GeoDesign Inc

CONTAMINATED MEDIA MANAGEMENT PLAN

Custom Stamping Site – North and Southwest Blocks
Tax Lots 6500, 6800, 6900, 7000, and 7100
1340 SE 9th Avenue
Portland, Oregon

For
Capstone Partners LLC and
Oregon Department of Environmental Quality, Northwest Region
February 23, 2017

GeoDesign Project: Capstone-12-04

GeoDesign Inc

February 23, 2017

Capstone Partners LLC
1015 NW 11th Avenue, Suite 243
Portland, OR 97029

Attention: Chris Nelson

Contaminated Media Management Plan
Custom Stamping Site – North and Southwest Blocks
Tax Lots 6500, 6800, 6900, 7000, and 7100
1340 SE 9th Avenue
Portland, Oregon
GeoDesign Project: Capstone-12-04

GeoDesign is pleased to submit this CMMP for the north and southwest blocks of the former Custom Stamping site located at 1340 SE 9th Avenue in Portland, Oregon (project site). This CMMP addresses the management of known and potentially contaminated media that could be encountered during site development. This document is intended to be used by the excavation contractor during earthwork activities and should be used in conjunction with the 1200-C NPDES permit and any project specifications provided to the contractor by the project developer (Capstone Partners LLC) pertaining to the handling, management, characterization, re-use, and/or disposal of impacted media at the project site.

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Please call if you have questions regarding this CMMP.

Sincerely,

GeoDesign, Inc.

Jason O'Donnell, R.G.
Principal Geologist

cc: Kevin Dana, Oregon Department of Environmental Quality (via email only)
Jeff Sackett, Capstone Partners LLC (via email only)
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Attachments
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1.0 INTRODUCTION

This CMMP has been prepared by GeoDesign, Inc. on behalf of Capstone Partners LLC (Capstone) for the development of the northern and southwestern blocks of the former Custom Stamping site located at 1340 SE 9th Avenue in Portland, Oregon (project site).

This CMMP specifically addresses construction work contemplated on the northern and southwestern blocks of the overall former Custom Stamping site, encompassing Tax Lots 6500, 6800, 6900, 7000, and 7100. Accordingly, this CMMP presents exploration data specific to the subject tax lots. For cross-reference to prior reports and figures, space designations assigned to the respective tax lots follow:

- Tax Lot 6500: Space E, Space F and associated service yard
- Tax Lot 6800: Space D and associated service yard, Space G
- Tax Lot 6900: Space 1C and associated service yard
- Tax Lot 7000: Space A
- Tax Lot 7100: Space 1B

Redevelopment of the southeastern block of the project site (Tax Lots 7200 and 7300 currently consisting of paved parking and storage areas with chain-link fencing perimeter) will occur in a separate phase and shall be governed by a separate CMMP provided under separate cover. The forthcoming CMMP for Tax Lots 7200 and 7300 will present subsurface exploration data specific to these areas.

This CMMP is intended to assist the construction team in field identification and management of contaminated media that may be encountered during site excavation activities related to the project development. This CMMP includes field protocol for identification, response actions, communications, removal, temporary storage or stockpiling, transportation, and treatment and/or disposal of contaminated media.

The project site vicinity is shown on Figure 1. Figure 2 shows the current (pre-construction) layout and parcel/space designations. A site plan depicting the locations of previous explorations and proposed site development layout is shown on Figure 3. A Site-Specific HSP is presented in Appendix A. Acronyms and abbreviations used herein are defined at the end of this document.

2.0 BACKGROUND

2.1 PROJECT SITE HISTORY

Historically, the project site encompassed five tax lots most recently comprising the majority of the Custom Stamping and Manufacturing facility. Beginning in approximately 1936, project site use included tool and die works, tool services, auto services and warehousing, welding, truck

parts, and a garage. A more detailed discussion of project site history and the results of GeoDesign's Phase I and Phase II ESAs are presented in our report dated August 26, 2016[1] (Summary Report).

As described in the Summary Report, USTs associated with historical site use were formerly present in the following locations:

- Three USTs were reportedly located in the northwest portion (service yard) of Tax Lot 6900. These three USTs were reportedly decommissioned by removal in 1989.
- One UST was reportedly located in the ROW (sidewalk) south of Tax Lot 6800. This UST was reportedly decommissioned by removal in 1989; however, evidence of the UST and/or removal was not observed during a geophysical survey of this area.
- One UST was located in the ROW (sidewalk) north of Tax Lot 6900[2]. This UST was decommissioned by removal in August 2016 by Custom Stamping and Manufacturing, Inc. The UST closure report for this decommissioning work is presented in Appendix B[3].

Based on the results of GeoDesign's subsurface explorations completed in April through July 2016, Capstone entered the project site into the DEQ VCP in January 2017. Remedial actions contemplated within the VCP are summarized under separate cover. This CMMP is intended to address incidental areas of potential subsurface impact in locations not subject to previous exploration or focused remedial activity and/or residual areas of soil impacts associated with former UST locations and remedial areas.

2.2 SURFACE CONDITIONS

The project site is bordered by SE Salmon Street to the north, SE 9th Avenue to the west, SE Madison Street to the south, and SE 10th Avenue to the east.

The project site is generally flat, at an elevation of approximately 40 feet above MSL. The surface of the project site is typically covered by slab-on-grade building structures, paved parking and storage areas, and concrete surfaces.

2.3 SUBSURFACE CONDITIONS

2.3.1 General

Our understanding of subsurface conditions at the project site is based on completion of the following activities by GeoDesign and others:

- A subsurface soil and groundwater assessment program that included the completion of a geophysical survey and 36 direct-push borings throughout the project site in April through July 2016 for the collection of soil and groundwater samples and chemical analytical characterization for petroleum hydrocarbons, VOCs, PAHs, metals, and PCBs[2].

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[1] GeoDesign, Inc., 2016. *Environmental Services Report; Custom Stamping Site; 1340 SE 9th Avenue; Portland, Oregon*, dated August 26, 2016

[2] As identified during a GeoDesign's Phase I and Phase II ESA and as reported as a leaking UST to DEQ by an agent of Custom Stamping and Manufacturing, Inc.

[3] PBS Engineering + Environmental, Inc., 2016. *Risk-Based HOT Closure Report – LUST File No. 26-16-0783; 1340 SE 9th Avenue, Portland, Oregon*, dated August 26, 2016.

- A soil vapor evaluation beneath the structure on Tax Lot 7000 that included the collection of 13 sub-slab vapor samples to characterize VOC impacts[2].
- Confirmation soil sampling activity completed by PBS Engineering + Environmental in conjunction with UST decommissioning and removal activities in August 2016[4].

The approximate locations of GeoDesign's environmental explorations are shown on Figures 3 and 4.

2.3.2 Soil Conditions

In general, soil conditions at the project site generally consist of varying thicknesses of fill underlain by silt to depths ranging from 5 to 20 feet BGS. The upper silt is situated above gravel and silty gravel to the total depths explored. In a subset of borings, sand and silty sand was encountered between the upper silt and lower gravel at thicknesses of 2 to 5 feet.

2.3.3 Groundwater Conditions

Groundwater was encountered at depths ranging from 11 to 15 feet BGS during our explorations. We infer that the groundwater level may vary on the order of 2 to 3 feet during the course of wet and dry seasons.

2.4 SOIL AND GROUNDWATER IMPACTS

This section summarizes known soil and groundwater impacts at the project site as determined from previous phases of environmental assessment by GeoDesign and others. A summary of soil sample analytical data and corresponding DEQ RBCs for construction/excavation workers is presented in Tables 1 through 3. These tables include the results of GeoDesign's April through July 2016 subsurface explorations, as well as confirmation samples associated with the August 2016 UST decommissioning activity summarized by PBS[4].

2.4.1 Soil Impacts

Known areas of residually impacted soil from former USTs are located at depths of approximately 8 feet BGS or greater. Earthwork activity associated with near-term site redevelopment is generally not anticipated to occur at these depths. However, a complete inventory of known subsurface impacts is presented in the event that future invasive activities penetrate these depths.

Impacted soil situated beneath a catch basin and associated sump located in Tax Lot 7000 is subject to forthcoming removal and remediation activity. Accordingly, it is expected that the isolated area of impacted soil located in this area (Figure 4) will be removed. However, the originally detected contaminant concentrations are presented herein to inform the remedial and general contractors of the potential nature of impacted soil conditions.

Based on the development history of the project site, it is possible that isolated pockets of previously unknown shallow soil impacts could be encountered during site utility and/or shallow excavation work.

2.4.1.1 TPH

TPH compounds (as gasoline, diesel, and/or oil) have been detected in soil samples at the following maximum concentrations:

- Gasoline-range hydrocarbons: up to 18,400 mg/kg
- Diesel-range hydrocarbons: up to 55,300 mg/kg
- Oil-range hydrocarbons: up to 34,100 mg/kg

Results of exploratory activities completed to date indicate that elevated concentrations of TPH in soil are located at (1) the former UST locations in the northwest corner of Tax Lot 6900, (2) the former UST location beneath the sidewalk, north of Tax Lot 6900, and (3) beneath the catch basin area located in Tax Lot 7000 (which will be subject to remedial excavation at the onset of construction by a remediation contractor). These areas are shown on Figures 3 and 4.

As such, we anticipate that soil exceeding any applicable construction worker RBCs for TPH would primarily be associated with deep excavation and/or trenching activities in former UST locations. TPH detections have not exceeded the DEQ RBCs for excavation workers.

2.4.1.2 VOCs

Petroleum-related VOCs have been detected in soil samples collected at the project site at concentrations up to 352 mg/kg. Petroleum-related VOCs include butylbenzenes, ethylbenzene, isopropylbenzene, p-isopropyltoluene, MTBE, naphthalene, n-propylbenzene, toluene, trimethylbenzenes, and xylenes.

Chlorinated solvent VOCs, including trichloroethylene and tetrachloroethylene, have been detected in soil samples collected at the project site at concentrations up to 442 mg/kg.

Results of exploratory activities completed to date indicate that elevated concentrations of petroleum-related VOCs in soil are located at former UST locations as described in the previous section. Elevated concentration of chlorinated solvent VOCs appear to be located in proximity to the sump/catch basin area located in Tax Lot 7000 (which will be subject to remedial excavation at the onset of construction by a remediation contractor).

While several VOC concentrations exceed corresponding DEQ CFSLs, none of the detected VOC concentrations exceeded the DEQ RBCs for construction and/or excavation workers.

2.4.1.3 PAHs

Petroleum-related PAHs have been detected in soil samples collected at the project site at concentrations up to 174 mg/kg. Petroleum-related PAHs include anthracene, acenaphthene, acenaphthylene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, pyrene, 1-methylnaphthalene, and 2-methylnaphthalene.

Results of exploratory activities completed to date indicate that elevated concentrations of petroleum-related PAHs in soil are located at former UST locations as described in the previous

section and in proximity to the sump/catch basin area located in Tax Lot 7000 (which will be subject to remedial excavation at the onset of construction by a remediation contractor).

While several PAH concentrations exceed corresponding DEQ CFSLs, none of the detected VOC concentrations exceeded the DEQ RBCs for construction and/or excavation workers.

2.4.1.4 Metals

Metals have been detected in soil samples collected at the project site at concentrations up to 142 mg/kg. However, elevated metals concentrations have not been identified at the project site relative to applicable screening levels.

All detected metals concentrations have been below DEQ CFSLs and RBCs for construction and/or excavation workers.

2.4.1.5 PCBs

PCBs have not been detected in soil samples collected at the project site.

2.4.2 Groundwater Impacts

Groundwater has been encountered at the project site at depths ranging from 11 to 15 feet BGS.

Relatively low concentrations of TPH, VOCs, PAHs, and metals have been sporadically detected in groundwater samples collected during previous exploratory activities. The results of prior groundwater sampling at the project site are summarized in Tables 4 through 6. None of the detected concentrations of TPH, VOCs, metals, or PAHs have exceeded DEQ RBCs applicable to the project site.

3.0 PROPOSED DEVELOPMENT

We understand the project site will be redeveloped into a series of commercial and light-industrial facilities within the existing slab-on-grade building structures. All ground-floor spaces will be comprised of commercial/occupational uses.

Since the redeveloped project site will utilize the existing building structures, mass excavation activities are not anticipated. We anticipate that soil generated during redevelopment activity will be associated with the following:

- Shallow grading activities associated with floor slab replacement within Space 1B (Tax Lot 7100)
- Incidental, shallow utility work within various areas of the project site
- Shallow excavation for footings associated with a potential new loading dock in the service yard located in the northwestern portion of Tax Lot 6900
- Areas of focused soil removal and trenching associated with remedial components of construction in Space A (Tax Lot 7000), as detailed in the project RAP[4]

[4] GeoDesign, Inc., 2017. *Remedial Action Plan; Custom Stamping Site; 1340 SE 9th Avenue; Portland, Oregon,* dated February 23, 2017.

4.0 CMMP

The goals of this CMMP are to (1) provide the excavation contractor with information on the character and known distribution of contamination on the project site, (2) establish a decision structure to assist the earthwork contractor in the detection and management of contaminated soil during excavation activities, and (3) prevent the exacerbation of environmental conditions. This CMMP should be used during all excavation activities associated with redevelopment of the project site.

4.1 SOIL MANAGEMENT

Total petroleum hydrocarbons, VOCs, PAHs, and metals have been detected in soil at the project site. As noted earlier, the majority of known impacted soil resides at relatively deep intervals associated with former UST locations, which are generally not expected to be encountered during redevelopment. However, it is possible that impacted soil could be encountered during slab restoration, utility, and/or earthwork activities. Some of the soil contaminant concentrations have exceeded current DEQ CFSLs. Therefore, potentially impacted soil encountered during construction activities should be screened and separated for further characterization as needed upon removal to evaluate final disposition of the material.

Based on historical site use and the results of soil sampling completed to date, any area of subsurface excavation may be considered an AOC for soil. Due to the potentially separate and isolated nature of contaminants at the project site and the different management strategies for each type of contaminant, all soil that screens positive for possible contamination will be separated and stockpiled for chemical characterization prior to on-site re-use and/or off-site disposal.

4.1.1 Identification and Management of Contaminated Soil

4.1.1.1 Petroleum-Contaminated Soil

The four primary physical indicators of petroleum-related contamination in soil include staining, sheens, elevated PID readings, and petroleum-like odor. During excavation activities, soil should be continuously observed for evidence of staining, elevated PID readings, and sheen. Odor can be subjective, and inhalation of vapors from impacted soil is harmful to human health. Therefore, odor is considered an inadvertent field indicator and will not be used for continuous screening of soil.

Staining: Generally, soil that is contaminated with petroleum hydrocarbons exhibits gray or black staining, although other contaminants and natural conditions may also cause staining.

Sheen: Sheen is another indication of petroleum contamination. Soil with a sheen may appear shiny and reflective. Sheens from heavily impacted soil may appear iridescent with rainbow-like colors. Sheens may also be observed in contaminated groundwater.

PID Readings: PID readings involve the measurement of headspace vapors originating from a soil sample. PID screening is performed by placing a soil sample in a plastic bag. Air is captured in the bag, and the bag is shaken to expose the soil to the air trapped in the bag. The probe of a PID is inserted into the bag, which measures VOC vapor (petroleum constituent) concentrations

in units of ppm. A PID is designed to quantify VOC vapor concentrations in the range between 1 and 2,000 ppm. Our review of the extensive historical data indicates that a PID reading exceeding 20 ppm may indicate the presence of soil not expected to meet DEQ CFSLs.

Odor: Petroleum products, solvents, and other types of contaminated soil may release vapors when exposed to the atmosphere. If concentrated enough, these vapors will be interpreted as an odor. Odors may also be present in contaminated groundwater.

If soil exhibiting evidence of contamination or other debris associated with chemical contamination is encountered during excavation work (transformers, drums, other containers, and USTs), special soil handling procedures must be initiated and GeoDesign must be contacted.

Although heavily impacted soil or groundwater may have obvious indicators of contamination, some types of contamination are only detectable with the aid of specific environmental field screening equipment and laboratory testing. Therefore, soil that may appear to be clean based on the lack of staining, sheen, or odor may need to be handled as contaminated soil based on removal area and/or chemical analytical testing. Soil that has indicators of contamination should be characterized prior to re-use and/or off-site disposal.

4.1.1.2 PCB-Contaminated Soil

PCB-impacted soil has not been encountered in exploratory activities completed to date. However, the nature of historical site uses indicates the possibility of PCBs in soil. The primary indicator of PCB-related contamination in soil is visual discoloration. If discolored soil is encountered during potential excavation work in this area, special soil handling procedures must be initiated and GeoDesign should be contacted.

4.1.1.3 Chlorinated Solvent-Contaminated Soil

Primary physical indicators of soil impacted with chlorinated solvents include staining, elevated PID readings, and odors. Field observations associated with these indicators are summarized in Section 4.1.1.

4.1.1.4 Metals-Contaminated Soil

Metals-impacted does not generally present visual indicators of contamination. Based on the results of environmental explorations completed to date, metals contamination has been concurrent with total petroleum hydrocarbons; therefore, metals contamination at the project site is likely to occur in the same location as contaminants that provide visual indicators. However, it is possible that soil may appear to be clean based on the lack of staining but may need to be handled as contaminated soil based on the results of chemical analytical testing.

4.1.2 Soil Handling

In the event that contaminated soil is encountered by the earthwork contractor and/or is identified by GeoDesign, the earthwork contractor shall be responsible for immediately segregating the material, notifying GeoDesign and/or Capstone, and barricading or otherwise isolating the segregation area and avoiding covering the area until authorized to do so by GeoDesign or Capstone. The frequency of oversight may be modified based on field conditions, construction schedule, and owner requests. GeoDesign will recommend chemical analytical

testing of contaminated soil to evaluate disposal options. The earthwork contractor shall not replace any known or suspected contaminated soil in any excavation area without prior approval by GeoDesign.

4.1.3 Soil Field Screening Protocol

Available field screening results and petroleum hydrocarbon analyses are presented in Table 1. Constituent soil data are presented in Tables 2 and 3. Based on a comparison of the chemical analytical results with field screening results, soil exhibiting sheen, appears stained or discolored, or generates headspace PID measurements exceeding 20 ppm will be separately stockpiled and sampled to evaluate options for re-use and/or off-site disposal. Conversely, if excavated soil does not exhibit any sheen or staining, and does not generate PID measurements above 20 ppm, then the material can be managed as clean fill.

Soil field screening will include observation of any disturbed project site soil. Soil field screening will be conducted at a minimum frequency of one grab sample per approximately 20 cubic yards or more frequently as needed. The 20-cubic yard frequency is estimated based on the collective results of prior environmental explorations completed on site, the limited nature of excavation planned for redevelopment, and our prior experience on similar projects. Field screening will focus on soil that appears to have indications of petroleum hydrocarbon-related impact. If evidence of contamination is not observed in each excavation area, a random sample will be collected for field screening. The field screening process includes the following:

- Observe the sidewalls and base of the excavation (or trench) for evidence of possible contamination.
- Collect grab samples by hand or trowel (approximately one hand full) that are representative of the material being stockpiled. If used, the trowel will be decontaminated between sampling intervals.
- Retain a portion of the samples (approximately the size of half a sugar cube) for sheen testing that includes dropping the soil into a black pan to observe the degree of soil sheen (no sheen, slight sheen, moderate sheen, or heavy sheen).
- The majority of the grab sample will be placed into a plastic bag with trapped air. The bagged sample is allowed to sit for approximately one minute and then tested for headspace vapors using a hand-held PID. Based on the routine field screening process and the use of standard bag size, we can assume that the amount of trapped air in each bag is approximately equivalent for all field-screened samples. Calibration of the PID will be conducted on a daily basis and will be recorded in a calibration log. The calibration log will document the PID model calibration standard used and background level after calibration.
- Field screening documentation (i.e., staining, sheen, headspace vapor measurements, and odors) and a brief description of the soil type will be recorded in soil field screening logs. The field logs will indicate areas and associated volumes of excavated material requiring stockpiling for further evaluation.

Field management of excavated soil will be supported using the field screening and decision matrix summarized below.

Sheen Results	PID Results (ppm)	Visual	Action
No sheen	<20.0	No staining or odor	No action needed; material can be managed as clean fill.
If any one of the three field screening indicators below is exceeded, follow the appropriate action.			Soil should be separately stockpiled until further sampling and analysis is completed.
Slight sheen, moderate sheen, or heavy sheen	>20.0	Staining or odor	

4.1.4 Stockpiling and Sampling

Soil that does not meet field screening criteria must be stockpiled for further evaluation. Soil that is placed in temporary stockpiles must be well maintained at all times. All stockpiled soil must be placed either (1) within the enclosed and covered concrete structure located at the southwest corner of the project site or (2) on impermeable plastic sheeting (minimum 6-mil thick) with a berm around the perimeter of the stockpile and a plastic sheeting cover. The plastic sheeting and berm prevent the runoff of stockpiled soil contaminants to surrounding areas. The berm may be constructed with hay bales or other equivalent methods approved by GeoDesign. The bottom plastic sheeting should be lapped over the berm materials, and the soil stockpile within the berm should also be covered with plastic sheeting to prevent erosion or leaching of contaminants from the soil stockpile impacting the underlying soil. The upper plastic sheeting covering the soil stockpile should be secured using sand bags or equivalent. The upper plastic sheeting prevents the stockpiled soil from being exposed to precipitation and wind.

Soil not meeting field-screening criteria for clean fill will require additional sampling to support final disposition. Stockpiled soil will be sampled using a composite sampling scheme at the frequency specified below.

Stockpile Sampling Frequency

Stockpile Volume (cubic yards)	Number of Composite Samples to Collect
0 - 10	2
11 - 50	3
51 - 100	4
101 - 500	5
501 - 1,000	7
Greater than 1,000	10

Each composite sample will be comprised of three sub-samples collected from a particular area of the stockpile. Stockpiles greater than 1,000 cubic yards will be sampled at a rate of 10 composites for the first 1,000 cubic yards, plus one composite for each additional 500 cubic yards.

Samples will be collected using a decontaminated trowel. Each discrete portion of the sample will be placed into a plastic bag or stainless steel bowl and homogenized. A portion of the sample volume will be retained for field screening using the methods described in Section 4.1.3. The composite samples will be transferred directly into laboratory-prepared containers and submitted under chain-of-custody procedures to an analytical laboratory. The analytical results of composite soil sampling will be used to evaluate suitability for on-site re-use or to identify appropriate off-site disposal facilities. Each composite soil sample will be submitted for analysis of the following:

- TPH (gasoline- and diesel-range) by NWTPH methods
- VOCs by EPA Method 8260B
- PAHs by EPA Method 8270 SIM
- RCRA 8 metals by EPA 6000/7000 Series Methods
- PCBs by EPA Method 8082

The contractor is responsible for restoration of all stockpiled areas to a pre-stockpile condition, which means all soil and debris should be removed from the area. Stockpiled plastic debris is not to remain on the project site or any adjacent sites following stockpile soil removal. If stockpiled soil is removed for off-site disposal, completion of removal must be satisfactory to Capstone and GeoDesign.

4.1.5 Re-Use

Soil that exhibits field screening indication of contamination will be stockpiled at the project site for chemical characterization. If on-site re-use of soil is desired, and is supported by the results of laboratory analytical testing, the material will remain in a stockpiled state until final placement. For any areas of re-use, the soil analytical results, specific areas of placement and cover, and other details related to the final disposition of re-used material will be documented.

4.1.6 Load and Haul

Potentially contaminated soil will be stockpiled at the project site for chemical characterization. If the laboratory analytical results indicate that off-site disposal is appropriate, the stockpiled material can be loaded into trucks for transport. The contractor must exercise care during loading of the potentially contaminated soil to minimize spillage of the soil onto the ground surface. All trucks leaving the project site will be free of loose soil on the exterior of the trucks and may require covers. Contaminated soil loaded into trucks should be covered if weather conditions could cause soil to blow out (dry, warm, or windy conditions) during transport to the disposal facility. The contractor must use care not to track soil onto city roads and must routinely wash down the roads if soil is being tracked onto them. Trucks will not be allowed to leave the site if liquids are draining from the load. Transport tracking tickets may be required to document delivery to the approved disposal facility for each individual truck leaving the project site.

4.1.7 Erosion and Dust Control

Exposed soil will become susceptible to erosion by wind and water; therefore, erosion control measures should be planned carefully and in place before cut and fill operations begin. Silt fences, hay bales, and/or granular haul roads will be used as required to reduce sediment

transport during construction to acceptable levels. Measures to reduce erosion should be implemented in accordance with OAR 340-41-006, OAR 340-41-455, and the City of Portland and Multnomah County regulations regarding erosion control. In general, erosion control measures must limit sediment transport to less than 1 ton per acre per year, as calculated by the Universal Soil Loss equation.

Erosion and dust control measures will be presented in an ESCP for on- and off-site portions of the project site. An ESCP is a necessary part of the NPDES 1200-C stormwater discharge permit. The anticipated erosion and dust control measures to be outlined in the ESCP include the use of sediment fences, inlet protection, gravel construction entrances, and biofilter bags.

4.1.8 Cultural Resources

The areas of planned excavations are not expected to contain cultural or archaeological artifacts. However, if cultural or archaeological resources are inadvertently discovered during excavation, work in the area must stop and the Legislative Commission on Indian Services shall be notified by calling (503) 986-1067. The Oregon State Historic Preservation Office should be contacted regarding discovery or potential damage to archaeological sites. DEQ should also be contacted so that modifications to the work scope may be discussed.

4.1.9 Contractor Reporting Requirements

The contractor is responsible for keeping a detailed daily record of all soil excavation, stockpiling, export, and disposal of potentially contaminated soil. This includes the purpose, origin, destination, and volume of soil that is (1) loaded and hauled off site as clean fill, (2) stockpiled on site as clean fill, (3) separately stockpiled on site as potentially contaminated soil, and/or (4) loaded and hauled off site as contaminated soil under a valid disposal permit. The contractor is responsible for preparing a daily field report for distribution to the Owner that identifies the amount of soil excavated, stockpiled, and/or transported off site and daily tonnage for each respective soil disposition. All soil excavation, handling, and disposal will be documented in these daily field reports by the contractor, and all field screening, soil sampling, and analysis will be documented in a summary report prepared by GeoDesign.

The contractor will be responsible for the permitting and disposal of contaminated soil and shall provide copies of all disposal receipts to GeoDesign.

4.2 GROUNDWATER MANAGEMENT

Based on the results of groundwater sampling completed during earlier exploratory activities and the relatively shallow depth of earthwork activities contemplated for the development, we expect that groundwater will not be encountered and dewatering will not be required during construction activities.

If future invasive activity necessitates dewatering to support construction activity, the location of the work should be reviewed and GeoDesign should be consulted to review groundwater quality and associated treatment measures, as necessary, to comply with the construction stormwater permit (1200-C permit) and applicable local, state, and federal laws.

5.0 UNFORESEEN CONDITIONS

In the event that potentially hazardous conditions are encountered that are not addressed in this CMMP, the earthwork contractor shall cease work and notify Capstone and GeoDesign. The earthwork contractor will then barricade or otherwise isolate the area and avoid filling the area until authorized to do so by GeoDesign. GeoDesign will determine the appropriate course of action to assess potential unknown conditions encountered during excavation. The earthwork contractor shall not replace any known or suspected contaminated soil in any excavation area without prior approval by GeoDesign.

6.0 ASSUMPTIONS AND LIMITATIONS

This CMMP is designed to provide earthwork contractors with guidance for the proper handling and management of potentially contaminated media. This document is intended to be used as a general overview document for the use of the excavation contractor and project development team during the earthwork portions of the project.

The prime general contractor must prepare and implement a site-specific HCP. The HCP fulfills "worker right to know" requirements (29 CFR 1926.59). A copy of the HCP must be submitted to the owner prior to the start of work on the project. During work on the project, the HCP must be posted at the project site. The prime general contractor is responsible for notifying subcontractors of pertinent environmental conditions. Subcontractors may either adopt the prime general contractor's HCP or must prepare their own HCP. This document should be used in conjunction with, not in place of, the HCP and the project specifications. The prime general contractor and subcontractor are responsible for the safety of its employees, including compliance with applicable OSHA regulations, and compliance with all specifications in the technical specifications manual for the project. In addition to implementation of an HCP, the prime earthwork contractor is responsible for preparation and implementation of a site-specific HSP to ensure adequate protection for their workers while on site.

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Please call if you have questions regarding this CMMP.

