# *Remediation Construction and Startup Report*
# *Tarr, LLC Vancouver Cardlock Facility*
# *Vancouver, Washington*

Prepared for:
Tarr LLC

February 8, 2013
1821-00

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A Division of Apex Companies, LLC
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# 1.0 Introduction

This report documents the construction and initial operations of the remedial action at Tarr, LLC's Vancouver Cardlock, located at 7208 NE St. Johns Road in Vancouver, Washington (the Site, Figures 1 and 2). In addition, this report documents the removal, assessment, and remedial excavation of an abandoned gasoline underground storage tank (UST) system at the Site. The remedial action was approved in Washington State Department of Ecology's (Ecology) opinion letter dated October 13, 2012.

The remedial action activities documented in this report include the soil removal activities around a satellite gasoline dispenser, construction of an air sparge/soil vapor extraction (Enhanced SVE) system, and removal and assessment of an abandoned UST. Additionally, initial operation of the air sparge/SVE system and the planned monitoring schedule for the system are also discussed. A Site Exploration Plan is shown on Figure 3, the dispenser excavation area is shown in Figure 4, the former abandoned UST is shown on Figure 5, and a detailed plan of the air sparge/SVE area is shown on Figure 6. The soil excavation and Enhanced SVE system installation were constructed in general accordance with the *Design Report*, dated March 2012 (Ash Creek Associates, [Ash Creek], 2012).

Construction of the Enhanced SVE system commenced on May 11, 2012, and included drilling of SVE and air sparge wells, trenching, and installation of vapor extraction and air sparge piping. Drilling and trenching activities were completed on June 7, 2012. Final electrical connections and initial startup and debugging occurred on July 30, 2012. The system began continuous operation on September 11, 2012 after receipt of initial air discharge data and consultation with the Southwest Washington Clean Air Agency (SWCAA).

Excavation of the contaminated soil around the gasoline dispenser commenced on May 24, 2012 and included the removal and disposal of contaminated soil down to a depth of 4 feet below ground surface (bgs). Excavation activities were completed on May 25, 2012.

A previously unknown 1,000 gallon gasoline UST (abandoned UST) was discovered within the project work area. The UST was removed under oversight of a licensed contractor on May 19, 2012. Contaminated soil was identified beneath the UST and a release was reported to Washington Department of Ecology on May 21, 2012. Contaminated soil was excavated and disposed, and soil and groundwater assessment of the abandoned UST area was completed. The Enhanced SVE system for the 3,000-gallon UST was expanded for cleanup in this area.

## 1.1 Remedial Action Objectives

The purpose of the remedial action is to remediate soil and groundwater at the Site and document successful performance to Ecology. The combination of active treatment through use of Enhanced SVE and soil removal is expected to reduce levels of petroleum constituents in the subsurface, resulting in overall

improved soil and groundwater quality. The objectives of the corrective action are: (1) reduce concentrations of petroleum hydrocarbons in groundwater below site cleanup levels through the use of an Enhanced SVE system; and (2) remove and properly dispose of contaminated soil from the dispenser area.

# 2.0 Remedial Action Activities

The soil removal and Enhanced SVE system were completed in general accordance with the *Design Report*, dated March 2012 (Ash Creek, 2012). Remedial construction commenced on May 11, 2012 and was substantially completed by June 7, 2012. Ash Creek performed daily field observations and documentation. Construction activities were performed by Terra Hydr, Inc (Terra Hydr). Drilling of the SVE and air sparge wells was performed by Cascade Drilling, Inc. Stratus Corporation provided a Washington-licensed UST services provider to supervise and assist with the UST decommissioning. Soil and groundwater sampling results are shown on Figures 7 and 8.

## 2.1 Preparatory Activities

Activities were conducted prior to starting work to prepare the site and workers for construction activities. These activities are described below.

### *2.1.1 Utility Locates*

The Washington One-Call Utility Notification Center was notified of the proposed remediation activities prior to beginning the construction. A private utility locator was used to locate and mark underground utilities and piping at the gasoline dispenser area, the UST, and SVE system trenches.

### *2.1.2 Health and Safety*

A health and safety plan (HASP) was prepared prior to commencing the construction activities. A pre-construction health and safety meeting took place on May 15, 2012 with personnel at the site. Tailgate health and safety meetings were conducted every morning prior to the start of each day's activities.

The HASP outlined an air monitoring program for the construction activities. Vapors in the construction site were monitored for volatile organic compounds (VOCs) in the breathing space using a photoionization detector (PID) with a 10.6 eV lamp. Readings were kept in an air monitoring log, which is maintained in Ash Creek's files.

### *2.1.3 Ecology-Required Groundwater Sample and Vapor Point Installation*

Groundwater Sample. Ecology required that a groundwater sample be taken at the location of direct-push exploration SB-5 (Ecology, 2011). The groundwater sample was taken at location SB-5 on April 25, 2012.

1,2-Dibromoethane (EDB) and methyl tert-butyl ether (MTBE) were the only VOCs detected (concentrations were 0.047 and 1.3 micrograms per liter [µg/L], respectively). Diesel-range total petroleum hydrocarbons (TPH) was detected at a concentration of 95 µg/L. These results are summarized in Table 1 and shown on Figure 8.

Vapor Monitoring Point. In the Ecology Opinion Letter, Ecology required installation of a vapor monitoring point to assess the vapor intrusion pathway. The location of the vapor monitoring point (VP-1) is shown on Figure 3. The point was completed to a depth of 3 feet bgs and screened from 2.5 to 3 feet bgs. The filter material (8/12 Silica Sand) was installed in the borehole from the bottom of the well extending to 1 foot above the top of the well screen. A 12-inch plug of hydrated granular bentonite was placed above the filter material. This well was grouted with a 10:1 mixture of cement/bentonite grout to the surface seal and completed with a traffic-rated well monument cover. The well construction details and boring logs are provided in Appendix B.

The results of soil vapor sampling from VP-1 (Table 2) detected no concentrations of site contaminants of concern in soil vapor above MTCA Method B soil vapor screening levels. This indicates that vapor intrusion to the adjacent structure is unlikely to result in human health risks.

## 2.2 Satellite Dispenser Soil Removal Activities

The dispenser excavation area and associated confirmation sampling locations are shown on Figure 4. Clean overburden was first removed and stockpiled. Clean and contaminated soil was initially differentiated by field screening. Soil with negative field screening results (generally considered a PID reading of less than 5 parts per million [ppm]) was considered clean and was stockpiled. This stockpile was later sampled to confirm it could be re-used. Soil with staining, sheens, or a PID reading of greater than 5 ppm was considered contaminated. Once the contaminated soil was identified, it was removed and placed in a roll-off box for disposal. Field screening was used to assess when all of the contaminated soil had been removed and confirmation samples were collected. The vertical extent of contaminated soil did not extend below 4 feet bgs.

Confirmation samples were taken from the sidewalls and bottom of the excavation (North, South, East, West, and Ex Bottom). Two water lines were found to run through the excavation area. A berm of soil was left underneath these pipes for stability. A confirmation sample was also taken from underneath this berm to document soil conditions in the berm that was left behind. Petroleum hydrocarbons (TPH and VOCs) were generally not detected in any of the confirmation samples. Detected VOCs included acetone and 2-butanone. These compounds are not contaminants of concern at the site and are frequently found as artifacts of the laboratory analyses. The results of this sampling are summarized in Tables 3 and 4 and shown on Figure 7.

Contaminated soil that was removed during the satellite dispenser excavation was managed in drop boxes as described in Section 2.5.

## 2.3 Abandoned UST Decommissioning

During installation of the remediation system for the field 3,000-gallon gasoline UST, an abandoned 1,000-gallon gasoline UST was discovered. The tank was beneath a paved area at the time of discovery. When the tank was discovered, it was believed to be a septic tank that had been reported in that area. When the tank was opened on May 17, 2012, it contained gasoline residue. A 30-day decommissioning notice was submitted to Ecology (Appendix A) on May 17, 2012. The 30-day notice requirement was waved by Ecology so that the UST decommissioning would not delay the remediation project.

The abandoned UST was decommissioned by removal by the on-site remediation contractor on May 19, 2012 and a licensed Washington UST services provider (Stratus Corporation) was present to document the removal. The UST was confirmed to be a 1,000-gallon UST, with dimensions of 12 feet in length and 46 inches in diameter. The top of the UST was 2 feet bgs, and the bottom of the UST was 6 feet bgs.

Following removal, petroleum hydrocarbons were observed in the soils beneath the UST. The contamination extended at least to groundwater (groundwater was found at approximately 9 feet). Contaminated soils were removed to a depth of 9 feet bgs. Complete removal of contaminated soils was not possible due to the UST's close proximity to product lines from the 3,000-gallon field UST and the building. Deeper excavation would potentially undermine the product lines and/or the building.

A release was reported to Ecology on May 21, 2012 and the Ecology Voluntary Cleanup project manager was consulted regarding the proposed long-term remediation approach. The Ecology project manager indicated that cleanup of this abandoned UST would be included as part of Ecology's management of the field UST. The proposed approach to expand the field remediation system to include air-sparge capabilities at the abandoned UST was discussed. During this conversation, Ecology also emphasized the need to determine the extent of petroleum hydrocarbons in soils and groundwater from the abandoned UST release.

Soil and groundwater samples were taken from the sidewalls and bottom of the UST excavation, after contaminated soils were removed to the extent practicable. Results from these samples are summarized in Tables 1, 3, and 4, and summarized on Figures 7 and 8.

Field screening was conducted on soil as it was removed from around 1,000-gallon UST prior to removal. Several areas along each of the four excavation sidewalls were field screened as soil was removed. Field screening was done from the bottom of the excavation cavity after the tank was removed using the excavation bucket for access to soil. Confirmation samples were collected from the excavation bottom and sidewalls where field screening indicated petroleum hydrocarbon concentrations were highest. These samples included UST Excavation – 9' (collected from the excavation base), UST-East Sidewall – 7.5',

UST-South End – 8', UST-North End-5.5', UST West Wall-8'. Gasoline-range petroleum hydrocarbons were detected in the excavation bottom sample (UST Excavation–9') at a concentration of 12,000 micrograms per kilogram (µg/kg), north sidewall (UST-North End-5.5') at concentration of 4,880 µg/kg, and the west sidewall (UST – West Side Wall – 8') at a concentration of 7,280 µg/kg. Additionally, because of the tank's proximity to the building, UST East Sidewall-7.5' was also analyzed for VOCs. Concentrations of petroleum related VOCs (sec-butylbenzene, isopropylbenzene, n-propylbenzene, toluene, xylenes, naphthalenes, and 1,2,4-/1,3,5-trimethylbenzene) were detected in this sample.

Based on these results, it was determined that the original SVE system would be expanded to include the area of contamination near the abandoned 1,000-gallon UST. This included one additional air sparge well (AS-4) at the location of the abandoned UST. Please refer to Section 2.4 for additional discussion of this air sparge well.

## 2.4 Enhanced SVE System Installation Activities

The SVE system was installed between May 11 and June 7, 2012. Details of the installation are discussed below.

### *2.4.1 Soil Vapor Extraction Well and Air Sparge Well Installation*

The SVE IRAM included installation of a total of 6 wells: 2 SVE wells and 4 air sparge wells. The wells were installed by Cascade Drilling, Inc. of Clackamas, Oregon using direct-push technology (Geoprobe® 6620DT and 6630DT). Prior to installation, well locations were cleared to 5 feet bgs by air knifing due to the proximity of the boreholes to the tank, subsurface product lines, and utilities. Well logs are included in Appendix B.

The SVE wells were completed to a depth of 14 feet bgs with well screens extending from 4 to 14 feet bgs. The locations of the SVE wells are shown on Figure 6. SVE wells were constructed with 2-inch-diameter, Schedule 40 PVC casing. The well screens are 2-inch, Schedule 40 PVC with 0.020-inch slot size. The filter material (8/12 Silica Sand) was installed in the borehole from the bottom of the well extending to 1 foot above the top of the well screen. A 6- to 12-inch plug of hydrated granular bentonite was placed above the filter material. Wells were grouted with a 10:1 mixture of Portland cement/bentonite grout to the surface seal. The SVE wells were installed in 18-inch-diameter steel vaults and completed with concrete. SVE wells are equipped with a 2-inch valve and sample port.

The air sparge wells were completed to a depth of 17 feet bgs with well screens extending from 16 to 17 feet bgs. The locations of the air sparge wells are shown on Figure 6. SVE wells were constructed with 1-inch-diameter, Schedule 40 PVC casing. The well screens are 1-inch, Schedule 40 PVC with 0.020-inch slot size. The filter material (8/12 Silica Sand) was installed in the borehole from the bottom of the well extending to 1 foot above the top of the well screen. A 6- to 12-inch plug of hydrated granular bentonite was

placed above the filter material. Wells were grouted with a 10:1 mixture of Portland cement/bentonite grout to the surface seal. The sparge wells were installed in 12-inch-diameter steel vaults and completed with concrete. Air sparge wells are equipped with a 1-inch valve and sample port.

### *2.4.2 System Piping and Trenching*

The SVE piping construction and trenching was performed by Terra Hydr of Sherwood, Oregon. Terra Hydr first cut the asphalt for the SVE and air sparge wells and trenches. Trenches were constructed according the details and specifications in the *Design Report*, dated March 2012 (Ash Creek, 2012). Contaminated soil that was removed during trenching activities was managed in drop boxes as described in Section 2.5.

To the extent practicable, pipe slopes were maintained during installation such that the low point of the piping is at the wellhead. Piping was bedded in crushed rock to minimize the potential for damage to the piping from voids or protrusions. Trenches in paved areas were backfilled with compacted crushed rock (3/4-inch minus). Trench backfill was compacted to a visibly non-yielding state, and surfaced to match the surrounding area.

### *2.4.3 System Blower and Vacuum Assembly*

The blower assemblies, which include the SVE vacuum unit, the air sparge blower unit, the knockout drum, the necessary piping, and control panel are housed in the warehouse on-Site. The control panel is equipped with alarms and controls.

The two lines from the SVE wells connect together in one pipe manifold, which routes the vapor stream to a 55-gallon knockout tank and a regenerative blower (Rotron EN404) inside the on-Site warehouse. The blower for the air sparge wells (Dresser Roots URAI 42) has one manifold that splits off into three lines for the air sparge wells.

## 2.5 Construction Waste Management

The waste soil generated during the soil excavation, UST removal, and Enhanced SVE system installation was placed in covered and lined drop boxes. Personal protective equipment (PPE) was disposed of in appropriate garbage receptacles. Asphalt and concrete removed from the cutting for the trenches was disposed of by Terra Hydr. Concrete cutting and decontamination water was placed in 55-gallon drums and stored on site.

Two stockpiles of clean overburden soil were generated during the remedial construction activities. Each was approximately 10 to 15 cubic yards. Samples from each stockpile were analyzed to confirm the soil could be re-used. These results, (Stockpile sample on 5/19/2012 and Stockpile 2 on 6/7/2012) are summarized in Tables 1 and 3. Ultimately, a re-use alternative could not be identified for Stockpile 1, so this

stockpile was placed in a drop box and disposed with the remainder of the contaminated soil. Stockpile 2 was given to a local contractor for use as fill on his personal property.

A total of 55.54 tons of contaminated soil were excavated from the dispenser area, piping trenches, and the abandoned UST. These soils were transported to the Waste Management Hillsboro Landfill, a Subtitle D landfill in Hillsboro, Oregon. Weigh tickets for the soil disposal are included in Appendix C.

### 2.6 Additional Well Installations

Two monitoring wells were installed on June 7, 2012. Monitoring well MW-4 was installed at the location of the abandoned UST to monitor groundwater in that area. Monitoring well MW-5 was installed adjacent to SB-5 to monitor groundwater in the vicinity of the gasoline dispenser. Monitoring wells MW-4 and MW-5 were completed using direct-push drilling techniques. Both wells were completed to a depth of 18.5 feet bgs and are screened from 8 to 18 feet bgs. The filter material (8/12 Silica sand) was installed in the borehole from the bottom of the well extending to 1 foot above the top of the well screen. A 12-inch plug of hydrated granular bentonite was placed above the filter material. Both wells were grouted with a 10:1 mixture of cement/bentonite grout to the surface seal and completed with a traffic-rated well monument cover. The well construction details and boring logs are provided in Appendix B.

### 2.7 Site Restoration

Site restoration activities included:

- Grading and final compaction of each excavation and trench area;
- Re-installing the existing fuel dispenser and cardlock, and pouring a replacement Portland cement concrete island;
- Repaving asphalt concrete areas to match previous asphalt concrete thickness and grade; and
- Subcontracting with a Washington-Licensed Petroleum Services Contractor to complete a tightness test on the lines to the UST system.

The tank tightness testing revealed that the spill bucket for the 3,000 gallon UST was not functioning properly. The spill bucket was subsequently replaced by a Washington-Licensed Petroleum Services Contractor.

## *3.0 Startup and Initial Operations*

Performance monitoring during startup and initial operations to ensure compliance with vapor discharge requirements was completed as described below.

## 3.1 System Startup

Startup of the Enhanced SVE system commenced on July 30, 2012. Valves to all of the SVE and air sparge wells were opened and the Enhanced SVE system was operated for approximately two hours. Following this period, the pressures to each of the SVE wells were monitored using Dwyer® Magnehelic 0- to 100-inch $H_2O$ pressure gauges to determine the vacuum distribution in the piping network of the system. The system continued to run for 24 hours and a sample of the effluent vapor was taken. The system was turned off pending results of the initial effluent vapor sampling.

## 3.2 Compliance with Air Discharge Criteria

The effluent vapor from the Enhanced SVE system was analyzed for VOCs using Method TO-15 following initial start-up of the system. The first round of sampling occurred following approximately 24 hours of operation in order to allow the system to reach steady-state conditions. Following the initial sampling, samples were collected on a monthly basis for one quarter to verify the initial system discharge data. Subsequent sampling will be conducted on a quarterly basis. The laboratory analytical reports are provided in Appendix D. Table 5 presents the results of the initial effluent sampling.

The discharge concentrations and system operational parameters (i.e., flow rate) were used to calculate the mass removal rate and model the impacts to ambient air in the vicinity of the system. A system flow rate of 10 cubic feet per minute (cfm) was used in the calculations (based on the initial system monitoring) together with a TPH concentration of 2,900,000 micrograms per meter cubed ($\mu g/m^3$). The resultant mass flow rate (2.2 pounds per day) and the discharge stack geometry (a 2-inch-diameter pipe discharging at a height of 23 feet) was modeled with the SCREEN3 vapor dispersion model developed by the US Environmental Protection Agency (EPA) to assess the maximum potential exposure point concentration. The modeled maximum TPH concentration was 107 $\mu g/m^3$ at a distance of 19 meters from the stack (the output from the SCREEN3 model is included in Appendix E). The concentrations of individual VOCs, such as benzene, would be proportionally lower (e.g., the measured stack concentration of 7,700 $\mu g/m^3$ of benzene would translate to an exposure point concentration of 0.28 $\mu g/m^3$). This information was provided to the Southwest Clean Air Agency (SWCAA) on September 5, 2012. Response from SWCAA noted that the potential emissions from the system are under the permitting threshold and emissions of individual toxic air pollutants would be less than their respective Small Quantity Emission Rate identified in WAC 173-460, and therefore an air discharge permit would not be needed for operation of the system. Authorization to proceed with system operation was provided in an email from SWCAA on September 5, 2012. The system was started for continuous operation on September 11, 2012.

## 3.3 Initial Operations

At system startup, the vacuum pressures at the SVE system and the air pressures of the air sparge system (including at the blower and at the well heads) were monitored using pressure gauges to determine the

pressure distribution in each of the systems and the associated well networks. The system pressures were monitored every half hour for the first two hours of operation to ensure pressures on both the SVE and air sparge wells were within reasonable limits. The pressure measurements were consistent with the design criteria and were balanced between the system wells (consistently running about 50 inches of water vacuum on the SVE system and more than 100 inches of water pressure for the air sparge system). Each day, Tarr personnel verify that the system is running. The system has had continuous operation since the September 11, 2012 start date.

On January 9, 2013, an employee of Tarr noticed air bubbling at the asphalt concrete surface in the vicinity of the air sparge wells. These bubbles could only be seen due to a thin layer of surface water on the pavement generated during a significant rain event, suggesting that the air sparge wells were overproducing and some volume of air was migrating to the ground surface. Pressure readings were subsequently taken at the well head of the air sparge wells and the measured pressure had approximately doubled in these wells since initial operation of the system. The groundwater level was checked in the adjacent groundwater monitoring wells and it was noted that groundwater levels had risen in the three months since system startup (likely due to the onset of the rainy season). It is assumed that the pressures in the air sparge wells increased due to this rise in water levels. The operating pressures at the air sparge wells were adjusted down to initial operating levels and the bubbling on the asphalt surface was eliminated. A brief operational issue was caused by decreasing the pressures at the air sparge wells (which was done by partially closing the control valves to each well) as the resultant pressure increase at the blower caused a system overload and the air sparge blower shut down. These potential overpressures at the blower were accommodated by the installation of a bleeder valve at the blower. Routine operation of the air sparge system will include measurement of the air sparge pressure and adjustments as needed to respond to local fluctuations in groundwater levels or other changes in the site condition.

# 4.0 System Operation and Maintenance

This section describes the maintenance requirements for each of the system components. Routine monitoring is outlined in the table below.

| Remedial Action Component(s) | Location | Monitoring | Frequency |
|---|---|---|---|
| SVE System | Influent branches | PID, vacuum, and flow monitoring | Monthly |
| | Effluent Stack | PID, pressure, Vapor analytical sampling (Method TO-15) | Monthly for initial three months of operation; Quarterly after initial three months of operation |
| Air Sparge System | Effluent branches | PID, pressure, and flow monitoring | Monthly |

The SVE system data collected during this maintenance will be used to assess: (1) the effectiveness of the system; and (2) compliance with vapor discharge limits.

Operation of the systems will continue as described in the table above. System monitoring (PID and pressure monitoring) will be conducted monthly. Results of preliminary system monitoring and first three months of operation can be seen in Table 6. For the future, effluent sampling and analysis will be completed quarterly while PID and pressure monitoring will continue on a monthly basis.

# 5.0 January 2013 Performance Groundwater Monitoring

Groundwater samples were collected from MW-1, MW-4, and MW-5 on January 14, 2013. This monitoring round was intended to be an initial performance groundwater monitoring to gauge preliminary remedial effectiveness. Samples from the most contaminated well (MW-1) and the two new wells (MW-4 and MW-5) were collected. Petroleum hydrocarbons have historically not been detected in wells MW-2 and MW-3. Groundwater samples from MW-1, MW-4, and MW-5 were analyzed for gasoline-range petroleum hydrocarbons using NW Method TPH-G and for VOCs using EPA Method 8260B. Additionally, since the only constituent present in SB-5 in excess of MTCA Method A groundwater cleanup levels was EDB, the groundwater sample from MW-5 was also analyzed for EDB using method EPA 8011 in order to achieve reporting limits that were below the MTCA Method A groundwater cleanup level of 0.010 µg/L. These results are summarized on Figure 9 and in Table 1.

In summary, detected concentrations of TPH-G and VOCs were below MTCA Method A groundwater cleanup levels. TPH-G was detected in MW-1 at a concentration of 416 µg/L. TPH-G was not detected in MW-4 and MW-5. Note that an EDB concentration of 0.14 µg/L was reported in MW-4 as an estimated value, below the reporting limit.

# 6.0 Summary and Conclusions, Future Operations

A summary of the remedial activities and initial data conclusions are provided below.

- Impacted soil was removed from the area of the gasoline dispenser. The impacted soil extended to a depth of 4 feet bgs. The results of confirmation sampling indicated that concentrations of petroleum hydrocarbons in the excavation were below MTCA Method A Cleanup levels. The results of the sampling completed from monitoring well MW-5 indicate that concentrations of petroleum hydrocarbons in groundwater are below the MTCA Method A cleanup levels, indicating that the detected concentration of EDB in SB-5 (the only compound detected above MTCA Method A cleanup levels) was likely associated with suspended sediment or some other artifact of the direct-push sampling process. Based on the successful remedial excavation and the absence of

petroleum hydrocarbons in MW-5 groundwater above MTCA Method A cleanup levels, remediation at the dispenser area is considered complete. No further action in this portion of the site is planned.

- An abandoned 1,000-gallon UST was decommissioned and removed from the Site. Impacted soil was discovered underneath the UST, which was subsequently excavated to the extent practicable. Concentrations of TPH-G were present above MTCA Method A cleanup levels in the abandoned UST excavation. The Enhanced SVE system was expanded to include remediation of the residual impacts present in the soil.
- The results of soil vapor sampling from VP-1 detected no concentrations of site contaminants of concern in soil vapor above MTCA Method B soil vapor screening levels. This indicates that vapor intrusion to the adjacent structure is unlikely to result in human health risks.
- The Enhanced SVE system was constructed according to the Design Report (Ash Creek 2012). Construction began on May 11, 2012; initial startup and debugging commenced on July 30, 2012; and the system began continual operation on September 11, 2012.
- Two SVE wells were installed with well screens extending from 4 to 14 feet bgs. Four air sparge wells were installed with well screens extending from 16 to 17 bgs.
- Groundwater analytical data from wells MW-1, MW-4, and MW-5 indicate that initial operations of the enhanced SVE system have been effective in reducing the levels of dissolved contaminants in groundwater. Specifically, none of the detected concentrations of petroleum hydrocarbons in groundwater samples collected from these wells exceeded the MTCA Method A groundwater cleanup levels, with the exception of the estimated concentration of EDB in well MW-4.

These data indicate that the system is operating as intended and is resulting in significant decreases of petroleum hydrocarbon concentrations. The system is expected to run continually and will be adjusted as appropriate until vapor concentrations decline to a level that would warrant intermittent operation or ultimately system shutdown.

# *7.0 References*

Ash Creek Associates (Ash Creek), 2012. *Design Report, Tarr, LLC. Vancouver Cardlock Site*. March 2012.

Washington State Department of Ecology, 2011. *Opinion on Proposed Clean Up of the Following Site; Site Name: Tarr LLC Vancouver Cardlock.* October 13, 2011.

Table 1
Groundwater Analytical Results: TPH, VOCs, and Lead
Tarr, LLC Cardlock Facility
Vancouver, Washington

| Sample Number: | SB-5 | SB-12 | SB-13 | SB-14 | SB-15 | SB-16-W | SB-17-W | SB-18-W | SB-19-W | MW-1 | MW-1 DUP | MW-1 | MW-1 | MW-2 | MW-2 | MW-3 | MW-3 | MW-4 | MW-5 | Washington MTCA Groundwater Method A, |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Date: | 4/25/2012 | 4/29/2011 | 4/28/2011 | 4/29/2011 | 4/29/2011 | 5/29/2012 | 5/29/2012 | 5/29/2012 | 5/29/2012 | 5/10/2011 | 5/10/2011 | 6/13/2011 | 1/14/2013 | 5/10/2011 | 6/13/2012 | 5/10/2011 | 6/13/2012 | 1/14/2013 | 1/14/2013 | Table Value |
| *Petroleum Hydrocarbons (µg/L)* | | | | | | | | | | | | | | | | | | | | |
| TPH-Diesel Range | 95 | <75 | 97 | <76 | 140 | -- | -- | -- | -- | 4,800 | 5,100 | -- | -- | <76 | -- | <76 | -- | -- | -- | 500 |
| TPH-Oil Range | <380 | <380 | <380 | <380 | <380 | -- | -- | -- | -- | 440 | 490 | -- | -- | <380 | -- | <380 | -- | -- | -- | 500 |
| TPH-Gasoline Range | <50 | <50 | <50 | <50 | 473 | 265 | 3,090 | 8,760 | <50.0 | 78,200 | 78,000 | -- | 416 | <50 | -- | <50 | -- | <43.0 | <43.0 | 800 |
| *VOCs (µg/L)* | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.36 | <1.0 | <1.0 | <1.0 | <1.0 | <0.36 | <0.36 | -- |
| 1,1,1-Trichloroethane | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.19 | <1.0 | <1.0 | <1.0 | <1.0 | <0.19 | <0.19 | 200 |
| 1,1,2,2-Tetrachloroethane | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.097 | <1.0 | <1.0 | <1.0 | <1.0 | <0.097 | <0.097 | -- |
| 1,1,2-Trichloroethane | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.083 | <1.0 | <1.0 | <1.0 | <1.0 | <0.15 | <0.15 | -- |
| 1,1,2-Trichlorotrifluoroethane | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | <1.0 | <0.18 | -- | -- | -- | -- | <0.18 | <0.18 | |
| 1,1-Dichloroethane | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.11 | <1.0 | <1.0 | <1.0 | <1.0 | <0.11 | <0.11 | -- |
| 1,1-Dichloroethene | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.19 | <1.0 | <1.0 | <1.0 | <1.0 | <0.19 | <0.19 | -- |
| 1,1-Dichloropropene | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.35 | <1.0 | <1.0 | <1.0 | <1.0 | <0.35 | <0.35 | -- |
| 1,2,3-Trichlorobenzene | -- | -- | <1.0 | -- | <1.0 | <1.0 | 2.2 | 2.2 | <1.0 | <1.0 | -- | <1.0 | <0.13 | <1.0 | <1.0 | <1.0 | <1.0 | <0.13 | <0.13 | -- |
| 1,2,3-Trichloropropane | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.33 | <1.0 | <1.0 | <1.0 | <1.0 | <0.33 | <0.33 | -- |
| 1,2,4-Trichlorobenzene | -- | -- | <1.0 | -- | <1.0 | <1.0 | 2.1 | 2.1 | <1.0 | <1.0 | -- | <1.0 | <0.25 | <1.0 | <1.0 | <1.0 | <1.0 | <0.25 | <0.25 | -- |
| 1,2,4-Trimethylbenzene | -- | -- | <1.0 | -- | <1.0 | 25.9 | 262 | 294 | <1.0 | 4,150 | -- | 4,290 | 37.2 | <1.0 | <1.0 | <1.0 | <1.0 | 0.12 J | <0.071 | -- |
| 1,2-Dibromo-3-chloropropane | -- | -- | <4.0 | -- | <4.0 | <5.0 | <5.0 | <5.1 | <5.2 | <4.0 | -- | <4.0 | <0.62 | <4.0 | <4.0 | <4.0 | <4.0 | <0.62 | <0.62 | -- |
| 1,2-Dibromoethane (EDB) | 0.047 | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | 8.2 | <1.0 | <1.0 | -- | <0.0093* | <0.091 | <1.0 | <0.0093* | <1.0 | <0.0094* | 0.14 J | <0.0028* | 0.01 |
| 1,2-Dichlorobenzene | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.36 | <1.0 | <1.0 | <1.0 | <1.0 | <0.36 | <0.36 | -- |
| 1,2-Dichloroethane | <1.0 | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | 153 | <1.0 | <1.0 | -- | <1.0 | <0.37 | <1.0 | <1.0 | <1.0 | <1.0 | <0.37 | <0.37 | 5 |
| 1,2-Dichloroethene (Total) | -- | -- | <2.0 | -- | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | -- | <2.0 | -- | <2.0 | <2.0 | <2.0 | <2.0 | - | -- | -- |
| 1,2-Dichloropropane | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.27 | <1.0 | <1.0 | <1.0 | <1.0 | <0.27 | <0.27 | -- |
| 1,3,5-Trimethylbenzene | -- | -- | <1.0 | -- | 4.1 | <1.0 | 4.3 | 70.0 | <1.0 | 881 | -- | <1.0 | 11.1 | <1.0 | <1.0 | <1.0 | <1.0 | <0.087 | <0.087 | -- |
| 1,3-Dichlorobenzene | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.11 | <1.0 | <1.0 | <1.0 | <1.0 | <0.11 | <0.11 | -- |
| 1,3-Dichloropropane | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.081 | <1.0 | <1.0 | <1.0 | <1.0 | <0.081 | <0.081 | -- |
| 1,4-Dichlorobenzene | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.064 | <1.0 | <1.0 | <1.0 | <1.0 | <0.064 | <0.064 | -- |
| 2,2-Dichloropropane | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.15 | <1.0 | <1.0 | <1.0 | <1.0 | <0.15 | <0.15 | -- |
| 2-Butanone (MEK) | -- | -- | <5.0 | -- | <5.0 | <5.0 | 29.9 | <5.0 | <5.0 | <5.0 | -- | <5.0 | <2.0 | <5.0 | <5.0 | <5.0 | <5.0 | <2.0 | <2.0 | -- |
| 2-Chlorotoluene | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.50 | <1.0 | <1.0 | <1.0 | <1.0 | <0.50 | <0.50 | -- |
| 2-Hexanone | -- | -- | <5.0 | -- | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | -- | <5.0 | <2.0 | <5.0 | <5.0 | <5.0 | <5.0 | <2.0 | <2.0 | -- |
| 4-Chlorotoluene | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.068 | <1.0 | <1.0 | <1.0 | <1.0 | <0.068 | <0.068 | -- |
| 4-Methyl-2-pentanone (MIBK) | -- | -- | <5.0 | -- | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | -- | 6.3 | <2.0 | <5.0 | <5.0 | <5.0 | <5.0 | <2.0 | <2.0 | -- |
| Acetone | -- | -- | <5.0 | -- | <5.0 | 10.9 | 27.3 | <5.0 | <5.0 | 6.0 | -- | <5.0 | <12.5 | <5.0 | <5.0 | <5.0 M1 | <5.0 | <12.5 | <12.5 | -- |
| Benzene | <1.0 | -- | <1.0 | -- | 1.1 | 48.0 | 727 | 1,520 | 1.2 | 1,350 | -- | 2,020 | 0.29 J | <1.0 | <1.0 | <1.0 | <1.0 | <0.062 | <0.062 | 5 |
| Bromobenzene | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.086 | <1.0 | <1.0 | <1.0 | <1.0 | <0.082 | <0.068 | -- |
| Bromochloromethane | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.32 | <1.0 | <1.0 | <1.0 | <1.0 | <0.32 | <0.32 | -- |
| Bromodichloromethane | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.11 | <1.0 | <1.0 | <1.0 | <1.0 | <0.11 | <0.11 | -- |
| Bromoform | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.068 | <1.0 | <1.0 | <1.0 | <1.0 | <0.068 | <0.068 | -- |
| Bromomethane | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.36 | <1.0 | <1.0 | <1.0 | <1.0 | <0.36 | <0.36 | -- |
| Carbon Disulfide | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.50 | <1.0 | <1.0 | <1.0 | <1.0 | <0.50 | <0.50 | -- |
| Carbon tetrachloride | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.16 | <1.0 | <1.0 | <1.0 | <1.0 | <0.16 | <0.16 | -- |
| Chlorobenzene | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.10 | <1.0 | <1.0 | <1.0 | <1.0 | <0.10 | <0.10 | -- |
| Chloroethane | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.22 | <1.0 | <1.0 | <1.0 | <1.0 | <0.22 | <0.22 | -- |
| Chloroform | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.14 | <1.0 | <1.0 | <1.0 | <1.0 | <0.14 | <0.14 | -- |
| Chloromethane | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.41 | <1.0 | <1.0 | <1.0 | <1.0 | <0.41 | <0.41 | -- |
| Dibromochloromethane | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.10 | <1.0 | <1.0 | <1.0 | <1.0 | <0.10 | <0.10 | -- |
| Dibromomethane | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.21 | <1.0 | <1.0 | <1.0 | <1.0 | <0.21 | <0.21 | -- |
| Dichlorofluoromethane | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | <1.0 | <0.11 | -- | -- | -- | -- | <0.11 | <0.11 | |
| Dichlorodifluoromethane | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.20 | <1.0 | <1.0 | <1.0 M1 | <1.0 | <0.20 | <0.20 | -- |
| Diethyl Ether | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | <1.0 | <2.0 | -- | -- | -- | -- | <2.0 | <2.0 | |
| Ethylbenzene | <1.0 | -- | <1.0 | -- | 2.8 | 8.2 | 151 | 277 | <1.0 | 2,170 | -- | 2,170 | 10.7 | <1.0 | <1.0 | <1.0 | <1.0 | <0.081 | <0.081 | 700 |
| Hexachloro-1,3-butadiene | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.19 | <1.0 | <1.0 | <1.0 | <1.0 | <0.19 | <0.19 | -- |
| Isopropylbenzene (Cumene) | -- | -- | <1.0 | -- | 3.4 | <1.0 | <1.0 | 18.5 | <1.0 | 134 | -- | 138 | 2.1 | <1.0 | <1.0 | <1.0 | <1.0 | <0.076 | <0.076 | -- |
| Methyl-tert-butyl ether | 1.3 | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | 1.4 | -- | <1.0 | <0.088 | <1.0 | <1.0 | <1.0 | <1.0 | <0.088 | 4.2 | -- |
| Methylene chloride | -- | -- | <4.0 | -- | <4.0 | <5.0 | <5.0 | <5.0 | <5.0 | <4.0 | -- | <4.0 | <2.0 | <4.0 | <4.0 | <4.0 M1 | <4.0 | <2.0 | <2.0 | 5 |
| Naphthalene | -- | -- | <1.0 | -- | <1.0 | 4.2 | <1.0 | 60.5 | 3.9 | 800 | -- | 730 | 3.3 J | <1.0 | <1.0 | <1.0 | <1.0 | 0.24 J | 0.13 J | 160 |
| Styrene | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.060 | <1.0 | <1.0 | <1.0 | <1.0 | <0.060 | <0.060 | -- |
| Tetrachloroethene (PCE) | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.13 | <1.0 | <1.0 | <1.0 M1 | <1.0 | <0.13 | <0.13 | 5 |
| Tetrahydrofuran | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | <1.0 | <0.97 | -- | -- | -- | -- | <0.97 | <0.97 | |
| Toluene | <1.0 | -- | <1.0 | -- | <1.0 | 1.1 | 24.2 | 604 | <1.0 | 728 | -- | 935 | 0.25 J | <1.0 | <1.0 | <1.0 | <1.0 | <0.077 | <0.077 | 1,000 |
| Trichloroethene | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.083 | <1.0 | <1.0 | <1.0 | <1.0 | <0.13 | <0.083 | 5 |
| Trichlorofluoromethane | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.13 | <1.0 | <1.0 | <1.0 | <1.0 | <0.13 | <0.13 | -- |
| Vinyl chloride | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.16 | <1.0 | <1.0 | <1.0 | <1.0 | <0.16 | <0.16 | 0.2 |
| Xylene (Total) | <3.0 | -- | <3.0 | -- | <3.0 | 21.1 | 302 | 1030 | <3.0 | 11,900 | -- | 12,000 | 25.0 | <3.0 | <3.0 | <3.0 | <3.0 | <0.22 | <0.22 | 1,000 |
| cis-1,2-Dichloroethene | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.085 | <1.0 | <1.0 | <1.0 | <1.0 | <0.085 | <0.085 | -- |
| cis-1,3-Dichloropropene | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.090 | <1.0 | <1.0 | <1.0 | <1.0 | <0.090 | <0.090 | -- |
| m&p-Xylene | -- | -- | <2.0 | -- | <2.0 | 19.6 | 288 | 746 | <2.0 | 9,280 | -- | 9,340 | 20.9 | <2.0 | <2.0 | <2.0 | <2.0 | <0.11 | <0.11 | -- |
| n-Butylbenzene | -- | -- | <1.0 | -- | <1.0 | <1.0 | 1.2 | 7.0 | <1.0 | 56.8 | -- | 62.6 | 0.82 J | <1.0 | <1.0 | <1.0 | <1.0 | <0.15 | <0.15 | -- |
| n-Propylbenzene | -- | -- | <1.0 | -- | 9.5 | 1.2 | 11.5 | 36.9 | <1.0 | 340 | -- | 352 | 6.9 | <1.0 | <1.0 | <1.0 | <1.0 | <0.078 | <0.078 | -- |
| o-Xylene | -- | -- | <1.0 | -- | <1.0 | 1.5 | 17.5 | 285 | <1.0 | 2,640 | -- | 2,630 | 4.1 | <1.0 | <1.0 | <1.0 | <1.0 | <0.10 | <0.10 | -- |
| p-Isopropyltoluene | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | 1.4 | <1.0 | 10.4 | -- | 10.8 | 0.39 J | <1.0 | <1.0 | <1.0 | <1.0 | <0.086 | <0.086 | -- |
| sec-Butylbenzene | -- | -- | <1.0 | -- | 2.6 | <1.0 | 2.1 | 2.5 | <1.0 | 17.3 | -- | 18.0 | 0.54 J | <1.0 | <1.0 | <1.0 | <1.0 | <0.10 | <0.10 | -- |
| tert-Butylbenzene | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.10 | <1.0 | <1.0 | <1.0 | <1.0 | <0.10 | <0.10 | -- |
| trans-1,2-Dichloroethene | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.15 | <1.0 | <1.0 | <1.0 | <1.0 | <0.15 | <0.15 | -- |
| trans-1,3-Dichloropropene | -- | -- | <1.0 | -- | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | <1.0 | <0.37 | <1.0 | <1.0 | <1.0 | <1.0 | <0.37 | <0.37 | -- |
| *Metals (µg/L)* | | | | | | | | | | | | | | | | | | | | |
| Lead, Dissolved | <10.0 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | <10 | -- | -- | <10 | -- | <10 | -- | -- | 15 |

*Notes:*

1. VOCs = Volatile organic compounds by EPA Method 8260B
2. < = Not detected above the indicated method reporting limit (MRL)
3. µg/L = Micrograms per liter (parts per billion [ppb])
5. **Bold** indicates detected concentration of listed analyte
6. Shading indicates detected concentration exceeding at least one screening value
7. M1 = Matrix spike recovery exceeded QC limits
8. * = Analyzed by EPA Method 8011. Result from Method 8260B not reported

Table 2
Soil Vapor Analytical Results
Tarr, LLC Cardlock Facility
Vancouver, Washington

| COMPOUND NAME | VP-1 9/11/2012 (ug/m3) | Washington MTCA Method B Soil Gas Screening Levels C (ug/m3) | Washington MTCA Method B Soil Gas Screening Levels NC (ug/m3) |
|---|---|---|---|
| trans-1,2-Dichloroethene | <0.60 | -- | 320 |
| Methyl tert-butyl ether | <0.55 | 96 | 14,000 |
| Freon 12 | 2.6 | -- | -- |
| Freon 114 | <1.1 | -- | -- |
| Chloromethane | <0.31 | 14 | -- |
| 1,3-Butadiene | <0.34 | 0.8 | 9.1 |
| Bromomethane | <0.59 | -- | 23 |
| Chloroethane | <2.0 | -- | -- |
| Freon 11 | 1.1 | -- | -- |
| Ethanol | 3.2 | -- | -- |
| Freon 113 | <1.2 | -- | -- |
| Acetone | 7.6 | -- | -- |
| 2-Propanol | <1.9 | -- | -- |
| Carbon Disulfide | <2.4 | -- | 3,200 |
| 3-Chloropropene | <2.4 | -- | -- |
| Methylene Chloride | <1.0 | 53 | 14,000 |
| Hexane | 1.1 | -- | 3,200 |
| 2-Butanone (Methyl Ethyl Ketone) | <2.2 | -- | 4,600 |
| Tetrahydrofuran | <2.2 | -- | -- |
| Chloroform | 2.0 | 1.1 | -- |
| Cyclohexane | <0.52 | -- | -- |
| Carbon Tetrachloride | <0.96 | 1.7 | -- |
| 2,2,4-Trimethylpentane | 10 | -- | -- |
| Heptane | 0.76 | -- | -- |
| 1,2-Dichloropropane | <0.70 | -- | 18 |
| 1,4-Dioxane | 0.69 | -- | -- |
| Bromodichloromethane | <1.0 | 0.033 | -- |
| cis-1,3-Dichloropropene | <0.69 | -- | -- |
| 4-Methyl-2-pentanone | <0.62 | -- | -- |
| trans-1,3-Dichloropropene | <0.69 | -- | -- |
| 2-Hexanone | <3.1 | -- | -- |
| Dibromochloromethane | <1.3 | 0.045 | -- |
| 1,2-Dibromoethane (EDB) | <1.2 | -- | -- |
| Chlorobenzene | <0.70 | -- | 80 |
| Styrene | <0.65 | 44 | 4,600 |
| Bromoform | <1.6 | 23 | -- |
| Cumene | <0.75 | -- | 1,800 |
| Propylbenzene | <0.75 | -- | -- |
| 4-Ethyltoluene | <0.75 | -- | -- |
| 1,3,5-Trimethylbenzene | <0.75 | -- | 27 |
| 1,2,4-Trimethylbenzene | <0.75 | -- | 27 |
| 1,3-Dichlorobenzene | <0.91 | -- | -- |
| 1,4-Dichlorobenzene | <0.91 | -- | 3,700 |
| alpha-Chlorotoluene | <0.79 | -- | -- |
| 1,2-Dichlorobenzene | <0.91 | -- | 640 |
| 1,2,4-Trichlorobenzene | <5.6 | -- | 910 |
| Hexachlorobutadiene | <8.1 | 1.1 | -- |
| TPH ref. to Gasoline (MW=100) | 170 | -- | -- |
| Vinyl Chloride | 0.21 | 2.8 | 460 |
| 1,1-Dichloroethene | <0.060 | -- | 910 |
| 1,1-Dichloroethane | <0.12 | -- | 3,200 |
| cis-1,2-Dichloroethene | <0.12 | -- | 160 |
| 1,1,1-Trichloroethane | <0.16 | -- | 48,000 |
| Benzene | 0.61 | 3.2 | 140 |
| 1,2-Dichloroethane | 0.60 | 0.96 | 22 |
| Trichloroethene | <0.16 | 1 | 160 |
| Toluene | 0.95 | -- | 22,000 |
| 1,1,2-Trichloroethane | <0.16 | 1.6 | -- |
| Tetrachloroethene | <0.21 | 4.2 | 160 |
| Ethyl Benzene | 0.32 | -- | 4,600 |
| m,p-Xylene | 1.4 | -- | 460 |
| o-Xylene | 0.54 | -- | 460 |
| 1,1,2,2-Tetrachloroethane | <0.21 | 3.4 | -- |

*Notes:*

1. ug/m$^3$ = micrograms per meter cubed (ppbv)
2. **Bold** denotes a concentration above the method detection limit.
3. Highlighting denotes a concentration above one of the Ecology MTCA soil gas screening levels for soil located just below buildings (Table B-1, Ecology, 2009).
4. Samples analyzed with EPA Method TO-15.
5. < = Not detected above the indicated method reporting limit (MRL).
6. "C" refers to the substance's toxicity as a carcinogen, "NC" refers to its toxicity as a non-carcinogen

Table 3
Soil Analytical Results: TPH, Lead, and PAHs
Tarr, LLC Cardlock Facility
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) | **Washington MTCA Soil Method A 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 | 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 | 2.5 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 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 250 |
| *PAHs (µg/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 MTCA Method A cleanup 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
9. ~~Strikethrough~~ indicates soil sample removed by excavation.

Table 3
Soil Analytical Results: TPH, Lead, and PAHs
Tarr, LLC Cardlock Facility
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) | UST Excavation - 9' | UST - East Sidewall - 7.5' | UST - South End - 8' | UST - North End - 5.5' | **Washington MTCA Soil Method A 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 | 5/19/2012 | 5/19/2012 | 5/19/2012 | 5/19/2012 | |
| 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 | 9 feet | 7.5 feet | 8 feet | 5.5 feet | |
| Hydrocarbon Identification | | | | | | | | | | | | | |
| Gasoline Range | -- | -- | -- | -- | -- | -- | -- | -- | Detected | -- | -- | -- | -- |
| Diesel Range | -- | -- | -- | -- | -- | -- | -- | -- | Detected | -- | -- | -- | -- |
| Motor Oil Range | -- | -- | -- | -- | -- | -- | -- | -- | ND | -- | -- | -- | -- |
| *Petroleum Hydrocarbons (mg/kg)* | | | | | | | | | | | | | |
| Gasoline | <7.8 | 8.7 | <7.1 | <7.5 | <7.6 | 2,140 | <7.2 | <7.8 | 12000 | 13.7 | 13.0 | 4880 | 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 | -- | -- | -- | 8.6 | | | 250 |
| *PAHs (µg/kg)* | | | | | | | | | | | | | |
| 1-Methylnaphthalene | <9.1 | -- | -- | -- | -- | 1,380 | -- | -- | -- | -- | -- | -- | 5,000** |
| 2-Methylnaphthalene | <9.1 | -- | -- | -- | -- | 3,190 | -- | -- | -- | -- | -- | -- | 5,000** |
| 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 3
Soil Analytical Results: TPH, Lead, and PAHs
Tarr, LLC Cardlock Facility
Vancouver, Washington

| Sample Number: | UST - West Side Wall - 8' | Stockpile | North Sidewall | South Sidewall | East Sidewall | West Sidewall | Dispenser C-20 | Ex Bottom | Stockpile-2 | **Washington MTCA Soil Method A Table Value** |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Date: | 5/19/2012 | 5/19/2012 | 5/24/2012 | 5/24/2012 | 5/24/2012 | 5/24/2012 | 5/24/2012 | 5/24/2012 | 6/7/2012 | |
| Depth: | 8 feet | -- | 3.0 | 2.5 | 3.0 | 4.0 | 2.0 | 4.0 | -- | |
| Hydrocarbon Identification | | | | | | | | | | |
| Gasoline Range | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Diesel Range | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Motor Oil Range | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| *Petroleum Hydrocarbons (mg/kg)* | | | | | | | | | | |
| Gasoline | 7280 | <5.2 | <5.8 | <6.4 | <5.2 | <7.9 | <6.2 | <8.0 | -- | 30/100* |
| Diesel | -- | -- | -- | -- | -- | -- | -- | -- | -- | 2,000 |
| Motor Oil | -- | -- | -- | -- | -- | -- | -- | -- | -- | 2,000 |
| *Metals (mg/kg)* | | | | | | | | | | |
| Lead | | 24.60 | | | | | | | 11.5 | 250 |
| *PAHs (µg/kg)* | | | | | | | | | | |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | -- | -- | -- | -- | 5,000** |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | -- | -- | -- | -- | 5,000** |
| Acenaphthene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Acenaphthylene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Anthracene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Benzo(a)pyrene | -- | -- | -- | -- | -- | -- | -- | -- | -- | 100 |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chrysene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dibenz(a,h)anthracene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Fluoranthene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Fluorene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Indeno(1,2,3-cd)pyrene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Naphthalene | -- | -- | -- | -- | -- | -- | -- | -- | -- | 5,000** |
| Phenanthrene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Pyrene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

*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 4
Soil Analytical Results: VOCs
Tarr, LLC Cardlock Facility
Vancouver, Washington

| Sample Number: | SB-5 (3.0) | SB-12 (7.5) | SB-13 (8.0) | SB-16-(7) | SB-17-(7.5) | SB-19-(7.5) | MW-1 (2.5) | MW-1 (12.5) | Soil, Method A, Unrestricted Land Use, Table Value |
|---|---|---|---|---|---|---|---|---|---|
| Depth: | 3.0 | 7.5 | 8.0 | 7.0 | 7.5 | 7.5 | 2.5 | 12.5 | |
| Sample Date: | 3/1/2010 | 4/29/2011 | 4/28/2011 | 5/29/2012 | 5/29/2012 | 5/29/2012 | 4/29/2011 | 4/29/2011 | |
| *VOCs (µg/kg)* | | | | | | | | | |
| Acetone | ~~< 10.5~~ | <11.0 | **17.1** | **20.3** | <11.5 | **43.5** | **155** | **259** | -- |
| tert-Amylmethyl ether | ~~<3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| Benzene | ~~<3.1~~ | <3.3 | **62.1** | <4.0 | **167** | <3.5 | **162** | **940** | 30 |
| Bromobenzene | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| Bromochloromethane | ~~<3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| Bromodichloromethane | ~~<3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| Bromoform | ~~<3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| Bromomethane | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| 2-Butanone | ~~38.7~~ | <11.0 | <11.3 | <13.2 | <11.5 | <11.5 | <14.1 | <11.6 | -- |
| n-Butylbenzene | ~~296~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| sec-Butylbenzene | ~~150~~ | <3.3 | **4.5** | <4.0 | <3.4 | <3.5 | **8.4** | **1,400** | -- |
| tert-Butylbenzene | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| Carbon disulfide | ~~3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| Carbon tetrachloride | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| Chlorobenzene | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| Chloroethane | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| Chloroform | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| Chloromethane | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| 2-Chlorotoluene | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| 4-Chlorotoluene | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| 1,2-Dibromo-3-chloropropane | ~~< 5.2~~ | <5.5 | <5.6 | <6.6 | <5.7 | <5.8 | <7.0 | <5.8 | -- |
| Dibromochloromethane | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| 1,2-Dibromoethane (EDB) | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| Dibromomethane | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| 1,2-Dichlorobenzene | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| 1,3-Dichlorobenzene | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| 1,4-Dichlorobenzene | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| Dichlorodifluoromethane | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| 1,1-Dichloroethane | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| 1,2-Dichloroethane | ~~< 3.1~~ | <6.6 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| 1,2-Dichloroethene (Total) | ~~6.3~~ | <3.3 | <6.8 | <7.9 | <6.9 | <6.9 | <8.5 | <7.0 | -- |
| 1,1-Dichloroethene | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| cis-1,2-Dichloroethene | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| trans-1,2-Dichloroethene | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| 1,2-Dichloropropane | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| 1,3-Dichloropropane | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| 2,2-Dichloropropane | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| 1,1-Dichloropropene | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| cis-1,3-Dichloropropene | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| trans-1,3-Dichloropropene | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| Ethylbenzene | ~~21.6~~ | <3.9 | **79.5** | <4.0 | **47.2** | <3.5 | **34.3** | **21,300** | 6000 |
| Hexachloro-1,3-butadiene | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| 2-Hexanone | ~~10.5~~ | <11.0 | <11.3 | <13.2 | <11.5 | <11.5 | <14.1 | <11.6 | -- |
| Isopropylbenzene (Cumene) | ~~57.4~~ | <3.9 | **11.3** | <4.0 | **4.9** | <3.5 | **9.2** | **3,010** | -- |
| p-Isopropyltoluene | ~~266~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | **805** | -- |
| Methylene chloride | ~~< 10.5~~ | <11.0 | <11.3 | <13.2 | <11.5 | <11.5 | <14.1 | <11.6 | 20 |
| 4-Methyl-2-pentanone (MIBK) | ~~< 10.5~~ | <11.0 | <11.3 | <13.2 | <11.5 | <11.5 | <14.1 | <11.6 | -- |
| Methyl-tert-butyl ether | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| n-Propylbenzene 141 | ~~141~~ | <3.9 | **28.2** | <4.0 | **11.2** | <3.5 | **12.7** | **11,100** | -- |
| Styrene | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| 1,1,1,2-Tetrachloroethane | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| 1,1,2,2-Tetrachloroethane | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| Tetrachloroethene | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | 50 |
| Toluene | ~~8.5~~ | <3.9 | **14.8** | <4.0 | <3.4 | <3.5 | **27.3** | **712** | 7000 |
| 1,2,3-Trichlorobenzene | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| 1,2,4-Trichlorobenzene | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| 1,1,1-Trichloroethane | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | 2000 |
| 1,1,2-Trichloroethane | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| Trichloroethene | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | 30 |
| Trichlorofluoromethane | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| 1,2,3-Trichloropropane | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| 1,1,2-Trichlorotrifluoroethane | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| Vinyl chloride | ~~< 3.1~~ | <3.3 | <3.4 | <4.0 | <3.4 | <3.5 | <4.2 | <3.5 | -- |
| Xylene (Total) | ~~281~~ | <11.6 | **425** | <11.9 | **69.7** | <10.4 | **141** | **143,000** | 9000 |
| m&p-Xylene | ~~180~~ | <7.7 | **307** | <7.9 | **66.2** | <6.9 | **118** | **113,000** | -- |
| o-Xylene | ~~101~~ | <3.9 | **118** | <4.0 | **3.5** | <3.5 | **22.9** | **28,800** | -- |
| Naphthalene | ~~15,200~~ | <3.9 | **7.2** | <4.0 | <3.4 | <3.5 | **20.5** | **10,700** | 5000 |
| 1,2,4-Trimethylbenzene | ~~54,000~~ | <3.9 | <3.4 | <4.0 | **72.1** | <3.5 | **3270** | **120,000** | -- |
| 1,3,5-Trimethylbenzene | ~~12,800~~ | <3.9 | **24.7** | <4.0 | <3.4 | <3.5 | **89.3** | **34,300** | -- |

*Notes:*
1. VOCs = Volatile organic compounds by EPA Method 8260B.
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 MTCA Method A cleanup value.
6. -- = Cleanup level not established
7. ~~Strikethrough~~ indicates soil sample removed by excavation.

Table 4
Soil Analytical Results: VOCs
Tarr, LLC Cardlock Facility
Vancouver, Washington

| Sample Number: | UST - East Sidewall - 7.5' | Stockpile | North Sidewall | South Sidewall | East Sidewall | West Sidewall | Dispenser C-20 | Ex Bottom | Stockpile-2 | Soil, Method A, Unrestricted Land Use, Table Value |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth: | 7.5 | -- | 3.0 | 2.5 | 3.0 | 4.0 | 2.0 | 4.0 | -- | |
| Sample Date: | 5/19/2012 | 5/19/2012 | 5/24/2012 | 5/24/2012 | 5/24/2012 | 5/24/2012 | 5/24/2012 | 5/24/2012 | 6/7/2012 | |
| *VOCs (**µ**g/kg)* | | | | | | | | | | |
| Acetone | <10.2 | **11.1** | **40.1** | **71.2** | **54.1** | **130** | **193** | **98.2** | <11.3 | **--** |
| tert-Amylmethyl ether | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| Benzene | <3.1 | <2.6 | **13.7** | **10.2** | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | 30 |
| Bromobenzene | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| Bromochloromethane | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| Bromodichloromethane | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| Bromoform | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| Bromomethane | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| 2-Butanone | <10.2 | <8.6 | <9.3 | <10.5 | <8.6 | <12.6 | **36.8** | <14.9 | <11.3 | -- |
| n-Butylbenzene | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| sec-Butylbenzene | **4.3** | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| tert-Butylbenzene | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| Carbon disulfide | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| Carbon tetrachloride | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| Chlorobenzene | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| Chloroethane | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| Chloroform | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| Chloromethane | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| 2-Chlorotoluene | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| 4-Chlorotoluene | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| 1,2-Dibromo-3-chloropropane | <3.1 | <4.3 | <4.7 | <5.3 | <4.3 | <6.3 | <6.5 | <7.5 | <5.7 | -- |
| Dibromochloromethane | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| 1,2-Dibromoethane (EDB) | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| Dibromomethane | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| 1,2-Dichlorobenzene | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| 1,3-Dichlorobenzene | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| 1,4-Dichlorobenzene | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| Dichlorodifluoromethane | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| 1,1-Dichloroethane | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| 1,2-Dichloroethane | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| 1,2-Dichloroethene (Total) | <6.1 | <5.1 | <5.6 | <6.3 | <5.1 | <7.6 | <7.8 | <8.9 | <6.8 | -- |
| 1,1-Dichloroethene | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| cis-1,2-Dichloroethene | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| trans-1,2-Dichloroethene | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| 1,2-Dichloropropane | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| 1,3-Dichloropropane | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| 2,2-Dichloropropane | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| 1,1-Dichloropropene | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| cis-1,3-Dichloropropene | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| trans-1,3-Dichloropropene | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| Ethylbenzene | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | 6000 |
| Hexachloro-1,3-butadiene | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| 2-Hexanone | <10.2 | <8.6 | <9.3 | <10.5 | <8.6 | <12.6 | <13.1 | <14.9 | <11.3 | -- |
| Isopropylbenzene (Cumene) | **18.3** | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| p-Isopropyltoluene | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| Methylene chloride | <10.2 | <8.6 | <9.3 | <10.5 | <8.6 | <12.6 | <13.1 | <14.9 | <11.3 | 20 |
| 4-Methyl-2-pentanone (MIBK) | <10.2 | <8.6 | <9.3 | <10.5 | <8.6 | <12.6 | <13.1 | <14.9 | <11.3 | -- |
| Methyl-tert-butyl ether | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| n-Propylbenzene 141 | **38.5** | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| Styrene | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| 1,1,1,2-Tetrachloroethane | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| 1,1,2,2-Tetrachloroethane | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| Tetrachloroethene | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | 50 |
| Toluene | **112** | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | 7000 |
| 1,2,3-Trichlorobenzene | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| 1,2,4-Trichlorobenzene | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| 1,1,1-Trichloroethane | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | 2000 |
| 1,1,2-Trichloroethane | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| Trichloroethene | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | 30 |
| Trichlorofluoromethane | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| 1,2,3-Trichloropropane | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| 1,1,2-Trichlorotrifluoroethane | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| Vinyl chloride | <3.1 | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| Xylene (Total) | **102** | <7.7 | <8.4 | <9.5 | <7.7 | <11.4 | <11.8 | <13.4 | <10.3 | 9000 |
| m&p-Xylene | <6.1 | <5.1 | <5.6 | <6.3 | <5.1 | <7.6 | <7.8 | <8.9 | <6.8 | -- |
| o-Xylene | **102** | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| Naphthalene | **11.7** | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | 5000 |
| 1,2,4-Trimethylbenzene | **149** | **2.7** | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |
| 1,3,5-Trimethylbenzene | **57.8** | <2.6 | <2.8 | <3.2 | <2.6 | <3.8 | <3.9 | <4.5 | <3.4 | -- |

*Notes:*
1. VOCs = Volatile organic compounds by EPA Method 8260B.
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. ~~Strikethrough~~ indicates soil sample removed by excavation.

Table 5
Air Discharge Concentrations
Tarr, LLC Cardlock Facility
Vancouver, Washington

| Sample ID | EFFLUENT_073112 | EFFLUENT_100512 | EFFLUENT_110812 | EFFLUENT_120612 |
|---|---|---|---|---|
| Date | 7/23/2012 | 10/5/2012 | 11/8/2012 | 12/6/2012 |
| Compound Name | (ug/m3) | | | |
| Freon 12 | < 330 | <98 | <8.1 | 2.7 |
| Freon 114 | < 460 | <140 | <11 | <1.1 |
| Chloromethane | < 540 | <410 | <3.4 | 0.90 |
| Vinyl Chloride | < 170 | <50 | <0.42 | <0.40 |
| 1,3-Butadiene | < 150 | <44 | <3.6 | <0.35 |
| Bromomethane | < 260 | <770 | <32 | <3.1 |
| Chloroethane | < 700 | <210 | <22 | <2.1 |
| Freon 11 | < 370 | <110 | <9.2 | 1.3 |
| Ethanol | < 500 | <150 | <15 | 8.0 |
| Freon 113 | < 500 | <150 | <12 | <1.2 |
| 1,1-Dichloroethene | < 260 | <78 | <0.65 | <0.063 |
| Acetone | < 630 | <470 | <19 | 9.9 |
| 2-Propanol | < 650 | <190 | <20 | 320 E |
| Carbon Disulfide | < 200 | <250 | <26 | <2.5 |
| 3-Chloropropene | < 830 | <250 | <26 | <2.5 |
| Methylene Chloride | < 230 | <690 | <11 | <1.1 |
| Methyl tert-butyl ether | < 240 | <71 | <5.9 | <0.57 |
| trans-1,2-Dichloroethene | < 260 | <78 | <6.5 | <0.63 |
| Hexane | 21,000 | 5,000 | 420 | 35 |
| 1,1-Dichloroethane | < 270 | <80 | <1.3 | <0.13 |
| 2-Butanone (Methyl Ethyl Ketone) | < 780 | <230 | <24 | 15 |
| cis-1,2-Dichloroethene | < 260 | <78 | <1.3 | <0.12 |
| Tetrahydrofuran | < 190 | <58 | <24 | <2.3 |
| Chloroform | < 320 | <96 | <8.0 | <0.77 |
| 1,1,1-Trichloroethane | < 360 | <110 | <1.8 | <0.17 |
| Cyclohexane | 14,000 | 4,100 | 560 | 100 |
| Carbon Tetrachloride | < 420 | <120 | <10 | <0.99 |
| 2,2,4-Trimethylpentane | 16,000 | 7,700 | 1,600 | 520 E |
| Benzene | 7,700 | 340 | <2.6 | 0.63 |
| 1,2-Dichloroethane | < 270 | <80 | <1.3 | <0.13 |
| Heptane | 17,000 | 5,100 | 560 | <0.65 |
| Trichloroethene | < 350 | <110 | <1.8 | <0.17 |
| 1,2-Dichloropropane | < 300 | <91 | <7.6 | <0.73 |
| 1,4-Dioxane | < 950 | <280 | <5.9 | <0.57 |
| Bromodichloromethane | < 440 | <130 | <11 | <1.0 |
| cis-1,3-Dichloropropene | < 300 | <90 | <7.4 | <0.72 |
| 4-Methyl-2-pentanone | < 270 | <81 | <6.7 | <0.65 |
| Toluene | 40,000 | 4,400 | 22 | 3.5 |
| trans-1,3-Dichloropropene | < 300 | <90 | <7.4 | <0.72 |
| 1,1,2-Trichloroethane | < 360 | <110 | <1.8 | <0.17 |
| Tetrachloroethene | < 450 | <130 | <2.2 | 0.77 |
| 2-Hexanone | < 1,100 | <320 | <34 | <3.2 |
| Dibromochloromethane | < 560 | <170 | <14 | <1.3 |
| 1,2-Dibromoethane (EDB) | < 510 | <150 | <13 | <1.2 |
| Chlorobenzene | < 300 | <91 | <7.6 | <0.73 |
| Ethyl Benzene | 14,000 | 1,000 | 5.2 | 1.0 |
| m,p-Xylene | 100,000 | 23,000 | 620 | 5.1 |
| o-Xylene | 30,000 | 8,800 | 330 | 2.3 |
| Styrene | < 280 | <84 | <7.0 | <0.67 |
| Bromoform | < 680 | <200 | <17 | <1.6 |
| Cumene | 1,000 | <97 | <8.1 | <0.78 |
| 1,1,2,2-Tetrachloroethane | < 450 | <140 | <2.2 | <0.22 |
| Propylbenzene | 2,400 | 140 | <8.1 | <0.78 |
| 4-Ethyltoluene | 34,000 | 1,700 | 340 | 2.4 |
| 1,3,5-Trimethylbenzene | 16,000 | 2,400 | 490 | 2.0 |
| 1,2,4-Trimethylbenzene | 36,000 | 3,100 | 80 | 1.9 |
| 1,3-Dichlorobenzene | < 400 | <120 | <9.9 | <0.95 |
| 1,4-Dichlorobenzene | < 400 | <120 | <9.9 | <0.95 |
| alpha-Chlorotoluene | < 340 | <100 | <8.5 | <0.82 |
| 1,2-Dichlorobenzene | < 400 | <120 | <9.9 | <0.95 |
| 1,2,4-Trichlorobenzene | < 2000 | <590 | <61 | <5.9 |
| Hexachlorobutadiene | < 2,800 | <840 | <87 | <8.4 |
| TPH ref. to Gasoline (MW=100) | 2,900,000 | 650,000 | 25,000 | 4,800 |

*Notes:*

1. ug/$m^3$ = micrograms per meter cubed (ppbv)
2. **Bold** denotes a concentration above the method detection limit.
3. Samples analyzed with EPA Method TO-15.
4. < = Not detected above the indicated method reporting limit (MRL).
5. E = Exceeds instrument calibration range. Data are estimated.

Table 6
SVE Monitoring Results
Tarr, LLC Cardlock Facility
Vancouver, Washington

| Date | Effluent | | VE-1 | | VE-2 | | AS-1 | | AS-2 | | AS-3 | | AS-4 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PID | Pressure | PID | Pressure | PID | Pressure | PID | Pressure | PID | Pressure | PID | Pressure | PID | Pressure |
| 7/30/2012 | NM | NM | NM | -53 | NM | -52 | NM | >100 | NM | >100 | NM | >100 | NM | >100 |
| 9/11/2012 | 63.4 | NM | 17.5 | NM | 315.2 | NM | 1421 | NM | 442.0 | NM | 1541 | NM | 1796 | NM |
| 9/26/2012 | 32.5 | 0.5 | 61.9 | -49 | 136.1 | -49 | 4.9 | >100 | 9.3 | 99 | 5.2 | >100 | 13.3 | 93 |
| 10/5/2012 | 12.7 | 0.1 | 55.2 | -49 | 27.5 | -49 | 13.6 | >100 | 6.2 | >100 | 28.4 | >100 | 36.3 | >100 |
| 10/22/2012 | 8.6 | 0.5 | 65.3 | -48 | 8.1 | -49 | 0.5 | >100 | 0.5 | >100 | 1 | >100 | 0.3 | >100 |
| 10/30/2012 | 15.6 | 0.5 | 26.6 | -48 | 5.4 | -48 | 0.7 | >100 | 0.7 | >100 | 1 | >100 | 0.5 | >100 |
| 12/6/2012 | 13.6 | 0.5 | 3.0 | -51 | 1.1 | -54 | 0.5 | >100 | 0.5 | >100 | 0.0 | >100 | 0.0 | >100 |
| 1/9/2012 | 0.2 | 0.1 | 1.0 | -52 | 0.7 | -50 | 0.3 | >100 | 0.2 | >100 | 0.7 | >100 | 0.1 | >100 |

*Notes:*

1. Photoionization detector (PID) readings in parts per million (ppm).
2. Pressure readings in inches of water.
3. NM = Not measured.


***Note:*** Base map prepared from USGS 7.5-minute quadrangle of Vancouver and Orchards, WA-OR, dated 2011 as provided by USGS.gov.

