

WELL INSTALLATION REPORT

Pacific Convenience and Fuels Service Station #2705492

Facility Site ID # 15543314

21208 68th Ave South, Kent, Washington, 98032

VCP No. NW2686

Antea[®]Group Project No. I42705492

April 25, 2013

Prepared for:

Pacific Convenience and Fuels, LLC

7180 Koll Center Parkway

Suite 100

Pleasanton, CA 94566

Prepared by:

Antea Group

4006 148th Avenue NE

Redmond, WA 98052

800 477 7411

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Well Installation Report

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VCP No. NW 2686

21208 68th Ave S, Kent, Washington

Antea Group Project No. I42705492

Antea Group (Antea Group) has prepared this report to summarize well installation activities performed at the Pacific Convenience & Fuels, LLC (PC&F) Service Station #2705492 (former ConocoPhillips Service Station) located at 21208 68th Avenue South, Kent, Washington (The Property, Figure 1). The work summarized in this report was performed to prepare for an up-coming pilot test and to replace wells TW-1, TW-3 and TW-4, which are underground storage tank (UST) observation wells not designed for groundwater monitoring and sampling.

1.0 EXECUTIVE SUMMARY

On July 9 and 10, 2012, Antea Group personnel directed the advancement of 3 soil borings (MW-11, MW-12, and AS-1) at the Property (Figure 2). Borings MW-11 and MW-12 were advanced to a total depth of 18 feet below ground surface (bgs) and boring AS-1 was advanced to a total depth of 17 feet bgs. Borings MW-11 and MW-12 were completed as 2-inch groundwater monitoring wells with 15 feet of 0.010" slotted screen. AS-1 was completed as an air-spargewell with two feet of 0.020" slotted screen from 13 to 15 feet bgs.

Soil samples were collected at 3 feet bgs with a hand auger during air-knifing activities and at approximate 5-foot intervals from a split spoon driven ahead of the drill bit into the undisturbed formation. Petroleum hydrocarbons were detected above respective Washington State Model Toxic Control Act (MTCA) Method A cleanup levels for benzene and/or total petroleum hydrocarbons as gasoline (TPH-G) in soil samples MW-11-10, AS-1-3, and AS-1-10. Maximum observed concentrations of benzene and TPH-G were 4.51 milligrams per kilogram (mg/kg) and 8,080 mg/kg in sample MW-11-10.

2.0 BACKGROUND

2.1 Site Description

The facility is an operating service station. The Property is square in shape and is located at the southeast corner of the intersection of 68th Avenue South and South 212th Street in Kent, Washington (Figure 1). The Property has been assigned site number 2705492. The current service station facility consists of a station building, three USTs (one 10,000 gallon supreme and two 10,000-gallon unleaded), and four dispensing islands. The former station configuration included three dispenser islands diagonally oriented on a northwest-southeast axis with a cashier's building located adjacent to the center dispenser island. The former UST field was located adjacent to the southeastern dispenser island. Gasoline was stored in four 12,000 gallon USTs and diesel was stored in one 12,000 gallon UST (Figure 2).

According to information gathered by Rittenhouse–Zeman & Associates Inc. (RZA), the Property has been a gasoline service station since at least 1969. The station formerly operated under various retail gasoline company brands including Chevron USA, Southland Corporation, Mobil Oil Corporation, British Petroleum (BP) Oil Company, ConocoPhillips, and most recently, PC&F. The Property is at an approximate elevation of 25 feet above mean sea level. Topography in the vicinity of the Property is generally flat. The Green River is located approximately ¼ mile west of the Property and flows in a northerly direction. State highway 167 is located approximately 1.3 miles east of the Property and Interstate 5 is located approximately 2 miles west of the Property. The surrounding land use is predominantly commercial.

2.2 Previous Investigations

2.2.1 Historical Motor Fuel Dispensing Facility Configurations, 1969 to 1991

The Property has reportedly operated as a gasoline and diesel-dispensing facility since at least 1969. According to review of the Washington State Department of Ecology (Ecology) UST database, five USTs were installed at the Property in 1964. Documentation regarding the decommissioning and/or removal of the original USTs has not been found. Between 1980 and 1981, the station was remodeled by Southland Corporation. The Underground Storage Tank Removal report prepared by RZA in April 1992 stated that Southland Corporation transferred five 12,000 gallon USTs from another location and installed them at the Property in 1980. The prior usage and condition of the USTs at the time of installation was not reported.

The station was remodeled again in September 1991 and included the demolition and replacement of the station building, dispenser islands, the USTs installed in 1980, and the associated product piping. According to RZA's April 1992 report, four 12,000-gallon gasoline USTs and one 12,000-gallon diesel UST were removed from the Property on October 2 and 3, 1991. A septic tank and associated drain field was also discovered and was subsequently removed during the station upgrade. Following UST decommissioning, the motor fuel products USTs were replaced by one 10,000 gallon supreme and two 10,000-gallon unleaded gasoline USTs oriented east-west in the west central portion of the Property. The station upgrade was completed in December 1991.

2.2.2 Historical Site Characterization Assessments, 1989 to 2012

A soil gas survey was conducted at the Property on February 26, 1989 by Target Environmental Services, Inc. (Target) in accordance with the Property transfer agreement between Mobil Oil Corporation and BP Oil Company. The results of the soil gas survey indicated that petroleum hydrocarbons were concentrated in the subsurface soil in the vicinity of the UST complex and along the product piping, with some migration northwestward along the edge of the dispenser island area. Target stated that low level hydrocarbon impacts were detected in the remaining areas of the Property.

In order to evaluate subsurface soil and groundwater for the presence of petroleum hydrocarbons, RZA conducted a limited subsurface investigation at the Property in April 1989. Prior to the investigation activities, RZA observed that four groundwater monitoring wells (named by RZA as wells "A" through "D") had been installed at the Property in the region of the UST complex and dispenser islands. RZA installed monitoring well MW-1 to the west of the UST complex on April 12, 1989. Soil observed during the drilling consisted of soft to medium dense sandy silt to approximately 10 feet bgs, underlain by medium dense slightly silty sand to the bottom of the boring, 14 feet bgs. A soil sample was collected for analysis of total petroleum hydrocarbons (TPH) and for benzene, toluene, ethylbenzene, and total xylenes (BTEX). A concentration of TPH was detected at 36 mg/kg. During the groundwater monitoring activities conducted at the existing wells and at well MW-1 on April 18, 1989, approximately 0.26 feet of liquid petroleum hydrocarbons (LPH) was measured in well B, located southwest of the center dispenser island. Groundwater samples were collected from well MW-1 and well D for analysis of TPH and BTEX. Within the groundwater sample collected from well MW-1, TPH and BTEX were detected at concentrations of 28,000 micrograms per liter (µg/L), 13,040 µg/L, 2,250 µg/L, 290 µg/L, and 1,260 µg/L, respectively.

RZA conducted a subsurface investigation in November 1989 which consisted of the installation of two new wells (MW-2 and MW-3) and the decommissioning of wells A, B, C, and D. Prior to the well decommissioning, approximately 0.5 feet of LPH was measured in well B. Wells MW-2 and MW-3 were installed on November 21, 1989 to a depth of 15 feet bgs. Laboratory analysis of soil samples collected from the borings indicated that concentrations of TPH and BTEX were detected in the 9-foot soil sample interval from boring MW-3 at 5,679 parts per million (ppm), 68.3 ppm, 312 ppm, 71.0 ppm, and 399 ppm, respectively. Concentrations of TPH and BTEX were also detected in groundwater samples collected from wells MW-1 through MW-3 on November 28, 1989.

Four additional groundwater monitoring wells (MW-4 through MW-7) were installed to a depth of 18.5 feet bgs by RZA in February 1991. The wells were installed to further delineate the extent of petroleum hydrocarbons in groundwater and soil beneath the Property. Soil samples were collected from the sample intervals of 2 feet to 3.5 feet bgs and from 7 feet to 8.5 feet bgs from each boring for analysis of petroleum hydrocarbons. Concentrations of TPH as diesel (TPH-D) ranged from 14 ppm to 40 ppm. Concentrations of BTEX were not detected above the laboratory method reporting limits. Groundwater samples were collected from the wells on February 14, 1991. A concentration of benzene was detected within the sample collected from well MW-4 at 232 parts per billion (ppb).

Station upgrades including the demolition and replacement of the station building, dispenser islands, USTs and associated product piping were performed at the Property between September and December 1991. Prior to excavation of the new UST complex, an exploratory trench was excavated on September 9, 1991 along the perimeter of the proposed location of the new UST complex. During the limited excavation, large pieces of asphalt and concrete, steel product lines, and a concrete dispenser island with an attached canopy footing were discovered in the northwest corner of the proposed UST location at a depth of approximately 6 feet to 7 feet bgs. Several of the product lines were observed to contain groundwater. According to RZA's April 1992 report, all debris found during the excavation was removed. Well MW-3 was also removed during the excavation activities for the new USTs.

Excavation of the new UST complex began on September 24, 1991. Excavated soil was field screened with a PID. The highest PID readings were observed from soil samples obtained near the groundwater interface at depths between 11 feet and 12 feet bgs. Soil samples collected from the new UST complex from depths between 7 feet and 12 feet bgs contained concentrations of TPH as gasoline (TPH-G) ranging from 8 ppm to 1,400 ppm and total BTEX ranging up to 20 ppm. During excavation dewatering operations, three groundwater samples were collected for laboratory analysis of petroleum hydrocarbons. Concentrations of TPH-G and BTEX were detected up to 60,000 ppm, 6,600 ppm, 12,000 ppm, 360 ppm, and 11,000 ppm, respectively. Upon installation of the new USTs, four UST observation wells (TW-1 through TW-4) were installed in the four corners of the new UST complex. Historic documents indicate that observation well TW-1 was used during groundwater monitoring events conducted by RZA.

The five 12,000-gallon USTs were removed from the Property on October 2 and 3, 1991. Upon removal, a hole approximately the diameter of a pencil was found in the bottom of the unleaded gasoline UST. RZA observed a "brownish emulsion" on the groundwater present at 10.5 feet to 11 feet bgs within the excavation. Soil samples were collected from the sidewalls and bottom of the excavation between 7 feet and 12 feet bgs. Concentrations of TPH-G, TPH-D, and BTEX were detected up to 7,200 ppm, 2,600 ppm, 90 ppm, 540 ppm, 160 ppm, and 1,000 ppm, respectively. The excavation was backfilled with a combination of the previously excavated soil and imported clean fill consisting of silty sand and gravel.

During excavation of the former UST complex, several concrete and polyvinyl chloride (PVC) pipes were discovered in the sidewalls of the UST excavation. The pipes as well as some previously abandoned monitoring wells and well MW-2 were removed during the excavation activities. Another well RZA identified as well "E" was also abandoned during the UST removals. In addition, an 18-inch concrete pipe was also discovered along the southwest corner of the former UST excavation at a depth of 7 feet bgs. Upon checking with the City of Kent, the pipe was grouted at the western and southeastern Property boundary to prevent migration of petroleum hydrocarbons.

The dispenser islands and associated canopy were demolished and removed from the Property in October 1991. Elevated PID readings were observed in soil located near the central footing of the former canopy. During the excavation activities conducted for the new canopy footings, soil samples were collected between 5 feet and 6 feet bgs. Concentrations of TPH-G and TPH-D were detected up to 70 ppm and 110 ppm, respectively. The soil sample



collected from the southern-central canopy footing at 5 feet bgs contained concentrations of BTEX at 2.2 ppm, 12 ppm, 7.6 ppm, and 41 ppm, respectively. During the excavations for the new canopy footings, all product lines, vent lines, and former utility lines were traced and subsequently removed to prevent preferential pathways.

During the excavation of the product line trench to the southern dispenser island on November 5, 1991, a 750-gallon concrete septic tank and associated drain field was discovered. Prior to having the septic pumped and cleaned by a septic tank cleaning service, samples were collected from the contents of the septic tank. Concentrations of TPH-G, TPH-D, and BTEX were detected at 320 ppm, 6,200 ppm, 9.6 ppm, 4.2 ppm, 5.6 ppm, and 31 ppm, respectively. The septic tank was removed on November 7, 1991 and a soil sample was collected from beneath the tank between 6 feet and 7.5 feet bgs. Analytical results indicated concentrations of TPH-G, TPH-D, BTEX, and lead were detected at 2,600 ppm, 750 ppm, 13 ppm, 120 ppm, 53 ppm, 300 ppm, and 101 ppm, respectively. All concrete drain pipes associated with the septic tank were removed from the Property during the septic tank excavation activities.

