

Enhanced LNAPL Recovery Event Completion Report

Former ARCO Facility No. 11060 4580 Fauntleroy Way Southwest Seattle, Washington 98126 VCP No. NW2463

January 4, 2013

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VCP No. NW2463

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1 Introduction

On behalf of BP West Coast Products, LLC (BP), ARCADIS U.S., Inc. (ARCADIS) has prepared this Enhanced Light Non-Aqueous Phase liquid (LNAPL) Recovery Completion Report for the former Atlantic Richfield Company (ARCO) Facility No. 11060 located at 4580 Fauntleroy Way Southwest, Seattle, Washington (Site). A site aerial map is presented on **Figure 1**. This report summarizes the advancement of soil borings SB-1 through SB-4, installation of extraction wells EW-1 through EW-3, installation of monitoring well MW-10, and three multiple-phase extraction (MPE) activities. This work was performed pursuant to the *Remedial Action Plan (RAP)*, *Former ARCO Facility No. 11060* (ARCADIS 2011), dated December 23, 2011.

2 Site Description

The site is located at the northeast corner of the intersection of Southwest Alaska Street and Fauntleroy Way Southwest in Seattle, Washington. The subject property exists in a mixed use zoning area of West Seattle. The site property is located at the intersection of Fauntleroy Way SW, and SW Alaska Street, in Seattle, Washington. The property is an operating 76-branded retail gasoline facility and convenience store.

Operations at the property include the storage and distribution of unleaded gasoline and diesel. The site currently contains two 10,000 gallon underground storage tanks (USTs) and two 5,000 gallon USTs, one of which contains diesel. The site also contains a 550 gallon aboveground storage tank (AST) associated with site LNAPL recovery activities, located to the north of the station building. A portion of the site is also located at the adjacent property to the east at 4550 Fauntleroy Way SW Seattle WA. This parcel, including the car wash and the current cycling store, is the former Huling Brothers property and is currently owned by Time Properties LLC. Site features are illustrated on **Figure 2**.

2.1 Site Geology and Hydrogeology

The site is located in the Puget Lowland, bound by the North Cascade Mountains to the east, South Cascade Mountains to the south, and Puget Sound and Olympic Mountains to the west (*Lasmanis 1991*). The Puget Lowland is underlain by unconsolidated deposits originating from continental glaciation during the Pleistocene Epoch (WA DNR 2005). Such deposits are typically sand and gravel, which are up to 3,000 feet deep, and often form discontinuous lenses. The local topography slopes to the southwest and the elevation of the site is approximately 345 feet above mean sea level (msl) (USGS 1994).

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The site is located within the Puget-Willamette Trough Regional Aquifer System, which is a linear elongated basin stretching from the Canadian border in Washington to central Oregon. Specifically, the site is located in an unconsolidated-deposit aquifer, which is the principle aquifer type in the Puget Lowlands. Sand and gravel lenses that underlie the area can retain localized productive groundwater (USGS 1994). A variety of soil types have been observed at on-site and off-site wells including silty sands with gravel, clayey and sandy silts, and clays with silt and gravel. During the most recent subsurface investigation in January 2012, soils encountered consisted of fine to medium grained sand, silty sand, sandy silt, and silt.

2.2 Site History

The site property was developed in 1985, and continues to be operated as a retail gasoline station and convenience store. A notice of confirmed release indicated soil contamination was encountered during assessment work in 1993. Ecology lists the site as a leaking underground storage tank (LUST) site.

In 1992, Geraghty & Miller, Inc. installed a single groundwater monitoring well (MW-3) at the site. In May 1993, RZA AGRA Inc. (RZA) conducted subsurface characterization activities at the site, and wells MW-1, MW-2, MW-4 and MW-5 were installed. During both events, soil and ground samples were collected and Model Toxics Control Act (MTCA) Cleanup Level (CUL) exceedances were observed (Geraghty & Miller 1992, RZA1993).

In March 1995, Alisto Engineering Group (Alisto) installed one soil vapor extraction (SVE) well (VW-1) and one air sparging (AS) well (SP-1). Well VW-1 would later be called VE-1, beginning in April 1998. Soil samples were collected during the installation of VW-1 at depths of 10 and 25 feet below ground surface (bgs) and submitted for laboratory analysis. Laboratory analysis was not conducted on soil samples collected from SP-1. Upon completion of these wells, groundwater samples were collected. LNAPL was measured in VE-1 at a thickness of 0.08 foot and no groundwater sample was collected. Pilot testing for an AS/SVE system was conducted upon completion of the wells and revealed that air sparging and/or biosparging appeared to be viable technologies for remediating hydrocarbon impacts at the site; however, Alisto concluded that the saturated zone may not be conducive to groundwater extraction as a remedial technology (Alisto 1995).

In September 1996, Alisto installed seven wells at the site as part of a proposed remediation system. Six of these wells are combined SVE and AS wells (CW-1 to CW-

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6) and one AS well (SP-2). The borings were drilled to a depth of 36 feet bgs in order to complete the well construction, and no samples were collected for laboratory analysis. Remediation system components were not installed at this time (Alisto 1996). These wells were later decommissioned; however, well abandonment logs, field notes and dates are not available.

In June 1997, monitoring well MW-6 was installed onsite and soil samples were collected during installation. Benzene, toluene, ethylbenzene, and total xylenes (BTEX, collectively) and gasoline range organics (GRO) were not detected above the reported detection limits in soil samples collected from depths of 15 and 21 feet bgs. Groundwater samples collected after the installation of MW-6 were below MTCA CULs for BTEX and GRO (Alisto 1997).

Monitoring well GMW-1 was installed in 2007 at the north end of the car wash as part of Phase II activities conducted by G-Logics Inc. at the former Huling Brothers Site C and D, a site found at the addresses 4550 Fauntleroy Way and 4550 38th Avenue Southwest, located east of the site at the current location of University Cycle. The monitoring well was screened from 20 to 35 feet. Six soil samples were collected from 11 to 36 feet bgs. Four of these soil samples and one groundwater sample were submitted for laboratory analysis of petroleum hydrocarbon compounds. Soil samples were submitted for GRO and BTEX analysis; no MTCA CUL exceedances were observed. Groundwater was submitted for volatiles, GRO, diesel range organics (DRO) and lead. Detectable concentrations in groundwater were below MTCA CULs (G-Logics 2008).

As part of a 2010 subsurface investigation, monitoring well MW-9 was installed in the northern portion of the adjacent property to the east of the Site. Proposed monitoring well MW-10 could not be installed due to subsurface construction debris encountered during hand clearing of the boring. Upon meeting refusal in the initial location for MW-10, the boring was moved to a suitable secondary location, where refusal was also met. Soil samples were collected for field screening at 2.5 foot intervals, beginning at 5.0 feet bgs. Field screening of soil samples was performed using a photoionization detector (PID) and visual inspection methods. Soil samples with the highest PID reading, and/or as indicated by field screening methods were submitted for laboratory analysis (ARCADIS 2010).

Groundwater monitoring has been performed at the site since 1993. LNAPL has been detected in MW-4 since March 1994, at thicknesses ranging from 4.00 feet in March 1994 to 0.05 foot in September 2000. LNAPL has been detected in well VE-1 since

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September 1998, ranging in thickness from 1.31 feet in April 2005 to a slight sheen in June 2006. Groundwater Elevation Data with Select Analytical Results are presented as **Table 1**.

Product recovery activities have been ongoing at the site to address LNAPL in wells MW-4 and VE-1. To date, approximately 3,808 gallons of total fluids have been recovered from wells MW-4 and VE-1 via multiple phase extraction (MPE) activities, hand bailing and LNAPL skimming technology. A passive product recovery unit (belt skimmer) was installed in MW-4 in 1994 as an interim remedial measure for LNAPL recovery. However, in November 2008, the water table dropped below the level of the belt skimmer, making recovery with this device impossible. In November 2010, ARCADIS personnel removed and decommissioned the belt skimmer unit. Manual bailing occurred monthly at well VE-1 from June to December 2011. An average of approximately 3 gallons of total liquids was recovered during each bailing event.

2.3 Subsurface Investigation

In January 2012, ARCADIS observed Cascade Drilling, LP (Cascade) advance eight soil borings to depths of 31.5 to 51.5 feet below ground surface (bgs). The initial 6.5 to 7 feet of borehole were cleared using a vacuum truck. The borings were then advanced using a truck mounted hollow stem auger drilling rig. The screen interval for wells EW-1 through EW-3 ranged from 18 feet below top of casing (btoc) to 28 feet btoc. Monitoring well MW-10 was screened from 15 to 35 feet btoc.

During drilling, soil samples were collected for lithological description and volatile organic compound (VOC) analysis using a handheld PID at three-foot intervals from 5 feet bgs to the bottom of the boring unless poor recovery prevented the collection of the sample. A deviation to this occurred at well MW-10, in which the first sample was collected at 3.5 feet bgs and the following sample was collected at 10 feet bgs. PID readings, soil types, and other pertinent geologic data were recorded on a boring log by an ARCADIS geologist. The boring logs for borings SB-1 through SB-4, extraction wells EW-1 through EW-3, and monitoring well MW-10 are included in **Appendix A**.

Upon reaching the total depth of the borehole, the wells were installed within the annulus of the hollow-stem auger. The extraction wells were constructed of 6-inch diameter, Schedule 80 polyvinyl chloride (PVC) casing with 0.02-inch wide horizontally slotted screen. The monitoring well was constructed of 2-inch diameter, Schedule 40 PVC casing with 0.02-inch wide horizontally slotted casing. Number 10/20 sand was used as the filter pack from the total depth of the wells to one to two feet above the

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screened interval. The remaining well annulus was backfilled with bentonite chips. The well was capped with a locking water tight well plug and a traffic-rated well box installed at grade.

Selected soil samples were preserved in the field in accordance with EPA Method 5035A and placed in pre-weighed and preserved 40-milliliter (mL) volatile organic analysis (VOA) vials and unpreserved four-ounce (oz.) jars. The VOA vials and jars were sealed, labeled and stored in a cooler packed with ice prior to submittal to Pace Analytical Services, Inc. (Pace) located in Seattle, Washington, a Washington State accredited laboratory, under standard chain of custody procedures.

Two to four soil samples per boring were collected from depths ranging from 5 to 40 feet bgs. Soil samples were selected based upon field observations and PID readings. Soil samples were identified as well or boring name (SB-1) and depth bgs (#' or #). Select soil samples were analyzed for:

- DRO and heavy oil range organics (HO) by Northwest Method NWTPH-Dx;
- GRO by Northwest Method NWTPH-Gx;
- Total lead by EPA Method 6010; and,
- BTEX and methyl tertiary butyl ether (MTBE) by EPA Method 8260B.
- Polynuclear Aromatic Hydrocarbons (PAHs) by EPA Method 8270 SIM.

Concentrations exceeding the MTCA Method A CULs were detected for the following constituents of concern (COCs):

- Concentrations of GRO exceeding the Method A CUL of 30 milligrams per kilogram (mg/kg) for soil containing benzene was detected in soil samples from borings SB-1, SB-2, SB-3, SB-4, EW-1, EW-2, and EW-3 at concentrations ranging from 30.1 mg/kg (EW-3-15') to 4,390 mg/kg (SB-3-20).
- Concentrations of benzene exceeding the Method A CUL of 0.03 mg/kg were detected in soil samples from borings SB-3, EW-1, EW-2, and EW-3 at concentrations ranging from 0.0317 mg/kg (EW-3-20') to 2.540 mg/kg (EW-1-25').
- A concentration of DRO exceeding the Method A CUL of 2,000 mg/kg was detected in soil sample SB-3-5, at a concentration of 2,710 mg/kg.
- A concentration of HO exceeding the Method A CUL of 2,000 mg/kg was detected in soil sample SB-3-5, at a concentration of 9,400 mg/kg.

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- A concentration of toluene exceeding the Method A CUL of 7 mg/kg was detected in soil sample EW-1-25,' at a concentration of 12.7 mg/kg.
- Concentrations of ethylbenzene exceeding the Method A CUL of 6 mg/kg were detected in soil samples from borings SB-3 and EW-1at concentrations ranging from 9.15 mg/kg (EW-1-15') to 13.2 mg/kg (SB-3-20).
- Concentrations of total xylenes exceeding the Method A CUL of 9 mg/kg were detected in soil samples from borings SB-3 and EW-1 at concentrations ranging from 11.5 mg/kg (EW-1-15') to 51.8 mg/kg (EW-1-25').
- A concentration of benzo[a]pyrene exceeding the Method A CUL of 0.1 mg/kg was detected in soil sample SB-3-10, at a concentration of 7.16 mg/kg.

Laboratory analytical reports and chain of custody documentation are included as **Appendix B**. Analytical results are included as **Table 3**, **Table 4**, and **Table 5**.

3 LNAPL Recovery Events

Based on an examination of remedial alternatives in the RAP (ARCADIS 2011), portable MPE was selected to recover LNAPL observed at on-site wells until observed LNAPL thickness has been reduced to 0.01 foot or a sheen. Three MPE events were conducted by ARCADIS at the site on April 12, May 9, and August 3, 2012.

3.1 Pre-Extraction Wellhead Monitoring

Prior to each MPE extraction event, depth to water and depth to LNAPL were monitored using an electronic oil-water interface probe and volatile organic compound (VOC) concentrations were monitored using a photoionization detector (PID) at selected wells.

Depths to water during the first event ranged from 24.45 feet btoc in well EW-2 to 25.20 feet btoc in well EW-1. Depths to water during the second event ranged from 24.33 feet btoc in well EW-2 to 24.91 feet btoc in well EW-3. Depths to water during the third event ranged from 23.08 feet btoc in well MW-4 to 24.95 feet btoc in well EW-3.

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Prior to the first event, measurable LNAPL was observed in wells VE-1, EW-1, and EW-3 with thicknesses of 0.10 foot, 0.70 foot, and 0.01 foot, respectively. Prior to the second event, measurable LNAPL was observed in wells VE-1 and EW-1 with thicknesses of 0.27 foot and 0.07 foot, respectively. Prior to the third event, measurable LNAPL was observed in monitoring well MW-4, with a thickness of 0.01 foot. Daily LNAPL thickness, depth to product and depth to water data are presented in **Table 2, Table 6, Table 7,** and **Table 8.**

3.2 Belt Skimmer Motor/Housing Removal

On August 8, 2012, ARCADIS observed ClearCreek Contractors (ClearCreek) remove a skimmer motor, skimmer, housing, and associated lines from the MW-4 vault, and extend the casing of monitoring well MW-4. SHJ Electric performed voltage testing on associated lines connected to the skimmer. The purpose of the work was to provide access to the well without requiring confined space entry and to allow for MPE from MW-4. During this event, the MW-4 well casing was extended by 2.2 feet. An estimated 3.5 gallons of LNAPL were removed from the skimmer, placed in a Department of Transportation-approved 55-gallon drum, and removed by ClearCreek.

3.3 MPE Events

During the first two MPE events in April and May 2012, PVC stingers were placed 0.5 foot above the total depths of the extraction wells. Wellhead adaptors were then attached to each well. Spiralite hosing was then connected on one end to the wellhead adaptors, and on the other end to a PVC manifold. The manifold contained a vacuum gauge and sampling ports to collect VOC readings using a PID. Vacuum was then simultaneously applied to each of the extraction wells using a vacuum truck for 6 to 6.5 hours per well. Depth to water and depth to LNAPL were monitored using an oil-water interface probe, and wellhead pressure was monitored using a manometer at response wells during extraction at 0.5- to 1-hour intervals. A vacuum extraction location map for these events is presented on **Figure 4**.

On August 10, 2012, PVC stingers were placed in wells VE-1, MW-4, EW-1, and EW-2 at approximately 0.5 foot above the total depths of the wells. Vacuum was monitored using a manometer with measured pressures at the manifold of 19 inches of mercury (in Hg) during extraction from wells VE-1, MW-4, EW-1, and EW-2, with an estimated flow rate of 1,047 standard cubic feet per minute. A map showing the locations of the wells used for vacuum extraction for this event is presented on **Figure 5**.

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Available applied vacuum, flow rate, VOC concentrations, depth to product, and depth to water data are presented in **Table 6**, **Table 7**, **and Table 8**.

3.4 Post-Extraction Wellhead Monitoring

Post-Extraction monitoring of wells EW-1, EW-2, EW-3, VE-1, and MW-5 was conducted following each of the events to evaluate changes in presence and distribution of LNAPL. Depth to water, depth to LNAPL, VOC concentrations, and pressure were measured using an electronic oil-water interface probe, PID, and manometer, respectively. Following the April MPE event, ARCADIS returned to the site on days 1 and 12 and gauged wells for depth to water, depth to LNAPL, and VOC concentrations. Following the May MPE event, ARCADIS returned on day 1 and gauged wells for depth to water, depth to LNAPL, and wellhead pressure. ARCADIS returned on day 15 and gauged wells for depth to water, depth to LNAPL, and VOC concentrations. Following the August 2012 event, ARCADIS returned on day 14 and gauged wells for depth to water and depth to LNAPL. During this monitoring event, MW-4 was also gauged.

4 Event Results

During the January 2012 subsurface investigation, petroleum hydrocarbon impacts to soil exceeding Method A CULs were not detected off-site at well MW-10, located in Alaska Street, south of MW-5. Petroleum hydrocarbon impacts to soil exceeding Method A CULs were encountered in the northern portion of the Site at a depth of 20 feet bgs in boring SB-2, in the eastern portion of the Site at depths of 5 to 50 feet bgs in boring SB-3, and in the southeast and southwest corners at 15 feet bgs in borings SB-1 and SB-4. Soil impacts exceeding Method A CULs were also encountered at 15, 25, and 30 feet bgs in boring EW-1.

During the April 12, 2012 MPE event, vacuum was applied to extraction wells EW-1 through EW-3 for 6.5 hours, extracting a total of 330 gallons of LNAPL-water mixture. During the May 9, 2012 MPE event, vacuum was applied to extraction wells EW-1 through EW-3 for 6 hours, extracting a total of 598 gallons of LNAPL-water mixture, of which 190 gallons were LNAPL. During the August 10, 2012 MPE event, vacuum was applied to four wells (EW-1, EW-2, VE-1, and MW-4) for 1- to 3-hour intervals over one day, extracting a total of 55 gallons of LNAPL-water mixture, of which approximately 20 gallons were LNAPL. Due to the shallower screen interval of well VE-1, extraction at adjacent deeper-screened well EW-1 caused VE-1 to dewater, making extraction of LNAPL at VE-1 difficult. Based on observed decreasing depths to

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water during the first two MPE events, it is likely monitoring well MW-5 is within the radii of influence (ROI) of extraction from wells EW-1, EW-2, and EW-3. Also, based on observed decreasing depths to water, extraction well EW-3 is likely within the ROI of extraction from wells EW-1, EW-2, and MW-4.

Prior to MPE, LNAPL was observed in four wells (VE-1, MW-4, EW-1, and EW-3). LNAPL thicknesses at these wells observed during gauging events conducted in 2009 and 2012, prior to MPE events, ranged from 0.01 to 0.70 foot.

Following three MPE events, LNAPL was not measured in wells EW-1, EW-2, and EW-3. During the November 2012 groundwater monitoring event, measurable LNAPL thicknesses of greater than 0.01 foot were only observed in two wells (MW-4 and VE-1); however, the extraction wells were not monitored. Observed LNAPL thicknesses have generally decreased from the first to third MPE event.

Line graphs depicting LNAPL and groundwater elevation and LNAPL thickness for wells EW-1, EW-3, VE-1, and MW-4 are presented as **Graph 1**, **Graph 2**, **Graph 3**, and **Graph 4**, respectively.

4.1 Management of Investigation Derived Wastes

LNAPL-water mixture generated during enhanced LNAPL recovery activities was hauled offsite by Emerald for recycling at their Airport Way treatment facility. Bills of Lading are included in **Appendix C.**

5 Conclusions

Following three MPE events, LNAPL was not observed at extraction wells EW-1 and EW-3 at the conclusion of the August 2012 event. LNAPL was also not observed at extraction wells EW-2 and EW-3 and monitoring well MW-4 during October 2012 gauging. This indicates extractable LNAPL was removed from the subsurface within the radii of influence of these wells.

Petroleum hydrocarbon impacts to soil were not detected southwest of the site at monitoring well MW-10. Impacts to soil were vertically delineated to depths of 15 feet bgs in soil borings SB-1, SB-4 and EW-2, and to 20 feet bgs in SB-2 and EW-3.

A total of 983 gallons of LNAPL-groundwater mixture was extracted during the events, indicating that MPE is effective at extracting LNAPL at the site.

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6 References

Alisto Engineering Group, 1995. Remedial Investigation Report, Service Station No. 11060, (December 11, 1995).

Alisto Engineering Group, 1996. *Remediation System Well Installations, Service Station No. 11060*, (September, 1996).

Alisto Engineering Group, 1997. *Additional Site Investigation Report, Service Station No. 11060*, (December, 1997).

ARCADIS U.S. Inc., 2010. 2010 Subsurface Investigation Report, (October 8, 2010).

ARCADIS U.S. Inc., 2011. Remedial Action Plan, Former ARCO Facility No. 11060, (December 23, 2011).

Geraghty & Miller, Inc., 1992. Site Characterization, BP Oil Company Service Station No. 11060. (December 23, 1992).

G-Logics, Inc., 2008. Phase II Environmental Site Assessment, Huling Brothers Sites C and D, 4550 Fauntleroy Way SW and 4550 38th Avenue SW, Seattle, WA, (January 18, 2008).

Lasmanis R. 1991. The Geology of Washington. Rocks and Minerals. 66:263-277.

RZA AGRA, Inc., 1993. Addition Subsurface Characterization Report, BP Service Station No.11060. (June, 1993).

United States Geological Survey. 1994. *Ground Water Atlas of the United States, Segment 7- Idaho, Oregon and Washington.* 32 p.

Washington State Department of Natural Resources. 2005. *Geologic Map of Washington State*.

Tables

4580 Fauntleroy Way Southwest, Seattle, WA 98126

Well	Date	Notes	тос	DTW	NAPL	GWE	GRO	DRO	НО	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDB	EDC	Total Lead	Dissolved Lead
Model Toxics	Control Act (M	TCA) Method A	Cleanup Lev	els (CULs) in	μg/L		800/1,000	500	500	5	1,000	700	1,000	20	0.01	5	15	
GMW-1	5/10/2011	(NP)		22.08	0.0		5,930	1,900	<420	2.4	<1.0	69.7	94.8	<1.0			28.4	
GMW-1	11/29/2011	(NP)		23.83	0.0		6,080	610	<380	<1.0	<1.0	86.9	113				<10.0	
GMW-1	6/1/2012	(NM)																
MW-1	5/11/1993		99.89	23.02		76.87	3,300			82	11	8	14					
MW-1	3/4/1994		99.89	24.32		75.57	830	580		6	3	3	11				38	<3
MW-1	7/6/1994		99.89	24.60		75.29	900	<250		5	<0.5	2	10					
MW-1	10/7/1994		99.89	24.97		74.92	1,500			6	<0.5	3	11					
MW-1	12/28/1994		99.89	24.86		75.03	1,400			5	<0.5	2	7					
MW-1	3/13/1995		99.89	24.16		75.73	1,400			16	<0.5	3	9					
MW-1	6/30/1995		99.89	23.98		75.91	1,400			4	<0.5	3	7					
MW-1	9/6/1995		99.89	24.30		75.59	1,300			5	<0.5	3	6					
MW-1	12/8/1995		99.89	24.41		75.48	1,300			7	2	2	7					
MW-1	3/11/1996		99.89	23.11		76.78	900			3	<0.5	<0.5	1					
MW-1	6/18/1996		99.89	22.80		77.09	400			1	1	<0.5	2					
MW-1	9/9/1996		99.89	23.11		76.78	600			2	<0.5	1	1	13				
MW-1	12/11/1996		99.89	23.07		76.82	710			4	2	2	4	<10				
MW-1	3/13/1997		99.89	22.12		77.77	100			<0.5	<0.5	<0.5	<1.0	<5				
MW-1	6/5/1997		99.89	21.75		78.14	250			2	2	<0.5	<1.5	5				
MW-1	9/5/1997		99.89	22.03		77.86	300			8	4	2	6	8				
MW-1	4/2/1998		99.89	21.27		78.62	210			1	3	<0.5	<1.5	<5				
MW-1	6/8/1998		99.89	21.53		78.36	300			<0.5	3	1	4	6				
MW-1	12/9/1998		99.89	22.22		77.67	<500			<0.5	<5.0	<5.0	<5.0	<5.0				
MW-1	6/26/1999		99.89	21.08		78.81	<100			<1.0	<1.0	<1.0	<1.0	<1.0				
MW-1	9/28/1999		99.89	21.88		78.01												
MW-1	1/19/2000		99.89	21.46		78.43	<50			<0.5	4	1	3	<0.5				
MW-1	3/24/2000		99.89	21.40		78.49												
MW-1	7/2/2000		99.89	21.92		77.97	120			1	<0.5	1	2	2				
MW-1	9/14/2000		99.89	22.54		77.35												
MW-1	12/14/2000		99.89	22.81		77.08	1,700			<10	19	<10	<30	<40				
MW-1	9/22/2001		99.89	23.55		76.34												
MW-1	12/9/2001		99.89	23.63		76.26												
MW-1	3/20/2002		99.89	22.88		77.01												
MW-1	6/11/2002		99.89	23.02		76.87												
MW-1	12/21/2002	(NS)	99.89	24.54		75.35												
MW-1	3/19/2003	(NS)	99.89	24.50		75.39												
MW-1	6/18/2003	(NS)	99.89	24.36		75.53												
MW-1	9/23/2003	(NS)	99.89															
MW-1	10/21/2003	(P)	99.89	25.04		74.85	3,270			32.5	4.61	17.3	19.2	<1.00				
MW-1	6/29/2004	(NS)	99.89	24.22		75.67												

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Well	Date	Notes	тос	DTW	NAPL	GWE	GRO	DRO	НО	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDB	EDC	Total Lead	Dissolved Lead
Model Toxics	Control Act (M	TCA) Method A	Cleanup Leve	els (CULs) in	μg/L		800/1,000	500	500	5	1,000	700	1,000	20	0.01	5	15	
MW-1	11/15/2004	(NS)	99.89	25.11		74.78												
MW-1	4/14/2005	(NS)	99.89	25.10		74.79												
MW-1	12/18/2005	(NP)	99.89	25.46		74.43	2,960			10.8	2.04	1.23	2.76	<1.00				
MW-1	6/11/2006	(NP)	99.89	24.54		75.35	1,840			11.4	1.12	1.6	2.34	19.8				
MW-1	11/5/2006	(NP)	99.89	25.59		74.30	3,880			73.2	6.12	2.04	<6.00					
MW-1	9/25/2007	(NP)	99.89	25.08		74.81	1,640			27.8	1.67	0.86	<3.00					
MW-1	12/31/2007	(NP)	99.89	25.23		74.66	1,970			22.7	1.34	1.03	<3.00	-		-		
MW-1	5/29/2008	(NP)	99.89	25.01		74.88	2,370			3.58	0.58	<0.500	<3.00	-				
MW-1	10/28/2008	(NP)	99.89	25.80		74.09	1,450			2.8	1.07	<0.500	<3.00					
MW-1	6/22/2009	(NP)	99.89	26.11		73.78	2,200			30	5.7	24	30.5				4.9	<2.00
MW-1	12/15/2009	(NP)	99.89	26.31		73.58	1,500			11	2	4.8	3.6				3.8	<2.00
MW-1	3/24/2010	(NS)	267.43	21.03	0.0	246.40												
MW-1	5/24/2010	(NP)	99.89	25.20		74.69	940			18	<2.5	<2.5	6.4					
MW-1	5/24/2010	(Dup)(NP)	99.89	25.20		74.69	940			22	<2.5	<2.5	6.8					
MW-1	10/12/2010	(NP)	267.43	25.09	0.0	242.34	849			2.8	<1.0	1.2	<3.0	5.2			<10.0	
MW-1	5/10/2011	(NP)	267.43	23.60	0.0	243.83	642	840	<420	17.8	6.6	1.8	10.9	2.5			<10.0	
MW-1	11/29/2011	(NP)	267.43	24.84	0.0	242.59	815	<75	<380	5.5	<1.0	<1.0	<3.0				10.3	
MW-1	6/1/2012	(NP)	267.43	23.67	0.0	243.76	544	362	<396	3.6	<1.0	<1.0	3.0	7.4			<10.0	<10.0
MW-2	5/11/1993		99.05	22.98		76.07	17,000			2,500	48	100	240					
MW-2	3/4/1994		99.05	24.30		74.75	4,300	1,300		1,500	20	130	180				5	<3
MW-2	7/6/1994		99.05	24.54		74.51	4,400	390		1,100	16	53	97					
MW-2	10/7/1994		99.05	24.94		74.11	4,400			1,100	18	57	82					
MW-2	12/28/1994		99.05	24.60		71 15	2 4 0 0											
MW-2						74.45	2,100			250	5	13	14					
1 N/N/ 2	3/13/1995		99.05	23.84		75.21	2,700			200	5 12	29	50					
MW-2	6/30/1995		99.05 99.05	23.84 23.72		75.21 75.33	2,700 3,400			200 400	5 12 8	29 50	50 39		-			
MW-2	6/30/1995 9/6/1995		99.05 99.05 99.05	23.84 23.72 23.97		75.21 75.33 75.08	2,700 3,400 3,400			200 400 350	5 12 8 8	29 50 50	50 39 35					
MW-2 MW-2	6/30/1995 9/6/1995 12/8/1995		99.05 99.05 99.05 99.05	23.84 23.72 23.97 23.97	 	75.21 75.33 75.08 75.08	2,700 3,400 3,400 3,100	 	 	200 400 350 610	5 12 8 8 5	29 50 50 29	50 39 35 36	 	 	 	 	
MW-2 MW-2 MW-2	6/30/1995 9/6/1995 12/8/1995 3/11/1996		99.05 99.05 99.05 99.05 99.05	23.84 23.72 23.97 23.97 22.66	 	75.21 75.33 75.08 75.08 76.39	2,700 3,400 3,400 3,100 5,400	 	 	200 400 350 610 280	5 12 8 8 5 12	29 50 50 29 100	50 39 35 36 120	 	 	 	 	
MW-2 MW-2 MW-2 MW-2	6/30/1995 9/6/1995 12/8/1995 3/11/1996 6/18/1996		99.05 99.05 99.05 99.05 99.05 99.05	23.84 23.72 23.97 23.97 22.66 22.18	 	75.21 75.33 75.08 75.08 76.39 76.87	2,700 3,400 3,400 3,100 5,400 4,500	 	 	200 400 350 610 280 280	5 12 8 8 5 12	29 50 50 29 100 130	50 39 35 36 120 56	 	 	 	 	
MW-2 MW-2 MW-2 MW-2 MW-2	6/30/1995 9/6/1995 12/8/1995 3/11/1996 6/18/1996 9/9/1996		99.05 99.05 99.05 99.05 99.05 99.05	23.84 23.72 23.97 23.97 22.66 22.18 22.72	 	75.21 75.33 75.08 75.08 76.39 76.87 76.33	2,700 3,400 3,400 3,100 5,400 4,500 4,100	 	 	200 400 350 610 280 280 790	5 12 8 8 5 12 12	29 50 50 29 100 130 78	50 39 35 36 120 56 35	 <1.0	 	 	 	
MW-2 MW-2 MW-2 MW-2 MW-2 MW-2	6/30/1995 9/6/1995 12/8/1995 3/11/1996 6/18/1996 9/9/1996 12/11/1996		99.05 99.05 99.05 99.05 99.05 99.05 99.05	23.84 23.72 23.97 23.97 22.66 22.18 22.72 22.67	 	75.21 75.33 75.08 75.08 76.39 76.87 76.33 76.38	2,700 3,400 3,400 3,100 5,400 4,500 4,100 3,700	 	 	200 400 350 610 280 280 790 460	5 12 8 8 8 5 12 12 5 13	29 50 50 29 100 130 78 65	50 39 35 36 120 56 35 41	 <1.0	 	 	 	
MW-2 MW-2 MW-2 MW-2 MW-2 MW-2 MW-2	6/30/1995 9/6/1995 12/8/1995 3/11/1996 6/18/1996 9/9/1996 12/11/1996 3/13/1997		99.05 99.05 99.05 99.05 99.05 99.05 99.05 99.05	23.84 23.72 23.97 23.97 22.66 22.18 22.72 22.67 21.91	 	75.21 75.33 75.08 75.08 76.39 76.87 76.33 76.38 77.14	2,700 3,400 3,400 3,100 5,400 4,500 4,100 3,700 3,200	 	 	200 400 350 610 280 280 790 460 140	5 12 8 8 8 5 12 12 12 5 13	29 50 50 29 100 130 78 65 130	50 39 35 36 120 56 35 41 48	 <1.0 43 <50	 			
MW-2 MW-2 MW-2 MW-2 MW-2 MW-2 MW-2 MW-2	6/30/1995 9/6/1995 12/8/1995 3/11/1996 6/18/1996 9/9/1996 12/11/1996 3/13/1997 6/5/1997		99.05 99.05 99.05 99.05 99.05 99.05 99.05 99.05 99.05	23.84 23.72 23.97 23.97 22.66 22.18 22.72 22.67 21.91 21.06		75.21 75.33 75.08 75.08 76.39 76.87 76.33 76.38 77.14 77.99	2,700 3,400 3,400 3,100 5,400 4,500 4,100 3,700 3,200 3,400	 		200 400 350 610 280 280 790 460 140	5 12 8 8 5 12 12 5 13 12 22	29 50 50 29 100 130 78 65 130 180	50 39 35 36 120 56 35 41 48 79	 <1.0 43 <50 <100	 			
MW-2 MW-2 MW-2 MW-2 MW-2 MW-2 MW-2 MW-2	6/30/1995 9/6/1995 12/8/1995 3/11/1996 6/18/1996 9/9/1996 12/11/1996 3/13/1997 6/5/1997		99.05 99.05 99.05 99.05 99.05 99.05 99.05 99.05 99.05	23.84 23.72 23.97 23.97 22.66 22.18 22.72 22.67 21.91 21.06 21.74		75.21 75.33 75.08 75.08 76.39 76.87 76.33 76.38 77.14 77.99	2,700 3,400 3,400 3,100 5,400 4,500 4,100 3,700 3,200 3,400	 		200 400 350 610 280 280 790 460 140	5 12 8 8 5 12 12 5 13 12 22	29 50 50 29 100 130 78 65 130 180	50 39 35 36 120 56 35 41 48 79	<1.0 43 <50 <100				
MW-2 MW-2 MW-2 MW-2 MW-2 MW-2 MW-2 MW-2	6/30/1995 9/6/1995 12/8/1995 3/11/1996 6/18/1996 9/9/1996 12/11/1996 3/13/1997 6/5/1997 9/5/1998		99.05 99.05 99.05 99.05 99.05 99.05 99.05 99.05 99.05 99.05	23.84 23.72 23.97 23.97 22.66 22.18 22.72 22.67 21.91 21.06 21.74 20.71		75.21 75.33 75.08 75.08 76.39 76.87 76.33 76.38 77.14 77.99 77.31	2,700 3,400 3,400 3,100 5,400 4,500 4,100 3,700 3,200 3,400 4,700	 		200 400 350 610 280 280 790 460 140 160 	5 12 8 8 8 5 12 12 5 13 12 22 	29 50 50 29 100 130 78 65 130 180 	50 39 35 36 120 56 35 41 48 79 	<1.0 43 <50 <100 <50				
MW-2 MW-2 MW-2 MW-2 MW-2 MW-2 MW-2 MW-2	6/30/1995 9/6/1995 12/8/1995 3/11/1996 6/18/1996 9/9/1996 12/11/1996 3/13/1997 6/5/1997 9/5/1997 4/2/1998 6/8/1998		99.05 99.05 99.05 99.05 99.05 99.05 99.05 99.05 99.05 99.05 99.05	23.84 23.72 23.97 23.97 22.66 22.18 22.72 22.67 21.91 21.06 21.74 20.71 21.25		75.21 75.33 75.08 75.08 76.39 76.87 76.33 76.38 77.14 77.99 77.31 78.34 77.80	2,700 3,400 3,400 3,100 5,400 4,500 4,100 3,700 3,200 3,400 4,700 3,800	 		200 400 350 610 280 280 790 460 140 160 170 420	5 12 8 8 8 5 12 12 5 13 12 22 51 26	29 50 50 29 100 130 78 65 130 180 35 150	50 39 35 36 120 56 35 41 48 79 210 75					
MW-2 MW-2 MW-2 MW-2 MW-2 MW-2 MW-2 MW-2	6/30/1995 9/6/1995 12/8/1995 3/11/1996 6/18/1996 9/9/1996 12/11/1996 3/13/1997 6/5/1997 9/5/1997 4/2/1998 6/8/1998 9/17/1998		99.05 99.05 99.05 99.05 99.05 99.05 99.05 99.05 99.05 99.05 99.05 99.05	23.84 23.72 23.97 23.97 22.66 22.18 22.72 22.67 21.91 21.06 21.74 20.71 21.25 22.10		75.21 75.33 75.08 75.08 76.39 76.87 76.33 76.38 77.14 77.99 77.31 78.34 77.80	2,700 3,400 3,400 3,100 5,400 4,500 4,100 3,700 3,200 3,400 4,700 3,800 2,900	 		200 400 350 610 280 280 790 460 140 160 170 420 720	5 12 8 8 8 5 12 12 5 13 12 22 51 26 15	29 50 50 29 100 130 78 65 130 180 35 150 79	50 39 35 36 120 56 35 41 48 79 210 75 44					
MW-2 MW-2 MW-2 MW-2 MW-2 MW-2 MW-2 MW-2	6/30/1995 9/6/1995 12/8/1995 3/11/1996 6/18/1996 9/9/1996 12/11/1996 3/13/1997 6/5/1997 9/5/1997 4/2/1998 6/8/1998		99.05 99.05 99.05 99.05 99.05 99.05 99.05 99.05 99.05 99.05 99.05	23.84 23.72 23.97 23.97 22.66 22.18 22.72 22.67 21.91 21.06 21.74 20.71 21.25		75.21 75.33 75.08 75.08 76.39 76.87 76.33 76.38 77.14 77.99 77.31 78.34 77.80	2,700 3,400 3,400 3,100 5,400 4,500 4,100 3,700 3,200 3,400 4,700 3,800	 		200 400 350 610 280 280 790 460 140 160 170 420	5 12 8 8 8 5 12 12 5 13 12 22 51 26	29 50 50 29 100 130 78 65 130 180 35 150	50 39 35 36 120 56 35 41 48 79 210 75					

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Well	Date	Notes	тос	DTW	NAPL	GWE	GRO	DRO	НО	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDB	EDC	Total Lead	Dissolved Lead
Model Toxics	Control Act (M	ITCA) Method A	Cleanup Leve	els (CULs) in	μg/L		800/1,000	500	500	5	1,000	700	1,000	20	0.01	5	15	
MW-2	6/26/1999		99.05	21.26		77.79	3,400			400	29	160	130	13				
MW-2	9/28/1999		99.05	21.75		77.30	7,300			690	20	23	110	87				
MW-2	1/19/2000		99.05	21.12		77.93	8,700			920	20	260	74	<0.5				
MW-2	3/24/2000		99.05	20.74		78.31	10,000			310	79	240	97	<5				
MW-2	7/2/2000		99.05	21.51		77.54	8,200			520	35	190	85	49				
MW-2	9/14/2000		99.05	22.31		76.74	14,000			1,100	100	110	100	<5				
MW-2	12/14/2000		99.05	22.97		76.08	15,000			740	<10	68	<30	<40				
MW-2	9/22/2001		99.05	23.59		75.46	12,000			180	9	240	110	20				
MW-2	12/9/2001		99.05	23.27		75.78	14,000			310	9.5	100	96	<4.0				
MW-2	3/20/2002		99.05	22.41	-	76.64	15,000			250	<5.0	220	98	280				
MW-2	6/11/2002		99.05	22.61		76.44	13,000			290	<10	160	57	<40				
MW-2	12/21/2002	(P)	99.05	24.30		74.75	5,970			111	13.4	211	70.3	148				
MW-2	3/19/2003	(P)	266.69	23.90	0.0	242.79	5,270			79.9	8.71	156	55	<25.0				
MW-2	6/18/2003	(P)	99.05	23.87		75.18	6,770			36.7	14.7	245	119	143				
MW-2	9/23/2003	(P)	266.69	24.33	0.0	242.36	6,490			40.5	15.8	179	103	<20.0				
MW-2	10/21/2003	(P)	99.05	24.38		74.67	4,600			31.1	9.38	86	61	<1.00				
MW-2	6/29/2004	(NP)	99.05	23.74		75.31	5,550			17.8	11.2	228	76.5	95.2				
MW-2	11/15/2004	(NP)	99.05	24.70		74.35	5,670			12.3	6.11	135	63.3	<2.00				
MW-2	4/14/2005	(NP)	99.05	24.69		74.36	4,680			130	2.8	41.8	26.6	<2.00				
MW-2	12/18/2005	(NP)	99.05	25.15		73.90	5,700			122	3.5	43.9	27.8	<5.00				
MW-2	6/11/2006	(NP)	99.05	24.01		75.04	5,450			4.48	5.8	118	56.7	<2.00				
MW-2	11/5/2006	(NP)	99.05	25.40		73.65	7,490			263	<5.00	46.2	<30.0					
MW-2	9/25/2007	(NP)	99.05	24.72		74.33	7,530			715	9.74	50.8	64					
MW-2	12/31/2007	(NP)	99.05	24.67		74.38	6,000			477	10.6	69.3	76.3					
MW-2	5/29/2008	(NP)	99.05	24.73		74.32	9,600			648	11.1	55.9	48.4					
MW-2	10/28/2008	(NP)	99.05	25.74		73.31	10,300			1,430	16	194	145					
MW-2	6/22/2009	(NP)	99.05	25.91		73.14	4,800			1,200	40	100	130				<2.00	<2.00
MW-2	12/15/2009	(NP)	99.05	25.87		73.18	4,300			1,600	8.2	66	82				<2.00	<2.00
MW-2	3/24/2010	(NS)	266.69	21.11	0.0	245.58												
MW-2	5/24/2010	(NP)	99.05	24.64		74.41	4,200			320	7.7	69	84	 45.5				
MW-2	10/12/2010	(NP)	266.69	25.03	0.0	241.66	3,590	4 000		1,890	14.8	54.8	39.7	15.5			<10.0	
MW-2	5/10/2011	(NP)	266.69	23.23	0.0	243.46	5,520	1,000	2,000	281	4.2	69.9	49.9	7.3			<10.0	
MW-2	5/10/2011	(Dup)(NP)	266.69	23.23	0.0	243.46	5,000	850	1,600 <380	156	3.9	76.3	53.2 61.6	5.6			<10.0	
MW-2 MW-2	11/29/2011 6/1/2012	(NP)	266.69 266.69	24.82	0.0	241.87	5,640	98		549	7.0 12.7	82.6 64.2		5.0			<10.0 10.0	<10.0
IVIVV-Z	0/1/2012	(NP)	II.	23.60	0.0	243.09	2,940	2,240	3,080	107	12.1	04.2	46.1	5.0			10.0	<10.0
MW-3	6/7/1993		98.53	22.28		76.25	2,200			140	7	13	14					
MW-3	3/4/1994		98.53	23.62		74.91	1,200	590		99	2	11	10				4	<3
MW-3	7/6/1994		98.53	23.84		74.69	1,500	270		44	6	26	27					
MW-3	10/7/1994		98.53	24.21	-	74.32	1,500			63	4	16	13					

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Well	Date	Notes	тос	DTW	NAPL	GWE	GRO	DRO	НО	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDB	EDC	Total Lead	Dissolved Lead
Model Toxics	Control Act (M	TCA) Method A	Cleanup Lev	els (CULs) in	μg/L		800/1,000	500	500	5	1,000	700	1,000	20	0.01	5	15	
MW-3	12/28/1994		98.53	23.91		74.62	1,800			77	3	13	9					
MW-3	3/13/1995		98.53	23.12		75.41	1,700			87	4	18	10					
MW-3	6/30/1995		98.53	23.87		74.66	1,800			90	3	52	13					
MW-3	9/6/1995		98.53	23.14		75.39	1,700			96	3	41	14					
MW-3	12/8/1995		98.53	23.20		75.33	1,800			73	4	23	15					
MW-3	3/11/1996		98.53	21.63		76.90	2,800			120	11	170	36					
MW-3	6/18/1996		98.53	21.20		77.33	3,500			150	18	320	59					
MW-3	9/9/1996		98.53	21.67		76.86	3,500			62	16	220	96	15				
MW-3	12/11/1996		98.53	21.87		76.66	2,100			96	9	<0.5	34	<10				
MW-3	3/13/1997		98.53	20.67		77.86	3,100			97	13	250	65	<50				
MW-3	6/5/1997		98.53	19.83		78.70	3,900			46	19	250	130	<100				
MW-3	9/5/1997		98.53	20.72		77.81	4,400			98	29	270	140	<5				
MW-3	4/2/1998		98.53	19.63		78.90	3,700			80	25	320	150	<50				
MW-3	6/8/1998		98.53	20.26		78.27	3,500			60	22	240	96	<50				
MW-3	9/17/1998		98.53	21.21		77.32												
MW-3	12/9/1998		98.53	21.06		77.47	3,200			63	9	170	59	<5.0				
MW-3	3/17/1999		98.53	18.72		79.81												
MW-3	6/26/1999		98.53	19.92		78.61	3,100			72	16	270	52	56				
MW-3	9/28/1999		98.53	20.79		77.74												
MW-3	1/19/2000		98.53	20.19		78.34	5,700			72	29	430	110	<0.5				
MW-3	3/24/2000		98.53	19.64		78.89												
MW-3	7/2/2000		98.53	20.53		78.00	3,300			35	18	230	64	7				
MW-3	9/14/2000		98.53	21.34		77.19												
MW-3	12/14/2000		98.53	21.90		76.63	5,500			40	<10	210	<30	<40				
MW-3	9/22/2001		98.53	22.82		75.71												
MW-3	12/9/2001		98.53	22.50		76.03	4,200			42	4.1	77	22	<4.0				
MW-3	3/20/2002		98.53	21.55		76.98												
MW-3	6/11/2002		98.53	21.69		76.84	8,400			77	<5.0	320	54	<20				
MW-3	12/21/2002		98.53	24.37		74.16	3,440			37.7	3.31	68.6	18.3	39.3				
MW-3	3/19/2003	(NS)	98.53	23.17		75.36												
MW-3	6/18/2003		98.53	22.82		75.71	4,020			39.1	4.22	113	30.3	62.6				
MW-3	9/23/2003	(NS)	98.53	23.55		74.98												
MW-3	10/21/2003		98.53	23.52		75.01	3,190			19.8	2.92	31.2	16.3	<1.00				
MW-3	6/29/2004	(NS)	98.53															
MW-3	11/15/2004	(NP)	98.53	23.95		74.58	3,170			15.8	2.36	20.9	11.1	2.36				
MW-3	4/14/2005	(NP)	98.53	23.90		74.63	3,340			17.1	5.21	14.3	11.2	<2.00				
MW-3	12/18/2005	(NP)	98.53	24.42		74.11	4,150			15.1	2.92	20.7	15.1	<1.00				
MW-3	6/11/2006	(NP)	98.53	23.48		75.05	4,000			20.9	3.6	30	21.3	1.11				
MW-3	11/5/2006	(NP)	98.53	24.59		73.94	4,970			16.8	2.85	19	16.6					

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Well	Date	Notes	тос	DTW	NAPL	GWE	GRO	DRO	НО	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDB	EDC	Total Lead	Dissolved Lead
Model Toxics	Control Act (M	ITCA) Method A	Cleanup Leve	els (CULs) in	μg/L		800/1,000	500	500	5	1,000	700	1,000	20	0.01	5	15	
MW-3	9/25/2007	(NP)	98.53	23.84		74.69	4,530			18.2	2.34	17.1	13.8					
MW-3	12/31/2007	(NP)	98.53	23.83		74.70	4,490			16.5	2.38	32.7	16.1					
MW-3	5/29/2008	(NP)	98.53	23.90		74.63	5,350			16.5	1.83	14.4	15					
MW-3	10/28/2008	(NP)	98.53	24.97		73.56	3,250			14.4	1.86	13.8	10.3					
MW-3	6/22/2009	(NP)	98.53	25.29		73.24	2,000			15	1.7	35	7.3				<2.00	<2.00
MW-3	12/15/2009	(NP)	98.53	25.14		73.39	2,100			13	1.5	28	7.3				7.7	<2.00
MW-3	3/24/2010	(NS)	266.00	21.21	0.0	244.79												
MW-3	5/24/2010	(NP)	98.53	24.10		74.43	2,300			29	6.2	28	19					
MW-3	10/12/2010	(NP)	266.00	24.40	0.0	241.60	2,380			31.1	<1.0	16.6	4.7	<1.0			<10.0	
MW-3	5/10/2011	(NP)	266.00	22.55	0.0	243.45	3,280	820	840	33.6	1.2	57.5	7.9	2.4		-	<10.0	
MW-3	11/29/2011	(NP)	266.00	24.19	0.0	241.81	3,130	<76	<380	30.4	<1.0	21.0	6.9				<10.0	
MW-3	6/1/2012	(NP)	266.00	22.94	0.0	243.06	2,360	512	446	29.0	<1.0	35.9	7.6	2.6			<10.0	<10.0
MW-4	5/11/1993		100.26	23.03		77.23	31,000			8,700	4,000	57	3,200					
MW-4	3/4/1994		100.26	26.83	4.00	76.63												
MW-4	7/6/1994		100.26	25.63	1.43	75.77												
MW-4	10/7/1994		100.26	26.07	1.63	75.49												
MW-4	12/28/1994		100.26	25.85	1.43	75.55												
MW-4	3/13/1995		100.26	25.59	1.88	76.17							-					
MW-4	6/30/1995		100.26	24.64	1.11	76.51							1	-				
MW-4	9/6/1995		100.26	24.78	1.05	76.32							-					
MW-4	12/8/1995		100.26	24.94	1.05	76.16							-	-		-		
MW-4	3/11/1996		100.26	24.68	2.38	77.48							1	-		-		
MW-4	6/18/1996		100.26	24.04	2.11	77.91							-	-				
MW-4	9/9/1996		100.26	24.08	1.85	77.66												
MW-4	12/11/1996		100.26	23.07	0.38	77.49												
MW-4	3/17/1999		100.26				100,000			12,000	17,000	1,800	10,000	<50				
MW-4	9/28/1999		100.26				97,000			27,000	65,000	18,000	100,000	<1,000				
MW-4	1/19/2000		100.26				100,000			22,000	18,000	2,400	15,000	<5				
MW-4	3/24/2000		100.26				100,000			13,000	18,000	2,200	13,000	<5				
MW-4	7/2/2000		100.26				92,000			13,000	17,000	1,800	10,000	220				
MW-4	9/14/2000	(Dup)	100.26				160,000			16,000	22,000	<500	7,800	<2,000				
MW-4	9/14/2000		100.26				160,000			22,000	27,000	6,900	23,000	<5				
MW-4	9/22/2001		100.26	26.60	3.27	76.28												
MW-4	12/9/2001		100.26	25.50	2.37	76.66	110,000			12,000	10,000	1,900	8,800	<40				
MW-4	3/20/2002		100.26	26.50	3.73	76.74	100,000			13,000	19,000	2,500	13,000	360				
MW-4	6/11/2002		100.26	24.25	1.10	76.89	95,000			13,000	17,000	2,300	12,000	<400				
MW-4	12/21/2002	(NS)	100.26															
MW-4	3/19/2003	(NS)	100.26															
MW-4	6/18/2003	(NS)	100.26															

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Well	Date	Notes	тос	DTW	NAPL	GWE	GRO	DRO	НО	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDB	EDC	Total Lead	Dissolved Lead
Model Toxics	Control Act (M	TCA) Method A	Cleanup Leve	els (CULs) in	μg/L		800/1,000	500	500	5	1,000	700	1,000	20	0.01	5	15	
MW-4	9/23/2003		100.26	22.31	0.07	78.01	75,900			7,140	8,980	1,270	8,820	<50.0				
MW-4	10/21/2003		100.26	21.79		78.47	44,700			3,190	6,370	779	6,160	<500				
MW-4	6/29/2004	(NP)	267.78	22.88	0.0	244.90	378,000			11,200	16,300	3,550	22,600	2,500				
MW-4	11/15/2004	(NS)	100.26	23.07	1.45	78.35												
MW-4	4/14/2005	(NS)	100.26	23.82	1.89	77.95												
MW-4	12/18/2005	(NP)	100.26	23.43	0.08	76.89	214,000			9,430	12,800	2,000	13,500	<100				
MW-4	6/11/2006	(NP)	100.26	21.87	0.01	78.40	117,000			13,000	18,200	2,300	14,000	<1,000				
MW-4	11/5/2006	(NP)	100.26	22.92	0.01	77.35	120,000			6,950	10,500	2,070	13,500					
MW-4	9/25/2007	(NS)	100.26	22.15	0.02	78.13								-				
MW-4	12/31/2007	(NS)	100.26															
MW-4	5/29/2008	(NM)	267.78															
MW-4	10/28/2008	(DRY)	100.26															
MW-4	6/22/2009	(NS)	100.26	24.21	0.04	76.08												
MW-4	12/15/2009	(NS)	100.26	24.04	0.28	76.44												
MW-4	5/24/2010	(NM)	267.78															
MW-4	5/10/2011	(NM)	267.78															
MW-4	11/29/2011	(NM)	267.78															
MW-4	6/1/2012	(NM)	267.78															
MW-5	5/11/1993		100.88	22.97		77.91	1,800			130	25	23	22					
MW-5	3/4/1994		100.88	24.35		76.53	710	420		26	6	11	8				27	<3
MW-5	7/6/1994		100.88	24.72		76.16	400	<250		11	3	1	4					
MW-5	10/7/1994		100.88	25.02	-	75.86	510			13	4	2	4	-				
MW-5	12/28/1994		100.88	24.98	-	75.90	1,300			46	13	20	22					
MW-5	3/13/1995		100.88	24.41	-	76.47	2,800			34	8	40	28	-				
MW-5	6/30/1995		100.88	24.06	-	76.82	1,100			50	11	12	15	-				
MW-5	9/6/1995		100.88	24.27		76.61	1,100			42	14	30	18					
MW-5	12/8/1995		100.88	24.49		76.39	1,700			32	7	42	62					
MW-5	3/11/1996		100.88	23.33		77.55	8,100			85	9	210	140					
MW-5	6/18/1996		100.88	22.91		77.97	2,700			100	17	88	25					
MW-5	9/9/1996		100.88	23.07		77.81	2,200			180	29	100	27	<1.0				
MW-5	12/11/1996		100.88	23.13		77.75	4,900			110	18	96	250	12				
MW-5	3/13/1997		100.88	22.28		78.60	5,500			190	35	190	73	<50				
MW-5	6/5/1997		100.88	21.78		79.10	4,100			290	42	200	37	<100				
MW-5	9/5/1997		100.88	21.92		78.96	3,100			420	83	190	730	<50				
MW-5	4/2/1998		100.88	21.35		79.53	5,400			470	89	340	83	<50				
MW-5	6/8/1998		100.88	21.48		79.40	4,200			360	110	220	66	71				
MW-5	9/17/1998		100.88	22.12		78.76												
MW-5	12/9/1998		100.88	22.33		78.55	4,900			170	41	120	120	<1.0				
MW-5	3/17/1999		100.88	20.93		79.95												

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Well	Date	Notes	тос	DTW	NAPL	GWE	GRO	DRO	НО	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDB	EDC	Total Lead	Dissolved Lead
Model Toxics	Control Act (M	TCA) Method A	Cleanup Leve	els (CULs) in	μg/L		800/1,000	500	500	5	1,000	700	1,000	20	0.01	5	15	
MW-5	6/26/1999		100.88	21.02		79.86	3,300			180	82	210	24	8				
MW-5	9/28/1999		100.88	21.76		79.12												
MW-5	1/19/2000		100.88	21.65		79.23	6,500			480	350	370	87	<0.5				
MW-5	3/24/2000		100.88	21.48		79.40												
MW-5	7/2/2000		100.88	22.01	-	78.87	6,100			390	110	290	54	20				
MW-5	9/14/2000		100.88	22.59		78.29												
MW-5	12/14/2000		100.88	22.95		77.93	4,000			26	<10	<10	<30	<40				
MW-5	9/22/2001		100.88	23.86		77.02												
MW-5	12/9/2001		100.88	23.90		76.98	12,000			51	<10	120	140	<10				
MW-5	3/20/2002		100.88	23.13		77.75												
MW-5	6/11/2002		100.88	23.09		77.79	5,700			94	21	110	24	<20				
MW-5	12/21/2002		100.88	24.65		76.23	1,300			6.32	2.95	6.59	11.1	5.88				
MW-5	3/19/2003		100.88	24.68		76.20												
MW-5	6/18/2003		100.88	24.37		76.51	1,950			7.18	1.95	12	24.7	6				
MW-5	9/23/2003		100.88	24.88		76.00												
MW-5	10/21/2003	(NID)	100.88	24.99		75.89	322			1.18	2.19	0.732	3.38	<1.00				
MW-5	6/29/2004	(NP)	100.88	24.22		76.66	1,180			5.4	3.24	4.79	14.1	6.95				
MW-5	11/15/2004	(NP)	100.88	24.97		75.91	399			0.74	<0.500	<0.500	<1.00	<2.00				
MW-5	4/14/2005	(NP)	100.88	25.08		75.80	2,900			14.3	13.4	33.9	40	<2.00				
MW-5 MW-5	12/18/2005	(NP)	100.88	25.47		75.41	661			2.49	2.43	3.58	5.11 3.1	<1.00				
MW-5	6/11/2006	(NP) (NP)	100.88 100.88	24.43 25.55		76.45 75.33	2,830 723			6.08	1.05 0.78	2.78 1.29	<3.00	<1.00				
MW-5	11/5/2006 9/25/2007	(NP)	100.88	24.95		75.33	712			1.41	0.78	0.77	<3.00					
MW-5	12/31/2007	(NP)	100.88	25.16		75.93	7,190			9.4	11.3	38.1	75.7					
MW-5	5/29/2008	(NP)	100.88	25.10		75.72	2,740			7.47	9.12	15.7	23.7					
MW-5	10/28/2008	(NP)	100.88	25.89		74.99	516	 		2.01	1.46	<0.500	3.48					
MW-5	6/22/2009	(NP)	100.88	26.95		73.93	4,800			36	24	87	49.9				23	
MW-5	12/15/2009	(NP)	100.88	26.57		74.31	2,300			24	19	29	23				12	11
MW-5	5/24/2010	(NP)	100.88	25.55		75.33	4,200			59	8.4	96	41					
MW-5	10/12/2010	(NP)	268.46	25.74	0.0	242.72	2,320			31.4	2.6	12.7	4.8	<1.0			<10.0	
MW-5	10/12/2010	(Dup)(NP)	268.46	25.74	0.0	242.72	2,260			31.6	2.6	12.6	4.8	<1.0				
MW-5	5/10/2011	(NP)	268.46	24.61	0.0	243.85	4,710	470	<400	12.4	4.1	39.3	25.5	<1.0			<10.0	
MW-5	11/29/2011	(NP)	268.46	25.55	0.0	242.91	2,210	95	<380	12.3	2.2	6.4	3.1				10.5	
MW-5	6/1/2012	(NP)	268.46	24.60	0.0	243.86	1,620	1,040	<392	13.3	3.0	9.6	10.7	<1.0			<10.0	<10.0
MW-5	6/1/2012	(Dup)(NP)	268.46	24.60	0.0	243.86	1,520	1,030	<388	12.8	2.8	8.8	10	<1.0			<10.0	<10.0
MW-6	9/5/1997		98.62	21.20		77.42	930			<0.5	19	6	15	32				
MW-6	4/2/1998		98.62	19.70		78.92	600			<0.5	10	3	11	6				
MW-6	6/8/1998		98.62	20.58		78.04	430			<0.5	6	2	5	10				
MW-6	9/17/1998		98.62	21.87		76.75												

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Well	Date	Notes	тос	DTW	NAPL	GWE	GRO	DRO	НО	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDB	EDC	Total Lead	Dissolved Lead
Model Toxics	Control Act (M	ITCA) Method A	Cleanup Leve	els (CULs) in	μg/L		800/1,000	500	500	5	1,000	700	1,000	20	0.01	5	15	
MW-6	12/9/1998		98.62	21.20		77.42	260			<1.0	<1.0	1	3	2				
MW-6	3/17/1999		98.62	18.49		80.13												
MW-6	6/26/1999		98.62	18.49		80.13												
MW-6	9/28/1999		98.62	21.40		77.22												
MW-6	1/19/2000		98.62	20.39		78.23	330			<0.5	<0.5	6	10	7				
MW-6	3/24/2000		98.62	19.63		78.99												
MW-6	9/14/2000		98.62	21.92		76.70												
MW-6	12/14/2000		98.62	22.51		76.11	1,000			<10	<10	<10	<30	<40				
MW-6	9/22/2001		98.62	23.31		75.31												
MW-6	12/9/2001		98.62	22.24	-	76.38			-					-		-		
MW-6	3/20/2002		98.62	21.44		77.18			-									
MW-6	6/11/2002		98.62	21.90		76.72												
MW-6	12/21/2002	(NS)	98.62															
MW-6	3/19/2003	(NS)	98.62															
MW-6	6/18/2003	(NS)	98.62															
MW-6	9/23/2003	(NS)	98.62															
MW-6	10/21/2003	(P)	98.62	22.69		75.93	254			10	3.66	0.898	5.03	<1.00				
MW-6	6/29/2004	(NP)	98.62	22.88		75.74	540			6.8	1.73	<0.500	5.65	6.35				
MW-6	11/15/2004	(NP)	98.62	24.12		74.50	370			43.5	14.5	0.58	10.4	<2.00				
MW-6	4/14/2005	(NP)	98.62	23.75		74.87	443			6.39	0.95	<0.500	3.75	<2.00				
MW-6	12/18/2005	(NP)	98.62	24.79		73.83	694			<0.500	<0.500	<0.500	3.01	<1.00				
MW-6	6/11/2006	(NP)	98.62	23.09		75.53	601			<0.500	<0.500	<0.500	<3.00	<1.00				
MW-6	11/5/2006	(NP)	98.62	25.80		72.82	444			<0.500	<0.500	<0.500	<3.00					
MW-6	9/25/2007	(NP)	98.62	24.13		74.49	321			<0.500	<0.500	<0.500	<3.00					
MW-6	12/31/2007	(NP)	98.62	23.59		75.03	168			<0.500	<0.500	<0.500	<3.00					
MW-6	5/29/2008	(NP)	98.62	24.21		74.41	1,620			<0.500	<0.500	<0.500	<3.00					
MW-6	10/28/2008	(NP)	98.62	25.47		73.15	481			<0.500	<0.500	<0.500	<3.00					
MW-6	6/22/2009	(NP)	98.62	25.32		73.30	<50.0			<1.00	<1.00	<1.00	<3.00				<2.00	<2.00
MW-6	12/15/2009	(NP)	98.62	23.33		75.29	190			<1.00	<1.00	<1.00	<2.00				<2.00	<2.00
MW-6	3/24/2010	(NS)	266.06	22.12	0.0	243.94												
MW-6	5/24/2010	(NP)	98.62	22.90		75.72	280			8.1	<2.5	<2.5	<5.0					
MW-6	10/12/2010	(NP)	266.06	23.06	0.0	243.00	<50.0			<1.0	<1.0	<1.0	<3.0	<1.0			<10.0	
MW-6	5/10/2011	(NP)	266.06	22.01	0.0	244.05	96.0	180	<390	<1.0	<1.0	<1.0	<3.0	<1.0			<10.0	
MW-6	11/29/2011	(NP)	266.06	23.42	0.0	242.64	<50.0	<78	<390	<1.0	<1.0	<1.0	<3.0				<10.0	
MW-6	11/29/2011	(Dup)(NP)	266.06	23.42	0.0	242.64	<50.0	<77	<380	<1.0	<1.0	<1.0	<3.0				<10.0	
MW-6	6/1/2012	(NP)	266.06	22.75	0.0	243.31	124	<76.9	<385	<1.0	<1.0	<1.0	<3.0	<1.0			<10.0	<10.0
MW-7	4/2/1998		97.32	18.79		78.53	13,100			<5	35	480	1,100	<50				
MW-7	6/8/1998		97.32	19.60		77.72	12,000			<5.0	40	420	810	63				
MW-7	9/17/1998		97.32	20.82		76.50												

