March 21, 2025

Charles Harman
Oregon Department of Environmental Quality
700 NE Multnomah St #600
Portland, Oregon 97232

Subject: UST Remedial Action Report and Request for Full No Further Action (NFA), 7285 Long Prairie Road in Tillamook, Oregon, 97141. Port of Tillamook Bay, NE Site K1-K8: ECSI 4604

Dear Mr. Harman:

Terraphase Engineering Inc. (Terraphase) is pleased to submit this report to the Oregon Department of Environmental Quality (ODEQ) that described the remediation by excavation of Total Petroleum Hydrocarbon (TPH) impacted soil in the area of a former underground storage tank (UST) located at the Port of Tillamook Bay (the Port), NE Site K1-K8, 7285 Long Prairie Road in Tillamook, Oregon, 97141 (the "Site").

The Site background information and the results of previous investigations are provided in the report. In summary, in 2006, a 300-gallon heating oil UST was removed from a location adjacent to the former radio transmission building. Sampling within the excavation pit suggested that releases to subsurface soil may extend under the abandoned building. In January 2025, the building was removed by the Port and in February 2025, Terraphase oversaw the excavation of remaining impacted soil and collected confirmation soil samples.

On June 11, 2007, ODEQ issued a Partial No Further Action letter (NFA) for the Site stating that remaining issues regarding cleanup around the removed diesel UST need to be resolved (NFA provided as an attachment to our report). On behalf of the Port, we request that the Partial NFA for the Site be revised to a full NFA using the information provided in this report.

We appreciate your attention to this matter and hope to hear from you soon.

Sincerely,

For Terraphase Engineering Inc.

James Farrow, RG
Principal Hydrogeologist

Don Malkemus, RG
Senior Project Hydrogeologist

cc: Michele Bradley, Port of Tillamook Bay

UST Remedial Action Report

7285 Long Prairie Road, Tillamook, Oregon 97141

Port of Tillamook Bay, NE Site K1-K8: ECSI 4604

Prepared for

Port of Tillamook Bay
4000 Blimp Blvd,
Tillamook, Oregon 97141

Prepared by

Terraphase Engineering Inc.
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Portland, Oregon 97205

March 21, 2025

Project Number O064.001.004

File: rpt-RARpt-POT-O064-001-004-F

terraphase engineering

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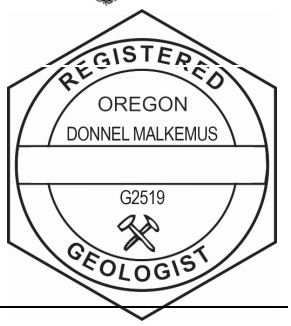
Acronyms and Abbreviations

bgs	below ground surface
ESA	environmental site assessment
HOT	heating oil tank
mg/kg	milligrams per kilogram
ODEQ	Oregon Department of Environmental Quality
PAHs	polycyclic aromatic hydrocarbons
PBS	PBS Engineering and Environmental
PID	photoionization detector
Port	Port of Tillamook Bay
ppm	parts per million
RBC	risk-based concentrations
Site	7285 Long Prairie Road, Tillamook, Oregon 97141
Terraphase	Terraphase Engineering Inc.
TPH	total petroleum hydrocarbons
UST	underground storage tank

Signatures

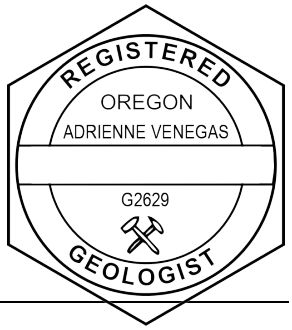
James R. Farrow, RG
Principal Hydrogeologist

March 21, 2025
Date



Don Malkemus, RG
Associate Hydrogeologist

March 21, 2025
Date



Adrienne Venegas, RG
Senior Staff II Geologist

March 21, 2025
Date

1 Introduction

Terraphase Engineering Inc. (Terraphase) completed a remedial action comprised of excavation of total petroleum hydrocarbon (TPH) impacted soils, on behalf of the Port of Tillamook Bay (the Port) for the property at 7285 Long Prairie Road, Tillamook, Oregon (the Site; Figure 1). The Site, identified by the Oregon Department of Environmental Quality (ODEQ) as Port of Tillamook Bay, NE Site K1-K8 ECSI 4604, is an approximately 13-acre portion of the parcel identified as Tillamook County Assessor's tax lot number 2S09040000600 (Tax Lot 600) owned by the Port.

The remedial action to remove TPH impacted soil in the area of a former underground storage tank (UST) was conducted in advance of Site redevelopment as a logistics facility. The scope of work was based on the findings of the Phase I Environmental Site Assessment (ESA) and Phase II ESA performed by Terraphase in January 2024 (Terraphase 2024a) and July 2024 (Terraphase 2024b, Appendix A), respectively. Results of Phase II ESA activities conducted in the area of the former UST are also summarized in this report.

1.1 Background

In 1942, a two-story radio transmission building was constructed by the United States Navy in the central portion of the Site. Between approximately 1941 to 1948, the larger southern portion of the Site was used as shotgun/skeet and rifle firing ranges (PBS Engineering and Environmental [PBS] 2005). The Site has been used for pastureland, leased to local dairy farmers for grazing, since approximately 1948 (Terraphase 2024a). The majority of the Site has been developed as farmland since at least 1952. The former on-site building was demolished on February 8, 2025.

Previous environmental investigations at the Site include the following:

- Phase I ESA conducted by PBS in 2005
- Phase II ESA conducted by AMEC Earth and Environmental (AMEC) in 2007
- Phase I ESA conducted by Terraphase in January 2024
- Phase II ESA conducted by Terraphase in July 2024

In July 2005, during the initial Phase I ESA, PBS observed a vent pipe next to the former radio transmission building. As this building was the lone structure on the property, it was considered likely that a heating system was historically present and that the vent was associated with a UST. Therefore, the ODEQ concluded that the vent pipe represented an additional recognized environmental condition (PBS 2005).

In October 2006, during the Phase II ESA conducted by AMEC, a 300-gallon UST used for heating oil storage adjacent to the building was decommissioned and removed from the Site. Approximately 10 cubic yards of petroleum-contaminated soil was excavated and stockpiled on the Site. Soil samples collected from the UST excavation contained concentrations of TPH in the diesel range above the ODEQ residential and occupational risk-based concentrations (RBCs). Two test pits were excavated to 8 feet below ground surface (bgs) during the decommissioning activities approximately 15 feet west and 10

feet south of the heating oil tank (HOT). The test pits did not contain visual indications of petroleum contamination. Groundwater was not encountered in the test pits and no groundwater samples were collected (AMEC 2007, Appendix A).

In a letter dated June 2007, the ODEQ issues a partial No Further Action (NFA) and regulatory closure for the Site (ECSI Number 4604) suggesting that it is likely that additional remedial activities be performed in the area of the former HOT and under the building (ODEQ 2007, Appendix A).

In a January 2024 Phase I ESA, Terraphase identified the presence of TPH-impacted soil in the area of the former HOT as a REC (Terraphase 2024a) and recommended additional sample collection.

In July 2024, Terraphase conducted a Phase II ESA at the Site. TPH-impacted soil was detected and it was recommended to the Port that it be excavated below appropriate RBCs for the Site's redevelopment. The field methods and results of the July 2024 sampling in the area of the former UST area are included in this report. Phase II ESA activities also included sampling surficial soil in an agricultural area of the Site for pesticides and herbicides and sampling stockpiles of soil to assess their potential for on-site re-use. The full 2024 Phase II ESA, the 2007 AMEC Phase II ESA, and the ODEQ NFA letter are included in Appendix A.

On February 8, 2025, the former on-site building was demolished by the Port all building materials were removed from the Site, allowing for access to conduct TPH-impacted soil excavation.

1.2 Objective

The objective of the Remedial Action was to remove TPH impacted soil in excess of relevant ODEQ RBCs from the area of the former UST in compliance with OAR 340-122.[1] This report demonstrates that this objective was achieved, and that remaining contamination does not represent a risk to human health or the environment.

1.3 Site Description

The Site, referred to by the Port as NE Site K1-K8, is situated on the southwest corner of the intersection of Long Prairie Road and Brickyard Road 4.5 miles southeast of downtown Tillamook. The Site is currently developed as agricultural land. The Site was formerly developed with one 2,400-square-foot, disused, two-story concrete building on the central portion of the property constructed in 1942 as a radio transmission facility (Figure 2). The former on-site building was demolished on February 8, 2025.The Port currently leases the Site to Richard Obrist for cattle grazing and manure management purposes.

[1] "Division 122 Hazardous Substance Remedial Action Rules," OAR 340-122, https://oregon.public.law/rules/oar_chapter_340_division_122.

1.4 Site Property Setting

The Site is situated approximately 69 feet above mean sea level. The local topography is generally flat. The nearest surface waters to the Site are the Trask River and Mill Creek, located approximately 0.75 and 0.25 miles to the northwest and southwest, respectively.

1.5 Geology and Hydrogeology

Based on information accessed via the United States Geological Survey website,[2] the Site is underlain by Quaternary fluvial and estuarine deposits, which consists of unconsolidated, alluvial clay, silt, sand, and gravel, as well as tidal flat mud, sand, and peat (Wells et al. 1994). According to soil data accessed on the U.S. Department of Agriculture, Natural Resources Conservation Service soil survey website[3] the soils underlying the Site primarily consist of alluvial silt loams, which are generally well drained with slow to fast infiltration rates and low risk of flooding.

Based on review of well logs available on the Oregon Water Resources Department (OWRD) website[4] for wells located in the vicinity of the Site, groundwater levels in the area generally range from 8 to 30 feet bgs. Groundwater likely flows northwest toward the Trask River and Tillamook Bay.

2 Scope of Work

This section describes the scope of the investigation activities conducted on May 20, 2024, and the remedial activities conducted between February 26 and March 1, 2025, in the area of the former UST.

2.1 Pre-Field Work

Terraphase prepared a site-specific *Health and Safety Plan*. The *Health and Safety Plan* specifies personal protective equipment and procedures for the sampling work. Terraphase contacted Oregon One-Call on February 20, 2025, to identify the location of underground public utilities within the vicinity of the proposed excavation. Terraphase previously contracted with Pacific Geophysics, Inc. of Portland, Oregon, during the 2024 Phase II ESA to identify underground private utilities prior to drilling.

2.2 Soil and Groundwater Investigation and Sampling

The following subsections summarize soil and groundwater sample collection procedures completed during the Phase II ESA in the area of the former UST. Additional details are provided in the 2024 Phase II ESA report included in Appendix A.

[2] https://ngmdb.usgs.gov/mapview

[3] https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

[4] https://www.oregon.gov/owrd/programs/gwwl/wcc/pages/aboutwellreports.aspx

2.2.1 Soil Boring Sampling

On May 20, 2024, Terraphase supervised Holocene Drilling Inc. of Puyallup, Washington, in the advancement of four soil borings at the Site (LPR-SBUST-01 through LPR-SBUST-3 and LPR-SBUST-3R) using a track-mounted, direct-push drilling rig. The borings were advanced west of the former building to investigate soil and groundwater conditions in the area of the UST. Boring LPR-SB-UST-3R was advanced approximately 4 feet east of LPR-SB-UST-3 to assess the potential that the boring had not been advanced at the former UST. Field evidence of contamination (Section 3.1.1) was more prominent in boring LPR-SB-UST-3, and therefore samples were collected from the original boring instead of boring LPR-SB-UST-3.

Prior to soil boring advancement, all borings were first cleared with hand tools to 5 feet bgs. The direct-push rig was equipped with a hydraulic ram and percussion hammer to push a 5-foot-long, stainless-steel core barrel sampler into the subsurface to retrieve continuous soil cores. The core barrel contained an acetate sleeve liner. Once the core barrel was extracted from the ground, the liner was removed and cut open with a stainless-steel blade. No air, mud, or water was introduced during the drilling process.

Continuous soil samples were examined in the field under the supervision of a Terraphase Oregon Registered Geologist. The soil was described in general accordance with Unified Soil Classification System nomenclature and recorded on soil boring logs included in the Phase II ESA (Appendix A). The soil was screened in the field for visible (e.g., staining, sheen) or olfactory indications of contamination, and a photoionization detector (PID) was used to monitor the presence of volatile organic compounds. The PID was calibrated using isobutylene prior to use. Soil samples retained for chemical analysis were selected based on field evidence of contamination (visual, olfactory, PID results). Where contamination was not evident, composite soil samples were retained from 5 to 7.5 and 7.5 to 10 feet bgs intervals.

Samples retained for chemical analysis were transferred from the plastic sleeves to laboratory-supplied glass containers using clean, new nitrile gloves. Samples collected for analysis of TPH in the gasoline range were placed in hermetically sealed glass vials containing methanol for sample preservation in accordance with United States Environmental Protection Agency (USEPA) Method 5035. Each sample was labeled with the borehole number, sample depth, and time and date of collection. Sample containers were placed in resealable plastic bags within an ice-chilled cooler immediately following collection and were shipped to Apex Analytical Laboratory in Tigard, Oregon, via UPS, under chain-of-custody procedures. Soil samples were analyzed for the following:

- TPH in accordance with NWTPH-HCID
- TPH quantification by NWTPH-Gx or NWTPH-Dx with acid/silica gel cleanup, depending on the results of the NWTPH-HCID analysis
- Polycyclic aromatic hydrocarbons (PAHs) in accordance with USEPA Method 8270E

2.2.2 Groundwater Sample Collection

Upon reaching the final depth in borings LPR-SBUST-1 through LPR-SBUST-3, a dedicated, temporary, 1-inch-diameter PVC well with a 0.010-inch factory-slotted screen from 10–15 feet bgs was placed in

each well for groundwater sample collection. Groundwater sampling field forms are included in the Phase II ESA (Appendix A).

A post-drilling static water level measurement was recorded before sampling using a clean electronic sounder. Low-flow purging techniques were used to collect groundwater samples from borings LPR-SBUST-2 and LPR-SBUST-3. A Horiba multi-parameter meter with a flow-through cell was used to measure groundwater parameters including pH, temperature, electrical conductivity, dissolved oxygen, oxidation reduction potential, and turbidity. The multi-parameter meter was calibrated using supplier-provided standard calibration solutions prior to use. Groundwater level and parameter readings were collected at least every 5 minutes during purging. Once parameters stabilized, a groundwater grab sample was collected from the temporary well through dedicated 3/8-inch, low-density polyethylene tubing using a peristaltic pump. Insufficient water was present for low-flow sampling from boring LPR-SBUST-1, and a no purge grab-groundwater sample was collected. Groundwater was transferred directly from the disposable tubing into laboratory-supplied containers. Sample containers were labeled, logged on a chain-of-custody form, placed in resealable plastic bags, stored in an ice-chilled cooler, and shipped to Apex Analytical Laboratory, via UPS, under chain-of custody procedures. The groundwater sample was analyzed for the following:

- TPH in accordance with NWTPH-HCID
- TPH quantification using NWTPH-Gx or NWTPH-Dx, depending on the results of the NWTPH-HCID analysis
- PAHs in accordance with USEPA Method 8270E

2.2.3 Waste Disposal

Investigation-derived waste consisting of soil cuttings and decontamination water was temporarily stored in a 55-gallon drum. The drum was labeled with its contents and Terraphase's contact information.

On July 19, 2024, ACT Enviro, of Clackamas, Oregon, transported the drum for non-hazardous waste disposal at Waste Management's Hillsboro, Oregon, landfill in compliance with ODEQ/USEPA requirements.

2.3 Soil Excavation and Confirmation Sampling

The following subsections describe the soil excavation remedial action and confirmation sample collection procedures.

2.3.1 Soil Excavation

On February 26, 2025, Terraphase supervised 3Kings Environmental, Inc., of Vancouver, Washington, in the excavation of TPH impacted soil at the Site using a track-mounted, CAT 314D excavator, equipped with a 48-inch smooth bucket and a 24-inch toothed bucket. Upon arrival at the Site, a large area of ponded water was present from heavy rainfall. This area included the planned excavation area.

Therefore, prior to excavation, 3Kings Environmental, Inc. drained water away from the excavation and mounded soil around the estimated excavation footprint to prevent surface water infiltration.

Soil was excavated in the area of the former UST excavation, immediately west of the former on-site building, to remove contaminated soils remaining in the area of the former UST (Figure 2). The extent of the excavation was based on the identification of fill material (gravel) used to backfill the previous UST excavation and evidence of contaminated soils extending beyond and beneath the fill based on visual and olfactory observations and volatile organic carbon measurements using a PID. No evidence of contamination was observed in the upper 5 feet bgs during the Phase II ESA or excavation activities. This soil was likely clean backfill materials used subsequent to the original UST excavation. Therefore, soil from the upper 5 feet bgs was stockpiled, sampled, and spread on-site after the excavation had been backfilled. The final excavation was 20 feet in length (east-west), 23 feet in width (north-south), and up to 10 feet in depth bgs (Figure 2). Field notes, and photos are included in Appendix B.

On February 27 through March 1, 2025, the excavation was backfilled with quarry spalls up to 4 inches in diameter supplied by Braxling & Braxling of Tillamook, Oregon. The surface of the excavation was compacted using a plate compactor and the excavator bucket and covered with 3 to 4 inches of soil from the upper 5 feet bgs.

2.3.2 Soil Sampling

The excavated soils were examined in the field under the supervision of a Terraphase Oregon Registered Geologist. The soil was described in general accordance with the Unified Soil Classification System nomenclature and recorded in the field notes (Appendix B). The soil was screened in the field for visible (e.g., staining, sheen) or olfactory indications of contamination, and a PID was used to monitor the presence of volatile organic compounds. The PID was calibrated using isobutylene prior to use. Soil samples were collected from each sidewall of the excavation (north, west, south, and east) and from the base of the excavation (Figure 2).

Samples retained for chemical analysis were transferred from the excavator bucket to laboratory-supplied glass containers using clean, new nitrile gloves. Samples collected for analysis of TPH were placed in hermetically sealed glass vials containing methanol for sample preservation in accordance with USEPA Method 5035. Each sample was labeled with the sample ID, sample depth, and time and date of collection. Sample containers were placed in resealable plastic bags within an ice-chilled cooler immediately following collection and were delivered to Specialty Analytical Laboratory in Clackamas, Oregon, under chain-of-custody procedures. Excavation soil samples were analyzed for the following:

- TPH by NWTPH-HCID
- Benzene, ethylbenzene, toluene, and xylenes (BTEX) by USEPA Method 8260D

PAHs were planned for analysis using USEPA Method 8270E pending the results of the TPH-HCID analysis; however, no TPH was detected and, therefore, PAH analysis was not conducted.

2.3.3 Waste Disposal

Impacted excavated soil was placed on plastic sheeting and removed from the Site using a dump truck for disposal at Republic Service's Coffin Butte Landfill, in Corvallis, Oregon. Copies of the waste disposal documentation are provided as Appendix C.

2.3.4 Quality Assurance/Quality Control

One field duplicate soil sample was collected and submitted for the same analyses as the corresponding primary sample. Duplicate samples provide data to assess precision of the field sampling procedure and contract laboratory. However, variability in field duplicate sample results can be an indicator of matrix variability and heterogeneity. The soil field duplicate sample was collected from the southern sidewall of the excavation.

2.4 Screening Criteria

Soil and groundwater sample results were compared to the following screening levels as an initial screening to assess potential risk to human health and disposal requirements during redevelopment.

Soil results were compared to:

- The RBCs for the residential, occupational, and construction and excavation workers receptor scenarios for the soil ingestion, dermal contact, and inhalation pathways (ODEQ 2023), which assesses potential risk associated with direct exposure to contaminated soil.
- The RBCs for the residential and occupational receptor scenarios for the leaching to groundwater pathway (ODEQ 2023), which assesses potential risk to drinking water from contaminated soil.
- Clean fill screening levels (ODEQ 2019), which inform the necessity for off-site soil disposal.

Groundwater results were compared to:

- The RBCs for the residential and occupational receptor scenarios for the ingestion and inhalation from tap water pathway (ODEQ 2023).

Screening criteria, where established, are provided in the tables for comparison purposes.

3 Results

This Section presents the results of the 2024 UST-area investigation and confirmation soil samples collected during the 2025 remedial excavation.

3.1 Soil and Groundwater Investigation

This section summarizes the results of the Phase II ESA field investigation in the area of the former UST. Additional details provided in the Phase II ESA report are included in Appendix A.

3.1.1 Lithology and Field Observations

Encountered lithology generally consisted of silty sand to silt with sand and gravel to depths ranging from 8 to 10 feet bgs, underlain by well-graded, sandy gravel to gravelly sand to the final exploration depth (15 feet bgs). Soils encountered are consistent with the fluvial and estuarine deposits mapped at the Site (Wells et al. 1994).

Groundwater was encountered at 10 feet bgs in all borings with post-drilling static water levels of 14.98, 12.4, and 12.1 feet bgs for borings LPR-SBUST-1 through LPR-SBUST-3, respectively.

PID measurements were taken in approximately 1-foot intervals. PID measurements in borings LPR-SBUST-1 and LPR-SBUST-2 were 0.0 parts per million (ppm). PID measurements in boring LPR-SBUST-3 ranged from 1.6 to 38.2 ppm between 5.5 and 15 feet bgs, with a maximum PID reading of 38.2 ppm at 9.5 feet bgs. PID measurements in boring LPR-SBUST-3R ranged from 1.8 to 22.3 ppm between 5 and 15 feet bgs, with the maximum PID reading of 22.3 at 10 feet bgs. Hydrocarbon odor was evident in boring LPR-SBUST-3 between 5.5 and 15 feet bgs. A hydrocarbon sheen was observed on gravel surfaces between 10 and 15 feet bgs. No visual or olfactory evidence of contamination was observed in borings LPR-SBUST-1 and LPR-SBUST-2. Lithology, encountered groundwater, and PID measurements are recorded on the boring logs (Appendix A).

3.1.2 Soil Results

Analytical results from the soil samples are presented in Table 1 and on Figure 2. The complete laboratory analytical reports are included in the Phase II ESA (Appendix A). The following compounds were detected:

- **PAHs:** The PAHs 1-methylnapthalene, 2-methylnapthalene, naphthalene, phenanthrene, and pyrene were detected above laboratory reporting limits in the sample collected from boring LPR-SBUST-3, within the former UST excavation, at 8 to 10 feet bgs. All concentrations were below the respective screening levels.
- **TPH:** TPH as gasoline was detected above laboratory reporting limits in the sample collected from boring LPR-SBUST-3 at 8 to 10 feet bgs at a concentration of 1,240 milligrams per kilogram (mg/kg), which is above the ODEQ RBCs for the occupational and residential receptor scenarios for the leaching to groundwater pathway and the ODEQ clean fill screening level of 31 mg/kg. TPH as diesel was detected above laboratory reporting limits in the samples collected from boring LPR-SBUST-3, with a maximum concentration of 10,900 mg/kg at 8 to 10 feet bgs, which is above the ODEQ RBCs for the construction worker and residential receptor scenarios for the soil ingestion, dermal contact, and inhalation pathway and the ODEQ clean fill screening level of 1,100 mg/kg. TPH as motor oil was not detected above laboratory reporting limits.

The soil sample collected from boring LPR-UST-3 at 8 to 10 feet bgs was the only sample to exceed an ODEQ RBC in a construction worker scenario (TPH as diesel). The clean fill screening level exceedances of TPH as gasoline and as diesel in the former UST area indicate that impacted soil in these areas would require off-site disposal.

3.1.3 Groundwater

Analytical results from the groundwater samples are presented in Table 2. The complete laboratory analytical report is included in the 2024 Phase II ESA (Appendix A). A summary of the groundwater sampling results is provided below:

- **PAHS:** The PAHs 1-methylnaphthalene and 2-methylnaphthalene were detected above laboratory reporting limits but below the respective ODEQ RBCs in the primary and duplicate groundwater samples collected from LPR-SBUST-3 (LPR-SBUST-3-GW-14 and LPR-SBUST-3-GW-14-DUP, respectively). Naphthalene was detected at concentrations of 0.484 and 0.435 micrograms per liter (µg/L) in the primary and duplicate samples collected from boring LPR-SBUST-03, respectively, which are greater than the residential scenario, ingestion and inhalation from tap water pathway RBC, but less than the occupational scenario RBC.
- **TPHs:** TPH as gasoline, diesel, and motor oil were not detected above laboratory reporting limits.

3.2 Remedial Soil Excavation

This section summarizes the results of the remedial excavation.

3.2.1 Lithology and Field Observations

Encountered lithology was generally consistent with that encountered during the Phase II ESA and consisted of silty sand to sandy silt to depths ranging from 7 to 8 feet bgs, silty sand with gravel to a depth of approximately 10 feet bgs, and silty gravel with sand to the final excavation depth of 10.5 feet bgs. Groundwater was encountered at 8 feet bgs during excavation activities and was observed at 4 feet bgs following completion of the excavation. Groundwater was observed to move vertically through the sandy silt at approximately 5 feet bgs under a difference in hydrostatic head.

A hydrocarbon odor and sheen were evident in soil between approximately 5 and 9 feet bgs. The excavation was extended in all directions until no visual or olfactory evidence of contamination was observed. PID measurements of soil collected for chemical analysis ranged from 0.3 to 1.6 ppm. Field observations are included as Appendix B.

3.2.2 Soil Results

Analytical results from soil samples are presented in Table 1 and on Figure 2. The complete laboratory analytical reports are included as Appendix D. TPH as gasoline, mineral spirits, kerosene, diesel, lube oil, and hydraulic oil and BTEX were not detected above laboratory reporting limits.

3.2.3 Quality Assurance/Quality Control Results

The laboratory analyses were reviewed by Terraphase as a check of overall quality. The data quality check process included a review of chain-of-custody forms, holding times, laboratory analytical reports, method blanks, surrogate recoveries, matrix spike, matrix spike duplicates, and method detection limits.

The laboratory data validation reports are included as Appendix E. Quality Assurance /Quality Control information to note includes the following:

- All data are considered usable and support the remedial action objectives.
- No laboratory flags related to laboratory quality control issues were reported.
- No compounds were detected in the trip blank or the equipment blank.

4 Beneficial Water Use Determination

Terraphase conducted a streamlined beneficial water use determination in general accordance with state guidance (ODEQ 2017) to assess groundwater use at the Site. For purposes of the beneficial use determination, the locality of the facility is considered the Site.

4.1.1 Drinking Water Supply

The Long Prairie Water District, which purchases all water from the City of Tillamook, supplies drinking water to the surrounding areas. Drinking water is not supplied to the Site as it is undeveloped. According to the Phase I ESA completed by PBS in 2005, a water well may be present west of the former radio transmission building. Additionally, a search for water-supply wells located at the Site using (OWRD's online well query tool[5] indicates an irrigation well was installed at or adjacent to the Site in 1968 to a depth of 145 feet bgs, and screened from 30 to 140 feet bgs. However, the specific location of the well is unknown, and Terraphase did not observe evidence of a water well at the Site and it is likely to have been abandoned.

4.1.2 Well Survey

Terraphase conducted a search for water-supply wells located within a 1-mile radius of the Site using the OWRD's online well query tool. Seventeen water wells were listed with depths between 12 and 305 feet bgs. The wells were installed between 1952 and 2022, and are listed as domestic, irrigation, livestock, or municipal (Figure 1; Appendix F). All wells are more than 0.25 miles from the Site,[6] except for one domestic water well estimated to be approximately 0.2 miles west of the Site and one irrigation well estimated to be at or immediately adjacent to the Site. Each well has a surface seal between 18 and 48 feet thick. One well log for a well approximately 0.60 miles north of the Site does not describe a well seal.

[5] https://apps.wrd.state.or.us/apps/gw/wl_well_report_map/Default.aspx

[6] All well locations are based on the OWRD mapping system, which maps each well at the center of its respective PLSS section as listed on the well log and therefore, are considered estimated. Some well logs provide additional details of the location of the well, and these well locations were adjusted accordingly, as shown in Figure 1.

4.1.3 Water Rights

According to the OWRD's Water Rights Information page,[7] no water rights permits are associated with the Site. Water rights are held by Hans Leuthold (Irrigation), Fritz and Harriette Baumgartner (Irrigation), and Margaret Braden (Irrigation), with points of diversion along Mill Creek northwest (downstream) of the Site, near the confluence of Mill Creek and the Trask River. Water rights are held by Deney Flatz (Irrigation), Gillian Smith (Irrigation), Ed Grossen & Son (Irrigation), and the Long Prairie Water Company (Domestic), with points of diversion along Mill Creek southeast (upstream) of the Site. Water rights are held by Jack Barker with a point of diversion along the Trask River northwest of the Site, approximately 0.5 miles upstream of the confluence of Mill Creek and the Trask River.

4.1.4 Development Trends and Patterns

The Site is zoned general industrial (Tillamook County Land Use Ordinance [LUO] M-1[8]), which precludes residential use except for residences associated with a Site watchman or a temporary mobile home during construction. The adjacent property to the south of Mill Creek is zoned for recreation (LUO RM). Properties to the east of Brickyard Road and north of Long Prairie Road are zoned for rural residential (LUO RR-2), agricultural use (LUO F-1), small forest use (SFW-20).

The Site is located outside of the City of Tillamook's Urban Growth Boundary (UGB). According to the 2012 Tillamook Comprehensive Plan,[9] regional development, particularly in these areas outside of the UGB, is dominated by agricultural and industrial use, including dairy (e.g., the Tillamook Creamery Association), timber production, and government services (e.g., the Naval Air Station at the Port). Historically, large public works projects, such as the Naval Air Station in the 1940s and the construction of the US Coast Highway 101 in the 1960s, have influenced the region's economy.

The current population of the City of Tillamook is approximately 5,196 people.[10] The city forecasts an approximately 22 percent increase in population over the city's population in 2010 by 2030. Residential and commercial developments are to be focused on areas within the UGB, whereas agricultural and industrial developments are to be focused in areas outside of the UGB. Current land use includes agricultural, residential, and industrial development along Long Prairie Road. Residential properties are located along Brickyard Road and Long Prairie Road adjacent to the Site.

4.1.5 Surface Water Recharge

The Site is approximately 0.25 miles northeast of Mill Creek, a tributary of the Trask River. An Oregon Department of State Lands delineated wetland is located between the Site and Mill Creek.[11] Shallow

[7] https://apps.wrd.state.or.us/apps/gis/wr/Default.aspx?snp_id=82302

[8] https://www.tillamookcounty.gov/commdev/page/land-use-ordinance-luo-zoning-ordinance

[9] https://www.tillamookor.gov/council/page/comprehensive-plan

[10] https://www.census.gov/quickfacts/fact/table/tillamookcityoregon,US/PST045224

[11] https://maps.dsl.state.or.us/swi/

groundwater likely discharges to the wetland and/or Mill Creek. Although no state delineated wetlands are present on the Site, ponded surface water was observed between the former building area and Long Prairie Road. The Trask River flows into Tillamook Bay, approximately 6.5 miles northwest of the Site. The Trask River is reportedly "fresh" at the Site, with salinity less than 1 part per thousand (OAR 141-85-264).[12] The brackish-freshwater interface and the head of the tide are located approximately 5 miles and 1 mile downstream from the confluence of Mill Creek and the Trask River near the Site, respectively. At the brackish-freshwater interface, measured salinity is between 2 and 13 parts per thousand. Based on potential salinity and the presence of extensive agricultural development with surface water that discharges to the Trask River and the Mill Creek, it is unlikely the river or creek are used as drinking water sources downstream of the Site. One water rights point of diversion is depicted between the Site and the confluence of the Mill Creek and the Trask River. The point of diversion is permitted for the irrigation of 23.3 acres and limits the amount of water to be used to no more than 0.055 cubic feet per second per acre.

4.1.6 Summary

Terraphase did not identify past, current, or future use of the shallow groundwater at the Site as drinking water. The closest domestic water supply well is more than 0.25 miles from the locality of the facility. Shallow groundwater likely flows to the southwest toward the wetland and Mill Creek, where it discharges and flows to the Trask River. Therefore, shallow groundwater has beneficial ecological use.

5 Risk Screening Evaluation

The following sections describe a conceptual understanding of the nature of contamination at the Site and its potential to cause adverse risk to human and ecological health. Figure 3 presents a conceptual site model of complete, potentially complete, and incomplete pathways for contaminant exposure.

5.1 Soil

The former UST leaked TPH to the subsurface sometime after its likely installation in the 1940s to its removal in 2006. Released fuel oil infiltrated surrounding silty sand and sandy silt between 5 and 10 feet bgs. In 2006, the UST and some of the impacted soil was removed. In July 2024, soil samples in the former UST area confirmed that TPH-impacted soil remained in the area of the former UST.

As TPH impacts were limited to subsurface soil (greater than 5 feet bgs), potentially complete pathways for soil were limited to soil leaching to groundwater and construction and excavation worker exposure in an excavation.

[12] "Salinity Data and Maps," OAR 141-85-264, https://www.oregon.gov/dsl/wetlands-waters/Documents/salinity_maps.pdf.

In February 2025, soil at the Site with concentrations of TPH above the ODEQ RBCs was removed. All of the post-excavation base and sidewall samples were non-detect for all constituents analyzed. Therefore, there is no remaining risk associated with TPH-impacted soil at the Site.

5.2 Groundwater

Shallow groundwater at the Site is not used for drinking water; however, it likely flows to wetland systems and discharges to wetlands and/or Mill Creek. Potentially complete exposure pathways include groundwater and surface water root uptake for plants and dermal contact, ingestion, and inhalation of surface water by invertebrates, birds, mammals, and aquatic life after the groundwater has discharged to surface water (Figure 3).

Pre-remedial excavation groundwater samples collected at the Site in July 2024 did not have detected concentrations of TPH. The primary and duplicate sample collected from boring LPR-SBUST-03 had detected concentrations of 1-methylnaphthalene, 2-methlynaphthalene, and naphthalene above the laboratory reporting limits. The ODEQ freshwater chronic ecological RBCs for these compounds are 6.1, 4.7, and 21 µg/L, respectively, which are one to two orders of magnitude higher than the maximum detected concentrations of 0.515, 0.414, and 0.484 µg/L, respectively. The concentration of naphthalene was above the residential scenario RBC for the ingestion and inhalation from tap water pathway; however, drinking water is not considered a complete pathway. In addition, the impacted soil, which was acting as a potential source for the groundwater contamination, has been removed and any residual contamination will attenuate. Therefore, the groundwater impacts do not represent a current or future risk to human health or the environment.

6 Conclusions

On May 23, 2024, Terraphase conducted a Phase II ESA at the Site consisting of the collection of soil and groundwater samples in the area of a former UST used to store heating oil. On February 26 through March 1, 2025, Terraphase performed a remedial excavation at the Site consisting of the excavation of remaining TPH impacted soils and collection of confirmation soil samples. The following conclusions are presented:

- **Geology:** The lithology encountered consisted of silty sand to sandy silt to depths ranging from 7 to 8 feet bgs, silty sand with gravel to a depth of approximately 10 feet bgs, and silty gravel with sand to the final excavation depth of 15 feet bgs, the deepest depth investigated.
- **Hydrogeology:** Groundwater was encountered at approximately 8 feet bgs during excavation activities, with post-excavation static water levels at approximately 4 feet bgs. During the Phase II ESA, groundwater was encountered at 10 feet bgs in all borings with post-drilling static water levels ranging from 12.1 to 15 feet bgs.
- **Beneficial Use of Shallow Groundwater:** Shallow groundwater likely discharges to Mill Creek, and ultimately the Trask River, and therefore has beneficial ecological use. No other beneficial use was determined. Drinking water within the vicinity of the Site is supplied by municipal water (Long

Prairie Water District) and irrigation water is provided by surface water diversion. Therefore, drinking water is not considered a complete exposure pathway.

- **Ecological or Human Health Risk**:
  - **Soil:** All TPH-impacted soils were removed from the Site. No TPH or BTEX were detected in confirmatory soil samples. Therefore, there is no remaining risk to human health or the environment associated with the former UST.
  - **Groundwater:** 1-methylnaphthalene, 2-methlynaphthalene, and naphthalene were detected in groundwater samples above laboratory reporting limits, but below applicable ecological screening levels. As drinking water is not considered a complete pathway for shallow groundwater at the Site, there are no current or future ecological or human health risks associated with groundwater.

7 Recommendations

No further remedial action or characterization is recommended for the Site and full NFA should be granted by the ODEQ.

8 Limitations

This document was prepared for the sole use of the Port of Tillamook Bay, and their successors and assignees, for specific application to the Site. No other party should rely on the information contained herein without the prior written consent of Terraphase and the Port of Tillamook Bay.

Recommendations or conclusions made by Terraphase are based on our research, inspections, and field work. It is important to recognize that even the most comprehensive scope of services may fail to detect environmental liabilities on a particular site. Therefore, Terraphase cannot "certify" that a site is free of environmental contamination. No expressed or implied representation or warranty is included or intended in our reports, except that our services were performed as described by our scope of services in accordance with the standard of care of our profession. Additionally, subsurface conditions will vary between exploration locations, perhaps significantly. The impacts of future events may require further investigation of the Site and subsequent data analysis along with revision of recommendations or conclusions.

9 References

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Tables

Table 1
Soil Analytical Results
Remedial Action Report
7285 Long Prairie Road Property

				TPH						PAH										
				Kerosene	TPH as Hydraulic Oil	TPH as Gasoline	TPH as Diesel	TPH as Motor Oil	Lube Oil	Mineral Spirits	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene
Location Code	**Field ID**	**Sample Depth (ft-bgs)**	**Date**	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
ODEQ Clean Fill (Coast Range Province)				-	-	31	1,100	2,500	-	-	0.36	11	0.25	120	6.8	0.73	0.11	1.1	25	11	3.1
ODEQ RBC - 2023 - Soil - Ingestion, Dermal Contact, and Inhalation - Construction Worker				-	-	9,700	4,600	11,000	-	-	-	-	21,000	-	110,000	170	17	170	-	1,700	17,000
ODEQ RBC - 2023 - Soil - Ingestion, Dermal Contact, and Inhalation - Excavation Worker				-	-	-	-	-	-	-	-	-	*590,000*	-	-	*4,800*	*490*	*4,900*	-	*49,000*	*490,000*
ODEQ RBC - 2023 - Soil - Ingestion, Dermal Contact, and Inhalation - Occupational				-	-	20,000	14,000	36,000	-	-	-	-	70,000	-	350,000	21	2.1	21	-	210	2,100
ODEQ RBC - 2023 - Soil - Ingestion, Dermal Contact, and Inhalation - Residential				-	-	1,200	1,100	-	-	-	-	-	4,700	-	23,000	1.1	0.11	1.1	-	11	110
ODEQ RBC - 2023 - Soil - Leaching to GW - Occupational				-	-	130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ODEQ RBC - 2023 - Soil - Leaching to GW - Residential				-	-	31	9,500	-	-	-	-	-	-	-	-	1.6	4.4	-	-	-	-
BASE-1	BASE1-EXC-10.0	10	02/26/2025	<75	<150	<30	<75	-	<150	<30	-	-	-	-	-	-	-	-	-	-	-
BASE-2	BASE2-EXC-10.0	10	02/26/2025	<66.3	<133	<26.5	<66.3	-	<133	<26.5	-	-	-	-	-	-	-	-	-	-	-
E-EXC	E-EXC-9.0	9	02/26/2025	<68.4	<137	<27.4	<68.4	-	<137	<27.4	-	-	-	-	-	-	-	-	-	-	-
N-EXC	N-EXC-9.0	9	02/26/2025	<67.4	<135	<27	<67.4	-	<135	<27	-	-	-	-	-	-	-	-	-	-	-
S-EXC	S-EXC-8.0	8	02/26/2025	<70.7	<141	<28.3	<70.7	-	<141	<28.3	-	-	-	-	-	-	-	-	-	-	-
	S-EXC-8.0-DUP	8	02/26/2025	<73	<146	<29.2	<73	-	<146	<29.2	-	-	-	-	-	-	-	-	-	-	-
W-EXC	W-EXC-9.0	9	02/26/2025	<74.9	<150	<29.9	<74.9	-	<150	<29.9	-	-	-	-	-	-	-	-	-	-	-
Stockpile	Stockpile-0-5	0 - 5	02/26/2025	<73.3	<147	<29.3	<73.3	-	<147	<29.3	-	-	-	-	-	-	-	-	-	-	-
LPR-SBUST-01	LPR-SBUST-1-5.0-7.5	5 - 7.5	05/20/2024	-	-	<26.7	<66.7	<133	-	-	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127
	LPR-SBUST-1-7.5-10.0	7.5 - 10	05/20/2024	-	-	<26.5	<66.3	<133	-	-	<0.0113	<0.0113	<0.0113	<0.0113	<0.0113	<0.0113	<0.0113	<0.0113	<0.0113	<0.0113	<0.0113
LPR-SBUST-02	LPR-SBUST-2-5.0-7.5	5 - 7.5	05/20/2024	-	-	<26.5	<66.3	<133	-	-	<0.0119	<0.0119	<0.0119	<0.0119	<0.0119	<0.0119	<0.0119	<0.0119	<0.0119	<0.0119	<0.0119
	LPR-SBUST-2-7.5-10.0	7.5 - 10	05/20/2024	-	-	<26.6	<66.5	<133	-	-	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126
LPR-SBUST-03	LPR-SBUST-3-5.0-8.0	5 - 8	05/20/2024	-	-	<28.2	**2,900 F-11**	<49.6	-	-	<0.0127	<0.0127	<0.0127	<0.0305	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<0.0356
	LPR-SBUST-3-5.0-8.0-DUP	5 - 8	05/20/2024	-	-	<26.2	**2,010**	<50.2	-	-	<0.0121	<0.0121	<0.0121	<0.0121	<0.0121	<0.0121	<0.0121	<0.0121	<0.0121	<0.0121	<0.0121
	LPR-SBUST-3-8-10	8 - 10	05/20/2024	-	-	**1,240 D**	**10,900 D**	<132	-	-	**0.0850**	**0.101**	<0.0124	<0.0334	<0.0124	<0.0508	<0.0124	<0.0124	<0.0124	<0.0124	<0.0557

Notes:
Detected concentrations are **bold-faced**
- = Not analyzed/Not available
< = analyte not detected at or above laboratory reporting limit
D = Reported result is from a dilution
F-03 = The result for this hydrocarbon range is elevated due to the presence of individual analyte peaks in the quantitation range that are not representative of the fuel pattern reported.
F-11 = The hydrocarbon pattern indicates possible weathered diesel, mineral oil, or a contribution from a related component.
ft-bgs = feet below ground surface
M-04 = Due to matrix interference, this analyte cannot be accurately quantified. The reported result may contain a high bias.
M-05 = Estimated results. Peak separation for structural isomers is insufficient for accurate quantification.
mg/kg= milligrams per kilogram
ODEQ = Oregon Department of Environmental Quality
RBC = Risk-Based Concentration

Table 1
Soil Analytical Results
Remedial Action Report
7285 Long Prairie Road Property

				PAH								VOC					
				Dibenz(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Xylenes (Total)
Location Code	**Field ID**	**Sample Depth (ft-bgs)**	**Date**	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
ODEQ Clean Fill (Coast Range Province)				0.11	0.002	10	3.7	1.1	0.077	5.5	10	0.023	0.22	23	-	1	-
ODEQ RBC - 2023 - Soil - Ingestion, Dermal Contact, and Inhalation - Construction Worker				17	-	10,000	14,000	170	580	-	7,500	380	1,700	28,000	-	-	20,000
ODEQ RBC - 2023 - Soil - Ingestion, Dermal Contact, and Inhalation - Excavation Worker				*490*	-	*280,000*	*390,000*	*4,900*	*16,000*	-	*210,000*	*11,000*	*49,000*	*770,000*	-	-	*560,000*
ODEQ RBC - 2023 - Soil - Ingestion, Dermal Contact, and Inhalation - Occupational				2.1	-	30,000	47,000	21	23	-	23,000	37	150	88,000	-	-	25,000
ODEQ RBC - 2023 - Soil - Ingestion, Dermal Contact, and Inhalation - Residential				0.11	-	2,400	3,100	1.1	5.3	-	1,800	8.2	34	5,800	-	-	1,400
ODEQ RBC - 2023 - Soil - Leaching to GW - Occupational				-	-	-	-	-	0.34	-	-	0.1	0.9	490	-	-	100
ODEQ RBC - 2023 - Soil - Leaching to GW - Residential				-	-	-	-	-	0.077	-	-	0.023	0.22	84	-	-	23
BASE-1	BASE1-EXC-10.0	10	02/26/2025	-	-	-	-	-	-	-	-	<0.0979	<0.0979	<0.0979	<0.196	<0.0979	<0.196
BASE-2	BASE2-EXC-10.0	10	02/26/2025	-	-	-	-	-	-	-	-	<0.0853	<0.0853	<0.0853	<0.171	<0.0853	<0.171
E-EXC	E-EXC-9.0	9	02/26/2025	-	-	-	-	-	-	-	-	<0.0893	<0.0893	<0.0893	<0.179	<0.0893	<0.179
N-EXC	N-EXC-9.0	9	02/26/2025	-	-	-	-	-	-	-	-	<0.0831	<0.0831	<0.0831	<0.166	<0.0831	<0.166
S-EXC	S-EXC-8.0	8	02/26/2025	-	-	-	-	-	-	-	-	<0.0936	<0.0936	<0.0936	<0.187	<0.0936	<0.187
	S-EXC-8.0-DUP	8	02/26/2025	-	-	-	-	-	-	-	-	<0.0854	<0.0854	<0.0854	<0.171	<0.0854	<0.171
W-EXC	W-EXC-9.0	9	02/26/2025	-	-	-	-	-	-	-	-	<0.0999	<0.0999	<0.0999	<0.2	<0.0999	<0.2
Stockpile	Stockpile-0-5	0 - 5	02/26/2025	-	-	-	-	-	-	-	-	<0.0968	<0.0968	<0.0968	<0.194	<0.0968	<0.194
LPR-SBUST-01	LPR-SBUST-1-5.0-7.5	5 - 7.5	05/20/2024	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	-	-	-	-	-	-
	LPR-SBUST-1-7.5-10.0	7.5 - 10	05/20/2024	<0.0113	<0.0113	<0.0113	<0.0113	<0.0113	<0.0113	<0.0113	<0.0113	-	-	-	-	-	-
LPR-SBUST-02	LPR-SBUST-2-5.0-7.5	5 - 7.5	05/20/2024	<0.0119	<0.0119	<0.0119	<0.0119	<0.0119	<0.0119	<0.0119	<0.0119	-	-	-	-	-	-
	LPR-SBUST-2-7.5-10.0	7.5 - 10	05/20/2024	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	-	-	-	-	-	-
LPR-SBUST-03	LPR-SBUST-3-5.0-8.0	5 - 8	05/20/2024	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<0.0356	<0.0127	-	-	-	-	-	-
	LPR-SBUST-3-5.0-8.0-DUP	5 - 8	05/20/2024	<0.0121	<0.0121	<0.0121	<0.0121	<0.0121	<0.0121	<0.0121	<0.0121	-	-	-	-	-	-
	LPR-SBUST-3-8-10	8 - 10	05/20/2024	<0.0124	<0.0470	<0.0124	<0.0186	<0.0124	**0.0684 M-04**	**0.0668**	**0.0251**	-	-	-	-	-	-

Notes:
Detected concentrations are **bold-faced**
- = Not analyzed/Not available
< = analyte not detected at or above laboratory reporting limit
D = Reported result is from a dilution
F-03 = The result for this hydrocarbon range is elevated due to the presence of individual
an F-11 = The hydrocarbon pattern indicates possible weathered diesel, mineral oil, or a
contr ft-bgs = feet below ground surface
M-04 = Due to matrix interference, this analyte cannot be accurately quantified. The report
M-05 = Estimated results. Peak separation for structural isomers is insufficient for accurate
mg/kg= milligrams per kilogram
ODEQ = Oregon Department of Environmental Quality
RBC = Risk-Based Concentration

Table 2
Groundwater Analytical Results
Remedial Action Report
7285 Long Prairie Road Property

				TPH			PAH												
				TPH as Gasoline	TPH as Diesel	TPH as Motor Oil	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene
Location Code	**Field ID**	**Sample Depth (ft-bgs)**	**Date**	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
ODEQ RBC - 2023 - GW - GW in Excavation - Construction Worker and Excavation Worker				*14,000*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ODEQ RBC - 2023 - GW - Ingestion and Inhalation from Tapwater - Occupational				450	430	-	-	-	2,500	-	-	0.38	0.47	-	-	-	-	0.47	-
ODEQ RBC - 2023 - GW - Ingestion and Inhalation from Tapwater - Residential				110	100	-	-	-	510	-	-	0.03	0.025	0.25	-	-	-	0.025	-
LPR-SBUST-01	LPR-SBUST-1-GW-10-15	10 - 15	05/20/2024	<125	<312	<312	<0.110	<0.110	<0.0548	<0.0548	<0.0548	<0.0548	<0.0548	<0.0548	<0.0548	<0.0548	<0.0548	<0.0548	<0.0548
LPR-SBUST-02	LPR-SBUST-2-GW-10-15	10 - 15	05/20/2024	<103	<258	<258	<0.0870	<0.0870	<0.0435	<0.0435	<0.0435	<0.0435	<0.0435	<0.0435	<0.0435	<0.0435	<0.0435	<0.0435	<0.0435
LPR-SBUST-03	LPR-SBUST-3-GW-14	14 - 19	05/20/2024	<93.5	<187	<234	**0.440**	**0.515**	<0.0476	<0.0476	<0.0476	<0.0476	<0.0476	<0.0476	<0.0476	<0.0476	<0.0476	<0.0476	<0.0476
	LPR-SBUST-3-GW-14-DUP	14 - 19	05/20/2024	<114	<284	<284	**0.398**	**0.414**	<0.0444	<0.0444	<0.0444	<0.0444	<0.0444	<0.0444	<0.0444	<0.0444	<0.0444	<0.0444	<0.0444

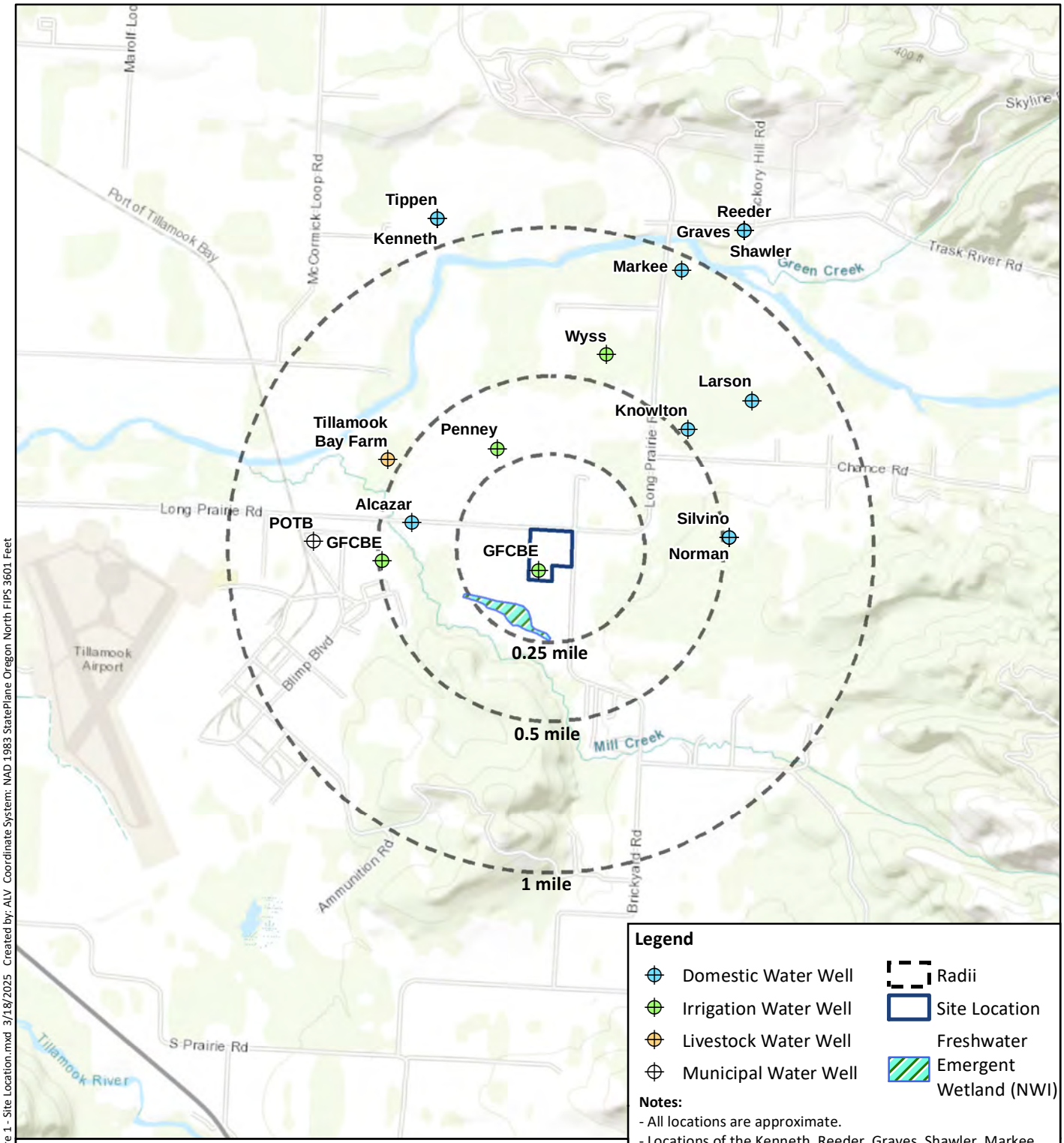
Notes:
Detected concentrations are **bold-faced**
µg/L= micrograms per Liter
- = Not available
< = analyte not detected at or above laboratory reporting limit
ft-bgs = feet below ground surface
ODEQ = Oregon Department of Environmental Quality
RBC = Risk-Based Concentration

Table 2
Groundwater Analytical Results
Remedial Action Report
7285 Long Prairie Road Property

				PAH				SVOC	VOC
				Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Dibenzofuran	Naphthalene
Location Code	**Field ID**	**Sample Depth (ft-bgs)**	**Date**	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
ODEQ RBC - 2023 - GW - GW in Excavation - Construction Worker and Excavation Worker				-	-	-	-	-	*500*
ODEQ RBC - 2023 - GW - Ingestion and Inhalation from Tapwater - Occupational				1,300	-	-	-	-	0.72
ODEQ RBC - 2023 - GW - Ingestion and Inhalation from Tapwater - Residential				280	-	-	110	-	0.17
LPR-SBUST-01	LPR-SBUST-1-GW-10-15	10 - 15	05/20/2024	<0.0548	<0.0548	<0.0548	<0.0548	<0.0548	<0.110
LPR-SBUST-02	LPR-SBUST-2-GW-10-15	10 - 15	05/20/2024	<0.0435	<0.0435	<0.0435	<0.0435	<0.0435	<0.0870
LPR-SBUST-03	LPR-SBUST-3-GW-14	14 - 19	05/20/2024	<0.0476	<0.0476	<0.0476	<0.0476	<0.0476	**0.484**
	LPR-SBUST-3-GW-14-DUP	14 - 19	05/20/2024	<0.0444	<0.0444	<0.0444	<0.0444	<0.0444	**0.435**

Notes:
Detected concentrations are **bold-faced**
µg/L= micrograms per Liter
- = Not available
< = analyte not detected at or above laboratory reporting limit
ft-bgs = feet below ground surface
ODEQ = Oregon Department of Environmental Quality
RBC = Risk-Based Concentration

Figures



Legend

- Domestic Water Well
- Irrigation Water Well
- Livestock Water Well
- Municipal Water Well
- Radii
- Site Location
- Freshwater Emergent Wetland (NWI)

Notes:

- All locations are approximate.
- Locations of the Kenneth, Reeder, Graves, Shawler, Markee, Tippen, Silvino, Norman, Alcazar, and the two General Foods Corp. Birds Eye (GFCBE) wells are based on the OWRD mapping system, which maps these wells at the center of their respective PLSS section.

Base Map: ESRI World Topographic Map
(data providers include HERE, Garmin, USGS, et al.)

0 2,500 5,000 Feet

1 inch = 2,500 feet

N

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CLIENT: Port of Tillamook Bay

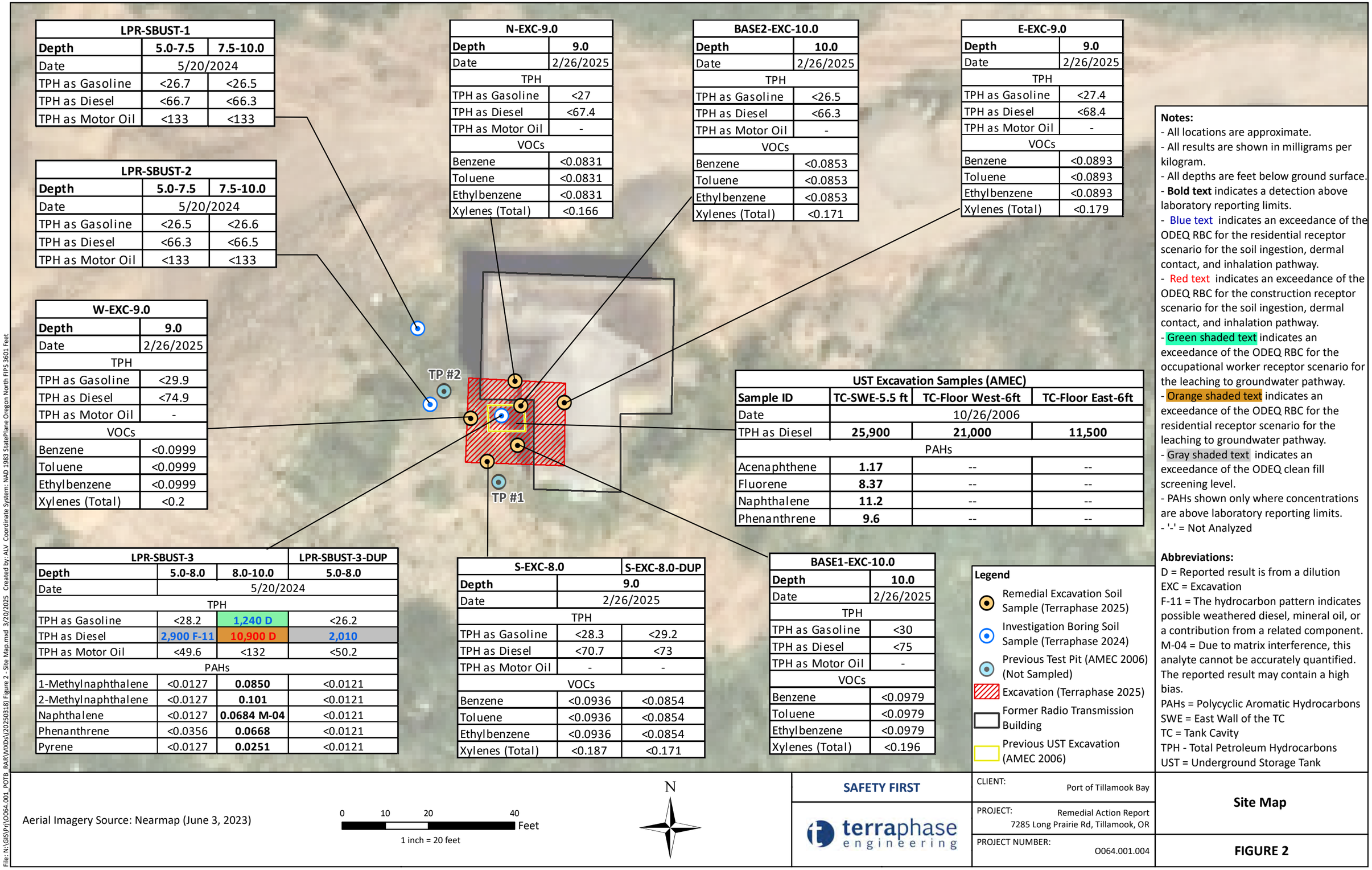
PROJECT: Remedial Action Report
7285 Long Prairie Rd, Tillamook, OR

PROJECT NUMBER: O064.001.004

Site Location

FIGURE 1

File: N:\GIS\Prj\O064.001_POTB_RAR\MXDs\(20250318) Figure 1 - Site Location.mxd 3/18/2025 Created by: ALV Coordinate System: NAD 1983 StatePlane Oregon North FIPS 3601 Feet



LPR-SBUST-1		
Depth	**5.0-7.5**	**7.5-10.0**
Date	5/20/2024	
TPH as Gasoline	<26.7	<26.5
TPH as Diesel	<66.7	<66.3
TPH as Motor Oil	<133	<133

LPR-SBUST-2		
Depth	**5.0-7.5**	**7.5-10.0**
Date	5/20/2024	
TPH as Gasoline	<26.5	<26.6
TPH as Diesel	<66.3	<66.5
TPH as Motor Oil	<133	<133

W-EXC-9.0	
Depth	**9.0**
Date	2/26/2025
TPH	
TPH as Gasoline	<29.9
TPH as Diesel	<74.9
TPH as Motor Oil	-
VOCs	
Benzene	<0.0999
Toluene	<0.0999
Ethylbenzene	<0.0999
Xylenes (Total)	<0.2

N-EXC-9.0	
Depth	**9.0**
Date	2/26/2025
TPH	
TPH as Gasoline	<27
TPH as Diesel	<67.4
TPH as Motor Oil	-
VOCs	
Benzene	<0.0831
Toluene	<0.0831
Ethylbenzene	<0.0831
Xylenes (Total)	<0.166

BASE2-EXC-10.0	
Depth	**10.0**
Date	2/26/2025
TPH	
TPH as Gasoline	<26.5
TPH as Diesel	<66.3
TPH as Motor Oil	-
VOCs	
Benzene	<0.0853
Toluene	<0.0853
Ethylbenzene	<0.0853
Xylenes (Total)	<0.171

E-EXC-9.0	
Depth	**9.0**
Date	2/26/2025
TPH	
TPH as Gasoline	<27.4
TPH as Diesel	<68.4
TPH as Motor Oil	-
VOCs	
Benzene	<0.0893
Toluene	<0.0893
Ethylbenzene	<0.0893
Xylenes (Total)	<0.179

TP #2

TP #1

UST Excavation Samples (AMEC)			
Sample ID	**TC-SWE-5.5 ft**	**TC-Floor West-6ft**	**TC-Floor East-6ft**
Date	10/26/2006		
TPH as Diesel	**25,900**	**21,000**	**11,500**
PAHs			
Acenaphthene	**1.17**	--	--
Fluorene	**8.37**	--	--
Naphthalene	**11.2**	--	--
Phenanthrene	**9.6**	--	--

LPR-SBUST-3			LPR-SBUST-3-DUP
Depth	**5.0-8.0**	**8.0-10.0**	**5.0-8.0**
Date	5/20/2024		
TPH			
TPH as Gasoline	<28.2	1,240 D	<26.2
TPH as Diesel	2,900 F-11	10,900 D	2,010
TPH as Motor Oil	<49.6	<132	<50.2
PAHs			
1-Methylnaphthalene	<0.0127	**0.0850**	<0.0121
2-Methylnaphthalene	<0.0127	**0.101**	<0.0121
Naphthalene	<0.0127	**0.0684 M-04**	<0.0121
Phenanthrene	<0.0356	**0.0668**	<0.0121
Pyrene	<0.0127	**0.0251**	<0.0121

S-EXC-8.0		S-EXC-8.0-DUP
Depth	**9.0**	
Date	2/26/2025	
TPH		
TPH as Gasoline	<28.3	<29.2
TPH as Diesel	<70.7	<73
TPH as Motor Oil	-	-
VOCs		
Benzene	<0.0936	<0.0854
Toluene	<0.0936	<0.0854
Ethylbenzene	<0.0936	<0.0854
Xylenes (Total)	<0.187	<0.171

BASE1-EXC-10.0	
Depth	**10.0**
Date	2/26/2025
TPH	
TPH as Gasoline	<30
TPH as Diesel	<75
TPH as Motor Oil	-
VOCs	
Benzene	<0.0979
Toluene	<0.0979
Ethylbenzene	<0.0979
Xylenes (Total)	<0.196

Legend

- Remedial Excavation Soil Sample (Terraphase 2025)
- Investigation Boring Soil Sample (Terraphase 2024)
- Previous Test Pit (AMEC 2006) (Not Sampled)
- Excavation (Terraphase 2025)
- Former Radio Transmission Building
- Previous UST Excavation (AMEC 2006)

Notes:

- All locations are approximate.
- All results are shown in milligrams per kilogram.
- All depths are feet below ground surface.
- **Bold text** indicates a detection above laboratory reporting limits.
- Blue text indicates an exceedance of the ODEQ RBC for the residential receptor scenario for the soil ingestion, dermal contact, and inhalation pathway.
- Red text indicates an exceedance of the ODEQ RBC for the construction receptor scenario for the soil ingestion, dermal contact, and inhalation pathway.
- Green shaded text indicates an exceedance of the ODEQ RBC for the occupational worker receptor scenario for the leaching to groundwater pathway.
- Orange shaded text indicates an exceedance of the ODEQ RBC for the residential receptor scenario for the leaching to groundwater pathway.
- Gray shaded text indicates an exceedance of the ODEQ clean fill screening level.
- PAHs shown only where concentrations are above laboratory reporting limits.
- '-' = Not Analyzed

Abbreviations:

D = Reported result is from a dilution
EXC = Excavation
F-11 = The hydrocarbon pattern indicates possible weathered diesel, mineral oil, or a contribution from a related component.
M-04 = Due to matrix interference, this analyte cannot be accurately quantified. The reported result may contain a high bias.
PAHs = Polycyclic Aromatic Hydrocarbons
SWE = East Wall of the TC
TC = Tank Cavity
TPH - Total Petroleum Hydrocarbons
UST = Underground Storage Tank

Aerial Imagery Source: Nearmap (June 3, 2023)

0 10 20 40 Feet

1 inch = 20 feet

N

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CLIENT: Port of Tillamook Bay

PROJECT: Remedial Action Report
7285 Long Prairie Rd, Tillamook, OR

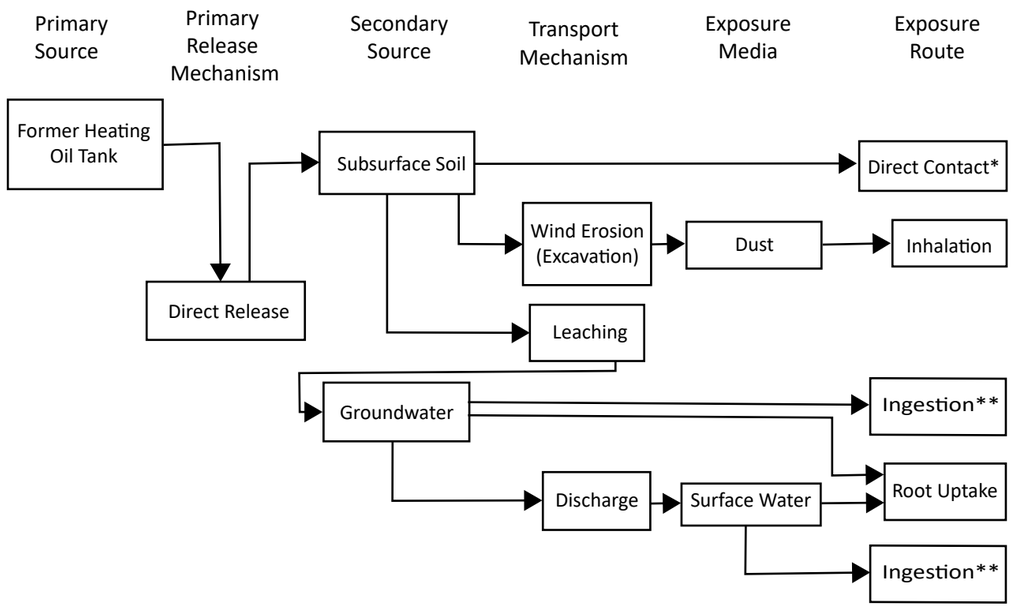
PROJECT NUMBER: O064.001.004

Site Map

FIGURE 2

File: N:\GIS\Prj\O064.001_POTB_RAR\MXDs\(20250318) Figure 2 - Site Map.mxd 3/20/2025 Created by: ALV Coordinate System: NAD 1983 StatePlane Oregon North FIPS 3601 Feet

Pathways



Receptors

Residential		Occupational		Construction/ Excaavation Worker		Trespasser		Plants		Invertebrates		Birds		Mammals		Aquatic Life	
—	—	—	—	—	○	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	○	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	○	○	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	○	○	○	○	○	○	○	○
Current	Future	Current	Future	Current	Future	Current	Future	Current	Future	Current	Future	Current	Future	Current	Future	Current	Future

Notes:

* "Direct Contact" includes incidential ingestion, dermal contact, and inhalation from soil.

** "Ingestion" includes dermal contact and inhalation from tap water or surface water.

○ Potentially complete pathway

— Incomplete pathway

SAFETY FIRST	CLIENT: Port of Tillamook Bay	**Conceptual Site Model**
terraphase engineering	PROJECT: Remedial Action Report 7285 Long Prairie Road, Tillamook, OR	
	PROJECT NUMBER: O064.001.004	**FIGURE 3**

Appendix A

Prior Reports

ORIGINAL

amec

SOIL SAMPLING AND UNDERGROUND STORAGE TANK DECOMMISSIONING REPORT

Tillamook Bay Industrial Site K1-K8 (#100062)
Highway 101 at Tillamook Airport
Tillamook, Oregon 97141
OECDD Contract No.C2006067

Submitted to:

Oregon Economic and Community Development Department
775 Summer Street NE, Suite 200
Salem, Oregon 97301-1284

For:

Port of Tillamook Bay
4000 Blimp Boulevard
Tillamook, Oregon 97141

Submitted by:

AMEC Earth & Environmental, Inc.
7376 S.W. Durham Road
Portland, Oregon 97224

May 2007

6-61M-115850

May 23, 2007

6-61M-115850

Ms. Karen Homolac
Oregon Economic and Community Development Department
775 Summer Street NE, Suite 200
Salem, Oregon 97301-1284

Dear Ms. Homolac:

Re: Soil Sampling and Underground Storage Tank Decommissioning Report
Tillamook Bay Industrial Site K1-K8
Tillamook Airport, Oregon

AMEC Earth & Environmental, Inc. (AMEC) is please to present to the Oregon Economic and Community Development Department (OECDD) this Soil Sampling and Underground Storage Tank (UST) Decommissioning Report for the above-referenced site. This report details the results of environmental activities conducted by AMEC during October 2006.

If you have any questions regarding the attached report, please do not hesitate to contact the undersigned at 503-639-3400.

Sincerely,

AMEC Earth & Environmental, Inc.

DRAFT
FOR REVIEW ONLY
Jennifer C. Kuiper, RG, CHMM
Senior Project Manager

DRAFT
FOR REVIEW ONLY
Leonard C. Farr, Jr., RG
Senior Associate

Attachments

JCK/jlm

AMEC Earth & Environmental, Inc.
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Portland, Oregon
USA 97224
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www.amec.com

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1.0 INTRODUCTION

This Soil Sampling and Underground Storage Tank (UST) Decommissioning Report describes the environmental activities conducted in October 2006, at the Tillamook Bay Industrial Site K1-K8 in Tillamook, Oregon (Site). The Site is located at the southwest corner of the intersection of Brick Yard Road and Long Prairie Road near the Tillamook Airport. Activities completed as part of our scope of work included collection and analysis of soil samples from two former small arms firing ranges, removal and disposal of an underground storage tank (UST), sampling and excavation of petroleum-contaminated soil (PCS), and a limited test pit exploration in the vicinity of the former UST. Together, these constitute Activities 5 and 6, as described in Task 1 of Contract C2006067 (Contract), between AMEC and the Oregon Economic and Community Development Department (OECDD).

2.0 SCOPE OF WORK

AMEC's scope of work was described previously in the Sampling and Analysis Plan (SAP) dated October 2006, and included tasks associated with the sampling of the ranges and decommissioning of the UST. These tasks were completed in accordance with Activities 5 and 6 of the Contract; and the SAP was approved by DEQ prior to initiating work in the field. While specific details of the proposed scope of work can be found in the SAP, a summary of the tasks is provided below.

2.1 Scope of Work

2.1.1 Former Range Soil Sampling

Former range soil sampling involved selecting, obtaining and analyzing samples from surface and near-surface soils at the Skeet/Shotgun Range (S/SR) and the Rifle Firing Range (RFR). Our methodology for sampling the former firing ranges was based on the Interstate Technology Regulatory Council's (ITRC) document titled, "Characterization and Remediation of Soils at Closed Small Arms Firing Ranges" dated January 2003. Tasks included:

- Preparation of a health and safety plan (HASP).
- Selection of sampling locations and collection of samples at the S/SR and RFR. Specifically, these included collecting 26 discrete soil samples from 13 sampling locations in the S/SR (sampling depths of 0"-12" and 12"-24"); and 12 discrete soil samples to be obtained from 6 sampling locations in the former RFR (0"-12" and 12"-24").

- Analysis of soil samples for antimony, copper, lead, tin, zinc, arsenic, iron, polycyclic aromatic hydrocarbons (PAHs), and nitroglycerin/explosives.
- Conducting wet sieve soil profiles to remove potential lead shot or metal fragments.
- Recording each soil sampling location using a global positioning system (GPS) unit.

2.1.2 UST Decommissioning

One approximate 300-gallon, unregistered UST was identified on the northwest side of the former radio transmission building. The scope of work performed included:

- Revising the HASP to include issues associated with UST decommissioning activities.
- Contracting with a DEQ-licensed UST service provider to decommission and remove the underground tank.
- Providing an AMEC Soil Matrix Supervisor to be on-Site to observe UST decommissioning activities and to collect appropriate soil samples in accordance with OAR 340-122-0340, 340-122-0345 and 340-177-0025.
- Analyzing soils samples for diesel/lube oil-range hydrocarbons by Method NWTPH-Dx.
- Excavating two test pits in the vicinity of the UST to evaluate extent of visual contamination.
- Excavating obvious petroleum-containing soil (PCS), and following receipt of chemical analysis, transporting the material to an appropriate landfill (pending).
- Backfilling the excavation prior to departing Site to mitigate hazard to cattle (falling hazard).
- Proposing of additional work if contamination is discovered in the UST area.

2.1.3 Report Preparation

This task included preparing a report that summarized the results of the soil sampling and UST decommissioning activities.

2.2 Deviations from Scope

AMEC completed the proposed scope of work with few deviations. Deviations from the original scope of work were designed to reduce overall project costs without

compromising data objectives and/or comply with DEQ requirements relating to releases from USTs. Noteworthy deviations from the specifications in the SAP include:

- Four extra soil samples were collected from the S/SR area for a total of 30 soil samples (rather than 26).
- One extra soil sample was collected from the RFR area for a total of 13 soil samples (rather than 12).
- A UST release was reported to the DEQ.
- Based on the existence of residual product identified in the tank at the time of decommissioning and the documented release from the tank, DEQ has indicated that the tank would not be considered exempt from the UST regulations and would need to be registered. A "General Permit Registration Form to Decommission Existing Unregistered Tanks" was completed and is included at the back of this report.
- An "Initial (Twenty Day) Report for UST Cleanup Projects" was completed and is included at the back of this report.
- A "UST Decommissioning Checklist and Site Assessment Report" was completed and is included at the back of this report.

3.0 SITE DESCRIPTION

The Site includes approximately 80 acres of pastureland located in a mixed-use area of industrial, agricultural, and rural-residential development, located at the southwest corner of the intersection of Brick Yard Road and Long Prairie Road in Tillamook, Oregon. The Site location is shown on Figure 1. A former radio transmission building is located in the northeastern portion of the Site and is associated with a former naval air station developed at the Tillamook Airport in the 1940s. Only the exterior shell of the structure remains. During the 1940s and 1950s, the Site was developed with a rifle firing range and a skeet/shotgun range as part of the naval air station facilities. Few visible remnants for the former firing ranges currently exist on the site and include only slight depressions along the length of the former rifle range and flat areas in the vicinity of the former skeet range.

Based on our review of a tax lot map for the Site and surrounding properties (Tillamook County Assessor's Map #2S94), property to the south of the Site is owned by Tillamook County and property to the west of the Site is owned by the federal government and the State of Oregon. A copy of the tax assessment map is included in Appendix A.

The Site is situated approximately 30 feet above mean sea level and has a topographic slope dipping to the northwest, towards the Trask River. Mill Creek bounds the property to the south and southwest, and is a tributary to the Trask River. Alluvial deposits consisting of approximately 6 feet of silty soil underlie the Site and vicinity, which in turn overlay a 3 to 4- foot layer of mottled clay. Cross-bedded gravels up to 200 feet in thickness are present below the soil and clay, overlying estuarine muds and silts.

Moderately weathered sandstones are present at depth. Reportedly, local wells draw water from the alluvial gravels; although perched water may locally be present near the ground surface. A constructed wetland is located in the southern portion of the Site and in Mill Creek offsite to the south.

4.0 BACKGROUND

In July 2005, PBS Engineering and Environmental (PBS) conducted a Phase I ESA on the Site. Historically, the Site was agricultural in use until the early 1940s, when the military developed the radio transmission building on the northeast corner of the Site. Some time after the radio transmission building was constructed, a rifle firing range extending from the radio transmission building diagonally to the south-central part of the Site, and a skeet/shotgun firing range on the northwestern part of the Site were developed. Figure 2 shows the approximate location of the former firing ranges on the Site and was created by overlaying a 1948 layout of the former ranges onto a 2005 aerial photograph of the same scale. The Port of Tillamook Bay provided the map; however, no other information regarding the construction of the ranges was identified during our research. AMEC obtained a 1940s photograph of the rifle range targets from the Tillamook Historical society. The photograph shows temporary targets with no primary impact berm and no side impact berms. A copy of the photograph is presented in Appendix B. The naval air base operated at the Tillamook Airport until 1948. No information was obtained regarding the length of operations on the rifle and skeet/shotgun ranges or the operations of the radio transmission building. However, it is presumed that these activities ceased around the time the military decommissioned operations at the Tillamook Airport in the late 1940s and early 1950s. Since that time, the Site has been leased as agricultural land and more recently, pastureland.

At the time of their Phase I ESA Site reconnaissance, PBS documented that the former radio transmission building was vacant and that a cattle watering station was located near the building. A metal vent pipe was observed near the northwest corner of the building and was suspected at the time to be possibly related to an underground storage tank (UST). Due to the presence of the cattle watering trough and what appeared to be water pipes; it was suspected that a water well also may be located near the former transmission building.

On September 14, 2006 Geopotential, Inc. conducted a subsurface mapping survey in the vicinity of the former radio transmission building. Results of the subsurface mapping survey identified one small (estimated at approximately 675 gallons) UST on the northwest side of the building. The UST was estimated to be approximately 30 inches beneath the surface. Using a rod to test for contents of the UST, approximately 24 inches of an oil-water mix were determined to be in the tank (equivalent to approximately 180 gallons). Due to its size and location adjacent to the former radio transmission tower, it was determined that the UST either was a heating oil tank associated with the former boiler room inside the building or a back up generator tank. The tank was not registered with the Oregon Department of Environmental Quality (DEQ). A copy of the subsurface mapping survey is included in Appendix C.

5.0 FORMER FACILITY LAYOUT AND OPERATIONS

As discussed, Figure 2 shows the former 1948 layout of the RFR and the S/SR overlain onto a 2005 aerial photograph of the same scale to illustrate approximate locations of each of the former firing ranges

5.1 Skeet/Shotgun Range

The S/SR appeared to consist of two south-facing firing stations accessed through a paved road. The distribution of lead shot fallout from these two firing stations can be configured into an eastern "fan" and a western "fan" with overlap, as shown on Figure 3. The S/SR faced south, towards the bank of a low hill and Mill Creek to the south of the Site. The orientation of the S/SR is such that principal directions of shooters' fire would have been to the southeast, south, and southwest. The lead shot would have accumulated in the open field located immediately south of the S/SR. Based on our review of the maps, including the Tillamook County tax assessment map, it appears that approximately 1/3 of the western fan of the S/SR crossed the boundary of the Site onto the adjoining western property owned by the federal government and the State of Oregon.

5.2 Rifle Firing Range

The former RFR appears to have consisted of a long (approximately 1,500 feet) and narrow (approximately 100 feet) shooting range, with firing stations at the north end of the Site, just south of the of the radio transmission building as shown on Figures 2 and 3. The range was oriented so that the downrange direction was to the south and southwest, directly towards the low hill and Mill Creek, south of the Site. Unless a high impact berm at the south end of the Site had existed as part of the rifle range, bullets would likely have been stopped by the natural berm created by the hill, south of the Site. As discussed in the background section of this report (Section 4.0), based on our

review of a photograph showing the RFR targets, it appears that the targets were located on the Site, north of Mill Creek. The photograph shows what appears to be a significant drop in elevation behind the targets, with a treed hillside in the background. Based on our field reconnaissance on September 14, 2006, the drop in elevation would correspond to the fluvial terrace created by Mill Creek located off-site to the south and the treed hillside in the photograph would correspond to the treed hillside located off-site to the south of the Site. Based on this information, AMEC anticipates that the majority of bullets would have been stopped by the hillside, or would have fallen into Mill Creek, both located to the south of the Site.

5.3 Typical Range Configurations

Rifle Firing Range

As presented in the ITRC document (January 2003), a rifle/handgun firing range has four major areas including:

- **Primary Impact Berm**
  The primary impact berm faces the shooter and takes the bullet head on, with the full force of impact absorbed by the berm. Based on AMEC's review of aerial photographs, a naval range map (1948), and a 1940s photograph showing the RFR targets on the Site, no obvious berms were noted for the firing range. It is our opinion that the hillside to the south of the firing range may have been used as the high impact berm. Based on our review of the Tillamook County Tax Assessment map for the Site and vicinity and on our Site reconnaissance, the hillside is located off-site on property apparently owned by Tillamook County.
- **Range Floor**
  The range floor is defined as the ground between the firing line and the primary impact berm, with a width equal to the width of the range lanes. This surface rarely receives direct fire and as such the fallout is shallow as compared to the primary impact berm. Rounds that impact the range floor are typically a flat trajectory that fall short of the berm or those that result from ricochet and are usually within the top 6 inches of soil. Empty brass is common in this area, and casings also represent a potential source of lead because the initiators, or primers, use shock sensitive lead compounds with residuals left in the casing after firing.
- **Lateral, or Side Berms**
  Lateral berms separate contiguous ranges within a complex or provide containment at the perimeter. Like the range floor, they rarely receive direct fire and typically collect ricochets and the occasional stray round, which results from cross fire across lanes. Based on our review of information obtained thus far, it appears that lateral or side berms were not used in the former RFR on-site.

- **Safety Fan/Fallout Area**
  On most range types, the rounds/fragments found in the safety fan/fallout area are almost exclusively the result of ricochet. Unless earthmoving is performed, the fragments lie on the surface. AMEC did not encounter fragments in the fallout area. The probability that the entire Site has been tilled was incorporated into the soil sampling plan as part of the SAP.

Shotgun/Skeet Range

In contrast to RFRs, skeet shooters fire from eight different stations positioned around a half-circle. The targets cross in front of the shooters from either side of the front of the half-circle. On some stations, shooters fire at one target flying from the left, and another flying from the right. On other stations, shooters fire at two targets that fly from both directions at the same time. A typical configuration of S/SRs based on information obtained from the ITRC document (2003), is shown in Figure 4.

6.0 RANGE SOIL SAMPLING

On October 26, 2006, AMEC conducted sampling of surface and near-surface soils at the S/SR and RFR. The sampling plan for the ranges was prepared using guidance developed by the ITRC and presented in their January 2003 document. The sampling plan also was discussed with DEQ personnel.

All sampling locations were recorded in the field using a handheld GPS unit, the Trimble Geo XT. The accuracy of this unit is within 1 meter. Sampling locations are depicted on Figure 5. GPS location coordinates are presented in Appendix D.

6.1 Field Activities

A HASP was prepared to cover field safety protocols for all AMEC employees active on the project. The Oregon Occupational Safety and Health Administration Safety and Health Act (OR-OSHA) require this. The HASP covered both the range sampling and the UST decommissioning. A site-safety meeting was held at the start of the field activities, and included the UST decommissioning subcontractor.

Each soil sample (0-12 inches and 12-24 inches) was collected with a stainless-steel auger, mixed, and then sieved to inspect for lead/bullet fragments. The S/SR samples were sieved using a #16 sieve and the RFR samples were sieved using a #4 (larger size) sieve. No lead/bullet fragments were detected in any of the samples. A subset of each sample was then transferred into a laboratory-provided, labeled, and pre-cleaned 8-ounce glass container. Sample containers were placed on ice in a cooler and shipped to TestAmerica, located in Beaverton, Oregon, for chemical analysis.

Analyses were performed for selected metals, PAHs, and nitroglycerine/explosives. Analytical results are presented in Appendix E. A Data Quality Review Report is provided as Appendix F. The conclusions of the report are that the data are generally usable and of good quality.

6.2 Laboratory Results

As shown in the table below, metals concentrations identified in the soil samples were compared to general background concentrations of metals discussed in a DEQ Memo, dated October 2002. Metals concentrations in the soil samples were within expected background levels for this area. Specifically, antimony was not detected above laboratory method reporting limits; arsenic concentrations ranged from 4.45 to 11.3 milligrams per kilogram (mg/kg); copper concentrations ranged from 24.6 to 60.3 mg/kg; iron concentrations ranged from 54,900 to 79,700 mg/kg; lead concentrations ranged from 7.2 - 14.0 mg/kg; tin concentrations ranged from 1.65 to 2.51 mg/kg and zinc concentrations ranged from 108 - 186 mg/kg. Although background values for iron and tin are not provided in the 2002 DEQ memo, the consistency of detected concentrations across the site for each of these metals suggests that these detected values represent background conditions.

PAHs were not detected above laboratory method detection limits in any of the samples collected. Nitroglycerine and explosives were not detected above the laboratory method detection limits.

Table 6.2: Analytical Results from Range Samples

Sample I.D.	Antimony	Arsenic	Copper	Iron	Lead	Tin	Zinc	PAHs	Nitro. & Explo.
SSR-SZ-1-12	ND	4.87	45.8	64700	7.92	1.68	122	NT	NT
SSR-SZ-1-24	ND	4.58	43.3	65300	7.20	1.69	108	NT	NT
SSR-SZ-2-12	ND	4.79	49.2	67000	9.07	1.81	137	NT	NT
SSR-SZ-2-24	ND	4.70	45.7	72600	7.39	1.82	121	NT	NT
SSR-SZ-3-12	ND	4.58	50.0	52300	11.4	2.02	137	NT	NT
SSR-SZ-3-24	ND	11.3	52.7	67900	9.17	2.06	128	NT	NT
SSR-SZ-4-12	ND	9.99	60.3	54900	14.0	1.97	186	NT	NT
SSR-SZ-4-24	ND	8.08	43.7	60900	10.3	1.78	143	NT	NT
SSR-SZ-5-12	ND	8.39	44.9	55100	11.5	2.12	143	NT	NT
SSR-SZ-5-24	ND	8.53	43.2	61000	10.8	2.16	141	NT	NT
SSR-SZ-6-12	ND	4.45	43.6	61400	9.09	1.65	109	NT	NT
SSR-SZ-6-24	ND	5.12	46.2	64500	9.24	1.94	119	NT	NT
SSR-SZ-7-12	ND	4.90	24.6	95200	12.4	1.99	120	NT	NT
SSR-SZ-7-24	ND	8.67	27.9	79700	14.0	2.03	112	NT	NT
SSR-TPZ-1-12	NT	NT	NT	NT	NT	NT	NT	ND	NT
SSR-TPZ-1-24	NT	NT	NT	NT	NT	NT	NT	ND	NT
SSR-TPZ-2-12	NT	NT	NT	NT	NT	NT	NT	ND	NT
SSR-TPZ-2-24	NT	NT	NT	NT	NT	NT	NT	ND	NT
SSR-TPZ-3-12	NT	NT	NT	NT	NT	NT	NT	ND	NT
SSR-TPZ-3-24	NT	NT	NT	NT	NT	NT	NT	ND	NT
SSR-TPZ-4-12	NT	NT	NT	NT	NT	NT	NT	ND	NT
SSR-TPZ-4-24	NT	NT	NT	NT	NT	NT	NT	ND	NT
SSR-TPZ-5-12	NT	NT	NT	NT	NT	NT	NT	ND	NT
SSR-TPZ-5-24	NT	NT	NT	NT	NT	NT	NT	ND	NT
SSR-TPZ-6-12	NT	NT	NT	NT	NT	NT	NT	ND	NT
SSR-TPZ-6-24	NT	NT	NT	NT	NT	NT	NT	ND	NT
SSR-SZ-8-12	ND	7.61	45.8	59400	11.0	2.06	122	NT	NT
SSRFL-1-12	NT	NT	NT	NT	NT	NT	NT	NT	ND
SSRFL-1-24	NT	NT	NT	NT	NT	NT	NT	NT	ND
SSRFL-2-12	NT	NT	NT	NT	NT	NT	NT	NT	ND
SSRFL-2-24	NT	NT	NT	NT	NT	NT	NT	NT	ND
RFR-1-12	ND	7.20	58.9	61300	10.8	2.31	130	NT	NT

Sample I.D.	Antimony	Arsenic	Copper	Iron	Lead	Tin	Zinc	PAHs	Nitro. & Explo.
RFR-1-24	ND	8.37	32.5	63300	9.73	2.39	120	NT	NT
RFR-2-12	ND	6.04	37.4	42600	10.3	2.33	139	NT	NT
RFR-2-24	ND	6.16	33.7	60000	9.68	2.51	118	NT	NT
RFR-3-12	ND	6.67	33.5	58300	10.5	2.36	127	NT	NT
RFR-3-24	ND	6.45	29.2	61600	9.74	2.37	116	NT	NT
RFR-4-12	ND	6.90	34.8	55100	11.5	2.26	147	NT	NT
RFR-4-24	ND	6.39	28.4	64100	9.01	2.28	118	NT	NT
RFR-5-12	ND	6.50	35.0	55400	10.4	1.75	125	NT	NT
RFR-5-24	ND	8.71	37.8	58400	11.7	2.14	150	NT	NT
RFR-6-12	ND	7.65	36.1	60500	11.1	2.21	133	NT	NT
RFR-6-24	ND	6.54	31.0	71700	9.24	2.43	124	NT	NT
RFR-7-12	ND	6.64	36.3	54800	10.2	2.40	131	NT	NT
Background (DEQ Memo, 2002)	4	7	36	NL	17	NL	86	NA	NT

Notes: Results are shown in milligrams per kilogram (mg/kg)
ND = not detected
NT = not tested
NL = value not listed

7.0 UST DECOMMISSIONING

On October 26, 2006, the UST was decommissioned by removal. Mr. William McFarland of AMEC supervised the decommissioning of the UST by Munitor Construction. Munitor is a DEQ-licensed UST service provider, and Mr. McFarland maintains a Soil Matrix Supervisor certification (#13252). The decommissioning was conducted in accordance with DEQ regulations and the site specific HASP that had been prepared for the site. Soil sampling locations associated with the UST decommissioning are shown on Figure 6.

7.1 Field Activities

Excavation began by removing clean overburden from the top of the tank and temporarily stockpiling it to the side. The top of the UST was approximately 2 feet below ground surface (bgs). Approximately 2.5 feet of liquid was present in the tank and this was removed via a hand pump and placed into 55-gallon steel drums. Site photographs of field activities are included in Appendix G. Approximately 200 gallons of a product-water mix was removed. Dry ice was then placed into the tank to inert it prior to removal. A 2-inch pipe oriented east-west, was located approximately 2 feet

south of the tank. Upon removal, the tank was measured and the dimensions were determined to be 38 inches by 60 inches, equal to a capacity of approximately 300 gallons. Numerous holes were observed on the sides of the UST. A small puddle of water was observed in the base of the tank cavity. This water was pumped out and no groundwater recharge was observed.

PCS was observed along the walls and base of the cavity. Soils displayed visual, olfactory and PID evidence of contamination; and in some areas residual free product was observed in the soil. Screening of soil sample vapors using the PID indicated that volatile concentrations ranged from 127 to 237 parts per million (ppm). Approximately 10 cubic yards of the most obviously contaminated soils were excavated from along the west side and base of the cavity (down to 6 feet bgs) and stockpiled on visquene plastic pending disposal. PCS along the north and east sides of the cavity could not be excavated due to the proximity of the building; and PCS on the south side of the cavity could not be excavated due to the presence of the previously noted pipe.

Following excavation, four soil samples were collected including one from the east wall of the tank cavity (TC-SWE-5.5ft); two from the cavity floor (TC-Floor-West-6ft and TC-Floor-East-6ft); and a composite sample from the soil stockpile (composited from five locations). Once soil sampling was complete the excavation was backfilled to prevent a falling hazard to cows in the area. The cavity was backfilled with 8 cubic yards of imported backfill soil along with the clean overburden soil.

Two test pits were excavated near the former tank cavity to qualitatively evaluate the lateral extent of petroleum contamination. The first test pit was excavated approximately 10 feet south of the former UST location to a depth of 8 feet. The second test pit was excavated approximately 15 feet west of the former UST location also to a depth of 8 feet. No evidence of PCS or groundwater was observed at either test pit location.

