | Concentrating solutes on the surface of a sorbent material, such as activated carbon, to remove the solute from a vapor stream. | Highly effective at removing many organic compounds from vapor stream. | Treatment equipment is readily available. Media requires periodic replacement as adsorption sites are used up. | Moderate capital and O&M costs. | Not applicable without vapor extraction technology. |
| *EX SITU* BIOLOGICAL TREATMENT | Biopiles | Excavated soils are mixed with soil amendments and placed in aboveground enclosures and aerated with blowers or vacuum pumps. | Effective for removal of organic contaminants from excavated soil. Most effective with control of moisture, heat, nutrients, oxygen, and pH to enhance biodegradation | Requires area for soil treatment or transport to off-site facility. May generate leachate that would need to be collected and managed. | Moderate to high cost. | Would require significant management of soil and leachate at remote site. |
| | Composting | Excavated soil is mixed with bulking agents and organic amendments to promote microbial activity. | Effective for removal of organic contaminants from excavated soil. Most effective with control of moisture, heat, nutrients, oxygen, and pH to enhance biodegradation | Requires area for soil treatment or transport to off-site facility. May generate leachate that would need to be collected and managed. | Low to moderate cost. | Would require significant management of soil and leachate at remote site. |
| | Landfarming | Excavated soil is placed in lined beds and periodically tilled to aerate the soil. | Effective at removing organic contaminants from excavated soil. | Would require frequent trips to the remote site. Heavy-chain organics would degrade slowly. | Low to moderate implementation cost for shallow soils. | Impractical to implement at remote site for types of contamination found in shallow soil. |
| | Slurry Phase Biological Treatment | An aqueous slurry of soil, sediment, or sludge with water and other additives is mixed to keep solids suspended and microorganisms in contact with the soil contaminants. When complete, the slurry is dewatered and the soil is disposed of. | Can be effective at treating a variety of organic compounds. | Requires area for soil treatment or transport to off-site facility. Slurry dewatering generates water that requires treatment or disposal. | Moderate to high implementation cost. | Handling of slurry and wastewater is complicated and expensive; would require significant on-site management of soil during long-term treatment process. |

*Note:*
1) Shading indicates technologies that have been eliminated from consideration.

Table 4
Cost Estimate - Alternative 1
Carole Glover Analysis of Brownfield Alternatives

*Impacted Soil - Alternative 1: UST Decommissioning by Removal and Excavation / Removal of PCS*

| Item Description | Quantity | Unit | Unit Cost | Markup | Extension |
|---|---|---|---|---|---|
| Project Management | 15 | % | | | $15,000.00 |
| DEQ Oversight | 20 | % | | | $20,100.00 |
| | | | *Capital Costs Subtotal:* | | $35,000 |

| Item Description | Quantity | Unit | Unit Cost | Markup | Extension |
|---|---|---|---|---|---|
| Project review with the Oregon State Office of Historic Preservation | 1 | est | $4,500 | | $4,500 |
| Impacted Soil Survey and Marking | 1 | days | $500 | | $500 |
| Excavation Removal and Disposal | 110 | cubic yards | $100 | | $11,000 |
| Specialty Demolition Subcontractor - Wood structure demolition | 1 | est | $20,000 | | $15,000 |
| Specialty Subcontractor - UST and Vehicle Hoist Decommissioning By Removal | 1 | est | $55,000 | | $55,000 |
| Confirmation Sampling After Removal of UST System and Vehicle Hoist | 1 | est | $2,500 | | $2,500 |
| Travel Expenses | 3 | trip | $397 | | $1,190 |
| Per-Diem | 5 | days | $140 | | $700 |
| Labor/Oversight | 5 | days | $1,500 | | $7,500 |
| Completion Report | 1 | each | $2,500 | | $2,500 |
| | | | *Capital Costs Subtotal:* | | $100,390 |
| Contingency | 10 | % | | | $10,039.03 |
| | | | TOTAL ESTIMATED MPE COST: | | $145,000 |

Table 5
Cost Estimate - Alternative 2
Carole Glover Analysis of Brownfield Alternatives

*Alternative 2: UST Decommissioning In Place and Excavation / Removal of PCS in the Vicinity of the Pump Island*

| Item Description | Quantity | Unit | Unit Cost | Markup | Extension |
|---|---|---|---|---|---|
| Project Management | 15 | % | | | $17,212.54 |
| DEQ Oversight | 20 | % | | | $22,950.05 |
| | | | *Capital Costs Subtotal:* | | $40,163 |

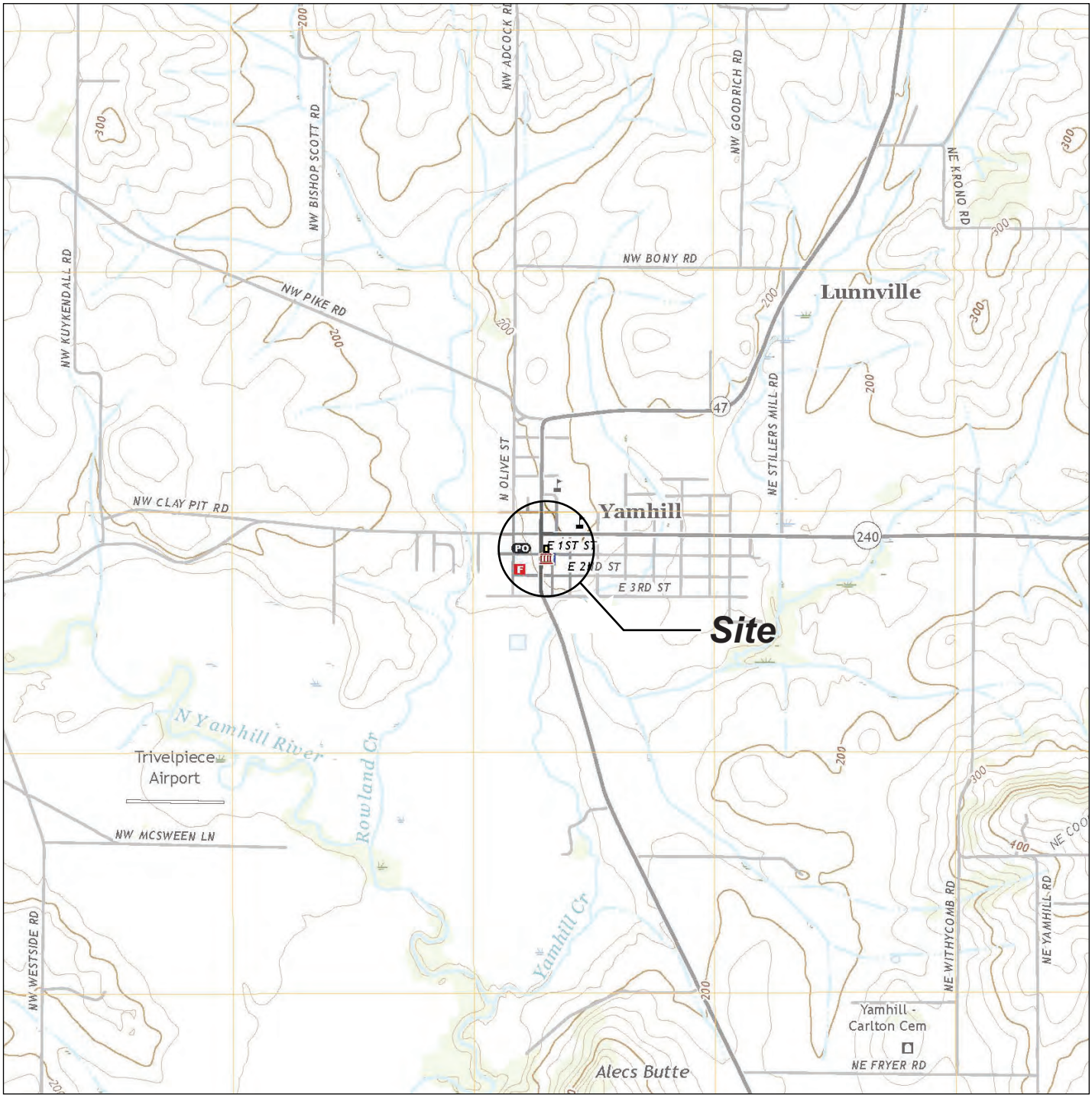
| Item Description | Quantity | Unit | Unit Cost | Markup | Extension |
|---|---|---|---|---|---|
| Project review with the Oregon State Office of Historic Preservation | 1 | est | $4,500 | | $4,500 |
| Impacted Soil Survey and Marking | 1 | days | $500 | | $500 |
| Excavation Removal and Disposal | 60 | cubic yards | $100 | | $6,000 |
| Specialty Demolition Subcontractor - Wood structure demolition | 1 | est | $20,000 | | $20,000 |
| Specialty Subcontractor - UST Decommissioning In Place | 1 | est | $25,000 | | $25,000 |
| Confirmation Sampling for Excavation Areas | 1 | est | $2,000 | | $2,000 |
| Travel Expenses | 3 | trip | $397 | | $1,190 |
| Per-Diem | 4 | days | $140 | | $560 |
| Labor/Oversight | 4 | days | $1,500 | | $6,000 |
| CMMP | 1 | est | $5,000 | | $5,000 |
| Land Use Restriction Agreement | 1 | est | $5,000 | | $5,000 |
| Long-term Care Costs | 15 | year | $1,500 | | $22,500 |
| Confirmation Sampling to Remove Restrictions | 1 | est | $10,000 | | $10,000 |
| Completion Report | 1 | each | $6,500 | | $6,500 |
| | | | *Capital Costs Subtotal:* | | $114,750 |
| Contingency | 10 | % | | | $11,475.03 |
| | | | TOTAL ESTIMATED MPE COST: | | $166,000 |

Table 6
Cost Estimate - Alternative 3
Carole Glover Analysis of Brownfield Alternatives

*Alternative 3: UST Decommissioning In Place, and In-Situ Treatment of PCS*

| Item Description | Quantity | Unit | Unit Cost | Markup | Extension |
|---|---|---|---|---|---|
| Project Management | 15 | % | | | $25,918.54 |
| DEQ Oversight | 20 | % | | | $34,558.05 |
| | | | *Capital Costs Subtotal:* | | $60,477 |

| Item Description | Quantity | Unit | Unit Cost | Markup | Extension |
|---|---|---|---|---|---|
| Project review with the Oregon State Office of Historic Preservation | 1 | est | $4,500 | | $4,500 |
| Impacted Soil Survey and Marking | 1 | days | $500 | | $500 |
| Excavation Removal and Disposal | 50 | cubic yards | $100 | | $5,000 |
| Specialty Demolition Subcontractor - Wood structure demolition | 1 | est | $20,000 | | $15,000 |
| Specialty Subcontractor - UST Decommissioning In Place | 1 | est | $15,000 | | $15,000 |
| In-Situ Treatment Work Plan (SVE) | 1 | est | $10,000 | | $10,000 |
| In-Situ Treatment Implementation | 1 | est | $35,000 | | $35,000 |
| In-Situ Treatment Reporting | 1 | est | $8,000 | | $8,000 |
| In-Situ Treatment Annual Monitoring | 5 | years | $3,500 | | $17,500 |
| Confirmation Sampling | 1 | est | $6,500 | | $6,500 |
| Travel Expenses | 3 | trip | $397 | | $1,190 |
| Per-Diem | 15 | days | $140 | | $2,100 |
| Labor/Oversight | 15 | days | $1,500 | | $22,500 |
| CMMP | 1 | est | $5,000 | | $5,000 |
| Land Use Restrictions | 1 | est | $5,000 | | $5,000 |
| Long-term Care Costs | 5 | year | $1,500 | | $7,500 |
| Confirmation Sampling to Remove Restrictions | 1 | est | $10,000 | | $10,000 |
| Completion Report | 1 | each | $2,500 | | $2,500 |
| | | | *Capital Costs Subtotal:* | | $172,790 |
| Contingency | 10 | % | | | $17,279.03 |
| | | | TOTAL ESTIMATED MPE COST: | | $251,000 |




***Note:*** Base map prepared from USGS 7.5-minute quadrangle of Carlton, OR, dated 2020 as provided by USGS.gov.



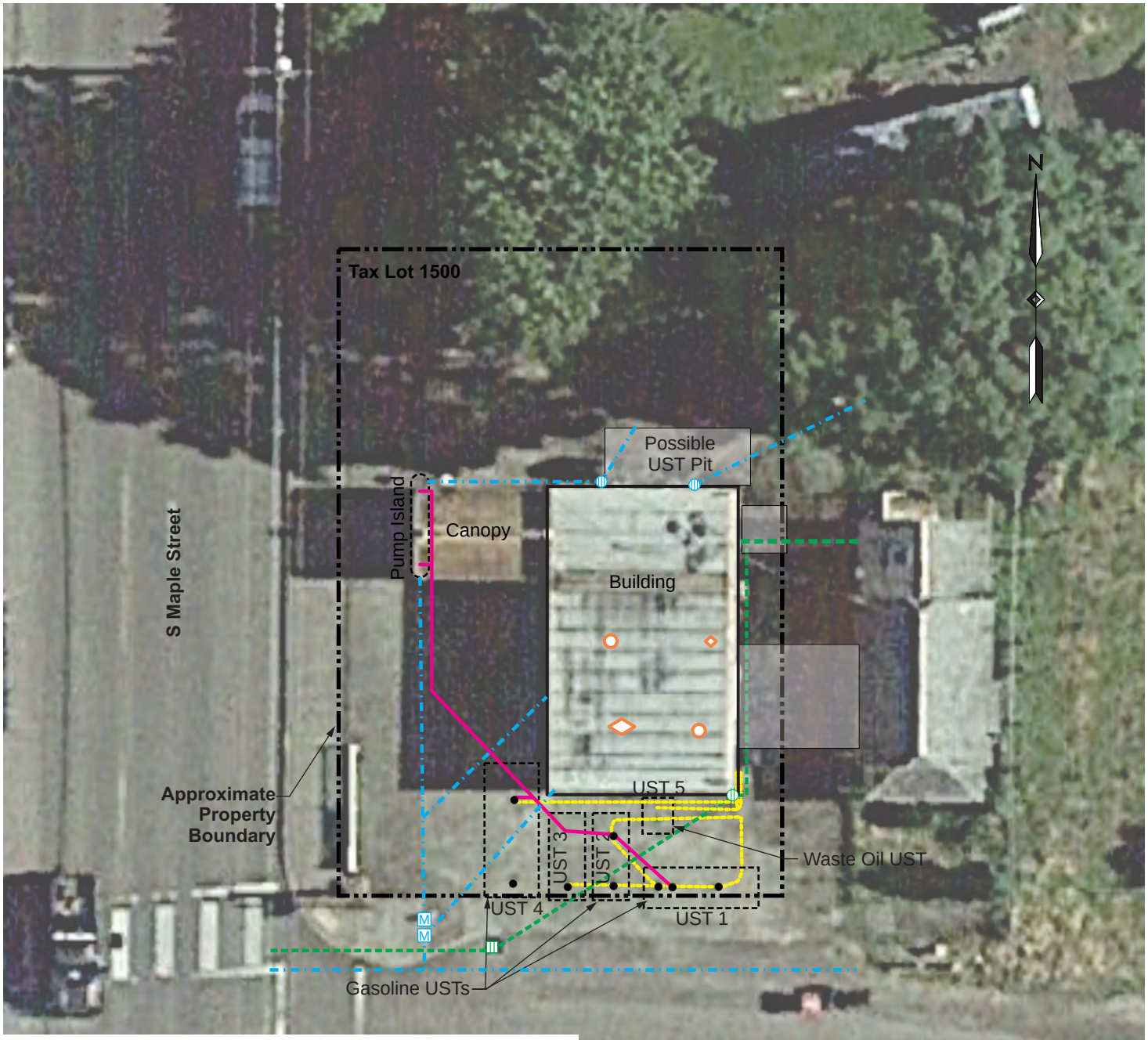
0 2,000 4,000

Approximate Scale in Feet

# Site Location Map

Site Investigation and ABCA Report
185 S. Maple Street
Yamhill, Oregon

| | | | | |
|---|---|---|---|---|
| Apex Companies, LLC<br>3015 SW First Avenue<br>Portland, Oregon 97201 | Project Number:<br>320002659-00 | Drawn:<br>JP | Approved:<br>SJ | Figure<br>1 |
| | January 2022 | | | |




**NOTE:** Base map prepared from a Yamhill County assessment map (3404ac.pdf), a Figure 1 by Jim Glass (2002), an Interpretation Map by GeoPotential, and Google Earth Pro Imagery. Aerial dated June 22, 2017. All site features, locations, and dimensions are approximate.

***Legend:***

- UST 1 — Underground Storage Tank Location
- Product Line
- Vent Lines
- Fill Port
- Auto Hoist
- Buried Vertical Pipe
- Water Line and Meter
- Stormwater Line Catch Basin
- Sewer Line Cleanout
- Sewer Line Catch Basin
- Backfilled Excavations

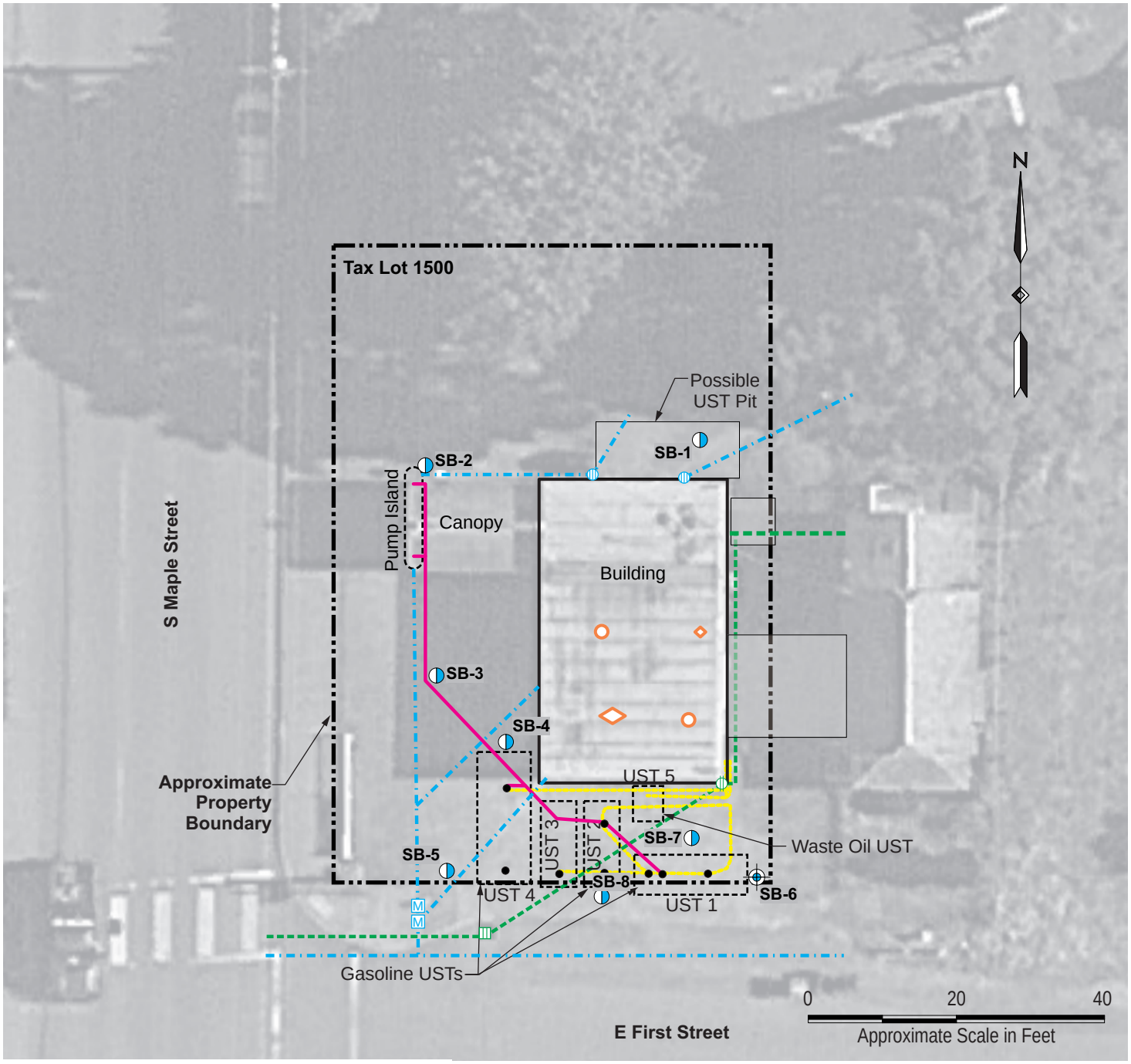
0 20 40

Approximate Scale in Feet

# Site Plan

Site Investigation and ABCA Report
185 S. Maple Street
Yamhill, Oregon

| | | | | |
|---|---|---|---|---|
| Apex Companies, LLC<br>3015 SW First Avenue<br>Portland, Oregon 97201 | Project Number:<br>320002659-00 | Drawn:<br>JP | Approved:<br>SJ | Figure<br>2 |
| | January 2022 | | | |




## Legend:

- **SB-2** Soil Boring Location
- **SB-1** Soil and Groundwater Boring Location
- UST 1 Underground Storage Tank Location
- Product Line
- Vent Lines
- Fill Port
- Auto Hoist
- Buried Vertical Pipe
- Water Line and Meter
- Stormwater Line Catch Basin
- Sewer Line Cleanout
- Sewer Line Catch Basin
- Backfilled Excavations

**NOTE:** Base map prepared from a Yamhill County assessment map (3404ac.pdf), a Figure 1 by Jim Glass (2002), an Interpretation Map by GeoPotential, and Google Earth Pro Imagery. Aerial dated June 22, 2017. All site features, locations, and dimensions are approximate.

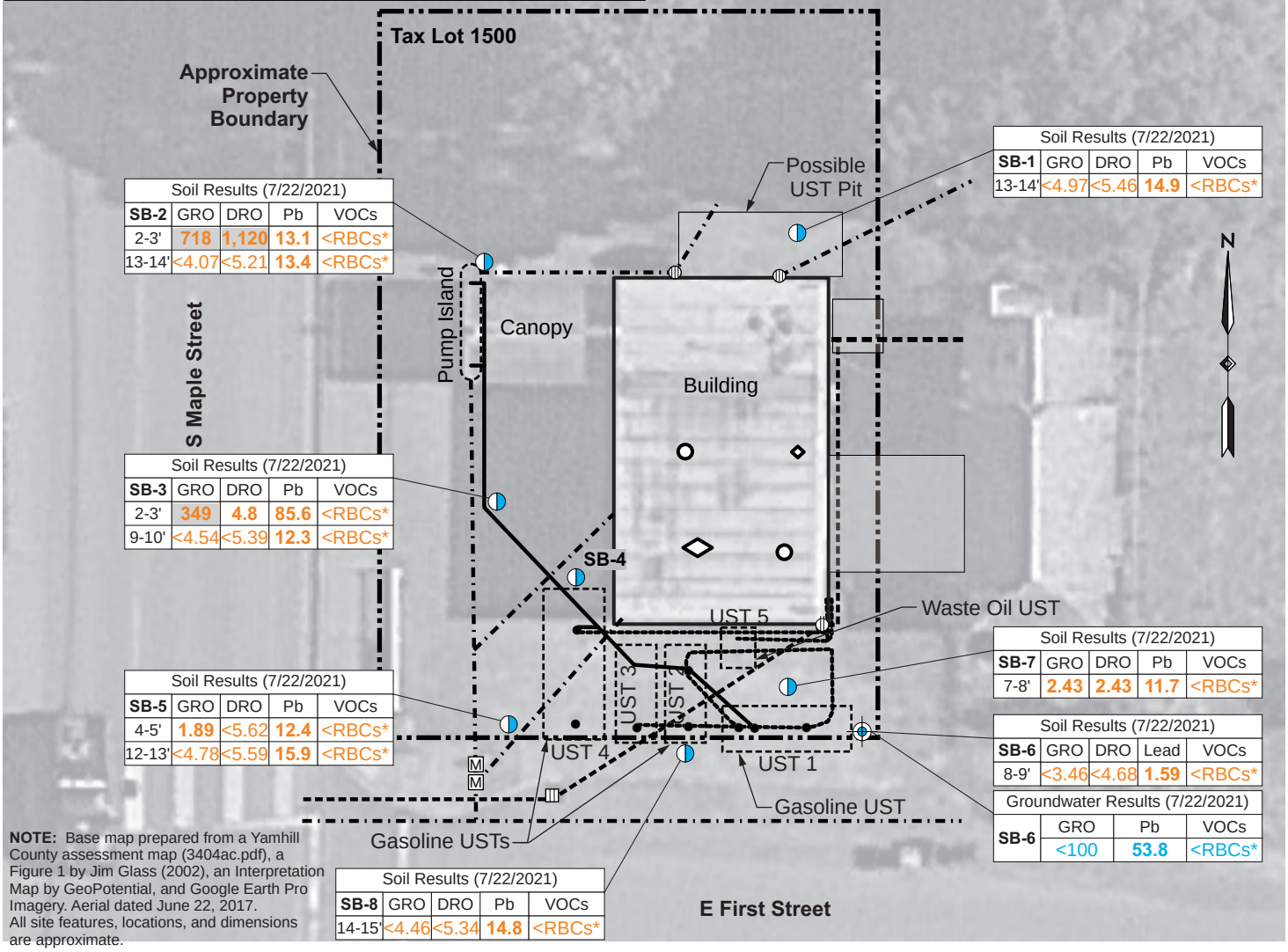
# Boring Locations

Site Investigation and ABCA Report
185 S. Maple Street
Yamhill, Oregon

| | | | | |
|---|---|---|---|---|
| APEX Apex Companies, LLC<br>3015 SW First Avenue<br>Portland, Oregon 97201 | Project Number: 320002659-00 | Drawn: JP | Approved: SJ | Figure 3 |
| | January 2022 | | | |

| Soil Cleanup Levels and Abbreviations | | Residential DEQ Risk-Based Concentrations (mg/kg) | | |
|---|---|---|---|---|
| | | Direct Contact | Soil Volatilization to Outdoor Air | Soil Vapor Intrusion into Buildings |
| GRO | Gasoline-Range Organics | **1,200** | **5,900** | **94** |
| DRO | Diesel-Range Organics | **1,100** | -- | -- |
| Pb | Lead | **400** | -- | -- |
| VOCs | Volatile Organic Compounds | None Detected Above Applicable RBCs; See Table 1 Details | | |

| Groundwater Cleanup Levels and Abbreviations | | Residential DEQ Risk-Based Concentrations (µg/L) | |
|---|---|---|---|
| | | Volatilization to Outdoor Air | Vapor Intrusion into Buildings |
| GRO | Gasoline-Range Organics | -- | **22,000** |
| Pb | Lead | -- | -- |
| VOCs | Volatile Organic Compounds | None Detected Above Applicable RBCs; See Table 2 for Details | |




**NOTE:** Base map prepared from a Yamhill County assessment map (3404ac.pdf), a Figure 1 by Jim Glass (2002), an Interpretation Map by GeoPotential, and Google Earth Pro Imagery. Aerial dated June 22, 2017. All site features, locations, and dimensions are approximate.

## *Legend:*

- SB-2 — Soil Boring Location
- SB-1 — Soil and Groundwater Boring Location
- UST 1 — Underground Storage Tank Location
- Product Line
- Vent Lines
- Fill Port
- Auto Hoist
- Buried Vertical Pipe
- M — Water Line and Meter
- Stormwater Line Catch Basin
- Sewer Line Cleanout
- Sewer Line Catch Basin
- Backfilled Excavations

0 — 20 — 40
Approximate Scale in Feet

| SB-3 | GRO |
|---|---|
| 2-3' | 349 |
| 9-10' | <4.54 |

| SB-6 | GRO |
|---|---|
| | <100 |

- Location Identification
- Analyte Sampled
- Soil Concentration in mg/kg
- Depth Below Ground Surface in Feet
- Groundwater Concentration in µg/L

**Highlight** = Concentrations detected above one or more applicable RBC.

**Bold** = Laboratory Detection

*Where detected, VOCs were less than applicable Risk-Based Concentrations (RBCs).

# Soil and Groundwater Analytical Results

Site Investigation and ABCA Report
185 S. Maple Street
Yamhill, Oregon


Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201


| Project Number: | Drawn: | Approved: | Figure |
|---|---|---|---|
| 320002659-00 | JP | SJ | 4 |

January 2022

# *Appendix A*

## Boring Logs and Field Notes

## *Sample Descriptions*

Classification of soils in this report is based on visual field and laboratory observations which include density/consistency, moisture condition, and grain size, and should not be construed to imply field nor laboratory testing unless presented herein. Visual-manual classification methods of ASTM D 2488 were used as an identification guide.

Soil descriptions consist of the following:
MAJOR CONSTITUENT with additional remarks; color, moisture, minor constituents, density/consistency.

### Density/Consistency

Soil density/consistency in borings is related primarily to the Standard Penetration Resistance. Soil density/consistency in test pits and push probe explorations is estimated based on visual observation and is presented parenthetically on test pit and push probe exploration logs.

| SAND and GRAVEL<br>Density | Standard Penetration Resistance in Blows/Foot |
|---|---|
| Very loose | 0 - 4 |
| Loose | 4 - 10 |
| Medium dense | 10 - 30 |
| Dense | 30 - 50 |
| Very dense | >50 |

| SILT or CLAY<br>Density | Standard Penetration Resistance in Blows/Foot | Approximate Shear Strength in TSF |
|---|---|---|
| Very soft | 0 - 2 | <0.125 |
| Soft | 2 - 4 | 0.125 - 0.25 |
| Medium stiff | 4 - 8 | 0.25 - 0.5 |
| Stiff | 8 - 15 | 0.5 - 1.0 |
| Very Stiff | 15 - 30 | 1.0 - 2.0 |
| Hard | >30 | >2.0 |

### Moisture

| | |
|---|---|
| Dry | Little perceptible moisture. |
| Sl. Moist | Some perceptible moisture, probably below optimum. |
| Moist | Probably near optimum moisture content. |
| Wet | Much perceptible moisture, probably above optimum. |

### Minor Constituents

| | Estimated Percentage |
|---|---|
| Not identified in description | 0 - 5 |
| Slightly (clayey, silty, etc.) | 5 - 12 |
| Clayey, silty, sandy, gravelly | 12 - 30 |
| Very (clayey, silty, etc.) | 30 - 50 |

### Sampling Symbols

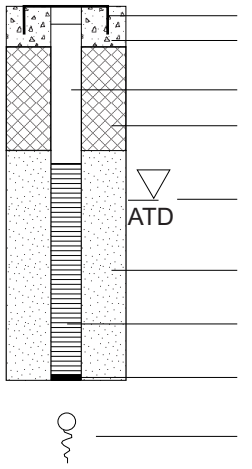
BORING AND PUSH-PROBE SYMBOLS

- Recovery
- No Recovery
- Temporarily Screened Interval
- PID — Photoionization Detector Reading
- W — Water Sample
- Sample Submitted for Chemical Analysis
- NS — No Sheen
- SS — Slight Sheen
- MS — Moderate Sheen
- HS — Heavy Sheen
- BF — Biogenic Film

TEST PIT SOIL SAMPLES

- Grab (Jar)
- Bag
- Shelby Tube

### Groundwater Observations and Monitoring Well Construction




- Flush Mounted Monument Concrete Surface Seal
- Well Casing
- Bentonite Seal
- Groundwater Level on Date or (ATD) At Time of Drilling
- Sand Pack
- Well Screen
- End Cap
- Groundwater Seepage (Test Pits)

# Key to Exploration Logs

Site Investigation and ABCA Report
185 S. Maple Street
Yamhill, Oregon


APEX
Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201


| Project Number: | Drawn: | Approved: | Figure |
|---|---|---|---|
| 320002659-00 | JP | SJ | Key |

August 2021

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Site Investigation and ABCA Report
185 S. Maple Street
Yamhill, Oregon

Boring Number: **SB-1**

Project Number: **320002659-00**
Logged By: M. Enos
Date: July 22, 2021
Site Conditions: --
Drilling Contractor: Pacific Soil + Water
Drilling Equipment: AMS PowerProbe 9500-VTR
Sampler Type: 2" Macrocore
Depth to Water (ATD): Not Encountered
Surface Elevation: ~185'

Boring Details and Notes:

| Depth, feet | Core Interval/Recovery | Laboratory Sample ID | PID | Sheen | Lithologic Description |
|---|---|---|---|---|---|
| | | | <5 | NS | SILT (ML); medium brown, slightly moist, low plasticity, medium stiff. |
| | | | <5 | NS | |
| 5 | | SB-1 (3-4) | | | |
| | | | <5 | NS | |
| | | | <5 | NS | |
| | | | | | Increase fines, moisture, plasticity. |
| 10 | | | | | |
| | | | <5 | NS | Silty CLAY (CL); light brown with orange mottling, moist, low to medium plasticity, stiff. |
| | | | <5 | NS | |
| | | SB-1 (13-14) | | | Becomes gray. |
| 15 | | | | | |
| | | | | | SILT with fine sand (ML); greenish brown/gray, dry, non plastic, medium stiff. |
| | | | | | Becomes hard and striated. |

Bottom of Boring at 20.0' BGS.

Apex Companies, LLC
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Portland, Oregon 97201

Site Investigation and ABCA Report
185 S. Maple Street
Yamhill, Oregon

Boring Number: **SB-2**

Project Number: **320002659-00**
Logged By: M. Enos
Date: July 22, 2021
Site Conditions: --
Drilling Contractor: Pacific Soil + Water
Drilling Equipment: AMS PowerProbe 9500-VTR
Sampler Type: 2" Macrocore
Depth to Water (ATD): Not Encountered
Surface Elevation: ~185'

Boring Details and Notes:

| Depth, feet | Core Interval/Recovery | Laboratory Sample ID | PID | Sheen | Lithologic Description |
|---|---|---|---|---|---|
| | | | 414 | NS | SILT (ML); grayish blue, slightly moist, low plasticity, medium stiff, heavy hydrocarbon-like odor. |
| | | SB-2 (2-3) | 399 | NS | |
| 5 | | | 95 | NS | |
| | | | 8 | NS | |
| | | | | | Increase fines, medium plasticity, less odor. |
| 10 | | | | | |
| | | | | | Becomes medium brown. |
| | | | <5 | NS | |
| | | SB-2 (13-14) | <5 | NS | |
| | | | | | Becomes stiff. |
| 15 | | | | | |
| | | | | | No recovery. Core stuck in sampler. |

Bottom of Boring at 20.0' BGS.

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Portland, Oregon 97201

Site Investigation and ABCA Report
185 S. Maple Street
Yamhill, Oregon

Boring Number: **SB-3**

Project Number: **320002659-00**
Logged By: M. Enos
Date: July 22, 2021
Site Conditions: --
Drilling Contractor: Pacific Soil + Water
Drilling Equipment: AMS PowerProbe 9500-VTR
Sampler Type: 2" Macrocore
Depth to Water (ATD): Not Encountered
Surface Elevation: ~185'

Boring Details and Notes:

| Depth, feet | Core Interval/Recovery | Laboratory Sample ID | PID | Sheen | Lithologic Description |
|---|---|---|---|---|---|
| | | | 150 | NS | SILT FILL with brick and organics. Hydrocarbon-like odor. |
| | | SB-3 (2-3) | | | Layer of brick and concrete. |
| | | | | | SILT (ML); dark gray, slightly moist, medium plasticity, medium stiff, with a hydrocarbon-like odor. |
| 5 | | | 43 | NS | |
| | | | 104 | NS | |
| | | SB-3 (9-10) | <5 | NS | Becomes brown. |
| 10 | | | | | |
| | | | | | Becomes wet (12.5-13'). |
| | | | | | Becomes dry. |
| 15 | | | <5 | NS | |
| | | | | | Bottom of Boring at 15.0' BGS. |

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Site Investigation and ABCA Report
185 S. Maple Street
Yamhill, Oregon

Boring Number: **SB-4**

Project Number: **320002659-00**
Logged By: M. Enos
Date: July 22, 2021
Site Conditions: --
Drilling Contractor: Pacific Soil + Water
Drilling Equipment: AMS PowerProbe 9500-VTR
Sampler Type: 2" Macrocore
Depth to Water (ATD): Not Encountered
Surface Elevation: ~185'

| Depth, feet | Core Interval/Recovery | Laboratory Sample ID | PID | Sheen | Lithologic Description |
|---|---|---|---|---|---|
| | | | <5 | NS | SILT FILL with brick and organics. Hydrocarbon-like odor. |
| | | | | | Layer of brick and concrete. |
| | | | | | Bottom of Boring at 3.0' BGS. |
| 5 | | | | | |
| 10 | | | | | |
| 15 | | | | | |

Boring Details and Notes:

Apex Companies, LLC
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Portland, Oregon 97201

Site Investigation and ABCA Report
185 S. Maple Street
Yamhill, Oregon

Boring Number: **SB-5**

Project Number: **320002659-00**
Logged By: M. Enos
Date: July 22, 2021
Site Conditions: --
Drilling Contractor: Pacific Soil + Water
Drilling Equipment: AMS PowerProbe 9500-VTR
Sampler Type: 2" Macrocore
Depth to Water (ATD): Not Encountered
Surface Elevation: ~185'

Boring Details and Notes:

| Depth, feet | Core Interval/Recovery | Laboratory Sample ID | PID | Sheen | Lithologic Description |
|---|---|---|---|---|---|
| | | | | | Layer of brick. |
| | | | | | SILT (ML); dark gray, slightly moist, low plasticity, medium stiff, with a hydrocarbon-like odor. |
| 5 | | SB-5 (4-5) | 25 | NS | |
| | | | 58 | NS | |
| 10 | | SB-5 (9-10) | 513 | NS | |
| | | | 8 | NS | |
| | | | | | Becomes brown, stiff. No odor. |
| | | SB-5 (12-13) | <5 | NS | |
| 15 | | | | | Becomes gray. |
| | | | <5 | NS | |
| | | | | | Bottom of Boring at 18.0' BGS. |

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Portland, Oregon 97201

Site Investigation and ABCA Report
185 S. Maple Street
Yamhill, Oregon

Boring Number: **SB-6**

Project Number: **320002659-00**
Logged By: M. Enos
Date: July 22, 2021
Site Conditions: --
Drilling Contractor: Pacific Soil + Water
Drilling Equipment: AMS PowerProbe 9500-VTR
Sampler Type: 2" Macrocore
Depth to Water (ATD): Not Encountered
Surface Elevation: ~185'

Boring Details and Notes:

| Depth, feet | Core Interval/Recovery | Laboratory Sample ID | PID | Sheen | Lithologic Description |
|---|---|---|---|---|---|
| | | | | | Silty SAND (ML); gray brown, slightly moist, poorly graded, medium dense. |
| | | | <5 | NS | |
| 5 | | | | | |
| | | | <5 | NS | |
| | | SB-6 (8-9) | | | |
| 10 | | | | | — Becomes wet. |
| | | W | | | Silty CLAY (CL); medium brown with orange mottling, medium plasticity, medium stiff. |
| 15 | | | | | Bottom of Boring at 15.0' BGS. |

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Site Investigation and ABCA Report
185 S. Maple Street
Yamhill, Oregon

Boring Number: **SB-7**

Project Number: **320002659-00**
Logged By: M. Enos
Date: July 22, 2021
Site Conditions: --
Drilling Contractor: Pacific Soil + Water
Drilling Equipment: AMS PowerProbe 9500-VTR
Sampler Type: 2" Macrocore
Depth to Water (ATD): Not Encountered
Surface Elevation: ~185'

Boring Details and Notes:

| Depth, feet | Core Interval/Recovery | Laboratory Sample ID | PID | Sheen | Lithologic Description |
|---|---|---|---|---|---|
| | | | <5 | NS | SAND with gravel FILL; brown to gray, slightly moist, well graded, medium dense. |
| 5 | | SB-7 (7-8) | <5 | NS | Silty CLAY (CL); greenish gray, slightly moist, medium plasticity, medium stiff, slight hydrocarbon-like odor. |
| 10 | | | | | SAND lens; dark gray, wet, poorly graded. |
| | | | <5 | NS | Silty CLAY (CL); brown, moist, medium plasticity, medium stiff. |
| 15 | | SB-7 (14-15) | | | CLAY (CL); gray, wet, medium plasticity, hard. |
| | | | | | Bottom of Boring at 18.0' BGS. |

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Site Investigation and ABCA Report
185 S. Maple Street
Yamhill, Oregon

Boring Number: **SB-8**

Project Number: **320002659-00**
Logged By: M. Enos
Date: July 22, 2021
Site Conditions: --
Drilling Contractor: Pacific Soil + Water
Drilling Equipment: AMS PowerProbe 9500-VTR
Sampler Type: 2" Macrocore
Depth to Water (ATD): Not Encountered
Surface Elevation: ~185'

Boring Details and Notes:

| Depth, feet | Core Interval/Recovery | Laboratory Sample ID | PID | Sheen | Lithologic Description |
|---|---|---|---|---|---|
| | | | <5 | NS | Silty CLAY (CL); gray to brown, slightly moist, low plasticity, very stiff. |
| | | | <5 | NS | |
| 5 | | SB-8 (4-5) | | | |
| | | | <5 | NS | |
| | | | <5 | NS | |
| 10 | | | | | |
| | | | <5 | NS | Becomes brown. |
| | | | <5 | NS | |
| 15 | | SB-8 (14-15) | | | Becomes gray. |
| | | | <5 | NS | |
| | | | | | Bottom of Boring at 18.0' BGS. |

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Project Name: Carol Glover BP
Project Number: 2659-00

Boring Number: SB-1
Logged By: M. Enos
Date: 7/22/21
Site Conditions: clear, 70°
Drilling Contractor: PSW
Drilling Equipment: AMS PowerProbe 9500 UT
Sampler Type: 2" macrocore
Depth to Water (ATD):
Surface Elevation: ~185'

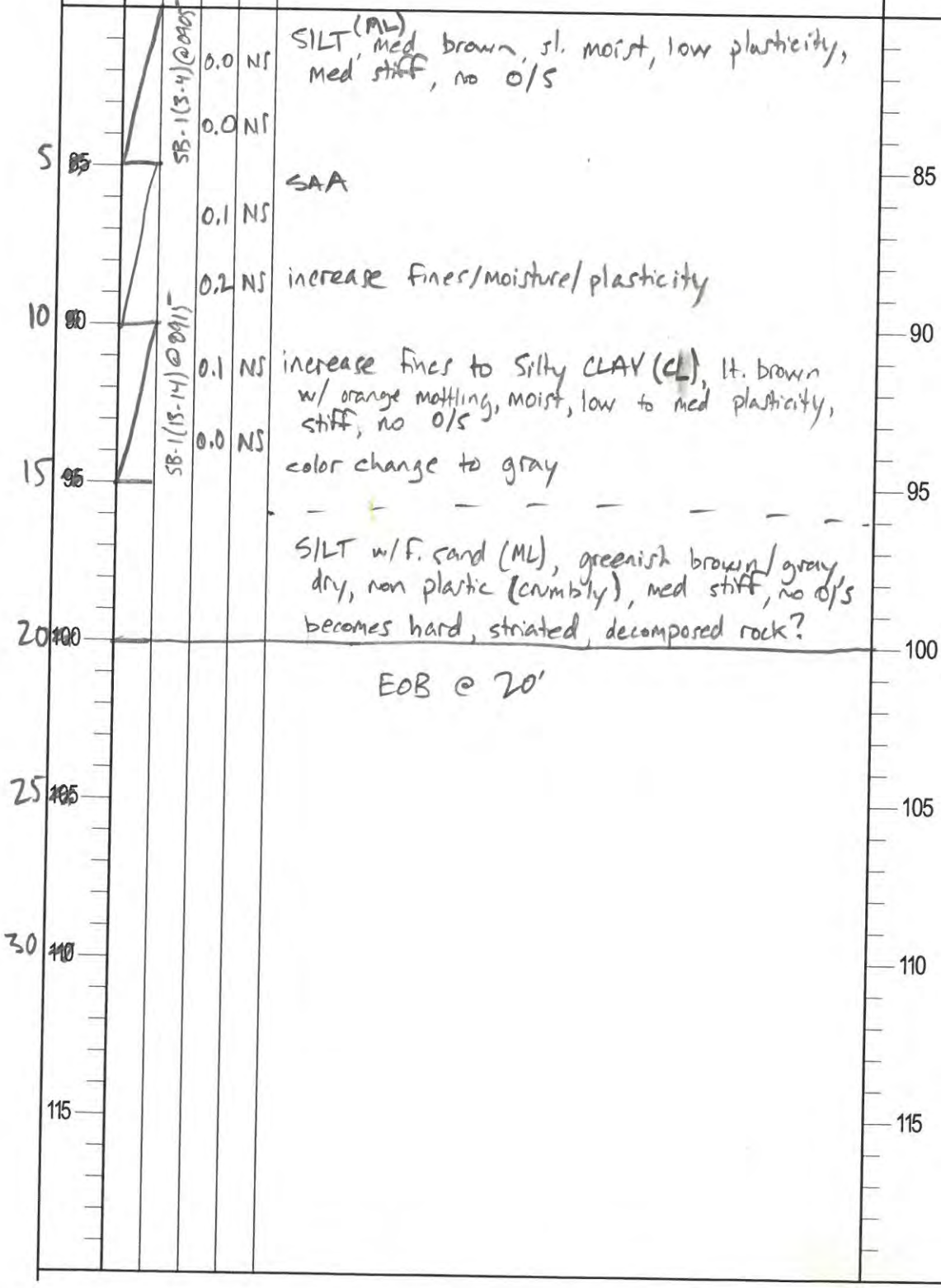
Well Construction Details and Notes:

## Lithologic Description

Fine-Grained Soils
type, (group symbol), color, moisture content, degree of plasticity, consistency, description w/ approximate percentage, notes/observations

Coarse-Grained Soils
type, (group symbol), color, moisture content, grading, density, description w/ approximate percentage, notes/observations

| Recovery | Sample ID | PID | Sheen | |
|---|---|---|---|---|
| | | 0.0 | NS | SILT (ML) med brown, sl. moist, low plasticity, med stiff, no O/S |
| | SB-1(3-4)@0905 | 0.0 | NS | |
| | | 0.1 | NS | SAA |
| | | 0.2 | NS | increase fines/moisture/plasticity |
| | SB-1(13-14)@0915 | 0.1 | NS | increase fines to Silty CLAY (CL), lt. brown w/ orange mottling, moist, low to med plasticity, stiff, no O/S |
| | | 0.0 | NS | color change to gray |
| | | | | SILT w/ f. sand (ML), greenish brown/gray dry, non plastic (crumbly), med stiff, no O/S |
| | | | | becomes hard, striated, decomposed rock? |
| | | | | EOB @ 20' |