Additional soil was removed from the Property from the region surrounding the three catch basins and the associated storm drain lines. RZA removed black oily sludge from the catch basins and the storm drain line for disposal with the other impacted soil generated during the station upgrades. The former oil water separator was removed from the Property and replaced with two oil water separators installed near the northern and western Property boundaries. During the installation of the northern oil water separator, a small stained soil horizon was noted at approximately 2 feet bgs.

Groundwater monitoring conducted between 1989 and 1993 indicated that the groundwater flow direction was to the north. In order to evaluate if petroleum hydrocarbons had migrated off-Property, an additional investigation was conducted in March 1993. Monitoring well MW-8 was drilled and installed within the right-of-way on the north side of South 212th Street, directly opposite of the Property to a depth of 20 feet bgs. Two soil samples and one groundwater sample were submitted for laboratory analysis of petroleum hydrocarbons. Concentrations of TPH-G, TPH-D, and BTEX were not detected above the laboratory method reporting limits in the soil and groundwater samples.

On January 9, 2008, ATC Associates, Inc. (ATC) performed a Due Diligence site assessment to generate a baseline assessment of the Property at the time of the Property transfer from ConocoPhillips to PC&F. The assessment included the collection of groundwater samples from wells MW-1, MW-4, MW-5, MW-6, MW-7, TW-1, and TW-3 for analysis of petroleum hydrocarbons. The depth to groundwater ranged from 7.58 feet to 8.43 feet bgs. Concentrations of TPH-G and benzene were detected above the MTCA Method A cleanup levels in the groundwater sample collected from tank observation well TW-1 at 2,200 µg/L and 150 µg/L, respectively.

On August 3, 2010, Antea Group personnel directed the drilling and installation of one groundwater monitoring well (MW-9) at the Property. Boring MW-9 was advanced to a depth of 18 feet bgs and completed as a monitoring well. Soil samples were collected from MW-9 at depths of 6, 10, and 15 feet bgs.

Petroleum hydrocarbon concentrations were not detected above the respective MTCA Method A cleanup levels in any of the soil samples collected from boring MW-9. During the drilling and installation of well MW-9, a well was identified approximately 15 feet to the northwest of existing well DC-4. Due to lack of information provided by previous consultants, this well has been arbitrarily named well MW-10.

Groundwater samples were collected from the newly installed well MW-9 and from existing wells MW-1, MW-4 through MW-7, MW-10, DC-1, DC-3, DC-4, TW-1, and TW-3 on September 23, 2010. The laboratory analytical results indicated that concentrations of TPH-G and benzene exceeded the MTCA Method A cleanup level in well MW-10. A concentration of TPH-G was also detected above the MTCA Method A cleanup level in the groundwater sample collected from well TW-1. Petroleum hydrocarbon concentrations were not detected above the respective MTCA Method A cleanup levels in any of the groundwater samples collected from the remaining wells.

On April 16, 2012, Antea Group personnel directed the advancement of 6 soil borings (B-1 through B-6) at the property. An additional boring (B-7) was attempted but was abandoned due to utilities found approximately 18" bgs. Borings B-1 and B-5 were advanced to a total depth of 15 feet bgs and boring B-6 was terminated at a total depth of 7 feet bgs due to the presence of concrete. Soil samples were collected at approximate 5-foot intervals. Laboratory analytical results indicated that petroleum hydrocarbons were detected above respective MTCA Method A cleanup levels for benzene and/or total petroleum hydrocarbons as gasoline TPH-G in soil samples collected from B-2-10, B-3-3, B-4-3, B-4-10, B-4-15, and B-5-10. Maximum observed concentrations of benzene and TPH-G were 0.0364 mg/kg in sample B-4-10 and 424 mg/kg in sample B-2-10, respectively.

2.2.3 Historical Site Remedial Activities, 1991 to Present

Groundwater was pumped from well MW-3 during a 24-hour pump test conducted on April 26 and 27, 1991. Flow rates measured during the test ranged from 2.40 gallons per minute (gpm) to 3.04 gpm. Water pumped during the test was treated with an air stripper prior to discharge to the sanitary sewer. The total volume of water discharged was not reported.

During excavation of the new UST complex in September 1991, approximately 850 to 900 cubic yards of soil were removed from the Property and transported to the Fields Shotwell Corporation located in Port Angeles, Washington for thermal treatment. In addition, an estimated total volume of 110,000 gallons of water was pumped from the new UST complex and treated by a portable air stripper prior to discharging to the sanitary sewer.

Following the removal of the USTs in October 1991, a two-inch horizontal PVC vapor recovery line extending approximately 20 feet to the north and south of the building center was installed in the UST excavation at a depth of 7 feet bgs. A 40-foot section of two-inch blank PVC pipe was connected to the vapor line. The blank PVC vapor line reportedly extended to the west and was brought to the surface for future utilization. Four wells (DC-1 through DC-4) were also installed at the Property in late 1991 or early 1992 for possible future use as either groundwater

recovery wells or as sparge points for remediation of the impacted groundwater. Documentation of the well installations and installation of a groundwater remediation system has not been found.

According to a Combined Groundwater and SVES Monitoring Report prepared by RZA on February 21, 1994, a soil vapor extraction (SVE) system was reportedly installed at the Property and was activated on November 10, 1993. Based on laboratory analysis of an effluent air sample, RZA calculated the TPH-G and total BTEX recovery rates to be approximately 0.23 pounds per day and 0.01 pounds per day, respectively. A report detailing the SVE system layout, installation, operation, and maintenance has not been found.

On November 29 and 30, 2010, Antea Group personnel directed the drilling and installation of three injection wells (IW-1 through IW-3). All three borings were advanced to a depth of 10 feet bgs and constructed of schedule 40 (SCH 40) PVC with 5-feet of 0.020-inch slotted screen. Soil samples were collected from the drill cuttings for field screening using a photo-ionization detector (PID) and for lithologic descriptions. Soil samples were not submitted for laboratory quantitative chemical analysis. Currently, the injection wells are used to inject 250-gallons of sulfate solution into the subsurface on a bi-weekly basis.

3.0 SCOPE OF WORK

The scope of work performed by Antea Group included the following tasks:

- Development of a site-specific Health and Safety Plan;
- Contracting One-Call and a private underground utility locator to delineate the location and marking of underground utilities and other potential subsurface obstructions in the vicinity of the proposed boring locations;
- Clearing for utilities to a minimum depth of 5 feet bgs using an air knife/vacuum rig;
- Collection of soil samples at 3 feet bgs with a hand auger during utility clearance activities;
- Drilling of 3 soil borings (MW-11, MW-12, and AS-1);
- Completing MW-11 and MW-12 as 2-inch groundwater monitoring wells and AS-1 as a 2-inch air-spargue well;
- Collection of soil samples at approximate 5-foot intervals to the maximum depth explored using split-spoons driven into the undisturbed formation with a hollow stem auger drill rig;
- Examination and description of each sample using the Unified Soil Classification System (USCS) and standard geologic techniques;
- Submitting select soil samples for quantitative chemical analysis from each boring interval;
- Profiling, removal, and proper disposal of investigative derived waste; and
- Preparing a report summarizing the findings of the subsurface investigation.

4.0 WELL INSTALLATION

On July 9 and 10, 2012, Antea Group personnel directed drilling of 3 borings (MW-11, MW-12, and AS-1) at the Property. Prior to the drilling activities, Antea Group coordinated the location and marking of underground utilities

in the vicinity of the proposed boring locations. The utilities survey included contacting the local utility locating service and contracting with a private locating service.

Prior to drilling, each boring location was cleared to a final depth of five feet bgs with an air-knife and vacuum truck. Soil samples were collected with a hand auger at 3 feet bgs during air-knife/vacuum activities. Following air-knifing, borings were advanced using hollow stem auger drilling equipment. Borings MW-11 and MW-12 were advanced to a total depth of 18 feet bgs. Boring AS-1 was advanced to a total depth of 17 feet bgs. Where recovered, soil samples were collected using split spoons advanced approximately every 5 feet to the maximum depth explored. Select soil samples were submitted for quantitative chemical analysis. Boring MW-11 and MW-12 were completed as 2-inch groundwater monitoring wells. Boring logs, soil sampling intervals, and lithology descriptions are included in Appendix A. Field data sheets are included in Appendix B.

Soil encountered during drilling included fine sands with lenses of silty sands, sandy silts, and silt. Groundwater was encountered at each boring location at a depth of approximately 9.5 feet bgs. Strong odors were noted in MW-11 at approximately 10 feet bgs.

5.0 WASTE MANAGEMENT

Soil cuttings decontamination fluids generated during drilling activities were temporarily stored in properly labeled 55-gallon DOT drums. Analytical data for soil samples were used for disposal profiling. The drums were removed by PSC Environmental on May 22, 2012 and properly disposed of by Burlington Environmental in Kent Washington. Waste manifest documentation is included in Appendix C.

6.0 SAMPLE COLLECTION AND ANALYSIS

6.1 Soil Sampling

Soil samples were field screened using a PID for volatile petroleum hydrocarbons. Based on PID readings, soil samples from each boring were selected for quantitative chemical analysis for petroleum hydrocarbons. The soil samples were individually labeled, registered on a Chain-of-Custody form, and placed in a chilled cooler pending delivery to a certified analytical laboratory. Soil analytical results are presented in Table 1 and shown on Figure 3.

6.2 Laboratory Analysis

Soil and groundwater samples were submitted to Pace Analytical Laboratories of Seattle, WA for quantitative chemical analysis.

One or more soil samples were analyzed for the following parameters:

- TPH-G range using Northwest Method NWTPH-Gx;
- BTEX using EPA Method 8260; and
- Total Lead using EPA Method 6010.

7.0 SOIL ANALYTICAL RESULTS

Laboratory analytical results indicate that concentrations of TPH-G exceeded MTCA Method A cleanup levels in soil samples collected from MW-11-10, AS-1-3, and AS-1-10. Concentrations of BTEX exceeded MTCA Method A cleanup levels in soil sample MW-11-10. Maximum observed concentrations of TPH-G and BTEX were 8,080 mg/kg, 4.51 mg/kg, 13.3 mg/kg, 119 mg/kg, and 859 mg/kg, respectively.

Soil analytical results are presented in Table 1 and shown on Figure 3. The laboratory analytical report is included in Appendix D.

8.0 SUMMARY AND CONCLUSIONS

Antea Group directed the drilling of three borings at the property on July 9th and 10th, 2012. Two borings were completed as groundwater monitoring wells MW-11 and MW-12 and one boring was completed as air-sparge well AS-1. Laboratory analysis of soil samples collected from the borings indicate that BTEX and/or TPH-G were detected above MTCA Method A cleanup levels in soil samples MW-11-10, AS-1-3, and AS-1-10.

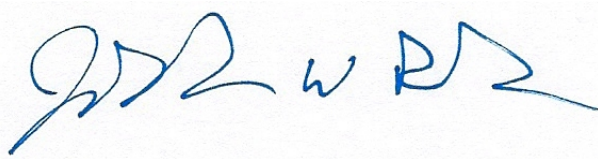
Field observations and analytical results for soil indicate that petroleum hydrocarbon impacts are present beneath the Property near the southeast corner of the current UST complex, and in the southwest portion of the former UST complex.

Please call (425) 498-7724 if you have any questions regarding the contents of this report.

9.0 REMARKS

The recommendations contained in this report represent Antea USA, Inc.'s professional opinions based upon the currently available information and are arrived at in accordance with currently accepted professional standards. This report is based upon a specific scope of work requested by the client. The contract between Antea USA, Inc. and its client outlines the scope of work, and only those tasks specifically authorized by that contract or outlined in this report were performed. This report is intended only for the use of Antea USA, Inc.'s client and anyone else specifically identified in writing by Antea USA, Inc. as a user of this report. Antea USA, Inc. will not and cannot be liable for unauthorized reliance by any other third party. Other than as contained in this paragraph, Antea USA, Inc. makes no express or implied warranty as to the contents of this report.