The UST, recovered product/water, and the excavated PCS were managed in accordance with standard protocols. The UST was transported to Schnitzer Steel Products located in Portland Oregon for recycling. The recovered liquids were transported to ORRCO Oil Re-refining Company located in Portland Oregon, also for recycling. Receipts for these materials are included in Appendix E. At the time of this report, excavated soils remained in a covered stockpile at the Site. Once Site conditions permit (e.g. pending dry weather), the soils will be loaded into a dump truck and transported to Hillsboro Landfill for disposal.

The release from the UST was reported by Munitor's subcontractor Ecotech, to the DEQ in accordance with its requirements. A copy of the release report (dated 10/26/2006) is provided in Appendix H. DEQ subsequently assigned leaking

underground storage tank (LUST) number 29-06-1942 to the Site. Based on discussions with DEQ personnel on December 7, 2006, it appears that the UST would not meet the definition of an exempt tank and would need to be retroactively registered as a necessary part of the decommissioning process.

Copies of UST-related documents that have been completed for this Site are included in Appendix H. These documents include the "Permit Registration Form To Decommission Unregistered UST"; the "Initial (Twenty Day) Report Form for UST Cleanup Projects"; and the "Underground Storage Tank Decommissioning Checklist and Site Assessment Report", and Disposal Receipts.

7.2 Analytical Results

Analytical results are presented in Appendix E; and a Data Quality Review Report is provided as Appendix F. The conclusions of the report are that the data are generally usable and of good quality. Summaries of the analytical results are presented in Table 7.2 below. Currently it is unknown if groundwater is impacted by the release. Regardless of whether groundwater is impacted, it is likely that a risk-based corrective action (RBCA) will be pursued at this Site.

Table 7.2: UST Soil Sample Results (mg/kg)

Sample I.D.	Diesel and Heavy Range Hydrocarbons (NWTPH-Dx)	PAHs (8270M-SIM)
TC-SWE-5.5ft	25,900	Acenaphthene = 1.17 Fluorene = 8.37 Naphthalene = 11.2 Phenanthrene = 9.6
TC-Floor-West-6ft	21,000	
TC-Floor-East-6ft	11,500	
Stockpile	6,500	Fluorene = 1.77 Naphthalene = 2.12 Phenanthrene = 2.54
DEQ Risk-Based Cleanup Levels (RBCs)*	3,900	Acenaphthene = 2,900 Fluorene = 2,600 Naphthalene = 34 Phenanthrene = NL

Notes: Results in mg/kg (ppm)
ND = not detected
NT = not tested
NL = value not listed
*Residential values for soil ingestion, dermal contact and inhalation; 2006 values for PAHs and 2003 value for Generic Diesel)

As shown in the table above, concentrations of diesel exceeding generic Risk-based Concentrations (RBCs) are present in soils in the vicinity of the former UST. Concentrations of PAHs do not exceed RBCs. Evaluation of the chromatographs (provided in Appendix B) indicates that the detected petroleum hydrocarbons consist mostly of hydrocarbon chains from 6 to 16 carbons, and is therefore most probably a weathered diesel product.

8.0 CONCLUSIONS AND RECOMMENDATIONS

8.1 Former Ranges

Based on the sampling results, no evidence of metals, PAHs, explosives, or nitroglycerin contamination was identified in either of the range areas. No bullet or lead fragments were noted during the sieving of soils, and concentrations of metals within the range areas appear to be representative of background for the area. Both shallow (1-12 inches) and deeper (12-24 inches) zones were sampled to account for the likelihood that the soils in the area had been tilled over the years for agricultural purposes. There was no discernable difference in metals concentrations between the shallow 0-12 inches and deeper 12-24 inches sampling locations. Results for PAHs, nitroglycerine, and explosives were all not detected.

No further environmental investigation in this area is recommended at this time.

8.2 UST Decommissioning

An approximately 300-gallon diesel UST was removed from the Site and transported to Schnitzer Steel Products for recycling. Associated liquids were transported to ORRCO Oil Re-Refining Company. The UST was corroded at the time of the removal. Evaluation of the laboratory chromatographs from the soil samples indicates that the released material is most probably weathered diesel. The release has been reported to the DEQ and LUST number 29-06-1942 has been assigned. Based on discussions with DEQ regarding the tank contents and release, DEQ determined that the tank should be registered. A registration form and associated documentation have been completed and are included at the back of this report.

The nature and extent of the diesel release have not been adequately characterized at this time. However, based on the small size of the UST and the fact that the two nearby test pits did not display visual or olfactory evidence of contamination, it is estimated that the area of soil contamination is relatively small. Diesel does, however, appear to extend beneath the building. It is not known if the diesel has impacted groundwater.

Groundwater was not encountered in the excavation or the test pits down to a depth of 8 feet, but given the Site elevation of only 30 feet above mean sea level, it is anticipated that groundwater is relatively shallow. The UST area apparently did not flood during the recent (early November) floods that occurred in Tillamook due to heavy rains.

Approximately 10 cubic yards of PCS were excavated from the tank cavity and temporarily stockpiled on Site, pending dry weather when they will be transported to the Hillsboro Landfill for disposal.

At this time AMEC recommends that a drilling exploration be initiated to better characterize the extent of petroleum contamination. Once the contamination has been characterized, a Risk-Based Corrective Action (RBCA) can be implemented.

REFERENCES

ITRC. 2003. *Characterization and Remediation of Soils at Closed Small Arms Firing Ranges.* Interstate Technology and Regulatory Council, Small Arms Firing Range Team, Washington, DC, January 2003.

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Tillamook County Historical Society, 2006.

AMEC Earth and Environmental, 2006. *Sampling and Analysis Plan, Tillamook Bay Industrial Site K1-K8 (#100062) Highway 101 at Tillamook Airport, Tillamook, Oregon 97141, OECDD Contract No.C2006067.* Prepared for Port of Tillamook Bay, 4000 Blimp Boulevard, Tillamook, Oregon 97141, October 2006.

Department of Environmental Quality, 2006. *Telephone conversation with Kevin Dana, UST Duty Officer, UST Cleanup Program*, December 7, 2006.

Department of Environmental Quality, 2002. *Memo from Toxicology Workgroup to DEQ Cleanup Project Managers - Subject: Default background concentrations for metals.* October 28, 2002.

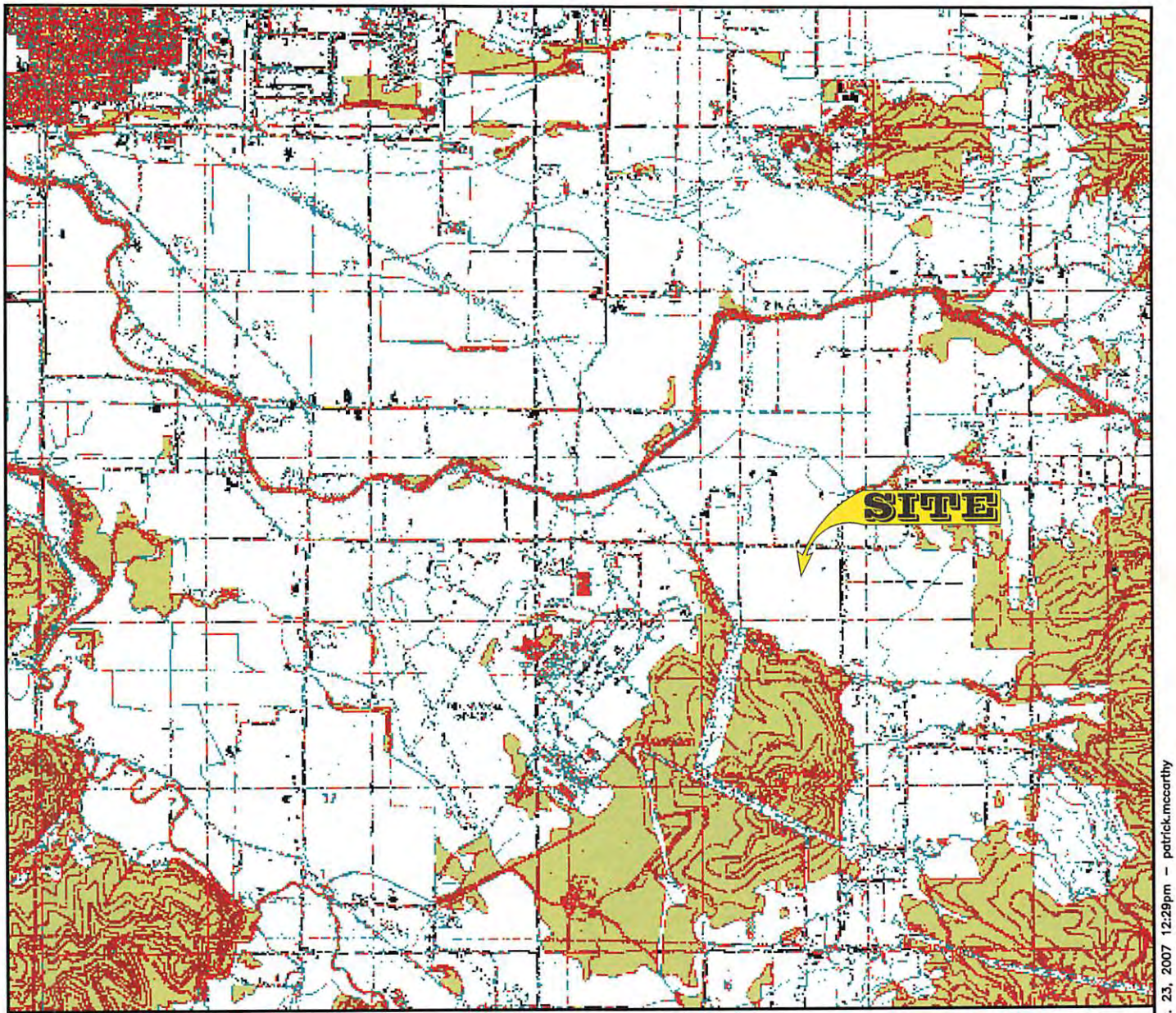
LIMITATIONS

This Soil Sampling and UST Decommissioning Report was prepared exclusively for Oregon Economic and Community Development Department by AMEC Earth & Environmental, Inc. (AMEC). The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in AMEC services and based on: i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this work plan. This Soil Sampling and UST Decommissioning Report is intended to be used by the Oregon Economic and Community Development Department at 775 Summer Street NE, Suite 200, Salem, Oregon, only, subject to the terms and conditions of its contract with AMEC. Any other use of, or reliance on, this report by any third party is at that party's sole risk.

The findings contained herein are relevant to the dates of AMEC's site visits and should not be relied upon to represent conditions at later dates. In the event that changes in the nature, usage, or layout of the property or nearby properties are made, the conclusions and recommendations contained in this report may not be valid. If additional information becomes available, it should be provided to AMEC so that the original conclusions and recommendations can be modified as necessary.

Finally, it should be noted that no subsurface exploration can be thorough enough to exclude the possible presence of hazardous materials or wastes at a given site. In cases where contaminants have not been discovered through exploration, this should not be construed as a guarantee that contaminants do not exist. At a given site, environmental conditions may exist that cannot be identified by visual observation. Where sample collection and testing have been performed, AMEC's professional opinions are based in part on the interpretation of data from discrete sampling locations that may not represent conditions at unsampled locations. Additionally, it is possible that some bullet fragments are present in unsampled areas of the site and/or in nearby offsite areas such as the creek and hillside to the south.

FIGURES



ROAD CLASSIFICATION
- Heavy-duty
- Medium-duty
- Light-duty
- Unimproved dirt
- U.S. Route
- State Route
- Interstate Route

0' 1000' 2000' 3000'

1" = 2000'

TILLAMOOK, OR-WA

45123-D7-TF-024

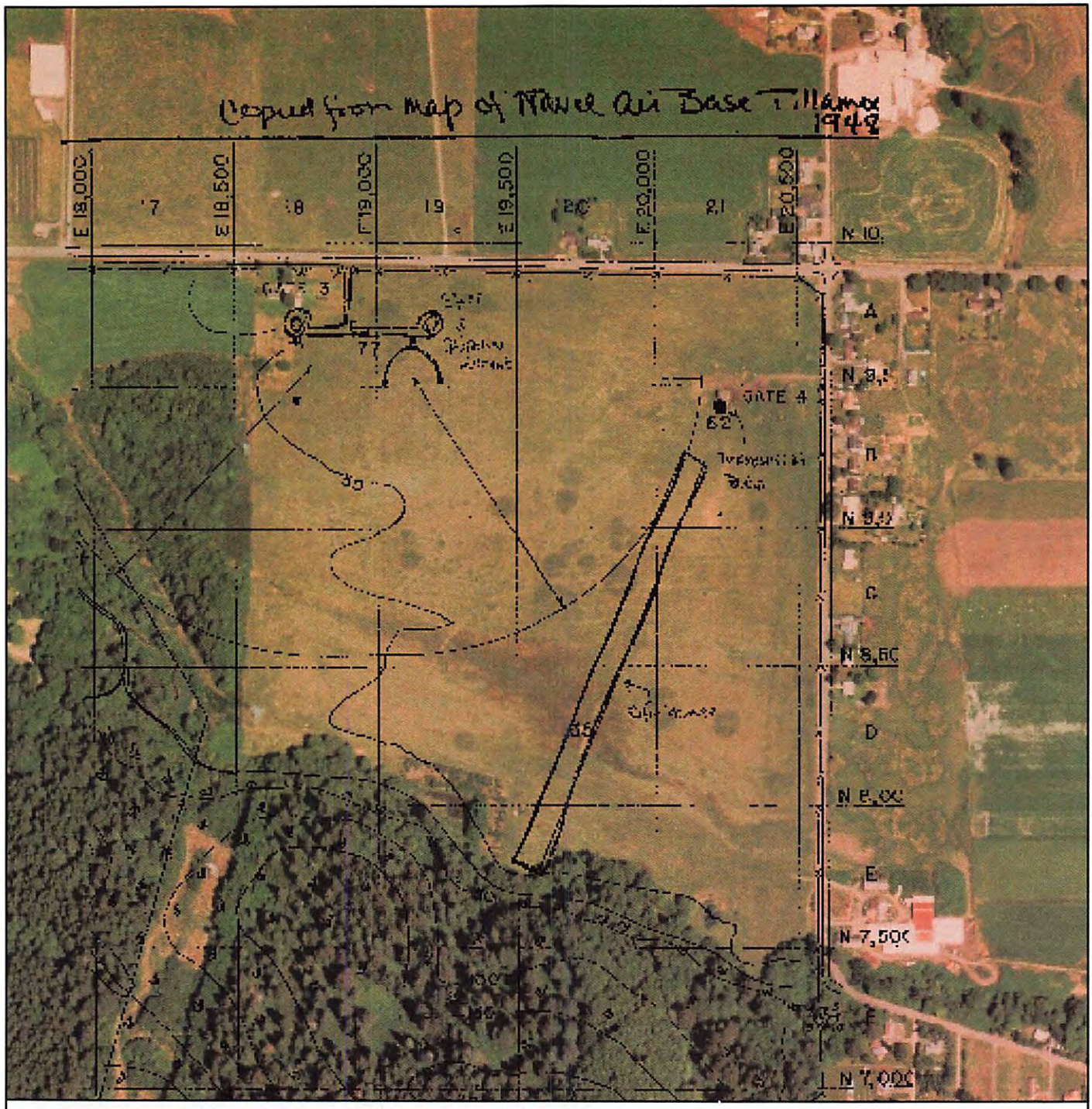
PROVISIONAL EDITION 1985

AMEC Earth & Environmental
7376 S.W. Durham Road
Portland OR. U.S.A. 97224

amec

CLIENT LOGO		CLIENT: TILLAMOOK INDUSTRIAL SITE K1-K8 TILLAMOOK, OREGON	
PROJECT: PORT OF TILLAMOOK BAY	DWN BY: LM	DATUM: -	DATE: MAY 2007
TITLE: SITE LOCATION MAP	CHK'D BY: JK	REV. NO.: -	PROJECT NO: 6-61M-11585-0
	PROJECTION: -	SCALE: 1" = 2000'	FIGURE No. 1

K:\11000\11500\11585\dwg\FIGURE 1 SITE LOCATION MAP.dwg -- Layout1 -- May. 23, 2007 12:29pm -- patrick.mccarthy



0 250 500 1,000 Feet

2005 Aerial photo from **datagateway.nrcs.usda.gov**

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CLIENT: PORT OF TILLAMOOK BAY		DWN BY: BRJ	DATUM: NAD83 / DATE: MAY 2007
TITLE: 2005 AERIAL WITH 1948 NAVAL AIR SCHEMATIC BASEMAP		CHK'D BY: - / REV. NO.: 1	PROJECT NO.: 6-61M-115850
		PROJECTION: UTM ZONE 10N	SCALE: 1 inch equals 500 feet / FIGURE No.: FIGURE 2

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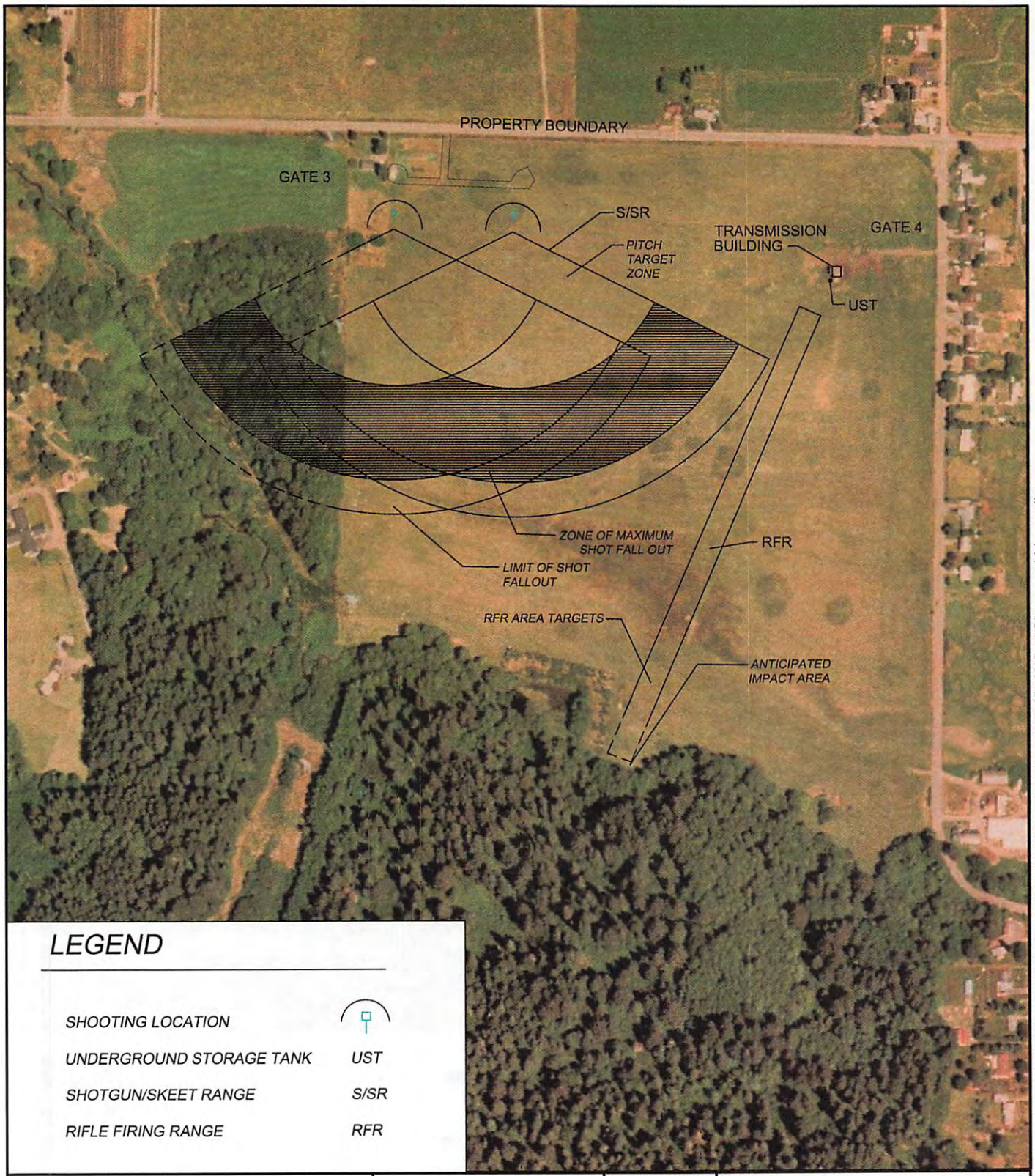

LEGEND

SHOOTING LOCATION	
UNDERGROUND STORAGE TANK	UST
SHOTGUN/SKEET RANGE	S/SR
RIFLE FIRING RANGE	RFR

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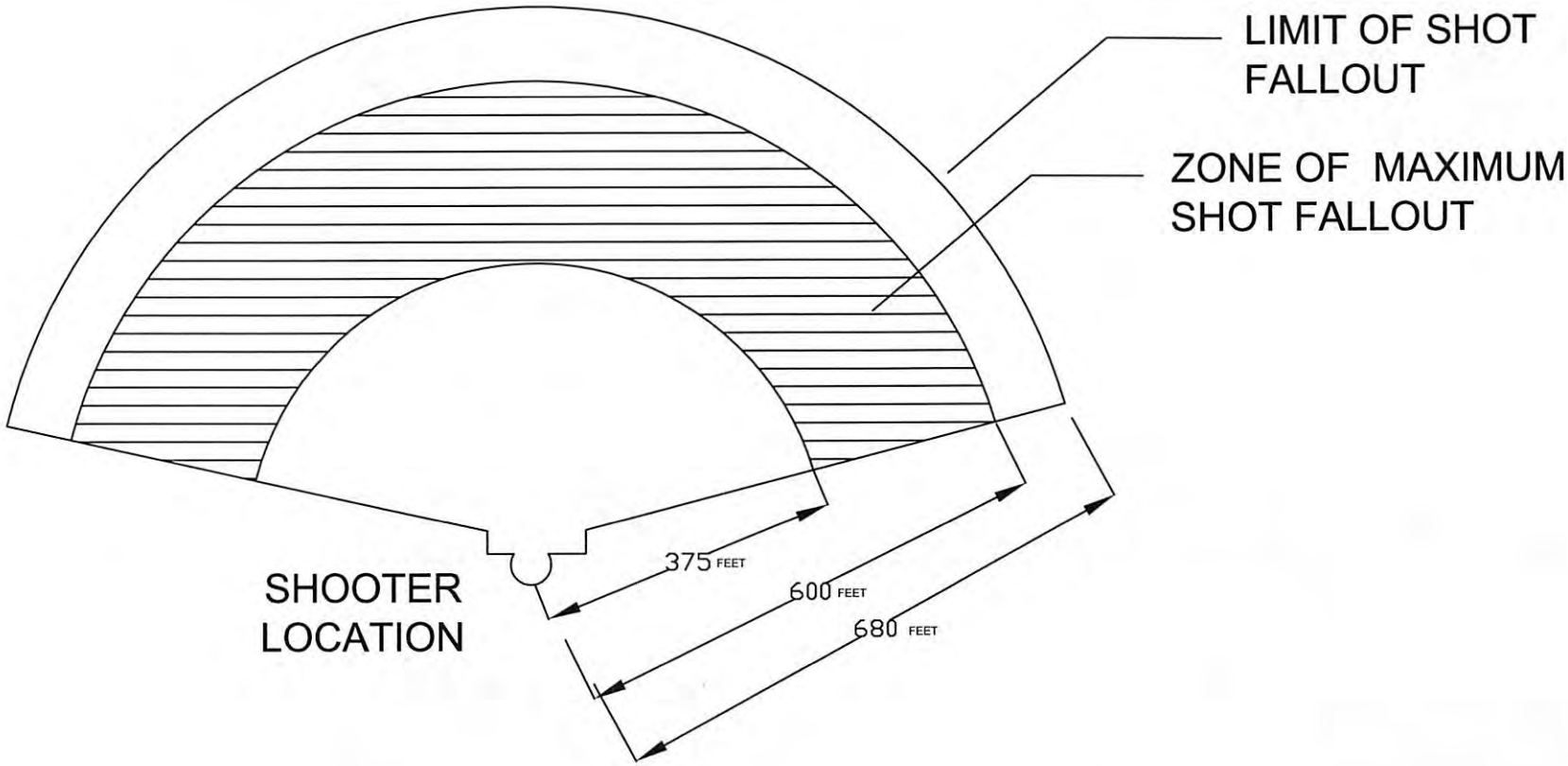
CLIENT LOGO

CLIENT: TILLAMOOK INDUSTRIAL SITE K1-K8
TILLAMOOK, OREGON

PROJECT: PORT OF TILLAMOOK BAY	DWN BY: LM	DATUM: -	DATE: MAY 2007
TITLE: RFR AND S/SR OVERLAY MAP	CHK'D BY: JK	REV. NO.: -	PROJECT NO: 6-61M-11585-0
	PROJECTION: -	SCALE: 1:500	FIGURE No. 3

K:\11000\11500\11585\Reports\Final Report\Figures\FIGURE3 PROPOSED SAMPLE LOCATIONS.dwg - Layout1 - May. 23, 2007 12:56pm - patrick.mccarthy



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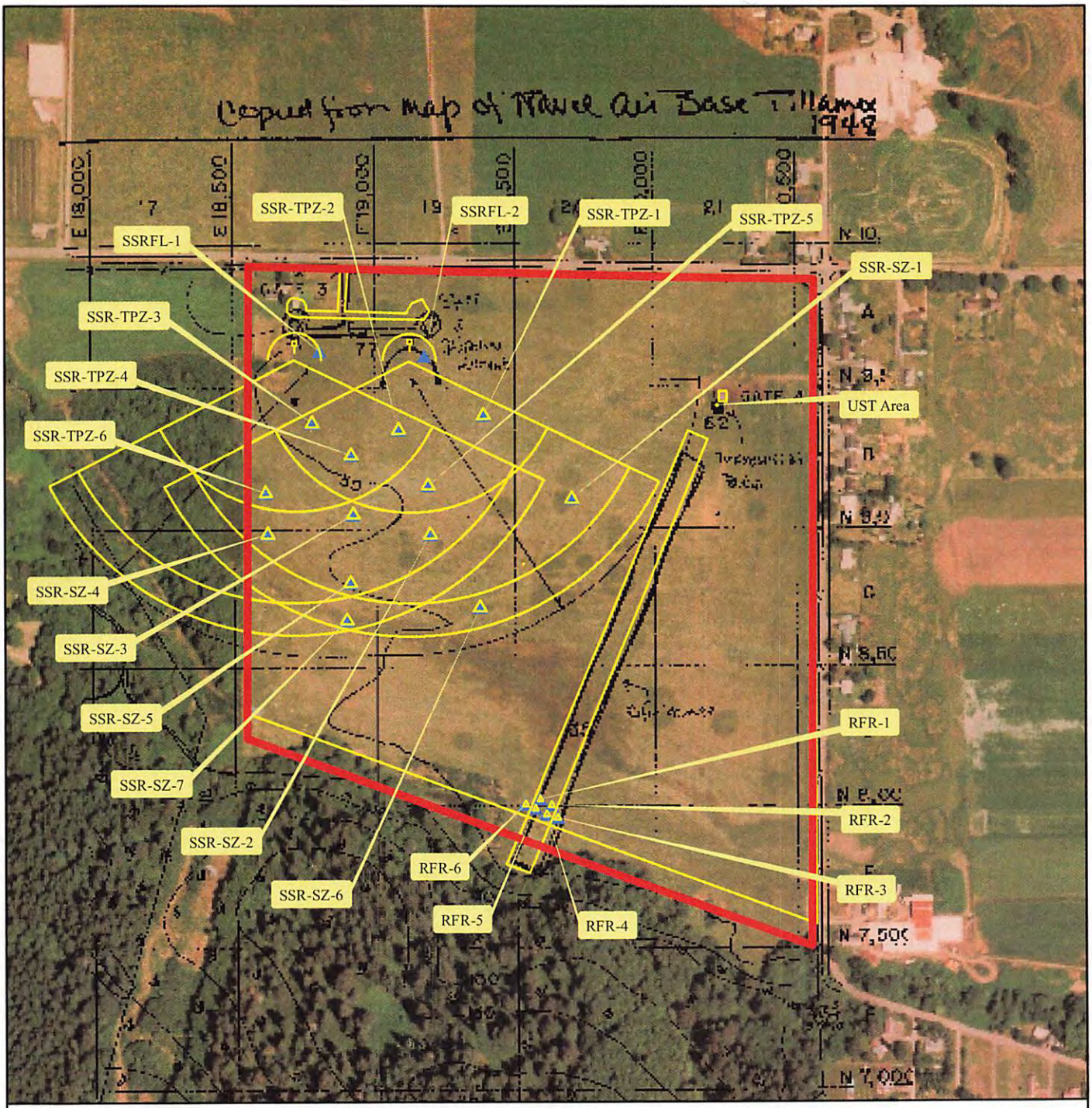
AMEC Earth & Environmental 7376 S.W. Durham Road Portland, OR. U.S.A. 97224	amec	DATUM: - PROJECTION: - SCALE: NTS	TITLE: TYPICAL DISTRIBUTION OF LEAD SHOT AT SKEET/SHOTGUN RANGES	PROJECT NO: 661M-11585-0 FIGURE No. FIGURE 4

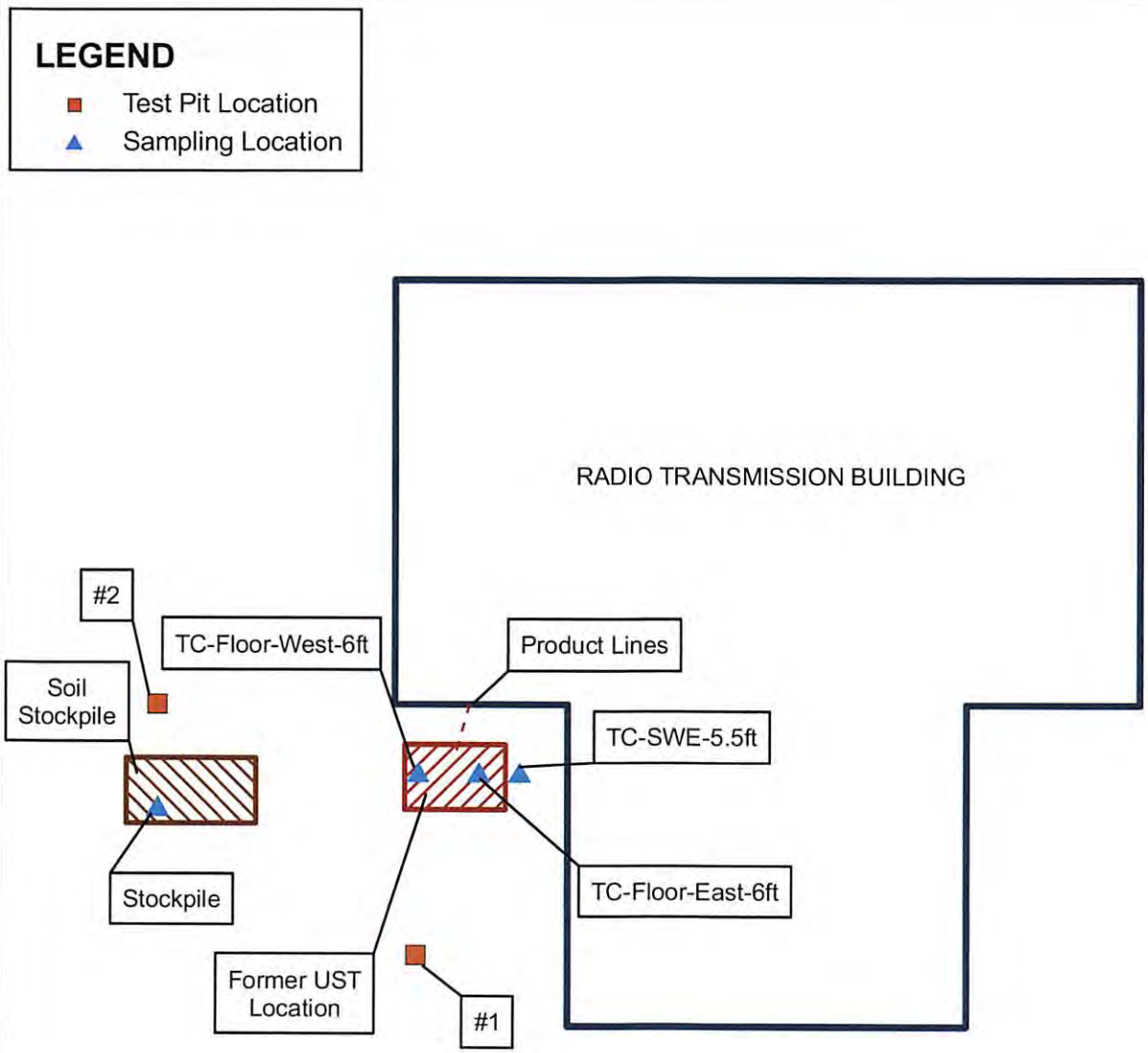
K:\11000\11500\11585\Reports\Final Report\Figures\FIGURE 4.DWG – Layout1 – May. 23, 2007 12:58pm – patrick.mccarthy



2005 Aerial photo from **datagateway.nrcs.usda.gov**

AMEC Earth & Environmental 7376 SW Durham Road Portland, OR, U.S.A. 97224	amec		PROJECT: TILLAMOOK INDUSTRIAL SITE K1-K8 TILLAMOOK, OREGON
CLIENT: PORT OF TILLAMOOK BAY		DWN BY: BRJ	DATUM: NAD83 / DATE: MAY 2007
TITLE: RANGE SOIL SAMPLE LOCATION MAP		CHK'D BY: - / REV. NO.: 1 / PROJECT NO.: 6-61M-115850	
		PROJECTION: UTM ZONE 10N / SCALE: 1 inch equals 500 feet	FIGURE No.: FIGURE 5

K:\11000\11500\11585\Reports\Final Report\Figures\Figure 5 Soil Sample Location Map.mxd



Building outline and tank from GeoPotential survey dated September 14, 2006
Test Pit and Sample Locations from AMEC field measurements dated October 27, 2006

0 10 20 40 Feet

N

AMEC Earth & Environmental 7376 SW Durham Road Portland, OR, U.S.A. 97224	amec		PROJECT: TILLAMOOK INDUSTRIAL SITE K1-K8 TILLAMOOK, OREGON
CLIENT: PORT OF TILLAMOOK BAY		DWN BY: PAM	DATUM: NAD83	DATE: MAY 2007
TITLE: UST DECOMMISSIONING SOIL SAMPLE LOCATION MAP		CHK'D BY: -	REV. NO.: 1	PROJECT NO.: 6-61M-115850
		PROJECTION: UTM ZONE 10N	SCALE: 1 inch equals 10 feet	FIGURE No.: FIGURE 6

K:\11000\11500\11585\Reports\Final Report\Figures\Figure 6 Expanded Soil Sample Location Map.mxd

APPENDIX A

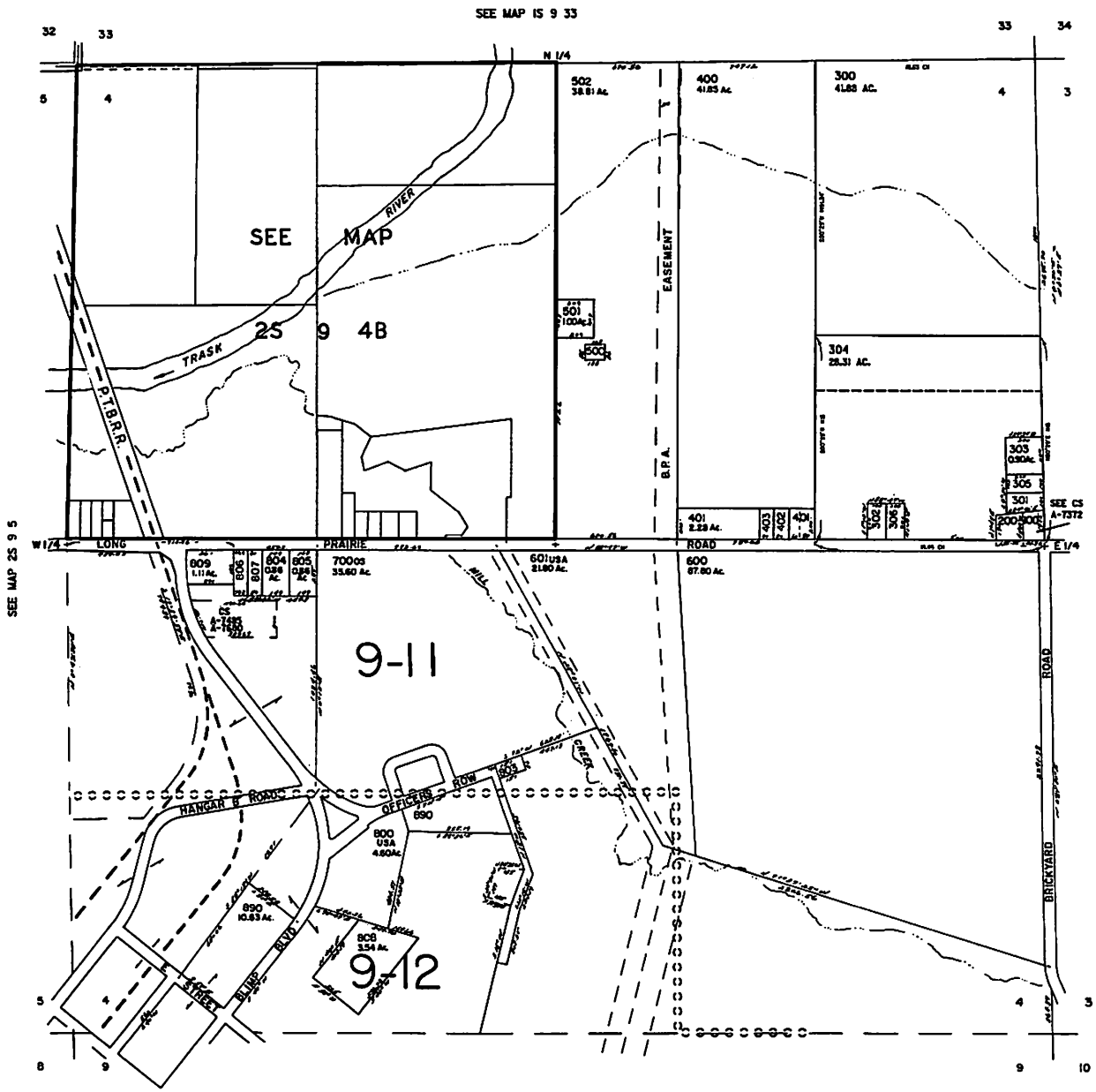
Site Tax Lot Map

THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSE ONLY

SECTION 4 T. 2S. R.9W. W.M.
TILLAMOOK COUNTY
1" = 400'

2S 9 4

CANCELLED NO.
801
802
891
900
901
1000

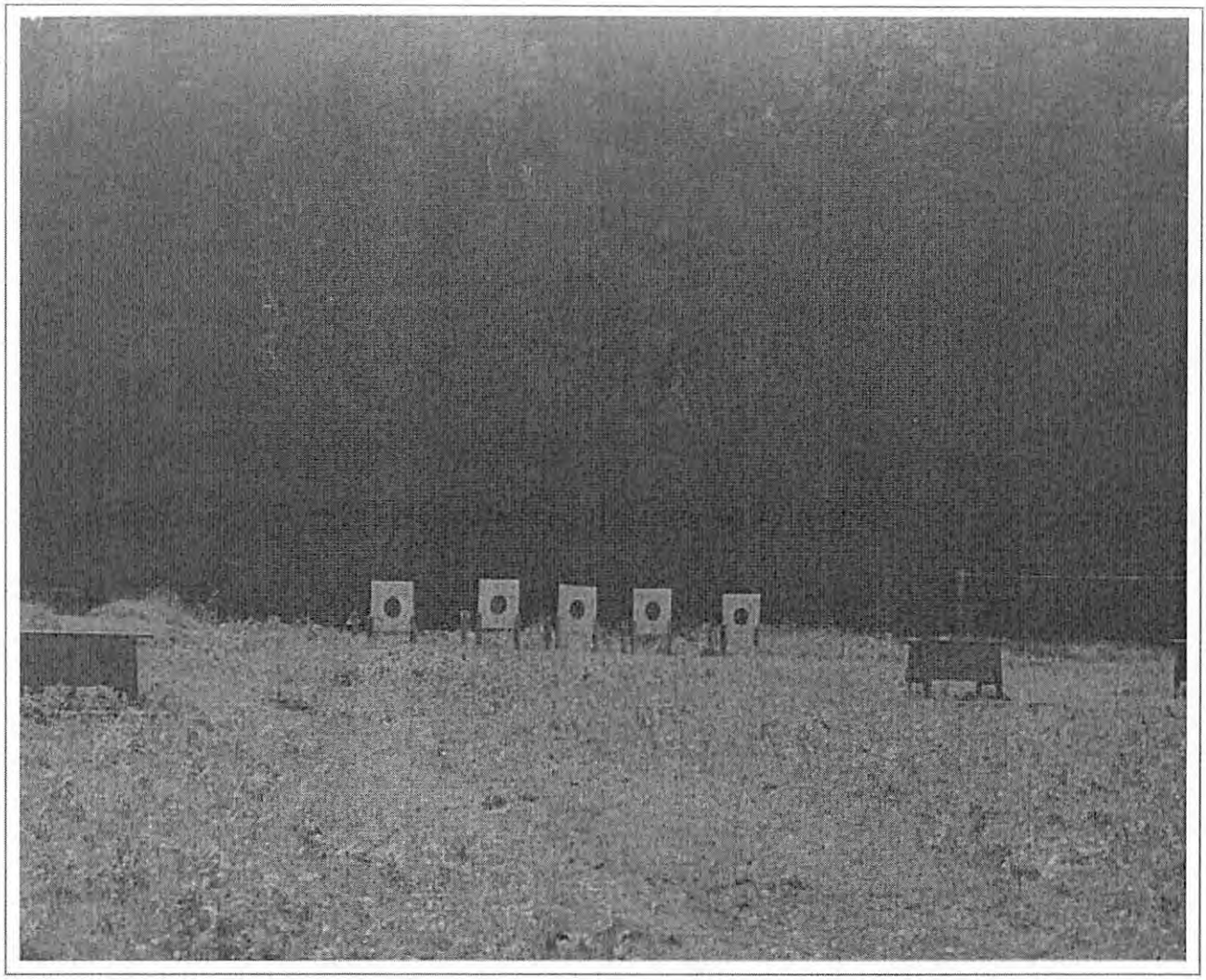


2S 9 4

REVISED 01/10/02, KA

APPENDIX B

1944 RFR Target Photograph



1944 Site Photograph of Rifle Range targets Tillamook Bay Industrial Site K1-K8.

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Portland, Oregon 97224

W.O.	6-61M-11585
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DATE	OCTOBER 2006
PAGE	1

TILLAMOOK BAY INDUSTRIAL
SITE K1-K8
TILLAMOOK, OREGON

PHOTOGRAPH LOG

APPENDIX C

Subsurface Mapping Survey Report

GeoPotential
ENVIRONMENTAL & EXPLORATION GEOPHYSICS
22323 East Wild Fern Lane, Brightwood, Oregon 97011 • PH (503) 622-0154 • FAX (503) 622-0526
E-Mail: GeoPotential@aol.com

Ms. Jennifer Kuiper
AMEC Earth and Environmental, Inc.
7376 SW Durham Road
Portland, Oregon 97224

September 14, 2006
Geopotential # 7664

Letter Report
Geophysical Survey
Radio Transmission Building
Tillamook, Oregon

This letter report briefly describes a geophysical survey conducted for Ms. Kuiper of AMEC Earth and Environmental of Portland, Oregon for the purpose of detecting an underground storage tank (USTs) at the above location.

For this survey two handheld metal detectors (an Aqua-tronics A6 Electromagnetic Tracer and a Schonstedt GA92XTd Magnetic Gradiometer) were used to scan the suspected area along the west side of the building. Scattered metallic debris was located across the west and southwest sides of the building. The Site was very wet and muddy. The field in which the building is located is currently used as grazing land for a herd of dairy cows. The cows were present during the survey.

No large buried metallic objects were found along the western side of the building after all metallic surface debris was removed.

After removing the metallic debris outside the southwest corner of the building 2 small copper pipes were seen exiting the wall of the building. These pipes appeared to be possible product lines that connect a UST to a boiler or furnace. The Tracer was then able to detect a small buried metallic object. A soil probe and shovel were then used to find the UST.

The top of the tank appears to be approximately 30" below the ground surface. The tank appears to be 4 feet in diameter and 6 feet in length, for a capacity of about 675 gallons. The fill pipe was rusted and was not connected to the tank. The soil probe indicated the tank contained about 24" of oil.

Two ground penetrating radar (GPR) profiles were made across the metallic feature.

Figure 1 shows the results of the survey.

Jeff Mann and Eddie Kahl conducted the fieldwork for GeoPotential on September 14, 2006. Mr. Colby Lovitt of the Port of Tillamook Bay helped with the survey. This report

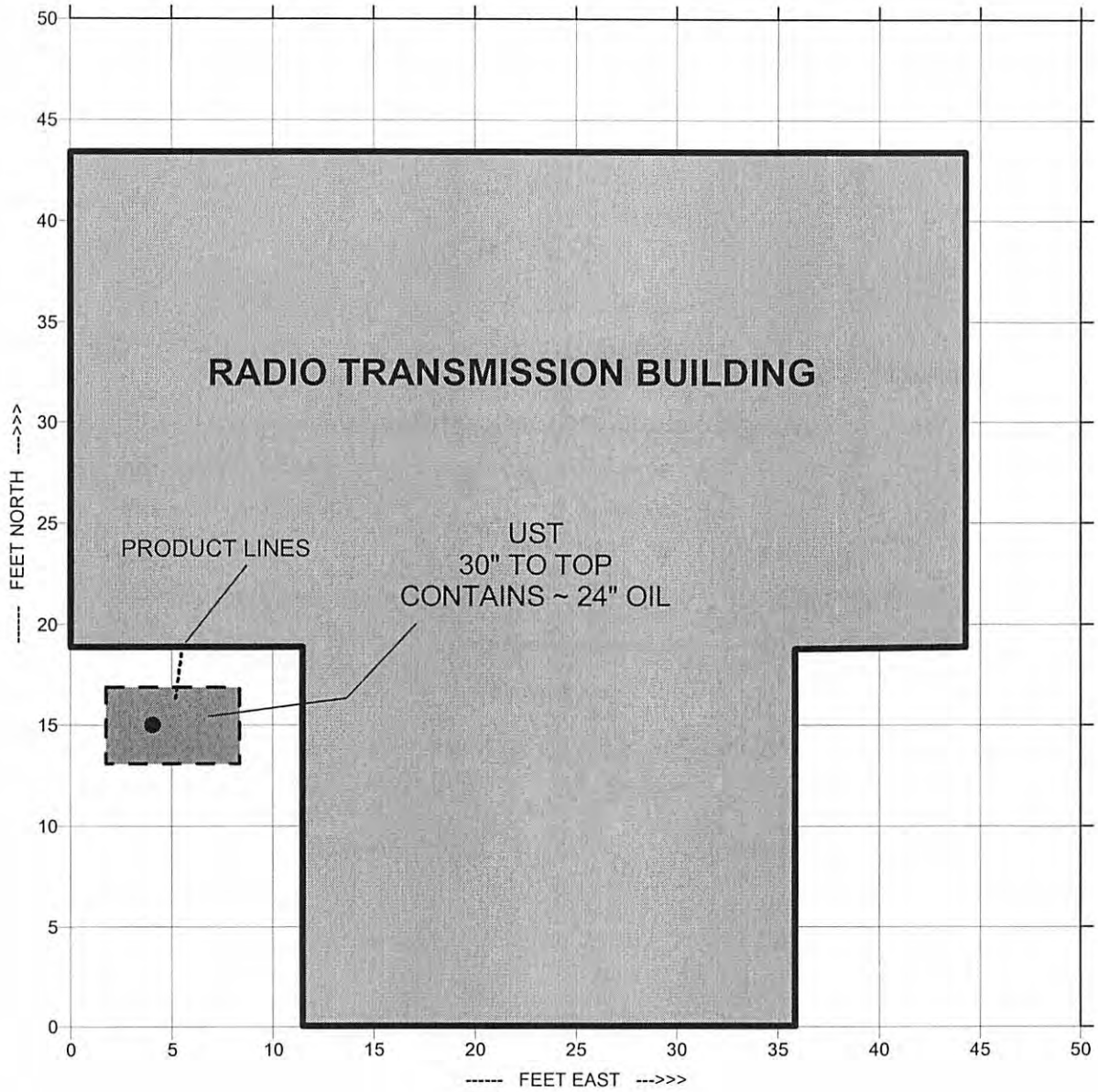
was written by Jeff Manna and emailed as a PDF file to Ms. Kuiper on September 17, 2006.

LIMITATIONS

Geophysical surveys consist of interpreting geophysical responses from subsurface features. Since a variety of subsurface features can produce identical geophysical responses it is necessary to confirm the geophysical interpretation with intrusive investigations such as excavating or drilling. In addition many subsurface features may produce no geophysical response. The use of this subsurface mapping survey is the sole responsibility of the client.

Jeffrey Mann, MS, PG **September 2006**
GeoPotential

SW corner of building



GeoPotential

ENVIRONMENTAL & EXPLORATION GEOPHYSICS

22323 East Wild Fern Lane, Brightwood, Oregon 97011• PH (503) 622-0154• FAX (503) 622-0526
E-Mail: GeoPotential@aol.com

LOCATION:
RADIO TRANSMISSION BUILDING
TILLAMOOK, OREGON

FIGURE 1.
INTERPRETATION MAP

DATE: SEPTEMBER 14, 2006 *SUBSURFACE MAPPING SURVEY* PROJECT No. 7664

CLIENT: AMEC INC, PORTLAND, OREGON

APPENDIX D

GPS Location Coordinates

Port of Tillamook Bay
Industrial Site K1-K8
GPS Range Sampling Coordinates

ID	Name	X	Y
0	RFR-1	438454.74171099900	5030082.23412999000
0	RFR-2	438467.20293400000	5030076.27182000000
0	RFR-3	438473.91053100000	5030062.32002000000
0	RFR-4	438461.89648100000	5030066.01664999000
0	RFR-5	438449.34582300000	5030072.15782999000
0	RFR-6	438439.03103000000	5030076.74880000000
0	SSRFL-1	0.00000000000	0.00000000000
0	SSRFL-2	0.00000000000	0.00000000000
0	SSR-SZ-1	438489.93423299900	5030406.09178000000
0	SSR-SZ-2	438337.65689200000	5030366.85979000000
0	SSR-SZ-3	438254.42307500000	5030388.56259000000
0	SSR-SZ-4	438162.36504300000	5030367.81376000000
0	SSR-SZ-5	438251.32267500000	5030315.58394999000
0	SSR-SZ-6	438391.16195799900	5030288.21200999000
0	SSR-SZ-7	438247.26830599900	5030275.04024999000
0	SSR-TPZ-1	438394.53730800000	5030496.00337999000
0	SSR-TPZ-2	438303.31399900000	5030479.90515000000
0	SSR-TPZ-3	438210.30199700000	5030487.05991999000
0	SSR-TPZ-4	438252.75362899900	5030452.71702999000
0	SSR-TPZ-5	438335.27196899900	5030419.80508999000
0	SSR-TPZ-6	438160.21861200000	5030411.93484000000

APPENDIX E

Laboratory Analytical Results and
Chain-of-Custody Documentation

Analytical Method Information

Analyte	MDL	Reporting Limit	Surrogate %R	Duplicate RPD	Matrix Spike %R	Matrix Spike RPD	Blank Spike / LCS %R	Blank Spike / LCS RPD
8330 Explosives in Water (EPA 8330)								
Preservation: Store cool at 4°C								
Container: 1L Amber Unpres		**Amount Required:** 1000 mls			**Hold Time:** 7 days			
HMX	1.5	1.5 ug/l		30	70 - 130	30	80 - 120	20
RDX	1.5	1.5 ug/l		30	70 - 130	30	80 - 120	20
1,3,5-Trinitrobenzene	1.5	1.5 ug/l		30	70 - 130	30	80 - 120	20
surr: 1,4-Dinitrobenzene	1.5		70 - 130	30		30		20
1,3-Dinitrobenzene	1.5	1.5 ug/l		30	70 - 130	30	80 - 120	20
Tetryl	1.5	1.5 ug/l		30	70 - 130	30	80 - 120	20
Nitrobenzene	1.5	1.5 ug/l		30	70 - 130	30	80 - 120	20
2,4,6-Trinitrotoluene	1.5	1.5 ug/l		30	70 - 130	30	80 - 120	20
4-Amino-2,6-dinitrotoluene	1.5	1.5 ug/l		30	70 - 130	30	80 - 120	20
2-Amino-4,6-dinitrotoluene	1.5	1.5 ug/l		30	70 - 130	30	80 - 120	20
2,6-Dinitrotoluene	1.5	1.5 ug/l		30	70 - 130	30	80 - 120	20
2,4-Dinitrotoluene	1.5	1.5 ug/l		30	70 - 130	30	80 - 120	20
2-Nitrotoluene	1.5	1.5 ug/l		30	70 - 130	30	80 - 120	20
4-Nitrotoluene	1.5	1.5 ug/l		30	70 - 130	30	80 - 120	20
3-Nitrotoluene	1.5	1.5 ug/l		30	70 - 130	30	80 - 120	20
8330 Explosives in Soil (EPA 8330)								
Preservation: Store cool at 4°C								
Container: Metal Core		**Amount Required:** 250 grams			**Hold Time:** 14 days			
HMX	140	500 ug/kg		30	70 - 130	30	80 - 120	20
RDX	300	500 ug/kg		30	70 - 130	30	80 - 120	20
1,3,5-Trinitrobenzene	220	500 ug/kg		30	70 - 130	30	80 - 120	20
surr: 1,4-Dinitrobenzene	500		70 - 130	30		30		20
1,3-Dinitrobenzene	240	500 ug/kg		30	70 - 130	30	80 - 120	20
Tetryl	210	500 ug/kg		30	70 - 130	30	80 - 120	20
Nitrobenzene	230	500 ug/kg		30	70 - 130	30	80 - 120	20
2,4,6-Trinitrotoluene	220	500 ug/kg		30	70 - 130	30	80 - 120	20
4-Amino-2,6-dinitrotoluene	170	500 ug/kg		30	70 - 130	30	80 - 120	20
2-Amino-4,6-dinitrotoluene	130	500 ug/kg		30	70 - 130	30	80 - 120	20
2,6-Dinitrotoluene	97	500 ug/kg		30	70 - 130	30	80 - 120	20
2,4-Dinitrotoluene	200	500 ug/kg		30	70 - 130	30	80 - 120	20
2-Nitrotoluene	230	500 ug/kg		30	70 - 130	30	80 - 120	20
4-Nitrotoluene	250	500 ug/kg		30	70 - 130	30	80 - 120	20
3-Nitrotoluene	160	500 ug/kg		30	70 - 130	30	80 - 120	20

Analytical Method Information

Analyte	MDL	Reporting Limit	Surrogate %R	Duplicate RPD	Matrix Spike %R	Matrix Spike RPD	Blank Spike / LCS %R	Blank Spike / LCS RPD
8332 Trinitroglycerin in Water (8332)								
Preservation: Store cool at 4°C in Dark								
Container: VOA Amber Unpres		**Amount Required:** 40 mLs				**Hold Time:** 7 days		
Trinitroglycerin	87	1000 ug/l		30	70 - 130	30	70 - 130	30
8332 Trinitroglycerin in Soil (8332)								
Preservation: Store cool at 4°C in Dark								
Container: 4 oz. jar		**Amount Required:** 30 grams				**Hold Time:** 14 days		
Trinitroglycerin	300	2000 ug/kg			50 - 150	50	50 - 150	50

TestAmerica
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November 14, 2006

Jennifer Kuiper
AMEC- Portland
7376 SW Durham Road
Portland, OR 97224

RE: Port of Tillamook Bay

Enclosed are the results of analyses for samples received by the laboratory on 10/27/06 12:55. The following list is a summary of the Work Orders contained in this report, generated on 11/14/06 19:09.

If you have any questions concerning this report, please feel free to contact me.

Work Order	Project	ProjectNumber
PPJ1225	Port of Tillamook Bay	661M115850

Sarah Rockwell

Sarah Rockwell, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SSR-TPZ-3-12	PPJ1225-01	Soil	10/26/06 12:59	10/27/06 12:55
SSR-TPZ-3-24	PPJ1225-02	Soil	10/26/06 13:08	10/27/06 12:55
SSR-TPZ-5-12	PPJ1225-03	Soil	10/26/06 14:11	10/27/06 12:55
SSR-TPZ-5-24	PPJ1225-04	Soil	10/26/06 14:19	10/27/06 12:55
SSR-TPZ-6-12	PPJ1225-05	Soil	10/26/06 13:30	10/27/06 12:55
SSR-TPZ-6-24	PPJ1225-06	Soil	10/26/06 13:36	10/27/06 12:55
SSR-SZ-1-12	PPJ1225-07	Soil	10/26/06 15:10	10/27/06 12:55
SSR-SZ-1-24	PPJ1225-08	Soil	10/26/06 15:20	10/27/06 12:55
SSR-SZ-2-12	PPJ1225-09	Soil	10/26/06 15:32	10/27/06 12:55
SSR-SZ-2-24	PPJ1225-10	Soil	10/26/06 15:38	10/27/06 12:55
SSR-SZ-3-12	PPJ1225-11	Soil	10/26/06 15:45	10/27/06 12:55
SSR-SZ-3-24	PPJ1225-12	Soil	10/26/06 15:48	10/27/06 12:55
SSR-SZ-4-12	PPJ1225-13	Soil	10/26/06 15:55	10/27/06 12:55
SSR-SZ-4-24	PPJ1225-14	Soil	10/26/06 15:58	10/27/06 12:55
SSR-SZ-5-12	PPJ1225-15	Soil	10/26/06 16:05	10/27/06 12:55
SSR-SZ-5-24	PPJ1225-16	Soil	10/26/06 16:08	10/27/06 12:55
SSR-SZ-6-12	PPJ1225-17	Soil	10/26/06 16:20	10/27/06 12:55
SSR-SZ-6-24	PPJ1225-18	Soil	10/26/06 16:23	10/27/06 12:55
SSR-SZ-7-12	PPJ1225-19	Soil	10/26/06 16:30	10/27/06 12:55
SSR-SZ-7-24	PPJ1225-20	Soil	10/26/06 16:33	10/27/06 12:55
RFR-5-12	PPJ1225-21	Soil	10/26/06 10:38	10/27/06 12:55
RFR-5-24	PPJ1225-22	Soil	10/26/06 10:48	10/27/06 12:55
RFR-6-12	PPJ1225-23	Soil	10/26/06 10:57	10/27/06 12:55
RFR-6-24	PPJ1225-24	Soil	10/26/06 11:06	10/27/06 12:55
SSR-TPZ-1-12	PPJ1225-25	Soil	10/26/06 11:45	10/27/06 12:55
SSR-TPZ-1-24	PPJ1225-26	Soil	10/26/06 11:51	10/27/06 12:55
SSR-TPZ-2-12	PPJ1225-27	Soil	10/26/06 12:09	10/27/06 12:55
SSR-TPZ-2-24	PPJ1225-28	Soil	10/26/06 12:13	10/27/06 12:55
SSR-TPZ-4-12	PPJ1225-29	Soil	10/26/06 12:22	10/27/06 12:55
SSR-TPZ-4-24	PPJ1225-30	Soil	10/26/06 12:24	10/27/06 12:55
RFR-1-12	PPJ1225-31	Soil	10/26/06 08:58	10/27/06 12:55
RFR-1-24	PPJ1225-32	Soil	10/26/06 08:59	10/27/06 12:55
RFR-2-12	PPJ1225-33	Soil	10/26/06 09:20	10/27/06 12:55
RFR-2-24	PPJ1225-34	Soil	10/26/06 09:24	10/27/06 12:55
RFR-7-12	PPJ1225-35	Soil	10/26/06 09:28	10/27/06 12:55

Sarah Rockwell

Sarah Rockwell, Project Manager

TestAmerica
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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
RFR-3-12	PPJ1225-36	Soil	10/26/06 09:38	10/27/06 12:55
RFR-3-24	PPJ1225-37	Soil	10/26/06 09:45	10/27/06 12:55
RFR-4-12	PPJ1225-38	Soil	10/26/06 09:56	10/27/06 12:55
RFR-4-24	PPJ1225-39	Soil	10/26/06 09:57	10/27/06 12:55

Sarah Rockwell

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7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

Total Metals per EPA 6000/7000 Series Methods
TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PPJ1225-07 (SSR-SZ-1-12)		**Soil**			**Sampled: 10/26/06 15:10**					
Antimony	EPA 6020	ND	----	0.745	mg/kg dry	1x	6101464	10/30/06 10:33	11/09/06 17:53	
Arsenic	"	4.87	----	0.745	"	"	"	"	"	
Copper	"	45.8	----	2.98	"	"	"	"	"	
Iron	EPA 6010B	64700	----	1450	"	100x	6101458	10/30/06 09:24	11/01/06 12:32	
Lead	EPA 6020	7.92	----	0.745	"	1x	6101464	10/30/06 10:33	11/09/06 17:53	
Tin	"	1.68	----	1.49	"	"	"	"	11/10/06 15:31	
Zinc	"	122	----	2.98	"	"	"	"	11/09/06 17:53	
PPJ1225-08 (SSR-SZ-1-24)		**Soil**			**Sampled: 10/26/06 15:20**					
Antimony	EPA 6020	ND	----	0.769	mg/kg dry	1x	6101464	10/30/06 10:33	11/09/06 18:17	
Arsenic	"	4.58	----	0.769	"	"	"	"	"	
Copper	"	43.3	----	3.07	"	"	"	"	"	
Iron	EPA 6010B	65300	----	1550	"	100x	6101458	10/30/06 09:24	11/01/06 12:57	
Lead	EPA 6020	7.20	----	0.769	"	1x	6101464	10/30/06 10:33	11/09/06 18:17	
Tin	"	1.69	----	1.54	"	"	"	"	11/10/06 15:55	
Zinc	"	108	----	3.07	"	"	"	"	11/09/06 18:17	
PPJ1225-09 (SSR-SZ-2-12)		**Soil**			**Sampled: 10/26/06 15:32**					
Antimony	EPA 6020	ND	----	0.707	mg/kg dry	1x	6101464	10/30/06 10:33	11/09/06 18:25	
Arsenic	"	4.79	----	0.707	"	"	"	"	"	
Copper	"	49.2	----	2.83	"	"	"	"	"	
Iron	EPA 6010B	67000	----	1390	"	100x	6101458	10/30/06 09:24	11/01/06 13:04	
Lead	EPA 6020	9.07	----	0.707	"	1x	6101464	10/30/06 10:33	11/09/06 18:25	
Tin	"	1.81	----	1.41	"	"	"	"	11/10/06 16:03	
Zinc	"	137	----	2.83	"	"	"	"	11/09/06 18:25	
PPJ1225-10 (SSR-SZ-2-24)		**Soil**			**Sampled: 10/26/06 15:38**					
Antimony	EPA 6020	ND	----	0.731	mg/kg dry	1x	6101464	10/30/06 10:33	11/09/06 18:29	
Arsenic	"	4.70	----	0.731	"	"	"	"	"	
Copper	"	45.7	----	2.92	"	"	"	"	"	
Iron	EPA 6010B	72600	----	1450	"	100x	6101458	10/30/06 09:24	11/01/06 13:10	
Lead	EPA 6020	7.39	----	0.731	"	1x	6101464	10/30/06 10:33	11/09/06 18:29	
Tin	"	1.82	----	1.46	"	"	"	"	11/10/06 16:07	
Zinc	"	121	----	2.92	"	"	"	"	11/09/06 18:29	

Sarah Rockwell, Project Manager

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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

Total Metals per EPA 6000/7000 Series Methods

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PPJ1225-11 (SSR-SZ-3-12)		**Soil**			**Sampled: 10/26/06 15:45**					
Antimony	EPA 6020	ND	----	0.711	mg/kg dry	1x	6101464	10/30/06 10:33	11/09/06 18:33	
Arsenic	"	4.58	----	0.711	"	"	"	"	"	
Copper	"	50.0	----	2.85	"	"	"	"	"	
Iron	EPA 6010B	52300	----	1410	"	100x	6101458	10/30/06 09:24	11/01/06 13:17	
Lead	EPA 6020	11.4	----	0.711	"	1x	6101464	10/30/06 10:33	11/09/06 18:33	
Tin	"	2.02	----	1.42	"	"	"	"	11/10/06 16:11	
Zinc	"	137	----	2.85	"	"	"	"	11/09/06 18:33	
PPJ1225-12 (SSR-SZ-3-24)		**Soil**			**Sampled: 10/26/06 15:48**					
Antimony	EPA 6020	ND	----	0.673	mg/kg dry	1x	6101464	10/30/06 10:33	11/09/06 18:37	
Arsenic	"	11.3	----	0.673	"	"	"	"	"	
Copper	"	52.7	----	2.69	"	"	"	"	"	
Iron	EPA 6010B	67900	----	1330	"	100x	6101458	10/30/06 09:24	11/01/06 13:23	
Lead	EPA 6020	9.17	----	0.673	"	1x	6101464	10/30/06 10:33	11/09/06 18:37	
Tin	"	2.06	----	1.35	"	"	"	"	11/10/06 16:14	
Zinc	"	128	----	2.69	"	"	"	"	11/09/06 18:37	
PPJ1225-13 (SSR-SZ-4-12)		**Soil**			**Sampled: 10/26/06 15:55**					
Antimony	EPA 6020	ND	----	0.766	mg/kg dry	1x	6101464	10/30/06 10:33	11/09/06 18:41	
Arsenic	"	9.99	----	0.766	"	"	"	"	"	
Copper	"	60.3	----	3.06	"	"	"	"	"	
Iron	EPA 6010B	54900	----	1530	"	100x	6101458	10/30/06 09:24	11/01/06 13:29	
Lead	EPA 6020	14.0	----	0.766	"	1x	6101464	10/30/06 10:33	11/09/06 18:41	
Tin	"	1.97	----	1.53	"	"	"	"	11/10/06 16:18	
Zinc	"	186	----	3.06	"	"	"	"	11/09/06 18:41	
PPJ1225-14 (SSR-SZ-4-24)		**Soil**			**Sampled: 10/26/06 15:58**					
Antimony	EPA 6020	ND	----	0.753	mg/kg dry	1x	6101464	10/30/06 10:33	11/09/06 18:45	
Arsenic	"	8.08	----	0.753	"	"	"	"	"	
Copper	"	43.7	----	3.01	"	"	"	"	"	
Iron	EPA 6010B	60900	----	1580	"	100x	6101458	10/30/06 09:24	11/01/06 13:41	
Lead	EPA 6020	10.3	----	0.753	"	1x	6101464	10/30/06 10:33	11/09/06 18:45	
Tin	"	1.78	----	1.51	"	"	"	"	11/10/06 16:30	
Zinc	"	143	----	3.01	"	"	"	"	11/09/06 18:45	

Sarah Rockwell, Project Manager

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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

Total Metals per EPA 6000/7000 Series Methods
TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PPJ1225-15 (SSR-SZ-S-12)		**Soil**			**Sampled: 10/26/06 16:05**					
Antimony	EPA 6020	ND	-----	0.738	mg/kg dry	1x	6101464	10/30/06 10:33	11/09/06 18:49	
Arsenic	"	8.39	-----	0.738	"	"	"	"	"	
Copper	"	44.9	----	2.95	"	"	"	"	"	
Iron	EPA 6010B	55100	----	1510	"	100x	6101458	10/30/06 09:24	11/01/06 13:48	
Lead	EPA 6020	11.5	-----	0.738	"	1x	6101464	10/30/06 10:33	11/09/06 18:49	
Tin	"	2.12	-----	1.48	"	"	"	"	11/10/06 16:34	
Zinc	"	143	-----	2.95	"	"	"	"	11/09/06 18:49	
PPJ1225-16 (SSR-SZ-S-24)		**Soil**			**Sampled: 10/26/06 16:08**					
Antimony	EPA 6020	ND	----	0.723	mg/kg dry	1x	6101464	10/30/06 10:33	11/09/06 18:53	
Arsenic	"	8.53	----	0.723	"	"	"	"	"	
Copper	"	43.2	----	2.89	"	"	"	"	"	
Iron	EPA 6010B	61000	-----	1450	"	100x	6101458	10/30/06 09:24	11/01/06 13:54	
Lead	EPA 6020	10.8	----	0.723	"	1x	6101464	10/30/06 10:33	11/09/06 18:53	
Tin	"	2.16	----	1.45	"	"	"	"	11/10/06 16:38	
Zinc	"	141	----	2.89	"	"	"	"	11/09/06 18:53	
PPJ1225-17 (SSR-SZ-6-12)		**Soil**			**Sampled: 10/26/06 16:20**					
Antimony	EPA 6020	ND	----	0.736	mg/kg dry	1x	6101464	10/30/06 10:33	11/09/06 19:05	
Arsenic	"	4.45	-----	0.736	"	"	"	"	"	
Copper	"	43.6	----	2.94	"	"	"	"	"	
Iron	EPA 6010B	61400	----	1440	"	100x	6101458	10/30/06 09:24	11/01/06 14:13	
Lead	EPA 6020	9.09	----	0.736	"	1x	6101464	10/30/06 10:33	11/09/06 19:05	
Tin	"	1.65	-----	1.47	"	"	"	"	11/10/06 16:42	
Zinc	"	109	----	2.94	"	"	"	"	11/09/06 19:05	
PPJ1225-18 (SSR-SZ-6-24)		**Soil**			**Sampled: 10/26/06 16:23**					
Antimony	EPA 6020	ND	----	0.750	mg/kg dry	1x	6101464	10/30/06 10:33	11/09/06 19:09	
Arsenic	"	5.12	-----	0.750	"	"	"	"	"	
Copper	"	46.2	-----	3.00	"	"	"	"	"	
Iron	EPA 6010B	64500	----	1430	"	100x	6101458	10/30/06 09:24	11/01/06 14:20	
Lead	EPA 6020	9.24	----	0.750	"	1x	6101464	10/30/06 10:33	11/09/06 19:09	
Tin	"	1.94	----	1.50	"	"	"	"	11/10/06 16:46	
Zinc	"	119	----	3.00	"	"	"	"	11/09/06 19:09	

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PORTLAND, OR 9405 S.W. NIMBUS AVENUE
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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

Total Metals per EPA 6000/7000 Series Methods
TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PPJ1225-19 (SSR-SZ-7-12)		**Soil**			**Sampled: 10/26/06 16:30**					
Antimony	EPA 6020	ND	-----	0.710	mg/kg dry	1x	6101464	10/30/06 10:33	11/09/06 19:13	
Arsenic	"	4.90	-----	0.710	"	"	"	"	"	
Copper	"	24.6	-----	2.84	"	"	"	"	"	
Iron	EPA 6010B	95200	-----	1480	"	100x	6101458	10/30/06 09:24	11/01/06 14:26	
Lead	EPA 6020	12.4	-----	0.710	"	1x	6101464	10/30/06 10:33	11/09/06 19:13	
Tin	"	1.99	-----	1.42	"	"	"	"	11/10/06 16:50	
Zinc	"	120	-----	2.84	"	"	"	"	11/09/06 19:13	
PPJ1225-20 (SSR-SZ-7-24)		**Soil**			**Sampled: 10/26/06 16:33**					
Antimony	EPA 6020	ND	-----	0.671	mg/kg dry	1x	6101464	10/30/06 10:33	11/09/06 19:17	
Arsenic	"	8.67	-----	0.671	"	"	"	"	"	
Copper	"	27.9	-----	2.68	"	"	"	"	"	
Iron	EPA 6010B	79700	-----	1390	"	100x	6101458	10/30/06 09:24	11/01/06 14:33	
Lead	EPA 6020	14.0	-----	0.671	"	1x	6101464	10/30/06 10:33	11/09/06 19:17	
Tin	"	2.03	-----	1.34	"	"	"	"	11/10/06 16:54	
Zinc	"	112	-----	2.68	"	"	"	"	11/09/06 19:17	
PPJ1225-21 (RFR-S-12)		**Soil**			**Sampled: 10/26/06 10:38**					
Antimony	EPA 6020	ND	-----	0.734	mg/kg dry	1x	6101464	10/30/06 10:33	11/09/06 19:21	
Arsenic	"	6.50	-----	0.734	"	"	"	"	"	
Copper	"	35.0	-----	2.93	"	"	"	"	"	
Iron	EPA 6010B	55400	-----	1470	"	100x	6101458	10/30/06 09:24	11/01/06 14:39	
Lead	EPA 6020	10.4	-----	0.734	"	1x	6101464	10/30/06 10:33	11/09/06 19:21	
Tin	"	1.75	-----	1.47	"	"	"	"	11/10/06 16:58	
Zinc	"	125	-----	2.93	"	"	"	"	11/09/06 19:21	
PPJ1225-22 (RFR-S-24)		**Soil**			**Sampled: 10/26/06 10:48**					
Antimony	EPA 6020	ND	-----	0.742	mg/kg dry	1x	6101464	10/30/06 10:33	11/09/06 19:25	
Arsenic	"	8.71	-----	0.742	"	"	"	"	"	
Copper	"	37.8	-----	2.97	"	"	"	"	"	
Iron	EPA 6010B	58400	-----	1480	"	100x	6101458	10/30/06 09:24	11/01/06 14:45	
Lead	EPA 6020	11.7	-----	0.742	"	1x	6101464	10/30/06 10:33	11/09/06 19:25	
Tin	"	2.14	-----	1.48	"	"	"	"	11/10/06 17:02	
Zinc	"	150	-----	2.97	"	"	"	"	11/09/06 19:25	

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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

Total Metals per EPA 6000/7000 Series Methods

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PPJ1225-23 (RFR-6-12)		**Soil**				**Sampled: 10/26/06 10:57**				
Antimony	EPA 6020	ND	----	0.764	mg/kg dry	1x	6101464	10/30/06 10:33	11/09/06 19:29	
Arsenic	"	7.65	----	0.764	"	"	"	"	"	
Copper	"	36.1	----	3.06	"	"	"	"	"	
Iron	EPA 6010B	60500	----	1510	"	100x	6101458	10/30/06 09:24	11/01/06 14:52	
Lead	EPA 6020	11.1	----	0.764	"	1x	6101464	10/30/06 10:33	11/09/06 19:29	
Tin	"	2.21	----	1.53	"	"	"	"	11/10/06 17:06	
Zinc	"	133	----	3.06	"	"	"	"	11/09/06 19:29	
PPJ1225-24 (RFR-6-24)		**Soil**				**Sampled: 10/26/06 11:06**				
Antimony	EPA 6020	ND	----	0.748	mg/kg dry	1x	6101517	10/31/06 11:24	11/03/06 21:00	
Arsenic	"	6.54	----	0.748	"	"	"	"	"	
Copper	"	31.0	----	2.99	"	"	"	"	11/06/06 18:41	
Iron	EPA 6010B	71700	----	1510	"	100x	6101491	10/30/06 15:12	11/06/06 19:35	
Lead	EPA 6020	9.24	----	0.748	"	1x	6101517	10/31/06 11:24	11/06/06 18:41	
Tin	"	2.43	----	1.50	"	"	"	"	11/07/06 06:21	
Zinc	"	124	----	2.99	"	"	"	"	11/06/06 18:41	
PPJ1225-31 (RFR-1-12)		**Soil**				**Sampled: 10/26/06 08:58**				
Antimony	EPA 6020	ND	----	0.722	mg/kg dry	1x	6101517	10/31/06 11:24	11/03/06 21:23	
Arsenic	"	7.20	----	0.722	"	"	"	"	"	
Copper	"	58.9	----	2.89	"	"	"	"	11/06/06 19:04	
Iron	EPA 6010B	61300	----	144	"	10x	6101491	10/30/06 15:12	11/03/06 23:15	
Lead	EPA 6020	10.8	----	0.722	"	1x	6101517	10/31/06 11:24	11/06/06 19:04	
Tin	"	2.31	----	1.44	"	"	"	"	11/07/06 06:44	
Zinc	"	130	----	2.89	"	"	"	"	11/06/06 19:04	
PPJ1225-32 (RFR-1-24)		**Soil**				**Sampled: 10/26/06 08:59**				
Antimony	EPA 6020	ND	----	0.762	mg/kg dry	1x	6101517	10/31/06 11:24	11/03/06 21:27	
Arsenic	"	8.37	----	0.762	"	"	"	"	"	
Copper	"	32.5	----	3.05	"	"	"	"	11/06/06 19:08	
Iron	EPA 6010B	63300	----	1450	"	100x	6101491	10/30/06 15:12	11/06/06 19:41	
Lead	EPA 6020	9.73	----	0.762	"	1x	6101517	10/31/06 11:24	11/06/06 19:08	
Tin	"	2.39	----	1.52	"	"	"	"	11/07/06 06:48	
Zinc	"	120	----	3.05	"	"	"	"	11/06/06 19:08	

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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

Total Metals per EPA 6000/7000 Series Methods
TestAmerica - Portland, OR

Analyte	Method	Result	MDL[a]	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PPJ1225-33 (RFR-2-12)		**Soil**			**Sampled: 10/26/06 09:20**					
Antimony	EPA 6020	ND	-----	0.760	mg/kg dry	1x	6101517	10/31/06 11:24	11/03/06 21:31	
Arsenic	"	6.04	-----	0.760	"	"	"	"	"	
Copper	"	37.4	-----	3.04	"	"	"	"	11/06/06 19:12	
Iron	EPA 6010B	42600	-----	151	"	10x	6101491	10/30/06 15:12	11/03/06 23:28	
Lead	EPA 6020	10.3	-----	0.760	"	1x	6101517	10/31/06 11:24	11/06/06 19:12	
Tin	"	2.33	-----	1.52	"	"	"	"	11/07/06 06:52	
Zinc	"	139	-----	3.04	"	"	"	"	11/06/06 19:12	
PPJ1225-34 (RFR-2-24)		**Soil**			**Sampled: 10/26/06 09:24**					
Antimony	EPA 6020	ND	-----	0.799	mg/kg dry	1x	6101517	10/31/06 11:24	11/03/06 21:35	
Arsenic	"	6.16	-----	0.799	"	"	"	"	"	
Copper	"	33.7	-----	3.19	"	"	"	"	11/06/06 19:16	
Iron	EPA 6010B	60000	-----	157	"	10x	6101491	10/30/06 15:12	11/03/06 23:48	
Lead	EPA 6020	9.68	-----	0.799	"	1x	6101517	10/31/06 11:24	11/06/06 19:16	
Tin	"	2.51	-----	1.60	"	"	"	"	11/07/06 06:56	
Zinc	"	118	-----	3.19	"	"	"	"	11/06/06 19:16	
PPJ1225-35 (RFR-7-12)		**Soil**			**Sampled: 10/26/06 09:28**					
Antimony	EPA 6020	ND	-----	0.749	mg/kg dry	1x	6101517	10/31/06 11:24	11/03/06 21:39	
Arsenic	"	6.64	-----	0.749	"	"	"	"	"	
Copper	"	36.3	-----	3.00	"	"	"	"	11/06/06 19:20	
Iron	EPA 6010B	54800	-----	148	"	10x	6101491	10/30/06 15:12	11/03/06 23:54	
Lead	EPA 6020	10.2	-----	0.749	"	1x	6101517	10/31/06 11:24	11/06/06 19:20	
Tin	"	2.40	-----	1.50	"	"	"	"	11/07/06 07:01	
Zinc	"	131	-----	3.00	"	"	"	"	11/06/06 19:20	
PPJ1225-36 (RFR-3-12)		**Soil**			**Sampled: 10/26/06 09:38**					
Antimony	EPA 6020	ND	-----	0.766	mg/kg dry	1x	6101517	10/31/06 11:24	11/03/06 21:43	
Arsenic	"	6.67	-----	0.766	"	"	"	"	"	
Copper	"	33.5	-----	3.06	"	"	"	"	11/06/06 19:24	
Iron	EPA 6010B	58300	-----	153	"	10x	6101491	10/30/06 15:12	11/04/06 00:00	
Lead	EPA 6020	10.5	-----	0.766	"	1x	6101517	10/31/06 11:24	11/06/06 19:24	
Tin	"	2.36	-----	1.53	"	"	"	"	11/07/06 07:05	
Zinc	"	127	-----	3.06	"	"	"	"	11/06/06 19:24	

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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

Total Metals per EPA 6000/7000 Series Methods

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PPJ1225-37 (RFR-3-24)		**Soil**			**Sampled: 10/26/06 09:45**					
Antimony	EPA 6020	ND	----	0.752	mg/kg dry	1x	6101517	10/31/06 11:24	11/03/06 21:47	
Arsenic	"	6.45	----	0.752	"	"	"	"	"	
Copper	"	29.2	----	3.01	"	"	"	"	11/06/06 19:28	
Iron	EPA 6010B	61600	----	145	"	10x	6101491	10/30/06 15:12	11/04/06 00:07	
Lead	EPA 6020	9.74	----	0.752	"	1x	6101517	10/31/06 11:24	11/06/06 19:28	
Tin	"	2.37	----	1.50	"	"	"	"	11/07/06 07:09	
Zinc	"	116	----	3.01	"	"	"	"	11/06/06 19:28	
PPJ1225-38 (RFR-4-12)		**Soil**			**Sampled: 10/26/06 09:56**					
Antimony	EPA 6020	ND	----	0.737	mg/kg dry	1x	6101517	10/31/06 11:24	11/03/06 21:51	
Arsenic	"	6.90	----	0.737	"	"	"	"	"	
Copper	"	34.8	----	2.95	"	"	"	"	11/06/06 19:32	
Iron	EPA 6010B	55100	----	146	"	10x	6101491	10/30/06 15:12	11/04/06 00:13	
Lead	EPA 6020	11.5	----	0.737	"	1x	6101517	10/31/06 11:24	11/06/06 19:32	
Tin	"	2.26	----	1.47	"	"	"	"	11/07/06 07:12	
Zinc	"	147	----	2.95	"	"	"	"	11/06/06 19:32	
PPJ1225-39 (RFR-4-24)		**Soil**			**Sampled: 10/26/06 09:57**					
Antimony	EPA 6020	ND	----	0.754	mg/kg dry	1x	6101517	10/31/06 11:24	11/03/06 22:03	
Arsenic	"	6.39	----	0.754	"	"	"	"	"	
Copper	"	28.4	----	3.01	"	"	"	"	11/06/06 19:44	
Iron	EPA 6010B	64100	----	149	"	10x	6101491	10/30/06 15:12	11/04/06 00:33	
Lead	EPA 6020	9.01	----	0.754	"	1x	6101517	10/31/06 11:24	11/06/06 19:44	
Tin	"	2.28	----	1.51	"	"	"	"	11/07/06 07:17	
Zinc	"	118	----	3.01	"	"	"	"	11/06/06 19:44	

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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PPJ1225-01 (SSR-TPZ-3-12)		**Soil**			**Sampled: 10/26/06 12:59**					
Acenaphthene	EPA 8270m	ND	——	19.4	ug/kg dry	1x	6110005	11/01/06 13:00	11/08/06 19:46	
Acenaphthylene	"	ND	——	19.4	"	"	"	"	"	
Anthracene	"	ND	——	19.4	"	"	"	"	"	
Benzo (a) anthracene	"	ND	——	19.4	"	"	"	"	"	
Benzo (a) pyrene	"	ND	——	19.4	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	——	19.4	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	——	19.4	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	——	19.4	"	"	"	"	"	
Chrysene	"	ND	——	19.4	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	——	19.4	"	"	"	"	"	
Fluoranthene	"	ND	——	19.4	"	"	"	"	"	
Fluorene	"	ND	——	19.4	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	——	19.4	"	"	"	"	"	
Naphthalene	"	ND	——	19.4	"	"	"	"	"	
Phenanthrene	"	ND	——	19.4	"	"	"	"	"	
Pyrene	"	ND	——	19.4	"	"	"	"	"	
Surrogate(s): *Fluorene-d10*			*74.6%*		*32 - 134 %*	"			"	
Pyrene-d10			*65.9%*		*41 - 152 %*	"			"	
Benzo (a) pyrene-d12			*72.7%*		*36 - 145 %*	"			"	
PPJ1225-02 (SSR-TPZ-3-24)		**Soil**			**Sampled: 10/26/06 13:08**					
Acenaphthene	EPA 8270m	ND	——	18.8	ug/kg dry	1x	6110005	11/01/06 13:00	11/08/06 20:16	
Acenaphthylene	"	ND	——	18.8	"	"	"	"	"	
Anthracene	"	ND	——	18.8	"	"	"	"	"	
Benzo (a) anthracene	"	ND	——	18.8	"	"	"	"	"	
Benzo (a) pyrene	"	ND	——	18.8	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	——	18.8	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	——	18.8	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	——	18.8	"	"	"	"	"	
Chrysene	"	ND	——	18.8	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	——	18.8	"	"	"	"	"	
Fluoranthene	"	ND	——	18.8	"	"	"	"	"	
Fluorene	"	ND	——	18.8	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	——	18.8	"	"	"	"	"	
Naphthalene	"	ND	——	18.8	"	"	"	"	"	
Phenanthrene	"	ND	——	18.8	"	"	"	"	"	
Pyrene	"	ND	——	18.8	"	"	"	"	"	
Surrogate(s): *Fluorene-d10*			*57.1%*		*32 - 134 %*	"			"	
Pyrene-d10			*54.6%*		*41 - 152 %*	"			"	
Benzo (a) pyrene-d12			*58.3%*		*36 - 145 %*	"			"	

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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PPJ1225-03 (SSR-TPZ-5-12)		**Soil**			**Sampled: 10/26/06 14:11**					
Acenaphthene	EPA 8270m	ND	—	17.9	ug/kg dry	1x	6110005	11/01/06 13:00	11/08/06 20:46	
Acenaphthylene	"	ND	—	17.9	"	"	"	"	"	
Anthracene	"	ND	—	17.9	"	"	"	"	"	
Benzo (a) anthracene	"	ND	—	17.9	"	"	"	"	"	
Benzo (a) pyrene	"	ND	—	17.9	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	—	17.9	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	—	17.9	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	—	17.9	"	"	"	"	"	
Chrysene	"	ND	—	17.9	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	—	17.9	"	"	"	"	"	
Fluoranthene	"	ND	—	17.9	"	"	"	"	"	
Fluorene	"	ND	—	17.9	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	—	17.9	"	"	"	"	"	
Naphthalene	"	ND	—	17.9	"	"	"	"	"	
Phenanthrene	"	ND	—	17.9	"	"	"	"	"	
Pyrene	"	ND	—	17.9	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*67.2%*		*32 - 134 %*	"			"	
Pyrene-d10			*63.4%*		*41 - 152 %*	"			"	
Benzo (a) pyrene-d12			*70.0%*		*36 - 145 %*	"			"	
PPJ1225-04 (SSR-TPZ-5-24)		**Soil**			**Sampled: 10/26/06 14:19**					
Acenaphthene	EPA 8270m	ND	—	18.5	ug/kg dry	1x	6110005	11/01/06 13:00	11/08/06 21:16	
Acenaphthylene	"	ND	—	18.5	"	"	"	"	"	
Anthracene	"	ND	—	18.5	"	"	"	"	"	
Benzo (a) anthracene	"	ND	—	18.5	"	"	"	"	"	
Benzo (a) pyrene	"	ND	—	18.5	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	—	18.5	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	—	18.5	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	—	18.5	"	"	"	"	"	
Chrysene	"	ND	—	18.5	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	—	18.5	"	"	"	"	"	
Fluoranthene	"	ND	—	18.5	"	"	"	"	"	
Fluorene	"	ND	—	18.5	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	—	18.5	"	"	"	"	"	
Naphthalene	"	ND	—	18.5	"	"	"	"	"	
Phenanthrene	"	ND	—	18.5	"	"	"	"	"	
Pyrene	"	ND	—	18.5	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*74.4%*		*32 - 134 %*	"			"	
Pyrene-d10			*67.1%*		*41 - 152 %*	"			"	
Benzo (a) pyrene-d12			*74.3%*		*36 - 145 %*	"			"	

Sarah Rockwell

Sarah Rockwell, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PPJ1225-05 (SSR-TPZ-6-12)		**Soil**			**Sampled: 10/26/06 13:30**					
Acenaphthene	EPA 8270m	ND	-----	20.6	ug/kg dry	1x	6110005	11/01/06 13:00	11/08/06 21:45	
Acenaphthylene	"	ND	-----	20.6	"	"	"	"	"	
Anthracene	"	ND	-----	20.6	"	"	"	"	"	
Benzo (a) anthracene	"	ND	-----	20.6	"	"	"	"	"	
Benzo (a) pyrene	"	ND	-----	20.6	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	-----	20.6	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	-----	20.6	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	-----	20.6	"	"	"	"	"	
Chrysene	"	ND	-----	20.6	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	20.6	"	"	"	"	"	
Fluoranthene	"	ND	-----	20.6	"	"	"	"	"	
Fluorene	"	ND	-----	20.6	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	-----	20.6	"	"	"	"	"	
Naphthalene	"	ND	-----	20.6	"	"	"	"	"	
Phenanthrene	"	ND	-----	20.6	"	"	"	"	"	
Pyrene	"	ND	-----	20.6	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*73.0%*		*32 - 134 %*	"			"	
Pyrene-d10			*63.9%*		*41 - 152 %*	"			"	
Benzo (a) pyrene-d12			*68.9%*		*36 - 145 %*	"			"	
PPJ1225-06 (SSR-TPZ-6-24)		**Soil**			**Sampled: 10/26/06 13:36**					
Acenaphthene	EPA 8270m	ND	-----	19.7	ug/kg dry	1x	6110005	11/01/06 13:00	11/08/06 22:15	
Acenaphthylene	"	ND	-----	19.7	"	"	"	"	"	
Anthracene	"	ND	-----	19.7	"	"	"	"	"	
Benzo (a) anthracene	"	ND	-----	19.7	"	"	"	"	"	
Benzo (a) pyrene	"	ND	-----	19.7	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	-----	19.7	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	-----	19.7	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	-----	19.7	"	"	"	"	"	
Chrysene	"	ND	-----	19.7	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	19.7	"	"	"	"	"	
Fluoranthene	"	ND	-----	19.7	"	"	"	"	"	
Fluorene	"	ND	-----	19.7	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	-----	19.7	"	"	"	"	"	
Naphthalene	"	ND	-----	19.7	"	"	"	"	"	
Phenanthrene	"	ND	-----	19.7	"	"	"	"	"	
Pyrene	"	ND	-----	19.7	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*64.9%*		*32 - 134 %*	"			"	
Pyrene-d10			*68.4%*		*41 - 152 %*	"			"	
Benzo (a) pyrene-d12			*72.0%*		*36 - 145 %*	"			"	

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Sarah Rockwell

Sarah Rockwell, Project Manager

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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PPJ1225-25 (SSR-TPZ-1-12)		**Soil**			**Sampled: 10/26/06 11:45**					
Acenaphthene	EPA 8270m	ND	----	17.5	ug/kg dry	1x	6110005	11/01/06 13:00	11/08/06 22:45	
Acenaphthylene	"	ND	----	17.5	"	"	"	"	"	
Anthracene	"	ND	----	17.5	"	"	"	"	"	
Benzo (a) anthracene	"	ND	----	17.5	"	"	"	"	"	
Benzo (a) pyrene	"	ND	----	17.5	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	----	17.5	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	----	17.5	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	----	17.5	"	"	"	"	"	
Chrysene	"	ND	----	17.5	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	----	17.5	"	"	"	"	"	
Fluoranthene	"	ND	----	17.5	"	"	"	"	"	
Fluorene	"	ND	----	17.5	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	----	17.5	"	"	"	"	"	
Naphthalene	"	ND	----	17.5	"	"	"	"	"	
Phenanthrene	"	ND	----	17.5	"	"	"	"	"	
Pyrene	"	ND	----	17.5	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*80.7%*		*32 - 134 %*	"			"	
Pyrene-d10			*68.7%*		*41 - 152 %*	"			"	
Benzo (a) pyrene-d12			*76.3%*		*36 - 145 %*	"			"	
PPJ1225-26 (SSR-TPZ-1-24)		**Soil**			**Sampled: 10/26/06 11:51**					
Acenaphthene	EPA 8270m	ND	----	17.8	ug/kg dry	1x	6110005	11/01/06 13:00	11/08/06 23:15	
Acenaphthylene	"	ND	----	17.8	"	"	"	"	"	
Anthracene	"	ND	----	17.8	"	"	"	"	"	
Benzo (a) anthracene	"	ND	----	17.8	"	"	"	"	"	
Benzo (a) pyrene	"	ND	----	17.8	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	----	17.8	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	----	17.8	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	----	17.8	"	"	"	"	"	
Chrysene	"	ND	----	17.8	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	----	17.8	"	"	"	"	"	
Fluoranthene	"	ND	----	17.8	"	"	"	"	"	
Fluorene	"	ND	----	17.8	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	----	17.8	"	"	"	"	"	
Naphthalene	"	ND	----	17.8	"	"	"	"	"	
Phenanthrene	"	ND	----	17.8	"	"	"	"	"	
Pyrene	"	ND	----	17.8	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*73.2%*		*32 - 134 %*	"			"	
Pyrene-d10			*70.4%*		*41 - 152 %*	"			"	
Benzo (a) pyrene-d12			*76.6%*		*36 - 145 %*	"			"	