Apex Companies, LLC
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Portland, Oregon 97201

Project Name: Carol Glover BP
Project Number: 2659-00

Boring Number: SB-2

Logged By: M. Enos
Date: 7/22/21
Site Conditions: clear, 70's
Drilling Contractor: PSW
Drilling Equipment:
Sampler Type:
Depth to Water (ATD):
Surface Elevation:

Well Construction Details and Notes:

## Lithologic Description

Fine-Grained Soils
type, (group symbol), color, moisture content, degree of plasticity, consistency, description w/ approximate percentage, notes/observations

Coarse-Grained Soils
type, (group symbol), color, moisture content, grading, density, description w/ approximate percentage, notes/observations

| Recovery | Sample ID | PID | Sheen | Lithologic Description |
|---|---|---|---|---|
| | | | NS | SILT (ML), grayish blue, sl. moist, low plasticity, med ~~dense~~ stiff, heavy HC odor, no sheen |
| | | | NS | |
| | SB-2(2-3)@0945 | (95.2) (399.1) | NS | SAA |
| | | | NS | increase fines, med plasticity, less HC odor |
| | SB-2(13-14)@0940 | (7.5) (414.3) | NS | color change to med brown |
| | | (4.3) | NS | increase density to stiff |
| | | (0.1) | | *core stuck in sampler* |
| | | | | EOB @ 20' bgs |

| Depth | Elevation |
|---|---|
| 5 | 85 |
| 10 | 90 |
| 15 | 95 |
| 20 | 100 |
| 105 | 105 |
| 110 | 110 |
| 115 | 115 |

Apex Companies, LLC
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**Project Name:** DEQ - Carol Glover BP
**Project Number:** 2659-00

Boring Number: SB-3

Logged By: M. Enos
Date: 7/22/21
Site Conditions: clear, 75°
Drilling Contractor: PSW
Drilling Equipment:
Sampler Type:
Depth to Water (ATD):
Surface Elevation:

Well Construction Details and Notes:

## Lithologic Description

Fine-Grained Soils
type, (group symbol), color, moisture content, degree of plasticity, consistency, description w/ approximate percentage, notes/observations

Coarse-Grained Soils
type, (group symbol), color, moisture content, grading, density, description w/ approximate percentage, notes/observations

| Depth, feet | Core Interval/Recovery | Laboratory Sample ID | PID | Sheen/Blow Counts | |
|---|---|---|---|---|---|
| 0 | | | 150.3 | NS | Silt FILL w/ brick + organics, HC odor |
| 3 | | | | | layer of brick + concrete |
| 5 | | SB-3(2-3)@1015 | 42.8 | NS | SILT, dk gray, sl. moist, med plasticity, med stiff, HC odor, no sheen |
| | | | 104 | NS | |
| | | | | | color change to brown |
| 10 | | SB-3(9-10)@1420 | 0.2 | NS | |
| | | | | | wet @ 12.5-13' bgs |
| 14 | | | | | dry @ 14' |
| 15 | | | 0.4 | NS | |
| | | | | | EOB @ 15' bgs |
| 20 | | | | | |
| 25 | | | | | |
| 30 | | | | | 1 soil drum (1/3 Full) |
| | | | | | 1 water drum (1/5 Full) |
| 35 | | | | | |

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**Project Name:** DEQ - Carol Glover
**Project Number:** 2659-00

Boring Number: SB-4

Logged By: M. Enos
Date: 7/22/21
Site Conditions: clear, 75°
Drilling Contractor: PSW
Drilling Equipment:
Sampler Type:
Depth to Water (ATD):
Surface Elevation:

Well Construction Details and Notes:

## Lithologic Description

Fine-Grained Soils
type, (group symbol), color, moisture content, degree of plasticity, consistency, description w/ approximate percentage, notes/observations

Coarse-Grained Soils
type, (group symbol), color, moisture content, grading, density, description w/ approximate percentage, notes/observations

| Depth, feet | Core Interval/Recovery | Laboratory Sample ID | PID | Sheen/Blow Counts | |
|---|---|---|---|---|---|
| | | | 0.0 | NS | SA SB-3, hard layer @ ~2.5-3' bgs |
| | | | | | EOB @ 3' bgs |
| 45 | | | | | |
| 50 | | | | | |
| 55 | | | | | |
| 60 | | | | | |
| 65 | | | | | |
| 70 | | | | | |
| 75 | | | | | |

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Project Name: DEQ - Carol Glover
Project Number: 2659-00

Boring Number: SB-5

Logged By: M. Enos
Date: 7/22/21
Site Conditions: clear, 75°
Drilling Contractor: PSW
Drilling Equipment:
Sampler Type:
Depth to Water (ATD):
Surface Elevation:

Well Construction Details and Notes:

## Lithologic Description

Fine-Grained Soils
type, (group symbol), color, moisture content, degree of plasticity, consistency, description w/ approximate percentage, notes/observations

Coarse-Grained Soils
type, (group symbol), color, moisture content, grading, density, description w/ approximate percentage, notes/observations

| Recovery | Sample ID | PID | Sheen | Lithologic Description |
|---|---|---|---|---|
| | | | | layer of brick @ 3' |
| | SB-5(4-5)@1315 | 25.4 | NS | SILT, dk gray, sl moist, low plasticity, med ~~dense~~ stiff, HC odor, no sheen |
| | SB-5(9-10)@1325 | 57.6 | NS | |
| | | 513 | NS | |
| | SB-5(12-13)@1335 | 83 | NS | color change to brown, stiff, no O/S |
| | | 0.2 | NS | |
| | | 0.0 | | color change to gray, no O/S |
| | | | | EOB @ 18' bgs |

5 85
10 90
15 95
20 100
105
110
115

85
90
95
100
105
110
115

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**Project Name:** Carol Glover BP
**Project Number:** 2659-00

**Boring Number:** SB-6

Logged By: M. Enos
Date: 7/22/21
Site Conditions: clear, 75°
Drilling Contractor:
Drilling Equipment:
Sampler Type:
Depth to Water (ATD):
Surface Elevation:

Well Construction Details and Notes:

## Lithologic Description

Fine-Grained Soils
type, (group symbol), color, moisture content, degree of plasticity, consistency, description w/ approximate percentage, notes/observations

Coarse-Grained Soils
type, (group symbol), color, moisture content, grading, density, description w/ approximate percentage, notes/observations

| Recovery | PID | Sheen | Sample ID |
|---|---|---|---|
| | 0.0 | NS | SB-6(8-9)@1115 |
| | 0.0 | NS | |

Silty SAND (SM), gray brown, sl. moist, poorly graded, med dense, no O/S

becomes wet

Silty CLAY (CL), med brown w/ orange mottling, med plasticity, med stiff, no O/S

EOB @ 15' bgs

gw sample = SB-6 @ 1130

5 10 15 20

85 90 95 100 105 110 115

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Project Name: DEQ - Carol Glover
Project Number: 2659-00

Boring Number: SB-7

Logged By:
Date:
Site Conditions:
Drilling Contractor:
Drilling Equipment:
Sampler Type:
Depth to Water (ATD):
Surface Elevation:

Well Construction Details and Notes:

## Lithologic Description

Fine-Grained Soils
type, (group symbol), color, moisture content, degree of plasticity, consistency, description w/ approximate percentage, notes/observations

Coarse-Grained Soils
type, (group symbol), color, moisture content, grading, density, description w/ approximate percentage, notes/observations

| Depth, feet | Core Interval/Recovery | Laboratory Sample ID | PID | Sheen/Blow Counts | |
|---|---|---|---|---|---|
| 0 | | | 0.0 | NS | Sand w/ gravel fill, brown to gray, sl. moist, well graded, med dense no O/S |
| 5 | | SB-7 (7-8) @ 1210 | | | |
| 10 | | | 0.2 | NS | Silty CLAY (CL), greenish gray, sl. moist, med plastic, med stiff, ~~no O/S~~ slight HC odor |
| | | | | | Lens of dk. gray SAND, wet, poorly graded |
| | | SB-7 (14-15) @ 1220 | 0.1 | NS | Silty CLAY (CL), brown, moist, med plastic, med stiff, no O/S |
| 15 | | | | | CLAY (CL), gray, wet, med plastic, hard, no O/S |
| 20 | | | | | EOB @ 18' bgs |
| 25 | | | | | |
| 30 | | | | | |
| 35 | | | | | |

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Project Name: Carol Glaser BP
Project Number: 2659-00

Boring Number: SB-8

Logged By: M. Enos
Date: 7/22/21
Site Conditions: clear, 80° s
Drilling Contractor: PSW
Drilling Equipment:
Sampler Type:
Depth to Water (ATD):
Surface Elevation:

Well Construction Details and Notes:

## Lithologic Description

Fine-Grained Soils
type, (group symbol), color, moisture content, degree of plasticity, consistency, description w/ approximate percentage, notes/observations

Coarse-Grained Soils
type, (group symbol), color, moisture content, grading, density, description w/ approximate percentage, notes/observations

| Depth, feet | Core Interval/Recovery | Laboratory Sample ID | PID | Sheen/Blow Counts | |
|---|---|---|---|---|---|
| 0 | | SB-8(4-5)@1240 | 0.0 | NS | Silty CLAY (CL), gray to brown, sl. moist, ~~non~~ low plasticity, very stiff, no O/S |
| 5 | | | 0.1 | NS | |
| | | | 0.1 | | |
| | | | 0.0 | | |
| 10 | | SB-8(14-15)@1245 | 0.1 | | color change to brown |
| | | | 0.2 | | |
| 15 | | | 0.0 | | color change to gray |
| | | | | | EOB @ 18' bgs |
| 20 | | | | | |
| 65 | | | | | |
| 70 | | | | | |
| 75 | | | | | |

45 50 55 60 65 70 75

APEX
3015 SW First Avenue
Portland, Oregon 97201-4707
(503) 924-4704 Phone
(503) 943-6357 Fax

PROJECT NUMBER 2659
FIELD REPORT NUMBER
PAGE 1 OF
DATE 7/22/21

PROJECT Carol Glover BP
LOCATION Yamhill, OR
CLIENT ODEQ
PURPOSE OF OBSERVATIONS soil + gw sampling
APEX REPRESENTATIVE Matt Enos
CONTRACTOR PNW Locates + PSW
CONTRACTOR REP. Neil + Lezarus

ARRIVAL TIME 0745
DEPARTURE TIME
WEATHER clear, 70's
APEX PROJECT MANAGER Sam Jackson
PERMIT NO.
H&S REVIEW YES

GROUND DISTURBANCE PERMIT COMPLETED ☐ YES ☐ NO ☐ N/A



0745 - Apex, Pacific Soil + Water, PNW Locates on-site, discuss H+S / SOW
0800 - PNW Locates clears soil borings w/ RF device, PSW setup
0830 - PNW Locates finishes mark-out, off-site, PSW begin drilling @ SB-1
0905 - Collect SB-1 (3-4)
0915 - Collect SB-1 (13-14)
0920 - PSW begins drilling SB-2
0925 - Collect SB-2 (2-3)
0940 - Collect SB-2 (13-14)
1000 - Jason (City of Yamhill) on-site, begin SB-3
1010 - Hit something at ~3' bgs, "hard" described by driller, brick + organics Fill in core, off-set 3' north and hit same hard layer, abandon SB-3
1015 - Collect SB-3 (2-3)
1020 - Begin SB-4, same as SB-3 w/ hard layer @ ~2.5' bgs, abandon
1035 - Begin SB-5, same as SB-3 + SB-4, call Sam Jackson
1050 - Begin SB-6
1115 - Collect SB-6 (8-9)
1130 - Encounter water @ ~12' bgs, set well (temp) and collect gw sample, goes dry quickly, let re-charge, gw sample = SB-6
1145 - Begin SB-7
1210 - Collect SB-7 (7-8)
1220 - Collect SB-7 (14-15)
1230 - Begin SB-8
1240 - Collect SB-8 (4-5)
1245 - Collect SB-8 (14-15)

cont. on back

BY
APEX REPRESENTATIVE

REVIEWED BY
APEX PROJECT MANAGER

1300 - Hand clear SB-5 to hand/brick layers, decide to push through w/ rig

1315 – Collect SB-5 (4-5)

1325 - Collect SB-5 (9-10)

1335 - Collect SB-5 (12-13)

1350 - Re-try @ SB-3

1420 - Collect SB-3 (9-10), set temp well @ SB-3

1445 - Call w/ Sam Jackson, add one boring for GW attempt

1455 - Attempt to collect gw @ SB-3, dry

1510 - Push to 18' bgs at new location, no water, begin clean-up

1630 - Apex + PSW off-site, 1 soil +1 water drum (IDW)

# *Appendix B*

## Analytical Laboratory Report and QA/QC Review

This appendix documents the results of a quality assurance/quality control (QA/QC) review of the analytical data for groundwater and soil samples collected as part of the site investigation at the Carol Glover BP Site in Yamhill, Oregon. Samples were analyzed by Pace Analytical of Mount Juliet, Tennessee. Copies of the analytical laboratory reports are included in this appendix, referenced as follows:

| Report | Report Date | Sampling Event |
|---|---|---|
| L1382553 | August 4, 2021 | Soil and Groundwater Sampling |

# 1.0 Analytical Methods

Chemical analyses soil included in this QA/QC Review consisted of the following:

- Volatile organic compounds (VOCs) by U.S. Environmental Protection Agency (EPA) Method 8260D;
- Gasoline range organics (GRO) by Northwest Method NWTPH-Gx;
- Diesel range organics (DRO) and residual range organics (RRO) by Northwest Method NWTPH-Dx;
- Polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270E-SIM;
- Lead, cadmium, and chromium by EPA Method 6020B; and
- Polychlorinated biphenyls (PCBs) by EPA Method 8082A.

Groundwater chemical analyses:

- Volatile organic compounds (VOCs) by U.S. Environmental Protection Agency (EPA) Method 8260D;
- Gasoline range organics (GRO) by Northwest Method NWTPH-Gx; and
- Lead by EPA Method 6020B.

# 2.0 Data Validation

The QA review included examination and validation of the laboratory data packages for the following:

- Analytical preparation and quantitation methods;
- Analytical method holding times;
- Sample handling;
- Chain of custody procedures;
- Detection and reporting limits;
- Method blank, trip blank, and equipment blank detections;
- Laboratory control samples, matrix spikes, and surrogates to assess accuracy; and

- Laboratory control sample duplicates, matrix spike duplicates, and field duplicates to assess precision.

The QA/QC review did not include a review of raw data.

This QA/QC review documents the relationship between analytical findings and data quality objectives based on precision and accuracy. It also summarizes possible error or bias and the effect on data quality and usability.

The laboratory quality control (QC) samples provided in data packages were used to evaluate laboratory contamination or background interferences, sample preparation efficiency and instrumentation performance. The QC samples provided by the analytical laboratory include method blanks, laboratory control samples (LCS/LCSD), and matrix spikes (MS/MSD). Surrogates are also required for VOC, GRO, DRO/RRO, and PCB analysis to assess sample preparation efficiency and matrix interferences.

### 2.1 Data Qualifiers

Any data that is found to have possible bias or error was qualified and flagged. The following are definitions of qualifiers used in this data quality report and data tables.

| | |
|---|---|
| J | Result is an estimated value. |
| UJ | The not detected result is estimated at the reporting limit. |

## *3.0 Data Quality Assurance Review*

The general QA objectives for this project were to develop and implement procedures for obtaining, evaluating, and confirming the usability of data of a specified quality. To collect such information, analytical data must have an appropriate degree of accuracy and reproducibility, samples collected must be representative of actual field conditions, and samples must be collected and analyzed using unbroken chain of custody procedures.

Reporting limits and analytical results were compared to cleanup and screening levels for each parameter in the matrix of concern. Precision, accuracy, completeness, and comparability parameters used to indicate data quality are discussed below.

### 3.1 Reporting Limits

Reporting limits are the lowest concentration an instrument is capable of accurately detecting an analyte. Reporting limits are determined by the laboratory and are based on instrumentation capabilities, the matrix of field samples, sample preparation procedures, and EPA suggested reporting limits.

The reporting limits were consistent with method standards and were below applicable screening level values. Several analytes were identified by the laboratory at concentrations that were between the laboratory reporting limit (RL) and the method detection limit (MDL). These concentrations are estimated values and have been 'J' flagged accordingly.

## 3.2 Holding Times and Sample Receipt

The holding time is the minimum amount of time the sample can be stored before analytes start to degrade and are not representative of initial sampling concentrations. Holding times are defined by analytical methods and samples were analyzed within the method specified holding time.

The integrity of the samples received by the laboratory was documented by the Pace Analytical *Sample Receipt Checklist* or *Cooler Receipt Form,* which ensures that samples are representative of the field and were not compromised during shipment. The groundwater and soil containers were received by the analytical laboratory on ice below 6ºC and all containers were intact and unbroken. Groundwater was received with appropriate hydrochloric acid (HCl) preservative to pH < 2 and without headspace. The chain of custody followed an unbroken procedure and was relinquished by the Apex Companies sampler and received by the analytical laboratory as indicated by signatures. The sample ID, collection time and requested analyses were all clearly and properly filled in by the Apex Companies sampler.

## 3.3 Method Blanks

A method – or laboratory – blank is a sample prepared in the laboratory along with the actual samples and analyzed for the same parameters at the same time. It is used to assess if detected compounds may have been the result of contamination or background levels in the laboratory.

1,2-Dibromo-3-chloropropane, naphthalene, and 1,2,4-trichlorobenzene were detected in the method blank of analytical batch WG1714010. Laboratory contamination is not suspected to have contributed to sample concentrations since the associated groundwater sample collected from SB-6 was not detected for these analytes.

## 3.4 Trip Blanks

A trip blank is an analyte-free matrix that is taken from the laboratory to the sampling site and transported back to the laboratory unopened. Trip blanks assess contamination introduced during shipping and field handling activities. For data quality purposes, one trip blank was proposed to be shipped and analyzed with samples by EPA Method 8260D for VOCs. This trip blank was not analyzed; however, several samples analyzed for VOCs were not detected for target analytes, which confirms that samples were not contaminated with VOCs during shipment.

## 3.5 Equipment Blanks

An equipment blank is a sample prepared in the field by rinsing equipment with blank water after decontamination. The laboratory then analyzes that rinsate water for target analytes to determine if cross-contamination may have been present in the field. One groundwater equipment blank and one soil equipment blank were needed per the sampling and analysis plan (SAP) requirements. These samples were not collected; however, VOCs and GRO were not detected for the groundwater collected at SB-6 and at least one soil sample collected (SB-5 (12-13)). These not detected values show that sampling equipment did not contribute to concentrations found in environmental samples.

## 3.6 Accuracy

Accuracy is assessed through the comparison of analytes of known concentration to concentrations determined analytically. A percent recovery is calculated from the analytical concentration to the known concentration of analyte, which must be within control limits established by methods. If the percent recovery is outside of control limits, then data might be compromised. The analytical laboratory will provide quality control samples and surrogates to help determine the accuracy of the data provided. These quality control samples and surrogates are discussed below.

### *3.6.1 Laboratory Control Samples*

Laboratory control samples (LCS) and laboratory control duplicate samples (LCSD) were analyzed by the laboratory to assess the analytical methods. One set of LCS and LCSDs were analyzed per analytical batch. The samples were prepared from an analyte-free matrix that is then spiked with known levels of constituents of interest (COI; i.e. a standard). The concentrations were measured, and the results compared to the known spiked levels. This comparison is expressed as percent recovery. Constituents were within recovery limits with the following exceptions.

Hexachloro-1,3-butadiene was recovered above the upper control limit for analytical batch WG1714010. The associated groundwater sample collected from SB-6 was not detected for hexachloro-1,3-butadiene. A high bias is not applicable to not detected results and results were not flagged.

### *3.6.2 Matrix Samples*

A matrix spike QC sample is used to assess the performance of the analytical method by determining potential matrix interferences. Matrix spike (MS) and matrix spike duplicate (MSD) analyses are performed on one environmental sample per analytical batch. A matrix spike sample uses an environmental sample that is spiked with known concentrations of analytes of interest. The matrix spike is then prepared and analyzed with the same analytical procedures as environmental samples in the analytical batch. The resulting concentration of the matrix spike is then compared to the known – or true – values added to the non-spiked environmental sample concentration. This comparison is expressed as a percent recovery.

Chromium was recovered below the lower control limit for analytical batch WG1713790; however, the source for the matrix was from a sample not associated with report L1382553 and results are accepted based on analyte recoveries in the batch LCS.

Acetone, acrylonitrile, hexachloro-1,3-butadiene, naphthalene, 1,1,2,2-tetrachloroethane, and 1,2,3-trichlorobenzene were recovered above the upper control limit for analytical batch WG1712824. The associated soil sample (SB-2 (2-3)) was not detected for these compounds and results were not flagged.

Aroclor 1016 was recovered above the upper control limit for analytical batch WG1715433; however, the source for the matrix was from a sample not associated with report L1382553 and results are accepted based on analyte recoveries in the batch LCS.

### *3.6.3 Surrogates*

Surrogates are organic compounds that are similar in chemical composition to the analytes of interest but are not likely to be found in the environment. They are spiked into environmental and batch QC samples prior to sample preparation and analysis. Surrogate recoveries for environmental samples are used to evaluate matrix interference and sample preparation and analysis efficiency on a sample-specific basis. Surrogates were recovered within control limits with the following exceptions.

For VOC analysis of soil samples SB-2 (2-3) and SB-3 (2-3), the surrogate 4-bromofluorobenzene was recovered above the upper control limit. Target VOCs with chemical properties similar to the halogenated benzene structure of 4-bromofluorobenzene may also have a high bias. However, target VOCs with a halogenated benzene structure were not detected for soil samples SB-2 (2-3) and SB-3 (2-3).

## 3.7 Precision

Precision is measured by how close concentrations of duplicate analyses are to each other. These duplicate analyses are of separate aliquots of the same sample that are prepared or analyzed at the same (or similar) time. Precision in the field ensures that samples taken are representative of field concentrations. Field precision is demonstrated by field duplicates. Analytical precision is measured by the laboratory through duplicate analysis of samples and quality control samples. Precision is estimated by the relative percent difference (RPD) between the original analysis and the duplicate analysis.

### *3.7.1 Laboratory Control Samples*

LCSD analyte concentrations were compared to LCS analyte concentrations to assess the precision of the analytical method. This comparison can be expressed by the relative percent difference (RPD) between the LCS and LCSD samples. An LCSD was analyzed with soil vapor samples but was not included in quality control samples for soil and groundwater analysis. RPD values for LCS/LCSDs were within control limits with the following exceptions.

The RPD for naphthalene and 1,2,3-trichlorobenzene exceeded the control limit for analytical batch WG1714010. The associated groundwater sample collected from SB-6 was not detected for these compounds and results were not flagged.

### *3.7.2 Matrix Spike Duplicate*

Similar to the LCS/LCSD, the analytical batch MS/MSD analyte concentrations are also compared to each other and expressed as an RPD.

The RPD for 1,2,3-trichlorobenzene exceeded the control limit for analytical batch WG1712824. The associated soil sample SB-2 (2-3) was not detected for 1,2,3-trichlorobenzene and results were not flagged.

### *3.7.3 Field Duplicate*

A field duplicate is a second field sample collected from a selected sample location. Field duplicate samples serve as a check on laboratory precision and sampling quality, as well as potential variability of the sample matrix. The field duplicate is analyzed and compared to the original sample to assess precision. This comparison can be expressed by the RPD between the original and duplicate samples. Only detections greater than the reporting limit are controlled and used for quality control purposes. Based on the sampling and analysis plan (SAP), one field duplicate should have been collected per matrix. A groundwater field duplicate was not collected due to a low-recharge of water for location SB-6. A soil field duplicate was also not collected but laboratory precision data provided by laboratory control sample duplicates and matrix spike duplicates was found to be adequate for the project.

## 3.8 Additional Quality Control Parameters

### *3.8.1 Continuing Calibration Verification*

The continuing calibration verification responded low for results qualified with C3 and C4 in the laboratory reports. These analytes were all not detected and are 'UJ' flagged as estimated values in the report tables.

# *4.0 Conclusion*

In conclusion, the QA objectives have been met and the data are of sufficient quality for use in this project.

# ANALYTICAL REPORT

August 04, 2021



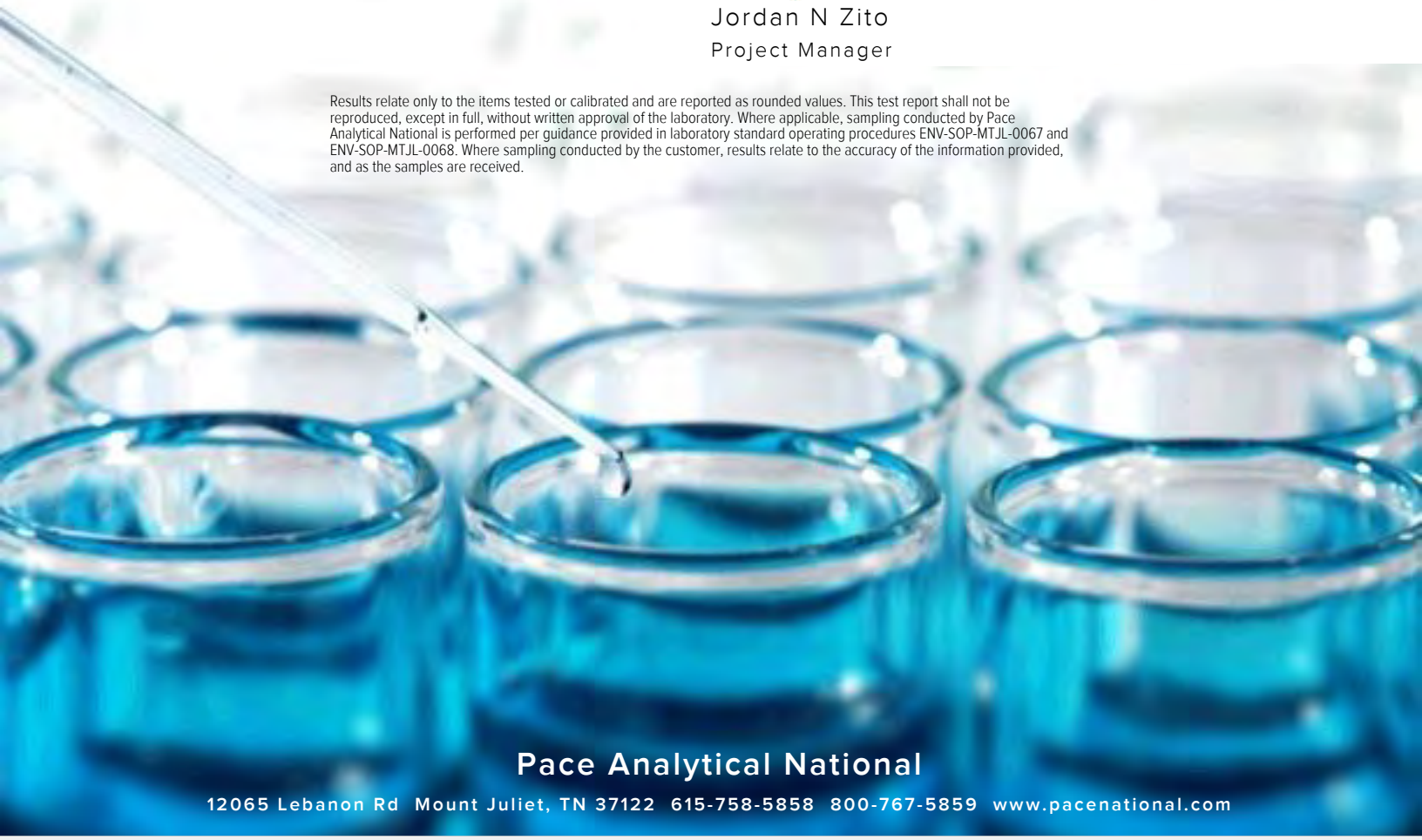
## Oregon Dept. of Env. Quality - ODEQ

| | |
|---|---|
| Sample Delivery Group: | L1382553 |
| Samples Received: | 07/24/2021 |
| Project Number: | 2659-00 |
| Description: | Carol Glover BP |
| Report To: | Don Hanson |

Entire Report Reviewed By:

Jordan N Zito
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

# TABLE OF CONTENTS

## SB-1 (13-14) L1382553-02 Solid

Collected by: Matt Enos | Collected date/time: 07/22/21 09:15 | Received date/time: 07/24/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Total Solids by Method 2540 G-2011 | WG1715575 | 1 | 08/02/21 11:37 | 08/02/21 11:43 | KDW | Minneapolis, MN |
| Metals (ICPMS) by Method 6020B | WG1713790 | 5 | 07/30/21 10:05 | 07/30/21 14:05 | JPD | Mt. Juliet, TN |
| Volatile Organic Compounds (GC) by Method NWTPHGX | WG1713435 | 29.8 | 07/27/21 19:17 | 07/29/21 12:10 | ADM | Mt. Juliet, TN |
| Volatile Organic Compounds (GC/MS) by Method 8260D | WG1712824 | 1.19 | 07/27/21 19:17 | 07/28/21 00:27 | DWR | Mt. Juliet, TN |
| Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT | WG1715427 | 1 | 08/01/21 22:54 | 08/03/21 04:20 | CAG | Mt. Juliet, TN |

## SB-2 (2-3) L1382553-03 Solid

Collected by: Matt Enos | Collected date/time: 07/22/21 09:25 | Received date/time: 07/24/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Total Solids by Method 2540 G-2011 | WG1715575 | 1 | 08/02/21 11:37 | 08/02/21 11:43 | KDW | Minneapolis, MN |
| Metals (ICPMS) by Method 6020B | WG1713790 | 5 | 07/30/21 10:05 | 07/30/21 14:09 | JPD | Mt. Juliet, TN |
| Volatile Organic Compounds (GC) by Method NWTPHGX | WG1714851 | 250 | 07/27/21 19:17 | 07/30/21 18:15 | ADM | Mt. Juliet, TN |
| Volatile Organic Compounds (GC/MS) by Method 8260D | WG1712824 | 8 | 07/27/21 19:17 | 07/28/21 06:26 | DWR | Mt. Juliet, TN |
| Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT | WG1715427 | 1 | 08/01/21 22:54 | 08/03/21 03:53 | CAG | Mt. Juliet, TN |
| Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT | WG1715427 | 5 | 08/01/21 22:54 | 08/03/21 16:51 | WCR | Mt. Juliet, TN |

## SB-2 (13-14) L1382553-04 Solid

Collected by: Matt Enos | Collected date/time: 07/22/21 09:40 | Received date/time: 07/24/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Total Solids by Method 2540 G-2011 | WG1715575 | 1 | 08/02/21 11:37 | 08/02/21 11:43 | KDW | Minneapolis, MN |
| Metals (ICPMS) by Method 6020B | WG1713790 | 5 | 07/30/21 10:05 | 07/30/21 14:12 | JPD | Mt. Juliet, TN |
| Volatile Organic Compounds (GC) by Method NWTPHGX | WG1714851 | 25 | 07/27/21 19:17 | 07/30/21 18:37 | ADM | Mt. Juliet, TN |
| Volatile Organic Compounds (GC/MS) by Method 8260D | WG1712824 | 1 | 07/27/21 19:17 | 07/28/21 00:45 | DWR | Mt. Juliet, TN |
| Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT | WG1715427 | 1 | 08/01/21 22:54 | 08/03/21 02:32 | CAG | Mt. Juliet, TN |

## SB-3 (2-3) L1382553-05 Solid

Collected by: Matt Enos | Collected date/time: 07/22/21 10:15 | Received date/time: 07/24/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Total Solids by Method 2540 G-2011 | WG1715575 | 1 | 08/02/21 11:37 | 08/02/21 11:43 | KDW | Minneapolis, MN |
| Metals (ICPMS) by Method 6020B | WG1713790 | 5 | 07/30/21 10:05 | 07/30/21 14:15 | JPD | Mt. Juliet, TN |
| Volatile Organic Compounds (GC) by Method NWTPHGX | WG1713435 | 25 | 07/27/21 19:17 | 07/29/21 13:16 | ADM | Mt. Juliet, TN |
| Volatile Organic Compounds (GC/MS) by Method 8260D | WG1712824 | 1 | 07/27/21 19:17 | 07/28/21 01:04 | DWR | Mt. Juliet, TN |
| Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT | WG1715427 | 1 | 08/01/21 22:54 | 08/03/21 05:00 | CAG | Mt. Juliet, TN |

## SB-3 (9-10) L1382553-06 Solid

Collected by: Matt Enos | Collected date/time: 07/22/21 14:20 | Received date/time: 07/24/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Total Solids by Method 2540 G-2011 | WG1715575 | 1 | 08/02/21 11:37 | 08/02/21 11:43 | KDW | Minneapolis, MN |
| Metals (ICPMS) by Method 6020B | WG1713790 | 5 | 07/30/21 10:05 | 07/30/21 14:19 | JPD | Mt. Juliet, TN |
| Volatile Organic Compounds (GC) by Method NWTPHGX | WG1713435 | 25 | 07/27/21 19:17 | 07/29/21 13:38 | ADM | Mt. Juliet, TN |
| Volatile Organic Compounds (GC/MS) by Method 8260D | WG1712824 | 1 | 07/27/21 19:17 | 07/28/21 01:23 | DWR | Mt. Juliet, TN |
| Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT | WG1715427 | 1 | 08/01/21 22:54 | 08/03/21 02:46 | CAG | Mt. Juliet, TN |

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

## SB-5 (4-5) L1382553-07 Solid

Collected by: Matt Enos | Collected date/time: 07/22/21 13:15 | Received date/time: 07/24/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Total Solids by Method 2540 G-2011 | WG1715577 | 1 | 08/02/21 11:14 | 08/02/21 11:32 | KDW | Minneapolis, MN |
| Metals (ICPMS) by Method 6020B | WG1713790 | 5 | 07/30/21 10:05 | 07/30/21 14:22 | JPD | Mt. Juliet, TN |
| Volatile Organic Compounds (GC) by Method NWTPHGX | WG1713435 | 25 | 07/27/21 19:17 | 07/29/21 14:01 | ADM | Mt. Juliet, TN |
| Volatile Organic Compounds (GC/MS) by Method 8260D | WG1712824 | 1 | 07/27/21 19:17 | 07/28/21 01:42 | DWR | Mt. Juliet, TN |
| Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT | WG1715427 | 1 | 08/01/21 22:54 | 08/03/21 03:39 | CAG | Mt. Juliet, TN |

## SB-5 (12-13) L1382553-09 Solid

Collected by: Matt Enos | Collected date/time: 07/22/21 13:35 | Received date/time: 07/24/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Total Solids by Method 2540 G-2011 | WG1715577 | 1 | 08/02/21 11:14 | 08/02/21 11:32 | KDW | Minneapolis, MN |
| Metals (ICPMS) by Method 6020B | WG1713790 | 5 | 07/30/21 10:05 | 07/30/21 14:25 | JPD | Mt. Juliet, TN |
| Volatile Organic Compounds (GC) by Method NWTPHGX | WG1713435 | 25 | 07/27/21 19:17 | 07/29/21 14:23 | ADM | Mt. Juliet, TN |
| Volatile Organic Compounds (GC/MS) by Method 8260D | WG1712824 | 1 | 07/27/21 19:17 | 07/28/21 02:01 | DWR | Mt. Juliet, TN |
| Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT | WG1715427 | 1 | 08/01/21 22:54 | 08/03/21 02:59 | CAG | Mt. Juliet, TN |

## SB-6 (8-9) L1382553-10 Solid

Collected by: Matt Enos | Collected date/time: 07/22/21 11:15 | Received date/time: 07/24/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Total Solids by Method 2540 G-2011 | WG1715577 | 1 | 08/02/21 11:14 | 08/02/21 11:32 | KDW | Minneapolis, MN |
| Metals (ICPMS) by Method 6020B | WG1713790 | 5 | 07/30/21 10:05 | 07/30/21 14:37 | JPD | Mt. Juliet, TN |
| Volatile Organic Compounds (GC) by Method NWTPHGX | WG1713435 | 25 | 07/27/21 19:17 | 07/29/21 14:45 | ADM | Mt. Juliet, TN |
| Volatile Organic Compounds (GC/MS) by Method 8260D | WG1712824 | 1 | 07/27/21 19:17 | 07/28/21 02:20 | DWR | Mt. Juliet, TN |
| Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT | WG1715427 | 1 | 08/01/21 22:54 | 08/03/21 04:06 | CAG | Mt. Juliet, TN |

## SB-7 (7-8) L1382553-11 Solid

Collected by: Matt Enos | Collected date/time: 07/22/21 12:10 | Received date/time: 07/24/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Total Solids by Method 2540 G-2011 | WG1715577 | 1 | 08/02/21 11:14 | 08/02/21 11:32 | KDW | Minneapolis, MN |
| Metals (ICPMS) by Method 6020B | WG1713790 | 5 | 07/30/21 10:05 | 07/30/21 14:40 | JPD | Mt. Juliet, TN |
| Volatile Organic Compounds (GC) by Method NWTPHGX | WG1713435 | 25 | 07/27/21 19:17 | 07/29/21 15:07 | ADM | Mt. Juliet, TN |
| Volatile Organic Compounds (GC/MS) by Method 8260D | WG1712824 | 1 | 07/27/21 19:17 | 07/28/21 02:39 | DWR | Mt. Juliet, TN |
| Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT | WG1715427 | 1 | 08/01/21 22:54 | 08/03/21 03:26 | CAG | Mt. Juliet, TN |
| Polychlorinated Biphenyls (GC) by Method 8082 A | WG1715433 | 1 | 08/01/21 16:55 | 08/03/21 01:55 | HLJ | Mt. Juliet, TN |
| Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM | WG1715029 | 1 | 07/31/21 13:15 | 08/01/21 15:33 | LEA | Mt. Juliet, TN |

## SB-8 (14-15) L1382553-14 Solid

Collected by: Matt Enos | Collected date/time: 07/22/21 12:45 | Received date/time: 07/24/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Total Solids by Method 2540 G-2011 | WG1715577 | 1 | 08/02/21 11:14 | 08/02/21 11:32 | KDW | Minneapolis, MN |
| Metals (ICPMS) by Method 6020B | WG1713790 | 5 | 07/30/21 10:05 | 07/30/21 14:44 | JPD | Mt. Juliet, TN |
| Volatile Organic Compounds (GC) by Method NWTPHGX | WG1713435 | 25 | 07/27/21 19:17 | 07/29/21 15:29 | ADM | Mt. Juliet, TN |
| Volatile Organic Compounds (GC/MS) by Method 8260D | WG1712824 | 1 | 07/27/21 19:17 | 07/28/21 02:58 | DWR | Mt. Juliet, TN |
| Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT | WG1715427 | 1 | 08/01/21 22:54 | 08/03/21 03:12 | CAG | Mt. Juliet, TN |

# SAMPLE SUMMARY

## SB-6 L1382553-15 GW

Collected by: Matt Enos
Collected date/time: 07/22/21 11:30
Received date/time: 07/24/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Metals (ICPMS) by Method 6020B | WG1714044 | 1 | 07/29/21 17:29 | 07/29/21 21:03 | LAT | Mt. Juliet, TN |
| Volatile Organic Compounds (GC) by Method NWTPHGX | WG1712614 | 1 | 07/28/21 05:17 | 07/28/21 05:17 | ACG | Mt. Juliet, TN |
| Volatile Organic Compounds (GC/MS) by Method 8260D | WG1714010 | 2 | 08/01/21 02:16 | 08/01/21 02:16 | ACG | Mt. Juliet, TN |

# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jordan N Zito
Project Manager

## Total Solids by Method 2540 G-2011

| Analyte | Result | Qualifier | Dilution | Analysis | Batch |
|---|---|---|---|---|---|
| | % | | | date / time | |
| Total Solids | 73.3 | | 1 | 08/02/2021 11:43 | WG1715575 |

## Metals (ICPMS) by Method 6020B

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Lead | 14.9 | | 0.135 | 2.73 | 5 | 07/30/2021 14:05 | WG1713790 |

## Volatile Organic Compounds (GC) by Method NWTPHGX

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Gasoline Range Organics-NWTPH | U | | 1.69 | 4.97 | 29.8 | 07/29/2021 12:10 | WG1713435 |
| *(S) a,a,a-Trifluorotoluene(FID)* | *94.0* | | | *77.0-120* | | *07/29/2021 12:10* | WG1713435 |

## Volatile Organic Compounds (GC/MS) by Method 8260D

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Acetone | U | | 0.0724 | 0.0993 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Acrylonitrile | U | | 0.00718 | 0.0249 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Benzene | U | | 0.000928 | 0.00199 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Bromobenzene | U | | 0.00179 | 0.0249 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Bromodichloromethane | U | | 0.00144 | 0.00496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Bromoform | U | | 0.00232 | 0.0496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Bromomethane | U | C3 | 0.00391 | 0.0249 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| n-Butylbenzene | U | | 0.0104 | 0.0249 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| sec-Butylbenzene | U | | 0.00573 | 0.0249 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| tert-Butylbenzene | U | | 0.00387 | 0.00993 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Carbon disulfide | U | C3 | 0.00139 | 0.0249 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Carbon tetrachloride | U | | 0.00179 | 0.00993 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Chlorobenzene | U | | 0.000417 | 0.00496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Chlorodibromomethane | U | | 0.00122 | 0.00496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Chloroethane | U | C3 | 0.00337 | 0.00993 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Chloroform | U | | 0.00205 | 0.00496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Chloromethane | U | C3 | 0.00865 | 0.0249 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 2-Chlorotoluene | U | | 0.00172 | 0.00496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 4-Chlorotoluene | U | | 0.000893 | 0.00993 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 1,2-Dibromo-3-Chloropropane | U | C3 | 0.00774 | 0.0496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 1,2-Dibromoethane | U | | 0.00129 | 0.00496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Dibromomethane | U | | 0.00149 | 0.00993 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 1,2-Dichlorobenzene | U | | 0.000845 | 0.00993 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 1,3-Dichlorobenzene | U | | 0.00119 | 0.00993 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 1,4-Dichlorobenzene | U | | 0.00139 | 0.00993 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Dichlorodifluoromethane | U | | 0.00320 | 0.00496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 1,1-Dichloroethane | U | | 0.000975 | 0.00496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 1,2-Dichloroethane | U | | 0.00129 | 0.00496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 1,1-Dichloroethene | U | | 0.00120 | 0.00496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| cis-1,2-Dichloroethene | U | | 0.00146 | 0.00496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| trans-1,2-Dichloroethene | U | | 0.00207 | 0.00993 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 1,2-Dichloropropane | U | | 0.00282 | 0.00993 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 1,1-Dichloropropene | U | | 0.00161 | 0.00496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 1,3-Dichloropropane | U | | 0.000995 | 0.00993 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| cis-1,3-Dichloropropene | U | | 0.00150 | 0.00496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| trans-1,3-Dichloropropene | U | | 0.00227 | 0.00993 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 2,2-Dichloropropane | U | | 0.00274 | 0.00496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Di-isopropyl ether | U | | 0.000815 | 0.00199 | 1.19 | 07/28/2021 00:27 | WG1712824 |

## Volatile Organic Compounds (GC/MS) by Method 8260D

| Analyte | Result (dry) mg/kg | Qualifier | MDL (dry) mg/kg | RDL (dry) mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| Ethylbenzene | U | | 0.00146 | 0.00496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Hexachloro-1,3-butadiene | U | | 0.0119 | 0.0496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Isopropylbenzene | U | | 0.000845 | 0.00496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| p-Isopropyltoluene | U | | 0.00506 | 0.00993 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 2-Butanone (MEK) | 0.235 | | 0.126 | 0.199 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Methylene Chloride | U | C3 | 0.0132 | 0.0496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 4-Methyl-2-pentanone (MIBK) | U | | 0.00452 | 0.0496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Methyl tert-butyl ether | U | C3 | 0.000696 | 0.00199 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Naphthalene | U | C3 | 0.00970 | 0.0249 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| n-Propylbenzene | U | | 0.00189 | 0.00993 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Styrene | U | | 0.000456 | 0.0249 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 1,1,1,2-Tetrachloroethane | U | | 0.00189 | 0.00496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 1,1,2,2-Tetrachloroethane | U | | 0.00138 | 0.00496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 1,1,2-Trichlorotrifluoroethane | U | | 0.00150 | 0.00496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Tetrachloroethene | U | | 0.00179 | 0.00496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Toluene | U | | 0.00259 | 0.00993 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 1,2,3-Trichlorobenzene | U | C4 | 0.0146 | 0.0249 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 1,2,4-Trichlorobenzene | U | C4 | 0.00875 | 0.0249 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 1,1,1-Trichloroethane | U | | 0.00184 | 0.00496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 1,1,2-Trichloroethane | U | | 0.00119 | 0.00496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Trichloroethene | U | | 0.00116 | 0.00199 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Trichlorofluoromethane | U | C3 | 0.00164 | 0.00496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 1,2,3-Trichloropropane | U | | 0.00322 | 0.0249 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 1,2,4-Trimethylbenzene | U | | 0.00314 | 0.00993 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 1,2,3-Trimethylbenzene | U | | 0.00314 | 0.00993 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| 1,3,5-Trimethylbenzene | U | | 0.00397 | 0.00993 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Vinyl chloride | U | C3 | 0.00230 | 0.00496 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| Xylenes, Total | U | | 0.00175 | 0.0129 | 1.19 | 07/28/2021 00:27 | WG1712824 |
| *(S) Toluene-d8* | *105* | | | *75.0-131* | | *07/28/2021 00:27* | WG1712824 |
| *(S) 4-Bromofluorobenzene* | *91.6* | | | *67.0-138* | | *07/28/2021 00:27* | WG1712824 |
| *(S) 1,2-Dichloroethane-d4* | *99.8* | | | *70.0-130* | | *07/28/2021 00:27* | WG1712824 |

## Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

| Analyte | Result (dry) mg/kg | Qualifier | MDL (dry) mg/kg | RDL (dry) mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | U | | 1.81 | 5.46 | 1 | 08/03/2021 04:20 | WG1715427 |
| Residual Range Organics (RRO) | U | | 4.54 | 13.6 | 1 | 08/03/2021 04:20 | WG1715427 |
| *(S) o-Terphenyl* | *61.8* | | | *18.0-148* | | *08/03/2021 04:20* | WG1715427 |

## Total Solids by Method 2540 G-2011

| Analyte | Result | Qualifier | Dilution | Analysis | Batch |
|---|---|---|---|---|---|
| | % | | | date / time | |
| Total Solids | 73.5 | | 1 | 08/02/2021 11:43 | WG1715575 |

## Metals (ICPMS) by Method 6020B

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Lead | 13.1 | | 0.135 | 2.72 | 5 | 07/30/2021 14:09 | WG1713790 |