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Well	Date	Notes	тос	DTW	NAPL	GWE	GRO	DRO	НО	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDB	EDC	Total Lead	Dissolved Lead
Model Toxics	Control Act (N	ITCA) Method A (Cleanup Lev	els (CULs) in	μg/L		800/1,000	500	500	5	1,000	700	1,000	20	0.01	5	15	
MW-7	12/9/1998		97.32	20.21		77.11	9,600			<5.0	26	360	610	11				
MW-7	3/17/1999		97.32	17.61		79.71												
MW-7	6/26/1999		97.32	19.29		78.03	8,300			11	24	410	600	<5.0				
MW-7	12/14/2000		97.32															
MW-7	12/9/2001		97.32													-		
MW-7	3/20/2002		97.32											-				
MW-7	6/11/2002		97.32															
MW-7	6/18/2003	(ABANDONED)	97.32															
MW-7	3/24/2010		97.32	20.65		76.67												
MW-8	4/2/1998		98.49	19.99		78.50	<100			<0.5	1	<0.5	<1.5	<5				
MW-8	6/8/1998		98.49	20.39		78.10	<100			<0.5	1	2	<1.5	<5.0				
MW-8	9/17/1998		98.49	21.21		77.28												
MW-8	12/9/1998		98.49	21.03		77.46	<500			<5.0	<5.0	<5.0	<5.0	<5.0				
MW-8	3/17/1999		98.49	19.03		79.46										-		
MW-8	6/26/1999		98.49	20.02		78.47	<500		-	<5.0	<5.0	<5.0	<5.0	<5.0		1		
MW-8	12/14/2000		98.49													-		
MW-8	12/9/2001		98.49											-		-		
MW-8	3/20/2002		98.49															
MW-8	6/11/2002		98.49															
MW-8	6/18/2003	(ABANDONED)	98.49															
MW-8	3/24/2010		98.49	19.78		78.71												
MW-9	10/12/2010	(NP)	263.35	23.89	0.0	239.46	<50.0			<1.0	<1.0	<1.0	<3.0	<1.0			<10.0	
MW-9	5/10/2011	(NP)	263.35	20.70	0.0	242.65	<50.0	160	<420	<1.0	<1.0	<1.0	<3.0	<1.0			<10.0	
MW-9	11/29/2011	(NP)	263.35	22.64	0.0	240.71	<50.0	<76	<380	<1.0	<1.0	<1.0	<3.0			-	<10.0	
MW-9	6/1/2012	(NM)	263.35															
MW-10	6/1/2012	(NP)	268.30	24.20	0.0	244.10	<50.0	<76.9	<385	<1.0	<1.0	<1.0	<3.0	<1.0			<10.0	<10.0
VE-1	4/2/1998						60,500			3,900	2,300	820	4,500	<2,500				
VE-1	9/17/1998						240,000			2,700	2,000	1,400	7,700	<100				
VE-1	12/9/1998						73,000			2,200	1,400	770	3,700	<25				
VE-1	3/17/1999						42,000			4,000	2,400	790	4,100	<25				
VE-1	6/26/1999						42,000			3,800	2,600	670	3,500	<100				
VE-1	9/28/1999						25,000			3,400	2,000	630	3,000	<25				
VE-1	3/24/2000						31,000			3,200	610	27	3,600	<5				
VE-1	7/2/2000						27,000			3,200	1,900	620	3,000	130				
VE-1	9/14/2000						29,000			3,200	2,200	920	3,000	<5				
VE-1	12/14/2000			23.02			28,000			2,400	1,300	580	2,600	<40				
VE-1	9/22/2001			24.22														

4580 Fauntleroy Way Southwest, Seattle, WA 98126

All analytical results are presented in micrograms per liter (µg/L)

	Date	Notes	TOC	DTW	NAPL	GWE	GRO	DRO	НО	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDB	EDC	Total Lead	Dissolved Lead
Model Toxics Co	ontrol Act (M	TCA) Method A	Cleanup Leve	els (CULs) in	μg/L		800/1,000	500	500	5	1,000	700	1,000	20	0.01	5	15	
VE-1	12/9/2001			23.90	0.07		24,000			1,300	880	510	2,400	<40				
VE-1	3/20/2002			23.30	0.05		52,000			1,800	1,300	560	2,400	280				
VE-1	6/11/2002			23.25	0.11		26,000			2,800	1,600	650	2,900	<80				
VE-1 1	12/21/2002	(P)	268.17	24.89	0.0	243.28	25,900			1,630	1,150	741	3,660	<200				
VE-1	3/19/2003	(P)	268.17	24.71	0.0	243.46	27,100			1,590	1,450	743	3,640	<250				
VE-1	6/18/2003	(P)		24.50	0.05		37,000			2,190	1,710	929	5,230	79.8				
VE-1	9/23/2003	(P)		25.01	0.03		28,300			1,620	1,270	704	3,500	<20.0				
VE-1 1	10/22/2003	(P)		24.98	0.17		36,700			3,360	1,850	847	4,130	<50.0				
VE-1	6/29/2004	(NP)	268.17	25.12	0.0	243.05	192,000			8,070	7,030	2,230	10,400	820				
VE-1 1	11/15/2004	(NP)		25.40	0.61		99,900			5,680	6,280	3,430	17,600	<100				
VE-1	4/14/2005	(NP)		26.15	1.31		39,600			3,120	3,300	1,210	5,560	<40.0				
VE-1 1	12/18/2005	(NP)		26.00	0.35		142,000			6,140	5,850	1,400	6,750	<100				
VE-1	6/11/2006	(NP)		26.53			68,300			7,200	8,100	3,900	25,100	<500				
VE-1	11/5/2006	(NP)		26.33	0.45		60,500			3,780	4,320	1,190	6,390					
VE-1	9/25/2007	(NS)		25.02	0.14													
VE-1 1	12/31/2007	(NS)																
VE-1	5/29/2008	(NS)		25.63	0.84													
VE-1 1	10/28/2008	(NS)		26.07	0.27													
VE-1	6/22/2009	(DRY, NE)																
VE-1 1	12/15/2009	(NS)		26.56	0.06													
VE-1	5/24/2010	(NS)	268.17	26.70	0.0	241.47												
VE-1	5/10/2011	(NM)	268.17															

msl = Mean sea level

TOC = Top of casing

GWE = Groundwater elevation above msl

DTW = Depth to water below TOC

ABD = Well abandoned

All analytical results are in micrograms per liter (µg/L)

TOC/DTW/LNAPL/GWE measurements are in feet (ft)

ND = Not detected at or above the laboratory reporting limit

-- = Not analyzed/not applicable

NA = Not analyzed

NM = Not measured

NE = Top of casing not established

DUP = Duplicate sample

NS = Not Sampled

4580 Fauntleroy Way Southwest, Seattle, WA 98126

All analytical results are presented in micrograms per liter (µg/L)

Well	Date	Notes	тос	DTW	NAPL	GWE	GRO	DRO	НО	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDB	EDC	Total Lead	Dissolved Lead
Model Toxics	Control Act (M	ITCA) Method A	Cleanup Leve	els (CULs) in	μg/L		800/1,000	500	500	5	1,000	700	1,000	20	0.01	5	15	

NAPL = Non-Aqueous Phase Liquid Thickness

GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics

DRO = Total Petroleum Hydrocarbons - Diesel Range Organics

HO = Total Petroleum Hydrocarbons- Heavy Oil Range Organics

EDB = Ethylene Dibromide

EDC = 1,2-Dichloroethane

MTBE = Methyl Tertiary Butyl Ether

BTEX = Benzene, Toluene, Ethylbenzene and Total Xylenes

P = Purge sampling

LFP = Low flow purge sampling

NP = No purge sampling

NG = Not Gauged

GRO, DRO, HO methods by Ecology NW Methods; BTEX, MTBE and EDB by 8260B, lead by EPA 6000/7000 Series, EDC by EPA 8011

Historic analysis by former consultant of BTEX, MTBE and EDB by EPA 8021B and confirmed with EPA 8260B if necessary

Groundwater Elevation - If NAPL is present, the elevation is corrected according to the following formula, (TOC elevation - depth to water) + (0.8 X NAPL Thickness)

800/1,000 = GRO MTCA cleanup levels with benzene present (800) and without (1,000)

Data collected prior to 2010 have been provided by previous consultants and are included as historical reference only

Site resurveyed in 2010. TOC elevation in reference to vertical datum N.A.V.D. 88 and horizontal datum NAD 83/98

BOLD constituent detected above MTCA Cleanup Levels

Table 2 Groundwater Gauging Data WA-11060

Well	Date	Notes	TOC	DTW	NAPL	GWE	Comments
MW-4	4/12/2012	(NM)	267.78				First vac event
MW-4	4/13/2012	(NM)	267.78				
MW-4	4/28/2012	(NM)	267.78				
MW-4	5/10/2012	(NM)	267.78				Second vac event
MW-4	5/24/2012	(NM)	267.78				
MW-4	6/1/2012	(NM)	267.78				
MW-4	8/10/2012	(NS)	267.78	23.08	0.01	244.71	Third vac event
MW-4	8/24/2012	(NS)	267.78	24.86	0.73	243.50	
MW-5	4/12/2012	(NS)	268.46	24.91	0.00	243.55	First vac event
MW-5	4/13/2012	(NS)	268.46	25.05	0.01	243.42	
MW-5	4/24/2012	(NS)	268.46	24.90	0.01	243.57	
MW-5	5/9/2012	(NM)	268.46				Second vac event
MW-5	5/10/2012	(NM)	268.46	24.93	0.00	243.53	
MW-5	5/24/2012	(NS)	268.46	24.61	0.00	243.85	
MW-5	6/1/2012	(NP)	268.46	24.60	0.00	243.86	
MW-5	8/10/2012	(NS)	268.46	24.85	0.00	243.61	Third vac event
MW-5	8/24/2012	(NS)	268.46	24.86	0.00	243.60	
VE-1	4/12/2012	(NS)	268.17	24.70	0.10	243.55	First vac event
VE-1	4/13/2012	(NS)	268.17	24.97	0.13	243.30	
VE-1	5/9/2012	(NS)	268.17	24.74	0.27	243.65	Second vac event
VE-1	5/10/2012	(NS)	268.17	24.98	0.13	243.29	
VE-1	5/24/2012	(NS)	268.17	24.56	0.16	243.74	
VE-1	6/1/2012	(NM)	268.17				
VE-1	8/10/2012	(NS)	268.17	24.39	0.00	243.78	Third vac event
VE-1	8/24/2012	(NS)	268.17	24.70	0.04	243.50	
EW-1	4/12/2012	(NS)	268.20	25.20	0.70	243.56	First vac event
EW-1	4/13/2012	(NS)	268.20	25.01	0.10	243.27	
EW-1	5/9/2012	(NS)	268.20	24.62	0.07	243.64	Second vac event
EW-1	5/10/2012	(NS)	268.20	24.96	0.06	243.29	
EW-1	5/24/2012	(NS)	268.20	24.49	0.09	243.78	
EW-1	6/1/2012	(NM)	268.20				
EW-1	8/10/2012	(NS)	268.20	24.55	0.00	243.65	Third vac event
EW-1	8/24/2012	(NS)	268.20	24.70	0.00	243.50	
EW-2	4/12/2012	(NS)	267.93	24.45	0.00	243.48	First vac event
EW-2	4/13/2012	(NS)	267.93	24.69	0.00	243.24	
EW-2	5/9/2012	(NS)	267.93	24.33	0.00	243.60	Second vac event
EW-2	5/10/2012	(NS)	267.93	24.71	0.00	243.22	
EW-2	5/24/2012	(NS)	267.93	24.11	0.00	243.82	
EW-2	6/1/2012	(NM)	267.93				
EW-2	8/10/2012	(NS)	267.93	24.33	0.00	243.60	Third vac event
EW-2	8/24/2012	(NS)	267.93	24.50	0.00	243.43	

Table 2 Groundwater Gauging Data WA-11060

4580 Fauntleroy Way Southwest, Seattle, WA 98126

Well	Date	Notes	TOC	DTW	NAPL	GWE	Comments
EW-3	4/12/2012	(NS)	268.50	25.06	0.01	243.45	First vac event
EW-3	4/13/2012	(NS)	268.50	25.29	0.00	243.21	
EW-3	5/9/2012	(NS)	268.50	24.91	0.00	243.59	Second vac event
EW-3	5/10/2012	(NS)	268.50	25.23	0.00	243.27	
EW-3	5/24/2012	(NS)	268.50	24.80	0.00	243.70	
EW-3	6/1/2012	(NM)	268.50				
EW-3	8/10/2012	(NM)	268.50	24.95	0.00	243.55	Third vac event
EW-3	8/24/2012	(NS)	268.50	25.09	0.00	243.41	

msl = Mean sea level

TOC = Top of casing

GWE = Groundwater elevation above msl

DTW = Depth to water below TOC

TOC/DTW/LNAPL/GWE measurements are in feet (ft)

-- = Not analyzed/not applicable

NM = Not measured

NS = Not Sampled

NP = No Purge Sampled

NAPL = Non-Aqueous Phase Liquid Thickness

Groundwater Elevation - If NAPL is present, the elevation is corrected according to the following formula:

(TOC elevation - depth to water) + (0.8 X NAPL Thickness)

Table 3 Soil Analytical Results WA-11060

4580 Fauntleroy Way Southwest, Seattle, WA 98126

All analytical results are presented in milligrams per kilogram (mg/kg)

Sample ID	Depth	Date	TPH-GRO	TPH-DRO	ТРН-НО	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Pb
MTCA Meth	nod A Cleanup	Levels	30/100	2,000	2,000	0.03	7	6	9	0.1	250
MW-10-15	15	1/23/2012	<6.3	<17.9	<71.6	<0.0034	<0.0034	<0.0034	<0.0103	<0.0034	1.9
MW-10-20	20	1/23/2012	<6.7	<19.3	<77.1	<0.0044	<0.0044	<0.0044	<0.0133	<0.0044	2.4
MW-10-25	25	1/23/2012	<6.7	<19.2	<76.8	<0.0034	<0.0034	< 0.0034	<0.0103	<0.0034	1.9
MW-10-35	35	1/23/2012	<6.1	<19.0	<75.8	<0.0030	<0.0030	<0.0030	<0.0089	<0.0030	2.7
SB-1-15	15	1/23/2012	555	<17.3	<69.2	0.0057	0.0092	0.488	0.135	<0.0027	5.3
SB-1-15 ^D	15	1/23/2012	1,220	<17.4	<69.5	<0.0024	<0.0024	0.887	0.0432	<0.0024	2.4
SB-1-25	25	1/23/2012	<6.4	<19.3	<77.1	<0.0031	<0.0031	<0.0031	<0.0093	<0.0031	1.6
SB-1-35	35	1/23/2012	<6.7	<19.6	<78.2	<0.0033	<0.0033	< 0.0033	<0.0098	<0.0033	2.2
SB-1-40	40	1/23/2012	<6.4	<19.4	<77.7	<0.0031	<0.0031	<0.0031	<0.0094	<0.0031	2.2
								1			
SB-2-20	20	1/24/2012	1,500	<18.1	<72.2	<0.0034	<0.0034	0.848	0.0178	<0.0034	2.9
SB-2-35	35	1/24/2012	<6.5	<19.0	<75.8	<0.0030	<0.0030	<0.0030	<0.0090	<0.0030	2.7
SB-3-5	5	1/23/2012	392	2,710	9,400	0.0088	< 0.0035	0.0071	<0.0106	<0.0035	11.4
SB-3-10	10	1/24/2012	111	68.4	330	<0.0031	<0.0031	<0.0031	<0.0093	<0.0031	11.4
SB-3-20	20	1/24/2012	4,390	102	<68.4	0.0956	5.140	13.2	50.8	<0.0558	4.4
SB-3-50	50	1/24/2012	<6.6	<19.5	<77.8	0.589	<0.0035	0.0368	0.0105	<0.0035	4.4
SB-4-15'	15	1/25/2012	109	<17.0	<68.2	<0.0031	<0.0031	<0.0031	<0.0092	<0.0031	3.0
SB-4-20'	20	1/25/2012	5.7	<16.8	<67.1	<0.0029	<0.0029	<0.0029	<0.0086	<0.0029	2.5
SB-4-35'	35	1/25/2012	<6.5	<19.6	<78.4	<0.0029	<0.0029	<0.0029	<0.0087	<0.0029	4.5
EW-1-15'	15	1/25/2012	2,160	59.9	<70.8	0.177	0.530	9.150	11.500	<0.0598	3.9
EW-1-25'	25	1/26/2012	3,270	123	<71.7	2.540	12.700	10.500	51.800	<2.660	6.7
EW-1-30'	30	1/26/2012	97.6	<18.8	<75.4	0.259	0.0942	0.0849	1.850	<0.0031	3.2
EW-2-10'	10	1/26/2012	38.1	<19.6	<78.4	0.0042	0.0054	0.0055	0.0310	<0.0030	8.3
EW-2-15'	15	1/26/2012	2,270	25.5	<73.9	0.129	0.0142	2.010	0.103	<0.0027	5.1

Table 3 Soil Analytical Results WA-11060

4580 Fauntleroy Way Southwest, Seattle, WA 98126

All analytical results are presented in milligrams per kilogram (mg/kg)

Sample ID	Depth	Date	TPH-GRO	TPH-DRO	ТРН-НО	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Pb
MTCA Meti	nod A Cleanup	Levels	30/100	2,000	2,000	0.03	7	6	9	0.1	250
EW-2-30'	30	1/26/2012	9.8	<19.0	<76.0	0.0050	<0.0027	<0.0027	<0.0081	<0.0027	3.3
EW-3-15'	15	1/25/2012	30.1	<19.0	<75.9	<0.0035	<0.0035	<0.0035	<0.0105	<0.0035	6.6
EW-3-20'	20	1/25/2012	621	29.7	<64.5	0.0690	0.0923	0.232	0.699	<0.0031	2.9
EW-3-20' ^D	20	1/25/2012	443	30.5	<65.9	0.0317	0.0658	0.215	0.682	<0.0028	2.7
EW-3-30'	30	1/25/2012	<6.8	<18.7	<74.8	0.0201	0.0101	0.0113	0.0360	<0.0031	3.2

MTCA = Model Toxics Control Act mg/kg = Milligrams per kilogram

< = Less than laboratory reporting limits

Sample Depth = Feet below ground surface

TPH-GRO = Total Petroleum Hydrocarbons as Gasoline by Northwest Method NWTPH-Gx
TPH-DRO = Total Petroleum Hydrocarbons as Diesel by Northwest Method NWTPH-Dx
TPH-HO = Total Petroleum Hydrocarbons as Heavy Oil by Northwest Method NWTPH-Dx

Benzene = Benzene by Environmental Protection Agency (EPA) Method 8260
Toluene = Toluene by Environmental Protection Agency (EPA) Method 8260
Ethylbenzene = Ethylbenzene by Environmental Protection Agency (EPA) Method 8260
Xylenes = Total xylenes by Environmental Protection Agency (EPA) Method 8260

Pb = Total Lead by EPA Method 6010

BOLD = Above MTCA Method A Cleanup Levels

Duplicate samples listed as DUP-1 and DUP-2 in the laboratory analytical reports. See Appendix A.

-- = Not analyzed

Table 4 Polynuclear Aromatic Hydrocarbon Soil Sample Analytical Results WA-11060

4680 Fauntleroy Way Southwest, Seattle, WA 98126

All analytical results are presented in milligrams per kilogram (mg/kg)

Sample ID	Depth (feet)	Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) Anthracene	Benzo(a)Pyrene	Benzo(b) fluoranthene	Benzo(g,h,i) Perylene	Benzo(k) Fluoranthene	Chrysene	Dibenzo(a,h) Anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd) Pyrene	1- Methylnaphthalene	2- Methylnaphthalene	Naphthalene	Phenanthrene	Pyrene	Total Adjusted cPAHs
Model Toxics Control Act (MTC Levels		ethod A Cleanup	ND	ND	ND	ND	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5	ND	ND	0.1
SB-3-5	5	1/23/2012	<0.0089	<0.0089	0.0099	<0.0889	<0.0889	<0.0889	0.113	<0.0889	<0.0889	<0.0889	<0.0889	<0.0089	<0.0889	0.0156	0.0376	0.0404	0.0208	0.106	0.0671
SB-3-10	10	1/24/2012	0.618	0.0514	1.290	4.590	7.160	5.990	4.820	3.340	5.210	0.978	6.080	0.690	4.630	0.121	0.147	0.188	5.730	7.770	9.165
EW-1-25'	25	1/26/2012	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.878	2.020	4.920	0.0079	0.0079	0.0596

Notes:

Bold and shaded cells represent concentrations greater than MTCA Method A Cleanup Levels

NA = Not analyzed

< = Not detected greater than laboratory detection limit. Value listed is laboratory detection limit.

Depths are listed in feet below ground surface

Analytical Method = EPA Method 8270 SIM

ND = Not determined.

cPAHs adjusted for toxicity according to WAC 173-340-708(8) and Air Toxics Hot Spots Program Risk Assessment Guidelines, Part II Technical Support Document for Describing Available Cancer Potency Factors. Office of Environmental Health Hazard Assessment, California EPA, May 2005. If one or more adjusted cPAH constituents were reported as Non-Detect, half of the reporting limit was used in calculations.

Table 5 Extractable and Volatile Petroleum Hydrocarbon Soil Sample Analytical Results WA-11060

4680 Fauntleroy Way Southwest, Seattle, WA 98126

All analytical results are presented in milligrams per kilogram (mg/kg)

Sample ID	Depth (feet)	Date	Ali. (C8-C10)	Ali. (C10-C12)	Ali. (C12-C16)	Ali. (C16-C21)	Ali. (C21-C34)	Aro. (C8-C10)	Aro. (C10-C12)	Aro. (C12-C16)	Aro. (C16-C21)	Aro. (C21-C34)	Ali. (C5-C6)	Ali. (C6-C8)	Ali. (C8-C10)	Ali. (C10-C12)	Aro. (C8-C10)	Aro. (C10-C12)	Aro. (C12-C13)
						Extract	table Petrol	eum Hydrod	arbons						Volatile Pe	troleum Hy	drocarbons		
EW-3-25'	25	1/26/2012	<4.85	<4.85	<4.85	<4.85	<4.85	<4.85	<4.85	<4.85	<4.85	<4.85	<0.342	0.962	10.2	8.13	10.1	17.4	3.33

Notes:

All analytical results are in milligrams per kilogram (mg/kg)

< = Not detected greater than laboratory detection limit. Value listed is laboratory detection limit.

Depths are listed in feet below ground surface

Analytical Methods = Northwest Method Extractable Petroleum Hydrocarbons and Northwest Method Volatile Petroleum Hydrocarbons

Ali. = Aliphatic Hydrocarbon

Aro. = Aromatic Hydrocarbon

Table 6 Field Data Summary - MPE Event 1 WA-11060

Job Na	me:	ARCO	11060						Date:	4/12	/2012						Time:	8:00-17	:30					
Job Nu	mber:	GP09B	PNAW.	A48.C00	000				Field F	ersonne	I : Seama	as McGui	re				PM:	Scott Zo	orn					
Extract	ion Well	∣ EW-1- ,	EW-2,	EW-3					Weath	er Condi	tions: Su	nny, 60 c	legrees	F			Engine	er/Task	Manager:		Sam M	iles		
	Well na	ame →			VE	-1			M	W-5			EV	V-1				EW-2			EW-	-3		
Time	Elapsed	Applied Vacuum	rate	VOC Conc.	Meas. Vac.	DTP (feet	DTW (feet	VOC Conc.	Meas.	DTP (feet	DTW (feet	VOC Conc.	Meas. Vac.	•	DTW (feet	VOC Conc.	Meas. Vac.	DTP (feet btoc)	DTW (feet	VOC Conc.	Meas. Vac. (in wc)	DTP (feet	DTW (feet	Notes
Time	(h)	(in Hg)	(SCIM)	,	(in wc)	btoc) 24.60	btoc)	(ppmv)	(in wc)	btoc)	btoc)		(in wc)	· ·	btoc)	(ppmv)	(in wc)	Dtoc)	btoc)	(ppmv)	(in wc)	btoc)	btoc)	
10:00	-1.8	-	-	543 -	-	-	24.70	909	-	-	24.91 -	374.9	-	24.50	25.20	>500	-	-	24.45	>800	-	25.05	25.06	started at wells EW-1, EW-2, and EW-3 stopped due
10:30	0.5	-	-	-	-	-	-	-	-	-	-					-				-				to elevated VOC concentration s in ambient
11:30	1.0	-	-	-	-	26.00	26.02	-	-	-	25.04	-	Vac a	npolied :	at EW-1.	-	Vac api	olied at EV	V-2. Stinger	-	Vac a	pplied at	EW-3.	
12:00	1.5	-	-	-	-	26.16	26.18	-	-	-	25.12	-			27.5 ft btoc	-		et at 28.5	•	-		set at 27.		
12:30	2.0	-	-	-	-	Dry	Dry	-	-	-	25.20	976.8				884.2	_			611.4	1			
13:00	2.5	-	-	-	-	Dry	Dry	-	-	-	25.29	-				-	_			-	1			.,
13:30	3.0	-	-	-	-	Dry	Dry	-	-	-	25.39	1074.8				861.9	_			599.9	1			Vac resumed at
14:00	3.5	-	-	-	-	Dry	Dry	-	-	-	25.44	-				-	_			-	1			11:00
14:30	4.0	-	-	-	-	Dry	Dry	-	-	-	25.48	991.2				782.6	_			677.3	1			
15:00	4.5	-	-	-	-	Dry	Dry	-	-	-	25.49	-				-	_			-	1			
15:30	5.0	-	-	-	-	Dry	Dry	-	-	-	25.54	1043.3				921.5	_			641.0	1			
16:00	5.5	-	-	-	-	Dry	Dry	-	-	-	25.56	-				-				-]			
16:30	6.0	-	-	-	-	Dry	Dry	-	-	-	25.57	1009.4				984.4		_		637.5			_	
16:45	6.3	-	-	-	-	Dry	Dry	-	-	-	25.57	-	-	27.30	27.31	-	-	-	27.50	-	-	-	28.43	
17:00	6.5	-	-	-	-	Dry	Dry	-	-	-	25.57	-	-	27.12	27.13	-	-	-	27.40	-	-	-	28.40	
17:15	6.8	-	-	-	-	Dry	Dry	-	-	-	25.45	-	-	27.12		-	-	-	27.32	-	-	-	28.19	
17:30	6.5	-	-	-	-	Dry	Dry	-	-	-	25.42	-	-	26.95	26.97	-	-	-	27.25	-	-	-	28.19	
Comm	ents/No	otes:																						
		ected durir	-	_			lixture			Vac. =		vacuum a	t wellhea	d	NAPL =			ieous Pha	se Liquid					
		EW-3 we				ously				h =		hours			DTP =		Depth to							
-		s removed								in wc =		inches wa		nn	DTW =		Depth to							
		ction took								- = btoo		not meas		_	ppmv =			r million by						
		atile Organ sured vaci					DIONIZATIO	n detector		btoc = in Hg =		below top inches me	-	J	scfm =		Siandard	a CUDIC TEE	et per minute					
wicas. V	ao – ivicas	ourcu vact	uum at W	omicau u	onig mani	OTTICIEI				III II II —		III COICS	or our y											

Table 7 Field Data Summary - MPE Event 2 WA-11060

Job Name	:				ARCO 11	060			Date:	5/9	9/2012		Time:	8:15-16	6:00									
Job Numb	er:				GP09BPN	IA.WA48	.C0000		Field Pers	sonnel:	Seamas M	cGuire	PM:	Scott Z	orn									
Extraction	Well				EW-1, EW	/-2, EW-3	3		Weather	Conditio	ns: Cloudy	, rain	Enginee	r/Task N	/lanager	Sam M	iles							
	Well na	me →			VE	- -1			M	W-5	•		EW				EW-	-2			EW	-3		
	Time Elapsed	Applied Vacuum	Flow Rate	VOC Conc.	Meas. Vac. (in	DTP (feet	DTW (feet	VOC Conc.	Meas. Vac. (in	DTP (feet	DTW (feet	VOC Conc.	Meas. Vac. (in	DTP (feet	DTW (feet	VOC Conc.	Meas. Vac. (in	DTP (feet	DTW (feet	VOC Conc.	Meas. Vac. (in	DTP (feet	DTW (feet	Notes
Time	(h)	(in Hg)	(scfm)	(ppmv)	wc)	btoc)	btoc)	(ppmv)	wc)	btoc)	btoc)	(ppmv)	wc)	btoc)	btoc)	(ppmv)	wc)	btoc)	btoc)	(ppmv)	wc)	btoc)	btoc)	
8:15	-0.75	-	-	>171	-	24.47	24.74	>387	-	-	24.80	>482	-	24.55	24.62	>147	-	-	24.33	>597	-	-	24.91	
9:00	0.00	-	-	-	-	-	-	-	-	-	-	-				-				-				
9:50	0.83	-	-	-	-	26.11	26.45	-	-	-	24.93	-				-				-				
10:30	1.50	-	-	-	-	Dry	Dry	-	-	-	25.04	15.5				12.6				48.7				
11:00	2.00	-	-	-	-	Dry	Dry	-	-	-	25.18	-				-				-				
11:30	2.50	-	-	-	-	Dry	Dry	-	-	-	25.23	-				-				-	\/oo oon	aliad at F	-14/ 2	Vac
12:00	3.00	-	-	-	-	Dry	Dry	-	-	-	25.33	>840		plied at E		364		lied at E\		>802	Vac app	r set at 2		started
12:30	3.50	-	-	-	-	Dry	Dry	-	-	-	25.39	>899	Stinger s	set at 27.5	ft btoc	472	Stinger se	et at 28.5	ft btoc	>874	Stiriger	btoc	.7.J IL	at
13:00	4.00	-	-	-	-	Dry	Dry	-	-	-	25.43	578				396				>847				9:00
13:30	4.50	-	-	-	-	Dry	Dry	-	-	-	25.46	372				396				743				
14:00	5.00	-	-	-	-	Dry	Dry	-	-	-	25.49	535				388				617				
14:30	5.50	-	-	-	-	Dry	Dry	-	-	-	25.53	587				344				422				
15:00	6.00	-	-	-	-	Dry	Dry	-	-	-	25.55	468				382				698				
15:30	6.50	-	-	-	-	Dry	Dry	-	-	-	25.50	-	-	-	27.99	-	-	-	27.77	-	-	-	29.72	
15:45	6.75	-	-	-	-	Dry	Dry	-	-	-	25.46	-	-	27.93	27.94	-	-	-	27.77	-	-	-	29.65	
16:00	7.00	-	-	-	-	-	27.71	-	-	-	25.42	-	-	27.67	27.68	-	-	-	-	-	-	-	29.43	
Total Volum EW-1, EW-2 Dry - All wat Multi-Phase	6.75 Dry								Vac. = h = in wc = - = btoc =		vacuum at v hours inches wate not measure below top of	r column ed		NAPL = DTP = DTW = ppmv = scfm =		Depth to Depth to Parts pe		volume	e					
Meas. Vac =	Measured v	acuum at we	ellhead usi	ng manon	neter				in Hg =		inches merc	cury												

Table 8 Field Data Summary - MPE Event 3 Former BP 11060

Job N	ame:				ARCO	11060							Date:	8/10)/2012						Time: 8:10-	-16:10									
Job N	umber:				GP09E	BPNA.W	/A48.C00	000					Field P	ersonr	el: Sean	nas McGı	uire				PM: Scot	t Zorn									
Extrac	tion We	lls			EW-1,	EW-2,	VE-1, MV	V-4					Weath	er Con	ditions	Sunny, 8	80 degi	ees F			Engineer/Ta	ask Mar	nager:	Sam N	/liles						
	Well r	name →			V	E-1			MW	/-3				MW-4			MW-	.5	_		EW-1			EV	V-2			E	W-3		
Time	(h)	Applied Vacuum (in Hg)	Flow Rate (scfm)	,	Meas. Vac. (in wc)	DTP (feet btoc)	DTW (feet btoc)	VOC Conc. (ppmv)	Meas. Vac. (in wc)	DTP (feet btoc)	DTW (feet btoc)		Meas. Vac. (in wc)	DTP (feet btoc)	DTW (feet btoc)	VOC Conc. (ppmv)	Meas. Vac. (in wc)	DTP (feet btoc)	(feet	· · · · ·	Meas. DTP Vac. (feet (in wc) btoc)	(feet btoc)	(ppmv	Meas. Vac. (in wc)	DTP (feet btoc)		VOC Conc. (ppmv)	Meas. Vac. (in wc)	DTP (feet btoc)	DTW (feet btoc)	NOTES
8:10	-1.00	-	-	135.1	-	-	24.39	791	-	-	24.70	424	-	23.07	23.08	-	-	-	-	389.1		24.55	441	-	-	24.33	879	-	-	24.95	0.404.0.50
9:10 9:50	0.00	- 19	1047	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Vac at EW-1. set at 27.5 f		-	Vac at set a	EW-2. at 28.5 f	_	-	-	-	-	9:10 to 9:50 vac on MW-4, EW-1,
10:40	1.50	19	1047	_	-	Sheen	24.81	-	-	-	-	-		ac at M\	N. 4	-	_	-	24.85	-		_	-	-	-	-	-	-	-	25.30	and EW-2. 10:10 to 12:10 vac on
11:10	2.00	19	1047	-	-	Sheen	24.82	-	-	-	-	-	V	ac at ivi	/V- 4	-	_	-	24.85	-		-	-	-	-	-	-	-	-	25.31	MW-4 only (MW-4
11:40	2.50	19	1047	-	-	Sheen	24.82	-	-	-	-	50.4				-	-	-	24.85	-		-	-	-	-	-	-	-	-	25.28	went dry)
12:40	3.50	19	1047	-	-	Sheen	25.00	-	-	-	-	-	-	-	25.33	-	-	-	24.78	-	Vac at EW-1.	Stinger	-	-	-	-	-	-	-	25.40	12:10 to 13:45 vac
13:10	4.00	19	1047	-	-	Sheen	25.04	-	-	-	-	-	-	-	24.68	-	-	-	24.76	-	set at 27.5 f		-	-	-	-	-	-	-	25.42	on EW-1 only
13:40	4.50	19	1047	-	-	Sheen	25.04	-	-	-	-	-	-	Sheen	24.80	-	-	-	24.75	-		1	-	-	-	-	-	-	-	25.41	
14:10	5.00	19	1047	-		Vac at VI	- 1	-	-	-	-	-		ac at M\	N/ A	-	-	-	24.80			27.94	-	-	-	28.91	-	-	-	25.46	13:45 to 15:10 vac
14:40 15:10	5.50 6.00	19 19	1047 1047	-	_	vac at vi	=-1		-	-	-	-	V	ac at ivi	/V- 4	-	-	-	24.80			27.72 27.22	-	-	-	25.00 25.04	-	-	-	25.50 25.50	on VE-1 and MW-
16:10	7.00	- 19	1047	_	_	T -	27.42	_	-	-	-		_	_	24.68	-	-	-	24.80			27.09		-	-	25.04	-	-	-	25.47	4 at same time
	nents/N	otes:					21.72			_		<u> </u>			24.00				24.00			21.03				25.00				25.47	<u> </u>
			na event	55 gallo	ns includ	lina ~ 20	gallons of	NAPI			Vac. =			vacuum	at wellhe	ad		NAPL	=	Non-Aa	ueous Phase Li	iauid									
			-	-		•	ga				h =			hours				DTP =			Product	. 40.0									
Dry - A	, EW-2, and EW-3 were under vacuum simultaneously h = All water was removed from well due to vacuum in wc =													inches	water colu	mn		DTW	=	Depth to	o Water										
Multi-P	Phase Extraction took place at various wells: see notes column at right -=												not mea	sured			ppmv	=	Parts pe	er million by vol	ume										
VOC C	onc. = Vol	atile Orga	nic Comp	ounds so	reened u	sing pho	toionizatior	n detector			btoc =			below to	op of casir	g		scfm =	=	Standar	d cubic feet per	minute	calculate	ed using	formula	: where F	= flow ra	ite, r = rad	lius of 2 i	in, v = veloci	ty in feet per minute,
Meas. \	/ac = Mea	asured vac	uum at w	ellhead ι	ısing mar	nometer					in Hg =			inches i	mercury					F = v*π	r2										

Figures





200 400 **SCALE IN FEET**

> REFERENCE: THIS FIGURE IS BASED IN AN IMAGE PROVIDED BY GOOGLE EARTH PRO

FORMER BP STATION NO. 11060 4580 FAUNTLEROY WAY SW SEATTLE, WASHINGTON ENHANCED LNAPL RECOVERY EVENT REPORT

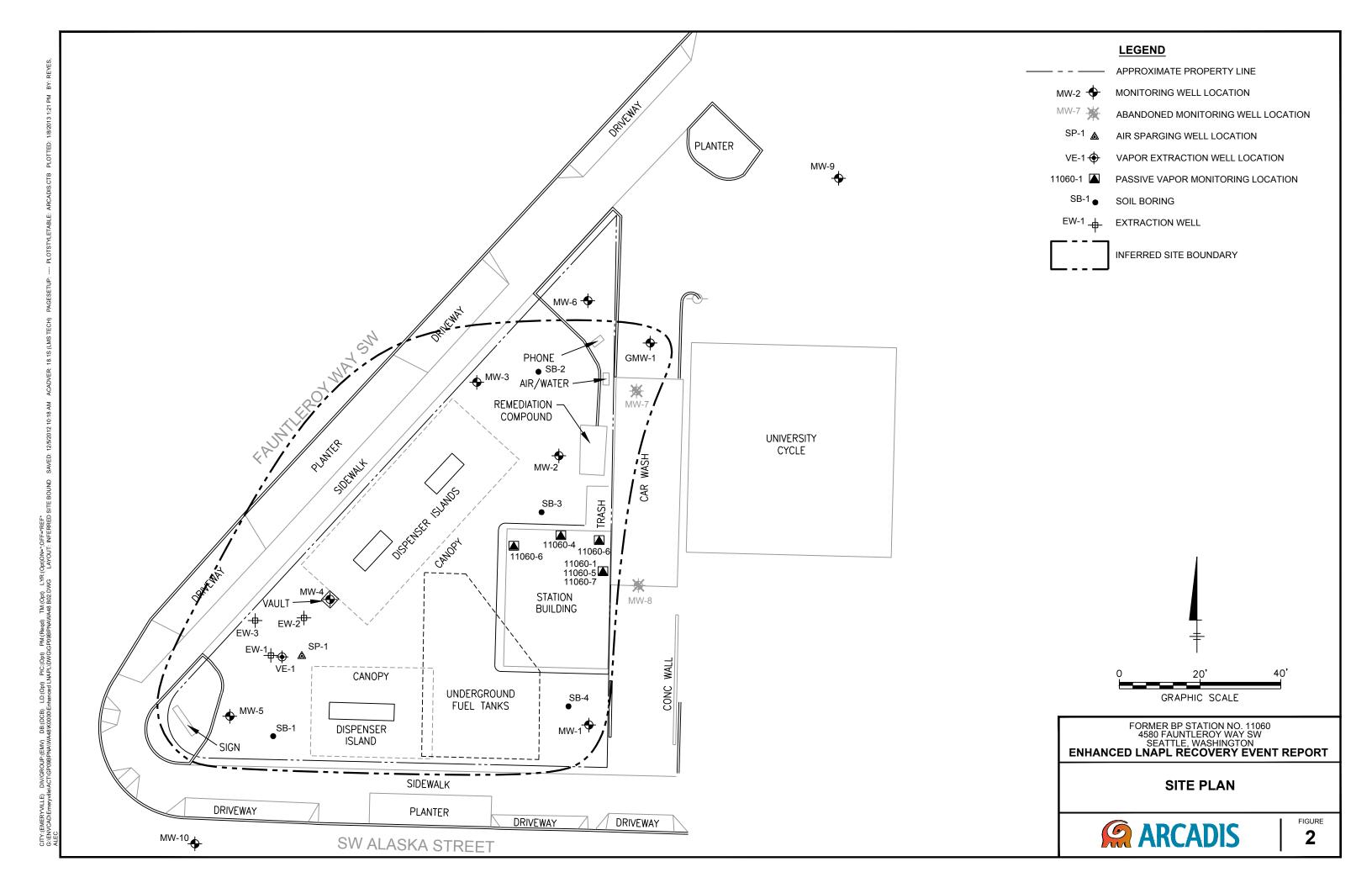
SITE AERIAL PHOTO

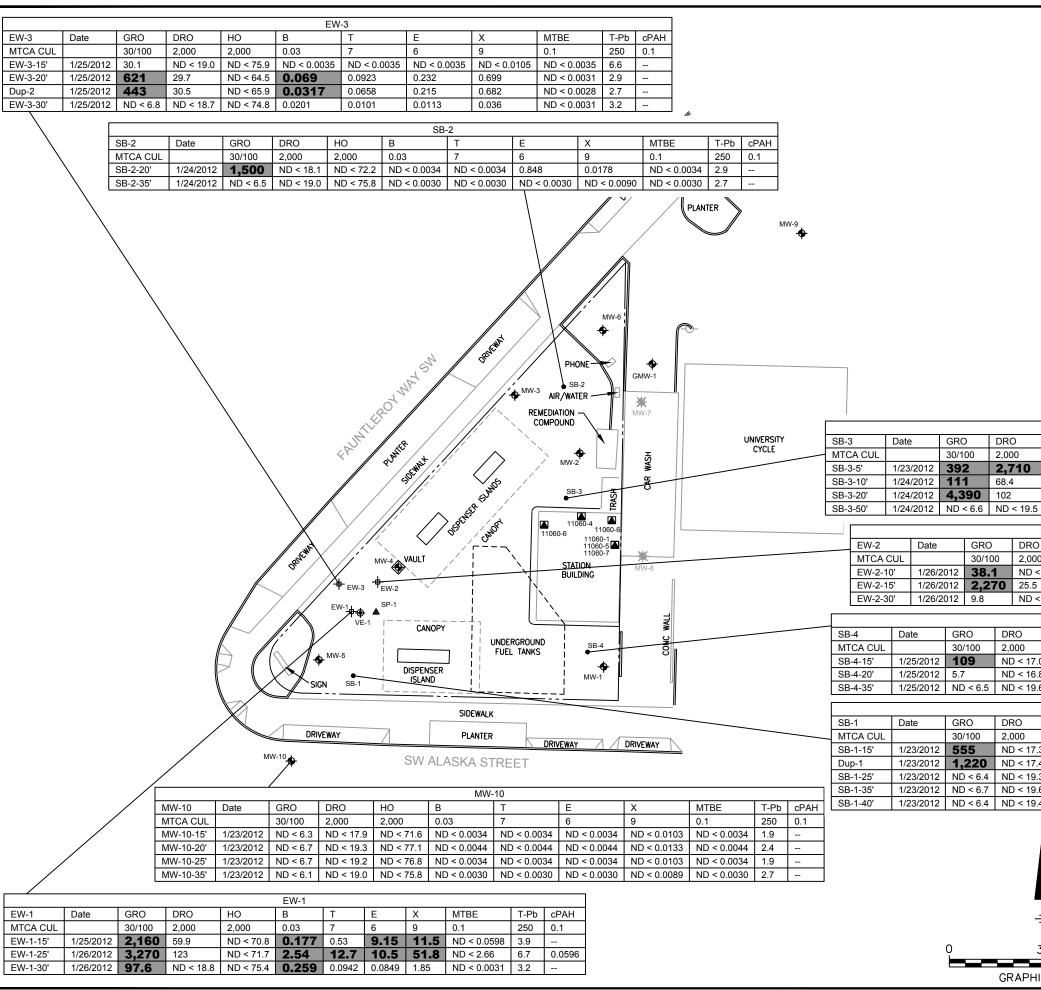


FIGURE

1

CITY.(Ready) DIV/GROUP/(Ready) DB((Read) LD:/Opt)
G:\text{ENVCADIEmery/wiles/ACT/GP09BPNa/WA48/K00001Em/ar/
XREFS; INAGES PROJECTNAME: -SITE IMAGE: Jpg
SITE IMAGE: Jpg





LEGEND

APPROXIMATE PROPERTY LINE

MW-2 + MONITORING WELL LOCATION

MW-7 ABANDONED MONITORING WELL LOCATION

AIR SPARGING WELL LOCATION

VE-1 VAPOR EXTRACTION WELL LOCATION

11060-1 PASSIVE VAPOR MONITORING LOCATION

SB-1 SOIL BORING

EW-1 -EXTRACTION WELL

BOLD ABOVE MTCA (A) CULs

MTCA CUL MODEL TOXICS CONTROL ACT CLEANUP LEVEL

	LOCATION ID									
GRO	Gasoline Range Organics (mg/kg)									
DRO	Diesel Range Organics (mg/kg)									
НО	Heavy Oils (mg/kg)									
В	Benzene (mg/kg)									
Т	Toluene (mg/kg)									
Е	Ethylbenzene (mg/kg)									
Χ	Total Xylenes (mg/kg)									
T-Pb	Total Lead (mg/kg)									
MTBE	Methyl Tertiary Butyl Ether (mg/kg)									
cPAh	Carcinogenic Polycyclic Aromatic Hydrocarbons (mg/kg)									

MTBE

| ND < 0.0106 | ND < 0.0035 | 11.4 | 0.0671

ND < 0.0027 5.1

0.1

T-Pb cPAH

250 0.1

SB-	3-10'	1/24/	2012	111	68.4	1	330	ND	< 0.0031	ND < 0.0031	ND < 0.0031	ND < 0.0093	ND < 0.0031	11.4	9.165
SB-	3-20'	1/24/	2012	4,390	102		ND < 68	4 0.0	0956	5,140	13.2	50.8	ND < 0.0558	4.4	-
SB-	3-50'	1/24/	2012	ND < 6.6	ND	< 19.5	ND < 77	8 0.4	589	ND < 0.0035	0.0368	ND < 0.0105	ND < 0.0035	4.4	-
										EW-2					
	EW-2 Date		GRO		DRO	HC		В	T	E	X	MTBE	T-Pb	cPAH	
	MTCA CUL		30/100		0 2,000		00	0.03	7	6	9	0.1	250	0.1	
	EW-2-10' 1/26/2012		1/26/2012 38.1		ND <	19.6 ND	< 78.4	0.0042	0.0054	0.0055	0.031	ND < 0.0030	8.3		

ND < 73.9 **0.129** 0.0142

ND < 19.0 ND < 76.0 0.005

SB-3

ND < 0.0035 | 0.0071

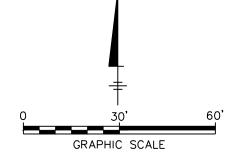
2.01

0.103

ND < 0.0027 ND < 0.0027 ND < 0.0081 ND < 0.0027 3.3

					SB-	4					
SB-4	Date	GRO	DRO	НО	В	Т	E	X	MTBE	T-Pb	cPAH
MTCA CUL		30/100	2,000	2,000	0.03	7	6	9	0.1	250	0.1
SB-4-15'	1/25/2012	109	ND < 17.0	ND < 68.2	ND < 0.0031	ND < 0.0031	ND < 0.0031	ND < 0.0092	ND < 0.0031	3.0	
SB-4-20'	1/25/2012	5.7	ND < 16.8	ND < 67.1	ND < 0.0029	ND < 0.0029	ND < 0.0029	ND < 0.0086	ND < 0.0029	2.5	
SB-4-35'	1/25/2012	ND < 6.5	ND < 19.6	ND < 78.4	ND < 0.0035	ND < 0.0035	ND < 0.0035	ND < 0.0105	ND < 0.0035	1.2	

	SB-1												
SB-1	Date	GRO	DRO	НО	В	Т	E	X	MTBE	T-Pb	cPAH		
MTCA CUL		30/100	2,000	2,000	0.03	7	6	9	0.1	250	0.1		
SB-1-15'	1/23/2012	555	ND < 17.3	ND < 69.2	0.0057	0.0092	0.488	0.135	ND < 0.0027	5.3			
Dup-1	1/23/2012	1,220	ND < 17.4	ND < 69.5	ND < 0.0024	ND < 0.0024	0.887	0.0432	ND < 0.0024	2.4			
SB-1-25'	1/23/2012	ND < 6.4	ND < 19.3	ND < 77.1	ND < 0.0031	ND < 0.0031	ND < 0.0031	ND < 0.0093	ND < 0.0031	1.6			
SB-1-35'	1/23/2012	ND < 6.7	ND < 19.6	ND < 78.2	ND < 0.0033	ND < 0.0033	ND < 0.0033	ND < 0.0098	ND < 0.0033	2.2			
SB-1-40'	1/23/2012	ND < 6.4	ND < 19.4	ND < 77.7	ND < 0.0031	ND < 0.0031	ND < 0.0031	ND < 0.0094	ND < 0.0031	2.2			



DRO

2,000

НО

2,000

2,710 9,400

В

0.03

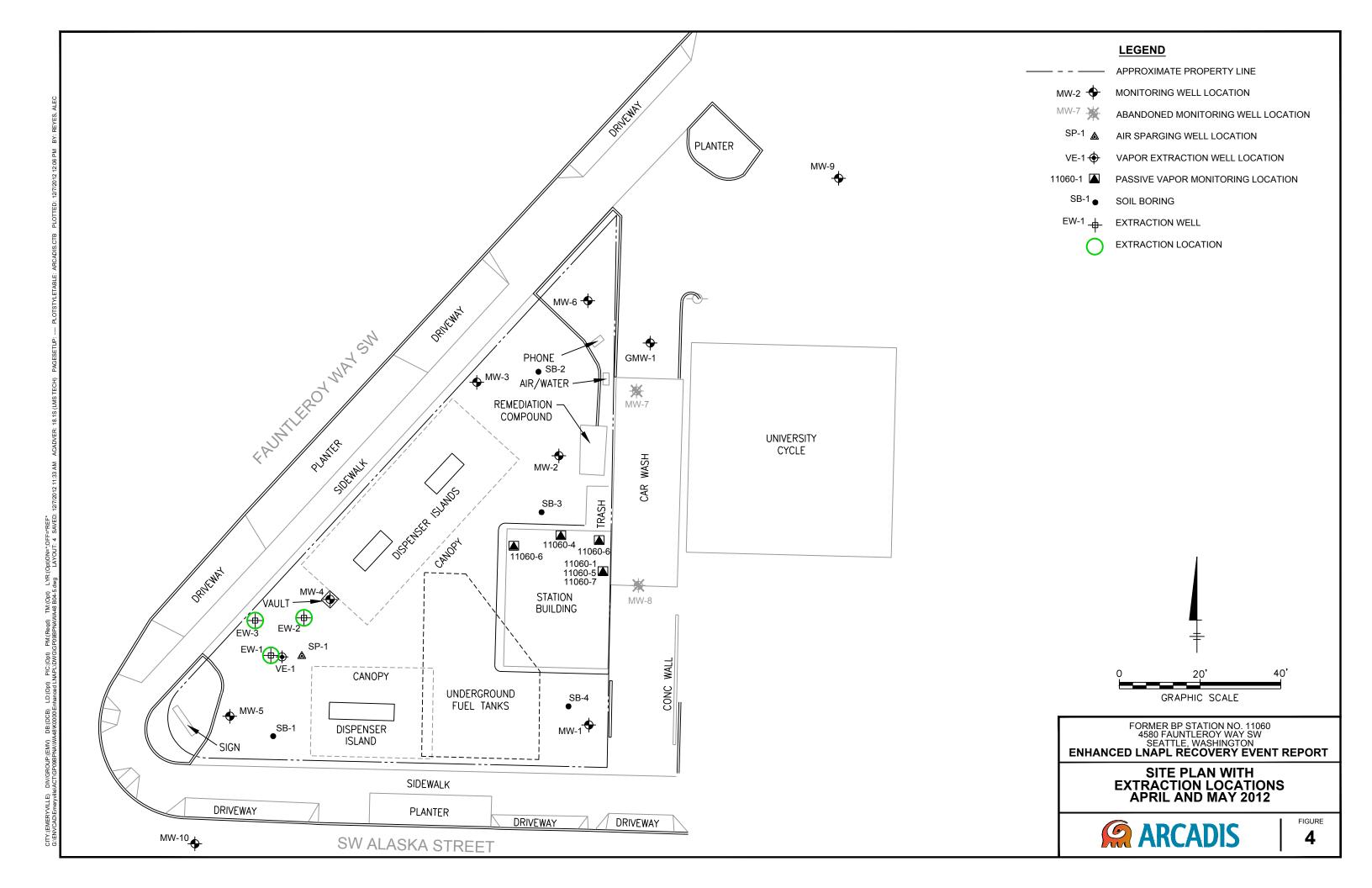
0.0088

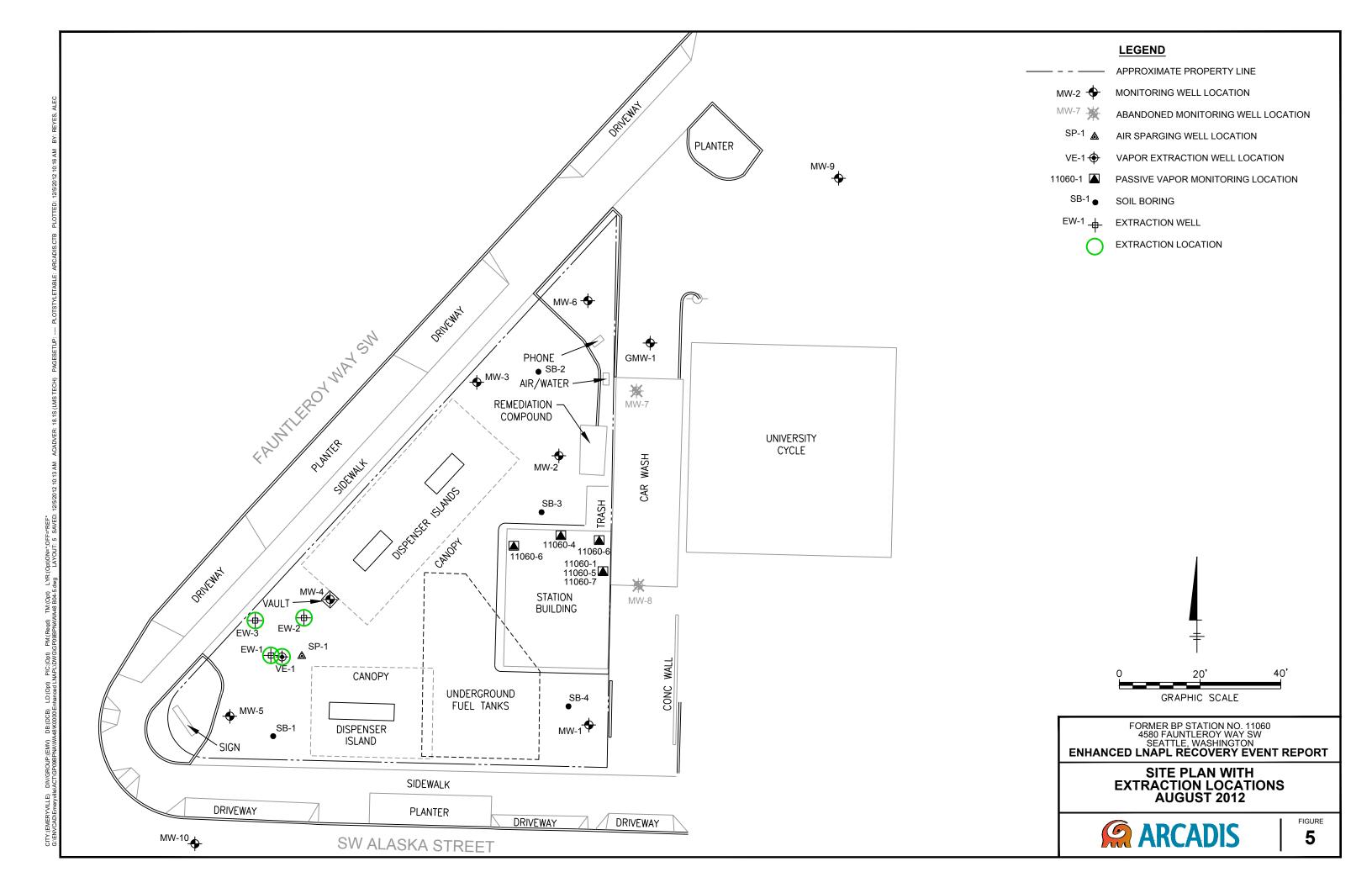
FORMER BP STATION NO. 11060 4580 FAUNTLEROY WAY SW **ENHANCED LNAPL RECOVERY EVENT REPORT**

> SOIL ASSESSMENT MAP **JANUARY 2012**



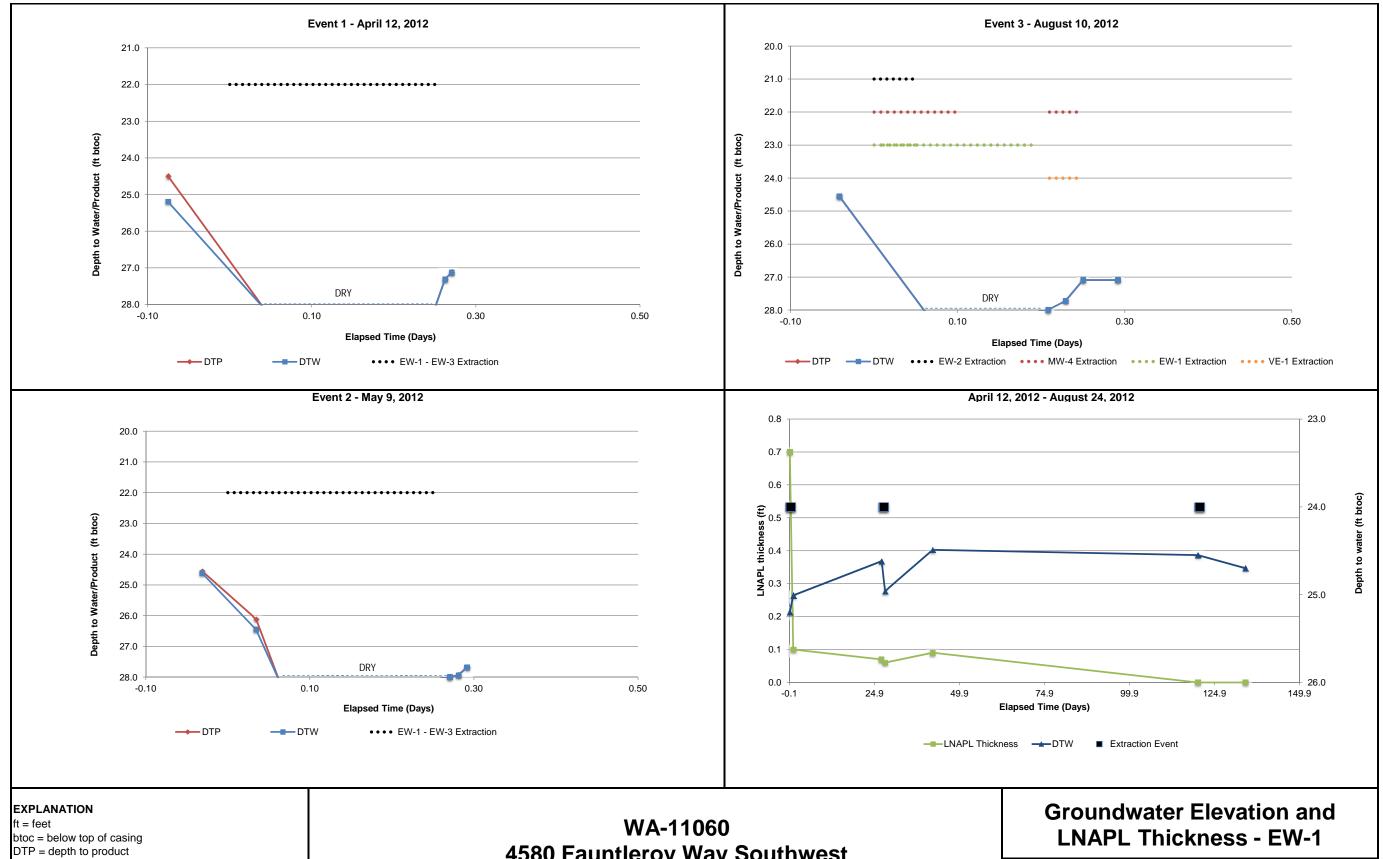
FIGURE 3





ARCADIS

Graphs



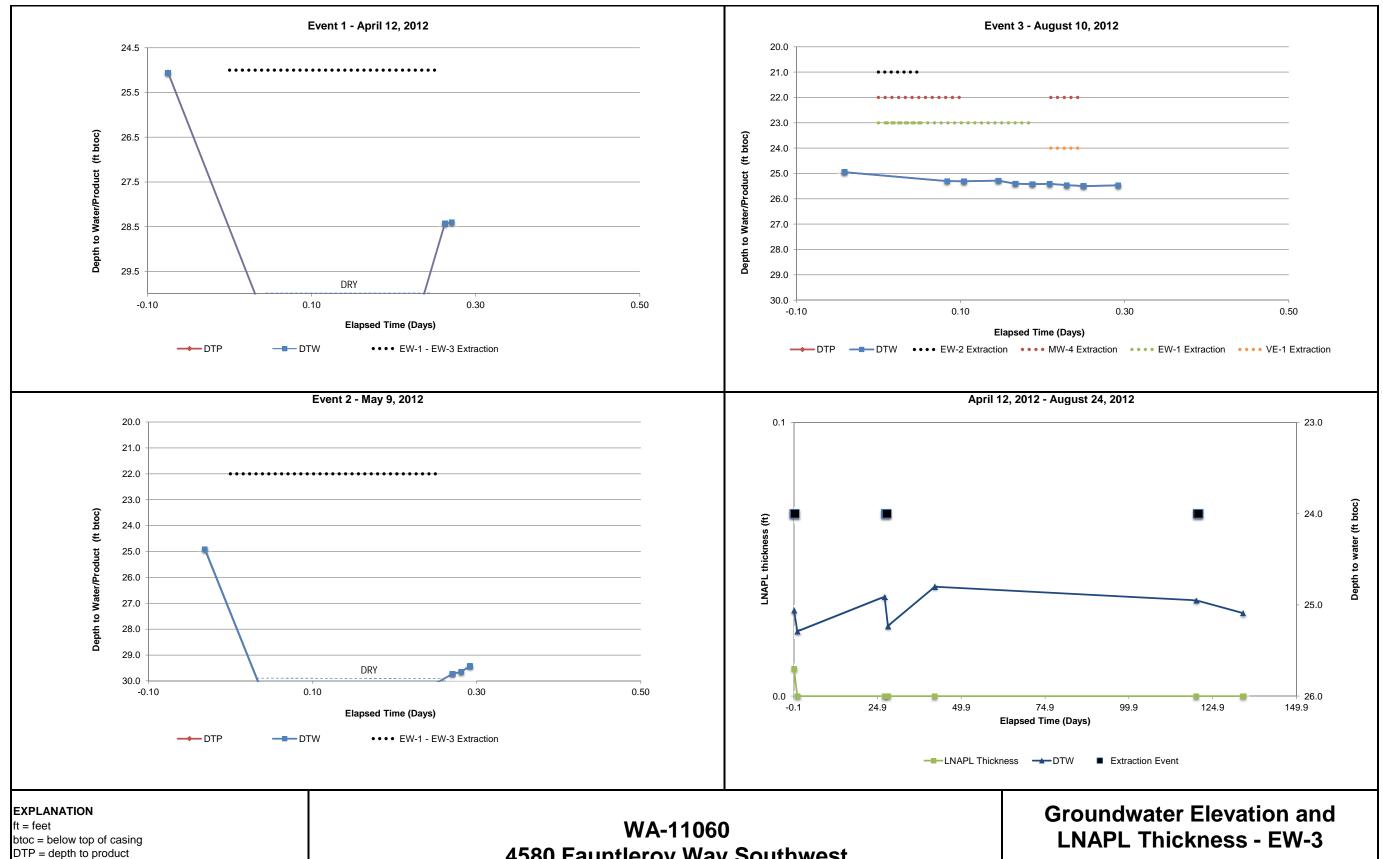
DTW = depth to water

LNAPL = light non-aqueous phase liquid

4580 Fauntleroy Way Southwest Seattle, Washington 98126



GRAPH

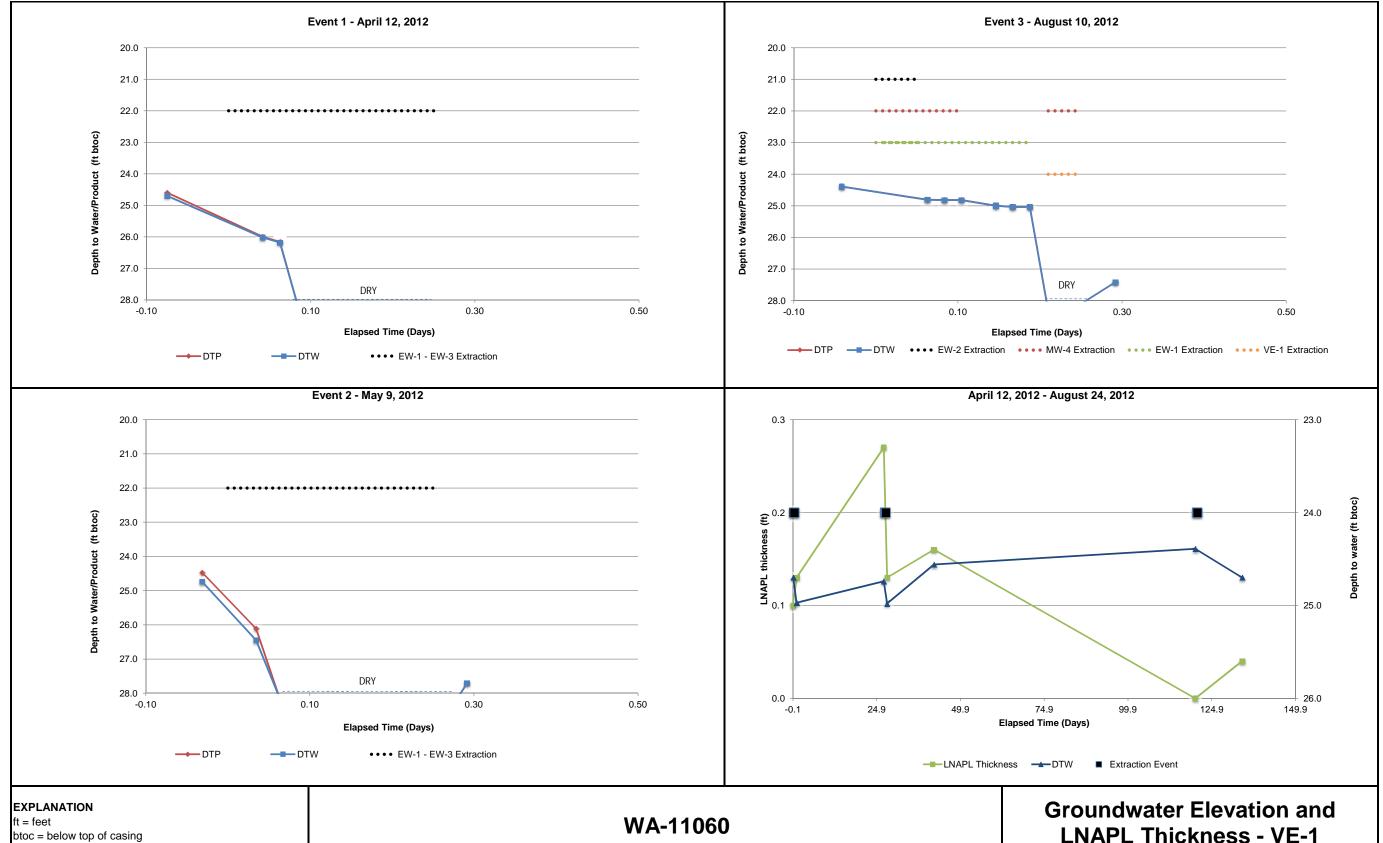


DTW = depth to water LNAPL = light non-aqueous phase liquid **4580 Fauntleroy Way Southwest** Seattle, Washington 98126



GRAPH

2



DTP = depth to product DTW = depth to water

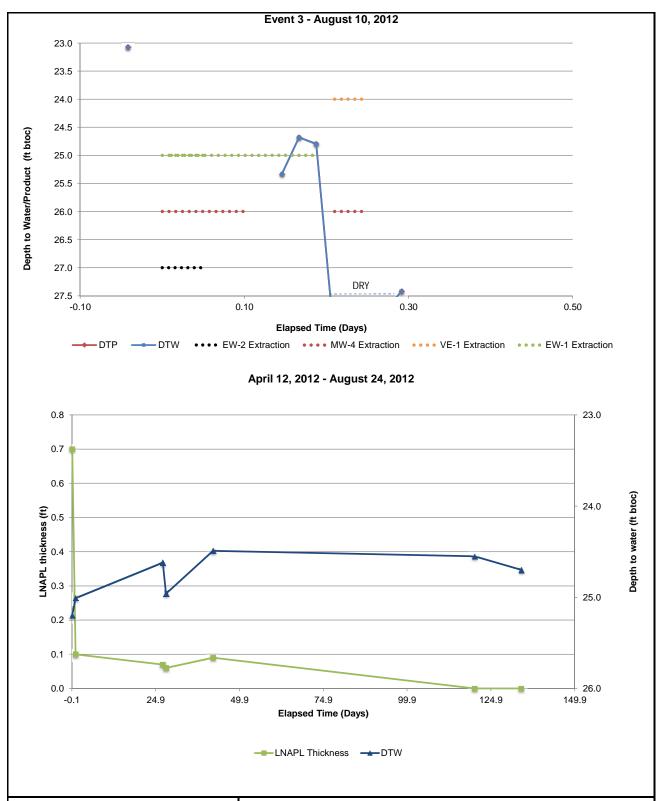
LNAPL = light non-aqueous phase liquid

4580 Fauntleroy Way Southwest Seattle, Washington 98126

LNAPL Thickness - VE-1



GRAPH



EXPLANATION

ft = feet
btoc = below top of casing
DTP = depth to product
DTW = depth to water
LNAPL = light non-aqueous phase liquid

Groundwater Elevation and LNAPL Thickness - MW-4

WA-11060 4580 Fauntleroy Way Southwest Seattle, Washington 98126



GRAPH

4

ARCADIS

Appendix A

Boring Logs

Date Start/Finish: 1/25/2012-1/26/2012 **Drilling Company:** Cascade Drilling Inc.