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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PPJ1225-27 (SSR-TPZ-2-12)		**Soil**			**Sampled: 10/26/06 12:09**					
Acenaphthene	EPA 8270m	ND	——	17.5	ug/kg dry	1x	6110005	11/01/06 13:00	11/08/06 23:45	
Acenaphthylene	"	ND	——	17.5	"	"	"	"	"	
Anthracene	"	ND	——	17.5	"	"	"	"	"	
Benzo (a) anthracene	"	ND	——	17.5	"	"	"	"	"	
Benzo (a) pyrene	"	ND	——	17.5	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	——	17.5	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	——	17.5	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	——	17.5	"	"	"	"	"	
Chrysene	"	ND	——	17.5	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	——	17.5	"	"	"	"	"	
Fluoranthene	"	ND	——	17.5	"	"	"	"	"	
Fluorene	"	ND	——	17.5	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	——	17.5	"	"	"	"	"	
Naphthalene	"	ND	——	17.5	"	"	"	"	"	
Phenanthrene	"	ND	——	17.5	"	"	"	"	"	
Pyrene	"	ND	——	17.5	"	"	"	"	"	
Surrogate(s): Fluorene-d10		*76.6%*			*32 - 134 %*	"			"	
Pyrene-d10		*66.0%*			*41 - 152 %*	"			"	
Benzo (a) pyrene-d12		*73.9%*			*36 - 145 %*	"			"	
PPJ1225-28 (SSR-TPZ-2-24)		**Soil**			**Sampled: 10/26/06 12:13**					
Acenaphthene	EPA 8270m	ND	——	17.8	ug/kg dry	1x	6110005	11/01/06 13:00	11/09/06 00:14	
Acenaphthylene	"	ND	——	17.8	"	"	"	"	"	
Anthracene	"	ND	——	17.8	"	"	"	"	"	
Benzo (a) anthracene	"	ND	——	17.8	"	"	"	"	"	
Benzo (a) pyrene	"	ND	——	17.8	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	——	17.8	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	——	17.8	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	——	17.8	"	"	"	"	"	
Chrysene	"	ND	——	17.8	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	——	17.8	"	"	"	"	"	
Fluoranthene	"	ND	——	17.8	"	"	"	"	"	
Fluorene	"	ND	——	17.8	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	——	17.8	"	"	"	"	"	
Naphthalene	"	ND	——	17.8	"	"	"	"	"	
Phenanthrene	"	ND	——	17.8	"	"	"	"	"	
Pyrene	"	ND	——	17.8	"	"	"	"	"	
Surrogate(s): Fluorene-d10		*69.2%*			*32 - 134 %*	"			"	
Pyrene-d10		*67.9%*			*41 - 152 %*	"			"	
Benzo (a) pyrene-d12		*70.6%*			*36 - 145 %*	"			"	

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Sarah Rockwell, Project Manager

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PORTLAND, OR 9405 S.W. NIMBUS AVENUE
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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PPJ1225-29 (SSR-TPZ-4-12)		**Soil**			**Sampled: 10/26/06 12:22**					
Acenaphthene	EPA 8270m	ND	-----	19.1	ug/kg dry	1x	6110005	11/01/06 13:00	11/09/06 00:44	
Acenaphthylene	"	ND	-----	19.1	"	"	"	"	"	
Anthracene	"	ND	-----	19.1	"	"	"	"	"	
Benzo (a) anthracene	"	ND	-----	19.1	"	"	"	"	"	
Benzo (a) pyrene	"	ND	-----	19.1	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	-----	19.1	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	-----	19.1	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	-----	19.1	"	"	"	"	"	
Chrysene	"	ND	-----	19.1	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	19.1	"	"	"	"	"	
Fluoranthene	"	ND	-----	19.1	"	"	"	"	"	
Fluorene	"	ND	-----	19.1	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	-----	19.1	"	"	"	"	"	
Naphthalene	"	ND	-----	19.1	"	"	"	"	"	
Phenanthrene	"	ND	-----	19.1	"	"	"	"	"	
Pyrene	"	ND	-----	19.1	"	"	"	"	"	
Surrogate(s): *Fluorene-d10*			*76.8%*		*32 - 134 %*	"			"	
Pyrene-d10			*70.6%*		*41 - 152 %*	"			"	
Benzo (a) pyrene-d12			*75.6%*		*36 - 145 %*	"			"	
PPJ1225-30 (SSR-TPZ-4-24)		**Soil**			**Sampled: 10/26/06 12:24**					
Acenaphthene	EPA 8270m	ND	-----	18.8	ug/kg dry	1x	6110005	11/01/06 13:00	11/09/06 01:14	
Acenaphthylene	"	ND	-----	18.8	"	"	"	"	"	
Anthracene	"	ND	-----	18.8	"	"	"	"	"	
Benzo (a) anthracene	"	ND	-----	18.8	"	"	"	"	"	
Benzo (a) pyrene	"	ND	-----	18.8	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	-----	18.8	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	-----	18.8	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	-----	18.8	"	"	"	"	"	
Chrysene	"	ND	-----	18.8	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	18.8	"	"	"	"	"	
Fluoranthene	"	ND	-----	18.8	"	"	"	"	"	
Fluorene	"	ND	-----	18.8	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	-----	18.8	"	"	"	"	"	
Naphthalene	"	ND	-----	18.8	"	"	"	"	"	
Phenanthrene	"	ND	-----	18.8	"	"	"	"	"	
Pyrene	"	ND	-----	18.8	"	"	"	"	"	
Surrogate(s): *Fluorene-d10*			*67.4%*		*32 - 134 %*	"			"	
Pyrene-d10			*66.5%*		*41 - 152 %*	"			"	
Benzo (a) pyrene-d12			*71.6%*		*36 - 145 %*	"			"	

Sarah Rockwell

Sarah Rockwell, Project Manager

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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

Percent Dry Weight (Solids) per Standard Methods

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PPJ1225-01 (SSR-TPZ-3-12)		**Soil**			**Sampled: 10/26/06 12:59**					
% Solids	NCA SOP	68.8	-----	0.00	% by Weight	1x	6101482	10/30/06 13:55	10/30/06 13:55	
PPJ1225-02 (SSR-TPZ-3-24)		**Soil**			**Sampled: 10/26/06 13:08**					
% Solids	NCA SOP	70.7	-----	0.00	% by Weight	1x	6101482	10/30/06 13:55	10/30/06 13:55	
PPJ1225-03 (SSR-TPZ-5-12)		**Soil**			**Sampled: 10/26/06 14:11**					
% Solids	NCA SOP	74.8	-----	0.00	% by Weight	1x	6101482	10/30/06 13:55	10/30/06 13:55	
PPJ1225-04 (SSR-TPZ-5-24)		**Soil**			**Sampled: 10/26/06 14:19**					
% Solids	NCA SOP	72.2	-----	0.00	% by Weight	1x	6101482	10/30/06 13:55	10/30/06 13:55	
PPJ1225-05 (SSR-TPZ-6-12)		**Soil**			**Sampled: 10/26/06 13:30**					
% Solids	NCA SOP	64.3	-----	0.00	% by Weight	1x	6101442	10/28/06 11:42	10/28/06 11:42	
PPJ1225-06 (SSR-TPZ-6-24)		**Soil**			**Sampled: 10/26/06 13:36**					
% Solids	NCA SOP	67.9	-----	0.00	% by Weight	1x	6101442	10/28/06 11:42	10/28/06 11:42	
PPJ1225-07 (SSR-SZ-1-12)		**Soil**			**Sampled: 10/26/06 15:10**					
% Solids	NCA SOP	65.8	-----	0.00	% by Weight	1x	6101442	10/28/06 11:42	10/28/06 11:42	
PPJ1225-08 (SSR-SZ-1-24)		**Soil**			**Sampled: 10/26/06 15:20**					
% Solids	NCA SOP	64.4	-----	0.00	% by Weight	1x	6101442	10/28/06 11:42	10/28/06 11:42	
PPJ1225-09 (SSR-SZ-2-12)		**Soil**			**Sampled: 10/26/06 15:32**					
% Solids	NCA SOP	70.7	-----	0.00	% by Weight	1x	6101442	10/28/06 11:42	10/28/06 11:42	
PPJ1225-10 (SSR-SZ-2-24)		**Soil**			**Sampled: 10/26/06 15:38**					
% Solids	NCA SOP	67.7	-----	0.00	% by Weight	1x	6101442	10/28/06 11:42	10/28/06 11:42	
PPJ1225-11 (SSR-SZ-3-12)		**Soil**			**Sampled: 10/26/06 15:45**					

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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

Percent Dry Weight (Solids) per Standard Methods

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PPJ1225-11 (SSR-SZ-3-12)		**Soil**			**Sampled: 10/26/06 15:45**					
% Solids	NCA SOP	68.9	----	0.00	% by Weight	1x	6101442	10/28/06 11:42	10/28/06 11:42	
PPJ1225-12 (SSR-SZ-3-24)		**Soil**			**Sampled: 10/26/06 15:48**					
% Solids	NCA SOP	72.8	----	0.00	% by Weight	1x	6101442	10/28/06 11:42	10/28/06 11:42	
PPJ1225-13 (SSR-SZ-4-12)		**Soil**			**Sampled: 10/26/06 15:55**					
% Solids	NCA SOP	65.3	----	0.00	% by Weight	1x	6101442	10/28/06 11:42	10/28/06 11:42	
PPJ1225-14 (SSR-SZ-4-24)		**Soil**			**Sampled: 10/26/06 15:58**					
% Solids	NCA SOP	63.2	----	0.00	% by Weight	1x	6101442	10/28/06 11:42	10/28/06 11:42	
PPJ1225-15 (SSR-SZ-5-12)		**Soil**			**Sampled: 10/26/06 16:05**					
% Solids	NCA SOP	66.4	----	0.00	% by Weight	1x	6101442	10/28/06 11:42	10/28/06 11:42	
PPJ1225-16 (SSR-SZ-5-24)		**Soil**			**Sampled: 10/26/06 16:08**					
% Solids	NCA SOP	65.9	----	0.00	% by Weight	1x	6101442	10/28/06 11:42	10/28/06 11:42	
PPJ1225-17 (SSR-SZ-6-12)		**Soil**			**Sampled: 10/26/06 16:20**					
% Solids	NCA SOP	66.0	----	0.00	% by Weight	1x	6101442	10/28/06 11:42	10/28/06 11:42	
PPJ1225-18 (SSR-SZ-6-24)		**Soil**			**Sampled: 10/26/06 16:23**					
% Solids	NCA SOP	66.7	----	0.00	% by Weight	1x	6101442	10/28/06 11:42	10/28/06 11:42	
PPJ1225-19 (SSR-SZ-7-12)		**Soil**			**Sampled: 10/26/06 16:30**					
% Solids	NCA SOP	67.7	----	0.00	% by Weight	1x	6101442	10/28/06 11:42	10/28/06 11:42	
PPJ1225-20 (SSR-SZ-7-24)		**Soil**			**Sampled: 10/26/06 16:33**					
% Solids	NCA SOP	71.0	----	0.00	% by Weight	1x	6101442	10/28/06 11:42	10/28/06 11:42	
PPJ1225-21 (RFR-5-12)		**Soil**			**Sampled: 10/26/06 10:38**					

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Sarah Rockwell

Sarah Rockwell, Project Manager

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PORTLAND, OR 9405 S.W. NIMBUS AVENUE
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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

Percent Dry Weight (Solids) per Standard Methods

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PPJ1225-21 (RFR-5-12)		**Soil**			**Sampled: 10/26/06 10:38**					
% Solids	NCA SOP	64.9	----	0.00	% by Weight	1x	6101442	10/28/06 11:42	10/28/06 11:42	
PPJ1225-22 (RFR-5-24)		**Soil**			**Sampled: 10/26/06 10:48**					
% Solids	NCA SOP	64.2	----	0.00	% by Weight	1x	6101442	10/28/06 11:42	10/28/06 11:42	
PPJ1225-23 (RFR-6-12)		**Soil**			**Sampled: 10/26/06 10:57**					
% Solids	NCA SOP	64.8	----	0.00	% by Weight	1x	6101442	10/28/06 11:42	10/28/06 11:42	
PPJ1225-24 (RFR-6-24)		**Soil**			**Sampled: 10/26/06 11:06**					
% Solids	NCA SOP	64.9	----	0.00	% by Weight	1x	6101442	10/28/06 11:42	10/28/06 11:42	
PPJ1225-25 (SSR-TPZ-1-12)		**Soil**			**Sampled: 10/26/06 11:45**					
% Solids	NCA SOP	76.2	----	0.00	% by Weight	1x	6101441	10/28/06 11:42	10/28/06 11:42	
PPJ1225-26 (SSR-TPZ-1-24)		**Soil**			**Sampled: 10/26/06 11:51**					
% Solids	NCA SOP	75.2	----	0.00	% by Weight	1x	6101441	10/28/06 11:42	10/28/06 11:42	
PPJ1225-27 (SSR-TPZ-2-12)		**Soil**			**Sampled: 10/26/06 12:09**					
% Solids	NCA SOP	76.6	----	0.00	% by Weight	1x	6101441	10/28/06 11:42	10/28/06 11:42	
PPJ1225-28 (SSR-TPZ-2-24)		**Soil**			**Sampled: 10/26/06 12:13**					
% Solids	NCA SOP	74.4	----	0.00	% by Weight	1x	6101441	10/28/06 11:42	10/28/06 11:42	
PPJ1225-29 (SSR-TPZ-4-12)		**Soil**			**Sampled: 10/26/06 12:22**					
% Solids	NCA SOP	70.1	----	0.00	% by Weight	1x	6101441	10/28/06 11:42	10/28/06 11:42	
PPJ1225-30 (SSR-TPZ-4-24)		**Soil**			**Sampled: 10/26/06 12:24**					
% Solids	NCA SOP	70.5	----	0.00	% by Weight	1x	6101441	10/28/06 11:42	10/28/06 11:42	
PPJ1225-31 (RFR-1-12)		**Soil**			**Sampled: 10/26/06 08:58**					

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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

Percent Dry Weight (Solids) per Standard Methods

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PPJ1225-31 (RFR-1-12)		**Soil**			**Sampled: 10/26/06 08:58**					
% Solids	NCA SOP	66.0	----	0.00	% by Weight	1x	6101441	10/28/06 11:42	10/28/06 11:42	
PPJ1225-32 (RFR-1-24)		**Soil**			**Sampled: 10/26/06 08:59**					
% Solids	NCA SOP	65.6	----	0.00	% by Weight	1x	6101441	10/28/06 11:42	10/28/06 11:42	
PPJ1225-33 (RFR-2-12)		**Soil**			**Sampled: 10/26/06 09:20**					
% Solids	NCA SOP	64.5	----	0.00	% by Weight	1x	6101441	10/28/06 11:42	10/28/06 11:42	
PPJ1225-34 (RFR-2-24)		**Soil**			**Sampled: 10/26/06 09:24**					
% Solids	NCA SOP	62.6	----	0.00	% by Weight	1x	6101441	10/28/06 11:42	10/28/06 11:42	
PPJ1225-35 (RFR-7-12)		**Soil**			**Sampled: 10/26/06 09:28**					
% Solids	NCA SOP	64.8	----	0.00	% by Weight	1x	6101441	10/28/06 11:42	10/28/06 11:42	
PPJ1225-36 (RFR-3-12)		**Soil**			**Sampled: 10/26/06 09:38**					
% Solids	NCA SOP	65.3	----	0.00	% by Weight	1x	6101441	10/28/06 11:42	10/28/06 11:42	
PPJ1225-37 (RFR-3-24)		**Soil**			**Sampled: 10/26/06 09:45**					
% Solids	NCA SOP	65.8	----	0.00	% by Weight	1x	6101441	10/28/06 11:42	10/28/06 11:42	
PPJ1225-38 (RFR-4-12)		**Soil**			**Sampled: 10/26/06 09:56**					
% Solids	NCA SOP	67.8	----	0.00	% by Weight	1x	6101441	10/28/06 11:42	10/28/06 11:42	
PPJ1225-39 (RFR-4-24)		**Soil**			**Sampled: 10/26/06 09:57**					
% Solids	NCA SOP	63.8	----	0.00	% by Weight	1x	6101441	10/28/06 11:42	10/28/06 11:42	

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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

Total Metals per EPA 6000/7000 Series Methods - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6101458 **Soil Preparation Method: EPA 3050**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (6101458-BLK1)								**Extracted: 10/30/06 09:24**						
Iron	EPA 6010B	ND	---	9.80	mg/kg wet	1x	--	--	--	--	--	--	11/01/06 11:34	
LCS (6101458-BS1)								**Extracted: 10/30/06 09:24**						
Iron	EPA 6010B	420	---	10.0	mg/kg wet	1x	--	400	105%	(80-120)	--	--	11/01/06 11:41	
Duplicate (6101458-DUP1)				**QC Source: PPJ1191-01**				**Extracted: 10/30/06 09:24**						
Iron	EPA 6010B	31800	---	113	mg/kg dry	10x	33800	--	--	--	6.10%	(40)	11/01/06 12:19	
Matrix Spike (6101458-MS1)				**QC Source: PPJ1191-01**				**Extracted: 10/30/06 09:24**						
Iron	EPA 6010B	31800	---	113	mg/kg dry	10x	33800	453	-442%	(75-125)	--	--	11/01/06 12:25	Q-03
Matrix Spike (6101458-MS2)				**QC Source: PPJ1225-07**				**Extracted: 10/30/06 09:24**						
Iron	EPA 6010B	66800	---	1450	mg/kg dry	100x	64700	579	363%	(75-125)	--	--	11/01/06 12:51	Q-03

QC Batch: 6101464 **Soil Preparation Method: EPA 3050**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (6101464-BLK1)								**Extracted: 10/30/06 10:33**						
Antimony	EPA 6020	ND	---	0.476	mg/kg wet	1x	--	--	--	--	--	--	11/09/06 17:41	
Arsenic	"	ND	---	0.476	"	"	--	--	--	--	--	--	"	
Copper	"	ND	---	1.90	"	"	--	--	--	--	--	--	"	
Lead	"	ND	---	0.476	"	"	--	--	--	--	--	--	"	
Tin	"	ND	---	0.952	"	"	--	--	--	--	--	--	11/10/06 15:19	
Zinc	"	ND	---	1.90	"	"	--	--	--	--	--	--	11/09/06 17:41	
LCS (6101464-BS1)								**Extracted: 10/30/06 10:33**						
Antimony	EPA 6020	5.00	---	0.490	mg/kg wet	1x	--	4.90	102%	(80-120)	--	--	11/09/06 17:45	
Arsenic	"	10.3	---	0.490	"	"	--	9.80	105%	"	--	--	"	
Copper	"	10.6	---	1.96	"	"	--	"	108%	"	--	--	"	
Lead	"	10.3	---	0.490	"	"	--	"	105%	"	--	--	"	
Tin	"	9.78	---	0.980	"	"	--	"	99.8%	"	--	--	11/10/06 15:23	
Zinc	"	10.0	---	1.96	"	"	--	"	102%	"	--	--	11/09/06 17:45	
Duplicate (6101464-DUP1)				**QC Source: PPJ1225-07**				**Extracted: 10/30/06 10:33**						
Antimony	EPA 6020	ND	---	0.724	mg/kg dry	1x	ND	--	--	--	5.41%	(40)	11/09/06 17:57	
Arsenic	"	4.78	---	0.724	"	"	4.87	--	--	--	1.87%	"	"	
Copper	"	45.0	---	2.89	"	"	45.8	--	--	--	1.76%	"	"	
Lead	"	7.84	---	0.724	"	"	7.92	--	--	--	1.02%	"	"	

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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

Total Metals per EPA 6000/7000 Series Methods - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6101464 **Soil Preparation Method: EPA 3050**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Duplicate (6101464-DUP1)					QC Source: PPJ1225-07				Extracted: 10/30/06 10:33					
Tin	EPA 6020	1.69	---	1.45	mg/kg dry	1x	1.68	--	--	--	0.593%	(40)	11/10/06 15:43	
Zinc	"	120	---	2.89	"	"	122	--	--	--	1.65%	"	11/09/06 17:57	
Matrix Spike (6101464-MS1)					QC Source: PPJ1225-07				Extracted: 10/30/06 10:33					
Antimony	EPA 6020	2.21	---	0.760	mg/kg dry	1x	0.126	7.60	27.4%	(70-130)	--	--	11/09/06 18:05	Q-14
Arsenic	"	20.7	---	0.760	"	"	4.87	15.2	104%	(75-125)	--	--	"	
Copper	"	68.6	---	3.04	"	"	45.8	"	150%	"	--	--	"	Q-14
Lead	"	26.3	---	0.760	"	"	7.92	"	121%	"	--	--	"	
Tin	"	11.2	---	1.52	"	"	1.68	"	62.6%	"	--	--	11/10/06 15:51	Q-02
Zinc	"	152	---	3.04	"	"	122	"	197%	"	--	--	11/09/06 18:05	Q-14
Matrix Spike (6101464-MS3)					QC Source: PPJ1225-08				Extracted: 10/30/06 10:33					
Antimony	EPA 6020	1.76	---	0.761	mg/kg dry	1x	0.111	7.61	21.7%	(70-130)	--	--	11/09/06 18:21	Q-14
Arsenic	"	18.6	---	0.761	"	"	4.58	15.2	92.2%	(75-125)	--	--	"	
Copper	"	60.2	---	3.04	"	"	43.3	"	111%	"	--	--	"	
Lead	"	22.8	---	0.761	"	"	7.20	"	103%	"	--	--	"	
Tin	"	11.4	---	1.52	"	"	1.69	"	63.9%	"	--	--	11/10/06 15:59	Q-02
Zinc	"	131	---	3.04	"	"	108	"	151%	"	--	--	11/09/06 18:21	Q-14

QC Batch: 6101491 **Soil Preparation Method: EPA 3050**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (6101491-BLK1)									Extracted: 10/30/06 15:12					
Iron	EPA 6010B	ND	---	9.71	mg/kg wet	1x	--	--	--	--	--	--	11/03/06 22:43	
LCS (6101491-BS1)									Extracted: 10/30/06 15:12					
Iron	EPA 6010B	400	---	9.90	mg/kg wet	1x	--	396	101%	(80-120)	--	--	11/03/06 22:50	
Duplicate (6101491-DUP1)					QC Source: PPJ1225-33				Extracted: 10/30/06 15:12					
Iron	EPA 6010B	57000	---	154	mg/kg dry	10x	42600	--	--	--	28.9%	(40)	11/03/06 23:35	
Matrix Spike (6101491-MS1)					QC Source: PPJ1225-33				Extracted: 10/30/06 15:12					
Iron	EPA 6010B	34300	---	151	mg/kg dry	10x	42600	602	-1380%	(75-125)	--	--	11/03/06 23:41	Q-03
Matrix Spike (6101491-MS2)					QC Source: PPJ1265-01				Extracted: 10/30/06 15:12					
Iron	EPA 6010B	85000	---	1280	mg/kg dry	100x	92900	512	-1540%	(75-125)	--	--	11/06/06 20:07	

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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

Total Metals per EPA 6000/7000 Series Methods - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6101517 **Soil Preparation Method: EPA 3050**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (6101517-BLK1)								Extracted: 10/31/06 09:44						
Antimony	EPA 6020	ND	---	0.495	mg/kg wet	1x	--	--	--	--	--	--	11/03/06 20:52	
Arsenic	"	ND	---	0.495	"	"	--	--	--	--	--	--	"	
Copper	"	ND	---	1.98	"	"	--	--	--	--	--	--	"	
Lead	"	ND	---	0.495	"	"	--	--	--	--	--	--	11/06/06 18:32	
Tin	"	ND	---	0.990	"	"	--	--	--	--	--	--	11/07/06 06:12	
Zinc	"	ND	---	1.98	"	"	--	--	--	--	--	--	11/03/06 20:52	
LCS (6101517-BS1)								Extracted: 10/31/06 09:44						
Antimony	EPA 6020	4.89	---	0.476	mg/kg wet	1x	--	4.76	103%	(80-120)	--	--	11/03/06 20:56	
Arsenic	"	10.2	---	0.476	"	"	--	9.52	107%	"	--	--	"	
Copper	"	10.0	---	1.90	"	"	--	"	105%	"	--	--	11/06/06 18:36	
Lead	"	9.69	---	0.476	"	"	--	"	102%	"	--	--	"	
Tin	"	10.1	---	0.952	"	"	--	"	106%	"	--	--	11/07/06 06:17	
Zinc	"	9.32	---	1.90	"	"	--	"	97.9%	"	--	--	11/06/06 18:36	
Duplicate (6101517-DUP1)					QC Source: PPJ1225-24			Extracted: 10/31/06 09:44						
Antimony	EPA 6020	ND	---	0.763	mg/kg dry	1x	ND	--	--	--	5.67%	(40)	11/03/06 21:04	
Arsenic	"	7.42	---	0.763	"	"	6.54	--	--	--	12.6%	"	"	
Copper	"	32.3	---	3.05	"	"	31.0	--	--	--	4.11%	"	11/06/06 18:44	
Lead	"	9.98	---	0.763	"	"	9.24	--	--	--	7.70%	"	"	
Tin	"	2.51	---	1.53	"	"	2.43	--	--	--	3.24%	"	11/07/06 06:25	
Zinc	"	129	---	3.05	"	"	124	--	--	--	3.95%	"	11/06/06 18:44	
Matrix Spike (6101517-MS1)					QC Source: PPJ1225-24			Extracted: 10/31/06 09:44						
Antimony	EPA 6020	1.69	---	0.748	mg/kg dry	1x	0.120	7.48	21.0%	(70-130)	--	--	11/03/06 21:19	Q-02
Arsenic	"	21.3	---	0.748	"	"	6.54	15.0	98.4%	(75-125)	--	--	"	
Copper	"	46.1	---	2.99	"	"	31.0	"	101%	"	--	--	11/06/06 19:00	
Lead	"	23.3	---	0.748	"	"	9.24	"	93.7%	"	--	--	"	
Tin	"	14.2	---	1.50	"	"	2.43	"	78.5%	"	--	--	11/07/06 06:40	
Zinc	"	142	---	2.99	"	"	124	"	120%	"	--	--	11/06/06 19:00	

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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6110005 **Soil Preparation Method: EPA 3550**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (6110005-BLK1)							**Extracted: 11/01/06 13:00**							
Acenaphthene	EPA 8270m	ND	---	13.2	ug/kg wet	1x	--	--	--	--	--	--	11/03/06 15:59	
Acenaphthylene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Anthracene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Benzo (a) anthracene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Benzo (a) pyrene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Benzo (b) fluoranthene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Benzo (ghi) perylene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Benzo (k) fluoranthene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Chrysene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Dibenzo (a,h) anthracene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Fluoranthene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Fluorene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Indeno (1,2,3-cd) pyrene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Naphthalene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Phenanthrene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Pyrene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Surrogate(s): Fluorene-d10		*Recovery: 86.5%*			*Limits: 32-134%*	"							*11/03/06 15:59*	
Pyrene-d10		*110%*			*41-152%*	"							"	
Benzo (a) pyrene-d12		*113%*			*36-145%*	"							"	
LCS (6110005-BS1)							**Extracted: 11/01/06 13:00**							Q-32
Acenaphthene	EPA 8270m	188	---	13.4	ug/kg wet	1x	--	166	113%	(33-139)	--	--	11/03/06 03:19	
Benzo (a) pyrene	"	198	---	13.4	"	"	--	"	119%	(45-149)	--	--	"	
Pyrene	"	175	---	13.4	"	"	--	"	105%	(39-138)	--	--	"	
Surrogate(s): Fluorene-d10		*Recovery: 86.4%*			*Limits: 32-134%*	"							*11/03/06 03:19*	
Pyrene-d10		*99.2%*			*41-152%*	"							"	
Benzo (a) pyrene-d12		*111%*			*36-145%*	"							"	

Sarah Rockwell

Sarah Rockwell, Project Manager

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BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

Percent Dry Weight (Solids) per Standard Methods - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6101441 **Other wet Preparation Method: Dry Weight**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Duplicate (6101441-DUP1)				**QC Source: PPJ1225-25**				**Extracted: 10/28/06 11:42**						
% Solids	NCA SOP	76.2	---	0.00	% by Weight	1x	76.2	--	--	--	0.00%	(20)	10/28/06 11:42	
Duplicate (6101441-DUP2)				**QC Source: PPJ1225-29**				**Extracted: 10/28/06 11:42**						
% Solids	NCA SOP	68.7	---	0.00	% by Weight	1x	70.1	--	--	--	2.02%	(20)	10/28/06 11:42	

QC Batch: 6101442 **Other wet Preparation Method: Dry Weight**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Duplicate (6101442-DUP1)				**QC Source: PPJ1225-07**				**Extracted: 10/28/06 11:42**						
% Solids	NCA SOP	66.2	---	0.00	% by Weight	1x	65.8	--	--	--	0.606%	(20)	10/28/06 11:42	

QC Batch: 6101482 **Other wet Preparation Method: Dry Weight**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Duplicate (6101482-DUP1)				**QC Source: PPJ1244-01**				**Extracted: 10/30/06 13:55**						
% Solids	NCA SOP	86.8	---	0.00	% by Weight	1x	87.7	--	--	--	1.03%	(20)	10/30/06 13:55	
Duplicate (6101482-DUP2)				**QC Source: PPJ1245-01**				**Extracted: 10/30/06 13:55**						
% Solids	NCA SOP	82.9	---	0.00	% by Weight	1x	81.5	--	--	--	1.70%	(20)	10/30/06 13:55	

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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
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Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:09

Notes and Definitions

Report Specific Notes:

Q-02 - The matrix spike recovery, and/or RPD, for this QC sample is outside of established control limits due to sample matrix interference.

Q-03 - The matrix spike recovery, and/or RPD, for this QC sample cannot be accurately calculated due to the high concentration of analyte already present in the source sample.

Q-14 - The matrix spike recovery, and/or RPD, for this QC sample is outside of control limits due to a non-homogeneous sample matrix.

Q-32 - No results were reported for the MS and or MSD. The sample used for the MS/MSD required dilution due to the sample matrix. Because of this, the spike compounds were diluted below the detection limit.

Laboratory Reporting Conventions:

DET - Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.

ND - Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

NR/NA - Not Reported / Not Available

dry - Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.

wet - Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported on a Wet Weight Basis.

RPD - RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).

MRL - METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.

MDL* - METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.

Dil - Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.

Reporting Limits - Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.

Electronic Signature - Electronic Signature added in accordance with TestAmerica's *Electronic Reporting and Electronic Signatures Policy.* Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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November 14, 2006

Jennifer Kuiper
AMEC- Portland
7376 SW Durham Road
Portland, OR 97224

RE: Port of Tillamook Bay

Enclosed are the results of analyses for samples received by the laboratory on 10/27/06 12:00. The following list is a summary of the Work Orders contained in this report, generated on 11/14/06 19:15.

If you have any questions concerning this report, please feel free to contact me.

Work Order	Project	ProjectNumber
PPJ1227	Port of Tillamook Bay	661M115850

Sarah Rockwell

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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:15

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TC-SWE-5.5ft	PPJ1227-01	Soil	10/26/06 14:05	10/27/06 12:00
TC-Floor-West-6ft	PPJ1227-02	Soil	10/26/06 14:10	10/27/06 12:00
TC-Floor-East-6ft	PPJ1227-03	Soil	10/26/06 14:20	10/27/06 12:00
Stockpile	PPJ1227-04	Soil	10/26/06 14:50	10/27/06 12:00

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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:15

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PPJ1227-01 (TC-SWE-5.5ft)		**Soil**			**Sampled: 10/26/06 14:05**					
Diesel Range Organics	NWTPH-Dx	25900	----	187	mg/kg dry	10x	6101449	10/30/06 13:50	11/02/06 11:38	
Heavy Oil Range Hydrocarbons	"	ND	----	375	"	"	"	"	"	R-05
Surrogate(s): 1-Chlorooctadecane			*46.8%*		*50 - 150 %*	"			"	*-02*
PPJ1227-02 (TC-Floor-West-6ft)		**Soil**			**Sampled: 10/26/06 14:10**					
Diesel Range Organics	NWTPH-Dx	21000	----	183	mg/kg dry	10x	6101449	10/30/06 13:50	11/02/06 12:11	
Heavy Oil Range Hydrocarbons	"	ND	----	366	"	"	"	"	"	R-05
Surrogate(s): 1-Chlorooctadecane			*83.2%*		*50 - 150 %*	"			"	
PPJ1227-03 (TC-Floor-East-6ft)		**Soil**			**Sampled: 10/26/06 14:20**					
Diesel Range Organics	NWTPH-Dx	11500	----	91.3	mg/kg dry	5x	6101449	10/30/06 13:50	11/02/06 12:11	
Heavy Oil Range Hydrocarbons	"	ND	----	183	"	"	"	"	"	R-05
Surrogate(s): 1-Chlorooctadecane			*305%*		*50 - 150 %*	"			"	*-02*
PPJ1227-04 (Stockpile)		**Soil**			**Sampled: 10/26/06 14:50**					
Diesel Range Organics	NWTPH-Dx	6500	----	185	mg/kg dry	10x	6101449	10/30/06 13:50	11/02/06 12:44	
Heavy Oil Range Hydrocarbons	"	ND	----	369	"	"	"	"	"	R-05
Surrogate(s): 1-Chlorooctadecane			*100%*		*50 - 150 %*	"			"	

Sarah Rockwell, Project Manager

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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:15

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PPJ1227-01 (TC-SWE-5.5ft)		**Soil**			**Sampled: 10/26/06 14:05**					**R-05**
Acenaphthene	EPA 8270m	1170	-----	1010	ug/kg dry	50x	6110005	11/01/06 13:00	11/09/06 01:43	
Acenaphthylene	"	ND	-----	1520	"	"	"	"	"	R-03
Anthracene	"	ND	-----	1010	"	"	"	"	"	
Benzo (a) anthracene	"	ND	-----	1010	"	"	"	"	"	
Benzo (a) pyrene	"	ND	-----	1010	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	-----	1010	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	-----	1010	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	-----	1010	"	"	"	"	"	
Chrysene	"	ND	-----	1010	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	1010	"	"	"	"	"	
Fluoranthene	"	ND	-----	1010	"	"	"	"	"	
Fluorene	"	8370	-----	1010	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	-----	1010	"	"	"	"	"	
Naphthalene	"	11200	-----	1010	"	"	"	"	"	
Phenanthrene	"	9600	-----	1010	"	"	"	"	"	
Pyrene	"	ND	-----	1010	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*NR*		*32 - 134 %*	"			"	*-01*
Pyrene-d10			*NR*		*41 - 152 %*	"			"	*-01*
Benzo (a) pyrene-d12			*NR*		*36 - 145 %*	"			"	*-01*
PPJ1227-04 (Stockpile)		**Soil**			**Sampled: 10/26/06 14:50**					**R-05**
Acenaphthene	EPA 8270m	ND	-----	388	ug/kg dry	20x	6110005	11/01/06 13:00	11/09/06 02:13	
Acenaphthylene	"	ND	-----	388	"	"	"	"	"	
Anthracene	"	ND	-----	388	"	"	"	"	"	
Benzo (a) anthracene	"	ND	-----	388	"	"	"	"	"	
Benzo (a) pyrene	"	ND	-----	388	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	-----	388	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	-----	388	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	-----	388	"	"	"	"	"	
Chrysene	"	ND	-----	388	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	-----	388	"	"	"	"	"	
Fluoranthene	"	ND	-----	388	"	"	"	"	"	
Fluorene	"	1770	-----	388	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	-----	388	"	"	"	"	"	
Naphthalene	"	2120	-----	388	"	"	"	"	"	
Phenanthrene	"	2540	-----	388	"	"	"	"	"	
Pyrene	"	ND	-----	388	"	"	"	"	"	
Surrogate(s): Fluorene-d10			*NR*		*32 - 134 %*	"			"	*-02*
Pyrene-d10			*112%*		*41 - 152 %*	"			"	
Benzo (a) pyrene-d12			*88.4%*		*36 - 145 %*	"			"	

Sarah Rockwell, Project Manager

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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:15

Percent Dry Weight (Solids) per Standard Methods

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PPJ1227-01 (TC-SWE-5.5ft)		**Soil**				**Sampled: 10/26/06 14:05**				
% Solids	NCA SOP	65.5	—	0.00	% by Weight	1x	6101441	10/28/06 11:42	10/28/06 11:42	
PPJ1227-02 (TC-Floor-West-6ft)		**Soil**				**Sampled: 10/26/06 14:10**				
% Solids	NCA SOP	67.9	—	0.00	% by Weight	1x	6101441	10/28/06 11:42	10/28/06 11:42	
PPJ1227-03 (TC-Floor-East-6ft)		**Soil**				**Sampled: 10/26/06 14:20**				
% Solids	NCA SOP	69.2	—	0.00	% by Weight	1x	6101441	10/28/06 11:42	10/28/06 11:42	
PPJ1227-04 (Stockpile)		**Soil**				**Sampled: 10/26/06 14:50**				
% Solids	NCA SOP	68.8	—	0.00	% by Weight	1x	6101441	10/28/06 11:42	10/28/06 11:42	

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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:15

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6101449 **Soil Preparation Method: EPA 3550 Fuels**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (6101449-BLK1)								Extracted: 10/30/06 13:50						
Diesel Range Organics	NWTPH-Dx	ND	---	12.5	mg/kg wet	1x	--	--	--	--	--	--	10/31/06 02:53	
Heavy Oil Range Hydrocarbons	"	ND	---	25.0	"	"	--	--	--	--	--	--	"	
Surrogate(s): 1-Chlorooctadecane		*Recovery: 92.5%*			*Limits: 50-150%*	"							*10/31/06 02:53*	
LCS (6101449-BS1)								Extracted: 10/30/06 13:50						
Diesel Range Organics	NWTPH-Dx	130	---	12.5	mg/kg wet	1x	--	134	97.0%	(50-150)	--	--	10/31/06 02:53	
Heavy Oil Range Hydrocarbons	"	73.5	---	25.0	"	"	--	79.0	93.0%	"	--	--	"	
Surrogate(s): 1-Chlorooctadecane		*Recovery: 102%*			*Limits: 50-150%*	"							*10/31/06 02:53*	
Duplicate (6101449-DUP1)					QC Source: PPJ1205-01			Extracted: 10/30/06 13:50						
Diesel Range Organics	NWTPH-Dx	2960	---	16.0	mg/kg dry	1x	3270	--	--	--	9.95%	(50)	10/31/06 07:38	
Heavy Oil Range Hydrocarbons	"	ND	---	31.9	"	"	ND	--	--	--	18.3%	"	"	
Surrogate(s): 1-Chlorooctadecane		*Recovery: 134%*			*Limits: 50-150%*	"							*10/31/06 07:38*	
Duplicate (6101449-DUP2)					QC Source: PPJ1205-02			Extracted: 10/30/06 13:50						
Diesel Range Organics	NWTPH-Dx	ND	---	15.3	mg/kg dry	1x	ND	--	--	--	57.7%	(50)	10/31/06 08:10	Q-14
Heavy Oil Range Hydrocarbons	"	ND	---	30.6	"	"	ND	--	--	--	NR	"	"	
Surrogate(s): 1-Chlorooctadecane		*Recovery: 96.1%*			*Limits: 50-150%*	"							*10/31/06 08:10*	

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AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:15

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6110005 **Soil Preparation Method: EPA 3550**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (6110005-BLK1)							**Extracted: 11/01/06 13:00**							
Acenaphthene	EPA 8270m	ND	---	13.2	ug/kg wet	1x	--	--	--	--	--	--	11/03/06 15:59	
Acenaphthylene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Anthracene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Benzo (a) anthracene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Benzo (a) pyrene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Benzo (b) fluoranthene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Benzo (ghi) perylene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Benzo (k) fluoranthene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Chrysene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Dibenzo (a,h) anthracene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Fluoranthene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Fluorene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Indeno (1,2,3-cd) pyrene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Naphthalene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Phenanthrene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Pyrene	"	ND	---	13.2	"	"	--	--	--	--	--	--	"	
Surrogate(s): Fluorene-d10		*Recovery: 86.5%*			*Limits: 32-134%*	"							*11/03/06 15:59*	
Pyrene-d10		*110%*			*41-152%*	"							"	
Benzo (a) pyrene-d12		*113%*			*36-145%*	"							"	
LCS (6110005-BS1)							**Extracted: 11/01/06 13:00**							Q-32
Acenaphthene	EPA 8270m	188	---	13.4	ug/kg wet	1x	--	166	113%	(33-139)	--	--	11/03/06 03:19	
Benzo (a) pyrene	"	198	---	13.4	"	"	--	"	119%	(45-149)	--	--	"	
Pyrene	"	175	---	13.4	"	"	--	"	105%	(39-138)	--	--	"	
Surrogate(s): Fluorene-d10		*Recovery: 86.4%*			*Limits: 32-134%*	"							*11/03/06 03:19*	
Pyrene-d10		*99.2%*			*41-152%*	"							"	
Benzo (a) pyrene-d12		*111%*			*36-145%*	"							"	

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7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:15

Percent Dry Weight (Solids) per Standard Methods - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6101441 **Other wet Preparation Method: Dry Weight**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Duplicate (6101441-DUP1)					**QC Source: PPJ1225-25**				**Extracted: 10/28/06 11:42**					
% Solids	NCA SOP	76.2	---	0.00	% by Weight	1x	76.2	--	--	--	0.00%	(20)	10/28/06 11:42	
Duplicate (6101441-DUP2)					**QC Source: PPJ1225-29**				**Extracted: 10/28/06 11:42**					
% Solids	NCA SOP	68.7	---	0.00	% by Weight	1x	70.1	--	--	--	2.02%	(20)	10/28/06 11:42	

Sarah Rockwell

Sarah Rockwell, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

AMEC- Portland	Project Name:	**Port of Tillamook Bay**	
7376 SW Durham Road	Project Number:	661M115850	Report Created:
Portland, OR 97224	Project Manager:	Jennifer Kuiper	11/14/06 19:15

Notes and Definitions

Report Specific Notes:

Q-14	-	The matrix spike recovery, and/or RPD, for this QC sample is outside of control limits due to a non-homogeneous sample matrix.
Q-32	-	No results were reported for the MS and or MSD. The sample used for the MS/MSD required dilution due to the sample matrix. Because of this, the spike compounds were diluted below the detection limit.
R-03	-	The reporting limit for this analyte was raised due to matrix interference.
R-05	-	Reporting limits raised due to dilution necessary for analysis. Sample contains high levels of reported analyte, non-target analyte, and/or matrix interference.
S-01	-	The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interferences.
S-02	-	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present.

Laboratory Reporting Conventions:

DET	-	Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.
ND	-	Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).
NR/NA	-	Not Reported / Not Available
dry	-	Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.
wet	-	Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported on a Wet Weight Basis.
RPD	-	RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).
MRL	-	METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.
MDL*	-	METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.
Dil	-	Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.
Reporting Limits	-	Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.
Electronic Signature	-	Electronic Signature added in accordance with TestAmerica's *Electronic Reporting and Electronic Signatures Policy.* Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Sarah Rockwell

Sarah Rockwell, Project Manager

APPENDIX F

Data Quality Review Report

DATA QUALITY REVIEW REPORT
FOR
TILLAMOOK INDUSTRIAL SITE, K1-K8
Tillamook Airport
Tillamook, Oregon

Organic and Inorganic Analyses Data for
Soil Samples Collected October 26, 2006

Sample Delivery Group Numbers: PPJ1225 and PPJ1227

Submitted to:

Oregon Economic and Community Development Department
775 Summer Street NE, Suite 200
Salem, Oregon

Prepared by:

AMEC Earth & Environmental, Inc.
7376 SW Durham Road
Portland, Oregon 97224

661M11585

December, 2006

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List of Tables

ACRONYMS

BS	blank spike
BSD	blank spike duplicate
CLP	USEPA Contract Laboratory Program
COC	chain of custody
DEQ/Ecology	Oregon Department of Environmental Quality/Washington Department of Ecology
DRO	diesel range organics
ESA	environmental site assessment
ID	site identification
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
MDL	method detection limit
MRL	method reporting limit
MS	matrix spike
MSD	matrix spike duplicate
OECDD	Oregon Economic and Community Development Department
OSWER	USEPA Office of Solid Waste and Emergency Response
PAH	polycyclic aromatic hydrocarbon
QAPP	quality assurance project plan
QC	quality control
RPD	relative percent difference
RRO	residual range organics
SDG	sample delivery group
TA	Test America
USEPA	United States Environmental Protection Agency

1.0 INTRODUCTION

This data validation report covers 43 soil samples from the Tillamook Industrial Site, K1-K8 (Tillamook) collected October 26, 2006 in conjunction with the Phase II environmental site assessment (ESA). The samples were submitted to Test America (TA) in Beaverton, Oregon where they were received October 27, 2006 and assigned sample delivery group (SDG) numbers PPJ1225 and PPJ1227. A list of these samples by field sample identification (ID), TA sample ID, and analyses performed is presented in Table 1.

The samples were analyzed according to the following methods:

- total metals by United States Environmental Protection Agency (USEPA) Methods 6010B and 6020
- polycyclic aromatic hydrocarbons (PAH) by USEPA Method 8270M SIM
- diesel range and residual range organics (DRO and RRO) by Oregon Department of Environmental Quality/Washington Department of Ecology (DEQ/Ecology) Method NWTPH-Dx

2.0 DATA QUALITY REVIEW METHODOLOGY

This data quality review has been performed with reference to the USEPA Office of Solid Waste and Emergency Response (OSWER) National Functional Guidelines for Organic and Inorganic Data Review (October, 1999 and October, 2004, respectively). These USEPA guidelines were written specifically for the Contract Laboratory Program (CLP), and have been modified for the purposes of this data validation where they differ from USEPA Method SW-846 quality control requirements.

AMEC's data review methodology complied with the validation procedures specified in the Quality Assurance Project Plan (QAPP), dated September, 2006. The laboratory's analytical reports were reviewed to assess the criteria outlined in Section 5 of the QAPP, summarized as follows: chain of custody (COC) compliance; holding time compliance; sensitivity; presence or absence of laboratory contamination as demonstrated by method blanks; accuracy and bias as demonstrated by recovery of surrogate spikes, blank spikes (BS), matrix spikes (MS); analytical precision as relative percent difference (RPD) of analyte concentration between replicate samples (i.e., laboratory duplicates) or MS and matrix spike duplicates (MSD); and insofar as possible, the degree of conformance to method requirements and good laboratory practices.

In general, it is important to recognize that no analytical data are guaranteed to be correct, even if all quality control (QC) audits are passed. Strict QC serves to increase confidence in data, but any reported value may potentially contain error.

3.0 EXPLANATION OF DATA QUALITY INDICATORS

Data quality indicators of the review and validation process are defined below. Quality control objectives for these indictors are given in Tables 1, 4, 5, and 6 of the QAPP.

LCS Recoveries

Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD), also known as blank spike (BS) and blank spike duplicates (BSD), are aliquots of analyte-free water or Ottawa sand that are spiked with the analytes of interest for an analytical method or a representative subset of those analytes. The spiked water or sand is then processed through the same extraction, concentration, cleanup, and analytical procedures as the samples they accompany. LCS recovery and precision are an indication of the ability of a laboratory to successfully perform an analytical method in an interference-free matrix.

MS Recoveries

Matrix spikes (MS) and matrix spike duplicates (MSD) are prepared by adding known amounts of the analytes of interest for an analytical method, or a representative subset of those analytes, to an aliquot of sample. The spiked sample is then processed through the same extraction, concentration, cleanup, and analytical procedures as the unspiked samples in an analytical batch.

MS recovery and precision are an indication of the ability of a laboratory to successfully recover an analyte in the matrix of a specific sample or closely related sample matrices. It is important not to apply MS results for any specific sample to other samples without understanding how the sample matrices are related.

Surrogate Spike Recoveries

Surrogate spikes are used to evaluate accuracy, method performance, and extraction efficiency in each individual sample. Surrogate compounds are compounds not normally found in environmental samples, but which are similar to target analytes in chemical composition and behavior in the analytical process.

Blank Concentrations

Blank samples are aliquots of analyte free water or Ottawa sand that are used as negative controls to verify that the sample collection, storage, preparation, and analysis system does not produce false positive results.

Laboratory blanks are processed by the laboratory using exactly the same procedures as the field samples. Laboratory blanks are used to monitor for contamination introduced by the laboratory during sample preparation and analysis.

4.0 CHAIN OF CUSTODY AND SAMPLE RECEIPT CONDITION DOCUMENTATION

All samples were received at TA in good condition and within the USEPA-recommended 4°C ± 2°C temperature range.

5.0 SPECIFIC DATA VALIDATION FINDINGS FOR EACH ANALYTICAL METHOD

Sections 5.1 to 5.3 of this Data Quality Review contain narrative descriptions of data validation findings and data quality limitations. Definitions of data qualifiers added during validation and summaries of specific qualifiers added to each affected sample as a result of the data validation findings are presented in Table 2.

5.1 Metals by USEPA 6010B and USEPA 6020

Samples covered in this report underwent total metals analysis by USEPA Methods 6010B and 6020. The results may be considered usable with the limitations and exceptions described below.

5.1.1 Holding Times

All samples were analyzed for metals within the QAPP-recommended technical holding time of 180 days.

5.1.2 Blanks

Target analytes should not be found in blank samples. When the concentration detected in the blank is between the method detection limit (MDL) and the method reporting limit (MRL), concentrations in associated samples less than 5 times the concentration detected in the blank and less than the MRL are U qualified at the MRL

concentration by AMEC. Sample concentrations above the MRL and less than 5 times the concentration detected in the blank are U qualified. Because negative results for a blank may indicate low instrument bias, if the absolute concentration detected in the blank is greater than the MRL, concentrations in associated samples greater than the MRL but less than 10 times the absolute concentration detected in the blank are J qualified and nondetected results are UJ qualified by AMEC.

Laboratory Blanks

Target analytes were not detected at concentrations above the MRL in laboratory blanks associated with metals analysis of the samples covered in this report.

5.1.3 LCS Recovery

Recoveries were within the QAPP-specified 80% to 120% acceptance limits in all LCSs associated with metals analysis of the samples covered in this report.

5.1.4 MS/MSD Recovery

The QAPP-specified acceptance limits for metals MS/MSD recoveries are 75% to 125% recovery. However, spike recovery is not evaluated when the sample concentration exceeds the spike concentration by a factor of four or more.

MS/MSD analysis were performed on samples PPJ1225-07 and PPJ1225-33 for iron and samples PPJ1225-07, PPJ1225-08, and PPJ122524 for antimony, arsenic, copper, lead, tin, and zinc. Recoveries were within control limits, except as described below:

- **PPJ1225-07 and PPJ1225-33:** Iron recoveries for the MS performed on these samples were outside acceptance limits. The sample concentrations were greater than four times the spike concentration. Data quality is not adversely affected.
- **PPJ1225-07 and PPJ1225-08:** Zinc recoveries for the MS performed on these samples were outside acceptance limits. The sample concentrations were greater than four times the spike concentration. Data quality is not adversely affected.
- **PPJ1225-07, PPJ1225-08, and PPJ1225-24:** Antimony recoveries were low at 27.4%, 21.7%, and 21.0% respectively for the MS performed on these samples. The low recovery was likely due to loss of antimony during preparation by USEPA Method 3050. AMEC had requested the samples be prepared by

USEPA Method 3051 (closed cup digestion) to prevent antimony loss. Antimony is not a primary constituent of concern at this site; it is thought to be associated with lead, the concentration of which was low (~10 mg/kg) throughout the site. Re-analysis was not requested. AMEC UJ qualified the nondetected antimony results from samples in this SDG because of possible matrix interference. (**UJ**-LM)

- **PPJ1225-07:** Copper recovery was high at 150% for the MS performed on this sample. AMEC J qualified the detected copper result from this sample because of possible matrix interference. (**J**-HM)
- **PPJ1225-07 and PPJ1225-08:** Tin recoveries were low at 62.6% and 63.9% respectively for the MS performed on these samples. AMEC J qualified the detected tin results from these samples and samples collected in the same area because of possible matrix interference. (**J**-LM)

5.1.5 Laboratory Duplicates

The laboratory performed duplicate analyses on samples PPJ1225-33 for iron and samples PPJ1225-07 and PPJ1225-24 for antimony, arsenic, copper, lead, tin, and zinc. RPDs were within the QAPP-specified acceptance limits of ≤30%.

5.2 Polycyclic Aromatic Hydrocarbons by USEPA Method 8270M SIM

PAH results generated by TA for the samples covered in this report may be considered usable with the limitations described below.

5.2.1 Holding Times

All samples were extracted and analyzed within the QAPP-recommended maximum holding time of 14 days for extraction and 40 days for analysis.

5.2.2 Laboratory Blanks

No PAHs were detected in the laboratory blanks associated with the samples covered in this report.

5.2.3 LCS Recovery

Recovery was acceptable in all LCSs associated with PAH analysis of the samples covered in this report.

5.2.4 MS/MSD Recovery

No MS were performed on these samples, failing to meet the QAPP specification of one MS per batch or 5% of the samples.

5.2.5 Surrogate Recoveries

Surrogate recoveries were within the QAPP-specified limits for PAH analysis of the samples covered in this report, except as described below.

PPJ1225-02: Recovery of surrogate compounds fluorene-d_{10} (57.1%), pyrene-d_{10} (54.6%), and benzo(a)pyrene-d_{12} (58.3%) were low for this sample. AMEC UJ qualified all nondetected PAH results from this sample due to potential low bias in the analytical data. (**UJ**-LS)

PPJ1227-01: Surrogate compounds were not recovered from this sample due to sample dilution by 50 times. Data usability is not adversely affected.

PPJ1227-04: Surrogate compound fluorene-d_{10} was not recovered from this sample due to sample dilution by 20 times. Recoveries of surrogate compounds pyrene-d_{10} and benzo(a)pyrene-d_{12} were acceptable. Data usability is not adversely affected.

5.2.6 Data Reporting

Sample PPJ1227-01 was analyzed at a dilution of fifty times. The following analytes were not detected at the elevated reporting limit of 1010 ug/kg (1520 ug/kg for acenaphthylene): acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene. The elevated reporting limit exceeds one or more of the screening levels presented in Table 2 of the QAPP.

Sample PPJ1227-04 was analyzed at a dilution of twenty times. The following analytes were not detected at the elevated reporting limit of 388 ug/kg: acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene. The elevated reporting limit exceeds one or more of the screening levels presented in Table 2 of the QAPP.

5.3 Diesel Range Organics and Residual Range Organics by DEQ/Ecology Method NWTPH-Dx

DRO and RRO results generated by TA for the samples covered in this report may be considered usable with the limitations described below.

5.3.1 Holding Times

All samples were extracted and analyzed within the QAPP-recommended maximum holding time of 14 days for extraction and 40 days for analysis.

5.3.2 Laboratory Blanks

DRO and RRO were not detected in the laboratory blanks associated with the samples covered in this report.

5.3.3 LCS Recovery

Recovery was acceptable in all LCSs associated with DRO and RRO analysis of the samples covered in this report.

5.3.4 MS/MSD Recovery

No DRO/RRO MS were performed on the samples covered in this report, failing to meet the QAPP specification of one MS per batch or 5% of the samples.

5.3.5 Surrogate Recoveries

Surrogate recoveries were within the QAPP-specified limits for DRO and RRO analyses of the samples covered in this report, except as described below.

PPJ1227-01: Recovery of surrogate compound 1-chlorooctodecane was low at 46.8% likely due to the high (27000 mg/kg) DRO concentration in this sample. Data usability is not adversely affected.

PPJ1227-03: Recovery of surrogate compound 1-chlorooctodecane was high at 305% likely due to the high (11500 mg/kg) DRO concentration in this sample. Data usability is not adversely affected.

6.0 SUMMARY AND CONCLUSIONS

AMEC's review of this dataset shows the data are generally usable and of good quality. The types of qualifications applied to the dataset included estimated data (J or UJ).

Estimated Data: AMEC qualified 41 metals results due to low MS recovery, one metals result due to high MS recovery, and 16 PAH results due to low surrogate recovery.

Data completeness assessment: A total of 421 data records were evaluated during the data quality review of the sample results. Of the total data records, 58 records (~14%) were qualified as estimated concentrations. Estimated concentrations may be associated with either the nondetected concentration limits (UJ) or the concentration of detected target analytes (J). None of the records were U qualified as nondetected at the concentration listed or were rejected by AMEC, thereby meeting the 98% project data quality objective for valid measurements.

REFERENCES

AMEC, 2006. *Quality Assurance Project Plan, Tillamook Industrial Site, K1-K8, Tillamook Airport, Tillamook, Oregon*, prepared by AMEC Earth & Environmental.

U. S. Environmental Protection Agency, 1999. *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review*, EPA540/R-99/008.

U. S. Environmental Protection Agency, 2004. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, EPA 540-R-04-004.

LIMITATIONS

This report was prepared exclusively for the Oregon Economic and Community Development Department (OECDD) by AMEC Earth & Environmental, Inc. (AMEC). The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in AMEC services and based on: i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This Data Quality Review Report is intended to be used by OECDD for the Tillamook Industrial Site, K1-K8 Phase II ESA only, subject to the terms and conditions of its contract with AMEC. Any other use of, or reliance on, this report by any third party is at that party's sole risk.

TABLES

TABLE 1
Field Samples Submitted to TA with Corresponding Laboratory IDs and Analysis Performed

		Analysis Performed		
Lab Sample ID	Sample Name	Metals	PAH	NWTPH-Dx
PPJ1225-01	SSR-TPZ-3-12		x	
PPJ1225-02	SSR-TPZ-3-24		x	
PPJ1225-03	SSR-TPZ-5-12		x	
PPJ1225-04	SSR-TPZ-5-24		x	
PPJ1225-05	SSR-TPZ-6-12		x	
PPJ1225-06	SSR-TPZ-6-24		x	
PPJ1225-07	SSR-SZ-1-12	x		
PPJ1225-08	SSR-SZ-1-24	x		
PPJ1225-09	SSR-SZ-2-12	x		
PPJ1225-10	SSR-SZ-2-24	x		
PPJ1225-11	SSR-SZ-3-12	x		
PPJ1225-12	SSR-SZ-3-24	x		
PPJ1225-13	SSR-SZ-4-12	x		
PPJ1225-14	SSR-SZ-4-24	x		
PPJ1225-15	SSR-SZ-5-12	x		
PPJ1225-16	SSR-SZ-5-24	x		
PPJ1225-17	SSR-SZ-6-12	x		
PPJ1225-18	SSR-SZ-6-24	x		
PPJ1225-19	SSR-SZ-7-12	x		
PPJ1225-20	SSR-SZ-7-24	x		
PPJ1225-21	RFR-5-12	x		
PPJ1225-22	RFR-5-24	x		
PPJ1225-23	RFR-6-12	x		
PPJ1225-24	RFR-6-24	x		
PPJ1225-25	SSR-TPZ-1-12		x	
PPJ1225-26	SSR-TPZ-1-24		x	
PPJ1225-27	SSR-TPZ-2-12		x	
PPJ1225-28	SSR-TPZ-2-24		x	
PPJ1225-29	SSR-TPZ-4-12		x	
PPJ1225-30	SSR-TPZ-4-24		x	
PPJ1225-31	RFR-1-12	x		
PPJ1225-32	RFR-1-24	x		
PPJ1225-33	RFR-2-12	x		
PPJ1225-34	RFR-2-24	x		
PPJ1225-35	RFR-7-12	x		
PPJ1225-36	RFR-3-12	x		
PPJ1225-37	RFR-3-24	x		
PPJ1225-38	RFR-4-12	x		
PPJ1225-39	RFR-4-24	x		
PPJ1227-01	TC-SWE-5.5ft		x	x
PPJ1227-02	TC-Floor-West-6ft			x
PPJ1227-03	TC-Floor-East-6ft			x
PPJ1227-04	Stockpile		x	x

TABLE 2
Qualifiers Added during Data Quality Review

Analyte	PPJ1225-02	PPJ1225-07	PPJ1225-08	PPJ1225-09	PPJ1225-10	PPJ1225-11	PPJ1225-12	PPJ1225-13	PPJ1225-14
Acenaphthene	UJ LS	none	none	none	none	none	none	none	none
Acenaphthylene	UJ LS	none	none	none	none	none	none	none	none
Anthracene	UJ LS	none	none	none	none	none	none	none	none
Benzo (a) anthracene	UJ LS	none	none	none	none	none	none	none	none
Benzo (a) pyrene	UJ LS	none	none	none	none	none	none	none	none
Benzo (b) fluoranthene	UJ LS	none	none	none	none	none	none	none	none
Benzo (ghi) perylene	UJ LS	none	none	none	none	none	none	none	none
Benzo (k) fluoranthene	UJ LS	none	none	none	none	none	none	none	none
Chrysene	UJ LS	none	none	none	none	none	none	none	none
Dibenzo (a,h) anthracene	UJ LS	none	none	none	none	none	none	none	none
Fluoranthene	UJ LS	none	none	none	none	none	none	none	none
Fluorene	UJ LS	none	none	none	none	none	none	none	none
Indeno (1,2,3-cd) pyrene	UJ LS	none	none	none	none	none	none	none	none
Naphthalene	UJ LS	none	none	none	none	none	none	none	none
Phenanthrene	UJ LS	none	none	none	none	none	none	none	none
Pyrene	UJ LS	none	none	none	none	none	none	none	none
Copper	none	J HM	none	none	none	none	none	none	none
Antimony	none	UJ LM	UJ LM	UJ LM	UJ LM	UJ LM	UJ LM	UJ LM	UJ LM
Tin	none	J LM	J LM	J LM	J LM	J LM	J LM	J LM	J LM

Analyte	PPJ1225-15	PPJ1225-16	PPJ1225-17	PPJ1225-18	PPJ1225-19	PPJ1225-20	PPJ1225-21	PPJ1225-22	PPJ1225-23
Antimony	UJ LM	UJ LM	UJ LM	UJ LM	UJ LM	UJ LM	UJ LM	UJ LM	UJ LM
Tin	J LM	J LM	J LM	J LM	J LM	J LM	none	none	none

Analyte	PPJ1225-24	PPJ1225-31	PPJ1225-32	PPJ1225-33	PPJ1225-34	PPJ1225-35	PPJ1225-36	PPJ1225-37	PPJ1225-38
Antimony	UJ LM	UJ LM	UJ LM	UJ LM	UJ LM	UJ LM	UJ LM	UJ LM	UJ LM

Analyte	PPJ1225-39
Antimony	UJ LM

Notes:

UJ = indicates that the result is nondetected at an estimated reporting limit
J = indicates that the result is an estimate
HM = high matrix spike recovery
LM = low matrix spike recovery
LS = low surrogate recovery

APPENDIX G

Site Photographs

Photo 1
Uncovering the UST.

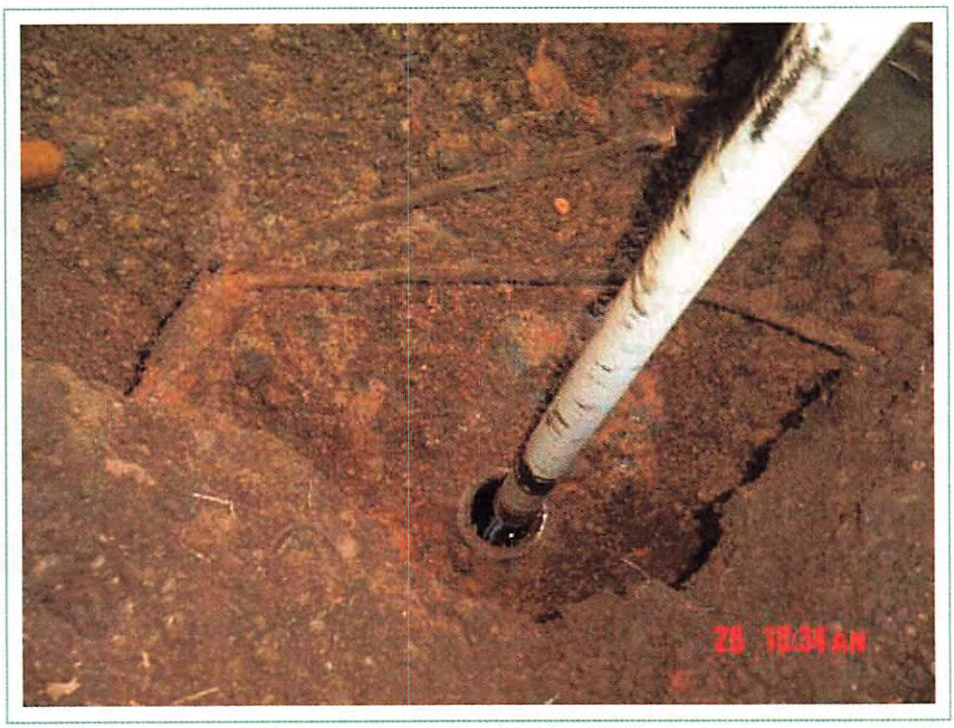


Photo 2
Removal of liquids from the UST.

amec
7376 SW Durham Road
Portland, Oregon 97224

PROJECT NO.	6-61M-11585-0
PROCESSED	klp
DATE	December 14, 2006
PAGE	1

Tillamook Bay
Industrial Site: K1-K8

PHOTOGRAPH LOG

K:K:\11000\11500\11585\Aerials and Images\Site Photos\UST REMOVAL

Photo 3
Removal of UST. Holes are apparent along bottom of UST.

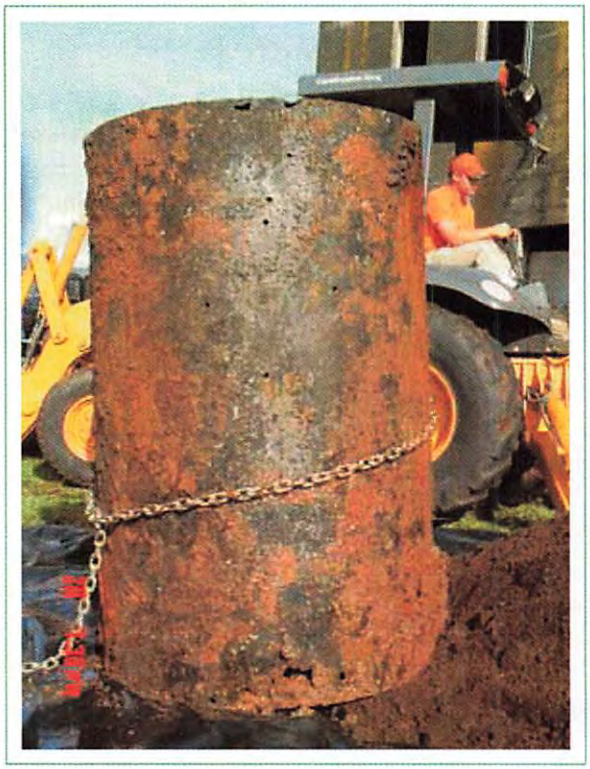


Photo 4
Removal of UST, holes apparent.

Photo 5
Stockpiling of contaminated soil.

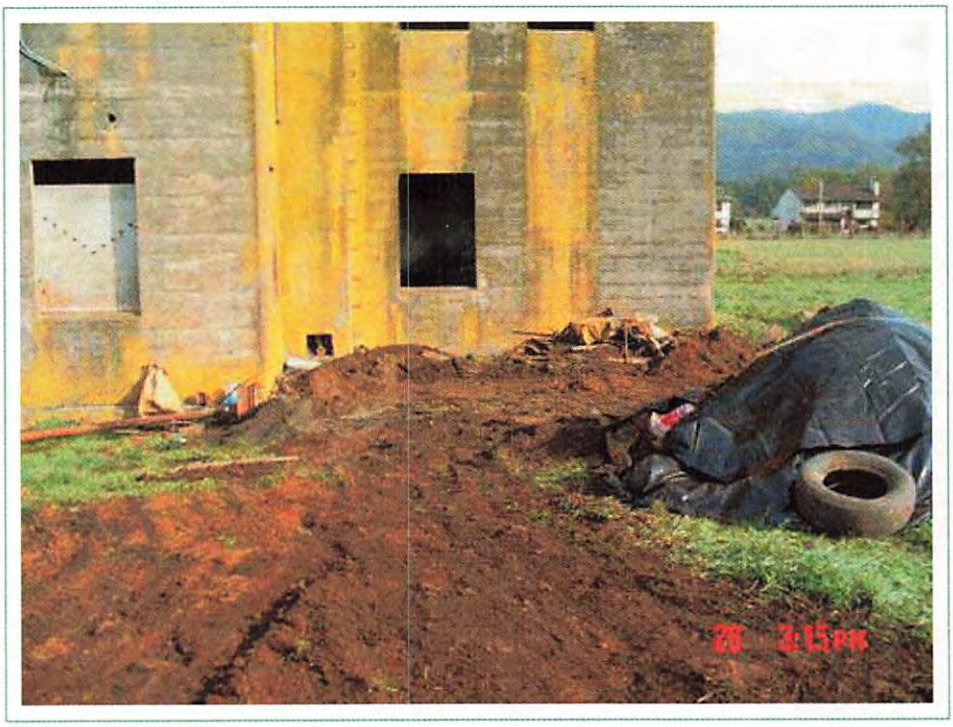


Photo 6
Stockpiled soil covered with visquene plastic; cover anchored with tires and rock. UST cavity backfilled.

APPENDIX H

Permit Registration Form

Copy of Release Report

UST Decommissioning Checklist and Site Assessment Report

Initial (Twenty Day) Report Form

Disposal Receipts

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
UNDERGROUND STORAGE TANK PROGRAM

GENERAL PERMIT REGISTRATION FORM TO DECOMMISSION EXISTING UNREGISTERED TANKS

State of Oregon Department of Environmental Quality

- This form should only be used to register existing tanks that have never been reported to DEQ and that will be decommissioned by permanent closure.
- To register existing tanks you must submit pages 4 through 8 of this registration form and a check for the amount of the required registration fee. See page 4 to calculate the required fee.
- If you are registering more than five (5) tanks, please make a copy of pages 7 and 8. List the additional tanks on the copy.
- You must submit an *UST Decommissioning/Change-in-Service 30-Day Notice* to your local DEQ Regional Office a minimum of 30 days before the start of decommissioning work. See page 3 for office locations.
- You must call your regional office to receive authorization to proceed with the decommissioning 72 hours prior to beginning work. See page 3 for phone numbers.
- You must submit the Underground Storage Tank Decommissioning Checklist and Site Assessment Report to your local Regional Office within 30 days following completion of the tank decommissioning or change-in-service **regardless if cleanup work is ongoing.**

CHECKLIST

1. Be sure signatures are provided for the tank owner, permittee and property owner, **even where one person fills all three roles.**
2. Complete the registration form for all tanks being registered at the facility.
3. Make copies for your records.
4. Enclose your check payable to:
   Oregon Department of Environmental Quality
5. Please return the general permit registration form and applicable registration fee to:

   Department of Environmental Quality
   Business Office
   811 SW Sixth Avenue
   Portland, Oregon 97204

INSTRUCTION PAGE

DESCRIPTION OF GENERAL PERMIT PROGRAM

In lieu of issuing individual permits, Oregon's UST permitting program has adopted a general permit by rule to decommission USTs that identifies the conditions and requirements for temporary and permanent closure or completing a change-in-service. By signing the registration forms, you are certifying that you will comply with all the conditions and requirements of the general permit to decommission USTs.

DEFINITIONS

Facility – the place where the tank is located.

Decommission – means temporary or permanent closure, including temporary or permanent removal from operation, filling in-place, removal from the ground or change-in-service to non-regulated status.

Owner – means a person who currently owns an UST or owned an UST during the tanks operational life. If registered with the Secretary of State, Corporations Division, the UST owner is the legal business name.

Permittee – means the owner or person designated by the owner, who is in control or has responsibility for daily UST system operation and maintenance, financial responsibility and UST operator training requirements under a general permit pursuant to OAR 340-150-0160 through 340-150-0168. If registered with the Secretary of State, Corporations Division, the permittee is the legal business name. The permittee is mailed the annual compliance fee invoice.

Property owner – means the legal owner of the real property on which an UST is located (the name that appears on the County deed records).

GENERAL PERMIT REGISTRATION FORM

1. Please fill in the name, address and phone number of the facility. If this facility is registered with DEQ please include the DEQ facility number.
2. Please fill in the number of tanks in the space provided in the general permit registration fee section. For existing tanks not previously registered, back fees are required by OAR 340-150-0110 (5). Calculate the total amount due.
3. Please fill in the tank owner's legal name, address and phone number. The legal name is the name of the tank owner as filed with the Secretary of State, Corporations Division, if applicable. The tank owner must sign the registration form.
4. The tank owner can designate a permittee for each facility. Please ask the permittee in charge of the facility to fill in their legal name, address and phone number. The legal name is the name of the permittee as filed with the Secretary of State, Corporations Division, if applicable. The permittee must sign the registration form.
5. Please fill in the property owner's name, address and phone number. The property owner's name should be the name in the county deed records. The property owner must sign the registration form.
6. There must be three signatures for each completed registration form – the tank owner, permittee and property owner. **IF ONE PERSON FILLS ALL THREE ROLES, THAT PERSON MUST SIGN THREE TIMES.**
7. Complete all sections and pages of the form.

LICENSED SERVICE PROVIDERS AND SUPERVISORS

ORS 466.750 and OAR 340 – Division 160 requires that licensed service providers perform tank decommission work. If contaminated soil is discovered during decommissioning, ORS 466.750 and OAR 340 – Division 162 requires that licensed service providers perform soil matrix cleanup work. During certain critical phases as specified in the rules, a licensed supervisor must be present on site to monitor the work. A list of licensed service providers and supervisors is available upon request by calling (503) 229-6652 or toll-free in Oregon 1-800-742-7878 (a message answering machine). **NOTE: AN OWNER OR PERMITTEE MAY PERFORM UST SERVICES ONLY IF THEY HAVE TAKEN AND PASSED THE APPROPRIATE UST SUPERVISOR EXAMINATION OFFERED BY A NATIONAL TESTING SERVICE (OAR 340-150-0156).**

HELP WITH THIS REGISTRATION FORM

If you have any questions about this registration form, please phone the DEQ UST Program at (503) 229-6652. You can also phone the UST Program's toll-free Oregon number, 1-800-742-7878. This is a message answering machine for calls made in Oregon. Underground Storage Tank Program staff will return your call within 24 hours (one business day). You can also send an e-mail to tanks.info@deq.state.or.us. Our regional staff is also available to answer questions regarding the general permit program and this general permit registration form (see below for telephone numbers).

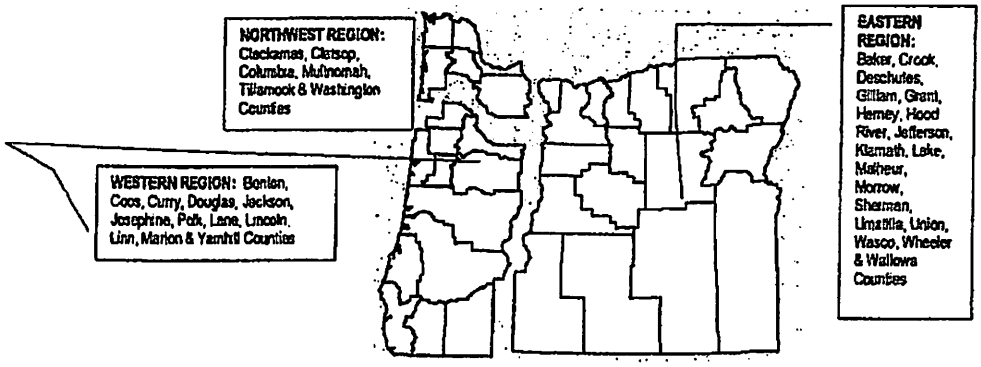
INSTRUCTION PAGE

COPIES OF GENERAL PERMIT CONDITIONS AND REQUIREMENTS AND UST PROGRAM RULES

Copies of the general permit to decommission conditions and requirements and UST Program rules and laws can be obtained from:

1. Any of the DEQ offices listed below,
2. By calling the UST HELPLINE at 1-800-742-7878,
3. Send an e-mail to tanks.info@deq.state.or.us, or
4. Downloading from the UST home page at:

http://www.deq.state.or.us/wmc/tank/ust-lust.htm



EASTERN REGION/THE DALLES Phone: 541-298-7255	WESTERN REGION / SALEM Phone: 503-378-8240
NORTHWEST REGION Phone: 503-229-5263	WESTERN REGION / COOS BAY Phone: 541-269-2721
WESTERN REGION / EUGENE Phone: 541-686-7838	UST HELPLINE: 1-800-742-7878 (toll free in Oregon)

GENERAL PERMIT REGISTRATION FORM

TO DECOMMISSION UNREGISTERED USTs

PLEASE PRINT

FACILITY NAME: Tillamook Bay Industrial Site KHK8

FACILITY ADDRESS: Intersection of Brickyard & Long Haire Highway 101 at Tillamook Airport

CITY, STATE & ZIP: Tillamook, Oregon 97141

PHONE: _____ (If known) **FACILITY NUMBER:** 0

GENERAL PERMIT REGISTRATION FEE

For existing tanks installed in 1988 or earlier the registration fee is $500 per tank.

Number of existing tanks being registered 1 x $500 = $ 500 Total Fee Due

Note: If an existing tank was installed after 1988 please contact the Department at 503-229-6652 or 1-800-742-7878 for assistance in calculating the fee.

For existing tanks not previously registered and permitted, back fees are due and payable with this general permit registration form in accordance with OAR 340-150-0110 (5).

GENERAL PERMIT REGISTRATION FORM

TO DECOMMISSION UNREGISTERED USTs

Port of Tillamook Bay **1. TANK OWNER*** as registered with the Secretary of State, Corporations Division	4000 Blimp Boulevard Mailing Address (*Please Print*)
Name of Official (*Please Print*)	Tillamook, Oregon 97141 City, State and Zip Code
Signature of Official Date	Area Code and Telephone Number

I will decommission the USTs described on the *Notification and Description of Underground Storage Tank Systems* pages in accordance with the conditions and requirements of the general permit to decommission.

Port of Tillamook Bay **2. PERMITTEE*** as registered with the Secretary of State, Corporations Division	4000 Blimp Boulevard Mailing Address (*Please Print*)
Name of Official (*Please Print*)	Tillamook, Oregon 97141 City, State and Zip Code
Signature of Official Date	Area Code and Telephone Number

I will decommission the USTs described on the *Notification and Description of Underground Storage Tank Systems* pages in accordance with the conditions and requirements of the general permit to decommission.

Port of Tillamook Bay **3. PROPERTY OWNER** is name that appears on the County deed record for this property.	4000 Blimp Boulevard Mailing Address (*Please Print*)
Name of Official (*Please Print*)	Tillamook, Oregon 97141 City, State and Zip Code
Signature of Official Date	Area Code and Telephone Number

* If this facility or tanks are owned by a person, or operated by a permittee that is a business registered with the Secretary of State, Corporations Division, you must use that legal business name for purposes of registering these USTs with the Department. Please make sure that your business registration with the Oregon Corporations Division (503-986-2200) is active or your application may be placed on hold until your registration has been renewed.

Return Completed Form to: Department of Environmental Quality
Business Office
811 SW Sixth Avenue
Portland, OR 97204

Notification and Description of Underground Storage Tank Systems

TYPE OF OWNER		INDIAN COUNTRY	
☐ Federal Government	☐ Commercial	Tanks are located on land within an Indian Reservation or on trust lands outside reservation boundaries. ☐	Tribe or Nation:
☐ State Government	☐ Private	Tanks are owned by a Native American nation or tribe. ☐	
☒ Local Government			

TYPE OF FACILITY

☐ Gas Station	☐ Railroad	☐ Trucking/Transport
☐ Petroleum Distributor	☐ Federal - Non-Military	☐ Utilities
☐ Air Taxi (Airline)	☒ Federal - Military	☐ Residential
☐ Aircraft Owner	☐ Industrial	☐ Farm
☐ Auto Dealership	☐ Contractor	☐ Other (Explain)

FINANCIAL RESPONSIBILITY

☐ I will meet the financial responsibility requirements in accordance with OAR 340 – Division 151

Check All that Apply

☐ Pollution Liability Insurance	☐ Letter of Credit	☐ Guarantee
☐ Self Insurance	☐ Surety Bond	☐ Local Government
☒ Exempt (Federal or State Government		

The financial responsibility requirements are designed to make sure that the tank owner, property owner or permittee can pay the costs of cleaning up leaks and compensating third parties for bodily injury and property damage caused by leaking USTs. A plain language summary of the financial responsibility requirements can be downloaded from the Internet at http://www.epa.gov/swerust1/pubs/dollars.htm. For a list of known insurance providers go to http://www.epa.gov/swerust1/pubs/inslist.htm.

CONTACT PERSON IN CHARGE OF TANKS

Name:	Job Title:	Address:	Phone Number (Include Area Code):

CERTIFICATION (Read and sign after completing all section)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.

Name and official title of owner or owner's authorized representative (Print)	Signature	Date Signed

NOTIFICATION AND DESCRIPTION OF UNDERGROUND STORAGE TANK SYSTEMS (Complete for each tank at this location.)					
Tank Identification Number	Tank No. 1	Tank No.	Tank No.	Tank No.	Tank No.
1. Status of Tank (mark only one)					
Currently In Use	☐	☐	☐	☐	☐
Temporarily Out of Use	☐	☐	☐	☐	☐
Permanently Out of Use	☒	☐	☐	☐	☐
2. Date of Installation (mo./year)	~1940				
3. Estimated Total Capacity (gallons)	300				
4. Material of Construction (mark all that apply)					
Asphalt Coated or Bare Steel	☒	☐	☐	☐	☐
Cathodically Protected Steel	☐	☐	☐	☐	☐
Epoxy Coated Steel	☐	☐	☐	☐	☐
Composite (Steel with Fiberglass)	☐	☐	☐	☐	☐
Fiberglass Reinforced Plastic	☐	☐	☐	☐	☐
Lined Interior	☐	☐	☐	☐	☐
Double Walled	☐	☐	☐	☐	☐
Polyethylene Tank Jacket	☐	☐	☐	☐	☐
Concrete	☐	☐	☐	☐	☐
Excavation Liner	☐	☐	☐	☐	☐
Unknown					
Other, Please specify					
Has Tank been repaired? Check box if yes	☐	☐	☐	☐	☐
Date of Repair	_____	_____	_____	_____	_____
5. Piping (Material) (mark all that apply)					
Bare Steel	☒	☐	☐	☐	☐
Bare Steel Wrapped	☐	☐	☐	☐	☐
Galvanized Steel	☐	☐	☐	☐	☐
Fiberglass Reinforced Plastic	☐	☐	☐	☐	☐
Copper	☐	☐	☐	☐	☐
Cathodically Protected	☐	☐	☐	☐	☐
Double Walled	☐	☐	☐	☐	☐
Secondary Containment	☐	☐	☐	☐	☐
Unknown	☐	☐	☐	☐	☐
Not In Contact With Soil	☐	☐	☐	☐	☐
Other, Please Specify					
6. Piping (Type) (mark all that apply)					
Suction: no valve at tank	☐	☐	☐	☐	☐
Suction: valve at tank	☐	☐	☐	☐	☐
Pressure	☐	☐	☐	☐	☐
Gravity Feed	☐	☐	☐	☐	☐
Has piping been repaired? Check box if yes	☐	☐	☐	☐	☐
Date of Repair	_____	_____	_____	_____	_____

NOTIFICATION AND DESCRIPTION OF UNDERGROUND STORAGE TANK SYSTEMS (Complete for each tank at this location.)										
Tank Identification Number	Tank No. 1		Tank No.		Tank No.		Tank No.		Tank No.	
7. Substance Currently or Last Stored in Greatest Quantity by Volume **(Check Only One Substance Per Tank)**										
Gasoline	☐		☐		☐		☐		☐	
Diesel	☒		☐		☐		☐		☐	
Gasohol	☐		☐		☐		☐		☐	
Kerosene	☐		☐		☐		☐		☐	
Heating Oil	☐		☐		☐		☐		☐	
Used Oil	☐		☐		☐		☐		☐	
Hazardous Substance	☐		☐		☐		☐		☐	
CERCLA name and/or	_____		_____		_____		_____		_____	
CAS number	_____		_____		_____		_____		_____	
Mixture of Substances	☐		☐		☐		☐		☐	
Please Specify	_____		_____		_____		_____		_____	
Other	☐		☐		☐		☐		☐	
Please Specify	_____		_____		_____		_____		_____	
8. Release Detection (Mark all that apply)	TANK	PIPING	TANK	PIPING	TANK	PIPING	TANK	PIPING	TANK	PIPING
A. Manual tank gauging	☐		☐		☐		☐		☐	
B. Tank tightness testing	☐		☐		☐		☐		☐	
C. Inventory Control	☐		☐		☐		☐		☐	
D. Automatic tank gauging	☐		☐		☐		☐		☐	
E. Vapor monitoring	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
F. Groundwater monitoring	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
G. Verify monitoring/secondary containment	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
H. Automatic line leak detectors		☐		☐		☐		☐		☐
I. Line tightness testing		☐		☐		☐		☐		☐
J. No release detection required (emergency generator tanks/field constructed tanks)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
K. Other method allowed by implementing agency.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Please specify										
9. Spill and Overfill Protection										
A. Overfill device installed	☐		☐		☐		☐		☐	
B. Spill device installed	☐		☐		☐		☐		☐	

Leaking Underground Storage Tanks (LUST) Site Information

Leaking Underground Storage Tank (LUST) Site Information

Log Nbr: 29-06-1942 — **Basic Incident Information** — Status. ACTIVE

Site Name: HEATING OIL TANK — Received Date: 10/26/2006

Address: Intersection of Brickyard & Long Praire — UST Facility Id: 0

City: TILLAMOOK — Zip Code 97141 — County: TILLAMOOK

Site Type. — File Status:

Heating Oil Tank (HOT): YES — Regulated Tank:

Assessment Information 29-06-1942

Cause Of Release: TANK LEAK — Discovery Method: DECOMMISSIONING

Media Effected	Contaminants Released
>Soil	>HeatingOil

Free Product Removed:	Free Vapor Removed:	CAP Requested:
Deliniate Groundwater.	Groundwater Deliniated:	CAP Submitted:
Deliniate Soil:	Soil Deliniated:	CAP Approved:
	Compliance Monitoring:	

No Management Information For This Incident 29-06-1942

No Work Reported Information For This Incident 29-06-1942

This information may not reflect current status of site.
For further detail, refer to the DEQ Regional Office file.

State of Oregon Department of Environmental Quality

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
UNDERGROUND STORAGE TANK PROGRAM

UNDERGROUND STORAGE TANK DECOMMISSIONING CHECKLIST AND SITE ASSESSMENT REPORT

A. FACILITY INFORMATION:

This report MUST be submitted by the underground storage tank permittee or tank owner, or the licensed DEQ Service Provider on their behalf, **within 30 days following completion of the tank decommissioning or change-in-service regardless of ongoing cleanup work.**

DEQ FACILITY NUMBER: _____

FACILITY NAME: _____

FACILITY ADDRESS: _____

PERMITTEE PHONE: _____ DATE: _____

B. WORK PERFORMED BY:

The checklist and site assessment report should be completed and signed by the DEQ licensed supervisor and signed by an executive officer of the DEQ licensed Service Provider on page 6. The tank owner or permittee must review and sign the report on page 6. **NOTE: AN OWNER OR PERMITTEE MAY PERFORM UST SERVICES ONLY IF THEY HAVE TAKEN AND PASSED THE APPROPRIATE UST SUPERVISOR EXAMINATION OFFERED BY A NATIONAL TESTING SERVICE (SEE OAR 340-150-0156 for requirements).**

DEQ Service Provider's License #: _____ Construction Contractors Board License #: _____

Name: _____

Telephone: _____

DEQ Decommissioning Supervisor's License #: _____

Name: _____

Telephone: _____

DEQ Soil Matrix Service Provider's License #: _____ (If applicable)

Name: _____

Telephone: _____

DEQ Soil Matrix Supervisor's License #: _____ (If applicable)

Name: _____

Telephone: _____

C. DATES:

Decommissioning/Change-in-Service Notice - Date Submitted: _____ (30 days before work starts).

Work Start Telephone Notice - Date Submitted: _____ (3 working days before work starts).

DEQ Person Notified: _____

Date Work Started: _____ Date Work Completed: _____

Note: Provide the following information if any soil or water contamination is found during the decommissioning or change-in-service. Contamination must be reported by the UST permittee within 24 hours. The licensed service provider must report contamination within 72 hours after discovery unless previously reported.

Date Contamination Reported: _____ By: _____

DEQ Person Notified: _____

D. OTHER DEQ PERMITS MAY BE NEEDED WHERE SOIL OR WATER CLEANUP IS REQUIRED.

DEQ Water Discharge Permit #: _____ Date: _____

Water Disposed to (Location): _____

DEQ Solid Waste Disposal Permit #: _____ Date: _____

Soil Disposal or Treatment Location: _____

E. TANK INFORMATION:

			PRODUCT: GASOLINE, DIESEL, USED OIL, OTHER?		CLOSURE OR CHANGE-IN- SERVICE?			TANK TO BE REPLACED?	
TANK ID #	DEQ-UST PERMIT #	TANK SIZE IN GALLONS	PRESENT	NEW	TANK REMOVAL	CLOSURE IN PLACE♦	CHANGE IN SERVICE♦	YES*	NO

NOTE 1: Where decommissioned tank(s) are replaced by new underground storage tanks the UST permittee must submit a *General Permit Registration Form to Install and Operate USTs* containing information on the new tanks 30 days before installing them.

NOTE 2: Submit a soil sampling plan to the DEQ regional office and receive plan approval prior to starting work if 1) tank is to be decommissioned in-place, 2) tank contents are changed to a non-regulated substance, 3) tank contains a regulated substance other than petroleum, or 4) tank changed to non-regulated use.

F. DISPOSAL INFORMATION:

	TANK AND PIPING DISPOSAL METHOD				DISPOSAL LOCATION OF TANK CONTENTS	
TANK ID #	SCRAP	LAND-FILL	OTHER	IDENTIFY LOCATION & PROPERTY OWNER	LIQUIDS *	SLUDGES *

NOTE 1: The tank contents, the tank and the piping may be subject to the requirements of Hazardous Waste regulations. If you have questions, contact the DEQ regional office for your area.

NOTE 2: Attach copies of the disposal receipts for the tanks and piping. If the tanks are shipped off-site for reuse provide the name, address and phone number of the person or business receiving the tanks for reuse.

NOTE 3: Attach copies of the disposal receipts for the disposal or treatment of liquid or sludge removed from the tanks

G. CONTAMINATION INFORMATION:

TANK ID #	GROUND * WATER IN PIT ?	PRODUCT ODOR IN SOIL ?	PRODUCT STAINS IN SOIL ?	NUMBER OF SAMPLES	LABORATORY (NAME, CITY, STATE, PHONE)

NOTE 1: Attach a copy of the laboratory report showing the results of all tests on all soil and water samples. The laboratory report must identify sample collection methods, sample location, sample depth, sample type (soil or water), type of sample container, sample temperature during transportation, types of tests, and copies of analytical laboratory reports, including QA/QC information. Include laboratory name, address and copies of chain-of-custody forms.

NOTE 2: If contamination is detected and a Level 2 or Level 3 soil matrix cleanup standard is applied to the site, attach a copy of the soil matrix analysis including methods of determining soil type, depth to groundwater, and sensitivity of uppermost aquifer.

H. SITE SKETCH: (Show location of adjacent roads, property lines, structures, dispensers, & all USTs. Show North, general direction of ground slope and soil sample locations. Sketch does not need to be drawn to scale. You may attach a separate drawing.)

I. SAFETY EQUIPMENT ON JOB SITE:

Fire Extinguisher:	Type/Size: _____	Recharge Date: _____
Combustible Gas Detector:	Model: _____	Calibration Date: _____
Oxygen Analyzer:	Model: _____	Calibration Date: _____

J. DECOMMISSIONING:

All Tanks: N/A = Not Applicable (Check (√) Appropriate Box)	YES	NO	UNKNOWN	N/A
1. All electrical equipment grounded and explosion proof?				
2. Safety equipment on job site?				
3. Overhead electrical lines located?				
4. Subsurface electrical lines off or disconnected?				
5. Natural gas lines off or disconnected?				
6. No open fires or smoking material in area?				
7. Vehicle and pedestrian traffic controlled?				
8. Excavation material area cleared?				
9. Rainwater runoff directed to treatment area?				
10. Drained and collected product from lines?				
11. Removed product and residual from tank?				
12. Cleaned tank?				
13. Excavated to top of tank?				
14. Removed tank fixtures? (pumps, leak detection equipment)				
15. Removed product, fill and vent lines?				

K. TANK ABANDONMENT IN-PLACE:

All Tanks: N/A = Not Applicable (Check (√) Appropriate Box)	YES	NO	UNKNOWN	N/A
16. Sampling plan approved by DEQ? Date: DEQ Staff:				
17. Contamination concerns fully resolved?				
18. Fill Material? Type: _____				

L. TANK REMOVAL:

All Tanks: N/A = Not Applicable (Check (√) Appropriate Box)	YES	NO	UNKNOWN	N/A
19. Tank placement area cleared, chocks placed?				
20. Purged or ventilated tank to prevent explosion? Method used: _____ Meter reading:				
21. Were chains or steel cables wrapped around tank for removal?				
22. Tank removed, set on ground, blocked to prevent movement?				
23. Tank set on truck and secured with straps(s)?				
24. Tank labeled before leaving site?				

M. SITE ASSESSMENT:

All Tanks: N/A = Not Applicable (Check (√) Appropriate Box)	YES	NO	UNKNOWN	N/A
25. Site assessed for contamination? See OAR 340-122-0340				
26. Soil samples taken and analyzed?				
27. Was contamination found? Date/Time: _____				
28. Was hazardous waste determination made for tank contents (Liquids/sludges)?				