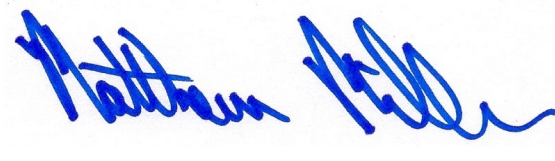
Prepared by:



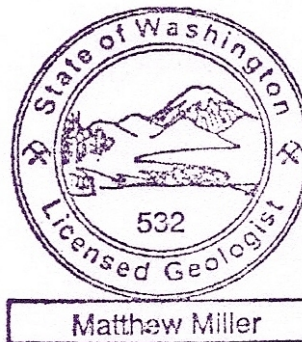
Joe Rounds
Senior Project Manager

Date: April 25, 2013

Reviewed by:



Matthew Miller, LG
Project Manager



Date: June 22, 2012

Tables

Table 1	Summary of Soil Sample Analytical Results
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TABLE 1
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS
Pacific Convenience and Fuels Facility No. 2705492
21208 68th Avenue S
Kent, Washington 98032

Sample ID	Sample Date	Depth BGS (feet)	Analysis					
			Gasoline Range (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	Lead (mg/kg)
MW-11-3	7/9/2012	3	<5.0	<0.0026	<0.0026	<0.0026	<0.0078	1.7
MW-11-6	7/10/2012	6	<4.2	<0.0022	<0.0022	0.0047	0.0176	2.9
MW-11-10	7/10/2012	10	8,080	4.51	13.3	119	859	<0.93
MW-12-3	7/9/2012	3	<5.2	<0.0025	<0.0025	<0.0025	<0.0075	24.6
MW-12-6	7/10/2012	6	<4.8	<0.0023	<0.0023	<0.0023	<0.0068	8.2
MW-12-10	7/10/2012	10	<4.6	<0.0023	<0.0023	<0.0023	<0.0068	2.1
AS-1-3	7/9/2012	3	66.5	<0.0026	<0.0026	<0.0026	<0.0078	3.8
AS-1-6	7/10/2012	6	11.7	<0.0028	<0.0028	<0.0028	<0.0085	3.6
AS-1-10	7/10/2012	10	78.9	0.0032	<0.0026	<0.0026	<0.0078	4.0
MTCA Method A Cleanup Levels:			100/30^a	0.03	7	6	9	250

NOTES:

All concentrations are in milligrams per kilogram (mg/kg).

< = Less than the stated laboratory reporting limit.

Gasoline range = Gasoline range hydrocarbons by Ecology Method NWTPH-Gx

Diesel and Heavy range hydrocarbons, respectively, by Ecology Method NWTPH-Dx with Acid Silica Gel Cleanup

BTEX = Aromatic compounds by EPA Method 8260

Total and dissolved lead by EPA Method 6010

^a MTCA Method A Cleanup levels for TPH-g are 100 mg/kg when no Benzene is present and 30 mg/kg when Benzene is present.



Figures

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| Figure 1 | Site Location Map |
| Figure 2 | Site Map |
| Figure 3 | Soil Analytical Results Map – 07/09/2012 and 07/10/2012 |

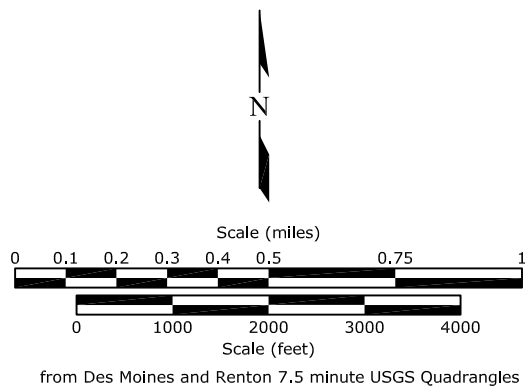
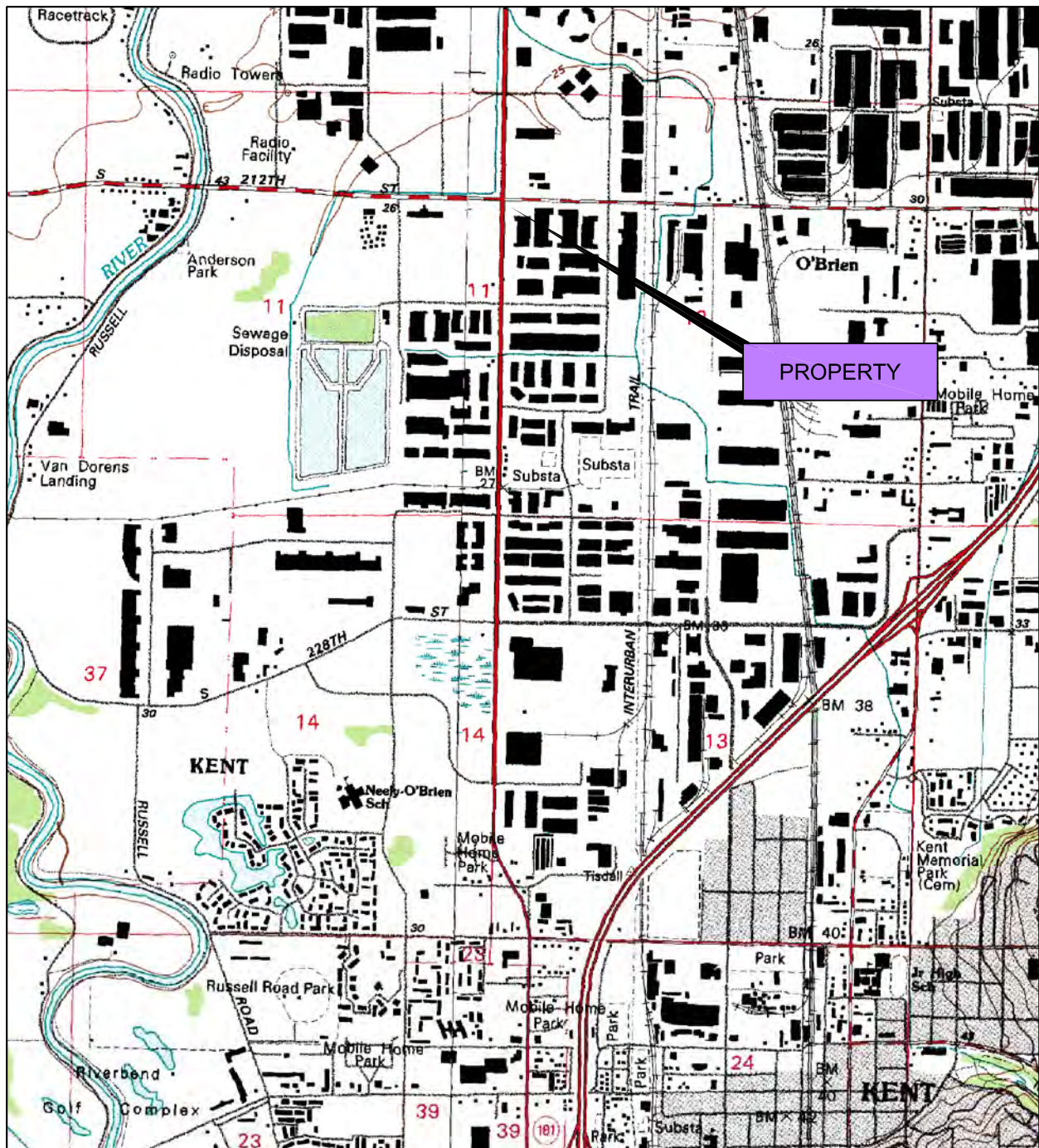


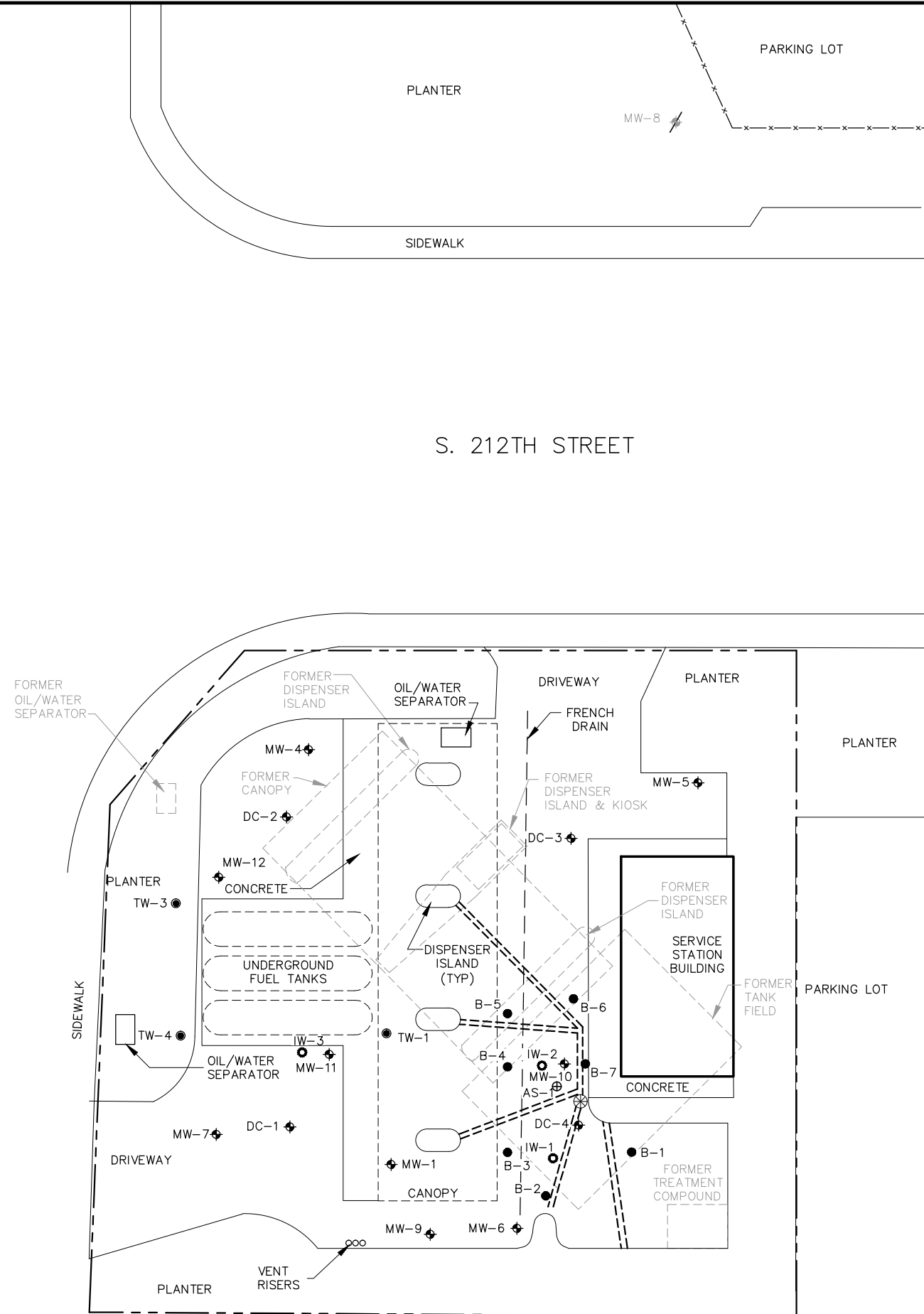
Figure 1
SITE LOCATION MAP

ELT PROJECT 2705492
FORMER BP FACILITY NO. 11054
21208 68th AVENUE SOUTH
KENT, WASHINGTON

Project No. I42705492	Prepared by JK	Drawn by JH
Date 2/10/11	Reviewed by JR	Filename 2705492SLC



68TH AVENUE S.
(WEST VALLEY HIGHWAY)



LEGEND

- | | |
|---------|--|
| --- | APPROXIMATE PROPERTY BOUNDARY |
| -x-x-x- | FENCE |
| MW-4 | GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION |
| TW-1 | TANK OBSERVATION WELL LOCATION AND DESIGNATION |
| MW-8 | PAVED OVER MONITORING WELL LOCATION AND DESIGNATION |
| IW-1 | INJECTION WELL LOCATION |
| B-1 | SOIL BORING LOCATION AND DESIGNATION |
| AS-1 | AIR SPARGE POINT LOCATION |
| ⊗ | MANHOLE |
| ---- | UNDERGROUND UTILITIES |

