Underground Storage Tank Removal and Site Characterization Report

Washington State Department of Transportation (WSDOT) Northwest Region Headquarters Signals Fuel Branch 7HDQ Site
3700 9th Avenue South
Seattle, Washington 98134

Prepared for

Washington State Department of Transportation
HQ Transportation Equipment Fund

Prepared by

Hazardous Materials and Solid Waste Program
Environmental Services Office

Washington State Department of Transportation

August 7, 2015

Table of Contents

Acronyms and Abbreviations

BTEX ..... Benzene, Toluene, Ethylbenzene, and Xylenes
CUL……..Cleanup Level
Ecology ..... Washington State Department of Ecology
ERTS…….Environmental Report Tracking System
ft. bgs..... Feet Below Ground Surface
HASP ..... Health and Safety Plan
HazMat Program..... Hazardous Materials and Solid Waste Program
I-5……..Interstate 5
LEL……...Lower Explosive Limit
LUST…….Leaking Underground Storage Tank
mg/kg……Milligram Per Kilogram (parts per million)
MTCA..... Model Toxics Control Act
NWTPH-Dx ..... Northwest Total Petroleum Hydrocarbons – Diesel Extended
cPAHs……Carcinogenic Polycyclic Aromatic Hydrocarbons
PID ..... Photo Ionization Detector
RCRA..... Resource Conservation and Recovery Act
ROW ..... Right-of-Way
SAP ..... Sampling and Analysis Plan
Site ..... 3700 9th Ave, Seattle, WA 98134
TEF……...Transportation Equipment Fund
TEF……...Toxicity Equivalency Factor
TTEC…….Total Ttoxic Equivalent Concentration
USTs ..... Underground Storage Tanks
VOC ..... Volatile Organic Compound
WAC…… Washington Administrative Code
WSDOT ..... Washington State Department of Transportation

1.0 INTRODUCTION

This underground storage tank (UST) removal and site characterization report has been prepared on behalf of the Washington State Department of Transportation (WSDOT) Headquarters (HQ) Hazardous Materials and Solid Waste (HazMat) Program to provide a summary of information associated with the removal of two (2) double-walled 5,000-gallon gasoline underground storage tanks (USTs), one (1) double-walled 5,000-gallons diesel UST from within WSDOT right-of-way. The USTs are located at King County Parcel number 5679500270, 3700 9th Avenue South, Seattle, WA 98134 within Township 24 North, Range 4 East and Section 17 as shown in Figure 1 (Site Vicinity Map) and Figure 2 (UST and Sampling Location Map). The site was associated with the Transportation Equipment Fund (TEF) Fueling Site at the Northwest (NW) Region Signal Maintenance Facility (Site) and is listed on the Washington State Department of Ecology's (Ecology) UST database under facility site identification 60549963, and UST site identification 12240.

In accordance with Washington Administrative Code (WAC) 173-360-390, as part of the permanent closure process, a site assessment is required to determine if a release may have occurred. A site characterization was conducted on June 17, 2015 pursuant to WAC 173-360-399 and as required per Models Toxics Control Act (MTCA) Chapter 173-340-450 WAC following a confirmed release by the site assessment.

The UST removal activities involved: preparing a Sampling and Analysis Plan (SAP), Health and Safety Plan (HASP), hiring a certified UST decommissioner, collecting five confirmation soil samples; three stockpile samples for disposal purposes; review laboratory analytical data; and preparing this report. Summaries of these activities are provided below.

1.1 SITE INFORMATION

The following sections provide information pertaining to the background, physical, geological and hydrogeological setting of the site.

1.1.1 Physical Setting and Historical Background

The Site is currently a WSDOT Signal Maintenance Facility with a refueling station for transportation vehicles. The USTs resided in the south – southeastern side of the property behind the main facility between Interstate 5 (I-5) Highway and 9th Avenue South. Commercial and residential properties are located to the north, east, south and west of the Site. On June 23, 2015, WSDOT's Real Estate Maps, and Sanborn Maps were accessed to observe the historic surrounding land use. A 1962 Real Estate Map (obtained from WSDOT); and 1904 and 1929 Sanborn Maps (Sanborn Map Company obtained from the Seattle Public Library (https://seattle.bibliocommons.com) were obtainable and can be viewed in Appendix A. The 1904 Sanborn map indicates that around 1904 – 1929 the area in the vicinity of the USTs was previously a brick yard called "Hoolihan's Brick Yard". The 1929 Sanborn Map and the 1962 WSDOT Real Estate Map identifies the property with a new name "Builders Brick Company".

On January 31, 1991 petroleum contaminated soils were discovered at the Site during a routine retrofit of the existing USTs at the WSDOT TEF Fuel Facility behind the WSDOT Maintenance Building. Approximately 250 cubic yards of heavy oil-range contaminated material with a

concentration of 770 mg/kg was excavated and stockpiled. A total of five (5) confirmation samples were collected which identified concentrations of heavy oil-range hydrocarbons with all below 20 mg/kg except one sample with a concentration of 120 mg/kg. On August 25, 2000 the Site was reported as cleaned up because the soil conditions would have met MTCA Method B cleanup levels (CULs). Copy of the "reported cleaned up" letter can be observed in Appendix B, and Photos of the 1991 investigation can be found in Appendix C.

1.2.1 Geologic and Hydrogeologic Setting

The city of Seattle lies in the central portion of the Puget Sound Lowland Basin, between the Olympic Mountain Range to the west and the Cascade Mountain Range on the east. Current site conditions have been influenced by repeated cycles of glacial scouring and deposition, tectonic activity, stream erosion and deposition, and human activities. The Duwamish River, which flows from the south to the north and lies west of the Site, was modified by channelization, dredging, and filling during the first part of the 20th Century (Troost and Booth, 2008).

The Site is located near the Duwamish River floodplain. The Site and surrounding area are underlain by unconsolidated Holocene-age soils overlying Quaternary-age glacial deposits. The Holocene soils are present to a depth of up to approximately 200 feet (ft.) below ground surface (bgs) and include fill material, estuarine silt and clay, and alluvial and beach-deposited sand and silt. The underlying Quaternary glacial deposits consists of till and glacioclacustrine silt and clay. Environmental investigations in the vicinity indicate that the local geology consists of 5 to 50 feet of sand and silt derived from dredging and other fill, and from natural sediment from the Duwamish River (Shannon&Wilson, 2006).

Soils encountered during the UST removal and site characterization in the north, west and southern side of the excavation consisted primarily of brown, poorly graded gravely sand with trace silts (SP), having none to very low consistency and plasticity, and dry to damp from approximately 6 inches below the concrete surface to approximately 8 ft. bgs, and wet from 8 ft. bgs to 13 ft.; and from 8 ft. bgs to approximately 12 - 13 ft. bgs on the northern and western side of the excavation consisted primarily of gray silt with clay. The eastern side of the excavation was brown, poorly graded gravely sand with trace silts (SP), having none to very low consistency and plasticity, and dry to damp from approximately 6 inches below the concrete surface to approximately 6 ft. bgs and then became a bluish-gray silt according to the Unified Soil Classification System. Soils in the vicinity of the eastern portion of the UST excavation pit were poorly graded silt with sand and gravels from approximately 5 ft. bgs to 9 ft. bgs the maximum depth of excavation in that area.

The general topography of the area is relatively flat with a slight downward slope from the east to west (Shannon&Wilson, 2006). Groundwater was observed infiltrating from the bottom of the excavation beginning at approximately 8.5 ft. bgs to the maximum depth of excavation of 12-13 ft. bgs.

2.0 BACKGROUND INFORMATION

2.1 Site Assessment

On June 17, 2015, a UST site assessment was conducted by WSDOT HazMat Specialist and Washington State Site Assessor (8274580, expiration July 17, 2016) Trent Ensminger, which

identified petroleum impacted soils around and underneath the USTs. Based off of field screening techniques, soils where observed with obvious staining and omitted a strong petroleum odor. In general accordance with the April 2003, "Guidance for Site Checks and Site Assessments for Underground Storage Tanks" (Publication 90-52), published by Ecology, and WAC 173-360-399, if there is a confirmed release and the release is reported within 24 hours, no further site assessment is required; however, per WAC 173-340-450 a site characterization would be required. On June 17, 2015, during excavation of the pump island, it was observed that the piping system leading to the tanks had leaked at approximately 2.5 – 8.5 ft. bgs. The as-built diagram can be observed in Appendix D. In addition, contamination was discovered underneath the tanks during the decommissioning process at approximately 8 ft. bgs which originated from the leaking pipes. The Washington State Department of Ecology (Ecology) was contacted to report the confirmed leaking underground storage tanks (LUSTs) at the Site. Ecology issued an Environmental Report Tracking System (ERTS) # 657540 for the confirmed release.

On June 17, 2015, three stockpile samples collected from beneath the USTs were delivered to OnSite Environmental Inc. to determine the tank contents, concentration of the contaminants in the soils, and to obtain disposal approval for the tank contents following the decommissioning process. The initial analytical results confirmed that the soils were impacted with diesel-range and heavy oil-range hydrocarbons exceeding MTCA Method A Cleanup Levels (CULs).

3.0 UNDERGROUND STORAGE TANK DECOMMISSIONING AND CLOSURE

3.1 Notifications

Prior to removing the USTs from the Site, Trent Ensminger of WSDOT submitted a 30-Day Notice of Intent to Decommission UST(s) to Ecology, as required by WAC 173-360-385. A 30-day waiver was granted by Andrew Imke of Ecology to proceed with the decommissioning process prior to the 30 days.

3.2 UST Closure Method / Tank Information

On May 14, 2015, WSDOT retained Anderson Environmental Contracting (Anderson) to decommission the three (3) double-walled USTs, which began June 15, 2015. The UST closures were performed in general accordance with Chapter 173-360 WAC, "Underground Storage Tank Statue & Regulations", "Guidance for Site Checks and Site Assessments for Underground Storage Tanks" (Publication 90-52), April 2003 revision, published by Ecology, and MTCA Chapter 173-340 WAC.

The USTs were approximately 14.5 ft. in length and 7.9 ft. in diameter. The bottoms of all three tanks were approximately 8 ft. bgs. The USTs were in excellent condition with no visible holes or evidence of compromised structural integrity. The USTs were empty with the exception of residual product and sludge at the bottom of each tank. Approximately 400-gallons total product, sludge, water and rinsate were pumped from the USTs. The Marine Chemist, Joe Tevelt inserted carbon dioxide to inert the tanks. Air monitoring using a five-gas meter registered a lower explosive limit (LEL) of 0 parts per million (ppm) and oxygen level of less than 5%. The USTs were triple rinsed and all rinsate was pumped for disposal. After King County Fire Marshal, Al Devit verified the decommissioning process and cleared the tanks for removal; the USTs were transported by Marine Vacuum Services Inc. to their facility for disposal. Photographs of the

decommissioning are shown in Appendix C and copies of UST closure and site assessment forms, certificates and receipts pertinent to the tank removal are provided in Appendix E.

4.0 FIELD INVESTIGATION FOR CHARACTERIZATION

4.1 Confirmation Soil Sampling

Routine field screening was conducted during the removal of the UST, including the use of visual (soil discoloration) observations and olfactory, and use of a photoionization detector (PID), and sheen testing. Field screening observations were used as the basis for identification of contamination during excavation that would be stockpiled for disposal, as well as for selection of appropriate confirmation sample locations for laboratory analysis as required. A target PID reading of 10 ppm was utilized to evaluate if excavated soils were considered impacted. Excavated soil with field screening results above 10 ppm or visual indications of contamination was segregated and temporarily stockpiled and placed on plastic and bermed.

A site-specific SAP was prepared by the HazMat Program for the scheduled field work activities. A copy of this document is held on file by the HazMat Program. All field screening, sampling, and transporting of samples were conducted in general accordance of WSDOT Quality Assurance Plan for Field Screening and Disposal Characterization for Petroleum Contamination (QAP) prepared by GeoEngineers on October 26, 2012 as referenced in Attachment F.

Field screening identified the extent of contamination to be approximately 11.5 – 12 ft. bgs to the extent of the concrete slabs used to anchor the USTs as shown in Appendix D. The excavator operator was instructed to over-excavate between the concrete slabs to approximately 12.5 - 13 ft. bgs to collect the bottom confirmation sample below the USTs. The approximate delineation size of the excavation pit was 45 ft. in length x 50 ft. wide. A total of five confirmation samples (SFS – UST – B1, SFS – UST – N, SFS – UST – E, SFS – UST – S, and SFS – UST – W) were collected at the base of the excavation approximately 12 ft. bgs, except SFS – UST – E which was collected at 10 ft. bgs. A sample was collected from bottom of the UST location between the south side of the concrete slabs of the UST2 - Dx and UST3 – Gx tanks known as B; and one sample from each of the sidewalls of the four (4) cardinal directions identified as north (N), east (E), south (S) and west (W). The samples henceforth will be identified as SFS-B1, SFS-N, SFS-E, SFS-S, and SFS-E. All samples were delivered to OnSite Environmental Inc, in Redmond, Washington via courier for analysis on June 18 and 23, 2015. The samples were analyzed for Ecology Method Northwest Total Petroleum Hydrocarbons—Gasoline Extended (NWTPH-Gx); NWTPH-Diesel Extended (Dx); Volatile Organics using Environmental Protection Act (EPA) Method 8260B; Semivolatile Organics using EPA Method 8270, Resource Conservation and Recovery Act (RCRA) 8 Metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver), and Polychlorinated Biphenyls using EPA Method 8082. All gasoline-range petroleum hydrocarbons and VOCs were collected using EPA Method 5035A, and analyzed with the appropriate methods as shown below.

4.2 Stockpile Sampling

During site cleanup activities, and as discussed above, excavated soils were segregated based on field screening results. Three stockpile samples (SFS – SP1, SFS – SP2, and SFS – SP3) were collected to obtain authorization for direct haul and disposal purposes. The samples were collected where field screening indicated the likelihood of encountering the highest

concentration of contaminated soil approximately 6 – 12 inches beneath the surface of the stockpile. All gasoline-range petroleum hydrocarbons and VOCs were collected using EPA Method 5035A, and analyzed with the appropriate methods as shown below.

Stockpile samples were delivered to OnSite Environmental Inc., in Redmond, Washington on June 17, 2015 via courier. The samples were analyzed for NWTPH-Gx; NWTPH-Dx; VOCs using EPA Method 8260B; Semivolatile Organics using EPA Method 8270, and RCRA 8 Metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver).

4.3 Soil Disposal

Approximately 561.81 tons of suspected or confirmed contamination was stockpiled and hauled to Waste Management located at 70 South Alaska Street, Seattle, Washington. The waste disposal receipts and manifest are located in Appendix G.

4.4 Groundwater

Groundwater was observed infiltrating from the bottom of the excavation beginning at approximately 8.5 ft. bgs to the maximum depth of excavation of 12-13 ft. bgs. On June 22, 2015, Marine Vacuum Inc. pumped approximately 400 gallons of suspected contaminated water from the bottom of the excavation.

5.0 Laboratory Analytical Results

5.1 Analytical Results

All of the analytical data were deemed acceptable. Individual chemical constituents detected in each soil sample were evaluated against the MTCA Method A CULs for unrestricted land use (Ecology, 2007 [Revised 2013]) and WAC 173-303 Dangerous Waste Regulations (Ecology, 2009 [Revised 2014]) to characterize the soil for disposal. The detected constituents for the confirmation samples are summarized below. The analytical results for both the confirmation sampling and the stockpile sampling are in Table 1, and the analytical data report is presented in Appendix H.

5.2 Confirmation Samples

Gasoline-Range Petroleum Hydrocarbons

There were no detected concentrations of gasoline-range hydrocarbons in any of the confirmation samples.

BTEX

There were no detected concentrations of BTEX at or above CULs for any of the confirmation samples.

Diesel-Range and Lube Oil-Range Petroleum Hydrocarbons

There were no detected concentrations of diesel in any of the confirmation samples except samples SFS – B1 and SFS – S with a concentration of 50 mg/kg and 340 mg/kg, respectively, well below the CUL of 2,000 mg/kg. In addition, there were no detected concentrations of oil-range hydrocarbons except in sample SFS – W with a concentration of 75 mg/kg, well below the CUL of 2,000 mg/kg.

Semivolatile Organics

cPAHs and Naphthalenes

All confirmation samples were non-detect for cPAHs, and Naphthalenes except in sample SFS – W with a concentration of 0.0009 mg/kg and 0.043 mg/kg, respectively, well below the cPAH CUL of 0.1 mg/kg and the Naphthalene CUL of 5 mg/kg. The cPAH is calculated using the Total Toxic Equivalent Concentration (TTEC). TTEC is the sum of each individual cPAH concentration multiplied by its corresponding Toxicity Equivalency Factor (TEF).

RCRA 8 Metals

Barium, chromium and/or lead were detected in all soil samples at concentrations less than the MTCA Method A or B CULs, or near background levels found in the Puget Sound Area. All other metals were not detected.

6.0 SUMMARY AND CONCLUSIONS

Based on the findings of the site assessment and site characterization, it was confirmed that there was a release at the WSDOT TEF Fueling Facility located at King County Parcel number 5679500270, 3700 9th Avenue South, Seattle, WA 98134 within Township 24 North, Range 4 East and Section 17. The release appears to be the result of structural failure from the piping system leading from the pump island to the USTs. The USTs were in excellent condition with no signs of leaking or structural damage. In accordance with WAC 173-360-390, a site assessment was conducted to determine if a release had occurred as part of the permanent closure process. A site characterization was conducted pursuant to WAC 173-360-399 and as required per MTCA Chapter 173-340-450 WAC following the confirmed release by the site assessment.

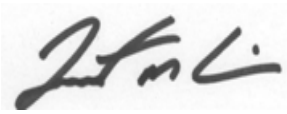
Approximately 561.81tons of suspected or confirmed contaminated soil was excavated, stockpiled and hauled to Waste Management located at 70 South Alaska Street, Seattle, Washington. The approximate delineation boundary of the UST excavation pit was 45 ft. in length and 50 ft. wide. A total of five (5) discreet grab samples were collected, one (1) from the base of the UST excavation approximately 12-13 ft. bgs between the concrete anchoring slabs of UST2-Dx and UST3-Gx identified as SFS – B1, one from the interface of each sidewall in the four (4) cardinal directions. All four (4) sidewall samples except SFS-E were collected at approximately 12 ft. bgs. Because the soils below 5 ft. bgs in the vicinity of SFS-E were classified as poorly graded silt, the contamination was confined to the upper depth, therefore, after over-excavating; a sample was collected at approximately 10 ft. bgs.

Based off of the analytical results and field screening, all analyses for the confirmation samples were either non-detect or well below MTCA Method A CULs. While groundwater was identified as shallow as 8.5 ft. bgs, the groundwater at the maximum depth of 12-13 ft. bgs is most likely not impacted above MTCA Method A CULs since the soils were shown to be clean or well below MTCA Method A CULs. On June 22, 2015, Marine Vacuum Inc. pumped approximately 400 gallons of suspected contaminated water from the bottom of the excavation. The tank removals and subsequent remedial work has removed the contaminated soil; thereby eliminating the source of the contamination associated with the USTs. The Site was backfilled with clean material and paved. There is no additional environmental investigation warranted at this time as there is no immediate threat to human health or the environment, and it is recommended that this site location be awarded a No Further Action.

LIMITATIONS

No other party is entitled to rely on the information, conclusions, and recommendations included in this report without the express written consent of the WSDOT HazMat Program. Further, the reuse of the information, conclusions, and recommendations provided herein for extensions of the project or for any other project without review and authorization by the WSDOT HazMat Program shall be at the user's sole risk. Questions regarding this report should be directed to Trent Ensminger at (360) 570-2587.

Thank you.



Trent Ensminger
WSDOT Hazardous Materials Specialist

REFERENCES

Shannon&Wilson, Inc. November 2006. *Phase I Environmental Site Assessment, Moss G. Milan and Poncho's Legacy Properties.*

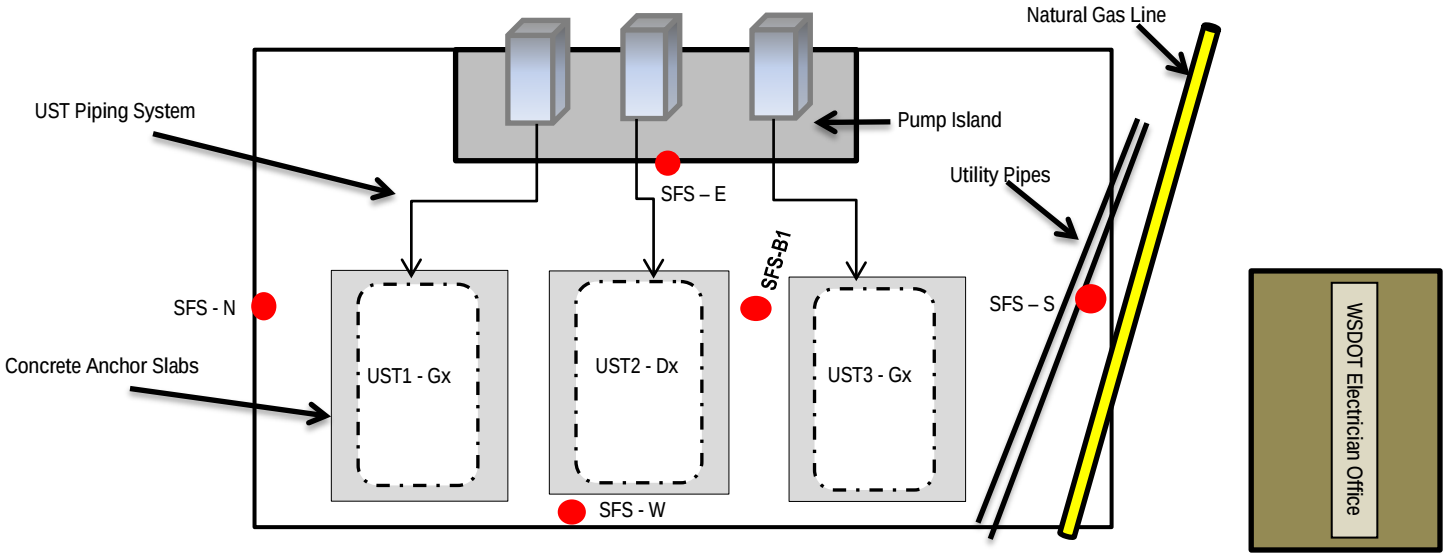
Troost, K. G., Booth, D. B., Wisher, A. P., and Shimel, S. A., 2005, *The geologic map of Seattle - A progress report, 2005, U. S. Geological Survey Openfile report 2005-1252, scale 1:24,000*.

Figure 1. Site Vicinity Map

Tank Location

Figure 2. UST and Sampling Location Map

WSDOT Signal Fuel Site USTs Removal and Site Characterization – Field Map



Not to Scale

SFS – B1

Petroleum Hydrocarbons	RCRA 8 Metals
Gasoline - ND	Arsenic – ND
Diesel – 50	Barium – 33
Lube Oil - ND	Cadmium – ND
Benzene – 0.0025	Chromium – 39
Toluene – 0.013	Lead – ND
Ethyl Benzene - ND	Selenium – ND
Xylene – 0.0036	Silver – ND
	Mercury - ND

SFS – N

Petroleum Hydrocarbons	RCRA 8 Metals
Gasoline - ND	Arsenic – ND
Diesel - ND	Barium – 59
Lube Oil - ND	Cadmium – ND
Benzene - ND	Chromium – 37
Toluene - ND	Lead – ND
Ethyl Benzene - ND	Selenium – ND
Xylene - ND	Silver – ND
	Mercury – ND

SFS – E

Petroleum Hydrocarbons	RCRA 8 Metals
Gasoline - ND	Arsenic – ND
Diesel - ND	Barium – 110
Lube Oil - ND	Cadmium – ND
Benzene - ND	Chromium – 62
Toluene - ND	Lead – 10
Ethyl Benzene - ND	Selenium – ND
Xylene - ND	Silver – ND
	Mercury – ND

SFS – S

Petroleum Hydrocarbons	RCRA 8 Metals
Gasoline - ND	Arsenic – ND
Diesel - 340	Barium – 27
Lube Oil - ND	Cadmium – ND
Benzene - ND	Chromium – 14
Toluene - ND	Lead – ND
Ethyl Benzene - ND	Selenium – ND
Xylene – ND	Silver – ND
	Mercury - ND

SFS – W

Petroleum Hydrocarbons	RCRA 8 Metals
Gasoline - ND	Arsenic – ND
Diesel - ND	Barium – 120
Lube Oil - 75	Cadmium – ND
Benzene - ND	Chromium – 69
Toluene - ND	Lead – 6.2
Ethyl Benzene – ND	Selenium – ND
Xylene – ND	Silver – ND
	Mercury – ND
cPAHs – 0.0009	Naphthalene – 0.043

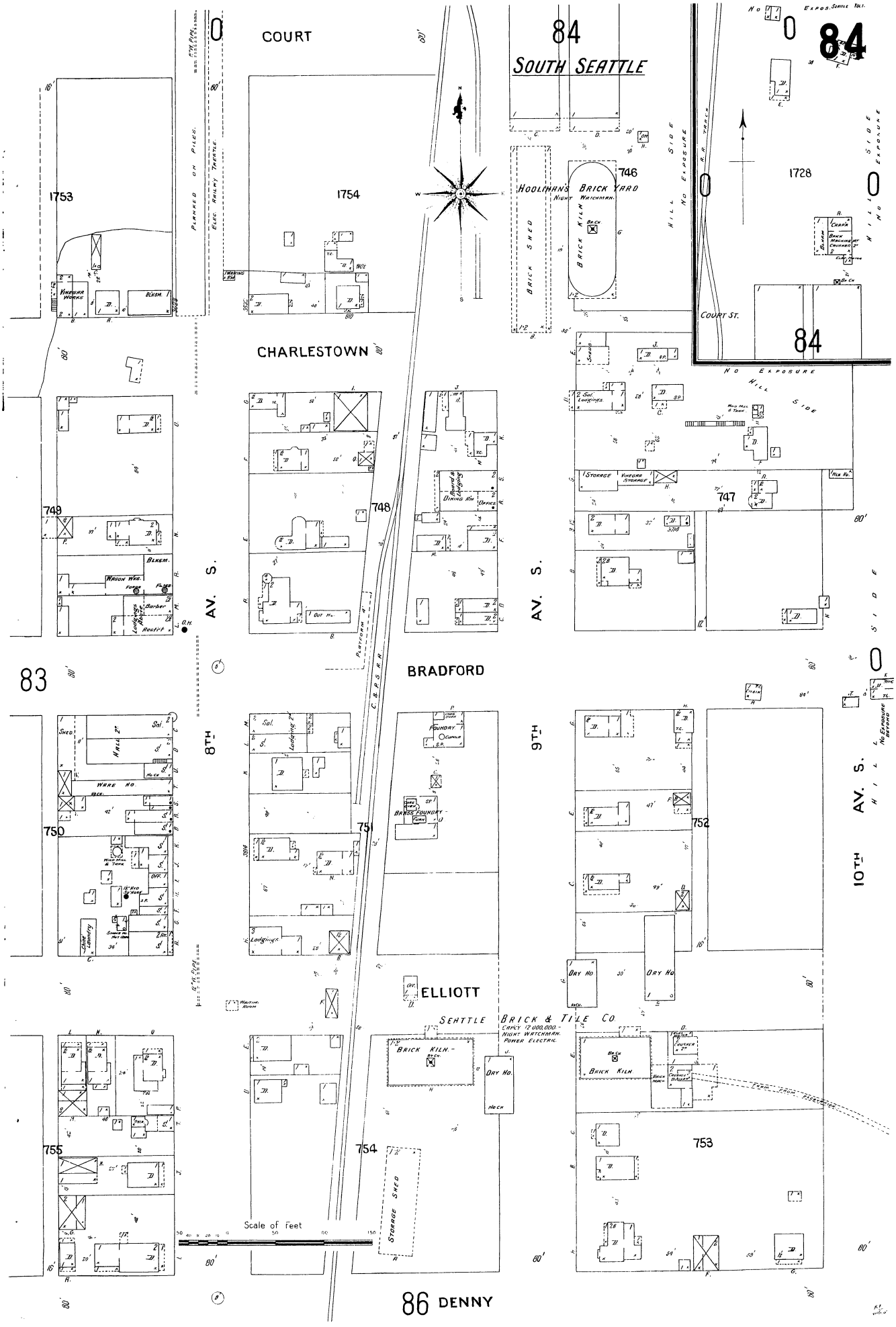
All Laboratory results are in milligram per kilogram (mg/kg)
MTCA – Model Toxics Control Act, WAC 173-340. All laboratory results were compared to MTCA Method A cleanup criteria for unrestricted land use.
All results that exceed MTCA Method A Cleanup Levels are highlighted in yellow

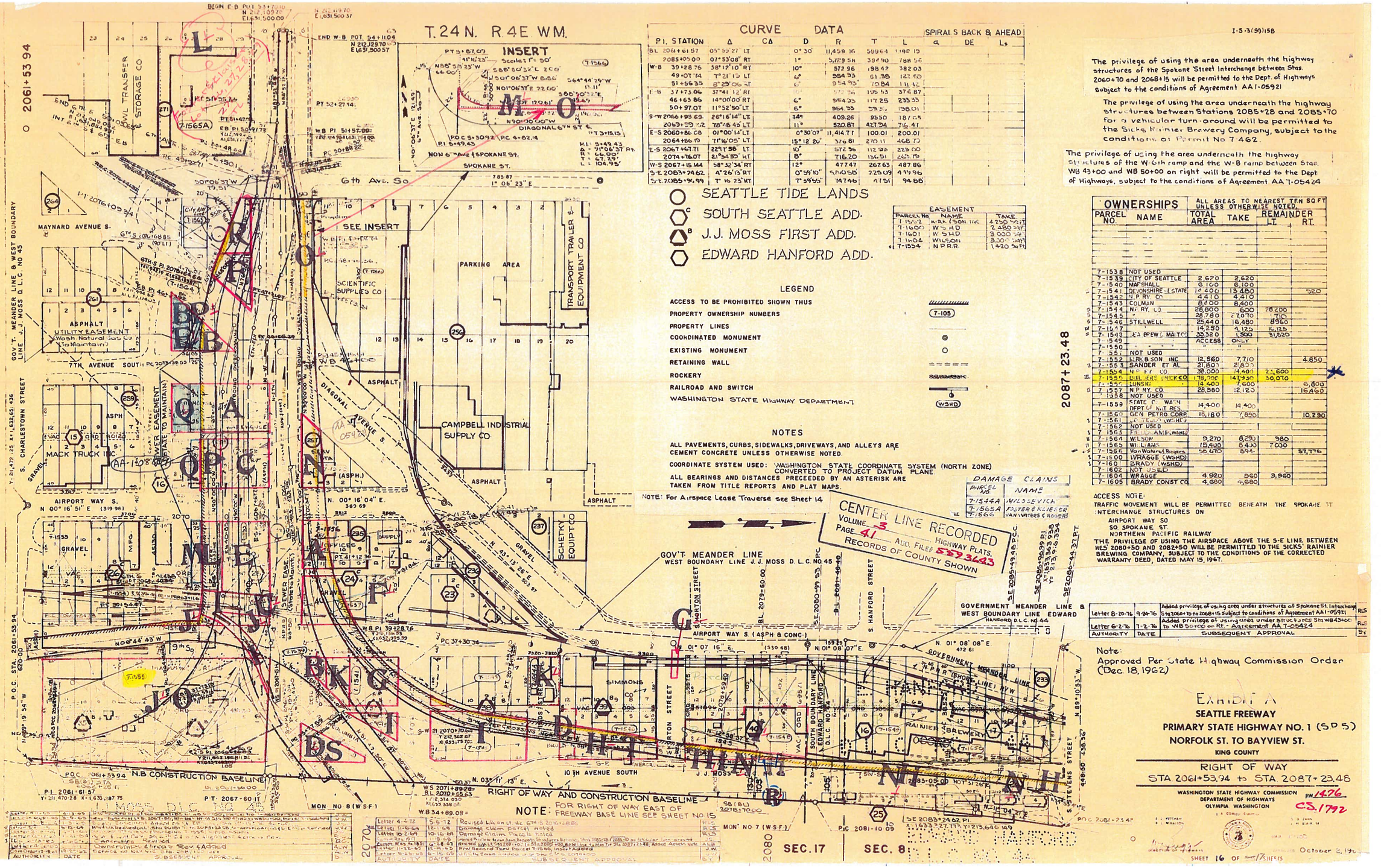
Table 1. WSDOT Signal Fuel – Summarized Analytical Data

WSDOT Signals Fuel Site - Summarized Analytical Data											
		Cleanup Levels and Background Levels									
Analyte	**Units**	*MTCA Method A*	*Natural Back Ground Levels for Puget Sound*	**SFS - B1**	**SFS - N**	**SFS - E**	**SFS - S**	**SFS - W**	**SP1**	**SP2**	**SP3**
Total Petroleum Hydrocarbons											
Gasoline	(mg/kg)	30	N/A	ND	ND	ND	ND	ND	ND	ND	ND
Diesel Range Organics	(mg/kg)	2,000	N/A	**50**	ND	ND	**340**	ND	**2,700**	**4,500**	**2,600**
Lube Oil	(mg/kg)	2,000	N/A	ND	ND	ND	ND	**75**	ND	**4,800**	ND
RCRA 8 Metals											
Arsenic	(mg/kg)	20	6	ND	ND	ND	ND	ND	ND	ND	ND
Barium	(mg/kg)	N/A	2	**33**	**59**	**110**	**27**	**120**	**28**	**27**	**30**
Cadmium	(mg/kg)	2	1	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	(mg/kg)	2,000	27	**39**	**37**	**62**	**14**	**69**	**21**	**23**	**23**
Lead	(mg/kg)	250	17	ND	ND	**10**	ND	**6.2**	ND	ND	ND
Selenium	(mg/kg)	N/A	N/A	ND	ND	ND	ND	ND	ND	ND	ND
Silver	(mg/kg)	N/A	N/A	ND	ND	ND	ND	ND	ND	ND	ND
Mercury	(mg/kg)	2	0	ND	ND	ND	ND	ND	ND	ND	ND
BTEX											
Benzene	(mg/kg)	0.03	N/A	**0.0025**	ND	ND	ND	ND	ND	ND	ND
Toluene	(mg/kg)	7	N/A	**0.013**	ND	ND	ND	ND	ND	ND	ND
Ethyl Benzene	(mg/kg)	6	N/A	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylene	(mg/kg)	9	N/A	**0.0036**	ND	ND	ND	ND	ND	ND	ND
PCBs											
PCBs	(mg/kg)	1	N/A	ND	ND	ND	ND	ND	ND	ND	ND
Semivolatile Organics											
cPAHs	(mg/kg)	5	N/A	ND	ND	ND	ND	**0.0009**	**0.0027**	**0.3775**	**0.0127**
Napthalene	(mg/kg)	5	N/A	ND	ND	ND	ND	**0.043**	**0.632**	**6.82**	**3.71**

Notes -
*MTCA - Model Toxics Control Act, WAC 173-340. All laboratory results were compared to MTCA Method A cleanup levels for unrestricted land use.
*Highlighted cells indicate concentrations exceed Ecology's MTCA Method A Cleanup Levels.
* ND - not detected
*N/A - not applicable

Appendix A – Historical Real Estate and Sanborn Maps


COURT
84
SOUTH SEATTLE
1753
1754
1728
746
HOOLIHAN'S BRICK YARD
NIGHT WATCHMAN.
BRICK SHED
BRICK KILN
HILL SIDE
NO EXPOSURE
COURT ST.
CHARLESTOWN
749
748
747
AV. S.
83
BRADFORD
8TH
9TH
10TH AV. S.
750
751
752
ELLIOTT
SEHTTLE BRICK & TILE CO
CAPCY 12,000,000 -
NIGHT WATCHMAN.
POWER ELECTRIC.
BRICK KILN.
DRY HO.
STORAGE SHED
755
754
753
Scale of feet
86 DENNY



I-5-3(59)158

The privilege of using the area underneath the highway structures of the Spokane Street Interchange between Stas. 2060+10 and 2068+15 will be permitted to the Dept. of Highways subject to the conditions of Agreement AA1-05921

The privilege of using the area underneath the highway structures between Stations 2085+28 and 2085+70 for a vehicular turn-around will be permitted to the Sicks' Rainier Brewery Company, subject to the conditions of Permit No 7 462.