0 2,000 4,000

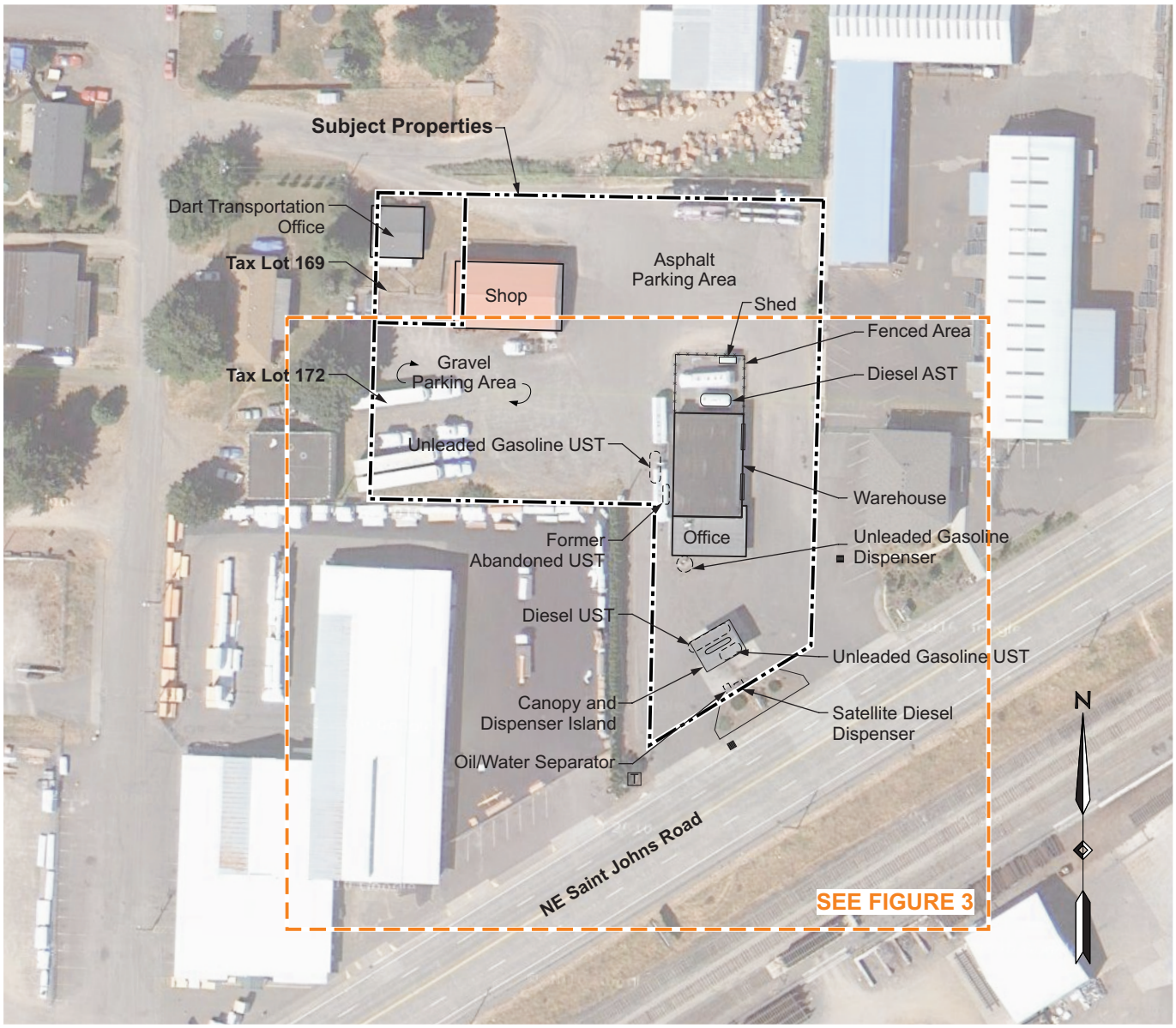
Approximate Scale in Feet


N

# Site Location Map

Remediation Construction and Startup Report
Tarr, LLC Vancouver Cardlock - 7208 NE St. Johns Road
Vancouver, Washington

| | | |
|---|---|---|
| Ash Creek Associates, A Division of Apex Companies, LLC / APEX | Project Number 1821-00 | Figure 1 |
| | January 2013 | |




***Legend:***

- Approximate Area
- T Transformer Location
- Catch Basin Location

0 100 200

Approximate Scale in Feet

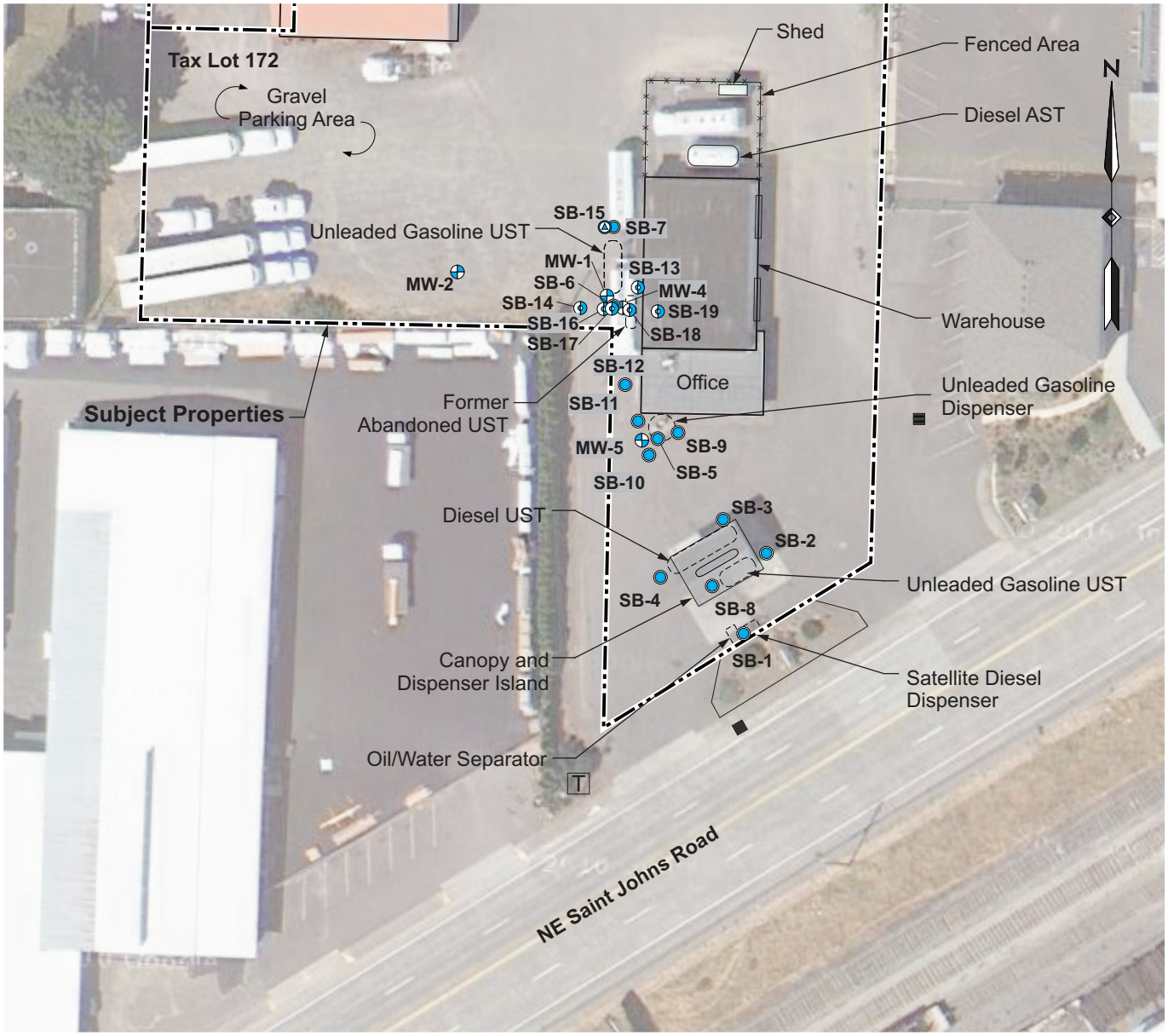
# Site Plan

Remediation Construction and Startup Report
Tarr, LLC Vancouver Cardlock - 7208 NE St. Johns Road
Vancouver, Washington

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

Ash Creek Associates
A Division of Apex Companies, LLC
APEX

| Project Number | 1821-00 | Figure |
|---|---|---|
| January 2013 | | 2 |




***Legend:***

| | |
|---|---|
| MW-1 | Monitoring Well Location |
| SB-1 | Soil Boring Location |
| SB-16 | Soil and Groundwater Exploration Location |
| SB-15 | Groundwater Exploration Location |
| | Approximate Area |
| T | Transformer Location |
| | Catch Basin Location |

0 60 120

Approximate Scale in Feet

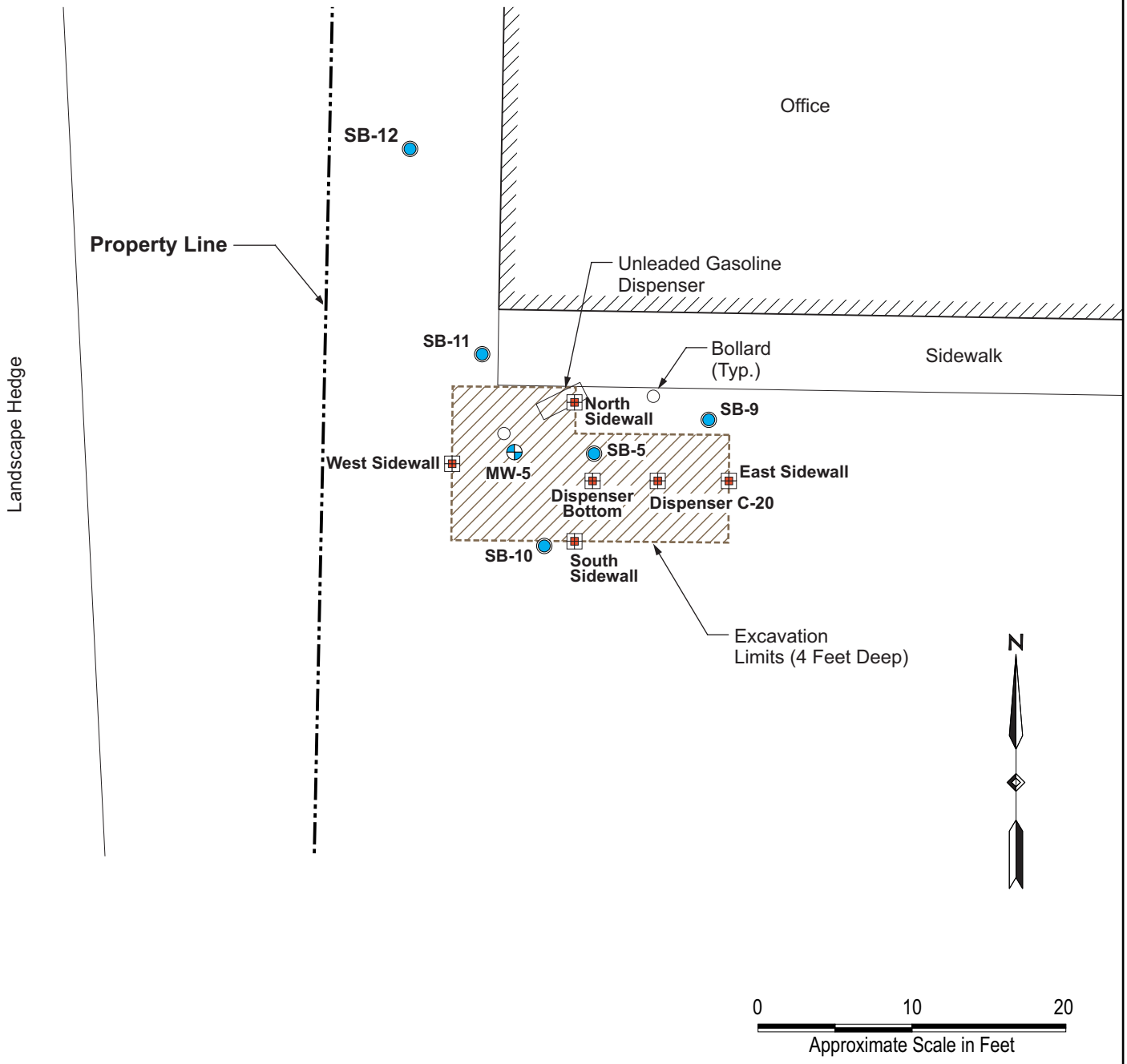
**Notes:** 1) Base map prepared from 2011 - Google Imagery and site reconnaissance by Ash Creek personnel.
2) Site feature locations and dimensions are approximate.

# Site Exploration Plan

Remediation Construction and Startup Report
Tarr, LLC Vancouver Cardlock - 7208 NE St. Johns Road
Vancouver, Washington

Ash Creek Associates
A Division of Apex Companies, LLC
APEX

| Project Number | 1821-00 | Figure |
|---|---|---|
| January 2013 | | 3 |




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

***Legend:***

**MW-5** Monitoring Well Location

**SB-9** Soil Boring Location

**East Sidewall** Grab Soil Sample Location

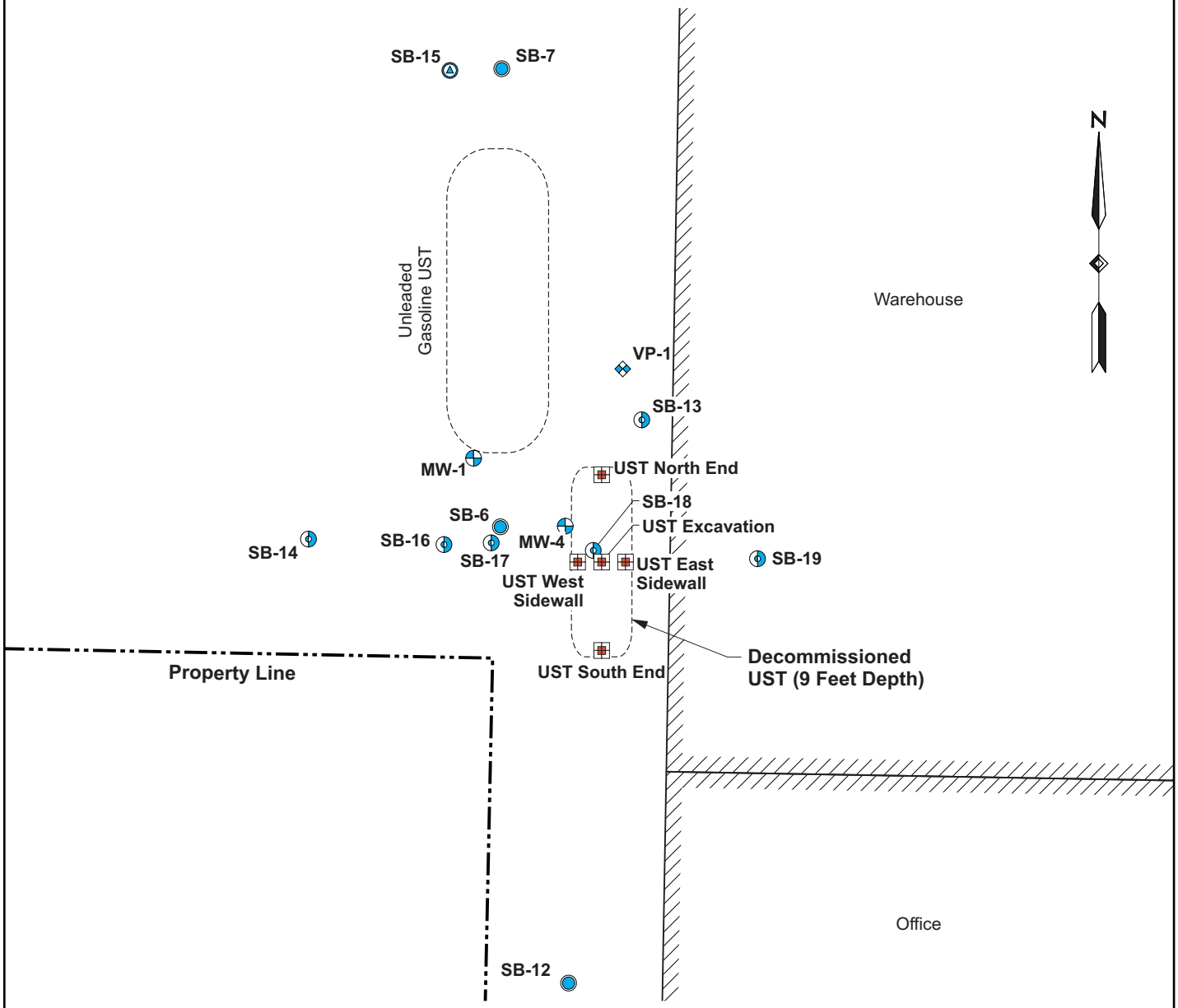
**Notes:** 1) Base map prepared from 2011 - Google Imagery and site reconnaissance by Ash Creek personnel.
2) Site feature locations and dimensions are approximate.

# Dispenser Excavation Area

Remediation Construction and Startup Report
Tarr, LLC Vancouver Cardlock - 7208 NE St. Johns Road
Vancouver, Washington

Ash Creek Associates
A Division of Apex Companies, LLC
APEX

| Project Number | 1821-00 | Figure |
|---|---|---|
| January 2013 | | 4 |




***Legend:***

| | |
|---|---|
| MW-1 | Monitoring Well Location |
| SB-6 | Soil Boring Location |
| SB-16 | Soil and Groundwater Exploration Location |
| SB-15 | Groundwater Exploration Location |
| VP-1 | Vapor Point Location |
| East Sidewall | Grab Soil Sample Location |

0 10 20

Approximate Scale in Feet

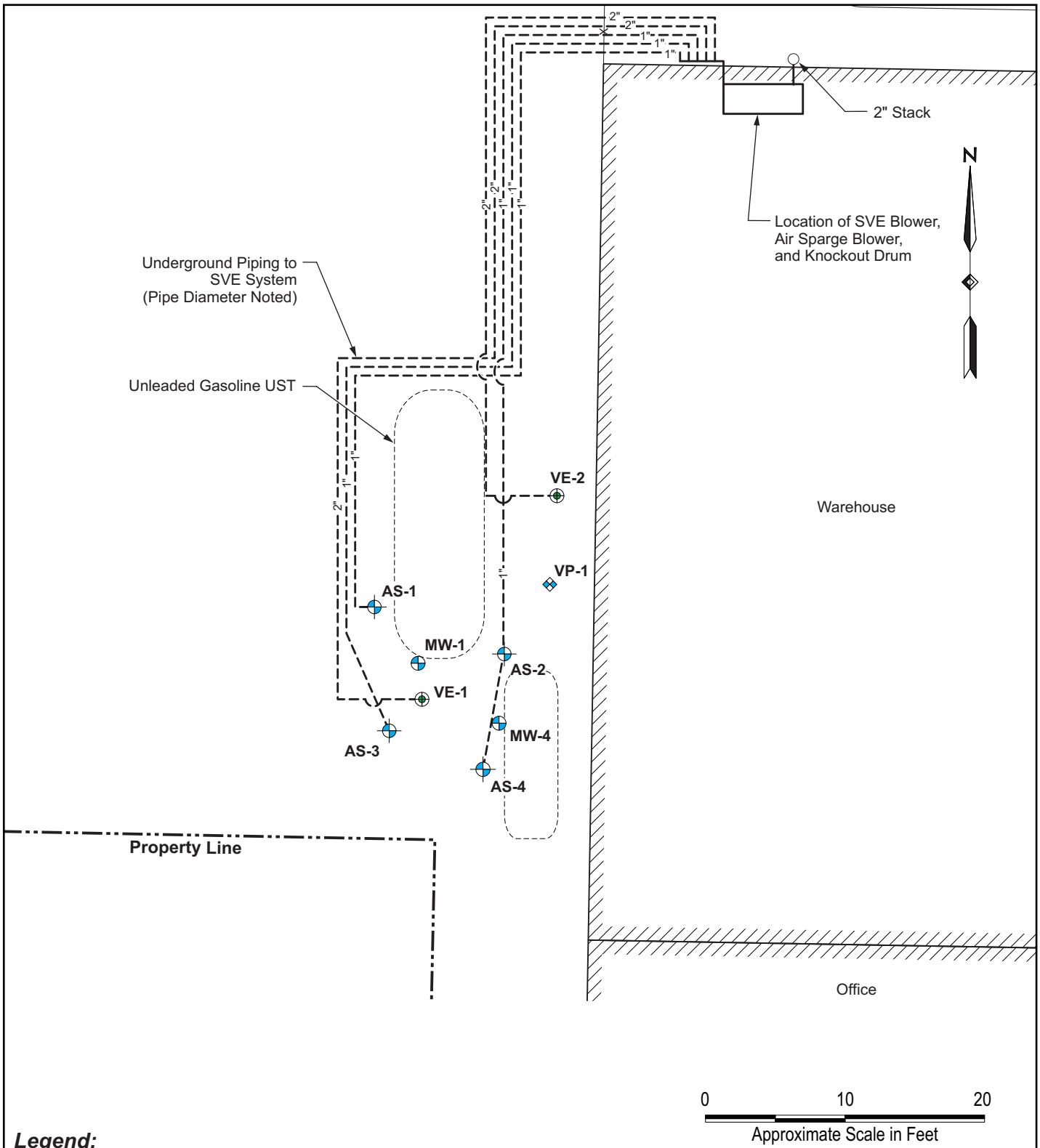
# UST Remediation Area

Remediation Construction and Startup Report
Tarr, LLC Vancouver Cardlock - 7208 NE St. Johns Road
Vancouver, Washington

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

Ash Creek Associates
A Division of Apex Companies, LLC
APEX

| Project Number | 1821-00 | Figure |
|---|---|---|
| January 2013 | | 5 |




***Legend:***

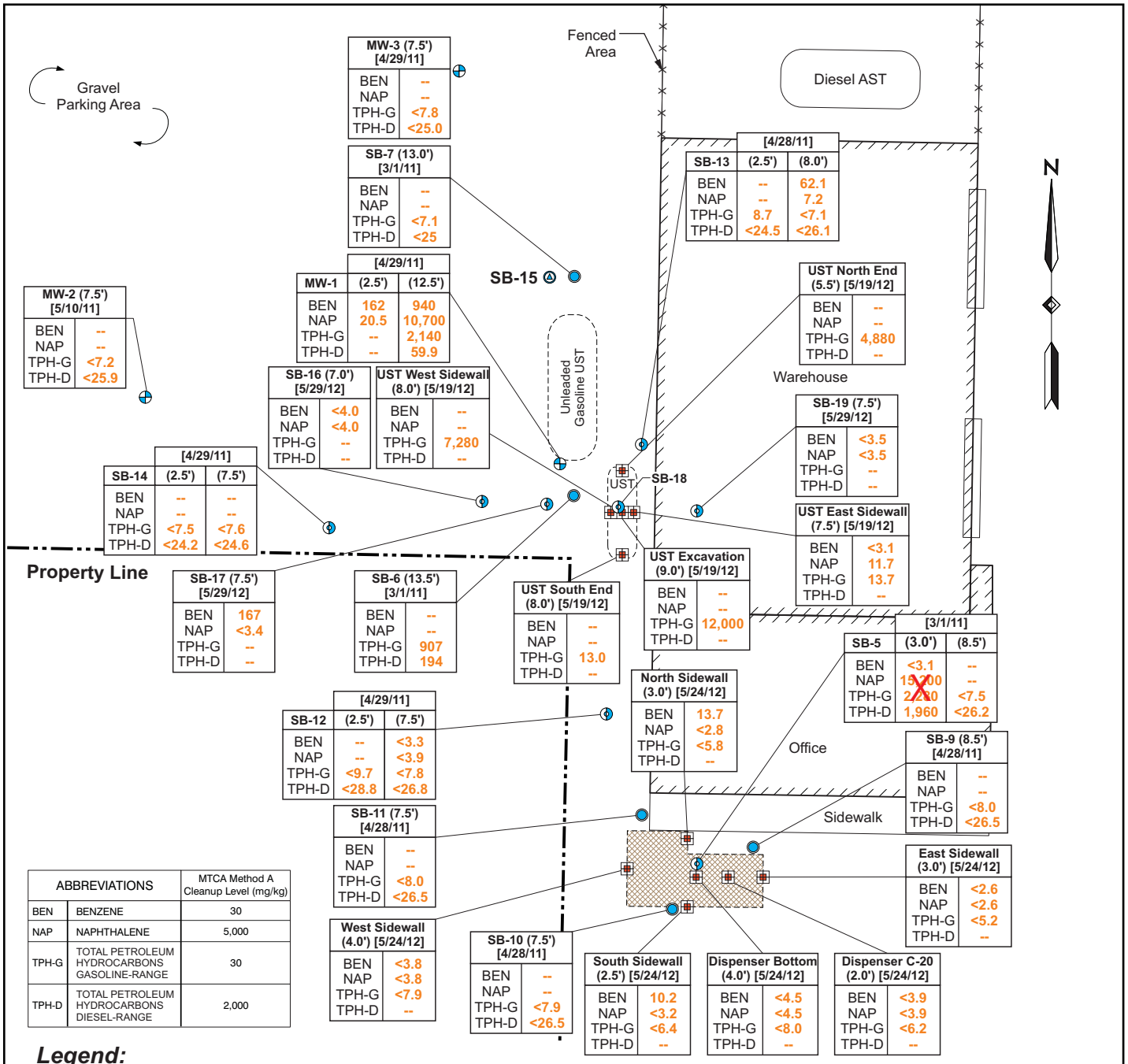
- **MW-1** Monitoring Well Location
- **VP-1** Vapor Point Location
- **VE-1** Soil Vapor Extraction Well Location
- **AS-1** Air Sparge Well Location

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

# Enhanced SVE System

Remediation Construction and Startup Report
Tarr, LLC Vancouver Cardlock - 7208 NE St. Johns Road
Vancouver, Washington

| | | |
|---|---|---|
| Ash Creek Associates, A Division of Apex Companies, LLC / APEX | Project Number 1821-00 | Figure 6 |
| | January 2013 | |



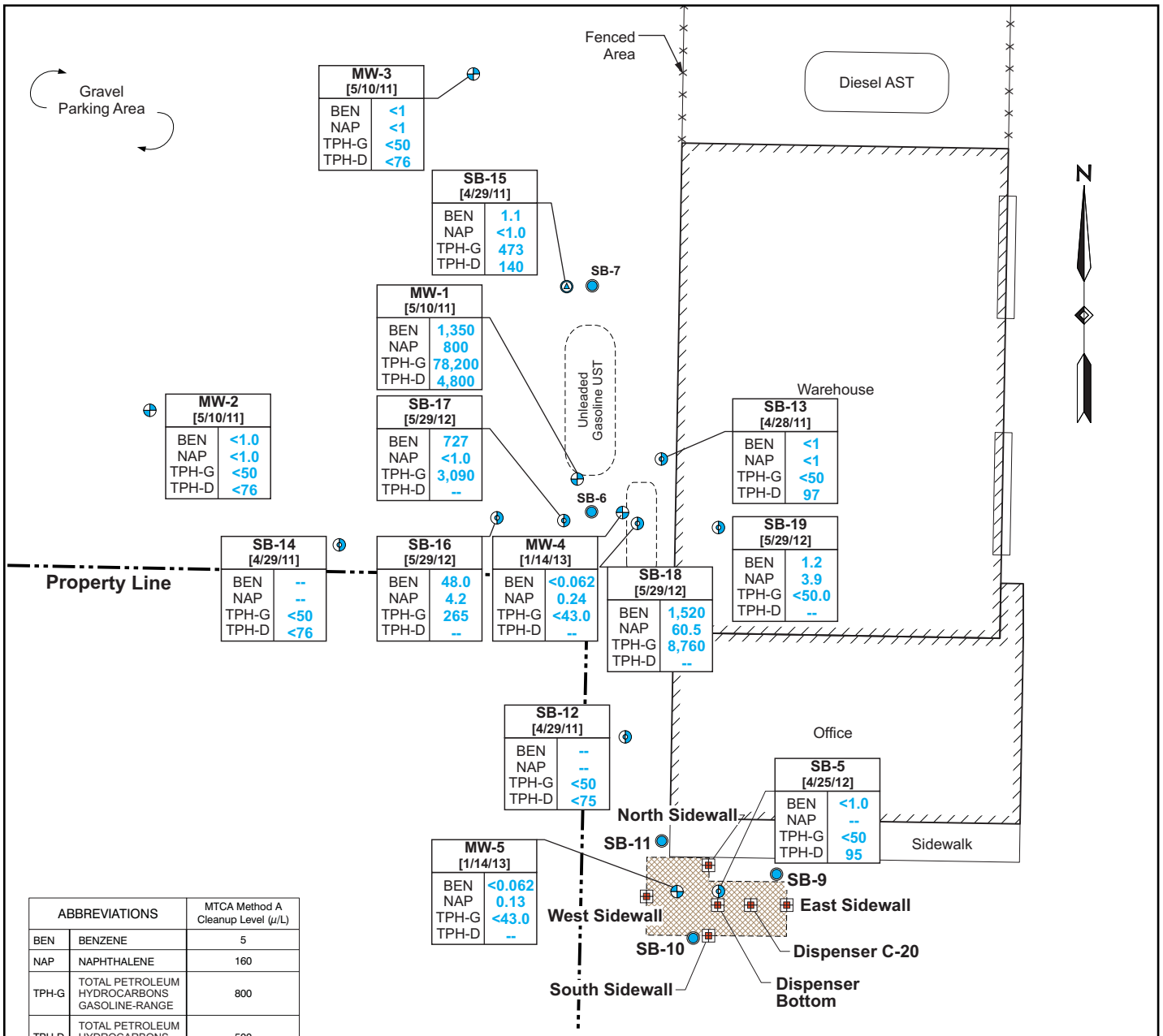

**Notes:** 1) Base map prepared from 2011 - Google Imagery and site reconnaissance by Ash Creek personnel.
2) Site feature locations and dimensions are approximate.

# Soil Concentrations

Remediation Construction and Startup Report
Tarr, LLC Vancouver Cardlock - 7208 NE St. Johns Road
Vancouver, Washington

Ash Creek Associates
A Division of Apex Companies, LLC
APEX

| Project Number | 1821-00 | Figure |
|---|---|---|
| January 2013 | | 7 |




| ABBREVIATIONS | | MTCA Method A Cleanup Level (µ/L) |
|---|---|---|
| BEN | BENZENE | 5 |
| NAP | NAPHTHALENE | 160 |
| TPH-G | TOTAL PETROLEUM HYDROCARBONS GASOLINE-RANGE | 800 |
| TPH-D | TOTAL PETROLEUM HYDROCARBONS DIESEL-RANGE | 500 |

## *Legend:*

- Unleaded Gasoline Dispenser Excavation
- MW-1 — Monitoring Well Location
- SB-1 — Soil Boring Location
- SB-12 — Soil and Groundwater Exploration
- SB-15 — Groundwater Exploration
- East Sidewall — Soil Grab Sample Location
- Transformer Location
- Catch Basin Location

MW-1 [5/10/11]
BEN 1,350
NAP 800
TPH-G 78,200
TPH-D 4,800

Sampling Identification and (Depth in Feet) [Date Sampled]
Concentration in µg/L
Analyte Sampled
(-- = Not Analyzed)

0 20 40
Approximate Scale in Feet

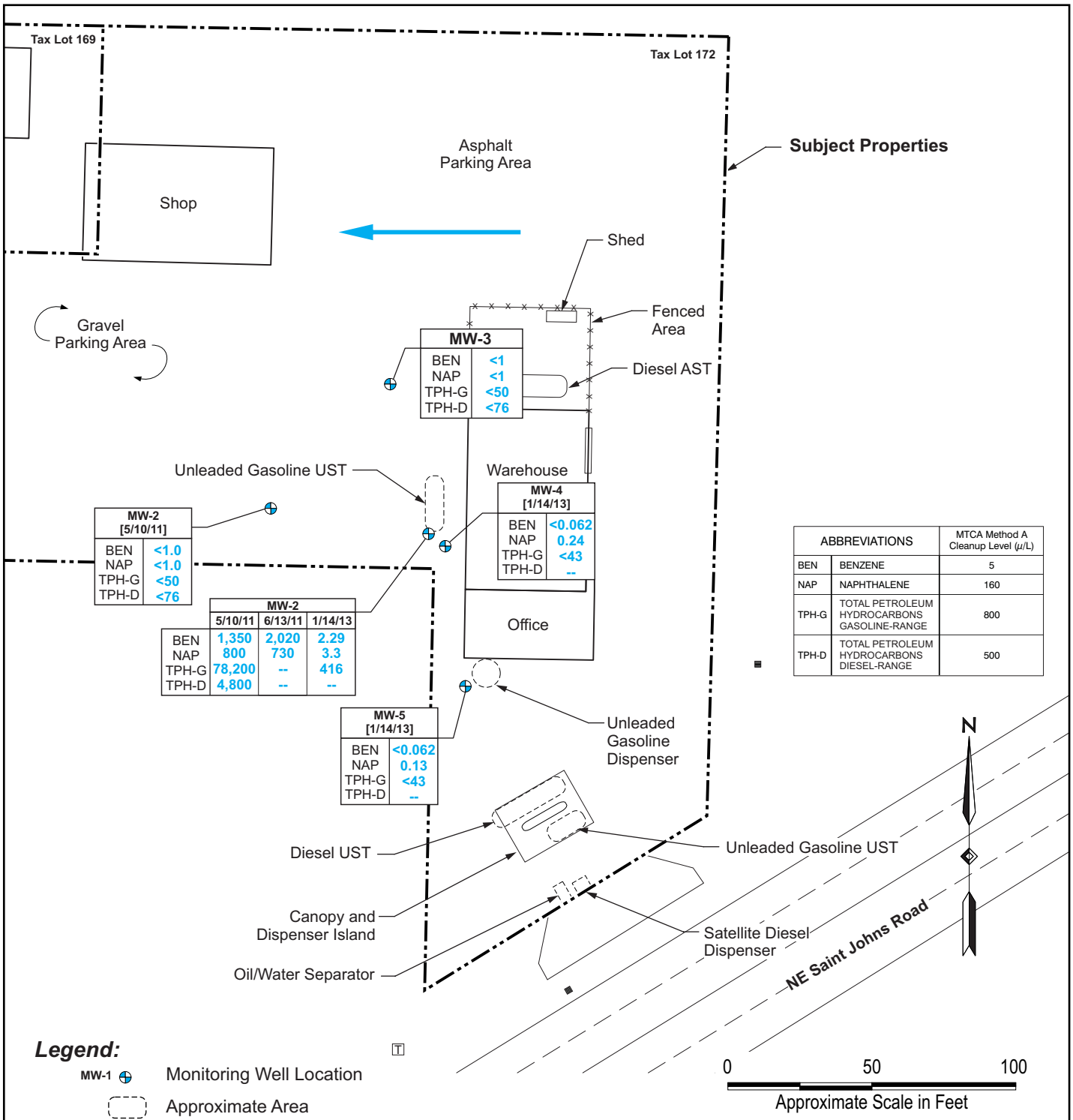
**Notes:** 1) Base map prepared from 2011 - Google Imagery and site reconnaissance by Ash Creek personnel.
2) Site feature locations and dimensions are approximate.

# Groundwater Concentrations

Remediation Construction and Startup Report
Tarr, LLC Vancouver Cardlock - 7208 NE St. Johns Road
Vancouver, Washington

Ash Creek Associates
A Division of Apex Companies, LLC
APEX

| Project Number | 1821-00 | Figure |
|---|---|---|
| January 2013 | | 8 |




| ABBREVIATIONS | | MTCA Method A Cleanup Level (µ/L) |
|---|---|---|
| BEN | BENZENE | 5 |
| NAP | NAPHTHALENE | 160 |
| TPH-G | TOTAL PETROLEUM HYDROCARBONS GASOLINE-RANGE | 800 |
| TPH-D | TOTAL PETROLEUM HYDROCARBONS DIESEL-RANGE | 500 |

***Legend:***

- MW-1 ⊕ Monitoring Well Location
- Approximate Area
- T Transformer Location
- Catch Basin Location
- Sampling Identification and (Depth in Feet) [Date Sampled]
- Concentration in µg/L
- Analyte Sampled (-- = Not Analyzed)
- Apparent Groundwater Flow Direction

| MW-1 [5/10/11] | |
|---|---|
| BEN | 1,350 |
| NAP | 800 |
| TPH-G | 78,200 |
| TPH-D | 4,800 |

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

# Monitoring Well Groundwater Concentrations

Remediation Construction and Startup Report
Tarr, LLC Vancouver Cardlock - 7208 NE St. Johns Road
Vancouver, Washington

Ash Creek Associates
A Division of Apex Companies, LLC
APEX

Project Number 1821-00
January 2013
Figure 9

# *Appendix A*

## UST Decommissioning 30-Day Notice

DEPARTMENT OF ECOLOGY
State of Washington

# UNDERGROUND STORAGE TANK (UST)
# 30-DAY NOTICE

(See back of form for instructions)

FOR OFFICE USE ONLY
Site ID # 100377
FS ID # 82645516

Waived 30-day 5-15-12

Please ✓ the appropriate box: ☐ Intent to Install ☒ Intent to Close

HQ (360)407-7170 / Central (509)575-2490 / Eastern (509)329-3400 / Northwest (425)649-7000 / Southwest (360)407-6300

## SITE INFORMATION

UBI# 602324156
Tag or UBI number

Tarr Vancouver
Site Name

7208 NE St. Johns Road
Site Physical Address

Vancouver — 98665
City — Zip Code

n/a
Site Phone Number

## OWNER INFORMATION
(this form will be returned to this address)

Tarr LLC
UST Owner/Operator

PO Box 12570
Mailing Address/PO Box

Portland — 97212-0570
City — Zip Code

800-422-5069
Owner/Operator Phone Number

starr@tarrllc.com
Owner/Operator Email Address

## TANK INFORMATION

| Tank ID | Substance Stored | Capacity | Date Project is Expected to Begin | Comments: |
|---|---|---|---|---|
| n/a | Gasoline | 1,000 | 05/18/2012 | |
| | | | | |
| | | | | |
| | | | | |

## 1) SERVICE PROVIDER INFORMATION - check the appropriate boxes

PLEASE NOTE: INDIVIDUALS PERFORMING UST SERVICES MUST BE ICC CERTIFIED OR HAVE PASSED ANOTHER QUALIFYING EXAM APPROVED BY THE DEPARTMENT OF ECOLOGY.

☐ Installer ☒ Decommissioner ☐ Site Assessor

Terra Hydr Inc
Service Provider Company Name

Scott Flaherty
Certified Service Provider Name

4341057601
ICC Certification #

Hank Stukey
Contact Person

503-720-6590
Contact Phone Number

corporate@terrahydr.com
Contact Email Address

## 2) SERVICE PROVIDER INFORMATION (REQUIRED IF USING MORE THAN ONE PROVIDER) - check the appropriate boxes

☐ Installer ☐ Decommissioner ☒ Site Assessor

Ash Creek Associates
Service Provider Company Name

Certified Service Provider Name

ICC Certification #

John Foxwell - Licensed Geologist
Contact Person

503-312-0676
Contact Phone Number

Jfoxwell@ashcreekassociates.com
Contact Email Address

# *Appendix B*

## Boring Logs and Well Construction Reports

## *Sample Descriptions*

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

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

### Density/Consistency

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

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

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

### Moisture

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

### Minor Constituents

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

### Sampling Symbols

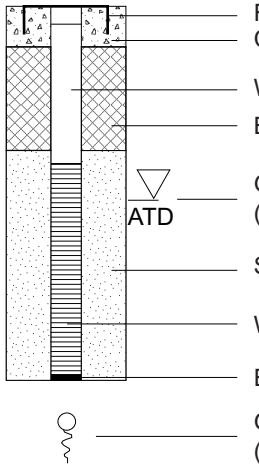
BORING AND PUSH-PROBE SYMBOLS

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

TEST PIT SOIL SAMPLES

- Grab (Jar)
- Bag
- Shelby Tube

### Groundwater Observations and Monitoring Well Construction




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

# Key to Exploration Logs

Remediation Construction and Startup Report
Tarr, LLC Vancouver Cardlock - 7208 NE St. Johns Road
Vancouver, Washington

Ash Creek Associates
A Division of Apex Companies, LLC
APEX

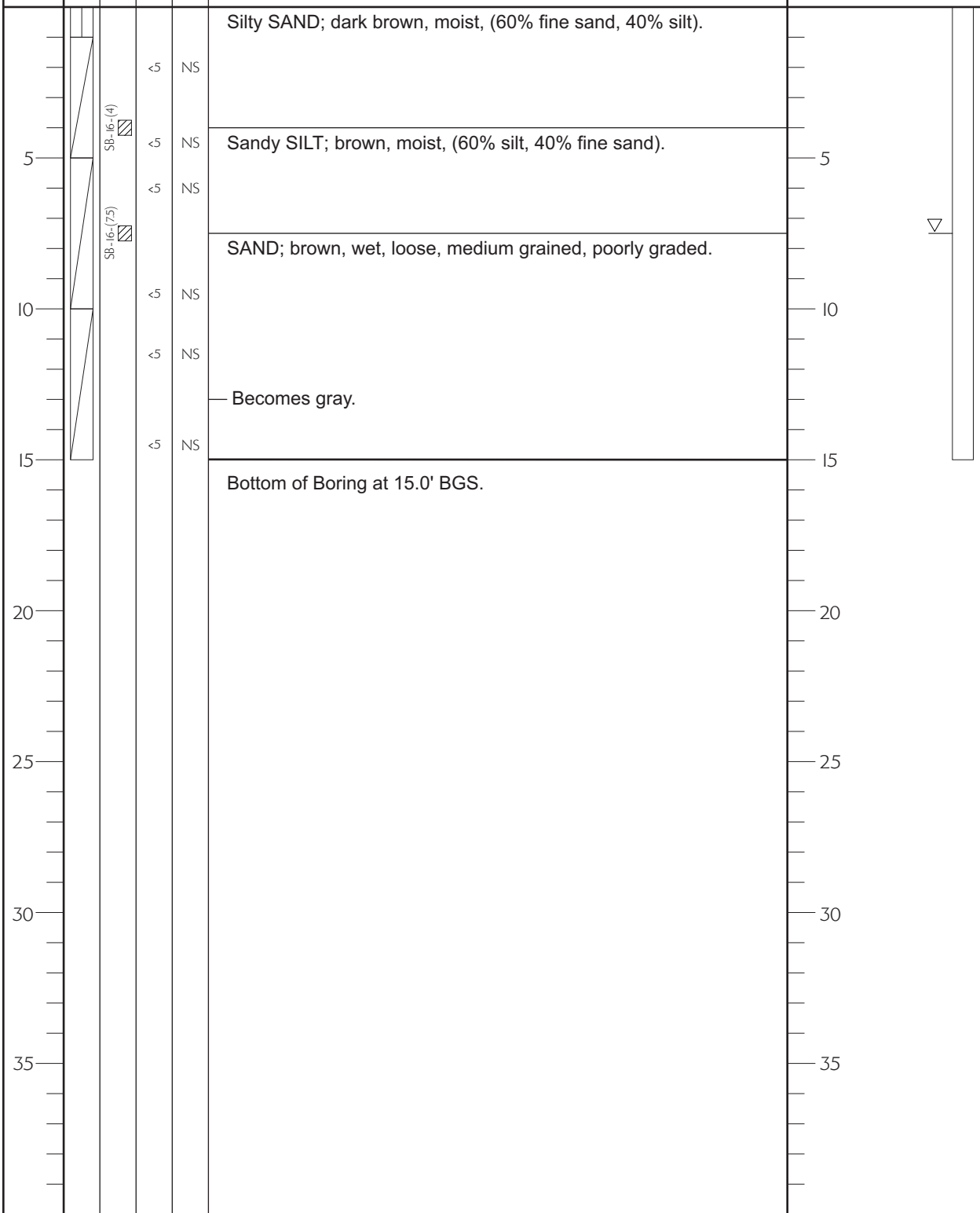
| Project Number | 1821-00 | Figure |
|---|---|---|
| January 2013 | | Key |

Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

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

Boring Number: **SB-16**
Project Number: **1821-00**
Logged By: C. Owens
Date: May 29, 2012
Site Conditions: Clear (65°F)
Drilling Contractor: Cascade Drilling
Drilling Equipment: Geoprobe
Sampler Type: Geoprobe Dual Core
Depth to Water (ATD): 7.5'
Surface Elevation: --

Boring Details and Notes:



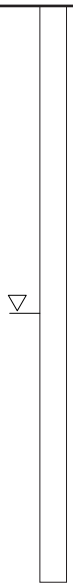
Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

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

Boring Number: **SB-17**
Project Number: **1821-00**
Logged By: C. Owens
Date: May 29, 2012
Site Conditions: Clear (65°F)
Drilling Contractor: Cascade Drilling
Drilling Equipment: Geoprobe
Sampler Type: Geoprobe Dual Core
Depth to Water (ATD): 8'
Surface Elevation: --

| Depth, feet | Core Interval/Recovery | Laboratory Sample ID | PID | Sheen | Lithologic Description |
|---|---|---|---|---|---|
| | | | | | SAND; brown, moist, loose. |
| | | | <5 | NS | |
| | | | | | Silty SAND; gray, moist, (70% sand, 30% silt). |
| | | SB-17-(4) | <5 | NS | |
| 5 | | | | | |
| | | SB-17-(7) | <5 | NS | |
| | | | <5 | NS | |
| 10 | | | | | |
| | | | | | SAND; brown, wet, loose, medium grained, poorly graded. |
| | | | 7 | NS | |
| 15 | | | | | |
| | | | | | Bottom of Boring at 15.0' BGS. |
| 20 | | | | | |
| 25 | | | | | |
| 30 | | | | | |
| 35 | | | | | |

Boring Details and Notes:



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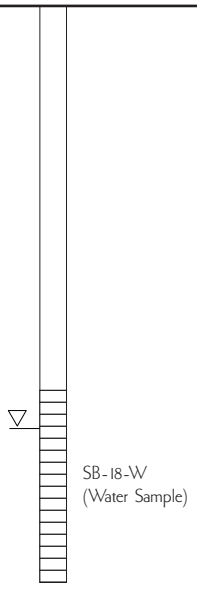
Environmental and Geotechnical Consultants

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

Boring Number: **SB-18**
Project Number: **1821-00**
Logged By: C. Owens
Date: May 29, 2012
Site Conditions: Clear (65°F)
Drilling Contractor: Cascade Drilling
Drilling Equipment: Geoprobe
Sampler Type: Geoprobe Dual Core
Depth to Water (ATD): 11'
Surface Elevation: --

| Depth, feet | Core Interval/Recovery | Laboratory Sample ID | PID | Sheen | Lithologic Description |
|---|---|---|---|---|---|
| | | | | | Sandy GRAVEL; black, moist, loose, (70% medium gravel, 30% sand). |
| | | | <5 | NS | |
| | | | | | Gravelly SAND; brown, moist, loose, (70% sand, 30% gravel). |
| 5 | | | <5 | NS | |
| | | | 89 | NS | |
| | | | | | SAND; gray, moist, loose, medium-grained, poorly graded. Becomes brown. |
| 10 | | | 108 | NS | |
| | | | 141 | NS | |
| | | | 64 | NS | |
| | | | 25 | NS | |
| 15 | | | | | Bottom of Boring at 15.0' BGS. |
| 20 | | | | | |
| 25 | | | | | |
| 30 | | | | | |
| 35 | | | | | |

Boring Details and Notes:



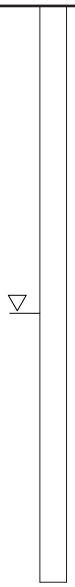
Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

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

Boring Number: **SB-19**
Project Number: **1821-00**
Logged By: C. Owens
Date: May 29, 2012
Site Conditions: Clear (65°F)
Drilling Contractor: Cascade Drilling
Drilling Equipment: Geoprobe
Sampler Type: Geoprobe Dual Core
Depth to Water (ATD): 8'
Surface Elevation: --

Boring Details and Notes:

| Depth, feet | Core Interval/Recovery | Laboratory Sample ID | PID | Sheen | Lithologic Description |
|---|---|---|---|---|---|
| | | | | | Concrete surface. |
| | | | <5 | NS | Gravel. |
| 5 | | SB-19-(5) | | | Sandy SILT; brown, moist, dense, (70% fine sand, 30% silt). |
| | | SB-19-(7.5) | | | |
| 10 | | | | | |
| 15 | | | | | Bottom of Boring at 20.0' BGS. |
| 20 | | | | | |
| 25 | | | | | |
| 30 | | | | | |
| 35 | | | | | |



Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

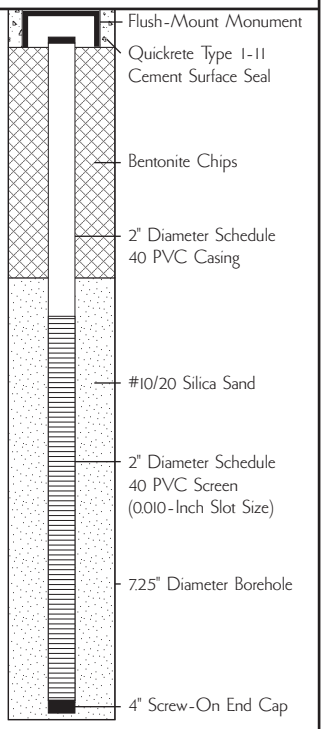
**Tarr, LLC Vancouver Cardlock**
**7208 NE St. Johns Road**
**Vancouver, Washington**

Boring Number: **MW-4**

Project Number: **1821-00**
Logged By: M. Whitson
Date: June 7, 2012
Site Conditions: --
Drilling Contractor: Cascade Drilling
Drilling Equipment: --
Sampler Type: --
Depth to Water (ATD): Not Measured
Surface Elevation: --

| Depth, feet | Core Interval/Recovery | Laboratory Sample ID | PID | Sheen | Lithologic Description |
|---|---|---|---|---|---|
| 0 | | | | | Exploration lithology not logged. |
| 20 | | | | | Bottom of Boring at 18.5' BGS. |

Well Construction Details and Notes:



Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

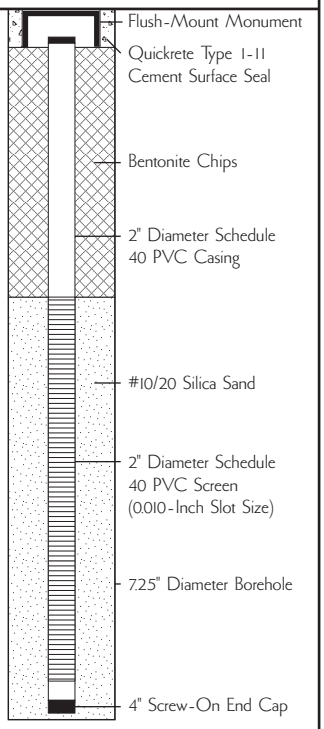
**Tarr, LLC Vancouver Cardlock**
**7208 NE St. Johns Road**
**Vancouver, Washington**

Boring Number: **MW-5**

Project Number: **1821-00**
Logged By: M. Whitson
Date: June 7, 2012
Site Conditions: --
Drilling Contractor: Cascade Drilling
Drilling Equipment: --
Sampler Type: --
Depth to Water (ATD): Not Measured
Surface Elevation: --

| Depth, feet | Core Interval/Recovery | Laboratory Sample ID | PID | Sheen | Lithologic Description |
|---|---|---|---|---|---|
| | | | | | Exploration lithology not logged. |
| | | | | | Bottom of Boring at 18.5' BGS. |

Well Construction Details and Notes:



Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

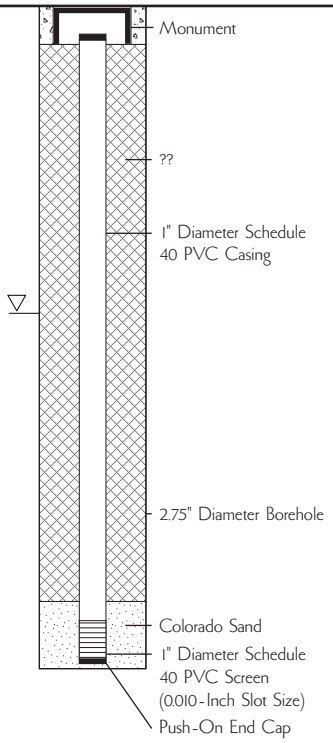
**Tarr, LLC Vancouver Cardlock**
**7208 NE St. Johns Road**
**Vancouver, Washington**

Boring Number: **AS-1**

Project Number: **1821-00**
Logged By: C. Owens
Date: May 11, 2012
Site Conditions: --
Drilling Contractor: Cascade Drilling
Drilling Equipment: --
Sampler Type: --
Depth to Water (ATD): 8'
Surface Elevation: --

| Depth, feet | Core Interval/Recovery | Laboratory Sample ID | PID | Sheen | Lithologic Description |
|---|---|---|---|---|---|
| | | | | | Cleared by vac truck. |
| 5 | | | <5 | NS | Silty SAND; brown, moist, dense, (70% sand, 30% silt). |
| | | | 175 | NS | Becomes gray. |
| 10 | | | 324 | SS | |
| | | | 512 | SS | |
| 15 | | | 244 | NS | |
| | | | <5 | NS | |
| | | | | | Bottom of Boring at 17.25' BGS. |
| 20 | | | | | |
| 25 | | | | | |
| 30 | | | | | |
| 35 | | | | | |

Well Construction Details and Notes:



Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

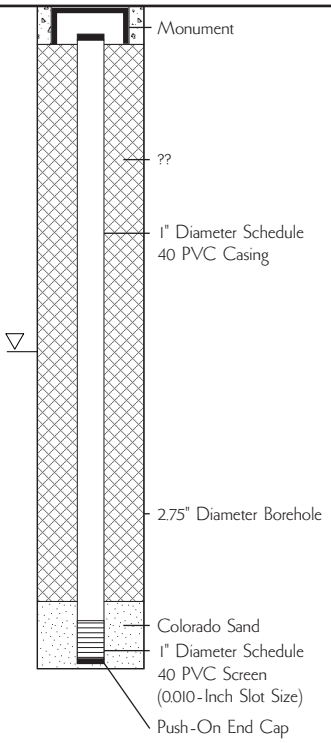
**Tarr, LLC Vancouver Cardlock**
**7208 NE St. Johns Road**
**Vancouver, Washington**

Boring Number: **AS-2**

Project Number: **1821-00**
Logged By: C. Owens
Date: May 11, 2012
Site Conditions: --
Drilling Contractor: Cascade Drilling
Drilling Equipment: --
Sampler Type: --
Depth to Water (ATD): 9'
Surface Elevation: --

| Depth, feet | Core Interval/Recovery | Laboratory Sample ID | PID | Sheen | Lithologic Description |
|---|---|---|---|---|---|
| | | | | | Cleared by vac truck. |
| 5 | | | | | |
| | | | 41 | NS | Silty SAND; gray, moist, dense, (70% sand, 30% silt). |
| 10 | | | | | Thin, black lens. |
| | | | <5 | NS | |
| | | | 938 | MS | |
| 15 | | | 725 | MS | |
| | | | 23 | NS | |
| | | | | | Bottom of Boring at 17.25' BGS. |
| 20 | | | | | |
| 25 | | | | | |
| 30 | | | | | |
| 35 | | | | | |

Well Construction Details and Notes:



Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

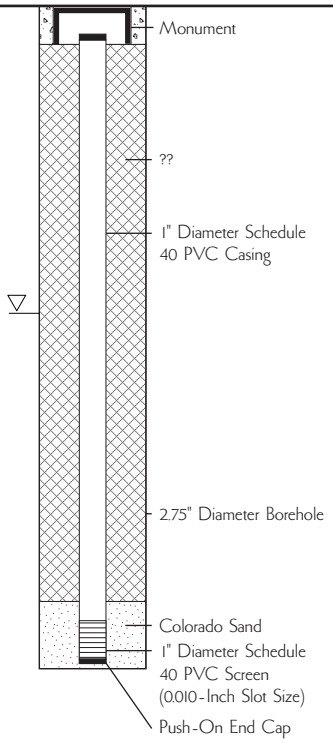
**Tarr, LLC Vancouver Cardlock**
**7208 NE St. Johns Road**
**Vancouver, Washington**

Boring Number: **AS-3**

Project Number: **1821-00**
Logged By: C. Owens
Date: May 11, 2012
Site Conditions: --
Drilling Contractor: Cascade Drilling
Drilling Equipment: --
Sampler Type: --
Depth to Water (ATD): 8'
Surface Elevation: --

| Depth, feet | Core Interval/Recovery | Laboratory Sample ID | PID | Sheen | Lithologic Description |
|---|---|---|---|---|---|
| | | | | | Cleared by vac truck. |
| 5 | | | <5 | NS | Silty SAND; brown, moist, (70% sand, 30% silt). |
| | | | | | — Becomes gray. |
| 10 | | | <5 | NS | |
| | | | 5 | NS | |
| 15 | | | 8 | NS | |
| | | | | | Bottom of Boring at 17.25' BGS. |
| 20 | | | | | |
| 25 | | | | | |
| 30 | | | | | |
| 35 | | | | | |

Well Construction Details and Notes:



Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

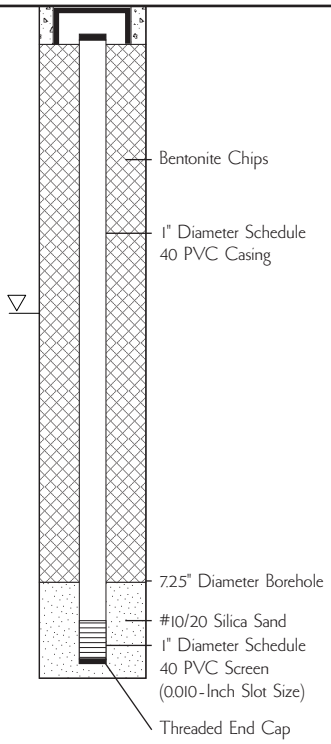
**Tarr, LLC Vancouver Cardlock**
**7208 NE St. Johns Road**
**Vancouver, Washington**

Boring Number: **AS-4**

Project Number: **1821-00**
Logged By: M. Whitson
Date: June 7, 2012
Site Conditions: --
Drilling Contractor: Cascade Drilling
Drilling Equipment: --
Sampler Type: --
Depth to Water (ATD): Not Measured
Surface Elevation: --

| Depth, feet | Core Interval/Recovery | Laboratory Sample ID | PID | Sheen | Lithologic Description |
|---|---|---|---|---|---|
| 0 | | | | | Exploration lithology not logged. |
| 17.5 | | | | | Bottom of Boring at 17.5' BGS. |

Well Construction Details and Notes:



Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

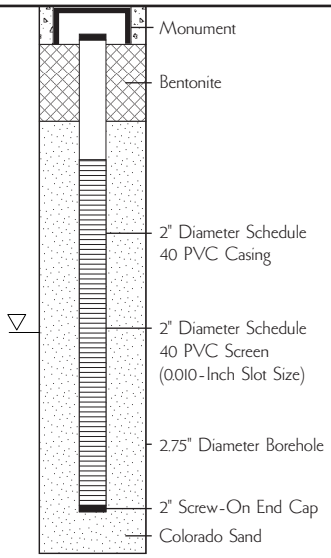
**Tarr, LLC Vancouver Cardlock**
**7208 NE St. Johns Road**
**Vancouver, Washington**

Boring Number: **VE-1**

Project Number: **1821-00**
Logged By: C. Owens
Date: May 11, 2012
Site Conditions: --
Drilling Contractor: Cascade Drilling
Drilling Equipment: --
Sampler Type: --
Depth to Water (ATD): 8.5'
Surface Elevation: --

| Depth, feet | Core Interval/Recovery | Laboratory Sample ID | PID | Sheen | Lithologic Description |
|---|---|---|---|---|---|
| | | | | | Cleared by vac truck. |
| 5 | | | <5 | NS | Silty SAND; gray, dense, (70% sand, 30% silt). |
| | | | <5 | NS | |
| 10 | | | 13 | NS | |
| | | | <5 | NS | |
| 15 | | | | | Bottom of Boring at 14.0' BGS. |
| 20 | | | | | |
| 25 | | | | | |
| 30 | | | | | |
| 35 | | | | | |

Well Construction Details and Notes:



Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

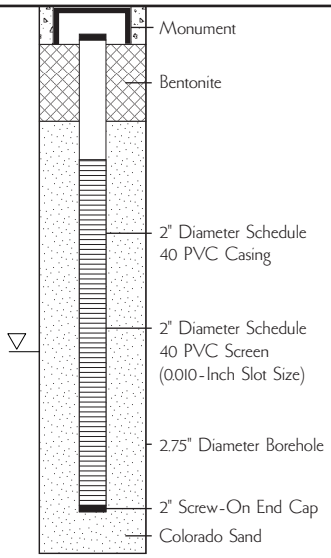
**Tarr, LLC Vancouver Cardlock**
**7208 NE St. Johns Road**
**Vancouver, Washington**

Boring Number: **VE-2**

Project Number: **1821-00**
Logged By: C. Owens
Date: May 11, 2012
Site Conditions: --
Drilling Contractor: Cascade Drilling
Drilling Equipment: --
Sampler Type: --
Depth to Water (ATD): 9'
Surface Elevation: --

| Depth, feet | Core Interval/Recovery | Laboratory Sample ID | PID | Sheen | Lithologic Description |
|---|---|---|---|---|---|
| | | | | | Cleared by vac truck. |
| 5 | | | <5 | NS | Sandy SILT; brown, moist, dense, (60% silt, 40% sand). |
| | | | | | Becomes gray. |
| 10 | | | <5 | NS | Silty SAND; gray, wet, dense, (60% sand, 40% silt). |
| 15 | | | | | Bottom of Boring at 14.0' BGS. |
| 20 | | | | | |
| 25 | | | | | |
| 30 | | | | | |
| 35 | | | | | |

Well Construction Details and Notes:



Ash Creek Associates
A Division of Apex Companies, LLC
APEX

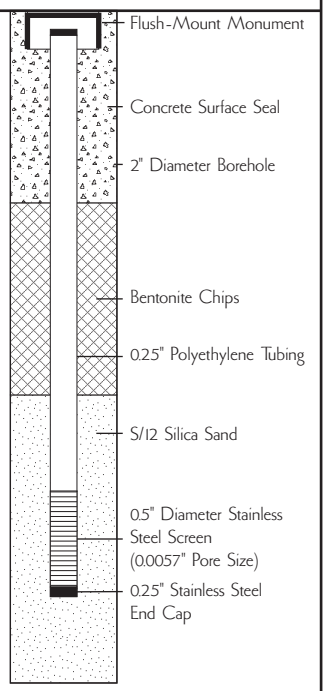
Tarr, LLC Vancouver Cardlock - 7208 NE St. Johns Road
Vancouver, Washington

Boring Number: **VP-1**

Project Number: **1821-00**
Logged By: C. Owens
Date: May 11, 2012
Site Conditions: --
Drilling Contractor: Cascade Drilling
Drilling Equipment: --
Sampler Type: --
Depth to Water (ATD): --
Surface Elevation: --

| Depth, feet | Core Interval/Recovery | Laboratory Sample ID | PID | Sheen | Lithologic Description |
|---|---|---|---|---|---|
| 0 | | | | | Cleared by vactruck. |
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 3.5 | | | | | Bottom of Boring at 3.5' BGS. |
| 4 | | | | | |

Boring Details and Notes:



# *Appendix C*

## Disposal Records

2 of 4

WASTE MANAGEMENT

Hillsboro Landfill, Inc
3205 SE Minter Bridge
Hillsboro, OR, 97123
Ph: (503)-640-9407

Original
Ticket# 1289523

Customer Name TERRAHYDRINC TERRA HYDR INC
Ticket Date 05/25/2012
Payment Type Credit Account
Manual Ticket#
Hauling Ticket#
Route
State Waste Code
Manifest
Destination
PO 1021-0K
Profile 105736WA (SOIL CUTTINGS)
Generator C TERRA TLC TANK LLC

Carrier WEST COAST MARINE WEST COAST MARINE
Vehicle# 130 Volvo
Container
Driver Roberto
Check#
Billing # 05082102
Gen EPA ID N/A

Grid

2784-02

| | Date | Scale | Operator | Inbound | Gross | [illegible] |
|---|---|---|---|---|---|---|
| In | 05/25/2012 [illegible] | Inbound | [illegible] | | Tare | [illegible] |
| Out | 05/25/2012 08:58:30 | Outbound | [illegible] | | Net | [illegible] |
| | | | | | Tons | [illegible] |

Comment:

Customer Comment: We want to know. Please call.

| | Product | LDR | Qty | UOM | Rate | Tax | Amount | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | Special Misc-Tons- 100 | | 13.72 | Tons | 27.40 | | 1462.17 | CLAUS |
| 2 | 13% FEP 13% FEP TE 100 | | | % | 12.30 | | 168.69 | CLAUS |

Total Tax
Total Ticket [illegible]

Driver's Signature

WM2009

3 of 4

WASTE MANAGEMENT

Hillsboro Landfill, Inc
3800 SE Minter Bridge
Hillsboro, OR 97123
Ph: (503)-648-9427

Original
Ticket# 1869[illegible]

Customer Name [illegible]
Ticket Date 05/20/2016
Payment Type Credit Account
Manual Ticket#
Haulion Ticket#
Route
Scale [illegible]
Manifest
Destination
PO 1121-OC
Profile 1267368A (SPLIT CUTTINGS)
Generator [illegible]

Carrier WEST COAST MARINE WEST COAST MARINE
Vehicle# 130 Volume
Container
Driver Robert
Check#
Billing # 3662187
Gate Key ID /0
Grid

2784-02

| | Time | Scale | Operator | Inbound | Gross | 20360 lb |
|---|---|---|---|---|---|---|
| In | 05/20/2016 11:41:15 | Inbound @ | rjl | | Tare | 17230 lb |
| Out | 05/20/2016 13:05:56 | Outbound | jdl | | Net | 3130 lb |
| | | | | | Tons | 1.57 |

Percent:

Customer Comment ? Want to know. Please call.

| | Product | Loss | Qty | UOM | Rate | Tax | Amount | Origin |
|---|---|---|---|---|---|---|---|---|
| 1 | Special Handling 1% | | 3.00 | Ton | 29.40 | | $75.30 | CLARK |
| 2 | [illegible] 15% FEE FE | 100 | | % | 13.00 | | $74.53 | CLARK |

Total Tax
Total Ticket $647.07

Driver's Signature

403WM

4 of 4

✓

WASTE MANAGEMENT

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

Original
Ticket# 1291808

Customer Name TERRAHYDRINC TERRA HYDR INC
Ticket Date 06/27/2012
Payment Type Credit Account
Manual Ticket#
Hauling Ticket#
Comb:
State Waste Cod
Manifest
Destination
PO ~~4824-07~~ 2784
Profile 105736PA (SOIL CUTTINGS)
Generator OR-TARR LLC TARR LLC

Carrier WEST COAST MARINE WEST COAST MARINE
Vehicle# 129 Volume
Container
Driver dave
Check#
Billing # 0002107
Fin EPA ID N/C
Grid

| | Time | Scale | Operator | Inbound | | |
|---|---|---|---|---|---|---|
| In | 06/27/2012 12:21:19 | Inbound 2 | jub | | Gross | 76560 lb |
| Out | 06/27/2012 12:45:38 | Outbound | key | | Tare | 37940 lb |
| | | | | | Net | 38620 lb |
| | | | | | Tons | 19.32 |

Comments

Customer Comments? We want to know. Please call.

| | Product | LDF | Qty | UOM | Rate | Tax | Amount | Origin |
|---|---|---|---|---|---|---|---|---|
| 1 | Special Misc-Tons | 107 | 19.32 | Tons | 29.40 | | 567.41 | CLARK |
| 2 | 13% FEA-13% FEA FE | 160 | | % | 13.00 | | 77.66 | CLARK |

Total Tax
Total Ticket 1673.07

Driver's Signature

403WM

# *Appendix D*

## Laboratory Reports

eurofins | Air Toxics

8/21/2012
Mr. John Foxwell
Ash Creek Associates
3015 SW 1st Avenue

Portland OR 97201

Project Name: Tarr Vancouver
Project #: 1821-00
Workorder #: 1208030

Dear Mr. John Foxwell

The following report includes the data for the above referenced project for sample(s) received on 8/2/2012 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

eurofins | Air Toxics

# WORK ORDER #: 1208030

Work Order Summary

| | | | |
|---|---|---|---|
| **CLIENT:** | Mr. John Foxwell<br>Ash Creek Associates<br>3015 SW 1st Avenue<br>Portland, OR 97201 | **BILL TO:** | Mr. John Foxwell<br>Ash Creek Associates<br>3015 SW 1st Avenue<br>Portland, OR 97201 |
| **PHONE:** | 503-924-4704 | **P.O. #** | |
| **FAX:** | 503-924-4707 | **PROJECT #** | 1821-00 Tarr Vancouver |
| **DATE RECEIVED:** | 08/02/2012 | **CONTACT:** | Kelly Buettner |
| **DATE COMPLETED:** | 08/21/2012 | | |

| FRACTION # | NAME | TEST | RECEIPT VAC./PRES. | FINAL PRESSURE |
|---|---|---|---|---|
| 01A | EFFLUENT_073112 | Modified TO-15 | 4.6 "Hg | 5 psi |
| 02A | Lab Blank | Modified TO-15 | NA | NA |
| 03A | CCV | Modified TO-15 | NA | NA |
| 04A | LCS | Modified TO-15 | NA | NA |
| 04AA | LCSD | Modified TO-15 | NA | NA |

CERTIFIED BY: _____ DATE: 08/21/12

Technical Director

Certfication numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NY NELAP - 11291,
TX NELAP - T104704434-12-5, UT NELAP CA009332012-3, WA NELAP - C935
Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2011, Expiration date: 10/17/2012.
Eurofins Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards



180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**LABORATORY NARRATIVE**
**EPA Method TO-15 Soil Gas**
**Ash Creek Associates**
**Workorder# 1208030**

One 6 Liter Summa Canister (100% Certified) sample was received on August 02, 2012. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode. The method involves concentrating up to 50 mLs of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

## Receiving Notes

There were no receiving discrepancies.

## Analytical Notes

All Quality Control Limit exceedances and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page.

Sample EFFLUENT_073112 was transferred from SIM/Low Level analysis to full scan TO-15 due to high levels of target/non-target compounds.

A single point calibration for TPH referenced to Gasoline was performed for each daily analytical batch. Recovery is reported as 100% in the associated results for each CCV.

The Relative Percent Difference (RPD) of the LCS/LCSD exceeded acceptance limits for 1,2,4-Trichlorobenzene.

## Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the reporting limit.
UJ- Non-detected compound associated with low bias in the CCV and/or LCS.
N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

eurofins | Air Toxics

# Summary of Detected Compounds
# EPA METHOD TO-15 GC/MS

**Client Sample ID: EFFLUENT_073112**

**Lab ID#: 1208030-01A**

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| Hexane | 66 | 5900 | 230 | 21000 |
| Cyclohexane | 66 | 4000 | 230 | 14000 |
| 2,2,4-Trimethylpentane | 66 | 3500 | 310 | 16000 |
| Benzene | 66 | 2400 | 210 | 7700 |
| Heptane | 66 | 4200 | 270 | 17000 |
| Toluene | 66 | 11000 | 250 | 40000 |
| Ethyl Benzene | 66 | 3300 | 290 | 14000 |
| m,p-Xylene | 66 | 24000 | 290 | 100000 |
| o-Xylene | 66 | 6900 | 290 | 30000 |
| Cumene | 66 | 210 | 320 | 1000 |
| Propylbenzene | 66 | 500 | 320 | 2400 |
| 4-Ethyltoluene | 66 | 7000 | 320 | 34000 |
| 1,3,5-Trimethylbenzene | 66 | 3300 | 320 | 16000 |
| 1,2,4-Trimethylbenzene | 66 | 7400 | 320 | 36000 |
| TPH ref. to Gasoline (MW=100) | 1300 | 700000 | 5400 | 2900000 |

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**Client Sample ID: EFFLUENT_073112**

**Lab ID#: 1208030-01A**

**EPA METHOD TO-15 GC/MS**

| | | | |
|---|---|---|---|
| **File Name:** | **14082025** | **Date of Collection:** | **7/31/12 7:29:00 PM** |
| **Dil. Factor:** | **13.2** | **Date of Analysis:** | **8/20/12 09:48 PM** |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| Freon 12 | 66 | Not Detected | 330 | Not Detected |
| Freon 114 | 66 | Not Detected | 460 | Not Detected |
| Chloromethane | 260 | Not Detected | 540 | Not Detected |
| Vinyl Chloride | 66 | Not Detected | 170 | Not Detected |
| 1,3-Butadiene | 66 | Not Detected | 150 | Not Detected |
| Bromomethane | 66 | Not Detected | 260 | Not Detected |
| Chloroethane | 260 | Not Detected | 700 | Not Detected |
| Freon 11 | 66 | Not Detected | 370 | Not Detected |
| Ethanol | 260 | Not Detected | 500 | Not Detected |
| Freon 113 | 66 | Not Detected | 500 | Not Detected |
| 1,1-Dichloroethene | 66 | Not Detected | 260 | Not Detected |
| Acetone | 260 | Not Detected | 630 | Not Detected |
| 2-Propanol | 260 | Not Detected | 650 | Not Detected |
| Carbon Disulfide | 66 | Not Detected | 200 | Not Detected |
| 3-Chloropropene | 260 | Not Detected | 830 | Not Detected |
| Methylene Chloride | 66 | Not Detected | 230 | Not Detected |
| Methyl tert-butyl ether | 66 | Not Detected | 240 | Not Detected |
| trans-1,2-Dichloroethene | 66 | Not Detected | 260 | Not Detected |
| Hexane | 66 | 5900 | 230 | 21000 |
| 1,1-Dichloroethane | 66 | Not Detected | 270 | Not Detected |
| 2-Butanone (Methyl Ethyl Ketone) | 260 | Not Detected | 780 | Not Detected |
| cis-1,2-Dichloroethene | 66 | Not Detected | 260 | Not Detected |
| Tetrahydrofuran | 66 | Not Detected | 190 | Not Detected |
| Chloroform | 66 | Not Detected | 320 | Not Detected |
| 1,1,1-Trichloroethane | 66 | Not Detected | 360 | Not Detected |
| Cyclohexane | 66 | 4000 | 230 | 14000 |
| Carbon Tetrachloride | 66 | Not Detected | 420 | Not Detected |
| 2,2,4-Trimethylpentane | 66 | 3500 | 310 | 16000 |
| Benzene | 66 | 2400 | 210 | 7700 |
| 1,2-Dichloroethane | 66 | Not Detected | 270 | Not Detected |
| Heptane | 66 | 4200 | 270 | 17000 |
| Trichloroethene | 66 | Not Detected | 350 | Not Detected |
| 1,2-Dichloropropane | 66 | Not Detected | 300 | Not Detected |
| 1,4-Dioxane | 260 | Not Detected | 950 | Not Detected |
| Bromodichloromethane | 66 | Not Detected | 440 | Not Detected |
| cis-1,3-Dichloropropene | 66 | Not Detected | 300 | Not Detected |
| 4-Methyl-2-pentanone | 66 | Not Detected | 270 | Not Detected |
| Toluene | 66 | 11000 | 250 | 40000 |
| trans-1,3-Dichloropropene | 66 | Not Detected | 300 | Not Detected |
| 1,1,2-Trichloroethane | 66 | Not Detected | 360 | Not Detected |
| Tetrachloroethene | 66 | Not Detected | 450 | Not Detected |
| 2-Hexanone | 260 | Not Detected | 1100 | Not Detected |

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**Client Sample ID: EFFLUENT_073112**

**Lab ID#: 1208030-01A**

**EPA METHOD TO-15 GC/MS**

| | | | |
|---|---|---|---|
| **File Name:** | **14082025** | **Date of Collection:** | **7/31/12 7:29:00 PM** |
| **Dil. Factor:** | **13.2** | **Date of Analysis:** | **8/20/12 09:48 PM** |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| Dibromochloromethane | 66 | Not Detected | 560 | Not Detected |
| 1,2-Dibromoethane (EDB) | 66 | Not Detected | 510 | Not Detected |
| Chlorobenzene | 66 | Not Detected | 300 | Not Detected |
| Ethyl Benzene | 66 | 3300 | 290 | 14000 |
| m,p-Xylene | 66 | 24000 | 290 | 100000 |
| o-Xylene | 66 | 6900 | 290 | 30000 |
| Styrene | 66 | Not Detected | 280 | Not Detected |
| Bromoform | 66 | Not Detected | 680 | Not Detected |
| Cumene | 66 | 210 | 320 | 1000 |
| 1,1,2,2-Tetrachloroethane | 66 | Not Detected | 450 | Not Detected |
| Propylbenzene | 66 | 500 | 320 | 2400 |
| 4-Ethyltoluene | 66 | 7000 | 320 | 34000 |
| 1,3,5-Trimethylbenzene | 66 | 3300 | 320 | 16000 |
| 1,2,4-Trimethylbenzene | 66 | 7400 | 320 | 36000 |
| 1,3-Dichlorobenzene | 66 | Not Detected | 400 | Not Detected |
| 1,4-Dichlorobenzene | 66 | Not Detected | 400 | Not Detected |
| alpha-Chlorotoluene | 66 | Not Detected | 340 | Not Detected |
| 1,2-Dichlorobenzene | 66 | Not Detected | 400 | Not Detected |
| 1,2,4-Trichlorobenzene | 260 | Not Detected | 2000 | Not Detected |
| Hexachlorobutadiene | 260 | Not Detected | 2800 | Not Detected |
| TPH ref. to Gasoline (MW=100) | 1300 | 700000 | 5400 | 2900000 |

**Container Type: 6 Liter Summa Canister (100% Certified)**

| Surrogates | %Recovery | Method Limits |
|---|---|---|
| 1,2-Dichloroethane-d4 | 112 | 70-130 |
| Toluene-d8 | 106 | 70-130 |
| 4-Bromofluorobenzene | 96 | 70-130 |

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**Client Sample ID: Lab Blank**

**Lab ID#: 1208030-02A**

**EPA METHOD TO-15 GC/MS**

| | | | |
|---|---|---|---|
| **File Name:** | **14082006** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 8/20/12 12:52 PM** | |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| Freon 12 | 5.0 | Not Detected | 25 | Not Detected |
| Freon 114 | 5.0 | Not Detected | 35 | Not Detected |
| Chloromethane | 20 | Not Detected | 41 | Not Detected |
| Vinyl Chloride | 5.0 | Not Detected | 13 | Not Detected |
| 1,3-Butadiene | 5.0 | Not Detected | 11 | Not Detected |
| Bromomethane | 5.0 | Not Detected | 19 | Not Detected |
| Chloroethane | 20 | Not Detected | 53 | Not Detected |
| Freon 11 | 5.0 | Not Detected | 28 | Not Detected |
| Ethanol | 20 | Not Detected | 38 | Not Detected |
| Freon 113 | 5.0 | Not Detected | 38 | Not Detected |
| 1,1-Dichloroethene | 5.0 | Not Detected | 20 | Not Detected |
| Acetone | 20 | Not Detected | 48 | Not Detected |
| 2-Propanol | 20 | Not Detected | 49 | Not Detected |
| Carbon Disulfide | 5.0 | Not Detected | 16 | Not Detected |
| 3-Chloropropene | 20 | Not Detected | 63 | Not Detected |
| Methylene Chloride | 5.0 | Not Detected | 17 | Not Detected |
| Methyl tert-butyl ether | 5.0 | Not Detected | 18 | Not Detected |
| trans-1,2-Dichloroethene | 5.0 | Not Detected | 20 | Not Detected |
| Hexane | 5.0 | Not Detected | 18 | Not Detected |
| 1,1-Dichloroethane | 5.0 | Not Detected | 20 | Not Detected |
| 2-Butanone (Methyl Ethyl Ketone) | 20 | Not Detected | 59 | Not Detected |
| cis-1,2-Dichloroethene | 5.0 | Not Detected | 20 | Not Detected |
| Tetrahydrofuran | 5.0 | Not Detected | 15 | Not Detected |
| Chloroform | 5.0 | Not Detected | 24 | Not Detected |
| 1,1,1-Trichloroethane | 5.0 | Not Detected | 27 | Not Detected |
| Cyclohexane | 5.0 | Not Detected | 17 | Not Detected |
| Carbon Tetrachloride | 5.0 | Not Detected | 31 | Not Detected |
| 2,2,4-Trimethylpentane | 5.0 | Not Detected | 23 | Not Detected |
| Benzene | 5.0 | Not Detected | 16 | Not Detected |
| 1,2-Dichloroethane | 5.0 | Not Detected | 20 | Not Detected |
| Heptane | 5.0 | Not Detected | 20 | Not Detected |
| Trichloroethene | 5.0 | Not Detected | 27 | Not Detected |
| 1,2-Dichloropropane | 5.0 | Not Detected | 23 | Not Detected |
| 1,4-Dioxane | 20 | Not Detected | 72 | Not Detected |
| Bromodichloromethane | 5.0 | Not Detected | 34 | Not Detected |
| cis-1,3-Dichloropropene | 5.0 | Not Detected | 23 | Not Detected |
| 4-Methyl-2-pentanone | 5.0 | Not Detected | 20 | Not Detected |
| Toluene | 5.0 | Not Detected | 19 | Not Detected |
| trans-1,3-Dichloropropene | 5.0 | Not Detected | 23 | Not Detected |
| 1,1,2-Trichloroethane | 5.0 | Not Detected | 27 | Not Detected |
| Tetrachloroethene | 5.0 | Not Detected | 34 | Not Detected |
| 2-Hexanone | 20 | Not Detected | 82 | Not Detected |

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**Client Sample ID: Lab Blank**

**Lab ID#: 1208030-02A**

**EPA METHOD TO-15 GC/MS**

| | | | |
|---|---|---|---|
| **File Name:** | **14082006** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 8/20/12 12:52 PM** | |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| Dibromochloromethane | 5.0 | Not Detected | 42 | Not Detected |
| 1,2-Dibromoethane (EDB) | 5.0 | Not Detected | 38 | Not Detected |
| Chlorobenzene | 5.0 | Not Detected | 23 | Not Detected |
| Ethyl Benzene | 5.0 | Not Detected | 22 | Not Detected |
| m,p-Xylene | 5.0 | Not Detected | 22 | Not Detected |
| o-Xylene | 5.0 | Not Detected | 22 | Not Detected |
| Styrene | 5.0 | Not Detected | 21 | Not Detected |
| Bromoform | 5.0 | Not Detected | 52 | Not Detected |
| Cumene | 5.0 | Not Detected | 24 | Not Detected |
| 1,1,2,2-Tetrachloroethane | 5.0 | Not Detected | 34 | Not Detected |
| Propylbenzene | 5.0 | Not Detected | 24 | Not Detected |
| 4-Ethyltoluene | 5.0 | Not Detected | 24 | Not Detected |
| 1,3,5-Trimethylbenzene | 5.0 | Not Detected | 24 | Not Detected |
| 1,2,4-Trimethylbenzene | 5.0 | Not Detected | 24 | Not Detected |
| 1,3-Dichlorobenzene | 5.0 | Not Detected | 30 | Not Detected |
| 1,4-Dichlorobenzene | 5.0 | Not Detected | 30 | Not Detected |
| alpha-Chlorotoluene | 5.0 | Not Detected | 26 | Not Detected |
| 1,2-Dichlorobenzene | 5.0 | Not Detected | 30 | Not Detected |
| 1,2,4-Trichlorobenzene | 20 | Not Detected | 150 | Not Detected |
| Hexachlorobutadiene | 20 | Not Detected | 210 | Not Detected |
| TPH ref. to Gasoline (MW=100) | 100 | Not Detected | 410 | Not Detected |

**Container Type: NA - Not Applicable**

| Surrogates | %Recovery | Method Limits |
|---|---|---|
| 1,2-Dichloroethane-d4 | 112 | 70-130 |
| Toluene-d8 | 103 | 70-130 |
| 4-Bromofluorobenzene | 95 | 70-130 |

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**Client Sample ID: CCV**

**Lab ID#: 1208030-03A**

**EPA METHOD TO-15 GC/MS**

| | | | |
|---|---|---|---|
| **File Name:** | **14082002** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 8/20/12 09:34 AM** | |

| Compound | %Recovery |
|---|---|
| Freon 12 | 103 |
| Freon 114 | 99 |
| Chloromethane | 113 |
| Vinyl Chloride | 105 |
| 1,3-Butadiene | 109 |
| Bromomethane | 104 |
| Chloroethane | 102 |
| Freon 11 | 105 |
| Ethanol | 129 |
| Freon 113 | 95 |
| 1,1-Dichloroethene | 102 |
| Acetone | 110 |
| 2-Propanol | 116 |
| Carbon Disulfide | 92 |
| 3-Chloropropene | 87 |
| Methylene Chloride | 109 |
| Methyl tert-butyl ether | 95 |
| trans-1,2-Dichloroethene | 93 |
| Hexane | 107 |
| 1,1-Dichloroethane | 99 |
| 2-Butanone (Methyl Ethyl Ketone) | 95 |
| cis-1,2-Dichloroethene | 103 |
| Tetrahydrofuran | 114 |
| Chloroform | 96 |
| 1,1,1-Trichloroethane | 97 |
| Cyclohexane | 94 |
| Carbon Tetrachloride | 100 |
| 2,2,4-Trimethylpentane | 107 |
| Benzene | 100 |
| 1,2-Dichloroethane | 104 |
| Heptane | 98 |
| Trichloroethene | 98 |
| 1,2-Dichloropropane | 104 |
| 1,4-Dioxane | 94 |
| Bromodichloromethane | 100 |
| cis-1,3-Dichloropropene | 97 |
| 4-Methyl-2-pentanone | 96 |
| Toluene | 96 |
| trans-1,3-Dichloropropene | 95 |
| 1,1,2-Trichloroethane | 94 |
| Tetrachloroethene | 94 |
| 2-Hexanone | 96 |

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**Client Sample ID: CCV**

**Lab ID#: 1208030-03A**

**EPA METHOD TO-15 GC/MS**

| | | | |
|---|---|---|---|
| **File Name:** | **14082002** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 8/20/12 09:34 AM** | |

| Compound | %Recovery |
|---|---|
| Dibromochloromethane | 98 |
| 1,2-Dibromoethane (EDB) | 92 |
| Chlorobenzene | 90 |
| Ethyl Benzene | 90 |
| m,p-Xylene | 90 |
| o-Xylene | 90 |
| Styrene | 88 |
| Bromoform | 104 |
| Cumene | 95 |
| 1,1,2,2-Tetrachloroethane | 100 |
| Propylbenzene | 101 |
| 4-Ethyltoluene | 91 |
| 1,3,5-Trimethylbenzene | 109 |
| 1,2,4-Trimethylbenzene | 97 |
| 1,3-Dichlorobenzene | 100 |
| 1,4-Dichlorobenzene | 89 |
| alpha-Chlorotoluene | 123 |
| 1,2-Dichlorobenzene | 91 |
| 1,2,4-Trichlorobenzene | 108 |
| Hexachlorobutadiene | 117 |
| TPH ref. to Gasoline (MW=100) | 100 |

**Container Type: NA - Not Applicable**

| Surrogates | %Recovery | Method Limits |
|---|---|---|
| 1,2-Dichloroethane-d4 | 109 | 70-130 |
| Toluene-d8 | 104 | 70-130 |
| 4-Bromofluorobenzene | 98 | 70-130 |

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**Client Sample ID: LCS**

**Lab ID#: 1208030-04A**

**EPA METHOD TO-15 GC/MS**

| | | | |
|---|---|---|---|
| **File Name:** | **14082003** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 8/20/12 09:53 AM** | |

| Compound | %Recovery |
|---|---|
| Freon 12 | 121 |
| Freon 114 | 114 |
| Chloromethane | 131 Q |
| Vinyl Chloride | 116 |
| 1,3-Butadiene | 123 |
| Bromomethane | 98 |
| Chloroethane | 99 |
| Freon 11 | 118 |
| Ethanol | 144 Q |
| Freon 113 | 110 |
| 1,1-Dichloroethene | 130 |
| Acetone | 118 |
| 2-Propanol | 136 Q |
| Carbon Disulfide | 129 |
| 3-Chloropropene | 117 |
| Methylene Chloride | 122 |
| Methyl tert-butyl ether | 110 |
| trans-1,2-Dichloroethene | 122 |
| Hexane | 119 |
| 1,1-Dichloroethane | 114 |
| 2-Butanone (Methyl Ethyl Ketone) | 109 |
| cis-1,2-Dichloroethene | 115 |
| Tetrahydrofuran | 125 |
| Chloroform | 110 |
| 1,1,1-Trichloroethane | 109 |
| Cyclohexane | 107 |
| Carbon Tetrachloride | 114 |
| 2,2,4-Trimethylpentane | 118 |
| Benzene | 112 |
| 1,2-Dichloroethane | 114 |
| Heptane | 107 |
| Trichloroethene | 110 |
| 1,2-Dichloropropane | 118 |
| 1,4-Dioxane | 107 |
| Bromodichloromethane | 114 |
| cis-1,3-Dichloropropene | 110 |
| 4-Methyl-2-pentanone | 107 |
| Toluene | 108 |
| trans-1,3-Dichloropropene | 106 |
| 1,1,2-Trichloroethane | 104 |
| Tetrachloroethene | 103 |
| 2-Hexanone | 108 |

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**Client Sample ID: LCS**

**Lab ID#: 1208030-04A**

**EPA METHOD TO-15 GC/MS**

| | | | |
|---|---|---|---|
| **File Name:** | **14082003** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 8/20/12 09:53 AM** | |

| Compound | %Recovery |
|---|---|
| Dibromochloromethane | 107 |
| 1,2-Dibromoethane (EDB) | 103 |
| Chlorobenzene | 100 |
| Ethyl Benzene | 98 |
| m,p-Xylene | 101 |
| o-Xylene | 100 |
| Styrene | 102 |
| Bromoform | 112 |
| Cumene | 106 |
| 1,1,2,2-Tetrachloroethane | 111 |
| Propylbenzene | 113 |
| 4-Ethyltoluene | 96 |
| 1,3,5-Trimethylbenzene | 118 |
| 1,2,4-Trimethylbenzene | 103 |
| 1,3-Dichlorobenzene | 107 |
| 1,4-Dichlorobenzene | 98 |
| alpha-Chlorotoluene | 130 |
| 1,2-Dichlorobenzene | 99 |
| 1,2,4-Trichlorobenzene | 113 |
| Hexachlorobutadiene | 106 |
| TPH ref. to Gasoline (MW=100) | Not Spiked |

Q = Exceeds Quality Control limits.

**Container Type: NA - Not Applicable**

| Surrogates | %Recovery | Method Limits |
|---|---|---|
| 1,2-Dichloroethane-d4 | 108 | 70-130 |
| Toluene-d8 | 105 | 70-130 |
| 4-Bromofluorobenzene | 97 | 70-130 |

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**Client Sample ID: LCSD**

**Lab ID#: 1208030-04AA**

**EPA METHOD TO-15 GC/MS**

| | | | |
|---|---|---|---|
| **File Name:** | **14082004** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 8/20/12 10:59 AM** | |

| Compound | %Recovery |
|---|---|
| Freon 12 | 111 |
| Freon 114 | 104 |
| Chloromethane | 122 |
| Vinyl Chloride | 112 |
| 1,3-Butadiene | 116 |
| Bromomethane | 90 |
| Chloroethane | 106 |
| Freon 11 | 110 |
| Ethanol | 130 |
| Freon 113 | 103 |
| 1,1-Dichloroethene | 119 |
| Acetone | 108 |
| 2-Propanol | 125 |
| Carbon Disulfide | 118 |
| 3-Chloropropene | 108 |
| Methylene Chloride | 110 |
| Methyl tert-butyl ether | 100 |
| trans-1,2-Dichloroethene | 111 |
| Hexane | 110 |
| 1,1-Dichloroethane | 105 |
| 2-Butanone (Methyl Ethyl Ketone) | 101 |
| cis-1,2-Dichloroethene | 106 |
| Tetrahydrofuran | 116 |
| Chloroform | 102 |
| 1,1,1-Trichloroethane | 100 |
| Cyclohexane | 97 |
| Carbon Tetrachloride | 103 |
| 2,2,4-Trimethylpentane | 109 |
| Benzene | 103 |
| 1,2-Dichloroethane | 107 |
| Heptane | 101 |
| Trichloroethene | 102 |
| 1,2-Dichloropropane | 109 |
| 1,4-Dioxane | 97 |
| Bromodichloromethane | 106 |
| cis-1,3-Dichloropropene | 101 |
| 4-Methyl-2-pentanone | 99 |
| Toluene | 99 |
| trans-1,3-Dichloropropene | 99 |
| 1,1,2-Trichloroethane | 98 |
| Tetrachloroethene | 97 |
| 2-Hexanone | 99 |

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**Client Sample ID: LCSD**
**Lab ID#: 1208030-04AA**
**EPA METHOD TO-15 GC/MS**

| | | | |
|---|---|---|---|
| **File Name:** | **14082004** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 8/20/12 10:59 AM** | |

| Compound | %Recovery |
|---|---|
| Dibromochloromethane | 98 |
| 1,2-Dibromoethane (EDB) | 96 |
| Chlorobenzene | 95 |
| Ethyl Benzene | 92 |
| m,p-Xylene | 94 |
| o-Xylene | 94 |
| Styrene | 95 |
| Bromoform | 106 |
| Cumene | 99 |
| 1,1,2,2-Tetrachloroethane | 105 |
| Propylbenzene | 102 |
| 4-Ethyltoluene | 86 |
| 1,3,5-Trimethylbenzene | 106 |
| 1,2,4-Trimethylbenzene | 90 |
| 1,3-Dichlorobenzene | 97 |
| 1,4-Dichlorobenzene | 88 |
| alpha-Chlorotoluene | 116 |
| 1,2-Dichlorobenzene | 89 |
| 1,2,4-Trichlorobenzene | 86 |
| Hexachlorobutadiene | 96 |
| TPH ref. to Gasoline (MW=100) | Not Spiked |

**Container Type: NA - Not Applicable**

| Surrogates | %Recovery | Method Limits |
|---|---|---|
| 1,2-Dichloroethane-d4 | 106 | 70-130 |
| Toluene-d8 | 104 | 70-130 |
| 4-Bromofluorobenzene | 98 | 70-130 |

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9/28/2012

Mr. John Foxwell
Ash Creek Associates
3015 SW 1st Avenue

Portland OR 97201

Project Name: Tarr Vancouver
Project #: 1821-00
Workorder #: 1209186

Dear Mr. John Foxwell

The following report includes the data for the above referenced project for sample(s) received on 9/12/2012 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

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# WORK ORDER #: 1209186

Work Order Summary

| | | | |
|---|---|---|---|
| **CLIENT:** | Mr. John Foxwell<br>Ash Creek Associates<br>3015 SW 1st Avenue<br>Portland, OR 97201 | **BILL TO:** | Mr. John Foxwell<br>Ash Creek Associates<br>3015 SW 1st Avenue<br>Portland, OR 97201 |
| **PHONE:** | 503-924-4704 | **P.O. #** | |
| **FAX:** | 503-924-4707 | **PROJECT #** | 1821-00 Tarr Vancouver |
| **DATE RECEIVED:** | 09/12/2012 | **CONTACT:** | Kelly Buettner |
| **DATE COMPLETED:** | 09/28/2012 | | |

| FRACTION # | NAME | TEST | RECEIPT VAC./PRES. | FINAL PRESSURE |
|---|---|---|---|---|
| 01A | VP-1 | Modified TO-15 | 3.5 "Hg | 5 psi |
| 01B | VP-1 | Modified TO-15 | 3.5 "Hg | 5 psi |
| 02A | Lab Blank | Modified TO-15 | NA | NA |
| 02B | Lab Blank | Modified TO-15 | NA | NA |
| 03A | CCV | Modified TO-15 | NA | NA |
| 03B | CCV | Modified TO-15 | NA | NA |
| 04A | LCS | Modified TO-15 | NA | NA |
| 04AA | LCSD | Modified TO-15 | NA | NA |
| 04B | LCS | Modified TO-15 | NA | NA |
| 04BB | LCSD | Modified TO-15 | NA | NA |

CERTIFIED BY: Heidi Mayo DATE: 09/28/12

Technical Director

Certfication numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NY NELAP - 11291,
TX NELAP - T104704434-12-5, UT NELAP CA009332012-3, WA NELAP - C935
Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2011, Expiration date: 10/17/2012.
Eurofins Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards



180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**LABORATORY NARRATIVE**
**Modified TO-15 Full Scan/SIM**
**Ash Creek Associates**
**Workorder# 1209186**

One 6 Liter Summa Canister (100% Certified) sample was received on September 12, 2012. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the Full Scan and SIM acquisition modes. The method involves concentrating up to 1.0 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

| ***Requirement*** | ***TO-15*** | ***ATL Modifications*** |
|---|---|---|
| ICAL %RSD acceptance criteria | </=30% RSD with 2 compounds allowed out to < 40% RSD | For Full Scan:<br>30% RSD with 4 compounds allowed out to < 40% RSD<br><br>For SIM:<br>Project specific; default criteria is </=30% RSD with 10% of compounds allowed out to < 40% RSD |
| Daily Calibration | +- 30% Difference | For Full Scan:<br></= 30% Difference with four allowed out up to </=40%.; flag and narrate outliers<br><br>For SIM:<br>Project specific; default criteria is </= 30% Difference with 10% of compounds allowed out up to </=40%.; flag and narrate outliers |
| Blank and standards | Zero air | Nitrogen |
| Method Detection Limit | Follow 40CFR Pt.136 App. B | The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases |

## Receiving Notes

There were no receiving discrepancies.

## Analytical Notes

The results for each sample in this report were acquired from two separate data files originating from the same analytical run. The two data files have the same base file name and are differentiated with a "sim" extension on the SIM data file.

A single point calibration for TPH referenced to Gasoline was performed for each daily analytical

batch. Recovery is reported as 100% in the associated results for each CCV.

All Quality Control Limit exceedances and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page.

**Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV and/or LCS.

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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# Summary of Detected Compounds
# MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

**Client Sample ID: VP-1**

**Lab ID#: 1209186-01A**

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| Freon 12 | 0.15 | 0.52 | 0.75 | 2.6 |
| Freon 11 | 0.15 | 0.20 | 0.85 | 1.1 |
| Ethanol | 0.76 | 1.7 | 1.4 | 3.2 |
| Acetone | 0.76 | 3.2 | 1.8 | 7.6 |
| Hexane | 0.15 | 0.31 | 0.54 | 1.1 |
| Chloroform | 0.15 | 0.41 | 0.74 | 2.0 |
| 2,2,4-Trimethylpentane | 0.76 | 2.2 | 3.6 | 10 |
| Heptane | 0.15 | 0.18 | 0.62 | 0.76 |
| 1,4-Dioxane | 0.15 | 0.19 | 0.55 | 0.69 |
| TPH ref. to Gasoline (MW=100) | 15 | 41 | 62 | 170 |

**Client Sample ID: VP-1**

**Lab ID#: 1209186-01B**

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| Vinyl Chloride | 0.015 | 0.082 | 0.039 | 0.21 |
| Benzene | 0.076 | 0.19 | 0.24 | 0.61 |
| 1,2-Dichloroethane | 0.030 | 0.15 | 0.12 | 0.60 |
| Toluene | 0.030 | 0.25 | 0.11 | 0.95 |
| Ethyl Benzene | 0.030 | 0.074 | 0.13 | 0.32 |
| m,p-Xylene | 0.061 | 0.33 | 0.26 | 1.4 |
| o-Xylene | 0.030 | 0.12 | 0.13 | 0.54 |

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**Client Sample ID: VP-1**

**Lab ID#: 1209186-01A**

**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **a091710** | **Date of Collection:** | **9/11/12 1:12:00 PM** |
| **Dil. Factor:** | **1.52** | **Date of Analysis:** | **9/17/12 04:00 PM** |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| trans-1,2-Dichloroethene | 0.15 | Not Detected | 0.60 | Not Detected |
| Methyl tert-butyl ether | 0.15 | Not Detected | 0.55 | Not Detected |
| Freon 12 | 0.15 | 0.52 | 0.75 | 2.6 |
| Freon 114 | 0.15 | Not Detected | 1.1 | Not Detected |
| Chloromethane | 0.15 | Not Detected | 0.31 | Not Detected |
| 1,3-Butadiene | 0.15 | Not Detected | 0.34 | Not Detected |
| Bromomethane | 0.15 | Not Detected | 0.59 | Not Detected |
| Chloroethane | 0.76 | Not Detected | 2.0 | Not Detected |
| Freon 11 | 0.15 | 0.20 | 0.85 | 1.1 |
| Ethanol | 0.76 | 1.7 | 1.4 | 3.2 |
| Freon 113 | 0.15 | Not Detected | 1.2 | Not Detected |
| Acetone | 0.76 | 3.2 | 1.8 | 7.6 |
| 2-Propanol | 0.76 | Not Detected | 1.9 | Not Detected |
| Carbon Disulfide | 0.76 | Not Detected | 2.4 | Not Detected |
| 3-Chloropropene | 0.76 | Not Detected | 2.4 | Not Detected |
| Methylene Chloride | 0.30 | Not Detected | 1.0 | Not Detected |
| Hexane | 0.15 | 0.31 | 0.54 | 1.1 |
| 2-Butanone (Methyl Ethyl Ketone) | 0.76 | Not Detected | 2.2 | Not Detected |
| Tetrahydrofuran | 0.76 | Not Detected | 2.2 | Not Detected |
| Chloroform | 0.15 | 0.41 | 0.74 | 2.0 |
| Cyclohexane | 0.15 | Not Detected | 0.52 | Not Detected |
| Carbon Tetrachloride | 0.15 | Not Detected | 0.96 | Not Detected |
| 2,2,4-Trimethylpentane | 0.76 | 2.2 | 3.6 | 10 |
| Heptane | 0.15 | 0.18 | 0.62 | 0.76 |
| 1,2-Dichloropropane | 0.15 | Not Detected | 0.70 | Not Detected |
| 1,4-Dioxane | 0.15 | 0.19 | 0.55 | 0.69 |
| Bromodichloromethane | 0.15 | Not Detected | 1.0 | Not Detected |
| cis-1,3-Dichloropropene | 0.15 | Not Detected | 0.69 | Not Detected |
| 4-Methyl-2-pentanone | 0.15 | Not Detected | 0.62 | Not Detected |
| trans-1,3-Dichloropropene | 0.15 | Not Detected | 0.69 | Not Detected |
| 2-Hexanone | 0.76 | Not Detected | 3.1 | Not Detected |
| Dibromochloromethane | 0.15 | Not Detected | 1.3 | Not Detected |
| 1,2-Dibromoethane (EDB) | 0.15 | Not Detected | 1.2 | Not Detected |
| Chlorobenzene | 0.15 | Not Detected | 0.70 | Not Detected |
| Styrene | 0.15 | Not Detected | 0.65 | Not Detected |
| Bromoform | 0.15 | Not Detected | 1.6 | Not Detected |
| Cumene | 0.15 | Not Detected | 0.75 | Not Detected |
| Propylbenzene | 0.15 | Not Detected | 0.75 | Not Detected |
| 4-Ethyltoluene | 0.15 | Not Detected | 0.75 | Not Detected |
| 1,3,5-Trimethylbenzene | 0.15 | Not Detected | 0.75 | Not Detected |
| 1,2,4-Trimethylbenzene | 0.15 | Not Detected | 0.75 | Not Detected |
| 1,3-Dichlorobenzene | 0.15 | Not Detected | 0.91 | Not Detected |

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**Client Sample ID: VP-1**

**Lab ID#: 1209186-01A**

**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **a091710** | **Date of Collection: 9/11/12 1:12:00 PM** | |
| **Dil. Factor:** | **1.52** | **Date of Analysis: 9/17/12 04:00 PM** | |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| 1,4-Dichlorobenzene | 0.15 | Not Detected | 0.91 | Not Detected |
| alpha-Chlorotoluene | 0.15 | Not Detected | 0.79 | Not Detected |
| 1,2-Dichlorobenzene | 0.15 | Not Detected | 0.91 | Not Detected |
| 1,2,4-Trichlorobenzene | 0.76 | Not Detected UJ | 5.6 | Not Detected UJ |
| Hexachlorobutadiene | 0.76 | Not Detected UJ | 8.1 | Not Detected UJ |
| TPH ref. to Gasoline (MW=100) | 15 | 41 | 62 | 170 |

UJ = Non-detected compound associated with low bias in the CCV and/or LCS.

**Container Type: 6 Liter Summa Canister (100% Certified)**

| Surrogates | %Recovery | Method Limits |
|---|---|---|
| 1,2-Dichloroethane-d4 | 102 | 70-130 |
| Toluene-d8 | 99 | 70-130 |
| 4-Bromofluorobenzene | 97 | 70-130 |

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**Client Sample ID: VP-1**

**Lab ID#: 1209186-01B**

**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **a091710sim** | **Date of Collection: 9/11/12 1:12:00 PM** | |
| **Dil. Factor:** | **1.52** | **Date of Analysis: 9/17/12 04:00 PM** | |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| Vinyl Chloride | 0.015 | 0.082 | 0.039 | 0.21 |
| 1,1-Dichloroethene | 0.015 | Not Detected | 0.060 | Not Detected |
| 1,1-Dichloroethane | 0.030 | Not Detected | 0.12 | Not Detected |
| cis-1,2-Dichloroethene | 0.030 | Not Detected | 0.12 | Not Detected |
| 1,1,1-Trichloroethane | 0.030 | Not Detected | 0.16 | Not Detected |
| Benzene | 0.076 | 0.19 | 0.24 | 0.61 |
| 1,2-Dichloroethane | 0.030 | 0.15 | 0.12 | 0.60 |
| Trichloroethene | 0.030 | Not Detected | 0.16 | Not Detected |
| Toluene | 0.030 | 0.25 | 0.11 | 0.95 |
| 1,1,2-Trichloroethane | 0.030 | Not Detected | 0.16 | Not Detected |
| Tetrachloroethene | 0.030 | Not Detected | 0.21 | Not Detected |
| Ethyl Benzene | 0.030 | 0.074 | 0.13 | 0.32 |
| m,p-Xylene | 0.061 | 0.33 | 0.26 | 1.4 |
| o-Xylene | 0.030 | 0.12 | 0.13 | 0.54 |
| 1,1,2,2-Tetrachloroethane | 0.030 | Not Detected | 0.21 | Not Detected |

**Container Type: 6 Liter Summa Canister (100% Certified)**

| Surrogates | %Recovery | Method Limits |
|---|---|---|
| 1,2-Dichloroethane-d4 | 113 | 70-130 |
| Toluene-d8 | 101 | 70-130 |
| 4-Bromofluorobenzene | 97 | 70-130 |

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**Client Sample ID: Lab Blank**

**Lab ID#: 1209186-02A**

**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **a091709** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 9/17/12 02:29 PM** | |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| trans-1,2-Dichloroethene | 0.10 | Not Detected | 0.40 | Not Detected |
| Methyl tert-butyl ether | 0.10 | Not Detected | 0.36 | Not Detected |
| Freon 12 | 0.10 | Not Detected | 0.49 | Not Detected |
| Freon 114 | 0.10 | Not Detected | 0.70 | Not Detected |
| Chloromethane | 0.10 | Not Detected | 0.21 | Not Detected |
| 1,3-Butadiene | 0.10 | Not Detected | 0.22 | Not Detected |
| Bromomethane | 0.10 | Not Detected | 0.39 | Not Detected |
| Chloroethane | 0.50 | Not Detected | 1.3 | Not Detected |
| Freon 11 | 0.10 | Not Detected | 0.56 | Not Detected |
| Ethanol | 0.50 | Not Detected | 0.94 | Not Detected |
| Freon 113 | 0.10 | Not Detected | 0.77 | Not Detected |
| Acetone | 0.50 | Not Detected | 1.2 | Not Detected |
| 2-Propanol | 0.50 | Not Detected | 1.2 | Not Detected |
| Carbon Disulfide | 0.50 | Not Detected | 1.6 | Not Detected |
| 3-Chloropropene | 0.50 | Not Detected | 1.6 | Not Detected |
| Methylene Chloride | 0.20 | Not Detected | 0.69 | Not Detected |
| Hexane | 0.10 | Not Detected | 0.35 | Not Detected |
| 2-Butanone (Methyl Ethyl Ketone) | 0.50 | Not Detected | 1.5 | Not Detected |
| Tetrahydrofuran | 0.50 | Not Detected | 1.5 | Not Detected |
| Chloroform | 0.10 | Not Detected | 0.49 | Not Detected |
| Cyclohexane | 0.10 | Not Detected | 0.34 | Not Detected |
| Carbon Tetrachloride | 0.10 | Not Detected | 0.63 | Not Detected |
| 2,2,4-Trimethylpentane | 0.50 | Not Detected | 2.3 | Not Detected |
| Heptane | 0.10 | Not Detected | 0.41 | Not Detected |
| 1,2-Dichloropropane | 0.10 | Not Detected | 0.46 | Not Detected |
| 1,4-Dioxane | 0.10 | Not Detected | 0.36 | Not Detected |
| Bromodichloromethane | 0.10 | Not Detected | 0.67 | Not Detected |
| cis-1,3-Dichloropropene | 0.10 | Not Detected | 0.45 | Not Detected |
| 4-Methyl-2-pentanone | 0.10 | Not Detected | 0.41 | Not Detected |
| trans-1,3-Dichloropropene | 0.10 | Not Detected | 0.45 | Not Detected |
| 2-Hexanone | 0.50 | Not Detected | 2.0 | Not Detected |
| Dibromochloromethane | 0.10 | Not Detected | 0.85 | Not Detected |
| 1,2-Dibromoethane (EDB) | 0.10 | Not Detected | 0.77 | Not Detected |
| Chlorobenzene | 0.10 | Not Detected | 0.46 | Not Detected |
| Styrene | 0.10 | Not Detected | 0.42 | Not Detected |
| Bromoform | 0.10 | Not Detected | 1.0 | Not Detected |
| Cumene | 0.10 | Not Detected | 0.49 | Not Detected |
| Propylbenzene | 0.10 | Not Detected | 0.49 | Not Detected |
| 4-Ethyltoluene | 0.10 | Not Detected | 0.49 | Not Detected |
| 1,3,5-Trimethylbenzene | 0.10 | Not Detected | 0.49 | Not Detected |
| 1,2,4-Trimethylbenzene | 0.10 | Not Detected | 0.49 | Not Detected |
| 1,3-Dichlorobenzene | 0.10 | Not Detected | 0.60 | Not Detected |

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**Client Sample ID: Lab Blank**

**Lab ID#: 1209186-02A**

**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **a091709** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 9/17/12 02:29 PM** | |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| 1,4-Dichlorobenzene | 0.10 | Not Detected | 0.60 | Not Detected |
| alpha-Chlorotoluene | 0.10 | Not Detected | 0.52 | Not Detected |
| 1,2-Dichlorobenzene | 0.10 | Not Detected | 0.60 | Not Detected |
| 1,2,4-Trichlorobenzene | 0.50 | Not Detected UJ | 3.7 | Not Detected UJ |
| Hexachlorobutadiene | 0.50 | Not Detected UJ | 5.3 | Not Detected UJ |
| TPH ref. to Gasoline (MW=100) | 10 | Not Detected | 41 | Not Detected |

UJ = Non-detected compound associated with low bias in the CCV and/or LCS.

**Container Type: NA - Not Applicable**

| Surrogates | %Recovery | Method Limits |
|---|---|---|
| 1,2-Dichloroethane-d4 | 102 | 70-130 |
| Toluene-d8 | 100 | 70-130 |
| 4-Bromofluorobenzene | 93 | 70-130 |

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**Client Sample ID: Lab Blank**

**Lab ID#: 1209186-02B**

**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **a091709sim** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 9/17/12 02:29 PM** | |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| Vinyl Chloride | 0.010 | Not Detected | 0.026 | Not Detected |
| 1,1-Dichloroethene | 0.010 | Not Detected | 0.040 | Not Detected |
| 1,1-Dichloroethane | 0.020 | Not Detected | 0.081 | Not Detected |
| cis-1,2-Dichloroethene | 0.020 | Not Detected | 0.079 | Not Detected |
| 1,1,1-Trichloroethane | 0.020 | Not Detected | 0.11 | Not Detected |
| Benzene | 0.050 | Not Detected | 0.16 | Not Detected |
| 1,2-Dichloroethane | 0.020 | Not Detected | 0.081 | Not Detected |
| Trichloroethene | 0.020 | Not Detected | 0.11 | Not Detected |
| Toluene | 0.020 | Not Detected | 0.075 | Not Detected |
| 1,1,2-Trichloroethane | 0.020 | Not Detected | 0.11 | Not Detected |
| Tetrachloroethene | 0.020 | Not Detected | 0.14 | Not Detected |
| Ethyl Benzene | 0.020 | Not Detected | 0.087 | Not Detected |
| m,p-Xylene | 0.040 | Not Detected | 0.17 | Not Detected |
| o-Xylene | 0.020 | Not Detected | 0.087 | Not Detected |
| 1,1,2,2-Tetrachloroethane | 0.020 | Not Detected | 0.14 | Not Detected |

**Container Type: NA - Not Applicable**

| Surrogates | %Recovery | Method Limits |
|---|---|---|
| 1,2-Dichloroethane-d4 | 104 | 70-130 |
| Toluene-d8 | 101 | 70-130 |
| 4-Bromofluorobenzene | 93 | 70-130 |

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**Client Sample ID: CCV**

**Lab ID#: 1209186-03A**

**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **a091702** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 9/17/12 08:04 AM** | |

| Compound | %Recovery |
|---|---|
| trans-1,2-Dichloroethene | 102 |
| Methyl tert-butyl ether | 94 |
| Freon 12 | 91 |
| Freon 114 | 89 |
| Chloromethane | 77 |
| 1,3-Butadiene | 83 |
| Bromomethane | 85 |
| Chloroethane | 87 |
| Freon 11 | 87 |
| Ethanol | 86 |
| Freon 113 | 92 |
| Acetone | 83 |
| 2-Propanol | 96 |
| Carbon Disulfide | 98 |
| 3-Chloropropene | 120 |
| Methylene Chloride | 95 |
| Hexane | 96 |
| 2-Butanone (Methyl Ethyl Ketone) | 96 |
| Tetrahydrofuran | 99 |
| Chloroform | 92 |
| Cyclohexane | 99 |
| Carbon Tetrachloride | 99 |
| 2,2,4-Trimethylpentane | 113 |
| Heptane | 101 |
| 1,2-Dichloropropane | 103 |
| 1,4-Dioxane | 106 |
| Bromodichloromethane | 99 |
| cis-1,3-Dichloropropene | 104 |
| 4-Methyl-2-pentanone | 108 |
| trans-1,3-Dichloropropene | 100 |
| 2-Hexanone | 115 |
| Dibromochloromethane | 96 |
| 1,2-Dibromoethane (EDB) | 89 |
| Chlorobenzene | 95 |
| Styrene | 98 |
| Bromoform | 96 |
| Cumene | 92 |
| Propylbenzene | 86 |
| 4-Ethyltoluene | 89 |
| 1,3,5-Trimethylbenzene | 90 |
| 1,2,4-Trimethylbenzene | 80 |
| 1,3-Dichlorobenzene | 74 |

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**Client Sample ID: CCV**

**Lab ID#: 1209186-03A**

**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **a091702** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 9/17/12 08:04 AM** | |

| **Compound** | **%Recovery** |
|---|---|
| 1,4-Dichlorobenzene | 78 |
| alpha-Chlorotoluene | 89 |
| 1,2-Dichlorobenzene | 74 |
| 1,2,4-Trichlorobenzene | 68 Q |
| Hexachlorobutadiene | 66 Q |
| TPH ref. to Gasoline (MW=100) | 100 |

Q = Exceeds Quality Control limits.

**Container Type: NA - Not Applicable**

| **Surrogates** | **%Recovery** | **Method Limits** |
|---|---|---|
| 1,2-Dichloroethane-d4 | 92 | 70-130 |
| Toluene-d8 | 94 | 70-130 |
| 4-Bromofluorobenzene | 98 | 70-130 |

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**Client Sample ID: CCV**

**Lab ID#: 1209186-03B**

**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **a091702sim** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 9/17/12 08:04 AM** | |

| Compound | %Recovery |
|---|---|
| Vinyl Chloride | 82 |
| 1,1-Dichloroethene | 94 |
| 1,1-Dichloroethane | 98 |
| cis-1,2-Dichloroethene | 95 |
| 1,1,1-Trichloroethane | 86 |
| Benzene | 95 |
| 1,2-Dichloroethane | 87 |
| Trichloroethene | 92 |
| Toluene | 91 |
| 1,1,2-Trichloroethane | 93 |
| Tetrachloroethene | 91 |
| Ethyl Benzene | 100 |
| m,p-Xylene | 98 |
| o-Xylene | 98 |
| 1,1,2,2-Tetrachloroethane | 93 |

**Container Type: NA - Not Applicable**

| Surrogates | %Recovery | Method Limits |
|---|---|---|
| 1,2-Dichloroethane-d4 | 89 | 70-130 |
| Toluene-d8 | 94 | 70-130 |
| 4-Bromofluorobenzene | 101 | 70-130 |

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**Client Sample ID: LCS**

**Lab ID#: 1209186-04A**

**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **a091704** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 9/17/12 10:26 AM** | |

| Compound | %Recovery |
|---|---|
| trans-1,2-Dichloroethene | 106 |
| Methyl tert-butyl ether | 95 |
| Freon 12 | 91 |
| Freon 114 | 88 |
| Chloromethane | 79 |
| 1,3-Butadiene | 83 |
| Bromomethane | 90 |
| Chloroethane | 90 |
| Freon 11 | 88 |
| Ethanol | 82 |
| Freon 113 | 88 |
| Acetone | 83 |
| 2-Propanol | 99 |
| Carbon Disulfide | 116 |
| 3-Chloropropene | 132 |
| Methylene Chloride | 90 |
| Hexane | 92 |
| 2-Butanone (Methyl Ethyl Ketone) | 91 |
| Tetrahydrofuran | 96 |
| Chloroform | 89 |
| Cyclohexane | 92 |
| Carbon Tetrachloride | 98 |
| 2,2,4-Trimethylpentane | 98 |
| Heptane | 95 |
| 1,2-Dichloropropane | 100 |
| 1,4-Dioxane | 96 |
| Bromodichloromethane | 95 |
| cis-1,3-Dichloropropene | 98 |
| 4-Methyl-2-pentanone | 99 |
| trans-1,3-Dichloropropene | 96 |
| 2-Hexanone | 100 |
| Dibromochloromethane | 92 |
| 1,2-Dibromoethane (EDB) | 88 |
| Chlorobenzene | 93 |
| Styrene | 91 |
| Bromoform | 88 |
| Cumene | 90 |
| Propylbenzene | 89 |
| 4-Ethyltoluene | 86 |
| 1,3,5-Trimethylbenzene | 92 |
| 1,2,4-Trimethylbenzene | 83 |
| 1,3-Dichlorobenzene | 75 |

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**Client Sample ID: LCS**

**Lab ID#: 1209186-04A**

**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **a091704** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 9/17/12 10:26 AM** | |

| **Compound** | **%Recovery** |
|---|---|
| 1,4-Dichlorobenzene | 78 |
| alpha-Chlorotoluene | 87 |
| 1,2-Dichlorobenzene | 75 |
| 1,2,4-Trichlorobenzene | 76 |
| Hexachlorobutadiene | 74 |
| TPH ref. to Gasoline (MW=100) | Not Spiked |

**Container Type: NA - Not Applicable**

| **Surrogates** | **%Recovery** | **Method Limits** |
|---|---|---|
| 1,2-Dichloroethane-d4 | 96 | 70-130 |
| Toluene-d8 | 102 | 70-130 |
| 4-Bromofluorobenzene | 96 | 70-130 |

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**Client Sample ID: LCSD**

**Lab ID#: 1209186-04AA**

**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **a091705** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 9/17/12 11:08 AM** | |

| Compound | %Recovery |
|---|---|
| trans-1,2-Dichloroethene | 108 |
| Methyl tert-butyl ether | 94 |
| Freon 12 | 90 |
| Freon 114 | 86 |
| Chloromethane | 78 |
| 1,3-Butadiene | 80 |
| Bromomethane | 91 |
| Chloroethane | 88 |
| Freon 11 | 86 |
| Ethanol | 87 |
| Freon 113 | 90 |
| Acetone | 85 |
| 2-Propanol | 97 |
| Carbon Disulfide | 117 |
| 3-Chloropropene | 130 |
| Methylene Chloride | 91 |
| Hexane | 94 |
| 2-Butanone (Methyl Ethyl Ketone) | 93 |
| Tetrahydrofuran | 96 |
| Chloroform | 90 |
| Cyclohexane | 93 |
| Carbon Tetrachloride | 97 |
| 2,2,4-Trimethylpentane | 95 |
| Heptane | 94 |
| 1,2-Dichloropropane | 100 |
| 1,4-Dioxane | 97 |
| Bromodichloromethane | 96 |
| cis-1,3-Dichloropropene | 98 |
| 4-Methyl-2-pentanone | 98 |
| trans-1,3-Dichloropropene | 96 |
| 2-Hexanone | 102 |
| Dibromochloromethane | 90 |
| 1,2-Dibromoethane (EDB) | 88 |
| Chlorobenzene | 90 |
| Styrene | 84 |
| Bromoform | 88 |
| Cumene | 84 |
| Propylbenzene | 80 |
| 4-Ethyltoluene | 79 |
| 1,3,5-Trimethylbenzene | 83 |
| 1,2,4-Trimethylbenzene | 74 |
| 1,3-Dichlorobenzene | 69 Q |

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**Client Sample ID: LCSD**

**Lab ID#: 1209186-04AA**

**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **a091705** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 9/17/12 11:08 AM** | |

| **Compound** | **%Recovery** |
|---|---|
| 1,4-Dichlorobenzene | 70 |
| alpha-Chlorotoluene | 82 |
| 1,2-Dichlorobenzene | 68 Q |
| 1,2,4-Trichlorobenzene | 76 |
| Hexachlorobutadiene | 70 |
| TPH ref. to Gasoline (MW=100) | Not Spiked |

Q = Exceeds Quality Control limits.

**Container Type: NA - Not Applicable**

| **Surrogates** | **%Recovery** | **Method Limits** |
|---|---|---|
| 1,2-Dichloroethane-d4 | 93 | 70-130 |
| Toluene-d8 | 102 | 70-130 |
| 4-Bromofluorobenzene | 91 | 70-130 |

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**Client Sample ID: LCS**

**Lab ID#: 1209186-04B**

**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **a091704sim** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 9/17/12 10:26 AM** | |

| Compound | %Recovery |
|---|---|
| Vinyl Chloride | 85 |
| 1,1-Dichloroethene | 96 |
| 1,1-Dichloroethane | 99 |
| cis-1,2-Dichloroethene | 92 |
| 1,1,1-Trichloroethane | 87 |
| Benzene | 91 |
| 1,2-Dichloroethane | 89 |
| Trichloroethene | 87 |
| Toluene | 92 |
| 1,1,2-Trichloroethane | 89 |
| Tetrachloroethene | 85 |
| Ethyl Benzene | 93 |
| m,p-Xylene | 94 |
| o-Xylene | 92 |
| 1,1,2,2-Tetrachloroethane | 87 |

**Container Type: NA - Not Applicable**

| Surrogates | %Recovery | Method Limits |
|---|---|---|
| 1,2-Dichloroethane-d4 | 96 | 70-130 |
| Toluene-d8 | 100 | 70-130 |
| 4-Bromofluorobenzene | 98 | 70-130 |

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**Client Sample ID: LCSD**

**Lab ID#: 1209186-04BB**

**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **a091705sim** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 9/17/12 11:08 AM** | |

| Compound | %Recovery |
|---|---|
| Vinyl Chloride | 83 |
| 1,1-Dichloroethene | 96 |
| 1,1-Dichloroethane | 98 |
| cis-1,2-Dichloroethene | 92 |
| 1,1,1-Trichloroethane | 86 |
| Benzene | 90 |
| 1,2-Dichloroethane | 87 |
| Trichloroethene | 87 |
| Toluene | 91 |
| 1,1,2-Trichloroethane | 90 |
| Tetrachloroethene | 84 |
| Ethyl Benzene | 94 |
| m,p-Xylene | 90 |
| o-Xylene | 86 |
| 1,1,2,2-Tetrachloroethane | 86 |

**Container Type: NA - Not Applicable**

| Surrogates | %Recovery | Method Limits |
|---|---|---|
| 1,2-Dichloroethane-d4 | 95 | 70-130 |
| Toluene-d8 | 100 | 70-130 |
| 4-Bromofluorobenzene | 94 | 70-130 |

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11/7/2012
Mr. John Foxwell
Ash Creek Associates
3015 SW 1st Avenue

Portland OR 97201

Project Name: Tarr Vancouver
Project #: 1821-00
Workorder #: 1210515

Dear Mr. John Foxwell

The following report includes the data for the above referenced project for sample(s) received on 10/23/2012 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

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# WORK ORDER #: 1210515

Work Order Summary

| | | | |
|---|---|---|---|
| **CLIENT:** | Mr. John Foxwell<br>Ash Creek Associates<br>3015 SW 1st Avenue<br>Portland, OR 97201 | **BILL TO:** | Mr. John Foxwell<br>Ash Creek Associates<br>3015 SW 1st Avenue<br>Portland, OR 97201 |
| **PHONE:** | 503-924-4704 | **P.O. #** | |
| **FAX:** | 503-924-4707 | **PROJECT #** | 1821-00 Tarr Vancouver |
| **DATE RECEIVED:** | 10/23/2012 | **CONTACT:** | Kelly Buettner |
| **DATE COMPLETED:** | 11/07/2012 | | |

| FRACTION # | NAME | TEST | RECEIPT VAC./PRES. | FINAL PRESSURE |
|---|---|---|---|---|
| 01A | EFFLUENT_100512 | Modified TO-15 | 4.5 "Hg | 5 psi |
| 02A | Lab Blank | Modified TO-15 | NA | NA |
| 03A | CCV | Modified TO-15 | NA | NA |
| 04A | LCS | Modified TO-15 | NA | NA |
| 04AA | LCSD | Modified TO-15 | NA | NA |

CERTIFIED BY: Heidi Hayes DATE: 11/07/12

Technical Director

Certfication numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NY NELAP - 11291,
TX NELAP - T104704434-12-5, UT NELAP CA009332012-3, WA NELAP - C935
Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2011, Expiration date: 10/17/2012.
Eurofins Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards



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**LABORATORY NARRATIVE**
**Modified TO-15 Full Scan/SIM**
**Ash Creek Associates**
**Workorder# 1210515**

One 6 Liter Summa Canister (100% Certified) samples were received on October 23, 2012. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the Full Scan and SIM acquisition modes. The method involves concentrating up to 1.0 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

| ***Requirement*** | ***TO-15*** | ***ATL Modifications*** |
|---|---|---|
| ICAL %RSD acceptance criteria | </=30% RSD with 2 compounds allowed out to < 40% RSD | For Full Scan:<br>30% RSD with 4 compounds allowed out to < 40% RSD<br><br>For SIM:<br>Project specific; default criteria is </=30% RSD with 10% of compounds allowed out to < 40% RSD |
| Daily Calibration | +- 30% Difference | For Full Scan:<br></= 30% Difference with four allowed out up to </=40%.; flag and narrate outliers<br><br>For SIM:<br>Project specific; default criteria is </= 30% Difference with 10% of compounds allowed out up to </=40%.; flag and narrate outliers |
| Blank and standards | Zero air | Nitrogen |
| Method Detection Limit | Follow 40CFR Pt.136 App. B | The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases |

## Receiving Notes

There were no receiving discrepancies.

## Analytical Notes

All Quality Control Limit exceedances and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page.

Sample EFFLUENT_100512 was transferred from SIM/Low Level analysis to full scan TO-15 due to high levels of target compounds.

Due to the linear calibration range of the instrument, the reporting limit for 1,2,4-Trichlorobenzene was raised from 2.0ppbv to 5.0ppbv.

A single point calibration for TPH referenced to Gasoline was performed for each daily analytical batch. Recovery is reported as 100% in the associated results for each CCV.

**Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV and/or LCS.

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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# Summary of Detected Compounds
# EPA METHOD TO-15 GC/MS FULL SCAN

**Client Sample ID: EFFLUENT_100512**

**Lab ID#: 1210515-01A**

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| Hexane | 20 | 1400 | 70 | 5000 |
| Cyclohexane | 20 | 1200 | 68 | 4100 |
| 2,2,4-Trimethylpentane | 20 | 1600 | 92 | 7700 |
| Benzene | 20 | 110 | 63 | 340 |
| Heptane | 20 | 1200 | 81 | 5100 |
| Toluene | 20 | 1200 | 74 | 4400 |
| Ethyl Benzene | 20 | 240 | 86 | 1000 |
| m,p-Xylene | 20 | 5200 | 86 | 23000 |
| o-Xylene | 20 | 2000 | 86 | 8800 |
| Propylbenzene | 20 | 30 | 97 | 140 |
| 4-Ethyltoluene | 20 | 340 | 97 | 1700 |
| 1,3,5-Trimethylbenzene | 20 | 480 | 97 | 2400 |
| 1,2,4-Trimethylbenzene | 20 | 630 | 97 | 3100 |
| TPH ref. to Gasoline (MW=100) | 990 | 160000 | 4000 | 650000 |

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**Client Sample ID: EFFLUENT_100512**

**Lab ID#: 1210515-01A**

**EPA METHOD TO-15 GC/MS FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **2102907** | **Date of Collection:** | **10/5/12 11:46:00 AM** |
| **Dil. Factor:** | **39.5** | **Date of Analysis:** | **10/29/12 11:52 AM** |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| Freon 12 | 20 | Not Detected | 98 | Not Detected |
| Freon 114 | 20 | Not Detected | 140 | Not Detected |
| Chloromethane | 200 | Not Detected | 410 | Not Detected |
| Vinyl Chloride | 20 | Not Detected | 50 | Not Detected |
| 1,3-Butadiene | 20 | Not Detected | 44 | Not Detected |
| Bromomethane | 200 | Not Detected | 770 | Not Detected |
| Chloroethane | 79 | Not Detected | 210 | Not Detected |
| Freon 11 | 20 | Not Detected | 110 | Not Detected |
| Ethanol | 79 | Not Detected | 150 | Not Detected |
| Freon 113 | 20 | Not Detected | 150 | Not Detected |
| 1,1-Dichloroethene | 20 | Not Detected | 78 | Not Detected |
| Acetone | 200 | Not Detected | 470 | Not Detected |
| 2-Propanol | 79 | Not Detected | 190 | Not Detected |
| Carbon Disulfide | 79 | Not Detected | 250 | Not Detected |
| 3-Chloropropene | 79 | Not Detected | 250 | Not Detected |
| Methylene Chloride | 200 | Not Detected | 690 | Not Detected |
| Methyl tert-butyl ether | 20 | Not Detected | 71 | Not Detected |
| trans-1,2-Dichloroethene | 20 | Not Detected | 78 | Not Detected |
| Hexane | 20 | 1400 | 70 | 5000 |
| 1,1-Dichloroethane | 20 | Not Detected | 80 | Not Detected |
| 2-Butanone (Methyl Ethyl Ketone) | 79 | Not Detected | 230 | Not Detected |
| cis-1,2-Dichloroethene | 20 | Not Detected | 78 | Not Detected |
| Tetrahydrofuran | 20 | Not Detected | 58 | Not Detected |
| Chloroform | 20 | Not Detected | 96 | Not Detected |
| 1,1,1-Trichloroethane | 20 | Not Detected | 110 | Not Detected |
| Cyclohexane | 20 | 1200 | 68 | 4100 |
| Carbon Tetrachloride | 20 | Not Detected | 120 | Not Detected |
| 2,2,4-Trimethylpentane | 20 | 1600 | 92 | 7700 |
| Benzene | 20 | 110 | 63 | 340 |
| 1,2-Dichloroethane | 20 | Not Detected | 80 | Not Detected |
| Heptane | 20 | 1200 | 81 | 5100 |
| Trichloroethene | 20 | Not Detected | 110 | Not Detected |
| 1,2-Dichloropropane | 20 | Not Detected | 91 | Not Detected |
| 1,4-Dioxane | 79 | Not Detected | 280 | Not Detected |
| Bromodichloromethane | 20 | Not Detected | 130 | Not Detected |
| cis-1,3-Dichloropropene | 20 | Not Detected | 90 | Not Detected |
| 4-Methyl-2-pentanone | 20 | Not Detected | 81 | Not Detected |
| Toluene | 20 | 1200 | 74 | 4400 |
| trans-1,3-Dichloropropene | 20 | Not Detected | 90 | Not Detected |
| 1,1,2-Trichloroethane | 20 | Not Detected | 110 | Not Detected |
| Tetrachloroethene | 20 | Not Detected | 130 | Not Detected |
| 2-Hexanone | 79 | Not Detected | 320 | Not Detected |

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**Client Sample ID: EFFLUENT_100512**

**Lab ID#: 1210515-01A**

**EPA METHOD TO-15 GC/MS FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **2102907** | **Date of Collection:** | **10/5/12 11:46:00 AM** |
| **Dil. Factor:** | **39.5** | **Date of Analysis:** | **10/29/12 11:52 AM** |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| Dibromochloromethane | 20 | Not Detected | 170 | Not Detected |
| 1,2-Dibromoethane (EDB) | 20 | Not Detected | 150 | Not Detected |
| Chlorobenzene | 20 | Not Detected | 91 | Not Detected |
| Ethyl Benzene | 20 | 240 | 86 | 1000 |
| m,p-Xylene | 20 | 5200 | 86 | 23000 |
| o-Xylene | 20 | 2000 | 86 | 8800 |
| Styrene | 20 | Not Detected | 84 | Not Detected |
| Bromoform | 20 | Not Detected | 200 | Not Detected |
| Cumene | 20 | Not Detected | 97 | Not Detected |
| 1,1,2,2-Tetrachloroethane | 20 | Not Detected | 140 | Not Detected |
| Propylbenzene | 20 | 30 | 97 | 140 |
| 4-Ethyltoluene | 20 | 340 | 97 | 1700 |
| 1,3,5-Trimethylbenzene | 20 | 480 | 97 | 2400 |
| 1,2,4-Trimethylbenzene | 20 | 630 | 97 | 3100 |
| 1,3-Dichlorobenzene | 20 | Not Detected | 120 | Not Detected |
| 1,4-Dichlorobenzene | 20 | Not Detected | 120 | Not Detected |
| alpha-Chlorotoluene | 20 | Not Detected | 100 | Not Detected |
| 1,2-Dichlorobenzene | 20 | Not Detected | 120 | Not Detected |
| 1,2,4-Trichlorobenzene | 79 | Not Detected | 590 | Not Detected |
| Hexachlorobutadiene | 79 | Not Detected | 840 | Not Detected |
| TPH ref. to Gasoline (MW=100) | 990 | 160000 | 4000 | 650000 |

**Container Type: 6 Liter Summa Canister (100% Certified)**

| Surrogates | %Recovery | Method Limits |
|---|---|---|
| Toluene-d8 | 104 | 70-130 |
| 1,2-Dichloroethane-d4 | 108 | 70-130 |
| 4-Bromofluorobenzene | 95 | 70-130 |

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**Client Sample ID: Lab Blank**

**Lab ID#: 1210515-02A**

**EPA METHOD TO-15 GC/MS FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **2102906** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 10/29/12 11:05 AM** | |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| Freon 12 | 0.50 | Not Detected | 2.5 | Not Detected |
| Freon 114 | 0.50 | Not Detected | 3.5 | Not Detected |
| Chloromethane | 5.0 | Not Detected | 10 | Not Detected |
| Vinyl Chloride | 0.50 | Not Detected | 1.3 | Not Detected |
| 1,3-Butadiene | 0.50 | Not Detected | 1.1 | Not Detected |
| Bromomethane | 5.0 | Not Detected | 19 | Not Detected |
| Chloroethane | 2.0 | Not Detected | 5.3 | Not Detected |
| Freon 11 | 0.50 | Not Detected | 2.8 | Not Detected |
| Ethanol | 2.0 | Not Detected | 3.8 | Not Detected |
| Freon 113 | 0.50 | Not Detected | 3.8 | Not Detected |
| 1,1-Dichloroethene | 0.50 | Not Detected | 2.0 | Not Detected |
| Acetone | 5.0 | Not Detected | 12 | Not Detected |
| 2-Propanol | 2.0 | Not Detected | 4.9 | Not Detected |
| Carbon Disulfide | 2.0 | Not Detected | 6.2 | Not Detected |
| 3-Chloropropene | 2.0 | Not Detected | 6.3 | Not Detected |
| Methylene Chloride | 5.0 | Not Detected | 17 | Not Detected |
| Methyl tert-butyl ether | 0.50 | Not Detected | 1.8 | Not Detected |
| trans-1,2-Dichloroethene | 0.50 | Not Detected | 2.0 | Not Detected |
| Hexane | 0.50 | Not Detected | 1.8 | Not Detected |
| 1,1-Dichloroethane | 0.50 | Not Detected | 2.0 | Not Detected |
| 2-Butanone (Methyl Ethyl Ketone) | 2.0 | Not Detected | 5.9 | Not Detected |
| cis-1,2-Dichloroethene | 0.50 | Not Detected | 2.0 | Not Detected |
| Tetrahydrofuran | 0.50 | Not Detected | 1.5 | Not Detected |
| Chloroform | 0.50 | Not Detected | 2.4 | Not Detected |
| 1,1,1-Trichloroethane | 0.50 | Not Detected | 2.7 | Not Detected |
| Cyclohexane | 0.50 | Not Detected | 1.7 | Not Detected |
| Carbon Tetrachloride | 0.50 | Not Detected | 3.1 | Not Detected |
| 2,2,4-Trimethylpentane | 0.50 | Not Detected | 2.3 | Not Detected |
| Benzene | 0.50 | Not Detected | 1.6 | Not Detected |
| 1,2-Dichloroethane | 0.50 | Not Detected | 2.0 | Not Detected |
| Heptane | 0.50 | Not Detected | 2.0 | Not Detected |
| Trichloroethene | 0.50 | Not Detected | 2.7 | Not Detected |
| 1,2-Dichloropropane | 0.50 | Not Detected | 2.3 | Not Detected |
| 1,4-Dioxane | 2.0 | Not Detected | 7.2 | Not Detected |
| Bromodichloromethane | 0.50 | Not Detected | 3.4 | Not Detected |
| cis-1,3-Dichloropropene | 0.50 | Not Detected | 2.3 | Not Detected |
| 4-Methyl-2-pentanone | 0.50 | Not Detected | 2.0 | Not Detected |
| Toluene | 0.50 | Not Detected | 1.9 | Not Detected |
| trans-1,3-Dichloropropene | 0.50 | Not Detected | 2.3 | Not Detected |
| 1,1,2-Trichloroethane | 0.50 | Not Detected | 2.7 | Not Detected |
| Tetrachloroethene | 0.50 | Not Detected | 3.4 | Not Detected |
| 2-Hexanone | 2.0 | Not Detected | 8.2 | Not Detected |

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**Client Sample ID: Lab Blank**

**Lab ID#: 1210515-02A**

**EPA METHOD TO-15 GC/MS FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **2102906** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 10/29/12 11:05 AM** | |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| Dibromochloromethane | 0.50 | Not Detected | 4.2 | Not Detected |
| 1,2-Dibromoethane (EDB) | 0.50 | Not Detected | 3.8 | Not Detected |
| Chlorobenzene | 0.50 | Not Detected | 2.3 | Not Detected |
| Ethyl Benzene | 0.50 | Not Detected | 2.2 | Not Detected |
| m,p-Xylene | 0.50 | Not Detected | 2.2 | Not Detected |
| o-Xylene | 0.50 | Not Detected | 2.2 | Not Detected |
| Styrene | 0.50 | Not Detected | 2.1 | Not Detected |
| Bromoform | 0.50 | Not Detected | 5.2 | Not Detected |
| Cumene | 0.50 | Not Detected | 2.4 | Not Detected |
| 1,1,2,2-Tetrachloroethane | 0.50 | Not Detected | 3.4 | Not Detected |
| Propylbenzene | 0.50 | Not Detected | 2.4 | Not Detected |
| 4-Ethyltoluene | 0.50 | Not Detected | 2.4 | Not Detected |
| 1,3,5-Trimethylbenzene | 0.50 | Not Detected | 2.4 | Not Detected |
| 1,2,4-Trimethylbenzene | 0.50 | Not Detected | 2.4 | Not Detected |
| 1,3-Dichlorobenzene | 0.50 | Not Detected | 3.0 | Not Detected |
| 1,4-Dichlorobenzene | 0.50 | Not Detected | 3.0 | Not Detected |
| alpha-Chlorotoluene | 0.50 | Not Detected | 2.6 | Not Detected |
| 1,2-Dichlorobenzene | 0.50 | Not Detected | 3.0 | Not Detected |
| 1,2,4-Trichlorobenzene | 2.0 | Not Detected | 15 | Not Detected |
| Hexachlorobutadiene | 2.0 | Not Detected | 21 | Not Detected |
| TPH ref. to Gasoline (MW=100) | 25 | Not Detected | 100 | Not Detected |

**Container Type: NA - Not Applicable**

| Surrogates | %Recovery | Method Limits |
|---|---|---|
| Toluene-d8 | 101 | 70-130 |
| 1,2-Dichloroethane-d4 | 100 | 70-130 |
| 4-Bromofluorobenzene | 97 | 70-130 |

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**Client Sample ID: CCV**

**Lab ID#: 1210515-03A**

**EPA METHOD TO-15 GC/MS FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **2102902** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 10/29/12 08:25 AM** | |

| Compound | %Recovery |
|---|---|
| Freon 12 | 105 |
| Freon 114 | 100 |
| Chloromethane | 110 |
| Vinyl Chloride | 100 |
| 1,3-Butadiene | 92 |
| Bromomethane | 109 |
| Chloroethane | 93 |
| Freon 11 | 98 |
| Ethanol | 95 |
| Freon 113 | 91 |
| 1,1-Dichloroethene | 86 |
| Acetone | 92 |
| 2-Propanol | 97 |
| Carbon Disulfide | 104 |
| 3-Chloropropene | 100 |
| Methylene Chloride | 94 |
| Methyl tert-butyl ether | 85 |
| trans-1,2-Dichloroethene | 87 |
| Hexane | 90 |
| 1,1-Dichloroethane | 90 |
| 2-Butanone (Methyl Ethyl Ketone) | 98 |
| cis-1,2-Dichloroethene | 91 |
| Tetrahydrofuran | 94 |
| Chloroform | 96 |
| 1,1,1-Trichloroethane | 99 |
| Cyclohexane | 90 |
| Carbon Tetrachloride | 106 |
| 2,2,4-Trimethylpentane | 91 |
| Benzene | 93 |
| 1,2-Dichloroethane | 107 |
| Heptane | 97 |
| Trichloroethene | 100 |
| 1,2-Dichloropropane | 96 |
| 1,4-Dioxane | 104 |
| Bromodichloromethane | 111 |
| cis-1,3-Dichloropropene | 109 |
| 4-Methyl-2-pentanone | 108 |
| Toluene | 96 |
| trans-1,3-Dichloropropene | 112 |
| 1,1,2-Trichloroethane | 96 |
| Tetrachloroethene | 96 |
| 2-Hexanone | 105 |

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**Client Sample ID: CCV**

**Lab ID#: 1210515-03A**

**EPA METHOD TO-15 GC/MS FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **2102902** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 10/29/12 08:25 AM** | |

| Compound | %Recovery |
|---|---|
| Dibromochloromethane | 112 |
| 1,2-Dibromoethane (EDB) | 101 |
| Chlorobenzene | 95 |
| Ethyl Benzene | 95 |
| m,p-Xylene | 96 |
| o-Xylene | 99 |
| Styrene | 98 |
| Bromoform | 112 |
| Cumene | 100 |
| 1,1,2,2-Tetrachloroethane | 101 |
| Propylbenzene | 103 |
| 4-Ethyltoluene | 102 |
| 1,3,5-Trimethylbenzene | 95 |
| 1,2,4-Trimethylbenzene | 92 |
| 1,3-Dichlorobenzene | 98 |
| 1,4-Dichlorobenzene | 97 |
| alpha-Chlorotoluene | 121 |
| 1,2-Dichlorobenzene | 97 |
| 1,2,4-Trichlorobenzene | 88 |
| Hexachlorobutadiene | 101 |
| TPH ref. to Gasoline (MW=100) | 100 |

**Container Type: NA - Not Applicable**

| Surrogates | %Recovery | Method Limits |
|---|---|---|
| Toluene-d8 | 104 | 70-130 |
| 1,2-Dichloroethane-d4 | 104 | 70-130 |
| 4-Bromofluorobenzene | 105 | 70-130 |

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**Client Sample ID: LCS**

**Lab ID#: 1210515-04A**

**EPA METHOD TO-15 GC/MS FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **2102903** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 10/29/12 08:59 AM** | |

| Compound | %Recovery |
|---|---|
| Freon 12 | 81 |
| Freon 114 | 81 |
| Chloromethane | 89 |
| Vinyl Chloride | 80 |
| 1,3-Butadiene | 74 |
| Bromomethane | 95 |
| Chloroethane | 87 |
| Freon 11 | 78 |
| Ethanol | 94 |
| Freon 113 | 74 |
| 1,1-Dichloroethene | 74 |
| Acetone | 83 |
| 2-Propanol | 80 |
| Carbon Disulfide | 103 |
| 3-Chloropropene | 90 |
| Methylene Chloride | 75 |
| Methyl tert-butyl ether | 70 |
| trans-1,2-Dichloroethene | 80 |
| Hexane | 72 |
| 1,1-Dichloroethane | 73 |
| 2-Butanone (Methyl Ethyl Ketone) | 80 |
| cis-1,2-Dichloroethene | 76 |
| Tetrahydrofuran | 76 |
| Chloroform | 79 |
| 1,1,1-Trichloroethane | 79 |
| Cyclohexane | 74 |
| Carbon Tetrachloride | 84 |
| 2,2,4-Trimethylpentane | 71 |
| Benzene | 74 |
| 1,2-Dichloroethane | 84 |
| Heptane | 78 |
| Trichloroethene | 80 |
| 1,2-Dichloropropane | 77 |
| 1,4-Dioxane | 83 |
| Bromodichloromethane | 85 |
| cis-1,3-Dichloropropene | 84 |
| 4-Methyl-2-pentanone | 81 |
| Toluene | 75 |
| trans-1,3-Dichloropropene | 92 |
| 1,1,2-Trichloroethane | 80 |
| Tetrachloroethene | 78 |
| 2-Hexanone | 80 |

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**Client Sample ID: LCS**

**Lab ID#: 1210515-04A**

**EPA METHOD TO-15 GC/MS FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **2102903** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 10/29/12 08:59 AM** | |

| Compound | %Recovery |
|---|---|
| Dibromochloromethane | 89 |
| 1,2-Dibromoethane (EDB) | 84 |
| Chlorobenzene | 78 |
| Ethyl Benzene | 78 |
| m,p-Xylene | 79 |
| o-Xylene | 81 |
| Styrene | 80 |
| Bromoform | 89 |
| Cumene | 82 |
| 1,1,2,2-Tetrachloroethane | 85 |
| Propylbenzene | 84 |
| 4-Ethyltoluene | 79 |
| 1,3,5-Trimethylbenzene | 78 |
| 1,2,4-Trimethylbenzene | 72 |
| 1,3-Dichlorobenzene | 82 |
| 1,4-Dichlorobenzene | 80 |
| alpha-Chlorotoluene | 94 |
| 1,2-Dichlorobenzene | 78 |
| 1,2,4-Trichlorobenzene | 78 |
| Hexachlorobutadiene | 79 |
| TPH ref. to Gasoline (MW=100) | Not Spiked |

**Container Type: NA - Not Applicable**

| Surrogates | %Recovery | Method Limits |
|---|---|---|
| Toluene-d8 | 102 | 70-130 |
| 1,2-Dichloroethane-d4 | 101 | 70-130 |
| 4-Bromofluorobenzene | 104 | 70-130 |

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**Client Sample ID: LCSD**

**Lab ID#: 1210515-04AA**

**EPA METHOD TO-15 GC/MS FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **2102904** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 10/29/12 09:31 AM** | |

| Compound | %Recovery |
|---|---|
| Freon 12 | 76 |
| Freon 114 | 77 |
| Chloromethane | 86 |
| Vinyl Chloride | 76 |
| 1,3-Butadiene | 72 |
| Bromomethane | 90 |
| Chloroethane | 83 |
| Freon 11 | 74 |
| Ethanol | 90 |
| Freon 113 | 72 |
| 1,1-Dichloroethene | 72 |
| Acetone | 80 |
| 2-Propanol | 78 |
| Carbon Disulfide | 96 |
| 3-Chloropropene | 88 |
| Methylene Chloride | 73 |
| Methyl tert-butyl ether | 69 |
| trans-1,2-Dichloroethene | 78 |
| Hexane | 70 |
| 1,1-Dichloroethane | 70 |
| 2-Butanone (Methyl Ethyl Ketone) | 78 |
| cis-1,2-Dichloroethene | 72 |
| Tetrahydrofuran | 73 |
| Chloroform | 75 |
| 1,1,1-Trichloroethane | 76 |
| Cyclohexane | 70 |
| Carbon Tetrachloride | 81 |
| 2,2,4-Trimethylpentane | 69 |
| Benzene | 73 |
| 1,2-Dichloroethane | 81 |
| Heptane | 76 |
| Trichloroethene | 78 |
| 1,2-Dichloropropane | 74 |
| 1,4-Dioxane | 79 |
| Bromodichloromethane | 82 |
| cis-1,3-Dichloropropene | 82 |
| 4-Methyl-2-pentanone | 79 |
| Toluene | 74 |
| trans-1,3-Dichloropropene | 88 |
| 1,1,2-Trichloroethane | 76 |
| Tetrachloroethene | 74 |
| 2-Hexanone | 76 |

eurofins | Air Toxics

**Client Sample ID: LCSD**

**Lab ID#: 1210515-04AA**

**EPA METHOD TO-15 GC/MS FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **2102904** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 10/29/12 09:31 AM** | |

| Compound | %Recovery |
|---|---|
| Dibromochloromethane | 84 |
| 1,2-Dibromoethane (EDB) | 80 |
| Chlorobenzene | 74 |
| Ethyl Benzene | 73 |
| m,p-Xylene | 72 |
| o-Xylene | 75 |
| Styrene | 73 |
| Bromoform | 82 |
| Cumene | 76 |
| 1,1,2,2-Tetrachloroethane | 80 |
| Propylbenzene | 76 |
| 4-Ethyltoluene | 67 |
| 1,3,5-Trimethylbenzene | 74 |
| 1,2,4-Trimethylbenzene | 65 |
| 1,3-Dichlorobenzene | 75 |
| 1,4-Dichlorobenzene | 73 |
| alpha-Chlorotoluene | 86 |
| 1,2-Dichlorobenzene | 72 |
| 1,2,4-Trichlorobenzene | 69 |
| Hexachlorobutadiene | 72 |
| TPH ref. to Gasoline (MW=100) | Not Spiked |

**Container Type: NA - Not Applicable**

| Surrogates | %Recovery | Method Limits |
|---|---|---|
| Toluene-d8 | 101 | 70-130 |
| 1,2-Dichloroethane-d4 | 99 | 70-130 |
| 4-Bromofluorobenzene | 101 | 70-130 |

**Pace Analytical Services, Inc.**
940 South Harney
Seattle, WA 98108
(206)767-5060

May 10, 2012

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

RE: Project: Tarr Vancouver Phase II
Pace Project No.: 2511928

Dear John Foxwell:
Enclosed are the analytical results for sample(s) received by the laboratory on April 26, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Per client request on 05/04/12, total lead was cancelled and dissolved lead was added.