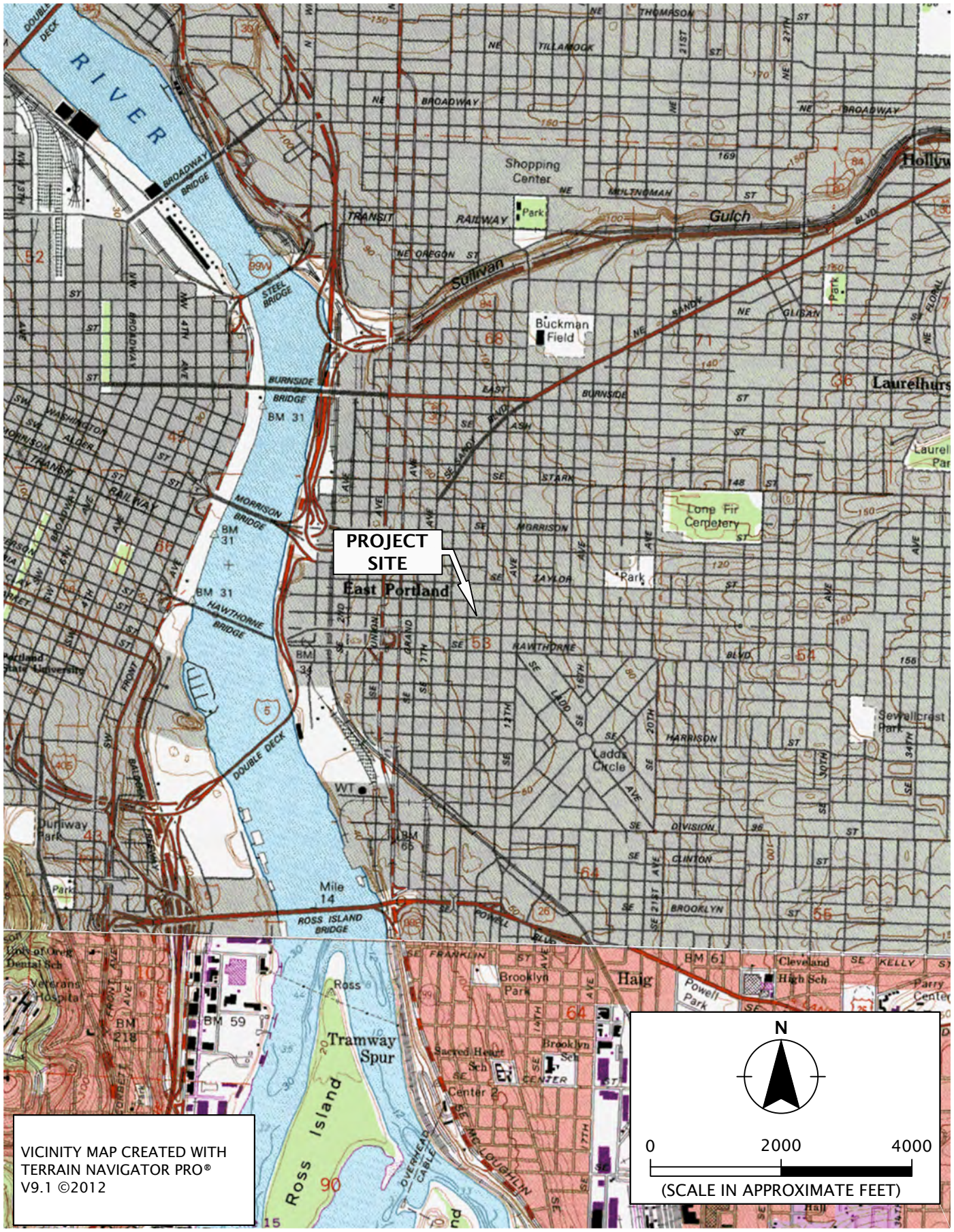
Sincerely,

GeoDesign, Inc.

Erik A. Hedberg, P.E.
Senior Project Engineer

Jason O'Donnell, R.G.
Principal Geologist

FIGURES



GEODESIGN INC 9450 SW Commerce Circle - Suite 300 Wilsonville OR 97070 503.968.8787 www.geodesigninc.com	CAPSTONE-12-04	**VICINITY MAP**
	FEBRUARY 2017	CUSTOM STAMPING SITE PORTLAND, OR
		FIGURE 1

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File Name: J:\A-D\Capstone\Capstone-12\Capstone-12-04\Figures\CAD\CMMP\Capstone-12-04-VM01.dwg | Layout: FIGURE 1

LEGEND:

PROJECT SITE BOUNDARY

TAX LOT BOUNDARY

NOTE:
TAX LOTS 7200 AND 7300 SUBJECT TO SEPARATE AND FUTURE CONSTRUCTION.

N

0 60 120

(SCALE IN FEET)

SITE PLAN BASED ON AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH PRO®, JANUARY 9, 2016

SITE PLAN

CUSTOM STAMPING SITE
PORTLAND, OR

FIGURE 2

CAPSTONE-12-04

FEBRUARY 2017

GEODESIGN INC
9450 SW Commerce Circle - Suite 300
Wilsonville OR 97070
503.968.8787 www.geodesigninc.com

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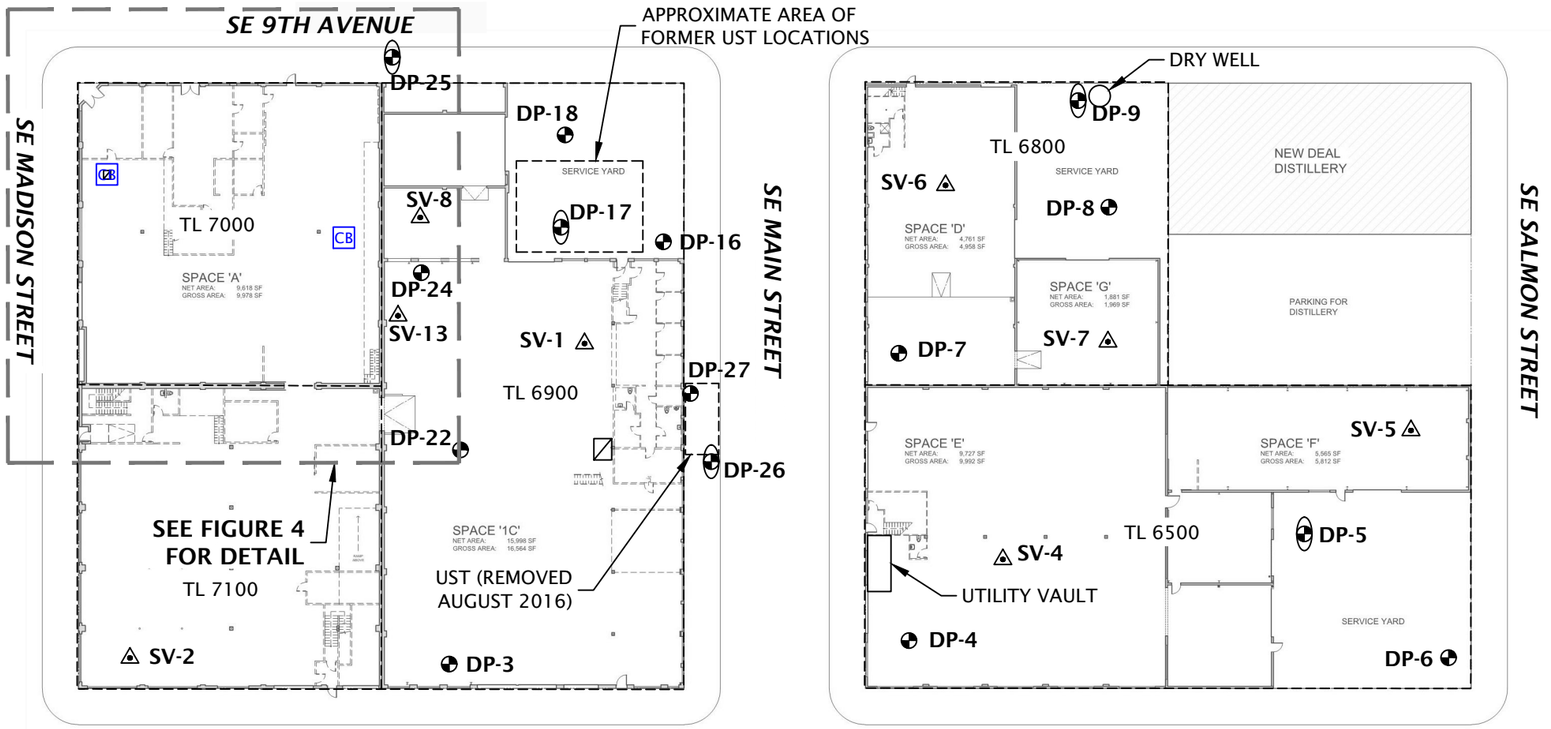

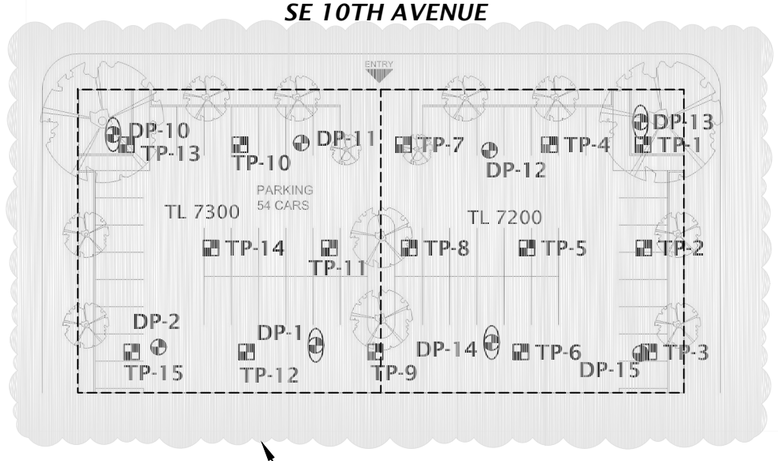

NOTE:
SUBSURFACE CONDITIONS AND ASSOCIATED MANAGEMENT PROCEDURES FOR FUTURE WORK IN THE SOUTHEAST BLOCK (TL 7200 AND TL 7300) TO BE SUMMARIZED AND GOVERNED UNDER A SEPARATE CMMP.

LEGEND:

- TAX LOT BOUNDARY
- DP-1 DIRECT-PUSH BORING
- SV-1 VAPOR SAMPLE
- DP-1 GROUNDWATER SAMPLE
- TP-1 TEST PIT (PBS, JULY 2016)
- PRESS SUMP
- CB CATCH BASIN

N

0 50 100

(SCALE IN FEET)

SITE PLAN BASED ON IMAGE OBTAINED FROM CAPSTONE PARTNERS LLC, MARCH 15, 2016

SITE PLAN - SUBSURFACE EXPLORATION LOCATIONS

FIGURE 3

CUSTOM STAMPING SITE
PORTLAND, OR

CAPSTONE-12-04

FEBRUARY 2017

GEODESIGN INC
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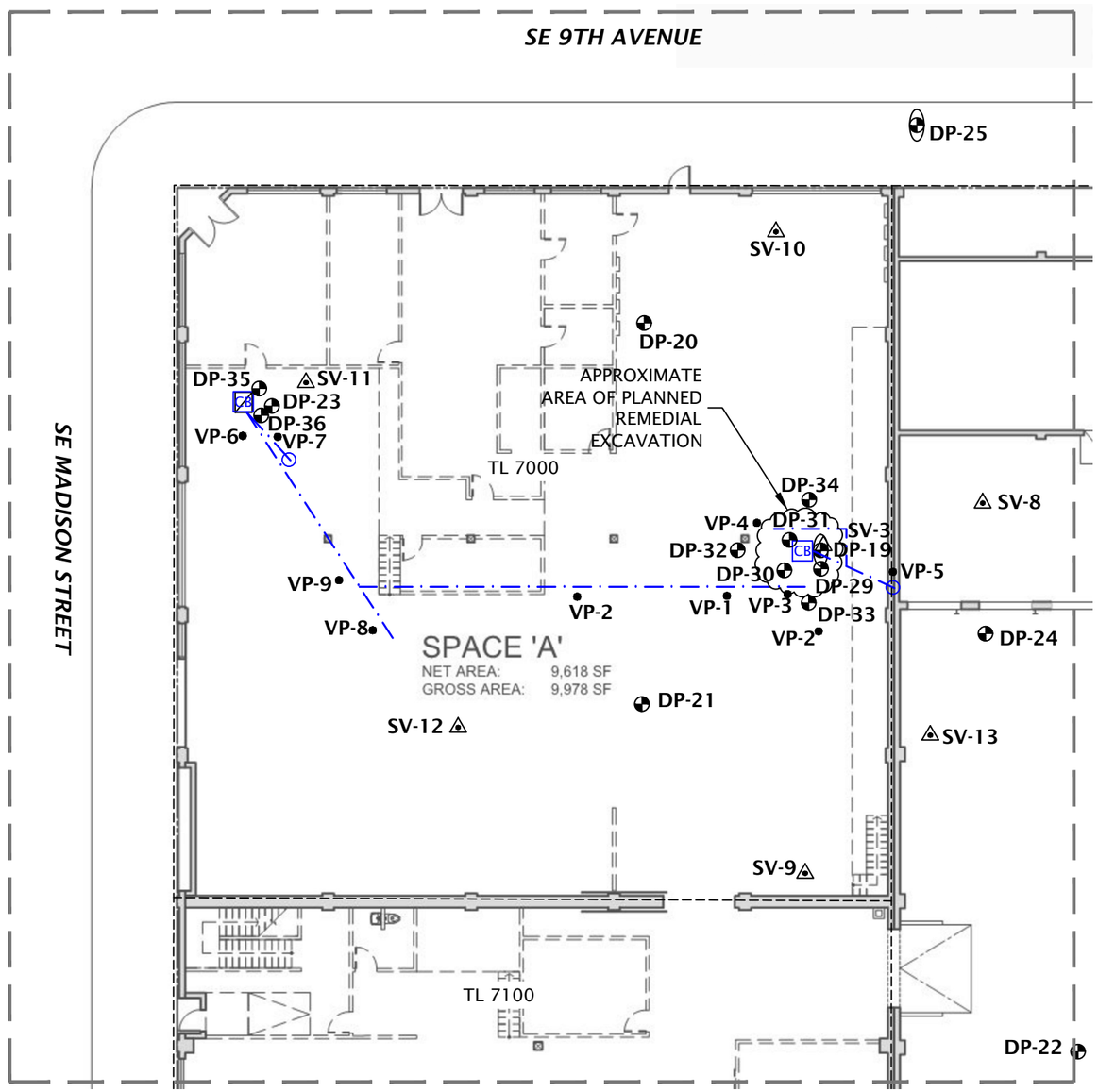
File Name: J:\A-D\Capstone\Capstone-12\Capstone-12-04\Figures\CAD\CMMP\Capstone-12-04-SP01.dwg | Layout: FIGURE 3



LEGEND:

- TAX LOT BOUNDARY
- DP-19 DIRECT-PUSH BORING
- SV-8 VAPOR SAMPLE
- DP-19 GROUNDWATER SAMPLE
- VP-1 VAPOR PROBE SCREENING
- CB CATCH BASIN
- SEWER LINE

N

0 20 40

(SCALE IN FEET)

SITE PLAN BASED ON IMAGE OBTAINED FROM CAPSTONE PARTNERS LLC, MARCH 15, 2016

SITE PLAN - SUBSURFACE EXPLORATION LOCATIONS (DETAIL)

FIGURE 4

CUSTOM STAMPING SITE
PORTLAND, OR

CAPSTONE-12-04

FEBRUARY 2017

GEODESIGN INC
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TABLES

TABLE 1
Summary of Soil Sample Chemical Analytical Results[1]
TPH and VOCs
Custom Stamping Site
Portland, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	Sample Depth (feet BGS)	Field Screening Results		Gasoline-Range Organics by Method NWTPH-Gx (mg/kg)	Diesel- and Residual-Range Organics by Method NWTPH-Dx (mg/kg)		VOCs by EPA Method 8260B[2] (mg/kg)																								
			PID (ppm)	Sheen		Diesel	Residual	Acetone	Benzene	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	1,2-Dichlorobenzene	1,1-Dichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Ethylbenzene	Isopropylbenzene	p-isopropyltoluene	MTBE	Naphthalene	Styrene	n-Propylbenzene	Tetrachloroethene	Toluene	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	Trichloroethene	1,2,4-Trimethylbenzene	1,2,3-Trimethylbenzene	1,3,5-Trimethylbenzene	Xylenes (Total)
Direct-Push Explorations (GeoDesign, April 2016)																															
DP-3(11.5-12.5)	04/14/16	11.5-12.5	0.1	NS	ND<0.131	ND<5.25	ND<13.1	ND<0.0656	ND<0.00131	ND<0.00131	ND<0.00131	ND<0.00131	ND<0.00131	ND<0.00131	ND<0.00131	ND<0.00131	ND<0.00131	ND<0.00131	ND<0.00131	ND<0.00131	ND<0.00131	ND<0.0656	ND<0.0656	ND<0.00131	ND<0.0656	ND<0.0656	ND<0.0656	ND<0.0656	ND<0.0656	ND<0.00131	ND<0.00131	ND<0.00131	ND<0.00394
DP-4(11.5-12.5)	04/14/16	11.5-12.5	0.2	NS	ND<0.116	ND<4.63	ND<11.6	ND<0.0579	ND<0.00116	ND<0.00116	ND<0.00116	ND<0.00116	ND<0.00116	ND<0.00116	ND<0.00116	ND<0.00116	ND<0.00116	ND<0.00116	ND<0.00116	ND<0.00116	ND<0.00116	ND<0.0579	ND<0.0579	ND<0.00116	ND<0.0579	ND<0.0579	ND<0.0579	ND<0.0579	ND<0.0579	ND<0.00116	ND<0.00116	ND<0.00116	ND<0.00347
DP-5(15.5-16.5)	04/14/16	15.5-16.5	0.2	NS	ND<0.121	ND<4.45	ND<11.1	ND<0.0556	ND<0.00111	ND<0.00111	ND<0.00111	ND<0.00111	ND<0.00111	ND<0.00111	ND<0.00111	ND<0.00111	ND<0.00111	ND<0.00111	ND<0.00111	ND<0.00111	ND<0.00111	ND<0.0556	ND<0.0556	ND<0.00111	ND<0.0556	ND<0.0556	ND<0.0556	ND<0.0556	ND<0.0556	ND<0.00111	ND<0.00111	ND<0.00111	ND<0.00333
DP-6(11.0-12.0)	04/14/16	11.0-12.0	0.5	NS	ND<0.132	ND<5.29	ND<13.2	ND<0.0662	ND<0.00132	ND<0.00132	ND<0.00132	ND<0.00132	ND<0.00132	ND<0.00132	ND<0.00132	ND<0.00132	ND<0.00132	ND<0.00132	ND<0.00132	ND<0.00132	ND<0.00132	ND<0.0662	ND<0.0662	ND<0.00132	ND<0.0662	ND<0.0662	ND<0.0662	ND<0.0662	ND<0.0662	ND<0.00132	ND<0.00132	ND<0.00132	ND<0.00397
DP-7(10.0-11.0)	04/14/16	10.0-11.0	0.5	NS	ND<0.134	ND<5.36	ND<13.4	ND<0.0670	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.0670	ND<0.0670	ND<0.00134	ND<0.0670	ND<0.0670	ND<0.0670	ND<0.0670	ND<0.0670	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00402
DP-8(5.0-6.0)	04/14/16	5.0-6.0	0.4	NS	ND<0.139	ND<5.57	**29.3**	ND<0.0696	ND<0.00139	ND<0.00139	ND<0.00139	ND<0.00139	ND<0.00139	ND<0.00139	ND<0.00139	ND<0.00139	ND<0.00139	ND<0.00139	ND<0.00139	ND<0.00139	ND<0.00139	ND<0.0696	ND<0.0696	ND<0.00139	ND<0.0696	ND<0.0696	ND<0.0696	ND<0.0696	ND<0.0696	ND<0.00139	ND<0.00139	ND<0.00139	ND<0.00418
DP-9(11.0-12.0)	04/14/16	11.0-12.0	0.5	NS	ND<0.104	ND<4.16	ND<10.4	ND<0.0520	ND<0.00104	ND<0.00104	ND<0.00104	ND<0.00104	ND<0.00104	ND<0.00104	ND<0.00104	ND<0.00104	ND<0.00104	ND<0.00104	ND<0.00104	ND<0.00104	ND<0.00104	ND<0.0520	ND<0.0520	ND<0.00104	ND<0.0520	ND<0.0520	ND<0.0520	ND<0.0520	ND<0.0520	ND<0.00104	ND<0.00104	ND<0.00104	ND<0.00312
DP-16(8.0-9.0)	04/15/16	8.0-9.0	0.0	NS	ND<0.133	ND<5.31	ND<13.3	ND<0.0664	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.0664	ND<0.0664	ND<0.00133	ND<0.0664	ND<0.0664	ND<0.0664	ND<0.0664	ND<0.0664	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.00398
DP-17(7.0-8.0)	04/15/16	7.0-8.0	591	MS	**2,490**	ND<5.37	ND<13.4	ND<26.9	ND<0.537	**14.4**	**5.96**	**1.57**	ND<0.537	ND<0.537	ND<0.537	ND<0.537	**18.4**	**9.46**	**2.49**	ND<0.537	**43.2**	ND<0.537	**44.1**	ND<0.537	ND<0.537	ND<0.537	ND<0.537	ND<0.537	**352**	**85.2**	**111**	**147**
DP-18(8.0-8.5)	04/15/16	8.0-8.5	0.0	NS	ND<0.135	ND<5.41	ND<13.5	ND<0.0676	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.0676	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00406
Direct-Push Explorations (GeoDesign, May 2016)																															
DP-19(4.0-5.0)	05/31/16	4.0-5.0	1,450	MS	**18,400**	**2,780**	**4,740**	**49..5**	ND<0.991	**11.9**	**14.0**	ND<0.991	ND<0.991	ND<0.991	ND<0.991	ND<0.991	**4.61**	**8.29**	**15.3**	ND<0.991	**16**	ND<0.991	**17.6**	**2.47**	ND<0.991	ND<0.991	ND<0.991	**196**	**99.3**	**86**	**37.8**	**29**
DP-19(10.0-11.0)	05/31/16	10.0-11.0	3.4	NS	ND<2.90	ND<5.33	ND<13.3	ND<0.0666	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.0666	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.00133	**0.00135**	**1.56**	ND<0.00133	ND<0.00133	ND<0.00133	ND<0.00399
DP-20(10.0-11.0)	05/31/16	10.0-11.0	1.7	NS	ND<0.128	ND<5.11	ND<12.8	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00639	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00128	**0.0415**	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00383
DP-21(10.5-11.5)	05/31/16	10.5-11.5	0.6	NS	ND<0.134	ND<5.36	ND<13.4	ND<0.0670	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.0670	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	**0.00844**	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00402
DP-22(1.0-2.0)	05/31/16	1.0-2.0	0.3	NS	ND<0.128	**9.73 J3**	**101 J6**	ND<0.0638	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00128	**0.00194**	**0.00299**	**0.00188**	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00128	**0.00407**	ND<0.00128	ND<0.00128	ND<0.00128	ND<0.00383
DP-23(11.0-12.0)	05/31/16	11.0-12.0	0.4	NS	ND<0.133	ND<5.31	ND<13.3	ND<0.0671	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.0671	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00134	**0.00772**	**0.00174**	**0.0183**	ND<0.00134	ND<0.00134	ND<0.00134	ND<0.00402
DP-24(10.0-11.0)	05/31/16	10.0-11.0	0.5	NS	ND<0.137	ND<5.50	ND<13.7	ND<1.39	ND<0.0278	ND<0.0278	ND<0.0278	ND<0.0278	ND<0.0278	ND<0.0278	ND<0.0278	ND<0.0278	ND<0.0278	ND<0.0278	ND<0.0278	ND<0.0278	ND<1.39	ND<0.0278	ND<0.0278	ND<0.0278	ND<0.0278	ND<0.0278	ND<0.0278	**0.0892**	ND<0.0278	ND<0.0278	ND<0.0278	ND<0.0835
DP-25(5.0-6.0)	05/31/16	5.0-6.0	0.5	SS	ND<0.135	ND<5.38	ND<13.5	ND<0.0673	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00135	**0.0028**	ND<0.00135	ND<0.00135	ND<0.00135	ND<0.00404
DP-26(10.0-11.0)	05/31/16	10.0-11.0	60	HS	**2,370**	**12,500**	**8,170**	ND<1.39	ND<0.0278	**2.17**	**0.48**	ND<0.0278	**2.37**	ND<0.0278	**0.264**	ND<0.0278	ND<0.0278	**0.412**	**1.54**	ND<0.0278	**54.2**	**0.614**	**1.38**	ND<0.0278	**0.448**	ND<0.0278	ND<0.0278	ND<0.0278	**18.7**	**11.4**	**4.19**	**3.94**
DP-27(10.5-11.5)	05/31/16	10.5-11.5	51	HS	**216**	**5,150**	**3,260**	ND<1.42	ND<0.0284	**0.834**	**0.204**	ND<0.0284	**0.565**	ND<0.0284	ND<0.0284	ND<0.0284	**0.044**	**0.109**	**0.347**	ND<0.0284	**17**	ND<0.0284	**0.369**	**0.182**	ND<0.0284	ND<0.0284	ND<0.0284	**0.0305**	**5.11**	**1.47**	**0.728**	**0.333**
Direct-Push Explorations (GeoDesign, July 2016)																															
DP-29(3.5-4.0)	07/20/16	3.5-4.0	3,368	MS	--	--	--	ND<13.2	ND<0.265	**6.05**	**8.33**	**0.606**	ND<0.265	ND<0.265	ND<0.265	ND<0.265	**2.15**	**4.61**	**10.2**	ND<0.265	**8.53**	ND<0.265	**8.10**	**1.36**	ND<1.32	ND<0.265	ND<0.265	**393**	**63.6**	**68.1**	**26.1**	**15.2**
DP-29(7.0-7.5)	07/20/16	7.0-7.5	77	SS	--	--	--	ND<6.20	ND<0.124	ND<0.124	ND<0.124	ND<0.124	ND<0.124	ND<0.124	ND<0.124	ND<0.124	ND<0.124	ND<0.124	ND<0.124	ND<0.124	ND<0.620	ND<0.124	ND<0.124	ND<0.124	ND<0.620	ND<0.124	ND<0.124	**6.53**	ND<0.124	ND<0.124	ND<0.124	ND<0.372
DP-30(3.5-4.0)	07/20/16	3.5-4.0	313	MS	--	--	--	ND>15.8	ND<0.316	**0.509**	**1.07**	**0.394**	ND<0.316	ND<0.316	ND<0.316	ND<0.316	ND<0.316	ND<0.316	**1.57**	ND<0.316	ND<1.58	ND<0.316	ND<0.316	**2.41**	ND<1.58	ND<0.316	ND<0.316	**434**	**4.09**	**6.53**	**3.17**	ND<0.948
DP-30(6.0-7.0)	07/20/16	6.0-7.0	14	NS	--	--	--	ND>6.00	ND<0.120	ND<0.120	ND<0.120	ND<0.120	ND<0.120	ND<0.120	ND<0.120	ND<0.120	ND<0.120	ND<0.120	ND<0.120	ND<0.120	**0.242**	ND<0.600	ND<0.120	ND<0.120	ND<0.120	ND<0.600	ND<0.120	ND<0.120	**7.95**	ND<0.120	ND<0.120	ND<0.120	ND<0.360
DP-31(4.0-5.0)	07/20/16	4.0-5.0	1,135	MS	--	--	--	ND>14.5	ND<0.290	ND<0.290	ND<0.290	ND<0.290	ND<0.290	ND<0.290	ND<0.290	ND<0.290	ND<0.290	ND<0.290	ND<0.290	ND<0.290	ND<1.45	ND<0.290	ND<0.290	ND<0.290	ND<0.290	ND<0.290	ND<0.290	**9.58**	ND<0.290	ND<0.290	ND<0.290	ND<0.869
DP-31(6.5-7.5)	07/20/16	6.5-7.5	8.3	NS	--	--	--	ND>14.2	ND<0.283	ND<0.283	ND<0.283	ND<0.283	ND<0.283	ND<0.283	ND<0.283	ND<0.283	ND<0.283	ND<0.283	ND<0.283	ND<0.283	ND<1.42	ND<0.283	ND<0.283	ND<0.283	ND<1.42	ND<0.283	ND<0.283	**4.93**	ND<0.283	ND<0.283	ND<0.283	ND<0.850
DP-32(6.0-7.0)	07/20/16	6.0-7.0	30.1	NS	--	--	--	ND<2.57	ND<0.0513	ND<0.0513	ND<0.0513	ND<0.0513	ND<0.0513	ND<0.0513	ND<0.0513	ND<0.0513	ND<0.0513	ND<0.0513	ND<0.0513	**0.112**	ND<0.257	ND<0.0513	ND<0.0513	ND<0.0513	ND<0.257	ND<0.0513	ND<0.0513	**1.77**	ND<0.0513	ND<0.0513	ND<0.0513	ND<0.154
DP-33(3.5-4.0)	07/20/16	3.5-4.0	2,335	MS	--	**6,760**	**17,100**	ND<12.6	ND<0.253	**2.51**	**3.44**	ND<0.253	ND<0.253	ND<0.253	ND<0.253	ND<0.253	**0.430**	**1.84**	**3.72**	ND<0.253	**2.72**	ND<0.253	**3.22**	**0.651**	ND<1.26	ND<0.253	ND<0.253	**442**	**15.4**	**13.9**	**6.70**	**2.83**
DP-33(7.0-8.0)	07/20/16	7.0-8.0	16.7	NS	--	--	--	ND>2.82	ND<0.0563	ND<0.0563	ND<0.0563	ND<0.0563	ND<0.0563	ND<0.0563	ND<0.0563	ND<0.0563	ND<0.0563	ND<0.0563	ND<0.0563	**0.111**	ND<0.282	ND<0.0563	ND<0.0563	ND<0.0563	ND<0.282	ND<0.0563	ND<0.0563	**1.91**	ND<0.0563	ND<0.0563	ND<0.0563	ND<0.169
DP-34(6.0-7.0)	07/20/16	6.0-7.0	16.7	NS	--	--	--	ND>1.30	ND<0.0260	ND<0.0260	ND<0.0260	ND<0.0260	ND<0.0260	ND<0.0260	ND<0.0260	ND<0.0260	ND<0.0260	ND<0.0260	ND<0.0260	ND<0.0260	ND<0.130	ND<0.0260	ND<0.0260	ND<0.0260	ND<0.130	ND<0.0260	ND<0.0260	**1.21**	ND<0.0260	ND<0.0260	ND<0.0260	ND<0.0779
DP-35(5.5-6.0)	07/20/16	5.5-6.0	8.1	NS	--	--	--	ND>1.42	ND<0.0284	ND<0.0284	ND<0.0284	ND<0.0284	ND<0.0284	ND<0.0284	ND<0.0284	ND<0.0284	ND<0.0284	ND<0.0284	ND<0.0284	ND<0.0284	ND<0.142	ND<0.0284	ND<0.0284	ND<0.0284	ND<0.142	**0.140**	ND<0.0284	**0.0428**	ND<0.0284	ND<0.0284	ND<0.0284	ND<0.0853
DP-36(5.5-6.0)	07/20/16	5.5-6.0	4.1	NS	--	--	--	ND>1.72	ND<0.0345	ND<0.0345	ND<0.0345	ND<0.0345	ND<0.0345	ND<0.0345	ND<0.0345	ND<0.0345	ND<0.0345	ND<0.0345	ND<0.0345	ND<0.0345	ND<0.172	ND<0.0345	ND<0.0345	ND<0.0345	ND<0.172	**0.109**	ND<0.0345	ND<0.0345	ND<0.0345	ND<0.0345	ND<0.0345	ND<0.0345	ND<0.103
UST Decommissioning Confirmation Sampling (PBS, August 2016)																															
West Wall 10 Ft	08/09/16	10	--	--	--	ND<5.17	ND<12.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
E Wall 10 Ft	08/09/16	10	--	--	--	ND<4.86	ND<12.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
N Wall 8 Ft	08/09/16	8	--	--	--	**55,300**	**34,100**	--	ND<0.00153	--	--	--	--	--	--	--	**0.00496**	--	--	--	--	--	--	--	--	**0.00767**	--	--	--	--	--	**0.0619**
N Wall 10 Ft	08/09/16	10	--	--	--	**58.4**	**166**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
S Wall 10 Ft	08/09/16	10	--	--	--	**35,100**	**25,900**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
S Wall HA 13 Ft	08/09/16	13	--	--	--	ND<5.67	ND<14.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Base 13 Ft SW	08/09/16	13	--	--	--	**117**	**131**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