The privilege of using the area underneath the highway structures of the W-6th ramp and the W-8 ramp between Stas. WB 43+00 and WB 50+00 on right will be permitted to the Dept of Highways, subject to the conditions of Agreement AA 1-05424

CURVE DATA

P.I. STATION	Δ	CA	D	R	T	L	SPIRALS BACK & AHEAD a	DE	Ls
BL 2061+81.57	05°39'27" LT		0°30'	11,459.16	59.964	119.819			
2085+05.00	07°53'08" RT		1°	5,729.58	394.90	788.56			
W-8 39+28.76	38°12'10" RT		10°	572.96	198.42	382.03			
49+01.74	7°21'15" LT		6°	954.93	61.38	122.50			
51+56.35	8°23'06" LT		6°	954.93	70.84	141.32			
E-B 37+73.06	37°41'12" RT		6°	954.93	195.53	376.87			
46+63.86	14°00'00" RT		6°	954.93	117.25	233.33			
50+97.07	11°52'50" LT		6°	954.93	99.35	198.01			
S-W 2066+93.63	26°16'14" LT		14°	409.26	95.50	187.65			
2069+59.42	78°48'45" LT		11°	520.87	427.54	716.41			
E-S 2060+86.08	01°00'14" LT		0°30'07"	11,414.71	100.01	200.01			
2064+86.19	71°16'05" LT		15°12'20"	376.81	270.11	468.70			
E-S 2067+67.71	22°17'58" LT		10°	572.96	112.93	223.00			
2074+16.07	21°34'53" RT		8°	716.20	136.51	269.79			
W-S 2067+15.44	58°32'34" RT		12°	477.47	267.63	487.86			
S-E 2083+24.62	4°26'13" RT		0°59'10"	5,810.58	225.09	449.96			
S-E 2085+94.99	T 16 25" RT		T 39°55"	1474.6	41.51	94.86			

EASEMENT

PARCEL No	NAME	TAKE
7-1504	KIRK & SON INC	4,250 SQ FT
7-1600	W S H D	2,480 SQ FT
7-1601	W S H D	3,000 SQ FT
7-1604	WILSON	3,300 SQ FT
T-1554	N P R R	1,420 SQ FT

OWNERSHIPS

ALL AREAS TO NEAREST TEN SQ FT UNLESS OTHERWISE NOTED.

PARCEL NO.	NAME	TOTAL AREA	TAKE	REMAINDER LT.	REMAINDER RT.
7-1538	NOT USED				
7-1539	CITY OF SEATTLE	2,620	2,620		
7-1540	MARSHALL	6,100	6,100		
7-1541	DEVONSHIRE ESTATE	14,400	13,480		920
7-1542	N P RY CO	4,410	4,410		
7-1543	COLMAN	8,400	8,400		
7-1544	N P RY CO	28,800	600	28,200	
7-1545	"	28,780	7,070	700	
7-1546	STILLWELL	25,440	16,480	8960	
7-1547	"	14,250	4,125	10,125	
7-1548	J.A. BREW & MALTCO	33,320	1,500	31,820	
7-1549	"	ACCESS	ONLY		
7-1550	"	"	"		
7-1551	NOT USED				
7-1552	KIRK & SON INC	12,560	7,710		4,850
7-1553	SANDER ET AL	21,800	2,850		
7-1554	N P RY CO	38,000	14,400	23,600	
7-1555	DULLERS BRICK CO	178,700	147,930	30,070	
7-1556	SUNSKI	14,400	7,600		6,800
7-1557	N P RY CO	28,380	12,120		16,260
7-1558	NOT USED				
7-1559	STATE OF WASH DEPT OF NAT RES	14,400	14,400		
7-1560	GEN PETRO CORP	18,180	7,890		10,290
7-1561	J. SICKS (WSHD)				
7-1562	NOT USED				
7-1563	FELLMAN (FEE WSHD)				
7-1564	WILSON	9,270	8,290	980	
7-1565	WILLIAMS	15,400	8,400	7,000	
7-1566	Van Waterol Rogers	58,670	894		57,776
7-1600	WRAGGE (WSHD)				
7-1601	BRADY (WSHD)				
7-1602	NOT USED				
7-1604	WRAGGE	4,920	960	3,960	
7-1605	BRADY CONST CO	4,600	4,680		

DAMAGE CLAIMS

PARCEL No	NAME
7-1544A	WILOSEVICH
7-1565A	FOSTER & ALLEN ER
T-1566	VAN WATERS & ROGERS

ACCESS NOTE:
TRAFFIC MOVEMENT WILL BE PERMITTED BENEATH THE SPOKANE ST INTERCHANGE STRUCTURES ON
AIRPORT WAY SO
SO. SPOKANE ST.
NORTHERN PACIFIC RAILWAY
THE PRIVILEGE OF USING THE AIRSPACE ABOVE THE S-E LINE BETWEEN HES 2080+50 AND 2082+50 WILL BE PERMITTED TO THE SICKS' RAINIER BREWING COMPANY, SUBJECT TO THE CONDITIONS OF THE CORRECTED WARRANTY DEED, DATED MAY 15, 1967.

Letter 8-20-76	9-24-76	Added privilege of using area under structures of Spokane St. Interchange Sta 2060+10 to to 2068+15 subject to conditions of Agreement AA1-05921 RLS
Letter 6-2-76	7-2-76	Added privilege of using area under structures Sta WB 43+00 to WB 50+00 on Rt. - Agreement AA 1-05424 RLS
AUTHORITY	DATE	SUBSEQUENT APPROVAL SY

Note:
Approved Per State Highway Commission Order (Dec. 18, 1962)

Appendix B – LUST Cleanup Report

LUST CLEANUP REPORT REVIEW

LUST # 1966 UST # 12240 Site Name WDOT - SIGNALS

Change in Status of Release & Date (Awaiting Cleanup) (Cleanup Started) (Monitoring) (Reported Cleaned Up) (No Further Action) (Unknown) Date 8/25/00

Cause of Release (Overfill) (Piping Failure) (Spill)(Tank Failure) (Unknown)

Remediation Technologies Used _____

Report Title _____ **Report Date** _____

Report Type (Interim) (Monitoring) (Final) (Site Characterization) (Unknown)

Date Received _____ **Contractor** _____

Comments RU2000. CHANGES TO "RCU". WOULD HAVE MEET METHOD B

Fund Source (LUST Trust Fund) (PLIA) (Responsible Party) (State Fund)

VCP/IRAP Status (Requested) (Not Requested) (Complete) **Reviewed by** _____

Date 8/25/00

Nov. 4, 1999 (GG)

Appendix C – Photographs

1991 UST Retrofit Photos

16 5 2

2 5'91

MONITOR WELL
MONITOR

2 5'91

2 5'91

GAS
DIESEL GAS
MONITOR WELL

VENT PIPING

VENT
MONITOR


GAS


MONITOR
GAS
GAS


GAS
MONITOR

MONITOR
GAS
DIESEL
GAS

9 1 2 8

9 1 2 8

9 1 2 8


GAS
GAS
DIESEL


GAS
GAS
DIESEL

2015 UST Decommissioning Photos

Pump Island – Gx, Dx, Gx

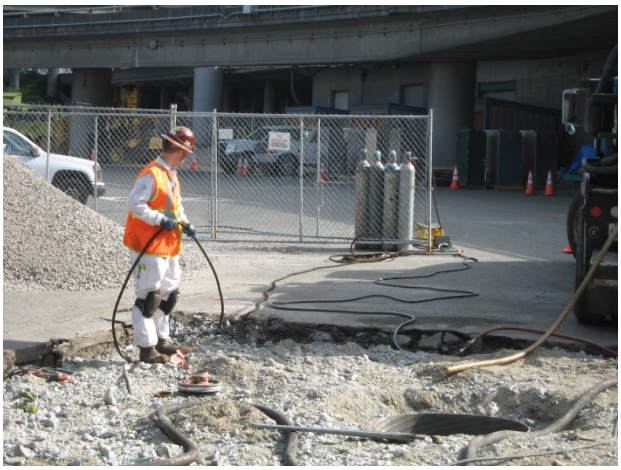
Tank Location and Risers

WSDOT Electrician Office

WSDOT Signals Facility

Pump Island and eastern extent of UST excavation


Marine Vacuum Inc. Pumping and Rinsing Tanks; Marine Chemist Inerting Tanks




Piping system leading from island to tanks

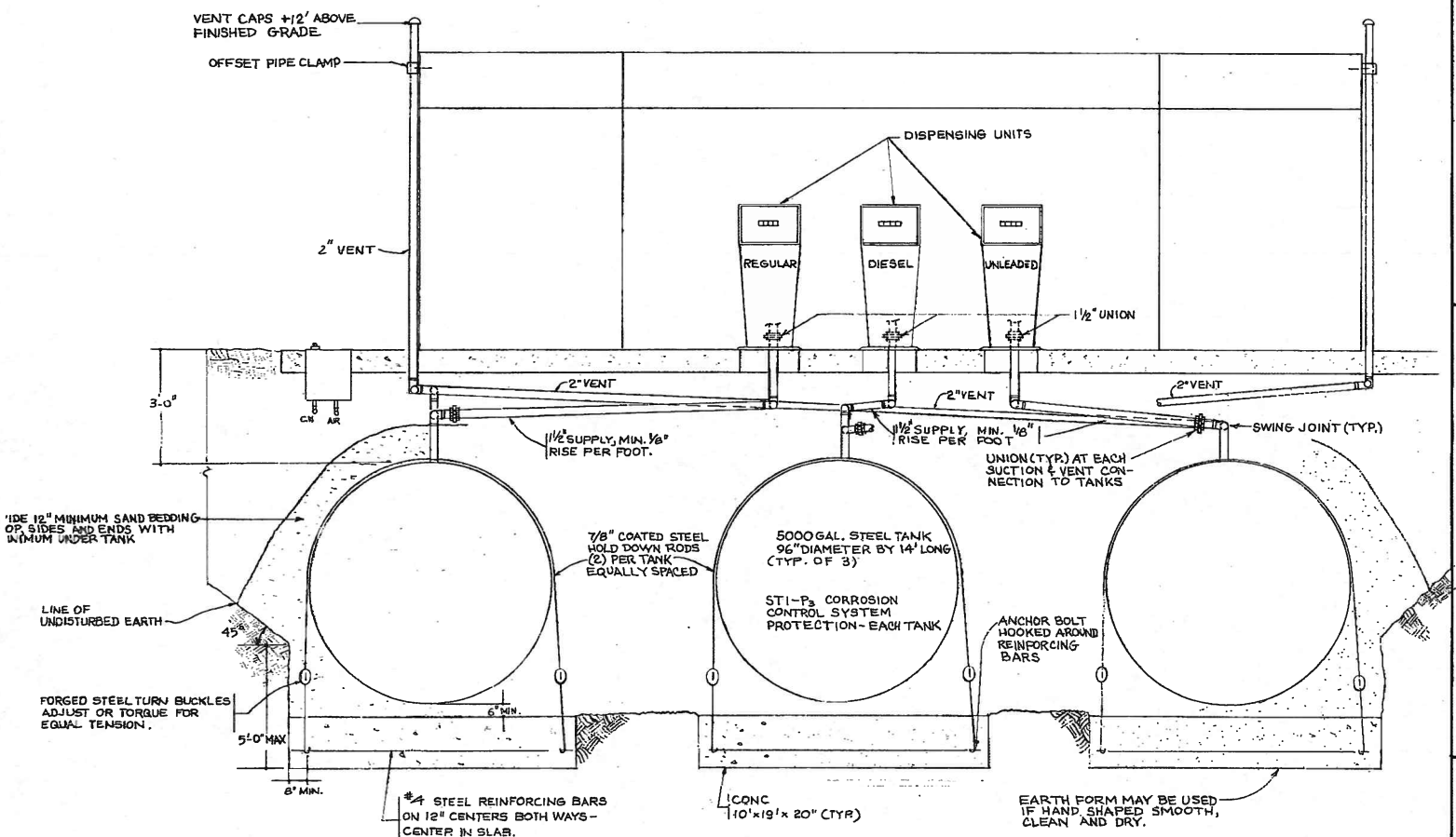


sti-P3

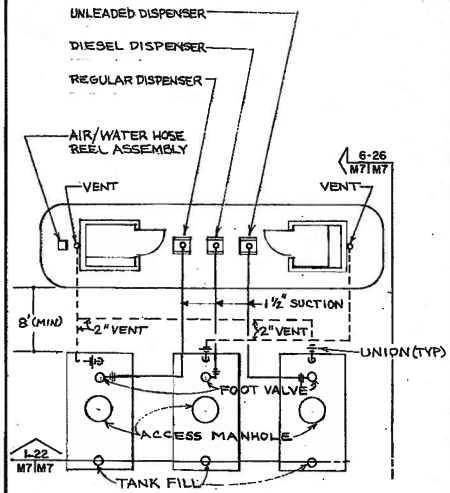

AEC


AEC

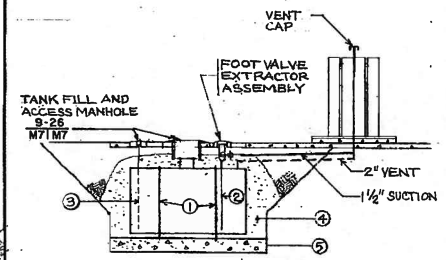
Appendix D – As-built of the UST Fuel System



I-22 / M7|M7 PUMP ISLAND ELEVATION NTS

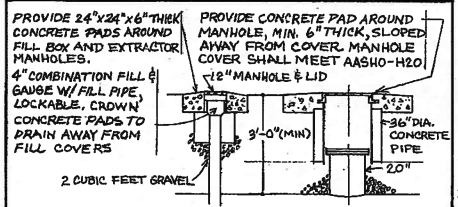


I-26 / M1|M7 PUMP ISLAND NTS



1. 7/8" COATED STEEL HOLD DOWN RODS, EQUALLY SPACED
2. 1½" SUCTION RISER W/ FOOT VALVE 4" ABOVE TANK BOTTOM.
3. 4" ALUMINUM DROP TUBE TO 6" ABOVE TANK BOTTOM.
4. SAND BEDDING, 12" MINIMUM TOP, SIDES & ENDS AND 6" MINIMUM UNDER TANK.
5. CONCRETE HOLD DOWN SLAB, SLOPE SLAB & TANK DOWN TO FILL END AT 2%.

6-26 / M7|M7 FUEL TANK - SIDE ELEVATION NTS



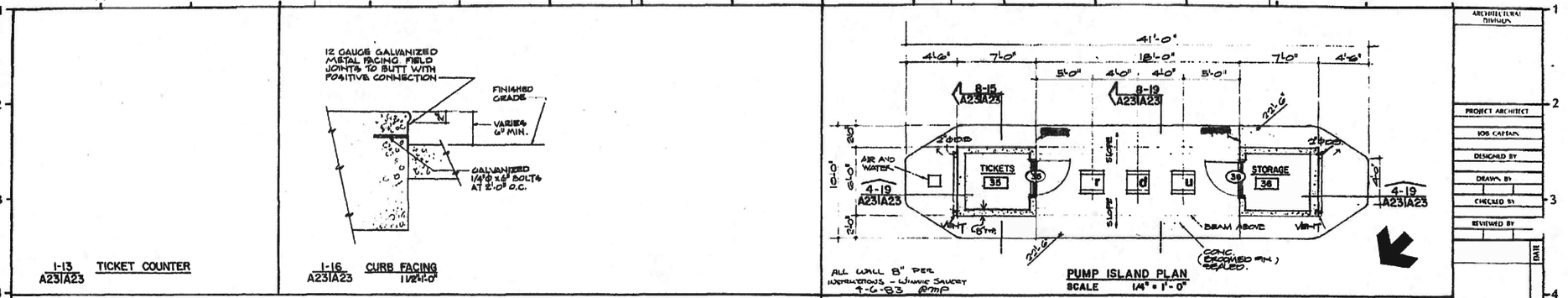
9-26 / M7|M7 TANK FILL & ACCESS MANHOLE NTS

Contract 2357

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION OLYMPIA, WASHINGTON

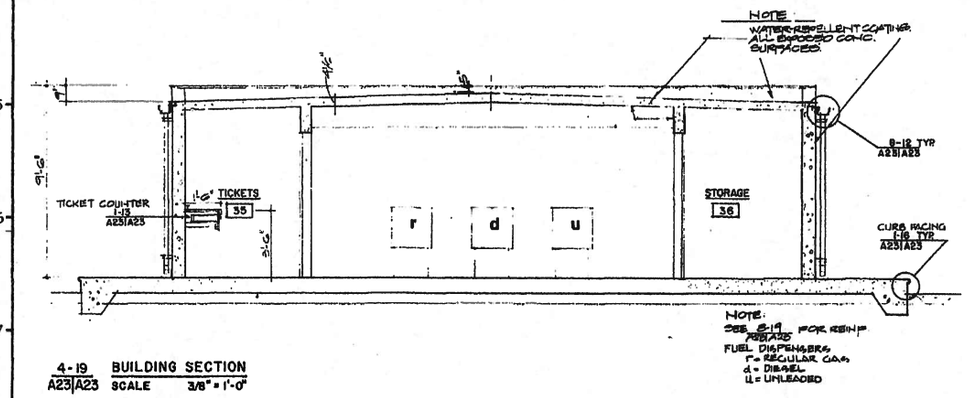
PROJECT TITLE SIGNAL DIVISION HEADQUARTERS SPOKANE STREET INTERCHANGE

M-

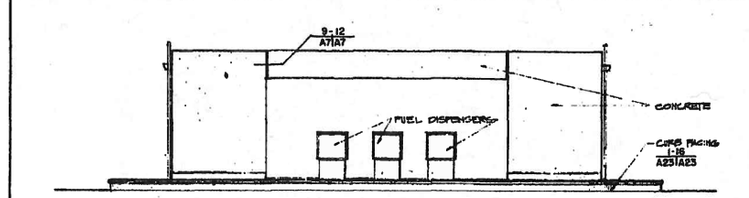


ALL WALL 8" PER INSTRUCTIONS - WINNIE SAUCET 4-6-83 RMP

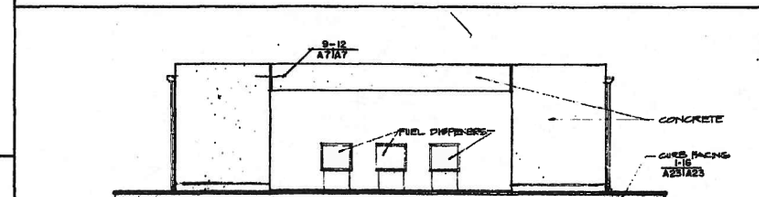
PUMP ISLAND PLAN
SCALE 1/4" = 1'-0"



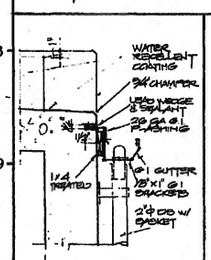
4-19 A23|A23 BUILDING SECTION
SCALE 3/8" = 1'-0"



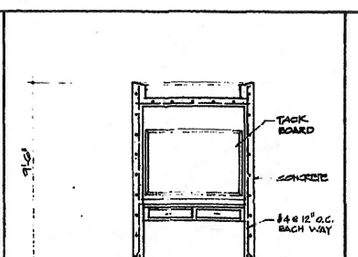
WEST ELEVATION
SCALE 1/4" = 1'-0"



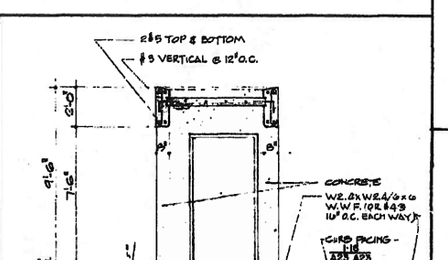
EAST ELEVATION
SCALE 1/4" = 1'-0"



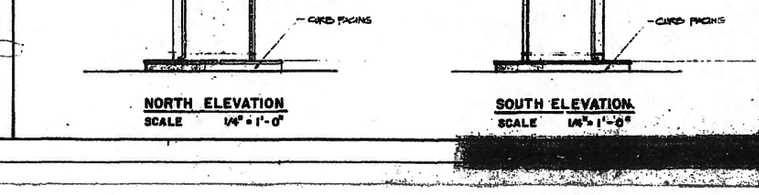
8-12 A23|A23 DETAIL
1 1/2"=1'-0"



8-15 A23|A23 BUILDING SECTION
SCALE 3/8" = 1'-0"



8-19 A23|A23 BUILDING SECTION
SCALE 3/8" = 1'-0"



NORTH ELEVATION
SCALE 1/4" = 1'-0"

SOUTH ELEVATION
SCALE 1/4" = 1'-0"

FOR "AS CONSTRUCTED PLANS" ONLY

1-13 A23|A23 TICKET COUNTER

1-16 A23|A23 CURB FACING
1 1/2"=1'-0"

ARCHITECTURAL DIVISION

PROJECT ARCHITECT
JOB CAPTAIN
DESIGNED BY
DRAWN BY
CHECKED BY
REVIEWED BY

DATE
REVISION

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
OLYMPIA, WASHINGTON

DATE

SIGNAL DIVISION HEADQUARTERS
SPOKANE STREET INTERCHANGE

SHEET TITLE
PUMP ISLAND PLAN & SECTIONS

PROJECT TITLE

A23

SHEET NO. OF

Appendix E – UST Closure and Decommissioning Documents

UST Site / Tank Data Summary

Facility Name: SIGNALS BRANCH 7HDQ SITE Tag(s): A0363

SITE INFORMATION

SIGNALS BRANCH 7HDQ SITE	**RESP UNIT:** NORTHWEST	**COUNTY:** KING	SITE IDs:
3700 9TH AVE S	**UBI:** 6010721100010049	**LAT:** 47.570332	UST: 12240
SEATTLE, WA 981342228	**PHONE:** (360) 705-7896	**LONG:** -122.320761	FS: 60549963

TANK INFORMATION

TANK NAME: 66A02007

STATUS: Operational	**STATUS DT:** 08/06/1996	**PERMANENTLY CLOSED DT:**
INSTALL DT: 05/01/1983	**UPGRADE DT:** 06/09/1998	**PERMIT EXPIRATION DT:** 06/30/2015

TANK	PIPING
MATERIAL: Dielectric Coated Steel	**MATERIAL:** Fiberglass
CONSTRUCTION: Single Wall Tank	**CONSTRUCTION:** Double Wall Pipe
CORROSION PROT: Sacrificial Anode	**CORROSION PROT:** Corrosion Resistant
MANIFOLDED TANK:	**SFC* at TANK:**
RELEASE DETECT: Vapor Monitoring	**SFC* at DISP/PUMP:**
TIGHTNESS TEST:	**1ST REL DETECT:** Safe Suction (No Leak Detection)
SPILL PREVENTION: Spill Bucket/Spill Box	**2ND REL DETECT:**
OVERFILL PREVENT: Automatic Shutoff (fill pipe)	**PUMPING SYSTEM:** Non-Safe Suction
ACTUAL CAPACITY:	
CAPACITY RANGE: 5,000 to 9,999 Gallons	

** SFC = Steel Flex Connector*

COMPARTMENT #	SUBSTANCE STORED	SUBSTANCE USED	CAPACITY
1	B Unleaded Gasoline	A Motor Fuel for Vehicles	

TANK NAME: 66A02008

STATUS: Operational	**STATUS DT:** 08/06/1996	**PERMANENTLY CLOSED DT:**
INSTALL DT: 05/01/1983	**UPGRADE DT:** 06/09/1998	**PERMIT EXPIRATION DT:** 06/30/2015

TANK	PIPING
MATERIAL: Dielectric Coated Steel	**MATERIAL:** Fiberglass
CONSTRUCTION: Single Wall Tank	**CONSTRUCTION:** Double Wall Pipe
CORROSION PROT: Sacrificial Anode	**CORROSION PROT:** Corrosion Resistant
MANIFOLDED TANK:	**SFC* at TANK:**
RELEASE DETECT: Automatic Tank Gauging	**SFC* at DISP/PUMP:**
TIGHTNESS TEST:	**1ST REL DETECT:** Safe Suction (No Leak Detection)
SPILL PREVENTION: Spill Bucket/Spill Box	**2ND REL DETECT:**
OVERFILL PREVENT: Automatic Shutoff (fill pipe)	**PUMPING SYSTEM:** Non-Safe Suction
ACTUAL CAPACITY:	
CAPACITY RANGE: 5,000 to 9,999 Gallons	

** SFC = Steel Flex Connector*

COMPARTMENT #	SUBSTANCE STORED	SUBSTANCE USED	CAPACITY
1	B Unleaded Gasoline	A Motor Fuel for Vehicles	

TANK NAME: 66A02009

STATUS: Operational	**STATUS DT:** 08/06/1996	**PERMANENTLY CLOSED DT:**
INSTALL DT: 05/01/1983	**UPGRADE DT:** 06/09/1998	**PERMIT EXPIRATION DT:** 06/30/2015

TANK	PIPING
MATERIAL: Dielectric Coated Steel	**MATERIAL:** Fiberglass
CONSTRUCTION: Single Wall Tank	**CONSTRUCTION:** Double Wall Pipe
CORROSION PROT: Sacrificial Anode	**CORROSION PROT:** Corrosion Resistant
MANIFOLDED TANK:	**SFC* at TANK:**

UST Site / Tank Data Summary

RELEASE DETECT: Automatic Tank Gauging	**SFC* at DISP/PUMP:**
TIGHTNESS TEST:	**1ST REL DETECT:** Safe Suction (No Leak Detection)
SPILL PREVENTION: Spill Bucket/Spill Box	**2ND REL DETECT:**
OVERFILL PREVENT: Automatic Shutoff (fill pipe)	**PUMPING SYSTEM:** Non-Safe Suction
ACTUAL CAPACITY:	
CAPACITY RANGE: 5,000 to 9,999 Gallons	

** SFC = Steel Flex Connector*

COMPARTMENT #	SUBSTANCE STORED	SUBSTANCE USED	CAPACITY
1	D Diesel	A Motor Fuel for Vehicles	

UST_SiteTankDataSmry2014

DEPARTMENT OF ECOLOGY
State of Washington

UNDERGROUND STORAGE TANK (UST)
30-DAY NOTICE

(See back of form for instructions)

NW Reg

FOR OFFICE USE ONLY
Site ID # 12240
FS ID # 60549963

I authorize this UST site to be Decommissioned immediately. AMS

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

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

SITE INFORMATION

UST Site ID# 12240
Tag or UBI number

Signals Branch TMDQ site
Site Name

3700 9th Ave S
Site Physical Address

Seattle 98134
City Zip Code

360-705-7885
Site Phone Number

RECEIVED
APR 27 2015
Department of Ecology
Toxics Cleanup Program

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

WSDOT - Jeff Schroeder
UST Owner/Operator

7345 Linderson Way SW
Mailing Address/PO Box

Tumwater 98501
City Zip Code

360-705-7885
Owner/Operator Phone Number

schroeJ@wsdot.wa.gov
Owner/Operator Email Address

TANK INFORMATION

Tank ID	Substance Stored	Capacity	Date Project Expected to Begin	Comments:
66A02007	unl gasoline	6,000	MAY 26, 2015	
66A02008	unl gasoline	6,000	"	
66A to 7009	Diesel	6,000	"	

1) SERVICE PROVIDER INFORMATION - check the appropriate boxes

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

☐ Installer ☐ Decommissioner ☑ Site Assessor

WSDOT
Service Provider Company Name

Trent Ensminger
Certified Service Provider Name

8274580
ICC Certification #

Trent Ensminger
Contact Person

360-570-2587
Contact Phone Number

ensmint@wsdot.wa.gov
Contact Email Address

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

☐ Installer ☑ Decommissioner ☐ Site Assessor (To be determined based on bid selected contractor),

Service Provider Company Name

Certified Service Provider Name

ICC Certification #

Contact Person

Contact Phone Number

Contact Email Address

Imke, Andrew (ECY)

From: Greenup, Sherri (ECY)
Sent: Tuesday, April 28, 2015 9:29 AM
To: Imke, Andrew (ECY)
Subject: UST ID 12240 30 Day Notice
Attachments: UST ID 12240 30 Day Notice.pdf

Drew,

HQ received this 30 Day Notice yesterday via fax. It appears like they may need a waiver. Can you take care of it please?

Thank you,

Sherri Greenup
Underground Storage Tanks
Permitting & Compliance
360-407-7466

DEPARTMENT OF ECOLOGY
State of Washington

UST ID #: _____

County: _____

SITE CHECK/SITE ASSESSMENT CHECKLIST

FOR UNDERGROUND STORAGE TANKS

This checklist certifies that site check or site assessment activities were performed in accordance with Chapter 173-360 WAC. Instructions are found on the last page.

I. UST FACILITY		II. OWNER/OPERATOR INFORMATION	
Facility Compliance Tag #:	A0363	Owner/Operator Name:	WSDOT - Jeff Schroeder
UST ID #:	12240	Business Name:	WSDOT - TEF
Site Name:	WSDOT Signal Branch 7HDQ site	Address:	7345 Linderson WAY SW
Site Address:	3700 9th Ave S	City:	Tumwater State: WA Zip 98501
City:	Seattle	Phone:	360-705-6829
Phone:		Email:	schroej@wsdot.wa.gov

III. CERTIFIED SITE ASSESSOR			
Service Provider Name:	Trent Ensminger	Company Name:	WSDOT
Cell Phone:	360-584-8814	Email:	ensmint@wsdot.wa.gov
Address:	2214 RW Johnson BLVD		
Certification #:	8274580	Exp. Date:	7/17/16
City:	Tumwater	State:	WA Zip: 98512

IV. TANK INFORMATION

TANK ID	TANK CAPACITY	LAST SUBSTANCE STORED	DATE SITE CHECK OR ASSESSMENT CONDUCTED
UST-1	5,000	un-gasoline	6/17/15
UST-2	5,000	Diesel	6/17/15
UST-3	5,000	un-gasoline	6/17/15

V. REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT (check one)

- ☑ Release investigation following permanent UST system closure (i.e. tank removal or closure-in-place).
- ☐ Release investigation following a failed tank and/or line tightness test.
- ☐ Release investigation following discovery of contaminated soil and/or groundwater.
- ☐ Release investigation directed by Ecology to determine if the UST system is the source of offsite impacts.
- ☐ UST system is undergoing a "change-in-service", which is changing from storing a regulated substance (e.g. gasoline) to storing a non-regulated substance (e.g. water).
- ☐ Directed by Ecology for UST system permanently closed or abandoned before 12/22/1988.
- ☐ Other (describe):

VI. Checklist

The site assessor must check each of the following items and include it in the report. Sections referenced below can be found in the Ecology publication *Guidance for Site Checks and Site Assessments for Underground Storage Tanks.*	YES	NO
1. The location of the UST site is shown on a vicinity map.	☑	☐
2. A brief summary of information obtained during the site inspection is provided (Section 3.2)	☑	☐
3. A summary of UST system data is provided (Section 3.1)	☑	☐
4. The soils characteristics at the UST site are described. (Section 5.2)	☑	☐
5. Is there any apparent groundwater in the tank excavation?	☑	☐
6. A brief description of the surrounding land use is provided. (Section 3.1)	☑	☐
7. The name and address of the laboratory used to perform analyses is provided. The methods used to collect and analyze the samples, including the number and types of samples collected, are also documented in the report. The data from the laboratory is appended to the report.	☑	☐
8. The following items are provided in one or more sketches:		
• Location and ID number for all field samples collected	☑	☐
• If applicable, groundwater samples are distinguished from soil samples	☑	☐
• Location of samples collected from stockpiled excavated soil	☑	☐
• Tank and piping locations and limits of excavation pit	☑	☐
• Adjacent structures and streets	☑	☐
• Approximate locations of any on-site and nearby utilities	☑	☐
9. If sampling procedures are different from those specified in the guidance, has justification for using these alternative sampling procedures been provided? (Section 3.4)	☑	☐
10. A table is provided showing laboratory results for each sample collected including; sample ID number, constituents analyzed for and corresponding concentration, analytical method, and detection limit for that method. Any sample exceeding MTCA Method A cleanup standards are highlighted or bolded.	☑	☐
11. Any factors that may have compromised the quality of the data or validity of the results are described.	☑	☐
12. The results of this site check/site assessment indicate that a confirmed release of a regulated substance has occurred. The requirements for reporting confirmed releases can be found in WAC 173-360-372.	☑	☐

VII. Required Signatures

Signature acknowledges the Site Check or Site Assessment complies with UST regulations WAC 173-360-360 through -395.

Trent Ensminger		6/30/15
Print or Type Name	Signature of Certified Site Assessor	Date

DEPARTMENT OF ECOLOGY
State of Washington

UST ID #: _____

County: _____

PERMANENT CLOSURE NOTICE
FOR UNDERGROUND STORAGE TANKS

This notice certifies that permanent closure activities were performed and conducted in accordance with Chapter 173-360 WAC. Instructions are found on the back page.

I. UST FACILITY		II. OWNER/OPERATOR INFORMATION	
Facility Compliance Tag #:		Owner/Operator Name:	WSDOT – Jeff Schroeder
UST ID #:	12740	Business Name:	WSDOT
Site Name:	Signals Fuel Branch 7HDQ Site	Address:	7345 Linderson Way SW
Site Address:	3700 9th Ave S	City:	Tumwater State: WA Zip: 98501
City:	Seattle	Phone:	360-705-7885
Phone:	360-705-7885	Email:	schroej@wsdot.wa.gov

III. CERTIFIED UST DECOMMISSIONER			
Company Name:	Anderson Environmental Contracting, LLC	Service Provider Name:	Cory A Eskine
Address:	705 Colorado Street	Certification Type:	ICC Decommissioning
City:	Kelso State: WA Zip: 98626	Cert. No.:	5262014 Exp. Date: 5-9-16
Provider Phone:	360.577.9194	Provider Email:	CoryeeAEllc.net
Provider Signature:		Date:	7-27-15

IV. TANK INFORMATION

TANK ID	TANK CAPACITY	LAST SUBSTANCE STORED	CLOSURE METHOD			CLOSURE DATE
			removal	closed-in-place	change-in-service	
66A02007	5,000	gasoline	☑	☐	☐	6/17/15
66A02008	5,000	gasoline	☑	☐	☐	6/17/15
66A02009	5,000	Diesel	☑	☐	☐	6/17/15
			☐	☐	☐	
			☐	☐	☐	
			☐	☐	☐	

V. REQUIRED SIGNATURE

Signature acknowledges UST(s) comply with UST regulation WAC 173-360-380 Temporary Closure Requirements.

Date	Signature of Tank Owner/Operator or Authorized Representative	Print or Type Name
7/27/15		Trent Ensminger

ECY 020-94 (July 2014)

WED 06/17/15
11AM JK

RECEIVED
JUN 04 2015
PERMIT SECTION

Your Seattle Fire Department

APPLICATION FOR TEMPORARY PERMIT

Code 7908 **Commercial Tank Removal/Decommissioning**

Permit Fee: $218.00

Date Issued: 6/17/15

Tank(s) must be removed from site on the same day as permit is issued!

TO BE COMPLETED BY PERMIT APPLICANT

FIRM NAME	ANDERSON ENVIRONMENTAL CONTRACTING		
MAILING ADDRESS	705 COLORADO ST	SUITE	
CITY	KELSO	STATE WA	ZIP 98626
JOBSITE ADDRESS	3700 9TH AVE S.		
CONTACT PERSON	JOHN SANDHOP	PHONE NUMBER	(360) 703-8476

Number of Tank(s): 3 Tank Size(s): 5,000 ☐ Aboveground tank

Product(s) Previously Contained: GAS & DIESEL ☒ Underground tank

☒ Removal (Marine Chemist inspection and certificate required for all tanks regardless of size or contents)

☐ Abandonment-in-Place (Marine Chemist certificate required for tanks previously containing Class I flammable liquids and/or unknowns)

Hot work being conducted: ☒ No ☐ Yes (If yes, a separate hot work permit is required)

Permit applications may be submitted in person weekdays from 8:00 a.m. to 5:00 p.m., or mailed to:

Seattle Fire Department
Fire Marshal's Office – Permits
220 Third Ave S, 2nd Floor
Seattle, WA 98104-2608

To pay with a Visa or Master Card: Fax or email this application
THEN CALL US TO CONFIRM RECEIPT AND MAKE PAYMENT
Tel: (206) 386-1450 / Fax: (206) 386-1348
E-mail: permits@seattle.gov

Call 386-1450, at least 24 hours prior to needed inspection time to arrange for an appointment.
TANKS MAY BE REMOVED/DECOMMISSIONED ONLY AFTER FIRE DEPARTMENT INSPECTION
NO HOT WORK IS ALLOWED ON A TANK SYSTEM PRIOR TO ISSUANCE OF THIS FIRE DEPARTMENT PERMIT!