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

Sincerely,

Jennifer Gross

jennifer.gross@pacelabs.com
Project Manager

Enclosures

**Pace Analytical Services, Inc.**
940 South Harney
Seattle, WA 98108
(206)767-5060

## CERTIFICATIONS

Project: Tarr Vancouver Phase II
Pace Project No.: 2511928

**Washington Certification IDs**
940 South Harney Street, Seattle, WA 98108
Alaska CS Certification #: UST-025
Arizona Certification #: AZ0770
California Certification #: 01153CA
Florida/NELAP Certification #: E87617
Oregon Certification #: WA200007
Washington Certification #: C555

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(206)767-5060

## SAMPLE ANALYTE COUNT

Project: Tarr Vancouver Phase II
Pace Project No.: 2511928

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|---|---|---|---|---|---|
| **2511928001** | **SB-5-W** | EPA 8011 | AY1 | 2 | PASI-S |
| | | NWTPH-Dx | AY1 | 4 | PASI-S |
| | | EPA 6010 | BGA | 1 | PASI-S |
| | | EPA 5030B/8260 | LPM | 10 | PASI-S |
| | | NWTPH-Gx | LPM | 2 | PASI-S |

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## PROJECT NARRATIVE

Project: Tarr Vancouver Phase II
Pace Project No.: 2511928

**Method:** **EPA 8011**
**Description:** 8011 GCS EDB and DBCP
**Client:** Ash Creek Associates
**Date:** May 10, 2012

**General Information:**
1 sample was analyzed for EPA 8011. 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 8011 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 Phase II
Pace Project No.: 2511928

**Method:** **NWTPH-Dx**
**Description:** NWTPH-Dx GCS
**Client:** Ash Creek Associates
**Date:** May 10, 2012

**General Information:**
1 sample was 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 Phase II
Pace Project No.: 2511928

**Method:** **EPA 6010**
**Description:** 6010 MET ICP, Dissolved (LF)
**Client:** Ash Creek Associates
**Date:** May 10, 2012

**General Information:**
1 sample was 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 3010 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 Phase II
Pace Project No.: 2511928

**Method:** **EPA 5030B/8260**
**Description:** 8260 MSV
**Client:** Ash Creek Associates
**Date:** May 10, 2012

**General Information:**
1 sample was 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.

**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 Phase II
Pace Project No.: 2511928

**Method:** **NWTPH-Gx**
**Description:** NWTPH-Gx MSV
**Client:** Ash Creek Associates
**Date:** May 10, 2012

**General Information:**
1 sample was 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 Phase II
Pace Project No.: 2511928

**Sample: SB-5-W** **Lab ID: 2511928001** Collected: 04/25/12 09:30 Received: 04/26/12 09:30 Matrix: Water

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8011 GCS EDB and DBCP** | Analytical Method: EPA 8011 Preparation Method: EPA 8011 | | | | | | | |
| 1,2-Dibromoethane (EDB) | **0.047** | ug/L | 0.010 | 1 | 05/03/12 18:10 | 05/03/12 22:29 | 106-93-4 | |
| ***Surrogates*** | | | | | | | | |
| 4-Bromofluorobenzene (S) | 114 | % | 69-145 | 1 | 05/03/12 18:10 | 05/03/12 22:29 | 460-00-4 | |
| **NWTPH-Dx GCS** | Analytical Method: NWTPH-Dx Preparation Method: EPA 3510 | | | | | | | |
| Diesel Range | **0.095** | mg/L | 0.077 | 1 | 05/01/12 10:00 | 05/01/12 23:33 | | |
| Motor Oil Range | ND | mg/L | 0.38 | 1 | 05/01/12 10:00 | 05/01/12 23:33 | 64742-65-0 | |
| ***Surrogates*** | | | | | | | | |
| n-Octacosane (S) | 88 | % | 50-150 | 1 | 05/01/12 10:00 | 05/01/12 23:33 | 630-02-4 | |
| o-Terphenyl (S) | 77 | % | 50-150 | 1 | 05/01/12 10:00 | 05/01/12 23:33 | 84-15-1 | |
| **6010 MET ICP, Dissolved (LF)** | Analytical Method: EPA 6010 Preparation Method: EPA 3010 | | | | | | | |
| Lead, Dissolved | ND | ug/L | 10.0 | 1 | 05/08/12 09:50 | 05/09/12 12:52 | 7439-92-1 | |
| **8260 MSV** | Analytical Method: EPA 5030B/8260 | | | | | | | |
| 1,2-Dichloroethane | ND | ug/L | 1.0 | 1 | | 04/28/12 02:49 | 107-06-2 | |
| Benzene | ND | ug/L | 1.0 | 1 | | 04/28/12 02:49 | 71-43-2 | |
| Ethylbenzene | ND | ug/L | 1.0 | 1 | | 04/28/12 02:49 | 100-41-4 | |
| Methyl-tert-butyl ether | **1.3** | ug/L | 1.0 | 1 | | 04/28/12 02:49 | 1634-04-4 | |
| Toluene | ND | ug/L | 1.0 | 1 | | 04/28/12 02:49 | 108-88-3 | |
| Xylene (Total) | ND | ug/L | 3.0 | 1 | | 04/28/12 02:49 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | |
| 4-Bromofluorobenzene (S) | 108 | % | 79-121 | 1 | | 04/28/12 02:49 | 460-00-4 | |
| Dibromofluoromethane (S) | 100 | % | 81-119 | 1 | | 04/28/12 02:49 | 1868-53-7 | |
| 1,2-Dichloroethane-d4 (S) | 101 | % | 72-127 | 1 | | 04/28/12 02:49 | 17060-07-0 | |
| Toluene-d8 (S) | 100 | % | 77-120 | 1 | | 04/28/12 02:49 | 2037-26-5 | |
| **NWTPH-Gx MSV** | Analytical Method: NWTPH-Gx | | | | | | | |
| Gasoline Range Organics | ND | ug/L | 50.0 | 1 | | 04/28/12 02:49 | | |
| ***Surrogates*** | | | | | | | | |
| 4-Bromofluorobenzene (S) | 108 | % | 50-150 | 1 | | 04/28/12 02:49 | 460-00-4 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Phase II
Pace Project No.: 2511928

QC Batch: MPRP/3005
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 2511928001

METHOD BLANK: 114056 Matrix: Water
Associated Lab Samples: 2511928001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Lead, Dissolved | ug/L | ND | 10.0 | 05/09/12 12:45 | |

LABORATORY CONTROL SAMPLE: 114057

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Lead, Dissolved | ug/L | 500 | 454 | 91 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 114058 114059

| Parameter | Units | 2511928001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead, Dissolved | ug/L | ND | 500 | 500 | 468 | 474 | 93 | 95 | 75-125 | 1 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Phase II
Pace Project No.: 2511928

QC Batch: MSV/6888
QC Batch Method: EPA 5030B/8260
Analysis Method: EPA 5030B/8260
Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 2511928001

METHOD BLANK: 112890 Matrix: Water
Associated Lab Samples: 2511928001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,2-Dichloroethane | ug/L | ND | 1.0 | 04/27/12 22:38 | |
| Benzene | ug/L | ND | 1.0 | 04/27/12 22:38 | |
| Ethylbenzene | ug/L | ND | 1.0 | 04/27/12 22:38 | |
| Methyl-tert-butyl ether | ug/L | ND | 1.0 | 04/27/12 22:38 | |
| Toluene | ug/L | ND | 1.0 | 04/27/12 22:38 | |
| Xylene (Total) | ug/L | ND | 3.0 | 04/27/12 22:38 | |
| 1,2-Dichloroethane-d4 (S) | % | 102 | 72-127 | 04/27/12 22:38 | |
| 4-Bromofluorobenzene (S) | % | 103 | 79-121 | 04/27/12 22:38 | |
| Dibromofluoromethane (S) | % | 97 | 81-119 | 04/27/12 22:38 | |
| Toluene-d8 (S) | % | 100 | 77-120 | 04/27/12 22:38 | |

LABORATORY CONTROL SAMPLE: 112891

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,2-Dichloroethane | ug/L | 20 | 18.0 | 90 | 63-131 | |
| Benzene | ug/L | 20 | 16.1 | 81 | 66-123 | |
| Ethylbenzene | ug/L | 20 | 17.1 | 86 | 67-122 | |
| Methyl-tert-butyl ether | ug/L | 20 | 19.9 | 99 | 65-138 | |
| Toluene | ug/L | 20 | 17.1 | 86 | 64-118 | |
| Xylene (Total) | ug/L | 60 | 51.3 | 86 | 68-122 | |
| 1,2-Dichloroethane-d4 (S) | % | | | 100 | 72-127 | |
| 4-Bromofluorobenzene (S) | % | | | 93 | 79-121 | |
| Dibromofluoromethane (S) | % | | | 100 | 81-119 | |
| Toluene-d8 (S) | % | | | 100 | 77-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 112892 112893

| Parameter | Units | 2511830002 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dichloroethane | ug/L | ND | 20 | 20 | 22.2 | 23.8 | 111 | 119 | 60-138 | 7 | |
| Benzene | ug/L | ND | 20 | 20 | 21.0 | 22.2 | 104 | 109 | 63-138 | 5 | |
| Ethylbenzene | ug/L | ND | 20 | 20 | 21.8 | 23.3 | 109 | 116 | 65-135 | 6 | |
| Methyl-tert-butyl ether | ug/L | ND | 20 | 20 | 24.2 | 26.1 | 121 | 130 | 59-143 | 8 | |
| Toluene | ug/L | ND | 20 | 20 | 21.8 | 23.3 | 109 | 116 | 64-128 | 6 | |
| Xylene (Total) | ug/L | ND | 60 | 60 | 64.4 | 68.9 | 107 | 114 | 65-133 | 7 | |
| 1,2-Dichloroethane-d4 (S) | % | | | | | | 100 | 102 | 72-127 | | |
| 4-Bromofluorobenzene (S) | % | | | | | | 92 | 91 | 79-121 | | |
| Dibromofluoromethane (S) | % | | | | | | 101 | 102 | 81-119 | | |
| Toluene-d8 (S) | % | | | | | | 100 | 100 | 77-120 | | |



**REPORT OF LABORATORY ANALYSIS**

Pace Analytical Services, Inc.
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(206)767-5060

## QUALITY CONTROL DATA

Project: Tarr Vancouver Phase II
Pace Project No.: 2511928

QC Batch: MSV/6889
QC Batch Method: NWTPH-Gx
Analysis Method: NWTPH-Gx
Analysis Description: NWTPH-Gx MSV Water
Associated Lab Samples: 2511928001

METHOD BLANK: 112894 Matrix: Water
Associated Lab Samples: 2511928001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Gasoline Range Organics | ug/L | ND | 50.0 | 04/27/12 22:38 | |
| 4-Bromofluorobenzene (S) | % | 103 | 50-150 | 04/27/12 22:38 | |

LABORATORY CONTROL SAMPLE: 112895

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Gasoline Range Organics | ug/L | 500 | 428 | 86 | 65-139 | |
| 4-Bromofluorobenzene (S) | % | | | 100 | 50-150 | |

SAMPLE DUPLICATE: 112896

| Parameter | Units | 2511830002 Result | Dup Result | RPD | Qualifiers |
|---|---|---|---|---|---|
| Gasoline Range Organics | ug/L | ND | ND | | |
| 4-Bromofluorobenzene (S) | % | 104 | 102 | 2 | |

SAMPLE DUPLICATE: 113235

| Parameter | Units | 2511830003 Result | Dup Result | RPD | Qualifiers |
|---|---|---|---|---|---|
| Gasoline Range Organics | ug/L | ND | ND | | |
| 4-Bromofluorobenzene (S) | % | 102 | 103 | .9 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Phase II
Pace Project No.: 2511928

QC Batch: OEXT/5459 Analysis Method: EPA 8011
QC Batch Method: EPA 8011 Analysis Description: GCS 8011 EDB DBCP
Associated Lab Samples: 2511928001

METHOD BLANK: 113603 Matrix: Water
Associated Lab Samples: 2511928001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,2-Dibromoethane (EDB) | ug/L | ND | 0.010 | 05/03/12 22:00 | |
| 4-Bromofluorobenzene (S) | % | 112 | 69-145 | 05/03/12 22:00 | |

LABORATORY CONTROL SAMPLE: 113604

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,2-Dibromoethane (EDB) | ug/L | .25 | 0.28 | 112 | 68-124 | |
| 4-Bromofluorobenzene (S) | % | | | 114 | 69-145 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 113605 113606

| Parameter | Units | 2511929008 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dibromoethane (EDB) | ug/L | 0.00014 mg/L | .25 | .25 | 0.32 | 0.30 | 73 | 66 | 62-129 | 5 | |
| 4-Bromofluorobenzene (S) | % | | | | | | 90 | 86 | 69-145 | | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 113607 113608

| Parameter | Units | 2511953002 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dibromoethane (EDB) | ug/L | ND | .25 | .25 | 0.25 | 0.24 | 98 | 98 | 62-129 | 2 | |
| 4-Bromofluorobenzene (S) | % | | | | | | 111 | 108 | 69-145 | | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Phase II
Pace Project No.: 2511928

QC Batch: OEXT/5443
QC Batch Method: EPA 3510
Analysis Method: NWTPH-Dx
Analysis Description: NWTPH-Dx GCS
Associated Lab Samples: 2511928001

METHOD BLANK: 113171 Matrix: Water
Associated Lab Samples: 2511928001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Diesel Range | mg/L | ND | 0.020 | 05/01/12 22:58 | |
| Motor Oil Range | mg/L | ND | 0.10 | 05/01/12 22:58 | |
| n-Octacosane (S) | % | 97 | 50-150 | 05/01/12 22:58 | |
| o-Terphenyl (S) | % | 84 | 50-150 | 05/01/12 22:58 | |

LABORATORY CONTROL SAMPLE: 113172

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Diesel Range | mg/L | 1 | 1.1 | 106 | 51-114 | |
| Motor Oil Range | mg/L | 1 | 0.99 | 99 | 62-120 | |
| n-Octacosane (S) | % | | | 108 | 50-150 | |
| o-Terphenyl (S) | % | | | 102 | 50-150 | |

SAMPLE DUPLICATE: 113173

| Parameter | Units | 2511928001 Result | Dup Result | RPD | Qualifiers |
|---|---|---|---|---|---|
| Diesel Range | mg/L | 0.095 | .061J | | |
| Motor Oil Range | mg/L | ND | ND | | |
| n-Octacosane (S) | % | 88 | 87 | 2 | |
| o-Terphenyl (S) | % | 77 | 76 | 3 | |

SAMPLE DUPLICATE: 113174

| Parameter | Units | 2511926005 Result | Dup Result | RPD | Qualifiers |
|---|---|---|---|---|---|
| Diesel Range | mg/L | 0.14 | 0.11 | 19 | |
| Motor Oil Range | mg/L | 0.10 | .052J | | |
| n-Octacosane (S) | % | 83 | 71 | 15 | |
| o-Terphenyl (S) | % | 74 | 63 | 17 | |

**Pace Analytical Services, Inc.**
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# QUALIFIERS

Project: Tarr Vancouver Phase II
Pace Project No.: 2511928

**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 TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

**LABORATORIES**

PASI-S Pace Analytical Services - Seattle

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Tarr Vancouver Phase II
Pace Project No.: 2511928

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **2511928001** | **SB-5-W** | EPA 8011 | OEXT/5459 | EPA 8011 | GCSV/3506 |
| **2511928001** | **SB-5-W** | EPA 3510 | OEXT/5443 | NWTPH-Dx | GCSV/3491 |
| **2511928001** | **SB-5-W** | EPA 3010 | MPRP/3005 | EPA 6010 | ICP/2804 |
| **2511928001** | **SB-5-W** | EPA 5030B/8260 | MSV/6888 | | |
| **2511928001** | **SB-5-W** | NWTPH-Gx | MSV/6889 | | |

# CHAIN OF CUSTODY RECORD

2511928

Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

Client Name: Ash Creek Associates
Address: 3015 SW 1st Avenue
City/State/Zip: Portland, OR 97201

Telephone Number: 503.924.4704
Fax No.: 503.924.4707

Project Manager: John Foxwell jfoxwell@ashcreekassociates.com

Analytical Lab: Pace Analytical

Project Name: Tarr Vancouver Phase II

Report To: John Foxwell jfoxwell@ashcreekassociates.com

Project Number: 1821-00

Page: 1 of 1

Sampler Name: Carmen Owens

| Sample ID / Description | Date Sampled | Time Sampled | No. of Containers Shipped | Grab | Composite | Field Filtered | Matrix: Water | Matrix: Soil | Matrix: Other (specify): | Analyses Required: TPHg (NW-TPHgx) | TPHdx (NW-TPHdx) | BTEX, EDB, EDC, MTBE* | ~~Total Lead~~ JG 5/9/12** | Diss. Lead (JG 5/9/12)** | | | | | | Comments/Additional Analyses | RUSH TAT (Pre-Schedule) | Standard TAT | Fax Results | Send QC with report |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SB-5-W | 4/25/12 | 0930 | 11 | X | | | X | | | X | X | X | X | X | | | | | | | | X | | |
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**Special Instructions:**

*For VOC analyses, use method to achieve MTCA Method A grounwater cleanup levels, including 0.01 µg/L level for EDB

**Per client request, the total lead was cancelled and dissolved lead was added. JG 05/09/12.

**Method of Shipment:**

| Relinquished by: Name/Company | Date | Time | Received by: Name/Company | Date | Time |
|---|---|---|---|---|---|
| PCS | 04/26/12 | 0930 | Josh Swig / PACE | 04/26/12 | 0930 |
| Relinquished by: Name/Company | Date | Time | Received by: Name/Company | Date | Time |
| 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: 1.9°C
Sample Containers Intact? (Y) N
VOCs Free of Headspace? (Y) N

4/27/12

## Sample Container Count

2511928

CLIENT: Ashcreek

COC PAGE 1 of 1
COC ID# /

Trip Blank(s) Provided? Y / (N)

| Sample Line Item | VG9H | AG1H | AG1U | BP1U | BP2U | BP3U | BP3N | BP3S | WGKU | WGFU | WG2U | DG9M | DG9B | VG9W | VSG | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6 | 2 | 2 | | | | 1 | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | |
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| 6 | | | | | | | | | | | | | | | | | | | |
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| 9 | | | | | | | | | | | | | | | | | | | |
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|---|---|---|---|---|---|
| AG1H | 1 liter HCL amber glass | BP2S | 500mL H2SO4 plastic | JGFU | 4 oz amber glass soil jar |
| AG1U | 1liter unpreserved amber glass | BP2U | 500mL unpreserved plastic | WGKU | 8 oz clear glass soil jar |
| AG2S | 500mL H2SO4 amber glass | BP2Z | 500mL NaOH, Zn Ac | WGFU | 4 oz clear glass soil jar |
| AG2U | 500mL unpreserved amber glass | BP3C | 250mL NaOH plastic | WG2U | 2 oz clear glass soil jar |
| AG3S | 250mL H2SO4 amber glass | BP3N | 250mL HNO3 plastic | JGFM | 4 oz amber glass soil jar with MeOH |
| 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 clear vial pre-weighted with DI water |
| BP1N | 1 liter HNO3 plastic | DG9B | 40mL Na Bisulfate clear vial | VSG | Headspace septa vial |
| BP1S | 1 liter H2SO4 plastic | DG9H | 40mL HCL amber voa vial | VG9H | 40mL HCL clear vial |
| BP1U | 1 liter unpreserved plastic | DG9M | 40mL MeOH clear vial | WGFX | 4oz wide jar w/hexane wipe |
| BP1Z | 1 liter NaOH, Zn, Ac | DG9T | 40mL Na Thio amber vial | VG9T | 40mL Na Thio. clear vial |
| BP2N | 500mL HNO3 plastic | DG9U | 40mL unpreserved amber vial | ZPLC | Ziploc Bag |
| BP2O | 500mL NaOH plastic | I | Wipe/Swab | U | Summa Can |

## Sample Condition Upon Receipt

Pace Analytical

Client Name: Askereck Project # 2511928

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

Tracking #: 2005306

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 01731962 or 226099 Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 1.9°C Biological Tissue is Frozen: Yes No

Temp should be above freezing ≤ 6°C

Date and Initials of person examining contents: MD 04/26/12

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: Water | | | | |
| 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 | ☑Yes | ☐No | ☐N/A | Initial when completed / Lot # of added preservative |
| 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 Creation Date: | | | | |

**Client Notification/ Resolution:** Field Data Required? Y / N

Person Contacted: John Foxwell Date/Time: 4/27/12 11:25 - Phone

Comments/ Resolution:

5 DAY FUELS / 10 DAY 6010 Pb, no SEC on DX. ae

**Project Manager Review:** JENNI GROSS Date: 4/27/12

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)

**Pace Analytical Services, Inc.**
940 South Harney
Seattle, WA 98108
(206)767-5060

May 30, 2012

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

RE: Project: Tarr Vancouver Cardlock
Pace Project No.: 2512270

Dear John Foxwell:
Enclosed are the analytical results for sample(s) received by the laboratory on May 22, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted 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

**Pace Analytical Services, Inc.**
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## CERTIFICATIONS

Project: Tarr Vancouver Cardlock
Pace Project No.: 2512270

**Washington Certification IDs**
940 South Harney Street, Seattle, WA 98108
Alaska CS Certification #: UST-025
Arizona Certification #: AZ0770
California Certification #: 01153CA
Florida/NELAP Certification #: E87617
Oregon Certification #: WA200007
Washington Certification #: C555

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## SAMPLE ANALYTE COUNT

Project: Tarr Vancouver Cardlock
Pace Project No.: 2512270

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|---|---|---|---|---|---|
| **2512270001** | **UST Excavation - 9'** | NWTPH-HCID | AY1 | 6 | PASI-S |
| **2512270002** | **UST Excavation - 9'** | NWTPH-Gx | LPM | 3 | PASI-S |
| | | ASTM D2974-87 | RAB | 1 | PASI-S |
| **2512270003** | **UST - East Sidewall - 7.5'** | NWTPH-Gx | LPM | 3 | PASI-S |
| | | EPA 6010 | BGA | 1 | PASI-S |
| | | EPA 8260 | ERB | 73 | PASI-S |
| | | ASTM D2974-87 | RAB | 1 | PASI-S |
| **2512270004** | **UST - South End - 8'** | NWTPH-Gx | LPM | 3 | PASI-S |
| | | ASTM D2974-87 | RAB | 1 | PASI-S |
| **2512270005** | **UST - North End - 5.5'** | NWTPH-Gx | LPM | 3 | PASI-S |
| | | ASTM D2974-87 | RAB | 1 | PASI-S |
| **2512270006** | **UST - West Sidewall - 8'** | NWTPH-Gx | LPM | 3 | PASI-S |
| | | ASTM D2974-87 | RAB | 1 | PASI-S |
| **2512270007** | **Stockpile** | NWTPH-Gx | LPM | 3 | PASI-S |
| | | EPA 6010 | BGA | 1 | PASI-S |
| | | EPA 8260 | ERB | 73 | PASI-S |
| | | ASTM D2974-87 | RAB | 1 | PASI-S |

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# PROJECT NARRATIVE

Project: Tarr Vancouver Cardlock
Pace Project No.: 2512270

**Method:** **NWTPH-HCID**
**Description:** NWTPH HCID
**Client:** Ash Creek Associates
**Date:** May 30, 2012

**General Information:**
1 sample was analyzed for NWTPH-HCID. 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 3550B 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.

QC Batch: OEXT/5558

S2: Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).

- DUP (Lab ID: 116302)
  - 4-Bromofluorobenzene (S)
- UST Excavation - 9' (Lab ID: 2512270001)
  - 4-Bromofluorobenzene (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.

**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 Cardlock
Pace Project No.: 2512270

**Method:** **NWTPH-Gx**
**Description:** NWTPH-Gx GCV
**Client:** Ash Creek Associates
**Date:** May 30, 2012

**General Information:**
6 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 Cardlock
Pace Project No.: 2512270

**Method:** **EPA 6010**
**Description:** 6010 MET ICP
**Client:** Ash Creek Associates
**Date:** May 30, 2012

**General Information:**
2 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:**

Analyte Comments:

QC Batch: MPRP/3041

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- Stockpile (Lab ID: 2512270007)
  - Lead

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## PROJECT NARRATIVE

Project: Tarr Vancouver Cardlock
Pace Project No.: 2512270

**Method:** **EPA 8260**
**Description:** 8260/5035A Volatile Organics
**Client:** Ash Creek Associates
**Date:** May 30, 2012

**General Information:**
2 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.

QC Batch: MSV/7060

CH: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

- LCS (Lab ID: 116400)
  - 1,2,4-Trichlorobenzene
  - Chloroethane
  - Dichlorodifluoromethane
  - Styrene
  - Trichlorofluoromethane
  - Vinyl chloride
- MS (Lab ID: 116946)
  - 1,2,4-Trichlorobenzene
  - Chloroethane
  - Dichlorodifluoromethane
  - Styrene
  - Trichlorofluoromethane
  - Vinyl chloride
- MSD (Lab ID: 116947)
  - 1,2,4-Trichlorobenzene
  - Chloroethane
  - Dichlorodifluoromethane
  - Styrene
  - Trichlorofluoromethane
  - Vinyl chloride

**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.

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## PROJECT NARRATIVE

Project: Tarr Vancouver Cardlock
Pace Project No.: 2512270

**Method:** **EPA 8260**
**Description:** 8260/5035A Volatile Organics
**Client:** Ash Creek Associates
**Date:** May 30, 2012

**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/7060

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2512205001

D6: The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.

- MSD (Lab ID: 116947)
  - Bromomethane

**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 Cardlock
Pace Project No.: 2512270

**Sample: UST Excavation - 9'** **Lab ID: 2512270001** Collected: 05/19/12 16:50 Received: 05/22/12 13:45 Matrix: Solid

***Results reported on a "dry-weight" basis***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **NWTPH HCID** | Analytical Method: NWTPH-HCID Preparation Method: EPA 3550B | | | | | | | |
| Diesel Range | **DETECT** | mg/kg | 65.1 | 1 | 05/24/12 09:10 | 05/25/12 00:02 | | |
| Gasoline Range | **DETECT** | mg/kg | 26.0 | 1 | 05/24/12 09:10 | 05/25/12 00:02 | | |
| Motor Oil Range | **Non-Detect** | mg/kg | 130 | 1 | 05/24/12 09:10 | 05/25/12 00:02 | 64742-65-0 | |
| ***Surrogates*** | | | | | | | | |
| 4-Bromofluorobenzene (S) | 186 | % | 50-150 | 1 | 05/24/12 09:10 | 05/25/12 00:02 | 460-00-4 | S2 |
| 2-Fluorobiphenyl (S) | 94 | % | 50-150 | 1 | 05/24/12 09:10 | 05/25/12 00:02 | 321-60-8 | |
| o-Terphenyl (S) | 89 | % | 50-150 | 1 | 05/24/12 09:10 | 05/25/12 00:02 | 84-15-1 | |

**Sample: UST Excavation - 9'** **Lab ID: 2512270002** Collected: 05/19/12 16:50 Received: 05/22/12 13:45 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 | | | | | | | |
| Gasoline Range Organics | **12000** | mg/kg | 752 | 100 | 05/24/12 13:46 | 05/30/12 10:42 | | |
| ***Surrogates*** | | | | | | | | |
| a,a,a-Trifluorotoluene (S) | 123 | % | 50-150 | 100 | 05/24/12 13:46 | 05/30/12 10:42 | 98-08-8 | |
| 4-Bromofluorobenzene (S) | 103 | % | 50-150 | 100 | 05/24/12 13:46 | 05/30/12 10:42 | 460-00-4 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **27.7** | % | 0.10 | 1 | | 05/23/12 18:29 | | |

**Sample: UST - East Sidewall - 7.5'** **Lab ID: 2512270003** Collected: 05/19/12 17:15 Received: 05/22/12 13:45 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 | | | | | | | |
| Gasoline Range Organics | **13.7** | mg/kg | 7.1 | 1 | 05/24/12 13:46 | 05/25/12 09:59 | | |
| ***Surrogates*** | | | | | | | | |
| a,a,a-Trifluorotoluene (S) | 111 | % | 50-150 | 1 | 05/24/12 13:46 | 05/25/12 09:59 | 98-08-8 | |
| 4-Bromofluorobenzene (S) | 93 | % | 50-150 | 1 | 05/24/12 13:46 | 05/25/12 09:59 | 460-00-4 | |
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Lead | **8.6** | mg/kg | 5.0 | 5 | 05/24/12 10:40 | 05/29/12 09:34 | 7439-92-1 | |
| **8260/5035A Volatile Organics** | Analytical Method: EPA 8260 | | | | | | | |
| Acetone | ND | ug/kg | 10.2 | 1 | | 05/24/12 14:15 | 67-64-1 | |
| tert-Amylmethyl ether | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 994-05-8 | |
| Benzene | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 71-43-2 | |
| Bromobenzene | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 108-86-1 | |
| Bromochloromethane | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 74-97-5 | |
| Bromodichloromethane | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 75-27-4 | |
| Bromoform | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 75-25-2 | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver Cardlock
Pace Project No.: 2512270

**Sample: UST - East Sidewall - 7.5'** **Lab ID: 2512270003** Collected: 05/19/12 17:15 Received: 05/22/12 13:45 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 | | | | | | | |
| Bromomethane | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 74-83-9 | |
| 2-Butanone (MEK) | ND | ug/kg | 10.2 | 1 | | 05/24/12 14:15 | 78-93-3 | |
| n-Butylbenzene | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 104-51-8 | |
| sec-Butylbenzene | **4.3** | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 135-98-8 | |
| tert-Butylbenzene | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 98-06-6 | |
| Carbon disulfide | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 75-15-0 | |
| Carbon tetrachloride | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 56-23-5 | |
| Chlorobenzene | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 108-90-7 | |
| Chloroethane | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 75-00-3 | |
| Chloroform | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 67-66-3 | |
| Chloromethane | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 74-87-3 | |
| 2-Chlorotoluene | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 95-49-8 | |
| 4-Chlorotoluene | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 106-43-4 | |
| 1,2-Dibromo-3-chloropropane | ND | ug/kg | 5.1 | 1 | | 05/24/12 14:15 | 96-12-8 | |
| Dibromochloromethane | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 106-93-4 | |
| Dibromomethane | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 74-95-3 | |
| 1,2-Dichlorobenzene | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 95-50-1 | |
| 1,3-Dichlorobenzene | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 541-73-1 | |
| 1,4-Dichlorobenzene | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 106-46-7 | |
| Dichlorodifluoromethane | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 75-71-8 | |
| 1,1-Dichloroethane | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 75-34-3 | |
| 1,2-Dichloroethane | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 107-06-2 | |
| 1,2-Dichloroethene (Total) | ND | ug/kg | 6.1 | 1 | | 05/24/12 14:15 | 540-59-0 | |
| 1,1-Dichloroethene | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 75-35-4 | |
| cis-1,2-Dichloroethene | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 156-59-2 | |
| trans-1,2-Dichloroethene | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 156-60-5 | |
| 1,2-Dichloropropane | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 78-87-5 | |
| 1,3-Dichloropropane | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 142-28-9 | |
| 2,2-Dichloropropane | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 594-20-7 | |
| 1,1-Dichloropropene | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 563-58-6 | |
| cis-1,3-Dichloropropene | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 10061-01-5 | |
| trans-1,3-Dichloropropene | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 10061-02-6 | |
| Ethylbenzene | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 100-41-4 | |
| Hexachloro-1,3-butadiene | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 87-68-3 | |
| 2-Hexanone | ND | ug/kg | 10.2 | 1 | | 05/24/12 14:15 | 591-78-6 | |
| Isopropylbenzene (Cumene) | **18.3** | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 98-82-8 | |
| p-Isopropyltoluene | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 99-87-6 | |
| Methylene chloride | ND | ug/kg | 10.2 | 1 | | 05/24/12 14:15 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | ND | ug/kg | 10.2 | 1 | | 05/24/12 14:15 | 108-10-1 | |
| Methyl-tert-butyl ether | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 1634-04-4 | |
| Naphthalene | **11.7** | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 91-20-3 | |
| n-Propylbenzene | **38.5** | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 103-65-1 | |
| Styrene | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 79-34-5 | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver Cardlock
Pace Project No.: 2512270

**Sample: UST - East Sidewall - 7.5'** **Lab ID: 2512270003** Collected: 05/19/12 17:15 Received: 05/22/12 13:45 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 | 3.1 | 1 | | 05/24/12 14:15 | 127-18-4 | |
| Toluene | **112** | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 120-82-1 | |
| 1,1,1-Trichloroethane | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 71-55-6 | |
| 1,1,2-Trichloroethane | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 79-00-5 | |
| Trichloroethene | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 79-01-6 | |
| Trichlorofluoromethane | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 75-69-4 | |
| 1,2,3-Trichloropropane | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 96-18-4 | |
| 1,1,2-Trichlorotrifluoroethane | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 76-13-1 | |
| 1,2,4-Trimethylbenzene | **149** | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | **57.8** | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 108-67-8 | |
| Vinyl chloride | ND | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 75-01-4 | |
| Xylene (Total) | **102** | ug/kg | 9.2 | 1 | | 05/24/12 14:15 | 1330-20-7 | |
| m&p-Xylene | ND | ug/kg | 6.1 | 1 | | 05/24/12 14:15 | 179601-23-1 | |
| o-Xylene | **102** | ug/kg | 3.1 | 1 | | 05/24/12 14:15 | 95-47-6 | |
| ***Surrogates*** | | | | | | | | |
| Dibromofluoromethane (S) | 95 | % | 74-126 | 1 | | 05/24/12 14:15 | 1868-53-7 | |
| Toluene-d8 (S) | 110 | % | 71-130 | 1 | | 05/24/12 14:15 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 103 | % | 68-141 | 1 | | 05/24/12 14:15 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 107 | % | 68-141 | 1 | | 05/24/12 14:15 | 17060-07-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **24.6** | % | 0.10 | 1 | | 05/23/12 18:30 | | |

**Sample: UST - South End - 8'** **Lab ID: 2512270004** Collected: 05/19/12 17:45 Received: 05/22/12 13:45 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 | | | | | |
| Gasoline Range Organics | **13.0** | mg/kg | 6.8 | 1 | 05/24/12 13:46 | 05/30/12 10:19 | | |
| ***Surrogates*** | | | | | | | | |
| a,a,a-Trifluorotoluene (S) | 108 | % | 50-150 | 1 | 05/24/12 13:46 | 05/30/12 10:19 | 98-08-8 | |
| 4-Bromofluorobenzene (S) | 88 | % | 50-150 | 1 | 05/24/12 13:46 | 05/30/12 10:19 | 460-00-4 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **25.2** | % | 0.10 | 1 | | 05/23/12 18:31 | | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver Cardlock
Pace Project No.: 2512270

**Sample: UST - North End - 5.5'** **Lab ID: 2512270005** Collected: 05/19/12 18:05 Received: 05/22/12 13:45 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 | | | | | |
| Gasoline Range Organics | **4880** | mg/kg | 361 | 50 | 05/24/12 13:46 | 05/30/12 11:30 | | |
| ***Surrogates*** | | | | | | | | |
| a,a,a-Trifluorotoluene (S) | 106 | % | 50-150 | 50 | 05/24/12 13:46 | 05/30/12 11:30 | 98-08-8 | |
| 4-Bromofluorobenzene (S) | 111 | % | 50-150 | 50 | 05/24/12 13:46 | 05/30/12 11:30 | 460-00-4 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **26.5** | % | 0.10 | 1 | | 05/23/12 18:31 | | |

**Sample: UST - West Sidewall - 8'** **Lab ID: 2512270006** Collected: 05/19/12 18:40 Received: 05/22/12 13:45 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 | | | | | |
| Gasoline Range Organics | **7280** | mg/kg | 373 | 50 | 05/24/12 13:46 | 05/30/12 11:54 | | |
| ***Surrogates*** | | | | | | | | |
| a,a,a-Trifluorotoluene (S) | 104 | % | 50-150 | 50 | 05/24/12 13:46 | 05/30/12 11:54 | 98-08-8 | |
| 4-Bromofluorobenzene (S) | 114 | % | 50-150 | 50 | 05/24/12 13:46 | 05/30/12 11:54 | 460-00-4 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **27.2** | % | 0.10 | 1 | | 05/23/12 18:32 | | |

**Sample: Stockpile** **Lab ID: 2512270007** Collected: 05/19/12 20:05 Received: 05/22/12 13:45 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 | | | | | |
| Gasoline Range Organics | ND | mg/kg | 5.2 | 1 | 05/24/12 13:46 | 05/25/12 12:50 | | |
| ***Surrogates*** | | | | | | | | |
| a,a,a-Trifluorotoluene (S) | 101 | % | 50-150 | 1 | 05/24/12 13:46 | 05/25/12 12:50 | 98-08-8 | |
| 4-Bromofluorobenzene (S) | 83 | % | 50-150 | 1 | 05/24/12 13:46 | 05/25/12 12:50 | 460-00-4 | |
| **6010 MET ICP** | Analytical Method: EPA 6010 | | Preparation Method: EPA 3050 | | | | | |
| Lead | **24.6** | mg/kg | 5.0 | 5 | 05/24/12 10:40 | 05/29/12 11:17 | 7439-92-1 | D3 |
| **8260/5035A Volatile Organics** | Analytical Method: EPA 8260 | | | | | | | |
| Acetone | **11.1** | ug/kg | 8.6 | 1 | | 05/24/12 14:36 | 67-64-1 | |
| tert-Amylmethyl ether | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 994-05-8 | |
| Benzene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 71-43-2 | |
| Bromobenzene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 108-86-1 | |
| Bromochloromethane | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 74-97-5 | |
| Bromodichloromethane | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 75-27-4 | |
| Bromoform | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 75-25-2 | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver Cardlock
Pace Project No.: 2512270

**Sample: Stockpile** **Lab ID: 2512270007** Collected: 05/19/12 20:05 Received: 05/22/12 13:45 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 | | | | | | | |
| Bromomethane | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 74-83-9 | |
| 2-Butanone (MEK) | ND | ug/kg | 8.6 | 1 | | 05/24/12 14:36 | 78-93-3 | |
| n-Butylbenzene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 104-51-8 | |
| sec-Butylbenzene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 135-98-8 | |
| tert-Butylbenzene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 98-06-6 | |
| Carbon disulfide | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 75-15-0 | |
| Carbon tetrachloride | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 56-23-5 | |
| Chlorobenzene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 108-90-7 | |
| Chloroethane | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 75-00-3 | |
| Chloroform | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 67-66-3 | |
| Chloromethane | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 74-87-3 | |
| 2-Chlorotoluene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 95-49-8 | |
| 4-Chlorotoluene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 106-43-4 | |
| 1,2-Dibromo-3-chloropropane | ND | ug/kg | 4.3 | 1 | | 05/24/12 14:36 | 96-12-8 | |
| Dibromochloromethane | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 106-93-4 | |
| Dibromomethane | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 74-95-3 | |
| 1,2-Dichlorobenzene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 95-50-1 | |
| 1,3-Dichlorobenzene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 541-73-1 | |
| 1,4-Dichlorobenzene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 106-46-7 | |
| Dichlorodifluoromethane | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 75-71-8 | |
| 1,1-Dichloroethane | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 75-34-3 | |
| 1,2-Dichloroethane | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 107-06-2 | |
| 1,2-Dichloroethene (Total) | ND | ug/kg | 5.1 | 1 | | 05/24/12 14:36 | 540-59-0 | |
| 1,1-Dichloroethene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 75-35-4 | |
| cis-1,2-Dichloroethene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 156-59-2 | |
| trans-1,2-Dichloroethene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 156-60-5 | |
| 1,2-Dichloropropane | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 78-87-5 | |
| 1,3-Dichloropropane | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 142-28-9 | |
| 2,2-Dichloropropane | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 594-20-7 | |
| 1,1-Dichloropropene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 563-58-6 | |
| cis-1,3-Dichloropropene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 10061-01-5 | |
| trans-1,3-Dichloropropene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 10061-02-6 | |
| Ethylbenzene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 100-41-4 | |
| Hexachloro-1,3-butadiene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 87-68-3 | |
| 2-Hexanone | ND | ug/kg | 8.6 | 1 | | 05/24/12 14:36 | 591-78-6 | |
| Isopropylbenzene (Cumene) | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 98-82-8 | |
| p-Isopropyltoluene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 99-87-6 | |
| Methylene chloride | ND | ug/kg | 8.6 | 1 | | 05/24/12 14:36 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | ND | ug/kg | 8.6 | 1 | | 05/24/12 14:36 | 108-10-1 | |
| Methyl-tert-butyl ether | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 1634-04-4 | |
| Naphthalene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 91-20-3 | |
| n-Propylbenzene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 103-65-1 | |
| Styrene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 79-34-5 | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver Cardlock
Pace Project No.: 2512270

**Sample: Stockpile** **Lab ID: 2512270007** Collected: 05/19/12 20:05 Received: 05/22/12 13:45 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 | 2.6 | 1 | | 05/24/12 14:36 | 127-18-4 | |
| Toluene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 120-82-1 | |
| 1,1,1-Trichloroethane | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 71-55-6 | |
| 1,1,2-Trichloroethane | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 79-00-5 | |
| Trichloroethene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 79-01-6 | |
| Trichlorofluoromethane | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 75-69-4 | |
| 1,2,3-Trichloropropane | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 96-18-4 | |
| 1,1,2-Trichlorotrifluoroethane | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 76-13-1 | |
| 1,2,4-Trimethylbenzene | **2.7** | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 108-67-8 | |
| Vinyl chloride | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 75-01-4 | |
| Xylene (Total) | ND | ug/kg | 7.7 | 1 | | 05/24/12 14:36 | 1330-20-7 | |
| m&p-Xylene | ND | ug/kg | 5.1 | 1 | | 05/24/12 14:36 | 179601-23-1 | |
| o-Xylene | ND | ug/kg | 2.6 | 1 | | 05/24/12 14:36 | 95-47-6 | |
| ***Surrogates*** | | | | | | | | |
| Dibromofluoromethane (S) | 96 | % | 74-126 | 1 | | 05/24/12 14:36 | 1868-53-7 | |
| Toluene-d8 (S) | 98 | % | 71-130 | 1 | | 05/24/12 14:36 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 110 | % | 68-141 | 1 | | 05/24/12 14:36 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 110 | % | 68-141 | 1 | | 05/24/12 14:36 | 17060-07-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **15.0** | % | 0.10 | 1 | | 05/23/12 18:33 | | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock
Pace Project No.: 2512270

QC Batch: GCV/2793 Analysis Method: NWTPH-Gx
QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx Solid GCV
Associated Lab Samples: 2512270003, 2512270007

METHOD BLANK: 116370 Matrix: Solid
Associated Lab Samples: 2512270003, 2512270007

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Gasoline Range Organics | mg/kg | ND | 5.0 | 05/25/12 02:53 | |
| 4-Bromofluorobenzene (S) | % | 78 | 50-150 | 05/25/12 02:53 | |
| a,a,a-Trifluorotoluene (S) | % | 96 | 50-150 | 05/25/12 02:53 | |

LABORATORY CONTROL SAMPLE: 116371

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Gasoline Range Organics | mg/kg | 12.5 | 11.7 | 94 | 63-140 | |
| 4-Bromofluorobenzene (S) | % | | | 87 | 50-150 | |
| a,a,a-Trifluorotoluene (S) | % | | | 101 | 50-150 | |

SAMPLE DUPLICATE: 116932

| Parameter | Units | 2512205001 Result | Dup Result | RPD | Qualifiers |
|---|---|---|---|---|---|
| Gasoline Range Organics | mg/kg | ND | ND | | |
| 4-Bromofluorobenzene (S) | % | 87 | 81 | 7 | |
| a,a,a-Trifluorotoluene (S) | % | 107 | 102 | 5 | |

SAMPLE DUPLICATE: 116933

| Parameter | Units | 2512225001 Result | Dup Result | RPD | Qualifiers |
|---|---|---|---|---|---|
| Gasoline Range Organics | mg/kg | ND | ND | | |
| 4-Bromofluorobenzene (S) | % | 83 | 88 | 6 | |
| a,a,a-Trifluorotoluene (S) | % | 103 | 106 | 3 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock
Pace Project No.: 2512270

QC Batch: GCV/2803 Analysis Method: NWTPH-Gx
QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx Solid GCV
Associated Lab Samples: 2512270002, 2512270004, 2512270005, 2512270006

METHOD BLANK: 116936 Matrix: Solid
Associated Lab Samples: 2512270002, 2512270004, 2512270005, 2512270006

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Gasoline Range Organics | mg/kg | ND | 5.0 | 05/30/12 09:50 | |
| 4-Bromofluorobenzene (S) | % | 78 | 50-150 | 05/30/12 09:50 | |
| a,a,a-Trifluorotoluene (S) | % | 93 | 50-150 | 05/30/12 09:50 | |

LABORATORY CONTROL SAMPLE: 116937

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Gasoline Range Organics | mg/kg | 12.5 | 9.8 | 79 | 63-140 | |
| 4-Bromofluorobenzene (S) | % | | | 75 | 50-150 | |
| a,a,a-Trifluorotoluene (S) | % | | | 79 | 50-150 | |

SAMPLE DUPLICATE: 117243

| Parameter | Units | 2512270002 Result | Dup Result | RPD | Qualifiers |
|---|---|---|---|---|---|
| Gasoline Range Organics | mg/kg | 12000 | 13000 | 8 | |
| 4-Bromofluorobenzene (S) | % | 103 | 106 | 3 | |
| a,a,a-Trifluorotoluene (S) | % | 123 | 125 | 2 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock
Pace Project No.: 2512270

QC Batch: MPRP/3041 Analysis Method: EPA 6010
QC Batch Method: EPA 3050 Analysis Description: 6010 MET
Associated Lab Samples: 2512270003, 2512270007

METHOD BLANK: 116316 Matrix: Solid
Associated Lab Samples: 2512270003, 2512270007

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Lead | mg/kg | ND | 1.0 | 05/29/12 09:27 | |

LABORATORY CONTROL SAMPLE: 116317

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Lead | mg/kg | 25 | 26.1 | 104 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116318 116319

| Parameter | Units | 2512270003 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead | mg/kg | 8.6 | 24.8 | 24.8 | 31.8 | 30.4 | 94 | 88 | 75-125 | 4 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock
Pace Project No.: 2512270

QC Batch: MSV/7060 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 2512270003, 2512270007

METHOD BLANK: 116399 Matrix: Solid
Associated Lab Samples: 2512270003, 2512270007

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| 1,1,1-Trichloroethane | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| 1,1,2,2-Tetrachloroethane | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| 1,1,2-Trichloroethane | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| 1,1,2-Trichlorotrifluoroethane | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| 1,1-Dichloroethane | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| 1,1-Dichloroethene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| 1,1-Dichloropropene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| 1,2,3-Trichlorobenzene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| 1,2,3-Trichloropropane | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| 1,2,4-Trichlorobenzene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| 1,2,4-Trimethylbenzene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| 1,2-Dibromo-3-chloropropane | ug/kg | ND | 5.0 | 05/24/12 13:33 | |
| 1,2-Dibromoethane (EDB) | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| 1,2-Dichlorobenzene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| 1,2-Dichloroethane | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| 1,2-Dichloroethene (Total) | ug/kg | ND | 6.0 | 05/24/12 13:33 | |
| 1,2-Dichloropropane | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| 1,3,5-Trimethylbenzene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| 1,3-Dichlorobenzene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| 1,3-Dichloropropane | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| 1,4-Dichlorobenzene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| 2,2-Dichloropropane | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| 2-Butanone (MEK) | ug/kg | ND | 10.0 | 05/24/12 13:33 | |
| 2-Chlorotoluene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| 2-Hexanone | ug/kg | ND | 10.0 | 05/24/12 13:33 | |
| 4-Chlorotoluene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| 4-Methyl-2-pentanone (MIBK) | ug/kg | ND | 10.0 | 05/24/12 13:33 | |
| Acetone | ug/kg | ND | 10.0 | 05/24/12 13:33 | |
| Benzene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Bromobenzene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Bromochloromethane | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Bromodichloromethane | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Bromoform | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Bromomethane | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Carbon disulfide | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Carbon tetrachloride | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Chlorobenzene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Chloroethane | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Chloroform | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Chloromethane | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| cis-1,2-Dichloroethene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| cis-1,3-Dichloropropene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock
Pace Project No.: 2512270

METHOD BLANK: 116399 Matrix: Solid

Associated Lab Samples: 2512270003, 2512270007

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Dibromochloromethane | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Dibromomethane | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Dichlorodifluoromethane | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Ethylbenzene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Hexachloro-1,3-butadiene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Isopropylbenzene (Cumene) | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| m&p-Xylene | ug/kg | ND | 6.0 | 05/24/12 13:33 | |
| Methyl-tert-butyl ether | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Methylene chloride | ug/kg | ND | 10.0 | 05/24/12 13:33 | |
| n-Butylbenzene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| n-Propylbenzene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Naphthalene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| o-Xylene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| p-Isopropyltoluene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| sec-Butylbenzene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Styrene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| tert-Amylmethyl ether | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| tert-Butylbenzene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Tetrachloroethene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Toluene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| trans-1,2-Dichloroethene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| trans-1,3-Dichloropropene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Trichloroethene | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Trichlorofluoromethane | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Vinyl chloride | ug/kg | ND | 3.0 | 05/24/12 13:33 | |
| Xylene (Total) | ug/kg | ND | 9.0 | 05/24/12 13:33 | |
| 1,2-Dichloroethane-d4 (S) | % | 103 | 68-141 | 05/24/12 13:33 | |
| 4-Bromofluorobenzene (S) | % | 107 | 68-141 | 05/24/12 13:33 | |
| Dibromofluoromethane (S) | % | 96 | 74-126 | 05/24/12 13:33 | |
| Toluene-d8 (S) | % | 102 | 71-130 | 05/24/12 13:33 | |

LABORATORY CONTROL SAMPLE: 116400

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ug/kg | 20 | 19.6 | 98 | 75-126 | |
| 1,1,1-Trichloroethane | ug/kg | 20 | 21.2 | 106 | 65-147 | |
| 1,1,2,2-Tetrachloroethane | ug/kg | 20 | 21.0 | 105 | 65-129 | |
| 1,1,2-Trichloroethane | ug/kg | 20 | 21.8 | 109 | 71-125 | |
| 1,1,2-Trichlorotrifluoroethane | ug/kg | 20 | 22.5 | 113 | 53-160 | |
| 1,1-Dichloroethane | ug/kg | 20 | 21.1 | 105 | 71-136 | |
| 1,1-Dichloroethene | ug/kg | 20 | 23.0 | 115 | 56-160 | |
| 1,1-Dichloropropene | ug/kg | 20 | 21.1 | 106 | 60-145 | |
| 1,2,3-Trichlorobenzene | ug/kg | 20 | 22.1 | 111 | 69-124 | |
| 1,2,3-Trichloropropane | ug/kg | 20 | 20.7 | 104 | 71-119 | |
| 1,2,4-Trichlorobenzene | ug/kg | 20 | 23.3 | 116 | 69-127 | CH |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock
Pace Project No.: 2512270

LABORATORY CONTROL SAMPLE: 116400

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,2,4-Trimethylbenzene | ug/kg | 20 | 20.6 | 103 | 69-127 | |
| 1,2-Dibromo-3-chloropropane | ug/kg | 20 | 18.5 | 93 | 55-132 | |
| 1,2-Dibromoethane (EDB) | ug/kg | 20 | 21.1 | 106 | 73-125 | |
| 1,2-Dichlorobenzene | ug/kg | 20 | 21.1 | 106 | 77-118 | |
| 1,2-Dichloroethane | ug/kg | 20 | 21.0 | 105 | 67-137 | |
| 1,2-Dichloroethene (Total) | ug/kg | 40 | 42.6 | 106 | 71-141 | |
| 1,2-Dichloropropane | ug/kg | 20 | 21.4 | 107 | 72-133 | |
| 1,3,5-Trimethylbenzene | ug/kg | 20 | 20.8 | 104 | 70-129 | |
| 1,3-Dichlorobenzene | ug/kg | 20 | 19.9 | 100 | 76-122 | |
| 1,3-Dichloropropane | ug/kg | 20 | 20.7 | 104 | 72-125 | |
| 1,4-Dichlorobenzene | ug/kg | 20 | 19.5 | 98 | 76-119 | |
| 2,2-Dichloropropane | ug/kg | 20 | 17.6 | 88 | 57-156 | |
| 2-Butanone (MEK) | ug/kg | 40 | 45.6 | 114 | 40-160 | |
| 2-Chlorotoluene | ug/kg | 20 | 19.6 | 98 | 70-123 | |
| 2-Hexanone | ug/kg | 40 | 37.8 | 95 | 40-160 | |
| 4-Chlorotoluene | ug/kg | 20 | 20.9 | 104 | 74-127 | |
| 4-Methyl-2-pentanone (MIBK) | ug/kg | 40 | 37.2 | 93 | 58-143 | |
| Acetone | ug/kg | 40 | 39.9 | 100 | 40-160 | |
| Benzene | ug/kg | 20 | 18.3 | 92 | 67-133 | |
| Bromobenzene | ug/kg | 20 | 21.0 | 105 | 77-121 | |
| Bromochloromethane | ug/kg | 20 | 20.6 | 103 | 73-132 | |
| Bromodichloromethane | ug/kg | 20 | 21.6 | 108 | 71-130 | |
| Bromoform | ug/kg | 20 | 17.4 | 87 | 65-127 | |
| Bromomethane | ug/kg | 20 | 25.3 | 126 | 41-160 | |
| Carbon disulfide | ug/kg | 20 | 22.8 | 114 | 40-160 | |
| Carbon tetrachloride | ug/kg | 20 | 21.3 | 106 | 59-157 | |
| Chlorobenzene | ug/kg | 20 | 20.9 | 105 | 78-123 | |
| Chloroethane | ug/kg | 20 | 22.2 | 111 | 54-153 | CH |
| Chloroform | ug/kg | 20 | 20.9 | 105 | 74-132 | |
| Chloromethane | ug/kg | 20 | 22.4 | 112 | 40-149 | |
| cis-1,2-Dichloroethene | ug/kg | 20 | 21.4 | 107 | 73-137 | |
| cis-1,3-Dichloropropene | ug/kg | 10 | 10.1 | 101 | 63-140 | |
| Dibromochloromethane | ug/kg | 20 | 18.2 | 91 | 71-122 | |
| Dibromomethane | ug/kg | 20 | 20.9 | 104 | 73-131 | |
| Dichlorodifluoromethane | ug/kg | 20 | 22.5 | 113 | 40-160 | CH |
| Ethylbenzene | ug/kg | 20 | 22.0 | 110 | 70-124 | |
| Hexachloro-1,3-butadiene | ug/kg | 20 | 21.2 | 106 | 59-141 | |
| Isopropylbenzene (Cumene) | ug/kg | 20 | 22.0 | 110 | 72-131 | |
| m&p-Xylene | ug/kg | 40 | 46.0 | 115 | 66-129 | |
| Methyl-tert-butyl ether | ug/kg | 20 | 20.7 | 104 | 69-136 | |
| Methylene chloride | ug/kg | 20 | 19.0 | 95 | 53-160 | |
| n-Butylbenzene | ug/kg | 20 | 21.3 | 107 | 65-134 | |
| n-Propylbenzene | ug/kg | 20 | 18.8 | 94 | 62-135 | |
| Naphthalene | ug/kg | 20 | 22.6 | 113 | 63-129 | |
| o-Xylene | ug/kg | 20 | 21.8 | 109 | 70-125 | |
| p-Isopropyltoluene | ug/kg | 20 | 20.4 | 102 | 68-130 | |
| sec-Butylbenzene | ug/kg | 20 | 19.0 | 95 | 61-137 | |
| Styrene | ug/kg | 20 | 21.3 | 106 | 77-124 | CH |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock
Pace Project No.: 2512270

LABORATORY CONTROL SAMPLE: 116400

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| tert-Amylmethyl ether | ug/kg | 20 | 19.8 | 99 | 55-150 | |
| tert-Butylbenzene | ug/kg | 20 | 20.7 | 103 | 69-132 | |
| Tetrachloroethene | ug/kg | 20 | 21.3 | 106 | 52-148 | |
| Toluene | ug/kg | 20 | 20.4 | 102 | 67-129 | |
| trans-1,2-Dichloroethene | ug/kg | 20 | 21.2 | 106 | 69-146 | |
| trans-1,3-Dichloropropene | ug/kg | 10 | 8.7 | 87 | 63-133 | |
| Trichloroethene | ug/kg | 20 | 21.2 | 106 | 69-137 | |
| Trichlorofluoromethane | ug/kg | 20 | 23.5 | 118 | 50-156 | CH |
| Vinyl chloride | ug/kg | 20 | 24.2 | 121 | 41-156 | CH |
| Xylene (Total) | ug/kg | 60 | 67.8 | 113 | 68-127 | |
| 1,2-Dichloroethane-d4 (S) | % | | | 103 | 68-141 | |
| 4-Bromofluorobenzene (S) | % | | | 101 | 68-141 | |
| Dibromofluoromethane (S) | % | | | 100 | 74-126 | |
| Toluene-d8 (S) | % | | | 99 | 71-130 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116946 116947

| Parameter | Units | 2512205001 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/kg | ND | 17.4 | 18.9 | 13.9 | 16.5 | 80 | 88 | 45-139 | 17 | |
| 1,1,1-Trichloroethane | ug/kg | ND | 17.4 | 18.9 | 12.4 | 15.8 | 72 | 84 | 40-160 | 24 | |
| 1,1,2,2-Tetrachloroethane | ug/kg | ND | 17.4 | 18.9 | 15.9 | 17.7 | 92 | 94 | 40-160 | 11 | |
| 1,1,2-Trichloroethane | ug/kg | ND | 17.4 | 18.9 | 15.8 | 17.7 | 91 | 94 | 40-160 | 11 | |
| 1,1,2-Trichlorotrifluoroethane | ug/kg | ND | 17.4 | 18.9 | 13.2 | 16.4 | 76 | 87 | 40-160 | 22 | |
| 1,1-Dichloroethane | ug/kg | ND | 17.4 | 18.9 | 15.1 | 18.2 | 87 | 96 | 40-154 | 19 | |
| 1,1-Dichloroethene | ug/kg | ND | 17.4 | 18.9 | 13.9 | 16.7 | 80 | 89 | 40-160 | 19 | |
| 1,1-Dichloropropene | ug/kg | ND | 17.4 | 18.9 | 13.3 | 15.2 | 77 | 80 | 40-141 | 13 | |
| 1,2,3-Trichlorobenzene | ug/kg | ND | 17.4 | 18.9 | 13.8 | 17.2 | 80 | 91 | 40-134 | 22 | |
| 1,2,3-Trichloropropane | ug/kg | ND | 17.4 | 18.9 | 15.5 | 18.1 | 89 | 96 | 40-160 | 16 | |
| 1,2,4-Trichlorobenzene | ug/kg | ND | 17.4 | 18.9 | 14.6 | 17.8 | 84 | 95 | 40-136 | 20 | CH |
| 1,2,4-Trimethylbenzene | ug/kg | ND | 17.4 | 18.9 | 15.7 | 18.4 | 91 | 97 | 40-160 | 16 | |
| 1,2-Dibromo-3-chloropropane | ug/kg | ND | 17.4 | 18.9 | 11.9 | 13.1 | 69 | 70 | 40-160 | 9 | |
| 1,2-Dibromoethane (EDB) | ug/kg | ND | 17.4 | 18.9 | 14.6 | 16.3 | 84 | 86 | 40-148 | 10 | |
| 1,2-Dichlorobenzene | ug/kg | ND | 17.4 | 18.9 | 15.5 | 17.8 | 89 | 94 | 40-140 | 14 | |
| 1,2-Dichloroethane | ug/kg | ND | 17.4 | 18.9 | 15.4 | 17.9 | 89 | 95 | 40-149 | 15 | |
| 1,2-Dichloroethene (Total) | ug/kg | ND | 34.6 | 37.7 | 29.4 | 35.4 | 85 | 94 | 41-150 | 18 | |
| 1,2-Dichloropropane | ug/kg | ND | 17.4 | 18.9 | 15.6 | 18.5 | 90 | 98 | 40-152 | 17 | |
| 1,3,5-Trimethylbenzene | ug/kg | ND | 17.4 | 18.9 | 15.3 | 18.0 | 88 | 96 | 40-160 | 16 | |
| 1,3-Dichlorobenzene | ug/kg | ND | 17.4 | 18.9 | 14.5 | 17.0 | 83 | 90 | 40-142 | 16 | |
| 1,3-Dichloropropane | ug/kg | ND | 17.4 | 18.9 | 15.5 | 17.3 | 89 | 92 | 40-154 | 11 | |
| 1,4-Dichlorobenzene | ug/kg | ND | 17.4 | 18.9 | 14.4 | 16.6 | 83 | 88 | 40-140 | 15 | |
| 2,2-Dichloropropane | ug/kg | ND | 17.4 | 18.9 | 9.0 | 11.5 | 52 | 61 | 40-160 | 24 | |
| 2-Butanone (MEK) | ug/kg | ND | 34.6 | 37.7 | 32.5 | 36.3 | 94 | 96 | 40-139 | 11 | |
| 2-Chlorotoluene | ug/kg | ND | 17.4 | 18.9 | 14.6 | 17.2 | 84 | 91 | 40-159 | 16 | |
| 2-Hexanone | ug/kg | ND | 34.6 | 37.7 | 27.2 | 31.3 | 78 | 83 | 40-160 | 14 | |
| 4-Chlorotoluene | ug/kg | ND | 17.4 | 18.9 | 15.2 | 17.9 | 88 | 95 | 40-149 | 16 | |
| 4-Methyl-2-pentanone (MIBK) | ug/kg | ND | 34.6 | 37.7 | 25.6 | 31.6 | 74 | 84 | 40-160 | 21 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock
Pace Project No.: 2512270

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116946 116947

| Parameter | Units | 2512205001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Acetone | ug/kg | 14.0 | 34.6 | 37.7 | 38.1 | 34.7 | 69 | 55 | 40-160 | 9 | |
| Benzene | ug/kg | ND | 17.4 | 18.9 | 12.8 | 15.4 | 74 | 82 | 40-149 | 18 | |
| Bromobenzene | ug/kg | ND | 17.4 | 18.9 | 16.5 | 18.9 | 95 | 100 | 40-160 | 14 | |
| Bromochloromethane | ug/kg | ND | 17.4 | 18.9 | 15.3 | 17.4 | 88 | 92 | 45-145 | 13 | |
| Bromodichloromethane | ug/kg | ND | 17.4 | 18.9 | 14.2 | 16.1 | 82 | 86 | 44-141 | 13 | |
| Bromoform | ug/kg | ND | 17.4 | 18.9 | 11.5 | 12.7 | 66 | 67 | 40-136 | 10 | |
| Bromomethane | ug/kg | ND | 17.4 | 18.9 | 17.2 | 23.9 | 99 | 127 | 40-160 | 33 | D6 |
| Carbon disulfide | ug/kg | ND | 17.4 | 18.9 | 11.3 | 13.6 | 65 | 72 | 40-160 | 18 | |
| Carbon tetrachloride | ug/kg | ND | 17.4 | 18.9 | 11.8 | 14.5 | 68 | 77 | 40-160 | 21 | |
| Chlorobenzene | ug/kg | ND | 17.4 | 18.9 | 14.9 | 17.8 | 86 | 94 | 43-137 | 17 | |
| Chloroethane | ug/kg | ND | 17.4 | 18.9 | 14.2 | 18.9 | 82 | 100 | 40-160 | 28 | CH |
| Chloroform | ug/kg | ND | 17.4 | 18.9 | 15.3 | 18.4 | 88 | 97 | 42-153 | 18 | |
| Chloromethane | ug/kg | ND | 17.4 | 18.9 | 14.4 | 18.4 | 83 | 98 | 40-160 | 25 | |
| cis-1,2-Dichloroethene | ug/kg | ND | 17.4 | 18.9 | 15.6 | 18.4 | 90 | 97 | 44-149 | 16 | |
| cis-1,3-Dichloropropene | ug/kg | ND | 8.7 | 9.4 | 5.9 | 7.6 | 68 | 81 | 40-142 | 26 | |
| Dibromochloromethane | ug/kg | ND | 17.4 | 18.9 | 12.0 | 13.7 | 69 | 73 | 43-133 | 14 | |
| Dibromomethane | ug/kg | ND | 17.4 | 18.9 | 15.6 | 17.3 | 90 | 92 | 47-136 | 10 | |
| Dichlorodifluoromethane | ug/kg | ND | 17.4 | 18.9 | 13.1 | 15.9 | 76 | 84 | 40-160 | 19 | CH |
| Ethylbenzene | ug/kg | ND | 17.4 | 18.9 | 15.3 | 18.3 | 88 | 97 | 40-146 | 18 | |
| Hexachloro-1,3-butadiene | ug/kg | ND | 17.4 | 18.9 | 12.2 | 15.0 | 70 | 80 | 40-140 | 21 | |
| Isopropylbenzene (Cumene) | ug/kg | ND | 17.4 | 18.9 | 15.1 | 18.6 | 87 | 98 | 40-157 | 21 | |
| m&p-Xylene | ug/kg | | 34.6 | 37.7 | 32.1 | 38.6 | 93 | 102 | 40-144 | 18 | |
| Methyl-tert-butyl ether | ug/kg | ND | 17.4 | 18.9 | 14.2 | 17.9 | 82 | 95 | 40-160 | 23 | |
| Methylene chloride | ug/kg | ND | 17.4 | 18.9 | 16.6 | 18.6 | 96 | 99 | 40-160 | 11 | |
| n-Butylbenzene | ug/kg | ND | 17.4 | 18.9 | 13.7 | 16.7 | 79 | 89 | 40-142 | 20 | |
| n-Propylbenzene | ug/kg | ND | 17.4 | 18.9 | 13.0 | 15.6 | 75 | 83 | 40-160 | 19 | |
| Naphthalene | ug/kg | ND | 17.4 | 18.9 | 14.1 | 17.5 | 80 | 91 | 40-140 | 22 | |
| o-Xylene | ug/kg | | 17.4 | 18.9 | 15.7 | 19.0 | 91 | 101 | 40-138 | 19 | |
| p-Isopropyltoluene | ug/kg | ND | 17.4 | 18.9 | 14.0 | 17.0 | 81 | 90 | 40-148 | 19 | |
| sec-Butylbenzene | ug/kg | ND | 17.4 | 18.9 | 12.6 | 15.4 | 73 | 82 | 40-160 | 20 | |
| Styrene | ug/kg | ND | 17.4 | 18.9 | 15.7 | 18.7 | 91 | 99 | 40-135 | 18 | CH |
| tert-Amylmethyl ether | ug/kg | ND | 17.4 | 18.9 | 12.4 | 16.9 | 72 | 90 | 40-156 | 31 | |
| tert-Butylbenzene | ug/kg | ND | 17.4 | 18.9 | 15.1 | 17.6 | 87 | 93 | 40-160 | 15 | |
| Tetrachloroethene | ug/kg | ND | 17.4 | 18.9 | 12.6 | 15.8 | 67 | 79 | 40-158 | 23 | |
| Toluene | ug/kg | ND | 17.4 | 18.9 | 13.9 | 16.9 | 79 | 88 | 40-147 | 19 | |
| trans-1,2-Dichloroethene | ug/kg | ND | 17.4 | 18.9 | 13.9 | 17.0 | 80 | 90 | 40-154 | 21 | |
| trans-1,3-Dichloropropene | ug/kg | ND | 8.7 | 9.4 | 6.0 | 6.9 | 70 | 73 | 40-147 | 14 | |
| Trichloroethene | ug/kg | ND | 17.4 | 18.9 | 14.1 | 17.2 | 81 | 91 | 40-145 | 20 | |
| Trichlorofluoromethane | ug/kg | ND | 17.4 | 18.9 | 13.0 | 16.7 | 75 | 88 | 40-160 | 24 | CH |
| Vinyl chloride | ug/kg | ND | 17.4 | 18.9 | 13.8 | 17.5 | 80 | 93 | 40-160 | 23 | CH |
| Xylene (Total) | ug/kg | ND | 52 | 56.6 | 47.8 | 57.6 | 92 | 102 | 40-142 | 19 | |
| 1,2-Dichloroethane-d4 (S) | % | | | | | | 96 | 96 | 68-141 | | |
| 4-Bromofluorobenzene (S) | % | | | | | | 105 | 104 | 68-141 | | |
| Dibromofluoromethane (S) | % | | | | | | 99 | 100 | 74-126 | | |
| Toluene-d8 (S) | % | | | | | | 96 | 99 | 71-130 | | |

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock
Pace Project No.: 2512270

QC Batch: OEXT/5558
QC Batch Method: EPA 3550B
Analysis Method: NWTPH-HCID
Analysis Description: NWTPH HCID GCS
Associated Lab Samples: 2512270001

METHOD BLANK: 116301 Matrix: Solid
Associated Lab Samples: 2512270001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Diesel Range | mg/kg | Non-Detect | 50.0 | 05/24/12 23:40 | |
| Gasoline Range | mg/kg | Non-Detect | 20.0 | 05/24/12 23:40 | |
| Motor Oil Range | mg/kg | Non-Detect | 100 | 05/24/12 23:40 | |
| 2-Fluorobiphenyl (S) | % | 88 | 50-150 | 05/24/12 23:40 | |
| 4-Bromofluorobenzene (S) | % | 95 | 50-150 | 05/24/12 23:40 | |
| o-Terphenyl (S) | % | 87 | 50-150 | 05/24/12 23:40 | |

SAMPLE DUPLICATE: 116302

| Parameter | Units | 2512270001 Result | Dup Result | RPD | Qualifiers |
|---|---|---|---|---|---|
| Diesel Range | mg/kg | DETECT | DETECT | 39 | |
| Gasoline Range | mg/kg | DETECT | DETECT | 15 | |
| Motor Oil Range | mg/kg | Non-Detect | Non-Detect | | |
| 2-Fluorobiphenyl (S) | % | 94 | 93 | .7 | |
| 4-Bromofluorobenzene (S) | % | 186 | 165 | 12 | S2 |
| o-Terphenyl (S) | % | 89 | 89 | .2 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock
Pace Project No.: 2512270

QC Batch: PMST/2056 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 2512270002, 2512270003, 2512270004, 2512270005, 2512270006, 2512270007

SAMPLE DUPLICATE: 116230

| Parameter | Units | 2512212001 Result | Dup Result | RPD | Qualifiers |
|---|---|---|---|---|---|
| Percent Moisture | % | 9.5 | 9.9 | 3 | |

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(206)767-5060

# QUALIFIERS

Project: Tarr Vancouver Cardlock
Pace Project No.: 2512270

## 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.

PRL - Pace Reporting Limit.