TABLE 1
Summary of Soil Sample Chemical Analytical Results[1]
TPH and VOCs
Custom Stamping Site
Portland, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	Sample Depth (feet BGS)	Field Screening Results		Gasoline-Range Organics by Method NWTPH-Gx (mg/kg)	Diesel- and Residual-Range Organics by Method NWTPH-Dx (mg/kg)		VOCs by EPA Method 8260B[2] (mg/kg)																							
			PID (ppm)	Sheen		Diesel	Residual	Acetone	Benzene	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	1,2-Dichlorobenzene	1,1-Dichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Ethylbenzene	Isopropylbenzene	p-isopropyltoluene	MTBE	Naphthalene	Styrene	n-Propylbenzene	Tetrachloroethene	Toluene	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	Trichloroethene	1,2,4-Trimethylbenzene	1,2,3-Trimethylbenzene	1,3,5-Trimethylbenzene	Xylenes (Total)
DEQ Generic RBCs[3]																															
Ingestion, Dermal Contact, and Inhalation																															
Construction Worker					9,700	4,600	11,000	NE	380	NE	NE	NE	20,000	3,200	710	7,100	1,700	27,000	NE	12,000	580	56,000	NE	1,800	28,000	NE	54	470	2,000	NE	3,500	20,000
Excavation Worker					>Max	>Max	>Max	NE	11,000	NE	NE	NE	560,000	89,000	20,000	200,000	49,000	750,000	NE	320,000	16,000	>Max	NE	50,000	770,000	NE	1,500	13,000	54,000	NE	98,000	560,000
DEQ CFCLs[4]					NE	NE	NE	59.52	0.0093	NE	NE	NE	70	0.037	1.2	2.5	0.16	85.2	NE	0.092	0.087	300	NE	2.4	200	0.0024	0.0046	0.02	16	1.938	92	25

Notes:
1. Chemical analyses performed by ESC Lab Sciences of Mt. Juliett, Tennessee.
2. Only detected VOCs are shown. Refer to the laboratory reports for a full listing of all analytes.
3. DEQ generic RBCs for Individual Chemicals, Revised November 1, 2015; for reference purposes only
4. DEQ CFSLs updated July 23, 2014
-- not analyzed
>Csat: This RBC exceeds the limit of three-phase equilibrium partitioning. Soil concentrations in excess of this value indicate that free product may be present.
J3: The associated batch QC was outside the established QC range for precision.
J6: The sample matrix interfered with the ability to make any accurate determination; spike value is low.
>Max: The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg or 1,000,000 mg/L. Therefore, this substance is deemed not to pose risks in this scenario.
ND: not detected at concentrations above the reference laboratory RDL
Bolding indicates analyte detection.
Blue shading indicates value exceeding one or more DEQ generic RBC values.
Orange shading indicates value exceeding DEQ CFSL value.

TABLE 2
Summary of Soil Sample Chemical Analytical Results[1]
PAHs
Custom Stamping Site
Portland, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	Sample Depth (feet BGS)	PAHs by EPA Method 8270D-SIM (mg/kg)																	
			Anthracene	Acenaphthene	Acenaphthylene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene	1-Methylnaphthalene	2-Methylnaphthalene	2-Chloronaphthalene
Direct-Push Explorations (GeoDesign, April 2016)																				
DP-3(11.5-12.5)	04/14/16	11.5-12.5	ND<0.00787	ND<0.00787	ND<0.00787	ND<0.00787	ND<0.00787	ND<0.00787	ND<0.00787	ND<0.00787	ND<0.00787	ND<0.00787	ND<0.00787	ND<0.00787	ND<0.00787	ND<0.0262	ND<0.00787	ND<0.00787	ND<0.0262	ND<0.0262	ND<0.0262
DP-4(11.5-12.5)	04/14/16	11.5-12.5	ND<0.00695	ND<0.00695	ND<0.00695	ND<0.00695	ND<0.00695	ND<0.00695	ND<0.00695	ND<0.00695	ND<0.00695	ND<0.00695	ND<0.00695	ND<0.00695	ND<0.00695	ND<0.0232	ND<0.00695	ND<0.00695	ND<0.0232	ND<0.0232	ND<0.0232
DP-5(15.5-16.5)	04/14/16	15.5-16.5	ND<0.00667	ND<0.00667	ND<0.00667	ND<0.00667	ND<0.00667	ND<0.00667	ND<0.00667	ND<0.00667	ND<0.00667	ND<0.00667	ND<0.00667	ND<0.00667	ND<0.00667	ND<0.0222	ND<0.00667	ND<0.00667	ND<0.0222	ND<0.0222	ND<0.0222
DP-6(11.0-12.0)	04/14/16	11.0-12.0	ND<0.00794	ND<0.00794	ND<0.00794	ND<0.00794	ND<0.00794	ND<0.00794	ND<0.00794	ND<0.00794	ND<0.00794	ND<0.00794	ND<0.00794	ND<0.00794	ND<0.00794	ND<0.0265	ND<0.00794	ND<0.00794	ND<0.0265	ND<0.0265	ND<0.0265
DP-7(10.0-11.0)	04/14/16	10.0-11.0	ND<0.00803	ND<0.00803	ND<0.00803	ND<0.00803	ND<0.00803	ND<0.00803	ND<0.00803	ND<0.00803	ND<0.00803	ND<0.00803	ND<0.00803	ND<0.00803	ND<0.00803	ND<0.0268	ND<0.00803	ND<0.00803	ND<0.0268	ND<0.0268	ND<0.0268
DP-8(5.0-6.0)	04/14/16	5.0-6.0	ND<0.0167	ND<0.0167	ND<0.0167	ND<0.0167	ND<0.0167	ND<0.0167	ND<0.0167	ND<0.0167	ND<0.0167	ND<0.0167	ND<0.0167	ND<0.0167	ND<0.0167	ND<0.0557	ND<0.0167	ND<0.0167	ND<0.0557	ND<0.0557	ND<0.0557
DP-9(11.0-12.0)	04/14/16	11.0-12.0	ND<0.00625	ND<0.00625	ND<0.00625	ND<0.00625	ND<0.00625	ND<0.00625	ND<0.00625	ND<0.00625	ND<0.00625	ND<0.00625	ND<0.00625	ND<0.00625	ND<0.00625	ND<0.0208	ND<0.00625	ND<0.00625	ND<0.0208	ND<0.0208	ND<0.0208
DP-16(8.0-9.0)	04/15/16	8.0-9.0	ND<0.00797	ND<0.00797	ND<0.00797	ND<0.00797	ND<0.00797	ND<0.00797	ND<0.00797	ND<0.00797	ND<0.00797	ND<0.00797	ND<0.00797	ND<0.00797	ND<0.00797	ND<0.0266	ND<0.00797	ND<0.00797	ND<0.0266	ND<0.0266	ND<0.0266
DP-17(7.0-8.0)	04/15/16	7.0-8.0	**0.0561**	**0.126**	**0.0437**	**0.0095**	ND<0.00806	ND<0.00806	ND<0.00806	ND<0.00806	**0.0131**	ND<0.00806	**0.0268**	**0.130**	ND<0.00806	**33.8**	**0.214**	**0.0702**	**16.2**	**34.4**	ND<0.0269
DP-18(8.0-8.5)	04/15/16	8.0-8.5	ND<0.00812	ND<0.00812	ND<0.00812	ND<0.00812	ND<0.00812	ND<0.00812	ND<0.00812	ND<0.00812	ND<0.00812	ND<0.00812	ND<0.00812	ND<0.00812	ND<0.00812	ND<0.0271	ND<0.00812	ND<0.00812	ND<0.0271	ND<0.0271	ND<0.0271
Direct-Push Explorations (GeoDesign, April 2016)																					
DP-19(4.0-5.0)	05/31/16	4.0-5.0	**0.421**	**0.181**	**0.177**	**0.236**	**0.139**	**0.153**	**0.0799**	**0.0716**	**0.399**	ND<.0386	**0.816**	**0.474**	**0.0488**	**17.9**	**1.85**	**0.748**	**7.99**	**16.2**	ND<0.515
DP-19(10.0-11.0)	05/31/16	10.0-11.0	ND<0.00799	ND<0.00799	ND<0.00799	ND<0.00799	ND<0.00799	ND<0.00799	ND<0.00799	ND<0.00799	ND<0.00799	ND<0.00799	ND<0.00799	ND<0.00799	ND<0.00799	ND<0.0266	ND<0.00799	ND<0.00799	ND<0.0266	ND<0.0266	ND<0.0266
DP-20(10.0-11.0)	05/31/16	10.0-11.0	ND<0.00767	ND<0.00767	ND<0.00767	ND<0.00767	ND<0.00767	ND<0.00767	ND<0.00767	ND<0.00767	ND<0.00767	ND<0.00767	ND<0.00767	ND<0.00767	ND<0.00767	ND<0.0256	ND<0.00767	ND<0.00767	ND<0.0256	ND<0.0256	ND<0.0256
DP-21(10.5-11.5)	05/31/16	10.5-11.5	ND<0.00804	ND<0.00804	ND<0.00804	ND<0.00804	ND<0.00804	ND<0.00804	ND<0.00804	ND<0.00804	ND<0.00804	ND<0.00804	ND<0.00804	ND<0.00804	ND<0.00804	ND<0.0268	ND<0.00804	ND<0.00804	ND<0.0268	ND<0.0268	ND<0.0268
DP-22(1.0-2.0)	05/31/16	1.0-2.0	ND<0.00765	ND<0.00765	ND<0.00765	ND<0.00765	ND<0.00765	ND<0.00765	ND<0.00765	ND<0.00765	ND<0.00765	ND<0.00765	**0.00831**	ND<0.00765	ND<0.00765	ND<0.0255	ND<0.00765	**0.0097**	ND<0.0255	ND<0.0255	ND<0.0255
DP-23(11.0-12.0)	05/31/16	11.0-12.0	ND<0.00797	ND<0.00797	ND<0.00797	ND<0.00797	ND<0.00797	ND<0.00797	ND<0.00797	ND<0.00797	ND<0.00797	ND<0.00797	ND<0.00797	ND<0.00797	ND<0.00797	ND<0.0266	ND<0.00797	ND<0.00797	ND<0.0266	ND<0.0266	ND<0.0266
DP-24(10.0-11.0)	05/31/16	10.0-11.0	ND<0.00825	ND<0.00825	ND<0.00825	ND<0.00825	ND<0.00825	ND<0.00825	ND<0.00825	ND<0.00825	ND<0.00825	ND<0.00825	ND<0.00825	ND<0.00825	ND<0.00825	ND<0.0275	ND<0.00825	ND<0.00825	ND<0.0275	ND<0.0275	ND<0.0275
DP-25(5.0-6.0)	05/31/16	5.0-6.0	ND<0.00807	ND<0.00807	ND<0.00807	ND<0.00807	ND<0.00807	ND<0.00807	ND<0.00807	ND<0.00807	ND<0.00807	ND<0.00807	ND<0.00807	ND<0.00807	ND<0.00807	ND<0.0269	ND<0.00807	ND<0.00807	ND<0.0269	ND<0.0269	ND<0.0269
DP-26(10.0-11.0)	05/31/16	10.0-11.0	**4.97**	**10.1**	**1.42**	**2.89**	**1.06**	ND<0.742	ND<0.742	ND<0.742	**5.4**	ND<0.742	**2.33**	**7.57**	ND<0.742	**37.8**	**18.1**	**8.1**	**115**	**122**	ND<2.47
DP-27(10.5-11.5)	05/31/16	10.5-11.5	**0.923**	**1.17**	**0.16**	**0.32**	**0.13**	ND<0.0812	ND<0.0812	ND<0.0812	**0.633**	ND<0.0812	**0.273**	**0.941**	ND<0.0812	**4.66**	**2.27**	**0.931**	**13.2**	**11**	ND<0.271
UST Decommissioning Confirmation Samples (PBS, August 2016)																					
N Wall 8 Ft	08/09/16	8.0	**12.5**	**13.3**	ND<2.90	**5.7**	ND<2.90	ND<2.90	ND<2.90	ND<2.90	**10.9**	ND<2.90	**5.59**	**9.84**	ND<2.90	**34.0**	**26.8**	**19.3**	**112**	**174**	ND<9.66
DEQ Generic RBCs[3]																					
Ingestion, Dermal Contact, and Inhalation																					
Construction Worker			110,000	21,000	NE	24	2.4	24	NE	240	2,400	2.4	10,000	14,000	24	580	NE	7,500	NE	NE	NE
Excavation Worker			>Max	590,000	NE	660	67	670	NE	6,700	67,000	67	280,000	390,000	670	16,000	NE	210,000	NE	NE	NE
DEQ CFSLs[4]			29	29	NE	0.15	0.015	0.15	NE	1.1	14	0.015	29	29	0.15	0.0087	NE	1,700	0.738	310	NE

Notes:
1. Chemical analyses performed by ESC Lab Sciences of Mt. Juliett, Tennessee.
2. Only detected PAHs are shown. Refer to the laboratory analytical reports for a full listing of all analytes.
3. DEQ generic RBCs for Individual Chemicals, Revised November 1, 2015; for reference purposes only
4. DEQ CFSLs updated July 23, 2014
>Max: The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg or 1,000,000 mg/L. Therefore, this substance is deemed not to pose risks in this scenario.
ND: not detected at concentrations above the laboratory RDL
Bolding indicates analyte detection.
Orange shading indicates value exceeding DEQ CFSL value.

TABLE 3
Summary of Soil Sample Chemical Analytical Results[1]
Total Metals and PCBs
Custom Stamping Site
Portland, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	Sample Depth (feet BGS)	Total Metals by EPA Method 6010B/7471A (mg/kg)								Total PCBs by EPA Method 8082 (mg/kg)
			Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	
Direct-Push Explorations (GeoDesign, April 2016)											
DP-17(7.0-8.0)	04/15/16	7.0-8.0	**4.91**	**142**	ND<0.671	**12**	**34.7**	ND<0.0268	ND<2.68	ND<1.34	ND<0.0228
Direct-Push Explorations (GeoDesign, May 2016)											
DP-26(10.0-11.0)	05/31/16	10.0-11.0	**3.12**	**99**	ND<0.619	**8.81**	**7.13**	ND<0.0247	ND<2.47	ND<1.24	ND<0.0210
DEQ Generic RBCs[2]											
Ingestion, Dermal Contact, and Inhalation											
Construction Worker			15	69,000	350	410	800	110	NE	1,800	5
Excavation Worker			420	>Max	9,700	11,000	800	2,900	NE	49,000	140
DEQ CFSLs and Background Metals Concentrations for the Portland Basin (mg/kg)			8.8	790	0.63	76	79	0.23	0.71	0.82	0.2

Notes:
1. Chemical analysesperformed by ESC Lab Sciences of Mt. Juliet, Tennessee.
2. DEQ generic RBCs for Individual Chemicals, Revised November 1, 2015; for reference purposes only
--: not analyzed
>Max: The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg or 1,000,000 mg/L. Therefore, this substance is deemed not to pose risks in this scenario.
ND: not detected at concentrations above the laboratory RDL
Bolding indicates analyte detection.

TABLE 4
Summary of Groundwater Sample Chemical Analytical Data[1]
TPH and VOCs
Custom Stamping Site
Portland,Oregon

Sample I.D.	Sample Date	Sample Depth (feet BGS)	Gasoline-Range Organics by Method NWTPH-Gx (µg/L)	Diesel- and Residual-Range Organics by Method NWTPH-Dx (µg/L)		VOCs [2] by EPA Method 8260B (µg/L)										
				Diesel	Residual	n-Butylbenzene	sec-Butylbenzene	cis-1,2-Dichloroethene	Ethylbenzene	Isopropylbenzene	Naphthalene	n-Propylbenzene	Trichloroethene	1,2,4-Trimethylbenzene	1,2,3-Trimethylbenzene	1,3,5-Trimethylbenzene
Direct-Push Explorations (GeoDesign, April 2016)																
DP-5	04/14/16	15-20	ND<100	ND<100	ND<250	ND<1.00	ND<1.00	**1.44**	ND<1.00	ND<1.00	ND<5.00	ND<1.00	ND<1.00	ND<1.00	ND<1.00	ND<1.00
DP-9	04/14/16	13-15	ND<100	ND<100	ND<250	ND<1.00	ND<1.00	ND<1.00	ND<1.00	ND<1.00	ND<5.00	ND<1.00	ND<1.00	ND<1.00	ND<1.00	ND<1.00
DP-17	04/15/16	13-15	**1,710**	ND<100	ND<250	**2.89**	**1.32**	ND<1.00	**39.6**	**6.83**	**21.9**	**23.0**	ND<1.00	**175**	**46.0**	**51.0**
Trip Blank	--	--	--	--	--	ND<1.00	ND<1.00	ND<1.00	ND<1.00	ND<1.00	ND<5.00	ND<1.00	ND<1.00	ND<1.00	ND<1.00	ND<1.00
Direct-Push Explorations (GeoDesign, May 2016)																
DP-19	05/31/16	13-15	ND<100	ND<100	ND<250	ND<1.00	ND<1.00	ND<1.00	ND<1.00	ND<1.00	ND<5.00	ND<1.00	**6.38**	ND<1.00	ND<1.00	ND<1.00
DP-25	05/31/16	13-15	ND<100	ND<100	ND<250	ND<1.00	ND<1.00	ND<1.00	ND<1.00	ND<1.00	ND<5.00	ND<1.00	ND<1.00	ND<1.00	ND<1.00	ND<1.00
DP-26	05/31/16	13-15	ND<100	ND<100	ND<250	ND<1.00	ND<1.00	ND<1.00	ND<1.00	ND<1.00	ND<5.00	ND<1.00	ND<1.00	ND<1.00	ND<1.00	ND<1.00
DEQ Generic RBCs[3]																
Groundwater in Excavation																
Construction and Excavation Worker			14,000	>S	>S	NE	NE	18,000	4,500	51,000	500	NE	3,000	1,700	NE	15,000

Notes:
1. Chemical analyses performed by ESC Lab Sciences of Mt. Juliett, Tennessee.
2. Only the detected analytes are shown. Refer to laboratory report for full analyte listing.
3. DEQ generic RBCs for Individual Chemicals, Revised November 1, 2015; ror reference purposes only
ND: not detected at concentrations above the laboratory RDL
>S: This groundwater RBC exceeds the solubility limit (S). Groundwater concentrations in excess of S indicated that free product may be present.
Bolding indicates analyte detection.

TABLE 5
Summary of Groundwater Sample Chemical Analytical Results[1]
Total Metals
Custom Stamping Site
Portland, Oregon

Sample I.D.	Sample Date	Sample Depth (feet BGS)	Total Metals by EPA Method 6010B (µg/L)							
			Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
April 2016 Explorations (GeoDesign)										
DP-17	04/15/16	13-15	ND<10.0	**93.5**	ND<2.00	ND<10.0	**5.40**	ND<0.20	ND<10.0	ND<5.00
DEQ Generic RBCs[2]										
Groundwater in Excavation										
Construction and Excavation Worker			6,300	>S	130,000	>S	>S	>S	NE	1,100,000

Notes:
1. Chemical analyses performed by ESC Lab Sciences of Mt. Juliet, Tennessee.
2. DEQ generic RBCs for Individual Chemicals dated June 7, 2012; for reference purposes only
ND: not detected at concentrations above the laboratory RDL
>S: This groundwater RBC exceeds the solubility limit (S). Groundwater concentrations in excess of S indicated that free product may be present.
Bolding indicates analyte detection

TABLE 6
Summary of Groundwater Sample Chemical Analytical Results [1]
PAHs
Custom Stamping Site
Portland, Oregon

Sample I.D.	Sample Date	Screen Interval (feet BGS)	PAHs by EPA Method 8270C-SIM (µg/L)																			
			Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(b+k)fluoranthene	Benzo(g,h,i)perylene	2-Chloronaphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Phenanthrene	Pyrene
Direct-Push Explorations (GeoDesign, May 2016)																						
DP-19	05/31/16	13-15	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.25	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.25	ND<0.25	ND<0.25	ND<0.05	ND<0.05
DP-25	05/31/16	13-15	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.25	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.25	ND<0.25	ND<0.25	ND<0.05	ND<0.05
DP-26	05/31/16	13-15	ND<0.05	ND<0.05	**0.138**	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.25	ND<0.05	ND<0.05	ND<0.05	**0.0779**	ND<0.05	ND<0.25	ND<0.25	**0.765**	**0.119**	ND<0.05
DEQ Generic RBCs[2]																						
Groundwater in Excavation																						
Construction and Excavation Worker			>S	NE	>S	9.1	0.53	>S	>S	NE	NE	NE	>S	0.21	>S	>S	>S	NE	NE	500	NE	>S

Notes:
1. Chemical analyses performed by ESC Lab Sciences of Mt. Juliet, Tennessee.
ND: not detected at concentrations above the laboratory RDL
>S: This groundwater RBC exceeds the solubility limit (S). Groundwater concentrations in excess of S indicated that free product may be present.
Bolding indicates analyte detection.

APPENDIX A

APPENDIX A

SITE-SPECIFIC HEALTH AND SAFETY PLAN

INTRODUCTION

Each contractor conducting work at the project site is individually responsible for the health and safety of their employees. This includes the implementation of any training requirements, HSPs, monitoring, and any other specific requirements for the type of work being completed by the contractor. This HSP must be provided to employees who will be working at the project site and can be used to assist the contractor in preparation of their employee hazard communication and health and safety program for the project site. This HSP is intended solely for the use of GeoDesign employees while providing on-site observation, monitoring, and sampling and is provided in this document for reference only and is not a replacement for each contractor's specific HSP. Contractors may adopt this HSP with the proper modifications to address the type of work they will be completing at the project site.

This HSP establishes the policies and procedure that will help minimize risk to on-site workers, visitors, and the public. The procedures and guidelines contained herein are based on the current available information at the time of the HSP preparation. Specific requirements will be revised when new information is received or conditions change.

PROJECT SITE BACKGROUND

A summary the environmental history and background of the project site is presented in Section 2.0 of the CMMP.

PROJECT SITE LOCATION

Address: 1340 SE 9th Avenue
Tax Lots 6500, 6800, 6900, 7000, and 7100
Portland, Oregon
Multnomah County

Description: The project site is currently inactive. Prior operations included tool and die works, tool services, auto services and warehousing, welding, truck parts, and a garage.

Project Developer: Capstone Partners LLC

SCOPE OF WORK

Objectives: Observe soil excavation activities, field screen soils, collect soil samples as necessary, oversee waste management activities as needed, and photo document the excavation activities.

Duration of Work: Approximately two to three months

ON-SITE ORGANIZATION AND COORDINATION

The following personnel are designated to carry out the stated job functions on site. (Note: one person may carry out more than one job function.)

Project Manager:	Erik Hedberg
SSO:	To be determined
Site Supervisor:	To be determined
Field Personnel:	To be determined
Subcontractor(s):	NA
Client Contact:	Chris Nelson, Stacy Blanton, or Jeff Sacket

The Project Manager has overall responsibility for all activities on site, including implementation of the site safety plan. The Project Manager may delegate this function to the SSO.

The SSO is responsible for helping to ensure that work crews comply with all site safety and health requirements.

All other site personnel are responsible for understanding and complying with all site safety and health requirements.

PROJECT SITE CONTROL

The contaminated areas will be identified by stakes, ground paint, or flagging. Excavations deeper than 4 feet BGS should be properly shored and fenced to prevent excavation collapse and falls into the excavation.

EMPLOYEE TRAINING

All site personnel working in contaminated portions of the project site and that might come in contact with contaminated media or vapors will have received 24 or 40 hours of OSHA training on safe work practices for hazardous waste sites. In addition, personnel are required to receive eight hours of OSHA refresher training annually. Managers and supervisors are required to receive eight hours of OSHA training for safe management of hazardous waste site operations. All training will comply with 29 CFR 1910.120. Site-specific training will be held at the beginning of the project. Daily site safety meetings will be held on site and a record kept.

MEDICAL SURVEILLANCE

Pre-employment and periodic medical examinations are required for personnel working at hazardous waste sites. The medical examination must be completed within the prior 12-month period. A statement deeming the worker fit-for-duty is required from a licensed physician. Medical records are accessible by workers.

HAZARD/RISK ASSESSMENT

This section discusses chemical, physical, and environmental hazards to workers on the project site. The table below lists major hazards associated with these tasks and methods to mitigate the hazards.

Daily tailgate safety meetings will be held at the start of each workday to discuss potential chemical, physical, and environmental hazards and preventative safety measures. Attendance will be mandatory for all employees and a Tailgate Safety Meeting Form (Attachment A-1) will be completed. Task hazard analyses have been developed for each major field activity/work phase and are presented in the table below. The following sections describe the specific hazards anticipated in more detail and the control measures to be implemented to minimize or eliminate each hazard. This information will be used to augment daily safety meetings intended to heighten safety and hazard awareness on the job.

HAZARDS ASSOCIATED WITH TASKS

Due to the limited area of the construction site; the presence of trenching excavations; and contaminated soil, the main hazards are struck-by; inhalation, contact, and ingestion of organic vapors; and contact with contaminated soil. Other hazards are analyzed as detailed in the table below.

Hazard Sources and Mitigation During Field Activities and Hazard Project Tasks Mitigation Methods

Hazard	Project Tasks	Mitigation Methods
Slip/trip/fall	All tasks	Maintain good housekeeping. Limit work area with boundary marking tape and signs. Slip/trip/fall hazards will be addressed through an ongoing proactive housekeeping program that eliminates elements in the work area that have potential for causing loss of footing.
Struck-by	All tasks	Maintain a safe distance from any heavy equipment. Workers should not stand within the swing radius or reach of heavy equipment.
Explosion/fire	All tasks	Smoking is not permitted in the work zones. Any free-phase petroleum or solvent products will be stored in appropriate containers. Signs indicating flammable liquids should be posted where appropriate. Appropriate fire extinguishers will be available to site personnel during field activities. Open-flame ignition sources will be restricted from the work area (smoking, etc.).

Hazard Sources and Mitigation During Field Activities and Hazard Project Tasks Mitigation Methods (continued)

Hazard	Project Tasks	Mitigation Methods
Inhalation, contact and ingestion of organic vapors	Trench excavation, cutting/filling activities, excavation sampling, and monitoring	Level D PPE is typically adequate. If conditions require upgrading to air-purifying respirations (Level C PPE), an addendum to this HSP will be submitted for review and approval. Remain upwind whenever possible. Ventilate enclosed spaces using fans as needed. Wear disposable gloves and safety glasses with side shields when handling soil and sampling waters. Avoid smoking at all times during the mass excavation activities. Chewing tobacco and eating should also be avoided during excavation work to prevent ingestion of site contaminants.
Contact with petroleum, VOC, metals and/or PAH contaminated media	Trench excavation, cutting/filling activities, excavation sampling, and monitoring	Level D PPE is typically adequate. Wear appropriate coveralls, gloves, and protective eyewear. No eating, smoking, or drinking on site.
Weather extremes	All tasks	Use dress consistent with weather conditions. Implement worker rotation and rest period schedules. Adjust work day to avoid exposure. Maintain proper hydration.