## Volatile Organic Compounds (GC) by Method NWTPHGX

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Gasoline Range Organics-NWTPH | 718 | | 15.1 | 44.4 | 250 | 07/30/2021 18:15 | WG1714851 |
| *(S) a,a,a-Trifluorotoluene(FID)* | *97.7* | | | *77.0-120* | | *07/30/2021 18:15* | WG1714851 |

## Volatile Organic Compounds (GC/MS) by Method 8260D

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Acetone | U | J5 | 0.519 | 0.711 | 8 | 07/28/2021 06:26 | WG1712824 |
| Acrylonitrile | U | J5 | 0.0514 | 0.178 | 8 | 07/28/2021 06:26 | WG1712824 |
| Benzene | U | | 0.00665 | 0.0142 | 8 | 07/28/2021 06:26 | WG1712824 |
| Bromobenzene | U | | 0.0128 | 0.178 | 8 | 07/28/2021 06:26 | WG1712824 |
| Bromodichloromethane | U | | 0.0103 | 0.0356 | 8 | 07/28/2021 06:26 | WG1712824 |
| Bromoform | U | | 0.0166 | 0.356 | 8 | 07/28/2021 06:26 | WG1712824 |
| Bromomethane | U | C3 | 0.0281 | 0.178 | 8 | 07/28/2021 06:26 | WG1712824 |
| n-Butylbenzene | 0.313 | | 0.0747 | 0.178 | 8 | 07/28/2021 06:26 | WG1712824 |
| sec-Butylbenzene | 0.533 | | 0.0409 | 0.178 | 8 | 07/28/2021 06:26 | WG1712824 |
| tert-Butylbenzene | U | | 0.0277 | 0.0711 | 8 | 07/28/2021 06:26 | WG1712824 |
| Carbon disulfide | U | C3 | 0.00995 | 0.178 | 8 | 07/28/2021 06:26 | WG1712824 |
| Carbon tetrachloride | U | | 0.0128 | 0.0711 | 8 | 07/28/2021 06:26 | WG1712824 |
| Chlorobenzene | U | | 0.00299 | 0.0356 | 8 | 07/28/2021 06:26 | WG1712824 |
| Chlorodibromomethane | U | | 0.00871 | 0.0356 | 8 | 07/28/2021 06:26 | WG1712824 |
| Chloroethane | U | C3 | 0.0242 | 0.0711 | 8 | 07/28/2021 06:26 | WG1712824 |
| Chloroform | U | | 0.0146 | 0.0356 | 8 | 07/28/2021 06:26 | WG1712824 |
| Chloromethane | U | C3 | 0.0619 | 0.178 | 8 | 07/28/2021 06:26 | WG1712824 |
| 2-Chlorotoluene | U | | 0.0123 | 0.0356 | 8 | 07/28/2021 06:26 | WG1712824 |
| 4-Chlorotoluene | U | | 0.00640 | 0.0711 | 8 | 07/28/2021 06:26 | WG1712824 |
| 1,2-Dibromo-3-Chloropropane | U | C3 | 0.0555 | 0.356 | 8 | 07/28/2021 06:26 | WG1712824 |
| 1,2-Dibromoethane | U | | 0.00921 | 0.0356 | 8 | 07/28/2021 06:26 | WG1712824 |
| Dibromomethane | U | | 0.0107 | 0.0711 | 8 | 07/28/2021 06:26 | WG1712824 |
| 1,2-Dichlorobenzene | U | | 0.00604 | 0.0711 | 8 | 07/28/2021 06:26 | WG1712824 |
| 1,3-Dichlorobenzene | U | | 0.00853 | 0.0711 | 8 | 07/28/2021 06:26 | WG1712824 |
| 1,4-Dichlorobenzene | U | | 0.00995 | 0.0711 | 8 | 07/28/2021 06:26 | WG1712824 |
| Dichlorodifluoromethane | U | | 0.0229 | 0.0356 | 8 | 07/28/2021 06:26 | WG1712824 |
| 1,1-Dichloroethane | U | | 0.00699 | 0.0356 | 8 | 07/28/2021 06:26 | WG1712824 |
| 1,2-Dichloroethane | U | | 0.00923 | 0.0356 | 8 | 07/28/2021 06:26 | WG1712824 |
| 1,1-Dichloroethene | U | | 0.00862 | 0.0356 | 8 | 07/28/2021 06:26 | WG1712824 |
| cis-1,2-Dichloroethene | U | | 0.0104 | 0.0356 | 8 | 07/28/2021 06:26 | WG1712824 |
| trans-1,2-Dichloroethene | U | | 0.0148 | 0.0711 | 8 | 07/28/2021 06:26 | WG1712824 |
| 1,2-Dichloropropane | U | | 0.0203 | 0.0711 | 8 | 07/28/2021 06:26 | WG1712824 |
| 1,1-Dichloropropene | U | | 0.0115 | 0.0356 | 8 | 07/28/2021 06:26 | WG1712824 |
| 1,3-Dichloropropane | U | | 0.00713 | 0.0711 | 8 | 07/28/2021 06:26 | WG1712824 |
| cis-1,3-Dichloropropene | U | | 0.0108 | 0.0356 | 8 | 07/28/2021 06:26 | WG1712824 |
| trans-1,3-Dichloropropene | U | | 0.0162 | 0.0711 | 8 | 07/28/2021 06:26 | WG1712824 |
| 2,2-Dichloropropane | U | | 0.0196 | 0.0356 | 8 | 07/28/2021 06:26 | WG1712824 |
| Di-isopropyl ether | U | | 0.00583 | 0.0142 | 8 | 07/28/2021 06:26 | WG1712824 |

## Volatile Organic Compounds (GC/MS) by Method 8260D

| Analyte | Result (dry) mg/kg | Qualifier | MDL (dry) mg/kg | RDL (dry) mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| Ethylbenzene | U | | 0.0105 | 0.0356 | 8 | 07/28/2021 06:26 | WG1712824 |
| Hexachloro-1,3-butadiene | U | J5 | 0.0853 | 0.356 | 8 | 07/28/2021 06:26 | WG1712824 |
| Isopropylbenzene | 0.0752 | | 0.00604 | 0.0356 | 8 | 07/28/2021 06:26 | WG1712824 |
| p-Isopropyltoluene | U | | 0.0363 | 0.0711 | 8 | 07/28/2021 06:26 | WG1712824 |
| 2-Butanone (MEK) | U | | 0.903 | 1.42 | 8 | 07/28/2021 06:26 | WG1712824 |
| Methylene Chloride | U | C3 | 0.0944 | 0.356 | 8 | 07/28/2021 06:26 | WG1712824 |
| 4-Methyl-2-pentanone (MIBK) | 0.990 | | 0.0324 | 0.356 | 8 | 07/28/2021 06:26 | WG1712824 |
| Methyl tert-butyl ether | U | C3 | 0.00498 | 0.0142 | 8 | 07/28/2021 06:26 | WG1712824 |
| Naphthalene | U | C3 J5 | 0.0693 | 0.178 | 8 | 07/28/2021 06:26 | WG1712824 |
| n-Propylbenzene | 0.102 | | 0.0135 | 0.0711 | 8 | 07/28/2021 06:26 | WG1712824 |
| Styrene | U | | 0.00325 | 0.178 | 8 | 07/28/2021 06:26 | WG1712824 |
| 1,1,1,2-Tetrachloroethane | U | | 0.0135 | 0.0356 | 8 | 07/28/2021 06:26 | WG1712824 |
| 1,1,2,2-Tetrachloroethane | U | J5 | 0.00988 | 0.0356 | 8 | 07/28/2021 06:26 | WG1712824 |
| 1,1,2-Trichlorotrifluoroethane | U | | 0.0107 | 0.0356 | 8 | 07/28/2021 06:26 | WG1712824 |
| Tetrachloroethene | U | | 0.0127 | 0.0356 | 8 | 07/28/2021 06:26 | WG1712824 |
| Toluene | U | | 0.0185 | 0.0711 | 8 | 07/28/2021 06:26 | WG1712824 |
| 1,2,3-Trichlorobenzene | U | C4 J3 J5 | 0.104 | 0.178 | 8 | 07/28/2021 06:26 | WG1712824 |
| 1,2,4-Trichlorobenzene | U | C4 | 0.0626 | 0.178 | 8 | 07/28/2021 06:26 | WG1712824 |
| 1,1,1-Trichloroethane | U | | 0.0131 | 0.0356 | 8 | 07/28/2021 06:26 | WG1712824 |
| 1,1,2-Trichloroethane | U | | 0.00850 | 0.0356 | 8 | 07/28/2021 06:26 | WG1712824 |
| Trichloroethene | U | | 0.00830 | 0.0142 | 8 | 07/28/2021 06:26 | WG1712824 |
| Trichlorofluoromethane | U | C3 | 0.0118 | 0.0356 | 8 | 07/28/2021 06:26 | WG1712824 |
| 1,2,3-Trichloropropane | U | | 0.0231 | 0.178 | 8 | 07/28/2021 06:26 | WG1712824 |
| 1,2,4-Trimethylbenzene | U | | 0.0224 | 0.0711 | 8 | 07/28/2021 06:26 | WG1712824 |
| 1,2,3-Trimethylbenzene | U | | 0.0224 | 0.0711 | 8 | 07/28/2021 06:26 | WG1712824 |
| 1,3,5-Trimethylbenzene | U | | 0.0284 | 0.0711 | 8 | 07/28/2021 06:26 | WG1712824 |
| Vinyl chloride | U | C3 | 0.0165 | 0.0356 | 8 | 07/28/2021 06:26 | WG1712824 |
| Xylenes, Total | U | | 0.0125 | 0.0924 | 8 | 07/28/2021 06:26 | WG1712824 |
| *(S) Toluene-d8* | *102* | | | *75.0-131* | | *07/28/2021 06:26* | WG1712824 |
| *(S) 4-Bromofluorobenzene* | *148* | J1 | | *67.0-138* | | *07/28/2021 06:26* | WG1712824 |
| *(S) 1,2-Dichloroethane-d4* | *117* | | | *70.0-130* | | *07/28/2021 06:26* | WG1712824 |

**Sample Narrative:**

L1382553-03 WG1712824: Non-target compounds too high to run at a lower dilution.

## Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

| Analyte | Result (dry) mg/kg | Qualifier | MDL (dry) mg/kg | RDL (dry) mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 1120 | | 9.05 | 27.2 | 5 | 08/03/2021 16:51 | WG1715427 |
| Residual Range Organics (RRO) | U | | 4.53 | 13.6 | 1 | 08/03/2021 03:53 | WG1715427 |
| *(S) o-Terphenyl* | *73.3* | | | *18.0-148* | | *08/03/2021 03:53* | WG1715427 |
| *(S) o-Terphenyl* | *85.3* | | | *18.0-148* | | *08/03/2021 16:51* | WG1715427 |

## Total Solids by Method 2540 G-2011

| Analyte | Result | Qualifier | Dilution | Analysis | Batch |
|---|---|---|---|---|---|
| | % | | | date / time | |
| Total Solids | 76.8 | | 1 | 08/02/2021 11:43 | WG1715575 |

## Metals (ICPMS) by Method 6020B

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Lead | 13.4 | | 0.129 | 2.61 | 5 | 07/30/2021 14:12 | WG1713790 |

## Volatile Organic Compounds (GC) by Method NWTPHGX

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Gasoline Range Organics-NWTPH | U | | 1.38 | 4.07 | 25 | 07/30/2021 18:37 | WG1714851 |
| *(S) a,a,a-Trifluorotoluene(FID)* | *99.1* | | | *77.0-120* | | *07/30/2021 18:37* | WG1714851 |

## Volatile Organic Compounds (GC/MS) by Method 8260D

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Acetone | U | | 0.0594 | 0.0814 | 1 | 07/28/2021 00:45 | WG1712824 |
| Acrylonitrile | U | | 0.00587 | 0.0203 | 1 | 07/28/2021 00:45 | WG1712824 |
| Benzene | U | | 0.000760 | 0.00163 | 1 | 07/28/2021 00:45 | WG1712824 |
| Bromobenzene | U | | 0.00146 | 0.0203 | 1 | 07/28/2021 00:45 | WG1712824 |
| Bromodichloromethane | U | | 0.00118 | 0.00407 | 1 | 07/28/2021 00:45 | WG1712824 |
| Bromoform | U | | 0.00190 | 0.0407 | 1 | 07/28/2021 00:45 | WG1712824 |
| Bromomethane | U | C3 | 0.00321 | 0.0203 | 1 | 07/28/2021 00:45 | WG1712824 |
| n-Butylbenzene | U | | 0.00854 | 0.0203 | 1 | 07/28/2021 00:45 | WG1712824 |
| sec-Butylbenzene | U | | 0.00469 | 0.0203 | 1 | 07/28/2021 00:45 | WG1712824 |
| tert-Butylbenzene | U | | 0.00317 | 0.00814 | 1 | 07/28/2021 00:45 | WG1712824 |
| Carbon disulfide | U | C3 | 0.00114 | 0.0203 | 1 | 07/28/2021 00:45 | WG1712824 |
| Carbon tetrachloride | U | | 0.00146 | 0.00814 | 1 | 07/28/2021 00:45 | WG1712824 |
| Chlorobenzene | U | | 0.000342 | 0.00407 | 1 | 07/28/2021 00:45 | WG1712824 |
| Chlorodibromomethane | U | | 0.000996 | 0.00407 | 1 | 07/28/2021 00:45 | WG1712824 |
| Chloroethane | U | C3 | 0.00277 | 0.00814 | 1 | 07/28/2021 00:45 | WG1712824 |
| Chloroform | U | | 0.00168 | 0.00407 | 1 | 07/28/2021 00:45 | WG1712824 |
| Chloromethane | U | C3 | 0.00708 | 0.0203 | 1 | 07/28/2021 00:45 | WG1712824 |
| 2-Chlorotoluene | U | | 0.00141 | 0.00407 | 1 | 07/28/2021 00:45 | WG1712824 |
| 4-Chlorotoluene | U | | 0.000732 | 0.00814 | 1 | 07/28/2021 00:45 | WG1712824 |
| 1,2-Dibromo-3-Chloropropane | U | C3 | 0.00635 | 0.0407 | 1 | 07/28/2021 00:45 | WG1712824 |
| 1,2-Dibromoethane | U | | 0.00105 | 0.00407 | 1 | 07/28/2021 00:45 | WG1712824 |
| Dibromomethane | U | | 0.00122 | 0.00814 | 1 | 07/28/2021 00:45 | WG1712824 |
| 1,2-Dichlorobenzene | U | | 0.000691 | 0.00814 | 1 | 07/28/2021 00:45 | WG1712824 |
| 1,3-Dichlorobenzene | U | | 0.000976 | 0.00814 | 1 | 07/28/2021 00:45 | WG1712824 |
| 1,4-Dichlorobenzene | U | | 0.00114 | 0.00814 | 1 | 07/28/2021 00:45 | WG1712824 |
| Dichlorodifluoromethane | U | | 0.00262 | 0.00407 | 1 | 07/28/2021 00:45 | WG1712824 |
| 1,1-Dichloroethane | U | | 0.000799 | 0.00407 | 1 | 07/28/2021 00:45 | WG1712824 |
| 1,2-Dichloroethane | U | | 0.00106 | 0.00407 | 1 | 07/28/2021 00:45 | WG1712824 |
| 1,1-Dichloroethene | U | | 0.000986 | 0.00407 | 1 | 07/28/2021 00:45 | WG1712824 |
| cis-1,2-Dichloroethene | U | | 0.00119 | 0.00407 | 1 | 07/28/2021 00:45 | WG1712824 |
| trans-1,2-Dichloroethene | U | | 0.00169 | 0.00814 | 1 | 07/28/2021 00:45 | WG1712824 |
| 1,2-Dichloropropane | U | | 0.00231 | 0.00814 | 1 | 07/28/2021 00:45 | WG1712824 |
| 1,1-Dichloropropene | U | | 0.00132 | 0.00407 | 1 | 07/28/2021 00:45 | WG1712824 |
| 1,3-Dichloropropane | U | | 0.000815 | 0.00814 | 1 | 07/28/2021 00:45 | WG1712824 |
| cis-1,3-Dichloropropene | U | | 0.00123 | 0.00407 | 1 | 07/28/2021 00:45 | WG1712824 |
| trans-1,3-Dichloropropene | U | | 0.00185 | 0.00814 | 1 | 07/28/2021 00:45 | WG1712824 |
| 2,2-Dichloropropane | U | | 0.00225 | 0.00407 | 1 | 07/28/2021 00:45 | WG1712824 |
| Di-isopropyl ether | U | | 0.000667 | 0.00163 | 1 | 07/28/2021 00:45 | WG1712824 |

## Volatile Organic Compounds (GC/MS) by Method 8260D

| Analyte | Result (dry) mg/kg | Qualifier | MDL (dry) mg/kg | RDL (dry) mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| Ethylbenzene | U | | 0.00120 | 0.00407 | 1 | 07/28/2021 00:45 | WG1712824 |
| Hexachloro-1,3-butadiene | U | | 0.00976 | 0.0407 | 1 | 07/28/2021 00:45 | WG1712824 |
| Isopropylbenzene | U | | 0.000691 | 0.00407 | 1 | 07/28/2021 00:45 | WG1712824 |
| p-Isopropyltoluene | U | | 0.00415 | 0.00814 | 1 | 07/28/2021 00:45 | WG1712824 |
| 2-Butanone (MEK) | 0.189 | | 0.103 | 0.163 | 1 | 07/28/2021 00:45 | WG1712824 |
| Methylene Chloride | U | C3 | 0.0108 | 0.0407 | 1 | 07/28/2021 00:45 | WG1712824 |
| 4-Methyl-2-pentanone (MIBK) | U | | 0.00371 | 0.0407 | 1 | 07/28/2021 00:45 | WG1712824 |
| Methyl tert-butyl ether | U | C3 | 0.000569 | 0.00163 | 1 | 07/28/2021 00:45 | WG1712824 |
| Naphthalene | U | C3 | 0.00794 | 0.0203 | 1 | 07/28/2021 00:45 | WG1712824 |
| n-Propylbenzene | U | | 0.00155 | 0.00814 | 1 | 07/28/2021 00:45 | WG1712824 |
| Styrene | U | | 0.000373 | 0.0203 | 1 | 07/28/2021 00:45 | WG1712824 |
| 1,1,1,2-Tetrachloroethane | U | | 0.00154 | 0.00407 | 1 | 07/28/2021 00:45 | WG1712824 |
| 1,1,2,2-Tetrachloroethane | U | | 0.00113 | 0.00407 | 1 | 07/28/2021 00:45 | WG1712824 |
| 1,1,2-Trichlorotrifluoroethane | U | | 0.00123 | 0.00407 | 1 | 07/28/2021 00:45 | WG1712824 |
| Tetrachloroethene | U | | 0.00146 | 0.00407 | 1 | 07/28/2021 00:45 | WG1712824 |
| Toluene | U | | 0.00212 | 0.00814 | 1 | 07/28/2021 00:45 | WG1712824 |
| 1,2,3-Trichlorobenzene | U | C4 | 0.0119 | 0.0203 | 1 | 07/28/2021 00:45 | WG1712824 |
| 1,2,4-Trichlorobenzene | U | C4 | 0.00716 | 0.0203 | 1 | 07/28/2021 00:45 | WG1712824 |
| 1,1,1-Trichloroethane | U | | 0.00150 | 0.00407 | 1 | 07/28/2021 00:45 | WG1712824 |
| 1,1,2-Trichloroethane | U | | 0.000971 | 0.00407 | 1 | 07/28/2021 00:45 | WG1712824 |
| Trichloroethene | U | | 0.000950 | 0.00163 | 1 | 07/28/2021 00:45 | WG1712824 |
| Trichlorofluoromethane | U | C3 | 0.00135 | 0.00407 | 1 | 07/28/2021 00:45 | WG1712824 |
| 1,2,3-Trichloropropane | U | | 0.00264 | 0.0203 | 1 | 07/28/2021 00:45 | WG1712824 |
| 1,2,4-Trimethylbenzene | U | | 0.00257 | 0.00814 | 1 | 07/28/2021 00:45 | WG1712824 |
| 1,2,3-Trimethylbenzene | U | | 0.00257 | 0.00814 | 1 | 07/28/2021 00:45 | WG1712824 |
| 1,3,5-Trimethylbenzene | U | | 0.00325 | 0.00814 | 1 | 07/28/2021 00:45 | WG1712824 |
| Vinyl chloride | U | C3 | 0.00189 | 0.00407 | 1 | 07/28/2021 00:45 | WG1712824 |
| Xylenes, Total | U | | 0.00143 | 0.0106 | 1 | 07/28/2021 00:45 | WG1712824 |
| *(S) Toluene-d8* | *107* | | | *75.0-131* | | *07/28/2021 00:45* | WG1712824 |
| *(S) 4-Bromofluorobenzene* | *89.6* | | | *67.0-138* | | *07/28/2021 00:45* | WG1712824 |
| *(S) 1,2-Dichloroethane-d4* | *107* | | | *70.0-130* | | *07/28/2021 00:45* | WG1712824 |

## Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

| Analyte | Result (dry) mg/kg | Qualifier | MDL (dry) mg/kg | RDL (dry) mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | U | | 1.73 | 5.21 | 1 | 08/03/2021 02:32 | WG1715427 |
| Residual Range Organics (RRO) | U | | 4.34 | 13.0 | 1 | 08/03/2021 02:32 | WG1715427 |
| *(S) o-Terphenyl* | *59.9* | | | *18.0-148* | | *08/03/2021 02:32* | WG1715427 |

## Total Solids by Method 2540 G-2011

| Analyte | Result | Qualifier | Dilution | Analysis | Batch |
|---|---|---|---|---|---|
| | % | | | date / time | |
| Total Solids | 75.7 | | 1 | 08/02/2021 11:43 | WG1715575 |

## Metals (ICPMS) by Method 6020B

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Lead | 85.6 | | 0.131 | 2.64 | 5 | 07/30/2021 14:15 | WG1713790 |

## Volatile Organic Compounds (GC) by Method NWTPHGX

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Gasoline Range Organics-NWTPH | 349 | | 1.47 | 4.34 | 25 | 07/29/2021 13:16 | WG1713435 |
| *(S) a,a,a-Trifluorotoluene(FID)* | *103* | | | *77.0-120* | | *07/29/2021 13:16* | WG1713435 |

## Volatile Organic Compounds (GC/MS) by Method 8260D

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Acetone | U | | 0.0634 | 0.0869 | 1 | 07/28/2021 01:04 | WG1712824 |
| Acrylonitrile | U | | 0.00627 | 0.0217 | 1 | 07/28/2021 01:04 | WG1712824 |
| Benzene | 0.00384 | | 0.000811 | 0.00174 | 1 | 07/28/2021 01:04 | WG1712824 |
| Bromobenzene | U | | 0.00156 | 0.0217 | 1 | 07/28/2021 01:04 | WG1712824 |
| Bromodichloromethane | U | | 0.00126 | 0.00434 | 1 | 07/28/2021 01:04 | WG1712824 |
| Bromoform | U | | 0.00203 | 0.0434 | 1 | 07/28/2021 01:04 | WG1712824 |
| Bromomethane | U | C3 | 0.00342 | 0.0217 | 1 | 07/28/2021 01:04 | WG1712824 |
| n-Butylbenzene | 0.243 | | 0.00912 | 0.0217 | 1 | 07/28/2021 01:04 | WG1712824 |
| sec-Butylbenzene | 0.356 | | 0.00500 | 0.0217 | 1 | 07/28/2021 01:04 | WG1712824 |
| tert-Butylbenzene | U | | 0.00339 | 0.00869 | 1 | 07/28/2021 01:04 | WG1712824 |
| Carbon disulfide | U | C3 | 0.00122 | 0.0217 | 1 | 07/28/2021 01:04 | WG1712824 |
| Carbon tetrachloride | U | | 0.00156 | 0.00869 | 1 | 07/28/2021 01:04 | WG1712824 |
| Chlorobenzene | U | | 0.000365 | 0.00434 | 1 | 07/28/2021 01:04 | WG1712824 |
| Chlorodibromomethane | U | | 0.00106 | 0.00434 | 1 | 07/28/2021 01:04 | WG1712824 |
| Chloroethane | U | C3 | 0.00295 | 0.00869 | 1 | 07/28/2021 01:04 | WG1712824 |
| Chloroform | U | | 0.00179 | 0.00434 | 1 | 07/28/2021 01:04 | WG1712824 |
| Chloromethane | U | C3 | 0.00756 | 0.0217 | 1 | 07/28/2021 01:04 | WG1712824 |
| 2-Chlorotoluene | U | | 0.00150 | 0.00434 | 1 | 07/28/2021 01:04 | WG1712824 |
| 4-Chlorotoluene | U | | 0.000782 | 0.00869 | 1 | 07/28/2021 01:04 | WG1712824 |
| 1,2-Dibromo-3-Chloropropane | U | C3 | 0.00678 | 0.0434 | 1 | 07/28/2021 01:04 | WG1712824 |
| 1,2-Dibromoethane | U | | 0.00113 | 0.00434 | 1 | 07/28/2021 01:04 | WG1712824 |
| Dibromomethane | U | | 0.00130 | 0.00869 | 1 | 07/28/2021 01:04 | WG1712824 |
| 1,2-Dichlorobenzene | U | | 0.000738 | 0.00869 | 1 | 07/28/2021 01:04 | WG1712824 |
| 1,3-Dichlorobenzene | U | | 0.00104 | 0.00869 | 1 | 07/28/2021 01:04 | WG1712824 |
| 1,4-Dichlorobenzene | U | | 0.00122 | 0.00869 | 1 | 07/28/2021 01:04 | WG1712824 |
| Dichlorodifluoromethane | U | | 0.00280 | 0.00434 | 1 | 07/28/2021 01:04 | WG1712824 |
| 1,1-Dichloroethane | U | | 0.000853 | 0.00434 | 1 | 07/28/2021 01:04 | WG1712824 |
| 1,2-Dichloroethane | U | | 0.00113 | 0.00434 | 1 | 07/28/2021 01:04 | WG1712824 |
| 1,1-Dichloroethene | U | | 0.00105 | 0.00434 | 1 | 07/28/2021 01:04 | WG1712824 |
| cis-1,2-Dichloroethene | U | | 0.00128 | 0.00434 | 1 | 07/28/2021 01:04 | WG1712824 |
| trans-1,2-Dichloroethene | U | | 0.00181 | 0.00869 | 1 | 07/28/2021 01:04 | WG1712824 |
| 1,2-Dichloropropane | U | | 0.00247 | 0.00869 | 1 | 07/28/2021 01:04 | WG1712824 |
| 1,1-Dichloropropene | U | | 0.00141 | 0.00434 | 1 | 07/28/2021 01:04 | WG1712824 |
| 1,3-Dichloropropane | U | | 0.000871 | 0.00869 | 1 | 07/28/2021 01:04 | WG1712824 |
| cis-1,3-Dichloropropene | U | | 0.00132 | 0.00434 | 1 | 07/28/2021 01:04 | WG1712824 |
| trans-1,3-Dichloropropene | U | | 0.00198 | 0.00869 | 1 | 07/28/2021 01:04 | WG1712824 |
| 2,2-Dichloropropane | U | | 0.00240 | 0.00434 | 1 | 07/28/2021 01:04 | WG1712824 |
| Di-isopropyl ether | U | | 0.000712 | 0.00174 | 1 | 07/28/2021 01:04 | WG1712824 |

## Volatile Organic Compounds (GC/MS) by Method 8260D

| Analyte | Result (dry) mg/kg | Qualifier | MDL (dry) mg/kg | RDL (dry) mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| Ethylbenzene | 0.00987 | | 0.00128 | 0.00434 | 1 | 07/28/2021 01:04 | WG1712824 |
| Hexachloro-1,3-butadiene | U | | 0.0104 | 0.0434 | 1 | 07/28/2021 01:04 | WG1712824 |
| Isopropylbenzene | 0.130 | | 0.000738 | 0.00434 | 1 | 07/28/2021 01:04 | WG1712824 |
| p-Isopropyltoluene | U | | 0.00443 | 0.00869 | 1 | 07/28/2021 01:04 | WG1712824 |
| 2-Butanone (MEK) | 0.138 | J | 0.110 | 0.174 | 1 | 07/28/2021 01:04 | WG1712824 |
| Methylene Chloride | U | C3 | 0.0115 | 0.0434 | 1 | 07/28/2021 01:04 | WG1712824 |
| 4-Methyl-2-pentanone (MIBK) | 0.323 | | 0.00396 | 0.0434 | 1 | 07/28/2021 01:04 | WG1712824 |
| Methyl tert-butyl ether | U | C3 | 0.000608 | 0.00174 | 1 | 07/28/2021 01:04 | WG1712824 |
| Naphthalene | U | C3 | 0.00848 | 0.0217 | 1 | 07/28/2021 01:04 | WG1712824 |
| n-Propylbenzene | 0.297 | | 0.00165 | 0.00869 | 1 | 07/28/2021 01:04 | WG1712824 |
| Styrene | U | | 0.000398 | 0.0217 | 1 | 07/28/2021 01:04 | WG1712824 |
| 1,1,1,2-Tetrachloroethane | U | | 0.00165 | 0.00434 | 1 | 07/28/2021 01:04 | WG1712824 |
| 1,1,2,2-Tetrachloroethane | U | | 0.00121 | 0.00434 | 1 | 07/28/2021 01:04 | WG1712824 |
| 1,1,2-Trichlorotrifluoroethane | U | | 0.00131 | 0.00434 | 1 | 07/28/2021 01:04 | WG1712824 |
| Tetrachloroethene | U | | 0.00156 | 0.00434 | 1 | 07/28/2021 01:04 | WG1712824 |
| Toluene | 0.00629 | J | 0.00226 | 0.00869 | 1 | 07/28/2021 01:04 | WG1712824 |
| 1,2,3-Trichlorobenzene | U | C4 | 0.0127 | 0.0217 | 1 | 07/28/2021 01:04 | WG1712824 |
| 1,2,4-Trichlorobenzene | U | C4 | 0.00765 | 0.0217 | 1 | 07/28/2021 01:04 | WG1712824 |
| 1,1,1-Trichloroethane | U | | 0.00160 | 0.00434 | 1 | 07/28/2021 01:04 | WG1712824 |
| 1,1,2-Trichloroethane | U | | 0.00104 | 0.00434 | 1 | 07/28/2021 01:04 | WG1712824 |
| Trichloroethene | U | | 0.00101 | 0.00174 | 1 | 07/28/2021 01:04 | WG1712824 |
| Trichlorofluoromethane | U | C3 | 0.00144 | 0.00434 | 1 | 07/28/2021 01:04 | WG1712824 |
| 1,2,3-Trichloropropane | U | | 0.00281 | 0.0217 | 1 | 07/28/2021 01:04 | WG1712824 |
| 1,2,4-Trimethylbenzene | U | | 0.00275 | 0.00869 | 1 | 07/28/2021 01:04 | WG1712824 |
| 1,2,3-Trimethylbenzene | 0.0542 | | 0.00275 | 0.00869 | 1 | 07/28/2021 01:04 | WG1712824 |
| 1,3,5-Trimethylbenzene | U | | 0.00348 | 0.00869 | 1 | 07/28/2021 01:04 | WG1712824 |
| Vinyl chloride | U | C3 | 0.00202 | 0.00434 | 1 | 07/28/2021 01:04 | WG1712824 |
| Xylenes, Total | 0.0308 | | 0.00153 | 0.0113 | 1 | 07/28/2021 01:04 | WG1712824 |
| *(S) Toluene-d8* | *109* | | | *75.0-131* | | *07/28/2021 01:04* | WG1712824 |
| *(S) 4-Bromofluorobenzene* | *235* | J1 | | *67.0-138* | | *07/28/2021 01:04* | WG1712824 |
| *(S) 1,2-Dichloroethane-d4* | *100* | | | *70.0-130* | | *07/28/2021 01:04* | WG1712824 |

**Sample Narrative:**

L1382553-05 WG1712824: Surrogate failure due to matrix interference

## Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

| Analyte | Result (dry) mg/kg | Qualifier | MDL (dry) mg/kg | RDL (dry) mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 4.80 | J | 1.76 | 5.28 | 1 | 08/03/2021 05:00 | WG1715427 |
| Residual Range Organics (RRO) | 7.16 | J | 4.40 | 13.2 | 1 | 08/03/2021 05:00 | WG1715427 |
| *(S) o-Terphenyl* | *52.8* | | | *18.0-148* | | *08/03/2021 05:00* | WG1715427 |

## Total Solids by Method 2540 G-2011

| Analyte | Result | Qualifier | Dilution | Analysis | Batch |
|---|---|---|---|---|---|
| | % | | | date / time | |
| Total Solids | 74.2 | | 1 | 08/02/2021 11:43 | WG1715575 |

## Metals (ICPMS) by Method 6020B

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Lead | 12.3 | | 0.133 | 2.70 | 5 | 07/30/2021 14:19 | WG1713790 |

## Volatile Organic Compounds (GC) by Method NWTPHGX

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Gasoline Range Organics-NWTPH | U | | 1.54 | 4.54 | 25 | 07/29/2021 13:38 | WG1713435 |
| *(S) a,a,a-Trifluorotoluene(FID)* | *97.8* | | | *77.0-120* | | *07/29/2021 13:38* | WG1713435 |

## Volatile Organic Compounds (GC/MS) by Method 8260D

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Acetone | U | | 0.0662 | 0.0907 | 1 | 07/28/2021 01:23 | WG1712824 |
| Acrylonitrile | U | | 0.00655 | 0.0227 | 1 | 07/28/2021 01:23 | WG1712824 |
| Benzene | U | | 0.000847 | 0.00181 | 1 | 07/28/2021 01:23 | WG1712824 |
| Bromobenzene | U | | 0.00163 | 0.0227 | 1 | 07/28/2021 01:23 | WG1712824 |
| Bromodichloromethane | U | | 0.00132 | 0.00454 | 1 | 07/28/2021 01:23 | WG1712824 |
| Bromoform | U | | 0.00212 | 0.0454 | 1 | 07/28/2021 01:23 | WG1712824 |
| Bromomethane | U | C3 | 0.00357 | 0.0227 | 1 | 07/28/2021 01:23 | WG1712824 |
| n-Butylbenzene | U | | 0.00952 | 0.0227 | 1 | 07/28/2021 01:23 | WG1712824 |
| sec-Butylbenzene | 0.0106 | J | 0.00522 | 0.0227 | 1 | 07/28/2021 01:23 | WG1712824 |
| tert-Butylbenzene | U | | 0.00354 | 0.00907 | 1 | 07/28/2021 01:23 | WG1712824 |
| Carbon disulfide | U | C3 | 0.00127 | 0.0227 | 1 | 07/28/2021 01:23 | WG1712824 |
| Carbon tetrachloride | U | | 0.00163 | 0.00907 | 1 | 07/28/2021 01:23 | WG1712824 |
| Chlorobenzene | U | | 0.000381 | 0.00454 | 1 | 07/28/2021 01:23 | WG1712824 |
| Chlorodibromomethane | U | | 0.00111 | 0.00454 | 1 | 07/28/2021 01:23 | WG1712824 |
| Chloroethane | U | C3 | 0.00308 | 0.00907 | 1 | 07/28/2021 01:23 | WG1712824 |
| Chloroform | U | | 0.00187 | 0.00454 | 1 | 07/28/2021 01:23 | WG1712824 |
| Chloromethane | U | C3 | 0.00789 | 0.0227 | 1 | 07/28/2021 01:23 | WG1712824 |
| 2-Chlorotoluene | U | | 0.00157 | 0.00454 | 1 | 07/28/2021 01:23 | WG1712824 |
| 4-Chlorotoluene | U | | 0.000816 | 0.00907 | 1 | 07/28/2021 01:23 | WG1712824 |
| 1,2-Dibromo-3-Chloropropane | U | C3 | 0.00708 | 0.0454 | 1 | 07/28/2021 01:23 | WG1712824 |
| 1,2-Dibromoethane | U | | 0.00118 | 0.00454 | 1 | 07/28/2021 01:23 | WG1712824 |
| Dibromomethane | U | | 0.00136 | 0.00907 | 1 | 07/28/2021 01:23 | WG1712824 |
| 1,2-Dichlorobenzene | U | | 0.000771 | 0.00907 | 1 | 07/28/2021 01:23 | WG1712824 |
| 1,3-Dichlorobenzene | U | | 0.00109 | 0.00907 | 1 | 07/28/2021 01:23 | WG1712824 |
| 1,4-Dichlorobenzene | U | | 0.00127 | 0.00907 | 1 | 07/28/2021 01:23 | WG1712824 |
| Dichlorodifluoromethane | U | | 0.00292 | 0.00454 | 1 | 07/28/2021 01:23 | WG1712824 |
| 1,1-Dichloroethane | U | | 0.000891 | 0.00454 | 1 | 07/28/2021 01:23 | WG1712824 |
| 1,2-Dichloroethane | U | | 0.00118 | 0.00454 | 1 | 07/28/2021 01:23 | WG1712824 |
| 1,1-Dichloroethene | U | | 0.00110 | 0.00454 | 1 | 07/28/2021 01:23 | WG1712824 |
| cis-1,2-Dichloroethene | U | | 0.00133 | 0.00454 | 1 | 07/28/2021 01:23 | WG1712824 |
| trans-1,2-Dichloroethene | U | | 0.00189 | 0.00907 | 1 | 07/28/2021 01:23 | WG1712824 |
| 1,2-Dichloropropane | U | | 0.00258 | 0.00907 | 1 | 07/28/2021 01:23 | WG1712824 |
| 1,1-Dichloropropene | U | | 0.00147 | 0.00454 | 1 | 07/28/2021 01:23 | WG1712824 |
| 1,3-Dichloropropane | U | | 0.000909 | 0.00907 | 1 | 07/28/2021 01:23 | WG1712824 |
| cis-1,3-Dichloropropene | U | | 0.00137 | 0.00454 | 1 | 07/28/2021 01:23 | WG1712824 |
| trans-1,3-Dichloropropene | U | | 0.00207 | 0.00907 | 1 | 07/28/2021 01:23 | WG1712824 |
| 2,2-Dichloropropane | U | | 0.00250 | 0.00454 | 1 | 07/28/2021 01:23 | WG1712824 |
| Di-isopropyl ether | U | | 0.000744 | 0.00181 | 1 | 07/28/2021 01:23 | WG1712824 |

## Volatile Organic Compounds (GC/MS) by Method 8260D

| Analyte | Result (dry) mg/kg | Qualifier | MDL (dry) mg/kg | RDL (dry) mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| Ethylbenzene | U | | 0.00134 | 0.00454 | 1 | 07/28/2021 01:23 | WG1712824 |
| Hexachloro-1,3-butadiene | U | | 0.0109 | 0.0454 | 1 | 07/28/2021 01:23 | WG1712824 |
| Isopropylbenzene | 0.00126 | J | 0.000771 | 0.00454 | 1 | 07/28/2021 01:23 | WG1712824 |
| p-Isopropyltoluene | U | | 0.00463 | 0.00907 | 1 | 07/28/2021 01:23 | WG1712824 |
| 2-Butanone (MEK) | 0.147 | J | 0.115 | 0.181 | 1 | 07/28/2021 01:23 | WG1712824 |
| Methylene Chloride | U | C3 | 0.0120 | 0.0454 | 1 | 07/28/2021 01:23 | WG1712824 |
| 4-Methyl-2-pentanone (MIBK) | U | | 0.00414 | 0.0454 | 1 | 07/28/2021 01:23 | WG1712824 |
| Methyl tert-butyl ether | U | C3 | 0.000635 | 0.00181 | 1 | 07/28/2021 01:23 | WG1712824 |
| Naphthalene | U | C3 | 0.00885 | 0.0227 | 1 | 07/28/2021 01:23 | WG1712824 |
| n-Propylbenzene | 0.00575 | J | 0.00172 | 0.00907 | 1 | 07/28/2021 01:23 | WG1712824 |
| Styrene | U | | 0.000415 | 0.0227 | 1 | 07/28/2021 01:23 | WG1712824 |
| 1,1,1,2-Tetrachloroethane | U | | 0.00172 | 0.00454 | 1 | 07/28/2021 01:23 | WG1712824 |
| 1,1,2,2-Tetrachloroethane | U | | 0.00126 | 0.00454 | 1 | 07/28/2021 01:23 | WG1712824 |
| 1,1,2-Trichlorotrifluoroethane | U | | 0.00137 | 0.00454 | 1 | 07/28/2021 01:23 | WG1712824 |
| Tetrachloroethene | U | | 0.00163 | 0.00454 | 1 | 07/28/2021 01:23 | WG1712824 |
| Toluene | U | | 0.00236 | 0.00907 | 1 | 07/28/2021 01:23 | WG1712824 |
| 1,2,3-Trichlorobenzene | U | C4 | 0.0133 | 0.0227 | 1 | 07/28/2021 01:23 | WG1712824 |
| 1,2,4-Trichlorobenzene | U | C4 | 0.00798 | 0.0227 | 1 | 07/28/2021 01:23 | WG1712824 |
| 1,1,1-Trichloroethane | U | | 0.00167 | 0.00454 | 1 | 07/28/2021 01:23 | WG1712824 |
| 1,1,2-Trichloroethane | U | | 0.00108 | 0.00454 | 1 | 07/28/2021 01:23 | WG1712824 |
| Trichloroethene | U | | 0.00106 | 0.00181 | 1 | 07/28/2021 01:23 | WG1712824 |
| Trichlorofluoromethane | U | C3 | 0.00150 | 0.00454 | 1 | 07/28/2021 01:23 | WG1712824 |
| 1,2,3-Trichloropropane | U | | 0.00294 | 0.0227 | 1 | 07/28/2021 01:23 | WG1712824 |
| 1,2,4-Trimethylbenzene | U | | 0.00287 | 0.00907 | 1 | 07/28/2021 01:23 | WG1712824 |
| 1,2,3-Trimethylbenzene | U | | 0.00287 | 0.00907 | 1 | 07/28/2021 01:23 | WG1712824 |
| 1,3,5-Trimethylbenzene | U | | 0.00363 | 0.00907 | 1 | 07/28/2021 01:23 | WG1712824 |
| Vinyl chloride | U | C3 | 0.00210 | 0.00454 | 1 | 07/28/2021 01:23 | WG1712824 |
| Xylenes, Total | U | | 0.00160 | 0.0118 | 1 | 07/28/2021 01:23 | WG1712824 |
| *(S) Toluene-d8* | *111* | | | *75.0-131* | | *07/28/2021 01:23* | WG1712824 |
| *(S) 4-Bromofluorobenzene* | *95.1* | | | *67.0-138* | | *07/28/2021 01:23* | WG1712824 |
| *(S) 1,2-Dichloroethane-d4* | *103* | | | *70.0-130* | | *07/28/2021 01:23* | WG1712824 |

## Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

| Analyte | Result (dry) mg/kg | Qualifier | MDL (dry) mg/kg | RDL (dry) mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | U | | 1.79 | 5.39 | 1 | 08/03/2021 02:46 | WG1715427 |
| Residual Range Organics (RRO) | U | | 4.49 | 13.5 | 1 | 08/03/2021 02:46 | WG1715427 |
| *(S) o-Terphenyl* | *55.8* | | | *18.0-148* | | *08/03/2021 02:46* | WG1715427 |

## Total Solids by Method 2540 G-2011

| Analyte | Result | Qualifier | Dilution | Analysis | Batch |
|---|---|---|---|---|---|
| | % | | | date / time | |
| Total Solids | 71.2 | | 1 | 08/02/2021 11:32 | WG1715577 |

## Metals (ICPMS) by Method 6020B

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Lead | 12.4 | | 0.139 | 2.81 | 5 | 07/30/2021 14:22 | WG1713790 |

## Volatile Organic Compounds (GC) by Method NWTPHGX

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Gasoline Range Organics-NWTPH | 1.89 | J | 1.66 | 4.88 | 25 | 07/29/2021 14:01 | WG1713435 |
| *(S) a,a,a-Trifluorotoluene(FID)* | *95.9* | | | *77.0-120* | | *07/29/2021 14:01* | WG1713435 |

## Volatile Organic Compounds (GC/MS) by Method 8260D

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Acetone | U | | 0.0713 | 0.0977 | 1 | 07/28/2021 01:42 | WG1712824 |
| Acrylonitrile | U | | 0.00705 | 0.0244 | 1 | 07/28/2021 01:42 | WG1712824 |
| Benzene | U | | 0.000912 | 0.00195 | 1 | 07/28/2021 01:42 | WG1712824 |
| Bromobenzene | U | | 0.00176 | 0.0244 | 1 | 07/28/2021 01:42 | WG1712824 |
| Bromodichloromethane | U | | 0.00142 | 0.00488 | 1 | 07/28/2021 01:42 | WG1712824 |
| Bromoform | U | | 0.00229 | 0.0488 | 1 | 07/28/2021 01:42 | WG1712824 |
| Bromomethane | U | C3 | 0.00385 | 0.0244 | 1 | 07/28/2021 01:42 | WG1712824 |
| n-Butylbenzene | U | | 0.0103 | 0.0244 | 1 | 07/28/2021 01:42 | WG1712824 |
| sec-Butylbenzene | U | | 0.00563 | 0.0244 | 1 | 07/28/2021 01:42 | WG1712824 |
| tert-Butylbenzene | U | | 0.00381 | 0.00977 | 1 | 07/28/2021 01:42 | WG1712824 |
| Carbon disulfide | U | C3 | 0.00137 | 0.0244 | 1 | 07/28/2021 01:42 | WG1712824 |
| Carbon tetrachloride | U | | 0.00175 | 0.00977 | 1 | 07/28/2021 01:42 | WG1712824 |
| Chlorobenzene | U | | 0.000410 | 0.00488 | 1 | 07/28/2021 01:42 | WG1712824 |
| Chlorodibromomethane | U | | 0.00120 | 0.00488 | 1 | 07/28/2021 01:42 | WG1712824 |
| Chloroethane | U | C3 | 0.00332 | 0.00977 | 1 | 07/28/2021 01:42 | WG1712824 |
| Chloroform | U | | 0.00201 | 0.00488 | 1 | 07/28/2021 01:42 | WG1712824 |
| Chloromethane | U | C3 | 0.00850 | 0.0244 | 1 | 07/28/2021 01:42 | WG1712824 |
| 2-Chlorotoluene | U | | 0.00169 | 0.00488 | 1 | 07/28/2021 01:42 | WG1712824 |
| 4-Chlorotoluene | U | | 0.000879 | 0.00977 | 1 | 07/28/2021 01:42 | WG1712824 |
| 1,2-Dibromo-3-Chloropropane | U | C3 | 0.00762 | 0.0488 | 1 | 07/28/2021 01:42 | WG1712824 |
| 1,2-Dibromoethane | U | | 0.00127 | 0.00488 | 1 | 07/28/2021 01:42 | WG1712824 |
| Dibromomethane | U | | 0.00147 | 0.00977 | 1 | 07/28/2021 01:42 | WG1712824 |
| 1,2-Dichlorobenzene | U | | 0.000830 | 0.00977 | 1 | 07/28/2021 01:42 | WG1712824 |
| 1,3-Dichlorobenzene | U | | 0.00117 | 0.00977 | 1 | 07/28/2021 01:42 | WG1712824 |
| 1,4-Dichlorobenzene | U | | 0.00137 | 0.00977 | 1 | 07/28/2021 01:42 | WG1712824 |
| Dichlorodifluoromethane | U | | 0.00315 | 0.00488 | 1 | 07/28/2021 01:42 | WG1712824 |
| 1,1-Dichloroethane | U | | 0.000959 | 0.00488 | 1 | 07/28/2021 01:42 | WG1712824 |
| 1,2-Dichloroethane | U | | 0.00127 | 0.00488 | 1 | 07/28/2021 01:42 | WG1712824 |
| 1,1-Dichloroethene | U | | 0.00118 | 0.00488 | 1 | 07/28/2021 01:42 | WG1712824 |
| cis-1,2-Dichloroethene | U | | 0.00143 | 0.00488 | 1 | 07/28/2021 01:42 | WG1712824 |
| trans-1,2-Dichloroethene | U | | 0.00203 | 0.00977 | 1 | 07/28/2021 01:42 | WG1712824 |
| 1,2-Dichloropropane | U | | 0.00277 | 0.00977 | 1 | 07/28/2021 01:42 | WG1712824 |
| 1,1-Dichloropropene | U | | 0.00158 | 0.00488 | 1 | 07/28/2021 01:42 | WG1712824 |
| 1,3-Dichloropropane | U | | 0.000979 | 0.00977 | 1 | 07/28/2021 01:42 | WG1712824 |
| cis-1,3-Dichloropropene | U | | 0.00148 | 0.00488 | 1 | 07/28/2021 01:42 | WG1712824 |
| trans-1,3-Dichloropropene | U | | 0.00223 | 0.00977 | 1 | 07/28/2021 01:42 | WG1712824 |
| 2,2-Dichloropropane | U | | 0.00270 | 0.00488 | 1 | 07/28/2021 01:42 | WG1712824 |
| Di-isopropyl ether | U | | 0.000801 | 0.00195 | 1 | 07/28/2021 01:42 | WG1712824 |