Driller's Name: James

Drilling Method: Hollow Stem Auger Auger Size: 12"

Rig Type: Hollow Stem Auger Sampling Method: Sleeve

Northing: NM Easting: NM Casing Elevation: NM

Borehole Depth: 31.5 ft. Surface Elevation: NM

Descriptions By: Samuel Miles

Well/Boring ID: EW-1

Client: BP West Coast Products LLC

Location: 4580 Fauntleroy Way SW Seattle, WA

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
	-									
0	0								Concrete	Steel Monument Locking J-Plug
5	- - - -5 -		5.0-6.0	5.0-	AK	D	8.7	<u> </u>	Silty sand, fine to medium sand, low plasticity, brown, no HCLO.	Locking J-Plug
10				6.0						
	- - -		10.0- 11.5	10.0- 11.5	8 6 8	D	8.1		Sandy silt, fine to medium sand, medium plasticity, grey/brown, no HCLO.	
15	-15 - - - -		15.0- 16.5	15.0- 16.5	20 20 26	D	>800		Fine to medium sand with trace gravel and silt, low plasticity, grey, HCLO.	
20	-20 - - - -		20.0- 21.5	20.0- 21.5	20/6 50/6	М	>800			6" Stainless Steel 0.020" Wire-Wrapped Screen
25	-25 - - - -		25.0- 26.5	25.0- 26.5	21/20	W	>500		Silty sand, fine to medium sand, non plastic,grey/brown, HCLO.	# 10/20 Sand First Encountered Groundwater 6" Schedule 80 PVC Sump
30	-30 - -		30.0- 31.5	30.0- 31.5	21 16 18	W	>400	<u> </u>	Silty sand, fine to medium sand, non plastic,grey/brown, HCLO. End of boring @ 31.5'	
					A				M = Moist $NA = No.$	= Light Non-Aqueous Phase Liquid ot Applicable/Avalible o Recovery et

EW-1-30'

Date Start/Finish: 1/23/2012-1/24/2012 **Drilling Company:** Cascade Drilling Inc.

Driller's Name: James

Drilling Method: Hollow Stem Auger Auger Size: 12"

Rig Type: Hollow Stem Auger Sampling Method: Sleeve

Northing: NM Easting: NM Casing Elevation: NM

Borehole Depth: 31.5 ft. Surface Elevation: NM

Descriptions By: Samuel Miles

Well/Boring ID: EW-2

Client: BP West Coast Products LLC

Location: 4580 Fauntleroy Way SW Seattle, WA

DEРТН	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
	_									
0	0								Concrete	Steel Monument
	-							+++++	Silty sand, fine to medium sand, low plasticity, brown, no HCLO.	Locking J-Plug
-5	-5 — —		5.0- 6.0	5.0- 6.0	AK	D	3.7			Concrete
-10 -	- -10 - -		10.0- 11.5	10.0- 11.0	3 4 5	D	7.4		Silty sand, fine to medium sand, low plasticity, brown, no HCLO.	6" Schedule 80 PVC Well Casin
15 -	- - -15 -							F		
.13 -	-		15.0- 16.5	15.0- 16.5	8 10 11	D	>500		Silty sand, fine to medium sand, low plasticity, brown, strong HCLO.	
20 -	-20 - - - -		20.0- 21.5	20.0- 21.5	18 26 22	M	>500		Medium sand with trace silt, low plasticity, some cobbles, brown, HCLO.	6" Stainless Steel 0.020" Wire-Wrapped
25 -	-25 - -		25.0- 26.5	25.0- 26.5	16 19 25	W	164.1		Sandy silt, medium plasticity, brown/grey, HCLO.	Screen # 10/20 Sand First Encountered Groundwater
30 -	- -30 - -		30.0- 31.5	30.0- 31.5	19 22 22	W	20.4	::::::::::::::::::::::::::::::::::::::	Silty sand, fine sand, low plasticity, brown, no HCLO.	- 6" Schedule 80 PVC Sump
	-								End of boring @ 31.5'	
						DI			HCLO = Hydrocarbon-like Odor M = Moist NM = Not Measured OD = Outer Diameter Analytical Samples:	= feet NAPL= Light Non-Aqueous Phase Liquid A = Not Applicable/Available R = No Recovery ' = Wet N-2-15'

EW-2-30'

Date Start/Finish: 1/24/2012-1/25/2012 **Drilling Company:** Cascade Drilling Inc.

Driller's Name: James

Drilling Method: Hollow Stem Auger Auger Size: 12"

Rig Type: Hollow Stem Auger Sampling Method: Sleeve

Northing: NM Easting: NM Casing Elevation: NM

Borehole Depth: 31.5 ft. Surface Elevation: NM

Descriptions By: Samuel Miles

Well/Boring ID: EW-3

Client: BP West Coast Products LLC

Location: 4580 Fauntleroy Way SW Seattle, WA

DЕРТН	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
-	_									
-	- - -								Concrete Silty sand, fine to medium sand, low plasticity, gray brown, no HCLO.	Steel Monument Locking J-Plug
5 - -	-5 - - -		5.0- 6.0	5.0- 6.0	AK	D	6.3			- Concrete
- 10 10	-10 -		10.0- 11.5	10.0- 11.5	6 6 7	D	5.7	-	Silty sand, fine to medium sand, some gravel, low plasticity, grey/brown, no HCLO.	- 6" Schedule 80 PVC Well Casing
15 - - -	-15 - - - -		15.0- 16.5	15.0- 16.5	10 12 10	D	10.1		Silty sand, fine sand, some gravel, medium plasticity, grey/brown.	
- 20 - -	-20 -		20.0- 21.5	20.0- 21.5	50/6	D	>800		Fine to medium sand with some gravel, low plasticity, grey/brown, HCLO.	6" Stainless Steel 0.020" Wire-Wrapped Screen
- 25 - - -	-25 - - - -		25.0- 26.5	25.0- 26.5	31 30 30	M/W	>150		Medium sand with trace silt, grey/brown, HCLO.	# 10/20 Sand # 10/20 Sand First Encountered Groundwater 6" Schedule 80 PVC Sump
30	-30 -		30.0- 31.5	30.0- 31.5	36 50/6	W	51.4		Silty sand, fine sand, low plasticity, brown, HCLO. End of boring @ 31.5'	T vo Sump
						DI			M = Moist $NA = N$	L= Light Non-Aqueous Phase Liquid Not Applicable/Available No Recovery /et

Date Start/Finish: 1-23-12

Drilling Company: Cascade Drilling Inc.
Driller's Name: James

Drilling Method: Hollow Stem Auger Auger Size: 8"

Rig Type: Hollow Stem Auger Sampling Method: 16-Inch Split-Spoon

Northing: NM Easting: NM Casing Elevation: NM

Borehole Depth: 36.5 ft. Surface Elevation: NM

Descriptions By: Samuel Miles

Well/Boring ID: MW-10

Client: BP West Coast Products LLC

Location: WA-11060

4580 Fauntleroy Way SW Seattle, WA

DЕРТН	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
	_									
-	 θ								Concrete	Locking J-Plug
	_							\wedge	Crushed rock with silt.	Concrete
-	-								Silty sand, fine to medium sand, low plasticity.	
-5 -	-5 -		5.0- 6.0	5.0- 6.0	AK	М	NA	岸王		2" Sch. 40 PVC well casing
-	-									
-	-									Bentonite chips
-10	-10 -		10.0- 11.5	10.0- 11.0	50/6	М	2.4		Woody debris.	
-	-								Fine to medium sand with silt, low plasticity, grey/brown.	
F	_									
 15	-15 -		15.0- 16.5	15.0- 16.5	50/6	D	27	T. T.	Silty sand, fine to medium sand, low plasticity, grey.	
-	-									
-	_									
20	-20 -		20.0- 21.5	20.0- 21.5	50/6	М	3.6		Silty sand, fine sand, low plasticity, orange/grey.	
-	-									
ļ	_									First
<u>_</u> 25	-25 -		25.0- 26.5	25.0- 26.5	50/6	М	0.7	<u> </u>	Silty sand, fine to medium sand, low plasticity, orange/grey.	Encountered Groundwater # 2/12 Sand
-	_							<u> </u>		2" Sch. 40 PVC screen
-	_							<u> </u>		
30	-30 -		30.0- 31.5		50/5	М	1.1		Silty sand, fine to medium sand, low plasticity, orange/grey.	
-	_							 		
	-									
- 35	-35 -		35.0- 36.5	35.0- 36.5	50/6	W	0.3		Sandy silt, fine sand, low plasticity, grey/brown.	
-	-						_		End of boring @ 36.5'	
					A				HCLO = Hydrocarbon-like Odor M = Moist NA NM = Not Measured NR OD = Outer Diameter Analytical Samples: MW-10-15' MW-10-25' MW	e feet APL= Light Non-Aqueous Phase Liquid = Not Applicable/Available = No Recovery = Wet V-10-20' V-10-35'

Date Start/Finish: 1-23-12

Drilling Company: Cascade Drilling Inc.

Driller's Name: James

Drilling Method: Hollow Stem Auger Auger Size: 8"

Rig Type: Hollow Stem Auger Sampling Method: Sleeve

Northing: NM Easting: NM Casing Elevation: NM

Borehole Depth: 41.5 ft Surface Elevation: NM

Descriptions By: Samuel Miles

Well/Boring ID: SB-1

Client: BP West Coast Products LLC

Location: 4580 Fauntleroy Way SW Seattle, WA

DЕРТН	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
	-									
	,								Concrete Medium sand with trace silt, grey/brown, dry, low plasticity.	Concrete
-5 - -	-5 - - -		5.0- 6.0	5.0- 6.0	AK	D	0.4		Silt with fine sand, medium plasticity, grey/brown.	
- 10 - - -	-10 -		10.0- 11.5	10.0- 11.5	8 12 12	D	2.1		Sandy silt, fine sand, non plastic, brown.	
15 	-15 — — — —		15.0- 16.5	15.0- 16.5	14 14 15	D	>400		Fine to medium sand with trace silt, grey/brown, non plastic, strong HCLO.	
- - -	-20 - - - -		20.0- 21.5	20.0- 21.5	14 16 17	D	>200		Fine to medium sand with trace silt, brown, non plastic, HCLO.	
- - -	-25 - - - -		25.0- 26.5	25.0- 26.5	15 14 15	M/W	8.1		Sandy silt, fine sand, non plastic, brown.	First Encountered Groundwater
- 30 - - -	-30 - - -		30.0- 31.5	30.0- 31.5	50/5	W	14.4		Sandy silt, fine to medium sand, non plastic, brown, no HCLO.	
- 35 - - -	-35 - - - -		35.0- 36.0	35.0- 36.5	24 50/6	W	>50		Sandy silt, fine to medium sand, non plastic, brown, slight HCLO.	
<u>40</u>	-40 -		40.0- 41.5	40.0- 41.5	37 50/6	W	4.9	:::::::::::::::::::::::::::::::::::::::	Sandy silt, fine sand, grey/brown.	
						DI			HCLO = Hydrocarbon-like Odor LNA M = Moist NA = NM = Not Measured NR	1-25'

Date Start/Finish: 1-23-12 & 1-24-12 **Drilling Company:** Cascade Drilling Inc.

Driller's Name: James

Drilling Method: Hollow Stem Auger Auger Size: 8"

Rig Type: Hollow Stem Auger Sampling Method: Sleeve

Northing: NM Easting: NM Casing Elevation: NM

Borehole Depth: 41.5 ft. Surface Elevation: NM

Descriptions By: Samuel Miles

Well/Boring ID: SB-2

Client: BP West Coast Products LLC

Location: 4580 Fauntleroy Way SW Seattle, WA

рертн	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Well/Boring Stratigraphic Description Construction
-	_								
- - -	,								Concrete Sandy silt, brown, medium plasticity, moist, no HCLO. Concrete
5 - - -	-5 - - - -		5.0- 6.0	5.0- 6.0	AK	D/M	1.5		
10 	-10 — — —		10.0- 11.5	10.0- 11.5	6 6 8	D/M	1.4		Some gravel from 10-11 feet. Medium sand with some silt, brown/grey, low plasticity.
- 15 - -	-15 - - - -		15.0- 16.5	15.0- 16.5	6 10 12	D	8.5		Sandy silt with some gravel, medium plasticity, grey, dry.
- 20	-20 - -		20.0- 21.5	20.0- 21.5	17 20 20	D	>200		Fine to medium sand with some silt, non plasticity, grey/brown, dry, HCLO. Bentonite
- 25	-25 - - -		25.0- 26.5	-	17 18 18	-	NA		No recovery. First Encountered Groundwater
- 30	-30 -		30.0- 31.5	-	50/5	-	NA		No recovery.
- 35	-35 - - - -		35.0- 36.0	35.0- 36.5	46 50/6	W	14.4		Silty sand, fine to medium sand, medium plasticity, grey/brown, wet.
- 40	-40 -		40.0- 41.5	40.0- 41.5	40 56	W	8.7		Silty sand, fine to medium sand, medium plasticity, grey/brown, wet. End of boring @ 41.5'
						DI			Remarks: D = Dry HCLO = Hydrocarbon-like Odor M = Moist NM = Not Measured OD = Outer Diameter Analytical Samples: SB-2-20' ft. = feet LNAPL= Light Non-Aqueous Phase Liquid NA = Not Applicable/Available NR = No Recovery W = Wet SB-2-35'

Date Start/Finish: 1-23-12 & 1-24-12 **Drilling Company:** Cascade Drilling Inc.

Driller's Name: James

Drilling Method: Hollow Stem Auger Auger Size: 8"

Rig Type: Hollow Stem Auger Sampling Method: Sleeve

Northing: NM Easting: NM Casing Elevation: NM

Borehole Depth: 51.5 Surface Elevation: NM

Descriptions By: Samuel Miles

Well/Boring ID: SB-3

Client: BP West Coast Products LLC

Location: 4580 Fauntleroy Way SW Seattle, WA

DEРТН	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
	-									
-	-							ÖŞÖÇ	Concrete	
	-								Sandy silt, very fine sand, medium plasticity, grey with brown streaks, HCLO.	Concrete
-5	-5 - - - -		5.0- 6.0	5.0- 6.0	AK	М	58.9			
-10	-10 -		10.0- 11.5	10.0- 11.5	5 5 6	М	3.1		Silty sand, fine to medium sand, low plasticity, grey, woody debris.	
- 15	-15 - - -		15.0- 16.5	15.0- 16.5	14 12 14	M	8.7		Silt with some fine sand, low plasticity, grey with brown streaks, some woody debris.	
20	-20 -		20.0- 21.5	20.0- 21.5	16 19 20	M	>79.9		Medium sand, trace silt, grey, HCLO, no plasticity.	-
- 25	-25 - - - -		25.0- 26.5	25.0- 26.5	27/56	M	>250		Medium sand, trace silt, grey, HCLO, no plasticity.	First Encountered Groundwater Bentonite
30	-30 -		30.0- 31.5	30.0- 31.5	24 29 30	W	>89.2		Silty sand, very fine, no plasticity, grey, HCLO.	
35	-35 -		35.0- 36.0	35.0- 36.5	34	W	>50.0		Silty sand, very fine, no plasticity, grey/brown, HCLO.	
40	-40 -		40.0- 41.5	40.0- 41.5	30 50	M	>87.0		Silt with trace sand, brown, chalky.	
45	-45 - - -		45.0- 46.5	45.0- 46.5	31 30 30	W/M	70.9		Very fine sand with silt, low plasticity, grey.	
- 50	-50 -		50.0- 51.5	50.0- 51.5	21 25	W/M	40.7		Very fine sand with silt, low plasticity, grey.	
					20				End of boring @ 51.5'	
						DI			M = Moist $NA = N$	L= Light Non-Aqueous Phase Liquid Not Applicable/Available No Recovery /et

SB-3-20'

SB-3-50'

Date Start/Finish: 1-23-12 & 1-24-12 **Drilling Company:** Cascade Drilling Inc.

Driller's Name: James

Drilling Method: Hollow Stem Auger Auger Size: 8"

Rig Type: Hollow Stem Auger Sampling Method: Sleeve

Northing: NM Easting: NM Casing Elevation: NM

Borehole Depth: 36.5 ft. Surface Elevation: NM

Descriptions By: Samuel Miles

Well/Boring ID: SB-4

Client: BP West Coast Products LLC

Location: 4580 Fauntleroy Way SW Seattle, WA

DЕРТН	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
	1									
-	-0								Concrete	
-	-								Medium sand with some silt, brown.	Concrete
-	_							 :::::::::::::::::::::::::::::::::	Sandy silt, fine sand, some plasticity, brown, no HCLO.	
-5	-5 -		5.0-	5.0-	AK	D	0.7	===		
	_		6.0	6.0				<u> </u>		
-	-							:::: :::::::::::::::::::::::::::::::::		
-10	-10 -		10.0-	10.0-		D	0.2	=======================================	Sandy silt, fine sand, some gravel, medium plasticity, brown/grey, no HCLO.	
-	-		11.5	11.5	4 5 4		0.2		Sandy Sill, line Sand, Some graver, medium plasticity, blownigrey, no nocc.	
-	-									
-	-							<u> </u>		
- 15 -	-15 -		15.0- 16.5	15.0- 16.5	16 21	D	>150		Fine to medium sand with trace silt, grey/brown, low plasticity, some HCLO.	
-	-				20					
-	_									
- 20	-20 -		20.0- 21.5	20.0- 21.5	15 21	M	7.8		Fine to medium sand with trace silt, some gravel, grey/brown, low plasticity, some HCLO.	Bentonite
-	_		21.0	21.0	31				some field.	
	_									
- 25	-25 -		25.0-	25.0-	17	W	4.5	T. +	Silty sand, fine to medium sand, low plasticity, brown/grey.	First Encountered
	_		26.5	26.5	26 22				Silly sario, line to medium sario, low plasticity, brown/grey.	Groundwater
-	-									
- 30	-30 -							<u> </u>		
-	-		30.0- 31.5	30.0- 31.5	27 30 30	W	0.5	<u> </u>	Sandy silt, fine sand, low plasticity, brown, no HCLO.	
-	_									
-	-							⊞ ∺		
— 35 -	-35 -		35.0- 36.0	35.0- 36.5	21 22	W	0.3		Fine sand with silt, low plasticity, brown.	
-	-				20				End of boring @ 36.5'	
						DI ment			M = Moist $NA = N$	= Light Non-Aqueous Phase Liquid ot Applicable/Available lo Recovery et

SB-4-35'

ARCADIS

Appendix ${\bf B}$

Laboratory Analytical Reports and Chain of Custody Documentation





February 03, 2012

Scott Zorn Arcadis U.S., Inc. 2300 Eastlake Ave E. Ste. 200 Seattle, WA 98102

RE: Project: WA 11060

Pace Project No.: 2510617

Dear Scott Zorn:

Enclosed are the analytical results for sample(s) received by the laboratory on January 23, 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.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

Sample SB-3-5 re-logged for PAH per client request on 2/2/12.

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

Sincerely,

Andy Brownfield

Anoy Brownfield

andy.brownfield@pacelabs.com Project Manager

Enclosures

cc: Alan Kahal, Arcadis U.S., Inc. David Rasar, Arcadis U.S., Inc. Rick Rodriguez, Arcadis U.S., Inc.



REPORT OF LABORATORY ANALYSIS





CERTIFICATIONS

Project: WA 11060 Pace Project No.: 2510617

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

(206)767-5060



SAMPLE ANALYTE COUNT

Project: WA 11060 Pace Project No.: 2510617

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2510617001	MW-10-15	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	LPM	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LPM	9	PASI-S
		ASTM D2974-87	CMM	1	PASI-S
2510617002	MW-10-20	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	LPM	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LPM	9	PASI-S
		ASTM D2974-87	CMM	1	PASI-S
2510617003	MW-10-25	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	LPM	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LPM	9	PASI-S
		ASTM D2974-87	CMM	1	PASI-S
2510617004 MV	MW-10-35	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	LPM	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LPM	9	PASI-S
		ASTM D2974-87	CMM	1	PASI-S
2510617005	SB-1-15	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	LPM	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LNH	5	PASI-S
		EPA 8260	LPM	8	PASI-S
		ASTM D2974-87	CMM	1	PASI-S
2510617006	SB-1-25	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	LPM	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LPM	9	PASI-S
		ASTM D2974-87	CMM	1	PASI-S
2510617007	SB-1-35	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	LPM	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LPM	9	PASI-S
		ASTM D2974-87	CMM	1	PASI-S
2510617008	SB-1-40	NWTPH-Dx	AY1	4	PASI-S

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: WA 11060 Pace Project No.: 2510617

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		NWTPH-Gx	LPM	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LPM	9	PASI-S
		ASTM D2974-87	CMM	1	PASI-S
2510617009	SB-3-5	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	LPM	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8270 by SIM	KJ1	20	PASI-S
		EPA 8260	LPM	9	PASI-S
		ASTM D2974-87	CMM	1	PASI-S
2510617010	DUP-1	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	LPM	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LNH	5	PASI-S
		EPA 8260	LPM	8	PASI-S
		ASTM D2974-87	CMM	1	PASI-S
2510617015	Trip Blank	NWTPH-Gx	LPM	3	PASI-S
		EPA 8260	LPM	9	PASI-S



Project: WA 11060 Pace Project No.: 2510617

Method:NWTPH-DxDescription:NWTPH-Dx GCSClient:Arcadis U.S., Inc.Date:February 03, 2012

General Information:

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

Hold Time:

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

Sample Preparation:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

Duplicate Sample:

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

Additional Comments:



Project: WA 11060 Pace Project No.: 2510617

Method:NWTPH-GxDescription:NWTPH-Gx GCVClient:Arcadis U.S., Inc.Date:February 03, 2012

General Information:

11 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.

QC Batch: GCV/2649

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

- DUP-1 (Lab ID: 2510617010)
 - 4-Bromofluorobenzene (S)
- SB-1-15 (Lab ID: 2510617005)
 - 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:

REPORT OF LABORATORY ANALYSIS



Project: WA 11060 Pace Project No.: 2510617

Method:EPA 6010Description:6010 MET ICPClient:Arcadis U.S., Inc.Date:February 03, 2012

General Information:

10 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:





Project: WA 11060
Pace Project No.: 2510617

Method: EPA 8270 by SIM

Description: 8270 MSSV PAH by SIM

Client: Arcadis U.S., Inc.

Date: February 03, 2012

General Information:

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

Hold Time:

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

Sample Preparation:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

Duplicate Sample:

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

Additional Comments:

Analyte Comments:

QC Batch: OEXT/5008

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

- SB-3-5 (Lab ID: 2510617009)
 - Terphenyl-d14 (S)

REPORT OF LABORATORY ANALYSIS



Project: WA 11060 Pace Project No.: 2510617

Method: EPA 8260

Description: 8260 MSV 5035A Med Level VOA

Client: Arcadis U.S., Inc.

Date: February 03, 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.

Sample Preparation:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

Duplicate Sample:

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

Additional Comments:



Project: WA 11060 Pace Project No.: 2510617

Method: EPA 8260

Description: 8260/5035A Volatile Organics

Client: Arcadis U.S., Inc.

Date: February 03, 2012

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

QC Batch: MSV/6241

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

- DUP-1 (Lab ID: 2510617010)
 - 4-Bromofluorobenzene (S)
 - Toluene-d8 (S)

QC Batch: MSV/6253

S0: Surrogate recovery outside laboratory control limits.

- MS (Lab ID: 101364)
 - 1,2-Dichloroethane-d4 (S)
 - 4-Bromofluorobenzene (S)
 - Toluene-d8 (S)
- MSD (Lab ID: 101365)
 - Toluene-d8 (S)

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

- SB-1-15 (Lab ID: 2510617005)
 - 4-Bromofluorobenzene (S)
 - Toluene-d8 (S)
- SB-3-5 (Lab ID: 2510617009)
 - 4-Bromofluorobenzene (S)
 - Toluene-d8 (S)

Method Blank:

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

REPORT OF LABORATORY ANALYSIS



Project: WA 11060
Pace Project No.: 2510617

Method: EPA 8260

Description: 8260/5035A Volatile Organics

Client: Arcadis U.S., Inc.

Date: February 03, 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/6253

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2510708001

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

- MS (Lab ID: 101364)
 - Benzene
 - Ethylbenzene
 - Xylene (Total)
- MSD (Lab ID: 101365)
 - Benzene
 - Ethylbenzene
 - Toluene
 - Xylene (Total)

Duplicate Sample:

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

Additional Comments:

Analyte Comments:

QC Batch: MSV/6253

1n: Low recovery of internal standard in this sample due to a matrix effect. This matrix effect was confirmed by a second analysis. Results may be biased high.

- SB-3-5 (Lab ID: 2510617009)
 - Benzene
 - Ethylbenzene

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 101364)
 - Benzene
 - Ethylbenzene
 - Xylene (Total)
- MSD (Lab ID: 101365)
 - Ethylbenzene

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



Project: WA 11060
Pace Project No.: 2510617

Date: 02/03/2012 04:50 PM

Analytical Method: NWTPH-Dx Preparation Method: EPA 3546 Dissel Range ND mg/kg 17.9 1 01/24/12 14:15 01/24/12 18:11 64742-65-0 Motor Oil Range ND mg/kg 71.6 1 01/24/12 14:15 01/24/12 18:11 64742-65-0 Motor Oil Range ND mg/kg 71.6 1 01/24/12 14:15 01/24/12 18:11 64742-65-0 Motor Oil Range ND mg/kg 71.6 1 01/24/12 14:15 01/24/12 18:11 64742-65-0 Motor Oil Range ND mg/kg 71.6 1 01/24/12 14:15 01/24/12 18:11 64742-65-0 ND mg/kg 10.0 10/24/12 14:15 01/24/12 18:11 84-15-1 NWTPH-GX GCV Analytical Method: NWTPH-GX Preparation Method: NWTPH-GX GCY Analytical Method: NWTPH-GX Preparation Method: NWTPH-GX GASoline Range Organics ND mg/kg 6.3 1 01/24/12 13:31 01/24/12 19:00 Surrogates a.g.a., Trifluorollulene (S) 95 % 50-150 1 01/24/12 13:31 01/24/12 19:00 98-08-8 4-8romofluorobenzene (S) 94 % 50-150 1 01/24/12 13:31 01/24/12 19:00 98-08-8 4-8romofluorobenzene (S) 94 % 50-150 1 01/24/12 13:31 01/24/12 19:00 98-08-8 4-8romofluorobenzene (S) 94 % 50-150 1 01/24/12 13:31 01/24/12 19:00 98-08-8 4-8romofluorobenzene (S) 94 % 50-150 1 01/24/12 13:31 01/24/12 19:00 98-08-8 4-8romofluorobenzene (S) 98 % 10.0 1 01/25/12 07:42 01/25/12 16:43 7439-92-1 8280/5035A Volatile Organics Benzene ND ug/kg 3.4 1 01/26/12 11:55 100-41-4 10.0 10/26/12 11:55 100-41-4 10.0 1	Sample: MW-10-15	Lab ID: 251	0617001	Collected: 01/23/1	12 11:25	Received: 01	1/23/12 17:00	Matrix: Solid	
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546 Diese Range ND mg/kg 71.6 1 01/24/12 14:15 01/24/12 18:11 64742-65-0 Surrogates n-Octacosane (S) 92 % 50-150 1 01/24/12 14:15 01/24/12 18:11 84-15-1 NWTPH-GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx Gasoline Range Organics ND mg/kg 6.3 1 01/24/12 13:31 01/24/12 18:11 84-15-1 NWTPH-GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx Gasoline Range Organics ND mg/kg 6.3 1 01/24/12 13:31 01/24/12 19:00 Surrogates a.aTriffurorioluene (S) 95 % 50-150 1 01/24/12 13:31 01/24/12 19:00 98-08-8 4-Bromofluorobenzene (S) 94 % 50-150 1 01/24/12 13:31 01/24/12 19:00 98-08-8 4-Bromofluorobenzene (S) 94 % 50-150 1 01/24/12 13:31 01/24/12 19:00 40-00-4 Analytical Method: EPA 6010 Preparation Method: EPA 3550 Lead 1.9 mg/kg 1.0 1 01/25/12 07:42 01/25/12 16:43 7439-92-1 2820/5035A Volatile Organics Analytical Method: EPA 8260 Benzene ND ug/kg 3.4 1 01/26/12 11:55 71-43-2 Ethlybenzene ND ug/kg 3.4 1 01/26/12 11:55 71-43-2 Ethlybenzene ND ug/kg 3.4 1 01/26/12 11:55 100-41-4 Toluene ND ug/kg 3.4 1 01/26/12 11:55 100-88-3 Toluene ND ug/kg 10.3 1 01/26/12 11:55 100-88-3 Toluene ND ug/kg 10.3 1 01/26/12 11:55 100-88-3 Toluene ND ug/kg 10.3 1 01/26/12 11:55 100-88-3 T	Results reported on a "dry-weight	" basis							
Diesel Range	Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Motor Oil Range	NWTPH-Dx GCS	Analytical Meth	nod: NWTF	PH-Dx Preparation Me	ethod: E	PA 3546			
Surrogates 92 % 50-150 1 01/24/12 14:15 01/24/12 18:11 630-02-4 0-Terphenyl (S) 93 % 50-150 1 01/24/12 14:15 01/24/12 18:11 630-02-4 0-Terphenyl (S) 93 % 50-150 1 01/24/12 14:15 01/24/12 18:11 84-15-1 0-Terphenyl (S) 93 % 50-150 1 01/24/12 13:31 01/24/12 19:00 0-Terphenyl (S) 0.3 1 01/24/12 13:31 01/24/12 19:00 0-Terphenyl (S) 95 % 50-150 1 01/24/12 13:31 01/24/12 19:00 98-08-8 0-Terphenyl (S) 95 % 50-150 1 01/24/12 13:31 01/24/12 19:00 98-08-8 0-Terphenyl (S) 94 % 50-150 1 01/24/12 13:31 01/24/12 19:00 98-08-8 0-Terphenyl (S) 94 % 50-150 1 01/24/12 13:31 01/24/12 19:00 98-08-8 0-Terphenyl (S) 94 % 50-150 1 01/25/12 07:42 01/25/12 19:00 98-08-8 0-Terphenyl (S)	Diesel Range	ND mg	g/kg	17.9	1	01/24/12 14:15	01/24/12 18:11		
0-Terphenyl (S) 93 % 50-150 1 01/24/12 14:15 01/24/12 18:11 84-15-1 NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx Gasoline Range Organics ND mg/kg 6.3 1 01/24/12 13:31 01/24/12 19:00 Surrogates a.a.a-Trifluorotoluene (S) 95 % 50-150 1 01/24/12 13:31 01/24/12 19:00 98-08-8 4-Bromofluorobenzene (S) 94 % 50-150 1 01/24/12 13:31 01/24/12 19:00 98-08-8 4-Bromofluorobenzene (S) 94 % 50-150 1 01/24/12 13:31 01/24/12 19:00 98-08-8 4-Bromofluorobenzene (S) 94 % 50-150 1 01/24/12 13:31 01/24/12 19:00 98-08-8 4-Bromofluorobenzene (S) 94 % 50-150 1 01/24/12 13:31 01/24/12 19:00 98-08-8 4-Bromofluorobenzene (S) 94 % 50-150 1 01/25/12 07:42 01/25/12 19:00 98-08-8 4-Bromofluorobenzene (S) 94 % 50-150 1 01/25/12 07:42 01/25/12 19:00 98-08-8 4-Bromofluorobenzene (S) 1.9 mg/kg 1.0 1 01/25/12 07:42 01/25/12 16:43 7439-92-1 Benzene ND ug/kg 3.4 1 01/25/12 11:55 71-43-2 Ethylbenzene ND ug/kg 3.4 1 01/26/12 11:55 100-41-4 Methyl-tert-butyl ether ND ug/kg 3.4 1 01/26/12 11:55 108-88-3 Xylene (Total) ND ug/kg 3.4 1 01/26/12 11:55 108-88-3 Xylene (Total) ND ug/kg 3.4 1 01/26/12 11:55 108-88-3 Xylene (Total) ND ug/kg 3.4 1 01/26/12 11:55 108-88-3 Dibromofluoromethane (S) 98 % 72-129 1 01/26/12 11:55 108-88-3 Dibromofluoromethane (S) 98 % 72-129 1 01/26/12 11:55 100-88-3 Dibromofluoromethane (S) 98 % 67-142 1 01/26/12 11:55 100-88-3 Totuene-da (S) 101 % 69-133 1 01/26/12 11:55 100-07-0 Percent Moisture Analytical Method: ASTM D2974-87 Percent Moisture Analytical Method: NWTPH-Dx Preparation Method: EPA 3546 Motor Oil Range ND mg/kg 19.3 1 01/24/12 14:15 01/24/12 18:46 64742-65-0 Surrogates ND mg/kg 77:1 1 01/24/12 14:15 01/24/12 18:46 64742-65-0 Surrogates ND mg/kg 77:1 1 01/24/12 14:15 01/24/12 18:46 64742-65-0 Surrogates ND mg/kg 77:1 1 01/24/12 14:15 01/24/12 18:46 64742-65-0 -Terphenyl (S) 101 % 50-150 1 01/24/12 14:15 01/24/12 18:46 64742-65-0 -Terphenyl (S) Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx CCV	Motor Oil Range Surrogates	ND mg	g/kg	71.6	1	01/24/12 14:15	01/24/12 18:11	64742-65-0	
Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx Gasoline Range Organics Surrogates a.aTrifluortolluene (S) 95 % 50-150 1 01/24/12 13:31 01/24/12 19:00 98-08-8 4-Bromofluorobenzene (S) 94 % 50-150 1 01/24/12 13:31 01/24/12 19:00 98-08-8 4-Bromofluorobenzene (S) 94 % 50-150 1 01/24/12 13:31 01/24/12 19:00 98-08-8 4-Bromofluorobenzene (S) 94 % 50-150 1 01/24/12 13:31 01/24/12 19:00 98-08-8 4-Bromofluorobenzene (S) 94 % 50-150 1 01/24/12 13:31 01/24/12 19:00 98-08-8 4-Bromofluorobenzene (S) 94 % 50-150 1 01/24/12 13:31 01/24/12 19:00 98-08-8 4-Bromofluorobenzene (S) 94 % 50-150 1 01/25/12 07:42 01/25/12 19:00 460-00-4 8260/5035A Volatile Organics Analytical Method: EPA 8260 Benzene ND ug/kg 3.4 1 01/26/12 11:55 100-41-4 Methyl-tert-butyl ether ND ug/kg 3.4 1 01/26/12 11:55 100-41-4 Methyl-tert-butyl ether ND ug/kg 3.4 1 01/26/12 11:55 100-41-4 Methyl-tert-butyl ether ND ug/kg 3.4 1 01/26/12 11:55 100-41-4 Methyl-tert-butyl ether ND ug/kg 3.4 1 01/26/12 11:55 100-41-4 Methyl-tert-butyl ether ND ug/kg 3.4 1 01/26/12 11:55 100-41-4 Methyl-tert-butyl ether ND ug/kg 3.4 1 01/26/12 11:55 100-41-4 Methyl-tert-butyl ether ND ug/kg 3.4 1 01/26/12 11:55 100-41-4 Methyl-tert-butyl ether ND ug/kg 3.4 1 01/26/12 11:55 100-41-4 Methyl-tert-butyl ether ND ug/kg 3.4 1 01/26/12 11:55 100-41-4 Methyl-tert-butyl ether ND ug/kg 3.4 1 01/26/12 11:55 100-41-4 Methyl-tert-butyl ether ND ug/kg 3.4 1 01/26/12 11:55 100-41-4 Methyl-tert-butyl ether ND ug/kg 3.4 1 01/26/12 11:55 100-41-4 Methyl-tert-butyl ether ND ug/kg 3.4 1 01/26/12 11:55 100-41-4 Methyl-tert-butyl ether ND ug/kg 3.4 1 01/26/12 11:55 100-41-4 Methyl-tert-butyl ether ND ug/kg 3.4 1 01/26/12 11:55 100-41-4 Methyl-tert-butyl ether ND ug/kg 4 0.1 0 01/26/12 11:55 100-41-4 Methyl-tert-butyl ether ND ug/kg 4 0.1 0 01/26/12 11:55 100-41-4 Methyl-tert-butyl ether ND ug/kg 4 0.1 0 01/26/12 11:55 100-41-4 Methyl-tert-butyl ether ND ug/kg 4 0.1 0 01/26/12 11:55 100-41-4 Methyl-tert-butyl ether ND ug/kg 4 0.1 0 01/26/12 11:55 100-41-4 Methyl-tert-butyl ether ND ug/kg 4 0	n-Octacosane (S)	92 %		50-150	1	01/24/12 14:15	01/24/12 18:11	630-02-4	
Sasoline Range Organics ND mg/kg 6.3 1 01/24/12 13:31 01/24/12 19:00	o-Terphenyl (S)	93 %		50-150	1	01/24/12 14:15	01/24/12 18:11	84-15-1	
Surrogates 3	NWTPH-Gx GCV	Analytical Meth	nod: NWTF	PH-Gx Preparation M	ethod: N	WTPH-Gx			
a.a.a.fultrorotoluene (S) 95 % 50-150 1 01/24/12 13:31 01/24/12 19:00 98-08-8 4-Bromofluorobenzene (S) 95 % 50-150 1 01/24/12 13:31 01/24/12 19:00 460-00-4 8010 MET ICP	Gasoline Range Organics Surrogates	ND mg	g/kg	6.3	1	01/24/12 13:31	01/24/12 19:00)	
Analytical Method: EPA 6010 Preparation Method: EPA 3050	a,a,a-Trifluorotoluene (S)	95 %		50-150	1	01/24/12 13:31	01/24/12 19:00	98-08-8	
1.9 mg/kg	4-Bromofluorobenzene (S)	94 %		50-150	1	01/24/12 13:31	01/24/12 19:00	460-00-4	
### Results reported on a "dry-weight" basis Parameters Analytical Method: ND 19/8 3.4 1 01/26/12 11:55 71-43-2 **Tolloro thanks the following	6010 MET ICP	Analytical Meth	nod: EPA 6	010 Preparation Met	hod: EPA	A 3050			
Benzene ND ug/kg 3.4 1 01/26/12 11:55 71-43-2 Ethylbenzene ND ug/kg 3.4 1 01/26/12 11:55 71-43-2 Ethylbenzene ND ug/kg 3.4 1 01/26/12 11:55 100-41-4 Methyl-tert-butyl ether ND ug/kg 3.4 1 01/26/12 11:55 103-04-4 Toluene ND ug/kg 3.4 1 01/26/12 11:55 108-88-3 X/Jene (Total) ND ug/kg 10.3 1 01/26/12 11:55 133-02-07 Surrogates Dibromofluoromethane (S) 98 % 72-129 1 01/26/12 11:55 1330-20-7 Toluene-d8 (S) 101 % 69-133 1 01/26/12 11:55 2037-26-5 4-Bromofluorobenzene (S) 99 % 67-142 1 01/26/12 11:55 2037-26-5 4-Bromofluorobenzene (S) 99 % 67-142 1 01/26/12 11:55 2037-26-5 4-Bromofluorobenzene (S) 105 % 67-136 1 01/26/12 11:55 17060-07-0 Percent Moisture Analytical Method: ASTM D2974-87 Percent Moisture Analytical Method: ASTM D2974-87 Percent Moisture 13.2 % 0.10 1 01/24/12 14:54 Sample: MW-10-20 Lab ID: 2510617002 Collected: 01/23/12 11:30 Received: 01/23/12 17:00 Matrix: Solid Results reported on a "dry-weight" basis Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Qu NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546 Diesel Range ND mg/kg 19.3 1 01/24/12 14:15 01/24/12 18:46 64742-65-0 Surrogates n-Octacosane (S) 103 % 50-150 1 01/24/12 14:15 01/24/12 18:46 630-02-4 o-Terphenyl (S) 101 % 50-150 1 01/24/12 14:15 01/24/12 18:46 84-15-1 NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx	Lead	1.9 mg	g/kg	1.0	1	01/25/12 07:42	01/25/12 16:43	3 7439-92-1	
Ethylbenzene ND ug/kg 3.4 1 01/26/12 11:55 100-41-4 Methyl-tert-butyl ether ND ug/kg 3.4 1 01/26/12 11:55 1634-04-4 Toluene ND ug/kg 3.4 1 01/26/12 11:55 1634-04-4 Toluene ND ug/kg 3.4 1 01/26/12 11:55 1634-04-4 Toluene ND ug/kg 3.4 1 01/26/12 11:55 108-88-3 Xylene (Total) ND ug/kg 10.3 1 01/26/12 11:55 1300-20-7 Surrogates Different ND ug/kg 10.3 1 01/26/12 11:55 1300-20-7 Surrogates Different ND ug/kg 10.3 1 01/26/12 11:55 1868-53-7 Toluene-d8 (S) 98 % 72-129 1 01/26/12 11:55 1868-53-7 Toluene-d8 (S) 101 % 69-133 1 01/26/12 11:55 2037-26-5 4-Bromofluorobenzene (S) 99 % 67-142 1 01/26/12 11:55 460-00-4 1,2-Dichloroethane-d4 (S) 105 % 67-136 1 01/26/12 11:55 17060-07-0 Percent Moisture Analytical Method: ASTM D2974-87 Percent Moisture 13.2 % 0.10 1 01/24/12 14:54 Sample: MW-10-20 Lab ID: 2510617002 Collected: 01/23/12 11:30 Received: 01/23/12 17:00 Matrix: Solid Results reported on a "dry-weight" basis Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Quenty Parameters Results Units Report Limit DF Prepared On Analyzed CAS No. Quenty Parameters No. Dmg/kg 19.3 1 01/24/12 14:15 01/24/12 18:46 64742-65-0 Surrogates ND mg/kg 77.1 1 01/24/12 14:15 01/24/12 18:46 64742-65-0 Surrogates n-Octacosane (S) 10.3 % 50-150 1 01/24/12 14:15 01/24/12 18:46 84-15-1 NWTPH-GX CV Analytical Method: NWTPH-GX Preparation Method: NWTPH-GX	8260/5035A Volatile Organics	Analytical Meth	nod: EPA 8	260					
Methyl-tert-butyl ether ND ug/kg 3.4 1 01/26/12 11:55 1634-04-4 Tolluene ND ug/kg 3.4 1 01/26/12 11:55 108-88-3 Xylene (Total) ND ug/kg 10.3 1 01/26/12 11:55 130-20-7 Surrogates Dibromofluoromethane (S) 98 % 72-129 1 01/26/12 11:55 1868-53-7 Toluene-d8 (S) 101 % 69-133 1 01/26/12 11:55 2037-26-5 4-Bromofluorobenzene (S) 99 % 67-142 1 01/26/12 11:55 460-00-4 1,2-Dichloroethane-d4 (S) 105 % 67-136 1 01/26/12 11:55 460-00-4 Percent Moisture Analytical Method: ASTM D2974-87 Percent Moisture Aspect Limit D2 % 0.10 1 01/24/12 14:54 Sample: MW-10-20 Lab ID: 2510617002 Collected: 01/23/12 11:30 Received: 01/23/12 17:00 Matrix: Solid Results reported on a "dry-weight" basis Results Units Report Limit DF Prepared Analyzed CAS No. Qu CAS No. Qu NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: E	Benzene	ND ug	/kg	3.4	1		01/26/12 11:55	71-43-2	
Toluene ND ug/kg 3.4 1 01/26/12 11:55 108-88-3 Xy/ene (Total) ND ug/kg 10.3 1 01/26/12 11:55 1330-20-7 Surrogates Dibromofluoromethane (S) 98 % 72-129 1 01/26/12 11:55 1868-53-7 Toluene-d8 (S) 101 % 69-133 1 01/26/12 11:55 2037-26-5 4-Bromofluorobenzene (S) 99 % 67-142 1 01/26/12 11:55 460-00-4 1,2-Dichloroethane-d4 (S) 105 % 67-136 1 01/26/12 11:55 17060-07-0 Percent Moisture Analytical Method: ASTM D2974-87 Percent Moisture Analytical Method: ASTM D2974-87 Percent Moisture 13.2 % 0.10 1 01/24/12 14:54 Sample: MW-10-20 Lab ID: 2510617002 Collected: 01/23/12 11:30 Received: 01/23/12 17:00 Matrix: Solid Results reported on a "dry-weight" basis Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Qu NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546 Diesel Range ND mg/kg 19.3 1 01/24/12 14:15 01/24/12 18:46 64742-65-0 Surrogates n-Octacosane (S) 103 % 50-150 1 01/24/12 14:15 01/24/12 18:46 630-02-4 0-Terphenyl (S) 101 % Preparation Method: NWTPH-Gx Preparation Method: NWTPH-Gx NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx	Ethylbenzene	ND ug	/kg	3.4	1		01/26/12 11:55	100-41-4	
ND ug/kg	Methyl-tert-butyl ether	ND ug	/kg	3.4	1		01/26/12 11:55	1634-04-4	
Surrogates Olifornofluoromethane (S) 98 % 72-129 1 01/26/12 11:55 1868-53-7 16868-53-7 1750luene-d8 (S) 101 % 69-133 1 01/26/12 11:55 2037-26-5 4-Bromofluorobenzene (S) 99 % 67-142 1 01/26/12 11:55 2037-26-5 4-Bromofluorobenzene (S) 99 % 67-142 1 01/26/12 11:55 17060-00-4 4-Bromofluorobenzene (S) 99 % 67-142 1 01/26/12 11:55 17060-00-4 4-Bromofluorobenzene (S) 01/26/12 11:55 17060-00-4 4-Bromofluorobenzene (S) 4-Bromofluorobenzene (S) 01/26/12 11:55 2037-26-5 4-Bromofluorobenzene (S) 4-Bromofluorobenzene (S) 01/26/12 11:55 2037-26-5 4-Bromofluorobenzene (S) 01/24/12 14:54 01/24/12 14:54 01/24/12 14:55 01/24/12 18:46 460-00-07-0 01/24/12 14:15 01/24/12 18:46 460-00-07-0 01/24/12 14:15 01/24/12 18:46 4742-65-0 01/24/12 14:15 01/24/12 18:46 4742-65-0 01/24/12 14:15 01/24/12 18:46 630-02-4 0-Terphenyl (S) 01/24/12 14:15 01/24/12 18:46 630-02-4 0-Terphenyl (S) 01/24/12 14:15 01/24	Toluene	ND ug/kg		3.4	1		01/26/12 11:55	108-88-3	
Toluene-d8 (S) 101 % 69-133 1 01/26/12 11:55 2037-26-5 4-Bromofluorobenzene (S) 99 % 67-142 1 01/26/12 11:55 460-00-4 1,2-Dichloroethane-d4 (S) 105 % 67-136 1 01/26/12 11:55 17060-07-0 Percent Moisture Analytical Method: ASTM D2974-87 Percent Moisture 13.2 % 0.10 1 01/24/12 14:54 Sample: MW-10-20 Lab ID: 2510617002 Collected: 01/23/12 11:30 Received: 01/23/12 17:00 Matrix: Solid Results reported on a "dry-weight" basis Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Qu NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546 Diesel Range ND mg/kg 19.3 1 01/24/12 14:15 01/24/12 18:46 64742-65-0 Surrogates n-Octacosane (S) 103 % 50-150 1 01/24/12 14:15 01/24/12 18:46 630-02-4 0-Terphenyl (S) Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx	Xylene (Total) Surrogates	ND ug	/kg	10.3	1		01/26/12 11:55	5 1330-20-7	
4-Bromofluorobenzene (S) 99 % 67-142 1 01/26/12 11:55 460-00-4 1,2-Dichloroethane-d4 (S) 105 % 67-136 1 01/26/12 11:55 17060-07-0 Percent Moisture Analytical Method: ASTM D2974-87 Percent Moisture 13.2 % 0.10 1 01/24/12 14:54 Sample: MW-10-20 Lab ID: 2510617002 Collected: 01/23/12 11:30 Received: 01/23/12 17:00 Matrix: Solid Results reported on a "dry-weight" basis Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Qu NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546 Diesel Range ND mg/kg 19.3 1 01/24/12 14:15 01/24/12 18:46 Motor Oil Range ND mg/kg 77.1 1 01/24/12 14:15 01/24/12 18:46 64742-65-0 Surrogates n-Octacosane (S) 103 % 50-150 1 01/24/12 14:15 01/24/12 18:46 630-02-4 0-Terphenyl (S) Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx	Dibromofluoromethane (S)	98 %		72-129	1		01/26/12 11:55	1868-53-7	
1,2-Dichloroethane-d4 (S) Analytical Method: ASTM D2974-87 Percent Moisture Analytical Method: ASTM D2974-87 Percent Moisture 13.2 % O.10 1 O1/24/12 14:54 Sample: MW-10-20 Results reported on a "dry-weight" basis Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Qu NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546 Diesel Range ND mg/kg 19.3 1 O1/24/12 14:15 O1/24/12 18:46 ND mg/kg 77.1 1 O1/24/12 14:15 O1/24/12 18:46 64742-65-0 Surrogates n-Octacosane (S) 103 % 50-150 1 O1/24/12 14:15 O1/24/12 18:46 84-15-1 NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx	Toluene-d8 (S)	101 %		69-133	1		01/26/12 11:55	2037-26-5	
Percent Moisture	` ,			67-142	1				
Percent Moisture 13.2 % 0.10 1 01/24/12 14:54	1,2-Dichloroethane-d4 (S)	105 %		67-136	1		01/26/12 11:55	17060-07-0	
Sample: MW-10-20 Lab ID: 2510617002 Collected: 01/23/12 11:30 Received: 01/23/12 17:00 Matrix: Solid Results reported on a "dry-weight" basis Results Units Report Limit DF Prepared Analyzed CAS No. Qu NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546 Diesel Range ND mg/kg 19.3 1 01/24/12 14:15 01/24/12 18:46 64742-65-0 Motor Oil Range ND mg/kg 77.1 1 01/24/12 14:15 01/24/12 18:46 64742-65-0 Surrogates n-Octacosane (S) 103 % 50-150 1 01/24/12 14:15 01/24/12 18:46 630-02-4 o-Terphenyl (S) Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx	Percent Moisture	Analytical Meth	nod: ASTM	D2974-87					
Results reported on a "dry-weight" basis Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Question Preparation Method: EPA 3546 NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546 Diesel Range ND mg/kg 19.3 1 01/24/12 14:15 01/24/12 18:46 64742-65-0 Motor Oil Range ND mg/kg 77.1 1 01/24/12 14:15 01/24/12 18:46 64742-65-0 Surrogates n-Octacosane (S) 103 % 50-150 1 01/24/12 14:15 01/24/12 18:46 630-02-4 o-Terphenyl (S) 101 % 50-150 1 01/24/12 14:15 01/24/12 18:46 84-15-1 NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx	Percent Moisture	13.2 %		0.10	1		01/24/12 14:54	ı	
Results reported on a "dry-weight" basis Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Question Preparation Method: EPA 3546 NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546 Diesel Range ND mg/kg 19.3 1 01/24/12 14:15 01/24/12 18:46 64742-65-0 Motor Oil Range ND mg/kg 77.1 1 01/24/12 14:15 01/24/12 18:46 64742-65-0 Surrogates n-Octacosane (S) 103 % 50-150 1 01/24/12 14:15 01/24/12 18:46 630-02-4 o-Terphenyl (S) 101 % 50-150 1 01/24/12 14:15 01/24/12 18:46 84-15-1 NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx	Sample: MW-10-20	Lab ID: 251	0617002	Collected: 01/23/1	12 11:30	Received: 01	1/23/12 17:00	Matrix: Solid	
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546 Diesel Range ND mg/kg 19.3 1 01/24/12 14:15 01/24/12 18:46 Motor Oil Range ND mg/kg 77.1 1 01/24/12 14:15 01/24/12 18:46 64742-65-0 Surrogates n-Octacosane (S) 0-Terphenyl (S) 103 % 50-150 1 01/24/12 14:15 01/24/12 18:46 630-02-4 0-Terphenyl (S) Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx	•	" basis							
Diesel Range ND mg/kg 19.3 1 01/24/12 14:15 01/24/12 18:46 Motor Oil Range ND mg/kg 77.1 1 01/24/12 14:15 01/24/12 18:46 64742-65-0 Surrogates n-Octacosane (S) 103 % 50-150 1 01/24/12 14:15 01/24/12 18:46 630-02-4 o-Terphenyl (S) 101 % 50-150 1 01/24/12 14:15 01/24/12 18:46 84-15-1 NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx	Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Motor Oil Range ND mg/kg 77.1 1 01/24/12 14:15 01/24/12 18:46 64742-65-0 Surrogates n-Octacosane (S) 103 % 50-150 1 01/24/12 14:15 01/24/12 18:46 630-02-4 o-Terphenyl (S) 101 % 50-150 1 01/24/12 14:15 01/24/12 18:46 84-15-1 NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx	NWTPH-Dx GCS	Analytical Method: NWTPH-Dx Preparation Method: EPA 3546							
Motor Oil Range ND mg/kg 77.1 1 01/24/12 14:15 01/24/12 18:46 64742-65-0 Surrogates n-Octacosane (S) 103 % 50-150 1 01/24/12 14:15 01/24/12 18:46 630-02-4 o-Terphenyl (S) 101 % 50-150 1 01/24/12 14:15 01/24/12 18:46 84-15-1 NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx	Diesel Range	ND mg	g/kg	19.3	1	01/24/12 14:15	01/24/12 18:46	3	
n-Octacosane (S) 103 % 50-150 1 01/24/12 14:15 01/24/12 18:46 630-02-4 o-Terphenyl (S) 101 % 50-150 1 01/24/12 14:15 01/24/12 18:46 84-15-1 NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx	Motor Oil Range Surrogates			77.1	1	01/24/12 14:15	01/24/12 18:46	64742-65-0	
NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx	n-Octacosane (S)	103 %		50-150	1	01/24/12 14:15	01/24/12 18:46	630-02-4	
System and a specific	o-Terphenyl (S)			50-150	1	01/24/12 14:15	01/24/12 18:46	84-15-1	
Gasoline Range Organics ND mg/kg 6.7 1 01/24/12 13:31 01/24/12 19:48	NWTPH-Gx GCV	Analytical Meth	nod: NWTF	PH-Gx Preparation M	ethod: N	WTPH-Gx			
	Gasoline Range Organics	ND mg/kg		6.7	1	01/24/12 13:31	01/24/12 19:48	3	

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Project: WA 11060
Pace Project No.: 2510617

Sample: MW-10-20	Lab ID: 2510617	'002 Coll	ected: 01/23/1	12 11:30	Received: 01	/23/12 17:00 N	Matrix: Solid	
Results reported on a "dry-weight	t" basis							
Parameters	Results L	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
NWTPH-Gx GCV	Analytical Method: I	NWTPH-Gx	Preparation M	ethod: N	WTPH-Gx			
Surrogates								
a,a,a-Trifluorotoluene (S)	94 %		50-150	1	01/24/12 13:31	01/24/12 19:48	98-08-8	
4-Bromofluorobenzene (S)	90 %		50-150	1	01/24/12 13:31	01/24/12 19:48	460-00-4	
6010 MET ICP	Analytical Method: I	EPA 6010 P	reparation Meth	hod: EPA	A 3050			
Lead	2.4 mg/kg		1.2	1	01/25/12 07:42	01/25/12 17:01	7439-92-1	
8260/5035A Volatile Organics	Analytical Method: I	EPA 8260						
Benzene	ND ug/kg		4.4	1		01/26/12 12:15	71-43-2	
Ethylbenzene	ND ug/kg		4.4	1		01/26/12 12:15	100-41-4	
Methyl-tert-butyl ether	ND ug/kg		4.4	1		01/26/12 12:15	1634-04-4	
Toluene	ND ug/kg		4.4	1		01/26/12 12:15	108-88-3	
Xylene (Total)	ND ug/kg		13.3	1		01/26/12 12:15	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	96 %		72-129	1		01/26/12 12:15	1868-53-7	
Toluene-d8 (S)	100 %		69-133	1		01/26/12 12:15	2037-26-5	
4-Bromofluorobenzene (S)	103 %		67-142	1		01/26/12 12:15	460-00-4	
1,2-Dichloroethane-d4 (S)	103 %		67-136	1		01/26/12 12:15	17060-07-0	
Percent Moisture	Analytical Method: A	ASTM D297	4-87					
Percent Moisture	18.7 %		0.10	1		01/24/12 14:54		
Sample: MW-10-25	Lab ID: 2510617	7003 Coll	ected: 01/23/1	12 11:40	Received: 01	/23/12 17:00 M	Matrix: Solid	
Results reported on a "dry-weight		000	01/20/1	12 11.40	reconved. or	720/12 17:00 W	idilix. Odlid	
Parameters		Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS	Analytical Method: I	NWTPH-Dx	Preparation Me	ethod: E	PA 3546	•		
Diesel Range	ND mg/kg		19.2	1	01/24/12 14:15	01/24/12 19:03		
Motor Oil Range	ND mg/kg		76.8	1		01/24/12 19:03	64742-65-0	
Surrogates								
n-Octacosane (S)	90 %		50-150	1		01/24/12 19:03		
o-Terphenyl (S)	90 %		50-150	1	01/24/12 14:15	01/24/12 19:03	84-15-1	
NWTPH-Gx GCV	Analytical Method: I	NWTPH-Gx	Preparation M	ethod: N	WTPH-Gx			
Gasoline Range Organics Surrogates	ND mg/kg		6.7	1	01/24/12 13:31	01/24/12 20:13		
a,a,a-Trifluorotoluene (S)	96 %		50-150	1	01/24/12 13:31	01/24/12 20:13	98-08-8	
4-Bromofluorobenzene (S)	93 %		50-150	1		01/24/12 20:13		
6010 MET ICP	Analytical Method: I	EDA 6010 D						
	•	EFA OUTU P	·					
Lead	1.9 mg/kg		1.2	1	01/25/12 07:42	01/25/12 17:05	7439-92-1	

Date: 02/03/2012 04:50 PM

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Project: WA 11060 Pace Project No.: 2510617

Date: 02/03/2012 04:50 PM

Lab ID: 2510617003 Received: 01/23/12 17:00 Sample: MW-10-25 Collected: 01/23/12 11:40 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 Benzene ND ug/kg 3.4 1 01/26/12 12:36 71-43-2 Ethylbenzene ND ug/kg 3.4 1 01/26/12 12:36 100-41-4 Methyl-tert-butyl ether ND ug/kg 3.4 01/26/12 12:36 1634-04-4 1 Toluene ND ug/kg 3.4 01/26/12 12:36 108-88-3 1 Xylene (Total) 01/26/12 12:36 1330-20-7 ND ug/kg 10.3 Surrogates Dibromofluoromethane (S) 99 % 72-129 1 01/26/12 12:36 1868-53-7 Toluene-d8 (S) 98 % 69-133 01/26/12 12:36 2037-26-5 1 4-Bromofluorobenzene (S) 101 % 67-142 1 01/26/12 12:36 460-00-4 1,2-Dichloroethane-d4 (S) 104 % 67-136 01/26/12 12:36 17060-07-0 **Percent Moisture** Analytical Method: ASTM D2974-87 Percent Moisture 18.4 % 0.10 01/24/12 14:56 Sample: MW-10-35 Lab ID: 2510617004 Collected: 01/23/12 11:55 Received: 01/23/12 17:00 Matrix: Solid Results reported on a "dry-weight" basis **Parameters** Results Units Report Limit DF Prepared Analyzed CAS No. Qual Analytical Method: NWTPH-Dx Preparation Method: EPA 3546 **NWTPH-Dx GCS** Diesel Range ND mg/kg 19.0 01/24/12 14:15 01/24/12 19:54 Motor Oil Range ND mg/kg 75.8 1 01/24/12 14:15 01/24/12 19:54 64742-65-0 Surrogates 102 % 50-150 01/24/12 14:15 01/24/12 19:54 630-02-4 n-Octacosane (S) o-Terphenyl (S) 101 % 50-150 1 01/24/12 14:15 01/24/12 19:54 84-15-1 **NWTPH-Gx GCV** Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx Gasoline Range Organics ND mg/kg 6.1 1 01/24/12 13:31 01/24/12 20:37 Surrogates a,a,a-Trifluorotoluene (S) 102 % 50-150 01/24/12 13:31 01/24/12 20:37 98-08-8 1 4-Bromofluorobenzene (S) 100 % 50-150 01/24/12 13:31 01/24/12 20:37 460-00-4 1 **6010 MET ICP** Analytical Method: EPA 6010 Preparation Method: EPA 3050 2.7 mg/kg 1.1 01/25/12 07:42 01/25/12 17:09 7439-92-1 Lead 1 8260/5035A Volatile Organics Analytical Method: EPA 8260 01/26/12 12:56 71-43-2 Benzene ND ua/ka 3.0 1 Ethylbenzene ND ug/kg 3.0 01/26/12 12:56 100-41-4 1 Methyl-tert-butyl ether ND ug/kg 3.0 01/26/12 12:56 1634-04-4 1 01/26/12 12:56 108-88-3 Toluene ND ug/kg 3.0 1 Xylene (Total) 01/26/12 12:56 1330-20-7 ND ug/kg 8.9 1 Surrogates Dibromofluoromethane (S) 99 % 72-129 01/26/12 12:56 1868-53-7 1 Toluene-d8 (S) 102 % 69-133 01/26/12 12:56 2037-26-5 1 4-Bromofluorobenzene (S) 109 % 67-142 01/26/12 12:56 460-00-4 1