N. REQUIRED SIGNATURES:

I have personally reviewed this decommissioning checklist and site assessment report and the attachments and find them to be true and complete.

Permittee or Tank Owner: _____
(Please Print)

Permittee or Tank Owner: _____ Date: _____
(Signature)

I have personally reviewed this decommissioning checklist and site assessment report and the attachments and find them to be true and complete.

Licensed Supervisor: _____
(Please Print)

Licensed Supervisor: _____ Date: _____
(Signature)

I have personally reviewed this decommissioning checklist and site assessment report and the attachments and find them to be true and complete.

Executive Officer: _____
Licensed Service Provider *(Please Print)*

Executive Officer: _____ Date: _____
Licensed Service Provider *(Signature)*

O. REPORT FILING:

This report signed by the permittee or tank owner, licensed supervisor and executive officer of the Service Provider, complete with all applicable attachments, must be filed with the DEQ regional office within 30 days after the excavation is backfilled or change-in-service is complete. **Do not wait until any site related cleanup project is completed.** Contact the DEQ regional office prior to filing this report where special circumstances exist at the site (such as water in pit, remaining pockets of contamination, etc.).

P. HELP WITH THIS REPORT:

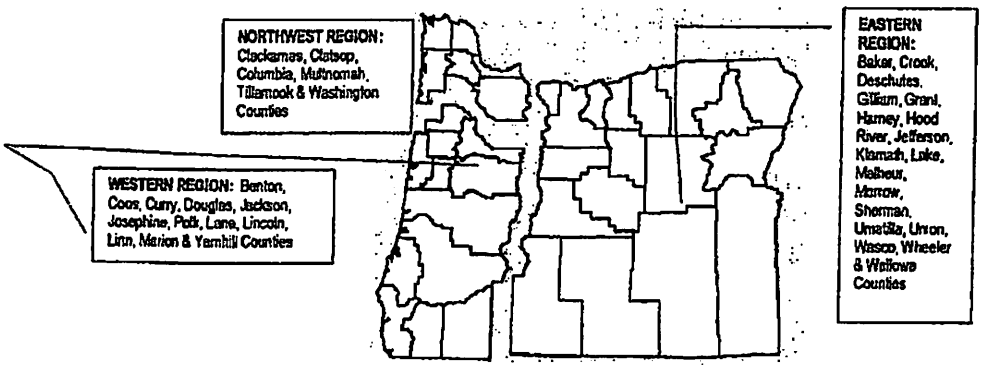
If you have any questions about this decommissioning checklist and site assessment report, please phone your DEQ Regional Office. You can also phone the UST Program's toll-free number, 1-800-742-7878. This is a message answering machine for calls made within Oregon. Underground Storage Tank Program staff will return your calls within 24 hours. You can also send an e-mail to tanks.info@deq.state.or.us. Our regional staff are also available to answer questions regarding tank decommissioning or change-in-service requirements (see below for telephone numbers).

Q. COPIES OF THE GENERAL PERMIT TO DECOMMISSION OR COMPLETE A CHANGE-IN-SERVICE:

Obtain copies of the general permit to decommission or complete a change-in-service conditions and requirements, UST Program rules and laws and UST Cleanup rules and laws at:

1. Any of the DEQ offices listed below,
2. By calling the UST HELPLINE at 1-800-742-7878,
3. Send an e-mail to tanks.info@deq.state.or.us or
4. Downloading from the UST home page at:

http://www.deq.state.or.us/wmc/tank/ust-lust.htm



EASTERN REGION / THE DALLES 400 E. Scenic Drive, Building 2 - 307 The Dalles, OR 97058 Phone: 541-298-7255 Fax: 541-298-7330	NORTHWEST REGION 2020 SW 4th Avenue, Suite 400 Portland, OR 97201-5884 Phone: 503-229-5263 Fax: 503-229-6945	WESTERN REGION / COOS BAY 381 N SECOND STREET COOS BAY 97420 Phone: 541-269-2721 Fax: 541-269-7984
WESTERN REGION / EUGENE 1102 Lincoln Street, Suite 210 Eugene, OR 97401 Phone: 541-686-7838 Fax: 541-686-7551	WESTERN REGION / SALEM 750 Front Street NE, Suite 120 Salem, OR 97301-1039 Phone: 503-378-8240 Fax: 503-373-7944	

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
UNDERGROUND STORAGE TANK PROGRAM

State of Oregon Department of Environmental Quality

Initial (Twenty Day) Report Form for UST Cleanup Projects

This report is due twenty (20) days from the date of the release.

DEQ USTC File No. 29-06-1942

DEQ Facility ID No. 0

Site Name: Heating Oil Tank

Site Address: Intersection of Brickyard & Long Prairie

INITIAL CLEANUP INFORMATION

(1) Type of contamination (check all that apply):

___ Gasoline X Diesel ___ Waste Oil ___ Heating Oil

___ Other (specify) _____

(2) Estimate quantity of release (based on information known to date):

X <100 gal. X 100-499 gal. ___ 500-999 gal. ___ 1,000-5,000 gal. ___ >5,000 gal.

SITE INFORMATION (Circle N for "no" or Y for "yes")

(3) N (Y) Did any water enter the excavation? If yes, please describe and identify the depth to groundwater in feet below ground surface: Small puddle - not groundwater

(4) N (Y) Was a sheen or odor observed on any water in the excavation?

Note: If groundwater is encountered, soil samples from the soil/water interface must be collected and analyzed for BTEX and by the appropriate TPH method.

At sites where diesel or other non-gasoline products have been released, the water may also have to be screened or tested for polynuclear aromatic hydrocarbons (PAHs). *Please refer to OAR 340-122-0218.*

(5) N (Y) Was water pumped from the excavation?

(N) Y If yes, did groundwater recharge within 24 hours after pumping?

Please describe the pumping procedure and disposal option selected for the purged excavation water:
Water was pumped into 55-gallon drum and transported to ORRCO Oil Re-Refining Company for Recycling.

(6) (N) Y Were any water samples collected from the excavation? If yes, please describe:

(7) N (Y) Have any soil and/or water sample results been received at this time?
If so, please attach any lab reports.

IF GROUNDWATER HAS BEEN ENCOUNTERED, PLEASE ANSWER QUESTIONS #8-13, BELOW.
IF NO WATER HAS BEEN ENCOUNTERED, PLEASE SKIP TO QUESTION #14

(8) What are the known uses of groundwater within a 500-foot radius of the release site?

___ non-use ___ industrial X agricultural ___ drinking supply

(9) If groundwater in this area is being used as a drinking water supply, please check the type and size of population served by the supply:

___ Community (community well used for drinking water year round)

size: ___ <1,000 people ___ 1,000 - 5,000 people ___ >5,000 people

___ Intermittent use (public water used for drinking water only on a part-time basis)

size: ___ <50 people ___ 50 - 300 people ___ > 300 people

___ Private wells (individual private well or wells used for drinking water)

size: ___ <10 people ___ 10 - 25 people ___ >25 people

(10) N Y Is there any evidence this water supply has been or is likely to be impacted from the petroleum product release? If yes, estimate how difficult it would be to replace the existing supply:

___ bottled water is the only alternative
___ on-site water treatment; bulk water delivery; new wells are available
___ able to connect to existing water supply
___ do not know what alternatives would be available

(11) N Y Are/were vapors present in on-site or nearby buildings? If yes:

A. Are you monitoring and/or mitigating any potential fire and safety hazards posed by vapors and free product? Explain: _____

_____

B. Estimate the number of people potentially affected by vapors:

___ 1-2 people ___ 3-10 people ___ >10 people

(12) N Y Are vapors or is petroleum contamination present in the utility corridors?

If yes, please explain:

_____

(13) N Y Are natural areas located within 1/4 mile of the site? If so, please describe types (parks, rivers, wetlands, sensitive habitats, *etc.*) and proximity: _____

_____

(14) N Y If groundwater was not encountered in the excavation, do you believe that this cleanup project can be conducted under the requirements for an UST Cleanup Matrix site? If yes, then refer to OAR 340-122-0305 through 0360.

AREA/SITE CONDITIONS:

(15) Mean annual rainfall: ___ <20 inches ___ 20-45 inches ___ >45 inches

(16) Soil type(s) of the naturally occurring soils, not the backfill around the tank:

___ clays, compact tills, shales, and unfractured metamorphic and igneous rocks

___ sandy loams, loamy sands, silty clays, clay loams, moderately permeable limestone, dolomite, sandstones, moderately fractured igneous and metamorphic rock

___ fine and silty sands, sands and gravels, highly fractured igneous and metamorphic rock, permeable basalts and lavas, karst limestones and dolomites

SOIL MANAGEMENT

(17) If soil sample results have been received:

N Y Will the level of contamination detected require removal of contaminated soil for treatment or disposal?

(18) All contaminated soil temporarily stockpiled on-site prior to treatment or disposal must be contained within a bermed area, kept covered, and the entire area secured to prevent unauthorized access by the public. If you haven't done this, please explain why:

_____

_____

_____

_____

Note: It is a violation to stockpile petroleum contaminated soil (PCS) on-site for greater than 30 days without a DEQ Solid Waste Letter Authorization (SWLA) Permit.

(19) If contaminated soil is currently stockpiled on-site, please indicate when disposal will occur or when treatment will begin: _____

(20) Estimated volume of contaminated soil (specify tons or cubic yards): _____

(21) Intended disposition of soils (please check one):

___ On-site/off-site treatment, Solid Waste Letter Authorization Permit Application attached.

___ Thermal treatment off-site at an authorized facility.
Facility name: _____

___ Landfill disposal.
Name of Landfill: _____

Note: Please attach additional information as necessary to explain any unusual circumstances associated with this project.

This initial report is intended to provide the Department with the basic initial information about activities associated with the release. Future reports should provide a more detailed and complete picture of the cleanup project.

Please be aware that a DEQ permit/authorization is required for the following activities:

1) Soil aeration, bioremediation (on-site or off-site), or on-site thermal treatment.

2) Water discharges to a stream/storm drain from the excavation or treatment tank.

If these activities will be included in your cleanup project, contact the regional DEQ office for the appropriate application forms, information on permit fees and guidance documents.

THIS REPORT WAS PREPARED BY:

Individual: _____ Phone: (____) _____

Company: _____

Address: _____

_____

City: _____ State_____ Zip _____

1. Please return this form to the regional office in which the site is located. If you have questions, call the contact person in your regional office.

2. For all tanks, except heating oil tanks, you must submit an *UST Decommissioning Checklist and Site Assessment Report* to the appropriate regional office within 30 days of the UST decommissioning. Failure to do so can result in delays to your project and may result in continued billing for the annual tank permit fees.

3. Addresses and phone numbers for the regional offices can be found in the *UST Cleanup Manual* or viewed and downloaded from this DEQ Webpage: http://www.deq.state.or.us/wmc/tank/regoffices.htm

4. Copies of the *UST Cleanup Manual* and other UST program forms and checklists can be viewed and downloaded from DEQ's Website: http://www.deq.state.or.us/wmc/tank/ust-lust.htm

or in the Portland area by calling Steve Paiko at 503-229-6652

or outside the Portland area leaving a message on the UST Help Line (toll-free in Oregon) at 1-800-742-7878

KEEP A COPY OF THIS REPORT FOR YOUR FACILITY RECORDS

RECEIVING RECORD

ORRCO
Oil Re-Refining Company

Head Office
4150 N. Suttle Rd.
Portland, OR 97217
1-800-367-8894

R- 01-06-1206-005

Received From:
Munitor Construction, LLC
-0-
Portland OR 97238
EPA#: -0-
Phone: 503-702-6542
Customer ID#: 10050
Driver: Alex

Receiving Location: Plant#1
ERI
4150 N. Suttle Road
Portland, OR 97217
Phone: 503-286-8852
EPA#: ORD980975892

Date	Terms	Written By	Sales Rep.	Page
12/06/06	-0-	Jim	-0-	1 of 1

Line	Qty.	Unit	Item	%-H20	Manifest #	B/L#	Net Qty
1	150	Gal.	Emulsified Fuel	50 %			75
			Generator ID# 10050 Munitor Construction, LLC				
			passed sniffer, ph-7, profile on file.				
			Total Gal. 150.				

Customer warrents that the waste petroleum products being received do not contain any contaminants including, without limitation, pesticides, chlorinated solvents at total concentrations greater than 1000 PPM, PCB's greater than 2 PPM, or any other material classified as hazardous waste by 40 CFR part 261, Subparts C and D (implementing the Federal Resource Conservation and Recovery Act) or by any other state or local hazardous waste classification program. Should Laboratory tests find this product not in compliance with 40 CFR part 261 customer agrees to pay all disposal costs incurred.

Signed X _____ DATE: 12/06/06

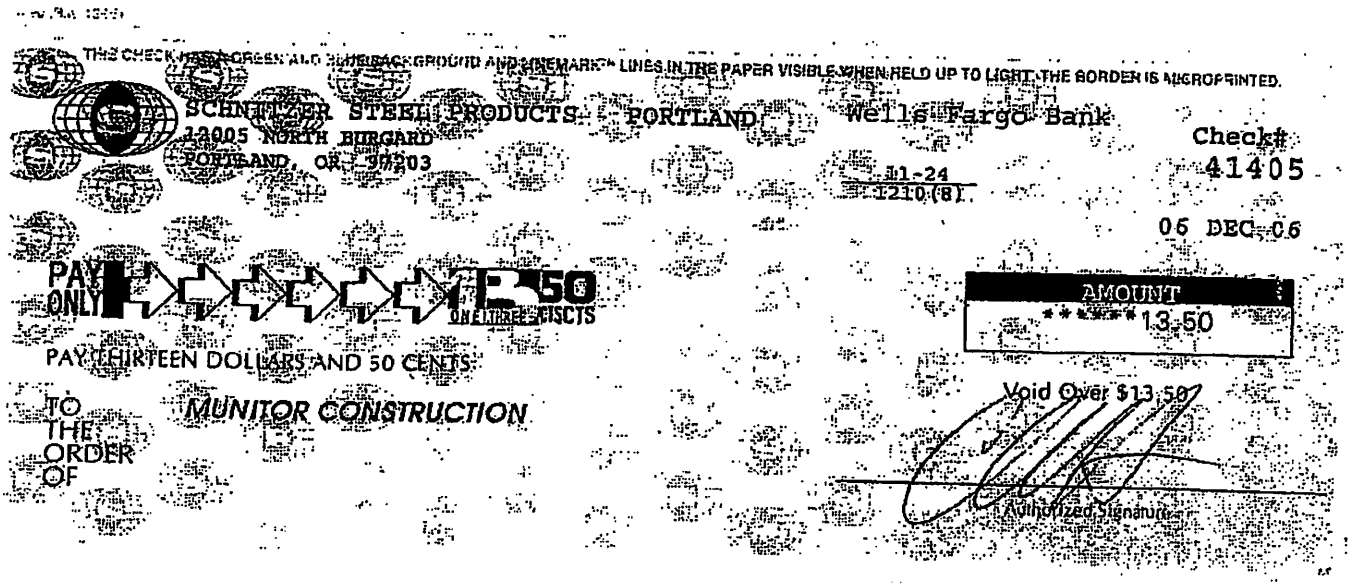
Weighed at:SCHNITZER STEEL PRODUCTS - PORTLAND CHECK# 41405

7781 : MUNITOR CONSTRUCTION WEIGHED OUT: 11:43 12/06/06

DATE	COMMODITY	NET WEIGHT	PRICE	AMOUNT
06 DEC 06	192-00 Tin	300.0 LB	$90.00 /NT	$13.50
Total Wt-	Gross: 12680.0 lbs Tare: 12380.0 lbs Net:	300.0 lbs		

Seller certifies that any CFC's have been removed in accordance with the Clean Air Act prior to delivery. CHECK TOTAL: $13.50

955076



File

Oregon

Theodore R. Kulongoski, Governor

Department of Environmental Quality
Northwest Region Portland Office
2020 SW 4th Avenue, Suite 400
Portland, OR 97201-4987
(503) 229-5263
FAX (503) 229-6945
TTY (503) 229-5471

June 11, 2007

Bev Thacker
OECDD
Community Assistance
775 Summer St NE, Ste 200
Salem OR 97301

RE: Partial NFA
Industrial Lands Certification Site
Tillamook Bay Industrial Site K1-K8 (#100062)
T2S, R9W, Section 4
Tax Lot 600
ECSI #4604

Dear Ms. Thacker:

DEQ has completed our review of the report "Soil Sampling and Underground Storage Tank Decommissioning Report, Tillamook Bay Industrial Site K1-K8 (#100062), Highway 101 at Tillamook Airport, Tillamook, Oregon 97141." The report describes site investigation work at the 80-acre site just east of the Tillamook Airport, that had historically been used for a shotgun/skeet range (SSR) and rifle firing range (RFR) and had housed a radio transmission building for a brief period in the early to late 1940s. The work performed at the site included - an evaluation of soils in selected areas of the SSR and RFR to determine possible contamination of heavy metals, polynuclear aromatic hydrocarbons (PAHs), and other firing range related contaminants; and decommissioning of a small diesel underground storage tank next to the former radio transmission building.

Based on the results of the Site Investigation, DEQ has determined the following:

(a) Field and laboratory analysis of the soils in areas expected to have been impacted by the prior shotgun/skeet range (SSR) and rifle firing range (RFR) do not indicate any elevated concentrations of metals or PAHs. The consultant who performed the work on behalf of the Port of Tillamook Bay, (AMEC) followed guidance published by the Interstate Technology and Regulatory Council (ITRC) for these types of sites[1], and found no apparent elevated concentrations of range-related contaminants. Therefore, DEQ has determined that no further investigative or remedial action is needed in this area of the property.

[1] ITRC. 2003. *Characterization and Remediation of Soils at Closed Small Arms Firing Ranges.* Interstate Technology and Regulatory Council, Small Arms Firing Range Team, Washington, DC, January 2003.

(b) During the site reconnaissance and investigation, a 300-gallon diesel underground storage tank (UST) was found next to the former radio transmission building. AMEC pumped out a small amount of residual fuel and decommissioned the tank by removing it. Subsequent investigation in the area around the removed UST did indicate that remedial action will likely be needed to address petroleum hydrocarbon contamination in soils and groundwater near and possibly under the building. Based on the laboratory results, size and condition of the removed UST, DEQ believes that additional remedial work to address the remaining petroleum contamination near and around the former UST location could be resolved within six months.

This determination is based on the regulations and facts as we now understand them.

DEQ's Environmental Cleanup Site Information (ECSI) database will be updated to reflect the Partial NFA determination for the SSR and RFR areas of this site. If you have questions, please feel free to contact Chuck Harman at (503) 229-5585.

Sincerely,

Bruce Gilles, Manager
Environmental Cleanup Program
Northwest Region

Cc: Chuck Harman, NWR Brownfields Coordinator
Karen Homolac, OECDD
Max Rosenberg, DEQ Western Region
ECSI #4604

Phase II Environmental Assessment Report

7285 Long Prairie Road, Tillamook, Oregon 97141

Cooperative Agreement No. 02J20601

ACRES ID 258250

Prepared for

Tillamook County
201 Laurel Avenue
Tillamook, Oregon 97141

Prepared by

Terraphase Engineering Inc.
610 SW Broadway, Suite 405
Portland, Oregon 97205

Under Contract with CHA Consulting, Inc.

July 10, 2024

Project Number O053.010.004

This document is a draft and the information contained herein is subject to change. It should not be relied upon; consult the final document.

File: rpt-PhII ESA-POT-O053-010-004-F

Contents

Tables

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Appendices

Acronyms and Abbreviations

Apex	Apex Analytical Laboratory
bgs	below ground surface
CHA	CHA Consulting, Inc.
County	Tillamook County
ESA	environmental site assessment
HASP	*Health and Safety Plan*
HOT	heating oil tank
mg/kg	milligrams per kilogram
OCP	organochlorine pesticide
ODEQ	Oregon Department of Environmental Quality
PAHs	polycyclic aromatic hydrocarbons
PBS	PBS Engineering and Environmental
PID	photoionization detector
Port	Port of Tillamook Bay
ppm	parts per million
QA	quality assurance
QAPP	*Generic Quality Assurance Project Plan for Brownfield Community-Wide Assessment*
QC	quality control
RBC	risk-based concentrations
REC	recognized environmental condition
Site	7285 Long Prairie Road, Tillamook, Oregon 97141
SSQAPP	*Site-Specific Quality Assurance Project Plan*
Terraphase	Terraphase Engineering Inc.
TPH	total petroleum hydrocarbons
USEPA	United States Environmental Protection Agency
UST	underground storage tank

Signatures

James R. Farrow, RG
Principal Hydrogeologist

7/10/2024
Date

Don Malkemus, RG
Senior Project Hydrogeologist

7/10/2024
Date

John Hildenbrand
Principal Environmental Scientist

7/10/2024
Date

Jason Hignite
Senior Project Manager I (CHA Consulting, Inc.)

Date

1 Introduction

Terraphase Engineering Inc. (Terraphase) completed a Phase II environmental site assessment (ESA) on behalf of Tillamook County (the County), under contract with CHA Consulting, Inc. (CHA), for the property at 7285 Long Prairie Road, Tillamook, Oregon (the Site; Figure 1). The Site is an approximately 13-acre portion of the parcel identified as Tillamook County Assessor's tax lot number 2S09040000600 (Tax Lot 600) owned by the Port of Tillamook Bay (the Port). The Phase II ESA was conducted to assess environmental conditions in advance of Site redevelopment. The scope of work was based on the findings of a January 2024 Phase I ESA for the Site (Terraphase 2024). All field work was conducted in accordance with the United States Environmental Protection Agency-approved *Generic Quality Assurance Project Plan for Brownfield Community-Wide Assessment* (QAPP [CHA 2023]) and the *Site-Specific Quality Assurance Project Plan* (SSQAPP [CHA 2024]).

1.1 Background

In 1942, a two-story radio transmission building was constructed by the United States Navy in the central portion of the Site. Between approximately 1941 to 1948, the larger southern portion of the Site was used as shotgun/skeet and rifle firing ranges (PBS 2005). The Site has been used for pastureland, leased to local dairy farmers for grazing, since approximately 1948 (Terraphase 2024). The majority of the Site was developed as farmland since at least 1952. The former radio transmission building was used by the Tillamook Fire District as a fire training facility for a short period in the 1970s. Reportedly, firefighting foam was not used for fire suppression activities. The on-site building has not been used since the 1970s (Terraphase 2024).

Previous environmental investigations at the Site include the following:

- Phase I ESA conducted by PBS Engineering and Environmental (PBS) in 2005
- Phase II ESA conducted by AMEC in 2007
- Phase I ESA conducted by Terraphase in January 2024

The 2005 Phase I ESA identified former shotgun/skeet and rifle ranges at the Site as a recognized environmental condition (REC) due to the potential presence of lead and various other metals from bullet shells and shotgun pellets.[1] In addition, propellant mixtures for bullets typically include nitroglycerin, nitrocellulose amine group binders, and dinitrotoluene plasticizers. PBS noted that skeet targets could contain polynuclear aromatic hydrocarbons (PAHs). No observable residues from the firing ranges were found during a site visual inspection (PBS 2005).

[1] According to ASTM International E1527-21, , *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (2021), a REC is defined as "(1) the presence of *hazardous substances* or *petroleum products* in, on, or at the *subject property* due to a *release* to the *environment*; (2) the likely presence of *hazardous substances* or *petroleum products* in, on, or at the *subject property* due to a *release* or likely *release* to the *environment*; or (3) the presence of *hazardous substances* or *petroleum products* in, on, or at the *subject property* under conditions that pose a *material threat* of a future *release* to the *environment*."

PBS observed a vent pipe next to the former radio transmission building. As this building is the lone structure on the property, it was considered likely that a heating system was historically present and that the vent was associated with an underground storage tank (UST). Therefore, the Oregon Department of Environmental Quality (ODEQ) concluded that the vent pipe represented an additional REC.

In October 2006, during the Phase II ESA conducted by AMEC, a 300-gallon underground heating oil tank (HOT) adjacent to the building was decommissioned and removed from the Site. Approximately 10 cubic yards of petroleum-contaminated soil was excavated and stockpiled on the Site. Soil samples collected from the UST excavation contained concentrations of total petroleum hydrocarbons (TPHs) in the diesel range above the ODEQ residential and occupational risk-based concentrations (RBCs). Two test pits were excavated to 8 feet below ground surface (bgs) during the decommissioning activities approximately 15 feet west and 10 feet south of the HOT. The test pits did not contain visual indications of petroleum contamination. Groundwater was not encountered in the test pits and no groundwater samples were collected.

During the 2024 Phase I ESA, Terraphase observed piles of fill along the Site access road, and east and west of the Site building. Terraphase identified the following environmental concerns on the Site warranting further investigation:

- **Former HOT:** The presence of previously documented soil contamination at the Site was considered a REC. The lateral extent of impacted soil had not been determined and groundwater had not been sampled. Contaminants of concern include PAHs and TPH.

1. **Fill Areas**: Potential contamination from the fill/stockpiles located across the Site sourced from the adjacent Werner property that was historically used as a shotgun/skeet range was considered an environmental concern. Contaminants of concern include metals, TPH, and PAHs.
2. **Agricultural Chemicals:** Potential contamination of soil on the Site from the historical use of agricultural chemicals for grass and hay production for cattle grazing was considered an environmental concern. Contaminants of concern include organochlorine pesticides (OCPs) and metals.

1.2 Objective

The objective of the Phase II ESA was to investigate the following environmental conditions and data gaps:

- The lateral extent of contamination in the soil and groundwater from the former HOT adjacent to the on-site building is unknown. Sampling and analysis of the soil and groundwater was conducted to determine if additional remedial actions must be performed.
- The presence and extent of contamination in fill material/stockpiles placed near the center portion of the Site around the on-site building is unknown. Sampling and analysis of the fill/stockpiles was conducted to determine if additional remedial actions must be performed.

- The presence of contamination from agricultural chemicals in the soil is unknown. Sampling and analysis of the soils in the agricultural field was conducted to determine if additional remedial actions must be performed.

The end goal of delineating the extent and presence of contamination is to facilitate the future development at the Site as a logistics center in compliance with OAR 340-122.[2]

1.3 Site Description

The Site is situated on the southwest corner of the intersection of Long Prairie Road and Brickyard Road 4.5 miles southeast of downtown Tillamook. The Site is developed as agricultural land with one 2,400-square-foot, disused, two-story concrete building on the central portion of the property constructed in 1942 as a radio transmission facility (Figure 2). The Port refers to the Site as NE Site K1-K8. The Port currently leases the Site to Richard Obrist for cattle grazing and manure management purposes.

1.4 Site Property Setting

The Site is situated approximately 69 feet above mean sea level. The local topography is generally flat. The nearest surface waters to the Site are the Trask River and Mill Creek, located approximately 0.75 and 0.25 miles to the northwest and southwest, respectively.

1.5 Geology and Hydrogeology

Based on information accessed via the United States Geological Survey website,[3] the Site is underlain by Quaternary fluvial and estuarine deposits, which consists of unconsolidated, alluvial clay, silt, sand, and gravel, as well as tidal flat mud, sand, and peat (Wells et al. 1994). According to soil data accessed on the U.S. Department of Agriculture, Natural Resources Conservation Service soil survey website[4] and the EDR report (included in the 2024 Phase I ESA), the soils underlying the Site primarily consist of alluvial silt loams, which are generally well drained with slow to fast infiltration rates and low risk of flooding.

No groundwater was encountered in the October 2006 test pits, which were advanced to 8 feet bgs (AMEC 2007). Based on review of well logs available on the Oregon Water Resources Department website[5] for wells located in the vicinity of the Site, groundwater levels in the area generally range from 8 to 30 feet bgs. Groundwater likely flows northwest toward the Trask River and Tillamook Bay.

[2] "Division 122 Hazardous Substance Remedial Action Rules," OAR 340-122, https://oregon.public.law/rules/oar_chapter_340_division_122.

[3] https://ngmdb.usgs.gov/mapview

[4] https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

[5] https://www.oregon.gov/owrd/programs/gwwl/wcc/pages/aboutwellreports.aspx

2 Scope of Work

This section describes the scope of the Phase II ESA conducted on May 20, 2024.

2.1 Pre-Field Work

Terraphase prepared a site-specific *Health and Safety Plan* (HASP). The HASP specifies personal protective equipment and procedures for the sampling work. Terraphase contacted Oregon One-Call on May 15, 2024, to identify the location of underground public utilities within the vicinity of the proposed boring locations. As an additional precaution, Terraphase contracted with Pacific Geophysics, Inc. of Portland, Oregon, to identify underground private utilities prior to drilling.

2.2 Geophysical Survey

On May 16, 2024, a geophysical survey was conducted by Pacific Geophysics, Inc. using ground penetrating radar to identify the former UST excavation cavity located west of the on-site building (Figure 2). The cavity was not identified with certainty during the geophysical survey, likely due to utilities identified in the area of the cavity, which may have introduced interference.

2.3 Soil and Groundwater Sampling

The following subsections describe soil and groundwater sample collection procedures.

2.3.1 Soil Boring Sampling

On May 20, 2024, Terraphase supervised Holocene Drilling Inc. of Puyallup, Washington, in the advancement of four soil borings at the Site (LPR-SBUST-01 through LPR-SBUST-3 and LPR-SBUST-3R) using a track-mounted, direct-push drilling rig. The borings were advanced in the area of the former UST located west of the on-site building to investigate soil and groundwater conditions in the area of the UST where soil impacts were previously reported (AMEC 2007). Boring LPR-SBUST-3R was advanced approximately 40 inches east of boring LPR-SBUST-3 to verify the extent of the former UST excavation based on identification of fill materials in soil boring cuttings. Soil boring logs are included in Appendix A.

Prior to soil boring advancement, all borings were first cleared with hand tools to 5 feet bgs. The direct-push rig was equipped with a hydraulic ram and percussion hammer to push a 5-foot-long, stainless-steel core barrel sampler into the subsurface to retrieve continuous soil cores. The core barrel contained an acetate sleeve liner. Once the core barrel was extracted from the ground, the liner was removed and cut open with a stainless-steel blade. No air, mud, or water was introduced during the drilling process.

Continuous soil samples were examined in the field under the supervision of a Terraphase Oregon Registered Geologist. The soil was described in general accordance with Unified Soil Classification System nomenclature and recorded on soil boring logs (Appendix B). The soil was screened in the field for visible (e.g., staining, sheen) or olfactory indications of contamination, and a photoionization detector (PID) was used to monitor the presence of volatile organic compounds. The PID was calibrated

using isobutylene prior to use. Soil samples retained for chemical analysis were selected based on field evidence of contamination (visual, olfactory, PID results). Where contamination was not evident, composite soil samples were retained from 5 to 7.5 and 7.5 to 10 feet bgs intervals.

Samples retained for chemical analysis were transferred from the plastic sleeves to laboratory-supplied glass containers using clean, new nitrile gloves. Samples collected for analysis of TPH in the gasoline range were placed in hermetically sealed glass vials containing methanol for sample preservation in accordance with United States Environmental Protection Agency (USEPA) Method 5035. Each sample was labeled with the borehole number, sample depth, and time and date of collection. Sample containers were placed in resealable plastic bags within an ice-chilled cooler immediately following collection and were shipped to Apex Analytical Laboratory (Apex) in Tigard, Oregon, via UPS, under chain of-custody procedures. Soil samples were analyzed for the following:

- TPH in accordance with NWTPH-HCID
- TPH quantification by NWTPH-Gx or NWTPH-Dx with acid/silica gel cleanup, depending on the results of the NWTPH-HCID analysis
- PAHs in accordance with USEPA Method 8270E

2.3.2 Surface Soil Sampling

Surface soil samples were collected from soil stockpiles (LPR-SBFA-1 through LPR-SBFA-6) and the agricultural areas of the Site (LPR-SBA-1 through LPR-SBA-5) using dedicated trowels. Soil samples were retained from 0.5 to 1 feet bgs, except for sample LPR-SBFA-6 collected from 3.5 to 4 feet below the top of the soil stockpile. Field notes including descriptions of soils encountered in these areas are provided as Appendix B.

Samples retained for chemical analysis were transferred from the trowels to laboratory-supplied glass containers using clean, new nitrile gloves. Samples collected for analysis of TPH in the gasoline range were placed in hermetically sealed glass vials containing methanol for sample preservation in accordance with USEPA Method 5035. Each sample was labeled with the sample number, sample depth, and time and date of collection. Sample containers were placed in resealable plastic bags within an ice-chilled cooler immediately following collection and were shipped to Apex via UPS, under chain of-custody procedures. Surface soil samples were analyzed for the following:

- **Stockpile Areas**: Six surface soil samples (LPR-SBFA-1 through LPR-SBFA-6) and one field duplicate (LPR-SBFA-6-DUP) were collected from 0.5 to 1 feet bgs for the following analyses:
  - TPH in accordance with NWTPH-HCID
  - TPH quantification by NWTPH-Gx or NWTPH-Dx with acid/silica gel cleanup, depending on the results of the NWTPH-HCID analysis
  - PAHs in accordance with USEPA Method 8270E
  - Priority pollutant metals in accordance with USEPA Method 6020B
- **Agricultural Area**: Five surface soil samples (LPR-SBA-1 through LPR-SBA-5) and one field duplicate (LPR-SBA-1-DUP) were collected from 0.5 to 1 feet bgs and analyzed for OCPs in accordance with USEPA Method 8081B.

2.3.3 Groundwater Sample Collection

Upon reaching the final depth in borings LPR-SBUST-1 through LPR-SBUST-3, a dedicated, temporary, 1-inch-diameter PVC well with a 0.010-inch factory-slotted screen from 10–15 feet bgs was placed in each well for groundwater sample collection. Groundwater sampling forms are included in Appendix B.

A post-drilling static water level measurement was recorded before sampling using a clean electronic sounder. Low-flow purging techniques were used for collect groundwater samples from borings LPR-SBUST-2 and LPR-SBUST-3. A Horiba multi-parameter meter with a flow-through cell was used to measure groundwater parameters including pH, temperature, electrical conductivity, dissolved oxygen, oxidation reduction potential, and turbidity. The multi-parameter meter was calibrated using supplier-provided standard calibration solutions prior to use. Groundwater level and parameter readings were collected at least every 5 minutes during purging. Once parameters stabilized, a groundwater grab sample was collected from the temporary well through dedicated 3/8-inch, low-density polyethylene tubing using a peristaltic pump. Insufficient water was present for low flow sampling from boring LPR-SBUST-1, and a no purge grab-groundwater sample was collected. Groundwater was transferred directly from the disposable tubing into laboratory-supplied containers. Sample containers were labeled, logged on a chain-of-custody form, placed in resealable plastic bags, stored in an ice-chilled cooler, and shipped to Apex, via UPS, under chain-of custody procedures. The groundwater samples were analyzed for the following:

- TPH in accordance with NWTPH-HCID
- TPH quantification using NWTPH-Gx or NWTPH-Dx, depending on the results of the NWTPH-HCID analysis
- PAHs in accordance with USEPA Method 8270E

2.3.4 Equipment Decontamination and Quality Assurance/Quality Control

Decontamination of non-disposable sampling and downhole drilling equipment was completed between each sampling location to prevent the introduction of extraneous material into samples and potential cross-contamination as a quality assurance (QA)/quality control (QC) measure. Downhole drilling equipment and non-disposable sampling equipment (the electronic sounder) were decontaminated by washing with a non-phosphate detergent.

An equipment blank was collected following decontamination of the direct-push downhole tooling by pouring laboratory-supplied deionized water across the drilling shoe directly into laboratory-supplied sample bottles. Equipment blank samples consist of reagent water collected from a rinse of sampling equipment after the decontamination procedure has been performed. The purpose of equipment blank samples is to confirm the effectiveness of equipment decontamination procedures in place to minimize cross-contamination between sample collection. The samples were shipped to Apex under standard chain-of custody procedures and analyzed for the same constituents as the soil samples.

One field duplicate sample was collected within each area of concern for each sample matrix (one groundwater and three soil duplicates) and submitted for the same analyses as the corresponding

primary samples. Duplicate samples provide data to assess precision of the field sampling procedure and contract laboratory. However, variability in field duplicate sample results can be an indicator of matrix variability and heterogeneity. The soil field duplicate samples were collected from boring LPR-SBUST-3 and sample locations LPR-SBA-1 and LPR-SBFA-6. The groundwater field duplicate sample was collected from boring LPR-SBUST-3.

2.4 Borehole Abandonment

After sample collection, the temporary wells were removed, and the boreholes were backfilled with bentonite chips to a depth of 1-foot bgs. The upper 1 foot of each borehole was filled with soil to match the surrounding ground surface.

2.5 Screening Criteria

Soil and groundwater results were compared to the following screening levels to assess potential risk to human health and disposal requirements during redevelopment.

Soil results were compared to:

- The RBCs for the occupational and construction worker receptor scenarios for the soil ingestion, dermal contact, and inhalation pathways (ODEQ 2023), which assesses potential risk associated with direct exposure to contaminated soil.
- The RBC for the occupational receptor scenario for the leaching to groundwater pathway (ODEQ 2023), which assesses potential risk to drinking water from contaminated soil.
- Clean fill screening levels (ODEQ 2019), which inform the necessity for off-site soil disposal. Where metals were analyzed, results were compared to the Coast Range Province background levels.

Groundwater results were compared to:

- The RBC for the construction worker receptor scenario for groundwater in an excavation pathway (ODEQ 2023), which assesses potential risk associated with direct contact with contaminated groundwater during construction.
- The RBC for the occupational receptor scenario for the ingestion and inhalation from tap water pathway (ODEQ 2023), which assesses potential risk from drinking contaminated groundwater. Drinking water is not considered a likely exposure pathway; however, the drinking water criteria are often the standard compliance criteria for cleanup sites, and they provide context for evaluating contaminant concentrations (i.e., concentrations below drinking water RBCs are generally low).

Screening criteria, where established, are provided in the tables for comparison purposes.

2.6 Investigation-Derived Waste

Investigation-derived waste consisting of soil cuttings and decontamination water was temporarily stored in a 55-gallon drum. The drum was labeled with its contents and Terraphase's contact information.

On July 19, 2024, ACT Enviro, of Clackamas, Oregon, is scheduled to transport the drum for non-hazardous waste disposal at Waste Management's Hillsboro, Oregon, landfill in compliance with ODEQ/USEPA requirements.

3 Results

This section summarizes the results of the field investigation.

3.1 Lithology and Field Observations

Encountered lithology generally consisted of silty sand to silt with sand and gravel to depths ranging from 8 to 10 feet bgs, underlain by well-graded, sandy gravel to gravelly sand to the final exploration depth (15 feet bgs). Soils encountered are consistent with the fluvial and estuarine deposits mapped at the Site (Wells et al. 1994).

Groundwater was encountered at 10 feet bgs in all borings with post-drilling static water levels of 14.98, 12.4, and 12.1 feet bgs for borings LPR-SBUST-1 through LPR-SBUST-3, respectively.

PID measurements were taken in approximately 1-foot intervals. PID measurements in borings LPR-SBUST-1 and LPR-SBUST-2 were 0.0 parts per million (ppm). PID measurements in boring LPR-SBUST-3 ranged from 1.6 to 38.2 ppm between 5.5 and 15 feet bgs, with a maximum PID reading of 38.2 ppm at 9.5 feet bgs. PID measurements were less in boring LPR-SBUST-3R than in boring LPR-SBUST-3, suggesting that LPR-SBUST-3 was installed within the former UST excavation footprint. Hydrocarbon odor was evident in boring LPR-SBUST-3 between 5.5 and 15 feet bgs. A hydrocarbon sheen was observed on gravel surfaces between 10 and 15 feet bgs. No visual or olfactory evidence of contamination was observed in borings LPR-SBUST-1 and LPR-SBUST-2. Lithology, encountered groundwater, and PID measurements are recorded on the boring logs (Appendix A).

3.2 Soil Results

Analytical results from the soil samples are presented in Table 1 and on Figures 3 and 4. The complete laboratory analytical reports are included as Appendix C. The following compounds were detected:

- **Former UST Area:**
  - **PAHs:** The PAHs 1-methylnapthalene, 2-methylnapthalene, naphthalene, phenanthrene, and pyrene were detected above laboratory reporting limits in the sample collected from boring LPR-SBUST-3, within the former UST excavation, at 8 to 10 feet bgs. All concentrations were below the respective screening levels.
  - **TPH:** TPH as gasoline was detected above laboratory reporting limits in the sample collected from boring LPR-SBUST-3 at 8 to 10 feet bgs at a concentration of 1,240 milligrams per kilogram (mg/kg), which is above the ODEQ RBC for the occupational worker receptor scenario for the leaching to groundwater pathway of 130 mg/kg and the ODEQ clean fill screening level of 31 mg/kg. TPH as diesel was detected above laboratory reporting limits in the samples collected

from boring LPR-SBUST-3, with a maximum concentration of 10,900 mg/kg at a 8 to 10 feet bgs, which is above the ODEQ RBC for the construction worker receptor scenario for the soil ingestion, dermal contact, and inhalation pathway of 4,600 mg/kg and the ODEQ clean fill screening level of 1,100 mg/kg. TPH as motor oil was not detected above laboratory reporting limits.

- **Stockpile Areas:**
  - **Metals:** Arsenic, beryllium, chromium, copper, lead, nickel, selenium, and zinc were detected above laboratory reporting limits in all stockpile surface soil samples (LPR-SBFA-1 through LPR-SBFA-5). Arsenic concentrations in samples LPR-SBFA-1, LPR-SBFA-2, LPR-SBFA-4, and LPR-SBFA-5 were above the ODEQ RBC for the occupational worker receptor scenario for the soil ingestion, dermal contact, and inhalation pathway of 1.9 mg/kg, with maximum concentrations of 5.30 mg/kg in sample LPR-SBFA-1. However, all arsenic concentrations were less than the ODEQ clean fill screening level of 12 mg/kg; therefore, these detections can be considered background for the Site. Similarly, the lead concentration in sample LPR-SBFA-4 was 30.3 mg/kg, which exceeds the ODEQ RBC for the occupational worker scenario for the leaching to groundwater pathway of 30 mg/kg but is less than the ODEQ clean fill screening level of 34 mg/kg; therefore the detected lead concentration can be considered representative of background. Selenium concentrations in all stockpile surface soil samples were above the ODEQ clean fill screening level of 1.5 mg/kg.
  - **PAHs:** The PAHs acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, and pyrene were detected above laboratory reporting limits in one or more soil samples, with most detections in sample LPR-SBFA-2, collected from the stockpile east of the on-site building. Other detections above laboratory reporting limits were in samples LPR-SBFA-1 and LPR-SBFA-4. All concentrations were below the respective ODEQ RBCs. The benzo(a)pyrene concentration in sample LPR-SBFA-02 was 0.306 mg/kg, which exceeds the ODEQ clean fill screening level of 0.11 mg/kg.
  - **TPHs:** TPH as motor oil was detected above laboratory reporting limits in samples LPR-SBFA-1, LPR-SBFA-2, and LPR-SBFA-4, collected from stockpiles located along the gravel driveway entrance at concentrations of 203, 508, and 174 mg/kg, respectively. All concentrations were below respective screening levels.
- **Agricultural Areas:** Pesticides 4,4-DDE, 4,4-DDT, and dieldrin were detected above laboratory reporting limits in agricultural surface soil samples LPR-SBA-2 through LPR-SBA-5 collected northwest, west, and south of the on-site building. All concentrations of dieldrin were above the ODEQ RBC for the occupational worker receptor scenario for the leaching to groundwater pathway of 0.03 mg/kg and the ODEQ clean fill screening level of 0.0045 mg/kg. All concentrations of 4,4-DDE and 4,4-DDT were below the respective ODEQ RBCs but above respective ODEQ clean fill screening levels of 0.01 mg/kg.

The soil sample collected from boring LPR-UST3 at 8–10 feet bgs was the only sample to exceed an ODEQ RBC in a construction worker scenario (TPH as diesel). The clean fill screening level exceedances

of TPH as gasoline and as diesel in the former UST area; selenium and benzo(a)pyrene in stockpile samples; and pesticides in the agricultural samples indicate that soils in these areas would require off-site disposal during construction, unless a beneficial use determination is granted by ODEQ.

3.3 Groundwater

Analytical results from the groundwater samples are presented in Table 2 and on Figure 5. The complete laboratory analytical reports are included as Appendix C. A summary of the groundwater sampling results is provided below:

- **PAHS:** The PAHs 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene were detected above laboratory reporting limits but below the respective ODEQ RBCs in the primary and duplicate groundwater samples collected from LPR-SBUST-3 (LPR-SBUST-3-GW-14 and LPR-SBUST-3-GW-14, respectively).
- **TPHs:** TPH as gasoline, diesel, and motor oil were not detected above laboratory reporting limits.

3.4 QA/QC Results

The laboratory analyses were reviewed by Terraphase as a check of overall quality in accordance with the QAPP and SSQAPP (CHA 2024). The data quality check process included a review of chain-of-custody forms, holding times, laboratory analytical reports, method blanks, surrogate recoveries, matrix spike, matrix spike duplicates, and method detection limits. The laboratory data validation reports are included as Appendix D. The Terraphase project manager reviewed all field notes and forms to ensure adherence to field data collection protocols. QA/QC information to note includes the following:

- Field data collection procedures and documentation were consistent with the QAPP and SSQAPP and suitable for decision making.
- All laboratory data are considered usable and support the Phase II ESA objectives.
- Several laboratory flags related to laboratory QC issues were reported. A review of the flags suggests that none had a significant impact on the conclusion of the Phase II ESA. Flags are included in the tables and discussed in the data validation reports (Appendix D).
- No compounds were detected in the equipment blank.

4 Conclusions

On May 23, 2024, Terraphase conducted a Phase II ESA at the Site consisting of the collection of soil and groundwater samples. The following conclusions are presented:

- **Geology:** The lithology encountered during soil sampling consisted of silty sand to silt with sand and gravel to depths ranging from 8 to 10 feet bgs, underlain by well-graded, sandy gravel to gravelly sand to the maximum depth explored at 15 feet bgs.
- **Hydrogeology:** Groundwater was encountered at 10 feet bgs, with post-drilling static water levels between 12 and 15 feet bgs.

- **UST Area:**
  - TPH impacts to soil remain at the Site, though they are limited to the former UST excavation area at approximately 5.5 and 10 feet bgs. TPH concentrations in soil are above clean fill screening levels and ODEQ RBCs for construction worker scenario.
  - Groundwater analytical results indicate the presence of PAHs at boring LPR-SBUST-3. However, all concentrations are below respective ODEQ RBCs. TPH was not detected above laboratory reporting limits.
- **Stockpile Areas:**
  - Metals were detected in the stockpile soil samples, though only selenium concentrations exceeded the ODEQ clean fill screening level. No former Site use is indicative of selenium as a contaminant of concern; it is possible that the selenium concentrations are related to a background source.
  - PAHs were detected in stockpile surface soil samples LPR-SBFA-1, LPR-SBFA-2, and LPR-SBFA-4, collected from stockpiles along the gravel driveway entrance. All concentrations were below the respective ODEQ RBCs. The benzo(a)pyrene concentration detected in sample LPR-SBFA-2 exceeded the ODEQ clean fill screening level. TPH as motor oil was detected above laboratory reporting limits but below applicable screening levels in samples LPR-SBFA-1, LPR-SBFA-2, and LPR-SBFA-4 collected from stockpiles along the gravel driveway entrance.
- **Agricultural Areas:** Pesticides were detected in agricultural surface soil samples LPR-SBA-2 through LPR-SBA-5, collected northwest, west, and south of the former radio transmission building. Concentrations of all pesticide constituents were below the respective ODEQ RBCs except for dieldrin, which were above the ODEQ RBC for the occupational worker receptor scenario for the leaching to groundwater pathway. All detected pesticide concentrations were above the ODEQ clean fill screening levels.

5 Recommendations

The following recommendations are provided based on the conclusions of the Phase II ESA:

- Soil in the former UST excavation should be excavated and removed from the Site and the extents of the excavation resampled to show no remaining concentrations exceed ODEQ RBCs. Alternatively, a risk-based closure could potentially be negotiated with ODEQ, which would likely require soil use restrictions at the former UST excavation area.
- If redevelopment activity extends to approximately 5 feet bgs in the former UST excavation area, measures should be taken to ensure construction worker safety. Any soil removed from the former UST excavation area should be properly characterized, containerized, labeled, and removed off Site.
- The soil stockpiles should be removed from the Site, due to selenium and benzo(a)pyrene concentrations above clean fill screening levels, unless a waiver or beneficial use determination can be obtained from ODEQ for on-site reuse.

- Shallow soil in the agricultural areas northwest and southwest of the on-site building should be disposed off-site if disturbed during construction due to concentrations of OCPs in soil samples exceeding the clean fill screening levels. Based on the data collected, surface soil disposal as nonhazardous waste at a Subtitle D landfill will likely be appropriate.

6 Limitations

This document was prepared for the sole use of CHA and the County, and their successors and assignees, for specific application to the Site. No other party should rely on the information contained herein without the prior written consent of Terraphase, CHA, and the County.

Recommendations or conclusions made by Terraphase are based on our research, inspections, and field work. It is important to recognize that even the most comprehensive scope of services may fail to detect environmental liabilities on a particular site. Therefore, Terraphase cannot "certify" that a site is free of environmental contamination. No expressed or implied representation or warranty is included or intended in our reports, except that our services were performed as described by our scope of services in accordance with the standard of care of our profession. Additionally, subsurface conditions will vary between exploration locations, perhaps significantly. The impacts of future events may require further investigation of the Site and subsequent data analysis along with revision of recommendations or conclusions.

7 References

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Tables

Table 1
Soil Analytical Results
Phase II Environmental Assessment Report
7285 Long Prairie Road Property

				Metal													PAH							
				Antimony	Arsenic	Beryllium	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene
Location Code	**Sample Depth (ft-bgs)**	**Field ID**	**Date**	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
ODEQ Clean Fill (Coast Range Province)				0.55	12	2.8	0.54	240	100	34	0.11	160	1.5	0.41	5.4	140	0.36	11	0.25	120	6.8	0.73	0.11	1.1
ODEQ RBC - 2023 - Soil - Ingestion, Dermal Contact, and Inhalation - Construction Worker				-	*15*	*700*	*350*	-	*14,000*	*800*	*110*	*7,000*	-	*1,800*	-	-	-	-	*21,000*	-	*110,000*	*170*	*17*	*170*
ODEQ RBC - 2023 - Soil - Ingestion, Dermal Contact, and Inhalation - Occupational				-	1.9	2,300	1,100	-	47,000	800	350	22,000	-	5,800	-	-	-	-	70,000	-	350,000	21	2.1	21
ODEQ RBC - 2023 - Soil - Leaching to Groundwater - Occupational				-	-	-	-	-	-	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPR-SBA-01	0.5 - 1	LPR-SBA-1-0.5-1.0	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		LPR-SBA-1-0.5-1.0-DUP	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPR-SBA-02	0.5 - 1	LPR-SBA-2-0.5-1.0	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPR-SBA-03	0.5 - 1	LPR-SBA-3-0.5-1.0	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPR-SBA-04	0.5 - 1	LPR-SBA-4-0.5-1.0	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPR-SBA-05	0.5 - 1	LPR-SBA-5-0.5-1.0	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPR-SBFA-01	0.5 - 1	LPR-SBFA-1-0.5-1.0	05/20/2024	<1.47	**5.30**	**0.597**	<0.294	**66.5**	**39.9**	**12.6**	<0.118	**24.9**	**3.55**	<0.294	<0.294	**81.6**	<0.0122	<0.0122	<0.0122	<0.0122	<0.0122	<0.0195	<0.0122	<0.0122
LPR-SBFA-02	0.5 - 1	LPR-SBFA-2-0.5-1.0	05/20/2024	<1.35	**3.93**	**0.811**	<0.270	**64.2**	**53.6**	**14.1**	<0.108	**43.8**	**2.80**	<0.270	<0.270	**101**	<0.0109	<0.0109	<0.0109	**0.0394**	**0.0708**	**0.211**	**0.306**	**0.28 M-05**
LPR-SBFA-03	0.5 - 1	LPR-SBFA-3-0.5-1.0	05/20/2024	<1.27	**1.82**	**0.756**	<0.253	**35.2**	**70.8**	**2.81**	<0.101	**78.1**	**2.03**	<0.253	<0.253	**69.3**	<0.00979	<0.00979	<0.00979	<0.00979	<0.00979	<0.00979	<0.00979	<0.00979
LPR-SBFA-04	0.5 - 1	LPR-SBFA-4-0.5-1.0	05/20/2024	<1.39	**3.58**	**0.569**	<0.278	**32.1**	**34.4**	**30.3**	<0.111	**21.4**	**2.44**	<0.278	<0.278	**99.8**	<0.0118	<0.0118	<0.0118	<0.0118	<0.0118	**0.0171**	**0.0306**	**0.0398**
LPR-SBFA-05	0.5 - 1	LPR-SBFA-5-0.5-1.0	05/20/2024	<1.35	**2.71**	**1.02**	<0.270	**83.0**	**42.0**	**7.73**	<0.108	**28.8**	**3.08**	<0.270	<0.270	**65.4**	<0.0120	<0.0120	<0.0120	<0.0120	<0.0120	<0.0120	<0.0120	<0.0120
LPR-SBFA-06	3.5 - 4	LPR-SBFA-6-3.5-4.0	05/20/2024	<1.40	**2.96**	**0.837**	<0.280	**67.3**	**36.0**	**7.19**	<0.112	**23.6**	**2.83**	<0.280	<0.280	**72.6**	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126
		LPR-SBFA-6-3.5-4.0-DUP	05/20/2024	<1.48	**2.09**	**0.942**	<0.297	**52.5**	**31.4**	**7.94**	<0.119	**17.1**	**2.90**	<0.297	<0.297	**59.1**	<0.0125	<0.0125	<0.0125	<0.0125	<0.0125	<0.0125	<0.0125	<0.0125
LPR-SBUST-01	5 - 7.5	LPR-SBUST-1-5.0-7.5	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127
	7.5 - 10	LPR-SBUST-1-7.5-10.0	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0113	<0.0113	<0.0113	<0.0113	<0.0113	<0.0113	<0.0113	<0.0113
LPR-SBUST-02	5 - 7.5	LPR-SBUST-2-5.0-7.5	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0119	<0.0119	<0.0119	<0.0119	<0.0119	<0.0119	<0.0119	<0.0119
	7.5 - 10	LPR-SBUST-2-7.5-10.0	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126
LPR-SBUST-03	5 - 8	LPR-SBUST-3-5.0-8.0	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0127	<0.0127	<0.0127	<0.0305	<0.0127	<0.0127	<0.0127	<0.0127
		LPR-SBUST-3-5.0-8.0-DUP	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0121	<0.0121	<0.0121	<0.0121	<0.0121	<0.0121	<0.0121	<0.0121
	8 - 10	LPR-SBUST-3-8-10	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.0850**	**0.101**	<0.0124	<0.0334	<0.0124	<0.0508	<0.0124	<0.0124

Note:
Detected concentrations are **bold-faced**
mg/kg= milligrams per kilogram
- = Not analyzed/Not available
< = analyte not detected at or above laboratory reporting limit
D = Reported result is from a dilution

F-03 = The result for this hydrocarbon range is elevated due to the presence of individual analyte peaks in the quantitation range that are not representative of the fuel pattern reported.
F-11 = The hydrocarbon pattern indicates possible weathered diesel, mineral oil, or a contribution from a related component.
M-04 = Due to matrix interference, this analyte cannot be accurately quantified. The reported result may contain a high bias.
M-05 = Estimated results. Peak separation for structural isomers is insufficient for accurate quantification.
ft-bgs = feet below ground surface
ODEQ = Oregon Department of Environmental Quality
RBC = Risk-Based Concentration

Table 1
Soil Analytical Results
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				PAH												TPH		
				Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	TPH as Gasoline	TPH as Diesel	TPH as Motor Oil
Location Code	**Sample Depth (ft-bgs)**	**Field ID**	**Date**	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
ODEQ Clean Fill (Coast Range Province)				25	11	3.1	0.11	0.002	10	3.7	1.1	0.077	5.5	10	31	1,100	2,800
ODEQ RBC - 2023 - Soil - Ingestion, Dermal Contact, and Inhalation - Construction Worker				-	*1,700*	*17,000*	*17*	-	*10,000*	*14,000*	*170*	*580*	-	*7,500*	*9,700*	*4,600*	*11,000*
ODEQ RBC - 2023 - Soil - Ingestion, Dermal Contact, and Inhalation - Occupational				-	210	2,100	2.1	-	30,000	47,000	21	23	-	23,000	20,000	14,000	36,000
ODEQ RBC - 2023 - Soil - Leaching to Groundwater - Occupational				-	-	-	-	-	-	-	-	0.34	-	-	130	-	-
LPR-SBA-01	0.5 - 1	LPR-SBA-1-0.5-1.0	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		LPR-SBA-1-0.5-1.0-DUP	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPR-SBA-02	0.5 - 1	LPR-SBA-2-0.5-1.0	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPR-SBA-03	0.5 - 1	LPR-SBA-3-0.5-1.0	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPR-SBA-04	0.5 - 1	LPR-SBA-4-0.5-1.0	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPR-SBA-05	0.5 - 1	LPR-SBA-5-0.5-1.0	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPR-SBFA-01	0.5 - 1	LPR-SBFA-1-0.5-1.0	05/20/2024	<0.0122	<0.0122	<0.0220	<0.0122	<0.0122	<0.0122	<0.0122	<0.0122	<0.0122	**0.0141**	<0.0122	<26.9	<25.3	**203 F-03**
LPR-SBFA-02	0.5 - 1	LPR-SBFA-2-0.5-1.0	05/20/2024	**0.154**	**0.109 M-05**	**0.277**	**0.0353**	<0.0109	**0.246**	<0.0109	**0.166**	**0.0136**	**0.0451**	**0.381**	<24.2	<21.7	**508 F-03**
LPR-SBFA-03	0.5 - 1	LPR-SBFA-3-0.5-1.0	05/20/2024	<0.00979	<0.00979	<0.00979	<0.00979	<0.00979	<0.00979	<0.00979	<0.00979	<0.00979	<0.00979	<0.00979	<21.5	<53.7	<107
LPR-SBFA-04	0.5 - 1	LPR-SBFA-4-0.5-1.0	05/20/2024	**0.0369**	<0.0118	**0.0361**	<0.0118	<0.0118	**0.0632**	<0.0118	**0.0262**	<0.0118	**0.0252**	**0.0711**	<25.1	<22.8	**174 F-03**
LPR-SBFA-05	0.5 - 1	LPR-SBFA-5-0.5-1.0	05/20/2024	<0.0120	<0.0120	<0.0120	<0.0120	<0.0120	<0.0120	<0.0120	<0.0120	<0.0120	<0.0120	<0.0120	<26.2	<65.6	<131
LPR-SBFA-06	3.5 - 4	LPR-SBFA-6-3.5-4.0	05/20/2024	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<27.4	<68.4	<137
		LPR-SBFA-6-3.5-4.0-DUP	05/20/2024	<0.0125	<0.0125	<0.0125	<0.0125	<0.0125	<0.0125	<0.0125	<0.0125	<0.0125	<0.0125	<0.0125	<25.9	<64.8	<130
LPR-SBUST-01	5 - 7.5	LPR-SBUST-1-5.0-7.5	05/20/2024	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<26.7	<66.7	<133
	7.5 - 10	LPR-SBUST-1-7.5-10.0	05/20/2024	<0.0113	<0.0113	<0.0113	<0.0113	<0.0113	<0.0113	<0.0113	<0.0113	<0.0113	<0.0113	<0.0113	<26.5	<66.3	<133
LPR-SBUST-02	5 - 7.5	LPR-SBUST-2-5.0-7.5	05/20/2024	<0.0119	<0.0119	<0.0119	<0.0119	<0.0119	<0.0119	<0.0119	<0.0119	<0.0119	<0.0119	<0.0119	<26.5	<66.3	<133
	7.5 - 10	LPR-SBUST-2-7.5-10.0	05/20/2024	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<0.0126	<26.6	<66.5	<133
LPR-SBUST-03	5 - 8	LPR-SBUST-3-5.0-8.0	05/20/2024	<0.0127	<0.0127	<0.0356	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<0.0127	<0.0356	<0.0127	<28.2	**2,900 F-11**	<49.6
		LPR-SBUST-3-5.0-8.0-DUP	05/20/2024	<0.0121	<0.0121	<0.0121	<0.0121	<0.0121	<0.0121	<0.0121	<0.0121	<0.0121	<0.0121	<0.0121	<26.2	**2,010**	<50.2
	8 - 10	LPR-SBUST-3-8-10	05/20/2024	<0.0124	<0.0124	<0.0557	<0.0124	<0.0470	<0.0124	<0.0186	<0.0124	**0.0684 M-04**	**0.0668**	**0.0251**	**1,240 D**	***10,900 D***	<132

Note:
Detected concentrations are **bold-faced**
mg/kg= milligrams per kilogram
- = Not analyzed/Not available
< = analyte not detected at or above laboratory reporting limit
D = Reported result is from a dilution

F-03 = The result for this hydrocarbon range is elevated due to the presence of individual analyte peaks in the quantitation range that are not representative of the fuel pattern reported.
F-11 = The hydrocarbon pattern indicates possible weathered diesel, mineral oil, or a contribution from a related component.
M-04 = Due to matrix interference, this analyte cannot be accurately quantified. The reported result may contain a high bias.
M-05 = Estimated results. Peak separation for structural isomers is insufficient for accurate quantification.
ft-bgs = feet below ground surface
ODEQ = Oregon Department of Environmental Quality
RBC = Risk-Based Concentration

Table 1
Soil Analytical Results
Phase II Environmental Assessment Report
7285 Long Prairie Road Property

				Pesticides																Pesticides					
				4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	alpha-BHC	beta-BHC	Chlordane (cis) (alpha)	Chlordane (trans) (gamma)	delta-BHC	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	gamma-BHC (Lindane)	Heptachlor epoxide	Methoxychlor	chlordane (total)	Heptachlor	Toxaphene
Location Code	**Sample Depth (ft-bgs)**	**Field ID**	**Date**	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
ODEQ Clean Fill (Coast Range Province)				0.0063	0.01	0.01	0.023	-	-	0.27	2.2	-	0.0045	0.64	0.64	-	0.0014	-	-	-	0.0042	5.1	-	0.017	0.36
ODEQ RBC - 2023 - Soil - Ingestion, Dermal Contact, and Inhalation - Construction Worker				*9.7*	*66*	*66*	*1.1*	*3*	-	-	-	-	*1.2*	-	-	-	*80*	-	-	*17*	*2*	-	*61*	*4*	*17*
ODEQ RBC - 2023 - Soil - Ingestion, Dermal Contact, and Inhalation - Occupational				12	8.2	8.5	0.13	0.36	-	-	-	-	0.14	-	-	-	250	-	-	2.1	0.24	-	7.4	0.45	2.1
ODEQ RBC - 2023 - Soil - Leaching to Groundwater - Occupational				2.6	7.5	70	0.1	0.023	-	-	-	-	0.03	-	-	-	-	-	-	0.13	0.016	-	2.1	0.048	0.93
LPR-SBA-01	0.5 - 1	LPR-SBA-1-0.5-1.0	05/20/2024	<0.00271	<0.00271	<0.00271	<0.00271	<0.00271	<0.00271	<0.00271	<0.00271	<0.108	<0.00271	<0.00271	<0.00271	<0.00271	<0.00271	<0.00880	<0.00271	<0.00271	<0.00271	<0.00812	<0.0812	<0.00271	<0.0812
		LPR-SBA-1-0.5-1.0-DUP	05/20/2024	<0.00270	<0.00270	<0.00270	<0.00270	<0.00270	<0.00270	<0.00270	<0.00270	<0.254	<0.00270	<0.00270	<0.00270	<0.00270	<0.00270	<0.0144	<0.00270	<0.00270	<0.00270	<0.00809	<0.0809	<0.00270	<0.0809
LPR-SBA-02	0.5 - 1	LPR-SBA-2-0.5-1.0	05/20/2024	<0.0134	**0.189 D**	**0.161 D**	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.584	**0.0577 D**	<0.0134	<0.0134	<0.0134	<0.0134	<0.0248	<0.0134	<0.0134	<0.0134	<0.0402	<0.402	<0.0134	<0.402
LPR-SBA-03	0.5 - 1	LPR-SBA-3-0.5-1.0	05/20/2024	<0.0123	**0.174 D**	**0.13 D**	<0.0123	<0.0123	<0.0123	<0.0123	<0.0123	<0.355	**0.0545 D**	<0.0123	<0.0123	<0.0123	<0.0123	<0.0204	<0.0123	<0.0123	<0.0123	<0.0370	<0.37	<0.0123	<0.37
LPR-SBA-04	0.5 - 1	LPR-SBA-4-0.5-1.0	05/20/2024	<0.00479	**0.152**	**0.156 D**	<0.00246	<0.00246	<0.00246	<0.00246	<0.00246	<0.172	**0.0520**	<0.00246	<0.00246	<0.00246	<0.00246	<0.0112	<0.00246	<0.00246	<0.00246	<0.0138	<0.0737	<0.00246	<0.0737
LPR-SBA-05	0.5 - 1	LPR-SBA-5-0.5-1.0	05/20/2024	<0.00311	**0.125**	**0.102**	<0.00249	<0.00249	<0.00249	<0.00249	<0.00249	<0.212	**0.0458**	<0.00249	<0.00249	<0.00249	<0.00249	<0.0156	<0.00249	<0.00249	<0.00249	<0.00747	<0.0747	<0.00249	<0.0747
LPR-SBFA-01	0.5 - 1	LPR-SBFA-1-0.5-1.0	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPR-SBFA-02	0.5 - 1	LPR-SBFA-2-0.5-1.0	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPR-SBFA-03	0.5 - 1	LPR-SBFA-3-0.5-1.0	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPR-SBFA-04	0.5 - 1	LPR-SBFA-4-0.5-1.0	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPR-SBFA-05	0.5 - 1	LPR-SBFA-5-0.5-1.0	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPR-SBFA-06	3.5 - 4	LPR-SBFA-6-3.5-4.0	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		LPR-SBFA-6-3.5-4.0-DUP	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPR-SBUST-01	5 - 7.5	LPR-SBUST-1-5.0-7.5	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7.5 - 10	LPR-SBUST-1-7.5-10.0	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPR-SBUST-02	5 - 7.5	LPR-SBUST-2-5.0-7.5	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7.5 - 10	LPR-SBUST-2-7.5-10.0	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPR-SBUST-03	5 - 8	LPR-SBUST-3-5.0-8.0	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		LPR-SBUST-3-5.0-8.0-DUP	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8 - 10	LPR-SBUST-3-8-10	05/20/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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M-05 = Estimated results. Peak separation for structural isomers is insufficient for accurate quantification.
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RBC = Risk-Based Concentration

Table 2
Groundwater Analytical Results
Phase II Environmental Assessment Report
7285 Long Prairie Road Property

				PAHs															
				1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene
Location Code	**Sample Depth (ft-bgs)**	**Field ID**	**Date**	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
ODEQ RBC - 2023 - GW - GW in Excavation - Construction and Excavation Workers				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ODEQ RBC - 2023 - GW - Ingestion and Inhalation from Tapwater - Occupational Workers				-	-	2,500	-	-	0.38	0.47	-	-	-	-	0.47	-	-	1,300
LPR-SBUST-01	10 - 15	LPR-SBUST-1-GW-10-15	05/20/2024	<0.110	<0.110	<0.0548	<0.0548	<0.0548	<0.0548	<0.0548	<0.0548	<0.0548	<0.0548	<0.0548	<0.0548	<0.0548	<0.0548	<0.0548
LPR-SBUST-02	10 - 15	LPR-SBUST-2-GW-10-15	05/20/2024	<0.0870	<0.0870	<0.0435	<0.0435	<0.0435	<0.0435	<0.0435	<0.0435	<0.0435	<0.0435	<0.0435	<0.0435	<0.0435	<0.0435	<0.0435
LPR-SBUST-03	10 - 15	LPR-SBUST-3-GW-14	05/20/2024	**0.440**	**0.515**	<0.0476	<0.0476	<0.0476	<0.0476	<0.0476	<0.0476	<0.0476	<0.0476	<0.0476	<0.0476	<0.0476	<0.0476	<0.0476
		LPR-SBUST-3-GW-14-DUP	05/20/2024	**0.398**	**0.414**	<0.0444	<0.0444	<0.0444	<0.0444	<0.0444	<0.0444	<0.0444	<0.0444	<0.0444	<0.0444	<0.0444	<0.0444	<0.0444
EB	-	LPR-SBUST-EB-20240520	05/20/2024	<0.116	<0.116	<0.0580	<0.0580	<0.0580	<0.0580	<0.0580	<0.0580	<0.0580	<0.0580	<0.0580	<0.0580	<0.0580	<0.0580	<0.0580

Note:
Detected concentrations are **bold-faced**
µg/L= micrograms per Liter
- = Not available
< = analyte not detected at or above laboratory reporting limit
ft-bgs = feet below ground surface
ODEQ = Oregon Department of Environmental Quality
RBC = Risk-Based Concentration
EB = Equipment Blank

Table 2
Groundwater Analytical Results
Phase II Environmental Assessment Report
7285 Long Prairie Road Property

				PAHs				TPH		
				Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	TPH as Gasoline	TPH as Diesel	TPH as Motor Oil
Location Code	**Sample Depth (ft-bgs)**	**Field ID**	**Date**	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
ODEQ RBC - 2023 - GW - GW in Excavation - Construction and Excavation Workers				-	500	-	-	14,000	-	-
ODEQ RBC - 2023 - GW - Ingestion and Inhalation from Tapwater - Occupational Workers				-	0.72	-	-	450	430	-
LPR-SBUST-01	10 - 15	LPR-SBUST-1-GW-10-15	05/20/2024	<0.0548	<0.110	<0.0548	<0.0548	<125	<312	<312
LPR-SBUST-02	10 - 15	LPR-SBUST-2-GW-10-15	05/20/2024	<0.0435	<0.0870	<0.0435	<0.0435	<103	<258	<258
LPR-SBUST-03	10 - 15	LPR-SBUST-3-GW-14	05/20/2024	<0.0476	**0.484**	<0.0476	<0.0476	<93.5	<187	<234
		LPR-SBUST-3-GW-14-DUP	05/20/2024	<0.0444	**0.435**	<0.0444	<0.0444	<114	<284	<284
EB	-	LPR-SBUST-EB-20240520	05/20/2024	<0.0580	<0.116	<0.0580	<0.0580	<139	<347	<347

Note:
Detected concentrations are **bold-faced**
µg/L= micrograms per Liter
- = Not available
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ft-bgs = feet below ground surface
ODEQ = Oregon Department of Environmental Quality
RBC = Risk-Based Concentration
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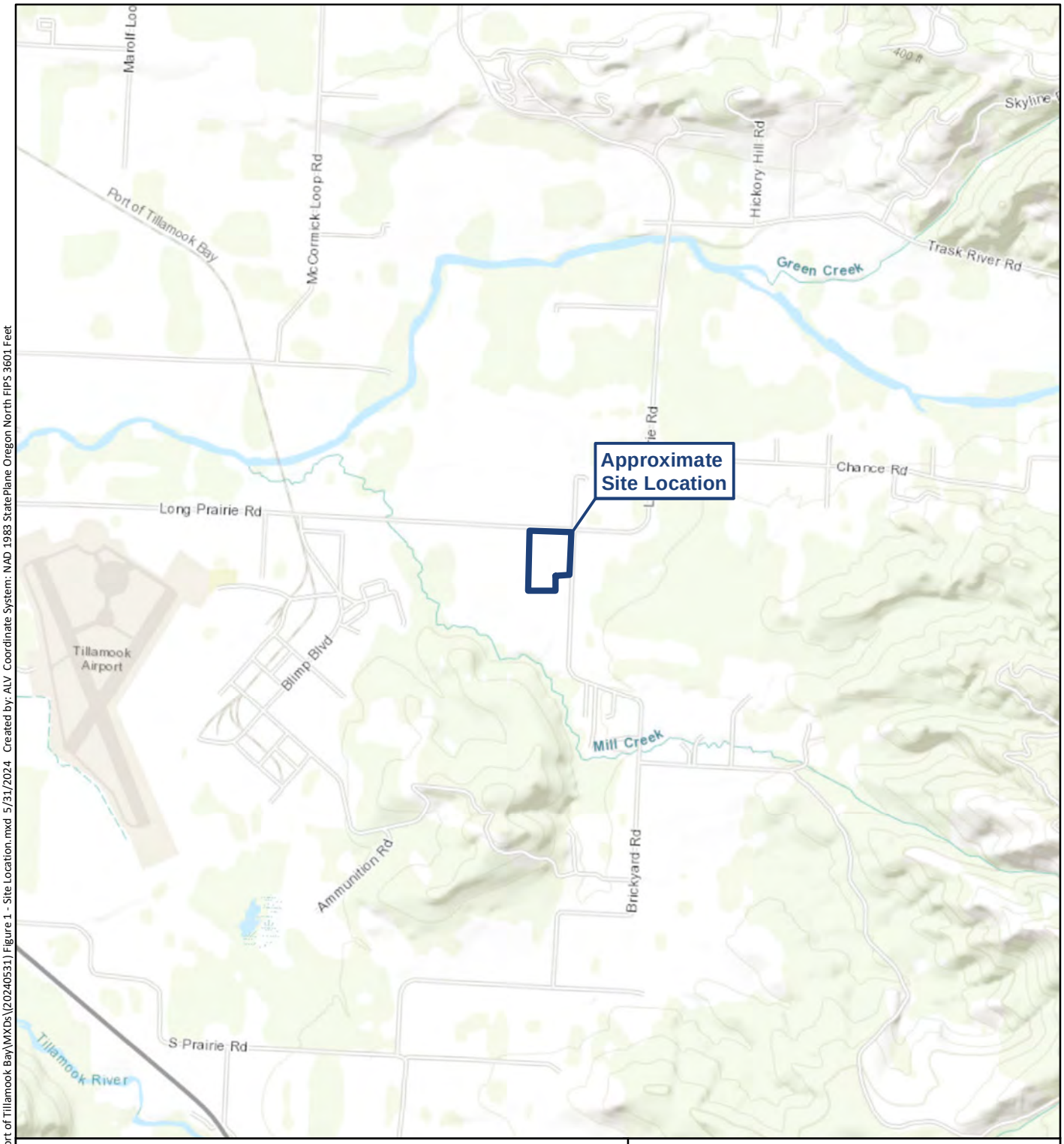
Figures



0 2,500 5,000 Feet

1 inch = 2,500 feet

N

Legend

Approximate Site Location

Base Map: ESRI World Topographic Map
(data providers include HERE, Garmin, USGS, et al.)

SAFETY FIRST

terraphase engineering

CLIENT: Port of Tillamook Bay

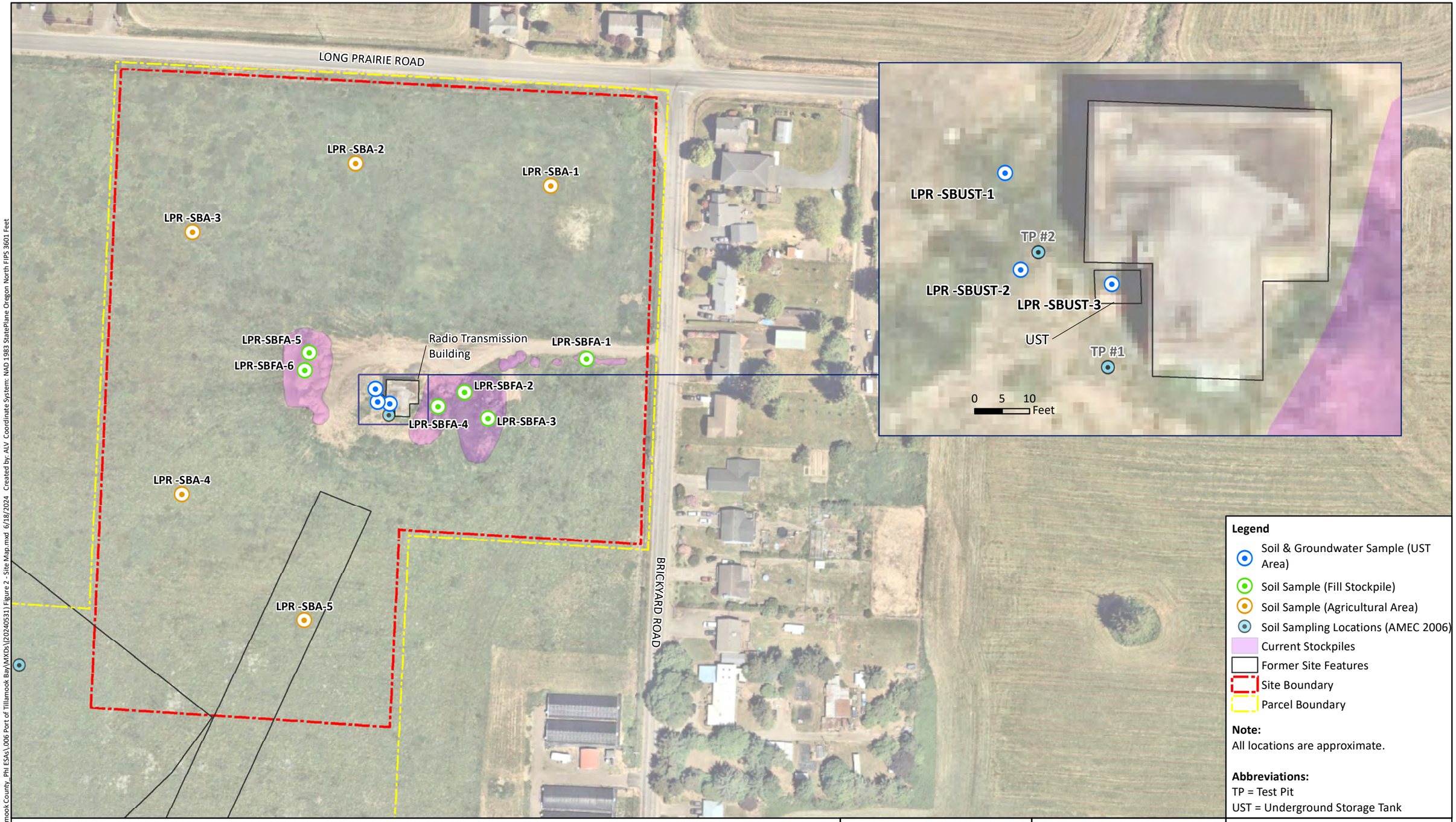
PROJECT: 7285 Long Prairie Road Property
7285 Long Prairie Rd, Tillamook, OR

PROJECT NUMBER: O053.010.004

Site Location

FIGURE 1

File: N:\GIS\Prj\O053.005_Tillamook County_PhI ESAs\.006 Port of Tillamook Bay\MXDs\(20240531) Figure 1 - Site Location.mxd 5/31/2024 Created by: ALV Coordinate System: NAD 1983 StatePlane Oregon North FIPS 3601 Feet



Aerial Imagery Source: Nearmap (June 3, 2023)

0 62.5 125 250 Feet

1 inch = 125 feet

N

SAFETY FIRST

terraphase engineering

CLIENT: Port of Tillamook Bay

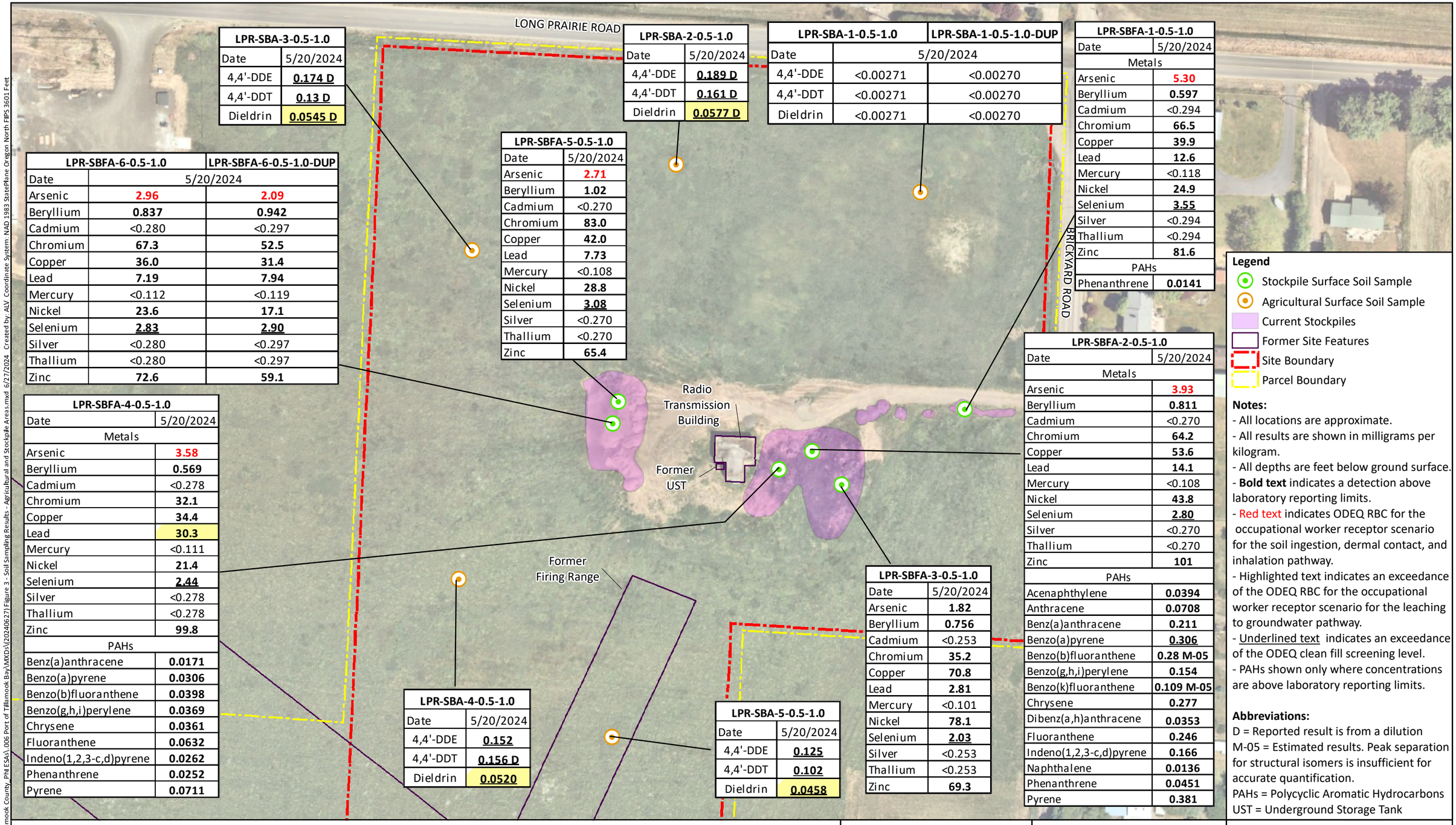
PROJECT: 7285 Long Prairie Road Property
7285 Long Prairie Rd, Tillamook, OR

PROJECT NUMBER: O053.010.004

Site Map

FIGURE 2

File: N:\GIS\Prj\O053.005_Tillamook County_Phl ESAs\.006 Port of Tillamook Bay\MXDs\20240531) Figure 2 - Site Map.mxd 6/18/2024 Created by: ALV Coordinate System: NAD 1983 StatePlane Oregon North FIPS 3601 Feet



LPR-SBA-3-0.5-1.0	
Date	5/20/2024
4,4'-DDE	**0.174 D**
4,4'-DDT	**0.13 D**
Dieldrin	**0.0545 D**

LPR-SBA-2-0.5-1.0	
Date	5/20/2024
4,4'-DDE	**0.189 D**
4,4'-DDT	**0.161 D**
Dieldrin	**0.0577 D**

	LPR-SBA-1-0.5-1.0	LPR-SBA-1-0.5-1.0-DUP
Date	5/20/2024	
4,4'-DDE	<0.00271	<0.00270
4,4'-DDT	<0.00271	<0.00270
Dieldrin	<0.00271	<0.00270

LPR-SBFA-1-0.5-1.0	
Date	5/20/2024
Metals	
Arsenic	**5.30**
Beryllium	**0.597**
Cadmium	<0.294
Chromium	**66.5**
Copper	**39.9**
Lead	**12.6**
Mercury	<0.118
Nickel	**24.9**
Selenium	**3.55**
Silver	<0.294
Thallium	<0.294
Zinc	**81.6**
PAHs	
Phenanthrene	**0.0141**

	LPR-SBFA-6-0.5-1.0	LPR-SBFA-6-0.5-1.0-DUP
Date	5/20/2024	
Arsenic	**2.96**	**2.09**
Beryllium	**0.837**	**0.942**
Cadmium	<0.280	<0.297
Chromium	**67.3**	**52.5**
Copper	**36.0**	**31.4**
Lead	**7.19**	**7.94**
Mercury	<0.112	<0.119
Nickel	**23.6**	**17.1**
Selenium	**2.83**	**2.90**
Silver	<0.280	<0.297
Thallium	<0.280	<0.297
Zinc	**72.6**	**59.1**

LPR-SBFA-5-0.5-1.0	
Date	5/20/2024
Arsenic	**2.71**
Beryllium	**1.02**
Cadmium	<0.270
Chromium	**83.0**
Copper	**42.0**
Lead	**7.73**
Mercury	<0.108
Nickel	**28.8**
Selenium	**3.08**
Silver	<0.270
Thallium	<0.270
Zinc	**65.4**

LPR-SBFA-2-0.5-1.0	
Date	5/20/2024
Metals	
Arsenic	**3.93**
Beryllium	**0.811**
Cadmium	<0.270
Chromium	**64.2**
Copper	**53.6**
Lead	**14.1**
Mercury	<0.108
Nickel	**43.8**
Selenium	**2.80**
Silver	<0.270
Thallium	<0.270
Zinc	**101**
PAHs	
Acenaphthylene	**0.0394**
Anthracene	**0.0708**
Benz(a)anthracene	**0.211**
Benzo(a)pyrene	**0.306**
Benzo(b)fluoranthene	**0.28 M-05**
Benzo(g,h,i)perylene	**0.154**
Benzo(k)fluoranthene	**0.109 M-05**
Chrysene	**0.277**
Dibenz(a,h)anthracene	**0.0353**
Fluoranthene	**0.246**
Indeno(1,2,3-c,d)pyrene	**0.166**
Naphthalene	**0.0136**
Phenanthrene	**0.0451**
Pyrene	**0.381**

LPR-SBFA-4-0.5-1.0	
Date	5/20/2024
Metals	
Arsenic	**3.58**
Beryllium	**0.569**
Cadmium	<0.278
Chromium	**32.1**
Copper	**34.4**
Lead	**30.3**
Mercury	<0.111
Nickel	**21.4**
Selenium	**2.44**
Silver	<0.278
Thallium	<0.278
Zinc	**99.8**
PAHs	
Benz(a)anthracene	**0.0171**
Benzo(a)pyrene	**0.0306**
Benzo(b)fluoranthene	**0.0398**
Benzo(g,h,i)perylene	**0.0369**
Chrysene	**0.0361**
Fluoranthene	**0.0632**
Indeno(1,2,3-c,d)pyrene	**0.0262**
Phenanthrene	**0.0252**
Pyrene	**0.0711**

LPR-SBFA-3-0.5-1.0	
Date	5/20/2024
Arsenic	**1.82**
Beryllium	**0.756**
Cadmium	<0.253
Chromium	**35.2**
Copper	**70.8**
Lead	**2.81**
Mercury	<0.101
Nickel	**78.1**
Selenium	**2.03**
Silver	<0.253
Thallium	<0.253
Zinc	**69.3**

LPR-SBA-4-0.5-1.0	
Date	5/20/2024
4,4'-DDE	**0.152**
4,4'-DDT	**0.156 D**
Dieldrin	**0.0520**

LPR-SBA-5-0.5-1.0	
Date	5/20/2024
4,4'-DDE	**0.125**
4,4'-DDT	**0.102**
Dieldrin	**0.0458**

Legend

- Stockpile Surface Soil Sample
- Agricultural Surface Soil Sample
- Current Stockpiles
- Former Site Features
- Site Boundary
- Parcel Boundary

Notes:

- All locations are approximate.
- All results are shown in milligrams per kilogram.
- All depths are feet below ground surface.
- **Bold text** indicates a detection above laboratory reporting limits.
- Red text indicates ODEQ RBC for the occupational worker receptor scenario for the soil ingestion, dermal contact, and inhalation pathway.
- Highlighted text indicates an exceedance of the ODEQ RBC for the occupational worker receptor scenario for the leaching to groundwater pathway.
- Underlined text indicates an exceedance of the ODEQ clean fill screening level.
- PAHs shown only where concentrations are above laboratory reporting limits.

Abbreviations:

D = Reported result is from a dilution
M-05 = Estimated results. Peak separation for structural isomers is insufficient for accurate quantification.
PAHs = Polycyclic Aromatic Hydrocarbons
UST = Underground Storage Tank

Aerial Imagery Source: Nearmap (June 3, 2023)

0 50 100 200 Feet

1 inch = 100 feet

N

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CLIENT: Port of Tillamook Bay

PROJECT: 7285 Long Prairie Road Property
7285 Long Prairie Rd, Tillamook, OR

PROJECT NUMBER: O053.010.004

Soil Sampling Results - Agricultural and Stockpile Areas

FIGURE 3

File: N:\GIS\Prj\O053.005_Tillamook County_PhI ESAs\.006 Port of Tillamook Bay\MXD\(20240627) Figure 3 - Soil Sampling Results - Agricultural and Stockpile Areas.mxd 6/27/2024 Created by: ALV Coordinate System: NAD 1983 StatePlane Oregon North FIPS 3601 Feet

LPR-SBUST-1		
Depth	**5.0-7.5**	**7.5-10.0**
Date	5/20/2024	
TPH as Gasoline	<26.7	<26.5
TPH as Diesel	<66.7	<66.3
TPH as Motor Oil	<133	<133

LPR-SBUST-2		
Depth	**5.0-7.5**	**7.5-10.0**
Date	5/20/2024	
TPH as Gasoline	<26.5	<26.6
TPH as Diesel	<66.3	<66.5
TPH as Motor Oil	<133	<133

UST Excavation Samples (AMEC)			
Sample ID	**TC-SWE-5.5 ft**	**TC-Floor West-6ft**	**TC-Floor East-6ft**
Date	10/26/2006		
TPH as Diesel	**25,900**	**21,000**	**11,500**
PAHs			
Acenaphthene	**1.17**	--	--
Fluorene	**8.37**	--	--
Naphthalene	**11.2**	--	--
Phenanthrene	**9.6**	--	--

Radio Transmission Building

TP #2

Former UST

TP #1

LPR-SBUST-3			LPR-SBUST-3-DUP
Depth	**5.0-8.0**	**7.5-10.0**	**5.0-8.0**
Date	5/20/2024		
TPH			
TPH as Gasoline	<28.2	<26.2	**1,240 D**
TPH as Diesel	**2,900 F-11**	**2,010**	***10,900 D***
TPH as Motor Oil	<49.6	<50.2	<132
PAHs			
1-Methylnaphthalene	<0.0127	<0.0121	**0.0850**
2-Methylnaphthalene	<0.0127	<0.0121	**0.101**
Naphthalene	<0.0127	<0.0121	**0.0684 M-04**
Phenanthrene	<0.0356	<0.0121	**0.0668**
Pyrene	<0.0127	<0.0121	**0.0251**

Legend

- Soil Sample (Terraphase 2024)
- Previous Test Pit (AMEC 2006) (Not Sampled)
- Former Site Features

Notes:

- All locations are approximate.
- All results are shown in milligrams per kilogram.
- All depths are feet below ground surface.
- **Bold text** indicates a detection above laboratory reporting limits.
- Highlighted text indicates an exceedance of the ODEQ RBC for the occupational worker receptor scenario for the leaching to groundwater pathway.
- *Italicized text* indicates an exceedance of the ODEQ RBC for the occupational worker receptor scenario for the soil ingestion, dermal contact, and inhalation pathway.
- Underlined text indicates an exceedance of the ODEQ clean fill screening level.
- PAHs shown only where concentrations are above laboratory reporting limits.
- '--' = Not Analyzed

Abbreviations:

D = Reported result is from a dilution
F-11 = The hydrocarbon pattern indicates possible weathered diesel, mineral oil, or a contribution from a related component.
M-04 = Due to matrix interference, this analyte cannot be accurately quantified. The reported result may contain a high bias.
PAHs = Polycyclic Aromatic Hydrocarbons
SWE = East Wall of the TC
TC = Tank Cavity
TPH - Total Petroleum Hydrocarbons
UST = Underground Storage Tank

Aerial Imagery Source: Nearmap (June 3, 2023)

0 10 20 40 Feet

1 inch = 20 feet

N

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CLIENT: Port of Tillamook Bay

PROJECT: 7285 Long Prairie Road Property
7285 Long Prairie Rd, Tillamook, OR

PROJECT NUMBER: O053.010.004

Soil Sampling Results - Former UST Area

FIGURE 4

File: N:\GIS\Prj\O053.005_Tillamook County, PH I ESAs\.006 Port of Tillamook Bay\MXDs\(20240627) Figure 4 - Soil Sampling Results - Former UST Area.mxd 6/27/2024 Created by: ALV Coordinate System: NAD 1983 StatePlane Oregon North FIPS 3601 Feet

Sample ID	LPR-SBUST-1-GW-10-15
Date	5/20/2024
PAHs	
1-Methylnaphthalene	<0.110
2-Methylnaphthalene	<0.110
Naphthalene	<0.110
TPHs	
TPH as Gasoline	<125
TPH as Diesel	<312
TPH as Motor Oil	<312

Sample ID	LPR-SBUST-2-GW-10-15
Date	5/20/2024
PAHs	
1-Methylnaphthalene	<0.0870
2-Methylnaphthalene	<0.0870
Naphthalene	<0.0870
TPHs	
TPH as Gasoline	<103
TPH as Diesel	<258
TPH as Motor Oil	<258

Sample ID	LPR-SBUST-3-GW-14	LPR-SBUST-3-GW-14-DUP
Date	5/20/2024	
PAHs		
1-Methylnaphthalene	**0.440**	**0.398**
2-Methylnaphthalene	**0.515**	**0.414**
Naphthalene	**0.484**	**0.435**
TPHs		
TPH as Gasoline	<93.5	<114
TPH as Diesel	<187	<284
TPH as Motor Oil	<234	<284

Radio Transmission Building

Former UST

Legend

Groundwater Sample

Former Site Features

Notes:

- All locations are approximate.
- All results are shown in micrograms per liter.
- **Bold text** indicates a detection above laboratory reporting limits.
- PAHs shown only where concentrations are above laboratory reporting limits for one or more sample.