## Volatile Organic Compounds (GC/MS) by Method 8260D

| Analyte | Result (dry) mg/kg | Qualifier | MDL (dry) mg/kg | RDL (dry) mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| Ethylbenzene | U | | 0.00144 | 0.00488 | 1 | 07/28/2021 01:42 | WG1712824 |
| Hexachloro-1,3-butadiene | U | | 0.0117 | 0.0488 | 1 | 07/28/2021 01:42 | WG1712824 |
| Isopropylbenzene | U | | 0.000830 | 0.00488 | 1 | 07/28/2021 01:42 | WG1712824 |
| p-Isopropyltoluene | U | | 0.00498 | 0.00977 | 1 | 07/28/2021 01:42 | WG1712824 |
| 2-Butanone (MEK) | 0.157 | J | 0.124 | 0.195 | 1 | 07/28/2021 01:42 | WG1712824 |
| Methylene Chloride | U | C3 | 0.0130 | 0.0488 | 1 | 07/28/2021 01:42 | WG1712824 |
| 4-Methyl-2-pentanone (MIBK) | U | | 0.00445 | 0.0488 | 1 | 07/28/2021 01:42 | WG1712824 |
| Methyl tert-butyl ether | U | C3 | 0.000684 | 0.00195 | 1 | 07/28/2021 01:42 | WG1712824 |
| Naphthalene | U | C3 | 0.00953 | 0.0244 | 1 | 07/28/2021 01:42 | WG1712824 |
| n-Propylbenzene | U | | 0.00186 | 0.00977 | 1 | 07/28/2021 01:42 | WG1712824 |
| Styrene | U | | 0.000447 | 0.0244 | 1 | 07/28/2021 01:42 | WG1712824 |
| 1,1,1,2-Tetrachloroethane | U | | 0.00185 | 0.00488 | 1 | 07/28/2021 01:42 | WG1712824 |
| 1,1,2,2-Tetrachloroethane | U | | 0.00136 | 0.00488 | 1 | 07/28/2021 01:42 | WG1712824 |
| 1,1,2-Trichlorotrifluoroethane | U | | 0.00147 | 0.00488 | 1 | 07/28/2021 01:42 | WG1712824 |
| Tetrachloroethene | U | | 0.00175 | 0.00488 | 1 | 07/28/2021 01:42 | WG1712824 |
| Toluene | U | | 0.00254 | 0.00977 | 1 | 07/28/2021 01:42 | WG1712824 |
| 1,2,3-Trichlorobenzene | U | C4 | 0.0143 | 0.0244 | 1 | 07/28/2021 01:42 | WG1712824 |
| 1,2,4-Trichlorobenzene | U | C4 | 0.00860 | 0.0244 | 1 | 07/28/2021 01:42 | WG1712824 |
| 1,1,1-Trichloroethane | U | | 0.00180 | 0.00488 | 1 | 07/28/2021 01:42 | WG1712824 |
| 1,1,2-Trichloroethane | U | | 0.00117 | 0.00488 | 1 | 07/28/2021 01:42 | WG1712824 |
| Trichloroethene | U | | 0.00114 | 0.00195 | 1 | 07/28/2021 01:42 | WG1712824 |
| Trichlorofluoromethane | U | C3 | 0.00162 | 0.00488 | 1 | 07/28/2021 01:42 | WG1712824 |
| 1,2,3-Trichloropropane | U | | 0.00317 | 0.0244 | 1 | 07/28/2021 01:42 | WG1712824 |
| 1,2,4-Trimethylbenzene | U | | 0.00309 | 0.00977 | 1 | 07/28/2021 01:42 | WG1712824 |
| 1,2,3-Trimethylbenzene | U | | 0.00309 | 0.00977 | 1 | 07/28/2021 01:42 | WG1712824 |
| 1,3,5-Trimethylbenzene | U | | 0.00391 | 0.00977 | 1 | 07/28/2021 01:42 | WG1712824 |
| Vinyl chloride | U | C3 | 0.00227 | 0.00488 | 1 | 07/28/2021 01:42 | WG1712824 |
| Xylenes, Total | 0.00192 | J | 0.00172 | 0.0127 | 1 | 07/28/2021 01:42 | WG1712824 |
| *(S) Toluene-d8* | *109* | | | *75.0-131* | | *07/28/2021 01:42* | WG1712824 |
| *(S) 4-Bromofluorobenzene* | *92.6* | | | *67.0-138* | | *07/28/2021 01:42* | WG1712824 |
| *(S) 1,2-Dichloroethane-d4* | *106* | | | *70.0-130* | | *07/28/2021 01:42* | WG1712824 |

## Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

| Analyte | Result (dry) mg/kg | Qualifier | MDL (dry) mg/kg | RDL (dry) mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | U | | 1.87 | 5.62 | 1 | 08/03/2021 03:39 | WG1715427 |
| Residual Range Organics (RRO) | U | | 4.68 | 14.1 | 1 | 08/03/2021 03:39 | WG1715427 |
| *(S) o-Terphenyl* | *59.0* | | | *18.0-148* | | *08/03/2021 03:39* | WG1715427 |

## Total Solids by Method 2540 G-2011

| Analyte | Result | Qualifier | Dilution | Analysis | Batch |
|---|---|---|---|---|---|
| | % | | | date / time | |
| Total Solids | 71.5 | | 1 | 08/02/2021 11:32 | WG1715577 |

## Metals (ICPMS) by Method 6020B

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Lead | 15.9 | | 0.138 | 2.80 | 5 | 07/30/2021 14:25 | WG1713790 |

## Volatile Organic Compounds (GC) by Method NWTPHGX

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Gasoline Range Organics-NWTPH | U | | 1.62 | 4.78 | 25 | 07/29/2021 14:23 | WG1713435 |
| *(S) a,a,a-Trifluorotoluene(FID)* | *95.0* | | | *77.0-120* | | *07/29/2021 14:23* | WG1713435 |

## Volatile Organic Compounds (GC/MS) by Method 8260D

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Acetone | U | | 0.0698 | 0.0956 | 1 | 07/28/2021 02:01 | WG1712824 |
| Acrylonitrile | U | | 0.00690 | 0.0239 | 1 | 07/28/2021 02:01 | WG1712824 |
| Benzene | U | | 0.000892 | 0.00191 | 1 | 07/28/2021 02:01 | WG1712824 |
| Bromobenzene | U | | 0.00172 | 0.0239 | 1 | 07/28/2021 02:01 | WG1712824 |
| Bromodichloromethane | U | | 0.00139 | 0.00478 | 1 | 07/28/2021 02:01 | WG1712824 |
| Bromoform | U | | 0.00224 | 0.0478 | 1 | 07/28/2021 02:01 | WG1712824 |
| Bromomethane | U | C3 | 0.00376 | 0.0239 | 1 | 07/28/2021 02:01 | WG1712824 |
| n-Butylbenzene | U | | 0.0100 | 0.0239 | 1 | 07/28/2021 02:01 | WG1712824 |
| sec-Butylbenzene | U | | 0.00550 | 0.0239 | 1 | 07/28/2021 02:01 | WG1712824 |
| tert-Butylbenzene | U | | 0.00373 | 0.00956 | 1 | 07/28/2021 02:01 | WG1712824 |
| Carbon disulfide | U | C3 | 0.00134 | 0.0239 | 1 | 07/28/2021 02:01 | WG1712824 |
| Carbon tetrachloride | U | | 0.00172 | 0.00956 | 1 | 07/28/2021 02:01 | WG1712824 |
| Chlorobenzene | U | | 0.000401 | 0.00478 | 1 | 07/28/2021 02:01 | WG1712824 |
| Chlorodibromomethane | U | | 0.00117 | 0.00478 | 1 | 07/28/2021 02:01 | WG1712824 |
| Chloroethane | U | C3 | 0.00325 | 0.00956 | 1 | 07/28/2021 02:01 | WG1712824 |
| Chloroform | U | | 0.00197 | 0.00478 | 1 | 07/28/2021 02:01 | WG1712824 |
| Chloromethane | U | C3 | 0.00831 | 0.0239 | 1 | 07/28/2021 02:01 | WG1712824 |
| 2-Chlorotoluene | U | | 0.00165 | 0.00478 | 1 | 07/28/2021 02:01 | WG1712824 |
| 4-Chlorotoluene | U | | 0.000860 | 0.00956 | 1 | 07/28/2021 02:01 | WG1712824 |
| 1,2-Dibromo-3-Chloropropane | U | C3 | 0.00745 | 0.0478 | 1 | 07/28/2021 02:01 | WG1712824 |
| 1,2-Dibromoethane | U | | 0.00124 | 0.00478 | 1 | 07/28/2021 02:01 | WG1712824 |
| Dibromomethane | U | | 0.00143 | 0.00956 | 1 | 07/28/2021 02:01 | WG1712824 |
| 1,2-Dichlorobenzene | U | | 0.000812 | 0.00956 | 1 | 07/28/2021 02:01 | WG1712824 |
| 1,3-Dichlorobenzene | U | | 0.00115 | 0.00956 | 1 | 07/28/2021 02:01 | WG1712824 |
| 1,4-Dichlorobenzene | U | | 0.00134 | 0.00956 | 1 | 07/28/2021 02:01 | WG1712824 |
| Dichlorodifluoromethane | U | | 0.00308 | 0.00478 | 1 | 07/28/2021 02:01 | WG1712824 |
| 1,1-Dichloroethane | U | | 0.000938 | 0.00478 | 1 | 07/28/2021 02:01 | WG1712824 |
| 1,2-Dichloroethane | U | | 0.00124 | 0.00478 | 1 | 07/28/2021 02:01 | WG1712824 |
| 1,1-Dichloroethene | U | | 0.00116 | 0.00478 | 1 | 07/28/2021 02:01 | WG1712824 |
| cis-1,2-Dichloroethene | U | | 0.00140 | 0.00478 | 1 | 07/28/2021 02:01 | WG1712824 |
| trans-1,2-Dichloroethene | U | | 0.00199 | 0.00956 | 1 | 07/28/2021 02:01 | WG1712824 |
| 1,2-Dichloropropane | U | | 0.00271 | 0.00956 | 1 | 07/28/2021 02:01 | WG1712824 |
| 1,1-Dichloropropene | U | | 0.00155 | 0.00478 | 1 | 07/28/2021 02:01 | WG1712824 |
| 1,3-Dichloropropane | U | | 0.000957 | 0.00956 | 1 | 07/28/2021 02:01 | WG1712824 |
| cis-1,3-Dichloropropene | U | | 0.00145 | 0.00478 | 1 | 07/28/2021 02:01 | WG1712824 |
| trans-1,3-Dichloropropene | U | | 0.00218 | 0.00956 | 1 | 07/28/2021 02:01 | WG1712824 |
| 2,2-Dichloropropane | U | | 0.00264 | 0.00478 | 1 | 07/28/2021 02:01 | WG1712824 |
| Di-isopropyl ether | U | | 0.000784 | 0.00191 | 1 | 07/28/2021 02:01 | WG1712824 |

## Volatile Organic Compounds (GC/MS) by Method 8260D

| Analyte | Result (dry) mg/kg | Qualifier | MDL (dry) mg/kg | RDL (dry) mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| Ethylbenzene | U | | 0.00141 | 0.00478 | 1 | 07/28/2021 02:01 | WG1712824 |
| Hexachloro-1,3-butadiene | U | | 0.0115 | 0.0478 | 1 | 07/28/2021 02:01 | WG1712824 |
| Isopropylbenzene | U | | 0.000812 | 0.00478 | 1 | 07/28/2021 02:01 | WG1712824 |
| p-Isopropyltoluene | U | | 0.00487 | 0.00956 | 1 | 07/28/2021 02:01 | WG1712824 |
| 2-Butanone (MEK) | U | | 0.121 | 0.191 | 1 | 07/28/2021 02:01 | WG1712824 |
| Methylene Chloride | U | C3 | 0.0127 | 0.0478 | 1 | 07/28/2021 02:01 | WG1712824 |
| 4-Methyl-2-pentanone (MIBK) | U | | 0.00436 | 0.0478 | 1 | 07/28/2021 02:01 | WG1712824 |
| Methyl tert-butyl ether | U | C3 | 0.000669 | 0.00191 | 1 | 07/28/2021 02:01 | WG1712824 |
| Naphthalene | U | C3 | 0.00933 | 0.0239 | 1 | 07/28/2021 02:01 | WG1712824 |
| n-Propylbenzene | U | | 0.00182 | 0.00956 | 1 | 07/28/2021 02:01 | WG1712824 |
| Styrene | U | | 0.000438 | 0.0239 | 1 | 07/28/2021 02:01 | WG1712824 |
| 1,1,1,2-Tetrachloroethane | U | | 0.00181 | 0.00478 | 1 | 07/28/2021 02:01 | WG1712824 |
| 1,1,2,2-Tetrachloroethane | U | | 0.00133 | 0.00478 | 1 | 07/28/2021 02:01 | WG1712824 |
| 1,1,2-Trichlorotrifluoroethane | U | | 0.00144 | 0.00478 | 1 | 07/28/2021 02:01 | WG1712824 |
| Tetrachloroethene | U | | 0.00171 | 0.00478 | 1 | 07/28/2021 02:01 | WG1712824 |
| Toluene | U | | 0.00248 | 0.00956 | 1 | 07/28/2021 02:01 | WG1712824 |
| 1,2,3-Trichlorobenzene | U | C4 | 0.0140 | 0.0239 | 1 | 07/28/2021 02:01 | WG1712824 |
| 1,2,4-Trichlorobenzene | U | C4 | 0.00841 | 0.0239 | 1 | 07/28/2021 02:01 | WG1712824 |
| 1,1,1-Trichloroethane | U | | 0.00176 | 0.00478 | 1 | 07/28/2021 02:01 | WG1712824 |
| 1,1,2-Trichloroethane | U | | 0.00114 | 0.00478 | 1 | 07/28/2021 02:01 | WG1712824 |
| Trichloroethene | U | | 0.00112 | 0.00191 | 1 | 07/28/2021 02:01 | WG1712824 |
| Trichlorofluoromethane | U | C3 | 0.00158 | 0.00478 | 1 | 07/28/2021 02:01 | WG1712824 |
| 1,2,3-Trichloropropane | U | | 0.00310 | 0.0239 | 1 | 07/28/2021 02:01 | WG1712824 |
| 1,2,4-Trimethylbenzene | U | | 0.00302 | 0.00956 | 1 | 07/28/2021 02:01 | WG1712824 |
| 1,2,3-Trimethylbenzene | U | | 0.00302 | 0.00956 | 1 | 07/28/2021 02:01 | WG1712824 |
| 1,3,5-Trimethylbenzene | U | | 0.00382 | 0.00956 | 1 | 07/28/2021 02:01 | WG1712824 |
| Vinyl chloride | U | C3 | 0.00222 | 0.00478 | 1 | 07/28/2021 02:01 | WG1712824 |
| Xylenes, Total | U | | 0.00168 | 0.0124 | 1 | 07/28/2021 02:01 | WG1712824 |
| *(S) Toluene-d8* | *110* | | | *75.0-131* | | *07/28/2021 02:01* | WG1712824 |
| *(S) 4-Bromofluorobenzene* | *92.3* | | | *67.0-138* | | *07/28/2021 02:01* | WG1712824 |
| *(S) 1,2-Dichloroethane-d4* | *104* | | | *70.0-130* | | *07/28/2021 02:01* | WG1712824 |

## Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

| Analyte | Result (dry) mg/kg | Qualifier | MDL (dry) mg/kg | RDL (dry) mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | U | | 1.86 | 5.59 | 1 | 08/03/2021 02:59 | WG1715427 |
| Residual Range Organics (RRO) | U | | 4.66 | 14.0 | 1 | 08/03/2021 02:59 | WG1715427 |
| *(S) o-Terphenyl* | *51.1* | | | *18.0-148* | | *08/03/2021 02:59* | WG1715427 |

## Total Solids by Method 2540 G-2011

| Analyte | Result | Qualifier | Dilution | Analysis | Batch |
|---|---|---|---|---|---|
| | % | | | date / time | |
| Total Solids | 85.5 | | 1 | 08/02/2021 11:32 | WG1715577 |

## Metals (ICPMS) by Method 6020B

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Lead | 1.59 | J | 0.116 | 2.34 | 5 | 07/30/2021 14:37 | WG1713790 |

## Volatile Organic Compounds (GC) by Method NWTPHGX

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Gasoline Range Organics-NWTPH | U | | 1.17 | 3.46 | 25 | 07/29/2021 14:45 | WG1713435 |
| *(S) a,a,a-Trifluorotoluene(FID)* | *95.0* | | | *77.0-120* | | *07/29/2021 14:45* | WG1713435 |

## Volatile Organic Compounds (GC/MS) by Method 8260D

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Acetone | U | | 0.0505 | 0.0692 | 1 | 07/28/2021 02:20 | WG1712824 |
| Acrylonitrile | U | | 0.00499 | 0.0173 | 1 | 07/28/2021 02:20 | WG1712824 |
| Benzene | U | | 0.000646 | 0.00138 | 1 | 07/28/2021 02:20 | WG1712824 |
| Bromobenzene | U | | 0.00124 | 0.0173 | 1 | 07/28/2021 02:20 | WG1712824 |
| Bromodichloromethane | U | | 0.00100 | 0.00346 | 1 | 07/28/2021 02:20 | WG1712824 |
| Bromoform | U | | 0.00162 | 0.0346 | 1 | 07/28/2021 02:20 | WG1712824 |
| Bromomethane | U | C3 | 0.00272 | 0.0173 | 1 | 07/28/2021 02:20 | WG1712824 |
| n-Butylbenzene | U | | 0.00726 | 0.0173 | 1 | 07/28/2021 02:20 | WG1712824 |
| sec-Butylbenzene | U | | 0.00398 | 0.0173 | 1 | 07/28/2021 02:20 | WG1712824 |
| tert-Butylbenzene | U | | 0.00270 | 0.00692 | 1 | 07/28/2021 02:20 | WG1712824 |
| Carbon disulfide | U | C3 | 0.000968 | 0.0173 | 1 | 07/28/2021 02:20 | WG1712824 |
| Carbon tetrachloride | U | | 0.00124 | 0.00692 | 1 | 07/28/2021 02:20 | WG1712824 |
| Chlorobenzene | U | | 0.000290 | 0.00346 | 1 | 07/28/2021 02:20 | WG1712824 |
| Chlorodibromomethane | U | | 0.000846 | 0.00346 | 1 | 07/28/2021 02:20 | WG1712824 |
| Chloroethane | U | C3 | 0.00235 | 0.00692 | 1 | 07/28/2021 02:20 | WG1712824 |
| Chloroform | U | | 0.00142 | 0.00346 | 1 | 07/28/2021 02:20 | WG1712824 |
| Chloromethane | U | C3 | 0.00602 | 0.0173 | 1 | 07/28/2021 02:20 | WG1712824 |
| 2-Chlorotoluene | U | | 0.00120 | 0.00346 | 1 | 07/28/2021 02:20 | WG1712824 |
| 4-Chlorotoluene | U | | 0.000622 | 0.00692 | 1 | 07/28/2021 02:20 | WG1712824 |
| 1,2-Dibromo-3-Chloropropane | U | C3 | 0.00539 | 0.0346 | 1 | 07/28/2021 02:20 | WG1712824 |
| 1,2-Dibromoethane | U | | 0.000896 | 0.00346 | 1 | 07/28/2021 02:20 | WG1712824 |
| Dibromomethane | U | | 0.00104 | 0.00692 | 1 | 07/28/2021 02:20 | WG1712824 |
| 1,2-Dichlorobenzene | U | | 0.000588 | 0.00692 | 1 | 07/28/2021 02:20 | WG1712824 |
| 1,3-Dichlorobenzene | U | | 0.000830 | 0.00692 | 1 | 07/28/2021 02:20 | WG1712824 |
| 1,4-Dichlorobenzene | U | | 0.000968 | 0.00692 | 1 | 07/28/2021 02:20 | WG1712824 |
| Dichlorodifluoromethane | U | | 0.00223 | 0.00346 | 1 | 07/28/2021 02:20 | WG1712824 |
| 1,1-Dichloroethane | U | | 0.000679 | 0.00346 | 1 | 07/28/2021 02:20 | WG1712824 |
| 1,2-Dichloroethane | U | | 0.000898 | 0.00346 | 1 | 07/28/2021 02:20 | WG1712824 |
| 1,1-Dichloroethene | U | | 0.000838 | 0.00346 | 1 | 07/28/2021 02:20 | WG1712824 |
| cis-1,2-Dichloroethene | U | | 0.00102 | 0.00346 | 1 | 07/28/2021 02:20 | WG1712824 |
| trans-1,2-Dichloroethene | U | | 0.00144 | 0.00692 | 1 | 07/28/2021 02:20 | WG1712824 |
| 1,2-Dichloropropane | U | | 0.00196 | 0.00692 | 1 | 07/28/2021 02:20 | WG1712824 |
| 1,1-Dichloropropene | U | | 0.00112 | 0.00346 | 1 | 07/28/2021 02:20 | WG1712824 |
| 1,3-Dichloropropane | U | | 0.000693 | 0.00692 | 1 | 07/28/2021 02:20 | WG1712824 |
| cis-1,3-Dichloropropene | U | | 0.00105 | 0.00346 | 1 | 07/28/2021 02:20 | WG1712824 |
| trans-1,3-Dichloropropene | U | | 0.00158 | 0.00692 | 1 | 07/28/2021 02:20 | WG1712824 |
| 2,2-Dichloropropane | U | | 0.00191 | 0.00346 | 1 | 07/28/2021 02:20 | WG1712824 |
| Di-isopropyl ether | U | | 0.000567 | 0.00138 | 1 | 07/28/2021 02:20 | WG1712824 |

## Volatile Organic Compounds (GC/MS) by Method 8260D

| Analyte | Result (dry) mg/kg | Qualifier | MDL (dry) mg/kg | RDL (dry) mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| Ethylbenzene | U | | 0.00102 | 0.00346 | 1 | 07/28/2021 02:20 | WG1712824 |
| Hexachloro-1,3-butadiene | U | | 0.00830 | 0.0346 | 1 | 07/28/2021 02:20 | WG1712824 |
| Isopropylbenzene | U | | 0.000588 | 0.00346 | 1 | 07/28/2021 02:20 | WG1712824 |
| p-Isopropyltoluene | U | | 0.00353 | 0.00692 | 1 | 07/28/2021 02:20 | WG1712824 |
| 2-Butanone (MEK) | 0.0923 | J | 0.0878 | 0.138 | 1 | 07/28/2021 02:20 | WG1712824 |
| Methylene Chloride | U | C3 | 0.00918 | 0.0346 | 1 | 07/28/2021 02:20 | WG1712824 |
| 4-Methyl-2-pentanone (MIBK) | U | | 0.00315 | 0.0346 | 1 | 07/28/2021 02:20 | WG1712824 |
| Methyl tert-butyl ether | U | C3 | 0.000484 | 0.00138 | 1 | 07/28/2021 02:20 | WG1712824 |
| Naphthalene | U | C3 | 0.00675 | 0.0173 | 1 | 07/28/2021 02:20 | WG1712824 |
| n-Propylbenzene | U | | 0.00131 | 0.00692 | 1 | 07/28/2021 02:20 | WG1712824 |
| Styrene | U | | 0.000317 | 0.0173 | 1 | 07/28/2021 02:20 | WG1712824 |
| 1,1,1,2-Tetrachloroethane | U | | 0.00131 | 0.00346 | 1 | 07/28/2021 02:20 | WG1712824 |
| 1,1,2,2-Tetrachloroethane | U | | 0.000961 | 0.00346 | 1 | 07/28/2021 02:20 | WG1712824 |
| 1,1,2-Trichlorotrifluoroethane | U | | 0.00104 | 0.00346 | 1 | 07/28/2021 02:20 | WG1712824 |
| Tetrachloroethene | U | | 0.00124 | 0.00346 | 1 | 07/28/2021 02:20 | WG1712824 |
| Toluene | U | | 0.00180 | 0.00692 | 1 | 07/28/2021 02:20 | WG1712824 |
| 1,2,3-Trichlorobenzene | U | C4 | 0.0101 | 0.0173 | 1 | 07/28/2021 02:20 | WG1712824 |
| 1,2,4-Trichlorobenzene | U | C4 | 0.00609 | 0.0173 | 1 | 07/28/2021 02:20 | WG1712824 |
| 1,1,1-Trichloroethane | U | | 0.00128 | 0.00346 | 1 | 07/28/2021 02:20 | WG1712824 |
| 1,1,2-Trichloroethane | U | | 0.000826 | 0.00346 | 1 | 07/28/2021 02:20 | WG1712824 |
| Trichloroethene | U | | 0.000808 | 0.00138 | 1 | 07/28/2021 02:20 | WG1712824 |
| Trichlorofluoromethane | U | C3 | 0.00114 | 0.00346 | 1 | 07/28/2021 02:20 | WG1712824 |
| 1,2,3-Trichloropropane | U | | 0.00224 | 0.0173 | 1 | 07/28/2021 02:20 | WG1712824 |
| 1,2,4-Trimethylbenzene | U | | 0.00219 | 0.00692 | 1 | 07/28/2021 02:20 | WG1712824 |
| 1,2,3-Trimethylbenzene | U | | 0.00219 | 0.00692 | 1 | 07/28/2021 02:20 | WG1712824 |
| 1,3,5-Trimethylbenzene | U | | 0.00277 | 0.00692 | 1 | 07/28/2021 02:20 | WG1712824 |
| Vinyl chloride | U | C3 | 0.00160 | 0.00346 | 1 | 07/28/2021 02:20 | WG1712824 |
| Xylenes, Total | U | | 0.00122 | 0.00899 | 1 | 07/28/2021 02:20 | WG1712824 |
| *(S) Toluene-d8* | *113* | | | *75.0-131* | | *07/28/2021 02:20* | WG1712824 |
| *(S) 4-Bromofluorobenzene* | *90.4* | | | *67.0-138* | | *07/28/2021 02:20* | WG1712824 |
| *(S) 1,2-Dichloroethane-d4* | *106* | | | *70.0-130* | | *07/28/2021 02:20* | WG1712824 |

## Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

| Analyte | Result (dry) mg/kg | Qualifier | MDL (dry) mg/kg | RDL (dry) mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | U | | 1.56 | 4.68 | 1 | 08/03/2021 04:06 | WG1715427 |
| Residual Range Organics (RRO) | U | | 3.90 | 11.7 | 1 | 08/03/2021 04:06 | WG1715427 |
| *(S) o-Terphenyl* | *58.1* | | | *18.0-148* | | *08/03/2021 04:06* | WG1715427 |

## Total Solids by Method 2540 G-2011

| Analyte | Result | Qualifier | Dilution | Analysis | Batch |
|---|---|---|---|---|---|
| | % | | | date / time | |
| Total Solids | 73.7 | | 1 | 08/02/2021 11:32 | WG1715577 |

## Metals (ICPMS) by Method 6020B

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Cadmium | 0.148 | J | 0.116 | 1.36 | 5 | 07/30/2021 14:40 | WG1713790 |
| Chromium | 28.4 | | 0.402 | 6.79 | 5 | 07/30/2021 14:40 | WG1713790 |
| Lead | 11.7 | | 0.134 | 2.71 | 5 | 07/30/2021 14:40 | WG1713790 |

## Volatile Organic Compounds (GC) by Method NWTPHGX

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Gasoline Range Organics-NWTPH | 2.43 | J | 1.55 | 4.57 | 25 | 07/29/2021 15:07 | WG1713435 |
| *(S) a,a,a-Trifluorotoluene(FID)* | *97.9* | | | *77.0-120* | | *07/29/2021 15:07* | WG1713435 |

## Volatile Organic Compounds (GC/MS) by Method 8260D

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Acetone | U | | 0.0667 | 0.0913 | 1 | 07/28/2021 02:39 | WG1712824 |
| Acrylonitrile | U | | 0.00660 | 0.0228 | 1 | 07/28/2021 02:39 | WG1712824 |
| Benzene | U | | 0.000853 | 0.00183 | 1 | 07/28/2021 02:39 | WG1712824 |
| Bromobenzene | U | | 0.00164 | 0.0228 | 1 | 07/28/2021 02:39 | WG1712824 |
| Bromodichloromethane | U | | 0.00132 | 0.00457 | 1 | 07/28/2021 02:39 | WG1712824 |
| Bromoform | U | | 0.00214 | 0.0457 | 1 | 07/28/2021 02:39 | WG1712824 |
| Bromomethane | U | C3 | 0.00360 | 0.0228 | 1 | 07/28/2021 02:39 | WG1712824 |
| n-Butylbenzene | U | | 0.00959 | 0.0228 | 1 | 07/28/2021 02:39 | WG1712824 |
| sec-Butylbenzene | 0.00702 | J | 0.00526 | 0.0228 | 1 | 07/28/2021 02:39 | WG1712824 |
| tert-Butylbenzene | U | | 0.00356 | 0.00913 | 1 | 07/28/2021 02:39 | WG1712824 |
| Carbon disulfide | U | C3 | 0.00128 | 0.0228 | 1 | 07/28/2021 02:39 | WG1712824 |
| Carbon tetrachloride | U | | 0.00164 | 0.00913 | 1 | 07/28/2021 02:39 | WG1712824 |
| Chlorobenzene | U | | 0.000384 | 0.00457 | 1 | 07/28/2021 02:39 | WG1712824 |
| Chlorodibromomethane | U | | 0.00112 | 0.00457 | 1 | 07/28/2021 02:39 | WG1712824 |
| Chloroethane | U | C3 | 0.00311 | 0.00913 | 1 | 07/28/2021 02:39 | WG1712824 |
| Chloroform | U | | 0.00188 | 0.00457 | 1 | 07/28/2021 02:39 | WG1712824 |
| Chloromethane | U | C3 | 0.00795 | 0.0228 | 1 | 07/28/2021 02:39 | WG1712824 |
| 2-Chlorotoluene | U | | 0.00158 | 0.00457 | 1 | 07/28/2021 02:39 | WG1712824 |
| 4-Chlorotoluene | U | | 0.000822 | 0.00913 | 1 | 07/28/2021 02:39 | WG1712824 |
| 1,2-Dibromo-3-Chloropropane | U | C3 | 0.00713 | 0.0457 | 1 | 07/28/2021 02:39 | WG1712824 |
| 1,2-Dibromoethane | U | | 0.00118 | 0.00457 | 1 | 07/28/2021 02:39 | WG1712824 |
| Dibromomethane | U | | 0.00137 | 0.00913 | 1 | 07/28/2021 02:39 | WG1712824 |
| 1,2-Dichlorobenzene | U | | 0.000776 | 0.00913 | 1 | 07/28/2021 02:39 | WG1712824 |
| 1,3-Dichlorobenzene | U | | 0.00110 | 0.00913 | 1 | 07/28/2021 02:39 | WG1712824 |
| 1,4-Dichlorobenzene | U | | 0.00128 | 0.00913 | 1 | 07/28/2021 02:39 | WG1712824 |
| Dichlorodifluoromethane | U | | 0.00294 | 0.00457 | 1 | 07/28/2021 02:39 | WG1712824 |
| 1,1-Dichloroethane | U | | 0.000897 | 0.00457 | 1 | 07/28/2021 02:39 | WG1712824 |
| 1,2-Dichloroethane | U | | 0.00119 | 0.00457 | 1 | 07/28/2021 02:39 | WG1712824 |
| 1,1-Dichloroethene | U | | 0.00111 | 0.00457 | 1 | 07/28/2021 02:39 | WG1712824 |
| cis-1,2-Dichloroethene | U | | 0.00134 | 0.00457 | 1 | 07/28/2021 02:39 | WG1712824 |
| trans-1,2-Dichloroethene | U | | 0.00190 | 0.00913 | 1 | 07/28/2021 02:39 | WG1712824 |
| 1,2-Dichloropropane | U | | 0.00259 | 0.00913 | 1 | 07/28/2021 02:39 | WG1712824 |
| 1,1-Dichloropropene | U | | 0.00148 | 0.00457 | 1 | 07/28/2021 02:39 | WG1712824 |
| 1,3-Dichloropropane | U | | 0.000915 | 0.00913 | 1 | 07/28/2021 02:39 | WG1712824 |
| cis-1,3-Dichloropropene | U | | 0.00138 | 0.00457 | 1 | 07/28/2021 02:39 | WG1712824 |
| trans-1,3-Dichloropropene | U | | 0.00208 | 0.00913 | 1 | 07/28/2021 02:39 | WG1712824 |

## Volatile Organic Compounds (GC/MS) by Method 8260D

| Analyte | Result (dry) mg/kg | Qualifier | MDL (dry) mg/kg | RDL (dry) mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| 2,2-Dichloropropane | U | | 0.00252 | 0.00457 | 1 | 07/28/2021 02:39 | WG1712824 |
| Di-isopropyl ether | U | | 0.000749 | 0.00183 | 1 | 07/28/2021 02:39 | WG1712824 |
| Ethylbenzene | U | | 0.00135 | 0.00457 | 1 | 07/28/2021 02:39 | WG1712824 |
| Hexachloro-1,3-butadiene | U | | 0.0110 | 0.0457 | 1 | 07/28/2021 02:39 | WG1712824 |
| Isopropylbenzene | U | | 0.000776 | 0.00457 | 1 | 07/28/2021 02:39 | WG1712824 |
| p-Isopropyltoluene | U | | 0.00466 | 0.00913 | 1 | 07/28/2021 02:39 | WG1712824 |
| 2-Butanone (MEK) | U | | 0.116 | 0.183 | 1 | 07/28/2021 02:39 | WG1712824 |
| Methylene Chloride | U | C3 | 0.0121 | 0.0457 | 1 | 07/28/2021 02:39 | WG1712824 |
| 4-Methyl-2-pentanone (MIBK) | U | | 0.00417 | 0.0457 | 1 | 07/28/2021 02:39 | WG1712824 |
| Methyl tert-butyl ether | U | C3 | 0.000639 | 0.00183 | 1 | 07/28/2021 02:39 | WG1712824 |
| Naphthalene | U | C3 | 0.00892 | 0.0228 | 1 | 07/28/2021 02:39 | WG1712824 |
| n-Propylbenzene | U | | 0.00174 | 0.00913 | 1 | 07/28/2021 02:39 | WG1712824 |
| Styrene | U | | 0.000418 | 0.0228 | 1 | 07/28/2021 02:39 | WG1712824 |
| 1,1,1,2-Tetrachloroethane | U | | 0.00173 | 0.00457 | 1 | 07/28/2021 02:39 | WG1712824 |
| 1,1,2,2-Tetrachloroethane | U | | 0.00127 | 0.00457 | 1 | 07/28/2021 02:39 | WG1712824 |
| 1,1,2-Trichlorotrifluoroethane | U | | 0.00138 | 0.00457 | 1 | 07/28/2021 02:39 | WG1712824 |
| Tetrachloroethene | U | | 0.00164 | 0.00457 | 1 | 07/28/2021 02:39 | WG1712824 |
| Toluene | U | | 0.00238 | 0.00913 | 1 | 07/28/2021 02:39 | WG1712824 |
| 1,2,3-Trichlorobenzene | U | C4 | 0.0134 | 0.0228 | 1 | 07/28/2021 02:39 | WG1712824 |
| 1,2,4-Trichlorobenzene | U | C4 | 0.00804 | 0.0228 | 1 | 07/28/2021 02:39 | WG1712824 |
| 1,1,1-Trichloroethane | U | | 0.00169 | 0.00457 | 1 | 07/28/2021 02:39 | WG1712824 |
| 1,1,2-Trichloroethane | U | | 0.00109 | 0.00457 | 1 | 07/28/2021 02:39 | WG1712824 |
| Trichloroethene | U | | 0.00107 | 0.00183 | 1 | 07/28/2021 02:39 | WG1712824 |
| Trichlorofluoromethane | U | C3 | 0.00151 | 0.00457 | 1 | 07/28/2021 02:39 | WG1712824 |
| 1,2,3-Trichloropropane | U | | 0.00296 | 0.0228 | 1 | 07/28/2021 02:39 | WG1712824 |
| 1,2,4-Trimethylbenzene | U | | 0.00289 | 0.00913 | 1 | 07/28/2021 02:39 | WG1712824 |
| 1,2,3-Trimethylbenzene | U | | 0.00289 | 0.00913 | 1 | 07/28/2021 02:39 | WG1712824 |
| 1,3,5-Trimethylbenzene | U | | 0.00365 | 0.00913 | 1 | 07/28/2021 02:39 | WG1712824 |
| Vinyl chloride | U | C3 | 0.00212 | 0.00457 | 1 | 07/28/2021 02:39 | WG1712824 |
| Xylenes, Total | U | | 0.00161 | 0.0119 | 1 | 07/28/2021 02:39 | WG1712824 |
| *(S) Toluene-d8* | *109* | | | *75.0-131* | | *07/28/2021 02:39* | WG1712824 |
| *(S) 4-Bromofluorobenzene* | *92.8* | | | *67.0-138* | | *07/28/2021 02:39* | WG1712824 |
| *(S) 1,2-Dichloroethane-d4* | *101* | | | *70.0-130* | | *07/28/2021 02:39* | WG1712824 |

## Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

| Analyte | Result (dry) mg/kg | Qualifier | MDL (dry) mg/kg | RDL (dry) mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 2.43 | J | 1.80 | 5.43 | 1 | 08/03/2021 03:26 | WG1715427 |
| Residual Range Organics (RRO) | U | | 4.52 | 13.6 | 1 | 08/03/2021 03:26 | WG1715427 |
| *(S) o-Terphenyl* | *58.9* | | | *18.0-148* | | *08/03/2021 03:26* | WG1715427 |

## Polychlorinated Biphenyls (GC) by Method 8082 A

| Analyte | Result (dry) mg/kg | Qualifier | MDL (dry) mg/kg | RDL (dry) mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| PCB 1016 | U | | 0.0160 | 0.0461 | 1 | 08/03/2021 01:55 | WG1715433 |
| PCB 1221 | U | | 0.0160 | 0.0461 | 1 | 08/03/2021 01:55 | WG1715433 |
| PCB 1232 | U | | 0.0160 | 0.0461 | 1 | 08/03/2021 01:55 | WG1715433 |
| PCB 1242 | U | | 0.0160 | 0.0461 | 1 | 08/03/2021 01:55 | WG1715433 |
| PCB 1248 | U | | 0.0100 | 0.0231 | 1 | 08/03/2021 01:55 | WG1715433 |
| PCB 1254 | U | | 0.0100 | 0.0231 | 1 | 08/03/2021 01:55 | WG1715433 |
| PCB 1260 | U | | 0.0100 | 0.0231 | 1 | 08/03/2021 01:55 | WG1715433 |
| *(S) Decachlorobiphenyl* | *34.6* | | | *10.0-135* | | *08/03/2021 01:55* | WG1715433 |
| *(S) Tetrachloro-m-xylene* | *38.2* | | | *10.0-139* | | *08/03/2021 01:55* | WG1715433 |

## Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

| Analyte | Result (dry) mg/kg | Qualifier | MDL (dry) mg/kg | RDL (dry) mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| Anthracene | U | | 0.00312 | 0.00814 | 1 | 08/01/2021 15:33 | WG1715029 |
| Acenaphthene | U | | 0.00284 | 0.00814 | 1 | 08/01/2021 15:33 | WG1715029 |
| Acenaphthylene | U | | 0.00293 | 0.00814 | 1 | 08/01/2021 15:33 | WG1715029 |
| Benzo(a)anthracene | U | | 0.00235 | 0.00814 | 1 | 08/01/2021 15:33 | WG1715029 |
| Benzo(a)pyrene | U | | 0.00243 | 0.00814 | 1 | 08/01/2021 15:33 | WG1715029 |
| Benzo(b)fluoranthene | U | | 0.00208 | 0.00814 | 1 | 08/01/2021 15:33 | WG1715029 |
| Benzo(g,h,i)perylene | U | | 0.00240 | 0.00814 | 1 | 08/01/2021 15:33 | WG1715029 |
| Benzo(k)fluoranthene | U | | 0.00292 | 0.00814 | 1 | 08/01/2021 15:33 | WG1715029 |
| Chrysene | U | | 0.00315 | 0.00814 | 1 | 08/01/2021 15:33 | WG1715029 |
| Dibenz(a,h)anthracene | U | | 0.00233 | 0.00814 | 1 | 08/01/2021 15:33 | WG1715029 |
| Fluoranthene | U | | 0.00308 | 0.00814 | 1 | 08/01/2021 15:33 | WG1715029 |
| Fluorene | U | | 0.00278 | 0.00814 | 1 | 08/01/2021 15:33 | WG1715029 |
| Indeno(1,2,3-cd)pyrene | U | | 0.00246 | 0.00814 | 1 | 08/01/2021 15:33 | WG1715029 |
| Naphthalene | U | | 0.00554 | 0.0271 | 1 | 08/01/2021 15:33 | WG1715029 |
| Phenanthrene | U | | 0.00313 | 0.00814 | 1 | 08/01/2021 15:33 | WG1715029 |
| Pyrene | U | | 0.00271 | 0.00814 | 1 | 08/01/2021 15:33 | WG1715029 |
| 1-Methylnaphthalene | 0.0767 | | 0.00609 | 0.0271 | 1 | 08/01/2021 15:33 | WG1715029 |
| 2-Methylnaphthalene | 0.0980 | | 0.00579 | 0.0271 | 1 | 08/01/2021 15:33 | WG1715029 |
| 2-Chloronaphthalene | U | | 0.00632 | 0.0271 | 1 | 08/01/2021 15:33 | WG1715029 |
| *(S) Nitrobenzene-d5* | *67.8* | | | *14.0-149* | | *08/01/2021 15:33* | WG1715029 |
| *(S) 2-Fluorobiphenyl* | *42.6* | | | *34.0-125* | | *08/01/2021 15:33* | WG1715029 |
| *(S) p-Terphenyl-d14* | *68.2* | | | *23.0-120* | | *08/01/2021 15:33* | WG1715029 |

## Total Solids by Method 2540 G-2011

| Analyte | Result | Qualifier | Dilution | Analysis | Batch |
|---|---|---|---|---|---|
| | % | | | date / time | |
| Total Solids | 74.9 | | 1 | 08/02/2021 11:32 | WG1715577 |

## Metals (ICPMS) by Method 6020B

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Lead | 14.8 | | 0.132 | 2.67 | 5 | 07/30/2021 14:44 | WG1713790 |

## Volatile Organic Compounds (GC) by Method NWTPHGX

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Gasoline Range Organics-NWTPH | U | | 1.51 | 4.46 | 25 | 07/29/2021 15:29 | WG1713435 |
| *(S) a,a,a-Trifluorotoluene(FID)* | *94.5* | | | *77.0-120* | | *07/29/2021 15:29* | WG1713435 |