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Project: WA 11060 Pace Project No.: 2510617

Date: 02/03/2012 04:50 PM

Pace Project No.: 2510617								
Sample: MW-10-35	Lab ID: 251	0617004	Collected: 01/23/1	12 11:55	Received: 0	1/23/12 17:00	Matrix: Solid	
Results reported on a "dry-weight"	basis							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
3260/5035A Volatile Organics	Analytical Met	hod: EPA 8	260					
Surrogates 1,2-Dichloroethane-d4 (S)	103 %		67-136	1		01/26/12 12:5	6 17060-07-0	
Percent Moisture	Analytical Met	hod: ASTM	D2974-87					
Percent Moisture	19.5 %		0.10	1		01/24/12 14:5	6	
Sample: SB-1-15	Lab ID: 251	0617005	Collected: 01/23/1	12 14:10	Received: 0	1/23/12 17:00	Matrix: Solid	
Results reported on a "dry-weight"	basis							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS	Analytical Met	hod: NWTF	PH-Dx Preparation Me	ethod: E	PA 3546			
Diesel Range Motor Oil Range Surrogates	ND m	0 0	17.3 69.2	1 1		5 01/24/12 20:1 5 01/24/12 20:1		
n-Octacosane (S) o-Terphenyl (S)	93 % 91 %		50-150 50-150	1 1		5 01/24/12 20:1 5 01/24/12 20:1		
NWTPH-Gx GCV	Analytical Met	hod: NWTF	PH-Gx Preparation M	ethod: N	IWTPH-Gx			
Gasoline Range Organics Surrogates	555 m	g/kg	48.2	10	01/24/12 13:3	1 01/25/12 16:2	2	
a,a,a-Trifluorotoluene (S) 4-Bromofluorobenzene (S)	113 % 176 %		50-150 50-150	10 10		1 01/25/12 16:2 1 01/25/12 16:2		S5
6010 MET ICP	Analytical Met	hod: EPA 6	010 Preparation Met	hod: EP/	A 3050			
Lead	5.3 m	g/kg	0.96	1	01/25/12 07:42	2 01/25/12 17:1	3 7439-92-1	
8260 MSV 5035A Med Level VOA	Analytical Met	hod: EPA 8	260 Preparation Met	hod: EP/	A 5035A/5030B			
Ethylbenzene Surrogates	488 uç	g/kg	48.2	1	02/01/12 00:00	0 02/02/12 01:0	2 100-41-4	
Dibromofluoromethane (S)	97 %		75-116	1		0 02/02/12 01:0		
Toluene-d8 (S)	101 %		74-124	1		0 02/02/12 01:0		
4-Bromofluorobenzene (S) 1,2-Dichloroethane-d4 (S)	112 % 88 %		73-128 70-125	1 1		0 02/02/12 01:0 0 02/02/12 01:0		
8260/5035A Volatile Organics	Analytical Met	hod: EPA 8	260					
Benzene	5.7 ug	g/kg	2.7	1		01/27/12 20:5	1 71-43-2	
Methyl-tert-butyl ether	ND uç		2.7	1		01/27/12 20:5	1 1634-04-4	
Toluene	9.2 ug	g/kg	2.7	1		01/27/12 20:5	1 108-88-3	
Xylene (Total) Surrogates	135 uç		8.1	1		01/27/12 20:5		
Dibromofluoromethane (S)	98 %		72-129	1		01/27/12 20:5		_
Toluene-d8 (S)	1180 %		69-133	1		01/27/12 20:5		S2
4-Bromofluorobenzene (S)	726 %		67-142	1		01/27/12 20:5		S2
1,2-Dichloroethane-d4 (S)	122 %		67-136	1		01/27/12 20:5	1 17060-07-0	

REPORT OF LABORATORY ANALYSIS

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Project: WA 11060 Pace Project No.: 2510617

Lab ID: 2510617005 Received: 01/23/12 17:00 Sample: SB-1-15 Collected: 01/23/12 14:10 Matrix: Solid Results reported on a "dry-weight" basis **Parameters** Results Units Report Limit DF Prepared Analyzed CAS No. Qual **Percent Moisture** Analytical Method: ASTM D2974-87 Percent Moisture 9.9 % 0.10 1 01/24/12 14:57 Sample: SB-1-25 Lab ID: 2510617006 Received: 01/23/12 17:00 Collected: 01/23/12 14:15 Matrix: Solid Results reported on a "dry-weight" basis **Parameters** Results Units Report Limit Prepared Analyzed CAS No. Qual **NWTPH-Dx GCS** Analytical Method: NWTPH-Dx Preparation Method: EPA 3546 ND mg/kg 19.3 Diesel Range 01/24/12 14:15 01/24/12 20:29 Motor Oil Range ND mg/kg 77.1 1 01/24/12 14:15 01/24/12 20:29 64742-65-0 Surrogates 107 % 50-150 01/24/12 14:15 01/24/12 20:29 630-02-4 n-Octacosane (S) 1 01/24/12 14:15 01/24/12 20:29 84-15-1 o-Terphenyl (S) 106 % 50-150 **NWTPH-Gx GCV** Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx Gasoline Range Organics ND mg/kg 6.4 01/24/12 13:31 01/25/12 11:05 Surrogates a,a,a-Trifluorotoluene (S) 110 % 50-150 01/24/12 13:31 01/25/12 11:05 98-08-8 4-Bromofluorobenzene (S) 102 % 50-150 01/24/12 13:31 01/25/12 11:05 460-00-4 6010 MET ICP Analytical Method: EPA 6010 Preparation Method: EPA 3050 Lead 1.6 mg/kg 1.1 01/25/12 07:42 01/25/12 17:16 7439-92-1 8260/5035A Volatile Organics Analytical Method: EPA 8260 Benzene ND ug/kg 3.1 1 01/26/12 13:16 71-43-2 Ethylbenzene ND ug/kg 3.1 01/26/12 13:16 100-41-4 1 Methyl-tert-butyl ether ND ug/kg 3.1 1 01/26/12 13:16 1634-04-4 Toluene ND ug/kg 3.1 1 01/26/12 13:16 108-88-3 Xylene (Total) ND ug/kg 9.3 01/26/12 13:16 1330-20-7 1 Surrogates Dibromofluoromethane (S) 96 % 72-129 1 01/26/12 13:16 1868-53-7 Toluene-d8 (S) 104 % 69-133 01/26/12 13:16 2037-26-5 1 4-Bromofluorobenzene (S) 101 % 67-142 1 01/26/12 13:16 460-00-4 1,2-Dichloroethane-d4 (S) 101 % 67-136 01/26/12 13:16 17060-07-0 1 **Percent Moisture** Analytical Method: ASTM D2974-87 01/24/12 14:57 Percent Moisture 19.1 % 0.10 1

Date: 02/03/2012 04:50 PM

REPORT OF LABORATORY ANALYSIS



Project: WA 11060
Pace Project No.: 2510617

Sample: SB-1-35	Lab ID: 251	10617007	Collected: 01/23/	12 14:25	Received: 01	/23/12 17:00 N	latrix: Solid	
Results reported on a "dry-weigh	t" basis							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS	Analytical Met	thod: NWTPI	H-Dx Preparation M	lethod: E	PA 3546			
Diesel Range	ND m	ng/kg	19.6	1	01/24/12 14:15	01/24/12 20:46		
Motor Oil Range	ND m	ng/kg	78.2	1	01/24/12 14:15	01/24/12 20:46	64742-65-0	
Surrogates n-Octacosane (S)	93 %	<u>.</u>	50-150	1	01/24/12 14:15	01/24/12 20:46	630-02-4	
o-Terphenyl (S)	93 %		50-150	1		01/24/12 20:46		
NWTPH-Gx GCV			H-Gx Preparation M					
Casalina Banna Ormania	·		·			04/04/40 00:45		
Gasoline Range Organics Surrogates	ND m	ig/kg	6.7	1	01/24/12 13:31	01/24/12 22:15		
a,a,a-Trifluorotoluene (S)	103 %	, 0	50-150	1	01/24/12 13:31	01/24/12 22:15	98-08-8	
4-Bromofluorobenzene (S)	105 %	, D	50-150	1	01/24/12 13:31	01/24/12 22:15	460-00-4	
6010 MET ICP	Analytical Met	thod: EPA 60	10 Preparation Me	thod: EP	A 3050			
Lead	2.2 m	ng/kg	1.0	1	01/25/12 07:42	01/25/12 17:20	7439-92-1	
8260/5035A Volatile Organics	Analytical Met	thod: EPA 82	60					
Benzene	ND u	g/kg	3.3	1		01/26/12 13:37	71-43-2	
Ethylbenzene	ND u	g/kg	3.3	1		01/26/12 13:37	100-41-4	
Methyl-tert-butyl ether	ND u	g/kg	3.3	1		01/26/12 13:37	1634-04-4	
Toluene	ND u	g/kg	3.3	1		01/26/12 13:37	108-88-3	
Xylene (Total)	ND u	g/kg	9.8	1		01/26/12 13:37	1330-20-7	
Surrogates Dibromofluoromethane (S)	100 %	<u>.</u>	72-129	1		01/26/12 13:37	1868-53-7	
Toluene-d8 (S)	100 %		69-133	1		01/26/12 13:37		
4-Bromofluorobenzene (S)	105 %		67-142	1		01/26/12 13:37		
1,2-Dichloroethane-d4 (S)	101 %		67-136	1				
Percent Moisture		101 % 67-136 1 01/26/12 13:37 17060-07-0 Analytical Method: ASTM D2974-87					17000 07 0	
	·					04/04/40 44 50		
Percent Moisture	18.8 %	0	0.10	1		01/24/12 14:58		
Sample: SB-1-40	Lab ID: 251	10617008	Collected: 01/23/	12 14:30	Received: 01	/23/12 17:00 N	Matrix: Solid	
Results reported on a "dry-weigh	t" basis							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS	Analytical Met	thod: NWTPI	H-Dx Preparation M	lethod: E	PA 3546			
Diesel Range	ND m	ng/kg	19.4	1	01/24/12 14:15	01/24/12 21:03		
Motor Oil Range	ND m		77.7	1	01/24/12 14:15	01/24/12 21:03	64742-65-0	
Surrogates n-Octacosane (S)	90 %	<u>'</u>	50-150	1	01/24/12 14:15	01/24/12 21:03	630-02-4	
o-Terphenyl (S)	90 %		50-150 50-150	1		01/24/12 21:03		
. , , ,						01/24/12 21.03	U 1 -1U1	
NWTPH-Gx GCV	Analytical Met	thod: NWTPI	H-Gx Preparation N	lethod: N	IWTPH-Gx			
Gasoline Range Organics	ND m	ng/kg	6.4	1	01/24/12 13:31	01/24/12 22:40		

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Project: WA 11060
Pace Project No.: 2510617

Sample: SB-1-40	Lab ID: 25106	17008	Collected: 01/23/1	2 14:30	Received: 01	/23/12 17:00	Matrix: Solid	
Results reported on a "dry-weight	t" basis							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
NWTPH-Gx GCV	Analytical Method	d: NWTP	H-Gx Preparation Me	ethod: N	IWTPH-Gx			
Surrogates								
a,a,a-Trifluorotoluene (S)	100 %		50-150	1	01/24/12 13:31	01/24/12 22:40	98-08-8	
4-Bromofluorobenzene (S)	102 %		50-150	1	01/24/12 13:31	01/24/12 22:40	0 460-00-4	
6010 MET ICP	Analytical Method	d: EPA 60	010 Preparation Meth	nod: EP	A 3050			
Lead	2.2 mg/k	g	1.1	1	01/25/12 07:42	01/25/12 17:24	4 7439-92-1	
8260/5035A Volatile Organics	Analytical Method	d: EPA 82	260					
Benzene	ND ug/kg	9	3.1	1		01/26/12 18:24	4 71-43-2	
Ethylbenzene	ND ug/kg)	3.1	1		01/26/12 18:24	4 100-41-4	
Methyl-tert-butyl ether	ND ug/kg	3	3.1	1		01/26/12 18:24	4 1634-04-4	
Toluene	ND ug/kg)	3.1	1		01/26/12 18:24	4 108-88-3	
Xylene (Total)	ND ug/kg	3	9.4	1		01/26/12 18:24	4 1330-20-7	
Surrogates								
Dibromofluoromethane (S)	101 %		72-129	1		01/26/12 18:24	4 1868-53-7	
Toluene-d8 (S)	103 %		69-133	1		01/26/12 18:24	4 2037-26-5	
4-Bromofluorobenzene (S)	115 %		67-142	1		01/26/12 18:24	4 460-00-4	
1,2-Dichloroethane-d4 (S)	101 %		67-136	1		01/26/12 18:24	4 17060-07-0	
Percent Moisture	Analytical Method	d: ASTM	D2974-87					
Percent Moisture	20.1 %		0.10	1		01/24/12 14:58	3	
Sample: SB-3-5	Lab ID: 25106	17009	Collected: 01/23/1	2 15:35	Received: 01	/23/12 17:00	Matrix: Solid	
Results reported on a "dry-weight			00000000	0.00		, 20, 12 11100		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
NWTPH-Dx GCS	Analytical Method	d: NWTP	H-Dx Preparation Me	ethod: E	PA 3546		•	
Diesel Range	2710 mg/k	a	20.9	1	01/24/12 14:15	01/24/12 21:38	3	
Motor Oil Range Surrogates	9400 mg/k	-	837	10	01/24/12 14:15			
n-Octacosane (S)	110 %		50-150	10	01/24/12 14:15	01/25/12 20:27	7 630-02-4	
o-Terphenyl (S)	91 %		50-150	10	01/24/12 14:15			
NWTPH-Gx GCV		4· NWTP	H-Gx Preparation Me			01/21/1221100		
	-						_	
Gasoline Range Organics Surrogates	392 mg/k	g	36.7	5	01/24/12 13:31	01/25/12 11:29)	
a,a,a-Trifluorotoluene (S)	109 %		50-150	5	01/24/12 13:31	01/25/12 11:29	98-08-8	
4-Bromofluorobenzene (S)	143 %		50-150	5	01/24/12 13:31			
		L EDA 61				\$ 1/20/12 11.20	, 100 00 1	
6010 MET ICP	•		010 Preparation Meth	10a: EP				
Lead	11.4 mg/k	g	1.1	1	01/25/12 07:42	01/25/12 17:28	3 7439-92-1	

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Project: WA 11060 Pace Project No.: 2510617

Sample: SB-3-5 Lab ID: 2510617009 Collected: 01/23/12 15:35 Received: 01/23/12 17:00 Matrix: Solid Results reported on a "dry-weight" basis **Parameters** Results Units Report Limit DF Prepared Analyzed CAS No. Qual 8270 MSSV PAH by SIM Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 8.9 Acenaphthene ND ug/kg 01/24/12 14:15 01/25/12 14:23 83-32-9 ND ug/kg Acenaphthylene 8.9 01/24/12 14:15 01/25/12 14:23 208-96-8 1 Anthracene 9.9 ug/kg 8.9 01/24/12 14:15 01/25/12 14:23 120-12-7 Benzo(a)anthracene ND ug/kg 88.9 10 01/24/12 14:15 01/25/12 15:07 56-55-3 ND ug/kg 88.9 01/24/12 14:15 01/25/12 15:07 50-32-8 Benzo(a)pyrene 10 Benzo(b)fluoranthene ND ug/kg 88.9 10 01/24/12 14:15 01/25/12 15:07 205-99-2 Benzo(g,h,i)perylene 113 ug/kg 88.9 10 01/24/12 14:15 01/25/12 15:07 191-24-2 88.9 Benzo(k)fluoranthene ND ug/kg 10 01/24/12 14:15 01/25/12 15:07 207-08-9 Chrysene ND ug/kg 88.9 01/24/12 14:15 01/25/12 15:07 218-01-9 10 Dibenz(a,h)anthracene ND ug/kg 88.9 01/24/12 14:15 01/25/12 15:07 53-70-3 10 Fluoranthene ND ug/kg 88.9 01/24/12 14:15 01/25/12 15:07 206-44-0 10 Fluorene ND ug/kg 8.9 1 01/24/12 14:15 01/25/12 14:23 86-73-7 Indeno(1,2,3-cd)pyrene ND ug/kg 88.9 10 01/24/12 14:15 01/25/12 15:07 193-39-5 1-Methylnaphthalene 15.6 ug/kg 8.9 01/24/12 14:15 01/25/12 14:23 90-12-0 1 2-Methylnaphthalene **37.6** ug/kg 8.9 01/24/12 14:15 01/25/12 14:23 91-57-6 1 Naphthalene 40.4 ug/kg 8.9 1 01/24/12 14:15 01/25/12 14:23 91-20-3 Phenanthrene 20.8 ug/kg 8.9 1 01/24/12 14:15 01/25/12 14:23 85-01-8 Pyrene 106 ug/kg 88.9 10 01/24/12 14:15 01/25/12 15:07 129-00-0 Surrogates 2-Fluorobiphenyl (S) 59 % 27-118 1 01/24/12 14:15 01/25/12 14:23 321-60-8 Terphenyl-d14 (S) 81 % 10 01/24/12 14:15 01/25/12 15:07 1718-51-0 D3 28-125 8260/5035A Volatile Organics Analytical Method: EPA 8260 8.8 ug/kg 3.5 1 01/27/12 21:31 71-43-2 1n Benzene Ethylbenzene **7.1** ug/kg 01/27/12 21:31 100-41-4 3.5 1 Methyl-tert-butyl ether ND ua/ka 3.5 1 01/27/12 21:31 1634-04-4 Toluene ND ug/kg 3.5 01/27/12 21:31 108-88-3 1 Xylene (Total) 10.6 01/27/12 21:31 1330-20-7 ND ug/kg 1 Surrogates Dibromofluoromethane (S) 108 % 72-129 01/27/12 21:31 1868-53-7 Toluene-d8 (S) 137 % 69-133 01/27/12 21:31 2037-26-5 S2 1 4-Bromofluorobenzene (S) 673 % 67-142 01/27/12 21:31 460-00-4 S2 1 1,2-Dichloroethane-d4 (S) 115 % 67-136 1 01/27/12 21:31 17060-07-0 Analytical Method: ASTM D2974-87 **Percent Moisture** Percent Moisture 25.1 % 0.10 01/24/12 14:59 1 Sample: DUP-1 Lab ID: 2510617010 Collected: 01/23/12 00:00 Received: 01/23/12 17:00 Matrix: Solid Results reported on a "dry-weight" basis **Parameters** Results Units Report Limit Prepared Analyzed CAS No. Qual **NWTPH-Dx GCS** Analytical Method: NWTPH-Dx Preparation Method: EPA 3546 Diesel Range ND mg/kg 17.4 01/24/12 14:15 01/24/12 21:20 Motor Oil Range ND mg/kg 69.5 01/24/12 14:15 01/24/12 21:20 64742-65-0 Date: 02/03/2012 04:50 PM

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WA 11060 Project: Pace Project No.: 2510617

NWTPH-Dx GCS Surrogates n-Octacosane (S) o-Terphenyl (S) NWTPH-Gx GCV Gasoline Range Organics Surrogates a,a,a-Trifluorotoluene (S) 4-Bromofluorobenzene (S) 6010 MET ICP Lead 8260 MSV 5035A Med Level VOA Ethylbenzene Surrogates Dibromofluoromethane (S) Toluene-d8 (S) 4-Bromofluorobenzene (S) 1,2-Dichloroethane-d4 (S)	nalytical Method: NWT 102 % 103 % nalytical Method: NWT 1220 mg/kg 108 % 259 % nalytical Method: EPA 2.4 mg/kg	50-150 50-150 50-150 50-150 TPH-Gx Preparation M 51.2 50-150 6010 Preparation Met 1.1 8260 Preparation Met 51.2 75-116 74-124 73-128 70-125	1 1 lethod: N 10 10 10 hod: EPA	01/24/12 14:15 01/24/12 14:15 WTPH-Gx 01/25/12 13:32 01/25/12 13:32 01/25/12 13:32 A 3050 01/25/12 07:42 A 5035A/5030B 02/01/12 00:00 02/01/12 00:00 02/01/12 00:00	Analyzed 6 01/24/12 21:20 6 01/24/12 21:20 7 01/25/12 14:20 9 01/25/12 14:20 9 01/25/12 14:20 9 01/25/12 17:32 9 02/02/12 01:20 9 02/02/12 01:20 9 02/02/12 01:20 9 02/02/12 01:20	98-08-8 460-00-4 7439-92-1 100-41-4 1868-53-7 2037-26-5 460-00-4	Qual S5
And Surrogates I-Octacosane (S) I-Terphenyl (S) IWTPH-Gx GCV And Basoline Range Organics Surrogates I.a,a-Trifluorotoluene (S) I-Bromofluorobenzene (S) I-Bromofluorobenzene (S) I-Bromofluoromethane (S) I-Bromofluoromethane (S) I-Bromofluorobenzene (S) I-Bromofluorobenzene (S) I-Bromofluoromethane (S) I-Bromofluorobenzene (S) I-Bromofluorobenzene (S) I-Bromofluorobenzene (S) I-Bromofluoromethane-d4 (S) I-Bromofluoromethane (S) I-Bromofluorobenzene (S) I-Bromofluorobenzene (S)	nalytical Method: NWT 102 % 103 % nalytical Method: NWT 1220 mg/kg 108 % 259 % nalytical Method: EPA 2.4 mg/kg nalytical Method: EPA 887 ug/kg 100 % 103 % 109 % 109 % 102 % nalytical Method: EPA ND ug/kg ND ug/kg	50-150 50-150 50-150 TPH-Gx Preparation M 51.2 50-150 50-150 6010 Preparation Met 1.1 8260 Preparation Met 51.2 75-116 74-124 73-128 70-125	ethod: E 1 1 1 lethod: N 10 10 10 hod: EPA 1 1 1 1	PA 3546 01/24/12 14:15 01/24/12 14:15 WTPH-Gx 01/25/12 13:32 01/25/12 13:32 01/25/12 07:42 A 5035A/5030B 02/01/12 00:00 02/01/12 00:00 02/01/12 00:00 02/01/12 00:00	01/24/12 21:20 01/24/12 21:20 01/25/12 14:20 01/25/12 14:20 01/25/12 14:20 01/25/12 17:32 01/25/12 01:20 02/02/12 01:20 02/02/12 01:20 02/02/12 01:20	630-02-4 84-15-1 98-08-8 460-00-4 7439-92-1 100-41-4 1868-53-7 2037-26-5 460-00-4	
Gurrogates I-Octacosane (S) I-Terphenyl (S) IWTPH-Gx GCV Gasoline Range Organics Gurrogates I,a,a-Trifluorotoluene (S) I-Bromofluorobenzene (S) O10 MET ICP Gasoline Range Organics Gurrogates I,a,a-Trifluorotoluene (S) I-Bromofluorobenzene (S) I-Bromofluorobenzene (S) I-Bromofluoromethane (S) I-Bromofluoromethane (S) I-Bromofluorobenzene (S) I-Bromofluorobenzene (S) I-Bromofluoromethane (S) I-Bromofluoromethane (S) I-Bromofluoromethane (S) I-Bromofluoromethane (S) I-Bromofluoromethane (S) I-Bromofluoromethane (S) I-Bromofluorobenzene (S) I-Bromofluorobenzene (S) I-Bromofluorobenzene (S) I-Bromofluorobenzene (S) I-Bromofluorobenzene (S) I-Bromofluorobenzene (S)	102 % 103 % halytical Method: NWT 1220 mg/kg 108 % 259 % halytical Method: EPA 2.4 mg/kg halytical Method: EPA 887 ug/kg 100 % 103 % 109 % 92 % halytical Method: EPA ND ug/kg ND ug/kg	50-150 50-150 50-150 TPH-Gx Preparation M 51.2 50-150 6010 Preparation Met 1.1 8260 Preparation Met 51.2 75-116 74-124 73-128 70-125	1 1 10 10 10 hod: EPA 1 1 1 1	01/24/12 14:15 01/24/12 14:15 WTPH-Gx 01/25/12 13:32 01/25/12 13:32 01/25/12 13:32 A 3050 01/25/12 07:42 A 5035A/5030B 02/01/12 00:00 02/01/12 00:00 02/01/12 00:00	01/24/12 21:20 01/25/12 14:20 01/25/12 14:20 01/25/12 14:20 01/25/12 17:32 01/25/12 01:20 02/02/12 01:20 02/02/12 01:20 02/02/12 01:20 02/02/12 01:20	98-08-8 460-00-4 7439-92-1 100-41-4 1868-53-7 2037-26-5 460-00-4	S5
-Octacosane (S) -Terphenyl (S) -Terp	103 % nalytical Method: NWT 1220 mg/kg 108 % 259 % nalytical Method: EPA 2.4 mg/kg nalytical Method: EPA 887 ug/kg 100 % 103 % 109 % 92 % nalytical Method: EPA ND ug/kg ND ug/kg	50-150 TPH-Gx Preparation M 51.2 50-150 50-150 6010 Preparation Met 1.1 8260 Preparation Met 51.2 75-116 74-124 73-128 70-125 8260 2.4	1 lethod: N 10 10 10 hod: EPA 1 hod: EPA 1 1 1	01/24/12 14:15 WTPH-Gx 01/25/12 13:32 01/25/12 13:32 01/25/12 13:32 A 3050 01/25/12 07:42 A 5035A/5030B 02/01/12 00:00 02/01/12 00:00 02/01/12 00:00	01/24/12 21:20 01/25/12 14:20 01/25/12 14:20 01/25/12 14:20 01/25/12 17:32 01/25/12 01:20 02/02/12 01:20 02/02/12 01:20 02/02/12 01:20 02/02/12 01:20	98-08-8 460-00-4 7439-92-1 100-41-4 1868-53-7 2037-26-5 460-00-4	S5
And Basoline Range Organics Burrogates Japan and Basoline Range Organics Burrogates Japan and	103 % nalytical Method: NWT 1220 mg/kg 108 % 259 % nalytical Method: EPA 2.4 mg/kg nalytical Method: EPA 887 ug/kg 100 % 103 % 109 % 92 % nalytical Method: EPA ND ug/kg ND ug/kg	50-150 TPH-Gx Preparation M 51.2 50-150 50-150 6010 Preparation Met 1.1 8260 Preparation Met 51.2 75-116 74-124 73-128 70-125 8260 2.4	1 lethod: N 10 10 10 hod: EPA 1 hod: EPA 1 1 1	01/24/12 14:15 WTPH-Gx 01/25/12 13:32 01/25/12 13:32 01/25/12 13:32 A 3050 01/25/12 07:42 A 5035A/5030B 02/01/12 00:00 02/01/12 00:00 02/01/12 00:00	01/24/12 21:20 01/25/12 14:20 01/25/12 14:20 01/25/12 14:20 01/25/12 17:32 01/25/12 01:20 02/02/12 01:20 02/02/12 01:20 02/02/12 01:20 02/02/12 01:20	98-08-8 460-00-4 7439-92-1 100-41-4 1868-53-7 2037-26-5 460-00-4	S5
And Basoline Range Organics Surrogates a,a,a-Trifluorotoluene (S) I-Bromofluorobenzene (S) I-Bromofluorobenzene (S) I-Bromofluorobenzene (S) I-Bromofluoromethane (S) I-Bromofluoromethane (S) I-Bromofluoromethane (S) I-Bromofluorobenzene (S) I-Bromofluorobenzene (S) I-Bromofluorobenzene (S) I-Bromofluorobenzene (S) I-Bromofluoromethane (S) I-Bromofluorobenzene (S) I-Bromofluorobenzene (S)	nalytical Method: NWT 1220 mg/kg 108 % 259 % nalytical Method: EPA 2.4 mg/kg nalytical Method: EPA 887 ug/kg 100 % 103 % 109 % 92 % nalytical Method: EPA ND ug/kg ND ug/kg	51.2 50-150 50-150 6010 Preparation Met 1.1 8260 Preparation Met 51.2 75-116 74-124 73-128 70-125	10 10 10 hod: EP/ 1 hod: EP/ 1 1	WTPH-Gx 01/25/12 13:32 01/25/12 13:32 01/25/12 13:32 A 3050 01/25/12 07:42 A 5035A/5030B 02/01/12 00:00 02/01/12 00:00 02/01/12 00:00 02/01/12 00:00	2: 01/25/12 14:20 2: 01/25/12 14:20 3: 01/25/12 14:20 4: 01/25/12 17:32 4: 01/25/12 01:20 6: 02/02/12 01:20 6: 02/02/12 01:20 7: 02/02/12 01:20 7: 02/02/12 01:20 7: 02/02/12 01:20	98-08-8 460-00-4 7439-92-1 100-41-4 1868-53-7 2037-26-5 460-00-4	S5
Gasoline Range Organics Gurrogates a,a,a-Trifluorotoluene (S) I-Bromofluorobenzene (S) G010 MET ICP An An Gethylbenzene Gurrogates Dibromofluoromethane (S) Toluene-d8 (S) I-Bromofluorobenzene (S) I,2-Dichloroethane-d4 (S) Genzene Methyl-tert-butyl ether Toluene Kylene (Total) Gurrogates Dibromofluoromethane (S) Toluene-d8 (S) I-Bromofluorobenzene (S) I-Bromofluoromethane (S) Toluene Toluene Toluene Toluene Toluene Toluene Toluene-d8 (S) I-Bromofluorobenzene (S) Toluene-d8 (S) I-Bromofluorobenzene (S)	1220 mg/kg 108 % 259 % nalytical Method: EPA 2.4 mg/kg nalytical Method: EPA 887 ug/kg 100 % 103 % 109 % 92 % nalytical Method: EPA ND ug/kg ND ug/kg	51.2 50-150 50-150 6010 Preparation Met 1.1 8260 Preparation Met 51.2 75-116 74-124 73-128 70-125 8260	10 10 10 hod: EPA 1 hod: EPA 1 1 1	01/25/12 13:32 01/25/12 13:32 01/25/12 13:32 A 3050 01/25/12 07:42 A 5035A/5030B 02/01/12 00:00 02/01/12 00:00 02/01/12 00:00 02/01/12 00:00	01/25/12 14:20 01/25/12 14:20 01/25/12 17:32 01/25/12 17:32 02/02/12 01:20 02/02/12 01:20 02/02/12 01:20 02/02/12 01:20	98-08-8 460-00-4 7439-92-1 100-41-4 1868-53-7 2037-26-5 460-00-4	S 5
Surrogates a,a,a-Trifluorotoluene (S) a-Bromofluorobenzene (S) O10 MET ICP An aead 260 MSV 5035A Med Level VOA An athylbenzene Surrogates Dibromofluoromethane (S) allouene-d8 (S) a-Bromofluorobenzene (S) a,2-Dichloroethane-d4 (S) 260/5035A Volatile Organics Benzene Methyl-tert-butyl ether foluene (Sylene (Total) Surrogates Dibromofluoromethane (S) aenzene Methyl-terd-butyl ether foluene (Sylene (Total) Surrogates Dibromofluoromethane (S) aenzene-d8 (S) a-Bromofluorobenzene (S) and an	108 % 259 % halytical Method: EPA 2.4 mg/kg halytical Method: EPA 887 ug/kg 100 % 103 % 109 % 92 % halytical Method: EPA ND ug/kg ND ug/kg	50-150 50-150 6010 Preparation Met 1.1 8260 Preparation Met 51.2 75-116 74-124 73-128 70-125 8260	10 10 hod: EPA 1 hod: EPA 1 1 1	01/25/12 13:32 01/25/12 13:32 A 3050 01/25/12 07:42 A 5035A/5030B 02/01/12 00:00 02/01/12 00:00 02/01/12 00:00 02/01/12 00:00	01/25/12 14:20 01/25/12 14:20 01/25/12 17:32 01/25/12 17:32 02/02/12 01:20 02/02/12 01:20 02/02/12 01:20 02/02/12 01:20	98-08-8 460-00-4 7439-92-1 100-41-4 1868-53-7 2037-26-5 460-00-4	S5
And the state of t	259 % nalytical Method: EPA 2.4 mg/kg nalytical Method: EPA 887 ug/kg 100 % 103 % 109 % 92 % nalytical Method: EPA ND ug/kg ND ug/kg	50-150 6010 Preparation Met 1.1 8260 Preparation Met 51.2 75-116 74-124 73-128 70-125 8260	10 hod: EPA 1 hod: EPA 1 1 1 1	01/25/12 13:32 A 3050 01/25/12 07:42 A 5035A/5030B 02/01/12 00:00 02/01/12 00:00 02/01/12 00:00 02/01/12 00:00	2: 01/25/12 14:20 2: 01/25/12 17:32 3: 02/02/12 01:20 4: 02/02/12 01:20 5: 02/02/12 01:20 6: 02/02/12 01:20 7: 02/02/12 01:20	460-00-4 7439-92-1 100-41-4 1868-53-7 2037-26-5 460-00-4	S5
And Sold MET ICP Lead S260 MSV 5035A Med Level VOA Ethylbenzene Surrogates Dibromofluoromethane (S) Foluene-d8 (S) I-Bromofluorobenzene (S) I-2-Dichloroethane-d4 (S) Senzene Methyl-tert-butyl ether Foluene Kylene (Total) Surrogates Dibromofluoromethane (S) Foluene-d8 (S) I-Bromofluorobenzene (S) I-Bromofluorobenzene (S) I-Bromofluorobenzene (S)	nalytical Method: EPA 2.4 mg/kg nalytical Method: EPA 887 ug/kg 100 % 103 % 109 % 92 % nalytical Method: EPA ND ug/kg ND ug/kg	6010 Preparation Met 1.1 8260 Preparation Met 51.2 75-116 74-124 73-128 70-125 8260 2.4	hod: EP/ 1 hod: EP/ 1 1 1 1	A 3050 01/25/12 07:42 A 5035A/5030B 02/01/12 00:00 02/01/12 00:00 02/01/12 00:00 02/01/12 00:00	2: 01/25/12 17:32 0 02/02/12 01:20 0 02/02/12 01:20 0 02/02/12 01:20 0 02/02/12 01:20	7439-92-1 100-41-4 1868-53-7 2037-26-5 460-00-4	\$5
260 MSV 5035A Med Level VOA And Ethylbenzene Surrogates Dibromofluoromethane (S) Coluene-d8 (S) -Bromofluorobenzene (S) ,2-Dichloroethane-d4 (S) 260/5035A Volatile Organics And Benzene Methyl-tert-butyl ether Coluene (Sylene (Total) Surrogates Dibromofluoromethane (S) Coluene-d8 (S) -Bromofluorobenzene (S)	2.4 mg/kg halytical Method: EPA 887 ug/kg 100 % 103 % 109 % 92 % halytical Method: EPA ND ug/kg ND ug/kg	1.1 8260 Preparation Met 51.2 75-116 74-124 73-128 70-125 8260	1 hod: EPA 1 1 1 1	01/25/12 07:42 A 5035A/5030B 02/01/12 00:00 02/01/12 00:00 02/01/12 00:00 02/01/12 00:00	02/02/12 01:20 02/02/12 01:20 02/02/12 01:20 02/02/12 01:20	100-41-4 1868-53-7 2037-26-5 460-00-4	
260 MSV 5035A Med Level VOA And thylbenzene Surrogates Subitomofluoromethane (S) Sulvene-d8 (S) -Bromofluorobenzene (S) ,2-Dichloroethane-d4 (S) 260/5035A Volatile Organics And the survey of the sulvey of the	nalytical Method: EPA 887 ug/kg 100 % 103 % 109 % 92 % nalytical Method: EPA ND ug/kg ND ug/kg	8260 Preparation Met 51.2 75-116 74-124 73-128 70-125 8260	1 1 1 1 1 1	A 5035A/5030B 02/01/12 00:00 02/01/12 00:00 02/01/12 00:00 02/01/12 00:00	02/02/12 01:20 02/02/12 01:20 02/02/12 01:20 02/02/12 01:20	100-41-4 1868-53-7 2037-26-5 460-00-4	
cthylbenzene Surrogates Dibromofluoromethane (S) Coluene-d8 (S) -Bromofluorobenzene (S) ,2-Dichloroethane-d4 (S) 260/5035A Volatile Organics And Benzene Methyl-tert-butyl ether Coluene (Sylene (Total) Surrogates Dibromofluoromethane (S) Coluene-d8 (S) -Bromofluorobenzene (S)	887 ug/kg 100 % 103 % 109 % 92 % nalytical Method: EPA ND ug/kg ND ug/kg	51.2 75-116 74-124 73-128 70-125 8260 2.4	1 1 1 1 1	02/01/12 00:00 02/01/12 00:00 02/01/12 00:00 02/01/12 00:00	02/02/12 01:20 02/02/12 01:20 02/02/12 01:20	1868-53-7 2037-26-5 460-00-4	
Surrogates Dibromofluoromethane (S) Foluene-d8 (S) I-Bromofluorobenzene (S) I,2-Dichloroethane-d4 (S) I-Benzene Methyl-tert-butyl ether Foluene Kylene (Total) Surrogates Dibromofluoromethane (S) Foluene-d8 (S) I-Bromofluorobenzene (S)	100 % 103 % 109 % 92 % nalytical Method: EPA ND ug/kg ND ug/kg	75-116 74-124 73-128 70-125 8260	1 1 1	02/01/12 00:00 02/01/12 00:00 02/01/12 00:00	02/02/12 01:20 02/02/12 01:20 02/02/12 01:20	1868-53-7 2037-26-5 460-00-4	
Dibromofluoromethane (S) Foluene-d8 (S) F-Bromofluorobenzene (S) F-Bromofluorobenzene (S) F-Bromofluorobenzene (S) F-Bromofluorobenzene (S) F-Bromofluoromethane (S) Foluene-d8 (S) F-Bromofluorobenzene (S)	103 % 109 % 92 % nalytical Method: EPA ND ug/kg ND ug/kg	74-124 73-128 70-125 8260 2.4	1 1 1	02/01/12 00:00 02/01/12 00:00	02/02/12 01:20 02/02/12 01:20	2037-26-5 460-00-4	
I-Bromofluorobenzene (S) ,2-Dichloroethane-d4 (S) IZECO/5035A Volatile Organics Benzene Methyl-tert-butyl ether Toluene (Vylene (Total) Surrogates Dibromofluoromethane (S) Toluene-d8 (S) I-Bromofluorobenzene (S)	109 % 92 % nalytical Method: EPA ND ug/kg ND ug/kg	73-128 70-125 8260 2.4	1	02/01/12 00:00	02/02/12 01:20	460-00-4	
2-Dichloroethane-d4 (S) 260/5035A Volatile Organics And Benzene Methyl-tert-butyl ether Foluene Exylene (Total) Surrogates Dibromofluoromethane (S) Foluene-d8 (S) -Bromofluorobenzene (S)	92 % nalytical Method: EPA ND ug/kg ND ug/kg	70-125 8260 2.4	1				
260/5035A Volatile Organics And Benzene Methyl-tert-butyl ether Foluene Kylene (Total) Surrogates Dibromofluoromethane (S) Foluene-d8 (S) -Bromofluorobenzene (S)	nalytical Method: EPA ND ug/kg ND ug/kg	8260		02/01/12 00:00	02/02/12 01:20	17060-07-0	
Benzene Methyl-tert-butyl ether Foluene Exylene (Total) Fourrogates Dibromofluoromethane (S) Foluene-d8 (S) Foluene-d8 (S) Formofluorobenzene (S)	ND ug/kg ND ug/kg	2.4	1				
Methyl-tert-butyl ether foluene (Sylene (Total) Surrogates (Spiromofluoromethane (S) Foluene-d8 (S) -Bromofluorobenzene (S)	ND ug/kg		1				
Toluene (sylene (Total) Surrogates Dibromofluoromethane (S) Toluene-d8 (S) 1-Bromofluorobenzene (S)		2.4			01/26/12 13:57	71-43-2	
(ylene (Total) Surrogates Dibromofluoromethane (S) Toluene-d8 (S) B-Bromofluorobenzene (S)	ND ua/ka		1		01/26/12 13:57	1634-04-4	
Surrogates Dibromofluoromethane (S) Toluene-d8 (S) I-Bromofluorobenzene (S)	IND dg/kg	2.4	1		01/26/12 13:57	108-88-3	
oluene-d8 (S) -Bromofluorobenzene (S)	43.2 ug/kg	7.2	1		01/26/12 13:57	1330-20-7	
-Bromofluorobenzene (S)	94 %	72-129	1		01/26/12 13:57	1868-53-7	
` '	451 %	69-133	1		01/26/12 13:57	2037-26-5	S5
,2-Dichloroethane-d4 (S)	340 %	67-142	1		01/26/12 13:57	460-00-4	S5
	104 %	67-136	1		01/26/12 13:57	17060-07-0	
ercent Moisture An	nalytical Method: AST	M D2974-87					
Percent Moisture	11.5 %	0.10	1		01/24/12 14:59		
Sample: Trip Blank L	Lab ID: 2510617015	Collected: 01/23/	12 00:00	Received: 0°	1/23/12 17:00 N	Matrix: Solid	
Results reported on a "wet-weight" basis	;						
Parameters R	tesults Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
IWTPH-Gx GCV An	nalytical Method: NWT	PH-Gx Preparation M	lethod: N	WTPH-Gx			
Gasoline Range Organics Surrogates	ND mg/kg	5.0	1	01/25/12 13:32	01/25/12 13:55		
ı,a,a-Trifluorotoluene (S)	113 %	50-150	1	01/25/12 13:32	01/25/12 13:55	98-08-8	
-Bromofluorobenzene (S)	109 %	50-150	1	01/25/12 13:32	01/25/12 13:55	460-00-4	
ate: 02/03/2012 04:50 PM	REPORT						age 20 o



Project: WA 11060 Pace Project No.: 2510617

Results reported on a "wet-weight" basis

Results reported on a wet-weight	L Dasis							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Me	Analytical Method: EPA 8260						
Benzene	ND u	g/kg	3.0	1		01/26/12 11:34	71-43-2	
Ethylbenzene	ND u	g/kg	3.0	1		01/26/12 11:34	100-41-4	
Methyl-tert-butyl ether	ND u	g/kg	3.0	1		01/26/12 11:34	1634-04-4	
Toluene	ND u	g/kg	3.0	1		01/26/12 11:34	108-88-3	
Xylene (Total)	ND ug/kg		9.0	1		01/26/12 11:34	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	100 %	6	72-129	1		01/26/12 11:34	1868-53-7	
Toluene-d8 (S)	97 %	6	69-133	1		01/26/12 11:34	2037-26-5	
4-Bromofluorobenzene (S)	101 %	6	67-142	1		01/26/12 11:34	460-00-4	
1,2-Dichloroethane-d4 (S)	104 %	6	67-136	1		01/26/12 11:34	17060-07-0	



Project: WA 11060 Pace Project No.: 2510617

QC Batch: GCV/2647 Analysis Method: NWTPH-Gx

QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx Solid GCV Associated Lab Samples: 2510617001, 2510617002, 2510617003, 2510617004, 2510617007, 2510617008

METHOD BLANK: 100515 Matrix: Solid

Associated Lab Samples: 2510617001, 2510617002, 2510617003, 2510617004, 2510617007, 2510617008

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	5.0	01/24/12 13:31	
4-Bromofluorobenzene (S)	%	106	50-150	01/24/12 13:31	
a,a,a-Trifluorotoluene (S)	%	105	50-150	01/24/12 13:31	

LABORATORY CONTROL SAME	PLE: 100516					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Gasoline Range Organics	mg/kg	12.5	14.0	112	63-140	
4-Bromofluorobenzene (S)	%			103	50-150	
a,a,a-Trifluorotoluene (S)	%			105	50-150	

SAMPLE DUPLICATE: 100556

Parameter	Units	2510557001 Result	Dup Result	RPD	Qualifiers
Gasoline Range Organics	mg/kg	ND	ND		
4-Bromofluorobenzene (S)	%	97	88	9	
a,a,a-Trifluorotoluene (S)	%	96	90	7	

SAMPLE DUPLICATE: 100557

		2510617001	Dup		
Parameter	Units	Result	Result	RPD	Qualifiers
Gasoline Range Organics	mg/kg	ND	ND		
4-Bromofluorobenzene (S)	%	94	94	.04	
a,a,a-Trifluorotoluene (S)	%	95	96	.6	

Date: 02/03/2012 04:50 PM REPORT OF LABORATORY ANALYSIS



Project: WA 11060 Pace Project No.: 2510617

QC Batch: GCV/2649 Analysis Method: NWTPH-Gx

QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx Solid GCV

Associated Lab Samples: 2510617005, 2510617006, 2510617009, 2510617010, 2510617015

METHOD BLANK: 100653 Matrix: Solid

Associated Lab Samples: 2510617005, 2510617006, 2510617009, 2510617010, 2510617015

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND ND	5.0	01/25/12 08:36	
4-Bromofluorobenzene (S)	%	106	50-150	01/25/12 08:36	
a a a-Trifluorotoluene (S)	%	109	50-150	01/25/12 08:36	

LABORATORY CONTROL SAMPLE: 100654

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	12.5	13.7	110	63-140	
4-Bromofluorobenzene (S)	%			111	50-150	
a,a,a-Trifluorotoluene (S)	%			114	50-150	

SAMPLE DUPLICATE: 100717

Parameter	Units	2510622005 Result	Dup Result	RPD	Qualifiers
Gasoline Range Organics	mg/kg	ND	6.4J		
4-Bromofluorobenzene (S)	%	112	109	3	
a,a,a-Trifluorotoluene (S)	%	117	115	2	

SAMPLE DUPLICATE: 100718

		2510601010	Dup		
Parameter	Units	Result	Result	RPD	Qualifiers
Gasoline Range Organics	mg/kg	2130	2280	7	
4-Bromofluorobenzene (S)	%	115	117	1	
a,a,a-Trifluorotoluene (S)	%	109	110	.8	

Date: 02/03/2012 04:50 PM REPORT OF LABORATORY ANALYSIS



Project: WA 11060 Pace Project No.: 2510617

Lead

QC Batch: MPRP/2762 Analysis Method: EPA 6010
QC Batch Method: EPA 3050 Analysis Description: 6010 MET

Associated Lab Samples: 2510617001, 2510617002, 2510617003, 2510617004, 2510617005, 2510617006, 2510617007, 2510617008,

2510617009, 2510617010

METHOD BLANK: 100582 Matrix: Solid

Associated Lab Samples: 2510617001, 2510617002, 2510617003, 2510617004, 2510617005, 2510617006, 2510617007, 2510617008,

2510617009, 2510617010

Parameter Units Blank Reporting Result Limit Analyzed Qualifiers

mg/kg ND 1.0 01/25/12 16:35

LABORATORY CONTROL SAMPLE: 100583

Date: 02/03/2012 04:50 PM

LCS LCS Spike % Rec Parameter Units Conc. Result % Rec Limits Qualifiers 23.5 94 80-120 Lead 25 mg/kg

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 100584 100585

MS MSD MSD MS 2510617001 Spike Spike MS MSD % Rec Result % Rec RPD Parameter Units Result Conc. Conc. Result % Rec Limits Qual Lead 1.9 28.2 28.2 26.4 26.3 87 75-125 .2 mg/kg



Project: WA 11060 Pace Project No.: 2510617

QC Batch: MSV/6274 Analysis Method: EPA 8260

QC Batch Method: EPA 5035A/5030B Analysis Description: 8260 MSV 5035A Medium Soil

Associated Lab Samples: 2510617005, 2510617010

METHOD BLANK: 101433 Matrix: Solid

Associated Lab Samples: 2510617005, 2510617010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethylbenzene	ug/kg	ND	50.0	02/01/12 18:40	
1,2-Dichloroethane-d4 (S)	%	92	70-125	02/01/12 18:40	
4-Bromofluorobenzene (S)	%	102	73-128	02/01/12 18:40	
Dibromofluoromethane (S)	%	98	75-116	02/01/12 18:40	
Toluene-d8 (S)	%	96	74-124	02/01/12 18:40	

LABORATORY CONTROL SAMPLE: 101434

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Ethylbenzene	ug/kg	1000	936	94	71-123	
1,2-Dichloroethane-d4 (S)	%			90	70-125	
4-Bromofluorobenzene (S)	%			94	73-128	
Dibromofluoromethane (S)	%			99	75-116	
Toluene-d8 (S)	%			99	74-124	

MATRIX SPIKE & MATRIX SPI	6		101477								
	25	510617005	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
Ethylbenzene	ug/kg	488	964	964	1620	1560	117	112	64-136	3	
1,2-Dichloroethane-d4 (S)	%						90	95	70-125		
4-Bromofluorobenzene (S)	%						103	107	73-128		
Dibromofluoromethane (S)	%						99	98	75-116		
Toluene-d8 (S)	%						97	100	74-124		



Project: WA 11060 Pace Project No.: 2510617

QC Batch: MSV/6241 Analysis Method: EPA 8260

QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics

Associated Lab Samples: 2510617001, 2510617002, 2510617003, 2510617004, 2510617006, 2510617007, 2510617008, 2510617010,

2510617015

METHOD BLANK: 100748 Matrix: Solid

Associated Lab Samples: 2510617001, 2510617002, 2510617003, 2510617004, 2510617006, 2510617007, 2510617008, 2510617010,

2510617015

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
Benzene	ug/kg	ND ND	3.0	01/26/12 10:01	
Ethylbenzene	ug/kg	ND	3.0	01/26/12 10:01	
Methyl-tert-butyl ether	ug/kg	ND	3.0	01/26/12 10:01	
Toluene	ug/kg	ND	3.0	01/26/12 10:01	
Xylene (Total)	ug/kg	ND	9.0	01/26/12 10:01	
1,2-Dichloroethane-d4 (S)	%	107	67-136	01/26/12 10:01	
4-Bromofluorobenzene (S)	%	104	67-142	01/26/12 10:01	
Dibromofluoromethane (S)	%	102	72-129	01/26/12 10:01	
Toluene-d8 (S)	%	99	69-133	01/26/12 10:01	

I ABORATORY	CONTROL	CAMPLE.	100749
IAKORAIORY	CONTROL	SAMPLE:	100749

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Benzene	ug/kg		20.6	103	69-133	
Ethylbenzene	ug/kg	20	22.4	112	68-126	
Methyl-tert-butyl ether	ug/kg	20	22.8	114	67-134	
Toluene	ug/kg	20	20.6	103	68-130	
Xylene (Total)	ug/kg	60	69.1	115	68-126	
1,2-Dichloroethane-d4 (S)	%			98	67-136	
4-Bromofluorobenzene (S)	%			98	67-142	
Dibromofluoromethane (S)	%			101	72-129	
Toluene-d8 (S)	%			100	69-133	

MATRIX SPIKE & MATRIX SP	IKE DUPLICAT	E: 10133	6		101337						
			MS	MSD							
	2	510617002	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
Benzene	ug/kg	ND	23.2	22	21.6	20.1	93	91	40-129	7	
Ethylbenzene	ug/kg	ND	23.2	22	25.6	22.5	110	102	40-134	13	
Methyl-tert-butyl ether	ug/kg	ND	23.2	22	18.4	18.6	79	84	40-149	.8	
Toluene	ug/kg	ND	23.2	22	22.4	19.8	94	87	40-134	13	
Xylene (Total)	ug/kg	ND	69.8	66.1	74.0	65.2	106	99	40-129	13	
1,2-Dichloroethane-d4 (S)	%						77	88	67-136		
4-Bromofluorobenzene (S)	%						103	107	67-142		
Dibromofluoromethane (S)	%						89	97	72-129		
Toluene-d8 (S)	%						104	103	69-133		

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REPORT OF LABORATORY ANALYSIS



Project: WA 11060 Pace Project No.: 2510617

QC Batch: MSV/6253 Analysis Method: EPA 8260

QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics

Associated Lab Samples: 2510617005, 2510617009

METHOD BLANK: 100937 Matrix: Solid

Associated Lab Samples: 2510617005, 2510617009

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
Benzene	ug/kg	ND ND	3.0	01/27/12 17:45	
Ethylbenzene	ug/kg	ND	3.0	01/27/12 17:45	
Methyl-tert-butyl ether	ug/kg	ND	3.0	01/27/12 17:45	
Toluene	ug/kg	ND	3.0	01/27/12 17:45	
Xylene (Total)	ug/kg	ND	9.0	01/27/12 17:45	
1,2-Dichloroethane-d4 (S)	%	93	67-136	01/27/12 17:45	
4-Bromofluorobenzene (S)	%	106	67-142	01/27/12 17:45	
Dibromofluoromethane (S)	%	100	72-129	01/27/12 17:45	
Toluene-d8 (S)	%	94	69-133	01/27/12 17:45	

LABORATORY CONTROL SAMPLE: 100938

ENDORUMONT CONTINUE COMM	EE: 100000					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Benzene	ug/kg		15.4	77	69-133	
Ethylbenzene	ug/kg	20	16.8	84	68-126	
Methyl-tert-butyl ether	ug/kg	20	16.4	82	67-134	
Toluene	ug/kg	20	14.9	74	68-130	
Xylene (Total)	ug/kg	60	49.8	83	68-126	
1,2-Dichloroethane-d4 (S)	%			94	67-136	
4-Bromofluorobenzene (S)	%			99	67-142	
Dibromofluoromethane (S)	%			95	72-129	
Toluene-d8 (S)	%			99	69-133	

MATRIX SPIKE & MATRIX SP	IKE DUPLICAT	E: 10136	4	•	101365	•	•		•		•
			MS	MSD							
	2	510708001	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
Benzene	ug/kg	110	14	13.7	131	62.3	147	-349	40-129	71	D6,E,M1
Ethylbenzene	ug/kg	144	14	13.7	331	106	1340	-276	40-134	103	D6,E,M1
Methyl-tert-butyl ether	ug/kg	ND	14	13.7	10.2	10.8	72	79	40-149	6	
Toluene	ug/kg	11.2	14	13.7	26.2	13.1	107	14	40-134	67	D6,M1
Xylene (Total)	ug/kg	80.0	42.1	41.2	246	68.9	394	-27	40-129	112	D6,E,M1
1,2-Dichloroethane-d4 (S)	%						148	97	67-136		S0
4-Bromofluorobenzene (S)	%						196	133	67-142		S0
Dibromofluoromethane (S)	%						103	96	72-129		
Toluene-d8 (S)	%						670	214	69-133		S0

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Project: WA 11060 Pace Project No.: 2510617

QC Batch: OEXT/5008 Analysis Method: EPA 8270 by SIM

QC Batch Method: EPA 3546 Analysis Description: 8270/3546 MSSV PAH by SIM

Associated Lab Samples: 2510617009

METHOD BLANK: 100517 Matrix: Solid

Associated Lab Samples: 2510617009

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/kg	ND ND	6.7	01/25/12 11:00	
2-Methylnaphthalene	ug/kg	ND	6.7	01/25/12 11:00	
Acenaphthene	ug/kg	ND	6.7	01/25/12 11:00	
Acenaphthylene	ug/kg	ND	6.7	01/25/12 11:00	
Anthracene	ug/kg	ND	6.7	01/25/12 11:00	
Benzo(a)anthracene	ug/kg	ND	6.7	01/25/12 11:00	
Benzo(a)pyrene	ug/kg	ND	6.7	01/25/12 11:00	
Benzo(b)fluoranthene	ug/kg	ND	6.7	01/25/12 11:00	
Benzo(g,h,i)perylene	ug/kg	ND	6.7	01/25/12 11:00	
Benzo(k)fluoranthene	ug/kg	ND	6.7	01/25/12 11:00	
Chrysene	ug/kg	ND	6.7	01/25/12 11:00	
Dibenz(a,h)anthracene	ug/kg	ND	6.7	01/25/12 11:00	
Fluoranthene	ug/kg	ND	6.7	01/25/12 11:00	
Fluorene	ug/kg	ND	6.7	01/25/12 11:00	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	6.7	01/25/12 11:00	
Naphthalene	ug/kg	ND	6.7	01/25/12 11:00	
Phenanthrene	ug/kg	ND	6.7	01/25/12 11:00	
Pyrene	ug/kg	ND	6.7	01/25/12 11:00	
2-Fluorobiphenyl (S)	%	83	27-118	01/25/12 11:00	
Terphenyl-d14 (S)	%	89	28-125	01/25/12 11:00	

LABORATORY	CONTROL SAMPLE:	100518

	.000.0						
		Spike	LCS	LCS	% Rec		
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers	
1-Methylnaphthalene	ug/kg	133	111	83	39-110		
2-Methylnaphthalene	ug/kg	133	113	85	39-110		
Acenaphthene	ug/kg	133	119	89	39-111		
Acenaphthylene	ug/kg	133	109	82	37-110		
Anthracene	ug/kg	133	109	82	40-113		
Benzo(a)anthracene	ug/kg	133	120	90	42-122		
Benzo(a)pyrene	ug/kg	133	133	99	44-132		
Benzo(b)fluoranthene	ug/kg	133	123	92	40-124		
Benzo(g,h,i)perylene	ug/kg	133	125	94	39-122		
Benzo(k)fluoranthene	ug/kg	133	127	95	44-123		
Chrysene	ug/kg	133	123	92	42-120		
Dibenz(a,h)anthracene	ug/kg	133	128	96	40-122		
Fluoranthene	ug/kg	133	117	88	42-116		
Fluorene	ug/kg	133	108	81	41-112		
Indeno(1,2,3-cd)pyrene	ug/kg	133	123	93	39-124		
Naphthalene	ug/kg	133	103	77	36-110		
Phenanthrene	ug/kg	133	116	87	42-115		
	0 0						

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REPORT OF LABORATORY ANALYSIS



Project: WA 11060 Pace Project No.: 2510617

LABORATORY CONTROL SAMPLE: 100518

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Pyrene	ug/kg	133	124	93	44-121	
2-Fluorobiphenyl (S)	%			84	27-118	
Terphenyl-d14 (S)	%			96	28-125	

MATRIX SPIKE & MATRIX S	PIKE DUPLICAT	E: 10051	9		100520						
			MS	MSD							
	2	510607001	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
1-Methylnaphthalene	ug/kg	ND	161	161	128	124	79	77	28-120	3	
2-Methylnaphthalene	ug/kg	ND	161	161	130	124	80	76	26-121	5	
Acenaphthene	ug/kg	ND	161	161	128	132	79	82	27-122	3	
Acenaphthylene	ug/kg	ND	161	161	126	122	78	76	24-120	3	
Anthracene	ug/kg	ND	161	161	124	124	77	76	20-130	.4	
Benzo(a)anthracene	ug/kg	ND	161	161	121	114	74	70	20-136	6	
Benzo(a)pyrene	ug/kg	ND	161	161	147	142	91	88	20-141	3	
Benzo(b)fluoranthene	ug/kg	ND	161	161	117	135	71	83	12-136	14	
Benzo(g,h,i)perylene	ug/kg	ND	161	161	132	132	81	81	10-132	.04	
Benzo(k)fluoranthene	ug/kg	ND	161	161	161	134	99	83	22-131	18	
Chrysene	ug/kg	ND	161	161	129	141	79	86	16-132	8	
Dibenz(a,h)anthracene	ug/kg	ND	161	161	132	131	81	81	22-121	.8	
luoranthene	ug/kg	ND	161	161	129	128	78	77	21-129	.5	
Fluorene	ug/kg	ND	161	161	122	122	75	75	26-130	.4	
ndeno(1,2,3-cd)pyrene	ug/kg	ND	161	161	134	131	82	81	14-131	2	
Naphthalene	ug/kg	ND	161	161	117	114	72	70	19-123	3	
Phenanthrene	ug/kg	ND	161	161	141	136	84	81	19-135	3	
Pyrene	ug/kg	ND	161	161	135	140	82	85	18-136	4	
2-Fluorobiphenyl (S)	%						74	74	27-118		
Геrphenyl-d14 (S)	%						82	81	28-125		



Project: WA 11060 Pace Project No.: 2510617

QC Batch: OEXT/5009 Analysis Method: NWTPH-Dx
QC Batch Method: EPA 3546 Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 2510617001, 2510617002, 2510617003, 2510617004, 2510617005, 2510617006, 2510617007, 2510617008,

2510617009, 2510617010

METHOD BLANK: 100521 Matrix: Solid

Associated Lab Samples: 2510617001, 2510617002, 2510617003, 2510617004, 2510617005, 2510617006, 2510617007, 2510617008,

2510617009, 2510617010

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
Diesel Range	mg/kg	ND ND	16.0	01/24/12 17:02	
Motor Oil Range	mg/kg	ND	64.0	01/24/12 17:02	
n-Octacosane (S)	%	86	50-150	01/24/12 17:02	
o-Terphenyl (S)	%	88	50-150	01/24/12 17:02	

LABORATORY CONTROL SAMPLE: 100522

	.000==	Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Diesel Range	mg/kg	400	356	89	70-111	
Motor Oil Range	mg/kg	400	379	95	73-118	
n-Octacosane (S)	%			91	50-150	
o-Terphenyl (S)	%			90	50-150	

SAMPLE DUPLICATE: 100523

Parameter	Units	2510617001 Result	Dup Result	RPD	Qualifiers
Diesel Range	 mg/kg	ND ND	ND		
Motor Oil Range	mg/kg	ND	ND		
n-Octacosane (S)	%	92	93	1	
o-Terphenyl (S)	%	93	90	3	

SAMPLE DUPLICATE: 100524

Parameter	Units	2510617009 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/kg	2710	2230	19	
Motor Oil Range	mg/kg	9400	8700	8	
n-Octacosane (S)	%	110	92	18	
o-Terphenyl (S)	%	91	94	3	

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Project: WA 11060 Pace Project No.: 2510617

QC Batch: PMST/1945 Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 2510617001, 2510617002, 2510617003, 2510617004, 2510617005, 2510617006, 2510617007, 2510617008,

2510617009, 2510617010

SAMPLE DUPLICATE: 100528

 Parameter
 Units
 2510617002 Result
 Dup Result
 RPD
 Qualifiers

 Percent Moisture
 %
 18.7
 18.9
 1



QUALIFIERS

Project: WA 11060 Pace Project No.: 2510617

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.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

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1n	Low recovery of internal standard in this sample due to a matrix effect. This matrix effect was confirmed by a second analysis. 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.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
S0	Surrogate recovery outside laboratory control limits.
S2	Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).
S5	Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WA 11060 Pace Project No.: 2510617

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2510617001	MW-10-15	EPA 3546	OEXT/5009	NWTPH-Dx	GCSV/3266
2510617002	MW-10-20	EPA 3546	OEXT/5009	NWTPH-Dx	GCSV/3266
2510617003	MW-10-25	EPA 3546	OEXT/5009	NWTPH-Dx	GCSV/3266
2510617004	MW-10-35	EPA 3546	OEXT/5009	NWTPH-Dx	GCSV/3266
2510617005	SB-1-15	EPA 3546	OEXT/5009	NWTPH-Dx	GCSV/3266
2510617006	SB-1-25	EPA 3546	OEXT/5009	NWTPH-Dx	GCSV/3266
2510617007	SB-1-35	EPA 3546	OEXT/5009	NWTPH-Dx	GCSV/3266
2510617008	SB-1-40	EPA 3546	OEXT/5009	NWTPH-Dx	GCSV/3266
2510617009	SB-3-5	EPA 3546	OEXT/5009	NWTPH-Dx	GCSV/3266
2510617010	DUP-1	EPA 3546	OEXT/5009	NWTPH-Dx	GCSV/3266
2510617001	MW-10-15	NWTPH-Gx	GCV/2647	NWTPH-Gx	GCV/2648
2510617002	MW-10-20	NWTPH-Gx	GCV/2647	NWTPH-Gx	GCV/2648
2510617003	MW-10-25	NWTPH-Gx	GCV/2647	NWTPH-Gx	GCV/2648
2510617004	MW-10-35	NWTPH-Gx	GCV/2647	NWTPH-Gx	GCV/2648
2510617005	SB-1-15	NWTPH-Gx	GCV/2649	NWTPH-Gx	GCV/2650
2510617006	SB-1-25	NWTPH-Gx	GCV/2649	NWTPH-Gx	GCV/2650
2510617007	SB-1-35	NWTPH-Gx	GCV/2647	NWTPH-Gx	GCV/2648
2510617008	SB-1-40	NWTPH-Gx	GCV/2647	NWTPH-Gx	GCV/2648
2510617009	SB-3-5	NWTPH-Gx	GCV/2649	NWTPH-Gx	GCV/2650
2510617010	DUP-1	NWTPH-Gx	GCV/2649	NWTPH-Gx	GCV/2650
2510617015	Trip Blank	NWTPH-Gx	GCV/2649	NWTPH-Gx	GCV/2650
2510617001	MW-10-15	EPA 3050	MPRP/2762	EPA 6010	ICP/2599
2510617002	MW-10-20	EPA 3050	MPRP/2762	EPA 6010	ICP/2599
2510617003	MW-10-25	EPA 3050	MPRP/2762	EPA 6010	ICP/2599
2510617004	MW-10-35	EPA 3050	MPRP/2762	EPA 6010	ICP/2599
2510617005	SB-1-15	EPA 3050	MPRP/2762	EPA 6010	ICP/2599
2510617006	SB-1-25	EPA 3050	MPRP/2762	EPA 6010	ICP/2599
2510617007	SB-1-35	EPA 3050	MPRP/2762	EPA 6010	ICP/2599
2510617008	SB-1-40	EPA 3050	MPRP/2762	EPA 6010	ICP/2599
2510617009	SB-3-5	EPA 3050	MPRP/2762	EPA 6010	ICP/2599
2510617010	DUP-1	EPA 3050	MPRP/2762	EPA 6010	ICP/2599
2510617009	SB-3-5	EPA 3546	OEXT/5008	EPA 8270 by SIM	MSSV/1921
2510617005	SB-1-15	EPA 5035A/5030B	MSV/6274	EPA 8260	MSV/6279
2510617010	DUP-1	EPA 5035A/5030B	MSV/6274	EPA 8260	MSV/6279
2510617001	MW-10-15	EPA 8260	MSV/6241		
2510617002	MW-10-20	EPA 8260	MSV/6241		
2510617003	MW-10-25	EPA 8260	MSV/6241		
2510617004	MW-10-35	EPA 8260	MSV/6241		
2510617005	SB-1-15	EPA 8260	MSV/6253		
2510617006	SB-1-25	EPA 8260	MSV/6241		
2510617007	SB-1-35	EPA 8260	MSV/6241		
2510617008	SB-1-40	EPA 8260	MSV/6241		
2510617009	SB-3-5	EPA 8260	MSV/6253		

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REPORT OF LABORATORY ANALYSIS



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WA 11060 Pace Project No.: 2510617

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2510617010	DUP-1	EPA 8260	MSV/6241		
2510617015	Trip Blank	EPA 8260	MSV/6241		
2510617001	MW-10-15	ASTM D2974-87	PMST/1945		
2510617002	MW-10-20	ASTM D2974-87	PMST/1945		
2510617003	MW-10-25	ASTM D2974-87	PMST/1945		
2510617004	MW-10-35	ASTM D2974-87	PMST/1945		
2510617005	SB-1-15	ASTM D2974-87	PMST/1945		
2510617006	SB-1-25	ASTM D2974-87	PMST/1945		
2510617007	SB-1-35	ASTM D2974-87	PMST/1945		
2510617008	SB-1-40	ASTM D2974-87	PMST/1945		
2510617009	SB-3-5	ASTM D2974-87	PMST/1945		
2510617010	DUP-1	ASTM D2974-87	PMST/1945		



CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Section		May						Secti												P	age:	c A	1	of 2	
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Email 10: Scott Zor n(a)d 11.4:5 (Purchas	e Orde	r No.:	1/4	Viw (Pace C Refere									UST RCRA OTHER								
Phone: 2067261704 Fax: Project I	lame:	W	AIL	60				Pace F Manag	Project								Si	ite Lo	cation			T			
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Section D Matrix Codes Required Client Information MATRIX / CODE	to left)	C=COMP)	aul ov	COLL	ECTED	noncolf.	o .	ida	191	Pres	ervativ	es	N. N.	⇒ N/A	did	od di	i in	34)	06)	Tel (b)	A 10	ine	10.1 m		
Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL	(see valid codes to left)	(G=GRAB C=C	COMP	POSITE	COMPO END/G	DSITE GRAB	COLLECTION		talet	chris	of of	i i			ineu	MIBE	07		d pai	li lese	b A	(V/N)			
SAMPLE ID Oil Wipe OL Wipe (A-Z, 0-9 / ,-) Air AR Sample IDs MUST BE UNIQUE Tissue Other OT	CODE	TYPE (0	er usumi		Tel blu	da aterz	TEMP AT	# OF CONTAINERS	erved		2 19 1 19 2	3		sis Test	HO	TEX	a Lead		prisk Bioti	E 100 P	16(0)	Residual Chlorine (Y/N)			
m the beacamarked compositore	MATRIX	_	DATE	TIME	DATE	TIME	SAMPLE	# OF CC	Unpreserved H ₂ SO ₄	HNO	NaOH	Na ₂ S ₂ O ₃ Methanol	Other	Analysis	ORO	To de	10		Henry Jersys	entesio to an	it ek maie	Residua	Pace	Project N	o./ Lab I.D.
1 MW-10-15	5	6	137	TILLES	1-23-6		-				\perp		_	2	X	XX	X					_		1 / 2	
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CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

2510617

Section A Section		ميرارا							tion C											Р	age:	2	_ '	of Z		
Required Client Information: Required Company: Report To	0:4	14	1				-	Atten		ormatio	on:			_		-	4	1/		(live q	or line	1/10	11	646		
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Section D Matrix Codes Required Client Information MATRIX / CODE	left)	MP)		COLL	ECTED		On	lqa	N.E.	Pre	eserv	ative	es		N /A	25	56.58	in.C	006	TENEDE .	eznal					
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(A-Z, 0-9 / ,-) Air AR Sample IDs MUST BE UNIQUE Tissue TS Other OT	CODE	TYPE		S INC.	A COLUMN	Water.	TEME	NTA	rved				_		sis	3	120	13/44 L		St. La Hit	3	5				
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ADDITIONAL COMMENTS	REI	INQU	ISHED BY	AFFILIAT	ION	DATE		7	TIME			A	CCEF	TED	BY / /	AFFIL	IATION		DATE	TIME			AMP	LE CONDITI	ONS	
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ORIGINA	HL.				PRINT Nam	ne of SAMP	LER														Temp in °C	Received on	38	stod)	Y/N)	
					SIGNATUR	E of SAMP	ı₽a	ge 36	of 4	19							Signed DD/YY):				Теп	Rece	20	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)	

Sample Container Count

2510617

CLIENT: Arcadis

Pace Analytical"

COC PAGE 2 of 2 coc ID# 149 1646

Trip Blank(s) Provided?