Abbreviations:

PAHs = Polycyclic Aromatic Hydrocarbons
TPH - Total Petroleum Hydrocarbons
UST = Underground Storage Tank

Aerial Imagery Source: Nearmap (June 3, 2023)

0 10 20 40 Feet

1 inch = 20 feet

N

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CLIENT: Port of Tillamook Bay

PROJECT: 7285 Long Prairie Road Property
7285 Long Prairie Rd, Tillamook, OR

PROJECT NUMBER: O053.010.004

Groundwater Sampling Results - Former UST Area

FIGURE 5

File: N:\GIS\Prj\O053.005_Tillamook County_Phi ESAs\.006 Port of Tillamook Bay\MXDs\(20240618) Figure 5 - Groundwater Sampling Results - Former UST Area.mxd 6/26/2024 Created by: ALV Coordinate System: NAD 1983 StatePlane Oregon North FIPS 3601 Feet

Appendix A

Boring Logs

SOIL BORING: LPR-SBUST-1

Project Number: O053.010.002
Project Name: 7285 Long Prairie Road...
Client: Tillamook County
Address: 4095 Brickyard Rd, Tillamook, OR
Drilling Date: 05/20/2024

Drilling Company: Holocene
Driller: Tyler Sagon
Drill Rig: Geoprobe 6712DT
Drilling Method: Direct Push
Total Depth: 15'
Borehole Diameter: 2.5"

Coordinates: 45.425510, -123.784515
Coords Sys: Lat/Lon
Surface Elevation: N/A
Logged By: Don Malkemus
Checked By: Don Malkemus

Comments -

Depth (Ft)	Pid (Ppm)	Recovery Length (In)	Sample ID	Water Levels	Graphic Log	USCS	Visual Classification and Remarks
	0						**SILT with Sand and Gravel** (ML) - soft, black (10YR 2/1), damp, non plastic, with sand (20%) and gravel (10%) 1.5
	0						**SILT with Clay and Sand** (ML) - soft, dark yellowish brown (10YR 4/6), damp, medium plasticity, with sand (10%) and clay, and trace gravel (5%)
	0						
	0						
5	0	60	LPR-SBUST-1-5.0-7.5			ML	
	0						
	0						
	0						
	0						
10	0	60	LPR-SBUST-1-7.5-10.0	▽			10.0
	0						**Well-graded Sandy GRAVEL** (GW) - medium dense, dark yellowish brown (10YR 3/4), wet (40% gravel, 40% sand, 20% fines)
	0					GW	
	0						
	0						
15							15.0

End of boring at 15'

SOIL BORING: LPR-SBUST-2

Project Number: O053.010.002
Project Name: 7285 Long Prairie Road...
Client: Tillamook County
Address: 4095 Brickyard Rd, Tillamook, OR
Drilling Date: 05/20/2024

Drilling Company: Holocene
Driller: Tyler Sagon
Drill Rig: Geoprobe 6712DT
Drilling Method: Direct Push
Total Depth: 15'
Borehole Diameter: 2.5"

Coordinates: 45.425510, -123.784515
Coords Sys: Lat/Lon
Surface Elevation: N/A
Logged By: Don Malkemus
Checked By: Don Malkemus

Comments -

Depth (Ft)	Pid (Ppm)	Recovery Length (In)	Sample ID	Water Levels	Graphic Log	USCS	Visual Classification and Remarks
	0						**SILT with Sand and Gravel** (ML) - soft, black (10YR 2/1), damp, non plastic, with sand (20%) and gravel (10%)
	0						1.5
	0						**SILT with Clay and Sand** (ML) - soft, dark yellowish brown (10YR 4/6), damp, medium plasticity, with clay and sand (10%), trace gravel (5%)
	0						Increase in moisture with depth below 2.5 feet bgs.
	0						
5	0	60	LPR-SBUST-2-5.0-7.5			ML	
	0						
	0						
	0						
	0						
	0						
10	0	60	LPR-SBUST-2-7.5-10.0	5-20-24			10.0
	0						**Well-graded Gravelly SAND** (SW) - medium dense, very dark grayish brown (10YR 3/2), wet, with gravel (30%) and some fines (10%). No hydrocarbon odor.
	0						
	0						
	0			5-20-24		SW	
	0						
15							15.0
							End of boring at 15'

SOIL BORING: LPR-SBUST-3

Project Number: O053.010.002
Project Name: 7285 Long Prairie Road...
Client: Tillamook County
Address: 4095 Brickyard Rd, Tillamook, OR
Drilling Date: 05/20/2024

Drilling Company: Holocene
Driller: Tyler Sagon
Drill Rig: Geoprobe 6712DT
Drilling Method: Direct Push
Total Depth: 15'
Borehole Diameter: 2.5"

Coordinates: 45.425510, -123.784515
Coords Sys: Lat/Lon
Surface Elevation: N/A
Logged By: Don Malkemus
Checked By: Don Malkemus

Comments -

Depth (Ft)	Pid (Ppm)	Recovery Length (In)	Sample ID	Water Levels	Graphic Log	USCS	Visual Classification and Remarks
	0					ML	**SILT with Sand And Gravel** (ML) - soft, dark olive brown (2.5Y 3/3), damp, non plastic, with sand (20%), gravel and cobbles up to 6 inches in diameter (15%), and roots 1.0
	0					SP	**Poorly Graded SAND with Gravel** (SP) - loose, dark brown (10YR 3/3), damp, medium-grained, with gravel (20%), trace fines (<5%) (possible former UST excavation backfill) Increase in moisture below 2 feet bgs. 4.5
	0						
	0						
5	0	60	LPR-SBUST-3-5.0-8.0 & LPR-SBUST-3-5.0 - 8.0-DUP			ML	**SILT with Clay** (ML) - soft, yellowish brown (10YR 5/8), moist, medium plasticity, some sand (10%) Slight hydrocarbon odor at 5.5 feet bgs 8.0
	5.7						
	5.4						
	1.6						
	31.6						
10	38.2	60	LPR-SBUST-3-8.0-10.0	5-20-24		GW	**Well-graded Sandy GRAVEL with Silt** (GW) - medium dense, very dark grayish brown (10YR 3/2), moist to wet, with sand (30%) and interbedded layers of yellowish brown (10 YR 5/8), moist silt up to 4 inches thick (30%). Sheen observed on the surface of the gravel. Moderate hydrocarbon odor observed to 12 feet bgs, and slight hydrocarbon odor observed between 12 and 15 feet bgs.
	12.5						
	18.7						Wet below 12.5 feet bgs.
	22.7						
	3.6						15.0
15							End of boring at 15'

SOIL BORING: LPR-SBUST-3R

Project Number: O053.010.002
Project Name: 7285 Long Prairie Road...
Client: Tillamook County
Address: 4095 Brickyard Rd, Tillamook, OR
Drilling Date: 05/20/2024

Drilling Company: Holocene
Driller: Tyler Sagon
Drill Rig: Geoprobe 6712DT
Drilling Method: Direct Push
Total Depth: 15'
Borehole Diameter: 2.5"

Coordinates: 45.425510, -123.784515
Coords Sys: Lat/Lon
Surface Elevation: N/A
Logged By: Don Malkemus
Checked By: Don Malkemus

Comments -

Depth (Ft)	Pid (Ppm)	Recovery Length (In)	Water Levels	Graphic Log	USCS	Visual Classification and Remarks
					ML	**SILT with Sand And Gravel** (ML) - soft, dark olive brown (2.5Y 3/3), damp, non plastic, with sand (20%), gravel and cobbles up to 6 inches in diameter (15%), and roots 1.0
	0.6				SP	**Poorly Graded SAND with Gravel** (SP) - loose, dark brown (10YR 3/3), damp, medium-grained, with gravel (20%), trace fines (<5%) (possible former UST excavation backfill)
	0.2					Increase in moisture below 2 feet bgs.
	0.3					4.5
5		36			ML	**SILT with Clay** (ML) - soft, yellowish brown (10YR 5/8), moist, medium plasticity, some sand (10%)
	1.8					Slight hydrocarbon odor at 5.5 feet bgs
	2.9					
	2.5					8.0
	3.6					**Well-graded GRAVEL** (GW) - medium dense, very dark grayish brown (10YR 3/2), moist to wet, with sand (30%) and interbedded layers of yellowish brown (10 YR 5/8), moist silt up to 4 inches thick (30%). Sheen observed on the surface of the gravel. Moderate hydrocarbon odor observed to 12 feet bgs, and slight hydrocarbon odor observed between 12 and 15 feet bgs.
10	22.3	60	5-20-24		GW	
	2					
	8.2					Wet below 12.5 feet bgs.
	1.5					
15						15.0
						End of boring at 15'

Appendix B

Field Notes

Daily Field Log

Site: Tillamook Brownfields

Tillamook County,Oregon

Project Number: O053

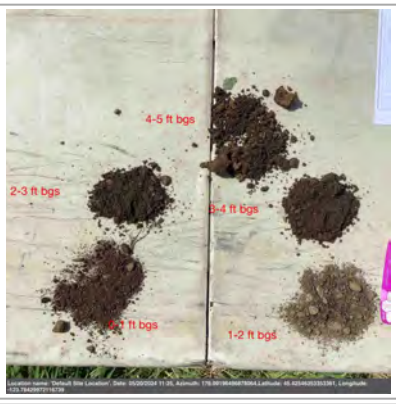
By: Don Malkemus

Date	05/20/2024	Contractor	Holocene Drilling
Staff On-Site	Don Malkemus, Adrienne Venegas	Crew	Casey New,an and Tyler Sagon
Staff From Time	07:15	From Time	10:15
Staff To Time	18:00	To Time	18:00
Weather	Partly Cloudy	Tailgate Meeting?	YES
Equipment	Drill rig	Remarks	

Work Summary

Surface soil sampling, drilling, soil and groundwater sampling

Time	Notes
07:15	Load equipment, calibrate meters.
08:00	Horrible will not calibrate, troubleshoot with Field Environmental Instruments. PID calibrates successfully
08:30	Mobilize to Site, buy ice.
09:00	Arrive at 7285 Long Prairie Road. James Farrow already onsite.
09:30	Adrienne Venegas begins surface soil sampling. Troubleshoot Horriba meter. Successfully reset the meter and calibrate.
09:45	Dana Holschuh onsite (Harris Environmental Group).
10:15	Holocene onsite. Health and safety tailgate.
11:00	Holocene begins setting up, hand augering at LPR-SBUST-3



Picture taken at: 11:25

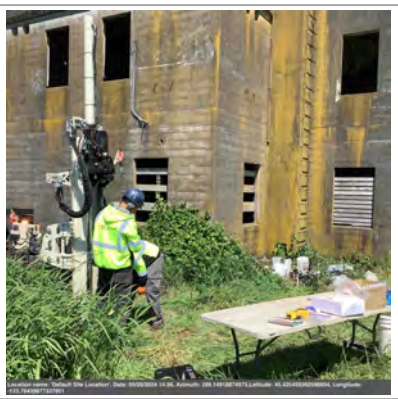
Caption: Hand auger cuttings LPR-SBUST-3

Latitude: 45.42546353353361

Longitude: -123.7842997211674

11:29	Begin drilling LPR-SBUST-3

Time	Notes
	 Picture taken at: 11:30 Caption: Drilling LPR-SBUST-3 Latitude: 45.42541028530914 Longitude: -123.7842710454969
11:56	Possibly missed the UST cavity (silt from 5 feet). Move 40 inches east and drill LPR-SB-UST-3R  Picture taken at: 12:04 Caption: Drilling LPR-SBUST-3R Latitude: 45.42538672851753 Longitude: -123.7842735562998
12:15	PID readings in original borehole higher than step out, place screen in first hole screened 10-15 feet bgs. Collect soil samples from high PID reading intervals in first borehole.  Picture taken at: 12:37 Caption: Cuttings LPR-SBUST-3 and 3R Latitude: 45.42543253860618 Longitude: -123.7843461695608
12:30	Start hang augering LPR-SBUST-2
12:45	Holocene finishes hand augering LPR-SBUST-2, takes lunch

Time	Notes
	 Picture taken at: 13:12 Caption: LPR-SBUST-2 hand auger cuttings Latitude: 45.42547274286829 Longitude: -123.7843769369285
13:45	Begin water sampling. Holocene already pumped for 30minutes to improve clarity. Low flow device leaking, troubleshoot.
14:00	Fix leak, begin low flow sampling.
14:30	Holocene hand augers LPR-SBUST-1
14:55	Begin drilling LPR-SBUST-2
	 Picture taken at: 14:56 Caption: Drilling LPR-SBUST-2 Latitude: 45.42545936259685 Longitude: -123.7843987733795
15:33	Holocene sets up water sample at LPR-SBUST-2, abandons LPR-SBUST-3 and 3R
15:42	Start low flow sampling LPR-SBUST-2
15:59	Start drilling LPR-SBUST-1
	 Picture taken at: 15:59 Caption: LPR-SBUST-1 hand auger cuttings Latitude: 45.42553417576055 Longitude: -123.7843558167587
16:30	Finish drilling LPR-SBUST-1, start sampling, quickly dewatered. Allow to recover. Dana (HEG) offsite

Time	Notes
16:40	Collect GW sample from LPR-SBUST-1
17:13	Collect equipment blank sample
17:35	Clean up, abandon LPR-SBUST-1 and 2

Picture taken at: 17:37

Caption: Abandoning LPR-SBUST-1

Latitude: 45.42552571837031

Longitude: -123.784419377224

Picture taken at: 17:39

Caption: Drum left near access road

Latitude: 45.42568635169852

Longitude: -123.7842758448556

17:44	DAM offsite to coordinate with UPS

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Daily Field Log

Site: Tillamook Brownfields

Tillamook County,Oregon

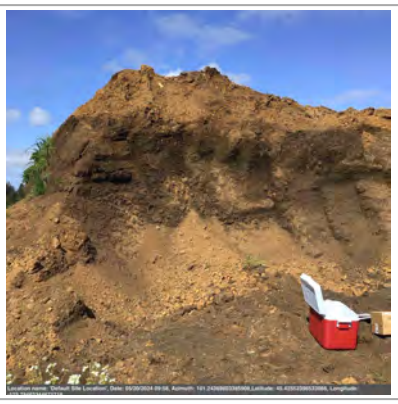
Project Number: O053

By: Adrienne Venegas

Date	05/20/2024	Contractor	Holocene
Staff On-Site	Adrienne Venegas, Don Malkemus	Crew	Tyler and Casey
Staff From Time	07:39	From Time	10:30
Staff To Time	18:00	To Time	18:00
Weather	Partly Cloudy|Sunny	Tailgate Meeting?	YES
Equipment		Remarks	

Work Summary

Time	Notes
07:39	PID calibration: Zero - 0.0 ppm Span - 100.1 ppm
09:17	Arrived at POTB site
09:54	Dana (archeologist) on site
09:55	Collecting stockpile samples LPR-SBFA-5 (orange, damp to moist, silty sand, fine to coarse grained, with 20% angular gravel up to 1.5 inches in diameter) and LPR-SBFA-6 (brown, moist, silty sand, fine to coarse grained, with 15% angular gravely to 2 inches in diameter).



Picture taken at: 09:58

Caption: LPR-SBFA-6 area

Latitude: 45.42552398533086

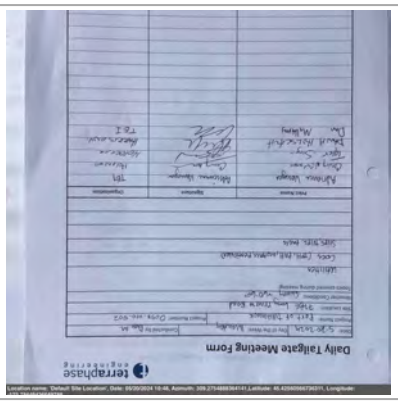
Longitude: -123.7846234467172

Picture taken at: 09:58

Caption: LPR-SBFA-5 area

Latitude: 45.425581064417

Longitude: -123.784572926257

Time	Notes
	 Picture taken at: 10:01 Caption: LPR-SBFA-6 Latitude: 45.4255410824416 Longitude: -123.7847391452503
	 Picture taken at: 10:10 Caption: LPR-SBFA-5 Latitude: 45.42559247087994 Longitude: -123.7846890700963
10:26	Drillers on site. DTM
	 Picture taken at: 10:48 Caption: DTM Latitude: 45.42560566736311 Longitude: -123.7844943664979
11:27	Collecting stockpile samples LPR-SBFA-2, 3, & 4. LPR-SBFA-2-0.5-1.0: dense, brown to orange-brown, silty sand, moist, fine to medium grained, with angular to subangular gravel up to 1 inch in diameter (10%). LPR-SBFA-3-0.5-1.0: loose to medium dense, brown, silty sand, moist, fine to medium grained, with subangular gravel up to 1 inch in diameter (15%). LPR-SBFA-4-0.5-1.0: loose, brown, silty sand, moist, fine to medium grained, with subangular to angular gravel and cobbles up to 4 inches in diameter (20%).

Time	Notes
	 Picture taken at: 11:51 Caption: LPR-SBFA-3 Latitude: 45.42541034577109 Longitude: -123.7837267021355
	 Picture taken at: 12:00 Caption: LPR-SBFA-2 Latitude: 45.42551333333333 Longitude: 123.7838533333333
	 Picture taken at: 12:08 Caption: LPR-SBFA-4 Latitude: 45.42545 Longitude: 123.7840283333333
12:50	Collecting stockpile sample LPR-SBFA-1. Sample collected at the southern edge of the gravel stockpile near the site entrance. Stockpile is gray, sandy angular to subangular gravel and cobbles up to 4 inches in diameter with asphalt debris. Soils sampled below and immediately surrounding the stockpile consist of medium dense, brown silty sand, moist, fine to medium grained, with sub rounded to subangular gravel (10%).
	 Picture taken at: 12:58 Caption: LPR-SBFA-1 area Latitude: 45.42565732147028 Longitude: -123.7832143857786

Time	Notes
	 Picture taken at: 12:58 Caption: LPR-SBFA-1 at edge of gravel stockpile Latitude: 45.42565960700122 Longitude: -123.7832544990928
13:19	Collecting agricultural samples LPR -SBA-1 through LPR -SBA-5. All soils medium dense, dark brown, sandy clay, moist, trace subrounded gravel (2%).  Picture taken at: 13:41 Caption: LPR -SBA-1 area Latitude: 45.42627692133333 Longitude: -123.783466334  Picture taken at: 13:42 Caption: LPR -SBA-1+DUP Latitude: 45.42627723233333 Longitude: -123.7834647596667  Picture taken at: 14:04 Caption: LPR -SBA-2 Latitude: 45.42633833333333 Longitude: 123.7845166666667

Time	Notes
	 Picture taken at: 14:45 Caption: LPR -SBA-3 Latitude: 45.42606439366666 Longitude: -123.7853642591667
	 Picture taken at: 15:07 Caption: LPR -SBA-4 Latitude: 45.42505613349999 Longitude: -123.7854099526667
	 Picture taken at: 15:31 Caption: LPR -SBA-5 Latitude: 45.42463342933333 Longitude: -123.7846649405
16:40	Wrapping up gw sampling at LPR-SBUST-1 and 2.
17:20	Collecting equipment blanks.
17:30	Drillers packing up

Time	Notes
	 Picture taken at: 17:45 Caption: Site conditions post drilling Latitude: 45.42550642374216 Longitude: -123.7844063762443
	 Picture taken at: 17:45 Caption: Site conditions post drilling Latitude: 45.42551040854938 Longitude: -123.7843969428142
	 Picture taken at: 17:45 Caption: Site conditions post drilling Latitude: 45.42541507171844 Longitude: -123.7843912541487
18:00	TEI and Holocene off site

Signature Adrienne Venegas

Low-Flow Groundwater Sampling Field Log

Well ID:	LPR-SBUST-1
Date:	5-20-2024

Site Name:	Port of Tillamook Long Prairie
Field Personnel:	Don M. + Katherine V.

Sample ID:	LPR-SBUST-1-10-15
Weather:	Sunny ~65°F

Well depth:	15.0	feet
Well diameter:	1"	inches
Total depth:	15.0	ft BTOC
Well cap condition:	good	
Well casing condition:	good	

Depth to top of screen:	10	ft BTOC
Depth to bottom of screen:	15	ft BTOC
Depth to water, pre-installation:	14.98	ft BTOC
Pump intake depth:	15	ft BTOC
PID/FID reading:		ppm

analyte/method	container/preservative

(*) Insufficient for parameters

Time	pH (SU)		Conductivity (mS/cm)		Dissolved Oxygen (mg/L)		Turbidity (NTU)		Temperature (degrees C)		ORP* (mV)	Volume Pumped (mL)	Pumping Rate (ml/min)	Depth to water (ft BTOC)
	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading			
		NA		NA		NA		NA		NA				
Stability parameters:	± 0.1 SU		± 3%		± 10%		± 15%		± 0.5 °C		* ORP is not required stability parameter			

Sample is cloudy brown, no odor, no sheen
sample time is 1640

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Low-Flow Groundwater Sampling Field Log

Well ID:	LPR-SBUST-2
Date:	5/20/24

Site Name:	7285 Long Prairie Road
Field Personnel:	Don Malkemus

Sample ID:	LPR-SBUST-2-GW-10-5
Weather:	windy

Well depth:	15	feet
Well diameter:	1	inches
Total depth:	15	ft BTOC
Well cap condition:	NA	
Well casing condition:	NA	

Depth to top of screen:	10	ft BTOC
Depth to bottom of screen:	15	ft BTOC
Depth to water, pre-installation:	12.4	ft BTOC
Pump intake depth:	14	ft BTOC
PID/FID reading:		ppm

analyte/method	container/preservative

cloudy so surprising

Time	pH (SU)		Conductivity (mS/cm)		Dissolved Oxygen (mg/L)		Turbidity (NTU)		Temperature (degrees C)		ORP* (mV)	Volume Pumped (mL)	Pumping Rate (ml/min)	Depth to water (ft BTOC)
	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading			
1545	5.80	NA	.174	NA	11.25	NA	0.0	NA	20.01	NA	157	500	200	13.2
1550	5.66		.184		10.71		0.0		19.19		169	1500	11	13.1
1555	5.55		.191		10.88		0.0		18.92		180	2500	11	12.9
1600	5.60		.188		11.15		0.0		18.85		180	3500	11	12.8
1605	5.58		.188		11.20		0.0		18.72		180	4500	11	12.75
Stability parameters:	± 0.1 SU		± 3%		± 10%		± 15%		± 0.5 °C		* ORP is not required stability parameter			

Samples are slightly cloudy, brown, no odor, no sheen
Sample time 1615

terraphase engineering

Low-Flow Groundwater Sampling Field Log

Well ID:	LPR-SBUST-3
Date:	5/20/24

Site Name:	7285 Long Prairie Road
Field Personnel:	Dan Malkemus

Sample ID:	LPR-SBUST-3-GW-14
Weather:	windy + GW-14-Dup

Well depth:	15	feet
Well diameter:	1	inches
Total depth:	15	ft BTOC
Well cap condition:	N/A	
Well casing condition:	NA	

Depth to top of screen:	10	ft BTOC
Depth to bottom of screen:	15	ft BTOC
Depth to water, pre-installation:	12.1	ft BTOC
Pump intake depth:	14	ft BTOC
PID/FID reading:		ppm

analyte/method	container/preservative

Time	pH (SU)		Conductivity (mS/cm)		Dissolved Oxygen (mg/L)		Turbidity (NTU)		Temperature (degrees C)		ORP* (mV)	Volume Pumped (mL)	Pumping Rate (ml/min)	Depth to water (ft BTOC)
	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading			
1406	5.42	NA	.265	NA	11.25	NA	117	NA	16.43	NA	196	400	150	12.9
1411	5.38		.260		9.66		163		15.98		198	1,150	"	12.6
1416	5.44		.259		9.68		162		15.77		198	1,900	"	12.4
1421	5.43		.261		9.66		167		15.65		200	2,650	"	12.4
Stability parameters:	± 0.1 SU		± 3%		± 10%		± 15%		± 0.5 °C		* ORP is not required stability parameter			

Sample is slightly cloudy, no sheen, no odor

primary sample time 1430

duplicate sample time 1435

terraphase engineering

Appendix C

Laboratory Analytical Report

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Monday, June 10, 2024

James Farrow
Terraphase Engineering
610 SW Broadway #406
Portland, OR 97205

RE: A4E1510 - 7285 Long Prairie Road Property - O053.010.002

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A4E1510, which was received by the laboratory on 5/22/2024 at 11:04:00AM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: DAuvil@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of sample receipt, unless prior arrangements have been made.

Cooler Receipt Information					
Acceptable Receipt Temperature is less than, or equal to, 6 degC (not frozen), or received on ice the same day as sampling.					
(See Cooler Receipt Form for details)					
Cooler #1	5.6	degC	Cooler #2	5.8	degC
Cooler #3	1.4	degC	Cooler #4	5.9	degC
Cooler #5	4.8	degC	Cooler #6	2.2	degC
Cooler #7	2.4	degC	Cooler #8	2.0	degC

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.
All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.

Apex Laboratories

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Darrell Auvil, Client Services Manager

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

ANALYTICAL REPORT

Terraphase Engineering	Project: 7285 Long Prairie Road Property	
610 SW Broadway #406	Project Number: O053.010.002	Report ID:
Portland, OR 97205	Project Manager: James Farrow	A4E1510 - 06 10 24 1150

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LPR-SBUST-1-GW-10-15	A4E1510-01	Water	05/20/24 16:40	05/22/24 11:04
LPR-SBUST-2-GW-10-15	A4E1510-02	Water	05/20/24 16:15	05/22/24 11:04
LPR-SBUST-3-GW-14	A4E1510-03	Water	05/20/24 14:30	05/22/24 11:04
LPR-SBUST-3-GW-14-DUP	A4E1510-04	Water	05/20/24 14:35	05/22/24 11:04
LPR-SBUST-EB-20240520	A4E1510-05	Water	05/20/24 17:15	05/22/24 11:04
LPR-SBUST-1-5.0-7.5	A4E1510-06	Soil	05/20/24 16:50	05/22/24 11:04
LPR-SBUST-1-7.5-10.0	A4E1510-07	Soil	05/20/24 16:55	05/22/24 11:04
LPR-SBUST-2-5.0-7.5	A4E1510-08	Soil	05/20/24 15:20	05/22/24 11:04
LPR-SBUST-2-7.5-10.0	A4E1510-09	Soil	05/20/24 15:30	05/22/24 11:04
LPR-SBUST-3-5.0-8.0	A4E1510-10	Soil	05/20/24 12:30	05/22/24 11:04
LPR-SBUST-3-5.0-8.0-DUP	A4E1510-11	Soil	05/20/24 12:35	05/22/24 11:04
LPR-SBUST-3-8-10	A4E1510-12	Soil	05/20/24 12:45	05/22/24 11:04
LPR-SBFA-1-0.5-1.0	A4E1510-13	Soil	05/20/24 13:00	05/22/24 11:04
LPR-SBFA-2-0.5-1.0	A4E1510-14	Soil	05/20/24 11:30	05/22/24 11:04
LPR-SBFA-3-0.5-1.0	A4E1510-15	Soil	05/20/24 12:00	05/22/24 11:04
LPR-SBFA-4-0.5-1.0	A4E1510-16	Soil	05/20/24 12:15	05/22/24 11:04
LPR-SBFA-5-0.5-1.0	A4E1510-17	Soil	05/20/24 10:10	05/22/24 11:04
LPR-SBFA-6-3.5-4.0	A4E1510-18	Soil	05/20/24 10:00	05/22/24 11:04
LPR-SBFA-6-3.5-4.0-DUP	A4E1510-19	Soil	05/20/24 11:00	05/22/24 11:04
LPR-SBA-1-0.5-1.0	A4E1510-20	Soil	05/20/24 13:45	05/22/24 11:04
LPR-SBA-1-0.5-1.0-DUP	A4E1510-21	Soil	05/20/24 16:30	05/22/24 11:04
LPR-SBA-2-0.5-1.0	A4E1510-22	Soil	05/20/24 14:10	05/22/24 11:04
LPR-SBA-3-0.5-1.0	A4E1510-23	Soil	05/20/24 14:45	05/22/24 11:04
LPR-SBA-4-0.5-1.0	A4E1510-24	Soil	05/20/24 15:15	05/22/24 11:04
LPR-SBA-5-0.5-1.0	A4E1510-25	Soil	05/20/24 15:30	05/22/24 11:04

Apex Laboratories

Darrell Auvil, Client Services Manager

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBUST-1-GW-10-15 (A4E1510-01)				**Matrix: Water**		**Batch: 24E0882**		
Gasoline Range Organics	ND	---	0.125	mg/L	1	05/24/24 21:14	NWTPH-HCID	
Diesel Range Organics	ND	---	0.312	mg/L	1	05/24/24 21:14	NWTPH-HCID	
Oil Range Organics	ND	---	0.312	mg/L	1	05/24/24 21:14	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*90 %*	*Limits: 50-150 %*	*1*	*05/24/24 21:14*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*49 %*	*10-120 %*	*1*	*05/24/24 21:14*	*NWTPH-HCID*	
LPR-SBUST-2-GW-10-15 (A4E1510-02)				**Matrix: Water**		**Batch: 24E0882**		
Gasoline Range Organics	ND	---	0.103	mg/L	1	05/24/24 21:38	NWTPH-HCID	
Diesel Range Organics	ND	---	0.258	mg/L	1	05/24/24 21:38	NWTPH-HCID	
Oil Range Organics	ND	---	0.258	mg/L	1	05/24/24 21:38	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*91 %*	*Limits: 50-150 %*	*1*	*05/24/24 21:38*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*54 %*	*10-120 %*	*1*	*05/24/24 21:38*	*NWTPH-HCID*	
LPR-SBUST-3-GW-14 (A4E1510-03)				**Matrix: Water**		**Batch: 24E0882**		
Gasoline Range Organics	ND	---	0.0935	mg/L	1	05/24/24 22:01	NWTPH-HCID	
Diesel Range Organics	ND	---	0.234	mg/L	1	05/24/24 22:01	NWTPH-HCID	
Oil Range Organics	ND	---	0.234	mg/L	1	05/24/24 22:01	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*101 %*	*Limits: 50-150 %*	*1*	*05/24/24 22:01*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*63 %*	*10-120 %*	*1*	*05/24/24 22:01*	*NWTPH-HCID*	
LPR-SBUST-3-GW-14-DUP (A4E1510-04)				**Matrix: Water**		**Batch: 24E0882**		
Gasoline Range Organics	ND	---	0.114	mg/L	1	05/24/24 22:25	NWTPH-HCID	
Diesel Range Organics	ND	---	0.284	mg/L	1	05/24/24 22:25	NWTPH-HCID	
Oil Range Organics	ND	---	0.284	mg/L	1	05/24/24 22:25	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*93 %*	*Limits: 50-150 %*	*1*	*05/24/24 22:25*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*52 %*	*10-120 %*	*1*	*05/24/24 22:25*	*NWTPH-HCID*	
LPR-SBUST-EB-20240520 (A4E1510-05)				**Matrix: Water**		**Batch: 24E0882**		
Gasoline Range Organics	ND	---	0.139	mg/L	1	05/24/24 22:48	NWTPH-HCID	
Diesel Range Organics	ND	---	0.347	mg/L	1	05/24/24 22:48	NWTPH-HCID	
Oil Range Organics	ND	---	0.347	mg/L	1	05/24/24 22:48	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*98 %*	*Limits: 50-150 %*	*1*	*05/24/24 22:48*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*52 %*	*10-120 %*	*1*	*05/24/24 22:48*	*NWTPH-HCID*	

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Darrell Auvil, Client Services Manager

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBUST-1-5.0-7.5 (A4E1510-06)				**Matrix: Soil**		**Batch: 24E0826**		
Gasoline Range Organics	ND	---	26.7	mg/kg dry	1	05/23/24 18:25	NWTPH-HCID	
Diesel Range Organics	ND	---	66.7	mg/kg dry	1	05/23/24 18:25	NWTPH-HCID	
Oil Range Organics	ND	---	133	mg/kg dry	1	05/23/24 18:25	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*95 %*	*Limits: 50-150 %*	*1*	*05/23/24 18:25*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*91 %*	*50-150 %*	*1*	*05/23/24 18:25*	*NWTPH-HCID*	
LPR-SBUST-1-7.5-10.0 (A4E1510-07)				**Matrix: Soil**		**Batch: 24E0826**		
Gasoline Range Organics	ND	---	26.5	mg/kg dry	1	05/23/24 18:49	NWTPH-HCID	
Diesel Range Organics	ND	---	66.3	mg/kg dry	1	05/23/24 18:49	NWTPH-HCID	
Oil Range Organics	ND	---	133	mg/kg dry	1	05/23/24 18:49	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*86 %*	*Limits: 50-150 %*	*1*	*05/23/24 18:49*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*89 %*	*50-150 %*	*1*	*05/23/24 18:49*	*NWTPH-HCID*	
LPR-SBUST-2-5.0-7.5 (A4E1510-08)				**Matrix: Soil**		**Batch: 24E0826**		
Gasoline Range Organics	ND	---	26.5	mg/kg dry	1	05/23/24 19:12	NWTPH-HCID	
Diesel Range Organics	ND	---	66.3	mg/kg dry	1	05/23/24 19:12	NWTPH-HCID	
Oil Range Organics	ND	---	133	mg/kg dry	1	05/23/24 19:12	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*89 %*	*Limits: 50-150 %*	*1*	*05/23/24 19:12*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*84 %*	*50-150 %*	*1*	*05/23/24 19:12*	*NWTPH-HCID*	
LPR-SBUST-2-7.5-10.0 (A4E1510-09)				**Matrix: Soil**		**Batch: 24E0826**		
Gasoline Range Organics	ND	---	26.6	mg/kg dry	1	05/23/24 19:36	NWTPH-HCID	
Diesel Range Organics	ND	---	66.5	mg/kg dry	1	05/23/24 19:36	NWTPH-HCID	
Oil Range Organics	ND	---	133	mg/kg dry	1	05/23/24 19:36	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*97 %*	*Limits: 50-150 %*	*1*	*05/23/24 19:36*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*98 %*	*50-150 %*	*1*	*05/23/24 19:36*	*NWTPH-HCID*	
LPR-SBUST-3-5.0-8.0 (A4E1510-10)				**Matrix: Soil**		**Batch: 24E0826**		
Gasoline Range Organics	ND	---	28.2	mg/kg dry	1	05/23/24 21:56	NWTPH-HCID	
Diesel Range Organics	**DET**	---	70.6	mg/kg dry	1	05/23/24 21:56	NWTPH-HCID	F-11
Oil Range Organics	ND	---	141	mg/kg dry	1	05/23/24 21:56	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*100 %*	*Limits: 50-150 %*	*1*	*05/23/24 21:56*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*91 %*	*50-150 %*	*1*	*05/23/24 21:56*	*NWTPH-HCID*	

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Darrell Auvil, Client Services Manager

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBUST-3-5.0-8.0-DUP (A4E1510-11)				**Matrix: Soil**		**Batch: 24E0826**		
Gasoline Range Organics	ND	---	26.2	mg/kg dry	1	05/23/24 19:59	NWTPH-HCID	
Diesel Range Organics	**DET**	---	65.6	mg/kg dry	1	05/23/24 19:59	NWTPH-HCID	F-11
Oil Range Organics	ND	---	131	mg/kg dry	1	05/23/24 19:59	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*103 %*	*Limits: 50-150 %*	*1*	*05/23/24 19:59*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*92 %*	*50-150 %*	*1*	*05/23/24 19:59*	*NWTPH-HCID*	
LPR-SBUST-3-8-10 (A4E1510-12)				**Matrix: Soil**		**Batch: 24E0826**		
Gasoline Range Organics	**DET**	---	26.3	mg/kg dry	1	05/23/24 22:19	NWTPH-HCID	F-09
Diesel Range Organics	**DET**	---	65.8	mg/kg dry	1	05/23/24 22:19	NWTPH-HCID	
Oil Range Organics	ND	---	132	mg/kg dry	1	05/23/24 22:19	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*113 %*	*Limits: 50-150 %*	*1*	*05/23/24 22:19*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*91 %*	*50-150 %*	*1*	*05/23/24 22:19*	*NWTPH-HCID*	
LPR-SBFA-1-0.5-1.0 (A4E1510-13)				**Matrix: Soil**		**Batch: 24E0826**		
Gasoline Range Organics	ND	---	26.9	mg/kg dry	1	05/23/24 22:43	NWTPH-HCID	
Diesel Range Organics	ND	---	67.2	mg/kg dry	1	05/23/24 22:43	NWTPH-HCID	
Oil Range Organics	**DET**	---	134	mg/kg dry	1	05/23/24 22:43	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*97 %*	*Limits: 50-150 %*	*1*	*05/23/24 22:43*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*105 %*	*50-150 %*	*1*	*05/23/24 22:43*	*NWTPH-HCID*	
LPR-SBFA-2-0.5-1.0 (A4E1510-14)				**Matrix: Soil**		**Batch: 24E0826**		
Gasoline Range Organics	ND	---	24.2	mg/kg dry	1	05/23/24 23:06	NWTPH-HCID	
Diesel Range Organics	ND	---	60.4	mg/kg dry	1	05/23/24 23:06	NWTPH-HCID	
Oil Range Organics	**DET**	---	121	mg/kg dry	1	05/23/24 23:06	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*91 %*	*Limits: 50-150 %*	*1*	*05/23/24 23:06*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*92 %*	*50-150 %*	*1*	*05/23/24 23:06*	*NWTPH-HCID*	
LPR-SBFA-3-0.5-1.0 (A4E1510-15)				**Matrix: Soil**		**Batch: 24E0826**		
Gasoline Range Organics	ND	---	21.5	mg/kg dry	1	05/23/24 20:23	NWTPH-HCID	
Diesel Range Organics	ND	---	53.7	mg/kg dry	1	05/23/24 20:23	NWTPH-HCID	
Oil Range Organics	ND	---	107	mg/kg dry	1	05/23/24 20:23	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*89 %*	*Limits: 50-150 %*	*1*	*05/23/24 20:23*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*92 %*	*50-150 %*	*1*	*05/23/24 20:23*	*NWTPH-HCID*	

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Darrell Auvil, Client Services Manager

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ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBFA-4-0.5-1.0 (A4E1510-16)				**Matrix: Soil**		**Batch: 24E0826**		
Gasoline Range Organics	ND	---	25.1	mg/kg dry	1	05/23/24 23:53	NWTPH-HCID	
Diesel Range Organics	ND	---	62.8	mg/kg dry	1	05/23/24 23:53	NWTPH-HCID	
Oil Range Organics	**DET**	---	126	mg/kg dry	1	05/23/24 23:53	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*97 %*	*Limits: 50-150 %*	*1*	*05/23/24 23:53*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*91 %*	*50-150 %*	*1*	*05/23/24 23:53*	*NWTPH-HCID*	
LPR-SBFA-5-0.5-1.0 (A4E1510-17)				**Matrix: Soil**		**Batch: 24E0826**		
Gasoline Range Organics	ND	---	26.2	mg/kg dry	1	05/23/24 20:46	NWTPH-HCID	
Diesel Range Organics	ND	---	65.6	mg/kg dry	1	05/23/24 20:46	NWTPH-HCID	
Oil Range Organics	ND	---	131	mg/kg dry	1	05/23/24 20:46	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*88 %*	*Limits: 50-150 %*	*1*	*05/23/24 20:46*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*83 %*	*50-150 %*	*1*	*05/23/24 20:46*	*NWTPH-HCID*	
LPR-SBFA-6-3.5-4.0 (A4E1510-18)				**Matrix: Soil**		**Batch: 24E0827**		
Gasoline Range Organics	ND	---	27.4	mg/kg dry	1	05/23/24 23:41	NWTPH-HCID	
Diesel Range Organics	ND	---	68.4	mg/kg dry	1	05/23/24 23:41	NWTPH-HCID	
Oil Range Organics	ND	---	137	mg/kg dry	1	05/23/24 23:41	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*87 %*	*Limits: 50-150 %*	*1*	*05/23/24 23:41*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*93 %*	*50-150 %*	*1*	*05/23/24 23:41*	*NWTPH-HCID*	
LPR-SBFA-6-3.5-4.0-DUP (A4E1510-19)				**Matrix: Soil**		**Batch: 24E0827**		
Gasoline Range Organics	ND	---	25.9	mg/kg dry	1	05/24/24 00:22	NWTPH-HCID	
Diesel Range Organics	ND	---	64.8	mg/kg dry	1	05/24/24 00:22	NWTPH-HCID	
Oil Range Organics	ND	---	130	mg/kg dry	1	05/24/24 00:22	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		*Recovery:*	*104 %*	*Limits: 50-150 %*	*1*	*05/24/24 00:22*	*NWTPH-HCID*	
4-Bromofluorobenzene (Surr)			*115 %*	*50-150 %*	*1*	*05/24/24 00:22*	*NWTPH-HCID*	

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ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx with Acid/Silica Gel Cleanup

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBUST-3-GW-14 (A4E1510-03)				**Matrix: Water**		**Batch: 24F0051**		
Diesel	ND	---	0.187	mg/L	1	06/03/24 19:43	NWTPH-Dx/SG	
Oil	ND	---	0.374	mg/L	1	06/03/24 19:43	NWTPH-Dx/SG	
Surrogate: o-Terphenyl (Surr)		*Recovery: 100 %*		*Limits: 50-150 %*	*1*	*06/03/24 19:43*	*NWTPH-Dx/SG*	
LPR-SBUST-3-5.0-8.0 (A4E1510-10)				**Matrix: Soil**		**Batch: 24E1145**		
Diesel	**2900**	---	24.8	mg/kg dry	1	05/31/24 20:32	NWTPH-Dx/SG	**F-11**
Oil	ND	---	49.6	mg/kg dry	1	05/31/24 20:32	NWTPH-Dx/SG	
Surrogate: o-Terphenyl (Surr)		*Recovery: 108 %*		*Limits: 50-150 %*	*1*	*05/31/24 20:32*	*NWTPH-Dx/SG*	*Q-41*
LPR-SBUST-3-5.0-8.0-DUP (A4E1510-11)				**Matrix: Soil**		**Batch: 24E1145**		
Diesel	**2010**	---	25.1	mg/kg dry	1	05/31/24 21:13	NWTPH-Dx/SG	
Oil	ND	---	50.2	mg/kg dry	1	05/31/24 21:13	NWTPH-Dx/SG	
Surrogate: o-Terphenyl (Surr)		*Recovery: 109 %*		*Limits: 50-150 %*	*1*	*05/31/24 21:13*	*NWTPH-Dx/SG*	*Q-41*
LPR-SBUST-3-8-10 (A4E1510-12RE1)				**Matrix: Soil**		**Batch: 24E1145**		
Diesel	**10900**	---	512	mg/kg dry	20	06/03/24 09:56	NWTPH-Dx/SG	
Oil	ND	---	1020	mg/kg dry	20	06/03/24 09:56	NWTPH-Dx/SG	
Surrogate: o-Terphenyl (Surr)		*Recovery: %*		*Limits: 50-150 %*	*20*	*06/03/24 09:56*	*NWTPH-Dx/SG*	*S-01*
LPR-SBFA-1-0.5-1.0 (A4E1510-13)				**Matrix: Soil**		**Batch: 24E1145**		
Diesel	ND	---	25.3	mg/kg dry	1	05/31/24 21:53	NWTPH-Dx/SG	
Oil	**203**	---	50.6	mg/kg dry	1	05/31/24 21:53	NWTPH-Dx/SG	**F-03**
Surrogate: o-Terphenyl (Surr)		*Recovery: 108 %*		*Limits: 50-150 %*	*1*	*05/31/24 21:53*	*NWTPH-Dx/SG*	*Q-41*
LPR-SBFA-2-0.5-1.0 (A4E1510-14)				**Matrix: Soil**		**Batch: 24E1145**		
Diesel	ND	---	21.7	mg/kg dry	1	05/31/24 22:14	NWTPH-Dx/SG	
Oil	**508**	---	43.5	mg/kg dry	1	05/31/24 22:14	NWTPH-Dx/SG	**F-03**
Surrogate: o-Terphenyl (Surr)		*Recovery: 99 %*		*Limits: 50-150 %*	*1*	*05/31/24 22:14*	*NWTPH-Dx/SG*	*Q-41*
LPR-SBFA-4-0.5-1.0 (A4E1510-16)				**Matrix: Soil**		**Batch: 24E1145**		
Diesel	ND	---	22.8	mg/kg dry	1	05/31/24 22:55	NWTPH-Dx/SG	
Oil	**174**	---	45.7	mg/kg dry	1	05/31/24 22:55	NWTPH-Dx/SG	**F-03**
Surrogate: o-Terphenyl (Surr)		*Recovery: 99 %*		*Limits: 50-150 %*	*1*	*05/31/24 22:55*	*NWTPH-Dx/SG*	*Q-41*

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ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBUST-3-GW-14 (A4E1510-03RE1)				**Matrix: Water**		**Batch: 24E1123**		
Gasoline Range Organics	ND	---	0.100	mg/L	1	05/31/24 12:37	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		*Recovery:*	*103 %*	*Limits: 50-150 %*	*1*	*05/31/24 12:37*	*NWTPH-Gx (MS)*	
1,4-Difluorobenzene (Sur)			*108 %*	*50-150 %*	*1*	*05/31/24 12:37*	*NWTPH-Gx (MS)*	
LPR-SBUST-3-8-10 (A4E1510-12)				**Matrix: Soil**		**Batch: 24E0957**		
Gasoline Range Organics	**1240**	---	82.8	mg/kg dry	500	05/29/24 15:50	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		*Recovery:*	*104 %*	*Limits: 50-150 %*	*1*	*05/29/24 15:50*	*NWTPH-Gx (MS)*	
1,4-Difluorobenzene (Sur)			*106 %*	*50-150 %*	*1*	*05/29/24 15:50*	*NWTPH-Gx (MS)*	

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ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBA-1-0.5-1.0 (A4E1510-20RE1)				**Matrix: Soil**		**Batch: 24E1017**		**C-05**
Aldrin [2C]	ND	---	2.71	ug/kg dry	1	05/30/24 16:08	EPA 8081B	
alpha-BHC [2C]	ND	---	2.71	ug/kg dry	1	05/30/24 16:08	EPA 8081B	
beta-BHC [2C]	ND	---	2.71	ug/kg dry	1	05/30/24 16:08	EPA 8081B	
delta-BHC [2C]	ND	---	108	ug/kg dry	1	05/30/24 16:08	EPA 8081B	R-02
gamma-BHC (Lindane) [2C]	ND	---	2.71	ug/kg dry	1	05/30/24 16:08	EPA 8081B	
cis-Chlordane [2C]	ND	---	2.71	ug/kg dry	1	05/30/24 16:08	EPA 8081B	
trans-Chlordane [2C]	ND	---	2.71	ug/kg dry	1	05/30/24 16:08	EPA 8081B	
4,4'-DDD [2C]	ND	---	2.71	ug/kg dry	1	05/30/24 16:08	EPA 8081B	
4,4'-DDE [2C]	ND	---	2.71	ug/kg dry	1	05/30/24 16:08	EPA 8081B	
4,4'-DDT [2C]	ND	---	2.71	ug/kg dry	1	05/30/24 16:08	EPA 8081B	
Dieldrin [2C]	ND	---	2.71	ug/kg dry	1	05/30/24 16:08	EPA 8081B	
Endosulfan I [2C]	ND	---	2.71	ug/kg dry	1	05/30/24 16:08	EPA 8081B	
Endosulfan II [2C]	ND	---	2.71	ug/kg dry	1	05/30/24 16:08	EPA 8081B	
Endosulfan sulfate [2C]	ND	---	2.71	ug/kg dry	1	05/30/24 16:08	EPA 8081B	
Endrin [2C]	ND	---	2.71	ug/kg dry	1	05/30/24 16:08	EPA 8081B	
Endrin aldehyde	ND	---	8.80	ug/kg dry	1	05/30/24 16:08	EPA 8081B	R-02
Endrin ketone [2C]	ND	---	2.71	ug/kg dry	1	05/30/24 16:08	EPA 8081B	
Heptachlor [2C]	ND	---	2.71	ug/kg dry	1	05/30/24 16:08	EPA 8081B	
Heptachlor epoxide [2C]	ND	---	2.71	ug/kg dry	1	05/30/24 16:08	EPA 8081B	
Methoxychlor [2C]	ND	---	8.12	ug/kg dry	1	05/30/24 16:08	EPA 8081B	
Chlordane (Technical) [2C]	ND	---	81.2	ug/kg dry	1	05/30/24 16:08	EPA 8081B	
Toxaphene (Total) [2C]	ND	---	81.2	ug/kg dry	1	05/30/24 16:08	EPA 8081B	
Surrogate: 2,4,5,6-TCMX (Surr)		*Recovery:*	*66 %*	*Limits: 42-129 %*	*1*	*05/30/24 16:08*	*EPA 8081B*	
Decachlorobiphenyl (Surr)			*84 %*	*55-130 %*	*1*	*05/30/24 16:08*	*EPA 8081B*	
LPR-SBA-1-0.5-1.0-DUP (A4E1510-21RE1)				**Matrix: Soil**		**Batch: 24E1017**		**C-05**
Aldrin [2C]	ND	---	2.70	ug/kg dry	1	05/30/24 16:42	EPA 8081B	
alpha-BHC [2C]	ND	---	2.70	ug/kg dry	1	05/30/24 16:42	EPA 8081B	
beta-BHC [2C]	ND	---	2.70	ug/kg dry	1	05/30/24 16:42	EPA 8081B	
delta-BHC [2C]	ND	---	254	ug/kg dry	1	05/30/24 16:42	EPA 8081B	R-02
gamma-BHC (Lindane) [2C]	ND	---	2.70	ug/kg dry	1	05/30/24 16:42	EPA 8081B	
cis-Chlordane	ND	---	2.70	ug/kg dry	1	05/30/24 16:42	EPA 8081B	
trans-Chlordane [2C]	ND	---	2.70	ug/kg dry	1	05/30/24 16:42	EPA 8081B	

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ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBA-1-0.5-1.0-DUP (A4E1510-21RE1)				**Matrix: Soil**		**Batch: 24E1017**		**C-05**
4,4'-DDD [2C]	ND	---	2.70	ug/kg dry	1	05/30/24 16:42	EPA 8081B	
4,4'-DDE [2C]	ND	---	2.70	ug/kg dry	1	05/30/24 16:42	EPA 8081B	
4,4'-DDT [2C]	ND	---	2.70	ug/kg dry	1	05/30/24 16:42	EPA 8081B	
Dieldrin [2C]	ND	---	2.70	ug/kg dry	1	05/30/24 16:42	EPA 8081B	
Endosulfan I [2C]	ND	---	2.70	ug/kg dry	1	05/30/24 16:42	EPA 8081B	
Endosulfan II [2C]	ND	---	2.70	ug/kg dry	1	05/30/24 16:42	EPA 8081B	
Endosulfan sulfate [2C]	ND	---	2.70	ug/kg dry	1	05/30/24 16:42	EPA 8081B	
Endrin [2C]	ND	---	2.70	ug/kg dry	1	05/30/24 16:42	EPA 8081B	
Endrin aldehyde	ND	---	14.4	ug/kg dry	1	05/30/24 16:42	EPA 8081B	R-02
Endrin ketone [2C]	ND	---	2.70	ug/kg dry	1	05/30/24 16:42	EPA 8081B	
Heptachlor [2C]	ND	---	2.70	ug/kg dry	1	05/30/24 16:42	EPA 8081B	
Heptachlor epoxide [2C]	ND	---	2.70	ug/kg dry	1	05/30/24 16:42	EPA 8081B	
Methoxychlor [2C]	ND	---	8.09	ug/kg dry	1	05/30/24 16:42	EPA 8081B	
Chlordane (Technical) [2C]	ND	---	80.9	ug/kg dry	1	05/30/24 16:42	EPA 8081B	
Toxaphene (Total) [2C]	ND	---	80.9	ug/kg dry	1	05/30/24 16:42	EPA 8081B	
Surrogate: 2,4,5,6-TCMX (Surr)		*Recovery:*	*65 %*	*Limits: 42-129 %*	*1*	*05/30/24 16:42*	*EPA 8081B*	
Decachlorobiphenyl (Surr)			*85 %*	*55-130 %*	*1*	*05/30/24 16:42*	*EPA 8081B*	
LPR-SBA-2-0.5-1.0 (A4E1510-22RE2)				**Matrix: Soil**		**Batch: 24E1017**		**C-05**
Aldrin	ND	---	13.4	ug/kg dry	5	05/31/24 19:13	EPA 8081B	
alpha-BHC	ND	---	13.4	ug/kg dry	5	05/31/24 19:13	EPA 8081B	
beta-BHC [2C]	ND	---	13.4	ug/kg dry	5	05/31/24 19:13	EPA 8081B	
delta-BHC	ND	---	584	ug/kg dry	5	05/31/24 19:13	EPA 8081B	R-02
gamma-BHC (Lindane)	ND	---	13.4	ug/kg dry	5	05/31/24 19:13	EPA 8081B	
cis-Chlordane	ND	---	13.4	ug/kg dry	5	05/31/24 19:13	EPA 8081B	
trans-Chlordane	ND	---	13.4	ug/kg dry	5	05/31/24 19:13	EPA 8081B	
4,4'-DDD [2C]	ND	---	13.4	ug/kg dry	5	05/31/24 19:13	EPA 8081B	
4,4'-DDE	**189**	---	13.4	ug/kg dry	5	05/31/24 19:13	EPA 8081B	
4,4'-DDT	**161**	---	13.4	ug/kg dry	5	05/31/24 19:13	EPA 8081B	
Dieldrin	**57.7**	---	13.4	ug/kg dry	5	05/31/24 19:13	EPA 8081B	
Endosulfan I [2C]	ND	---	13.4	ug/kg dry	5	05/31/24 19:13	EPA 8081B	
Endosulfan II	ND	---	13.4	ug/kg dry	5	05/31/24 19:13	EPA 8081B	
Endosulfan sulfate	ND	---	13.4	ug/kg dry	5	05/31/24 19:13	EPA 8081B	

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ANALYTICAL REPORT

Terraphase Engineering	Project: 7285 Long Prairie Road Property	
610 SW Broadway #406	Project Number: O053.010.002	Report ID:
Portland, OR 97205	Project Manager: James Farrow	A4E1510 - 06 10 24 1150

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBA-2-0.5-1.0 (A4E1510-22RE2)				**Matrix: Soil**		**Batch: 24E1017**		**C-05**
Endrin	ND	---	13.4	ug/kg dry	5	05/31/24 19:13	EPA 8081B	
Endrin aldehyde	ND	---	24.8	ug/kg dry	5	05/31/24 19:13	EPA 8081B	R-02
Endrin ketone	ND	---	13.4	ug/kg dry	5	05/31/24 19:13	EPA 8081B	
Heptachlor	ND	---	13.4	ug/kg dry	5	05/31/24 19:13	EPA 8081B	
Heptachlor epoxide	ND	---	13.4	ug/kg dry	5	05/31/24 19:13	EPA 8081B	
Methoxychlor [2C]	ND	---	40.2	ug/kg dry	5	05/31/24 19:13	EPA 8081B	
Chlordane (Technical)	ND	---	402	ug/kg dry	5	05/31/24 19:13	EPA 8081B	
Toxaphene (Total)	ND	---	402	ug/kg dry	5	05/31/24 19:13	EPA 8081B	
Surrogate: 2,4,5,6-TCMX (Surr)		*Recovery:*	*68 %*	*Limits: 42-129 %*	*5*	*05/31/24 19:13*	*EPA 8081B*	
Decachlorobiphenyl (Surr)			*93 %*	*55-130 %*	*5*	*05/31/24 19:13*	*EPA 8081B*	
LPR-SBA-3-0.5-1.0 (A4E1510-23RE2)				**Matrix: Soil**		**Batch: 24E1017**		**C-05**
Aldrin	ND	---	12.3	ug/kg dry	5	05/31/24 19:29	EPA 8081B	
alpha-BHC	ND	---	12.3	ug/kg dry	5	05/31/24 19:29	EPA 8081B	
beta-BHC [2C]	ND	---	12.3	ug/kg dry	5	05/31/24 19:29	EPA 8081B	
delta-BHC [2C]	ND	---	355	ug/kg dry	5	05/31/24 19:29	EPA 8081B	R-02
gamma-BHC (Lindane)	ND	---	12.3	ug/kg dry	5	05/31/24 19:29	EPA 8081B	
cis-Chlordane	ND	---	12.3	ug/kg dry	5	05/31/24 19:29	EPA 8081B	
trans-Chlordane	ND	---	12.3	ug/kg dry	5	05/31/24 19:29	EPA 8081B	
4,4'-DDD	ND	---	12.3	ug/kg dry	5	05/31/24 19:29	EPA 8081B	
4,4'-DDE	**174**	---	12.3	ug/kg dry	5	05/31/24 19:29	EPA 8081B	
4,4'-DDT	**130**	---	12.3	ug/kg dry	5	05/31/24 19:29	EPA 8081B	
Dieldrin	**54.5**	---	12.3	ug/kg dry	5	05/31/24 19:29	EPA 8081B	
Endosulfan I [2C]	ND	---	12.3	ug/kg dry	5	05/31/24 19:29	EPA 8081B	
Endosulfan II	ND	---	12.3	ug/kg dry	5	05/31/24 19:29	EPA 8081B	
Endosulfan sulfate	ND	---	12.3	ug/kg dry	5	05/31/24 19:29	EPA 8081B	
Endrin	ND	---	12.3	ug/kg dry	5	05/31/24 19:29	EPA 8081B	
Endrin aldehyde	ND	---	20.4	ug/kg dry	5	05/31/24 19:29	EPA 8081B	R-02
Endrin ketone	ND	---	12.3	ug/kg dry	5	05/31/24 19:29	EPA 8081B	
Heptachlor	ND	---	12.3	ug/kg dry	5	05/31/24 19:29	EPA 8081B	
Heptachlor epoxide	ND	---	12.3	ug/kg dry	5	05/31/24 19:29	EPA 8081B	
Methoxychlor [2C]	ND	---	37.0	ug/kg dry	5	05/31/24 19:29	EPA 8081B	
Chlordane (Technical)	ND	---	370	ug/kg dry	5	05/31/24 19:29	EPA 8081B	

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Darrell Auvil, Client Services Manager

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6700 S.W. Sandburg Street
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503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBA-3-0.5-1.0 (A4E1510-23RE2)				**Matrix: Soil**		**Batch: 24E1017**		**C-05**
Toxaphene (Total)	ND	---	370	ug/kg dry	5	05/31/24 19:29	EPA 8081B	
Surrogate: 2,4,5,6-TCMX (Surr)		*Recovery: 78 %*		*Limits: 42-129 %*	*5*	*05/31/24 19:29*	*EPA 8081B*	
Decachlorobiphenyl (Surr)			*112 %*	*55-130 %*	*5*	*05/31/24 19:29*	*EPA 8081B*	
LPR-SBA-4-0.5-1.0 (A4E1510-24RE1)				**Matrix: Soil**		**Batch: 24E1017**		**C-05**
Aldrin [2C]	ND	---	2.46	ug/kg dry	1	05/30/24 17:34	EPA 8081B	
alpha-BHC [2C]	ND	---	2.46	ug/kg dry	1	05/30/24 17:34	EPA 8081B	
beta-BHC [2C]	ND	---	2.46	ug/kg dry	1	05/30/24 17:34	EPA 8081B	
delta-BHC [2C]	ND	---	172	ug/kg dry	1	05/30/24 17:34	EPA 8081B	R-02
gamma-BHC (Lindane)	ND	---	2.46	ug/kg dry	1	05/30/24 17:34	EPA 8081B	
cis-Chlordane	ND	---	2.46	ug/kg dry	1	05/30/24 17:34	EPA 8081B	
trans-Chlordane [2C]	ND	---	2.46	ug/kg dry	1	05/30/24 17:34	EPA 8081B	
4,4'-DDD [2C]	ND	---	4.79	ug/kg dry	1	05/30/24 17:34	EPA 8081B	R-02
4,4'-DDE	**152**	---	2.46	ug/kg dry	1	05/30/24 17:34	EPA 8081B	
Dieldrin	**52.0**	---	2.46	ug/kg dry	1	05/30/24 17:34	EPA 8081B	
Endosulfan I [2C]	ND	---	2.46	ug/kg dry	1	05/30/24 17:34	EPA 8081B	
Endosulfan II	ND	---	2.46	ug/kg dry	1	05/30/24 17:34	EPA 8081B	
Endosulfan sulfate [2C]	ND	---	2.46	ug/kg dry	1	05/30/24 17:34	EPA 8081B	
Endrin	ND	---	2.46	ug/kg dry	1	05/30/24 17:34	EPA 8081B	
Endrin aldehyde	ND	---	11.2	ug/kg dry	1	05/30/24 17:34	EPA 8081B	
Endrin ketone [2C]	ND	---	2.46	ug/kg dry	1	05/30/24 17:34	EPA 8081B	
Heptachlor [2C]	ND	---	2.46	ug/kg dry	1	05/30/24 17:34	EPA 8081B	
Heptachlor epoxide [2C]	ND	---	2.46	ug/kg dry	1	05/30/24 17:34	EPA 8081B	
Methoxychlor [2C]	ND	---	13.8	ug/kg dry	1	05/30/24 17:34	EPA 8081B	R-02
Chlordane (Technical) [2C]	ND	---	73.7	ug/kg dry	1	05/30/24 17:34	EPA 8081B	
Toxaphene (Total) [2C]	ND	---	73.7	ug/kg dry	1	05/30/24 17:34	EPA 8081B	
Surrogate: 2,4,5,6-TCMX (Surr)		*Recovery: 54 %*		*Limits: 42-129 %*	*1*	*05/30/24 17:34*	*EPA 8081B*	
Decachlorobiphenyl (Surr)			*83 %*	*55-130 %*	*1*	*05/30/24 17:34*	*EPA 8081B*	
LPR-SBA-4-0.5-1.0 (A4E1510-24RE2)				**Matrix: Soil**		**Batch: 24E1017**		**C-05**
4,4'-DDT	**156**	---	4.91	ug/kg dry	2	05/31/24 19:46	EPA 8081B	
LPR-SBA-5-0.5-1.0 (A4E1510-25RE1)				**Matrix: Soil**		**Batch: 24E1017**		**C-05**
Aldrin [2C]	ND	---	2.49	ug/kg dry	1	05/30/24 17:51	EPA 8081B	

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ORELAP ID: OR100062

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBA-5-0.5-1.0 (A4E1510-25RE1)				**Matrix: Soil**		**Batch: 24E1017**		**C-05**
alpha-BHC [2C]	ND	---	2.49	ug/kg dry	1	05/30/24 17:51	EPA 8081B	
beta-BHC [2C]	ND	---	2.49	ug/kg dry	1	05/30/24 17:51	EPA 8081B	
delta-BHC	ND	---	212	ug/kg dry	1	05/30/24 17:51	EPA 8081B	R-02, Q-42
gamma-BHC (Lindane)	ND	---	2.49	ug/kg dry	1	05/30/24 17:51	EPA 8081B	
cis-Chlordane	ND	---	2.49	ug/kg dry	1	05/30/24 17:51	EPA 8081B	
trans-Chlordane [2C]	ND	---	2.49	ug/kg dry	1	05/30/24 17:51	EPA 8081B	
4,4'-DDD [2C]	ND	---	3.11	ug/kg dry	1	05/30/24 17:51	EPA 8081B	R-02
4,4'-DDE	**125**	---	2.49	ug/kg dry	1	05/30/24 17:51	EPA 8081B	
Dieldrin	**45.8**	---	2.49	ug/kg dry	1	05/30/24 17:51	EPA 8081B	
Endosulfan I [2C]	ND	---	2.49	ug/kg dry	1	05/30/24 17:51	EPA 8081B	
Endosulfan II [2C]	ND	---	2.49	ug/kg dry	1	05/30/24 17:51	EPA 8081B	
Endosulfan sulfate [2C]	ND	---	2.49	ug/kg dry	1	05/30/24 17:51	EPA 8081B	
Endrin	ND	---	2.49	ug/kg dry	1	05/30/24 17:51	EPA 8081B	
Endrin aldehyde	ND	---	15.6	ug/kg dry	1	05/30/24 17:51	EPA 8081B	R-02
Endrin ketone [2C]	ND	---	2.49	ug/kg dry	1	05/30/24 17:51	EPA 8081B	
Heptachlor [2C]	ND	---	2.49	ug/kg dry	1	05/30/24 17:51	EPA 8081B	
Heptachlor epoxide [2C]	ND	---	2.49	ug/kg dry	1	05/30/24 17:51	EPA 8081B	
Methoxychlor [2C]	ND	---	7.47	ug/kg dry	1	05/30/24 17:51	EPA 8081B	
Chlordane (Technical) [2C]	ND	---	74.7	ug/kg dry	1	05/30/24 17:51	EPA 8081B	
Toxaphene (Total) [2C]	ND	---	74.7	ug/kg dry	1	05/30/24 17:51	EPA 8081B	
Surrogate: 2,4,5,6-TCMX (Surr)		*Recovery:*	*57 %*	*Limits: 42-129 %*	*1*	*05/30/24 17:51*	*EPA 8081B*	
Decachlorobiphenyl (Surr)			*84 %*	*55-130 %*	*1*	*05/30/24 17:51*	*EPA 8081B*	
LPR-SBA-5-0.5-1.0 (A4E1510-25RE2)				**Matrix: Soil**		**Batch: 24E1017**		**C-05**
4,4'-DDT	**102**	---	2.49	ug/kg dry	1	05/31/24 20:02	EPA 8081B	

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ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBUST-1-GW-10-15 (A4E1510-01)				**Matrix: Water**		**Batch: 24E0839**		
Acenaphthene	ND	---	0.0548	ug/L	1	05/23/24 17:13	EPA 8270E SIM	
Acenaphthylene	ND	---	0.0548	ug/L	1	05/23/24 17:13	EPA 8270E SIM	
Anthracene	ND	---	0.0548	ug/L	1	05/23/24 17:13	EPA 8270E SIM	
Benz(a)anthracene	ND	---	0.0548	ug/L	1	05/23/24 17:13	EPA 8270E SIM	
Benzo(a)pyrene	ND	---	0.0548	ug/L	1	05/23/24 17:13	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	0.0548	ug/L	1	05/23/24 17:13	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	0.0548	ug/L	1	05/23/24 17:13	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	0.0548	ug/L	1	05/23/24 17:13	EPA 8270E SIM	
Chrysene	ND	---	0.0548	ug/L	1	05/23/24 17:13	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	0.0548	ug/L	1	05/23/24 17:13	EPA 8270E SIM	
Fluoranthene	ND	---	0.0548	ug/L	1	05/23/24 17:13	EPA 8270E SIM	
Fluorene	ND	---	0.0548	ug/L	1	05/23/24 17:13	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	0.0548	ug/L	1	05/23/24 17:13	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	0.110	ug/L	1	05/23/24 17:13	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	0.110	ug/L	1	05/23/24 17:13	EPA 8270E SIM	
Naphthalene	ND	---	0.110	ug/L	1	05/23/24 17:13	EPA 8270E SIM	
Phenanthrene	ND	---	0.0548	ug/L	1	05/23/24 17:13	EPA 8270E SIM	
Pyrene	ND	---	0.0548	ug/L	1	05/23/24 17:13	EPA 8270E SIM	
Dibenzofuran	ND	---	0.0548	ug/L	1	05/23/24 17:13	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		*Recovery:*	*57 %*	*Limits: 44-120 %*	*1*	*05/23/24 17:13*	*EPA 8270E SIM*	
p-Terphenyl-d14 (Surr)			*51 %*	*50-134 %*	*1*	*05/23/24 17:13*	*EPA 8270E SIM*	
LPR-SBUST-2-GW-10-15 (A4E1510-02)				**Matrix: Water**		**Batch: 24E0839**		
Acenaphthene	ND	---	0.0435	ug/L	1	05/23/24 17:38	EPA 8270E SIM	
Acenaphthylene	ND	---	0.0435	ug/L	1	05/23/24 17:38	EPA 8270E SIM	
Anthracene	ND	---	0.0435	ug/L	1	05/23/24 17:38	EPA 8270E SIM	
Benz(a)anthracene	ND	---	0.0435	ug/L	1	05/23/24 17:38	EPA 8270E SIM	
Benzo(a)pyrene	ND	---	0.0435	ug/L	1	05/23/24 17:38	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	0.0435	ug/L	1	05/23/24 17:38	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	0.0435	ug/L	1	05/23/24 17:38	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	0.0435	ug/L	1	05/23/24 17:38	EPA 8270E SIM	
Chrysene	ND	---	0.0435	ug/L	1	05/23/24 17:38	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	0.0435	ug/L	1	05/23/24 17:38	EPA 8270E SIM	

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Darrell Auvil, Client Services Manager

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ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBUST-2-GW-10-15 (A4E1510-02)				**Matrix: Water**		**Batch: 24E0839**		
Fluoranthene	ND	---	0.0435	ug/L	1	05/23/24 17:38	EPA 8270E SIM	
Fluorene	ND	---	0.0435	ug/L	1	05/23/24 17:38	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	0.0435	ug/L	1	05/23/24 17:38	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	0.0870	ug/L	1	05/23/24 17:38	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	0.0870	ug/L	1	05/23/24 17:38	EPA 8270E SIM	
Naphthalene	ND	---	0.0870	ug/L	1	05/23/24 17:38	EPA 8270E SIM	
Phenanthrene	ND	---	0.0435	ug/L	1	05/23/24 17:38	EPA 8270E SIM	
Pyrene	ND	---	0.0435	ug/L	1	05/23/24 17:38	EPA 8270E SIM	
Dibenzofuran	ND	---	0.0435	ug/L	1	05/23/24 17:38	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		*Recovery:*	*57 %*	*Limits: 44-120 %*	*1*	*05/23/24 17:38*	*EPA 8270E SIM*	
p-Terphenyl-d14 (Surr)			*62 %*	*50-134 %*	*1*	*05/23/24 17:38*	*EPA 8270E SIM*	
LPR-SBUST-3-GW-14 (A4E1510-03)				**Matrix: Water**		**Batch: 24E0839**		
Acenaphthene	ND	---	0.0476	ug/L	1	05/23/24 18:04	EPA 8270E SIM	
Acenaphthylene	ND	---	0.0476	ug/L	1	05/23/24 18:04	EPA 8270E SIM	
Anthracene	ND	---	0.0476	ug/L	1	05/23/24 18:04	EPA 8270E SIM	
Benz(a)anthracene	ND	---	0.0476	ug/L	1	05/23/24 18:04	EPA 8270E SIM	
Benzo(a)pyrene	ND	---	0.0476	ug/L	1	05/23/24 18:04	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	0.0476	ug/L	1	05/23/24 18:04	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	0.0476	ug/L	1	05/23/24 18:04	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	0.0476	ug/L	1	05/23/24 18:04	EPA 8270E SIM	
Chrysene	ND	---	0.0476	ug/L	1	05/23/24 18:04	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	0.0476	ug/L	1	05/23/24 18:04	EPA 8270E SIM	
Fluoranthene	ND	---	0.0476	ug/L	1	05/23/24 18:04	EPA 8270E SIM	
Fluorene	ND	---	0.0476	ug/L	1	05/23/24 18:04	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	0.0476	ug/L	1	05/23/24 18:04	EPA 8270E SIM	
1-Methylnaphthalene	**0.440**	---	0.0952	ug/L	1	05/23/24 18:04	EPA 8270E SIM	
2-Methylnaphthalene	**0.515**	---	0.0952	ug/L	1	05/23/24 18:04	EPA 8270E SIM	
Naphthalene	**0.484**	---	0.0952	ug/L	1	05/23/24 18:04	EPA 8270E SIM	
Phenanthrene	ND	---	0.0476	ug/L	1	05/23/24 18:04	EPA 8270E SIM	
Pyrene	ND	---	0.0476	ug/L	1	05/23/24 18:04	EPA 8270E SIM	
Dibenzofuran	ND	---	0.0476	ug/L	1	05/23/24 18:04	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		*Recovery:*	*49 %*	*Limits: 44-120 %*	*1*	*05/23/24 18:04*	*EPA 8270E SIM*	

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ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBUST-3-GW-14 (A4E1510-03)				**Matrix: Water**		**Batch: 24E0839**		
Surrogate: p-Terphenyl-d14 (Surr)			*Recovery: 53 %*	*Limits: 50-134 %*	*1*	*05/23/24 18:04*	*EPA 8270E SIM*	
LPR-SBUST-3-GW-14-DUP (A4E1510-04)				**Matrix: Water**		**Batch: 24E0839**		
Acenaphthene	ND	---	0.0444	ug/L	1	05/23/24 18:29	EPA 8270E SIM	
Acenaphthylene	ND	---	0.0444	ug/L	1	05/23/24 18:29	EPA 8270E SIM	
Anthracene	ND	---	0.0444	ug/L	1	05/23/24 18:29	EPA 8270E SIM	
Benz(a)anthracene	ND	---	0.0444	ug/L	1	05/23/24 18:29	EPA 8270E SIM	
Benzo(a)pyrene	ND	---	0.0444	ug/L	1	05/23/24 18:29	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	0.0444	ug/L	1	05/23/24 18:29	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	0.0444	ug/L	1	05/23/24 18:29	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	0.0444	ug/L	1	05/23/24 18:29	EPA 8270E SIM	
Chrysene	ND	---	0.0444	ug/L	1	05/23/24 18:29	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	0.0444	ug/L	1	05/23/24 18:29	EPA 8270E SIM	
Fluoranthene	ND	---	0.0444	ug/L	1	05/23/24 18:29	EPA 8270E SIM	
Fluorene	ND	---	0.0444	ug/L	1	05/23/24 18:29	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	0.0444	ug/L	1	05/23/24 18:29	EPA 8270E SIM	
1-Methylnaphthalene	**0.398**	---	0.0889	ug/L	1	05/23/24 18:29	EPA 8270E SIM	
2-Methylnaphthalene	**0.414**	---	0.0889	ug/L	1	05/23/24 18:29	EPA 8270E SIM	
Naphthalene	**0.435**	---	0.0889	ug/L	1	05/23/24 18:29	EPA 8270E SIM	
Phenanthrene	ND	---	0.0444	ug/L	1	05/23/24 18:29	EPA 8270E SIM	
Pyrene	ND	---	0.0444	ug/L	1	05/23/24 18:29	EPA 8270E SIM	
Dibenzofuran	ND	---	0.0444	ug/L	1	05/23/24 18:29	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 59 %*	*Limits: 44-120 %*	*1*	*05/23/24 18:29*	*EPA 8270E SIM*	
p-Terphenyl-d14 (Surr)			*58 %*	*50-134 %*	*1*	*05/23/24 18:29*	*EPA 8270E SIM*	
LPR-SBUST-EB-20240520 (A4E1510-05)				**Matrix: Water**		**Batch: 24E0839**		
Acenaphthene	ND	---	0.0580	ug/L	1	05/23/24 18:54	EPA 8270E SIM	
Acenaphthylene	ND	---	0.0580	ug/L	1	05/23/24 18:54	EPA 8270E SIM	
Anthracene	ND	---	0.0580	ug/L	1	05/23/24 18:54	EPA 8270E SIM	
Benz(a)anthracene	ND	---	0.0580	ug/L	1	05/23/24 18:54	EPA 8270E SIM	
Benzo(a)pyrene	ND	---	0.0580	ug/L	1	05/23/24 18:54	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	0.0580	ug/L	1	05/23/24 18:54	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	0.0580	ug/L	1	05/23/24 18:54	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	0.0580	ug/L	1	05/23/24 18:54	EPA 8270E SIM	

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Darrell Auvil, Client Services Manager

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503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBUST-EB-20240520 (A4E1510-05)				**Matrix: Water**		**Batch: 24E0839**		
Chrysene	ND	---	0.0580	ug/L	1	05/23/24 18:54	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	0.0580	ug/L	1	05/23/24 18:54	EPA 8270E SIM	
Fluoranthene	ND	---	0.0580	ug/L	1	05/23/24 18:54	EPA 8270E SIM	
Fluorene	ND	---	0.0580	ug/L	1	05/23/24 18:54	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	0.0580	ug/L	1	05/23/24 18:54	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	0.116	ug/L	1	05/23/24 18:54	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	0.116	ug/L	1	05/23/24 18:54	EPA 8270E SIM	
Naphthalene	ND	---	0.116	ug/L	1	05/23/24 18:54	EPA 8270E SIM	
Phenanthrene	ND	---	0.0580	ug/L	1	05/23/24 18:54	EPA 8270E SIM	
Pyrene	ND	---	0.0580	ug/L	1	05/23/24 18:54	EPA 8270E SIM	
Dibenzofuran	ND	---	0.0580	ug/L	1	05/23/24 18:54	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		*Recovery:*	*64 %*	*Limits: 44-120 %*	*1*	*05/23/24 18:54*	*EPA 8270E SIM*	
p-Terphenyl-d14 (Surr)			*72 %*	*50-134 %*	*1*	*05/23/24 18:54*	*EPA 8270E SIM*	
LPR-SBUST-1-5.0-7.5 (A4E1510-06)				**Matrix: Soil**		**Batch: 24E0823**		
Acenaphthene	ND	---	12.7	ug/kg dry	1	05/23/24 19:45	EPA 8270E SIM	
Acenaphthylene	ND	---	12.7	ug/kg dry	1	05/23/24 19:45	EPA 8270E SIM	
Anthracene	ND	---	12.7	ug/kg dry	1	05/23/24 19:45	EPA 8270E SIM	
Benz(a)anthracene	ND	---	12.7	ug/kg dry	1	05/23/24 19:45	EPA 8270E SIM	
Benzo(a)pyrene	ND	---	12.7	ug/kg dry	1	05/23/24 19:45	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	12.7	ug/kg dry	1	05/23/24 19:45	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	12.7	ug/kg dry	1	05/23/24 19:45	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	12.7	ug/kg dry	1	05/23/24 19:45	EPA 8270E SIM	
Chrysene	ND	---	12.7	ug/kg dry	1	05/23/24 19:45	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	12.7	ug/kg dry	1	05/23/24 19:45	EPA 8270E SIM	
Fluoranthene	ND	---	12.7	ug/kg dry	1	05/23/24 19:45	EPA 8270E SIM	
Fluorene	ND	---	12.7	ug/kg dry	1	05/23/24 19:45	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	12.7	ug/kg dry	1	05/23/24 19:45	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	12.7	ug/kg dry	1	05/23/24 19:45	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	12.7	ug/kg dry	1	05/23/24 19:45	EPA 8270E SIM	
Naphthalene	ND	---	12.7	ug/kg dry	1	05/23/24 19:45	EPA 8270E SIM	
Phenanthrene	ND	---	12.7	ug/kg dry	1	05/23/24 19:45	EPA 8270E SIM	
Pyrene	ND	---	12.7	ug/kg dry	1	05/23/24 19:45	EPA 8270E SIM	

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ORELAP ID: **OR100062**

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBUST-1-5.0-7.5 (A4E1510-06)				**Matrix: Soil**		**Batch: 24E0823**		
Dibenzofuran	ND	---	12.7	ug/kg dry	1	05/23/24 19:45	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		*Recovery: 72 %*		*Limits: 44-120 %*	*1*	*05/23/24 19:45*	*EPA 8270E SIM*	
p-Terphenyl-d14 (Surr)			*59 %*	*54-127 %*	*1*	*05/23/24 19:45*	*EPA 8270E SIM*	
LPR-SBUST-1-7.5-10.0 (A4E1510-07)				**Matrix: Soil**		**Batch: 24E0823**		
Acenaphthene	ND	---	11.3	ug/kg dry	1	05/23/24 20:10	EPA 8270E SIM	
Acenaphthylene	ND	---	11.3	ug/kg dry	1	05/23/24 20:10	EPA 8270E SIM	
Anthracene	ND	---	11.3	ug/kg dry	1	05/23/24 20:10	EPA 8270E SIM	
Benz(a)anthracene	ND	---	11.3	ug/kg dry	1	05/23/24 20:10	EPA 8270E SIM	
Benzo(a)pyrene	ND	---	11.3	ug/kg dry	1	05/23/24 20:10	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	11.3	ug/kg dry	1	05/23/24 20:10	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	11.3	ug/kg dry	1	05/23/24 20:10	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	11.3	ug/kg dry	1	05/23/24 20:10	EPA 8270E SIM	
Chrysene	ND	---	11.3	ug/kg dry	1	05/23/24 20:10	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	11.3	ug/kg dry	1	05/23/24 20:10	EPA 8270E SIM	
Fluoranthene	ND	---	11.3	ug/kg dry	1	05/23/24 20:10	EPA 8270E SIM	
Fluorene	ND	---	11.3	ug/kg dry	1	05/23/24 20:10	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	11.3	ug/kg dry	1	05/23/24 20:10	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	11.3	ug/kg dry	1	05/23/24 20:10	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	11.3	ug/kg dry	1	05/23/24 20:10	EPA 8270E SIM	
Naphthalene	ND	---	11.3	ug/kg dry	1	05/23/24 20:10	EPA 8270E SIM	
Phenanthrene	ND	---	11.3	ug/kg dry	1	05/23/24 20:10	EPA 8270E SIM	
Pyrene	ND	---	11.3	ug/kg dry	1	05/23/24 20:10	EPA 8270E SIM	
Dibenzofuran	ND	---	11.3	ug/kg dry	1	05/23/24 20:10	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		*Recovery: 79 %*		*Limits: 44-120 %*	*1*	*05/23/24 20:10*	*EPA 8270E SIM*	
p-Terphenyl-d14 (Surr)			*68 %*	*54-127 %*	*1*	*05/23/24 20:10*	*EPA 8270E SIM*	
LPR-SBUST-2-5.0-7.5 (A4E1510-08RE1)				**Matrix: Soil**		**Batch: 24E0962**		
Acenaphthene	ND	---	11.9	ug/kg dry	1	05/28/24 16:54	EPA 8270E SIM	
Acenaphthylene	ND	---	11.9	ug/kg dry	1	05/28/24 16:54	EPA 8270E SIM	
Anthracene	ND	---	11.9	ug/kg dry	1	05/28/24 16:54	EPA 8270E SIM	
Benz(a)anthracene	ND	---	11.9	ug/kg dry	1	05/28/24 16:54	EPA 8270E SIM	
Benzo(a)pyrene	ND	---	11.9	ug/kg dry	1	05/28/24 16:54	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	11.9	ug/kg dry	1	05/28/24 16:54	EPA 8270E SIM	

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Darrell Auvil, Client Services Manager

APEX LABORATORIES

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ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBUST-2-5.0-7.5 (A4E1510-08RE1)				**Matrix: Soil**		**Batch: 24E0962**		
Benzo(k)fluoranthene	ND	---	11.9	ug/kg dry	1	05/28/24 16:54	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	11.9	ug/kg dry	1	05/28/24 16:54	EPA 8270E SIM	
Chrysene	ND	---	11.9	ug/kg dry	1	05/28/24 16:54	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	11.9	ug/kg dry	1	05/28/24 16:54	EPA 8270E SIM	
Fluoranthene	ND	---	11.9	ug/kg dry	1	05/28/24 16:54	EPA 8270E SIM	
Fluorene	ND	---	11.9	ug/kg dry	1	05/28/24 16:54	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	11.9	ug/kg dry	1	05/28/24 16:54	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	11.9	ug/kg dry	1	05/28/24 16:54	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	11.9	ug/kg dry	1	05/28/24 16:54	EPA 8270E SIM	
Naphthalene	ND	---	11.9	ug/kg dry	1	05/28/24 16:54	EPA 8270E SIM	
Phenanthrene	ND	---	11.9	ug/kg dry	1	05/28/24 16:54	EPA 8270E SIM	
Pyrene	ND	---	11.9	ug/kg dry	1	05/28/24 16:54	EPA 8270E SIM	
Dibenzofuran	ND	---	11.9	ug/kg dry	1	05/28/24 16:54	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		*Recovery:*	*75 %*	*Limits: 44-120 %*	*1*	*05/28/24 16:54*	*EPA 8270E SIM*	
p-Terphenyl-d14 (Surr)			*65 %*	*54-127 %*	*1*	*05/28/24 16:54*	*EPA 8270E SIM*	
LPR-SBUST-2-7.5-10.0 (A4E1510-09)				**Matrix: Soil**		**Batch: 24E0823**		
Acenaphthene	ND	---	12.6	ug/kg dry	1	05/23/24 21:00	EPA 8270E SIM	
Acenaphthylene	ND	---	12.6	ug/kg dry	1	05/23/24 21:00	EPA 8270E SIM	
Anthracene	ND	---	12.6	ug/kg dry	1	05/23/24 21:00	EPA 8270E SIM	
Benz(a)anthracene	ND	---	12.6	ug/kg dry	1	05/23/24 21:00	EPA 8270E SIM	
Benzo(a)pyrene	ND	---	12.6	ug/kg dry	1	05/23/24 21:00	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	12.6	ug/kg dry	1	05/23/24 21:00	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	12.6	ug/kg dry	1	05/23/24 21:00	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	12.6	ug/kg dry	1	05/23/24 21:00	EPA 8270E SIM	
Chrysene	ND	---	12.6	ug/kg dry	1	05/23/24 21:00	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	12.6	ug/kg dry	1	05/23/24 21:00	EPA 8270E SIM	
Fluoranthene	ND	---	12.6	ug/kg dry	1	05/23/24 21:00	EPA 8270E SIM	
Fluorene	ND	---	12.6	ug/kg dry	1	05/23/24 21:00	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	12.6	ug/kg dry	1	05/23/24 21:00	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	12.6	ug/kg dry	1	05/23/24 21:00	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	12.6	ug/kg dry	1	05/23/24 21:00	EPA 8270E SIM	
Naphthalene	ND	---	12.6	ug/kg dry	1	05/23/24 21:00	EPA 8270E SIM	

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Darrell Auvil, Client Services Manager

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ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBUST-2-7.5-10.0 (A4E1510-09)				**Matrix: Soil**		**Batch: 24E0823**		
Phenanthrene	ND	---	12.6	ug/kg dry	1	05/23/24 21:00	EPA 8270E SIM	
Pyrene	ND	---	12.6	ug/kg dry	1	05/23/24 21:00	EPA 8270E SIM	
Dibenzofuran	ND	---	12.6	ug/kg dry	1	05/23/24 21:00	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		*Recovery: 79 %*		*Limits: 44-120 %*	*1*	*05/23/24 21:00*	*EPA 8270E SIM*	
p-Terphenyl-d14 (Surr)			*68 %*	*54-127 %*	*1*	*05/23/24 21:00*	*EPA 8270E SIM*	
LPR-SBUST-3-5.0-8.0 (A4E1510-10)				**Matrix: Soil**		**Batch: 24E0823**		
Acenaphthene	ND	---	12.7	ug/kg dry	1	05/23/24 21:25	EPA 8270E SIM	
Acenaphthylene	ND	---	30.5	ug/kg dry	1	05/23/24 21:25	EPA 8270E SIM	R-02
Anthracene	ND	---	12.7	ug/kg dry	1	05/23/24 21:25	EPA 8270E SIM	
Benz(a)anthracene	ND	---	12.7	ug/kg dry	1	05/23/24 21:25	EPA 8270E SIM	
Benzo(a)pyrene	ND	---	12.7	ug/kg dry	1	05/23/24 21:25	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	12.7	ug/kg dry	1	05/23/24 21:25	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	12.7	ug/kg dry	1	05/23/24 21:25	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	12.7	ug/kg dry	1	05/23/24 21:25	EPA 8270E SIM	
Chrysene	ND	---	35.6	ug/kg dry	1	05/23/24 21:25	EPA 8270E SIM	R-02
Dibenz(a,h)anthracene	ND	---	12.7	ug/kg dry	1	05/23/24 21:25	EPA 8270E SIM	
Fluoranthene	ND	---	12.7	ug/kg dry	1	05/23/24 21:25	EPA 8270E SIM	
Fluorene	ND	---	12.7	ug/kg dry	1	05/23/24 21:25	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	12.7	ug/kg dry	1	05/23/24 21:25	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	12.7	ug/kg dry	1	05/23/24 21:25	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	12.7	ug/kg dry	1	05/23/24 21:25	EPA 8270E SIM	
Naphthalene	ND	---	12.7	ug/kg dry	1	05/23/24 21:25	EPA 8270E SIM	
Phenanthrene	ND	---	35.6	ug/kg dry	1	05/23/24 21:25	EPA 8270E SIM	R-02
Pyrene	ND	---	12.7	ug/kg dry	1	05/23/24 21:25	EPA 8270E SIM	
Dibenzofuran	ND	---	12.7	ug/kg dry	1	05/23/24 21:25	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		*Recovery: 81 %*		*Limits: 44-120 %*	*1*	*05/23/24 21:25*	*EPA 8270E SIM*	
p-Terphenyl-d14 (Surr)			*74 %*	*54-127 %*	*1*	*05/23/24 21:25*	*EPA 8270E SIM*	
LPR-SBUST-3-5.0-8.0-DUP (A4E1510-11)				**Matrix: Soil**		**Batch: 24E0823**		
Acenaphthene	ND	---	12.1	ug/kg dry	1	05/23/24 21:50	EPA 8270E SIM	
Acenaphthylene	ND	---	12.1	ug/kg dry	1	05/23/24 21:50	EPA 8270E SIM	
Anthracene	ND	---	12.1	ug/kg dry	1	05/23/24 21:50	EPA 8270E SIM	
Benz(a)anthracene	ND	---	12.1	ug/kg dry	1	05/23/24 21:50	EPA 8270E SIM	

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ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBUST-3-5.0-8.0-DUP (A4E1510-11)				**Matrix: Soil**		**Batch: 24E0823**		
Benzo(a)pyrene	ND	---	12.1	ug/kg dry	1	05/23/24 21:50	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	12.1	ug/kg dry	1	05/23/24 21:50	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	12.1	ug/kg dry	1	05/23/24 21:50	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	12.1	ug/kg dry	1	05/23/24 21:50	EPA 8270E SIM	
Chrysene	ND	---	12.1	ug/kg dry	1	05/23/24 21:50	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	12.1	ug/kg dry	1	05/23/24 21:50	EPA 8270E SIM	
Fluoranthene	ND	---	12.1	ug/kg dry	1	05/23/24 21:50	EPA 8270E SIM	
Fluorene	ND	---	12.1	ug/kg dry	1	05/23/24 21:50	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	12.1	ug/kg dry	1	05/23/24 21:50	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	12.1	ug/kg dry	1	05/23/24 21:50	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	12.1	ug/kg dry	1	05/23/24 21:50	EPA 8270E SIM	
Naphthalene	ND	---	12.1	ug/kg dry	1	05/23/24 21:50	EPA 8270E SIM	
Phenanthrene	ND	---	12.1	ug/kg dry	1	05/23/24 21:50	EPA 8270E SIM	
Pyrene	ND	---	12.1	ug/kg dry	1	05/23/24 21:50	EPA 8270E SIM	
Dibenzofuran	ND	---	12.1	ug/kg dry	1	05/23/24 21:50	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		*Recovery:*	*83 %*	*Limits: 44-120 %*	*1*	*05/23/24 21:50*	*EPA 8270E SIM*	
p-Terphenyl-d14 (Surr)			*74 %*	*54-127 %*	*1*	*05/23/24 21:50*	*EPA 8270E SIM*	
LPR-SBUST-3-8-10 (A4E1510-12)				**Matrix: Soil**		**Batch: 24E0823**		
Acenaphthene	ND	---	12.4	ug/kg dry	1	05/23/24 22:15	EPA 8270E SIM	
Acenaphthylene	ND	---	33.4	ug/kg dry	1	05/23/24 22:15	EPA 8270E SIM	R-02
Anthracene	ND	---	12.4	ug/kg dry	1	05/23/24 22:15	EPA 8270E SIM	
Benz(a)anthracene	ND	---	50.8	ug/kg dry	1	05/23/24 22:15	EPA 8270E SIM	R-02
Benzo(a)pyrene	ND	---	12.4	ug/kg dry	1	05/23/24 22:15	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	12.4	ug/kg dry	1	05/23/24 22:15	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	12.4	ug/kg dry	1	05/23/24 22:15	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	12.4	ug/kg dry	1	05/23/24 22:15	EPA 8270E SIM	
Chrysene	ND	---	55.7	ug/kg dry	1	05/23/24 22:15	EPA 8270E SIM	R-02
Dibenz(a,h)anthracene	ND	---	12.4	ug/kg dry	1	05/23/24 22:15	EPA 8270E SIM	
Fluoranthene	ND	---	12.4	ug/kg dry	1	05/23/24 22:15	EPA 8270E SIM	
Fluorene	ND	---	18.6	ug/kg dry	1	05/23/24 22:15	EPA 8270E SIM	R-02
Indeno(1,2,3-cd)pyrene	ND	---	12.4	ug/kg dry	1	05/23/24 22:15	EPA 8270E SIM	
1-Methylnaphthalene	**85.0**	---	12.4	ug/kg dry	1	05/23/24 22:15	EPA 8270E SIM	