HAZARD ANALYSIS

Chemical(s)	Petroleum hydrocarbons, VOCs, and PAHs
Heavy Equipment	Yes
Confined Space	No
Flammability	NA
Reactivity	NA
Heat	Occasional warm periods
Cold	Occasional cold periods
Drums	Yes
Terrain	Commercial development, excavation with potentially steep sidewalls
Oxygen Deficient	NA
Electrical	NA
Corrosivity	NA
Noise	Construction equipment and truck traffic noise will be present during the entire work period
Altitude	Approximately 40 feet above MSL

Radiation	NA		
Wildlife	NA		
Ergonomic	NA	Drilling	NA
Excavation	Yes	Biological Agent	NA
Explosives	NA		
Vehicles	Cars, pickups, construction vehicles		

See Tables 1 through 6 of the CMMP for specific chemical compound concentrations for detailed analysis of hazards with chemicals, engineering controls, safe work practices, and protective equipment to minimize risks to workers.

AIR MONITORING

PELs are OSHA PELs for airborne concentrations of toxic substances measured as an eight-hour TWA. The OSHA PELs are the recognized levels to which the site monitoring will adhere. STELs are OSHA short-term limits measured as a 15-minute TWA. OSHA requires that controls be implemented when employee exposure exceeds these limits. The TLVs are health and safety guidelines recommended by the American Conference of Governmental Industrial Hygienists. If contaminant levels exceed 50 percent of the TLV or PEL and persist for greater than 10 minutes, engineering and/or administrative control measures will be implemented.

Background air monitoring will be conducted at the project site by the environmental representative on an hourly basis, or as needed based on field conditions while the environmental representative is on site. Air monitoring will be conducted using a hand-held PID calibrated with a 100 ppm mixture of isobutylene. The action levels will be based on the total sum of all VOCs with an ionization potential range within the PID bulb's readable range. Based on project site history, air monitoring action levels will be based on information obtained from the National Institute for Occupational Safety and Health for gasoline.

The TWA maximum exposure for an 8-hour day for a 40-hour week is 300 ppm. The STEL for a maximum of 15 minutes is 500 ppm. These levels are not anticipated on site; however, if the breathing area within a particular work area exceeds 150 ppm, monitoring frequency will be increased to five-minute intervals. If concentration of 150 ppm or greater persist for more than 10 minutes, workers should exit the excavation and work area and take measures to ventilate the excavation or upgrade PPE to half-face respirators. Only workers trained and certified to wear respirators shall be permitted to wear them.

PERSONAL PROTECTIVE EQUIPMENT

Based on the evaluation of potential hazards, the following levels of personal protection have been designated for the applicable work areas or tasks:

Location	Job Function	Levels of Protection
Exclusion Zone	**All Tasks**	**D**
		A B C D Other
		A B C D Other
		A B C D Other
Contamination Reduction Zone	**All Tasks**	**D**
		A B C D Other
		A B C D Other

Specific protective equipment for each level of protection is as follows:

Level A _____

Level B _____

Level C _____

Level D Hard hat, safety vest, steel-toe boots, eye protection, and ear protection if construction equipment is operating

Other _____

DOWNGRADING CHANGES TO THE SPECIFIED LEVELS OF PROTECTION SHALL NOT BE MADE WITHOUT THE APPROVAL OF THE SSO.

DECONTAMINATION PROCEDURE

Personnel and equipment leaving the Exclusion Zone shall be thoroughly decontaminated. The standard level **NA** decontamination protocol shall be used with the following decontamination stations:

(1)_____ (2)_____
(3)_____ (4)_____
(5)_____ (6)_____
(7)_____ (8)_____
(9)_____ (10)_____

The decontamination station will be located immediately adjacent to the Exclusion Zone. The decontamination solution will be **NA**.

Emergency decontamination will include the following stations: **Soap and Water – Rinse Water**

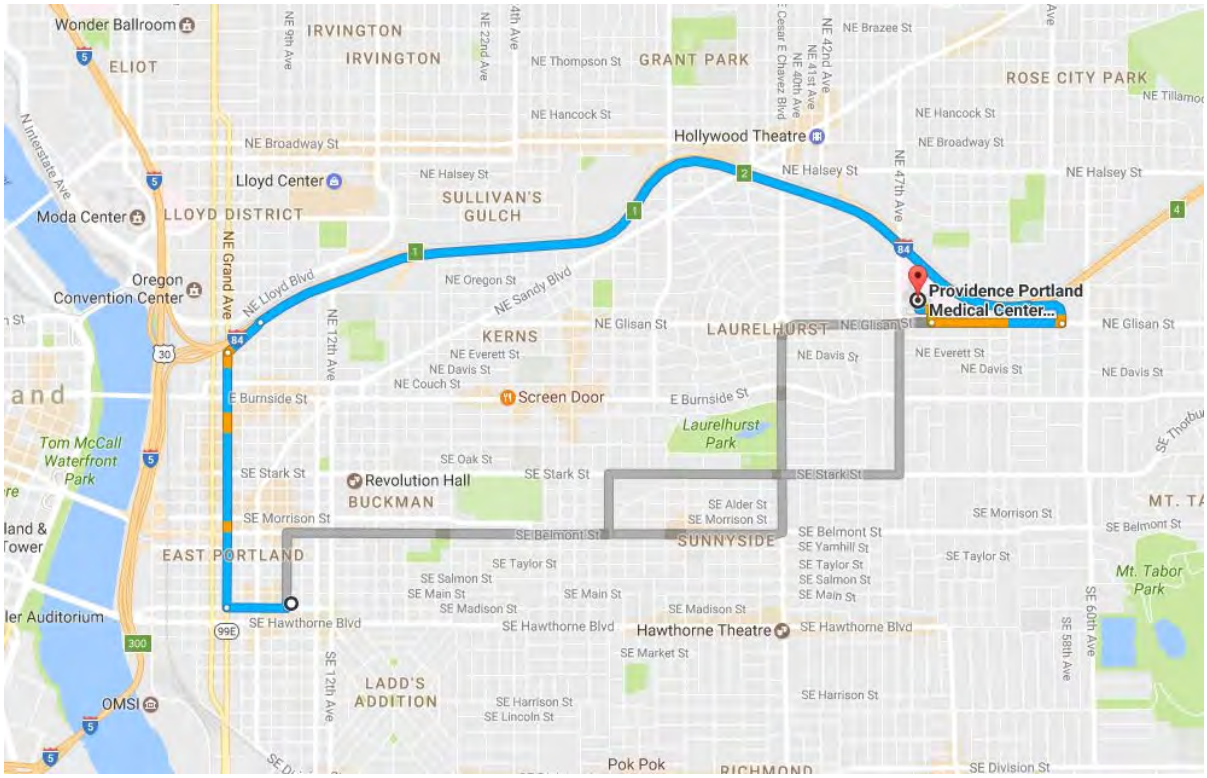
Equipment decontamination will be as follows:_____

EMERGENCIES

Closest Hospital	**Portland Providence Medical Center**	
Address	**4805 NE Glisan Street; Portland, OR**	Phone **503-230-6548**
Distance	**4.7 miles – see directions and map below**	
Ambulance		Phone **911**
Police		Phone **911**
Fire		Phone **911**
GeoDesign, Inc.	Office Phone: **503-968-8787**	
Erik Hedberg	Cell Phone: **503-577-5232**	

Emergency Equipment is available on-site at the following locations:

First Aid Kit	**In Vehicle**
Eye Wash	**In Vehicle**
Fire Extinguisher	**On Site**
Other	



Directions to Portland Providence Medical Center from 1340 SE 9th Avenue

Step	Directions	Distance
1	Head south on SE 9th Avenue toward SE Madison Street	85 feet
2	Turn right at the first cross street onto SE Madison Street	0.2 miles
3	Turn right onto SE Grand Avenue	0.8 miles
4	Turn right onto the Interstate 84 E/U.S. 30 E ramp to Portland Airport/The Dalles	0.1 miles
5	Merge onto I-84 E/ U.S. 30 E	2.8 miles
6	Take Exit 3 toward 58th Avenue	0.2 miles
7	Turn right onto NE Glisan Street	0.4 miles
8	Turn right onto NE 49th Avenue	203 feet
9	Turn left to 4805 NE Glisan Street	250 feet

ATTACHMENT A-1

CHEMICAL HAZARDS

Name	Concentration	TLV/PEL	Routes of Exposure	Signs of Exposure	First Aid
Petroleum Hydrocarbons, VOCs, and PAHs	See Tables 1 through 6	300	Inhalation Skin absorption	Rash Dizziness	Wash with soap and water

If additional chemical hazards are identified during site work, document the conditions and contact the Project Manager.

ATTACHMENT A-2

HAZARD ANALYSIS

Hazard	Prevention	Treatment
Traffic to and from site	Defensive driving	Call 911 and insurance company
Hot weather	Wear sunscreen, drink water	Re-hydrate
Slips, trips, falls, cuts	Caution	Antibiotic ointment
Construction equipment	Eye contact with operator, personal protection equipment, caution	Call 911
Soil sampling	Use protective PPE	Call 911 or on-site assistance

If additional physical hazards are identified during site work, document the conditions and contact the Project Manager.

ATTACHMENT A-3

SITE SAFETY PLAN ACKNOWLEDGMENT

All site personnel have read the above plan and are familiar with its provisions.

Name	Company	Date
Site Safety Officer		
Project Manager		
Site Personnel		

Visitors

APPENDIX B

PBS | Engineering + Environmental

August 26, 2016

Stoudt Family Properties, LLC
Custom Stamping & Manufacturing Co.
c/o Ms. Gloria Henning, Vice President
1340 SE 9th Avenue
Portland, Oregon

Re: Risk-Based HOT Closure Report—LUST File No. 26-16-0783
1340 SE 9th Avenue, Portland, Oregon
PBS Project No. 22484.004

Dear Ms. Henning:

PBS has completed underground heating oil tank (HOT) decommissioning and petroleum-contaminated soil removal activities at the property located at 1340 SE 9th Avenue, Portland, Oregon. This letter report summarizes the removal, sampling and remedial activities, test results, and a risk-based evaluation for this leaking underground storage tank.

PROJECT BACKGROUND

As part of a potential purchaser's environmental due diligence of the property, a Phase I Environmental Site Assessment (ESA) and a Phase II ESA were performed by GeoDesign. The Phase I ESA, dated March 25, 2016, noted a vent pipe next to the building on SE Main Street and a geophysical survey was recommended. City of Portland fire bureau records suggested that a 2,000-gallon underground heating oil tank may be present; a geophysical survey by GeoDesign identified an underground storage tank (UST) in this location, adjacent to facilities operated by Custom Stamping & Manufacturing Co.

Temporary soil borings were completed by GeoDesign in May 2016 on the east (DP-26) and the west (DP-27) side of the UST. At 10 to 11 feet below ground surface (bgs), diesel-range petroleum hydrocarbons at 12,500 milligrams per kilogram (mg/kg), heavy oil (8,170 mg/kg) and gasoline (2,370 mg/kg) were detected in soil. At DP-27, only gasoline was detected at 216 mg/kg. The laboratory confirmed that the gasoline detections were the result of overlap from old diesel (see attached email discussion).

Several PAHs were detected in soil, with naphthalene concentrations that exceeded one or more Oregon Department of Environmental Quality Risk-Based Concentrations (RBCs). Tests for volatile organic compounds (VOCs) identified several VOCs, with only ethylbenzene, naphthalene, and 1,2,4-trimethylbenzene present at concentrations that exceeded one or more RBCs. VOC results also showed very low concentrations of tetrachloroethene and trichloroethene. Based on PBS's understanding of the subject property, the low levels of chlorinated solvents detected in soils may be associated with historical site operations and are not related to the HOT.

A groundwater sample collected from 13 to 15 feet bgs in the boring (DP-26) placed west (down gradient) of the HOT site contained no detectable total petroleum hydrocarbons (TPH); low levels of several polycyclic aromatic hydrocarbons (PAHs) were identified in groundwater.

GeoDesign laboratory data is included in Tables 1, 2, and 3 of this report.

4412 SW Corbett Avenue, Portland, OR 97239
503.248.1939 Main
866.727.0140 Fax
888.248.1939 Toll-Free
www.pbsenv.com

Bend | Boise | Coos Bay | Eugene | Portland | Seattle | Tri-Cities | Vancouver | Walla Walla

Confirmation of the release was provided to the Oregon Dept. of Environmental Quality (DEQ) on June 21, 2016, and Leaking Underground Storage Tank File Number 26-16-0783 was assigned. An Initial Heating Oil Cleanup Report Form was filed with DEQ on July 27, 2016.

FIELD ACTIVITIES

Heating Oil Tank Decommissioning

On August 9, 2016, PBS met with K&S Environmental (K&S) at the site. Utility locating and City of Portland parking and sidewalk drilling permitting had been completed by K&S, which arranged for the concrete sidewalk over the tank to be cut on August 8, 2016.

The overlying sidewalk was removed and overburden excavated and loaded directly onto a truck for removal. K&S cut off fill, vent, and return piping, and then cut an approximately 3 by 3-foot hole in the top of the tank. A vacuum truck was used to remove the contents, which appeared to be oily water and, at the base of the tank, thick oily material. A total of 190 gallons of PS300 oil and water was removed from the tank with the use of a vacuum truck; final cleaning was completed with a scraper and absorbent pads, which were drummed for disposal. The oil was transported to Oregon ReRefining Company in Portland, Oregon.

Following tank cleaning, the excavator was used to rock the tank back and forth to loosen it, and then it was lifted out of the pit and placed on the ground. The tank was observed to have multiple holes in the base secondary to corrosion, and was transported to MetroMetals. The tank was approximately 13 feet long and had a diameter of approximately 6 feet, for an estimated volume of 3,000 gallons.

Soil Excavation and Confirmation Testing

Following removal of the tank, the excavator was used to remove visibly contaminated soil from the base and sidewalls of the excavation. Soil removal was limited to the north and northwest by the presence of a guy-wire anchor (a concrete block) connected to a nearby power pole; it was limited to the south by the adjacent building. Impacted soils were identified by their grey color, which occurred in discontinuous lenses.

At completion of soil removal to the extent feasible on the sidewalls, a lens of grey material was exposed on the north wall at a depth of approximately 8 feet bgs. The thickest part of the lens was approximately 10 to 12 inches, and it extended to the north beneath a guy-wire anchor located in the northwest corner of the excavation. Multiple smaller lenses were scattered on the excavation walls, and most were 2 to 3 inches thick or smaller, pinching out. A sample was collected from the main lens on the north wall at a depth of approximately 8 feet bgs, in order to characterize the material that will be left on site. A sample was also collected at a depth of approximately 10 feet, beneath the lens, from material that did not exhibit staining or odors.

On the south wall, samples were collected from within a lens of stained soil at a depth of 10 feet bgs. A deeper lens at approximately 13 feet bgs (separated from the 10-foot lens by strips of non-stained soil) was explored with the use of a hand auger, which showed that at a distance of approximately 2.5 feet into the south wall, the soils were without staining. A sample was collected from this non-stained material.

Soil samples were also collected from the east and west ends of the excavation at a depth of approximately 10 feet bgs.

While using the excavator bucket to collect base samples, silty gravels were encountered at a depth of approximately 13 feet bgs, and within these gravels was a small amount of groundwater, which seeped into the low spot created by the excavator. The water did not reach more than approximately 2 inches in depth, covering an area approximately 2 feet in diameter. Groundwater remained at this level with no additional intrusion, and further soil removal in the base of the excavation was ceased. Using the excavator bucket, a soil/gravel sample was collected from the approximate soil-water interface. A groundwater sample was not collected, as it was not

considered representative; there was insufficient water to pump, and previous groundwater studies were available.

All samples were collected in laboratory-provided containers that were sealed, labeled, and stored on ice for the duration of fieldwork and for shipping to the laboratory.

Approximately 30.65 tons of petroleum-contaminated soil was removed and disposed of at Hillsboro Landfill.

Disposal receipts for tank contents, petroleum-contaminated soil, and the tank are included as attachments, as part of the K&S Environmental summary.

Laboratory Results
Test results for all soil and groundwater samples, including those collected by GeoDesign in May 2016, are summarized in Tables 1 and 2, attached. Only the samples collected during HOT decommissioning are discussed below.

Soil
Soil samples collected during decommissioning activities were submitted for analysis by Northwest Method Total Petroleum Hydrocarbons – diesel-range (NWTPH-Dx). Test results showed that the highest diesel concentration remaining was in the soil lens approximately 8 feet bgs on the north wall of the excavation, containing 55,300 mg/kg diesel and 34,100 mg/kg heavy oil (for a total TPH of 89,400 mg/kg). This sample was further analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX) by EPA Method 8260, and for PAHs by EPA Method 8270 SIM. Benzene was not detected, but low levels of toluene and xylenes were present at concentrations well below applicable risk-based concentrations (RBCs). Multiple PAHs were detected, but only benzo(a)anthracene, fluorine, and naphthalene were present at concentrations that exceeded one or more applicable RBCs. It should also be noted that the laboratory reporting limit for benzo(a)pyrene was greater than RBCs for soil ingestion, dermal contact and inhalation pathway for occupational and construction worker receptors. The deeper sample collected from the north wall at a depth of approximately 10 feet bgs (below the lens of stained soil), contained only 58.4 mg/kg diesel and 166 mg/kg heavy oil.

On the south side of the excavation, the lens at 10 feet bgs also contained high concentrations of diesel and heavy oil (35,100 and 25,900 mg/kg respectively, for a total TPH of 61,000 mg/kg), but a hand-auger sample collected from approximately 2.5 feet into the wall of the excavation at a depth of approximately 13 feet bgs, through the lens of contamination, contained no detectable petroleum contamination, which suggests that residual contamination pinches out rapidly beyond the excavation.

Samples collected from the east and west boundaries of the excavation contained no detectable petroleum contamination. The sample collected from the approximate soil-water interface at the base of the excavation contained only 117 mg/kg diesel-range petroleum and 131 mg/kg heavy oil.

Groundwater
Groundwater samples were not collected during HOT decommissioning; a small volume of water entered the excavation, but it was too little to pump and was not considered representative of groundwater conditions due to extensive soil disturbance.

Groundwater data generated by a previous study completed by GeoDesign showed no petroleum contamination detected, and low levels of several PAHs present, of which only naphthalene slightly exceeded the Ingestion of Tapwater RBCs.

Copies of the DEQ HOT decommissioning and cleanup forms are included with this report.

RISK-BASED EVALUATION

Based on the diesel concentrations in residual contamination, and on the presence of groundwater within the excavation depth, LUST file closure using risk-based cleanup rules is appropriate.

Site Characteristics, Current and Likely Future Uses

The subject property is located in a densely developed mixed industrial and commercial area of inner southeast Portland. The property is zoned for "General Industrial" use,[1] and based on industrial uses of adjacent and nearby properties, this use is unlikely to change in the near future. The Multnomah County Assessor identification number for the property is 1S1E02BD, lot 7000, but the building on the site also covers portions of Lots 6900 and 7100.

Soils and Topography

According to U.S. Department of Agriculture (USDA) online soil data for Multnomah County, Oregon, reviewed on August 24, 2016 at http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx, the area of the subject property is underlain by urban land, which has been graded and compacted and is fully developed. Soils observed during tank decommissioning were primarily silt, with silty gravel exposed at the base of the excavation at a depth of approximately 13 feet bgs.

The subject property is located at an elevation of approximately 42 feet above mean sea level. The Google Earth elevation tool shows that the subject property is located in a local topographic low, relative to adjacent areas, and this is confirmed by a review of the United States Geologic Survey topographic map (Portland Quadrangle, see Figure 1), which shows a closed basin that includes the subject property and extends to the northwest. The site is relatively level, but there is a gentle regional slope to the southwest, toward the Willamette River, located approximately 3,000 feet to the west.

Residual Soil Contamination

Diesel- and heavy oil-contaminated soils remain on the site in lenses at the north and south boundaries of the excavation. The south wall exhibited two larger but discontinuous lenses approximately 5 to 6 feet long (east-west) and, together with intervening strips of non-stained soil, approximately 3 feet thick; while on the north wall, the lens was approximately the same length, but was less than one foot thick. A hand-augered sample collected from approximately 2.5 feet into the south wall of the excavation showed no detectable contamination, which suggests that the lenses pinch out a short distance beyond the excavation. Several thin lenses of stained soil were also present, scattered on the excavation walls below the level of the tank.

Using the south-wall sample results and the formula: $\text{Concentration}_{\text{sample A}} - \text{Concentration}_{\text{sampleB}}$, divided by distance (in feet), where the concentration at A is greater than the concentration at B, a horizontal attenuation rate was calculated. Using a total TPH of 61,000 mg/kg for the most contaminated sample from the south wall lens and the hand-augered sample from 2.5 feet into the south wall (no contamination detected), a horizontal attenuation rate of 24,400 mg/kg per foot was established. Vertical attenuation was not calculated, based on the discontinuous nature of the residual contamination, and because soil samples collected from the base of the excavation contained diesel concentrations well below the most stringent applicable RBCs (see below for evaluation of exposure pathways). Using the south-wall lens attenuation rate to extrapolate to the behavior of residual contamination in the north wall, residual contaminant lenses are expected to pinch out within approximately 3.5 feet north of the excavation.

Because of the discontinuous nature of residual contamination, a total volume of contaminated soil remaining was estimated based on the largest lenses. For the south lens of contamination, approximately 6 feet east-west by 3 feet thick by 2.5 feet into the south wall, a soil volume of approximately 45 cubic feet, or 1.6 cubic yards, is estimated. On the north wall, the lens of approximately 6 feet east-west by 1 foot thick by 3.5 feet to the north of

[1] Portlandmaps.com: https://www.portlandmaps.com/detail/property/1340-SE-9TH-AVE/R176872_did/

the excavation, yields a volume of approximately 21 cubic feet, or approximately 0.8 cubic yards. Other very thin lenses of stained soil at the excavation boundaries will likely add only a fraction of a cubic yard to the total; therefore, it is estimated that approximately 3 cubic yards of contaminated soil remain around the excavation.

Limited Beneficial Water Use Review

A list of water wells was obtained online from the Oregon Water Resources Department well log database (http://apps.wrd.state.or.us/apps/gw/well_log/) on August 23, 2016. No potable water wells were listed in Township 1 South, Range 1 East, Section 2 (the subject property is located near the center of this section). Multiple industrial and de-watering wells were listed, and the shallowest first-encountered groundwater (for logs that included that information) was 18 feet bgs (a copy of the list of wells is included as an attachment). No well records were identified for the subject property.

Based on topography, which shows that the subject property is located in a slight local topographic low, shallow groundwater may tend to flow toward the subject property from adjacent areas; however, deeper productive aquifers likely follow regional topography, flowing generally west toward the Willamette River.

Properties in the area are served by the City of Portland municipal water service, which obtains water from the Bull Run watershed located in the foothills of the Cascade Mountains.

Based on the above review, groundwater in the vicinity of the subject property is not a source of potable water; therefore, groundwater exposure pathways are not complete.

Soil Exposure Pathways

A conceptual site model was developed for the subject property based on current and likely future site use and the above limited beneficial water use review. The subject property has been in use by Custom Stamping & Manufacturing Co., which creates custom metal products using stamping and cutting machinery and heavy-duty metal presses; however, the business has recently closed and the property is on the market. Based on zoning and current and likely future industrial use of the subject and surrounding properties, the site model was limited to current and future occupational receptors and to current and future excavation and construction worker receptors. The potential exposure pathways evaluated are evaluated below:

Ingestion, Dermal Contact, Inhalation

This exposure pathway is considered to be incomplete for occupational receptors based on the depth at which residual contamination is located (8 feet bgs or greater). This exposure pathway is also incomplete for excavation worker receptors based on residual contaminant concentrations that do not exceed RBCs for this exposure pathway.

This exposure pathway is complete for future construction workers, who could come in contact with residual contaminated soil concentrations that exceed RBCs for this exposure pathway, if future site redevelopment extends into the HOT excavation area to a depth of 8 feet or greater.

Volatilization to Outdoor Air

This exposure pathway is considered incomplete based on the depth of residual contamination and on residual contaminant concentrations that do not exceed RBCs for this exposure pathway.

Vapor Intrusion into Buildings

This exposure pathway is incomplete based on residual contaminant concentrations that do not exceed occupational RBCs for this exposure pathway.

Leaching to Groundwater
This exposure pathway is considered incomplete based on the limited beneficial water use review, which demonstrates that groundwater in the area of the subject property is not a source of potable water.

Groundwater Exposure Pathways
Based on the limited beneficial water use review, which demonstrates that there is no use of groundwater as drinking water in the area of the subject property, this exposure pathway is not complete.

CONCLUSION

Based on the results of this investigation, PBS makes the following observations:

- An out-of-use heating oil tank was decommissioned by removal. Impacts to underlying soil were confirmed by testing. Approximately 3 cubic yards of petroleum-contaminated soil remains at the margins of the excavation following soil removal. The only soil exposure pathway determined to be complete was for future construction workers.
- Groundwater was impacted by low concentrations of PAHs; however, groundwater exposure pathways are not complete.

RECOMMENDATIONS

- Future site redevelopment should consider this information so that construction workers, who might come into contact with residual petroleum contamination in the vicinity of the former LUST, are protected.
- Based on the findings of this risk-based evaluation, the LUST file for this release should be closed.

PBS thanks you for allowing us to assist with this project.

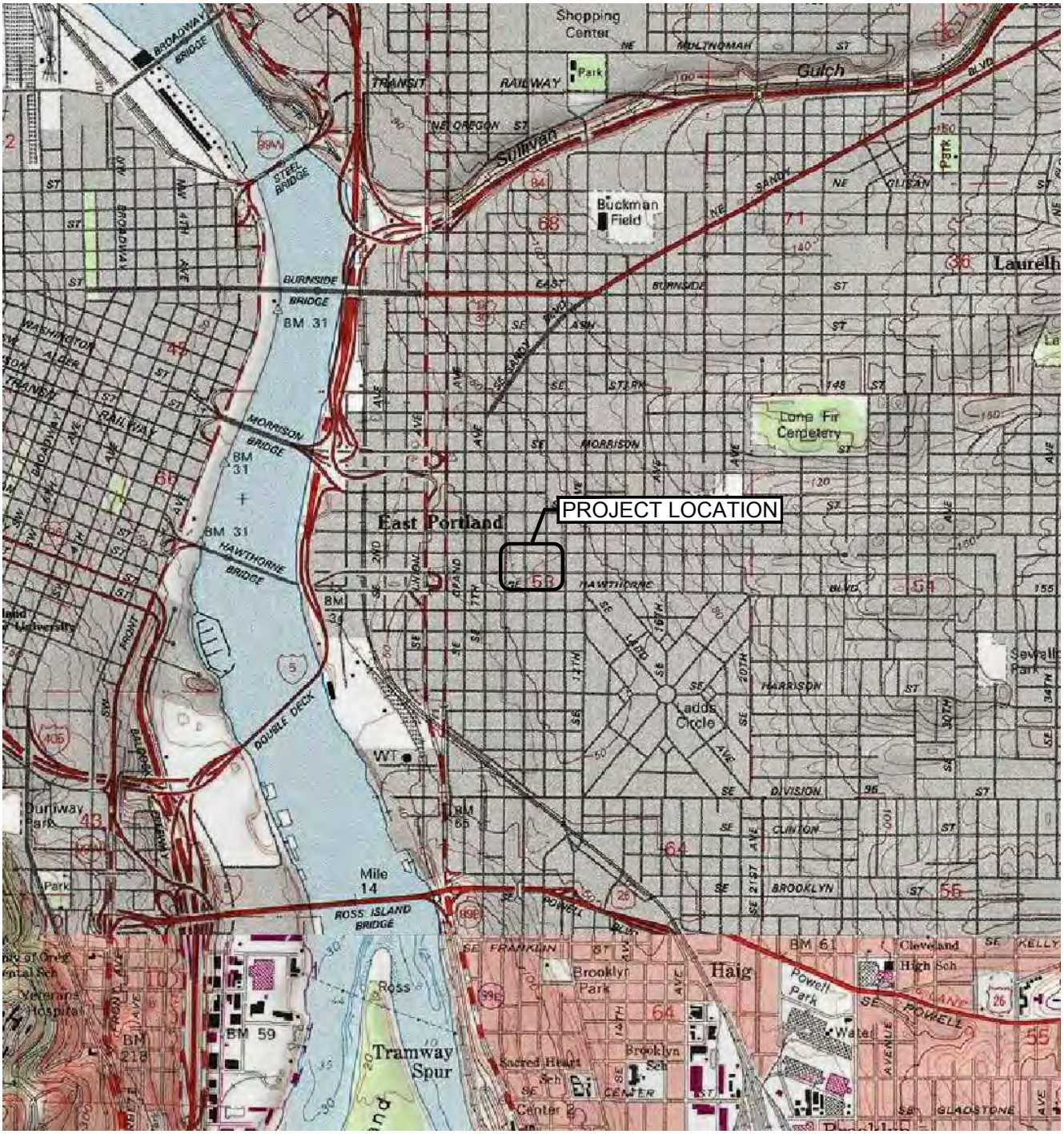
Sincerely,
PBS Engineering and Environmental Inc.