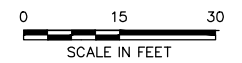
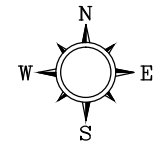
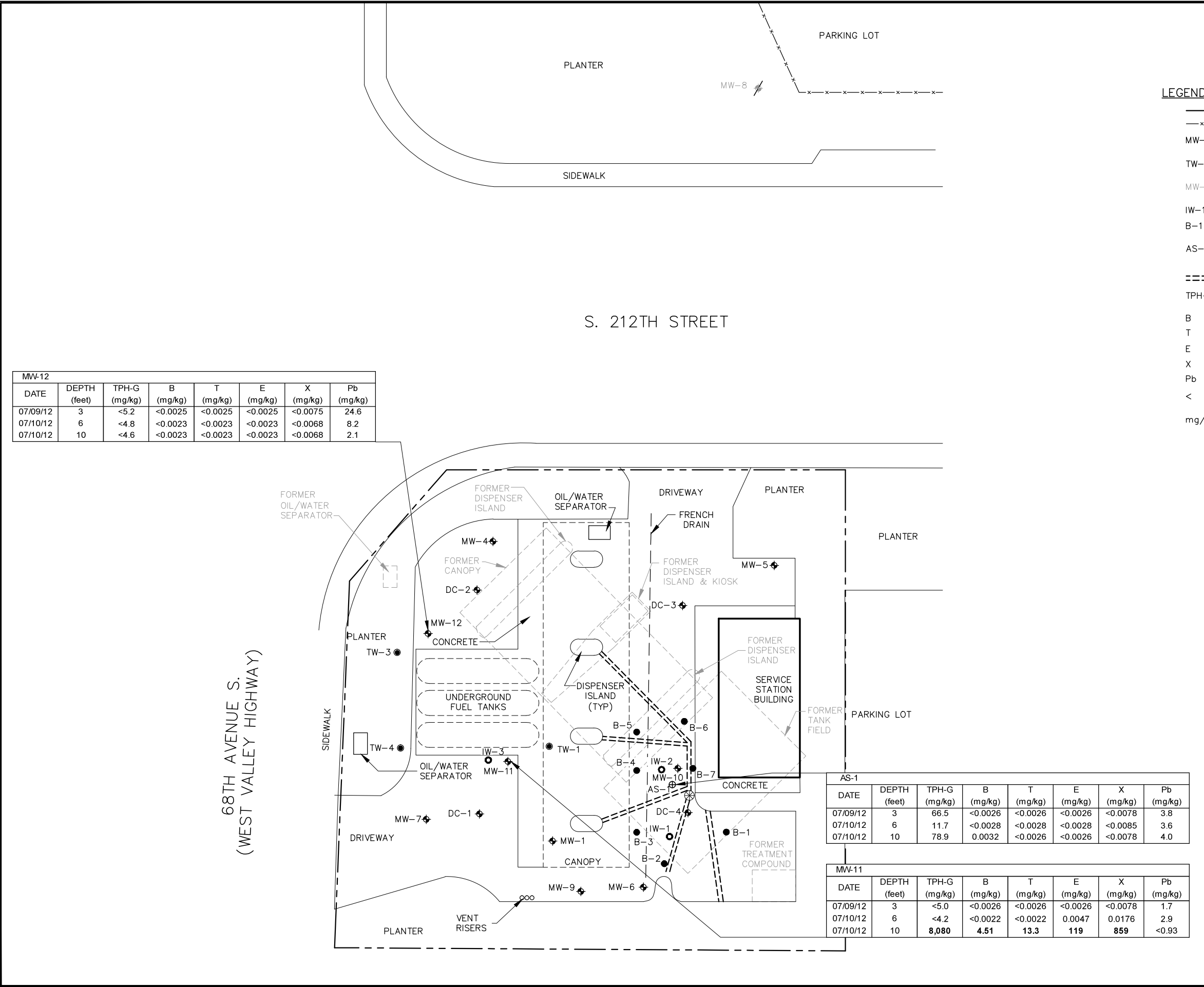


FIGURE 2

SITE MAP

PACIFIC CONVENIENCE AND FUELS
SERVICE STATION #2705492
21208 68th AVENUE SOUTH
KENT, WASHINGTON



LEGEND

APPROXIMATE PROPERTY BOUNDARY

-x-x-x-

FENCE

MW-4

GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION

TW-1

TANK OBSERVATION WELL LOCATION AND DESIGNATION

MW-8

PAVED OVER MONITORING WELL LOCATION AND DESIGNATION

IW-1

INJECTION WELL LOCATION

B-1

SOIL BORING LOCATION AND DESIGNATION

AS-1

AIR SPARGE POINT LOCATION

MANHOLE

UNDERGROUND UTILITIES

TPH-G

TOTAL PETROLEUM HYDROCARBONS - GASOLINE

B

BENZENE

T

TOLUENE

E

ETHYLBENZENE

X

TOTAL XYLENES

Pb

LEAD

<

NOT DETECTED ABOVE LIMIT NOTED

mg/kg

MILLIGRAMS PER KILOGRAM

BOLD VALUES INDICATE EXCEEDANCE OF MTCA METHOD A CLEANUP LEVELS

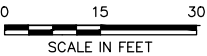


FIGURE 3

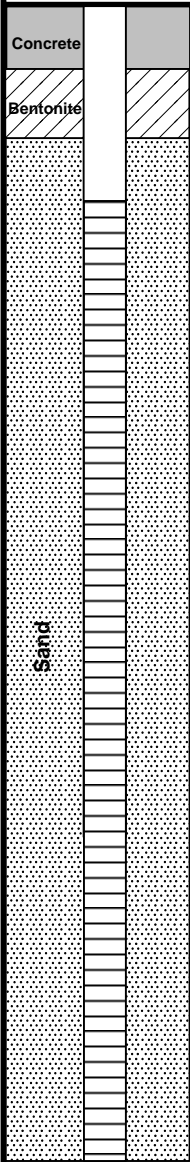
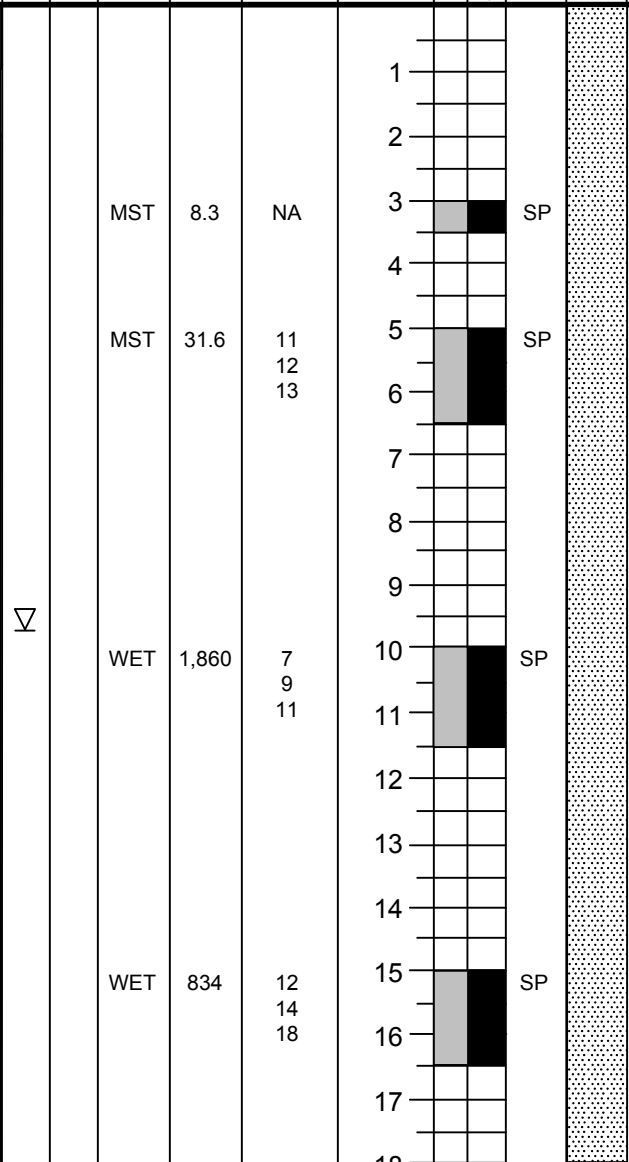

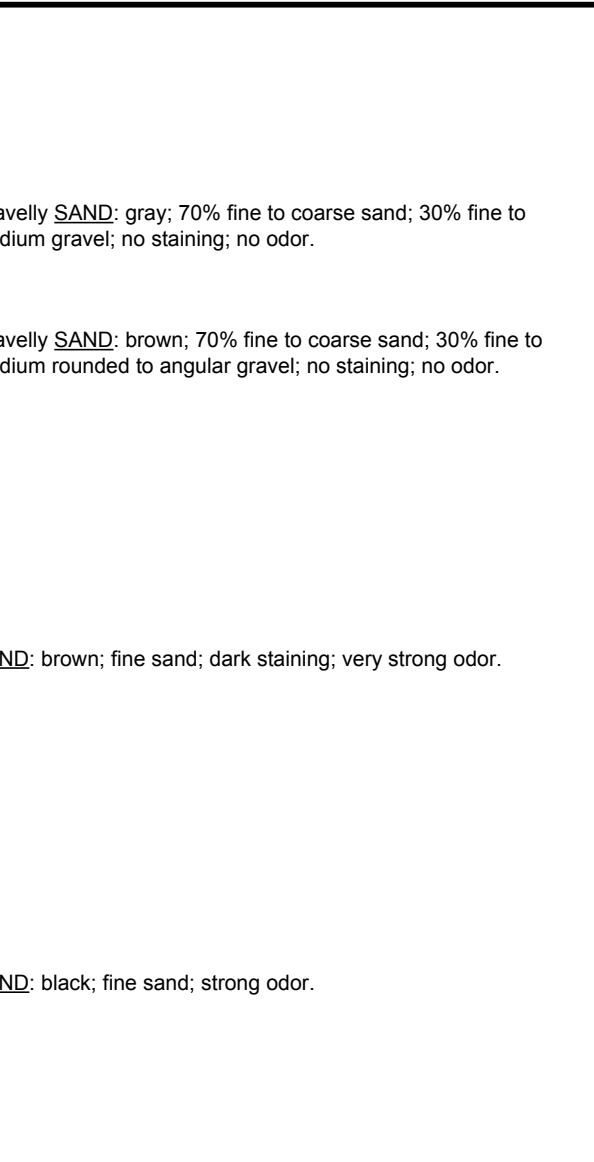
SOIL ANALYTICAL RESULTS MAP
07/09/2012 AND 07/10/2012

PACIFIC CONVENIENCE AND FUELS
SERVICE STATION #2705492
21208 68th AVENUE SOUTH
KENT, WASHINGTON



Appendix A

Boring Logs

WELL/BORING LOCATION MAP				Antea Group				WELL/BORING: MW-11								
				INSTALLATION DATE: 7/10/2012				DRILLING METHOD: HSA								
				PROJECT: I42705492				SAMPLING METHOD: Split Spoon								
				CLIENT: COP-ELT				BORING DIAMETER: 8.25"								
				LOCATION: 21208 68 th Avenue South				BORING DEPTH: 18'								
				CITY: Kent				WELL CASING: SCH 40 PVC 2"								
				STATE: WA				WELL SCREEN: 3' - 18' (0.010")								
				DRILLER: Cascade Drilling, Inc.				SAND PACK: 2' – 18' (2x12)								
WELL/BORING COMPLETION	FIRST	STABILIZED	MOISTURE	PID (ppm)	DENSITY BLOWS / 6"	DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	USCS SYMBOL	GRAPHIC	CASING ELEVATION		-			
	▼	▼									SURVEY DATE:		-			
	▼	▼									DTW:		-			
	DESCRIPTION/LOGGED BY: Megan MacDonald															
Concrete						1										
Bentonite						2										
Sand	▼		MST	8.3	NA	3			SP						Gravelly <u>SAND</u> : gray; 70% fine to coarse sand; 30% fine to medium gravel; no staining; no odor.	
			MST	31.6	11 12 13	5			SP						Gravelly <u>SAND</u> : brown; 70% fine to coarse sand; 30% fine to medium rounded to angular gravel; no staining; no odor.	
			WET	1,860	7 9 11	10			SP						<u>SAND</u> : brown; fine sand; dark staining; very strong odor.	
			WET	834	12 14 18	15			SP						<u>SAND</u> : black; fine sand; strong odor.	