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Darrell Auvil, Client Services Manager

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ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBUST-3-8-10 (A4E1510-12)				**Matrix: Soil**		**Batch: 24E0823**		
2-Methylnaphthalene	**101**	---	12.4	ug/kg dry	1	05/23/24 22:15	EPA 8270E SIM	
Naphthalene	**68.4**	---	12.4	ug/kg dry	1	05/23/24 22:15	EPA 8270E SIM	**M-04**
Phenanthrene	**66.8**	---	12.4	ug/kg dry	1	05/23/24 22:15	EPA 8270E SIM	
Pyrene	**25.1**	---	12.4	ug/kg dry	1	05/23/24 22:15	EPA 8270E SIM	
Dibenzofuran	ND	---	47.0	ug/kg dry	1	05/23/24 22:15	EPA 8270E SIM	R-02
Surrogate: 2-Fluorobiphenyl (Surr)		*Recovery:*	*78 %*	*Limits: 44-120 %*	*1*	*05/23/24 22:15*	*EPA 8270E SIM*	
p-Terphenyl-d14 (Surr)			*70 %*	*54-127 %*	*1*	*05/23/24 22:15*	*EPA 8270E SIM*	
LPR-SBFA-1-0.5-1.0 (A4E1510-13)				**Matrix: Soil**		**Batch: 24E0823**		
Acenaphthene	ND	---	12.2	ug/kg dry	1	05/24/24 19:14	EPA 8270E SIM	
Acenaphthylene	ND	---	12.2	ug/kg dry	1	05/24/24 19:14	EPA 8270E SIM	
Anthracene	ND	---	12.2	ug/kg dry	1	05/24/24 19:14	EPA 8270E SIM	
Benz(a)anthracene	ND	---	19.5	ug/kg dry	1	05/24/24 19:14	EPA 8270E SIM	R-02
Benzo(a)pyrene	ND	---	12.2	ug/kg dry	1	05/24/24 19:14	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	12.2	ug/kg dry	1	05/24/24 19:14	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	12.2	ug/kg dry	1	05/24/24 19:14	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	12.2	ug/kg dry	1	05/24/24 19:14	EPA 8270E SIM	
Chrysene	ND	---	22.0	ug/kg dry	1	05/24/24 19:14	EPA 8270E SIM	R-02
Dibenz(a,h)anthracene	ND	---	12.2	ug/kg dry	1	05/24/24 19:14	EPA 8270E SIM	
Fluoranthene	ND	---	12.2	ug/kg dry	1	05/24/24 19:14	EPA 8270E SIM	
Fluorene	ND	---	12.2	ug/kg dry	1	05/24/24 19:14	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	12.2	ug/kg dry	1	05/24/24 19:14	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	12.2	ug/kg dry	1	05/24/24 19:14	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	12.2	ug/kg dry	1	05/24/24 19:14	EPA 8270E SIM	
Naphthalene	ND	---	12.2	ug/kg dry	1	05/24/24 19:14	EPA 8270E SIM	
Phenanthrene	**14.1**	---	12.2	ug/kg dry	1	05/24/24 19:14	EPA 8270E SIM	
Pyrene	ND	---	12.2	ug/kg dry	1	05/24/24 19:14	EPA 8270E SIM	
Dibenzofuran	ND	---	12.2	ug/kg dry	1	05/24/24 19:14	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		*Recovery:*	*75 %*	*Limits: 44-120 %*	*1*	*05/24/24 19:14*	*EPA 8270E SIM*	
p-Terphenyl-d14 (Surr)			*65 %*	*54-127 %*	*1*	*05/24/24 19:14*	*EPA 8270E SIM*	
LPR-SBFA-2-0.5-1.0 (A4E1510-14)				**Matrix: Soil**		**Batch: 24E0823**		
Acenaphthene	ND	---	10.9	ug/kg dry	1	05/24/24 19:39	EPA 8270E SIM	
Acenaphthylene	**39.4**	---	10.9	ug/kg dry	1	05/24/24 19:39	EPA 8270E SIM	

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Darrell Auvil, Client Services Manager

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ORELAP ID: OR100062

ANALYTICAL REPORT

Terraphase Engineering	Project: 7285 Long Prairie Road Property	
610 SW Broadway #406	Project Number: O053.010.002	Report ID:
Portland, OR 97205	Project Manager: James Farrow	A4E1510 - 06 10 24 1150

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBFA-2-0.5-1.0 (A4E1510-14)				**Matrix: Soil**		**Batch: 24E0823**		
Anthracene	**70.8**	---	10.9	ug/kg dry	1	05/24/24 19:39	EPA 8270E SIM	
Benz(a)anthracene	**211**	---	10.9	ug/kg dry	1	05/24/24 19:39	EPA 8270E SIM	
Benzo(a)pyrene	**306**	---	10.9	ug/kg dry	1	05/24/24 19:39	EPA 8270E SIM	
Benzo(b)fluoranthene	**280**	---	10.9	ug/kg dry	1	05/24/24 19:39	EPA 8270E SIM	**M-05**
Benzo(k)fluoranthene	**109**	---	10.9	ug/kg dry	1	05/24/24 19:39	EPA 8270E SIM	**M-05**
Benzo(g,h,i)perylene	**154**	---	10.9	ug/kg dry	1	05/24/24 19:39	EPA 8270E SIM	
Chrysene	**277**	---	10.9	ug/kg dry	1	05/24/24 19:39	EPA 8270E SIM	
Dibenz(a,h)anthracene	**35.3**	---	10.9	ug/kg dry	1	05/24/24 19:39	EPA 8270E SIM	
Fluoranthene	**246**	---	10.9	ug/kg dry	1	05/24/24 19:39	EPA 8270E SIM	
Fluorene	ND	---	10.9	ug/kg dry	1	05/24/24 19:39	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	**166**	---	10.9	ug/kg dry	1	05/24/24 19:39	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	10.9	ug/kg dry	1	05/24/24 19:39	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	10.9	ug/kg dry	1	05/24/24 19:39	EPA 8270E SIM	
Naphthalene	**13.6**	---	10.9	ug/kg dry	1	05/24/24 19:39	EPA 8270E SIM	
Phenanthrene	**45.1**	---	10.9	ug/kg dry	1	05/24/24 19:39	EPA 8270E SIM	
Pyrene	**381**	---	10.9	ug/kg dry	1	05/24/24 19:39	EPA 8270E SIM	
Dibenzofuran	ND	---	10.9	ug/kg dry	1	05/24/24 19:39	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		*Recovery:*	*75 %*	*Limits: 44-120 %*	*1*	*05/24/24 19:39*	*EPA 8270E SIM*	
p-Terphenyl-d14 (Surr)			*64 %*	*54-127 %*	*1*	*05/24/24 19:39*	*EPA 8270E SIM*	
LPR-SBFA-3-0.5-1.0 (A4E1510-15)				**Matrix: Soil**		**Batch: 24E0823**		
Acenaphthene	ND	---	9.79	ug/kg dry	1	05/24/24 20:04	EPA 8270E SIM	
Acenaphthylene	ND	---	9.79	ug/kg dry	1	05/24/24 20:04	EPA 8270E SIM	
Anthracene	ND	---	9.79	ug/kg dry	1	05/24/24 20:04	EPA 8270E SIM	
Benz(a)anthracene	ND	---	9.79	ug/kg dry	1	05/24/24 20:04	EPA 8270E SIM	
Benzo(a)pyrene	ND	---	9.79	ug/kg dry	1	05/24/24 20:04	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	9.79	ug/kg dry	1	05/24/24 20:04	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	9.79	ug/kg dry	1	05/24/24 20:04	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	9.79	ug/kg dry	1	05/24/24 20:04	EPA 8270E SIM	
Chrysene	ND	---	9.79	ug/kg dry	1	05/24/24 20:04	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	9.79	ug/kg dry	1	05/24/24 20:04	EPA 8270E SIM	
Fluoranthene	ND	---	9.79	ug/kg dry	1	05/24/24 20:04	EPA 8270E SIM	
Fluorene	ND	---	9.79	ug/kg dry	1	05/24/24 20:04	EPA 8270E SIM	

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ORELAP ID: **OR100062**

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBFA-3-0.5-1.0 (A4E1510-15)				**Matrix: Soil**		**Batch: 24E0823**		
Indeno(1,2,3-cd)pyrene	ND	---	9.79	ug/kg dry	1	05/24/24 20:04	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	9.79	ug/kg dry	1	05/24/24 20:04	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	9.79	ug/kg dry	1	05/24/24 20:04	EPA 8270E SIM	
Naphthalene	ND	---	9.79	ug/kg dry	1	05/24/24 20:04	EPA 8270E SIM	
Phenanthrene	ND	---	9.79	ug/kg dry	1	05/24/24 20:04	EPA 8270E SIM	
Pyrene	ND	---	9.79	ug/kg dry	1	05/24/24 20:04	EPA 8270E SIM	
Dibenzofuran	ND	---	9.79	ug/kg dry	1	05/24/24 20:04	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		*Recovery:*	*84 %*	*Limits: 44-120 %*	*1*	*05/24/24 20:04*	*EPA 8270E SIM*	
p-Terphenyl-d14 (Surr)			*76 %*	*54-127 %*	*1*	*05/24/24 20:04*	*EPA 8270E SIM*	
LPR-SBFA-4-0.5-1.0 (A4E1510-16)				**Matrix: Soil**		**Batch: 24E0823**		
Acenaphthene	ND	---	11.8	ug/kg dry	1	05/24/24 20:30	EPA 8270E SIM	
Acenaphthylene	ND	---	11.8	ug/kg dry	1	05/24/24 20:30	EPA 8270E SIM	
Anthracene	ND	---	11.8	ug/kg dry	1	05/24/24 20:30	EPA 8270E SIM	
Benz(a)anthracene	**17.1**	---	11.8	ug/kg dry	1	05/24/24 20:30	EPA 8270E SIM	
Benzo(a)pyrene	**30.6**	---	11.8	ug/kg dry	1	05/24/24 20:30	EPA 8270E SIM	
Benzo(b)fluoranthene	**39.8**	---	11.8	ug/kg dry	1	05/24/24 20:30	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	11.8	ug/kg dry	1	05/24/24 20:30	EPA 8270E SIM	
Benzo(g,h,i)perylene	**36.9**	---	11.8	ug/kg dry	1	05/24/24 20:30	EPA 8270E SIM	
Chrysene	**36.1**	---	11.8	ug/kg dry	1	05/24/24 20:30	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	11.8	ug/kg dry	1	05/24/24 20:30	EPA 8270E SIM	
Fluoranthene	**63.2**	---	11.8	ug/kg dry	1	05/24/24 20:30	EPA 8270E SIM	
Fluorene	ND	---	11.8	ug/kg dry	1	05/24/24 20:30	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	**26.2**	---	11.8	ug/kg dry	1	05/24/24 20:30	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	11.8	ug/kg dry	1	05/24/24 20:30	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	11.8	ug/kg dry	1	05/24/24 20:30	EPA 8270E SIM	
Naphthalene	ND	---	11.8	ug/kg dry	1	05/24/24 20:30	EPA 8270E SIM	
Phenanthrene	**25.2**	---	11.8	ug/kg dry	1	05/24/24 20:30	EPA 8270E SIM	
Pyrene	**71.1**	---	11.8	ug/kg dry	1	05/24/24 20:30	EPA 8270E SIM	
Dibenzofuran	ND	---	11.8	ug/kg dry	1	05/24/24 20:30	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		*Recovery:*	*83 %*	*Limits: 44-120 %*	*1*	*05/24/24 20:30*	*EPA 8270E SIM*	
p-Terphenyl-d14 (Surr)			*72 %*	*54-127 %*	*1*	*05/24/24 20:30*	*EPA 8270E SIM*	
LPR-SBFA-5-0.5-1.0 (A4E1510-17)				**Matrix: Soil**		**Batch: 24E0823**		

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ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBFA-5-0.5-1.0 (A4E1510-17)				**Matrix: Soil**		**Batch: 24E0823**		
Acenaphthene	ND	---	12.0	ug/kg dry	1	05/24/24 20:55	EPA 8270E SIM	
Acenaphthylene	ND	---	12.0	ug/kg dry	1	05/24/24 20:55	EPA 8270E SIM	
Anthracene	ND	---	12.0	ug/kg dry	1	05/24/24 20:55	EPA 8270E SIM	
Benz(a)anthracene	ND	---	12.0	ug/kg dry	1	05/24/24 20:55	EPA 8270E SIM	
Benzo(a)pyrene	ND	---	12.0	ug/kg dry	1	05/24/24 20:55	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	12.0	ug/kg dry	1	05/24/24 20:55	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	12.0	ug/kg dry	1	05/24/24 20:55	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	12.0	ug/kg dry	1	05/24/24 20:55	EPA 8270E SIM	
Chrysene	ND	---	12.0	ug/kg dry	1	05/24/24 20:55	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	12.0	ug/kg dry	1	05/24/24 20:55	EPA 8270E SIM	
Fluoranthene	ND	---	12.0	ug/kg dry	1	05/24/24 20:55	EPA 8270E SIM	
Fluorene	ND	---	12.0	ug/kg dry	1	05/24/24 20:55	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	12.0	ug/kg dry	1	05/24/24 20:55	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	12.0	ug/kg dry	1	05/24/24 20:55	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	12.0	ug/kg dry	1	05/24/24 20:55	EPA 8270E SIM	
Naphthalene	ND	---	12.0	ug/kg dry	1	05/24/24 20:55	EPA 8270E SIM	
Phenanthrene	ND	---	12.0	ug/kg dry	1	05/24/24 20:55	EPA 8270E SIM	
Pyrene	ND	---	12.0	ug/kg dry	1	05/24/24 20:55	EPA 8270E SIM	
Dibenzofuran	ND	---	12.0	ug/kg dry	1	05/24/24 20:55	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		*Recovery:*	*77 %*	*Limits: 44-120 %*	*1*	*05/24/24 20:55*	*EPA 8270E SIM*	
p-Terphenyl-d14 (Surr)			*66 %*	*54-127 %*	*1*	*05/24/24 20:55*	*EPA 8270E SIM*	
LPR-SBFA-6-3.5-4.0 (A4E1510-18)				**Matrix: Soil**		**Batch: 24E0823**		
Acenaphthene	ND	---	12.6	ug/kg dry	1	05/24/24 21:20	EPA 8270E SIM	
Acenaphthylene	ND	---	12.6	ug/kg dry	1	05/24/24 21:20	EPA 8270E SIM	
Anthracene	ND	---	12.6	ug/kg dry	1	05/24/24 21:20	EPA 8270E SIM	
Benz(a)anthracene	ND	---	12.6	ug/kg dry	1	05/24/24 21:20	EPA 8270E SIM	
Benzo(a)pyrene	ND	---	12.6	ug/kg dry	1	05/24/24 21:20	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	12.6	ug/kg dry	1	05/24/24 21:20	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	12.6	ug/kg dry	1	05/24/24 21:20	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	12.6	ug/kg dry	1	05/24/24 21:20	EPA 8270E SIM	
Chrysene	ND	---	12.6	ug/kg dry	1	05/24/24 21:20	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	12.6	ug/kg dry	1	05/24/24 21:20	EPA 8270E SIM	

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Darrell Auvil, Client Services Manager

APEX LABORATORIES

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ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBFA-6-3.5-4.0 (A4E1510-18)				**Matrix: Soil**		**Batch: 24E0823**		
Fluoranthene	ND	---	12.6	ug/kg dry	1	05/24/24 21:20	EPA 8270E SIM	
Fluorene	ND	---	12.6	ug/kg dry	1	05/24/24 21:20	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	12.6	ug/kg dry	1	05/24/24 21:20	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	12.6	ug/kg dry	1	05/24/24 21:20	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	12.6	ug/kg dry	1	05/24/24 21:20	EPA 8270E SIM	
Naphthalene	ND	---	12.6	ug/kg dry	1	05/24/24 21:20	EPA 8270E SIM	
Phenanthrene	ND	---	12.6	ug/kg dry	1	05/24/24 21:20	EPA 8270E SIM	
Pyrene	ND	---	12.6	ug/kg dry	1	05/24/24 21:20	EPA 8270E SIM	
Dibenzofuran	ND	---	12.6	ug/kg dry	1	05/24/24 21:20	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		*Recovery:*	*79 %*	*Limits: 44-120 %*	*1*	*05/24/24 21:20*	*EPA 8270E SIM*	
p-Terphenyl-d14 (Surr)			*66 %*	*54-127 %*	*1*	*05/24/24 21:20*	*EPA 8270E SIM*	
LPR-SBFA-6-3.5-4.0-DUP (A4E1510-19)				**Matrix: Soil**		**Batch: 24E0823**		
Acenaphthene	ND	---	12.5	ug/kg dry	1	05/23/24 13:01	EPA 8270E SIM	
Acenaphthylene	ND	---	12.5	ug/kg dry	1	05/23/24 13:01	EPA 8270E SIM	
Anthracene	ND	---	12.5	ug/kg dry	1	05/23/24 13:01	EPA 8270E SIM	
Benz(a)anthracene	ND	---	12.5	ug/kg dry	1	05/23/24 13:01	EPA 8270E SIM	
Benzo(a)pyrene	ND	---	12.5	ug/kg dry	1	05/23/24 13:01	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	12.5	ug/kg dry	1	05/23/24 13:01	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	12.5	ug/kg dry	1	05/23/24 13:01	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	12.5	ug/kg dry	1	05/23/24 13:01	EPA 8270E SIM	
Chrysene	ND	---	12.5	ug/kg dry	1	05/23/24 13:01	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	12.5	ug/kg dry	1	05/23/24 13:01	EPA 8270E SIM	
Fluoranthene	ND	---	12.5	ug/kg dry	1	05/23/24 13:01	EPA 8270E SIM	
Fluorene	ND	---	12.5	ug/kg dry	1	05/23/24 13:01	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	12.5	ug/kg dry	1	05/23/24 13:01	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	12.5	ug/kg dry	1	05/23/24 13:01	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	12.5	ug/kg dry	1	05/23/24 13:01	EPA 8270E SIM	
Naphthalene	ND	---	12.5	ug/kg dry	1	05/23/24 13:01	EPA 8270E SIM	
Phenanthrene	ND	---	12.5	ug/kg dry	1	05/23/24 13:01	EPA 8270E SIM	
Pyrene	ND	---	12.5	ug/kg dry	1	05/23/24 13:01	EPA 8270E SIM	
Dibenzofuran	ND	---	12.5	ug/kg dry	1	05/23/24 13:01	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		*Recovery:*	*78 %*	*Limits: 44-120 %*	*1*	*05/23/24 13:01*	*EPA 8270E SIM*	
p-Terphenyl-d14 (Surr)			*68 %*	*54-127 %*	*1*	*05/23/24 13:01*	*EPA 8270E SIM*	

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6700 S.W. Sandburg Street
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ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBFA-6-3.5-4.0-DUP (A4E1510-19)				**Matrix: Soil**		**Batch: 24E0823**		

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ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBFA-1-0.5-1.0 (A4E1510-13)				**Matrix: Soil**				
Batch: 24E0977								
Antimony	ND	---	1.47	mg/kg dry	10	05/29/24 14:46	EPA 6020B	
Arsenic	**5.30**	---	1.47	mg/kg dry	10	05/29/24 14:46	EPA 6020B	
Beryllium	**0.597**	---	0.294	mg/kg dry	10	05/29/24 14:46	EPA 6020B	
Cadmium	ND	---	0.294	mg/kg dry	10	05/29/24 14:46	EPA 6020B	
Chromium	**66.5**	---	1.47	mg/kg dry	10	05/29/24 14:46	EPA 6020B	
Copper	**39.9**	---	2.94	mg/kg dry	10	05/29/24 14:46	EPA 6020B	
Lead	**12.6**	---	0.294	mg/kg dry	10	05/29/24 14:46	EPA 6020B	
Mercury	ND	---	0.118	mg/kg dry	10	05/29/24 14:46	EPA 6020B	
Nickel	**24.9**	---	2.94	mg/kg dry	10	05/29/24 14:46	EPA 6020B	
Selenium	**3.55**	---	1.47	mg/kg dry	10	05/29/24 14:46	EPA 6020B	
Silver	ND	---	0.294	mg/kg dry	10	05/29/24 14:46	EPA 6020B	
Thallium	ND	---	0.294	mg/kg dry	10	05/29/24 14:46	EPA 6020B	
Zinc	**81.6**	---	5.89	mg/kg dry	10	05/29/24 14:46	EPA 6020B	
LPR-SBFA-2-0.5-1.0 (A4E1510-14)				**Matrix: Soil**				
Batch: 24E0977								
Antimony	ND	---	1.35	mg/kg dry	10	05/29/24 14:52	EPA 6020B	
Arsenic	**3.93**	---	1.35	mg/kg dry	10	05/29/24 14:52	EPA 6020B	
Beryllium	**0.811**	---	0.270	mg/kg dry	10	05/29/24 14:52	EPA 6020B	
Cadmium	ND	---	0.270	mg/kg dry	10	05/29/24 14:52	EPA 6020B	
Chromium	**64.2**	---	1.35	mg/kg dry	10	05/29/24 14:52	EPA 6020B	
Copper	**53.6**	---	2.70	mg/kg dry	10	05/29/24 14:52	EPA 6020B	
Lead	**14.1**	---	0.270	mg/kg dry	10	05/29/24 14:52	EPA 6020B	
Mercury	ND	---	0.108	mg/kg dry	10	05/29/24 14:52	EPA 6020B	
Nickel	**43.8**	---	2.70	mg/kg dry	10	05/29/24 14:52	EPA 6020B	
Selenium	**2.80**	---	1.35	mg/kg dry	10	05/29/24 14:52	EPA 6020B	
Silver	ND	---	0.270	mg/kg dry	10	05/29/24 14:52	EPA 6020B	
Thallium	ND	---	0.270	mg/kg dry	10	05/29/24 14:52	EPA 6020B	
Zinc	**101**	---	5.40	mg/kg dry	10	05/29/24 14:52	EPA 6020B	
LPR-SBFA-3-0.5-1.0 (A4E1510-15)				**Matrix: Soil**				
Batch: 24E0977								
Antimony	ND	---	1.27	mg/kg dry	10	05/29/24 14:58	EPA 6020B	

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ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBFA-3-0.5-1.0 (A4E1510-15)				**Matrix: Soil**				
Arsenic	**1.82**	---	1.27	mg/kg dry	10	05/29/24 14:58	EPA 6020B	
Beryllium	**0.756**	---	0.253	mg/kg dry	10	05/29/24 14:58	EPA 6020B	
Cadmium	ND	---	0.253	mg/kg dry	10	05/29/24 14:58	EPA 6020B	
Chromium	**35.2**	---	1.27	mg/kg dry	10	05/29/24 14:58	EPA 6020B	
Copper	**70.8**	---	2.53	mg/kg dry	10	05/29/24 14:58	EPA 6020B	
Lead	**2.81**	---	0.253	mg/kg dry	10	05/29/24 14:58	EPA 6020B	
Mercury	ND	---	0.101	mg/kg dry	10	05/29/24 14:58	EPA 6020B	
Nickel	**78.1**	---	2.53	mg/kg dry	10	05/29/24 14:58	EPA 6020B	
Selenium	**2.03**	---	1.27	mg/kg dry	10	05/29/24 14:58	EPA 6020B	
Silver	ND	---	0.253	mg/kg dry	10	05/29/24 14:58	EPA 6020B	
Thallium	ND	---	0.253	mg/kg dry	10	05/29/24 14:58	EPA 6020B	
Zinc	**69.3**	---	5.07	mg/kg dry	10	05/29/24 14:58	EPA 6020B	
LPR-SBFA-4-0.5-1.0 (A4E1510-16)				**Matrix: Soil**				
Batch: 24E0977								
Antimony	ND	---	1.39	mg/kg dry	10	05/29/24 15:03	EPA 6020B	
Arsenic	**3.58**	---	1.39	mg/kg dry	10	05/29/24 15:03	EPA 6020B	
Beryllium	**0.569**	---	0.278	mg/kg dry	10	05/29/24 15:03	EPA 6020B	
Cadmium	ND	---	0.278	mg/kg dry	10	05/29/24 15:03	EPA 6020B	
Chromium	**32.1**	---	1.39	mg/kg dry	10	05/29/24 15:03	EPA 6020B	
Copper	**34.4**	---	2.78	mg/kg dry	10	05/29/24 15:03	EPA 6020B	
Lead	**30.3**	---	0.278	mg/kg dry	10	05/29/24 15:03	EPA 6020B	
Mercury	ND	---	0.111	mg/kg dry	10	05/29/24 15:03	EPA 6020B	
Nickel	**21.4**	---	2.78	mg/kg dry	10	05/29/24 15:03	EPA 6020B	
Selenium	**2.44**	---	1.39	mg/kg dry	10	05/29/24 15:03	EPA 6020B	
Silver	ND	---	0.278	mg/kg dry	10	05/29/24 15:03	EPA 6020B	
Thallium	ND	---	0.278	mg/kg dry	10	05/29/24 15:03	EPA 6020B	
Zinc	**99.8**	---	5.57	mg/kg dry	10	05/29/24 15:03	EPA 6020B	
LPR-SBFA-5-0.5-1.0 (A4E1510-17)				**Matrix: Soil**				
Batch: 24E0977								
Antimony	ND	---	1.35	mg/kg dry	10	05/29/24 15:20	EPA 6020B	
Arsenic	**2.71**	---	1.35	mg/kg dry	10	05/29/24 15:20	EPA 6020B	
Beryllium	**1.02**	---	0.270	mg/kg dry	10	05/29/24 15:20	EPA 6020B	

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ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBFA-5-0.5-1.0 (A4E1510-17)				**Matrix: Soil**				
Cadmium	ND	---	0.270	mg/kg dry	10	05/29/24 15:20	EPA 6020B	
Chromium	**83.0**	---	1.35	mg/kg dry	10	05/29/24 15:20	EPA 6020B	
Copper	**42.0**	---	2.70	mg/kg dry	10	05/29/24 15:20	EPA 6020B	
Lead	**7.73**	---	0.270	mg/kg dry	10	05/29/24 15:20	EPA 6020B	
Mercury	ND	---	0.108	mg/kg dry	10	05/29/24 15:20	EPA 6020B	
Nickel	**28.8**	---	2.70	mg/kg dry	10	05/29/24 15:20	EPA 6020B	
Selenium	**3.08**	---	1.35	mg/kg dry	10	05/29/24 15:20	EPA 6020B	
Silver	ND	---	0.270	mg/kg dry	10	05/29/24 15:20	EPA 6020B	
Thallium	ND	---	0.270	mg/kg dry	10	05/29/24 15:20	EPA 6020B	
Zinc	**65.4**	---	5.40	mg/kg dry	10	05/29/24 15:20	EPA 6020B	
LPR-SBFA-6-3.5-4.0 (A4E1510-18)				**Matrix: Soil**				
Batch: 24E0977								
Antimony	ND	---	1.40	mg/kg dry	10	05/29/24 15:26	EPA 6020B	
Arsenic	**2.96**	---	1.40	mg/kg dry	10	05/29/24 15:26	EPA 6020B	
Beryllium	**0.837**	---	0.280	mg/kg dry	10	05/29/24 15:26	EPA 6020B	
Cadmium	ND	---	0.280	mg/kg dry	10	05/29/24 15:26	EPA 6020B	
Chromium	**67.3**	---	1.40	mg/kg dry	10	05/29/24 15:26	EPA 6020B	
Copper	**36.0**	---	2.80	mg/kg dry	10	05/29/24 15:26	EPA 6020B	
Lead	**7.19**	---	0.280	mg/kg dry	10	05/29/24 15:26	EPA 6020B	
Mercury	ND	---	0.112	mg/kg dry	10	05/29/24 15:26	EPA 6020B	
Nickel	**23.6**	---	2.80	mg/kg dry	10	05/29/24 15:26	EPA 6020B	
Selenium	**2.83**	---	1.40	mg/kg dry	10	05/29/24 15:26	EPA 6020B	
Silver	ND	---	0.280	mg/kg dry	10	05/29/24 15:26	EPA 6020B	
Thallium	ND	---	0.280	mg/kg dry	10	05/29/24 15:26	EPA 6020B	
Zinc	**72.6**	---	5.61	mg/kg dry	10	05/29/24 15:26	EPA 6020B	
LPR-SBFA-6-3.5-4.0-DUP (A4E1510-19)				**Matrix: Soil**				
Batch: 24E0977								
Antimony	ND	---	1.48	mg/kg dry	10	05/29/24 15:32	EPA 6020B	
Arsenic	**2.09**	---	1.48	mg/kg dry	10	05/29/24 15:32	EPA 6020B	
Beryllium	**0.942**	---	0.297	mg/kg dry	10	05/29/24 15:32	EPA 6020B	
Cadmium	ND	---	0.297	mg/kg dry	10	05/29/24 15:32	EPA 6020B	
Chromium	**52.5**	---	1.48	mg/kg dry	10	05/29/24 15:32	EPA 6020B	

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ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBFA-6-3.5-4.0-DUP (A4E1510-19)				**Matrix: Soil**				
Copper	**31.4**	---	2.97	mg/kg dry	10	05/29/24 15:32	EPA 6020B	
Lead	**7.94**	---	0.297	mg/kg dry	10	05/29/24 15:32	EPA 6020B	
Mercury	ND	---	0.119	mg/kg dry	10	05/29/24 15:32	EPA 6020B	
Nickel	**17.1**	---	2.97	mg/kg dry	10	05/29/24 15:32	EPA 6020B	
Selenium	**2.90**	---	1.48	mg/kg dry	10	05/29/24 15:32	EPA 6020B	
Silver	ND	---	0.297	mg/kg dry	10	05/29/24 15:32	EPA 6020B	
Thallium	ND	---	0.297	mg/kg dry	10	05/29/24 15:32	EPA 6020B	
Zinc	**59.1**	---	5.94	mg/kg dry	10	05/29/24 15:32	EPA 6020B	

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ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBUST-1-5.0-7.5 (A4E1510-06)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**70.0**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
LPR-SBUST-1-7.5-10.0 (A4E1510-07)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**74.4**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
LPR-SBUST-2-5.0-7.5 (A4E1510-08)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**70.8**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
LPR-SBUST-2-7.5-10.0 (A4E1510-09)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**69.5**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
LPR-SBUST-3-5.0-8.0 (A4E1510-10)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**70.0**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
LPR-SBUST-3-5.0-8.0-DUP (A4E1510-11)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**69.7**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
LPR-SBUST-3-8-10 (A4E1510-12)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**69.7**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
LPR-SBFA-1-0.5-1.0 (A4E1510-13)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**69.8**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
LPR-SBFA-2-0.5-1.0 (A4E1510-14)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**78.9**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
LPR-SBFA-3-0.5-1.0 (A4E1510-15)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**87.7**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
LPR-SBFA-4-0.5-1.0 (A4E1510-16)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**76.3**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
LPR-SBFA-5-0.5-1.0 (A4E1510-17)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**72.9**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
LPR-SBFA-6-3.5-4.0 (A4E1510-18)				**Matrix: Soil**		**Batch: 24E0838**		

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ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
LPR-SBFA-6-3.5-4.0 (A4E1510-18)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**71.2**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
LPR-SBFA-6-3.5-4.0-DUP (A4E1510-19)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**70.7**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
LPR-SBA-1-0.5-1.0 (A4E1510-20)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**65.6**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
LPR-SBA-1-0.5-1.0-DUP (A4E1510-21)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**65.2**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
LPR-SBA-2-0.5-1.0 (A4E1510-22)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**66.8**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
LPR-SBA-3-0.5-1.0 (A4E1510-23)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**68.5**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
LPR-SBA-4-0.5-1.0 (A4E1510-24)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**70.2**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	
LPR-SBA-5-0.5-1.0 (A4E1510-25)				**Matrix: Soil**		**Batch: 24E0838**		
% Solids	**70.7**	---	1.00	%	1	05/24/24 07:37	EPA 8000D	

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503-718-2323
ORELAP ID: OR100062

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

QUALITY CONTROL (QC) SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0826 - EPA 3546 (Fuels)							Soil					
Blank (24E0826-BLK1)			Prepared: 05/23/24 06:29 Analyzed: 05/23/24 15:41									
NWTPH-HCID												
Gasoline Range Organics	ND	---	20.0	mg/kg wet	1	---	---	---	---	---	---	
Diesel Range Organics	ND	---	50.0	mg/kg wet	1	---	---	---	---	---	---	
Oil Range Organics	ND	---	100	mg/kg wet	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 88 %*	*Limits: 50-150 %*			*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*89 %*	*50-150 %*			*"*					
Duplicate (24E0826-DUP1)			Prepared: 05/23/24 06:29 Analyzed: 05/23/24 16:28									
QC Source Sample: Non-SDG (A4E1502-01)												
Gasoline Range Organics	ND	---	28.1	mg/kg dry	1	---	ND	---	---	---	30%	
Diesel Range Organics	ND	---	70.2	mg/kg dry	1	---	ND	---	---	---	30%	
Oil Range Organics	ND	---	140	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 91 %*	*Limits: 50-150 %*			*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*95 %*	*50-150 %*			*"*					
Duplicate (24E0826-DUP2)			Prepared: 05/23/24 06:29 Analyzed: 05/23/24 21:09									
QC Source Sample: LPR-SBFA-5-0.5-1.0 (A4E1510-17)												
NWTPH-HCID												
Gasoline Range Organics	ND	---	26.0	mg/kg dry	1	---	ND	---	---	---	30%	
Diesel Range Organics	ND	---	65.0	mg/kg dry	1	---	ND	---	---	---	30%	
Oil Range Organics	ND	---	130	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 86 %*	*Limits: 50-150 %*			*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*80 %*	*50-150 %*			*"*					
Batch 24E0827 - EPA 3546 (Fuels)							Soil					
Blank (24E0827-BLK1)			Prepared: 05/23/24 06:30 Analyzed: 05/23/24 21:58									
NWTPH-HCID												
Gasoline Range Organics	ND	---	20.0	mg/kg wet	1	---	---	---	---	---	---	
Diesel Range Organics	ND	---	50.0	mg/kg wet	1	---	---	---	---	---	---	
Oil Range Organics	ND	---	100	mg/kg wet	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 81 %*	*Limits: 50-150 %*			*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*86 %*	*50-150 %*			*"*					

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ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

QUALITY CONTROL (QC) SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0827 - EPA 3546 (Fuels)							**Soil**					
Duplicate (24E0827-DUP1)				Prepared: 05/23/24 06:30 Analyzed: 05/24/24 00:02								
QC Source Sample: LPR-SBFA-6-3.5-4.0 (A4E1510-18)												
NWTPH-HCID												
Gasoline Range Organics	ND	---	27.5	mg/kg dry	1	---	ND	---	---	---	30%	
Diesel Range Organics	ND	---	68.8	mg/kg dry	1	---	ND	---	---	---	30%	
Oil Range Organics	ND	---	138	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 111 %*		*Limits: 50-150 %*			*Dilution: 1x*				
4-Bromofluorobenzene (Surr)			*119 %*		*50-150 %*			*"*				
Duplicate (24E0827-DUP2)				Prepared: 05/23/24 13:11 Analyzed: 05/24/24 03:07								
QC Source Sample: Non-SDG (A4E1518-30)												
Gasoline Range Organics	ND	---	21.3	mg/kg dry	1	---	ND	---	---	---	30%	
Diesel Range Organics	ND	---	53.3	mg/kg dry	1	---	ND	---	---	---	30%	
Oil Range Organics	**DET**	---	107	mg/kg dry	1	---	ND	---	---		**30%**	
Surr: o-Terphenyl (Surr)			*Recovery: 87 %*		*Limits: 50-150 %*			*Dilution: 1x*				
4-Bromofluorobenzene (Surr)			*91 %*		*50-150 %*			*"*				

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Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
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Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

QUALITY CONTROL (QC) SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0882 - EPA 3510C (Fuels/Acid Ext.)							**Water**					
Blank (24E0882-BLK1)			Prepared: 05/24/24 06:09 Analyzed: 05/24/24 20:04									
NWTPH-HCID												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	---	---	---	---	---	
Diesel Range Organics	ND	---	0.250	mg/L	1	---	---	---	---	---	---	
Oil Range Organics	ND	---	0.250	mg/L	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 100 %*		*Limits: 50-150 %*				*Dilution: 1x*			
4-Bromofluorobenzene (Surr)			*68 %*		*10-120 %*				*"*			

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ANALYTICAL REPORT

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610 SW Broadway #406	Project Number: O053.010.002	Report ID:
Portland, OR 97205	Project Manager: James Farrow	A4E1510 - 06 10 24 1150

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx with Acid/Silica Gel Cleanup

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E1145 - EPA 3546 w/SG+Acid (NWTPH)							Soil					
Blank (24E1145-BLK1)			Prepared: 05/31/24 10:52 Analyzed: 05/31/24 19:51									
NWTPH-Dx/SG												
Diesel	ND	---	20.0	mg/kg wet	1	---	---	---	---	---	---	
Oil	ND	---	40.0	mg/kg wet	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)		*Recovery: 100 %*	*Limits: 50-150 %*		*Dilution: 1x*							*Q-41*
LCS (24E1145-BS1)			Prepared: 05/31/24 10:52 Analyzed: 05/31/24 20:12									
NWTPH-Dx/SG												
Diesel	139	---	20.0	mg/kg wet	1	125	---	112	38-132%	---	---	
Surr: o-Terphenyl (Surr)		*Recovery: 110 %*	*Limits: 50-150 %*		*Dilution: 1x*							*Q-41*
Duplicate (24E1145-DUP1)			Prepared: 05/31/24 10:52 Analyzed: 05/31/24 20:52									
QC Source Sample: LPR-SBUST-3-5.0-8.0 (A4E1510-10)												
NWTPH-Dx/SG												
Diesel	**2780**	---	25.3	mg/kg dry	1	---	2900	---	---	4	30%	F-11
Oil	ND	---	50.6	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)		*Recovery: 108 %*	*Limits: 50-150 %*		*Dilution: 1x*							*Q-41*

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QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx with Acid/Silica Gel Cleanup

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24F0051 - EPA 3510C (Fuels/Acid Ext.) w/SG+Acid									Water			
Blank (24F0051-BLK1)				Prepared: 05/24/24 06:09		Analyzed: 06/03/24 18:42						
NWTPH-Dx/SG												
Diesel	ND	---	0.200	mg/L	1	---	---	---	---	---	---	
Oil	ND	---	0.400	mg/L	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)		*Recovery: 101 %*		*Limits: 50-150 %*		*Dilution: 1x*						
LCS (24F0051-BS1)				Prepared: 05/24/24 06:09		Analyzed: 06/03/24 19:02						
NWTPH-Dx/SG												
Diesel	1.12	---	0.200	mg/L	1	1.25	---	90	36-132%	---	---	
Surr: o-Terphenyl (Surr)		*Recovery: 104 %*		*Limits: 50-150 %*		*Dilution: 1x*						
LCS Dup (24F0051-BSD1)				Prepared: 05/24/24 06:09		Analyzed: 06/03/24 19:22						**Q-19**
NWTPH-Dx/SG												
Diesel	1.02	---	0.200	mg/L	1	1.25	---	81	36-132%	10	30%	
Surr: o-Terphenyl (Surr)		*Recovery: 102 %*		*Limits: 50-150 %*		*Dilution: 1x*						

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Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0957 - EPA 5035A												**Soil**
Blank (24E0957-BLK1)			Prepared: 05/29/24 08:00		Analyzed: 05/29/24 10:51							
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	5.00	mg/kg wet	50	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)		*Recovery: 95 %*		*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)		*107 %*		*50-150 %*			*"*					
LCS (24E0957-BS2)			Prepared: 05/29/24 08:00		Analyzed: 05/29/24 10:24							
NWTPH-Gx (MS)												
Gasoline Range Organics	26.4	---	5.00	mg/kg wet	50	25.0	---	105	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)		*Recovery: 97 %*		*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)		*105 %*		*50-150 %*			*"*					
Duplicate (24E0957-DUP1)			Prepared: 05/23/24 13:00		Analyzed: 05/29/24 19:27							
QC Source Sample: Non-SDG (A4E1589-02)												
Gasoline Range Organics	**1410**	---	178	mg/kg dry	1000	---	1440	---	---	2	30%	
Surr: 4-Bromofluorobenzene (Sur)		*Recovery: 96 %*		*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)		*102 %*		*50-150 %*			*"*					

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Portland, OR 97205	Project Manager: James Farrow	A4E1510 - 06 10 24 1150

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E1068 - EPA 5030C									Water			
Blank (24E1068-BLK1)			Prepared: 05/30/24 07:01		Analyzed: 05/30/24 12:07							
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)		*Recovery: 100 %*		*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)		*108 %*		*50-150 %*			*"*					
LCS (24E1068-BS2)			Prepared: 05/30/24 07:01		Analyzed: 05/30/24 11:40							
NWTPH-Gx (MS)												
Gasoline Range Organics	0.507	---	0.100	mg/L	1	0.500	---	101	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)		*Recovery: 98 %*		*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)		*100 %*		*50-150 %*			*"*					
Duplicate (24E1068-DUP1)			Prepared: 05/30/24 07:01		Analyzed: 05/30/24 23:20							T-02
QC Source Sample: Non-SDG (A4E1473-01)												
Gasoline Range Organics	ND	---	1.00	mg/L	10	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)		*Recovery: 99 %*		*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)		*103 %*		*50-150 %*			*"*					
Duplicate (24E1068-DUP2)			Prepared: 05/30/24 07:01		Analyzed: 05/31/24 00:14							T-02
QC Source Sample: Non-SDG (A4E1591-01RE1)												
Gasoline Range Organics	**5.74**	---	0.500	mg/L	5	---	5.44	---	---	5	30%	
Surr: 4-Bromofluorobenzene (Sur)		*Recovery: 117 %*		*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)		*102 %*		*50-150 %*			*"*					

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Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E1123 - EPA 5030C									Water			
Blank (24E1123-BLK1)			Prepared: 05/31/24 07:12 Analyzed: 05/31/24 09:53									
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 101 %*		*Limits: 50-150 %*				*Dilution: 1x*			
1,4-Difluorobenzene (Sur)			*107 %*		*50-150 %*				*"*			
LCS (24E1123-BS2)			Prepared: 05/31/24 07:12 Analyzed: 05/31/24 09:25									
NWTPH-Gx (MS)												
Gasoline Range Organics	0.533	---	0.100	mg/L	1	0.500	---	107	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 98 %*		*Limits: 50-150 %*				*Dilution: 1x*			
1,4-Difluorobenzene (Sur)			*100 %*		*50-150 %*				*"*			
Duplicate (24E1123-DUP1)			Prepared: 05/31/24 07:12 Analyzed: 05/31/24 19:54									
QC Source Sample: Non-SDG (A4E1480-06)												
Gasoline Range Organics	ND	---	10.0	mg/L	100	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 106 %*		*Limits: 50-150 %*				*Dilution: 1x*			
1,4-Difluorobenzene (Sur)			*111 %*		*50-150 %*				*"*			

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Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E1017 - EPA 3546/3640A (GPC)							**Soil**					
Blank (24E1017-BLK1)			Prepared: 05/23/24 10:59		Analyzed: 05/30/24 15:34							**C-05**
EPA 8081B												
Aldrin	ND	---	2.00	ug/kg wet	1	---	---	---	---	---	---	
alpha-BHC	ND	---	2.00	ug/kg wet	1	---	---	---	---	---	---	
beta-BHC	ND	---	2.00	ug/kg wet	1	---	---	---	---	---	---	
delta-BHC	ND	---	2.00	ug/kg wet	1	---	---	---	---	---	---	
gamma-BHC (Lindane)	ND	---	2.00	ug/kg wet	1	---	---	---	---	---	---	
cis-Chlordane	ND	---	2.00	ug/kg wet	1	---	---	---	---	---	---	
trans-Chlordane	ND	---	2.00	ug/kg wet	1	---	---	---	---	---	---	
4,4'-DDD	ND	---	2.00	ug/kg wet	1	---	---	---	---	---	---	
4,4'-DDE	ND	---	2.00	ug/kg wet	1	---	---	---	---	---	---	
4,4'-DDT	ND	---	2.00	ug/kg wet	1	---	---	---	---	---	---	
Dieldrin	ND	---	2.00	ug/kg wet	1	---	---	---	---	---	---	
Endosulfan I	ND	---	2.00	ug/kg wet	1	---	---	---	---	---	---	
Endosulfan II	ND	---	2.00	ug/kg wet	1	---	---	---	---	---	---	
Endosulfan sulfate	ND	---	2.00	ug/kg wet	1	---	---	---	---	---	---	
Endrin	ND	---	2.00	ug/kg wet	1	---	---	---	---	---	---	
Endrin aldehyde	ND	---	2.00	ug/kg wet	1	---	---	---	---	---	---	
Endrin ketone	ND	---	2.00	ug/kg wet	1	---	---	---	---	---	---	
Heptachlor	ND	---	2.00	ug/kg wet	1	---	---	---	---	---	---	
Heptachlor epoxide	ND	---	2.00	ug/kg wet	1	---	---	---	---	---	---	
Methoxychlor	ND	---	6.00	ug/kg wet	1	---	---	---	---	---	---	
Chlordane (Technical)	ND	---	60.0	ug/kg wet	1	---	---	---	---	---	---	
Toxaphene (Total)	ND	---	60.0	ug/kg wet	1	---	---	---	---	---	---	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 75 %*		*Limits: 42-129 %*				*Dilution: 1x*			
Decachlorobiphenyl (Surr)			*106 %*		*55-130 %*				*"*			
LCS (24E1017-BS1)			Prepared: 05/23/24 10:59		Analyzed: 05/30/24 15:51							**C-05**
EPA 8081B												
Aldrin	33.4	---	2.00	ug/kg wet	1	50.0	---	67	45-136%	---	---	
alpha-BHC	37.3	---	2.00	ug/kg wet	1	50.0	---	75	45-137%	---	---	
beta-BHC	38.1	---	2.00	ug/kg wet	1	50.0	---	76	50-136%	---	---	
delta-BHC	39.8	---	2.00	ug/kg wet	1	50.0	---	80	47-139%	---	---	
gamma-BHC (Lindane)	38.8	---	2.00	ug/kg wet	1	50.0	---	78	49-135%	---	---	
cis-Chlordane	39.9	---	2.00	ug/kg wet	1	50.0	---	80	54-133%	---	---	

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Darrell Auvil, Client Services Manager

APEX LABORATORIES

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E1017 - EPA 3546/3640A (GPC)							**Soil**					
LCS (24E1017-BS1)			Prepared: 05/23/24 10:59		Analyzed: 05/30/24 15:51							**C-05**
trans-Chlordane	41.0	---	2.00	ug/kg wet	1	50.0	---	82	53-135%	---	---	
4,4'-DDD	55.0	---	2.00	ug/kg wet	1	50.0	---	110	56-139%	---	---	Q-41
4,4'-DDE	44.9	---	2.00	ug/kg wet	1	50.0	---	90	56-134%	---	---	
Dieldrin	48.7	---	2.00	ug/kg wet	1	50.0	---	97	56-136%	---	---	
Endosulfan I	43.9	---	2.00	ug/kg wet	1	50.0	---	88	53-132%	---	---	
Endosulfan II	54.0	---	2.00	ug/kg wet	1	50.0	---	108	53-134%	---	---	
Endosulfan sulfate	56.8	---	2.00	ug/kg wet	1	50.0	---	114	55-136%	---	---	
Endrin	53.9	---	2.00	ug/kg wet	1	50.0	---	108	57-140%	---	---	
Endrin aldehyde	48.5	---	2.00	ug/kg wet	1	50.0	---	97	35-137%	---	---	
Endrin ketone	63.8	---	2.00	ug/kg wet	1	50.0	---	128	55-136%	---	---	Q-41
Heptachlor	46.4	---	2.00	ug/kg wet	1	50.0	---	93	47-136%	---	---	Q-41
Heptachlor epoxide	38.7	---	2.00	ug/kg wet	1	50.0	---	77	52-136%	---	---	
Methoxychlor	89.0	---	6.00	ug/kg wet	1	50.0	---	**178**	**52-143%**	---	---	Q-41
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 70 %*		*Limits: 42-129 %*				*Dilution: 1x*			
Decachlorobiphenyl (Surr)			*101 %*		*55-130 %*				*"*			
LCS (24E1017-BS2)			Prepared: 05/23/24 10:59		Analyzed: 05/31/24 18:57							**C-05**
EPA 8081B												
4,4'-DDT	55.7	---	2.00	ug/kg wet	1	50.0	---	111	50-141%	---	---	
Duplicate (24E1017-DUP1)			Prepared: 05/23/24 10:59		Analyzed: 05/30/24 16:25							**C-05**
QC Source Sample: LPR-SBA-1-0.5-1.0 (A4E1510-20RE1)												
EPA 8081B												
Aldrin	ND	---	2.74	ug/kg dry	1	---	ND	---	---	---	30%	
alpha-BHC	ND	---	2.74	ug/kg dry	1	---	ND	---	---	---	30%	
beta-BHC	ND	---	2.74	ug/kg dry	1	---	ND	---	---	---	30%	
delta-BHC	ND	---	99.5	ug/kg dry	1	---	ND	---	---	---	30%	R-02
gamma-BHC (Lindane)	ND	---	2.74	ug/kg dry	1	---	ND	---	---	---	30%	
cis-Chlordane	ND	---	2.74	ug/kg dry	1	---	ND	---	---	---	30%	
trans-Chlordane	ND	---	2.74	ug/kg dry	1	---	ND	---	---	---	30%	
4,4'-DDD	ND	---	2.74	ug/kg dry	1	---	ND	---	---	---	30%	
4,4'-DDE	ND	---	2.74	ug/kg dry	1	---	ND	---	---	---	30%	
4,4'-DDT	ND	---	2.74	ug/kg dry	1	---	ND	---	---	---	30%	
Dieldrin	ND	---	2.74	ug/kg dry	1	---	ND	---	---	---	30%	

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Darrell Auvil, Client Services Manager

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503-718-2323
ORELAP ID: OR100062

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E1017 - EPA 3546/3640A (GPC)							**Soil**					
Duplicate (24E1017-DUP1)			Prepared: 05/23/24 10:59 Analyzed: 05/30/24 16:25									**C-05**
QC Source Sample: LPR-SBA-1-0.5-1.0 (A4E1510-20RE1)												
Endosulfan I	ND	---	2.74	ug/kg dry	1	---	ND	---	---	---	30%	
Endosulfan II	ND	---	2.74	ug/kg dry	1	---	ND	---	---	---	30%	
Endosulfan sulfate	ND	---	2.74	ug/kg dry	1	---	ND	---	---	---	30%	
Endrin	ND	---	2.74	ug/kg dry	1	---	ND	---	---	---	30%	
Endrin aldehyde	ND	---	7.95	ug/kg dry	1	---	ND	---	---	---	30%	R-02
Endrin ketone	ND	---	2.74	ug/kg dry	1	---	ND	---	---	---	30%	
Heptachlor	ND	---	2.74	ug/kg dry	1	---	ND	---	---	---	30%	
Heptachlor epoxide	ND	---	2.74	ug/kg dry	1	---	ND	---	---	---	30%	
Methoxychlor	ND	---	8.22	ug/kg dry	1	---	ND	---	---	---	30%	
Chlordane (Technical)	ND	---	82.2	ug/kg dry	1	---	ND	---	---	---	30%	
Toxaphene (Total)	ND	---	82.2	ug/kg dry	1	---	ND	---	---	---	30%	
Surr: 2,4,5,6-TCMX (Surr)		*Recovery:*	*63 %*	*Limits:*	*42-129 %*		*Dilution:*	*1x*				
Decachlorobiphenyl (Surr)			*81 %*		*55-130 %*			*"*				
Matrix Spike (24E1017-MS1)			Prepared: 05/23/24 10:59 Analyzed: 05/30/24 18:08									**C-05**
QC Source Sample: LPR-SBA-5-0.5-1.0 (A4E1510-25RE1)												
EPA 8081B												
Aldrin	35.2	---	2.49	ug/kg dry	1	62.2	ND	57	45-136%	---	---	
alpha-BHC	37.8	---	2.49	ug/kg dry	1	62.2	ND	61	45-137%	---	---	
beta-BHC	42.8	---	2.49	ug/kg dry	1	62.2	ND	69	50-136%	---	---	
delta-BHC	279	---	211	ug/kg dry	1	62.2	ND	**449**	**47-139%**	---	---	E, R-02, Q-02
gamma-BHC (Lindane)	38.6	---	2.49	ug/kg dry	1	62.2	ND	62	49-135%	---	---	
cis-Chlordane	44.9	---	2.49	ug/kg dry	1	62.2	ND	72	54-133%	---	---	
trans-Chlordane	48.3	---	2.49	ug/kg dry	1	62.2	ND	78	53-135%	---	---	
4,4'-DDD	66.4	---	3.11	ug/kg dry	1	62.2	ND	107	56-139%	---	---	Q-41, R-02
4,4'-DDE	166	---	2.49	ug/kg dry	1	62.2	125	66	56-134%	---	---	
Dieldrin	95.7	---	2.49	ug/kg dry	1	62.2	45.8	80	56-136%	---	---	
Endosulfan I	48.9	---	2.49	ug/kg dry	1	62.2	ND	79	53-132%	---	---	
Endosulfan II	59.9	---	2.49	ug/kg dry	1	62.2	ND	96	53-134%	---	---	
Endosulfan sulfate	66.0	---	2.49	ug/kg dry	1	62.2	ND	106	55-136%	---	---	
Endrin	57.2	---	2.49	ug/kg dry	1	62.2	ND	92	57-140%	---	---	
Endrin aldehyde	72.1	---	15.5	ug/kg dry	1	62.2	ND	116	35-137%	---	---	R-02
Endrin ketone	77.0	---	2.49	ug/kg dry	1	62.2	ND	124	55-136%	---	---	Q-41

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Darrell Auvil, Client Services Manager

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ORELAP ID: OR100062

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E1017 - EPA 3546/3640A (GPC)							**Soil**					
Matrix Spike (24E1017-MS1)			Prepared: 05/23/24 10:59		Analyzed: 05/30/24 18:08							**C-05**
QC Source Sample: LPR-SBA-5-0.5-1.0 (A4E1510-25RE1)												
Heptachlor	47.7	---	2.49	ug/kg dry	1	62.2	ND	77	47-136%	---	---	Q-41
Heptachlor epoxide	43.7	---	2.49	ug/kg dry	1	62.2	ND	70	52-136%	---	---	
Methoxychlor	116	---	7.46	ug/kg dry	1	62.2	ND	**187**	**52-143%**	---	---	Q-41
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 59 %*		*Limits: 42-129 %*			*Dilution: 1x*				
Decachlorobiphenyl (Surr)			*87 %*		*55-130 %*			*"*				
Matrix Spike (24E1017-MS2)			Prepared: 05/23/24 10:59		Analyzed: 05/31/24 20:18							**C-05**
QC Source Sample: LPR-SBA-5-0.5-1.0 (A4E1510-25RE2)												
EPA 8081B												
4,4'-DDT	148	---	2.49	ug/kg dry	1	62.2	102	75	50-141%	---	---	

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ORELAP ID: OR100062

ANALYTICAL REPORT

Terraphase Engineering	Project: 7285 Long Prairie Road Property	
610 SW Broadway #406	Project Number: O053.010.002	Report ID:
Portland, OR 97205	Project Manager: James Farrow	A4E1510 - 06 10 24 1150

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0823 - EPA 3546							Soil					
Blank (24E0823-BLK1)			Prepared: 05/23/24 06:19 Analyzed: 05/23/24 11:20									
EPA 8270E SIM												
Acenaphthene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Anthracene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Chrysene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Fluoranthene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Fluorene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Naphthalene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Phenanthrene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Pyrene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Dibenzofuran	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)		*Recovery: 91 %*	*Limits: 44-120 %*		*Dilution: 1x*							
p-Terphenyl-d14 (Surr)			*87 %*	*54-127 %*		*"*						
LCS (24E0823-BS1)			Prepared: 05/23/24 06:19 Analyzed: 05/23/24 11:45									
EPA 8270E SIM												
Acenaphthene	702	---	10.0	ug/kg wet	1	800	---	88	40-123%	---	---	
Acenaphthylene	648	---	10.0	ug/kg wet	1	800	---	81	32-132%	---	---	
Anthracene	670	---	10.0	ug/kg wet	1	800	---	84	47-123%	---	---	
Benz(a)anthracene	635	---	10.0	ug/kg wet	1	800	---	79	49-126%	---	---	
Benzo(a)pyrene	682	---	10.0	ug/kg wet	1	800	---	85	45-129%	---	---	
Benzo(b)fluoranthene	649	---	10.0	ug/kg wet	1	800	---	81	45-132%	---	---	
Benzo(k)fluoranthene	683	---	10.0	ug/kg wet	1	800	---	85	47-132%	---	---	
Benzo(g,h,i)perylene	626	---	10.0	ug/kg wet	1	800	---	78	43-134%	---	---	
Chrysene	702	---	10.0	ug/kg wet	1	800	---	88	50-124%	---	---	

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503-718-2323
ORELAP ID: OR100062

ANALYTICAL REPORT

Terraphase Engineering	Project: 7285 Long Prairie Road Property	
610 SW Broadway #406	Project Number: O053.010.002	Report ID:
Portland, OR 97205	Project Manager: James Farrow	A4E1510 - 06 10 24 1150

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0823 - EPA 3546							Soil					
LCS (24E0823-BS1)			Prepared: 05/23/24 06:19	Analyzed: 05/23/24 11:45								
Dibenz(a,h)anthracene	682	---	10.0	ug/kg wet	1	800	---	85	45-134%	---	---	
Fluoranthene	678	---	10.0	ug/kg wet	1	800	---	85	50-127%	---	---	
Fluorene	631	---	10.0	ug/kg wet	1	800	---	79	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	686	---	10.0	ug/kg wet	1	800	---	86	45-133%	---	---	
1-Methylnaphthalene	634	---	10.0	ug/kg wet	1	800	---	79	40-120%	---	---	
2-Methylnaphthalene	650	---	10.0	ug/kg wet	1	800	---	81	38-122%	---	---	
Naphthalene	674	---	10.0	ug/kg wet	1	800	---	84	35-123%	---	---	
Phenanthrene	669	---	10.0	ug/kg wet	1	800	---	84	50-121%	---	---	
Pyrene	689	---	10.0	ug/kg wet	1	800	---	86	47-127%	---	---	
Dibenzofuran	645	---	10.0	ug/kg wet	1	800	---	81	44-120%	---	---	
Surr: 2-Fluorobiphenyl (Surr)		*Recovery:*	*85 %*	*Limits: 44-120 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*78 %*	*54-127 %*			*"*					
Duplicate (24E0823-DUP1)			Prepared: 05/23/24 06:19	Analyzed: 05/23/24 12:35								
QC Source Sample: Non-SDG (A4E1288-02)												
Acenaphthene	ND	---	89.8	ug/kg dry	3	---	ND	---	---	---	30%	R-02
Acenaphthylene	ND	---	31.0	ug/kg dry	3	---	ND	---	---	---	30%	
Anthracene	ND	---	40.2	ug/kg dry	3	---	ND	---	---	---	30%	R-02
Benz(a)anthracene	ND	---	31.0	ug/kg dry	3	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	---	31.0	ug/kg dry	3	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	---	31.0	ug/kg dry	3	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	---	31.0	ug/kg dry	3	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	---	31.0	ug/kg dry	3	---	ND	---	---	---	30%	
Chrysene	ND	---	31.0	ug/kg dry	3	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	---	31.0	ug/kg dry	3	---	ND	---	---	---	30%	
Fluoranthene	ND	---	31.0	ug/kg dry	3	---	16.4	---	---	***	**30%**	Q-05
Fluorene	**152**	---	31.0	ug/kg dry	3	---	180	---	---	17	30%	M-04
Indeno(1,2,3-cd)pyrene	ND	---	31.0	ug/kg dry	3	---	ND	---	---	---	30%	
1-Methylnaphthalene	**444**	---	31.0	ug/kg dry	3	---	530	---	---	18	30%	
2-Methylnaphthalene	**390**	---	31.0	ug/kg dry	3	---	505	---	---	26	30%	
Naphthalene	ND	---	55.7	ug/kg dry	3	---	ND	---	---	---	30%	R-02
Phenanthrene	**306**	---	31.0	ug/kg dry	3	---	359	---	---	16	30%	
Pyrene	**106**	---	31.0	ug/kg dry	3	---	129	---	---	20	30%	
Dibenzofuran	**46.8**	---	31.0	ug/kg dry	3	---	55.8	---	---	18	30%	

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Darrell Auvil, Client Services Manager

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ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0823 - EPA 3546							Soil					
Duplicate (24E0823-DUP1)			Prepared: 05/23/24 06:19 Analyzed: 05/23/24 12:35									
QC Source Sample: Non-SDG (A4E1288-02)												
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 80 %*	*Limits: 44-120 %*			*Dilution: 3x*					
p-Terphenyl-d14 (Surr)			*80 %*	*54-127 %*			*"*					
Matrix Spike (24E0823-MS1)			Prepared: 05/23/24 06:19 Analyzed: 05/23/24 13:26									
QC Source Sample: LPR-SBFA-6-3.5-4.0-DUP (A4E1510-19)												
Acenaphthene	939	---	12.7	ug/kg dry	1	1020	ND	92	40-123%	---	---	
Acenaphthylene	871	---	12.7	ug/kg dry	1	1020	ND	85	32-132%	---	---	
Anthracene	881	---	12.7	ug/kg dry	1	1020	ND	86	47-123%	---	---	
Benz(a)anthracene	854	---	12.7	ug/kg dry	1	1020	ND	84	49-126%	---	---	
Benzo(a)pyrene	910	---	12.7	ug/kg dry	1	1020	ND	89	45-129%	---	---	
Benzo(b)fluoranthene	865	---	12.7	ug/kg dry	1	1020	ND	85	45-132%	---	---	
Benzo(k)fluoranthene	883	---	12.7	ug/kg dry	1	1020	ND	87	47-132%	---	---	
Benzo(g,h,i)perylene	820	---	12.7	ug/kg dry	1	1020	ND	80	43-134%	---	---	
Chrysene	934	---	12.7	ug/kg dry	1	1020	ND	92	50-124%	---	---	
Dibenz(a,h)anthracene	944	---	12.7	ug/kg dry	1	1020	ND	93	45-134%	---	---	
Fluoranthene	932	---	12.7	ug/kg dry	1	1020	ND	91	50-127%	---	---	
Fluorene	851	---	12.7	ug/kg dry	1	1020	ND	84	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	891	---	12.7	ug/kg dry	1	1020	ND	87	45-133%	---	---	
1-Methylnaphthalene	832	---	12.7	ug/kg dry	1	1020	ND	82	40-120%	---	---	
2-Methylnaphthalene	851	---	12.7	ug/kg dry	1	1020	ND	84	38-122%	---	---	
Naphthalene	894	---	12.7	ug/kg dry	1	1020	ND	88	35-123%	---	---	
Phenanthrene	898	---	12.7	ug/kg dry	1	1020	ND	88	50-121%	---	---	
Pyrene	942	---	12.7	ug/kg dry	1	1020	ND	92	47-127%	---	---	
Dibenzofuran	857	---	12.7	ug/kg dry	1	1020	ND	84	44-120%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 89 %*	*Limits: 44-120 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*77 %*	*54-127 %*			*"*					

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Darrell Auvil, Client Services Manager

Apex Laboratories, LLC
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503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0839 - EPA 3510C (Acid Extraction)							**Water**					
Blank (24E0839-BLK1)			Prepared: 05/23/24 09:06 Analyzed: 05/23/24 15:57									
EPA 8270E SIM												
Acenaphthene	ND	---	0.0400	ug/L	1	---	---	---	---	---	---	
Acenaphthylene	ND	---	0.0400	ug/L	1	---	---	---	---	---	---	
Anthracene	ND	---	0.0400	ug/L	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	---	0.0400	ug/L	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	---	0.0400	ug/L	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	---	0.0400	ug/L	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	---	0.0400	ug/L	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	---	0.0400	ug/L	1	---	---	---	---	---	---	
Chrysene	ND	---	0.0400	ug/L	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	---	0.0400	ug/L	1	---	---	---	---	---	---	
Fluoranthene	ND	---	0.0400	ug/L	1	---	---	---	---	---	---	
Fluorene	ND	---	0.0400	ug/L	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	---	0.0400	ug/L	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	---	0.0800	ug/L	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	---	0.0800	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	---	0.0800	ug/L	1	---	---	---	---	---	---	
Phenanthrene	ND	---	0.0400	ug/L	1	---	---	---	---	---	---	
Pyrene	ND	---	0.0400	ug/L	1	---	---	---	---	---	---	
Dibenzofuran	ND	---	0.0400	ug/L	1	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 68 %*		*Limits: 44-120 %*				*Dilution: 1x*			
p-Terphenyl-d14 (Surr)			*76 %*		*50-134 %*				*"*			
LCS (24E0839-BS1)			Prepared: 05/23/24 09:06 Analyzed: 05/23/24 16:23									
EPA 8270E SIM												
Acenaphthene	6.39	---	0.0400	ug/L	1	8.00	---	80	47-122%	---	---	
Acenaphthylene	6.10	---	0.0400	ug/L	1	8.00	---	76	41-130%	---	---	
Anthracene	6.98	---	0.0400	ug/L	1	8.00	---	87	57-123%	---	---	
Benz(a)anthracene	7.07	---	0.0400	ug/L	1	8.00	---	88	58-125%	---	---	
Benzo(a)pyrene	7.43	---	0.0400	ug/L	1	8.00	---	93	54-128%	---	---	
Benzo(b)fluoranthene	6.98	---	0.0400	ug/L	1	8.00	---	87	53-131%	---	---	
Benzo(k)fluoranthene	7.59	---	0.0400	ug/L	1	8.00	---	95	57-129%	---	---	
Benzo(g,h,i)perylene	6.70	---	0.0400	ug/L	1	8.00	---	84	50-134%	---	---	
Chrysene	7.78	---	0.0400	ug/L	1	8.00	---	97	59-123%	---	---	

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Darrell Auvil, Client Services Manager

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ORELAP ID: OR100062

ANALYTICAL REPORT

Terraphase Engineering	Project: 7285 Long Prairie Road Property	
610 SW Broadway #406	Project Number: O053.010.002	Report ID:
Portland, OR 97205	Project Manager: James Farrow	A4E1510 - 06 10 24 1150

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0839 - EPA 3510C (Acid Extraction)							Water					
LCS (24E0839-BS1)			Prepared: 05/23/24 09:06 Analyzed: 05/23/24 16:23									
Dibenz(a,h)anthracene	7.80	---	0.0400	ug/L	1	8.00	---	98	51-134%	---	---	
Fluoranthene	7.52	---	0.0400	ug/L	1	8.00	---	94	57-128%	---	---	
Fluorene	6.51	---	0.0400	ug/L	1	8.00	---	81	52-124%	---	---	
Indeno(1,2,3-cd)pyrene	7.43	---	0.0400	ug/L	1	8.00	---	93	52-134%	---	---	
1-Methylnaphthalene	4.82	---	0.0800	ug/L	1	8.00	---	60	41-120%	---	---	
2-Methylnaphthalene	4.85	---	0.0800	ug/L	1	8.00	---	61	40-121%	---	---	
Naphthalene	5.05	---	0.0800	ug/L	1	8.00	---	63	40-121%	---	---	
Phenanthrene	6.96	---	0.0400	ug/L	1	8.00	---	87	59-120%	---	---	
Pyrene	7.49	---	0.0400	ug/L	1	8.00	---	94	57-126%	---	---	
Dibenzofuran	6.29	---	0.0400	ug/L	1	8.00	---	79	53-120%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 71 %*		*Limits: 44-120 %*				*Dilution: 1x*			
p-Terphenyl-d14 (Surr)			*73 %*		*50-134 %*				*"*			
LCS Dup (24E0839-BSD1)			Prepared: 05/23/24 09:06 Analyzed: 05/23/24 16:48									Q-19
EPA 8270E SIM												
Acenaphthene	6.42	---	0.0400	ug/L	1	8.00	---	80	47-122%	0.4	30%	
Acenaphthylene	6.06	---	0.0400	ug/L	1	8.00	---	76	41-130%	0.7	30%	
Anthracene	6.83	---	0.0400	ug/L	1	8.00	---	85	57-123%	2	30%	
Benz(a)anthracene	6.98	---	0.0400	ug/L	1	8.00	---	87	58-125%	1	30%	
Benzo(a)pyrene	7.26	---	0.0400	ug/L	1	8.00	---	91	54-128%	2	30%	
Benzo(b)fluoranthene	6.83	---	0.0400	ug/L	1	8.00	---	85	53-131%	2	30%	
Benzo(k)fluoranthene	7.41	---	0.0400	ug/L	1	8.00	---	93	57-129%	2	30%	
Benzo(g,h,i)perylene	6.51	---	0.0400	ug/L	1	8.00	---	81	50-134%	3	30%	
Chrysene	7.51	---	0.0400	ug/L	1	8.00	---	94	59-123%	4	30%	
Dibenz(a,h)anthracene	7.59	---	0.0400	ug/L	1	8.00	---	95	51-134%	3	30%	
Fluoranthene	7.40	---	0.0400	ug/L	1	8.00	---	93	57-128%	2	30%	
Fluorene	6.33	---	0.0400	ug/L	1	8.00	---	79	52-124%	3	30%	
Indeno(1,2,3-cd)pyrene	7.11	---	0.0400	ug/L	1	8.00	---	89	52-134%	4	30%	
1-Methylnaphthalene	5.16	---	0.0800	ug/L	1	8.00	---	64	41-120%	7	30%	
2-Methylnaphthalene	5.25	---	0.0800	ug/L	1	8.00	---	66	40-121%	8	30%	
Naphthalene	5.49	---	0.0800	ug/L	1	8.00	---	69	40-121%	8	30%	
Phenanthrene	6.87	---	0.0400	ug/L	1	8.00	---	86	59-120%	1	30%	
Pyrene	7.37	---	0.0400	ug/L	1	8.00	---	92	57-126%	2	30%	
Dibenzofuran	6.24	---	0.0400	ug/L	1	8.00	---	78	53-120%	0.9	30%	

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ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0839 - EPA 3510C (Acid Extraction)												**Water**
LCS Dup (24E0839-BSD1)				Prepared: 05/23/24 09:06 Analyzed: 05/23/24 16:48								**Q-19**
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-120 %*	*Dilution: 1x*							
p-Terphenyl-d14 (Surr)			*71 %*	*50-134 %*	*"*							

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ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0962 - EPA 3546							**Soil**					
Blank (24E0962-BLK1)			Prepared: 05/28/24 10:14 Analyzed: 05/28/24 14:48									
EPA 8270E SIM												
Acenaphthene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Anthracene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Chrysene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Fluoranthene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Fluorene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Naphthalene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Phenanthrene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Pyrene	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Dibenzofuran	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)		*Recovery:*	*71 %*	*Limits:*	*44-120 %*		*Dilution:*	*1x*				
p-Terphenyl-d14 (Surr)			*71 %*		*54-127 %*			*"*				
LCS (24E0962-BS1)			Prepared: 05/28/24 10:14 Analyzed: 05/28/24 15:13									
EPA 8270E SIM												
Acenaphthene	675	---	10.0	ug/kg wet	1	800	---	84	40-123%	---	---	
Acenaphthylene	633	---	10.0	ug/kg wet	1	800	---	79	32-132%	---	---	
Anthracene	645	---	10.0	ug/kg wet	1	800	---	81	47-123%	---	---	
Benz(a)anthracene	614	---	10.0	ug/kg wet	1	800	---	77	49-126%	---	---	
Benzo(a)pyrene	675	---	10.0	ug/kg wet	1	800	---	84	45-129%	---	---	
Benzo(b)fluoranthene	620	---	10.0	ug/kg wet	1	800	---	77	45-132%	---	---	
Benzo(k)fluoranthene	664	---	10.0	ug/kg wet	1	800	---	83	47-132%	---	---	
Benzo(g,h,i)perylene	657	---	10.0	ug/kg wet	1	800	---	82	43-134%	---	---	
Chrysene	671	---	10.0	ug/kg wet	1	800	---	84	50-124%	---	---	

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ORELAP ID: OR100062

ANALYTICAL REPORT

Terraphase Engineering	Project: 7285 Long Prairie Road Property	
610 SW Broadway #406	Project Number: O053.010.002	Report ID:
Portland, OR 97205	Project Manager: James Farrow	A4E1510 - 06 10 24 1150

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0962 - EPA 3546							Soil					
LCS (24E0962-BS1)			Prepared: 05/28/24 10:14 Analyzed: 05/28/24 15:13									
Dibenz(a,h)anthracene	712	---	10.0	ug/kg wet	1	800	---	89	45-134%	---	---	
Fluoranthene	674	---	10.0	ug/kg wet	1	800	---	84	50-127%	---	---	
Fluorene	641	---	10.0	ug/kg wet	1	800	---	80	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	699	---	10.0	ug/kg wet	1	800	---	87	45-133%	---	---	
1-Methylnaphthalene	630	---	10.0	ug/kg wet	1	800	---	79	40-120%	---	---	
2-Methylnaphthalene	650	---	10.0	ug/kg wet	1	800	---	81	38-122%	---	---	
Naphthalene	647	---	10.0	ug/kg wet	1	800	---	81	35-123%	---	---	
Phenanthrene	637	---	10.0	ug/kg wet	1	800	---	80	50-121%	---	---	
Pyrene	682	---	10.0	ug/kg wet	1	800	---	85	47-127%	---	---	
Dibenzofuran	630	---	10.0	ug/kg wet	1	800	---	79	44-120%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*	*Limits: 44-120 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*71 %*	*54-127 %*			*"*					
Duplicate (24E0962-DUP1)			Prepared: 05/28/24 10:14 Analyzed: 05/28/24 16:03									
QC Source Sample: Non-SDG (A4E1590-04)												
Acenaphthene	ND	---	24.7	ug/kg dry	1	---	ND	---	---	---	30%	R-02
Acenaphthylene	ND	---	12.3	ug/kg dry	1	---	ND	---	---	---	30%	
Anthracene	ND	---	12.3	ug/kg dry	1	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	---	14.8	ug/kg dry	1	---	ND	---	---	---	30%	R-02
Benzo(a)pyrene	ND	---	12.3	ug/kg dry	1	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	---	12.3	ug/kg dry	1	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	---	12.3	ug/kg dry	1	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	---	12.3	ug/kg dry	1	---	ND	---	---	---	30%	
Chrysene	ND	---	16.0	ug/kg dry	1	---	ND	---	---	---	30%	R-02
Dibenz(a,h)anthracene	ND	---	12.3	ug/kg dry	1	---	ND	---	---	---	30%	
Fluoranthene	ND	---	12.3	ug/kg dry	1	---	9.77	---	---	***	30%	
Fluorene	**21.4**	---	12.3	ug/kg dry	1	---	25.5	---	---	18	30%	
Indeno(1,2,3-cd)pyrene	ND	---	12.3	ug/kg dry	1	---	ND	---	---	---	30%	
1-Methylnaphthalene	**4090**	---	12.3	ug/kg dry	1	---	4850	---	---	17	30%	
Naphthalene	**4120**	---	12.3	ug/kg dry	1	---	4580	---	---	11	30%	
Phenanthrene	**42.4**	---	12.3	ug/kg dry	1	---	46.6	---	---	9	30%	
Pyrene	**15.6**	---	12.3	ug/kg dry	1	---	15.6	---	---	0.3	30%	
Dibenzofuran	ND	---	12.3	ug/kg dry	1	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-120 %*			*Dilution: 1x*					

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Darrell Auvil, Client Services Manager

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ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0962 - EPA 3546							**Soil**					
Duplicate (24E0962-DUP1)			Prepared: 05/28/24 10:14		Analyzed: 05/28/24 16:03							
QC Source Sample: Non-SDG (A4E1590-04)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 61 %*		*Limits: 54-127 %*		*Dilution: 1x*					
Duplicate (24E0962-DUP2)			Prepared: 05/28/24 10:14		Analyzed: 05/28/24 17:45							
QC Source Sample: Non-SDG (A4E1590-04RE1)												
2-Methylnaphthalene	**10800**	---	123	ug/kg dry	10	---	12800	---	---	17	30%	
Matrix Spike (24E0962-MS1)			Prepared: 05/28/24 10:14		Analyzed: 05/28/24 16:28							
QC Source Sample: Non-SDG (A4E1590-04)												
EPA 8270E SIM												
Acenaphthene	767	---	11.9	ug/kg dry	1	956	ND	77	40-123%	---	---	
Acenaphthylene	719	---	11.9	ug/kg dry	1	956	ND	74	32-132%	---	---	
Anthracene	721	---	11.9	ug/kg dry	1	956	ND	75	47-123%	---	---	
Benz(a)anthracene	707	---	11.9	ug/kg dry	1	956	ND	73	49-126%	---	---	
Benzo(a)pyrene	761	---	11.9	ug/kg dry	1	956	ND	80	45-129%	---	---	
Benzo(b)fluoranthene	708	---	11.9	ug/kg dry	1	956	ND	74	45-132%	---	---	
Benzo(k)fluoranthene	731	---	11.9	ug/kg dry	1	956	ND	76	47-132%	---	---	
Benzo(g,h,i)perylene	647	---	11.9	ug/kg dry	1	956	ND	68	43-134%	---	---	
Chrysene	759	---	11.9	ug/kg dry	1	956	ND	78	50-124%	---	---	
Dibenz(a,h)anthracene	762	---	11.9	ug/kg dry	1	956	ND	80	45-134%	---	---	
Fluoranthene	789	---	11.9	ug/kg dry	1	956	9.77	82	50-127%	---	---	
Fluorene	726	---	11.9	ug/kg dry	1	956	25.5	73	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	728	---	11.9	ug/kg dry	1	956	ND	76	45-133%	---	---	
1-Methylnaphthalene	5900	---	11.9	ug/kg dry	1	956	4850	109	40-120%	---	---	E
2-Methylnaphthalene	12100	---	11.9	ug/kg dry	1	956	10400	**178**	**38-122%**	---	---	E, Q-03
Naphthalene	5930	---	11.9	ug/kg dry	1	956	4580	**141**	**35-123%**	---	---	E, Q-03
Phenanthrene	767	---	11.9	ug/kg dry	1	956	46.6	75	50-121%	---	---	
Pyrene	819	---	11.9	ug/kg dry	1	956	15.6	84	47-127%	---	---	
Dibenzofuran	713	---	11.9	ug/kg dry	1	956	ND	74	44-120%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*		*Limits: 44-120 %*		*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*66 %*		*54-127 %*		*"*					

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Darrell Auvil, Client Services Manager

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ORELAP ID: OR100062

ANALYTICAL REPORT

Terraphase Engineering	Project: 7285 Long Prairie Road Property	
610 SW Broadway #406	Project Number: O053.010.002	Report ID:
Portland, OR 97205	Project Manager: James Farrow	A4E1510 - 06 10 24 1150

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0977 - EPA 3051A							Soil					
Blank (24E0977-BLK1)			Prepared: 05/28/24 11:31 Analyzed: 05/29/24 13:56									
EPA 6020B												
Antimony	ND	---	1.00	mg/kg wet	10	---	---	---	---	---	---	
Arsenic	ND	---	1.00	mg/kg wet	10	---	---	---	---	---	---	
Beryllium	ND	---	0.200	mg/kg wet	10	---	---	---	---	---	---	
Cadmium	ND	---	0.200	mg/kg wet	10	---	---	---	---	---	---	
Chromium	ND	---	1.00	mg/kg wet	10	---	---	---	---	---	---	
Copper	ND	---	2.00	mg/kg wet	10	---	---	---	---	---	---	
Lead	ND	---	0.200	mg/kg wet	10	---	---	---	---	---	---	
Mercury	ND	---	0.0800	mg/kg wet	10	---	---	---	---	---	---	
Nickel	ND	---	2.00	mg/kg wet	10	---	---	---	---	---	---	
Selenium	ND	---	1.00	mg/kg wet	10	---	---	---	---	---	---	
Silver	ND	---	0.200	mg/kg wet	10	---	---	---	---	---	---	
Thallium	ND	---	0.200	mg/kg wet	10	---	---	---	---	---	---	
Zinc	ND	---	4.00	mg/kg wet	10	---	---	---	---	---	---	
LCS (24E0977-BS1)			Prepared: 05/28/24 11:31 Analyzed: 05/29/24 14:13									
EPA 6020B												
Antimony	27.2	---	1.00	mg/kg wet	10	25.0	---	109	80-120%	---	---	
Arsenic	54.0	---	1.00	mg/kg wet	10	50.0	---	108	80-120%	---	---	
Beryllium	26.9	---	0.200	mg/kg wet	10	25.0	---	108	80-120%	---	---	
Cadmium	55.0	---	0.200	mg/kg wet	10	50.0	---	110	80-120%	---	---	
Chromium	54.5	---	1.00	mg/kg wet	10	50.0	---	109	80-120%	---	---	
Copper	55.4	---	2.00	mg/kg wet	10	50.0	---	111	80-120%	---	---	
Lead	58.8	---	0.200	mg/kg wet	10	50.0	---	118	80-120%	---	---	
Mercury	1.09	---	0.0800	mg/kg wet	10	1.00	---	109	80-120%	---	---	
Nickel	57.0	---	2.00	mg/kg wet	10	50.0	---	114	80-120%	---	---	
Selenium	27.0	---	1.00	mg/kg wet	10	25.0	---	108	80-120%	---	---	
Silver	28.9	---	0.200	mg/kg wet	10	25.0	---	116	80-120%	---	---	
Thallium	28.0	---	0.200	mg/kg wet	10	25.0	---	112	80-120%	---	---	
Zinc	56.3	---	4.00	mg/kg wet	10	50.0	---	113	80-120%	---	---	
Duplicate (24E0977-DUP1)			Prepared: 05/28/24 11:31 Analyzed: 05/29/24 14:24									
QC Source Sample: Non-SDG (A4E1502-06)												
Antimony	ND	---	2.09	mg/kg dry	10	---	ND	---	---	---	20%	

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ORELAP ID: OR100062

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0977 - EPA 3051A							**Soil**					
Duplicate (24E0977-DUP1)			Prepared: 05/28/24 11:31 Analyzed: 05/29/24 14:24									
QC Source Sample: Non-SDG (A4E1502-06)												
Arsenic	**3.90**	---	2.09	mg/kg dry	10	---	3.85	---	---	1	20%	
Beryllium	**1.05**	---	0.419	mg/kg dry	10	---	1.03	---	---	2	20%	
Cadmium	**0.519**	---	0.419	mg/kg dry	10	---	0.548	---	---	6	20%	
Chromium	**23.1**	---	2.09	mg/kg dry	10	---	22.9	---	---	0.5	20%	
Copper	**41.4**	---	4.19	mg/kg dry	10	---	43.7	---	---	5	20%	
Lead	**11.0**	---	0.419	mg/kg dry	10	---	9.68	---	---	13	20%	
Mercury	ND	---	0.168	mg/kg dry	10	---	ND	---	---	---	20%	
Nickel	**18.7**	---	4.19	mg/kg dry	10	---	20.8	---	---	11	20%	
Selenium	**3.78**	---	2.09	mg/kg dry	10	---	3.32	---	---	13	20%	
Silver	ND	---	0.419	mg/kg dry	10	---	0.239	---	---	***	20%	
Thallium	ND	---	0.419	mg/kg dry	10	---	0.244	---	---	***	**20%**	
Zinc	**65.6**	---	8.38	mg/kg dry	10	---	66.6	---	---	2	20%	
Matrix Spike (24E0977-MS1)			Prepared: 05/28/24 11:31 Analyzed: 05/29/24 14:35									
QC Source Sample: Non-SDG (A4E1502-07)												
EPA 6020B												
Antimony	33.7	---	1.70	mg/kg dry	10	42.6	ND	79	75-125%	---	---	
Arsenic	76.8	---	1.70	mg/kg dry	10	85.1	2.95	87	75-125%	---	---	
Beryllium	42.7	---	0.340	mg/kg dry	10	42.6	1.24	97	75-125%	---	---	
Cadmium	78.1	---	0.340	mg/kg dry	10	85.1	0.213	91	75-125%	---	---	
Chromium	117	---	1.70	mg/kg dry	10	85.1	31.9	100	75-125%	---	---	
Copper	109	---	3.40	mg/kg dry	10	85.1	39.7	81	75-125%	---	---	
Lead	87.2	---	0.340	mg/kg dry	10	85.1	16.2	83	75-125%	---	---	
Mercury	1.66	---	0.136	mg/kg dry	10	1.70	ND	97	75-125%	---	---	
Nickel	104	---	3.40	mg/kg dry	10	85.1	20.1	98	75-125%	---	---	
Selenium	46.2	---	1.70	mg/kg dry	10	42.6	4.02	99	75-125%	---	---	
Silver	45.1	---	0.340	mg/kg dry	10	42.6	0.245	105	75-125%	---	---	
Thallium	41.4	---	0.340	mg/kg dry	10	42.6	ND	97	75-125%	---	---	
Zinc	172	---	6.81	mg/kg dry	10	85.1	108	75	75-125%	---	---	

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ANALYTICAL REPORT

Terraphase Engineering	Project: 7285 Long Prairie Road Property	
610 SW Broadway #406	Project Number: O053.010.002	Report ID:
Portland, OR 97205	Project Manager: James Farrow	A4E1510 - 06 10 24 1150

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0838 - Total Solids (Dry Weight) - 2022								Soil				
Duplicate (24E0838-DUP1)			Prepared: 05/23/24 08:53			Analyzed: 05/24/24 07:37						
QC Source Sample: Non-SDG (A4E1502-01)												
% Solids	**72.9**	---	1.00	%	1	---	70.7	---	---	3	10%	
Duplicate (24E0838-DUP2)			Prepared: 05/23/24 08:53			Analyzed: 05/24/24 07:37						
QC Source Sample: Non-SDG (A4E1502-02)												
% Solids	**66.0**	---	1.00	%	1	---	68.1	---	---	3	10%	
Duplicate (24E0838-DUP3)			Prepared: 05/23/24 08:53			Analyzed: 05/24/24 07:37						
QC Source Sample: Non-SDG (A4E1502-03)												
% Solids	**85.6**	---	1.00	%	1	---	75.5	---	---	**12**	**10%**	
Duplicate (24E0838-DUP4)			Prepared: 05/23/24 08:53			Analyzed: 05/24/24 07:37						
QC Source Sample: Non-SDG (A4E1502-04)												
% Solids	**71.1**	---	1.00	%	1	---	70.6	---	---	0.7	10%	
Duplicate (24E0838-DUP5)			Prepared: 05/23/24 08:53			Analyzed: 05/24/24 07:37						
QC Source Sample: Non-SDG (A4E1502-05)												
% Solids	**73.1**	---	1.00	%	1	---	72.7	---	---	0.6	10%	
Duplicate (24E0838-DUP6)			Prepared: 05/23/24 08:53			Analyzed: 05/24/24 07:37						
QC Source Sample: LPR-SBUST-1-5.0-7.5 (A4E1510-06)												
EPA 8000D												
% Solids	**49.5**	---	1.00	%	1	---	70.0	---	---	**34**	**10%**	
Duplicate (24E0838-DUP7)			Prepared: 05/23/24 08:53			Analyzed: 05/24/24 07:37						
QC Source Sample: Non-SDG (A4E1502-07)												
% Solids	**63.4**	---	1.00	%	1	---	61.1	---	---	4	10%	
Duplicate (24E0838-DUP8)			Prepared: 05/23/24 20:11			Analyzed: 05/24/24 07:37						
QC Source Sample: Non-SDG (A4E1563-01)												
% Solids	**76.6**	---	1.00	%	1	---	76.4	---	---	0.3	10%	

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ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0838 - Total Solids (Dry Weight) - 2022							**Soil**					

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

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ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

SAMPLE PREPARATION INFORMATION

Hydrocarbon Identification Screen by NWTPH-HCID

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24E0882							
A4E1510-01	Water	NWTPH-HCID	05/20/24 16:40	05/24/24 06:09	800mL/5mL	1000mL/5mL	1.25
A4E1510-02	Water	NWTPH-HCID	05/20/24 16:15	05/24/24 06:09	970mL/5mL	1000mL/5mL	1.03
A4E1510-03	Water	NWTPH-HCID	05/20/24 14:30	05/24/24 06:09	1070mL/5mL	1000mL/5mL	0.94
A4E1510-04	Water	NWTPH-HCID	05/20/24 14:35	05/24/24 06:09	880mL/5mL	1000mL/5mL	1.14
A4E1510-05	Water	NWTPH-HCID	05/20/24 17:15	05/24/24 06:09	720mL/5mL	1000mL/5mL	1.39

Prep: EPA 3546 (Fuels)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24E0826							
A4E1510-06	Soil	NWTPH-HCID	05/20/24 16:50	05/23/24 06:29	10.7g/10mL	10g/10mL	0.94
A4E1510-07	Soil	NWTPH-HCID	05/20/24 16:55	05/23/24 06:29	10.13g/10mL	10g/10mL	0.99
A4E1510-08	Soil	NWTPH-HCID	05/20/24 15:20	05/23/24 06:29	10.65g/10mL	10g/10mL	0.94
A4E1510-09	Soil	NWTPH-HCID	05/20/24 15:30	05/23/24 06:29	10.82g/10mL	10g/10mL	0.92
A4E1510-10	Soil	NWTPH-HCID	05/20/24 12:30	05/23/24 06:29	10.12g/10mL	10g/10mL	0.99
A4E1510-11	Soil	NWTPH-HCID	05/20/24 12:35	05/23/24 06:29	10.94g/10mL	10g/10mL	0.91
A4E1510-12	Soil	NWTPH-HCID	05/20/24 12:45	05/23/24 06:29	10.91g/10mL	10g/10mL	0.92
A4E1510-13	Soil	NWTPH-HCID	05/20/24 13:00	05/23/24 06:29	10.67g/10mL	10g/10mL	0.94
A4E1510-14	Soil	NWTPH-HCID	05/20/24 11:30	05/23/24 06:29	10.5g/10mL	10g/10mL	0.95
A4E1510-15	Soil	NWTPH-HCID	05/20/24 12:00	05/23/24 06:29	10.61g/10mL	10g/10mL	0.94
A4E1510-16	Soil	NWTPH-HCID	05/20/24 12:15	05/23/24 06:29	10.44g/10mL	10g/10mL	0.96
A4E1510-17	Soil	NWTPH-HCID	05/20/24 10:10	05/23/24 06:29	10.45g/10mL	10g/10mL	0.96
Batch: 24E0827							
A4E1510-18	Soil	NWTPH-HCID	05/20/24 10:00	05/23/24 06:30	10.27g/10mL	10g/10mL	0.97
A4E1510-19	Soil	NWTPH-HCID	05/20/24 11:00	05/23/24 06:30	10.91g/10mL	10g/10mL	0.92

Diesel and/or Oil Hydrocarbons by NWTPH-Dx with Acid/Silica Gel Cleanup

Prep: EPA 3510C (Fuels/Acid Ext.) w/SG+Acid

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24F0051							
A4E1510-03	Water	NWTPH-Dx/SG	05/20/24 14:30	05/24/24 06:09	1070mL/5mL	1000mL/5mL	0.94

Prep: EPA 3546 w/SG+Acid (NWTPH)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24E1145							

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ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx with Acid/Silica Gel Cleanup

Prep: EPA 3546 w/SG+Acid (NWTPH)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A4E1510-10	Soil	NWTPH-Dx/SG	05/20/24 12:30	05/31/24 10:52	11.52g/5mL	10g/5mL	0.87
A4E1510-11	Soil	NWTPH-Dx/SG	05/20/24 12:35	05/31/24 10:52	11.44g/5mL	10g/5mL	0.87
A4E1510-12RE1	Soil	NWTPH-Dx/SG	05/20/24 12:45	05/31/24 10:52	11.21g/5mL	10g/5mL	0.89
A4E1510-13	Soil	NWTPH-Dx/SG	05/20/24 13:00	05/31/24 10:52	11.34g/5mL	10g/5mL	0.88
A4E1510-14	Soil	NWTPH-Dx/SG	05/20/24 11:30	05/31/24 10:52	11.67g/5mL	10g/5mL	0.86
A4E1510-16	Soil	NWTPH-Dx/SG	05/20/24 12:15	05/31/24 10:52	11.48g/5mL	10g/5mL	0.87

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5030C

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24E1123							
A4E1510-03RE1	Water	NWTPH-Gx (MS)	05/20/24 14:30	05/31/24 09:15	5mL/5mL	5mL/5mL	1.00

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24E0957							
A4E1510-12	Soil	NWTPH-Gx (MS)	05/20/24 12:45	05/20/24 12:45	5.87g/5mL	5g/5mL	0.85

Organochlorine Pesticides by EPA 8081B

Prep: EPA 3546/3640A (GPC)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24E1017							
A4E1510-20RE1	Soil	EPA 8081B	05/20/24 13:45	05/23/24 10:59	11.26g/10mL	10g/5mL	1.78
A4E1510-21RE1	Soil	EPA 8081B	05/20/24 16:30	05/23/24 10:59	11.38g/10mL	10g/5mL	1.76
A4E1510-22RE2	Soil	EPA 8081B	05/20/24 14:10	05/23/24 10:59	11.16g/10mL	10g/5mL	1.79
A4E1510-23RE2	Soil	EPA 8081B	05/20/24 14:45	05/23/24 10:59	11.82g/10mL	10g/5mL	1.69
A4E1510-24RE1	Soil	EPA 8081B	05/20/24 15:15	05/23/24 10:59	11.59g/10mL	10g/5mL	1.73
A4E1510-24RE2	Soil	EPA 8081B	05/20/24 15:15	05/23/24 10:59	11.59g/10mL	10g/5mL	1.73
A4E1510-25RE1	Soil	EPA 8081B	05/20/24 15:30	05/23/24 10:59	11.36g/10mL	10g/5mL	1.76
A4E1510-25RE2	Soil	EPA 8081B	05/20/24 15:30	05/23/24 10:59	11.36g/10mL	10g/5mL	1.76

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Prep: EPA 3510C (Acid Extraction)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor

Apex Laboratories

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Darrell Auvil, Client Services Manager

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

SAMPLE PREPARATION INFORMATION

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Prep: EPA 3510C (Acid Extraction)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24E0839							
A4E1510-01	Water	EPA 8270E SIM	05/20/24 16:40	05/23/24 09:06	730mL/2mL	1000mL/2mL	1.37
A4E1510-02	Water	EPA 8270E SIM	05/20/24 16:15	05/23/24 09:06	920mL/2mL	1000mL/2mL	1.09
A4E1510-03	Water	EPA 8270E SIM	05/20/24 14:30	05/23/24 09:06	840mL/2mL	1000mL/2mL	1.19
A4E1510-04	Water	EPA 8270E SIM	05/20/24 14:35	05/23/24 09:06	900mL/2mL	1000mL/2mL	1.11
A4E1510-05	Water	EPA 8270E SIM	05/20/24 17:15	05/23/24 09:06	690mL/2mL	1000mL/2mL	1.45

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24E0823							
A4E1510-06	Soil	EPA 8270E SIM	05/20/24 16:50	05/23/24 06:19	11.26g/5mL	10g/5mL	0.89
A4E1510-07	Soil	EPA 8270E SIM	05/20/24 16:55	05/23/24 06:19	11.94g/5mL	10g/5mL	0.84
A4E1510-09	Soil	EPA 8270E SIM	05/20/24 15:30	05/23/24 06:19	11.47g/5mL	10g/5mL	0.87
A4E1510-10	Soil	EPA 8270E SIM	05/20/24 12:30	05/23/24 06:19	11.24g/5mL	10g/5mL	0.89
A4E1510-11	Soil	EPA 8270E SIM	05/20/24 12:35	05/23/24 06:19	11.88g/5mL	10g/5mL	0.84
A4E1510-12	Soil	EPA 8270E SIM	05/20/24 12:45	05/23/24 06:19	11.59g/5mL	10g/5mL	0.86
A4E1510-13	Soil	EPA 8270E SIM	05/20/24 13:00	05/23/24 06:19	11.75g/5mL	10g/5mL	0.85
A4E1510-14	Soil	EPA 8270E SIM	05/20/24 11:30	05/23/24 06:19	11.66g/5mL	10g/5mL	0.86
A4E1510-15	Soil	EPA 8270E SIM	05/20/24 12:00	05/23/24 06:19	11.65g/5mL	10g/5mL	0.86
A4E1510-16	Soil	EPA 8270E SIM	05/20/24 12:15	05/23/24 06:19	11.09g/5mL	10g/5mL	0.90
A4E1510-17	Soil	EPA 8270E SIM	05/20/24 10:10	05/23/24 06:19	11.38g/5mL	10g/5mL	0.88
A4E1510-18	Soil	EPA 8270E SIM	05/20/24 10:00	05/23/24 06:19	11.14g/5mL	10g/5mL	0.90
A4E1510-19	Soil	EPA 8270E SIM	05/20/24 11:00	05/23/24 06:19	11.33g/5mL	10g/5mL	0.88
Batch: 24E0962							
A4E1510-08RE1	Soil	EPA 8270E SIM	05/20/24 15:20	05/28/24 10:14	11.87g/5mL	10g/5mL	0.84

Total Metals by EPA 6020B (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24E0977							
A4E1510-13	Soil	EPA 6020B	05/20/24 13:00	05/28/24 11:31	0.487g/50mL	0.5g/50mL	1.03
A4E1510-14	Soil	EPA 6020B	05/20/24 11:30	05/28/24 11:31	0.47g/50mL	0.5g/50mL	1.06
A4E1510-15	Soil	EPA 6020B	05/20/24 12:00	05/28/24 11:31	0.45g/50mL	0.5g/50mL	1.11
A4E1510-16	Soil	EPA 6020B	05/20/24 12:15	05/28/24 11:31	0.471g/50mL	0.5g/50mL	1.06
A4E1510-17	Soil	EPA 6020B	05/20/24 10:10	05/28/24 11:31	0.508g/50mL	0.5g/50mL	0.98
A4E1510-18	Soil	EPA 6020B	05/20/24 10:00	05/28/24 11:31	0.501g/50mL	0.5g/50mL	1.00

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Darrell Auvil, Client Services Manager

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020B (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A4E1510-19	Soil	EPA 6020B	05/20/24 11:00	05/28/24 11:31	0.476g/50mL	0.5g/50mL	1.05

Percent Dry Weight

Prep: Total Solids (Dry Weight) - 2022

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24E0838							
A4E1510-06	Soil	EPA 8000D	05/20/24 16:50	05/23/24 08:53			NA
A4E1510-07	Soil	EPA 8000D	05/20/24 16:55	05/23/24 08:53			NA
A4E1510-08	Soil	EPA 8000D	05/20/24 15:20	05/23/24 08:53			NA
A4E1510-09	Soil	EPA 8000D	05/20/24 15:30	05/23/24 08:53			NA
A4E1510-10	Soil	EPA 8000D	05/20/24 12:30	05/23/24 08:53			NA
A4E1510-11	Soil	EPA 8000D	05/20/24 12:35	05/23/24 08:53			NA
A4E1510-12	Soil	EPA 8000D	05/20/24 12:45	05/23/24 08:53			NA
A4E1510-13	Soil	EPA 8000D	05/20/24 13:00	05/23/24 08:53			NA
A4E1510-14	Soil	EPA 8000D	05/20/24 11:30	05/23/24 08:53			NA
A4E1510-15	Soil	EPA 8000D	05/20/24 12:00	05/23/24 08:53			NA
A4E1510-16	Soil	EPA 8000D	05/20/24 12:15	05/23/24 08:53			NA
A4E1510-17	Soil	EPA 8000D	05/20/24 10:10	05/23/24 08:53			NA
A4E1510-18	Soil	EPA 8000D	05/20/24 10:00	05/23/24 08:53			NA
A4E1510-19	Soil	EPA 8000D	05/20/24 11:00	05/23/24 08:53			NA
A4E1510-20	Soil	EPA 8000D	05/20/24 13:45	05/23/24 08:53			NA
A4E1510-21	Soil	EPA 8000D	05/20/24 16:30	05/23/24 08:53			NA
A4E1510-22	Soil	EPA 8000D	05/20/24 14:10	05/23/24 08:53			NA
A4E1510-23	Soil	EPA 8000D	05/20/24 14:45	05/23/24 08:53			NA
A4E1510-24	Soil	EPA 8000D	05/20/24 15:15	05/23/24 08:53			NA
A4E1510-25	Soil	EPA 8000D	05/20/24 15:30	05/23/24 08:53			NA

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503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

C-05	Extract has undergone a GPC (Gel-Permeation Chromatography) cleanup per EPA 3640A. Reporting levels may be raised due to dilution necessary for cleanup. Sample Final Volume includes the GPC dilution factor, see the Prep page for details.
E	Estimated Value. The result is above the calibration range of the instrument.
F-03	The result for this hydrocarbon range is elevated due to the presence of individual analyte peaks in the quantitation range that are not representative of the fuel pattern reported.
F-09	Results in the Gasoline Range are impacted by the overlap of a heavier fuel hydrocarbon product.
F-11	The hydrocarbon pattern indicates possible weathered diesel, mineral oil, or a contribution from a related component.
M-04	Due to matrix interference, this analyte cannot be accurately quantified. The reported result may contain a high bias.
M-05	Estimated results. Peak separation for structural isomers is insufficient for accurate quantification.
Q-02	Spike recovery is outside of established control limits due to matrix interference.
Q-03	Spike recovery and/or RPD is outside control limits due to the high concentration of analyte present in the sample.
Q-05	Analyses are not controlled on RPD values from sample and duplicate concentrations that are below 5 times the reporting level.
Q-19	Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
Q-41	Estimated Results. Recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Results are likely biased high.
Q-42	Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits. (Refer to the QC Section of Analytical Report.)
R-02	The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
S-01	Surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference.
T-02	This Batch QC sample was analyzed outside of the method specified 12 hour analysis window. Results are estimated.