## Volatile Organic Compounds (GC/MS) by Method 8260D

| Analyte | Result (dry) | Qualifier | MDL (dry) | RDL (dry) | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Acetone | U | | 0.0651 | 0.0891 | 1 | 07/28/2021 02:58 | WG1712824 |
| Acrylonitrile | U | | 0.00644 | 0.0223 | 1 | 07/28/2021 02:58 | WG1712824 |
| Benzene | U | | 0.000833 | 0.00178 | 1 | 07/28/2021 02:58 | WG1712824 |
| Bromobenzene | U | | 0.00160 | 0.0223 | 1 | 07/28/2021 02:58 | WG1712824 |
| Bromodichloromethane | U | | 0.00129 | 0.00446 | 1 | 07/28/2021 02:58 | WG1712824 |
| Bromoform | U | | 0.00209 | 0.0446 | 1 | 07/28/2021 02:58 | WG1712824 |
| Bromomethane | U | C3 | 0.00351 | 0.0223 | 1 | 07/28/2021 02:58 | WG1712824 |
| n-Butylbenzene | U | | 0.00936 | 0.0223 | 1 | 07/28/2021 02:58 | WG1712824 |
| sec-Butylbenzene | U | | 0.00513 | 0.0223 | 1 | 07/28/2021 02:58 | WG1712824 |
| tert-Butylbenzene | U | | 0.00348 | 0.00891 | 1 | 07/28/2021 02:58 | WG1712824 |
| Carbon disulfide | U | C3 | 0.00125 | 0.0223 | 1 | 07/28/2021 02:58 | WG1712824 |
| Carbon tetrachloride | U | | 0.00160 | 0.00891 | 1 | 07/28/2021 02:58 | WG1712824 |
| Chlorobenzene | U | | 0.000374 | 0.00446 | 1 | 07/28/2021 02:58 | WG1712824 |
| Chlorodibromomethane | U | | 0.00109 | 0.00446 | 1 | 07/28/2021 02:58 | WG1712824 |
| Chloroethane | U | C3 | 0.00303 | 0.00891 | 1 | 07/28/2021 02:58 | WG1712824 |
| Chloroform | U | | 0.00184 | 0.00446 | 1 | 07/28/2021 02:58 | WG1712824 |
| Chloromethane | U | C3 | 0.00775 | 0.0223 | 1 | 07/28/2021 02:58 | WG1712824 |
| 2-Chlorotoluene | U | | 0.00154 | 0.00446 | 1 | 07/28/2021 02:58 | WG1712824 |
| 4-Chlorotoluene | U | | 0.000802 | 0.00891 | 1 | 07/28/2021 02:58 | WG1712824 |
| 1,2-Dibromo-3-Chloropropane | U | C3 | 0.00695 | 0.0446 | 1 | 07/28/2021 02:58 | WG1712824 |
| 1,2-Dibromoethane | U | | 0.00116 | 0.00446 | 1 | 07/28/2021 02:58 | WG1712824 |
| Dibromomethane | U | | 0.00134 | 0.00891 | 1 | 07/28/2021 02:58 | WG1712824 |
| 1,2-Dichlorobenzene | U | | 0.000758 | 0.00891 | 1 | 07/28/2021 02:58 | WG1712824 |
| 1,3-Dichlorobenzene | U | | 0.00107 | 0.00891 | 1 | 07/28/2021 02:58 | WG1712824 |
| 1,4-Dichlorobenzene | U | | 0.00125 | 0.00891 | 1 | 07/28/2021 02:58 | WG1712824 |
| Dichlorodifluoromethane | U | | 0.00287 | 0.00446 | 1 | 07/28/2021 02:58 | WG1712824 |
| 1,1-Dichloroethane | U | | 0.000875 | 0.00446 | 1 | 07/28/2021 02:58 | WG1712824 |
| 1,2-Dichloroethane | U | | 0.00116 | 0.00446 | 1 | 07/28/2021 02:58 | WG1712824 |
| 1,1-Dichloroethene | U | | 0.00108 | 0.00446 | 1 | 07/28/2021 02:58 | WG1712824 |
| cis-1,2-Dichloroethene | U | | 0.00131 | 0.00446 | 1 | 07/28/2021 02:58 | WG1712824 |
| trans-1,2-Dichloroethene | U | | 0.00185 | 0.00891 | 1 | 07/28/2021 02:58 | WG1712824 |
| 1,2-Dichloropropane | U | | 0.00253 | 0.00891 | 1 | 07/28/2021 02:58 | WG1712824 |
| 1,1-Dichloropropene | U | | 0.00144 | 0.00446 | 1 | 07/28/2021 02:58 | WG1712824 |
| 1,3-Dichloropropane | U | | 0.000893 | 0.00891 | 1 | 07/28/2021 02:58 | WG1712824 |
| cis-1,3-Dichloropropene | U | | 0.00135 | 0.00446 | 1 | 07/28/2021 02:58 | WG1712824 |
| trans-1,3-Dichloropropene | U | | 0.00203 | 0.00891 | 1 | 07/28/2021 02:58 | WG1712824 |
| 2,2-Dichloropropane | U | | 0.00246 | 0.00446 | 1 | 07/28/2021 02:58 | WG1712824 |
| Di-isopropyl ether | U | | 0.000731 | 0.00178 | 1 | 07/28/2021 02:58 | WG1712824 |

## Volatile Organic Compounds (GC/MS) by Method 8260D

| Analyte | Result (dry) mg/kg | Qualifier | MDL (dry) mg/kg | RDL (dry) mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| Ethylbenzene | U | | 0.00131 | 0.00446 | 1 | 07/28/2021 02:58 | WG1712824 |
| Hexachloro-1,3-butadiene | U | | 0.0107 | 0.0446 | 1 | 07/28/2021 02:58 | WG1712824 |
| Isopropylbenzene | U | | 0.000758 | 0.00446 | 1 | 07/28/2021 02:58 | WG1712824 |
| p-Isopropyltoluene | U | | 0.00455 | 0.00891 | 1 | 07/28/2021 02:58 | WG1712824 |
| 2-Butanone (MEK) | 0.175 | J | 0.113 | 0.178 | 1 | 07/28/2021 02:58 | WG1712824 |
| Methylene Chloride | U | C3 | 0.0118 | 0.0446 | 1 | 07/28/2021 02:58 | WG1712824 |
| 4-Methyl-2-pentanone (MIBK) | U | | 0.00406 | 0.0446 | 1 | 07/28/2021 02:58 | WG1712824 |
| Methyl tert-butyl ether | U | C3 | 0.000624 | 0.00178 | 1 | 07/28/2021 02:58 | WG1712824 |
| Naphthalene | U | C3 | 0.00870 | 0.0223 | 1 | 07/28/2021 02:58 | WG1712824 |
| n-Propylbenzene | U | | 0.00169 | 0.00891 | 1 | 07/28/2021 02:58 | WG1712824 |
| Styrene | U | | 0.000408 | 0.0223 | 1 | 07/28/2021 02:58 | WG1712824 |
| 1,1,1,2-Tetrachloroethane | U | | 0.00169 | 0.00446 | 1 | 07/28/2021 02:58 | WG1712824 |
| 1,1,2,2-Tetrachloroethane | U | | 0.00124 | 0.00446 | 1 | 07/28/2021 02:58 | WG1712824 |
| 1,1,2-Trichlorotrifluoroethane | U | | 0.00134 | 0.00446 | 1 | 07/28/2021 02:58 | WG1712824 |
| Tetrachloroethene | U | | 0.00160 | 0.00446 | 1 | 07/28/2021 02:58 | WG1712824 |
| Toluene | U | | 0.00232 | 0.00891 | 1 | 07/28/2021 02:58 | WG1712824 |
| 1,2,3-Trichlorobenzene | U | C4 | 0.0131 | 0.0223 | 1 | 07/28/2021 02:58 | WG1712824 |
| 1,2,4-Trichlorobenzene | U | C4 | 0.00784 | 0.0223 | 1 | 07/28/2021 02:58 | WG1712824 |
| 1,1,1-Trichloroethane | U | | 0.00165 | 0.00446 | 1 | 07/28/2021 02:58 | WG1712824 |
| 1,1,2-Trichloroethane | U | | 0.00106 | 0.00446 | 1 | 07/28/2021 02:58 | WG1712824 |
| Trichloroethene | U | | 0.00104 | 0.00178 | 1 | 07/28/2021 02:58 | WG1712824 |
| Trichlorofluoromethane | U | C3 | 0.00147 | 0.00446 | 1 | 07/28/2021 02:58 | WG1712824 |
| 1,2,3-Trichloropropane | U | | 0.00289 | 0.0223 | 1 | 07/28/2021 02:58 | WG1712824 |
| 1,2,4-Trimethylbenzene | U | | 0.00282 | 0.00891 | 1 | 07/28/2021 02:58 | WG1712824 |
| 1,2,3-Trimethylbenzene | U | | 0.00282 | 0.00891 | 1 | 07/28/2021 02:58 | WG1712824 |
| 1,3,5-Trimethylbenzene | U | | 0.00357 | 0.00891 | 1 | 07/28/2021 02:58 | WG1712824 |
| Vinyl chloride | U | C3 | 0.00207 | 0.00446 | 1 | 07/28/2021 02:58 | WG1712824 |
| Xylenes, Total | U | | 0.00157 | 0.0116 | 1 | 07/28/2021 02:58 | WG1712824 |
| *(S) Toluene-d8* | *112* | | | *75.0-131* | | *07/28/2021 02:58* | WG1712824 |
| *(S) 4-Bromofluorobenzene* | *89.3* | | | *67.0-138* | | *07/28/2021 02:58* | WG1712824 |
| *(S) 1,2-Dichloroethane-d4* | *105* | | | *70.0-130* | | *07/28/2021 02:58* | WG1712824 |

## Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

| Analyte | Result (dry) mg/kg | Qualifier | MDL (dry) mg/kg | RDL (dry) mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | U | | 1.78 | 5.34 | 1 | 08/03/2021 03:12 | WG1715427 |
| Residual Range Organics (RRO) | U | | 4.45 | 13.3 | 1 | 08/03/2021 03:12 | WG1715427 |
| *(S) o-Terphenyl* | *61.6* | | | *18.0-148* | | *08/03/2021 03:12* | WG1715427 |

## Metals (ICPMS) by Method 6020B

| Analyte | Result ug/l | Qualifier | MDL ug/l | RDL ug/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| Lead | 53.8 | | 0.849 | 2.00 | 1 | 07/29/2021 21:03 | WG1714044 |

## Volatile Organic Compounds (GC) by Method NWTPHGX

| Analyte | Result ug/l | Qualifier | MDL ug/l | RDL ug/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| Gasoline Range Organics-NWTPH | U | | 31.6 | 100 | 1 | 07/28/2021 05:17 | WG1712614 |
| *(S) a,a,a-Trifluorotoluene(FID)* | *103* | | | *78.0-120* | | *07/28/2021 05:17* | WG1712614 |

## Volatile Organic Compounds (GC/MS) by Method 8260D

| Analyte | Result ug/l | Qualifier | MDL ug/l | RDL ug/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| Acetone | U | C3 | 22.6 | 100 | 2 | 08/01/2021 02:16 | WG1714010 |
| Acrolein | U | C3 | 5.08 | 100 | 2 | 08/01/2021 02:16 | WG1714010 |
| Acrylonitrile | U | | 1.34 | 20.0 | 2 | 08/01/2021 02:16 | WG1714010 |
| Benzene | U | | 0.188 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| Bromobenzene | U | | 0.236 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| Bromodichloromethane | U | | 0.272 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| Bromoform | U | | 0.258 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| Bromomethane | U | | 1.21 | 10.0 | 2 | 08/01/2021 02:16 | WG1714010 |
| n-Butylbenzene | U | | 0.314 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| sec-Butylbenzene | U | | 0.250 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| tert-Butylbenzene | U | | 0.254 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| Carbon disulfide | U | | 0.192 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| Carbon tetrachloride | U | | 0.256 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| Chlorobenzene | U | | 0.232 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| Chlorodibromomethane | U | | 0.280 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| Chloroethane | U | | 0.384 | 10.0 | 2 | 08/01/2021 02:16 | WG1714010 |
| Chloroform | U | | 0.222 | 10.0 | 2 | 08/01/2021 02:16 | WG1714010 |
| Chloromethane | U | C3 | 1.92 | 5.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| 2-Chlorotoluene | U | | 0.212 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| 4-Chlorotoluene | U | | 0.228 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| 1,2-Dibromo-3-Chloropropane | U | | 0.552 | 10.0 | 2 | 08/01/2021 02:16 | WG1714010 |
| 1,2-Dibromoethane | U | | 0.252 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| Dibromomethane | U | | 0.244 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| 1,2-Dichlorobenzene | U | | 0.214 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| 1,3-Dichlorobenzene | U | | 0.220 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| 1,4-Dichlorobenzene | U | | 0.240 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| Dichlorodifluoromethane | U | | 0.748 | 10.0 | 2 | 08/01/2021 02:16 | WG1714010 |
| 1,1-Dichloroethane | U | | 0.200 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| 1,2-Dichloroethane | U | | 0.164 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| 1,1-Dichloroethene | U | | 0.376 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| cis-1,2-Dichloroethene | U | | 0.252 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| trans-1,2-Dichloroethene | U | | 0.298 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| 1,2-Dichloropropane | U | | 0.298 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| 1,1-Dichloropropene | U | | 0.284 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| 1,3-Dichloropropane | U | | 0.220 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| cis-1,3-Dichloropropene | U | | 0.222 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| trans-1,3-Dichloropropene | U | | 0.236 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| 2,2-Dichloropropane | U | | 0.322 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| Di-isopropyl ether | U | | 0.210 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| Ethylbenzene | U | | 0.274 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| Hexachloro-1,3-butadiene | U | J4 | 0.674 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| Isopropylbenzene | U | | 0.210 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| p-Isopropyltoluene | U | | 0.240 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |

## Volatile Organic Compounds (GC/MS) by Method 8260D

| Analyte | Result | Qualifier | MDL | RDL | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | ug/l | | ug/l | ug/l | | date / time | |
| 2-Butanone (MEK) | U | | 2.38 | 20.0 | 2 | 08/01/2021 02:16 | WG1714010 |
| Methylene Chloride | U | | 0.860 | 10.0 | 2 | 08/01/2021 02:16 | WG1714010 |
| 4-Methyl-2-pentanone (MIBK) | U | | 0.956 | 20.0 | 2 | 08/01/2021 02:16 | WG1714010 |
| Methyl tert-butyl ether | U | | 0.202 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| Naphthalene | U | J3 | 2.00 | 10.0 | 2 | 08/01/2021 02:16 | WG1714010 |
| n-Propylbenzene | U | | 0.199 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| Styrene | U | | 0.236 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| 1,1,1,2-Tetrachloroethane | U | | 0.294 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| 1,1,2,2-Tetrachloroethane | U | | 0.266 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| 1,1,2-Trichlorotrifluoroethane | U | | 0.360 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| Tetrachloroethene | U | | 0.600 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| Toluene | U | | 0.556 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| 1,2,3-Trichlorobenzene | U | C4 J3 | 0.460 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| 1,2,4-Trichlorobenzene | U | C4 | 0.962 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| 1,1,1-Trichloroethane | U | | 0.298 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| 1,1,2-Trichloroethane | U | | 0.316 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| Trichloroethene | U | | 0.380 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| Trichlorofluoromethane | U | C3 | 0.320 | 10.0 | 2 | 08/01/2021 02:16 | WG1714010 |
| 1,2,3-Trichloropropane | U | | 0.474 | 5.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| 1,2,4-Trimethylbenzene | U | | 0.644 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| 1,2,3-Trimethylbenzene | U | | 0.208 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| 1,3,5-Trimethylbenzene | U | | 0.208 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| Vinyl chloride | U | C3 | 0.468 | 2.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| Xylenes, Total | U | | 0.348 | 6.00 | 2 | 08/01/2021 02:16 | WG1714010 |
| *(S) Toluene-d8* | *112* | | | *80.0-120* | | *08/01/2021 02:16* | WG1714010 |
| *(S) 4-Bromofluorobenzene* | *94.9* | | | *77.0-126* | | *08/01/2021 02:16* | WG1714010 |
| *(S) 1,2-Dichloroethane-d4* | *97.8* | | | *70.0-130* | | *08/01/2021 02:16* | WG1714010 |

Sample Narrative:

L1382553-15 WG1714010: Lowest possible dilution due to sediment in sample vial.

## Method Blank (MB)

(MB) R3686921-1 08/02/21 11:43

| Analyte | MB Result % | MB Qualifier | MB MDL % | MB RDL % |
|---|---|---|---|---|
| Total Solids | 0.00100 | | | |

## L1382133-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1382133-05 08/02/21 11:43 • (DUP) R3686921-3 08/02/21 11:43

| Analyte | Original Result % | DUP Result % | Dilution | DUP RPD % | DUP Qualifier | DUP RPD Limits % |
|---|---|---|---|---|---|---|
| Total Solids | 84.1 | 83.5 | 1 | 0.767 | | 10 |

## Laboratory Control Sample (LCS)

(LCS) R3686921-2 08/02/21 11:43

| Analyte | Spike Amount % | LCS Result % | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| Total Solids | 50.0 | 50.0 | 100 | 85.0-115 | |

## Method Blank (MB)

(MB) R3686916-1 08/02/21 11:32

| Analyte | MB Result % | MB Qualifier | MB MDL % | MB RDL % |
|---|---|---|---|---|
| Total Solids | 0.000 | | | |

## L1382553-14 Original Sample (OS) • Duplicate (DUP)

(OS) L1382553-14 08/02/21 11:32 • (DUP) R3686916-3 08/02/21 11:32

| Analyte | Original Result % | DUP Result % | Dilution | DUP RPD % | DUP Qualifier | DUP RPD Limits % |
|---|---|---|---|---|---|---|
| Total Solids | 74.9 | 74.2 | 1 | 0.959 | | 10 |

## Laboratory Control Sample (LCS)

(LCS) R3686916-2 08/02/21 11:32

| Analyte | Spike Amount % | LCS Result % | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| Total Solids | 50.0 | 50.0 | 100 | 85.0-115 | |

## Method Blank (MB)

(MB) R3685934-1 07/30/21 13:20

| Analyte | MB Result mg/kg | MB Qualifier | MB MDL mg/kg | MB RDL mg/kg |
|---|---|---|---|---|
| Cadmium | U | | 0.0855 | 1.00 |
| Chromium | U | | 0.297 | 5.00 |
| Lead | U | | 0.0990 | 2.00 |

## Laboratory Control Sample (LCS)

(LCS) R3685934-2 07/30/21 13:23

| Analyte | Spike Amount mg/kg | LCS Result mg/kg | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| Cadmium | 100 | 109 | 109 | 80.0-120 | |
| Chromium | 100 | 109 | 109 | 80.0-120 | |
| Lead | 100 | 102 | 102 | 80.0-120 | |

## L1383690-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1383690-01 07/30/21 13:26 • (MS) R3685934-5 07/30/21 13:36 • (MSD) R3685934-6 07/30/21 13:39

| Analyte | Spike Amount (dry) mg/kg | Original Result (dry) mg/kg | MS Result (dry) mg/kg | MSD Result (dry) mg/kg | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cadmium | 111 | 0.383 | 113 | 116 | 101 | 104 | 5 | 75.0-125 | | | 2.97 | 20 |
| Chromium | 111 | 98.9 | 166 | 169 | 60.2 | 62.6 | 5 | 75.0-125 | J6 | J6 | 1.66 | 20 |
| Lead | 111 | 101 | 194 | 241 | 83.8 | 125 | 5 | 75.0-125 | | J3 | 21.3 | 20 |

## Method Blank (MB)

(MB) R3685605-1 07/29/21 19:45

| Analyte | MB Result ug/l | MB Qualifier | MB MDL ug/l | MB RDL ug/l |
|---|---|---|---|---|
| Lead | U | | 0.849 | 2.00 |

## Laboratory Control Sample (LCS)

(LCS) R3685605-2 07/29/21 19:49

| Analyte | Spike Amount ug/l | LCS Result ug/l | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| Lead | 50.0 | 47.2 | 94.3 | 80.0-120 | |

## L1382472-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1382472-01 07/29/21 19:52 • (MS) R3685605-4 07/29/21 19:59 • (MSD) R3685605-5 07/29/21 20:02

| Analyte | Spike Amount ug/l | Original Result ug/l | MS Result ug/l | MSD Result ug/l | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead | 50.0 | U | 48.9 | 46.9 | 97.8 | 93.8 | 1 | 75.0-125 | | | 4.20 | 20 |

## Method Blank (MB)

(MB) R3686960-2 07/28/21 04:53

| Analyte | MB Result ug/l | MB Qualifier | MB MDL ug/l | MB RDL ug/l |
|---|---|---|---|---|
| Gasoline Range Organics-NWTPH | U | | 31.6 | 100 |
| *(S) a,a,a-Trifluorotoluene(FID)* | *104* | | | *78.0-120* |

## Laboratory Control Sample (LCS)

(LCS) R3686960-1 07/28/21 04:00

| Analyte | Spike Amount ug/l | LCS Result ug/l | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| Gasoline Range Organics-NWTPH | 5500 | 6200 | 113 | 70.0-124 | |
| *(S) a,a,a-Trifluorotoluene(FID)* | | | *99.7* | *78.0-120* | |

## Method Blank (MB)

(MB) R3685983-2 07/29/21 10:22

| Analyte | MB Result mg/kg | MB Qualifier | MB MDL mg/kg | MB RDL mg/kg |
|---|---|---|---|---|
| Gasoline Range Organics-NWTPH | U | | 0.0339 | 0.100 |
| *(S) a,a,a-Trifluorotoluene(FID)* | *94.5* | | | *77.0-120* |

## Laboratory Control Sample (LCS)

(LCS) R3685983-1 07/29/21 09:38

| Analyte | Spike Amount mg/kg | LCS Result mg/kg | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| Gasoline Range Organics-NWTPH | 5.50 | 5.61 | 102 | 71.0-124 | |
| *(S) a,a,a-Trifluorotoluene(FID)* | | | *119* | *77.0-120* | |

## L1382553-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1382553-02 07/29/21 12:10 • (MS) R3685983-3 07/29/21 21:01 • (MSD) R3685983-4 07/29/21 21:23

| Analyte | Spike Amount (dry) mg/kg | Original Result (dry) mg/kg | MS Result (dry) mg/kg | MSD Result (dry) mg/kg | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics-NWTPH | 274 | U | 242 | 239 | 88.4 | 87.2 | 29.8 | 10.0-149 | | | 1.39 | 27 |
| *(S) a,a,a-Trifluorotoluene(FID)* | | | | | *114* | *113* | | *77.0-120* | | | | |

## Method Blank (MB)

(MB) R3686171-2 07/30/21 13:35

| Analyte | MB Result mg/kg | MB Qualifier | MB MDL mg/kg | MB RDL mg/kg |
|---|---|---|---|---|
| Gasoline Range Organics-NWTPH | U | | 0.0339 | 0.100 |
| *(S) a,a,a-Trifluorotoluene(FID)* | *96.4* | | | *77.0-120* |

## Laboratory Control Sample (LCS)

(LCS) R3686171-1 07/30/21 12:51

| Analyte | Spike Amount mg/kg | LCS Result mg/kg | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| Gasoline Range Organics-NWTPH | 5.50 | 4.81 | 87.5 | 71.0-124 | |
| *(S) a,a,a-Trifluorotoluene(FID)* | | | *117* | *77.0-120* | |

## Method Blank (MB)

(MB) R3687025-3 07/27/21 23:11

| Analyte | MB Result mg/kg | MB Qualifier | MB MDL mg/kg | MB RDL mg/kg |
|---|---|---|---|---|
| Acetone | U | | 0.0365 | 0.0500 |
| Acrylonitrile | U | | 0.00361 | 0.0125 |
| Benzene | U | | 0.000467 | 0.00100 |
| Bromobenzene | U | | 0.000900 | 0.0125 |
| Bromodichloromethane | U | | 0.000725 | 0.00250 |
| Bromoform | U | | 0.00117 | 0.0250 |
| Bromomethane | U | | 0.00197 | 0.0125 |
| n-Butylbenzene | U | | 0.00525 | 0.0125 |
| sec-Butylbenzene | U | | 0.00288 | 0.0125 |
| tert-Butylbenzene | U | | 0.00195 | 0.00500 |
| Carbon disulfide | U | | 0.000700 | 0.0125 |
| Carbon tetrachloride | U | | 0.000898 | 0.00500 |
| Chlorobenzene | U | | 0.000210 | 0.00250 |
| Chlorodibromomethane | U | | 0.000612 | 0.00250 |
| Chloroethane | U | | 0.00170 | 0.00500 |
| Chloroform | U | | 0.00103 | 0.00250 |
| Chloromethane | U | | 0.00435 | 0.0125 |
| 2-Chlorotoluene | U | | 0.000865 | 0.00250 |
| 4-Chlorotoluene | U | | 0.000450 | 0.00500 |
| 1,2-Dibromo-3-Chloropropane | U | | 0.00390 | 0.0250 |
| 1,2-Dibromoethane | U | | 0.000648 | 0.00250 |
| Dibromomethane | U | | 0.000750 | 0.00500 |
| 1,2-Dichlorobenzene | U | | 0.000425 | 0.00500 |
| 1,3-Dichlorobenzene | U | | 0.000600 | 0.00500 |
| 1,4-Dichlorobenzene | U | | 0.000700 | 0.00500 |
| Dichlorodifluoromethane | U | | 0.00161 | 0.00250 |
| 1,1-Dichloroethane | U | | 0.000491 | 0.00250 |
| 1,2-Dichloroethane | U | | 0.000649 | 0.00250 |
| 1,1-Dichloroethene | U | | 0.000606 | 0.00250 |
| cis-1,2-Dichloroethene | U | | 0.000734 | 0.00250 |
| trans-1,2-Dichloroethene | U | | 0.00104 | 0.00500 |
| 1,2-Dichloropropane | U | | 0.00142 | 0.00500 |
| 1,1-Dichloropropene | U | | 0.000809 | 0.00250 |
| 1,3-Dichloropropane | U | | 0.000501 | 0.00500 |
| cis-1,3-Dichloropropene | U | | 0.000757 | 0.00250 |
| trans-1,3-Dichloropropene | U | | 0.00114 | 0.00500 |
| 2,2-Dichloropropane | U | | 0.00138 | 0.00250 |
| Di-isopropyl ether | U | | 0.000410 | 0.00100 |
| Ethylbenzene | U | | 0.000737 | 0.00250 |
| Hexachloro-1,3-butadiene | U | | 0.00600 | 0.0250 |

## Method Blank (MB)

(MB) R3687025-3 07/27/21 23:11

| Analyte | MB Result mg/kg | MB Qualifier | MB MDL mg/kg | MB RDL mg/kg |
|---|---|---|---|---|
| Isopropylbenzene | U | | 0.000425 | 0.00250 |
| p-Isopropyltoluene | U | | 0.00255 | 0.00500 |
| 2-Butanone (MEK) | U | | 0.0635 | 0.100 |
| Methylene Chloride | U | | 0.00664 | 0.0250 |
| 4-Methyl-2-pentanone (MIBK) | U | | 0.00228 | 0.0250 |
| Methyl tert-butyl ether | U | | 0.000350 | 0.00100 |
| Naphthalene | U | | 0.00488 | 0.0125 |
| n-Propylbenzene | U | | 0.000950 | 0.00500 |
| Styrene | U | | 0.000229 | 0.0125 |
| 1,1,1,2-Tetrachloroethane | U | | 0.000948 | 0.00250 |
| 1,1,2,2-Tetrachloroethane | U | | 0.000695 | 0.00250 |
| Tetrachloroethene | U | | 0.000896 | 0.00250 |
| Toluene | U | | 0.00130 | 0.00500 |
| 1,1,2-Trichlorotrifluoroethane | U | | 0.000754 | 0.00250 |
| 1,2,3-Trichlorobenzene | U | | 0.00733 | 0.0125 |
| 1,2,4-Trichlorobenzene | U | | 0.00440 | 0.0125 |
| 1,1,1-Trichloroethane | U | | 0.000923 | 0.00250 |
| 1,1,2-Trichloroethane | U | | 0.000597 | 0.00250 |
| Trichloroethene | U | | 0.000584 | 0.00100 |
| Trichlorofluoromethane | U | | 0.000827 | 0.00250 |
| 1,2,3-Trichloropropane | U | | 0.00162 | 0.0125 |
| 1,2,3-Trimethylbenzene | U | | 0.00158 | 0.00500 |
| 1,2,4-Trimethylbenzene | U | | 0.00158 | 0.00500 |
| 1,3,5-Trimethylbenzene | U | | 0.00200 | 0.00500 |
| Vinyl chloride | U | | 0.00116 | 0.00250 |
| Xylenes, Total | U | | 0.000880 | 0.00650 |
| *(S) Toluene-d8* | *106* | | | *75.0-131* |
| *(S) 4-Bromofluorobenzene* | *90.7* | | | *67.0-138* |
| *(S) 1,2-Dichloroethane-d4* | *97.2* | | | *70.0-130* |

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3687025-1 07/27/21 21:55 • (LCSD) R3687025-2 07/27/21 22:14

| Analyte | Spike Amount mg/kg | LCS Result mg/kg | LCSD Result mg/kg | LCS Rec. % | LCSD Rec. % | Rec. Limits % | LCS Qualifier | LCSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|
| Acetone | 0.625 | 0.663 | 0.627 | 106 | 100 | 10.0-160 | | | 5.58 | 31 |
| Acrylonitrile | 0.625 | 0.651 | 0.639 | 104 | 102 | 45.0-153 | | | 1.86 | 22 |
| Benzene | 0.125 | 0.116 | 0.117 | 92.8 | 93.6 | 70.0-123 | | | 0.858 | 20 |
| Bromobenzene | 0.125 | 0.137 | 0.135 | 110 | 108 | 73.0-121 | | | 1.47 | 20 |

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3687025-1 07/27/21 21:55 • (LCSD) R3687025-2 07/27/21 22:14

| Analyte | Spike Amount mg/kg | LCS Result mg/kg | LCSD Result mg/kg | LCS Rec. % | LCSD Rec. % | Rec. Limits % | LCS Qualifier | LCSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|
| Bromodichloromethane | 0.125 | 0.138 | 0.138 | 110 | 110 | 73.0-121 | | | 0.000 | 20 |
| Bromoform | 0.125 | 0.108 | 0.113 | 86.4 | 90.4 | 64.0-132 | | | 4.52 | 20 |
| Bromomethane | 0.125 | 0.0857 | 0.0874 | 68.6 | 69.9 | 56.0-147 | | | 1.96 | 20 |
| n-Butylbenzene | 0.125 | 0.112 | 0.118 | 89.6 | 94.4 | 68.0-135 | | | 5.22 | 20 |
| sec-Butylbenzene | 0.125 | 0.117 | 0.121 | 93.6 | 96.8 | 74.0-130 | | | 3.36 | 20 |
| tert-Butylbenzene | 0.125 | 0.120 | 0.120 | 96.0 | 96.0 | 75.0-127 | | | 0.000 | 20 |
| Carbon disulfide | 0.125 | 0.0972 | 0.108 | 77.8 | 86.4 | 56.0-133 | | | 10.5 | 20 |
| Carbon tetrachloride | 0.125 | 0.106 | 0.112 | 84.8 | 89.6 | 66.0-128 | | | 5.50 | 20 |
| Chlorobenzene | 0.125 | 0.122 | 0.121 | 97.6 | 96.8 | 76.0-128 | | | 0.823 | 20 |
| Chlorodibromomethane | 0.125 | 0.125 | 0.124 | 100 | 99.2 | 74.0-127 | | | 0.803 | 20 |
| Chloroethane | 0.125 | 0.0840 | 0.0876 | 67.2 | 70.1 | 61.0-134 | | | 4.20 | 20 |
| Chloroform | 0.125 | 0.115 | 0.118 | 92.0 | 94.4 | 72.0-123 | | | 2.58 | 20 |
| Chloromethane | 0.125 | 0.0877 | 0.0928 | 70.2 | 74.2 | 51.0-138 | | | 5.65 | 20 |
| 2-Chlorotoluene | 0.125 | 0.116 | 0.123 | 92.8 | 98.4 | 75.0-124 | | | 5.86 | 20 |
| 4-Chlorotoluene | 0.125 | 0.131 | 0.129 | 105 | 103 | 75.0-124 | | | 1.54 | 20 |
| 1,2-Dibromo-3-Chloropropane | 0.125 | 0.0965 | 0.0983 | 77.2 | 78.6 | 59.0-130 | | | 1.85 | 20 |
| 1,2-Dibromoethane | 0.125 | 0.115 | 0.110 | 92.0 | 88.0 | 74.0-128 | | | 4.44 | 20 |
| Dibromomethane | 0.125 | 0.114 | 0.119 | 91.2 | 95.2 | 75.0-122 | | | 4.29 | 20 |
| 1,2-Dichlorobenzene | 0.125 | 0.113 | 0.118 | 90.4 | 94.4 | 76.0-124 | | | 4.33 | 20 |
| 1,3-Dichlorobenzene | 0.125 | 0.112 | 0.114 | 89.6 | 91.2 | 76.0-125 | | | 1.77 | 20 |
| 1,4-Dichlorobenzene | 0.125 | 0.114 | 0.116 | 91.2 | 92.8 | 77.0-121 | | | 1.74 | 20 |
| Dichlorodifluoromethane | 0.125 | 0.114 | 0.118 | 91.2 | 94.4 | 43.0-156 | | | 3.45 | 20 |
| 1,1-Dichloroethane | 0.125 | 0.108 | 0.107 | 86.4 | 85.6 | 70.0-127 | | | 0.930 | 20 |
| 1,2-Dichloroethane | 0.125 | 0.142 | 0.132 | 114 | 106 | 65.0-131 | | | 7.30 | 20 |
| 1,1-Dichloroethene | 0.125 | 0.109 | 0.114 | 87.2 | 91.2 | 65.0-131 | | | 4.48 | 20 |
| cis-1,2-Dichloroethene | 0.125 | 0.115 | 0.116 | 92.0 | 92.8 | 73.0-125 | | | 0.866 | 20 |
| trans-1,2-Dichloroethene | 0.125 | 0.107 | 0.110 | 85.6 | 88.0 | 71.0-125 | | | 2.76 | 20 |
| 1,2-Dichloropropane | 0.125 | 0.124 | 0.123 | 99.2 | 98.4 | 74.0-125 | | | 0.810 | 20 |
| 1,1-Dichloropropene | 0.125 | 0.118 | 0.118 | 94.4 | 94.4 | 73.0-125 | | | 0.000 | 20 |
| 1,3-Dichloropropane | 0.125 | 0.130 | 0.129 | 104 | 103 | 80.0-125 | | | 0.772 | 20 |
| cis-1,3-Dichloropropene | 0.125 | 0.118 | 0.119 | 94.4 | 95.2 | 76.0-127 | | | 0.844 | 20 |
| trans-1,3-Dichloropropene | 0.125 | 0.126 | 0.121 | 101 | 96.8 | 73.0-127 | | | 4.05 | 20 |
| 2,2-Dichloropropane | 0.125 | 0.0996 | 0.0971 | 79.7 | 77.7 | 59.0-135 | | | 2.54 | 20 |
| Di-isopropyl ether | 0.125 | 0.117 | 0.122 | 93.6 | 97.6 | 60.0-136 | | | 4.18 | 20 |
| Ethylbenzene | 0.125 | 0.115 | 0.115 | 92.0 | 92.0 | 74.0-126 | | | 0.000 | 20 |
| Hexachloro-1,3-butadiene | 0.125 | 0.0997 | 0.0977 | 79.8 | 78.2 | 57.0-150 | | | 2.03 | 20 |
| Isopropylbenzene | 0.125 | 0.109 | 0.112 | 87.2 | 89.6 | 72.0-127 | | | 2.71 | 20 |
| p-Isopropyltoluene | 0.125 | 0.111 | 0.113 | 88.8 | 90.4 | 72.0-133 | | | 1.79 | 20 |
| 2-Butanone (MEK) | 0.625 | 0.725 | 0.668 | 116 | 107 | 30.0-160 | | | 8.18 | 24 |
| Methylene Chloride | 0.125 | 0.0981 | 0.110 | 78.5 | 88.0 | 68.0-123 | | | 11.4 | 20 |

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3687025-1 07/27/21 21:55 • (LCSD) R3687025-2 07/27/21 22:14

| Analyte | Spike Amount mg/kg | LCS Result mg/kg | LCSD Result mg/kg | LCS Rec. % | LCSD Rec. % | Rec. Limits % | LCS Qualifier | LCSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|
| 4-Methyl-2-pentanone (MIBK) | 0.625 | 0.639 | 0.630 | 102 | 101 | 56.0-143 | | | 1.42 | 20 |
| Methyl tert-butyl ether | 0.125 | 0.0890 | 0.100 | 71.2 | 80.0 | 66.0-132 | | | 11.6 | 20 |
| Naphthalene | 0.125 | 0.0768 | 0.0893 | 61.4 | 71.4 | 59.0-130 | | | 15.1 | 20 |
| n-Propylbenzene | 0.125 | 0.120 | 0.121 | 96.0 | 96.8 | 74.0-126 | | | 0.830 | 20 |
| Styrene | 0.125 | 0.105 | 0.105 | 84.0 | 84.0 | 72.0-127 | | | 0.000 | 20 |
| 1,1,1,2-Tetrachloroethane | 0.125 | 0.111 | 0.111 | 88.8 | 88.8 | 74.0-129 | | | 0.000 | 20 |
| 1,1,2,2-Tetrachloroethane | 0.125 | 0.122 | 0.120 | 97.6 | 96.0 | 68.0-128 | | | 1.65 | 20 |
| Tetrachloroethene | 0.125 | 0.124 | 0.121 | 99.2 | 96.8 | 70.0-136 | | | 2.45 | 20 |
| Toluene | 0.125 | 0.127 | 0.120 | 102 | 96.0 | 75.0-121 | | | 5.67 | 20 |
| 1,1,2-Trichlorotrifluoroethane | 0.125 | 0.108 | 0.111 | 86.4 | 88.8 | 61.0-139 | | | 2.74 | 20 |
| 1,2,3-Trichlorobenzene | 0.125 | 0.0825 | 0.0950 | 66.0 | 76.0 | 59.0-139 | | | 14.1 | 20 |
| 1,2,4-Trichlorobenzene | 0.125 | 0.0861 | 0.101 | 68.9 | 80.8 | 62.0-137 | | | 15.9 | 20 |
| 1,1,1-Trichloroethane | 0.125 | 0.112 | 0.120 | 89.6 | 96.0 | 69.0-126 | | | 6.90 | 20 |
| 1,1,2-Trichloroethane | 0.125 | 0.138 | 0.137 | 110 | 110 | 78.0-123 | | | 0.727 | 20 |
| Trichloroethene | 0.125 | 0.126 | 0.127 | 101 | 102 | 76.0-126 | | | 0.791 | 20 |
| Trichlorofluoromethane | 0.125 | 0.0884 | 0.102 | 70.7 | 81.6 | 61.0-142 | | | 14.3 | 20 |
| 1,2,3-Trichloropropane | 0.125 | 0.120 | 0.114 | 96.0 | 91.2 | 67.0-129 | | | 5.13 | 20 |
| 1,2,3-Trimethylbenzene | 0.125 | 0.114 | 0.117 | 91.2 | 93.6 | 74.0-124 | | | 2.60 | 20 |
| 1,2,4-Trimethylbenzene | 0.125 | 0.114 | 0.117 | 91.2 | 93.6 | 70.0-126 | | | 2.60 | 20 |
| 1,3,5-Trimethylbenzene | 0.125 | 0.119 | 0.123 | 95.2 | 98.4 | 73.0-127 | | | 3.31 | 20 |
| Vinyl chloride | 0.125 | 0.0906 | 0.0912 | 72.5 | 73.0 | 63.0-134 | | | 0.660 | 20 |
| Xylenes, Total | 0.375 | 0.333 | 0.333 | 88.8 | 88.8 | 72.0-127 | | | 0.000 | 20 |
| *(S) Toluene-d8* | | | | *104* | *102* | *75.0-131* | | | | |
| *(S) 4-Bromofluorobenzene* | | | | *92.4* | *96.6* | *67.0-138* | | | | |
| *(S) 1,2-Dichloroethane-d4* | | | | *109* | *105* | *70.0-130* | | | | |

## L1382553-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1382553-03 07/28/21 06:26 • (MS) R3687025-4 07/28/21 06:45 • (MSD) R3687025-5 07/28/21 07:04

| Analyte | Spike Amount (dry) mg/kg | Original Result (dry) mg/kg | MS Result (dry) mg/kg | MSD Result (dry) mg/kg | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acetone | 7.73 | U | 12.1 | 14.3 | 157 | 185 | 8 | 10.0-160 | | J5 | 16.4 | 40 |
| Acrylonitrile | 7.73 | U | 11.7 | 13.0 | 151 | 168 | 8 | 10.0-160 | | J5 | 10.6 | 40 |
| Benzene | 1.55 | U | 1.71 | 1.81 | 111 | 117 | 8 | 10.0-149 | | | 5.75 | 37 |
| Bromobenzene | 1.55 | U | 1.78 | 1.85 | 115 | 120 | 8 | 10.0-156 | | | 3.92 | 38 |
| Bromodichloromethane | 1.55 | U | 2.04 | 2.12 | 132 | 137 | 8 | 10.0-143 | | | 3.42 | 37 |
| Bromoform | 1.55 | U | 1.65 | 1.94 | 107 | 125 | 8 | 10.0-146 | | | 16.1 | 36 |
| Bromomethane | 1.55 | U | 1.35 | 1.47 | 87.2 | 95.1 | 8 | 10.0-149 | | | 8.58 | 38 |
| n-Butylbenzene | 1.55 | 0.313 | 2.29 | 2.45 | 128 | 138 | 8 | 10.0-160 | | | 6.74 | 40 |

## L1382553-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1382553-03 07/28/21 06:26 • (MS) R3687025-4 07/28/21 06:45 • (MSD) R3687025-5 07/28/21 07:04

| Analyte | Spike Amount (dry) mg/kg | Original Result (dry) mg/kg | MS Result (dry) mg/kg | MSD Result (dry) mg/kg | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| sec-Butylbenzene | 1.55 | 0.533 | 2.35 | 2.38 | 117 | 120 | 8 | 10.0-159 | | | 1.50 | 39 |
| tert-Butylbenzene | 1.55 | U | 1.73 | 1.74 | 112 | 113 | 8 | 10.0-156 | | | 0.409 | 39 |
| Carbon disulfide | 1.55 | U | 1.44 | 1.56 | 93.2 | 101 | 8 | 10.0-145 | | | 7.93 | 39 |
| Carbon tetrachloride | 1.55 | U | 1.66 | 1.78 | 108 | 115 | 8 | 10.0-145 | | | 6.61 | 37 |
| Chlorobenzene | 1.55 | U | 1.77 | 1.92 | 114 | 124 | 8 | 10.0-152 | | | 8.19 | 39 |
| Chlorodibromomethane | 1.55 | U | 1.81 | 1.96 | 117 | 126 | 8 | 10.0-146 | | | 7.55 | 37 |
| Chloroethane | 1.55 | U | 1.36 | 1.43 | 87.8 | 92.3 | 8 | 10.0-146 | | | 4.98 | 40 |
| Chloroform | 1.55 | U | 1.78 | 1.96 | 115 | 126 | 8 | 10.0-146 | | | 9.52 | 37 |
| Chloromethane | 1.55 | U | 1.38 | 1.58 | 89.3 | 102 | 8 | 10.0-159 | | | 13.2 | 37 |
| 2-Chlorotoluene | 1.55 | U | 1.75 | 1.77 | 113 | 115 | 8 | 10.0-159 | | | 1.21 | 38 |
| 4-Chlorotoluene | 1.55 | U | 1.97 | 1.59 | 128 | 103 | 8 | 10.0-155 | | | 21.8 | 39 |
| 1,2-Dibromo-3-Chloropropane | 1.55 | U | 1.64 | 1.81 | 106 | 117 | 8 | 10.0-151 | | | 10.2 | 39 |
| 1,2-Dibromoethane | 1.55 | U | 1.70 | 1.87 | 110 | 121 | 8 | 10.0-148 | | | 9.06 | 34 |
| Dibromomethane | 1.55 | U | 1.85 | 1.99 | 120 | 129 | 8 | 10.0-147 | | | 7.41 | 35 |
| 1,2-Dichlorobenzene | 1.55 | U | 1.75 | 1.87 | 113 | 121 | 8 | 10.0-155 | | | 6.19 | 37 |
| 1,3-Dichlorobenzene | 1.55 | U | 1.66 | 1.75 | 107 | 113 | 8 | 10.0-153 | | | 4.90 | 38 |
| 1,4-Dichlorobenzene | 1.55 | U | 1.64 | 1.69 | 106 | 109 | 8 | 10.0-151 | | | 3.42 | 38 |
| Dichlorodifluoromethane | 1.55 | U | 1.97 | 1.99 | 128 | 129 | 8 | 10.0-160 | | | 0.897 | 35 |
| 1,1-Dichloroethane | 1.55 | U | 1.62 | 1.75 | 105 | 113 | 8 | 10.0-147 | | | 7.58 | 37 |
| 1,2-Dichloroethane | 1.55 | U | 2.17 | 2.26 | 140 | 146 | 8 | 10.0-148 | | | 4.02 | 35 |
| 1,1-Dichloroethene | 1.55 | U | 1.69 | 1.81 | 110 | 117 | 8 | 10.0-155 | | | 6.79 | 37 |
| cis-1,2-Dichloroethene | 1.55 | U | 1.81 | 2.03 | 117 | 131 | 8 | 10.0-149 | | | 11.1 | 37 |
| trans-1,2-Dichloroethene | 1.55 | U | 1.62 | 1.80 | 105 | 116 | 8 | 10.0-150 | | | 9.98 | 37 |
| 1,2-Dichloropropane | 1.55 | U | 1.81 | 1.92 | 117 | 124 | 8 | 10.0-148 | | | 5.71 | 37 |
| 1,1-Dichloropropene | 1.55 | U | 1.74 | 1.83 | 112 | 118 | 8 | 10.0-153 | | | 5.18 | 35 |
| 1,3-Dichloropropane | 1.55 | U | 1.90 | 1.99 | 123 | 129 | 8 | 10.0-154 | | | 4.57 | 35 |
| cis-1,3-Dichloropropene | 1.55 | U | 1.78 | 1.80 | 115 | 116 | 8 | 10.0-151 | | | 0.995 | 37 |
| trans-1,3-Dichloropropene | 1.55 | U | 1.81 | 1.92 | 117 | 124 | 8 | 10.0-148 | | | 5.71 | 37 |
| 2,2-Dichloropropane | 1.55 | U | 1.61 | 1.75 | 104 | 113 | 8 | 10.0-138 | | | 8.38 | 36 |
| Di-isopropyl ether | 1.55 | U | 1.83 | 2.03 | 118 | 131 | 8 | 10.0-147 | | | 10.1 | 36 |
| Ethylbenzene | 1.55 | U | 1.67 | 1.83 | 108 | 118 | 8 | 10.0-160 | | | 9.35 | 38 |
| Hexachloro-1,3-butadiene | 1.55 | U | 3.77 | 3.59 | 244 | 232 | 8 | 10.0-160 | J5 | J5 | 4.83 | 40 |
| Isopropylbenzene | 1.55 | 0.0752 | 1.72 | 1.92 | 106 | 119 | 8 | 10.0-155 | | | 11.2 | 38 |
| p-Isopropyltoluene | 1.55 | U | 1.80 | 1.85 | 116 | 120 | 8 | 10.0-160 | | | 2.93 | 40 |
| 2-Butanone (MEK) | 7.73 | U | 12.4 | 12.4 | 160 | 160 | 8 | 10.0-160 | | | 0.287 | 40 |
| Methylene Chloride | 1.55 | U | 1.61 | 1.87 | 104 | 121 | 8 | 10.0-141 | | | 14.5 | 37 |
| 4-Methyl-2-pentanone (MIBK) | 7.73 | 0.990 | 10.4 | 11.4 | 122 | 135 | 8 | 10.0-160 | | | 9.43 | 35 |
| Methyl tert-butyl ether | 1.55 | U | 1.63 | 1.90 | 105 | 123 | 8 | 11.0-147 | | | 15.5 | 35 |
| Naphthalene | 1.55 | U | 2.56 | 2.72 | 166 | 176 | 8 | 10.0-160 | J5 | J5 | 6.06 | 36 |

## L1382553-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1382553-03 07/28/21 06:26 • (MS) R3687025-4 07/28/21 06:45 • (MSD) R3687025-5 07/28/21 07:04

| Analyte | Spike Amount (dry) mg/kg | Original Result (dry) mg/kg | MS Result (dry) mg/kg | MSD Result (dry) mg/kg | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| n-Propylbenzene | 1.55 | 0.102 | 1.74 | 1.76 | 106 | 107 | 8 | 10.0-158 | | | 0.915 | 38 |
| Styrene | 1.55 | U | 1.57 | 1.80 | 102 | 116 | 8 | 10.0-160 | | | 13.1 | 40 |
| 1,1,1,2-Tetrachloroethane | 1.55 | U | 1.59 | 1.78 | 103 | 115 | 8 | 10.0-149 | | | 11.1 | 39 |
| 1,1,2,2-Tetrachloroethane | 1.55 | U | 7.32 | 7.31 | 474 | 472 | 8 | 10.0-160 | J5 | J5 | 0.243 | 35 |
| Tetrachloroethene | 1.55 | U | 1.78 | 1.87 | 115 | 121 | 8 | 10.0-156 | | | 4.98 | 39 |
| Toluene | 1.55 | U | 1.77 | 1.83 | 114 | 118 | 8 | 10.0-156 | | | 3.56 | 38 |
| 1,1,2-Trichlorotrifluoroethane | 1.55 | U | 1.83 | 1.85 | 118 | 120 | 8 | 10.0-160 | | | 0.966 | 36 |
| 1,2,3-Trichlorobenzene | 1.55 | U | 3.72 | 2.47 | 240 | 160 | 8 | 10.0-160 | J5 | J3 | 40.2 | 40 |
| 1,2,4-Trichlorobenzene | 1.55 | U | 2.29 | 2.42 | 148 | 156 | 8 | 10.0-160 | | | 5.28 | 40 |
| 1,1,1-Trichloroethane | 1.55 | U | 1.80 | 1.92 | 116 | 124 | 8 | 10.0-144 | | | 6.70 | 35 |
| 1,1,2-Trichloroethane | 1.55 | U | 2.10 | 2.26 | 136 | 146 | 8 | 10.0-160 | | | 7.35 | 35 |
| Trichloroethene | 1.55 | U | 1.88 | 1.88 | 122 | 122 | 8 | 10.0-156 | | | 0.000 | 38 |
| Trichlorofluoromethane | 1.55 | U | 1.76 | 1.69 | 114 | 109 | 8 | 10.0-160 | | | 4.33 | 40 |
| 1,2,3-Trichloropropane | 1.55 | U | 1.83 | 1.90 | 118 | 123 | 8 | 10.0-156 | | | 3.81 | 35 |
| 1,2,3-Trimethylbenzene | 1.55 | U | 1.70 | 1.81 | 110 | 117 | 8 | 10.0-160 | | | 6.48 | 36 |
| 1,2,4-Trimethylbenzene | 1.55 | U | 1.71 | 1.75 | 111 | 113 | 8 | 10.0-160 | | | 2.05 | 36 |
| 1,3,5-Trimethylbenzene | 1.55 | U | 1.69 | 1.71 | 109 | 111 | 8 | 10.0-160 | | | 1.67 | 38 |
| Vinyl chloride | 1.55 | U | 1.52 | 1.67 | 98.3 | 108 | 8 | 10.0-160 | | | 9.26 | 37 |
| Xylenes, Total | 4.64 | U | 4.78 | 5.35 | 103 | 115 | 8 | 10.0-160 | | | 11.2 | 38 |
| *(S) Toluene-d8* | | | | | *99.9* | *103* | | *75.0-131* | | | | |
| *(S) 4-Bromofluorobenzene* | | | | | *133* | *151* | | *67.0-138* | | J1 | | |
| *(S) 1,2-Dichloroethane-d4* | | | | | *111* | *115* | | *70.0-130* | | | | |

**Sample Narrative:**

OS: Non-target compounds too high to run at a lower dilution.