Marsha Walker, RG
PBS Senior Geologist

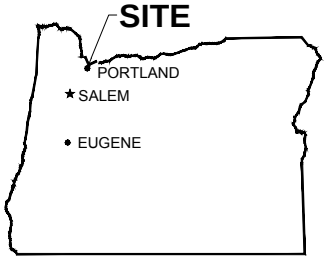
Attachments: A-Figures
B-Tables: Summary of Soil and Groundwater Analytical Results
C-Project Photographs
D-Laboratory Reports, Chain of Custody Documents
E-Email: Discussion of Diesel Overlap
F-K&S Project Summary and Disposal Receipts
G-Well Log List
H-DEQ HOT Decommissioning and Cleanup Form

Enclosures: HOT Certification

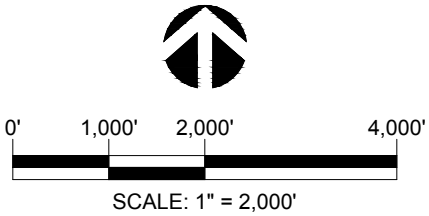
MW::bmp



SOURCE: USGS PORTLAND OR QUADRANGLE 1990.



OREGON



SCALE: 1" = 2,000'

PREPARED FOR: STOUDT FAMILY PROPERTIES

PBS

PROJECT # 22484.004

DATE AUG 2016

VICINITY MAP

UNDERGROUND HEATING OIL TANK DECOMMISSIONING
1340 SE 9TH AVENUE
PORTLAND, OREGON

FIGURE 1

L:\Projects\22000\22400-22499\22484 CustomStampingOversight\22484 004 SE Main UST Removal\DWG\22484 004_FIG 1-2.dwg Aug 25, 2016 12:18pm jimb

SOURCE: © 2016 GOOGLE EARTH PRO.

0' 30' 60' 120'

SCALE: 1" = 60'

PREPARED FOR: STOUDT FAMILY PROPERTIES

PBS

PROJECT # 22484.004

DATE AUG 2016

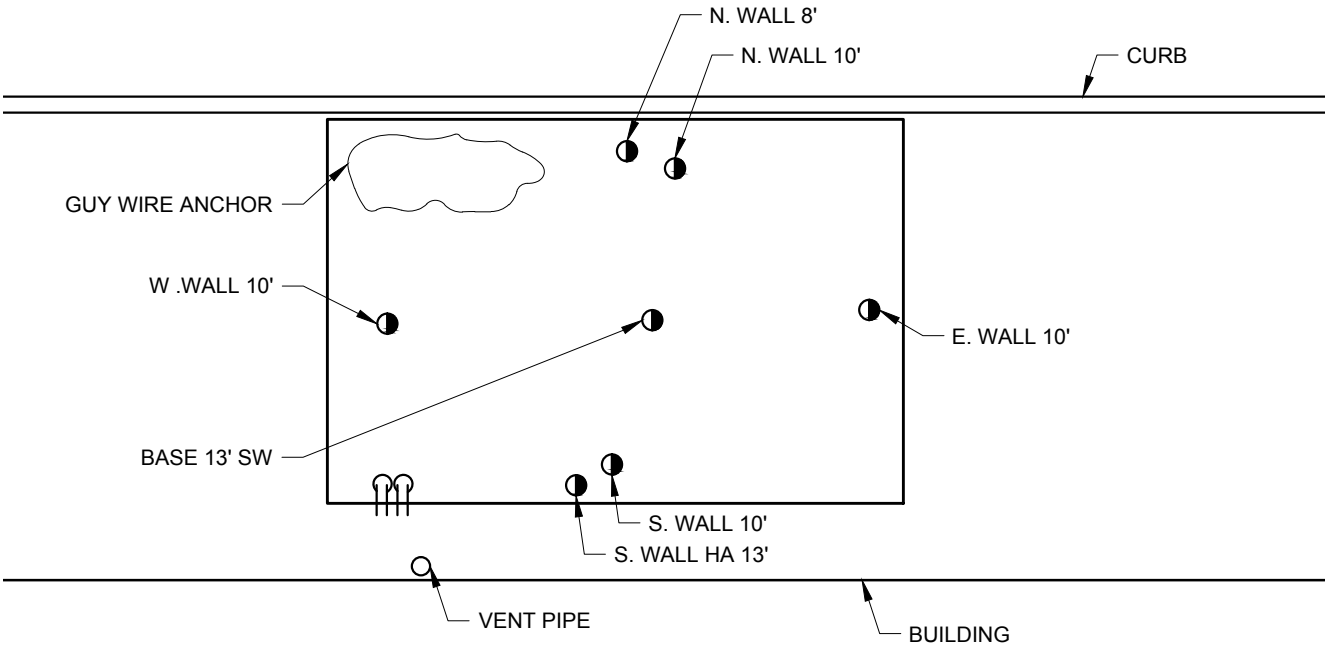
SITE PLAN

UNDERGROUND HEATING OIL TANK DECOMMISSIONING
1340 SE 9TH AVENUE
PORTLAND, OREGON

FIGURE 2

L:\Projects\22000\22400-22499\22484 CustomStampingOversight\22484.004 SE Main UST Removal\DWG\22484.004_FIG 1-2.dwg Aug 25, 2016 03:58pm jimb

SE MAIN STREET



LEGEND

◑ SAMPLE LOCATION

0' 2.5' 5' 10'

SCALE: 1" = 5'

PREPARED FOR: STOUDT FAMILY PROPERTIES

PBS

PROJECT # 22484.004

DATE AUG 2016

SITE PLAN - SAMPLE LOCATIONS

UNDERGROUND HEATING OIL TANK DECOMMISSIONING
1340 SE 9TH AVENUE
PORTLAND, OREGON

FIGURE **3**

Table 1: Summary of Soil Sample Analytical Results
Heating Oil Tank LUST File 26-16-0783
1340 SE 9th Avenue, Portland, Oregon
Custom Stamp & Mfg. Co.

				TPH			BTEX				PAHs [1]												
Sample ID	**Sample Date**	**Sample Location**	**Sample Depth**	**Gasoline#**	**Diesel**	**Heavy Oil^**	**Benzene**	**Toluene**	**Ethylbenzene**	**Xylenes**	**Anthracene**	**Acenaphthene**	**Acenaphthylene**	**Benzo(a)anthracene**	**Benzo(a)pyrene**	**Chrysene**	**Fluoranthene**	**Fluorene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**1-Methylnaphthalene**	**2-Methylnaphthalene**
			feet bgs	**mg/kg**																			
DP-26*	05/31/16	East side of HOT	10.0-11.0	**2,370**	**12,500**	**8,170**	<0.0278	0.448	**1.35**	3.94	4.97	10.1	1.42	2.89	1.06	5.40	2.33	7.57	**37.8**	18.1	8.10	115	122
DP-27*	05/31/16	West side of HOT	10.5-11.5	**216**	**5,150**	3,260	<0.0284	<0.142	0.0440	0.333	0.923	1.17	<0.0500	0.320	0.130	0.633	0.273	0.941	4.66	2.27	0.931	13.2	11.0
West Wall 10 Ft	08/09/16	West wall of HOT excavation	10	nt	<5.17	<12.9	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
E Wall 10 Ft	08/09/16	East wall of HOT excavation	10	nt	<4.86	<12.1	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
N Wall 8 Ft	08/09/16	North wall of HOT excavation	8	nt	**55,300**	**34,100**	<0.00153	0.00767	0.00496	0.0619	12.5	13.3	<2.90	5.70	***<2.90***	10.9	5.59	9.84	**34.0**	26.8	19.3	112	174
N Wall 10 Ft	08/09/16	North wall of HOT excavation	10	nt	58.4	166	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
S Wall 10 Ft	08/09/16	South wall of HOT excavation	10	nt	**35,100**	**25,900**	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
S Wall HA 13 FT	08/09/16	South wall of HOT excavation	13	nt	<5.67	<14.2	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
Base 13 Ft SW	08/09/16	Base of HOT excavation, at soil-water interface	13	nt	117	131	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
Risk-Based Concentrations[2]	Soil Ingestion, Dermal Contact, and Inhalation		Occupational	**20,000**	**14,000**		37	88,000	150	25,000	110,000	70,000	NS	2.9	***0.29***	290	30,000	47,000	**23**	NS	23,000	NS	NS
			Construction Worker	**9,700**	**4,600**		380	28,000	1,700	20.000	>Max	21,000	NS	24	***2.4***	2,400	10,000	14,000	580	NS	7,500	NS	NS
			Excavation Worker	>Max	>Max		11,000	770,000	49,000	560,000	>Max	590,000	NS	660	67	67,000	280,000	390,000	16,000	NS	210,000	NS	NS
	Volatilization to Outdoor Air		Occupational	69,000	>Max		50	>Csat	160	>Csat	>Max	>Max	NS	>Csat	NV	NV	NV	>Max	83	NS	>Csat	NS	NS
	Vapor Intrusion into Buildings		Occupational	>Max	>Max		2.1	>Csat	17	>Csat	>Max	>Max	NS	>Csat	NV	NV	NV	>Max	83	NS	>Csat	NS	NS
	Leaching to Groundwater		Occupational	**130**	>Max		0.10	490	**0.90**	100	>Csat	>Csat	NS	8.8	>Csat	>Csat	NV	>Csat	**0.34**	NS	>Csat	NS	NS

*Collected by GeoDesign on behalf of potential purchaser

Per ESC Laboratory, the gasoline detections are overlap from old diesel (see report for communication from ESC)

[1] Detected analytes only; see laboratory report for full list of analytes and laboratory reporting limits

[2] Oregon Risk-Based Decision-Making for the Remediation of Petroleum-Contaminated Sites, Oregon DEQ, Rev. November 2015

Bold values in table indicate a detection that exceeds one or more RBCs; the RBCs that are exceeded are also in bold font

Bold Italic indicates that the method reportin glimit exceeds one or more RBCs; for this instance, the exposure pathway is not complete (see Risk-Based Evaluation)

^ An RBC for heavy oil has not been established; however, RBCs for diesel-range petroleum are used to evaluate risk

<:Values preceded by this symbol represent the laboratory reporting limit

TPH: Total petroleum hydrocarbons

BTEX: benzene, toluene, ethylbenzene, xylenes

PAHs: polycyclic aromatic hydrocarbons

bgs: below ground surface

mg/kg: milligrams per kilogram

NS: Not set for this compound

nt: Sample not tested

NV: this compound is considered to be nonvolatile for the purpose of evaluating risk

>Csat: The soil RBC exceeds the limit of three-phase equilibrium partitioning

>MAX: The constituent RBC for this pathway is greater than 1,000,000 mg/kg

Table 2: Summary of GeoDesign Soil Volatile Organic Compound (VOC) Analytical Results
Heating Oil Tank LUST File 26-16-0783
1340 SE 9th Avenue, Portland, Oregon
Custom Stamp & Mfg. Co.

Sample ID	Sample Date	Sample Location	Sample Depth	VOCS [1]												
				n-Butylbenzene	sec-Butylbenzene	1,2-Dichlorobenzene	cis-1,2-Dichloroethene	Isopropylbenzene	p-Isopropyltoluene	n-Propylbenzene	Styrene	Tetrachloroethene	Trichloroethene	1,2,3-Trimethylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
			feet bgs	mg/kg												
DP-26*	05/31/16	East side of HOT	10.0-11.0	2.17	0.480	2.37	0.264	0.412	1.54	1.38	0.0614	<0.0278	<0.0278	11.4	**18.7**	4.19
DP-27*	05/31/16	West side of HOT	10.5-11.5	0.834	0.204	0.565	<0.0284	0.109	0.347	0.369	<0.0284	0.182	0.0305	1.47	5.11	0.728
Risk-Based Concentrations[2]	Soil Ingestion, Dermal Contact, and Inhalation		Occupational	NS	NS	36,000	2,300	57,000	NS	NS	130,000	1,000	51	NS	2,000	12,000
			Construction Worker	NS	NS	20,000	710	27,000	NS	NS	56,000	1,800	470	NS	2,000	3,500
			Excavation Worker	NS	NS	560,000	20,000	750,000	NS	NS	>Max	50,000	13,000	NS	54,000	98,000
	Volatilization to Outdoor Air		Occupational	NS	NS	>Csat	>Max	>Csat	NS	NS	>Csat	>Csat	96	NS	980	>Max
	Vapor Intrusion into Buildings		Occupational	NS	NS	>Csat	>Max	>Csat	NS	NS	>Csat	36	2.3	NS	210	>Max
	Leaching to Groundwater		Occupational	NS	NS	160	4.5	>Csat	NS	NS	800	1.9	0.087	NS	**12**	110

*Collected by GeoDesign on behalf of potential purchaser

[1] Detected analytes only; see laboratory report for full list of analytes and laboratory reporting limits

[2] Oregon Risk-Based Decision-Making for the Remediation of Petroleum-Contaminated Sites, Oregon DEQ, Rev. November 2015

Bold values in table indicate a detection that exceeds one or more RBCs; the RBCs that are exceeded are also in bold font

<:Values preceded by this symbol represent the laboratory reporting limit

bgs: below ground surface

mg/kg: milligrams per kilogram

NS: Not set for this compound

>Csat: The soil RBC exceeds the limit of three-phase equilibrium partitioning

>MAX: The constituent RBC for this pathway is greater than 1,000,000 mg/kg

Table 3: Summary of GeoDesign Groundwater Sample Analytical Results
Heating Oil Tank LUST File 26-16-0783
1340 SE 9th Avenue, Portland, Oregon
Custom Stamp & Mfg. Co.

				TPH			BTEX				PAHs [1]				VOCs
Sample ID	**Sample Date**	**Sample Location**	**Sample Depth**	**Gasoline**	**Diesel**	**Heavy Oil^**	**Benzene**	**Toluene**	**Ethylbenzene**	**Xylenes**	**Acenaphthene**	**Fluorene**	**Naphthalene**	**Phenanthrene**	**See Laboratory Report for List of Analytes**
			feet bgs	**µg/L**											
DP-26	05/31/16	West side of HOT	13-15	<100	<100	<250	<1.00	<5.00	<1.00	<3.00	0.138	0.0779	**0.765**	0.119	None Detected above Laboratory Reporting Limits
Risk-Based Concentrations[2]	Ingestion & Inhalation from Tapwater		Occupational	450	430		2.1	6,300	6.4	830	2,500	1,300	**0.72**	NS	
	Volatilization to Outdoor Air		Occupational	>S	>S		14,000	>S	43,000	>S	>S	>S	16,000	NS	
	Vapor Intrusion into Buildings		Occupational	>S	>S		2,800	>S	8,200	>S	>S	>S	11,000	NS	
	Groundwater in Excavation		Construction and Excavation Worker	14,000	>S		1,800	220,000	4,500	23,000	>S	>S	500	NS	

^An RBC for heavy oil has not been established; however, the RBC for diesel-range petroleum is used to evaluate risk

[1] Detected analytes only; see laboratory report for full list of analytes and laboratory reporting limits

[2] Oregon Risk-Based Decision-Making for the Remediation of Petroleum-Contaminated Sites, Oregon DEQ, Rev. November 2015

<: values preceded by this symbol represent the laboratory reporting limit

Bold values in table indicate a detection that exceeds one or more RBCs; the RBCs that are exceeded are also in bold font

bgs: below ground surface

µg/L: micrograms per liter

NS: Not set for this compound

>S: The RBC exceeds the solubility limit; concentrations in excess of S indicate that free product may be present

ANALYTICAL REPORT

August 16, 2016

PBS Engineering & Environmental

Sample Delivery Group:	L852196
Samples Received:	08/10/2016
Project Number:	22484.004
Description:	Custom Stamp

Report To:

Marsha Walker
4412 SW Corbett Ave
Portland, OR 97239

Entire Report Reviewed By:

Brian Ford
Technical Service Representative

WEST WALL 10 FT L852196-01 Solid

Collected by: M. Walker | Collected date/time: 08/09/16 11:10 | Received date/time: 08/10/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG897769	1	08/11/16 15:54	08/12/16 22:04	DMG
Total Solids by Method 2540 G-2011	WG897484	1	08/10/16 14:04	08/10/16 14:12	KDW

E WALL 10 FT L852196-02 Solid

Collected by: M. Walker | Collected date/time: 08/09/16 11:00 | Received date/time: 08/10/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG897769	1	08/11/16 15:54	08/12/16 22:16	DMG
Total Solids by Method 2540 G-2011	WG897484	1	08/10/16 14:04	08/10/16 14:12	KDW

N WALL 8 FT L852196-03 Solid

Collected by: M. Walker | Collected date/time: 08/09/16 11:15 | Received date/time: 08/10/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG897769	2000	08/11/16 15:54	08/15/16 14:30	KLM
Total Solids by Method 2540 G-2011	WG897484	1	08/10/16 14:04	08/10/16 14:12	KDW

N WALL 10 FT L852196-04 Solid

Collected by: M. Walker | Collected date/time: 08/09/16 11:20 | Received date/time: 08/10/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG897769	1	08/11/16 15:54	08/12/16 23:05	DMG
Total Solids by Method 2540 G-2011	WG897484	1	08/10/16 14:04	08/10/16 14:12	KDW

S WALL 10 FT L852196-05 Solid

Collected by: M. Walker | Collected date/time: 08/09/16 11:45 | Received date/time: 08/10/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG898485	200	08/13/16 00:14	08/13/16 17:24	KLM
Total Solids by Method 2540 G-2011	WG897572	1	08/10/16 15:46	08/10/16 16:00	KDW

S WALL HA 13 FT L852196-06 Solid

Collected by: M. Walker | Collected date/time: 08/09/16 11:30 | Received date/time: 08/10/16 09:00

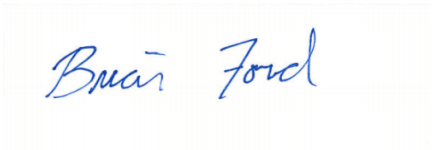
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG899026	1	08/16/16 02:15	08/16/16 10:37	DMG
Total Solids by Method 2540 G-2011	WG897572	1	08/10/16 15:46	08/10/16 16:00	KDW

BASE 13 FT SW L852196-07 Solid

Collected by: M. Walker | Collected date/time: 08/09/16 11:45 | Received date/time: 08/10/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG898485	10	08/13/16 00:14	08/13/16 15:33	KLM
Total Solids by Method 2540 G-2011	WG897572	1	08/10/16 15:46	08/10/16 16:00	KDW

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



Brian Ford
Technical Service Representative

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	77.4		1	08/10/2016 14:12	WG897484

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Diesel Range Organics (DRO)	ND		5.17	1	08/12/2016 22:04	WG897769
Residual Range Organics (RRO)	ND		12.9	1	08/12/2016 22:04	WG897769
(S) o-Terphenyl	*95.6*		*50.0-150*		*08/12/2016 22:04*	WG897769

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	82.4		1	08/10/2016 14:12	WG897484

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Diesel Range Organics (DRO)	ND		4.86	1	08/12/2016 22:16	WG897769
Residual Range Organics (RRO)	ND		12.1	1	08/12/2016 22:16	WG897769
(S) o-Terphenyl	*96.9*		*50.0-150*		*08/12/2016 22:16*	WG897769

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	82.8		1	08/10/2016 14:12	WG897484

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Diesel Range Organics (DRO)	55300		9660	2000	08/15/2016 14:30	WG897769
Residual Range Organics (RRO)	34100		24100	2000	08/15/2016 14:30	WG897769
(S) o-Terphenyl	*0.000*	J7	*50.0-150*		*08/15/2016 14:30*	WG897769

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	86.1		1	08/10/2016 14:12	WG897484

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Diesel Range Organics (DRO)	58.4		4.65	1	08/12/2016 23:05	WG897769
Residual Range Organics (RRO)	166		11.6	1	08/12/2016 23:05	WG897769
(S) o-Terphenyl	*75.5*		*50.0-150*		*08/12/2016 23:05*	WG897769

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	73.9		1	08/10/2016 16:00	WG897572

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Diesel Range Organics (DRO)	35100		1080	200	08/13/2016 17:24	WG898485
Residual Range Organics (RRO)	25900		2700	200	08/13/2016 17:24	WG898485
(S) o-Terphenyl	*56.8*	J7	*50.0-150*		*08/13/2016 17:24*	WG898485

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	70.5		1	08/10/2016 16:00	WG897572

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Diesel Range Organics (DRO)	ND		5.67	1	08/16/2016 10:37	WG899026
Residual Range Organics (RRO)	ND		14.2	1	08/16/2016 10:37	WG899026
(S) o-Terphenyl	*81.8*		*50.0-150*		*08/16/2016 10:37*	WG899026

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	90.2		1	08/10/2016 16:00	WG897572

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Diesel Range Organics (DRO)	117		44.4	10	08/13/2016 15:33	WG898485
Residual Range Organics (RRO)	131		111	10	08/13/2016 15:33	WG898485
(S) o-Terphenyl	*106*		*50.0-150*		*08/13/2016 15:33*	WG898485

Method Blank (MB)

(MB) R3155899-1 08/10/16 14:12

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00140			

L851693-30 Original Sample (OS) • Duplicate (DUP)

(OS) L851693-30 08/10/16 14:12 • (DUP) R3155899-3 08/10/16 14:12

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	70.4	71.0	1	0.904		5

Laboratory Control Sample (LCS)

(LCS) R3155899-2 08/10/16 14:12

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	99.9	85.0-115	

Method Blank (MB)

(MB) R3155908-1 08/10/16 16:00

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00150			

L852273-05 Original Sample (OS) • Duplicate (DUP)

(OS) L852273-05 08/10/16 16:00 • (DUP) R3155908-3 08/10/16 16:00

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	82.4	82.4	1	0.0265		5

Laboratory Control Sample (LCS)

(LCS) R3155908-2 08/10/16 16:00

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

Method Blank (MB)

(MB) R3156380-1 08/12/16 09:46

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Diesel Range Organics (DRO)	U		1.33	4.00
Residual Range Organics (RRO)	U		3.33	10.0
(S) o-Terphenyl	*112*			*50.0-150*

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

(LCS) R3156380-2 08/12/16 09:58 • (LCSD) R3156380-3 08/12/16 10:10

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Diesel Range Organics (DRO)	30.0	27.2	29.8	90.6	99.2	50.0-150			9.03	20
Residual Range Organics (RRO)	30.0	25.3	28.1	84.3	93.5	50.0-150			10.4	20
(S) o-Terphenyl				*80.6*	*84.8*	*50.0-150*				

L852196-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L852196-02 08/12/16 22:16 • (MS) R3156380-4 08/12/16 22:28 • (MSD) R3156380-5 08/12/16 22:41

Analyte	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Diesel Range Organics (DRO)	36.4	ND	34.4	34.0	90.9	89.7	1	50.0-150			1.31	20
Residual Range Organics (RRO)	36.4	ND	34.3	33.4	90.4	88.1	1	50.0-150			2.49	20
(S) o-Terphenyl					*82.2*	*87.3*		*50.0-150*				

Method Blank (MB)

(MB) R3156728-1 08/13/16 11:50

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Diesel Range Organics (DRO)	U		1.33	4.00
Residual Range Organics (RRO)	U		3.33	10.0
(S) o-Terphenyl	*95.0*			*50.0-150*

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

(LCS) R3156728-2 08/13/16 12:02 • (LCSD) R3156728-3 08/13/16 12:14

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Diesel Range Organics (DRO)	30.0	27.2	26.2	90.5	87.4	50.0-150			3.52	20
Residual Range Organics (RRO)	30.0	23.7	24.8	79.1	82.6	50.0-150			4.35	20
(S) o-Terphenyl				*83.7*	*87.5*	*50.0-150*				

Method Blank (MB)

(MB) R3157103-1 08/16/16 09:54

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Diesel Range Organics (DRO)	U		1.33	4.00
Residual Range Organics (RRO)	U		3.33	10.0
(S) o-Terphenyl	*94.6*			*50.0-150*

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

(LCS) R3157103-2 08/16/16 10:08 • (LCSD) R3157103-3 08/16/16 10:22

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Diesel Range Organics (DRO)	30.0	24.0	24.5	80.0	81.6	50.0-150			1.96	20
Residual Range Organics (RRO)	30.0	23.6	24.0	78.6	80.1	50.0-150			1.90	20
(S) o-Terphenyl				*78.1*	*77.8*	*50.0-150*				

L851695-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L851695-06 08/16/16 12:04 • (MS) R3157103-4 08/16/16 12:19 • (MSD) R3157103-5 08/16/16 12:34

Analyte	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Diesel Range Organics (DRO)	3.16	U	33.0	31.6	87.6	83.2	10	50.0-150			4.24	20
Residual Range Organics (RRO)	3.16	87.5	152	124	203	116	10	50.0-150	J5		19.9	20
(S) o-Terphenyl					*95.4*	*100*		*50.0-150*				

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.

Qualifier	Description
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**
***** Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Conneticut	PH-0197	North Carolina [1]	DW21704
Florida	E87487	North Carolina [2]	41
Georgia	NELAP	North Dakota	R-140
Georgia [1]	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky [1]	90010	South Dakota	n/a
Kentucky [2]	16	Tennessee [1 4]	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

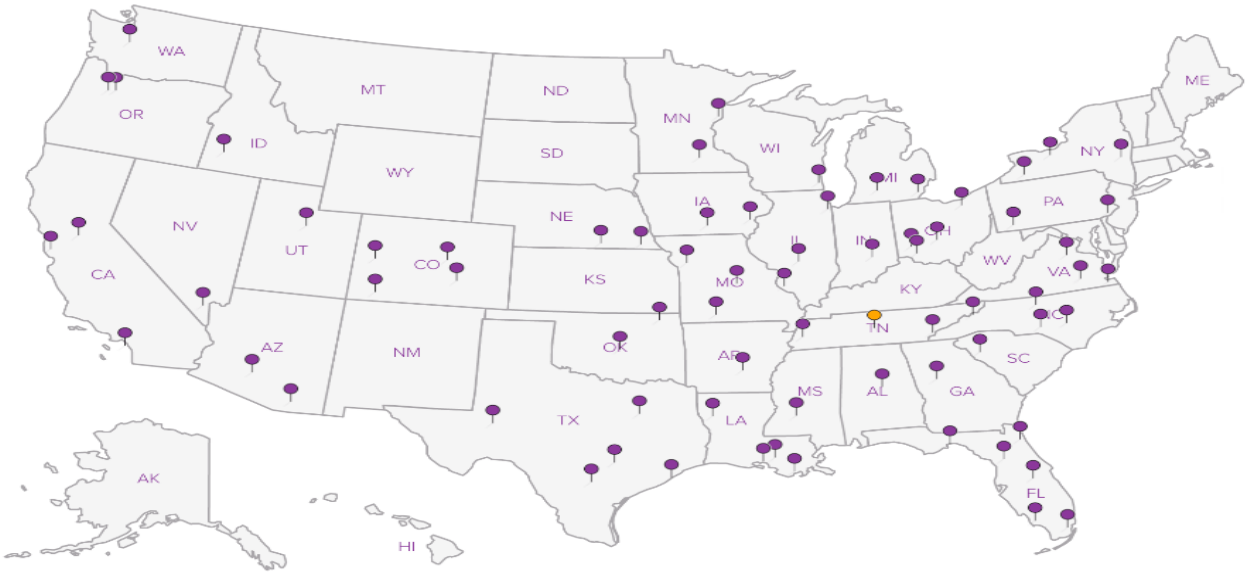
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

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

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Company Name/Address:
PBS Engineering
4412 SW Corbett Ave
Portland, OR 97239

Billing Information:
PBS Engineering
4412 SW Corbett Ave
Portland, OR 97239

Report to: Marsha Walker
Email To: marsha@pbsenv.com

Project Description: Custom Stamp
City/State Collected: Portland, OR

Phone: **503-248-1939**
Fax:
Client Project # 22484.004
Lab Project # **PBSENGPOR**

Collected by (print): M. Walker
Site/Facility ID #
P.O. #

Collected by (signature): Marsha Walker
Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
X Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No X Yes
FAX? ___No ___Yes

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	NWTPH-DX	BTEX	Rem./Contaminant	Sample # (lab only)
West Wall 10'	G	Soil	10'	8/9/16	1110	4	X			01
E. Wall 10'	G	Soil	10'	8/9/16	1100	4	X			02
N. Wall ~~D~~ 8'	G	Soil	~~D~~ 8'	8/9/16	1115	4	X			03
N Wall 10'	G	Soil	10'	8/9/16	1120	4	X			04
S. Wall 10'	G	Soil	10'	8/9/16	1145	1	X		Please extract for PAHs	05
S. Wall HA 13'	G	Soil	13'	8/9/16	1130	4	X			06
Base 13' S/W	G	Soil	13'	8/9/16	1145	1	X		Please extract for PAHs	07

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

ESC LAB SCIENCES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 852496
F165

Acctnum: **PBSENGPOR**
Template:
Prelogin:
TSR: **Jarred Willis**
Cooler:
Shipped Via:

* Matrix: **SS** - Soil **GW** - Groundwater **WW** - WasteWater **DW** - Drinking Water **OT** - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Marsha Walker	8/9/16	1330	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature) 6827 1104 4790
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐ _____
Temp: 3.2 °C Bottles Received: 22
Date: 8/10/16 Time: 900

Condition: (lab use only) OK
COC Seal Intact: ___Y ___N ✓NA
pH Checked: NCF:

ESC
L·A·B S·C·I·E·N·C·E·S
YOUR LAB OF CHOICE

Cooler Receipt Checklist

Client: PBSENGR SDG# 852156

Cooler Received/Opened On: 8-10-16 By Michael Lowe

Temperature Upon Receipt: 3.2 °c

(Signature)