Permission is hereby granted to remove or decommission the tank(s) identified in this permit in accordance with the attached conditions, all noted special conditions, and all applicable provisions of the Seattle Fire Code, federal, state and local regulations. **THIS PERMIT IS NULL AND VOID IF PERMIT CONDITIONS ARE NOT ATTACHED**

Special permit conditions: ***Tank removal/decommissioning must be performed, or directly supervised, by an ICC certified individual (WAC 173-360-600)***

FMO USE:
Check No.: 4674060415
Receipt No.: 5-247345
Application ID#: 101356

APPROVED BY:
Inspector: AL Devitt SFD ID# 1321
Name of Marine Chemist Joe Tevitt Certificate # 725
Date: 6/17/15

(01/15)

THE CITY OF SEATTLE
FIRE DEPARTMENT
Fire Marshal's Office
220 Third Ave South
Seattle, WA 98104-2608
(206) 386-1450

RECEIPT

5-247345

THIS IS NOT A BILL
PLEASE DO NOT PAY

When properly made out and signed this becomes a receipt for the amount and purposes as specified herein.

PAYOR: ANDERSON ENVIRONMENTAL CONTRACTING LLC
ADDRESS: 705 COLORADO ST
KELSO, WA 98626

ATTN:

DATE: 06/04/2015

AMOUNT: **$218.00**
JOB SITE: 3700 9 AV S
PAYMENT FOR: APPLICATION FEE
CC RECEIPT #: 00004674060415
INVOICE #:
PERMIT CODE(S): 7908
REMARK:

THIS IS NOT A PERMIT

Chief of the Fire Department

By SK

SOUND TESTING, INC.
206-932-0206
24 HOUR SERVICE

MARINE CHEMIST CERTIFICATE

SERIAL NO. O178498

Page 1 of 1

ANDERSON ENVIRONMENTAL CONTRACTING Survey Requested by	ANDERSON ENVIRONMENTAL Co. Vessel Owner or Agent	17 JUN 15 Date
UST Vessel	UST Type of Vessel	3700 9th Ave S, Seattle Specific Location of Vessel
(DIESEL)X3, (GASOLINE) X3 Last Three (3) Loadings	Visual, O_2 Tests Performed	1055 HRS Time Survey Completed

INERTED – WITH CO_2 (O_2 < 5%)

SAFE FOR EXCAVATION

SAFE FOR TRANSPORT

Nº 1 GASOLINE UST
(~5,000 gal.)
Nº 2 GASOLINE UST
(~5,000 gal.)
Nº 3 DIESEL UST
(~5,000 gal.)

[METER: BW S/N SK313-000374 / CAL: 0800 17 JUN 15]

In the event of physical or atmospheric changes affecting the STANDARD SAFETY DESIGNATIONS assigned to any of the above spaces, this certificate is voided; spaces not listed on the Certificate are not to be entered unless authorized on another Certificate and/or maintained in accordance with OSHA 29 CFR 1915; or if in any doubt, immediately stop all work and contact the undersigned Marine Chemist. Unless otherwise stated on the Certificate, all spaces and affected adjacent spaces are to be reinspected daily or more often as necessary by the competent person in support of work prior to entry or recommencement of work.

QUALIFICATIONS: Transfer of ballast, cargo, fuel, or manipulation of valves or closure equipment tending to alter conditions in pipelines, tanks, or compartments subject to gas accumulation, unless specifically approved on this Certificate, requires inspection and a new Certificate for spaces so affected. All lines, vents, heating coils, valves, and similar enclosed appurtenances shall be considered "not safe" unless otherwise specifically designated. Movement of the vessel from its specific location voids the Certificate unless shifting of the vessel within the facility has been specifically authorized on this Certificate.

STANDARD SAFETY DESIGNATIONS: (partial list, paraphrased from NFPA 306, Subsections 4.3.1 through 4.3.6).

ATMOSPHERE SAFE FOR WORKERS: In the compartment or space so designated (a) the oxygen content of the atmosphere is at least 19.5 percent and not greater than 22 percent by volume; (b) the concentration of flammable materials is below 10 percent of the lower explosive limit; (c) any toxic materials in the atmosphere associated with cargo, fuel, tank coatings, inerting mediums, or fumigants are within permissible concentrations at the time of the inspection.

NOT SAFE FOR WORKERS: In the compartment or space so designated, entry is not permitted.

ENTER WITH RESTRICTIONS: In the compartment or space so designated, entry for work is permitted only if conditions of proper protective equipment, or clothing, or time, or all of the aforementioned, as appropriate, are as specified.

SAFE FOR HOT WORK: In the compartment or space so designated (a) the oxygen content of the atmosphere is not greater than 22 percent by volume; (b) the concentration of flammable materials in the atmosphere is less than 10 percent of the lower explosive limit; (c) the residues, scale, or preservative coatings are cleaned sufficiently to prevent the spread of fire and are not capable of producing a higher concentration than permitted by (a) or (b); (d) all adjacent spaces, containing or having contained flammable or combustible materials shall be sufficiently cleaned of residues, scale, or preservative coatings to prevent the spread of fire, or they are inerted. Ship's fuel tanks, lube tanks, or engine room or fire room bilges, or other machinery spaces, are treated in accordance with the Marine Chemist's requirements.

SAFE FOR LIMITED HOT WORK: In the compartment or space so designated (a) portions of the space meet the requirements for Safe for Hot Work and Partial Cleaning, as applicable, or (b) the space is inerted, adjacent spaces meet the requirements for Safe for Hot Work, and hot work is restricted to specific locations; (c) portions of the space shall meet the requirements for Safe for Hot Work, as applicable, and the nature or type of hot work is limited or restricted.

NOT SAFE FOR HOT WORK: In the compartment or space so designated, hot work is not permitted.

CHEMISTS ENDORSEMENT. This is to certify that I have personally determined that all spaces in the foregoing list are in accordance with NFPA 306 Control of Gas Hazards on Vessels and have found the condition of each to be in accordance with its assigned designation.

"The undersigned acknowledges receipt of this Certificate under NFPA 306 and understands conditions and limitations under which it was issued, and the requirements for maintaining its validity."

This Certificate is based on conditions existing at the time the inpection herein set forth was completed and is issued subject to compliance with all qualifications and instructions.

Signed Cory A Eastman (Name) — ANDERSON ENVIRONMENTAL CONTRACTING (Company) — 17 JUN 15 (Date)

Signed _____ (Marine Chemist) — #725 (Certificate No.)

SOUND TESTING, INC.
206-932-0206
24 HOUR SERVICE

POSTING COPY Joe - (206) 369-6409

Printed in U.S.A.

Marine Vacuum Service, Inc.

GENERAL CONTRACTOR

CONTRACTORS LICENSE # MARINVS097JA

P0. Box 24263 Seattle, Washington 98124

Telephone (206) 762-0240

FAX (206) 763-8084

1-800-540-7491

AST/UST STORAGE TANK PUMP & RINSE CERTIFICATE

Tank Size: (3) 5000 gal UST

Last Contents fuel

Tank Location: 3700 9th Ave; Seattle, WA

Marine Vacuum Service, Inc. certifies that the above mentioned tank(s) have been triple rinsed in accordance with the industry standard as outlined in 40 CFR PART 280.70, WAC 173-360-380(I), API 1604, API 2015 and that all residual product and rinsate has been disposed of in accordance with Federal, State and Local regulations. Tanks listed above are **NOT GAS FREE** or **NOT SAFE FOR HOT WORK**

Tank Owner: D.O.T.

Contractor: Andersen Construction

M.V.S. Representative: Kevin Dalby

Date: 6/17/15

Notes:

Marine Vacuum Service, _Inc._

GENERAL CONTRACTOR

CONTRACTORS LICENSE # MARINVS097JA

P0. Box 24263 Seattle, Washington 98124

Telephone (206) 762-0240

FAX (206) 763-8084

1-800-540-7491

STORAGE TANK

CERTIFICATE OF DESTRUCTION

DATE: 6/23/15

TANK OWNER: WSDOT

TANK LOCATION: 3700 9th ave. Seattle

TANK DESCRIPTION: 3) 5,000 gal tanks

LAST CONTENTS HELD IN TANKS:

Unknown

Marine Vacuum Service, Inc certifies that the tank mentioned above was pumped of all liquid materials and washed clean with a high-pressure washer and soap solution. The tank and contents therein have been disposed of according to all Local, State and Federal Regulations.

Thank you,

Marine Vacuum Service, Inc.

This Shipping Order

must be legibly filled in, in Ink indelible Pencil, or in Carbon, and retained by the agent

Shipper No. 025203

Carrier No. _____

Date 6 22 15

MARINE VACUUM SERVICE, INC

(Name of carrier) (SCAC)

Page _____ of _____

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee MARINE VACUUM SERVICE INC

Street 1516 S. GRAHAM ST

City SEATTLE State WA Zip Code 98108

FROM:
Shipper Anderson Env.

Street 705 Colorado St.

City Kelso State WA Zip Code 98238

24 hr. Emergency Contact Tel. No. 800-540-7491

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
TT		NON REGULATED BY D of T				
		WASTE WATER	400	Galls		

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the 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.

_____ Signature

REMIT C.O.D. TO: ADDRESS

COD Amt: $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

_____ (Signature of Consignor)

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER

PER X

6 22 15

CARRIER MARINE VACUUM SERVICE, INC.

PER

DATE 6 22 15

2

Permanent post-office address of shipper.

Renton Concrete Recyclers
22121 17th Ave SE #117
Bothell, WA 98021

To Whom It May Concern,

With regards to the material disposed of at our facility

Please be advised that Renton Concrete Recyclers is a processor of broken concrete and asphalt into various aggregate products. 100% of the material delivered to our processing site is broken and crushed into WSDOT and/or SDOT spec aggregate.

Because of this and the types of projects where our material is used, we do not accept any contaminated or hazardous materials. Some examples of this would rubble containing lead based paint, arsenic, asbestos, oils and petroleum's, including any type of sealant painted or sprayed on the concrete or asphalt.

We ***certify*** that our material does not exceed the maximum value for any of the criteria stipulated in WAC 173-303. The material is sampled and tested in accordance with WAC 173-303. This material has been deemed non-toxic and is not classified as a Washington State Dangerous Waste. Our ongoing operations remain in compliance with WAC 173-350-040.

State Pit # RS-A-1 Washington Business ID# 601-089-745

If you have any questions or need any additional information, please do not hesitate to call me.

Sincerely,
Michael Dionne
Renton Concrete Recyclers
206-920-0731

Tech. Michael Dionne

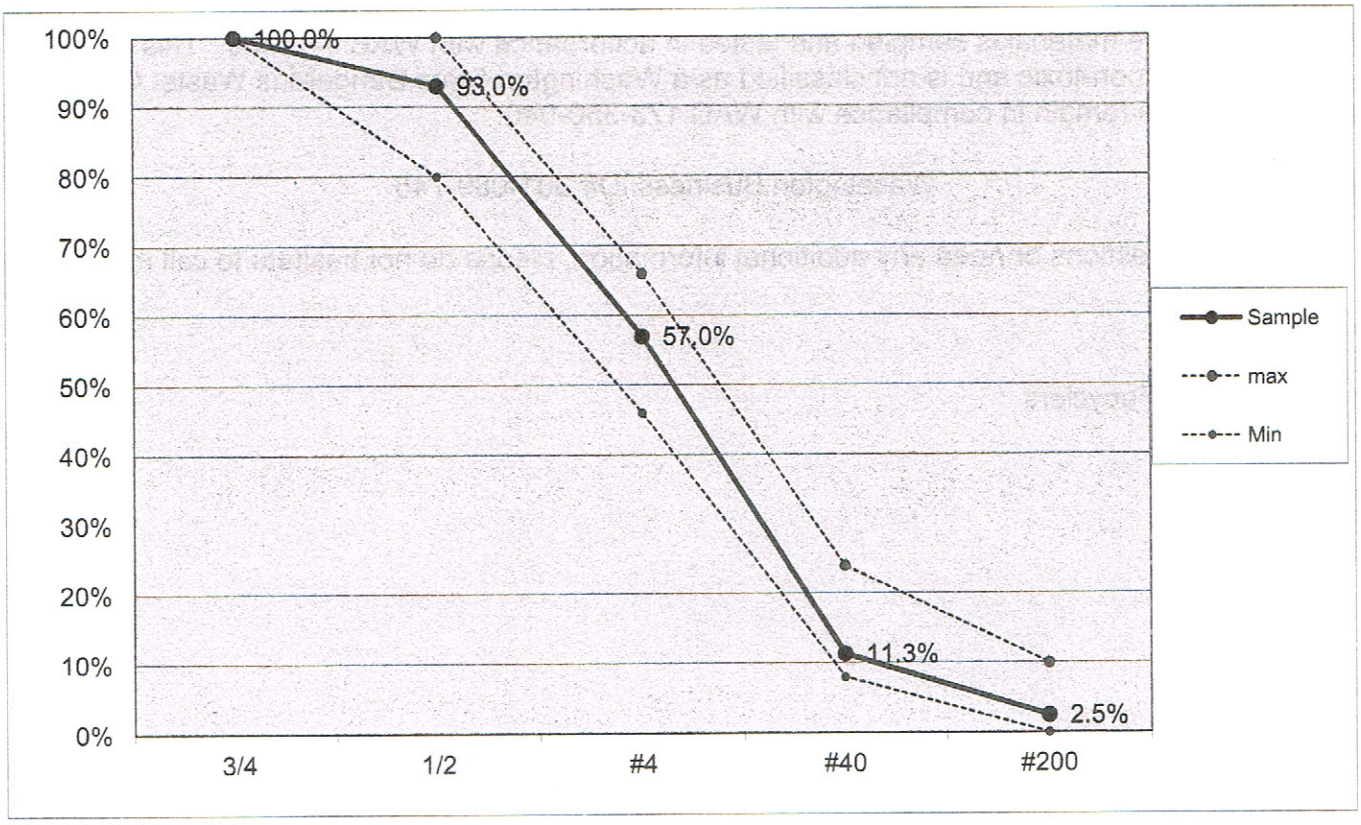
Job: Q.C.

Material: 3/4" Minus Recycle

Spec: 9-03.9(3) CSTC
City of Seattle type 1G, 1R
Test#1

Weight of Sample
8945

Sieve Size	Cum. Wt (g)	% retained	% passed	Spec. Passing
3/4	0	0.0%	100.0%	100% - 100%
1/2	622	7.0%	93.0%	80% - 100%
#4	3846	43.0%	57.0%	46% - 66%
#40	7932	88.7%	11.3%	8% - 24%
#200	8723	97.5%	2.5%	0% - 10%



Tech. Michael Dionne

Job: Q.C.

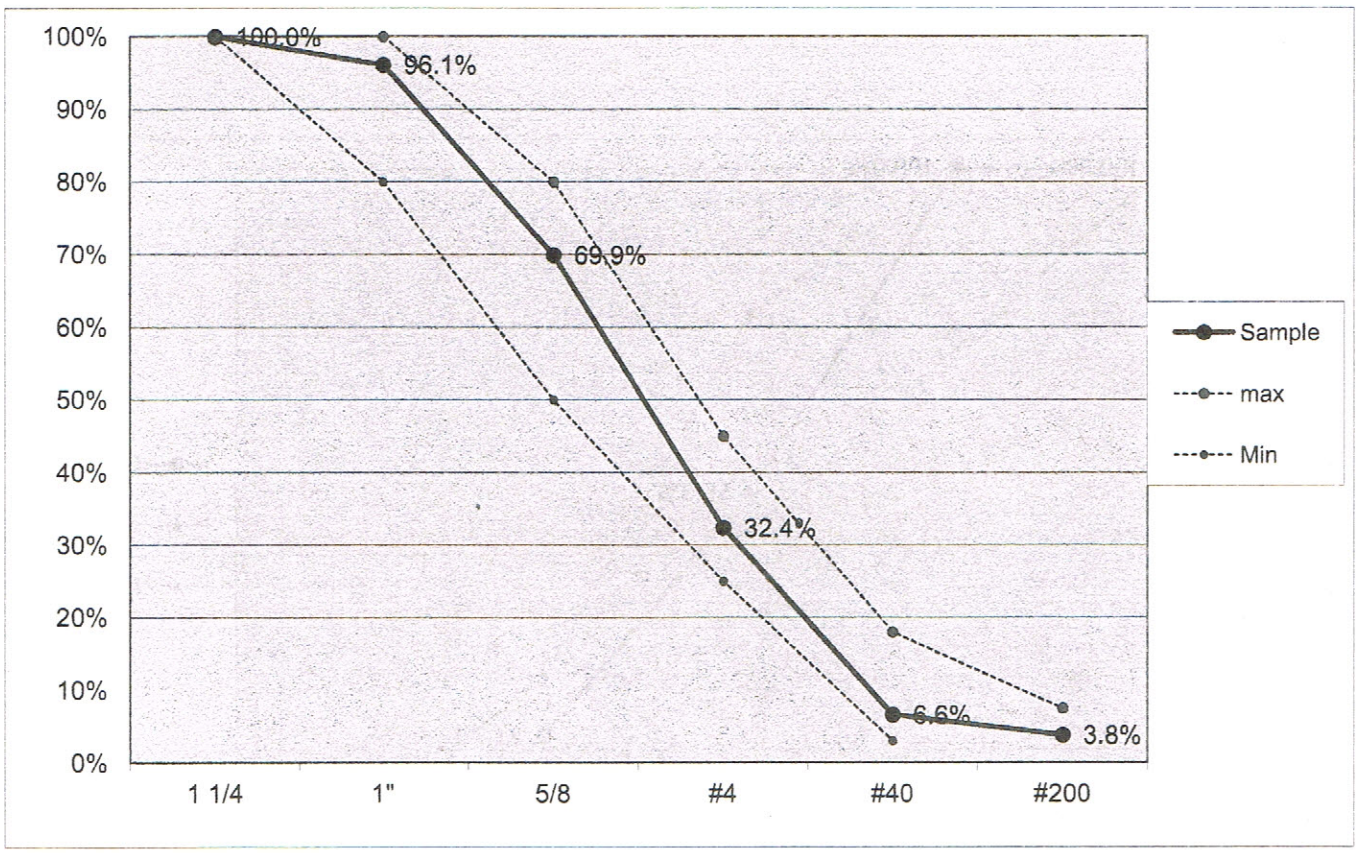
Material: 1 1/4" Minus Recycle

Spec: WSDOT-CSBC
SDOT-Type 2R, 2G,

Total Material Retained #4 and Larger Sieve	**6522**
Total HMA Material Removed from test Material	**362**
% HMA in material by weight	**6%**

Weight of Sample
9645

Sieve Size	Cum. Wt (g)	% retained	% passed	Spec.	Passing
1 1/4	0	0.0%	100.0%	100%	- 100%
1"	375	3.9%	96.1%	80%	- 100%
5/8	2899	30.1%	69.9%	50%	- 80%
#4	6522	67.6%	32.4%	25%	- 45%
#40	9007	93.4%	6.6%	3%	- 18%
#200	9278	96.2%	3.8%	0%	7.50%



Tech. M. Dionne

Job: QA

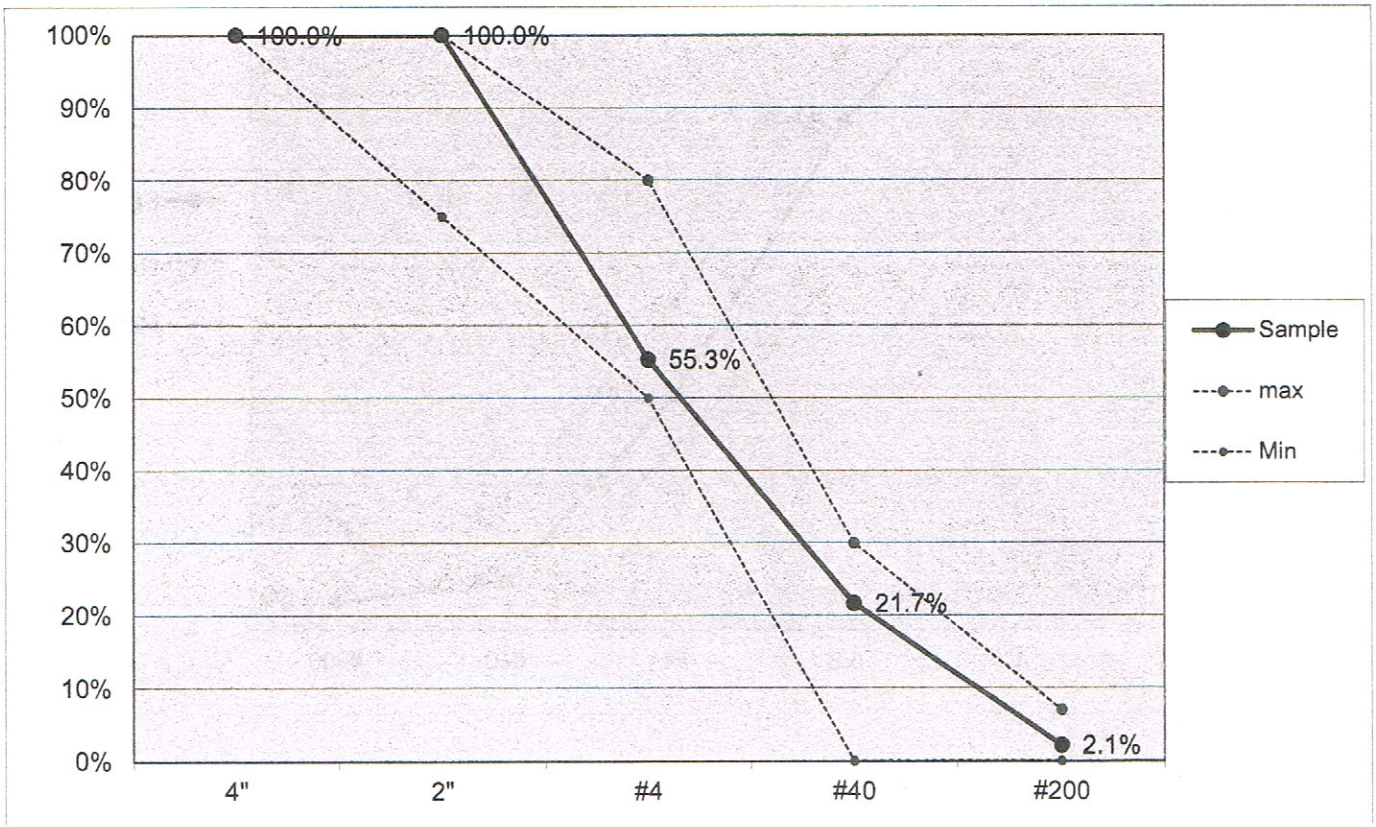
Material: 1 1/4" Minus Recycled Concrete/Asphalt

Spec:
WSDOT - 9-03.14(1) Gravel Borrow
SDOT - 9-03.16 Type 17

Total Material Retained #4 and Larger Sieve	**4521**
Total HMA Material Removed from test Material	**188**
% HMA in material by weight	**4%**

Weight of Sample
10115

Sieve Size	Cum. Wt (g)	% retained	% passed	Spec. Passing
4"	0	0.0%	100.0%	100% - 100%
2"	0	0.0%	100.0%	75% - 100%
#4	4521	44.7%	55.3%	50% - 80%
#40	7925	78.3%	21.7%	0% - 30%
#200	9902	97.9%	2.1%	0% - 7%



CERTIFICATE OF CALIBRATION

RAYS SCALE CONSULTING

(206) 856-2389 • Fax (206) 768-6311
P.O. Box 46453, Seattle, WA 98146

CUSTOMER Renton Concrete Recyclers DATE 11/7/14

	1.	2.	3.	4.
Make	RL Murphy			
Serial #	149965			
Capacity	60 ton			
Test	4,000 #			
	10,000 #			
Due	5/2015			

Listed scales have been tested using certified, traceable weights in accordance with NIST handbook 44 requirements by Registered Service Agent #A0471B

Am Test Inc.
13600 NE 126TH PL
Suite C
Kirkland, WA 98034
(425) 885-1664
www.amtestlab.com

AMTEST LABORATORIES

Professional Analytical Services

ANALYSIS REPORT

Renton Concrete Recyclers
22121 17th Ave SE #117
Bothell, WA 98021
Attention: Michael Dionne
Project Name: QA
All results reported on an as received basis.

Date Received: 05/19/15
Date Reported: 5/28/15

AMTEST Identification Number **15-A007289**
Client Identification **Sample 1**
Sampling Date **05/19/15, 11:30**

Total Metals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Acid Digestion	Y				SW-846 3050B	CG	05/26/15
Lead	12.4	ug/g		1.8	EPA 6010C	CG	05/27/15

TCLP-Metals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE	M.A.C.	EXCDS MAC
TCLP Arsenic	< 0.05	mg/l		0.05	EPA 1311	CG	05/21/15	5.0	NO
TCLP Barium	0.4	mg/l		0.2	EPA 1311	CG	05/21/15	100	NO
TCLP Cadmium	< 0.05	mg/l		0.05	EPA 1311	CG	05/21/15	1.0	NO
TCLP Chromium	< 0.05	mg/l		0.05	EPA 1311	CG	05/21/15	5.0	NO
TCLP Lead	< 0.1	mg/l		0.10	EPA 1311	CG	05/21/15	5.0	NO
TCLP Mercury	< 0.05	mg/l		0.01	EPA 1311	CG	05/21/15	0.20	NO
TCLP Selenium	< 0.05	mg/l		0.05	EPA 1311	CG	05/21/15	1.0	NO
TCLP Silver	< 0.05	mg/l		0.05	EPA 1311	CG	05/21/15	5.0	NO

AMTEST Identification Number **15-A007290**
Client Identification **Sample 2**
Sampling Date **05/19/15, 11:30**

Total Metals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Acid Digestion	Y				SW-846 3050B	CG	05/26/15
Lead	10.2	ug/g		1.2	EPA 6010C	CG	05/27/15

AMTEST Identification Number **15-A007291**
Client Identification **Sample 3**
Sampling Date **05/19/15, 11:30**

Total Metals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Acid Digestion	Y				SW-846 3050B	CG	05/26/15
Lead	13.9	ug/g		2.1	EPA 6010C	CG	05/27/15

AMTEST Identification Number **15-A007292**
Client Identification **Sample 4**
Sampling Date **05/19/15, 11:30**

Total Metals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Acid Digestion	Y				SW-846 3050B	CG	05/26/15
Lead	9.58	ug/g		1.5	EPA 6010C	CG	05/27/15

AMTEST Identification Number **15-A007293**
Client Identification **Sample 5**
Sampling Date **05/19/15, 11:30**

Total Metals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Acid Digestion	Y				SW-846 3050B	CG	05/26/15
Lead	12.9	ug/g		1.7	EPA 6010C	CG	05/27/15

Kathy Fugiel
President

Appendix F – Sampling Quality and Procedures (QAP)

Quality Assurance Plan for Field Screening and Disposal Characterization for Petroleum Contamination

for

Washington State Department of Transportation

October 26, 2012

GeoEngineers

1101 South Fawcett Avenue, Suite 200
Tacoma, Washington 98402
253.383.4940

Quality Assurance Plan for Field Screening and Disposal Characterization for Petroleum Contamination

0180-302-00, Task 100

October 26, 2012

Prepared for:

Washington State Department of Transportation
P.O. Box 47332
Olympia, Washington

Attention: Tanya Bird

Prepared by:

GeoEngineers, Inc.
1101 South Fawcett Street, Suite 200
Tacoma, Washington
253.383.4940

Tricia S. DeOme, LG
Environmental Geologist

Michael E. Hutchinson, LG, LHG
Principal

TSD:MEH:cn

GeoEngineers

Table of Contents

LIST OF TABLES

APPENDICES

INTRODUCTION

The purpose of this document is to provide guidance for Washington State Department of Transportation (WSDOT) staff on the typical soil and water sampling methodology to characterize soil for disposal and/or reuse at petroleum-contaminated sites.

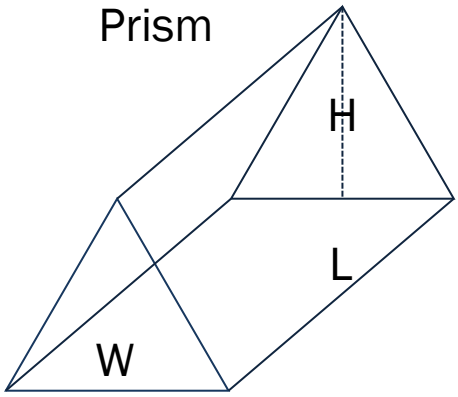
SOIL SAMPLING

Determining the Correct Number of Soil Samples

The number of samples necessary to characterize a soil pile will vary depending on site-specific conditions and the local health department or disposal site requirements. This section provides guidance for typical requirements. The hazardous materials specialist should contact the waste disposal facility prior to completing sampling to confirm sampling requirements.

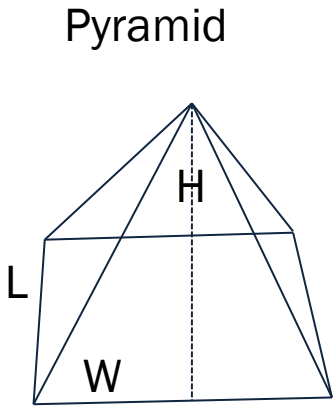
Soil Volume Calculation

The volume of soil can be calculated based on the configuration and size of the stockpile. Soil is generally stockpiled as a pyramid (point at top) or a prism (equal height across the top).



W = width
H = height
L = length

Volume of Prism = (L x W x H)/2



W = width
H = height
L = length

Volume of Pyramid = (L x W x H)/3

Number of Samples to Collect

The Washington State Department of Ecology (Ecology) provides recommendations for the number of samples to adequately characterize soil for disposal based on the volume of soil. The recommendations are summarized in Table 1.

TABLE 1. TYPICAL NUMBER OF SAMPLES TO ADEQUATELY CHARACTERIZE SOIL STOCKPILES

Cubic Yards of Soil	Number of Samples for Chemical Analysis
0 to 100	3
101 to 500	5
501 to 1,000	7
1,001 to 2,000	10
>2,000	10 + 1 for each additional 500 cubic yards

Source: https://fortress.wa.gov/ecy/publications/publications/1009057.pdf

Field Screening

Field screening results are used as a general guideline to assess areas of possible petroleum-related contamination. The field screening methods used include: 1) visual screening, 2) water sheen screening and 3) headspace vapor screening using a Photo Ionization Detector (PID) calibrated to isobutylene.

Field screening results are site specific. The effectiveness of field screening varies with temperature, moisture content, organic content, soil type and type and age of contaminant. The presence or absence of a sheen or headspace vapors does not necessarily indicate the presence or absence of petroleum hydrocarbons.

Visual

Visual screening consists of observing soil for stains indicative of petroleum-related contamination. Visual screening is generally more effective when contamination is related to heavy petroleum hydrocarbons or the hydrocarbon concentrations are high.

Sheen

Water sheen screening involves placing soil in a pan of water and observing the water surface for signs of sheen. Sheen screening may detect both volatile and nonvolatile petroleum hydrocarbons, but is more effective at detecting middle distillate (diesel) and heavy petroleum hydrocarbons. Sheens observed are classified as follows:

No Sheen (NS)	No visible sheen on the water surface.
Slight Sheen (SS)	Light, colorless, dull sheen; spread is irregular, not rapid; sheen dissipates rapidly. Natural organic matter in the soil may produce a slight sheen.
Moderate Sheen (MS)	Light to heavy sheen; may have some color/iridescence; spread is irregular to flowing, may be rapid; few remaining areas of no sheen on the water surface.
Heavy Sheen (HS)	Heavy sheen with color/iridescence; spread is rapid; entire water surface may be covered with sheen.

Note: False positive results may be generated by the presence of decaying organic matter and iron bacteria. These sheens, unlike oil sheens, can typically be broken up when agitated or disturbed.

Headspace Vapor Analysis

Headspace vapor screening targets volatile petroleum hydrocarbon compounds (gasoline). Headspace vapor screening involves placing a soil sample in a sealed container and measuring the vapors with an organic vapor detector. WSDOT typically uses a MiniRae 2000 PID for headspace vapor screening.

The process for measuring head space vapors consists of the following:

- Place approximately two cups of soil in a plastic bag.
- Seal the bag and shake the soil to volatilize the contaminants in the soil.
- Insert the probe of the instrument inside the back and measure the vapor concentration. Care should be taken to not let air escape from the bag while inserting the PID and during stabilization. The maximum PID measurement should be recorded.

CALIBRATION OF EQUIPMENT

Calibration and calibration checks facilitate accurate and reliable field measurements. At the start of the field day, the PID should be calibrated per manufacturer's instructions using isobutylene gas. The PID should be checked and recalibrated as necessary with isobutylene gas during field activities if anomalous results are occurring. The calibration instructions for the MiniRae 2000 PID are included in Appendix A. Water vapor and high humidity can suppress the response to organic vapors. If the PID is providing anomalous results and not calibrating correctly, it may assist the functioning of the equipment to place it in a running vehicle with the defrost running.

Calibration records specific to each item of equipment should be maintained. Calibration or operational checks should be documented in field or laboratory notebooks. The equipment serial number or other ID number should be included in all types of calibration records so that the calibration history can be readily followed.

Sampling Methodology

Sample Containers and Labeling

Required sample containers may be different from different laboratories. The typical containers required for petroleum-related constituents are summarized on Table 2. Confirmation of sample container requirements should be verified with the laboratory.

Soil stockpile(s) should be identified in consecutive order and describe the source of the material. An example identification system labels the first stockpile as "STK-A-Foundation-1", where STK- is stockpile and -A identifies alphabetically the consecutive order of the stockpile(s), –Foundation describes the location the soil was sourced, and -1 describes the first soil sample collected from stockpile A.

The hazardous material specialist shall keep documentation of the soil samples collected and approximate volume for future reference.

TABLE 2. TYPICAL SOIL SAMPLE CONTAINERS – ONSITE ENVIRONMENTAL, INC.

Analysis	Method	Holding Time	Containers Per One Soil Sample
Fuel Station Sites			
Gasoline Range Organics with BTEX	NWTPH-Gx/ EPA 8021B per Method 5035A	14 days	1 VOA vial (40mL)s Without stir bars, preserved with 5 mL of Methanol [1 & 2] 1 four ounce jar for dry weight
Diesel & Heavy Oil Range Organics	NWTPH-Dx	14 days	8 oz Jar
RCRA 8 or MTCA 5 Metals or Total Lead	EPA6020/7470 or EPA 6020	28 days	
Volatile Organic Compounds (includes napthalenes)	EPA 8260B	14 days	2 VOA vial (40mL)s Without stir bars, preserved with 5 mL Methanol [1 & 2] 2 VOA vial (40mL)s With stir bars, preserved with 5 mL Sodium bisulfate [1 & 2] 1 four ounce jar for dry weight[3]
Semi Volatile Organic Compounds (includes PAHs and naphthalenes) [3]	EPA8270 / SIM	14 days	
PCBs	EPA 8082	None	8 oz Jar
David Baumeister/dbaumeister@onsite-env.com/(425)883-3881			
Overnight Mail to: OnSite Environmental, Inc., 14648 NE 95th Street, Redmond, WA 98052			

Notes:

[1] Methanol preserved VOAs should not be stored longer than 6 months. Its good practice to recycle them every three months because eventually the preservative evaporates (depending on how they are stored) which can lead to results with higher concentrations. Samples do not have to be preserved with methanol if samples are submitted to the lab within 48 hours. However, we prefer to use methanol in order to extend the holding time from 48 hours to 14 days to allow for overnight mailing and/or extended field work.

