

***RI/FS and Cleanup Action Plan
Tarr, LLC Vancouver Cardlock Site
Vancouver, Washington***

**Prepared for:
Tarr, LLC**

**June 6, 2011
1821-00**



Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

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1.0 Introduction

This report describes the investigation activities, feasibility study, and a proposed cleanup action plan for the Tarr, LLC Vancouver Cardlock site (the Site; Figures 1 and 2). The Site is located at 7208 NE St. Johns Road, in Vancouver, Washington. This report was prepared following the requirements for Remedial Investigation and Feasibility Study reporting under WAC 173-340-350 and for Cleanup Action Plans under WAC 173-340-380. Ash Creek Associates, Inc.'s (Ash Creek's) services were completed in accordance with the Project Authorization for Phase II Environmental Site Assessment (ESA) services dated March 28, 2011, and authorized by Tarr, LLC on April 26, 2011. Site investigation and remediation at the Site are being conducted under the oversight of the Washington State Department of Ecology (Ecology) Voluntary Cleanup Program.

In addition to the supporting tables and figures, this report includes two appendices:

- Appendix A – Exploration Logs and Standard Operating Procedures;
- Appendix B – Laboratory Data Reports.

2.0 Background

This section includes a description of the Facility, as well prior environmental activities at the Site.

2.1 Facility Location and Description

The Site is comprised of two parcels of land (Figure 2). The northwest parcel (APN 149261000) is approximately 0.1 acre and includes a dwelling (currently used as an office). The main parcel (APN 149264000) is approximately 1.54 acres, and includes a shop building, an office/warehouse building, one 10,000-gallon diesel underground storage tank (UST), one 5,000-gallon gasoline UST, one 3,000-gallon gasoline UST, one 6,000-gallon off-road diesel aboveground storage tank (AST), two 250-gallon used/new oil ASTs, and a fueling canopy. The canopy is at the south side of the Site, near St. Johns Road.

Two of the USTs (the 10,000-gallon diesel and 5,000-gallon gasoline) are adjacent to the west and east sides of the canopy. The USTs dispense fuel through dispensers under the canopy and from a satellite dispenser, south of the canopy. The third UST (3,000-gallon gasoline) is west of the office/warehouse building. A dispenser at the southwest corner of the office/warehouse building dispenses gasoline from the 3,000-gallon UST.

The office at tax lot 149261000 and the shop building are reportedly used by JW Dart & Sons Trucking. The other structures, as well as the on-site tanks and dispensers, are used by Tarr, LLC for the cardlock

commercial fueling business. Tarr, LLC, or an affiliated business entity, have dispensed fuel at the site since 1988, and are the only parties that have dispensed fuel at the site.

The site carries a light-industrial zoning designation (ML). This designation is intended to provide for those less-intensive industrial uses which produce little noise, odor, and pollution. It also provides for resource-based uses and service uses that are deemed compatible with light industrial uses. Residential land uses are interspersed with commercial-industrial uses to the northwest of the Site, and residential land uses predominate within approximately 1,000 to 3,000 feet of the Site in all directions. Agricultural land uses (or former agricultural uses) are present at distances between 500 and 1,000 feet north of the Site. The site obtains its water from a municipal source. According to the Ecology well log viewer, water wells are present within one quarter mile of the Site.

2.2 Prior Environmental Activities

In 2010, Tarr, LLC obtained a Phase I ESA as part of the process required to obtain financing with the Site as collateral (Partner Engineering and Science [PES], 2010). Despite there being no obvious signs of contamination and no indications of an ongoing leak, the Phase I ESA concluded that the UST systems on the property represented a Recognized Environmental Condition (REC) as defined by ASTM.

In March, 2011, Tarr, LLC contracted with Ash Creek to complete a Phase II ESA to resolve the REC related to the UST systems at the Site. Ash Creek conducted a Phase II ESA that consisted of soil and groundwater direct-push explorations (SB-1 through SB-8). The results are summarized on Figure 2. In summary, petroleum hydrocarbons were observed in shallow soil near the unleaded gasoline fuel dispenser adjacent to the office, and in soil near the 3,000-gallon unleaded gasoline UST. Petroleum hydrocarbon impacts were not observed in any of the explorations completed around the tanks and dispensers of the main fuel island at the south side of the Site.

In response to the discovery of petroleum hydrocarbon contamination in soil, Tarr, LLC reported a release through the Washington Emergency Management System on March 2, 2011. Environmental Report Tracking System (ERTS) number 625287 was assigned to the release. Additionally, Tarr, LLC arranged for line and tank tightness testing for the unleaded fuel UST and dispenser. The UST system passed the tank and line testing.

The results of the Phase II ESA, including a copy of the tank and line testing report, were described in the Phase II ESA report (Ash Creek, 2011). The results of the Phase II ESA are incorporated into the site characterization results described in Section 3.0.

3.0 April-May 2011 Site Investigation Results

The April-May 2011 field activities consisted of:

- Preparatory activities;
- Completing seven direct-push explorations for soil and/or groundwater sampling (SB-9 through SB-15);
- Installing, developing, and sampling three groundwater monitoring wells (MW-1 through MW-3);
- Analyzing soil and groundwater samples; and
- Managing investigation derived waste.

3.1 Preparatory Activities

Underground Utility Locates. An underground utility locate was conducted by Locates Down Under (under subcontract to Ash Creek) prior to performing the subsurface work. A public utility notification request was also submitted through the One-Call service.

Site Health and Safety Plan. A Site-specific Health and Safety Plan (HASP) was prepared prior to the investigation activities. A health and safety meeting with the drilling subcontractor was conducted on site prior to start of the investigation activities. A copy of the HASP was maintained with Ash Creek personnel at the Site throughout the investigation activities.

3.2 Direct-Push Explorations

On April 28, 2011, the direct-push explorations (SB-9 through SB-15) were completed at the locations shown on Figure 3. Major Drilling of Tualatin, Oregon (under subcontract to Ash Creek) provided and operated the direct-push equipment. Seven direct-push explorations were completed at the following locations (as shown on Figure 2):

- Explorations SB-9 through SB-11 were completed at the satellite gasoline dispenser; and
- Explorations SB-12 through SB-15 were completed around the northern (3,000-gallon) unleaded gasoline UST.

Field Methods. Soil cores were obtained continuously from near the ground surface to the total depth of each exploration per Standard Operating Procedure (SOP) 2.4 and SOP 2.7 (Appendix A). Field exploration logs are included in Appendix A. Each soil sample was field screened for volatile organic compounds (VOCs) using a photoionization detector (PID) and for the presence of petroleum hydrocarbons using a sheen test.

After sampling activities were completed, each exploration was abandoned by filling the exploration with granular bentonite and hydrating the bentonite with water. Cement concrete was used to seal the pavement surface.

Field Observations. The areas above each of the UST and dispenser areas are paved. A uniform gravel sub-grade layer was not observed beneath the pavement. Native soils at the Site consisted of silty sand, which was generally encountered from beneath the pavement to the terminus of the explorations (20 feet below the ground surface [bgs]). In some places the pavement was underlain by up to 4 feet of silt, sand, and gravel of varying compositions. Groundwater was observed at approximately 9 feet bgs in the direct-push explorations and monitoring wells.

The sampling locations are shown on Figure 3. The observations made by the Ash Creek field scientist and the field screening results are summarized below.

- **Satellite Gasoline Dispenser.** In prior exploration SB-5, field screening (sheen tests and PID readings) indicated petroleum hydrocarbons were present over a narrow interval of between 3 and 5 feet. The narrow interval of contamination sits directly on a 1-foot-thick lens of clayey silt. In explorations SB-9 through SB-11, each completed approximately 5 feet from SB-5, petroleum field screening did not indicate that petroleum hydrocarbons were present. Soils encountered in SB-9 through SB-11 consisted of sand, with varying amounts of silt and gravel. The clay layer observed in SB-5 was not observed in SB-9 through SB-11. Explorations in this area did not extend to groundwater.
- **Northern Unleaded Gasoline UST.** In prior explorations SB-6 and SB-7, field screening (sheen tests and PID readings) in SB-6 indicated the presence of petroleum hydrocarbons from just beneath the ground surface and into the saturated zone. PID readings and sheen tests in SB-6 were highest around 13 feet bgs. In SB-7, positive field screening results were first observed at 8 feet bgs and reached their highest level at 18 feet bgs (within the saturated zone).

Field screening in MW-1 showed similar results as SB-6; positive field screening was observed near the surface and extended into the saturated zone, and the highest field screening results were observed at 12.5 feet bgs. Farther away from the tank, explorations SB-12 and SB-13 showed lower field screening results, compared to the explorations closer to the tank. Field screening in SB-14, MW-2, and MW-3 did not indicate petroleum hydrocarbons were present. SB-15 was a groundwater sample location, so field screening was not conducted. Sand with varying amounts of silt were observed in the explorations completed in the vicinity of the UST. Petroleum sheens or other indications of separate-phase product were not observed in these explorations.

3.3 Monitoring Well Installation and Development

On April 28, 2011, monitoring wells MW-1 through MW-3 were installed at the locations shown on Figure 3. Each monitoring well was constructed with 2-inch PVC, 10 slot screen, and installed over an interval of 8 to

18 feet bgs. Monitoring well construction details are provided in the well construction logs contained in Appendix A.

On May 4, 2011, monitoring wells MW-1 through MW-3 were developed following Ash Creek SOP 2.14.

On May 10, 2011, monitoring wells MW-1 through MW-3 were sampled using low flow sampling techniques following Ash Creek SOP 2.5.

On May 25, 2011, monitoring wells MW-1 through MW-3 were surveyed by Statewide Land Surveying of Gresham, Oregon.

3.4 Sample Analyses

Sample analyses were completed by Pace Analytical of Seattle, Washington. Soil samples were analyzed for some of the following:

- Total petroleum hydrocarbons as gasoline (TPHg) using Northwest TPH Gx;
- Total petroleum hydrocarbons as diesel (TPHd) using Northwest TPH Dx;
- VOCs using EPA 8260 (with EPA 5035 sample preservation);
- Lead using EPA 6010; and
- Volatile and Extractable Petroleum Hydrocarbons (VPH/EPH).

Pace Analytical subcontracted the VPH/EPH analyses to Fremont Analytical. The laboratory analytical data report was reviewed, including any qualifiers assigned by the laboratory. The data was acceptable for use for assessing the nature and extent of contamination and remedial decision making, and none of the data points were flagged.

3.5 Investigation Derived Waste Management

Soil and decontamination wash water were drummed and stored at the Site in preparation for disposal or treatment at an off-site facility. Drums were labeled with the Site name, generated contents, and date. Investigation derived waste disposal is pending.

Disposable items, such as gloves, pump tubing, paper towels, etc., were placed in plastic bags after use and deposited in trash receptacles for disposal.

4.0 Results

This section describes the results of the April-May 2011 Site Investigation. A discussion of the results for both areas of the Site where contamination was identified during the Phase II ESA are described below (dispenser area and 3,000-gallon unleaded gasoline tank). Tables 1 through 4 summarize the results of the April-May 2011 Site Investigation and also include the results from the prior Phase II ESA. Table 5 summarizes the depth-to-water measurements in MW-1 through MW-3. The Site Investigation results are summarized on Figures 4 and 5. The results for the April-May 2001 investigation are discussed below, and the analytical results for the Site are incorporated into the discussion of the nature and extent of contamination in Section 5.0.

4.1 Gasoline Dispenser

Petroleum hydrocarbons were not detected in SB-9 through SB-11. Each of these explorations was completed approximately 5 feet from SB-5. In the absence of field screening results to guide sample collection, these samples were analyzed from 8.5 feet bgs in order to assess whether contaminant migration at depth was occurring.

4.2 3,000-Gallon Unleaded Gasoline UST

Concentrations of petroleum hydrocarbons were detected in soil in the following explorations completed for the April-May site investigation: SB-12, SB-13, and MW-1. Of these samples, concentrations of benzene in SB-13(8.0), concentrations of benzene in MW-1(2.5), and concentrations of benzene, ethylbenzene, naphthalene, total xylenes, and TPH-G in MW-1(12.5) exceeded MTCA Method A cleanup levels (see discussion of applicable cleanup levels in Section 4.1). Petroleum hydrocarbons were not detected in soil samples collected from the remaining direct-push explorations or monitoring well installations during the April-May 2011 site investigation.

Concentrations of petroleum hydrocarbons were detected in groundwater above MTCA Method A cleanup levels in MW-1 (benzene, ethylbenzene, naphthalene, xylenes, and TPHg). Concentrations of petroleum hydrocarbons in groundwater were also detected in SB-13 (TPHd) and SB-15 (TPHg, TPHd, and petroleum related VOCs); however, none of the detected concentrations exceeded MTCA Method A cleanup levels. Petroleum hydrocarbons were not detected in groundwater samples collected from the remaining direct-push explorations or monitoring well installations during the April-May 2011 site investigation.

5.0 Conceptual Site Model and Remedial Action Area

Land use information and the results of the site investigation activities completed at the Site were used to develop a conceptual site model for the site, identify applicable cleanup levels, and identify remedial action areas. This information was used as the basis for the feasibility study in Section 6.0.

5.1 Conceptual Site Model

Based on water level measurements in MW-1 through MW-3 taken on May 10, 2011, the water table is first encountered at approximately 8 feet bgs and the groundwater flow direction is to the west towards Cold Canyon (Figure 6).

The Site is currently used for commercial purposes and carries a light industrial zoning designation that governs future uses of the property. The Site is supplied by municipal water. Water wells are present within one quarter mile of the Site, but well beyond the extent of contamination. There is insufficient information to make a determination that groundwater is not potable. Additionally, the ML zoning designation (light industrial) is not consistent with Ecology's definition of a heavy industrial property. Therefore, MTCA Method C cleanup levels cannot be developed for the site. MTCA Method A cleanup levels are used to define the remedial action areas. MTCA Method A cleanup levels will be applied as part of a future closure evaluation. MTCA Method B cleanup levels will be utilized for compounds where no Method A cleanup levels are available. MTCA Method A cleanup levels are considered protective of the human health exposure pathways that are potentially present at the Site, including:

- Direct contact with contaminated soils for an occupational worker; and
- Direct contact with contaminated soil and groundwater for an excavation worker.

MTCA Method A levels do not consider vapor intrusion, however default Method A cleanup levels are based on groundwater ingestion, which are considered to be low enough to be protective of the vapor intrusion pathway. In some cases, Ecology alters the Method A screening levels to more stringent levels to account for possible vapor intrusion. Since the source areas are within 100 feet of a structure, groundwater screening levels for the protection of indoor air from Ecology's Draft vapor intrusion guidance (Ecology, 2009) were also considered when defining the remedial action areas in Section 5.3.

5.1.1 Terrestrial Ecological Exclusion

WAC 173-340-7490 requires that contaminated sites be evaluated to assess whether contamination may have a potential affect on terrestrial ecological species, and if so, develop cleanup levels to address the ecological risk. WAC 173-340-3491 provides a process to demonstrate an exclusion from the ecological evaluation if certain conditions are met.

For the Tarr Vancouver site, we propose that a Terrestrial Ecological Exclusion is appropriate because the Site (defined as where contamination has been identified) is greater than 500 feet from undeveloped, contiguous open space with the potential to provide ecological habitat, and the Site is fully developed. Figure 7 shows the location of the Site, and the distance to the closest open spaces. Furthermore, the

contaminants detected on the site are largely not present on Table 749-2 (WAC 173-340-3491), and when present, concentrations are below the industrial-commercial values provided in the table.

5.2 Nature and Extent of Contamination

Two sources of contamination were identified at the Site in the vicinity of the unleaded gas dispenser and the 3,000-gallon unleaded fuel UST. Figures 4 and 5 summarize the concentrations of petroleum hydrocarbons in soil and groundwater at the Site. TPHg, TPHd, benzene, and naphthalene are used as indicator compounds on these figures. Petroleum hydrocarbons (gasoline-, diesel-, and oil-range near the dispenser; and gasoline-range hydrocarbons and associated constituents near the 3,000-gallon unleaded UST) are the chemicals of potential concern at the Site. Two localized sources are present. The first source consists of a small area of soil contamination near the dispenser, and the second source consists of a small area of soil and groundwater contamination near the 3,000-gallon unleaded UST. The contamination sources exist only on Tarr, LLC property, and there are no surface water bodies within the extent of contamination. SB-14 is directly downgradient of the unleaded UST, and petroleum hydrocarbons were not detected in groundwater at this location, which indicates the extent of contamination does not extend off site.

In the vicinity of the gasoline dispenser, a small area of contamination was identified, as shown on Figure 8. Gasoline and naphthalene are present above MTCA Method A cleanup levels in SB-5. Based on the results of SB-5 and SB-9 through SB-11, a localized contamination source approximately 50 square feet in area, over an interval from 3 to 5 feet bgs is present. Groundwater contamination was not present; the vertical extent of contamination was found to stop before the groundwater was contacted.

In the vicinity of the 3,000-gallon unleaded gasoline UST, soil and groundwater contamination is present in shallow intervals near the tank and in groundwater a short distance from the tank. Concentrations of benzene in soil are present above MTCA Method A cleanup levels in SB-6 (2.5) and SB-13 (2.5). The shallow nature of the soil impacts near SB-6, and to a lesser degree in SB-13, indicate that a surface release occurred. At deeper depths in soil (below the water table surface), concentrations of TPHg are present above MTCA Method A cleanup levels in SB-6 (13.5) and concentrations of TPHg, benzene, naphthalene, and total xylenes are present above MTCA Method A cleanup levels in MW-1 (12.5).

The groundwater flow direction is westerly, as shown on Figure 6. In MW-1, concentrations of benzene, ethylbenzene, naphthalene, xylenes, and TPHg were detected above MTCA Method A cleanup levels. Gasoline range hydrocarbons and constituents were not detected in SB-14. The only chemical of potential concern detected in SB-13, located between the UST and the warehouse building was TPHg at a concentration of 97 micrograms per liter ($\mu\text{g/L}$), which is below the MTCA Method A cleanup level. No VOCs (e.g., benzene, ethylbenzene, xylenes, or naphthalene) were detected in SB-13. Gasoline-range hydrocarbons and constituents were not detected in MW-2, MW-3, and SB-12.

5.3 Remedial Action Areas

The areas where detected concentrations of petroleum hydrocarbons and constituents exceed MTCA Method A cleanup levels and Ecology vapor intrusion screening levels (Ecology, 2009) are shown on Figure 8. These areas are defined as:

- Soil near the unleaded gasoline dispenser between 3 and 5 feet bgs; and
- Soil and groundwater in the area near the 3,000-gallon unleaded gasoline UST.

Section 6.0 describes the Feasibility Study that was completed to develop a recommendation for remedial action.

6.0 Feasibility Study

A streamlined feasibility study (FS) was prepared to address residual contamination in soil and groundwater above MTCA Method A cleanup levels. The FS describes a range of applicable treatment or disposal alternatives, provides a comparative analysis of the applicable alternatives, and provides a recommendation for a proposed cleanup action. A range of treatment, removal, and management response actions were screened for general applicability to the contaminants of potential concern and media requiring treatment (soil and groundwater). The following remediation technologies that are applicable to site conditions and the chemical properties of the contaminants of concern include:

- Soil Vapor Extraction – soil and groundwater treatment at 3,000-gallon unleaded UST;
- Excavation – soil at satellite dispenser and 3,000-gallon unleaded UST;
- Capping – soil at satellite dispenser;
- In-situ enhanced bioremediation – groundwater at 3,000-gallon unleaded UST; and
- Natural attenuation – groundwater at 3,000-gallon unleaded UST.

6.1 Definition of Remedial Technologies

Each of the remedial technologies that are applicable to the site media and contaminants that are present is described in this section.

6.1.1 Soil Vapor Extraction

This alternative would be used to address soil and groundwater contamination at the site within the identified remedial action areas. Soil vapor extraction (SVE) is an *in situ* vadose zone soil remediation technology in which a vacuum is applied to the soil to induce the controlled flow of air and remove volatile and some semi-volatile contaminants from the soil. While SVE is a soil treatment, SVE in a source area will

also remediate small zones of groundwater impacts by removing the contaminant source and inducing volatilization from groundwater to soil vapor. Soil vapor is extracted through vertical wells and can be treated if needed prior to being discharged to outdoor air (such as with activated carbon). The contaminants at the site are comprised of volatile compounds and are amenable to vapor extraction.

6.1.2 Soil Excavation

This alternative would be used to address soil contamination at the site. Soil excavation involves excavation and landfill disposal of contaminated soil. For the 3,000-gallon unleaded UST, soils would be excavated using vacuum extraction to minimize potential damage to piping, and shoring would be required to protect the building from being undermined during excavation. In order to complete the excavation, the pavement surface and gasoline dispenser would have to be removed and replaced. Engineered backfill would be required to protect the UST system.

6.1.3 Capping

This alternative would be used to address soil contamination in the vicinity of the dispenser only. Capping involves use of an existing barrier or installation of a new barrier over impacted soils. Together with a soil management plan, an engineered cap is effective at preventing direct contact with impacted soils and may be effective in reducing vapor impacts to indoor and outdoor air at the Site. Capping would involve utilizing the existing pavement surfaces to prevent human exposure. Capping will eliminate risk, but will not treat or remove contamination. Institutional controls would be required if a capping alternative is implemented.

6.1.4 In Situ Enhanced Bioremediation

This alternative would be used for groundwater within the 3,000-gallon unleaded UST remedial action area. This alternative involves injection or direct placement of a passive oxygen delivery product such as Oxygen Releasing Compound (ORC) manufactured by Regenesys to treat groundwater. The oxygen delivery product provides a slow release of oxygen to the subsurface to enhance the natural biodegradation of petroleum hydrocarbons. The contaminants at the Site are comprised of petroleum compounds that are amenable to enhanced bioremediation.

6.1.5 Monitored Natural Attenuation

This alternative would be used for groundwater within the 3,000-gallon unleaded UST remedial action area. Monitored Natural Attenuation (MNA) involves utilizing natural processes to reduce contaminant levels to acceptable concentrations. These processes include natural biodegradation, dispersion, dilution, sorption, volatilization, and chemical or biological stabilization, transformation, or destruction of hazardous substances (WAC 173-340-200). Monitoring is used to verify that these processes are actively reducing

hazardous substance concentrations. A monitoring well network is already in place at the Site, so monitoring of natural attenuation in groundwater can be achieved at relatively low cost.

6.2 Identification of Remedial Alternatives

Several of these remedial technologies are applicable to only to certain media or certain portions of the Site. Therefore, the technologies were assembled into four remedial alternatives, each addressing the affected media at the Site, as follows:

1. SVE for soil and groundwater treatment at 3,000-gallon unleaded UST;
2. Excavation of soil at dispenser and 3,000-gallon unleaded UST and *in situ* enhanced bioremediation for groundwater in the vicinity of the 3,000-gallon unleaded UST;
3. Excavation of soil at dispenser and 3,000-gallon unleaded UST, and MNA for groundwater in the vicinity of the 3,000-gallon unleaded UST;
4. Excavation of soil at 3,000-gallon unleaded UST, capping of soil at dispenser, and MNA for groundwater in the vicinity of the 3,000-gallon unleaded UST; and
5. SVE for soil and groundwater treatment at 3,000-gallon unleaded UST and capping at the dispenser area.

Tables 6 through 10 include cost estimates for each remedial alternative. The cost estimates include costs for site preparation, remedial construction, and follow-up groundwater monitoring. Table 11 summarizes the comparative analysis of the remedial alternatives. The comparative analysis is a head to head ranking of each remedial alternative, according to the following balancing factors:

- Protectiveness;
- Permanence;
- Cost;
- Long-Term Effectiveness;
- Management of Short-Term Risks;
- Implementability; and
- Public Concerns.

The comparative analysis is summarized as follows;

- **Protectiveness** – Each of the remedial alternatives was found to be protective of human health;

-
- **Permanence** - Alternatives 4 and 5, which rely on natural attenuation and/or capping for some of the affected media at the Site, were considered less permanent than Alternatives 1 through 3, which remove or treat contamination;
 - **Cost** – Estimated costs ranged from \$63,500 (excavation and natural attenuation for UST area, capping for dispenser area) to \$109,000 (excavation and enhanced bioremediation for UST area, excavation for dispenser area);
 - **Long-Term Effectiveness** - Alternatives 4 and 5, which rely on natural attenuation and/or capping for some of the affected media at the Site, were considered to be less effective in the long-term than Alternatives 1 through 3, which remove or treat contamination;
 - **Short-Term Risks** – SVE was found to have the lowest short-term risks. Excavation adjacent to the in-service UST and the building were found to carry a higher level of short-term risks, compared to SVE. Also, capping carried less risk than excavation at the dispenser.
 - **Implementability** - Alternatives 2 through 4, which involved excavation around the UST system, were considered to less implementable than the alternatives that did not involve excavation; and
 - **Public Concerns** - Alternatives 4 and 5, which both involve capping and natural attenuation, were considered to have a greater potential for public concerns because not all the contamination is treated or removed.

6.3 Proposed Remedial Action

Based on the results of this FS, the recommended cleanup action alternative for the Site is SVE combined with excavation at the dispenser.

This cleanup action was selected for the following reasons.

- The cleanup action protects human health and the environment, complies with cleanup standards, and provides for compliance monitoring.
- The cleanup action is as permanent or more permanent than the other cleanup actions evaluated. The action uses permanent approaches to the maximum extent practicable, the source area is treated, and the affected groundwater is treated to the extent that the volume of treated groundwater will shrink with time.
- The cleanup action addresses the potential for present and future migration of hazardous substances through treatment of the source area at the 3,000-gallon unleaded UST and excavation of contaminated soils at the dispenser.



7.0 Cleanup Action Plan

This section describes the proposed cleanup action plan. The cleanup action plan identifies the permits that are required for remedial action, and the task sequence to implement the corrective action. A brief design report will be prepared prior to implementation in order document construction and excavation details.

7.1 Permitting and Design Report

The anticipated permitting requirements are summarized below:

- The proposed remedial action will disturb less than 75 square feet and move less than 10 cubic yards. These amounts are under the threshold requirements for a grading permit in Clark County.
- The proposed SVE system will only treat a limited area. We do not anticipate that the discharge concentrations will require treatment according to the requirements of the Southwest Clean Air Agency (SWCAA).
- Soil that is excavated from the site will be profiled for disposal with the receiving landfill and a disposal permit will be obtained.

The design report will include the following elements:

- Obtaining required permits;
- Engineered plans for dispenser excavation and soil vapor extraction system;
- Operations and maintenance procedures; and
- Remedial performance monitoring.

7.2 Worker and Public Safety

A HASP will be prepared to document the health and safety procedures for Ash Creek's staff. Subcontractors will be required to prepare a similar HASP for their work on the project.

The work will be coordinated with Tarr's operations to prevent disruption of their operations, and integrate the remediation program into their operations.

Any loads travelling to or leaving the site will be covered to prevent materials spillage to roadways.

7.3 Proposed Remedial Action

The proposed remedial action consists of the following activities.

7.3.1 Dispenser Excavation

The sequence of remedial activities at the gasoline dispenser is described below:

- Remove fuel dispenser.
- Remove pavement surface.
- Excavate soil to the limits shown.
- Field screen excavated soil and segregate clean overburden (anticipated from 0 to 3 feet).
- Load soil and transport to landfill for disposal.
- Backfill excavation, re-pave area, re-install dispenser.

In total, 6 cubic yards of contaminated soil will be removed from this area. There are no long-term monitoring requirements associated with this portion of the cleanup action.

7.3.2 3,000-Gallon Unleaded Fuel UST

The sequence of remedial activities at the UST is described below:

- Prepare the site, including pavement stripping and electrical connections.
- Install SVE wells.
- Trenching for SVE return lines.
- Install SVE return lines and backfill trench.
- Install blower and controls.
- Repave SVE area.

A quarterly groundwater monitoring program will be initiated. Quarterly monitoring would be completed until the end of second quarter 2012 (allowing for one year of quarterly monitoring), and then reduced to annual monitoring until the remedial goals have been achieved.

7.4 Points of Compliance

The points of compliance will include soil between the ground surface and the water table interface within each remedial action area, and groundwater concentrations as measured in MW-1.

7.5 Cleanup Levels

The table below lists all compounds in soil or groundwater that have been detected above Method A or Method B cleanup levels at the Site, as well as the corresponding Method A and B Cleanup levels that will

be applied to the Cleanup Action Plan. When implementing the Cleanup Action Plan, Method A cleanup levels will serve as the primary cleanup level. When a Method A cleanup level is not established, Method B cleanup levels will be used.

Compound	Soil		Groundwater	
	Method A Cleanup Level (mg/kg)	Method B Cleanup Level (mg/kg)	Method A Cleanup Level (µg/L)	Method B Cleanup Level (µg/L)
TPHg	100	--	800	--
TPHd	2,000	--	500	--
1,2,4-Trimethylbenzene	NE	4,000	NE	400
1,3,5-Trimethylbenzene	NE	4,000	NE	400
Benzene	0.03	--	5	--
Ethylbenzene	6	--	700	--
Naphthalenes	5	--	160	--
Xylenes	9	--	1,000	--

Note:

1. -- = Method B cleanup level not established or not applicable.
2. NE = Not established.

8.0 References

- Ash Creek, 2011. *Phase II Environmental Site Assessment, Vancouver Cardlock, 7208 NE St. Johns Road, Vancouver, Washington.*
- Ecology, 2009. *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action, Washington State Department of Ecology Toxics Cleanup Program, Publication no. 09-09-047. October 2009.*
- Partner Engineering and Science, 2010. *Phase I Environmental Site Assessment, Tarr, Inc., 7208 NE St. Johns Road, Vancouver Washington. June 24, 2010.*

Table 1
Soil Analytical Results: TPH and PAHs
Vancouver Cardlock RI/FS and Cleanup Action Plan
Vancouver, Washington

Sample Number:	SB-1 (13.5)	SB-2 (13.0)	SB-3 (13.0)	SB-4 (13.5)	SB-5 (3.0)	SB-5 (8.5)	SB-6 (13.5)	SB-7 (13.0)	SB-8 (14.0)	SB-9 (8.5)	SB-10 (7.5)	SB-11 (7.5)	SB-12 (2.5)	Soil, Method A, Unrestricted Land Use, Table Value
	Sample Date:	3/1/2011	3/1/2011	3/1/2011	3/1/2011	3/1/2011	3/1/2011	3/1/2011	3/1/2011	4/28/2011	4/28/2011	4/28/2011	4/29/2011	
	Depth:	13.5 feet	13.0 feet	13.0 feet	13.5 feet	3.0 feet	8.5 feet	13.5 feet	13 feet	14 feet	8.5 feet	7.5 feet	7.5 feet	
Hydrocarbon Identification														
Gasoline Range	ND	ND	ND	ND	Detected	--	Detected	--	ND	--	--	--	--	--
Diesel Range	ND	ND	ND	ND	Detected	--	Detected	--	ND	--	--	--	--	--
Motor Oil Range	ND	ND	ND	ND	Detected	--	ND	--	ND	--	--	--	--	--
Petroleum Hydrocarbons (mg/kg)														
Gasoline	--	--	--	--	2,280	<7.5	907	<7.1	--	<8.0	<7.9	<8.0	<9.7	30/100*
Diesel	--	--	--	--	1,960	<26.2	194	<25	--	<26.5	<26.5	<26.5	<28.8	2,000
Motor Oil	--	--	--	--	1,260	<105	ND	<100	--	<106	<106	<106	137	2,000
Metals (mg/kg)														
Lead	--	--	--	--	--	--	--	--	--	--	--	--	--	
PAHs (μ g/kg)														
1-Methylnaphthalene	--	--	--	--	6,360	--	--	--	--	--	--	--	--	5,000**
2-Methylnaphthalene	--	--	--	--	13,300	--	--	--	--	--	--	--	--	5,000**
Acenaphthene	--	--	--	--	39.7	--	--	--	--	--	--	--	--	--
Acenaphthylene	--	--	--	--	16.5	--	--	--	--	--	--	--	--	--
Anthracene	--	--	--	--	12.8	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	--	--	--	--	8.1	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	--	--	--	--	29.5	--	--	--	--	--	--	--	--	100
Benzo(b)fluoranthene	--	--	--	--	26.9	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	--	--	--	--	52	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	--	--	--	--	10.4	--	--	--	--	--	--	--	--	--
Chrysene	--	--	--	--	68.2	--	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	--	--	--	--	15.1	--	--	--	--	--	--	--	--	--
Fluoranthene	--	--	--	--	15.2	--	--	--	--	--	--	--	--	--
Fluorene	--	--	--	--	46.3	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	--	--	--	--	15.6	--	--	--	--	--	--	--	--	--
Naphthalene	--	--	--	--	8,860	--	--	--	--	--	--	--	--	5,000**
Phenanthrene	--	--	--	--	96.7	--	--	--	--	--	--	--	--	--
Pyrene	--	--	--	--	32.5	--	--	--	--	--	--	--	--	--

- Notes:
1. mg/kg = Milligrams per kilogram (parts per million [ppm]).
 2. µg/kg = Micrograms per kilogram (parts per billion [ppb]).
 3. < = Not detected above the indicated method reporting limit (MRL).
 4. **Bold** indicates detected concentration of listed analyte.
 5. Shading indicates detected concentration exceeding at least one screening value.
 6. -- = Not analyzed or cleanup level not established.
 7. 30/100* = MTCA Method A cleanup values for TPH-G when benzene is present (30 mg/kg) or when no detectable benzene is present (100 mg/kg).
 8. **5,000 = MTCA Method A cleanup level for sum of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene

Table 1
Soil Analytical Results: TPH and PAHs
Vancouver Cardlock RI/FS and Cleanup Action Plan
Vancouver, Washington

	Sample Number:	SB-12 (7.5)	SB-13 (2.5)	SB-13 (8.0)	SB-14 (2.5)	SB-14 (7.5)	MW-1 (12.5)	MW-2 (7.5)	MW-3 (7.5)	Soil, Method A, Unrestricted Land Use, Table Value
	Sample Date:	4/29/2011	4/28/2011	4/28/2011	4/29/2011	4/29/2011	4/29/2011	4/28/2011	4/29/2011	
	Depth:	7.5 feet	2.5 feet	8.0 feet	2.5 feet	7.5 feet	12.5 feet	7.5 feet	7.5 feet	
Hydrocarbon Identification										
Gasoline Range	--	--	--	--	--	--	--	--	--	--
Diesel Range	--	--	--	--	--	--	--	--	--	--
Motor Oil Range	--	--	--	--	--	--	--	--	--	--
Petroleum Hydrocarbons (mg/kg)										
Gasoline	<7.8	8.7	<7.1	<7.5	<7.6	2,140	<7.2	<7.8	30/100*	
Diesel	<26.8	<24.5	<26.1	<24.2	<24.6	59.9	<25.9	<25.0	2,000	
Motor Oil	<107	<98.1	<105	<96.9	<98.4	<104	<104	<100	2,000	
Metals (mg/kg)										
Lead	--	46.8	--	11.1	--	8.5	--	--	--	
PAHs (μ g/kg)										
1-Methylnaphthalene	<9.1	--	--	--	--	1,380	--	--	--	
2-Methylnaphthalene	<9.1	--	--	--	--	3,190	--	--	--	
Acenaphthene	<9.1	--	--	--	--	23.5	--	--	--	
Acenaphthylene	<9.1	--	--	--	--	<8.9	--	--	--	
Anthracene	<9.1	--	--	--	--	<8.9	--	--	--	
Benzo(a)anthracene	<9.1	--	--	--	--	<8.9	--	--	--	
Benzo(a)pyrene	<9.1	--	--	--	--	<8.9	--	--	100	
Benzo(b)fluoranthene	<9.1	--	--	--	--	<8.9	--	--	--	
Benzo(g,h,i)perylene	<9.1	--	--	--	--	<8.9	--	--	--	
Benzo(k)fluoranthene	<9.1	--	--	--	--	<8.9	--	--	--	
Chrysene	<9.1	--	--	--	--	<8.9	--	--	--	
Dibenz(a,h)anthracene	<9.1	--	--	--	--	<8.9	--	--	--	
Fluoranthene	<9.1	--	--	--	--	<8.9	--	--	--	
Fluorene	<9.1	--	--	--	--	52.0	--	--	--	
Indeno(1,2,3-cd)pyrene	<9.1	--	--	--	--	<8.9	--	--	--	
Naphthalene	<9.1	--	--	--	--	3,350	--	--	5,000	
Phenanthrene	<9.1	--	--	--	--	84.2	--	--	--	
Pyrene	<9.1	--	--	--	--	10.1	--	--	--	

- Notes:
1. mg/kg = Milligrams per kilogram (parts per million [ppm]).
 2. µg/kg = Micrograms per kilogram (parts per billion [ppb]).
 3. < = Not detected above the indicated method reporting limit (MRL).
 4. **Bold** indicates detected concentration of listed analyte.
 5. Shading indicates detected concentration exceeding at least one screening value.
 6. -- = Not analyzed or cleanup level not established.
 7. 30/100* = MTCA Method A cleanup values for TPH-G when benzene is present (30 mg/kg) or when no detectable benzene is present (100 mg/kg).
 8. **5,000 = MTCA Method A cleanup level for sum of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene

Table 2
Soil Analytical Results: VOCs
Vancouver Cardlock RI/FS and Cleanup Action Plan
Vancouver, Washington

Sample Number: Sample Date: Depth:	SB-5 (3.0) 3.0 3/1/2010	SB-12 (7.5) 7.5 4/29/2011	SB-13 (8.0) 8.0 4/28/2011	MW-1 (2.5) 2.5 4/29/2011	MW-1 (12.5) 12.5 4/29/2011	Soil, Method A, Unrestricted Land Use, Table Value
VOCs ($\mu\text{g/kg}$)						
Acetone	< 10.5	<11.0	17.1	155	259	--
tert-Amyl methyl ether	<3.1	<3.3	<3.4	<4.2	<3.5	--
Benzene	<3.1	<3.3	62.1	162	940	30
Bromobenzene	< 3.1	<3.3	<3.4	<4.2	<3.5	--
Bromochloromethane	<3.1	<3.3	<3.4	<4.2	<3.5	--
Bromodichloromethane	<3.1	<3.3	<3.4	<4.2	<3.5	--
Bromoform	<3.1	<3.3	<3.4	<4.2	<3.5	--
Bromomethane	< 3.1	<3.3	<3.4	<4.2	<3.5	--
2-Butanone	38.7	<11.0	<11.3	<14.1	<11.6	--
n-Butylbenzene	296	<3.3	<3.4	<4.2	<3.5	--
sec-Butylbenzene	150	<3.3	4.5	8.4	1,400	--
tert-Butylbenzene	< 3.1	<3.3	<3.4	<4.2	<3.5	--
Carbon disulfide	3.1	<3.3	<3.4	<4.2	<3.5	--
Carbon tetrachloride	< 3.1	<3.3	<3.4	<4.2	<3.5	--
Chlorobenzene	< 3.1	<3.3	<3.4	<4.2	<3.5	--
Chloroethane	< 3.1	<3.3	<3.4	<4.2	<3.5	--
Chloroform	< 3.1	<3.3	<3.4	<4.2	<3.5	--
Chloromethane	< 3.1	<3.3	<3.4	<4.2	<3.5	--
2-Chlorotoluene	< 3.1	<3.3	<3.4	<4.2	<3.5	--
4-Chlorotoluene	< 3.1	<3.3	<3.4	<4.2	<3.5	--
1,2-Dibromo-3-chloropropane	< 5.2	<5.5	<5.6	<7.0	<5.8	--
Dibromochloromethane	< 3.1	<3.3	<3.4	<4.2	<3.5	--
1,2-Dibromoethane (EDB)	< 3.1	<3.3	<3.4	<4.2	<3.5	--
Dibromomethane	< 3.1	<3.3	<3.4	<4.2	<3.5	--
1,2-Dichlorobenzene	< 3.1	<3.3	<3.4	<4.2	<3.5	--
1,3-Dichlorobenzene	< 3.1	<3.3	<3.4	<4.2	<3.5	--
1,4-Dichlorobenzene	< 3.1	<3.3	<3.4	<4.2	<3.5	--
Dichlorodifluoromethane	< 3.1	<3.3	<3.4	<4.2	<3.5	--
1,1-Dichloroethane	< 3.1	<3.3	<3.4	<4.2	<3.5	--
1,2-Dichloroethane	< 3.1	<6.6	<3.4	<4.2	<3.5	--
1,2-Dichloroethene (Total)	6.3	<3.3	<6.8	<8.5	<7.0	--
1,1-Dichloroethene	< 3.1	<3.3	<3.4	<4.2	<3.5	--
cis-1,2-Dichloroethene	< 3.1	<3.3	<3.4	<4.2	<3.5	--
trans-1,2-Dichloroethene	< 3.1	<3.3	<3.4	<4.2	<3.5	--
1,2-Dichloropropane	< 3.1	<3.3	<3.4	<4.2	<3.5	--
1,3-Dichloropropane	< 3.1	<3.3	<3.4	<4.2	<3.5	--
2,2-Dichloropropane	< 3.1	<3.3	<3.4	<4.2	<3.5	--
1,1-Dichloropropene	< 3.1	<3.3	<3.4	<4.2	<3.5	--
cis-1,3-Dichloropropene	< 3.1	<3.3	<3.4	<4.2	<3.5	--
trans-1,3-Dichloropropene	< 3.1	<3.3	<3.4	<4.2	<3.5	--
Ethylbenzene	21.6	<3.9	79.5	34.3	21,300	6,000
Hexachloro-1,3-butadiene	< 3.1	<3.3	<3.4	<4.2	<3.5	--
2-Hexanone	10.5	<11.0	<11.3	<14.1	<11.6	--
Isopropylbenzene (Cumene)	57.4	<3.9	11.3	9.2	3,010	--
p-Isopropyltoluene	266	<3.3	<3.4	<4.2	805	--
Methylene chloride	< 10.5	<11.0	<11.3	<14.1	<11.6	20
4-Methyl-2-pentanone (MIBK)	< 10.5	<11.0	<11.3	<14.1	<11.6	--
Methyl-tert-butyl ether	< 3.1	<3.3	<3.4	<4.2	<3.5	--
n-Propylbenzene 141	141	<3.9	28.2	12.7	11,100	--
Styrene	< 3.1	<3.3	<3.4	<4.2	<3.5	--
1,1,1,2-Tetrachloroethane	< 3.1	<3.3	<3.4	<4.2	<3.5	--
1,1,2,2-Tetrachloroethane	< 3.1	<3.3	<3.4	<4.2	<3.5	--
Tetrachloroethene	< 3.1	<3.3	<3.4	<4.2	<3.5	50
Toluene	8.5	<3.9	14.8	27.3	712	7,000
1,2,3-Trichlorobenzene	< 3.1	<3.3	<3.4	<4.2	<3.5	--
1,2,4-Trichlorobenzene	< 3.1	<3.3	<3.4	<4.2	<3.5	--
1,1,1-Trichloroethane	< 3.1	<3.3	<3.4	<4.2	<3.5	2,000
1,1,2-Trichloroethane	< 3.1	<3.3	<3.4	<4.2	<3.5	--
Trichloroethene	< 3.1	<3.3	<3.4	<4.2	<3.5	30
Trichlorofluoromethane	< 3.1	<3.3	<3.4	<4.2	<3.5	--
1,2,3-Trichloropropane	< 3.1	<3.3	<3.4	<4.2	<3.5	--
1,1,2-Trichlorotrifluoroethane	< 3.1	<3.3	<3.4	<4.2	<3.5	--
Vinyl chloride	< 3.1	<3.3	<3.4	<4.2	<3.5	--
Xylene (Total)	281	<11.6	425	141	143,000	9,000
m&p-Xylene	180	<7.7	307	118	113,000	--
o-Xylene	101	<3.9	118	22.9	28,800	--
Naphthalene	15,200	<3.9	7.2	20.5	10,700	5,000
1,2,4-Trimethylbenzene	54,000	<3.9	<3.4	3270	120,000	--
1,3,5-Trimethylbenzene	12,800	<3.9	24.7	89.3	34,300	--

Notes:

- VOCs = Volatile organic compounds by EPA Method 8260B.
- $\mu\text{g/kg}$ = Micrograms per kilogram (parts per billion [ppb]).
- < = Not detected above the indicated method reporting limit (MRL).
- Bold** indicates detected concentration of listed analyte.
- Shading indicates detected concentration exceeding at least one screening value.
- = Not analyzed or cleanup level not established

Table 3
Groundwater Analytical Results: TPH and VOCs
Vancouver Cardlock RI/FS and Cleanup Action Plan
Vancouver, Washington

Sample Number: Sample Date:	SB-12 4/29/2011	SB-13 4/28/2011	SB-14 4/29/2011	SB-15 4/29/2011	MW-1 5/10/2011	MW-1 DUP 5/10/2011	MW-2 5/10/2011	MW-3 5/10/2011	Groundwater Method A, Table Value
Petroleum Hydrocarbons (µg/L)									
TPH-Diesel Range	<75	97	<76	140	4,800	5,100	<76	<76	500
TPH-Oil Range	<380	<380	<380	<380	440	490	<380	<380	500
TPH-Gasoline Range	<50	<50	<50	473	78,200	78,000	<50	<50	800
VOCs (µg/L)									
1,1,1,2-Tetrachloroethane	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
1,1,1-Trichloroethane	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	200
1,1,2,2-Tetrachloroethane	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
1,1,2-Trichloroethane	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
1,1-Dichloroethane	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
1,1-Dichloroethene	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
1,1-Dichloropropene	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
1,2,3-Trichlorobenzene	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
1,2,3-Trichloropropane	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
1,2,4-Trichlorobenzene	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
1,2,4-Trimethylbenzene	--	<1.0	--	<1.0	4,150	--	<1.0	<1.0	--
1,2-Dibromo-3-chloropropane	--	<4.0	--	<4.0	<4.0	--	<4.0	<4.0	--
1,2-Dibromoethane (EDB)	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
1,2-Dichlorobenzene	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
1,2-Dichloroethane	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	5
1,2-Dichloroethene (Total)	--	<2.0	--	<2.0	<2.0	--	<2.0	<2.0	--
1,2-Dichloropropane	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
1,3,5-Trimethylbenzene	--	<1.0	--	4.1	881	--	<1.0	<1.0	--
1,3-Dichlorobenzene	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
1,3-Dichloropropane	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
1,4-Dichlorobenzene	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
2,2-Dichloropropane	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
2-Butanone (MEK)	--	<5.0	--	<5.0	<5.0	--	<5.0	<5.0	--
2-Chlorotoluene	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
2-Hexanone	--	<5.0	--	<5.0	<5.0	--	<5.0	<5.0	--
4-Chlorotoluene	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
4-Methyl-2-pentanone (MIBK)	--	<5.0	--	<5.0	<5.0	--	<5.0	<5.0	--
Acetone	--	<5.0	--	<5.0	6.0	--	<5.0	<5.0 M1	--
Benzene	--	<1.0	--	1.1	1,350	--	<1.0	<1.0	5
Bromobenzene	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
Bromochloromethane	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
Bromodichloromethane	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
Bromoform	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
Bromomethane	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
Carbon Disulfide	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
Carbon tetrachloride	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
Chlorobenzene	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
Chloroethane	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
Chloroform	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
Chloromethane	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
Dibromochloromethane	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
Dibromomethane	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
Dichlorodifluoromethane	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0 M1	--
Ethylbenzene	--	<1.0	--	2.8	2,170	--	<1.0	<1.0	700
Hexachloro-1,3-butadiene	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
Isopropylbenzene (Cumene)	--	<1.0	--	3.4	134	--	<1.0	<1.0	--
Methyl-tert-butyl ether	--	<1.0	--	<1.0	1.4	--	<1.0	<1.0	--
Methylene chloride	--	<4.0	--	<4.0	<4.0	--	<4.0	<4.0 M1	5
Naphthalene	--	<1.0	--	<1.0	800	--	<1.0	<1.0	160
Styrene	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
Tetrachloroethene (PCE)	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0 M1	5
Toluene	--	<1.0	--	<1.0	728	--	<1.0	<1.0	1,000
Trichloroethene	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	5
Trichlorofluoromethane	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
Vinyl chloride	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	0.2
Xylene (Total)	--	<3.0	--	<3.0	11,900	--	<3.0	<3.0	1,000
cis-1,2-Dichloroethene	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
cis-1,3-Dichloropropene	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
m&p-Xylene	--	<2.0	--	<2.0	9,280	--	<2.0	<2.0	--
n-Butylbenzene	--	<1.0	--	<1.0	56.8	--	<1.0	<1.0	--
n-Propylbenzene	--	<1.0	--	9.5	340	--	<1.0	<1.0	--
o-Xylene	--	<1.0	--	<1.0	2,640	--	<1.0	<1.0	--
p-Isopropyltoluene	--	<1.0	--	<1.0	10.4	--	<1.0	<1.0	--
sec-Butylbenzene	--	<1.0	--	2.6	17.3	--	<1.0	<1.0	--
tert-Butylbenzene	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
trans-1,2-Dichloroethene	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--
trans-1,3-Dichloropropene	--	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--

Notes:

- VOCs = Volatile organic compounds by EPA Method 8260B
- < = Not detected above the indicated method reporting limit (MRL)
- µg/L = Micrograms per liter (parts per billion (ppb))
- Bold** indicates detected concentration of listed analyte
- Shading indicates detected concentration exceeding at least one screening value
- M1 = Matrix spike recovery exceeded QC limits

Table 4
Soil Analytical Results: VPH and EPH
Vancouver Cardlock RI/FS and Cleanup Action Plan
Vancouver, Washington

Sample Number:		MW-1 (12.5)
Sample Date:		4/29/2011
Depth:		12.5 feet
Extractable Hydrocarbons (mg/kg)		
Aliphatic Hydrocarbon (C8-C10)		79.1
Aliphatic Hydrocarbon (C10-C12)		308
Aliphatic Hydrocarbon (C12-C16)		152
Aliphatic Hydrocarbon (C16-C21)		45.3
Aliphatic Hydrocarbon (C21-C34)		25.4
Aromatic Hydrocarbon (C8-C10)		35.9
Aromatic Hydrocarbon (C10-C12)		44.4
Aromatic Hydrocarbon (C12-C16)		25.1
Aromatic Hydrocarbon (C16-C21)		10.5
Aromatic Hydrocarbon (C21-C34)		0.854
Petroleum Hydrocarbons (mg/kg)		
Aliphatic Hydrocarbon (C10-C12)		131
Aliphatic Hydrocarbon (C5-C6)		0.2
Aliphatic Hydrocarbon (C6-C8)		4.11
Aliphatic Hydrocarbon (C8-C10)		60.4
Aromatic Hydrocarbon (C10-C12)		181
Aromatic Hydrocarbon (C12-C16)		33.4
Aromatic Hydrocarbon (C8-C10)		228
Benzene		0.888
Ethylbenzene		12.1
m,p-Xylene		35.6
Naphthalene		11.4
o-Xylene		18.1
Toluene		1.64

Note:

1. mg/kg = Milligrams per kilogram (parts per billion [ppm]).

Table 5
Groundwater Elevations and Field Parameters
Vancouver Cardlock RI/FS and Cleanup Action Plan
Vancouver, Washington

Sample Point	Sample Date	Top of Casing Elevation (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Field Parameters				
					Temperature (°C)	pH	Conductivity (µS)	ORP (mV)	DO (ppm)
MW-1	5/10/2011	262.43	7.45	254.98	12.73	7.84	815	-85.4	0.7
MW-2	5/10/2011	262.48	8.78	253.70	11.05	5.98	94	105.6	3.7
MW-3	5/10/2011	262.74	7.9	254.84	14.84	6.16	533	87.1	0.88

Notes:

1. Monitoring well survey conducted on May 25, 2011 by Statewide Land Survey, Inc.
2. Vertical control established using Global Positioning System, vertical Datum is NAVD 88.
4. °C = Degrees Celsius.
5. µS = Microsiemens.
6. mV = Millivolts.
7. ppm = Parts per million.

Table 6

Soil Vapor Extraction for Unleaded UST Soil and Groundwater, Excavate Dispenser Area
Vancouver Cardlock RI/FS and Cleanup Action Plan
Vancouver, Washington

Item Description	Personnel	Unit	Unit Cost	Quantity	Total ¹	Notes
Design and Work Plan						
Prepare final remedial design	ACA Engineer	est.	\$5,000	1	\$5,000	Short performance specification.
			Task Subtotal		\$5,000	
Site Preparation						
Planning and preparation, pre-con meeting	Project	hour	\$113	10	\$1,130	
Utility Locate	Subcontractor	day	\$750	1	\$750	
HASP	ACA	est.	\$500	1	\$500	
			Task Subtotal		\$2,380	
Soil Excavation and Disposal: Dispenser Area						
Site Preparation	Subcontractor	est.	\$250	1	\$250	Asphalt cutting
Dispenser Decommissioning	Subcontractor	est.	\$2,500	1	\$2,500	Remove pump and associated piping and power
Clean overburden excavation	Subcontractor	ton	\$50	6	\$300	
Contaminated soil excavation	Subcontractor	ton	\$50	9	\$450	
Contaminated soil trucking and disposal	Subcontractor	ton	\$95	9	\$855	
Oversight during project	ACA	day	\$1,000	2	\$2,000	
Senior oversight and coordination	Foxwell	hour	\$145	4	\$580	
Confirmation sampling/profiling	est.	est.	\$750	1	\$750	
Site restoration: Backfill and compaction	Subcontractor	ton	\$40	12	\$480	
Site restoration: Paving	Subcontractor	sq yd	\$30	11	\$330	
Dispenser Reinstall	Subcontractor	est.	\$2,500	1	\$2,500	
			Task Subtotal		\$10,995	Install pump and associated piping and power
SVE System: Construct System and Initial Operations						
Planning and preparation	Sr. Staff	hour	\$82	4	\$328	Subcontractor coordination.
Power supply for SVE	Subcontractor	est.	\$750	1	\$750	
Oversight system construction	Sr. Staff	hour	\$82	32	\$2,624	One week of installation oversight, install two wells and SVE equipment
Vapor Extraction Well Installation	Subcontractor	est.	\$1,770	2	\$3,540	
Waste Disposal	Subcontractor	est.	\$1,000	1	\$1,000	Install 2 wells with vacuum extraction, drum soil.
Mechanical equipment and connections						Cuttings from drilling and trenching.
EN404 Blower and Controls	Subcontractor	est.	\$5,000	1	\$5,000	Blower, enclosure, electrical connections, piping.
Piping and trenching	Subcontractor	est.	\$5,000	1	\$5,000	
Site resoration	Subcontractor	est.	\$2,500	1	\$2,500	
Operations and maintenance, power	Subcontractor	year	\$4,000	2	\$8,000	Vapor controls, minor maintenance, power.
ACA monitoring	Staff	year	\$6,000	2	\$12,000	Monthly Site visits and monitoring for two years.
Equipment and supplies	est.	day	\$225	5	\$1,125	ACA truck, misc. field equipment, PPE.
Senior oversight and coordination	Foxwell	hour	\$145	8	\$1,160	
Engineering	Stevens	hour	\$134	4	\$536	
Construction and startup report	est.	est.	\$5,000	1	\$5,000	
Vapor Sampling	est.	est.	\$500	4	\$2,000	Four discharge sampling events
			Task Subtotal		\$50,563	
Monitoring and Closeout Reporting						
Quarterly Groundwater Monitoring	ACA	event	\$2,500	5	\$12,500	Quarterly through 2nd quarter 2012, annual thereafter
Closeout Report	ACA	est.	\$5,000	1	\$5,000	
			Task Subtotal		\$17,500	
TOTAL ESTIMATED COST ¹ :					\$86,438	

Note:

1. Cost estimate is for planning purposes and should be considered to have +/- 25% accuracy.

Table 7

**Soil Excavation at Unleaded Tank and Dispenser, Groundwater Enhanced Bioremediation
Vancouver Cardlock RI/FS and Cleanup Action Plan
Vancouver, Washington**

Item Description	Personnel	Unit	Unit Cost	Quantity	Total ¹	Notes
Design and Work Plan						
Prepare final remedial design	ACA Engineer	est.	\$5,000	1	\$5,000	Short performance specification.
Task Subtotal					\$5,000	
Site Preparation						
Planning and preparation, pre-con meeting	Project	hour	\$113	10	\$1,130	
Utility Locate	Subcontractor	day	\$750	1	\$750	
HASP	ACA	est.	\$500	1	\$500	
Task Subtotal					\$2,380	
Soil Excavation and Disposal: Dispenser Area						
Site Preparation	Subcontractor	est.	\$250	1	\$250	Asphalt cutting
Dispenser Decommissioning	Subcontractor	est.	\$2,500	1	\$2,500	
Clean overburden excavation	Subcontractor	ton	\$50	6	\$300	Remove pump and associated piping and power
Contaminated soil excavation	Subcontractor	ton	\$50	9	\$450	
Contaminated soil trucking and disposal	Subcontractor	ton	\$95	9	\$855	
Oversight during project	ACA	day	\$1,000	2	\$2,000	
Senior oversight and coordination	Foxwell	hour	\$145	4	\$580	
Confirmation sampling/profiling	est.	est.	\$750	1	\$750	
Site restoration: Backfill and compaction	Subcontractor	ton	\$40	12	\$480	Install pump and associated piping and power
Site restoration: Paving	Subcontractor	sq yd	\$30	11	\$330	
Dispenser Reinstall	Subcontractor	est.	\$2,500	1	\$2,500	
Task Subtotal					\$10,995	
Soil Excavation and Disposal: UST Area						
Planning and preparation	Project	hour	\$113	24	\$2,712	
Site Preparation	Subcontractor	hour	\$100	1	\$100	
Slope stabilization and shoring	Subcontractor	est.	\$10,000	1	\$10,000	Shoring for portion of excavatin close to building
Contaminated soil excavation	Subcontractor	ton	\$25	100	\$2,500	
Contaminated soil trucking and disposal	Subcontractor	ton	\$95	100	\$9,500	
Oversight during project	ACA	day	\$1,000	3	\$3,000	
Senior oversight and coordination	Foxwell	hour	\$145	8	\$1,160	
Confirmation sampling/profiling	est.	est.	\$4,000	1	\$4,000	
Site restoration: Backfill and compaction	Subcontractor	ton	\$40	120	\$4,800	
Site restoration: Paving	Subcontractor	sq yd	\$30	32	\$960	
Task Subtotal					\$38,732	
Groundwater Enhanced Bioremediation						
Site Preparation	Subcontractor	est.	\$750	1	\$750	Asphalt coring, etc
Bioinjection drilling	Subcontractor	day	\$3,500	2	\$7,000	
ORC for bioinjections	est.	est.	\$18,000	1	\$18,000	
Oversight during project phase	ACA	day	\$1,000	2	\$2,000	
Senior oversight and coordination	Foxwell	hour	\$145	8	\$1,160	
Principal review	Clough	hour	\$160	2	\$320	
Remediation report	est.	est.	\$5,000	1	\$5,000	
Site Restoration: Patching	Subcontractor	est.	\$200	1	\$200	
Task Subtotal					\$34,430	
Monitoring and Closeout Reporting						
Quarterly Groundwater Monitoring	ACA	event	\$2,500	5	\$12,500	Quarterly through 2nd quarter 2012, annual thereafter
Closeout Report	ACA	est.	\$5,000	1	\$5,000	
Task Subtotal					\$17,500	
TOTAL ESTIMATED COST¹:					\$109,037	

Note:

1. Cost estimate is for planning purposes and should be considered to have +/- 25% accuracy.

Table 8

**Soil Excavation at Unleaded Tank and Dispenser, Groundwater Natural Attenuation
Vancouver Cardlock RI/FS and Cleanup Action Plan
Vancouver, Washington**

Item Description	Personnel	Unit	Unit Cost	Quantity	Total ¹	Notes				
Design and Work Plan Prepare final remedial design	ACA Engineer	est.	\$5,000	1	\$5,000	Short performance specification.				
			Task Subtotal		\$5,000					
Site Preparation Planning and preparation, pre-con meeting Utility Locate HASP	Project Subcontractor ACA	hour day est.	\$113	10	\$1,130					
			\$750	1	\$750					
			\$500	1	\$500					
			Task Subtotal		\$2,380					
Soil Excavation and Disposal: UST Area Planning and preparation Site Preparation Slope stabilization and shoring Contaminated soil excavation Contaminated soil trucking and disposal Oversight during project Senior oversight and coordination Confirmation sampling/profiling Site restoration: Backfill and compaction Site restoration: Paving	Project Subcontractor Subcontractor Subcontractor Subcontractor ACA Foxwell est. Subcontractor Subcontractor	hour hour est. ton ton day hour est. ton sq yd	\$113	24	\$2,712	Asphalt cutting Shoring for portion of excavatin close to building				
			\$100	1	\$100					
			\$10,000	1	\$10,000					
			\$25	100	\$2,500					
			\$95	100	\$9,500					
			\$1,000	3	\$3,000					
			\$145	8	\$1,160					
			\$4,000	1	\$4,000					
			\$40	120	\$4,800					
			\$30	32	\$960					
			Task Subtotal		\$38,732					
			Soil Excavation and Disposal: Dispenser Area Site Preparation Dispenser Decommissioning Clean overburden excavation Contaminated soil excavation Contaminated soil trucking and disposal Oversight during project Senior oversight and coordination Confirmation sampling/profiling Site restoration: Backfill and compaction Site restoration: Paving Dispenser Reinstall	Subcontractor Subcontractor Subcontractor Subcontractor Subcontractor ACA Foxwell est. Subcontractor Subcontractor Subcontractor	est. est. ton ton ton day hour est. ton sq yd est.		\$250	1	\$250	Asphalt cutting Remove pump and associated piping and power Install pump and associated piping and power
							\$2,500	1	\$2,500	
							\$50	6	\$300	
\$50	9	\$450								
\$95	9	\$855								
\$1,000	2	\$2,000								
\$145	4	\$580								
\$750	1	\$750								
\$40	12	\$480								
\$30	11	\$330								
\$2,500	1	\$2,500								
Task Subtotal		\$10,995								
Groundwater Natural Attenuation Additional natural attenuation analyses	ACA	est.				\$2,000	1	\$2,000	Addl. Analytical costs beyond quarterly monitoring	
						Task Subtotal		\$2,000		
Monitoring and Closeout Reporting Quarterly Groundwater Monitoring Closeout Report	ACA ACA	event est.	\$2,500	5	\$12,500	Quarterly through 2nd quarter 2012, annual thereafter				
			\$5,000	1	\$5,000					
			Task Subtotal		\$17,500					
TOTAL ESTIMATED COST ¹ :					\$76,607					

Note:

1. Cost estimate is for planning purposes and should be considered to have +/- 25% accuracy.

Table 9

**Soil Excavation at Unleaded Tank, Cap in Place at Dispenser, Groundwater Natural Attenuation
Vancouver Cardlock RI/FS and Cleanup Action Plan
Vancouver, Washington**

Item Description	Personnel	Unit	Unit Cost	Quantity	Total ¹	Notes
Site Preparation						
Pre Construction meeting with contractors	Foxwell	est.	\$1,500	1	\$1,500	
Utility Locate	Subcontractor	day	\$750	1	\$750	
HASP	ACA	est.	\$1,000	1	\$1,000	
			Task Subtotal		\$3,250	
Soil Excavation and Disposal: UST Area						
Planning and preparation	Project	hour	\$113	24	\$2,712	
Site Preparation	Subcontractor	hour	\$100	1	\$100	Asphalt cutting
Slope stabilization and shoring	Subcontractor	est.	\$10,000	1	\$10,000	Shoring for portion of excavatin close to building
Contaminated soil excavation	Subcontractor	ton	\$25	100	\$2,500	
Contaminated soil trucking and disposal	Subcontractor	ton	\$95	100	\$9,500	
Oversight during project	ACA	day	\$1,000	3	\$3,000	
Senior oversight and coordination	Foxwell	hour	\$145	8	\$1,160	
Confirmation sampling/profiling	est.	est.	\$4,000	1	\$4,000	
Site restoration: Backfill and compaction	Subcontractor	ton	\$40	120	\$4,800	
Site restoration: Paving	Subcontractor	sq yd	\$30	32	\$960	
			Task Subtotal		\$38,732	
Cap in Place: Dispenser Area						
Soil Management Plan for Dispenser Area	ACA	est.	\$2,000	1	\$2,000	
			Task Subtotal		\$2,000	
Groundwater Natural Attenuation						
Additional natural attenuation analyses	ACA	est.	\$2,000	1	\$2,000	Addl. Analytical costs beyond quarterly monitoring
			Task Subtotal		\$2,000	
Monitoring and Closeout Reporting						
Quarterly Groundwater Monitoring	ACA	event	\$2,500	5	\$12,500	Quarterly through 2nd quarter 2012, annual thereafter
Closeout Report	ACA	est.	\$5,000	1	\$5,000	
			Task Subtotal		\$17,500	
TOTAL ESTIMATED COST ¹ :					\$63,482	

Note:

1. Cost estimate is for planning purposes and should be considered to have +/- 25% accuracy.

Table 10

Soil Vapor Extraction for Unleaded UST Soil and Groundwater, Cap Dispenser Area
Vancouver Cardlock RI/FS and Cleanup Action Plan
Vancouver, Washington

Item Description	Personnel	Unit	Unit Cost	Quantity	Total ¹	Notes
Design and Work Plan						
Prepare final remedial design	ACA Engineer	est.	\$5,000	1	\$5,000	Short performance specification.
			Task Subtotal		\$5,000	
Site Preparation						
Planning and preparation, pre-con meeting	Project	hour	\$113	10	\$1,130	
Utility Locate	Subcontractor	day	\$750	1	\$750	
HASP	ACA	est.	\$500	1	\$500	
			Task Subtotal		\$2,380	
SVE System: Construct System and Initial Operations						
Planning and preparation	Sr. Staff	hour	\$82	4	\$328	Subcontractor coordination.
Power supply for SVE	Subcontractor	est.	\$750	1	\$750	
Oversight system construction	Sr. Staff	hour	\$82	32	\$2,624	One week of installation oversight, install nine horizontal wells.
Vapor Extraction Well Installation	Subcontractor	est.	\$1,770	2	\$3,540	Install 2 wells with vacuum extraction, drum soil.
Waste Disposal	Subcontractor	est.	\$1,000	1	\$1,000	Cuttings from drilling and trenching.
Mechanical equipment and connections						Blower, enclosure, electrical connections, piping.
EN404 Blower and Controls	Subcontractor	est.	\$5,000	1	\$5,000	
Piping and trenching	Subcontractor	est.	\$5,000	1	\$5,000	
Site resoration	Subcontractor	est.	\$2,500	1	\$2,500	
Operations and maintenance, power	Subcontractor	year	\$4,000	2	\$8,000	Vapor controls, minor maintenance, power.
ACA monitoring	Staff	year	\$6,000	2	\$12,000	Monthly Site visits and monitoring for two years.
Equipment and supplies	est.	day	\$225	5	\$1,125	ACA truck, misc. field equipment, PPE.
Senior oversight and coordination	Foxwell	hour	\$145	8	\$1,160	
Engineering	Stevens	hour	\$134	4	\$536	
Construction and startup report	est.	est.	\$5,000	1	\$5,000	
Vapor Sampling	est.	est.	\$500	4	\$2,000	Four discharge sampling events
			Task Subtotal		\$50,563	
Cap in Place: Dispenser Area						
Soil Management Plan for Dispenser Area	ACA	est.	\$2,000	1	\$2,000	
			Task Subtotal		\$2,000	
Monitoring and Closeout Reporting						
Quarterly Groundwater Monitoring	ACA	event	\$2,500	5	\$12,500	Quarterly through 2nd quarter 2012, annual thereafter
Closeout Report	ACA	est.	\$5,000	1	\$5,000	
			Task Subtotal		\$17,500	
TOTAL ESTIMATED COST ¹ :					\$77,443	

Note:

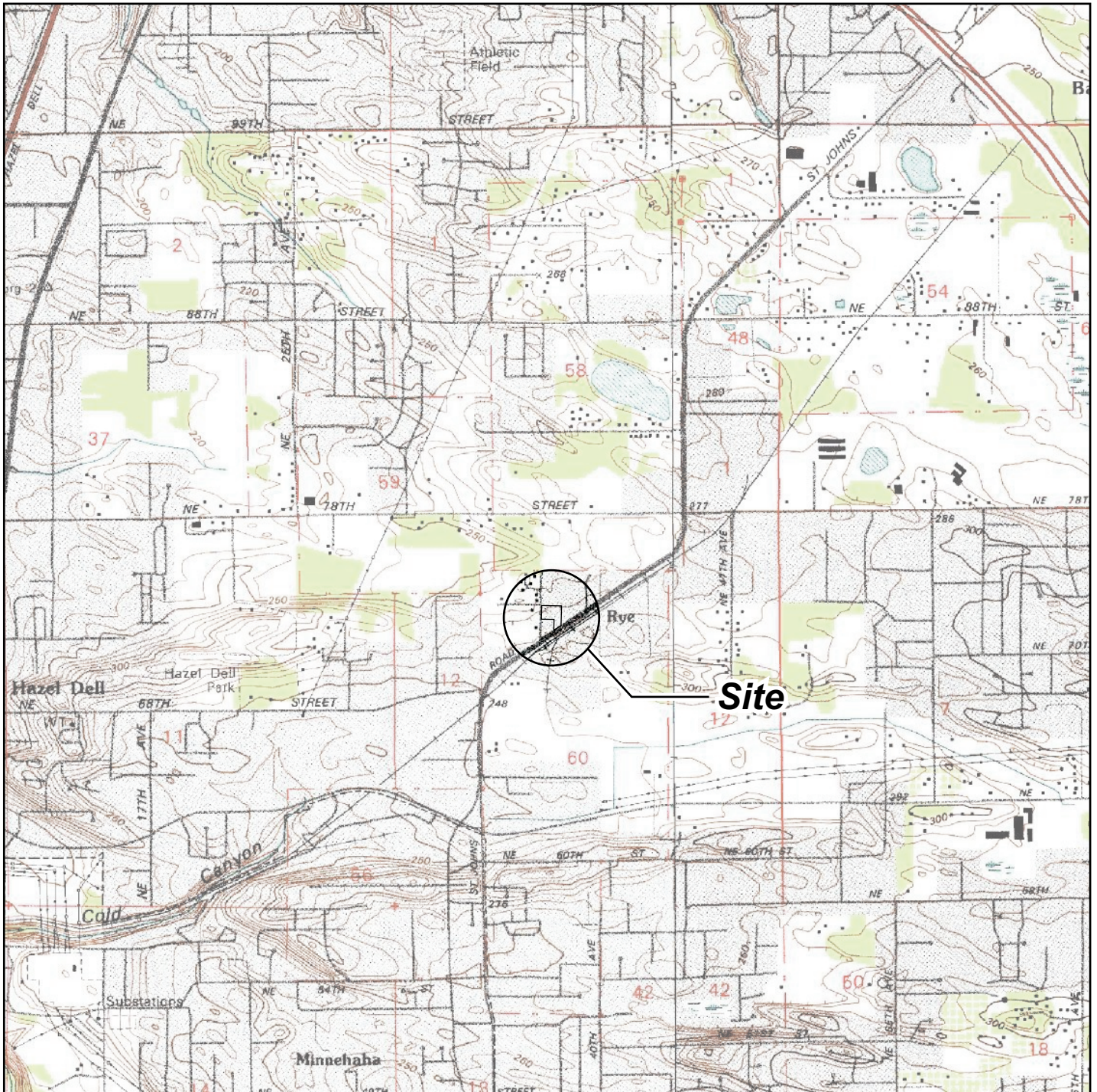
1. Cost estimate is for planning purposes and should be considered to have +/- 25% accuracy.

Table 11
Comparative Analysis of Cleanup Alternatives
Vancouver Cardlock RI/FS and Cleanup Action Plan
Vancouver, Washington

Groundwater Alternatives	Ranking Criteria																														Score	Rank					
	Protectiveness					Permanence					Cost					Long-Term Effectiveness					Management of Short-Term Risks					Implementability							Public Concerns				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5		
1 Soil Vapor Extraction/Excavation		0	0	0	0		0	0	+	+		+	-	-	-		0	0	+	+		+	+	+	-		+	+	+	0		0	0	+	+	9	1
2 Excavation and In-situ Enhanced Bioremediation/Excavation	0		0	0	0	0		0	+	+	-		-	-	-	0		0	+	+	-		0	-	-	-		0	0	-	0		0	+	+	-3	4
3 Excavation and Natural Attenuation/Excavation	0	0		0	0	0	0		+	+	+		-	+	+	0	0		+	+	-	0		-	-	-	0	0		0	-	0	0	+	+	3	2
4 Excavation and Natural Attenuation/Capping	0	0	0		0	-	-	-		0	+	+	+		+	-	-	-		0	-	+	+		-	-	0	0		-	-	-	-	0	-7	5	
5 Soil Vapor Extraction/Capping	0	0	0	0		-	-	-	0		+	+	-	-		-	-	-	0		+	+	+	+		0	+	+	+		-	-	-	0	-2	3	

Notes:

- + = The alternative is favored over the compared alternative (score = 1).
 - 0 = The alternative is equal with the compared alternative (score = 0).
 - = The alternative is less favorable than the compared alternative (score = -1).
- Alternative Definition = UST Area/Dispenser Area



Note: Base map prepared from USGS 7.5-minute quadrangle of Vancouver, WA-OR, dated 1990 as provided by MSR Maps.com.

0 2,000 4,000
Approximate Scale in Feet



Vancouver



Site Location Map

Tarr, LLC Vancouver Cardlock
7208 NE St. Johns Road
Vancouver, Washington



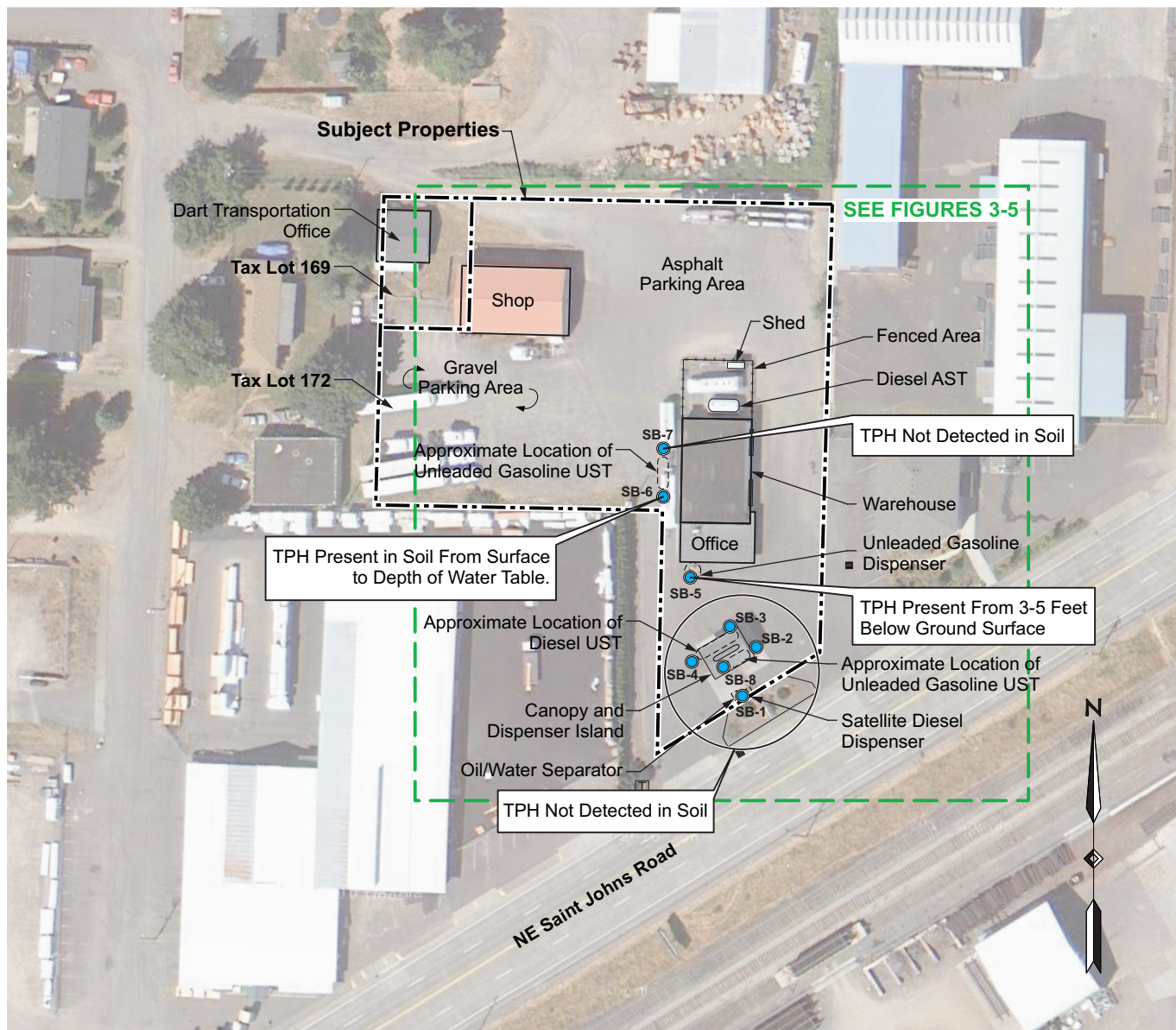
Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

Project Number 1821-00

May 2011

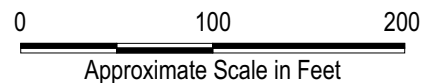
Figure

1



Legend:

- SB-1 ● Soil Boring Location
- Approximate Area
- Transformer Location
- Catch Basin Location



Notes: 1) Base map prepared from 2011 - Google Imagery and site reconnaissance by Ash Creek personnel.
2) Site feature locations and dimensions are approximate.

Site Plan and Phase II ESA Summary

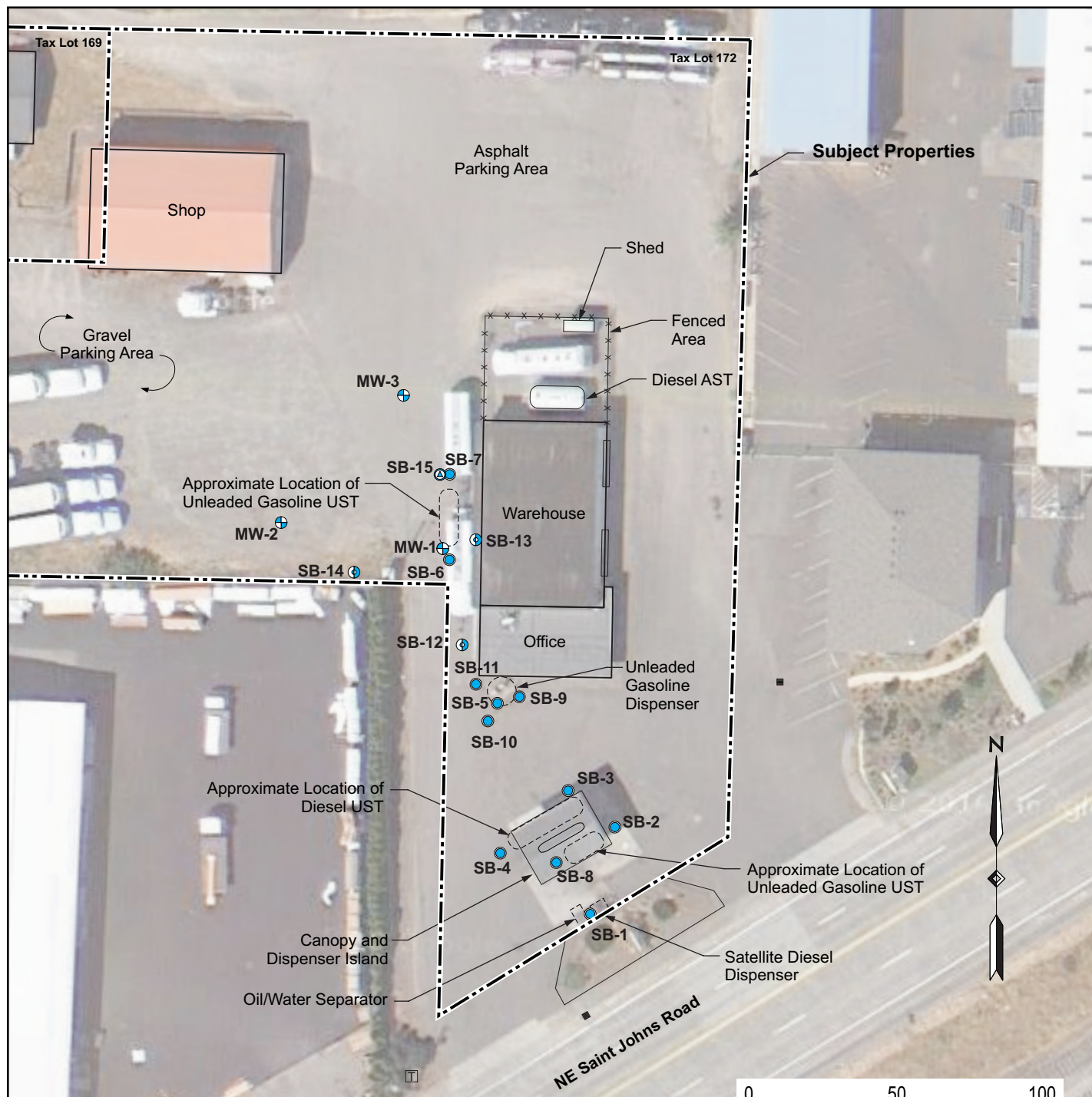
Tarr, LLC Vancouver Cardlock
7208 NE St. Johns Road
Vancouver, Washington



Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

Project Number	1821-00
May 2011	

Figure
2



Legend:

- MW-1 Monitoring Well Location
- SB-15 Groundwater Exploration
- SB-12 Soil and Groundwater Exploration
- SB-1 Soil Boring Location (Ash Creek 2011)
- Approximate Area
- Transformer Location
- Catch Basin Location

- Notes:** 1) Base map prepared from 2011 - Google Imagery and site reconnaissance by Ash Creek personnel.
2) Site feature locations and dimensions are approximate.

Site Exploration Plan

Tarr, LLC Vancouver Cardlock
7208 NE St. Johns Road
Vancouver, Washington



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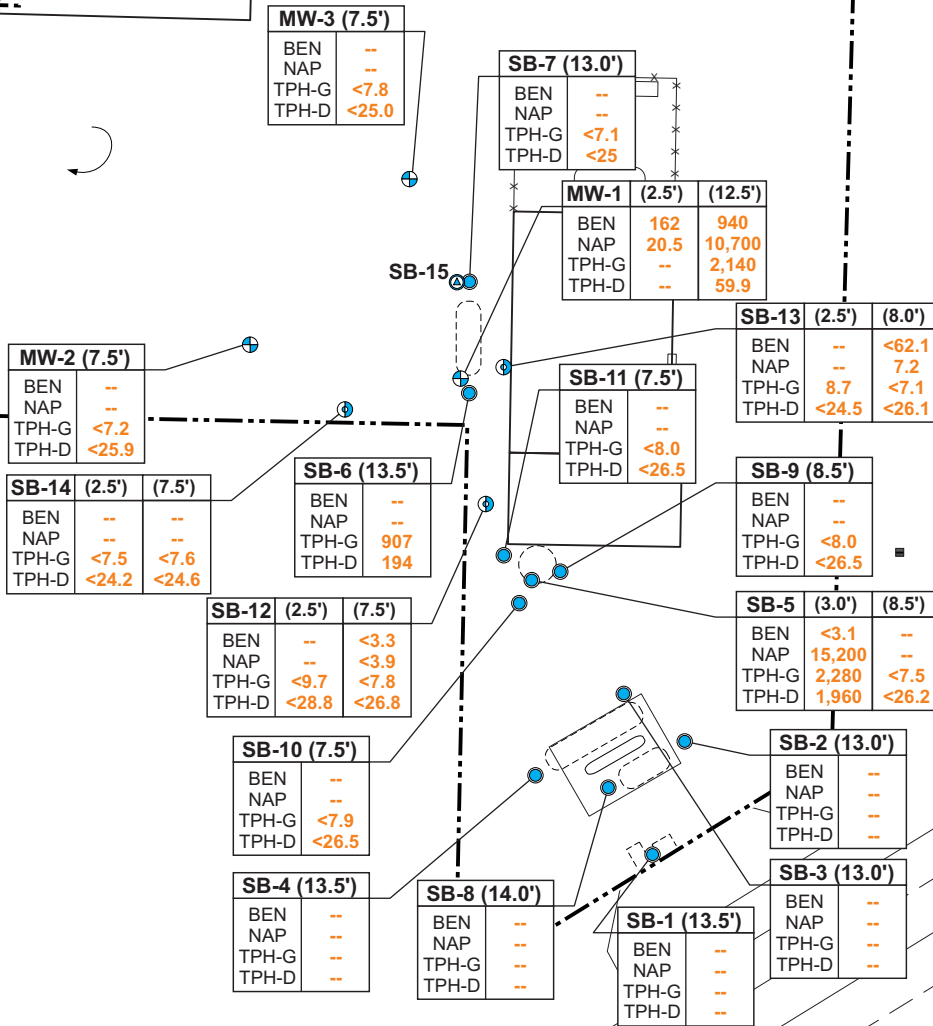
Project Number	1821-00
May 2011	

Figure
3

Subject Properties

ABBREVIATIONS

BEN	BENZENE
NAP	NAPHTHALENE
TPH-G	TOTAL PETROLEUM HYDROCARBONS GASOLINE-RANGE
TPH-D	TOTAL PETROLEUM HYDROCARBONS DIESEL-RANGE



Legend:

- MW-1 Monitoring Well Location
- SB-15 Groundwater Exploration
- SB-12 Soil and Groundwater Exploration
- SB-1 Soil Boring Location (Ash Creek 2011)
- Approximate Area
- Transformer Location
- Catch Basin Location

MW-1 (2.5')	Sampling Identification and (Depth in Feet)	
BEN	162	Concentration in µg/kg
NAP	20.5	
TPH-G	--	Analyte Sampled
TPH-D	--	(-- = Not Analyzed)

- Notes:** 1) Base map prepared from 2011 - Google Imagery and site reconnaissance by Ash Creek personnel.
2) Site feature locations and dimensions are approximate.