Sample Line Item	VG9H	AG1H	AG111	RP1II	BP2U	BP311	RP3N	BP3S	WGKII	WGFII	WG2LL	DG9M	DGOR	VG9W	VSG			Comments
Line nem	1 0011	7.0111	7.0.10	DI 10	DI 20	DI 00	DI OIT	DI 00	TVORO	1	17020	DOSIVI	1	V 03VV	V30	Γ	Г	 Comments
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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	1	Wipe/Swab	U	Summa Can

Sample Container Count

2510617

Pace Analytical "

Arcadis CLIENT:

Trip Blank(s) Provided?

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG	 	 Comments
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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	1	Wipe/Swab	U	Summa Can

	Sample C	ondit	ion Upon Receip	t l	0 = 4
Face Analytical Client N	lame: Avca	dis		Project #	251
Courier: Fed Ex UPS USPS Tracking #: Custody Seal on Cooler/Box Present:	☑ Client ☐ Comme	ercial Seals in	Pace Other	No	
Packing Material: Subble Wrap	₩ubble Bags	lone	Other	Temp. Blank Yes No	
	or 226099 Type of Ice:	Wet	Blue None	Samples on ice, cooling process	has begun
Cooler Temperature 6.4c Temp should be above freezing ≤ 6 ℃		Tissue i	s Frozen: Yes No Comments:	Date and Initials of person contents: 0 23 20	examining
Chain of Custody Present:	ØYes □No	□N/A	1.		
Chain of Custody Filled Out:	QYes □No	□N/A 2	2.		
Chain of Custody Relinquished:	DYes □No	□N/A	3.		
Sampler Name & Signature on COC:	ØYes □No	□N/A 4	4.		
Samples Arrived within Hold Time:	DYes □No,	□N/A {	5.		
Short Hold Time Analysis (<72hr):	□Yes ⊠No	□N/A €	6.		
Rush Turn Around Time Requested:	□Yes DNo	□N/A	7.		
Follow Up / Hold Analysis Requested:	□Yes ☑No	□N/A {	8.		
Sufficient Volume:	⊠Yes □No	□N/A g	9.		
Correct Containers Used:	□Ves □No	□N/A	10.		
-Pace Containers Used:	ÙYes □No	□n/a			
Containers Intact:	☑Yes □No	□N/A	11.		
Filtered volume received for Dissolved tests		-	12.		
Sample Labels match COC:	□Yes 🖭 No	□N/A	13. TB not or	1 COC	
-Includes date/time/ID/Analysis Mat	rix: SL		2		
All containers needing preservation have been che	cked.	DK/A	14.		
All containers needing preservation are found to compliance with EPA recommendation.	be in ☐Yes ☐No	*ON/A			ie.
Exceptions: VOA, coliform, TOC, O&G			Initial when completed	Lot # of added preservative	
Samples checked for dechlorination:	□Yes □No	DN/A 1	15.		
Headspace in VOA Vials (>6mm):	□Yes ⊡No	19N/A	16.		
Trip Blanks Present:	□Ves □No	□N/A	17. RCVD TB	not on coc	
Trip Blank Custody Seals Present	□Yes □No	□N/A			
Pace Trip Blank Creation Date:					
Client Notification/ Resolution:			***************************************	Field Data Required? V	/ N

Project Manager Review	(ARB	Date: 1/24/12

Date/Time:

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)

Person Contacted:

Comments/ Resolution:



February 1, 2012

Andy Brownfield Pace Analytical 940 S. Harney Street Seattle, WA 98108

RE: Client Project: WA 11060, 2510617

ARI Job No.: UF23

Dear Andy:

Please find enclosed the original Chain of Custody (COC) record, sample receipt documentation, and final analytical results for samples from the project referenced above. Analytical Resources Inc. (ARI) accepted four solid samples on January 25, 2012. For further details regarding sample receipt, please refer to the enclosed Cooler Receipt Form.

The samples were analyzed for Grain Size, as requested. Details regarding this analysis can be found in the Geotechnical Case Narrative.

An electronic copy of this report as well as all supporting raw data will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Cheronne Oreiro Project Manager 206-695-6214

cheronneo@arilabs.com

www.arilabs.com

Enclosures

cc: eFile UF23

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5	onation of the control of the contro							Face Analytical www.pacelebs.com
Workor	Workorder: 2510617 Wor	Workorder Name:	WA 11060		L	Results Requested	2/6/2012	
Report/	Report / Invoice To	Subcon	Subcontract To			Requested Analysis	Analysis	
Andy Bri Pace An	Andy Brownfield Pace Analytical Seattle	ACT	나	P.O		الرائل		
940 Sou Seattle,	ith Harney WA 98108				V	ov H		
Email: a	Friorie (2007) 07-3000 Email: andy.brownfield@pacelabs.com					נמוִש		
· · · · · · · · · · · · · · · · · · ·				Prese	Preserved Containers	S		
				pe.	Π	11		
S. men	Sample ID	Collect Date/Time	Lab ID	Matrix Vneserv		25		LAB USE ONLY
-	SB-1-5′	1/23/2012 13:55	2510617011					
2 8	SB-1-10'	1/23/2012 14:05	2510617012	Solid /				
3 8	SB-1-30	1/23/2012 14:20	2510617013	Solid				
4 S	SB-1-40	1/23/2012 14:30	2510617014	Solid				
5								
	-		-				Comments	
Transfers	s Released By	Date/Time		l By	Date/Time			
7	Hope Sing	1/2/1	12 9/27 19/21/21	le street or	0201 1-8-1	<u>.</u> 0,		
2		/ /						
က								
4								
5								



Cooler Receipt Form

ARI Client: Pace			Project Name: WA	11060		
COC No(s):		NA	Delivered by: Fed-Ex UPS Cou	urier Hand Deliver	ed Other	
Assigned ARI Job No:	UT 3 3		Tracking No:		•	NA
Preliminary Examination Phas						IVA
Were intact, properly signed ar		attached to the	autside of to cooler?	· •	ES	(NO)
				Ç	: &	(NO)
Were custody papers included	•		•	(·	دع کو	МО
Were custody papers properly				A.	5 8	NO
Temperature of Cooler(s) (°C)			(ry)		C 6 2111	7
If cooler temperature is out of o				Temp Gun ID#:	40 901	-14
Cooler Accepted by:	15_		Date: 1-25/12 Tim	ie: 1620		
		ody forms and	l attach all shipping documents	;	-	
Log-In Phase:						_
Was a temperature blank inclu	ded in the cooler?				YES	(NO)
			(et Ice) Gel Packs Baggies Foam	n Block Paper Ot	her:	
Was sufficient ice used (if appr		-		NA	YEs)	NO
Were all bottles sealed in indiv	idual plastic bags?		***********	T	YES)	AND .
Did all bottles arrive in good co					YES	NO
			,		YES	NO
			of containers received?		(ES)	NO
					VES)	NO
Were all bottles used correct for					YES	NO
Do any of the analyses (bottles	s) require preservation?	? (attach prese	rvation sheet, excluding VOCs)	NA)	YES	NO
Were all VOC vials free of air b				(NA)	YES	NO
Was sufficient amount of samp		*		•	(E)	NO
				(AIR)		
Was Sample Split by ARI:	./		Equipment:		Split by:	
	(1405		
Samples Logged by:	17	Date:	1-25-12 Time:			
	** Notify Proje	ect Manager o	f discrepancies or concerns **			
	· · · · · · · · · · · · · · · · · · ·					·
Sample ID on Bottle	Sample ID o	n COC	Sample ID on Bottle	Sample	ID on COC	:
		· ·				
Additional Notes, Discrepan	cies, & Resolutions:					
	Data		•			ļ
	Date: Ubbles' LARGE Air	Bubbles S	mall → "sm"			
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	mm >4 m	100	eabubbles > "pb"			
	· • • •		arge → "lg"			
		I I	leadspace → "hs"			

0016F 3/2/10 Cooler Receipt Form

Revision 014

Sample ID Cross Reference Report



ARI Job No: UF23

Client: Pace Analytical Project Event: 2510617 Project Name: WA 11060

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	SB-1-5'	UF23A	12-923	Soil	01/23/12 13:55	01/25/12 10:20
2.	SB-1-10'	UF23B	12-924	Soil	01/23/12 14:05	01/25/12 10:20
3.	SB-1-30	UF23C	12-925	Soil	01/23/12 14:20	01/25/12 10:20
4.	SB-1-40	UF23D	12-926	Soil	01/23/12 14:30	01/25/12 10:20

Printed 01/25/12

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UF23:00004

ARI Job No.: UF23 Client: Pace Analytical

Client Project No.: 2510617 Client Project: WA 11060

Case Narrative

- 1. Four samples were submitted for analysis on January 25, 2012, and were in good condition.
- 2. The samples were submitted for grain size distribution according to ASTM D422. The samples were prepared according to ASTM D421.
- 3. An assumed specific gravity of 2.65 was used in the hydrometer calculations.
- 4. A standard milkshake mixer type device was used to disperse the fine fraction sample.
- 5. One sample from another job was chosen for triplicate analysis. triplicate data can be found on the QA summary table.
- 6. One sample contained organic material which may have broken down during the sieving process.
- 7. The data is provided in summary tables and plots.
- 8. There were no further anomalies in the samples or test method.

Released by: Meluna Summer Title: Geotechnical Division Manage

Reviewed by: //m

Title:

Date: 2-1-2012

Page 45 of 49

Pace Analytical 2510617 WA 11060

Sieve Size (microns) 3" 2" 1 1/2" 1" 1" 1" 1" 1" 1" 1" 1" 1" 1" 1" 1" 1"	<u> </u>																	
100.0 100.0 100.0 100.0	-	3/4"	1/2"	3/8"	#4 (4750)	#10 (2000)	#20 (850)	#40 (425)	#60	#100	#200	32	22	13	6	7	3.2	1.3
100.0 100.0 100.0	100.001	100.0	100.0	100.0	100.0	6.66	99.2	96.5	6.98	76.2	63.0	45.2	36.4	28.9	23.9	17.6	10.0	5.6
	100.001	100.0	100.0	100.0	100.0	8.66	99.1	96.2	86.8	76.8	64.3	44.5	35.7	28.8	23.2	17.5	10.0	5.6
100.0 100.0 100.0 100	100.0	100.0	100.0	100.0	100.0	6.66	99.3	96.4	85.8	75.5	62.3	43.2	35.7	28.2	23.8	17.5	10.6	6.3
SB-1-5' 100.0 100.0 100.0 100	100.0	100.0	100.0	100.0	9.66	99.4	99.1	98.6	7.76	0.76	96.4	9.68	9.68	83.7	76.5	0.79	48.8	29.1
SB-1-10' 100.0 100.0 100.0 100	100.001	100.0	96.3	93.7	97.6	90.5	88.5	83.9	74.1	66.1	60.5	54.6	50.9	44.8	41.1	36.8	26.4	16.0
100.0 100.0	100.0	100.0	100.0	100.0	99.7	2.66	99.5	99.2	98.4	97.4	59.7	18.9	14.1	10.2	9.2	7.8	6.3	3.9
SB-1-40 100.0 100.0 100.0 100	100.001	100.0	100.0	100.0	7.66	9.66	9.66	99.5	99.4	99.2	92.4	38.2	24.6	14.5	11.1	9.7	6.8	3.9

Testing performed according to ASTM D421/D422

UF23:00006

UF23:00007

Pace Analytica 2510617

Description 3.2° C-11/2* 11/2*-1* 1.34" 3/4-1/2*									Per	Percent Retained in Each Size Fraction	ed in Each	Size Fraction	LC.						:			
3.2° 2.11/2" 1.12"-1" 1.34" 3/4-1/2" 1/2.38" 3/8" 4750 200-850 850-455 25-150 150-75 75-32 22-21 22-13 13-9 9-7 7-3 23-1.3 0.0	Description		%Coars	se Gravel			% Gravel	-	% Coarse Sand		m Sand	%	Fine San	Б	% Very Coarse Silt	% Coarse Sift	% Medium Silt	% Fine Silt	% Fine Silt	% Very Fine Silt	%	<u>à</u>
0.0 0.0 <th>Particle Size (microns)</th> <th>1</th> <th>2-1 1/2"</th> <th>1 1/2"-1"</th> <th>1-3/4"</th> <th>3/4-1/2"</th> <th>1/2-3/8"</th> <th>3/8"-4750</th> <th>4750- 2000</th> <th>2000-850</th> <th>850-425</th> <th>425-250</th> <th></th> <th>150-75</th> <th>75-32</th> <th>32-22</th> <th>22-13</th> <th>13-9</th> <th>9-7</th> <th>7-3.2</th> <th>3.2-1.3</th> <th>₹.</th>	Particle Size (microns)	1	2-1 1/2"	1 1/2"-1"	1-3/4"	3/4-1/2"	1/2-3/8"	3/8"-4750	4750- 2000	2000-850	850-425	425-250		150-75	75-32	32-22	22-13	13-9	9-7	7-3.2	3.2-1.3	₹.
0.0 0.0 <th></th> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.1</td> <td>8.0</td> <td>2.7</td> <td>9.6</td> <td>10.8</td> <td>13.2</td> <td>17.8</td> <td>8.8</td> <td>7.5</td> <td>5.0</td> <td>6.3</td> <td>7.5</td> <td>4.4</td> <td>5.6</td>		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	8.0	2.7	9.6	10.8	13.2	17.8	8.8	7.5	5.0	6.3	7.5	4.4	5.6
0.0 0.0 <th>TW26 A</th> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.2</td> <td>2.0</td> <td>2.9</td> <td>9.4</td> <td>10.1</td> <td>12.5</td> <td>19.8</td> <td>8.8</td> <td>6.9</td> <td>5.6</td> <td>5.6</td> <td>7.5</td> <td>4.4</td> <td>5.6</td>	TW26 A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.0	2.9	9.4	10.1	12.5	19.8	8.8	6.9	5.6	5.6	7.5	4.4	5.6
0.0 0.0 <th></th> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0:0</td> <td>0.1</td> <td>9.0</td> <td>2.9</td> <td>10.6</td> <td>10.3</td> <td>13.2</td> <td>19.1</td> <td>7.5</td> <td>7.5</td> <td>4.4</td> <td>6.3</td> <td>6.9</td> <td>4.4</td> <td>6.3</td>		0.0	0.0	0.0	0.0	0.0	0.0	0:0	0.1	9.0	2.9	10.6	10.3	13.2	19.1	7.5	7.5	4.4	6.3	6.9	4.4	6.3
0.0 0.0 <th>SB-1-5'</th> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>4.0</td> <td>0.2</td> <td>0.3</td> <td>0.5</td> <td>6.0</td> <td>8.0</td> <td>9.0</td> <td>8.9</td> <td>0.0</td> <td>5.8</td> <td>7.3</td> <td>9.5</td> <td>18.2</td> <td>19.7</td> <td>29.1</td>	SB-1-5'	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.2	0.3	0.5	6.0	8.0	9.0	8.9	0.0	5.8	7.3	9.5	18.2	19.7	29.1
0.0 0.0 <th>SB-1-10'</th> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>3.7</td> <td>2.5</td> <td>1.</td> <td>2.1</td> <td>2.0</td> <td>4.6</td> <td>9.8</td> <td>7.9</td> <td>5.6</td> <td>5.9</td> <td>3.7</td> <td>6.1</td> <td>3.7</td> <td>4.3</td> <td>10.4</td> <td>10.4</td> <td>16.0</td>	SB-1-10'	0.0	0.0	0.0	0.0	3.7	2.5	1.	2.1	2.0	4.6	9.8	7.9	5.6	5.9	3.7	6.1	3.7	4.3	10.4	10.4	16.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.3 0.1 0.0 0.1 0.1 0.2 6.8 54.3 13.5 10.1 3.4 1.4 2.9 2.9	SB-1-30	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.2	0.4	9.0	1.0	37.7	40.7	4.9	3.9	1.0	1.5	1.5	2.4	3.9
	SB-1-40	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.1	0.1	0.2	8.9	54.3	13.5	10.1	3.4	4.1	2.9	2.9	3.9

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1		Ц			Ц			
	2	17.6	17.5	17.5	17.55	0.02	0.12	
	6	23.9	23.2	23.8	23.61	0.37	1.57	
	13	28.9	28.8	28.2	28.63	0.39	1.35	
	22	36.4	35.7	35.7	35.94	0.40	1.12	
	32	45.2	44.5	43.2	44.30	1.01	2.27	
	75	63.0	64.3	62.3	63.20	66.0	1.56	
	150	76.2	76.8	75.5	76.15	0.63	0.83	ng Samples
Size	250	86.9	86.8	85.8	86.50	0.64	0.74	the Followi
Relative Standard Deviation, by Size	425	96.5	96.2	96.4	96.36	0.12	0.12	Containing
tangaro De	850	99.2	99.1	99.3	99.19	0.08	0.08	the Batch
Relative S	2000	6.66	866	6.66	28.66	90.0	0.06	e applies to
	4750	100.0	100.0	100.0	100.00	00.0	0.00	This Triplicate applies to the Batch Containing the Following Samples
	9500	100.0	100.0	100.0	100.00	0.00	0.00	_
	12500	100.0	100.0	100.0	100.00	00.0	0.00	
	19000	100.0	100.0	100.0	100.00	0.00	0.00	
	25000	1000	100.0	100.0	100.00	00.0	0.00	
	37500	100.0	100.0	100.0	100.00	00.0	0.00	
	20000	100.0	100.0	100.0	100.00	00.0	0.00	
	75000	100.0	100.0	100.0	100.00	00.0	0.00	
	_	_	1		_	_	_	

1 of 1

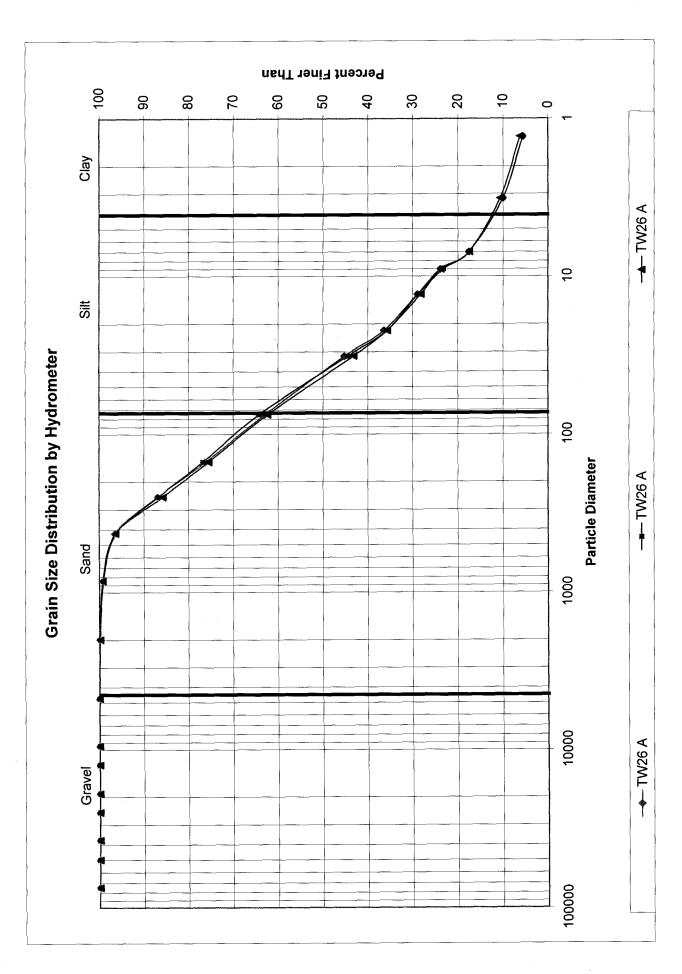
Page

TW26 A

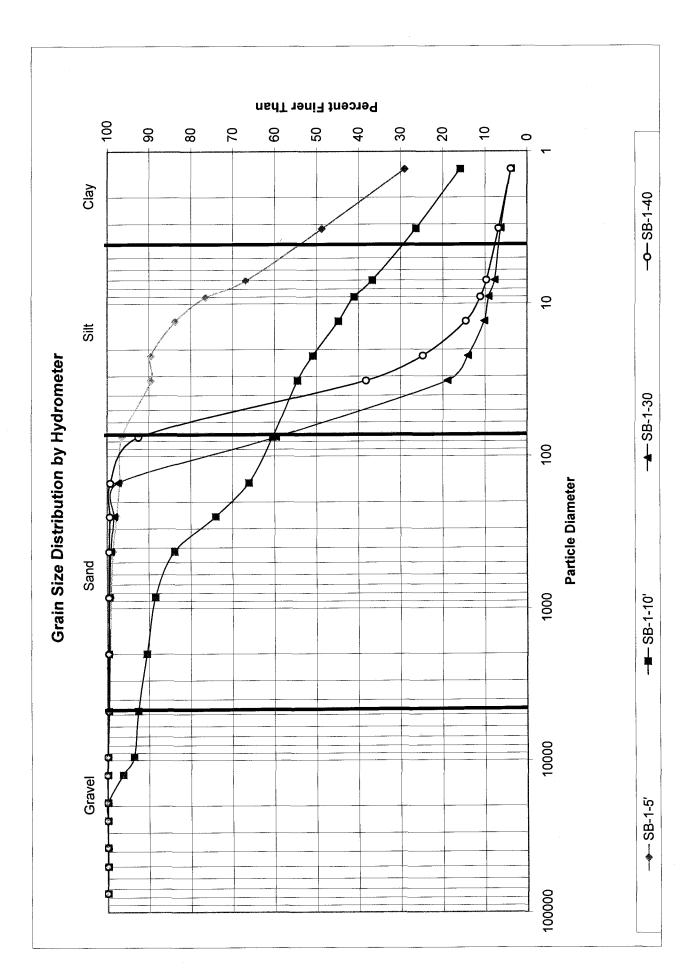
ARI Triplicate Sample ID:

Sample ID

ממשונים מ								
במנה בסוווסובה	11/22/2011	11/22/2011	11/22/2011	1/31/2012	1/31/2012	1/31/2012	1/31/2012	
מנים מימונים	11/17/2011	11/17/2011	11/17/2011	1/30/2012	1/30/2012	1/30/2012	1/30/2012	
ממונים מינים	11/16/2011	11/16/2011	11/16/2011	1/26/2012	1/26/2012	1/26/2012	1/26/2012	
ממני ממניום	10/31/2011	1102/12011	10/31/2011	1/23/2012	1/23/2012	1/23/2012	1/23/2012	
Calling		TW26 A		SB-1-5'	SB-1-10'	SB-1-30	SB-1-40	



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February 07, 2012

Scott Zorn Arcadis U.S., Inc. 2300 Eastlake Ave E. Ste. 200 Seattle, WA 98102

RE: Project: WA 11060

Pace Project No.: 2510622

Dear Scott Zorn:

Enclosed are the analytical results for sample(s) received by the laboratory on January 24, 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.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

Sample SB-3-10 re-logged for PAH per client request on 2/2/12.

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

Sincerely,

Andy Brownfield

Anoy Brownfield

andy.brownfield@pacelabs.com Project Manager

Enclosures

cc: Alan Kahal, Arcadis U.S., Inc. David Rasar, Arcadis U.S., Inc. Rick Rodriguez, Arcadis U.S., Inc.



REPORT OF LABORATORY ANALYSIS





CERTIFICATIONS

Project: WA 11060 Pace Project No.: 2510622

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



SAMPLE ANALYTE COUNT

Project: WA 11060 Pace Project No.: 2510622

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2510622004	SB-2-20	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	LPM	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LNH	5	PASI-S
		EPA 8260	LPM	8	PASI-S
		ASTM D2974-87	EED	1	PASI-S
2510622005	SB-2-35	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	LPM	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LPM	9	PASI-S
		ASTM D2974-87	EED	1	PASI-S
2510622006	SB-3-10	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	LPM	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8270 by SIM	KJ1	20	PASI-S
		EPA 8260	LPM	9	PASI-S
		ASTM D2974-87	EED	1	PASI-S
2510622007	SB-3-20	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	LPM	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LNH	9	PASI-S
		ASTM D2974-87	EED	1	PASI-S
2510622008	SB-3-50	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	LPM	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LNH	5	PASI-S
		EPA 8260	LPM	8	PASI-S
		ASTM D2974-87	EED	1	PASI-S



Project: WA 11060 Pace Project No.: 2510622

Method:NWTPH-DxDescription:NWTPH-Dx GCSClient:Arcadis U.S., Inc.Date:February 07, 2012

General Information:

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

Hold Time:

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

Sample Preparation:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

Duplicate Sample:

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

Additional Comments:



Project: WA 11060 Pace Project No.: 2510622

Method:NWTPH-GxDescription:NWTPH-Gx GCVClient:Arcadis U.S., Inc.Date:February 07, 2012

General Information:

5 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.

QC Batch: GCV/2649

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

- SB-2-20 (Lab ID: 2510622004)
 - 4-Bromofluorobenzene (S)
- SB-3-20 (Lab ID: 2510622007)
 - 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:



Project: WA 11060 Pace Project No.: 2510622

Method:EPA 6010Description:6010 MET ICPClient:Arcadis U.S., Inc.Date:February 07, 2012

General Information:

5 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:



Project: WA 11060
Pace Project No.: 2510622

Method: EPA 8270 by SIM

Description: 8270 MSSV PAH by SIM

Client: Arcadis U.S., Inc.

Date: February 07, 2012

General Information:

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

Hold Time:

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

Sample Preparation:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

Duplicate Sample:

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

Additional Comments:





Project: WA 11060 Pace Project No.: 2510622

Method: EPA 8260

Description: 8260 MSV 5035A Med Level VOA

Client: Arcadis U.S., Inc.

Date: February 07, 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.

Sample Preparation:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

QC Batch: MSV/6262

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

- SB-3-20 (Lab ID: 2510622007)
 - 4-Bromofluorobenzene (S)
 - Toluene-d8 (S)

QC Batch: MSV/6299

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

- SB-2-20 (Lab ID: 2510622004)
 - Toluene-d8 (S)

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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



Project: WA 11060 Pace Project No.: 2510622

Method: EPA 8260

Description: 8260 MSV 5035A Med Level VOA

Client: Arcadis U.S., Inc.

Date: February 07, 2012

QC Batch: MSV/6262

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2510718001

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

• MS (Lab ID: 101427)

- Benzene
- Ethylbenzene
- Methyl-tert-butyl ether
- Toluene
- Xylene (Total)
- MSD (Lab ID: 101428)
 - Benzene
 - Ethylbenzene
 - Methyl-tert-butyl ether
 - Toluene
 - Xylene (Total)

QC Batch: MSV/6299

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2510691003

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

- MS (Lab ID: 101985)
 - Ethylbenzene
- MSD (Lab ID: 101986)
 - Ethylbenzene

Duplicate Sample:

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

Additional Comments:





Project: WA 11060 Pace Project No.: 2510622

Method: EPA 8260

Description: 8260/5035A Volatile Organics

Client: Arcadis U.S., Inc.

Date: February 07, 2012

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

QC Batch: MSV/6253

S0: Surrogate recovery outside laboratory control limits.

- MS (Lab ID: 101364)
 - 1,2-Dichloroethane-d4 (S)
 - 4-Bromofluorobenzene (S)
 - Toluene-d8 (S)
- MSD (Lab ID: 101365)
 - Toluene-d8 (S)

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

- SB-2-20 (Lab ID: 2510622004)
 - 1,2-Dichloroethane-d4 (S)
 - 4-Bromofluorobenzene (S)
 - Toluene-d8 (S)

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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



Project: WA 11060 Pace Project No.: 2510622

Method: EPA 8260

Description: 8260/5035A Volatile Organics

Client: Arcadis U.S., Inc.

Date: February 07, 2012

QC Batch: MSV/6253

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2510708001

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

• MS (Lab ID: 101364)

- Benzene
- Ethylbenzene
- · Xylene (Total)
- MSD (Lab ID: 101365)
 - Benzene
 - Ethylbenzene
 - Toluene
 - Xylene (Total)

Duplicate Sample:

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

Additional Comments:

Analyte Comments:

QC Batch: MSV/6253

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 101364)
 - Benzene
 - Ethylbenzene
 - Xylene (Total)
- MSD (Lab ID: 101365)
 - Ethylbenzene

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



Project: WA 11060 Pace Project No.: 2510622

Sample: SB-2-20	Lab ID: 251062200	Collected: 01/24/1	12 10:28	Received: 01	/24/12 15:21 N	//atrix: Solid	
Results reported on a "dry-weight"	basis						
Parameters	Results Uni	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS	Analytical Method: NV	TPH-Dx Preparation Me	ethod: E	PA 3546			
Diesel Range	ND mg/kg	18.1	1	01/25/12 13:45	01/25/12 18:10		
Motor Oil Range	ND mg/kg	72.2	1	01/25/12 13:45	01/25/12 18:10	64742-65-0	
Surrogates n-Octacosane (S)	86 %	E0 1E0	1	01/25/12 12:45	01/25/12 18:10	620 02 4	
o-Terphenyl (S)	91 %	50-150 50-150	1		01/25/12 18:10		
. , , ,					01/23/12 16.10	04-15-1	
NWTPH-Gx GCV	Analytical Method: NW	TPH-Gx Preparation M	ethod: N	IWTPH-Gx			
Gasoline Range Organics Surrogates	1500 mg/kg	111	20	01/25/12 13:32	01/25/12 14:44		
a,a,a-Trifluorotoluene (S)	111 %	50-150	20	01/25/12 13:32	01/25/12 14:44	98-08-8	
l-Bromofluorobenzene (S)	154 %	50-150	20	01/25/12 13:32	01/25/12 14:44	460-00-4	S5
010 MET ICP	Analytical Method: EP	A 6010 Preparation Met	hod: EP/	A 3050			
ead	2.9 mg/kg	1.0	1	01/27/12 07:58	01/30/12 17:13	7439-92-1	
3260 MSV 5035A Med Level VOA	Analytical Method: EP	A 8260 Preparation Met	hod: EP/	A 5035A/5030B			
Ethylbenzene Surrogates	848 ug/kg	55.4	1	02/04/12 00:00	02/05/12 07:48	100-41-4	
Dibromofluoromethane (S)	96 %	75-116	1	02/04/12 00:00	02/05/12 07:48	1868-53-7	
oluene-d8 (S)	126 %	74-124	1	02/04/12 00:00	02/05/12 07:48	2037-26-5	S5
-Bromofluorobenzene (S)	117 %	73-128	1	02/04/12 00:00	02/05/12 07:48	460-00-4	
,2-Dichloroethane-d4 (S)	85 %	70-125	1	02/04/12 00:00	02/05/12 07:48	17060-07-0	
260/5035A Volatile Organics	Analytical Method: EP	\ 8260					
Benzene	ND ug/kg	3.4	1		01/27/12 21:11	71-43-2	
Methyl-tert-butyl ether	ND ug/kg	3.4	1		01/27/12 21:11	1634-04-4	
-oluene	ND ug/kg	3.4	1		01/27/12 21:11	108-88-3	
(ylene (Total)	17.8 ug/kg	10.3	1		01/27/12 21:11	1330-20-7	
Surrogates	444.07	70.400	4		04/07/40 04-44	4000 50 7	
Dibromofluoromethane (S) Toluene-d8 (S)	111 % 542 %	72-129 69-133	1 1		01/27/12 21:11 01/27/12 21:11		S2
* *	173 %	67-142			01/27/12 21:11		S2
-Bromofluorobenzene (S) ,2-Dichloroethane-d4 (S)	160 %	67-142	1 1		01/27/12 21:11		S2
. ,			'		01/21/12 21.11	17000-07-0	32
Percent Moisture	Analytical Method: AS	ГМ D2974-87					
Percent Moisture	15.4 %	0.10	1		01/25/12 16:47		
Sample: SB-2-35	Lab ID: 2510622009	6 Collected: 01/24/1	12 10:45	Received: 01	/24/12 15:21 N	Matrix: Solid	
Results reported on a "dry-weight"	basis						
Parameters	Results Uni	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS	Analytical Method: NW	TPH-Dx Preparation M	ethod: E	PA 3546			
Diesel Range	ND mg/kg	19.0	1	01/25/12 13:45	01/25/12 18:27		
Motor Oil Range	ND mg/kg	75.8	1		01/25/12 18:27		



Project: WA 11060 Pace Project No.: 2510622

Sample: SB-2-35	Lab ID: 2510622005	Collected: 01/24/1	2 10:45	Received: 01	/24/12 15:21	Matrix: Solid	
Results reported on a "dry-weigh	t" basis						
Parameters	Results Units	Report Limit	DF	Prepared	Analyzed	CAS No	. Qual
NWTPH-Dx GCS	Analytical Method: NW7	ΓΡΗ-Dx Preparation Me	ethod: E	PA 3546			
Surrogates							
n-Octacosane (S)	85 %	50-150	1		01/25/12 18:27		
o-Terphenyl (S)	91 %	50-150	1	01/25/12 13:45	01/25/12 18:27	7 84-15-1	
NWTPH-Gx GCV	Analytical Method: NWT	TPH-Gx Preparation Me	ethod: N	WTPH-Gx			
Gasoline Range Organics Surrogates	ND mg/kg	6.5	1	01/25/12 13:32	01/25/12 17:35	5	
a,a,a-Trifluorotoluene (S)	117 %	50-150	1	01/25/12 13:32	01/25/12 17:35	5 98-08-8	
4-Bromofluorobenzene (S)	112 %	50-150	1	01/25/12 13:32	01/25/12 17:35	5 460-00-4	
6010 MET ICP	Analytical Method: EPA	6010 Preparation Meth	nod: EP/	A 3050			
Lead	2.7 mg/kg	1.2	1	01/27/12 07:58	01/30/12 17:24	7439-92-1	
8260/5035A Volatile Organics	Analytical Method: EPA	8260					
Benzene	ND ug/kg	3.0	1		01/26/12 14:18	3 71-43-2	
Ethylbenzene	ND ug/kg	3.0	1		01/26/12 14:18	3 100-41-4	
Methyl-tert-butyl ether	ND ug/kg	3.0	1		01/26/12 14:18	3 1634-04-4	
Toluene	ND ug/kg	3.0	1		01/26/12 14:18	3 108-88-3	
Xylene (Total)	ND ug/kg	9.0	1		01/26/12 14:18		
Surrogates	99		•				
Dibromofluoromethane (S)	100 %	72-129	1		01/26/12 14:18	3 1868-53-7	
Toluene-d8 (S)	104 %	69-133	1		01/26/12 14:18		
4-Bromofluorobenzene (S)	103 %	67-142	1		01/26/12 14:18		
1,2-Dichloroethane-d4 (S)	102 %	67-136	1		01/26/12 14:18		0
Percent Moisture	Analytical Method: AST						-
Percent Moisture	17.7 %	0.10	1		01/25/12 16:47	7	
reicent Moisture	17.7 /0	0.10	'		01/23/12 10.4/		
Sample: SB-3-10	Lab ID: 2510622006	Collected: 01/24/1	2 12:00	Received: 01	1/24/12 15:21	Matrix: Solid	
Results reported on a "dry-weigh	t" basis						
Parameters	Results Units	Report Limit	DF	Prepared	Analyzed	CAS No	. Qual
NWTPH-Dx GCS	Analytical Method: NW7	TPH-Dx Preparation Me	ethod: E	PA 3546			
Diesel Range	68.4 mg/kg	19.8	1	01/25/12 13:45	01/26/12 21:49)	
Motor Oil Range	330 mg/kg	79.3	1		01/26/12 21:49		0
Surrogates							
n-Octacosane (S)	93 %	50-150	1	01/25/12 13:45	01/26/12 21:49	9 630-02-4	
o-Terphenyl (S)	86 %	50-150	1	01/25/12 13:45	01/26/12 21:49	9 84-15-1	
NWTPH-Gx GCV	Analytical Method: NW7	TPH-Gx Preparation Me	ethod: N	WTPH-Gx			
Gasoline Range Organics	111 mg/kg	6.3	1	01/25/12 13:32	01/25/12 16:46	6	
Surrogates a,a,a-Trifluorotoluene (S)	110 0/	50 150	1	01/25/12 12:22	01/25/12 16:44	2 QQ_QQ 2	
	110 %	50-150 50-150	1		01/25/12 16:46		
4-Bromofluorobenzene (S)	147 %	50-150	1	01/25/12 13:32	01/25/12 16:46	460-00-4	
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REPORT OF LABORATORY ANALYSIS



Project: WA 11060 Pace Project No.: 2510622

Sample: SB-3-10	Lab ID: 2510622006	Collected: 01/24/12	2 12:00	Received: 01	/24/12 15:21	Matrix: Solid	
Results reported on a "dry-weight	" basis						
Parameters	Results Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA	6010 Preparation Meth	od: EPA	A 3050			
Lead	11.4 mg/kg	1.2	1	01/27/12 07:58	01/31/12 20:50	6 7439-92-1	
8270 MSSV PAH by SIM	Analytical Method: EPA	3270 by SIM Preparation	on Meth	od: EPA 3546			
Acenaphthene	618 ug/kg	8.6	1	01/25/12 15:40	01/26/12 20:3	2 83-32-9	
Acenaphthylene	51.4 ug/kg	8.6	1	01/25/12 15:40	01/26/12 20:3	2 208-96-8	
Anthracene	1290 ug/kg	171	20	01/25/12 15:40	01/27/12 09:52	2 120-12-7	
Benzo(a)anthracene	4590 ug/kg	171	20	01/25/12 15:40	01/27/12 09:52	2 56-55-3	
Benzo(a)pyrene	7160 ug/kg	171	20	01/25/12 15:40	01/27/12 09:52	2 50-32-8	
Benzo(b)fluoranthene	5990 ug/kg	171	20	01/25/12 15:40	01/27/12 09:52	2 205-99-2	
Benzo(g,h,i)perylene	4820 ug/kg	171	20	01/25/12 15:40	01/27/12 09:52	2 191-24-2	
Benzo(k)fluoranthene	3340 ug/kg	171	20	01/25/12 15:40	01/27/12 09:5	2 207-08-9	
Chrysene	5210 ug/kg	171	20	01/25/12 15:40	01/27/12 09:52	2 218-01-9	
Dibenz(a,h)anthracene	978 ug/kg	171	20	01/25/12 15:40	01/27/12 09:52	2 53-70-3	
Fluoranthene	6080 ug/kg	171	20	01/25/12 15:40	01/27/12 09:52	2 206-44-0	
Fluorene	690 ug/kg	8.6	1	01/25/12 15:40	01/26/12 20:3	2 86-73-7	
Indeno(1,2,3-cd)pyrene	4630 ug/kg	171	20	01/25/12 15:40	01/27/12 09:52	2 193-39-5	
1-Methylnaphthalene	121 ug/kg	8.6	1	01/25/12 15:40			
2-Methylnaphthalene	147 ug/kg	8.6	1	01/25/12 15:40			
Naphthalene	188 ug/kg	8.6	1	01/25/12 15:40			
Phenanthrene	5730 ug/kg	171	20	01/25/12 15:40			
Pyrene	7770 ug/kg	171	20	01/25/12 15:40			
Surrogates	iii o ag, ng		20	01/20/12 10:10	01/21/12 00:0	120 00 0	
2-Fluorobiphenyl (S)	76 %	27-118	1	01/25/12 15:40	01/26/12 20:3	2 321-60-8	
Terphenyl-d14 (S)	96 %	28-125	20	01/25/12 15:40	01/27/12 09:52	2 1718-51-0	
8260/5035A Volatile Organics	Analytical Method: EPA	3260					
Benzene	ND ug/kg	3.1	1		01/27/12 18:0	5 71-43-2	
Ethylbenzene	ND ug/kg	3.1	1		01/27/12 18:0	5 100-41-4	
Methyl-tert-butyl ether	ND ug/kg	3.1	1		01/27/12 18:0	5 1634-04-4	
Toluene	ND ug/kg	3.1	1		01/27/12 18:0	5 108-88-3	
Xylene (Total)	ND ug/kg	9.3	1		01/27/12 18:0	5 1330-20-7	
Surrogates							
Dibromofluoromethane (S)	99 %	72-129	1		01/27/12 18:0	5 1868-53-7	
Toluene-d8 (S)	98 %	69-133	1		01/27/12 18:0	5 2037-26-5	
4-Bromofluorobenzene (S)	106 %	67-142	1		01/27/12 18:0	5 460-00-4	
1,2-Dichloroethane-d4 (S)	98 %	67-136	1		01/27/12 18:0	5 17060-07-0	
Percent Moisture	Analytical Method: ASTM	1 D2974-87					
Percent Moisture	22.3 %	0.10	1		01/25/12 16:49	9	

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Project: WA 11060
Pace Project No.: 2510622

Date: 02/07/2012 11:53 AM

Sample: SB-3-20	Lah ID:	2510622007	Collected: 01/24	I/12 12·45	Received: 0	1/24/12 15:21	Matrix: Solid	
Results reported on a "dry-weight"			3000.00. 01/2-	., 12 1210	. 1100011001. 0	.,_ ,, ,_ 10.21		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS	Analytical	Method: NWTF	PH-Dx Preparation	Method: E	PA 3546			
Diesel Range	10	2 mg/kg	17.	I 1	01/25/12 13:45	5 01/25/12 19:0	1	
Motor Oil Range Surrogates	NI	D mg/kg	68.4	1 1	01/25/12 13:45	5 01/25/12 19:0	1 64742-65-0	
n-Octacosane (S)	9	1 %	50-150) 1	01/25/12 13:45	01/25/12 19:0	1 630-02-4	
o-Terphenyl (S)	9	6 %	50-150) 1	01/25/12 13:45	5 01/25/12 19:0	1 84-15-1	
NWTPH-Gx GCV	Analytical	Method: NWTF	PH-Gx Preparation	Method: N	IWTPH-Gx			
Gasoline Range Organics Surrogates	439	0 mg/kg	112	2 20	01/25/12 13:32	2 01/25/12 15:0	9	
a,a,a-Trifluorotoluene (S)	11	8 %	50-150	20	01/25/12 13:32	2 01/25/12 15:0	9 98-08-8	
4-Bromofluorobenzene (S)	25	0 %	50-150	20	01/25/12 13:32	2 01/25/12 15:0	9 460-00-4	S5
6010 MET ICP	Analytical	Method: EPA 6	010 Preparation M	ethod: EP	A 3050			
Lead	4.	4 mg/kg	0.87	7 1	01/27/12 07:58	3 01/31/12 21:0	0 7439-92-1	
8260 MSV 5035A Med Level VOA	Analytical	Method: EPA 8	260 Preparation M	ethod: EP	A 5035A/5030B			
Benzene	95.	6 ug/kg	27.9	9 1	01/31/12 00:00	01/31/12 20:1	3 71-43-2	
Ethylbenzene	1320	0 ug/kg	55.8	3 1	01/31/12 00:00	01/31/12 20:1	3 100-41-4	
Methyl-tert-butyl ether		D ug/kg	55.8	3 1	01/31/12 00:00	01/31/12 20:1	3 1634-04-4	
Toluene	514	0 ug/kg	55.8	3 1	01/31/12 00:00	01/31/12 20:1	3 108-88-3	
Xylene (Total) Surrogates	5080	0 ug/kg	167	7 1	01/31/12 00:00	01/31/12 20:1	3 1330-20-7	
Dibromofluoromethane (S)	8	6 %	75-116	5 1	01/31/12 00:00	01/31/12 20:13	3 1868-53-7	
Toluene-d8 (S)	15	9 %	74-12	1 1	01/31/12 00:00	01/31/12 20:13	3 2037-26-5	S5
4-Bromofluorobenzene (S)	17	3 %	73-128	3 1	01/31/12 00:00	01/31/12 20:1	3 460-00-4	S5
1,2-Dichloroethane-d4 (S)	7	9 %	70-12	5 1	01/31/12 00:00	01/31/12 20:1	3 17060-07-0	
Percent Moisture	Analytical	Method: ASTM	D2974-87					
Percent Moisture	10.	8 %	0.10) 1		01/25/12 16:5	0	
Sample: SB-3-50	Lab ID:	2510622008	Collected: 01/24	l/12 13:30	Received: 0	1/24/12 15:21	Matrix: Solid	
Results reported on a "dry-weight"	basis							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS	Analytical	Method: NWTF	PH-Dx Preparation	Method: E	PA 3546			
Diesel Range	NI	D mg/kg	19.	5 1	01/25/12 13:45	01/25/12 19:1	8	
Motor Oil Range Surrogates	NI	D mg/kg	77.8	3 1	01/25/12 13:45	5 01/25/12 19:1	8 64742-65-0	
n-Octacosane (S)	8	0 %	50-150) 1	01/25/12 13:45	01/25/12 19:1	8 630-02-4	
o-Terphenyl (S)	8	7 %	50-150) 1	01/25/12 13:45	01/25/12 19:1	8 84-15-1	
NWTPH-Gx GCV	Analytical	Method: NWTF	PH-Gx Preparation	Method: N	IWTPH-Gx			
Gasoline Range Organics	NI	D mg/kg	6.0	5 1	01/25/12 13:32	2 01/25/12 17:1	1	

REPORT OF LABORATORY ANALYSIS

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Project: WA 11060
Pace Project No.: 2510622

Sample: SB-3-50	Lab ID: 25°	10622008	Collected: 01/24/1	2 13:30	Received: 01	/24/12 15:21 N	/latrix: Solid	
Results reported on a "dry-weight"	basis							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
NWTPH-Gx GCV	Analytical Me	thod: NWTPH	-Gx Preparation Me	ethod: N	IWTPH-Gx			
Surrogates								
a,a,a-Trifluorotoluene (S)	117 %		50-150	1		01/25/12 17:11		
4-Bromofluorobenzene (S)	108 %	ò	50-150	1	01/25/12 13:32	01/25/12 17:11	460-00-4	
6010 MET ICP	Analytical Me	thod: EPA 601	0 Preparation Meth	nod: EP	A 3050			
Lead	4.4 m	ng/kg	1.2	1	01/27/12 07:58	01/31/12 21:03	7439-92-1	
8260 MSV 5035A Med Level VOA	Analytical Me	thod: EPA 826	0 Preparation Meth	nod: EP	A 5035A/5030B			
Benzene	589 u	g/kg	33.1	1	01/31/12 00:00	01/31/12 20:31	71-43-2	
Surrogates Dibromofluoromethane (S)	100 %		75-116	1	04/24/42 00:00	01/31/12 20:31	1060 52 7	
Toluene-d8 (S)	99 %		75-116 74-124	1		01/31/12 20:31		
4-Bromofluorobenzene (S)	103 %		74-124	1		01/31/12 20:31		
1,2-Dichloroethane-d4 (S)	92 %		73-126 70-125	1		01/31/12 20:31		
1,2 Dichloroctharic u+ (c)	32 /	,	70-125	•	01/31/12 00:00	01/01/12 20:01	17000-07-0	
8260/5035A Volatile Organics	Analytical Me	thod: EPA 826	0					
Ethylbenzene	36.8 u	g/kg	3.5	1		01/26/12 14:59	100-41-4	
Methyl-tert-butyl ether	ND u	g/kg	3.5	1		01/26/12 14:59	1634-04-4	
Toluene	ND u	g/kg	3.5	1		01/26/12 14:59	108-88-3	
Xylene (Total)	ND u	g/kg	10.5	1		01/26/12 14:59	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	98 %	, D	72-129	1		01/26/12 14:59	1868-53-7	
Toluene-d8 (S)	100 %	, D	69-133	1		01/26/12 14:59	2037-26-5	
4-Bromofluorobenzene (S)	99 %	, D	67-142	1		01/26/12 14:59	460-00-4	
1,2-Dichloroethane-d4 (S)	97 %		67-136	1		01/26/12 14:59	17060-07-0	
Percent Moisture	Analytical Me	thod: ASTM D	2974-87					
Percent Moisture	20.7 %		0.10	1		01/25/12 16:51		

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Project: WA 11060 Pace Project No.: 2510622

QC Batch: GCV/2649 Analysis Method: NWTPH-Gx

QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx Solid GCV

Associated Lab Samples: 2510622004, 2510622005, 2510622006, 2510622007, 2510622008

METHOD BLANK: 100653 Matrix: Solid

Associated Lab Samples: 2510622004, 2510622005, 2510622006, 2510622007, 2510622008

Parameter	Units	Blank Units Result		Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	5.0	01/25/12 08:36	
4-Bromofluorobenzene (S)	%	106	50-150	01/25/12 08:36	
a,a,a-Trifluorotoluene (S)	%	109	50-150	01/25/12 08:36	

LABORATORY CONTROL SAMPLE: 100654

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	12.5	13.7	110	63-140	
4-Bromofluorobenzene (S)	%			111	50-150	
a,a,a-Trifluorotoluene (S)	%			114	50-150	

SAMPLE DUPLICATE: 100717

Parameter	Units	2510622005 Result	Dup Result	RPD	Qualifiers
Gasoline Range Organics	mg/kg	ND	6.4J		
4-Bromofluorobenzene (S)	%	112	109	3	
a,a,a-Trifluorotoluene (S)	%	117	115	2	

SAMPLE DUPLICATE: 100718

		2510601010	Dup		
Parameter	Units	Result	Result	RPD	Qualifiers
Gasoline Range Organics	mg/kg	2130	2280	7	
4-Bromofluorobenzene (S)	%	115	117	1	
a,a,a-Trifluorotoluene (S)	%	109	110	.8	

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Project: WA 11060 Pace Project No.: 2510622

QC Batch: MPRP/2768 Analysis Method: EPA 6010 QC Batch Method: EPA 3050 Analysis Description: 6010 MET Associated Lab Samples: 2510622004, 2510622005, 2510622006, 2510622007, 2510622008

METHOD BLANK: 100859 Matrix: Solid

Associated Lab Samples: 2510622004, 2510622005, 2510622006, 2510622007, 2510622008

Blank

Reporting

Parameter Result Limit Qualifiers Units Analyzed

Lead ND 1.0 01/30/12 17:05 mg/kg

LABORATORY CONTROL SAMPLE: 100860

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Lead mg/kg 25 23.5 80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 100861 100862

MS MSD 2510622004 Spike Spike MS MSD MS MSD % Rec Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD Qual 2.9 25.3 75-125 Lead mg/kg 25.3 24.5 27.6 86 98 12



Project: WA 11060 Pace Project No.: 2510622

QC Batch: MSV/6262 Analysis Method: EPA 8260

QC Batch Method: EPA 5035A/5030B Analysis Description: 8260 MSV 5035A Medium Soil

Associated Lab Samples: 2510622007, 2510622008

METHOD BLANK: 101281 Matrix: Solid

Associated Lab Samples: 2510622007, 2510622008

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
Benzene	ug/kg	ND ND	25.0	01/31/12 15:50	
Ethylbenzene	ug/kg	ND	50.0	01/31/12 15:50	
Methyl-tert-butyl ether	ug/kg	ND	50.0	01/31/12 15:50	
Toluene	ug/kg	ND	50.0	01/31/12 15:50	
Xylene (Total)	ug/kg	ND	150	01/31/12 15:50	
1,2-Dichloroethane-d4 (S)	%	92	70-125	01/31/12 15:50	
4-Bromofluorobenzene (S)	%	99	73-128	01/31/12 15:50	
Dibromofluoromethane (S)	%	98	75-116	01/31/12 15:50	
Toluene-d8 (S)	%	98	74-124	01/31/12 15:50	

LABORATORY CONTROL SAMPLE: 101282

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Benzene	ug/kg	1000	955	96	71-123	
Ethylbenzene	ug/kg	1000	955	96	71-123	
Methyl-tert-butyl ether	ug/kg	1000	797	80	68-133	
Toluene	ug/kg	1000	894	89	69-118	
Xylene (Total)	ug/kg	3000	2880	96	71-122	
1,2-Dichloroethane-d4 (S)	%			90	70-125	
4-Bromofluorobenzene (S)	%			92	73-128	
Dibromofluoromethane (S)	%			102	75-116	
Toluene-d8 (S)	%			93	74-124	

MATRIX SPIKE & MATRIX SP	IKE DUPLICAT	E: 10142	7		101428						
			MS	MSD							
	2	510718001	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
Benzene	ug/kg	ND	889	889	2340	2440	263	274	68-137	4 M	
Ethylbenzene	ug/kg	ND	889	889	2440	2470	274	278	64-136	1 M ²	
Methyl-tert-butyl ether	ug/kg	ND	889	889	1960	2010	220	226	62-146	3 M ²	
Toluene	ug/kg	ND	889	889	2290	2240	257	251	65-130	2 M	
Xylene (Total)	ug/kg	ND	2670	2670	7270	7450	272	279	63-134	2 M	
1,2-Dichloroethane-d4 (S)	%						91	92	70-125		
4-Bromofluorobenzene (S)	%						92	93	73-128		
Dibromofluoromethane (S)	%						101	102	75-116		
Toluene-d8 (S)	%						97	91	74-124		

Date: 02/07/2012 11:53 AM REPORT OF LABORATORY ANALYSIS



Project: WA 11060 Pace Project No.: 2510622

QC Batch: MSV/6299 Analysis Method: EPA 8260

QC Batch Method: EPA 5035A/5030B Analysis Description: 8260 MSV 5035A Medium Soil

Associated Lab Samples: 2510622004

METHOD BLANK: 101837 Matrix: Solid

Associated Lab Samples: 2510622004

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
Ethylbenzene	ug/kg	ND ND	50.0	02/05/12 05:41	
1,2-Dichloroethane-d4 (S)	%	92	70-125	02/05/12 05:41	
4-Bromofluorobenzene (S)	%	110	73-128	02/05/12 05:41	
Dibromofluoromethane (S)	%	101	75-116	02/05/12 05:41	
Toluene-d8 (S)	%	95	74-124	02/05/12 05:41	

LABORATORY CONTROL SAMPLE: 101838

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Ethylbenzene	ug/kg	1000	1010	101	71-123	
1,2-Dichloroethane-d4 (S)	%			88	70-125	
4-Bromofluorobenzene (S)	%			93	73-128	
Dibromofluoromethane (S)	%			98	75-116	
Toluene-d8 (S)	%			99	74-124	

MATRIX SPIKE & MATRIX SP	IKE DUPLICAT	E: 10198	5		101986						
	0.0	-10001002	MS	MSD	MC	MCD	MC	MCD	0/ Das		
	2:	510691003	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
Ethylbenzene	ug/kg	91.5	1150	1150	2120	1970	176	163	64-136	8 M	1
1,2-Dichloroethane-d4 (S)	%						84	85	70-125		
4-Bromofluorobenzene (S)	%						95	92	73-128		
Dibromofluoromethane (S)	%						96	95	75-116		
Toluene-d8 (S)	%						98	98	74-124		



Project: WA 11060 Pace Project No.: 2510622

QC Batch: MSV/6241 Analysis Method: EPA 8260

QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics

Associated Lab Samples: 2510622005, 2510622008

METHOD BLANK: 100748 Matrix: Solid

Associated Lab Samples: 2510622005, 2510622008

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
Benzene	ug/kg	ND ND	3.0	01/26/12 10:01	
Ethylbenzene	ug/kg	ND	3.0	01/26/12 10:01	
Methyl-tert-butyl ether	ug/kg	ND	3.0	01/26/12 10:01	
Toluene	ug/kg	ND	3.0	01/26/12 10:01	
Xylene (Total)	ug/kg	ND	9.0	01/26/12 10:01	
1,2-Dichloroethane-d4 (S)	%	107	67-136	01/26/12 10:01	
4-Bromofluorobenzene (S)	%	104	67-142	01/26/12 10:01	
Dibromofluoromethane (S)	%	102	72-129	01/26/12 10:01	
Toluene-d8 (S)	%	99	69-133	01/26/12 10:01	

LABORATORY CONTROL SAMPLE: 100749

		Spike	LCS	LCS	% Rec	0 ""
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Benzene	ug/kg	20	20.6	103	69-133	
Ethylbenzene	ug/kg	20	22.4	112	68-126	
Methyl-tert-butyl ether	ug/kg	20	22.8	114	67-134	
Toluene	ug/kg	20	20.6	103	68-130	
Xylene (Total)	ug/kg	60	69.1	115	68-126	
1,2-Dichloroethane-d4 (S)	%			98	67-136	
4-Bromofluorobenzene (S)	%			98	67-142	
Dibromofluoromethane (S)	%			101	72-129	
Toluene-d8 (S)	%			100	69-133	

MATRIX SPIKE & MATRIX SP	IKE DUPLICAT	E: 10133	6		101337						
			MS	MSD							
	2	510617002	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
Benzene	ug/kg	ND	23.2	22	21.6	20.1	93	91	40-129	7	
Ethylbenzene	ug/kg	ND	23.2	22	25.6	22.5	110	102	40-134	13	
Methyl-tert-butyl ether	ug/kg	ND	23.2	22	18.4	18.6	79	84	40-149	.8	
Toluene	ug/kg	ND	23.2	22	22.4	19.8	94	87	40-134	13	
Xylene (Total)	ug/kg	ND	69.8	66.1	74.0	65.2	106	99	40-129	13	
1,2-Dichloroethane-d4 (S)	%						77	88	67-136		
4-Bromofluorobenzene (S)	%						103	107	67-142		
Dibromofluoromethane (S)	%						89	97	72-129		
Toluene-d8 (S)	%						104	103	69-133		

Date: 02/07/2012 11:53 AM REPORT OF LABORATORY ANALYSIS



Project: WA 11060 Pace Project No.: 2510622

QC Batch: MSV/6253 Analysis Method: EPA 8260

QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics

Associated Lab Samples: 2510622004, 2510622006

METHOD BLANK: 100937 Matrix: Solid

Associated Lab Samples: 2510622004, 2510622006

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
Benzene	ug/kg	ND	3.0	01/27/12 17:45	
Ethylbenzene	ug/kg	ND	3.0	01/27/12 17:45	
Methyl-tert-butyl ether	ug/kg	ND	3.0	01/27/12 17:45	
Toluene	ug/kg	ND	3.0	01/27/12 17:45	
Xylene (Total)	ug/kg	ND	9.0	01/27/12 17:45	
1,2-Dichloroethane-d4 (S)	%	93	67-136	01/27/12 17:45	
4-Bromofluorobenzene (S)	%	106	67-142	01/27/12 17:45	
Dibromofluoromethane (S)	%	100	72-129	01/27/12 17:45	
Toluene-d8 (S)	%	94	69-133	01/27/12 17:45	

LABORATORY CONTROL SAMPLE: 100938

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/kg		15.4	77	69-133	
Ethylbenzene	ug/kg	20	16.8	84	68-126	
Methyl-tert-butyl ether	ug/kg	20	16.4	82	67-134	
Toluene	ug/kg	20	14.9	74	68-130	
Xylene (Total)	ug/kg	60	49.8	83	68-126	
1,2-Dichloroethane-d4 (S)	%			94	67-136	
4-Bromofluorobenzene (S)	%			99	67-142	
Dibromofluoromethane (S)	%			95	72-129	
Toluene-d8 (S)	%			99	69-133	

MATRIX SPIKE & MATRIX SP	IKE DUPLICAT	E: 10136	4	•	101365		•		•		•
			MS	MSD							
	2	510708001	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
Benzene	ug/kg	110	14	13.7	131	62.3	147	-349	40-129	71	D6,E,M1
Ethylbenzene	ug/kg	144	14	13.7	331	106	1340	-276	40-134	103	D6,E,M1
Methyl-tert-butyl ether	ug/kg	ND	14	13.7	10.2	10.8	72	79	40-149	6	
Toluene	ug/kg	11.2	14	13.7	26.2	13.1	107	14	40-134	67	D6,M1
Xylene (Total)	ug/kg	80.0	42.1	41.2	246	68.9	394	-27	40-129	112	D6,E,M1
1,2-Dichloroethane-d4 (S)	%						148	97	67-136		S0
4-Bromofluorobenzene (S)	%						196	133	67-142		S0
Dibromofluoromethane (S)	%						103	96	72-129		
Toluene-d8 (S)	%						670	214	69-133		S0