Cooler Receipt Check List	Yes	No	N/A
Were custody seals on outside of cooler and intact?			✓
Were custody papers properly filled out (ink, signed, etc.)?	✓		
Did all bottles arrive in good condition?	✓		
Were correct bottles used for the analyses requested?	✓		
Was sufficient amount of sample sent in each bottle?	✓		
Were correct preservatives used?			✓
Were all applicable sample containers checked for preservation? (Any samples not in accepted pH range noted on COC .)			✓
If applicable, was an observable VOA headspace present?			✓
Non Conformance Generated? (If yes see attached NCF)		X	

ANALYTICAL REPORT

August 19, 2016

PBS Engineering & Environmental

Sample Delivery Group:	L853600
Samples Received:	08/10/2016
Project Number:	22484.004
Description:	Custom Stamp

Report To:

Marsha Walker
4412 SW Corbett Ave
Portland, OR 97239

Entire Report Reviewed By:

Brian Ford
Technical Service Representative

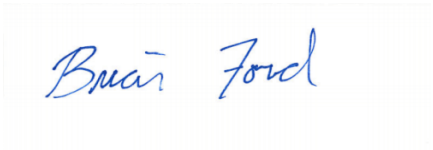
TABLE OF CONTENTS

N WALL 8 FT L853600-01 Solid

Collected by: M. Walker
Collected date/time: 08/09/16 11:15
Received date/time: 08/10/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG899440	400	08/16/16 22:02	08/18/16 11:55	KMP
Total Solids by Method 2540 G-2011	WG897484	1	08/10/16 14:04	08/10/16 14:12	KDW
Volatile Organic Compounds (GC/MS) by Method 8260B	WG900300	1.27	08/19/16 13:37	08/19/16 13:54	JHH

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



Brian Ford
Technical Service Representative

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	82.8		1	08/10/2016 14:12	WG897484

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	ND		0.00153	1.27	08/19/2016 13:54	WG900300
Toluene	ND		0.00767	1.27	08/19/2016 13:54	WG900300
Ethylbenzene	0.00496		0.00153	1.27	08/19/2016 13:54	WG900300
Total Xylenes	0.0619		0.00460	1.27	08/19/2016 13:54	WG900300
(S) Toluene-d8	*108*		*88.7-115*		*08/19/2016 13:54*	WG900300
(S) Dibromofluoromethane	*113*		*76.3-123*		*08/19/2016 13:54*	WG900300
(S) a,a,a-Trifluorotoluene	*103*		*87.2-117*		*08/19/2016 13:54*	WG900300
(S) 4-Bromofluorobenzene	*139*	J1	*69.7-129*		*08/19/2016 13:54*	WG900300

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

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Anthracene	12.5		2.90	400	08/18/2016 11:55	WG899440
Acenaphthene	13.3		2.90	400	08/18/2016 11:55	WG899440
Acenaphthylene	ND		2.90	400	08/18/2016 11:55	WG899440
Benzo(a)anthracene	5.70		2.90	400	08/18/2016 11:55	WG899440
Benzo(a)pyrene	ND		2.90	400	08/18/2016 11:55	WG899440
Benzo(b)fluoranthene	ND		2.90	400	08/18/2016 11:55	WG899440
Benzo(g,h,i)perylene	ND		2.90	400	08/18/2016 11:55	WG899440
Benzo(k)fluoranthene	ND		2.90	400	08/18/2016 11:55	WG899440
Chrysene	10.9		2.90	400	08/18/2016 11:55	WG899440
Dibenz(a,h)anthracene	ND		2.90	400	08/18/2016 11:55	WG899440
Fluoranthene	5.59		2.90	400	08/18/2016 11:55	WG899440
Fluorene	9.84		2.90	400	08/18/2016 11:55	WG899440
Indeno(1,2,3-cd)pyrene	ND		2.90	400	08/18/2016 11:55	WG899440
Naphthalene	34.0		9.66	400	08/18/2016 11:55	WG899440
Phenanthrene	26.8		2.90	400	08/18/2016 11:55	WG899440
Pyrene	19.3		2.90	400	08/18/2016 11:55	WG899440
1-Methylnaphthalene	112		9.66	400	08/18/2016 11:55	WG899440
2-Methylnaphthalene	174		9.66	400	08/18/2016 11:55	WG899440
2-Chloronaphthalene	ND		9.66	400	08/18/2016 11:55	WG899440
(S) Nitrobenzene-d5	*2700*	J7	*22.1-146*		*08/18/2016 11:55*	WG899440
(S) 2-Fluorobiphenyl	*355*	J7	*40.6-122*		*08/18/2016 11:55*	WG899440
(S) p-Terphenyl-d14	*427*	J7	*32.2-131*		*08/18/2016 11:55*	WG899440

Sample Narrative:

8270D-SIM L853600-01 WG899440: Dilution due to matrix

Method Blank (MB)

(MB) R3155899-1 08/10/16 14:12

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00140			

L851693-30 Original Sample (OS) • Duplicate (DUP)

(OS) L851693-30 08/10/16 14:12 • (DUP) R3155899-3 08/10/16 14:12

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	70.4	71.0	1	0.904		5

Laboratory Control Sample (LCS)

(LCS) R3155899-2 08/10/16 14:12

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	99.9	85.0-115	

Method Blank (MB)

(MB) R3157993-3 08/19/16 06:58

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000270	0.00100
Ethylbenzene	U		0.000297	0.00100
Toluene	U		0.000434	0.00500
Xylenes, Total	U		0.000698	0.00300
(S) Toluene-d8	*103*			*88.7-115*
(S) Dibromofluoromethane	*110*			*76.3-123*
(S) a,a,a-Trifluorotoluene	*101*			*87.2-117*
(S) 4-Bromofluorobenzene	*106*			*69.7-129*

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

(LCS) R3157993-1 08/19/16 05:32 • (LCSD) R3157993-2 08/19/16 05:49

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0250	0.0290	0.0272	116	109	72.6-120			6.68	20
Ethylbenzene	0.0250	0.0253	0.0237	101	94.9	78.6-124			6.45	20
Toluene	0.0250	0.0258	0.0245	103	97.8	76.7-116			5.43	20
Xylenes, Total	0.0750	0.0753	0.0714	100	95.1	78.1-123			5.39	20
(S) Toluene-d8				*103*	*103*	*88.7-115*				
(S) Dibromofluoromethane				*111*	*110*	*76.3-123*				
(S) a,a,a-Trifluorotoluene				*100*	*99.7*	*87.2-117*				
(S) 4-Bromofluorobenzene				*101*	*102*	*69.7-129*				

L853452-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L853452-01 08/19/16 08:27 • (MS) R3157993-4 08/19/16 07:34 • (MSD) R3157993-5 08/19/16 07:52

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.0250	0.00114	0.0222	0.0148	84.2	54.8	1	47.8-131		J3	39.7	22.8
Ethylbenzene	0.0250	0.00283	0.0160	0.00702	52.8	16.8	1	44.8-135		J3 J6	78.2	26.9
Toluene	0.0250	ND	0.0200	0.0120	77.8	45.6	1	47.8-127		J3 J6	50.4	24.3
Xylenes, Total	0.0750	ND	0.0498	0.0216	64.7	27.2	1	42.7-135		J3 J6	79.0	26.6
(S) Toluene-d8					*104*	*105*		*88.7-115*				
(S) Dibromofluoromethane					*108*	*106*		*76.3-123*				
(S) a,a,a-Trifluorotoluene					*94.2*	*95.1*		*87.2-117*				
(S) 4-Bromofluorobenzene					*92.4*	*95.8*		*69.7-129*				

Method Blank (MB)

(MB) R3157634-3 08/18/16 01:59

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.000600	0.00600
Acenaphthene	U		0.000600	0.00600
Acenaphthylene	U		0.000600	0.00600
Benzo(a)anthracene	U		0.000600	0.00600
Benzo(a)pyrene	U		0.000600	0.00600
Benzo(b)fluoranthene	U		0.000600	0.00600
Benzo(g,h,i)perylene	U		0.000600	0.00600
Benzo(k)fluoranthene	U		0.000600	0.00600
Chrysene	U		0.000600	0.00600
Dibenz(a,h)anthracene	U		0.000600	0.00600
Fluoranthene	U		0.000600	0.00600
Fluorene	U		0.000600	0.00600
Indeno(1,2,3-cd)pyrene	U		0.000600	0.00600
Naphthalene	U		0.00200	0.0200
Phenanthrene	U		0.000600	0.00600
Pyrene	U		0.000600	0.00600
1-Methylnaphthalene	U		0.00200	0.0200
2-Methylnaphthalene	U		0.00200	0.0200
2-Chloronaphthalene	U		0.00200	0.0200
(S) p-Terphenyl-d14	*74.9*			*32.2-131*
(S) Nitrobenzene-d5	*80.3*			*22.1-146*
(S) 2-Fluorobiphenyl	*76.7*			*40.6-122*

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

(LCS) R3157634-1 08/18/16 01:17 • (LCSD) R3157634-2 08/18/16 01:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0800	0.0650	0.0640	81.2	79.9	50.3-130			1.57	20
Acenaphthene	0.0800	0.0669	0.0667	83.6	83.4	52.4-120			0.190	20
Acenaphthylene	0.0800	0.0669	0.0667	83.6	83.3	49.6-120			0.360	20
Benzo(a)anthracene	0.0800	0.0677	0.0662	84.6	82.8	46.7-125			2.19	20
Benzo(a)pyrene	0.0800	0.0571	0.0568	71.3	71.1	42.3-119			0.370	20
Benzo(b)fluoranthene	0.0800	0.0680	0.0695	85.1	86.8	43.6-124			2.07	20
Benzo(g,h,i)perylene	0.0800	0.0624	0.0618	78.0	77.3	45.1-132			0.940	20
Benzo(k)fluoranthene	0.0800	0.0728	0.0701	90.9	87.6	46.1-131			3.78	20
Chrysene	0.0800	0.0684	0.0671	85.5	83.9	49.5-131			1.94	20
Dibenz(a,h)anthracene	0.0800	0.0644	0.0638	80.5	79.8	44.8-133			0.940	20
Fluoranthene	0.0800	0.0698	0.0807	87.3	101	49.3-128			14.4	20

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

(LCS) R3157634-1 08/18/16 01:17 • (LCSD) R3157634-2 08/18/16 01:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Fluorene	0.0800	0.0658	0.0649	82.2	81.2	50.6-121			1.26	20
Indeno(1,2,3-cd)pyrene	0.0800	0.0658	0.0652	82.2	81.5	46.1-135			0.920	20
Naphthalene	0.0800	0.0643	0.0636	80.4	79.5	49.6-115			1.20	20
Phenanthrene	0.0800	0.0671	0.0655	83.9	81.8	48.8-121			2.46	20
Pyrene	0.0800	0.0807	0.0789	101	98.6	44.7-130			2.30	20
1-Methylnaphthalene	0.0800	0.0658	0.0651	82.2	81.4	50.6-122			1.04	20
2-Methylnaphthalene	0.0800	0.0644	0.0637	80.5	79.6	50.4-120			1.15	20
2-Chloronaphthalene	0.0800	0.0650	0.0648	81.3	81.0	53.9-121			0.330	20
(S) p-Terphenyl-d14				*78.4*	*76.6*	*32.2-131*				
(S) Nitrobenzene-d5				*74.2*	*79.4*	*22.1-146*				
(S) 2-Fluorobiphenyl				*76.5*	*77.6*	*40.6-122*				

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.

Qualifier	Description
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**
***** Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Conneticut	PH-0197	North Carolina [1]	DW21704
Florida	E87487	North Carolina [2]	41
Georgia	NELAP	North Dakota	R-140
Georgia [1]	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky [1]	90010	South Dakota	n/a
Kentucky [2]	16	Tennessee [1 4]	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

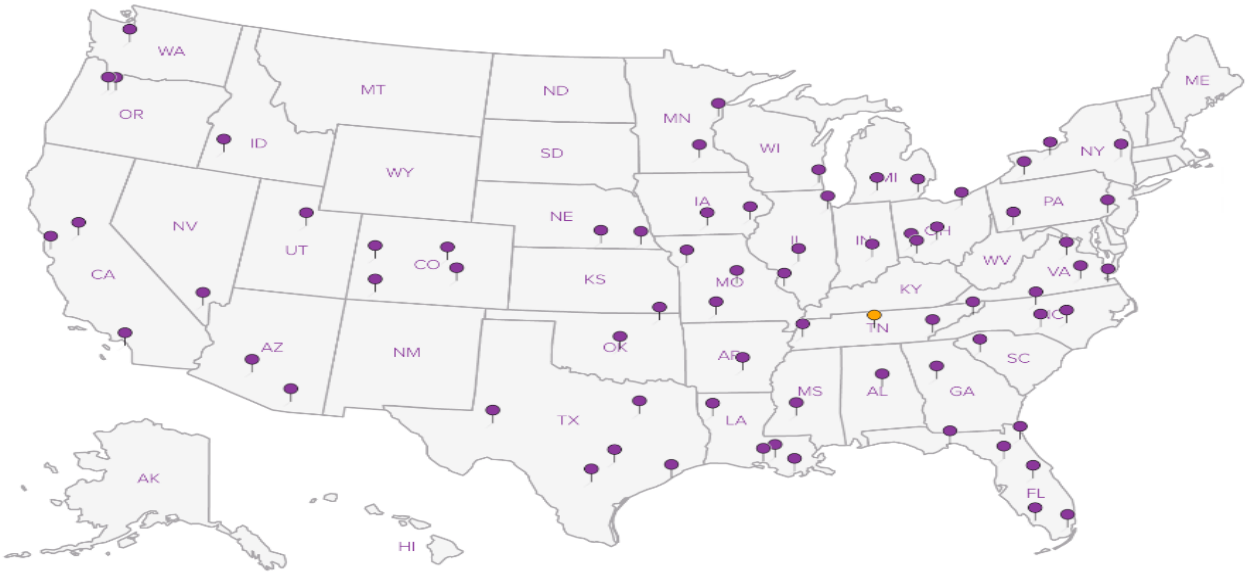
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

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

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Company Name/Address:
PBS Engineering
4412 SW Corbett Ave
Portland, OR 97239

Billing Information:
PBS Engineering
4412 SW Corbett Ave
Portland, OR 97239

Report to: Marsha Walker
Email To: marsha@pbsenv.com

Project Description: Custom Stamp
City/State Collected: Portland, OR

Phone: **503-248-1939**
Fax:

Client Project # 22484.004
Lab Project # **PBSENGPOR**

Collected by (print): M. Walker
Site/Facility ID #
P.O. #

Collected by (signature): Marsha Walker
Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
X Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed
Email? ___No X Yes
FAX? ___No ___Yes

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

ESC LABORATORY SCIENCES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# ~~L852446~~ F165 L853600

Acctnum: **PBSENGPOR**
Template:
Prelogin:
TSR: **Jarred Willis**
Cooler:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	NWTPH-DX									Rem./Contaminant	Sample # (lab only)
West Wall 10'	G	Soil	10'	8/9/16	1110	4	X										~~01~~
E. Wall 10'	G	Soil	10'	8/9/16	1100	4	X										~~02~~
N. Wall ~~DS~~ 8'	G	Soil	~~8~~ 8'	8/9/16	1115	4	X										-01 ~~03~~
N Wall 10'	G	Soil	10'	8/9/16	1120	4	X										~~04~~
S. Wall 10'	G	Soil	10'	8/9/16	1145	1	X				Please extract for PAHs						~~05~~
S. Wall HA 13'	G	Soil	13'	8/9/16	1130	4	X										~~06~~
Base 13' S/W	G	Soil	13'	8/9/16	1145	1	X				Please extract for PAHs						~~07~~

* Matrix: **SS** - Soil **GW** - Groundwater **WW** - WasteWater **DW** - Drinking Water **OT** - Other_____

pH _____ Temp _____
Flow _____ Other _____

Remarks:

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Marsha Walker	8/9/16	1330	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
			6827 1104 4790
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐ _____
Temp: 3.2 °C Bottles Received: 22
Date: 8/10/16 Time: 900

Condition: (lab use only) OK
COC Seal Intact: ___Y ___N ✓NA
pH Checked: NCF:

Troy Dunlap

L853600

From: Brian Ford
Sent: Monday, August 15, 2016 6:57 PM
To: Login; Sample Storage
Cc: Reporting; Due SVOC; Extractions; Due VOC
Subject: L852196-03 *PBSENGPOR* relog

Please relog L852196-03 for V8260BTEX, SV8270PAHSIMD, and TS. Transfer TS results. Log as R4 due 08/19.

Thanks,
Brian Ford
ESC Lab Sciences
Direct: (615)773-9772
Mobile: (931)510-2229
bford@esclabsciences.com

Excerpt from GeoDesign laboratory report

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	80.8		1	06/03/2016 11:13	WG877595

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Mercury	ND		0.0247	1	06/04/2016 10:29	WG877545

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Arsenic	3.12		2.47	1	06/03/2016 14:22	WG877491
Barium	99.0		0.619	1	06/03/2016 14:22	WG877491
Cadmium	ND		0.619	1	06/03/2016 14:22	WG877491
Chromium	8.81		1.24	1	06/03/2016 14:22	WG877491
Lead	7.13		0.619	1	06/03/2016 14:22	WG877491
Selenium	ND		2.47	1	06/03/2016 14:22	WG877491
Silver	ND		1.24	1	06/03/2016 14:22	WG877491

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Gasoline Range Organics-NWTPH	2370		278	2250	06/09/2016 18:09	WG878163
(S) a,a,a-Trifluorotoluene(FID)	*109*		*59.0-128*		*06/09/2016 18:09*	WG878163

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	ND		1.39	22.5	06/09/2016 00:28	WG877510
Acrylonitrile	ND		0.278	22.5	06/09/2016 00:28	WG877510
Benzene	ND		0.0278	22.5	06/09/2016 00:28	WG877510
Bromobenzene	ND		0.0278	22.5	06/09/2016 00:28	WG877510
Bromodichloromethane	ND		0.0278	22.5	06/09/2016 00:28	WG877510
Bromoform	ND		0.0278	22.5	06/09/2016 00:28	WG877510
Bromomethane	ND		0.139	22.5	06/09/2016 00:28	WG877510
n-Butylbenzene	2.17		0.0278	22.5	06/09/2016 00:28	WG877510
sec-Butylbenzene	0.480		0.0278	22.5	06/09/2016 00:28	WG877510
tert-Butylbenzene	ND		0.0278	22.5	06/09/2016 00:28	WG877510
Carbon tetrachloride	ND		0.0278	22.5	06/09/2016 00:28	WG877510
Chlorobenzene	ND		0.0278	22.5	06/09/2016 00:28	WG877510
Chlorodibromomethane	ND		0.0278	22.5	06/09/2016 00:28	WG877510
Chloroethane	ND		0.139	22.5	06/09/2016 00:28	WG877510
2-Chloroethyl vinyl ether	ND		1.39	22.5	06/09/2016 00:28	WG877510
Chloroform	ND		0.139	22.5	06/09/2016 00:28	WG877510
Chloromethane	ND		0.0696	22.5	06/09/2016 00:28	WG877510
2-Chlorotoluene	ND		0.0278	22.5	06/09/2016 00:28	WG877510
4-Chlorotoluene	ND		0.0278	22.5	06/09/2016 00:28	WG877510
1,2-Dibromo-3-Chloropropane	ND		0.139	22.5	06/09/2016 00:28	WG877510
1,2-Dibromoethane	ND		0.0278	22.5	06/09/2016 00:28	WG877510
Dibromomethane	ND		0.0278	22.5	06/09/2016 00:28	WG877510
1,2-Dichlorobenzene	2.37		0.0278	22.5	06/09/2016 00:28	WG877510
1,3-Dichlorobenzene	ND		0.0278	22.5	06/09/2016 00:28	WG877510
1,4-Dichlorobenzene	ND		0.0278	22.5	06/09/2016 00:28	WG877510
Dichlorodifluoromethane	ND		0.139	22.5	06/09/2016 00:28	WG877510
1,1-Dichloroethane	ND		0.0278	22.5	06/09/2016 00:28	WG877510

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
1,2-Dichloroethane	ND		0.0278	22.5	06/09/2016 00:28	WG877510
1,1-Dichloroethene	ND		0.0278	22.5	06/09/2016 00:28	WG877510
cis-1,2-Dichloroethene	0.264		0.0278	22.5	06/09/2016 00:28	WG877510
trans-1,2-Dichloroethene	ND		0.0278	22.5	06/09/2016 00:28	WG877510
1,2-Dichloropropane	ND		0.0278	22.5	06/09/2016 00:28	WG877510
1,1-Dichloropropene	ND		0.0278	22.5	06/09/2016 00:28	WG877510
1,3-Dichloropropane	ND		0.0278	22.5	06/09/2016 00:28	WG877510
cis-1,3-Dichloropropene	ND		0.0278	22.5	06/09/2016 00:28	WG877510
trans-1,3-Dichloropropene	ND		0.0278	22.5	06/09/2016 00:28	WG877510
2,2-Dichloropropane	ND		0.0278	22.5	06/09/2016 00:28	WG877510
Di-isopropyl ether	ND		0.0278	22.5	06/09/2016 00:28	WG877510
Ethylbenzene	1.35		0.0278	22.5	06/09/2016 00:28	WG877510
Hexachloro-1,3-butadiene	ND		0.0278	22.5	06/09/2016 00:28	WG877510
Isopropylbenzene	0.412		0.0278	22.5	06/09/2016 00:28	WG877510
p-Isopropyltoluene	1.54		0.0278	22.5	06/09/2016 00:28	WG877510
2-Butanone (MEK)	ND		0.278	22.5	06/09/2016 00:28	WG877510
Methylene Chloride	ND		0.139	22.5	06/09/2016 00:28	WG877510
4-Methyl-2-pentanone (MIBK)	ND		0.278	22.5	06/09/2016 00:28	WG877510
Methyl tert-butyl ether	ND		0.0278	22.5	06/09/2016 00:28	WG877510
Naphthalene	54.2		2.78	450	06/10/2016 11:17	WG878670
n-Propylbenzene	1.38		0.0278	22.5	06/09/2016 00:28	WG877510
Styrene	0.0614		0.0278	22.5	06/09/2016 00:28	WG877510
1,1,1,2-Tetrachloroethane	ND		0.0278	22.5	06/09/2016 00:28	WG877510
1,1,2,2-Tetrachloroethane	ND		0.0278	22.5	06/09/2016 00:28	WG877510
1,1,2-Trichlorotrifluoroethane	ND		0.0278	22.5	06/09/2016 00:28	WG877510
Tetrachloroethene	ND		0.0278	22.5	06/09/2016 00:28	WG877510
Toluene	0.448		0.139	22.5	06/09/2016 00:28	WG877510
1,2,3-Trichlorobenzene	ND		0.0278	22.5	06/09/2016 00:28	WG877510
1,2,4-Trichlorobenzene	ND		0.0278	22.5	06/09/2016 00:28	WG877510
1,1,1-Trichloroethane	ND		0.0278	22.5	06/09/2016 00:28	WG877510
1,1,2-Trichloroethane	ND		0.0278	22.5	06/09/2016 00:28	WG877510
Trichloroethene	ND		0.0278	22.5	06/09/2016 00:28	WG877510
Trichlorofluoromethane	ND		0.139	22.5	06/09/2016 00:28	WG877510
1,2,3-Trichloropropane	ND		0.0696	22.5	06/09/2016 00:28	WG877510
1,2,4-Trimethylbenzene	18.7		0.223	180	06/09/2016 19:20	WG877785
1,2,3-Trimethylbenzene	11.4		0.223	180	06/09/2016 19:20	WG877785
1,3,5-Trimethylbenzene	4.19		0.0278	22.5	06/09/2016 00:28	WG877510
Vinyl chloride	ND		0.0278	22.5	06/09/2016 00:28	WG877510
Xylenes, Total	3.94		0.0835	22.5	06/09/2016 00:28	WG877510
(S) Toluene-d8	*102*		*88.7-115*		*06/09/2016 00:28*	WG877510
(S) Toluene-d8	*106*		*88.7-115*		*06/09/2016 19:20*	WG877785
(S) Toluene-d8	*107*		*88.7-115*		*06/10/2016 11:17*	WG878670
(S) Dibromofluoromethane	*106*		*76.3-123*		*06/10/2016 11:17*	WG878670
(S) Dibromofluoromethane	*101*		*76.3-123*		*06/09/2016 19:20*	WG877785
(S) Dibromofluoromethane	*87.4*		*76.3-123*		*06/09/2016 00:28*	WG877510
(S) α,α,α-Trifluorotoluene	*101*		*87.2-117*		*06/09/2016 00:28*	WG877510
(S) α,α,α-Trifluorotoluene	*101*		*87.2-117*		*06/09/2016 19:20*	WG877785
(S) α,α,α-Trifluorotoluene	*102*		*87.2-117*		*06/10/2016 11:17*	WG878670
(S) 4-Bromofluorobenzene	*103*		*69.7-129*		*06/10/2016 11:17*	WG878670
(S) 4-Bromofluorobenzene	*101*		*69.7-129*		*06/09/2016 19:20*	WG877785
(S) 4-Bromofluorobenzene	*103*		*69.7-129*		*06/09/2016 00:28*	WG877510

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	12500		495	100	06/09/2016 21:11	WG878133
Residual Range Organics (RRO)	8170		1240	100	06/09/2016 21:11	WG878133
(S) o-Terphenyl	*418*	J1	*50.0-150*		*06/09/2016 21:11*	WG878133

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
PCB 1016	ND		0.0210	1	06/07/2016 14:12	WG877698
PCB 1221	ND		0.0210	1	06/07/2016 14:12	WG877698
PCB 1232	ND		0.0210	1	06/07/2016 14:12	WG877698
PCB 1242	ND		0.0210	1	06/07/2016 14:12	WG877698
PCB 1248	ND		0.0210	1	06/07/2016 14:12	WG877698
PCB 1254	ND		0.0210	1	06/07/2016 14:12	WG877698
PCB 1260	ND		0.0210	1	06/07/2016 14:12	WG877698
(S) Decachlorobiphenyl	*68.3*		*10.0-143*		*06/07/2016 14:12*	WG877698
(S) Tetrachloro-m-xylene	*69.5*		*29.2-144*		*06/07/2016 14:12*	WG877698

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

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	4.97		0.742	100	06/09/2016 11:58	WG877477
Acenaphthene	10.1		0.742	100	06/09/2016 11:58	WG877477
Acenaphthylene	1.42		0.742	100	06/09/2016 11:58	WG877477
Benzo(a)anthracene	2.89		0.742	100	06/09/2016 11:58	WG877477
Benzo(a)pyrene	1.06		0.742	100	06/09/2016 11:58	WG877477
Benzo(b)fluoranthene	ND		0.742	100	06/09/2016 11:58	WG877477
Benzo(g,h,i)perylene	ND		0.742	100	06/09/2016 11:58	WG877477
Benzo(k)fluoranthene	ND		0.742	100	06/09/2016 11:58	WG877477
Chrysene	5.40		0.742	100	06/09/2016 11:58	WG877477
Dibenz(a,h)anthracene	ND		0.742	100	06/09/2016 11:58	WG877477
Fluoranthene	2.33		0.742	100	06/09/2016 11:58	WG877477
Fluorene	7.57		0.742	100	06/09/2016 11:58	WG877477
Indeno(1,2,3-cd)pyrene	ND		0.742	100	06/09/2016 11:58	WG877477
Naphthalene	37.8		2.47	100	06/09/2016 11:58	WG877477
Phenanthrene	18.1		0.742	100	06/09/2016 11:58	WG877477
Pyrene	8.10		0.742	100	06/09/2016 11:58	WG877477
1-Methylnaphthalene	115		2.47	100	06/09/2016 11:58	WG877477
2-Methylnaphthalene	122		2.47	100	06/09/2016 11:58	WG877477
2-Chloronaphthalene	ND		2.47	100	06/09/2016 11:58	WG877477
(S) Nitrobenzene-d5	*130*	J7	*22.1-146*		*06/09/2016 11:58*	WG877477
(S) 2-Fluorobiphenyl	*313*	J7	*40.6-122*		*06/09/2016 11:58*	WG877477
(S) p-Terphenyl-d14	*131*	J7	*32.2-131*		*06/09/2016 11:58*	WG877477

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	06/09/2016 04:11	WG878037
(S) a,a,a-Trifluorotoluene(FID)	*101*		*62.0-128*		*06/09/2016 04:11*	WG878037