Soil Concentrations

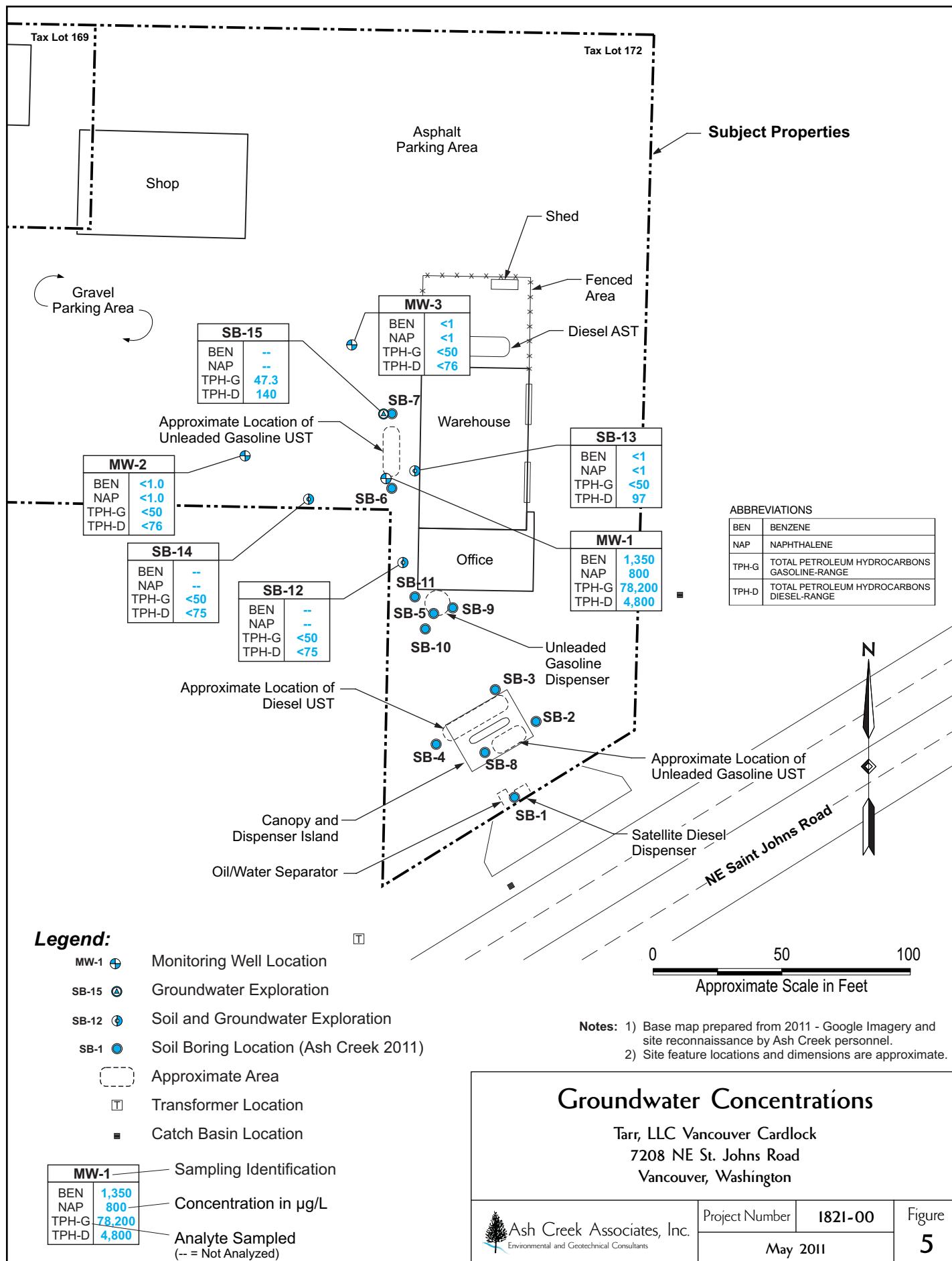
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Vancouver, Washington

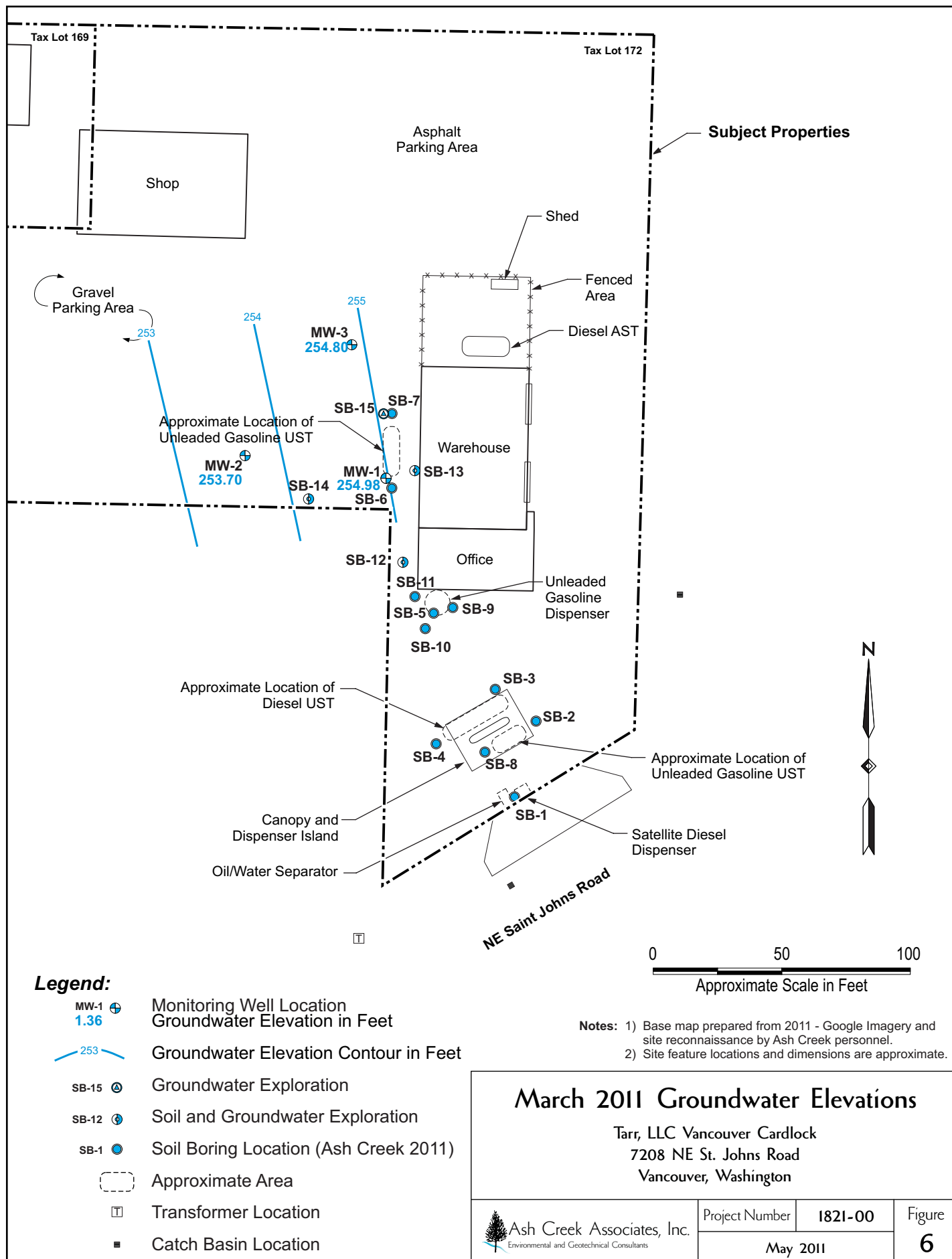


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Project Number	1821-00
May 2011	

Figure
4







0 500 1,000
Approximate Scale in Feet

Notes: 1) Base map prepared from 2011 - Google Imagery and site reconnaissance by Ash Creek personnel.
2) Site feature locations and dimensions are approximate.

Terrestrial Ecological Exclusion

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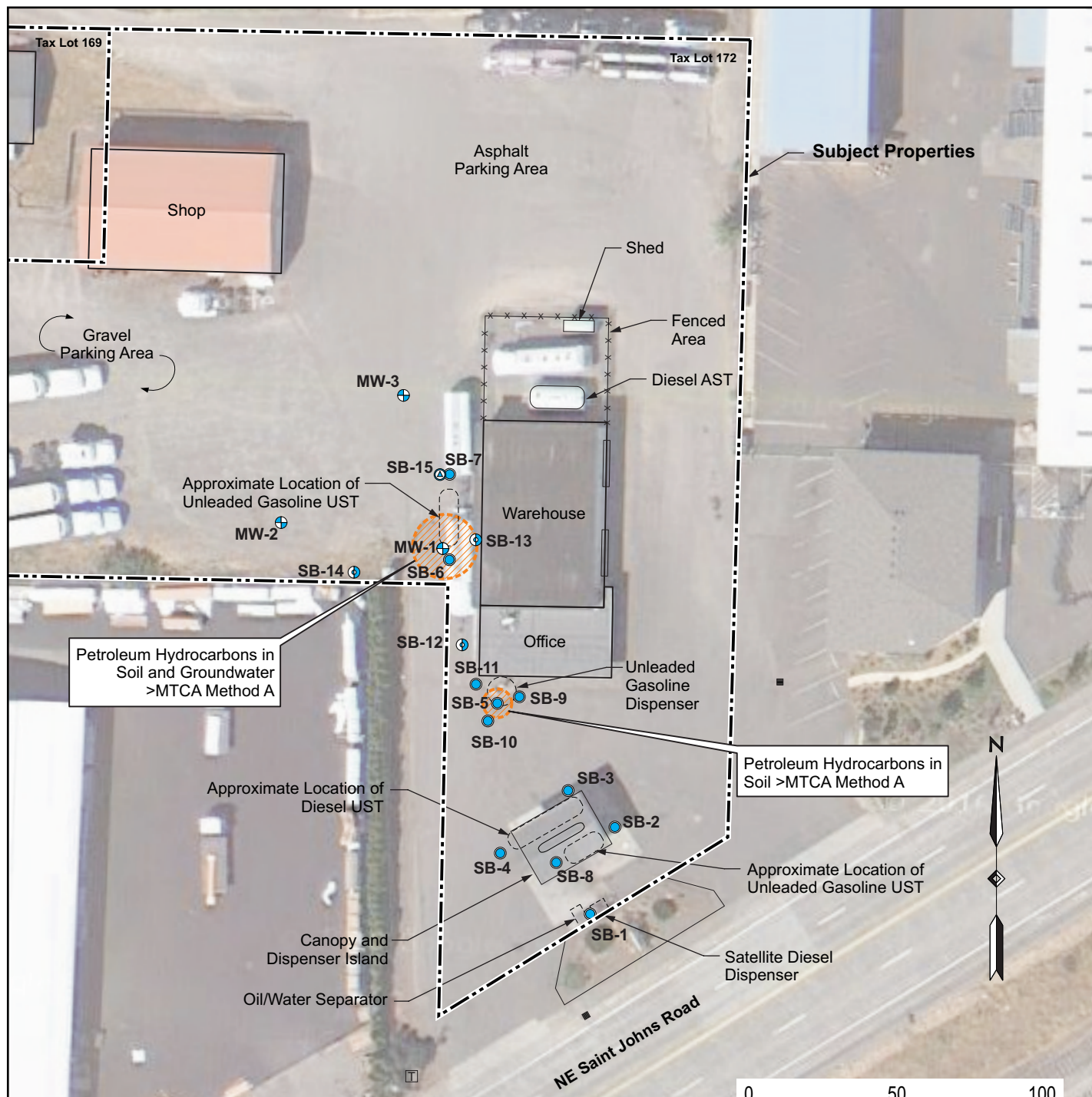


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Project Number 1821-00

May 2011

Figure
7



Legend:

- MW-1 Monitoring Well Location
- SB-15 Groundwater Exploration
- SB-12 Soil and Groundwater Exploration
- SB-1 Soil Boring Location (Ash Creek 2011)
- Approximate Area
- Transformer Location
- Catch Basin Location

- Notes:** 1) Base map prepared from 2011 - Google Imagery and site reconnaissance by Ash Creek personnel.
2) Site feature locations and dimensions are approximate.

Remedial Action Areas

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Vancouver, Washington



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May 2011	

Figure
8

Appendix A

Exploration Logs and Standard Operating Procedures

Sample Descriptions

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

Soil descriptions consist of the following:

MAJOR CONSTITUENT with additional remarks; color, moisture, minor constituents, density/consistency.

Density/Consistency

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

SAND and GRAVEL	Standard Penetration Resistance in Blows/Foot	SILT or CLAY	Standard Penetration Resistance in Blows/Foot	Approximate Shear Strength in TSF
<u>Density</u>		<u>Density</u>		
Very loose	0 - 4	Very soft	0 - 2	<0.125
Loose	4 - 10	Soft	2 - 4	0.125 - 0.25
Medium dense	10 - 30	Medium stiff	4 - 8	0.25 - 0.5
Dense	30 - 50	Stiff	8 - 15	0.5 - 1.0
Very dense	>50	Very Stiff	15 - 30	1.0 - 2.0
		Hard	>30	>2.0

Moisture

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

Minor Constituents

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

Sampling Symbols

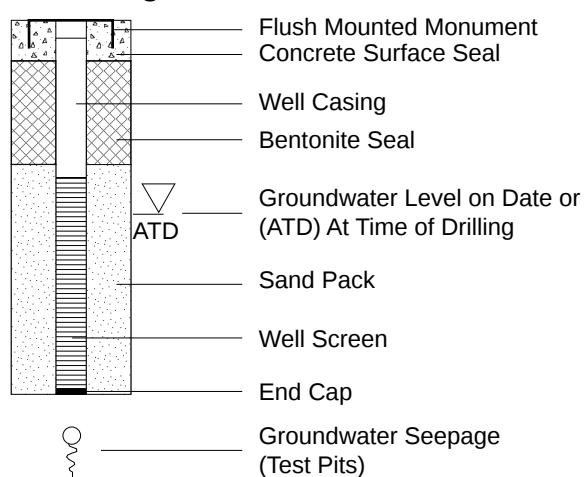
BORING AND PUSH-PROBE SYMBOLS

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

TEST PIT SOIL SAMPLES

	Grab (Jar)
	Bag
	Shelby Tube

Groundwater Observations and Monitoring Well Construction



Key to Exploration Logs

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Vancouver, Washington



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May 2011

Figure
Key



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Tarr, LLC Vancouver Cardlock Phase II ESA
7208 NE St. Johns Road
Vancouver, Washington

Boring Number: **SB-9**

Project Number: **1821-00**

Logged By: **M. Whitson**

Date: **April 28, 2011**

Site Conditions: **Partly Cloudy (40°F)**

Drilling Contractor: **Major Drilling**

Drilling Equipment: **Geoprobe 7822DT**

Sampler Type: **5' Open Core**

Depth to Water (ATD): **--**

Surface Elevation: **--**

Boring Details and Notes:

Depth, feet

Core Interval/Recovery

Laboratory Sample ID

PID

Sheen

Lithologic Description

Asphalt concrete surface (2-3").

Sandy SILT with gravel; dark brown, moist, medium stiff, (65-70% low plastic silt, 20-25% very fine-grained sand, 10% gravel).

Gravelly SAND; dark brown, moist, loose, (75% fine- to medium-grained sand, 25% fine to medium gravel and pebbles).

Silty SAND; medium brown, moist, medium dense, (75% fine- to very fine-grained sand, 25% low plastic silt).

Becomes wet.

Bottom of Boring at 10.0' BGS.

Hand Auger

SB-9-2.5

SB-9-8.5

5

10

15

20

25

30

35

5

10

15

20

25

30

35



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Tarr, LLC Vancouver Cardlock Phase II ESA
7208 NE St. Johns Road
Vancouver, Washington

Boring Number: **SB-10**

Project Number: **1821-00**

Logged By: **M. Whitson**

Date: **April 28, 2011**

Site Conditions: **Partly Cloudy (40°F)**

Drilling Contractor: **Major Drilling**

Drilling Equipment: **Geoprobe 7822DT**

Sampler Type: **5' Open Core**

Depth to Water (ATD): **9.25'**

Surface Elevation: **--**

Boring Details and Notes:

Lithologic Description

Asphalt concrete surface (9").

Gravelly SAND; dark brown, moist, medium dense, (65% fine- to medium-grained sand, 35% medium to coarse gravel).

3-4-inch lens of cobbles.

Silty SAND; dark brown, moist, dense, (60-70% fine- to very fine-grained sand, 30-40% low plastic silt).

Sandy SILT; medium brown mottled gray, moist, soft, (60% low plastic silt, 40% fine- to very fine-grained sand).

Silty SAND; medium brown mottled gray, moist, loose, (85% fine- to medium-grained sand, 15% low plastic silt).

Becomes wet.

Bottom of Boring at 10.0' BGS.





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Tarr, LLC Vancouver Cardlock Phase II ESA
7208 NE St. Johns Road
Vancouver, Washington

Boring Number: **SB-11**

Project Number: **1821-00**

Logged By: **M. Whitson**

Date: **April 28, 2011**

Site Conditions: **Partly Cloudy (40°F)**

Drilling Contractor: **Major Drilling**

Drilling Equipment: **Geoprobe 7822DT**

Sampler Type: **5' Open Core**

Depth to Water (ATD): **9.25'**

Surface Elevation: **--**

Boring Details and Notes:

Depth, feet

Core Interval/Recovery

Laboratory Sample ID

PID

Sheen

Lithologic Description

Asphalt concrete surface (2-3").

Gravelly silty SAND; dark brown, moist, medium dense, (55% fine- to medium-grained sand, 25% fine to coarse gravel, 20% low plastic silt fines).

Silty SAND; medium brown mottled gray, moist, medium dense, (65% fine- to very fine-grained sand, 35% low plastic silt).

Becomes SAND with silt, (silt decrease to 5-10%).

Becomes wet.

Bottom of Boring at 10.0' BGS.

Hand Auger

SB-11-25

SB-11-75

<5

NS

<5

NS

<5

NS

<5

NS

5

10

15

20

25

30

35

5

10

15

20

25

30

35





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Tarr, LLC Vancouver Cardlock Phase II ESA
7208 NE St. Johns Road
Vancouver, Washington

Boring Number: **SB-12**

Project Number: **1821-00**

Logged By: **M. Whitson**

Date: **April 29, 2011**

Site Conditions: **Partly Cloudy (60°F)**

Drilling Contractor: **Major Drilling**

Drilling Equipment: **Geoprobe 7822DT**

Sampler Type: **5' Open Core**

Depth to Water (ATD): **8.0'**

Surface Elevation: **--**

Boring Details and Notes:

Depth, feet

Core Interval/Recovery

Laboratory Sample ID

PID

Sheen

Lithologic Description

Asphalt concrete surface (2-3").

Sandy SILT with clay; dark brown, moist, medium stiff, (60% low plastic silt fines, 30-35% fine to very fine sand, 5-10% low plastic clay).

Silty SAND; brownish gray, moist, medium dense, (75% fine to very fine sand, 25% low plastic silt).

Becomes mottled gray.

Becomes wet.

Silt increase to 40%, 55% sand, <5% clay.
Becomes medium dense to dense.

Becomes reddish brown, no mottling.

SAND with silt; reddish brown, wet, medium dense, (95% fine to medium sand, 5% low plastic silt).

Becomes very wet/saturated, very loose.

Becomes dark brown, medium-grained.

2-Inch lens of silt.

2-Inch lens of silt.

Bottom of Boring at 20.0' BGS.

Hand Auger

SB-12-2.5

SB-12-7.5

11.4

NS

17.6

NS

18.6

NS

17.9

NS





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Tarr, LLC Vancouver Cardlock Phase II ESA
7208 NE St. Johns Road
Vancouver, Washington

Boring Number: **SB-13**

Project Number: **1821-00**

Logged By: **M. Whitson**

Date: **April 28, 2011**

Site Conditions: **Cloudy (40°-50°F)**

Drilling Contractor: **Major Drilling**

Drilling Equipment: **Geoprobe 7822DT**

Sampler Type: **5' Open Core**

Depth to Water (ATD): **8.5'**

Surface Elevation: **--**

Boring Details and Notes:

Depth, feet

Core Interval/Recovery

Laboratory Sample ID

PID

Sheen

Lithologic Description

Asphalt concrete surface (3-4").

Gravelly SAND; dark brown, moist, loose, 55% fine to coarse sand, 45% fine to medium gravels.

Silty SAND; medium gray with brown mottling, moist, medium dense, (65-70% fine to very fine sand, 30-35% low plastic silt fines).

Becomes less silty (~10%).
Becomes wet.

Becomes dark gray, loose and fine to medium-grained.

Silt increases (20-25%).

Silt decreases (10%).

Become very wet, very loose, and fine-grained.

Bottom of Boring at 20.0' BGS.





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Tarr, LLC Vancouver Cardlock Phase II ESA
7208 NE St. Johns Road
Vancouver, Washington

Boring Number: **SB-14**

Project Number: **1821-00**

Logged By: **M. Whitson**

Date: **April 29, 2011**

Site Conditions: **Cloudy (50°F)**

Drilling Contractor: **Major Drilling**

Drilling Equipment: **Geoprobe 7822DT**

Sampler Type: **5' Open Core**

Depth to Water (ATD): **8.75'**

Surface Elevation: **--**

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description	
5	Hand Auger	SB-14-2.5	8.3	NS	Sandy SILT with clay; dark brown, moist, (65-70% low plastic silt fines, 15-25% fine sand, 5-10% low plastic clay). Becomes reddish brown.	
5					Silty SAND; medium reddish brown, moist, medium dense, (65-70% fine to very fine sand, 30-35% low plastic silt).	5
10		SB-14-7.5	8.5	NS	Becomes fine to medium-grained, brown, and silt is 15-20%. Becomes wet. Becomes very loose, saturated.	10
15			11.1	NS	Becomes very fine-grained.	15
20			6.1	NS	SAND with silt; brown, wet, loose, (95% fine sand, ~5% low plastic silt fines). Bottom of Boring at 20.0' BGS.	20
25						25
30						30
35						35

1. PURPOSE AND SCOPE

This Standard Operating Procedure (SOP) describes the methods for observing and sampling from push-probes (i.e., GeoProbe™). Subsurface soil cores may be obtained using this system for purposes of determining subsurface soil conditions and for obtaining soil samples for physical and/or chemical evaluation. Grab groundwater samples may be collected using temporary well screens. Soil vapor samples may be obtained using temporary well points. Shallow (less than 50 feet), small-diameter (2-inch max) pre-packed wells may also be installed using push-probe equipment. This procedure is applicable during all Ash Creek Associates (ACA) push-probe activities.

2. EQUIPMENT AND MATERIALS

The following materials are necessary for this procedure:

- Traffic cones, measuring tape, spatula, and buckets/drums
- Sampling equipment (water level probe, pumps, tubing) and laboratory-supplied sample containers
- Field documentation materials
- Decontamination materials
- Personal protective equipment (as required by project Health and Safety Plan)

3. METHODOLOGY

Coring Procedure (Conducted by Drilling Subcontractor):

The sampling procedure includes driving a 2-inch outside-diameter, 5-foot-long, push-probe soil sampler to the desired depth using a combination of hydraulic pressure and mechanical hammer blows. When the sampling depth is reached, the pin attaching the sampler's tip is released (if a tip is used), which allows the tip to slide inside the sampler (Macro-Core Sampler with removable plastic liner). The sampler is driven the length of the sampler to collect a soil core, which is then withdrawn from the exploration. When the sampler is retrieved from the borehole the drive head/cutting shoe is detached and the liner is removed. Soil cores are collected continuously to the full depth of the exploration unless otherwise specified in a project-specific sampling and analysis plan (SAP). Verify that the subcontractor decontaminates the sampling device (per SOP 1.2) prior to its initial use and following collection of each soil sample.

Logging and Soil Sample Collection:

Remove the soil core from the sampler for field screening, description, and placement into sample jars. Soil samples will be collected for field screening and possible chemical analysis on two foot intervals unless otherwise specified in a project-specific SAP. The sampling interval will be determined in the field based on recovery, soil variability, and evidence of contamination. Complete field screening as specified in SOP-2.1. Soil samples should be collected using different procedures for volatile on non-volatile analyses, as follows.

- **Volatile Analyses.** Sampling for volatile organics analysis (VOA) is different than other routine physical or chemical testing because of the potential loss of volatiles during sampling. To limit volatile loss, the soil sample must be obtained as quickly and as directly as possible. If a VOA sample is to be collected as part of a multiple analyte sample, the VOA sample portion will be obtained first. The VOA sample should be obtained from a discrete portion of the entire collected sample and should not be composited or homogenized. Sample bottles should be filled to capacity, with no headspace. Specific procedures for collecting VOA samples using the EPA Method 5035 are discussed in SOP 2.7.
- **Other Analyses.** Soil samples for non-volatile analyses will be thoroughly homogenized in a stainless steel bowl prior to bottling. Sample homogenizing is accomplished by manually mixing the entire soil

sample in the stainless steel bowl with a clean sampling tool until a uniform mixture is achieved. The sample jar should be filled completely.

Any extra soil generated during probing activities will be placed in Department of Transportation (DOT) approved drums.

Grab Groundwater Sample Collection:

Collect grab groundwater samples using a sampling attachment with a 4 to 5-foot-long temporary screen (specify to drillers whether to use decontaminated stainless steel or disposable PVC. Also, specify whether a filter pack is necessary based on field observations). Obtain samples using a peristaltic pump unless otherwise specified in the SAP with new tubing for each boring. Record field parameters (e.g., temperature, conductivity, and pH) prior to sampling.

Backfilling the Excavation (Conducted by Drilling Subcontractor):

After sampling activities are completed, abandon each exploration in accordance with Oregon Water Resources Department (OWRD) regulations and procedures. The abandonment procedure typically consists of filling the exploration with granular bentonite and hydrating the bentonite with water. Match the surface completion to the surrounding materials.

1. PURPOSE AND SCOPE

This Standard Operating Procedure (SOP) describes the methods for collection of groundwater samples from monitoring wells applying low flow protocols. Low flow sampling is a method of collecting samples that does not require the removal of large volumes of water and therefore does not overly agitate the water, suspend particles, or potentially aspirate VOCs. Typical flow rates for low flow sampling range from 0.1 L/min to 0.5 L/min depending on site characteristics. The groundwater monitoring activities will consist of measuring water levels, purging and sampling groundwater, and measuring groundwater field parameters. This procedure is applicable during all Ash Creek Associates (ACA) low flow groundwater sampling activities.

2. EQUIPMENT AND MATERIALS

The following materials are necessary for this procedure:

- Traffic cones, tools, keys, and buckets/drums
- Water quality meter with calibration solutions (record daily calibration/calibration check in field notes)
- Sampling equipment (water level probe, pumps, tubing) and laboratory-supplied sample containers
- Field documentation materials
- Decontamination materials
- Personal protective equipment (as required by project Health and Safety Plan)

3. METHODOLOGY

Water Levels:

Water levels in the wells will be measured and recorded for the purpose of determining groundwater elevations and gradient. The wells will be opened and the water level allowed to equilibrate before the measurements are taken. Measurements of the depth to water will be made to the nearest 0.01 foot using an electronic probe.

Purging:

Purge using low-flow sampling equipment (e.g., peristaltic pump or bladder pump) at a low-flow rate to limit water table drawdown. Unless specified otherwise in the project-specific sampling and analysis plan (SAP) the sample tubing/pump will be lowered to the middle of the saturated screened interval. To assess the effectiveness of purging, groundwater field parameters (pH, electrical conductivity, and temperature) will be measured using a flow cell connected to the discharge tubing of the sample pump. Purging will be considered complete when the water quality parameters (i.e., pH, temperature, and specific conductance) stabilize within 10 percent for three consecutive 3-minute intervals. Consult the project-specific SAP for additional parameters and stabilization criteria. Purge water will be placed in Department of Transportation (DOT) approved drums.

Sample Collection:

After the purging of each well is complete, collect groundwater samples for chemical analyses using the same pump and tubing used for the well purging.

Low Yield Sampling Procedure:

If drawdown of the water table is unavoidable and a well pumps dry during purging, discontinue measurement of water quality parameters. Collect groundwater samples once the water level recovers to 90 percent of the pre-purge water column. Contact project manager in the event of slow recharge conditions. Always collect samples for VOC analysis as soon after recharge as possible.

1. PURPOSE AND SCOPE

This Standard Operating Procedure (SOP) describes the methods used for obtaining soil samples for chemical analysis for volatile organic compounds (VOCs) by EPA Method 5035A. Samples collected using the 5035A protocols are not exposed to the atmosphere after sampling thereby reducing the potential for loss of VOCs during sample transport, handling, and analysis. This procedure assumes the use of the PowerStop Handle sampler with disposable EasyDraw Syringes or Terra Core Samplers. This procedure is applicable during all Ash Creek Associates (ACA) soil sampling activities where the 5035A protocols are employed.

2. EQUIPMENT AND MATERIALS

The following materials are necessary for this procedure:

- Sampling equipment (PowerStop Handle, disposable EasyDraw Syringes, Terra Core Samplers)
- Laboratory-supplied sample containers (pre-weighed 40ml VOA vials including labels, preservative, stir bars, etc. [number and type as specified by the lab], two ounce jars)
 - Vials used from ACA stock must be weighed to confirm loss of reagents is less than 0.02 grams. Record vial tare weight in field notes. Discard vials with dates over 6 months old.
- Field documentation materials
- Decontamination materials
- Personal protective equipment (as required by Health and Safety Plan)

3. METHODOLOGY

The project-specific sampling and analysis plan (SAP) will define the specific requirements for 5035A methodology required for a particular site or by a regulatory agency.

Analytical Requirements

- VOCs must be analyzed within 14 days of collection.
- Field preserved samples (e.g., sodium bisulfate or methanol) must be maintained at 4° C.
- Sample collected without preservative (e.g., reagent water) must frozen or analyzed within 48 hours.

Collection of Samples

- When using the PowerStop Handle, clip the syringe into the handle in one of the three 5 gram positions. Use the heavy position for dense clay, the light position for dry sandy soil, and the medium position for all others.
- Using the handle, push the sampler into the soil to collect the sample. Continue pushing until the soil column has forced the plunger in the syringe to the stopping point or filled the sampler.
- Wipe all debris from the outside of the sampler. The soil plug should be flush with the mouth of the sampler. Remove any excess soil that extends beyond the mouth of the sampler.
- Extrude the 5 gram sample into vial and cap vial immediately. Hold vial at an angle when extruding to minimize splashing. Gently swirl vial for 10 seconds to break up soil particles (do not shake).
- When capping the vial, be sure to remove any soil or debris from the threads of the vial.
- Repeat process for each additional vial.
- Fill a two ounce container (to capacity) for percent total solids determination.

Additional Considerations

- Methanol contamination can occur from adjacent activities (e.g., exhaust from running equipment or vehicles, hot tar roofing, facility operations, etc). Collection and analysis of methanol field blank (e.g., additional methanol vial left open during period of sampling) is recommended.
- Acidification of carbonaceous soils with sodium bisulfate can cause effervescence and loss of VOCs.
- Certain volatile compounds such as 2-chloroethylvinyl ether may be lost by acidification.
- Acidification of certain soils with sodium bisulfate may cause the formation of acetone through oxidation of soil waxes and humic material (e.g., organic materials such as roots).

1. PURPOSE AND SCOPE

This Standard Operating Procedure (SOP) describes the methods for developing monitoring wells following construction; however, this procedure is also applicable for the redevelopment of existing monitoring wells. Monitoring wells will be allowed to sit for a minimum of 48 hours following completion, or applicable local or state regulated waiting period, before initiating the well development process. This procedure is applicable during all Ash Creek Associates (ACA) well development activities.

2. EQUIPMENT AND MATERIALS

The following materials are necessary for this procedure:

- Field documentation materials
- Well Purge Equipment (i.e., High flow centrifugal down-hole pump or bailer)
- Multi-parameter meter (temperature, pH, and conductivity)
- Decontamination materials
- Drums and/or high-capacity tank for storage of purged water
- Personal protective equipment (as required by project Health and Safety Plan)

3. METHODOLOGY

The well will be set up in a manner such that the volume of water generated can be easily determined and field parameters can be collected. The development activities will be completed to maximize the removal of sediment from the well casing.

Procedures:

- Measure depth to water (DTW) and total depth of the well prior to development and calculate the casing volume.
- Field parameters (temperature, pH, and conductivity) will be measured for each casing volume removed.
- Purge water will be placed in Department of Transportation (DOT) approved drums or high-capacity tank.
- After the removal of eight casing volumes, field parameters will be monitored for stability.

The well will be considered developed after a minimum of 10 casing volumes have been removed, field parameters have stabilized, and purged water is as free of sediment as possible. Field parameters will be considered stable if temperature, pH, and conductivity are within 10% for three consecutive casing volumes. Wells will also be considered developed if the well is pumped dry during the development process. Consult the project-specific SAP for additional parameters and stabilization criteria.

Documentation:

The field representative will document the well development activities. Details to be noted include the following:

- Depths to water;
- Total depth of the well;
- Purging type and rate;
- Field parameters; and
- Total volume of water purged.

Appendix B

Laboratory Data Report

May 19, 2011

John Foxwell
Ash Creek Associates
3015 SW First Ave
Portland, OR 97201

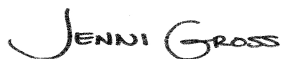
RE: Project: Tarr Vancouver - 1821-00
Pace Project No.: 257638

Dear John Foxwell:

Enclosed are the analytical results for sample(s) received by the laboratory on May 12, 2011. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

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

Sincerely,



Jennifer Gross

jennifer.gross@pacelabs.com
Project Manager

Enclosures

cc: Lisa Domenighini, Pace Analytical Seattle

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Alaska Drinking Water VOC Certification #: WA01230

Alaska Drinking Water Micro Certification #: WA01230

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C1229

REPORT OF LABORATORY ANALYSIS

Page 2 of 28

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SAMPLE ANALYTE COUNT

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
257638001	MW-1	NWTPH-Dx	AY1	4	PASI-S
		EPA 5030B/8260	LPM	71	PASI-S
		NWTPH-Gx	LNH	2	PASI-S
257638002	MW-1 DUP	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	LNH	2	PASI-S
257638003	MW-3	NWTPH-Dx	AY1	4	PASI-S
		EPA 5030B/8260	LNH	71	PASI-S
		NWTPH-Gx	LNH	2	PASI-S
257638004	MW-2	NWTPH-Dx	AY1	4	PASI-S
		EPA 5030B/8260	LNH	71	PASI-S
		NWTPH-Gx	LNH	2	PASI-S

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

Method: NWTPH-Dx

Description: NWTPH-Dx GCS

Client: Ash Creek Associates

Date: May 19, 2011

General Information:

4 samples were analyzed for NWTPH-Dx. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

Method: EPA 5030B/8260

Description: 8260 MSV

Client: Ash Creek Associates

Date: May 19, 2011

General Information:

3 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSV/4419

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 257594004

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 70016)
 - Chloroform
 - Methylene chloride
 - Tetrachloroethene
- MSD (Lab ID: 70017)
 - Methylene chloride
 - Tetrachloroethene

QC Batch: MSV/4442

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 257638003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 70393)
 - Acetone
 - Dichlorodifluoromethane

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PROJECT NARRATIVE

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

Method: EPA 5030B/8260

Description: 8260 MSV

Client: Ash Creek Associates

Date: May 19, 2011

QC Batch: MSV/4442

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 257638003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- Tetrachloroethene
- MSD (Lab ID: 70394)
- Dichlorodifluoromethane
- Methylene chloride
- Tetrachloroethene

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

Method: NWTPH-Gx

Description: NWTPH-Gx MSV

Client: Ash Creek Associates

Date: May 19, 2011

General Information:

4 samples were analyzed for NWTPH-Gx. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

Sample: MW-1		Lab ID: 257638001	Collected: 05/10/11 14:25	Received: 05/12/11 08:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	4.8 mg/L		0.076	1	05/13/11 11:20	05/16/11 21:37		
Motor Oil Range	0.44 mg/L		0.38	1	05/13/11 11:20	05/16/11 21:37	64742-65-0	
n-Octacosane (S)	102 %		50-150	1	05/13/11 11:20	05/16/11 21:37	630-02-4	
o-Terphenyl (S)	97 %		50-150	1	05/13/11 11:20	05/16/11 21:37	84-15-1	
8260 MSV		Analytical Method: EPA 5030B/8260						
1,1,1,2-Tetrachloroethane	ND ug/L		1.0	1		05/13/11 12:33	630-20-6	
1,1,1-Trichloroethane	ND ug/L		1.0	1		05/13/11 12:33	71-55-6	
1,1,2,2-Tetrachloroethane	ND ug/L		1.0	1		05/13/11 12:33	79-34-5	
1,1,2-Trichloroethane	ND ug/L		1.0	1		05/13/11 12:33	79-00-5	
1,1-Dichloroethane	ND ug/L		1.0	1		05/13/11 12:33	75-34-3	
1,1-Dichloroethene	ND ug/L		1.0	1		05/13/11 12:33	75-35-4	
1,1-Dichloropropene	ND ug/L		1.0	1		05/13/11 12:33	563-58-6	
1,2,3-Trichlorobenzene	ND ug/L		1.0	1		05/13/11 12:33	87-61-6	
1,2,3-Trichloropropane	ND ug/L		1.0	1		05/13/11 12:33	96-18-4	
1,2,4-Trichlorobenzene	ND ug/L		1.0	1		05/13/11 12:33	120-82-1	
1,2,4-Trimethylbenzene	4150 ug/L		25.0	25		05/17/11 18:35	95-63-6	
1,2-Dibromo-3-chloropropane	ND ug/L		4.0	1		05/13/11 12:33	96-12-8	
1,2-Dibromoethane (EDB)	ND ug/L		1.0	1		05/13/11 12:33	106-93-4	
1,2-Dichlorobenzene	ND ug/L		1.0	1		05/13/11 12:33	95-50-1	
1,2-Dichloroethane	ND ug/L		1.0	1		05/13/11 12:33	107-06-2	
1,2-Dichloroethene (Total)	ND ug/L		2.0	1		05/13/11 12:33	540-59-0	
1,2-Dichloropropane	ND ug/L		1.0	1		05/13/11 12:33	78-87-5	
1,3,5-Trimethylbenzene	881 ug/L		25.0	25		05/17/11 18:35	108-67-8	
1,3-Dichlorobenzene	ND ug/L		1.0	1		05/13/11 12:33	541-73-1	
1,3-Dichloropropane	ND ug/L		1.0	1		05/13/11 12:33	142-28-9	
1,4-Dichlorobenzene	ND ug/L		1.0	1		05/13/11 12:33	106-46-7	
2,2-Dichloropropane	ND ug/L		1.0	1		05/13/11 12:33	594-20-7	
2-Butanone (MEK)	ND ug/L		5.0	1		05/13/11 12:33	78-93-3	
2-Chlorotoluene	ND ug/L		1.0	1		05/13/11 12:33	95-49-8	
2-Hexanone	ND ug/L		5.0	1		05/13/11 12:33	591-78-6	
4-Chlorotoluene	ND ug/L		1.0	1		05/13/11 12:33	106-43-4	
4-Methyl-2-pentanone (MIBK)	ND ug/L		5.0	1		05/13/11 12:33	108-10-1	
Acetone	6.0 ug/L		5.0	1		05/13/11 12:33	67-64-1	
Benzene	1350 ug/L		25.0	25		05/17/11 18:35	71-43-2	
Bromobenzene	ND ug/L		1.0	1		05/13/11 12:33	108-86-1	
Bromochloromethane	ND ug/L		1.0	1		05/13/11 12:33	74-97-5	
Bromodichloromethane	ND ug/L		1.0	1		05/13/11 12:33	75-27-4	
Bromoform	ND ug/L		1.0	1		05/13/11 12:33	75-25-2	
Bromomethane	ND ug/L		1.0	1		05/13/11 12:33	74-83-9	
Carbon disulfide	ND ug/L		1.0	1		05/13/11 12:33	75-15-0	
Carbon tetrachloride	ND ug/L		1.0	1		05/13/11 12:33	56-23-5	
Chlorobenzene	ND ug/L		1.0	1		05/13/11 12:33	108-90-7	
Chloroethane	ND ug/L		1.0	1		05/13/11 12:33	75-00-3	
Chloroform	ND ug/L		1.0	1		05/13/11 12:33	67-66-3	
Chloromethane	ND ug/L		1.0	1		05/13/11 12:33	74-87-3	
Dibromochloromethane	ND ug/L		1.0	1		05/13/11 12:33	124-48-1	

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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

Sample: MW-1		Lab ID: 257638001	Collected: 05/10/11 14:25	Received: 05/12/11 08:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 5030B/8260						
Dibromomethane	ND	ug/L	1.0	1		05/13/11 12:33	74-95-3	
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/13/11 12:33	75-71-8	
Ethylbenzene	2170	ug/L	25.0	25		05/17/11 18:35	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/13/11 12:33	87-68-3	
Isopropylbenzene (Cumene)	134	ug/L	1.0	1		05/13/11 12:33	98-82-8	
Methyl-tert-butyl ether	1.4	ug/L	1.0	1		05/13/11 12:33	1634-04-4	
Methylene chloride	ND	ug/L	4.0	1		05/13/11 12:33	75-09-2	
Naphthalene	800	ug/L	25.0	25		05/17/11 18:35	91-20-3	
Styrene	ND	ug/L	1.0	1		05/13/11 12:33	100-42-5	
Tetrachloroethene	ND	ug/L	1.0	1		05/13/11 12:33	127-18-4	
Toluene	728	ug/L	25.0	25		05/17/11 18:35	108-88-3	
Trichloroethene	ND	ug/L	1.0	1		05/13/11 12:33	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		05/13/11 12:33	75-69-4	
Vinyl chloride	ND	ug/L	1.0	1		05/13/11 12:33	75-01-4	
Xylene (Total)	11900	ug/L	75.0	25		05/17/11 18:35	1330-20-7	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/13/11 12:33	156-59-2	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		05/13/11 12:33	10061-01-5	
m&p-Xylene	9280	ug/L	50.0	25		05/17/11 18:35	179601-23-1	
n-Butylbenzene	56.8	ug/L	1.0	1		05/13/11 12:33	104-51-8	
n-Propylbenzene	340	ug/L	1.0	1		05/13/11 12:33	103-65-1	
o-Xylene	2640	ug/L	25.0	25		05/17/11 18:35	95-47-6	
p-Isopropyltoluene	10.4	ug/L	1.0	1		05/13/11 12:33	99-87-6	
sec-Butylbenzene	17.3	ug/L	1.0	1		05/13/11 12:33	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		05/13/11 12:33	98-06-6	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/13/11 12:33	156-60-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		05/13/11 12:33	10061-02-6	
4-Bromofluorobenzene (S)	96	%	80-120	1		05/13/11 12:33	460-00-4	
Dibromofluoromethane (S)	94	%	80-122	1		05/13/11 12:33	1868-53-7	
1,2-Dichloroethane-d4 (S)	95	%	80-124	1		05/13/11 12:33	17060-07-0	
Toluene-d8 (S)	97	%	80-123	1		05/13/11 12:33	2037-26-5	
NWTPH-Gx MSV		Analytical Method: NWTPH-Gx						
Gasoline Range Organics	78200	ug/L	1250	25		05/17/11 18:35		
4-Bromofluorobenzene (S)	99	%	50-150	25		05/17/11 18:35	460-00-4	

Sample: MW-1 DUP		Lab ID: 257638002	Collected: 05/10/11 14:25	Received: 05/12/11 08:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	5.1	mg/L	0.076	1	05/13/11 11:20	05/16/11 22:10		
Motor Oil Range	0.49	mg/L	0.38	1	05/13/11 11:20	05/16/11 22:10	64742-65-0	
n-Octacosane (S)	63	%	50-150	1	05/13/11 11:20	05/16/11 22:10	630-02-4	
o-Terphenyl (S)	61	%	50-150	1	05/13/11 11:20	05/16/11 22:10	84-15-1	

ANALYTICAL RESULTS

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

Sample: MW-1 DUP		Lab ID: 257638002	Collected: 05/10/11 14:25	Received: 05/12/11 08:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx MSV		Analytical Method: NWTPH-Gx						
Gasoline Range Organics	78000	ug/L	1250	25		05/18/11 07:05		
4-Bromofluorobenzene (S)	98	%	50-150	25		05/18/11 07:05	460-00-4	

Sample: MW-3		Lab ID: 257638003	Collected: 05/10/11 15:30	Received: 05/12/11 08:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.076	1	05/13/11 11:20	05/16/11 22:26		
Motor Oil Range	ND	mg/L	0.38	1	05/13/11 11:20	05/16/11 22:26	64742-65-0	
n-Octacosane (S)	105	%	50-150	1	05/13/11 11:20	05/16/11 22:26	630-02-4	
o-Terphenyl (S)	93	%	50-150	1	05/13/11 11:20	05/16/11 22:26	84-15-1	