WELL/BORING LOCATION MAP			Antea Group					WELL/BORING: MW-12				
			INSTALLATION DATE: 7/10/2012					DRILLING METHOD: HSA				
			PROJECT: I42705492					SAMPLING METHOD: Split Spoon				
			CLIENT: COP-ELT					BORING DIAMETER: 8.25"				
			LOCATION: 21208 68 th Avenue South					BORING DEPTH: 18'				
			CITY: Kent					WELL CASING: SCH 40 PVC 2"				
			STATE: WA					WELL SCREEN: 3' - 18' (0.010")				
			DRILLER: Cascade Drilling, Inc.					SAND PACK: 2' - 18' (2x12)				
WELL/BORING COMPLETION	FIRST ▽	STABILIZED ▼	MOISTURE	PID (ppm)	DENSITY BLOWS / 6"	DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	USCS SYMBOL	GRAPHIC	CASING ELEVATION	-
											SURVEY DATE:	-
											DTW:	-
DESCRIPTION/LOGGED BY: Megan MacDonald												
Concrete						1						
Bentonite						2						
			MST	6.6	NA	3			SM			Gravelly Silty <u>SAND</u> : brown; 30% silt; 50% fine to coarse sand; 20% fine subrounded gravel; no odor.
						4						
			DMP	-	9 5 5	5			SP			Gravelly <u>SAND</u> : brown; 70% fine to coarse sand; 30% fine to medium gravel.
						6						
						7						
						8						
						9						
			WET	12.5	2 2 2	10			SP			Gravelly <u>SAND</u> : brown with gray lenses; 60% fine to coarse sand; 40% fine to medium gravel; no odor.
			WET			11			ML			Sandy <u>SILT</u> : dark gray; mild odor.
						12						
						13						
						14						
			WET	11.2	5 8 10	15			SP			<u>SAND</u> : black; medium sand; no odor.
						16			ML			<u>SILT</u> : dark gray; rapid dilatancy.
						17						
						18						
						19						
						20						
						21						
						22						

WELL/BORING LOCATION MAP				Antea Group					WELL/BORING: AS-1			
See Figure 2 – Property Layout				INSTALLATION DATE: 7/10/2012					DRILLING METHOD: HSA			
				PROJECT: I42705492					SAMPLING METHOD: Split Spoon			
				CLIENT: COP-ELT					BORING DIAMETER: 8.25"			
				LOCATION: 21208 68 th Avenue South					BORING DEPTH: 17'			
				CITY: Kent					WELL CASING: SCH 40 PVC 2"			
				STATE: WA					WELL SCREEN: 13' - 15' (0.020")			
				DRILLER: Cascade Drilling, Inc.					SAND PACK: 12' - 17' (2x12)			
WELL/BORING COMPLETION	FIRST ▽	STABILIZED ▼	MOISTURE	PID (ppm)	DENSITY BLOWS / 6"	DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	USCS SYMBOL	GRAPHIC	CASING ELEVATION	-
											SURVEY DATE:	-
											DTW:	-
DESCRIPTION/LOGGED BY: Megan MacDonald												
Concrete						1						
						2						
			MST	6.1	-	3			SP			Gravelly <u>SAND</u> : gray; 80% fine to coarse sand; 20% fine to medium subrounded to subangular gravel; staining; odor.
						4						
			MST	50.1	8 12 14	5			SP			Gravelly <u>SAND</u> : grayish brown with rust staining 5-6', gray 6-6.5'; 80% fine to coarse sand; 20% fine rounded to subangular gravel; odor.
						6						
						7						
			MST	268.5	4 4 3	8						Gravelly <u>SAND</u> : gray; 80% fine to coarse sand; 20% fine to medium gravel; odor.
						9						
			WET	1,377	3 5 3	10			SP			
						11			ML			Sandy <u>SILT</u> : dark gray; odor.
						12						
						13						
						14						
						15						
						16						
						17						
						18						
						19						
						20						
						21						
						22						



Appendix B

Field Data Sheets



FIELD ACTIVITY LOG

BEGINNING ODOMETER:		DATE: 4-16-12	
ENDING ODOMETER:		PROJECT NUMBER: 2705492	
FIELD ACTIVITY SUBJECT: Soil Borings.		RECORDED BY: Megan	REVIEWED BY:
TIME	DESCRIPTION OF ACTIVITIES AND EVENTS	SKETCH:	
645	At office.		
715	Move to site		
745	On site, Major Drilling already on site.		
800	APS on site. HRS tailgate.		
845	Private utilities located. Major begin air-knifing B-1.		
900	B-1 air-knifed, begin probing. Begin air-knifing B-2.		
930	2" PVC pipe ~1' bgs in B-2. Stepping out.		
940	hit another PVC pipe @ 2' bgs. Stepping out again		
1000	Begin air-knifing B-3.		
	* Soil Change. Not getting any recovery in sleeves. Trying a variety of methods and sand catchers w/o success. Will continue to try, but if no recovery, we will air-knife to 7' bgs and collect a sample @ 7-7.5' bgs.		
	Better Recovery on B-2 & B-3.		
10:50	Begin air-knifing B-4.		
11:00	Begin air-knifing B-5. Begin probing B-4.		
11:40	Begin air-knifing B-6. Begin probing B-5		
12:30	Begin air-knifing B-7.		
12:40	2 Pipes - 1 PVC 4", 1 metal 1". No step out alternatives.		
13:00	Begin probing B-6. Refusal @ 7' bgs. Concrete? Cobble?		
13:30	Site cleanup.		
14:00	Exit off site.		
WEATHER CONDITIONS: Sun, Clouds Rain, Wind		CHANGES IN PLANS, SPECS., NEW ISSUES, FOLLOW UP NEEDED	
AMBIENT AIR MONITORING: 0 ppm		Vac to 7', hand auger sample 7-7.5 due to lack of recovery in sleeves.	
VISITORS ONSITE:		TELEPHONE CALLS: Joe	
ANTEA GROUP PERSONNEL ONSITE: Megan + Matt.			



Appendix C

Waste Manifest Documentation



***24 HOUR EMERGENCY RESPONSE, CALL (877) 577-2669 ***

RECEIVED BY:

SHIPPING PAPER

JUN 04 2012

Lading Manifest: 642740-12

Antea Group - Seattle, WA

SHIPPER / CUSTOMER PC&F STATION 2705492		DELIVERY DATE	JOB # 1484181
ADDRESS 21208 68TH AVE. SOUTH		POINT OF CONTACT SERVICE MANAGER	
CITY, STATE, ZIP KENT WA 98032		PHONE # (253) 872-0193	
CARRIER / TRANSPORTER BURLINGTON ENVIRONMENTAL, LLC		PHONE # (253) 383-3044	
CONSIGNEE / FACILITY BURLINGTON ENVIRONMENTAL, LLC.		POINT OF CONTACT	
ADDRESS 20245 77TH AVENUE SOUTH		PHONE # (253) 872-8030	
CITY, STATE, ZIP KENT, WA 98032			

HM	US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	Containers No.	Type	Total Quantity	UOM
A	NON HAZARDOUS, NON-DOY REGULATED (SOIL)	2	DM	700	P
B	MATERIAL NOT REGULATED BY DOT	1	DM	40	G
C					
D					

Special Handling Instruction and Additional Information:

a) 425995-02 - NON HAZ SOIL - LEB01 LEB01 STAB01 (1) b) 165659-10 - WASHINGTON STATE, PURGE WATER FROM GROUND WATER MONITORING WELLS - NON REGULATED - STAB01 STAB01 WAY05 WAY05 WAY06 WAY07 (2)

Placards Provided YES _____ NO _____

SHIPPER'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. I also certify that all times listed above are true and correct.

(SHIPPER) PRINT OR TYPE NAME X Megan MacDonald	SIGNATURE X [Signature]	MONTH 5	DAY 22	YEAR 12
(CARRIER/TRANSPORTER) PRINT OR TYPE NAME X Steve Goun	SIGNATURE X [Signature]	MONTH 5	DAY 22	YEAR 12
(CONSIGNEE/FACILITY) PRINT OR TYPE NAME X Melissa Thompson	SIGNATURE X [Signature]	MONTH 5	DAY 22	YEAR 12

CONSIGNEE

12 MAY 22 PM 1:53

12 MAY 22 PM 1:53



Appendix D

Analytical Laboratory Reports

July 24, 2012

Joe Rounds
Antea USA
4006 148th Ave NE
Redmond, WA 98052

RE: Project: 2705492
Pace Project No.: 2512858

Dear Joe Rounds:

Enclosed are the analytical results for sample(s) received by the laboratory on July 10, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Karen Jang

karen.jang@pacelabs.com
Project Manager

Enclosures

cc: Thuan Bui, Antea USA
Eric Larsen, Antea USA
Megan MacDonald, Antea USA
Justin Miller, ELT_Antea Group, Washington
Matthew Miller, ELT_Antea Group, Washington
Dan Rowlands, Antea USA
Hitomi Somics, Antea USA
Bryan Taylor, Antea USA



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 2705492

Pace Project No.: 2512858

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

REPORT OF LABORATORY ANALYSIS

Page 2 of 28

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SAMPLE ANALYTE COUNT

Project: 2705492

Pace Project No.: 2512858

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2512858001	MW-11-3	NWTPH-Gx	LNH	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	TLS	8	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
2512858002	AS-1-3	NWTPH-Gx	LNH	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	TLS	8	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
2512858003	MW-12-3	NWTPH-Gx	LNH	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	TLS	8	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
2512858004	AS-1-6	NWTPH-Gx	LNH	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	TLS	8	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
2512858005	AS-1-10	NWTPH-Gx	LNH	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	TLS	8	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
2512858006	MW-11-6	NWTPH-Gx	LNH	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	TLS	8	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
2512858007	MW-11-10	NWTPH-Gx	LPM	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	LNH, TLS	8	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
2512858008	MW-12-6	NWTPH-Gx	LNH	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	TLS	8	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
2512858009	MW-12-10	NWTPH-Gx	LNH	3	PASI-S
		EPA 6010	BGA	1	PASI-S
		EPA 8260	TLS	8	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
2512858010	Trip Blanks	NWTPH-Gx	LNH	3	PASI-S

REPORT OF LABORATORY ANALYSIS

Page 3 of 28

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SAMPLE ANALYTE COUNT

Project: 2705492

Pace Project No.: 2512858

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 8260	TLS	8	PASI-S

REPORT OF LABORATORY ANALYSIS

PROJECT NARRATIVE

Project: 2705492

Pace Project No.: 2512858

Method: NWTPH-Gx

Description: NWTPH-Gx GCV

Client: ELT_Antea Group, Washington

Date: July 24, 2012

General Information:

10 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/2845

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

- AS-1-10 (Lab ID: 2512858005)
 - 4-Bromofluorobenzene (S)
- DUP (Lab ID: 122486)
 - 4-Bromofluorobenzene (S)
- MS (Lab ID: 122484)
 - 4-Bromofluorobenzene (S)
- MSD (Lab ID: 122485)
 - 4-Bromofluorobenzene (S)

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

- AS-1-3 (Lab ID: 2512858002)
 - 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.