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Project: WA 11060 Pace Project No.: 2510622

QC Batch: OEXT/5015 Analysis Method: EPA 8270 by SIM

QC Batch Method: EPA 3546 Analysis Description: 8270/3546 MSSV PAH by SIM

Associated Lab Samples: 2510622006

METHOD BLANK: 100674 Matrix: Solid

Associated Lab Samples: 2510622006

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/kg	ND ND	6.7	01/26/12 18:36	
2-Methylnaphthalene	ug/kg	ND	6.7	01/26/12 18:36	
Acenaphthene	ug/kg	ND	6.7	01/26/12 18:36	
Acenaphthylene	ug/kg	ND	6.7	01/26/12 18:36	
Anthracene	ug/kg	ND	6.7	01/26/12 18:36	
Benzo(a)anthracene	ug/kg	ND	6.7	01/26/12 18:36	
Benzo(a)pyrene	ug/kg	ND	6.7	01/26/12 18:36	
Benzo(b)fluoranthene	ug/kg	ND	6.7	01/26/12 18:36	
Benzo(g,h,i)perylene	ug/kg	ND	6.7	01/26/12 18:36	
Benzo(k)fluoranthene	ug/kg	ND	6.7	01/26/12 18:36	
Chrysene	ug/kg	ND	6.7	01/26/12 18:36	
Dibenz(a,h)anthracene	ug/kg	ND	6.7	01/26/12 18:36	
Fluoranthene	ug/kg	ND	6.7	01/26/12 18:36	
Fluorene	ug/kg	ND	6.7	01/26/12 18:36	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	6.7	01/26/12 18:36	
Naphthalene	ug/kg	ND	6.7	01/26/12 18:36	
Phenanthrene	ug/kg	ND	6.7	01/26/12 18:36	
Pyrene	ug/kg	ND	6.7	01/26/12 18:36	
2-Fluorobiphenyl (S)	%	77	27-118	01/26/12 18:36	
Terphenyl-d14 (S)	%	83	28-125	01/26/12 18:36	

LABORATORY CONTROL SAMPLE: 10067	LABORATORY	ROL SAMPLE: 10	0675
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	.000.0					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1-Methylnaphthalene	ug/kg	133	110	83	39-110	
2-Methylnaphthalene	ug/kg	133	112	84	39-110	
Acenaphthene	ug/kg	133	112	84	39-111	
Acenaphthylene	ug/kg	133	105	79	37-110	
Anthracene	ug/kg	133	109	82	40-113	
Benzo(a)anthracene	ug/kg	133	109	82	42-122	
Benzo(a)pyrene	ug/kg	133	127	95	44-132	
Benzo(b)fluoranthene	ug/kg	133	124	93	40-124	
Benzo(g,h,i)perylene	ug/kg	133	118	88	39-122	
Benzo(k)fluoranthene	ug/kg	133	113	85	44-123	
Chrysene	ug/kg	133	132	99	42-120	
Dibenz(a,h)anthracene	ug/kg	133	124	93	40-122	
Fluoranthene	ug/kg	133	114	86	42-116	
Fluorene	ug/kg	133	121	91	41-112	
Indeno(1,2,3-cd)pyrene	ug/kg	133	123	92	39-124	
Naphthalene	ug/kg	133	114	85	36-110	
Phenanthrene	ug/kg	133	117	88	42-115	
Phenanthrene	ug/kg	133	117	88	42-115	

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Project: WA 11060 Pace Project No.: 2510622

LABORATORY CONTROL SAMPLE: 100675

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Pyrene	ug/kg	133	117	88	44-121	
2-Fluorobiphenyl (S)	%			75	27-118	
Terphenyl-d14 (S)	%			83	28-125	

MATRIX SPIKE & MATRIX S	PIKE DUPLICATI	E: 10067	6		100677				•	•	
			MS	MSD							
	25	10622008	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
1-Methylnaphthalene	ug/kg				135	131				3	
2-Methylnaphthalene	ug/kg				138	133				3	
Acenaphthene	ug/kg				131	128				2	
Acenaphthylene	ug/kg				122	117				4	
Anthracene	ug/kg				127	121				5	
Benzo(a)anthracene	ug/kg				118	118				.6	
Benzo(a)pyrene	ug/kg				131	136				4	
Benzo(b)fluoranthene	ug/kg				127	136				7	
Benzo(g,h,i)perylene	ug/kg				116	124				6	
Benzo(k)fluoranthene	ug/kg				115	120				4	
Chrysene	ug/kg				144	144				.5	
Dibenz(a,h)anthracene	ug/kg				119	128				7	
Fluoranthene	ug/kg				130	128				2	
Fluorene	ug/kg				139	132				5	
Indeno(1,2,3-cd)pyrene	ug/kg				117	126				7	
Naphthalene	ug/kg				151	146				3	
Phenanthrene	ug/kg				141	136				4	
Pyrene	ug/kg				137	135				2	
2-Fluorobiphenyl (S)	%						72	70	27-118	}	
Terphenyl-d14 (S)	%						72	73	28-125	i	



Project: WA 11060 Pace Project No.: 2510622

QC Batch: OEXT/5014 Analysis Method: NWTPH-Dx
QC Batch Method: EPA 3546 Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 2510622004, 2510622005, 2510622006, 2510622007, 2510622008

METHOD BLANK: 100650 Matrix: Solid

Associated Lab Samples: 2510622004, 2510622005, 2510622006, 2510622007, 2510622008

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
Diesel Range	mg/kg	ND	16.0	01/25/12 17:36	
Motor Oil Range	mg/kg	ND	64.0	01/25/12 17:36	
n-Octacosane (S)	%	87	50-150	01/25/12 17:36	
o-Terphenyl (S)	%	92	50-150	01/25/12 17:36	

LABORATORY CONTROL SAMPLE: 100651

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/kg	400	361	90	70-111	
Motor Oil Range	mg/kg	400	345	86	73-118	
n-Octacosane (S)	%			84	50-150	
o-Terphenyl (S)	%			92	50-150	

SAMPLE DUPLICATE: 100652

		2510622005	Dup		
Parameter	Units	Result	Result	RPD	Qualifiers
Diesel Range	mg/kg	ND ND	ND		
Motor Oil Range	mg/kg	ND	ND		
n-Octacosane (S)	%	85	84	2	
o-Terphenyl (S)	%	91	91	1	





Project: WA 11060 Pace Project No.: 2510622

QC Batch: PMST/1946 Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 2510622004, 2510622005, 2510622006, 2510622007, 2510622008

SAMPLE DUPLICATE: 100694

 Parameter
 Units
 2510622005 Result
 Dup Result
 RPD
 Qualifiers

 Percent Moisture
 %
 17.7
 18.4
 4

Date: 02/07/2012 11:53 AM



QUALIFIERS

Project: WA 11060 Pace Project No.: 2510622

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.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

Date: 02/07/2012 11:53 AM

D6	The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.
Е	Analyte concentration exceeded the calibration range. The reported result is estimated.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
S0	Surrogate recovery outside laboratory control limits.
S2	Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).
S5	Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WA 11060 Pace Project No.: 2510622

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2510622004	SB-2-20	EPA 3546	OEXT/5014	NWTPH-Dx	GCSV/3268
2510622005	SB-2-35	EPA 3546	OEXT/5014	NWTPH-Dx	GCSV/3268
2510622006	SB-3-10	EPA 3546	OEXT/5014	NWTPH-Dx	GCSV/3268
2510622007	SB-3-20	EPA 3546	OEXT/5014	NWTPH-Dx	GCSV/3268
2510622008	SB-3-50	EPA 3546	OEXT/5014	NWTPH-Dx	GCSV/3268
2510622004	SB-2-20	NWTPH-Gx	GCV/2649	NWTPH-Gx	GCV/2650
2510622005	SB-2-35	NWTPH-Gx	GCV/2649	NWTPH-Gx	GCV/2650
2510622006	SB-3-10	NWTPH-Gx	GCV/2649	NWTPH-Gx	GCV/2650
2510622007	SB-3-20	NWTPH-Gx	GCV/2649	NWTPH-Gx	GCV/2650
2510622008	SB-3-50	NWTPH-Gx	GCV/2649	NWTPH-Gx	GCV/2650
2510622004	SB-2-20	EPA 3050	MPRP/2768	EPA 6010	ICP/2608
2510622005	SB-2-35	EPA 3050	MPRP/2768	EPA 6010	ICP/2608
2510622006	SB-3-10	EPA 3050	MPRP/2768	EPA 6010	ICP/2608
2510622007	SB-3-20	EPA 3050	MPRP/2768	EPA 6010	ICP/2608
2510622008	SB-3-50	EPA 3050	MPRP/2768	EPA 6010	ICP/2608
2510622006	SB-3-10	EPA 3546	OEXT/5015	EPA 8270 by SIM	MSSV/1923
2510622004	SB-2-20	EPA 5035A/5030B	MSV/6299	EPA 8260	MSV/6314
2510622007	SB-3-20	EPA 5035A/5030B	MSV/6262	EPA 8260	MSV/6283
2510622008	SB-3-50	EPA 5035A/5030B	MSV/6262	EPA 8260	MSV/6283
2510622004	SB-2-20	EPA 8260	MSV/6253		
2510622005	SB-2-35	EPA 8260	MSV/6241		
2510622006	SB-3-10	EPA 8260	MSV/6253		
2510622008	SB-3-50	EPA 8260	MSV/6241		
2510622004	SB-2-20	ASTM D2974-87	PMST/1946		
2510622005	SB-2-35	ASTM D2974-87	PMST/1946		
2510622006	SB-3-10	ASTM D2974-87	PMST/1946		
2510622007	SB-3-20	ASTM D2974-87	PMST/1946		
2510622008	SB-3-50	ASTM D2974-87	PMST/1946		

CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

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H H H H H H H H H H H H H H H H H H H	sair or 1	MATRIX CODE	SAMPLE TYPE	of blow	de alg	Mis (4)	deng m	SAMPLE TEMP	OF C	Unpreserved	0 0	NaOH	Na ₂ S ₂ O ₃	Methanol	Analysis	2	34	A	100		Samo	sidt	10425			
		Σ	'S	DATE	TIME	DATE	TIME	/S	#	2 I	T :	ΙŻ	ž :	20	=	00	Y	1	19	dr gr	101 21 31	, a	Pac	e Project	No./ Lab I.D.	
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2 513-2-11			-	Georges.	1 (1870)		1023							100			A E	223	X		7 3		11 75 41	30.191		
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ADDITIONAL COMMENTS		W. Carlotte		ISHED BY /	AFFILIAT	TON	DATE			IME	_		ACCI	EPTE	D BY /	AFFI	LIATIO	N	1	DATE	TIME		SAMI	PLE CONDI	TIONS	
Hold PAH Pending	S	al	M	m	10	S	1-241	12	15	21	1	40.	thy	5	Da	7/1	A (F	1/2	4/12	1521	5.3	4	4	4	
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Topic tributes and the state of	110		K WOLL		25017	Seat Caper			13	244		mail		OCT TO				17 134	10			111111	the late			
ORIGINAL SAMPLER NAME AND SIGNATUR						TURE														ů	uo (oler	itact			
PRINT Name of SAMPLER:																		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)					
						SIGNATUR	E of SAMPL	LeRa	ge 3	0 of 4	12						E Sign					Ten	Rec	Seale	Samp	

Sample Container Count

CLIENT: Acadis

2510622

Pace Analytical"

Trip Blank(s) Provided?

Sample Line Item	VC0H	۸ C 1H	۸ G 111	RD1II	RD2H	BD311	RD3N	RD3S	WGKII	WGFU	WG2H	DG9M	DGOR	\/Ga\//	VSG			Comments
Line item	1	AGIII	AGIO	DI 10	DI 20	DI 30	DI 314	DI 30	I		1)	T o	10 14	5 /	T	T	Comments
1										12			2	IV	3 1/24			
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4										2								
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7										ľ	1	1	2	2				
. 8											1	1	2	2				
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	1	Wipe/Swab	U	Summa Can

Sample Condition Upon Receipt 25 10622 Pace Analytical Client Name: Project # Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other Tracking #: Seals intact: Yes Custody Seal on Cooler/Box Present: Yes □ No Bubble Bags None Other fram kits Temp. Blank (res) Packing Material: Bubble Wrap Samples on ice, cooling process has begun 132013 or (01731962 or 226099 Type of Ice: Wet Blue None Thermometer Used Date and Initials of person examining Biological Tissue is Frozen: Yes No contents: 01/24/12 Cooler Temperature Comments: Temp should be above freezing ≤ 6 °C ØYes □No □N/A Chain of Custody Present: Yes DNo □N/A Chain of Custody Filled Out: ØYes □No □N/A 3 Chain of Custody Relinquished: Sampler Name & Signature on COC: ☑Yes ☐No □N/A DYes DNo □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: DxMyest DNo Follow Up / Hold Analysis Requested: □N/A ☑Yes □No □N/A Sufficient Volume: ØYes □No □N/A 10. Correct Containers Used: ØYes □No □N/A -Pace Containers Used: ØYes □No □N/A Containers Intact: □Yes □No DN/A 12. Filtered volume received for Dissolved tests Sample Labels match COC: □Yes □Np □N/A 13. Dil -Includes date/time/ID/Analysis All containers needing preservation have been checked. □Yes □No D/N/A All containers needing preservation are found to be in □Yes □No □N/A compliance with EPA recommendation. Lot # of added Initial when completed preservative Exceptions: VOA, coliform, TOC, O&G □Yes □No DN/A Samples checked for dechlorination: 15. □Yes □No □N/A 16. Headspace in VOA Vials (>6mm): □Yes □No □N/A 17. Trip Blanks Present: □Yes □No □N/A

Client Notification/ Resolution:		Field Data Required? Y / N
Person Contacted:	Date/Time:	
Comments/ Resolution:		
	2.27	
	1 0 2 2	
Project Manager Review:	((IRB	Date: 1/25/12

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)

Trip Blank Custody Seals Present Pace Trip Blank Creation Date:



February 1, 2012

Andy Brownfield Pace Analytical 940 S. Harney Street Seattle, WA 98108

RE: Client Project: WA 11060, 2510622

ARI Job No.: UF24

Dear Andy:

Please find enclosed the original Chain of Custody (COC) record, sample receipt documentation, and final analytical results for samples from the project referenced above. Analytical Resources Inc. (ARI) accepted five solid samples on January 25, 2012. For further details regarding sample receipt, please refer to the enclosed Cooler Receipt Form.

The samples were analyzed for Grain Size, as requested. Details regarding this analysis can be found in the Geotechnical Case Narrative.

An electronic copy of this report as well as all supporting raw data will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Cheronne Oreiro
Project Manager
206-695-6214
cheronneo@arilabs.com
www.arilabs.com

Enclosures

cc: eFile UF24

5	Chain of Custody —			けつ	UF 24		Face Analytical www.pacelabs.com
Worke	Workorder: 2510622 Wor	Workorder Name: W/	WA 11060		Results Requested	seted 2/7/2012 Requested Analysis	
Andy B Pace Al 940 So Seattle, Phone (Andy Brownfield Pace Analytical Seattle 940 South Hamey Seattle, Wa 98108 Phone (206)767-5060 Email: andy.brownfield@pacelabs.com		=	P.O.	sistanti ses		
Item	Sample ID	Collect Date/Time	LabiD	peviesendr Deviesendr	marg.		
_	SB-2-10	1/24/2012 10:20	2510622001	Solid	7		
3 2	SB-2-11 SB-2-15	1/24/2012 10:20	2510622002 2510622003	Solid /	4 4		
4	SB-2-20	1/24/2012 10:28	2510622004	Solid	χ		***************************************
5	SB-2-35	1/24/2012 10:45	2510622005	Solid	X		
Transfore	Released Rv	Date/Time	m Received By	18v	Date/Time	Comments	
_		1/25/1	0927	Tay (co Shecker	1512 1020		
2							
3							
4							
2		444					



Cooler Receipt Form

ARI Client: Pace		Project Name:	WA 1106	6	
COC No(s):	NA	Delivered by: Fed-Ex UP	S Courier Hand Deliv	ered Other	
	FZU	Tracking No:		•	NA
Preliminary Examination Phase:					
Were intact, properly signed and dated	custody seals attached to	o the outside of to cooler?		YES	(NO)
Were custody papers included with the				YES	NO
Were custody papers properly filled out				(YES)	NO
Temperature of Cooler(s) (°C) (recomm		<			NO
			Tomp Cup IF	#: GO 9411	610
If cooler temperature is out of complian	11	1 54.12			101
Cooler Accepted by:		Date: 1-2512			
	omplete custody forms	and attach all shipping docur	nents	· · · · · · · · · · · · · · · · · · ·	
Log-In Phase:					
Was a temperature blank included in th	e cooler?			YES	(MO)
What kind of packing material was us	ed? Bubble Wra	p Wet/Ice Gel Packs Baggies	Foam Block Paper	Other:	
Was sufficient ice used (if appropriate)?	· · · · · · · · · · · · · · · · · · ·		NA	(Es)	NO
Were all bottles sealed in individual pla	stic bags?			YES	NO
Did all bottles arrive in good condition ((ES	NO
Were all bottle labels complete and legi				YES	NO
Did the number of containers listed on			•	YEs)	NO
Did all bottle labels and tags agree with	custody papers?		•••••	YES	NO
Were all bottles used correct for the rec				(ES)	NO
Do any of the analyses (bottles) require			\sim)	YES	NO
Were all VOC vials free of air bubbles?	*************		ŅΑ	YES	NO
Was sufficient amount of sample sent in				YE8	NO
Date VOC Trip Blank was made at ARI			^		
1		Equipment:	- 70. AM	Split by:	
	77	1 or Car 1 kg	111	C_1	
Samples Logged by:	Date	e:	Fime:		
	** Notify Project Manag	er of discrepancies or concer	ns **		
					····
Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Samp	le ID on COC	
	·				
Additional Notes, Discrepancies, & I	Resolutions:				
By: Date: Small Air Bubbles Peabubbles'	LARGE Air Bubbles	Small → "sm"			
-2mm 2-4 mm	LARGE AT SUDDIES > 4 mm	Peabubbles → "pb"			-
• . • . • . •		Large → "lg"			
Annual control of the second control of the		Headspace → "hs"			

0016F 3/2/10 Cooler Receipt Form

Revision 014

Sample ID Cross Reference Report



ARI Job No: UF24

Client: Pace Analytical Project Event: 2510622 Project Name: WA 11060

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	SB-2-10	UF24A	12-927	Soil	01/24/12 10:20	01/25/12 10:20
2.	SB-2-11	UF24B	12-928	Soil	01/24/12 10:20	01/25/12 10:20
3.	SB-2-15	UF24C	12-929	Soil	01/24/12 10:23	01/25/12 10:20
4.	SB-2-20	UF24D	12-930	Soil	01/24/12 10:28	01/25/12 10:20
5.	SB-2-35	UF24E	12-931	Soil	01/24/12 10:45	01/25/12 10:20

Printed 01/25/12

Page 36 of 42

UF24:00004

Client: Pace Analytical ARI Job No.: UF24

Client Project: WA 11060 Client Project No.: 2510622

Case Narrative

1. Five samples were submitted for analysis on January 25, 2012, and were in good condition.

2. The samples were submitted for grain size distribution according to ASTM D422. The samples were prepared according to ASTM D421.

3. An assumed specific gravity of 2.65 was used in the hydrometer calculations.

4. A standard milkshake mixer type device was used to disperse the fine fraction sample.

5. One sample from another job was chosen for triplicate analysis. The triplicate data can be found on the QA summary table.

6. The data is provided in summary tables and plots.

7. There were no further anomalies in the samples or test method.

Released by: Steeling Date: 2/1/12

Title: Geotechnical Division Manager

Reviewed by: Date: 2.1.2012

Title: Lead Technician

Pace Analytical 2510622 WA 11060

2,	1 1/2"	-	3/4"	1/2"	3/8"	#4 (4750)	#10 (2000)	#20 (850)	#40 (425)	#60 (250)	#100 (150)	#200 (75)	32	22	13	6	7	3.2	1.3
100.0	100.0	_	100.0	100.0	100.0	100.0	6.66	99.2	96.5	6.98	76.2	63.0	45.2	36.4	28.9	23.9	17.6	10.0	5.6
100.0	100.0	100.0	100.0	100.0	100.0	100.0	8.66	99.1	96.2	86.8	76.8	64.3	44.5	35.7	28.8	23.2	17.5	10.0	5.6
100.0	100.0	100.0	100.0	100.0	100.0	100.0	6.66	99.3	96.4	82.8	75.5	62.3	43.2	35.7	28.2	23.8	17.5	10.6	6.3
100.0	100.0	-	100.0	100.0	100.0	94.4	86.3	79.8	72.0	63.3	57.1	53.1	48.6	46.2	41.4	36.6	33.6	24.6	14.4
100.0	100.0	├	100.0	100.0	100.0	98.7	95.7	88.8	75.5	54.1	41.5	35.7	32.2	28.6	23.7	21.3	18.2	14.0	7.3
100.0	100.0	\vdash	100.0	97.1	97.1	93.7	8.06	87.1	82.0	75.2	67.5	57.3	42.4	37.4	31.2	27.3	24.0	17.8	10.0
100.0	100.0	╌	100.0	100.0	98.0	97.1	92.6	93.5	85.4	9:59	48.9	37.0	24.9	20.2	13.6	10.8	8.0	5.2	2.3
100.0	100.0		100.0	100.0	100.0	100.0	100.0	100.0	100.0	8.66	99.7	98.3	26.7	36.5	24.1	18.2	14.3	10.4	5.2
		1 1/2" 100.0 100.0 100.0 100.0 100.0 100.0	100.0 100.0	1 1/2" 1" 3/4" 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0	1 1/2" 1" 3/4" 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0	1 1/2" 1" 3/4" 1/2" 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 97.1 100.0 100.0 100.0 100.0	1 1/2" 1" 3/4" 1/2" 3/8" 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0	1 1/2" 1" 3/4" 1/2" 3/8" #4 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 34.4 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 38.7 1 00.0 1 00.0 1 00.0 1 00.0 37.1 33.7 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 37.1 1 00.0	1 1/2" 1" 3/4" 1/2" 3/8" #4 #10 #4 #10 100.0 100.0 100.0 100.0 100.0 2000) 100.0 100.0 100.0 100.0 100.0 99.8 100.0 100.0 100.0 100.0 100.0 99.4 86.3 100.0 100.0 100.0 100.0 94.4 86.3 100.0 100.0 100.0 100.0 98.7 95.7 100.0 100.0 97.1 97.1 97.1 95.6 100.0 100.0 100.0 98.0 97.1 95.6 100.0 100.0 100.0 100.0 100.0 100.0	1 1/2" 1" 3/4" 1/2" 3/8" #4 #10 #20 #20 1 00.0 100.0 100.0 100.0 100.0 100.0 650) 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 69.9 99.2 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 69.9 99.1 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 99.8 99.1 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 99.4 86.3 79.8 1 00.0 1 00.0 1 00.0 1 00.0 99.7 99.7 88.8 1 00.0 1 00.0 97.1 97.1 99.7 90.8 87.1 1 00.0 1 00.0 1 00.0 98.0 97.1 95.6 93.5 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0 1 00.0	1 1/2" 1" 3/4" 1/2" 3/8" #4 #10 #20 #40 100.0 10.0 1/2" 3/8" (4750) (2000) (850) #40 100.0 100.0 100.0 100.0 100.0 100.0 99.9 99.2 96.5 100.0 100.0 100.0 100.0 100.0 99.8 99.1 96.2 100.0 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Testing performed according to ASTM D421/D422

UF24:00006

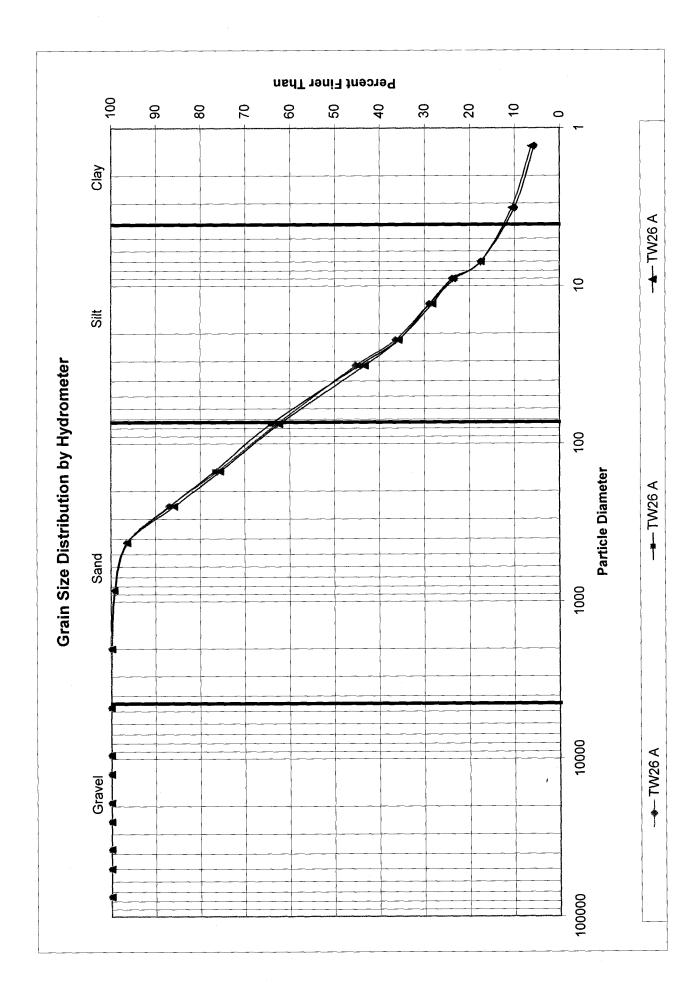
UF 24:00007

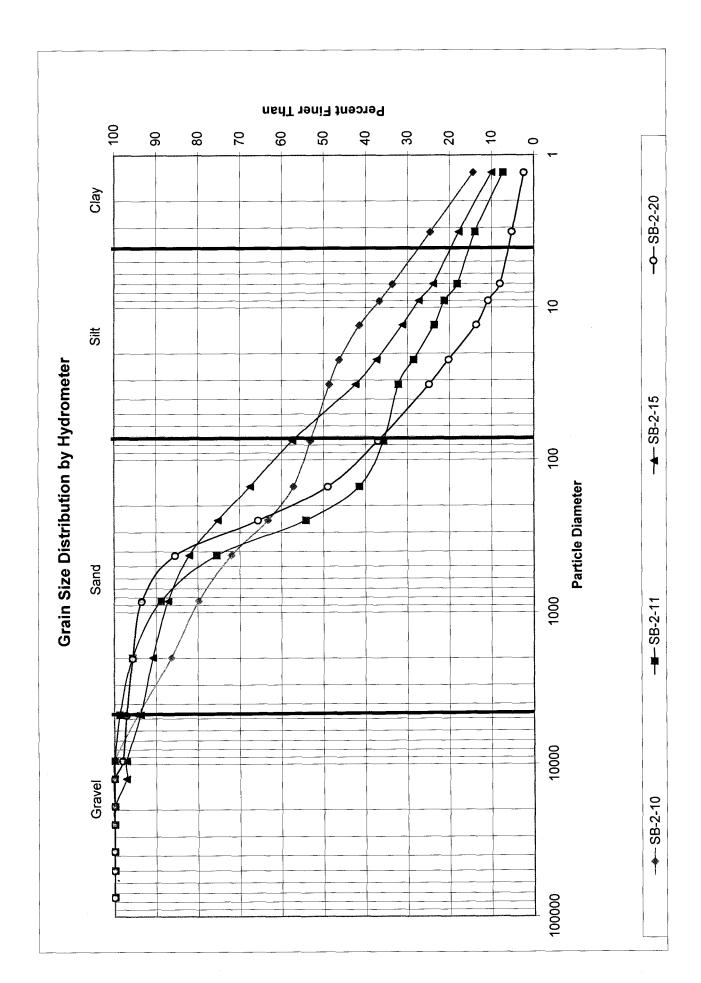
Pace Analytical 2510622 WA 11060

1					_			_		_	
	Slay	۸ 5.	5.6	5.6	6.3	14.4	7.3	10.0	2.3	5.2	
	% Clay	3.2-1.3	4.4	4.4	4.4	10.2	6.7	7.8	2.8	5.2	
	% Very Fine Silt	7-3.2	7.5	7.5	6.9	9.0	4.3	6.1	2.8	3.9	
I	% Fine Silt	9-7	6.3	5.6	6.3	3.0	3.0	3.3	2.8	3.9	
	% Fine Silt	13-9	5.0	5.6	4.4	4.8	2.4	3.9	2.8	5.9	
	% Medium Silt	22-13	7.5	6.9	7.5	4.8	4.9	6.1	9.9	12.4	
	% Coarse Silt	32-22	8.8	8.8	7.5	2.4	3.6	5.0	4.7	20.2	
	% Very Coarse Silt	75-32	17.8	19.8	19.1	4.4	3.5	15.0	12.1	41.6	
	q	150-75	13.2	12.5	13.2	4.1	5.8	10.2	12.0	1.4	
5	% Fine Sand	250-150	10.8	10.1	10.3	6.1	12.7	7.7	16.7	0.2	
Percent Retained in Each Size Fraction	%	425-250	9.6	9.4	10.6	8.7	21.4	6.8	19.8	0.1	
ed in Each	m Sand	850-425	2.7	2.9	2.9	7.8	13.3	5.1	8.0	0.0	
ent Retain	% Medium Sand	2000-850	8.0	7.0	9.0	6.5	8.9	3.7	2.2	0.0	
Perc	% Coarse Sand	4750- 2000	0.1	0.2	0.1	8.0	3.0	2.9	1.5	0.0	
		3/8"-4750	0.0	0.0	0.0	5.6	1.3	3.4	1.0	0.0	
	% Gravel	1/2-3/8"	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	
		3/4-1/2"	0:0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	
		1-3/4"	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ı İ
	e Gravel	1 1/2"-1"	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	%Coarse Gravel	2-1 1/2"	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
		3-2"	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Description	Particle Size (microns)		TW26 A		SB-2-10	SB-2-11	SB-2-15	SB-2-20	J. SB-2-35	ige 39 of 42

0.12									
1.57	ı								
1.12 1.35		Data Qualifiers							
1.12		Data Q							
1.56 2.27		Date Complete	11/22/2011	1/22/2011	1/22/2011	1/31/2012	1/31/2012	1/31/2012	1/31/2012
1.56		Date (11/2	11/2	11/2	1/3	1/3	1/3.	1/3
0.83	ng Samples	arted	2011	2011	2011	1012	012	1012	012
0.74	the Followir	Date Started	11/17/2011	11/17/2011	11/17/2011	1/30/2012	1/30/2012	1/30/2012	1/30/2012
0.08 0.12	the Batch Containing	Date Set up	11/16/2011	11/16/2011	11/16/2011	1/26/2012	1/26/2012	1/26/2012	1/26/2012
0.00 0.06	This Triplicate applies to the Batch Containing the Following Samples	Date Sampled	10/31/2011	10/31/2011	10/31/2011	1/24/2012	1/24/2012	1/24/2012	1/24/2012
0.00 0.00	L	Sample ID		TW26 A		SB-2-10	SB-2-11	SB-2-15	SB-2-20
0.00	i			_					

5.6 6.3 6.10 6.10





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February 09, 2012

Scott Zorn Arcadis U.S., Inc. 2300 Eastlake Ave E. Ste. 200 Seattle, WA 98102

RE: Project: WA 11060

Pace Project No.: 2510642

Dear Scott Zorn:

Enclosed are the analytical results for sample(s) received by the laboratory on January 25, 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.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

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

Sincerely,

Andy Brownfield

Andy Brownfield

andy.brownfield@pacelabs.com Project Manager

Enclosures

cc: Alan Kahal, Arcadis U.S., Inc. David Rasar, Arcadis U.S., Inc. Rick Rodriguez, Arcadis U.S., Inc.







CERTIFICATIONS

Project: WA 11060 Pace Project No.: 2510642

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

(206)767-5060



SAMPLE ANALYTE COUNT

Project: WA 11060 Pace Project No.: 2510642

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2510642001	SB-4-15'	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	CC	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LPM	9	PASI-S
		ASTM D2974-87	EED	1	PASI-S
2510642002	SB-4-20'	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	CC	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LPM	9	PASI-S
		ASTM D2974-87	EED	1	PASI-S
2510642003	SB-4-35'	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	CC	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LPM	9	PASI-S
		ASTM D2974-87	EED	1	PASI-S
2510642004	EW-3-15'	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	CC	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LPM	9	PASI-S
		ASTM D2974-87	EED	1	PASI-S
2510642005	EW-3-20'	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	CC	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LNH	7	PASI-S
		EPA 8260	LPM	6	PASI-S
		ASTM D2974-87	EED	1	PASI-S
2510642006	EW-3-30'	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	CC	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LPM	9	PASI-S
		ASTM D2974-87	EED	1	PASI-S
2510642008	DUP-2	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	CC	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LNH	7	PASI-S
		EPA 8260	LPM	6	PASI-S
		ASTM D2974-87	EED	1	PASI-S

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: WA 11060 Pace Project No.: 2510642

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2510642009	EW-1-15'	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	CC	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LNH	9	PASI-S
		ASTM D2974-87	EED	1	PASI-S
2510642010	Trip Blank	NWTPH-Gx	CC	3	PASI-S
		EPA 8260	LPM	9	PASI-S



Project: WA 11060 Pace Project No.: 2510642

Method:NWTPH-DxDescription:NWTPH-Dx GCSClient:Arcadis U.S., Inc.Date:February 09, 2012

General Information:

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

Hold Time:

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

Sample Preparation:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

Duplicate Sample:

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

Additional Comments:



Project: WA 11060 Pace Project No.: 2510642

Method:NWTPH-GxDescription:NWTPH-Gx GCVClient:Arcadis U.S., Inc.Date:February 09, 2012

General Information:

9 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.

QC Batch: GCV/2651

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

- DUP-2 (Lab ID: 2510642008)
 - 4-Bromofluorobenzene (S)
- EW-1-15' (Lab ID: 2510642009)
 - 4-Bromofluorobenzene (S)
- SB-4-15' (Lab ID: 2510642001)
 - 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:

REPORT OF LABORATORY ANALYSIS

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Project: WA 11060
Pace Project No.: 2510642

Method:EPA 6010Description:6010 MET ICPClient:Arcadis U.S., Inc.Date:February 09, 2012

General Information:

8 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:



Project: WA 11060 Pace Project No.: 2510642

Method: EPA 8260

Description: 8260 MSV 5035A Med Level VOA

Client: Arcadis U.S., Inc.

Date: February 09, 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.

Sample Preparation:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

QC Batch: MSV/6299

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

- EW-1-15' (Lab ID: 2510642009)
 - Toluene-d8 (S)

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

QC Batch: MSV/6262

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2510718001

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

- MS (Lab ID: 101427)
 - Ethylbenzene
 - Toluene
 - Xylene (Total)
- MSD (Lab ID: 101428)
 - Ethylbenzene

REPORT OF LABORATORY ANALYSIS

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Project: WA 11060 Pace Project No.: 2510642

Method: EPA 8260

Description: 8260 MSV 5035A Med Level VOA

Client: Arcadis U.S., Inc.

Date: February 09, 2012

QC Batch: MSV/6262

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2510718001

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

• Toluene

· Xylene (Total)

QC Batch: MSV/6299

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2510691003

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

- MS (Lab ID: 101985)
 - Benzene
 - Ethylbenzene
 - Toluene
 - Xylene (Total)
- MSD (Lab ID: 101986)
 - Benzene
 - Ethylbenzene
 - Toluene
 - Xylene (Total)

Duplicate Sample:

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

Additional Comments:





Project: WA 11060 Pace Project No.: 2510642

Method: EPA 8260

Description: 8260/5035A Volatile Organics

Client: Arcadis U.S., Inc.

Date: February 09, 2012

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

QC Batch: MSV/6241

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

- DUP-2 (Lab ID: 2510642008)
 - 4-Bromofluorobenzene (S)
 - Toluene-d8 (S)
- EW-3-20' (Lab ID: 2510642005)
 - 4-Bromofluorobenzene (S)
 - Toluene-d8 (S)

QC Batch: MSV/6253

S0: Surrogate recovery outside laboratory control limits.

- MS (Lab ID: 101364)
 - 1,2-Dichloroethane-d4 (S)
 - 4-Bromofluorobenzene (S)
 - Toluene-d8 (S)
- MSD (Lab ID: 101365)
 - Toluene-d8 (S)

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

REPORT OF LABORATORY ANALYSIS

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Project: WA 11060
Pace Project No.: 2510642

Method: EPA 8260

Description: 8260/5035A Volatile Organics

Client: Arcadis U.S., Inc.

Date: February 09, 2012

QC Batch: MSV/6253

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2510708001

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

• MS (Lab ID: 101364)

- Benzene
- Ethylbenzene
- · Xylene (Total)
- MSD (Lab ID: 101365)
 - Benzene
 - Ethylbenzene
 - Toluene
 - Xylene (Total)

Duplicate Sample:

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

Additional Comments:

Analyte Comments:

QC Batch: MSV/6253

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 101364)
 - Benzene
 - Ethylbenzene
 - Xylene (Total)
- MSD (Lab ID: 101365)
 - Ethylbenzene

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



Project: WA 11060 Pace Project No.: 2510642

Date: 02/09/2012 02:10 PM

Parameters	Sample: SB-4-15'	Lab ID· 2	2510642001	Collected: 01/	25/12 08:2	5 Received: 0	1/25/12 16:06	Matrix: Solid	
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546 Diesal Range ND mg/kg 17.0 1 01/26/12 12:30 01/26/12 18:59 ND mg/kg 68.2 1 01/26/12 12:30 01/26/12 18:59 ND mg/kg 68.2 1 01/26/12 12:30 01/26/12 18:59 ND mg/kg 68.2 1 01/26/12 12:30 01/26/12 18:59 ND mg/kg 68.2 1 01/26/12 12:30 01/26/12 18:59 ND mg/kg ND mg/kg 68.2 1 01/26/12 12:30 01/26/12 18:59 ND mg/kg ND m	•			2223.04. 01/	_5, 00.20		5, 10.00		
Diesel Range ND mg/kg 17.0 1 01/26/12 12:30 01/26/12 18:59 Motor Oil Range ND mg/kg 68.2 1 01/26/12 12:30 01/26/12 18:59 64742-65-0 Surrogates 1 01/26/12 14:49 01/27/12 16:05 Surrogates 1 01/27/12 18:26 Surrogates 1 01/26/12 18:18 Surrogates 1 01/26/12 18:28 Surrogates 1 01/26/12 18:29 Surrogates 1 01/26/12 18:29 Surrogates 1 01/26/12 18:29 Surrogates 1 01/26/12 18:30 Surrogates 1 01			Units	Report Lim	nit DF	Prepared	Analyzed	CAS No.	Qual
Motor Oil Range	NWTPH-Dx GCS	Analytical M	/lethod: NWTP	H-Dx Preparatio	n Method: I	EPA 3546			
Surrogates 93 % 50-150 1 01/26/12 12:30 01/26/12 18:59 630-02-4 0-Terphenyl (S) 93 % 50-150 1 01/26/12 12:30 01/26/12 18:59 84-15-1 NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx GCV Analytical Method: NWTPH-Gx GCV Analytical Method: NWTPH-Gx GCV Analytical Method: NWTPH-Gx GCV Analytical Method: NWTPH-Gx GCV Analytical Method: NWTPH-Gx GCV Analytical Method: NWTPH-Gx GCV Analytical Method: Description of the control of the cont	Diesel Range	ND	mg/kg	13	7.0 1	01/26/12 12:30	01/26/12 18:59	9	
o-Terphenyl (S) 93 % 50-150 1 01/26/12 12:30 01/26/12 18:59 84-15-1 NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx Gasoline Range Organics 109 mg/kg 5.6 1 01/26/12 14:49 01/27/12 16:05 Surrogates a.a.a-Tifluorotoluene (S) 107 % 50-150 1 01/26/12 14:49 01/27/12 16:05 98-08-8 4-Bromofluorobenzene (S) 227 % 50-150 1 01/26/12 14:49 01/27/12 16:05 98-08-8 4-Bromofluorobenzene (S) 227 % 50-150 1 01/26/12 14:49 01/27/12 16:05 98-08-8 4-Bromofluorobenzene (S) 227 % 50-150 1 01/26/12 14:49 01/27/12 16:05 98-08-8 4-Bromofluorobenzene (S) 227 % 50-150 1 01/26/12 14:49 01/27/12 16:05 98-08-8 4-Bromofluorobenzene (S) 227 % 50-150 1 01/26/12 14:49 01/27/12 16:05 98-08-8 4-Bromofluorobenzene (S) 10.0 mg/kg 0.74 1 01/27/12 07:58 01/31/12 21:11 7439-92-1 82605035A Volatile Organics Analytical Method: EPA 8260 Benzene ND ug/kg 3.1 1 01/27/12 18:26 100-41-4 Mg/hy-tert-butyl ether ND ug/kg 3.1 1 01/27/12 18:26 100-41-4 Mg/hy-tert-butyl ether ND ug/kg 3.1 1 01/27/12 18:26 100-41-4 Mg/hy-tert-butyl ether ND ug/kg 3.1 1 01/27/12 18:26 108-88-3 Xylene (Totals) ND ug/kg 3.1 1 01/27/12 18:26 108-88-3 Surrogates NDibromofluoromethane (S) 10.2 % 72-129 1 01/27/12 18:26 108-88-3 Surrogates NDibromofluoromethane (S) 10.2 % 72-129 1 01/27/12 18:26 1030-20-7 Surrogates NDibromofluoromethane (S) 10.3 % 67-136 1 01/27/12 18:26 460-00-4 1,2-Dichloroethane-d4 (S) 10.3 % 67-136 1 01/27/12 18:26 460-00-4 1,2-Dichloroethane-d4 (S) 10.3 % 67-136 1 01/27/12 18:26 460-00-4 1,2-Dichloroethane-d4 (S) 10.3 % 67-136 1 01/26/12 18:18 Matrix: Solid Results reported on a "dry-weight" basis Parameters Percent Moisture Analytical Method: NWTPH-Dx Preparation Method: EPA 3546 Sample: SB-4-20' Lab ID: 2510642002 Collected: 01/25/12 08:40 Received: 01/25/12 16:06 Matrix: Solid Results reported on a "dry-weight" basis Parameters Polykg 16.8 1 01/26/12 12:30 01/26/12 19:16 64742-65-0 Surrogates ND mg/kg 16.8 1 01/26/12 12:30 01/26/12 19:16 64742-65-0 Surrogates ND mg/kg 16.8 1 01/26/12 12:30 01/26/12 19:16 64742-65-0 Surrogates ND mg/kg 16.	Motor Oil Range Surrogates	ND	mg/kg	68	3.2 1	01/26/12 12:30	01/26/12 18:59	9 64742-65-0	
NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx Gasoline Range Organics Surrogates a.aTrifluortolluene (S) 4.Bromofluorobenzene (S) 227 % 50-150 1 01/26/12 14:49 01/27/12 16:05 98-08-8 4.Bromofluorobenzene (S) 227 % 50-150 1 01/26/12 14:49 01/27/12 16:05 98-08-8 4.Bromofluorobenzene (S) 227 % 50-150 1 01/26/12 14:49 01/27/12 16:05 98-08-8 4.Bromofluorobenzene (S) 227 % 50-150 1 01/26/12 14:49 01/27/12 16:05 98-08-8 4.Bromofluorobenzene (S) 227 % 50-150 1 01/26/12 14:49 01/27/12 16:05 98-08-8 4.Bromofluorobenzene (S) 4.Bromofluorobenzene (S) Analytical Method: EPA 6010 Preparation Method: EPA 3050 Lead 3.0 mg/kg 0.74 1 01/27/12 07:58 01/31/12 21:11 7439-92-1 8260/5035A Volatile Organics Analytical Method: EPA 8260 Benzene ND ug/kg 3.1 1 01/27/12 18:26 71-43-2 EBhylbenzene ND ug/kg 3.1 1 01/27/12 18:26 71-43-2 EBhylbenzene ND ug/kg 3.1 1 01/27/12 18:26 100-41-4 Methyl-len-butyl ether ND ug/kg 3.1 1 01/27/12 18:26 100-41-4 Methyl-len-butyl ether ND ug/kg 3.1 1 01/27/12 18:26 108-88-3 Yugene (Total) ND ug/kg 3.1 1 01/27/12 18:26 108-88-3 Yugene (Total) ND ug/kg 3.1 1 01/27/12 18:26 108-88-3 Yugene (Total) ND ug/kg 3.1 1 01/27/12 18:26 1868-53-7 Toluene Method: ND ug/kg 3.1 1 01/27/12 18:26 1868-53-7 Toluene-d8 (S) 4-Bromofluorobenzene (S) 102 % 6-P-129 1 01/27/12 18:26 1868-53-7 Toluene-d8 (S) 4-Bromofluorobenzene (S) 104 % 67-142 1 01/27/12 18:26 1868-53-7 Toluene-d8 (S) 4-Bromofluorobenzene (S) 104 % 67-142 1 01/27/12 18:26 1868-53-7 Toluene-d8 (S) 4-Bromofluorobenzene (S) 104 % 67-142 1 01/27/12 18:26 1868-53-7 Toluene-d8 (S) 4-Bromofluorobenzene (S) 104 % 67-142 1 01/27/12 18:26 1868-53-7 Toluene-d8 (S) 4-Bromofluorobenzene (S) 104 % 67-142 1 01/26/12 18:26 1868-53-7 Toluene-d8 (S) 4-Bromofluorobenzene (S) 104 % 67-142 1 01/26/12 18:26 1868-53-7 Toluene-d8 (S) 4-Bromofluorobenzene (S) 104 % 67-142 1 01/26/12 18:26 1868-53-7 Toluene-d8 (S) 4-Bromofluorobenzene (S) 105 / Bromofluorobenzene (S) 107 / Br	n-Octacosane (S)	93	%	50-1	50 1	01/26/12 12:30	01/26/12 18:59	9 630-02-4	
Sasoline Range Organics 109 mg/kg 5.6 1 01/26/12 14:49 01/27/12 16:05 Surrogates 3.0 mg/kg 5.6 1 01/26/12 14:49 01/27/12 16:05 98-08-8 4-Bromofluorobenzene (S) 227 % 50-150 1 01/26/12 14:49 01/27/12 16:05 98-08-8 4-Bromofluorobenzene (S) 227 % 50-150 1 01/26/12 14:49 01/27/12 16:05 98-08-8 4-Bromofluorobenzene (S) 227 % 50-150 1 01/26/12 14:49 01/27/12 16:05 98-08-8 4-Bromofluorobenzene (S) 227 % 50-150 1 01/26/12 14:49 01/27/12 16:05 98-08-8 4-Bromofluorobenzene (S) 3.0 mg/kg 0.74 1 01/27/12 07:58 01/31/12 21:11 7439-92-1 743	o-Terphenyl (S)	93	%	50-1	50 1	01/26/12 12:30	01/26/12 18:59	9 84-15-1	
Surrogates a.a,a-Triffuorotoluene (S)	NWTPH-Gx GCV	Analytical M	/lethod: NWTP	H-Gx Preparatio	n Method: I	NWTPH-Gx			
a,a,a-friffuorotoluene (S)	<u> </u>	109	mg/kg	!	5.6 1	01/26/12 14:49	01/27/12 16:0	5	
Analytical Method: EPA 6010 Preparation Method: EPA 3050	a,a,a-Trifluorotoluene (S)	107	%	50-1	50 1	01/26/12 14:49	01/27/12 16:0	5 98-08-8	
Lead 3.0 mg/kg 0.74 1 01/27/12 07:58 01/31/12 21:11 7439-92-1	4-Bromofluorobenzene (S)	227	%	50-1	50 1	01/26/12 14:49	01/27/12 16:0	5 460-00-4	S2
### Received: O1/25/12 16:16 ### Results reported on a "dry-weight" basis Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Qua **NO** Quarter Services** **NO** Quarter Services** **NO** Quarter Services** **Analytical Method: NWTPH-Dx Preparation Method: NWTPH-Gx **NO** Quarter Services** **NO** Quarter Services** **Analytical Method: NWTPH-Gx **NO** Quarter Services** 6010 MET ICP	Analytical M	Method: EPA 6	010 Preparation	Method: EF	PA 3050				
Benzene	Lead	3.0	mg/kg	0.	74 1	01/27/12 07:58	01/31/12 21:1	1 7439-92-1	
Ethylbenzene ND ug/kg 3.1 1 01/27/12 18:26 100-41-4 Methyl-tert-butyl ether ND ug/kg 3.1 1 01/27/12 18:26 1634-04-4 Toluene ND ug/kg 3.1 1 01/27/12 18:26 1634-04-4 Toluene ND ug/kg 3.1 1 01/27/12 18:26 1038-8-3 Xylene (Total) ND ug/kg 9.2 1 01/27/12 18:26 1330-20-7 Surrogates Dibromofluoromethane (S) 102 % 72-129 1 01/27/12 18:26 1868-53-7 Toluene-d8 (S) 96 % 69-133 1 01/27/12 18:26 2037-26-5 4-Bromofluorobenzene (S) 104 % 67-142 1 01/27/12 18:26 2037-26-5 4-Bromofluorobenzene (S) 103 % 67-136 1 01/27/12 18:26 460-00-4 1,2-Dichloroethane-d4 (S) 103 % 67-136 1 01/27/12 18:26 17060-07-0 Percent Moisture Analytical Method: ASTM D2974-87 Percent Moisture 9.0 % 0.10 1 01/26/12 16:18 Sample: SB-4-20' Lab ID: 2510642002 Collected: 01/25/12 08:40 Received: 01/25/12 16:06 Matrix: Solid Results reported on a "dry-weight" basis Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Quanchy C	8260/5035A Volatile Organics	Analytical M	Method: EPA 8	260					
Methyl-tert-butyl ether ND ug/kg 3.1 1 01/27/12 18:26 1634-04-4 Toluene ND ug/kg 3.1 1 01/27/12 18:26 108-88-3 Xylene (Total) ND ug/kg 9.2 1 01/27/12 18:26 103-02-7 Surrogates Dibromofluoromethane (S) 102 % 72-129 1 01/27/12 18:26 1868-53-7 Toluene-d8 (S) 96 % 69-133 1 01/27/12 18:26 1868-53-7 4-Bromofluorobenzene (S) 104 % 67-136 1 01/27/12 18:26 4868-53-7 4-Bromofluorobenzene (S) 103 % 67-136 1 01/27/12 18:26 4868-50-7 4-Bromofluorobenzene (S) 103 % 67-136 1 01/27/12 18:26 480-00-4 4-Bromofluorobenzene (S) 103 % 67-136 1 01/27/12 18:26 480-00-4 4-Bromofluorobenzene (S) 103 % 67-136 1 01/26/12 16:18 Percent Moisture 9.0 % 0.10 1 01/26/12 16:18 Sample: SB-4-20	Benzene	ND	ug/kg	;	3.1 1		01/27/12 18:26	6 71-43-2	
Toluene ND ug/kg 3.1 1 01/27/12 18:26 108-88-3 Xylene (Total) ND ug/kg 9.2 1 01/27/12 18:26 1330-20-7 Surrogates Dibromofluoromethane (S) 102 % 72-129 1 01/27/12 18:26 1868-53-7 Toluene-d8 (S) 96 % 69-133 1 01/27/12 18:26 2037-26-5 4-Bromofluorobenzene (S) 104 % 67-142 1 01/27/12 18:26 460-00-4 1,2-Dichloroethane-d4 (S) 103 % 67-136 1 01/27/12 18:26 17060-07-0 Percent Moisture Analytical Method: ASTM D2974-87 Percent Moisture 9.0 % 0.10 1 01/26/12 16:18 Sample: SB-4-20' Lab ID: 2510642002 Collected: 01/25/12 08:40 Received: 01/25/12 16:06 Matrix: Solid Results reported on a "dry-weight" basis Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Qua NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546 Diesel Range ND mg/kg 16.8 1 01/26/12 12:30 01/26/12 19:16 64742-65-0 Surrogates n-Octacosane (S) 93 % 50-150 1 01/26/12 12:30 01/26/12 19:16 630-02-4 o-Terphenyl (S) 94 % 50-150 1 01/26/12 12:30 01/26/12 19:16 84-15-1 NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx NVTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx NVTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx	Ethylbenzene	ND	ug/kg	;	3.1 1		01/27/12 18:26	6 100-41-4	
Xylene (Total)	Methyl-tert-butyl ether	ND	ug/kg	;	3.1 1		01/27/12 18:26	6 1634-04-4	
Surrogates Dibromofluoromethane (S) 102 % 72-129 1 01/27/12 18:26 1868-53-7 101/27/12 18:26 2037-26-5 4-Bromofluoromethane (S) 96 % 69-133 1 01/27/12 18:26 2037-26-5 4-Bromofluorobenzene (S) 104 % 67-142 1 01/27/12 18:26 460-00-4 4-Bromofluorobenzene (S) 103 % 67-136 1 01/27/12 18:26 460-00-4 4-Bromofluorobenzene (S) 103 % 67-136 1 01/27/12 18:26 460-00-4 4-Bromofluorobenzene (S) 67-136 1 0.1/25/12 08:40 8-Cevived: 01/25/12 16:06 4-Bromofluorobenzene (S) 93 % 60-150 1 0.1/25/12 08:40 8-Cevived: 01/25/12 16:18 91/25/12 16:18 8-Prepared Analyzed CAS No. Qualyzed C	Toluene	ND	ug/kg	;	3.1 1		01/27/12 18:26	5 108-88-3	
Toluene-d8 (S) 96 % 69-133 1 01/27/12 18:26 2037-26-5 4-Bromofluorobenzene (S) 104 % 67-142 1 01/27/12 18:26 460-00-4 1,2-Dichloroethane-d4 (S) 103 % 67-136 1 01/27/12 18:26 17060-07-0 Percent Moisture Analytical Method: ASTM D2974-87 Percent Moisture 9.0 % 0.10 1 01/26/12 16:18 Sample: SB-4-20' Lab ID: 2510642002 Collected: 01/25/12 08:40 Received: 01/25/12 16:06 Matrix: Solid Results reported on a "dry-weight" basis Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Qua NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546 Diesel Range ND mg/kg 16.8 1 01/26/12 12:30 01/26/12 19:16 Motor Oil Range ND mg/kg 67.1 1 01/26/12 12:30 01/26/12 19:16 64742-65-0 Surrogates n-Octacosane (S) 93 % 50-150 1 01/26/12 12:30 01/26/12 19:16 630-02-4 o-Terphenyl (S) 94 % 50-150 1 01/26/12 12:30 01/26/12 19:16 84-15-1 NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx	Xylene (Total) Surrogates	ND	ug/kg	9	9.2 1		01/27/12 18:26	6 1330-20-7	
4-Bromofluorobenzene (S) 104 % 67-142 1 01/27/12 18:26 460-00-4 1,2-Dichloroethane-d4 (S) 103 % 67-136 1 01/27/12 18:26 17060-07-0 Percent Moisture Analytical Method: ASTM D2974-87 Percent Moisture 9.0 % 0.10 1 01/26/12 16:18 Sample: SB-4-20' Lab ID: 2510642002 Collected: 01/25/12 08:40 Received: 01/25/12 16:06 Matrix: Solid Results reported on a "dry-weight" basis Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Quanch NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546 Diesel Range ND mg/kg 16.8 1 01/26/12 12:30 01/26/12 19:16 Motor Oil Range ND mg/kg 67.1 1 01/26/12 12:30 01/26/12 19:16 64742-65-0 Surrogates n-Octacosane (S) 93 % 50-150 1 01/26/12 12:30 01/26/12 19:16 630-02-4 0-Terphenyl (S) 94 % Freparation Method: NWTPH-Gx NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx	Dibromofluoromethane (S)	102	%	72-1	29 1		01/27/12 18:26	6 1868-53-7	
1,2-Dichloroethane-d4 (S) 103 % 67-136 1 01/27/12 18:26 17060-07-0 Percent Moisture Analytical Method: ASTM D2974-87 Percent Moisture 9.0 % 0.10 1 01/26/12 16:18 Sample: SB-4-20' Results reported on a "dry-weight" basis Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Qua NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546 Diesel Range ND mg/kg 16.8 1 01/26/12 12:30 01/26/12 19:16 Motor Oil Range ND mg/kg 67.1 1 01/26/12 12:30 01/26/12 19:16 64742-65-0 Surrogates n-Octacosane (S) 93 % 50-150 1 01/26/12 12:30 01/26/12 19:16 630-02-4 o-Terphenyl (S) Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx		96	%	69-1	33 1		01/27/12 18:26	6 2037-26-5	
Percent Moisture				67-1	42 1		01/27/12 18:26	6 460-00-4	
Percent Moisture 9.0 % 0.10 1 01/26/12 16:18	1,2-Dichloroethane-d4 (S)	103	%	67-1	36 1		01/27/12 18:26	5 17060-07-0	
Sample: SB-4-20' Lab ID: 2510642002 Collected: 01/25/12 08:40 Received: 01/25/12 16:06 Matrix: Solid Results reported on a "dry-weight" basis Results Units Report Limit DF Prepared Analyzed CAS No. Qual NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546 Diesel Range ND mg/kg 16.8 1 01/26/12 12:30 01/26/12 19:16 64742-65-0 Motor Oil Range ND mg/kg 67.1 1 01/26/12 12:30 01/26/12 19:16 64742-65-0 Surrogates n-Octacosane (S) 93 % 50-150 1 01/26/12 12:30 01/26/12 19:16 630-02-4 o-Terphenyl (S) 94 % 50-150 1 01/26/12 12:30 01/26/12 19:16 84-15-1 NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx	Percent Moisture	Analytical M	Method: ASTM	D2974-87					
Results reported on a "dry-weight" basis Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Qual Qual Qual Qual Qual Qual Qual Qual	Percent Moisture	9.0	%	0.	10 1		01/26/12 16:18	3	
Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Qual Qual Qual Qual Qual Qual Qual Qual	Sample: SB-4-20'	Lab ID: 2	2510642002	Collected: 01/	25/12 08:4	0 Received: 0	1/25/12 16:06	Matrix: Solid	
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3546 Diesel Range ND mg/kg 16.8 1 01/26/12 12:30 01/26/12 19:16 Motor Oil Range ND mg/kg 67.1 1 01/26/12 12:30 01/26/12 19:16 64742-65-0 Surrogates n-Octacosane (S) 93 % 50-150 1 01/26/12 12:30 01/26/12 19:16 630-02-4 o-Terphenyl (S) 94 % 50-150 1 01/26/12 12:30 01/26/12 19:16 84-15-1 NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx	Results reported on a "dry-weight	t" basis							
Diesel Range ND mg/kg 16.8 1 01/26/12 12:30 01/26/12 19:16 Motor Oil Range ND mg/kg 67.1 1 01/26/12 12:30 01/26/12 19:16 64742-65-0 Surrogates n-Octacosane (S) 93 % 50-150 1 01/26/12 12:30 01/26/12 19:16 630-02-4 o-Terphenyl (S) 94 % 50-150 1 01/26/12 12:30 01/26/12 19:16 84-15-1 NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx	Parameters	Results	Units	Report Lin	nit DF	Prepared	Analyzed	CAS No.	Qual
Motor Oil Range ND mg/kg 67.1 1 01/26/12 12:30 01/26/12 19:16 64742-65-0 Surrogates n-Octacosane (S) 93 % 50-150 1 01/26/12 12:30 01/26/12 19:16 630-02-4 o-Terphenyl (S) 94 % 50-150 1 01/26/12 12:30 01/26/12 19:16 84-15-1 NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx	NWTPH-Dx GCS	Analytical M	/lethod: NWTP	H-Dx Preparatio	n Method: I	EPA 3546			
Motor Oil Range ND mg/kg 67.1 1 01/26/12 12:30 01/26/12 19:16 64742-65-0 Surrogates n-Octacosane (S) 93 % 50-150 1 01/26/12 12:30 01/26/12 19:16 630-02-4 o-Terphenyl (S) 94 % 50-150 1 01/26/12 12:30 01/26/12 19:16 84-15-1 NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx	Diesel Range	ND	mg/kg	16	5.8 1	01/26/12 12:30	01/26/12 19:16	6	
o-Terphenyl (S) 94 % 50-150 1 01/26/12 12:30 01/26/12 19:16 84-15-1 NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx	Motor Oil Range Surrogates			67	7.1 1	01/26/12 12:30	01/26/12 19:10	6 64742-65-0	
NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx	n-Octacosane (S)	93	%	50-1	50 1	01/26/12 12:30	01/26/12 19:10	6 630-02-4	
	o-Terphenyl (S)	94	%	50-1	50 1	01/26/12 12:30	01/26/12 19:16	84-15-1	
Gasoline Range Organics 5.7 mg/kg 5.2 1 01/26/12 14:49 01/31/12 15:52	NWTPH-Gx GCV	Analytical M	Method: NWTP	PH-Gx Preparatio	n Method: I	NWTPH-Gx			
	Gasoline Range Organics	5.7	mg/kg	!	5.2 1	01/26/12 14:49	01/31/12 15:52	2	

REPORT OF LABORATORY ANALYSIS

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Project: WA 11060 Pace Project No.: 2510642

Sample: SB-4-20'	Lab ID: 251	0642002	Collected: 01/25	/12 08:40	Received: 01	/25/12 16:06	Matrix: Solid	
Results reported on a "dry-weight	t" basis							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Meth	hod: NWTF	PH-Gx Preparation N	/lethod: N	IWTPH-Gx			
Surrogates								
a,a,a-Trifluorotoluene (S)	114 %		50-150	1	01/26/12 14:49	01/31/12 15:52	2 98-08-8	
4-Bromofluorobenzene (S)	107 %		50-150	1	01/26/12 14:49	01/31/12 15:52	2 460-00-4	
6010 MET ICP	Analytical Meth	hod: EPA 6	010 Preparation Me	thod: EP/	A 3050			
Lead	2.5 mg	g/kg	0.92	1	01/27/12 07:58	01/31/12 21:14	4 7439-92-1	
8260/5035A Volatile Organics	Analytical Meth	nod: EPA 8	260					
Benzene	ND ug	ı/kg	2.9	1		01/27/12 18:47	7 71-43-2	
Ethylbenzene	ND ug		2.9	1		01/27/12 18:47	7 100-41-4	
Methyl-tert-butyl ether	ND ug	-	2.9	1		01/27/12 18:47	7 1634-04-4	
Toluene	ND ug	-	2.9	1		01/27/12 18:47	7 108-88-3	
Xylene (Total)	ND ug	-	8.6	1		01/27/12 18:47	7 1330-20-7	
Surrogates	Č	. 0						
Dibromofluoromethane (S)	86 %		72-129	1		01/27/12 18:47	7 1868-53-7	
Toluene-d8 (S)	93 %		69-133	1		01/27/12 18:47	7 2037-26-5	
4-Bromofluorobenzene (S)	121 %		67-142	1		01/27/12 18:47	7 460-00-4	
1,2-Dichloroethane-d4 (S)	100 %		67-136			01/27/12 18:47		
Percent Moisture	Analytical Meth	hod: ASTM	D2974-87					
Percent Moisture	11.1 %		0.10	1		01/26/12 16:19	9	
Sample: SB-4-35'	Lab ID: 251	0642003	Collected: 01/25	/12 08:50	Received: 01	/25/12 16:06	Matrix: Solid	
Results reported on a "dry-weight		0042003	Conceted. 01/23	12 00.00	received. 01	720/12 10.00	Matrix. Oolid	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS	Analytical Metl	hod: NWTF	H-Dx Preparation N	/lethod: E	PA 3546			
Diesel Range	ND mg	n/ka	19.6	1	01/26/12 12:30	01/26/12 20:24	4	
Motor Oil Range Surrogates	ND mo	0	78.4		01/26/12 12:30			
n-Octacosane (S)	92 %		50-150	1	01/26/12 12:30	01/26/12 20:24	4 630-02-4	
o-Terphenyl (S)	92 %		50-150		01/26/12 12:30			
NWTPH-Gx GCV	Analytical Metl	hod: NWTF	PH-Gx Preparation N	/lethod: N	IWTPH-Gx			
Gasolino Pango Organico	-		6.5			01/21/12 16:16	a	
Gasoline Range Organics Surrogates	ND m	y/ n y	0.0	1	01/26/12 14:49	01/31/12 10:10	J	
a,a,a-Trifluorotoluene (S)	115 %		50-150	1	01/26/12 14:49	01/31/12 16:16	6 98-08-8	
4-Bromofluorobenzene (S)	104 %		50-150 50-150		01/26/12 14:49			
						01/01/12 10.10	J 700 00-4	
6010 MET ICP	Analytical Meth	hod: EPA 6	010 Preparation Me	thod: EP/				
Lead	4.5 mg	g/kg	1.2	1	01/27/12 07:58	01/31/12 21:18	8 7439-92-1	