[2] For 5 milliliters of methanol, collect 5 grams of soil. It is not critical to be 100% accurate, but it is preferred for soil to be at least 5 grams. Less than 4.5 grams or too greater than 6 grams soil can present issues during chemical analysis. The EPA Method 5035 sampling handle and syringe ensures that the proper amount of soil is collected.

[3] The 4 oz jar is necessary for dry weight analysis.

Sample Collection

The stockpile should be divided into equal sections based on the number of samples to be collected. Soil samples should be collected from the stockpiles at a frequency as described above or as specified by the potential end use disposal facility. Three-point composite grab samples should be collected with hand tools 6 to 12 inches beneath the surface of the stockpile. The material should be collected using a clean, stainless steel spoon/trowel or directly using a clean, gloved hand and placed in a clean stainless steel bowl or plastic bag. The samples should be placed in pre-cleaned, previously unused sample jars supplied by a subcontracted laboratory after the soil has been homogenized. The samples should be placed in a cooler on ice for transport to the laboratory.

SW-846 METHOD 5035A

The EPA document "Test Methods for Evaluating Solid Waste, SW-846," describes a closed-system purge-and-trap process for the collection, preparation and analysis of volatile organic compounds (VOCs) including gasoline-range petroleum hydrocarbon in soils, sediments, and solid waste. This closed-system purge-and-trap process is known as Method 5035A

Method 5035A provides details regarding the three options available for sample collection. Each option requires different sample containers and volume of soil. The individual laboratory may prefer a specific option. The WSDOT hazardous material specialist should coordinate with the individual laboratory to evaluate the preferred method for each site. The options are as follows:

- Option 1 - Lab Preservation

  Sample collection will require the following:

  - Two pre-weighed vials containing a small magnetic stir bar for low level analysis.
  - One pre-weighed vial for medium-high level analysis.
  - One 4-ounce jar for percent total solids determination.
  - Filled vials need to be frozen to between –7°C and –20°C within 48 hours of sample collection. Store samples at 4°C prior to initiating freezing.

- Option 2 – Field Preservation

  Sample collection and preservation in the field will require the following:

  - Two sodium bisulfate preserved, pre-weighed vials for low level analysis.
  - One methanol preserved, pre-weighed vial for medium level analysis.
  - One 4-ounce jar for percent total solids determination.
  - Methanol is flammable. If samples will be shipped to the laboratory via couriers such as, UPS or Federal Express, DOT labeling requirements must be met. Contact the lab for additional information concerning labeling requirements.

- Option 3 – EncoreTM Samplers

  Sample collection using EnCoreTM samplers will require:

  - Two EnCoreTM 5g samplers for low level analysis.

    One1 EnCoreTM 5g sampler for medium level analysis.
  - One 4-ounce jar for percent total solids determination.
  - T-handle for sampling.

WATER SAMPLING

Sampling Frequency

Water samples are typically collected from the first batch of water generated from a single location (i.e., foundation or trench). Additional water samples are typically not necessary unless conditions change or if required by the disposal facility.

Sampling Methodology

Sample Containers and Labeling

Required sample containers may be different from different laboratories. The typical containers required for petroleum-related constituents are summarized on Table 3. Confirmation of sample container requirements should be verified with the laboratory.

Water tanks should be identified in consecutive order and describe the source of the material. An example identification system labels the first tank as "W-A-Foundation", where W is for water and -A identifies alphabetically the consecutive order of the tank(s) and –Foundation describes the location the water was sourced.

The hazardous material specialist shall keep documentation of the water samples collected and approximate volume for future reference.

TABLE 3. TYPICAL WATER SAMPLE CONTAINERS – ONSITE ENVIRONMENTAL, INC.

Analysis	Method	Holding Time	Containers Per One Water Sample
Fuel Station Sites			
Gasoline Range Organics with BTEX	NWTPH-Gx/ EPA 8021B	14 days	3 VOA vials (40mLs) HCL preserved
Diesel & Heavy Oil Range Organics	NWTPH-Dx	14 days	2 (0.5L Amber glass) with HCl
RCRA 8 or MTCA 5 Meals or Total Lead	EPA6020/7470 or EPA 6010	28 days = Mercury 6 months = other metals	Total Metals - 1 HDPE (0.5L poly) preserved with HNO3 and not filtered in the field Dissolved Metals - Field Filtered - 1 HDPE (0.5L poly) preserved with HNO3 Not field filtered - 1 HDPE (0.5L poly)
Volatile Organic Compounds	EPA 8260B	14 days	5 VOA vials (40mL)s HCL preserved
Semi Volatile Organic Compounds (includes PAHs and naphthalenes)	EPA8270 / SIM	7 days	2 (1L Amber glass) unpreserved
PCBs	EPA 8082	none	2 (1L Amber glass) unpreserved
[2] VOA containers should be filled carefully to minimize turbulence and aeration, and must be absolutely free of bubbles, with no headspace. Do not to overfill the container and loose preservative. Maintain in a cooler at 4o C for the duration of the sampling and transportation period.			
David Baumeister/dbaumeister@onsite-env.com/(425)883-3881			
Overnight Mail to: OnSite Environmental, Inc., 14648 NE 95th Street, Redmond, WA 98052			

Sample Collection

Water will likely be captured and stored in temporary storage tanks or other portable containment structures. A sample should be collected from a discharge port on the tank or from within the tank or containment structure using a bailer. The bailers should be dropped to within 1 foot of the bottom of the tank.

The samples should be placed in pre-cleaned, previously unused sample containers supplied by a subcontracted laboratory. The samples should be labeled and placed in a cooler on ice for transport to the laboratory. Sample handling should follow appropriate chain-of-custody (COC) procedures from sample collection through analysis.

VOCs/Gasoline-Range Petroleum Hydrocarbons

Water samples for VOCs and gasoline-range petroleum hydrocarbons are typically collected into 40-milliliter glass vials with a preservative. The following procedure should be followed for collecting volatile water samples to prevent the loss of VOCs.

- Open sample vial. Tip the vial slightly so that the water flows down the sidewall of the container.
- Bring vial to an upright position as it fills. Fill just to the point of overflowing; there should be a "reverse" meniscus, or a small dome of water just above the top of the bottle.
- Seal the vial so that no air bubbles are trapped. Make sure the Teflon side of the liner is in contact with the water. The Teflon side appears more white and shiny than the backside of the liner.
- Turn the vial upside down and gently tap the cap on a solid surface. If any bubbles are evident, open the vial and add few more drops of water. If bubbles are still evident, dispose of the vial and start the process again with a new clean bottle.

CHEMICAL ANALYSIS

The soil and water samples should be submitted for chemical analysis based on the chemicals of concern identified from previous historical and subsurface investigations. Table 4 describes typical petroleum related sources and chemical analysis required under MTCA rule Table 830-1. The chemical analysis shown in Table 4 is intended to cover the requirements for disposal at RCRA Subtitle D landfill, inert waste pit site or reuse on the project. Initial analysis may be required for disposal at a RCRA Subtitle D landfill if total concentrations exceed the values shown in Table 5. If the source of the potential contamination is unknown, the WSDOT hazardous materials specialist should coordinate with disposal facility to evaluate chemical analysis required for disposal. Ecology guidance regarding reuse of petroleum-impacted soil is included in Appendix B.

TABLE 4

CATEGORIES OF PETROLEUM PRODUCTS AND TYPICAL CHEMICAL ANALYSIS REQUIRED FOR DISPOSAL

QUALITY ASSURANCE PLAN FOR FIELD SCREENING AND DISPOSAL CHARACTERIZATION FOR PETROLEUM CONTAMINATION

	NWTPH-GXx	NWTPH-Dx	VOCs by EPA Method 8260 or 8021							PAHs by EPA Method 8270 Sim	Metals by EPA Method 6000/7000 Series		EPA Method 8082	Chemical Specific
Categories of Petroleum Products	Gasoline-Range Petroleum Hydrocarbons	Diesel- and Oil-Range Petroleum Hydrocarbons	BTEX	MTBE	EDB	EDC	Naphthalenes	HVOCS	Other Fuel Additives and Blending Compounds [1]	cPAHs	Lead[2]	Cadmium, Chromium, Nickel and Zinc	PCBs	Other Site Contaminants
Gasoline-Range Petroleum Hydrocarbons Automotive Gasoline Aviation Gasoline Automotive Racing Fuel Mineral Spirits Naptha Stoddard Solvents	X		X	X	X	X	X				X			X
Middle Distillates/Diesel-Range Petroleum Hydrocarbons Diesel No. 1 Kerosene Diesel No. 2 Diesel and Biodiesel Mixtures Home Heating Oil Jet Fuel Light Oil		X	X				X							X
Heavy Oil-Range Petroleum Hydrocarbons Bunker C No. 4 Fuel Oil No. 5 Fuel Oil No. 6 Fuel Oil Products included under waste oil prior to use		X	X				X			X			X	X
Mineral Oil (Subset of Heavy Oil That is Highly Refined) Insulating Oil		X											X	X
Waste Oil Engine Lubricating Oil Hydraulic Fluid Industrial Process Oils Metalworking Oils and Lubricants Refrigeration/Compressor Oil Transmission/Differential Oil	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Preferred Practical Quantitation Limit (mg/kg)	5	25	0.005 for each isomer	0.001	0.001	0.001	0.5 for each naphthalene	0.005 for each VOC	0.02	0.05 for each cPAH	0.1	0.1, 0.5, 0.1, 5 respectively	0.04	Chemical Specific

Note:

[1] Other fuel additives and blending compounds consist of Tertiary-butyl alcohol (TBA), tertiary-amyl methyl ether (TAME), ethyl tertieary-butyl ether (ETBE), methanol and ethanol.

[2] Only lead is required by Ecology MTCA rule, however the disposal facility will likely require RCRA Metals (arsenic, barium, cadmium, chromium, lead, mercury, silver and selenium) and follow-up TCLP if the total concentration is 20 times the WAC 173-303-100 Dangerous Waste Regulation Maximum Concentration of Contaminants for the Toxicity Characteristic.

VOCs = Volatile Organic Compounds
BTEX = Benzene, Toulene, Ethylbenzene, Xylenes
MTBE = Methyl tert-butyl ether
EDB = 1,2-Dibromoethane
EDC = 1,2-dichloroethane
HVOCs = Halogenated Volatile Organic Compounds
PAHs = Polycyclic Aromatic Hydrocarbons
cPAHs = carcinogenic Polycyclic Aromatic Hydrocarbons
PCBS = Polychlorinated Bienphyls
MTCA = Model Toxics Control Act
TCLP = Toxicity Characteristic Leaching Procedure
RCRA = Resource Conservation and Recovery Act
EPA = Environmental Protection Agency

TABLE 5. GUIDELINES FOR ANALYTICAL METHODS AND MAXIMUM ALLOWABLE LEVELS

Apr 22 2004 8:58AM HP LASERJET 3200 p.2

GUIDELINES FOR ANALYTICAL METHODS AND MAXIMUM ALLOWABLE LEVELS

PARAMETER	WASTE CODE	MAX. ALLOWABLE LEVELS		ANALYTICAL METHODS**
		TCLP (mg/L)	TOTAL* (mg/kg)	
TCLP METALS				
Arsenic	D004	<5.0	100	SW-846-1311/SW-846-6010
Barium	D005	<100.00	2000	SW-846-1311/SW-846-6010
Cadmium	D006	<1.0	20	SW-846-1311/SW-846-6010
Chromium	D007	<5.0	100	SW-846-1311/SW-846-6010
Lead	D008	<5.0	100	SW-846-1311/SW-846-6010
Mercury	D009	<0.2	4	SW-846-1311/SW-846-7470
Selenium	D010	<1.0	20	SW-846-1311/SW-846-7740
Silver	D011	<5.0	100	SW-846-1311/SW-846-6010
TCLP VOLATILES				
Benzene	D018	<0.5	10	SW-846-1311/SW-846-8260
Carbon Tetrachloride	D019	<0.5	10	SW-846-1311/SW-846-8260
Chlorobenzene	D021	<100.0	2000	SW-846-1311/SW-846-8260
Chloroform	D022	<6.0	120	SW-846-1311/SW-846-8260
1,2-Dichloroethane	D028	<0.5	10	SW-846-1311/SW-846-8260
1,1-Dichloroethylene	D029	<0.7	14	SW-846-1311/SW-846-8260
Methyl Ethyl Ketone	D035	<200.0	4000	SW-846-1311/SW-846-8260
Tetrachloroethylene	D039	<0.7	14	SW-846-1311/SW-846-8260
Trichloroethylene	D040	<0.5	10	SW-846-1311/SW-846-8260
Vinyl Chloride	D043	<0.2	4	SW-846-1311/SW-846-8260
TCLP SEMI-VOLATILES (Base Neutrals)				
1,4 Dichlorobenzene	D027	<7.5	150	SW-846-1311/SW-846-8270
Hexachlorobenzene	D032	<0.13	2.6	SW-846-1311/SW-846-8270
Hexachlorobutadiene	D033	<0.5	10	SW-846-1311/SW-846-8270
Hexachloroethane	D034	<3.0	60	SW-846-1311/SW-846-8270
Nitrobenzene	D036	<2.0	40	SW-846-1311/SW-846-8270
Pyridine	D038	<5.0	100	SW-846-1311/SW-846-8270
2,4-Dinitrotoluene	D030	<0.13	2.6	SW-846-1311/SW-846-8270
TCLP SEMI-VOLATILES (Acid Compounds)				
o-Cresol	D023	<200.0	4000	SW-846-1311/SW-846-8270
m-Cresol	D024	<200.0	4000	SW-846-1311/SW-846-8270
p-Cresol	D025	<200.0	4000	SW-846-1311/SW-846-8270
Cresol, Total	D026	<200.0	4000	SW-846-1311/SW-846-8270
Pentachlorophenol	D037	<100.0	2000	SW-846-1311/SW-846-8270
2,4,5-Trichlorophenol	D041	<400.0	8000	SW-846-1311/SW-846-8270
2,4,6-Trichlorophenol	D042	<2.0	40	SW-846-1311/SW-846-8270
TCLP HERBICIDES				
2,4-D	D016	<10.0	200	SW-846-1311/SW-846-8080
2,4,5-TP (Silvex)	D017	<1.0	20	SW-846-1311/SW-846-8080
TCLP PESTICIDES				
Chlorodane	D020	<0.03	0.6	SW-846-1311/SW-846-8080
Endrin	D012	<0.02	0.4	SW-846-1311/SW-846-8080
Heptachlor	D031	<0.008	0.16	SW-846-1311/SW-846-8080
Lindane	D013	<0.4	8	SW-846-1311/SW-846-8080
Methyoxychlor	D014	<10.0	200	SW-846-1311/SW-846-8080
Toxaphene	D015	<0.5	10	SW-846-1311/SW-846/8080
GENERAL				
pH	D002	2.0 < x <12.5		SW-846-9045
Ignitability (Liquids Only)	D001	>140°F (60° C)		SW-846-C7
Free Liquids		NO FREE LIQUIDS		SW-846-9095
PCB's		<50 mg/kg or ppm		SW-846-8080
TPH		Varies by landfill		SW-846-8015, EPA 418.1 API-(GC/FID), ASTM-D3987-85/SW-846-

* If the TOTAL results are greater than 20 times the TCLP levels, than TCLP must be performed.
** These analytical methods are only suggested methods, other methods may be utilized.

55

Provided by Allied Waste

QUALITY CONTROL AND QUALITY ASSURANCE SAMPLE STORAGE

Data Quality Objectives

The quality assurance objective for technical data is to collect environmental monitoring data of known, acceptable and documentable quality. The QA objectives established for the project are:

- Implement the procedures outlined herein for field sampling, sample custody, equipment operation and calibration, laboratory analysis, and data reporting that will facilitate consistency and thoroughness of data generated.
- Achieve the acceptable level of confidence and quality required so that data generated are scientifically valid and of known and documented quality. This will be performed by establishing criteria for precision, accuracy, representativeness, completeness and comparability, and by testing data against these criteria.

The sampling design, field procedures, laboratory procedures, and quality control (QC) procedures are set up to provide high-quality data. Specific data quality factors that may affect data usability include quantitative factors (detection limits, precision, and accuracy) and qualitative factors (comparability). The measurement quality objectives (MQO) associated with the data quality factors are discussed below.

Detection Limits

Analytical methods have quantitative limitations at a given statistical level of confidence that are often expressed as the method detection limit (MDL). Although results reported near the MDL provide insight to site conditions, quality assurance dictates that analytical methods achieve a consistently reliable level of detection known as the practical quantitation limit (PQL), which is typically demonstrated with the lowest point of a linear calibration. The contract laboratory will provide numerical results for all analytes and report them as detected above the PQL or undetected at the PQL.

The PQL for the target analytes are presented in Table 4 for soil. These reporting limits were obtained from Ecology's Guidance for Remediation of Petroleum Contaminated Sites (Publication No. 10-09-057). The PQLs in Table 4 that are considered target reporting limits (TRLs) because several factors may influence final reporting limits. First, moisture and other physical conditions of soil affect detection limits. Second, analytical procedures may require sample dilutions or other practices to accurately quantify a particular analyte at concentrations above the range of the instrument. The effect is that other analytes could be reported as undetected but at a value higher than a specified TRL. Data users must be aware that high non-detect values, although correctly reported, can bias statistical summaries and careful interpretation is required to correctly characterize site conditions.

Precision

Precision is the measure of mutual agreement among replicate or duplicate measurements of an analyte from the same sample and applies to field duplicate or split samples, replicate analyses, and duplicate spiked environmental samples (matrix spike duplicates). The closer the measured values are to each other, the more precise the measurement process. Precision error may affect data usefulness. Good precision is indicative of relative consistency and comparability between

different samples. Precision will be expressed as the relative percent difference (RPD) for spike sample comparisons of various matrices and field duplicate comparisons.

This value is calculated by:

$$RPD\ (\%) = \frac{|D_1 - D_2|}{(D_1 + D_2)/2}\ X\ 100,$$

Where:

D_1 = Concentration of analyte in sample.

D_2 = Concentration of analyte in duplicate sample.

The calculation applies to split samples, replicate analyses, duplicate spiked environmental samples (matrix spike duplicates) and laboratory control duplicates. The RPD will be calculated for samples and compared to the applicable criteria. Precision can also be expressed as the percent difference (%D) between replicate analyses. Persons performing the evaluation must review the pertinent document (USEPA, 2004) that addresses criteria exceedances and courses of action. Project RPD goals for all analyses are 35 percent for water samples and 50 percent for soil samples, unless the primary and duplicate sample results are less than five times the MRL, in which case RPD goals will not apply for data quality assessment purposes.

Accuracy

Accuracy is a measure of bias in the analytic process. The closer the measurement value is to the true value, the greater the accuracy. This measure is defined as the difference between the reported values versus the actual value and is often measured with the addition of a known compound to a sample. The amount of known compound reported in the sample, or percent recovery, assists in determining the performance of the analytical system in correctly quantifying the compounds of interest. Since most environmental data collected represent one point spatially and temporally rather than an average of values, accuracy plays a greater role than precision in assessing the results. In general, if the percent recovery is low, non-detect results may indicate that compounds of interest are not present when in fact these compounds are present. Detected compounds may be biased low or reported at a value less than actual environmental conditions. The reverse is true when recoveries are high. Non-detect values are considered accurate while detected results may be higher than the true value.

For most accuracy will be expressed as the percent recovery of a known surrogate spike, matrix spike, or laboratory control sample (blank spike), concentration:

$$Recovery\ (\%) = \frac{Spiked\ Result - Unspiked\ Result}{Known\ Spike\ Concentration}\ X\ 100$$

Persons performing the evaluation must review the pertinent document (USEPA, 2004) that addresses criteria exceedances and courses of action.

Comparability

Comparability expresses the confidence with which one set of data can be compared to another. Although numeric goals do not exist for comparability, a statement on comparability will be prepared to determine overall usefulness of data sets, following the determination of both precision and accuracy.

Holding Times

Holding times are defined as the time between sample collection and extraction, sample collection and analysis, or sample extraction and analysis. Some analytical methods specify a holding time for analysis only. For many methods, holding times may be extended by sample preservation techniques in the field. If a sample exceeds a holding time, then the results may be biased low. Holding times are presented in Table 4.

Sample Handling and Custody

Sample Storage

Individual samples should be placed in a cooler with "blue ice" or double-bagged "wet ice" immediately after they are collected. The objective of the cold storage should be to attain a sample temperature of 4 degrees Celsius. Holding times should be observed during sample storage.

Sample Shipment

The samples should be transported and delivered to the analytical laboratory in coolers. Field personnel should transport and hand-deliver samples to the laboratory or to a laboratory courier for analysis.

Chain-Of-Custody Records

Field personnel are responsible for the security of samples from the time the samples are collected until the samples have been received by the laboratory or courier. A COC form should be completed at the end of the field day for samples being shipped to the laboratory. Information to be included on the COC form includes:

- Project name and number.
- Sample identification numbers.
- Date and time of sampling.
- Sample matrix and number of containers from each sampling point, including preservatives used.
- Analyses to be performed or samples to be archived.
- Names of sampling personnel and transfer of custody acknowledgment spaces.

Field personnel shall retain carbon copies and place the original and remaining copies in a plastic bag, placed within the cooler or taped to the inside lid of the cooler before sealing the container for transport. This record should accompany the samples during transit by the field team member or courier to the laboratory.

Laboratory Custody Procedures

The laboratory should follow their standard operating procedures (SOPs) to document sample handling from time of receipt (sample log-in) to reporting. Documentation should include at a minimum, the analysts name or initial, and the time and date of analysis.

Field Documentation

Field documentation provides important information about potential problems or special circumstances surrounding sample collection. Field personnel should maintain daily field logs while on site. Entries in the field logs and associated sample documentation forms should be made in waterproof ink on Rite-in-the-Rain paper, or waterproof ink on standard paper. Corrections should consist of line-out deletions that are initialed and dated. Individual logs should become part of the project files.

At a minimum, the following information should be recorded during the collection of each sample:

1. Sample location and description
2. Sampler's name(s)
3. Date and time of sample collection
4. Type of sample
5. Type of sampling equipment used
6. Field instrument readings as appropriate
7. Field observations and details that are pertinent to the integrity/condition of the samples (e.g., weather conditions, performance of the sampling equipment, sample depth control, etc.)
8. Sample preservation

In addition to the sampling information, the following specific information also should be recorded in the field log for each day of sampling:

9. Names of team members
10. Time of Property arrival/departure
11. Other personnel present at the Property as appropriate
12. Summary of pertinent meetings or discussions with regulatory agency
13. Deviations from sampling plans, site safety plans and QAPP procedures
14. Changes in personnel and responsibilities with reasons for the changes
15. Levels of safety protection
16. Calibration readings for any equipment used and equipment model and serial number

Photographs

All photographs taken of field activities will be documented with the following information noted in the field notebook:

- Date, time and location of photograph taken;
- Description of photograph taken;
- Reasons photograph was taken;
- Sequential number of the photograph and the film roll number (if film is used); and
- Viewing direction.

Digital photographs will be reviewed in the field using the camera view screen to assess photographic quality and the need to retake the photograph.

SAMPLING EQUIPMENT DECONTAMINATION

Reusable sampling equipment (stainless steel bowls, etc.) that comes in contact with soil should be decontaminated before each use. Decontamination procedures for this equipment should consist of the following: 1) wash with non-phosphate detergent solution (Alconox and distilled water), 2) rinse with distilled water, and 3) second distilled water rinse. Field personnel should limit cross-contamination by changing gloves between sampling events or more frequently as needed. Wash water used to decontaminate the sampling equipment is expected to be de minimis and shall be disposed of onto the soil/water that is being characterized for disposal.

SPECIAL TRAINING AND CERTIFICATION

All personnel conducting sampling activities must have successfully completed the required Occupational Safety and Health Administration (OSHA) 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training program per 29 Code of Federal Regulations (CFR) 1910.120. Additionally, these individuals must have completed an annual eight-hour refresher training within the previous year.

Prior to starting field activities, all personnel working should be briefed on potential site hazards, health and safety procedures, and sampling procedures. After completion of this training, all personnel will be required to sign an acknowledgement form verifying that they have completed the task-specific training.

REFERENCES

U.S. Environmental Protection Agency (USEPA), "Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, OSWER 9240.1-45, EPA 540-R-04-004." October 2004.

Washington State Department of Ecology (Ecology), "Guidance for Remediation of Petroleum Contaminated Sites, Publication 10-09-057" dated September 2011.

Washington State Department of Ecology (Ecology), "Implementation Memorandum, #5, Collecting and Preparing Samples for VOC Analysis, Publication 04-09-087," dated June 2004.

APPENDIX A
MiniRae 2000 PID Manual

BOX 2

MiniRAE 2000

Portable VOC Monitor
PGM-7600

OPERATION AND MAINTENANCE MANUAL

(Document No.: 011-4001)
Revision D, June 2004

RAE SYSTEMS

ISO 9001 CERTIFIED

4.4 Calibrate and Select Gas

WARNINGS

The calibration of all newly purchased RAE Systems instruments should be tested by exposing the sensor(s) to known concentration calibration gas before the instrument is put into service for the first time.

For maximum safety, the accuracy of the MiniRAE 2000 should be checked by exposing it to known concentration calibration gas before each day's use.

In the first menu of the programming mode, the user can perform functions such as calibration of the MiniRAE 2000 Monitor, select default cal memories, and modify cal memories.

Calibrate/Select Gas Sub-Menu

Fresh Air Cal?

Span Cal?

Select Cal Memory?

Change Span Value?

Modify Cal Memory?

Change Correction Factor?

Calibrating the MiniRAE 2000 monitor is a two-point process using "fresh air " and the standard reference gas (also known as span gas). First a "Fresh air" calibration, which contains no detectable VOC (0.0 ppm), is used to set the zero point for the sensor. Then a standard reference gas that contains a known concentration of a given gas is used to set the second point of reference.

Note: The span value must be set prior to calibrating for fresh air or span.

The user can store calibrations for up to 8 different measurement gases. The default gas selections are as follows:

Cal Memory #0.....Isobutylene

Cal Memory #1.....Hexane

Cal Memory #2.....Xylene

Cal Memory #3.....Benzene

Cal Memory #4.....Styrene

Cal Memory #5.....Toluene

Cal Memory #6.....Vinyl Chloride

Cal Memory #7.....Custom?

Memory #0 functions differently than the other 7 memories. For Memory #0, isobutylene is always the calibration gas. When the gas is changed in Memory #0 to one of 100 other preprogrammed chemicals or to a user-defined custom gas, a correction factor is applied to all the readings. During calibration, the unit requests isobutylene gas and displays the isobutylene concentration immediately following calibration, but when the unit is returned to the normal reading mode, it displays the selected gas and applies the correction factor.

The other 7 cal memories require the same calibration gas as the measurement gas. These memories may also be modified to a preprogrammed chemical or to a user-defined custom gas. In the gas library, only the gases that can be detected by the installed UV lamp will actually be displayed. Note that although the correction factor for the new gas will be displayed and can be modified, this factor is not applied when Memories #1-7 are used. Therefore the factor will not affect the readings in these memories.

Once each of the memories has been calibrated, the user can switch between the calibrated gases by changing the cal memory without the need to recalibrate. Or the user can switch the measurement gas in Memory #0 and the appropriate correction factor will automatically be applied without the need to recalibrate. If the gas is changed in Memories #1-7, it is necessary to recalibrate.

To change a default gas from the list above to a library or custom gas, first go to Select Cal Memory (Section 4.4.3) and then proceed to Modify Cal Memory (Section 4.4.5) to enter the desired gas. If the desired compound does not appear in the preprogrammed library, the user can use the Custom_VOC entry in the library, or the name and correction factor of any of the existing compounds can be changed as described in Section 4.4.5. A list of some 300 correction factors is given in Technical Note 106, available at the website www.raesystems.com.

4.4.1 Fresh Air Calibration

This procedure determines the zero point of the sensor calibration curve. To perform a fresh air calibration, use the calibration adapter to connect the MiniRAE 2000 to a "fresh" air source such as from a cylinder or Tedlar bag (option accessory). The "fresh" air is clean dry air without any organic impurities. If such an air cylinder is not available, any clean ambient air without detectable contaminant or a charcoal filter can be used.

1. The first sub-menu shows: "Fresh air Cal?"
2. Make sure that the MiniRAE 2000 is connected to one of the "fresh" air sources described above.
3. Press the **[Y/+]** key, the display shows "zero in progress" followed by "wait.." and a countdown timer.

After about 15 seconds pause, the display will show the message "update data...zeroed... reading = X.X ppm..." Press any key or wait about 20 seconds, the monitor will return back to "Fresh air Calibration?" submenu.

4.4.2 Span Calibration

This procedure determines the second point of the sensor calibration curve for the sensor. A cylinder of standard reference gas (span gas) fitted with a 500 cc/min. flow-limiting regulator or a flow-matching regulator is the simplest way to perform this procedure. Choose the 500 cc/min. regulator only if the flow rate matches or slightly exceeds the flow rate of the instrument pump. Alternatively, the span gas can first be filled into a Tedlar Bag, or delivered through a demand-flow regulator. Connect the calibration adapter to the inlet port of the MiniRAE 2000 Monitor, and connect the tubing to the regulator or Tedlar bag.

Another alternative is to use a regulator with >500 cc/min flow but allow the excess flow to escape through a T or an open tube. In the latter method, the span gas flows out through an open tube slightly wider than the probe, and the probe is inserted into the calibration tube.

Before executing a span calibration, make sure the span value has been set correctly (see next sub-menu).

1. Make sure the monitor is connected to one of the span gas sources described above.
2. Press the **[Y/+]** key at the "Span Cal?" to start the calibration. The display shows the gas name and the span value of the corresponding gas.
3. The display shows "Apply gas now!" Turn on the valve of the span gas supply.

4. Display shows "wait.... 30" with a count down timer showing the number of remaining seconds while the monitor performs the calibration.
5. To abort the calibration, press any key during the count down. The display shows "Aborted!" and return to "Span Cal?" sub-menu.
6. When the count down timer reaches 0, the display shows the calibrated value.

   Note: The reading should be very close to the span gas value.
7. During calibration, the monitor waits for an increased signal before starting the countdown timer. If a minimal response is not obtained after 35 seconds, the monitor displays "No Gas!" Check the span gas valve is on and for lamp or sensor failure before trying again.
8. The calibration can be started manually by pressing any key while the "Apply gas now!" is displayed.
9. After a span calibration is completed, the display will show the message "Update Data Span Cal Done! Turn Off Gas."
10. Turn off the flow of gas. Disconnect the calibration adapter or Tedlar bag from the MiniRAE 2000 Monitor.
11. Press any key and it returns back to "Span Gas Cal?"

4.4.3 Select Cal Memory

This function allows the user to select one of eight different memories for gas calibration and measurement. For Memories #1-7, the calibration and measurement gas is the same and no correction factor is applied. For Memory #0, the calibration gas is always isobutylene and the measurement gas may be different, in which case the correction factor for that gas is automatically applied. The default gas selections are listed in Section 4.4

1. "Select Cal Memory?" is the third sub-menu item in the Calibration sub-menu. Pressing the **[Y/+]** key, the display will show "Gas =" gas name followed by "Mem # x?"
2. Press **[N/-]** to scroll through all the memory numbers and the gas selections respectively. Press **[Y/+]** to accept the displayed Cal Memory number.
3. After the **[Y/+]** key is pressed, the display shows "Save?" Press **[Y/+]** key to save and proceed. Press **[N/-]** to discard the entry and advance to the next sub-menu.
4. If the gas in a newly selected Cal Memory number is not calibrated, the display shows "CF= x.xx". A correction factor with the value "x.xx" will be applied.
5. If the gas of a newly selected cal memory number has been calibrated previously, the display shows "Last calibrated xx/xx/xx".

1. GENERAL INFORMATION

MiniRAE 2000 Portable VOC Monitor (Model PGM 7600) is a compact monitor designed as a broadband VOC gas monitor and datalogger for work in hazardous environments. It monitors Volatile Organic Compounds (VOC) using a Photo-Ionization Detector (PID) with a 9.8 eV, 10.6 eV, or 11.7 eV gas discharge lamp. Features are:

- **Lightweight and Compact**
  -Compact, light weight (19 oz.) and rugged design
  -Built-in sample draw pump

- **Dependable and Accurate**
  - Up to 10 hours of continuous monitoring with rechargeable battery pack
  - Designed to continuously monitor VOC vapor at ppm levels

- **User Friendly**
  -Preset alarm thresholds for STEL, TWA, low and high level peak values. Audio buzzer and flashing LED display are activated when the limits are exceeded.

- **Datalogging Capabilities**
  -15,000 point datalogging storage capacity for data download to PC

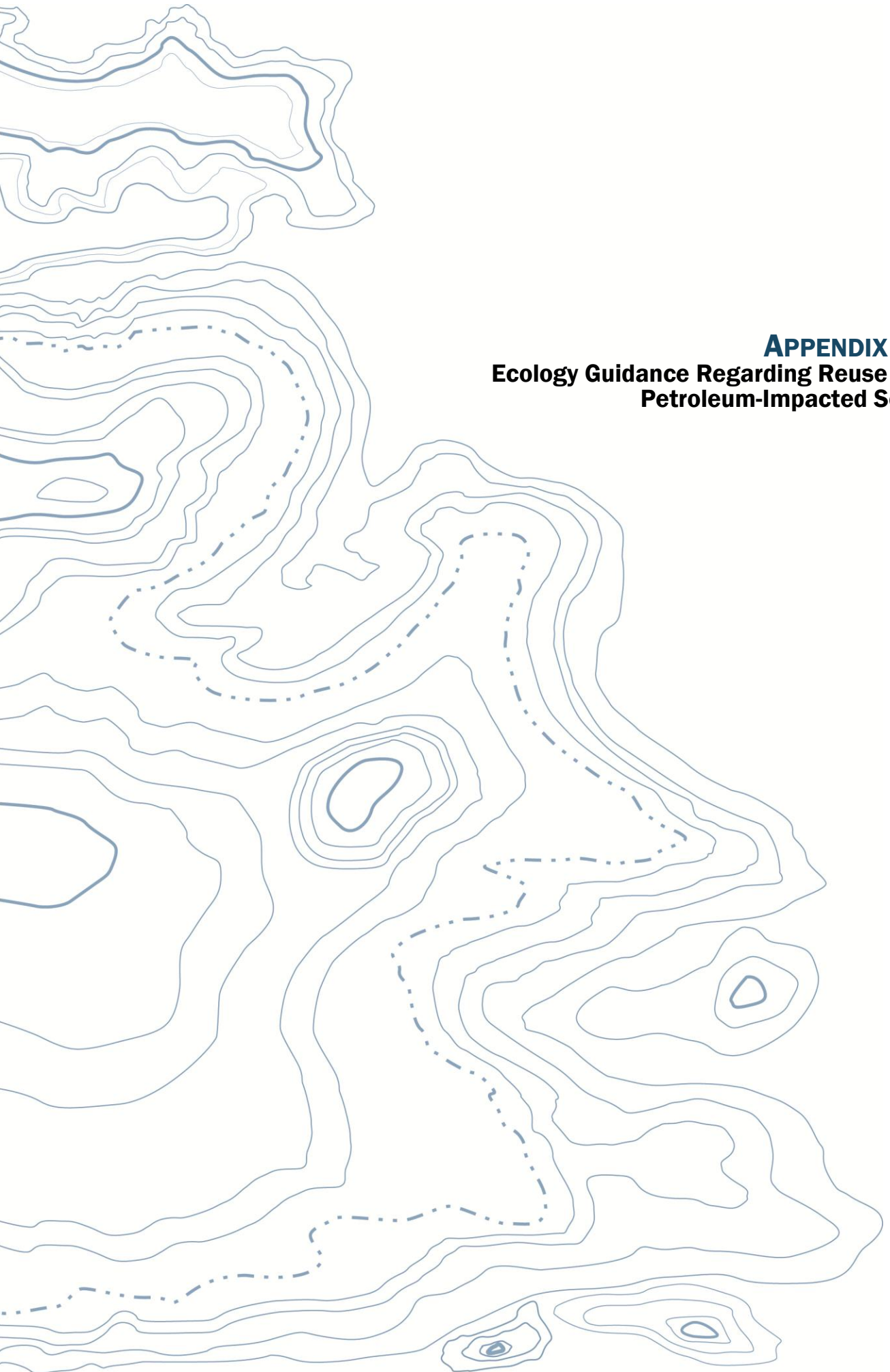
MiniRAE 2000 consists of a PID with associated microcomputer and electronic circuit. The unit is housed in a rugged ABS + PC case with a backlit 1 line by 8 character dot matrix LCD and 3 keys to provide easy user interface.