REPORT OF LABORATORY ANALYSIS

PROJECT NARRATIVE

Project: 2705492

Pace Project No.: 2512858

Method: NWTPH-Gx

Description: NWTPH-Gx GCV

Client: ELT_Antea Group, Washington

Date: July 24, 2012

QC Batch: GCV/2845

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2512827032,2512858005

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

- MSD (Lab ID: 122485)
- Gasoline Range Organics

Duplicate Sample:

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

Additional Comments:

REPORT OF LABORATORY ANALYSIS

PROJECT NARRATIVE

Project: 2705492

Pace Project No.: 2512858

Method: EPA 6010

Description: 6010 MET ICP

Client: ELT_Antea Group, Washington

Date: July 24, 2012

General Information:

9 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.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

PROJECT NARRATIVE

Project: 2705492

Pace Project No.: 2512858

Method: EPA 8260

Description: 8260 MSV 5035A Med Level VOA

Client: ELT_Antea Group, Washington

Date: July 24, 2012

General Information:

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

Hold Time:

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

Sample Preparation:

The samples were prepared in accordance with EPA 5035A 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/7388

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

- MW-11-10 (Lab ID: 2512858007)
 - 1,2-Dichloroethane-d4 (S)
 - 4-Bromofluorobenzene (S)
 - Dibromofluoromethane (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.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

Page 8 of 28

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PROJECT NARRATIVE

Project: 2705492

Pace Project No.: 2512858

Method: EPA 8260

Description: 8260/5035A Volatile Organics

Client: ELT_Antea Group, Washington

Date: July 24, 2012

General Information:

9 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/7371

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

- AS-1-10 (Lab ID: 2512858005)
 - 1,2-Dichloroethane-d4 (S)
- MS (Lab ID: 122519)
 - 1,2-Dichloroethane-d4 (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/7371

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2512858005

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

- MSD (Lab ID: 122520)
 - Benzene

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

- MS (Lab ID: 122519)
 - Benzene
 - Ethylbenzene

REPORT OF LABORATORY ANALYSIS

PROJECT NARRATIVE

Project: 2705492

Pace Project No.: 2512858

Method: EPA 8260

Description: 8260/5035A Volatile Organics

Client: ELT_Antea Group, Washington

Date: July 24, 2012

QC Batch: MSV/7371

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2512858005

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

- Xylene (Total)
- MSD (Lab ID: 122520)
- Xylene (Total)

QC Batch: MSV/7394

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

Additional Comments:

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

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: 2705492

Pace Project No.: 2512858

Sample: MW-11-3 **Lab ID:** 2512858001 **Collected:** 07/09/12 09:15 **Received:** 07/10/12 15:14 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx								
Gasoline Range Organics	ND	mg/kg	5.0	1	07/11/12 10:58	07/12/12 01:21		
Surrogates								
a,a,a-Trifluorotoluene (S)	126	%	50-150	1	07/11/12 10:58	07/12/12 01:21	98-08-8	
4-Bromofluorobenzene (S)	109	%	50-150	1	07/11/12 10:58	07/12/12 01:21	460-00-4	
6010 MET ICP Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Lead	1.7	mg/kg	0.80	1	07/11/12 09:50	07/17/12 19:45	7439-92-1	
8260/5035A Volatile Organics Analytical Method: EPA 8260								
Benzene	ND	ug/kg	2.6	1		07/12/12 18:06	71-43-2	
Ethylbenzene	ND	ug/kg	2.6	1		07/12/12 18:06	100-41-4	
Toluene	ND	ug/kg	2.6	1		07/12/12 18:06	108-88-3	
Xylene (Total)	ND	ug/kg	7.8	1		07/12/12 18:06	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	103	%	74-126	1		07/12/12 18:06	1868-53-7	
Toluene-d8 (S)	97	%	71-130	1		07/12/12 18:06	2037-26-5	
4-Bromofluorobenzene (S)	105	%	68-141	1		07/12/12 18:06	460-00-4	
1,2-Dichloroethane-d4 (S)	115	%	68-141	1		07/12/12 18:06	17060-07-0	
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	7.9	%	0.10	1		07/11/12 15:55		

Sample: AS-1-3 **Lab ID:** 2512858002 **Collected:** 07/09/12 11:00 **Received:** 07/10/12 15:14 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx								
Gasoline Range Organics	66.5	mg/kg	5.0	1	07/11/12 10:58	07/12/12 01:45		
Surrogates								
a,a,a-Trifluorotoluene (S)	119	%	50-150	1	07/11/12 10:58	07/12/12 01:45	98-08-8	
4-Bromofluorobenzene (S)	186	%	50-150	1	07/11/12 10:58	07/12/12 01:45	460-00-4	S5
6010 MET ICP Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Lead	3.8	mg/kg	0.90	1	07/11/12 09:50	07/17/12 19:49	7439-92-1	
8260/5035A Volatile Organics Analytical Method: EPA 8260								
Benzene	ND	ug/kg	2.6	1		07/13/12 00:19	71-43-2	
Ethylbenzene	ND	ug/kg	2.6	1		07/13/12 00:19	100-41-4	
Toluene	ND	ug/kg	2.6	1		07/13/12 00:19	108-88-3	
Xylene (Total)	ND	ug/kg	7.8	1		07/13/12 00:19	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	103	%	74-126	1		07/13/12 00:19	1868-53-7	
Toluene-d8 (S)	95	%	71-130	1		07/13/12 00:19	2037-26-5	
4-Bromofluorobenzene (S)	132	%	68-141	1		07/13/12 00:19	460-00-4	

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ANALYTICAL RESULTS

Project: 2705492

Pace Project No.: 2512858

Sample: AS-1-3 **Lab ID:** 2512858002 **Collected:** 07/09/12 11:00 **Received:** 07/10/12 15:14 **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						
Surrogates								
1,2-Dichloroethane-d4 (S)	125 %		68-141	1		07/13/12 00:19	17060-07-0	
Percent Moisture		Analytical Method: ASTM D2974-87						
Percent Moisture	11.2 %		0.10	1		07/11/12 15:55		

Sample: MW-12-3 **Lab ID:** 2512858003 **Collected:** 07/09/12 12:30 **Received:** 07/10/12 15:14 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx						
Gasoline Range Organics	ND mg/kg		5.2	1	07/11/12 10:58	07/12/12 02:09		
Surrogates								
a,a,a-Trifluorotoluene (S)	114 %		50-150	1	07/11/12 10:58	07/12/12 02:09	98-08-8	
4-Bromofluorobenzene (S)	101 %		50-150	1	07/11/12 10:58	07/12/12 02:09	460-00-4	
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3050						
Lead	24.6 mg/kg		1.0	1	07/11/12 09:50	07/17/12 19:53	7439-92-1	
8260/5035A Volatile Organics		Analytical Method: EPA 8260						
Benzene	ND ug/kg		2.5	1		07/13/12 00:36	71-43-2	
Ethylbenzene	ND ug/kg		2.5	1		07/13/12 00:36	100-41-4	
Toluene	ND ug/kg		2.5	1		07/13/12 00:36	108-88-3	
Xylene (Total)	ND ug/kg		7.5	1		07/13/12 00:36	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	100 %		74-126	1		07/13/12 00:36	1868-53-7	
Toluene-d8 (S)	95 %		71-130	1		07/13/12 00:36	2037-26-5	
4-Bromofluorobenzene (S)	102 %		68-141	1		07/13/12 00:36	460-00-4	
1,2-Dichloroethane-d4 (S)	111 %		68-141	1		07/13/12 00:36	17060-07-0	
Percent Moisture		Analytical Method: ASTM D2974-87						
Percent Moisture	11.5 %		0.10	1		07/11/12 15:55		

Sample: AS-1-6 **Lab ID:** 2512858004 **Collected:** 07/10/12 09:00 **Received:** 07/10/12 15:14 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx						
Gasoline Range Organics	11.7 mg/kg		4.8	1	07/11/12 10:58	07/12/12 02:33		
Surrogates								
a,a,a-Trifluorotoluene (S)	118 %		50-150	1	07/11/12 10:58	07/12/12 02:33	98-08-8	
4-Bromofluorobenzene (S)	115 %		50-150	1	07/11/12 10:58	07/12/12 02:33	460-00-4	

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ANALYTICAL RESULTS

Project: 2705492

Pace Project No.: 2512858

Sample: AS-1-6 **Lab ID: 2512858004** Collected: 07/10/12 09:00 Received: 07/10/12 15:14 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 Method: EPA 3050								
Lead	3.6	mg/kg	0.81	1	07/11/12 09:50	07/17/12 19:56	7439-92-1	
8260/5035A Volatile Organics Analytical Method: EPA 8260								
Benzene	ND	ug/kg	2.8	1		07/13/12 00:53	71-43-2	
Ethylbenzene	ND	ug/kg	2.8	1		07/13/12 00:53	100-41-4	
Toluene	ND	ug/kg	2.8	1		07/13/12 00:53	108-88-3	
Xylene (Total)	ND	ug/kg	8.5	1		07/13/12 00:53	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	98 %		74-126	1		07/13/12 00:53	1868-53-7	
Toluene-d8 (S)	94 %		71-130	1		07/13/12 00:53	2037-26-5	
4-Bromofluorobenzene (S)	110 %		68-141	1		07/13/12 00:53	460-00-4	
1,2-Dichloroethane-d4 (S)	114 %		68-141	1		07/13/12 00:53	17060-07-0	
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	7.0	%	0.10	1		07/11/12 15:55		

Sample: AS-1-10 **Lab ID: 2512858005** Collected: 07/10/12 09:10 Received: 07/10/12 15:14 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx								
Gasoline Range Organics	78.9	mg/kg	5.1	1	07/11/12 10:58	07/12/12 02:57		M1
Surrogates								
a,a,a-Trifluorotoluene (S)	124 %		50-150	1	07/11/12 10:58	07/12/12 02:57	98-08-8	
4-Bromofluorobenzene (S)	185 %		50-150	1	07/11/12 10:58	07/12/12 02:57	460-00-4	S2
6010 MET ICP Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Lead	4.0	mg/kg	0.89	1	07/11/12 09:50	07/17/12 20:00	7439-92-1	
8260/5035A Volatile Organics Analytical Method: EPA 8260								
Benzene	3.2	ug/kg	2.6	1		07/13/12 01:10	71-43-2	M1
Ethylbenzene	ND	ug/kg	2.6	1		07/13/12 01:10	100-41-4	M1
Toluene	ND	ug/kg	2.6	1		07/13/12 01:10	108-88-3	
Xylene (Total)	ND	ug/kg	7.8	1		07/13/12 01:10	1330-20-7	M1
Surrogates								
Dibromofluoromethane (S)	95 %		74-126	1		07/13/12 01:10	1868-53-7	
Toluene-d8 (S)	97 %		71-130	1		07/13/12 01:10	2037-26-5	
4-Bromofluorobenzene (S)	104 %		68-141	1		07/13/12 01:10	460-00-4	
1,2-Dichloroethane-d4 (S)	167 %		68-141	1		07/13/12 01:10	17060-07-0	S2
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	13.7	%	0.10	1		07/11/12 15:55		

ANALYTICAL RESULTS

Project: 2705492

Pace Project No.: 2512858

Sample: MW-11-6 **Lab ID:** 2512858006 **Collected:** 07/10/12 10:50 **Received:** 07/10/12 15:14 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx								
Gasoline Range Organics	ND	mg/kg	4.2	1	07/11/12 10:58	07/12/12 04:55		
Surrogates								
a,a,a-Trifluorotoluene (S)	115	%	50-150	1	07/11/12 10:58	07/12/12 04:55	98-08-8	
4-Bromofluorobenzene (S)	102	%	50-150	1	07/11/12 10:58	07/12/12 04:55	460-00-4	
6010 MET ICP Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Lead	2.9	mg/kg	0.91	1	07/11/12 09:50	07/17/12 20:18	7439-92-1	
8260/5035A Volatile Organics Analytical Method: EPA 8260								
Benzene	ND	ug/kg	2.2	1		07/17/12 11:56	71-43-2	
Ethylbenzene	4.7	ug/kg	2.2	1		07/17/12 11:56	100-41-4	
Toluene	ND	ug/kg	2.2	1		07/17/12 11:56	108-88-3	
Xylene (Total)	17.6	ug/kg	6.5	1		07/17/12 11:56	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	99	%	74-126	1		07/17/12 11:56	1868-53-7	
Toluene-d8 (S)	97	%	71-130	1		07/17/12 11:56	2037-26-5	
4-Bromofluorobenzene (S)	101	%	68-141	1		07/17/12 11:56	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	68-141	1		07/17/12 11:56	17060-07-0	
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	6.5	%	0.10	1		07/11/12 15:55		