Date: 02/09/2012 02:10 PM

REPORT OF LABORATORY ANALYSIS



Project: WA 11060 Pace Project No.: 2510642

Date: 02/09/2012 02:10 PM

Lab ID: 2510642003 Received: 01/25/12 16:06 Sample: SB-4-35' Collected: 01/25/12 08:50 Matrix: Solid Results reported on a "dry-weight" basis **Parameters** Results Units Report Limit DF Prepared Analyzed CAS No. Qual 8260/5035A Volatile Organics Analytical Method: EPA 8260 Benzene ND ug/kg 2.9 1 01/26/12 16:00 71-43-2 Ethylbenzene ND ug/kg 2.9 1 01/26/12 16:00 100-41-4 Methyl-tert-butyl ether ND ug/kg 2.9 01/26/12 16:00 1634-04-4 1 Toluene ND ug/kg 2.9 01/26/12 16:00 108-88-3 1 Xylene (Total) 01/26/12 16:00 1330-20-7 ND ug/kg 8.7 Surrogates 01/26/12 16:00 1868-53-7 Dibromofluoromethane (S) 92 % 72-129 1 Toluene-d8 (S) 95 % 69-133 01/26/12 16:00 2037-26-5 1 4-Bromofluorobenzene (S) 105 % 67-142 1 01/26/12 16:00 460-00-4 1,2-Dichloroethane-d4 (S) 101 % 67-136 01/26/12 16:00 17060-07-0 **Percent Moisture** Analytical Method: ASTM D2974-87 Percent Moisture 20.6 % 0.10 1 01/26/12 16:19 Sample: EW-3-15' Lab ID: 2510642004 Collected: 01/25/12 10:30 Received: 01/25/12 16:06 Matrix: Solid Results reported on a "dry-weight" basis **Parameters** Results Units Report Limit DF Prepared Analyzed CAS No. Qual Analytical Method: NWTPH-Dx Preparation Method: EPA 3546 **NWTPH-Dx GCS** Diesel Range ND mg/kg 19.0 01/26/12 12:30 01/26/12 20:41 Motor Oil Range ND mg/kg 75.9 1 01/26/12 12:30 01/26/12 20:41 64742-65-0 Surrogates 92 % 50-150 01/26/12 12:30 01/26/12 20:41 630-02-4 n-Octacosane (S) 1 o-Terphenyl (S) 92 % 50-150 1 01/26/12 12:30 01/26/12 20:41 84-15-1 **NWTPH-Gx GCV** Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx Gasoline Range Organics 30.1 mg/kg 5.7 1 01/26/12 14:49 01/27/12 15:03 Surrogates a,a,a-Trifluorotoluene (S) 114 % 50-150 01/26/12 14:49 01/27/12 15:03 98-08-8 1 4-Bromofluorobenzene (S) 137 % 50-150 01/26/12 14:49 01/27/12 15:03 460-00-4 1 **6010 MET ICP** Analytical Method: EPA 6010 Preparation Method: EPA 3050 6.6 mg/kg 1.2 1 01/27/12 07:58 01/31/12 21:21 7439-92-1 Lead 8260/5035A Volatile Organics Analytical Method: EPA 8260 01/26/12 16:21 71-43-2 Benzene ND ua/ka 3.5 1 Ethylbenzene ND ug/kg 3.5 01/26/12 16:21 100-41-4 1 Methyl-tert-butyl ether ND ug/kg 3.5 01/26/12 16:21 1634-04-4 1 01/26/12 16:21 108-88-3 Toluene ND ug/kg 3.5 1 Xylene (Total) 01/26/12 16:21 1330-20-7 ND ug/kg 10.5 1 Surrogates Dibromofluoromethane (S) 100 % 72-129 01/26/12 16:21 1868-53-7 1 Toluene-d8 (S) 100 % 69-133 01/26/12 16:21 2037-26-5 1 4-Bromofluorobenzene (S) 107 % 67-142 01/26/12 16:21 460-00-4 1

REPORT OF LABORATORY ANALYSIS

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Project: WA 11060
Pace Project No.: 2510642

Date: 02/09/2012 02:10 PM

Lab ID: 251	0642004	Collected:	01/25/1	12 10:30	Received: 01	/25/12 16:06 I	Matrix: Solid	
' basis								
Results	Units	Repor	t Limit	DF	Prepared	Analyzed	CAS No.	Qual
Analytical Met	hod: EPA 8	260						
102 %			67-136	1		01/26/12 16:21	17060-07-0	
Analytical Met	hod: ASTM	D2974-87						
17.3 %			0.10	1		01/26/12 16:20)	
Lab ID: 251	0642005	Collected:	01/25/1	12 10:35	Received: 01	/25/12 16:06 I	Matrix: Solid	
' basis			.,,					
Results	Units	Repor	t Limit	DF	Prepared	Analyzed	CAS No.	Qual
Analytical Met	hod: NWTP	H-Dx Prepa	ration M	ethod: El	PA 3546			
			16.1 64.5	1 1				
			50-150 50-150	1 1				
Analytical Met	hod: NWTP	H-Gx Prepa	ration M	ethod: N	WTPH-Gx			
621 m	g/kg		267	50	01/26/12 14:49	01/27/12 16:30)	
			50-150 50-150	50 50				
Analytical Met	hod: EPA 6	010 Prepara	tion Metl	hod: EPA	A 3050			
2.9 m	g/kg		0.79	1	01/27/12 07:58	01/31/12 21:33	7439-92-1	
Analytical Met	hod: EPA 8	260 Prepara	tion Metl	hod: EPA	A 5035A/5030B			
			53.5	1	01/31/12 00:00	01/31/12 20:50	100-41-4	
	-		53.5	1				
699 uç	g/kg		160	1	01/31/12 00:00	01/31/12 20:50	1330-20-7	
100 %	ı		75-116	1	01/31/12 00:00	01/31/12 20:50	1868-53-7	
101 %			74-124	1	01/31/12 00:00	01/31/12 20:50	2037-26-5	
			73-128	1				
93 %			70-125	1	01/31/12 00:00	01/31/12 20:50	17060-07-0	
Analytical Met	hod: EPA 8	260						
69.0 uç	g/kg		3.1	1		01/26/12 17:02	71-43-2	
	-		3.1	1				
			72-129	1				
				1				S5
			67-142	1				S5
118 %	1		67-136	1		01/26/12 17:02	2 17060-07-0	
	hasis Results Analytical Met 102 % Analytical Met 17.3 % Lab ID: 251 hasis Results Analytical Met 29.7 m ND m 94 % 93 % Analytical Met 621 m 110 % 124 % Analytical Met 2.9 m Analytical Met 232 ug 699 ug 100 % 101 % 102 % 93 % Analytical Met 69.0 ug ND ug 101 % 545 % 191 % 191 % 1	Results Units Analytical Method: EPA 8. 102 % Analytical Method: ASTM 17.3 % Lab ID: 2510642005 basis Results Units Analytical Method: NWTP 29.7 mg/kg ND mg/kg ND mg/kg 94 % 93 % Analytical Method: NWTP 621 mg/kg 110 % 124 % Analytical Method: EPA 6. 2.9 mg/kg Analytical Method: EPA 8. 232 ug/kg 92.3 ug/kg 699 ug/kg 100 % 101 % 102 % 93 %	Results Units Report Analytical Method: EPA 8260 102 % Analytical Method: ASTM D2974-87 17.3 % Lab ID: 2510642005 Collected: basis Results Units Report Analytical Method: NWTPH-Dx Prepart 29.7 mg/kg ND mg/kg 94 % 93 % Analytical Method: NWTPH-Gx Prepart 621 mg/kg 110 % 124 % Analytical Method: EPA 6010 Prepart 2.9 mg/kg Analytical Method: EPA 8260 Prepart 232 ug/kg 92.3 ug/kg 699 ug/kg 100 % 101 % 102 % 93 % Analytical Method: EPA 8260 69.0 ug/kg ND ug/kg 101 % 545 % 191 %	Results Units Report Limit Analytical Method: EPA 8260 102 % 67-136 Analytical Method: ASTM D2974-87 17.3 % 0.10 Lab ID: 2510642005 Collected: 01/25/3 basis Results Units Report Limit Analytical Method: NWTPH-Dx Preparation Methors and preparation Method: NWTPH-Gx Preparation Method: NWTPH-Gx Preparation Method: NWTPH-Gx Preparation Method: NWTPH-Gx Preparation Method: NWTPH-Gx Preparation Method: PA 6010 Preparation Method: PA 6010 Preparation Method: PA 8260 Preparation Preparati	Results	Results	Results	Results Units Report Limit DF Prepared Analyzed CAS No. Analytical Method: EPA 8260 102 % 67-136 1 01/26/12 16:21 17060-07-0 Analytical Method: ASTM D2974-87 17.3 % 0.10 1 01/26/12 16:20 Matrix: Solid Lab ID: 2510642005 Collected: 01/25/12 10:35 Received: 01/25/12 16:06 Matrix: Solid **Basits Units Report Limit DF Prepared Analyzed CAS No. Analytical Method: NWTPH-DX Preparation Method: EPA 3546 29.7 mg/kg 16.1 1 01/26/12 12:30 01/26/12 20:58 64742-65-0 94 % 50-150 1 01/26/12 12:30 01/26/12 20:58 64742-65-0 94 % 50-150 1 01/26/12 12:30 01/26/12 20:58 64742-65-0 94 mg/kg 267 50 01/26/12 14:49 01/27/12 16:30 64-742-65-0 110 % 50-150 50 01/26/12 14:49 01/27/12 16:30 460-00-4 <td< td=""></td<>

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Project: WA 11060 Pace Project No.: 2510642

Pace Project No.: 2510642							
Sample: EW-3-20'	Lab ID: 25106420	05 Collected: 01/25/	12 10:35	Received: 01	1/25/12 16:06	Matrix: Solid	
Results reported on a "dry-weight	t" basis						
Parameters	Results U	nits Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture	Analytical Method: A	STM D2974-87					
Percent Moisture	8.2 %	0.10	1		01/26/12 16:20)	
Sample: EW-3-30'	Lab ID: 25106420	06 Collected: 01/25/	12 10:45	Received: 01	1/25/12 16:06	Matrix: Solid	
Results reported on a "dry-weight	t" basis						
Parameters	Results U	nits Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS	Analytical Method: N	WTPH-Dx Preparation M	lethod: E	PA 3546			
Diesel Range	ND mg/kg	18.7	1	01/26/12 12:30	01/26/12 21:15	5	
Motor Oil Range Surrogates	ND mg/kg	74.8	1	01/26/12 12:30	01/26/12 21:15	64742-65-0	
n-Octacosane (S)	106 %	50-150	1	01/26/12 12:30	01/26/12 21:15	630-02-4	
o-Terphenyl (S)	106 %	50-150	1	01/26/12 12:30	01/26/12 21:15	5 84-15-1	
NWTPH-Gx GCV	Analytical Method: N	WTPH-Gx Preparation M	lethod: N	IWTPH-Gx			
Gasoline Range Organics Surrogates	ND mg/kg	6.8	1	01/26/12 14:49	01/31/12 16:41	I	
a,a,a-Trifluorotoluene (S)	114 %	50-150	1	01/26/12 14:49	01/31/12 16:41	l 98-08-8	
4-Bromofluorobenzene (S)	106 %	50-150	1	01/26/12 14:49	01/31/12 16:41	I 460-00-4	
6010 MET ICP	Analytical Method: E	PA 6010 Preparation Met	hod: EP	A 3050			
Lead	3.2 mg/kg	1.2	1	01/27/12 07:58	01/31/12 21:36	7439-92-1	
8260/5035A Volatile Organics	Analytical Method: E	PA 8260					
Benzene	20.1 ug/kg	3.1	1		01/26/12 17:22	2 71-43-2	
Ethylbenzene	11.3 ug/kg	3.1	1		01/26/12 17:22	2 100-41-4	
Methyl-tert-butyl ether	ND ug/kg	3.1	1		01/26/12 17:22	2 1634-04-4	
Toluene	10.1 ug/kg	3.1	1		01/26/12 17:22	2 108-88-3	
Xylene (Total)	36.0 ug/kg	9.3	1		01/26/12 17:22	2 1330-20-7	
Surrogates							
Dibromofluoromethane (S)	98 %	72-129	1		01/26/12 17:22		
Toluene-d8 (S)	112 %	69-133	1		01/26/12 17:22		
4-Bromofluorobenzene (S)	111 %	67-142	1		01/26/12 17:22		
1,2-Dichloroethane-d4 (S)	103 %	67-136	1		01/26/12 17:22	2 17060-07-0	
Percent Moisture	Analytical Method: A	STM D2974-87					
Percent Moisture	19.0 %	0.10	1		01/26/12 16:22	2	

Date: 02/09/2012 02:10 PM

REPORT OF LABORATORY ANALYSIS



Project: WA 11060 Pace Project No.: 2510642

Sample: DUP-2	Lab ID:	2510642008	Collected: 01/25/	12 00:00	Received: 01	/25/12 16:06 N	//atrix: Solid	
Results reported on a "dry-weight"	basis							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS	Analytical I	Method: NWTP	H-Dx Preparation M	ethod: E	PA 3546			
Diesel Range	30.5	5 mg/kg	16.5	1	01/26/12 12:30	01/26/12 21:32		
Motor Oil Range Surrogates	ND) mg/kg	65.9	1	01/26/12 12:30	01/26/12 21:32	64742-65-0	
n-Octacosane (S)	111	l %	50-150	1	01/26/12 12:30	01/26/12 21:32	630-02-4	
o-Terphenyl (S)	111	l %	50-150	1	01/26/12 12:30	01/26/12 21:32	84-15-1	
NWTPH-Gx GCV	Analytical I	Method: NWTP	H-Gx Preparation M	ethod: N	IWTPH-Gx			
Gasoline Range Organics Surrogates	443	3 mg/kg	4.9	1	01/26/12 14:49	01/27/12 15:28		
a,a,a-Trifluorotoluene (S)	113	3 %	50-150	1	01/26/12 14:49	01/27/12 15:28	98-08-8	
4-Bromofluorobenzene (S)	416	S %	50-150	1	01/26/12 14:49	01/27/12 15:28	460-00-4	S2
6010 MET ICP	Analytical I	Method: EPA 60	010 Preparation Met	hod: EP/	A 3050			
Lead	2.7	7 mg/kg	0.84	1	01/27/12 07:58	01/31/12 21:40	7439-92-1	
8260 MSV 5035A Med Level VOA	Analytical I	Method: EPA 82	260 Preparation Met	hod: EP/	A 5035A/5030B			
Ethylbenzene	215	ug/kg	48.6	1	01/31/12 00:00	01/31/12 21:08	100-41-4	
Toluene	65.8	3 ug/kg	48.6	1	01/31/12 00:00	01/31/12 21:08	108-88-3	
Xylene (Total) Surrogates	682	2 ug/kg	146	1	01/31/12 00:00	01/31/12 21:08	1330-20-7	
Dibromofluoromethane (S)		9 %	75-116	1	01/31/12 00:00	01/31/12 21:08	1868-53-7	
Toluene-d8 (S)		6 %	74-124	1		01/31/12 21:08		
4-Bromofluorobenzene (S)		3 %	73-128	1		01/31/12 21:08		
1,2-Dichloroethane-d4 (S)	80) %	70-125	1	01/31/12 00:00	01/31/12 21:08	17060-07-0	
8260/5035A Volatile Organics	Analytical I	Method: EPA 82	260					
Benzene	31.7	7 ug/kg	2.8	1		01/26/12 17:43	71-43-2	
Methyl-tert-butyl ether	ND	ug/kg	2.8	1		01/26/12 17:43	1634-04-4	
Surrogates								
Dibromofluoromethane (S)		3 %	72-129	1		01/26/12 17:43		
Toluene-d8 (S)		3 %	69-133	1		01/26/12 17:43		S5
4-Bromofluorobenzene (S)		l %	67-142	1		01/26/12 17:43		S5
1,2-Dichloroethane-d4 (S)		2 %	67-136	1		01/26/12 17:43	17060-07-0	
Percent Moisture	Analytical I	Method: ASTM	D2974-87					
Percent Moisture	7.8	3 %	0.10	1		01/26/12 16:23		
Sample: EW-1-15'	Lab ID:	2510642009	Collected: 01/25/	12 14:55	Received: 01	/25/12 16:06 N	Matrix: Solid	
Results reported on a "dry-weight"								
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS	Analytical I	Method: NWTP	H-Dx Preparation M	ethod: E	PA 3546			-
Diesel Range		mg/kg	17.7	1		01/26/12 22:06		
Motor Oil Range) mg/kg	70.8	1		01/26/12 22:06	64742-65-0	
	.,,,		. 3.0	•	, _ s, . L . L.00	5 ., _ 5, 1 L LL.00	3	



Project: WA 11060 Pace Project No.: 2510642

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Sample: EW-1-15'	Lab ID: 2510642009	Collected: 01/25/1	2 14:55	Received: 01	/25/12 16:06	Matrix: Solid	
Results reported on a "dry-weight"	basis						
Parameters	Results Unit	s Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
NWTPH-Dx GCS	Analytical Method: NW	TPH-Dx Preparation Me	ethod: El	PA 3546			
Surrogates							
n-Octacosane (S)	100 %	50-150	1	01/26/12 12:30	01/26/12 22:06	6 630-02-4	
o-Terphenyl (S)	100 %	50-150	1	01/26/12 12:30	01/26/12 22:06	84-15-1	
NWTPH-Gx GCV	Analytical Method: NW	TPH-Gx Preparation Me	ethod: N	WTPH-Gx			
Gasoline Range Organics Surrogates	2160 mg/kg	299	50	01/26/12 14:49	01/27/12 16:5	5	
a,a,a-Trifluorotoluene (S)	110 %	50-150	50	01/26/12 14:49	01/27/12 16:5	5 98-08-8	
4-Bromofluorobenzene (S)	156 %	50-150	50	01/26/12 14:49	01/27/12 16:5	5 460-00-4	S2
6010 MET ICP	Analytical Method: EPA	6010 Preparation Meth	nod: EPA	3050			
Lead	3.9 mg/kg	1.0	1	01/27/12 07:58	01/31/12 21:44	7439-92-1	
8260 MSV 5035A Med Level VOA	Analytical Method: EPA	8260 Preparation Meth	nod: EPA	5035A/5030B			
Benzene	177 ug/kg	29.9	1	02/04/12 00:00	02/05/12 12:49	71-43-2	
Ethylbenzene	9150 ug/kg	59.8	1	02/04/12 00:00			
Methyl-tert-butyl ether	ND ug/kg	59.8	1	02/04/12 00:00			
Toluene	530 ug/kg	59.8	1	02/04/12 00:00			
Xylene (Total)	11500 ug/kg	180	1	02/04/12 00:00			
Surrogates	11300 ug/kg	100	'	02/04/12 00:00	02/03/12 12.43	1330-20-7	
Dibromofluoromethane (S)	98 %	75-116	1	02/04/12 00:00	02/05/12 12:49	1868-53-7	
Toluene-d8 (S)	140 %	74-124	1	02/04/12 00:00			S5
4-Bromofluorobenzene (S)	111 %	73-128	1	02/04/12 00:00			00
1,2-Dichloroethane-d4 (S)	91 %	70-125	1	02/04/12 00:00			
Percent Moisture	Analytical Method: AST			02/04/12 00:00	02/00/12 12:40	7 17000 07 0	
Percent Moisture	11.2 %	0.10	1		01/26/12 16:24	1	
reiceili Moistale	11.2 /0	0.10	'		01/20/12 10.24	•	
Sample: Trip Blank	Lab ID: 2510642010	Collected: 01/25/1	2 00:00	Received: 01	/25/12 16:06	Matrix: Solid	
Results reported on a "wet-weight'	' basis						
Parameters	Results Unit	S Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
NWTPH-Gx GCV	Analytical Method: NW	TPH-Gx Preparation Me	ethod: N	WTPH-Gx			
Gasoline Range Organics Surrogates	ND mg/kg	5.0	1	01/26/12 14:49	01/27/12 14:3	5	
a,a,a-Trifluorotoluene (S)	96 %	50-150	1	01/26/12 14:49	01/27/12 14:3	5 98-08-8	
4-Bromofluorobenzene (S)	95 %	50-150	1	01/26/12 14:49	01/27/12 14:3	5 460-00-4	
8260/5035A Volatile Organics	Analytical Method: EPA	8260					
Benzene	ND ug/kg	3.0	1		01/26/12 18:03	3 71-43-2	
Ethylbenzene	ND ug/kg	3.0	1		01/26/12 18:03		
Methyl-tert-butyl ether	ND ug/kg	3.0	1		01/26/12 18:03		
MEUTYTETTEDULYTEITIET	ND ug/kg						
Toluono	ND//	2 2	- 1				
Toluene Xylene (Total)	ND ug/kg ND ug/kg	3.0 9.0	1 1		01/26/12 18:03 01/26/12 18:03		

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Project: WA 11060 Pace Project No.: 2510642

Sample: Trip Blank Lab ID: 2510642010 Collected: 01/25/12 00:00 Received: 01/25/12 16:06 Matrix: Solid

Results reported on a "wet-weight" basis										
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual		
8260/5035A Volatile Organics	Analytical Met	hod: EPA 8260								
Surrogates										
Dibromofluoromethane (S)	93 %		72-129	1		01/26/12 18:03	1868-53-7			
Toluene-d8 (S)	101 %		69-133	1		01/26/12 18:03	2037-26-5			
4-Bromofluorobenzene (S)	102 %		67-142	1		01/26/12 18:03	460-00-4			
1,2-Dichloroethane-d4 (S)	94 %		67-136	1		01/26/12 18:03	17060-07-0			



Project: WA 11060 Pace Project No.: 2510642

QC Batch: GCV/2651 Analysis Method: NWTPH-Gx

QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx Solid GCV Associated Lab Samples: 2510642001, 2510642004, 2510642005, 2510642008, 2510642009, 2510642010

METHOD BLANK: 100792 Matrix: Solid

Associated Lab Samples: 2510642001, 2510642004, 2510642005, 2510642008, 2510642009, 2510642010

Blank Reporting Limit Qualifiers Parameter Units Result Analyzed Gasoline Range Organics ND 5.0 01/27/12 14:05 mg/kg % 4-Bromofluorobenzene (S) 97 50-150 01/27/12 14:05 a,a,a-Trifluorotoluene (S) % 50-150 01/27/12 14:05 98

LABORATORY CONTROL SAMPLE: 100793

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	12.5	12.8	103	63-140	
4-Bromofluorobenzene (S)	%			113	50-150	
a,a,a-Trifluorotoluene (S)	%			112	50-150	

SAMPLE DUPLICATE: 101316

		2510634002	Dup		
Parameter	Units	Result	Result	RPD	Qualifiers
Gasoline Range Organics	mg/kg	ND	ND		
4-Bromofluorobenzene (S)	%	101	102	2	
a,a,a-Trifluorotoluene (S)	%	105	105	.4	



Project: WA 11060 Pace Project No.: 2510642

QC Batch: GCV/2654 Analysis Method: NWTPH-Gx

QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx Solid GCV

Associated Lab Samples: 2510642002, 2510642003, 2510642006

METHOD BLANK: 101277 Matrix: Solid

Associated Lab Samples: 2510642002, 2510642003, 2510642006

Blank Reporting Limit Qualifiers Parameter Units Result Analyzed Gasoline Range Organics ND 5.0 01/31/12 15:03 mg/kg % 4-Bromofluorobenzene (S) 70 50-150 01/31/12 15:03 a,a,a-Trifluorotoluene (S) % 76 50-150 01/31/12 15:03

LABORATORY CONTROL SAMPLE: 101278

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	12.5	12.4	99	63-140	
4-Bromofluorobenzene (S)	%			82	50-150	
a,a,a-Trifluorotoluene (S)	%			86	50-150	

SAMPLE DUPLICATE: 101416

Parameter	Units	2510679003 Result	Dup Result	RPD	Qualifiers
Gasoline Range Organics	mg/kg	ND	ND		
4-Bromofluorobenzene (S)	%	97	98	.9	
a,a,a-Trifluorotoluene (S)	%	102	103	1	

SAMPLE DUPLICATE: 101417

		2510679007	Dup		
Parameter	Units	Result	Result	RPD	Qualifiers
Gasoline Range Organics	mg/kg	ND ND	ND		
4-Bromofluorobenzene (S)	%	100	100	.008	
a,a,a-Trifluorotoluene (S)	%	104	104	.3	

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Project: WA 11060 Pace Project No.: 2510642

QC Batch: MPRP/2768 Analysis Method: EPA 6010
QC Batch Method: EPA 3050 Analysis Description: 6010 MET

Associated Lab Samples: 2510642001, 2510642002, 2510642003, 2510642004, 2510642005, 2510642006, 2510642008, 2510642009

METHOD BLANK: 100859 Matrix: Solid

Associated Lab Samples: 2510642001, 2510642002, 2510642003, 2510642004, 2510642005, 2510642006, 2510642008, 2510642009

Blank Reporting

 Parameter
 Units
 Result
 Limit
 Analyzed
 Qualifiers

 Lead
 mg/kg
 ND
 1.0
 01/30/12 17:05

LABORATORY CONTROL SAMPLE: 100860

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Lead mg/kg 25 23.5 80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 100861 100862

MS MSD 2510622004 Spike Spike MS MSD MS MSD % Rec Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD Qual 2.9 75-125 Lead mg/kg 25.3 25.3 24.5 27.6 86 98 12



Project: WA 11060 Pace Project No.: 2510642

QC Batch: MSV/6262 Analysis Method: EPA 8260

QC Batch Method: EPA 5035A/5030B Analysis Description: 8260 MSV 5035A Medium Soil

Associated Lab Samples: 2510642005, 2510642008

METHOD BLANK: 101281 Matrix: Solid

Associated Lab Samples: 2510642005, 2510642008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethylbenzene	ug/kg	ND ND	50.0	01/31/12 15:50	
Toluene	ug/kg	ND	50.0	01/31/12 15:50	
Xylene (Total)	ug/kg	ND	150	01/31/12 15:50	
1,2-Dichloroethane-d4 (S)	%	92	70-125	01/31/12 15:50	
4-Bromofluorobenzene (S)	%	99	73-128	01/31/12 15:50	
Dibromofluoromethane (S)	%	98	75-116	01/31/12 15:50	
Toluene-d8 (S)	%	98	74-124	01/31/12 15:50	

LABORATORY CONTROL SAMPLE:	101282

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Ethylbenzene	ug/kg	1000	955	96	71-123	
Toluene	ug/kg	1000	894	89	69-118	
Xylene (Total)	ug/kg	3000	2880	96	71-122	
1,2-Dichloroethane-d4 (S)	%			90	70-125	
4-Bromofluorobenzene (S)	%			92	73-128	
Dibromofluoromethane (S)	%			102	75-116	
Toluene-d8 (S)	%			93	74-124	

MATRIX SPIKE & MATRIX SP	IKE DUPLICAT	E: 10142	7		101428						
			MS	MSD							
	2	510718001	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
Ethylbenzene	ug/kg	ND	889	889	2440	2470	274	278	64-136	1 M1	
Toluene	ug/kg	ND	889	889	2290	2240	257	251	65-130	2 M1	
Xylene (Total)	ug/kg	ND	2670	2670	7270	7450	272	279	63-134	2 M1	
1,2-Dichloroethane-d4 (S)	%						91	92	70-125		
4-Bromofluorobenzene (S)	%						92	93	73-128		
Dibromofluoromethane (S)	%						101	102	75-116		
Toluene-d8 (S)	%						97	91	74-124		



Project: WA 11060 Pace Project No.: 2510642

QC Batch: MSV/6299 Analysis Method: EPA 8260

QC Batch Method: EPA 5035A/5030B Analysis Description: 8260 MSV 5035A Medium Soil

Associated Lab Samples: 2510642009

METHOD BLANK: 101837 Matrix: Solid

Associated Lab Samples: 2510642009

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
Benzene	ug/kg	ND ND	25.0	02/05/12 05:41	
Ethylbenzene	ug/kg	ND	50.0	02/05/12 05:41	
Methyl-tert-butyl ether	ug/kg	ND	50.0	02/05/12 05:41	
Toluene	ug/kg	ND	50.0	02/05/12 05:41	
Xylene (Total)	ug/kg	ND	150	02/05/12 05:41	
1,2-Dichloroethane-d4 (S)	%	92	70-125	02/05/12 05:41	
4-Bromofluorobenzene (S)	%	110	73-128	02/05/12 05:41	
Dibromofluoromethane (S)	%	101	75-116	02/05/12 05:41	
Toluene-d8 (S)	%	95	74-124	02/05/12 05:41	

LABORATORY CONTROL SAMPLE: 101838

E BOTT TOTAL CONTINUE OF THE	22. 101000					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Benzene	ug/kg	1000	1010	101	71-123	
Ethylbenzene	ug/kg	1000	1010	101	71-123	
Methyl-tert-butyl ether	ug/kg	1000	797	80	68-133	
Toluene	ug/kg	1000	986	99	69-118	
Xylene (Total)	ug/kg	3000	2950	98	71-122	
1,2-Dichloroethane-d4 (S)	%			88	70-125	
4-Bromofluorobenzene (S)	%			93	73-128	
Dibromofluoromethane (S)	%			98	75-116	
Toluene-d8 (S)	%			99	74-124	

MATRIX SPIKE & MATRIX SP	IKE DUPLICAT	E: 10198	5		101986						
			MS	MSD							
	2	510691003	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
Benzene	ug/kg	208	1150	1150	2740	2530	219	201	68-137	8 M1	
Ethylbenzene	ug/kg	91.5	1150	1150	2120	1970	176	163	64-136	8 M1	
Methyl-tert-butyl ether	ug/kg	ND	1150	1150	928	860	80	75	62-146	8	
Toluene	ug/kg	511	1150	1150	5180	4850	405	376	65-130	7 M1	
Xylene (Total)	ug/kg	477	3460	3460	8770	8140	239	221	63-134	7 M1	
1,2-Dichloroethane-d4 (S)	%						84	85	70-125		
4-Bromofluorobenzene (S)	%						95	92	73-128		
Dibromofluoromethane (S)	%						96	95	75-116		
Toluene-d8 (S)	%						98	98	74-124		

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Project: WA 11060 Pace Project No.: 2510642

QC Batch: MSV/6241 Analysis Method: EPA 8260

QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics

Associated Lab Samples: 2510642003, 2510642004, 2510642005, 2510642006, 2510642008, 2510642010

METHOD BLANK: 100748 Matrix: Solid

Associated Lab Samples: 2510642003, 2510642004, 2510642005, 2510642006, 2510642008, 2510642010

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
Benzene	ug/kg	ND	3.0	01/26/12 10:01	
Ethylbenzene	ug/kg	ND	3.0	01/26/12 10:01	
Methyl-tert-butyl ether	ug/kg	ND	3.0	01/26/12 10:01	
Toluene	ug/kg	ND	3.0	01/26/12 10:01	
Xylene (Total)	ug/kg	ND	9.0	01/26/12 10:01	
1,2-Dichloroethane-d4 (S)	%	107	67-136	01/26/12 10:01	
4-Bromofluorobenzene (S)	%	104	67-142	01/26/12 10:01	
Dibromofluoromethane (S)	%	102	72-129	01/26/12 10:01	
Toluene-d8 (S)	%	99	69-133	01/26/12 10:01	

LABORATORY CONTROL SAMPLE: 100749

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Benzene	ug/kg	20	20.6	103	69-133	
Ethylbenzene	ug/kg	20	22.4	112	68-126	
Methyl-tert-butyl ether	ug/kg	20	22.8	114	67-134	
Toluene	ug/kg	20	20.6	103	68-130	
Xylene (Total)	ug/kg	60	69.1	115	68-126	
1,2-Dichloroethane-d4 (S)	%			98	67-136	
4-Bromofluorobenzene (S)	%			98	67-142	
Dibromofluoromethane (S)	%			101	72-129	
Toluene-d8 (S)	%			100	69-133	

MATRIX SPIKE & MATRIX SP	IKE DUPLICAT	E: 10133	6		101337						
			MS	MSD							
	2	510617002	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
Benzene	ug/kg	ND	23.2	22	21.6	20.1	93	91	40-129	7	
Ethylbenzene	ug/kg	ND	23.2	22	25.6	22.5	110	102	40-134	13	
Methyl-tert-butyl ether	ug/kg	ND	23.2	22	18.4	18.6	79	84	40-149	.8	
Toluene	ug/kg	ND	23.2	22	22.4	19.8	94	87	40-134	13	
Xylene (Total)	ug/kg	ND	69.8	66.1	74.0	65.2	106	99	40-129	13	
1,2-Dichloroethane-d4 (S)	%						77	88	67-136		
4-Bromofluorobenzene (S)	%						103	107	67-142		
Dibromofluoromethane (S)	%						89	97	72-129		
Toluene-d8 (S)	%						104	103	69-133		

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Project: WA 11060 Pace Project No.: 2510642

QC Batch: MSV/6253 Analysis Method: EPA 8260

QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics

Associated Lab Samples: 2510642001, 2510642002

METHOD BLANK: 100937 Matrix: Solid

Associated Lab Samples: 2510642001, 2510642002

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
Benzene	ug/kg	ND ND	3.0	01/27/12 17:45	
Ethylbenzene	ug/kg	ND	3.0	01/27/12 17:45	
Methyl-tert-butyl ether	ug/kg	ND	3.0	01/27/12 17:45	
Toluene	ug/kg	ND	3.0	01/27/12 17:45	
Xylene (Total)	ug/kg	ND	9.0	01/27/12 17:45	
1,2-Dichloroethane-d4 (S)	%	93	67-136	01/27/12 17:45	
4-Bromofluorobenzene (S)	%	106	67-142	01/27/12 17:45	
Dibromofluoromethane (S)	%	100	72-129	01/27/12 17:45	
Toluene-d8 (S)	%	94	69-133	01/27/12 17:45	

LABORATORY CONTROL SAMPLE: 100938

ENDORUMONT CONTINUE COMM	EE: 100000					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Benzene	ug/kg		15.4	77	69-133	
Ethylbenzene	ug/kg	20	16.8	84	68-126	
Methyl-tert-butyl ether	ug/kg	20	16.4	82	67-134	
Toluene	ug/kg	20	14.9	74	68-130	
Xylene (Total)	ug/kg	60	49.8	83	68-126	
1,2-Dichloroethane-d4 (S)	%			94	67-136	
4-Bromofluorobenzene (S)	%			99	67-142	
Dibromofluoromethane (S)	%			95	72-129	
Toluene-d8 (S)	%			99	69-133	

MATRIX SPIKE & MATRIX SP	IKE DUPLICAT	E: 10136	4	•	101365	•	•		•		•
			MS	MSD							
	2	510708001	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
Benzene	ug/kg	110	14	13.7	131	62.3	147	-349	40-129	71	D6,E,M1
Ethylbenzene	ug/kg	144	14	13.7	331	106	1340	-276	40-134	103	D6,E,M1
Methyl-tert-butyl ether	ug/kg	ND	14	13.7	10.2	10.8	72	79	40-149	6	
Toluene	ug/kg	11.2	14	13.7	26.2	13.1	107	14	40-134	67	D6,M1
Xylene (Total)	ug/kg	80.0	42.1	41.2	246	68.9	394	-27	40-129	112	D6,E,M1
1,2-Dichloroethane-d4 (S)	%						148	97	67-136		S0
4-Bromofluorobenzene (S)	%						196	133	67-142		S0
Dibromofluoromethane (S)	%						103	96	72-129		
Toluene-d8 (S)	%						670	214	69-133		S0

Date: 02/09/2012 02:10 PM REPORT OF I



Project: WA 11060 Pace Project No.: 2510642

QC Batch: OEXT/5020 Analysis Method: NWTPH-Dx
QC Batch Method: EPA 3546 Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 2510642001, 2510642002, 2510642003, 2510642004, 2510642005, 2510642006, 2510642008, 2510642009

METHOD BLANK: 100779 Matrix: Solid

Associated Lab Samples: 2510642001, 2510642002, 2510642003, 2510642004, 2510642005, 2510642006, 2510642008, 2510642009

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
Diesel Range	mg/kg	ND	16.0	01/26/12 17:17	
Motor Oil Range	mg/kg	ND	64.0	01/26/12 17:17	
n-Octacosane (S)	%	89	50-150	01/26/12 17:17	
o-Terphenyl (S)	%	90	50-150	01/26/12 17:17	

LABORATORY CONTROL SAMPLE: 100780

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/kg	400	356	89	70-111	
Motor Oil Range	mg/kg	400	388	97	73-118	
n-Octacosane (S)	%			94	50-150	
o-Terphenyl (S)	%			93	50-150	

SAMPLE DUPLICATE: 100781

Parameter	Units	2510642002 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/kg	ND	ND		
Motor Oil Range	mg/kg	ND	ND		
n-Octacosane (S)	%	93	90	3	
o-Terphenyl (S)	%	94	91	3	

SAMPLE DUPLICATE: 100782

		2510642008	Dup		
Parameter	Units	Result	Result	RPD	Qualifiers
Diesel Range	mg/kg	30.5	30.2	.8	
Motor Oil Range	mg/kg	ND	ND		
n-Octacosane (S)	%	111	94	16	
o-Terphenyl (S)	%	111	94	16	

Date: 02/09/2012 02:10 PM



Project: WA 11060 Pace Project No.: 2510642

QC Batch: PMST/1947 Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 2510642001, 2510642002, 2510642003, 2510642004, 2510642005, 2510642006, 2510642008, 2510642009

SAMPLE DUPLICATE: 100838

 Parameter
 Units
 2510645001 Result
 Dup Result
 RPD
 Qualifiers

 Percent Moisture
 %
 23.7
 23.8
 .3

SAMPLE DUPLICATE: 100839

Percent Moisture

Parameter

Units

Dup
Result
Result
Result
RPD
Qualifiers

7.8
4



QUALIFIERS

Project: WA 11060 Pace Project No.: 2510642

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.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

Date: 02/09/2012 02:10 PM

D6	The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.
Е	Analyte concentration exceeded the calibration range. The reported result is estimated.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
S0	Surrogate recovery outside laboratory control limits.
S2	Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).
S5	Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WA 11060 Pace Project No.: 2510642

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2510642001	SB-4-15'	EPA 3546	OEXT/5020	NWTPH-Dx	GCSV/3270
2510642002	SB-4-20'	EPA 3546	OEXT/5020	NWTPH-Dx	GCSV/3270
2510642003	SB-4-35'	EPA 3546	OEXT/5020	NWTPH-Dx	GCSV/3270
2510642004	EW-3-15'	EPA 3546	OEXT/5020	NWTPH-Dx	GCSV/3270
2510642005	EW-3-20'	EPA 3546	OEXT/5020	NWTPH-Dx	GCSV/3270
2510642006	EW-3-30'	EPA 3546	OEXT/5020	NWTPH-Dx	GCSV/3270
2510642008	DUP-2	EPA 3546	OEXT/5020	NWTPH-Dx	GCSV/3270
2510642009	EW-1-15'	EPA 3546	OEXT/5020	NWTPH-Dx	GCSV/3270
2510642001	SB-4-15'	NWTPH-Gx	GCV/2651	NWTPH-Gx	GCV/2655
2510642002	SB-4-20'	NWTPH-Gx	GCV/2654	NWTPH-Gx	GCV/2658
2510642003	SB-4-35'	NWTPH-Gx	GCV/2654	NWTPH-Gx	GCV/2658
2510642004	EW-3-15'	NWTPH-Gx	GCV/2651	NWTPH-Gx	GCV/2655
2510642005	EW-3-20'	NWTPH-Gx	GCV/2651	NWTPH-Gx	GCV/2655
2510642006	EW-3-30'	NWTPH-Gx	GCV/2654	NWTPH-Gx	GCV/2658
2510642008	DUP-2	NWTPH-Gx	GCV/2651	NWTPH-Gx	GCV/2655
2510642009	EW-1-15'	NWTPH-Gx	GCV/2651	NWTPH-Gx	GCV/2655
2510642010	Trip Blank	NWTPH-Gx	GCV/2651	NWTPH-Gx	GCV/2655
2510642001 2510642002 2510642003 2510642004 2510642005 2510642006 2510642008 2510642009	SB-4-15' SB-4-20' SB-4-35' EW-3-15' EW-3-20' EW-3-30' DUP-2 EW-1-15'	EPA 3050 EPA 3050 EPA 3050 EPA 3050 EPA 3050 EPA 3050 EPA 3050	MPRP/2768 MPRP/2768 MPRP/2768 MPRP/2768 MPRP/2768 MPRP/2768 MPRP/2768 MPRP/2768	EPA 6010 EPA 6010 EPA 6010 EPA 6010 EPA 6010 EPA 6010 EPA 6010	ICP/2608 ICP/2608 ICP/2608 ICP/2608 ICP/2608 ICP/2608 ICP/2608 ICP/2608
2510642005	EW-3-20'	EPA 5035A/5030B	MSV/6262	EPA 8260	MSV/6283
2510642008	DUP-2	EPA 5035A/5030B	MSV/6262	EPA 8260	MSV/6283
2510642009 2510642001 2510642002	EW-1-15' SB-4-15' SB-4-20'	EPA 5035A/5030B EPA 8260 EPA 8260	MSV/6299 MSV/6253 MSV/6253	EPA 8260	MSV/6314
2510642003 2510642004 2510642005 2510642006 2510642008 2510642010	SB-4-35' EW-3-15' EW-3-20' EW-3-30' DUP-2 Trip Blank	EPA 8260 EPA 8260 EPA 8260 EPA 8260 EPA 8260 EPA 8260	MSV/6241 MSV/6241 MSV/6241 MSV/6241 MSV/6241 MSV/6241		
2510642001 2510642002 2510642003 2510642004 2510642005 2510642006 2510642008	SB-4-15' SB-4-20' SB-4-35' EW-3-15' EW-3-20' EW-3-30' DUP-2	ASTM D2974-87 ASTM D2974-87 ASTM D2974-87 ASTM D2974-87 ASTM D2974-87 ASTM D2974-87	PMST/1947 PMST/1947 PMST/1947 PMST/1947 PMST/1947 PMST/1947 PMST/1947		

Date: 02/09/2012 02:10 PM

REPORT OF LABORATORY ANALYSIS





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WA 11060 Pace Project No.: 2510642

Lab ID Sample ID QC Batch Method QC Batch Method Analytical Method Batch

2510642009 EW-1-15' ASTM D2974-87 PMST/1947

Date: 02/09/2012 02:10 PM



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

2510642

Section A	Section B			46.1						ion C										Pa	ige:	zad.	of (
Required Client Information: Company: ADC ADIC	Required P	-			74.		ALL NO.		Invoic Attent	e Informion:	ation:		-	-	-	7 100				Dyrig ell	1	19	16/1	5
Address: 2300 East lake Ave	Copy To:	50	<i>u</i> u	Zor	noc				Company Name: REGULAT							ATORY	1491645 TORY AGENCY							
Seuffe, WA 98102	ion vitaret	A	16.	V	Miles Kahal				Addrage:						NPDES GROUND WATER DRINKING WATER						IG WATER			
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Phone: 105 726 4709 Fax: Requested Due Date/TAT:	Project Nan	ne:								Project		4		T			8	Site Lo	cation					
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Waste Water Product		valid codes to left)	(G=GRAB C=COMP)	COMP STA	OSITE MT	COMPOS END/GF		COLLECTION								M					2			
SAMPLE ID Soil/Solid	SL OL	(see v	3=GR	7/011	or sun an	onemi	at toth	COLI	SS		PITON		Bour	⇒		MTB	7		TENE LE	- Yali	(X)	OFFIRE		
(A-Z, 0-9 / ,-) Air	WP AR	핌				Mil blin		IP AT	AINE	P	HE	1	2	Tes	15.	S E	00	3		Asm	lorin	1 mnie		
Sample IDs MUST BE UNIQUE Tissue Other	TS OT	X CODE	TYP		tuis of	gnoul.		ETEMP	ONT,	erve	de m	3	lo l	ysis	0	×		}		acubi	a C	real rest		
## ITEM #	formula	MATRIX	SAMPLE TYPE		olle alge	me (D)		SAMPLE	# OF CONTAINERS	Unpreserved H ₂ SO ₄	9 5	NaOH Na ₂ S ₂ O ₃	Methanol	Analysis Test	2	对后	PAY	PH	2		Residual Chlorine (Y/N)	detla s		
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with any Questions			WINE S		- Contract D	1271			24	170.71						94	1144							
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						SIGNATUR	E of SAMP	r∟⊞Ra								TE Sign					Ten	Rece	Ct.	Samp (

Sample Container Count

2510642

Pace Analytical"

CLIENT:	Arcaelis	

COC PAGE | of | COC ID# | 49 | 645

Trip Blank(s) Provided?

Y / N

Sample Line Item	VCOH	^C1⊔	۸ <u>С</u> 111	DD111	BD311	BD311	BD3N	RD3S	WCKII	WGELL	WG2H	DGGM	DGQR	VG9W	VSG		Comments
Line item	VG9H	AGIII	AGIO	DETO	DFZU	DI 30	DESIA	DI 33	TVORO	TVVOIO	1 020	T DOSW		1 0377	V 0 0	 	 Comments
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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	BP2U 500mL unpreserved plastic		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		2 oz clear glass soil jar		
AG3S	250mL H2SO4 amber glass	BP3N	23N 250mL HNO3 plastic		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	9H 40mL HCL amber voa vial		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	P2O 500mL NaOH plastic		Wipe/Swab	U	Summa Can		

	Sample	201101	mon opon neceip	· 共同的是1985年7月19日	0 = 4	0.0	/ 0
Face Analytical Client	Name: Aca	dis	<u> </u>	Project #	251	0 6	4 2
Courier: Fed Ex UPS USPS	Client Comm	ercial	Pace Other				
Custody Seal on Cooler/Box Present:	☐ Yes No	Seals	intact: Yes	No			
Packing Material: Bubble Wrap	Bubble Bags N	lone	Other frankits	_ Temp. Blank Yes	No	-	_
Thermometer Used 132013 of 1017319	962 or 226099 Type of Ice:	Wei	Blue None	Samples on ice, cooling			_
Cooler Temperature 0.8 Temp should be above freezing ≤ 6 ℃	. Biological	Tissue	is Frozen: Yes No Comments:	Date and Initials of contents:			
Chain of Custody Present:	∠⊠Ŷes □No	□N/A	1.]
Chain of Custody Filled Out:	⊠Ýes □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:	ØYes □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.				1
-Pace Containers Used:	√Yes □No	□N/A					
Containers Intact:	∠ Yes □No	□N/A	11.				1
Filtered volume received for Dissolved te	sts 🗆 Yes 🗆 No	□N/A	12.	. 1			1
Sample Labels match COC:	Dyes DNo	□n/a	13.Soil trip bl	ank received	, not in i	COC.	1
-Includes date/time/ID/Analysis M All containers needing preservation have been d	latrix:		1				
All containers needing preservation have been o	rnecked. ☐Yes ☐No	.⊠N/A	14.				
All containers needing preservation are found compliance with EPA recommendation.	to be in ☐Yes ☐No	₽N/A					
Exceptions/VOA, coliform, TOC, O&G			Initial when completed	Lot # of added preservative			
Samples checked for dechlorination:	□Yes □No	ØN/A	15.]
Headspace in VOA Vials (>6mm):	□Yes □No	DNIA	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: Person Contacted: Van /	niles	Date/	rime: 1/25/12	Field Data Required?	. Y /	Ν	-
Comments/Resolution:	Trip blan	h	not on	Coc - Ca	ellea	2	
hold · Client	returned	0	all; ple	se fux	I vo	lite	les
			-				•
	340				,		•
Project Manager Review:	ari	3		Date: //	126/1	2	•

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)



1311 N. 35th St. Seattle, WA 98103 T: (206) 352-3790 F: (206) 352-7178 info@fremontanalytical.com

Pace Analytical Seattle

Andy Brownfield 940 South Harney Seattle, Washington 98108

RE: WA 11060 Lab ID: 1201128

February 09, 2012

Attention Andy Brownfield:

Fremont Analytical, Inc. received 1 sample(s) on 1/26/2012 for the analyses presented in the following report.

Extractable Petroleum Hydrocarbons by NWEPH Volatile Petroleum Hydrocarbons by NWVPH

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Michael Dee

MGR

Sr. Chemist / Principal



CLIENT: Pace Analytical Seattle Work Order Sample Summary

Project: WA 11060 Lab Order: 1201128

Lab Sample ID Client Sample ID Date/Time Collected Date/Time Received

1201128-001 EW-3-25' 01/25/2012 10:50 AM 01/26/2012 3:00 PM



Case Narrative

WO#: **1201128**Date: **2/9/2012**

CLIENT: Pace Analytical Seattle

Project: WA 11060

I. SAMPLE RECEIPT:

All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

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

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

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



Analytical Report

WO#: **1201128**Date Reported: **2/9/2012**

Client: Pace Analytical Seattle Collection Date: 1/25/2012 10:50:00 AM

Project: WA 11060

Lab ID: 1201128-001 **Matrix:** Solid

Client Sample ID: EW-3-25'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydroca	rbons by NWE	<u>PH</u>		Batch	n ID: 1831	Analyst: SG
Aliphatic Hydrocarbon (C8-C10)	ND	4.85		mg/Kg-dry	1	2/8/2012 3:14:00 PM
Aliphatic Hydrocarbon (C10-C12)	ND	4.85		mg/Kg-dry	1	2/8/2012 3:14:00 PM
Aliphatic Hydrocarbon (C12-C16)	ND	4.85		mg/Kg-dry	1	2/8/2012 3:14:00 PM
Aliphatic Hydrocarbon (C16-C21)	ND	4.85		mg/Kg-dry	1	2/8/2012 3:14:00 PM
Aliphatic Hydrocarbon (C21-C34)	ND	4.85		mg/Kg-dry	1	2/8/2012 3:14:00 PM
Aromatic Hydrocarbon (C8-C10)	ND	4.85		mg/Kg-dry	1	2/8/2012 5:34:00 PM
Aromatic Hydrocarbon (C10-C12)	ND	4.85		mg/Kg-dry	1	2/8/2012 5:34:00 PM
Aromatic Hydrocarbon (C12-C16)	ND	4.85		mg/Kg-dry	1	2/8/2012 5:34:00 PM
Aromatic Hydrocarbon (C16-C21)	ND	4.85		mg/Kg-dry	1	2/8/2012 5:34:00 PM
Aromatic Hydrocarbon (C21-C34)	ND	4.85		mg/Kg-dry	1	2/8/2012 5:34:00 PM
Surr: 1-Chlorooctadecane	121	65-140		%REC	1	2/8/2012 3:14:00 PM
Surr: o-Terphenyl	103	65-140		%REC	1	2/8/2012 5:34:00 PM
Volatile Petroleum Hydrocarbon	ns by NWVPH			Batch	n ID: 1867	' Analyst: PH
Aliphatic Hydrocarbon (C5-C6)	ND	0.342		mg/Kg-dry	1	2/6/2012 9:16:00 PM
Aliphatic Hydrocarbon (C6-C8)	0.962	0.342		mg/Kg-dry	1	2/6/2012 9:16:00 PM
Aliphatic Hydrocarbon (C8-C10)	10.2	0.342		mg/Kg-dry	1	2/6/2012 9:16:00 PM
Aliphatic Hydrocarbon (C10-C12)	8.13	0.342		mg/Kg-dry	1	2/6/2012 9:16:00 PM
Aromatic Hydrocarbon (C8-C10)	10.1	0.342		mg/Kg-dry	1	2/6/2012 9:16:00 PM
Aromatic Hydrocarbon (C10-C12)	17.4	0.342		mg/Kg-dry	1	2/6/2012 9:16:00 PM
Aromatic Hydrocarbon (C12-C13)	3.33	0.342		mg/Kg-dry	1	2/6/2012 9:16:00 PM
Benzene	ND	0.342		mg/Kg-dry	1	2/6/2012 9:16:00 PM
Toluene	ND	0.342		mg/Kg-dry	1	2/6/2012 9:16:00 PM
Ethylbenzene	ND	0.342		mg/Kg-dry	1	2/6/2012 9:16:00 PM
m,p-Xylene	1.02	0.342		mg/Kg-dry	1	2/6/2012 9:16:00 PM
o-Xylene	ND	0.342		mg/Kg-dry	1	2/6/2012 9:16:00 PM
Naphthalene	0.558	0.342		mg/Kg-dry	1	2/6/2012 9:16:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.342		mg/Kg-dry	1	2/6/2012 9:16:00 PM
Surr: Bromoflourobeneze	132	65-140		%REC	1	2/6/2012 9:16:00 PM
Surr: Trifluorotoluene	94.9	65-140		%REC	1	2/6/2012 9:16:00 PM

Qualifiers:

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

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



Work Order: 1201128

CLIENT: Pace Analytical Seattle

Project: WA 11060

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

SampType: DUP			Units: mg/K	g-dry	Prep Dat	e: 2/1/201	2	RunNo: 331	5	
Batch ID: 1831					Analysis Dat	e: 2/8/201	2	SeqNo: 590	80	
Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
ND	5.24						0	0	30	
ND	5.24						0	0	30	R
ND	5.24						0	0	30	
ND	5.24						0	0	30	
ND	5.24						0	0	30	
5.26		4.195		125	65	140		0		
SampType: DUP			Units: mg/K	g-dry	Prep Dat	e: 2/1/201	2	RunNo: 331	5	
Batch ID: 1831					Analysis Dat	e: 2/8/201	2	SeqNo: 590	81	
Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
ND	5.24						0	0	30	R
ND	5.24						0	0	30	
ND	5.24						0	0	30	
ND	5.24						0	0	30	
ND	5.24						0	0	30	
4.39		4.195		105	65	140		0		
SampType: LCS			Units: mg/K	g	Prep Dat	e: 2/1/201	2	RunNo: 331	5	
Batch ID: 1831					Analysis Dat	e: 2/8/201	2	SeqNo: 590	83	
Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
43.5	5.00	40.00	0	109	70	130				
20.6	5.00	20.00	0	103	70	130				
ne associated Method Blank		D Dilution wa	s required			E Value	above quantitation ra	ange		
paration or analysis exceeded			•	n limits			•	•		
d recovery limits		•	·				•	-	ts	
	Result ND ND ND ND 5.26 SampType: DUP Batch ID: 1831 Result ND ND ND ND ND ND ND ND ND ND ND ND ND	Result RL	Result RL SPK value	Result RL SPK value SPK Ref Val	Result RL SPK value SPK Ref Val %REC	Result RL SPK value SPK Ref Val %REC LowLimit	Result RL SPK value SPK Ref Val %REC LowLimit HighLimit	Result RL SPK value SPK Ref Val 9/REC LowLimit HighLimit RPD Ref Val	Batch ID: 1831 Result RL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD ND 5.24	Result RL SPK value SPK Ref Val S



Work Order: 1201128

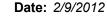
CLIENT: Pace Analytical Seattle

Project: WA 11060

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: LCS-1831	SampType: LCS			Units: mg/Kg		Prep Dat	te: 2/1/2012	!	RunNo: 331	5	
Client ID: LCSS	Batch ID: 1831					Analysis Dat	te: 2/8/2012	!	SeqNo: 590	83	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C12-C16)	18.1	5.00	20.00	0	90.3	70	130				
Aliphatic Hydrocarbon (C16-C21)	20.0	5.00	20.00	0	99.9	70	130				
Aliphatic Hydrocarbon (C21-C34)	22.5	5.00	20.00	0	113	70	130				
Surr: 1-Chlorooctadecane	46.0		40.00		115	65	140				
Sample ID: MB-1831	SampType: MBLK			Units: mg/Kg		Prep Dat	te: 2/1/2012	!	RunNo: 331 :	5	
Client ID: MBLKS	Batch ID: 1831					Analysis Dat	te: 2/8/2012	!	SeqNo: 590	84	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	ND	5.00									
Aliphatic Hydrocarbon (C10-C12)	ND	5.00									
Aliphatic Hydrocarbon (C12-C16)	ND	5.00									
Aliphatic Hydrocarbon (C16-C21)	ND	5.00									
Aliphatic Hydrocarbon (C21-C34)	ND	5.00									
Surr: 1-Chlorooctadecane	45.1		40.00		113	65	140				
Sample ID: LCS-1831	SampType: LCS			Units: mg/Kg		Prep Dat	te: 2/1/2012		RunNo: 331	5	
Client ID: LCSS	Batch ID: 1831					Analysis Dat	te: 2/8/2012	!	SeqNo: 590	86	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	39.7	5.00	40.00	0	99.2	70	130				
Aromatic Hydrocarbon (C10-C12)	21.5	5.00	20.00	0	108	70	130				
Aromatic Hydrocarbon (C12-C16)	18.6	5.00	20.00	0	92.8	70	130				
Aromatic Hydrocarbon (C16-C21)	18.7	5.00	20.00	0	93.3	70	130				
Qualifiers: B Analyte detected in t	he associated Method Blank		D Dilution wa	as required			E Value	above quantitation ra	ange		
H Holding times for pre	eparation or analysis exceeded		J Analyte de	tected below quantitation li	mits		ND Not de	tected at the Report	ing Limit		
R RPD outside accepte	ed recovery limits		RL Reporting I	Limit			S Spike	recovery outside acc	cepted recovery limit	s	





Work Order: 1201128

Project:

QC SUMMARY REPORT

CLIENT: Pace Analytical Seattle WA 11060

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: LCS-1831	SampType: LCS			Units: mg/Kg		Prep Date:	2/1/2012	RunNo: 3315	
Client ID: LCSS	Batch ID: 1831					Analysis Date:	2/8/2012	SeqNo: 59086	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit F	HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Aromatic Hydrocarbon (C21-C34)	17.7	5.00	20.00	0	88.4	70	130		
Surr: o-Terphenyl	42.3		40.00		106	65	140		
Sample ID: MB-1831	SampType: MBLK			Units: mg/Kg		Prep Date:	2/1/2012	RunNo: 3315	
Client ID: MBLKS	Batch ID: 1831					Analysis Date:	2/8/2012	SeqNo: 59087	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit F	HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	ND	5.00							
Aromatic Hydrocarbon (C10-C12)	ND	5.00							
Aromatic Hydrocarbon (C12-C16)	ND	5.00							
Aromatic Hydrocarbon (C16-C21)	ND	5.00							
Aromatic Hydrocarbon (C21-C34)	ND	5.00							
Surr: o-Terphenyl	42.1		40.00		105	65	140		

Analyte detected in the associated Method Blank Qualifiers:

Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits

Dilution was required

Analyte detected below quantitation limits

Reporting Limit

D

Ε Value above quantitation range

ND Not detected at the Reporting Limit

Spike recovery outside accepted recovery limits



Work Order: 1201128

CLIENT: Pace Analytical Seattle

Project: WA 11060

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: MB-1867	SampType: MBLK			Units: mg/K	<u></u>	Prep Dat	te: 2/6/201	2	RunNo: 330	00	
Client ID: MBLKS	Batch ID: 1867					Analysis Dat	te: 2/6/201	2	SeqNo: 589	934	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	ND	0.500		0	0						
Aliphatic Hydrocarbon (C6-C8)	ND	0.500		0	0						
Aliphatic Hydrocarbon (C8-C10)	ND	0.500		0	0						
Aliphatic Hydrocarbon (C10-C12)	ND	0.500		0	0						
Aromatic Hydrocarbon (C8-C10)	ND	0.500		0	0						
Aromatic Hydrocarbon (C10-C12)	ND	0.500		0	0						
Aromatic Hydrocarbon (C12-C13)	ND	0.500		0	0						
Benzene	ND	0.500		0	0						
Toluene	ND	0.500		0	0						
Ethylbenzene	ND	0.500		0	0						
m,p-Xylene	ND	0.500		0	0						
o-Xylene	ND	0.500		0	0						
Naphthalene	ND	0.500		0	0						
Methyl tert-butyl ether (MTBE)	ND	0.500		0	0						
Surr: Bromoflourobeneze	0.621		0.5000		124	65	140				
Surr: Trifluorotoluene	0.618		0.5000		124	65	140				
Sample ID: 1201128-001BDUP	SampType: DUP			Units: mg/K	g-dry	Prep Dat	te: 2/6/201	2	RunNo: 330	00	
Client ID: EW-3-25'	Batch ID: 1867					Analysis Dat	te: 2/6/201	2	SeqNo: 589	936	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	ND	0.342		0	0			0	0	25	
Aliphatic Hydrocarbon (C6-C8)	0.927	0.342		0	0			0.9625	3.81	25	
Aliphatic Hydrocarbon (C8-C10)	9.69	0.342		0	0			10.15	4.66	25	
Aliphatic Hydrocarbon (C10-C12)	7.96	0.342		0	0			8.129	2.05	25	
Qualifiers: B Analyte detected in	the associated Method Blank		D Dilution wa	as required			E Valu	e above quantitation r	ange		
H Holding times for pre	eparation or analysis exceeded		J Analyte de	tected below quantitation	limits		ND Not	letected at the Report	ing Limit		
R RPD outside accept	ed recovery limits		RL Reporting	Limit			S Spik	e recovery outside acc	cepted recovery lim	its	



Work Order: 1201128

CLIENT: Pace Analytical Seattle

Project: WA 11060

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: 1201128-001BDUP	SampType: DUP			Units: mg/K	g-dry	Prep Date	e: 2/6/2012	2	RunNo: 330	0	
Client ID: EW-3-25'	Batch ID: 1867					Analysis Date	e: 2/6/2012	?	SeqNo: 589	36	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	9.48	0.342		0	0			10.09	6.17	25	
Aromatic Hydrocarbon (C10-C12)	16.9	0.342		0	0			17.42	3.23	25	
Aromatic Hydrocarbon (C12-C13)	2.55	0.342		0	0			3.329	26.7	25	R
Benzene	ND	0.342		0	0			0	0	25	
Toluene	ND	0.342		0	0			0	0	25	
Ethylbenzene	ND	0.342		0	0			0	0	25	
m,p-Xylene	0.957	0.342		0	0			1.020	6.45	25	
o-Xylene	ND	0.342		0	0			0	0	25	
Naphthalene	0.526	0.342		0	0			0.5585	5.97	25	
Methyl tert-butyl ether (MTBE)	ND	0.342		0	0			0	0	25	
Surr: Bromoflourobeneze	0.445		0.3424		130	65	140		0		
Surr: Trifluorotoluene	0.364		0.3424		106	65	140		0		
Sample ID: LCS-1867	SampType: LCS			Units: mg/K	g	Prep Date	e: 2/6/2012	2	RunNo: 330	0	
Client ID: LCSS	Batch ID: 1867					Analysis Date	e: 2/7/2012	2	SeqNo: 589	39	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	46.9	0.500	50.00	0	93.7	70	130				
Aliphatic Hydrocarbon (C6-C8)	21.7	0.500	25.00	0	86.8	70	130				
Aliphatic Hydrocarbon (C8-C10)	24.4	0.500	25.00	0	97.5	70	130				
Aliphatic Hydrocarbon (C10-C12)	28.8	0.500	25.00	0	115	70	130				
Aromatic Hydrocarbon (C8-C10)	117	0.500	100.0	0	117	70	130				
Aromatic Hydrocarbon (C10-C12)	24.4	0.500	25.00	0	97.6	70	130				
Aromatic Hydrocarbon (C12-C13)	29.3	0.500	25.00	0	117	70	130				
Benzene	24.5	0.500	25.00	0	98.0	70	130				
Qualifiers: B Analyte detected in the	he associated Method Blank		D Dilution wa	is required			E Value	above quantitation ra	ange		
H Holding times for pre	paration or analysis exceeded		J Analyte de	tected below quantitation	limits		ND Not de	tected at the Reporti	ing Limit		
R RPD outside accepte	ed recovery limits		RL Reporting I	_imit			S Spike	recovery outside acc	epted recovery limi	ts	



Work Order: 1201128

CLIENT: Pace Analytical Seattle

Project: WA 11060

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: LCS-1867	SampType: LCS			Units: mg/Kg		Prep Dat	e: 2/6/201	2	RunNo: 330	0	
Client ID: LCSS	Batch ID: 1867					Analysis Dat	e: 2/7/201	2	SeqNo: 589	39	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	24.0	0.500	25.00	0	95.9	70	130				
Ethylbenzene	23.9	0.500	25.00	0	95.6	70	130				
m,p-Xylene	46.6	0.500	50.00	0	93.3	70	130				
o-Xylene	24.2	0.500	25.00	0	96.6	70	130				
Naphthalene	24.2	0.500	25.00	0	96.8	70	130				
Methyl tert-butyl ether (MTBE)	26.1	0.500	25.00	0	104	70	130				
Surr: Bromoflourobeneze	0.573		0.5000		115	65	140				
Surr: Trifluorotoluene	0.647		0.5000		129	65	140				
Sample ID: 1202006-001AMS	SampType: MS			Units: mg/Kg	-dry	Prep Dat	e: 2/6/201	2	RunNo: 330	0	
Client ID: BATCH	Batch ID: 1867					Analysis Dat	e: 2/7/201	2	SeqNo: 589	40	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	49.2	0.565	56.48	0	87.1	70	130				
Aliphatic Hydrocarbon (C6-C8)	23.5	0.565	28.24	0	83.1	70	130				
Aliphatic Hydrocarbon (C8-C10)	24.7	0.565	28.24	0.4356	85.9	70	130				
Aliphatic Hydrocarbon (C10-C12)	25.9	0.565	28.24	0.3951	90.2	70	130				
Aromatic Hydrocarbon (C8-C10)	121	0.565	113.0	3.846	104	70	130				
Aromatic Hydrocarbon (C10-C12)	25.9	0.565	28.24	2.580	82.8	70	130				
Aromatic Hydrocarbon (C12-C13)	23.3	0.565	28.24	0	82.5	70	130				
Benzene	26.5	0.565	28.24	0.8539	90.8	70	130				
Toluene	25.5	0.565	28.24	0.7053	87.8	70	130				
Ethylbenzene	24.6	0.565	28.24	0.4570	85.5	70	130				
m,p-Xylene	48.5	0.565	56.48	1.677	82.9	70	130				
o-Xylene	24.4	0.565	28.24	0.4025	85.1	70	130				
Qualifiers: B Analyte detected in t	the associated Method Blank		D Dilution wa	s required			E Value	e above quantitation ra	inge		
H Holding times for pre	eparation or analysis exceeded		J Analyte de	tected below quantitation I	imits		ND Not o	letected at the Reporting	ng Limit		
R RPD outside accepte	ed recovery limits		RL Reporting I	₋imit			S Spike	e recovery outside acco	epted recovery limi	ts	



Analytical

Date: 2/9/2012

Work Order: 1201128

Project:

QC SUMMARY REPORT

CLIENT: Pace Analytical Seattle WA 11060

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: 1202006-001AMS	SampType: MS			Units: mg/K	g-dry	Prep Dat	e: 2/6/201	2	RunNo: 330	0	
Client ID: BATCH	Batch ID: 1867					Analysis Dat	e: 2/7/201	2	SeqNo: 589	40	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	22.8	0.565	28.24	0	80.8	70	130				
Methyl tert-butyl ether (MTBE)	26.8	0.565	28.24	0	94.8	70	130				
Surr: Bromoflourobeneze	0.619		0.5648		110	65	140				
Surr: Trifluorotoluene	0.698		0.5648		124	65	140				

Qualifiers: Analyte detected in the associated Method Blank

Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits

Dilution was required

Analyte detected below quantitation limits

Reporting Limit

D

Ε Value above quantitation range

ND Not detected at the Reporting Limit

Spike recovery outside accepted recovery limits



Sample Log-In Check List

	nt Name: PACE ged by: Troy Zehr	Work Order Number: Date Received:	1201128 1/26/2012 3:00	0:00 PM
Cha	ain of Custody			
1.	Were custodial seals intact?	Yes 🗸	No 🗌	Not Present
2.	Is Chain of Custody complete?	Yes 🗸	No \square	Not Present
3.	How was the sample delivered?	<u>Client</u>		
Log	a In			
4.	Coolers are present?	Yes 🗹	No 🗆	NA \square
5.	Was an attempt made to cool the samples?	Yes 🗹	No 🗌	NA \square
6.	Were all coolers received at a temperature of >0° C to 10.0°C	Yes 🗸	No 🗌	NA \square
7.	Sample(s) in proper container(s)?	Yes 🗸	No 🗌	
8.	Sufficient sample volume for indicated test(s)?	Yes 🗸	No \square	
9.	Are samples properly preserved?	Yes 🗸	No \square	
10.	Was preservative added to bottles?	Yes	No 🗸	NA 🗆
11.	Is there headspace present in VOA vials?	Yes	No 🗹	na 🗆
	Did all sample containers arrive in good condition?(unbroken)	Yes 🗹	No 🗆	
	Does paperwork match bottle labels?	Yes 🗸	No 🗌	
14.	Are matrices correctly identified on Chain of Custody?	Yes 🔽	No 🗌	
	Is it clear what analyses were requested?	Yes 🗹	No \square	
16.	Were all holding times able to be met?	Yes 🗹	No 🗆	
<u>Spe</u>	ecial Handling (if applicable)			
17.	Was client notified of all discrepancies with this order?	Yes	No 🗆	NA 🗹
	Person Notified: By Whom: Regarding: Client Instructions:	•	ne Fax	In Person
18.	Additional remarks/Disrepancies			

Item Information

Item #	Temp °C	Condition
Cooler	2.1	Good

1201128 Pace Analytical

And Board Handle	Workor	Workorder: 2510842	Workorder Name:	er Name:	WA 11060				Results Requested 2/8/2012	
Brownfield Bro	Report /	nvoice To	TO SERVICE OF THE SER	Subcont	ractTo		SECTION AND ADDRESS.		Requested Analysis	
Collect Coll	Andy Bro Pace An 940 Sour Seattle, N Phone (2 Email: ar	ovurfield alytical Seattle th Harney WA 98108 206)767-5060 ndy.brownfield@paceli	abs.com	Fren	nont	O.G.				
Collect Coll							Prese	rved Container		
## Solid 2 1/26/2012 10:50 2610642007 Solid 2		ample ID	Coll	ect e/Time	Labito	Natrix			1/HJ=	LABUSEONLY
ransfers Released By Date/Time Received By Date/Time	1 E	W-3.25	1/25	72012 10:50	2510642007	Solid	17		X	
Tansfers Released By Date/Time Received By Date/Time (126/13 130)	2									
Thoughts Sharp 1961 1950 The Received By Date/Time 1961 1950 The 1	60									
Though Submit 1950 Received By Date/Time 196/18-1950 Pt. 196/12	4									
Tansiers Released By Date/Time Received By Date/Time 1950 20 20 1/26/12	ug .						100000000000000000000000000000000000000		Commente	
Typhis Stary 196/12 130 Hel.	Transfers			Date/Tim		dBy		Date		
	-	J. Markin	Jan	1/26/13	8	2		7/	26/12	
5	7	-	_	-				-		
5	9									
9	4									
	5							_		





February 09, 2012

Scott Zorn Arcadis U.S., Inc. 2300 Eastlake Ave E. Ste. 200 Seattle, WA 98102

RE: Project: WA 11060

Pace Project No.: 2510663

Dear Scott Zorn:

Enclosed are the analytical results for sample(s) received by the laboratory on January 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.