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	06/07/2016 04:29	WG878178
Acrolein	ND		50.0	1	06/07/2016 04:29	WG878178
Acrylonitrile	ND		10.0	1	06/07/2016 04:29	WG878178
Benzene	ND		1.00	1	06/07/2016 04:29	WG878178
Bromobenzene	ND		1.00	1	06/07/2016 04:29	WG878178
Bromodichloromethane	ND		1.00	1	06/07/2016 04:29	WG878178
Bromoform	ND		1.00	1	06/07/2016 04:29	WG878178
Bromomethane	ND		5.00	1	06/07/2016 04:29	WG878178
n-Butylbenzene	ND		1.00	1	06/07/2016 04:29	WG878178
sec-Butylbenzene	ND		1.00	1	06/07/2016 04:29	WG878178
tert-Butylbenzene	ND		1.00	1	06/07/2016 04:29	WG878178
Carbon tetrachloride	ND		1.00	1	06/07/2016 04:29	WG878178
Chlorobenzene	ND		1.00	1	06/07/2016 04:29	WG878178
Chlorodibromomethane	ND		1.00	1	06/07/2016 04:29	WG878178
Chloroethane	ND		5.00	1	06/07/2016 04:29	WG878178
2-Chloroethyl vinyl ether	ND		50.0	1	06/07/2016 04:29	WG878178
Chloroform	ND		5.00	1	06/07/2016 04:29	WG878178
Chloromethane	ND		2.50	1	06/07/2016 04:29	WG878178
2-Chlorotoluene	ND	J4	1.00	1	06/07/2016 04:29	WG878178
4-Chlorotoluene	ND		1.00	1	06/07/2016 04:29	WG878178
1,2-Dibromo-3-Chloropropane	ND		5.00	1	06/07/2016 04:29	WG878178
1,2-Dibromoethane	ND		1.00	1	06/07/2016 04:29	WG878178
Dibromomethane	ND		1.00	1	06/07/2016 04:29	WG878178
1,2-Dichlorobenzene	ND		1.00	1	06/07/2016 04:29	WG878178
1,3-Dichlorobenzene	ND		1.00	1	06/07/2016 04:29	WG878178
1,4-Dichlorobenzene	ND		1.00	1	06/07/2016 04:29	WG878178
Dichlorodifluoromethane	ND		5.00	1	06/07/2016 04:29	WG878178
1,1-Dichloroethane	ND		1.00	1	06/07/2016 04:29	WG878178
1,2-Dichloroethane	ND		1.00	1	06/07/2016 04:29	WG878178
1,1-Dichloroethene	ND		1.00	1	06/07/2016 04:29	WG878178
cis-1,2-Dichloroethene	ND		1.00	1	06/07/2016 04:29	WG878178
trans-1,2-Dichloroethene	ND		1.00	1	06/07/2016 04:29	WG878178
1,2-Dichloropropane	ND		1.00	1	06/07/2016 04:29	WG878178
1,1-Dichloropropene	ND		1.00	1	06/07/2016 04:29	WG878178
1,3-Dichloropropane	ND		1.00	1	06/07/2016 04:29	WG878178
cis-1,3-Dichloropropene	ND		1.00	1	06/07/2016 04:29	WG878178
trans-1,3-Dichloropropene	ND		1.00	1	06/07/2016 04:29	WG878178
2,2-Dichloropropane	ND		1.00	1	06/07/2016 04:29	WG878178
Di-isopropyl ether	ND		1.00	1	06/07/2016 04:29	WG878178
Ethylbenzene	ND		1.00	1	06/07/2016 04:29	WG878178
Hexachloro-1,3-butadiene	ND		1.00	1	06/07/2016 04:29	WG878178
Isopropylbenzene	ND		1.00	1	06/07/2016 04:29	WG878178
p-Isopropyltoluene	ND		1.00	1	06/07/2016 04:29	WG878178
2-Butanone (MEK)	ND		10.0	1	06/07/2016 04:29	WG878178
Methylene Chloride	ND		5.00	1	06/07/2016 04:29	WG878178
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	06/07/2016 04:29	WG878178
Methyl tert-butyl ether	ND		1.00	1	06/07/2016 04:29	WG878178
Naphthalene	ND		5.00	1	06/07/2016 04:29	WG878178
n-Propylbenzene	ND		1.00	1	06/07/2016 04:29	WG878178

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Styrene	ND		1.00	1	06/07/2016 04:29	WG878178
1,1,1,2-Tetrachloroethane	ND		1.00	1	06/07/2016 04:29	WG878178
1,1,2,2-Tetrachloroethane	ND		1.00	1	06/07/2016 04:29	WG878178
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	06/07/2016 04:29	WG878178
Tetrachloroethene	ND		1.00	1	06/07/2016 04:29	WG878178
Toluene	ND		5.00	1	06/07/2016 04:29	WG878178
1,2,3-Trichlorobenzene	ND		1.00	1	06/07/2016 04:29	WG878178
1,2,4-Trichlorobenzene	ND		1.00	1	06/07/2016 04:29	WG878178
1,1,1-Trichloroethane	ND		1.00	1	06/07/2016 04:29	WG878178
1,1,2-Trichloroethane	ND		1.00	1	06/07/2016 04:29	WG878178
Trichloroethene	ND		1.00	1	06/07/2016 04:29	WG878178
Trichlorofluoromethane	ND		5.00	1	06/07/2016 04:29	WG878178
1,2,3-Trichloropropane	ND		2.50	1	06/07/2016 04:29	WG878178
1,2,4-Trimethylbenzene	ND		1.00	1	06/07/2016 04:29	WG878178
1,2,3-Trimethylbenzene	ND		1.00	1	06/07/2016 04:29	WG878178
1,3,5-Trimethylbenzene	ND		1.00	1	06/07/2016 04:29	WG878178
Vinyl chloride	ND		1.00	1	06/07/2016 04:29	WG878178
Xylenes, Total	ND		3.00	1	06/07/2016 04:29	WG878178
(S) Toluene-d8	*108*		*90.0-115*		*06/07/2016 04:29*	WG878178
(S) Dibromofluoromethane	*98.6*		*79.0-121*		*06/07/2016 04:29*	WG878178
(S) 4-Bromofluorobenzene	*98.8*		*80.1-120*		*06/07/2016 04:29*	WG878178

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		100	1	06/06/2016 16:08	WG877923
Residual Range Organics (RRO)	ND		250	1	06/06/2016 16:08	WG877923
(S) o-Terphenyl	*68.8*		*50.0-150*		*06/06/2016 16:08*	WG877923

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Anthracene	ND		0.0500	1	06/06/2016 11:57	WG877919
Acenaphthene	0.138		0.0500	1	06/06/2016 11:57	WG877919
Acenaphthylene	ND		0.0500	1	06/06/2016 11:57	WG877919
Benzo(a)anthracene	ND		0.0500	1	06/06/2016 11:57	WG877919
Benzo(a)pyrene	ND		0.0500	1	06/06/2016 11:57	WG877919
Benzo(b)fluoranthene	ND		0.0500	1	06/06/2016 11:57	WG877919
Benzo(g,h,i)perylene	ND		0.0500	1	06/06/2016 11:57	WG877919
Benzo(k)fluoranthene	ND		0.0500	1	06/06/2016 11:57	WG877919
Chrysene	ND		0.0500	1	06/06/2016 11:57	WG877919
Dibenz(a,h)anthracene	ND		0.0500	1	06/06/2016 11:57	WG877919
Fluoranthene	ND		0.0500	1	06/06/2016 11:57	WG877919
Fluorene	0.0779		0.0500	1	06/06/2016 11:57	WG877919
Indeno(1,2,3-cd)pyrene	ND		0.0500	1	06/06/2016 11:57	WG877919
Naphthalene	0.765		0.250	1	06/06/2016 11:57	WG877919
Phenanthrene	0.119		0.0500	1	06/06/2016 11:57	WG877919
Pyrene	ND		0.0500	1	06/06/2016 11:57	WG877919
1-Methylnaphthalene	1.88		0.250	1	06/06/2016 11:57	WG877919
2-Methylnaphthalene	1.86		0.250	1	06/06/2016 11:57	WG877919
2-Chloronaphthalene	ND		0.250	1	06/06/2016 11:57	WG877919
(S) Nitrobenzene-d5	*86.8*		*45.1-170*		*06/06/2016 11:57*	WG877919
(S) 2-Fluorobiphenyl	*89.8*		*57.7-153*		*06/06/2016 11:57*	WG877919
(S) p-Terphenyl-d14	*76.5*		*53.2-156*		*06/06/2016 11:57*	WG877919

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	73.9		1	06/03/2016 11:13	WG877595

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Gasoline Range Organics-NWTPH	216		2.84	21	06/09/2016 05:50	WG878160
(S) a,a,a-Trifluorotoluene(FID)	*101*		*59.0-128*		*06/09/2016 05:50*	WG878160

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	ND		1.42	21	06/09/2016 00:46	WG877510
Acrylonitrile	ND		0.284	21	06/09/2016 00:46	WG877510
Benzene	ND		0.0284	21	06/09/2016 00:46	WG877510
Bromobenzene	ND		0.0284	21	06/09/2016 00:46	WG877510
Bromodichloromethane	ND		0.0284	21	06/09/2016 00:46	WG877510
Bromoform	ND		0.0284	21	06/09/2016 00:46	WG877510
Bromomethane	ND		0.142	21	06/09/2016 00:46	WG877510
n-Butylbenzene	0.834		0.0284	21	06/09/2016 00:46	WG877510
sec-Butylbenzene	0.204		0.0284	21	06/09/2016 00:46	WG877510
tert-Butylbenzene	ND		0.0284	21	06/09/2016 00:46	WG877510
Carbon tetrachloride	ND		0.0284	21	06/09/2016 00:46	WG877510
Chlorobenzene	ND		0.0284	21	06/09/2016 00:46	WG877510
Chlorodibromomethane	ND		0.0284	21	06/09/2016 00:46	WG877510
Chloroethane	ND		0.142	21	06/09/2016 00:46	WG877510
2-Chloroethyl vinyl ether	ND		1.42	21	06/09/2016 00:46	WG877510
Chloroform	ND		0.142	21	06/09/2016 00:46	WG877510
Chloromethane	ND		0.0710	21	06/09/2016 00:46	WG877510
2-Chlorotoluene	ND		0.0284	21	06/09/2016 00:46	WG877510
4-Chlorotoluene	ND		0.0284	21	06/09/2016 00:46	WG877510
1,2-Dibromo-3-Chloropropane	ND		0.142	21	06/09/2016 00:46	WG877510
1,2-Dibromoethane	ND		0.0284	21	06/09/2016 00:46	WG877510
Dibromomethane	ND		0.0284	21	06/09/2016 00:46	WG877510
1,2-Dichlorobenzene	0.565		0.0284	21	06/09/2016 00:46	WG877510
1,3-Dichlorobenzene	ND		0.0284	21	06/09/2016 00:46	WG877510
1,4-Dichlorobenzene	ND		0.0284	21	06/09/2016 00:46	WG877510
Dichlorodifluoromethane	ND		0.142	21	06/09/2016 00:46	WG877510
1,1-Dichloroethane	ND		0.0284	21	06/09/2016 00:46	WG877510
1,2-Dichloroethane	ND		0.0284	21	06/09/2016 00:46	WG877510
1,1-Dichloroethene	ND		0.0284	21	06/09/2016 00:46	WG877510
cis-1,2-Dichloroethene	ND		0.0284	21	06/09/2016 00:46	WG877510
trans-1,2-Dichloroethene	ND		0.0284	21	06/09/2016 00:46	WG877510
1,2-Dichloropropane	ND		0.0284	21	06/09/2016 00:46	WG877510
1,1-Dichloropropene	ND		0.0284	21	06/09/2016 00:46	WG877510
1,3-Dichloropropane	ND		0.0284	21	06/09/2016 00:46	WG877510
cis-1,3-Dichloropropene	ND		0.0284	21	06/09/2016 00:46	WG877510
trans-1,3-Dichloropropene	ND		0.0284	21	06/09/2016 00:46	WG877510
2,2-Dichloropropane	ND		0.0284	21	06/09/2016 00:46	WG877510
Di-isopropyl ether	ND		0.0284	21	06/09/2016 00:46	WG877510
Ethylbenzene	0.0440		0.0284	21	06/09/2016 00:46	WG877510
Hexachloro-1,3-butadiene	ND		0.0284	21	06/09/2016 00:46	WG877510
Isopropylbenzene	0.109		0.0284	21	06/09/2016 00:46	WG877510
p-Isopropyltoluene	0.347		0.0284	21	06/09/2016 00:46	WG877510
2-Butanone (MEK)	ND		0.284	21	06/09/2016 00:46	WG877510
Methylene Chloride	ND		0.142	21	06/09/2016 00:46	WG877510

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Methyl-2-pentanone (MIBK)	ND		0.284	21	06/09/2016 00:46	WG877510
Methyl tert-butyl ether	ND		0.0284	21	06/09/2016 00:46	WG877510
Naphthalene	17.0		0.568	84	06/09/2016 19:40	WG877785
n-Propylbenzene	0.369		0.0284	21	06/09/2016 00:46	WG877510
Styrene	ND		0.0284	21	06/09/2016 00:46	WG877510
1,1,1,2-Tetrachloroethane	ND		0.0284	21	06/09/2016 00:46	WG877510
1,1,2,2-Tetrachloroethane	ND		0.0284	21	06/09/2016 00:46	WG877510
1,1,2-Trichlorotrifluoroethane	ND		0.0284	21	06/09/2016 00:46	WG877510
Tetrachloroethene	0.182		0.0284	21	06/09/2016 00:46	WG877510
Toluene	ND		0.142	21	06/09/2016 00:46	WG877510
1,2,3-Trichlorobenzene	ND		0.0284	21	06/09/2016 00:46	WG877510
1,2,4-Trichlorobenzene	ND		0.0284	21	06/09/2016 00:46	WG877510
1,1,1-Trichloroethane	ND		0.0284	21	06/09/2016 00:46	WG877510
1,1,2-Trichloroethane	ND		0.0284	21	06/09/2016 00:46	WG877510
Trichloroethene	0.0305		0.0284	21	06/09/2016 00:46	WG877510
Trichlorofluoromethane	ND		0.142	21	06/09/2016 00:46	WG877510
1,2,3-Trichloropropane	ND		0.0710	21	06/09/2016 00:46	WG877510
1,2,4-Trimethylbenzene	5.11		0.0284	21	06/09/2016 00:46	WG877510
1,2,3-Trimethylbenzene	1.47		0.0284	21	06/09/2016 00:46	WG877510
1,3,5-Trimethylbenzene	0.728		0.0284	21	06/09/2016 00:46	WG877510
Vinyl chloride	ND		0.0284	21	06/09/2016 00:46	WG877510
Xylenes, Total	0.333		0.0852	21	06/09/2016 00:46	WG877510
(S) Toluene-d8	*107*		*88.7-115*		*06/09/2016 00:46*	WG877510
(S) Toluene-d8	*105*		*88.7-115*		*06/09/2016 19:40*	WG877785
(S) Dibromofluoromethane	*101*		*76.3-123*		*06/09/2016 19:40*	WG877785
(S) Dibromofluoromethane	*86.4*		*76.3-123*		*06/09/2016 00:46*	WG877510
(S) α,α,α-Trifluorotoluene	*104*		*87.2-117*		*06/09/2016 00:46*	WG877510
(S) α,α,α-Trifluorotoluene	*102*		*87.2-117*		*06/09/2016 19:40*	WG877785
(S) 4-Bromofluorobenzene	*102*		*69.7-129*		*06/09/2016 19:40*	WG877785
(S) 4-Bromofluorobenzene	*102*		*69.7-129*		*06/09/2016 00:46*	WG877510

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	5150		271	50	06/10/2016 15:08	WG879169
Residual Range Organics (RRO)	3260		677	50	06/10/2016 15:08	WG879169
(S) o-Terphenyl	*0.000*	J7	*50.0-150*		*06/10/2016 15:08*	WG879169

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

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.923		0.0812	10	06/09/2016 11:37	WG877477
Acenaphthene	1.17		0.0812	10	06/09/2016 11:37	WG877477
Acenaphthylene	0.160		0.0812	10	06/09/2016 11:37	WG877477
Benzo(a)anthracene	0.320		0.0812	10	06/09/2016 11:37	WG877477
Benzo(a)pyrene	0.130		0.0812	10	06/09/2016 11:37	WG877477
Benzo(b)fluoranthene	ND		0.0812	10	06/09/2016 11:37	WG877477
Benzo(g,h,i)perylene	ND		0.0812	10	06/09/2016 11:37	WG877477
Benzo(k)fluoranthene	ND		0.0812	10	06/09/2016 11:37	WG877477
Chrysene	0.633		0.0812	10	06/09/2016 11:37	WG877477
Dibenz(a,h)anthracene	ND		0.0812	10	06/09/2016 11:37	WG877477
Fluoranthene	0.273		0.0812	10	06/09/2016 11:37	WG877477
Fluorene	0.941		0.0812	10	06/09/2016 11:37	WG877477
Indeno(1,2,3-cd)pyrene	ND		0.0812	10	06/09/2016 11:37	WG877477
Naphthalene	4.66		0.271	10	06/09/2016 11:37	WG877477

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

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Phenanthrene	2.27		0.0812	10	06/09/2016 11:37	WG877477
Pyrene	0.931		0.0812	10	06/09/2016 11:37	WG877477
1-Methylnaphthalene	13.2		0.271	10	06/09/2016 11:37	WG877477
2-Methylnaphthalene	11.0		0.271	10	06/09/2016 11:37	WG877477
2-Chloronaphthalene	ND		0.271	10	06/09/2016 11:37	WG877477
(S) Nitrobenzene-d5	*88.8*		*22.1-146*		*06/09/2016 11:37*	WG877477
(S) 2-Fluorobiphenyl	*130*	J1	*40.6-122*		*06/09/2016 11:37*	WG877477
(S) p-Terphenyl-d14	*75.2*		*32.2-131*		*06/09/2016 11:37*	WG877477

From: Dulcy Berri
Sent: Tuesday, August 23, 2016 5:14 PM
To: Marsha Walker
Subject: FW: DP test results

Yes!

-----Original Message-----
From: Erik Hedberg [mailto:ehedberg@geodesigninc.com]
Sent: Tuesday, August 23, 2016 4:54 PM
To: Dulcy Berri
Subject: Fwd: DP test results

Dulcy, I believe this is the clarification you need and may perhaps quote this correspondence? See below.....

Erik Hedberg
GeoDesign, Inc.
503.577.5232

-------- Original message --------
From: Brian Ford <BFord@esclabsciences.com>
Date: 8/23/16 16:44 (GMT-08:00)
To: Erik Hedberg <ehedberg@geodesigninc.com>
Subject: RE: DP test results

Erik,

The majority of the hit in the samples is in the diesel and oil ranges, however there is still a significant hit in the late end of the gasoline range. The hit in the gasoline range most closely resembles early diesel fuel. Overall, the hit is these samples resembles a diesel and motor oil mixture. Let me know if you need any further information.

Thanks,
Brian Ford
ESC Lab Sciences
Direct: (615)773-9772
Mobile: (931)510-2229
bford@esclabsciences.com<mailto:bford@esclabsciences.com>

error, please contact the sender immediately and delete/destroy all information received.

From: Erik Hedberg [mailto:ehedberg@geodesigninc.com]
Sent: Tuesday, August 23, 2016 5:15 PM
To: Brian Ford
Subject: FW: DP test results

Hi Brian, I wonder if you may be able to weigh in on something. In the appended lab report, for samples DP-26 (10-11) and DP-27(10.5-11.5), we are pretty confident that the only TPH contaminant present is in the diesel/residual range. We therefore inferred that the reported detections in the gasoline range were likely overlap from the heavier range. However there is no specific qualifier on that item, and we're not sure how closely the TPH-Gx hits match the fuel standard, so wanted to check with you to get your opinion on the likelihood of a carbon range overlap like we think.

Thoughts?

Thanks,

Erik A. Hedberg, P.E.
GeoDesign, Inc.
503.577.5232 mobile

K&S Environmental, Inc.

4475 SW Scholls Ferry Rd., #256 ▲ Portland, OR 97225
(503) 291-1454 ▲ Fax 291-5425

August 12, 2016

David Stoudt
Custom Stamping & MFG Co.

Re: Decommissioning Documentation for 2000 Gallon Heating Oil UST
Property Located at 1340 SE 9th Avenue in Portland, OR

Dear Mr. Stoudt:

This report presents the documentation for the UST decommissioning work performed by K&S Environmental, Inc. at the property located at 1340 SE 9th Avenue in Portland, OR. One 2000 gallon PS300 heating oil UST was located beneath the City sidewalk on the north side of the building at the site. The tank was out of service at the time of decommissioning. Since the tank was located in the City right of way, K&S obtained the required UST decommissioning permit, sidewalk closure permit and parking permits prior to beginning work at the site. The work was completed under the supervision of PBS Environmental of Portland, OR.

On August 9, 2016, K&S arrived at the above referenced site to decommission by removal one 2000 gallon PS300 heating oil UST. The concrete sidewalk over the tank was saw cut and broken up. The tank was uncovered, and then cut open, entered and physically cleaned out. The concrete and clean overburden soil were hauled off site for recycling. A total of 190 gallons of PS300 oil and water was vacuumed out by West Coast Marine Cleaning and transported to ORRCO of Portland, OR where it was recycled. After the tank had been wiped dry and clean, the tank was excavated from the ground and loaded onto a dump truck. The tank was then transported to a local recycler for disposal.

After the tank was removed from the ground, K&S excavated 30.65 tons of petroleum contaminated soil (PCS) from the excavation. The PCS was hauled under permit to Hillsboro Landfill in Hillsboro, OR where it will be used as daily cover. Subsequent to excavation of contaminated soil, K&S assisted the PBS representative in collecting soil samples from the remedial excavation. Upon completion of the sampling, the excavation was backfilled to the surface with imported ¾ minus crushed rock. The backfill material was mechanically compacted during placement. The surface was patched with 5 inches of 3000 psi concrete and finished in accordance with City of Portland specifications. A copy of the City of Portland UST decommissioning permit and documentation for the disposal of the tank, tank contents and PCS are attached. Please do not hesitate to call if you have any questions.

Sincerely,

Bill Knutson, P.E.
Environmental Engineer

Final approval | Partial Approval | Approved w/ corrections | Not approved | Cancelled

Inspector/Date:

Underground Storage Tank

CITY OF PORTLAND, OREGON
BUREAU OF TRANSPORTATION
DEVELOPMENT AND CAPITAL PROGRAM

Revocable Permit to Use Dedicated Street Areas at 1306 SE 9th Ave

Permit Number: TR-16-110
Performance Bond:
Issue Date: 7/28/2016
Void After: 7/28/2017
Insurance: 3670957
Street Bond: 2992252

• Permittee shall be responsible for obtaining an approved traffic control plan and permit to implement the traffic plan for the work zone covered under this permit. Submit your proposed traffic control plan for review to cpac@portlandoregon.gov five days prior to proposed work date. Work that requires closure of a street or lane shall not commence unless an approved traffic control plan and permit to implement the plan have been obtained. For questions about a permit to implement a traffic control plan contact 503-823-7365.
• Permittee must provide notification of proposed work schedule and request inspection for the permitted activity; contact Right-of-Way Inspection at 503.823.7002 opt#1 a minimum of two business days prior to beginning work and before 6am the day of inspection. Inspection not available on weekends and legal or city holidays.

The permittee applies for a revocable permit, in accordance with the attached conditions, provisions of Portland City Code Title 17 and the City Charter, for use of the street area on:

SE Main St, from 9th Ave to 10th Ave

To decommission by removal one underground storage tank adjacent to taxlot number 1S1E02BD 6900.

Special Notes / Comments

SSM	If tree roots will be disturbed during work, contact the Urban Forester to schedule an inspection at (503) 823-TREE (8733). If a parking sign must be relocated, contact Kelly Sills at (503) 823-5072. For parking permits in metered zones, call (503) 823-7365. For traffic control approval, contact the Permit Center at (503) 823-7365.

Permittee	Contractor	Primary Contact
K&S Environmental, Inc. 4475 SW Scholls Ferry Rd., #256 Portland, OR 97225 (503) 291-1454 x ksenvironmental@yahoo.com	Gregory Pacific Corp. 11650 SW 67th Avenue Suite 130 Portland, OR 97223 (503) 639-3887 x	Bill Knutson (503) 291-1454 x ksenvironmental@yahoo.com

Date:	Line Item:	Amount:	Balance:
7/25/2016	1 - FY16/17 Insurance processing fee(s) @ $23.21 ea	$23.21	$23.21
7/25/2016	1 - FY16/17 PWB Primary Review(s) @ $55 ea	$55.00	$78.21
7/25/2016	1 - FY16/17 Underground Storage Tank(s) @ $772 ea	$772.00	$850.21
7/25/2016	1 - FY16/17 Street Light Locate Fee(s) @ $110 ea	$110.00	$960.21
7/27/2016	K&S Environmental, Inc. - Receipt: 1075791.002	($960.21)	$0.00

West Coast Marine
A division of TIDEWATER

BILL OF LADING – SHORT FORM
NOT NEGOTIABLE

SHIP FROM	Bill of Lading Number:
[Name] Jobsite [Street Address] 1340 SE 9th Avenue [City, ST ZIP Code] Portland, OR. 97214 Telephone:	080916-001

SHIP TO	Carrier Name: West Coast Marine
[Name] Oil Re-Refining, Inc. [Street Address] 4150 N. Suttle Road [City, ST ZIP Code] Portland, OR. 97217 Telephone: 503-286-8352 EPA ID No.: ORD 980975692	Telephone: 360-696-3362 USDOT/MC No.: 2529404 EPA ID No.: WAD-988479440

THIRD PARTY / SITE CONSULTANT INFORMATION	Customer Comments:
[Name] K&S Environmental [Street Address] 4475 SW Scholls Ferry Rd, #256 [City, ST ZIP Code] Portland, OR. 97225 Bill Kuntson / cell: 503.407.9482	

Special Instructions:	Freight Charge Terms (Freight charges are prepaid unless marked otherwise):
Bill recycling directly to K&S Environmental	Prepaid ☐ Collect ☒ 3rd Party ☐ ☐ Master bill of lading with attached underlying bills of lading.

SHIPPING INFORMATION

Handling Unit		Package				Commodity Description		
Qty	Type	Qty	Type	Gallons	HM (X)	Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation with ordinary care. See Section 2(e) of NMFC item 360		
1	EA	1	TT	190		Non-Regulated liquids per 40 & 49 CFR, (Oily water from cleaning HOT)		
						Emergency Response Guide (ERG): N/A		

Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property as follows: "The agreed or declared value of the property is specifically stated by the shipper to be not exceeding $1.00 per Yard.

COD Amount: $ _____
Fee terms: Collect ☒ Prepaid ☐ Customer check acceptable ☐

Note: Liability limitation for loss or damage in this shipment may be applicable. See 49 USC § 14706(c)(1)(A) and (B).

Received, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications, and rules that have been established by the carrier and are available to the shipper, on request, and to all applicable state and federal regulations.

☞ _____
Receiving Facility Signature & Date

Shipper Signature/Date	Loaded:	Counted:	Carrier Signature/Pickup Date
☞ _____ This is to certify that the above named materials are properly classified, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the DOT.	☒ By shipper ☐ By driver	☒ By shipper ☒ By driver	☞ _____ 8-9-16 Carrier acknowledges receipt of packages and required placards. Carrier certifies emergency response information was made available and/or carrier has the DOT emergency response guidebook or equivalent documentation in the vehicle. Property described above is received in good order, except as noted.

24 HOUR EMERGENCY CONTACT: 877-926-2462

ORRCO Oil Re-Refining Company

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

RECEIVING RECORD

R **01-16-0809-004**

Received From:
K & S Environmental
4475 SW Scholls Ferry Rd
Portland OR 97225
EPA#
Phone: 503-291-1454
Customer ID# ***7062***
Driver: WCM/Kirk

Receiving Location: Plant #
FPI
4150 N. Suttle Road
Portland, OR 97217

Phone 503-286-8352
EPA# ORD980975692

Date	Terms	Written By	Sales Rep.	Page
08/09/16	-0-	Laureano		***1*** of ***1***

Line	Qty.	Unit	Item	%H20	Manifest #	B/L#	Net Qty
1	*1*	*Each*	*Hydro Clor-D-Tect Kit* Generator ID# 0 See Comments				
2	*1*	*Each*	*Truck Wash Out* Generator ID# 0 See Comments				
			Total Each 2.				
3	*190*	*Gal.*	*Emulsified Oil & Water* Generator ID# 0 See Comments profile attached, Custom Printing Mfg, 1340 SE 9th Ave, Portland OR.	*40 %*			
			Total Gal. 190.				

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: 08/09/16

WASTE MANAGEMENT

Hillsboro Landfill, Inc
3205 SE Minter Bridge
Hillsboro, OR, 97123
Ph: (503)-640-9427

Original
Ticket# 1414031

Customer Name KANDSENV K & S ENVIRONMENTAL
Ticket Date 08/09/2016
Payment Type Credit Account
Manual Ticket#
Hauling Ticket#
Route
State Waste Code
Manifest NA
Destination
PO 1056030R
Profile 1056030R (PCS - HEATING OIL)
Generator OR-VARIOUS GENERATORS VARIOUS GENERATORS

Carrier GREGORY PACIFIC CORP
Vehicle# 1
Container
Driver
Check#
Billing # 0000527
Gen EPA ID N/A
Grid

Volume

	Time	Scale	Operator	Inbound		
In	08/09/2016 13:30:32	Inbound 2	Crobinso		Gross	47800 lb
Out	08/09/2016 13:47:26	Outbound	jprime		Tare	24040 lb
					Net	23760 lb
					Tons	11.88

Comments

Consumer Comments? We want to know. Please call.

WASTE MANAGEMENT

Hillsboro Landfill, Inc
3205 SE Minter Bridge
Hillsboro, OR, 97123
Ph: (503)-640-9427

Original
Ticket# 1413995

Customer Name KANDSENV K & S ENVIRONMENTAL
Ticket Date 08/09/2016
Payment Type Credit Account
Manual Ticket#
Hauling Ticket#
Route
State Waste Code
Manifest NA
Destination
PO 1056030R
Profile 1056030R (PCS - HEATING OIL)
Generator OR-VARIOUS GENERATORS VARIOUS GENERATORS

Carrier makana
Vehicle# 7
Container
Driver MICHAEL
Check#
Billing # 0000527
Gen EPA ID N/A
Grid

Volume

	Time	Scale	Operator	Inbound		
In	08/09/2016 11:41:25	Inbound 1	KSTEFFLE		Gross	63680 lb
Out	08/09/2016 12:02:32	Outbound	mramos14		Tare	26140 lb
					Net	37540 lb
					Tons	18.77

Comments

Consumer Comments? We want to know. Please call.