Sample: MW-11-10 **Lab ID:** 2512858007 **Collected:** 07/10/12 11:00 **Received:** 07/10/12 15:14 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx								
Gasoline Range Organics	8080	mg/kg	341	50	07/13/12 08:00	07/19/12 15:56		
Surrogates								
a,a,a-Trifluorotoluene (S)	119	%	50-150	50	07/13/12 08:00	07/19/12 15:56	98-08-8	
4-Bromofluorobenzene (S)	126	%	50-150	50	07/13/12 08:00	07/19/12 15:56	460-00-4	
6010 MET ICP Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Lead	ND	mg/kg	0.93	1	07/11/12 09:50	07/17/12 20:22	7439-92-1	
8260 MSV 5035A Med Level VOA Analytical Method: EPA 8260 Preparation Method: EPA 5035A								
Benzene	4510	ug/kg	34.1	1	07/17/12 11:17	07/17/12 16:27	71-43-2	
Ethylbenzene	119000	ug/kg	682	10	07/17/12 11:17	07/17/12 16:09	100-41-4	
Toluene	13300	ug/kg	682	10	07/17/12 11:17	07/17/12 16:09	108-88-3	
Xylene (Total)	859000	ug/kg	10200	50	07/17/12 11:17	07/19/12 20:27	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	135	%	75-116	1	07/17/12 11:17	07/17/12 16:27	1868-53-7	S2
Toluene-d8 (S)	156	%	74-124	1	07/17/12 11:17	07/17/12 16:27	2037-26-5	S2
4-Bromofluorobenzene (S)	117	%	73-128	10	07/17/12 11:17	07/17/12 16:09	460-00-4	

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ANALYTICAL RESULTS

Project: 2705492

Pace Project No.: 2512858

Sample: MW-11-10 **Lab ID: 2512858007** Collected: 07/10/12 11:00 Received: 07/10/12 15:14 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A Med Level VOA Analytical Method: EPA 8260 Preparation Method: EPA 5035A								
Surrogates								
4-Bromofluorobenzene (S)	28600	%	73-128	1	07/17/12 11:17	07/17/12 16:27	460-00-4	S2
1,2-Dichloroethane-d4 (S)	152	%	70-125	1	07/17/12 11:17	07/17/12 16:27	17060-07-0	S2
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	19.5	%	0.10	1		07/11/12 15:55		

Sample: MW-12-6 **Lab ID: 2512858008** Collected: 07/10/12 12:50 Received: 07/10/12 15:14 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx								
Gasoline Range Organics	ND	mg/kg	4.8	1	07/11/12 10:58	07/12/12 05:19		
Surrogates								
a,a,a-Trifluorotoluene (S)	125	%	50-150	1	07/11/12 10:58	07/12/12 05:19	98-08-8	
4-Bromofluorobenzene (S)	107	%	50-150	1	07/11/12 10:58	07/12/12 05:19	460-00-4	
6010 MET ICP Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Lead	8.2	mg/kg	0.74	1	07/11/12 09:50	07/17/12 20:26	7439-92-1	
8260/5035A Volatile Organics Analytical Method: EPA 8260								
Benzene	ND	ug/kg	2.3	1		07/17/12 12:13	71-43-2	
Ethylbenzene	ND	ug/kg	2.3	1		07/17/12 12:13	100-41-4	
Toluene	ND	ug/kg	2.3	1		07/17/12 12:13	108-88-3	
Xylene (Total)	ND	ug/kg	6.8	1		07/17/12 12:13	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	95	%	74-126	1		07/17/12 12:13	1868-53-7	
Toluene-d8 (S)	98	%	71-130	1		07/17/12 12:13	2037-26-5	
4-Bromofluorobenzene (S)	104	%	68-141	1		07/17/12 12:13	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	68-141	1		07/17/12 12:13	17060-07-0	
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	7.0	%	0.10	1		07/11/12 15:55		

Sample: MW-12-10 **Lab ID: 2512858009** Collected: 07/10/12 13:00 Received: 07/10/12 15:14 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx								
Gasoline Range Organics	ND	mg/kg	4.6	1	07/11/12 10:58	07/12/12 05:42		
Surrogates								
a,a,a-Trifluorotoluene (S)	111	%	50-150	1	07/11/12 10:58	07/12/12 05:42	98-08-8	

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ANALYTICAL RESULTS

Project: 2705492

Pace Project No.: 2512858

Sample: MW-12-10 **Lab ID:** 2512858009 **Collected:** 07/10/12 13:00 **Received:** 07/10/12 15:14 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx						
Surrogates								
4-Bromofluorobenzene (S)	95 %		50-150	1	07/11/12 10:58	07/12/12 05:42	460-00-4	
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3050						
Lead	2.1 mg/kg		0.83	1	07/11/12 09:50	07/17/12 20:29	7439-92-1	
8260/5035A Volatile Organics		Analytical Method: EPA 8260						
Benzene	ND ug/kg		2.3	1		07/17/12 12:47	71-43-2	
Ethylbenzene	ND ug/kg		2.3	1		07/17/12 12:47	100-41-4	
Toluene	ND ug/kg		2.3	1		07/17/12 12:47	108-88-3	
Xylene (Total)	ND ug/kg		6.8	1		07/17/12 12:47	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	107 %		74-126	1		07/17/12 12:47	1868-53-7	
Toluene-d8 (S)	96 %		71-130	1		07/17/12 12:47	2037-26-5	
4-Bromofluorobenzene (S)	98 %		68-141	1		07/17/12 12:47	460-00-4	
1,2-Dichloroethane-d4 (S)	111 %		68-141	1		07/17/12 12:47	17060-07-0	
Percent Moisture		Analytical Method: ASTM D2974-87						
Percent Moisture	12.5 %		0.10	1		07/11/12 15:55		

Sample: Trip Blanks **Lab ID:** 2512858010 **Collected:** 07/10/12 00:00 **Received:** 07/10/12 15:14 **Matrix:** Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx Preparation Method: NWTPH-Gx						
Gasoline Range Organics	ND mg/kg		5.0	1	07/11/12 10:58	07/11/12 22:09		
Surrogates								
a,a,a-Trifluorotoluene (S)	122 %		50-150	1	07/11/12 10:58	07/11/12 22:09	98-08-8	
4-Bromofluorobenzene (S)	109 %		50-150	1	07/11/12 10:58	07/11/12 22:09	460-00-4	
8260/5035A Volatile Organics		Analytical Method: EPA 8260						
Benzene	ND ug/kg		3.0	1		07/17/12 11:22	71-43-2	
Ethylbenzene	ND ug/kg		3.0	1		07/17/12 11:22	100-41-4	
Toluene	ND ug/kg		3.0	1		07/17/12 11:22	108-88-3	
Xylene (Total)	ND ug/kg		9.0	1		07/17/12 11:22	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	96 %		74-126	1		07/17/12 11:22	1868-53-7	
Toluene-d8 (S)	98 %		71-130	1		07/17/12 11:22	2037-26-5	
4-Bromofluorobenzene (S)	98 %		68-141	1		07/17/12 11:22	460-00-4	
1,2-Dichloroethane-d4 (S)	104 %		68-141	1		07/17/12 11:22	17060-07-0	

QUALITY CONTROL DATA

Project: 2705492

Pace Project No.: 2512858

QC Batch:	GCV/2845	Analysis Method:	NWTPH-Gx
QC Batch Method:	NWTPH-Gx	Analysis Description:	NWTPH-Gx Solid GCV
Associated Lab Samples:	2512858001, 2512858002, 2512858003, 2512858004, 2512858005, 2512858006, 2512858008, 2512858009, 2512858010		

METHOD BLANK: 122078 Matrix: Solid

Associated Lab Samples: 2512858001, 2512858002, 2512858003, 2512858004, 2512858005, 2512858006, 2512858008, 2512858009, 2512858010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	5.0	07/11/12 21:21	
4-Bromofluorobenzene (S)	%	106	50-150	07/11/12 21:21	
a,a,a-Trifluorotoluene (S)	%	117	50-150	07/11/12 21:21	

LABORATORY CONTROL SAMPLE: 122079

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	12.5	11.8	94	63-140	
4-Bromofluorobenzene (S)	%			109	50-150	
a,a,a-Trifluorotoluene (S)	%			117	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 122080 122081

Parameter	Units	2512827032 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Gasoline Range Organics	mg/kg	ND	13.9	13.9	15.8	15.9	110	110	63-140	.5	
4-Bromofluorobenzene (S)	%						113	112	50-150		
a,a,a-Trifluorotoluene (S)	%						126	125	50-150		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 122484 122485

Parameter	Units	2512858005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Gasoline Range Organics	mg/kg	78.9	10.8	10.8	91.6	81.6	117	25	63-140	12	M1
4-Bromofluorobenzene (S)	%						186	173	50-150		S2
a,a,a-Trifluorotoluene (S)	%						130	125	50-150		

SAMPLE DUPLICATE: 122082

Parameter	Units	2512827032 Result	Dup Result	RPD	Qualifiers
Gasoline Range Organics	mg/kg	ND	ND		
4-Bromofluorobenzene (S)	%	99	108	8	
a,a,a-Trifluorotoluene (S)	%	115	126	9	

QUALITY CONTROL DATA

Project: 2705492

Pace Project No.: 2512858

SAMPLE DUPLICATE: 122486

Parameter	Units	2512858005 Result	Dup Result	RPD	Qualifiers
Gasoline Range Organics	mg/kg	78.9	79.1	.2	
4-Bromofluorobenzene (S)	%	185	183	.9	S2
a,a,a-Trifluorotoluene (S)	%	124	124	.4	

QUALITY CONTROL DATA

Project: 2705492

Pace Project No.: 2512858

QC Batch: GCV/2859

Analysis Method: NWTPH-Gx

QC Batch Method: NWTPH-Gx

Analysis Description: NWTPH-Gx Solid GCV

Associated Lab Samples: 2512858007

METHOD BLANK: 124187

Matrix: Solid

Associated Lab Samples: 2512858007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	5.0	07/19/12 10:47	
4-Bromofluorobenzene (S)	%	80	50-150	07/19/12 10:47	
a,a,a-Trifluorotoluene (S)	%	99	50-150	07/19/12 10:47	

LABORATORY CONTROL SAMPLE: 124188

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	12.5	11.2	90	63-140	
4-Bromofluorobenzene (S)	%			95	50-150	
a,a,a-Trifluorotoluene (S)	%			106	50-150	

SAMPLE DUPLICATE: 124190

Parameter	Units	2512839002 Result	Dup Result	RPD	Qualifiers
Gasoline Range Organics	mg/kg	9550	10300	8	
4-Bromofluorobenzene (S)	%	130	141	8	
a,a,a-Trifluorotoluene (S)	%	137	139	2	

QUALITY CONTROL DATA

Project: 2705492

Pace Project No.: 2512858

QC Batch:	MPRP/3166	Analysis Method:	EPA 6010
QC Batch Method:	EPA 3050	Analysis Description:	6010 MET
Associated Lab Samples:	2512858001, 2512858002, 2512858003, 2512858004, 2512858005, 2512858006, 2512858007, 2512858008, 2512858009		

METHOD BLANK:	122083	Matrix:	Solid
Associated Lab Samples:	2512858001, 2512858002, 2512858003, 2512858004, 2512858005, 2512858006, 2512858007, 2512858008, 2512858009		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Lead	mg/kg	ND	1.0	07/17/12 19:38	

LABORATORY CONTROL SAMPLE: 122084						
Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Lead	mg/kg	25	26.6	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:											
122085					122086						
Parameter	Units	2512858005	MS	MSD	MS	MSD	MS	MSD	% Rec	RPD	Qual
		Result	Spike Conc.	Spike Conc.							
Lead	mg/kg	4.0	22.6	22.6	24.9	24.0	93	88	75-125	4	

QUALITY CONTROL DATA

Project: 2705492

Pace Project No.: 2512858

QC Batch: MSV/7388

Analysis Method: EPA 8260

QC Batch Method: EPA 5035A

Analysis Description: 8260 MSV 5035A Medium Soil

Associated Lab Samples: 2512858007

METHOD BLANK: 122989

Matrix: Solid

Associated Lab Samples: 2512858007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/kg	ND	25.0	07/17/12 11:24	
Ethylbenzene	ug/kg	ND	50.0	07/17/12 11:24	
Toluene	ug/kg	ND	50.0	07/17/12 11:24	
Xylene (Total)	ug/kg	ND	150	07/17/12 11:24	
1,2-Dichloroethane-d4 (S)	%	97	70-125	07/17/12 11:24	
4-Bromofluorobenzene (S)	%	100	73-128	07/17/12 11:24	
Dibromofluoromethane (S)	%	95	75-116	07/17/12 11:24	
Toluene-d8 (S)	%	98	74-124	07/17/12 11:24	