8260 MSV		Analytical Method: EPA 5030B/8260						
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/17/11 13:09	630-20-6	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		05/17/11 13:09	71-55-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/17/11 13:09	79-34-5	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/17/11 13:09	79-00-5	
1,1-Dichloroethane	ND	ug/L	1.0	1		05/17/11 13:09	75-34-3	
1,1-Dichloroethene	ND	ug/L	1.0	1		05/17/11 13:09	75-35-4	
1,1-Dichloropropene	ND	ug/L	1.0	1		05/17/11 13:09	563-58-6	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/17/11 13:09	87-61-6	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		05/17/11 13:09	96-18-4	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/17/11 13:09	120-82-1	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		05/17/11 13:09	95-63-6	
1,2-Dibromo-3-chloropropane	ND	ug/L	4.0	1		05/17/11 13:09	96-12-8	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/17/11 13:09	106-93-4	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/17/11 13:09	95-50-1	
1,2-Dichloroethane	ND	ug/L	1.0	1		05/17/11 13:09	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	2.0	1		05/17/11 13:09	540-59-0	
1,2-Dichloropropane	ND	ug/L	1.0	1		05/17/11 13:09	78-87-5	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		05/17/11 13:09	108-67-8	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/17/11 13:09	541-73-1	
1,3-Dichloropropane	ND	ug/L	1.0	1		05/17/11 13:09	142-28-9	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/17/11 13:09	106-46-7	
2,2-Dichloropropane	ND	ug/L	1.0	1		05/17/11 13:09	594-20-7	
2-Butanone (MEK)	ND	ug/L	5.0	1		05/17/11 13:09	78-93-3	
2-Chlorotoluene	ND	ug/L	1.0	1		05/17/11 13:09	95-49-8	
2-Hexanone	ND	ug/L	5.0	1		05/17/11 13:09	591-78-6	
4-Chlorotoluene	ND	ug/L	1.0	1		05/17/11 13:09	106-43-4	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/17/11 13:09	108-10-1	
Acetone	ND	ug/L	5.0	1		05/17/11 13:09	67-64-1	M1
Benzene	ND	ug/L	1.0	1		05/17/11 13:09	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		05/17/11 13:09	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		05/17/11 13:09	74-97-5	

Date: 05/19/2011 05:13 PM

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ANALYTICAL RESULTS

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

Sample: MW-3		Lab ID: 257638003	Collected: 05/10/11 15:30	Received: 05/12/11 08:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 5030B/8260						
Bromodichloromethane	ND ug/L		1.0	1		05/17/11 13:09	75-27-4	
Bromoform	ND ug/L		1.0	1		05/17/11 13:09	75-25-2	
Bromomethane	ND ug/L		1.0	1		05/17/11 13:09	74-83-9	
Carbon disulfide	ND ug/L		1.0	1		05/17/11 13:09	75-15-0	
Carbon tetrachloride	ND ug/L		1.0	1		05/17/11 13:09	56-23-5	
Chlorobenzene	ND ug/L		1.0	1		05/17/11 13:09	108-90-7	
Chloroethane	ND ug/L		1.0	1		05/17/11 13:09	75-00-3	
Chloroform	ND ug/L		1.0	1		05/17/11 13:09	67-66-3	
Chloromethane	ND ug/L		1.0	1		05/17/11 13:09	74-87-3	
Dibromochloromethane	ND ug/L		1.0	1		05/17/11 13:09	124-48-1	
Dibromomethane	ND ug/L		1.0	1		05/17/11 13:09	74-95-3	
Dichlorodifluoromethane	ND ug/L		1.0	1		05/17/11 13:09	75-71-8	M1
Ethylbenzene	ND ug/L		1.0	1		05/17/11 13:09	100-41-4	
Hexachloro-1,3-butadiene	ND ug/L		1.0	1		05/17/11 13:09	87-68-3	
Isopropylbenzene (Cumene)	ND ug/L		1.0	1		05/17/11 13:09	98-82-8	
Methyl-tert-butyl ether	ND ug/L		1.0	1		05/17/11 13:09	1634-04-4	
Methylene chloride	ND ug/L		4.0	1		05/17/11 13:09	75-09-2	M1
Naphthalene	ND ug/L		1.0	1		05/17/11 13:09	91-20-3	
Styrene	ND ug/L		1.0	1		05/17/11 13:09	100-42-5	
Tetrachloroethene	ND ug/L		1.0	1		05/17/11 13:09	127-18-4	M1
Toluene	ND ug/L		1.0	1		05/17/11 13:09	108-88-3	
Trichloroethene	ND ug/L		1.0	1		05/17/11 13:09	79-01-6	
Trichlorofluoromethane	ND ug/L		1.0	1		05/17/11 13:09	75-69-4	
Vinyl chloride	ND ug/L		1.0	1		05/17/11 13:09	75-01-4	
Xylene (Total)	ND ug/L		3.0	1		05/17/11 13:09	1330-20-7	
cis-1,2-Dichloroethene	ND ug/L		1.0	1		05/17/11 13:09	156-59-2	
cis-1,3-Dichloropropene	ND ug/L		1.0	1		05/17/11 13:09	10061-01-5	
m&p-Xylene	ND ug/L		2.0	1		05/17/11 13:09	179601-23-1	
n-Butylbenzene	ND ug/L		1.0	1		05/17/11 13:09	104-51-8	
n-Propylbenzene	ND ug/L		1.0	1		05/17/11 13:09	103-65-1	
o-Xylene	ND ug/L		1.0	1		05/17/11 13:09	95-47-6	
p-Isopropyltoluene	ND ug/L		1.0	1		05/17/11 13:09	99-87-6	
sec-Butylbenzene	ND ug/L		1.0	1		05/17/11 13:09	135-98-8	
tert-Butylbenzene	ND ug/L		1.0	1		05/17/11 13:09	98-06-6	
trans-1,2-Dichloroethene	ND ug/L		1.0	1		05/17/11 13:09	156-60-5	
trans-1,3-Dichloropropene	ND ug/L		1.0	1		05/17/11 13:09	10061-02-6	
4-Bromofluorobenzene (S)	101 %		80-120	1		05/17/11 13:09	460-00-4	
Dibromofluoromethane (S)	97 %		80-122	1		05/17/11 13:09	1868-53-7	
1,2-Dichloroethane-d4 (S)	96 %		80-124	1		05/17/11 13:09	17060-07-0	
Toluene-d8 (S)	98 %		80-123	1		05/17/11 13:09	2037-26-5	
NWTPH-Gx MSV		Analytical Method: NWTPH-Gx						
Gasoline Range Organics	ND ug/L		50.0	1		05/17/11 13:09		
4-Bromofluorobenzene (S)	101 %		50-150	1		05/17/11 13:09	460-00-4	

ANALYTICAL RESULTS

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

Sample: MW-2		Lab ID: 257638004	Collected: 05/10/11 16:15	Received: 05/12/11 08:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND mg/L		0.076	1	05/13/11 11:20	05/16/11 22:42		
Motor Oil Range	ND mg/L		0.38	1	05/13/11 11:20	05/16/11 22:42	64742-65-0	
n-Octacosane (S)	106 %		50-150	1	05/13/11 11:20	05/16/11 22:42	630-02-4	
o-Terphenyl (S)	93 %		50-150	1	05/13/11 11:20	05/16/11 22:42	84-15-1	
8260 MSV		Analytical Method: EPA 5030B/8260						
1,1,1,2-Tetrachloroethane	ND ug/L		1.0	1		05/17/11 13:26	630-20-6	
1,1,1-Trichloroethane	ND ug/L		1.0	1		05/17/11 13:26	71-55-6	
1,1,2,2-Tetrachloroethane	ND ug/L		1.0	1		05/17/11 13:26	79-34-5	
1,1,2-Trichloroethane	ND ug/L		1.0	1		05/17/11 13:26	79-00-5	
1,1-Dichloroethane	ND ug/L		1.0	1		05/17/11 13:26	75-34-3	
1,1-Dichloroethene	ND ug/L		1.0	1		05/17/11 13:26	75-35-4	
1,1-Dichloropropene	ND ug/L		1.0	1		05/17/11 13:26	563-58-6	
1,2,3-Trichlorobenzene	ND ug/L		1.0	1		05/17/11 13:26	87-61-6	
1,2,3-Trichloropropane	ND ug/L		1.0	1		05/17/11 13:26	96-18-4	
1,2,4-Trichlorobenzene	ND ug/L		1.0	1		05/17/11 13:26	120-82-1	
1,2,4-Trimethylbenzene	ND ug/L		1.0	1		05/17/11 13:26	95-63-6	
1,2-Dibromo-3-chloropropane	ND ug/L		4.0	1		05/17/11 13:26	96-12-8	
1,2-Dibromoethane (EDB)	ND ug/L		1.0	1		05/17/11 13:26	106-93-4	
1,2-Dichlorobenzene	ND ug/L		1.0	1		05/17/11 13:26	95-50-1	
1,2-Dichloroethane	ND ug/L		1.0	1		05/17/11 13:26	107-06-2	
1,2-Dichloroethene (Total)	ND ug/L		2.0	1		05/17/11 13:26	540-59-0	
1,2-Dichloropropane	ND ug/L		1.0	1		05/17/11 13:26	78-87-5	
1,3,5-Trimethylbenzene	ND ug/L		1.0	1		05/17/11 13:26	108-67-8	
1,3-Dichlorobenzene	ND ug/L		1.0	1		05/17/11 13:26	541-73-1	
1,3-Dichloropropane	ND ug/L		1.0	1		05/17/11 13:26	142-28-9	
1,4-Dichlorobenzene	ND ug/L		1.0	1		05/17/11 13:26	106-46-7	
2,2-Dichloropropane	ND ug/L		1.0	1		05/17/11 13:26	594-20-7	
2-Butanone (MEK)	ND ug/L		5.0	1		05/17/11 13:26	78-93-3	
2-Chlorotoluene	ND ug/L		1.0	1		05/17/11 13:26	95-49-8	
2-Hexanone	ND ug/L		5.0	1		05/17/11 13:26	591-78-6	
4-Chlorotoluene	ND ug/L		1.0	1		05/17/11 13:26	106-43-4	
4-Methyl-2-pentanone (MIBK)	ND ug/L		5.0	1		05/17/11 13:26	108-10-1	
Acetone	ND ug/L		5.0	1		05/17/11 13:26	67-64-1	
Benzene	ND ug/L		1.0	1		05/17/11 13:26	71-43-2	
Bromobenzene	ND ug/L		1.0	1		05/17/11 13:26	108-86-1	
Bromochloromethane	ND ug/L		1.0	1		05/17/11 13:26	74-97-5	
Bromodichloromethane	ND ug/L		1.0	1		05/17/11 13:26	75-27-4	
Bromoform	ND ug/L		1.0	1		05/17/11 13:26	75-25-2	
Bromomethane	ND ug/L		1.0	1		05/17/11 13:26	74-83-9	
Carbon disulfide	ND ug/L		1.0	1		05/17/11 13:26	75-15-0	
Carbon tetrachloride	ND ug/L		1.0	1		05/17/11 13:26	56-23-5	
Chlorobenzene	ND ug/L		1.0	1		05/17/11 13:26	108-90-7	
Chloroethane	ND ug/L		1.0	1		05/17/11 13:26	75-00-3	
Chloroform	ND ug/L		1.0	1		05/17/11 13:26	67-66-3	
Chloromethane	ND ug/L		1.0	1		05/17/11 13:26	74-87-3	
Dibromochloromethane	ND ug/L		1.0	1		05/17/11 13:26	124-48-1	

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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

Sample: MW-2		Lab ID: 257638004	Collected: 05/10/11 16:15	Received: 05/12/11 08:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 5030B/8260						
Dibromomethane	ND ug/L		1.0	1		05/17/11 13:26	74-95-3	
Dichlorodifluoromethane	ND ug/L		1.0	1		05/17/11 13:26	75-71-8	
Ethylbenzene	ND ug/L		1.0	1		05/17/11 13:26	100-41-4	
Hexachloro-1,3-butadiene	ND ug/L		1.0	1		05/17/11 13:26	87-68-3	
Isopropylbenzene (Cumene)	ND ug/L		1.0	1		05/17/11 13:26	98-82-8	
Methyl-tert-butyl ether	ND ug/L		1.0	1		05/17/11 13:26	1634-04-4	
Methylene chloride	ND ug/L		4.0	1		05/17/11 13:26	75-09-2	
Naphthalene	ND ug/L		1.0	1		05/17/11 13:26	91-20-3	
Styrene	ND ug/L		1.0	1		05/17/11 13:26	100-42-5	
Tetrachloroethene	ND ug/L		1.0	1		05/17/11 13:26	127-18-4	
Toluene	ND ug/L		1.0	1		05/17/11 13:26	108-88-3	
Trichloroethene	ND ug/L		1.0	1		05/17/11 13:26	79-01-6	
Trichlorofluoromethane	ND ug/L		1.0	1		05/17/11 13:26	75-69-4	
Vinyl chloride	ND ug/L		1.0	1		05/17/11 13:26	75-01-4	
Xylene (Total)	ND ug/L		3.0	1		05/17/11 13:26	1330-20-7	
cis-1,2-Dichloroethene	ND ug/L		1.0	1		05/17/11 13:26	156-59-2	
cis-1,3-Dichloropropene	ND ug/L		1.0	1		05/17/11 13:26	10061-01-5	
m&p-Xylene	ND ug/L		2.0	1		05/17/11 13:26	179601-23-1	
n-Butylbenzene	ND ug/L		1.0	1		05/17/11 13:26	104-51-8	
n-Propylbenzene	ND ug/L		1.0	1		05/17/11 13:26	103-65-1	
o-Xylene	ND ug/L		1.0	1		05/17/11 13:26	95-47-6	
p-Isopropyltoluene	ND ug/L		1.0	1		05/17/11 13:26	99-87-6	
sec-Butylbenzene	ND ug/L		1.0	1		05/17/11 13:26	135-98-8	
tert-Butylbenzene	ND ug/L		1.0	1		05/17/11 13:26	98-06-6	
trans-1,2-Dichloroethene	ND ug/L		1.0	1		05/17/11 13:26	156-60-5	
trans-1,3-Dichloropropene	ND ug/L		1.0	1		05/17/11 13:26	10061-02-6	
4-Bromofluorobenzene (S)	101 %		80-120	1		05/17/11 13:26	460-00-4	
Dibromofluoromethane (S)	95 %		80-122	1		05/17/11 13:26	1868-53-7	
1,2-Dichloroethane-d4 (S)	94 %		80-124	1		05/17/11 13:26	17060-07-0	
Toluene-d8 (S)	98 %		80-123	1		05/17/11 13:26	2037-26-5	
NWTPH-Gx MSV		Analytical Method: NWTPH-Gx						
Gasoline Range Organics	ND ug/L		50.0	1		05/17/11 13:26		
4-Bromofluorobenzene (S)	101 %		50-150	1		05/17/11 13:26	460-00-4	

QUALITY CONTROL DATA

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

QC Batch: OEXT/3703 Analysis Method: NWTPH-Dx
QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
Associated Lab Samples: 257638001, 257638002, 257638003, 257638004

METHOD BLANK: 69962 Matrix: Water

Associated Lab Samples: 257638001, 257638002, 257638003, 257638004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.080	05/16/11 20:32	
Motor Oil Range	mg/L	ND	0.40	05/16/11 20:32	
n-Octacosane (S)	%	98	50-150	05/16/11 20:32	
o-Terphenyl (S)	%	84	50-150	05/16/11 20:32	

LABORATORY CONTROL SAMPLE: 69963

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	5	4.2	84	51-147	
Motor Oil Range	mg/L	5	4.9	98	20-160	
n-Octacosane (S)	%			108	50-150	
o-Terphenyl (S)	%			94	50-150	

SAMPLE DUPLICATE: 69964

Parameter	Units	257638001 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	4.8	5.4	12	
Motor Oil Range	mg/L	0.44	0.49	9	
n-Octacosane (S)	%	102	99	3	
o-Terphenyl (S)	%	97	96	1	

SAMPLE DUPLICATE: 69965

Parameter	Units	257644003 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	0.21	0.21	2	
Motor Oil Range	mg/L	ND	.12J		
n-Octacosane (S)	%	108	110	5	
o-Terphenyl (S)	%	98	103	8	

QUALITY CONTROL DATA

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

QC Batch: MSV/4419

Analysis Method: EPA 5030B/8260

QC Batch Method: EPA 5030B/8260

Analysis Description: 8260 MSV Water 10 mL Purge

Associated Lab Samples: 257638001

METHOD BLANK: 70014

Matrix: Water

Associated Lab Samples: 257638001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	05/13/11 11:27	
1,1,1-Trichloroethane	ug/L	ND	1.0	05/13/11 11:27	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	05/13/11 11:27	
1,1,2-Trichloroethane	ug/L	ND	1.0	05/13/11 11:27	
1,1-Dichloroethane	ug/L	ND	1.0	05/13/11 11:27	
1,1-Dichloroethene	ug/L	ND	1.0	05/13/11 11:27	
1,1-Dichloropropene	ug/L	ND	1.0	05/13/11 11:27	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	05/13/11 11:27	
1,2,3-Trichloropropane	ug/L	ND	1.0	05/13/11 11:27	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	05/13/11 11:27	
1,2,4-Trimethylbenzene	ug/L	ND	1.0	05/13/11 11:27	
1,2-Dibromo-3-chloropropane	ug/L	ND	4.0	05/13/11 11:27	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	05/13/11 11:27	
1,2-Dichlorobenzene	ug/L	ND	1.0	05/13/11 11:27	
1,2-Dichloroethane	ug/L	ND	1.0	05/13/11 11:27	
1,2-Dichloroethene (Total)	ug/L	ND	2.0	05/13/11 11:27	
1,2-Dichloropropane	ug/L	ND	1.0	05/13/11 11:27	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	05/13/11 11:27	
1,3-Dichlorobenzene	ug/L	ND	1.0	05/13/11 11:27	
1,3-Dichloropropane	ug/L	ND	1.0	05/13/11 11:27	
1,4-Dichlorobenzene	ug/L	ND	1.0	05/13/11 11:27	
2,2-Dichloropropane	ug/L	ND	1.0	05/13/11 11:27	
2-Butanone (MEK)	ug/L	ND	5.0	05/13/11 11:27	
2-Chlorotoluene	ug/L	ND	1.0	05/13/11 11:27	
2-Hexanone	ug/L	ND	5.0	05/13/11 11:27	
4-Chlorotoluene	ug/L	ND	1.0	05/13/11 11:27	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	05/13/11 11:27	
Acetone	ug/L	ND	5.0	05/13/11 11:27	
Benzene	ug/L	ND	1.0	05/13/11 11:27	
Bromobenzene	ug/L	ND	1.0	05/13/11 11:27	
Bromochloromethane	ug/L	ND	1.0	05/13/11 11:27	
Bromodichloromethane	ug/L	ND	1.0	05/13/11 11:27	
Bromoform	ug/L	ND	1.0	05/13/11 11:27	
Bromomethane	ug/L	ND	1.0	05/13/11 11:27	
Carbon disulfide	ug/L	ND	1.0	05/13/11 11:27	
Carbon tetrachloride	ug/L	ND	1.0	05/13/11 11:27	
Chlorobenzene	ug/L	ND	1.0	05/13/11 11:27	
Chloroethane	ug/L	ND	1.0	05/13/11 11:27	
Chloroform	ug/L	ND	1.0	05/13/11 11:27	
Chloromethane	ug/L	ND	1.0	05/13/11 11:27	
cis-1,2-Dichloroethene	ug/L	ND	1.0	05/13/11 11:27	
cis-1,3-Dichloropropene	ug/L	ND	1.0	05/13/11 11:27	
Dibromochloromethane	ug/L	ND	1.0	05/13/11 11:27	

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QUALITY CONTROL DATA

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

METHOD BLANK: 70014

Matrix: Water

Associated Lab Samples: 257638001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromomethane	ug/L	ND	1.0	05/13/11 11:27	
Dichlorodifluoromethane	ug/L	ND	1.0	05/13/11 11:27	
Ethylbenzene	ug/L	ND	1.0	05/13/11 11:27	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	05/13/11 11:27	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	05/13/11 11:27	
m&p-Xylene	ug/L	ND	2.0	05/13/11 11:27	
Methyl-tert-butyl ether	ug/L	ND	1.0	05/13/11 11:27	
Methylene chloride	ug/L	ND	4.0	05/13/11 11:27	
n-Butylbenzene	ug/L	ND	1.0	05/13/11 11:27	
n-Propylbenzene	ug/L	ND	1.0	05/13/11 11:27	
Naphthalene	ug/L	ND	1.0	05/13/11 11:27	
o-Xylene	ug/L	ND	1.0	05/13/11 11:27	
p-Isopropyltoluene	ug/L	ND	1.0	05/13/11 11:27	
sec-Butylbenzene	ug/L	ND	1.0	05/13/11 11:27	
Styrene	ug/L	ND	1.0	05/13/11 11:27	
tert-Butylbenzene	ug/L	ND	1.0	05/13/11 11:27	
Tetrachloroethene	ug/L	ND	1.0	05/13/11 11:27	
Toluene	ug/L	ND	1.0	05/13/11 11:27	
trans-1,2-Dichloroethene	ug/L	ND	1.0	05/13/11 11:27	
trans-1,3-Dichloropropene	ug/L	ND	1.0	05/13/11 11:27	
Trichloroethene	ug/L	ND	1.0	05/13/11 11:27	
Trichlorofluoromethane	ug/L	ND	1.0	05/13/11 11:27	
Vinyl chloride	ug/L	ND	1.0	05/13/11 11:27	
Xylene (Total)	ug/L	ND	3.0	05/13/11 11:27	
1,2-Dichloroethane-d4 (S)	%	93	80-124	05/13/11 11:27	
4-Bromofluorobenzene (S)	%	100	80-120	05/13/11 11:27	
Dibromofluoromethane (S)	%	95	80-122	05/13/11 11:27	
Toluene-d8 (S)	%	99	80-123	05/13/11 11:27	

LABORATORY CONTROL SAMPLE: 70015

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	19.4	97	68-131	
1,1,1-Trichloroethane	ug/L	20	18.3	92	74-137	
1,1,2,2-Tetrachloroethane	ug/L	20	20.0	100	72-126	
1,1,2-Trichloroethane	ug/L	20	18.6	93	76-120	
1,1-Dichloroethane	ug/L	20	19.0	95	76-131	
1,1-Dichloroethene	ug/L	20	19.9	99	68-150	
1,1-Dichloropropene	ug/L	20	18.6	93	74-138	
1,2,3-Trichlorobenzene	ug/L	20	18.2	91	60-136	
1,2,3-Trichloropropane	ug/L	20	18.9	95	62-135	
1,2,4-Trichlorobenzene	ug/L	20	18.7	94	62-136	
1,2,4-Trimethylbenzene	ug/L	20	19.7	99	66-132	
1,2-Dibromo-3-chloropropane	ug/L	20	18.0	90	60-123	
1,2-Dibromoethane (EDB)	ug/L	20	18.5	93	73-124	

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QUALITY CONTROL DATA

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

LABORATORY CONTROL SAMPLE: 70015

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichlorobenzene	ug/L	20	19.0	95	75-122	
1,2-Dichloroethane	ug/L	20	18.0	90	78-125	
1,2-Dichloroethene (Total)	ug/L	40	38.9	97	77-136	
1,2-Dichloropropane	ug/L	20	18.3	91	76-121	
1,3,5-Trimethylbenzene	ug/L	20	19.1	95	69-130	
1,3-Dichlorobenzene	ug/L	20	19.1	96	75-122	
1,3-Dichloropropane	ug/L	20	17.9	90	77-120	
1,4-Dichlorobenzene	ug/L	20	18.9	95	78-120	
2,2-Dichloropropane	ug/L	20	19.3	97	46-168	
2-Butanone (MEK)	ug/L	40	42.5	106	55-146	
2-Chlorotoluene	ug/L	20	18.7	93	67-129	
2-Hexanone	ug/L	40	42.3	106	58-136	
4-Chlorotoluene	ug/L	20	19.2	96	75-126	
4-Methyl-2-pentanone (MIBK)	ug/L	40	35.6	89	62-137	
Acetone	ug/L	40	56.7	142	30-180	
Benzene	ug/L	20	18.3	91	76-127	
Bromobenzene	ug/L	20	19.0	95	74-120	
Bromochloromethane	ug/L	20	18.8	94	73-132	
Bromodichloromethane	ug/L	20	19.0	95	74-126	
Bromoform	ug/L	20	18.1	90	64-129	
Bromomethane	ug/L	20	18.3	91	40-164	
Carbon disulfide	ug/L	20	18.0	90	32-158	
Carbon tetrachloride	ug/L	20	19.9	100	68-142	
Chlorobenzene	ug/L	20	18.7	94	78-121	
Chloroethane	ug/L	20	15.5	78	58-151	
Chloroform	ug/L	20	18.7	94	80-125	
Chloromethane	ug/L	20	17.5	88	50-152	
cis-1,2-Dichloroethene	ug/L	20	19.7	98	80-135	
cis-1,3-Dichloropropene	ug/L	20	19.4	97	65-134	
Dibromochloromethane	ug/L	20	19.1	96	71-126	
Dibromomethane	ug/L	20	18.5	93	78-126	
Dichlorodifluoromethane	ug/L	20	15.3	77	18-180	
Ethylbenzene	ug/L	20	18.9	94	72-125	
Hexachloro-1,3-butadiene	ug/L	20	17.8	89	60-138	
Isopropylbenzene (Cumene)	ug/L	20	18.6	93	69-135	
m&p-Xylene	ug/L	40	38.1	95	73-126	
Methyl-tert-butyl ether	ug/L	20	18.8	94	58-145	
Methylene chloride	ug/L	20	14.5	73	65-144	
n-Butylbenzene	ug/L	20	18.6	93	66-132	
n-Propylbenzene	ug/L	20	19.0	95	69-131	
Naphthalene	ug/L	20	19.1	96	51-142	
o-Xylene	ug/L	20	19.0	95	73-123	
p-Isopropyltoluene	ug/L	20	19.1	96	67-133	
sec-Butylbenzene	ug/L	20	19.5	98	65-136	
Styrene	ug/L	20	18.7	94	72-128	
tert-Butylbenzene	ug/L	20	17.7	88	61-133	
Tetrachloroethene	ug/L	20	11.8	59	40-164	
Toluene	ug/L	20	18.5	92	69-125	

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QUALITY CONTROL DATA

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

LABORATORY CONTROL SAMPLE: 70015

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
trans-1,2-Dichloroethene	ug/L	20	19.3	96	73-139	
trans-1,3-Dichloropropene	ug/L	20	16.5	82	56-122	
Trichloroethene	ug/L	20	18.1	90	74-127	
Trichlorofluoromethane	ug/L	20	18.3	92	64-154	
Vinyl chloride	ug/L	20	16.3	81	57-147	
Xylene (Total)	ug/L	60	57.1	95	74-124	
1,2-Dichloroethane-d4 (S)	%			92	80-124	
4-Bromofluorobenzene (S)	%			98	80-120	
Dibromofluoromethane (S)	%			97	80-122	
Toluene-d8 (S)	%			99	80-123	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 70016 70017

Parameter	Units	257594004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20	20.3	20.4	102	102	73-126	.2	
1,1,1-Trichloroethane	ug/L	ND	20	20	20.9	21.0	104	105	69-135	.5	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	20.3	21.3	102	107	69-123	5	
1,1,2-Trichloroethane	ug/L	ND	20	20	18.5	19.6	93	98	76-114	6	
1,1-Dichloroethane	ug/L	ND	20	20	22.0	22.1	110	110	74-124	.4	
1,1-Dichloroethene	ug/L	ND	20	20	23.3	23.3	117	117	69-139	.08	
1,1-Dichloropropene	ug/L	ND	20	20	22.3	22.6	112	113	77-134	1	
1,2,3-Trichlorobenzene	ug/L	ND	20	20	17.9	18.8	90	94	63-136	5	
1,2,3-Trichloropropane	ug/L	ND	20	20	17.2	17.3	86	87	66-118	.7	
1,2,4-Trichlorobenzene	ug/L	ND	20	20	19.6	20.2	98	101	68-129	3	
1,2,4-Trimethylbenzene	ug/L	2.7	20	20	22.5	22.2	99	98	72-126	1	
1,2-Dibromo-3-chloropropane	ug/L	ND	20	20	15.2	17.0	76	85	64-124	11	
1,2-Dibromoethane (EDB)	ug/L	ND	20	20	17.0	18.2	85	91	78-117	6	
1,2-Dichlorobenzene	ug/L	1.6	20	20	20.9	21.5	97	100	74-118	3	
1,2-Dichloroethane	ug/L	ND	20	20	18.6	18.9	93	95	73-127	2	
1,2-Dichloroethene (Total)	ug/L	ND	40	40	44.0	43.9	110	110	60-140	.1	
1,2-Dichloropropane	ug/L	ND	20	20	21.5	21.8	108	109	72-126	1	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	22.2	21.5	107	103	68-129	3	
1,3-Dichlorobenzene	ug/L	ND	20	20	20.9	20.8	104	104	73-119	.4	
1,3-Dichloropropane	ug/L	ND	20	20	17.1	18.0	85	90	74-119	6	
1,4-Dichlorobenzene	ug/L	ND	20	20	20.2	20.2	101	101	73-115	.08	
2,2-Dichloropropane	ug/L	ND	20	20	23.3	23.4	117	117	46-157	.3	
2-Butanone (MEK)	ug/L	ND	40	40	28.1	32.6	70	82	65-138	15	
2-Chlorotoluene	ug/L	ND	20	20	20.5	20.6	103	103	68-122	.5	
2-Hexanone	ug/L	ND	40	40	29.2	33.7	73	84	60-135	14	
4-Chlorotoluene	ug/L	ND	20	20	21.6	21.0	108	105	70-122	3	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	40	30.5	33.9	76	85	70-135	11	
Acetone	ug/L	ND	40	40	27.4	34.5	69	86	58-146	23	
Benzene	ug/L	17.8	20	20	37.8	39.0	100	106	75-124	3	
Bromobenzene	ug/L	ND	20	20	19.7	20.0	98	100	74-116	2	
Bromochloromethane	ug/L	ND	20	20	18.3	19.0	92	95	75-128	3	
Bromodichloromethane	ug/L	ND	20	20	21.1	21.3	106	107	77-126	.9	

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QUALITY CONTROL DATA

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 70016 70017											
Parameter	Units	257594004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Bromoform	ug/L	ND	20	20	16.2	17.3	81	87	61-131	7	
Bromomethane	ug/L	ND	20	20	17.9	19.0	90	95	58-139	6	
Carbon disulfide	ug/L	ND	20	20	21.5	21.3	108	106	39-122	1	
Carbon tetrachloride	ug/L	ND	20	20	23.2	22.9	116	114	67-136	1	
Chlorobenzene	ug/L	ND	20	20	20.6	20.6	103	103	78-115	.2	
Chloroethane	ug/L	ND	20	20	14.7	16.3	74	82	58-137	10	
Chloroform	ug/L	ND	20	20	25.0	24.9	125	124	75-124	.2	M1
Chloromethane	ug/L	ND	20	20	13.0	14.4	65	72	50-129	10	
cis-1,2-Dichloroethene	ug/L	ND	20	20	21.7	21.8	109	109	78-126	.05	
cis-1,3-Dichloropropene	ug/L	ND	20	20	20.2	20.6	101	103	78-159	2	
Dibromochloromethane	ug/L	ND	20	20	18.3	19.1	92	95	81-125	4	
Dibromomethane	ug/L	ND	20	20	17.5	18.8	87	94	75-124	8	
Dichlorodifluoromethane	ug/L	ND	20	20	9.4	10.6	47	53	30-140	12	
Ethylbenzene	ug/L	1.8	20	20	22.1	21.9	102	101	76-124	1	
Hexachloro-1,3-butadiene	ug/L	ND	20	20	20.5	20.0	103	100	55-132	3	
Isopropylbenzene (Cumene)	ug/L	1.0	20	20	22.1	21.9	105	104	73-127	.9	
m&p-Xylene	ug/L	7.6	40	40	46.5	47.0	97	98	75-124	1	
Methyl-tert-butyl ether	ug/L	2.5	20	20	19.4	20.8	84	91	72-130	7	
Methylene chloride	ug/L	ND	20	20	13.1	12.9	65	64	69-124	2	M1
n-Butylbenzene	ug/L	ND	20	20	22.7	22.2	114	111	65-131	2	
n-Propylbenzene	ug/L	ND	20	20	22.3	21.9	109	106	69-129	2	
Naphthalene	ug/L	ND	20	20	17.6	19.3	85	93	69-135	9	
o-Xylene	ug/L	3.3	20	20	23.4	23.7	101	102	76-121	1	
p-Isopropyltoluene	ug/L	ND	20	20	22.5	22.0	113	110	69-133	2	
sec-Butylbenzene	ug/L	3.7	20	20	26.2	25.5	112	109	67-132	3	
Styrene	ug/L	ND	20	20	20.3	20.5	101	102	76-121	1	
tert-Butylbenzene	ug/L	ND	20	20	21.1	20.6	101	99	66-132	2	
Tetrachloroethene	ug/L	ND	20	20	13.5	13.6	67	68	70-127	1	M1
Toluene	ug/L	6.6	20	20	27.0	27.4	102	104	75-124	1	
trans-1,2-Dichloroethene	ug/L	ND	20	20	22.3	22.2	111	111	72-129	.3	
trans-1,3-Dichloropropene	ug/L	ND	20	20	16.3	16.9	81	85	69-122	4	
Trichloroethene	ug/L	ND	20	20	20.8	20.8	104	104	78-124	.08	
Trichlorofluoromethane	ug/L	ND	20	20	18.4	20.1	92	100	60-147	8	
Vinyl chloride	ug/L	ND	20	20	15.0	16.4	75	82	56-136	8	
Xylene (Total)	ug/L	10.9	60	60	69.9	70.7	98	100	76-123	1	
1,2-Dichloroethane-d4 (S)	%						89	92	80-124		
4-Bromofluorobenzene (S)	%						99	99	80-120		
Dibromofluoromethane (S)	%						97	98	80-122		
Toluene-d8 (S)	%						102	101	80-123		

QUALITY CONTROL DATA

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

QC Batch: MSV/4442

Analysis Method: EPA 5030B/8260

QC Batch Method: EPA 5030B/8260

Analysis Description: 8260 MSV Water 10 mL Purge

Associated Lab Samples: 257638003, 257638004

METHOD BLANK: 70391

Matrix: Water

Associated Lab Samples: 257638003, 257638004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	05/17/11 12:00	
1,1,1-Trichloroethane	ug/L	ND	1.0	05/17/11 12:00	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	05/17/11 12:00	
1,1,2-Trichloroethane	ug/L	ND	1.0	05/17/11 12:00	
1,1-Dichloroethane	ug/L	ND	1.0	05/17/11 12:00	
1,1-Dichloroethene	ug/L	ND	1.0	05/17/11 12:00	
1,1-Dichloropropene	ug/L	ND	1.0	05/17/11 12:00	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	05/17/11 12:00	
1,2,3-Trichloropropane	ug/L	ND	1.0	05/17/11 12:00	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	05/17/11 12:00	
1,2,4-Trimethylbenzene	ug/L	ND	1.0	05/17/11 12:00	
1,2-Dibromo-3-chloropropane	ug/L	ND	4.0	05/17/11 12:00	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	05/17/11 12:00	
1,2-Dichlorobenzene	ug/L	ND	1.0	05/17/11 12:00	
1,2-Dichloroethane	ug/L	ND	1.0	05/17/11 12:00	
1,2-Dichloroethene (Total)	ug/L	ND	2.0	05/17/11 12:00	
1,2-Dichloropropane	ug/L	ND	1.0	05/17/11 12:00	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	05/17/11 12:00	
1,3-Dichlorobenzene	ug/L	ND	1.0	05/17/11 12:00	
1,3-Dichloropropane	ug/L	ND	1.0	05/17/11 12:00	
1,4-Dichlorobenzene	ug/L	ND	1.0	05/17/11 12:00	
2,2-Dichloropropane	ug/L	ND	1.0	05/17/11 12:00	
2-Butanone (MEK)	ug/L	ND	5.0	05/17/11 12:00	
2-Chlorotoluene	ug/L	ND	1.0	05/17/11 12:00	
2-Hexanone	ug/L	ND	5.0	05/17/11 12:00	
4-Chlorotoluene	ug/L	ND	1.0	05/17/11 12:00	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	05/17/11 12:00	
Acetone	ug/L	ND	5.0	05/17/11 12:00	
Benzene	ug/L	ND	1.0	05/17/11 12:00	
Bromobenzene	ug/L	ND	1.0	05/17/11 12:00	
Bromochloromethane	ug/L	ND	1.0	05/17/11 12:00	
Bromodichloromethane	ug/L	ND	1.0	05/17/11 12:00	
Bromoform	ug/L	ND	1.0	05/17/11 12:00	
Bromomethane	ug/L	ND	1.0	05/17/11 12:00	
Carbon disulfide	ug/L	ND	1.0	05/17/11 12:00	
Carbon tetrachloride	ug/L	ND	1.0	05/17/11 12:00	
Chlorobenzene	ug/L	ND	1.0	05/17/11 12:00	
Chloroethane	ug/L	ND	1.0	05/17/11 12:00	
Chloroform	ug/L	ND	1.0	05/17/11 12:00	
Chloromethane	ug/L	ND	1.0	05/17/11 12:00	
cis-1,2-Dichloroethene	ug/L	ND	1.0	05/17/11 12:00	
cis-1,3-Dichloropropene	ug/L	ND	1.0	05/17/11 12:00	
Dibromochloromethane	ug/L	ND	1.0	05/17/11 12:00	

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QUALITY CONTROL DATA

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

METHOD BLANK: 70391

Matrix: Water

Associated Lab Samples: 257638003, 257638004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromomethane	ug/L	ND	1.0	05/17/11 12:00	
Dichlorodifluoromethane	ug/L	ND	1.0	05/17/11 12:00	
Ethylbenzene	ug/L	ND	1.0	05/17/11 12:00	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	05/17/11 12:00	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	05/17/11 12:00	
m&p-Xylene	ug/L	ND	2.0	05/17/11 12:00	
Methyl-tert-butyl ether	ug/L	ND	1.0	05/17/11 12:00	
Methylene chloride	ug/L	ND	4.0	05/17/11 12:00	
n-Butylbenzene	ug/L	ND	1.0	05/17/11 12:00	
n-Propylbenzene	ug/L	ND	1.0	05/17/11 12:00	
Naphthalene	ug/L	ND	1.0	05/17/11 12:00	
o-Xylene	ug/L	ND	1.0	05/17/11 12:00	
p-Isopropyltoluene	ug/L	ND	1.0	05/17/11 12:00	
sec-Butylbenzene	ug/L	ND	1.0	05/17/11 12:00	
Styrene	ug/L	ND	1.0	05/17/11 12:00	
tert-Butylbenzene	ug/L	ND	1.0	05/17/11 12:00	
Tetrachloroethene	ug/L	ND	1.0	05/17/11 12:00	
Toluene	ug/L	ND	1.0	05/17/11 12:00	
trans-1,2-Dichloroethene	ug/L	ND	1.0	05/17/11 12:00	
trans-1,3-Dichloropropene	ug/L	ND	1.0	05/17/11 12:00	
Trichloroethene	ug/L	ND	1.0	05/17/11 12:00	
Trichlorofluoromethane	ug/L	ND	1.0	05/17/11 12:00	
Vinyl chloride	ug/L	ND	1.0	05/17/11 12:00	
Xylene (Total)	ug/L	ND	3.0	05/17/11 12:00	
1,2-Dichloroethane-d4 (S)	%	95	80-124	05/17/11 12:00	
4-Bromofluorobenzene (S)	%	101	80-120	05/17/11 12:00	
Dibromofluoromethane (S)	%	97	80-122	05/17/11 12:00	
Toluene-d8 (S)	%	99	80-123	05/17/11 12:00	

LABORATORY CONTROL SAMPLE: 70392

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	19.1	96	68-131	
1,1,1-Trichloroethane	ug/L	20	18.5	93	74-137	
1,1,2,2-Tetrachloroethane	ug/L	20	19.5	97	72-126	
1,1,2-Trichloroethane	ug/L	20	18.1	90	76-120	
1,1-Dichloroethane	ug/L	20	19.2	96	76-131	
1,1-Dichloroethene	ug/L	20	20.0	100	68-150	
1,1-Dichloropropene	ug/L	20	19.2	96	74-138	
1,2,3-Trichlorobenzene	ug/L	20	17.6	88	60-136	
1,2,3-Trichloropropane	ug/L	20	17.8	89	62-135	
1,2,4-Trichlorobenzene	ug/L	20	18.5	93	62-136	
1,2,4-Trimethylbenzene	ug/L	20	19.5	97	66-132	
1,2-Dibromo-3-chloropropane	ug/L	20	16.9	85	60-123	
1,2-Dibromoethane (EDB)	ug/L	20	18.0	90	73-124	

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QUALITY CONTROL DATA

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

LABORATORY CONTROL SAMPLE: 70392

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichlorobenzene	ug/L	20	18.8	94	75-122	
1,2-Dichloroethane	ug/L	20	17.7	88	78-125	
1,2-Dichloroethene (Total)	ug/L	40	39.8	99	77-136	
1,2-Dichloropropane	ug/L	20	18.2	91	76-121	
1,3,5-Trimethylbenzene	ug/L	20	19.2	96	69-130	
1,3-Dichlorobenzene	ug/L	20	19.2	96	75-122	
1,3-Dichloropropane	ug/L	20	17.7	89	77-120	
1,4-Dichlorobenzene	ug/L	20	18.7	94	78-120	
2,2-Dichloropropane	ug/L	20	20.1	100	46-168	
2-Butanone (MEK)	ug/L	40	33.4	83	55-146	
2-Chlorotoluene	ug/L	20	18.8	94	67-129	
2-Hexanone	ug/L	40	33.5	84	58-136	
4-Chlorotoluene	ug/L	20	19.4	97	75-126	
4-Methyl-2-pentanone (MIBK)	ug/L	40	33.3	83	62-137	
Acetone	ug/L	40	36.2	90	30-180	
Benzene	ug/L	20	18.6	93	76-127	
Bromobenzene	ug/L	20	18.7	94	74-120	
Bromochloromethane	ug/L	20	18.4	92	73-132	
Bromodichloromethane	ug/L	20	18.7	94	74-126	
Bromoform	ug/L	20	17.1	86	64-129	
Bromomethane	ug/L	20	21.5	107	40-164	
Carbon disulfide	ug/L	20	18.0	90	32-158	
Carbon tetrachloride	ug/L	20	20.1	101	68-142	
Chlorobenzene	ug/L	20	18.8	94	78-121	
Chloroethane	ug/L	20	17.8	89	58-151	
Chloroform	ug/L	20	18.8	94	80-125	
Chloromethane	ug/L	20	25.6	128	50-152	
cis-1,2-Dichloroethene	ug/L	20	19.9	100	80-135	
cis-1,3-Dichloropropene	ug/L	20	19.6	98	65-134	
Dibromochloromethane	ug/L	20	18.4	92	71-126	
Dibromomethane	ug/L	20	18.0	90	78-126	
Dichlorodifluoromethane	ug/L	20	32.0	160	18-180	
Ethylbenzene	ug/L	20	19.0	95	72-125	
Hexachloro-1,3-butadiene	ug/L	20	18.0	90	60-138	
Isopropylbenzene (Cumene)	ug/L	20	18.7	93	69-135	
m&p-Xylene	ug/L	40	38.2	96	73-126	
Methyl-tert-butyl ether	ug/L	20	18.4	92	58-145	
Methylene chloride	ug/L	20	15.7	79	65-144	
n-Butylbenzene	ug/L	20	18.6	93	66-132	
n-Propylbenzene	ug/L	20	19.2	96	69-131	
Naphthalene	ug/L	20	18.2	91	51-142	
o-Xylene	ug/L	20	19.1	96	73-123	
p-Isopropyltoluene	ug/L	20	19.4	97	67-133	
sec-Butylbenzene	ug/L	20	19.5	97	65-136	
Styrene	ug/L	20	18.7	93	72-128	
tert-Butylbenzene	ug/L	20	17.8	89	61-133	
Tetrachloroethene	ug/L	20	11.8	59	40-164	
Toluene	ug/L	20	18.4	92	69-125	

QUALITY CONTROL DATA

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

LABORATORY CONTROL SAMPLE: 70392

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
trans-1,2-Dichloroethene	ug/L	20	19.9	99	73-139	
trans-1,3-Dichloropropene	ug/L	20	16.3	81	56-122	
Trichloroethene	ug/L	20	18.2	91	74-127	
Trichlorofluoromethane	ug/L	20	21.2	106	64-154	
Vinyl chloride	ug/L	20	21.5	108	57-147	
Xylene (Total)	ug/L	60	57.4	96	74-124	
1,2-Dichloroethane-d4 (S)	%			92	80-124	
4-Bromofluorobenzene (S)	%			99	80-120	
Dibromofluoromethane (S)	%			98	80-122	
Toluene-d8 (S)	%			99	80-123	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 70393 70394