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ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

REPORTING NOTES AND CONVENTIONS:

Abbreviations:

DET Analyte DETECTED at or above the detection or reporting limit.

ND Analyte NOT DETECTED at or above the detection or reporting limit.

NR Result Not Reported

RPD Relative Percent Difference. RPDs for Matrix Spikes and Matrix Spike Duplicates are based on concentration, not recovery.

Detection Limits: Limit of Detection (LOD)

Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.
The Result Basis is listed following the units as " dry", " wet", or " " (blank) designation.

" dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.

" wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

Results for Volatiles analyses on soils and sediments that are reported on a “dry weight” basis include the water miscible solvent (WMS) correction referenced in the EPA 8000 Method guidance documents. Solid and Liquid samples reported on an “As Received” basis do not have the WMS correction applied, as dry weight was not performed.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories

Darrell Auvil, Client Services Manager

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Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to one half of the Reporting Limit (RL).
Blank results for gravimetric analyses are evaluated to the Reporting Level, not to half of the Reporting Level.
-For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.
For further details, please request a copy of this document.
-Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the sample results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.
'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level, if results are not reported to the MDL.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.

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ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

LABORATORY ACCREDITATION INFORMATION

ORELAP Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation

All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.
Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provded by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

Apex Laboratories

Darrell Auvil, Client Services Manager

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Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

APEX LABS

6700 SW Sandburg St., Tigard, OR 97223 Ph: 503-718-2323

CHAIN OF CUSTODY

Lab # A4E1510 COC 1 of 3

Company: Terraphase Engineering Inc. | Project Mgr: James Farrow | Project Name: 7285 Long Prairie Road Property | Project #: O053.010.002

Address: 610 SW Broadway Suite 405 Portland, OR | Phone: (503) 881-1067 | Email: james.farrow@terraphase | PO # O053.010.002

Sampled by: Don Malkemus and Adrienne Venegas

Site Location: State Oregon, County Tillamook

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 BTEX	8260 RBDM VOCs	8260 Halo VOCs	8260 VOCs Full List	8270 SIM PAHs	8270 Semi-Vols Full List	8082 PCBs	8081 Pesticides	RCRA Metals (8)	Priority Metals (13)	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Hg, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn TOTAL DISS. TCLP	TCLP Metals (8)	Hold Sample	Frozen Archive
LPR-SBUST-DW-1-GW-10-15	5/20	1640	H_2O	7	X							X									
LPR-SBUST-2-GW-10-15	5/20	1615	H_2O	7	X							X									
LPR-SBUST-3-GW-14	5/20	1430	H_2O	7	X							X									
LPR-SBUST-3-GW-14-DUP	5/20	1435	H_2O	7	X							X									
LPR-SBUST-EB-20240520	5/20	1715	H_2O	7	X							X									
LPR-SBUST-1-5.0-7.5	5/20	1650	Soil	4	X							X									
LPR-SBUST-1-7.5-10.0	5/20	1655	soil	4	X							X									
LPR-SBUST-2-5.0-7.5	5/20	1520	soil	4	X							X									
LPR-SBUST-2-7.5-10.0	5/20	1530	Soil	4	X							X									
LPR-SBUST-3-5.0-8.0	5/20	1230	Soil	4	X							X									

Standard Turn Around Time (TAT) = 10 Business Days

TAT Requested (circle): 1 Day, 2 Day, 3 Day, 5 Day, (Standard), Other: ______

SPECIAL INSTRUCTIONS:

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature] Date: 5-21-2024	Signature: C Nallowell Date: 5/21/24	Signature: C Nallowell Date: 5/21/24	Signature: [signature] Date: 5/22/24
Printed Name: Don Malkemus Time: 1800	Printed Name: Time: 1800	Printed Name: Time: 1800	Printed Name: Katrina Mariposa Time: 11:04
Company: Terraphase	Company: UPS	Company: UPS	Company: APEX

Form Y-002 R-00

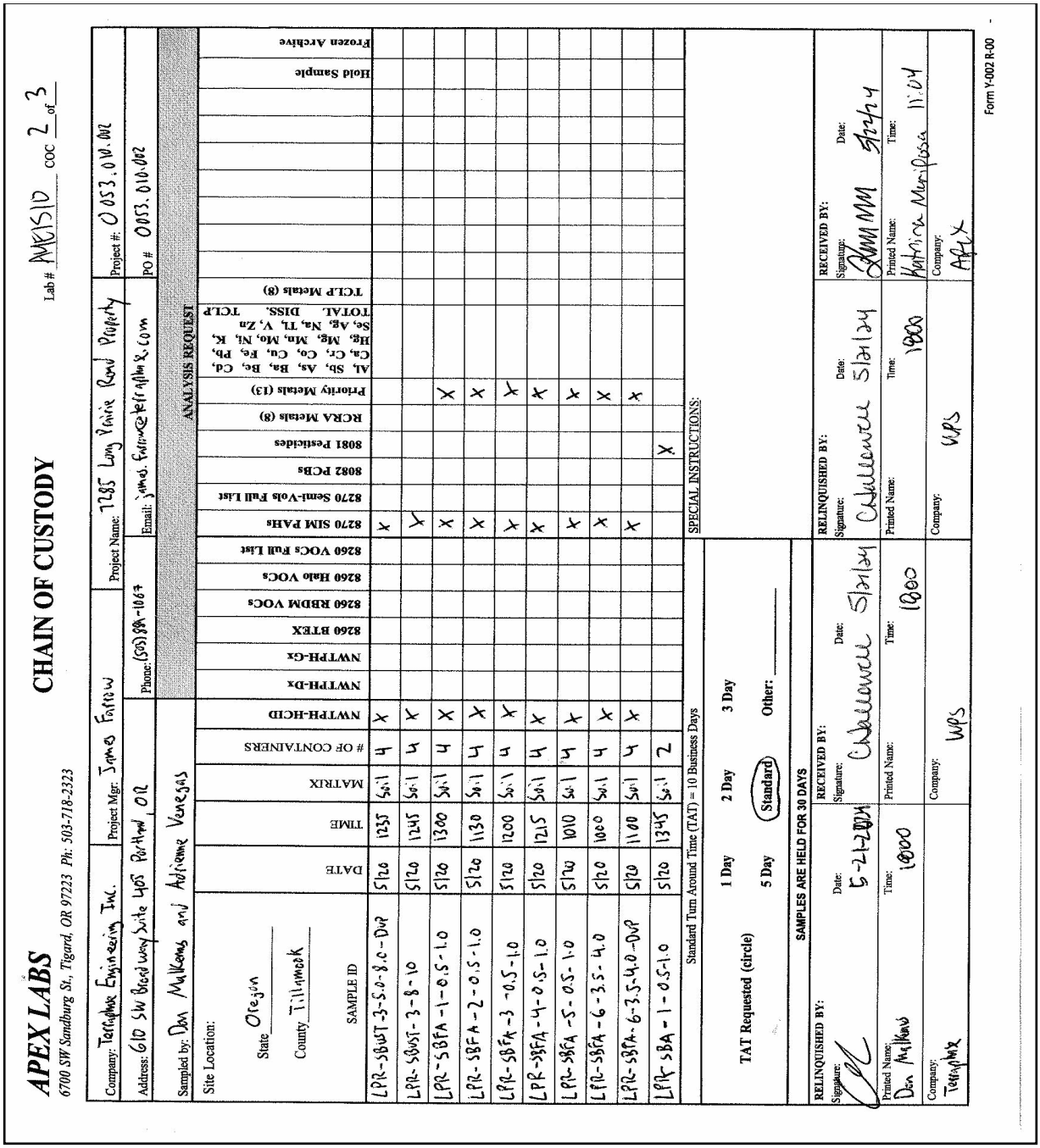
[signature]

Darrell Auvil, Client Services Manager

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**



APEX LABS
6700 SW Sandburg St., Tigard, OR 97223 Ph: 503-718-2323

CHAIN OF CUSTODY

Lab # MACISID COC 2 of 3

Company: Terraphase Engineering Inc. | Project Mgr: James Farrow | Project Name: 7285 Long Prairie Road Property | Project #: O053.010.002
Address: 610 SW Broadway Suite 405 Portland OR | Phone: (503) 968-1067 | Email: james.farrow@terraphase.com | PO # 0053.010.002
Sampled by: Dan Mullens and Adrienne Venegas

Site Location: State Oregon County Tillamook

SAMPLE ID	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 BTEX	8260 RBDM VOCs	8260 Halo VOCs	8260 VOCs Full List	8270 SIM PAHs	8270 Semi-Vols Full List	8082 PCBs	8081 Pesticides	RCRA Metals (8)	Priority Metals (13)	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn TOTAL DISS. TCLP	TCLP Metals (8)	Hold Sample	Frozen Archive
LPR-SB01-3-5.0-8.0-DUP	5/20	1235	Soil	4	X							X									
LPR-SB01-3-8-10	5/20	1245	Soil	4	X							X									
LPR-SBFA-1-0.5-1.0	5/20	1300	Soil	4	X							X					X				
LPR-SBFA-2-0.5-1.0	5/20	1130	Soil	4	X							X					X				
LPR-SBFA-3-0.5-1.0	5/20	1200	Soil	4	X							X					X				
LPR-SBFA-4-0.5-1.0	5/20	1215	Soil	4	X							X					X				
LPR-SBA-5-0.5-1.0	5/20	1010	Soil	4	X							X					X				
LPR-SBFA-6-3.5-4.0	5/20	1000	Soil	4	X							X					X				
LPR-SBFA-6-3.5-4.0-DUP	5/20	1100	Soil	4	X							X					X				
LPR-SBA-1-0.5-1.0	5/20	1345	Soil	2										X							

Standard Turn Around Time (TAT) = 10 Business Days

TAT Requested (circle): 1 Day 2 Day 3 Day 5 Day (Standard) Other: _____

SPECIAL INSTRUCTIONS:

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Date:	Date: 5-24-24	Date: 5/31/24	Date: 5/31/24
Time:	Time: 10000	Time: 10000	Time: 11:04
Printed Name: Dan Mullens	Printed Name:	Printed Name:	Printed Name: Katrina Mariposa
Company: Terraphase	Company: WPS	Company: WPS	Company: APEX

Form Y-002 R-00

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Darrell Auvil, Client Services Manager

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

APEX LABS
6700 SW Sandburg St., Tigard, OR 97223 Ph: 503-718-2323

CHAIN OF CUSTODY

Lab # A4E1510 COC 3 of 3

Company: Terraphase Engineering Inc. | Project Mgr: James Farrow | Project Name: 7285 Long Prairie Road Property | Project #: O053.010.002

Address: 610 SW Broadway Suite 405, Portland, OR | Phone: (503) 889-1067 | Email: james.farrow@terraphase.com | PO # O053.010.002

Sampled by: Don Malkemus and Adrienne Venegas

Site Location: State Oregon, County Tillamook

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 BTEX	8260 RBDM VOCs	8260 Halo VOCs	8260 VOCs Full List	8270 SIM PAHs	8270 Semi-Vols Full List	8082 PCBs	8081 Pesticides	RCRA Metals (8)	Priority Metals (13)	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Hg, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn TOTAL DISS. TCLP	TCLP Metals (8)	Hold Sample	Frozen Archive
LPR-SBA-1-0.5-1.0-DUP	5/20	1630	Soil	2											X						
LPR-SBA-2-0.5-1.0	5/20	1410	Soil	2											X						
LPR-SBA-3-0.5-1.0	5/20	1445	Soil	2											X						
LPR-SBA-4-0.5-1.0	5/20	1515	Soil	2											X						
LPR-SBA-5-0.5-1.0	5/20	1530	Soil	2											X						

Standard Turn Around Time (TAT) = 10 Business Days

TAT Requested (circle): 1 Day, 2 Day, 3 Day, 5 Day, **Standard** (circled), Other: ________

SPECIAL INSTRUCTIONS:

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature] Date: 5-21-2024	Signature: C Hallowell Date: 5/21/24	Signature: C Hallowell Date: 5/21/24	Signature: [signature] Date: 5/22/24
Printed Name: Don Malkemus Time: 1800	Printed Name: Time: 1800	Printed Name: Time: 1800	Printed Name: Katrina Mariposa Time: 11:04
Company: Terraphase	Company: UPS	Company: UPS	Company: APEX

Form Y-002 R-00

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Terraphase Engineering	Project: **7285 Long Prairie Road Property**	
610 SW Broadway #406	Project Number: **O053.010.002**	**Report ID:**
Portland, OR 97205	Project Manager: **James Farrow**	**A4E1510 - 06 10 24 1150**

APEX LABS COOLER RECEIPT FORM

Client: Terraphase Engineering Inc. Element WO#: A4E1510

Project/Project #: 7285 Long Prairie Road Property / 053.010.002

Delivery Info:

Date/time received: 5/22/24 @ 11:04 By: KAM

Delivered by: Apex__Client__ESS__FedEx__UPS_X_Radio__Morgan__SDS__Evergreen__Other__

From USDA Regulated Origin? Yes ____ No X

Cooler Inspection Date/time inspected: 5/22/24 @ 11:15 By: KAM

Chain of Custody included? Yes X No ____

Signed/dated by client? Yes X No ____

Contains USDA Reg. Soils? Yes ____ No X Unsure (email RegSoils) ____

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7	Cooler #8
Temperature (°C)	5.6	5.8	1.4	5.9	4.8	2.2	2.4	2.0
Custody seals? (Y/N)	Y							
Received on ice? (Y/N)	Y							
Temp. blanks? (Y/N)	Y							
Ice type: (Gel/Real/Other)	Real							
Condition (In/Out):	In							

Cooler out of temp? (Y/N) Possible reason why: ____

Green dots applied to out of temperature samples? Yes/No

Out of temperature samples form initiated? Yes/No

Sample Inspection: Date/time inspected: 5/22/24 @ 1853 By: AJW

All samples intact? Yes X No ___ Comments: ____

Bottle labels/COCs agree? Yes X No ___ Comments: ____

COC/container discrepancies form initiated? Yes ___ No X

Containers/volumes received appropriate for analysis? Yes X No ___ Comments: ____

Do VOA vials have visible headspace? Yes ___ No X NA ___

Comments LPR-SBUST-1-GW-10-15 and LPR-SBUST-2-GW-10-15 3/3 have sed

Water samples: pH checked: Yes X No ___ NA ___ pH appropriate? Yes X No ___ NA ___ pH ID: MBI172

Comments: ____

Labeled by: AJW Witness: AJW Cooler Inspected by: AJW

Form Y-003 R-02

Apex Laboratories

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Darrell Auvil, Client Services Manager

Appendix D

Data Validation Reports

Data Validation Report

Project Name: 7285 Long Prairie Road Property	**Lab Reference Number:** A4E1510
Project Number: O053.010.002	**Laboratory:** Apex Laboratories
Validated by: Marie Mueller	**Matrix:** Water, Soil
Sampling Date: 5/20/2024	**Number of Samples:** 25
Data Validation Report Date: 6/13/2024	**Analytical Report Date:** 6/10/2024

The quality control (QC) elements that were reviewed are listed below.

Data Package Completeness	1	Surrogate Compound Recovery	1
Verification of EDD to Hardcopy Data Package	√	Sample Duplicate Analysis	1
Chain-of-Custody and Sample Preservation	2	Blank Spike/Blank Spike Duplicate Sample Analyses	NA
Holding Times	√	Matrix Spike/Matrix Spike Duplicate Sample Analyses	2
Retention Time Windows	NE	Trip Blank Sample Analysis	NA
Initial Calibration	NE	Equipment Blank Sample Analysis	√
Initial Calibration Verification	NE	Field Duplicate Sample Analysis	√
Continuing Calibration	NE	Reference Material Analysis	NE
Method Blank Analysis	1	Compound Quantitation	2
Laboratory Control Samples	1		

√ – Method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed.

1 – Quality control results are discussed below, but no data were qualified.

2 – Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed in this Data Validation Report.

NA – Not applicable

NE – Not evaluated

P – Pending

Overall Assessment

All data, as qualified, are acceptable for use.

Data Package Completeness

The data package was received without a case narrative. The data package included all other required elements: chain-of-custody, sample receipt checklist, results, and QC results.

Verification of EDD to Hardcopy Data Package

Sample results and related quality control data were received in both an electronic and hardcopy format. Electronic data were verified against the laboratory report; no errors were found.

Chain-of-Custody

All sample identification (ID) numbers listed on the chain-of-custody record are consistent with the sample ID reported in the EDD and hardcopy data package.

Sample Preservation

Samples were received at temperatures of 5.6, 5.8, 1.4, 5.9, 4.8, 2.2, 2.4, and 2.0 degrees Celsius. Proper preservation includes samples chilled to ≤6.0 degrees Celsius.

The laboratory noted a “C-05” flag indicating extract has undergone a GPC (Gel-Permeation Chromatography) cleanup per EPA 3640A. Reporting levels may be raised due to dilution necessary for cleanup.

Holding Times

All samples were analyzed within the holding time.

Retention Time Windows

Not evaluated.

Initial Calibration

Not evaluated.

Initial Calibration Verification

Not evaluated.

Continuing Calibration

Continuing calibration verification (CCV) was not evaluated, however, the laboratory Q-41 flagged analytes that had CCV samples above upper control limits. Flagged results are likely biased high.

Method Blank Analysis

No target compounds were detected in the method blank samples.

Laboratory Control Samples

The laboratory noted a “Q-41” flag for the surrogate of laboratory control sample (LCS) 24E1145-BS1, Batch 24E1145, indicating estimated results, recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Results are likely biased high.

The laboratory noted a “Q-19” flag for lab control sample duplicate (LCSD) 24F0051-BSD1, Batch d24F0051, indicating Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.

The laboratory noted a “Q-41” flag for several analytes in the LCS 24E1017-BS1, Batch 24E1017, indicating estimated results, recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Results are likely biased high. Analyte methoxychlor percent recovery was above laboratory limits.

All other percent recovery values and relative percent differences (RPDs) for laboratory control samples (LCSs) were within acceptable criteria established by the laboratory for the respective testing methods.

Surrogate Compound Recovery

Surrogate for samples PR-SBUST-3-5.0-8.0, LPR-SBUST-3-5.0-8.0-DUP, LPR-SBFA-1-0.5-1.0, LPR-SBFA-2-0.5-1.0, LPR-SBFA-4-0.5-1.0 were “Q-41” flagged by the laboratory indicating estimated results, recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Results are likely biased high.

All percent recovery values for surrogate compounds were within acceptable criteria established by the laboratory for the respective testing methods, except for the following:

Surrogate for sample LPR-SBUST-3-8-10 received a “S-01” flag by the laboratory, indicating surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference.

Sample Duplicate Analysis

Deisel was flagged with “F-11” by the lab in 24E1145-DUP1 because the hydrocarbon pattern indicates possible weathered diesel, mineral oil, or a contribution from a related component. The o-Terphenyl surrogate was “Q-41” by the lab indicating estimated results. Recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Results are likely biased high.

Duplicate samples from batch 24E1068-DUP1 and 24E1068-DUP1, were flagged with “T-02” indicating this Batch QC sample was analyzed outside of the method specified 12-hour analysis window, results are estimated.

In the duplicate batch 24E1017, Endrin aldehyde and delta-BHC were “R-02” flagged by the lab because the reporting limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.

In the duplicate batch 24E0823, Acenaphthene, Anthracene, and Naphthalene were “R-02” flagged by the lab because the reporting limit for these analytes has been raised to account for interference from coeluting organic compounds present in the sample.

In the duplicate batch 24E0823, Fluoranthene was “Q-05” flagged by the lab to indicate that analyses are not controlled on RPD values from sample and duplicate concentrations that are below 5 times the reporting level.

In the duplicate batch 24E0823, Fluorene was “M-04” flagged by the lab because due to matrix interference, this analyte cannot be accurately quantified. The reported result may contain a high bias.

Duplicate sample 24E0962-DUP1, from batch 24E0962 received “R-02” flags by the laboratory for analytes acenaphthene, benz(a)anthracene, and chrysene. The reporting limit for these analytes has been raised to account for interference from coeluting organic compounds present in the sample.

Duplicate sample 24E0838-DUP3, and 24E0838-DUP6 from batch 24E0838, the RPD for percent solids was calculated to be above the laboratory set RPD limit for percent dry weight.

All other relative percent differences (RPDs) for sample duplicates were within acceptable criteria established by the laboratory for the respective testing methods.

Blank Spike/Blank Spike Duplicate Sample Analyses

Blank spike and blank spike duplicate sample analyses were not performed for this sample batch.

Matrix Spike/Matrix Spike Duplicate Sample Analyses

All percent recoveries and relative percent differences (RPDs) for matrix spikes and matrix spike duplicates were within acceptable criteria established by the laboratory for the respective testing methods except for the following:

- In MS batch 24E1017, delta-BHC was “E” flagged by the lab to indicate that it is an estimated value due to results that are above the calibration range of the instrument. Delta-BHC and methoxychlor also had high spike recoveries outside of established control limits.
- In MS batch 24E0962, 1-Methylnaphthalene, 2-Methylnaphthalene, and Naphthalene were “E” flagged by the lab to indicate that these are estimated values. The results are above the calibration range of the instrument.
- In MS batch 24E1017, delta-BHC, 4,4’-DDD, and Endrin aldehyde were “R-02” flagged by the lab because the reporting limit for those analytes was raised to account for interference from coeluting organic compounds present in the sample.
- In MS batch 24E1017, delta-BHC was “E” flagged by the lab to indicate that it is an estimated value. The result is above the calibration range of the instrument. This analyte was also “Q-02” flagged because spike recovery is outside of established control limits due to matrix interference.
- In MS batch 24E1017, 4,4’-DDD, Endrin ketone, Heptachlor, and Methoxychlor were “Q-41” flagged by the lab to indicate that these are estimated values. Recovery of Continuing Calibration Verification sample above upper control limit for these analytes. Results are likely biased high.
- In MS batch 24E0962, 2-Methylnaphthalene and Naphthalene were “Q-03” flagged by the lab to indicate that spike recovery and/or RPD is outside control limits due to the high concentration of analyte present in the samples.

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Trip Blank Sample Analysis

A trip blank sample was not collected for this sample batch.

Equipment Blank Sample Analysis

An equipment blank sample, LPR-SBUST-EB-20240520, was collected for this sample batch. No compounds were detected in the equipment blank sample.

Field Duplicate Analysis

Samples LPR-SBUST-3-GW-14-DUP, LPR-SBUST-3-5.0-8.0-DUP, LPR-SBFA-6-3.5-4.0-DUP, and LPR-SBA-1-0.5-1.0-DUP were collected as field duplicates of LPR-SBUST-3-GW-14, LPR-SBUST-3-5.0-8.0, LPR-SBFA-6-3.5-4.0, and LPR-SBA-1-0.5-1.0, respectively. All RPDs were within the accepted 35% limit for water and 50% limit for soil.

Reference Material Analysis

No reference material analysis was performed.

Compound Quantitation

The laboratory applied the following flags:

F-11 The hydrocarbon pattern indicates possible weathered diesel, mineral oil, or a contribution from a related component.

Results for the following samples were F-11-flagged:

Sample Name	Analytes
LPR-SBUST-3-5.0-8.0	Diesel Range Organics
LPR-SBUST-3-5.0-8.0-DUP	Diesel Range Organics

F-03 The result for this hydrocarbon range is elevated due to the presence of individual analyte peaks in the quantitation range that are not representative of the fuel pattern reported.

Results for the following samples were F-03-flagged:

Sample Name	Analytes
LPR-SBFA-1-0.5-1.0	Oil Range Organics
LPR-SBFA-2-0.5-1.0	Oil Range Organics
LPR-SBFA-4-0.5-1.0	Oil Range Organics

F-09 Results in the Gasoline Range are impacted by the overlap of a heavier fuel hydrocarbon product.

Results for the following samples were F-09-flagged:

Sample Name	Analytes
LPR-SBUST-3-8-10	Gasoline Range Organics

M-04 Due to matrix interference, this analyte cannot be accurately quantified. The reported result may contain a high bias.

Results for the following samples were M-04-flagged:

Sample Name	Analytes
LPR-SBUST-3-8-10	Naphthalene

M-05 Estimated results. Peak separation for structural isomers is insufficient for accurate quantification

Results for the following samples were M-05-flagged:

Sample Name	Analytes
LPR-SBFA-2-0.5-1.0	Benzo(b)fluoranthene, Benzo(k)fluoranthene

R-02 The reporting limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.

Results for the following samples were R-02-flagged:

Sample Name	Analytes
LPR-SBA-1-0.5-1.0	delta-BHC [2C], Endrin aldehyde
LPR-SBA-1-0.5-1.0-DUP	delta-BHC [2C], Endrin aldehyde
LPR-SBA-2-0.5-1.0	delta-BHC [2C], Endrin aldehyde
LPR-SBA-3-0.5-1.0	delta-BHC [2C], Endrin aldehyde
LPR-SBA-4-0.5-1.0	delta-BHC [2C], 4,4'-DDD [2C], Methoxychlor [2C]
LPR-SBA-5-0.5-1.0	delta-BHC, 4,4'-DDD [2C], Endrin aldehyde
LPR-SBUST-3-5.0-8.0	Acenaphthylene, Chrysene, Phenanthrene
LPR-SBUST-3-8-10	Acenaphthylene, Benz(a)anthracene, Chrysene, Flourene, Dibenzofuran
LPR-SBFA-1-0.5-1.0	Benz(a)anthracene, Chrysene

C-05 Extract has undergone a GPC (Gel-Permeation Chromatography) cleanup per EPA 3640A. Reporting Levels may be raised due to dilution necessary for cleanup. Sample Final Volume includes the GPC dilution factor, see the Prep page for details.

Results for the following samples were C-05-flagged:

Sample Name	Analytes
LPR-SBA-1-0.5-1.0	Organochlorine Pesticides
LPR-SBA-1-0.5-1.0-DUP	Organochlorine Pesticides
LPR-SBA-2-0.5-1.0	Organochlorine Pesticides
LPR-SBA-3-0.5-1.0	Organochlorine Pesticides
LPR-SBA-4-0.5-1.0	Organochlorine Pesticides
LPR-SBA-5-0.5-1.0	Organochlorine Pesticides

Q-42 Matrix Spike and/or Duplicate analysis was performed on this sample. % recovery or RPD for this analyte is outside laboratory control limits. (Refer to the QC section of Anayltical Report).

Results for the following samples were Q-42-flagged:

Sample Name	Analytes
LPR-SBA-5-0.5-1.0	delta-BHC

Sample Index

Sample Name	Lab ID	Matrix	Date Collected
LPR-SBUST-1-GW-10-15	A4E1510-01	Water	5/20/2024
LPR-SBUST-2-GW-10-15	A4E1510-02	Water	5/20/2024
LPR-SBUST-3-GW-14	A4E1510-03	Water	5/20/2024
LPR-SBUST-3-GW-14-DUP	A4E1510-04	Water	5/20/2024
LPR-SBUST-EB-20240520	A4E1510-05	Water	5/20/2024
LPR-SBUST-1-5.0-7.5	A4E1510-06	Soil	5/20/2024
LPR-SBUST-1-7.5-10.0	A4E1510-07	Soil	5/20/2024
LPR-SBUST-2-5.0-7.5	A4E1510-08	Soil	5/20/2024
LPR-SBUST-2-7.5-10.0	A4E1510-09	Soil	5/20/2024
LPR-SBUST-3-5.0-8.0	A4E1510-10	Soil	5/20/2024
LPR-SBUST-3-5.0-8.0-DUP	A4E1510-11	Soil	5/20/2024
LPR-SBUST-3-8-10	A4E1510-12	Soil	5/20/2024
LPR-SBFA-1-0.5-1.0	A4E1510-13	Soil	5/20/2024
LPR-SBFA-2-0.5-1.0	A4E1510-14	Soil	5/20/2024
LPR-SBFA-3-0.5-1.0	A4E1510-15	Soil	5/20/2024
LPR-SBFA-4-0.5-1.0	A4E1510-16	Soil	5/20/2024
LPR-SBFA-5-0.5-1.0	A4E1510-17	Soil	5/20/2024

Sample Name	Lab ID	Matrix	Date Collected
LPR-SBFA-6-3.5-4.0	A4E1510-18	Soil	5/20/2024
LPR-SBFA-6-3.5-4.0-DUP	A4E1510-19	Soil	5/20/2024
LPR-SBA-1-0.5-1.0	A4E1510-20	Soil	5/20/2024
LPR-SBA-1-0.5-1.0-DUP	A4E1510-21	Soil	5/20/2024
LPR-SBA-2-0.5-1.0	A4E1510-22	Soil	5/20/2024
LPR-SBA-3-0.5-1.0	A4E1510-23	Soil	5/20/2024
LPR-SBA-4-0.5-1.0	A4E1510-24	Soil	5/20/2024
LPR-SBA-5-0.5-1.0	A4E1510-25	Soil	5/20/2024

END OF REPORT

Appendix B

Field Notes

terraphase engineering

Daily Field Log

Site: POTB Remedial Excavation

7285 Long Prairie Rd,Tillamook,OR,97035

Project Number: O064.001.002

By: Adrienne Venegas

Date	02/26/2025	Contractor	3 Kings Environmental, Inc.
Staff On-Site	Adrienne Venegas, Don Malkemus	Crew	Brett MacDonald (PM), Jake Gary (truck driver), and Shane Griffis (excavator operator)
Staff From Time	08:45	From Time	08:45
Staff To Time	17:21	To Time	17:20
Weather	Sunny	Tailgate Meeting?	YES
Equipment	Backhoe, PID, Draeger pump and benzene tubes	Remarks	

Work Summary

Excavate contaminated soils in area of former UST

Time	Notes
08:45	TEI on site. Met with Jake of 3 Kings on site. Unload excavator.
08:45	Brett of 3 Kings on site. Perform leak test on Draeger pump - passing. Calibrate PID: Zero: 0.0 ppm Span: 99.6 ppm
09:13	Assess excavation area using GPS

Picture taken at: 09:13

Caption: Area of former UST and Radio Transmission bldg

Latitude: 45.42547596200001

Longitude: -123.7840682081667

Picture taken at: 09:13

Caption: Area north of former UST and Radio Transmission bldg

Latitude: 45.4254735825

Longitude: -123.7840720595

09:20	DTM

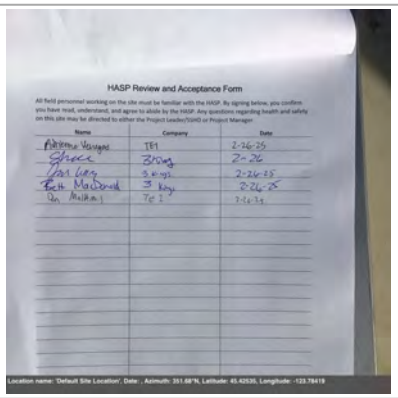
Time	Notes

Picture taken at: 09:25

Caption: DTM

Latitude: 45.42534121607121

Longitude: -123.7841919729805



Picture taken at: 09:25

Caption: HASP

Latitude: 45.42535481077255

Longitude: -123.7841882948125

09:37 3Kings excavating trench to allow water to drain from excavation area

Picture taken at: 09:37

Caption: Trench to northern portion of the site

Latitude: 45.42530443850001

Longitude: -123.7841715435

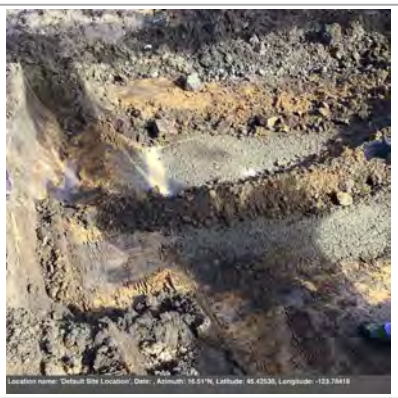
Picture taken at: 09:50

Caption: Water flowing from excavation area

Latitude: 45.42580333333333

Longitude: -123.7841716666667

Time	Notes
	 Picture taken at: 09:56 Caption: Clearing water from excavation area Latitude: 45.42530784633333 Longitude: -123.7841733291667
	 Picture taken at: 10:17 Caption: Berming excavation area. Red brick is approximate location of TEI boring SBUST-3 (Ph II) Latitude: 45.425384462 Longitude: -123.7842874881667
10:26	Uncovering excavation area and creating berm
	 Picture taken at: 10:26 Caption: Abandoned suspected sewer pipe near surface in northeastern portion of excavation Latitude: 45.42562833333334 Longitude: -123.7833333333333
	 Picture taken at: 10:33 Caption: Gravel backfill of former excavation uncovered Latitude: 45.42537267750001 Longitude: -123.7843345745
10:33	Starting excavation

Time	Notes
	 Picture taken at: 10:41 Caption: Gravel evident. Utility in southern portion (right) Latitude: 45.42545949665721 Longitude: -123.7844055795747
	 Picture taken at: 10:41 Caption: Upper 2 ft soils Latitude: 45.42530225783332 Longitude: -123.7841754871667
	 Picture taken at: 10:43 Caption: Extent of gravel backfill. Old boring bentonite backfill visible in center. Latitude: 45.42530029966667 Longitude: -123.7841768841667
	 Picture taken at: 10:50 Caption: Pipe running East-west in excavation at ~3 ft Latitude: 45.42529830499999 Longitude: -123.7841700216667

Time	Notes
	 Picture taken at: 10:51 Caption: Pipe from excavation Latitude: 45.425297921 Longitude: -123.7841708616667
	 Picture taken at: 10:52 Caption: Pipe aligned East-west at ~3 ft. Some rusted holes. No odor Latitude: 45.42529709516666 Longitude: -123.7841685135
	 Picture taken at: 10:57 Caption: Excavation at ~3-4 ft bgs Latitude: 45.42549567198789 Longitude: -123.7843778816115
	 Picture taken at: 11:00 Caption: Concrete below pea gravel at ~4.5 ft Latitude: 45.42529990500001 Longitude: -123.784170132
11:14	PID soil reading of 55.6 ppm at ~5 ft bgs.in silty layer. Loading soils in the truck going forward. Headspace reading 0.1 ppm Groundwater at 5' bgs. Sheen visible but no odor and PID at 0.0 ppm. Heavy flow from southwest corner of excavation.

Time	Notes
	 Picture taken at: 11:17 Caption: Water entering excavation below ~5 ft bgs Latitude: 45.42534655816667 Longitude: -123.7843788538333
11:48	Excavation at about 8 ft bgs. Head space PID reading 0.1 ppm. 3.6 ppm in sw corner of exc - sampled (W-EXC-8.0). Gray, orange, and dark orange mottling below 8 ft bgs.  Picture taken at: 11:49 Caption: Headspace at 7-8 ft bgs. Latitude: 45.425605 Longitude: -123.78418
12:14	Sampling west side of excavation at 9 ft bgs (W-EXC-9.0). West sidewall good.  Picture taken at: 12:14 Caption: W-EXC-9.0 Latitude: 45.42538406140881 Longitude: -123.7842152011678

Time	Notes
	 Picture taken at: 12:25 Caption: Final western sidewal l Latitude: 45.42542754523019 Longitude: -123.7843373261823
12:26	Truck off site to dump at landfill.
12:53	Continuing excavation toward northern sidewall below 8' bgs. Sheen below 9'. PID 5.8 ppm.
	 Picture taken at: 12:53 Caption: Headspace Latitude: 45.42549166666667 Longitude: -123.7842466666667
	 Picture taken at: 13:02 Caption: Latitude: 45.42547242150351 Longitude: -123.7843715593648
	 Picture taken at: 13:04 Caption: North sidewall Latitude: 45.42546333333333 Longitude: -123.78437

Time	Notes
	 Picture taken at: 13:07 Caption: Sheen in soils from north wall Latitude: 45.4254 Longitude: -123.7842333333333
	 Picture taken at: 13:08 Caption: Sheen in soils from north wall Latitude: 45.42538833333333 Longitude: -123.784255
13:15	Switching focus to south sidewall. Will save north sidewall for last
	 Picture taken at: 13:18 Caption: Soils at 8.5 ft. In southern wall. Sheen and odor. PID 7.2 ppm. Latitude: 45.4253440285 Longitude: -123.7843765825
13:34	Expanding south sidewall
	 Picture taken at: 13:43 Caption: Latitude: 45.42534068199999 Longitude: -123.7843799403333

Time	Notes
13:55	Digging bottom. Sample Base1-EXC-10 (south, PID = 0.3 ppm) and Base2-EXC-10 (north, PID = 1.6 ppm). Dense at 10' bgs. Collapsing as soil is removed due to standing water in excavation.

Picture taken at: 13:55

Caption: South base soils at ~10' bgs - sample base 1.

Latitude: 45.42539090027725

Longitude: -123.7841346955171

Picture taken at: 14:06

Caption: North base soils at ~10' bgs - sample base 2

Latitude: 45.42539944834044

Longitude: -123.7841458392203

14:35	Expanding east sidewall. Sample at 9' bgs "E-EXC-8.0" PID = 0.2 ppm

Picture taken at: 14:41

Caption: East sidewall soil sample

Latitude: 45.42544986016666

Longitude: -123.7845059196667

14:53	Finishing southern wall. Sample S-EXC-8.0 (+DUP) PID = 0.0 ppm.
15:09	Sampling stockpile of upper 5 ft of excavation that will be used for shallow backfill.

Time	Notes
	 Picture taken at: 15:15 Caption: Stockpile Latitude: 45.42544595299999 Longitude: -123.784516806
15:13	Expanding north sidewall. Water sitting at ~8 ft bgs in excavation. Benzene reading in headspace 0.0 ppm. Sample at 9' bgs. N-EXC-9.0. PID = 0.6 ppm.  Picture taken at: 15:26 Caption: Continuing north sidewall Latitude: 45.42542801203933 Longitude: -123.7843542288689
	 Picture taken at: 15:39 Caption: Placing soils from north sidewall below ~5 ft bgs on plastic Latitude: 45.42540617227356 Longitude: -123.7843241361136
	 Picture taken at: 15:50 Caption: Area of north sidewall sample (beyond bucket) Latitude: 45.42540032345527 Longitude: -123.7843103804406

Time	Notes
	 Picture taken at: 15:58 Caption: Sample at 9' bgs from north sidewall. N-EXC-9.0 Latitude: 45.42544669283334 Longitude: -123.7845149758333
15:31	Don off site.
16:11	Excavation complete. More piping encountered at ~3 ft bgs and removed from western sidewall (oriented East-west) Final excavation dimensions: 20' (E-W) x 23' (N-S) x 10' bgs  Picture taken at: 16:11 Caption: More Piping at ~3 ft bgs. Latitude: 45.42542833333334 Longitude: -123.7842466666667  Picture taken at: 16:12 Caption: Piping pulled from west sidewall at 3' bgs. Latitude: 45.4254386635 Longitude: -123.7845159835  Picture taken at: 16:12 Caption: Piping pulled from west sidewall at 3' bgs. Latitude: 45.42553959875424 Longitude: -123.7844848933803

Time	Notes
	 Picture taken at: 16:46 Caption: Final south sidewall Latitude: 45.4255 Longitude: -123.7843083333333
	 Picture taken at: 16:46 Caption: Final west sidewall Latitude: 45.42545 Longitude: -123.7842416666667
	 Picture taken at: 16:46 Caption: Final east sidewall Latitude: 45.42543333333333 Longitude: -123.7843633333333
	 Picture taken at: 16:46 Caption: Final north sidewall Latitude: 45.42538833333333 Longitude: -123.7842716666667
16:34	Jake returns with dump truck. First load was 19.3 tons. Second load being loaded. 3Kings setting up fencing around excavation.

Time	Notes
	 Picture taken at: 17:16 Caption: Excavation taped off Latitude: 45.42535947432182 Longitude: -123.7840406987174
	 Picture taken at: 17:16 Caption: Stockpiles covered Latitude: 45.42536112549403 Longitude: -123.7840296385668
17:15	Jake off site with second load.
17:21	TEI and 3Kings off site. Excavation to be backfilled with quarry spalls from Braxling & Braxling tomorrow

Daily Field Log

Site: POTB Remedial Excavation

7285 Long Prairie Rd,Tillamook,OR,97035

Project Number: O064.001.002

By: Don Malkemus

Date	2/26/2025	Contractor	3Kings Environmental
Staff On-Site	Don Malkemus, Adrienne Venegas	Crew	Brett MacDonald (foreman), Jake Gary (truck driver), Shane Griffis (Excator operator)
Staff From Time	8:30 AM	From Time	8:46 AM
Staff To Time	4:29 PM	To Time	5:01 PM
Weather	Sunny	Tailgate Meeting?	YES
Equipment	Excavator (Cat 1100S)	Remarks	

Work Summary

Time	Notes
8:30	On-site, large standing water at location of former building that will require draining.

Picture taken at: 08:47

Caption: Large puddle at former building

Latitude: 45.42547

Longitude: -123.78401

08:48	3Kings excavator and solo truck onsite

Picture taken at: 08:49

Caption:

Latitude: 45.42556

Longitude: -123.78395

9:10	Health and Safety Tailgate
09:36	3Kings start to dig a ditch to redirect ponded water

Time	Notes
	 Picture taken at: 09:37 Caption: Latitude: 45.42557 Longitude: -123.78398
	 Picture taken at: 10:02 Caption: Latitude: 45.42534 Longitude: -123.78399
	 Picture taken at: 10:02 Caption: Latitude: 45.42534 Longitude: -123.78399
	 Picture taken at: 10:02 Caption: Latitude: 45.42574 Longitude: -123.7843

Time	Notes

Picture taken at: 10:02

Caption:

Latitude: 45.42619

Longitude: -123.78334

10:31 Create a berm around the excavation area. Uncover possible UST backfill in the process.

Picture taken at: 10:31

Caption:

Latitude: 45.42569

Longitude: -123.78411

10:39 Begin excavating

Picture taken at: 10:45

Caption:

Latitude: 45.42555

Longitude: -123.78413

Picture taken at: 10:45

Caption:

Latitude: 45.42544

Longitude: -123.78433

Time	Notes
11:39	Contaminated material present at about 5 feet bgs. Excavate west sidewall to about 9 feet bgs. Groundwater at about 8 feet bgs. Groundwater has a slight sheen, but no HC odor and no PID readings.

Picture taken at: 11:40

Caption:

Latitude: 45.42538

Longitude: -123.78412

Picture taken at: 12:31

Caption: west sidewall at 8-9 feet bgs (before water inundates).

Latitude: 45.42539

Longitude: -123.78411

Picture taken at: 12:40

Caption: west sidewall

Latitude: 45.42559

Longitude: -123.78414

12:37	Dense gravel at ten feet bgs, which collapses back in. This is the deepest feasible depth. Collect base samples approximately 2.5 feet north and south of the center of the south and north sidewalls, respectively.
15:11	Clean up and sample east sidewall

Time	Notes
	 Picture taken at: 15:12 Caption: Latitude: 45.42549 Longitude: -123.78432
15:13	Clean up and sample south sidewall
	 Picture taken at: 15:14 Caption: Latitude: 45.42549 Longitude: -123.78423
	 Picture taken at: 15:14 Caption: Latitude: 45.42549 Longitude: -123.78423
15:23	Cleanup north sidewall
16:00	DAM offsite, 3Kings and Adrienne remain

Daily Field Log

Site: POTB Remedial Excavation

7285 Long Prairie Rd,Tillamook,OR,97035

Project Number: O064.001.002

By: Adrienne Venegas

Date	02/27/2025	Contractor	3 Kings Environmental
Staff On-Site	Adrienne Venegas	Crew	Brett MacDonald (PM), Jake Gary (truck driver), and Shane Griffis (excavator operator)
Staff From Time	07:28	From Time	07:45
Staff To Time	16:30	To Time	16:30
Weather	Sunny	Tailgate Meeting?	YES
Equipment	Backhoe, PID	Remarks	

Work Summary

Backfill excavation and haul off soils excavated yesterday.

Time	Notes
07:30	TEI on site. Prepping for today's work - backfilling the excavation with quarry spalls and hauling soils excavated yesterday. Water is up to ~4 ft bgs in excavation. 3 Kings plans to put as much quarry spalls as possible to try and displace the water, compacting all as placed.

Picture taken at: 07:38

Caption: Excavation upon arrival - water at ~4 ft bgs (estimated)

Latitude: 45.42540870846371

Longitude: -123.7842443013878

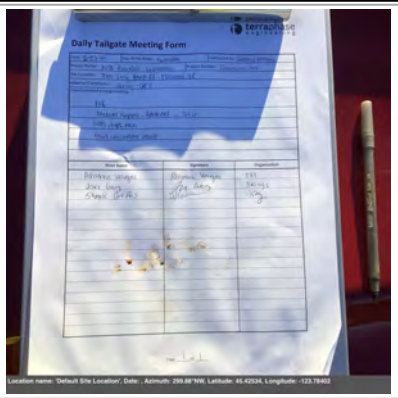
Picture taken at: 07:39

Caption: Excavation upon arrival - water at ~4 ft bgs (estimated)

Latitude: 45.42543

Longitude: -123.7842866666667

07:36	Shane with 3 Kings on site.
07:45	Jake with 3 Kings on site. DTM.

Time	Notes
	 Picture taken at: 07:54 Caption: DTM Latitude: 45.42533885978992 Longitude: -123.7840245378741
07:55	Second load yesterday was 19 tons. 3 Kings loading third truck load.  Picture taken at: 08:15 Caption: Loading dump truck Latitude: 45.42536005445342 Longitude: -123.7840349347329
09:20	Discussed with Don and James the possibility of water overflowing from excavation and onto surface soils surrounding the excavation. Plan is to place quarry spalls and if water rises to within a foot of the surface, stop backfilling and reassess. May need to remove water next week. Collecting a water sample from the excavation. Slight sheen and yellow froth (organic?) is observed on surface of water. HC odor observed. Sample is very slightly turbid.  Picture taken at: 10:09 Caption: Bailer of water into bottles Latitude: 45.42542166666667 Longitude: -123.7843083333333

Time	Notes
	 Picture taken at: 10:09 Caption: Very slight turbidity and minor flocculants Latitude: 45.4254 Longitude: -123.7839966666667
09:40	3 Kings cleaning equipment and performing maintenance while waiting for quarry spalls from Braxling & Braxling to be delivered.
11:06	3Kings suggests running boom over top of water. Booms and pads soaking up some material. Several passes made. Calibrating PID for reading of water Zero: 0.0 ppm Span: 100.1 ppm PID reading on pad = 11.0 ppm  Picture taken at: 11:07 Caption: Boom across surface Latitude: 45.42543333333333 Longitude: -123.7842166666667  Picture taken at: 11:07 Caption: Boom across surface Latitude: 45.42543 Longitude: -123.7842716666667

Time	Notes
	 Picture taken at: 11:08 Caption: Boom across surface Latitude: 45.42548390178351 Longitude: -123.7843309615416
11:33	Mayhew Trucking on site to talk with 3 Kings. Willing to run quarry spalls from Braxling & Braxling in about an hour
12:07	Quarry spalls (backfill material) delivered. Sampled (to be analyzed for metals).
	 Picture taken at: 12:11 Caption: Rip rap to be placed Latitude: 45.42550967965186 Longitude: -123.7840512928273
	 Picture taken at: 12:12 Caption: Rip rap placed Latitude: 45.42545761702146 Longitude: -123.7843452915307
	 Picture taken at: 12:31 Caption: Rip rap sample Latitude: 45.42538833333333 Longitude: -123.7840366666667

Time	Notes
	 Picture taken at: 12:41 Caption: Rip rap placed Latitude: 45.42542133505128 Longitude: -123.7843085008072
12:48	Jake with 3 Kings returns for last (fourth) load to Coffin Butte. Last (third) load was 19 tons. This load is estimated to be about 15 tons.  Picture taken at: 13:07 Caption: Last pile of contaminated soils (right) Latitude: 45.42557941078658 Longitude: -123.7843881580287
12:50	Chance with POTB on site. Discussed site conditions and progress.
13:06	Chance off site.
13:20	Jake off site. Continuing to place backfill  Picture taken at: 13:37 Caption: Placing rip rap Latitude: 45.42544298787947 Longitude: -123.7843341819013
14:29	Total of 8 loads (~95 yards) of quarry spalls placed in the excavation so far. Mainly placed in southern and western portions of the excavation. Total of108 yards total delivered to site. Water has reached the top of the excavation. Allowing water to drain before continuing to place backfill. Brett off site.

Time	Notes
	 Picture taken at: 14:30 Caption: 8 loads of rip rap in. Water reached top of excavation. Latitude: 45.42540623661363 Longitude: -123.7843029183941
	 Picture taken at: 15:16 Caption: Water level after ~1 hr Latitude: 45.42544513509798 Longitude: -123.7843403511224
15:38	Discussed plan with Don. Will allow water to drop over night and continue placing quarry spalls tomorrow. 3 Kings placing fencing around hole.
	 Picture taken at: 15:39 Caption: Water level at end of day Latitude: 45.42542811401937 Longitude: -123.7842458397922
	 Picture taken at: 15:39 Caption: Water level at end of day Latitude: 45.42542819436954 Longitude: -123.7842445331294
15:45	Shane placing fencing and cones around excavation

Time	Notes
	 Picture taken at: 16:06 Caption: Latitude: 45.42538801749135 Longitude: -123.7841939611489
16:30	TEI and 3 Kings off site. Backfill to be continued tomorrow

Daily Field Log

Site: POTB Remedial Excavation

7285 Long Prairie Rd,Tillamook,OR,97035

Project Number: O064.001.002

By: Adrienne Venegas

Date	02/28/2025	Contractor	3 Kings Environmental
Staff On-Site	Adrienne Venegas	Crew	Shane Griffis (excavator operator)
Staff From Time	06:50	From Time	07:00
Staff To Time	15:35	To Time	15:35
Weather	Fog|Sunny	Tailgate Meeting?	YES
Equipment	Backhoe	Remarks	

Work Summary

Continue backfilling excavation

Time	Notes
06:50	TEI on site. Walk site. Water in excavation dropped about 1 ft overnight. Will continue to place quarry spalls.

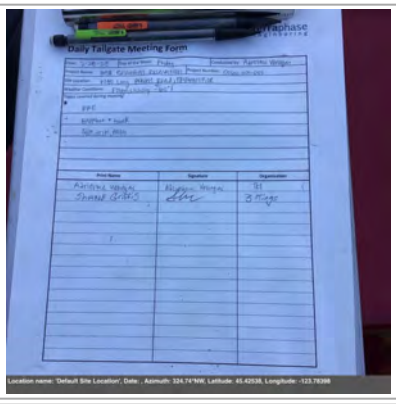
Picture taken at: 06:59

Caption: Water in excavation. Red line is water level at end of day yesterday

Latitude: 45.42540483706765

Longitude: -123.7842983974586

07:00	Shane with 3 Kings on site. DTM.



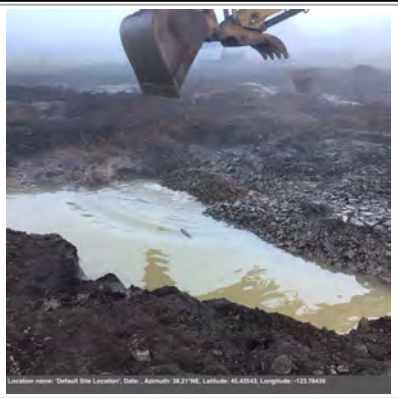
Picture taken at: 07:30

Caption: DTM

Latitude: 45.42538032816604

Longitude: -123.7839750585522

07:05	Pick up cones and fencing
07:30	Starting to place quarry spalls (ninth load that was delivered yesterday). Total of 108 yards placed in excavation.

Time	Notes
	 Picture taken at: 07:33 Caption: Placing gravel Latitude: 45.42543161044529 Longitude: -123.7843606034975
08:09	Water has reached top of excavation. Creating a berm on the low (northwest) side of the excavation to prohibit water from exiting the excavation.  Picture taken at: 08:10 Caption: Creating berm along northwest side of excavation Latitude: 45.42542011666735 Longitude: -123.7843453309675
08:44	All quarry spalls placed. Still need about 1.5 ft of backfill in the northern and western portions of the excavation. However, water has reached top of the excavation and berm, so can't place more quarry spalls until water recedes. Awaiting direction from TEI PMs.
09:30	Discussed plan with Don and Shane. Plan is to allow water to drain overnight again, then return tomorrow to finish placing quarry spalls. Shane will have more quarry spalls delivered to the site this afternoon and start placing fencing around excavation and cleaning up the site.
10:10	TEI off site to perform well survey of the area. One well (Knowlton) identified.
11:15	TEI back on site. 3 Kings grading area surrounding excavation until quarry spalls arrives.  Picture taken at: 11:32 Caption: Grading area surrounding excavation Latitude: 45.4256820927856 Longitude: -123.783895696759
14:52	Shane able to get most of quarry spalls (two loads totaling ~12 yds) that was delivered today into the excavation. Will plan to backfill the northwestern portion of excavation and compact tomorrow morning once water recedes more. Depth to bottom in this area is still 2 ft below surrounding grade

Time	Notes
	 Picture taken at: 14:54 Caption: Excavation nearly completely backfilled Latitude: 45.42540936919146 Longitude: -123.784255056213
	 Picture taken at: 14:56 Caption: Placing more rip rap Latitude: 45.4254221938637 Longitude: -123.7842417828496
15:12	Placing cones around excavation
	 Picture taken at: 15:26 Caption: Site at end of day Latitude: 45.42558747011255 Longitude: -123.7841218891726
	 Picture taken at: 15:26 Caption: Area to be filled tomorrow Latitude: 45.42548545094152 Longitude: -123.7842891040205

Time	Notes
	 Picture taken at: 15:28 Caption: Excavation at end of day Latitude: 45.42542697223232 Longitude: -123.7841599941927
15:35	TEI and 3 Kings off site.

Daily Field Log

Site: POTB Remedial Excavation

7285 Long Prairie Rd,Tillamook,OR,97035

Project Number: O064.001.002

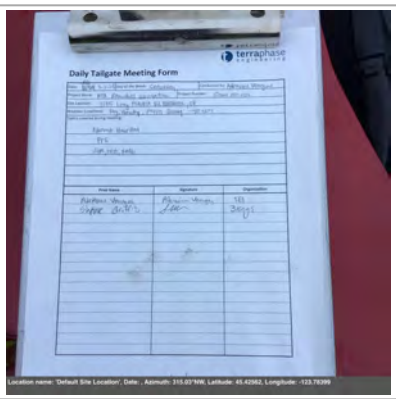
By: Adrienne Venegas

Date	03/01/2025	Contractor	3 Kings Environmental
Staff On-Site	Adrienne Venegas	Crew	Shane Griffis (excavator operator)
Staff From Time	07:00	From Time	07:00
Staff To Time	11:30	To Time	11:30
Weather	Fog|Cloudy|Partly Sunny	Tailgate Meeting?	YES
Equipment	Backhoe and plate compactor	Remarks	

Work Summary

Continue backfilling excavation and compact

Time	Notes
07:00	TEI and 3 Kings on site. DTM. Taking down cones and fencing while excavator warms up.



Picture taken at: 07:16

Caption: DTM

Latitude: 45.42561561513399

Longitude: -123.7839864518706

07:15	Spreading quarry spalls to fill northwest corner of excavation. Up to ~9 inches of water in excavation upon arrival.

Picture taken at: 07:16

Caption: Water level in remaining portion of excavation at time of arrival

Latitude: 45.42549275743759

Longitude: -123.7842494690652

07:22	Excavation filled to ~3 inches below surrounding grade. Compacting

Time	Notes

Picture taken at: 07:23

Caption: Excavation backfilled

Latitude: 45.42538134159401

Longitude: -123.7841819224787

07:45 Placing 3-4 inches of soil cover to bring area up to surrounding grade. Compacting with excavator bucket.

Picture taken at: 07:46

Caption: Placing soil cover

Latitude: 45.42533666666667

Longitude: -123.7841333333333

Picture taken at: 08:04

Caption: Placing soil cover

Latitude: 45.42542743698378

Longitude: -123.7840788271323

09:18 Backfilling complete. 3 Kings cleaning and loading excavator and other equipment.

Picture taken at: 09:18

Caption: Final site conditions looking west

Latitude: 45.42542

Longitude: -123.7839133333333

Time	Notes
	 Picture taken at: 09:18 Caption: Final site conditions looking south Latitude: 45.42581166666667 Longitude: -123.7841866666667
	 Picture taken at: 09:18 Caption: Final site conditions looking east Latitude: 45.42553333333333 Longitude: -123.78463
	 Picture taken at: 09:18 Caption: Final site conditions looking north Latitude: 45.425255 Longitude: -123.7843033333333
11:32	TEI and 3 Kings off site. Excavator to be picked up by dump truck at a later time.

Logged By: Adrienne Verreyes
Date: 2-26-25
Project: POTB Remediation Excavation
Project #: 0064.001.002

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Headspace readings
1100 - 0.1 ppm
1130 - 0.1 ppm
1200 - 0.0 ppm
1300 - 0.2 ppm
1400 - 0.1 ppm
1430 - 0.1 ppm
1500 - 0.1 ppm
1530 - 0.3 ppm

Test Pit Field Log

Test Pit ID: west sidewall
Weather: Sunny ~65°F
Excavator Used: CAT 314D2
Groundwater: 5.0' bgs sat @ ~8' bgs during excavation
Excavated By: 3Kings - Shane Griffis
Total Depth and Width: 20' (E-W) x 23' (N-S) x ~10' bgs

Depth:	Sample ID/Time	Interval	PID (ppm)	USCS Symbol	Soil Description	Sketch
0					SILTY SAND - FILL/TOPSOIL - Dark gray + dark brown, wet, soft, fine-coarse grained, low plast fines, w/ concrete + brick debris. wires + sewer pipe @ ~1.5' bgs. + wood	
1						
2						
3					SILTY SAND-SAND/SILT - brown to orange brown, moist, med. stiff/dense, low plast fines, fine-med-grained sand, (AW)	
4		center	(AW)			
5		center	0.0 / 55.6		Wet below ~5'	
6		center	1.7		increase in sand content below ~6' bgs ~70%. fine-med. gr.	
7					(AW)	
8		west sidewall	3.6 (AW)		80% sand - fine - coarse grained + w/ gravel below ~8' bgs	
9	W-EXC-9.0					
10						

fine ~9.5' bgs

Logged By: Adrienne Venegas
Date: 2-26-25
Project: 0064.001.002B
Project #: POTB Remedial Excavation

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Test Pit Field Log

Test Pit ID:	South sidewall	**Weather:**	Sunny ~ 65°F
Excavator Used:	CAT 314DL w/ ~48" smooth bucket + 24" toothed bucket	**Groundwater:**	4-5' bgs, seepy
Excavated By:	3 Kings - Shane Griffis	**Total Depth and Width:**	seepy

Depth:	Sample ID/Time	Interval	PID (ppm)	USCS Symbol	Soil Description	Sketch
1					SILTY SAND TOPSOIL (see pg 1)	
2					SANDY SILT - SILTY SAND	
3						
4						
5					wet below 5' bgs, water entering exc from SW corner	
6						
7		PID before continuing:	PID after continuing		increase in sand → silty sand fine-coarse sand	
8	S-EXC-8.0 + DUP	0.7 / 7.2	(AV) 0.0 (AV)		w/ gravel below ~8' bgs, sheen in soil (AV) ~~med~~ fine - course sand	
9						
10					dense gravel @ ~9.5' bgs Term @ 10	

gravel @ ~10.5' bgs (base) - dense, but caving once excavated likely due to water in excavation - deepest part of excavation is @ center
Samples from base
0.3 ppm "base1" (south)
1.6 ppm - "base2" (north)

Logged By: Adrienne Venegas
Date: 2-26-25
Project: POTB Remedial Excavation
Project #: 0064.001.002

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Test Pit Field Log

Test Pit ID: East sidewall
Weather: sunny ~65°F
Excavator Used: CAT 314DL
Groundwater: see pg 1
Excavated By: 3 Kings - Shane Griffis
Total Depth and Width: see pg 1

Depth:	Sample ID/Time	Interval	PID (ppm)	USCS Symbol	Soil Description	Sketch
0					silty SAND TOPSOIL (see pg 1)	
1						
2					SANDY SILT - SILTY SAND (see pg 1)	
3						
4						
5						
6						
7					increase in sand ~~%~~ silty sand, fine-coarse-grained	
8					w/ gravel, ~~root~~ fine-coarse sand, heavy sheen in soil (PID)	
9						
	E-EXC-9.0		0.2		dense gravel @ ~9.5' bgs	
10						

form @ ~9.5' bgs

Logged By: Adrienne Venegas
Date: 2-26-25
Project: POTB Remedial Excavation
Project #: 0064.001.002

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Test Pit Field Log

Test Pit ID: North Sidewall
Weather: Sunny ~65°F
Excavator Used: CAT 314DL
Groundwater: seepage
Excavated By: 3Kings-Shane Griffis
Total Depth and Width: seepage

Depth:	Sample ID/Time	Interval	PID (ppm)	USCS Symbol	Soil Description	Sketch
1					SILTY SAND TOPSOIL (see pg 1)	
2					SANDY SILT TO SILTY SAND (see pg 1)	
3						
4						
5					wet below 5' bgs	
6					increase in sand below ~6' → silty sand fine-med.	
7						
8					w/ gravel below ~8', fine (med) - coarse	
9						
	N-EXC-9.0		0.6		very dense @ 9.5'	
10	term @ 9.5' bgs					

Appendix C

Waste Disposal and Backfill Documentation

COFFIN BUTTE LANDFILL 541-745-5792 **REPRINT** 01 **2182560**
28972 Coffin Butte Rd Corvallis, OR 97330

IN - Matthew M. OUT - Isabel A.

000497 - 3 KINGS ENVIRONMENTAL INC
PO BOX 280
BATTLE GROUND, WA 98604

2/26/25 2:21 pm 2/26/25 2:45 pm

FIND

KINGS

Contract:4125253151
Generator:Port of Tillamook Bay

Scale In	GROSS WEIGHT	69,480	NET TONS	19.31		INBOUND
Scale Out	TARE WEIGHT	30,860	NET WEIGHT	38,620		INVOICE

0.00	YD	Tracking QTY					
19.31	tn	SW-CONT SOIL	Origin:TILLAMOOK 100%	$42.00	$811.02	$0.00	$811.02
0.00		Tracking QTY					
1.00		ENVIRONMENTAL FEE 1		$19.71	$19.71	$0.00	$19.71

$830.73

CHANGE: $0.00
CHECK :

COFFIN BUTTE LANDFILL 541-745-5792 **REPRINT** 01 **2182658**
28972 Coffin Butte Rd Corvallis, OR 97330

Justine S.

000497 - 3 KINGS ENVIRONMENTAL INC
PO BOX 280
BATTLE GROUND, WA 98604

2/27/25 5:49 am 2/27/25 6:08 am

3 Kings

52049

Contract:4125253151
Generator:Port of Tillamook Bay

Scale In	GROSS WEIGHT	69,400	NET TONS	19.33		INBOUND
Scale Out	TARE WEIGHT	30,740	NET WEIGHT	38,660		INVOICE

0.00	YD	Tracking QTY					
19.33	tn	SW-CONT SOIL	Origin:TILLAMOOK 100%	$42.00	$811.86	$0.00	$811.86
0.00		Tracking QTY					
1.00		ENVIRONMENTAL FEE 1		$19.71	$19.71	$0.00	$19.71

$831.57

CHANGE: $0.00
CHECK :

COFFIN BUTTE LANDFILL 541-745-5792 **REPRINT** 01 **2182785**
28972 Coffin Butte Rd Corvallis, OR 97330

IN - Justine S. OUT - Sherri M.

000497 - 3 KINGS ENVIRONMENTAL INC
PO BOX 280
BATTLE GROUND, WA 98604

2/27/25 10:10 am 2/27/25 10:38 am
3 Kings

Contract:4125253151
Generator:Port of Tillamook Bay

Scale In	GROSS WEIGHT	68,100	NET TONS	18.80		INBOUND
Scale Out	TARE WEIGHT	30,500	NET WEIGHT	37,600		INVOICE

0.00	YD	Tracking QTY					
18.80	tn	SW-CONT SOIL	Origin:TILLAMOOK 100%	$42.00	$789.60	$0.00	$789.60
0.00		Tracking QTY					
1.00		ENVIRONMENTAL FEE 1		$19.71	$19.71	$0.00	$19.71

$809.31

CHANGE: $0.00
CHECK :

COFFIN BUTTE LANDFILL 541-745-5792 **REPRINT** 01 **2182974**
28972 Coffin Butte Rd Corvallis, OR 97330

IN - Matthew M. OUT - Sherri M.

000497 - 3 KINGS ENVIRONMENTAL INC
PO BOX 280
BATTLE GROUND, WA 98604

2/27/25 3:13 pm 2/27/25 3:28 pm
3 Kings

Contract:4125253151
Generator:Port of Tillamook Bay

Scale In	GROSS WEIGHT	68,920	NET TONS	18.95		INBOUND
Scale Out	TARE WEIGHT	31,020	NET WEIGHT	37,900		INVOICE

0.00	YD	Tracking QTY					
18.95	tn	SW-CONT SOIL	Origin:TILLAMOOK 100%	$42.00	$795.90	$0.00	$795.90
0.00		Tracking QTY					
1.00		ENVIRONMENTAL FEE 1		$19.71	$19.71	$0.00	$19.71

$815.61

CHANGE: $0.00
CHECK :

Appendix D

Laboratory Analytical Report

Specialty Analytical

9011 SE Jannsen Rd
Clackamas, OR 97015
TEL: (503) 607-1331
Website: www.specialtyanalytical.com

March 10, 2025

James Farrow
Terraphase Engineering, Inc.
610 SW Broadway St, Suite 405
Portland, OR 97205
TEL: (503) 889-0367
FAX:

RE: POTB Remedial Action/ 0064.001.002 Order No.: 2503002

Dear James Farrow:

There were no problems with the analysis and all data for associated QC met EPA or laboratory specifications, except where noted in the Case Narrative, or as qualified with flags. Results apply only to the samples analyzed. Without approval of the laboratory, the reproduction of this report is only permitted in its entirety.

If you have any questions regarding these tests, please feel free to call.

Sincerely,

Marty French
Lab Director

Specialty Analytical

9011 SE Jannsen Rd
Clackamas, OR 97015
TEL: (503) 607-1331
Website: www.specialtyanalytical.com

Analytical Report

(Consolidated-ORELAP)

WO#: **2503002**

Date Reported: **3/10/2025**

CLIENT: Terraphase Engineering, Inc. **Collection Date:** 2/26/2025 12:10:00 PM

Project: POTB Remedial Action/ 0064.001.002

Lab ID: 2503002-001 **Matrix:** SOIL

Client Sample ID W-EXC-9.0

Analyses	Result	RL	Qual	Units	DF	Date Analyze	ORELAP Status
NWTPH-HCID					**NWHCID**	**NWHCID**	Analyst: **MB**
Gasoline	ND	29.9		mg/Kg-dry	1	03/03/25 19:05	A
Mineral Spirits	ND	29.9		mg/Kg-dry	1	03/03/25 19:05	A
Kerosene	ND	74.9		mg/Kg-dry	1	03/03/25 19:05	A
Diesel	ND	74.9		mg/Kg-dry	1	03/03/25 19:05	A
Lube Oil	ND	150		mg/Kg-dry	1	03/03/25 19:05	A
Hydraulic Oil	ND	150		mg/Kg-dry	1	03/03/25 19:05	A
Surr: BFB	63.6	50 - 150		%Rec	1	03/03/25 19:05	
Surr: o-Terphenyl	101	50 - 150		%Rec	1	03/03/25 19:05	
VOLATILE ORGANIC COMPOUNDS BY GC/MS					**SW8260D**	**SW 5035**	Analyst: **LB**
Benzene	ND	99.9		µg/Kg-dry	1	03/03/25 14:07	A
Ethylbenzene	ND	99.9		µg/Kg-dry	1	03/03/25 14:07	A
m,p-Xylene	ND	200		µg/Kg-dry	1	03/03/25 14:07	A
o-Xylene	ND	99.9		µg/Kg-dry	1	03/03/25 14:07	A
Toluene	ND	99.9		µg/Kg-dry	1	03/03/25 14:07	A
Surr: 1,2-Dichloroethane-d4	104	71.5 - 124		%Rec	1	03/03/25 14:07	
Surr: 4-Bromofluorobenzene	98.9	75.7 - 122		%Rec	1	03/03/25 14:07	
Surr: Dibromofluoromethane	96.0	64.3 - 124		%Rec	1	03/03/25 14:07	
Surr: Toluene-d8	104	74.9 - 120		%Rec	1	03/03/25 14:07	

QUALIFIERS

H Holding times for preparation or analysis exceeded
S Spike Recovery outside accepted recovery limits
R RPD outside accepted recovery limits

NELAP

ORELAP A Accredited A

Specialty Analytical

9011 SE Jannsen Rd
Clackamas, OR 97015
TEL: (503) 607-1331
Website: www.specialtyanalytical.com

Analytical Report

(Consolidated-ORELAP)

WO#: **2503002**

Date Reported: **3/10/2025**

CLIENT: Terraphase Engineering, Inc. **Collection Date:** 2/26/2025 2:00:00 PM

Project: POTB Remedial Action/ 0064.001.002

Lab ID: 2503002-003 **Matrix:** SOIL

Client Sample ID Base1-EXC-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyze	ORELAP Status
NWTPH-HCID					**NWHCID**	**NWHCID**	Analyst: **MB**
Gasoline	ND	30.0		mg/Kg-dry	1	03/03/25 19:55	A
Mineral Spirits	ND	30.0		mg/Kg-dry	1	03/03/25 19:55	A
Kerosene	ND	75.0		mg/Kg-dry	1	03/03/25 19:55	A
Diesel	ND	75.0		mg/Kg-dry	1	03/03/25 19:55	A
Lube Oil	ND	150		mg/Kg-dry	1	03/03/25 19:55	A
Hydraulic Oil	ND	150		mg/Kg-dry	1	03/03/25 19:55	A
Surr: BFB	61.2	50 - 150		%Rec	1	03/03/25 19:55	
Surr: o-Terphenyl	96.8	50 - 150		%Rec	1	03/03/25 19:55	
VOLATILE ORGANIC COMPOUNDS BY GC/MS					**SW8260D**	**SW 5035**	Analyst: **LB**
Benzene	ND	97.9		µg/Kg-dry	1	03/03/25 15:16	A
Ethylbenzene	ND	97.9		µg/Kg-dry	1	03/03/25 15:16	A
m,p-Xylene	ND	196		µg/Kg-dry	1	03/03/25 15:16	A
o-Xylene	ND	97.9		µg/Kg-dry	1	03/03/25 15:16	A
Toluene	ND	97.9		µg/Kg-dry	1	03/03/25 15:16	A
Surr: 1,2-Dichloroethane-d4	101	71.5 - 124		%Rec	1	03/03/25 15:16	
Surr: 4-Bromofluorobenzene	97.2	75.7 - 122		%Rec	1	03/03/25 15:16	
Surr: Dibromofluoromethane	95.4	64.3 - 124		%Rec	1	03/03/25 15:16	
Surr: Toluene-d8	100	74.9 - 120		%Rec	1	03/03/25 15:16	

QUALIFIERS

H Holding times for preparation or analysis exceeded
S Spike Recovery outside accepted recovery limits
R RPD outside accepted recovery limits

NELAP

ORELAP A Accredited A

Specialty Analytical

9011 SE Jannsen Rd
Clackamas, OR 97015
TEL: (503) 607-1331
Website: www.specialtyanalytical.com

Analytical Report

(Consolidated-ORELAP)

WO#: **2503002**

Date Reported: **3/10/2025**

CLIENT: Terraphase Engineering, Inc. **Collection Date:** 2/26/2025 2:20:00 PM

Project: POTB Remedial Action/ 0064.001.002

Lab ID: 2503002-004 **Matrix:** SOIL

Client Sample ID Base2-EXC-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyze	ORELAP Status
NWTPH-HCID					**NWHCID**	**NWHCID**	Analyst: **MB**
Gasoline	ND	26.5		mg/Kg-dry	1	03/03/25 20:20	A
Mineral Spirits	ND	26.5		mg/Kg-dry	1	03/03/25 20:20	A
Kerosene	ND	66.3		mg/Kg-dry	1	03/03/25 20:20	A
Diesel	ND	66.3		mg/Kg-dry	1	03/03/25 20:20	A
Lube Oil	ND	133		mg/Kg-dry	1	03/03/25 20:20	A
Hydraulic Oil	ND	133		mg/Kg-dry	1	03/03/25 20:20	A
Surr: BFB	66.5	50 - 150		%Rec	1	03/03/25 20:20	
Surr: o-Terphenyl	99.3	50 - 150		%Rec	1	03/03/25 20:20	
VOLATILE ORGANIC COMPOUNDS BY GC/MS					**SW8260D**	**SW 5035**	Analyst: **LB**
Benzene	ND	85.3		µg/Kg-dry	1	03/03/25 15:39	A
Ethylbenzene	ND	85.3		µg/Kg-dry	1	03/03/25 15:39	A
m,p-Xylene	ND	171		µg/Kg-dry	1	03/03/25 15:39	A
o-Xylene	ND	85.3		µg/Kg-dry	1	03/03/25 15:39	A
Toluene	ND	85.3		µg/Kg-dry	1	03/03/25 15:39	A
Surr: 1,2-Dichloroethane-d4	98.4	71.5 - 124		%Rec	1	03/03/25 15:39	
Surr: 4-Bromofluorobenzene	98.8	75.7 - 122		%Rec	1	03/03/25 15:39	
Surr: Dibromofluoromethane	95.1	64.3 - 124		%Rec	1	03/03/25 15:39	
Surr: Toluene-d8	102	74.9 - 120		%Rec	1	03/03/25 15:39	

QUALIFIERS

H Holding times for preparation or analysis exceeded
S Spike Recovery outside accepted recovery limits
R RPD outside accepted recovery limits

NELAP

ORELAP A Accredited A

Specialty Analytical

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Clackamas, OR 97015
TEL: (503) 607-1331
Website: www.specialtyanalytical.com

Analytical Report

(Consolidated-ORELAP)

WO#: **2503002**

Date Reported: **3/10/2025**

CLIENT: Terraphase Engineering, Inc. **Collection Date:** 2/26/2025 2:45:00 PM

Project: POTB Remedial Action/ 0064.001.002

Lab ID: 2503002-005 **Matrix:** SOIL

Client Sample ID E-EXC-9.0

Analyses	Result	RL	Qual	Units	DF	Date Analyze	ORELAP Status
NWTPH-HCID					**NWHCID**	**NWHCID**	Analyst: **MB**
Gasoline	ND	27.4		mg/Kg-dry	1	03/03/25 20:45	A
Mineral Spirits	ND	27.4		mg/Kg-dry	1	03/03/25 20:45	A
Kerosene	ND	68.4		mg/Kg-dry	1	03/03/25 20:45	A
Diesel	ND	68.4		mg/Kg-dry	1	03/03/25 20:45	A
Lube Oil	ND	137		mg/Kg-dry	1	03/03/25 20:45	A
Hydraulic Oil	ND	137		mg/Kg-dry	1	03/03/25 20:45	A
Surr: BFB	66.2	50 - 150		%Rec	1	03/03/25 20:45	
Surr: o-Terphenyl	99.4	50 - 150		%Rec	1	03/03/25 20:45	
VOLATILE ORGANIC COMPOUNDS BY GC/MS					**SW8260D**	**SW 5035**	Analyst: **LB**
Benzene	ND	89.3		µg/Kg-dry	1	03/03/25 16:02	A
Ethylbenzene	ND	89.3		µg/Kg-dry	1	03/03/25 16:02	A
m,p-Xylene	ND	179		µg/Kg-dry	1	03/03/25 16:02	A
o-Xylene	ND	89.3		µg/Kg-dry	1	03/03/25 16:02	A
Toluene	ND	89.3		µg/Kg-dry	1	03/03/25 16:02	A
Surr: 1,2-Dichloroethane-d4	100	71.5 - 124		%Rec	1	03/03/25 16:02	
Surr: 4-Bromofluorobenzene	98.3	75.7 - 122		%Rec	1	03/03/25 16:02	
Surr: Dibromofluoromethane	93.2	64.3 - 124		%Rec	1	03/03/25 16:02	
Surr: Toluene-d8	102	74.9 - 120		%Rec	1	03/03/25 16:02	

QUALIFIERS

H Holding times for preparation or analysis exceeded
S Spike Recovery outside accepted recovery limits
R RPD outside accepted recovery limits

NELAP

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Specialty Analytical

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Clackamas, OR 97015
TEL: (503) 607-1331
Website: www.specialtyanalytical.com

Analytical Report

(Consolidated-ORELAP)

WO#: **2503002**

Date Reported: **3/10/2025**

CLIENT: Terraphase Engineering, Inc. **Collection Date:** 2/26/2025 3:00:00 PM

Project: POTB Remedial Action/ 0064.001.002

Lab ID: 2503002-006 **Matrix:** SOIL

Client Sample ID S-EXC-8.0

Analyses	Result	RL	Qual	Units	DF	Date Analyze	ORELAP Status
NWTPH-HCID					**NWHCID**	**NWHCID**	Analyst: **MB**
Gasoline	ND	28.3		mg/Kg-dry	1	03/03/25 21:35	A
Mineral Spirits	ND	28.3		mg/Kg-dry	1	03/03/25 21:35	A
Kerosene	ND	70.7		mg/Kg-dry	1	03/03/25 21:35	A
Diesel	ND	70.7		mg/Kg-dry	1	03/03/25 21:35	A
Lube Oil	ND	141		mg/Kg-dry	1	03/03/25 21:35	A
Hydraulic Oil	ND	141		mg/Kg-dry	1	03/03/25 21:35	A
Surr: BFB	65.2	50 - 150		%Rec	1	03/03/25 21:35	
Surr: o-Terphenyl	99.2	50 - 150		%Rec	1	03/03/25 21:35	
VOLATILE ORGANIC COMPOUNDS BY GC/MS					**SW8260D**	**SW 5035**	Analyst: **LB**
Benzene	ND	93.6		µg/Kg-dry	1	03/03/25 16:25	A
Ethylbenzene	ND	93.6		µg/Kg-dry	1	03/03/25 16:25	A
m,p-Xylene	ND	187		µg/Kg-dry	1	03/03/25 16:25	A
o-Xylene	ND	93.6		µg/Kg-dry	1	03/03/25 16:25	A
Toluene	ND	93.6		µg/Kg-dry	1	03/03/25 16:25	A
Surr: 1,2-Dichloroethane-d4	99.3	71.5 - 124		%Rec	1	03/03/25 16:25	
Surr: 4-Bromofluorobenzene	97.5	75.7 - 122		%Rec	1	03/03/25 16:25	
Surr: Dibromofluoromethane	93.2	64.3 - 124		%Rec	1	03/03/25 16:25	
Surr: Toluene-d8	102	74.9 - 120		%Rec	1	03/03/25 16:25	

QUALIFIERS

H Holding times for preparation or analysis exceeded
S Spike Recovery outside accepted recovery limits
R RPD outside accepted recovery limits

NELAP

ORELAP A Accredited A

Specialty Analytical

9011 SE Jannsen Rd
Clackamas, OR 97015
TEL: (503) 607-1331
Website: www.specialtyanalytical.com

Analytical Report

(Consolidated-ORELAP)

WO#: **2503002**

Date Reported: **3/10/2025**

CLIENT: Terraphase Engineering, Inc. **Collection Date:** 2/26/2025 3:10:00 PM

Project: POTB Remedial Action/ 0064.001.002

Lab ID: 2503002-007 **Matrix:** SOIL

Client Sample ID S-EXC-8.0-DUP

Analyses	Result	RL	Qual	Units	DF	Date Analyze	ORELAP Status
NWTPH-HCID					**NWHCID**	**NWHCID**	Analyst: **MB**
Gasoline	ND	29.2		mg/Kg-dry	1	03/03/25 22:00	A
Mineral Spirits	ND	29.2		mg/Kg-dry	1	03/03/25 22:00	A
Kerosene	ND	73.0		mg/Kg-dry	1	03/03/25 22:00	A
Diesel	ND	73.0		mg/Kg-dry	1	03/03/25 22:00	A
Lube Oil	ND	146		mg/Kg-dry	1	03/03/25 22:00	A
Hydraulic Oil	ND	146		mg/Kg-dry	1	03/03/25 22:00	A
Surr: BFB	65.0	50 - 150		%Rec	1	03/03/25 22:00	
Surr: o-Terphenyl	102	50 - 150		%Rec	1	03/03/25 22:00	
VOLATILE ORGANIC COMPOUNDS BY GC/MS					**SW8260D**	**SW 5035**	Analyst: **LB**
Benzene	ND	85.4		µg/Kg-dry	1	03/03/25 16:48	A
Ethylbenzene	ND	85.4		µg/Kg-dry	1	03/03/25 16:48	A
m,p-Xylene	ND	171		µg/Kg-dry	1	03/03/25 16:48	A
o-Xylene	ND	85.4		µg/Kg-dry	1	03/03/25 16:48	A
Toluene	ND	85.4		µg/Kg-dry	1	03/03/25 16:48	A
Surr: 1,2-Dichloroethane-d4	98.9	71.5 - 124		%Rec	1	03/03/25 16:48	
Surr: 4-Bromofluorobenzene	96.8	75.7 - 122		%Rec	1	03/03/25 16:48	
Surr: Dibromofluoromethane	93.5	64.3 - 124		%Rec	1	03/03/25 16:48	
Surr: Toluene-d8	101	74.9 - 120		%Rec	1	03/03/25 16:48	

QUALIFIERS

H Holding times for preparation or analysis exceeded
S Spike Recovery outside accepted recovery limits
R RPD outside accepted recovery limits

NELAP

ORELAP A Accredited A

Specialty Analytical

9011 SE Jannsen Rd
Clackamas, OR 97015
TEL: (503) 607-1331
Website: www.specialtyanalytical.com

Analytical Report

(Consolidated-ORELAP)

WO#: **2503002**

Date Reported: **3/10/2025**

CLIENT: Terraphase Engineering, Inc. **Collection Date:** 2/26/2025 4:00:00 PM

Project: POTB Remedial Action/ 0064.001.002

Lab ID: 2503002-008 **Matrix:** SOIL

Client Sample ID N-EXC-9.0

Analyses	Result	RL	Qual	Units	DF	Date Analyze	ORELAP Status
NWTPH-HCID					**NWHCID**	**NWHCID**	Analyst: **MB**
Gasoline	ND	27.0		mg/Kg-dry	1	03/03/25 22:25	A
Mineral Spirits	ND	27.0		mg/Kg-dry	1	03/03/25 22:25	A
Kerosene	ND	67.4		mg/Kg-dry	1	03/03/25 22:25	A
Diesel	ND	67.4		mg/Kg-dry	1	03/03/25 22:25	A
Lube Oil	ND	135		mg/Kg-dry	1	03/03/25 22:25	A
Hydraulic Oil	ND	135		mg/Kg-dry	1	03/03/25 22:25	A
Surr: BFB	56.7	50 - 150		%Rec	1	03/03/25 22:25	
Surr: o-Terphenyl	100	50 - 150		%Rec	1	03/03/25 22:25	
VOLATILE ORGANIC COMPOUNDS BY GC/MS					**SW8260D**	**SW 5035**	Analyst: **LB**
Benzene	ND	83.1		µg/Kg-dry	1	03/03/25 17:11	A
Ethylbenzene	ND	83.1		µg/Kg-dry	1	03/03/25 17:11	A
m,p-Xylene	ND	166		µg/Kg-dry	1	03/03/25 17:11	A
o-Xylene	ND	83.1		µg/Kg-dry	1	03/03/25 17:11	A
Toluene	ND	83.1		µg/Kg-dry	1	03/03/25 17:11	A
Surr: 1,2-Dichloroethane-d4	101	71.5 - 124		%Rec	1	03/03/25 17:11	
Surr: 4-Bromofluorobenzene	97.9	75.7 - 122		%Rec	1	03/03/25 17:11	
Surr: Dibromofluoromethane	92.9	64.3 - 124		%Rec	1	03/03/25 17:11	
Surr: Toluene-d8	102	74.9 - 120		%Rec	1	03/03/25 17:11	

QUALIFIERS

H Holding times for preparation or analysis exceeded
S Spike Recovery outside accepted recovery limits
R RPD outside accepted recovery limits

NELAP

ORELAP A Accredited A

Specialty Analytical

9011 SE Jannsen Rd
Clackamas, OR 97015
TEL: (503) 607-1331
Website: www.specialtyanalytical.com

Analytical Report

(Consolidated-ORELAP)

WO#: **2503002**

Date Reported: **3/10/2025**

CLIENT: Terraphase Engineering, Inc. **Collection Date:** 2/26/2025 3:15:00 PM

Project: POTB Remedial Action/ 0064.001.002

Lab ID: 2503002-009 **Matrix:** SOIL

Client Sample ID Stockpile-0-5

Analyses	Result	RL	Qual	Units	DF	Date Analyze	ORELAP Status
NWTPH-HCID					**NWHCID**	**NWHCID**	Analyst: **MB**
Gasoline	ND	29.3		mg/Kg-dry	1	03/03/25 22:50	A
Mineral Spirits	ND	29.3		mg/Kg-dry	1	03/03/25 22:50	A
Kerosene	ND	73.3		mg/Kg-dry	1	03/03/25 22:50	A
Diesel	ND	73.3		mg/Kg-dry	1	03/03/25 22:50	A
Lube Oil	ND	147		mg/Kg-dry	1	03/03/25 22:50	A
Hydraulic Oil	ND	147		mg/Kg-dry	1	03/03/25 22:50	A
Surr: BFB	63.3	50 - 150		%Rec	1	03/03/25 22:50	
Surr: o-Terphenyl	99.0	50 - 150		%Rec	1	03/03/25 22:50	
VOLATILE ORGANIC COMPOUNDS BY GC/MS					**SW8260D**	**SW 5035**	Analyst: **LB**
Benzene	ND	96.8		µg/Kg-dry	1	03/03/25 17:34	A
Ethylbenzene	ND	96.8		µg/Kg-dry	1	03/03/25 17:34	A
m,p-Xylene	ND	194		µg/Kg-dry	1	03/03/25 17:34	A
o-Xylene	ND	96.8		µg/Kg-dry	1	03/03/25 17:34	A
Toluene	ND	96.8		µg/Kg-dry	1	03/03/25 17:34	A
Surr: 1,2-Dichloroethane-d4	98.9	71.5 - 124		%Rec	1	03/03/25 17:34	
Surr: 4-Bromofluorobenzene	97.1	75.7 - 122		%Rec	1	03/03/25 17:34	
Surr: Dibromofluoromethane	93.2	64.3 - 124		%Rec	1	03/03/25 17:34	
Surr: Toluene-d8	101	74.9 - 120		%Rec	1	03/03/25 17:34	

QUALIFIERS

H Holding times for preparation or analysis exceeded
S Spike Recovery outside accepted recovery limits
R RPD outside accepted recovery limits

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Website: www.specialtyanalytical.com

Analytical Report

(Consolidated-ORELAP)

WO#: **2503002**

Date Reported: **3/10/2025**

CLIENT: Terraphase Engineering, Inc. **Collection Date:** 2/26/2025 4:30:00 PM

Project: POTB Remedial Action/ 0064.001.002

Lab ID: 2503002-010 **Matrix:** WATER

Client Sample ID TB-20250226

Analyses	Result	RL	Qual	Units	DF	Date Analyze	ORELAP Status
VOLATILE ORGANICS BY GC/MS					**SW8260D**	**SW 5030B**	Analyst: **LB**
Benzene	ND	0.300		µg/L	1	03/03/25 20:16	A
Ethylbenzene	ND	1.00		µg/L	1	03/03/25 20:16	A
m,p-Xylene	ND	2.00		µg/L	1	03/03/25 20:16	A
o-Xylene	ND	1.00		µg/L	1	03/03/25 20:16	A
Toluene	ND	1.00		µg/L	1	03/03/25 20:16	A
Surr: 1,2-Dichloroethane-d4	105	75.3 - 126		%Rec	1	03/03/25 20:16	
Surr: 4-Bromofluorobenzene	98.3	78.1 - 120		%Rec	1	03/03/25 20:16	
Surr: Dibromofluoromethane	102	74.2 - 122		%Rec	1	03/03/25 20:16	
Surr: Toluene-d8	100	76.2 - 135		%Rec	1	03/03/25 20:16	

QUALIFIERS

H Holding times for preparation or analysis exceeded
S Spike Recovery outside accepted recovery limits
R RPD outside accepted recovery limits

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Accreditation Program Analytes Report

WO#: **2503002**
10-Mar-25

Client: Terraphase Engineering, Inc.
Project: POTB Remedial Action/ 0064.001.002

Program Name	Sample ID	ClientSampleID	Matrix	Test Name	Analyte	Status
ORELAP	2503002-001A	W-EXC-9.0	Soil	VOLATILE ORGANIC COMPOUNDS BY GC/MS	Toluene	A
				NWTPH-HCID	Kerosene	A
					Hydraulic Oil	A
					Lube Oil	A
					Gasoline	A
				VOLATILE ORGANIC COMPOUNDS BY GC/MS	Benzene	A
				NWTPH-HCID	Diesel	A
					Mineral Spirits	A
				VOLATILE ORGANIC COMPOUNDS BY GC/MS	o-Xylene	A
					m,p-Xylene	A
					Ethylbenzene	A
	2503002-003A	Base1-EXC-10.0			o-Xylene	A
					m,p-Xylene	A
				NWTPH-HCID	Kerosene	A
					Diesel	A
					Gasoline	A
				VOLATILE ORGANIC COMPOUNDS BY GC/MS	Ethylbenzene	A
				NWTPH-HCID	Hydraulic Oil	A
				VOLATILE ORGANIC COMPOUNDS BY GC/MS	Benzene	A
					Toluene	A
				NWTPH-HCID	Lube Oil	A
					Mineral Spirits	A
	2503002-004A	Base2-EXC-10.0			Hydraulic Oil	A
					Kerosene	A
				VOLATILE ORGANIC COMPOUNDS BY GC/MS	Benzene	A
				NWTPH-HCID	Diesel	A
				VOLATILE ORGANIC COMPOUNDS BY GC/MS	Toluene	A
					Ethylbenzene	A

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Accreditation Program Analytes Report

WO#: **2503002**

10-Mar-25

Client: Terraphase Engineering, Inc.