RL - Reporting 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 TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## LABORATORIES

| | |
|---|---|
| PASI-S | Pace Analytical Services - Seattle |

## ANALYTE QUALIFIERS

| | |
|---|---|
| CH | The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high. |
| D3 | Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference. |
| D6 | The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits. |
| S2 | Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis). |

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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Tarr Vancouver Cardlock
Pace Project No.: 2512270

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **2512270001** | **UST Excavation - 9'** | EPA 3550B | OEXT/5558 | NWTPH-HCID | GCSV/3555 |
| **2512270002** | **UST Excavation - 9'** | NWTPH-Gx | GCV/2803 | NWTPH-Gx | GCV/2806 |
| **2512270003** | **UST - East Sidewall - 7.5'** | NWTPH-Gx | GCV/2793 | NWTPH-Gx | GCV/2801 |
| **2512270004** | **UST - South End - 8'** | NWTPH-Gx | GCV/2803 | NWTPH-Gx | GCV/2806 |
| **2512270005** | **UST - North End - 5.5'** | NWTPH-Gx | GCV/2803 | NWTPH-Gx | GCV/2806 |
| **2512270006** | **UST - West Sidewall - 8'** | NWTPH-Gx | GCV/2803 | NWTPH-Gx | GCV/2806 |
| **2512270007** | **Stockpile** | NWTPH-Gx | GCV/2793 | NWTPH-Gx | GCV/2801 |
| **2512270003** | **UST - East Sidewall - 7.5'** | EPA 3050 | MPRP/3041 | EPA 6010 | ICP/2838 |
| **2512270007** | **Stockpile** | EPA 3050 | MPRP/3041 | EPA 6010 | ICP/2838 |
| **2512270003** | **UST - East Sidewall - 7.5'** | EPA 8260 | MSV/7060 | | |
| **2512270007** | **Stockpile** | EPA 8260 | MSV/7060 | | |
| **2512270002** | **UST Excavation - 9'** | ASTM D2974-87 | PMST/2056 | | |
| **2512270003** | **UST - East Sidewall - 7.5'** | ASTM D2974-87 | PMST/2056 | | |
| **2512270004** | **UST - South End - 8'** | ASTM D2974-87 | PMST/2056 | | |
| **2512270005** | **UST - North End - 5.5'** | ASTM D2974-87 | PMST/2056 | | |
| **2512270006** | **UST - West Sidewall - 8'** | ASTM D2974-87 | PMST/2056 | | |
| **2512270007** | **Stockpile** | ASTM D2974-87 | PMST/2056 | | |

2512270

Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

# 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

Project Manager: John Foxwell
Project Name: Tarr Vancouver Cardlock
Project Number: 1821-00/ Task 6
Sampler Name: Ian Maguire

Analytical Lab: Pace Analytical
Report To: Jfoxwell@ashcreekassociates.com
Page: 1 of 1

| | | | | | | | Preservative | | | | | | | | Matrix | | | | | | Analyze For: | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID / Description | Date Sampled | Time Sampled | No. of Containers Shipped | Grab | Composite | Field Filtered | Ice | $HNO_3$ (Red Label) | HCl (Blue Label) | NaOH ( Orange Label) | $H_2SO_4$ Plastic (Yellow Label) | $H_2SO_4$ Glass(Yellow Label) | None (Black Label) | Other ( Specify): 5035 | Groundwater | Wastewater | Drinking Water | Sludge | Soil | Other (specify): | TPH-HCID | NWTPH-Gx | 8260 | Lead | | | | | | | | | | | 5-day TAT | | Fax Results | Send QC with report |
| UST Excavation - 9' | 5/19/12 | 1650 | 8 | x | | | x | | | | | | | x | | | | | x | | x | x | | | | | | | | | | | | x | | | |
| UST- East Sidewall - 7.5' | 5/19/12 | 1715 | 8 | x | | | x | | | | | | | x | | | | | x | | | x | x | x | | | | | | | | | | | x | | | |
| UST - South End - 8' | 5/19/12 | 1745 | 8 | x | | | x | | | | | | | x | | | | | x | | | x | | | | | | | | | | | | | x | | | |
| UST - North End - 5.5' | 5/19/12 | 1805 | 8 | x | | | x | | | | | | | x | | | | | x | | | x | | | | | | | | | | | | | x | | | |
| UST - West Sidewall - 8' | 5/19/12 | 1840 | 8 | x | | | x | | | | | | | x | | | | | x | | | x | | | | | | | | | | | | | x | | | |
| Stockpile | 5/19/12 | 2005 | 2 | | 2 | | x | | | | | | | | | | | | x | | | x | x | x | | | | | | | | | | | x | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**Special Instructions:** Note: MeOH and sodium bisulfate vials were not pre-labeled. Labels are attached with tape. Initial weight is labeled on the bottom of the vials.

Method of Shipment:

**Laboratory Comments:**
Temperature Upon Receipt: 2.1c
VOCs Free of Headspace? Y N

| Relinquished by: Name/Company | Date | Time | Received by: Name/Company | Date | Time |
|---|---|---|---|---|---|
| [signature] / Ash Creek | 5/21/12 | 1330 | | | |
| Relinquished by: Name/Company | Date | Time | Received by: Name/Company | Date | Time |
| PCS | 052212 | 1345 | Colette Weaver / PACE | 052212 | 1345 |
| Relinquished by: Name/Company | Date | Time | Received by: Name/Company | Date | Time |
| | | | | | |
| Relinquished by: Name/Company | Date | Time | Received by: Name/Company | Date | Time |
| | | | | | |

## Sample Container Count

2512270

CLIENT: Ash Creek

COC PAGE 1 of 1

COC ID# _____

Trip Blank(s) Provided? Y / (N)

| Sample Line Item | VG9H | AG1H | AG1U | BP1U | BP2U | BP3U | BP3N | BP3S | WGKU | WGFU | WG2U | DG9M | DG9B | VG9W | VSG | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | 1 | 2 | 1 | 1 | 3 | | | | | | |
| 2 | | | | | | | | | ↓ | ↓ | ↓ | ↓ | ↓ | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | ↓ | ↓ | ↓ | ↓ | ↓ | | | | | | |
| 6 | | | | | | | | | 2 | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| AG1H | 1 liter HCL amber glass | BP2S | 500mL H2SO4 plastic | JGFU | 4 oz amber glass soil jar |
| AG1U | 1liter unpreserved amber glass | BP2U | 500mL unpreserved plastic | WGKU | 8 oz clear glass soil jar |
| AG2S | 500mL H2SO4 amber glass | BP2Z | 500mL NaOH, Zn Ac | WGFU | 4 oz clear glass soil jar |
| AG2U | 500mL unpreserved amber glass | BP3C | 250mL NaOH plastic | WG2U | 2 oz clear glass soil jar |
| AG3S | 250mL H2SO4 amber glass | BP3N | 250mL HNO3 plastic | JGFM | 4 oz amber glass soil jar with MeOH |
| 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 clear vial pre-weighted with DI water |
| BP1N | 1 liter HNO3 plastic | DG9B | 40mL Na Bisulfate clear vial | VSG | Headspace septa vial |
| BP1S | 1 liter H2SO4 plastic | DG9H | 40mL HCL amber voa vial | VG9H | 40mL HCL clear vial |
| BP1U | 1 liter unpreserved plastic | DG9M | 40mL MeOH clear vial | WGFX | 4oz wide jar w/hexane wipe |
| BP1Z | 1 liter NaOH, Zn, Ac | DG9T | 40mL Na Thio amber vial | VG9T | 40mL Na Thio. clear vial |
| BP2N | 500mL HNO3 plastic | DG9U | 40mL unpreserved amber vial | ZPLC | Ziploc Bag |
| BP2O | 500mL NaOH plastic | I | Wipe/Swab | U | Summa Can |

## Sample Condition Upon Receipt

Pace Analytical

Client Name: Ash Creek Project # 2512270

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

Tracking #:

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 2.1°C Biological Tissue is Frozen: Yes No

Temp should be above freezing ≤ 6°C

Date and Initials of person examining contents: 052212 CW

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. 5 day |
| **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 not PACE provided |
| 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: SL | | | |
| 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 | ☐Yes | ☐No | ☑N/A Initial when completed / Lot # of added preservative |
| 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 Creation Date: | | | |

**Client Notification/ Resolution:** Field Data Required? Y / N

Person Contacted: Date/Time:

Comments/ Resolution:

**Project Manager Review:** JENNI GOSS Date: 5/23/12

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)

**Pace Analytical Services, Inc.**
940 South Harney
Seattle, WA 98108
(206)767-5060

June 06, 2012

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

RE: Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

Dear John Foxwell:
Enclosed are the analytical results for sample(s) received by the laboratory on May 26, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Karen Jang for
Jennifer Gross
jennifer.gross@pacelabs.com
Project Manager

Enclosures

**Pace Analytical Services, Inc.**
940 South Harney
Seattle, WA 98108
(206)767-5060

## CERTIFICATIONS

Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

**Washington Certification IDs**
940 South Harney Street, Seattle, WA 98108
Alaska CS Certification #: UST-025
Arizona Certification #: AZ0770
California Certification #: 01153CA
Florida/NELAP Certification #: E87617
Oregon Certification #: WA200007
Washington Certification #: C555

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

## SAMPLE ANALYTE COUNT

Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|---|---|---|---|---|---|
| **2512373001** | **North Sidewall** | NWTPH-Gx | LPM | 3 | PASI-S |
| | | EPA 8260 | ERB | 73 | PASI-S |
| | | ASTM D2974-87 | RAB | 1 | PASI-S |
| **2512373002** | **South Sidewall** | NWTPH-Gx | LPM | 3 | PASI-S |
| | | EPA 8260 | ERB | 73 | PASI-S |
| | | ASTM D2974-87 | RAB | 1 | PASI-S |
| **2512373003** | **East Sidewall** | NWTPH-Gx | LPM | 3 | PASI-S |
| | | EPA 8260 | ERB | 73 | PASI-S |
| | | ASTM D2974-87 | RAB | 1 | PASI-S |
| **2512373004** | **West Sidewall** | NWTPH-Gx | LPM | 3 | PASI-S |
| | | EPA 8260 | ERB | 73 | PASI-S |
| | | ASTM D2974-87 | RAB | 1 | PASI-S |
| **2512373005** | **Dispenser C-20** | NWTPH-Gx | LPM | 3 | PASI-S |
| | | EPA 8260 | ERB | 73 | PASI-S |
| | | ASTM D2974-87 | RAB | 1 | PASI-S |
| **2512373006** | **Dispenser Ex Bottom** | NWTPH-Gx | LPM | 3 | PASI-S |
| | | EPA 8260 | ERB | 73 | PASI-S |
| | | ASTM D2974-87 | RAB | 1 | PASI-S |

Pace Analytical Services, Inc.
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# PROJECT NARRATIVE

Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

**Method:** **NWTPH-Gx**
**Description:** NWTPH-Gx GCV
**Client:** Ash Creek Associates
**Date:** June 06, 2012

**General Information:**
6 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:**

Analyte Comments:

QC Batch: GCV/2814

1n: The GRO result for this sample did not match the pattern of the laboratory standard for gasoline.
- DUP (Lab ID: 117734)
  - Gasoline Range Organics

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# PROJECT NARRATIVE

Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

**Method:** **EPA 8260**
**Description:** 8260/5035A Volatile Organics
**Client:** Ash Creek Associates
**Date:** June 06, 2012

**General Information:**
6 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.

QC Batch: MSV/7140

CL: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

- BLANK (Lab ID: 117755)
  - Dichlorodifluoromethane
- Dispenser C-20 (Lab ID: 2512373005)
  - Dichlorodifluoromethane
- Dispenser Ex Bottom (Lab ID: 2512373006)
  - Dichlorodifluoromethane
- East Sidewall (Lab ID: 2512373003)
  - Dichlorodifluoromethane
- LCS (Lab ID: 117756)
  - Dichlorodifluoromethane
- North Sidewall (Lab ID: 2512373001)
  - Dichlorodifluoromethane
- South Sidewall (Lab ID: 2512373002)
  - Dichlorodifluoromethane
- West Sidewall (Lab ID: 2512373004)
  - Dichlorodifluoromethane

**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.

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# PROJECT NARRATIVE

Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

**Method:** **EPA 8260**
**Description:** 8260/5035A Volatile Organics
**Client:** Ash Creek Associates
**Date:** June 06, 2012

QC Batch: MSV/7140

L0: Analyte recovery in the laboratory control sample (LCS) was outside QC limits.

- LCS (Lab ID: 117756)
  - 1,1,1,2-Tetrachloroethane
  - Styrene

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

QC Batch: MSV/7140

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**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.: 2512373

**Sample: North Sidewall** **Lab ID: 2512373001** Collected: 05/24/12 18:35 Received: 05/26/12 09:55 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 | | | | | |
| Gasoline Range Organics | ND | mg/kg | 5.8 | 1 | 06/04/12 10:07 | 06/04/12 17:38 | | |
| ***Surrogates*** | | | | | | | | |
| a,a,a-Trifluorotoluene (S) | 102 | % | 50-150 | 1 | 06/04/12 10:07 | 06/04/12 17:38 | 98-08-8 | |
| 4-Bromofluorobenzene (S) | 72 | % | 50-150 | 1 | 06/04/12 10:07 | 06/04/12 17:38 | 460-00-4 | |
| **8260/5035A Volatile Organics** | Analytical Method: EPA 8260 | | | | | | | |
| Acetone | **40.1** | ug/kg | 9.3 | 1 | | 06/04/12 21:30 | 67-64-1 | |
| tert-Amylmethyl ether | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 994-05-8 | |
| Benzene | **13.7** | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 71-43-2 | |
| Bromobenzene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 108-86-1 | |
| Bromochloromethane | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 74-97-5 | |
| Bromodichloromethane | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 75-27-4 | |
| Bromoform | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 75-25-2 | |
| Bromomethane | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 74-83-9 | |
| 2-Butanone (MEK) | ND | ug/kg | 9.3 | 1 | | 06/04/12 21:30 | 78-93-3 | |
| n-Butylbenzene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 104-51-8 | |
| sec-Butylbenzene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 135-98-8 | |
| tert-Butylbenzene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 98-06-6 | |
| Carbon disulfide | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 75-15-0 | |
| Carbon tetrachloride | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 56-23-5 | |
| Chlorobenzene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 108-90-7 | |
| Chloroethane | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 75-00-3 | |
| Chloroform | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 67-66-3 | |
| Chloromethane | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 74-87-3 | |
| 2-Chlorotoluene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 95-49-8 | |
| 4-Chlorotoluene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 106-43-4 | |
| 1,2-Dibromo-3-chloropropane | ND | ug/kg | 4.7 | 1 | | 06/04/12 21:30 | 96-12-8 | |
| Dibromochloromethane | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 106-93-4 | |
| Dibromomethane | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 74-95-3 | |
| 1,2-Dichlorobenzene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 95-50-1 | |
| 1,3-Dichlorobenzene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 541-73-1 | |
| 1,4-Dichlorobenzene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 106-46-7 | |
| Dichlorodifluoromethane | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 75-71-8 | CL |
| 1,1-Dichloroethane | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 75-34-3 | |
| 1,2-Dichloroethane | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 107-06-2 | |
| 1,2-Dichloroethene (Total) | ND | ug/kg | 5.6 | 1 | | 06/04/12 21:30 | 540-59-0 | |
| 1,1-Dichloroethene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 75-35-4 | |
| cis-1,2-Dichloroethene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 156-59-2 | |
| trans-1,2-Dichloroethene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 156-60-5 | |
| 1,2-Dichloropropane | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 78-87-5 | |
| 1,3-Dichloropropane | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 142-28-9 | |
| 2,2-Dichloropropane | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 594-20-7 | |
| 1,1-Dichloropropene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 563-58-6 | |
| cis-1,3-Dichloropropene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 10061-01-5 | |
| trans-1,3-Dichloropropene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 10061-02-6 | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

**Sample: North Sidewall** **Lab ID: 2512373001** Collected: 05/24/12 18:35 Received: 05/26/12 09:55 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 | | | | | | | |
| Ethylbenzene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 100-41-4 | |
| Hexachloro-1,3-butadiene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 87-68-3 | |
| 2-Hexanone | ND | ug/kg | 9.3 | 1 | | 06/04/12 21:30 | 591-78-6 | |
| Isopropylbenzene (Cumene) | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 98-82-8 | |
| p-Isopropyltoluene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 99-87-6 | |
| Methylene chloride | ND | ug/kg | 9.3 | 1 | | 06/04/12 21:30 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | ND | ug/kg | 9.3 | 1 | | 06/04/12 21:30 | 108-10-1 | |
| Methyl-tert-butyl ether | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 1634-04-4 | |
| Naphthalene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 91-20-3 | |
| n-Propylbenzene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 103-65-1 | |
| Styrene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 100-42-5 | L2 |
| 1,1,1,2-Tetrachloroethane | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 630-20-6 | L2 |
| 1,1,2,2-Tetrachloroethane | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 79-34-5 | |
| Tetrachloroethene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 127-18-4 | |
| Toluene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 120-82-1 | |
| 1,1,1-Trichloroethane | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 71-55-6 | |
| 1,1,2-Trichloroethane | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 79-00-5 | |
| Trichloroethene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 79-01-6 | |
| Trichlorofluoromethane | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 75-69-4 | |
| 1,2,3-Trichloropropane | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 96-18-4 | |
| 1,1,2-Trichlorotrifluoroethane | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 76-13-1 | |
| 1,2,4-Trimethylbenzene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 108-67-8 | |
| Vinyl chloride | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 75-01-4 | |
| Xylene (Total) | ND | ug/kg | 8.4 | 1 | | 06/04/12 21:30 | 1330-20-7 | |
| m&p-Xylene | ND | ug/kg | 5.6 | 1 | | 06/04/12 21:30 | 179601-23-1 | |
| o-Xylene | ND | ug/kg | 2.8 | 1 | | 06/04/12 21:30 | 95-47-6 | |
| ***Surrogates*** | | | | | | | | |
| Dibromofluoromethane (S) | 101 | % | 74-126 | 1 | | 06/04/12 21:30 | 1868-53-7 | |
| Toluene-d8 (S) | 98 | % | 71-130 | 1 | | 06/04/12 21:30 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 110 | % | 68-141 | 1 | | 06/04/12 21:30 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 112 | % | 68-141 | 1 | | 06/04/12 21:30 | 17060-07-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **16.3** | % | 0.10 | 1 | | 05/31/12 16:43 | | |

**Sample: South Sidewall** **Lab ID: 2512373002** Collected: 05/24/12 18:35 Received: 05/26/12 09:55 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 | | | | | |
| Gasoline Range Organics | ND | mg/kg | 6.4 | 1 | 06/04/12 10:07 | 06/04/12 18:02 | | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

**Sample: South Sidewall** **Lab ID: 2512373002** Collected: 05/24/12 18:35 Received: 05/26/12 09:55 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 | | | | | |
| ***Surrogates*** | | | | | | | | |
| a,a,a-Trifluorotoluene (S) | 105 | % | 50-150 | 1 | 06/04/12 10:07 | 06/04/12 18:02 | 98-08-8 | |
| 4-Bromofluorobenzene (S) | 75 | % | 50-150 | 1 | 06/04/12 10:07 | 06/04/12 18:02 | 460-00-4 | |
| **8260/5035A Volatile Organics** | Analytical Method: EPA 8260 | | | | | | | |
| Acetone | **71.2** | ug/kg | 10.5 | 1 | | 06/04/12 21:51 | 67-64-1 | |
| tert-Amylmethyl ether | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 994-05-8 | |
| Benzene | **10.2** | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 71-43-2 | |
| Bromobenzene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 108-86-1 | |
| Bromochloromethane | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 74-97-5 | |
| Bromodichloromethane | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 75-27-4 | |
| Bromoform | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 75-25-2 | |
| Bromomethane | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 74-83-9 | |
| 2-Butanone (MEK) | ND | ug/kg | 10.5 | 1 | | 06/04/12 21:51 | 78-93-3 | |
| n-Butylbenzene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 104-51-8 | |
| sec-Butylbenzene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 135-98-8 | |
| tert-Butylbenzene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 98-06-6 | |
| Carbon disulfide | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 75-15-0 | |
| Carbon tetrachloride | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 56-23-5 | |
| Chlorobenzene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 108-90-7 | |
| Chloroethane | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 75-00-3 | |
| Chloroform | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 67-66-3 | |
| Chloromethane | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 74-87-3 | |
| 2-Chlorotoluene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 95-49-8 | |
| 4-Chlorotoluene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 106-43-4 | |
| 1,2-Dibromo-3-chloropropane | ND | ug/kg | 5.3 | 1 | | 06/04/12 21:51 | 96-12-8 | |
| Dibromochloromethane | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 106-93-4 | |
| Dibromomethane | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 74-95-3 | |
| 1,2-Dichlorobenzene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 95-50-1 | |
| 1,3-Dichlorobenzene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 541-73-1 | |
| 1,4-Dichlorobenzene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 106-46-7 | |
| Dichlorodifluoromethane | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 75-71-8 | CL |
| 1,1-Dichloroethane | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 75-34-3 | |
| 1,2-Dichloroethane | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 107-06-2 | |
| 1,2-Dichloroethene (Total) | ND | ug/kg | 6.3 | 1 | | 06/04/12 21:51 | 540-59-0 | |
| 1,1-Dichloroethene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 75-35-4 | |
| cis-1,2-Dichloroethene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 156-59-2 | |
| trans-1,2-Dichloroethene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 156-60-5 | |
| 1,2-Dichloropropane | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 78-87-5 | |
| 1,3-Dichloropropane | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 142-28-9 | |
| 2,2-Dichloropropane | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 594-20-7 | |
| 1,1-Dichloropropene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 563-58-6 | |
| cis-1,3-Dichloropropene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 10061-01-5 | |
| trans-1,3-Dichloropropene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 10061-02-6 | |
| Ethylbenzene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 100-41-4 | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

**Sample: South Sidewall** **Lab ID: 2512373002** Collected: 05/24/12 18:35 Received: 05/26/12 09:55 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 | | | | | | | |
| Hexachloro-1,3-butadiene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 87-68-3 | |
| 2-Hexanone | ND | ug/kg | 10.5 | 1 | | 06/04/12 21:51 | 591-78-6 | |
| Isopropylbenzene (Cumene) | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 98-82-8 | |
| p-Isopropyltoluene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 99-87-6 | |
| Methylene chloride | ND | ug/kg | 10.5 | 1 | | 06/04/12 21:51 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | ND | ug/kg | 10.5 | 1 | | 06/04/12 21:51 | 108-10-1 | |
| Methyl-tert-butyl ether | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 1634-04-4 | |
| Naphthalene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 91-20-3 | |
| n-Propylbenzene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 103-65-1 | |
| Styrene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 100-42-5 | L2 |
| 1,1,1,2-Tetrachloroethane | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 630-20-6 | L2 |
| 1,1,2,2-Tetrachloroethane | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 79-34-5 | |
| Tetrachloroethene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 127-18-4 | |
| Toluene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 120-82-1 | |
| 1,1,1-Trichloroethane | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 71-55-6 | |
| 1,1,2-Trichloroethane | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 79-00-5 | |
| Trichloroethene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 79-01-6 | |
| Trichlorofluoromethane | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 75-69-4 | |
| 1,2,3-Trichloropropane | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 96-18-4 | |
| 1,1,2-Trichlorotrifluoroethane | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 76-13-1 | |
| 1,2,4-Trimethylbenzene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 108-67-8 | |
| Vinyl chloride | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 75-01-4 | |
| Xylene (Total) | ND | ug/kg | 9.5 | 1 | | 06/04/12 21:51 | 1330-20-7 | |
| m&p-Xylene | ND | ug/kg | 6.3 | 1 | | 06/04/12 21:51 | 179601-23-1 | |
| o-Xylene | ND | ug/kg | 3.2 | 1 | | 06/04/12 21:51 | 95-47-6 | |
| ***Surrogates*** | | | | | | | | |
| Dibromofluoromethane (S) | 94 | % | 74-126 | 1 | | 06/04/12 21:51 | 1868-53-7 | |
| Toluene-d8 (S) | 98 | % | 71-130 | 1 | | 06/04/12 21:51 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 105 | % | 68-141 | 1 | | 06/04/12 21:51 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 108 | % | 68-141 | 1 | | 06/04/12 21:51 | 17060-07-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **21.6** | % | 0.10 | 1 | | 05/31/12 16:45 | | |

**Sample: East Sidewall** **Lab ID: 2512373003** Collected: 05/24/12 18:15 Received: 05/26/12 09:55 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 | | | | | |
| Gasoline Range Organics | ND | mg/kg | 5.2 | 1 | 06/04/12 10:07 | 06/04/12 18:26 | | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

**Sample: East Sidewall** **Lab ID: 2512373003** Collected: 05/24/12 18:15 Received: 05/26/12 09:55 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 | | | | | |
| ***Surrogates*** | | | | | | | | |
| a,a,a-Trifluorotoluene (S) | 105 | % | 50-150 | 1 | 06/04/12 10:07 | 06/04/12 18:26 | 98-08-8 | |
| 4-Bromofluorobenzene (S) | 74 | % | 50-150 | 1 | 06/04/12 10:07 | 06/04/12 18:26 | 460-00-4 | |
| **8260/5035A Volatile Organics** | Analytical Method: EPA 8260 | | | | | | | |
| Acetone | **54.1** | ug/kg | 8.6 | 1 | | 06/04/12 22:12 | 67-64-1 | |
| tert-Amylmethyl ether | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 994-05-8 | |
| Benzene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 71-43-2 | |
| Bromobenzene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 108-86-1 | |
| Bromochloromethane | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 74-97-5 | |
| Bromodichloromethane | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 75-27-4 | |
| Bromoform | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 75-25-2 | |
| Bromomethane | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 74-83-9 | |
| 2-Butanone (MEK) | ND | ug/kg | 8.6 | 1 | | 06/04/12 22:12 | 78-93-3 | |
| n-Butylbenzene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 104-51-8 | |
| sec-Butylbenzene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 135-98-8 | |
| tert-Butylbenzene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 98-06-6 | |
| Carbon disulfide | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 75-15-0 | |
| Carbon tetrachloride | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 56-23-5 | |
| Chlorobenzene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 108-90-7 | |
| Chloroethane | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 75-00-3 | |
| Chloroform | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 67-66-3 | |
| Chloromethane | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 74-87-3 | |
| 2-Chlorotoluene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 95-49-8 | |
| 4-Chlorotoluene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 106-43-4 | |
| 1,2-Dibromo-3-chloropropane | ND | ug/kg | 4.3 | 1 | | 06/04/12 22:12 | 96-12-8 | |
| Dibromochloromethane | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 106-93-4 | |
| Dibromomethane | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 74-95-3 | |
| 1,2-Dichlorobenzene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 95-50-1 | |
| 1,3-Dichlorobenzene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 541-73-1 | |
| 1,4-Dichlorobenzene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 106-46-7 | |
| Dichlorodifluoromethane | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 75-71-8 | CL |
| 1,1-Dichloroethane | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 75-34-3 | |
| 1,2-Dichloroethane | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 107-06-2 | |
| 1,2-Dichloroethene (Total) | ND | ug/kg | 5.1 | 1 | | 06/04/12 22:12 | 540-59-0 | |
| 1,1-Dichloroethene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 75-35-4 | |
| cis-1,2-Dichloroethene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 156-59-2 | |
| trans-1,2-Dichloroethene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 156-60-5 | |
| 1,2-Dichloropropane | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 78-87-5 | |
| 1,3-Dichloropropane | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 142-28-9 | |
| 2,2-Dichloropropane | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 594-20-7 | |
| 1,1-Dichloropropene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 563-58-6 | |
| cis-1,3-Dichloropropene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 10061-01-5 | |
| trans-1,3-Dichloropropene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 10061-02-6 | |
| Ethylbenzene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 100-41-4 | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

**Sample: East Sidewall** **Lab ID: 2512373003** Collected: 05/24/12 18:15 Received: 05/26/12 09:55 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 | | | | | | | |
| Hexachloro-1,3-butadiene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 87-68-3 | |
| 2-Hexanone | ND | ug/kg | 8.6 | 1 | | 06/04/12 22:12 | 591-78-6 | |
| Isopropylbenzene (Cumene) | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 98-82-8 | |
| p-Isopropyltoluene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 99-87-6 | |
| Methylene chloride | ND | ug/kg | 8.6 | 1 | | 06/04/12 22:12 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | ND | ug/kg | 8.6 | 1 | | 06/04/12 22:12 | 108-10-1 | |
| Methyl-tert-butyl ether | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 1634-04-4 | |
| Naphthalene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 91-20-3 | |
| n-Propylbenzene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 103-65-1 | |
| Styrene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 100-42-5 | L2 |
| 1,1,1,2-Tetrachloroethane | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 630-20-6 | L2 |
| 1,1,2,2-Tetrachloroethane | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 79-34-5 | |
| Tetrachloroethene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 127-18-4 | |
| Toluene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 120-82-1 | |
| 1,1,1-Trichloroethane | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 71-55-6 | |
| 1,1,2-Trichloroethane | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 79-00-5 | |
| Trichloroethene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 79-01-6 | |
| Trichlorofluoromethane | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 75-69-4 | |
| 1,2,3-Trichloropropane | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 96-18-4 | |
| 1,1,2-Trichlorotrifluoroethane | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 76-13-1 | |
| 1,2,4-Trimethylbenzene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 108-67-8 | |
| Vinyl chloride | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 75-01-4 | |
| Xylene (Total) | ND | ug/kg | 7.7 | 1 | | 06/04/12 22:12 | 1330-20-7 | |
| m&p-Xylene | ND | ug/kg | 5.1 | 1 | | 06/04/12 22:12 | 179601-23-1 | |
| o-Xylene | ND | ug/kg | 2.6 | 1 | | 06/04/12 22:12 | 95-47-6 | |
| ***Surrogates*** | | | | | | | | |
| Dibromofluoromethane (S) | 94 | % | 74-126 | 1 | | 06/04/12 22:12 | 1868-53-7 | |
| Toluene-d8 (S) | 98 | % | 71-130 | 1 | | 06/04/12 22:12 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 107 | % | 68-141 | 1 | | 06/04/12 22:12 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 108 | % | 68-141 | 1 | | 06/04/12 22:12 | 17060-07-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **15.1** | % | 0.10 | 1 | | 05/31/12 16:46 | | |

**Sample: West Sidewall** **Lab ID: 2512373004** Collected: 05/24/12 18:55 Received: 05/26/12 09:55 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 | | | | | |
| Gasoline Range Organics | ND | mg/kg | 7.9 | 1 | 06/04/12 10:07 | 06/04/12 18:49 | | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

**Sample: West Sidewall** **Lab ID: 2512373004** Collected: 05/24/12 18:55 Received: 05/26/12 09:55 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 | | | | | |
| ***Surrogates*** | | | | | | | | |
| a,a,a-Trifluorotoluene (S) | 103 | % | 50-150 | 1 | 06/04/12 10:07 | 06/04/12 18:49 | 98-08-8 | |
| 4-Bromofluorobenzene (S) | 74 | % | 50-150 | 1 | 06/04/12 10:07 | 06/04/12 18:49 | 460-00-4 | |
| **8260/5035A Volatile Organics** | Analytical Method: EPA 8260 | | | | | | | |
| Acetone | **130** | ug/kg | 12.6 | 1 | | 06/04/12 22:32 | 67-64-1 | |
| tert-Amylmethyl ether | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 994-05-8 | |
| Benzene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 71-43-2 | |
| Bromobenzene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 108-86-1 | |
| Bromochloromethane | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 74-97-5 | |
| Bromodichloromethane | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 75-27-4 | |
| Bromoform | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 75-25-2 | |
| Bromomethane | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 74-83-9 | |
| 2-Butanone (MEK) | ND | ug/kg | 12.6 | 1 | | 06/04/12 22:32 | 78-93-3 | |
| n-Butylbenzene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 104-51-8 | |
| sec-Butylbenzene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 135-98-8 | |
| tert-Butylbenzene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 98-06-6 | |
| Carbon disulfide | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 75-15-0 | |
| Carbon tetrachloride | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 56-23-5 | |
| Chlorobenzene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 108-90-7 | |
| Chloroethane | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 75-00-3 | |
| Chloroform | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 67-66-3 | |
| Chloromethane | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 74-87-3 | |
| 2-Chlorotoluene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 95-49-8 | |
| 4-Chlorotoluene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 106-43-4 | |
| 1,2-Dibromo-3-chloropropane | ND | ug/kg | 6.3 | 1 | | 06/04/12 22:32 | 96-12-8 | |
| Dibromochloromethane | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 106-93-4 | |
| Dibromomethane | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 74-95-3 | |
| 1,2-Dichlorobenzene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 95-50-1 | |
| 1,3-Dichlorobenzene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 541-73-1 | |
| 1,4-Dichlorobenzene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 106-46-7 | |
| Dichlorodifluoromethane | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 75-71-8 | CL |
| 1,1-Dichloroethane | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 75-34-3 | |
| 1,2-Dichloroethane | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 107-06-2 | |
| 1,2-Dichloroethene (Total) | ND | ug/kg | 7.6 | 1 | | 06/04/12 22:32 | 540-59-0 | |
| 1,1-Dichloroethene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 75-35-4 | |
| cis-1,2-Dichloroethene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 156-59-2 | |
| trans-1,2-Dichloroethene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 156-60-5 | |
| 1,2-Dichloropropane | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 78-87-5 | |
| 1,3-Dichloropropane | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 142-28-9 | |
| 2,2-Dichloropropane | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 594-20-7 | |
| 1,1-Dichloropropene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 563-58-6 | |
| cis-1,3-Dichloropropene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 10061-01-5 | |
| trans-1,3-Dichloropropene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 10061-02-6 | |
| Ethylbenzene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 100-41-4 | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

**Sample: West Sidewall** **Lab ID: 2512373004** Collected: 05/24/12 18:55 Received: 05/26/12 09:55 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 | | | | | | | |
| Hexachloro-1,3-butadiene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 87-68-3 | |
| 2-Hexanone | ND | ug/kg | 12.6 | 1 | | 06/04/12 22:32 | 591-78-6 | |
| Isopropylbenzene (Cumene) | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 98-82-8 | |
| p-Isopropyltoluene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 99-87-6 | |
| Methylene chloride | ND | ug/kg | 12.6 | 1 | | 06/04/12 22:32 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | ND | ug/kg | 12.6 | 1 | | 06/04/12 22:32 | 108-10-1 | |
| Methyl-tert-butyl ether | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 1634-04-4 | |
| Naphthalene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 91-20-3 | |
| n-Propylbenzene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 103-65-1 | |
| Styrene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 100-42-5 | L2 |
| 1,1,1,2-Tetrachloroethane | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 630-20-6 | L2 |
| 1,1,2,2-Tetrachloroethane | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 79-34-5 | |
| Tetrachloroethene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 127-18-4 | |
| Toluene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 120-82-1 | |
| 1,1,1-Trichloroethane | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 71-55-6 | |
| 1,1,2-Trichloroethane | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 79-00-5 | |
| Trichloroethene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 79-01-6 | |
| Trichlorofluoromethane | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 75-69-4 | |
| 1,2,3-Trichloropropane | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 96-18-4 | |
| 1,1,2-Trichlorotrifluoroethane | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 76-13-1 | |
| 1,2,4-Trimethylbenzene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 108-67-8 | |
| Vinyl chloride | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 75-01-4 | |
| Xylene (Total) | ND | ug/kg | 11.4 | 1 | | 06/04/12 22:32 | 1330-20-7 | |
| m&p-Xylene | ND | ug/kg | 7.6 | 1 | | 06/04/12 22:32 | 179601-23-1 | |
| o-Xylene | ND | ug/kg | 3.8 | 1 | | 06/04/12 22:32 | 95-47-6 | |
| ***Surrogates*** | | | | | | | | |
| Dibromofluoromethane (S) | 97 | % | 74-126 | 1 | | 06/04/12 22:32 | 1868-53-7 | |
| Toluene-d8 (S) | 99 | % | 71-130 | 1 | | 06/04/12 22:32 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 106 | % | 68-141 | 1 | | 06/04/12 22:32 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 108 | % | 68-141 | 1 | | 06/04/12 22:32 | 17060-07-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **26.9** | % | 0.10 | 1 | | 05/31/12 16:47 | | |

**Sample: Dispenser C-20** **Lab ID: 2512373005** Collected: 05/24/12 18:15 Received: 05/26/12 09:55 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 | | | | | |
| Gasoline Range Organics | ND | mg/kg | 6.2 | 1 | 06/04/12 10:07 | 06/04/12 19:13 | | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

**Sample: Dispenser C-20** **Lab ID: 2512373005** Collected: 05/24/12 18:15 Received: 05/26/12 09:55 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 | | | | | |
| ***Surrogates*** | | | | | | | | |
| a,a,a-Trifluorotoluene (S) | 103 | % | 50-150 | 1 | 06/04/12 10:07 | 06/04/12 19:13 | 98-08-8 | |
| 4-Bromofluorobenzene (S) | 73 | % | 50-150 | 1 | 06/04/12 10:07 | 06/04/12 19:13 | 460-00-4 | |
| **8260/5035A Volatile Organics** | Analytical Method: EPA 8260 | | | | | | | |
| Acetone | **193** | ug/kg | 13.1 | 1 | | 06/04/12 22:53 | 67-64-1 | |
| tert-Amylmethyl ether | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 994-05-8 | |
| Benzene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 71-43-2 | |
| Bromobenzene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 108-86-1 | |
| Bromochloromethane | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 74-97-5 | |
| Bromodichloromethane | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 75-27-4 | |
| Bromoform | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 75-25-2 | |
| Bromomethane | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 74-83-9 | |
| 2-Butanone (MEK) | **36.8** | ug/kg | 13.1 | 1 | | 06/04/12 22:53 | 78-93-3 | |
| n-Butylbenzene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 104-51-8 | |
| sec-Butylbenzene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 135-98-8 | |
| tert-Butylbenzene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 98-06-6 | |
| Carbon disulfide | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 75-15-0 | |
| Carbon tetrachloride | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 56-23-5 | |
| Chlorobenzene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 108-90-7 | |
| Chloroethane | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 75-00-3 | |
| Chloroform | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 67-66-3 | |
| Chloromethane | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 74-87-3 | |
| 2-Chlorotoluene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 95-49-8 | |
| 4-Chlorotoluene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 106-43-4 | |
| 1,2-Dibromo-3-chloropropane | ND | ug/kg | 6.5 | 1 | | 06/04/12 22:53 | 96-12-8 | |
| Dibromochloromethane | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 106-93-4 | |
| Dibromomethane | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 74-95-3 | |
| 1,2-Dichlorobenzene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 95-50-1 | |
| 1,3-Dichlorobenzene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 541-73-1 | |
| 1,4-Dichlorobenzene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 106-46-7 | |
| Dichlorodifluoromethane | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 75-71-8 | CL |
| 1,1-Dichloroethane | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 75-34-3 | |
| 1,2-Dichloroethane | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 107-06-2 | |
| 1,2-Dichloroethene (Total) | ND | ug/kg | 7.8 | 1 | | 06/04/12 22:53 | 540-59-0 | |
| 1,1-Dichloroethene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 75-35-4 | |
| cis-1,2-Dichloroethene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 156-59-2 | |
| trans-1,2-Dichloroethene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 156-60-5 | |
| 1,2-Dichloropropane | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 78-87-5 | |
| 1,3-Dichloropropane | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 142-28-9 | |
| 2,2-Dichloropropane | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 594-20-7 | |
| 1,1-Dichloropropene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 563-58-6 | |
| cis-1,3-Dichloropropene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 10061-01-5 | |
| trans-1,3-Dichloropropene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 10061-02-6 | |
| Ethylbenzene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 100-41-4 | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

**Sample: Dispenser C-20** **Lab ID: 2512373005** Collected: 05/24/12 18:15 Received: 05/26/12 09:55 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 | | | | | | | |
| Hexachloro-1,3-butadiene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 87-68-3 | |
| 2-Hexanone | ND | ug/kg | 13.1 | 1 | | 06/04/12 22:53 | 591-78-6 | |
| Isopropylbenzene (Cumene) | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 98-82-8 | |
| p-Isopropyltoluene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 99-87-6 | |
| Methylene chloride | ND | ug/kg | 13.1 | 1 | | 06/04/12 22:53 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | ND | ug/kg | 13.1 | 1 | | 06/04/12 22:53 | 108-10-1 | |
| Methyl-tert-butyl ether | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 1634-04-4 | |
| Naphthalene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 91-20-3 | |
| n-Propylbenzene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 103-65-1 | |
| Styrene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 100-42-5 | L2 |
| 1,1,1,2-Tetrachloroethane | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 630-20-6 | L2 |
| 1,1,2,2-Tetrachloroethane | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 79-34-5 | |
| Tetrachloroethene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 127-18-4 | |
| Toluene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 120-82-1 | |
| 1,1,1-Trichloroethane | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 71-55-6 | |
| 1,1,2-Trichloroethane | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 79-00-5 | |
| Trichloroethene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 79-01-6 | |
| Trichlorofluoromethane | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 75-69-4 | |
| 1,2,3-Trichloropropane | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 96-18-4 | |
| 1,1,2-Trichlorotrifluoroethane | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 76-13-1 | |
| 1,2,4-Trimethylbenzene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 108-67-8 | |
| Vinyl chloride | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 75-01-4 | |
| Xylene (Total) | ND | ug/kg | 11.8 | 1 | | 06/04/12 22:53 | 1330-20-7 | |
| m&p-Xylene | ND | ug/kg | 7.8 | 1 | | 06/04/12 22:53 | 179601-23-1 | |
| o-Xylene | ND | ug/kg | 3.9 | 1 | | 06/04/12 22:53 | 95-47-6 | |
| ***Surrogates*** | | | | | | | | |
| Dibromofluoromethane (S) | 98 | % | 74-126 | 1 | | 06/04/12 22:53 | 1868-53-7 | |
| Toluene-d8 (S) | 99 | % | 71-130 | 1 | | 06/04/12 22:53 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 108 | % | 68-141 | 1 | | 06/04/12 22:53 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 106 | % | 68-141 | 1 | | 06/04/12 22:53 | 17060-07-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **12.5** | % | 0.10 | 1 | | 05/31/12 16:48 | | |

**Sample: Dispenser Ex Bottom** **Lab ID: 2512373006** Collected: 05/24/12 18:30 Received: 05/26/12 09:55 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 | | | | | |
| Gasoline Range Organics | ND | mg/kg | 8.0 | 1 | 06/04/12 10:07 | 06/04/12 19:36 | | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

**Sample: Dispenser Ex Bottom** **Lab ID: 2512373006** Collected: 05/24/12 18:30 Received: 05/26/12 09:55 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 | | | | | |
| ***Surrogates*** | | | | | | | | |
| a,a,a-Trifluorotoluene (S) | 110 | % | 50-150 | 1 | 06/04/12 10:07 | 06/04/12 19:36 | 98-08-8 | |
| 4-Bromofluorobenzene (S) | 79 | % | 50-150 | 1 | 06/04/12 10:07 | 06/04/12 19:36 | 460-00-4 | |
| **8260/5035A Volatile Organics** | Analytical Method: EPA 8260 | | | | | | | |
| Acetone | **98.2** | ug/kg | 14.9 | 1 | | 06/04/12 23:13 | 67-64-1 | |
| tert-Amylmethyl ether | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 994-05-8 | |
| Benzene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 71-43-2 | |
| Bromobenzene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 108-86-1 | |
| Bromochloromethane | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 74-97-5 | |
| Bromodichloromethane | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 75-27-4 | |
| Bromoform | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 75-25-2 | |
| Bromomethane | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 74-83-9 | |
| 2-Butanone (MEK) | ND | ug/kg | 14.9 | 1 | | 06/04/12 23:13 | 78-93-3 | |
| n-Butylbenzene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 104-51-8 | |
| sec-Butylbenzene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 135-98-8 | |
| tert-Butylbenzene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 98-06-6 | |
| Carbon disulfide | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 75-15-0 | |
| Carbon tetrachloride | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 56-23-5 | |
| Chlorobenzene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 108-90-7 | |
| Chloroethane | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 75-00-3 | |
| Chloroform | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 67-66-3 | |
| Chloromethane | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 74-87-3 | |
| 2-Chlorotoluene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 95-49-8 | |
| 4-Chlorotoluene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 106-43-4 | |
| 1,2-Dibromo-3-chloropropane | ND | ug/kg | 7.5 | 1 | | 06/04/12 23:13 | 96-12-8 | |
| Dibromochloromethane | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 106-93-4 | |
| Dibromomethane | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 74-95-3 | |
| 1,2-Dichlorobenzene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 95-50-1 | |
| 1,3-Dichlorobenzene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 541-73-1 | |
| 1,4-Dichlorobenzene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 106-46-7 | |
| Dichlorodifluoromethane | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 75-71-8 | CL |
| 1,1-Dichloroethane | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 75-34-3 | |
| 1,2-Dichloroethane | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 107-06-2 | |
| 1,2-Dichloroethene (Total) | ND | ug/kg | 8.9 | 1 | | 06/04/12 23:13 | 540-59-0 | |
| 1,1-Dichloroethene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 75-35-4 | |
| cis-1,2-Dichloroethene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 156-59-2 | |
| trans-1,2-Dichloroethene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 156-60-5 | |
| 1,2-Dichloropropane | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 78-87-5 | |
| 1,3-Dichloropropane | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 142-28-9 | |
| 2,2-Dichloropropane | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 594-20-7 | |
| 1,1-Dichloropropene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 563-58-6 | |
| cis-1,3-Dichloropropene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 10061-01-5 | |
| trans-1,3-Dichloropropene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 10061-02-6 | |
| Ethylbenzene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 100-41-4 | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

**Sample: Dispenser Ex Bottom** **Lab ID: 2512373006** Collected: 05/24/12 18:30 Received: 05/26/12 09:55 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 | | | | | | | |
| Hexachloro-1,3-butadiene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 87-68-3 | |
| 2-Hexanone | ND | ug/kg | 14.9 | 1 | | 06/04/12 23:13 | 591-78-6 | |
| Isopropylbenzene (Cumene) | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 98-82-8 | |
| p-Isopropyltoluene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 99-87-6 | |
| Methylene chloride | ND | ug/kg | 14.9 | 1 | | 06/04/12 23:13 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | ND | ug/kg | 14.9 | 1 | | 06/04/12 23:13 | 108-10-1 | |
| Methyl-tert-butyl ether | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 1634-04-4 | |
| Naphthalene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 91-20-3 | |
| n-Propylbenzene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 103-65-1 | |
| Styrene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 100-42-5 | L2 |
| 1,1,1,2-Tetrachloroethane | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 630-20-6 | L2 |
| 1,1,2,2-Tetrachloroethane | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 79-34-5 | |
| Tetrachloroethene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 127-18-4 | |
| Toluene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 120-82-1 | |
| 1,1,1-Trichloroethane | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 71-55-6 | |
| 1,1,2-Trichloroethane | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 79-00-5 | |
| Trichloroethene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 79-01-6 | |
| Trichlorofluoromethane | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 75-69-4 | |
| 1,2,3-Trichloropropane | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 96-18-4 | |
| 1,1,2-Trichlorotrifluoroethane | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 76-13-1 | |
| 1,2,4-Trimethylbenzene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 108-67-8 | |
| Vinyl chloride | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 75-01-4 | |
| Xylene (Total) | ND | ug/kg | 13.4 | 1 | | 06/04/12 23:13 | 1330-20-7 | |
| m&p-Xylene | **9.1** | ug/kg | 8.9 | 1 | | 06/04/12 23:13 | 179601-23-1 | |
| o-Xylene | ND | ug/kg | 4.5 | 1 | | 06/04/12 23:13 | 95-47-6 | |
| ***Surrogates*** | | | | | | | | |
| Dibromofluoromethane (S) | 102 | % | 74-126 | 1 | | 06/04/12 23:13 | 1868-53-7 | |
| Toluene-d8 (S) | 97 | % | 71-130 | 1 | | 06/04/12 23:13 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 106 | % | 68-141 | 1 | | 06/04/12 23:13 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 110 | % | 68-141 | 1 | | 06/04/12 23:13 | 17060-07-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **24.8** | % | 0.10 | 1 | | 05/31/12 16:49 | | |

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# QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

QC Batch: GCV/2814 Analysis Method: NWTPH-Gx
QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx Solid GCV
Associated Lab Samples: 2512373001, 2512373002, 2512373003, 2512373004, 2512373005, 2512373006

METHOD BLANK: 117688 Matrix: Solid
Associated Lab Samples: 2512373001, 2512373002, 2512373003, 2512373004, 2512373005, 2512373006

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Gasoline Range Organics | mg/kg | ND | 5.0 | 06/04/12 09:16 | |
| 4-Bromofluorobenzene (S) | % | 76 | 50-150 | 06/04/12 09:16 | |
| a,a,a-Trifluorotoluene (S) | % | 96 | 50-150 | 06/04/12 09:16 | |

LABORATORY CONTROL SAMPLE: 117689

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Gasoline Range Organics | mg/kg | 12.5 | 11.2 | 90 | 63-140 | |
| 4-Bromofluorobenzene (S) | % | | | 83 | 50-150 | |
| a,a,a-Trifluorotoluene (S) | % | | | 106 | 50-150 | |

SAMPLE DUPLICATE: 117734

| Parameter | Units | 2512279007 Result | Dup Result | RPD | Qualifiers |
|---|---|---|---|---|---|
| Gasoline Range Organics | mg/kg | 13.0 | 12.7 | 2 | 1n |
| 4-Bromofluorobenzene (S) | % | 78 | 79 | .9 | |
| a,a,a-Trifluorotoluene (S) | % | 109 | 110 | 1 | |

SAMPLE DUPLICATE: 117757

| Parameter | Units | 2512322002 Result | Dup Result | RPD | Qualifiers |
|---|---|---|---|---|---|
| Gasoline Range Organics | mg/kg | ND | ND | | |
| 4-Bromofluorobenzene (S) | % | 69 | 55 | 22 | |
| a,a,a-Trifluorotoluene (S) | % | 105 | 98 | 7 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

QC Batch: MSV/7140 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 2512373001, 2512373002, 2512373003, 2512373004, 2512373005, 2512373006

METHOD BLANK: 117755 Matrix: Solid
Associated Lab Samples: 2512373001, 2512373002, 2512373003, 2512373004, 2512373005, 2512373006

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,1,1-Trichloroethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,1,2,2-Tetrachloroethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,1,2-Trichloroethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,1,2-Trichlorotrifluoroethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,1-Dichloroethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,1-Dichloroethene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,1-Dichloropropene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,2,3-Trichlorobenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,2,3-Trichloropropane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,2,4-Trichlorobenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,2,4-Trimethylbenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,2-Dibromo-3-chloropropane | ug/kg | ND | 5.0 | 06/04/12 20:28 | |
| 1,2-Dibromoethane (EDB) | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,2-Dichlorobenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,2-Dichloroethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,2-Dichloroethene (Total) | ug/kg | ND | 6.0 | 06/04/12 20:28 | |
| 1,2-Dichloropropane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,3,5-Trimethylbenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,3-Dichlorobenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,3-Dichloropropane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,4-Dichlorobenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 2,2-Dichloropropane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 2-Butanone (MEK) | ug/kg | ND | 10.0 | 06/04/12 20:28 | |
| 2-Chlorotoluene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 2-Hexanone | ug/kg | ND | 10.0 | 06/04/12 20:28 | |
| 4-Chlorotoluene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 4-Methyl-2-pentanone (MIBK) | ug/kg | ND | 10.0 | 06/04/12 20:28 | |
| Acetone | ug/kg | ND | 10.0 | 06/04/12 20:28 | |
| Benzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Bromobenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Bromochloromethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Bromodichloromethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Bromoform | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Bromomethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Carbon disulfide | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Carbon tetrachloride | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Chlorobenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Chloroethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Chloroform | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Chloromethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| cis-1,2-Dichloroethene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| cis-1,3-Dichloropropene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |

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940 South Harney
Seattle, WA 98108
(206)767-5060

## QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

METHOD BLANK: 117755 Matrix: Solid

Associated Lab Samples: 2512373001, 2512373002, 2512373003, 2512373004, 2512373005, 2512373006

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Dibromochloromethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Dibromomethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Dichlorodifluoromethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | CL |
| Ethylbenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Hexachloro-1,3-butadiene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Isopropylbenzene (Cumene) | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| m&p-Xylene | ug/kg | ND | 6.0 | 06/04/12 20:28 | |
| Methyl-tert-butyl ether | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Methylene chloride | ug/kg | ND | 10.0 | 06/04/12 20:28 | |
| n-Butylbenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| n-Propylbenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Naphthalene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| o-Xylene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| p-Isopropyltoluene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| sec-Butylbenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Styrene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| tert-Amylmethyl ether | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| tert-Butylbenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Tetrachloroethene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Toluene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| trans-1,2-Dichloroethene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| trans-1,3-Dichloropropene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Trichloroethene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Trichlorofluoromethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Vinyl chloride | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Xylene (Total) | ug/kg | ND | 9.0 | 06/04/12 20:28 | |
| 1,2-Dichloroethane-d4 (S) | % | 99 | 68-141 | 06/04/12 20:28 | |
| 4-Bromofluorobenzene (S) | % | 109 | 68-141 | 06/04/12 20:28 | |
| Dibromofluoromethane (S) | % | 92 | 74-126 | 06/04/12 20:28 | |
| Toluene-d8 (S) | % | 103 | 71-130 | 06/04/12 20:28 | |

LABORATORY CONTROL SAMPLE: 117756

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ug/kg | 20 | 14.8 | 74 | 75-126 | L0 |
| 1,1,1-Trichloroethane | ug/kg | 20 | 16.2 | 81 | 65-147 | |
| 1,1,2,2-Tetrachloroethane | ug/kg | 20 | 14.7 | 73 | 65-129 | |
| 1,1,2-Trichloroethane | ug/kg | 20 | 15.7 | 79 | 71-125 | |
| 1,1,2-Trichlorotrifluoroethane | ug/kg | 20 | 16.9 | 85 | 53-160 | |
| 1,1-Dichloroethane | ug/kg | 20 | 16.9 | 84 | 71-136 | |
| 1,1-Dichloroethene | ug/kg | 20 | 16.0 | 80 | 56-160 | |
| 1,1-Dichloropropene | ug/kg | 20 | 16.7 | 84 | 60-145 | |
| 1,2,3-Trichlorobenzene | ug/kg | 20 | 16.1 | 81 | 69-124 | |
| 1,2,3-Trichloropropane | ug/kg | 20 | 15.4 | 77 | 71-119 | |
| 1,2,4-Trichlorobenzene | ug/kg | 20 | 17.1 | 86 | 69-127 | |

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Seattle, WA 98108
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## QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

LABORATORY CONTROL SAMPLE: 117756

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,2,4-Trimethylbenzene | ug/kg | 20 | 18.0 | 90 | 69-127 | |
| 1,2-Dibromo-3-chloropropane | ug/kg | 20 | 14.8 | 74 | 55-132 | |
| 1,2-Dibromoethane (EDB) | ug/kg | 20 | 14.6 | 73 | 73-125 | |
| 1,2-Dichlorobenzene | ug/kg | 20 | 16.1 | 81 | 77-118 | |
| 1,2-Dichloroethane | ug/kg | 20 | 16.5 | 82 | 67-137 | |
| 1,2-Dichloroethene (Total) | ug/kg | 40 | 31.2 | 78 | 71-141 | |
| 1,2-Dichloropropane | ug/kg | 20 | 16.1 | 81 | 72-133 | |
| 1,3,5-Trimethylbenzene | ug/kg | 20 | 18.6 | 93 | 70-129 | |
| 1,3-Dichlorobenzene | ug/kg | 20 | 16.2 | 81 | 76-122 | |
| 1,3-Dichloropropane | ug/kg | 20 | 15.8 | 79 | 72-125 | |
| 1,4-Dichlorobenzene | ug/kg | 20 | 16.5 | 82 | 76-119 | |
| 2,2-Dichloropropane | ug/kg | 20 | 15.6 | 78 | 57-156 | |
| 2-Butanone (MEK) | ug/kg | 40 | 33.9 | 85 | 40-160 | |
| 2-Chlorotoluene | ug/kg | 20 | 17.3 | 87 | 70-123 | |
| 2-Hexanone | ug/kg | 40 | 27.5 | 69 | 40-160 | |
| 4-Chlorotoluene | ug/kg | 20 | 17.0 | 85 | 74-127 | |
| 4-Methyl-2-pentanone (MIBK) | ug/kg | 40 | 25.3 | 63 | 58-143 | |
| Acetone | ug/kg | 40 | 33.1 | 83 | 40-160 | |
| Benzene | ug/kg | 20 | 15.7 | 79 | 67-133 | |
| Bromobenzene | ug/kg | 20 | 17.0 | 85 | 77-121 | |
| Bromochloromethane | ug/kg | 20 | 15.0 | 75 | 73-132 | |
| Bromodichloromethane | ug/kg | 20 | 15.1 | 76 | 71-130 | |
| Bromoform | ug/kg | 20 | 14.3 | 72 | 65-127 | |
| Bromomethane | ug/kg | 20 | 21.4 | 107 | 41-160 | |
| Carbon disulfide | ug/kg | 20 | 15.6 | 78 | 40-160 | |
| Carbon tetrachloride | ug/kg | 20 | 16.1 | 81 | 59-157 | |
| Chlorobenzene | ug/kg | 20 | 16.7 | 84 | 78-123 | |
| Chloroethane | ug/kg | 20 | 20.8 | 104 | 54-153 | |
| Chloroform | ug/kg | 20 | 16.7 | 83 | 74-132 | |
| Chloromethane | ug/kg | 20 | 21.0 | 105 | 40-149 | |
| cis-1,2-Dichloroethene | ug/kg | 20 | 16.0 | 80 | 73-137 | |
| cis-1,3-Dichloropropene | ug/kg | 10 | 9.0 | 90 | 63-140 | |
| Dibromochloromethane | ug/kg | 20 | 14.3 | 72 | 71-122 | |
| Dibromomethane | ug/kg | 20 | 15.4 | 77 | 73-131 | |
| Dichlorodifluoromethane | ug/kg | 20 | 18.3 | 92 | 40-160 | CL |
| Ethylbenzene | ug/kg | 20 | 18.5 | 92 | 70-124 | |
| Hexachloro-1,3-butadiene | ug/kg | 20 | 17.8 | 89 | 59-141 | |
| Isopropylbenzene (Cumene) | ug/kg | 20 | 18.1 | 90 | 72-131 | |
| m&p-Xylene | ug/kg | 40 | 37.2 | 93 | 66-129 | |
| Methyl-tert-butyl ether | ug/kg | 20 | 13.9 | 69 | 69-136 | |
| Methylene chloride | ug/kg | 20 | 14.8 | 74 | 53-160 | |
| n-Butylbenzene | ug/kg | 20 | 18.9 | 94 | 65-134 | |
| n-Propylbenzene | ug/kg | 20 | 19.5 | 97 | 62-135 | |
| Naphthalene | ug/kg | 20 | 16.4 | 82 | 63-129 | |
| o-Xylene | ug/kg | 20 | 15.5 | 77 | 70-125 | |
| p-Isopropyltoluene | ug/kg | 20 | 17.7 | 88 | 68-130 | |
| sec-Butylbenzene | ug/kg | 20 | 19.4 | 97 | 61-137 | |
| Styrene | ug/kg | 20 | 12.9 | 65 | 77-124 | L0 |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

LABORATORY CONTROL SAMPLE: 117756

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| tert-Amylmethyl ether | ug/kg | 20 | 12.2 | 61 | 55-150 | |
| tert-Butylbenzene | ug/kg | 20 | 18.2 | 91 | 69-132 | |
| Tetrachloroethene | ug/kg | 20 | 16.2 | 81 | 52-148 | |
| Toluene | ug/kg | 20 | 17.1 | 86 | 67-129 | |
| trans-1,2-Dichloroethene | ug/kg | 20 | 15.2 | 76 | 69-146 | |
| trans-1,3-Dichloropropene | ug/kg | 10 | 8.6 | 86 | 63-133 | |
| Trichloroethene | ug/kg | 20 | 16.2 | 81 | 69-137 | |
| Trichlorofluoromethane | ug/kg | 20 | 24.0 | 120 | 50-156 | |
| Vinyl chloride | ug/kg | 20 | 22.9 | 114 | 41-156 | |
| Xylene (Total) | ug/kg | 60 | 52.6 | 88 | 68-127 | |
| 1,2-Dichloroethane-d4 (S) | % | | | 100 | 68-141 | |
| 4-Bromofluorobenzene (S) | % | | | 105 | 68-141 | |
| Dibromofluoromethane (S) | % | | | 99 | 74-126 | |
| Toluene-d8 (S) | % | | | 100 | 71-130 | |

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Seattle, WA 98108
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## QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

QC Batch: PMST/2063 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 2512373001, 2512373002, 2512373003, 2512373004, 2512373005, 2512373006

SAMPLE DUPLICATE: 117450

| Parameter | Units | 2512373001 Result | Dup Result | RPD | Qualifiers |
|---|---|---|---|---|---|
| Percent Moisture | % | 16.3 | 14.1 | 14 | |

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# QUALIFIERS

Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

## 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.

PRL - Pace Reporting Limit.