1.1 General Specifications

Table 1.1

Portable VOC Monitor Specification	
Size:	8.2"L x 3.0"W x 2.0"H
Weight:	19.5 oz with battery pack
Detector:	Photo-ionization sensor with 9.8, 10.6, or 11.7 eV UV lamp
Battery:	A 4.8V /1250 mAH Rechargeable Nickel Metal Hydride battery pack (snap in, field replaceable)
Battery Charging:	10 hours charge through built-in charger
Operating Hours:	Up to10 hours continuous operation
Display:	1 line by 8 characters 5x7 dot matrix LCD (0.4" character height) with LED back light automatically in dim light
Range, Resolution & Response time (t_{90}):	
Isobutylene (calibration gas)	
	0-99 ppm 0.1 ppm 2 sec
	100-1,999 ppm 1.0 ppm 2 sec
	2000-10,000 ppm 1.0 ppm 2 sec
Measurement Accuracy (Isobutylene):	
	0 – 2000 ppm: ± 2 ppm or 10% of reading.
	> 2000 ppm: ± 20% of reading
PID Detector:	Easy access to lamp and sensor for cleaning and replacement
Correction Factors:	Built-in 102 VOC gases
Calibration:	Two-point field calibration of zero and standard reference gas
Calibration Memory:	
	Store up to 8 separate calibration, alarm limits and span value
Inlet Probe:	Flexible 5" tubing
Keypad:	1 operation key and 2 programming keys

Direct Readout:	Instantaneous, average, STEL and peak value, battery voltage and elapsed time
Intrinsic Safety:	UL & cUL Class 1, Division I, Group A,B,C,D, Temperature Code T3C (US & Canada); CE 0575 Ex II 1G DEMKO 02 ATEX 0204759 Eex ia IIC T4 (Europe)
EM Interference:	No effect when exposed to 0.43 W/cm^2 RF interference (5 watt transmitter at 12 inches)
Alarm Setting:	Separate alarm limit settings for Low, High, STEL and TWA alarm
Operating Mode:	Survey or Hygiene mode
Alarm:	90 dB buzzer and flashing red LEDs to indicate exceeded preset limits, low battery voltage, or sensor failure.
External Alarm:	Optional plug-in pen-size vibration alarm or remote alarm
Alarm Mode:	Latching or automatic reset
Real-time Clock:	Automatic date and time stamps on data logged information
Datalogging:	15,000 points with time stamp, serial number, user ID, site ID, etc.
Communication:	Upload data to PC and download instrument setup from PC through RS-232 port
Sampling Pump:	Internally integrated. Flow rate: 450-550 cc/min.
Temperature:	0° to 45°C (32° to 113°F)
Humidity:	0 % to 95 % relative humidity (non-condensing)
Housing:	ABS + PC, conductive coating, splash and dust proof, will withstand 1 meter drop test with rubber boot
Attachment:	Wrist strap, rubber boot and belt clip



APPENDIX B
Ecology Guidance Regarding Reuse of Petroleum-Impacted Soil

12.0 REUSE OF PETROLEUM-CONTAMINATED SOILS

Ecology recognizes that cleanup of petroleum-contaminated sites is expensive. Landfilling of contaminated soils and the associated transportation costs greatly increases cleanup costs and contribute to greenhouse gas production. Heavily contaminated soils, of course, must be properly treated or disposed of to ensure that human health and the environment remain protected. However, for moderately or lightly contaminated soils, or soils with most of the contamination removed by treatment, a number of alternatives exist.

Under Washington State's Solid Waste and Hazardous Waste laws, one of the highest priorities for managing waste is to recycle or reuse waste materials. MTCA also states that remedial actions should provide for permanent solutions to the maximum extent practical. Consistent with these statutory priorities, Ecology offers the guidelines for best management practices in this section to facilitate the productive reuse of petroleum-contaminated soils generated by petroleum contaminated site cleanups. Soils managed consistent with these guidelines will most likely be protective of human health and the environment based on Ecology's past experience. Soils with contaminants other than petroleum-related are not addressed by these guidelines and these guidelines should not be used for these soils.

Petroleum contaminated soils are considered solid waste and, as such, are regulated by local health departments/districts. Some local health departments/districts may require a permit for reuse of these soils or have more restrictive reuse regulations. Use of these soils in public rights of way or easements is typically controlled by the local public works department. Use of these soils may also be subject to local land use laws and shoreline regulations. These agencies should be consulted before reusing the soil in accordance with these guidelines.

Petroleum contaminated soils generated by the cleanup of regulated UST facilities are exempt from most of the dangerous waste management requirements under WAC 173-303-071(3)(t). But other types of petroleum contaminated soil are not exempt. While the values in this table are generally well below concentrations that are likely to trigger regulation of the soil as a hazardous waste, if the soil was classified as a hazardous waste prior to treatment, or contains a listed waste, it may still be a regulated hazardous waste even with low contaminant levels. If this is a potential concern at a site, the soil will likely need to be managed as hazardous waste. Consult with Ecology's Hazardous Waste & Toxics Reduction Program in these cases. For more information see: http://www.ecy.wa.gov/programs/hwtr/index.html.

The general guidance in this section should not be construed as an endorsement of the reuse of any particular soils or a guarantee that any particular soils can be safely reused. All reuse decisions need to be made in the context of the individual site in compliance with all applicable laws. This section is not in any way intended to substitute for best professional judgment or override state or local regulatory requirements. Furthermore, reuse of petroleum-contaminated soils consistent with this section does not relieve any party of any resulting liability, including but not limited to MTCA liability, common law liability for nuisance conditions or a reduction in property value caused by aesthetic issues like odors, should a subsequent problem arise.

Persons may propose another site-specific basis for the reuse of petroleum-contaminated soil. This will require detailed site-specific characterization of the soil composition and variability (including testing for equivalent carbon fractions) and bioassays. A risk assessment evaluating all potential exposure pathways would also need to be conducted. This information will need to be submitted to Ecology's Waste to Resources Program and the local Health Department/District.

12.1 Factors Considered in the Development of Soil Re-use Categories

Table 12.1 provides recommended categories for reuse of petroleum contaminated soils. These values are based on evaluation of multiple potential exposure pathways and other considerations. Several values in Table 12.1 are more stringent than the Method A MTCA soil cleanup levels. There are several reasons for this:

- The solid waste handling standards, Chapter 173-350 WAC, apply to soils containing "harmful substances" removed during a cleanup. As noted below, petroleum-contaminated soils can cause harm in ways not considered under the MTCA Method A cleanup levels.
- For a variety of reasons, the Method A table values do not consider all potential exposure pathways and assume exposure conditions that may not be protective at all sites. For example, under Method A the soil is assumed to not impact surface water and terrestrial ecological risk is addressed separately. Under MTCA, Ecology has the authority to require more stringent cleanup levels than the Method A values on a site-specific basis. It is not practical to apply that level of site-specific judgment to reuse.
- Cleanup sites are typically cleaned to concentrations below the Method A cleanup levels to ensure the cleanup levels are met. However, the reuse categories set maximum not to exceed concentrations. Thus, for a given concentration, a soil reused under these guidelines is likely to have a higher TPH concentration than soil remaining after cleanup.
- At cleanup sites, it is possible to find out if the site was once contaminated through a site assessment or review of historical uses and cleanup records. However, because soil meeting these reuse categories can be reused on uncontaminated properties, property owners and workers will most likely not have similar information available and thus are unlikely to take any precautions regarding exposure.
- There is no state-wide permitting process controlling where soils meeting the reuse categories are used or requiring institutional controls to limit exposures.
- More data is available now than was available when the Method A soil cleanup levels were developed. This data indicates there is considerable product variability and this variability has been taken into account in developing these reuse categories.
- PCB-contaminated soils are not recommended for any reuse because of the persistence, toxicity and bioaccumulation potential of these compounds. This is consistent with Ecology's approach to regulation of these chemical mixtures under other authorities.

12.2 How to Determine Compliance with Soil Re-use Categories

Soils proposed for reuse should be tested for the parameters specified in Table 12.1, consistent with Table 7.2 for the product being cleaned up. The frequency of testing should be consistent with Table 6.9 for stockpiled soil, with the volume consisting of the amount of soil planned for reuse in any given reuse project, or a suitable alternative sampling plan submitted to the local regulatory agency for approval. To conform with these reuse categories, no sample should exceed the recommended values. If one or more samples exceed the recommended values, Ecology recommends that portion of the soil represented by that test result be separated from the other soil and appropriately disposed of. Soil samples bracketing the area should be taken to confirm whether the remainder of the soil qualifies for the selected category.

12.3 Soil Reuse Categories

Table 12.1 identifies four categories for re-use of petroleum contaminated soil. Table 12.2 describes uses and limitations for the four categories of soil. The footnotes to Table 12.1 are considered part of this Table and must be considered when reusing soils as specified in these tables.

While it is expected most petroleum contaminated soils will have been subjected to treatment prior to reuse, this is not a prerequisite for use of these guidelines. It may be possible, for example, through careful field screening using the methods described in Section 5 and segregation during excavation, to separate soils on the outer fringe of contamination or above the release that are only slighted contaminated. These soils may meet a particular soil reuse category without treatment.

Table 12.1 Guidelines for Reuse of Petroleum-Contaminated Soil

Parameter	Analytical Method	Soil Category (8)(9)(10)			
		1 No detectable Petroleum Components (mg/kg)	2 Commercial Fill Above Water Table (mg/kg)	3 Paving Base Material & Road Construction (mg/kg)	4 Landfill Daily Cover or Asphalt Manufacturing (mg/kg)
Total Petroleum Hydrocarbons (1)(2) See Table 7.1 for petroleum products that fall within these categories.					
Gasoline Range Organics	NWTPH-Gx	<5	5 - 30	>30 - 100	>100
Diesel Range Organics	NWTPH-Dx	<25	25 - 200	>200 - 500	>500
Heavy Fuels and Oils*	NWTPH-Dx	<100	100 - 200	>200 – 500	>500
Mineral Oil	NWTPH-Dx	<100	100 - 200	>200 – 500	>500
Volatile Petroleum Components					
Benzene	SW8260B	<0.005	0.005 - 0.03	0.03 or less	See Table 12.2
Ethyl benzene	SW8260B	<0.005	0.005 - 6	6 or less	>6
Toluene	SW8260B	<0.005	0.005 - 7	7 or less	>7
Xylenes (3)	SW8260B	<0.015	0.015 - 9	9 or less	>9
Fuel Additives & Blending Components					
(MTBE) Methyl Tert-Butyl Ether	SW8260B	<0.005	0.005 - 0.1	0.1 or less	>0.1
Lead	SW6010A	<17	17 - 50	>50 - 220	See Table 12.2
Other Petroleum Components					
Polychlorinated (4) Biphenyls (PCBs)	SW8082	<0.04	<0.04	<0.04	See Table 12.2
Naphthalenes (5)	SW8260B	<0.05	0.05 - 5	5 or less	>5
cPAHs (6)	SW8270C	<0.05	0.05 - 0.1	>0.1 - 2	>2
Other Petroleum Characteristics (Applies to soils contaminated with any petroleum product.)					
Odors	Smell	No detectable odor			
Staining	Visual	No unusual color or staining			
Sheen Test	See Footnote # 7	No visible sheen			

IMPORTANT: See Table 12.2 and the footnotes to this Table on the following pages!

Test soil for the parameters specified in Table 7.2.

****Does NOT include waste oil contaminated soils, which should be disposed of in a landfill.***

"<" means less than; ">" means greater than

Table 12.2 Description and Recommended Best Management Practices for Soil Categories in Table 12.1 (continues on next page)		
Category	**Acceptable Uses**	**Limitations**
Category 1 Soils: Soils with no detectable/ quantifiable levels of petroleum hydrocarbons or constituents using the analytical methods listed in Table 7.3 and are not suspected of being contaminated with any other hazardous substances.	• Can be used anywhere the use is allowed under other regulations. • Any use allowed for Category 2, 3 & 4 soils.	• These soils may have a slight petroleum odor, depending on the sensitivity of individuals, and this should be considered when reusing these soils.
Category 2 Soils: Soils with residual levels of petroleum hydrocarbons that could have adverse impacts on the environment in some circumstances.	• Any use allowed for Category 3 & 4 soils. • Backfill at cleanup sites above the water table. • Fill in commercial or industrial areas above the water table. • Road and bridge embankment construction in areas above the water table.	• Should be placed above the highest anticipated high water table. If seasonal groundwater elevation information is not available, place at least 10 feet above the current water table. • Should not be placed within 100 feet of any private drinking water well or within the 10 year wellhead protection area of a public water supply well. • Should not be placed in or directly adjacent to wetlands or surface water where contact with water is possible. • Should not be placed under a surface water infiltration facility or septic drain field. • Any other limitations in state or local regulations.
Category 3 Soils: Soils with moderate levels of residual petroleum contamination that could have adverse impacts on the environment unless re-used in carefully controlled situations.	• Any use allowed for Category 4 soils. • Use as pavement base material under public and private paved streets and roads. • Use as pavement base material under commercial and industrial parking lots.	• Should be placed above the highest anticipated high water table. If seasonal ground water elevation information is not available, place at least 10 feet above the water table. • Should be a maximum of 2 feet thick to minimize potential for leaching or vapor impacts. • Should not be placed within 100 feet of any private drinking water well or within the 10 year wellhead protection area of a public water supply well. • Should not be placed in or directly adjacent to wetlands or surface water. • Should not be placed under a surface water infiltration facility or septic drain field. • When exposed, runoff from area in use should be contained or treated to prevent entrance to storm drains, surface water or wetlands. • Any other limitations in state or local regulations.

Table 12.2 Description and Recommended Best Management Practices for Soil Categories in Table 12.1 (continued)		
Category	**Acceptable Uses**	**Limitations**
Category 4 Soils: Soils with high levels of petroleum contamination that should not be re-used except in very limited circumstances.	• Use in the manufacture of asphalt. • Use as daily cover in a lined municipal solid waste or limited purpose landfill provided this is allowed under the landfill operating permit.	**Landfill Limitations:** The soil should be tested for and pass the following tests: ➢ Free liquids test. Soils that contain free liquids cannot be landfilled without treatment. ➢ TCLP for lead and benzene. Unless exempt under WAC 173-303-071(3)(t), soils that fail a TCLP for lead or benzene must be disposed of as hazardous waste. ➢ Flammability test. Soils that fail this test must be disposed of as hazardous waste. ➢ Bioassay test under WAC 173-303-100(5). Soils that fail this test must be disposed of as hazardous waste. ➢ PCBs. Soils with a total PCB content of 2 ppm or more must be disposed of as hazardous waste. Soil used for daily cover should be stockpiled within the landfill lined fill area. Soil containing more than 10,000 mg/kg TPH should be buried immediately with other wastes or daily covered to limit potential worker exposure. Any additional limitations specified in the landfill permit or in other state or local regulations. **Asphalt Manufacturing Limitations:** Soil storage areas should be contained in a bermed area to minimize contact with surface water runoff from adjacent areas. Runoff from storage areas should be considered contaminated until tested to prove otherwise. Soil storage areas should also be lined and covered with a roof or secured tarp to minimize contact with precipitation and potential groundwater contamination. Leachate from storage areas should be considered contaminated until tested to prove otherwise. The soil should be tested for and pass the following tests: ➢ TCLP for lead and benzene. Unless exempt under WAC 173-303-071(3)(t), soils that fail a TCLP for lead or benzene must be disposed of as hazardous waste. ➢ Flammability test. Soils that fail this test must be disposed of as hazardous waste. ➢ Bioassay test under WAC 173-303-100(5). Soils that fail this test must be disposed of as hazardous waste. ➢ No detectable levels of PCBs in soil (<0.04 mg/kg). Precautions should be taken to minimize worker exposure to soil storage piles and any dust or vapors from these piles prior to feeding into the asphalt batch plant.
IMPORTANT: See the following page for additional information!		

Notes to Table 12.1:

Contaminated soils can be treated to achieve these concentrations but dilution with clean soil to achieve these concentrations is a violation of Washington State solid and hazardous waste laws.

(1) See Table 7.1 for a description of what products fall within these general categories. If the product released is unknown, use the limitations for gasoline range organics. If the soil is contaminated from releases from more than one product, use the limitations for both products. For example, if the release is a mixture of gasoline and diesel, the soil should be tested for components of both gas and diesel and the limitations for both fuels and their components used.

(2) The concentrations for diesel, heavy oil and mineral oil are not additive. Use the TPH product category most closely representing the TPH mixture and apply the limitations for that product to the mixture. ***The reuse of waste oil contaminated soil is not allowed due to the wide variety of contaminants likely to be present.***

(3) Value is total of m, o, & p xylenes.

(4) Value is the total of all PCBs. Only heavy oil and mineral oil contaminated soils need to be tested for PCBs. Soil contaminated with a spill from a regulated PCB containing device must be disposed of in a TSCA permitted landfill, regardless of the PCB concentration. Other PCB contaminated soils may be disposed of in a municipal solid waste landfill permitted to receive such materials, provided the concentration does not exceed 2 ppm PCBs (WAC 173-303-9904).

(5) Value is total of naphthalene, 1-methyl naphthalene and 2-methyl naphthalene. Only diesel and heavy oil contaminated soils need to be tested for naphthalenes.

(6) The value is the benzo(a)pyrene equivalent concentration of the following seven cPAHs, using the procedures in WAC 173-340-708(8). The seven cPAHs are as follows: benz(a)anthracene; benzo(b)fluoranthene; benzo(k)fluoranthene; benzo(a)pyrene; chrysene; dibenz(a,h)anthracene; and, indeno(1,2,3-cd)pyrene. Only diesel and heavy oil contaminated soils need to be tested for cPAHs. Soils contaminated with more than 1% polycyclic aromatic hydrocarbons, as that term is defined in WAC 173-303-040 (which is more expansive than the above list), must be disposed of as hazardous waste.

(7) No visible sheen observed on water when approximately one tablespoon of soil placed in approximately ½ liter of water held in a shallow pan (like a gold pan or similar container).

(8) A soil in a lower category can be used for uses specified in any higher category. This means that:

- A category 1 soil can be used for any use specified in categories 1, 2, 3 and 4.
- A category 2 soil can be used for any use specified in categories 2, 3 and 4.
- A categories 3 soil can be used for any use specified in categories 3 and 4.

(9) ***If an environmental site assessment or soil or groundwater analyses indicate contaminants other than common petroleum constituents and naturally occurring levels of metals are likely to be present in the soil of interest at the site (for example, solvents or pesticides), do not reuse the soil.*** The soil should instead be treated using appropriate technology to address all contaminants or landfilled at a solid waste or hazardous waste facility permitted to receive these materials.

(10) Soils in categories 2, 3 and 4 should be stockpiled consistent with the soil storage recommendations in Section 11.3 of this guidance.

Appendix G – Soil Disposal Receipts

Non-Hazardous WAM Approval

Requested Management Facility: Columbia Ridge Landfill

Profile Number: 110205WA Waste Approval Expiration Date: 06/22/2016

APPROVAL DETAILS

Approval Decision: ☑ Approved ☐ Not Approved Profile Renewal: ☐ Yes ☑ No

Management Method: Alternate Daily Cover (ADC)

Generator Name: Washington Dept of Transportation

Material Name: Fuel Oil Impacted Soil/Debris

Management Facility Precautions, Special Handling Procedures or Limitation on approval:

Generator Conditions

- Shall not contain free liquids.
- Shipment must be scheduled into the disposal facility at least 24 hours in advance. Contact information will be provided by your TSR.
- Waste manifest or applicable shipping document must accompany load.
- The waste profile number must appear on the shipping papers.

Via Alaska Street, 70 S. Alaska St, Seattle
Please call to schedule at 206-763-5025

Facility Conditions

Bulk, ADC

WM Authorization Name: Kristin Castner Title: Waste Approval Manager

WM Authorization Signature: Date: 06/22/2015

Agency Authorization (if Required): Date:

John Sandhop

From: Portland TSC [TSCPortland@wm.com]
Sent: Monday, June 22, 2015 10:02 AM
To: John Sandhop
Subject: [WMSolutions.com] Profile #110205WA has been approved

JUNE, 22 2015

Notice of Profile Approval: #110205WA

Profile Number:
110205WA
Waste Stream:
Fuel Oil Impacted Soil/Debris
Generator Name:
Washington Dept of Transportation
Disposal Site:
Columbia Ridge Landfill
Comments:
Please schedule your load with the landfill 24 hours in advance. A copy of the WAM Approval Form must be presented with each load to the landfill scale house attendant upon arrival.
Expiration Date:
06/22/2016

Dear John Sandhop,

We are pleased to inform you that Profile 110205WA has been approved by our

Portland Technical Service Center. Your Waste Approval Terms and Conditions can be found on either your *Profile Form* or *Approval Form*. Both documents are available as a PDF in the *Approved Tab* in your WMSolutions.com account.

Please feel free to email us at TSCPortland@wm.com or call 800-963-4776 with any questions.

Thank you for choosing Waste Management.

Portland TSC
7227 NE 55th Avenue
Portland, OR 97218
Phone: 800-685-8001
TSCPortland@wm.com

WASTE MANAGEMENT

Ticket Created Criteria: 06/01/2015 12:00 AM to 06/29/2015 11:59 PM

Business Unit Name: AK St Reload and Recycle Facility - S07325 (USA)

Profile: 110205WA

Ticket Date	Time	Ticket	Customer	Carrier	Vehicle	Material	Rate Unit	Tons
6/22/2015	10:55:59 AM	105114	ANDERSON ENVIRONMENTAL	SELF HAULER	M769	ENVCLEANUP RGCPCS-Tons	TON	34.84
6/22/2015	11:32:55 AM	105129	ANDERSON ENVIRONMENTAL	SELF HAULER	M769	ENVCLEANUP RGCPCS-Tons	TON	33.76
6/22/2015	12:22:20 PM	105145	ANDERSON ENVIRONMENTAL	SELF HAULER	M769	ENVCLEANUP RGCPCS-Tons	TON	32.27
6/22/2015	1:05:02 PM	105155	ANDERSON ENVIRONMENTAL	SELF HAULER	M769	ENVCLEANUP RGCPCS-Tons	TON	33.26
6/22/2015	1:59:17 PM	105173	ANDERSON ENVIRONMENTAL	SELF HAULER	M769	ENVCLEANUP RGCPCS-Tons	TON	34.02
6/22/2015	2:45:32 PM	105183	ANDERSON ENVIRONMENTAL	SELF HAULER	M769	ENVCLEANUP RGCPCS-Tons	TON	32.35
6/23/2015	8:16:07 AM	105199	ANDERSON ENVIRONMENTAL	SELF HAULER	M769	ENVCLEANUP RGCPCS-Tons	TON	31.16
6/23/2015	8:56:17 AM	105205	ANDERSON ENVIRONMENTAL	SELF HAULER	M769	ENVCLEANUP RGCPCS-Tons	TON	32.51
6/23/2015	9:37:26 AM	105211	ANDERSON ENVIRONMENTAL	SELF HAULER	M769	ENVCLEANUP RGCPCS-Tons	TON	33.28
6/23/2015	10:14:10 AM	105222	ANDERSON ENVIRONMENTAL	SELF HAULER	M769	ENVCLEANUP RGCPCS-Tons	TON	34.45
6/23/2015	10:51:06 AM	105228	ANDERSON ENVIRONMENTAL	SELF HAULER	M769	ENVCLEANUP RGCPCS-Tons	TON	32.13
6/23/2015	11:28:33 AM	105240	ANDERSON ENVIRONMENTAL	SELF HAULER	M769	ENVCLEANUP RGCPCS-Tons	TON	33.12
6/23/2015	12:17:24 PM	105254	ANDERSON ENVIRONMENTAL	SELF HAULER	M769	ENVCLEANUP RGCPCS-Tons	TON	31.39
6/23/2015	1:10:04 PM	105302	ANDERSON ENVIRONMENTAL	SELF HAULER	M769	ENVCLEANUP RGCPCS-Tons	TON	32.91
6/23/2015	1:48:19 PM	105319	ANDERSON ENVIRONMENTAL	SELF HAULER	M769	ENVCLEANUP RGCPCS-Tons	TON	33.38
6/23/2015	2:29:37 PM	105335	ANDERSON ENVIRONMENTAL	SELF HAULER	M769	ENVCLEANUP RGCPCS-Tons	TON	33.63
6/23/2015	3:07:44 PM	105341	ANDERSON ENVIRONMENTAL	SELF HAULER	M769	ENVCLEANUP RGCPCS-Tons	TON	33.35
Total								**561.81**

Appendix H – Analytical Data

OnSite Environmental Inc.

14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

June 18, 2015

Trent Ensminger
Washington State Department of Transportation
HAZ-MAT
2214 RW Johnson Road SW; MS 47332
Tumwater, WA 98512-6111

Re: Analytical Data for Project Signals Fuel Site
Laboratory Reference No. 1506-183

Dear Trent:

Enclosed are the analytical results and associated quality control data for samples submitted on June 17, 2015.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

Case Narrative

Samples were collected on June 17, 2015 and received by the laboratory on June 17, 2015. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

NWTPH Gx Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

Volatiles EPA 8260C Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

Some MTCA Method A cleanup levels are non-achievable for samples SFS-SP2 and SFS-SP3 due to the necessary dilutions of the samples.

Semivolatiles EPA 8270D/SIM Analysis

Samples SFS-SP1, SFS-SP2 and SFS-SP3 had one surrogate recovery out of control limits. This is within allowance of our standard operation procedure as long as the recovery is above 10%.

Total Metals EPA 6010C/7471B Analysis

Due to the high concentration of Barium in the QC sample, the amount spiked was insufficient for meaningful MS/MSD recovery data. The Spike Blank recovery was 96%.

Please note that any other QA/QC issues associated with these extractions and analyses will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

NWTPH-Gx

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-SP1**					
Laboratory ID:	06-183-01					
Gasoline	**ND**	9.4	NWTPH-Gx	6-18-15	6-18-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*75*	*68-123*				
Client ID:	**SFS-SP2**					
Laboratory ID:	06-183-02					
Gasoline	**ND**	8.7	NWTPH-Gx	6-18-15	6-18-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*78*	*68-123*				
Client ID:	**SFS-SP3**					
Laboratory ID:	06-183-03					
Gasoline	**ND**	6.5	NWTPH-Gx	6-18-15	6-18-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*77*	*68-123*				

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

NWTPH-Gx
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0618S1					
Gasoline	**ND**	5.0	NWTPH-Gx	6-18-15	6-18-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*79*	*68-123*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	06-181-03										
	ORIG	DUP									
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*89*	*91*	*68-123*			

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

NWTPH-Dx

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-SP1**					
Laboratory ID:	06-183-01					
Diesel Fuel #2	**2700**	27	NWTPH-Dx	6-18-15	6-18-15	
Lube Oil Range Organics	**ND**	150	NWTPH-Dx	6-18-15	6-18-15	U1
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*121*	*50-150*				
Client ID:	**SFS-SP2**					
Laboratory ID:	06-183-02					
Diesel Fuel #2	**4500**	140	NWTPH-Dx	6-18-15	6-19-15	
Lube Oil Range Organics	**4900**	270	NWTPH-Dx	6-18-15	6-19-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*123*	*50-150*				
Client ID:	**SFS-SP3**					
Laboratory ID:	06-183-03					
Diesel Fuel #2	**2600**	27	NWTPH-Dx	6-18-15	6-18-15	
Lube Oil Range Organics	**ND**	92	NWTPH-Dx	6-18-15	6-18-15	U1
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*112*	*50-150*				

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

NWTPH-Dx
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0618S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	6-18-15	6-18-15	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	6-18-15	6-18-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*125*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	06-144-02									
	ORIG	DUP								
Diesel Fuel #1	**2190**	**1010**	NA	NA		NA	NA	74	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA	NA	NA	NA	
Surrogate:										
o-Terphenyl						*94* *116*	*50-150*			

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

VOLATILES EPA 8260C
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-SP1**					
Laboratory ID:	06-183-01					
Dichlorodifluoromethane	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
Chloromethane	ND	0.0031	EPA 8260C	6-19-15	6-19-15	
Vinyl Chloride	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
Bromomethane	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
Chloroethane	ND	0.0031	EPA 8260C	6-19-15	6-19-15	
Trichlorofluoromethane	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
1,1-Dichloroethene	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
Acetone	ND	0.0063	EPA 8260C	6-19-15	6-19-15	
Iodomethane	ND	0.0031	EPA 8260C	6-19-15	6-19-15	
Carbon Disulfide	0.00065	0.00063	EPA 8260C	6-19-15	6-19-15	
Methylene Chloride	ND	0.0031	EPA 8260C	6-19-15	6-19-15	
(trans) 1,2-Dichloroethene	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
Methyl t-Butyl Ether	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
1,1-Dichloroethane	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
Vinyl Acetate	ND	0.0031	EPA 8260C	6-19-15	6-19-15	
2,2-Dichloropropane	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
(cis) 1,2-Dichloroethene	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
2-Butanone	ND	0.0031	EPA 8260C	6-19-15	6-19-15	
Bromochloromethane	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
Chloroform	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
1,1,1-Trichloroethane	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
Carbon Tetrachloride	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
1,1-Dichloropropene	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
Benzene	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
1,2-Dichloroethane	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
Trichloroethene	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
1,2-Dichloropropane	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
Dibromomethane	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
Bromodichloromethane	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
2-Chloroethyl Vinyl Ether	ND	0.0031	EPA 8260C	6-19-15	6-19-15	
(cis) 1,3-Dichloropropene	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
Methyl Isobutyl Ketone	ND	0.0031	EPA 8260C	6-19-15	6-19-15	
Toluene	ND	0.0031	EPA 8260C	6-19-15	6-19-15	
(trans) 1,3-Dichloropropene	ND	0.00063	EPA 8260C	6-19-15	6-19-15	

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

VOLATILES EPA 8260C
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-SP1**					
Laboratory ID:	06-183-01					
1,1,2-Trichloroethane	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
Tetrachloroethene	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
1,3-Dichloropropane	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
2-Hexanone	ND	0.0031	EPA 8260C	6-19-15	6-19-15	
Dibromochloromethane	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
1,2-Dibromoethane	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
Chlorobenzene	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
1,1,1,2-Tetrachloroethane	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
Ethylbenzene	0.00077	0.00063	EPA 8260C	6-19-15	6-19-15	
m,p-Xylene	ND	0.0013	EPA 8260C	6-19-15	6-19-15	
o-Xylene	0.00086	0.00063	EPA 8260C	6-19-15	6-19-15	
Styrene	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
Bromoform	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
Isopropylbenzene	0.032	0.00063	EPA 8260C	6-19-15	6-19-15	
Bromobenzene	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
1,1,2,2-Tetrachloroethane	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
1,2,3-Trichloropropane	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
n-Propylbenzene	0.084	0.00063	EPA 8260C	6-19-15	6-19-15	
2-Chlorotoluene	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
4-Chlorotoluene	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
1,3,5-Trimethylbenzene	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
tert-Butylbenzene	0.0021	0.00063	EPA 8260C	6-19-15	6-19-15	
1,2,4-Trimethylbenzene	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
sec-Butylbenzene	0.11	0.00063	EPA 8260C	6-19-15	6-19-15	
1,3-Dichlorobenzene	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
p-Isopropyltoluene	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
1,4-Dichlorobenzene	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
1,2-Dichlorobenzene	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
n-Butylbenzene	0.068	0.00063	EPA 8260C	6-19-15	6-19-15	
1,2-Dibromo-3-chloropropane	ND	0.0031	EPA 8260C	6-19-15	6-19-15	
1,2,4-Trichlorobenzene	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
Hexachlorobutadiene	ND	0.0031	EPA 8260C	6-19-15	6-19-15	
Naphthalene	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
1,2,3-Trichlorobenzene	ND	0.00063	EPA 8260C	6-19-15	6-19-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*88*	*76-131*				
Toluene-d8	*93*	*82-129*				
4-Bromofluorobenzene	*160*	*79-126*				Q

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

VOLATILES EPA 8260C
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-SP2**					
Laboratory ID:	06-183-02					
Dichlorodifluoromethane	ND	0.038	EPA 8260C	6-18-15	6-18-15	
Chloromethane	ND	0.19	EPA 8260C	6-18-15	6-18-15	
Vinyl Chloride	ND	0.038	EPA 8260C	6-18-15	6-18-15	
Bromomethane	ND	0.038	EPA 8260C	6-18-15	6-18-15	
Chloroethane	ND	0.19	EPA 8260C	6-18-15	6-18-15	
Trichlorofluoromethane	ND	0.038	EPA 8260C	6-18-15	6-18-15	
1,1-Dichloroethene	ND	0.038	EPA 8260C	6-18-15	6-18-15	
Acetone	ND	0.38	EPA 8260C	6-18-15	6-18-15	
Iodomethane	ND	0.19	EPA 8260C	6-18-15	6-18-15	
Carbon Disulfide	ND	0.038	EPA 8260C	6-18-15	6-18-15	
Methylene Chloride	ND	0.19	EPA 8260C	6-18-15	6-18-15	
(trans) 1,2-Dichloroethene	ND	0.038	EPA 8260C	6-18-15	6-18-15	
Methyl t-Butyl Ether	ND	0.038	EPA 8260C	6-18-15	6-18-15	
1,1-Dichloroethane	ND	0.038	EPA 8260C	6-18-15	6-18-15	
Vinyl Acetate	ND	0.19	EPA 8260C	6-18-15	6-18-15	
2,2-Dichloropropane	ND	0.038	EPA 8260C	6-18-15	6-18-15	
(cis) 1,2-Dichloroethene	ND	0.038	EPA 8260C	6-18-15	6-18-15	
2-Butanone	ND	0.19	EPA 8260C	6-18-15	6-18-15	
Bromochloromethane	ND	0.038	EPA 8260C	6-18-15	6-18-15	
Chloroform	ND	0.038	EPA 8260C	6-18-15	6-18-15	
1,1,1-Trichloroethane	ND	0.038	EPA 8260C	6-18-15	6-18-15	
Carbon Tetrachloride	ND	0.038	EPA 8260C	6-18-15	6-18-15	
1,1-Dichloropropene	ND	0.038	EPA 8260C	6-18-15	6-18-15	
Benzene	ND	0.038	EPA 8260C	6-18-15	6-18-15	
1,2-Dichloroethane	ND	0.038	EPA 8260C	6-18-15	6-18-15	
Trichloroethene	ND	0.038	EPA 8260C	6-18-15	6-18-15	
1,2-Dichloropropane	ND	0.038	EPA 8260C	6-18-15	6-18-15	
Dibromomethane	ND	0.038	EPA 8260C	6-18-15	6-18-15	
Bromodichloromethane	ND	0.038	EPA 8260C	6-18-15	6-18-15	
2-Chloroethyl Vinyl Ether	ND	0.19	EPA 8260C	6-18-15	6-18-15	
(cis) 1,3-Dichloropropene	ND	0.038	EPA 8260C	6-18-15	6-18-15	
Methyl Isobutyl Ketone	ND	0.19	EPA 8260C	6-18-15	6-18-15	
Toluene	ND	0.19	EPA 8260C	6-18-15	6-18-15	
(trans) 1,3-Dichloropropene	ND	0.038	EPA 8260C	6-18-15	6-18-15	