## Method Blank (MB)

(MB) R3686334-3 07/31/21 23:50

| Analyte | MB Result ug/l | MB Qualifier | MB MDL ug/l | MB RDL ug/l |
|---|---|---|---|---|
| Acetone | U | | 11.3 | 50.0 |
| Acrolein | U | | 2.54 | 50.0 |
| Acrylonitrile | U | | 0.671 | 10.0 |
| Benzene | U | | 0.0941 | 1.00 |
| Bromobenzene | U | | 0.118 | 1.00 |
| Bromodichloromethane | U | | 0.136 | 1.00 |
| Bromoform | U | | 0.129 | 1.00 |
| Bromomethane | U | | 0.605 | 5.00 |
| n-Butylbenzene | U | | 0.157 | 1.00 |
| sec-Butylbenzene | U | | 0.125 | 1.00 |
| tert-Butylbenzene | U | | 0.127 | 1.00 |
| Carbon disulfide | U | | 0.0962 | 1.00 |
| Carbon tetrachloride | U | | 0.128 | 1.00 |
| Chlorobenzene | U | | 0.116 | 1.00 |
| Chlorodibromomethane | U | | 0.140 | 1.00 |
| Chloroethane | U | | 0.192 | 5.00 |
| Chloroform | U | | 0.111 | 5.00 |
| Chloromethane | U | | 0.960 | 2.50 |
| 2-Chlorotoluene | U | | 0.106 | 1.00 |
| 4-Chlorotoluene | U | | 0.114 | 1.00 |
| 1,2-Dibromo-3-Chloropropane | 0.412 | J | 0.276 | 5.00 |
| 1,2-Dibromoethane | U | | 0.126 | 1.00 |
| Dibromomethane | U | | 0.122 | 1.00 |
| 1,2-Dichlorobenzene | U | | 0.107 | 1.00 |
| 1,3-Dichlorobenzene | U | | 0.110 | 1.00 |
| 1,4-Dichlorobenzene | U | | 0.120 | 1.00 |
| Dichlorodifluoromethane | U | | 0.374 | 5.00 |
| 1,1-Dichloroethane | U | | 0.100 | 1.00 |
| 1,2-Dichloroethane | U | | 0.0819 | 1.00 |
| 1,1-Dichloroethene | U | | 0.188 | 1.00 |
| cis-1,2-Dichloroethene | U | | 0.126 | 1.00 |
| trans-1,2-Dichloroethene | U | | 0.149 | 1.00 |
| 1,2-Dichloropropane | U | | 0.149 | 1.00 |
| 1,1-Dichloropropene | U | | 0.142 | 1.00 |
| 1,3-Dichloropropane | U | | 0.110 | 1.00 |
| cis-1,3-Dichloropropene | U | | 0.111 | 1.00 |
| trans-1,3-Dichloropropene | U | | 0.118 | 1.00 |
| 2,2-Dichloropropane | U | | 0.161 | 1.00 |
| Di-isopropyl ether | U | | 0.105 | 1.00 |
| Ethylbenzene | U | | 0.137 | 1.00 |

## Method Blank (MB)

(MB) R3686334-3 07/31/21 23:50

| Analyte | MB Result ug/l | MB Qualifier | MB MDL ug/l | MB RDL ug/l |
|---|---|---|---|---|
| Hexachloro-1,3-butadiene | U | | 0.337 | 1.00 |
| Isopropylbenzene | U | | 0.105 | 1.00 |
| p-Isopropyltoluene | U | | 0.120 | 1.00 |
| 2-Butanone (MEK) | U | | 1.19 | 10.0 |
| Methylene Chloride | U | | 0.430 | 5.00 |
| 4-Methyl-2-pentanone (MIBK) | U | | 0.478 | 10.0 |
| Methyl tert-butyl ether | U | | 0.101 | 1.00 |
| Naphthalene | 2.32 | J | 1.00 | 5.00 |
| n-Propylbenzene | U | | 0.0993 | 1.00 |
| Styrene | U | | 0.118 | 1.00 |
| 1,1,1,2-Tetrachloroethane | U | | 0.147 | 1.00 |
| 1,1,2,2-Tetrachloroethane | U | | 0.133 | 1.00 |
| Tetrachloroethene | U | | 0.300 | 1.00 |
| Toluene | U | | 0.278 | 1.00 |
| 1,1,2-Trichlorotrifluoroethane | U | | 0.180 | 1.00 |
| 1,2,3-Trichlorobenzene | U | | 0.230 | 1.00 |
| 1,2,4-Trichlorobenzene | 2.18 | | 0.481 | 1.00 |
| 1,1,1-Trichloroethane | U | | 0.149 | 1.00 |
| 1,1,2-Trichloroethane | U | | 0.158 | 1.00 |
| Trichloroethene | U | | 0.190 | 1.00 |
| Trichlorofluoromethane | U | | 0.160 | 5.00 |
| 1,2,3-Trichloropropane | U | | 0.237 | 2.50 |
| 1,2,3-Trimethylbenzene | U | | 0.104 | 1.00 |
| 1,2,4-Trimethylbenzene | U | | 0.322 | 1.00 |
| 1,3,5-Trimethylbenzene | U | | 0.104 | 1.00 |
| Vinyl chloride | U | | 0.234 | 1.00 |
| Xylenes, Total | U | | 0.174 | 3.00 |
| *(S) Toluene-d8* | *112* | | | *80.0-120* |
| *(S) 4-Bromofluorobenzene* | *98.1* | | | *77.0-126* |
| *(S) 1,2-Dichloroethane-d4* | *95.8* | | | *70.0-130* |

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3686334-1 07/31/21 22:48 • (LCSD) R3686334-2 07/31/21 23:09

| Analyte | Spike Amount ug/l | LCS Result ug/l | LCSD Result ug/l | LCS Rec. % | LCSD Rec. % | Rec. Limits % | LCS Qualifier | LCSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|
| Acetone | 25.0 | 17.6 | 18.2 | 70.4 | 72.8 | 19.0-160 | | | 3.35 | 27 |
| Acrolein | 25.0 | 14.2 | 13.9 | 56.8 | 55.6 | 10.0-160 | | | 2.14 | 26 |
| Acrylonitrile | 25.0 | 23.2 | 22.6 | 92.8 | 90.4 | 55.0-149 | | | 2.62 | 20 |

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3686334-1 07/31/21 22:48 • (LCSD) R3686334-2 07/31/21 23:09

| Analyte | Spike Amount ug/l | LCS Result ug/l | LCSD Result ug/l | LCS Rec. % | LCSD Rec. % | Rec. Limits % | LCS Qualifier | LCSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 5.00 | 4.72 | 4.69 | 94.4 | 93.8 | 70.0-123 | | | 0.638 | 20 |
| Bromobenzene | 5.00 | 5.07 | 5.15 | 101 | 103 | 73.0-121 | | | 1.57 | 20 |
| Bromodichloromethane | 5.00 | 4.54 | 4.67 | 90.8 | 93.4 | 75.0-120 | | | 2.82 | 20 |
| Bromoform | 5.00 | 5.14 | 5.30 | 103 | 106 | 68.0-132 | | | 3.07 | 20 |
| Bromomethane | 5.00 | 4.32 | 4.80 | 86.4 | 96.0 | 10.0-160 | | | 10.5 | 25 |
| n-Butylbenzene | 5.00 | 4.10 | 4.42 | 82.0 | 88.4 | 73.0-125 | | | 7.51 | 20 |
| sec-Butylbenzene | 5.00 | 4.67 | 4.84 | 93.4 | 96.8 | 75.0-125 | | | 3.58 | 20 |
| tert-Butylbenzene | 5.00 | 4.84 | 4.88 | 96.8 | 97.6 | 76.0-124 | | | 0.823 | 20 |
| Carbon disulfide | 5.00 | 4.38 | 4.60 | 87.6 | 92.0 | 61.0-128 | | | 4.90 | 20 |
| Carbon tetrachloride | 5.00 | 4.60 | 4.62 | 92.0 | 92.4 | 68.0-126 | | | 0.434 | 20 |
| Chlorobenzene | 5.00 | 5.05 | 5.28 | 101 | 106 | 80.0-121 | | | 4.45 | 20 |
| Chlorodibromomethane | 5.00 | 5.28 | 5.20 | 106 | 104 | 77.0-125 | | | 1.53 | 20 |
| Chloroethane | 5.00 | 4.14 | 4.35 | 82.8 | 87.0 | 47.0-150 | | | 4.95 | 20 |
| Chloroform | 5.00 | 4.64 | 4.84 | 92.8 | 96.8 | 73.0-120 | | | 4.22 | 20 |
| Chloromethane | 5.00 | 3.91 | 4.31 | 78.2 | 86.2 | 41.0-142 | | | 9.73 | 20 |
| 2-Chlorotoluene | 5.00 | 5.08 | 5.21 | 102 | 104 | 76.0-123 | | | 2.53 | 20 |
| 4-Chlorotoluene | 5.00 | 4.92 | 4.95 | 98.4 | 99.0 | 75.0-122 | | | 0.608 | 20 |
| 1,2-Dibromo-3-Chloropropane | 5.00 | 4.38 | 4.96 | 87.6 | 99.2 | 58.0-134 | | | 12.4 | 20 |
| 1,2-Dibromoethane | 5.00 | 5.13 | 5.17 | 103 | 103 | 80.0-122 | | | 0.777 | 20 |
| Dibromomethane | 5.00 | 4.65 | 4.66 | 93.0 | 93.2 | 80.0-120 | | | 0.215 | 20 |
| 1,2-Dichlorobenzene | 5.00 | 4.81 | 5.27 | 96.2 | 105 | 79.0-121 | | | 9.13 | 20 |
| 1,3-Dichlorobenzene | 5.00 | 4.90 | 5.33 | 98.0 | 107 | 79.0-120 | | | 8.41 | 20 |
| 1,4-Dichlorobenzene | 5.00 | 5.08 | 5.09 | 102 | 102 | 79.0-120 | | | 0.197 | 20 |
| Dichlorodifluoromethane | 5.00 | 4.67 | 4.72 | 93.4 | 94.4 | 51.0-149 | | | 1.06 | 20 |
| 1,1-Dichloroethane | 5.00 | 4.31 | 4.37 | 86.2 | 87.4 | 70.0-126 | | | 1.38 | 20 |
| 1,2-Dichloroethane | 5.00 | 4.58 | 4.72 | 91.6 | 94.4 | 70.0-128 | | | 3.01 | 20 |
| 1,1-Dichloroethene | 5.00 | 4.30 | 4.42 | 86.0 | 88.4 | 71.0-124 | | | 2.75 | 20 |
| cis-1,2-Dichloroethene | 5.00 | 4.33 | 4.31 | 86.6 | 86.2 | 73.0-120 | | | 0.463 | 20 |
| trans-1,2-Dichloroethene | 5.00 | 4.27 | 4.28 | 85.4 | 85.6 | 73.0-120 | | | 0.234 | 20 |
| 1,2-Dichloropropane | 5.00 | 4.54 | 4.72 | 90.8 | 94.4 | 77.0-125 | | | 3.89 | 20 |
| 1,1-Dichloropropene | 5.00 | 4.51 | 4.84 | 90.2 | 96.8 | 74.0-126 | | | 7.06 | 20 |
| 1,3-Dichloropropane | 5.00 | 5.35 | 5.31 | 107 | 106 | 80.0-120 | | | 0.750 | 20 |
| cis-1,3-Dichloropropene | 5.00 | 4.78 | 4.87 | 95.6 | 97.4 | 80.0-123 | | | 1.87 | 20 |
| trans-1,3-Dichloropropene | 5.00 | 5.01 | 4.97 | 100 | 99.4 | 78.0-124 | | | 0.802 | 20 |
| 2,2-Dichloropropane | 5.00 | 4.25 | 4.08 | 85.0 | 81.6 | 58.0-130 | | | 4.08 | 20 |
| Di-isopropyl ether | 5.00 | 4.54 | 4.47 | 90.8 | 89.4 | 58.0-138 | | | 1.55 | 20 |
| Ethylbenzene | 5.00 | 5.31 | 5.37 | 106 | 107 | 79.0-123 | | | 1.12 | 20 |
| Hexachloro-1,3-butadiene | 5.00 | 6.97 | 7.52 | 139 | 150 | 54.0-138 | J4 | J4 | 7.59 | 20 |
| Isopropylbenzene | 5.00 | 4.58 | 4.70 | 91.6 | 94.0 | 76.0-127 | | | 2.59 | 20 |
| p-Isopropyltoluene | 5.00 | 4.24 | 4.71 | 84.8 | 94.2 | 76.0-125 | | | 10.5 | 20 |

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3686334-1 07/31/21 22:48 • (LCSD) R3686334-2 07/31/21 23:09

| Analyte | Spike Amount ug/l | LCS Result ug/l | LCSD Result ug/l | LCS Rec. % | LCSD Rec. % | Rec. Limits % | LCS Qualifier | LCSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|
| 2-Butanone (MEK) | 25.0 | 23.3 | 22.8 | 93.2 | 91.2 | 44.0-160 | | | 2.17 | 20 |
| Methylene Chloride | 5.00 | 4.45 | 4.53 | 89.0 | 90.6 | 67.0-120 | | | 1.78 | 20 |
| 4-Methyl-2-pentanone (MIBK) | 25.0 | 25.0 | 24.5 | 100 | 98.0 | 68.0-142 | | | 2.02 | 20 |
| Methyl tert-butyl ether | 5.00 | 4.49 | 4.31 | 89.8 | 86.2 | 68.0-125 | | | 4.09 | 20 |
| Naphthalene | 5.00 | 4.54 | 5.68 | 90.8 | 114 | 54.0-135 | | J3 | 22.3 | 20 |
| n-Propylbenzene | 5.00 | 4.85 | 5.01 | 97.0 | 100 | 77.0-124 | | | 3.25 | 20 |
| Styrene | 5.00 | 4.80 | 4.94 | 96.0 | 98.8 | 73.0-130 | | | 2.87 | 20 |
| 1,1,1,2-Tetrachloroethane | 5.00 | 5.19 | 5.13 | 104 | 103 | 75.0-125 | | | 1.16 | 20 |
| 1,1,2,2-Tetrachloroethane | 5.00 | 4.94 | 4.99 | 98.8 | 99.8 | 65.0-130 | | | 1.01 | 20 |
| Tetrachloroethene | 5.00 | 5.48 | 5.65 | 110 | 113 | 72.0-132 | | | 3.05 | 20 |
| Toluene | 5.00 | 5.07 | 5.18 | 101 | 104 | 79.0-120 | | | 2.15 | 20 |
| 1,1,2-Trichlorotrifluoroethane | 5.00 | 4.46 | 4.70 | 89.2 | 94.0 | 69.0-132 | | | 5.24 | 20 |
| 1,2,3-Trichlorobenzene | 5.00 | 3.49 | 5.20 | 69.8 | 104 | 50.0-138 | | J3 | 39.4 | 20 |
| 1,2,4-Trichlorobenzene | 5.00 | 4.70 | 5.51 | 94.0 | 110 | 57.0-137 | | | 15.9 | 20 |
| 1,1,1-Trichloroethane | 5.00 | 4.51 | 4.70 | 90.2 | 94.0 | 73.0-124 | | | 4.13 | 20 |
| 1,1,2-Trichloroethane | 5.00 | 4.95 | 5.06 | 99.0 | 101 | 80.0-120 | | | 2.20 | 20 |
| Trichloroethene | 5.00 | 4.90 | 5.11 | 98.0 | 102 | 78.0-124 | | | 4.20 | 20 |
| Trichlorofluoromethane | 5.00 | 3.78 | 3.96 | 75.6 | 79.2 | 59.0-147 | | | 4.65 | 20 |
| 1,2,3-Trichloropropane | 5.00 | 5.82 | 5.58 | 116 | 112 | 73.0-130 | | | 4.21 | 20 |
| 1,2,3-Trimethylbenzene | 5.00 | 4.24 | 4.62 | 84.8 | 92.4 | 77.0-120 | | | 8.58 | 20 |
| 1,2,4-Trimethylbenzene | 5.00 | 4.48 | 4.67 | 89.6 | 93.4 | 76.0-121 | | | 4.15 | 20 |
| 1,3,5-Trimethylbenzene | 5.00 | 4.82 | 4.87 | 96.4 | 97.4 | 76.0-122 | | | 1.03 | 20 |
| Vinyl chloride | 5.00 | 3.80 | 3.87 | 76.0 | 77.4 | 67.0-131 | | | 1.83 | 20 |
| Xylenes, Total | 15.0 | 14.9 | 15.2 | 99.3 | 101 | 79.0-123 | | | 1.99 | 20 |
| *(S) Toluene-d8* | | | | *108* | *108* | *80.0-120* | | | | |
| *(S) 4-Bromofluorobenzene* | | | | *95.1* | *93.4* | *77.0-126* | | | | |
| *(S) 1,2-Dichloroethane-d4* | | | | *98.1* | *96.4* | *70.0-130* | | | | |

## Method Blank (MB)

(MB) R3686857-1 08/02/21 15:13

| Analyte | MB Result mg/kg | MB Qualifier | MB MDL mg/kg | MB RDL mg/kg |
|---|---|---|---|---|
| Diesel Range Organics (DRO) | U | | 1.33 | 4.00 |
| Residual Range Organics (RRO) | U | | 3.33 | 10.0 |
| *(S) o-Terphenyl* | *57.1* | | | *18.0-148* |

## Laboratory Control Sample (LCS)

(LCS) R3686857-2 08/02/21 15:27

| Analyte | Spike Amount mg/kg | LCS Result mg/kg | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 50.0 | 40.2 | 80.4 | 50.0-150 | |
| *(S) o-Terphenyl* | | | *52.9* | *18.0-148* | |

## L1382553-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1382553-02 08/03/21 04:20 • (MS) R3686857-3 08/03/21 04:33 • (MSD) R3686857-4 08/03/21 04:47

| Analyte | Spike Amount (dry) mg/kg | Original Result (dry) mg/kg | MS Result (dry) mg/kg | MSD Result (dry) mg/kg | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 66.8 | U | 51.3 | 52.5 | 76.7 | 77.9 | 1 | 50.0-150 | | | 2.37 | 20 |
| *(S) o-Terphenyl* | | | | | *50.5* | *50.5* | | *18.0-148* | | | | |

## Method Blank (MB)

(MB) R3687220-1 08/03/21 00:01

| Analyte | MB Result mg/kg | MB Qualifier | MB MDL mg/kg | MB RDL mg/kg |
|---|---|---|---|---|
| PCB 1016 | U | | 0.0118 | 0.0340 |
| PCB 1221 | U | | 0.0118 | 0.0340 |
| PCB 1232 | U | | 0.0118 | 0.0340 |
| PCB 1242 | U | | 0.0118 | 0.0340 |
| PCB 1248 | U | | 0.00738 | 0.0170 |
| PCB 1254 | U | | 0.00738 | 0.0170 |
| PCB 1260 | U | | 0.00738 | 0.0170 |
| *(S) Decachlorobiphenyl* | *76.1* | | | *10.0-135* |
| *(S) Tetrachloro-m-xylene* | *61.9* | | | *10.0-139* |

## Laboratory Control Sample (LCS)

(LCS) R3687220-2 08/03/21 00:12

| Analyte | Spike Amount mg/kg | LCS Result mg/kg | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| PCB 1260 | 0.167 | 0.119 | 71.3 | 37.0-145 | |
| PCB 1016 | 0.167 | 0.107 | 64.1 | 36.0-141 | |
| *(S) Decachlorobiphenyl* | | | *81.1* | *10.0-135* | |
| *(S) Tetrachloro-m-xylene* | | | *62.2* | *10.0-139* | |

## L1382341-31 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1382341-31 08/03/21 01:04 • (MS) R3687220-3 08/03/21 01:14 • (MSD) R3687220-4 08/03/21 01:24

| Analyte | Spike Amount (dry) mg/kg | Original Result (dry) mg/kg | MS Result (dry) mg/kg | MSD Result (dry) mg/kg | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PCB 1260 | 0.267 | U | 0.194 | 0.165 | 72.5 | 62.0 | 1 | 10.0-160 | P | P | 16.1 | 38 |
| PCB 1016 | 0.267 | U | 53.7 | 50.9 | 20100 | 19200 | 1 | 10.0-160 | J5 P | J5 P | 5.21 | 37 |
| *(S) Decachlorobiphenyl* | | | | | *61.7* | *59.0* | | *10.0-135* | | | | |
| *(S) Tetrachloro-m-xylene* | | | | | *57.1* | *49.5* | | *10.0-139* | | | | |

## Method Blank (MB)

(MB) R3686385-2 08/01/21 12:11

| Analyte | MB Result mg/kg | MB Qualifier | MB MDL mg/kg | MB RDL mg/kg |
|---|---|---|---|---|
| Anthracene | U | | 0.00230 | 0.00600 |
| Acenaphthene | U | | 0.00209 | 0.00600 |
| Acenaphthylene | U | | 0.00216 | 0.00600 |
| Benzo(a)anthracene | U | | 0.00173 | 0.00600 |
| Benzo(a)pyrene | U | | 0.00179 | 0.00600 |
| Benzo(b)fluoranthene | U | | 0.00153 | 0.00600 |
| Benzo(g,h,i)perylene | U | | 0.00177 | 0.00600 |
| Benzo(k)fluoranthene | U | | 0.00215 | 0.00600 |
| Chrysene | U | | 0.00232 | 0.00600 |
| Dibenz(a,h)anthracene | U | | 0.00172 | 0.00600 |
| Fluoranthene | U | | 0.00227 | 0.00600 |
| Fluorene | U | | 0.00205 | 0.00600 |
| Indeno(1,2,3-cd)pyrene | U | | 0.00181 | 0.00600 |
| Naphthalene | U | | 0.00408 | 0.0200 |
| Phenanthrene | U | | 0.00231 | 0.00600 |
| Pyrene | U | | 0.00200 | 0.00600 |
| 1-Methylnaphthalene | U | | 0.00449 | 0.0200 |
| 2-Methylnaphthalene | U | | 0.00427 | 0.0200 |
| 2-Chloronaphthalene | U | | 0.00466 | 0.0200 |
| *(S) Nitrobenzene-d5* | *76.7* | | | *14.0-149* |
| *(S) 2-Fluorobiphenyl* | *78.8* | | | *34.0-125* |
| *(S) p-Terphenyl-d14* | *100* | | | *23.0-120* |

## Laboratory Control Sample (LCS)

(LCS) R3686385-1 08/01/21 11:51

| Analyte | Spike Amount mg/kg | LCS Result mg/kg | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| Anthracene | 0.0800 | 0.0622 | 77.8 | 50.0-126 | |
| Acenaphthene | 0.0800 | 0.0605 | 75.6 | 50.0-120 | |
| Acenaphthylene | 0.0800 | 0.0652 | 81.5 | 50.0-120 | |
| Benzo(a)anthracene | 0.0800 | 0.0602 | 75.3 | 45.0-120 | |
| Benzo(a)pyrene | 0.0800 | 0.0595 | 74.4 | 42.0-120 | |
| Benzo(b)fluoranthene | 0.0800 | 0.0595 | 74.4 | 42.0-121 | |
| Benzo(g,h,i)perylene | 0.0800 | 0.0583 | 72.9 | 45.0-125 | |
| Benzo(k)fluoranthene | 0.0800 | 0.0618 | 77.3 | 49.0-125 | |
| Chrysene | 0.0800 | 0.0618 | 77.3 | 49.0-122 | |
| Dibenz(a,h)anthracene | 0.0800 | 0.0551 | 68.9 | 47.0-125 | |
| Fluoranthene | 0.0800 | 0.0615 | 76.9 | 49.0-129 | |

## Laboratory Control Sample (LCS)

(LCS) R3686385-1 08/01/21 11:51

| Analyte | Spike Amount mg/kg | LCS Result mg/kg | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| Fluorene | 0.0800 | 0.0614 | 76.8 | 49.0-120 | |
| Indeno(1,2,3-cd)pyrene | 0.0800 | 0.0596 | 74.5 | 46.0-125 | |
| Naphthalene | 0.0800 | 0.0611 | 76.4 | 50.0-120 | |
| Phenanthrene | 0.0800 | 0.0604 | 75.5 | 47.0-120 | |
| Pyrene | 0.0800 | 0.0626 | 78.3 | 43.0-123 | |
| 1-Methylnaphthalene | 0.0800 | 0.0617 | 77.1 | 51.0-121 | |
| 2-Methylnaphthalene | 0.0800 | 0.0591 | 73.9 | 50.0-120 | |
| 2-Chloronaphthalene | 0.0800 | 0.0591 | 73.9 | 50.0-120 | |
| *(S) Nitrobenzene-d5* | | | *78.1* | *14.0-149* | |
| *(S) 2-Fluorobiphenyl* | | | *78.9* | *34.0-125* | |
| *(S) p-Terphenyl-d14* | | | *97.4* | *23.0-120* | |

## L1382651-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1382651-04 08/01/21 18:14 • (MS) R3686385-3 08/01/21 18:34 • (MSD) R3686385-4 08/01/21 18:54

| Analyte | Spike Amount (dry) mg/kg | Original Result (dry) mg/kg | MS Result (dry) mg/kg | MSD Result (dry) mg/kg | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Anthracene | 0.0836 | U | 0.0634 | 0.0634 | 75.9 | 76.3 | 1 | 10.0-145 | | | 0.000 | 30 |
| Acenaphthene | 0.0836 | U | 0.0638 | 0.0644 | 76.4 | 77.4 | 1 | 14.0-127 | | | 0.815 | 27 |
| Acenaphthylene | 0.0836 | U | 0.0676 | 0.0679 | 80.9 | 81.7 | 1 | 21.0-124 | | | 0.463 | 25 |
| Benzo(a)anthracene | 0.0836 | U | 0.0620 | 0.0615 | 74.1 | 74.0 | 1 | 10.0-139 | | | 0.677 | 30 |
| Benzo(a)pyrene | 0.0836 | U | 0.0624 | 0.0618 | 74.6 | 74.4 | 1 | 10.0-141 | | | 0.841 | 31 |
| Benzo(b)fluoranthene | 0.0836 | U | 0.0629 | 0.0612 | 75.3 | 73.6 | 1 | 10.0-140 | | | 2.69 | 36 |
| Benzo(g,h,i)perylene | 0.0836 | U | 0.0607 | 0.0591 | 72.6 | 71.1 | 1 | 10.0-140 | | | 2.62 | 33 |
| Benzo(k)fluoranthene | 0.0836 | U | 0.0610 | 0.0612 | 73.0 | 73.6 | 1 | 10.0-137 | | | 0.342 | 31 |
| Chrysene | 0.0836 | U | 0.0648 | 0.0638 | 77.5 | 76.8 | 1 | 10.0-145 | | | 1.46 | 30 |
| Dibenz(a,h)anthracene | 0.0836 | U | 0.0573 | 0.0566 | 68.5 | 68.1 | 1 | 10.0-132 | | | 1.10 | 31 |
| Fluoranthene | 0.0836 | U | 0.0658 | 0.0645 | 78.8 | 77.5 | 1 | 10.0-153 | | | 2.09 | 33 |
| Fluorene | 0.0836 | U | 0.0634 | 0.0641 | 75.9 | 77.1 | 1 | 11.0-130 | | | 1.15 | 29 |
| Indeno(1,2,3-cd)pyrene | 0.0836 | U | 0.0571 | 0.0579 | 68.4 | 69.6 | 1 | 10.0-137 | | | 1.27 | 32 |
| Naphthalene | 0.0836 | U | 0.0659 | 0.0649 | 78.9 | 78.0 | 1 | 10.0-135 | | | 1.60 | 27 |
| Phenanthrene | 0.0836 | U | 0.0641 | 0.0621 | 76.8 | 74.6 | 1 | 10.0-144 | | | 3.31 | 31 |
| Pyrene | 0.0836 | U | 0.0688 | 0.0681 | 82.4 | 81.9 | 1 | 10.0-148 | | | 1.07 | 35 |
| 1-Methylnaphthalene | 0.0836 | U | 0.0708 | 0.0677 | 84.8 | 81.4 | 1 | 10.0-142 | | | 4.52 | 28 |
| 2-Methylnaphthalene | 0.0836 | U | 0.0682 | 0.0623 | 81.6 | 74.9 | 1 | 10.0-137 | | | 9.13 | 28 |
| 2-Chloronaphthalene | 0.0836 | U | 0.0608 | 0.0610 | 72.8 | 73.4 | 1 | 29.0-120 | | | 0.343 | 24 |
| *(S) Nitrobenzene-d5* | | | | | *73.9* | *74.8* | | *14.0-149* | | | | |
| *(S) 2-Fluorobiphenyl* | | | | | *77.9* | *79.5* | | *34.0-125* | | | | |
| *(S) p-Terphenyl-d14* | | | | | *103* | *102* | | *23.0-120* | | | | |

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

## Abbreviations and Definitions

| | |
|---|---|
| (dry) | Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils]. |
| MDL | Method Detection Limit. |
| MDL (dry) | Method Detection Limit. |
| RDL | Reported Detection Limit. |
| RDL (dry) | Reported Detection Limit. |
| Rec. | Recovery. |
| RPD | Relative Percent Difference. |
| SDG | Sample Delivery Group. |
| (S) | Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media. |
| U | Not detected at the Reporting Limit (or MDL where applicable). |
| Analyte | The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported. |
| Dilution | If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor. |
| Limits | These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges. |
| Original Sample | The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG. |
| Qualifier | This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable. |
| Result | The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte. |
| Uncertainty (Radiochemistry) | Confidence level of 2 sigma. |
| Case Narrative (Cn) | A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report. |
| Quality Control Summary (Qc) | This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material. |
| Sample Chain of Custody (Sc) | This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis. |
| Sample Results (Sr) | This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported. |
| Sample Summary (Ss) | This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis. |

| Qualifier | Description |
|---|---|
| C3 | The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable. |
| C4 | The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Data is likely to show a low bias concerning the result. |
| J | The identification of the analyte is acceptable; the reported value is an estimate. |
| J1 | Surrogate recovery limits have been exceeded; values are outside upper control limits. |
| J3 | The associated batch QC was outside the established quality control range for precision. |
| J4 | The associated batch QC was outside the established quality control range for accuracy. |
| J5 | The sample matrix interfered with the ability to make any accurate determination; spike value is high. |
| J6 | The sample matrix interfered with the ability to make any accurate determination; spike value is low. |

# GLOSSARY OF TERMS

| Qualifier | Description |
|---|---|
| P | RPD between the primary and confirmatory analysis exceeded 40%. |

# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

| | | | |
|---|---|---|---|
| Alabama | 40660 | Nebraska | NE-OS-15-05 |
| Alaska | 17-026 | Nevada | TN000032021-1 |
| Arizona | AZ0612 | New Hampshire | 2975 |
| Arkansas | 88-0469 | New Jersey–NELAP | TN002 |
| California | 2932 | New Mexico [1] | TN00003 |
| Colorado | TN00003 | New York | 11742 |
| Connecticut | PH-0197 | North Carolina | Env375 |
| Florida | E87487 | North Carolina [1] | DW21704 |
| Georgia | NELAP | North Carolina [3] | 41 |
| Georgia [1] | 923 | North Dakota | R-140 |
| Idaho | TN00003 | Ohio–VAP | CL0069 |
| Illinois | 200008 | Oklahoma | 9915 |
| Indiana | C-TN-01 | Oregon | TN200002 |
| Iowa | 364 | Pennsylvania | 68-02979 |
| Kansas | E-10277 | Rhode Island | LAO000356 |
| Kentucky [1 6] | KY90010 | South Carolina | 84004002 |
| Kentucky [2] | 16 | South Dakota | n/a |
| Louisiana | AI30792 | Tennessee [1 4] | 2006 |
| Louisiana | LA018 | Texas | T104704245-20-18 |
| Maine | TN00003 | Texas [5] | LAB0152 |
| Maryland | 324 | Utah | TN000032021-11 |
| Massachusetts | M-TN003 | Vermont | VT2006 |
| Michigan | 9958 | Virginia | 110033 |
| Minnesota | 047-999-395 | Washington | C847 |
| Mississippi | TN00003 | West Virginia | 233 |
| Missouri | 340 | Wisconsin | 998093910 |
| Montana | CERT0086 | Wyoming | A2LA |
| A2LA – ISO 17025 | 1461.01 | AIHA-LAP,LLC EMLAP | 100789 |
| A2LA – ISO 17025 [5] | 1461.02 | DOD | 1461.01 |
| Canada | 1461.01 | USDA | P330-15-00234 |
| EPA–Crypto | TN00003 | | |

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

L1382553 C115

# State of Oregon Chain of Custody

| | | | |
|---|---|---|---|
| **Agency, Authorized Purchaser or Agent:** Oregon DEQ | **Contract Laboratory Name:** ESC<br>**Lab Batch #:** | **Lab Selection Criteria:**<br>☐ Proximity (if TAT < 48 hrs)<br>☐ Prior work on same project<br>☒ Cost (for anticipated analyses)<br>☐ Other labs disqualified or unable to perform requested services<br>☐ Emergency work | **Turn Around Time:**<br>☒ 10 days (std.)<br>☐ 5 days<br>☐ 72 hours<br>☐ 48 hours<br>☐ 24 hours<br>☐ Other: SAME DAY |
| **Send Lab Report To:** Don Hanson<br>Address: 165 East 7th Ave, Suite 100, Eugene, OR 97401<br>Tel. #:<br>E-mail: don.hanson@deq.state.or.us | **Invoice To:** ODEQ/Business Office<br>Address: 700 NE Multnomah Street, Suite 600, Portland, OR 97232-4100<br>Tel. #: (800) 452-4011 | | |
| **Project Name: DEQ – Carol Glover**<br>**Project Number: 2659-00**<br>Sampler Name: Matt Enos | | | |

| Sample ID# | Collection Date/Time | Matrix | Number of Containers | Sample Preservative | Requested Analyses: VOCs | NWTPH-Gx | NWTPH-Dx | Pb, Cd, Cr | PAHs | PCBs | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SB-1 (3-4) | 7/22/21@0905 | S | 3 | | | | | | | | | | | | HOLD -01 |
| SB-1 (13-14) | 7/22/21@0915 | S | 3 | | | | | | | | | | | | HOLD -02 |
| SB-2 (2-3) | 7/22/21@0925 | S | 3 | | | | | | | | | | | | HOLD -03 |
| SB-2 (13-14) | 7/22/21@0940 | S | 3 | | | | | | | | | | | | HOLD -04 |
| SB-3 (2-3) | 7/22/21@1015 | S | 3 | | | | | | | | | | | | HOLD -05 |
| SB-3 (9-10) | 7/22/21@1420 | S | 3 | | | | | | | | | | | | HOLD -06 |
| SB-5 (4-5) | 7/22/21@1315 | S | 3 | | | | | | | | | | | | HOLD -07 |
| SB-5 (9-10) | 7/22/21@1325 | S | 3 | | | | | | | | | | | | HOLD -08 |
| SB-5 (12-13) | 7/22/21@1335 | S | 3 | | | | | | | | | | | | HOLD -09 |
| SB-6 (8-9) | 7/22/21@1115 | S | 3 | | | | | | | | | | | | HOLD -10 |
| SB-7 (7-8) | 7/22/21@1210 | S | 3 | | | | | | | | | | | | HOLD -11 |

Sample Receipt Checklist

| | | | |
|---|---|---|---|
| COC Seal Present/Intact: | Y N | If Applicable | |
| COC Signed/Accurate: | Y N | VOA Zero Headspace: | Y N |
| Bottles arrive intact: | Y N | Pres.Correct/Check: | Y N |
| Correct bottles used: | Y N | | |
| Sufficient volume sent: | Y N | | |
| RAD Screen <0.5 mR/hr: | Y N | | |

Notes:
Please also email results to: mstevens@apexcos.com, sam.jackson@apexcos.com as well.

0.4-.1=0.3 AZBR

| | | | |
|---|---|---|---|
| Relinquished By: Matt Enos | Agency/Agent: Apex Companies | Received By: | Agency/Agent: |
| Signature: Matt Enos | Time & Date: 7/22/21 @ 1830 | Signature: | Time & Date: 7/24 0900 |
| Relinquished By: | Agency/Agent: | Received By: | Agency/Agent: |

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT #8903. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

5217 3308 1474

# State of Oregon Chain of Custody

**Agency, Authorized Purchaser or Agent:** Oregon DEQ

**Send Lab Report To:** Don Hanson

Address: 165 East 7th Ave, Suite 100, Eugene, OR 97401

Tel. #:

E-mail: don.hanson@deq.state.or.us

**Contract Laboratory Name:** ESC

**Lab Batch #:**

**Invoice To:** ODEQ/Business Office

Address: 700 NE Multnomah Street, Suite 600, Portland, OR 97232-4100

Tel. #: (800) 452-4011

**Lab Selection Criteria:**

- ☐ Proximity (if TAT < 48 hrs)
- ☐ Prior work on same project
- ☒ Cost (for anticipated analyses)
- ☐ Other labs disqualified or unable to perform requested services
- ☐ Emergency work

**Turn Around Time:**

- ☒ 10 days (std.)
- ☐ 5 days
- ☐ 72 hours
- ☐ 48 hours
- ☐ 24 hours
- ☐ Other: SAME DAY

**Project Name:** DEQ – Carol Glover
**Project Number:** 2659-00

Sampler Name: Matt Enos

| Sample ID# | Collection Date/Time | Matrix | Number of Containers | Sample Preservative | Requested Analyses: VOCs | NWTPH-Gx | NWTPH-Dx | Pb, Cd, Cr | PAHs | PCBs | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | L1382553 |
| SB-7 (14-15) | 7/22/21@1220 | S | 3 | | | | | | | | | | | | HOLD -12 |
| SB-8 (4-5) | 7/22/21@1240 | S | 3 | | | | | | | | | | | | HOLD -13 |
| SB-8 (14-15) | 7/22/21@1245 | S | 3 | | | | | | | | | | | | HOLD -14 |
| SB-6 | 7/22/21@1130 | GW | 13 | | | | | | | | | | | | HOLD -15 |
| | | | | | | | | | | | | | | | |
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Notes:
Please also email results to: mstevens@apexcos.com, sam.jackson@apexcos.com as well.

0.4 - .1 = 0.3 A2 EB

| Relinquished By: Matt Enos | Agency/Agent: Apex Companies | Received By: | Agency/Agent: |
|---|---|---|---|
| Signature: Matt Enos | Time & Date: 7/22/21 @ 1830 | Signature: | Time & Date: 7/24 0900 |
| Relinquished By: | Agency/Agent: | Received By: | Agency/Agent: |

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #**102-1098-07** AND PRICE AGREEMENT #8903. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

## Brian Ford

**From:** Sam Jackson <Sam.Jackson@ApexCos.com>
**Sent:** Monday, July 26, 2021 7:22 PM
**To:** Brian Ford
**Cc:** HANSON Don * DEQ; Matthew Enos; Michael Stevens; Kelsi Evans
**Subject:** RE: [EXT] L1382553 Carol Glover BP Hold Samples Received



Brian, See below for requested analyses.

**Soil samples.** Samples to be analyzed for diesel-range hydrocarbons; gasoline-range hydrocarbons; VOCs including MTBE; and total lead:

- SB-1 (13-14),
- SB-2 (2-3),
- SB-2 (13-14),
- SB-3 (2-3);
- SB-3 (9-10),
- SB-5 (4-5),
- SB-5 (12-13),
- SB-6 (8-9),
- SB-7 (7-8), and
- SB-8(14-15).

Sample SB-7 (7-8) is in the closest proximity to the waste oil tank; please submit that sample for following analyses: PAHs, PCBs, cadmium, and chromium.

**Groundwater sample**. Sample SB-6: gasoline-range hydrocarbons; VOCs including MTBE; and total lead.

Hold remaining soil and water sample volume for potential followup analyses. Please let me know if you have any questions.

Thanks, Sam

**Sam Jackson**, P.E.
Sr Engineering Manager
**Apex Companies, LLC**
3015 SW 1st Ave
Portland, OR 97201
O) 503-924-4704 x1924 M) 503-278-9815
Add me to your contact list!

*ENR* Top 30 All-Environmental Firm

**From:** Brian Ford <Brian.Ford@pacelabs.com>
**Sent:** Monday, July 26, 2021 10:26 AM
**To:** HANSON Don * DEQ <don.hanson@deq.state.or.us>; Matthew Enos <Matthew.Enos@apexcos.com>; Michael Stevens <Michael.Stevens@ApexCos.com>; Sam Jackson <Sam.Jackson@ApexCos.com>; Kelsi Evans <Kelsi.Evans@apexcos.com>
**Subject:** [EXT] L1382553 Carol Glover BP Hold Samples Received



Attached samples received and placed on hold

We also received sample ID SB-6(11-12) which is not listed on the COC.

Thanks,

Brian Ford
*Project Manager 2 / Pace National*
12065 Lebanon Road | Mt. Juliet, TN 37122
Office: 615.773.9772
brian.ford@pacelabs.com

## L1382553/P861286 OREGONDEQ NCF KI

R5

**Time estimate:** oh **Time spent:** oh

**Members**

Brian Ford MI Myra Ingram

- [ ] Login Clarification needed
- [ ] Chain of custody is incomplete
- [ ] Please specify Metals requested
- [ ] Please specify TCLP requested
- [x] Received additional samples not listed on COC
- [ ] Sample IDs on containers do not match IDs on COC
- [ ] Client did not "X" analysis
- [ ] Chain of Custody is missing
- [ ] If no COC: Received by:_____
- [ ] If no COC: Date/Time:_____
- [ ] If no COC: Temp./Cont.Rec./pH:_____
- [ ] If no COC: Carrier:_____
- [ ] If no COC: Tracking #:_____
- [ ] Client informed by call
- [x] Client informed by Email
- [ ] Client informed by Voicemail
- [ ] Date/Time:_____
- [x] PM initials:_____bjf_____
- [ ] Client Contact:_____

**Comments**

*Myra Ingram* *24 July 2021 3:27 PM*

ID: SB-6 (11-12)
Collected 7/22/21 on 1145
Three containers

*Brian Ford* *26 July 2021 6:41 PM*

place on hold

*Troy Dunlap* *28 July 2021 8:32 AM*

Done. 07-041

# *Appendix C*

## Hazardous Building Material Survey

December 1, 2021

Cascade Environmental LLC

4346 NE 73rd Avenue
Portland, Oregon 97218

Phone 503 984 9737

www.cascadenviro.com

Sam Jackson
Apex Companies, LLC
3015 SW 1st Avenue
Portland, Oregon 97201

**Re: Pre-Demolition Hazardous Building Material Survey**
**Carol Glover BP, Yamhill Oregon**
**185 South Maple Street**
**Yamhill, Oregon**
**ODEQ Project #36-93-4164**
**Cascade Environmental Project # 11022021-01**

Mr. Jackson:

At the request of Apex Companies, LLC (Apex), Cascade Environmental LLC (Cascade) has prepared this Pre-Demolition Hazardous Building Material Survey report for the location referenced above.