Project: POTB Remedial Action/ 0064.001.002

Program Name	Sample ID	ClientSampleID	Matrix	Test Name	Analyte	Status
ORELAP	2503002-004A	Base2-EXC-10.0	Soil	NWTPH-HCID	Lube Oil	A
				VOLATILE ORGANIC COMPOUNDS BY GC/MS	m,p-Xylene	A
				NWTPH-HCID	Gasoline	A
				VOLATILE ORGANIC COMPOUNDS BY GC/MS	o-Xylene	A
				NWTPH-HCID	Mineral Spirits	A
	2503002-005A	E-EXC-9.0			Diesel	A
				VOLATILE ORGANIC COMPOUNDS BY GC/MS	m,p-Xylene	A
				NWTPH-HCID	Lube Oil	A
				VOLATILE ORGANIC COMPOUNDS BY GC/MS	o-Xylene	A
				NWTPH-HCID	Kerosene	A
					Gasoline	A
				VOLATILE ORGANIC COMPOUNDS BY GC/MS	Toluene	A
				NWTPH-HCID	Mineral Spirits	A
					Hydraulic Oil	A
				VOLATILE ORGANIC COMPOUNDS BY GC/MS	Ethylbenzene	A
					Benzene	A
	2503002-006A	S-EXC-8.0			Ethylbenzene	A
					o-Xylene	A
				NWTPH-HCID	Mineral Spirits	A
				VOLATILE ORGANIC COMPOUNDS BY GC/MS	Benzene	A
					Toluene	A
					m,p-Xylene	A
				NWTPH-HCID	Gasoline	A
					Kerosene	A
					Hydraulic Oil	A
					Lube Oil	A
					Diesel	A
	2503002-007A	S-EXC-8.0-DUP			Kerosene	A

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Accreditation Program Analytes Report

WO#: **2503002**
10-Mar-25

Client: Terraphase Engineering, Inc.
Project: POTB Remedial Action/ 0064.001.002

Program Name	Sample ID	ClientSampleID	Matrix	Test Name	Analyte	Status
ORELAP	2503002-007A	S-EXC-8.0-DUP	Soil	VOLATILE ORGANIC COMPOUNDS BY GC/MS	Benzene	A
				NWTPH-HCID	Mineral Spirits	A
					Hydraulic Oil	A
				VOLATILE ORGANIC COMPOUNDS BY GC/MS	Ethylbenzene	A
				NWTPH-HCID	Gasoline	A
				VOLATILE ORGANIC COMPOUNDS BY GC/MS	Toluene	A
					m,p-Xylene	A
				NWTPH-HCID	Diesel	A
					Lube Oil	A
				VOLATILE ORGANIC COMPOUNDS BY GC/MS	o-Xylene	A
	2503002-008A	N-EXC-9.0		NWTPH-HCID	Kerosene	A
					Hydraulic Oil	A
				VOLATILE ORGANIC COMPOUNDS BY GC/MS	Toluene	A
				NWTPH-HCID	Gasoline	A
				VOLATILE ORGANIC COMPOUNDS BY GC/MS	m,p-Xylene	A
				NWTPH-HCID	Lube Oil	A
				VOLATILE ORGANIC COMPOUNDS BY GC/MS	Ethylbenzene	A
					Benzene	A
				NWTPH-HCID	Mineral Spirits	A
					Diesel	A
				VOLATILE ORGANIC COMPOUNDS BY GC/MS	o-Xylene	A
	2503002-009A	Stockpile-0-5			Toluene	A
				NWTPH-HCID	Hydraulic Oil	A
				VOLATILE ORGANIC COMPOUNDS BY GC/MS	Benzene	A
					Ethylbenzene	A
				NWTPH-HCID	Kerosene	A
					Gasoline	A

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Accreditation Program Analytes Report

WO#: **2503002**

10-Mar-25

Client: Terraphase Engineering, Inc.

Project: POTB Remedial Action/ 0064.001.002

Program Name	Sample ID	ClientSampleID	Matrix	Test Name	Analyte	Status
ORELAP	2503002-009A	Stockpile-0-5	Soil	VOLATILE ORGANIC COMPOUNDS BY GC/MS	o-Xylene	A
					m,p-Xylene	A
				NWTPH-HCID	Diesel	A
					Lube Oil	A
					Mineral Spirits	A
	2503002-010A	TB-20250226	Aqueous	VOLATILE ORGANICS BY GC/MS	Toluene	A
					o-Xylene	A
					m,p-Xylene	A
					Benzene	A
					Ethylbenzene	A

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QC SUMMARY REPORT

Specialty Analytical

WO#: **2503002**

3/10/2025

Client: Terraphase Engineering, Inc.

Project: POTB Remedial Action/ 0064.001.002 **TestCode: 8260_5035**

Sample ID: **LCS MSVWS-3091/**	SampType: **LCS**	TestCode: **8260_5035**	Units: **µg/Kg**	Prep Date:	RunNo: **57855**
Client ID: **LCSS**	Batch ID: **25561**	TestNo: **SW8260D**	**SW 5035**	Analysis Date: **3/3/2025**	SeqNo: **753609**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1880	50.0	2000	0	93.8	74.3	136				
Ethylbenzene	2090	50.0	2000	0	104	70	130				
m,p-Xylene	4420	100	4000	0	111	70	130				
o-Xylene	2020	50.0	2000	0	101	70	130				
Toluene	2020	50.0	2000	0	101	75.1	123				

Sample ID: **CCV MSVWS-3091/**	SampType: **CCV**	TestCode: **8260_5035**	Units: **µg/Kg**	Prep Date:	RunNo: **57855**
Client ID: **CCV**	Batch ID: **25561**	TestNo: **SW8260D**	**SW 5035**	Analysis Date: **3/3/2025**	SeqNo: **753610**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1880	50.0	2000	0	93.8	80	120				
Ethylbenzene	2090	50.0	2000	0	104	80	120				
m,p-Xylene	4420	100	4000	0	111	80	120				
o-Xylene	2020	50.0	2000	0	101	80	120				
Toluene	2020	50.0	2000	0	101	80	120				

Sample ID: **MBLK**	SampType: **MBLK**	TestCode: **8260_5035**	Units: **µg/Kg**	Prep Date:	RunNo: **57855**
Client ID: **PBS**	Batch ID: **25561**	TestNo: **SW8260D**	**SW 5035**	Analysis Date: **3/3/2025**	SeqNo: **753611**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers: H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Specialty Analytical

WO#: **2503002**

3/10/2025

Client: Terraphase Engineering, Inc.

Project: POTB Remedial Action/ 0064.001.002 **TestCode: 8260_5035**

Sample ID: **MBLK**	SampType: **MBLK**	TestCode: **8260_5035**	Units: **µg/Kg**	Prep Date:	RunNo: **57855**
Client ID: **PBS**	Batch ID: **25561**	TestNo: **SW8260D**	**SW 5035**	Analysis Date: **3/3/2025**	SeqNo: **753611**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	50.0									
Ethylbenzene	ND	50.0									
m,p-Xylene	ND	100									
o-Xylene	ND	50.0									
Toluene	ND	50.0									
Surr: 1,2-Dichloroethane-d4	5310		5000		106	71.5	124				
Surr: 4-Bromofluorobenzene	5010		5000		100	75.7	122				
Surr: Dibromofluoromethane	5180		5000		104	64.3	124				
Surr: Toluene-d8	5020		5000		100	74.9	120				

Sample ID: **2503002-001ADUP**	SampType: **DUP**	TestCode: **8260_5035**	Units: **µg/Kg-dry**	Prep Date:	RunNo: **57855**
Client ID: **W-EXC-9.0**	Batch ID: **25561**	TestNo: **SW8260D**	**SW 5035**	Analysis Date: **3/3/2025**	SeqNo: **753614**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	99.9						0	0	20	
Ethylbenzene	ND	99.9						0	0	20	
m,p-Xylene	ND	200						0	0	20	
o-Xylene	ND	99.9						0	0	20	
Toluene	ND	99.9						0	0	20	
Surr: 1,2-Dichloroethane-d4	9980								0	20	
Surr: 4-Bromofluorobenzene	9700								0	20	

Qualifiers: H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Specialty Analytical

WO#: **2503002**

3/10/2025

Client: Terraphase Engineering, Inc.

Project: POTB Remedial Action/ 0064.001.002 **TestCode: 8260_5035**

Sample ID: **2503002-001ADUP** SampType: **DUP** TestCode: **8260_5035** Units: **µg/Kg-dry** Prep Date: RunNo: **57855**

Client ID: **W-EXC-9.0** Batch ID: **25561** TestNo: **SW8260D** **SW 5035** Analysis Date: **3/3/2025** SeqNo: **753614**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Dibromofluoromethane	9500								0	20	
Surr: Toluene-d8	10200								0	20	

Sample ID: **2503002-009AMS** SampType: **MS** TestCode: **8260_5035** Units: **µg/Kg-dry** Prep Date: RunNo: **57855**

Client ID: **Stockpile-0-5** Batch ID: **25561** TestNo: **SW8260D** **SW 5035** Analysis Date: **3/3/2025** SeqNo: **753624**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	3960	96.8	3873	0	102	71.7	147				
Ethylbenzene	4370	96.8	3873	0	113	70	130				
m,p-Xylene	9080	194	7745	0	117	70	130				
o-Xylene	4200	96.8	3873	0	108	70	130				
Toluene	4250	96.8	3873	0	110	75.8	153				

Qualifiers: H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Specialty Analytical

WO#: **2503002**

3/10/2025

Client: Terraphase Engineering, Inc.

Project: POTB Remedial Action/ 0064.001.002 **TestCode:** **8260_W**

Sample ID: **LCS MSVWS-3091/**	SampType: **LCS**	TestCode: **8260_W**	Units: **µg/L**	Prep Date:	RunNo: **57856**
Client ID: **LCSW**	Batch ID: **25572**	TestNo: **SW8260D**	**SW 5030B**	Analysis Date: **3/3/2025**	SeqNo: **753625**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	37.5	0.300	40.00	0	93.8	76.8	125				
Ethylbenzene	41.8	1.00	40.00	0	104	80	120				
m,p-Xylene	88.4	2.00	80.00	0	111	80	120				
o-Xylene	40.4	1.00	40.00	0	101	80	120				
Toluene	40.4	1.00	40.00	0	101	82	122				

Sample ID: **CCV MSVWS-3091/**	SampType: **CCV**	TestCode: **8260_W**	Units: **µg/L**	Prep Date:	RunNo: **57856**
Client ID: **CCV**	Batch ID: **25572**	TestNo: **SW8260D**	**SW 5030B**	Analysis Date: **3/3/2025**	SeqNo: **753626**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	37.5	0.300	40.00	0	93.8	80	120				
Ethylbenzene	41.8	1.00	40.00	0	104	80	120				
m,p-Xylene	88.4	2.00	80.00	0	111	80	120				
o-Xylene	40.4	1.00	40.00	0	101	80	120				
Toluene	40.4	1.00	40.00	0	101	80	120				

Sample ID: **MBLK**	SampType: **MBLK**	TestCode: **8260_W**	Units: **µg/L**	Prep Date:	RunNo: **57856**
Client ID: **PBW**	Batch ID: **25572**	TestNo: **SW8260D**	**SW 5030B**	Analysis Date: **3/3/2025**	SeqNo: **753627**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers: H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Specialty Analytical

WO#: **2503002**

3/10/2025

Client: Terraphase Engineering, Inc.

Project: POTB Remedial Action/ 0064.001.002 **TestCode:** **8260_W**

Sample ID: **MBLK**	SampType: **MBLK**	TestCode: **8260_W**	Units: **µg/L**	Prep Date:	RunNo: **57856**
Client ID: **PBW**	Batch ID: **25572**	TestNo: **SW8260D**	**SW 5030B**	Analysis Date: **3/3/2025**	SeqNo: **753627**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.300									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	2.00									
o-Xylene	ND	1.00									
Toluene	ND	1.00									
Surr: 1,2-Dichloroethane-d4	106		100.0		106	75.3	126				
Surr: 4-Bromofluorobenzene	100		100.0		100	78.1	120				
Surr: Dibromofluoromethane	104		100.0		104	74.2	122				
Surr: Toluene-d8	100		100.0		100	76.2	135				

Sample ID: **2503003-002BMS**	SampType: **MS**	TestCode: **8260_W**	Units: **µg/L**	Prep Date:	RunNo: **57856**
Client ID: **BatchQC**	Batch ID: **25572**	TestNo: **SW8260D**	**SW 5030B**	Analysis Date: **3/3/2025**	SeqNo: **753630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	414	3.00	400.0	0	103	74.1	136				
Ethylbenzene	453	10.0	400.0	0	113	70	130				
m,p-Xylene	950	20.0	800.0	0	119	70	130				
o-Xylene	442	10.0	400.0	0	111	70	130				
Toluene	442	10.0	400.0	0	110	68.4	135				

Qualifiers: H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Specialty Analytical

WO#: **2503002**

3/10/2025

Client: Terraphase Engineering, Inc.

Project: POTB Remedial Action/ 0064.001.002 **TestCode:** **8260_W**

Sample ID: **LCSD**	SampType: **LCSD**	TestCode: **8260_W**	Units: **µg/L**	Prep Date:	RunNo: **57856**
Client ID: **LCSS02**	Batch ID: **25572**	TestNo: **SW8260D**	**SW 5030B**	Analysis Date: **3/3/2025**	SeqNo: **753634**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	33.5	0.300	40.00	0	83.8	76.8	125	37.54	11.3	20	
Ethylbenzene	37.3	1.00	40.00	0	93.3	80	120	41.77	11.2	20	
m,p-Xylene	78.5	2.00	80.00	0	98.1	80	120	88.44	11.9	20	
o-Xylene	36.6	1.00	40.00	0	91.5	80	120	40.43	9.97	20	
Toluene	35.8	1.00	40.00	0	89.5	82	122	40.44	12.2	20	

Sample ID: **CCV**	SampType: **CCV**	TestCode: **8260_W**	Units: **µg/L**	Prep Date:	RunNo: **57856**
Client ID: **CCV**	Batch ID: **25572**	TestNo: **SW8260D**	**SW 5030B**	Analysis Date: **3/4/2025**	SeqNo: **753882**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	36.0	0.300	40.00	0	89.9	80	120				
Ethylbenzene	39.8	1.00	40.00	0	99.4	80	120				
m,p-Xylene	83.6	2.00	80.00	0	105	80	120				
o-Xylene	38.7	1.00	40.00	0	96.8	80	120				
Toluene	39.1	1.00	40.00	0	97.8	80	120				

Sample ID: **CCB**	SampType: **CCB**	TestCode: **8260_W**	Units: **µg/L**	Prep Date:	RunNo: **57856**
Client ID: **CCB**	Batch ID: **25572**	TestNo: **SW8260D**	**SW 5030B**	Analysis Date: **3/4/2025**	SeqNo: **753883**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers: H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Specialty Analytical

WO#: **2503002**

3/10/2025

Client: Terraphase Engineering, Inc.

Project: POTB Remedial Action/ 0064.001.002 **TestCode: 8260_W**

Sample ID: **CCB**	SampType: **CCB**	TestCode: **8260_W**	Units: **µg/L**	Prep Date:	RunNo: **57856**
Client ID: **CCB**	Batch ID: **25572**	TestNo: **SW8260D**	**SW 5030B**	Analysis Date: **3/4/2025**	SeqNo: **753883**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.300									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	2.00									
o-Xylene	ND	1.00									
Toluene	ND	1.00									
Surr: 1,2-Dichloroethane-d4	104		100.0		104	75.3	126				
Surr: 4-Bromofluorobenzene	98.9		100.0		98.9	78.1	120				
Surr: Dibromofluoromethane	102		100.0		102	74.2	122				
Surr: Toluene-d8	99.6		100.0		99.6	76.2	135				

Qualifiers: H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Specialty Analytical

WO#: **2503002**

3/10/2025

Client: Terraphase Engineering, Inc.

Project: POTB Remedial Action/ 0064.001.002 **TestCode:** **HCID_NW**

Sample ID: **MB-25563**	SampType: **MBLK**	TestCode: **HCID_NW**	Units: **mg/Kg**	Prep Date: **3/3/2025**	RunNo: **57853**
Client ID: **PBS**	Batch ID: **25563**	TestNo: **NWHCID**	**NWHCID**	Analysis Date: **3/3/2025**	SeqNo: **753587**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	20.0									
Mineral Spirits	ND	20.0									
Kerosene	ND	50.0									
Diesel	ND	50.0									
Lube Oil	ND	100									
Hydraulic Oil	ND	100									
Surr: BFB	93.5		100.0		93.5	50	150				
Surr: o-Terphenyl	102		100.0		102	50	150				

Sample ID: **2503002-001ADUP**	SampType: **DUP**	TestCode: **HCID_NW**	Units: **mg/Kg-dry**	Prep Date: **3/3/2025**	RunNo: **57853**
Client ID: **W-EXC-9.0**	Batch ID: **25563**	TestNo: **NWHCID**	**NWHCID**	Analysis Date: **3/3/2025**	SeqNo: **753589**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	29.5						0	0	20	
Mineral Spirits	ND	29.5						0	0	20	
Kerosene	ND	73.8						0	0	20	
Diesel	ND	73.8						0	0	20	RRF
Lube Oil	ND	148						0	0	20	
Hydraulic Oil	ND	148						0	0	20	

Qualifiers: H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits S Spike Recovery outside accepted recovery limits

Specialty Analytical
9011 SE Jannsen Rd
Clackamas, Oregon 97015
TEL: 503-607-1331 FAX: 503-607-1336
Website: www.specialtyanalytical.com

Sample Receipt Checklist

Client Name: TERRAPHASE Work Order Number 2503002

RcptNo: 1 Date and Time Received: 3/3/2025 8:26:58 AM Received by: Jennifer French

Completed by: Reviewed by:

Completed Date: 3/3/2025 Reviewed Date: 3/3/2025 3:53:27 PM

Carrier name: Client

Chain of custody present?	Yes	☑	No	☐		
Chain of custody signed when relinquished and received?	Yes	☑	No	☐		
Chain of custody agrees with sample labels?	Yes	☑	No	☐	Not Present	☐
Are matrices correctly identified on Chain of custody?	Yes	☑	No	☐		
Is it clear what analyses were requested?	Yes	☑	No	☐		
Custody seals intact on sample bottles?	Yes	☐	No	☐	Not Present	☑
Samples in proper container/bottle?	Yes	☑	No	☐		
Were correct preservatives used and noted?	Yes	☑	No	☐	NA	☐
Sample containers intact?	Yes	☑	No	☐		
Sufficient sample volume for indicated test?	Yes	☑	No	☐		
Were container lables complete (ID, Pres, Date)?	Yes	☑	No	☐		
All samples received within holding time?	Yes	☑	No	☐		
Was an attempt made to cool the samples?	Yes	☑	No	☐	NA	☐
All samples received at a temp. of > 0° C to 6.0° C?	Yes	☑	No	☐	NA	☐
Response when temperature is outside of range:						
Preservative added to bottles:						
Sample Temp. taken and recorded upon receipt?	Yes	☑	No	☐	To	5.9 ºC
Water - Were bubbles absent in VOC vials?	Yes	☑	No	☐	No Vials	☐
Water - Was there Chlorine Present?	Yes	☐	No	☐	NA	☑
Water - pH acceptable upon receipt?	Yes	☑	No	☐	NA	☐
Are Samples considered acceptable?	Yes	☑	No	☐		
Custody Seals present?	Yes	☐	No	☑		
Traffic Report or Packing Lists present?	Yes	☐	No	☑		
Airbill or Sticker?	Air Bill	☐	Sticker	☐	Not Present	☑
Airbill No:						
Sample Tags Present?	Yes	☐	No	☑		
Sample Tags Listed on COC?	Yes	☐	No	☑		
Tag Numbers:						
Sample Condition?	Intact	☑	Broken	☐	Leaking	☐

Case Number: SDG: SAS:

Adjusted? _____ Checked by

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Specialty Analytical
9011 SE Jannsen Rd
Clackamas, Oregon 97015
TEL: 503-607-1331 FAX: 503-607-1336
Website: www.specialtyanalytical.com

Sample Receipt Checklist

Client Contacted?	☐ Yes	☑ No	☐ NA	Person Contacted:	Comments: 2oz jars were frozen within 48 hours
Contact Mode:	☐ Phone:	☐ Fax:	☐ Email:	☐ In Person:	
Client Instructions:					
Date Contacted:			Contacted By:		
Regarding:					
CorrectiveAction:					

Chain of Custody Record

Specialty Analytical
9011 SE Jannsen Rd
Clackamas, OR 97015
Phone: 503-607-1331
www.specialtyanalytical.com

Date: 3-3-25 | Page: 1 of: 1 | Laboratory Project No (internal): 2503002

Project Name: POTB Remedial Action | Temperature on Receipt: 5.9 °C

Client: TEI | Project No: 0064.001.002 PO No: 11 | Cooling: Ice/Cooler | Shipped Via: client

Address: 610 SW Broadway Ste 400 | Collected by: Athenne Venegas | Custody Seal: Y / (N) Intact / Broken | (Cooler) / Bottle

City, State, Zip: Portland, OR 97205 | State Collected: (OR) WA OTHER | MDL TIER IV EDD

Telephone: 503-380-3233 | Report To (PM): James Farrow | Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 60 days)

Invoice Email: ap@terraphase.com | PM Email(s): james.farrow@terraphase.com

	Sample Name	Sample Date	Sample Time	Sample Matrix*	# of Containers	Requested Tests: TPH-HCID	BTEX											Comments (Please note potential hazards)
1	W-EXC-9.0	2-26-25	1210	Soil	6	X	X											+PAH - pending TPH results
2	W-EXC-6.0	2-26-25	1210	Soil	6													Dispose - No analysis
3	BASE1-EXC-10.0	2-26-25	1400	Soil	6	X	X											+PAH - pending TPH results
4	BASE2-EXC-10.0	2-26-25	1420	Soil	6	X	X											"
5	E-EXC-9.0	2-26-25	1445	Soil	6	X	X											"
6	S-EXC-9.0	2-26-25	1500	Soil	6	X	X											"
7	S-EXC-8.0-DUP	2-26-25	1510	Soil	6	X	X											"
8	N-EXC-9.0	2-26-25	1600	Soil	6	X	X											"
9	STOCKPILE-0-5	2-26-25	1515	Soil	6	X	X											"
10	TB-20250226	2-26-25	1630	W	2		X											

*Matrix: A = Air, AQ = Aqueous, L=Liquid, O = Oil, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water, M = Miscellaneous

Turn-around Time: Standard: X 3 Day: ____ 2 Day: ____ Next Day: ____ Same Day: ____

Expedited turn-around requests should be coordinated in advance

Relinquished	Date/Time	Received	Date/Time
x Athenne Venegas	3-3-25 0810	x	3/3/2025 8:10
x		x	
x		x	

julie@specialtyanalytical.com

From: Adrienne Venegas <adrienne.venegas@terraphase.com>
Sent: Tuesday, March 4, 2025 4:19 PM
To: James Farrow; julie@specialtyanalytical.com
Cc: mandy@specialtyanalytical.com
Subject: Re: Preliminary Report: 2503002, POTB Remedial Action/ 0064.001.002

Hi Julie,

No follow-up testing, thank you!

Adrienne Venegas, RG
Senior Staff II Geologist
610 SW Broadway, Suite 405
Portland, Oregon 97205
O: 503.889.0367 x 203 | C: 225.287.6160
www.terraphase.com

From: specialtyanalytical@khemia.com <specialtyanalytical@khemia.com>
Sent: Tuesday, March 4, 2025 11:20 AM
To: Adrienne Venegas <adrienne.venegas@terraphase.com>; James Farrow <james.farrow@terraphase.com>
Cc: mandy@specialtyanalytical.com <mandy@specialtyanalytical.com>
Subject: Preliminary Report: 2503002, POTB Remedial Action/ 0064.001.002

Hello,

Your preliminary analytical report is attached to this email. Please let us know if you would like any follow-up testing preformed or if you would like us to close out the workorder once completed.

Have a great day,

Julie Clay
Operations Mgr.
julie@specialtyanalytical.com
9011 SE Jannsen Rd
Clackamas, Oregon 97015
Specialty Analytical
TEL: TEL: 503-607-1331
www.specialtyanalytical.com

Specialty Analytical
9011 SE Jannsen Rd
Clackamas, Oregon 97015
TEL: 503-607-1331 FAX: 503-607-1336
Website: www.specialtyanalytical.com

Definition Only

WO#: **2503002**
Date: **3/10/2025**

Definitions:

KEY TO FLAGS

A: This sample contains a Gasoline Range Organic not identified as a specific hydrocarbon product. The result was qualified against gasoline calibration standards.

A1: This sample contains a Diesel Range Organic not identified as a specific hydrocarbon product. The result was qualified against diesel calibration standards.

A2: This sample contains a Lube Oil Range Organic not identified as a specific hydrocarbon product. The result was qualified against lube oil calibration standards.

A3: The results was determined to be Non-Detect based on hydrocarbon pattern recognition. The product was carry-over from another hydrocarbon type.

A4: The product appears to be aged or degraded.

B: The blank exhibited a positive result greater than the reporting limit for this compound.

BC: Sample concentration is >10x positive result in blank. Data is considered acceptable.

CL: Sample was found to contain chlorine and was treated with sodium thiosulfate.

CN: See Case Narrative.

E: Result exceeds the calibration range for this compound. The result should be considered an estimate.

F: The positive result for this hydrocarbon is due to single component contamination. The product does not match any hydrocarbon in the fuels library.

FS: Follow-up testing is suggested.

G: Result may be biased high due to biogenic interferences. Clean up is recommended.

H: Sample was analyzed outside recommended holding time.

HT: □At client's request, samples was analyzed outside of recommended holding time.

Definitions:

HP: Sample was analyzed outside recommended holding time due to VOA having pH >2.

J: The results for this analyte is between the MDL and the PQL and should be considered an estimated concentration.

K: Diesel result is biased high due to amount of Oil contained in the sample.

L: Diesel result is biased high due to amount of Gasoline contained in the sample.

M: Oil result is biased high due to amount of Diesel contained in the sample.

N: Gasoline result is biased high due to amount of Diesel contained in the sample.

MC: Sample concentration is greater than 4x the spiked value, the spiked value is considered insignificant.

MI: Result is outside control limits due to matrix interference.

NH: Sample matrix is non-homogeneous

MSA: Value determined by Method of Standard Addition.

O: Laboratory Control Standard (LCS) exceeded laboratory control limits but meets CCV criteria. Data meets EPA requirements.

Q: Detection levels elevated due to sample matrix.

R: RPD control limits were exceeded

RF: Duplicate failed due to result being at or near the method-reporting limit.

RP: Matrix spike values exceed established QC limits; post digestion spike is in control.

S: Recovery is outside control limits.

SC: CCV or LCS exceeded high recovery control limits, but associated samples are non-detect. Data

Definitions:

meets EPA requirements.

SL: LCS exceeded recovery control limits, but associated MS/MSD passing. Data meets EPA requirements.

SV: CCV exceded low recovery control limits. ND as reported evaluated using EPA method 8260D section 11.4.3.2

TA: Sample treated with ascorbic acid for the removal of thiocyanates.

TS: Sample treated with Sodium Sulfite for the removal of chlorine.

Appendix E

Data Validation Report

Data Validation Report

Project Name: POTB Remedial Action	**Lab Reference Number:** 2503002
Project Number: O064.001.002	**Laboratory:** Specialty Analytical
Validated by: Jessica Corral	**Matrix:** Soil, Water
Sampling Date: 2/26/2025	**Number of Samples:** 9
Data Validation Report Date: 3/11/2025	**Analytical Report Date:** 3/10/2025

The quality control (QC) elements that were reviewed are listed below.

Data Package Completeness	√	Surrogate Compound Recovery	√
Verification of EDD to Hardcopy Data Package	√	Sample Duplicate Analysis	√
Chain-of-Custody and Sample Preservation	1	Blank Spike/Blank Spike Duplicate Sample Analyses	NA
Holding Times	√	Matrix Spike/Matrix Spike Duplicate Sample Analyses	√
Retention Time Windows	NE	Trip Blank Sample Analysis	√
Initial Calibration	NE	Equipment Blank Sample Analysis	NA
Initial Calibration Verification	NE	Field Duplicate Sample Analysis	√
Continuing Calibration	NE	Reference Material Analysis	NE
Method Blank Analysis	√	Compound Quantitation	√
Laboratory Control Samples	√		

√ – Method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed.

1 – Quality control results are discussed below, but no data were qualified.

2 – Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed in this Data Validation Report.

NA – Not applicable

NE – Not evaluated

P – Pending

Overall Assessment

All data, as qualified, are acceptable for use.

Data Package Completeness

The data package was received without a case narrative. The data package included all other required elements: chain-of-custody, sample receipt checklist, results, and QC results.

Verification of EDD to Hardcopy Data Package

Sample results and related quality control data were received in both an electronic and hardcopy format. Electronic data were verified against the laboratory report; no errors were found.

Chain-of-Custody

All sample identification (ID) numbers listed on the chain-of-custody record are consistent with the sample ID reported in the EDD and hardcopy data package.

Sample Preservation

Samples were received cold and intact at a temperature of 5.9 degrees Celsius. Proper preservation includes samples chilled to ≤6.0 degrees Celsius.

Holding Times

All samples were analyzed within the holding time.

Retention Time Windows

Not evaluated.

Initial Calibration

Not evaluated.

Initial Calibration Verification

Not evaluated.

Continuing Calibration

Continuing Calibration Verification (CCV) recoveries were not evaluated; however, the laboratory reported all CCV recoveries to be within acceptable criteria.

Method Blank Analysis

No target compounds were detected in the method blank samples.

Laboratory Control Samples

All percent recovery values and relative percent differences (RPDs) for laboratory control samples and laboratory control sample duplicates were within acceptable criteria established by the laboratory for the respective testing methods.

Surrogate Compound Recovery

All percent recovery values for surrogate compounds were within acceptable criteria established by the laboratory for the respective testing methods.

Sample Duplicate Analysis

All RPDs for sample duplicates were within acceptable criteria established by the laboratory for the respective testing methods.

Blank Spike/Blank Spike Duplicate Sample Analyses

Blank spike and blank spike duplicate sample analysis was not performed for this sample batch.

Matrix Spike/Matrix Spike Duplicate Sample Analyses

All percent recoveries and RPDs for matrix spikes and matrix spike duplicates were within acceptable criteria established by the laboratory for the respective testing methods.

Trip Blank Sample Analysis

Sample TB-20250226 was collected as the trip blank for this sample batch. No compounds were detected in the trip blank sample.

Equipment Blank Sample Analysis

An equipment blank sample was not collected for this sample batch.

Field Duplicate Analyses

Sample S-EXC-8.0-DUP was collected as a field duplicate sample of S-EXC-8.0. No target compounds were detected in the primary or duplicate sample therefore no RPDs were calculated.

Reference Material Analysis

No reference material analysis was performed.

Compound Quantitation

The laboratory did not apply any flags to project samples in this sample batch.

Sample Index

Sample Name	Lab ID	Matrix	Date Collected
W-EXC-9.0	2503002-001A	Soil	2/26/2025
Base1-EXC-10.0	2503002-003A	Soil	2/26/2025
Base2-EXC-10.0	2503002-004A	Soil	2/26/2025
E-EXC-9.0	2503002-005A	Soil	2/26/2025
S-EXC-8.0	2503002-006A	Soil	2/26/2025
S-EXC-8.0-DUP	2503002-007A	Soil	2/26/2025
N-EXC-9.0	2503002-008A	Soil	2/26/2025
Stockpile-0-5	2503002-009A	Soil	2/26/2025
TB-20250226	2503002-010A	Water	2/26/2025

END OF REPORT

Appendix F

Water Well Logs

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the
WATER RESOURCES DEPARTMENT, SALEM, OREGON 97310
within 30 days from the date of well completion.

WATER WELL REPORT
STATE OF OREGON
(Please type or print)
(Do not write above this line)

TILL 536

State Well No. 1S/9W-33
State Permit No.

(1) OWNER:
Name Kenneth Ray
Address 9550 Kilchis River Rd.
Bay City Ore.

(2) TYPE OF WORK (check):
New Well ☑ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary ☑ Driven ☐
☐ Jetted ☐
☐ Bored ☐

(4) PROPOSED USE (check):
Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(5) CASING INSTALLED: Threaded ☐ Welded ☑
6" Diam. from +1 ft. to 35 ft. Gage .250
4" Diam. from 28 ft. to 70 ft. Gage PVC
" Diam. from ft. to ft. Gage

(6) PERFORATIONS: Perforated? ☑ Yes ☐ No.
Type of perforator used Skill Saw
Size of perforations 1/8 X in. by 6 in.
42 perforations from 40 ft. to 70 ft.
perforations from ft. to ft.
perforations from ft. to ft.

(7) SCREENS: Well screen installed? ☐ Yes ☑ No
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

(8) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? ☐ Yes ☑ No If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "
Air test 9 gal./min. with 37 ft. drawdown after 1 hrs.
Artesian flow g.p.m.
Temperature of water Depth artesian flow encountered ft.

(9) CONSTRUCTION:
Well seal—Material used Cement
Well sealed from land surface to 38 ft.
Diameter of well bore to bottom of seal 10 in.
Diameter of well bore below seal 6 in.
Number of sacks of cement used in well seal 12 sacks
How was cement grout placed? Pumped.

Was a drive shoe used? ☑ Yes ☐ No Plugs Size: location ft.
Did any strata contain unusable water? ☐ Yes ☑ No
Type of water? depth of strata
Method of sealing strata off
Was well gravel packed? ☐ Yes ☑ No Size of gravel:
Gravel placed from ft. to ft.

(10) LOCATION OF WELL:
County Tillamook Driller's well number
¼ ¼ Section 33 T. 1S R. 9W W.M.
Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.
Depth at which water was first found ft.
Static level 23 ft. below land surface. Date 11/27/79
Artesian pressure lbs. per square inch. Date

(12) WELL LOG: Diameter of well below casing 6
Depth drilled 70 ft. Depth of completed well 70 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
Clay & Gravel	0	30	
Broken Rock	30	70	

RECEIVED
FEB 19 1980
WATER RESOURCES DEPT
SALEM, OREGON

Work started 11-23 1979 Completed 11-27 1979
Date well drilling machine moved off of well 11-27 1979

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] Norman O'Farrell (Drilling Machine Operator) Date 12-3, 1979
Drilling Machine Operator's License No. 455

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Name EOLA WELL DRILLING (Person, firm or corporation) (Type or print)
Address 450 DALLAS RD. N.W. SALEM, OR 9730[illegible]
[Signed] Garret H Berndt (Water Well Contractor)
Contractor's License No. 619 Date 12-13, 1979

(USE ADDITIONAL SHEETS IF NECESSARY)

SP*45656-119

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the STATE ENGINEER, SALEM, OREGON 97310 within 30 days from the date of well completion.

RECEIVED
APR - 8 1970
STATE ENGINEER
SALEM, OREGON

WATER WELL REPORT
STATE OF OREGON
(Please type or print)
(Do not write above this line)

TILL 537

State Well No. 1/9W-33

State Permit No.

(1) OWNER:
Name William Tippen
Address 8640 Long Prairie Road Tillamook, Ore.

(2) TYPE OF WORK (check):
New Well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary ☒ Driven ☐
Cable ☐ Jetted ☐
Dug ☐ Bored ☐

(4) PROPOSED USE (check):
Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

CASING INSTALLED:
Threaded ☐ Welded ☒
6" Diam. from 0 ft. to 47 ft. Gage ¼ wall
" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage

PERFORATIONS:
Perforated? ☐ Yes ☒ No
e of perforator used
Size of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

(7) SCREENS:
Well screen installed? ☐ Yes ☒ No
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

(8) WATER LEVEL: Completed well.
tatic level 20 ft. below land surface Date 3-17-70
sian pressure lbs. per square inch Date

(9) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? ☐ Yes ☒ No If yes, by whom?
eld: gal./min. with ft. drawdown after hrs.
" " "
" " "
Air test 40 gal./min. with 15 ft. drawdown after 1 hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? ☐ Yes ☒ No

(10) CONSTRUCTION:
Well seal—Material used Bentonite
Depth of seal 40 feet ft.
Diameter of well bore to bottom of seal 9 in.
Were any loose strata cemented off? ☐ Yes ☒ No Depth
Was a drive shoe used? ☐ Yes ☒ No
Did any strata contain unusable water? ☐ Yes ☒ No
Type of water? depth of strata
Method of sealing strata off
Was well gravel packed? ☐ Yes ☒ No Size of gravel:
Gravel placed from ft. to ft.

(11) LOCATION OF WELL:
County Tillamook Driller's well number
¼ ¼ Section 33 T. 1S R. 9 W.M.
Bearing and distance from section or subdivision corner

(12) WELL LOG:
Diameter of well below casing 6 inch
Depth drilled 55 ft. Depth of completed well 47 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level as drilling proceeds. Note drilling rates.

MATERIAL	From	To	SWL
Brown sandy loom	0	23	
Blue clay	23	28	
Brown sand	28	40	
Brown sand and large washed gravel	40	55	

Work started 3-17-70 19 Completed 3-17-70 19
Date well drilling machine moved off of well 3-17-70 19

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] Ralph Turner (Drilling Machine Operator) Date 4-4, 19 70
Drilling Machine Operator's License No. 254

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
NAME Ralph Turner Drilling Co. (Person, firm or corporation) (Type or print)
Address Rte 1 Box 141 Hillsboro, Oregon 97123
[Signed] Ralph Turner (Water Well Contractor)
Contractor's License No. 247 Date 4-4, 19 70

(USE ADDITIONAL SHEETS IF NECESSARY)

STATE OF OREGON

WATER WELL REPORT

(as required by ORS 537.765)

RECEIVED
APR 15 1985
WATER RESOURCES DEPT
SALEM, OREGON

TYPE OR PRINT IN INK

THLL 539

15/9W-34da

(for official use only)

(1) OWNER:

Name Bob Larson

Address 1508 6TH

City Tillamook State Oregon

(2) TYPE OF WORK (check):

New Well [X] Deepening [ ] Reconditioning [ ] Abandon [ ]

If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:

Rotary Air [ ] Driven [ ]

Rotary Mud [ ] Dug [ ]

Cable [X] Bored [ ]

(4) PROPOSED USE (check):

Domestic [X] Industrial [ ] Municipal [ ]

Irrigation [ ] Thermal: [ ] Withdrawal [ ] Reinjection [ ]

Other: Piezometric [ ] Grounding [ ] Test [ ]

(5) CASING INSTALLED:

Steel Threaded [X] Plastic Welded [X]

6" Diam. from +1 ft. to 35 ft. Gauge .250

" Diam. from ft. to ft. Gauge

LINER INSTALLED:

Steel Threaded [ ] Plastic Welded [ ]

" Diam. from ft. to ft. Gauge

(6) PERFORATIONS:

Perforated? [ ] Yes [X] No

Size of perforations in. by in.

perforations from ft. to ft.

perforations from ft. to ft.

perforations from ft. to ft.

(7) SCREENS:

Well screen installed? [ ] Yes [X] No

Manufacturer's Name

Type Model No.

Diam. Slot Size Set from ft. to ft.

Diam. Slot Size Set from ft. to ft.

(8) WELL TESTS:

Drawdown is amount water level is lowered below static level

Was a pump test made? [ ] Yes [X] No If yes, by whom?

gal./min. with ft. drawdown after hrs.

" " "

Air test gal./min. with drill stem at ft. hrs.

Bailer test 8 gal./min. with 15 ft. drawdown after 1 hrs.

Artesian flow g.p.m.

perature of water 54 Depth artesian flow encountered ft.

(9) CONSTRUCTION:

Special standards: Yes [ ] No [X]

Well seal—Material used Portland Cement

Well sealed from land surface to 18 ft.

Diameter of well bore to bottom of seal 10 in.

Diameter of well bore below seal 6 in.

Amount of sealing material 7 1/2 sacks [X] pounds [ ]

How was cement grout placed? pumped

Was pump installed? NO Type HP Depth ft.

Was a drive shoe used? [X] Yes [ ] No Plugs Size: location ft.

Did any strata contain unusable water? [ ] Yes [X] No

Type of Water? depth of strata

Method of sealing strata off

Was well gravel packed? [ ] Yes [X] No Size of gravel:

Gravel placed from ft. to ft.

(10) LOCATION OF WELL by legal description:

County Tillamook NE¼ SE¼ of Section 34 of

Township 1S (Township is North or South), Range 9W (Range is East or West), WM.

Tax Lot Lot Block Subdivision

MAILING ADDRESS OF WELL (or nearest address) Down Chance Rd. .4 mi., Turn Left on gravel Rd. for .4 mi.

(11) WATER LEVEL of COMPLETED WELL:

Depth at which water was first found 16 ft.

Static level 13 ft. below land surface. Date 3-19-85

Artesian pressure lbs. per square inch. Date

(12) WELL LOG:

Diameter of well below casing 6 in.

Depth drilled 36 ft. Depth of completed well 36 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
Topsoil	0	1	
Brown Clay	1	21	13
Brown Clay and Gravel	21	29	
Gray Claystone	29	35	
Gray Claystone & Gravel Waterbearing	35	36	13

Date work started 3-18-85 /completed 3-19-85

Date well drilling machine moved off of well 19 March 1985

(unbonded) Water Well Constructor Certification (if applicable):

This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.

[Signed] Date , 19

(bonded) Water Well Constructor Certification:

Bond 801024 (number) Issued by: Data + Staff Service Co. (Surety Company Name)

On behalf of Larry Evey Well Drilling Inc. (type or print name of Water Well Constructor)

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief:

(Signed) Larry C Evey (Water Well Constructor)

(Dated) 19 March 1985

NOTICE TO WATER WELL CONSTRUCTOR

The original and first copy of this report are to be filed with the

WATER RESOURCES DEPARTMENT, SALEM, OREGON 97310 within 30 days from the date of well completion.

SP*46866-690

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the

WATER RESOURCES DEPARTMENT,
SALEM, OREGON 97310
within 30 days from the date of well completion.

WATER WELL REPORT
STATE OF OREGON
(Please type or print)

(Do not write above this line)

RECEIVED
APR 28 1977
WATER RESOURCES DEPT.
SALEM, OREGON

State Well No. 1S/9W 34
Permit No. 547

(1) OWNER:
Name Joe Markee
Address 9055 Chance Road
Tillamook, Oregon 97141

(2) TYPE OF WORK (check):
New Well [X] Deepening [ ] Reconditioning [ ] Abandon [ ]
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary [X] Driven [ ]
Cable [ ] Jetted [ ]
Dug [ ] Bored [ ]

(4) PROPOSED USE (check):
Domestic [X] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [ ]

CASING INSTALLED:
Threaded [ ] Welded [X]
6 " Diam. from 0 ft. to 36 ft. Gage .250
" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage

PERFORATIONS:
Perforated? [ ] Yes [X] No
Type of perforator used
Size of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

(7) SCREENS:
Well screen installed? [ ] Yes [X] No
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

(8) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? [ ] Yes [X] No If yes, by whom?
d: gal./min. with ft. drawdown after hrs.
" " "
" Tested with air: could fluctuate "
Bailer test 2½ gal./min. with 140 ft. drawdown after 4 hrs.
Artesian flow g.p.m.
perature of water Depth artesian flow encountered ft.

(9) CONSTRUCTION:
Well seal—Material used Cement
Well sealed from land surface to 35 ft.
Diameter of well bore to bottom of seal 10 in.
Diameter of well bore below seal 6 in.
Number of sacks of cement used in well seal 5 sacks
How was cement grout placed? mixed & poured from top

Was a drive shoe used? [X] Yes [ ] No Plugs Size: location ft.
Did any strata contain unusable water? [ ] Yes [X] No
Type of water? depth of strata
Method of sealing strata off
Was well gravel packed? [ ] Yes [X] No Size of gravel:
Gravel placed from ft. to ft.

(10) LOCATION OF WELL:
County Tillamook Driller's well number S/29/U
¼ ¼ Section 34 T. 1S R. 9W W.M.
Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.
Depth at which water was first found 80 ft.
Static level 45 ft. below land surface. Date 4/5/77
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:
Diameter of well below casing 6
Depth drilled 185 ft. Depth of completed well 185 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
Topsoil	0	1	
Brown clay	1	6	
Brown clay &Boulders	6	12	
Boulders&gravel	12	30	
Blue basalt	30	80	
Gray basalt	80	185	

Work started 4/4/77 19 Completed 4/5/77 19
Date well drilling machine moved off of well 4/5/77 19

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] (Drilling Machine Operator) Date 4/9/77, 19
Drilling Machine Operator's License No. 829

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Name Corvallis Drilling Co. Inc. (Person, firm or corporation) (Type or print)
Address 3440 SW 3rd St. Corvallis, Oregon 97330
[Signed] Clarence A Kinney (Water Well Contractor)
Contractor's License No. 560 Date 4/9/77, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

SP*45656-119

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the
STATE ENGINEER, SALEM, OREGON 97310 within 30 days from the date of well completion.

TILL 548

WATER WELL REPORT

STATE OF OREGON

(Please type or print)

(Do not write above this line)

RECEIVED
JUN 30 1976
WATER RESOURCES DEPT.
SALEM, OREGON

State Well No. .....

State Permit No. 15-9w-34

(1) OWNER:

No.1

Name Perry Reeder

Address 6770 N.W. Bay Ocean Rd.
Tillamook, Oregon 97141

(2) TYPE OF WORK (check):

New Well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐

If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:

Rotary ☒ Driven ☐
Cable ☐ Jetted ☐
Dug ☐ Bored ☐

(4) PROPOSED USE (check):

Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

CASING INSTALLED:

Threaded ☐ Welded ☒

6 " Diam. from 0 ft. to 31 ft. Gage .250

" Diam. from ft. to ft. Gage

" Diam. from ft. to ft. Gage

PERFORATIONS:

Perforated? ☐ Yes ☒ No

Type of perforator used

Size of perforations in. by in.

perforations from ft. to ft.

perforations from ft. to ft.

perforations from ft. to ft.

(7) SCREENS:

Well screen installed? ☐ Yes ☒ No

Manufacturer's Name

Type Model No.

Diam. Slot size Set from ft. to ft.

Diam. Slot size Set from ft. to ft.

(8) WELL TESTS:

Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom?

Yield: gal./min. with ft. drawdown after hrs.

" " "

" Tested with air: could fluctuate "

Bailer test 1 gal./min. with 300 ft. drawdown after 4 hrs.

Artesian flow g.p.m.

Temperature of water Depth artesian flow encountered ft.

(9) CONSTRUCTION:

Well seal—Material used Cement

Well sealed from land surface to 30 ft.

Diameter of well bore to bottom of seal 10 in.

Diameter of well bore below seal 6 in.

Number of sacks of cement used in well seal 5 sacks

Number of sacks of bentonite used in well seal sacks

Brand name of bentonite

Number of pounds of bentonite per 100 gallons of water lbs./100 gals.

Was a drive shoe used? ☐ Yes ☒ No Plugs Size: location ft.

Did any strata contain unusable water? ☐ Yes ☒ No

Type of water? depth of strata

Method of sealing strata off

Was well gravel packed? ☐ Yes ☒ No Size of gravel:

Gravel placed from ft. to ft.

(10) LOCATION OF WELL:

County Tillamook Driller's well number B/25/A

¼ ¼ Section 34 T. 1S R. 9W W.M.

Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.

Depth at which water was first found 90 ft.

Static level 15 ft. below land surface. Date 6/2/76

Artesian pressure lbs. per square inch. Date

(12) WELL LOG:

Diameter of well below casing 6

Depth drilled 305 ft. Depth of completed well 305 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. *Report each change in position of Static Water Level and indicate principal water-bearing strata.*

MATERIAL	From	To	SWL
Dark black clay soil	0	4	
Sticky yellow clay	4	6	
Red sandstone	6	14	
Gravel&clay	14	22	
Dark gray shale	22	78	
Blue shale	78	178	
Blue sandstone	178	214	
Gray shale	214	305	

Work started 6/2/76 19 Completed 6/3/76 19

Date well drilling machine moved off of well 6/3/76 19

Drilling Machine Operator's Certification:

This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.

[Signed] Gale L. Abernathy (Drilling Machine Operator) Date 6/21/76

Drilling Machine Operator's License No. 710

Water Well Contractor's Certification:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Name Corvallis Drilling Co. Inc. (Person, firm or corporation) (Type or print)

Address 3440 SW 3rd St. Corvallis, Oregon 97330

[Signed] (Water Well Contractor)

Contractor's License No. 560 Date 6/21/76, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

SP*45656-119

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the STATE ENGINEER, SALEM, OREGON 97310 within 30 days from the date of well completion.

RECEIVED
APR - 9 1970
STATE ENGINEER
SALEM, OREGON

WATER WELL REPORT
STATE OF OREGON
(Please type or print)
(Do not write above this line)

TILL 551

State Well No. 1/9W-34

State Permit No. .....

(1) OWNER:
Name MAX GRAVES
Address TILLAMOOK ORE.

(2) TYPE OF WORK (check):
New Well ☑ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary ☐ Driven ☐
Cable ☑ Jetted ☐
Dug ☐ Bored ☐

(4) PROPOSED USE (check):
Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

CASING INSTALLED:
Threaded ☐ Welded ☑
..... " Diam. from 0 ft. to 37'-5" ft. Gage .....
8 " Diam. from 37'-5" ft. to ..... ft. Gage .250
..... " Diam. from ..... ft. to ..... ft. Gage .....

PERFORATIONS:
Perforated? ☐ Yes ☑ No.
Type of perforator used .....
Size of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

(7) SCREENS:
Well screen installed? ☐ Yes ☑ No
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot size ..... Set from ..... ft. to ..... ft.
Diam. ..... Slot size ..... Set from ..... ft. to ..... ft.

(8) WATER LEVEL: Completed well.
Static level 25 ft. below land surface Date 1-23-70
Artesian pressure ..... lbs. per square inch Date .....

(9) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? ☑ Yes ☐ No If yes, by whom? .....
Yield: 48 gal./min. with 145 ft. drawdown after 2 hrs.
" " " " "
" " " " "
Bailer test ..... gal./min. with ..... ft. drawdown after ..... hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? ☐ Yes ☑ No

(10) CONSTRUCTION:
Well seal—Material used BENTONITE
Depth of seal 35 ft.
Diameter of well bore to bottom of seal 12 in.
Were any loose strata cemented off? ☐ Yes ☑ No Depth .....
Was a drive shoe used? ☑ Yes ☐ No
Did any strata contain unusable water? ☐ Yes ☑ No
Type of water? ..... depth of strata .....
Method of sealing strata off .....
Was well gravel packed? ☐ Yes ☑ No Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

(11) LOCATION OF WELL:
County TILLAMOOK Driller's well number .....
..... ¼ ¼ Section 34 T. 1 S R. 9 W W.M.
Bearing and distance from section or subdivision corner
WELL NO. 1

(12) WELL LOG:
Diameter of well below casing 8
Depth drilled 200 ft. Depth of completed well 200 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level as drilling proceeds. Note drilling rates.

MATERIAL	From	To	SWL
Top Soil & SMALL GRAVEL	0	10	
BROWN - DECOMPOSED ROCK	10	32	
GRAY - ROCK HARD	32	60	
" - CLAY STONE	60	64	
" - " " (FIRM)	64	85	
GRAY - CLAY STONE (HARD)	85	150	
GRAY - CLAY STONE (FIRM)	150	188	
GRAY - CLAY STONE (HARD)	188	200	

Work started 1-9- 1970 Completed 1-21 1970
Date well drilling machine moved off of well 1-23 - 1970

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] Bill Britt (Drilling Machine Operator) Date 1-25, 1970
Drilling Machine Operator's License No. 510

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
NAME MILLER & WEST (Person, firm or corporation) (Type or print)
Address 5545 Yosemite St. S.E.
[Signed] Gordon R. Miller (Water Well Contractor)
Contractor's License No. 37 Date 1-31 -, 1970

(USE ADDITIONAL SHEETS IF NECESSARY)

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the

WATER RESOURCES DEPARTMENT,
SALEM, OREGON 97310
within 30 days from the date of well completion.

WATER WELL REPORT
STATE OF OREGON
(Please type or print)
(Do not write above this line)

RECEIVED
SEP 25 1978
WATER RESOURCES DEPT.
SALEM, OREGON

TILL 552

State Well No. 1S/9W-34

State Permit No.

(1) OWNER:
Name Dr. William Shawler
Address 3200 Alder Crest Dr. Tillimook, Ore 97141

(2) TYPE OF WORK (check):
New Well [X] Deepening [ ] Reconditioning [ ] Abandon [ ]
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary [X] Driven [ ]
Cable [ ] Jetted [ ]
Dug [ ] Bored [ ]

(4) PROPOSED USE (check):
Domestic [X] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [ ]

CASING INSTALLED:
Threaded [ ] Welded [X]
6 " Diam. from 0 ft. to 50 ft. Gage .250
4PVC " Diam. from 0 ft. to 180 ft. Gage 160#
" Diam. from ft. to ft. Gage

PERFORATIONS:
Perforated? [X] Yes [ ] No.
Type of perforator used drill
Size of perforations 1/4 round in. by in.
500 perforations from 60 ft. to 180 ft.
perforations from ft. to ft.
perforations from ft. to ft.

(7) SCREENS:
Well screen installed? [ ] Yes [X] No
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

(8) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? [ ] Yes [X] No If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " "
" Tested with air could fluctuate "
Bailer test 5 1/2 gal./min. with 125 ft. drawdown after 4 hrs.
Artesian flow g.p.m.
Temperature of water Depth artesian flow encountered ft.

(9) CONSTRUCTION:
Well seal—Material used cement
Well sealed from land surface to 48 ft.
Diameter of well bore to bottom of seal 10 in.
Diameter of well bore below seal 6 in.
Number of sacks of cement used in well seal 10 sacks
How was cement grout placed? Mixed & poured from top
Was a drive shoe used? [ ] Yes [X] No Plugs Size: location ft.
Did any strata contain unusable water? [ ] Yes [X] No
Type of water? depth of strata
Method of sealing strata off
Was well gravel packed? [X] Yes [ ] No Size of gravel: 1/4 pea
Gravel placed from 50 ft. to 180 ft.

(10) LOCATION OF WELL:
County Tillimook Driller's well number Cy/75/A
¼ ¼ Section 34 T. 1S R. 9W W.M.
Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.
Depth at which water was first found 56 ft.
Static level 26 ft. below land surface. Date 9/14/78
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:
Diameter of well below casing 6
Depth drilled 180 ft. Depth of completed well 180 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
Brown clay soil	0	4	
yellow clay	4	12	
brown sandstone	12	36	
yellow clay	36	41	
gray shale	41	56	
gray sandstone	56	69	
blue gray shale	69	180	

Work started 9/14/78 19 Completed 9/14/78 19
Date well drilling machine moved off of well 9/14/78 19

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] Dale L. Abernathy (Drilling Machine Operator) Date 9/17/78, 19
Drilling Machine Operator's License No. 710

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Name Corvallis Drilling Co. Inc. (Person, firm or corporation) (Type or print)
Address 3440 SW3rd. Corvallis, Ore.
[Signed] Clarence A. Kennedy (Water Well Contractor)
Contractor's License No. 560 Date 9/17/78, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

SP*45656-119

STATE ENGINEER
Salem, Oregon

TILL 553

Well Record

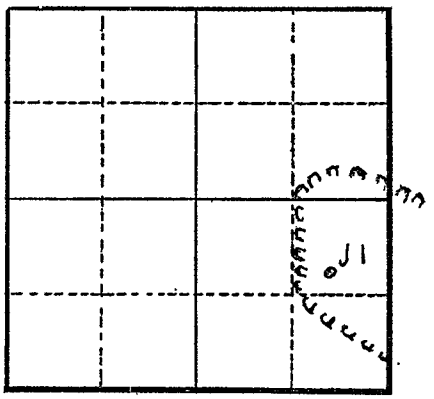
STATE WELL NO. 1/9W-34J(1)
COUNTY Tillamook
APPLICATION NO. GR-3354
GR-3105

OWNER: Harold Wyss
MAILING ADDRESS: Rt. 2, Box 240
CITY AND STATE: Tillamook

LOCATION OF WELL: Owner's No. .....

NE ¼ SE ¼ Sec. 34 T. 1 N. S., R. 9 E. W., W.M.

Bearing and distance from section or subdivision corner 500' E. & 300' N. from SW Cor. NE¼ SE¼ Section 34



Altitude at well .....

TYPE OF WELL: Dug Date Constructed 1952

Depth drilled 12 Depth cased 12

Section 34

CASING RECORD:

24 inch concrete tile

FINISH:

AQUIFERS:

Sand and gravel

WATER LEVEL:

PUMPING EQUIPMENT: Type Cent. H.P. 7½
Capacity ..... G.P.M.

WELL TESTS:
Drawdown 3 ft. after ..... hours Pumping 290 G.P.M.
Drawdown ..... ft. after ..... hours ..... G.P.M.

USE OF WATER Irrigation Temp. ..... °F. ....., 19....
SOURCE OF INFORMATION GR-3354
DRILLER or DIGGER .....
ADDITIONAL DATA:
Log ..... Water Level Measurements ..... Chemical Analysis ..... Aquifer Test .....

REMARKS:

Log not available.

State Printing 89316

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the
WATER RESOURCES DEPARTMENT, SALEM, OREGON 97310 within 30 days from the date of well completion.

TILL 649

WATER WELL REPORT
STATE OF OREGON

(Please type or print)
(Do not write above this line)

RECEIVED
MAY 30 1978
WATER RESOURCES DEPT.
SALEM, OREGON

State Well No. 2S/9W-3
State Permit No.

(1) OWNER:
Name: Silvino Lara
Address: 7250 Fawcett Road
Tillamook, Oregon 97141

(2) TYPE OF WORK (check):
New Well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary ☒ Driven ☐
Cable ☐ Jetted ☐
Dug ☐ Bored ☐

(4) PROPOSED USE (check):
Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(5) CASING INSTALLED:
Threaded ☐ Welded ☒
6" Diam. from 0 ft. to 20 ft. Gage .250
4" PVC liner Diam. from 0 ft. to 200 ft. Gage 160#
" Diam. from ft. to ft. Gage

(6) PERFORATIONS:
Perforated? ☒ Yes ☐ No
Type of perforator used Drill
Size of perforations 1/4 in. round holes by in.
300 perforations from 100 ft. to 200 ft.
perforations from ft. to ft.
perforations from ft. to ft.

(7) SCREENS:
Well screen installed? ☐ Yes ☒ No
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

(8) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? ☐ Yes ☒ No If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" Tested with air: could fluctuate "
Water test 2 gal./min. with 140 ft. drawdown after 4 hrs.
Artesian flow g.p.m.
Temperature of water Depth artesian flow encountered ft.

(9) CONSTRUCTION:
Well seal—Material used Cement
Well sealed from land surface to 19 ft.
Diameter of well bore to bottom of seal 10 in.
Diameter of well bore below seal 6 in.
Number of sacks of cement used in well seal 4 sacks
How was cement grout placed?
Mixed and poured from top
Was a drive shoe used? ☐ Yes ☒ No Plugs Size: location ft.
Did any strata contain unusable water? ☐ Yes ☒ No
Type of water? depth of strata
Method of sealing strata off
Was well gravel packed? ☐ Yes ☒ No Size of gravel:
Gravel placed from ft. to ft.

(10) LOCATION OF WELL:
County Tillamook Driller's well number Cy/29/A
¼ ¼ Section 3 T. 2S R. 9W W.M.
Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.
Depth at which water was first found 96 ft.
Static level 42 ft. below land surface. Date 5/18/78
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:
Diameter of well below casing 6
Depth drilled 200 ft. Depth of completed well 200 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
Brown clay soil	0	3	
Yellow clay	3	6	
Brown sandstone	6	14	
Gray shale	14	36	
Gray sandstone	36	114	
Blue shale	114	200	

Work started 5/18/78 19 Completed 5/18/78 19
Date well drilling machine moved off of well 5/18/78 19

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] Mike L. Abernathy (Drilling Machine Operator) Date 5/19/78, 19
Drilling Machine Operator's License No. 710

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Name Corvallis Drilling Co., inc. (Person, firm or corporation) (Type or print)
Address 3440 SW 3rd St. Corvallis, Oregon 97330
[Signed] Clarence A Kinney (Water Well Contractor)
Contractor's License No. 560 Date 5/19/78, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

SP*456

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the WATER RESOURCES DEPARTMENT, SALEM, OREGON 97310 within 30 days from the date of well completion.

RECEIVED
NOV 21 1978
WATER RESOURCES DEPT.
SALEM, OREGON

WATER WELL REPORT
STATE OF OREGON
(Please type or print)
(Please do not write above this line)

TILL 690

State Well No. 25/9w-3

State Permit No.

(1) OWNER:
Name F.H.Norman
Address 7905 S. Prarie Rd.
Tillamook,Oregon 97141

(2) TYPE OF WORK (check):
New Well [X] Deepening [ ] Reconditioning [ ] Abandon [ ]
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary [X] Driven [ ]
Cable [ ] Jetted [ ]
Dug [ ] Bored [ ]

(4) PROPOSED USE (check):
Domestic [X] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [ ]

(5) CASING INSTALLED:
Threaded [ ] Welded [X]
6 " Diam. from 0 ft. to 40 ft. Gage .250
4"PVC liner Diam. from 0 ft. to 80 ft. Gage 160#
" Diam. from ft. to ft. Gage

PERFORATIONS:
Perforated? [X] Yes [ ] No
Type of perforator used Drill
Size of perforations 1/4 round holes in.
200 perforations from 40 ft. to 80 ft.
perforations from ft. to ft.
perforations from ft. to ft.

(7) SCREENS:
Well screen installed? [ ] Yes [X] No
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

(8) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? [ ] Yes [X] No If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " "
" Tested with air: could fluctuate "
Bailer test 7 gal./min. with 30 ft. drawdown after 4 hrs.
Artesian flow g.p.m.
Temperature of water Depth artesian flow encountered ft.

(9) CONSTRUCTION:
Well seal—Material used Cement
Well sealed from land surface to 38 ft.
Diameter of well bore to bottom of seal 10 in.
Diameter of well bore below seal 6 in.
Number of sacks of cement used in well seal 5 sacks
How was cement grout placed?
Mixed and poured from top
Was a drive shoe used? [X] Yes [ ] No Plugs Size: location ft.
Did any strata contain unusable water? [ ] Yes [X] No
Type of water? depth of strata
Method of sealing strata off
Was well gravel packed? [X] Yes [ ] No Size of gravel: 1/2 pea
Gravel placed from 40 ft. to 80 ft.

(10) LOCATION OF WELL:
County Tillamook Driller's well number Cy/79/A
¼ ¼ Section 3 T. 2S R. 9W W.M.
Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.
Depth at which water was first found 48 ft.
Static level 18 ft. below land surface. Date 9/20/78
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:
Diameter of well below casing 6
Depth drilled 80 ft. Depth of completed well 80 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
Sandy loam soil	0	1	
Boulders&clay yellow	1	23	
Boulders gravel&blue clay	23	34	
Blue shale	34	44	
Gray sandstone	44	68	
Gray shale	68	80	

Work started 9/20/78 19 Completed 9/20/78 19
Date well drilling machine moved off of well 9/20/78 19

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] Dale A. Abernathy (Drilling Machine Operator) Date 9/25/78 19
Drilling Machine Operator's License No. 710

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Name Corvallis Drilling Co. Inc. (Person, firm or corporation) (Type or print)
Address 3440 SW 3rd St. Corvallis, Oregon 97330
[Signed] Clarence A. Kinney (Water Well Contractor)
Contractor's License No. 560 Date 9/25/78, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

SP*45656-119

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the
WATER RESOURCES DEPARTMENT
SALEM, OREGON 97310
within 30 days from the date of well completion.

RECEIVED
NOV 2 1978
WATER RESOURCES DEPT.
SALEM, OREGON

WATER WELL REPORT
STATE OF OREGON
(Please type or print)
(Do not write above this line)

TILL 657

State Well No. 2S/9W-4

State Permit No.

(1) OWNER:
Name: Porfirio Alcazar
Address: 906 L. St.
Tillamook, Oregon 97141

(2) TYPE OF WORK (check):
New Well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary ☒ Driven ☐
Cable ☐ Jetted ☐
Dug ☐ Bored ☐

(4) PROPOSED USE (check):
Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(5) CASING INSTALLED:
Threaded ☐ Welded ☒
6 " Diam. from +2 ft. to 68 ft. Gage .250
" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage

(6) PERFORATIONS:
Perforated? ☒ Yes ☐ No
Type of perforator used torch
Size of perforations 1/4 in. by 5 in.
40 perforations from 63 ft. to 68 ft.
perforations from ft. to ft.
perforations from ft. to ft.

(7) SCREENS:
Well screen installed? ☐ Yes ☒ No
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

(8) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? ☐ Yes ☒ No If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " "
" tested with air could fluctuate "
Bailer test 40 gal./min. with 30 ft. drawdown after 4 hrs.
Artesian flow g.p.m.
Temperature of water Depth artesian flow encountered ft.

(9) CONSTRUCTION:
Well seal—Material used cement
Well sealed from land surface to 40 ft.
Diameter of well bore to bottom of seal 10 in.
Diameter of well bore below seal 6 in.
Number of sacks of cement used in well seal 12 sacks
How was cement grout placed? pumped through tremmie
Was a drive shoe used? ☒ Yes ☐ No Plugs Size: location ft.
Did any strata contain unusable water? ☐ Yes ☒ No
Type of water? depth of strata
Method of sealing strata off
Was well gravel packed? ☐ Yes ☒ No Size of gravel:
Gravel placed from ft. to ft.

(10) LOCATION OF WELL:
County Tillamook Driller's well number CY/81/A
¼ ¼ Section 4 T. 2S R. 9W W.M.
Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.
Depth at which water was first found 45 ft.
Static level 8 ft. below land surface. Date 9/26/78
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:
Diameter of well below casing none
Depth drilled 68 ft. Depth of completed well 68 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
brown clay loam	0	4	
blue clay	4	16	
gray clay	16	32	
brown sand	32	43	
coarse sand & black gravel	43	68	

Work started 9/26/78 19 Completed 9/26/78 19
Date well drilling machine moved off of well 9/27/78 19

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] Dale A. Abernathy (Drilling Machine Operator) Date 9/29/78, 19
Drilling Machine Operator's License No. 710

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Name Corvallis Drilling Co. Inc. (Person, firm or corporation) (Type or print)
Address 3440 SW 3rd St. Corvallis, Oregon 97330
[Signed] Clarence A Kinney (Water Well Contractor)
Contractor's License No. 560 Date 9/29/78, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

SP*45656-119

Well #2

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the STATE ENGINEER, SALEM, OREGON 97310 within 30 days from the date of well completion.

RECEIVED
MAR 26 1968
STATE ENGINEER
SALEM OREGON

WATER WELL REPORT
STATE OF OREGON
(Please type or print)
(Do not write above this line)

TILL 652

G-4891

State Well No. 2/9W-4 caa

State Permit No. .....

(1) OWNER:
Name General Foods Corp. Birds Eye
Address P.O. Box 113 Tillamook, Ore. 97141

(2) TYPE OF WORK (check):
New Well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary ☒ Driven ☐
Cable ☐ Jetted ☐
Dug ☐ Bored ☐

(4) PROPOSED USE (check):
Domestic ☐ Industrial ☐ Municipal ☐
Irrigation ☒ Test Well ☐ Other ☐

(5) CASING INSTALLED:
Threaded ☐ Welded ☒
6 " Diam. from 0 ft. to 116 ft. Gage 17#
" Diam. from ..... ft. to ..... ft. Gage .....
" Diam. from ..... ft. to ..... ft. Gage .....

(6) PERFORATIONS:
Perforated? ☒ Yes ☐ No.
Type of perforator used Torch
Size of perforations 1/4 in. by 8 inch in.
105 perforations from 44 ft. to 114 ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

(7) SCREENS:
Well screen installed? ☐ Yes ☒ No
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot size ..... Set from ..... ft. to ..... ft.
Diam. ..... Slot size ..... Set from ..... ft. to ..... ft.

(8) WATER LEVEL: Completed well.
Static level 25 ft. below land surface Date 3-21-68
Artesian pressure ..... lbs. per square inch Date .....

(9) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? ☐ Yes ☒ No If yes, by whom?
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "
Bailer test 150 gal./min. with 70 ft. drawdown after 1 hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water Was a chemical analysis made? ☐ Yes ☒ No

(10) CONSTRUCTION:
Well seal—Material used Bentonite
Depth of seal 35 feet ft.
Diameter of well bore to bottom of seal 9 in.
Were any loose strata cemented off? ☐ Yes ☒ No Depth .....
Was a drive shoe used? ☐ Yes ☒ No
Did any strata contain unusable water? ☐ Yes ☒ No
Type of water? ..... depth of strata .....
Method of sealing strata off .....
Was well gravel packed? ☐ Yes ☒ No Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

(11) LOCATION OF WELL:
County Tillamook Driller's well number .....
¼ ¼ Section 4 T. 2S R. 9W W.M.
Bearing and distance from section or subdivision corner
Second well at this location

(12) WELL LOG:
Diameter of well below casing 6 inch
Depth drilled 135 ft. Depth of completed well 135 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level as drilling proceeds. Note drilling rates.

MATERIAL	From	To	SWL
Brown gravel and sand	0	120	
Soft blue rock	120	135	

Work started 3-16-68 19 Completed 3-21-68 19
Date well drilling machine moved off of well 3-21-68 19

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] Ralph Turner Date 3-23, 1968
(Drilling Machine Operator)
Drilling Machine Operator's License No. 254

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
NAME Ralph Turner Drilling Co.
(Person, firm or corporation) (Type or print)
Address Rte 1 Box 141 Hillsboro, Ore. 97123
[Signed] Ralph Turner
(Water Well Contractor)
Contractor's License No. 247 Date 3-23, 1968

(USE ADDITIONAL SHEETS IF NECESSARY)

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the STATE ENGINEER, SALEM, OREGON 97310 within 30 days from the date of well completion.

RECEIVED
MAR 26 1968
STATE ENGINEER
SALEM, OREGON

WATER WELL REPORT
STATE OF OREGON
(Please type or print)
(Do not write above this line)

Well #1
TILL
653

State Well No. 2/9w-4 dab
State Permit No. G-4891

(1) OWNER:
Name General Foods Corp. Birds Eye
Address P.O. Box 113, Tillamook, Ore 97141

(2) TYPE OF WORK (check):
New Well [X] Deepening [ ] Reconditioning [ ] Abandon [ ]
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary [X] Driven [ ]
Cable [ ] Jetted [ ]
Dug [ ] Bored [ ]

(4) PROPOSED USE (check):
Domestic [ ] Industrial [ ] Municipal [ ]
Irrigation [X] Test Well [ ] Other [ ]

(5) CASING INSTALLED:
Threaded [ ] Welded [X]
6 " Diam. from 0 ft. to 145 ft. Gage 17#
" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage

PERFORATIONS:
Perforated? [X] Yes [ ] No
Type of perforator used Torch
Size of perforations 1/4 in. by 8 inch in.
120 perforations from 30 ft. to 140 ft.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

(7) SCREENS:
Well screen installed? [ ] Yes [X] No
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

(8) WATER LEVEL: Completed well.
Static level 8 ft. below land surface Date 3-2-68
Artesian pressure lbs. per square inch Date

(9) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? [X] Yes [ ] No If yes, by whom? Hillsboro
Yield: 200 gal./min. with 100 ft. drawdown after 1 hrs. Implement Co.
" " "
" " "
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? [ ] Yes [X] No

(10) CONSTRUCTION:
Well seal—Material used Bentonite
Depth of seal 30 feet ft.
Diameter of well bore to bottom of seal 17" in.
Were any loose strata cemented off? [ ] Yes [X] No Depth
Was a drive shoe used? [ ] Yes [X] No
Did any strata contain unusable water? [ ] Yes [X] No
Type of water? depth of strata
Method of sealing strata off
Was well gravel packed? [X] Yes [ ] No Size of gravel: 3/4 to 2"
Gravel placed from 20 ft. to 145 ft.

(11) LOCATION OF WELL:
County Tillamook Driller's well number
¼ ¼ Section 4 T. 2S R. 9W W.M.
Bearing and distance from section or subdivision corner

(12) WELL LOG:
Diameter of well below casing 6 inch
Depth drilled 145 ft. Depth of completed well 145 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level as drilling proceeds. Note drilling rates.

MATERIAL	From	To	SWL
Top soil	0	3	
Yellow clay	3	7	
Brown sand and gravel	7	110	
Blue hard rock	110	145	

Work started 2-29-68 19 Completed 3-2-68 19
Date well drilling machine moved off of well 3-2-68 19

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] Ralph Turner Date 3-23, 1968
(Drilling Machine Operator)
Drilling Machine Operator's License No. 254

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
NAME Ralph Turner Drilling Co.
(Person, firm or corporation) (Type or print)
Address Rte 1 Box 141, Hillsboro, Ore. 97123
[Signed] Ralph Turner
(Water Well Contractor)
Contractor's License No. 247 Date 3-23, 1968

(USE ADDITIONAL SHEETS IF NECESSARY)

RECEIVED
JUN 28 1996
WATER RESOURCES DEPT.
SALEM, OREGON

Skyles Drilling, Inc.
1169 Molalla Ave.
Oregon City, OR 97045
656-2683

TILL
50053 Well ID# L03980

STATE OF OREGON WATER SUPPLY WELL REPORT
(as required by ORS 537.765)

Instructions for completing this report are on the last page of this form

(START CARD) # 87737

(1) OWNER:
Well Number 01
Name David & Patricia Penney
Address 7400 Long Prairie Rd.
City Tillamook State Or. Zip 97141

(2) TYPE OF WORK
[X] New Well [ ] Deepening [ ] Alteration (repair/recondition) [ ] Abandonment

(3) DRILL METHOD:
[X] Rotary Air [ ] Rotary Mud [ ] Cable [ ] Auger
[ ] Other

(4) PROPOSED USE:
[X] Domestic [ ] Community [ ] Industrial [X] Irrigation
[ ] Thermal [ ] Injection [ ] Livestock [ ] Other

(5) BORE HOLE CONSTRUCTION:
Special Construction approval [ ] Yes [X] No Depth of Completed Well 109 ft.
Explosives used [ ] Yes [X] No Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
12"	0	18	Gran Bent	18	0	16 sacks
8"	18	109				

How was seal placed: Method [ ] A [ ] B [ ] C [ ] D [ ] E
[X] Other Poured
Backfill placed from ft. to ft. Material
Gravel placed from ft. to ft. Size of gravel

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	8"	+2	84	.250	[X]	[ ]	[X]	[ ]
					[ ]	[ ]	[ ]	[ ]
					[ ]	[ ]	[ ]	[ ]
					[ ]	[ ]	[ ]	[ ]
Liner:	None				[ ]	[ ]	[ ]	[ ]
					[ ]	[ ]	[ ]	[ ]

Final location of shoe(s) 84'

(7) PERFORATIONS/SCREENS:
[X] Perforations Method air rotary
[ ] Screens Type Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
57	81	1/8 x 1/4	560			[X]	[ ]
						[ ]	[ ]
						[ ]	[ ]
						[ ]	[ ]
						[ ]	[ ]

(8) WELL TESTS: Minimum testing time is 1 hour
[ ] Pump [ ] Bailer [X] Air [ ] Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
100		82	1 hr.

Temperature of water 56.4° Depth Artesian Flow Found
Was a water analysis done? [ ] Yes By whom
Did any strata contain water not suitable for intended use? [ ] Too little
[ ] Salty [ ] Muddy [ ] Odor [ ] Colored [ ] Other
Depth of strata:

(9) LOCATION OF WELL by legal description:
County Tillamook Latitude Longitude
Township 2 South N or S Range 9 West E or W. WM.
Section 4 SE 1/4 NW 1/4
Tax Lot 400 Lot Block Subdivision
Street Address of Well (or nearest address) 7400 Long Prarie Rd. Tillamook, Or.

(10) STATIC WATER LEVEL:
22 ft. below land surface. Date 6-19-96
Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:
Depth at which water was first found 22'

From	To	Estimated Flow Rate	SWL
22	37	trace	22
57	81	100	22

(12) WELL LOG:
Ground Elevation

Material	From	To	SWL
Soil Brown	0	4	
Gravel & Sand Brown &	4		
Gray cemented mixed w/			
Clay Brown @ Times		37	
Gravel Med w/ Sand Med	37	48	
Gravel Mixed w/Clay	48		
Brown		57	
Gravel & Sand Multicolor	57	70	22
Gravel Med	70	81	22
Clay Gray Sandy & gritty	81	109	

Date started 6-18-96 Completed 6-20-96

(unbonded) Water Well Constructor Certification:
I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
WWC Number 1601
Signed Shane W. Kenna Date 6/24/96

(bonded) Water Well Constructor Certification:
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.
WWC Number 1592
Signed Steven C. Blonsd Date 6-24-96

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

TILL 51330

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765)
Instructions for completing this report are on the last page of this form.

WELL I.D. # L 66958
START CARD # 166429

(1) LAND OWNER Well Number 1
Name Till & Bay Farm
Address 620 Fenk Rd.
City Tillamook State Oregon Zip 97141

(2) TYPE OF WORK
☒ New Well ☐ Deepening ☐ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD:
☒ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger
☐ Other

(4) PROPOSED USE:
☐ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Livestock ☒ Other Cows

(5) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes ☒ No Depth of Completed Well 122 ft.
Explosives used ☐ Yes ☒ No Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
10	0	21	Bentonite	0	21	31
6	21	122	—	—	—	—

How was seal placed: Method ☐A ☐B ☐C ☐D ☐E
☒ Other Placed in dry + prodded
Backfill placed from ft. to ft. Material
Gravel placed from ft. to ft. Size of gravel

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	6	+2	118	.250	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:					☐	☐	☐	☐
					☐	☐	☐	☐

Drive Shoe used ☐ Inside ☒ Outside ☐ None
Final location of shoe(s) 118

(7) PERFORATIONS/SCREENS:
☒ Perforations Method Ripped
☐ Screens Type Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
80	118	1/8x2	760	—	6	☒	☐
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
40	71	90	1 hr.

Temperature of water 55 Depth Artesian Flow Found
Was a water analysis done? ☐ Yes By whom
Did any strata contain water not suitable for intended use? ☐ Too little
☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other
Depth of strata:

(9) LOCATION OF WELL by legal description:
County Tillamook Latitude Longitude
Township 2S N or S Range 9W E or W. WM.
Section 4 NW 1/4 NE 1/4
Tax Lot 200 Lot Block Subdivision
Street Address of Well (or nearest address) 7000 Long Prairie Rd.

(10) STATIC WATER LEVEL:
19 ft. below land surface. Date 7-27-04
Artesian pressure lb. per square inch Date

(11) WATER BEARING ZONES:
Depth at which water was first found 11

From	To	Estimated Flow Rate	SWL
11	13	T	13
79	118	40	19

(12) WELL LOG:
Ground Elevation

Material	From	To	SWL
Top Soil	0	1	
Brown Clay	1	8	
Brown Clay W/ Med.	8	—	
+ Sm. Gravel + Lg. Sand	—	118	
Brown Clay	118	122	19

RECEIVED
AUG 09 2004
WATER RESOURCES DEPT
SALEM, OREGON

Date started 7-26-04 Completed 7-27-04

(unbonded) Water Well Constructor Certification:
I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
WWC Number
Signed Date

(bonded) Water Well Constructor Certification:
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.
WWC Number 1221
Signed Jason C Ewy Date 7-27-04

ORIGINAL – WATER RESOURCES DEPARTMENT FIRST COPY – CONSTRUCTOR SECOND COPY – CUSTOMER

TILL 51981 5/9/09

TW 51981

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765)
Instructions for completing this report are on the last page of this form.

WELL I.D. # L 92698
START CARD # 199389

(1) LAND OWNER Well Number 1
Name Port of Tillamook Bay
Address 4000 Blimp Blvd.
City Tillamook State Oregon Zip 97141

(2) TYPE OF WORK
☒ New Well ☐ Deepening ☐ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD:
☒ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger
☐ Other

(4) PROPOSED USE:
☐ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Livestock ☒ Other Municipal

(5) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes ☒ No Depth of Completed Well 65 ft.
Explosives used ☐ Yes ☒ No Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
10	0	20	Bentonite	0	20	23
6	20	65	—	—	—	—

How was seal placed: Method ☐A ☐B ☐C ☐D ☐E
☒ Other Placed in dry + prodded
Backfill placed from ft. to ft. Material
Gravel placed from ft. to ft. Size of gravel

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	6	+1½	38½	.250	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:					☐	☐	☐	☐
					☐	☐	☐	☐

Drive Shoe used ☐ Inside ☒ Outside ☐ None
Final location of shoe(s) 38½

(7) PERFORATIONS/SCREENS:
☐ Perforations Method
☐ Screens Type Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
						☐	☐
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
40	45	59	1 hr.

Temperature of water 54 Depth Artesian Flow Found
Was a water analysis done? ☐ Yes By whom
Did any strata contain water not suitable for intended use? ☐ Too little
☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other
Depth of strata:

(9) LOCATION OF WELL by legal description:
County Tillamook Latitude Longitude
Township 2S N or S Range 9W E or W. WM.
Section 4 NW 1/4 SW 1/4
Tax Lot 5300 Lot Block Subdivision
Street Address of Well (or nearest address) SAME

(10) STATIC WATER LEVEL:
14 ft. below land surface. Date 4-21-09
Artesian pressure lb. per square inch Date

(11) WATER BEARING ZONES:
Depth at which water was first found 6

From	To	Estimated Flow Rate	SWL
6	7	T	7
29	65	40	14

(12) WELL LOG:
Ground Elevation

Material	From	To	SWL
Top soil	0	1	
Brown Clay	1	4	
Brown Clay w/sm.	4	—	
+ Med. Gravel	—	15	
Brown Clay w/sm.	15	—	
Gravel	—	26	
Brown Clay w/sm.	26	—	
+ Lg. Gravel	—	65	14

RECEIVED
APR 24 2009
WATER RESOURCES DEPT
SALEM, OREGON

RECEIVED
MAY 11 2009
WATER RESOURCES DEPT
SALEM, OREGON

Date started 4-21-09 Completed 4-21-09

(unbonded) Water Well Constructor Certification:
I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
WWC Number
Signed Date

(bonded) Water Well Constructor Certification:
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.
WWC Number 1221
Signed Jerry C Eck Date 4-21-09

ORIGINAL – WATER RESOURCES DEPARTMENT FIRST COPY – CONSTRUCTOR SECOND COPY – CUSTOMER

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.545 & 537.765 and OAR 690-205-0210)

TILL 53241

11/22/2022

WELL I.D. LABEL# L 149380
START CARD # 1059126
ORIGINAL LOG #

(1) LAND OWNER

Owner Well I.D.
First Name BRUCE Last Name KNOWLTON
Company
Address 8315 LONG PRAIRIE ROAD
City TILLAMOOK State OR Zip 97141

(2) TYPE OF WORK

[X] New Well [ ] Deepening [ ] Conversion [ ] Alteration (complete 2a & 10) [ ] Abandonment(complete 5a)

(2a) PRE-ALTERATION

	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
Casing:									

	Material	From	To	Amt	sacks/lbs
Seal:					

(3) DRILL METHOD

[X] Rotary Air [ ] Rotary Mud [ ] Cable [ ] Auger [ ] Cable Mud
[ ] Reverse Rotary [ ] Other

(4) PROPOSED USE

[X] Domestic [ ] Irrigation [ ] Community
[ ] Industrial/ Commericial [ ] Livestock [ ] Dewatering
[ ] Thermal [ ] Injection [ ] Other

(5) BORE HOLE CONSTRUCTION

Special Standard [ ] (Attach copy)
Depth of Completed Well 124.00 ft.

BORE HOLE

Dia	From	To
10	0	18
6	18	124

SEAL

Material	From	To	Amt	sacks/lbs
Bentonite	0	18	10	S
		Calculated	8.22	
		Calculated		

How was seal placed: Method [ ] A [ ] B [ ] C [ ] D [ ] E
[X] Other POURED & PRODDED
Backfill placed from ft. to ft. Material
Filter pack from ft. to ft. Material Size
Explosives used: [ ] Yes Type Amount

(5a) ABANDONMENT USING UNHYDRATED BENTONITE

Proposed Amount Actual Amount

(6) CASING/LINER

Casing	Liner	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
●	○	6	X	1.5	97.5	.250	●	○	X	
○	●	4		6	124	.200	○	●	X	
○	○						○	○		
○	○						○	○		
○	○						○	○		

Shoe [ ] Inside [X] Outside [ ] Other Location of shoe(s) 97.5
Temp casing [ ] Yes Dia From + To

(7) PERFORATIONS/SCREENS

Perforations Method DRILLED
Screens Type Material

Perf/ Screen	Casing/ Screen Liner	Dia	From	To	Scrn/slot width	Slot length	# of slots	Tele/ pipe size
Perf	Liner	4	84	124	.5	0.5	60	4

(8) WELL TESTS: Minimum testing time is 1 hour

○ Pump ○ Bailer ◉ Air ○ Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
30		120	1

Temperature 60 °F Lab analysis [ ] Yes By
Water quality concerns? [ ] Yes (describe below) TDS amount 120 ppm

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)

County TILLAMOOK Twp 2.00 S N/S Range 9.00 W E/W WM
Sec 3 NE 1/4 of the NW 1/4 Tax Lot 1503
Tax Map Number Lot
Lat ° ' " or 45.43117600 DMS or DD
Long ° ' " or -123.77759700 DMS or DD
◉ Street address of well ○ Nearest address
8315 LONG PRAIRIE ROAD, TILLAMOOK, OR 97141

(10) STATIC WATER LEVEL

	Date	SWL(psi)	+	SWL(ft)
Existing Well / Pre-Alteration				
Completed Well	11/17/2022			30

Flowing Artesian? [ ] Dry Hole? [ ]

WATER BEARING ZONES Depth water was first found 95.00

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)
11/17/2022	93	124	30			30

(11) WELL LOG

Ground Elevation

Material	From	To
TOP SOIL	0	2
BROWN STICKY CLAY	2	5
GRAVELS W BROWN CLAY INTERBEDS	5	93
GRAY BROKEN CLAYSTONE	93	124

Date Started 11/1/2022 Completed 11/17/2022

(unbonded) Water Well Constructor Certification

I certify that the work I performed on the construction, deepening, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

License Number 2071 Date 11/22/2022

Signed MITCHELL HERINCKX (E-filed)

(bonded) Water Well Constructor Certification

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License Number 2023 Date 11/22/2022

Signed MICHAEL APPLEBEE (E-filed)

Contact Info (optional) ALPINE RESOURCES LLC 503-647-2969

ORIGINAL - WATER RESOURCES DEPARTMENT

THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK Form Version:
New exempt use wells must be submitted with a map and recording fee.

WATER SUPPLY WELL REPORT - Map with location identified must be attached and shall include an approximate scale and north arrow

TILL 53241

11/22/2022

Map of Hole

STATE OF OREGON
WELL LOCATION MAP

This map is supplemental to the WATER SUPPLY WELL REPORT

Oregon Water Resources Department
725 Summer St NE, Salem OR 97301
(503)986-0900

LOCATION OF WELL

Latitude: 45.43117600 Datum: WGS84
Longitude: -123.77759700
Township/Range/Section/Quarter-Quarter Section:
WM2.00S9.00W3NWNW
Address of Well:
8315 LONG PRAIRIE ROAD, TILLAMOOK, OR 97141

Well Label: 149380

Printed: November 22, 2022

DISCLAIMER: This map is intended to represent the approximate location the well. It is not intended to be construed as survey accurate in any manner.

Provided by well constructor

TILL 51981

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765)
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					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:					☐	☐	☐	☐
					☐	☐	☐	☐

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Final location of shoe(s) 38½

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☐ Perforations Method
☐ Screens Type Material

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						☐	☐
						☐	☐
						☐	☐
						☐	☐

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SALEM, OREGON

Date started 4-21-09 Completed 4-21-09

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