RL - Reporting 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 TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## LABORATORIES

| | |
|---|---|
| PASI-S | Pace Analytical Services - Seattle |

## BATCH QUALIFIERS

Batch: MSV/7140

| | |
|---|---|
| [M5] | A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume. |

## ANALYTE QUALIFIERS

| | |
|---|---|
| 1n | The GRO result for this sample did not match the pattern of the laboratory standard for gasoline. |
| CL | The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low. |
| L0 | Analyte recovery in the laboratory control sample (LCS) was outside QC limits. |
| L2 | Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low. |

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
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# QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Tarr Vancouver 1821-00
Pace Project No.: 2512373

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **2512373001** | **North Sidewall** | NWTPH-Gx | GCV/2814 | NWTPH-Gx | GCV/2816 |
| **2512373002** | **South Sidewall** | NWTPH-Gx | GCV/2814 | NWTPH-Gx | GCV/2816 |
| **2512373003** | **East Sidewall** | NWTPH-Gx | GCV/2814 | NWTPH-Gx | GCV/2816 |
| **2512373004** | **West Sidewall** | NWTPH-Gx | GCV/2814 | NWTPH-Gx | GCV/2816 |
| **2512373005** | **Dispenser C-20** | NWTPH-Gx | GCV/2814 | NWTPH-Gx | GCV/2816 |
| **2512373006** | **Dispenser Ex Bottom** | NWTPH-Gx | GCV/2814 | NWTPH-Gx | GCV/2816 |
| **2512373001** | **North Sidewall** | EPA 8260 | MSV/7140 | | |
| **2512373002** | **South Sidewall** | EPA 8260 | MSV/7140 | | |
| **2512373003** | **East Sidewall** | EPA 8260 | MSV/7140 | | |
| **2512373004** | **West Sidewall** | EPA 8260 | MSV/7140 | | |
| **2512373005** | **Dispenser C-20** | EPA 8260 | MSV/7140 | | |
| **2512373006** | **Dispenser Ex Bottom** | EPA 8260 | MSV/7140 | | |
| **2512373001** | **North Sidewall** | ASTM D2974-87 | PMST/2063 | | |
| **2512373002** | **South Sidewall** | ASTM D2974-87 | PMST/2063 | | |
| **2512373003** | **East Sidewall** | ASTM D2974-87 | PMST/2063 | | |
| **2512373004** | **West Sidewall** | ASTM D2974-87 | PMST/2063 | | |
| **2512373005** | **Dispenser C-20** | ASTM D2974-87 | PMST/2063 | | |
| **2512373006** | **Dispenser Ex Bottom** | ASTM D2974-87 | PMST/2063 | | |

Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

# 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

Project Manager: Foxwell
Project Name: Tarr Vancouver
Project Number: 1821-00
Sampler Name: MacGuire/Whitson

Analytical Lab:
Report To:
Page: 1 of 1

| Sample ID / Description | Date Sampled | Time Sampled | No. of Containers Shipped | Grab | Composite | Field Filtered | Preservative: Ice | $HNO_3$ (Red Label) | HCl (Blue Label) | NaOH ( Orange Label) | $H_2SO_4$ Plastic (Yellow Label) | $H_2SO_4$ Glass(Yellow Label) | None (Black Label) | Other ( Specify) | Matrix: Groundwater | Wastewater | Drinking Water | Sludge | Soil | Other (specify): | Analyze For: TPH-G | Petroleum VOCs by 8260 | 25123773 | RUSH TAT (Pre-Schedule) | Standard TAT | Fax Results | Send QC with report |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| North Sidewall | 5/24/12 | | 7 | x | | | x | | | | | | | | | | | | | | x | x | | | | | |
| South Sidewall | 5/24/12 | | 7 | x | | | x | | | | | | | | | | | | | | x | x | | | | | |
| East Sidewall | 5/24/12 | | 7 | x | | | x | | | | | | | | | | | | | | x | x | | | | | |
| West Sidewall | 5/24/12 | | 7 | x | | | x | | | | | | | | | | | | | | x | x | | | | | |
| Dispenser C-20 | 5/25/12 | | 7 | x | | | x | | | | | | | | | | | | | | x | x | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Special Instructions: Samples frozen at Ash Creek 5/24/12

Method of Shipment:

| Relinquished by: Name/Company | Date | Time | Received by: Name/Company | Date | Time |
|---|---|---|---|---|---|
| | | | | | |
| PCS | 052612 | 0955 | Colette Weaver/PACE | 052612 | 0955 |
| | | | | | |
| | | | | | |

Laboratory Comments:
Temperature Upon Receipt: 3.8c
VOCs Free of Headspace? Y N

# Sample Container Count

2512373

CLIENT: Ash Creek

COC PAGE 1 of 1

COC ID# _____

Trip Blank(s) Provided? Y / (N)

| Sample Line Item | VG9H | AG1H | AG1U | BP1U | BP2U | BP3U | BP3N | BP3S | WGKU | WGFU | WG2U | DG9M | DG9B | VG9W | VSG | BP5U | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | 1 | | | 2 | 2 | | | 1 | | | |
| 2 | | | | | | | | | 1 | | | 1 | 2 | 2 | | 1 | | | |
| 3 | | | | | | | | | 1 | | | 2 | 2 | | | 1 | | | |
| 4 | | | | | | | | | 1 | | | 1 | 2 | 2 | | 1 | | | |
| 5 | | | | | | | | | 1 | | | 2 | 2 | | | 1 | | | |
| 6 | | | | | | | | | 1 | | | 1 | 2 | 2 | | 1 | | | |
| 7 | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| AG1H | 1 liter HCL amber glass | BP2S | 500mL H2SO4 plastic | JGFU | 4 oz amber glass soil jar |
| AG1U | 1 liter unpreserved amber glass | BP2U | 500mL unpreserved plastic | WGKU | 8 oz clear glass soil jar |
| AG2S | 500mL H2SO4 amber glass | BP2Z | 500mL NaOH, Zn Ac | WGFU | 4 oz clear glass soil jar |
| AG2U | 500mL unpreserved amber glass | BP3C | 250mL NaOH plastic | WG2U | 2 oz clear glass soil jar |
| AG3S | 250mL H2SO4 amber glass | BP3N | 250mL HNO3 plastic | JGFM | 4 oz amber glass soil jar with MeOH |
| 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 clear vial pre-weighted with DI water |
| BP1N | 1 liter HNO3 plastic | DG9B | 40mL Na Bisulfate clear vial | VSG | Headspace septa vial |
| BP1S | 1 liter H2SO4 plastic | DG9H | 40mL HCL amber voa vial | VG9H | 40mL HCL clear vial |
| BP1U | 1 liter unpreserved plastic | DG9M | 40mL MeOH clear vial | WGFX | 4oz wide jar w/hexane wipe |
| BP1Z | 1 liter NaOH, Zn, Ac | DG9T | 40mL Na Thio amber vial | VG9T | 40mL Na Thio. clear vial |
| BP2N | 500mL HNO3 plastic | DG9U | 40mL unpreserved amber vial | ZPLC | Ziploc Bag |
| BP2O | 500mL NaOH plastic | I | Wipe/Swab | U | Summa Can |

## Sample Condition Upon Receipt

Pace Analytical

Client Name: Ash Creek  Project # 2512373

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

Tracking #: 200263

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

Packing Material: ☑ Bubble Wrap ☐ Bubble Bags ☐ None ☑ Other foam vial holder  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 3.8c  Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 052612 CW

Temp should be above freezing ≤ 6°C  Comments:

| | | | |
|---|---|---|---|
| Chain of Custody Present: | ☑Yes | ☐No | ☐N/A |
| Chain of Custody Filled Out: | ☑Yes | ☐No | ☐N/A |
| Chain of Custody Relinquished: | ☑Yes | ☐No | ☐N/A |
| Sampler Name & Signature on COC: | ☑Yes | ☐No | ☐N/A |
| Samples Arrived within Hold Time: | ☑Yes | ☐No | ☐N/A |
| **Short Hold Time Analysis (<72hr):** | ☐Yes | ☑No | ☐N/A |
| **Rush Turn Around Time Requested:** | ☐Yes | ☑No | ☐N/A |
| **Follow Up / Hold Analysis Requested:** | ☐Yes | ☑No | ☐N/A |
| Sufficient Volume: | ☑Yes | ☐No | ☐N/A |
| Correct Containers Used: | ☑Yes | ☐No | ☐N/A |
| -Pace Containers Used: | ☑Yes | ☐No | ☐N/A |
| Containers Intact: | ☑Yes | ☐No | ☐N/A |
| Filtered volume received for Dissolved tests | ☐Yes | ☐No | ☑N/A |
| Sample Labels match COC: | ☐Yes | ☑No | ☐N/A |
| -Includes date/time/ID/Analysis Matrix: SL | | | |
| All containers needing preservation have been checked. | ☐Yes | ☐No | ☑N/A |
| All containers needing preservation are found to be in compliance with EPA recommendation. | ☐Yes | ☐No | ☑N/A |
| Exceptions: VOA, coliform, TOC, O&G | ☐Yes | ☐No | ☑N/A |
| Samples checked for dechlorination: | ☐Yes | ☐No | ☑N/A |
| Headspace in VOA Vials ( >6mm): | ☐Yes | ☐No | ☑N/A |
| Trip Blanks Present: | ☐Yes | ☐No | ☑N/A |
| Trip Blank Custody Seals Present | ☐Yes | ☐No | ☑N/A |
| Pace Trip Blank Creation Date: | | | |

1.
2.
3.
4.
5. DI Vials frozen @ 052612@1030
6.
7.
8.
9.
10.
11.
12.
13. Rcvd a sample not on COC Dispenser EX Bottom 052412@1830
14. Times on labels written on back →

| Initial when completed | Lot # of added preservative |
|---|---|
| | |

15.
16.
17.

**Client Notification/ Resolution:**  Field Data Required? Y / N

Person Contacted: John Foxwell  Date/Time: 5/29/12 13:02 - EMAIL

Comments/ Resolution:

Per John, analyze Dispenser EX Bottom for 8260 and NWTPHEx.

**Project Manager Review:** JENNI GROSS  **Date:** 5/29/12

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: Regarding Samples for Tarr Vancouver 1821-00**

**From:** John Foxwell <JFoxwell@AshCreekAssociates.com>
**To:** Jennifer Gross <Jennifer.Gross@pacelabs.com>
**Date:** 5/29/2012 1:02 PM
**Subject:** RE: Regarding Samples for Tarr Vancouver 1821-00

Thanks. Please run this sample for TPH-G and 8260 Petroleum VOCs. Same TAT as the other samples.

--john

**John Foxwell**
**Ash Creek Associates**
***A Division of Apex Companies, LLC***
3015 SW First Avenue
Portland, OR 97201
O) 503-924-4704

*Ash Creek Associates is now a Division of Apex Companies, LLC. Click here to learn more about Apex.*



**From:** Jennifer Gross [mailto:Jennifer.Gross@pacelabs.com]
**Sent:** Tuesday, May 29, 2012 9:16 AM
**To:** John Foxwell
**Subject:** Regarding Samples for Tarr Vancouver 1821-00

Hi John!

We received your samples on Saturday for "Tarr Vancouver" in good condition. We received a sample that was not marked on the coc and I am wondering if you would like it analyzed and by what method(s).

Dispenser Ex Bottom 05/24/12 @18:30

*Thanks!*

*Jennifer Gross*
Client Services Supervisor
Pace Analytical Services - Seattle
Direct: 206.957.2426
Main Office: 206.767.5060
Fax: 206.767.5063
jennifer.gross@pacelabs.com
www.pacelabs.com

**The laboratory will be closed for the Memorial Day holiday on Monday, May 28. Please plan your short hold or rush sampling events keeping this in mind.

Let us know how we're doing to serve your project needs at: http://www.pacelabs.com/about-us/customer-service-survey/survey.html

**Pace Analytical Services, Inc.**
940 South Harney
Seattle, WA 98108
(206)767-5060

June 06, 2012

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

RE: Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

Dear John Foxwell:
Enclosed are the analytical results for sample(s) received by the laboratory on May 30, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Karen Jang for
Jennifer Gross
jennifer.gross@pacelabs.com
Project Manager

Enclosures

**Pace Analytical Services, Inc.**
940 South Harney
Seattle, WA 98108
(206)767-5060

## CERTIFICATIONS

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

**Washington Certification IDs**
940 South Harney Street, Seattle, WA 98108
Alaska CS Certification #: UST-025
Arizona Certification #: AZ0770
California Certification #: 01153CA
Florida/NELAP Certification #: E87617
Oregon Certification #: WA200007
Washington Certification #: C555

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## SAMPLE ANALYTE COUNT

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|---|---|---|---|---|---|
| **2512379001** | **SB-16-(7)** | EPA 8260 | ERB | 74 | PASI-S |
| | | ASTM D2974-87 | RAB | 1 | PASI-S |
| **2512379002** | **SB-17-(7.5)** | EPA 8260 | ERB | 74 | PASI-S |
| | | ASTM D2974-87 | RAB | 1 | PASI-S |
| **2512379003** | **SB-19-(7.5)** | EPA 8260 | ERB | 74 | PASI-S |
| | | ASTM D2974-87 | RAB | 1 | PASI-S |
| **2512379004** | **SB-16-W** | EPA 5030B/8260 | LNH | 71 | PASI-S |
| | | NWTPH-Gx | LNH | 2 | PASI-S |
| **2512379005** | **SB-17-W** | EPA 5030B/8260 | LNH | 71 | PASI-S |
| | | NWTPH-Gx | LNH | 2 | PASI-S |
| **2512379006** | **SB-18-W** | EPA 5030B/8260 | LNH | 71 | PASI-S |
| | | NWTPH-Gx | LNH | 2 | PASI-S |
| **2512379007** | **SB-19-W** | EPA 5030B/8260 | LNH | 71 | PASI-S |
| | | NWTPH-Gx | LNH | 2 | PASI-S |

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# PROJECT NARRATIVE

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

**Method:** **EPA 5030B/8260**
**Description:** 8260 MSV
**Client:** Ash Creek Associates
**Date:** June 06, 2012

**General Information:**
4 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.

**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 Cardlock 1821-0
Pace Project No.: 2512379

**Method:** **EPA 8260**
**Description:** 8260/5035A Volatile Organics
**Client:** Ash Creek Associates
**Date:** June 06, 2012

**General Information:**
3 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.

QC Batch: MSV/7140

CL: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

- BLANK (Lab ID: 117755)
  - Dichlorodifluoromethane
- LCS (Lab ID: 117756)
  - Dichlorodifluoromethane
- SB-16-(7) (Lab ID: 2512379001)
  - Dichlorodifluoromethane

**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.

QC Batch: MSV/7140

L0: Analyte recovery in the laboratory control sample (LCS) was outside QC limits.

- LCS (Lab ID: 117756)
  - 1,1,1,2-Tetrachloroethane
  - Styrene

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

QC Batch: MSV/7131

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

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## PROJECT NARRATIVE

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

**Method:** **EPA 8260**
**Description:** 8260/5035A Volatile Organics
**Client:** Ash Creek Associates
**Date:** June 06, 2012

QC Batch: MSV/7140

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**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 Cardlock 1821-0
Pace Project No.: 2512379

**Method:** **NWTPH-Gx**
**Description:** NWTPH-Gx MSV
**Client:** Ash Creek Associates
**Date:** June 06, 2012

**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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Seattle, WA 98108
(206)767-5060

## ANALYTICAL RESULTS

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

**Sample: SB-16-(7)** **Lab ID: 2512379001** Collected: 05/29/12 10:50 Received: 05/30/12 08:20 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 | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 630-20-6 | L2 |
| 1,1,1-Trichloroethane | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 71-55-6 | |
| 1,1,2,2-Tetrachloroethane | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 79-34-5 | |
| 1,1,2-Trichloroethane | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 79-00-5 | |
| 1,1,2-Trichlorotrifluoroethane | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 76-13-1 | |
| 1,1-Dichloroethane | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 75-34-3 | |
| 1,1-Dichloroethene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 75-35-4 | |
| 1,1-Dichloropropene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 563-58-6 | |
| 1,2,3-Trichlorobenzene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 87-61-6 | |
| 1,2,3-Trichloropropane | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 96-18-4 | |
| 1,2,4-Trichlorobenzene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 120-82-1 | |
| 1,2,4-Trimethylbenzene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 95-63-6 | |
| 1,2-Dibromo-3-chloropropane | ND | ug/kg | 6.6 | 1 | | 06/05/12 00:56 | 96-12-8 | |
| 1,2-Dibromoethane (EDB) | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 106-93-4 | |
| 1,2-Dichlorobenzene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 95-50-1 | |
| 1,2-Dichloroethane | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 107-06-2 | |
| 1,2-Dichloroethene (Total) | ND | ug/kg | 7.9 | 1 | | 06/05/12 00:56 | 540-59-0 | |
| 1,2-Dichloropropane | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 78-87-5 | |
| 1,3,5-Trimethylbenzene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 108-67-8 | |
| 1,3-Dichlorobenzene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 541-73-1 | |
| 1,3-Dichloropropane | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 142-28-9 | |
| 1,4-Dichlorobenzene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 106-46-7 | |
| 2,2-Dichloropropane | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 594-20-7 | |
| 2-Butanone (MEK) | ND | ug/kg | 13.2 | 1 | | 06/05/12 00:56 | 78-93-3 | |
| 2-Chlorotoluene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 95-49-8 | |
| 2-Hexanone | ND | ug/kg | 13.2 | 1 | | 06/05/12 00:56 | 591-78-6 | |
| 4-Chlorotoluene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 106-43-4 | |
| 4-Methyl-2-pentanone (MIBK) | ND | ug/kg | 13.2 | 1 | | 06/05/12 00:56 | 108-10-1 | |
| Acetone | **20.3** | ug/kg | 13.2 | 1 | | 06/05/12 00:56 | 67-64-1 | |
| Benzene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 71-43-2 | |
| Bromobenzene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 108-86-1 | |
| Bromochloromethane | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 74-97-5 | |
| Bromodichloromethane | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 75-27-4 | |
| Bromoform | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 75-25-2 | |
| Bromomethane | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 74-83-9 | |
| Carbon disulfide | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 75-15-0 | |
| Carbon tetrachloride | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 56-23-5 | |
| Chlorobenzene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 108-90-7 | |
| Chloroethane | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 75-00-3 | |
| Chloroform | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 67-66-3 | |
| Chloromethane | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 74-87-3 | |
| Dibromochloromethane | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 124-48-1 | |
| Dibromomethane | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 74-95-3 | |
| Dichlorodifluoromethane | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 75-71-8 | CL |
| Ethylbenzene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 100-41-4 | |
| Hexachloro-1,3-butadiene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 87-68-3 | |

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940 South Harney
Seattle, WA 98108
(206)767-5060

## ANALYTICAL RESULTS

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

**Sample: SB-16-(7)** **Lab ID: 2512379001** Collected: 05/29/12 10:50 Received: 05/30/12 08:20 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 | | | | | | | |
| Isopropylbenzene (Cumene) | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 98-82-8 | |
| Methyl-tert-butyl ether | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 1634-04-4 | |
| Methylene chloride | ND | ug/kg | 13.2 | 1 | | 06/05/12 00:56 | 75-09-2 | |
| Naphthalene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 91-20-3 | |
| Styrene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 100-42-5 | L2 |
| Tetrachloroethene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 127-18-4 | |
| Toluene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 108-88-3 | |
| Trichloroethene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 79-01-6 | |
| Trichlorofluoromethane | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 75-69-4 | |
| Vinyl chloride | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 75-01-4 | |
| Xylene (Total) | ND | ug/kg | 11.9 | 1 | | 06/05/12 00:56 | 1330-20-7 | |
| cis-1,2-Dichloroethene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 156-59-2 | |
| cis-1,3-Dichloropropene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 10061-01-5 | |
| m&p-Xylene | ND | ug/kg | 7.9 | 1 | | 06/05/12 00:56 | 179601-23-1 | |
| n-Butylbenzene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 104-51-8 | |
| n-Hexane | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 110-54-3 | |
| n-Propylbenzene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 103-65-1 | |
| o-Xylene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 95-47-6 | |
| p-Isopropyltoluene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 99-87-6 | |
| sec-Butylbenzene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 135-98-8 | |
| tert-Amylmethyl ether | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 994-05-8 | |
| tert-Butylbenzene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 98-06-6 | |
| trans-1,2-Dichloroethene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 156-60-5 | |
| trans-1,3-Dichloropropene | ND | ug/kg | 4.0 | 1 | | 06/05/12 00:56 | 10061-02-6 | |
| ***Surrogates*** | | | | | | | | |
| Dibromofluoromethane (S) | 98 | % | 74-126 | 1 | | 06/05/12 00:56 | 1868-53-7 | |
| Toluene-d8 (S) | 102 | % | 71-130 | 1 | | 06/05/12 00:56 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 108 | % | 68-141 | 1 | | 06/05/12 00:56 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 105 | % | 68-141 | 1 | | 06/05/12 00:56 | 17060-07-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **23.7** | % | 0.10 | 1 | | 05/30/12 18:13 | | |

**Sample: SB-17-(7.5)** **Lab ID: 2512379002** Collected: 05/29/12 10:20 Received: 05/30/12 08:20 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 | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 630-20-6 | |
| 1,1,1-Trichloroethane | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 71-55-6 | |
| 1,1,2,2-Tetrachloroethane | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 79-34-5 | |
| 1,1,2-Trichloroethane | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 79-00-5 | |
| 1,1,2-Trichlorotrifluoroethane | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 76-13-1 | |
| 1,1-Dichloroethane | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 75-34-3 | |

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Seattle, WA 98108
(206)767-5060

## ANALYTICAL RESULTS

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

**Sample: SB-17-(7.5)** **Lab ID: 2512379002** Collected: 05/29/12 10:20 Received: 05/30/12 08:20 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-Dichloroethene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 75-35-4 | |
| 1,1-Dichloropropene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 563-58-6 | |
| 1,2,3-Trichlorobenzene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 87-61-6 | |
| 1,2,3-Trichloropropane | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 96-18-4 | |
| 1,2,4-Trichlorobenzene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 120-82-1 | |
| 1,2,4-Trimethylbenzene | **72.1** | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 95-63-6 | |
| 1,2-Dibromo-3-chloropropane | ND | ug/kg | 5.7 | 1 | | 06/01/12 21:32 | 96-12-8 | |
| 1,2-Dibromoethane (EDB) | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 106-93-4 | |
| 1,2-Dichlorobenzene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 95-50-1 | |
| 1,2-Dichloroethane | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 107-06-2 | |
| 1,2-Dichloroethene (Total) | ND | ug/kg | 6.9 | 1 | | 06/01/12 21:32 | 540-59-0 | |
| 1,2-Dichloropropane | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 78-87-5 | |
| 1,3,5-Trimethylbenzene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 108-67-8 | |
| 1,3-Dichlorobenzene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 541-73-1 | |
| 1,3-Dichloropropane | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 142-28-9 | |
| 1,4-Dichlorobenzene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 106-46-7 | |
| 2,2-Dichloropropane | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 594-20-7 | |
| 2-Butanone (MEK) | ND | ug/kg | 11.5 | 1 | | 06/01/12 21:32 | 78-93-3 | |
| 2-Chlorotoluene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 95-49-8 | |
| 2-Hexanone | ND | ug/kg | 11.5 | 1 | | 06/01/12 21:32 | 591-78-6 | |
| 4-Chlorotoluene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 106-43-4 | |
| 4-Methyl-2-pentanone (MIBK) | ND | ug/kg | 11.5 | 1 | | 06/01/12 21:32 | 108-10-1 | |
| Acetone | ND | ug/kg | 11.5 | 1 | | 06/01/12 21:32 | 67-64-1 | |
| Benzene | **167** | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 71-43-2 | |
| Bromobenzene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 108-86-1 | |
| Bromochloromethane | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 74-97-5 | |
| Bromodichloromethane | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 75-27-4 | |
| Bromoform | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 75-25-2 | |
| Bromomethane | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 74-83-9 | |
| Carbon disulfide | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 75-15-0 | |
| Carbon tetrachloride | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 56-23-5 | |
| Chlorobenzene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 108-90-7 | |
| Chloroethane | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 75-00-3 | |
| Chloroform | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 67-66-3 | |
| Chloromethane | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 74-87-3 | |
| Dibromochloromethane | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 124-48-1 | |
| Dibromomethane | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 74-95-3 | |
| Dichlorodifluoromethane | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 75-71-8 | |
| Ethylbenzene | **47.2** | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 100-41-4 | |
| Hexachloro-1,3-butadiene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 87-68-3 | |
| Isopropylbenzene (Cumene) | **4.9** | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 98-82-8 | |
| Methyl-tert-butyl ether | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 1634-04-4 | |
| Methylene chloride | ND | ug/kg | 11.5 | 1 | | 06/01/12 21:32 | 75-09-2 | |
| Naphthalene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 91-20-3 | |
| Styrene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 100-42-5 | |
| Tetrachloroethene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 127-18-4 | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

**Sample: SB-17-(7.5)** **Lab ID: 2512379002** Collected: 05/29/12 10:20 Received: 05/30/12 08:20 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 | | | | | | | |
| Toluene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 108-88-3 | |
| Trichloroethene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 79-01-6 | |
| Trichlorofluoromethane | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 75-69-4 | |
| Vinyl chloride | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 75-01-4 | |
| Xylene (Total) | **69.7** | ug/kg | 10.3 | 1 | | 06/01/12 21:32 | 1330-20-7 | |
| cis-1,2-Dichloroethene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 156-59-2 | |
| cis-1,3-Dichloropropene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 10061-01-5 | |
| m&p-Xylene | **66.2** | ug/kg | 6.9 | 1 | | 06/01/12 21:32 | 179601-23-1 | |
| n-Butylbenzene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 104-51-8 | |
| n-Hexane | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 110-54-3 | |
| n-Propylbenzene | **11.2** | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 103-65-1 | |
| o-Xylene | **3.5** | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 95-47-6 | |
| p-Isopropyltoluene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 99-87-6 | |
| sec-Butylbenzene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 135-98-8 | |
| tert-Amylmethyl ether | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 994-05-8 | |
| tert-Butylbenzene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 98-06-6 | |
| trans-1,2-Dichloroethene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 156-60-5 | |
| trans-1,3-Dichloropropene | ND | ug/kg | 3.4 | 1 | | 06/01/12 21:32 | 10061-02-6 | |
| ***Surrogates*** | | | | | | | | |
| Dibromofluoromethane (S) | 100 | % | 74-126 | 1 | | 06/01/12 21:32 | 1868-53-7 | |
| Toluene-d8 (S) | 96 | % | 71-130 | 1 | | 06/01/12 21:32 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 108 | % | 68-141 | 1 | | 06/01/12 21:32 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 108 | % | 68-141 | 1 | | 06/01/12 21:32 | 17060-07-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **23.3** | % | 0.10 | 1 | | 05/30/12 18:04 | | |

**Sample: SB-19-(7.5)** **Lab ID: 2512379003** Collected: 05/29/12 11:50 Received: 05/30/12 08:20 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 | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 630-20-6 | |
| 1,1,1-Trichloroethane | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 71-55-6 | |
| 1,1,2,2-Tetrachloroethane | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 79-34-5 | |
| 1,1,2-Trichloroethane | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 79-00-5 | |
| 1,1,2-Trichlorotrifluoroethane | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 76-13-1 | |
| 1,1-Dichloroethane | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 75-34-3 | |
| 1,1-Dichloroethene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 75-35-4 | |
| 1,1-Dichloropropene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 563-58-6 | |
| 1,2,3-Trichlorobenzene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 87-61-6 | |
| 1,2,3-Trichloropropane | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 96-18-4 | |
| 1,2,4-Trichlorobenzene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 120-82-1 | |
| 1,2,4-Trimethylbenzene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 95-63-6 | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

**Sample: SB-19-(7.5)** **Lab ID: 2512379003** Collected: 05/29/12 11:50 Received: 05/30/12 08:20 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-Dibromo-3-chloropropane | ND | ug/kg | 5.8 | 1 | | 06/01/12 21:53 | 96-12-8 | |
| 1,2-Dibromoethane (EDB) | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 106-93-4 | |
| 1,2-Dichlorobenzene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 95-50-1 | |
| 1,2-Dichloroethane | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 107-06-2 | |
| 1,2-Dichloroethene (Total) | ND | ug/kg | 6.9 | 1 | | 06/01/12 21:53 | 540-59-0 | |
| 1,2-Dichloropropane | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 78-87-5 | |
| 1,3,5-Trimethylbenzene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 108-67-8 | |
| 1,3-Dichlorobenzene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 541-73-1 | |
| 1,3-Dichloropropane | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 142-28-9 | |
| 1,4-Dichlorobenzene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 106-46-7 | |
| 2,2-Dichloropropane | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 594-20-7 | |
| 2-Butanone (MEK) | ND | ug/kg | 11.5 | 1 | | 06/01/12 21:53 | 78-93-3 | |
| 2-Chlorotoluene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 95-49-8 | |
| 2-Hexanone | ND | ug/kg | 11.5 | 1 | | 06/01/12 21:53 | 591-78-6 | |
| 4-Chlorotoluene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 106-43-4 | |
| 4-Methyl-2-pentanone (MIBK) | ND | ug/kg | 11.5 | 1 | | 06/01/12 21:53 | 108-10-1 | |
| Acetone | **43.5** | ug/kg | 11.5 | 1 | | 06/01/12 21:53 | 67-64-1 | |
| Benzene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 71-43-2 | |
| Bromobenzene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 108-86-1 | |
| Bromochloromethane | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 74-97-5 | |
| Bromodichloromethane | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 75-27-4 | |
| Bromoform | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 75-25-2 | |
| Bromomethane | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 74-83-9 | |
| Carbon disulfide | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 75-15-0 | |
| Carbon tetrachloride | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 56-23-5 | |
| Chlorobenzene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 108-90-7 | |
| Chloroethane | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 75-00-3 | |
| Chloroform | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 67-66-3 | |
| Chloromethane | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 74-87-3 | |
| Dibromochloromethane | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 124-48-1 | |
| Dibromomethane | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 74-95-3 | |
| Dichlorodifluoromethane | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 75-71-8 | |
| Ethylbenzene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 100-41-4 | |
| Hexachloro-1,3-butadiene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 87-68-3 | |
| Isopropylbenzene (Cumene) | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 98-82-8 | |
| Methyl-tert-butyl ether | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 1634-04-4 | |
| Methylene chloride | ND | ug/kg | 11.5 | 1 | | 06/01/12 21:53 | 75-09-2 | |
| Naphthalene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 91-20-3 | |
| Styrene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 100-42-5 | |
| Tetrachloroethene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 127-18-4 | |
| Toluene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 108-88-3 | |
| Trichloroethene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 79-01-6 | |
| Trichlorofluoromethane | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 75-69-4 | |
| Vinyl chloride | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 75-01-4 | |
| Xylene (Total) | ND | ug/kg | 10.4 | 1 | | 06/01/12 21:53 | 1330-20-7 | |
| cis-1,2-Dichloroethene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 156-59-2 | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

**Sample: SB-19-(7.5)** **Lab ID: 2512379003** Collected: 05/29/12 11:50 Received: 05/30/12 08:20 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 | | | | | | | |
| cis-1,3-Dichloropropene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 10061-01-5 | |
| m&p-Xylene | ND | ug/kg | 6.9 | 1 | | 06/01/12 21:53 | 179601-23-1 | |
| n-Butylbenzene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 104-51-8 | |
| n-Hexane | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 110-54-3 | |
| n-Propylbenzene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 103-65-1 | |
| o-Xylene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 95-47-6 | |
| p-Isopropyltoluene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 99-87-6 | |
| sec-Butylbenzene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 135-98-8 | |
| tert-Amylmethyl ether | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 994-05-8 | |
| tert-Butylbenzene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 98-06-6 | |
| trans-1,2-Dichloroethene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 156-60-5 | |
| trans-1,3-Dichloropropene | ND | ug/kg | 3.5 | 1 | | 06/01/12 21:53 | 10061-02-6 | |
| ***Surrogates*** | | | | | | | | |
| Dibromofluoromethane (S) | 99 | % | 74-126 | 1 | | 06/01/12 21:53 | 1868-53-7 | |
| Toluene-d8 (S) | 96 | % | 71-130 | 1 | | 06/01/12 21:53 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 110 | % | 68-141 | 1 | | 06/01/12 21:53 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 108 | % | 68-141 | 1 | | 06/01/12 21:53 | 17060-07-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **23.4** | % | 0.10 | 1 | | 05/30/12 18:06 | | |

**Sample: SB-16-W** **Lab ID: 2512379004** Collected: 05/29/12 10:30 Received: 05/30/12 08:20 Matrix: Water

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV** | Analytical Method: EPA 5030B/8260 | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 630-20-6 | |
| 1,1,1-Trichloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 71-55-6 | |
| 1,1,2,2-Tetrachloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 79-34-5 | |
| 1,1,2-Trichloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 79-00-5 | |
| 1,1-Dichloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 75-34-3 | |
| 1,1-Dichloroethene | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 75-35-4 | |
| 1,1-Dichloropropene | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 563-58-6 | |
| 1,2,3-Trichlorobenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 87-61-6 | |
| 1,2,3-Trichloropropane | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 96-18-4 | |
| 1,2,4-Trichlorobenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 120-82-1 | |
| 1,2,4-Trimethylbenzene | **25.9** | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 95-63-6 | |
| 1,2-Dibromo-3-chloropropane | ND | ug/L | 5.0 | 1 | | 05/30/12 18:16 | 96-12-8 | |
| 1,2-Dibromoethane (EDB) | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 106-93-4 | |
| 1,2-Dichlorobenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 95-50-1 | |
| 1,2-Dichloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 107-06-2 | |
| 1,2-Dichloroethene (Total) | ND | ug/L | 2.0 | 1 | | 05/30/12 18:16 | 540-59-0 | |
| 1,2-Dichloropropane | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 78-87-5 | |
| 1,3,5-Trimethylbenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 108-67-8 | |
| 1,3-Dichlorobenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 541-73-1 | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

**Sample: SB-16-W** **Lab ID: 2512379004** Collected: 05/29/12 10:30 Received: 05/30/12 08:20 Matrix: Water

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV** | Analytical Method: EPA 5030B/8260 | | | | | | | |
| 1,3-Dichloropropane | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 142-28-9 | |
| 1,4-Dichlorobenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 106-46-7 | |
| 2,2-Dichloropropane | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 594-20-7 | |
| 2-Butanone (MEK) | ND | ug/L | 5.0 | 1 | | 05/30/12 18:16 | 78-93-3 | |
| 2-Chlorotoluene | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 95-49-8 | |
| 2-Hexanone | ND | ug/L | 5.0 | 1 | | 05/30/12 18:16 | 591-78-6 | |
| 4-Chlorotoluene | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 106-43-4 | |
| 4-Methyl-2-pentanone (MIBK) | ND | ug/L | 5.0 | 1 | | 05/30/12 18:16 | 108-10-1 | |
| Acetone | **10.9** | ug/L | 5.0 | 1 | | 05/30/12 18:16 | 67-64-1 | |
| Benzene | **48.0** | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 71-43-2 | |
| Bromobenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 108-86-1 | |
| Bromochloromethane | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 74-97-5 | |
| Bromodichloromethane | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 75-27-4 | |
| Bromoform | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 75-25-2 | |
| Bromomethane | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 74-83-9 | |
| Carbon disulfide | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 75-15-0 | |
| Carbon tetrachloride | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 56-23-5 | |
| Chlorobenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 108-90-7 | |
| Chloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 75-00-3 | |
| Chloroform | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 67-66-3 | |
| Chloromethane | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 74-87-3 | |
| Dibromochloromethane | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 124-48-1 | |
| Dibromomethane | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 74-95-3 | |
| Dichlorodifluoromethane | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 75-71-8 | |
| Ethylbenzene | **8.2** | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 100-41-4 | |
| Hexachloro-1,3-butadiene | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 87-68-3 | |
| Isopropylbenzene (Cumene) | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 98-82-8 | |
| Methyl-tert-butyl ether | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 1634-04-4 | |
| Methylene chloride | ND | ug/L | 5.0 | 1 | | 05/30/12 18:16 | 75-09-2 | |
| Naphthalene | **4.2** | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 91-20-3 | |
| Styrene | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 100-42-5 | |
| Tetrachloroethene | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 127-18-4 | |
| Toluene | **1.1** | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 108-88-3 | |
| Trichloroethene | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 79-01-6 | |
| Trichlorofluoromethane | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 75-69-4 | |
| Vinyl chloride | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 75-01-4 | |
| Xylene (Total) | **21.1** | ug/L | 3.0 | 1 | | 05/30/12 18:16 | 1330-20-7 | |
| cis-1,2-Dichloroethene | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 156-59-2 | |
| cis-1,3-Dichloropropene | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 10061-01-5 | |
| m&p-Xylene | **19.6** | ug/L | 2.0 | 1 | | 05/30/12 18:16 | 179601-23-1 | |
| n-Butylbenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 104-51-8 | |
| n-Propylbenzene | **1.2** | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 103-65-1 | |
| o-Xylene | **1.5** | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 95-47-6 | |
| p-Isopropyltoluene | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 99-87-6 | |
| sec-Butylbenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 135-98-8 | |
| tert-Butylbenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 98-06-6 | |
| trans-1,2-Dichloroethene | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 156-60-5 | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

**Sample: SB-16-W** **Lab ID: 2512379004** Collected: 05/29/12 10:30 Received: 05/30/12 08:20 Matrix: Water

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV** | Analytical Method: EPA 5030B/8260 | | | | | | | |
| trans-1,3-Dichloropropene | ND | ug/L | 1.0 | 1 | | 05/30/12 18:16 | 10061-02-6 | |
| ***Surrogates*** | | | | | | | | |
| 4-Bromofluorobenzene (S) | 98 | % | 79-121 | 1 | | 05/30/12 18:16 | 460-00-4 | |
| Dibromofluoromethane (S) | 99 | % | 81-119 | 1 | | 05/30/12 18:16 | 1868-53-7 | |
| 1,2-Dichloroethane-d4 (S) | 88 | % | 72-127 | 1 | | 05/30/12 18:16 | 17060-07-0 | |
| Toluene-d8 (S) | 101 | % | 77-120 | 1 | | 05/30/12 18:16 | 2037-26-5 | |
| **NWTPH-Gx MSV** | Analytical Method: NWTPH-Gx | | | | | | | |
| Gasoline Range Organics | **265** | ug/L | 50.0 | 1 | | 05/30/12 18:16 | | |
| ***Surrogates*** | | | | | | | | |
| 4-Bromofluorobenzene (S) | 98 | % | 50-150 | 1 | | 05/30/12 18:16 | 460-00-4 | |

**Sample: SB-17-W** **Lab ID: 2512379005** Collected: 05/29/12 10:00 Received: 05/30/12 08:20 Matrix: Water

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV** | Analytical Method: EPA 5030B/8260 | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 630-20-6 | |
| 1,1,1-Trichloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 71-55-6 | |
| 1,1,2,2-Tetrachloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 79-34-5 | |
| 1,1,2-Trichloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 79-00-5 | |
| 1,1-Dichloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 75-34-3 | |
| 1,1-Dichloroethene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 75-35-4 | |
| 1,1-Dichloropropene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 563-58-6 | |
| 1,2,3-Trichlorobenzene | **2.2** | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 87-61-6 | |
| 1,2,3-Trichloropropane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 96-18-4 | |
| 1,2,4-Trichlorobenzene | **2.1** | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 120-82-1 | |
| 1,2,4-Trimethylbenzene | **262** | ug/L | 10.0 | 10 | | 05/30/12 13:11 | 95-63-6 | |
| 1,2-Dibromo-3-chloropropane | ND | ug/L | 5.0 | 1 | | 05/30/12 11:11 | 96-12-8 | |
| 1,2-Dibromoethane (EDB) | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 106-93-4 | |
| 1,2-Dichlorobenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 95-50-1 | |
| 1,2-Dichloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 107-06-2 | |
| 1,2-Dichloroethene (Total) | ND | ug/L | 2.0 | 1 | | 05/30/12 11:11 | 540-59-0 | |
| 1,2-Dichloropropane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 78-87-5 | |
| 1,3,5-Trimethylbenzene | **4.3** | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 108-67-8 | |
| 1,3-Dichlorobenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 541-73-1 | |
| 1,3-Dichloropropane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 142-28-9 | |
| 1,4-Dichlorobenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 106-46-7 | |
| 2,2-Dichloropropane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 594-20-7 | |
| 2-Butanone (MEK) | **29.9** | ug/L | 5.0 | 1 | | 05/30/12 11:11 | 78-93-3 | |
| 2-Chlorotoluene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 95-49-8 | |
| 2-Hexanone | ND | ug/L | 5.0 | 1 | | 05/30/12 11:11 | 591-78-6 | |
| 4-Chlorotoluene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 106-43-4 | |
| 4-Methyl-2-pentanone (MIBK) | ND | ug/L | 5.0 | 1 | | 05/30/12 11:11 | 108-10-1 | |
| Acetone | **27.3** | ug/L | 5.0 | 1 | | 05/30/12 11:11 | 67-64-1 | |
| Benzene | **727** | ug/L | 10.0 | 10 | | 05/30/12 13:11 | 71-43-2 | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

**Sample: SB-17-W** **Lab ID: 2512379005** Collected: 05/29/12 10:00 Received: 05/30/12 08:20 Matrix: Water

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV** | Analytical Method: EPA 5030B/8260 | | | | | | | |
| Bromobenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 108-86-1 | |
| Bromochloromethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 74-97-5 | |
| Bromodichloromethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 75-27-4 | |
| Bromoform | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 75-25-2 | |
| Bromomethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 74-83-9 | |
| Carbon disulfide | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 75-15-0 | |
| Carbon tetrachloride | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 56-23-5 | |
| Chlorobenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 108-90-7 | |
| Chloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 75-00-3 | |
| Chloroform | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 67-66-3 | |
| Chloromethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 74-87-3 | |
| Dibromochloromethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 124-48-1 | |
| Dibromomethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 74-95-3 | |
| Dichlorodifluoromethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 75-71-8 | |
| Ethylbenzene | **151** | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 100-41-4 | |
| Hexachloro-1,3-butadiene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 87-68-3 | |
| Isopropylbenzene (Cumene) | **8.9** | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 98-82-8 | |
| Methyl-tert-butyl ether | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 1634-04-4 | |
| Methylene chloride | ND | ug/L | 5.0 | 1 | | 05/30/12 11:11 | 75-09-2 | |
| Naphthalene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 91-20-3 | |
| Styrene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 100-42-5 | |
| Tetrachloroethene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 127-18-4 | |
| Toluene | **24.2** | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 108-88-3 | |
| Trichloroethene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 79-01-6 | |
| Trichlorofluoromethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 75-69-4 | |
| Vinyl chloride | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 75-01-4 | |
| Xylene (Total) | **302** | ug/L | 30.0 | 10 | | 05/30/12 13:11 | 1330-20-7 | |
| cis-1,2-Dichloroethene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 156-59-2 | |
| cis-1,3-Dichloropropene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 10061-01-5 | |
| m&p-Xylene | **288** | ug/L | 20.0 | 10 | | 05/30/12 13:11 | 179601-23-1 | |
| n-Butylbenzene | **1.2** | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 104-51-8 | |
| n-Propylbenzene | **11.5** | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 103-65-1 | |
| o-Xylene | **17.5** | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 95-47-6 | |
| p-Isopropyltoluene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 99-87-6 | |
| sec-Butylbenzene | **2.1** | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 135-98-8 | |
| tert-Butylbenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 98-06-6 | |
| trans-1,2-Dichloroethene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 156-60-5 | |
| trans-1,3-Dichloropropene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:11 | 10061-02-6 | |
| ***Surrogates*** | | | | | | | | |
| 4-Bromofluorobenzene (S) | 86 | % | 79-121 | 1 | | 05/30/12 11:11 | 460-00-4 | |
| Dibromofluoromethane (S) | 81 | % | 81-119 | 1 | | 05/30/12 11:11 | 1868-53-7 | |
| 1,2-Dichloroethane-d4 (S) | 74 | % | 72-127 | 1 | | 05/30/12 11:11 | 17060-07-0 | |
| Toluene-d8 (S) | 103 | % | 77-120 | 1 | | 05/30/12 11:11 | 2037-26-5 | |
| **NWTPH-Gx MSV** | Analytical Method: NWTPH-Gx | | | | | | | |
| Gasoline Range Organics | **3090** | ug/L | 500 | 10 | | 05/30/12 13:11 | | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

**Sample: SB-17-W** **Lab ID: 2512379005** Collected: 05/29/12 10:00 Received: 05/30/12 08:20 Matrix: Water

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **NWTPH-Gx MSV** | Analytical Method: NWTPH-Gx | | | | | | | |
| ***Surrogates*** | | | | | | | | |
| 4-Bromofluorobenzene (S) | 99 | % | 50-150 | 10 | | 05/30/12 13:11 | 460-00-4 | |

**Sample: SB-18-W** **Lab ID: 2512379006** Collected: 05/29/12 09:30 Received: 05/30/12 08:20 Matrix: Water

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV** | Analytical Method: EPA 5030B/8260 | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 630-20-6 | |
| 1,1,1-Trichloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 71-55-6 | |
| 1,1,2,2-Tetrachloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 79-34-5 | |
| 1,1,2-Trichloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 79-00-5 | |
| 1,1-Dichloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 75-34-3 | |
| 1,1-Dichloroethene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 75-35-4 | |
| 1,1-Dichloropropene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 563-58-6 | |
| 1,2,3-Trichlorobenzene | **2.2** | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 87-61-6 | |
| 1,2,3-Trichloropropane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 96-18-4 | |
| 1,2,4-Trichlorobenzene | **2.1** | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 120-82-1 | |
| 1,2,4-Trimethylbenzene | **294** | ug/L | 10.0 | 10 | | 05/30/12 13:30 | 95-63-6 | |
| 1,2-Dibromo-3-chloropropane | ND | ug/L | 5.0 | 1 | | 05/30/12 11:28 | 96-12-8 | |
| 1,2-Dibromoethane (EDB) | **8.2** | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 106-93-4 | |
| 1,2-Dichlorobenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 95-50-1 | |
| 1,2-Dichloroethane | **153** | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 107-06-2 | |
| 1,2-Dichloroethene (Total) | ND | ug/L | 2.0 | 1 | | 05/30/12 11:28 | 540-59-0 | |
| 1,2-Dichloropropane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 78-87-5 | |
| 1,3,5-Trimethylbenzene | **70.0** | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 108-67-8 | |
| 1,3-Dichlorobenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 541-73-1 | |
| 1,3-Dichloropropane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 142-28-9 | |
| 1,4-Dichlorobenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 106-46-7 | |
| 2,2-Dichloropropane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 594-20-7 | |
| 2-Butanone (MEK) | ND | ug/L | 5.0 | 1 | | 05/30/12 11:28 | 78-93-3 | |
| 2-Chlorotoluene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 95-49-8 | |
| 2-Hexanone | ND | ug/L | 5.0 | 1 | | 05/30/12 11:28 | 591-78-6 | |
| 4-Chlorotoluene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 106-43-4 | |
| 4-Methyl-2-pentanone (MIBK) | ND | ug/L | 5.0 | 1 | | 05/30/12 11:28 | 108-10-1 | |
| Acetone | ND | ug/L | 5.0 | 1 | | 05/30/12 11:28 | 67-64-1 | |
| Benzene | **1520** | ug/L | 10.0 | 10 | | 05/30/12 13:30 | 71-43-2 | |
| Bromobenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 108-86-1 | |
| Bromochloromethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 74-97-5 | |
| Bromodichloromethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 75-27-4 | |
| Bromoform | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 75-25-2 | |
| Bromomethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 74-83-9 | |
| Carbon disulfide | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 75-15-0 | |
| Carbon tetrachloride | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 56-23-5 | |
| Chlorobenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 108-90-7 | |
| Chloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 75-00-3 | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

**Sample: SB-18-W** **Lab ID: 2512379006** Collected: 05/29/12 09:30 Received: 05/30/12 08:20 Matrix: Water

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV** | Analytical Method: EPA 5030B/8260 | | | | | | | |
| Chloroform | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 67-66-3 | |
| Chloromethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 74-87-3 | |
| Dibromochloromethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 124-48-1 | |
| Dibromomethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 74-95-3 | |
| Dichlorodifluoromethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 75-71-8 | |
| Ethylbenzene | **277** | ug/L | 10.0 | 10 | | 05/30/12 13:30 | 100-41-4 | |
| Hexachloro-1,3-butadiene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 87-68-3 | |
| Isopropylbenzene (Cumene) | **18.5** | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 98-82-8 | |
| Methyl-tert-butyl ether | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 1634-04-4 | |
| Methylene chloride | ND | ug/L | 5.0 | 1 | | 05/30/12 11:28 | 75-09-2 | |
| Naphthalene | **60.5** | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 91-20-3 | |
| Styrene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 100-42-5 | |
| Tetrachloroethene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 127-18-4 | |
| Toluene | **604** | ug/L | 10.0 | 10 | | 05/30/12 13:30 | 108-88-3 | |
| Trichloroethene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 79-01-6 | |
| Trichlorofluoromethane | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 75-69-4 | |
| Vinyl chloride | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 75-01-4 | |
| Xylene (Total) | **1030** | ug/L | 30.0 | 10 | | 05/30/12 13:30 | 1330-20-7 | |
| cis-1,2-Dichloroethene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 156-59-2 | |
| cis-1,3-Dichloropropene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 10061-01-5 | |
| m&p-Xylene | **746** | ug/L | 20.0 | 10 | | 05/30/12 13:30 | 179601-23-1 | |
| n-Butylbenzene | **7.0** | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 104-51-8 | |
| n-Propylbenzene | **36.9** | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 103-65-1 | |
| o-Xylene | **285** | ug/L | 10.0 | 10 | | 05/30/12 13:30 | 95-47-6 | |
| p-Isopropyltoluene | **1.4** | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 99-87-6 | |
| sec-Butylbenzene | **2.5** | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 135-98-8 | |
| tert-Butylbenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 98-06-6 | |
| trans-1,2-Dichloroethene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 156-60-5 | |
| trans-1,3-Dichloropropene | ND | ug/L | 1.0 | 1 | | 05/30/12 11:28 | 10061-02-6 | |
| ***Surrogates*** | | | | | | | | |
| 4-Bromofluorobenzene (S) | 83 | % | 79-121 | 1 | | 05/30/12 11:28 | 460-00-4 | |
| Dibromofluoromethane (S) | 84 | % | 81-119 | 1 | | 05/30/12 11:28 | 1868-53-7 | |
| 1,2-Dichloroethane-d4 (S) | 78 | % | 72-127 | 1 | | 05/30/12 11:28 | 17060-07-0 | |
| Toluene-d8 (S) | 99 | % | 77-120 | 1 | | 05/30/12 11:28 | 2037-26-5 | |
| **NWTPH-Gx MSV** | Analytical Method: NWTPH-Gx | | | | | | | |
| Gasoline Range Organics | **8760** | ug/L | 500 | 10 | | 05/30/12 13:30 | | |
| ***Surrogates*** | | | | | | | | |
| 4-Bromofluorobenzene (S) | 95 | % | 50-150 | 10 | | 05/30/12 13:30 | 460-00-4 | |

**Sample: SB-19-W** **Lab ID: 2512379007** Collected: 05/29/12 12:00 Received: 05/30/12 08:20 Matrix: Water

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV** | Analytical Method: EPA 5030B/8260 | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 630-20-6 | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

**Sample: SB-19-W** **Lab ID: 2512379007** Collected: 05/29/12 12:00 Received: 05/30/12 08:20 Matrix: Water

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV** | Analytical Method: EPA 5030B/8260 | | | | | | | |
| 1,1,1-Trichloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 71-55-6 | |
| 1,1,2,2-Tetrachloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 79-34-5 | |
| 1,1,2-Trichloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 79-00-5 | |
| 1,1-Dichloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 75-34-3 | |
| 1,1-Dichloroethene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 75-35-4 | |
| 1,1-Dichloropropene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 563-58-6 | |
| 1,2,3-Trichlorobenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 87-61-6 | |
| 1,2,3-Trichloropropane | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 96-18-4 | |
| 1,2,4-Trichlorobenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 120-82-1 | |
| 1,2,4-Trimethylbenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 95-63-6 | |
| 1,2-Dibromo-3-chloropropane | ND | ug/L | 5.0 | 1 | | 05/30/12 12:52 | 96-12-8 | |
| 1,2-Dibromoethane (EDB) | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 106-93-4 | |
| 1,2-Dichlorobenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 95-50-1 | |
| 1,2-Dichloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 107-06-2 | |
| 1,2-Dichloroethene (Total) | ND | ug/L | 2.0 | 1 | | 05/30/12 12:52 | 540-59-0 | |
| 1,2-Dichloropropane | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 78-87-5 | |
| 1,3,5-Trimethylbenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 108-67-8 | |
| 1,3-Dichlorobenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 541-73-1 | |
| 1,3-Dichloropropane | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 142-28-9 | |
| 1,4-Dichlorobenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 106-46-7 | |
| 2,2-Dichloropropane | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 594-20-7 | |
| 2-Butanone (MEK) | ND | ug/L | 5.0 | 1 | | 05/30/12 12:52 | 78-93-3 | |
| 2-Chlorotoluene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 95-49-8 | |
| 2-Hexanone | ND | ug/L | 5.0 | 1 | | 05/30/12 12:52 | 591-78-6 | |
| 4-Chlorotoluene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 106-43-4 | |
| 4-Methyl-2-pentanone (MIBK) | ND | ug/L | 5.0 | 1 | | 05/30/12 12:52 | 108-10-1 | |
| Acetone | ND | ug/L | 5.0 | 1 | | 05/30/12 12:52 | 67-64-1 | |
| Benzene | **1.2** | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 71-43-2 | |
| Bromobenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 108-86-1 | |
| Bromochloromethane | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 74-97-5 | |
| Bromodichloromethane | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 75-27-4 | |
| Bromoform | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 75-25-2 | |
| Bromomethane | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 74-83-9 | |
| Carbon disulfide | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 75-15-0 | |
| Carbon tetrachloride | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 56-23-5 | |
| Chlorobenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 108-90-7 | |
| Chloroethane | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 75-00-3 | |
| Chloroform | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 67-66-3 | |
| Chloromethane | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 74-87-3 | |
| Dibromochloromethane | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 124-48-1 | |
| Dibromomethane | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 74-95-3 | |
| Dichlorodifluoromethane | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 75-71-8 | |
| Ethylbenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 100-41-4 | |
| Hexachloro-1,3-butadiene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 87-68-3 | |
| Isopropylbenzene (Cumene) | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 98-82-8 | |
| Methyl-tert-butyl ether | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 1634-04-4 | |
| Methylene chloride | ND | ug/L | 5.0 | 1 | | 05/30/12 12:52 | 75-09-2 | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

**Sample: SB-19-W** **Lab ID: 2512379007** Collected: 05/29/12 12:00 Received: 05/30/12 08:20 Matrix: Water

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV** | Analytical Method: EPA 5030B/8260 | | | | | | | |
| Naphthalene | **3.9** | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 91-20-3 | |
| Styrene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 100-42-5 | |
| Tetrachloroethene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 127-18-4 | |
| Toluene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 108-88-3 | |
| Trichloroethene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 79-01-6 | |
| Trichlorofluoromethane | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 75-69-4 | |
| Vinyl chloride | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 75-01-4 | |
| Xylene (Total) | ND | ug/L | 3.0 | 1 | | 05/30/12 12:52 | 1330-20-7 | |
| cis-1,2-Dichloroethene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 156-59-2 | |
| cis-1,3-Dichloropropene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 10061-01-5 | |
| m&p-Xylene | ND | ug/L | 2.0 | 1 | | 05/30/12 12:52 | 179601-23-1 | |
| n-Butylbenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 104-51-8 | |
| n-Propylbenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 103-65-1 | |
| o-Xylene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 95-47-6 | |
| p-Isopropyltoluene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 99-87-6 | |
| sec-Butylbenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 135-98-8 | |
| tert-Butylbenzene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 98-06-6 | |
| trans-1,2-Dichloroethene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 156-60-5 | |
| trans-1,3-Dichloropropene | ND | ug/L | 1.0 | 1 | | 05/30/12 12:52 | 10061-02-6 | |
| ***Surrogates*** | | | | | | | | |
| 4-Bromofluorobenzene (S) | 102 | % | 79-121 | 1 | | 05/30/12 12:52 | 460-00-4 | |
| Dibromofluoromethane (S) | 99 | % | 81-119 | 1 | | 05/30/12 12:52 | 1868-53-7 | |
| 1,2-Dichloroethane-d4 (S) | 89 | % | 72-127 | 1 | | 05/30/12 12:52 | 17060-07-0 | |
| Toluene-d8 (S) | 100 | % | 77-120 | 1 | | 05/30/12 12:52 | 2037-26-5 | |
| **NWTPH-Gx MSV** | Analytical Method: NWTPH-Gx | | | | | | | |
| Gasoline Range Organics | ND | ug/L | 50.0 | 1 | | 05/30/12 12:52 | | |
| ***Surrogates*** | | | | | | | | |
| 4-Bromofluorobenzene (S) | 102 | % | 50-150 | 1 | | 05/30/12 12:52 | 460-00-4 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

QC Batch: MSV/7103 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 2512379004, 2512379005, 2512379006, 2512379007

METHOD BLANK: 117123 Matrix: Water
Associated Lab Samples: 2512379004, 2512379005, 2512379006, 2512379007

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| 1,1,1-Trichloroethane | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| 1,1,2,2-Tetrachloroethane | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| 1,1,2-Trichloroethane | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| 1,1-Dichloroethane | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| 1,1-Dichloroethene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| 1,1-Dichloropropene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| 1,2,3-Trichlorobenzene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| 1,2,3-Trichloropropane | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| 1,2,4-Trichlorobenzene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| 1,2,4-Trimethylbenzene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| 1,2-Dibromo-3-chloropropane | ug/L | ND | 5.0 | 05/30/12 10:20 | |
| 1,2-Dibromoethane (EDB) | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| 1,2-Dichlorobenzene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| 1,2-Dichloroethane | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| 1,2-Dichloroethene (Total) | ug/L | ND | 2.0 | 05/30/12 10:20 | |
| 1,2-Dichloropropane | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| 1,3,5-Trimethylbenzene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| 1,3-Dichlorobenzene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| 1,3-Dichloropropane | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| 1,4-Dichlorobenzene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| 2,2-Dichloropropane | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| 2-Butanone (MEK) | ug/L | ND | 5.0 | 05/30/12 10:20 | |
| 2-Chlorotoluene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| 2-Hexanone | ug/L | ND | 5.0 | 05/30/12 10:20 | |
| 4-Chlorotoluene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| 4-Methyl-2-pentanone (MIBK) | ug/L | ND | 5.0 | 05/30/12 10:20 | |
| Acetone | ug/L | ND | 5.0 | 05/30/12 10:20 | |
| Benzene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Bromobenzene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Bromochloromethane | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Bromodichloromethane | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Bromoform | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Bromomethane | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Carbon disulfide | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Carbon tetrachloride | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Chlorobenzene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Chloroethane | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Chloroform | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Chloromethane | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| cis-1,2-Dichloroethene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| cis-1,3-Dichloropropene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Dibromochloromethane | ug/L | ND | 1.0 | 05/30/12 10:20 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

METHOD BLANK: 117123 Matrix: Water

Associated Lab Samples: 2512379004, 2512379005, 2512379006, 2512379007

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Dibromomethane | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Dichlorodifluoromethane | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Ethylbenzene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Hexachloro-1,3-butadiene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Isopropylbenzene (Cumene) | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| m&p-Xylene | ug/L | ND | 2.0 | 05/30/12 10:20 | |
| Methyl-tert-butyl ether | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Methylene chloride | ug/L | ND | 5.0 | 05/30/12 10:20 | |
| n-Butylbenzene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| n-Propylbenzene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Naphthalene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| o-Xylene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| p-Isopropyltoluene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| sec-Butylbenzene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Styrene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| tert-Butylbenzene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Tetrachloroethene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Toluene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| trans-1,2-Dichloroethene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| trans-1,3-Dichloropropene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Trichloroethene | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Trichlorofluoromethane | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Vinyl chloride | ug/L | ND | 1.0 | 05/30/12 10:20 | |
| Xylene (Total) | ug/L | ND | 3.0 | 05/30/12 10:20 | |
| 1,2-Dichloroethane-d4 (S) | % | 94 | 72-127 | 05/30/12 10:20 | |
| 4-Bromofluorobenzene (S) | % | 103 | 79-121 | 05/30/12 10:20 | |
| Dibromofluoromethane (S) | % | 98 | 81-119 | 05/30/12 10:20 | |
| Toluene-d8 (S) | % | 100 | 77-120 | 05/30/12 10:20 | |

LABORATORY CONTROL SAMPLE: 117124

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ug/L | 20 | 19.3 | 96 | 70-122 | |
| 1,1,1-Trichloroethane | ug/L | 20 | 19.1 | 95 | 67-131 | |
| 1,1,2,2-Tetrachloroethane | ug/L | 20 | 17.5 | 88 | 62-133 | |
| 1,1,2-Trichloroethane | ug/L | 20 | 18.8 | 94 | 68-122 | |
| 1,1-Dichloroethane | ug/L | 20 | 19.4 | 97 | 70-125 | |
| 1,1-Dichloroethene | ug/L | 20 | 19.4 | 97 | 69-142 | |
| 1,1-Dichloropropene | ug/L | 20 | 20.2 | 101 | 67-129 | |
| 1,2,3-Trichlorobenzene | ug/L | 20 | 16.7 | 83 | 60-132 | |
| 1,2,3-Trichloropropane | ug/L | 20 | 18.0 | 90 | 65-120 | |
| 1,2,4-Trichlorobenzene | ug/L | 20 | 17.4 | 87 | 62-127 | |
| 1,2,4-Trimethylbenzene | ug/L | 20 | 18.8 | 94 | 71-122 | |
| 1,2-Dibromo-3-chloropropane | ug/L | 20 | 18.5 | 92 | 55-118 | |
| 1,2-Dibromoethane (EDB) | ug/L | 20 | 18.9 | 95 | 65-123 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

LABORATORY CONTROL SAMPLE: 117124

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,2-Dichlorobenzene | ug/L | 20 | 18.2 | 91 | 71-118 | |
| 1,2-Dichloroethane | ug/L | 20 | 18.1 | 91 | 63-131 | |
| 1,2-Dichloroethene (Total) | ug/L | 40 | 40.2 | 101 | 73-134 | |
| 1,2-Dichloropropane | ug/L | 20 | 18.9 | 94 | 70-125 | |
| 1,3,5-Trimethylbenzene | ug/L | 20 | 18.4 | 92 | 70-123 | |
| 1,3-Dichlorobenzene | ug/L | 20 | 18.1 | 90 | 72-119 | |
| 1,3-Dichloropropane | ug/L | 20 | 18.4 | 92 | 69-122 | |
| 1,4-Dichlorobenzene | ug/L | 20 | 17.7 | 88 | 70-116 | |
| 2,2-Dichloropropane | ug/L | 20 | 15.4 | 77 | 52-149 | |
| 2-Butanone (MEK) | ug/L | 40 | 34.6 | 86 | 45-155 | |
| 2-Chlorotoluene | ug/L | 20 | 17.4 | 87 | 69-119 | |
| 2-Hexanone | ug/L | 40 | 36.6 | 91 | 50-151 | |
| 4-Chlorotoluene | ug/L | 20 | 18.0 | 90 | 70-122 | |
| 4-Methyl-2-pentanone (MIBK) | ug/L | 40 | 36.5 | 91 | 61-145 | |
| Acetone | ug/L | 40 | 40.7 | 102 | 40-160 | |
| Benzene | ug/L | 20 | 17.2 | 86 | 66-123 | |
| Bromobenzene | ug/L | 20 | 19.1 | 95 | 68-118 | |
| Bromochloromethane | ug/L | 20 | 19.9 | 100 | 72-128 | |
| Bromodichloromethane | ug/L | 20 | 19.2 | 96 | 68-129 | |
| Bromoform | ug/L | 20 | 18.1 | 90 | 54-118 | |
| Bromomethane | ug/L | 20 | 19.3 | 96 | 43-151 | |
| Carbon disulfide | ug/L | 20 | 19.2 | 96 | 52-142 | |
| Carbon tetrachloride | ug/L | 20 | 19.8 | 99 | 67-135 | |
| Chlorobenzene | ug/L | 20 | 18.1 | 91 | 72-116 | |
| Chloroethane | ug/L | 20 | 16.4 | 82 | 48-139 | |
| Chloroform | ug/L | 20 | 19.2 | 96 | 71-124 | |
| Chloromethane | ug/L | 20 | 18.5 | 92 | 40-152 | |
| cis-1,2-Dichloroethene | ug/L | 20 | 20.4 | 102 | 74-133 | |
| cis-1,3-Dichloropropene | ug/L | 10 | 9.7 | 97 | 64-132 | |
| Dibromochloromethane | ug/L | 20 | 18.7 | 94 | 60-121 | |
| Dibromomethane | ug/L | 20 | 19.3 | 97 | 69-131 | |
| Dichlorodifluoromethane | ug/L | 20 | 17.3 | 87 | 40-160 | |
| Ethylbenzene | ug/L | 20 | 19.6 | 98 | 67-122 | |
| Hexachloro-1,3-butadiene | ug/L | 20 | 20.4 | 102 | 55-139 | |
| Isopropylbenzene (Cumene) | ug/L | 20 | 19.2 | 96 | 67-124 | |
| m&p-Xylene | ug/L | 40 | 39.7 | 99 | 66-122 | |
| Methyl-tert-butyl ether | ug/L | 20 | 19.3 | 96 | 65-138 | |
| Methylene chloride | ug/L | 20 | 22.1 | 110 | 58-137 | |
| n-Butylbenzene | ug/L | 20 | 19.6 | 98 | 68-129 | |
| n-Propylbenzene | ug/L | 20 | 18.4 | 92 | 66-126 | |
| Naphthalene | ug/L | 20 | 15.4 | 77 | 59-133 | |
| o-Xylene | ug/L | 20 | 19.2 | 96 | 69-123 | |
| p-Isopropyltoluene | ug/L | 20 | 18.0 | 90 | 69-127 | |
| sec-Butylbenzene | ug/L | 20 | 18.7 | 93 | 68-129 | |
| Styrene | ug/L | 20 | 18.5 | 92 | 72-125 | |
| tert-Butylbenzene | ug/L | 20 | 18.2 | 91 | 58-120 | |
| Tetrachloroethene | ug/L | 20 | 19.5 | 98 | 40-115 | |
| Toluene | ug/L | 20 | 18.8 | 94 | 64-118 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

LABORATORY CONTROL SAMPLE: 117124

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| trans-1,2-Dichloroethene | ug/L | 20 | 19.8 | 99 | 70-134 | |
| trans-1,3-Dichloropropene | ug/L | 10 | 8.1 | 81 | 52-115 | |
| Trichloroethene | ug/L | 20 | 19.5 | 97 | 69-125 | |
| Trichlorofluoromethane | ug/L | 20 | 18.6 | 93 | 57-155 | |
| Vinyl chloride | ug/L | 20 | 19.2 | 96 | 53-132 | |
| Xylene (Total) | ug/L | 60 | 58.9 | 98 | 68-122 | |
| 1,2-Dichloroethane-d4 (S) | % | | | 93 | 72-127 | |
| 4-Bromofluorobenzene (S) | % | | | 88 | 79-121 | |
| Dibromofluoromethane (S) | % | | | 101 | 81-119 | |
| Toluene-d8 (S) | % | | | 99 | 77-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117446 117447

| Parameter | Units | 2512403001 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 | 20.2 | 20.3 | 101 | 102 | 67-132 | .4 | |
| 1,1,1-Trichloroethane | ug/L | ND | 20 | 20 | 21.3 | 21.4 | 106 | 107 | 67-145 | .6 | |
| 1,1,2,2-Tetrachloroethane | ug/L | ND | 20 | 20 | 17.7 | 17.7 | 88 | 88 | 65-135 | .1 | |
| 1,1,2-Trichloroethane | ug/L | ND | 20 | 20 | 19.6 | 19.7 | 98 | 99 | 67-126 | .4 | |
| 1,1-Dichloroethane | ug/L | ND | 20 | 20 | 20.5 | 20.6 | 102 | 103 | 69-138 | .6 | |
| 1,1-Dichloroethene | ug/L | ND | 20 | 20 | 21.5 | 21.8 | 108 | 109 | 68-160 | 1 | |
| 1,1-Dichloropropene | ug/L | ND | 20 | 20 | 22.4 | 22.5 | 112 | 112 | 68-145 | .3 | |
| 1,2,3-Trichlorobenzene | ug/L | ND | 20 | 20 | 16.2 | 18.1 | 81 | 90 | 57-131 | 11 | |
| 1,2,3-Trichloropropane | ug/L | ND | 20 | 20 | 18.4 | 18.4 | 92 | 92 | 61-123 | .2 | |
| 1,2,4-Trichlorobenzene | ug/L | ND | 20 | 20 | 17.1 | 18.9 | 85 | 95 | 58-130 | 10 | |
| 1,2,4-Trimethylbenzene | ug/L | 1.3 | 20 | 20 | 19.8 | 20.5 | 92 | 96 | 60-136 | 3 | |
| 1,2-Dibromo-3-chloropropane | ug/L | ND | 20 | 20 | 18.1 | 18.7 | 91 | 94 | 48-127 | 3 | |
| 1,2-Dibromoethane (EDB) | ug/L | ND | 20 | 20 | 19.7 | 19.8 | 98 | 99 | 61-127 | .4 | |
| 1,2-Dichlorobenzene | ug/L | ND | 20 | 20 | 18.7 | 19.4 | 93 | 97 | 67-126 | 4 | |
| 1,2-Dichloroethane | ug/L | ND | 20 | 20 | 18.5 | 18.5 | 92 | 92 | 60-138 | .3 | |
| 1,2-Dichloroethene (Total) | ug/L | ND | 40 | 40 | 42.1 | 43.0 | 105 | 107 | 70-146 | 2 | |
| 1,2-Dichloropropane | ug/L | ND | 20 | 20 | 19.8 | 20.4 | 99 | 102 | 67-138 | 3 | |
| 1,3,5-Trimethylbenzene | ug/L | ND | 20 | 20 | 19.7 | 20.6 | 98 | 102 | 64-135 | 4 | |
| 1,3-Dichlorobenzene | ug/L | ND | 20 | 20 | 18.8 | 20.1 | 94 | 101 | 69-128 | 7 | |
| 1,3-Dichloropropane | ug/L | ND | 20 | 20 | 18.9 | 18.9 | 95 | 95 | 65-128 | .1 | |
| 1,4-Dichlorobenzene | ug/L | ND | 20 | 20 | 18.6 | 19.4 | 93 | 97 | 66-124 | 4 | |
| 2,2-Dichloropropane | ug/L | ND | 20 | 20 | 22.8 | 23.3 | 114 | 116 | 46-160 | 2 | |
| 2-Butanone (MEK) | ug/L | ND | 40 | 40 | 37.5 | 38.7 | 94 | 97 | 40-140 | 3 | |
| 2-Chlorotoluene | ug/L | ND | 20 | 20 | 18.3 | 19.2 | 91 | 96 | 67-129 | 5 | |
| 2-Hexanone | ug/L | ND | 40 | 40 | 35.7 | 37.4 | 89 | 93 | 42-141 | 5 | |
| 4-Chlorotoluene | ug/L | ND | 20 | 20 | 19.5 | 20.4 | 97 | 102 | 67-133 | 5 | |
| 4-Methyl-2-pentanone (MIBK) | ug/L | ND | 40 | 40 | 35.4 | 35.7 | 88 | 89 | 54-151 | .8 | |
| Acetone | ug/L | ND | 40 | 40 | 38.2 | 36.5 | 95 | 91 | 40-155 | 4 | |
| Benzene | ug/L | ND | 20 | 20 | 18.3 | 18.3 | 87 | 87 | 63-138 | .05 | |
| Bromobenzene | ug/L | ND | 20 | 20 | 19.8 | 20.4 | 99 | 102 | 64-127 | 3 | |
| Bromochloromethane | ug/L | ND | 20 | 20 | 20.5 | 20.4 | 103 | 102 | 66-136 | .4 | |
| Bromodichloromethane | ug/L | ND | 20 | 20 | 19.6 | 19.9 | 98 | 99 | 65-138 | 2 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117446 117447

| Parameter | Units | 2512403001 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 | 18.1 | 18.5 | 90 | 93 | 51-119 | 3 | |
| Bromomethane | ug/L | ND | 20 | 20 | 20.1 | 20.6 | 100 | 103 | 40-158 | 3 | |
| Carbon disulfide | ug/L | ND | 20 | 20 | 20.9 | 22.1 | 104 | 110 | 56-158 | 6 | |
| Carbon tetrachloride | ug/L | ND | 20 | 20 | 22.1 | 22.6 | 110 | 113 | 66-152 | 3 | |
| Chlorobenzene | ug/L | ND | 20 | 20 | 19.4 | 19.6 | 97 | 98 | 68-128 | 1 | |
| Chloroethane | ug/L | ND | 20 | 20 | 17.1 | 17.4 | 86 | 87 | 49-154 | 1 | |
| Chloroform | ug/L | ND | 20 | 20 | 20.2 | 20.6 | 101 | 103 | 69-137 | 2 | |
| Chloromethane | ug/L | ND | 20 | 20 | 19.9 | 20.1 | 99 | 100 | 40-160 | 1 | |
| cis-1,2-Dichloroethene | ug/L | ND | 20 | 20 | 21.2 | 21.5 | 106 | 108 | 69-147 | 2 | |
| cis-1,3-Dichloropropene | ug/L | ND | 10 | 10 | 9.8 | 10.2 | 98 | 102 | 60-141 | 4 | |
| Dibromochloromethane | ug/L | ND | 20 | 20 | 19.1 | 19.3 | 96 | 96 | 56-125 | .9 | |
| Dibromomethane | ug/L | ND | 20 | 20 | 19.0 | 18.6 | 95 | 93 | 63-137 | 2 | |
| Dichlorodifluoromethane | ug/L | ND | 20 | 20 | 20.0 | 20.2 | 100 | 101 | 40-160 | 1 | |
| Ethylbenzene | ug/L | ND | 20 | 20 | 21.4 | 21.6 | 105 | 106 | 65-135 | 1 | |
| Hexachloro-1,3-butadiene | ug/L | ND | 20 | 20 | 23.4 | 25.0 | 117 | 125 | 50-149 | 7 | |
| Isopropylbenzene (Cumene) | ug/L | ND | 20 | 20 | 21.3 | 21.6 | 106 | 108 | 64-137 | 1 | |
| m&p-Xylene | ug/L | ND | 40 | 40 | 43.1 | 43.2 | 105 | 106 | 63-134 | .1 | |
| Methyl-tert-butyl ether | ug/L | ND | 20 | 20 | 19.3 | 19.1 | 96 | 95 | 59-143 | 1 | |
| Methylene chloride | ug/L | ND | 20 | 20 | 20.2 | 20.9 | 101 | 105 | 52-133 | 4 | |
| n-Butylbenzene | ug/L | ND | 20 | 20 | 22.4 | 23.9 | 112 | 119 | 65-143 | 7 | |
| n-Propylbenzene | ug/L | ND | 20 | 20 | 20.3 | 21.2 | 101 | 105 | 64-141 | 4 | |
| Naphthalene | ug/L | 3.9 | 20 | 20 | 14.4 | 15.7 | 52 | 59 | 48-141 | 8 | |
| o-Xylene | ug/L | ND | 20 | 20 | 20.9 | 21.2 | 103 | 105 | 68-131 | 2 | |
| p-Isopropyltoluene | ug/L | ND | 20 | 20 | 20.1 | 21.1 | 100 | 105 | 69-137 | 5 | |
| sec-Butylbenzene | ug/L | ND | 20 | 20 | 20.8 | 21.9 | 104 | 109 | 69-139 | 5 | |
| Styrene | ug/L | ND | 20 | 20 | 19.7 | 20.4 | 99 | 102 | 67-135 | 3 | |
| tert-Butylbenzene | ug/L | ND | 20 | 20 | 19.7 | 20.7 | 99 | 103 | 61-129 | 5 | |
| Tetrachloroethene | ug/L | ND | 20 | 20 | 22.1 | 22.9 | 110 | 115 | 40-122 | 4 | |
| Toluene | ug/L | ND | 20 | 20 | 20.5 | 20.4 | 101 | 100 | 64-128 | .4 | |
| trans-1,2-Dichloroethene | ug/L | ND | 20 | 20 | 20.9 | 21.5 | 104 | 107 | 66-150 | 3 | |
| trans-1,3-Dichloropropene | ug/L | ND | 10 | 10 | 8.3 | 8.1 | 83 | 81 | 51-116 | 2 | |
| Trichloroethene | ug/L | ND | 20 | 20 | 20.9 | 21.1 | 104 | 105 | 68-135 | 1 | |
| Trichlorofluoromethane | ug/L | ND | 20 | 20 | 20.7 | 20.7 | 104 | 104 | 54-160 | .07 | |
| Vinyl chloride | ug/L | ND | 20 | 20 | 21.3 | 21.7 | 106 | 109 | 45-155 | 2 | |
| Xylene (Total) | ug/L | ND | 60 | 60 | 64.0 | 64.4 | 105 | 105 | 65-133 | .7 | |
| 1,2-Dichloroethane-d4 (S) | % | | | | | | 92 | 91 | 72-127 | | |
| 4-Bromofluorobenzene (S) | % | | | | | | 88 | 89 | 79-121 | | |
| Dibromofluoromethane (S) | % | | | | | | 100 | 100 | 81-119 | | |
| Toluene-d8 (S) | % | | | | | | 100 | 100 | 77-120 | | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