Sample EW-1-25 re-logged for PAH per client request on 2/2/12.

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

Sincerely,

Andy Brownfield

Andy Brownfield

andy.brownfield@pacelabs.com Project Manager

Enclosures

cc: Alan Kahal, Arcadis U.S., Inc. David Rasar, Arcadis U.S., Inc. Rick Rodriguez, Arcadis U.S., Inc.







CERTIFICATIONS

Project: WA 11060 Pace Project No.: 2510663

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



SAMPLE ANALYTE COUNT

Project: WA 11060 Pace Project No.: 2510663

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2510663001	EW-1-25'	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	CC	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8270 by SIM	KJ1	20	PASI-S
		EPA 8260	ERB	9	PASI-S
		ASTM D2974-87	EED	1	PASI-S
2510663002	EW-1-30'	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	LPM	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	ERB	6	PASI-S
		EPA 8260	LPM	7	PASI-S
		ASTM D2974-87	EED	1	PASI-S
2510663003	EW-2-10'	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	LPM	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LPM	9	PASI-S
		ASTM D2974-87	EED	1	PASI-S
2510663004	EW-2-15'	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	LPM	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LNH	5	PASI-S
		EPA 8260	LPM	8	PASI-S
		ASTM D2974-87	EED	1	PASI-S
2510663005	EW-2-30'	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Gx	LPM	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LPM	9	PASI-S
		ASTM D2974-87	EED	1	PASI-S



Project: WA 11060 Pace Project No.: 2510663

Method:NWTPH-DxDescription:NWTPH-Dx GCSClient:Arcadis U.S., Inc.Date:February 09, 2012

General Information:

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

Hold Time:

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

Sample Preparation:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

Duplicate Sample:

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

Additional Comments:



Project: WA 11060 Pace Project No.: 2510663

Method:NWTPH-GxDescription:NWTPH-Gx GCVClient:Arcadis U.S., Inc.Date:February 09, 2012

General Information:

5 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.

QC Batch: GCV/2656

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

- EW-2-15' (Lab ID: 2510663004)
 - 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:

REPORT OF LABORATORY ANALYSIS



Project: WA 11060 Pace Project No.: 2510663

Method:EPA 6010Description:6010 MET ICPClient:Arcadis U.S., Inc.Date:February 09, 2012

General Information:

5 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:



Project: WA 11060 Pace Project No.: 2510663

Method: EPA 8270 by SIM
Description: 8270 MSSV PAH by SIM
Client: Arcadis U.S., Inc.
Date: February 09, 2012

General Information:

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

Hold Time:

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

Sample Preparation:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

QC Batch: OEXT/5053

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2510663001

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

- MS (Lab ID: 101680)
 - Naphthalene
- MSD (Lab ID: 101681)
 - 1-Methylnaphthalene
 - 2-Methylnaphthalene
 - Naphthalene

Duplicate Sample:

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

REPORT OF LABORATORY ANALYSIS





Project: WA 11060 Pace Project No.: 2510663

Method:EPA 8270 by SIMDescription:8270 MSSV PAH by SIMClient:Arcadis U.S., Inc.Date:February 09, 2012

Additional Comments:





Project: WA 11060 Pace Project No.: 2510663

Method: EPA 8260

Description: 8260 MSV 5035A Med Level VOA

Client: Arcadis U.S., Inc.

Date: February 09, 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.

Sample Preparation:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

QC Batch: MSV/6299

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

- EW-2-15' (Lab ID: 2510663004)
 - 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.

QC Batch: MSV/6295

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2510761001

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

- MS (Lab ID: 101967)
 - Benzene
 - Ethylbenzene
 - Methyl-tert-butyl ether
 - Toluene
 - Xylene (Total)

REPORT OF LABORATORY ANALYSIS

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Project: WA 11060 Pace Project No.: 2510663

Method: EPA 8260

Description: 8260 MSV 5035A Med Level VOA

Client: Arcadis U.S., Inc.

Date: February 09, 2012

QC Batch: MSV/6299

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2510691003

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

MS (Lab ID: 101985)
Ethylbenzene
MSD (Lab ID: 101986)
Ethylbenzene

Duplicate Sample:

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

Additional Comments:





Project: WA 11060 Pace Project No.: 2510663

Method: EPA 8260

Description: 8260/5035A Volatile Organics

Client: Arcadis U.S., Inc.

Date: February 09, 2012

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

QC Batch: MSV/6270

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

- EW-2-15' (Lab ID: 2510663004)
 - 1,2-Dichloroethane-d4 (S)
 - Toluene-d8 (S)

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

QC Batch: MSV/6270

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2510663005

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

- MS (Lab ID: 101594)
 - Benzene
- MSD (Lab ID: 101595)
 - Benzene

Duplicate Sample:

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

REPORT OF LABORATORY ANALYSIS

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Project: WA 11060 Pace Project No.: 2510663

Method: EPA 8260

Description: 8260/5035A Volatile Organics

Client: Arcadis U.S., Inc.

Date: February 09, 2012

Additional Comments:

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



Project: WA 11060 Pace Project No.: 2510663

Sample: EW-1-25'	Lab ID: 2510663001	Collected: 01/26/1	2 08:25	Received: 01	/26/12 16:30	Matrix: Solid	
Results reported on a "dry-weight" l	basis						
Parameters	Results Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS	Analytical Method: NWT	PH-Dx Preparation Me	ethod: E	PA 3546			
Diesel Range	123 mg/kg	17.9	1	01/30/12 09:30	01/30/12 14:52	2	
Motor Oil Range Surrogates	ND mg/kg	71.7	1	01/30/12 09:30	01/30/12 14:52	2 64742-65-0	
n-Octacosane (S)	91 %	50-150	1	01/30/12 09:30	01/30/12 14:52	2 630-02-4	
o-Terphenyl (S)	93 %	50-150	1	01/30/12 09:30	01/30/12 14:52	2 84-15-1	
NWTPH-Gx GCV	Analytical Method: NWT	PH-Gx Preparation Mo	ethod: N	WTPH-Gx			
Gasoline Range Organics <i>Surrogates</i>	3270 mg/kg	266	50	01/31/12 12:29	02/01/12 11:12	2	
a,a,a-Trifluorotoluene (S)	101 %	50-150	50	01/31/12 12:29	02/01/12 11:12	2 98-08-8	
4-Bromofluorobenzene (S)	147 %	50-150	50	01/31/12 12:29			
6010 MET ICP	Analytical Method: EPA 6	6010 Preparation Meth	nod: EPA	A 3050			
Lead	6.7 mg/kg	1.1	1	02/02/12 08:50	02/03/12 14:4:	3 7439-92-1	
8270 MSSV PAH by SIM	Analytical Method: EPA 8	3270 by SIM Preparati	on Meth	od: EPA 3546			
Acenaphthene	ND ug/kg	7.9	1	02/02/12 14:55	02/03/12 00:10	6 83-32-9	
Acenaphthylene	ND ug/kg	7.9	1	02/02/12 14:55	02/03/12 00:10	6 208-96-8	
Anthracene	ND ug/kg	7.9	1	02/02/12 14:55	02/03/12 00:10	6 120-12-7	
Benzo(a)anthracene	ND ug/kg	7.9	1	02/02/12 14:55	02/03/12 00:10	6 56-55-3	
Benzo(a)pyrene	ND ug/kg	7.9	1	02/02/12 14:55			
Benzo(b)fluoranthene	ND ug/kg	7.9	1	02/02/12 14:55			
Benzo(g,h,i)perylene	ND ug/kg	7.9	1	02/02/12 14:55			
Benzo(k)fluoranthene	ND ug/kg	7.9	1	02/02/12 14:55			
Chrysene	ND ug/kg	7.9	1	02/02/12 14:55			
Dibenz(a,h)anthracene	ND ug/kg	7.9	1	02/02/12 14:55			
Fluoranthene	ND ug/kg	7.9	1	02/02/12 14:55			
Fluorene	ND ug/kg	7.9	1	02/02/12 14:55			
Indene(1,2,3-cd)pyrene	ND ug/kg	7.9	1	02/02/12 14:55			
7		78.9	10	02/02/12 14:55			
1-Methylnaphthalene	878 ug/kg						
2-Methylnaphthalene	2020 ug/kg	78.9	10	02/02/12 14:55			
Naphthalene	4920 ug/kg	78.9	10	02/02/12 14:55			
Phenanthrene	ND ug/kg	7.9	1	02/02/12 14:55			
Pyrene	ND ug/kg	7.9	1	02/02/12 14:55	02/03/12 00:10	5 129-00-0	
Surrogates	74.0/	07.440	4	00/00/40 44 55	00/00/40 00 4:	0 004 00 0	
2-Fluorobiphenyl (S)	71 %	27-118	1	02/02/12 14:55			
Terphenyl-d14 (S)	79 %	28-125	1	02/02/12 14:55	02/03/12 00:10	6 1/18-51-0	
3260 MSV 5035A Med Level VOA	Analytical Method: EPA 8	3260 Preparation Meth	nod: EPA				
Benzene	2540 ug/kg	1330	50	02/02/12 13:57			
Ethylbenzene	10500 ug/kg	2660	50	02/02/12 13:57	02/04/12 03:08	8 100-41-4	
Methyl-tert-butyl ether	ND ug/kg	2660	50	02/02/12 13:57	02/04/12 03:08	8 1634-04-4	
Toluene	12700 ug/kg	2660	50	02/02/12 13:57	02/04/12 03:08	8 108-88-3	
Xylene (Total) Surrogates	51800 ug/kg	7980	50	02/02/12 13:57	02/04/12 03:08	8 1330-20-7	
Dibromofluoromethane (S)	100 %	75-116	50	02/02/12 13:57	02/04/12 03:0	8 1868-53-7	

Date: 02/09/2012 11:46 AM

REPORT OF LABORATORY ANALYSIS

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Project: WA 11060
Pace Project No.: 2510663

Date: 02/09/2012 11:46 AM

Sample: EW-1-25'	Lab ID: 251	0663001	Collected: 01/26/1	2 08:25	Received: 01	/26/12 16:30	Matrix: Solid	
Results reported on a "dry-weight"	basis							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
3260 MSV 5035A Med Level VOA	Analytical Meth	nod: EPA 82	260 Preparation Meth	nod: EP/	A 5035A/5030B			
Surrogates								
Toluene-d8 (S)	100 %		74-124	50	02/02/12 13:57			
4-Bromofluorobenzene (S)	104 %		73-128	50	02/02/12 13:57			
1,2-Dichloroethane-d4 (S)	104 %		70-125	50	02/02/12 13:57	02/04/12 03:08	3 17060-07-0	
Percent Moisture	Analytical Meth	nod: ASTM	D2974-87					
Percent Moisture	15.3 %		0.10	1		01/27/12 15:46	3	
Sample: EW-1-30'	Lab ID: 251	0663002	Collected: 01/26/1	2 08:45	Received: 01	/26/12 16:30	Matrix: Solid	
Results reported on a "dry-weight"	basis							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS	Analytical Meth	nod: NWTP	H-Dx Preparation Me	ethod: E	PA 3546			
Diesel Range	ND mg	n/ka	18.8	1	01/30/12 09:30	01/30/12 15:10)	
Motor Oil Range	ND mg		75.4	1	01/30/12 09:30			
Surrogates		9' ''9		•	0.7007.12.00.00	0.7007.12.101.1	, o <u>_</u> 00 0	
n-Octacosane (S)	90 %		50-150	1	01/30/12 09:30	01/30/12 15:10	630-02-4	
o-Terphenyl (S)	93 %		50-150	1	01/30/12 09:30	01/30/12 15:10	84-15-1	
NWTPH-Gx GCV	Analytical Meth	nod: NWTP	H-Gx Preparation Mo	ethod: N	IWTPH-Gx			
Gasoline Range Organics Surrogates	97.6 mg	g/kg	6.4	1	02/01/12 13:16	02/01/12 16:00)	
a,a,a-Trifluorotoluene (S)	115 %		50-150	1	02/01/12 13:16	02/01/12 16:00) 98-08-8	
4-Bromofluorobenzene (S)	149 %		50-150	1	02/01/12 13:16			
6010 MET ICP	Analytical Meth	nod: EPA 60	010 Preparation Meth	nod: EP/	A 3050			
Lead	3.2 mg	g/kg	1.2	1	02/02/12 08:50	02/03/12 14:54	7439-92-1	
8260 MSV 5035A Med Level VOA	Analytical Meth	nod: EPA 82	260 Preparation Meth	nod: EP/	A 5035A/5030B			
Benzene	259 ug	/ka	32.0	1	02/02/12 13:57	02/03/12 21:54	1 71-43-2	
Xylene (Total) Surrogates	1850 ug		192	1	02/02/12 13:57			
Dibromofluoromethane (S)	99 %		75-116	1	02/02/12 13:57	02/03/12 21:54	1 1868-53-7	
Toluene-d8 (S)	96 %		74-124	1	02/02/12 13:57			
4-Bromofluorobenzene (S)	93 %		73-128	1	02/02/12 13:57			
1,2-Dichloroethane-d4 (S)	93 %		70-125	1	02/02/12 13:57			
8260/5035A Volatile Organics	Analytical Meth	nod: EPA 82	260					
Ethylbenzene	84.9 ug	/kg	3.1	1		02/01/12 20:57	7 100-41-4	
Methyl-tert-butyl ether	ND ug	•	3.1	1		02/01/12 20:57		
Toluene	94.2 ug		3.1	1		02/01/12 20:57		
Surrogates	J	-						
	00.0/		72-129	1		02/01/12 20:57	7 1868-53-7	
Dibromofluoromethane (S) Toluene-d8 (S)	98 % 113 %		69-133	•		02/01/12 20:57		

REPORT OF LABORATORY ANALYSIS

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Project: WA 11060 Pace Project No.: 2510663

Sample: EW-1-30'	Lab ID: 251	10663002	Collected: 01	1/26/12	08:45	Received: (01/26/12 16:30	Matrix: Solid	
Results reported on a "dry-weigh	t" basis								
Parameters	Results	Units	Report Li	mit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Met	thod: EPA 82	260						
Surrogates									
4-Bromofluorobenzene (S)	110 %)	67-	142	1		02/01/12 20:5	7 460-00-4	
1,2-Dichloroethane-d4 (S)	114 %	·)	67-	136	1		02/01/12 20:5	7 17060-07-0	
Percent Moisture	Analytical Met	thod: ASTM	D2974-87						
Percent Moisture	19.3 %		(0.10	1		01/27/12 15:4	7	
Sample: EW-2-10'	Lab ID: 251	10663003	Collected: 01	1/26/12	11:05	Received: (01/26/12 16:30	Matrix: Solid	
Results reported on a "dry-weight	t" basis								
Parameters	Results	Units	Report Li	mit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS	Analytical Met	Analytical Method: NWTPH-Dx Preparation Method: EPA 3546							
Diesel Range	ND m	ıa/ka	,	19.6	1	01/30/12 09:3	0 01/30/12 15:2	7	
Motor Oil Range	ND m		-	78.4	1	01/30/12 09:3	0 01/30/12 15:2	7 64742-65-0	
Surrogates									
n-Octacosane (S)	82 %)	50-	150	1	01/30/12 09:3	0 01/30/12 15:2	7 630-02-4	
o-Terphenyl (S)	85 %		50-	150	1	01/30/12 09:3	0 01/30/12 15:2	7 84-15-1	
NWTPH-Gx GCV	Analytical Met	Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx							
Gasoline Range Organics	38.1 m	ıg/kg		7.0	1	02/01/12 13:1	6 02/01/12 15:3	6	
Surrogates a,a,a-Trifluorotoluene (S)	115 %		50-	150	1	02/01/12 13:1	6 02/01/12 15:3	6 08-08-8	
4-Bromofluorobenzene (S)	147 %			150	1		6 02/01/12 15:3 6 02/01/12 15:3		
` ,							0 02/01/12 13.3	0 400-00-4	
6010 MET ICP	Analytical Met	thod: EPA 60	010 Preparation	n Metho	od: EPA	3050			
Lead	8.3 m	ıg/kg		1.2	1	02/02/12 08:5	0 02/03/12 14:5	8 7439-92-1	
8260/5035A Volatile Organics	Analytical Met	thod: EPA 82	260						
Benzene	4.2 ug	g/kg		3.0	1		02/01/12 20:3	7 71-43-2	
Ethylbenzene	5.5 ug	g/kg		3.0	1		02/01/12 20:3	7 100-41-4	
Methyl-tert-butyl ether	ND u	g/kg		3.0	1		02/01/12 20:3	7 1634-04-4	
Toluene	5.4 ug	g/kg		3.0	1		02/01/12 20:3	7 108-88-3	
Xylene (Total)	31.0 u	g/kg		8.9	1		02/01/12 20:3	7 1330-20-7	
Surrogates									
Dibromofluoromethane (S)	106 %)	72-	129	1		02/01/12 20:3	7 1868-53-7	
Toluene-d8 (S)	120 %		69-	133	1		02/01/12 20:3	7 2037-26-5	
4-Bromofluorobenzene (S)	142 %	· •	67-	142	1		02/01/12 20:3	7 460-00-4	
1,2-Dichloroethane-d4 (S)	117 %		67-	136	1		02/01/12 20:3	7 17060-07-0	
Percent Moisture	Analytical Met	thod: ASTM	D2974-87						
Percent Moisture	21.3 %)	(0.10	1		01/27/12 15:4	8	

Date: 02/09/2012 11:46 AM

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Project: WA 11060 Pace Project No.: 2510663

Sample: EW-2-15'	Lab ID: 251	10663004	Collected: 01/26/	12 11:15	Received: 01	/26/12 16:30 M	Matrix: Solid		
Results reported on a "dry-weight"	basis								
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
WTPH-Dx GCS	Analytical Met	thod: NWTP	H-Dx Preparation M	ethod: E	PA 3546				
Diesel Range	25.5 m	ıg/kg	18.5	1	01/30/12 09:30	01/30/12 15:44			
Motor Oil Range Surrogates	ND m	ıg/kg	73.9	1	01/30/12 09:30	01/30/12 15:44	64742-65-0		
n-Octacosane (S)	88 %	· •	50-150	1	01/30/12 09:30	01/30/12 15:44	630-02-4		
p-Terphenyl (S)	90 %	· •	50-150	1	01/30/12 09:30	01/30/12 15:44	84-15-1		
IWTPH-Gx GCV	Analytical Met	thod: NWTP	H-Gx Preparation M	ethod: N	IWTPH-Gx				
Gasoline Range Organics Surrogates	2270 m	ıg/kg	106	20	02/01/12 13:16	02/01/12 16:25			
ı,a,a-Trifluorotoluene (S)	110 %))	50-150	20	02/01/12 13:16	02/01/12 16:25	98-08-8		
-Bromofluorobenzene (S)	222 %		50-150	20	02/01/12 13:16	02/01/12 16:25	460-00-4	S5	
010 MET ICP	Analytical Met	nalytical Method: EPA 6010 Preparation Method: EPA 3050							
ead	5.1 m	ıg/kg	1.1	1	02/02/12 08:50	02/03/12 15:02	7439-92-1		
260 MSV 5035A Med Level VOA	Analytical Met	thod: EPA 8	260 Preparation Met	hod: EP/	A 5035A/5030B				
thylbenzene Surrogates	2010 u	g/kg	52.8	1	02/04/12 00:00	02/05/12 08:06	100-41-4		
Dibromofluoromethane (S)	97 %))	75-116	1	02/04/12 00:00	02/05/12 08:06	1868-53-7		
oluene-d8 (S)	107 %)	74-124	1	02/04/12 00:00	02/05/12 08:06	2037-26-5		
-Bromofluorobenzene (S)	141 %)	73-128	1	02/04/12 00:00	02/05/12 08:06	460-00-4	S5	
,2-Dichloroethane-d4 (S)	86 %		70-125	1	02/04/12 00:00	02/05/12 08:06	17060-07-0		
260/5035A Volatile Organics	Analytical Met	thod: EPA 8	260						
Benzene	129 ug	g/kg	2.7	1		02/01/12 19:56	71-43-2		
Methyl-tert-butyl ether	ND u	g/kg	2.7	1		02/01/12 19:56	1634-04-4		
oluene	14.2 u		2.7	1		02/01/12 19:56	108-88-3		
ylene (Total)	103 ug	g/kg	8.2	1		02/01/12 19:56	1330-20-7		
Surrogates									
bibromofluoromethane (S)	101 %		72-129	1		02/01/12 19:56			
oluene-d8 (S)	304 %		69-133	1		02/01/12 19:56		S2	
-Bromofluorobenzene (S)	133 %		67-142	1		02/01/12 19:56			
,2-Dichloroethane-d4 (S)	138 %)	67-136	1		02/01/12 19:56	17060-07-0	S2	
ercent Moisture	Analytical Met	thod: ASTM	D2974-87						
Percent Moisture	14.3 %))	0.10	1		01/27/12 15:49			
Sample: EW-2-30'	Lab ID: 251	10663005	Collected: 01/26/	12 12:25	Received: 01	/26/12 16:30 M	Matrix: Solid		
Results reported on a "dry-weight"	basis								
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua	
IWTPH-Dx GCS	Analytical Met	thod: NWTP	H-Dx Preparation M	ethod: E	PA 3546				
Diesel Range	ND m	ıg/kg	19.0	1	01/30/12 09:30	01/30/12 16:01			
Motor Oil Range	ND m		76.0	1		01/30/12 16:01	64742-65-0		
	=	5 5	. 3.0						



Project: WA 11060
Pace Project No.: 2510663

Sample: EW-2-30'	Lab ID: 251	0663005	Collected: 01/26/1	2 12:25	Received: 01	/26/12 16:30 N	Matrix: Solid	
Results reported on a "dry-weight	t" basis							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
NWTPH-Dx GCS	Analytical Met	hod: NWTPH-	-Dx Preparation Me	ethod: E	PA 3546			
Surrogates								
n-Octacosane (S)	96 %		50-150	1	01/30/12 09:30	01/30/12 16:01	630-02-4	
o-Terphenyl (S)	99 %		50-150	1	01/30/12 09:30	01/30/12 16:01	84-15-1	
NWTPH-Gx GCV	Analytical Met	hod: NWTPH-	-Gx Preparation Me	ethod: N	IWTPH-Gx			
Gasoline Range Organics Surrogates	9.8 m	g/kg	6.7	1	02/01/12 13:16	02/01/12 17:14		
a,a,a-Trifluorotoluene (S)	110 %		50-150	1	02/01/12 13:16	02/01/12 17:14	98-08-8	
4-Bromofluorobenzene (S)	110 %		50-150	1	02/01/12 13:16	02/01/12 17:14	460-00-4	
6010 MET ICP	Analytical Met	hod: EPA 601	0 Preparation Meth	nod: EP	A 3050			
Lead	3.3 m	g/kg	1.2	1	02/02/12 08:50	02/03/12 15:05	7439-92-1	
8260/5035A Volatile Organics	Analytical Met	hod: EPA 826	0					
Benzene	5.0 ug	J/kg	2.7	1		02/01/12 20:16	71-43-2	M1
Ethylbenzene	ND ug	J/kg	2.7	1		02/01/12 20:16	100-41-4	
Methyl-tert-butyl ether	ND ug	ı/kg	2.7	1		02/01/12 20:16	1634-04-4	
Toluene	ND ug	J/kg	2.7	1		02/01/12 20:16	108-88-3	
Xylene (Total)	ND ug	ı/kg	8.1	1		02/01/12 20:16	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	105 %		72-129	1		02/01/12 20:16		
Toluene-d8 (S)	99 %		69-133	1		02/01/12 20:16		
4-Bromofluorobenzene (S)	110 %		67-142	1		02/01/12 20:16		
1,2-Dichloroethane-d4 (S)	113 %		67-136	1		02/01/12 20:16	17060-07-0	
Percent Moisture	Analytical Met	hod: ASTM D	2974-87					
Percent Moisture	20.1 %		0.10	1		01/27/12 15:50		

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Project: WA 11060 Pace Project No.: 2510663

QC Batch: GCV/2654 Analysis Method: NWTPH-Gx

QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx Solid GCV

Associated Lab Samples: 2510663001

METHOD BLANK: 101277 Matrix: Solid

Associated Lab Samples: 2510663001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	5.0	01/31/12 15:03	
4-Bromofluorobenzene (S)	%	70	50-150	01/31/12 15:03	
a,a,a-Trifluorotoluene (S)	%	76	50-150	01/31/12 15:03	

LABORATORY CONTROL SAMPLE: 101278

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	12.5	12.4	99	63-140	
4-Bromofluorobenzene (S)	%			82	50-150	
a,a,a-Trifluorotoluene (S)	%			86	50-150	

SAMPLE DUPLICATE: 101416

Parameter	Units	2510679003 Result	Dup Result	RPD	Qualifiers
Gasoline Range Organics	mg/kg		ND		
4-Bromofluorobenzene (S)	%	97	98	.9	
a,a,a-Trifluorotoluene (S)	%	102	103	1	

SAMPLE DUPLICATE: 101417

		2510679007	Dup		
Parameter	Units	Result	Result	RPD	Qualifiers
Gasoline Range Organics	mg/kg	ND ND	ND		
4-Bromofluorobenzene (S)	%	100	100	.008	
a,a,a-Trifluorotoluene (S)	%	104	104	.3	

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Project: WA 11060 Pace Project No.: 2510663

QC Batch: GCV/2656 Analysis Method: NWTPH-Gx

QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx Solid GCV

Associated Lab Samples: 2510663002, 2510663003, 2510663004, 2510663005

METHOD BLANK: 101382 Matrix: Solid

Associated Lab Samples: 2510663002, 2510663003, 2510663004, 2510663005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	5.0	02/01/12 14:21	
4-Bromofluorobenzene (S)	%	108	50-150	02/01/12 14:21	
a,a,a-Trifluorotoluene (S)	%	106	50-150	02/01/12 14:21	

LABORATORY CONTROL SAMPLE: 101383

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	12.5	12.2	97	63-140	
4-Bromofluorobenzene (S)	%			107	50-150	
a,a,a-Trifluorotoluene (S)	%			102	50-150	

SAMPLE DUPLICATE: 101456

Parameter	Units	2510663005 Result	Dup Result	RPD	Qualifiers
Gasoline Range Organics	mg/kg	9.8	9.7	1	
4-Bromofluorobenzene (S)	%	110	104	6	
a,a,a-Trifluorotoluene (S)	%	110	105	4	

SAMPLE DUPLICATE: 101457

		2510691001	Dup		
Parameter	Units	Result	Result	RPD	Qualifiers
Gasoline Range Organics	mg/kg	13.9	13.0	7	
4-Bromofluorobenzene (S)	%	98	90	8	
a,a,a-Trifluorotoluene (S)	%	103	99	4	

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Project: WA 11060 Pace Project No.: 2510663

QC Batch: MPRP/2779 Analysis Method: EPA 6010 QC Batch Method: EPA 3050 Analysis Description: 6010 MET Associated Lab Samples: 2510663001, 2510663002, 2510663003, 2510663004, 2510663005

METHOD BLANK: 101366 Matrix: Solid

Associated Lab Samples: 2510663001, 2510663002, 2510663003, 2510663004, 2510663005

Blank

Reporting Parameter Result Limit Qualifiers Units Analyzed

Lead ND 1.0 02/03/12 14:36 mg/kg

LABORATORY CONTROL SAMPLE: 101367

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Lead mg/kg 25 26.9 108 80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 101368 101369

MS MSD MS 2510663001 Spike Spike MSD MS MSD % Rec Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD Qual 6.7 75-125 7 Lead mg/kg 21.7 21.7 27.3 25.4 95 86



Project: WA 11060 Pace Project No.: 2510663

QC Batch: MSV/6295 Analysis Method: EPA 8260

QC Batch Method: EPA 5035A/5030B Analysis Description: 8260 MSV 5035A Medium Soil

Associated Lab Samples: 2510663001, 2510663002

METHOD BLANK: 101718 Matrix: Solid

Associated Lab Samples: 2510663001, 2510663002

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
Benzene	ug/kg	ND ND	25.0	02/03/12 20:41	
Ethylbenzene	ug/kg	ND	50.0	02/03/12 20:41	
Methyl-tert-butyl ether	ug/kg	ND	50.0	02/03/12 20:41	
Toluene	ug/kg	ND	50.0	02/03/12 20:41	
Xylene (Total)	ug/kg	ND	150	02/03/12 20:41	
1,2-Dichloroethane-d4 (S)	%	90	70-125	02/03/12 20:41	
4-Bromofluorobenzene (S)	%	98	73-128	02/03/12 20:41	
Dibromofluoromethane (S)	%	98	75-116	02/03/12 20:41	
Toluene-d8 (S)	%	98	74-124	02/03/12 20:41	

LABORATORY CONTROL SAMPLE: 101719

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Benzene	ug/kg	1000	983	98	71-123	
Ethylbenzene	ug/kg	1000	966	97	71-123	
Methyl-tert-butyl ether	ug/kg	1000	814	81	68-133	
Toluene	ug/kg	1000	947	95	69-118	
Xylene (Total)	ug/kg	3000	2840	95	71-122	
1,2-Dichloroethane-d4 (S)	%			96	70-125	
4-Bromofluorobenzene (S)	%			91	73-128	
Dibromofluoromethane (S)	%			97	75-116	
Toluene-d8 (S)	%			97	74-124	

MATRIX SPIKE & MATRIX SP	IKE DUPLICAT	E: 10196	7		101968						
	2:	510761001	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
Benzene	ug/kg	ND	1000	1000	329	1030	33	103	68-137	103	D6,M1
Ethylbenzene	ug/kg	ND	1000	1000	506	1160	46	111	64-136	78	D6,M1
Methyl-tert-butyl ether	ug/kg	ND	1000	1000	245	821	24	82	62-146	108	D6,M1
Toluene	ug/kg	ND	1000	1000	314	951	31	95	65-130	101	D6,M1
Xylene (Total)	ug/kg	ND	3000	3000	1560	3540	47	113	63-134	78	D6,M1
1,2-Dichloroethane-d4 (S)	%						92	90	70-125		
4-Bromofluorobenzene (S)	%						94	90	73-128		
Dibromofluoromethane (S)	%						96	99	75-116		
Toluene-d8 (S)	%						97	93	74-124		

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Project: WA 11060 Pace Project No.: 2510663

QC Batch: MSV/6299 Analysis Method: EPA 8260

QC Batch Method: EPA 5035A/5030B Analysis Description: 8260 MSV 5035A Medium Soil

Associated Lab Samples: 2510663004

METHOD BLANK: 101837 Matrix: Solid

Associated Lab Samples: 2510663004

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
Ethylbenzene	ug/kg	ND ND	50.0	02/05/12 05:41	
1,2-Dichloroethane-d4 (S)	%	92	70-125	02/05/12 05:41	
4-Bromofluorobenzene (S)	%	110	73-128	02/05/12 05:41	
Dibromofluoromethane (S)	%	101	75-116	02/05/12 05:41	
Toluene-d8 (S)	%	95	74-124	02/05/12 05:41	

LABORATORY CONTROL SAMPLE: 101838

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Ethylbenzene	ug/kg	1000	1010	101	71-123	_
1,2-Dichloroethane-d4 (S)	%			88	70-125	
4-Bromofluorobenzene (S)	%			93	73-128	
Dibromofluoromethane (S)	%			98	75-116	
Toluene-d8 (S)	%			99	74-124	

MATRIX SPIKE & MATRIX SP	ATRIX SPIKE & MATRIX SPIKE DUPLICATE: 101985 101986										
	25	510691003	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
Ethylbenzene	ug/kg	91.5	1150	1150	2120	1970	176	163	64-136	8 M	
1,2-Dichloroethane-d4 (S)	%						84	85	70-125		
4-Bromofluorobenzene (S)	%						95	92	73-128		
Dibromofluoromethane (S)	%						96	95	75-116		
Toluene-d8 (S)	%						98	98	74-124		

(206)767-5060



QUALITY CONTROL DATA

Project: WA 11060 Pace Project No.: 2510663

QC Batch: MSV/6270 Analysis Method: EPA 8260

QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics

2510663002, 2510663003, 2510663004, 2510663005 Associated Lab Samples:

METHOD BLANK: 101380 Matrix: Solid

Associated Lab Samples: 2510663002, 2510663003, 2510663004, 2510663005

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
Benzene	ug/kg	ND	3.0	02/01/12 19:14	
Ethylbenzene	ug/kg	ND	3.0	02/01/12 19:14	
Methyl-tert-butyl ether	ug/kg	ND	3.0	02/01/12 19:14	
Toluene	ug/kg	ND	3.0	02/01/12 19:14	
Xylene (Total)	ug/kg	ND	9.0	02/01/12 19:14	
1,2-Dichloroethane-d4 (S)	%	109	67-136	02/01/12 19:14	
4-Bromofluorobenzene (S)	%	105	67-142	02/01/12 19:14	
Dibromofluoromethane (S)	%	98	72-129	02/01/12 19:14	
Toluene-d8 (S)	%	103	69-133	02/01/12 19:14	

LABORATORY CONTROL SAMPLE:

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Benzene	ug/kg	20	21.9	110	69-133	
Ethylbenzene	ug/kg	20	21.4	107	68-126	
Methyl-tert-butyl ether	ug/kg	20	23.7	118	67-134	
Toluene	ug/kg	20	20.5	103	68-130	
Xylene (Total)	ug/kg	60	63.7	106	68-126	
1,2-Dichloroethane-d4 (S)	%			102	67-136	
4-Bromofluorobenzene (S)	%			101	67-142	
Dibromofluoromethane (S)	%			101	72-129	
Toluene-d8 (S)	%			99	69-133	

MATRIX SPIKE & MATRIX SP	IKE DUPLICAT	E: 10159	4		101595						
			MS	MSD							
	2	510663005	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
Benzene	ug/kg	5.0	22.2	19.4	38.2	34.8	149	154	40-129	9	M1
Ethylbenzene	ug/kg	ND	22.2	19.4	31.2	26.2	134	127	40-134	18	
Methyl-tert-butyl ether	ug/kg	ND	22.2	19.4	29.8	23.8	134	122	40-149	23	
Toluene	ug/kg	ND	22.2	19.4	30.2	26.9	129	130	40-134	12	
Xylene (Total)	ug/kg	ND	66.6	58.2	89.1	73.6	128	120	40-129	19	
1,2-Dichloroethane-d4 (S)	%						107	103	67-136		
4-Bromofluorobenzene (S)	%						111	110	67-142		
Dibromofluoromethane (S)	%						104	106	72-129		
Toluene-d8 (S)	%						102	108	69-133		

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Project: WA 11060 Pace Project No.: 2510663

QC Batch: EPA 8270 by SIM OEXT/5053 Analysis Method:

QC Batch Method: EPA 3546 Analysis Description: 8270/3546 MSSV PAH by SIM

Associated Lab Samples: 2510663001

METHOD BLANK: 101678 Matrix: Solid

Associated Lab Samples: 2510663001

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/kg	ND	6.7	02/02/12 23:10	
2-Methylnaphthalene	ug/kg	ND	6.7	02/02/12 23:10	
Acenaphthene	ug/kg	ND	6.7	02/02/12 23:10	
Acenaphthylene	ug/kg	ND	6.7	02/02/12 23:10	
Anthracene	ug/kg	ND	6.7	02/02/12 23:10	
Benzo(a)anthracene	ug/kg	ND	6.7	02/02/12 23:10	
Benzo(a)pyrene	ug/kg	ND	6.7	02/02/12 23:10	
Benzo(b)fluoranthene	ug/kg	ND	6.7	02/02/12 23:10	
Benzo(g,h,i)perylene	ug/kg	ND	6.7	02/02/12 23:10	
Benzo(k)fluoranthene	ug/kg	ND	6.7	02/02/12 23:10	
Chrysene	ug/kg	ND	6.7	02/02/12 23:10	
Dibenz(a,h)anthracene	ug/kg	ND	6.7	02/02/12 23:10	
Fluoranthene	ug/kg	ND	6.7	02/02/12 23:10	
Fluorene	ug/kg	ND	6.7	02/02/12 23:10	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	6.7	02/02/12 23:10	
Naphthalene	ug/kg	ND	6.7	02/02/12 23:10	
Phenanthrene	ug/kg	ND	6.7	02/02/12 23:10	
Pyrene	ug/kg	ND	6.7	02/02/12 23:10	
2-Fluorobiphenyl (S)	%	77	27-118	02/02/12 23:10	
Terphenyl-d14 (S)	%	85	28-125	02/02/12 23:10	

-ABORATORY	CONTROL SAMPLE:	101679

LABORATORY CONTROL SAMPLE:	101679					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1-Methylnaphthalene	ug/kg	133	114	85	39-110	
2-Methylnaphthalene	ug/kg	133	117	88	39-110	
Acenaphthene	ug/kg	133	110	82	39-111	
Acenaphthylene	ug/kg	133	109	82	37-110	
Anthracene	ug/kg	133	107	81	40-113	
Benzo(a)anthracene	ug/kg	133	121	91	42-122	
Benzo(a)pyrene	ug/kg	133	123	92	44-132	
Benzo(b)fluoranthene	ug/kg	133	117	88	40-124	
Benzo(g,h,i)perylene	ug/kg	133	113	85	39-122	
Benzo(k)fluoranthene	ug/kg	133	112	84	44-123	
Chrysene	ug/kg	133	105	79	42-120	
Dibenz(a,h)anthracene	ug/kg	133	119	89	40-122	
Fluoranthene	ug/kg	133	112	84	42-116	
Fluorene	ug/kg	133	106	80	41-112	
Indeno(1,2,3-cd)pyrene	ug/kg	133	127	95	39-124	
Naphthalene	ug/kg	133	110	83	36-110	
Phenanthrene	ug/kg	133	110	82	42-115	

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REPORT OF LABORATORY ANALYSIS



Project: WA 11060 Pace Project No.: 2510663

LABORATORY CONTROL SAMPLE: 101679

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Pyrene	ug/kg	133	106	79	44-121	
2-Fluorobiphenyl (S)	%			83	27-118	
Terphenyl-d14 (S)	%			91	28-125	

MATRIX SPIKE & MATRIX SI	PIKE DUPLICAT	E: 10168	0		101681						
			MS	MSD							
	25	510663001	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
-Methylnaphthalene	ug/kg	878	156	156	997	1090	76	136	28-120	9 M1	
2-Methylnaphthalene	ug/kg	2020	156	156	2110	2320	56	192	26-121	10 M1	
Acenaphthene	ug/kg	ND	156	156	133	132	82	82	27-122	.5	
Acenaphthylene	ug/kg	ND	156	156	129	130	81	82	24-120	.6	
Anthracene	ug/kg	ND	156	156	135	132	86	84	20-130	3	
Benzo(a)anthracene	ug/kg	ND	156	156	151	150	96	95	20-136	1	
Benzo(a)pyrene	ug/kg	ND	156	156	151	146	96	93	20-141	3	
Benzo(b)fluoranthene	ug/kg	ND	156	156	145	144	92	92	12-136	.1	
Benzo(g,h,i)perylene	ug/kg	ND	156	156	133	129	85	83	10-132	3	
Benzo(k)fluoranthene	ug/kg	ND	156	156	134	126	85	81	22-131	6	
Chrysene	ug/kg	ND	156	156	125	121	80	77	16-132	3	
Dibenz(a,h)anthracene	ug/kg	ND	156	156	138	136	88	87	22-121	2	
Fluoranthene	ug/kg	ND	156	156	135	131	85	83	21-129	3	
Fluorene	ug/kg	ND	156	156	135	133	83	82	26-130	2	
ndeno(1,2,3-cd)pyrene	ug/kg	ND	156	156	149	146	95	93	14-131	2	
Naphthalene	ug/kg	4920	156	156	4940	5360	9	279	19-123	8 M1	
Phenanthrene	ug/kg	ND	156	156	139	138	84	84	19-135	.6	
Pyrene	ug/kg	ND	156	156	132	131	84	83	18-136	1	
2-Fluorobiphenyl (S)	%						74	73	27-118		
Terphenyl-d14 (S)	%						83	83	28-125		



Project: WA 11060 Pace Project No.: 2510663

QC Batch: OEXT/5030 Analysis Method: NWTPH-Dx
QC Batch Method: EPA 3546 Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 2510663001, 2510663002, 2510663003, 2510663004, 2510663005

METHOD BLANK: 101082 Matrix: Solid

Associated Lab Samples: 2510663001, 2510663002, 2510663003, 2510663004, 2510663005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/kg	ND ND	16.0	01/30/12 14:18	
Motor Oil Range	mg/kg	ND	64.0	01/30/12 14:18	
n-Octacosane (S)	%	84	50-150	01/30/12 14:18	
o-Terphenyl (S)	%	88	50-150	01/30/12 14:18	

LABORATORY CONTROL SAMPLE: 101083

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/kg	400	359	90	70-111	
Motor Oil Range	mg/kg	400	386	97	73-118	
n-Octacosane (S)	%			91	50-150	
o-Terphenyl (S)	%			91	50-150	

SAMPLE DUPLICATE: 101084

Parameter	Units	2510659002 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/kg	2020	1830	10	
Motor Oil Range	mg/kg	2250	2020	11	
n-Octacosane (S)	%	109	103	5	
o-Terphenyl (S)	%	96	93	3	

SAMPLE DUPLICATE: 101157

		2510683001	Dup		
Parameter	Units	Result	Result	RPD	Qualifiers
Diesel Range	mg/kg	2090	1610	26	
Motor Oil Range	mg/kg	ND	50.1J		
n-Octacosane (S)	%	118	98	19	
o-Terphenyl (S)	%	116	97	18	

Date: 02/09/2012 11:46 AM





Project: WA 11060 Pace Project No.: 2510663

QC Batch: PMST/1948 Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 2510663001, 2510663002, 2510663003, 2510663004, 2510663005

SAMPLE DUPLICATE: 100923

 Parameter
 Units
 2510659001 Result
 Dup Result
 RPD
 Qualifiers

 Percent Moisture
 %
 16.1
 15.9
 1



QUALIFIERS

Project: WA 11060 Pace Project No.: 2510663

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.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

Date: 02/09/2012 11:46 AM

D6	The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
S2	Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample
	re-analysis).
S5	Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WA 11060 Pace Project No.: 2510663

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2510663001	EW-1-25'	EPA 3546	OEXT/5030	NWTPH-Dx	GCSV/3274
2510663002	EW-1-30'	EPA 3546	OEXT/5030	NWTPH-Dx	GCSV/3274
2510663003	EW-2-10'	EPA 3546	OEXT/5030	NWTPH-Dx	GCSV/3274
2510663004	EW-2-15'	EPA 3546	OEXT/5030	NWTPH-Dx	GCSV/3274
2510663005	EW-2-30'	EPA 3546	OEXT/5030	NWTPH-Dx	GCSV/3274
2510663001	EW-1-25'	NWTPH-Gx	GCV/2654	NWTPH-Gx	GCV/2658
2510663002	EW-1-30'	NWTPH-Gx	GCV/2656	NWTPH-Gx	GCV/2661
2510663003	EW-2-10'	NWTPH-Gx	GCV/2656	NWTPH-Gx	GCV/2661
2510663004	EW-2-15'	NWTPH-Gx	GCV/2656	NWTPH-Gx	GCV/2661
2510663005	EW-2-30'	NWTPH-Gx	GCV/2656	NWTPH-Gx	GCV/2661
2510663001	EW-1-25'	EPA 3050	MPRP/2779	EPA 6010	ICP/2620
2510663002	EW-1-30'	EPA 3050	MPRP/2779	EPA 6010	ICP/2620
2510663003	EW-2-10'	EPA 3050	MPRP/2779	EPA 6010	ICP/2620
2510663004	EW-2-15'	EPA 3050	MPRP/2779	EPA 6010	ICP/2620
2510663005	EW-2-30'	EPA 3050	MPRP/2779	EPA 6010	ICP/2620
2510663001	EW-1-25'	EPA 3546	OEXT/5053	EPA 8270 by SIM	MSSV/1933
2510663001	EW-1-25'	EPA 5035A/5030B	MSV/6295	EPA 8260	MSV/6309
2510663002	EW-1-30'	EPA 5035A/5030B	MSV/6295	EPA 8260	MSV/6309
2510663004	EW-2-15'	EPA 5035A/5030B	MSV/6299	EPA 8260	MSV/6314
2510663002	EW-1-30'	EPA 8260	MSV/6270		
2510663003	EW-2-10'	EPA 8260	MSV/6270		
2510663004	EW-2-15'	EPA 8260	MSV/6270		
2510663005	EW-2-30'	EPA 8260	MSV/6270		
2510663001	EW-1-25'	ASTM D2974-87	PMST/1948		
2510663002	EW-1-30'	ASTM D2974-87	PMST/1948		
2510663003	EW-2-10'	ASTM D2974-87	PMST/1948		
2510663004	EW-2-15'	ASTM D2974-87	PMST/1948		
2510663005	EW-2-30'	ASTM D2974-87	PMST/1948		

Pace Analytical www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

2510663

Section A	Section B								Sect	ion C												Pag	e:	1	of J	
Required Client Information:	Required P	roject	Inform	ation:				_	_	e Inform	nation	:						_				7	Le	150	277	1
Company: Arcadis	Report To:	S	60	172	0-11				Attent															T02	277	
Address: 2300 Eastlake Are	Сору То:	1	41	Ka	Company Name:						REGULATORY AGENCY															
Address: 2300 Eastlake Are Scattle 98/02			_	in i				Address:					100	☐ NPDES ☐ GROUND WATER				TER	DRINKIN	G WATER						
Email 10: Swill. Lorn getrue, -USC	Purchase O	rder N	10.:			Pace Quote Reference:					Γ	UST	Г	RCRA	CRA OTHER											
Phon 2012-726-4709 Fax:	Project Nam	ne: L	1	A .11	060)			Pace F Manag	Project ger:									Site	Locatio	on					
Requested Due Date/TAT: 5 anda/d	Project Num	nber:							Pace F	Profile #:		111			1111111		17	0.00		STATI	E:	AIC		321, 1316		
2 12 13 1																R	eques	sted	Analy	sis Fil	tered	(Y/N)				
Section D Matrix C		eft)	(a)		COLL	ECTED					Pros	servat	ives		N/A		11				1/2	Δ. sc	17 193			
Required Client Information MATRIX / Drinking Wat	er DW	codes to left)	C=COMP)		COLL	I		z		П	11	T		Т	1	Н	+	+	\dashv	++		DE HE		-cast	15:0	
Water Waste Water	WT	valid cod		COMPO		COMPO END/G	SITE	ECTIC						l lu			0			ale con en al sir alcur, i escape d'al es						
Product Soil/Solid	P SL OL	(see va	(G=GRAB			1	COLLECTION		S				-		E	3	6			Residual Chlorine (Y/N) And Project No./ Lab I.D.						
SAMPLE ID (A-Z, 0-9 / ,-) Oil Wipe Air	WP AR	- 1						F	# OF CONTAINERS				П		Test ▮		75		7				orine			
(A-Z, 0-9 / ,-) Air Sample IDs MUST BE UNIQUE Tissue Other	TS OT	CODE	TYPE			100		TEMP	NTA	rved				_	S		>>	T	a			1 2 110	등	1 + 2/4/1		
	01	XX	PLE.				100	PLE	00 =	o, O,	3 6	I	S ₂ O ₃	hanc	Analysis	R	24	14	0		11 20		idua	JE TO		
TEW##		MATRIX	SAMPLE	DATE	TIME	DATE	TIME	SAMPLE	0 #	Unpreserved H,SO,		되물	Na ₂	Methanol	‡ Ar	0	05	3	7	149		oi ura	Res	Pace	Project N	o./ Lab I.D.
1 EW-1-25'						126-12	0825									X	XX	X	X							
2 EW-1-30'				T		100	0845					17		11 15	01		111	1	1	Martin.	1 84	7 liq	ron (Lb	H ILEM	M. Na	111
3 EW-1-10'							1105									Ш	Ш	Ш	\coprod							
4 EW-2-15	1 7 5/10	5	Jich	111111		34 430	1115					3 16					111			7 374			UET BASE		021 58	E D'ORTE
5 EW-2-30'	1 3/1 3/	7-11	3.5	D41 2.37	17 JUL	V	1225	(11)			\perp			_		¥	M	V	Y		0.00	10.11	10	-1107	es like	- 15
6				- 11 - 72	- 101	1		-	1000		+	12 22					_		1020	+			120	00000		
7						-		-			+	-				Н	-	-	-	7 1	1/4		U U	Value 12	UNIV.	
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9			+			-	-	-	-	93	+	-	\vdash				+			-	-		213 (37)	1500		
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12			\dashv							\vdash	\forall			+				\vdash	\dashv	++	+					
ADDITIONAL COMMENTS		REL	INQUI	SHED BY /	AFFILIAT	ION	DATE		Т	IME	1		ACC	EPTE	D BY	/ AFI	ILIATIO	ON		DATE		TIME		SAME	LE CONDIT	ONS
Hold Patt Pending	Sin	57.		Anu	1.4		1-26-1)	16	30	\vdash	R	Mh	'n .	Sua	~	TOP	tCE	- 1	26/	121	630	26	N	V	4
DRO Results, Call	7.00	-/15		v						-		-)	<u> </u>			1	11	, ,	١,	1		A	205 (4.8)	12 TE	-	
San Miles at 954294.313	(
with any grestowns				440																		34				
	IGINAL				SAMPLE	ER NAME A	ND SIGNAT	URI															ပ္	no (r	y	ntact
						PRINT Na	ne of SAMPL	ER:	,	Sa	in	V	n	The	6	>							Temp in	Received on Ice (Y/N)	Custody ealed Cooler (Y/N)	amples Intact (Y/N)
						SIGNATU	RE of SAMPL	Pa	ge 3	Q of 3.	2		-			DA	TE Sig	ned	1-2	6-1	2		Ten	Rec	Sealt	Samp

Sample Container Count

CLIENT:	Acadis	

2510663

Pace Analytical"

COC PAGE | of | COC ID# | 532771 Trip Blank(s) Provided?

Sample Line Item	VG9H	AG1H	AG1U	RP1H	RP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG			Comments
Line item	1	AOIII	71010	DI 10	D. 20	B. 00	D. 0.1	D. 00	110110	1	1						T	
1										('	1	2	2				
2										1	1	١	2	2				
3										l	1	1	2	2				
4										١	1	1	2	2				
5										1	1	١	2	2				
6																		
7																		
8																		
9						,												
10																		
11																		
12																		

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
	1liter unpreserved amber glass		500mL unpreserved plastic		8 oz clear glass soil jar
	500mL H2SO4 amber glass		500mL NaOH, Zn Ac		4 oz clear glass soil jar
	500mL unpreserved amber glass	BP3C			2 oz clear glass soil jar
	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic		4 oz amber glass soil jar with MeOH
	1 liter HCL clear glass	BP3S	250mL H2SO4 plastic	VG9U	40mL unpreserved clear vial
BG1U		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	1	Wipe/Swab	U	Summa Can

	Sam	ole Con	dition Upon Rec	eipt		
Pace Analytical Clier	nt Name:/	Arca	dis	Project #	25106	6 3
Courier: Fed Ex UPS US Tracking #:	PS Client C	Commercia	Pace Other			
Custody Seal on Cooler/Box Presen	it: Yes 🗆	No Sea	als intact: Yes	☐ No		
Packing Material: Bubble Wrap		-	Other fram k	Temp. Blank (Yes)	No	
	31962 or 226099 Type	_		Samples on ice, cooling	g process has begun	
Temp should be above freezing ≤ 6 ℃	6°C Biolog	gical Tiss	ue is Frozen: Yes No Comments:		01/26/12	
Chain of Custody Present:	Ves		I/A 1.			
Chain of Custody Filled Out:	⊠Yes		I/A 2.			
Chain of Custody Relinquished:	□Yes		I/A 3.			
Sampler Name & Signature on COC:	⊠Yes		I/A 4.			
Samples Arrived within Hold Time:	Yes		I/A 5.			
Short Hold Time Analysis (<72hr):	□Yes	DNO ON	I/A 6.			
Rush Turn Around Time Requested	: □Yes	No Or	1/A 7.			
Follow Up / Hold Analysis Requeste	d: □Yes	ØN₀ □N	I/A 8.			
Sufficient Volume:	□¥es		^{1/A} 9.			
Correct Containers Used:	□Yes	□No □N	1/A 10.			
-Pace Containers Used:	□Yes		I/A	0		
Containers Intact:	□Yes		I/A 11.			
Filtered volume received for Dissolved	tests □Yes	□Nº □K	I/A 12.			
Sample Labels match COC:	Æ Yes	_DNO, DN	/A 13.			
-Includes date/time/ID/Analysis	Matrix:	oil				
All containers needing preservation have been	n checked.	DNo ₽K	/A 14.			
All containers needing preservation are fou compliance with EPA recommendation.	nd to be in ☐Yes	ONO PK	VA.		-	
Exceptions VOA, coliform, TOC, O&G			Initial when completed	Lot # of added preservative		
Samples checked for dechlorination:	□Yes	□No □N	/A 15.			
Headspace in VOA Vials (>6mm):	□Yes	□No ØN	/A 16.			
Trip Blanks Present:	□Yes,	No DV	/A 17.			
Trip Blank Custody Seals Present	□Yes	□No EN	/A			
Pace Trip Blank Creation Date:				No. 2012 10 10 10 10 10 10 10 10 10 10 10 10 10		
Client Notification/ Resolution:				Field Data Required?	Y / N	
Person Contacted:		Dat	e/Time:	**************************************	•	
Comments/ Resolution:						

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)

arb

Project Manager Review:

Date:

ARCADIS

Appendix **C**

Bills of Lading



7343 E. MARGINAL WAY SOUTH SEATTLE, WASHINGTON 98108 PH. (206) 832-3000 FAX (206) 832-3030 24 HOUR EMERGENCY PHONE: 1-888-832-3008

		DIEL OF EADING	AND GALLON	MOL III	JILL I		
SHIPPER/GE	NERATOR	Arcadis.		CONTACT		JOB# 30-	-67361
ADDRESS	45	80 Fauntlerry	vay s.w	PHONE#		LOAD# /	
CITY, STATE,	ZIP	Seattle, WA				DATE U4	12/12
CARRIER	EME	erald Services.		PHONE#		DOCUMENT #	#
CONSIGNEE	Line	PS.		CONTACT		TRUCK# 7	45
ADDRESS	1500	Airport way 5.		PHONE#		PRODUCT TY	
CITY, STATE,	ZIP	Seattle wn.				EST. GALLON	s 10"
НМ	ITEM#	U.S. DOT D	ESCRIPTION		#	TYPE	QTY.
	А	Non Hazan	dous Liqu	id	1	TT	330
	В						and and and
	С						
	D						
		60000	() (
			C. WP	Q#		DISP. CODE	:
B. WPQ#		DISP. CODE:	D. WP	Q#		DISP. CODE	:
			DISPOSAL				
			DU	MP DELAY TIME			
WASH OUT	YES () NO) ()	TIM	1E IN		TIME OUT	
E. WATER		GALLONS LOCATION	TES	ST		DISP. CODE	
F. SOLIDS —		GALLONS LOCATION	TES	ST		DISP. CODE	
<u>-</u>			RIFUGE +	GALS	SEDIMENT		
G. OIL/DIESEL	_/GAS	GALLONS LOCATION	TES	ST		DISP. CODE	
HOC'S		PCB'S	B.S.&\	W	API		_AB: Y / N
x Scalar X Shipper (PR X CARRIER - DR X	I, packed, marked and national gov 0 CFR Part 761. INT NAME) RIVER 1 (PRINT NAME)	horn X SIGNA	in proper condition for tr I is not regulated as a har	ansport by hig	hway, vessel a e in accordanc D.	and rail accordin	g to applicable
X		X			D.	ATE:	
CONSIGNEE	(PRINT NAME)	SIGNA	ATURE				G-



7343 E. MARGINAL WAY SOUTH SEATTLE, WASHINGTON 98108 PH. (206) 832-3000 FAX (206) 832-3030 24 HOUR EMERGENCY PHONE: 1-888-832-3008

		BILL U	F LADING A	ND GALLO	NAGE TIC	KET		
SHIPPER/GE	NERATOR (P west	coast (1	Araca (is)	CONTACT R	GCS P	JOB# 30~	-67485
ADDRESS	45-80	Faculta	tray way	5.W.	PHONE#	16	LOAD#	4 100
CITY, STATE,	ZIP	116 wa	J		713-51	18	DATE	19/12
CARRIER (= mercul	2 Services	STIC! Sec	146-1640	PHONE#			# 59949
CONSIGNEE	Element		dry so		CONTACT	À	TRUCK#	2 1 1 1 1
ADDRESS			pol way		PHONE# (C) 5		-	YPE Liquid
CITY, STATE,		Ser Hhe	1		396-31		EST. GALLON	
НМ	ITEM#		U.S. DOT DES	CRIPTION		#	TYPE	QTY.
	А	3 12000	~3	0/	-0/100-	\		-
	В	J, 0:11 A	03, busali	11-27 - 32	E146-148			598
	С							
	D							
	-0290		ter Well. HOSC DE:		Pa# 1906A			
			D	ISPOSAL				and the second
				DU	IMP DELAY TIME_	nu.		
WASH OUT	YES () NO) ()		TIN	ME IN		TIME OUT	
. WATER		GALLONS	LOCATION	TE	ST		DISP. CODE	
. SOLIDS —		GALLONS	LOCATION	TE	ST		DISP. CODE	
_		% SUSPENDE	SOLIDS BY CENTRIFU	JGE +	GALS S	EDIMENT		
. OIL/DIESEL	/GAS	GALLONS	LOCATION	TE	ST		DISP. CODE	
HOC'S		PCB'S		B.S.&	w	API		LAB: Y / N
			47					
are classified nternational a	, packed, marked	and labeled, and	contents of this consi are in all respects in p s and this material is	roper condition for tr	ansport by highw	av. vessel ar	nd rail according	a to applicable
	PORN TOK (CAST P)?		X	30		DA	ATE: 5-1	9/12
· Chi	IVER 1 (PRINT NAME	Stempel	XSIGNATUR	ucules à	State	DA	TE: 5-/	9/12
			X		1	DA	ATE:	
CARRIER - DR	IVER 2 (PRINT NAME	()	SIGNATURI X			D^	TE:	
CONSIGNEE (F	PRINT NAME)		SIGNATUR	E *		UP	W.L.	G

G-2



7343 E. MARGINAL WAY SOUTH SEATTLE, WASHINGTON 98108 PH. (206) 832-3000 FAX (206) 832-3030 24 HOUR EMERGENCY PHONE: 1-888-832-3008

BILL OF LADING AND GALLONAGE TICKET

SHIPPER/GE		Arcadic		CONTACT		JOB#30-	67822
ADDRESS	458	O Fauntlerry u	Jay S.W.	PHONE#		LOAD#	
CITY, STATE,	ZIP S	Seattle WA.				DATE 08 /	10-12
CARRIER	Eme	rald services	-	PHONE#		DOCUMENT	#
CONSIGNEE	£ /	PS.		CONTACT		TRUCK#	7611
		Airport way		PHONE#		PRODUCT TY	PE LIG
CITY, STATE,	ZIP S	eattle WM.				EST. GALLON	- 1
НМ	ITEM#	U.S. DO	OT DESCRIPTION		#	TYPE	QTY.
	А	Non Hazar	dous Libure	1.	***************************************	TT	\$5
	В	470	y water				
	С					W.	
	D						
		DISP. CODE: 602	901				
				Q #		DISP. CODE:	
B. WPQ#		DISP. CODE:	D. WP	Q#		DISP. CODE:	
			DISPOSAL				
			DUI	MP DELAY TIME	Ī———	n syd	
WASH OUT:	YES () NO	()	TIM	1E IN		TIME OUT	
E. WATER		GALLONS LOCATION .	TES	ST	<u> </u>	DISP. CODE	
SOLIDS		GALLONS LOCATION .	TES	ST		DISP. CODE	
			ENTRIFUGE +	———GALS	SEDIMENT		
G. OIL/DIESEL/	GAS	GALLONS LOCATION .	TES	ST		DISP. CODE	
HOC'S		PCB'S	B.S.&V	v	API _		AB: Y / N
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