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

VOLATILES EPA 8260C
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-SP2**					
Laboratory ID:	06-183-02					
1,1,2-Trichloroethane	ND	0.038	EPA 8260C	6-18-15	6-18-15	
Tetrachloroethene	ND	0.038	EPA 8260C	6-18-15	6-18-15	
1,3-Dichloropropane	ND	0.038	EPA 8260C	6-18-15	6-18-15	
2-Hexanone	ND	0.19	EPA 8260C	6-18-15	6-18-15	
Dibromochloromethane	ND	0.038	EPA 8260C	6-18-15	6-18-15	
1,2-Dibromoethane	ND	0.038	EPA 8260C	6-18-15	6-18-15	
Chlorobenzene	ND	0.038	EPA 8260C	6-18-15	6-18-15	
1,1,1,2-Tetrachloroethane	ND	0.038	EPA 8260C	6-18-15	6-18-15	
Ethylbenzene	ND	0.038	EPA 8260C	6-18-15	6-18-15	
m,p-Xylene	ND	0.076	EPA 8260C	6-18-15	6-18-15	
o-Xylene	ND	0.038	EPA 8260C	6-18-15	6-18-15	
Styrene	ND	0.038	EPA 8260C	6-18-15	6-18-15	
Bromoform	ND	0.038	EPA 8260C	6-18-15	6-18-15	
Isopropylbenzene	0.12	0.038	EPA 8260C	6-18-15	6-18-15	
Bromobenzene	ND	0.038	EPA 8260C	6-18-15	6-18-15	
1,1,2,2-Tetrachloroethane	ND	0.038	EPA 8260C	6-18-15	6-18-15	
1,2,3-Trichloropropane	ND	0.038	EPA 8260C	6-18-15	6-18-15	
n-Propylbenzene	0.26	0.038	EPA 8260C	6-18-15	6-18-15	
2-Chlorotoluene	ND	0.038	EPA 8260C	6-18-15	6-18-15	
4-Chlorotoluene	ND	0.038	EPA 8260C	6-18-15	6-18-15	
1,3,5-Trimethylbenzene	ND	0.038	EPA 8260C	6-18-15	6-18-15	
tert-Butylbenzene	ND	0.038	EPA 8260C	6-18-15	6-18-15	
1,2,4-Trimethylbenzene	0.061	0.038	EPA 8260C	6-18-15	6-18-15	
sec-Butylbenzene	0.41	0.038	EPA 8260C	6-18-15	6-18-15	
1,3-Dichlorobenzene	ND	0.038	EPA 8260C	6-18-15	6-18-15	
p-Isopropyltoluene	ND	0.038	EPA 8260C	6-18-15	6-18-15	
1,4-Dichlorobenzene	ND	0.038	EPA 8260C	6-18-15	6-18-15	
1,2-Dichlorobenzene	ND	0.038	EPA 8260C	6-18-15	6-18-15	
n-Butylbenzene	0.44	0.038	EPA 8260C	6-18-15	6-18-15	
1,2-Dibromo-3-chloropropane	ND	0.19	EPA 8260C	6-18-15	6-18-15	
1,2,4-Trichlorobenzene	ND	0.038	EPA 8260C	6-18-15	6-18-15	
Hexachlorobutadiene	ND	0.19	EPA 8260C	6-18-15	6-18-15	
Naphthalene	0.086	0.038	EPA 8260C	6-18-15	6-18-15	
1,2,3-Trichlorobenzene	ND	0.038	EPA 8260C	6-18-15	6-18-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*86*	*76-131*				
Toluene-d8	*90*	*82-129*				
4-Bromofluorobenzene	*110*	*79-126*				

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

VOLATILES EPA 8260C
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-SP3**					
Laboratory ID:	06-183-03					
Dichlorodifluoromethane	ND	0.087	EPA 8260C	6-18-15	6-18-15	
Chloromethane	ND	0.43	EPA 8260C	6-18-15	6-18-15	
Vinyl Chloride	ND	0.087	EPA 8260C	6-18-15	6-18-15	
Bromomethane	ND	0.087	EPA 8260C	6-18-15	6-18-15	
Chloroethane	ND	0.43	EPA 8260C	6-18-15	6-18-15	
Trichlorofluoromethane	ND	0.087	EPA 8260C	6-18-15	6-18-15	
1,1-Dichloroethene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
Acetone	ND	0.87	EPA 8260C	6-18-15	6-18-15	
Iodomethane	ND	0.43	EPA 8260C	6-18-15	6-18-15	
Carbon Disulfide	ND	0.087	EPA 8260C	6-18-15	6-18-15	
Methylene Chloride	ND	0.43	EPA 8260C	6-18-15	6-18-15	
(trans) 1,2-Dichloroethene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
Methyl t-Butyl Ether	ND	0.087	EPA 8260C	6-18-15	6-18-15	
1,1-Dichloroethane	ND	0.087	EPA 8260C	6-18-15	6-18-15	
Vinyl Acetate	ND	0.43	EPA 8260C	6-18-15	6-18-15	
2,2-Dichloropropane	ND	0.087	EPA 8260C	6-18-15	6-18-15	
(cis) 1,2-Dichloroethene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
2-Butanone	ND	0.43	EPA 8260C	6-18-15	6-18-15	
Bromochloromethane	ND	0.087	EPA 8260C	6-18-15	6-18-15	
Chloroform	ND	0.087	EPA 8260C	6-18-15	6-18-15	
1,1,1-Trichloroethane	ND	0.087	EPA 8260C	6-18-15	6-18-15	
Carbon Tetrachloride	ND	0.087	EPA 8260C	6-18-15	6-18-15	
1,1-Dichloropropene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
Benzene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
1,2-Dichloroethane	ND	0.087	EPA 8260C	6-18-15	6-18-15	
Trichloroethene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
1,2-Dichloropropane	ND	0.087	EPA 8260C	6-18-15	6-18-15	
Dibromomethane	ND	0.087	EPA 8260C	6-18-15	6-18-15	
Bromodichloromethane	ND	0.087	EPA 8260C	6-18-15	6-18-15	
2-Chloroethyl Vinyl Ether	ND	0.43	EPA 8260C	6-18-15	6-18-15	
(cis) 1,3-Dichloropropene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
Methyl Isobutyl Ketone	ND	0.43	EPA 8260C	6-18-15	6-18-15	
Toluene	ND	0.43	EPA 8260C	6-18-15	6-18-15	
(trans) 1,3-Dichloropropene	ND	0.087	EPA 8260C	6-18-15	6-18-15	

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

VOLATILES EPA 8260C
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-SP3**					
Laboratory ID:	06-183-03					
1,1,2-Trichloroethane	ND	0.087	EPA 8260C	6-18-15	6-18-15	
Tetrachloroethene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
1,3-Dichloropropane	ND	0.087	EPA 8260C	6-18-15	6-18-15	
2-Hexanone	ND	0.43	EPA 8260C	6-18-15	6-18-15	
Dibromochloromethane	ND	0.087	EPA 8260C	6-18-15	6-18-15	
1,2-Dibromoethane	ND	0.087	EPA 8260C	6-18-15	6-18-15	
Chlorobenzene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
1,1,1,2-Tetrachloroethane	ND	0.087	EPA 8260C	6-18-15	6-18-15	
Ethylbenzene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
m,p-Xylene	ND	0.17	EPA 8260C	6-18-15	6-18-15	
o-Xylene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
Styrene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
Bromoform	ND	0.087	EPA 8260C	6-18-15	6-18-15	
Isopropylbenzene	0.44	0.087	EPA 8260C	6-18-15	6-18-15	
Bromobenzene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
1,1,2,2-Tetrachloroethane	ND	0.087	EPA 8260C	6-18-15	6-18-15	
1,2,3-Trichloropropane	ND	0.087	EPA 8260C	6-18-15	6-18-15	
n-Propylbenzene	1.0	0.087	EPA 8260C	6-18-15	6-18-15	
2-Chlorotoluene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
4-Chlorotoluene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
1,3,5-Trimethylbenzene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
tert-Butylbenzene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
1,2,4-Trimethylbenzene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
sec-Butylbenzene	1.8	0.087	EPA 8260C	6-18-15	6-18-15	
1,3-Dichlorobenzene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
p-Isopropyltoluene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
1,4-Dichlorobenzene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
1,2-Dichlorobenzene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
n-Butylbenzene	1.8	0.087	EPA 8260C	6-18-15	6-18-15	
1,2-Dibromo-3-chloropropane	ND	0.43	EPA 8260C	6-18-15	6-18-15	
1,2,4-Trichlorobenzene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
Hexachlorobutadiene	ND	0.43	EPA 8260C	6-18-15	6-18-15	
Naphthalene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
1,2,3-Trichlorobenzene	ND	0.087	EPA 8260C	6-18-15	6-18-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*84*	*76-131*				
Toluene-d8	*90*	*82-129*				
4-Bromofluorobenzene	*106*	*79-126*				

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

VOLATILES by EPA 8260C
METHOD BLANK QUALITY CONTROL
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0618S1					
Dichlorodifluoromethane	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
Chloromethane	ND	0.0050	EPA 8260C	6-18-15	6-18-15	
Vinyl Chloride	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
Bromomethane	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
Chloroethane	ND	0.0050	EPA 8260C	6-18-15	6-18-15	
Trichlorofluoromethane	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
1,1-Dichloroethene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
Acetone	ND	0.010	EPA 8260C	6-18-15	6-18-15	
Iodomethane	ND	0.0050	EPA 8260C	6-18-15	6-18-15	
Carbon Disulfide	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
Methylene Chloride	ND	0.0050	EPA 8260C	6-18-15	6-18-15	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
Methyl t-Butyl Ether	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
1,1-Dichloroethane	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
Vinyl Acetate	ND	0.0050	EPA 8260C	6-18-15	6-18-15	
2,2-Dichloropropane	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
2-Butanone	ND	0.0050	EPA 8260C	6-18-15	6-18-15	
Bromochloromethane	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
Chloroform	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
Carbon Tetrachloride	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
1,1-Dichloropropene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
Benzene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
1,2-Dichloroethane	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
Trichloroethene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
1,2-Dichloropropane	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
Dibromomethane	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
Bromodichloromethane	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
2-Chloroethyl Vinyl Ether	ND	0.0050	EPA 8260C	6-18-15	6-18-15	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
Methyl Isobutyl Ketone	ND	0.0050	EPA 8260C	6-18-15	6-18-15	
Toluene	ND	0.0050	EPA 8260C	6-18-15	6-18-15	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

VOLATILES by EPA 8260C
METHOD BLANK QUALITY CONTROL
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0618S1					
1,1,2-Trichloroethane	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
Tetrachloroethene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
1,3-Dichloropropane	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
2-Hexanone	ND	0.0050	EPA 8260C	6-18-15	6-18-15	
Dibromochloromethane	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
1,2-Dibromoethane	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
Chlorobenzene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
Ethylbenzene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
m,p-Xylene	ND	0.0020	EPA 8260C	6-18-15	6-18-15	
o-Xylene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
Styrene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
Bromoform	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
Isopropylbenzene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
Bromobenzene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
n-Propylbenzene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
2-Chlorotoluene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
4-Chlorotoluene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
1,3,5-Trimethylbenzene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
tert-Butylbenzene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
1,2,4-Trimethylbenzene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
sec-Butylbenzene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
p-Isopropyltoluene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
n-Butylbenzene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
1,2-Dibromo-3-chloropropane	ND	0.0050	EPA 8260C	6-18-15	6-18-15	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
Hexachlorobutadiene	ND	0.0050	EPA 8260C	6-18-15	6-18-15	
Naphthalene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260C	6-18-15	6-18-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*94*	*76-131*				
Toluene-d8	*92*	*82-129*				
4-Bromofluorobenzene	*115*	*79-126*				

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

VOLATILES by EPA 8260C
METHOD BLANK QUALITY CONTROL
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0619S1					
Dichlorodifluoromethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Chloromethane	ND	0.0050	EPA 8260C	6-19-15	6-19-15	
Vinyl Chloride	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Bromomethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Chloroethane	ND	0.0050	EPA 8260C	6-19-15	6-19-15	
Trichlorofluoromethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,1-Dichloroethene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Acetone	ND	0.010	EPA 8260C	6-19-15	6-19-15	
Iodomethane	ND	0.0050	EPA 8260C	6-19-15	6-19-15	
Carbon Disulfide	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Methylene Chloride	ND	0.0050	EPA 8260C	6-19-15	6-19-15	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Methyl t-Butyl Ether	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,1-Dichloroethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Vinyl Acetate	ND	0.0050	EPA 8260C	6-19-15	6-19-15	
2,2-Dichloropropane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
2-Butanone	ND	0.0050	EPA 8260C	6-19-15	6-19-15	
Bromochloromethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Chloroform	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Carbon Tetrachloride	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,1-Dichloropropene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Benzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,2-Dichloroethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Trichloroethene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,2-Dichloropropane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Dibromomethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Bromodichloromethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
2-Chloroethyl Vinyl Ether	ND	0.0050	EPA 8260C	6-19-15	6-19-15	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Methyl Isobutyl Ketone	ND	0.0050	EPA 8260C	6-19-15	6-19-15	
Toluene	ND	0.0050	EPA 8260C	6-19-15	6-19-15	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

VOLATILES by EPA 8260C
METHOD BLANK QUALITY CONTROL
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0619S1					
1,1,2-Trichloroethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Tetrachloroethene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,3-Dichloropropane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
2-Hexanone	ND	0.0050	EPA 8260C	6-19-15	6-19-15	
Dibromochloromethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,2-Dibromoethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Chlorobenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Ethylbenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
m,p-Xylene	ND	0.0020	EPA 8260C	6-19-15	6-19-15	
o-Xylene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Styrene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Bromoform	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Isopropylbenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Bromobenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
n-Propylbenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
2-Chlorotoluene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
4-Chlorotoluene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,3,5-Trimethylbenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
tert-Butylbenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,2,4-Trimethylbenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
sec-Butylbenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
p-Isopropyltoluene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
n-Butylbenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,2-Dibromo-3-chloropropane	ND	0.0050	EPA 8260C	6-19-15	6-19-15	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Hexachlorobutadiene	ND	0.0050	EPA 8260C	6-19-15	6-19-15	
Naphthalene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*90*	*76-131*				
Toluene-d8	*94*	*82-129*				
4-Bromofluorobenzene	*117*	*79-126*				

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

VOLATILES by EPA 8260C
SB/SBD QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0618S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**0.0452**	**0.0425**	0.0500	0.0500	90	85	66-129	6	15	
Benzene	**0.0464**	**0.0467**	0.0500	0.0500	93	93	71-123	1	15	
Trichloroethene	**0.0460**	**0.0462**	0.0500	0.0500	92	92	75-115	0	15	
Toluene	**0.0472**	**0.0470**	0.0500	0.0500	94	94	75-120	0	15	
Chlorobenzene	**0.0460**	**0.0459**	0.0500	0.0500	92	92	75-121	0	15	
Surrogate:										
Dibromofluoromethane					*87*	*84*	*76-131*			
Toluene-d8					*90*	*88*	*82-129*			
4-Bromofluorobenzene					*109*	*109*	*79-126*			

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

VOLATILES by EPA 8260C
SB/SBD QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0619S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**0.0449**	**0.0436**	0.0500	0.0500	90	87	66-129	3	15	
Benzene	**0.0481**	**0.0477**	0.0500	0.0500	96	95	71-123	1	15	
Trichloroethene	**0.0463**	**0.0460**	0.0500	0.0500	93	92	75-115	1	15	
Toluene	**0.0483**	**0.0471**	0.0500	0.0500	97	94	75-120	3	15	
Chlorobenzene	**0.0472**	**0.0458**	0.0500	0.0500	94	92	75-121	3	15	
Surrogate:										
Dibromofluoromethane					*88*	*88*	*76-131*			
Toluene-d8					*90*	*88*	*82-129*			
4-Bromofluorobenzene					*110*	*111*	*79-126*			

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

SEMIVOLATILES EPA 8270D/SIM
page 1 of 2

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-SP1**					
Laboratory ID:	06-183-01					
n-Nitrosodimethylamine	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Pyridine	**ND**	1.8	EPA 8270D	6-18-15	6-18-15	
Phenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Aniline	**ND**	0.90	EPA 8270D	6-18-15	6-18-15	
bis(2-Chloroethyl)ether	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2-Chlorophenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
1,3-Dichlorobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
1,4-Dichlorobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Benzyl alcohol	**ND**	0.90	EPA 8270D	6-18-15	6-18-15	
1,2-Dichlorobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2-Methylphenol (o-Cresol)	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
bis(2-Chloroisopropyl)ether	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
n-Nitroso-di-n-propylamine	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Hexachloroethane	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Nitrobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Isophorone	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2-Nitrophenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2,4-Dimethylphenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
bis(2-Chloroethoxy)methane	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2,4-Dichlorophenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
1,2,4-Trichlorobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Naphthalene	**0.18**	0.0072	EPA 8270D/SIM	6-18-15	6-18-15	
4-Chloroaniline	**ND**	0.90	EPA 8270D	6-18-15	6-18-15	
Hexachlorobutadiene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
4-Chloro-3-methylphenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2-Methylnaphthalene	**0.022**	0.0072	EPA 8270D/SIM	6-18-15	6-18-15	
1-Methylnaphthalene	**0.43**	0.18	EPA 8270D	6-18-15	6-18-15	
Hexachlorocyclopentadiene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2,4,6-Trichlorophenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2,3-Dichloroaniline	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2,4,5-Trichlorophenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2-Chloronaphthalene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2-Nitroaniline	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
1,4-Dinitrobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Dimethylphthalate	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
1,3-Dinitrobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2,6-Dinitrotoluene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
1,2-Dinitrobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Acenaphthylene	**0.031**	0.0072	EPA 8270D/SIM	6-18-15	6-18-15	
3-Nitroaniline	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

SEMIVOLATILES EPA 8270D/SIM
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-SP1**					
Laboratory ID:	06-183-01					
2,4-Dinitrophenol	**ND**	0.90	EPA 8270D	6-18-15	6-18-15	
Acenaphthene	**0.29**	0.18	EPA 8270D	6-18-15	6-18-15	
4-Nitrophenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2,4-Dinitrotoluene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Dibenzofuran	**0.32**	0.18	EPA 8270D	6-18-15	6-18-15	
2,3,5,6-Tetrachlorophenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2,3,4,6-Tetrachlorophenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Diethylphthalate	**ND**	0.90	EPA 8270D	6-18-15	6-18-15	
4-Chlorophenyl-phenylether	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
4-Nitroaniline	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Fluorene	**1.0**	0.18	EPA 8270D	6-18-15	6-18-15	
4,6-Dinitro-2-methylphenol	**ND**	0.90	EPA 8270D	6-18-15	6-18-15	
n-Nitrosodiphenylamine	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
1,2-Diphenylhydrazine	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
4-Bromophenyl-phenylether	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Hexachlorobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Pentachlorophenol	**ND**	0.90	EPA 8270D	6-18-15	6-18-15	
Phenanthrene	**0.039**	0.0072	EPA 8270D/SIM	6-18-15	6-18-15	
Anthracene	**0.26**	0.18	EPA 8270D	6-18-15	6-18-15	
Carbazole	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Di-n-butylphthalate	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Fluoranthene	**0.042**	0.0072	EPA 8270D/SIM	6-18-15	6-18-15	
Benzidine	**ND**	1.8	EPA 8270D	6-18-15	6-18-15	
Pyrene	**0.19**	0.18	EPA 8270D	6-18-15	6-18-15	
Butylbenzylphthalate	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
bis-2-Ethylhexyladipate	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
3,3'-Dichlorobenzidine	**ND**	0.90	EPA 8270D	6-18-15	6-18-15	
Benzo[a]anthracene	**0.016**	0.0072	EPA 8270D/SIM	6-18-15	6-18-15	
Chrysene	**0.032**	0.0072	EPA 8270D/SIM	6-18-15	6-18-15	
bis(2-Ethylhexyl)phthalate	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Di-n-octylphthalate	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Benzo[b]fluoranthene	**0.0087**	0.0072	EPA 8270D/SIM	6-18-15	6-18-15	
Benzo(j,k)fluoranthene	**ND**	0.0072	EPA 8270D/SIM	6-18-15	6-18-15	
Benzo[a]pyrene	**ND**	0.0072	EPA 8270D/SIM	6-18-15	6-18-15	
Indeno[1,2,3-cd]pyrene	**ND**	0.0072	EPA 8270D/SIM	6-18-15	6-18-15	
Dibenz[a,h]anthracene	**ND**	0.0072	EPA 8270D/SIM	6-18-15	6-18-15	
Benzo[g,h,i]perylene	**ND**	0.0072	EPA 8270D/SIM	6-18-15	6-18-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorophenol	*81*	*31 - 110*				
Phenol-d6	*89*	*34 - 109*				
Nitrobenzene-d5	*130*	*30 - 109*				Q
2-Fluorobiphenyl	*101*	*39 - 103*				
2,4,6-Tribromophenol	*87*	*25 - 120*				
Terphenyl-d14	*91*	*40 - 117*				

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

SEMIVOLATILES EPA 8270D/SIM
page 1 of 2

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-SP2**					
Laboratory ID:	06-183-02					
n-Nitrosodimethylamine	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Pyridine	**ND**	1.8	EPA 8270D	6-18-15	6-18-15	
Phenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Aniline	**ND**	0.90	EPA 8270D	6-18-15	6-18-15	
bis(2-Chloroethyl)ether	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2-Chlorophenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
1,3-Dichlorobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
1,4-Dichlorobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Benzyl alcohol	**ND**	0.90	EPA 8270D	6-18-15	6-18-15	
1,2-Dichlorobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2-Methylphenol (o-Cresol)	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
bis(2-Chloroisopropyl)ether	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
n-Nitroso-di-n-propylamine	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Hexachloroethane	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Nitrobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Isophorone	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2-Nitrophenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2,4-Dimethylphenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
bis(2-Chloroethoxy)methane	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2,4-Dichlorophenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
1,2,4-Trichlorobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Naphthalene	**0.42**	0.18	EPA 8270D	6-18-15	6-18-15	
4-Chloroaniline	**ND**	0.90	EPA 8270D	6-18-15	6-18-15	
Hexachlorobutadiene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
4-Chloro-3-methylphenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2-Methylnaphthalene	**3.6**	0.18	EPA 8270D	6-18-15	6-18-15	
1-Methylnaphthalene	**2.8**	0.18	EPA 8270D	6-18-15	6-18-15	
Hexachlorocyclopentadiene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2,4,6-Trichlorophenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2,3-Dichloroaniline	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2,4,5-Trichlorophenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2-Chloronaphthalene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2-Nitroaniline	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
1,4-Dinitrobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Dimethylphthalate	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
1,3-Dinitrobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2,6-Dinitrotoluene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
1,2-Dinitrobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Acenaphthylene	**0.052**	0.0072	EPA 8270D/SIM	6-18-15	6-18-15	
3-Nitroaniline	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

SEMIVOLATILES EPA 8270D/SIM
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-SP2**					
Laboratory ID:	06-183-02					
2,4-Dinitrophenol	**ND**	0.90	EPA 8270D	6-18-15	6-18-15	
Acenaphthene	**0.40**	0.18	EPA 8270D	6-18-15	6-18-15	
4-Nitrophenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2,4-Dinitrotoluene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Dibenzofuran	**0.53**	0.18	EPA 8270D	6-18-15	6-18-15	
2,3,5,6-Tetrachlorophenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2,3,4,6-Tetrachlorophenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Diethylphthalate	**ND**	0.90	EPA 8270D	6-18-15	6-18-15	
4-Chlorophenyl-phenylether	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
4-Nitroaniline	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Fluorene	**1.3**	0.18	EPA 8270D	6-18-15	6-18-15	
4,6-Dinitro-2-methylphenol	**ND**	0.90	EPA 8270D	6-18-15	6-18-15	
n-Nitrosodiphenylamine	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
1,2-Diphenylhydrazine	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
4-Bromophenyl-phenylether	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Hexachlorobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Pentachlorophenol	**ND**	0.90	EPA 8270D	6-18-15	6-18-15	
Phenanthrene	**2.4**	0.18	EPA 8270D	6-18-15	6-18-15	
Anthracene	**0.18**	0.0072	EPA 8270D/SIM	6-18-15	6-18-15	
Carbazole	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Di-n-butylphthalate	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Fluoranthene	**0.80**	0.18	EPA 8270D	6-18-15	6-18-15	
Benzidine	**ND**	1.8	EPA 8270D	6-18-15	6-18-15	
Pyrene	**0.75**	0.18	EPA 8270D	6-18-15	6-18-15	
Butylbenzylphthalate	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
bis-2-Ethylhexyladipate	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
3,3'-Dichlorobenzidine	**ND**	0.90	EPA 8270D	6-18-15	6-18-15	
Benzo[a]anthracene	**0.28**	0.18	EPA 8270D	6-18-15	6-18-15	
Chrysene	**0.34**	0.18	EPA 8270D	6-18-15	6-18-15	
bis(2-Ethylhexyl)phthalate	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Di-n-octylphthalate	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Benzo[b]fluoranthene	**0.38**	0.18	EPA 8270D	6-18-15	6-18-15	
Benzo(j,k)fluoranthene	**0.10**	0.0072	EPA 8270D/SIM	6-18-15	6-18-15	
Benzo[a]pyrene	**0.28**	0.18	EPA 8270D	6-18-15	6-18-15	
Indeno[1,2,3-cd]pyrene	**0.14**	0.0072	EPA 8270D/SIM	6-18-15	6-18-15	
Dibenz[a,h]anthracene	**0.041**	0.0072	EPA 8270D/SIM	6-18-15	6-18-15	
Benzo[g,h,i]perylene	**0.17**	0.0072	EPA 8270D/SIM	6-18-15	6-18-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorophenol	*80*	*31 - 110*				
Phenol-d6	*90*	*34 - 109*				
Nitrobenzene-d5	*111*	*30 - 109*				Q
2-Fluorobiphenyl	*94*	*39 - 103*				
2,4,6-Tribromophenol	*88*	*25 - 120*				
Terphenyl-d14	*92*	*40 - 117*				

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

SEMIVOLATILES EPA 8270D/SIM
page 1 of 2

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-SP3**					
Laboratory ID:	06-183-03					
n-Nitrosodimethylamine	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Pyridine	**ND**	1.8	EPA 8270D	6-18-15	6-18-15	
Phenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Aniline	**ND**	0.91	EPA 8270D	6-18-15	6-18-15	
bis(2-Chloroethyl)ether	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2-Chlorophenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
1,3-Dichlorobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
1,4-Dichlorobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Benzyl alcohol	**ND**	0.91	EPA 8270D	6-18-15	6-18-15	
1,2-Dichlorobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2-Methylphenol (o-Cresol)	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
bis(2-Chloroisopropyl)ether	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
n-Nitroso-di-n-propylamine	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Hexachloroethane	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Nitrobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Isophorone	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2-Nitrophenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2,4-Dimethylphenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
bis(2-Chloroethoxy)methane	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2,4-Dichlorophenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
1,2,4-Trichlorobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Naphthalene	**0.31**	0.0073	EPA 8270D/SIM	6-18-15	6-18-15	
4-Chloroaniline	**ND**	0.91	EPA 8270D	6-18-15	6-18-15	
Hexachlorobutadiene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
4-Chloro-3-methylphenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2-Methylnaphthalene	**1.6**	0.18	EPA 8270D	6-18-15	6-18-15	
1-Methylnaphthalene	**1.8**	0.18	EPA 8270D	6-18-15	6-18-15	
Hexachlorocyclopentadiene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2,4,6-Trichlorophenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2,3-Dichloroaniline	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2,4,5-Trichlorophenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2-Chloronaphthalene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2-Nitroaniline	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
1,4-Dinitrobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Dimethylphthalate	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
1,3-Dinitrobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2,6-Dinitrotoluene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
1,2-Dinitrobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Acenaphthylene	**0.041**	0.0073	EPA 8270D/SIM	6-18-15	6-18-15	
3-Nitroaniline	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

SEMIVOLATILES EPA 8270D/SIM
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-SP3**					
Laboratory ID:	06-183-03					
2,4-Dinitrophenol	**ND**	0.91	EPA 8270D	6-18-15	6-18-15	
Acenaphthene	**0.24**	0.18	EPA 8270D	6-18-15	6-18-15	
4-Nitrophenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2,4-Dinitrotoluene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Dibenzofuran	**0.38**	0.18	EPA 8270D	6-18-15	6-18-15	
2,3,5,6-Tetrachlorophenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
2,3,4,6-Tetrachlorophenol	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Diethylphthalate	**ND**	0.91	EPA 8270D	6-18-15	6-18-15	
4-Chlorophenyl-phenylether	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
4-Nitroaniline	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Fluorene	**0.88**	0.18	EPA 8270D	6-18-15	6-18-15	
4,6-Dinitro-2-methylphenol	**ND**	0.91	EPA 8270D	6-18-15	6-18-15	
n-Nitrosodiphenylamine	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
1,2-Diphenylhydrazine	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
4-Bromophenyl-phenylether	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Hexachlorobenzene	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Pentachlorophenol	**ND**	0.91	EPA 8270D	6-18-15	6-18-15	
Phenanthrene	**1.1**	0.18	EPA 8270D	6-18-15	6-18-15	
Anthracene	**0.11**	0.0073	EPA 8270D/SIM	6-18-15	6-18-15	
Carbazole	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Di-n-butylphthalate	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Fluoranthene	**0.062**	0.0073	EPA 8270D/SIM	6-18-15	6-18-15	
Benzidine	**ND**	1.8	EPA 8270D	6-18-15	6-18-15	
Pyrene	**0.19**	0.0073	EPA 8270D/SIM	6-18-15	6-18-15	
Butylbenzylphthalate	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
bis-2-Ethylhexyladipate	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
3,3'-Dichlorobenzidine	**ND**	0.91	EPA 8270D	6-18-15	6-18-15	
Benzo[a]anthracene	**0.017**	0.0073	EPA 8270D/SIM	6-18-15	6-18-15	
Chrysene	**0.026**	0.0073	EPA 8270D/SIM	6-18-15	6-18-15	
bis(2-Ethylhexyl)phthalate	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Di-n-octylphthalate	**ND**	0.18	EPA 8270D	6-18-15	6-18-15	
Benzo[b]fluoranthene	**0.015**	0.0073	EPA 8270D/SIM	6-18-15	6-18-15	
Benzo(j,k)fluoranthene	**ND**	0.0073	EPA 8270D/SIM	6-18-15	6-18-15	
Benzo[a]pyrene	**0.0093**	0.0073	EPA 8270D/SIM	6-18-15	6-18-15	
Indeno[1,2,3-cd]pyrene	**ND**	0.0073	EPA 8270D/SIM	6-18-15	6-18-15	
Dibenz[a,h]anthracene	**ND**	0.0073	EPA 8270D/SIM	6-18-15	6-18-15	
Benzo[g,h,i]perylene	**0.0073**	0.0073	EPA 8270D/SIM	6-18-15	6-18-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorophenol	*30*	*31 - 110*				Q
Phenol-d6	*42*	*34 - 109*				
Nitrobenzene-d5	*61*	*30 - 109*				
2-Fluorobiphenyl	*71*	*39 - 103*				
2,4,6-Tribromophenol	*64*	*25 - 120*				
Terphenyl-d14	*67*	*40 - 117*				

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

SEMIVOLATILES EPA 8270D/SIM
METHOD BLANK QUALITY CONTROL
page 1 of 2

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0618S1					
n-Nitrosodimethylamine	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
Pyridine	**ND**	0.33	EPA 8270D	6-18-15	6-18-15	
Phenol	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
Aniline	**ND**	0.17	EPA 8270D	6-18-15	6-18-15	
bis(2-Chloroethyl)ether	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
2-Chlorophenol	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
1,3-Dichlorobenzene	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
1,4-Dichlorobenzene	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
Benzyl alcohol	**ND**	0.17	EPA 8270D	6-18-15	6-18-15	
1,2-Dichlorobenzene	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
2-Methylphenol (o-Cresol)	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
bis(2-Chloroisopropyl)ether	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
n-Nitroso-di-n-propylamine	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
Hexachloroethane	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
Nitrobenzene	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
Isophorone	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
2-Nitrophenol	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
2,4-Dimethylphenol	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
bis(2-Chloroethoxy)methane	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
2,4-Dichlorophenol	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
1,2,4-Trichlorobenzene	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
Naphthalene	**ND**	0.0067	EPA 8270D/SIM	6-18-15	6-18-15	
4-Chloroaniline	**ND**	0.17	EPA 8270D	6-18-15	6-18-15	
Hexachlorobutadiene	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
4-Chloro-3-methylphenol	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
2-Methylnaphthalene	**ND**	0.0067	EPA 8270D/SIM	6-18-15	6-18-15	
1-Methylnaphthalene	**ND**	0.0067	EPA 8270D/SIM	6-18-15	6-18-15	
Hexachlorocyclopentadiene	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
2,4,6-Trichlorophenol	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
2,3-Dichloroaniline	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
2,4,5-Trichlorophenol	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
2-Chloronaphthalene	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
2-Nitroaniline	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
1,4-Dinitrobenzene	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
Dimethylphthalate	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
1,3-Dinitrobenzene	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
2,6-Dinitrotoluene	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
1,2-Dinitrobenzene	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
Acenaphthylene	**ND**	0.0067	EPA 8270D/SIM	6-18-15	6-18-15	
3-Nitroaniline	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

SEMIVOLATILES EPA 8270D/SIM
METHOD BLANK QUALITY CONTROL
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0618S1					
2,4-Dinitrophenol	**ND**	0.17	EPA 8270D	6-18-15	6-18-15	
Acenaphthene	**ND**	0.0067	EPA 8270D/SIM	6-18-15	6-18-15	
4-Nitrophenol	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
2,4-Dinitrotoluene	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
Dibenzofuran	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
2,3,5,6-Tetrachlorophenol	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
2,3,4,6-Tetrachlorophenol	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
Diethylphthalate	**ND**	0.17	EPA 8270D	6-18-15	6-18-15	
4-Chlorophenyl-phenylether	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
4-Nitroaniline	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
Fluorene	**ND**	0.0067	EPA 8270D/SIM	6-18-15	6-18-15	
4,6-Dinitro-2-methylphenol	**ND**	0.17	EPA 8270D	6-18-15	6-18-15	
n-Nitrosodiphenylamine	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
1,2-Diphenylhydrazine	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
4-Bromophenyl-phenylether	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
Hexachlorobenzene	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
Pentachlorophenol	**ND**	0.17	EPA 8270D	6-18-15	6-18-15	
Phenanthrene	**ND**	0.0067	EPA 8270D/SIM	6-18-15	6-18-15	
Anthracene	**ND**	0.0067	EPA 8270D/SIM	6-18-15	6-18-15	
Carbazole	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
Di-n-butylphthalate	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
Fluoranthene	**ND**	0.0067	EPA 8270D/SIM	6-18-15	6-18-15	
Benzidine	**ND**	0.33	EPA 8270D	6-18-15	6-18-15	
Pyrene	**ND**	0.0067	EPA 8270D/SIM	6-18-15	6-18-15	
Butylbenzylphthalate	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
bis-2-Ethylhexyladipate	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
3,3'-Dichlorobenzidine	**ND**	0.17	EPA 8270D	6-18-15	6-18-15	
Benzo[a]anthracene	**ND**	0.0067	EPA 8270D/SIM	6-18-15	6-18-15	
Chrysene	**ND**	0.0067	EPA 8270D/SIM	6-18-15	6-18-15	
bis(2-Ethylhexyl)phthalate	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
Di-n-octylphthalate	**ND**	0.033	EPA 8270D	6-18-15	6-18-15	
Benzo[b]fluoranthene	**ND**	0.0067	EPA 8270D/SIM	6-18-15	6-18-15	
Benzo(j,k)fluoranthene	**ND**	0.0067	EPA 8270D/SIM	6-18-15	6-18-15	
Benzo[a]pyrene	**ND**	0.0067	EPA 8270D/SIM	6-18-15	6-18-15	
Indeno[1,2,3-cd]pyrene	**ND**	0.0067	EPA 8270D/SIM	6-18-15	6-18-15	
Dibenz[a,h]anthracene	**ND**	0.0067	EPA 8270D/SIM	6-18-15	6-18-15	
Benzo[g,h,i]perylene	**ND**	0.0067	EPA 8270D/SIM	6-18-15	6-18-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorophenol	*87*	*31 - 110*				
Phenol-d6	*88*	*34 - 109*				
Nitrobenzene-d5	*93*	*30 - 109*				
2-Fluorobiphenyl	*86*	*39 - 103*				
2,4,6-Tribromophenol	*82*	*25 - 120*				
Terphenyl-d14	*88*	*40 - 117*				