## SCOPE OF WORK

The purpose for this survey was to determine the presence and location of suspect hazardous building materials that may be impacted during the planned demolition of the property building. Cascade performed a comprehensive asbestos-containing materials (ACMs) survey, limited lead-containing paint sampling and a visual inspection of light fixtures that may be equipped with mercury-containing light tubes and/or ballasts with polychlorinated biphenyls (PCBs). In addition, Cascade performed toxicity characteristic leaching procedure (TCLP) sampling to characterize the eventual demolition waste stream for lead content. The one-story, approximately 1,200 square foot commercial structure was reportedly constructed in 1950. Cascade's Asbestos Hazard Emergency Response Act (AHERA)-Certified Asbestos Building Inspector, Mr. Robert Burns, conducted the survey on November 2, 2021.

## ASBESTOS SURVEY

### Sampling and Analysis

The pre-demolition asbestos survey was performed following the sampling protocols outlined under applicable regulations, including the United States Environmental Protection Agency (EPA) sampling methods outlined in Chapter 40 of the Code of Federal Regulations (CFR), Part 763.86 and the Oregon Department of Environmental Quality (DEQ) Asbestos Requirements, as defined in Oregon Administrative Rule (OAR) 340-248-0270.

Bulk suspect asbestos samples were collected using various hand tools and placed in re-sealable bags and labeled with a unique sampling number, then recorded on bulk sample sheets for laboratory reference. Tools were decontaminated between sample collection and field personnel notated variations between each material. Cascade estimated the approximate quantities of suspect ACMs in the field, and noted the condition of suspect ACMs (e.g. good, fair, poor) for each work area. Cascade noted the friability of each material (ability to easily pulverize or crumble materials by hand pressure) by touch.

Bulk samples of suspect ACMs that were collected from the referenced building were delivered to Pace Analytical. Aerobiology Laboratory was subcontracted by Pace Analytical to perform the asbestos analysis using Polarized Light Microscopy (PLM), in accordance with EPA "Method for the Determination of Asbestos in Bulk Building Materials" (EPA/600/R-93/116, July 1993). Aerobiology Laboratory is located in Golden, Colorado and is certified

by the American Industrial Hygiene Association (AIHA) and the National Voluntary Lab Accreditation Participation program administered by the National Institute of Standards and Technology (#200860-0).

ACMs are considered any material with greater than one percent in Oregon State; however, the Oregon Occupational Safety and Health Administration (OR-OSHA) regulates the disturbance of materials containing any detectable levels of asbestos.

## FINDINGS

A summary of Cascade's asbestos inspection, including analytical results, sample numbers, material descriptions, material's friability and sample locations is provided in the following table. A sample location map is provided in Appendix A and the analytical results and associated chain-of-custody documentation is included in Appendix B. Laboratory certifications are provided in Appendix C.

**Table 1**
**Summary of Asbestos Sampling Results**
**Carol Glover BP, Yamhill Oregon**
**185 South Maple Street**
**Yamhill Oregon**

| Sample # | Homogeneous Material | Sample Location | Friable | Estimated Quantity* | Asbestos Content (% by Volume) |
|---|---|---|---|---|---|
| GCA-01 | Off-White Wall Texture over White Joint Tape with Off-White Joint Compound over Gypsum Wallboard | Kitchen | Yes | 1,800 SF | ND |
| GCA-02 | Off-White and White Wall Texture Layers over White Joint Tape with Off-White Joint Compound on Beige Wall Covering and Gypsum Wallboard | Dining | Yes | RE: GCA-01 | ND |
| GCA-03 | Spray-Applied White Wall Texture with Residual Paper Layer from Wallboard | Lobby | Yes | 1,800 SF | ND |
| GCA-04 | Spray-Applied White Wall Texture with Residual Paper Layer from Wallboard | Prep Area | Yes | RE: GCA-03 | ND |
| GCA-05 | Spray-Applied White Wall Texture (Painted White) Spray-Applied White Wall Texture (Painted Green/Tan) | Dining Area | Yes | RE: GCA-03 | ND |
| GCA-06 | 2' x 4' Acoustic Ceiling Panel with Fissure Pattern | Lobby | Yes | 850 SF | ND |
| GCA-07 | 2' x 4' Acoustic Ceiling Panel with Fissure Pattern | Dining Area | Yes | RE: GCA-06 | ND |
| GCA-08 | 12" x 12" Pink Ceramic Floor Tile with Gray Quick Set and White Grout | Kitchen | No | 110 SF | ND |
| GCA-09 | 3" White Vinyl Cove Base with Tan Mastic over Residual Joint Compound from Wallboard | Kitchen | No | 20 LF | ND |
| GCA-10 | Black Sink Undercoating | Kitchen | No | 6 SF | ND |
| GCA-11 | Tan Linoleum Countertop with Faux Marble Pattern and Tan Mastic | Kitchen | No | 15 SF | ND |
| GCA-12 | 12" x 12" Tan Vinyl Floor Tile with Faux Marble Pattern and Tan Mastic | Restroom | No | 42 SF | ND |

| Table 1<br>Summary of Asbestos Sampling Results<br>Carol Glover BP, Yamhill Oregon<br>185 South Maple Street<br>Yamhill Oregon | | | | | |
|---|---|---|---|---|---|
| **Sample #** | **Homogeneous Material** | **Sample Location** | **Friable** | **Estimated Quantity*** | **Asbestos Content (% by Volume)** |
| GCA-13 | 3" Tan Vinyl Cove Base with Tan Mastic | Lobby | No | 55 LF | ND |
| GCA-14 | Tan Mastic beneath Blue Carpet | Dining Area | No | 400 SF | ND |
| GCA-15 | 3" x 3" White Ceramic Accent Wall Tile with Gray Quick Set and White Grout | Kitchen | No | 20 SF | ND |
| GCA-16 | Brown Tar Paper beneath Wood Shingle Siding | West Exterior | No | 700 SF | ND |
| GCA-17 | Gray Rolled Composite Roofing and Black Tar Paper | Roof | No | 1,200 SF | ND |
| GCA-18 | Red Rolled Composite Roofing (used as patching) and Black Tar | Roof | No | 100 SF | ND |
| GCA-19 | Black Roof Mastic (used for patching) on Metal Roofing | Awning Roof | No | 10 LF | ND |
| GCA-20 | White Spray-Applied "Knock Down" Ceiling Texture | Kitchen | Yes | 42 SF | ND |
| GCA-21 | White Spray-Applied "Knock Down" Ceiling Texture | Kitchen | Yes | RE: GCA-20 | ND |
| GCA-22 | White Spray-Applied "Knock Down" Ceiling Texture | Kitchen | Yes | RE: GCA-20 | ND |

Notes: % by volume refers to Polar Light Microscopy, EPA Method 600/R-93/116, July 1993
SF – Square Feet
ND – Non-Detect (for asbestos)
RE: - Reference prior sample for material quantity
LF – Linear Feet
All materials were noted to be in fair to good condition at the time of the survey unless noted otherwise.
*All quantities are estimates only, based on existing site conditions, and should not be used for bidding purposes.

**Results/Discussion/Recommendations:**
The laboratory analytical results for this survey indicated that none of the twenty-two (22) samples collected during this survey contained asbestos.

Caution should be used during demolition activities as concealed building materials that have not previously been analyzed for asbestos may be encountered. If suspect ACMs that were not previously sampled are encountered during demolition activities, then further sampling will be required to characterize those materials, prior to any disturbance.

**Other Miscellaneous Materials**
Cascade Environmental sampled all suspect asbestos containing materials identified in the areas to be impacted during demolition activities. Materials that are considered non-suspect asbestos containing materials may be included in the waste stream from the demolition activities. These materials may include wood, metal and fiberglass insulation.

## LEAD PAINT SAMPLING

**Sampling and Analysis**
Paint chip samples were collected from representative components from the interior and exterior of the structure.

Bulk samples of paint were collected and submitted to Pace Analytical for analysis using inductively coupled plasma (ICP), in accordance with EPA Method 6010D. Pace Analytical is accredited to perform environmental lead analyses by the Oregon Environmental Laboratory Accreditation Program Certificate #TN200002-14.

**Findings:**
A summary of Cascade's lead paint sampling, including analytical results, sample numbers, material descriptions and sample locations is provided in the following table. A sample location map is provided in Appendix A and the analytical results and associated chain-of-custody documentation is included in Appendix B. Laboratory certifications are provided in Appendix C.

**Table 2**
**Summary of Lead Paint Sampling Results**
**Carol Glover BP, Yamhill Oregon**
**185 South Maple Street**
**Yamhill Oregon**

| Sample # | Material Description | Sample Location | Results(ppm) |
|---|---|---|---|
| **GCL-01** | **White Paint on Wallboard** | **Interior Lobby Wall** | **43.5** |
| GCL-02 | Green Paint on Wallboard | Interior Kitchen Wall | ND |
| GCL-03 | Red Paint on Wallboard | Interior Dining Wall | ND |
| GCL-04 | White Paint on Wood Trim | Interior Lobby | ND |
| GCL-05 | Red Paint on Wood Trim | Interior Lobby | ND |
| GCL-06 | Pink Paint on Wood Siding | North Exterior | ND |
| **GCL-07** | **Pink Paint on Metal Siding** | **East Exterior** | **977.0** |
| GCL-08 | White Paint on Wood Shake Siding | South Exterior, beneath Unpainted Siding | ND |
| **GCL-09** | **Off-White Paint on Metal Trim** | **Exterior West Wall Trim** | **65.4** |
| **GCL-10** | **Red Paint on Metal Trim** | **Exterior South Wall Trim** | **95.6** |
| **GCL-11** | **Tan Paint on Concrete Floor** | **Interior Lobby Floor** | **66.8** |

Notes: Lead analysis performed using ICP (EPA Method 6010D).
ppm = parts per million
ND – Non-Detect
**Bold** – Indicates the paint contained detectible levels of lead.
Lead-Based Paint is

**Results/Discussion/Recommendations:**

Lead-based paint (LBP) is defined by the United States Department of House and Urban Development (HUD) as any paint, varnish, stain, or other applied coating with 0.5% by weight (500,000 micrograms per kilogram [ug\kg] or 5,000 parts of lead per million [ppm]). Additionally, in accordance with the OR-OSHA Program Directive, Lead: Exposure in Construction, "For all occupational exposure to lead occurring in the course of construction work, the standard (*1926.62*) does not specify a minimum amount or concentration of lead that triggers a determination that lead is present and the potential for occupational exposure exists.

The laboratory analytical results for this survey identified detectable lead concentration in five (5) of the eleven (11) paint chip samples and must be handled per applicable In accordance with OR-OSHA lead construction standard (1926.62), the disturbance of paints or coatings identified with any detectable lead concentrations are regulated and may require an exposure assessment.

Activities that may result in worker exposure to lead include:

- Manual damage to and/or demolition of structures coated with lead-containing paints
- Manual scraping and/or sanding of lead-containing paints
- Any other task that may result in the release of lead in the form of dusts, fumes or mists from lead-containing building materials into the air or onto surrounding environments

For work on painted building components (which may result in personnel exposures), an exposure assessment must be conducted in accordance with OR-OSHA Chapter 437, Division 3 regulations (1926.62). Initial employee exposure monitoring must be conducted for each separate task involving the disturbance of building materials coated with lead-containing paints. If 8-hour time-weighted average (TWA) exposures exceed the action level of 30 micrograms of lead per cubic meter of air ($\mu g/m^3$), periodic air monitoring must be continued at specified intervals, and medical surveillance and comprehensive training programs must be instituted. If the 8-hour TWA permissible exposure limit (PEL) of 50 $\mu g/m^3$ for lead is exceeded, more stringent and additional requirements become effective, such as engineering controls, respiratory protection, regulated work areas and warning signs in lead work areas.

Based on the exposure assessment and previous similar work and exposure monitoring results, workers may have to be provided with any or all of the following:

- Respiratory protection
- Protective clothing
- Clean change areas
- Clean hand-washing facilities
- Biological monitoring (e.g., blood sampling and analysis for lead and zinc protoporphyrin levels)
- Hazard communication training

All workers and supervisory personnel who will be at the job site must be informed of the presence of lead in the building. These individuals should be provided additional training concerning the health effects associated with exposure to lead, proper work methods, appropriate use of personnel protective equipment, housekeeping procedures, and regulations governing work practices where lead-containing materials are present.

During any renovation, repair or demolition activity, engineering controls such as barriers and water should be used to minimize dust levels. The public should be prevented from unauthorized access to the work area. Ambient air monitoring should be conducted to document engineering controls are adequate and that ambient airborne concentrations do not exceed permissible exposure levels.

All workers and supervisory personnel who will be at the Site must be informed of the presence of hazardous building materials. These individuals should be provided additional training concerning the health effects associated with exposure to lead, asbestos or other hazardous materials, such as proper work methods, appropriate use of personnel protective equipment, housekeeping procedures, and regulations governing specific work practices.

## TCLP SAMPLING

### Sampling and Analysis

Cascade Environmental collected one (1) TCLP sample representative of the expected waste stream from the property building scheduled for demolition. The TCLP sample was delivered to Pace Analytical for lead leachate analysis. Pace analytical is accredited by the Oregon Environmental Laboratory Accreditation Program Certificate #TN200002-14. If lead is present in the TCLP sample greater than or equal to 5 milligrams per Liter (mg/L or ppm), then the waste may be considered hazardous, and supplemental sampling or material management practices are required.

**Results/Discussion/Recommendations:**

Laboratory analytical results did not identify any detectable lead leachate in the TCLP sample collected from the property building. Based on these analytical results, the expected building demolition debris can be handled as solid waste and will not require disposal as a hazardous waste. The analytical results and associated chain-of-custody documentation is included in Appendix A. Laboratory certifications are provided in Appendix C.

## OTHER HAZARDOUS MATERIAL

Cascade conducted a visual inspection for the potential presence of other hazardous building materials, such as PCBs, mercury-containing fluorescent light tubes, mercury-containing thermostat ampules.

**Results/Discussion/Recommendations:**

During the survey, Cascade observed the following suspect hazardous building materials:

- 3 fluorescent light fixtures, equipped with a total of 6 fluorescent tubes, which should be presumed to contain mercury vapors.
- 1 in-wall air-conditioning unit, which may contain chlorofluorocarbons (CFC's) or other refrigerants.

Prior to demolition, items listed above should be disassembled intact, classified for transportation and disposal or recycling, in accordance with local, state and federal regulations.

Prior to initiating demolition activities, Cascade recommends that a licensed, qualified contractor remove all light tubes and associated ballasts using manual procedures. All ballasts should be inspected for "No PCBs" labeling and ballasts with missing labels or not labeled as "No PCBs" should be considered PCB-containing. Handling and disposal of PCB-containing equipment must be in accordance with the EPA Toxic Substance Control Act (TSCA) PCB Regulations, 40 CFR 761 and OAR 340-110-0060. Special precaution should be applied to prevent skin contact with leaking PCB ballasts. Workers with 40-hour hazardous waste training are required for removal or handling of leaking PCB ballasts.

Fluorescent light tubes, high intensity discharge lamps and other non-candescent lighting are typically considered hazardous waste (regulated by DEQ), due to their potential for containing mercury vapors. Care should be taken to prevent breaking fluorescent light tubes during removal and storage procedures and the EPA recommends recycling fluorescent light tubes rather than disposal (landfill). Handling, storage, transportation and disposal of the lamps must be conducted in accordance with DEQ and/or Metro Recycling requirements.

**Other Miscellaneous Materials**

Cascade Environmental sampled all suspect asbestos containing materials identified in the areas to be impacted during demolition activities. Materials that are considered non-suspect asbestos containing materials may be included in the waste stream from the demolition activities. These materials may include wood, metal and fiberglass insulation.

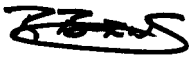
**LIMITATIONS**

Reasonable effort was made by Cascade Environmental personnel to locate and sample suspect materials at the location. However, the existence of unique or concealed ACM, other hazardous building materials or associated debris is a possibility within any facility. If additional suspect ACM or other hazardous building material is discovered during demolition it should be assumed to be hazardous until sampling and analysis proves otherwise. Cascade Environmental does not warrant, guarantee or profess to have the ability to locate or identify all hazardous building materials within a facility.

If you have any questions regarding this report or require further clarification, please do not hesitate to contact our office at (503) 984 9737.

Sincerely,

**Cascade Environmental**



Robert Burns

Principal

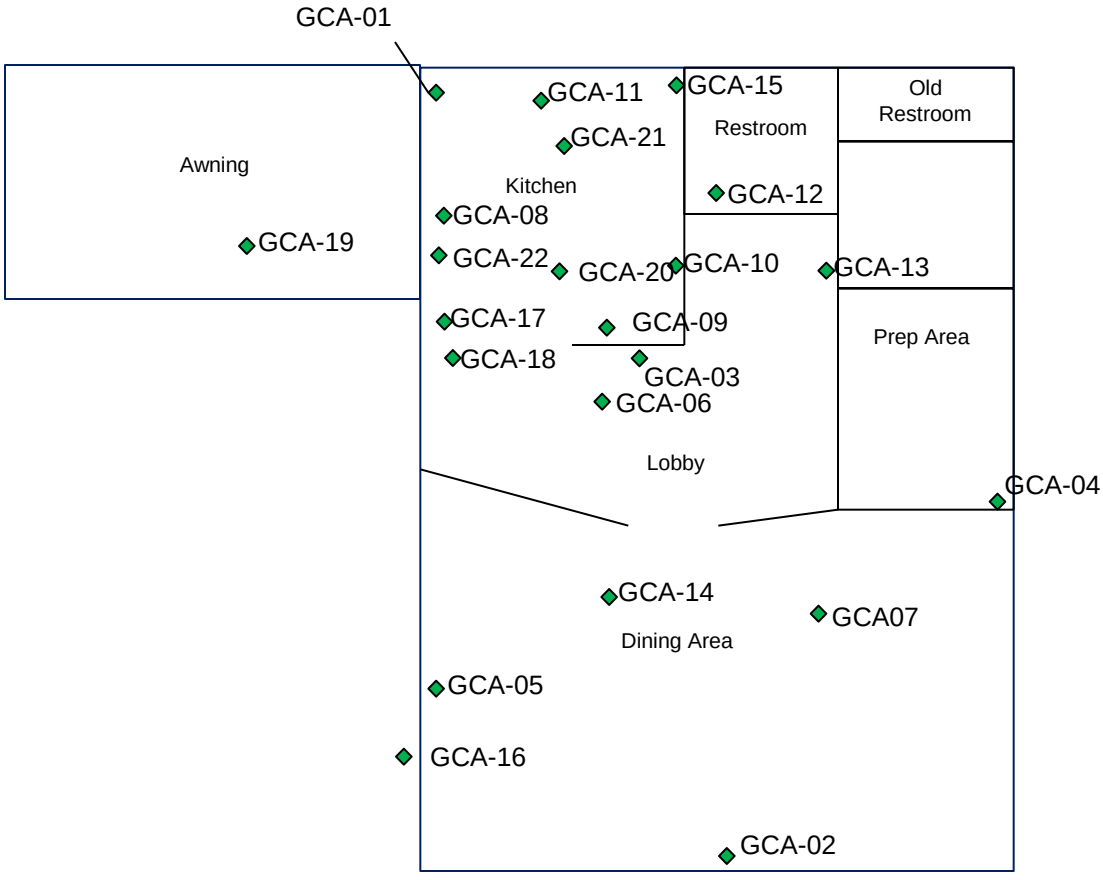
AHERA Inspector # IR-15-4095A

Appendices: Appendix A – Sample Location Maps

Appendix B - Laboratory Analytical Results, Chain-of-Custody Documentation

Appendix C - Certifications

# APPENDIX A
# SAMPLE LOCATION MAPS




N

**GCA-01 -** Non- asbestos Containing Material Sample Location

**CGA-01 -** Asbestos Containing Material Sample Location

CASCADE ENVIRONMENTAL

| | | |
|---|---|---|
| PROJECT NO. 11022021-01 | | |
| | SCALE:N/A | |
| DRAWN BY: RB | DATE: 11/16/21 | |

**Figure 1**

**ASBESTOS AMPLE LOCATION MAP**

**Carol Glover BP**
**185 South Maple Street**
**Yamhill, Oregon**


**GCL-01 -** Non- Lead Containing Paint Sample Location

**GCL-01 -** Lead Containing Paint Sample Location

N

CASCADE ENVIRONMENTAL

| | | |
|---|---|---|
| PROJECT NO. 11022021-01 | | |
| | SCALE:N/A | |
| DRAWN BY: RB | DATE: 11/16/21 | |

**Figure 2**

**LEAD PAINT SAMPLE LOCATION MAP**

**Carol Glover BP**
**185 South Maple Street**
**Yamhill, Oregon**

APPENDIX B

LABORATORY ANALYTICAL RESULTS

CHAIN-OF-CUSTODY DOCUMENTATION

# ANALYTICAL REPORT

November 11, 2021



## Oregon Dept. of Env. Quality - ODEQ

| | |
|---|---|
| Sample Delivery Group: | L1427021 |
| Samples Received: | 11/04/2021 |
| Project Number: | 2659-00 |
| Description: | Carol Glover BP, Yamhill, OR 36-93-4164 |
| Site: | 185 S. MAPLE ST. YAMHILL, OR |
| Report To: | Don Hanson |

Entire Report Reviewed By:

Brian Ford

Project Manager



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

# TABLE OF CONTENTS

# SAMPLE SUMMARY

## GCA-01 L1427021-01 Solid

Collected by | Collected date/time 11/02/21 00:00 | Received date/time 11/04/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Subcontracted Analyses | WG1769452 | 1 | 11/11/21 00:00 | 11/11/21 00:00 | - | Subcontract |

## GCA-02 L1427021-02 Solid

Collected by | Collected date/time 11/02/21 00:00 | Received date/time 11/04/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Subcontracted Analyses | WG1769452 | 1 | 11/11/21 00:00 | 11/11/21 00:00 | - | Subcontract |

## GCA-03 L1427021-03 Solid

Collected by | Collected date/time 11/02/21 00:00 | Received date/time 11/04/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Subcontracted Analyses | WG1769452 | 1 | 11/11/21 00:00 | 11/11/21 00:00 | - | Subcontract |

## GCA-04 L1427021-04 Solid

Collected by | Collected date/time 11/02/21 00:00 | Received date/time 11/04/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Subcontracted Analyses | WG1769452 | 1 | 11/11/21 00:00 | 11/11/21 00:00 | - | Subcontract |

## GCA-05 L1427021-05 Solid

Collected by | Collected date/time 11/02/21 00:00 | Received date/time 11/04/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Subcontracted Analyses | WG1769452 | 1 | 11/11/21 00:00 | 11/11/21 00:00 | - | Subcontract |

## GCA-06 L1427021-06 Solid

Collected by | Collected date/time 11/02/21 00:00 | Received date/time 11/04/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Subcontracted Analyses | WG1769452 | 1 | 11/11/21 00:00 | 11/11/21 00:00 | - | Subcontract |

## GCA-07 L1427021-07 Solid

Collected by | Collected date/time 11/02/21 00:00 | Received date/time 11/04/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Subcontracted Analyses | WG1769452 | 1 | 11/11/21 00:00 | 11/11/21 00:00 | - | Subcontract |

## GCA-08 L1427021-08 Solid

Collected by | Collected date/time 11/02/21 00:00 | Received date/time 11/04/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Subcontracted Analyses | WG1769452 | 1 | 11/11/21 00:00 | 11/11/21 00:00 | - | Subcontract |

## GCA-09 L1427021-09 Solid

| Collected by | Collected date/time | Received date/time |
|---|---|---|
| | 11/02/21 00:00 | 11/04/21 09:00 |

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Subcontracted Analyses | WG1769452 | 1 | 11/11/21 00:00 | 11/11/21 00:00 | - | Subcontract |

## GCA-10 L1427021-10 Solid

| Collected by | Collected date/time | Received date/time |
|---|---|---|
| | 11/02/21 00:00 | 11/04/21 09:00 |

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Subcontracted Analyses | WG1769452 | 1 | 11/11/21 00:00 | 11/11/21 00:00 | - | Subcontract |

## GCA-11 L1427021-11 Solid

| Collected by | Collected date/time | Received date/time |
|---|---|---|
| | 11/02/21 00:00 | 11/04/21 09:00 |

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Subcontracted Analyses | WG1769452 | 1 | 11/11/21 00:00 | 11/11/21 00:00 | - | Subcontract |

## GCA-12 L1427021-12 Solid

| Collected by | Collected date/time | Received date/time |
|---|---|---|
| | 11/02/21 00:00 | 11/04/21 09:00 |

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Subcontracted Analyses | WG1769452 | 1 | 11/11/21 00:00 | 11/11/21 00:00 | - | Subcontract |

## GCA-13 L1427021-13 Solid

| Collected by | Collected date/time | Received date/time |
|---|---|---|
| | 11/02/21 00:00 | 11/04/21 09:00 |

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Subcontracted Analyses | WG1769452 | 1 | 11/11/21 00:00 | 11/11/21 00:00 | - | Subcontract |

## GCA-14 L1427021-14 Solid

| Collected by | Collected date/time | Received date/time |
|---|---|---|
| | 11/02/21 00:00 | 11/04/21 09:00 |

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Subcontracted Analyses | WG1769452 | 1 | 11/11/21 00:00 | 11/11/21 00:00 | - | Subcontract |

## GCA-15 L1427021-15 Solid

| Collected by | Collected date/time | Received date/time |
|---|---|---|
| | 11/02/21 00:00 | 11/04/21 09:00 |

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Subcontracted Analyses | WG1769452 | 1 | 11/11/21 00:00 | 11/11/21 00:00 | - | Subcontract |

## GCA-16 L1427021-16 Solid

| Collected by | Collected date/time | Received date/time |
|---|---|---|
| | 11/02/21 00:00 | 11/04/21 09:00 |

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Subcontracted Analyses | WG1769452 | 1 | 11/11/21 00:00 | 11/11/21 00:00 | - | Subcontract |

## GCA-17 L1427021-17 Solid

| | | | Collected by | Collected date/time | Received date/time | |
|---|---|---|---|---|---|---|
| | | | | 11/02/21 00:00 | 11/04/21 09:00 | |
| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
| Subcontracted Analyses | WG1769452 | 1 | 11/11/21 00:00 | 11/11/21 00:00 | - | Subcontract |

## GCA-18 L1427021-18 Solid

| | | | Collected by | Collected date/time | Received date/time | |
|---|---|---|---|---|---|---|
| | | | | 11/02/21 00:00 | 11/04/21 09:00 | |
| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
| Subcontracted Analyses | WG1769452 | 1 | 11/11/21 00:00 | 11/11/21 00:00 | - | Subcontract |

## GCA-19 L1427021-19 Solid

| | | | Collected by | Collected date/time | Received date/time | |
|---|---|---|---|---|---|---|
| | | | | 11/02/21 00:00 | 11/04/21 09:00 | |
| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
| Subcontracted Analyses | WG1769452 | 1 | 11/11/21 00:00 | 11/11/21 00:00 | - | Subcontract |

## GCA-20 L1427021-20 Solid

| | | | Collected by | Collected date/time | Received date/time | |
|---|---|---|---|---|---|---|
| | | | | 11/02/21 00:00 | 11/04/21 09:00 | |
| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
| Subcontracted Analyses | WG1769452 | 1 | 11/11/21 00:00 | 11/11/21 00:00 | - | Subcontract |

## GCA-21 L1427021-21 Solid

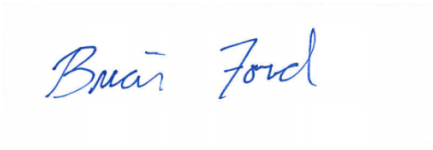
| | | | Collected by | Collected date/time | Received date/time | |
|---|---|---|---|---|---|---|
| | | | | 11/02/21 00:00 | 11/04/21 09:00 | |
| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
| Subcontracted Analyses | WG1769452 | 1 | 11/11/21 00:00 | 11/11/21 00:00 | - | Subcontract |

## GCA-22 L1427021-23 Solid

| | | | Collected by | Collected date/time | Received date/time | |
|---|---|---|---|---|---|---|
| | | | | 11/02/21 00:00 | 11/04/21 09:00 | |
| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
| Subcontracted Analyses | WG1769452 | 1 | 11/11/21 00:00 | 11/11/21 00:00 | - | Subcontract |

# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Brian Ford
Project Manager

## Project Narrative

L1427021 -01, -02, -03, -04, -05, -06, -07, -08, -09, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -20, -21, -23 contains subout data that is included after the chain of custody.

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

## Abbreviations and Definitions

| | |
|---|---|
| SDG | Sample Delivery Group. |
| Uncertainty (Radiochemistry) | Confidence level of 2 sigma. |
| Case Narrative (Cn) | A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report. |
| Quality Control Summary (Qc) | This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material. |
| Sample Chain of Custody (Sc) | This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis. |
| Sample Results (Sr) | This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported. |
| Sample Summary (Ss) | This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis. |

## Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

| | | | |
|---|---|---|---|
| Alabama | 40660 | Nebraska | NE-OS-15-05 |
| Alaska | 17-026 | Nevada | TN000032021-1 |
| Arizona | AZ0612 | New Hampshire | 2975 |
| Arkansas | 88-0469 | New Jersey–NELAP | TN002 |
| California | 2932 | New Mexico [1] | TN00003 |
| Colorado | TN00003 | New York | 11742 |
| Connecticut | PH-0197 | North Carolina | Env375 |
| Florida | E87487 | North Carolina [1] | DW21704 |
| Georgia | NELAP | North Carolina [3] | 41 |
| Georgia [1] | 923 | North Dakota | R-140 |
| Idaho | TN00003 | Ohio–VAP | CL0069 |
| Illinois | 200008 | Oklahoma | 9915 |
| Indiana | C-TN-01 | Oregon | TN200002 |
| Iowa | 364 | Pennsylvania | 68-02979 |
| Kansas | E-10277 | Rhode Island | LAO00356 |
| Kentucky [1 6] | KY90010 | South Carolina | 84004002 |
| Kentucky [2] | 16 | South Dakota | n/a |
| Louisiana | AI30792 | Tennessee [1 4] | 2006 |
| Louisiana | LA018 | Texas | T104704245-20-18 |
| Maine | TN00003 | Texas [5] | LAB0152 |
| Maryland | 324 | Utah | TN000032021-11 |
| Massachusetts | M-TN003 | Vermont | VT2006 |
| Michigan | 9958 | Virginia | 110033 |
| Minnesota | 047-999-395 | Washington | C847 |
| Mississippi | TN00003 | West Virginia | 233 |
| Missouri | 340 | Wisconsin | 998093910 |
| Montana | CERT0086 | Wyoming | A2LA |
| A2LA – ISO 17025 | 1461.01 | AIHA-LAP,LLC EMLAP | 100789 |
| A2LA – ISO 17025 [5] | 1461.02 | DOD | 1461.01 |
| Canada | 1461.01 | USDA | P330-15-00234 |
| EPA–Crypto | TN00003 | | |

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

# State of Oregon Chain of Custody

| | | | |
|---|---|---|---|
| **Agency, Authorized Purchaser or Agent:**<br>**DEQ, Donald Hanson** | **Contract Laboratory Name:**<br>**Pace National**<br>**Lab Batch #:** | **Lab Selection Criteria:**<br>☐ Proximity (if TAT < 48 hrs)<br>☐ Prior work on same project<br>☒ Cost (for anticipated analyses)<br>☐ Other labs disqualified or unable to perform requested services<br>☐ Emergency work | **Turn Around Time:**<br>☐ 10 days (std.)<br>☒ 5 days<br>☐ 72 hours<br>☐ 48 hours<br>☐ 24 hours<br>☐ Other _____ |
| **Send Lab Report To:**<br>Donald Hanson, DEQ<br>Address:<br>165 E. 7th Ave, Suite 100<br>Eugene, OR 97401<br>Tel. #: 541-687-7349<br>E-mail: Hanson.don@deq.state.or (cc, bob@cascadenviro.com) | **Invoice To: DEQ**<br>Address:<br>700 NE Multnomah St., Suite 600<br>Portland, OR 97232<br>Tel. #: | | |
| **Project Name:** Carol Glover BP, Yamhill, OR<br>Project #: 36-93-4164<br>Sampler Name: Robert Burns | **Sample Preservative** | | |

| Sample ID# | Collection Date/Time | Matrix | Number of Containers | Requested Analyses | Comments |
|---|---|---|---|---|---|
| | | | | See Attached | |

Notes:

| | | | |
|---|---|---|---|
| Relinquished By: Robert Burns | Agency/Agent: Cascade Environmental | Received By: | Agency/Agent: |
| Signature: R Burns | Time & Date: 11-3-21/1100 | Signature: | Time & Date: |
| Relinquished By: | Agency/Agent: | Received By: | Agency/Agent: |
| Signature: | Time & Date: | Signature: | Time & Date: |

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #**102-1098-07** AND PRICE AGREEMENT # [ **8903** ]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

CASCADE ENVIRONMENTAL

Sample Receipt Checklist

| | | | |
|---|---|---|---|
| COC Seal Present/Intact: | Y N | If Applicable | |
| COC Signed/Accurate: | Y N | VOA Zero Headspace: | Y N |
| Bottles arrive intact: | Y N | Pres.Correct/Check: | Y N |
| Correct bottles used: | Y N | | |
| Sufficient volume sent: | Y N | | |
| RAD Screen <0.5 mR/hr: | Y N | | |

L1427021

**PROJECT INFORMATION** **Turnaround:** **Same Day** **Next Day** **3-5 day**

| | |
|---|---|
| Company/Customer: Cascade Environmental | Project Name: Carol Glover BP, Yamhill, OR |
| Address: 4346 NE 73rd Avenue | Collection Date: 11-2-21 |
| Address: Portland, Or 97218 | Customer Number/P.O.: DEQ 71-18 29 |
| Phone:503.984.9737 | Collection Address: 185 S. Maple St. Yamhill, OR |
| Customer Contact: Bob Burns | Email: bob@cascadenviro.com |

**Special Instructions:** PLM (EPA 600/R-93/116, ~~Please composite all Wallboard/Joint Compound samples~~ Results to Bob Burns

(~~Sample #s~~ ) Bill DEQ Dan Hanson dan.hanson@DEQ.state.or.us 541.687.7349

**BULK SAMPLE LOCATION** Page 1 of 3

| Acc/ Rej | Sample Number | Sample Material | Sample Location | Friable ? | App. Qty. |
|---|---|---|---|---|---|
| | GCA-01 | Wall board/Joint Compound | Kitchen | NO | >1800 SF ~~HOSF~~ -01 |
| | -02 | ↓ | Dining | | " -02 |
| | -03 | Spray on wall Texture | Lobby | | >1800 SF -03 |
| | -04 | | Prep Area | | " -04 |
| | -05 | ↓ | Dining Area | | " -05 |
| | -06 | Drop-in Ceiling Tile > 2'x3', Fissured | Lobby | | 850 SF -06 |
| | -07 | ↓ | Dining Area | | " -07 |
| | -08 | 12"x12" ceramic tile, pink, Gray Quick set, white grout | Kitchen | NO | 140SF -08 |
| | -09 | 3" vinyl cove base white, & Tan mastic | Kitchen | NO | 20LF -09 |
| | -10 | Sink under coating, Black | Kitchen, south sink | NO | 6SF -10 |

**Note:** Sample collector is responsible for ensuring that all samples have been preserved and prepared to the appropriate and applicable methodology. If package has sustained damage during transit, notify collector and shipper. Turnaround time begins upon receipt of sample (s) by laboratory. All material was considered in good condition unless otherwise noted.

**CHAIN OF CUSTODY**

| Relinquished By: | Date: | Time: | Received By: | Date: | Time: |
|---|---|---|---|---|---|
| K Burns | 11/3/21 | 1100 | [illegible] Fedex | 11/3/21 | 1100 |
| [illegible] Fedex | 11/3/21 | 1200 | Unicorn Sisters | 11/4/21 | 0900 |

Tracking 5433 8379 2928

G040

CASCADE ENVIRONMENTAL

L1427021

**PROJECT INFORMATION** **Turnaround:** **Same Day** **Next Day** **3-5 day**

| | |
|---|---|
| Company/Customer: Cascade Environmental | Project Name: Carol Glover ISP |
| Address: 4346 NE 73rd Avenue | Collection Date: |
| Address: Portland, Or 97218 | Customer Number/P.O.: |
| Phone:503.984.9737 | Collection Address: |
| Customer Contact: Bob Burns | Email: bob@cascadenviro.com |

**Special Instructions:** **PLM (EPA 600/R-93/116, Please composite all Wallboard/Joint Compound samples**

**(Sample #s )**

**BULK SAMPLE LOCATION** **Page 2 of 3**

| Acc/ Rej | Sample Number | Sample Material | Sample Location | Friable ? | App. Qty. |
|---|---|---|---|---|---|
| | GCA-11 | Linoleum, Tan Faux Marble | Kitchen Cntr | NO | 15SF-11 |
| | -12 | 12"x12" vinyl. Floor tile, Tan Faux Marble & Tan Mastic | Restroom | ND | 42SF-12 |
| | -13 | 3" vinyl cove base Tan & Tan Mastic | Lobby | No | 55LF-13 |
| | -14 | Carpet Mastic, Tan Under Olive Carpet | Dining Area | No | 400 SF-14 |
| | -15 | 3"x3" Ceramic Tile, White, white quick set & white Grout | Kitchen (Accent tile) | NO | 20LF-15 |
| | -16 | Tar Papr under Wood shingle | Exterior west | NO | 700 SF-16 |
| | 17 | Composite Roofing, Rolled (Gray) tar paper | Roof | No | 1,000 SF-17 |
| | 18 | Composite Roofing, Rolled, Patch, Brown and black patching | Roof | No | 100 SF-18 |
| | 19 | Roof Patch on metal | Awnings | NO | 10LF-19 |
| | ~~20~~ | | | | |

**Note:** Sample collector is responsible for ensuring that all samples have been preserved and prepared to the appropriate and applicable methodology. If package has sustained damage during transit, notify collector and shipper. Turnaround time begins upon receipt of sample (s) by laboratory. All material was considered in good condition unless otherwise noted.

**CHAIN OF CUSTODY**

| Relinquished By: | Date: | Time: | Received By: | Date: | Time: |
|---|---|---|---|---|---|
| | | | Veronica Sisbarro | 11/4/21 | 0900 |
| | | | | | |

CASCADE ENVIRONMENTAL

L1427021

**PROJECT INFORMATION** **Turnaround:** **Same Day** **Next Day** **3-5 day**

| | |
|---|---|
| Company/Customer: Cascade Environmental | Project Name: Carol Glover BT |
| Address: 4346 NE 73rd Avenue | Collection Date: |
| Address: Portland, Or 97218 | Customer Number/P.O.: |
| Phone:503.984.9737 | Collection Address: |
| Customer Contact: Bob Burns | Email: bob@cascadenviro.com |

**Special Instructions:** **PLM (EPA 600/R-93/116, Please composite all Wallboard/Joint Compound samples**

**(Sample #s )**

**BULK SAMPLE LOCATION** **Page 3 of 3**

| Acc/ Rej | Sample Number | Sample Material | Sample Location | Friable ? | App. Qty. |
|---|---|---|---|---|---|
| | 6A-20 | Ceiling Texture, knockdown | Kitchen | | 1/2 SF 20 |
| | 21 | | | | 1/ 21 |
| | 22 | | | | 1/ 22 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

**Note:** Sample collector is responsible for ensuring that all samples have been preserved and prepared to the appropriate and applicable methodology. If package has sustained damage during transit, notify collector and shipper. Turnaround time begins upon receipt of sample (s) by laboratory. All material was considered in good condition unless otherwise noted.