QC Batch: MSV/7131 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 2512379002, 2512379003

METHOD BLANK: 117576 Matrix: Solid
Associated Lab Samples: 2512379002, 2512379003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| 1,1,1-Trichloroethane | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| 1,1,2,2-Tetrachloroethane | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| 1,1,2-Trichloroethane | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| 1,1,2-Trichlorotrifluoroethane | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| 1,1-Dichloroethane | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| 1,1-Dichloroethene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| 1,1-Dichloropropene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| 1,2,3-Trichlorobenzene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| 1,2,3-Trichloropropane | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| 1,2,4-Trichlorobenzene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| 1,2,4-Trimethylbenzene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| 1,2-Dibromo-3-chloropropane | ug/kg | ND | 5.0 | 06/01/12 20:30 | |
| 1,2-Dibromoethane (EDB) | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| 1,2-Dichlorobenzene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| 1,2-Dichloroethane | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| 1,2-Dichloroethene (Total) | ug/kg | ND | 6.0 | 06/01/12 20:30 | |
| 1,2-Dichloropropane | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| 1,3,5-Trimethylbenzene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| 1,3-Dichlorobenzene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| 1,3-Dichloropropane | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| 1,4-Dichlorobenzene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| 2,2-Dichloropropane | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| 2-Butanone (MEK) | ug/kg | ND | 10.0 | 06/01/12 20:30 | |
| 2-Chlorotoluene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| 2-Hexanone | ug/kg | ND | 10.0 | 06/01/12 20:30 | |
| 4-Chlorotoluene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| 4-Methyl-2-pentanone (MIBK) | ug/kg | ND | 10.0 | 06/01/12 20:30 | |
| Acetone | ug/kg | ND | 10.0 | 06/01/12 20:30 | |
| Benzene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Bromobenzene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Bromochloromethane | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Bromodichloromethane | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Bromoform | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Bromomethane | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Carbon disulfide | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Carbon tetrachloride | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Chlorobenzene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Chloroethane | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Chloroform | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Chloromethane | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| cis-1,2-Dichloroethene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| cis-1,3-Dichloropropene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

METHOD BLANK: 117576 Matrix: Solid

Associated Lab Samples: 2512379002, 2512379003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Dibromochloromethane | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Dibromomethane | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Dichlorodifluoromethane | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Ethylbenzene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Hexachloro-1,3-butadiene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Isopropylbenzene (Cumene) | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| m&p-Xylene | ug/kg | ND | 6.0 | 06/01/12 20:30 | |
| Methyl-tert-butyl ether | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Methylene chloride | ug/kg | ND | 10.0 | 06/01/12 20:30 | |
| n-Butylbenzene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| n-Hexane | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| n-Propylbenzene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Naphthalene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| o-Xylene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| p-Isopropyltoluene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| sec-Butylbenzene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Styrene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| tert-Amylmethyl ether | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| tert-Butylbenzene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Tetrachloroethene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Toluene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| trans-1,2-Dichloroethene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| trans-1,3-Dichloropropene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Trichloroethene | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Trichlorofluoromethane | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Vinyl chloride | ug/kg | ND | 3.0 | 06/01/12 20:30 | |
| Xylene (Total) | ug/kg | ND | 9.0 | 06/01/12 20:30 | |
| 1,2-Dichloroethane-d4 (S) | % | 100 | 68-141 | 06/01/12 20:30 | |
| 4-Bromofluorobenzene (S) | % | 107 | 68-141 | 06/01/12 20:30 | |
| Dibromofluoromethane (S) | % | 92 | 74-126 | 06/01/12 20:30 | |
| Toluene-d8 (S) | % | 102 | 71-130 | 06/01/12 20:30 | |

LABORATORY CONTROL SAMPLE: 117577

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ug/kg | 20 | 16.2 | 81 | 75-126 | |
| 1,1,1-Trichloroethane | ug/kg | 20 | 18.8 | 94 | 65-147 | |
| 1,1,2,2-Tetrachloroethane | ug/kg | 20 | 17.6 | 88 | 65-129 | |
| 1,1,2-Trichloroethane | ug/kg | 20 | 18.5 | 92 | 71-125 | |
| 1,1,2-Trichlorotrifluoroethane | ug/kg | 20 | 20.4 | 102 | 53-160 | |
| 1,1-Dichloroethane | ug/kg | 20 | 21.2 | 106 | 71-136 | |
| 1,1-Dichloroethene | ug/kg | 20 | 20.1 | 101 | 56-160 | |
| 1,1-Dichloropropene | ug/kg | 20 | 19.1 | 96 | 60-145 | |
| 1,2,3-Trichlorobenzene | ug/kg | 20 | 20.7 | 104 | 69-124 | |
| 1,2,3-Trichloropropane | ug/kg | 20 | 17.8 | 89 | 71-119 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

LABORATORY CONTROL SAMPLE: 117577

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,2,4-Trichlorobenzene | ug/kg | 20 | 19.8 | 99 | 69-127 | |
| 1,2,4-Trimethylbenzene | ug/kg | 20 | 20.1 | 100 | 69-127 | |
| 1,2-Dibromo-3-chloropropane | ug/kg | 20 | 16.7 | 83 | 55-132 | |
| 1,2-Dibromoethane (EDB) | ug/kg | 20 | 17.6 | 88 | 73-125 | |
| 1,2-Dichlorobenzene | ug/kg | 20 | 18.7 | 93 | 77-118 | |
| 1,2-Dichloroethane | ug/kg | 20 | 18.8 | 94 | 67-137 | |
| 1,2-Dichloroethene (Total) | ug/kg | 40 | 38.7 | 97 | 71-141 | |
| 1,2-Dichloropropane | ug/kg | 20 | 19.0 | 95 | 72-133 | |
| 1,3,5-Trimethylbenzene | ug/kg | 20 | 21.3 | 107 | 70-129 | |
| 1,3-Dichlorobenzene | ug/kg | 20 | 18.3 | 92 | 76-122 | |
| 1,3-Dichloropropane | ug/kg | 20 | 19.1 | 95 | 72-125 | |
| 1,4-Dichlorobenzene | ug/kg | 20 | 18.6 | 93 | 76-119 | |
| 2,2-Dichloropropane | ug/kg | 20 | 17.6 | 88 | 57-156 | |
| 2-Butanone (MEK) | ug/kg | 40 | 39.1 | 98 | 40-160 | |
| 2-Chlorotoluene | ug/kg | 20 | 20.1 | 100 | 70-123 | |
| 2-Hexanone | ug/kg | 40 | 34.8 | 87 | 40-160 | |
| 4-Chlorotoluene | ug/kg | 20 | 19.2 | 96 | 74-127 | |
| 4-Methyl-2-pentanone (MIBK) | ug/kg | 40 | 35.3 | 88 | 58-143 | |
| Acetone | ug/kg | 40 | 38.1 | 95 | 40-160 | |
| Benzene | ug/kg | 20 | 18.7 | 94 | 67-133 | |
| Bromobenzene | ug/kg | 20 | 19.9 | 100 | 77-121 | |
| Bromochloromethane | ug/kg | 20 | 19.0 | 95 | 73-132 | |
| Bromodichloromethane | ug/kg | 20 | 17.1 | 86 | 71-130 | |
| Bromoform | ug/kg | 20 | 15.0 | 75 | 65-127 | |
| Bromomethane | ug/kg | 20 | 28.0 | 140 | 41-160 | |
| Carbon disulfide | ug/kg | 20 | 19.0 | 95 | 40-160 | |
| Carbon tetrachloride | ug/kg | 20 | 18.5 | 92 | 59-157 | |
| Chlorobenzene | ug/kg | 20 | 19.5 | 98 | 78-123 | |
| Chloroethane | ug/kg | 20 | 28.2 | 141 | 54-153 | |
| Chloroform | ug/kg | 20 | 20.5 | 102 | 74-132 | |
| Chloromethane | ug/kg | 20 | 28.8 | 144 | 40-149 | |
| cis-1,2-Dichloroethene | ug/kg | 20 | 19.4 | 97 | 73-137 | |
| cis-1,3-Dichloropropene | ug/kg | 10 | 9.6 | 96 | 63-140 | |
| Dibromochloromethane | ug/kg | 20 | 15.6 | 78 | 71-122 | |
| Dibromomethane | ug/kg | 20 | 18.5 | 93 | 73-131 | |
| Dichlorodifluoromethane | ug/kg | 20 | 23.5 | 118 | 40-160 | |
| Ethylbenzene | ug/kg | 20 | 21.6 | 108 | 70-124 | |
| Hexachloro-1,3-butadiene | ug/kg | 20 | 19.8 | 99 | 59-141 | |
| Isopropylbenzene (Cumene) | ug/kg | 20 | 21.6 | 108 | 72-131 | |
| m&p-Xylene | ug/kg | 40 | 43.3 | 108 | 66-129 | |
| Methyl-tert-butyl ether | ug/kg | 20 | 19.2 | 96 | 69-136 | |
| Methylene chloride | ug/kg | 20 | 19.4 | 97 | 53-160 | |
| n-Butylbenzene | ug/kg | 20 | 20.7 | 103 | 65-134 | |
| n-Hexane | ug/kg | 20 | 18.7 | 93 | 70-130 | |
| n-Propylbenzene | ug/kg | 20 | 21.7 | 109 | 62-135 | |
| Naphthalene | ug/kg | 20 | 21.9 | 110 | 63-129 | |
| o-Xylene | ug/kg | 20 | 18.5 | 93 | 70-125 | |
| p-Isopropyltoluene | ug/kg | 20 | 19.9 | 99 | 68-130 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

LABORATORY CONTROL SAMPLE: 117577

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| sec-Butylbenzene | ug/kg | 20 | 22.0 | 110 | 61-137 | |
| Styrene | ug/kg | 20 | 16.5 | 83 | 77-124 | |
| tert-Amylmethyl ether | ug/kg | 20 | 17.6 | 88 | 55-150 | |
| tert-Butylbenzene | ug/kg | 20 | 20.9 | 104 | 69-132 | |
| Tetrachloroethene | ug/kg | 20 | 18.3 | 92 | 52-148 | |
| Toluene | ug/kg | 20 | 19.5 | 98 | 67-129 | |
| trans-1,2-Dichloroethene | ug/kg | 20 | 19.3 | 97 | 69-146 | |
| trans-1,3-Dichloropropene | ug/kg | 10 | 9.1 | 91 | 63-133 | |
| Trichloroethene | ug/kg | 20 | 18.9 | 94 | 69-137 | |
| Trichlorofluoromethane | ug/kg | 20 | 29.8 | 149 | 50-156 | |
| Vinyl chloride | ug/kg | 20 | 29.8 | 149 | 41-156 | |
| Xylene (Total) | ug/kg | 60 | 61.9 | 103 | 68-127 | |
| 1,2-Dichloroethane-d4 (S) | % | | | 103 | 68-141 | |
| 4-Bromofluorobenzene (S) | % | | | 103 | 68-141 | |
| Dibromofluoromethane (S) | % | | | 101 | 74-126 | |
| Toluene-d8 (S) | % | | | 98 | 71-130 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

QC Batch: MSV/7140 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 2512379001

METHOD BLANK: 117755 Matrix: Solid
Associated Lab Samples: 2512379001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,1,1-Trichloroethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,1,2,2-Tetrachloroethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,1,2-Trichloroethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,1,2-Trichlorotrifluoroethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,1-Dichloroethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,1-Dichloroethene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,1-Dichloropropene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,2,3-Trichlorobenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,2,3-Trichloropropane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,2,4-Trichlorobenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,2,4-Trimethylbenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,2-Dibromo-3-chloropropane | ug/kg | ND | 5.0 | 06/04/12 20:28 | |
| 1,2-Dibromoethane (EDB) | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,2-Dichlorobenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,2-Dichloroethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,2-Dichloroethene (Total) | ug/kg | ND | 6.0 | 06/04/12 20:28 | |
| 1,2-Dichloropropane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,3,5-Trimethylbenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,3-Dichlorobenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,3-Dichloropropane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 1,4-Dichlorobenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 2,2-Dichloropropane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 2-Butanone (MEK) | ug/kg | ND | 10.0 | 06/04/12 20:28 | |
| 2-Chlorotoluene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 2-Hexanone | ug/kg | ND | 10.0 | 06/04/12 20:28 | |
| 4-Chlorotoluene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| 4-Methyl-2-pentanone (MIBK) | ug/kg | ND | 10.0 | 06/04/12 20:28 | |
| Acetone | ug/kg | ND | 10.0 | 06/04/12 20:28 | |
| Benzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Bromobenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Bromochloromethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Bromodichloromethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Bromoform | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Bromomethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Carbon disulfide | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Carbon tetrachloride | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Chlorobenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Chloroethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Chloroform | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Chloromethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| cis-1,2-Dichloroethene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| cis-1,3-Dichloropropene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

METHOD BLANK: 117755 Matrix: Solid

Associated Lab Samples: 2512379001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Dibromochloromethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Dibromomethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Dichlorodifluoromethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | CL |
| Ethylbenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Hexachloro-1,3-butadiene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Isopropylbenzene (Cumene) | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| m&p-Xylene | ug/kg | ND | 6.0 | 06/04/12 20:28 | |
| Methyl-tert-butyl ether | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Methylene chloride | ug/kg | ND | 10.0 | 06/04/12 20:28 | |
| n-Butylbenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| n-Hexane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| n-Propylbenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Naphthalene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| o-Xylene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| p-Isopropyltoluene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| sec-Butylbenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Styrene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| tert-Amylmethyl ether | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| tert-Butylbenzene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Tetrachloroethene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Toluene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| trans-1,2-Dichloroethene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| trans-1,3-Dichloropropene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Trichloroethene | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Trichlorofluoromethane | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Vinyl chloride | ug/kg | ND | 3.0 | 06/04/12 20:28 | |
| Xylene (Total) | ug/kg | ND | 9.0 | 06/04/12 20:28 | |
| 1,2-Dichloroethane-d4 (S) | % | 99 | 68-141 | 06/04/12 20:28 | |
| 4-Bromofluorobenzene (S) | % | 109 | 68-141 | 06/04/12 20:28 | |
| Dibromofluoromethane (S) | % | 92 | 74-126 | 06/04/12 20:28 | |
| Toluene-d8 (S) | % | 103 | 71-130 | 06/04/12 20:28 | |

LABORATORY CONTROL SAMPLE: 117756

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ug/kg | 20 | 14.8 | 74 | 75-126 | L0 |
| 1,1,1-Trichloroethane | ug/kg | 20 | 16.2 | 81 | 65-147 | |
| 1,1,2,2-Tetrachloroethane | ug/kg | 20 | 14.7 | 73 | 65-129 | |
| 1,1,2-Trichloroethane | ug/kg | 20 | 15.7 | 79 | 71-125 | |
| 1,1,2-Trichlorotrifluoroethane | ug/kg | 20 | 16.9 | 85 | 53-160 | |
| 1,1-Dichloroethane | ug/kg | 20 | 16.9 | 84 | 71-136 | |
| 1,1-Dichloroethene | ug/kg | 20 | 16.0 | 80 | 56-160 | |
| 1,1-Dichloropropene | ug/kg | 20 | 16.7 | 84 | 60-145 | |
| 1,2,3-Trichlorobenzene | ug/kg | 20 | 16.1 | 81 | 69-124 | |
| 1,2,3-Trichloropropane | ug/kg | 20 | 15.4 | 77 | 71-119 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

LABORATORY CONTROL SAMPLE: 117756

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,2,4-Trichlorobenzene | ug/kg | 20 | 17.1 | 86 | 69-127 | |
| 1,2,4-Trimethylbenzene | ug/kg | 20 | 18.0 | 90 | 69-127 | |
| 1,2-Dibromo-3-chloropropane | ug/kg | 20 | 14.8 | 74 | 55-132 | |
| 1,2-Dibromoethane (EDB) | ug/kg | 20 | 14.6 | 73 | 73-125 | |
| 1,2-Dichlorobenzene | ug/kg | 20 | 16.1 | 81 | 77-118 | |
| 1,2-Dichloroethane | ug/kg | 20 | 16.5 | 82 | 67-137 | |
| 1,2-Dichloroethene (Total) | ug/kg | 40 | 31.2 | 78 | 71-141 | |
| 1,2-Dichloropropane | ug/kg | 20 | 16.1 | 81 | 72-133 | |
| 1,3,5-Trimethylbenzene | ug/kg | 20 | 18.6 | 93 | 70-129 | |
| 1,3-Dichlorobenzene | ug/kg | 20 | 16.2 | 81 | 76-122 | |
| 1,3-Dichloropropane | ug/kg | 20 | 15.8 | 79 | 72-125 | |
| 1,4-Dichlorobenzene | ug/kg | 20 | 16.5 | 82 | 76-119 | |
| 2,2-Dichloropropane | ug/kg | 20 | 15.6 | 78 | 57-156 | |
| 2-Butanone (MEK) | ug/kg | 40 | 33.9 | 85 | 40-160 | |
| 2-Chlorotoluene | ug/kg | 20 | 17.3 | 87 | 70-123 | |
| 2-Hexanone | ug/kg | 40 | 27.5 | 69 | 40-160 | |
| 4-Chlorotoluene | ug/kg | 20 | 17.0 | 85 | 74-127 | |
| 4-Methyl-2-pentanone (MIBK) | ug/kg | 40 | 25.3 | 63 | 58-143 | |
| Acetone | ug/kg | 40 | 33.1 | 83 | 40-160 | |
| Benzene | ug/kg | 20 | 15.7 | 79 | 67-133 | |
| Bromobenzene | ug/kg | 20 | 17.0 | 85 | 77-121 | |
| Bromochloromethane | ug/kg | 20 | 15.0 | 75 | 73-132 | |
| Bromodichloromethane | ug/kg | 20 | 15.1 | 76 | 71-130 | |
| Bromoform | ug/kg | 20 | 14.3 | 72 | 65-127 | |
| Bromomethane | ug/kg | 20 | 21.4 | 107 | 41-160 | |
| Carbon disulfide | ug/kg | 20 | 15.6 | 78 | 40-160 | |
| Carbon tetrachloride | ug/kg | 20 | 16.1 | 81 | 59-157 | |
| Chlorobenzene | ug/kg | 20 | 16.7 | 84 | 78-123 | |
| Chloroethane | ug/kg | 20 | 20.8 | 104 | 54-153 | |
| Chloroform | ug/kg | 20 | 16.7 | 83 | 74-132 | |
| Chloromethane | ug/kg | 20 | 21.0 | 105 | 40-149 | |
| cis-1,2-Dichloroethene | ug/kg | 20 | 16.0 | 80 | 73-137 | |
| cis-1,3-Dichloropropene | ug/kg | 10 | 9.0 | 90 | 63-140 | |
| Dibromochloromethane | ug/kg | 20 | 14.3 | 72 | 71-122 | |
| Dibromomethane | ug/kg | 20 | 15.4 | 77 | 73-131 | |
| Dichlorodifluoromethane | ug/kg | 20 | 18.3 | 92 | 40-160 | CL |
| Ethylbenzene | ug/kg | 20 | 18.5 | 92 | 70-124 | |
| Hexachloro-1,3-butadiene | ug/kg | 20 | 17.8 | 89 | 59-141 | |
| Isopropylbenzene (Cumene) | ug/kg | 20 | 18.1 | 90 | 72-131 | |
| m&p-Xylene | ug/kg | 40 | 37.2 | 93 | 66-129 | |
| Methyl-tert-butyl ether | ug/kg | 20 | 13.9 | 69 | 69-136 | |
| Methylene chloride | ug/kg | 20 | 14.8 | 74 | 53-160 | |
| n-Butylbenzene | ug/kg | 20 | 18.9 | 94 | 65-134 | |
| n-Hexane | ug/kg | 20 | 15.5 | 77 | 70-130 | |
| n-Propylbenzene | ug/kg | 20 | 19.5 | 97 | 62-135 | |
| Naphthalene | ug/kg | 20 | 16.4 | 82 | 63-129 | |
| o-Xylene | ug/kg | 20 | 15.5 | 77 | 70-125 | |
| p-Isopropyltoluene | ug/kg | 20 | 17.7 | 88 | 68-130 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

LABORATORY CONTROL SAMPLE: 117756

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| sec-Butylbenzene | ug/kg | 20 | 19.4 | 97 | 61-137 | |
| Styrene | ug/kg | 20 | 12.9 | 65 | 77-124 | L0 |
| tert-Amylmethyl ether | ug/kg | 20 | 12.2 | 61 | 55-150 | |
| tert-Butylbenzene | ug/kg | 20 | 18.2 | 91 | 69-132 | |
| Tetrachloroethene | ug/kg | 20 | 16.2 | 81 | 52-148 | |
| Toluene | ug/kg | 20 | 17.1 | 86 | 67-129 | |
| trans-1,2-Dichloroethene | ug/kg | 20 | 15.2 | 76 | 69-146 | |
| trans-1,3-Dichloropropene | ug/kg | 10 | 8.6 | 86 | 63-133 | |
| Trichloroethene | ug/kg | 20 | 16.2 | 81 | 69-137 | |
| Trichlorofluoromethane | ug/kg | 20 | 24.0 | 120 | 50-156 | |
| Vinyl chloride | ug/kg | 20 | 22.9 | 114 | 41-156 | |
| Xylene (Total) | ug/kg | 60 | 52.6 | 88 | 68-127 | |
| 1,2-Dichloroethane-d4 (S) | % | | | 100 | 68-141 | |
| 4-Bromofluorobenzene (S) | % | | | 105 | 68-141 | |
| Dibromofluoromethane (S) | % | | | 99 | 74-126 | |
| Toluene-d8 (S) | % | | | 100 | 71-130 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

QC Batch: MSV/7104 Analysis Method: NWTPH-Gx
QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx MSV Water
Associated Lab Samples: 2512379004, 2512379005, 2512379006, 2512379007

METHOD BLANK: 117125 Matrix: Water
Associated Lab Samples: 2512379004, 2512379005, 2512379006, 2512379007

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Gasoline Range Organics | ug/L | ND | 50.0 | 05/30/12 10:20 | |
| 4-Bromofluorobenzene (S) | % | 103 | 50-150 | 05/30/12 10:20 | |

LABORATORY CONTROL SAMPLE: 117126

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Gasoline Range Organics | ug/L | 500 | 479 | 96 | 65-139 | |
| 4-Bromofluorobenzene (S) | % | | | 96 | 50-150 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117448 117449

| Parameter | Units | 2512369002 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | ug/L | ND | 500 | 500 | 700 | 658 | 135 | 127 | 48-147 | 6 | |
| 4-Bromofluorobenzene (S) | % | | | | | | 96 | 95 | 50-150 | | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

QC Batch: PMST/2062 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 2512379001, 2512379002, 2512379003

SAMPLE DUPLICATE: 117250

| Parameter | Units | 2512381001 Result | Dup Result | RPD | Qualifiers |
|---|---|---|---|---|---|
| Percent Moisture | % | 38.3 | 38.3 | .07 | |

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# QUALIFIERS

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

## 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.

PRL - Pace Reporting Limit.

RL - Reporting 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 TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## LABORATORIES

| | |
|---|---|
| PASI-S | Pace Analytical Services - Seattle |

## BATCH QUALIFIERS

Batch: MSV/7131

| | |
|---|---|
| [M5] | A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume. |

Batch: MSV/7140

| | |
|---|---|
| [M5] | A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume. |

## ANALYTE QUALIFIERS

| | |
|---|---|
| CL | The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low. |
| L0 | Analyte recovery in the laboratory control sample (LCS) was outside QC limits. |
| L2 | Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low. |

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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Tarr Vancouver Cardlock 1821-0
Pace Project No.: 2512379

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **2512379004** | **SB-16-W** | EPA 5030B/8260 | MSV/7103 | | |
| **2512379005** | **SB-17-W** | EPA 5030B/8260 | MSV/7103 | | |
| **2512379006** | **SB-18-W** | EPA 5030B/8260 | MSV/7103 | | |
| **2512379007** | **SB-19-W** | EPA 5030B/8260 | MSV/7103 | | |
| **2512379001** | **SB-16-(7)** | EPA 8260 | MSV/7140 | | |
| **2512379002** | **SB-17-(7.5)** | EPA 8260 | MSV/7131 | | |
| **2512379003** | **SB-19-(7.5)** | EPA 8260 | MSV/7131 | | |
| **2512379004** | **SB-16-W** | NWTPH-Gx | MSV/7104 | | |
| **2512379005** | **SB-17-W** | NWTPH-Gx | MSV/7104 | | |
| **2512379006** | **SB-18-W** | NWTPH-Gx | MSV/7104 | | |
| **2512379007** | **SB-19-W** | NWTPH-Gx | MSV/7104 | | |
| **2512379001** | **SB-16-(7)** | ASTM D2974-87 | PMST/2062 | | |
| **2512379002** | **SB-17-(7.5)** | ASTM D2974-87 | PMST/2062 | | |
| **2512379003** | **SB-19-(7.5)** | ASTM D2974-87 | PMST/2062 | | |

Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

# 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

Project Manager: John Foxwell
Analytical Lab: Pace Analytical
Project Name: Tarr Vancouver Cardlock
Report To: Jfoxwell@ashcreekassociates.com
Project Number: 1821-00/ Task 6
Page: 1 of 1
Sampler Name: Carmen Owens

2512379

| Sample ID / Description | Date Sampled | Time Sampled | No. of Containers Shipped | Grab | Composite | Field Filtered | Preservative: Ice | Preservative: $HNO_3$ (Red Label) | Preservative: HCl (Blue Label) | Preservative: NaOH ( Orange Label) | Preservative: $H_2SO_4$ Plastic (Yellow Label) | Preservative: $H_2SO_4$ Glass(Yellow Label) | Preservative: None (Black Label) | Preservative: Other ( Specify): 5035 | Matrix: Groundwater | Matrix: Wastewater | Matrix: Drinking Water | Matrix: Sludge | Matrix: Soil | Matrix: Other (specify): | Analyze For: NWTPH-Gx | Analyze For: Petroleum VOCs by 8260 | RUSH - 24 hour TAT | 5-day TAT | Fax Results | Send QC with report |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SB-16-(7) | 5/29/12 | 1050 | 5 | x | | | x | | | | | | | x | | | | | x | | | x | | x | | |
| SB-17-(7.5) | 5/29/12 | 1020 | 5 | x | | | x | | | | | | | x | | | | | x | | | x | x | | | |
| SB-19-(7.5) | 5/29/12 | 1150 | 5 | x | | | x | | | | | | | x | | | | | x | | | x | x | | | |
| SB-16-W | 5/29/12 | 1030 | 6 | x | | | x | | x | | | | | | x | | | | | | x | x | | x | | |
| SB-17-W | 5/29/12 | 1000 | 6 | x | | | x | | x | | | | | | x | | | | | | x | x | x | | | |
| SB-18-W | 5/29/12 | 930 | 6 | x | | | x | | x | | | | | | x | | | | | | x | x | x | | | |
| SB-19-W | 5/29/12 | 1200 | 6 | x | | | x | | x | | | | | | x | | | | | | x | x | x | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |

**Special Instructions:** Note: 24 hr TAT on some samples

**Method of Shipment:**

**Laboratory Comments:**
Temperature Upon Receipt: 3.7 °C
VOCs Free of Headspace? (Y) N

| Relinquished by: Name/Company | Date | Time | Received by: Name/Company | Date | Time |
|---|---|---|---|---|---|
| Ash Creek | 5-29-12 | 1430 | Pace | 5/30/12 | 0820 |
| Relinquished by: Name/Company | Date | Time | Received by: Name/Company | Date | Time |
| Relinquished by: Name/Company | Date | Time | Received by: Name/Company | Date | Time |
| Relinquished by: Name/Company | Date | Time | Received by: Name/Company | Date | Time |

# Sample Container Count

CLIENT: Ash Creek

2512379

Pace Analytical

COC PAGE 1 of 1
COC ID# _____

Trip Blank(s) Provided?
Y / N

| Sample Line Item | VG9H | AG1H | AG1U | BP1U | BP2U | BP3U | BP3N | BP3S | WGKU | WGFU | WG2U | DG9M | DG9B | VG9W | VSG | BP5U | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | 2 | 2 | | | 1 | | | |
| 2 | | | | | | | | | | | | 2 | 2 | | | 1 | | | |
| 3 | | | | | | | | | | | | 2 | 2 | | | 1 | | | |
| 4 | 6 | | | | | | | | | | | | | | | | | | |
| 5 | 6 | | | | | | | | | | | | | | | | | | |
| 6 | 6 | | | | | | | | | | | | | | | | | | |
| 7 | 6 | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| AG1H | 1 liter HCL amber glass | BP2S | 500mL H2SO4 plastic | JGFU | 4 oz amber glass soil jar |
| AG1U | 1liter unpreserved amber glass | BP2U | 500mL unpreserved plastic | WGKU | 8 oz clear glass soil jar |
| AG2S | 500mL H2SO4 amber glass | BP2Z | 500mL NaOH, Zn Ac | WGFU | 4 oz clear glass soil jar |
| AG2U | 500mL unpreserved amber glass | BP3C | 250mL NaOH plastic | WG2U | 2 oz clear glass soil jar |
| AG3S | 250mL H2SO4 amber glass | BP3N | 250mL HNO3 plastic | JGFM | 4 oz amber glass soil jar with MeOH |
| 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 clear vial pre-weighted with DI water |
| BP1N | 1 liter HNO3 plastic | DG9B | 40mL Na Bisulfate clear vial | VSG | Headspace septa vial |
| BP1S | 1 liter H2SO4 plastic | DG9H | 40mL HCL amber voa vial | VG9H | 40mL HCL clear vial |
| BP1U | 1 liter unpreserved plastic | DG9M | 40mL MeOH clear vial | WGFX | 4oz wide jar w/hexane wipe |
| BP1Z | 1 liter NaOH, Zn, Ac | DG9T | 40mL Na Thio amber vial | VG9T | 40mL Na Thio. clear vial |
| BP2N | 500mL HNO3 plastic | DG9U | 40mL unpreserved amber vial | ZPLC | Ziploc Bag |
| BP2O | 500mL NaOH plastic | I | Wipe/Swab | U | Summa Can |

# Sample Condition Upon Receipt

Pace Analytical

Client Name: Ash Creek  Project # 2512379

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

Tracking #: _____

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

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☑ Other Foam  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 3.7  Biological Tissue is Frozen: Yes (No)

Temp should be above freezing ≤ 6°C  Comments:

Date and Initials of person examining contents: 5/30/12 KS

| | | | |
|---|---|---|---|
| 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. | All vials preserved |
| Rush Turn Around Time Requested: | ☑Yes ☐No ☐N/A | 7. | 1-day TAT |
| 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: | WT & SL | | |
| 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 | ☑Yes ☐No ☐N/A | Initial when completed ✓ | Lot # of added preservative |
| 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 Creation Date: | | | |

**Client Notification/ Resolution:**  Field Data Required? Y / N

Person Contacted: _____  Date/Time: _____

Comments/ Resolution: _____

**Project Manager Review:** JENNI GROSS  **Date:** 5/30/12

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)

**Pace Analytical Services, Inc.**
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

January 23, 2013

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

RE: Project: Tarr Vancouver 1821-00
Pace Project No.: 10217665

Dear John Foxwell:
Enclosed are the analytical results for sample(s) received by the laboratory on January 15, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Carol Davy

carol.davy@pacelabs.com
Project Manager

Enclosures

**Pace Analytical Services, Inc.**
1700 Elm Street - Suite 200
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(612)607-1700

## CERTIFICATIONS

Project: Tarr Vancouver 1821-00
Pace Project No.: 10217665

**Minnesota Certification IDs**

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: Pace
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Hawaii Certification #Pace
Idaho Certification #: MN00064
Illinois Certification #: 200011
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Louisiana Certification #: LA080009
Maine Certification #: 2007029
Maryland Certification #: 322
Michigan DEQ Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT CERT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
North Dakota Certification #: R-036A
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Tennessee Certification #: 02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Virginia/DCLS Certification #: 002521
Virginia/VELAP Certification #: 460163
Washington Certification #: C754
West Virginia Certification #: 382
Wisconsin Certification #: 999407970

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## SAMPLE SUMMARY

Project: Tarr Vancouver 1821-00
Pace Project No.: 10217665

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **10217665001** | **MW-1** | Water | 01/14/13 12:00 | 01/15/13 09:55 |
| **10217665002** | **MW-4** | Water | 01/14/13 12:30 | 01/15/13 09:55 |
| **10217665003** | **MW-5** | Water | 01/14/13 13:00 | 01/15/13 09:55 |

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## SAMPLE ANALYTE COUNT

Project: Tarr Vancouver 1821-00
Pace Project No.: 10217665

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|---|---|---|---|---|---|
| **10217665001** | **MW-1** | NWTPH-Gx/8021 | MJH | 2 | PASI-M |
| | | EPA 8260 | EB2 | 75 | PASI-M |
| **10217665002** | **MW-4** | NWTPH-Gx/8021 | MJH | 2 | PASI-M |
| | | EPA 8260 | EB2 | 75 | PASI-M |
| **10217665003** | **MW-5** | EPA 8011 | KL1 | 2 | PASI-M |
| | | NWTPH-Gx/8021 | MJH | 2 | PASI-M |
| | | EPA 8260 | EB2 | 75 | PASI-M |

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# PROJECT NARRATIVE

Project: Tarr Vancouver 1821-00
Pace Project No.: 10217665

**Method:** **EPA 8011**
**Description:** 8011 GCS EDB and DBCP
**Client:** Ash Creek Associates OR
**Date:** January 23, 2013

**General Information:**
1 sample was analyzed for EPA 8011. 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 8011 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.

**Additional Comments:**

**Pace Analytical Services, Inc.**
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(612)607-1700

## PROJECT NARRATIVE

Project: Tarr Vancouver 1821-00
Pace Project No.: 10217665

**Method:** **NWTPH-Gx/8021**
**Description:** NWTPH-Gx/8021BGx GCV
**Client:** Ash Creek Associates OR
**Date:** January 23, 2013

**General Information:**
3 samples were analyzed for NWTPH-Gx/8021. 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.

**Additional Comments:**

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(612)607-1700

# PROJECT NARRATIVE

Project: Tarr Vancouver 1821-00
Pace Project No.: 10217665

**Method:** **EPA 8260**
**Description:** 8260 VOC
**Client:** Ash Creek Associates OR
**Date:** January 23, 2013

**General Information:**
3 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below.

B: Analyte was detected in the associated method blank.
- MW-1 (Lab ID: 10217665001)
- MW-4 (Lab ID: 10217665002)
- MW-5 (Lab ID: 10217665003)

**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.

**Additional Comments:**

Analyte Comments:

QC Batch: MSV/22671

B: Analyte was detected in the associated method blank.
- MW-1 (Lab ID: 10217665001)
  - Naphthalene
- MW-4 (Lab ID: 10217665002)
  - Naphthalene
- MW-5 (Lab ID: 10217665003)
  - Naphthalene

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## PROJECT NARRATIVE

Project: Tarr Vancouver 1821-00
Pace Project No.: 10217665

**Method:** **EPA 8260**
**Description:** 8260 VOC
**Client:** Ash Creek Associates OR
**Date:** January 23, 2013

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

**Pace Analytical Services, Inc.**
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## ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00
Pace Project No.: 10217665

**Sample: MW-1** **Lab ID: 10217665001** Collected: 01/14/13 12:00 Received: 01/15/13 09:55 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **NWTPH-Gx/8021BGx GCV** | Analytical Method: NWTPH-Gx/8021 | | | | | | | | |
| TPH as Gas | **416** | ug/L | 100 | 43.0 | 1 | | 01/17/13 19:23 | | |
| ***Surrogates*** | | | | | | | | | |
| a,a,a-Trifluorotoluene (S) | 102 | % | 75-125 | | 1 | | 01/17/13 19:23 | 98-08-8 | |
| **8260 VOC** | Analytical Method: EPA 8260 | | | | | | | | |
| Acetone | **<12.5** | ug/L | 25.0 | 12.5 | 1 | | 01/16/13 13:16 | 67-64-1 | |
| Allyl chloride | **<1.8** | ug/L | 4.0 | 1.8 | 1 | | 01/16/13 13:16 | 107-05-1 | |
| Benzene | **0.29J** | ug/L | 1.0 | 0.062 | 1 | | 01/16/13 13:16 | 71-43-2 | |
| Bromobenzene | **<0.086** | ug/L | 1.0 | 0.086 | 1 | | 01/16/13 13:16 | 108-86-1 | |
| Bromochloromethane | **<0.32** | ug/L | 1.0 | 0.32 | 1 | | 01/16/13 13:16 | 74-97-5 | |
| Bromodichloromethane | **<0.11** | ug/L | 1.0 | 0.11 | 1 | | 01/16/13 13:16 | 75-27-4 | |
| Bromoform | **<0.068** | ug/L | 4.0 | 0.068 | 1 | | 01/16/13 13:16 | 75-25-2 | |
| Bromomethane | **<0.36** | ug/L | 4.0 | 0.36 | 1 | | 01/16/13 13:16 | 74-83-9 | |
| 2-Butanone (MEK) | **<2.0** | ug/L | 4.0 | 2.0 | 1 | | 01/16/13 13:16 | 78-93-3 | |
| n-Butylbenzene | **0.82J** | ug/L | 1.0 | 0.15 | 1 | | 01/16/13 13:16 | 104-51-8 | |
| sec-Butylbenzene | **0.54J** | ug/L | 1.0 | 0.10 | 1 | | 01/16/13 13:16 | 135-98-8 | |
| tert-Butylbenzene | **<0.10** | ug/L | 1.0 | 0.10 | 1 | | 01/16/13 13:16 | 98-06-6 | |
| Carbon disulfide | **<0.50** | ug/L | 1.0 | 0.50 | 1 | | 01/16/13 13:16 | 75-15-0 | |
| Carbon tetrachloride | **<0.16** | ug/L | 1.0 | 0.16 | 1 | | 01/16/13 13:16 | 56-23-5 | |
| Chlorobenzene | **<0.10** | ug/L | 1.0 | 0.10 | 1 | | 01/16/13 13:16 | 108-90-7 | |
| Chloroethane | **<0.22** | ug/L | 1.0 | 0.22 | 1 | | 01/16/13 13:16 | 75-00-3 | |
| Chloroform | **<0.14** | ug/L | 1.0 | 0.14 | 1 | | 01/16/13 13:16 | 67-66-3 | |
| Chloromethane | **<0.41** | ug/L | 4.0 | 0.41 | 1 | | 01/16/13 13:16 | 74-87-3 | |
| 2-Chlorotoluene | **<0.50** | ug/L | 1.0 | 0.50 | 1 | | 01/16/13 13:16 | 95-49-8 | |
| 4-Chlorotoluene | **<0.068** | ug/L | 1.0 | 0.068 | 1 | | 01/16/13 13:16 | 106-43-4 | |
| 1,2-Dibromo-3-chloropropane | **<0.62** | ug/L | 4.0 | 0.62 | 1 | | 01/16/13 13:16 | 96-12-8 | |
| Dibromochloromethane | **<0.10** | ug/L | 1.0 | 0.10 | 1 | | 01/16/13 13:16 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | **<0.091** | ug/L | 1.0 | 0.091 | 1 | | 01/16/13 13:16 | 106-93-4 | |
| Dibromomethane | **<0.21** | ug/L | 4.0 | 0.21 | 1 | | 01/16/13 13:16 | 74-95-3 | |
| 1,2-Dichlorobenzene | **<0.36** | ug/L | 1.0 | 0.36 | 1 | | 01/16/13 13:16 | 95-50-1 | |
| 1,3-Dichlorobenzene | **<0.11** | ug/L | 1.0 | 0.11 | 1 | | 01/16/13 13:16 | 541-73-1 | |
| 1,4-Dichlorobenzene | **<0.064** | ug/L | 1.0 | 0.064 | 1 | | 01/16/13 13:16 | 106-46-7 | |
| Dichlorodifluoromethane | **<0.20** | ug/L | 1.0 | 0.20 | 1 | | 01/16/13 13:16 | 75-71-8 | |
| 1,1-Dichloroethane | **<0.11** | ug/L | 1.0 | 0.11 | 1 | | 01/16/13 13:16 | 75-34-3 | |
| 1,2-Dichloroethane | **<0.37** | ug/L | 1.0 | 0.37 | 1 | | 01/16/13 13:16 | 107-06-2 | |
| 1,1-Dichloroethene | **<0.19** | ug/L | 1.0 | 0.19 | 1 | | 01/16/13 13:16 | 75-35-4 | |
| cis-1,2-Dichloroethene | **<0.085** | ug/L | 1.0 | 0.085 | 1 | | 01/16/13 13:16 | 156-59-2 | |
| trans-1,2-Dichloroethene | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 01/16/13 13:16 | 156-60-5 | |
| Dichlorofluoromethane | **<0.11** | ug/L | 1.0 | 0.11 | 1 | | 01/16/13 13:16 | 75-43-4 | |
| 1,2-Dichloropropane | **<0.27** | ug/L | 4.0 | 0.27 | 1 | | 01/16/13 13:16 | 78-87-5 | |
| 1,3-Dichloropropane | **<0.081** | ug/L | 1.0 | 0.081 | 1 | | 01/16/13 13:16 | 142-28-9 | |
| 2,2-Dichloropropane | **<0.15** | ug/L | 4.0 | 0.15 | 1 | | 01/16/13 13:16 | 594-20-7 | |
| 1,1-Dichloropropene | **<0.35** | ug/L | 1.0 | 0.35 | 1 | | 01/16/13 13:16 | 563-58-6 | |
| cis-1,3-Dichloropropene | **<0.090** | ug/L | 4.0 | 0.090 | 1 | | 01/16/13 13:16 | 10061-01-5 | |
| trans-1,3-Dichloropropene | **<0.37** | ug/L | 4.0 | 0.37 | 1 | | 01/16/13 13:16 | 10061-02-6 | |
| Diethyl ether (Ethyl ether) | **<2.0** | ug/L | 4.0 | 2.0 | 1 | | 01/16/13 13:16 | 60-29-7 | |

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
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(612)607-1700

## ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00
Pace Project No.: 10217665

**Sample: MW-1** **Lab ID: 10217665001** Collected: 01/14/13 12:00 Received: 01/15/13 09:55 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8260 VOC** | Analytical Method: EPA 8260 | | | | | | | | |
| Ethylbenzene | **10.7** | ug/L | 1.0 | 0.081 | 1 | | 01/16/13 13:16 | 100-41-4 | |
| Hexachloro-1,3-butadiene | **<0.19** | ug/L | 5.0 | 0.19 | 1 | | 01/16/13 13:16 | 87-68-3 | |
| 2-Hexanone | **<2.0** | ug/L | 4.0 | 2.0 | 1 | | 01/16/13 13:16 | 591-78-6 | |
| Isopropylbenzene (Cumene) | **2.1** | ug/L | 1.0 | 0.076 | 1 | | 01/16/13 13:16 | 98-82-8 | |
| p-Isopropyltoluene | **0.39J** | ug/L | 1.0 | 0.086 | 1 | | 01/16/13 13:16 | 99-87-6 | |
| Methylene Chloride | **<2.0** | ug/L | 4.0 | 2.0 | 1 | | 01/16/13 13:16 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | **<2.0** | ug/L | 4.0 | 2.0 | 1 | | 01/16/13 13:16 | 108-10-1 | |
| Methyl-tert-butyl ether | **<0.088** | ug/L | 1.0 | 0.088 | 1 | | 01/16/13 13:16 | 1634-04-4 | |
| Naphthalene | **3.3J** | ug/L | 4.0 | 0.068 | 1 | | 01/16/13 13:16 | 91-20-3 | B |
| n-Propylbenzene | **6.9** | ug/L | 1.0 | 0.078 | 1 | | 01/16/13 13:16 | 103-65-1 | |
| Styrene | **<0.060** | ug/L | 1.0 | 0.060 | 1 | | 01/16/13 13:16 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | **<0.36** | ug/L | 1.0 | 0.36 | 1 | | 01/16/13 13:16 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | **<0.097** | ug/L | 1.0 | 0.097 | 1 | | 01/16/13 13:16 | 79-34-5 | |
| Tetrachloroethene | **<0.13** | ug/L | 1.0 | 0.13 | 1 | | 01/16/13 13:16 | 127-18-4 | |
| Tetrahydrofuran | **<0.97** | ug/L | 10.0 | 0.97 | 1 | | 01/16/13 13:16 | 109-99-9 | |
| Toluene | **0.25J** | ug/L | 1.0 | 0.077 | 1 | | 01/16/13 13:16 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | **<0.13** | ug/L | 1.0 | 0.13 | 1 | | 01/16/13 13:16 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | **<0.25** | ug/L | 1.0 | 0.25 | 1 | | 01/16/13 13:16 | 120-82-1 | |
| 1,1,1-Trichloroethane | **<0.19** | ug/L | 1.0 | 0.19 | 1 | | 01/16/13 13:16 | 71-55-6 | |
| 1,1,2-Trichloroethane | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 01/16/13 13:16 | 79-00-5 | |
| Trichloroethene | **<0.083** | ug/L | 1.0 | 0.083 | 1 | | 01/16/13 13:16 | 79-01-6 | |
| Trichlorofluoromethane | **<0.13** | ug/L | 1.0 | 0.13 | 1 | | 01/16/13 13:16 | 75-69-4 | |
| 1,2,3-Trichloropropane | **<0.33** | ug/L | 4.0 | 0.33 | 1 | | 01/16/13 13:16 | 96-18-4 | |
| 1,1,2-Trichlorotrifluoroethane | **<0.18** | ug/L | 1.0 | 0.18 | 1 | | 01/16/13 13:16 | 76-13-1 | |
| 1,2,4-Trimethylbenzene | **37.2** | ug/L | 1.0 | 0.071 | 1 | | 01/16/13 13:16 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | **11.1** | ug/L | 1.0 | 0.087 | 1 | | 01/16/13 13:16 | 108-67-8 | |
| Vinyl chloride | **<0.16** | ug/L | 0.40 | 0.16 | 1 | | 01/16/13 13:16 | 75-01-4 | |
| Xylene (Total) | **25.0** | ug/L | 3.0 | 0.22 | 1 | | 01/16/13 13:16 | 1330-20-7 | |
| m&p-Xylene | **20.9** | ug/L | 2.0 | 0.11 | 1 | | 01/16/13 13:16 | 179601-23-1 | |
| o-Xylene | **4.1** | ug/L | 1.0 | 0.10 | 1 | | 01/16/13 13:16 | 95-47-6 | |
| ***Surrogates*** | | | | | | | | | |
| Dibromofluoromethane (S) | 101 | % | 75-125 | | 1 | | 01/16/13 13:16 | 1868-53-7 | |
| 1,2-Dichloroethane-d4 (S) | 99 | % | 75-125 | | 1 | | 01/16/13 13:16 | 17060-07-0 | |
| Toluene-d8 (S) | 99 | % | 75-125 | | 1 | | 01/16/13 13:16 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 98 | % | 75-125 | | 1 | | 01/16/13 13:16 | 460-00-4 | |

**Sample: MW-4** **Lab ID: 10217665002** Collected: 01/14/13 12:30 Received: 01/15/13 09:55 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **NWTPH-Gx/8021BGx GCV** | Analytical Method: NWTPH-Gx/8021 | | | | | | | | |
| TPH as Gas | **<43.0** | ug/L | 100 | 43.0 | 1 | | 01/17/13 17:07 | | |
| ***Surrogates*** | | | | | | | | | |
| a,a,a-Trifluorotoluene (S) | 100 | % | 75-125 | | 1 | | 01/17/13 17:07 | 98-08-8 | |



**REPORT OF LABORATORY ANALYSIS**

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
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## ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00
Pace Project No.: 10217665

**Sample: MW-4** **Lab ID: 10217665002** Collected: 01/14/13 12:30 Received: 01/15/13 09:55 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8260 VOC** | Analytical Method: EPA 8260 | | | | | | | | |
| Acetone | **<12.5** | ug/L | 25.0 | 12.5 | 1 | | 01/16/13 13:30 | 67-64-1 | |
| Allyl chloride | **<1.8** | ug/L | 4.0 | 1.8 | 1 | | 01/16/13 13:30 | 107-05-1 | |
| Benzene | **<0.062** | ug/L | 1.0 | 0.062 | 1 | | 01/16/13 13:30 | 71-43-2 | |
| Bromobenzene | **<0.086** | ug/L | 1.0 | 0.086 | 1 | | 01/16/13 13:30 | 108-86-1 | |
| Bromochloromethane | **<0.32** | ug/L | 1.0 | 0.32 | 1 | | 01/16/13 13:30 | 74-97-5 | |
| Bromodichloromethane | **<0.11** | ug/L | 1.0 | 0.11 | 1 | | 01/16/13 13:30 | 75-27-4 | |
| Bromoform | **<0.068** | ug/L | 4.0 | 0.068 | 1 | | 01/16/13 13:30 | 75-25-2 | |
| Bromomethane | **<0.36** | ug/L | 4.0 | 0.36 | 1 | | 01/16/13 13:30 | 74-83-9 | |
| 2-Butanone (MEK) | **<2.0** | ug/L | 4.0 | 2.0 | 1 | | 01/16/13 13:30 | 78-93-3 | |
| n-Butylbenzene | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 01/16/13 13:30 | 104-51-8 | |
| sec-Butylbenzene | **<0.10** | ug/L | 1.0 | 0.10 | 1 | | 01/16/13 13:30 | 135-98-8 | |
| tert-Butylbenzene | **<0.10** | ug/L | 1.0 | 0.10 | 1 | | 01/16/13 13:30 | 98-06-6 | |
| Carbon disulfide | **<0.50** | ug/L | 1.0 | 0.50 | 1 | | 01/16/13 13:30 | 75-15-0 | |
| Carbon tetrachloride | **<0.16** | ug/L | 1.0 | 0.16 | 1 | | 01/16/13 13:30 | 56-23-5 | |
| Chlorobenzene | **<0.10** | ug/L | 1.0 | 0.10 | 1 | | 01/16/13 13:30 | 108-90-7 | |
| Chloroethane | **<0.22** | ug/L | 1.0 | 0.22 | 1 | | 01/16/13 13:30 | 75-00-3 | |
| Chloroform | **<0.14** | ug/L | 1.0 | 0.14 | 1 | | 01/16/13 13:30 | 67-66-3 | |
| Chloromethane | **<0.41** | ug/L | 4.0 | 0.41 | 1 | | 01/16/13 13:30 | 74-87-3 | |
| 2-Chlorotoluene | **<0.50** | ug/L | 1.0 | 0.50 | 1 | | 01/16/13 13:30 | 95-49-8 | |
| 4-Chlorotoluene | **<0.068** | ug/L | 1.0 | 0.068 | 1 | | 01/16/13 13:30 | 106-43-4 | |
| 1,2-Dibromo-3-chloropropane | **<0.62** | ug/L | 4.0 | 0.62 | 1 | | 01/16/13 13:30 | 96-12-8 | |
| Dibromochloromethane | **<0.10** | ug/L | 1.0 | 0.10 | 1 | | 01/16/13 13:30 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | **0.14J** | ug/L | 1.0 | 0.091 | 1 | | 01/16/13 13:30 | 106-93-4 | |
| Dibromomethane | **<0.21** | ug/L | 4.0 | 0.21 | 1 | | 01/16/13 13:30 | 74-95-3 | |
| 1,2-Dichlorobenzene | **<0.36** | ug/L | 1.0 | 0.36 | 1 | | 01/16/13 13:30 | 95-50-1 | |
| 1,3-Dichlorobenzene | **<0.11** | ug/L | 1.0 | 0.11 | 1 | | 01/16/13 13:30 | 541-73-1 | |
| 1,4-Dichlorobenzene | **<0.064** | ug/L | 1.0 | 0.064 | 1 | | 01/16/13 13:30 | 106-46-7 | |
| Dichlorodifluoromethane | **<0.20** | ug/L | 1.0 | 0.20 | 1 | | 01/16/13 13:30 | 75-71-8 | |
| 1,1-Dichloroethane | **<0.11** | ug/L | 1.0 | 0.11 | 1 | | 01/16/13 13:30 | 75-34-3 | |
| 1,2-Dichloroethane | **<0.37** | ug/L | 1.0 | 0.37 | 1 | | 01/16/13 13:30 | 107-06-2 | |
| 1,1-Dichloroethene | **<0.19** | ug/L | 1.0 | 0.19 | 1 | | 01/16/13 13:30 | 75-35-4 | |
| cis-1,2-Dichloroethene | **<0.085** | ug/L | 1.0 | 0.085 | 1 | | 01/16/13 13:30 | 156-59-2 | |
| trans-1,2-Dichloroethene | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 01/16/13 13:30 | 156-60-5 | |
| Dichlorofluoromethane | **<0.11** | ug/L | 1.0 | 0.11 | 1 | | 01/16/13 13:30 | 75-43-4 | |
| 1,2-Dichloropropane | **<0.27** | ug/L | 4.0 | 0.27 | 1 | | 01/16/13 13:30 | 78-87-5 | |
| 1,3-Dichloropropane | **<0.081** | ug/L | 1.0 | 0.081 | 1 | | 01/16/13 13:30 | 142-28-9 | |
| 2,2-Dichloropropane | **<0.15** | ug/L | 4.0 | 0.15 | 1 | | 01/16/13 13:30 | 594-20-7 | |
| 1,1-Dichloropropene | **<0.35** | ug/L | 1.0 | 0.35 | 1 | | 01/16/13 13:30 | 563-58-6 | |
| cis-1,3-Dichloropropene | **<0.090** | ug/L | 4.0 | 0.090 | 1 | | 01/16/13 13:30 | 10061-01-5 | |
| trans-1,3-Dichloropropene | **<0.37** | ug/L | 4.0 | 0.37 | 1 | | 01/16/13 13:30 | 10061-02-6 | |
| Diethyl ether (Ethyl ether) | **<2.0** | ug/L | 4.0 | 2.0 | 1 | | 01/16/13 13:30 | 60-29-7 | |
| Ethylbenzene | **<0.081** | ug/L | 1.0 | 0.081 | 1 | | 01/16/13 13:30 | 100-41-4 | |
| Hexachloro-1,3-butadiene | **<0.19** | ug/L | 5.0 | 0.19 | 1 | | 01/16/13 13:30 | 87-68-3 | |
| 2-Hexanone | **<2.0** | ug/L | 4.0 | 2.0 | 1 | | 01/16/13 13:30 | 591-78-6 | |
| Isopropylbenzene (Cumene) | **<0.076** | ug/L | 1.0 | 0.076 | 1 | | 01/16/13 13:30 | 98-82-8 | |
| p-Isopropyltoluene | **<0.086** | ug/L | 1.0 | 0.086 | 1 | | 01/16/13 13:30 | 99-87-6 | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00
Pace Project No.: 10217665

**Sample: MW-4** **Lab ID: 10217665002** Collected: 01/14/13 12:30 Received: 01/15/13 09:55 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8260 VOC** | Analytical Method: EPA 8260 | | | | | | | | |
| Methylene Chloride | **<2.0** | ug/L | 4.0 | 2.0 | 1 | | 01/16/13 13:30 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | **<2.0** | ug/L | 4.0 | 2.0 | 1 | | 01/16/13 13:30 | 108-10-1 | |
| Methyl-tert-butyl ether | **<0.088** | ug/L | 1.0 | 0.088 | 1 | | 01/16/13 13:30 | 1634-04-4 | |
| Naphthalene | **0.24J** | ug/L | 4.0 | 0.068 | 1 | | 01/16/13 13:30 | 91-20-3 | B |
| n-Propylbenzene | **<0.078** | ug/L | 1.0 | 0.078 | 1 | | 01/16/13 13:30 | 103-65-1 | |
| Styrene | **<0.060** | ug/L | 1.0 | 0.060 | 1 | | 01/16/13 13:30 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | **<0.36** | ug/L | 1.0 | 0.36 | 1 | | 01/16/13 13:30 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | **<0.097** | ug/L | 1.0 | 0.097 | 1 | | 01/16/13 13:30 | 79-34-5 | |
| Tetrachloroethene | **<0.13** | ug/L | 1.0 | 0.13 | 1 | | 01/16/13 13:30 | 127-18-4 | |
| Tetrahydrofuran | **<0.97** | ug/L | 10.0 | 0.97 | 1 | | 01/16/13 13:30 | 109-99-9 | |
| Toluene | **<0.077** | ug/L | 1.0 | 0.077 | 1 | | 01/16/13 13:30 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | **<0.13** | ug/L | 1.0 | 0.13 | 1 | | 01/16/13 13:30 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | **<0.25** | ug/L | 1.0 | 0.25 | 1 | | 01/16/13 13:30 | 120-82-1 | |
| 1,1,1-Trichloroethane | **<0.19** | ug/L | 1.0 | 0.19 | 1 | | 01/16/13 13:30 | 71-55-6 | |
| 1,1,2-Trichloroethane | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 01/16/13 13:30 | 79-00-5 | |
| Trichloroethene | **<0.083** | ug/L | 1.0 | 0.083 | 1 | | 01/16/13 13:30 | 79-01-6 | |
| Trichlorofluoromethane | **<0.13** | ug/L | 1.0 | 0.13 | 1 | | 01/16/13 13:30 | 75-69-4 | |
| 1,2,3-Trichloropropane | **<0.33** | ug/L | 4.0 | 0.33 | 1 | | 01/16/13 13:30 | 96-18-4 | |
| 1,1,2-Trichlorotrifluoroethane | **<0.18** | ug/L | 1.0 | 0.18 | 1 | | 01/16/13 13:30 | 76-13-1 | |
| 1,2,4-Trimethylbenzene | **0.12J** | ug/L | 1.0 | 0.071 | 1 | | 01/16/13 13:30 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | **<0.087** | ug/L | 1.0 | 0.087 | 1 | | 01/16/13 13:30 | 108-67-8 | |
| Vinyl chloride | **<0.16** | ug/L | 0.40 | 0.16 | 1 | | 01/16/13 13:30 | 75-01-4 | |
| Xylene (Total) | **<0.22** | ug/L | 3.0 | 0.22 | 1 | | 01/16/13 13:30 | 1330-20-7 | |
| m&p-Xylene | **<0.11** | ug/L | 2.0 | 0.11 | 1 | | 01/16/13 13:30 | 179601-23-1 | |
| o-Xylene | **<0.10** | ug/L | 1.0 | 0.10 | 1 | | 01/16/13 13:30 | 95-47-6 | |
| ***Surrogates*** | | | | | | | | | |
| Dibromofluoromethane (S) | 101 | % | 75-125 | | 1 | | 01/16/13 13:30 | 1868-53-7 | |
| 1,2-Dichloroethane-d4 (S) | 100 | % | 75-125 | | 1 | | 01/16/13 13:30 | 17060-07-0 | |
| Toluene-d8 (S) | 101 | % | 75-125 | | 1 | | 01/16/13 13:30 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 99 | % | 75-125 | | 1 | | 01/16/13 13:30 | 460-00-4 | |

**Sample: MW-5** **Lab ID: 10217665003** Collected: 01/14/13 13:00 Received: 01/15/13 09:55 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8011 GCS EDB and DBCP** | Analytical Method: EPA 8011 Preparation Method: EPA 8011 | | | | | | | | |
| 1,2-Dibromoethane (EDB) | **<0.0028** | ug/L | 0.010 | 0.0028 | 1 | 01/17/13 16:17 | 01/22/13 21:15 | 106-93-4 | |
| ***Surrogates*** | | | | | | | | | |
| 4-Bromofluorobenzene (S) | 97 | % | 70-130 | | 1 | 01/17/13 16:17 | 01/22/13 21:15 | 460-00-4 | |
| **NWTPH-Gx/8021BGx GCV** | Analytical Method: NWTPH-Gx/8021 | | | | | | | | |
| TPH as Gas | **<43.0** | ug/L | 100 | 43.0 | 1 | | 01/17/13 18:44 | | |
| ***Surrogates*** | | | | | | | | | |
| a,a,a-Trifluorotoluene (S) | 103 | % | 75-125 | | 1 | | 01/17/13 18:44 | 98-08-8 | |



**REPORT OF LABORATORY ANALYSIS**

Pace Analytical Services, Inc.
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## ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00
Pace Project No.: 10217665

**Sample: MW-5** **Lab ID: 10217665003** Collected: 01/14/13 13:00 Received: 01/15/13 09:55 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8260 VOC** | Analytical Method: EPA 8260 | | | | | | | | |
| Acetone | **<12.5** | ug/L | 25.0 | 12.5 | 1 | | 01/16/13 12:03 | 67-64-1 | |
| Allyl chloride | **<1.8** | ug/L | 4.0 | 1.8 | 1 | | 01/16/13 12:03 | 107-05-1 | |
| Benzene | **<0.062** | ug/L | 1.0 | 0.062 | 1 | | 01/16/13 12:03 | 71-43-2 | |
| Bromobenzene | **<0.086** | ug/L | 1.0 | 0.086 | 1 | | 01/16/13 12:03 | 108-86-1 | |
| Bromochloromethane | **<0.32** | ug/L | 1.0 | 0.32 | 1 | | 01/16/13 12:03 | 74-97-5 | |
| Bromodichloromethane | **<0.11** | ug/L | 1.0 | 0.11 | 1 | | 01/16/13 12:03 | 75-27-4 | |
| Bromoform | **<0.068** | ug/L | 4.0 | 0.068 | 1 | | 01/16/13 12:03 | 75-25-2 | |
| Bromomethane | **<0.36** | ug/L | 4.0 | 0.36 | 1 | | 01/16/13 12:03 | 74-83-9 | |
| 2-Butanone (MEK) | **<2.0** | ug/L | 4.0 | 2.0 | 1 | | 01/16/13 12:03 | 78-93-3 | |
| n-Butylbenzene | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 01/16/13 12:03 | 104-51-8 | |
| sec-Butylbenzene | **<0.10** | ug/L | 1.0 | 0.10 | 1 | | 01/16/13 12:03 | 135-98-8 | |
| tert-Butylbenzene | **<0.10** | ug/L | 1.0 | 0.10 | 1 | | 01/16/13 12:03 | 98-06-6 | |
| Carbon disulfide | **<0.50** | ug/L | 1.0 | 0.50 | 1 | | 01/16/13 12:03 | 75-15-0 | |
| Carbon tetrachloride | **<0.16** | ug/L | 1.0 | 0.16 | 1 | | 01/16/13 12:03 | 56-23-5 | |
| Chlorobenzene | **<0.10** | ug/L | 1.0 | 0.10 | 1 | | 01/16/13 12:03 | 108-90-7 | |
| Chloroethane | **<0.22** | ug/L | 1.0 | 0.22 | 1 | | 01/16/13 12:03 | 75-00-3 | |
| Chloroform | **<0.14** | ug/L | 1.0 | 0.14 | 1 | | 01/16/13 12:03 | 67-66-3 | |
| Chloromethane | **<0.41** | ug/L | 4.0 | 0.41 | 1 | | 01/16/13 12:03 | 74-87-3 | |
| 2-Chlorotoluene | **<0.50** | ug/L | 1.0 | 0.50 | 1 | | 01/16/13 12:03 | 95-49-8 | |
| 4-Chlorotoluene | **<0.068** | ug/L | 1.0 | 0.068 | 1 | | 01/16/13 12:03 | 106-43-4 | |
| 1,2-Dibromo-3-chloropropane | **<0.62** | ug/L | 4.0 | 0.62 | 1 | | 01/16/13 12:03 | 96-12-8 | |
| Dibromochloromethane | **<0.10** | ug/L | 1.0 | 0.10 | 1 | | 01/16/13 12:03 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | **<0.091** | ug/L | 1.0 | 0.091 | 1 | | 01/16/13 12:03 | 106-93-4 | |
| Dibromomethane | **<0.21** | ug/L | 4.0 | 0.21 | 1 | | 01/16/13 12:03 | 74-95-3 | |
| 1,2-Dichlorobenzene | **<0.36** | ug/L | 1.0 | 0.36 | 1 | | 01/16/13 12:03 | 95-50-1 | |
| 1,3-Dichlorobenzene | **<0.11** | ug/L | 1.0 | 0.11 | 1 | | 01/16/13 12:03 | 541-73-1 | |
| 1,4-Dichlorobenzene | **<0.064** | ug/L | 1.0 | 0.064 | 1 | | 01/16/13 12:03 | 106-46-7 | |
| Dichlorodifluoromethane | **<0.20** | ug/L | 1.0 | 0.20 | 1 | | 01/16/13 12:03 | 75-71-8 | |
| 1,1-Dichloroethane | **<0.11** | ug/L | 1.0 | 0.11 | 1 | | 01/16/13 12:03 | 75-34-3 | |
| 1,2-Dichloroethane | **<0.37** | ug/L | 1.0 | 0.37 | 1 | | 01/16/13 12:03 | 107-06-2 | |
| 1,1-Dichloroethene | **<0.19** | ug/L | 1.0 | 0.19 | 1 | | 01/16/13 12:03 | 75-35-4 | |
| cis-1,2-Dichloroethene | **<0.085** | ug/L | 1.0 | 0.085 | 1 | | 01/16/13 12:03 | 156-59-2 | |
| trans-1,2-Dichloroethene | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 01/16/13 12:03 | 156-60-5 | |
| Dichlorofluoromethane | **<0.11** | ug/L | 1.0 | 0.11 | 1 | | 01/16/13 12:03 | 75-43-4 | |
| 1,2-Dichloropropane | **<0.27** | ug/L | 4.0 | 0.27 | 1 | | 01/16/13 12:03 | 78-87-5 | |
| 1,3-Dichloropropane | **<0.081** | ug/L | 1.0 | 0.081 | 1 | | 01/16/13 12:03 | 142-28-9 | |
| 2,2-Dichloropropane | **<0.15** | ug/L | 4.0 | 0.15 | 1 | | 01/16/13 12:03 | 594-20-7 | |
| 1,1-Dichloropropene | **<0.35** | ug/L | 1.0 | 0.35 | 1 | | 01/16/13 12:03 | 563-58-6 | |
| cis-1,3-Dichloropropene | **<0.090** | ug/L | 4.0 | 0.090 | 1 | | 01/16/13 12:03 | 10061-01-5 | |
| trans-1,3-Dichloropropene | **<0.37** | ug/L | 4.0 | 0.37 | 1 | | 01/16/13 12:03 | 10061-02-6 | |
| Diethyl ether (Ethyl ether) | **<2.0** | ug/L | 4.0 | 2.0 | 1 | | 01/16/13 12:03 | 60-29-7 | |
| Ethylbenzene | **<0.081** | ug/L | 1.0 | 0.081 | 1 | | 01/16/13 12:03 | 100-41-4 | |
| Hexachloro-1,3-butadiene | **<0.19** | ug/L | 5.0 | 0.19 | 1 | | 01/16/13 12:03 | 87-68-3 | |
| 2-Hexanone | **<2.0** | ug/L | 4.0 | 2.0 | 1 | | 01/16/13 12:03 | 591-78-6 | |
| Isopropylbenzene (Cumene) | **<0.076** | ug/L | 1.0 | 0.076 | 1 | | 01/16/13 12:03 | 98-82-8 | |
| p-Isopropyltoluene | **<0.086** | ug/L | 1.0 | 0.086 | 1 | | 01/16/13 12:03 | 99-87-6 | |