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

SEMIVOLATILES EPA 8270D/SIM
SB/SBD QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0618S1									
	SB	SBD	SB	SBD	SB	SBD				
Phenol	**0.933**	**1.12**	1.33	1.33	70	84	55 - 105	18	25	
2-Chlorophenol	**0.922**	**1.13**	1.33	1.33	69	85	56 - 102	20	30	
1,4-Dichlorobenzene	**0.433**	**0.550**	0.667	0.667	65	82	49 - 99	24	35	
n-Nitroso-di-n-propylamine	**0.478**	**0.579**	0.667	0.667	72	87	52 - 102	19	26	
1,2,4-Trichlorobenzene	**0.466**	**0.572**	0.667	0.667	70	86	49 - 110	20	30	
4-Chloro-3-methylphenol	**1.14**	**1.19**	1.33	1.33	86	89	59 - 113	4	22	
Acenaphthene	**0.470**	**0.499**	0.667	0.667	70	75	52 - 103	6	22	
4-Nitrophenol	**1.14**	**1.03**	1.33	1.33	86	77	51 - 125	10	23	
2,4-Dinitrotoluene	**0.604**	**0.546**	0.667	0.667	91	82	53 - 118	10	23	
Pentachlorophenol	**0.565**	**0.484**	1.33	1.33	42	36	25 - 141	15	39	
Pyrene	**0.590**	**0.539**	0.667	0.667	88	81	57 - 120	9	20	
Surrogate:										
2-Fluorophenol					*69*	*85*	*31 - 110*			
Phenol-d6					*72*	*85*	*34 - 109*			
Nitrobenzene-d5					*72*	*88*	*30 - 109*			
2-Fluorobiphenyl					*71*	*78*	*39 - 103*			
2,4,6-Tribromophenol					*85*	*76*	*25 - 120*			
Terphenyl-d14					*92*	*80*	*40 - 117*			

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

PCBs
EPA 8082A

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-SP1**					
Laboratory ID:	06-183-01					
Aroclor 1016	**ND**	0.054	EPA 8082A	6-18-15	6-18-15	
Aroclor 1221	**ND**	0.054	EPA 8082A	6-18-15	6-18-15	
Aroclor 1232	**ND**	0.054	EPA 8082A	6-18-15	6-18-15	
Aroclor 1242	**ND**	0.054	EPA 8082A	6-18-15	6-18-15	
Aroclor 1248	**ND**	0.054	EPA 8082A	6-18-15	6-18-15	
Aroclor 1254	**ND**	0.054	EPA 8082A	6-18-15	6-18-15	
Aroclor 1260	**ND**	0.054	EPA 8082A	6-18-15	6-18-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*107*	*55-140*				
Client ID:	**SFS-SP2**					
Laboratory ID:	06-183-02					
Aroclor 1016	**ND**	0.054	EPA 8082A	6-18-15	6-18-15	
Aroclor 1221	**ND**	0.054	EPA 8082A	6-18-15	6-18-15	
Aroclor 1232	**ND**	0.054	EPA 8082A	6-18-15	6-18-15	
Aroclor 1242	**ND**	0.054	EPA 8082A	6-18-15	6-18-15	
Aroclor 1248	**ND**	0.054	EPA 8082A	6-18-15	6-18-15	
Aroclor 1254	**ND**	0.054	EPA 8082A	6-18-15	6-18-15	
Aroclor 1260	**ND**	0.054	EPA 8082A	6-18-15	6-18-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*102*	*55-140*				
Client ID:	**SFS-SP3**					
Laboratory ID:	06-183-03					
Aroclor 1016	**ND**	0.054	EPA 8082A	6-18-15	6-18-15	
Aroclor 1221	**ND**	0.054	EPA 8082A	6-18-15	6-18-15	
Aroclor 1232	**ND**	0.054	EPA 8082A	6-18-15	6-18-15	
Aroclor 1242	**ND**	0.054	EPA 8082A	6-18-15	6-18-15	
Aroclor 1248	**ND**	0.054	EPA 8082A	6-18-15	6-18-15	
Aroclor 1254	**ND**	0.054	EPA 8082A	6-18-15	6-18-15	
Aroclor 1260	**ND**	0.054	EPA 8082A	6-18-15	6-18-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*101*	*55-140*				

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

PCBs EPA 8082A
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0618S2					
Aroclor 1016	**ND**	0.050	EPA 8082A	6-18-15	6-18-15	
Aroclor 1221	**ND**	0.050	EPA 8082A	6-18-15	6-18-15	
Aroclor 1232	**ND**	0.050	EPA 8082A	6-18-15	6-18-15	
Aroclor 1242	**ND**	0.050	EPA 8082A	6-18-15	6-18-15	
Aroclor 1248	**ND**	0.050	EPA 8082A	6-18-15	6-18-15	
Aroclor 1254	**ND**	0.050	EPA 8082A	6-18-15	6-18-15	
Aroclor 1260	**ND**	0.050	EPA 8082A	6-18-15	6-18-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*110*	*55-140*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	06-183-01										
	MS	MSD	MS	MSD		MS	MSD				
Aroclor 1260	**0.398**	**0.392**	0.500	0.500	ND	**80**	**78**	46-136	2	17	
Surrogate:											
DCB						*107*	*101*	*55-140*			

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

TOTAL METALS
EPA 6010C/7471B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	06-183-01					
Client ID:	**SFS-SP1**					
Arsenic	**ND**	11	6010C	6-18-15	6-18-15	
Barium	**28**	2.7	6010C	6-18-15	6-18-15	
Cadmium	**ND**	0.54	6010C	6-18-15	6-18-15	
Chromium	**21**	0.54	6010C	6-18-15	6-18-15	
Lead	**ND**	5.4	6010C	6-18-15	6-18-15	
Mercury	**ND**	0.27	7471B	6-18-15	6-18-15	
Selenium	**ND**	11	6010C	6-18-15	6-18-15	
Silver	**ND**	1.1	6010C	6-18-15	6-18-15	
Lab ID:	06-183-02					
Client ID:	**SFS-SP2**					
Arsenic	**ND**	11	6010C	6-18-15	6-18-15	
Barium	**27**	2.7	6010C	6-18-15	6-18-15	
Cadmium	**ND**	0.54	6010C	6-18-15	6-18-15	
Chromium	**23**	0.54	6010C	6-18-15	6-18-15	
Lead	**ND**	5.4	6010C	6-18-15	6-18-15	
Mercury	**ND**	0.27	7471B	6-18-15	6-18-15	
Selenium	**ND**	11	6010C	6-18-15	6-18-15	
Silver	**ND**	1.1	6010C	6-18-15	6-18-15	

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

TOTAL METALS
EPA 6010C/7471B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	06-183-03					
Client ID:	**SFS-SP3**					
Arsenic	**ND**	11	6010C	6-18-15	6-18-15	
Barium	**30**	2.7	6010C	6-18-15	6-18-15	
Cadmium	**ND**	0.54	6010C	6-18-15	6-18-15	
Chromium	**23**	0.54	6010C	6-18-15	6-18-15	
Lead	**ND**	5.4	6010C	6-18-15	6-18-15	
Mercury	**ND**	0.27	7471B	6-18-15	6-18-15	
Selenium	**ND**	11	6010C	6-18-15	6-18-15	
Silver	**ND**	1.1	6010C	6-18-15	6-18-15	

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

TOTAL METALS
EPA 6010C/7471B
METHOD BLANK QUALITY CONTROL

Date Extracted: 6-18-15
Date Analyzed: 6-18-15

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0618SM1&MB0618S1

Analyte	Method	Result	PQL
Arsenic	6010C	**ND**	10
Barium	6010C	**ND**	2.5
Cadmium	6010C	**ND**	0.50
Chromium	6010C	**ND**	0.50
Lead	6010C	**ND**	5.0
Mercury	7471B	**ND**	0.25
Selenium	6010C	**ND**	10
Silver	6010C	**ND**	1.0

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

TOTAL METALS
EPA 6010C/7471B
DUPLICATE QUALITY CONTROL

Date Extracted: 6-18-15
Date Analyzed: 6-18-15

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 06-184-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Barium	**3110**	**3190**	3	25	
Cadmium	**1.39**	**1.33**	4	0.50	
Chromium	**125**	**127**	1	0.50	
Lead	**67.5**	**66.9**	1	5.0	
Mercury	**ND**	**ND**	NA	0.25	
Selenium	**ND**	**ND**	NA	10	
Silver	**ND**	**ND**	NA	1.0	

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

TOTAL METALS
EPA 6010C/7471B
MS/MSD QUALITY CONTROL

Date Extracted: 6-18-15
Date Analyzed: 6-18-15

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 06-184-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**86.1**	86	**83.3**	83	3	
Barium	100	**3210**	105	**3250**	143	1	A
Cadmium	50.0	**46.3**	90	**45.7**	89	1	
Chromium	100	**200**	75	**204**	79	2	
Lead	250	**271**	81	**267**	80	2	
Mercury	0.500	**0.523**	105	**0.495**	99	6	
Selenium	100	**85.8**	86	**84.4**	84	2	
Silver	25.0	**21.7**	87	**21.8**	87	0	

Date of Report: June 18, 2015
Samples Submitted: June 17, 2015
Laboratory Reference: 1506-183
Project: Signals Fuel Site

% MOISTURE

Date Analyzed: 6-18-15

Client ID	Lab ID	% Moisture
SFS-SP1	06-183-01	7
SFS-SP2	06-183-02	8
SFS-SP3	06-183-03	8

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a Sulfuric acid/Silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

DAVID

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

Page 1 of 1

Company: WSDOT
Project Number:
Project Name: Signals Fuel Site
Project Manager: Trent Gusmingler
Sampled by: ll

Turnaround Request (in working days)
(Check One)
☐ Same Day ☑ 1 Day
☐ 2 Days ☐ 3 Days
☐ Standard (7 Days) (TPH analysis 5 Days)
☐ _____ (other)

Laboratory Number: 06-183

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260C	Halogenated Volatiles 8260C	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	% Moisture
1	SFS-SP1	6/17/15	1530	soil	6			✓	✓	✓		✓		✓				✓				✓
2	SFS-SP2																					✓
3	SFS-SP3																					✓

	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished	John Sauerlop	ANDERSON ENVIRO.	6/17/15	5:12 pm	
Received		OSE	6/17/15	5:12 pm	
Relinquished					
Received					
Relinquished					
Received					
Reviewed/Date		Reviewed/Date			Chromatograms with final report ☐

Data Package: Standard ☐ Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ _____

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

June 25, 2015

Trent Ensminger
Washington State Department of Transportation
HAZ-MAT
2214 RW Johnson Road SW; MS 47332
Tumwater, WA 98512-6111

Re: Analytical Data for Project WSDOT Signal Fuel Site
Laboratory Reference No. 1506-238

Dear Trent:

Enclosed are the analytical results and associated quality control data for samples submitted on June 23, 2015.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

Case Narrative

Samples were collected on June 23, 2015 and received by the laboratory on June 23, 2015. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

NWTPH Gx and Volatiles EPA 8260C Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

NWTPH-Gx

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-B1**					
Laboratory ID:	06-238-01					
Gasoline	**ND**	5.7	NWTPH-Gx	6-23-15	6-24-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*81*	*68-123*				
Client ID:	**SFS-E**					
Laboratory ID:	06-238-02					
Gasoline	**ND**	5.1	NWTPH-Gx	6-23-15	6-24-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*87*	*68-123*				

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

NWTPH-Gx
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0623S1					
Gasoline	**ND**	5.0	NWTPH-Gx	6-23-15	6-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*78*	*68-123*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	06-200-01										
	ORIG	DUP									
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*103*	*104*	*68-123*			

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

NWTPH-Dx

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-B1**					
Laboratory ID:	06-238-01					
Diesel Fuel #2	**50**	41	NWTPH-Dx	6-24-15	6-24-15	
Lube Oil Range Organics	**ND**	82	NWTPH-Dx	6-24-15	6-24-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*84*	*50-150*				
Client ID:	**SFS-E**					
Laboratory ID:	06-238-02					
Diesel Range Organics	**ND**	30	NWTPH-Dx	6-24-15	6-24-15	
Lube Oil Range Organics	**ND**	60	NWTPH-Dx	6-24-15	6-24-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*58*	*50-150*				

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

NWTPH-Dx
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0624S2					
Diesel Range Organics	**ND**	25	NWTPH-Dx	6-24-15	6-24-15	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	6-24-15	6-24-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*68*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	06-216-18										
	ORIG	DUP									
Diesel Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	X1
Lube Oil Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	X1
Surrogate:											
o-Terphenyl						*78*	*85*	*50-150*			

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

VOLATILES EPA 8260C
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-B1**					
Laboratory ID:	06-238-01					
Dichlorodifluoromethane	ND	0.0013	EPA 8260C	6-24-15	6-24-15	
Chloromethane	ND	0.0048	EPA 8260C	6-24-15	6-24-15	
Vinyl Chloride	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
Bromomethane	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
Chloroethane	ND	0.0048	EPA 8260C	6-24-15	6-24-15	
Trichlorofluoromethane	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
1,1-Dichloroethene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
Acetone	ND	0.0096	EPA 8260C	6-24-15	6-24-15	
Iodomethane	ND	0.0048	EPA 8260C	6-24-15	6-24-15	
Carbon Disulfide	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
Methylene Chloride	ND	0.0048	EPA 8260C	6-24-15	6-24-15	
(trans) 1,2-Dichloroethene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
Methyl t-Butyl Ether	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
1,1-Dichloroethane	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
Vinyl Acetate	ND	0.0048	EPA 8260C	6-24-15	6-24-15	
2,2-Dichloropropane	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
(cis) 1,2-Dichloroethene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
2-Butanone	ND	0.0048	EPA 8260C	6-24-15	6-24-15	
Bromochloromethane	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
Chloroform	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
1,1,1-Trichloroethane	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
Carbon Tetrachloride	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
1,1-Dichloropropene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
Benzene	0.0025	0.00096	EPA 8260C	6-24-15	6-24-15	
1,2-Dichloroethane	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
Trichloroethene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
1,2-Dichloropropane	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
Dibromomethane	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
Bromodichloromethane	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
2-Chloroethyl Vinyl Ether	ND	0.0048	EPA 8260C	6-24-15	6-24-15	
(cis) 1,3-Dichloropropene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
Methyl Isobutyl Ketone	ND	0.0048	EPA 8260C	6-24-15	6-24-15	
Toluene	0.013	0.0048	EPA 8260C	6-24-15	6-24-15	
(trans) 1,3-Dichloropropene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

VOLATILES EPA 8260C
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-B1**					
Laboratory ID:	06-238-01					
1,1,2-Trichloroethane	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
Tetrachloroethene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
1,3-Dichloropropane	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
2-Hexanone	ND	0.0048	EPA 8260C	6-24-15	6-24-15	
Dibromochloromethane	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
1,2-Dibromoethane	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
Chlorobenzene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
1,1,1,2-Tetrachloroethane	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
Ethylbenzene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
m,p-Xylene	0.0024	0.0019	EPA 8260C	6-24-15	6-24-15	
o-Xylene	0.0012	0.00096	EPA 8260C	6-24-15	6-24-15	
Styrene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
Bromoform	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
Isopropylbenzene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
Bromobenzene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
1,1,2,2-Tetrachloroethane	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
1,2,3-Trichloropropane	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
n-Propylbenzene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
2-Chlorotoluene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
4-Chlorotoluene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
1,3,5-Trimethylbenzene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
tert-Butylbenzene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
1,2,4-Trimethylbenzene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
sec-Butylbenzene	0.0030	0.00096	EPA 8260C	6-24-15	6-24-15	
1,3-Dichlorobenzene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
p-Isopropyltoluene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
1,4-Dichlorobenzene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
1,2-Dichlorobenzene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
n-Butylbenzene	0.0028	0.00096	EPA 8260C	6-24-15	6-24-15	
1,2-Dibromo-3-chloropropane	ND	0.0048	EPA 8260C	6-24-15	6-24-15	
1,2,4-Trichlorobenzene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
Hexachlorobutadiene	ND	0.0048	EPA 8260C	6-24-15	6-24-15	
Naphthalene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
1,2,3-Trichlorobenzene	ND	0.00096	EPA 8260C	6-24-15	6-24-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*86*	*76-131*				
Toluene-d8	*92*	*82-129*				
4-Bromofluorobenzene	*116*	*79-126*				

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

VOLATILES EPA 8260C
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-E**					
Laboratory ID:	06-238-02					
Dichlorodifluoromethane	ND	0.0016	EPA 8260C	6-23-15	6-23-15	
Chloromethane	ND	0.0062	EPA 8260C	6-23-15	6-23-15	
Vinyl Chloride	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
Bromomethane	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
Chloroethane	ND	0.0062	EPA 8260C	6-23-15	6-23-15	
Trichlorofluoromethane	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
1,1-Dichloroethene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
Acetone	0.020	0.012	EPA 8260C	6-23-15	6-23-15	
Iodomethane	ND	0.0062	EPA 8260C	6-23-15	6-23-15	
Carbon Disulfide	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
Methylene Chloride	ND	0.0062	EPA 8260C	6-23-15	6-23-15	
(trans) 1,2-Dichloroethene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
Methyl t-Butyl Ether	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
1,1-Dichloroethane	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
Vinyl Acetate	ND	0.0062	EPA 8260C	6-23-15	6-23-15	
2,2-Dichloropropane	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
(cis) 1,2-Dichloroethene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
2-Butanone	ND	0.0062	EPA 8260C	6-23-15	6-23-15	
Bromochloromethane	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
Chloroform	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
1,1,1-Trichloroethane	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
Carbon Tetrachloride	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
1,1-Dichloropropene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
Benzene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
1,2-Dichloroethane	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
Trichloroethene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
1,2-Dichloropropane	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
Dibromomethane	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
Bromodichloromethane	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
2-Chloroethyl Vinyl Ether	ND	0.0062	EPA 8260C	6-23-15	6-23-15	
(cis) 1,3-Dichloropropene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
Methyl Isobutyl Ketone	ND	0.0062	EPA 8260C	6-23-15	6-23-15	
Toluene	ND	0.0062	EPA 8260C	6-23-15	6-23-15	
(trans) 1,3-Dichloropropene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

VOLATILES EPA 8260C
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-E**					
Laboratory ID:	06-238-02					
1,1,2-Trichloroethane	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
Tetrachloroethene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
1,3-Dichloropropane	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
2-Hexanone	ND	0.0062	EPA 8260C	6-23-15	6-23-15	
Dibromochloromethane	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
1,2-Dibromoethane	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
Chlorobenzene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
1,1,1,2-Tetrachloroethane	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
Ethylbenzene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
m,p-Xylene	ND	0.0025	EPA 8260C	6-23-15	6-23-15	
o-Xylene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
Styrene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
Bromoform	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
Isopropylbenzene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
Bromobenzene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
1,1,2,2-Tetrachloroethane	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
1,2,3-Trichloropropane	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
n-Propylbenzene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
2-Chlorotoluene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
4-Chlorotoluene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
1,3,5-Trimethylbenzene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
tert-Butylbenzene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
1,2,4-Trimethylbenzene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
sec-Butylbenzene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
1,3-Dichlorobenzene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
p-Isopropyltoluene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
1,4-Dichlorobenzene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
1,2-Dichlorobenzene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
n-Butylbenzene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
1,2-Dibromo-3-chloropropane	ND	0.0062	EPA 8260C	6-23-15	6-23-15	
1,2,4-Trichlorobenzene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
Hexachlorobutadiene	ND	0.0062	EPA 8260C	6-23-15	6-23-15	
Naphthalene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
1,2,3-Trichlorobenzene	ND	0.0012	EPA 8260C	6-23-15	6-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*90*	*76-131*				
Toluene-d8	*90*	*82-129*				
4-Bromofluorobenzene	*115*	*79-126*				

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

VOLATILES by EPA 8260C
METHOD BLANK QUALITY CONTROL
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0623S1					
Dichlorodifluoromethane	ND	0.0013	EPA 8260C	6-23-15	6-23-15	
Chloromethane	ND	0.0050	EPA 8260C	6-23-15	6-23-15	
Vinyl Chloride	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
Bromomethane	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
Chloroethane	ND	0.0050	EPA 8260C	6-23-15	6-23-15	
Trichlorofluoromethane	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
1,1-Dichloroethene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
Acetone	ND	0.010	EPA 8260C	6-23-15	6-23-15	
Iodomethane	ND	0.0050	EPA 8260C	6-23-15	6-23-15	
Carbon Disulfide	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
Methylene Chloride	ND	0.0050	EPA 8260C	6-23-15	6-23-15	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
Methyl t-Butyl Ether	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
1,1-Dichloroethane	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
Vinyl Acetate	ND	0.0050	EPA 8260C	6-23-15	6-23-15	
2,2-Dichloropropane	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
2-Butanone	ND	0.0050	EPA 8260C	6-23-15	6-23-15	
Bromochloromethane	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
Chloroform	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
Carbon Tetrachloride	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
1,1-Dichloropropene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
Benzene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
1,2-Dichloroethane	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
Trichloroethene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
1,2-Dichloropropane	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
Dibromomethane	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
Bromodichloromethane	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
2-Chloroethyl Vinyl Ether	ND	0.0050	EPA 8260C	6-23-15	6-23-15	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
Methyl Isobutyl Ketone	ND	0.0050	EPA 8260C	6-23-15	6-23-15	
Toluene	ND	0.0050	EPA 8260C	6-23-15	6-23-15	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

VOLATILES by EPA 8260C
METHOD BLANK QUALITY CONTROL
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0623S1					
1,1,2-Trichloroethane	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
Tetrachloroethene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
1,3-Dichloropropane	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
2-Hexanone	ND	0.0050	EPA 8260C	6-23-15	6-23-15	
Dibromochloromethane	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
1,2-Dibromoethane	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
Chlorobenzene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
Ethylbenzene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
m,p-Xylene	ND	0.0020	EPA 8260C	6-23-15	6-23-15	
o-Xylene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
Styrene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
Bromoform	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
Isopropylbenzene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
Bromobenzene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
n-Propylbenzene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
2-Chlorotoluene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
4-Chlorotoluene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
1,3,5-Trimethylbenzene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
tert-Butylbenzene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
1,2,4-Trimethylbenzene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
sec-Butylbenzene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
p-Isopropyltoluene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
n-Butylbenzene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
1,2-Dibromo-3-chloropropane	ND	0.0050	EPA 8260C	6-23-15	6-23-15	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
Hexachlorobutadiene	ND	0.0050	EPA 8260C	6-23-15	6-23-15	
Naphthalene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260C	6-23-15	6-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*91*	*76-131*				
Toluene-d8	*95*	*82-129*				
4-Bromofluorobenzene	*119*	*79-126*				

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

VOLATILES by EPA 8260C
METHOD BLANK QUALITY CONTROL
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0624S1					
Dichlorodifluoromethane	ND	0.0014	EPA 8260C	6-24-15	6-24-15	
Chloromethane	ND	0.0050	EPA 8260C	6-24-15	6-24-15	
Vinyl Chloride	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
Bromomethane	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
Chloroethane	ND	0.0050	EPA 8260C	6-24-15	6-24-15	
Trichlorofluoromethane	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
1,1-Dichloroethene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
Acetone	ND	0.010	EPA 8260C	6-24-15	6-24-15	
Iodomethane	ND	0.0050	EPA 8260C	6-24-15	6-24-15	
Carbon Disulfide	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
Methylene Chloride	ND	0.0050	EPA 8260C	6-24-15	6-24-15	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
Methyl t-Butyl Ether	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
1,1-Dichloroethane	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
Vinyl Acetate	ND	0.0050	EPA 8260C	6-24-15	6-24-15	
2,2-Dichloropropane	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
2-Butanone	ND	0.0050	EPA 8260C	6-24-15	6-24-15	
Bromochloromethane	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
Chloroform	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
Carbon Tetrachloride	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
1,1-Dichloropropene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
Benzene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
1,2-Dichloroethane	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
Trichloroethene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
1,2-Dichloropropane	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
Dibromomethane	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
Bromodichloromethane	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
2-Chloroethyl Vinyl Ether	ND	0.0050	EPA 8260C	6-24-15	6-24-15	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
Methyl Isobutyl Ketone	ND	0.0050	EPA 8260C	6-24-15	6-24-15	
Toluene	ND	0.0050	EPA 8260C	6-24-15	6-24-15	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

VOLATILES by EPA 8260C
METHOD BLANK QUALITY CONTROL
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0624S1					
1,1,2-Trichloroethane	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
Tetrachloroethene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
1,3-Dichloropropane	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
2-Hexanone	ND	0.0050	EPA 8260C	6-24-15	6-24-15	
Dibromochloromethane	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
1,2-Dibromoethane	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
Chlorobenzene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
Ethylbenzene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
m,p-Xylene	ND	0.0020	EPA 8260C	6-24-15	6-24-15	
o-Xylene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
Styrene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
Bromoform	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
Isopropylbenzene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
Bromobenzene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
n-Propylbenzene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
2-Chlorotoluene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
4-Chlorotoluene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
1,3,5-Trimethylbenzene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
tert-Butylbenzene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
1,2,4-Trimethylbenzene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
sec-Butylbenzene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
p-Isopropyltoluene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
n-Butylbenzene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
1,2-Dibromo-3-chloropropane	ND	0.0050	EPA 8260C	6-24-15	6-24-15	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
Hexachlorobutadiene	ND	0.0050	EPA 8260C	6-24-15	6-24-15	
Naphthalene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260C	6-24-15	6-24-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*89*	*76-131*				
Toluene-d8	*92*	*82-129*				
4-Bromofluorobenzene	*117*	*79-126*				

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

VOLATILES by EPA 8260C
SB/SBD QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0623S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**0.0441**	**0.0431**	0.0500	0.0500	88	86	66-129	2	15	
Benzene	**0.0487**	**0.0475**	0.0500	0.0500	97	95	71-123	2	15	
Trichloroethene	**0.0470**	**0.0481**	0.0500	0.0500	94	96	75-115	2	15	
Toluene	**0.0478**	**0.0472**	0.0500	0.0500	96	94	75-120	1	15	
Chlorobenzene	**0.0462**	**0.0455**	0.0500	0.0500	92	91	75-121	2	15	
Surrogate:										
Dibromofluoromethane					*88*	*84*	*76-131*			
Toluene-d8					*88*	*87*	*82-129*			
4-Bromofluorobenzene					*111*	*109*	*79-126*			

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

VOLATILES by EPA 8260C
SB/SBD QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0624S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**0.0443**	**0.0423**	0.0500	0.0500	89	85	66-129	5	15	
Benzene	**0.0473**	**0.0470**	0.0500	0.0500	95	94	71-123	1	15	
Trichloroethene	**0.0462**	**0.0469**	0.0500	0.0500	92	94	75-115	2	15	
Toluene	**0.0478**	**0.0478**	0.0500	0.0500	96	96	75-120	0	15	
Chlorobenzene	**0.0452**	**0.0456**	0.0500	0.0500	90	91	75-121	1	15	
Surrogate:										
Dibromofluoromethane					*86*	*83*	*76-131*			
Toluene-d8					*89*	*86*	*82-129*			
4-Bromofluorobenzene					*109*	*107*	*79-126*			

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

SEMIVOLATILES EPA 8270D/SIM
page 1 of 2

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-B1**					
Laboratory ID:	06-238-01					
n-Nitrosodimethylamine	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Pyridine	**ND**	0.41	EPA 8270D	6-23-15	6-24-15	
Phenol	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Aniline	**ND**	0.21	EPA 8270D	6-23-15	6-24-15	
bis(2-Chloroethyl)ether	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2-Chlorophenol	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
1,3-Dichlorobenzene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
1,4-Dichlorobenzene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Benzyl alcohol	**ND**	0.21	EPA 8270D	6-23-15	6-24-15	
1,2-Dichlorobenzene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2-Methylphenol (o-Cresol)	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
bis(2-Chloroisopropyl)ether	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
n-Nitroso-di-n-propylamine	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Hexachloroethane	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Nitrobenzene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Isophorone	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2-Nitrophenol	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2,4-Dimethylphenol	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
bis(2-Chloroethoxy)methane	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2,4-Dichlorophenol	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
1,2,4-Trichlorobenzene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Naphthalene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-24-15	
4-Chloroaniline	**ND**	0.21	EPA 8270D	6-23-15	6-24-15	
Hexachlorobutadiene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
4-Chloro-3-methylphenol	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2-Methylnaphthalene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-24-15	
1-Methylnaphthalene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-24-15	
Hexachlorocyclopentadiene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2,4,6-Trichlorophenol	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2,3-Dichloroaniline	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2,4,5-Trichlorophenol	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2-Chloronaphthalene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2-Nitroaniline	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
1,4-Dinitrobenzene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Dimethylphthalate	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
1,3-Dinitrobenzene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2,6-Dinitrotoluene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
1,2-Dinitrobenzene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Acenaphthylene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-24-15	
3-Nitroaniline	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

SEMIVOLATILES EPA 8270D/SIM
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-B1**					
Laboratory ID:	06-238-01					
2,4-Dinitrophenol	**ND**	0.21	EPA 8270D	6-23-15	6-24-15	
Acenaphthene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-24-15	
4-Nitrophenol	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2,4-Dinitrotoluene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Dibenzofuran	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2,3,5,6-Tetrachlorophenol	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2,3,4,6-Tetrachlorophenol	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Diethylphthalate	**ND**	0.21	EPA 8270D	6-23-15	6-24-15	
4-Chlorophenyl-phenylether	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
4-Nitroaniline	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Fluorene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-24-15	
4,6-Dinitro-2-methylphenol	**ND**	0.21	EPA 8270D	6-23-15	6-24-15	
n-Nitrosodiphenylamine	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
1,2-Diphenylhydrazine	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
4-Bromophenyl-phenylether	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Hexachlorobenzene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Pentachlorophenol	**ND**	0.21	EPA 8270D	6-23-15	6-24-15	
Phenanthrene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-24-15	
Anthracene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-24-15	
Carbazole	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Di-n-butylphthalate	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Fluoranthene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-24-15	
Benzidine	**ND**	0.41	EPA 8270D	6-23-15	6-24-15	
Pyrene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-24-15	
Butylbenzylphthalate	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
bis-2-Ethylhexyladipate	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
3,3'-Dichlorobenzidine	**ND**	0.21	EPA 8270D	6-23-15	6-24-15	
Benzo[a]anthracene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-24-15	
Chrysene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-24-15	
bis(2-Ethylhexyl)phthalate	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Di-n-octylphthalate	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Benzo[b]fluoranthene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-24-15	
Benzo(j,k)fluoranthene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-24-15	
Benzo[a]pyrene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-24-15	
Indeno[1,2,3-cd]pyrene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-24-15	
Dibenz[a,h]anthracene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-24-15	
Benzo[g,h,i]perylene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-24-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorophenol	*43*	*31 - 110*				
Phenol-d6	*42*	*34 - 109*				
Nitrobenzene-d5	*41*	*30 - 109*				
2-Fluorobiphenyl	*48*	*39 - 103*				
2,4,6-Tribromophenol	*61*	*25 - 120*				
Terphenyl-d14	*63*	*40 - 117*				

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

SEMIVOLATILES EPA 8270D/SIM
page 1 of 2

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-E**					
Laboratory ID:	06-238-02					
n-Nitrosodimethylamine	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Pyridine	**ND**	0.40	EPA 8270D	6-23-15	6-24-15	
Phenol	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Aniline	**ND**	0.20	EPA 8270D	6-23-15	6-24-15	
bis(2-Chloroethyl)ether	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2-Chlorophenol	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
1,3-Dichlorobenzene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
1,4-Dichlorobenzene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Benzyl alcohol	**ND**	0.20	EPA 8270D	6-23-15	6-24-15	
1,2-Dichlorobenzene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2-Methylphenol (o-Cresol)	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
bis(2-Chloroisopropyl)ether	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
n-Nitroso-di-n-propylamine	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Hexachloroethane	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Nitrobenzene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Isophorone	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2-Nitrophenol	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2,4-Dimethylphenol	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
bis(2-Chloroethoxy)methane	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2,4-Dichlorophenol	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
1,2,4-Trichlorobenzene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Naphthalene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
4-Chloroaniline	**ND**	0.20	EPA 8270D	6-23-15	6-24-15	
Hexachlorobutadiene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
4-Chloro-3-methylphenol	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2-Methylnaphthalene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
1-Methylnaphthalene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
Hexachlorocyclopentadiene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2,4,6-Trichlorophenol	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2,3-Dichloroaniline	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2,4,5-Trichlorophenol	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2-Chloronaphthalene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2-Nitroaniline	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
1,4-Dinitrobenzene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Dimethylphthalate	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
1,3-Dinitrobenzene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2,6-Dinitrotoluene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
1,2-Dinitrobenzene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Acenaphthylene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
3-Nitroaniline	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

SEMIVOLATILES EPA 8270D/SIM
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-E**					
Laboratory ID:	06-238-02					
2,4-Dinitrophenol	**ND**	0.20	EPA 8270D	6-23-15	6-24-15	
Acenaphthene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
4-Nitrophenol	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2,4-Dinitrotoluene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Dibenzofuran	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2,3,5,6-Tetrachlorophenol	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2,3,4,6-Tetrachlorophenol	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Diethylphthalate	**ND**	0.20	EPA 8270D	6-23-15	6-24-15	
4-Chlorophenyl-phenylether	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
4-Nitroaniline	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Fluorene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
4,6-Dinitro-2-methylphenol	**ND**	0.20	EPA 8270D	6-23-15	6-24-15	
n-Nitrosodiphenylamine	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
1,2-Diphenylhydrazine	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
4-Bromophenyl-phenylether	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Hexachlorobenzene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Pentachlorophenol	**ND**	0.20	EPA 8270D	6-23-15	6-24-15	
Phenanthrene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
Anthracene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
Carbazole	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Di-n-butylphthalate	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Fluoranthene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
Benzidine	**ND**	0.40	EPA 8270D	6-23-15	6-24-15	
Pyrene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
Butylbenzylphthalate	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
bis-2-Ethylhexyladipate	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
3,3'-Dichlorobenzidine	**ND**	0.20	EPA 8270D	6-23-15	6-24-15	
Benzo[a]anthracene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
Chrysene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
bis(2-Ethylhexyl)phthalate	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Di-n-octylphthalate	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Benzo[b]fluoranthene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
Benzo(j,k)fluoranthene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
Benzo[a]pyrene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
Indeno[1,2,3-cd]pyrene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
Dibenz[a,h]anthracene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
Benzo[g,h,i]perylene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorophenol	*59*	*31 - 110*				
Phenol-d6	*59*	*34 - 109*				
Nitrobenzene-d5	*55*	*30 - 109*				
2-Fluorobiphenyl	*58*	*39 - 103*				
2,4,6-Tribromophenol	*52*	*25 - 120*				
Terphenyl-d14	*53*	*40 - 117*				

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

SEMIVOLATILES EPA 8270D/SIM
METHOD BLANK QUALITY CONTROL
page 1 of 2

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0623S1					
n-Nitrosodimethylamine	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Pyridine	**ND**	0.33	EPA 8270D	6-23-15	6-23-15	
Phenol	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Aniline	**ND**	0.17	EPA 8270D	6-23-15	6-23-15	
bis(2-Chloroethyl)ether	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2-Chlorophenol	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
1,3-Dichlorobenzene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
1,4-Dichlorobenzene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Benzyl alcohol	**ND**	0.17	EPA 8270D	6-23-15	6-23-15	
1,2-Dichlorobenzene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2-Methylphenol (o-Cresol)	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
bis(2-Chloroisopropyl)ether	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
n-Nitroso-di-n-propylamine	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Hexachloroethane	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Nitrobenzene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Isophorone	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2-Nitrophenol	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2,4-Dimethylphenol	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
bis(2-Chloroethoxy)methane	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2,4-Dichlorophenol	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
1,2,4-Trichlorobenzene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Naphthalene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
4-Chloroaniline	**ND**	0.17	EPA 8270D	6-23-15	6-23-15	
Hexachlorobutadiene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
4-Chloro-3-methylphenol	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2-Methylnaphthalene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
1-Methylnaphthalene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
Hexachlorocyclopentadiene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2,4,6-Trichlorophenol	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2,3-Dichloroaniline	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2,4,5-Trichlorophenol	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2-Chloronaphthalene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2-Nitroaniline	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
1,4-Dinitrobenzene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Dimethylphthalate	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
1,3-Dinitrobenzene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2,6-Dinitrotoluene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
1,2-Dinitrobenzene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Acenaphthylene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
3-Nitroaniline	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