Parameter	Units	257638003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20	19.8	19.0	99	95	73-126	4	
1,1,1-Trichloroethane	ug/L	ND	20	20	20.3	19.3	102	96	69-135	5	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	18.0	19.6	90	98	69-123	9	
1,1,2-Trichloroethane	ug/L	ND	20	20	17.1	17.8	86	89	76-114	4	
1,1-Dichloroethane	ug/L	ND	20	20	20.2	19.6	101	98	74-124	3	
1,1-Dichloroethene	ug/L	ND	20	20	22.6	21.3	113	107	69-139	6	
1,1-Dichloropropene	ug/L	ND	20	20	21.4	19.9	107	99	77-134	7	
1,2,3-Trichlorobenzene	ug/L	ND	20	20	16.8	17.5	84	87	63-136	4	
1,2,3-Trichloropropane	ug/L	ND	20	20	16.5	17.6	82	88	66-118	7	
1,2,4-Trichlorobenzene	ug/L	ND	20	20	18.2	18.0	91	90	68-129	1	
1,2,4-Trimethylbenzene	ug/L	ND	20	20	20.8	19.5	103	96	72-126	6	
1,2-Dibromo-3-chloropropane	ug/L	ND	20	20	15.2	17.3	76	86	64-124	12	
1,2-Dibromoethane (EDB)	ug/L	ND	20	20	16.8	17.5	84	88	78-117	4	
1,2-Dichlorobenzene	ug/L	ND	20	20	18.8	18.6	94	93	74-118	1	
1,2-Dichloroethane	ug/L	ND	20	20	17.5	17.7	87	88	73-127	1	
1,2-Dichloroethene (Total)	ug/L	ND	40	40	42.2	40.2	106	101	60-140	5	
1,2-Dichloropropane	ug/L	ND	20	20	18.8	18.2	94	91	72-126	3	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	20.5	19.2	102	95	68-129	7	
1,3-Dichlorobenzene	ug/L	ND	20	20	20.0	18.9	100	95	73-119	6	
1,3-Dichloropropane	ug/L	ND	20	20	16.8	17.1	84	86	74-119	2	
1,4-Dichlorobenzene	ug/L	ND	20	20	19.3	18.6	96	93	73-115	4	
2,2-Dichloropropane	ug/L	ND	20	20	21.7	20.5	109	102	46-157	6	
2-Butanone (MEK)	ug/L	ND	40	40	25.9	30.5	65	76	65-138	17	
2-Chlorotoluene	ug/L	ND	20	20	20.0	18.8	100	94	68-122	7	
2-Hexanone	ug/L	ND	40	40	26.7	32.1	67	80	60-135	18	
4-Chlorotoluene	ug/L	ND	20	20	20.4	19.2	102	96	70-122	6	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	40	29.2	34.0	73	85	70-135	15	
Acetone	ug/L	ND	40	40	21.7	26.8	54	67	58-146	21	M1
Benzene	ug/L	ND	20	20	19.4	18.7	97	94	75-124	4	
Bromobenzene	ug/L	ND	20	20	19.1	18.3	95	91	74-116	4	
Bromochloromethane	ug/L	ND	20	20	18.4	18.3	92	92	75-128	.3	
Bromodichloromethane	ug/L	ND	20	20	19.3	18.8	97	94	77-126	3	

Date: 05/19/2011 05:13 PM

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 70393 70394											
Parameter	Units	257638003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Bromoform	ug/L	ND	20	20	16.4	17.4	82	87	61-131	6	
Bromomethane	ug/L	ND	20	20	21.9	21.0	109	105	58-139	4	
Carbon disulfide	ug/L	ND	20	20	20.6	19.4	103	97	39-122	6	
Carbon tetrachloride	ug/L	ND	20	20	22.5	21.4	112	107	67-136	5	
Chlorobenzene	ug/L	ND	20	20	19.3	18.5	97	92	78-115	4	
Chloroethane	ug/L	ND	20	20	19.5	17.7	98	89	58-137	10	
Chloroform	ug/L	ND	20	20	19.6	18.8	98	94	75-124	4	
Chloromethane	ug/L	ND	20	20	25.8	25.5	129	128	50-129	1	
cis-1,2-Dichloroethene	ug/L	ND	20	20	21.0	20.0	105	100	78-126	5	
cis-1,3-Dichloropropene	ug/L	ND	20	20	19.9	19.4	99	97	78-159	2	
Dibromochloromethane	ug/L	ND	20	20	18.2	18.4	91	92	81-125	1	
Dibromomethane	ug/L	ND	20	20	17.4	17.9	87	90	75-124	3	
Dichlorodifluoromethane	ug/L	ND	20	20	29.2	28.8	146	144	30-140	2	M1
Ethylbenzene	ug/L	ND	20	20	20.3	19.0	101	94	76-124	7	
Hexachloro-1,3-butadiene	ug/L	ND	20	20	18.8	18.1	94	90	55-132	4	
Isopropylbenzene (Cumene)	ug/L	ND	20	20	19.8	18.8	99	94	73-127	5	
m&p-Xylene	ug/L	ND	40	40	40.4	38.0	100	94	75-124	6	
Methyl-tert-butyl ether	ug/L	ND	20	20	17.3	18.4	87	92	72-130	6	
Methylene chloride	ug/L	ND	20	20	14.1	13.4	70	67	69-124	5	M1
n-Butylbenzene	ug/L	ND	20	20	20.2	19.1	101	95	65-131	5	
n-Propylbenzene	ug/L	ND	20	20	21.0	19.5	105	98	69-129	7	
Naphthalene	ug/L	ND	20	20	16.5	18.1	82	90	69-135	9	
o-Xylene	ug/L	ND	20	20	19.6	18.7	98	93	76-121	5	
p-Isopropyltoluene	ug/L	ND	20	20	20.6	19.3	103	97	69-133	7	
sec-Butylbenzene	ug/L	ND	20	20	21.0	19.7	105	98	67-132	6	
Styrene	ug/L	ND	20	20	18.0	17.2	90	86	76-121	5	
tert-Butylbenzene	ug/L	ND	20	20	19.0	18.0	95	90	66-132	6	
Tetrachloroethene	ug/L	ND	20	20	12.9	12.0	64	60	70-127	7	M1
Toluene	ug/L	ND	20	20	19.6	18.4	97	91	75-124	6	
trans-1,2-Dichloroethene	ug/L	ND	20	20	21.2	20.3	106	101	72-129	5	
trans-1,3-Dichloropropene	ug/L	ND	20	20	16.1	16.0	80	80	69-122	.1	
Trichloroethene	ug/L	ND	20	20	19.1	18.3	95	91	78-124	5	
Trichlorofluoromethane	ug/L	ND	20	20	24.0	23.0	120	115	60-147	4	
Vinyl chloride	ug/L	ND	20	20	23.9	23.0	120	115	56-136	4	
Xylene (Total)	ug/L	ND	60	60	60.0	56.7	99	94	76-123	6	
1,2-Dichloroethane-d4 (S)	%						90	95	80-124		
4-Bromofluorobenzene (S)	%						100	99	80-120		
Dibromofluoromethane (S)	%						98	98	80-122		
Toluene-d8 (S)	%						99	98	80-123		

QUALITY CONTROL DATA

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

QC Batch:	MSV/4444	Analysis Method:	NWTPH-Gx
QC Batch Method:	NWTPH-Gx	Analysis Description:	NWTPH-Gx MSV Water
Associated Lab Samples:	257638001, 257638003, 257638004		

METHOD BLANK:	70395	Matrix:	Water
Associated Lab Samples:	257638001, 257638003, 257638004		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	05/17/11 12:00	
4-Bromofluorobenzene (S)	%	101	50-150	05/17/11 12:00	

LABORATORY CONTROL SAMPLE: 70396

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	521	104	50-163	
4-Bromofluorobenzene (S)	%			101	50-150	

SAMPLE DUPLICATE: 70773

Parameter	Units	257658014 Result	Dup Result	RPD	Qualifiers
Gasoline Range Organics	ug/L	ND	7.1J		
4-Bromofluorobenzene (S)	%	100	101	1	

SAMPLE DUPLICATE: 70774

Parameter	Units	257654006 Result	Dup Result	RPD	Qualifiers
Gasoline Range Organics	ug/L	ND	7.4J		
4-Bromofluorobenzene (S)	%	101	100	.6	

QUALITY CONTROL DATA

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

QC Batch: MSV/4454

Analysis Method: NWTPH-Gx

QC Batch Method: NWTPH-Gx

Analysis Description: NWTPH-Gx MSV Water

Associated Lab Samples: 257638002

METHOD BLANK: 70490

Matrix: Water

Associated Lab Samples: 257638002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	05/17/11 22:39	
4-Bromofluorobenzene (S)	%	102	50-150	05/17/11 22:39	

LABORATORY CONTROL SAMPLE: 70491

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	503	101	50-163	
4-Bromofluorobenzene (S)	%			101	50-150	

SAMPLE DUPLICATE: 70535

Parameter	Units	257520004 Result	Dup Result	RPD	Qualifiers
Gasoline Range Organics	ug/L	109	123	12	
4-Bromofluorobenzene (S)	%	101	101	.5	

SAMPLE DUPLICATE: 70536

Parameter	Units	257564006 Result	Dup Result	RPD	Qualifiers
Gasoline Range Organics	ug/L	58.4	67.3	14	
4-Bromofluorobenzene (S)	%	101	100	1	

QUALIFIERS

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel Clean-Up

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Tarr Vancouver - 1821-00

Pace Project No.: 257638

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
257638001	MW-1	EPA 3510	OEXT/3703	NWTPH-Dx	GCSV/2493
257638002	MW-1 DUP	EPA 3510	OEXT/3703	NWTPH-Dx	GCSV/2493
257638003	MW-3	EPA 3510	OEXT/3703	NWTPH-Dx	GCSV/2493
257638004	MW-2	EPA 3510	OEXT/3703	NWTPH-Dx	GCSV/2493
257638001	MW-1	EPA 5030B/8260	MSV/4419		
257638003	MW-3	EPA 5030B/8260	MSV/4442		
257638004	MW-2	EPA 5030B/8260	MSV/4442		
257638001	MW-1	NWTPH-Gx	MSV/4444		
257638002	MW-1 DUP	NWTPH-Gx	MSV/4454		
257638003	MW-3	NWTPH-Gx	MSV/4444		
257638004	MW-2	NWTPH-Gx	MSV/4444		



CHAIN OF CUSTODY RECORD

Client Name: Ash Creek Associates
 Address: 3015 SW First Ave
 City/State/Zip: Portland, OR 97201

Telephone Number: 503.924.4704
 Fax No.: 503.943.6357

257638

Project Manager: John Foxwell

Analytical Lab: Pace Analytical

Project Name: Tarr, LLC Vancouver Phase II ESA

Report To: jfoxwell@ashcreekassociates.com

Project Number: 1821-00

Page: 1 of 1

Sampler Name: Michael Whitson

Sample ID / Description	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative								Matrix					Analyze For:										RUSH TAT (Pre-Schedule)	Standard TAT	Fax Results	Send QC with report		
							Ice	HNO ₃ (Red Label)	HCl (Blue Label)	NaOH (Orange Label)	H ₂ SO ₄ Plastic (Yellow Label)	H ₂ SO ₄ Glass(Yellow Label)	None (Black Label)	Methanol, Sodium Bisulfate, DI	Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	VOCs (EPA 8260)	TPH-Gx (NWTPH-Gx)	TPH-Dx (NWTPH-Dx)	PAHs (8270)	VPH	EPH	Metals								
MW-1	5/10/11	1425	8	X			X	X							X																			X	
MW-1 DUP	5/10/11	1425	8	X			X	X							X																			X	
MW-3	5/10/11	1530	8	X			X	X							X																			X	
MW-2	5/10/11	1615	8	X			X	X							X																			X	

Special Instructions:

Method of Shipment:

Relinquished by: Name/Company <u>MICHAEL WHITSON/ACA</u>	Date <u>05/11/11</u>	Time <u>1240</u>	Received by: Name/Company <u>PCS</u>	Date <u>5/11/11</u>	Time <u>1:05</u>
Relinquished by: Name/Company <u>Daniel B. Barnett/ACA</u>	Date <u>05/11/11</u>	Time <u>1:05</u>	Received by: Name/Company	Date	Time
Relinquished by: Name/Company <u>PCS</u>	Date <u>05/12/11</u>	Time <u>0845</u>	Received by: Name/Company <u>Collette WEAVER/PACE</u>	Date <u>05/12/11</u>	Time <u>0845</u>
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time

Laboratory Comments:

Temperature Upon Receipt: 1.42
 VOCs Free of Headspace? Y N

Sample Container Count

2 5 7 6 3 8

CLIENT:

Ash Creek



COC PAGE 1 of 1

COC ID#

Sample Line Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WGFU	WGKU					Comments
1	6	2 ¹²														
2	↓	↓														
3																
4	↓	↓														
5																
6																
7																
8																
9																
10																
11																
12																Trip Blank? No

AG1H	1 liter HCL amber glass		BP2S	500mL H2SO4 plastic	JGFU	4oz unpreserved amber wide
AG1U	1 liter unpreserved amber glass		BP2U	500mL unpreserved plastic	R	terra core kit
AG2S	500mL H2SO4 amber glass		BP2Z	500mL NaOH, Zn Ac	U	Summa Can
AG2U	500mL unpreserved amber glass		BP3C	250mL NaOH plastic	VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass		BP3N	250mL HNO3 plastic	VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass		BP3S	250mL H2SO4 plastic	VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass		BP3U	250mL unpreserved plastic	VG9W	40mL glass vial preweighted (EPA 5035)
BP1N	1 liter HNO3 plastic		DG9B	40mL Na Bisulfate amber vial	VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic		DG9H	40mL HCL amber vial	WGFU	4oz clear soil jar
BP1U	1 liter unpreserved plastic		DG9M	40mL MeOH clear vial	WGFY	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac		DG9T	40mL Na Thio amber vial	ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic		DG9U	40mL unpreserved amber vial		
BP2O	500mL NaOH plastic		I	Wipe/Swab		



Sample Condition Upon Receipt

Client Name: Ash Creek

Project # 257638

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other PCS

Tracking #: 1318939

Custody Seal on Cooler/Box Present: ☒ Yes ☐ No Seals intact: ☒ Yes ☐ No

Packing Material: ☒ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other Temp. Blank Yes ☒ No

Thermometer Used 132013 or 101731962 or 226099 Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 1.4°C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 05/12/11 CW

Temp should be above freezing $\leq 6^{\circ}\text{C}$

Comments:

Chain of Custody Present:	☒ Yes ☐ No ☐ N/A	1.
Chain of Custody Filled Out:	☒ Yes ☐ No ☐ N/A	2.
Chain of Custody Relinquished:	☒ Yes ☐ No ☐ N/A	3.
Sampler Name & Signature on COC:	☐ Yes ☐ No ☒ N/A	4.
Samples Arrived within Hold Time:	☒ Yes ☐ No ☐ N/A	5.
Short Hold Time Analysis (<72hr):	☐ Yes ☒ No ☐ N/A	6.
Rush Turn Around Time Requested:	☐ Yes ☒ No ☐ N/A	7.
Follow Up / Hold Analysis Requested:	☐ Yes ☒ No ☐ N/A	8.
Sufficient Volume:	☒ Yes ☐ No ☐ N/A	9.
Correct Containers Used:	☒ Yes ☐ No ☐ N/A	10.
-Pace Containers Used:	☒ Yes ☐ No ☐ N/A	
Containers Intact:	☒ Yes ☐ No ☐ N/A	11.
Filtered volume received for Dissolved tests	☐ Yes ☐ No ☒ N/A	12.
Sample Labels match COC:	☒ Yes ☐ No ☐ N/A	13.
-Includes date/time/ID/Analysis Matrix: <u>WT</u>		
All containers needing preservation have been checked.	☒ Yes ☐ No ☐ N/A	14.
All containers needing preservation are found to be in compliance with EPA recommendation.	☒ Yes ☐ No ☐ N/A	
Exceptions: VOA, coliform, TOC, O&G		Initial when completed
Samples checked for dechlorination:	☐ Yes ☐ No ☒ N/A	15.
Headspace in VOA Vials (>6mm):	☐ Yes ☒ No ☐ N/A	16.
Trip Blanks Present:	☐ Yes ☒ No ☐ N/A	17.
Trip Blank Custody Seals Present	☐ Yes ☐ No ☒ N/A	
Pace Trip Blank Lot # (if purchased):		Lot # of added preservative

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: Michael Whitson Date/Time: 5/12/11 15:40 -email

Comments/ Resolution:

DUP-1 and DUP-1^{re} mw-1 and mw-1 DUP. Same sample or analyze separately? or

Separate - is a field DUP not a Lab DUP. or

Project Manager Review:

JENNI GROSS

Date: 5/12/11

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

May 26, 2011

John Foxwell
Ash Creek Associates
3015 SW First Ave
Portland, OR 97201

RE: Project: Tarr Vancouver 1821-00
Pace Project No.: 257502

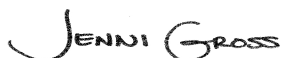
Dear John Foxwell:

Enclosed are the analytical results for sample(s) received by the laboratory on May 03, 2011. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

Amended Report, REV-1 05/26/11. Missing results due to reporting issues. Volatiles results for 257502010, 026 and 1,2,4-TMB result on 257502013 are now showing on the report.

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

Sincerely,



Jennifer Gross

jennifer.gross@pacelabs.com
Project Manager

Enclosures

cc: Lisa Domenighini, Pace Analytical Seattle

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Alaska Drinking Water VOC Certification #: WA01230

Alaska Drinking Water Micro Certification #: WA01230

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C1229

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
257502001	SB-9 (2.5)	ASTM D2974-87	KJ1	1	PASI-S
257502002	SB-9 (8.5)	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	CC	3	PASI-S
		ASTM D2974-87	KJ1	1	PASI-S
257502003	SB-10 (2.5)	ASTM D2974-87	KJ1	1	PASI-S
257502004	SB-10 (7.5)	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	CC	3	PASI-S
		ASTM D2974-87	KJ1	1	PASI-S
257502005	SB-11 (2.5)	ASTM D2974-87	KJ1	1	PASI-S
257502006	SB-11 (7.5)	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	CC	3	PASI-S
		ASTM D2974-87	KJ1	1	PASI-S
257502007	SB-13 (2.5)	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	CC	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		ASTM D2974-87	KJ1	1	PASI-S
257502008	SB-13 (8.0)	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	CC	3	PASI-S
		EPA 8260	LPM	72	PASI-S
		ASTM D2974-87	KJ1	1	PASI-S
257502009	SB-13 (13.5)	ASTM D2974-87	KJ1	1	PASI-S
257502010	SB-13	NWTPH-Dx	AY1	4	PASI-S
		EPA 5030B/8260	LPM	71	PASI-S
		NWTPH-Gx	LPM	2	PASI-S
257502011	MW-2 (2.5)	ASTM D2974-87	KJ1	1	PASI-S
257502012	MW-2 (7.5)	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	CC	3	PASI-S
		ASTM D2974-87	KJ1	1	PASI-S
257502013	MW-1 (2.5)	EPA 8260	LPM	5	PASI-S
		EPA 8260	LPM	72	PASI-S
		ASTM D2974-87	KJ1	1	PASI-S
257502014	MW-1 (8.0)	ASTM D2974-87	KJ1	1	PASI-S
257502015	MW-1 (12.5)	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	CC	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8270 by SIM	ERB	20	PASI-S
		EPA 8260	LPM	60	PASI-S

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SAMPLE ANALYTE COUNT

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		ASTM D2974-87	KJ1	1	PASI-S
257502016	MW-1 (17.5)	ASTM D2974-87	KJ1	1	PASI-S
257502017	MW-3 (2.5)	ASTM D2974-87	KJ1	1	PASI-S
257502018	MW-3 (7.5)	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	CC	3	PASI-S
		ASTM D2974-87	KJ1	1	PASI-S
257502019	SB-14 (2.5)	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	CC	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		ASTM D2974-87	KJ1	1	PASI-S
257502020	SB-14 (7.5)	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	CC	3	PASI-S
		ASTM D2974-87	KJ1	1	PASI-S
257502021	SB-14	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	LPM	2	PASI-S
257502022	SB-12 (2.5)	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	CC	3	PASI-S
		ASTM D2974-87	KJ1	1	PASI-S
257502023	SB-12 (7.5)	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	CC	3	PASI-S
		EPA 8270 by SIM	ERB	20	PASI-S
		EPA 8260	LPM	73	PASI-S
		ASTM D2974-87	KJ1	1	PASI-S
257502024	SB-12	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	LPM	2	PASI-S
257502025	MW-1 (8.0) DUP	ASTM D2974-87	KJ1	1	PASI-S
257502026	SB-15	NWTPH-Dx	AY1	4	PASI-S
		EPA 5030B/8260	LPM	71	PASI-S
		NWTPH-Gx	LPM	2	PASI-S

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PROJECT NARRATIVE

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Method: NWTPH-Dx

Description: NWTPH-Dx GCS

Client: Ash Creek Associates

Date: May 26, 2011

General Information:

16 samples were analyzed for NWTPH-Dx. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

The samples were prepared in accordance with EPA 3546 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Method: NWTPH-Gx

Description: NWTPH-Gx GCV

Client: Ash Creek Associates

Date: May 26, 2011

General Information:

12 samples were analyzed for NWTPH-Gx. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with NWTPH-Gx with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Method: EPA 6010

Description: 6010 MET ICP

Client: Ash Creek Associates

Date: May 26, 2011

General Information:

3 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3050 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Method: EPA 8270 by SIM

Description: 8270 MSSV PAH by SIM

Client: Ash Creek Associates

Date: May 26, 2011

General Information:

2 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3546 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: OEXT/3644

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 257502015

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 68604)
- 1-Methylnaphthalene

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Tarr Vancouver 1821-00
Pace Project No.: 257502

Method: EPA 5030B/8260
Description: 8260 MSV
Client: Ash Creek Associates
Date: May 26, 2011

General Information:

2 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSV/4367

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 257488002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 68736)
 - Chloromethane
 - Tetrachloroethene
- MSD (Lab ID: 68737)
 - Chloromethane
 - Tetrachloroethene

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Method: EPA 8260

Description: 8260 MSV 5035A Med Level VOA

Client: Ash Creek Associates

Date: May 26, 2011

General Information:

1 sample was analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 5035A/5030B with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Method: EPA 8260

Description: 8260/5035A Volatile Organics

Client: Ash Creek Associates

Date: May 26, 2011

General Information:

4 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

QC Batch: MSV/4364

S5: Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

- MW-1 (12.5) (Lab ID: 257502015)
 - 1,2-Dichloroethane-d4 (S)
 - 4-Bromofluorobenzene (S)
 - Toluene-d8 (S)

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: MSV/4364

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.

- LCS (Lab ID: 68699)
 - 1,1-Dichloropropene
 - 1,2-Dichloroethene (Total)
 - 1,2-Dichloropropane
 - Bromodichloromethane
 - Dibromomethane
 - Trichloroethene
 - cis-1,2-Dichloroethene
 - cis-1,3-Dichloropropene
- LCSD (Lab ID: 69171)
 - 1,1,2-Trichlorotrifluoroethane

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PROJECT NARRATIVE

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Method: EPA 8260

Description: 8260/5035A Volatile Organics

Client: Ash Creek Associates

Date: May 26, 2011

QC Batch: MSV/4364

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.

- 1,1-Dichloropropene
- 1,2-Dichloroethene (Total)
- 1,2-Dichloropropane
- Bromodichloromethane
- Dibromomethane
- Trichloroethene
- cis-1,2-Dichloroethene
- cis-1,3-Dichloropropene

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Method: NWTPH-Gx

Description: NWTPH-Gx MSV

Client: Ash Creek Associates

Date: May 26, 2011

General Information:

4 samples were analyzed for NWTPH-Gx. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00
Pace Project No.: 257502

Sample: SB-9 (2.5) **Lab ID: 257502001** Collected: 04/28/11 09:35 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	11.5	%	0.10	1		05/03/11 16:31		

Sample: SB-9 (8.5) **Lab ID: 257502002** Collected: 04/28/11 09:55 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546								
Diesel Range	ND	mg/kg	26.5	1	05/03/11 16:15	05/04/11 13:30		
Motor Oil Range	ND	mg/kg	106	1	05/03/11 16:15	05/04/11 13:30	64742-65-0	
n-Octacosane (S)	99	%	50-150	1	05/03/11 16:15	05/04/11 13:30	630-02-4	
o-Terphenyl (S)	86	%	50-150	1	05/03/11 16:15	05/04/11 13:30	84-15-1	
NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx								
Gasoline Range Organics	ND	mg/kg	8.0	1	05/03/11 14:25	05/03/11 17:06		
a,a,a-Trifluorotoluene (S)	112	%	50-150	1	05/03/11 14:25	05/03/11 17:06	98-08-8	
4-Bromofluorobenzene (S)	71	%	50-150	1	05/03/11 14:25	05/03/11 17:06	460-00-4	
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	26.3	%	0.10	1		05/03/11 16:31		

Sample: SB-10 (2.5) **Lab ID: 257502003** Collected: 04/28/11 10:40 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	19.6	%	0.10	1		05/03/11 16:32		

Sample: SB-10 (7.5) **Lab ID: 257502004** Collected: 04/28/11 11:05 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546								
Diesel Range	ND	mg/kg	26.5	1	05/03/11 16:15	05/04/11 14:29		
Motor Oil Range	ND	mg/kg	106	1	05/03/11 16:15	05/04/11 14:29	64742-65-0	
n-Octacosane (S)	100	%	50-150	1	05/03/11 16:15	05/04/11 14:29	630-02-4	
o-Terphenyl (S)	89	%	50-150	1	05/03/11 16:15	05/04/11 14:29	84-15-1	
NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx								
Gasoline Range Organics	ND	mg/kg	7.9	1	05/03/11 14:25	05/03/11 17:29		

ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Sample: SB-10 (7.5) **Lab ID: 257502004** Collected: 04/28/11 11:05 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx								
a,a,a-Trifluorotoluene (S)	120 %		50-150	1	05/03/11 14:25	05/03/11 17:29	98-08-8	
4-Bromofluorobenzene (S)	76 %		50-150	1	05/03/11 14:25	05/03/11 17:29	460-00-4	
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	25.5 %		0.10	1		05/03/11 16:32		

Sample: SB-11 (2.5) **Lab ID: 257502005** Collected: 04/28/11 11:20 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	13.3 %		0.10	1		05/03/11 16:33		

Sample: SB-11 (7.5) **Lab ID: 257502006** Collected: 04/28/11 11:55 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546								
Diesel Range	ND mg/kg		26.5	1	05/03/11 16:15	05/04/11 14:45		
Motor Oil Range	ND mg/kg		106	1	05/03/11 16:15	05/04/11 14:45	64742-65-0	
n-Octacosane (S)	102 %		50-150	1	05/03/11 16:15	05/04/11 14:45	630-02-4	
o-Terphenyl (S)	90 %		50-150	1	05/03/11 16:15	05/04/11 14:45	84-15-1	
NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx								
Gasoline Range Organics	ND mg/kg		8.0	1	05/03/11 14:25	05/03/11 17:51		
a,a,a-Trifluorotoluene (S)	123 %		50-150	1	05/03/11 14:25	05/03/11 17:51	98-08-8	
4-Bromofluorobenzene (S)	76 %		50-150	1	05/03/11 14:25	05/03/11 17:51	460-00-4	
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	26.1 %		0.10	1		05/03/11 16:33		

Sample: SB-13 (2.5) **Lab ID: 257502007** Collected: 04/28/11 12:25 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546								
Diesel Range	ND mg/kg		24.5	1	05/03/11 16:15	05/04/11 15:02		
Motor Oil Range	ND mg/kg		98.1	1	05/03/11 16:15	05/04/11 15:02	64742-65-0	
n-Octacosane (S)	103 %		50-150	1	05/03/11 16:15	05/04/11 15:02	630-02-4	

Date: 05/26/2011 03:25 PM

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ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Sample: SB-13 (2.5) **Lab ID: 257502007** Collected: 04/28/11 12:25 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546								
o-Terphenyl (S)	92 %		50-150	1	05/03/11 16:15	05/04/11 15:02	84-15-1	
NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx								
Gasoline Range Organics	8.7 mg/kg		7.0	1	05/05/11 09:59	05/05/11 16:24		
a,a,a-Trifluorotoluene (S)	121 %		50-150	1	05/05/11 09:59	05/05/11 16:24	98-08-8	
4-Bromofluorobenzene (S)	86 %		50-150	1	05/05/11 09:59	05/05/11 16:24	460-00-4	
6010 MET ICP Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Lead	46.8 mg/kg		1.2	1	05/09/11 07:54	05/09/11 15:43	7439-92-1	
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	20.3 %		0.10	1		05/03/11 16:34		

Sample: SB-13 (8.0) **Lab ID: 257502008** Collected: 04/28/11 12:50 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546								
Diesel Range	ND mg/kg		26.1	1	05/03/11 16:15	05/04/11 15:18		
Motor Oil Range	ND mg/kg		105	1	05/03/11 16:15	05/04/11 15:18	64742-65-0	
n-Octacosane (S)	101 %		50-150	1	05/03/11 16:15	05/04/11 15:18	630-02-4	
o-Terphenyl (S)	89 %		50-150	1	05/03/11 16:15	05/04/11 15:18	84-15-1	
NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx								
Gasoline Range Organics	ND mg/kg		7.1	1	05/03/11 14:25	05/03/11 19:01		
a,a,a-Trifluorotoluene (S)	122 %		50-150	1	05/03/11 14:25	05/03/11 19:01	98-08-8	
4-Bromofluorobenzene (S)	80 %		50-150	1	05/03/11 14:25	05/03/11 19:01	460-00-4	
8260/5035A Volatile Organics Analytical Method: EPA 8260								
1,1,1,2-Tetrachloroethane	ND ug/kg		3.4	1		05/04/11 12:24	630-20-6	
1,1,1-Trichloroethane	ND ug/kg		3.4	1		05/04/11 12:24	71-55-6	
1,1,2,2-Tetrachloroethane	ND ug/kg		3.4	1		05/04/11 12:24	79-34-5	
1,1,2-Trichloroethane	ND ug/kg		3.4	1		05/04/11 12:24	79-00-5	
1,1,2-Trichlorotrifluoroethane	ND ug/kg		3.4	1		05/04/11 12:24	76-13-1	
1,1-Dichloroethane	ND ug/kg		3.4	1		05/04/11 12:24	75-34-3	
1,1-Dichloroethene	ND ug/kg		3.4	1		05/04/11 12:24	75-35-4	
1,1-Dichloropropene	ND ug/kg		3.4	1		05/04/11 12:24	563-58-6	
1,2,3-Trichlorobenzene	ND ug/kg		3.4	1		05/04/11 12:24	87-61-6	
1,2,3-Trichloropropane	ND ug/kg		3.4	1		05/04/11 12:24	96-18-4	
1,2,4-Trichlorobenzene	ND ug/kg		3.4	1		05/04/11 12:24	120-82-1	
1,2-Dibromo-3-chloropropane	ND ug/kg		5.6	1		05/04/11 12:24	96-12-8	
1,2-Dibromoethane (EDB)	ND ug/kg		3.4	1		05/04/11 12:24	106-93-4	
1,2-Dichlorobenzene	ND ug/kg		3.4	1		05/04/11 12:24	95-50-1	

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ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Sample: **SB-13 (8.0)** Lab ID: **257502008** Collected: 04/28/11 12:50 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics		Analytical Method: EPA 8260						
1,2-Dichloroethane	ND	ug/kg	3.4	1		05/04/11 12:24	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/kg	6.8	1		05/04/11 12:24	540-59-0	
1,2-Dichloropropane	ND	ug/kg	3.4	1		05/04/11 12:24	78-87-5	
1,3,5-Trimethylbenzene	24.7	ug/kg	3.4	1		05/04/11 12:24	108-67-8	
1,3-Dichlorobenzene	ND	ug/kg	3.4	1		05/04/11 12:24	541-73-1	
1,3-Dichloropropane	ND	ug/kg	3.4	1		05/04/11 12:24	142-28-9	
1,4-Dichlorobenzene	ND	ug/kg	3.4	1		05/04/11 12:24	106-46-7	
2,2-Dichloropropane	ND	ug/kg	3.4	1		05/04/11 12:24	594-20-7	
2-Butanone (MEK)	ND	ug/kg	11.3	1		05/04/11 12:24	78-93-3	
2-Chlorotoluene	ND	ug/kg	3.4	1		05/04/11 12:24	95-49-8	
2-Hexanone	ND	ug/kg	11.3	1		05/04/11 12:24	591-78-6	
4-Chlorotoluene	ND	ug/kg	3.4	1		05/04/11 12:24	106-43-4	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	11.3	1		05/04/11 12:24	108-10-1	
Acetone	17.1	ug/kg	11.3	1		05/04/11 12:24	67-64-1	
Benzene	62.1	ug/kg	3.4	1		05/04/11 12:24	71-43-2	
Bromobenzene	ND	ug/kg	3.4	1		05/04/11 12:24	108-86-1	
Bromochloromethane	ND	ug/kg	3.4	1		05/04/11 12:24	74-97-5	
Bromodichloromethane	ND	ug/kg	3.4	1		05/04/11 12:24	75-27-4	
Bromoform	ND	ug/kg	3.4	1		05/04/11 12:24	75-25-2	
Bromomethane	ND	ug/kg	3.4	1		05/04/11 12:24	74-83-9	
Carbon disulfide	ND	ug/kg	3.4	1		05/04/11 12:24	75-15-0	
Carbon tetrachloride	ND	ug/kg	3.4	1		05/04/11 12:24	56-23-5	
Chlorobenzene	ND	ug/kg	3.4	1		05/04/11 12:24	108-90-7	
Chloroethane	ND	ug/kg	3.4	1		05/04/11 12:24	75-00-3	
Chloroform	ND	ug/kg	3.4	1		05/04/11 12:24	67-66-3	
Chloromethane	ND	ug/kg	3.4	1		05/04/11 12:24	74-87-3	
Dibromochloromethane	ND	ug/kg	3.4	1		05/04/11 12:24	124-48-1	
Dibromomethane	ND	ug/kg	3.4	1		05/04/11 12:24	74-95-3	
Dichlorodifluoromethane	ND	ug/kg	3.4	1		05/04/11 12:24	75-71-8	
Ethylbenzene	79.5	ug/kg	3.4	1		05/04/11 12:24	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	3.4	1		05/04/11 12:24	87-68-3	
Isopropylbenzene (Cumene)	11.3	ug/kg	3.4	1		05/04/11 12:24	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	3.4	1		05/04/11 12:24	1634-04-4	
Methylene chloride	ND	ug/kg	11.3	1		05/04/11 12:24	75-09-2	
Naphthalene	7.2	ug/kg	3.4	1		05/04/11 12:24	91-20-3	
Styrene	ND	ug/kg	3.4	1		05/04/11 12:24	100-42-5	
Tetrachloroethene	ND	ug/kg	3.4	1		05/04/11 12:24	127-18-4	
Toluene	14.8	ug/kg	3.4	1		05/04/11 12:24	108-88-3	
Trichloroethene	ND	ug/kg	3.4	1		05/04/11 12:24	79-01-6	
Trichlorofluoromethane	ND	ug/kg	3.4	1		05/04/11 12:24	75-69-4	
Vinyl chloride	ND	ug/kg	3.4	1		05/04/11 12:24	75-01-4	
Xylene (Total)	425	ug/kg	10.1	1		05/04/11 12:24	1330-20-7	
cis-1,2-Dichloroethene	ND	ug/kg	3.4	1		05/04/11 12:24	156-59-2	
cis-1,3-Dichloropropene	ND	ug/kg	3.4	1		05/04/11 12:24	10061-01-5	
m&p-Xylene	307	ug/kg	6.8	1		05/04/11 12:24	179601-23-1	
n-Butylbenzene	ND	ug/kg	3.4	1		05/04/11 12:24	104-51-8	

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ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00
Pace Project No.: 257502

Sample: SB-13 (8.0) **Lab ID: 257502008** Collected: 04/28/11 12:50 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics		Analytical Method: EPA 8260						
n-Propylbenzene	28.2	ug/kg	3.4	1		05/04/11 12:24	103-65-1	
o-Xylene	118	ug/kg	3.4	1		05/04/11 12:24	95-47-6	
p-Isopropyltoluene	ND	ug/kg	3.4	1		05/04/11 12:24	99-87-6	
sec-Butylbenzene	4.5	ug/kg	3.4	1		05/04/11 12:24	135-98-8	
tert-Amylmethyl ether	ND	ug/kg	3.4	1		05/04/11 12:24	994-05-8	
tert-Butylbenzene	ND	ug/kg	3.4	1		05/04/11 12:24	98-06-6	
trans-1,2-Dichloroethene	ND	ug/kg	3.4	1		05/04/11 12:24	156-60-5	
trans-1,3-Dichloropropene	ND	ug/kg	3.4	1		05/04/11 12:24	10061-02-6	
Dibromofluoromethane (S)	100	%	80-136	1		05/04/11 12:24	1868-53-7	
Toluene-d8 (S)	93	%	80-120	1		05/04/11 12:24	2037-26-5	
4-Bromofluorobenzene (S)	103	%	72-122	1		05/04/11 12:24	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	80-143	1		05/04/11 12:24	17060-07-0	

Percent Moisture Analytical Method: ASTM D2974-87

Percent Moisture	25.3	%	0.10	1		05/03/11 16:34		
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Sample: SB-13 (13.5) **Lab ID: 257502009** Collected: 04/28/11 13:05 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture		Analytical Method: ASTM D2974-87						
Percent Moisture	27.7	%	0.10	1		05/03/11 16:35		

Sample: SB-13 **Lab ID: 257502010** Collected: 04/28/11 13:35 Received: 05/03/11 07:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.097	mg/L	0.075	1	05/03/11 14:25	05/03/11 19:40		
Motor Oil Range	ND	mg/L	0.38	1	05/03/11 14:25	05/03/11 19:40	64742-65-0	
n-Octacosane (S)	101	%	50-150	1	05/03/11 14:25	05/03/11 19:40	630-02-4	
o-Terphenyl (S)	93	%	50-150	1	05/03/11 14:25	05/03/11 19:40	84-15-1	

8260 MSV Analytical Method: EPA 5030B/8260

1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/04/11 18:22	630-20-6	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		05/04/11 18:22	71-55-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/04/11 18:22	79-34-5	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/04/11 18:22	79-00-5	
1,1-Dichloroethane	ND	ug/L	1.0	1		05/04/11 18:22	75-34-3	
1,1-Dichloroethene	ND	ug/L	1.0	1		05/04/11 18:22	75-35-4	
1,1-Dichloropropene	ND	ug/L	1.0	1		05/04/11 18:22	563-58-6	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/04/11 18:22	87-61-6	

ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Sample: SB-13		Lab ID: 257502010	Collected: 04/28/11 13:35	Received: 05/03/11 07:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 5030B/8260						
1,2,3-Trichloropropane	ND	ug/L	1.0	1		05/04/11 18:22	96-18-4	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/04/11 18:22	120-82-1	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		05/04/11 18:22	95-63-6	
1,2-Dibromo-3-chloropropane	ND	ug/L	4.0	1		05/04/11 18:22	96-12-8	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/04/11 18:22	106-93-4	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/04/11 18:22	95-50-1	
1,2-Dichloroethane	ND	ug/L	1.0	1		05/04/11 18:22	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	2.0	1		05/04/11 18:22	540-59-0	
1,2-Dichloropropane	ND	ug/L	1.0	1		05/04/11 18:22	78-87-5	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		05/04/11 18:22	108-67-8	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/04/11 18:22	541-73-1	
1,3-Dichloropropane	ND	ug/L	1.0	1		05/04/11 18:22	142-28-9	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/04/11 18:22	106-46-7	
2,2-Dichloropropane	ND	ug/L	1.0	1		05/04/11 18:22	594-20-7	
2-Butanone (MEK)	ND	ug/L	5.0	1		05/04/11 18:22	78-93-3	
2-Chlorotoluene	ND	ug/L	1.0	1		05/04/11 18:22	95-49-8	
2-Hexanone	ND	ug/L	5.0	1		05/04/11 18:22	591-78-6	
4-Chlorotoluene	ND	ug/L	1.0	1		05/04/11 18:22	106-43-4	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/04/11 18:22	108-10-1	
Acetone	ND	ug/L	5.0	1		05/04/11 18:22	67-64-1	
Benzene	ND	ug/L	1.0	1		05/04/11 18:22	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		05/04/11 18:22	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		05/04/11 18:22	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		05/04/11 18:22	75-27-4	
Bromoform	ND	ug/L	1.0	1		05/04/11 18:22	75-25-2	
Bromomethane	ND	ug/L	1.0	1		05/04/11 18:22	74-83-9	
Carbon disulfide	ND	ug/L	1.0	1		05/04/11 18:22	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	1		05/04/11 18:22	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		05/04/11 18:22	108-90-7	
Chloroethane	ND	ug/L	1.0	1		05/04/11 18:22	75-00-3	
Chloroform	ND	ug/L	1.0	1		05/04/11 18:22	67-66-3	
Chloromethane	ND	ug/L	1.0	1		05/04/11 18:22	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	1		05/04/11 18:22	124-48-1	
Dibromomethane	ND	ug/L	1.0	1		05/04/11 18:22	74-95-3	
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/04/11 18:22	75-71-8	
Ethylbenzene	ND	ug/L	1.0	1		05/04/11 18:22	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/04/11 18:22	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		05/04/11 18:22	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/04/11 18:22	1634-04-4	
Methylene chloride	ND	ug/L	4.0	1		05/04/11 18:22	75-09-2	
Naphthalene	ND	ug/L	1.0	1		05/04/11 18:22	91-20-3	
Styrene	ND	ug/L	1.0	1		05/04/11 18:22	100-42-5	
Tetrachloroethene	ND	ug/L	1.0	1		05/04/11 18:22	127-18-4	
Toluene	ND	ug/L	1.0	1		05/04/11 18:22	108-88-3	
Trichloroethene	ND	ug/L	1.0	1		05/04/11 18:22	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		05/04/11 18:22	75-69-4	
Vinyl chloride	ND	ug/L	1.0	1		05/04/11 18:22	75-01-4	

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ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Sample: SB-13 **Lab ID: 257502010** Collected: 04/28/11 13:35 Received: 05/03/11 07:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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8260 MSV

Analytical Method: EPA 5030B/8260

Xylene (Total)	ND ug/L		3.0	1		05/04/11 18:22	1330-20-7	
cis-1,2-Dichloroethene	ND ug/L		1.0	1		05/04/11 18:22	156-59-2	
cis-1,3-Dichloropropene	ND ug/L		1.0	1		05/04/11 18:22	10061-01-5	
m&p-Xylene	ND ug/L		2.0	1		05/04/11 18:22	179601-23-1	
n-Butylbenzene	ND ug/L		1.0	1		05/04/11 18:22	104-51-8	
n-Propylbenzene	ND ug/L		1.0	1		05/04/11 18:22	103-65-1	
o-Xylene	ND ug/L		1.0	1		05/04/11 18:22	95-47-6	
p-Isopropyltoluene	ND ug/L		1.0	1		05/04/11 18:22	99-87-6	
sec-Butylbenzene	ND ug/L		1.0	1		05/04/11 18:22	135-98-8	
tert-Butylbenzene	ND ug/L		1.0	1		05/04/11 18:22	98-06-6	
trans-1,2-Dichloroethene	ND ug/L		1.0	1		05/04/11 18:22	156-60-5	
trans-1,3-Dichloropropene	ND ug/L		1.0	1		05/04/11 18:22	10061-02-6	
4-Bromofluorobenzene (S)	99 %		80-120	1		05/04/11 18:22	460-00-4	
Dibromofluoromethane (S)	92 %		80-122	1		05/04/11 18:22	1868-53-7	
1,2-Dichloroethane-d4 (S)	96 %		80-124	1		05/04/11 18:22	17060-07-0	
Toluene-d8 (S)	99 %		80-123	1		05/04/11 18:22	2037-26-5	

NWTPH-Gx MSV

Analytical Method: NWTPH-Gx

Gasoline Range Organics	ND ug/L		50.0	1		05/04/11 18:22		
4-Bromofluorobenzene (S)	99 %		50-150	1		05/04/11 18:22	460-00-4	