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## ANALYTICAL RESULTS

Project: Tarr Vancouver 1821-00
Pace Project No.: 10217665

**Sample: MW-5** **Lab ID: 10217665003** Collected: 01/14/13 13:00 Received: 01/15/13 09:55 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8260 VOC** | Analytical Method: EPA 8260 | | | | | | | | |
| Methylene Chloride | **<2.0** | ug/L | 4.0 | 2.0 | 1 | | 01/16/13 12:03 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | **<2.0** | ug/L | 4.0 | 2.0 | 1 | | 01/16/13 12:03 | 108-10-1 | |
| Methyl-tert-butyl ether | **4.2** | ug/L | 1.0 | 0.088 | 1 | | 01/16/13 12:03 | 1634-04-4 | |
| Naphthalene | **0.13J** | ug/L | 4.0 | 0.068 | 1 | | 01/16/13 12:03 | 91-20-3 | B |
| n-Propylbenzene | **<0.078** | ug/L | 1.0 | 0.078 | 1 | | 01/16/13 12:03 | 103-65-1 | |
| Styrene | **<0.060** | ug/L | 1.0 | 0.060 | 1 | | 01/16/13 12:03 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | **<0.36** | ug/L | 1.0 | 0.36 | 1 | | 01/16/13 12:03 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | **<0.097** | ug/L | 1.0 | 0.097 | 1 | | 01/16/13 12:03 | 79-34-5 | |
| Tetrachloroethene | **<0.13** | ug/L | 1.0 | 0.13 | 1 | | 01/16/13 12:03 | 127-18-4 | |
| Tetrahydrofuran | **<0.97** | ug/L | 10.0 | 0.97 | 1 | | 01/16/13 12:03 | 109-99-9 | |
| Toluene | **<0.077** | ug/L | 1.0 | 0.077 | 1 | | 01/16/13 12:03 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | **<0.13** | ug/L | 1.0 | 0.13 | 1 | | 01/16/13 12:03 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | **<0.25** | ug/L | 1.0 | 0.25 | 1 | | 01/16/13 12:03 | 120-82-1 | |
| 1,1,1-Trichloroethane | **<0.19** | ug/L | 1.0 | 0.19 | 1 | | 01/16/13 12:03 | 71-55-6 | |
| 1,1,2-Trichloroethane | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 01/16/13 12:03 | 79-00-5 | |
| Trichloroethene | **<0.083** | ug/L | 1.0 | 0.083 | 1 | | 01/16/13 12:03 | 79-01-6 | |
| Trichlorofluoromethane | **<0.13** | ug/L | 1.0 | 0.13 | 1 | | 01/16/13 12:03 | 75-69-4 | |
| 1,2,3-Trichloropropane | **<0.33** | ug/L | 4.0 | 0.33 | 1 | | 01/16/13 12:03 | 96-18-4 | |
| 1,1,2-Trichlorotrifluoroethane | **<0.18** | ug/L | 1.0 | 0.18 | 1 | | 01/16/13 12:03 | 76-13-1 | |
| 1,2,4-Trimethylbenzene | **<0.071** | ug/L | 1.0 | 0.071 | 1 | | 01/16/13 12:03 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | **<0.087** | ug/L | 1.0 | 0.087 | 1 | | 01/16/13 12:03 | 108-67-8 | |
| Vinyl chloride | **<0.16** | ug/L | 0.40 | 0.16 | 1 | | 01/16/13 12:03 | 75-01-4 | |
| Xylene (Total) | **<0.22** | ug/L | 3.0 | 0.22 | 1 | | 01/16/13 12:03 | 1330-20-7 | |
| m&p-Xylene | **<0.11** | ug/L | 2.0 | 0.11 | 1 | | 01/16/13 12:03 | 179601-23-1 | |
| o-Xylene | **<0.10** | ug/L | 1.0 | 0.10 | 1 | | 01/16/13 12:03 | 95-47-6 | |
| ***Surrogates*** | | | | | | | | | |
| Dibromofluoromethane (S) | 100 | % | 75-125 | | 1 | | 01/16/13 12:03 | 1868-53-7 | |
| 1,2-Dichloroethane-d4 (S) | 98 | % | 75-125 | | 1 | | 01/16/13 12:03 | 17060-07-0 | |
| Toluene-d8 (S) | 101 | % | 75-125 | | 1 | | 01/16/13 12:03 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 100 | % | 75-125 | | 1 | | 01/16/13 12:03 | 460-00-4 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00
Pace Project No.: 10217665

QC Batch: GCV/10298 Analysis Method: NWTPH-Gx/8021
QC Batch Method: NWTPH-Gx/8021 Analysis Description: NWTPH-Gx/8021B Water
Associated Lab Samples: 10217665001, 10217665002, 10217665003

METHOD BLANK: 1365699 Matrix: Water
Associated Lab Samples: 10217665001, 10217665002, 10217665003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| TPH as Gas | ug/L | <43.0 | 100 | 01/17/13 14:12 | |
| a,a,a-Trifluorotoluene (S) | % | 91 | 75-125 | 01/17/13 14:12 | |

LABORATORY CONTROL SAMPLE & LCSD: 1365700 1365701

| Parameter | Units | Spike Conc. | LCS Result | LCSD Result | LCS % Rec | LCSD % Rec | % Rec Limits | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|---|---|---|---|
| TPH as Gas | ug/L | 1000 | 903 | 839 | 90 | 84 | 75-126 | 7 | 20 | |
| a,a,a-Trifluorotoluene (S) | % | | | | 104 | 95 | 75-125 | | | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1365702 1365703

| Parameter | Units | 10217523005 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TPH as Gas | ug/L | 729 | 1000 | 1000 | 1680 | 1650 | 95 | 92 | 75-137 | 2 | 30 | |
| a,a,a-Trifluorotoluene (S) | % | | | | | | 99 | 106 | 75-125 | | | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00
Pace Project No.: 10217665

QC Batch: MSV/22671 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 465 W
Associated Lab Samples: 10217665001, 10217665002, 10217665003

METHOD BLANK: 1365064 Matrix: Water
Associated Lab Samples: 10217665001, 10217665002, 10217665003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ug/L | <0.36 | 1.0 | 01/16/13 11:19 | |
| 1,1,1-Trichloroethane | ug/L | <0.19 | 1.0 | 01/16/13 11:19 | |
| 1,1,2,2-Tetrachloroethane | ug/L | <0.097 | 1.0 | 01/16/13 11:19 | |
| 1,1,2-Trichloroethane | ug/L | <0.15 | 1.0 | 01/16/13 11:19 | |
| 1,1,2-Trichlorotrifluoroethane | ug/L | <0.18 | 1.0 | 01/16/13 11:19 | |
| 1,1-Dichloroethane | ug/L | <0.11 | 1.0 | 01/16/13 11:19 | |
| 1,1-Dichloroethene | ug/L | <0.19 | 1.0 | 01/16/13 11:19 | |
| 1,1-Dichloropropene | ug/L | <0.35 | 1.0 | 01/16/13 11:19 | |
| 1,2,3-Trichlorobenzene | ug/L | 0.43J | 1.0 | 01/16/13 11:19 | |
| 1,2,3-Trichloropropane | ug/L | <0.33 | 4.0 | 01/16/13 11:19 | |
| 1,2,4-Trichlorobenzene | ug/L | 0.34J | 1.0 | 01/16/13 11:19 | |
| 1,2,4-Trimethylbenzene | ug/L | <0.071 | 1.0 | 01/16/13 11:19 | |
| 1,2-Dibromo-3-chloropropane | ug/L | <0.62 | 4.0 | 01/16/13 11:19 | |
| 1,2-Dibromoethane (EDB) | ug/L | <0.091 | 1.0 | 01/16/13 11:19 | |
| 1,2-Dichlorobenzene | ug/L | <0.36 | 1.0 | 01/16/13 11:19 | |
| 1,2-Dichloroethane | ug/L | <0.37 | 1.0 | 01/16/13 11:19 | |
| 1,2-Dichloropropane | ug/L | <0.27 | 4.0 | 01/16/13 11:19 | |
| 1,3,5-Trimethylbenzene | ug/L | <0.087 | 1.0 | 01/16/13 11:19 | |
| 1,3-Dichlorobenzene | ug/L | <0.11 | 1.0 | 01/16/13 11:19 | |
| 1,3-Dichloropropane | ug/L | <0.081 | 1.0 | 01/16/13 11:19 | |
| 1,4-Dichlorobenzene | ug/L | <0.064 | 1.0 | 01/16/13 11:19 | |
| 2,2-Dichloropropane | ug/L | <0.15 | 4.0 | 01/16/13 11:19 | |
| 2-Butanone (MEK) | ug/L | <2.0 | 4.0 | 01/16/13 11:19 | |
| 2-Chlorotoluene | ug/L | <0.50 | 1.0 | 01/16/13 11:19 | |
| 2-Hexanone | ug/L | <2.0 | 4.0 | 01/16/13 11:19 | |
| 4-Chlorotoluene | ug/L | <0.068 | 1.0 | 01/16/13 11:19 | |
| 4-Methyl-2-pentanone (MIBK) | ug/L | <2.0 | 4.0 | 01/16/13 11:19 | |
| Acetone | ug/L | <12.5 | 25.0 | 01/16/13 11:19 | |
| Allyl chloride | ug/L | <1.8 | 4.0 | 01/16/13 11:19 | |
| Benzene | ug/L | <0.062 | 1.0 | 01/16/13 11:19 | |
| Bromobenzene | ug/L | <0.086 | 1.0 | 01/16/13 11:19 | |
| Bromochloromethane | ug/L | <0.32 | 1.0 | 01/16/13 11:19 | |
| Bromodichloromethane | ug/L | <0.11 | 1.0 | 01/16/13 11:19 | |
| Bromoform | ug/L | <0.068 | 4.0 | 01/16/13 11:19 | |
| Bromomethane | ug/L | <0.36 | 4.0 | 01/16/13 11:19 | |
| Carbon disulfide | ug/L | <0.50 | 1.0 | 01/16/13 11:19 | |
| Carbon tetrachloride | ug/L | <0.16 | 1.0 | 01/16/13 11:19 | |
| Chlorobenzene | ug/L | <0.10 | 1.0 | 01/16/13 11:19 | |
| Chloroethane | ug/L | <0.22 | 1.0 | 01/16/13 11:19 | |
| Chloroform | ug/L | <0.14 | 1.0 | 01/16/13 11:19 | |
| Chloromethane | ug/L | <0.41 | 4.0 | 01/16/13 11:19 | |
| cis-1,2-Dichloroethene | ug/L | <0.085 | 1.0 | 01/16/13 11:19 | |
| cis-1,3-Dichloropropene | ug/L | <0.090 | 4.0 | 01/16/13 11:19 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00
Pace Project No.: 10217665

METHOD BLANK: 1365064 Matrix: Water

Associated Lab Samples: 10217665001, 10217665002, 10217665003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Dibromochloromethane | ug/L | <0.10 | 1.0 | 01/16/13 11:19 | |
| Dibromomethane | ug/L | <0.21 | 4.0 | 01/16/13 11:19 | |
| Dichlorodifluoromethane | ug/L | <0.20 | 1.0 | 01/16/13 11:19 | |
| Dichlorofluoromethane | ug/L | <0.11 | 1.0 | 01/16/13 11:19 | |
| Diethyl ether (Ethyl ether) | ug/L | <2.0 | 4.0 | 01/16/13 11:19 | |
| Ethylbenzene | ug/L | <0.081 | 1.0 | 01/16/13 11:19 | |
| Hexachloro-1,3-butadiene | ug/L | <0.19 | 5.0 | 01/16/13 11:19 | |
| Isopropylbenzene (Cumene) | ug/L | <0.076 | 1.0 | 01/16/13 11:19 | |
| m&p-Xylene | ug/L | <0.11 | 2.0 | 01/16/13 11:19 | |
| Methyl-tert-butyl ether | ug/L | <0.088 | 1.0 | 01/16/13 11:19 | |
| Methylene Chloride | ug/L | <2.0 | 4.0 | 01/16/13 11:19 | |
| n-Butylbenzene | ug/L | <0.15 | 1.0 | 01/16/13 11:19 | |
| n-Propylbenzene | ug/L | <0.078 | 1.0 | 01/16/13 11:19 | |
| Naphthalene | ug/L | 0.59J | 4.0 | 01/16/13 11:19 | |
| o-Xylene | ug/L | <0.10 | 1.0 | 01/16/13 11:19 | |
| p-Isopropyltoluene | ug/L | <0.086 | 1.0 | 01/16/13 11:19 | |
| sec-Butylbenzene | ug/L | <0.10 | 1.0 | 01/16/13 11:19 | |
| Styrene | ug/L | <0.060 | 1.0 | 01/16/13 11:19 | |
| tert-Butylbenzene | ug/L | <0.10 | 1.0 | 01/16/13 11:19 | |
| Tetrachloroethene | ug/L | <0.13 | 1.0 | 01/16/13 11:19 | |
| Tetrahydrofuran | ug/L | <0.97 | 10.0 | 01/16/13 11:19 | |
| Toluene | ug/L | <0.077 | 1.0 | 01/16/13 11:19 | |
| trans-1,2-Dichloroethene | ug/L | <0.15 | 1.0 | 01/16/13 11:19 | |
| trans-1,3-Dichloropropene | ug/L | <0.37 | 4.0 | 01/16/13 11:19 | |
| Trichloroethene | ug/L | <0.083 | 1.0 | 01/16/13 11:19 | |
| Trichlorofluoromethane | ug/L | <0.13 | 1.0 | 01/16/13 11:19 | |
| Vinyl chloride | ug/L | <0.16 | 0.40 | 01/16/13 11:19 | |
| Xylene (Total) | ug/L | <0.22 | 3.0 | 01/16/13 11:19 | |
| 1,2-Dichloroethane-d4 (S) | % | 98 | 75-125 | 01/16/13 11:19 | |
| 4-Bromofluorobenzene (S) | % | 100 | 75-125 | 01/16/13 11:19 | |
| Dibromofluoromethane (S) | % | 100 | 75-125 | 01/16/13 11:19 | |
| Toluene-d8 (S) | % | 97 | 75-125 | 01/16/13 11:19 | |

LABORATORY CONTROL SAMPLE: 1365065

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ug/L | 50 | 44.5 | 89 | 75-125 | |
| 1,1,1-Trichloroethane | ug/L | 50 | 44.2 | 88 | 75-126 | |
| 1,1,2,2-Tetrachloroethane | ug/L | 50 | 41.3 | 83 | 75-125 | |
| 1,1,2-Trichloroethane | ug/L | 50 | 43.6 | 87 | 75-125 | |
| 1,1,2-Trichlorotrifluoroethane | ug/L | 50 | 43.9 | 88 | 51-139 | |
| 1,1-Dichloroethane | ug/L | 50 | 45.1 | 90 | 75-125 | |
| 1,1-Dichloroethene | ug/L | 50 | 43.9 | 88 | 71-126 | |
| 1,1-Dichloropropene | ug/L | 50 | 44.1 | 88 | 74-125 | |
| 1,2,3-Trichlorobenzene | ug/L | 50 | 42.7 | 85 | 75-125 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00
Pace Project No.: 10217665

LABORATORY CONTROL SAMPLE: 1365065

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,2,3-Trichloropropane | ug/L | 50 | 41.6 | 83 | 75-125 | |
| 1,2,4-Trichlorobenzene | ug/L | 50 | 42.9 | 86 | 75-125 | |
| 1,2,4-Trimethylbenzene | ug/L | 50 | 42.9 | 86 | 75-125 | |
| 1,2-Dibromo-3-chloropropane | ug/L | 50 | 42.1 | 84 | 73-125 | |
| 1,2-Dibromoethane (EDB) | ug/L | 50 | 44.3 | 89 | 75-125 | |
| 1,2-Dichlorobenzene | ug/L | 50 | 41.9 | 84 | 75-125 | |
| 1,2-Dichloroethane | ug/L | 50 | 44.5 | 89 | 74-125 | |
| 1,2-Dichloropropane | ug/L | 50 | 44.2 | 88 | 75-125 | |
| 1,3,5-Trimethylbenzene | ug/L | 50 | 41.4 | 83 | 75-125 | |
| 1,3-Dichlorobenzene | ug/L | 50 | 41.1 | 82 | 75-125 | |
| 1,3-Dichloropropane | ug/L | 50 | 44.0 | 88 | 75-125 | |
| 1,4-Dichlorobenzene | ug/L | 50 | 43.1 | 86 | 75-125 | |
| 2,2-Dichloropropane | ug/L | 50 | 43.7 | 87 | 67-132 | |
| 2-Butanone (MEK) | ug/L | 50 | 42.1 | 84 | 68-126 | |
| 2-Chlorotoluene | ug/L | 50 | 39.8 | 80 | 74-125 | |
| 2-Hexanone | ug/L | 50 | 38.5 | 77 | 70-125 | |
| 4-Chlorotoluene | ug/L | 50 | 41.3 | 83 | 74-125 | |
| 4-Methyl-2-pentanone (MIBK) | ug/L | 50 | 42.5 | 85 | 72-125 | |
| Acetone | ug/L | 125 | 112 | 90 | 69-132 | |
| Allyl chloride | ug/L | 50 | 46.5 | 93 | 74-125 | |
| Benzene | ug/L | 50 | 44.1 | 88 | 75-125 | |
| Bromobenzene | ug/L | 50 | 41.8 | 84 | 75-125 | |
| Bromochloromethane | ug/L | 50 | 46.5 | 93 | 75-125 | |
| Bromodichloromethane | ug/L | 50 | 44.0 | 88 | 75-125 | |
| Bromoform | ug/L | 50 | 44.5 | 89 | 75-126 | |
| Bromomethane | ug/L | 50 | 52.6 | 105 | 30-150 | |
| Carbon disulfide | ug/L | 50 | 46.1 | 92 | 66-126 | |
| Carbon tetrachloride | ug/L | 50 | 44.5 | 89 | 74-127 | |
| Chlorobenzene | ug/L | 50 | 42.3 | 85 | 75-125 | |
| Chloroethane | ug/L | 50 | 43.9 | 88 | 68-132 | |
| Chloroform | ug/L | 50 | 44.5 | 89 | 75-125 | |
| Chloromethane | ug/L | 50 | 44.0 | 88 | 61-129 | |
| cis-1,2-Dichloroethene | ug/L | 50 | 45.1 | 90 | 75-125 | |
| cis-1,3-Dichloropropene | ug/L | 50 | 45.2 | 90 | 75-125 | |
| Dibromochloromethane | ug/L | 50 | 44.9 | 90 | 75-125 | |
| Dibromomethane | ug/L | 50 | 43.6 | 87 | 75-125 | |
| Dichlorodifluoromethane | ug/L | 50 | 39.6 | 79 | 49-137 | |
| Dichlorofluoromethane | ug/L | 50 | 43.3 | 87 | 66-133 | |
| Diethyl ether (Ethyl ether) | ug/L | 50 | 45.0 | 90 | 75-125 | |
| Ethylbenzene | ug/L | 50 | 40.6 | 81 | 75-125 | |
| Hexachloro-1,3-butadiene | ug/L | 25 | 24.1 | 96 | 69-127 | |
| Isopropylbenzene (Cumene) | ug/L | 50 | 43.8 | 88 | 75-125 | |
| m&p-Xylene | ug/L | 100 | 84.2 | 84 | 75-125 | |
| Methyl-tert-butyl ether | ug/L | 50 | 44.6 | 89 | 74-126 | |
| Methylene Chloride | ug/L | 50 | 43.6 | 87 | 75-125 | |
| n-Butylbenzene | ug/L | 50 | 43.4 | 87 | 72-126 | |
| n-Propylbenzene | ug/L | 50 | 42.6 | 85 | 73-125 | |
| Naphthalene | ug/L | 50 | 40.7 | 81 | 75-125 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00
Pace Project No.: 10217665

LABORATORY CONTROL SAMPLE: 1365065

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| o-Xylene | ug/L | 50 | 43.8 | 88 | 75-125 | |
| p-Isopropyltoluene | ug/L | 50 | 43.7 | 87 | 74-125 | |
| sec-Butylbenzene | ug/L | 50 | 42.4 | 85 | 73-125 | |
| Styrene | ug/L | 50 | 43.1 | 86 | 75-125 | |
| tert-Butylbenzene | ug/L | 50 | 43.3 | 87 | 73-125 | |
| Tetrachloroethene | ug/L | 50 | 43.1 | 86 | 75-125 | |
| Tetrahydrofuran | ug/L | 500 | 429 | 86 | 71-125 | |
| Toluene | ug/L | 50 | 41.5 | 83 | 75-125 | |
| trans-1,2-Dichloroethene | ug/L | 50 | 44.9 | 90 | 74-125 | |
| trans-1,3-Dichloropropene | ug/L | 50 | 44.7 | 89 | 75-125 | |
| Trichloroethene | ug/L | 50 | 43.9 | 88 | 75-125 | |
| Trichlorofluoromethane | ug/L | 50 | 44.4 | 89 | 69-129 | |
| Vinyl chloride | ug/L | 50 | 44.4 | 89 | 70-128 | |
| Xylene (Total) | ug/L | 150 | 128 | 85 | 75-125 | |
| 1,2-Dichloroethane-d4 (S) | % | | | 98 | 75-125 | |
| 4-Bromofluorobenzene (S) | % | | | 97 | 75-125 | |
| Dibromofluoromethane (S) | % | | | 100 | 75-125 | |
| Toluene-d8 (S) | % | | | 99 | 75-125 | |

MATRIX SPIKE SAMPLE: 1365066

| Parameter | Units | 10217665003 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ug/L | <0.36 | 50 | 47.8 | 96 | 75-125 | |
| 1,1,1-Trichloroethane | ug/L | <0.19 | 50 | 49.2 | 98 | 75-136 | |
| 1,1,2,2-Tetrachloroethane | ug/L | <0.097 | 50 | 43.7 | 87 | 66-131 | |
| 1,1,2-Trichloroethane | ug/L | <0.15 | 50 | 46.0 | 92 | 75-125 | |
| 1,1,2-Trichlorotrifluoroethane | ug/L | <0.18 | 50 | 62.2 | 124 | 75-150 | |
| 1,1-Dichloroethane | ug/L | <0.11 | 50 | 49.5 | 99 | 75-131 | |
| 1,1-Dichloroethene | ug/L | <0.19 | 50 | 50.6 | 101 | 75-138 | |
| 1,1-Dichloropropene | ug/L | <0.35 | 50 | 50.7 | 101 | 75-136 | |
| 1,2,3-Trichlorobenzene | ug/L | <0.13 | 50 | 41.8 | 84 | 75-125 | |
| 1,2,3-Trichloropropane | ug/L | <0.33 | 50 | 43.8 | 88 | 71-126 | |
| 1,2,4-Trichlorobenzene | ug/L | <0.25 | 50 | 43.8 | 88 | 75-125 | |
| 1,2,4-Trimethylbenzene | ug/L | <0.071 | 50 | 47.3 | 95 | 70-126 | |
| 1,2-Dibromo-3-chloropropane | ug/L | <0.62 | 50 | 41.4 | 83 | 69-127 | |
| 1,2-Dibromoethane (EDB) | ug/L | <0.091 | 50 | 45.6 | 91 | 75-125 | |
| 1,2-Dichlorobenzene | ug/L | <0.36 | 50 | 45.5 | 91 | 75-125 | |
| 1,2-Dichloroethane | ug/L | <0.37 | 50 | 47.8 | 96 | 74-128 | |
| 1,2-Dichloropropane | ug/L | <0.27 | 50 | 47.5 | 95 | 75-125 | |
| 1,3,5-Trimethylbenzene | ug/L | <0.087 | 50 | 45.7 | 91 | 72-126 | |
| 1,3-Dichlorobenzene | ug/L | <0.11 | 50 | 45.0 | 90 | 75-125 | |
| 1,3-Dichloropropane | ug/L | <0.081 | 50 | 46.0 | 92 | 75-125 | |
| 1,4-Dichlorobenzene | ug/L | <0.064 | 50 | 46.6 | 93 | 75-125 | |
| 2,2-Dichloropropane | ug/L | <0.15 | 50 | 49.6 | 99 | 71-143 | |
| 2-Butanone (MEK) | ug/L | <2.0 | 50 | 41.8 | 84 | 64-125 | |
| 2-Chlorotoluene | ug/L | <0.50 | 50 | 44.6 | 89 | 74-125 | |
| 2-Hexanone | ug/L | <2.0 | 50 | 36.9 | 74 | 67-125 | |

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

## QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00
Pace Project No.: 10217665

MATRIX SPIKE SAMPLE: 1365066

| Parameter | Units | 10217665003 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| 4-Chlorotoluene | ug/L | <0.068 | 50 | 46.7 | 93 | 75-125 | |
| 4-Methyl-2-pentanone (MIBK) | ug/L | <2.0 | 50 | 42.5 | 85 | 69-125 | |
| Acetone | ug/L | <12.5 | 125 | 120 | 96 | 57-135 | |
| Allyl chloride | ug/L | <1.8 | 50 | 51.8 | 104 | 73-134 | |
| Benzene | ug/L | <0.062 | 50 | 48.2 | 96 | 70-135 | |
| Bromobenzene | ug/L | <0.086 | 50 | 46.0 | 92 | 75-125 | |
| Bromochloromethane | ug/L | <0.32 | 50 | 49.3 | 99 | 75-125 | |
| Bromodichloromethane | ug/L | <0.11 | 50 | 47.3 | 95 | 75-125 | |
| Bromoform | ug/L | <0.068 | 50 | 46.2 | 92 | 68-133 | |
| Bromomethane | ug/L | <0.36 | 50 | 56.5 | 113 | 56-150 | |
| Carbon disulfide | ug/L | <0.50 | 50 | 51.8 | 103 | 66-135 | |
| Carbon tetrachloride | ug/L | <0.16 | 50 | 51.5 | 103 | 75-137 | |
| Chlorobenzene | ug/L | <0.10 | 50 | 45.8 | 92 | 75-125 | |
| Chloroethane | ug/L | <0.22 | 50 | 49.0 | 98 | 64-150 | |
| Chloroform | ug/L | <0.14 | 50 | 47.6 | 95 | 75-127 | |
| Chloromethane | ug/L | <0.41 | 50 | 48.3 | 97 | 65-140 | |
| cis-1,2-Dichloroethene | ug/L | <0.085 | 50 | 48.5 | 97 | 75-129 | |
| cis-1,3-Dichloropropene | ug/L | <0.090 | 50 | 48.7 | 97 | 75-125 | |
| Dibromochloromethane | ug/L | <0.10 | 50 | 47.0 | 94 | 75-125 | |
| Dibromomethane | ug/L | <0.21 | 50 | 47.0 | 94 | 75-125 | |
| Dichlorodifluoromethane | ug/L | <0.20 | 50 | 56.9 | 114 | 70-150 | |
| Dichlorofluoromethane | ug/L | <0.11 | 50 | 48.7 | 97 | 69-142 | |
| Diethyl ether (Ethyl ether) | ug/L | <2.0 | 50 | 47.0 | 94 | 75-125 | |
| Ethylbenzene | ug/L | <0.081 | 50 | 45.2 | 90 | 75-125 | |
| Hexachloro-1,3-butadiene | ug/L | <0.19 | 25 | 23.3 | 93 | 75-135 | |
| Isopropylbenzene (Cumene) | ug/L | <0.076 | 50 | 48.5 | 97 | 75-125 | |
| m&p-Xylene | ug/L | <0.11 | 100 | 93.3 | 93 | 75-125 | |
| Methyl-tert-butyl ether | ug/L | 4.2 | 50 | 50.5 | 93 | 70-132 | |
| Methylene Chloride | ug/L | <2.0 | 50 | 46.8 | 94 | 73-125 | |
| n-Butylbenzene | ug/L | <0.15 | 50 | 47.5 | 95 | 75-130 | |
| n-Propylbenzene | ug/L | <0.078 | 50 | 48.2 | 96 | 75-128 | |
| Naphthalene | ug/L | 0.13J | 50 | 40.0 | 80 | 73-126 | |
| o-Xylene | ug/L | <0.10 | 50 | 47.5 | 95 | 75-125 | |
| p-Isopropyltoluene | ug/L | <0.086 | 50 | 47.8 | 96 | 75-125 | |
| sec-Butylbenzene | ug/L | <0.10 | 50 | 47.4 | 95 | 75-126 | |
| Styrene | ug/L | <0.060 | 50 | 47.0 | 94 | 52-137 | |
| tert-Butylbenzene | ug/L | <0.10 | 50 | 48.2 | 96 | 75-125 | |
| Tetrachloroethene | ug/L | <0.13 | 50 | 48.8 | 98 | 75-130 | |
| Tetrahydrofuran | ug/L | <0.97 | 500 | 425 | 85 | 69-125 | |
| Toluene | ug/L | <0.077 | 50 | 45.9 | 92 | 75-125 | |
| trans-1,2-Dichloroethene | ug/L | <0.15 | 50 | 49.9 | 100 | 75-135 | |
| trans-1,3-Dichloropropene | ug/L | <0.37 | 50 | 47.7 | 95 | 75-125 | |
| Trichloroethene | ug/L | <0.083 | 50 | 48.7 | 97 | 75-129 | |
| Trichlorofluoromethane | ug/L | <0.13 | 50 | 57.0 | 114 | 75-150 | |
| Vinyl chloride | ug/L | <0.16 | 50 | 51.9 | 104 | 75-147 | |
| Xylene (Total) | ug/L | <0.22 | 150 | 141 | 94 | 75-125 | |
| 1,2-Dichloroethane-d4 (S) | % | | | | 98 | 75-125 | |
| 4-Bromofluorobenzene (S) | % | | | | 99 | 75-125 | |



**REPORT OF LABORATORY ANALYSIS**

**Pace Analytical Services, Inc.**
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

## QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00
Pace Project No.: 10217665

MATRIX SPIKE SAMPLE: 1365066

| Parameter | Units | 10217665003 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Dibromofluoromethane (S) | % | | | | 99 | 75-125 | |
| Toluene-d8 (S) | % | | | | 99 | 75-125 | |

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## QUALITY CONTROL DATA

Project: Tarr Vancouver 1821-00
Pace Project No.: 10217665

QC Batch: OEXT/20734 Analysis Method: EPA 8011
QC Batch Method: EPA 8011 Analysis Description: GCS 8011 EDB DBCP
Associated Lab Samples: 10217665003

METHOD BLANK: 1366042 Matrix: Water
Associated Lab Samples: 10217665003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,2-Dibromoethane (EDB) | ug/L | <0.0028 | 0.010 | 01/22/13 20:49 | |
| 4-Bromofluorobenzene (S) | % | 121 | 70-130 | 01/22/13 20:49 | |

LABORATORY CONTROL SAMPLE & LCSD: 1366043 1366044

| Parameter | Units | Spike Conc. | LCS Result | LCSD Result | LCS % Rec | LCSD % Rec | % Rec Limits | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dibromoethane (EDB) | ug/L | .11 | 0.093 | 0.093 | 86 | 86 | 60-140 | 0 | 20 | |
| 4-Bromofluorobenzene (S) | % | | | | 110 | 111 | 70-130 | | | |



**REPORT OF LABORATORY ANALYSIS**

**Pace Analytical Services, Inc.**
1700 Elm Street - Suite 200
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(612)607-1700

# QUALIFIERS

Project: Tarr Vancouver 1821-00
Pace Project No.: 10217665

## 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.

PRL - Pace Reporting Limit.

RL - Reporting 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

U - Indicates the compound was analyzed for, but not detected.

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 TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## LABORATORIES

| | |
|---|---|
| PASI-M | Pace Analytical Services - Minneapolis |

## ANALYTE QUALIFIERS

| | |
|---|---|
| B | Analyte was detected in the associated method blank. |

**Pace Analytical Services, Inc.**
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Tarr Vancouver 1821-00
Pace Project No.: 10217665

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **10217665003** | **MW-5** | EPA 8011 | OEXT/20734 | EPA 8011 | GCSV/10765 |
| **10217665001** | **MW-1** | NWTPH-Gx/8021 | GCV/10298 | | |
| **10217665002** | **MW-4** | NWTPH-Gx/8021 | GCV/10298 | | |
| **10217665003** | **MW-5** | NWTPH-Gx/8021 | GCV/10298 | | |
| **10217665001** | **MW-1** | EPA 8260 | MSV/22671 | | |
| **10217665002** | **MW-4** | EPA 8260 | MSV/22671 | | |
| **10217665003** | **MW-5** | EPA 8260 | MSV/22671 | | |

Pace Analytical®
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1128

# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

10217665

Page: 1 of 1

1491830



| Section A Required Client Information: | Section B Required Project Information: | Section C Invoice Information: |
|---|---|---|
| Company: Ash Creek Associates | Report To: John Foxwell | Attention: |
| Address: 3015 SW first AVE | Copy To: — | Company Name: |
| Portland, OR 97201 | — | Address: |
| Email To: jfoxwell@ashcreekassociates.com | Purchase Order No.: | Pace Quote Reference: |
| Phone: (503)924-4704 Fax: | Project Name: Tarr Vancouver | Pace Project Manager: |
| Requested Due Date/TAT: Regular TAT | Project Number: 1821-00 | Pace Profile #: |

**REGULATORY AGENCY**

☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: WA

**Section D Required Client Information**

**SAMPLE ID** (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

**Matrix Codes** MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

| ITEM # | SAMPLE ID | MATRIX CODE (see valid codes to left) | SAMPLE TYPE (G=GRAB C=COMP) | COLLECTED: COMPOSITE START DATE | COMPOSITE START TIME | COMPOSITE END/GRAB DATE | COMPOSITE END/GRAB TIME | SAMPLE TEMP AT COLLECTION | # OF CONTAINERS | Preservatives: Unpreserved | $H_2SO_4$ | $HNO_3$ | HCl | NaOH | $Na_2S_2O_3$ | Methanol | Other | Analysis Test Y/N | VOCs (8260) | NWTPH-Gx | EDB by 8011 | Residual Chlorine (Y/N) | Pace Project No./ Lab I.D. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | Y/N | Y | Y | Y | | |
| 1 | MW-1 | WT | G | ~~01/14/13~~ | ~~1 MT~~ | 01/14/13 | 1200 | 30 | 6 | | | | X | | | | | | X | X | | N | 001 |
| 2 | MW-4 | WT | G | | | 01/14/13 | 1230 | 30 | 6 | | | | X | | | | | | X | X | | N | 002 |
| 3 | MW-5 | WT | G | | | 01/14/13 | 1300 | 30 | 9 | | | | X | | | | | | X | X | X | N | 003 |
| 4 | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | | | |

Requested Analysis Filtered (Y/N)

| ADDITIONAL COMMENTS | RELINQUISHED BY / AFFILIATION | DATE | TIME | ACCEPTED BY / AFFILIATION | DATE | TIME | SAMPLE CONDITIONS: Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Matt Thoenes Ash Creek Associates | 01/14/13 | 1430 | JN / Pace | 1/15/13 | 955 | 1.3 | Y | Y | Y |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

ORIGINAL

**SAMPLER NAME AND SIGNATURE**

PRINT Name of SAMPLER: Matt Thoenes

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 01/14/13

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

| Pace Analytical® | Document Name: **Sample Condition Upon Receipt Form** | Document Revised: 13Nov2012 Page 1 of 1 |
|---|---|---|
| | Document No.: **F-MN-L-213-rev.05** | Issuing Authority: Pace Minnesota Quality Office |

**Sample Condition Upon Receipt**

**Client Name:** Ash Creek Associates **Project #:** WO#: 10217665

**Courier:** ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other:

**Tracking Number:** 8768 4855 2210

**Custody Seal on Cooler/Box Present?** ☒ Yes ☐ No **Seals Intact?** ☒ Yes ☐ No **Optional:** Proj. Due Date: Proj. Name:

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

**Thermometer Used:** ☐ B88A912167504 ☒ 80512447 **Type of Ice:** ☒ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

**Cooler Temp Read (°C):** 1.2 **Cooler Temp Corrected (°C):** 1.3 **Biological Tissue Frozen?** ☐ Yes ☐ No

Temp should be above freezing to 6°C **Date and Initials of Person Examining Contents:** 1/15/13 TN

| | | | | **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 and/or Signature on COC? | ☒ Yes | ☐ No | ☐ N/A | 4. |
| Samples Arrived within Hold Time? | ☒ Yes | ☐ No | ☐ N/A | 5. |
| **Short Hold Time Analysis (<72 hr)?** | ☐ Yes | ☒ No | ☐ N/A | 6. |
| **Rush Turn Around Time Requested?** | ☐ Yes | ☒ No | ☐ N/A | 7. |
| Sufficient Volume? | ☒ Yes | ☐ No | ☐ N/A | 8. |
| Correct Containers Used? | ☒ Yes | ☐ No | ☐ N/A | 9. |
| -Pace Containers Used? | ☒ Yes | ☐ No | ☐ N/A | |
| Containers Intact? | ☒ Yes | ☐ No | ☐ N/A | 10. |
| Filtered Volume Received for Dissolved Tests? | ☐ Yes | ☐ No | ☒ N/A | 11. |
| Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: WT | ☒ Yes | ☐ No | ☐ N/A | 12. |
| All containers needing acid/base preservation have been checked? Noncompliances are noted in 13. | ☐ Yes | ☐ No | ☒ N/A | 13. ☐ $HNO_3$ ☐ $H_2SO_4$ ☐ NaOH ☐ HCl |
| All containers needing preservation are found to be in compliance with EPA recommendation? ($HNO_3$, $H_2SO_4$, HCl<2; NaOH>12) | ☐ Yes | ☐ No | ☒ N/A | Sample # |
| Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water) | ☒ Yes | ☐ No | | Initial when completed: TN Lot # of added preservative: |
| Headspace in VOA Vials ( >6mm)? | ☐ Yes | ☒ No | ☐ N/A | 14. |
| Trip Blank Present? | ☐ Yes | ☒ No | ☐ N/A | 15. |
| Trip Blank Custody Seals Present? | ☐ Yes | ☐ No | ☒ N/A | |
| Pace Trip Blank Lot # (if purchased): | | | | |

**CLIENT NOTIFICATION/RESOLUTION** **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

**Project Manager Review:** OMM **Date:** 1-15-13

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)

# Apex Labs

**12232 S.W. Garden Place**
**Tigard, OR 97223**
**503-718-2323 Phone**
**503-718-0333 Fax**

Wednesday, June 20, 2012

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

RE: Tarr Vancouver Cardlock / 1821-00/Task 6

Enclosed are the results of analyses for work order A12F156, which was received by the laboratory on 6/8/2012 at 1:07:00PM.

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

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

Apex Laboratories

Darwin Thomas, Business Development Director

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

Apex Labs

**12232 S.W. Garden Place**
**Tigard, OR 97223**
**503-718-2323 Phone**
**503-718-0333 Fax**

| | | |
|---|---|---|
| **Ash Creek Associates** | Project: **Tarr Vancouver Cardlock** | |
| 3015 SW First Avenue | Project Number: 1821-00/Task 6 | **Reported:** |
| Portland, OR 97201 | Project Manager: John Foxwell | 06/20/12 15:10 |

## ANALYTICAL REPORT FOR SAMPLES

### SAMPLE INFORMATION

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|---|---|---|---|---|
| **Stockpile-2** | A12F156-01 | Soil | 06/07/12 15:10 | 06/08/12 13:07 |

Apex Laboratories

Darwin Thomas, Business Development Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

| | | |
|---|---|---|
| **Ash Creek Associates** | Project: **Tarr Vancouver Cardlock** | |
| 3015 SW First Avenue | Project Number: 1821-00/Task 6 | **Reported:** |
| Portland, OR 97201 | Project Manager: John Foxwell | 06/20/12 15:10 |

## ANALYTICAL SAMPLE RESULTS

### Total Metals by EPA 6020 (ICPMS)

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Date Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|
| **Stockpile-2 (A12F156-01)** | | | **Matrix: Soil** | | | | | |
| Batch: 1206219 | | | | | | | | |
| **Lead** | **11.5** | --- | 1.24 | mg/kg dry | 10 | 06/11/12 15:18 | EPA 6020 | |

Apex Laboratories

Darwin Thomas, Business Development Director

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**12232 S.W. Garden Place**
**Tigard, OR 97223**
**503-718-2323 Phone**
**503-718-0333 Fax**

| | | |
|---|---|---|
| **Ash Creek Associates** | Project: **Tarr Vancouver Cardlock** | |
| 3015 SW First Avenue | Project Number: 1821-00/Task 6 | **Reported:** |
| Portland, OR 97201 | Project Manager: John Foxwell | 06/20/12 15:10 |

## ANALYTICAL SAMPLE RESULTS

### Percent Dry Weight

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Date Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|
| **Stockpile-2 (A12F156-01)** | | | **Matrix: Soil** | | **Batch: 1206210** | | | |
| **% Solids** | **81.6** | --- | 1.00 | % by Weight | 1 | 06/11/12 13:44 | Apex SOP | |

Apex Laboratories

Darwin Thomas, Business Development Director

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

Apex Labs

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

| | | |
|---|---|---|
| **Ash Creek Associates** | Project: **Tarr Vancouver Cardlock** | |
| 3015 SW First Avenue | Project Number: 1821-00/Task 6 | **Reported:** |
| Portland, OR 97201 | Project Manager: John Foxwell | 06/20/12 15:10 |

## QUALITY CONTROL (QC) SAMPLE RESULTS

### Total Metals by EPA 6020 (ICPMS)

| Analyte | Result | MDL | Reporting Limit | Units | Dil. | Spike Amount | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 1206219 - EPA 3051A** | | | | | | | **Soil** | | | | | |
| **Blank (1206219-BLK1)** | | | | | Prepared: 06/11/12 09:15 | | Analyzed: 06/11/12 14:51 | | | | | |
| **EPA 6020** | | | | | | | | | | | | |
| Lead | ND | --- | 1.00 | mg/kg wet | 10 | --- | --- | --- | --- | --- | --- | |
| **LCS (1206219-BS1)** | | | | | Prepared: 06/11/12 09:15 | | Analyzed: 06/11/12 14:54 | | | | | |
| **EPA 6020** | | | | | | | | | | | | |
| Lead | 48.1 | --- | 1.00 | mg/kg wet | 10 | 50.0 | --- | 96 | 80-120% | --- | --- | |
| **Duplicate (1206219-DUP1)** | | | | | Prepared: 06/11/12 09:15 | | Analyzed: 06/11/12 15:09 | | | | | |
| **QC Source Sample: Other (A12E368-11)** | | | | | | | | | | | | |
| **EPA 6020** | | | | | | | | | | | | |
| Lead | **88.2** | --- | 1.24 | mg/kg dry | 10 | --- | 78.7 | --- | --- | 11 | 40% | |
| **Matrix Spike (1206219-MS1)** | | | | | Prepared: 06/11/12 09:15 | | Analyzed: 06/11/12 15:12 | | | | | |
| **QC Source Sample: Other (A12E368-11)** | | | | | | | | | | | | |
| **EPA 6020** | | | | | | | | | | | | |
| Lead | 110 | --- | 1.30 | mg/kg dry | 10 | 65.1 | 78.7 | 47 | 75-125% | --- | --- | Q-01 |
| **Post Spike (1206219-PS1)** | | | | | Prepared: 06/11/12 15:41 | | Analyzed: 06/11/12 15:47 | | | | | |
| **QC Source Sample: Post Spike (A12E368-11)** | | | | | | | | | | | | |
| **EPA 6020** | | | | | | | | | | | | |
| Lead | 1410 | --- | | ug/L | 10 | 909 | 533 | 96 | 80-120% | | --- | |

Apex Laboratories

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

Darwin Thomas, Business Development Director

Apex Labs

**12232 S.W. Garden Place**
**Tigard, OR 97223**
**503-718-2323 Phone**
**503-718-0333 Fax**

| | | |
|---|---|---|
| **Ash Creek Associates** | Project: **Tarr Vancouver Cardlock** | |
| 3015 SW First Avenue | Project Number: 1821-00/Task 6 | **Reported:** |
| Portland, OR 97201 | Project Manager: John Foxwell | 06/20/12 15:10 |

## QUALITY CONTROL (QC) SAMPLE RESULTS

### Percent Dry Weight

| Analyte | Result | MDL | Reporting Limit | Units | Dil. | Spike Amount | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 1206210 - Total Solids (Dry Weight)** | | | | | | | **Soil** | | | | | |
| **Duplicate (1206210-DUP1)** | | | | | Prepared: 06/08/12 17:11 | | Analyzed: 06/11/12 13:44 | | | | | |
| **QC Source Sample: Other (A12F163-02)** | | | | | | | | | | | | |
| **Apex SOP** | | | | | | | | | | | | |
| % Solids | **85.7** | --- | 1.00 | % by Weight | 1 | --- | 83.7 | --- | --- | 2 | 20% | |
| **Duplicate (1206210-DUP2)** | | | | | Prepared: 06/08/12 19:25 | | Analyzed: 06/11/12 13:44 | | | | | |
| **QC Source Sample: Other (A12F170-02)** | | | | | | | | | | | | |
| **Apex SOP** | | | | | | | | | | | | |
| % Solids | **81.0** | --- | 1.00 | % by Weight | 1 | --- | 79.7 | --- | --- | 2 | 20% | |

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Darwin Thomas, Business Development Director

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| | | |
|---|---|---|
| **Ash Creek Associates** | Project: **Tarr Vancouver Cardlock** | |
| 3015 SW First Avenue | Project Number: 1821-00/Task 6 | **Reported:** |
| Portland, OR 97201 | Project Manager: John Foxwell | 06/20/12 15:10 |

## SAMPLE PREPARATION INFORMATION

### Total Metals by EPA 6020 (ICPMS)

**Prep: EPA 3051A**

| Lab Number | Matrix | Method | Sampled | Prepared | Sample Initial/Final | Default Initial/Final | RL Prep Factor |
|---|---|---|---|---|---|---|---|
| Batch: 1206219 | | | | | | | |
| A12F156-01 | Soil | EPA 6020 | 06/07/12 15:10 | 06/11/12 09:15 | 0.495g/50mL | 0.5g/50mL | 1.01 |

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| | | |
|---|---|---|
| **Ash Creek Associates** | Project: **Tarr Vancouver Cardlock** | |
| 3015 SW First Avenue | Project Number: 1821-00/Task 6 | **Reported:** |
| Portland, OR 97201 | Project Manager: John Foxwell | 06/20/12 15:10 |

## Notes and Definitions

Qualifiers:

Q-01 Percent recovery and/or RPD is outside acceptance limits.

Notes and Conventions:

| | |
|---|---|
| DET | Analyte DETECTED |
| ND | Analyte NOT DETECTED at or above the reporting limit |
| NR | Not Reported |
| dry | Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected. |
| RPD | Relative Percent Difference |
| MDL | If MDL is not listed, data has been evaluated to the Method Reporting Limit only. |
| WMSC | Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C. |
| Batch QC | In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis. |
| Blank Policy | Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses.<br>For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor.<br>Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL. |
| --- | QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc. |
| *** | Used to indicate a possible discrepency with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND). |

Apex Laboratories

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Darwin Thomas, Business Development Director

# Apex Labs

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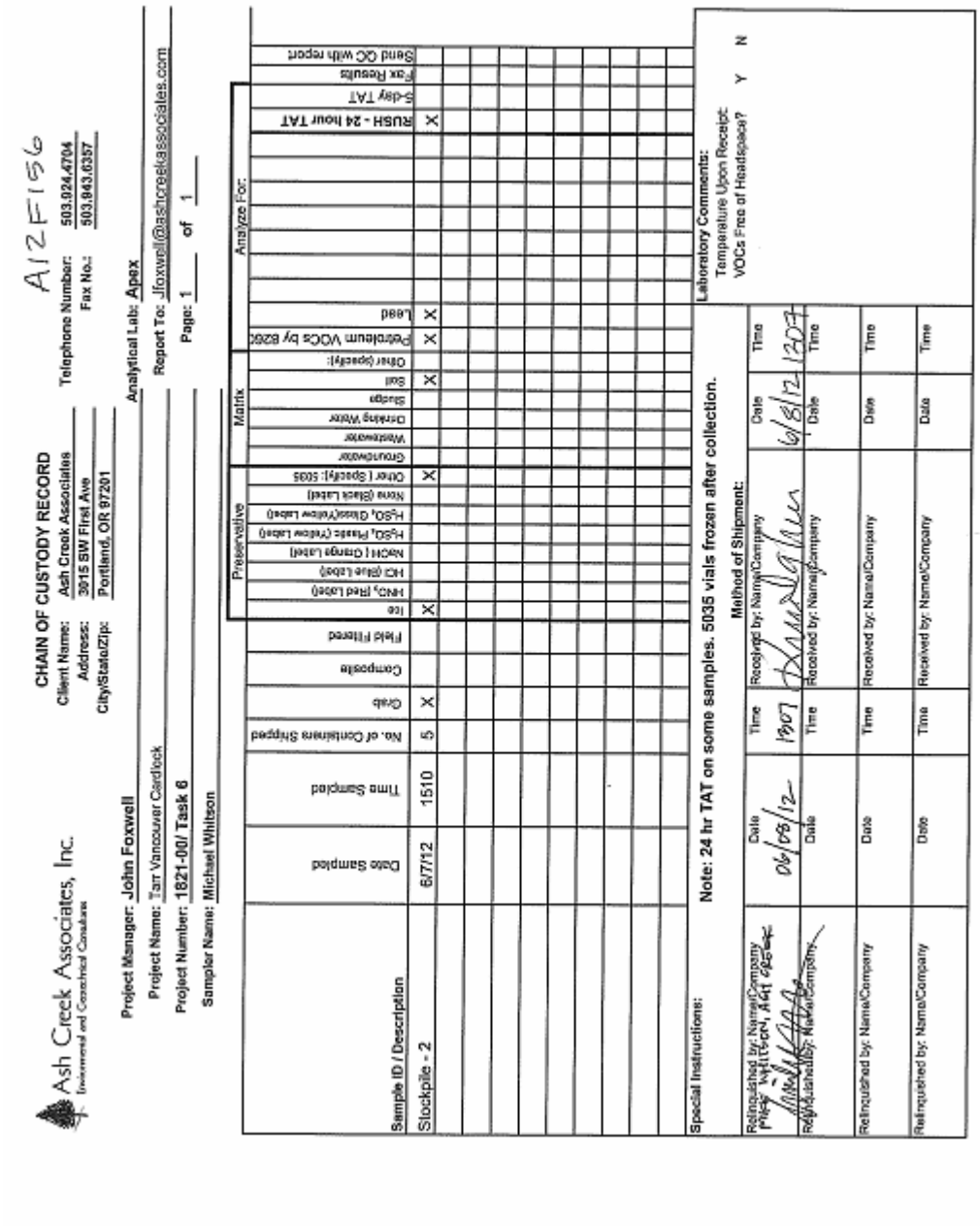
| | | |
|---|---|---|
| **Ash Creek Associates** | Project: **Tarr Vancouver Cardlock** | |
| 3015 SW First Avenue | Project Number: 1821-00/Task 6 | **Reported:** |
| Portland, OR 97201 | Project Manager: John Foxwell | 06/20/12 15:10 |




Apex Laboratories

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Darwin Thomas, Business Development Director

**Pace Analytical Services, Inc.**
940 South Harney
Seattle, WA 98108
(206)767-5060

June 19, 2012

Darwin Thomas
Apex Laboratories
12232 SW Garden Place
Portland, OR 97223

RE: Project: A12F156
Pace Project No.: 2512583

Dear Darwin Thomas:
Enclosed are the analytical results for sample(s) received by the laboratory on June 15, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Report reissued 6/19 to include flag indicating improper preservation of sample DAG 6/16

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

Sincerely,

Dan Gossett

dan.gossett@pacelabs.com
Project Manager

Enclosures

**Pace Analytical Services, Inc.**
940 South Harney
Seattle, WA 98108
(206)767-5060

## CERTIFICATIONS

Project: A12F156
Pace Project No.: 2512583

**Washington Certification IDs**
940 South Harney Street, Seattle, WA 98108
Alaska CS Certification #: UST-025
Arizona Certification #: AZ0770
California Certification #: 01153CA
Florida/NELAP Certification #: E87617
Oregon Certification #: WA200007
Washington Certification #: C555

**Pace Analytical Services, Inc.**
940 South Harney
Seattle, WA 98108
(206)767-5060

## SAMPLE SUMMARY

Project: A12F156
Pace Project No.: 2512583

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **2512583001** | **Stockpile-2** | Solid | 06/07/12 15:10 | 06/15/12 09:15 |

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Seattle, WA 98108
(206)767-5060

## SAMPLE ANALYTE COUNT

Project: A12F156
Pace Project No.: 2512583

| Lab ID | Sample ID | Method | Analysts | Analytes Reported |
|---|---|---|---|---|
| **2512583001** | **Stockpile-2** | EPA 8260 | ERB | 73 |
| | | ASTM D2974-87 | RAB | 1 |

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Seattle, WA 98108
(206)767-5060

## ANALYTICAL RESULTS

Project: A12F156
Pace Project No.: 2512583

**Sample: Stockpile-2** **Lab ID: 2512583001** Collected: 06/07/12 15:10 Received: 06/15/12 09:15 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 | ND | ug/kg | 11.3 | 1 | | 06/16/12 07:44 | 67-64-1 | |
| tert-Amylmethyl ether | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 994-05-8 | |
| Benzene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 71-43-2 | |
| Bromobenzene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 108-86-1 | |
| Bromochloromethane | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 74-97-5 | |
| Bromodichloromethane | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 75-27-4 | |
| Bromoform | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 75-25-2 | |
| Bromomethane | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 74-83-9 | |
| 2-Butanone (MEK) | ND | ug/kg | 11.3 | 1 | | 06/16/12 07:44 | 78-93-3 | |
| n-Butylbenzene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 104-51-8 | |
| sec-Butylbenzene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 135-98-8 | |
| tert-Butylbenzene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 98-06-6 | |
| Carbon disulfide | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 75-15-0 | |
| Carbon tetrachloride | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 56-23-5 | |
| Chlorobenzene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 108-90-7 | |
| Chloroethane | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 75-00-3 | |
| Chloroform | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 67-66-3 | |
| Chloromethane | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 74-87-3 | |
| 2-Chlorotoluene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 95-49-8 | |
| 4-Chlorotoluene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 106-43-4 | |
| 1,2-Dibromo-3-chloropropane | ND | ug/kg | 5.7 | 1 | | 06/16/12 07:44 | 96-12-8 | |
| Dibromochloromethane | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 106-93-4 | |
| Dibromomethane | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 74-95-3 | |
| 1,2-Dichlorobenzene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 95-50-1 | |
| 1,3-Dichlorobenzene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 541-73-1 | L2 |
| 1,4-Dichlorobenzene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 106-46-7 | L2 |
| Dichlorodifluoromethane | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 75-71-8 | L3 |
| 1,1-Dichloroethane | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 75-34-3 | |
| 1,2-Dichloroethane | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 107-06-2 | |
| 1,2-Dichloroethene (Total) | ND | ug/kg | 6.8 | 1 | | 06/16/12 07:44 | 540-59-0 | |
| 1,1-Dichloroethene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 75-35-4 | |
| cis-1,2-Dichloroethene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 156-59-2 | |
| trans-1,2-Dichloroethene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 156-60-5 | |
| 1,2-Dichloropropane | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 78-87-5 | |
| 1,3-Dichloropropane | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 142-28-9 | |
| 2,2-Dichloropropane | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 594-20-7 | |
| 1,1-Dichloropropene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 563-58-6 | |
| cis-1,3-Dichloropropene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 10061-01-5 | |
| trans-1,3-Dichloropropene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 10061-02-6 | |
| Ethylbenzene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 100-41-4 | |
| Hexachloro-1,3-butadiene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 87-68-3 | |
| 2-Hexanone | ND | ug/kg | 11.3 | 1 | | 06/16/12 07:44 | 591-78-6 | |
| Isopropylbenzene (Cumene) | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 98-82-8 | |
| p-Isopropyltoluene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 99-87-6 | |
| Methylene chloride | ND | ug/kg | 11.3 | 1 | | 06/16/12 07:44 | 75-09-2 | |

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Seattle, WA 98108
(206)767-5060

## ANALYTICAL RESULTS

Project: A12F156
Pace Project No.: 2512583

**Sample: Stockpile-2** **Lab ID: 2512583001** Collected: 06/07/12 15:10 Received: 06/15/12 09:15 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 | | | | | | | |
| 4-Methyl-2-pentanone (MIBK) | ND | ug/kg | 11.3 | 1 | | 06/16/12 07:44 | 108-10-1 | |
| Methyl-tert-butyl ether | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 1634-04-4 | |
| Naphthalene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 91-20-3 | |
| n-Propylbenzene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 103-65-1 | |
| Styrene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 79-34-5 | |
| Tetrachloroethene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 127-18-4 | |
| Toluene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 87-61-6 | L2 |
| 1,2,4-Trichlorobenzene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 120-82-1 | L2 |
| 1,1,1-Trichloroethane | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 71-55-6 | |
| 1,1,2-Trichloroethane | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 79-00-5 | |
| Trichloroethene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 79-01-6 | |
| Trichlorofluoromethane | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 75-69-4 | |
| 1,2,3-Trichloropropane | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 96-18-4 | |
| 1,1,2-Trichlorotrifluoroethane | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 76-13-1 | |
| 1,2,4-Trimethylbenzene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 108-67-8 | |
| Vinyl chloride | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 75-01-4 | |
| Xylene (Total) | ND | ug/kg | 10.2 | 1 | | 06/16/12 07:44 | 1330-20-7 | |
| m&p-Xylene | ND | ug/kg | 6.8 | 1 | | 06/16/12 07:44 | 179601-23-1 | |
| o-Xylene | ND | ug/kg | 3.4 | 1 | | 06/16/12 07:44 | 95-47-6 | |
| ***Surrogates*** | | | | | | | | |
| Dibromofluoromethane (S) | 102 | % | 74-126 | 1 | | 06/16/12 07:44 | 1868-53-7 | 1n |
| Toluene-d8 (S) | 105 | % | 71-130 | 1 | | 06/16/12 07:44 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 109 | % | 68-141 | 1 | | 06/16/12 07:44 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 103 | % | 68-141 | 1 | | 06/16/12 07:44 | 17060-07-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **17.8** | % | 0.10 | 1 | | 06/15/12 16:16 | | |

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940 South Harney
Seattle, WA 98108
(206)767-5060

## QUALITY CONTROL DATA

Project: A12F156
Pace Project No.: 2512583

QC Batch: MSV/7222
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 2512583001

METHOD BLANK: 119417
Matrix: Solid
Associated Lab Samples: 2512583001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| 1,1,1-Trichloroethane | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| 1,1,2,2-Tetrachloroethane | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| 1,1,2-Trichloroethane | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| 1,1,2-Trichlorotrifluoroethane | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| 1,1-Dichloroethane | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| 1,1-Dichloroethene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| 1,1-Dichloropropene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| 1,2,3-Trichlorobenzene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| 1,2,3-Trichloropropane | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| 1,2,4-Trichlorobenzene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| 1,2,4-Trimethylbenzene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| 1,2-Dibromo-3-chloropropane | ug/kg | ND | 5.0 | 06/16/12 06:36 | |
| 1,2-Dibromoethane (EDB) | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| 1,2-Dichlorobenzene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| 1,2-Dichloroethane | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| 1,2-Dichloroethene (Total) | ug/kg | ND | 6.0 | 06/16/12 06:36 | |
| 1,2-Dichloropropane | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| 1,3,5-Trimethylbenzene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| 1,3-Dichlorobenzene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| 1,3-Dichloropropane | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| 1,4-Dichlorobenzene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| 2,2-Dichloropropane | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| 2-Butanone (MEK) | ug/kg | ND | 10.0 | 06/16/12 06:36 | |
| 2-Chlorotoluene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| 2-Hexanone | ug/kg | ND | 10.0 | 06/16/12 06:36 | |
| 4-Chlorotoluene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| 4-Methyl-2-pentanone (MIBK) | ug/kg | ND | 10.0 | 06/16/12 06:36 | |
| Acetone | ug/kg | ND | 10.0 | 06/16/12 06:36 | |
| Benzene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Bromobenzene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Bromochloromethane | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Bromodichloromethane | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Bromoform | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Bromomethane | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Carbon disulfide | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Carbon tetrachloride | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Chlorobenzene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Chloroethane | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Chloroform | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Chloromethane | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| cis-1,2-Dichloroethene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| cis-1,3-Dichloropropene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |

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940 South Harney
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## QUALITY CONTROL DATA

Project: A12F156
Pace Project No.: 2512583

METHOD BLANK: 119417 Matrix: Solid

Associated Lab Samples: 2512583001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Dibromochloromethane | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Dibromomethane | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Dichlorodifluoromethane | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Ethylbenzene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Hexachloro-1,3-butadiene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Isopropylbenzene (Cumene) | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| m&p-Xylene | ug/kg | ND | 6.0 | 06/16/12 06:36 | |
| Methyl-tert-butyl ether | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Methylene chloride | ug/kg | ND | 10.0 | 06/16/12 06:36 | |
| n-Butylbenzene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| n-Propylbenzene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Naphthalene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| o-Xylene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| p-Isopropyltoluene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| sec-Butylbenzene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Styrene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| tert-Amylmethyl ether | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| tert-Butylbenzene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Tetrachloroethene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Toluene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| trans-1,2-Dichloroethene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| trans-1,3-Dichloropropene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Trichloroethene | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Trichlorofluoromethane | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Vinyl chloride | ug/kg | ND | 3.0 | 06/16/12 06:36 | |
| Xylene (Total) | ug/kg | ND | 9.0 | 06/16/12 06:36 | |
| 1,2-Dichloroethane-d4 (S) | % | 100 | 68-141 | 06/16/12 06:36 | |
| 4-Bromofluorobenzene (S) | % | 98 | 68-141 | 06/16/12 06:36 | |
| Dibromofluoromethane (S) | % | 101 | 74-126 | 06/16/12 06:36 | |
| Toluene-d8 (S) | % | 100 | 71-130 | 06/16/12 06:36 | |

LABORATORY CONTROL SAMPLE: 119418

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ug/kg | 20 | 17.7 | 88 | 75-126 | |
| 1,1,1-Trichloroethane | ug/kg | 20 | 18.7 | 94 | 65-147 | |
| 1,1,2,2-Tetrachloroethane | ug/kg | 20 | 18.7 | 93 | 65-129 | |
| 1,1,2-Trichloroethane | ug/kg | 20 | 20.6 | 103 | 71-125 | |
| 1,1,2-Trichlorotrifluoroethane | ug/kg | 20 | 21.0 | 105 | 53-160 | |
| 1,1-Dichloroethane | ug/kg | 20 | 19.7 | 98 | 71-136 | |
| 1,1-Dichloroethene | ug/kg | 20 | 20.7 | 104 | 56-160 | |
| 1,1-Dichloropropene | ug/kg | 20 | 18.2 | 91 | 60-145 | |
| 1,2,3-Trichlorobenzene | ug/kg | 20 | 13.2 | 66 | 69-124 | L0 |
| 1,2,3-Trichloropropane | ug/kg | 20 | 19.4 | 97 | 71-119 | |
| 1,2,4-Trichlorobenzene | ug/kg | 20 | 11.6 | 58 | 69-127 | L0 |

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## QUALITY CONTROL DATA

Project: A12F156
Pace Project No.: 2512583

LABORATORY CONTROL SAMPLE: 119418

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,2,4-Trimethylbenzene | ug/kg | 20 | 16.4 | 82 | 69-127 | |
| 1,2-Dibromo-3-chloropropane | ug/kg | 20 | 18.0 | 90 | 55-132 | |
| 1,2-Dibromoethane (EDB) | ug/kg | 20 | 19.6 | 98 | 73-125 | |
| 1,2-Dichlorobenzene | ug/kg | 20 | 15.6 | 78 | 77-118 | |
| 1,2-Dichloroethane | ug/kg | 20 | 20.3 | 102 | 67-137 | |
| 1,2-Dichloroethene (Total) | ug/kg | 40 | 38.4 | 96 | 71-141 | |
| 1,2-Dichloropropane | ug/kg | 20 | 19.6 | 98 | 72-133 | |
| 1,3,5-Trimethylbenzene | ug/kg | 20 | 16.6 | 83 | 70-129 | |
| 1,3-Dichlorobenzene | ug/kg | 20 | 14.7 | 73 | 76-122 | L0 |
| 1,3-Dichloropropane | ug/kg | 20 | 19.4 | 97 | 72-125 | |
| 1,4-Dichlorobenzene | ug/kg | 20 | 13.7 | 69 | 76-119 | L0 |
| 2,2-Dichloropropane | ug/kg | 20 | 16.1 | 80 | 57-156 | |
| 2-Butanone (MEK) | ug/kg | 40 | 41.4 | 104 | 40-160 | |
| 2-Chlorotoluene | ug/kg | 20 | 15.7 | 79 | 70-123 | |
| 2-Hexanone | ug/kg | 40 | 40.7 | 102 | 40-160 | |
| 4-Chlorotoluene | ug/kg | 20 | 15.4 | 77 | 74-127 | |
| 4-Methyl-2-pentanone (MIBK) | ug/kg | 40 | 41.0 | 102 | 58-143 | |
| Acetone | ug/kg | 40 | 36.0 | 90 | 40-160 | |
| Benzene | ug/kg | 20 | 16.7 | 83 | 67-133 | |
| Bromobenzene | ug/kg | 20 | 17.8 | 89 | 77-121 | |
| Bromochloromethane | ug/kg | 20 | 21.1 | 105 | 73-132 | |
| Bromodichloromethane | ug/kg | 20 | 19.3 | 96 | 71-130 | |
| Bromoform | ug/kg | 20 | 14.3 | 71 | 65-127 | |
| Bromomethane | ug/kg | 20 | 16.0 | 80 | 41-160 | |
| Carbon disulfide | ug/kg | 20 | 25.5 | 128 | 40-160 | |
| Carbon tetrachloride | ug/kg | 20 | 18.7 | 94 | 59-157 | |
| Chlorobenzene | ug/kg | 20 | 17.0 | 85 | 78-123 | |
| Chloroethane | ug/kg | 20 | 22.1 | 110 | 54-153 | |
| Chloroform | ug/kg | 20 | 19.5 | 97 | 74-132 | |
| Chloromethane | ug/kg | 20 | 17.6 | 88 | 40-149 | |
| cis-1,2-Dichloroethene | ug/kg | 20 | 19.2 | 96 | 73-137 | |
| cis-1,3-Dichloropropene | ug/kg | 10 | 9.3 | 93 | 63-140 | |
| Dibromochloromethane | ug/kg | 20 | 19.1 | 95 | 71-122 | |
| Dibromomethane | ug/kg | 20 | 19.7 | 98 | 73-131 | |
| Dichlorodifluoromethane | ug/kg | 20 | 178 | 889 | 40-160 | L0 |
| Ethylbenzene | ug/kg | 20 | 18.1 | 90 | 70-124 | |
| Hexachloro-1,3-butadiene | ug/kg | 20 | 14.6 | 73 | 59-141 | |
| Isopropylbenzene (Cumene) | ug/kg | 20 | 17.8 | 89 | 72-131 | |
| m&p-Xylene | ug/kg | 40 | 36.8 | 92 | 66-129 | |
| Methyl-tert-butyl ether | ug/kg | 20 | 20.2 | 101 | 69-136 | |
| Methylene chloride | ug/kg | 20 | 22.8 | 114 | 53-160 | |
| n-Butylbenzene | ug/kg | 20 | 14.8 | 74 | 65-134 | |
| n-Propylbenzene | ug/kg | 20 | 16.3 | 82 | 62-135 | |
| Naphthalene | ug/kg | 20 | 16.1 | 80 | 63-129 | |
| o-Xylene | ug/kg | 20 | 18.7 | 94 | 70-125 | |
| p-Isopropyltoluene | ug/kg | 20 | 15.5 | 77 | 68-130 | |
| sec-Butylbenzene | ug/kg | 20 | 16.7 | 84 | 61-137 | |
| Styrene | ug/kg | 20 | 17.5 | 88 | 77-124 | |

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## QUALITY CONTROL DATA

Project: A12F156
Pace Project No.: 2512583

LABORATORY CONTROL SAMPLE: 119418

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| tert-Amylmethyl ether | ug/kg | 20 | 16.9 | 85 | 55-150 | |
| tert-Butylbenzene | ug/kg | 20 | 16.9 | 85 | 69-132 | |
| Tetrachloroethene | ug/kg | 20 | 17.3 | 86 | 52-148 | |
| Toluene | ug/kg | 20 | 17.1 | 86 | 67-129 | |
| trans-1,2-Dichloroethene | ug/kg | 20 | 19.2 | 96 | 69-146 | |
| trans-1,3-Dichloropropene | ug/kg | 10 | 8.6 | 86 | 63-133 | |
| Trichloroethene | ug/kg | 20 | 18.3 | 92 | 69-137 | |
| Trichlorofluoromethane | ug/kg | 20 | 20.6 | 103 | 50-156 | |
| Vinyl chloride | ug/kg | 20 | 29.8 | 149 | 41-156 | |
| Xylene (Total) | ug/kg | 60 | 55.5 | 93 | 68-127 | |
| 1,2-Dichloroethane-d4 (S) | % | | | 98 | 68-141 | |
| 4-Bromofluorobenzene (S) | % | | | 99 | 68-141 | |
| Dibromofluoromethane (S) | % | | | 100 | 74-126 | |
| Toluene-d8 (S) | % | | | 99 | 71-130 | |

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## QUALITY CONTROL DATA

Project: A12F156
Pace Project No.: 2512583

QC Batch: PMST/2074
QC Batch Method: ASTM D2974-87
Analysis Method: ASTM D2974-87
Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 2512583001

SAMPLE DUPLICATE: 119299

| Parameter | Units | 2512578001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Percent Moisture | % | 25.5 | 25.4 | .6 | 30 | |

SAMPLE DUPLICATE: 119300

| Parameter | Units | 2512578002 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Percent Moisture | % | 24.7 | 24.4 | 1 | 30 | |

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# QUALIFIERS

Project: A12F156
Pace Project No.: 2512583

## 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.

PRL - Pace Reporting Limit.

RL - Reporting 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 TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## ANALYTE QUALIFIERS

| | |
|---|---|
| 1n | Sample was not correctly preserved. |
| L0 | Analyte recovery in the laboratory control sample (LCS) was outside QC limits. |
| L2 | Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low. |
| 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. |

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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: A12F156
Pace Project No.: 2512583

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **2512583001** | **Stockpile-2** | EPA 8260 | MSV/7222 | | |
| **2512583001** | **Stockpile-2** | ASTM D2974-87 | PMST/2074 | | |

# *Appendix E*

## SCREEN3 Model Output

09/04/12
16:24:15

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

TARR VANC

SIMPLE TERRAIN INPUTS:
SOURCE TYPE = POINT
EMISSION RATE (G/S) = .117434E-01
STACK HEIGHT (M) = 7.0000
STK INSIDE DIAM (M) = .0510
STK EXIT VELOCITY (M/S)= 2.3103
STK GAS EXIT TEMP (K) = 305.0000
AMBIENT AIR TEMP (K) = 293.0000
RECEPTOR HEIGHT (M) = 1.6000
URBAN/RURAL OPTION = URBAN
BUILDING HEIGHT (M) = 6.1000
MIN HORIZ BLDG DIM (M) = 12.0000
MAX HORIZ BLDG DIM (M) = 25.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = 10.000000 (ACFM)

BUOY. FLUX = .001 M**4/S**3; MOM. FLUX = .003 M**4/S**2.

*** FULL METEOROLOGY ***

**********
*** SCREEN AUTOMATED DISTANCES ***
**********

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

| DIST (M) | CONC (UG/M**3) | STAB | U10M (M/S) | USTK (M/S) | MIX HT (M) | PLUME HT (M) | SIGMA Y (M) | SIGMA Z (M) | DWASH |
|---|---|---|---|---|---|---|---|---|---|
| 1. | .0000 | 0 | .0 | .0 | .0 | .00 | .00 | .00 | NA |
| 100. | 27.86 | 6 | 1.0 | 1.0 | 10000.0 | 7.03 | 10.79 | 9.27 | SS |

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19. | 107.2 | 5 | 1.0 | 1.0 | 10000.0 | 7.00 | 2.19 | 3.93 | SS |

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

**********

*** REGULATORY (Default) ***
PERFORMING CAVITY CALCULATIONS
WITH ORIGINAL SCREEN CAVITY MODEL
(BRODE, 1988)
**********

*** CAVITY CALCULATION - 1 *** *** CAVITY CALCULATION - 2 ***
CONC (UG/M**3) = .0000 CONC (UG/M**3) = .0000
CRIT WS @10M (M/S) = 99.99 CRIT WS @10M (M/S) = 99.99
CRIT WS @ HS (M/S) = 99.99 CRIT WS @ HS (M/S) = 99.99
DILUTION WS (M/S) = 99.99 DILUTION WS (M/S) = 99.99
CAVITY HT (M) = 6.86 CAVITY HT (M) = 6.15
CAVITY LENGTH (M) = 17.23 CAVITY LENGTH (M) = 14.08
ALONGWIND DIM (M) = 12.00 ALONGWIND DIM (M) = 25.00

CAVITY CONC NOT CALCULATED FOR CRIT WS > 20.0 M/S. CONC SET = 0.0

**********
END OF CAVITY CALCULATIONS
**********

**********
*** SUMMARY OF SCREEN MODEL RESULTS ***
**********

| CALCULATION PROCEDURE | MAX CONC (UG/M**3) | DIST TO MAX (M) | TERRAIN HT (M) |
|---|---|---|---|
| SIMPLE TERRAIN | 107.2 | 19. | 0. |

**********
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
**********