Phone: 503 287-8861
Fax: 503 287-5569

Purchase Ticket
Columbia Yard

5611 NE Columbia Blvd.
Portland, OR 97218

METRO METALS NORTHWEST, INC.

219521
K AND S ENVIRONMENTAL
4475 SW SCHOLLS FERRY RD
PORTLAND, OR 97225

August 10, 2016

Ticket# 650923
Weight 2,221
Total $92.00

Driver:
Truck#:
Other:

Description:
Container In:
Container Out:

Notes:

Retail Ticket - Number: 650923

Commodity	Gross	Tare	Tare2	Deduct	Net	UM	Price	Total
#2 Steel Unprepared - TANK	35,900	33,680			2,220	N	85.0000	94.35
Environmental Surcharge	1				1	EA	-1.7500	-1.75
	35,901	33,680			2,221			92.00

Oregon Water Resources Department
Well Log Query Report

Main Help
Return Contact Us

Well Log Query Results *GPS points, where available are at the far right of the table. Click link to view on map*

Township: 1.00 S, Range: 1.00 E, Sections: 2, Type of Log: W

Well Log	T-R-S/ QQ-Q	Tax lot	Street of Well	Owner	Company	Special Standards	Well Type	First Water	Completed Depth	Static Water Level	Yield	Completed Date	Received Date	Bonded Constructor	Startcard	Well Id #	New	Abandon	Deepen	Alteration	Conversion	Domestic	Irrigation	Community	Livestock	Industrial	Injection	Thermal	Dewatering	Piezometer	Latitude/ Longitude
MULT 2711	1.00S-1.00E-2 NW-NE			"OTHER" static TO	PACIFIC NORTHWEST BELL 421 SW OAK ST PORTLAND OR 97204		W		212.00	70.0	170.0	01/15/1965	02/03/1965	STRASSER, ROBERT L R J STRASSER DRILLING CO.			√														
MULT 2712	1.00S-1.00E-2 -		SE 6TH AVE & SE TAYLER ST	grounding	NW NATURAL GAS CO RECT 88 220 NW SECOND AVE PORTLAND OR 97209		W		0.00			10/15/1965	11/12/1965	HANSEN, JIM J HANSEN DRILLING CO. INC.			√														
MULT 2713	1.00S-1.00E-2 SW-NW			I	WESTERN DAIRY PRODUCTS CO. PORTLAND OR 97208		W		504.00	37.0				UNKNOWN			√									√					
MULT 2714	1.00S-1.00E-2 SW-NW			I	ARDEN FARMS CO OR		W	170.00	385.00		1200.0	12/31/1944	12/31/1944	R J STRASSER DRILLING CO.			√									√					
MULT 2715	1.00S-1.00E-2 -NW		WASHINGTON ST	I	LEWIS BROTHERS 1005 SE WASHINGTON ST OR		W	85.00	105.00	38.0	60.0	11/21/1956	12/28/1956	JANNSEN, EDWARD M A M JANNSEN DRILLING CO.			√									√					
MULT 2727	1.00S-1.00E-2 SW-NW			I	ARDEN FARMS CO. 617 SE MAIN ST PORTLAND OR 97214		W		307.00	62.0	1200.0	12/31/1944	12/31/1944	STRASSER, R J			√									√					
MULT 4	1.00S-1.00E-2 NW-SW		120 SE CLAY	COE, HAROLD 120 SE CLAY PORTLAND OR 97214	I		W	31.00	60.00	28.0	37.0	03/13/1990	04/10/1990	BECK, RICHARD J	16756		√									√					
MULT 95922	1.00S-1.00E-2 SW-SW	5700	2339 SE GRAND AVE, PORTLAND, OR	I aband.	OREGON STATE DEPARTMENT OF TRANSPORTATION 3700 SE 92ND AVE PORTLAND OR 97266		W					05/22/2008	09/04/2008	STADELI, ROBERT BOART LONGYEAR	1004814			√									√					
MULT 115047	1.00S-1.00E-2 -		6TH ST AND ALDER ST NE	DeWater	CITY OF PORTLAND 1120 SW 5TH AVE ROOM 750 PORTLAND OR 97204	√	W	18.00	41.00	18.0	15.0	11/14/2013	11/26/2013	SPENGLER, RONALD RON ROBINSON WELL DRILLING	208910		√											√			
MULT 115048	1.00S-1.00E-2 NW-NW		6TH ST AND ALDER ST NE	DeWater	CITY OF PORTLAND 1120 SW 5TH AVE ROOM 750 PORTLAND OR 97204	√	W	18.00	31.00	18.0	15.0	11/14/2013	11/26/2013	SPENGLER, RONALD RON ROBINSON WELL DRILLING	1021511		√												√		123.8597, -45.5179
MULT 115049	1.00S-1.00E-2 NW-NW		6TH ST AND ALDER ST NE	Dewater	CITY OF PORTLAND 1120 SW 5TH AVE ROOM 750 PORTLAND OR 97204	√	W	18.00	36.00	18.0	15.0	11/14/2013	11/26/2013	SPENGLER, RONALD RON ROBINSON WELL DRILLING	1021513		√												√		123.8597, -45.5179
MULT 115311	1.00S-1.00E-2 -		6TH AND ALDER ST NE	Dewater aband	CITY OF PORTLAND 1120 SW 5TH AVE ROOM 750 PORTLAND OR 97204	√	W		0.00	18.0		02/12/2014	02/21/2014	SPENGLER, RONALD RON ROBINSON WELL DRILLING	1022214			√											√			
MULT 115312	1.00S-1.00E-2 -		6TH AND ALDER ST NE	Dewater aband	CITY OF PORTLAND 1120 SW 5TH AVE ROOM 750 PORTLAND OR 97204	√	W		0.00	18.0		02/12/2014	02/21/2014	SPENGLER, RONALD RON ROBINSON WELL DRILLING	1022211			√											√			
MULT 115313	1.00S-1.00E-2 -		6TH AND ALDER ST NE	Dewater aband	CITY OF PORTLAND 1120 SW 5TH AVE ROOM 750 PORTLAND OR 97204	√	W		0.00	18.0		02/12/2014	02/21/2014	SPENGLER, RONALD RON ROBINSON WELL DRILLING	1022212			√											√			
MULT 115314	1.00S-1.00E-2 -		6TH AND ALDER ST NE	Dewater aband	CITY OF PORTLAND 1120 SW 5TH AVE ROOM 750 PORTLAND OR 97204	√	W		0.00	18.0		02/12/2014	02/21/2014	SPENGLER, RONALD RON ROBINSON WELL DRILLING	1022213			√											√			

Download Data

DEQ
State of Oregon Department of Environmental Quality

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
Underground Storage Tank Program

HEATING OIL TANK SERVICES
SERVICE PROVIDER REPORT CERTIFICATION

HEATING OIL TANK DECOMMISSIONING REPORT FORM

Completion of this form meets the requirements of OAR 340-177-0025. **Be sure to sign and date page two after answering all questions.**

DEQ Use Only: File No. _____

Property Owner Name: Stoudt Family Properties

Property Address: 1340 SE 9th Avenue

City/State/Zip Code: Portland, Oregon County: Multnomah

Owner Phone Number: 503-279-1700

Owner Mailing Address (if different): _____

Licensed Heating Oil Tank Service Provider: PBS Engineering and Environmental

License Number: 16782 Expiration Date: 3/28/17

Yes [✔] No [ ] A narrative report is attached. (check √ yes or no)

1. What national code of practice was followed during decommissioning?
   API 1604

2. The tank and associated piping must be cleaned as thoroughly as possible to the maximum extent practicable of all product, sludge and/or water. Describe how the tank was cleaned: Contents (water and PS300 heating oil) were removed by a vacuum pump; the interior of the tank was scraped and then wiped clean

   How much product was removed? 190 gallons Sludge? mixed gallons Water? mixed gallons

   Where was the product/sludge/water **recycled?** ORRCO **disposed?** _____

3. 8/9/16 Date tank was **removed** [✔] or decommissioned **in-place** [ ]. **(check √ removed or in-place)**

   Approx. size of tank: 3,000 gallons

   If tank filled in-place, what type of fill material was used? _____ amount? _____ gal.
   Tank must be completely filled with inert solid material that is compacted and appropriate for site conditions.

   If tank was removed, where was it **recycled** [✔] **disposed** [ ] of? **(check √ recycled or disposed)**

   Name and location of business MetroMetals

4. What was observed when the tank was removed from the pit or decommissioned in-place? Describe tank condition and excavation, etc.: Tank exhibited some holes in the base, approximately 1-in diameter; excavation showed soil staining below the base of the tank

(check √ yes or no)

5. Yes [✔] No [ ] Groundwater was encountered in the tank pit. If yes, ATTACH a separate summary of the data collected . *DEQ must be notified immediately if groundwater encountered.*

6. A site assessment must be performed that meets the requirements of OAR 340-177-0025(2)(c) and (d).

Provide a summary of the concentrations measured for soil samples collected from each sample location. NWTPH-HCID test may be used, however any positive results must be confirmed by NWTPH-Dx.
Note: If concentrations of TPH-Dx are greater than 50 mg/kg, this is a confirmed release and must be reported to DEQ; this project is then considered a cleanup and use of this form is not appropriate.

Sample ID	Sample Location	Sample Depth	NWTPH-HCID (detect/non-detect)	NWTPH-Dx Conc. (mg/kg)
SEE	ATTACHED	RISK	BASED	REPORT

7. The following information should be ATTACHED as part of this report (list the attachment number assigned for each one):

Attachment Number

A — Site map, drawn roughly to scale, showing the location of all buildings on the property and on adjacent properties and the location of the heating oil tank. Include distances in feet between objects.

A — Sketch of the property that clearly shows the sample locations and depths of all soil and/or water samples collected and identifies each location and sample with an unique sample identification code.

D — Copies of chain-of-custody forms for all soil and water samples collected.
Note: Chain-of-custody forms should include the date, time, and location of each sample collected; the name and company of the person collecting the samples; a description of how the samples were collected, stored, and shipped to the laboratory; and note any problems encountered during the cleanup or sampling process that may have affected sample integrity. Forms should clearly state the address of where samples were collected as a unique identifier.

D — Copies of all laboratory data reports. Test methods used, including method reporting limits, must be included.

E — Copies of all receipts or permits related to the disposal of any **product** / **sludge** / **water**, and/or decommissioned **tank** and/or **piping** (circle all in **bold** that apply).

C — Photographs taken at the time of heating oil tank decommissioning and cleanup (not required, but helpful).

"By my signature below, I state that the information contained in this report is true and complete to the best of my knowledge."

Name of person preparing report (please print): Marsha Walker

Signature: Marsha Walker Date: 8/29/2016

Supervisor License No.: 24752 Expiration Date: 4/20/17

NOTE: If decommissioning work and report documentation was conducted by the homeowner, on a separate sheet of paper, please describe how you learned how to perform this work.

State of Oregon Department of Environmental Quality

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
Underground Storage Tank Program

HEATING OIL TANK SERVICES
SERVICE PROVIDER REPORT CERTIFICATION

DECOMMISSIONING CHECKLIST

COMPLETE this checklist for any voluntary decommissioning project certified. Important: This checklist is for decommissioning projects where no contamination has been detected. If contamination is present, use the Cleanup Checklist.

GENERAL INFORMATION

Tank Owner Name: Stoudt Family Properties

Tank Site Address: 1340 SE 9th Avenue

Portland, Oregon

Tank Owner Phone Number: 503-279-1700

Please Print or Type

Licensed Service Provider Company Name: PBS Engineering and Environmental

16782 (License Number) 3/28/17 (Expiration Date)

✓ **Check each item that is complete and correct (i.e. true).** By checking any of the boxes in this checklist, you are indicating that the statement applies to this project. If there are any exceptions to the statement, please note them in the comment area provided. If the statement does not apply, please do not check the box. *Important: This checklist must be signed on page 2 by the supervisor with responsibility for this project.*

Check one of the following three statements - A, B, or C.

☑ A. The decommissioning was performed after March 15, 2000.

☐ B. The decommissioning was performed prior to March 15, 2000 by a licensed service provider (Soil Matrix Cleanup or UST Decommissioning) and two soil samples were collected in general conformity with OAR 340-177-0025.

Service Provider Name:_____ License No.:_____

☐ C. The decommissioning was performed prior to March 15, 2000 by an unlicensed contractor or no soil samples were originally collected at time of decommissioning. If this box is checked as yes, then this checklist is used to document current site assessment actions taken to comply with the requirements of OAR 340-177-0025.

Check all of the statements below that are true.

☐ 1. No contamination was detected during the site assessment of 50 mg/kg or greater NWTPH-Dx or was non-detect for NWTPH-HCID.

☑ 2. The tank was decommissioned using a national code of practice.

☑ 3. The tank was cleaned to the maximum extent practicable. Disposal receipts for the tank contents are included in the report.

4. Check one of the following:
- ○ 4.A. The tank was decommissioned in-place, and was filled with a solid inert substance that completely filled the tank void space.
- ◉ 4.B. The tank was decommissioned by removal.

☑ 5. A site assessment was conducted that meets the requirements of OAR 340-177-0025.

☑ 6. Water was present in the tank pit and the requirements of OAR 340-177-0025(2)(3) have been met.

☑ 7. A site sketch, drawn approximately to scale, has been made of this site (OAR 340-177-0025(e) and (f)) which clearly shows:
- ☑ The location of all buildings and other key features, both man-made and natural;
- ☑ The names of adjacent streets and properties;
- ☑ The location of all excavations including those that were for the removal of tanks and associated piping;
- ☑ The location of all underground storage tanks, including those that were decommissioned as well as those that remain on the site; and
- ☑ All soil and water sample locations including sample depths.

☑ 8. All soil and/or water samples have been collected, coded, stored, shipped, and analyzed as required, and chain-of-custody forms have been filled out (OAR 340-122-0218, 340-122-0340, 340-122-0345 and 340-177-0025).

☑ 9. A report has been prepared which includes a detailed description of everything that was observed and performed at the site, and that meets the requirements of OAR 340-177-0025(3).

Additional Comments

"By my signature below, I state that the information contained in this report is true and complete to the best of my knowledge."

Name of person preparing report: Marsha Walker
(please print)

Signature: Marsha Walker Date: 8/29/2016

Supervisor License No.: 24752 Expiration Date: 4/20/17

State of Oregon Department of Environmental Quality

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
Underground Storage Tank Program

HEATING OIL TANK SERVICES
SERVICE PROVIDER REPORT CERTIFICATION

CLEANUP CHECKLIST

This checklist is divided into five sections. **Section A must be completed for all cleanup projects.** Complete Sections B, C, D, or E as appropriate for the type of cleanup option selected. The checklist must be filled out as completely as possible and any exceptions noted for the certification to be valid.

GENERAL INFORMATION

Tank Owner Name: Stoudt Family Properties

Tank Site Address: 1340 SSE 9th Avenue
Portland, Oregon

DEQ Cleanup File Number: 26-16-0783

Date Release Reported: 06/21/16

Licensed HOT Service Provider Company Name: PBS Engineering and Environmental

16782 (License Number) 03/28/17 (Expiration Date)

✓ **Check each item as complete and correct.** By checking any of the boxes in this checklist, you are indicating that the statement applies to this project. If there are any exceptions to the statement, please note them in the comment area provided at the end of the checklist. If the statement does not apply, please do not check the box.

NOTE: TPH = Total Petroleum Hydrocarbons as diesel by method NWTPH-Dx

Note: The submittal of this checklist does not replace a final cleanup report

This checklist MUST be signed and dated on page 4

SECTION A - ALL CLEANUP PROJECTS

☑ A1. The release of petroleum was reported to DEQ (OAR 340-163-0020(4)).

☑ A2. No free product is present or was removed during initial abatement actions.

☑ A3. Water is present at the site and DEQ was notified. Please note the name of the DEQ Staff person notified and the date of notification Ash Desmond, 8/9/2016

☑ A4. A site sketch, drawn approximately to scale, is included in the report (OAR 340-122-0345) which clearly shows:

☑ The location of all buildings and other key features, both man-made and natural;
☑ The names of adjacent streets and properties;
☑ The location of all excavations including those that were for the removal of tanks and associated piping as well as those that were strictly for the removal of contaminated soils;
☑ The location of all identified underground storage tanks, including those that were decommissioned as well as those that remain on the site in the vicinity of the cleanup;
☑ All soil and water sample locations including sample depths and analytical results; and
☐ Location of remaining contaminated soil (for risk-based decision making and generic remedy only).

Shown on project photographs

☑ A5. All soil and/or water samples have been properly collected, coded, stored, shipped, and analyzed as required, and chain-of-custody forms have been filled out (OAR 340-122-0218, 340-122-0340 and 340-122-0345).

CHECK EITHER A6a or A6b, NOT BOTH

☐ A6a. Petroleum-contaminated soil has been removed from the property and properly handled, disposed of, or treated.

Amount of soil taken off-site for treatment/disposal: 30.65 tons

Disposal/treatment location: Hillsboro Landfill (Waste Management)

☐ A6b. No petroleum-contaminated soil removal occurred

☑ A7. A report has been prepared which includes a detailed description of everything that was observed and performed at the site and contains all of the information required by (check one):

☐ OAR 340-122-0360 and OAR 340-177-0055
☐ DEQ's "Heating Oil Tank Generic Remedy Guidance Document" (January 24, 2000)
☑ DEQ's "Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites" (September, 2003)

For Soil Matrix cleanup project, complete Section B.

◆

For Generic Remedy cleanup project, complete Section C.

◆

For Risk-Based cleanup project (simple, soil-only), complete Section D.

◆

Complete Section E for:
All sites where groundwater is encountered and soil matrix standards for closure are not met.
All sites where heating oil tank constituent concentrations exceed the risk based concentrations in Appendix A of the DEQ's "Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites" (September, 2003).

SECTION B - SOIL MATRIX CLEANUP

☐ B8. No contaminated soil exceeding the soil matrix level established for this site remains onsite. If a pocket of contamination exceeding the matrix level remains, use the appropriate checklist in Section C, D, or E instead.

CHECK EITHER B9a or B9b, NOT BOTH

☐ B9a. TPH concentrations were all below 100 mg/kg.

☐ B9b. TPH concentrations greater than 100 mg/kg remain in the soil and a Matrix Score Sheet has been completed. Supporting documentation for the matrix evaluation is included in the report. This project is a (check one):

☐ Level 2 site (500 ppm TPH)
☐ Level 3 site (1,000 ppm TPH)

☐ B10. Groundwater was encountered, but no benzene, toluene, ethylbenzene, and total xylenes (BTEX) or polynuclear aromatic hydrocarbons (PAHs) were detected in water above risk-based concentrations. No BTEX was detected in soil samples collected from the soil/water interface pursuant to OAR-340-122-340.

SECTION C - GENERIC REMEDY

☐ C8. Contamination is limited to soil only, and the remaining contaminated soil is a minimum of _____ feet above the seasonal high groundwater level.

☐ C9. The magnitude and extent of contamination has been clearly delineated both horizontally and vertically to at least 500 mg/kg TPH.

☐ C10. The volume of contaminated soil remaining in the subsurface above 500 mg/kg TPH is less than 65 cubic yards. Volume calculations are included in the cleanup report.

☐ C11. Any contaminated soil left in place is deeper than 3 feet below ground surface.

☐ C12. The maximum heating oil TPH concentration remaining in the soil is less than 10,000 mg/kg. The maximum TPH concentration detected remaining in the soil is _____ (mg/kg).

☐ C13. Contaminated soil left in place is greater than 2,500 mg/kg TPH. A representative soil sample was collected from the most contaminated soil remaining at the site and analyzed for benzene, ethylbenzene and napthhalene. No benzene detected in the soil in excess of 0.1 ppm, no ethylbenzene detected in soil in excess of 0.82 ppm and no naphthalene in soil in excess of 6.5 ppm.

SECTION D - SOIL ONLY RISK-BASED EVALUATIONS

☐ D8. Contamination is limited to soil only. The magnitude and extent of heating oil contamination (as TPH), has been clearly delineated vertically and horizontally (OAR 340-122-0240). *Note: It is often a site-by-site decision on the adequacy of this determination. Contact the Department if there are questions on this issue.*

☐ D9. A sample representative of the most contaminated soil remaining at the site was obtained and analyzed. No BTEX or PAHs were detected in the soil in excess of any risk-based concentration in DEQ's "Risk-Based Decision Making for the Remediation of Petroleum Contaminated Sites" (September 2003) guidance document.

SECTION E - GROUNDWATER AND COMPLEX RISK-BASED EVALUATIONS

Note: These certifications are complex and may require Department involvement. Please contact the Department for assistance as appropriate.

☑ E8. The magnitude and extent of heating oil contamination as TPH in soil, and BTEX & PAHs in groundwater, have been clearly delineated vertically and horizontally (OAR 340-122-0240). *Note: It is often a site-by-site decision on the adequacy of this determination. Contact the Department if there are questions on this issue.*

☐ E9. A mass balance calculation for vapor intrusion into the structure of benzene was performed using the air screening model posted on the Department's web page @ www.deq.state.or.us/lq/tanks/hot/screeningmodel.htm.

☑ E10. A detailed risk based evaluation has been conducted and the site has been found to be in compliance with OAR 340-122-0205 through 340-122-260. A detailed report documenting the finding has been prepared.

General Comments: _____

SIGNATURE

Licensed HOT Supervisor Name: Marsha Walker
(please print)

24752 — License Number

04/20/17 — Expiration Date

Check the correct box for each section completed in this checklist:

☐ Section A *AND* ○ Section B *OR* ○ Section C *OR* ○ Section D *OR* ◉ Section E

"By my signature below, I state that the information contained in this checklist is true and complete to the best of my knowledge."

Supervisor Signature: Marsha Walker Date: 8/29/2016

Note: If more than one supervisor was involved with the project, please add a second sheet with the license information and a signature block.

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
Underground Storage Tank Program

HEATING OIL TANK SERVICES
SERVICE PROVIDER REPORT CERTIFICATION

FINAL HEATING OIL CLEANUP REPORT FORM

State of Oregon Department of Environmental Quality

Complete this FINAL report and submit it to the DEQ Northwest Regional Office (700 NE Multnomah St., Suite 600, Portland, OR 97232) **as soon as possible**, but within sixty (60) days from the date the release from a heating oil tank is cleaned up. If this report cannot be submitted within the required time frame, contact DEQ (503-229-6170) to request an extension. OAR 340-177-0055(6)

Property Owner Name: Stoudt Family Properties DEQ Cleanup File No.: 26-16-0783

Property Address: 1340 SE 9th Avenue

City/State/Zip Code: Portland, Oregon 97214 County: Multnomah

Owner Phone Number: 503-279-1700

Owner Mailing Address (if different): _____

Licensed Cleanup Service Provider Company: PBS Engineering and Environmental

License Number: 16782 Expiration Date: 03/28/17

08/09/16 Date tank [✔] **removed** or decommissioned [ ] **in-place**. Approx. size of tank: 3000 gallons

(check √ all that apply and provide requested information)

[ ] If tank filled in-place:
What type of fill material was used? _____ How much? _____ gallons
Tank must be completely filled with inert solid material that is compacted and appropriate for site conditions.

[ ] If tank was removed, where was it recycled or disposed of? MetroMetals

[ ] What national code of practice was followed during decommissioning?
API 1604

[ ] Describe how the tank was cleaned as thoroughly as possible to the maximum extent practicable:
Tank emptied with use of vacuum truck; interior scraped and then wiped clean

[ ] How much product (oil) was removed? 190 gal. Sludge? mixed gal. Water? mixed gal.

[ ] Where was the product/sludge/water recycled? ORRCO Disposed? _____

08/09/16 Date cleanup **started**. 08/09/16 Date cleanup **completed**.

(Check √ Yes or No)

[✔] Yes [ ] No An INITIAL heating oil cleanup report form has already been submitted. ***If cleanup had not been started at the time of the initial report, include a new initial report form that has the missing information completed.***

[✔] Yes [ ] No A narrative report is attached.

Complete the rest of this form. Be sure to sign and date page two after answering all questions.

1. How was the release discovered? Describe: Soil borings/site assessment

2. What initial measures were taken to control the spread of contamination? Describe:
None at the time of discovery; soil removal at the time of decommissioning

3. What was observed when the tank was removed from the pit or decommissioned in-place? Describe:
The tank exhibited small holes in the base; stained soils were observed beneath the tank

HOT Final Cleanup Report Form

4. How much contaminated soil was removed? _____ cubic yards 30.65 tons

5. What was done with the contaminated soil? (check √ all that apply)

[■] Disposed of at: Hillsboro Landfill (name of disposal company)

[ ] Treated off-site at: _____ (name of treatment company)

[ ] Treated on-site. ATTACH copy of Solid Waste Letter Authorization permit approved by DEQ.
[ ] Yes [ ] No On-site treatment of contaminated soil is complete.

6. What actions were taken during cleanup? Describe: _____

Petroleum contaminated soil was removed

(check √ one)

7. [✓] Yes [ ] No Groundwater was encountered in the tank pit. If yes, ATTACH a separate summary of the data collected and decision made by DEQ in accordance with OAR 340-122-0355(3).

8. What is the highest TPH-Dx concentration measured? 89,400 mg/kg Sample ID No. N. Wall 8'

9. Provide a summary of the concentrations measured in the FINAL round of samples from each sample location.
Note: Write in the specific unit of measurement for each contaminant. Write in "N/A" if sample was not analyzed for a contaminant. Use additional pages as necessary to summarize final results.

Sample ID	Sample Location	NWTPH-Dx Conc. (mg/kg)	B T E or X Detected?	Any PAH's Detected?	Media Soil/Water
SEE	ATTACHED	NARRATIVE	○Yes ○No ○N/A	○Yes ○No ◉N/A	REPORT
			○Yes ○No ○N/A	○Yes ○No ○N/A	
			○Yes ○No ○N/A	○Yes ○No ○N/A	
			○Yes ○No ○N/A	○Yes ○No ○N/A	

10. Check the type of remedial option selected for this cleanup project. Include any additional information necessary to satisfy the specific remedial option report requirements. **(check √ only one)**

[ ] Soil Matrix OAR 340-177-0065(1)(a) Note: *include matrix score sheet*
[✓] Risk-Based OAR 340-177-0065(1)(b)
[ ] Generic Remedy OAR 340-177-0065(1)(c)

11. The following information should be ATTACHED as part of this report (list the attachment number you assign for each one):

Attachment Number

A — Site map, drawn roughly to scale, showing the location of all buildings on the property and on adjacent properties and the location of the heating oil tank. Include distances in feet between objects.

A — Sketch of the property that clearly shows the sample locations and depths of all soil and/or water samples collected and identifies each location and sample with an unique sample identification code.

D — Copies of chain-of-custody forms for all soil and water samples collected.
Note: Chain-of-custody forms should include the date, time, and location of each sample collected; the name and company of the person collecting the samples; a description of how the samples were collected, stored, and shipped to the laboratory; and note any problems encountered during the cleanup or sampling process that may have affected sample integrity. Forms should clearly state the address of where samples were collected as a unique identifier.

D — Copies of all laboratory data reports. Test methods used, including method reporting limits, must be included.

E — Copies of all receipts or permits related to the disposal of any [✓] **oil / sludge**, [ ] **free product**, [ ] **contaminated soil**, and/or decommissioned [✓] **tank** and [✓] **piping** (check √ all that apply).

C — Photographs taken at the time of heating oil tank decommissioning and cleanup (not required, but helpful).

"By my signature below, I state that the information contained in this report is true and complete to the best of my knowledge."

Name of person preparing report (please print): Marsha Walker

Signature: Marsha Walker Date: 8/29/2016

Supervisor License No.: 24752 Expiration Date: 4/20/2017

ACRONYMS AND ABBREVIATIONS

ACRONYMS AND ABBREVIATIONS

AOC	area of concern
BGS	below ground surface
CFR	Code of Federal Regulations
CFSL	Clean Fill Screening Level
CMMP	Contaminated Media Management Plan
DEQ	Oregon Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
ESCP	Erosion and Sediment Control Plan
HCP	Hazard Communication Plan
HSP	Health and Safety Plan
I.D.	identification
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MS	moderate sheen
MSL	mean sea level
MTBE	methyl tertiary butyl ether
NA	not applicable
NE	not established
NPDES	National Pollutant Discharge Elimination System
NS	no sheen
OAR	Oregon Administrative Rule
OSHA	Occupational Safety and Health Administration
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PEL	permissible exposure limit
PID	photoionization detector
PPE	personal protective equipment
ppm	parts per million
QC	quality control
RAP	Remedial Action Plan
RBC	risk-based concentration
RCRA	Resource Conservation and Recovery Act
RDL	reported detection limit
ROW	right-of-way
SS	slight sheen
SSO	site safety officer
STEL	short-term exposure limit
TPH	total petroleum hydrocarbon
TLV	threshold limit value
TWA	time-weighted average
UST	underground storage tank
µg/L	micrograms per liter

VCP	Voluntary Cleanup Program
VOC	volatile organic compound