Sample: MW-2 (2.5)

Lab ID: 257502011

Collected: 04/28/11 14:30

Received: 05/03/11 07:50

Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	20.7 %		0.10	1		05/03/11 16:35		
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Sample: MW-2 (7.5)

Lab ID: 257502012

Collected: 04/28/11 14:50

Received: 05/03/11 07:50

Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3546

Diesel Range	ND mg/kg		25.9	1	05/03/11 16:15	05/04/11 15:35		
Motor Oil Range	ND mg/kg		104	1	05/03/11 16:15	05/04/11 15:35	64742-65-0	
n-Octacosane (S)	105 %		50-150	1	05/03/11 16:15	05/04/11 15:35	630-02-4	
o-Terphenyl (S)	91 %		50-150	1	05/03/11 16:15	05/04/11 15:35	84-15-1	

NWTPH-Gx GCV

Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx

Gasoline Range Organics	ND mg/kg		7.2	1	05/03/11 14:25	05/03/11 19:24		
a,a,a-Trifluorotoluene (S)	122 %		50-150	1	05/03/11 14:25	05/03/11 19:24	98-08-8	
4-Bromofluorobenzene (S)	77 %		50-150	1	05/03/11 14:25	05/03/11 19:24	460-00-4	

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ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Sample: MW-2 (7.5) **Lab ID: 257502012** Collected: 04/28/11 14:50 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	24.5	%	0.10	1		05/03/11 16:36		

Sample: MW-1 (2.5) **Lab ID: 257502013** Collected: 04/29/11 09:20 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A Med Level VOA Analytical Method: EPA 8260 Preparation Method: EPA 5035A/5030B								
1,2,4-Trimethylbenzene	3270	ug/kg	80.4	1	05/04/11 07:00	05/06/11 07:18	95-63-6	
Dibromofluoromethane (S)	92	%	81-114	1	05/04/11 07:00	05/06/11 07:18	1868-53-7	
Toluene-d8 (S)	98	%	84-121	1	05/04/11 07:00	05/06/11 07:18	2037-26-5	
4-Bromofluorobenzene (S)	96	%	78-127	1	05/04/11 07:00	05/06/11 07:18	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	76-115	1	05/04/11 07:00	05/06/11 07:18	17060-07-0	

8260/5035A Volatile Organics Analytical Method: EPA 8260

1,1,1,2-Tetrachloroethane	ND	ug/kg	4.2	1		05/04/11 13:23	630-20-6	
1,1,1-Trichloroethane	ND	ug/kg	4.2	1		05/04/11 13:23	71-55-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.2	1		05/04/11 13:23	79-34-5	
1,1,2-Trichloroethane	ND	ug/kg	4.2	1		05/04/11 13:23	79-00-5	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	4.2	1		05/04/11 13:23	76-13-1	L3
1,1-Dichloroethane	ND	ug/kg	4.2	1		05/04/11 13:23	75-34-3	
1,1-Dichloroethene	ND	ug/kg	4.2	1		05/04/11 13:23	75-35-4	
1,1-Dichloropropene	ND	ug/kg	4.2	1		05/04/11 13:23	563-58-6	
1,2,3-Trichlorobenzene	ND	ug/kg	4.2	1		05/04/11 13:23	87-61-6	
1,2,3-Trichloropropane	ND	ug/kg	4.2	1		05/04/11 13:23	96-18-4	
1,2,4-Trichlorobenzene	ND	ug/kg	4.2	1		05/04/11 13:23	120-82-1	
1,2-Dibromo-3-chloropropane	ND	ug/kg	7.0	1		05/04/11 13:23	96-12-8	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.2	1		05/04/11 13:23	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	4.2	1		05/04/11 13:23	95-50-1	
1,2-Dichloroethane	ND	ug/kg	4.2	1		05/04/11 13:23	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/kg	8.5	1		05/04/11 13:23	540-59-0	
1,2-Dichloropropane	ND	ug/kg	4.2	1		05/04/11 13:23	78-87-5	
1,3,5-Trimethylbenzene	89.3	ug/kg	4.2	1		05/04/11 13:23	108-67-8	
1,3-Dichlorobenzene	ND	ug/kg	4.2	1		05/04/11 13:23	541-73-1	
1,3-Dichloropropane	ND	ug/kg	4.2	1		05/04/11 13:23	142-28-9	
1,4-Dichlorobenzene	ND	ug/kg	4.2	1		05/04/11 13:23	106-46-7	
2,2-Dichloropropane	ND	ug/kg	4.2	1		05/04/11 13:23	594-20-7	
2-Butanone (MEK)	ND	ug/kg	14.1	1		05/04/11 13:23	78-93-3	
2-Chlorotoluene	ND	ug/kg	4.2	1		05/04/11 13:23	95-49-8	
2-Hexanone	ND	ug/kg	14.1	1		05/04/11 13:23	591-78-6	
4-Chlorotoluene	ND	ug/kg	4.2	1		05/04/11 13:23	106-43-4	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	14.1	1		05/04/11 13:23	108-10-1	
Acetone	155	ug/kg	14.1	1		05/04/11 13:23	67-64-1	
Benzene	162	ug/kg	4.2	1		05/04/11 13:23	71-43-2	
Bromobenzene	ND	ug/kg	4.2	1		05/04/11 13:23	108-86-1	

Date: 05/26/2011 03:25 PM

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ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Sample: MW-1 (2.5) Lab ID: 257502013 Collected: 04/29/11 09:20 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics		Analytical Method: EPA 8260						
Bromochloromethane	ND	ug/kg	4.2	1		05/04/11 13:23	74-97-5	
Bromodichloromethane	ND	ug/kg	4.2	1		05/04/11 13:23	75-27-4	
Bromoform	ND	ug/kg	4.2	1		05/04/11 13:23	75-25-2	
Bromomethane	ND	ug/kg	4.2	1		05/04/11 13:23	74-83-9	
Carbon disulfide	ND	ug/kg	4.2	1		05/04/11 13:23	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.2	1		05/04/11 13:23	56-23-5	
Chlorobenzene	ND	ug/kg	4.2	1		05/04/11 13:23	108-90-7	
Chloroethane	ND	ug/kg	4.2	1		05/04/11 13:23	75-00-3	
Chloroform	ND	ug/kg	4.2	1		05/04/11 13:23	67-66-3	
Chloromethane	ND	ug/kg	4.2	1		05/04/11 13:23	74-87-3	
Dibromochloromethane	ND	ug/kg	4.2	1		05/04/11 13:23	124-48-1	
Dibromomethane	ND	ug/kg	4.2	1		05/04/11 13:23	74-95-3	
Dichlorodifluoromethane	ND	ug/kg	4.2	1		05/04/11 13:23	75-71-8	
Ethylbenzene	34.3	ug/kg	4.2	1		05/04/11 13:23	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	4.2	1		05/04/11 13:23	87-68-3	
Isopropylbenzene (Cumene)	9.2	ug/kg	4.2	1		05/04/11 13:23	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	4.2	1		05/04/11 13:23	1634-04-4	
Methylene chloride	ND	ug/kg	14.1	1		05/04/11 13:23	75-09-2	
Naphthalene	20.5	ug/kg	4.2	1		05/04/11 13:23	91-20-3	
Styrene	ND	ug/kg	4.2	1		05/04/11 13:23	100-42-5	
Tetrachloroethene	ND	ug/kg	4.2	1		05/04/11 13:23	127-18-4	
Toluene	27.3	ug/kg	4.2	1		05/04/11 13:23	108-88-3	
Trichloroethene	ND	ug/kg	4.2	1		05/04/11 13:23	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.2	1		05/04/11 13:23	75-69-4	
Vinyl chloride	ND	ug/kg	4.2	1		05/04/11 13:23	75-01-4	
Xylene (Total)	141	ug/kg	12.7	1		05/04/11 13:23	1330-20-7	
cis-1,2-Dichloroethene	ND	ug/kg	4.2	1		05/04/11 13:23	156-59-2	
cis-1,3-Dichloropropene	ND	ug/kg	4.2	1		05/04/11 13:23	10061-01-5	
m&p-Xylene	118	ug/kg	8.5	1		05/04/11 13:23	179601-23-1	
n-Butylbenzene	ND	ug/kg	4.2	1		05/04/11 13:23	104-51-8	
n-Propylbenzene	12.7	ug/kg	4.2	1		05/04/11 13:23	103-65-1	
o-Xylene	22.9	ug/kg	4.2	1		05/04/11 13:23	95-47-6	
p-Isopropyltoluene	ND	ug/kg	4.2	1		05/04/11 13:23	99-87-6	
sec-Butylbenzene	8.4	ug/kg	4.2	1		05/04/11 13:23	135-98-8	
tert-Amylmethyl ether	ND	ug/kg	4.2	1		05/04/11 13:23	994-05-8	
tert-Butylbenzene	ND	ug/kg	4.2	1		05/04/11 13:23	98-06-6	
trans-1,2-Dichloroethene	ND	ug/kg	4.2	1		05/04/11 13:23	156-60-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.2	1		05/04/11 13:23	10061-02-6	
Dibromofluoromethane (S)	98	%	80-136	1		05/04/11 13:23	1868-53-7	
Toluene-d8 (S)	97	%	80-120	1		05/04/11 13:23	2037-26-5	
4-Bromofluorobenzene (S)	102	%	72-122	1		05/04/11 13:23	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	80-143	1		05/04/11 13:23	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	22.2	%	0.10	1	05/03/11 16:36
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ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00
Pace Project No.: 257502

Sample: MW-1 (8.0) **Lab ID: 257502014** Collected: 04/29/11 09:55 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	24.9	%	0.10	1		05/03/11 16:37		

Sample: MW-1 (12.5) **Lab ID: 257502015** Collected: 04/29/11 10:05 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546								
Diesel Range	59.9	mg/kg	26.1	1	05/03/11 16:15	05/04/11 15:51		
Motor Oil Range	ND	mg/kg	104	1	05/03/11 16:15	05/04/11 15:51	64742-65-0	
n-Octacosane (S)	100	%	50-150	1	05/03/11 16:15	05/04/11 15:51	630-02-4	
o-Terphenyl (S)	87	%	50-150	1	05/03/11 16:15	05/04/11 15:51	84-15-1	
NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx								
Gasoline Range Organics	2140	mg/kg	378	50	05/05/11 09:59	05/05/11 23:05		
a,a,a-Trifluorotoluene (S)	130	%	50-150	50	05/05/11 09:59	05/05/11 23:05	98-08-8	
4-Bromofluorobenzene (S)	97	%	50-150	50	05/05/11 09:59	05/05/11 23:05	460-00-4	

6010 MET ICP Analytical Method: EPA 6010 Preparation Method: EPA 3050

Lead	8.5	mg/kg	1.3	1	05/09/11 07:54	05/09/11 15:46	7439-92-1	
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8270 MSSV PAH by SIM Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546

1-Methylnaphthalene	1380	ug/kg	8.9	1	05/03/11 16:15	05/04/11 16:05	90-12-0	
2-Methylnaphthalene	3190	ug/kg	89.3	10	05/03/11 16:15	05/04/11 17:13	91-57-6	
Acenaphthene	23.5	ug/kg	8.9	1	05/03/11 16:15	05/04/11 16:05	83-32-9	
Acenaphthylene	ND	ug/kg	8.9	1	05/03/11 16:15	05/04/11 16:05	208-96-8	
Anthracene	ND	ug/kg	8.9	1	05/03/11 16:15	05/04/11 16:05	120-12-7	
Benzo(a)anthracene	ND	ug/kg	8.9	1	05/03/11 16:15	05/04/11 16:05	56-55-3	
Benzo(a)pyrene	ND	ug/kg	8.9	1	05/03/11 16:15	05/04/11 16:05	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	8.9	1	05/03/11 16:15	05/04/11 16:05	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	8.9	1	05/03/11 16:15	05/04/11 16:05	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	8.9	1	05/03/11 16:15	05/04/11 16:05	207-08-9	
Chrysene	ND	ug/kg	8.9	1	05/03/11 16:15	05/04/11 16:05	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	8.9	1	05/03/11 16:15	05/04/11 16:05	53-70-3	
Fluoranthene	ND	ug/kg	8.9	1	05/03/11 16:15	05/04/11 16:05	206-44-0	
Fluorene	52.0	ug/kg	8.9	1	05/03/11 16:15	05/04/11 16:05	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	8.9	1	05/03/11 16:15	05/04/11 16:05	193-39-5	
Naphthalene	3350	ug/kg	89.3	10	05/03/11 16:15	05/04/11 17:13	91-20-3	
Phenanthrene	84.2	ug/kg	8.9	1	05/03/11 16:15	05/04/11 16:05	85-01-8	
Pyrene	10.1	ug/kg	8.9	1	05/03/11 16:15	05/04/11 16:05	129-00-0	
2-Fluorobiphenyl (S)	68	%	31-131	1	05/03/11 16:15	05/04/11 16:05	321-60-8	
Terphenyl-d14 (S)	60	%	30-133	1	05/03/11 16:15	05/04/11 16:05	1718-51-0	

ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Sample: MW-1 (12.5) Lab ID: 257502015 Collected: 04/29/11 10:05 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics		Analytical Method: EPA 8260						
Acetone	259	ug/kg	11.6	1		05/04/11 12:44	67-64-1	
tert-Amylmethyl ether	ND	ug/kg	3.5	1		05/04/11 12:44	994-05-8	
Bromobenzene	ND	ug/kg	3.5	1		05/04/11 12:44	108-86-1	
Bromochloromethane	ND	ug/kg	3.5	1		05/04/11 12:44	74-97-5	
Bromodichloromethane	ND	ug/kg	3.5	1		05/04/11 12:44	75-27-4	
Bromoform	ND	ug/kg	3.5	1		05/04/11 12:44	75-25-2	
Bromomethane	ND	ug/kg	3.5	1		05/04/11 12:44	74-83-9	
2-Butanone (MEK)	ND	ug/kg	11.6	1		05/04/11 12:44	78-93-3	
n-Butylbenzene	ND	ug/kg	3.5	1		05/04/11 12:44	104-51-8	
tert-Butylbenzene	ND	ug/kg	3.5	1		05/04/11 12:44	98-06-6	
Carbon disulfide	ND	ug/kg	3.5	1		05/04/11 12:44	75-15-0	
Carbon tetrachloride	ND	ug/kg	3.5	1		05/04/11 12:44	56-23-5	
Chlorobenzene	ND	ug/kg	3.5	1		05/04/11 12:44	108-90-7	
Chloroethane	ND	ug/kg	3.5	1		05/04/11 12:44	75-00-3	
Chloroform	ND	ug/kg	3.5	1		05/04/11 12:44	67-66-3	
Chloromethane	ND	ug/kg	3.5	1		05/04/11 12:44	74-87-3	
2-Chlorotoluene	ND	ug/kg	3.5	1		05/04/11 12:44	95-49-8	
4-Chlorotoluene	ND	ug/kg	3.5	1		05/04/11 12:44	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	5.8	1		05/04/11 12:44	96-12-8	
Dibromochloromethane	ND	ug/kg	3.5	1		05/04/11 12:44	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	3.5	1		05/04/11 12:44	106-93-4	
Dibromomethane	ND	ug/kg	3.5	1		05/04/11 12:44	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	3.5	1		05/04/11 12:44	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	3.5	1		05/04/11 12:44	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	3.5	1		05/04/11 12:44	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	3.5	1		05/04/11 12:44	75-71-8	
1,1-Dichloroethane	ND	ug/kg	3.5	1		05/04/11 12:44	75-34-3	
1,2-Dichloroethane	ND	ug/kg	3.5	1		05/04/11 12:44	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/kg	7.0	1		05/04/11 12:44	540-59-0	
1,1-Dichloroethene	ND	ug/kg	3.5	1		05/04/11 12:44	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	3.5	1		05/04/11 12:44	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	3.5	1		05/04/11 12:44	156-60-5	
1,2-Dichloropropane	ND	ug/kg	3.5	1		05/04/11 12:44	78-87-5	
1,3-Dichloropropane	ND	ug/kg	3.5	1		05/04/11 12:44	142-28-9	
2,2-Dichloropropane	ND	ug/kg	3.5	1		05/04/11 12:44	594-20-7	
1,1-Dichloropropene	ND	ug/kg	3.5	1		05/04/11 12:44	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	3.5	1		05/04/11 12:44	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	3.5	1		05/04/11 12:44	10061-02-6	
Hexachloro-1,3-butadiene	ND	ug/kg	3.5	1		05/04/11 12:44	87-68-3	
2-Hexanone	ND	ug/kg	11.6	1		05/04/11 12:44	591-78-6	
Methylene chloride	ND	ug/kg	11.6	1		05/04/11 12:44	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	11.6	1		05/04/11 12:44	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	3.5	1		05/04/11 12:44	1634-04-4	
Styrene	ND	ug/kg	3.5	1		05/04/11 12:44	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	3.5	1		05/04/11 12:44	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	3.5	1		05/04/11 12:44	79-34-5	

Date: 05/26/2011 03:25 PM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00
Pace Project No.: 257502

Sample: MW-1 (12.5) **Lab ID: 257502015** Collected: 04/29/11 10:05 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics		Analytical Method: EPA 8260						
Tetrachloroethene	ND	ug/kg	3.5	1		05/04/11 12:44	127-18-4	
1,2,3-Trichlorobenzene	ND	ug/kg	3.5	1		05/04/11 12:44	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	3.5	1		05/04/11 12:44	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	3.5	1		05/04/11 12:44	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	3.5	1		05/04/11 12:44	79-00-5	
Trichloroethene	ND	ug/kg	3.5	1		05/04/11 12:44	79-01-6	
Trichlorofluoromethane	ND	ug/kg	3.5	1		05/04/11 12:44	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	3.5	1		05/04/11 12:44	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	3.5	1		05/04/11 12:44	76-13-1	L3
Vinyl chloride	ND	ug/kg	3.5	1		05/04/11 12:44	75-01-4	
Dibromofluoromethane (S)	118	%	80-136	1		05/04/11 12:44	1868-53-7	
Toluene-d8 (S)	279	%	80-120	1		05/04/11 12:44	2037-26-5	S5
4-Bromofluorobenzene (S)	1590	%	72-122	1		05/04/11 12:44	460-00-4	S5
1,2-Dichloroethane-d4 (S)	440	%	80-143	1		05/04/11 12:44	17060-07-0	S5

Analytical Method: EPA 8260 Preparation Method: EPA 5035A/5030B

Benzene	940	ug/kg	37.8	1	05/04/11 07:00	05/06/11 06:08	71-43-2	
sec-Butylbenzene	1400	ug/kg	75.6	1	05/04/11 07:00	05/06/11 06:08	135-98-8	
Ethylbenzene	21300	ug/kg	75.6	1	05/04/11 07:00	05/06/11 06:08	100-41-4	
Isopropylbenzene (Cumene)	3010	ug/kg	75.6	1	05/04/11 07:00	05/06/11 06:08	98-82-8	
p-Isopropyltoluene	805	ug/kg	75.6	1	05/04/11 07:00	05/06/11 06:08	99-87-6	
Naphthalene	10700	ug/kg	151	1	05/04/11 07:00	05/06/11 06:08	91-20-3	
n-Propylbenzene	11100	ug/kg	75.6	1	05/04/11 07:00	05/06/11 06:08	103-65-1	
Toluene	712	ug/kg	75.6	1	05/04/11 07:00	05/06/11 06:08	108-88-3	
1,2,4-Trimethylbenzene	120000	ug/kg	1890	25	05/04/11 07:00	05/06/11 01:07	95-63-6	
1,3,5-Trimethylbenzene	34300	ug/kg	1890	25	05/04/11 07:00	05/06/11 01:07	108-67-8	
Xylene (Total)	143000	ug/kg	5670	25	05/04/11 07:00	05/06/11 01:07	1330-20-7	
m&p-Xylene	113000	ug/kg	3780	25	05/04/11 07:00	05/06/11 01:07	179601-23-1	
o-Xylene	28800	ug/kg	75.6	1	05/04/11 07:00	05/06/11 06:08	95-47-6	
Dibromofluoromethane (S)	92	%	81-114	1	05/04/11 07:00	05/06/11 06:08	1868-53-7	
Toluene-d8 (S)	98	%	84-121	1	05/04/11 07:00	05/06/11 06:08	2037-26-5	
4-Bromofluorobenzene (S)	99	%	78-127	1	05/04/11 07:00	05/06/11 06:08	460-00-4	
1,2-Dichloroethane-d4 (S)	90	%	76-115	1	05/04/11 07:00	05/06/11 06:08	17060-07-0	

Percent Moisture Analytical Method: ASTM D2974-87

Percent Moisture	25.4	%	0.10	1		05/03/11 16:37
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Sample: MW-1 (17.5) **Lab ID: 257502016** Collected: 04/29/11 10:20 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture		Analytical Method: ASTM D2974-87						
Percent Moisture	29.2	%	0.10	1		05/03/11 16:38		

ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Sample: MW-3 (2.5) **Lab ID: 257502017** Collected: 04/29/11 10:30 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	19.6	%	0.10	1		05/03/11 16:39		

Sample: MW-3 (7.5) **Lab ID: 257502018** Collected: 04/29/11 11:05 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546								
Diesel Range	ND	mg/kg	25.0	1	05/03/11 16:15	05/04/11 16:08		
Motor Oil Range	ND	mg/kg	100	1	05/03/11 16:15	05/04/11 16:08	64742-65-0	
n-Octacosane (S)	103	%	50-150	1	05/03/11 16:15	05/04/11 16:08	630-02-4	
o-Terphenyl (S)	91	%	50-150	1	05/03/11 16:15	05/04/11 16:08	84-15-1	
NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx								
Gasoline Range Organics	ND	mg/kg	7.8	1	05/03/11 14:25	05/03/11 20:33		
a,a,a-Trifluorotoluene (S)	116	%	50-150	1	05/03/11 14:25	05/03/11 20:33	98-08-8	
4-Bromofluorobenzene (S)	78	%	50-150	1	05/03/11 14:25	05/03/11 20:33	460-00-4	
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	25.8	%	0.10	1		05/03/11 16:45		

Sample: SB-14 (2.5) **Lab ID: 257502019** Collected: 04/29/11 14:00 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546								
Diesel Range	ND	mg/kg	24.2	1	05/03/11 16:15	05/04/11 16:57		
Motor Oil Range	ND	mg/kg	96.9	1	05/03/11 16:15	05/04/11 16:57	64742-65-0	
n-Octacosane (S)	99	%	50-150	1	05/03/11 16:15	05/04/11 16:57	630-02-4	
o-Terphenyl (S)	87	%	50-150	1	05/03/11 16:15	05/04/11 16:57	84-15-1	
NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx								
Gasoline Range Organics	ND	mg/kg	7.5	1	05/03/11 14:25	05/03/11 20:56		
a,a,a-Trifluorotoluene (S)	120	%	50-150	1	05/03/11 14:25	05/03/11 20:56	98-08-8	
4-Bromofluorobenzene (S)	75	%	50-150	1	05/03/11 14:25	05/03/11 20:56	460-00-4	
6010 MET ICP Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Lead	11.1	mg/kg	1.2	1	05/09/11 07:54	05/09/11 15:49	7439-92-1	
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	21.4	%	0.10	1		05/03/11 16:46		

ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Sample: SB-14 (7.5) **Lab ID: 257502020** Collected: 04/29/11 15:10 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546								
Diesel Range	ND	mg/kg	24.6	1	05/03/11 16:15	05/04/11 17:14		
Motor Oil Range	ND	mg/kg	98.4	1	05/03/11 16:15	05/04/11 17:14	64742-65-0	
n-Octacosane (S)	97	%	50-150	1	05/03/11 16:15	05/04/11 17:14	630-02-4	
o-Terphenyl (S)	85	%	50-150	1	05/03/11 16:15	05/04/11 17:14	84-15-1	
NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx								
Gasoline Range Organics	ND	mg/kg	7.6	1	05/03/11 14:25	05/03/11 21:43		
a,a,a-Trifluorotoluene (S)	125	%	50-150	1	05/03/11 14:25	05/03/11 21:43	98-08-8	
4-Bromofluorobenzene (S)	83	%	50-150	1	05/03/11 14:25	05/03/11 21:43	460-00-4	
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	24.1	%	0.10	1		05/03/11 16:53		

Sample: SB-14 **Lab ID: 257502021** Collected: 04/29/11 16:00 Received: 05/03/11 07:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	ND	mg/L	0.076	1	05/03/11 14:25	05/03/11 20:44		
Motor Oil Range	ND	mg/L	0.38	1	05/03/11 14:25	05/03/11 20:44	64742-65-0	
n-Octacosane (S)	97	%	50-150	1	05/03/11 14:25	05/03/11 20:44	630-02-4	
o-Terphenyl (S)	89	%	50-150	1	05/03/11 14:25	05/03/11 20:44	84-15-1	
NWTPH-Gx MSV Analytical Method: NWTPH-Gx								
Gasoline Range Organics	ND	ug/L	50.0	1		05/05/11 15:39		
4-Bromofluorobenzene (S)	100	%	50-150	1		05/05/11 15:39	460-00-4	

Sample: SB-12 (2.5) **Lab ID: 257502022** Collected: 04/29/11 16:10 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546								
Diesel Range	ND	mg/kg	28.8	1	05/03/11 16:15	05/04/11 17:30		
Motor Oil Range	137	mg/kg	115	1	05/03/11 16:15	05/04/11 17:30	64742-65-0	
n-Octacosane (S)	94	%	50-150	1	05/03/11 16:15	05/04/11 17:30	630-02-4	
o-Terphenyl (S)	86	%	50-150	1	05/03/11 16:15	05/04/11 17:30	84-15-1	
NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx								
Gasoline Range Organics	ND	mg/kg	9.7	1	05/03/11 14:25	05/03/11 22:06		
a,a,a-Trifluorotoluene (S)	125	%	50-150	1	05/03/11 14:25	05/03/11 22:06	98-08-8	
4-Bromofluorobenzene (S)	80	%	50-150	1	05/03/11 14:25	05/03/11 22:06	460-00-4	

ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Sample: SB-12 (2.5) **Lab ID: 257502022** Collected: 04/29/11 16:10 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	32.3	%	0.10	1		05/03/11 16:53		

Sample: SB-12 (7.5) **Lab ID: 257502023** Collected: 04/29/11 16:45 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546								
Diesel Range	ND	mg/kg	26.8	1	05/03/11 16:15	05/04/11 18:20		
Motor Oil Range	ND	mg/kg	107	1	05/03/11 16:15	05/04/11 18:20	64742-65-0	
n-Octacosane (S)	103	%	50-150	1	05/03/11 16:15	05/04/11 18:20	630-02-4	
o-Terphenyl (S)	90	%	50-150	1	05/03/11 16:15	05/04/11 18:20	84-15-1	

NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx

Gasoline Range Organics	ND	mg/kg	7.8	1	05/03/11 14:25	05/03/11 22:29		
a,a,a-Trifluorotoluene (S)	122	%	50-150	1	05/03/11 14:25	05/03/11 22:29	98-08-8	
4-Bromofluorobenzene (S)	78	%	50-150	1	05/03/11 14:25	05/03/11 22:29	460-00-4	

8270 MSSV PAH by SIM Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546

1-Methylnaphthalene	ND	ug/kg	9.1	1	05/03/11 16:15	05/04/11 16:50	90-12-0	
2-Methylnaphthalene	ND	ug/kg	9.1	1	05/03/11 16:15	05/04/11 16:50	91-57-6	
Acenaphthene	ND	ug/kg	9.1	1	05/03/11 16:15	05/04/11 16:50	83-32-9	
Acenaphthylene	ND	ug/kg	9.1	1	05/03/11 16:15	05/04/11 16:50	208-96-8	
Anthracene	ND	ug/kg	9.1	1	05/03/11 16:15	05/04/11 16:50	120-12-7	
Benzo(a)anthracene	ND	ug/kg	9.1	1	05/03/11 16:15	05/04/11 16:50	56-55-3	
Benzo(a)pyrene	ND	ug/kg	9.1	1	05/03/11 16:15	05/04/11 16:50	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	9.1	1	05/03/11 16:15	05/04/11 16:50	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	9.1	1	05/03/11 16:15	05/04/11 16:50	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	9.1	1	05/03/11 16:15	05/04/11 16:50	207-08-9	
Chrysene	ND	ug/kg	9.1	1	05/03/11 16:15	05/04/11 16:50	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	9.1	1	05/03/11 16:15	05/04/11 16:50	53-70-3	
Fluoranthene	ND	ug/kg	9.1	1	05/03/11 16:15	05/04/11 16:50	206-44-0	
Fluorene	ND	ug/kg	9.1	1	05/03/11 16:15	05/04/11 16:50	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	9.1	1	05/03/11 16:15	05/04/11 16:50	193-39-5	
Naphthalene	ND	ug/kg	9.1	1	05/03/11 16:15	05/04/11 16:50	91-20-3	
Phenanthrene	ND	ug/kg	9.1	1	05/03/11 16:15	05/04/11 16:50	85-01-8	
Pyrene	ND	ug/kg	9.1	1	05/03/11 16:15	05/04/11 16:50	129-00-0	
2-Fluorobiphenyl (S)	76	%	31-131	1	05/03/11 16:15	05/04/11 16:50	321-60-8	
Terphenyl-d14 (S)	81	%	30-133	1	05/03/11 16:15	05/04/11 16:50	1718-51-0	

8260/5035A Volatile Organics Analytical Method: EPA 8260

1,1,1,2-Tetrachloroethane	ND	ug/kg	3.3	1		05/04/11 13:04	630-20-6	
1,1,1-Trichloroethane	ND	ug/kg	3.3	1		05/04/11 13:04	71-55-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	3.3	1		05/04/11 13:04	79-34-5	

ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Sample: SB-12 (7.5) Lab ID: 257502023 Collected: 04/29/11 16:45 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics		Analytical Method: EPA 8260						
1,1,2-Trichloroethane	ND	ug/kg	3.3	1		05/04/11 13:04	79-00-5	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	3.3	1		05/04/11 13:04	76-13-1	
1,1-Dichloroethane	ND	ug/kg	3.3	1		05/04/11 13:04	75-34-3	
1,1-Dichloroethene	ND	ug/kg	3.3	1		05/04/11 13:04	75-35-4	
1,1-Dichloropropene	ND	ug/kg	3.3	1		05/04/11 13:04	563-58-6	
1,2,3-Trichlorobenzene	ND	ug/kg	3.3	1		05/04/11 13:04	87-61-6	
1,2,3-Trichloropropane	ND	ug/kg	3.3	1		05/04/11 13:04	96-18-4	
1,2,4-Trichlorobenzene	ND	ug/kg	3.3	1		05/04/11 13:04	120-82-1	
1,2,4-Trimethylbenzene	ND	ug/kg	3.9	1		05/10/11 13:10	95-63-6	
1,2-Dibromo-3-chloropropane	ND	ug/kg	5.5	1		05/04/11 13:04	96-12-8	
1,2-Dibromoethane (EDB)	ND	ug/kg	3.3	1		05/04/11 13:04	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	3.3	1		05/04/11 13:04	95-50-1	
1,2-Dichloroethane	ND	ug/kg	3.3	1		05/04/11 13:04	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/kg	6.6	1		05/04/11 13:04	540-59-0	
1,2-Dichloropropane	ND	ug/kg	3.3	1		05/04/11 13:04	78-87-5	
1,3,5-Trimethylbenzene	ND	ug/kg	3.9	1		05/10/11 13:10	108-67-8	
1,3-Dichlorobenzene	ND	ug/kg	3.3	1		05/04/11 13:04	541-73-1	
1,3-Dichloropropane	ND	ug/kg	3.3	1		05/04/11 13:04	142-28-9	
1,4-Dichlorobenzene	ND	ug/kg	3.3	1		05/04/11 13:04	106-46-7	
2,2-Dichloropropane	ND	ug/kg	3.3	1		05/04/11 13:04	594-20-7	
2-Butanone (MEK)	ND	ug/kg	11.0	1		05/04/11 13:04	78-93-3	
2-Chlorotoluene	ND	ug/kg	3.3	1		05/04/11 13:04	95-49-8	
2-Hexanone	ND	ug/kg	11.0	1		05/04/11 13:04	591-78-6	
4-Chlorotoluene	ND	ug/kg	3.3	1		05/04/11 13:04	106-43-4	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	11.0	1		05/04/11 13:04	108-10-1	
Acetone	ND	ug/kg	11.0	1		05/04/11 13:04	67-64-1	
Benzene	ND	ug/kg	3.3	1		05/04/11 13:04	71-43-2	
Bromobenzene	ND	ug/kg	3.3	1		05/04/11 13:04	108-86-1	
Bromochloromethane	ND	ug/kg	3.3	1		05/04/11 13:04	74-97-5	
Bromodichloromethane	ND	ug/kg	3.3	1		05/04/11 13:04	75-27-4	
Bromoform	ND	ug/kg	3.3	1		05/04/11 13:04	75-25-2	
Bromomethane	ND	ug/kg	3.3	1		05/04/11 13:04	74-83-9	
Carbon disulfide	ND	ug/kg	3.3	1		05/04/11 13:04	75-15-0	
Carbon tetrachloride	ND	ug/kg	3.3	1		05/04/11 13:04	56-23-5	
Chlorobenzene	ND	ug/kg	3.3	1		05/04/11 13:04	108-90-7	
Chloroethane	ND	ug/kg	3.3	1		05/04/11 13:04	75-00-3	
Chloroform	ND	ug/kg	3.3	1		05/04/11 13:04	67-66-3	
Chloromethane	ND	ug/kg	3.3	1		05/04/11 13:04	74-87-3	
Dibromochloromethane	ND	ug/kg	3.3	1		05/04/11 13:04	124-48-1	
Dibromomethane	ND	ug/kg	3.3	1		05/04/11 13:04	74-95-3	
Dichlorodifluoromethane	ND	ug/kg	3.3	1		05/04/11 13:04	75-71-8	
Ethylbenzene	ND	ug/kg	3.9	1		05/10/11 13:10	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	3.3	1		05/04/11 13:04	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/kg	3.9	1		05/10/11 13:10	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	3.3	1		05/04/11 13:04	1634-04-4	
Methylene chloride	ND	ug/kg	11.0	1		05/04/11 13:04	75-09-2	

Date: 05/26/2011 03:25 PM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Sample: SB-12 (7.5) Lab ID: 257502023 Collected: 04/29/11 16:45 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics		Analytical Method: EPA 8260						
Naphthalene	ND	ug/kg	3.9	1		05/10/11 13:10	91-20-3	
Styrene	ND	ug/kg	3.3	1		05/04/11 13:04	100-42-5	
Tetrachloroethene	ND	ug/kg	3.3	1		05/04/11 13:04	127-18-4	
Toluene	ND	ug/kg	3.9	1		05/10/11 13:10	108-88-3	
Trichloroethene	ND	ug/kg	3.3	1		05/04/11 13:04	79-01-6	
Trichlorofluoromethane	ND	ug/kg	3.3	1		05/04/11 13:04	75-69-4	
Vinyl chloride	ND	ug/kg	3.3	1		05/04/11 13:04	75-01-4	
Xylene (Total)	ND	ug/kg	11.6	1		05/10/11 13:10	1330-20-7	
cis-1,2-Dichloroethene	ND	ug/kg	3.3	1		05/04/11 13:04	156-59-2	
cis-1,3-Dichloropropene	ND	ug/kg	3.3	1		05/04/11 13:04	10061-01-5	
m&p-Xylene	ND	ug/kg	7.7	1		05/10/11 13:10	179601-23-1	
n-Butylbenzene	ND	ug/kg	3.3	1		05/04/11 13:04	104-51-8	
n-Propylbenzene	ND	ug/kg	3.9	1		05/10/11 13:10	103-65-1	
o-Xylene	ND	ug/kg	3.9	1		05/10/11 13:10	95-47-6	
p-Isopropyltoluene	ND	ug/kg	3.3	1		05/04/11 13:04	99-87-6	
sec-Butylbenzene	ND	ug/kg	3.3	1		05/04/11 13:04	135-98-8	
tert-Amylmethyl ether	ND	ug/kg	3.3	1		05/04/11 13:04	994-05-8	
tert-Butylbenzene	ND	ug/kg	3.3	1		05/04/11 13:04	98-06-6	
trans-1,2-Dichloroethene	ND	ug/kg	3.3	1		05/04/11 13:04	156-60-5	
trans-1,3-Dichloropropene	ND	ug/kg	3.3	1		05/04/11 13:04	10061-02-6	
Dibromofluoromethane (S)	102 %		80-136	1		05/04/11 13:04	1868-53-7	
Toluene-d8 (S)	91 %		80-120	1		05/04/11 13:04	2037-26-5	
4-Bromofluorobenzene (S)	99 %		72-122	1		05/04/11 13:04	460-00-4	
1,2-Dichloroethane-d4 (S)	106 %		80-143	1		05/04/11 13:04	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	26.9 %	0.10	1	05/03/11 16:54
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Sample: SB-12 Lab ID: 257502024 Collected: 04/29/11 17:45 Received: 05/03/11 07:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.075	1	05/03/11 14:25	05/03/11 21:00		
Motor Oil Range	ND	mg/L	0.38	1	05/03/11 14:25	05/03/11 21:00	64742-65-0	
n-Octacosane (S)	104 %		50-150	1	05/03/11 14:25	05/03/11 21:00	630-02-4	
o-Terphenyl (S)	97 %		50-150	1	05/03/11 14:25	05/03/11 21:00	84-15-1	
NWTPH-Gx MSV		Analytical Method: NWTPH-Gx						
Gasoline Range Organics	ND	ug/L	50.0	1		05/05/11 15:56		
4-Bromofluorobenzene (S)	100 %		50-150	1		05/05/11 15:56	460-00-4	

ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Sample: MW-1 (8.0) DUP **Lab ID: 257502025** Collected: 04/29/11 09:55 Received: 05/03/11 07:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	24.4	%	0.10	1		05/03/11 16:54		

Sample: SB-15 **Lab ID: 257502026** Collected: 04/29/11 13:40 Received: 05/03/11 07:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.14	mg/L	0.076	1	05/03/11 14:25	05/03/11 21:17		
Motor Oil Range	ND	mg/L	0.38	1	05/03/11 14:25	05/03/11 21:17	64742-65-0	
n-Octacosane (S)	106	%	50-150	1	05/03/11 14:25	05/03/11 21:17	630-02-4	
o-Terphenyl (S)	100	%	50-150	1	05/03/11 14:25	05/03/11 21:17	84-15-1	

8260 MSV Analytical Method: EPA 5030B/8260

1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/04/11 18:56	630-20-6	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		05/04/11 18:56	71-55-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/04/11 18:56	79-34-5	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/04/11 18:56	79-00-5	
1,1-Dichloroethane	ND	ug/L	1.0	1		05/04/11 18:56	75-34-3	
1,1-Dichloroethene	ND	ug/L	1.0	1		05/04/11 18:56	75-35-4	
1,1-Dichloropropene	ND	ug/L	1.0	1		05/04/11 18:56	563-58-6	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/04/11 18:56	87-61-6	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		05/04/11 18:56	96-18-4	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/04/11 18:56	120-82-1	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		05/04/11 18:56	95-63-6	
1,2-Dibromo-3-chloropropane	ND	ug/L	4.0	1		05/04/11 18:56	96-12-8	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/04/11 18:56	106-93-4	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/04/11 18:56	95-50-1	
1,2-Dichloroethane	ND	ug/L	1.0	1		05/04/11 18:56	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	2.0	1		05/04/11 18:56	540-59-0	
1,2-Dichloropropane	ND	ug/L	1.0	1		05/04/11 18:56	78-87-5	
1,3,5-Trimethylbenzene	4.1	ug/L	1.0	1		05/04/11 18:56	108-67-8	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/04/11 18:56	541-73-1	
1,3-Dichloropropane	ND	ug/L	1.0	1		05/04/11 18:56	142-28-9	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/04/11 18:56	106-46-7	
2,2-Dichloropropane	ND	ug/L	1.0	1		05/04/11 18:56	594-20-7	
2-Butanone (MEK)	ND	ug/L	5.0	1		05/04/11 18:56	78-93-3	
2-Chlorotoluene	ND	ug/L	1.0	1		05/04/11 18:56	95-49-8	
2-Hexanone	ND	ug/L	5.0	1		05/04/11 18:56	591-78-6	
4-Chlorotoluene	ND	ug/L	1.0	1		05/04/11 18:56	106-43-4	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/04/11 18:56	108-10-1	
Acetone	ND	ug/L	5.0	1		05/04/11 18:56	67-64-1	
Benzene	1.1	ug/L	1.0	1		05/04/11 18:56	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		05/04/11 18:56	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		05/04/11 18:56	74-97-5	

ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Sample: SB-15		Lab ID: 257502026	Collected: 04/29/11 13:40	Received: 05/03/11 07:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 5030B/8260						
Bromodichloromethane	ND	ug/L	1.0	1		05/04/11 18:56	75-27-4	
Bromoform	ND	ug/L	1.0	1		05/04/11 18:56	75-25-2	
Bromomethane	ND	ug/L	1.0	1		05/04/11 18:56	74-83-9	
Carbon disulfide	ND	ug/L	1.0	1		05/04/11 18:56	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	1		05/04/11 18:56	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		05/04/11 18:56	108-90-7	
Chloroethane	ND	ug/L	1.0	1		05/04/11 18:56	75-00-3	
Chloroform	ND	ug/L	1.0	1		05/04/11 18:56	67-66-3	
Chloromethane	ND	ug/L	1.0	1		05/04/11 18:56	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	1		05/04/11 18:56	124-48-1	
Dibromomethane	ND	ug/L	1.0	1		05/04/11 18:56	74-95-3	
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/04/11 18:56	75-71-8	
Ethylbenzene	2.8	ug/L	1.0	1		05/04/11 18:56	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/04/11 18:56	87-68-3	
Isopropylbenzene (Cumene)	3.4	ug/L	1.0	1		05/04/11 18:56	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/04/11 18:56	1634-04-4	
Methylene chloride	ND	ug/L	4.0	1		05/04/11 18:56	75-09-2	
Naphthalene	ND	ug/L	1.0	1		05/04/11 18:56	91-20-3	
Styrene	ND	ug/L	1.0	1		05/04/11 18:56	100-42-5	
Tetrachloroethene	ND	ug/L	1.0	1		05/04/11 18:56	127-18-4	
Toluene	ND	ug/L	1.0	1		05/04/11 18:56	108-88-3	
Trichloroethene	ND	ug/L	1.0	1		05/04/11 18:56	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		05/04/11 18:56	75-69-4	
Vinyl chloride	ND	ug/L	1.0	1		05/04/11 18:56	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		05/04/11 18:56	1330-20-7	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/04/11 18:56	156-59-2	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		05/04/11 18:56	10061-01-5	
m&p-Xylene	ND	ug/L	2.0	1		05/04/11 18:56	179601-23-1	
n-Butylbenzene	ND	ug/L	1.0	1		05/04/11 18:56	104-51-8	
n-Propylbenzene	9.5	ug/L	1.0	1		05/04/11 18:56	103-65-1	
o-Xylene	ND	ug/L	1.0	1		05/04/11 18:56	95-47-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		05/04/11 18:56	99-87-6	
sec-Butylbenzene	2.6	ug/L	1.0	1		05/04/11 18:56	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		05/04/11 18:56	98-06-6	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/04/11 18:56	156-60-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		05/04/11 18:56	10061-02-6	
4-Bromofluorobenzene (S)	99 %		80-120	1		05/04/11 18:56	460-00-4	
Dibromofluoromethane (S)	93 %		80-122	1		05/04/11 18:56	1868-53-7	
1,2-Dichloroethane-d4 (S)	95 %		80-124	1		05/04/11 18:56	17060-07-0	
Toluene-d8 (S)	100 %		80-123	1		05/04/11 18:56	2037-26-5	
NWTPH-Gx MSV		Analytical Method: NWTPH-Gx						
Gasoline Range Organics	473	ug/L	50.0	1		05/04/11 18:56		
4-Bromofluorobenzene (S)	99 %		50-150	1		05/04/11 18:56	460-00-4	

QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

QC Batch:	OEXT/3645	Analysis Method:	NWTPH-Dx
QC Batch Method:	EPA 3546	Analysis Description:	NWTPH-Dx GCS
Associated Lab Samples:	257502002, 257502004, 257502006, 257502007, 257502008, 257502012, 257502015, 257502018, 257502019, 257502020, 257502022, 257502023		

METHOD BLANK: 68620 Matrix: Solid

Associated Lab Samples: 257502002, 257502004, 257502006, 257502007, 257502008, 257502012, 257502015, 257502018, 257502019, 257502020, 257502022, 257502023

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/kg	ND	20.0	05/04/11 11:34	
Motor Oil Range	mg/kg	ND	80.0	05/04/11 11:34	
n-Octacosane (S)	%	96	50-150	05/04/11 11:34	
o-Terphenyl (S)	%	84	50-150	05/04/11 11:34	

LABORATORY CONTROL SAMPLE: 68621

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/kg	500	437	87	56-124	
Motor Oil Range	mg/kg	500	497	99	50-150	
n-Octacosane (S)	%			103	50-150	
o-Terphenyl (S)	%			101	50-150	

SAMPLE DUPLICATE: 68622

Parameter	Units	257504001 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/kg	ND	ND		
Motor Oil Range	mg/kg	ND	ND		
n-Octacosane (S)	%	101	100	2	
o-Terphenyl (S)	%	89	87	2	

SAMPLE DUPLICATE: 68623

Parameter	Units	257502002 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/kg	ND	ND		
Motor Oil Range	mg/kg	ND	ND		
n-Octacosane (S)	%	99	96	6	
o-Terphenyl (S)	%	86	85	5	

QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

QC Batch: OEXT/3641 Analysis Method: NWTPH-Dx
QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
Associated Lab Samples: 257502010, 257502021, 257502024, 257502026

METHOD BLANK: 68528 Matrix: Water

Associated Lab Samples: 257502010, 257502021, 257502024, 257502026

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.080	05/03/11 19:07	
Motor Oil Range	mg/L	ND	0.40	05/03/11 19:07	
n-Octacosane (S)	%	99	50-150	05/03/11 19:07	
o-Terphenyl (S)	%	95	50-150	05/03/11 19:07	

LABORATORY CONTROL SAMPLE: 68529

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	5	4.7	94	51-147	
Motor Oil Range	mg/L	5	4.9	98	20-160	
n-Octacosane (S)	%			108	50-150	
o-Terphenyl (S)	%			113	50-150	

SAMPLE DUPLICATE: 68530

Parameter	Units	257492001 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	0.96	0.79	19	
Motor Oil Range	mg/L	2.0	1.5	28	
n-Octacosane (S)	%	104	106	24	
o-Terphenyl (S)	%	96	99	25	

SAMPLE DUPLICATE: 68627

Parameter	Units	257502010 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	0.097	0.077	23	
Motor Oil Range	mg/L	ND	.099J		
n-Octacosane (S)	%	101	106	5	
o-Terphenyl (S)	%	93	91	2	

QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

QC Batch:	GCV/2268	Analysis Method:	NWTPH-Gx
QC Batch Method:	NWTPH-Gx	Analysis Description:	NWTPH-Gx Solid GCV
Associated Lab Samples:	257502002, 257502004, 257502006, 257502008, 257502012, 257502018, 257502019, 257502020, 257502022, 257502023		

METHOD BLANK:	68605	Matrix:	Solid
Associated Lab Samples:	257502002, 257502004, 257502006, 257502008, 257502012, 257502018, 257502019, 257502020, 257502022, 257502023		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	5.0	05/03/11 16:43	
4-Bromofluorobenzene (S)	%	80	50-150	05/03/11 16:43	
a,a,a-Trifluorotoluene (S)	%	125	50-150	05/03/11 16:43	

LABORATORY CONTROL SAMPLE: 68606

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	12.5	12.0	96	54-156	
4-Bromofluorobenzene (S)	%			97	50-150	
a,a,a-Trifluorotoluene (S)	%			139	50-150	

SAMPLE DUPLICATE: 68901

Parameter	Units	257502006 Result	Dup Result	RPD	Qualifiers
Gasoline Range Organics	mg/kg	ND	.38J		
4-Bromofluorobenzene (S)	%	76	75	1	
a,a,a-Trifluorotoluene (S)	%	123	123	.3	

SAMPLE DUPLICATE: 68902

Parameter	Units	257502019 Result	Dup Result	RPD	Qualifiers
Gasoline Range Organics	mg/kg	ND	1.7J		
4-Bromofluorobenzene (S)	%	75	81	7	
a,a,a-Trifluorotoluene (S)	%	120	120	.2	

QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

QC Batch: GCV/2269

Analysis Method: NWTPH-Gx

QC Batch Method: NWTPH-Gx

Analysis Description: NWTPH-Gx Solid GCV

Associated Lab Samples: 257502007, 257502015

METHOD BLANK: 68809

Matrix: Solid

Associated Lab Samples: 257502007, 257502015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	5.0	05/05/11 15:37	
4-Bromofluorobenzene (S)	%	84	50-150	05/05/11 15:37	
a,a,a-Trifluorotoluene (S)	%	118	50-150	05/05/11 15:37	

LABORATORY CONTROL SAMPLE: 68810

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	12.5	11.4	91	54-156	
4-Bromofluorobenzene (S)	%			85	50-150	
a,a,a-Trifluorotoluene (S)	%			130	50-150	

SAMPLE DUPLICATE: 68969

Parameter	Units	257502007 Result	Dup Result	RPD	Qualifiers
Gasoline Range Organics	mg/kg	8.7	9.0	4	
4-Bromofluorobenzene (S)	%	86	90	4	
a,a,a-Trifluorotoluene (S)	%	121	129	7	

SAMPLE DUPLICATE: 68970

Parameter	Units	257519001 Result	Dup Result	RPD	Qualifiers
Gasoline Range Organics	mg/kg	40.3	39.6	2	
4-Bromofluorobenzene (S)	%	78	90	14	
a,a,a-Trifluorotoluene (S)	%	115	130	12	

QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

QC Batch: MPRP/2196 Analysis Method: EPA 6010
QC Batch Method: EPA 3050 Analysis Description: 6010 MET
Associated Lab Samples: 257502007, 257502015, 257502019

METHOD BLANK: 69119 Matrix: Solid

Associated Lab Samples: 257502007, 257502015, 257502019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Lead	mg/kg	ND	1.0	05/09/11 15:14	

LABORATORY CONTROL SAMPLE: 69120

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Lead	mg/kg	25	26.2	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 69121 69122

Parameter	Units	257536001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Lead	mg/kg	8.7	31.5	31.8	39.5	38.9	98	95	75-125	2	

QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

QC Batch: OEXT/3644

Analysis Method: EPA 8270 by SIM

QC Batch Method: EPA 3546

Analysis Description: 8270/3546 MSSV PAH by SIM

Associated Lab Samples: 257502015, 257502023

METHOD BLANK: 68601

Matrix: Solid

Associated Lab Samples: 257502015, 257502023

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/kg	ND	6.7	05/04/11 15:34	
2-Methylnaphthalene	ug/kg	ND	6.7	05/04/11 15:34	
Acenaphthene	ug/kg	ND	6.7	05/04/11 15:34	
Acenaphthylene	ug/kg	ND	6.7	05/04/11 15:34	
Anthracene	ug/kg	ND	6.7	05/04/11 15:34	
Benzo(a)anthracene	ug/kg	ND	6.7	05/04/11 15:34	
Benzo(a)pyrene	ug/kg	ND	6.7	05/04/11 15:34	
Benzo(b)fluoranthene	ug/kg	ND	6.7	05/04/11 15:34	
Benzo(g,h,i)perylene	ug/kg	ND	6.7	05/04/11 15:34	
Benzo(k)fluoranthene	ug/kg	ND	6.7	05/04/11 15:34	
Chrysene	ug/kg	ND	6.7	05/04/11 15:34	
Dibenz(a,h)anthracene	ug/kg	ND	6.7	05/04/11 15:34	
Fluoranthene	ug/kg	ND	6.7	05/04/11 15:34	
Fluorene	ug/kg	ND	6.7	05/04/11 15:34	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	6.7	05/04/11 15:34	
Naphthalene	ug/kg	ND	6.7	05/04/11 15:34	
Phenanthrene	ug/kg	ND	6.7	05/04/11 15:34	
Pyrene	ug/kg	ND	6.7	05/04/11 15:34	
2-Fluorobiphenyl (S)	%	76	31-131	05/04/11 15:34	
Terphenyl-d14 (S)	%	79	30-133	05/04/11 15:34	

LABORATORY CONTROL SAMPLE: 68602

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1-Methylnaphthalene	ug/kg	133	108	81	37-121	
2-Methylnaphthalene	ug/kg	133	106	80	33-132	
Acenaphthene	ug/kg	133	109	82	32-127	
Acenaphthylene	ug/kg	133	100	75	31-134	
Anthracene	ug/kg	133	103	77	42-135	
Benzo(a)anthracene	ug/kg	133	102	76	43-139	
Benzo(a)pyrene	ug/kg	133	112	84	44-144	
Benzo(b)fluoranthene	ug/kg	133	105	79	42-144	
Benzo(g,h,i)perylene	ug/kg	133	99.8	75	46-136	
Benzo(k)fluoranthene	ug/kg	133	117	88	45-147	
Chrysene	ug/kg	133	117	87	42-144	
Dibenz(a,h)anthracene	ug/kg	133	103	77	48-142	
Fluoranthene	ug/kg	133	116	87	44-143	
Fluorene	ug/kg	133	93.5	70	32-146	
Indeno(1,2,3-cd)pyrene	ug/kg	133	99.2	74	47-140	
Naphthalene	ug/kg	133	105	79	35-118	
Phenanthrene	ug/kg	133	115	86	42-131	

Date: 05/26/2011 03:25 PM

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

LABORATORY CONTROL SAMPLE: 68602

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Pyrene	ug/kg	133	111	83	47-136	
2-Fluorobiphenyl (S)	%			81	31-131	
Terphenyl-d14 (S)	%			86	30-133	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 68603 68604

Parameter	Units	257502015 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1-Methylnaphthalene	ug/kg	1380	174	176	2700	1650	760	151	31-123	49	D6,M1,M6
2-Methylnaphthalene	ug/kg	3190	174	176	5770	3850	1490	380	15-146	40	D6,M6
Acenaphthene	ug/kg	23.5	174	176	175	169	87	83	19-141	4	
Acenaphthylene	ug/kg	ND	174	176	147	147	80	80	30-142	.08	
Anthracene	ug/kg	ND	174	176	134	125	72	67	38-137	6	
Benzo(a)anthracene	ug/kg	ND	174	176	133	126	75	71	37-143	5	
Benzo(a)pyrene	ug/kg	ND	174	176	143	139	82	79	33-147	3	
Benzo(b)fluoranthene	ug/kg	ND	174	176	131	128	75	73	25-156	2	
Benzo(g,h,i)perylene	ug/kg	ND	174	176	128	121	73	68	26-142	6	
Benzo(k)fluoranthene	ug/kg	ND	174	176	138	132	79	75	35-142	4	
Chrysene	ug/kg	ND	174	176	143	133	81	75	23-150	7	
Dibenz(a,h)anthracene	ug/kg	ND	174	176	131	126	75	72	41-140	4	
Fluoranthene	ug/kg	ND	174	176	145	137	81	76	25-155	5	
Fluorene	ug/kg	52.0	174	176	192	167	81	66	33-152	14	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	174	176	128	122	73	69	36-139	5	
Naphthalene	ug/kg	3350	174	176	5940	4140	1490	449	25-121	36	D6,M6
Phenanthrene	ug/kg	84.2	174	176	284	221	115	78	29-141	25	D6
Pyrene	ug/kg	10.1	174	176	148	135	79	72	36-145	9	
2-Fluorobiphenyl (S)	%						73	77	31-131		
Terphenyl-d14 (S)	%						76	72	30-133		

QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

QC Batch:	MSV/4367	Analysis Method:	EPA 5030B/8260
QC Batch Method:	EPA 5030B/8260	Analysis Description:	8260 MSV Water 10 mL Purge
Associated Lab Samples:	257502010, 257502026		

METHOD BLANK: 68734 Matrix: Water

Associated Lab Samples: 257502010, 257502026

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	05/04/11 13:19	
1,1,1-Trichloroethane	ug/L	ND	1.0	05/04/11 13:19	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	05/04/11 13:19	
1,1,2-Trichloroethane	ug/L	ND	1.0	05/04/11 13:19	
1,1-Dichloroethane	ug/L	ND	1.0	05/04/11 13:19	
1,1-Dichloroethene	ug/L	ND	1.0	05/04/11 13:19	
1,1-Dichloropropene	ug/L	ND	1.0	05/04/11 13:19	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	05/04/11 13:19	
1,2,3-Trichloropropane	ug/L	ND	1.0	05/04/11 13:19	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	05/04/11 13:19	
1,2,4-Trimethylbenzene	ug/L	ND	1.0	05/04/11 13:19	
1,2-Dibromo-3-chloropropane	ug/L	ND	4.0	05/04/11 13:19	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	05/04/11 13:19	
1,2-Dichlorobenzene	ug/L	ND	1.0	05/04/11 13:19	
1,2-Dichloroethane	ug/L	ND	1.0	05/04/11 13:19	
1,2-Dichloroethene (Total)	ug/L	ND	2.0	05/04/11 13:19	
1,2-Dichloropropane	ug/L	ND	1.0	05/04/11 13:19	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	05/04/11 13:19	
1,3-Dichlorobenzene	ug/L	ND	1.0	05/04/11 13:19	
1,3-Dichloropropane	ug/L	ND	1.0	05/04/11 13:19	
1,4-Dichlorobenzene	ug/L	ND	1.0	05/04/11 13:19	
2,2-Dichloropropane	ug/L	ND	1.0	05/04/11 13:19	
2-Butanone (MEK)	ug/L	ND	5.0	05/04/11 13:19	
2-Chlorotoluene	ug/L	ND	1.0	05/04/11 13:19	
2-Hexanone	ug/L	ND	5.0	05/04/11 13:19	
4-Chlorotoluene	ug/L	ND	1.0	05/04/11 13:19	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	05/04/11 13:19	
Acetone	ug/L	ND	5.0	05/04/11 13:19	
Benzene	ug/L	ND	1.0	05/04/11 13:19	
Bromobenzene	ug/L	ND	1.0	05/04/11 13:19	
Bromochloromethane	ug/L	ND	1.0	05/04/11 13:19	
Bromodichloromethane	ug/L	ND	1.0	05/04/11 13:19	
Bromoform	ug/L	ND	1.0	05/04/11 13:19	
Bromomethane	ug/L	ND	1.0	05/04/11 13:19	
Carbon disulfide	ug/L	ND	1.0	05/04/11 13:19	
Carbon tetrachloride	ug/L	ND	1.0	05/04/11 13:19	
Chlorobenzene	ug/L	ND	1.0	05/04/11 13:19	
Chloroethane	ug/L	ND	1.0	05/04/11 13:19	
Chloroform	ug/L	ND	1.0	05/04/11 13:19	
Chloromethane	ug/L	ND	1.0	05/04/11 13:19	
cis-1,2-Dichloroethene	ug/L	ND	1.0	05/04/11 13:19	
cis-1,3-Dichloropropene	ug/L	ND	1.0	05/04/11 13:19	
Dibromochloromethane	ug/L	ND	1.0	05/04/11 13:19	

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QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

METHOD BLANK: 68734

Matrix: Water

Associated Lab Samples: 257502010, 257502026

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromomethane	ug/L	ND	1.0	05/04/11 13:19	
Dichlorodifluoromethane	ug/L	ND	1.0	05/04/11 13:19	
Ethylbenzene	ug/L	ND	1.0	05/04/11 13:19	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	05/04/11 13:19	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	05/04/11 13:19	
m&p-Xylene	ug/L	ND	2.0	05/04/11 13:19	
Methyl-tert-butyl ether	ug/L	ND	1.0	05/04/11 13:19	
Methylene chloride	ug/L	ND	4.0	05/04/11 13:19	
n-Butylbenzene	ug/L	ND	1.0	05/04/11 13:19	
n-Propylbenzene	ug/L	ND	1.0	05/04/11 13:19	
Naphthalene	ug/L	ND	1.0	05/04/11 13:19	
o-Xylene	ug/L	ND	1.0	05/04/11 13:19	
p-Isopropyltoluene	ug/L	ND	1.0	05/04/11 13:19	
sec-Butylbenzene	ug/L	ND	1.0	05/04/11 13:19	
Styrene	ug/L	ND	1.0	05/04/11 13:19	
tert-Butylbenzene	ug/L	ND	1.0	05/04/11 13:19	
Tetrachloroethene	ug/L	ND	1.0	05/04/11 13:19	
Toluene	ug/L	ND	1.0	05/04/11 13:19	
trans-1,2-Dichloroethene	ug/L	ND	1.0	05/04/11 13:19	
trans-1,3-Dichloropropene	ug/L	ND	1.0	05/04/11 13:19	
Trichloroethene	ug/L	ND	1.0	05/04/11 13:19	
Trichlorofluoromethane	ug/L	ND	1.0	05/04/11 13:19	
Vinyl chloride	ug/L	ND	1.0	05/04/11 13:19	
Xylene (Total)	ug/L	ND	3.0	05/04/11 13:19	
1,2-Dichloroethane-d4 (S)	%	96	80-124	05/04/11 13:19	
4-Bromofluorobenzene (S)	%	99	80-120	05/04/11 13:19	
Dibromofluoromethane (S)	%	94	80-122	05/04/11 13:19	
Toluene-d8 (S)	%	100	80-123	05/04/11 13:19	

LABORATORY CONTROL SAMPLE: 68735

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	20.4	102	68-131	
1,1,1-Trichloroethane	ug/L	20	19.6	98	74-137	
1,1,2,2-Tetrachloroethane	ug/L	20	19.7	98	72-126	
1,1,2-Trichloroethane	ug/L	20	18.7	93	76-120	
1,1-Dichloroethane	ug/L	20	20.1	101	76-131	
1,1-Dichloroethene	ug/L	20	21.0	105	68-150	
1,1-Dichloropropene	ug/L	20	20.1	100	74-138	
1,2,3-Trichlorobenzene	ug/L	20	18.7	94	60-136	
1,2,3-Trichloropropane	ug/L	20	18.1	91	62-135	
1,2,4-Trichlorobenzene	ug/L	20	20.1	101	62-136	
1,2,4-Trimethylbenzene	ug/L	20	21.1	106	66-132	
1,2-Dibromo-3-chloropropane	ug/L	20	16.8	84	60-123	
1,2-Dibromoethane (EDB)	ug/L	20	18.5	93	73-124	

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QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

LABORATORY CONTROL SAMPLE: 68735

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichlorobenzene	ug/L	20	19.9	100	75-122	
1,2-Dichloroethane	ug/L	20	18.7	94	78-125	
1,2-Dichloroethene (Total)	ug/L	40	41.6	104	77-136	
1,2-Dichloropropane	ug/L	20	19.3	96	76-121	
1,3,5-Trimethylbenzene	ug/L	20	20.7	103	69-130	
1,3-Dichlorobenzene	ug/L	20	20.8	104	75-122	
1,3-Dichloropropane	ug/L	20	18.2	91	77-120	
1,4-Dichlorobenzene	ug/L	20	20.3	102	78-120	
2,2-Dichloropropane	ug/L	20	21.2	106	46-168	
2-Butanone (MEK)	ug/L	40	30.8	77	55-146	
2-Chlorotoluene	ug/L	20	20.3	101	67-129	
2-Hexanone	ug/L	40	32.2	80	58-136	
4-Chlorotoluene	ug/L	20	20.8	104	75-126	
4-Methyl-2-pentanone (MIBK)	ug/L	40	32.8	82	62-137	
Acetone	ug/L	40	32.2	80	30-180	
Benzene	ug/L	20	19.5	97	76-127	
Bromobenzene	ug/L	20	20.0	100	74-120	
Bromochloromethane	ug/L	20	19.2	96	73-132	
Bromodichloromethane	ug/L	20	19.4	97	74-126	
Bromoform	ug/L	20	16.5	82	64-129	
Bromomethane	ug/L	20	18.8	94	40-164	
Carbon disulfide	ug/L	20	18.6	93	32-158	
Carbon tetrachloride	ug/L	20	21.0	105	68-142	
Chlorobenzene	ug/L	20	20.2	101	78-121	
Chloroethane	ug/L	20	17.6	88	58-151	
Chloroform	ug/L	20	19.8	99	80-125	
Chloromethane	ug/L	20	24.1	120	50-152	
cis-1,2-Dichloroethene	ug/L	20	21.0	105	80-135	
cis-1,3-Dichloropropene	ug/L	20	20.6	103	65-134	
Dibromochloromethane	ug/L	20	18.6	93	71-126	
Dibromomethane	ug/L	20	18.5	92	78-126	
Dichlorodifluoromethane	ug/L	20	21.6	108	18-180	
Ethylbenzene	ug/L	20	20.3	101	72-125	
Hexachloro-1,3-butadiene	ug/L	20	19.0	95	60-138	
Isopropylbenzene (Cumene)	ug/L	20	20.1	100	69-135	
m&p-Xylene	ug/L	40	41.0	103	73-126	
Methyl-tert-butyl ether	ug/L	20	18.3	91	58-145	
Methylene chloride	ug/L	20	17.4	87	65-144	
n-Butylbenzene	ug/L	20	20.6	103	66-132	
n-Propylbenzene	ug/L	20	20.6	103	69-131	
Naphthalene	ug/L	20	19.0	95	51-142	
o-Xylene	ug/L	20	20.5	102	73-123	
p-Isopropyltoluene	ug/L	20	21.0	105	67-133	
sec-Butylbenzene	ug/L	20	21.0	105	65-136	
Styrene	ug/L	20	20.1	101	72-128	
tert-Butylbenzene	ug/L	20	19.1	96	61-133	
Tetrachloroethene	ug/L	20	12.8	64	40-164	
Toluene	ug/L	20	19.8	99	69-125	

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QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

LABORATORY CONTROL SAMPLE: 68735

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
trans-1,2-Dichloroethene	ug/L	20	20.6	103	73-139	
trans-1,3-Dichloropropene	ug/L	20	17.3	87	56-122	
Trichloroethene	ug/L	20	18.9	95	74-127	
Trichlorofluoromethane	ug/L	20	18.9	94	64-154	
Vinyl chloride	ug/L	20	18.6	93	57-147	
Xylene (Total)	ug/L	60	61.5	103	74-124	
1,2-Dichloroethane-d4 (S)	%			91	80-124	
4-Bromofluorobenzene (S)	%			98	80-120	
Dibromofluoromethane (S)	%			94	80-122	
Toluene-d8 (S)	%			100	80-123	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 68736 68737

Parameter	Units	257488002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20	20.9	21.3	104	106	73-126	2	
1,1,1-Trichloroethane	ug/L	ND	20	20	21.4	21.5	107	108	69-135	.5	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	20.9	21.5	104	108	69-123	3	
1,1,2-Trichloroethane	ug/L	ND	20	20	20.1	20.4	100	102	76-114	2	
1,1-Dichloroethane	ug/L	ND	20	20	21.6	21.7	108	108	74-124	.2	
1,1-Dichloroethene	ug/L	ND	20	20	23.4	23.3	117	117	69-139	.2	
1,1-Dichloropropene	ug/L	ND	20	20	22.0	21.9	110	110	77-134	.4	
1,2,3-Trichlorobenzene	ug/L	ND	20	20	14.8	14.4	74	72	63-136	3	
1,2,3-Trichloropropane	ug/L	ND	20	20	19.6	20.1	98	100	66-118	3	
1,2,4-Trichlorobenzene	ug/L	ND	20	20	15.6	15.0	78	75	68-129	4	
1,2,4-Trimethylbenzene	ug/L	ND	20	20	19.5	19.2	98	96	72-126	2	
1,2-Dibromo-3-chloropropane	ug/L	ND	20	20	18.2	18.3	91	91	64-124	.4	
1,2-Dibromoethane (EDB)	ug/L	ND	20	20	19.8	20.4	99	102	78-117	3	
1,2-Dichlorobenzene	ug/L	ND	20	20	18.7	18.6	93	93	74-118	.2	
1,2-Dichloroethane	ug/L	ND	20	20	20.1	20.3	101	101	73-127	.8	
1,2-Dichloroethene (Total)	ug/L	ND	40	40	44.6	44.3	112	111	60-140	.7	
1,2-Dichloropropane	ug/L	ND	20	20	20.5	20.4	102	102	72-126	.3	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	19.5	19.5	98	97	68-129	.07	
1,3-Dichlorobenzene	ug/L	ND	20	20	18.8	18.9	94	95	73-119	.7	
1,3-Dichloropropane	ug/L	ND	20	20	19.5	19.9	97	100	74-119	2	
1,4-Dichlorobenzene	ug/L	ND	20	20	18.8	18.7	94	94	73-115	.2	
2,2-Dichloropropane	ug/L	ND	20	20	22.1	21.9	111	110	46-157	1	
2-Butanone (MEK)	ug/L	ND	40	40	31.1	33.1	78	83	65-138	6	
2-Chlorotoluene	ug/L	ND	20	20	19.3	19.5	97	97	68-122	.7	
2-Hexanone	ug/L	ND	40	40	35.5	36.3	89	91	60-135	2	
4-Chlorotoluene	ug/L	ND	20	20	19.4	19.5	97	98	70-122	.8	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	40	37.3	37.9	93	95	70-135	2	
Acetone	ug/L	ND	40	40	25.9	28.2	65	70	58-146	8	
Benzene	ug/L	ND	20	20	20.7	20.8	104	104	75-124	.4	
Bromobenzene	ug/L	ND	20	20	19.3	19.7	96	98	74-116	2	
Bromochloromethane	ug/L	ND	20	20	20.1	20.6	100	103	75-128	2	
Bromodichloromethane	ug/L	ND	20	20	20.7	20.8	103	104	77-126	.6	

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QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 68736 68737											
Parameter	Units	257488002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Bromoform	ug/L	ND	20	20	17.9	18.0	89	90	61-131	.7	
Bromomethane	ug/L	ND	20	20	19.8	21.1	99	105	58-139	6	
Carbon disulfide	ug/L	ND	20	20	20.5	20.8	103	104	39-122	1	
Carbon tetrachloride	ug/L	ND	20	20	23.2	23.2	116	116	67-136	.1	
Chlorobenzene	ug/L	ND	20	20	20.5	20.6	102	103	78-115	.5	
Chloroethane	ug/L	ND	20	20	19.0	20.2	95	101	58-137	6	
Chloroform	ug/L	ND	20	20	21.3	21.3	106	106	75-124	.01	
Chloromethane	ug/L	ND	20	20	27.4	29.9	137	150	50-129	9 M1	
cis-1,2-Dichloroethene	ug/L	ND	20	20	22.2	22.2	111	111	78-126	.01	
cis-1,3-Dichloropropene	ug/L	ND	20	20	21.6	21.8	108	109	78-159	1	
Dibromochloromethane	ug/L	ND	20	20	19.9	20.3	100	101	81-125	2	
Dibromomethane	ug/L	ND	20	20	20.0	20.0	100	100	75-124	.001	
Dichlorodifluoromethane	ug/L	ND	20	20	24.6	26.0	123	130	30-140	5	
Ethylbenzene	ug/L	ND	20	20	20.9	20.9	105	105	76-124	.2	
Hexachloro-1,3-butadiene	ug/L	ND	20	20	14.4	13.7	72	68	55-132	5	
Isopropylbenzene (Cumene)	ug/L	ND	20	20	20.5	20.5	102	102	73-127	.1	
m&p-Xylene	ug/L	ND	40	40	41.2	41.3	103	103	75-124	.2	
Methyl-tert-butyl ether	ug/L	ND	20	20	19.7	20.1	98	100	72-130	2	
Methylene chloride	ug/L	ND	20	20	15.8	15.8	79	79	69-124	.2	
n-Butylbenzene	ug/L	ND	20	20	17.7	17.5	88	87	65-131	1	
n-Propylbenzene	ug/L	ND	20	20	19.9	20.0	100	100	69-129	.009	
Naphthalene	ug/L	ND	20	20	17.1	17.2	85	86	69-135	.5	
o-Xylene	ug/L	ND	20	20	20.6	21.0	103	105	76-121	2	
p-Isopropyltoluene	ug/L	ND	20	20	19.4	19.4	97	97	69-133	.4	
sec-Butylbenzene	ug/L	ND	20	20	19.8	19.6	99	98	67-132	.6	
Styrene	ug/L	ND	20	20	19.6	19.1	98	95	76-121	3	
tert-Butylbenzene	ug/L	ND	20	20	18.7	18.7	94	94	66-132	.2	
Tetrachloroethene	ug/L	ND	20	20	13.3	13.3	66	67	70-127	.3 M1	
Toluene	ug/L	ND	20	20	20.5	20.8	102	104	75-124	1	
trans-1,2-Dichloroethene	ug/L	ND	20	20	22.4	22.0	112	110	72-129	1	
trans-1,3-Dichloropropene	ug/L	ND	20	20	18.0	18.6	90	93	69-122	3	
Trichloroethene	ug/L	ND	20	20	20.3	20.3	101	101	78-124	.08	
Trichlorofluoromethane	ug/L	ND	20	20	22.0	23.2	110	116	60-147	5	
Vinyl chloride	ug/L	ND	20	20	22.1	23.0	110	115	56-136	4	
Xylene (Total)	ug/L	ND	60	60	61.8	62.3	103	104	76-123	.7	
1,2-Dichloroethane-d4 (S)	%						95	96	80-124		
4-Bromofluorobenzene (S)	%						97	98	80-120		
Dibromofluoromethane (S)	%						95	95	80-122		
Toluene-d8 (S)	%						99	99	80-123		

QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

QC Batch: MSV/4382 Analysis Method: EPA 8260
QC Batch Method: EPA 5035A/5030B Analysis Description: 8260 MSV 5035A Medium Soil
Associated Lab Samples: 257502008, 257502013, 257502015

METHOD BLANK: 69174 Matrix: Solid

Associated Lab Samples: 257502008, 257502013, 257502015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	50.0	05/05/11 22:15	
1,3,5-Trimethylbenzene	ug/kg	ND	50.0	05/05/11 22:15	
Benzene	ug/kg	ND	25.0	05/05/11 22:15	
Ethylbenzene	ug/kg	ND	50.0	05/05/11 22:15	
Isopropylbenzene (Cumene)	ug/kg	ND	50.0	05/05/11 22:15	
m&p-Xylene	ug/kg	ND	100	05/05/11 22:15	
n-Propylbenzene	ug/kg	ND	50.0	05/05/11 22:15	
Naphthalene	ug/kg	ND	100	05/05/11 22:15	
o-Xylene	ug/kg	ND	50.0	05/05/11 22:15	
p-Isopropyltoluene	ug/kg	ND	50.0	05/05/11 22:15	
sec-Butylbenzene	ug/kg	ND	50.0	05/05/11 22:15	
Toluene	ug/kg	ND	50.0	05/05/11 22:15	
Xylene (Total)	ug/kg	ND	150	05/05/11 22:15	
1,2-Dichloroethane-d4 (S)	%	98	76-115	05/05/11 22:15	
4-Bromofluorobenzene (S)	%	95	78-127	05/05/11 22:15	
Dibromofluoromethane (S)	%	91	81-114	05/05/11 22:15	
Toluene-d8 (S)	%	98	84-121	05/05/11 22:15	

LABORATORY CONTROL SAMPLE: 69175

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	1000	1070	107	69-123	
1,3,5-Trimethylbenzene	ug/kg	1000	1030	103	73-120	
Benzene	ug/kg	1000	1070	107	78-123	
Ethylbenzene	ug/kg	1000	1090	109	74-120	
Isopropylbenzene (Cumene)	ug/kg	1000	1080	108	70-130	
m&p-Xylene	ug/kg	2000	2200	110	75-120	
n-Propylbenzene	ug/kg	1000	1040	104	64-127	
Naphthalene	ug/kg	1000	1140	114	50-131	
o-Xylene	ug/kg	1000	1090	109	74-122	
p-Isopropyltoluene	ug/kg	1000	1060	106	74-122	
sec-Butylbenzene	ug/kg	1000	1070	107	71-125	
Toluene	ug/kg	1000	1080	108	70-121	
Xylene (Total)	ug/kg	3000	3280	109	76-120	
1,2-Dichloroethane-d4 (S)	%			97	76-115	
4-Bromofluorobenzene (S)	%			94	78-127	
Dibromofluoromethane (S)	%			95	81-114	
Toluene-d8 (S)	%			97	84-121	

QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 69176 69177											
Parameter	Units	257507005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/kg	1710	1090	1090	2630	2740	84	95	75-133	4	
1,3,5-Trimethylbenzene	ug/kg	428	1090	1090	1430	1480	91	96	77-131	3	
Benzene	ug/kg	640	1090	1090	1670	1710	94	97	79-127	2	
Ethylbenzene	ug/kg	998	1090	1090	2030	2080	95	99	77-126	2	
Isopropylbenzene (Cumene)	ug/kg	66.0	1090	1090	1170	1190	101	103	80-127	2	
m&p-Xylene	ug/kg	4030	2190	2190	5940	6080	88	94	78-120	2	
n-Propylbenzene	ug/kg	308	1090	1090	1320	1370	93	97	78-134	4	
Naphthalene	ug/kg	122	1090	1090	1210	1250	99	104	40-125	4	
o-Xylene	ug/kg	1480	1090	1090	2500	2540	93	96	76-123	2	
p-Isopropyltoluene	ug/kg	ND	1090	1090	1080	1120	96	100	69-145	4	
sec-Butylbenzene	ug/kg	ND	1090	1090	1100	1130	99	102	73-137	3	
Toluene	ug/kg	1700	1090	1090	2640	2710	86	93	77-124	3	
Xylene (Total)	ug/kg	5510	3280	3280	8440	8620	89	95	77-127	2	
1,2-Dichloroethane-d4 (S)	%						97	98	76-115		
4-Bromofluorobenzene (S)	%						93	94	78-127		
Dibromofluoromethane (S)	%						95	96	81-114		
Toluene-d8 (S)	%						98	98	84-121		

QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

QC Batch:	MSV/4364	Analysis Method:	EPA 8260
QC Batch Method:	EPA 8260	Analysis Description:	8260 MSV 5035A Volatile Organics
Associated Lab Samples:	257502008, 257502013, 257502015, 257502023		

METHOD BLANK:	68698	Matrix:	Solid
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Associated Lab Samples: 257502008, 257502013, 257502015, 257502023

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	3.0	05/04/11 11:19	
1,1,1-Trichloroethane	ug/kg	ND	3.0	05/04/11 11:19	
1,1,2,2-Tetrachloroethane	ug/kg	ND	3.0	05/04/11 11:19	
1,1,2-Trichloroethane	ug/kg	ND	3.0	05/04/11 11:19	
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	3.0	05/04/11 11:19	
1,1-Dichloroethane	ug/kg	ND	3.0	05/04/11 11:19	
1,1-Dichloroethene	ug/kg	ND	3.0	05/04/11 11:19	
1,1-Dichloropropene	ug/kg	ND	3.0	05/04/11 11:19	
1,2,3-Trichlorobenzene	ug/kg	ND	3.0	05/04/11 11:19	
1,2,3-Trichloropropane	ug/kg	ND	3.0	05/04/11 11:19	
1,2,4-Trichlorobenzene	ug/kg	ND	3.0	05/04/11 11:19	
1,2,4-Trimethylbenzene	ug/kg	ND	3.0	05/04/11 11:19	
1,2-Dibromo-3-chloropropane	ug/kg	ND	5.0	05/04/11 11:19	
1,2-Dibromoethane (EDB)	ug/kg	ND	3.0	05/04/11 11:19	
1,2-Dichlorobenzene	ug/kg	ND	3.0	05/04/11 11:19	
1,2-Dichloroethane	ug/kg	ND	3.0	05/04/11 11:19	
1,2-Dichloroethene (Total)	ug/kg	ND	6.0	05/04/11 11:19	
1,2-Dichloropropane	ug/kg	ND	3.0	05/04/11 11:19	
1,3,5-Trimethylbenzene	ug/kg	ND	3.0	05/04/11 11:19	
1,3-Dichlorobenzene	ug/kg	ND	3.0	05/04/11 11:19	
1,3-Dichloropropane	ug/kg	ND	3.0	05/04/11 11:19	
1,4-Dichlorobenzene	ug/kg	ND	3.0	05/04/11 11:19	
2,2-Dichloropropane	ug/kg	ND	3.0	05/04/11 11:19	
2-Butanone (MEK)	ug/kg	ND	10.0	05/04/11 11:19	
2-Chlorotoluene	ug/kg	ND	3.0	05/04/11 11:19	
2-Hexanone	ug/kg	ND	10.0	05/04/11 11:19	
4-Chlorotoluene	ug/kg	ND	3.0	05/04/11 11:19	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	10.0	05/04/11 11:19	
Acetone	ug/kg	ND	10.0	05/04/11 11:19	
Benzene	ug/kg	ND	3.0	05/04/11 11:19	
Bromobenzene	ug/kg	ND	3.0	05/04/11 11:19	
Bromochloromethane	ug/kg	ND	3.0	05/04/11 11:19	
Bromodichloromethane	ug/kg	ND	3.0	05/04/11 11:19	
Bromoform	ug/kg	ND	3.0	05/04/11 11:19	
Bromomethane	ug/kg	ND	3.0	05/04/11 11:19	
Carbon disulfide	ug/kg	ND	3.0	05/04/11 11:19	
Carbon tetrachloride	ug/kg	ND	3.0	05/04/11 11:19	
Chlorobenzene	ug/kg	ND	3.0	05/04/11 11:19	
Chloroethane	ug/kg	ND	3.0	05/04/11 11:19	
Chloroform	ug/kg	ND	3.0	05/04/11 11:19	
Chloromethane	ug/kg	ND	3.0	05/04/11 11:19	
cis-1,2-Dichloroethene	ug/kg	ND	3.0	05/04/11 11:19	
cis-1,3-Dichloropropene	ug/kg	ND	3.0	05/04/11 11:19	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

METHOD BLANK: 68698

Matrix: Solid

Associated Lab Samples: 257502008, 257502013, 257502015, 257502023

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromochloromethane	ug/kg	ND	3.0	05/04/11 11:19	
Dibromomethane	ug/kg	ND	3.0	05/04/11 11:19	
Dichlorodifluoromethane	ug/kg	ND	3.0	05/04/11 11:19	
Ethylbenzene	ug/kg	ND	3.0	05/04/11 11:19	
Hexachloro-1,3-butadiene	ug/kg	ND	3.0	05/04/11 11:19	
Isopropylbenzene (Cumene)	ug/kg	ND	3.0	05/04/11 11:19	
m&p-Xylene	ug/kg	ND	6.0	05/04/11 11:19	
Methyl-tert-butyl ether	ug/kg	ND	3.0	05/04/11 11:19	
Methylene chloride	ug/kg	ND	10.0	05/04/11 11:19	
n-Butylbenzene	ug/kg	ND	3.0	05/04/11 11:19	
n-Propylbenzene	ug/kg	ND	3.0	05/04/11 11:19	
Naphthalene	ug/kg	ND	3.0	05/04/11 11:19	
o-Xylene	ug/kg	ND	3.0	05/04/11 11:19	
p-Isopropyltoluene	ug/kg	ND	3.0	05/04/11 11:19	
sec-Butylbenzene	ug/kg	ND	3.0	05/04/11 11:19	
Styrene	ug/kg	ND	3.0	05/04/11 11:19	
tert-Amylmethyl ether	ug/kg	ND	3.0	05/04/11 11:19	
tert-Butylbenzene	ug/kg	ND	3.0	05/04/11 11:19	
Tetrachloroethene	ug/kg	ND	3.0	05/04/11 11:19	
Toluene	ug/kg	ND	3.0	05/04/11 11:19	
trans-1,2-Dichloroethene	ug/kg	ND	3.0	05/04/11 11:19	
trans-1,3-Dichloropropene	ug/kg	ND	3.0	05/04/11 11:19	
Trichloroethene	ug/kg	ND	3.0	05/04/11 11:19	
Trichlorofluoromethane	ug/kg	ND	3.0	05/04/11 11:19	
Vinyl chloride	ug/kg	ND	3.0	05/04/11 11:19	
Xylene (Total)	ug/kg	ND	9.0	05/04/11 11:19	
1,2-Dichloroethane-d4 (S)	%	88	80-143	05/04/11 11:19	
4-Bromofluorobenzene (S)	%	104	72-122	05/04/11 11:19	
Dibromofluoromethane (S)	%	96	80-136	05/04/11 11:19	
Toluene-d8 (S)	%	93	80-120	05/04/11 11:19	

LABORATORY CONTROL SAMPLE & LCSD: 68699

69171

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	50	52.2	51.8	104	104	49-136	.7	30	
1,1,1-Trichloroethane	ug/kg	50	63.0	63.3	126	127	56-147	.4	30	
1,1,2,2-Tetrachloroethane	ug/kg	50	49.8	48.2	100	96	62-143	3	30	
1,1,2-Trichloroethane	ug/kg	50	55.3	54.2	111	108	66-127	2	30	
1,1,2-Trichlorotrifluoroethane	ug/kg	50	69.5	71.0	139	142	60-140	2	30	L3
1,1-Dichloroethane	ug/kg	50	64.8	64.0	130	128	54-146	1	30	
1,1-Dichloroethene	ug/kg	50	69.3	67.2	139	134	58-152	3	30	
1,1-Dichloropropene	ug/kg	50	67.0	66.7	134	133	74-132	.4	30	L3
1,2,3-Trichlorobenzene	ug/kg	50	42.3	43.5	85	87	54-146	3	30	
1,2,3-Trichloropropane	ug/kg	50	45.6	44.4	91	89	49-150	3	30	
1,2,4-Trichlorobenzene	ug/kg	50	44.7	46.2	89	92	48-153	3	30	

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QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