LABORATORY CONTROL SAMPLE: 122990

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/kg	1000	994	99	71-123	
Ethylbenzene	ug/kg	1000	1050	105	71-123	
Toluene	ug/kg	1000	936	94	69-118	
Xylene (Total)	ug/kg	3000	3140	105	71-122	
1,2-Dichloroethane-d4 (S)	%			94	70-125	
4-Bromofluorobenzene (S)	%			100	73-128	
Dibromofluoromethane (S)	%			100	75-116	
Toluene-d8 (S)	%			92	74-124	

QUALITY CONTROL DATA

Project: 2705492

Pace Project No.: 2512858

QC Batch: MSV/7370

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV 5035A Volatile Organics

Associated Lab Samples: 2512858001

METHOD BLANK: 122317

Matrix: Solid

Associated Lab Samples: 2512858001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/kg	ND	3.0	07/12/12 12:27	
Ethylbenzene	ug/kg	ND	3.0	07/12/12 12:27	
Toluene	ug/kg	ND	3.0	07/12/12 12:27	
Xylene (Total)	ug/kg	ND	9.0	07/12/12 12:27	
1,2-Dichloroethane-d4 (S)	%	92	68-141	07/12/12 12:27	
4-Bromofluorobenzene (S)	%	108	68-141	07/12/12 12:27	
Dibromofluoromethane (S)	%	98	74-126	07/12/12 12:27	
Toluene-d8 (S)	%	100	71-130	07/12/12 12:27	

LABORATORY CONTROL SAMPLE: 122318

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/kg	20	18.4	92	67-133	
Ethylbenzene	ug/kg	20	18.3	91	70-124	
Toluene	ug/kg	20	18.2	91	67-129	
Xylene (Total)	ug/kg	60	54.7	91	68-127	
1,2-Dichloroethane-d4 (S)	%			98	68-141	
4-Bromofluorobenzene (S)	%			100	68-141	
Dibromofluoromethane (S)	%			94	74-126	
Toluene-d8 (S)	%			101	71-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 122319

122320

Parameter	Units	2512865003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Benzene	ug/kg	<1.2	18.9	15.4	17.9	15.0	95	97	40-149	18	
Ethylbenzene	ug/kg	<1.2	18.9	15.4	17.4	14.1	90	89	40-146	21	
Toluene	ug/kg	<1.2	18.9	15.4	17.0	14.2	90	92	40-147	18	
Xylene (Total)	ug/kg	<3.7	56.6	46.3	51.4	42.2	91	91	40-142	20	
1,2-Dichloroethane-d4 (S)	%						103	108	68-141		
4-Bromofluorobenzene (S)	%						101	101	68-141		
Dibromofluoromethane (S)	%						100	105	74-126		
Toluene-d8 (S)	%						97	96	71-130		

QUALITY CONTROL DATA

Project: 2705492

Pace Project No.: 2512858

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 122321 122322											
Parameter	Units	2512867002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Benzene	ug/kg	1.9J	20	18.9	22.0	18.1	101	86	40-149	20	
Ethylbenzene	ug/kg	<1.5	20	18.9	19.7	16.4	93	81	40-146	19	
Toluene	ug/kg	<1.5	20	18.9	21.3	17.6	100	86	40-147	19	
Xylene (Total)	ug/kg	<4.5	60	56.8	58.5	48.9	97	85	40-142	18	
1,2-Dichloroethane-d4 (S)	%						111	109	68-141		
4-Bromofluorobenzene (S)	%						100	104	68-141		
Dibromofluoromethane (S)	%						102	98	74-126		
Toluene-d8 (S)	%						96	98	71-130		

QUALITY CONTROL DATA

Project: 2705492

Pace Project No.: 2512858

QC Batch:	MSV/7371	Analysis Method:	EPA 8260
QC Batch Method:	EPA 8260	Analysis Description:	8260 MSV 5035A Volatile Organics
Associated Lab Samples:	2512858002, 2512858003, 2512858004, 2512858005		

METHOD BLANK:	122369	Matrix:	Solid
Associated Lab Samples:	2512858002, 2512858003, 2512858004, 2512858005		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/kg	ND	3.0	07/12/12 21:30	
Ethylbenzene	ug/kg	ND	3.0	07/12/12 21:30	
Toluene	ug/kg	ND	3.0	07/12/12 21:30	
Xylene (Total)	ug/kg	ND	9.0	07/12/12 21:30	
1,2-Dichloroethane-d4 (S)	%	96	68-141	07/12/12 21:30	
4-Bromofluorobenzene (S)	%	104	68-141	07/12/12 21:30	
Dibromofluoromethane (S)	%	101	74-126	07/12/12 21:30	
Toluene-d8 (S)	%	99	71-130	07/12/12 21:30	

LABORATORY CONTROL SAMPLE: 122370

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/kg	20	19.1	95	67-133	
Ethylbenzene	ug/kg	20	18.8	94	70-124	
Toluene	ug/kg	20	19.1	96	67-129	
Xylene (Total)	ug/kg	60	56.5	94	68-127	
1,2-Dichloroethane-d4 (S)	%			98	68-141	
4-Bromofluorobenzene (S)	%			99	68-141	
Dibromofluoromethane (S)	%			95	74-126	
Toluene-d8 (S)	%			101	71-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 122519 122520

Parameter	Units	2512858005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Benzene	ug/kg	3.2	16.8	17.2	45.1	19.4	250	94	40-149	80	D6,M1
Ethylbenzene	ug/kg	ND	16.8	17.2	32.4	23.4	183	126	40-146	33	M1
Toluene	ug/kg	ND	16.8	17.2	19.2	15.9	108	86	40-147	19	
Xylene (Total)	ug/kg	ND	50.3	51.6	137	98.0	265	183	40-142	33	M1
1,2-Dichloroethane-d4 (S)	%						163	137	68-141		S2
4-Bromofluorobenzene (S)	%						103	96	68-141		
Dibromofluoromethane (S)	%						98	92	74-126		
Toluene-d8 (S)	%						95	98	71-130		

QUALITY CONTROL DATA

Project: 2705492

Pace Project No.: 2512858

QC Batch: MSV/7394

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV 5035A Volatile Organics

Associated Lab Samples: 2512858006, 2512858008, 2512858009, 2512858010

METHOD BLANK: 123058

Matrix: Solid

Associated Lab Samples: 2512858006, 2512858008, 2512858009, 2512858010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/kg	ND	3.0	07/17/12 11:05	
Ethylbenzene	ug/kg	ND	3.0	07/17/12 11:05	
Toluene	ug/kg	ND	3.0	07/17/12 11:05	
Xylene (Total)	ug/kg	ND	9.0	07/17/12 11:05	
1,2-Dichloroethane-d4 (S)	%	93	68-141	07/17/12 11:05	
4-Bromofluorobenzene (S)	%	98	68-141	07/17/12 11:05	
Dibromofluoromethane (S)	%	95	74-126	07/17/12 11:05	
Toluene-d8 (S)	%	102	71-130	07/17/12 11:05	

LABORATORY CONTROL SAMPLE: 123059

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/kg	20	14.6	73	67-133	
Ethylbenzene	ug/kg	20	14.7	73	70-124	
Toluene	ug/kg	20	14.1	71	67-129	
Xylene (Total)	ug/kg	60	45.3	76	68-127	
1,2-Dichloroethane-d4 (S)	%			104	68-141	
4-Bromofluorobenzene (S)	%			103	68-141	
Dibromofluoromethane (S)	%			101	74-126	
Toluene-d8 (S)	%			96	71-130	

QUALITY CONTROL DATA

Project: 2705492

Pace Project No.: 2512858

QC Batch:	PMST/2098	Analysis Method:	ASTM D2974-87
QC Batch Method:	ASTM D2974-87	Analysis Description:	Dry Weight/Percent Moisture
Associated Lab Samples:	2512858001, 2512858002, 2512858003, 2512858004, 2512858005, 2512858006, 2512858007, 2512858008, 2512858009		

SAMPLE DUPLICATE: 122228

Parameter	Units	2512858005 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	13.7	14.2	4	

SAMPLE DUPLICATE: 122229

Parameter	Units	2512858006 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	6.5	8.4	25	

QUALIFIERS

Project: 2705492

Pace Project No.: 2512858

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel Clean-Up

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

BATCH QUALIFIERS

Batch: MSV/7394

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

ANALYTE QUALIFIERS

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: 2705492

Pace Project No.: 2512858

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2512858001	MW-11-3	NWTPH-Gx	GCV/2845	NWTPH-Gx	GCV/2851
2512858002	AS-1-3	NWTPH-Gx	GCV/2845	NWTPH-Gx	GCV/2851
2512858003	MW-12-3	NWTPH-Gx	GCV/2845	NWTPH-Gx	GCV/2851
2512858004	AS-1-6	NWTPH-Gx	GCV/2845	NWTPH-Gx	GCV/2851
2512858005	AS-1-10	NWTPH-Gx	GCV/2845	NWTPH-Gx	GCV/2851
2512858006	MW-11-6	NWTPH-Gx	GCV/2845	NWTPH-Gx	GCV/2851
2512858007	MW-11-10	NWTPH-Gx	GCV/2859	NWTPH-Gx	GCV/2854
2512858008	MW-12-6	NWTPH-Gx	GCV/2845	NWTPH-Gx	GCV/2851
2512858009	MW-12-10	NWTPH-Gx	GCV/2845	NWTPH-Gx	GCV/2851
2512858010	Trip Blanks	NWTPH-Gx	GCV/2845	NWTPH-Gx	GCV/2851
2512858001	MW-11-3	EPA 3050	MPRP/3166	EPA 6010	ICP/2942
2512858002	AS-1-3	EPA 3050	MPRP/3166	EPA 6010	ICP/2942
2512858003	MW-12-3	EPA 3050	MPRP/3166	EPA 6010	ICP/2942
2512858004	AS-1-6	EPA 3050	MPRP/3166	EPA 6010	ICP/2942
2512858005	AS-1-10	EPA 3050	MPRP/3166	EPA 6010	ICP/2942
2512858006	MW-11-6	EPA 3050	MPRP/3166	EPA 6010	ICP/2942
2512858007	MW-11-10	EPA 3050	MPRP/3166	EPA 6010	ICP/2942
2512858008	MW-12-6	EPA 3050	MPRP/3166	EPA 6010	ICP/2942
2512858009	MW-12-10	EPA 3050	MPRP/3166	EPA 6010	ICP/2942
2512858007	MW-11-10	EPA 5035A	MSV/7388	EPA 8260	MSV/7436
2512858001	MW-11-3	EPA 8260	MSV/7370		
2512858002	AS-1-3	EPA 8260	MSV/7371		
2512858003	MW-12-3	EPA 8260	MSV/7371		
2512858004	AS-1-6	EPA 8260	MSV/7371		
2512858005	AS-1-10	EPA 8260	MSV/7371		
2512858006	MW-11-6	EPA 8260	MSV/7394		
2512858008	MW-12-6	EPA 8260	MSV/7394		
2512858009	MW-12-10	EPA 8260	MSV/7394		
2512858010	Trip Blanks	EPA 8260	MSV/7394		
2512858001	MW-11-3	ASTM D2974-87	PMST/2098		
2512858002	AS-1-3	ASTM D2974-87	PMST/2098		
2512858003	MW-12-3	ASTM D2974-87	PMST/2098		
2512858004	AS-1-6	ASTM D2974-87	PMST/2098		
2512858005	AS-1-10	ASTM D2974-87	PMST/2098		
2512858006	MW-11-6	ASTM D2974-87	PMST/2098		
2512858007	MW-11-10	ASTM D2974-87	PMST/2098		
2512858008	MW-12-6	ASTM D2974-87	PMST/2098		
2512858009	MW-12-10	ASTM D2974-87	PMST/2098		