**CHAIN OF CUSTODY**

| Relinquished By: | Date: | Time: | Received By: | Date: | Time: |
|---|---|---|---|---|---|
| | | | Veronica Sistrunk | 11/4/21 | 0900 |
| | | | | | |

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# Certificate of Analysis

NVLAP TESTING
NVLAP Lab Code 200860-0

| | | | |
|---|---|---|---|
| Client Name | Pace Analytical Services, Inc | Date Collected: | 11/2/2021 |
| Street Address | 12065 Lebanon Rd. | Date Received: | 11/9/2021 |
| City, State ZIP | Mt. Juliet, TN 37122 | Date Analyzed: | 11/10/2021 |
| Attn: | James C Huckaba | Date Reported: | 11/11/2021 |
| Client Project Name: | WG1769452 / L1427021 | Project ID: | 21049839 |

Test Requested: 3002, Asbestos in Bulk Samples
Method: EPA 600/R-93/116: Method for Asbestos in Bulk Building Materials, EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method for Asbestos in Bulk Insulation Samples

| Sample Identification | | Physical Description of Sample/Layer | Homo-geneous (Y/N) | Layer Percentage | Asbestos Detected | Asbestos Percentage | Non-Asbestos Fiber Percentage | Non-Fibrous Material Percentage | Matrix Material Composition |
|---|---|---|---|---|---|---|---|---|---|
| Client | Lab Sample Number | | | | | | | | |
| GCA-01 | 21049839-1A | Off-White Texture with Cream Paint | N | 15 | ND | | | 100 | C |
| | 21049839-1B | White Tape | N | 5 | ND | | 95 CELL | 5 | |
| | 21049839-1C | Off-White Joint Compound | Y | 10 | ND | | | 100 | C |
| | 21049839-1D | White/Tan Drywall | N | 70 | ND | | 12 CELL | 88 | G |
| GCA-02 | 21049839-2A | Off-White Texture with Green/White Paint | N | 3 | ND | | | 100 | C |
| | 21049839-2B | White Texture with Cream Paint | N | 10 | ND | | | 100 | C |
| | 21049839-2C | White Tape | N | 5 | ND | | 95 CELL | 5 | |
| | 21049839-2D | White Compound | Y | 7 | ND | | | 100 | C |
| | 21049839-2E | Beige/White Wall Covering | N | 8 | ND | | 60 CELL,SYN | 40 | |
| | 21049839-2F | Off-White/Tan Drywall | N | 67 | ND | | 15 CELL,FG | 85 | G |

Thomas Harbour
Laboratory Analyst

Shannon Whitmore
Asbestos Lab Supervisor

AC = Actinolite
AM = Amosite
AN = Anthophyllite
CHRY = Chrysotile
CR = Crocidolite
TRM = Tremolite
Tr = Trace
ND = None Detected
AH = Animal Hair
CELL = Cellulose
FG = Fibrous Glass
MW = Mineral Wool
OT = Other
SYN = Synthetic
TL = Talc
W = Wollastonite
B = Binder
C = Calcite
D = Diatoms
G = Gypsum
M = Mica
OR = Organic
OP = Opaques
P = Perlite
Q = Quartz
T = Tar
V = Vermiculite

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# Certificate of Analysis

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NVLAP Lab Code 200860-0

| | | | |
|---|---|---|---|
| Client Name | Pace Analytical Services, Inc | Date Collected: | 11/2/2021 |
| Street Address | 12065 Lebanon Rd. | Date Received: | 11/9/2021 |
| City, State ZIP | Mt. Juliet, TN 37122 | Date Analyzed: | 11/10/2021 |
| Attn: | James C Huckaba | Date Reported: | 11/11/2021 |
| Client Project Name: | WG1769452 / L1427021 | Project ID: | 21049839 |

Test Requested: 3002, Asbestos in Bulk Samples
Method: EPA 600/R-93/116: Method for Asbestos in Bulk Building Materials, EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method for Asbestos in Bulk Insulation Samples

| Sample Identification | | Physical Description of Sample/Layer | Homo-geneous (Y/N) | Layer Percentage | Asbestos Detected | Asbestos Percentage | Non-Asbestos Fiber Percentage | Non-Fibrous Material Percentage | Matrix Material Composition |
|---|---|---|---|---|---|---|---|---|---|
| Client | Lab Sample Number | | | | | | | | |
| GCA-03 | 21049839-3A | White Texture with Off-White Paint | N | 85 | ND | | | 100 | C |
| | 21049839-3B | Tan Paper | N | 15 | ND | | 95 CELL | 5 | |
| GCA-04 | 21049839-4A | White Texture with Green/White Paint | N | 80 | ND | | | 100 | C |
| | 21049839-4B | Tan Paper | N | 20 | ND | | 95 CELL | 5 | |
| GCA-05 | 21049839-5A | White Texture with Green/White Paint | N | 20 | ND | | | 100 | C |
| | 21049839-5B | White Texture with Green/Tan Paint | N | 80 | ND | | | 100 | C |
| GCA-06 | 21049839-6 | Gray/White Perlitic Ceiling Tile | N | 100 | ND | | 65 MW,CELL | 35 | P,C |
| GCA-07 | 21049839-7 | Gray/White Perlitic Ceiling Tile | N | 100 | ND | | 65 MW,CELL | 35 | P,C |
| GCA-08 | 21049839-8A | Off-White/Brown Ceramic Tile | N | 60 | ND | | | 100 | |
| | 21049839-8B | Gray Grout | N | 33 | ND | | | 100 | Q |

Thomas Harbour
Laboratory Analyst

Shannon Whitmore
Asbestos Lab Supervisor

AC = Actinolite
AM = Amosite
AN = Anthophyllite
CHRY = Chrysotile
CR = Crocidolite
TRM = Tremolite
Tr = Trace
ND = None Detected
AH = Animal Hair
CELL = Cellulose
FG = Fibrous Glass
MW = Mineral Wool
OT = Other
SYN = Synthetic
TL = Talc
W = Wollastonite
B = Binder
C = Calcite
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G = Gypsum
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OR = Organic
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NVLAP Lab Code 200860-0

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| Street Address | 12065 Lebanon Rd. | Date Received: | 11/9/2021 |
| City, State ZIP | Mt. Juliet, TN 37122 | Date Analyzed: | 11/10/2021 |
| Attn: | James C Huckaba | Date Reported: | 11/11/2021 |
| Client Project Name: | WG1769452 / L1427021 | Project ID: | 21049839 |

Test Requested: 3002, Asbestos in Bulk Samples
Method: EPA 600/R-93/116: Method for Asbestos in Bulk Building Materials, EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method for Asbestos in Bulk Insulation Samples

| Sample Identification | | Physical Description of Sample/Layer | Homo-geneous (Y/N) | Layer Percentage | Asbestos Detected | Asbestos Percentage | Non-Asbestos Fiber Percentage | Non-Fibrous Material Percentage | Matrix Material Composition |
|---|---|---|---|---|---|---|---|---|---|
| Client | Lab Sample Number | | | | | | | | |
| GCA-08 | 21049839-8C | Gray Mortar | N | 7 | ND | | | 100 | Q |
| GCA-09 | 21049839-9A | White Cove Base | Y | 85 | ND | | | 100 | C,B |
| | 21049839-9B | Cream Mastic | Y | 8 | ND | | | 100 | B |
| | 21049839-9C | White Compound with White Paint | N | 7 | ND | | | 100 | C |
| GCA-10 | 21049839-10 | Brown Resinous Material | Y | 100 | ND | | 4 SYN | 96 | T,C |
| GCA-11 | 21049839-11A | Beige/Brown Countertop | N | 99 | ND | | 60 CELL | 40 | B |
| | 21049839-11B | Tan Mastic | Y | 1 | ND | | | 100 | B |
| GCA-12 | 21049839-12A | Gray Tile | Y | 92 | ND | | Tr FG | 100 | |
| | 21049839-12B | White Mastic | Y | 8 | ND | | Tr CELL | 100 | B |
| GCA-13 | 21049839-13A | Brown Cove Base | Y | 91 | ND | | | 100 | |

Thomas Harbour
Laboratory Analyst

Shannon Whitmore
Asbestos Lab Supervisor

AC = Actinolite
AM = Amosite
AN = Anthophyllite
CHRY = Chrysotile
CR = Crocidolite
TRM = Tremolite
Tr = Trace
ND = None Detected
AH = Animal Hair
CELL = Cellulose
FG = Fibrous Glass
MW = Mineral Wool
OT = Other
SYN = Synthetic
TL = Talc
W = Wollastonite
B = Binder
C = Calcite
D = Diatoms
G = Gypsum
M = Mica
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P = Perlite
Q = Quartz
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| Client Name | Pace Analytical Services, Inc | Date Collected: | 11/2/2021 |
| Street Address | 12065 Lebanon Rd. | Date Received: | 11/9/2021 |
| City, State ZIP | Mt. Juliet, TN 37122 | Date Analyzed: | 11/10/2021 |
| Attn: | James C Huckaba | Date Reported: | 11/11/2021 |
| Client Project Name: | WG1769452 / L1427021 | Project ID: | 21049839 |

Test Requested: 3002, Asbestos in Bulk Samples
Method: EPA 600/R-93/116: Method for Asbestos in Bulk Building Materials, EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method for Asbestos in Bulk Insulation Samples

| Sample Identification | | Physical Description of Sample/Layer | Homo-geneous (Y/N) | Layer Percentage | Asbestos Detected | Asbestos Percentage | Non-Asbestos Fiber Percentage | Non-Fibrous Material Percentage | Matrix Material Composition |
|---|---|---|---|---|---|---|---|---|---|
| Client | Lab Sample Number | | | | | | | | |
| GCA-13 | 21049839-13B | Yellow Mastic | Y | 6 | ND | | | 100 | B |
| | 21049839-13C | White Texture with White Paint | N | 1 | ND | | | 100 | C |
| | 21049839-13D | Brown Fibrous Material | Y | 2 | ND | | 99 CELL | 1 | |
| GCA-14 | 21049839-14 | Yellow Mastic | Y | 100 | ND | | 3 CELL | 97 | B |
| GCA-15 | 21049839-15A | White Ceramic Tile | N | 93 | ND | | | 100 | |
| | 21049839-15B | White Granular Plaster | Y | 7 | ND | | | 100 | Q |
| GCA-16 | 21049839-16 | Brown Tar Paper | Y | 100 | ND | | 90 CELL | 10 | T |
| GCA-17 | 21049839-17A | White Shingle | N | 40 | ND | | 30 FG | 70 | Q,T |
| | 21049839-17B | Black Tar Paper | Y | 60 | ND | | 90 CELL | 10 | T |
| GCA-18 | 21049839-18A | Black Tar (2) | Y | 30 | ND | | Tr CELL | 100 | T |

Thomas Harbour
Laboratory Analyst

Shannon Whitmore
Asbestos Lab Supervisor

AC = Actinolite
AM = Amosite
AN = Anthophyllite
CHRY = Chrysotile
CR = Crocidolite
TRM = Tremolite
Tr = Trace
ND = None Detected

AH = Animal Hair
CELL = Cellulose
FG = Fibrous Glass
MW = Mineral Wool
OT = Other
SYN = Synthetic
TL = Talc
W = Wollastonite

B = Binder
C = Calcite
D = Diatoms
G = Gypsum
M = Mica
OR = Organic
OP = Opaques
P = Perlite

Q = Quartz
T = Tar
V = Vermiculite

Aerobiology Laboratory Associates, Incorporated
Expertise Since 1997

780 Simms Street
Suite 104
Golden, CO, 80401
303.232.3746
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# Certificate of Analysis

NVLAP TESTING
NVLAP Lab Code 200860-0

| | | | |
|---|---|---|---|
| Client Name | Pace Analytical Services, Inc | Date Collected: | 11/2/2021 |
| Street Address | 12065 Lebanon Rd. | Date Received: | 11/9/2021 |
| City, State ZIP | Mt. Juliet, TN 37122 | Date Analyzed: | 11/10/2021 |
| Attn: | James C Huckaba | Date Reported: | 11/11/2021 |
| Client Project Name: | WG1769452 / L1427021 | Project ID: | 21049839 |

Test Requested: 3002, Asbestos in Bulk Samples
Method: EPA 600/R-93/116: Method for Asbestos in Bulk Building Materials, EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method for Asbestos in Bulk Insulation Samples

| Sample Identification | | Physical Description of Sample/Layer | Homo-geneous (Y/N) | Layer Percentage | Asbestos Detected | Asbestos Percentage | Non-Asbestos Fiber Percentage | Non-Fibrous Material Percentage | Matrix Material Composition |
|---|---|---|---|---|---|---|---|---|---|
| Client | Lab Sample Number | | | | | | | | |
| GCA-18 | 21049839-18B | White Shingle (2) | N | 70 | ND | | 30 FG,CELL | 70 | Q,T |
| GCA-19 | 21049839-19A | Black Tar with White Paint | N | 4 | ND | | 5 CELL | 95 | T |
| | 21049839-19B | Black Tar | Y | 96 | ND | | 5 CELL | 95 | T |
| GCA-20 | 21049839-20 | White Texture with White Paint | N | 100 | ND | | | 100 | C |
| GCA-21 | 21049839-21A | White Texture with White Paint | N | 90 | ND | | | 100 | C |
| | 21049839-21B | White Drywall Plaster | Y | 10 | ND | | 5 CELL | 95 | G |
| GCA-22 | 21049839-22 | White Texture with White Paint | N | 100 | ND | | | 100 | C |

Thomas Harbour
Laboratory Analyst

Shannon Whitmore
Asbestos Lab Supervisor

| | | | |
|---|---|---|---|
| AC = Actinolite | AH = Animal Hair | B = Binder | Q = Quartz |
| AM = Amosite | CELL = Cellulose | C = Calcite | T = Tar |
| AN = Anthophyllite | FG = Fibrous Glass | D = Diatoms | V = Vermiculite |
| CHRY = Chrysotile | MW = Mineral Wool | G = Gypsum | |
| CR = Crocidolite | OT = Other | M = Mica | |
| TRM = Tremolite | SYN = Synthetic | OR = Organic | |
| Tr = Trace | TL = Talc | OP = Opaques | |
| ND = None Detected | W = Wollastonite | P = Perlite | |

780 Simms Street
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# Certificate of Analysis

| | | | |
|---|---|---|---|
| Client Name | Pace Analytical Services, Inc | | Date Collected: 11/2/2021 |
| Street Address | 12065 Lebanon Rd. | NVLAP® TESTING | Date Received: 11/9/2021 |
| City, State ZIP | Mt. Juliet, TN 37122 | NVLAP Lab Code 200860-0 | Date Analyzed: 11/10/2021 |
| Attn: | James C Huckaba | | Date Reported: 11/11/2021 |
| **Client Project Name:** | WG1769452 / L1427021 | | Project ID: 21049839 |

Test Requested: **3002, Asbestos in Bulk Samples**
Method: EPA 600/R-93/116: Method for Asbestos in Bulk Building Materials, EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method for Asbestos in Bulk Insulation Samples

## General Notes

- **ND** indicates no asbestos was detected; the method detection limit is 1 %.
- **Trace** or "< 1" indicates asbestos was identified in the sample, but the concentration is less than 1% and cannot be quantified without point counting.
- Samples identified as inhomogeneous (more than one layer) are separated into individual layers, and each layer is analyzed and reported separately.
- All regulated asbestos minerals (i.e. chrysotile, amosite, crocidolite, anthophyllite, tremolite, and actinolite) were sought in every layer of each sample, but only those asbestos minerals detected are listed. Amosite is the common name for the asbestiform variety of the minerals grunerite. Crocidolite is the common name used for the asbestiform variety of the mineral riebeckite.
- Tile, vinyl, foam, plastic, and fine powder samples may contain asbestos fibers of such small diameter (< 0.25 microns in diameter) that these fibers cannot be detected by PLM. For such samples, more sensitive analytical methods (e.g. TEM, SEM, and XRD) are recommended if greater certainty about asbestos content is required. Semi-quantitative bulk TEM floor tile analysis is accepted under NESHAP regulations.
- These results are submitted pursuant to Aerobiology Laboratory Associates, Inc.'s current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted.
- Unless notified in writing to return the samples covered by this report, Aerobiology Laboratory Associates, Inc. will store the samples for a minimum period of thirty (30) days before discarding. A shipping and handling charge will be assessed for the return of any samples.
- Aerobiology does not guarantee the results of tape lifts, microvacs, wipe, and/or debris samples. Accurate analysis cannot be performed due to particle size, media used, and/or amount of material given. Analysis of these materials should be preformed by a TEM. ***A result of ND does not indicate that the sample area does not contain asbestos. It means the analyst could not identify asbestos in the specific sample for the reasons listed above.***

## Notes Required by NVLAP

- This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.
- This test report relates only to the items tested or calibrated.
- This report is not valid unless it bears the name of a NVLAP-approved signatory.
- Any reproduction of this document must include the entire document in order for the report to be valid.

# ANALYTICAL REPORT

November 10, 2021



## Oregon Dept. of Env. Quality - ODEQ

| | |
|---|---|
| Sample Delivery Group: | L1427009 |
| Samples Received: | 11/04/2021 |
| Project Number: | DEQ 71-18-29 |
| Description: | Carol Glover BP, Yamhill, OR 36-93-4164 |
| Site: | 185 S. MAPLE ST. YAMHILL,OR |
| Report To: | Don Hanson |

Entire Report Reviewed By:

Brian Ford

Project Manager



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

# TABLE OF CONTENTS

## GCL-01 L1427009-01 PAINT

Collected by: Bob Burns | Collected date/time: 11/02/21 00:00 | Received date/time: 11/04/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Metals (ICP) by Method 6010D | WG1769846 | 1 | 11/07/21 11:23 | 11/10/21 01:08 | EL | Mt. Juliet, TN |

## GCL-02 L1427009-02 PAINT

Collected by: Bob Burns | Collected date/time: 11/02/21 00:00 | Received date/time: 11/04/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Metals (ICP) by Method 6010D | WG1769846 | 1 | 11/07/21 11:23 | 11/10/21 01:11 | EL | Mt. Juliet, TN |

## GCL-03 L1427009-03 PAINT

Collected by: Bob Burns | Collected date/time: 11/02/21 00:00 | Received date/time: 11/04/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Metals (ICP) by Method 6010D | WG1769846 | 1 | 11/07/21 11:23 | 11/10/21 01:15 | EL | Mt. Juliet, TN |

## GCL-04 L1427009-04 PAINT

Collected by: Bob Burns | Collected date/time: 11/02/21 00:00 | Received date/time: 11/04/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Metals (ICP) by Method 6010D | WG1769846 | 1 | 11/07/21 11:23 | 11/10/21 01:18 | EL | Mt. Juliet, TN |

## GCL-05 L1427009-05 PAINT

Collected by: Bob Burns | Collected date/time: 11/02/21 00:00 | Received date/time: 11/04/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Metals (ICP) by Method 6010D | WG1769846 | 1 | 11/07/21 11:23 | 11/10/21 01:21 | EL | Mt. Juliet, TN |

## GCL-06 L1427009-06 PAINT

Collected by: Bob Burns | Collected date/time: 11/02/21 00:00 | Received date/time: 11/04/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Metals (ICP) by Method 6010D | WG1769846 | 1 | 11/07/21 11:23 | 11/10/21 01:23 | EL | Mt. Juliet, TN |

## GCL-07 L1427009-07 PAINT

Collected by: Bob Burns | Collected date/time: 11/02/21 00:00 | Received date/time: 11/04/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Metals (ICP) by Method 6010D | WG1769846 | 1 | 11/07/21 11:23 | 11/10/21 01:26 | EL | Mt. Juliet, TN |

## GCL-08 L1427009-08 PAINT

Collected by: Bob Burns | Collected date/time: 11/02/21 00:00 | Received date/time: 11/04/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Metals (ICP) by Method 6010D | WG1769846 | 1 | 11/07/21 11:23 | 11/10/21 01:29 | EL | Mt. Juliet, TN |

## GCL-09 L1427009-09 PAINT

Collected by: Bob Burns
Collected date/time: 11/02/21 00:00
Received date/time: 11/04/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Metals (ICP) by Method 6010D | WG1769846 | 1 | 11/07/21 11:23 | 11/10/21 01:38 | EL | Mt. Juliet, TN |

## GCL-10 L1427009-10 PAINT

Collected by: Bob Burns
Collected date/time: 11/02/21 00:00
Received date/time: 11/04/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Metals (ICP) by Method 6010D | WG1769846 | 1 | 11/07/21 11:23 | 11/10/21 01:41 | EL | Mt. Juliet, TN |

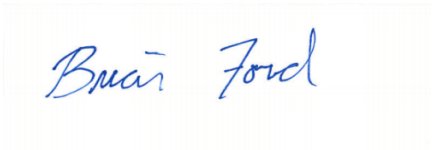
## GCL-11 L1427009-11 PAINT

Collected by: Bob Burns
Collected date/time: 11/02/21 00:00
Received date/time: 11/04/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Metals (ICP) by Method 6010D | WG1769846 | 1 | 11/07/21 11:23 | 11/10/21 01:44 | EL | Mt. Juliet, TN |

# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Brian Ford
Project Manager

## Metals (ICP) by Method 6010D

| Analyte | Result | Qualifier | MDL | RDL | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | ug/kg | | ug/kg | ug/kg | | date / time | |
| Lead | 43500 | J | 16100 | 48800 | 1 | 11/10/2021 01:08 | WG1769846 |

## Metals (ICP) by Method 6010D

| Analyte | Result | Qualifier | MDL | RDL | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | ug/kg | | ug/kg | ug/kg | | date / time | |
| Lead | U | | 15700 | 47500 | 1 | 11/10/2021 01:11 | WG1769846 |

## Metals (ICP) by Method 6010D

| Analyte | Result | Qualifier | MDL | RDL | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | ug/kg | | ug/kg | ug/kg | | date / time | |
| Lead | U | | 16100 | 48700 | 1 | 11/10/2021 01:15 | WG1769846 |

## Metals (ICP) by Method 6010D

| Analyte | Result | Qualifier | MDL | RDL | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | ug/kg | | ug/kg | ug/kg | | date / time | |
| Lead | U | | 15700 | 47500 | 1 | 11/10/2021 01:18 | WG1769846 |

## Metals (ICP) by Method 6010D

| Analyte | Result | Qualifier | MDL | RDL | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | ug/kg | | ug/kg | ug/kg | | date / time | |
| Lead | U | | 16200 | 49200 | 1 | 11/10/2021 01:21 | WG1769846 |

## Metals (ICP) by Method 6010D

| Analyte | Result | Qualifier | MDL | RDL | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | ug/kg | | ug/kg | ug/kg | | date / time | |
| Lead | U | | 15200 | 46000 | 1 | 11/10/2021 01:23 | WG1769846 |

## Metals (ICP) by Method 6010D

| Analyte | Result | Qualifier | MDL | RDL | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | ug/kg | | ug/kg | ug/kg | | date / time | |
| Lead | 977000 | | 15500 | 47100 | 1 | 11/10/2021 01:26 | WG1769846 |

## Metals (ICP) by Method 6010D

| Analyte | Result | Qualifier | MDL | RDL | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | ug/kg | | ug/kg | ug/kg | | date / time | |
| Lead | U | | 15600 | 47400 | 1 | 11/10/2021 01:29 | WG1769846 |

## Metals (ICP) by Method 6010D

| Analyte | Result | Qualifier | MDL | RDL | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | ug/kg | | ug/kg | ug/kg | | date / time | |
| Lead | 65400 | | 16300 | 49500 | 1 | 11/10/2021 01:38 | WG1769846 |

## Metals (ICP) by Method 6010D

| Analyte | Result | Qualifier | MDL | RDL | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | ug/kg | | ug/kg | ug/kg | | date / time | |
| Lead | 95600 | | 15000 | 45600 | 1 | 11/10/2021 01:41 | WG1769846 |

## Metals (ICP) by Method 6010D

| Analyte | Result | Qualifier | MDL | RDL | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | ug/kg | | ug/kg | ug/kg | | date / time | |
| Lead | 66800 | | 15900 | 48100 | 1 | 11/10/2021 01:44 | WG1769846 |

## Method Blank (MB)

(MB) R3727661-1 11/10/21 00:28

| Analyte | MB Result ug/kg | MB Qualifier | MB MDL ug/kg | MB RDL ug/kg |
|---|---|---|---|---|
| Lead | U | | 15400 | 50000 |

## Laboratory Control Sample (LCS)

(LCS) R3727661-2 11/10/21 00:31

| Analyte | Spike Amount ug/kg | LCS Result ug/kg | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| Lead | 604000 | 587000 | 97.2 | 80.0-120 | |

## L1426365-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1426365-01 11/10/21 00:33 • (MS) R3727661-5 11/10/21 00:42 • (MSD) R3727661-6 11/10/21 00:45

| Analyte | Spike Amount ug/kg | Original Result ug/kg | MS Result ug/kg | MSD Result ug/kg | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead | 478000 | 5180000 | 5820000 | 7220000 | 134 | 415 | 1 | 75.0-125 | V | V | 21.5 | 25 |

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

## Abbreviations and Definitions

| | |
|---|---|
| MDL | Method Detection Limit. |
| RDL | Reported Detection Limit. |
| Rec. | Recovery. |
| RPD | Relative Percent Difference. |
| SDG | Sample Delivery Group. |
| U | Not detected at the Reporting Limit (or MDL where applicable). |
| Analyte | The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported. |
| Dilution | If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor. |
| Limits | These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges. |
| Original Sample | The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG. |
| Qualifier | This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable. |
| Result | The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte. |
| Uncertainty (Radiochemistry) | Confidence level of 2 sigma. |
| Case Narrative (Cn) | A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report. |
| Quality Control Summary (Qc) | This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material. |
| Sample Chain of Custody (Sc) | This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis. |
| Sample Results (Sr) | This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported. |
| Sample Summary (Ss) | This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis. |

| Qualifier | Description |
|---|---|
| J | The identification of the analyte is acceptable; the reported value is an estimate. |
| V | The sample concentration is too high to evaluate accurate spike recoveries. |

# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

| | | | |
|---|---|---|---|
| Alabama | 40660 | Nebraska | NE-OS-15-05 |
| Alaska | 17-026 | Nevada | TN000032021-1 |
| Arizona | AZ0612 | New Hampshire | 2975 |
| Arkansas | 88-0469 | New Jersey–NELAP | TN002 |
| California | 2932 | New Mexico [1] | TN00003 |
| Colorado | TN00003 | New York | 11742 |
| Connecticut | PH-0197 | North Carolina | Env375 |
| Florida | E87487 | North Carolina [1] | DW21704 |
| Georgia | NELAP | North Carolina [3] | 41 |
| Georgia [1] | 923 | North Dakota | R-140 |
| Idaho | TN00003 | Ohio–VAP | CL0069 |
| Illinois | 200008 | Oklahoma | 9915 |
| Indiana | C-TN-01 | Oregon | TN200002 |
| Iowa | 364 | Pennsylvania | 68-02979 |
| Kansas | E-10277 | Rhode Island | LAO000356 |
| Kentucky [1 6] | KY90010 | South Carolina | 84004002 |
| Kentucky [2] | 16 | South Dakota | n/a |
| Louisiana | AI30792 | Tennessee [1 4] | 2006 |
| Louisiana | LA018 | Texas | T104704245-20-18 |
| Maine | TN00003 | Texas [5] | LAB0152 |
| Maryland | 324 | Utah | TN000032021-11 |
| Massachusetts | M-TN003 | Vermont | VT2006 |
| Michigan | 9958 | Virginia | 110033 |
| Minnesota | 047-999-395 | Washington | C847 |
| Mississippi | TN00003 | West Virginia | 233 |
| Missouri | 340 | Wisconsin | 998093910 |
| Montana | CERT0086 | Wyoming | A2LA |
| A2LA – ISO 17025 | 1461.01 | AIHA-LAP,LLC EMLAP | 100789 |
| A2LA – ISO 17025 [5] | 1461.02 | DOD | 1461.01 |
| Canada | 1461.01 | USDA | P330-15-00234 |
| EPA–Crypto | TN00003 | | |

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

# State of Oregon Chain of Custody

| | | | |
|---|---|---|---|
| **Agency, Authorized Purchaser or Agent:**<br>**DEQ, Donald Hanson** | **Contract Laboratory Name:**<br>**Pace National**<br>**Lab Batch #:** | **Lab Selection Criteria:**<br>☐ Proximity (if TAT < 48 hrs)<br>☐ Prior work on same project<br>☒ Cost (for anticipated analyses)<br>☐ Other labs disqualified or unable to perform requested services<br>☐ Emergency work | **Turn Around Time:**<br>☐ 10 days (std.)<br>☒ 5 days<br>☐ 72 hours<br>☐ 48 hours<br>☐ 24 hours<br>☐ Other _____ |
| **Send Lab Report To:**<br>Donald Hanson, DEQ<br>Address:<br>165 E. 7th Ave, Suite 100<br>Eugene, OR 97401<br>Tel. #: 541-687-7349<br>E-mail: Hanson.don@deq.state.or (cc, bob@cascadenviro.com) | **Invoice To: DEQ**<br>Address:<br>700 NE Multnomah St., Suite 600<br>Portland, OR 97232<br>Tel. #: | | |
| **Project Name:** Carol Glover BP, Yamhill, OR<br>Project #: 36-93-4164<br>Sampler Name: Robert Burns | **Sample Preservative** | | |

| Sample ID# | Collection Date/Time | Matrix | Number of Containers | Requested Analyses | Comments |
|---|---|---|---|---|---|
| | | | | See Attached | |

Notes:

| | | | |
|---|---|---|---|
| Relinquished By: Robert Burns | Agency/Agent: Cascade Environmental | Received By: | Agency/Agent: |
| Signature: R Burns | Time & Date: 11-3-21/1100 | Signature: | Time & Date: |
| Relinquished By: | Agency/Agent: | Received By: | Agency/Agent: |
| Signature: | Time & Date: | Signature: | Time & Date: |

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #**102-1098-07** AND PRICE AGREEMENT # [ **8903** ]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

Fedex 5483 8379 2928

G038

L1427009

Page 1 of 1

Sample Receipt Checklist

| | | | | | |
|---|---|---|---|---|---|
| COC Seal Present/Intact: | Y | N | If Applicable | | |
| COC Signed/Accurate: | Y | N | VOA Zero Headspace: | Y | N |
| Bottles arrive intact: | Y | N | Pres.Correct/Check: | Y | N |
| Correct bottles used: | Y | N | | | |
| Sufficient volume sent: | Y | N | | | |
| RAD Screen <0.5 mR/hr: | Y | N | | | |

QUANTEM LABORATORIES
www.QuanTEM.com

# LEAD CHAIN OF CUSTODY

2003 Heritage Park Drive, Oklahoma City, OK 73120-7502
(800) 822-1650 • (405) 755-7272 • Fax: (405) 755-2058

**LEGAL DOCUMENT - PLEASE PRINT LEGIBLY**

| For Lab Use Only | |
|---|---|
| Lab No. | |
| Accept | Reject |

| Contact Information | | | |
|---|---|---|---|
| Company: | Cascade Environmental LLC | Phone: | (503) 984-9737 |
| Contact: | Bob Burns | Cell Phone: | (503) 984-9737 |
| Account #: | | E-mail: | bob@cascadenviro.com |
| SAMPLED BY: Name: | Bob Burns | Date: | 11-2-21 |

| Project Information | |
|---|---|
| Project Name: | Carol Glover SP, Yamhill, OR |
| Project Location: | 185 S. Maple St. Yamhill, OR |
| Project ID: | DEQ 71-18-29 |
| P.O. Number: | |

| Report Results (☑ one box) | |
|---|---|
| | QuanTEM Website |
| | Email bob@cascadenviro.com |
| | Other |

| RELINQUISHED BY | DATE & TIME | VIA | RECEIVED BY | DATE & TIME |
|---|---|---|---|---|
| [signature] | 11.3.21/1100 | | [signature] PNPON | 11/3/21 1100 |
| [signature] PNPON | 11/3/21 1200 | | Veronica Stelmak | 11/4/21 0900 |

REQUESTED SERVICES (Please ☑ the Appropriate Boxes)

| No. | Sample ID (10 Characters Max) | Sample Description | Volume (Liters) | Volume Area (Length x Width) | Sample Matrix (see matrix code box) | Analysis: Pb | Units (☑ ONE box only): PPM | Wt % | mg / l | µg /ft² | µg / m³ | mg / cm² |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | GCL-01 | White Paint on wall board Interior Lobby | | | B | | | | | | | -01 |
| 2 | -02 | | | | B | | | | | | | -02 |
| 3 | -02 | Green Paint on wall board Interior Kitchen | | | B | | | | | | | - |
| 4 | | | | | B | | | | | | | -03 |
| 5 | -03 | Red paint on wall Interior Dining | | | B | | | | | | | -04 |
| 6 | -04 | white paint on wood trim | | | | | | | | | | - 05 |
| 7 | -05 | Red paint on wood trim interior | | | | | | | | | | |
| 8 | -06 | Pink on Wood exterior | | | | | | | | | | -06 |
| 9 | -07 | Pink on metal exterior | | | | | | | | | | -07 |
| 10 | -08 | white on wood under shingles exterior | | | | | | | | | | -08 |
| 11 | -09 | off-white on metal trim exterior | | | | | | | | | | -09 |
| 12 | | | | | | | | | | | | |

-10 | Red paint on metal Trim exterior

| Sample Matrix Codes | |
|---|---|
| A | Soil |
| B | Paint Chips |
| C | Surface / Dust Wipes |
| D | Bulk Miscellaneous |
| E | Air Cassette |

| TURNAROUND TIME | |
|---|---|
| | Same Day |
| | 24 - Hour |
| | 3 - Day |
| X | 5 - Day |

SATURDAY FEDEX SAMPLE DELIVERY - CALL TO SCHEDULE • Use this address for Saturday Delivery only: 4220 N. Santa Fe Ave., Oklahoma City, OK 73105-8517 • Mark Package "Hold for Saturday Pickup"
Please Note - UPS and USPS are NOT available for Saturday Delivery

11 | Tan Paint on Concrete Floor - interior

4.9 + 0 = 4.9

## L1427009 CASCADEPOR NCF

R5

**Time estimate:** oh **Time spent:** oh

**Members**

OT Oliva Turner (responsible) Brian Ford

- [ ] Login Clarification needed
- [ ] Chain of custody is incomplete
- [ ] Please specify Metals requested
- [ ] Please specify TCLP requested
- [ ] Received additional samples not listed on COC
- [ ] Sample IDs on containers do not match IDs on COC
- [ ] Client did not "X" analysis
- [ ] Chain of Custody is missing
- [ ] If no COC: Received by:_____
- [ ] If no COC: Date/Time:_____
- [ ] If no COC: Temp./Cont.Rec./pH:_____
- [ ] If no COC: Carrier:_____
- [ ] If no COC: Tracking #:_____
- [ ] Client informed by call
- [ ] Client informed by Email
- [ ] Client informed by Voicemail
- [ ] Date/Time:_____
- [x] PM initials:_____bjf_____
- [ ] Client Contact:_____

**Comments**

*Oliva Turner* *4 November 2021 6:43 PM*

Analysis doesn't list whether they want total PB or otherwise. No date/time

*Brian Ford* *4 November 2021 6:56 PM*

log for total Pb, paint matrix, no TS. to OREGONDEQ.

*Oliva Turner* *5 November 2021 8:16 AM*

Done

# ANALYTICAL REPORT

November 11, 2021



## Oregon Dept. of Env. Quality - ODEQ

| | |
|---|---|
| Sample Delivery Group: | L1426990 |
| Samples Received: | 11/04/2021 |
| Project Number: | DEQ 71-18-29 |
| Description: | Carol Glover BP, Yamhill, OR 36-93-4164 |
| Site: | 185 S. MAPLE ST. YAMHILL,OR |
| Report To: | Don Hanson |

Entire Report Reviewed By:

Brian Ford

Project Manager



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

# TABLE OF CONTENTS

# SAMPLE SUMMARY

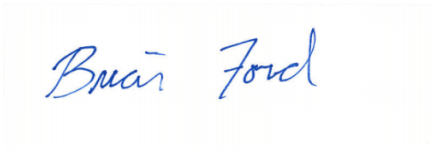
## GCTCLP-01 L1426990-01 Waste

Collected by: Bob Burns
Collected date/time: 11/02/21 00:00
Received date/time: 11/04/21 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Preparation by Method 1311 | WG1771271 | 1 | 11/09/21 12:23 | 11/09/21 12:23 | APH | Mt. Juliet, TN |
| Metals (ICP) by Method 6010D | WG1771810 | 1 | 11/10/21 08:25 | 11/10/21 15:31 | KMG | Mt. Juliet, TN |

# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Brian Ford
Project Manager

## Preparation by Method 1311

| Analyte | Result | Qualifier | Prep date / time | Batch |
|---|---|---|---|---|
| TCLP Extraction | - | | 11/9/2021 12:23:49 PM | WG1771271 |
| Fluid | 1 | | 11/9/2021 12:23:49 PM | WG1771271 |
| Initial pH | 6.65 | | 11/9/2021 12:23:49 PM | WG1771271 |
| Final pH | 5.76 | | 11/9/2021 12:23:49 PM | WG1771271 |

## Metals (ICP) by Method 6010D

| Analyte | Result | Qualifier | RDL | Limit | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| | mg/l | | mg/l | mg/l | | | |
| Lead | ND | | 0.100 | 5 | 1 | 11/10/2021 15:31 | WG1771810 |

## Method Blank (MB)

(MB) R3727828-1 11/10/21 11:45

| Analyte | MB Result mg/l | MB Qualifier | MB MDL mg/l | MB RDL mg/l |
|---|---|---|---|---|
| Lead | U | | 0.0333 | 0.100 |

## Laboratory Control Sample (LCS)

(LCS) R3727828-2 11/10/21 11:47

| Analyte | Spike Amount mg/l | LCS Result mg/l | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| Lead | 10.0 | 9.85 | 98.5 | 80.0-120 | |

## L1418034-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1418034-01 11/10/21 11:50 • (MS) R3727828-4 11/10/21 11:55 • (MSD) R3727828-5 11/10/21 11:57

| Analyte | Spike Amount mg/l | Original Result mg/l | MS Result mg/l | MSD Result mg/l | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead | 10.0 | 0.113 | 9.95 | 9.87 | 98.4 | 97.6 | 1 | 75.0-125 | | | 0.776 | 20 |

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

## Abbreviations and Definitions

| | |
|---|---|
| MDL | Method Detection Limit. |
| ND | Not detected at the Reporting Limit (or MDL where applicable). |
| RDL | Reported Detection Limit. |
| Rec. | Recovery. |
| RPD | Relative Percent Difference. |
| SDG | Sample Delivery Group. |
| U | Not detected at the Reporting Limit (or MDL where applicable). |
| Analyte | The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported. |
| Dilution | If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor. |
| Limits | These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges. |
| Original Sample | The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG. |
| Qualifier | This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable. |
| Result | The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte. |
| Uncertainty (Radiochemistry) | Confidence level of 2 sigma. |
| Case Narrative (Cn) | A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report. |
| Quality Control Summary (Qc) | This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material. |
| Sample Chain of Custody (Sc) | This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis. |
| Sample Results (Sr) | This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported. |
| Sample Summary (Ss) | This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis. |

| Qualifier | Description |
|---|---|

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

| | | | |
|---|---|---|---|
| Alabama | 40660 | Nebraska | NE-OS-15-05 |
| Alaska | 17-026 | Nevada | TN000032021-1 |
| Arizona | AZ0612 | New Hampshire | 2975 |
| Arkansas | 88-0469 | New Jersey–NELAP | TN002 |
| California | 2932 | New Mexico [1] | TN00003 |
| Colorado | TN00003 | New York | 11742 |
| Connecticut | PH-0197 | North Carolina | Env375 |
| Florida | E87487 | North Carolina [1] | DW21704 |
| Georgia | NELAP | North Carolina [3] | 41 |
| Georgia [1] | 923 | North Dakota | R-140 |
| Idaho | TN00003 | Ohio–VAP | CL0069 |
| Illinois | 200008 | Oklahoma | 9915 |
| Indiana | C-TN-01 | Oregon | TN200002 |
| Iowa | 364 | Pennsylvania | 68-02979 |
| Kansas | E-10277 | Rhode Island | LAO000356 |
| Kentucky [1 6] | KY90010 | South Carolina | 84004002 |
| Kentucky [2] | 16 | South Dakota | n/a |
| Louisiana | AI30792 | Tennessee [1 4] | 2006 |
| Louisiana | LA018 | Texas | T104704245-20-18 |
| Maine | TN00003 | Texas [5] | LAB0152 |
| Maryland | 324 | Utah | TN000032021-11 |
| Massachusetts | M-TN003 | Vermont | VT2006 |
| Michigan | 9958 | Virginia | 110033 |
| Minnesota | 047-999-395 | Washington | C847 |
| Mississippi | TN00003 | West Virginia | 233 |
| Missouri | 340 | Wisconsin | 998093910 |
| Montana | CERT0086 | Wyoming | A2LA |
| A2LA – ISO 17025 | 1461.01 | AIHA-LAP,LLC EMLAP | 100789 |
| A2LA – ISO 17025 [5] | 1461.02 | DOD | 1461.01 |
| Canada | 1461.01 | USDA | P330-15-00234 |
| EPA–Crypto | TN00003 | | |

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

# State of Oregon Chain of Custody

| | | | |
|---|---|---|---|
| **Agency, Authorized Purchaser or Agent:**<br>**DEQ, Donald Hanson** | **Contract Laboratory Name:**<br>**Pace National**<br>**Lab Batch #:** | **Lab Selection Criteria:**<br>☐ Proximity (if TAT < 48 hrs)<br>☐ Prior work on same project<br>☒ Cost (for anticipated analyses)<br>☐ Other labs disqualified or unable to perform requested services<br>☐ Emergency work | **Turn Around Time:**<br>☐ 10 days (std.)<br>☒ 5 days<br>☐ 72 hours<br>☐ 48 hours<br>☐ 24 hours<br>☐ Other _____ |
| **Send Lab Report To:**<br>Donald Hanson, DEQ<br>Address:<br>165 E. 7th Ave, Suite 100<br>Eugene, OR 97401<br>Tel. #: 541-687-7349<br>E-mail: Hanson.don@deq.state.or (cc, bob@cascadenviro.com) | **Invoice To: DEQ**<br>Address:<br>700 NE Multnomah St., Suite 600<br>Portland, OR 97232<br>Tel. #: | | |
| **Project Name:** Carol Glover BP, Yamhill, OR<br>Project #: 36-93-4164<br>Sampler Name: Robert Burns | **Sample Preservative** | | |

| Sample ID# | Collection Date/Time | Matrix | Number of Containers | Requested Analyses | Comments |
|---|---|---|---|---|---|
| | | | | See Attached | |

Notes:

| | | | |
|---|---|---|---|
| Relinquished By: Robert Burns | Agency/Agent: Cascade Environmental | Received By: | Agency/Agent: |
| Signature: R Burns | Time & Date: 11-3-21/1100 | Signature: | Time & Date: |
| Relinquished By: | Agency/Agent: | Received By: | Agency/Agent: |
| Signature: | Time & Date: | Signature: | Time & Date: |

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #**102-1098-07** AND PRICE AGREEMENT # [ **8903** ]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

L1426990

Page 1 of 1

# LEAD CHAIN OF CUSTODY

QuanTEM LABORATORIES
www.QuanTEM.com

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(800) 822-1650 • (405) 755-7272 • Fax: (405) 755-2058

**LEGAL DOCUMENT - PLEASE PRINT LEGIBLY**

| For Lab Use Only |
|---|
| Lab No. _____ |
| Accept Reject |

| Contact Information | | | |
|---|---|---|---|
| Company: | Cascade Environmental LLC | Phone: | (503) 984-9737 |
| Contact: | Bob Burns | Cell Phone: | (503) 984-9737 |
| Account #: | | E-mail: | bob@cascadenviro.com |
| SAMPLED BY: Name: | Bob Burns | Date: | 11.2.21 |

| Project Information | |
|---|---|
| Project Name: | Carol Glover DP, Yamhill, OR |
| Project Location: | 185 S. Maple St. Yamhill, OR |
| Project ID: | DEQ 71.18.29 |
| P.O. Number: | |

| Report Results (☑ one box) | |
|---|---|
| ☐ | QuanTEM Website |
| ☐ | Email bob@cascadenviro.com |
| ☐ | Other _____ |

| RELINQUISHED BY | DATE & TIME | VIA | RECEIVED BY | DATE & TIME |
|---|---|---|---|---|
| [signature] | 11.3.21/1100 | | [signature] PNPon | 11/3/21 1100 |
| [signature] PNPon | 11/3/21 1200 | | [signature] | 11/4/21 0900 |

REQUESTED SERVICES (Please ☑ the Appropriate Boxes)

| No. | Sample ID (10 Characters Max) | Sample Description | Volume (Liters) | Volume Area (Length x Width) | Sample Matrix (see matrix code box) | Analysis: Pb | Units (☑ ONE box only): PPM | Wt % | mg / l | µg /ft² | µg / m³ | mg / cm² |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | GCTCLP-01 | TCLP Sample | | | B D | | | X | | | | -01 |
| 2 | | | | | B | | | | | | | |
| 3 | | | | | B | | | | | | | |
| 4 | | | | | B | | | | | | | |
| 5 | | | | | B | | | | | | | |
| 6 | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | |

| Sample Matrix Codes | |
|---|---|
| A | Soil |
| B | Paint Chips |
| C | Surface / Dust Wipes |
| D | Bulk Miscellaneous |
| E | Air Cassette |

Sample Receipt Checklist

| | | If Applicable | |
|---|---|---|---|
| COC Seal Present/Intact: | Y N | VOA Zero Headspace: | N |
| COC Signed/Accurate: | Y N | Pres.Correct/Check: | Y N |
| Bottles arrive intact: | Y N | | |
| Correct bottles used: | Y N | | |
| Sufficient volume sent: | Y N | | |
| RAD Screen <0.5 mR/hr: | Y N | | |

| TURNAROUND TIME | |
|---|---|
| | Same Day |
| | 24 - Hour |
| | 3 - Day |
| X | 5 - Day |

**SATURDAY FEDEX SAMPLE DELIVERY - CALL TO SCHEDULE** • Use this address for Saturday Delivery only: 4220 N. Santa Fe Ave., Oklahoma City, OK 73105-8517 • Mark Package "Hold for Saturday Pickup"

**Please Note - UPS and USPS are NOT available for Saturday Delivery**

Fed ex 5433 8379 2928

G041

4.9 to 24.9
PZ BB

## L1426990 CASCADEPOR NCF

R5

**Time estimate:** oh **Time spent:** oh

**Members**

OT Oliva Turner (responsible) Brian Ford

- [ ] Login Clarification needed
- [ ] Chain of custody is incomplete
- [ ] Please specify Metals requested
- [ ] Please specify TCLP requested
- [ ] Received additional samples not listed on COC
- [ ] Sample IDs on containers do not match IDs on COC
- [x] Client did not "X" analysis
- [ ] Chain of Custody is missing
- [ ] If no COC: Received by:_____
- [ ] If no COC: Date/Time:_____
- [ ] If no COC: Temp./Cont.Rec./pH:_____
- [ ] If no COC: Carrier:_____
- [ ] If no COC: Tracking #:_____
- [ ] Client informed by call
- [ ] Client informed by Email
- [ ] Client informed by Voicemail
- [ ] Date/Time:_____
- [x] PM initials:_____bjf_____
- [ ] Client Contact:_____

**Comments**

*Oliva Turner* *4 November 2021 6:36 PM*

Analysis is not marked. Analysis has PB but not whether or not it is total. Also, no date/time on COC or sample

*Brian Ford* *4 November 2021 6:50 PM*

TCLP Pb per the COC. log to OREGONDEQ.

*Brian Ford* *4 November 2021 6:52 PM*

date/time 11/02/21 0000

*Oliva Turner* *5 November 2021 8:17 AM*

Done

# APPENDIX C
# CERTIFICATIONS

THIS IS TO CERTIFY THAT

# ROBERT BURNS

## HAS SUCCESSFULLY COMPLETED THE TRAINING COURSE

## for

# ONLINE AHERA ASBESTOS INSPECTOR REFRESHER

In accordance with TSCA Title II, Part 763, Subpart E, Appendix C of 40 CFR

Course Date: 09/10/2021

Course Location: Online

Certificate: IRO-21-4095A

**CCB #SRA0615 4-Hr Training**

4-Hour Online AHERA Inspector Refresher Training; AHERA is the Asbestos Hazard Emergency Response Act enacting Title II of Toxic Substance Control Act (TSCA)

**Expiration Date:** 09/10/2022

For verification of the authenticity of this certificate contact:
PBS Engineering and Environmental Inc.
4412 S Corbett Avenue
Portland, Oregon 97239
503.248.1939

Andy Fridley, Instructor

**United States Department of Commerce**
**National Institute of Standards and Technology**

# Certificate of Accreditation to ISO/IEC 17025:2017

**NVLAP LAB CODE: 200860-0**

## Aerobiology Laboratory Associates, Inc.

Golden, CO

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:*

## Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2021-10-01 through 2022-09-30

*Effective Dates*

*For the National Voluntary Laboratory Accreditation Program*

# Oregon
## Environmental Laboratory
## Accreditation Program

NELAP Recognized

**Environmental Science Corporation (dba Pace Analytical National Center for Testing & Innovation)**

**TN200002**

12065 Lebanon Road

Mt. Juliet, TN 37122

IS GRANTED APPROVAL BY ORELAP UNDER THE 2016 TNI STANDARDS, TO PERFORM ANALYSES ON ENVIRONMENTAL SAMPLES IN MATRICES AS LISTED BELOW:

| Air | Drinking Water | Non-Potable Water | Solids and Chemical Waste | Tissue |
|---|---|---|---|---|
| | Chemistry | Chemistry | Chemistry | |
| | Radiochemistry | Radiochemistry | Radiochemistry | |
| | | Toxicity Testing | | |

AND AS RECORDED IN THE LIST OF APPROVED ANALYTES, METHODS, ANALYTICAL TECHNIQUES, AND FIELDS OF TESTING ISSUED CONCURRENTLY WITH THIS CERTIFICATE AND REVISED AS NECESSARY.

ACCREDITED STATUS DEPENDS ON SUCCESSFUL ONGOING PARTICIPATION IN THE PROGRAM AND CONTINUED COMPLIANCE WITH THE STANDARDS.

CUSTOMERS ARE URGED TO VERIFY THE LABORATORY'S CURRENT ACCREDITATION STATUS IN OREGON.

Travis Bartholomew
Oregon State Public Health Laboratory
ORELAP Program Manager
7202 NE Evergreen Parkway, Suite 100
Hillsboro, OR 97124

EFFECTIVE DATE : **1/16/2021**
EXPIRATION DATE : **1/15/2022**
Certificate No : **TN200002 - 014**

# *Appendix D*

## Demolition Permit Application Form – Yamhill County

# Demolition Permit Application

Permit No._____

## YAMHILL COUNTY

525 NE 4th St., McMinnville, OR 97128
Phone: (503) 434-7516
Fax: (503) 434-7544
planning@co.yamhill.or.us

Date: _____

| DEMOLITION APPLICATION | |
|---|---|
| ☐Residential dwelling | ☐Commercial/industrial |
| ☐Accessory building | ☐Manufactured home |
| ☐Other | |

| DEMOLITION SITE INFORMATION AND LOCATION | |
|---|---|
| Job site address: | |
| City | |
| State: | Zip: |
| Cross street/directions to job site: | |
| | |
| | |
| | |
| | |
| Tax map/parcel no.: | |

| DESCRIPTION OF WORK |
|---|
| |
| |
| |
| |
| |
| |

| PROPERTY OWNER | |
|---|---|
| Name: | |
| Address: | |
| City/State/Zip: | |
| Phone: | Fax: |
| E-mail: | |

| APPLICANT | |
|---|---|
| Business name: | |
| Contact name: | |
| Address: | |
| City/State/Zip: | |
| Phone: | Fax: |
| E-mail: | |

| CONTRACTOR | |
|---|---|
| Business name: | |
| Contact name: | |
| Address: | |
| City/State/Zip: | |
| Phone: | Fax: |
| E-mail: | |
| CCB lic: | Expiration date: |

| DEMOLITION REQUIREMENTS | |
|---|---|
| ☐ | Submit a site plan indicating the location of all structures to be removed |
| ☐ | The owner of record is responsible for the complete removal of required sewer, water, electrical and gas disconnects. |
| ☐ | Water meters must be removed by the water district. |
| ☐ | Private sewage disposal systems must be decommissioned per DEQ requirements. |
| ☐ | Private well systems must be decommissioned per Dept. of Water Resources requirements. |
| ☐ | Commercial/industrial and high density residential requires an Asbestos Site Survey conducted by an accredited inspector. Refer to *www.deq.state.or.us/aq/asbestos.* |
| ☐ | Inspections: A final inspection to verify that the demolition was completed per the permit requirements and no deficient items remain to be done. |

| NOTICE |
|---|
| I HAVE READ THE ABOVE REQUIREMENTS |
| Owner's signature: |
| Print name: |
| Date: |

| DEMOLITION PERMIT FEE | |
|---|---|
| Permit Fee | $51.35 |
| Amount paid | $ |
| Receipt number | |

| **FOR DEPARTMENT USE ONLY** |
|---|
| Sanitation approval: |
| Planning approval: |