LABORATORY CONTROL SAMPLE & LCSD: 68699			69171							
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	50	49.4	48.5	99	97	66-133	2	30	
1,2-Dibromo-3-chloropropane	ug/kg	50	36.2	38.0	72	76	41-156	5	30	
1,2-Dibromoethane (EDB)	ug/kg	50	54.5	51.4	109	103	71-123	6	30	
1,2-Dichlorobenzene	ug/kg	50	49.7	48.1	99	96	71-127	3	30	
1,2-Dichloroethane	ug/kg	50	58.3	57.3	117	115	70-124	2	30	
1,2-Dichloroethene (Total)	ug/kg	100	139	140	139	140	69-138	.6	30	L3
1,2-Dichloropropane	ug/kg	50	65.1	66.3	130	133	71-125	2	30	L3
1,3,5-Trimethylbenzene	ug/kg	50	51.3	49.5	103	99	69-130	4	30	
1,3-Dichlorobenzene	ug/kg	50	51.3	50.4	103	101	73-126	2	30	
1,3-Dichloropropane	ug/kg	50	52.7	53.2	105	106	65-128	.9	30	
1,4-Dichlorobenzene	ug/kg	50	50.4	48.9	101	98	73-125	3	30	
2,2-Dichloropropane	ug/kg	50	67.8	69.8	136	140	36-164	3	30	
2-Butanone (MEK)	ug/kg	100	145	127	145	127	70-171	14	30	
2-Chlorotoluene	ug/kg	50	49.3	48.0	99	96	66-134	3	30	
2-Hexanone	ug/kg	100	110	101	110	101	51-180	9	30	
4-Chlorotoluene	ug/kg	50	54.1	52.6	108	105	64-137	3	30	
4-Methyl-2-pentanone (MIBK)	ug/kg	100	119	120	119	120	50-162	1	30	
Acetone	ug/kg	100	111	102	111	102	47-166	8	30	
Benzene	ug/kg	50	63.4	63.4	127	127	75-133	.05	30	
Bromobenzene	ug/kg	50	50.5	49.3	101	99	71-124	2	30	
Bromochloromethane	ug/kg	50	65.5	64.1	131	128	54-140	2	30	
Bromodichloromethane	ug/kg	50	60.7	61.7	121	123	73-120	2	30	L3
Bromoform	ug/kg	50	39.7	40.4	79	81	43-138	2	30	
Bromomethane	ug/kg	50	58.3	65.9	117	132	54-149	12	30	
Carbon disulfide	ug/kg	50	61.3	63.1	123	126	44-152	3	30	
Carbon tetrachloride	ug/kg	50	63.1	63.3	126	127	46-154	.3	30	
Chlorobenzene	ug/kg	50	53.8	54.7	108	109	72-124	2	30	
Chloroethane	ug/kg	50	60.5	64.7	121	129	58-152	7	30	
Chloroform	ug/kg	50	63.6	62.6	127	125	72-131	2	30	
Chloromethane	ug/kg	50	52.0	55.5	104	111	50-156	7	30	
cis-1,2-Dichloroethene	ug/kg	50	69.7	70.1	139	140	76-132	.6	30	L3
cis-1,3-Dichloropropene	ug/kg	50	67.8	71.4	136	143	69-120	5	30	L3
Dibromochloromethane	ug/kg	50	47.4	47.8	95	96	66-120	.9	30	
Dibromomethane	ug/kg	50	62.9	62.4	126	125	75-122	.8	30	L3
Dichlorodifluoromethane	ug/kg	50	63.6	66.4	127	133	49-157	4	30	
Ethylbenzene	ug/kg	50	50.8	52.4	102	105	68-131	3	30	
Hexachloro-1,3-butadiene	ug/kg	50	45.5	45.9	91	92	66-128	.9	30	
Isopropylbenzene (Cumene)	ug/kg	50	49.3	50.2	99	100	57-142	2	30	
m&p-Xylene	ug/kg	100	109	110	109	110	67-132	1	30	
Methyl-tert-butyl ether	ug/kg	50	60.1	58.7	120	117	52-143	2	30	
Methylene chloride	ug/kg	50	63.2	64.9	126	130	45-146	3	30	
n-Butylbenzene	ug/kg	50	48.5	48.3	97	97	67-139	.4	30	
n-Propylbenzene	ug/kg	50	58.3	56.8	117	114	68-133	3	30	
Naphthalene	ug/kg	50	44.6	45.8	89	92	52-147	3	30	
o-Xylene	ug/kg	50	53.8	54.5	108	109	68-129	1	30	
p-Isopropyltoluene	ug/kg	50	49.3	48.7	99	97	73-129	1	30	
sec-Butylbenzene	ug/kg	50	57.9	56.4	116	113	72-132	3	30	
Styrene	ug/kg	50	52.3	53.1	105	106	62-125	1	30	

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QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

LABORATORY CONTROL SAMPLE & LCSD:		68699	69171							
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
tert-Amylmethyl ether	ug/kg	50	61.2	61.3	122	123	62-138	.1	30	
tert-Butylbenzene	ug/kg	50	50.7	48.3	101	97	70-125	5	30	
Tetrachloroethene	ug/kg	50	43.2	44.3	86	89	62-130	3	30	
Toluene	ug/kg	50	56.7	58.1	113	116	73-124	2	30	
trans-1,2-Dichloroethene	ug/kg	50	69.5	69.9	139	140	64-144	.5	30	
trans-1,3-Dichloropropene	ug/kg	50	47.9	48.5	96	97	50-128	1	30	
Trichloroethene	ug/kg	50	65.4	66.3	131	133	74-128	1	30	L3
Trichlorofluoromethane	ug/kg	50	62.6	63.8	125	128	57-163	2	30	
Vinyl chloride	ug/kg	50	60.2	62.8	120	126	59-155	4	30	
Xylene (Total)	ug/kg	150	163	164	108	110	68-130	1	30	
1,2-Dichloroethane-d4 (S)	%				91	88	80-143			
4-Bromofluorobenzene (S)	%				101	96	72-122			
Dibromofluoromethane (S)	%				100	97	80-136			
Toluene-d8 (S)	%				93	94	80-120			

QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

QC Batch:	MSV/4368	Analysis Method:	NWTPH-Gx
QC Batch Method:	NWTPH-Gx	Analysis Description:	NWTPH-Gx MSV Water
Associated Lab Samples:	257502010, 257502026		

METHOD BLANK: 68739 Matrix: Water

Associated Lab Samples: 257502010, 257502026

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	05/04/11 13:19	
4-Bromofluorobenzene (S)	%	99	50-150	05/04/11 13:19	

LABORATORY CONTROL SAMPLE: 68740

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	527	105	50-163	
4-Bromofluorobenzene (S)	%			98	50-150	

SAMPLE DUPLICATE: 68741

Parameter	Units	257502010 Result	Dup Result	RPD	Qualifiers
Gasoline Range Organics	ug/L	ND	24.1J		
4-Bromofluorobenzene (S)	%	99	100	1	

QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

QC Batch:	MSV/4370	Analysis Method:	NWTPH-Gx
QC Batch Method:	NWTPH-Gx	Analysis Description:	NWTPH-Gx MSV Water
Associated Lab Samples:	257502021, 257502024		

METHOD BLANK:	68783	Matrix:	Water
Associated Lab Samples:	257502021, 257502024		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	05/05/11 09:26	
4-Bromofluorobenzene (S)	%	99	50-150	05/05/11 09:26	

LABORATORY CONTROL SAMPLE: 68784

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	503	101	50-163	
4-Bromofluorobenzene (S)	%			98	50-150	

SAMPLE DUPLICATE: 68785

Parameter	Units	257506002 Result	Dup Result	RPD	Qualifiers
Gasoline Range Organics	ug/L	ND	15.4J		
4-Bromofluorobenzene (S)	%	100	98	2	

QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

QC Batch:	PMST/1662	Analysis Method:	ASTM D2974-87
QC Batch Method:	ASTM D2974-87	Analysis Description:	Dry Weight/Percent Moisture
Associated Lab Samples:	257502001, 257502002, 257502003, 257502004, 257502005, 257502006, 257502007, 257502008, 257502009, 257502011, 257502012, 257502013, 257502014, 257502015, 257502016, 257502017		

SAMPLE DUPLICATE: 68632

Parameter	Units	257503001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	11.9	11.7	1	

SAMPLE DUPLICATE: 68633

Parameter	Units	257502017 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	19.6	19.7	.6	

QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

QC Batch: PMST/1663

Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87

Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 257502018, 257502019, 257502020, 257502022, 257502023, 257502025

SAMPLE DUPLICATE: 68634

Parameter	Units	257502018 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	25.8	25.8	.04	

QUALIFIERS

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel Clean-Up

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

D6	The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.
L3	Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.
S5	Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
257502002	SB-9 (8.5)	EPA 3546	OEXT/3645	NWTPH-Dx	GCSV/2465
257502004	SB-10 (7.5)	EPA 3546	OEXT/3645	NWTPH-Dx	GCSV/2465
257502006	SB-11 (7.5)	EPA 3546	OEXT/3645	NWTPH-Dx	GCSV/2465
257502007	SB-13 (2.5)	EPA 3546	OEXT/3645	NWTPH-Dx	GCSV/2465
257502008	SB-13 (8.0)	EPA 3546	OEXT/3645	NWTPH-Dx	GCSV/2465
257502012	MW-2 (7.5)	EPA 3546	OEXT/3645	NWTPH-Dx	GCSV/2465
257502015	MW-1 (12.5)	EPA 3546	OEXT/3645	NWTPH-Dx	GCSV/2465
257502018	MW-3 (7.5)	EPA 3546	OEXT/3645	NWTPH-Dx	GCSV/2465
257502019	SB-14 (2.5)	EPA 3546	OEXT/3645	NWTPH-Dx	GCSV/2465
257502020	SB-14 (7.5)	EPA 3546	OEXT/3645	NWTPH-Dx	GCSV/2465
257502022	SB-12 (2.5)	EPA 3546	OEXT/3645	NWTPH-Dx	GCSV/2465
257502023	SB-12 (7.5)	EPA 3546	OEXT/3645	NWTPH-Dx	GCSV/2465
257502010	SB-13	EPA 3510	OEXT/3641	NWTPH-Dx	GCSV/2462
257502021	SB-14	EPA 3510	OEXT/3641	NWTPH-Dx	GCSV/2462
257502024	SB-12	EPA 3510	OEXT/3641	NWTPH-Dx	GCSV/2462
257502026	SB-15	EPA 3510	OEXT/3641	NWTPH-Dx	GCSV/2462
257502002	SB-9 (8.5)	NWTPH-Gx	GCV/2268	NWTPH-Gx	GCV/2270
257502004	SB-10 (7.5)	NWTPH-Gx	GCV/2268	NWTPH-Gx	GCV/2270
257502006	SB-11 (7.5)	NWTPH-Gx	GCV/2268	NWTPH-Gx	GCV/2270
257502007	SB-13 (2.5)	NWTPH-Gx	GCV/2269	NWTPH-Gx	GCV/2271
257502008	SB-13 (8.0)	NWTPH-Gx	GCV/2268	NWTPH-Gx	GCV/2270
257502012	MW-2 (7.5)	NWTPH-Gx	GCV/2268	NWTPH-Gx	GCV/2270
257502015	MW-1 (12.5)	NWTPH-Gx	GCV/2269	NWTPH-Gx	GCV/2271
257502018	MW-3 (7.5)	NWTPH-Gx	GCV/2268	NWTPH-Gx	GCV/2270
257502019	SB-14 (2.5)	NWTPH-Gx	GCV/2268	NWTPH-Gx	GCV/2270
257502020	SB-14 (7.5)	NWTPH-Gx	GCV/2268	NWTPH-Gx	GCV/2270
257502022	SB-12 (2.5)	NWTPH-Gx	GCV/2268	NWTPH-Gx	GCV/2270
257502023	SB-12 (7.5)	NWTPH-Gx	GCV/2268	NWTPH-Gx	GCV/2270
257502007	SB-13 (2.5)	EPA 3050	MPRP/2196	EPA 6010	ICP/2105
257502015	MW-1 (12.5)	EPA 3050	MPRP/2196	EPA 6010	ICP/2105
257502019	SB-14 (2.5)	EPA 3050	MPRP/2196	EPA 6010	ICP/2105
257502015	MW-1 (12.5)	EPA 3546	OEXT/3644	EPA 8270 by SIM	MSSV/1610
257502023	SB-12 (7.5)	EPA 3546	OEXT/3644	EPA 8270 by SIM	MSSV/1610
257502010	SB-13	EPA 5030B/8260	MSV/4367		
257502026	SB-15	EPA 5030B/8260	MSV/4367		
257502013	MW-1 (2.5)	EPA 5035A/5030B	MSV/4382	EPA 8260	MSV/4389
257502008	SB-13 (8.0)	EPA 8260	MSV/4364		
257502013	MW-1 (2.5)	EPA 8260	MSV/4364		
257502015	MW-1 (12.5)	EPA 8260	MSV/4364		
257502023	SB-12 (7.5)	EPA 8260	MSV/4364		
257502010	SB-13	NWTPH-Gx	MSV/4368		
257502021	SB-14	NWTPH-Gx	MSV/4370		

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Tarr Vancouver 1821-00

Pace Project No.: 257502

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
257502024	SB-12	NWTPH-Gx	MSV/4370		
257502026	SB-15	NWTPH-Gx	MSV/4368		
257502001	SB-9 (2.5)	ASTM D2974-87	PMST/1662		
257502002	SB-9 (8.5)	ASTM D2974-87	PMST/1662		
257502003	SB-10 (2.5)	ASTM D2974-87	PMST/1662		
257502004	SB-10 (7.5)	ASTM D2974-87	PMST/1662		
257502005	SB-11 (2.5)	ASTM D2974-87	PMST/1662		
257502006	SB-11 (7.5)	ASTM D2974-87	PMST/1662		
257502007	SB-13 (2.5)	ASTM D2974-87	PMST/1662		
257502008	SB-13 (8.0)	ASTM D2974-87	PMST/1662		
257502009	SB-13 (13.5)	ASTM D2974-87	PMST/1662		
257502011	MW-2 (2.5)	ASTM D2974-87	PMST/1662		
257502012	MW-2 (7.5)	ASTM D2974-87	PMST/1662		
257502013	MW-1 (2.5)	ASTM D2974-87	PMST/1662		
257502014	MW-1 (8.0)	ASTM D2974-87	PMST/1662		
257502015	MW-1 (12.5)	ASTM D2974-87	PMST/1662		
257502016	MW-1 (17.5)	ASTM D2974-87	PMST/1662		
257502017	MW-3 (2.5)	ASTM D2974-87	PMST/1662		
257502018	MW-3 (7.5)	ASTM D2974-87	PMST/1663		
257502019	SB-14 (2.5)	ASTM D2974-87	PMST/1663		
257502020	SB-14 (7.5)	ASTM D2974-87	PMST/1663		
257502022	SB-12 (2.5)	ASTM D2974-87	PMST/1663		
257502023	SB-12 (7.5)	ASTM D2974-87	PMST/1663		
257502025	MW-1 (8.0) DUP	ASTM D2974-87	PMST/1663		

CHAIN OF CUSTODY RECORD

Client Name: Ash Creek Associates
Address: 3015 SW First Ave
City/State/Zip: Portland, OR 97201

Telephone Number: 503.924.4704
Fax No.: 503.943.6357

257502

Project Manager: John Foxwell

Project Name: Tarr, LLC Vancouver Phase II ESA

Project Number: 1821-00

Sampler Name: Michael Whitson

Analytical Lab: Pace Analytical

Report To: jfoxwell@ashcreekassociates.com

Page: 1 of 3

Sample ID / Description	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative							Matrix					Analyze For:																RUSH TAT (Pre-Schedule)	Standard TAT	Fax Results	Send QC with report																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
							Ice	HNO ₃ (Red Label)	HCl (Blue Label)	NaOH (Orange Label)	H ₂ SO ₄ Plastic (Yellow Label)	H ₂ SO ₄ Glass (Yellow Label)	None (Black Label)	Methanol, Sodium Bisulfate, DI	Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	VOCs (EPA 8260)	TPH-Gx (NWTPH-Gx)	TPH-Dx (NWTPH-Dx)	PAHs (8270)	VPH	EPH	Metals (Lead)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			

Special Instructions:

NOTE: ALL 5005 KITS WERE FROZEN IN-HOUSE W/IN 24 HRS OF SAMPLING

Method of Shipment:

Relinquished by: Name/Company <u>Danella Banta Ash Creek</u>	Date <u>05/02/11</u>	Time <u>4:45pm</u>	Received by: Name/Company <u>Mahar Hakkari PCS</u>	Date <u>5-2-11</u>	Time <u>4:44</u>
Relinquished by: Name/Company <u>PCS</u>	Date	Time	Received by: Name/Company <u>Rozina St. Marie Pace</u>	Date <u>05/03/11</u>	Time <u>07:50</u>
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time

Laboratory Comments:

Temperature Upon Receipt: 4.5, 3.6, 3.2 on ice
VOCs Free of Headspace? Y N



CHAIN OF CUSTODY RECORD

Client Name: Ash Creek AssociatesAddress: 3015 SW First AveCity/State/Zip: Portland, OR 97201Telephone Number: 503.924.4704Fax No.: 503.943.6357

257502

Project Manager: John FoxwellProject Name: Tarr, LLC Vancouver Phase II ESAProject Number: 1821-00Sampler Name: Michael WhitsonAnalytical Lab: Pace AnalyticalReport To: jfoxwell@ashcreekassociates.comPage: 2 of 3

Sample ID / Description	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative							Matrix					Analyze For:										RUSH TAT (Pre-Schedule)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
							Ice	HNO ₃ (Red Label)	HCl (Blue Label)	NaOH (Orange Label)	H ₂ SO ₄ Plastic (Yellow Label)	H ₂ SO ₄ Glass(Yellow Label)	None (Black Label)	Methanol, Sodium Bisulfate, DI	Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	VOCs (EPA 8260)	TPH-Gx (NWTPH-Gx)	TPH-Dx (NWTPH-Dx)	PAHs (8270)	VPH	EPH	Metals (Lead)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												

Special Instructions:

NOTE: ALL 5035 KITS WERE FROZEN IN-HOUSE W/IN 24 HRS OF SAMPLING

Method of Shipment:

Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
John Boff Ash Creek	05/02/11	4:45pm	Mahar Hakkang PCS	5-2-11	4:44
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
PCS			Regina Stone Marie Pace	05/03/11	07:50
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time

Laboratory Comments:

Temperature Upon Receipt: 4.5, 3.6, 3.2 on iceVOCs Free of Headspace? Y N



CHAIN OF CUSTODY RECORD

Client Name: Ash Creek AssociatesAddress: 3015 SW First AveCity/State/Zip: Portland, OR 97201Telephone Number: 503.924.4704Fax No.: 503.943.6357

257502

Project Manager: John FoxwellProject Name: Tarr, LLC Vancouver Phase II ESAProject Number: 1821-00Sampler Name: Michael WhitsonAnalytical Lab: Pace AnalyticalReport To: jfoxwell@ashcreekassociates.comPage: 3 of 3

Sample ID / Description	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative							Matrix						Analyze For:										RUSH TAT (Pre-Schedule)	Standard TAT	Fax Results	Send QC with report																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
							Ice	HNO ₃ (Red Label)	HCl (Blue Label)	NaOH (Orange Label)	H ₂ SO ₄ Plastic (Yellow Label)	H ₂ SO ₄ Glass (Yellow Label)	None (Black Label)	Methanol, Sodium Bisulfate, DI	Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	VOCs (EPA 8260)	TPH-Gx (NWTPH-Gx)	TPH-Dx (NWTPH-Dx)	PAHs (8270)	VPH	EPH	Metals (Lead)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											

Special Instructions:

NOTE: ALL 5035 KITS WERE FROZEN IN-HOUSE W/M 24-HRS OF SAMPLING

Method of Shipment:

Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
<u>Daniel Barrett Ash Creek</u>	<u>05/02/11</u>	<u>4:45pm</u>	<u>PCS</u> <u>Michael Hakkio</u>	<u>5-2-11</u>	<u>4:44</u>
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
<u>PCS</u>			<u>Regina Stomani</u>	<u>5/3/11</u>	<u>07:50</u>
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time

Laboratory Comments:

Temperature Upon Receipt: 4.5, 3.2, 3.6 on ice

VOCs Free of Headspace? Y N

Sample Container Count

CLIENT:

Ash Creek



COC PAGE 1 of 3

COC ID#

257502

Sample Line Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WGFU	WGKU	T	DG9m	Comments
1										2		4		
2										2				
3										2				
4										2				
5										2	1		2	
6										2				
7										1				
8										1				
9										1				
10	6	2												
11														
12														Trip Blank? No

AG1H	1 liter HCL amber glass		BP2S	500mL H2SO4 plastic	JGFU	4oz unpreserved amber wide
AG1U	1 liter unpreserved amber glass		BP2U	500mL unpreserved plastic	R	terra core kit
AG2S	500mL H2SO4 amber glass		BP2Z	500mL NaOH, Zn Ac	U	Summa Can
AG2U	500mL unpreserved amber glass		BP3C	250mL NaOH plastic	VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass		BP3N	250mL HNO3 plastic	VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass		BP3S	250mL H2SO4 plastic	VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass		BP3U	250mL unpreserved plastic	VG9W	40mL glass vial preweighted (EPA 5035)
BP1N	1 liter HNO3 plastic		DG9B	40mL Na Bisulfate amber vial	VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic		DG9H	40mL HCL amber vial	WGFU	4oz clear soil jar
BP1U	1 liter unpreserved plastic		DG9M	40mL MeOH clear vial	WAFX	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac		DG9T	40mL Na Thio amber vial	ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic		DG9U	40mL unpreserved amber vial		
BP2O	500mL NaOH plastic		I	Wipe/Swab		

Sample Container Count

CLIENT:

Ash creek



COC PAGE 2 of 3

COC ID#

257502

Sample Line Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WGFU	WGKU	T Dgan	Comments
1										1		1	
2										1 203/03		1	
3										1		1	
4										1		1	
5										1	1	2	
6										1			Received 6 containers only.
7										1			
8										1			
9										1			
10										1		1	
11													
12													Trip Blank? No

AG1H	1 liter HCL amber glass		BP2S	500mL H2SO4 plastic	JGFU	4oz unpreserved amber wide
AG1U	1 liter unpreserved amber glass		BP2U	500mL unpreserved plastic	R	terra core kit
AG2S	500mL H2SO4 amber glass		BP2Z	500mL NaOH, Zn Ac	U	Summa Can
AG2U	500mL unpreserved amber glass		BP3C	250mL NaOH plastic	VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass		BP3N	250mL HNO3 plastic	VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass		BP3S	250mL H2SO4 plastic	VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass		BP3U	250mL unpreserved plastic	VG9W	40mL glass vial preweighted (EPA 5035)
BP1N	1 liter HNO3 plastic		DG9B	40mL Na Bisulfate amber vial	VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic		DG9H	40mL HCL amber vial	WGFU	4oz clear soil jar
BP1U	1 liter unpreserved plastic		DG9M	40mL MeOH clear vial	WGFU	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac		DG9T	40mL Na Thio amber vial	ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic		DG9U	40mL unpreserved amber vial		
BP2O	500mL NaOH plastic		I	Wipe/Swab		

Sample Container Count

CLIENT:

Ash Creek



COC PAGE 3 of 3

COC ID#

257502

Sample Line Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WGFU	WGKU	T	D99m	Comments
1	6	2 ⁴²												
2										1		1		
3										1	1	1	2	
4	6	2 ⁴²												
5										1			1	
6	6	2 ⁴²												
7														
8														
9														
10														
11														
12														Trip Blank? No

AG1H	1 liter HCL amber glass		BP2S	500mL H2SO4 plastic	JGFU	4oz unpreserved amber wide
AG1U	1 liter unpreserved amber glass		BP2U	500mL unpreserved plastic	R	terra core kit
AG2S	500mL H2SO4 amber glass		BP2Z	500mL NaOH, Zn Ac	U	Summa Can
AG2U	500mL unpreserved amber glass		BP3C	250mL NaOH plastic	VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass		BP3N	250mL HNO3 plastic	VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass		BP3S	250mL H2SO4 plastic	VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass		BP3U	250mL unpreserved plastic	VG9W	40mL glass vial preweighted (EPA 5035)
BP1N	1 liter HNO3 plastic		DG9B	40mL Na Bisulfate amber vial	VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic		DG9H	40mL HCL amber vial	WGFU	4oz clear soil jar
BP1U	1 liter unpreserved plastic		DG9M	40mL MeOH clear vial	WGFU	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac		DG9T	40mL Na Thio amber vial	ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic		DG9U	40mL unpreserved amber vial		
BP2O	500mL NaOH plastic		I	Wipe/Swab		



Sample Condition Upon Receipt

Client Name: Ashcreek

Project # 257502

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other PCS

Tracking #: 1350120

Custody Seal on Cooler/Box Present: ☒ Yes ☐ No Seals intact: ☒ Yes ☐ No

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other Temp. Blank Yes ☒ No

Thermometer Used 132013 or 101731962 or 226099 Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 4.5, 3.6, 3.2°C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: NB 05/03/11

Temp should be above freezing $\leq 6^{\circ}\text{C}$

Comments:

Chain of Custody Present:	☒ Yes ☐ No ☐ N/A	1.
Chain of Custody Filled Out:	☒ Yes ☐ No ☐ N/A	2.
Chain of Custody Relinquished:	☒ Yes ☐ No ☐ N/A	3.
Sampler Name & Signature on COC:	☒ Yes ☐ No ☐ N/A	4.
Samples Arrived within Hold Time:	☒ Yes ☐ No ☐ N/A	5.
Short Hold Time Analysis (<72hr):	☒ Yes ☐ No ☐ N/A	6. <u>DI vials received outside 48hr.</u>
Rush Turn Around Time Requested:	☐ Yes ☒ No ☐ N/A	7.
Follow Up / Hold Analysis Requested:	☐ Yes ☒ No ☐ N/A	8.
Sufficient Volume:	☒ Yes ☐ No ☐ N/A	9.
Correct Containers Used:	☒ Yes ☐ No ☐ N/A	10.
-Pace Containers Used:	☒ Yes ☐ No ☐ N/A	
Containers Intact:	☒ Yes ☐ No ☐ N/A	11.
Filtered volume received for Dissolved tests	☐ Yes ☐ No ☒ N/A	12.
Sample Labels match COC:	☒ Yes ☒ No ☐ N/A	13. <u>For MW1-17.5, received a total of 7 containers. COC reads 6.</u>
-Includes date/time/ID/Analysis Matrix:	<u>Soil</u>	
All containers needing preservation have been checked.	☐ Yes ☐ No ☒ N/A	14.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐ Yes ☐ No ☒ N/A	
Exceptions: VOA, coliform, TOC, O&G		Initial when completed
Samples checked for dechlorination:	☐ Yes ☐ No ☒ N/A	15.
Headspace in VOA Vials (>6mm):	☐ Yes ☐ No ☒ N/A	16.
Trip Blanks Present:	☐ Yes ☒ No ☐ N/A	17.
Trip Blank Custody Seals Present	☐ Yes ☐ No ☒ N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: John Foxwell

Date/Time: 5/3/11 -email.

Comments/ Resolution:

See attached email. 05/03/11

Project Manager Review:

JENNI GRASS

Date: 5/3/11

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Jennifer Gross - Re: Samples for Tarr Vancouver Phase II ESA.

From: John Foxwell <JFoxwell@ashcreekassociates.com>
To: Jennifer Gross <Jennifer.Gross@pacelabs.com>
Date: 5/3/2011 1:45 PM
Subject: Re: Samples for Tarr Vancouver Phase II ESA.

Hi,

Samples were frozen before they left Ash Creek, per agreed approach.

No silica gel cleanup.

1 mg/kg is good on lead.

Full list 8260.

TAT look good.

john

Jennifer Gross <Jennifer.Gross@pacelabs.com> wrote:

Hi John!

I wanted to let you know that the samples arrived this morning, The DI's were not frozen, temperatures were 4.5, 3.6 and 3.2 degrees Celsius. The lab will use the sodium bisulfate vials for analysis instead of the DI vials which arrived out of hold.

Had a couple of questions on these samples:

-Silica Gel isn't listed on the chain, is it needed on the Diesel's

-I can't seem to find that we have analyzed Lead on this project in the past, what RL do you need? 6010 is 1mg/kg but may have dilutions.

-We analyzed the full list for 8260 last time, will these be full list as well?

We have the Gx/Dx/PAH on 5-Day TAT Due 05/10. The 8260/Lead/EPH/VPH are on a 10-Day Due 05/17. All methods except for the Lead will go out of hold on 05/12 and 05/13. Please let me know if you would like a RUSH TAT to meet holding times on hold samples.

Let me know when you get a chance!

Thanks!

Jennifer Gross

Project Manager
Pace Analytical Services - Seattle
Direct: 206.957.2426
Main Office: 206.767.5060
Fax: 206.767.5063

jennifer.gross@pacelabs.com
www.pacelabs.com

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>>> Michael Whitson <MWhitson@ashcreekassociates.com> 5/2/2011 1:25 PM >>>
 That would be great, thank you!

Sent from my iPhone 4

On May 2, 2011, at 1:23 PM, "Jennifer Gross" <Jennifer.Gross@pacelabs.com> wrote:

Hi Michael,

The can pick up pretty late, as long as there is somebody is in the office. There is a 90-minute window, would 4-5:30 work?

Thanks!
 Jenni

>>> Michael Whitson <MWhitson@ashcreekassociates.com> 5/2/2011 1:09 PM >>>

Great, yes the pickup will be at our office 3015 SW First Ave Portland, OR 97201. It will be approximately four coolers, and I would prefer a pickup later in the afternoon, what is the latest we can schedule? See COC attached.

Thanks,

Michael T. Whitson, GIT

Staff, Geology Group

mwhitson@ashcreekassociates.com

From: Jennifer Gross [mailto:Jennifer.Gross@pacelabs.com]
Sent: Monday, May 02, 2011 12:59 PM
To: Michael Whitson
Subject: RE: Sample Container Request Tarr Vancouver Phase II ESA.

Hi Michael, This is possible, are we picking up at your office? Around what time will they be ready and how many coolers are there? Also, can you send a pdf of the chain.

Thanks!

Jenni

>>> Michael Whitson <MWhitson@ashcreekassociates.com> 5/2/2011 12:35 PM >>>

Hi Jennifer,

We would like to have a courier pick these samples up this afternoon, will that be possible? Let us know, thanks!

Michael T. Whitson, GIT

Staff, Geology Group

mwhitson@ashcreekassociates.com

From: Jennifer Gross [mailto:Jennifer.Gross@pacelabs.com]
Sent: Wednesday, April 27, 2011 1:18 PM
To: Michael Whitson
Cc: John Foxwell
Subject: Re: Sample Container Request Tarr Vancouver Phase II ESA.

Hi Michael,

I just wanted to make sure you received the container's for this sampling event. I have been instructed to have you fill both the DI and Sodium Bisulfate vials for the Terra core kits. If you can proceed with freezing the DI portions before shipping in that would eliminate any qualifiers on the results.

Please confirm receipt of this email and let me know if you have any questions!

Thanks!

Jennifer Gross

Project Manager

Pace Analytical Services - Seattle
Direct: 206.957.2426
Main Office: 206.767.5060
Fax: 206.767.5063

jennifer.gross@pacelabs.com

www.pacelabs.com

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>>> Michael Whitson <MWhitson@ashcreekassociates.com> 4/22/2011 4:20 PM >>>

Hi Jennifer,

I am requesting sample containers for an addendum to the Tarr Vancouver Phase II ESA (# 1821-00), work will begin next Thursday April 28th. We will need sample containers for the following list of analytes:

Soil:

36 X 5035 Soil Kits (*VOC's by EPA 8260B*) (*we plan on running 5 of these samples*).

36 X NWTPH-Gx (*we plan on running 14 of these samples*).

36 X NWTPH-Dx (*we plan on running 17 of these samples*).

36 X Metals (EPA 6000/7000) (*we plan on running 5 of these samples*).

6 X PAHs (*we plan on running 3 of these samples*).

3 X Volatile Petroleum Hydrocarbons (VPH)/ Extractable Petroleum Hydrocarbons (EPH) (*we plan on running all 3 of these samples*).

Water:

4 X VOC's by EPA 8260B (*we plan on running all 4 of these samples*).

4 X NWTPH-Dx (*we plan on running all 4 of these samples*).

4 X NWTPH-Gx (*we plan on running all 4 of these samples*).

We would like to have these containers early next week if possible. We will freeze the 5035 samples in house and they will be noted as frozen on the COC. We will have the coolers picked up Monday. Will this work to avoid a QA notation that the samples were frozen within 48 hours?

Thank you,

Michael T. Whitson, GIT

Staff, Geology Group

mwhitson@ashcreekassociates.com

Ash Creek Associates, Inc.

3015 SW 1st Avenue

Portland, Oregon 97201

503-924-4704 ext. 127 (office)

541-282-3811 (mobile)

503-943-6357 (fax)

www.ashcreekassociates.com

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2930 Westlake Ave N Suite 100
Seattle, WA 98109
T: (206) 352-3790
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info@fremontanalytical.com

Pace Analytical Seattle

Jennifer Gross
940 South Harney
Seattle, Washington 98108

RE: Tarr Vancouver 1821-00
Lab ID: 1105019

May 17, 2011

Attention Jennifer Gross:

Fremont Analytical, Inc. received 1 sample(s) on 5/4/2011 for the analyses presented in the following report.

Extractable Petroleum Hydrocarbons by NWEPH
Volatile Petroleum Hydrocarbons by NWVPH

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

CC:
Regina StelMarie

Michael Dee
Sr. Chemist / Principal



Date: 05/17/2011

CLIENT: Pace Analytical Seattle
Project: Tarr Vancouver 1821-00
Lab Order: 1105019

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1105019-001	MW-1 (12.5)	04/29/2011 10:05 AM	05/04/2011 10:20 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: Pace Analytical Seattle
Project: Tarr Vancouver 1821-00

I. SAMPLE RECEIPT:

All samples were received intact. The temperatures were measured on receipt (Cooler = 1.1 Degrees C., Sample Temperature = 3.6 Degrees C.)

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

NWVPH: Coelution prevents determination of surrogate recoveries.



Analytical Report

WO#: 1105019

Date Reported: 5/17/2011

Client: Pace Analytical Seattle

Collection Date: 4/29/2011 10:05:00 AM

Project: Tarr Vancouver 1821-00

Lab ID: 1105019-001

Matrix: Soil

Client Sample ID: MW-1 (12.5)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Extractable Petroleum Hydrocarbons by NWEPH

Analyst: MD

Aliphatic Hydrocarbon (C8-C10)	79.1	0.480		mg/Kg	1	5/17/2011 9:29:12 PM
Aliphatic Hydrocarbon (C10-C12)	308	0.480		mg/Kg	1	5/17/2011 9:29:12 PM
Aliphatic Hydrocarbon (C12-C16)	152	0.480		mg/Kg	1	5/17/2011 9:29:12 PM
Aliphatic Hydrocarbon (C16-C21)	45.3	0.480		mg/Kg	1	5/17/2011 9:29:12 PM
Aliphatic Hydrocarbon (C21-C34)	25.4	0.480		mg/Kg	1	5/17/2011 9:29:12 PM
Aromatic Hydrocarbon (C8-C10)	35.9	0.480		mg/Kg	1	5/17/2011 9:29:12 PM
Aromatic Hydrocarbon (C10-C12)	44.4	0.480		mg/Kg	1	5/17/2011 9:29:12 PM
Aromatic Hydrocarbon (C12-C16)	25.1	0.480		mg/Kg	1	5/17/2011 9:29:12 PM
Aromatic Hydrocarbon (C16-C21)	10.5	0.480		mg/Kg	1	5/17/2011 9:29:12 PM
Aromatic Hydrocarbon (C21-C34)	0.854	0.480		mg/Kg	1	5/17/2011 9:29:12 PM
Surr: 1-Chlorooctadecane	91.0	65-140		%REC	1	5/17/2011 9:29:12 PM
Surr: o-Terphenyl	77.6	65-140		%REC	1	5/17/2011 9:29:12 PM

Volatile Petroleum Hydrocarbons by NWVPH

Analyst: MD

Aliphatic Hydrocarbon (C10-C12)	131	0.396		mg/Kg	1	5/11/2011 10:46:00 AM
Aliphatic Hydrocarbon (C5-C6)	ND	0.396		mg/Kg	1	5/11/2011 10:46:00 AM
Aliphatic Hydrocarbon (C6-C8)	4.11	0.396		mg/Kg	1	5/11/2011 10:46:00 AM
Aliphatic Hydrocarbon (C8-C10)	60.4	0.396		mg/Kg	1	5/11/2011 10:46:00 AM
Aromatic Hydrocarbon (C10-C12)	181	0.396		mg/Kg	1	5/11/2011 10:46:00 AM
Aromatic Hydrocarbon (C12-C16)	33.4	0.396		mg/Kg	1	5/11/2011 10:46:00 AM
Aromatic Hydrocarbon (C8-C10)	228	0.396		mg/Kg	1	5/11/2011 10:46:00 AM
Benzene	0.888	0.0396		mg/Kg	1	5/11/2011 10:46:00 AM
Ethylbenzene	12.1	0.0396		mg/Kg	1	5/11/2011 10:46:00 AM
m,p-Xylene	35.6	0.0396		mg/Kg	1	5/11/2011 10:46:00 AM
Naphthalene	11.4	0.0396		mg/Kg	1	5/11/2011 10:46:00 AM
o-Xylene	18.1	0.0396		mg/Kg	1	5/11/2011 10:46:00 AM
Toluene	1.64	0.0396		mg/Kg	1	5/11/2011 10:46:00 AM
Surr: Bromoflourobeneze	154	65-135	S	%REC	1	5/11/2011 10:46:00 AM
Surr: Trifluorotoluene	187	65-135	S	%REC	1	5/11/2011 10:46:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
RL Reporting Limit

D Dilution was required
H Holding times for preparation or analysis exceeded
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

Work Order: 1105019
CLIENT: Pace Analytical Seattle
Project: Tarr Vancouver 1821-00

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: LCS-541	SampType: LCS	Units: mg/Kg				Prep Date: 5/9/2011			RunNo: 893		
Client ID: LCSS	Batch ID: 541					Analysis Date: 5/17/2011			SeqNo: 17917		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	9.35	0.500	10.00	0	93.5	65	140				
Aliphatic Hydrocarbon (C10-C12)	8.64	0.500	10.00	0	86.4	65	140				
Aliphatic Hydrocarbon (C12-C16)	13.1	0.500	10.00	0	131	65	140				
Aliphatic Hydrocarbon (C16-C21)	8.56	0.500	10.00	0	85.6	65	140				
Aliphatic Hydrocarbon (C21-C34)	9.51	0.500	10.00	0	95.1	65	140				
Aromatic Hydrocarbon (C8-C10)	10.5	0.500	10.00	0	105	65	140				
Aromatic Hydrocarbon (C10-C12)	8.03	0.500	10.00	0	80.3	65	140				
Aromatic Hydrocarbon (C12-C16)	7.81	0.500	10.00	0	78.1	65	140				
Aromatic Hydrocarbon (C16-C21)	11.4	0.500	10.00	0	114	65	140				
Aromatic Hydrocarbon (C21-C34)	10.6	0.500	10.00	0	106	65	140				
Surr: 1-Chlorooctadecane	20.1		20.00		100	65	140				
Surr: o-Terphenyl	15.2		20.00		75.9	65	140				

Sample ID: MB-541	SampType: MBLK	Units: mg/Kg			Prep Date: 5/9/2011			RunNo: 893			
Client ID: MBLKS	Batch ID: 541				Analysis Date: 5/17/2011			SeqNo: 17918			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	ND	0.500									
Aliphatic Hydrocarbon (C10-C12)	ND	0.500									
Aliphatic Hydrocarbon (C12-C16)	ND	0.500									
Aliphatic Hydrocarbon (C16-C21)	ND	0.500									
Aliphatic Hydrocarbon (C21-C34)	ND	0.500									
Aromatic Hydrocarbon (C8-C10)	ND	0.500									
Aromatic Hydrocarbon (C10-C12)	ND	0.500									
Aromatic Hydrocarbon (C12-C16)	ND	0.500									
Aromatic Hydrocarbon (C16-C21)	ND	0.500									

Qualifiers: E Value above quantitation range H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits
 ND Not detected at the Reporting Limit R RPD outside accepted recovery limits RL Reporting Limit
 S Spike recovery outside accepted recovery limits

Work Order: 1105019
CLIENT: Pace Analytical Seattle
Project: Tarr Vancouver 1821-00

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: MB-541	SampType: MBLK	Units: mg/Kg			Prep Date: 5/9/2011			RunNo: 893			
Client ID: MBLKS	Batch ID: 541				Analysis Date: 5/17/2011			SeqNo: 17918			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C21-C34)	ND	0.500									
Surr: 1-Chlorooctadecane	15.5		20.00		77.6	65	140				
Surr: o-Terphenyl	26.2		20.00		131	65	140				

Qualifiers: E Value above quantitation range ND Not detected at the Reporting Limit S Spike recovery outside accepted recovery limits	H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits	J Analyte detected below quantitation limits RL Reporting Limit
---	--	--

Work Order: 1105019
CLIENT: Pace Analytical Seattle
Project: Tarr Vancouver 1821-00

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: 1105019-001BDUP		SampType: DUP		Units: mg/Kg		Prep Date: 4/29/2011		RunNo: 894			
Client ID: MW-1 (12.5)		Batch ID: 618				Analysis Date: 5/11/2011		SeqNo: 17919			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	132	0.396		0	0			131.0	0.991	30	
Aliphatic Hydrocarbon (C5-C6)	ND	0.396		0	0			0	0	30	
Aliphatic Hydrocarbon (C6-C8)	5.38	0.396		0	0			4.114	26.7	30	
Aliphatic Hydrocarbon (C8-C10)	62.5	0.396		0	0			60.40	3.41	30	
Aromatic Hydrocarbon (C10-C12)	179	0.396		0	0			180.6	1.16	30	
Aromatic Hydrocarbon (C12-C16)	34.5	0.396		0	0			33.35	3.48	30	
Aromatic Hydrocarbon (C8-C10)	229	0.396		0	0			228.1	0.317	30	
Benzene	1.01	0.0396		0	0			0.8877	12.8	30	
Ethylbenzene	11.3	0.0396		0	0			12.07	6.80	30	
m,p-Xylene	35.1	0.0396		0	0			35.56	1.33	30	
Naphthalene	12.4	0.0396		0	0			11.42	8.44	30	
o-Xylene	18.2	0.0396		0	0			18.14	0.298	30	
Toluene	1.82	0.0396		0	0			1.641	10.3	30	
Surr: Bromoflourobeneze	C		3.956		282	65	135		0		S
Surr: Trifluorotoluene	C		3.956		339	65	135		0		S

Sample ID: LCS-618		SampType: LCS		Units: mg/Kg		Prep Date: 5/11/2011		RunNo: 894			
Client ID: LCSS		Batch ID: 618				Analysis Date: 5/11/2011		SeqNo: 17921			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	5.26	0.0500	5.000	0	105	65	140				
Ethylbenzene	5.69	0.0500	5.000	0	114	65	140				
m,p-Xylene	8.30	0.0500	10.00	0	83.0	65	140				
Naphthalene	5.67	0.0500	5.000	0	113	65	140				
o-Xylene	6.02	0.0500	5.000	0	120	65	140				
Toluene	5.60	0.0500	5.000	0	112	65	140				

Qualifiers: E Value above quantitation range H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits
 ND Not detected at the Reporting Limit R RPD outside accepted recovery limits RL Reporting Limit
 S Spike recovery outside accepted recovery limits

Work Order: 1105019
CLIENT: Pace Analytical Seattle
Project: Tarr Vancouver 1821-00

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: LCS-618		SampType: LCS		Units: mg/Kg		Prep Date: 5/11/2011			RunNo: 894		
Client ID: LCSS		Batch ID: 618					Analysis Date: 5/11/2011			SeqNo: 17921	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Surr: Bromoflourobeneze	4.60		5.000		92.0	65	135				
Surr: Trifluorotoluene	5.16		5.000		103	65	135				

Sample ID: MB-618		SampType: MBLK		Units: mg/Kg		Prep Date: 5/11/2011		RunNo: 894			
Client ID: MBLKS		Batch ID: 618				Analysis Date: 5/11/2011		SeqNo: 17922			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aliphatic Hydrocarbon (C10-C12)	ND	0.500		0	0						
Aliphatic Hydrocarbon (C5-C6)	ND	0.500		0	0						
Aliphatic Hydrocarbon (C6-C8)	ND	0.500		0	0						
Aliphatic Hydrocarbon (C8-C10)	ND	0.500		0	0						
Aromatic Hydrocarbon (C10-C12)	ND	0.500		0	0						
Aromatic Hydrocarbon (C12-C16)	ND	0.500		0	0						
Aromatic Hydrocarbon (C8-C10)	ND	0.500		0	0						
Benzene	ND	0.0500		0	0						
Ethylbenzene	ND	0.0500		0	0						
m,p-Xylene	ND	0.0500		0	0						
Naphthalene	ND	0.0500		0	0						
o-Xylene	ND	0.0500		0	0						
Toluene	ND	0.0500		0	0						
Surr: Bromoflourobeneze	4.36		5.000		87.3	65	135				
Surr: Trifluorotoluene	5.73		5.000		115	65	135				

Qualifiers:	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike recovery outside accepted recovery limits				

1105019



Chain of Custody

Workorder: 257502 Workorder Name: Tarr Vancouver 1821-00 Results Requested: 5/17/11
Report / Invoice To: Subcontract To: P.O. FREMONT

Jennifer Gross
Pace Analytical Seattle
940 South Harney
Seattle, WA 98108
Phone (206) 767-5060
Email: jennifer.gross@pacelabs.com

Report / Invoice To		Subcontract To		Results Requested		Requested Analysis		LAB USE ONLY	
Item	Sample ID	Collect Date/Time	Lab ID	Matrix	MOCH	WGM	Preserved Containers		
1	MW-1 (12.5)	4/29/2011 10:05	257502015	Solid	2	1			
2									
3									
4									
5									

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	Jyoti Sway	5/4/11 0910	[Signature]	5/4/11 1020	10 Day TAT or asap w/out surcharge. Re
2					
3					
4					
5					