SEMIVOLATILES EPA 8270D/SIM
METHOD BLANK QUALITY CONTROL
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0623S1					
2,4-Dinitrophenol	**ND**	0.17	EPA 8270D	6-23-15	6-23-15	
Acenaphthene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
4-Nitrophenol	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2,4-Dinitrotoluene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Dibenzofuran	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2,3,5,6-Tetrachlorophenol	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2,3,4,6-Tetrachlorophenol	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Diethylphthalate	**ND**	0.17	EPA 8270D	6-23-15	6-23-15	
4-Chlorophenyl-phenylether	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
4-Nitroaniline	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Fluorene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
4,6-Dinitro-2-methylphenol	**ND**	0.17	EPA 8270D	6-23-15	6-23-15	
n-Nitrosodiphenylamine	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
1,2-Diphenylhydrazine	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
4-Bromophenyl-phenylether	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Hexachlorobenzene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Pentachlorophenol	**ND**	0.17	EPA 8270D	6-23-15	6-23-15	
Phenanthrene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
Anthracene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
Carbazole	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Di-n-butylphthalate	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Fluoranthene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
Benzidine	**ND**	0.33	EPA 8270D	6-23-15	6-23-15	
Pyrene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
Butylbenzylphthalate	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
bis-2-Ethylhexyladipate	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
3,3'-Dichlorobenzidine	**ND**	0.17	EPA 8270D	6-23-15	6-23-15	
Benzo[a]anthracene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
Chrysene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
bis(2-Ethylhexyl)phthalate	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Di-n-octylphthalate	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Benzo[b]fluoranthene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
Benzo(j,k)fluoranthene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
Benzo[a]pyrene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
Indeno[1,2,3-cd]pyrene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
Dibenz[a,h]anthracene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
Benzo[g,h,i]perylene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorophenol	*82*	*31 - 110*				
Phenol-d6	*84*	*34 - 109*				
Nitrobenzene-d5	*81*	*30 - 109*				
2-Fluorobiphenyl	*79*	*39 - 103*				
2,4,6-Tribromophenol	*89*	*25 - 120*				
Terphenyl-d14	*87*	*40 - 117*				

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

SEMIVOLATILES EPA 8270D/SIM
SB/SBD QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0623S1									
	SB	SBD	SB	SBD	SB	SBD				
Phenol	**1.09**	**1.03**	1.33	1.33	82	77	55 - 105	6	25	
2-Chlorophenol	**1.12**	**1.06**	1.33	1.33	84	80	56 - 102	6	30	
1,4-Dichlorobenzene	**0.585**	**0.538**	0.667	0.667	88	81	49 - 99	8	35	
n-Nitroso-di-n-propylamine	**0.571**	**0.517**	0.667	0.667	86	78	52 - 102	10	26	
1,2,4-Trichlorobenzene	**0.615**	**0.577**	0.667	0.667	92	87	49 - 110	6	30	
4-Chloro-3-methylphenol	**1.26**	**1.15**	1.33	1.33	95	86	59 - 113	9	22	
Acenaphthene	**0.537**	**0.495**	0.667	0.667	81	74	52 - 103	8	22	
4-Nitrophenol	**1.31**	**1.23**	1.33	1.33	98	92	51 - 125	6	23	
2,4-Dinitrotoluene	**0.595**	**0.553**	0.667	0.667	89	83	53 - 118	7	23	
Pentachlorophenol	**1.36**	**1.23**	1.33	1.33	102	92	25 - 141	10	39	
Pyrene	**0.608**	**0.555**	0.667	0.667	91	83	57 - 120	9	20	
Surrogate:										
2-Fluorophenol					*85*	*81*	*31 - 110*			
Phenol-d6					*88*	*83*	*34 - 109*			
Nitrobenzene-d5					*84*	*78*	*30 - 109*			
2-Fluorobiphenyl					*84*	*77*	*39 - 103*			
2,4,6-Tribromophenol					*100*	*90*	*25 - 120*			
Terphenyl-d14					*91*	*84*	*40 - 117*			

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

PCBs
EPA 8082A

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-B1**					
Laboratory ID:	06-238-01					
Aroclor 1016	**ND**	0.062	EPA 8082A	6-23-15	6-24-15	
Aroclor 1221	**ND**	0.062	EPA 8082A	6-23-15	6-24-15	
Aroclor 1232	**ND**	0.062	EPA 8082A	6-23-15	6-24-15	
Aroclor 1242	**ND**	0.062	EPA 8082A	6-23-15	6-24-15	
Aroclor 1248	**ND**	0.062	EPA 8082A	6-23-15	6-24-15	
Aroclor 1254	**ND**	0.062	EPA 8082A	6-23-15	6-24-15	
Aroclor 1260	**ND**	0.062	EPA 8082A	6-23-15	6-24-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*133*	*55-140*				
Client ID:	**SFS-E**					
Laboratory ID:	06-238-02					
Aroclor 1016	**ND**	0.060	EPA 8082A	6-23-15	6-24-15	
Aroclor 1221	**ND**	0.060	EPA 8082A	6-23-15	6-24-15	
Aroclor 1232	**ND**	0.060	EPA 8082A	6-23-15	6-24-15	
Aroclor 1242	**ND**	0.060	EPA 8082A	6-23-15	6-24-15	
Aroclor 1248	**ND**	0.060	EPA 8082A	6-23-15	6-24-15	
Aroclor 1254	**ND**	0.060	EPA 8082A	6-23-15	6-24-15	
Aroclor 1260	**ND**	0.060	EPA 8082A	6-23-15	6-24-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*106*	*55-140*				

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

PCBs EPA 8082A
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0623S1					
Aroclor 1016	**ND**	0.050	EPA 8082A	6-23-15	6-23-15	
Aroclor 1221	**ND**	0.050	EPA 8082A	6-23-15	6-23-15	
Aroclor 1232	**ND**	0.050	EPA 8082A	6-23-15	6-23-15	
Aroclor 1242	**ND**	0.050	EPA 8082A	6-23-15	6-23-15	
Aroclor 1248	**ND**	0.050	EPA 8082A	6-23-15	6-23-15	
Aroclor 1254	**ND**	0.050	EPA 8082A	6-23-15	6-23-15	
Aroclor 1260	**ND**	0.050	EPA 8082A	6-23-15	6-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*104*	*55-140*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	06-167-02										
	MS	MSD	MS	MSD		MS	MSD				
Aroclor 1260	**0.373**	**0.398**	0.500	0.500	ND	**75**	**80**	46-136	6	17	
Surrogate:											
DCB						*80*	*92*	*55-140*			

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

TOTAL METALS
EPA 6010C/7471B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	06-238-01					
Client ID:	**SFS-B1**					
Arsenic	**ND**	12	6010C	6-24-15	6-24-15	
Barium	**33**	3.1	6010C	6-24-15	6-24-15	
Cadmium	**ND**	0.62	6010C	6-24-15	6-24-15	
Chromium	**39**	0.62	6010C	6-24-15	6-24-15	
Lead	**ND**	6.2	6010C	6-24-15	6-24-15	
Mercury	**ND**	0.31	7471B	6-24-15	6-24-15	
Selenium	**ND**	12	6010C	6-24-15	6-24-15	
Silver	**ND**	1.2	6010C	6-24-15	6-24-15	
Lab ID:	06-238-02					
Client ID:	**SFS-E**					
Arsenic	**ND**	12	6010C	6-24-15	6-24-15	
Barium	**110**	3.0	6010C	6-24-15	6-24-15	
Cadmium	**ND**	0.60	6010C	6-24-15	6-24-15	
Chromium	**62**	0.60	6010C	6-24-15	6-24-15	
Lead	**10**	6.0	6010C	6-24-15	6-24-15	
Mercury	**ND**	0.30	7471B	6-24-15	6-24-15	
Selenium	**ND**	12	6010C	6-24-15	6-24-15	
Silver	**ND**	1.2	6010C	6-24-15	6-24-15	

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

TOTAL METALS
EPA 6010C/7471B
METHOD BLANK QUALITY CONTROL

Date Extracted: 6-24-15
Date Analyzed: 6-24-15

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0624SM1&MB0624S1

Analyte	Method	Result	PQL
Arsenic	6010C	**ND**	10
Barium	6010C	**ND**	2.5
Cadmium	6010C	**ND**	0.50
Chromium	6010C	**ND**	0.50
Lead	6010C	**ND**	5.0
Mercury	7471B	**ND**	0.25
Selenium	6010C	**ND**	10
Silver	6010C	**ND**	1.0

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

TOTAL METALS
EPA 6010C/7471B
DUPLICATE QUALITY CONTROL

Date Extracted: 6-24-15
Date Analyzed: 6-24-15

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 06-238-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Barium	**26.8**	**26.1**	3	2.5	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**31.5**	**27.9**	12	0.50	
Lead	**ND**	**ND**	NA	5.0	
Mercury	**ND**	**ND**	NA	0.25	
Selenium	**ND**	**ND**	NA	10	
Silver	**ND**	**ND**	NA	1.0	

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

TOTAL METALS
EPA 6010C/7471B
MS/MSD QUALITY CONTROL

Date Extracted: 6-24-15
Date Analyzed: 6-24-15

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 06-238-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**92.3**	92	**92.0**	92	0	
Barium	100	**118**	92	**117**	90	1	
Cadmium	50.0	**45.2**	90	**45.2**	90	0	
Chromium	100	**118**	87	**117**	86	1	
Lead	250	**227**	91	**230**	92	1	
Mercury	0.500	**0.448**	90	**0.434**	87	3	
Selenium	100	**94.3**	94	**95.7**	96	2	
Silver	25.0	**21.5**	86	**21.6**	86	0	

Date of Report: June 25, 2015
Samples Submitted: June 23, 2015
Laboratory Reference: 1506-238
Project: WSDOT Signal Fuel Site

% MOISTURE

Date Analyzed: 6-23-15

Client ID	Lab ID	% Moisture
SFS-B1	06-238-01	19
SFS-E	06-238-02	17

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a Sulfuric acid/Silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: WSDOT
Project Number:
Project Name: WSDOT Signal Fuel Site
Project Manager: Trent Ensminger
Sampled by: "

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☑ 2 Days
- ☐ 3 Days
- ☐ Standard (7 Days) (TPH analysis 5 Days)
- ☐ _____ (other)

Laboratory Number: 06-238

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260C	Halogenated Volatiles 8260C	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	% Moisture
1	SFS-B1	6/22/15	1440	Soil	6			✓	✓	✓		✓		✓				✓				✓
2	SFS-E	6/23/15	1320	Soil	1			✓	✓	✓		✓		✓				✓				✓

	Signature	Company	Date	Time
Relinquished		WSDOT	6/23/15	1354
Received		Speedy Msngr	6-23-15	1354
Relinquished		" "	" "	1458
Received		OnSite Env	6/23/15	14158
Relinquished				
Received				

Comments/Special Instructions

Reviewed/Date

Reviewed/Date

Chromatograms with final report ☐

Data Package: Standard ☐ Level III ☐ Level IV ☐

Electronic Data Deliverables (EDDs) ☐ _____

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

June 26, 2015

Trent Ensminger
Washington State Department of Transportation
HAZ-MAT
2214 RW Johnson Road SW; MS 47332
Tumwater, WA 98512-6111

Re: Analytical Data for Project Signals Fuel Site
Laboratory Reference No. 1506-191

Dear Trent:

Enclosed are the analytical results and associated quality control data for samples submitted on June 18, 2015.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

Case Narrative

Samples were collected on June 18, 2015 and received by the laboratory on June 18, 2015. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

NWTPH Gx and Volatiles EPA 8260C Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

Total Metals EPA 6010C/7471B Analysis

Due to the high concentration of Barium in the QC sample, the amount spiked was insufficient for meaningful MS/MSD recovery data. The Spike Blank recovery was 96%.

Please note that any other QA/QC issues associated with these extractions and analyses will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

NWTPH-Gx

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-N**					
Laboratory ID:	06-191-01					
Gasoline	**ND**	4.6	NWTPH-Gx	6-18-15	6-18-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*91*	*68-123*				
Client ID:	**SFS-W**					
Laboratory ID:	06-191-02					
Gasoline	**ND**	6.4	NWTPH-Gx	6-18-15	6-18-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*86*	*68-123*				
Client ID:	**SFS-S**					
Laboratory ID:	06-191-03					
Gasoline	**ND**	9.6	NWTPH-Gx	6-18-15	6-18-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*85*	*68-123*				

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

NWTPH-Gx
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0618S1					
Gasoline	**ND**	5.0	NWTPH-Gx	6-18-15	6-18-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*79*	*68-123*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	06-181-03										
	ORIG	DUP									
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*89*	*91*	*68-123*			

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

NWTPH-Dx

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-N**					
Laboratory ID:	06-191-01					
Diesel Range Organics	**ND**	31	NWTPH-Dx	6-23-15	6-23-15	
Lube Oil Range Organics	**ND**	62	NWTPH-Dx	6-23-15	6-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*62*	*50-150*				
Client ID:	**SFS-W**					
Laboratory ID:	06-191-02					
Diesel Range Organics	**ND**	30	NWTPH-Dx	6-23-15	6-24-15	
Lube Oil	**75**	60	NWTPH-Dx	6-23-15	6-24-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*75*	*50-150*				
Client ID:	**SFS-S**					
Laboratory ID:	06-191-03					
Diesel Fuel #2	**340**	28	NWTPH-Dx	6-23-15	6-23-15	
Lube Oil Range Organics	**ND**	57	NWTPH-Dx	6-23-15	6-23-15	U1
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*70*	*50-150*				

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

NWTPH-Dx
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0623S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	6-23-15	6-23-15	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	6-23-15	6-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*83*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	06-181-02										
	ORIG	DUP									
Diesel Fuel #2	**28.7**	**ND**	NA	NA		NA		NA	NA	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Surrogate:											
o-Terphenyl						*78*	*71*	*50-150*			

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

VOLATILES EPA 8260C
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-N**					
Laboratory ID:	06-191-01					
Dichlorodifluoromethane	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
Chloromethane	ND	0.0034	EPA 8260C	6-19-15	6-19-15	
Vinyl Chloride	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
Bromomethane	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
Chloroethane	ND	0.0034	EPA 8260C	6-19-15	6-19-15	
Trichlorofluoromethane	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
1,1-Dichloroethene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
Acetone	0.0084	0.0069	EPA 8260C	6-19-15	6-19-15	
Iodomethane	ND	0.0034	EPA 8260C	6-19-15	6-19-15	
Carbon Disulfide	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
Methylene Chloride	ND	0.0034	EPA 8260C	6-19-15	6-19-15	
(trans) 1,2-Dichloroethene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
Methyl t-Butyl Ether	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
1,1-Dichloroethane	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
Vinyl Acetate	ND	0.0034	EPA 8260C	6-19-15	6-19-15	
2,2-Dichloropropane	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
(cis) 1,2-Dichloroethene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
2-Butanone	ND	0.0034	EPA 8260C	6-19-15	6-19-15	
Bromochloromethane	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
Chloroform	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
1,1,1-Trichloroethane	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
Carbon Tetrachloride	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
1,1-Dichloropropene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
Benzene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
1,2-Dichloroethane	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
Trichloroethene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
1,2-Dichloropropane	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
Dibromomethane	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
Bromodichloromethane	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
2-Chloroethyl Vinyl Ether	ND	0.0034	EPA 8260C	6-19-15	6-19-15	
(cis) 1,3-Dichloropropene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
Methyl Isobutyl Ketone	ND	0.0034	EPA 8260C	6-19-15	6-19-15	
Toluene	ND	0.0034	EPA 8260C	6-19-15	6-19-15	
(trans) 1,3-Dichloropropene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

VOLATILES EPA 8260C
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-N**					
Laboratory ID:	06-191-01					
1,1,2-Trichloroethane	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
Tetrachloroethene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
1,3-Dichloropropane	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
2-Hexanone	ND	0.0034	EPA 8260C	6-19-15	6-19-15	
Dibromochloromethane	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
1,2-Dibromoethane	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
Chlorobenzene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
1,1,1,2-Tetrachloroethane	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
Ethylbenzene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
m,p-Xylene	ND	0.0014	EPA 8260C	6-19-15	6-19-15	
o-Xylene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
Styrene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
Bromoform	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
Isopropylbenzene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
Bromobenzene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
1,1,2,2-Tetrachloroethane	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
1,2,3-Trichloropropane	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
n-Propylbenzene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
2-Chlorotoluene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
4-Chlorotoluene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
1,3,5-Trimethylbenzene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
tert-Butylbenzene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
1,2,4-Trimethylbenzene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
sec-Butylbenzene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
1,3-Dichlorobenzene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
p-Isopropyltoluene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
1,4-Dichlorobenzene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
1,2-Dichlorobenzene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
n-Butylbenzene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
1,2-Dibromo-3-chloropropane	ND	0.0034	EPA 8260C	6-19-15	6-19-15	
1,2,4-Trichlorobenzene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
Hexachlorobutadiene	ND	0.0034	EPA 8260C	6-19-15	6-19-15	
Naphthalene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
1,2,3-Trichlorobenzene	ND	0.00069	EPA 8260C	6-19-15	6-19-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*99*	*76-131*				
Toluene-d8	*99*	*82-129*				
4-Bromofluorobenzene	*120*	*79-126*				

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

VOLATILES EPA 8260C
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-W**					
Laboratory ID:	06-191-02					
Dichlorodifluoromethane	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
Chloromethane	ND	0.0057	EPA 8260C	6-19-15	6-19-15	
Vinyl Chloride	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
Bromomethane	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
Chloroethane	ND	0.0057	EPA 8260C	6-19-15	6-19-15	
Trichlorofluoromethane	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
1,1-Dichloroethene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
Acetone	0.012	0.011	EPA 8260C	6-19-15	6-19-15	
Iodomethane	ND	0.0057	EPA 8260C	6-19-15	6-19-15	
Carbon Disulfide	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
Methylene Chloride	ND	0.0057	EPA 8260C	6-19-15	6-19-15	
(trans) 1,2-Dichloroethene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
Methyl t-Butyl Ether	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
1,1-Dichloroethane	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
Vinyl Acetate	ND	0.0057	EPA 8260C	6-19-15	6-19-15	
2,2-Dichloropropane	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
(cis) 1,2-Dichloroethene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
2-Butanone	ND	0.0057	EPA 8260C	6-19-15	6-19-15	
Bromochloromethane	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
Chloroform	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
1,1,1-Trichloroethane	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
Carbon Tetrachloride	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
1,1-Dichloropropene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
Benzene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
1,2-Dichloroethane	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
Trichloroethene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
1,2-Dichloropropane	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
Dibromomethane	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
Bromodichloromethane	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
2-Chloroethyl Vinyl Ether	ND	0.0057	EPA 8260C	6-19-15	6-19-15	
(cis) 1,3-Dichloropropene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
Methyl Isobutyl Ketone	ND	0.0057	EPA 8260C	6-19-15	6-19-15	
Toluene	ND	0.0057	EPA 8260C	6-19-15	6-19-15	
(trans) 1,3-Dichloropropene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

VOLATILES EPA 8260C
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-W**					
Laboratory ID:	06-191-02					
1,1,2-Trichloroethane	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
Tetrachloroethene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
1,3-Dichloropropane	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
2-Hexanone	ND	0.0057	EPA 8260C	6-19-15	6-19-15	
Dibromochloromethane	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
1,2-Dibromoethane	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
Chlorobenzene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
1,1,1,2-Tetrachloroethane	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
Ethylbenzene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
m,p-Xylene	ND	0.0023	EPA 8260C	6-19-15	6-19-15	
o-Xylene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
Styrene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
Bromoform	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
Isopropylbenzene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
Bromobenzene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
1,1,2,2-Tetrachloroethane	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
1,2,3-Trichloropropane	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
n-Propylbenzene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
2-Chlorotoluene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
4-Chlorotoluene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
1,3,5-Trimethylbenzene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
tert-Butylbenzene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
1,2,4-Trimethylbenzene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
sec-Butylbenzene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
1,3-Dichlorobenzene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
p-Isopropyltoluene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
1,4-Dichlorobenzene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
1,2-Dichlorobenzene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
n-Butylbenzene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
1,2-Dibromo-3-chloropropane	ND	0.0057	EPA 8260C	6-19-15	6-19-15	
1,2,4-Trichlorobenzene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
Hexachlorobutadiene	ND	0.0057	EPA 8260C	6-19-15	6-19-15	
Naphthalene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
1,2,3-Trichlorobenzene	ND	0.0011	EPA 8260C	6-19-15	6-19-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*102*	*76-131*				
Toluene-d8	*102*	*82-129*				
4-Bromofluorobenzene	*124*	*79-126*				

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

VOLATILES EPA 8260C
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-S**					
Laboratory ID:	06-191-03					
Dichlorodifluoromethane	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
Chloromethane	ND	0.0043	EPA 8260C	6-19-15	6-19-15	
Vinyl Chloride	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
Bromomethane	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
Chloroethane	ND	0.0043	EPA 8260C	6-19-15	6-19-15	
Trichlorofluoromethane	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
1,1-Dichloroethene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
Acetone	ND	0.0086	EPA 8260C	6-19-15	6-19-15	
Iodomethane	ND	0.0043	EPA 8260C	6-19-15	6-19-15	
Carbon Disulfide	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
Methylene Chloride	ND	0.0043	EPA 8260C	6-19-15	6-19-15	
(trans) 1,2-Dichloroethene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
Methyl t-Butyl Ether	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
1,1-Dichloroethane	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
Vinyl Acetate	ND	0.0043	EPA 8260C	6-19-15	6-19-15	
2,2-Dichloropropane	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
(cis) 1,2-Dichloroethene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
2-Butanone	ND	0.0043	EPA 8260C	6-19-15	6-19-15	
Bromochloromethane	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
Chloroform	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
1,1,1-Trichloroethane	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
Carbon Tetrachloride	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
1,1-Dichloropropene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
Benzene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
1,2-Dichloroethane	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
Trichloroethene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
1,2-Dichloropropane	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
Dibromomethane	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
Bromodichloromethane	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
2-Chloroethyl Vinyl Ether	ND	0.0043	EPA 8260C	6-19-15	6-19-15	
(cis) 1,3-Dichloropropene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
Methyl Isobutyl Ketone	ND	0.0043	EPA 8260C	6-19-15	6-19-15	
Toluene	ND	0.0043	EPA 8260C	6-19-15	6-19-15	
(trans) 1,3-Dichloropropene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

VOLATILES EPA 8260C
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-S**					
Laboratory ID:	06-191-03					
1,1,2-Trichloroethane	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
Tetrachloroethene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
1,3-Dichloropropane	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
2-Hexanone	ND	0.0043	EPA 8260C	6-19-15	6-19-15	
Dibromochloromethane	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
1,2-Dibromoethane	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
Chlorobenzene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
1,1,1,2-Tetrachloroethane	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
Ethylbenzene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
m,p-Xylene	ND	0.0017	EPA 8260C	6-19-15	6-19-15	
o-Xylene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
Styrene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
Bromoform	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
Isopropylbenzene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
Bromobenzene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
1,1,2,2-Tetrachloroethane	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
1,2,3-Trichloropropane	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
n-Propylbenzene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
2-Chlorotoluene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
4-Chlorotoluene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
1,3,5-Trimethylbenzene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
tert-Butylbenzene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
1,2,4-Trimethylbenzene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
sec-Butylbenzene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
1,3-Dichlorobenzene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
p-Isopropyltoluene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
1,4-Dichlorobenzene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
1,2-Dichlorobenzene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
n-Butylbenzene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
1,2-Dibromo-3-chloropropane	ND	0.0043	EPA 8260C	6-19-15	6-19-15	
1,2,4-Trichlorobenzene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
Hexachlorobutadiene	ND	0.0043	EPA 8260C	6-19-15	6-19-15	
Naphthalene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
1,2,3-Trichlorobenzene	ND	0.00086	EPA 8260C	6-19-15	6-19-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*88*	*76-131*				
Toluene-d8	*93*	*82-129*				
4-Bromofluorobenzene	*117*	*79-126*				

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

VOLATILES by EPA 8260C
METHOD BLANK QUALITY CONTROL
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0619S1					
Dichlorodifluoromethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Chloromethane	ND	0.0050	EPA 8260C	6-19-15	6-19-15	
Vinyl Chloride	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Bromomethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Chloroethane	ND	0.0050	EPA 8260C	6-19-15	6-19-15	
Trichlorofluoromethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,1-Dichloroethene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Acetone	ND	0.010	EPA 8260C	6-19-15	6-19-15	
Iodomethane	ND	0.0050	EPA 8260C	6-19-15	6-19-15	
Carbon Disulfide	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Methylene Chloride	ND	0.0050	EPA 8260C	6-19-15	6-19-15	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Methyl t-Butyl Ether	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,1-Dichloroethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Vinyl Acetate	ND	0.0050	EPA 8260C	6-19-15	6-19-15	
2,2-Dichloropropane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
2-Butanone	ND	0.0050	EPA 8260C	6-19-15	6-19-15	
Bromochloromethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Chloroform	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Carbon Tetrachloride	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,1-Dichloropropene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Benzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,2-Dichloroethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Trichloroethene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,2-Dichloropropane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Dibromomethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Bromodichloromethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
2-Chloroethyl Vinyl Ether	ND	0.0050	EPA 8260C	6-19-15	6-19-15	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Methyl Isobutyl Ketone	ND	0.0050	EPA 8260C	6-19-15	6-19-15	
Toluene	ND	0.0050	EPA 8260C	6-19-15	6-19-15	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

VOLATILES by EPA 8260C
METHOD BLANK QUALITY CONTROL
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0619S1					
1,1,2-Trichloroethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Tetrachloroethene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,3-Dichloropropane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
2-Hexanone	ND	0.0050	EPA 8260C	6-19-15	6-19-15	
Dibromochloromethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,2-Dibromoethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Chlorobenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Ethylbenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
m,p-Xylene	ND	0.0020	EPA 8260C	6-19-15	6-19-15	
o-Xylene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Styrene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Bromoform	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Isopropylbenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Bromobenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
n-Propylbenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
2-Chlorotoluene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
4-Chlorotoluene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,3,5-Trimethylbenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
tert-Butylbenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,2,4-Trimethylbenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
sec-Butylbenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
p-Isopropyltoluene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
n-Butylbenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,2-Dibromo-3-chloropropane	ND	0.0050	EPA 8260C	6-19-15	6-19-15	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Hexachlorobutadiene	ND	0.0050	EPA 8260C	6-19-15	6-19-15	
Naphthalene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260C	6-19-15	6-19-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*90*	*76-131*				
Toluene-d8	*94*	*82-129*				
4-Bromofluorobenzene	*117*	*79-126*				

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

VOLATILES by EPA 8260C
SB/SBD QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0619S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**0.0449**	**0.0436**	0.0500	0.0500	90	87	66-129	3	15	
Benzene	**0.0481**	**0.0477**	0.0500	0.0500	96	95	71-123	1	15	
Trichloroethene	**0.0463**	**0.0460**	0.0500	0.0500	93	92	75-115	1	15	
Toluene	**0.0483**	**0.0471**	0.0500	0.0500	97	94	75-120	3	15	
Chlorobenzene	**0.0472**	**0.0458**	0.0500	0.0500	94	92	75-121	3	15	
Surrogate:										
Dibromofluoromethane					*88*	*88*	*76-131*			
Toluene-d8					*90*	*88*	*82-129*			
4-Bromofluorobenzene					*110*	*111*	*79-126*			

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

SEMIVOLATILES EPA 8270D/SIM
page 1 of 2

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-N**					
Laboratory ID:	06-191-01					
n-Nitrosodimethylamine	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Pyridine	**ND**	0.41	EPA 8270D	6-23-15	6-24-15	
Phenol	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Aniline	**ND**	0.21	EPA 8270D	6-23-15	6-24-15	
bis(2-Chloroethyl)ether	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2-Chlorophenol	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
1,3-Dichlorobenzene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
1,4-Dichlorobenzene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Benzyl alcohol	**ND**	0.21	EPA 8270D	6-23-15	6-24-15	
1,2-Dichlorobenzene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2-Methylphenol (o-Cresol)	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
bis(2-Chloroisopropyl)ether	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
n-Nitroso-di-n-propylamine	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Hexachloroethane	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Nitrobenzene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Isophorone	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2-Nitrophenol	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2,4-Dimethylphenol	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
bis(2-Chloroethoxy)methane	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2,4-Dichlorophenol	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
1,2,4-Trichlorobenzene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Naphthalene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-23-15	
4-Chloroaniline	**ND**	0.21	EPA 8270D	6-23-15	6-24-15	
Hexachlorobutadiene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
4-Chloro-3-methylphenol	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2-Methylnaphthalene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-23-15	
1-Methylnaphthalene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-23-15	
Hexachlorocyclopentadiene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2,4,6-Trichlorophenol	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2,3-Dichloroaniline	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2,4,5-Trichlorophenol	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2-Chloronaphthalene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2-Nitroaniline	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
1,4-Dinitrobenzene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Dimethylphthalate	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
1,3-Dinitrobenzene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2,6-Dinitrotoluene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
1,2-Dinitrobenzene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Acenaphthylene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-23-15	
3-Nitroaniline	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

SEMIVOLATILES EPA 8270D/SIM
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-N**					
Laboratory ID:	06-191-01					
2,4-Dinitrophenol	**ND**	0.21	EPA 8270D	6-23-15	6-24-15	
Acenaphthene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-23-15	
4-Nitrophenol	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2,4-Dinitrotoluene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Dibenzofuran	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2,3,5,6-Tetrachlorophenol	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
2,3,4,6-Tetrachlorophenol	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Diethylphthalate	**ND**	0.21	EPA 8270D	6-23-15	6-24-15	
4-Chlorophenyl-phenylether	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
4-Nitroaniline	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Fluorene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-23-15	
4,6-Dinitro-2-methylphenol	**ND**	0.21	EPA 8270D	6-23-15	6-24-15	
n-Nitrosodiphenylamine	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
1,2-Diphenylhydrazine	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
4-Bromophenyl-phenylether	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Hexachlorobenzene	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Pentachlorophenol	**ND**	0.21	EPA 8270D	6-23-15	6-24-15	
Phenanthrene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-23-15	
Anthracene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-23-15	
Carbazole	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Di-n-butylphthalate	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Fluoranthene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-23-15	
Benzidine	**ND**	0.41	EPA 8270D	6-23-15	6-24-15	
Pyrene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-23-15	
Butylbenzylphthalate	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
bis-2-Ethylhexyladipate	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
3,3'-Dichlorobenzidine	**ND**	0.21	EPA 8270D	6-23-15	6-24-15	
Benzo[a]anthracene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-23-15	
Chrysene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-23-15	
bis(2-Ethylhexyl)phthalate	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Di-n-octylphthalate	**ND**	0.041	EPA 8270D	6-23-15	6-24-15	
Benzo[b]fluoranthene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-23-15	
Benzo(j,k)fluoranthene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-23-15	
Benzo[a]pyrene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-23-15	
Indeno[1,2,3-cd]pyrene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-23-15	
Dibenz[a,h]anthracene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-23-15	
Benzo[g,h,i]perylene	**ND**	0.0083	EPA 8270D/SIM	6-23-15	6-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorophenol	*77*	*31 - 110*				
Phenol-d6	*78*	*34 - 109*				
Nitrobenzene-d5	*73*	*30 - 109*				
2-Fluorobiphenyl	*76*	*39 - 103*				
2,4,6-Tribromophenol	*81*	*25 - 120*				
Terphenyl-d14	*76*	*40 - 117*				

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

SEMIVOLATILES EPA 8270D/SIM
page 1 of 2

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-W**					
Laboratory ID:	06-191-02					
n-Nitrosodimethylamine	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Pyridine	**ND**	0.40	EPA 8270D	6-23-15	6-24-15	
Phenol	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Aniline	**ND**	0.20	EPA 8270D	6-23-15	6-24-15	
bis(2-Chloroethyl)ether	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2-Chlorophenol	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
1,3-Dichlorobenzene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
1,4-Dichlorobenzene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Benzyl alcohol	**ND**	0.20	EPA 8270D	6-23-15	6-24-15	
1,2-Dichlorobenzene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2-Methylphenol (o-Cresol)	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
bis(2-Chloroisopropyl)ether	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
n-Nitroso-di-n-propylamine	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Hexachloroethane	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Nitrobenzene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Isophorone	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2-Nitrophenol	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2,4-Dimethylphenol	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
bis(2-Chloroethoxy)methane	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2,4-Dichlorophenol	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
1,2,4-Trichlorobenzene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Naphthalene	**0.010**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
4-Chloroaniline	**ND**	0.20	EPA 8270D	6-23-15	6-24-15	
Hexachlorobutadiene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
4-Chloro-3-methylphenol	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2-Methylnaphthalene	**0.019**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
1-Methylnaphthalene	**0.014**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
Hexachlorocyclopentadiene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2,4,6-Trichlorophenol	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2,3-Dichloroaniline	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2,4,5-Trichlorophenol	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2-Chloronaphthalene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2-Nitroaniline	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
1,4-Dinitrobenzene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Dimethylphthalate	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
1,3-Dinitrobenzene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2,6-Dinitrotoluene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
1,2-Dinitrobenzene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Acenaphthylene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
3-Nitroaniline	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

SEMIVOLATILES EPA 8270D/SIM
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-W**					
Laboratory ID:	06-191-02					
2,4-Dinitrophenol	**ND**	0.20	EPA 8270D	6-23-15	6-24-15	
Acenaphthene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
4-Nitrophenol	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2,4-Dinitrotoluene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Dibenzofuran	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2,3,5,6-Tetrachlorophenol	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
2,3,4,6-Tetrachlorophenol	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Diethylphthalate	**ND**	0.20	EPA 8270D	6-23-15	6-24-15	
4-Chlorophenyl-phenylether	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
4-Nitroaniline	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Fluorene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
4,6-Dinitro-2-methylphenol	**ND**	0.20	EPA 8270D	6-23-15	6-24-15	
n-Nitrosodiphenylamine	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
1,2-Diphenylhydrazine	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
4-Bromophenyl-phenylether	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Hexachlorobenzene	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Pentachlorophenol	**ND**	0.20	EPA 8270D	6-23-15	6-24-15	
Phenanthrene	**0.018**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
Anthracene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
Carbazole	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Di-n-butylphthalate	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Fluoranthene	**0.011**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
Benzidine	**ND**	0.40	EPA 8270D	6-23-15	6-24-15	
Pyrene	**0.013**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
Butylbenzylphthalate	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
bis-2-Ethylhexyladipate	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
3,3'-Dichlorobenzidine	**ND**	0.20	EPA 8270D	6-23-15	6-24-15	
Benzo[a]anthracene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
Chrysene	**0.0082**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
bis(2-Ethylhexyl)phthalate	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Di-n-octylphthalate	**ND**	0.040	EPA 8270D	6-23-15	6-24-15	
Benzo[b]fluoranthene	**0.0091**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
Benzo(j,k)fluoranthene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
Benzo[a]pyrene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
Indeno[1,2,3-cd]pyrene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
Dibenz[a,h]anthracene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
Benzo[g,h,i]perylene	**ND**	0.0080	EPA 8270D/SIM	6-23-15	6-24-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorophenol	*67*	*31 - 110*				
Phenol-d6	*69*	*34 - 109*				
Nitrobenzene-d5	*63*	*30 - 109*				
2-Fluorobiphenyl	*66*	*39 - 103*				
2,4,6-Tribromophenol	*63*	*25 - 120*				
Terphenyl-d14	*71*	*40 - 117*				

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

SEMIVOLATILES EPA 8270D/SIM
page 1 of 2

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-S**					
Laboratory ID:	06-191-03					
n-Nitrosodimethylamine	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
Pyridine	**ND**	0.38	EPA 8270D	6-23-15	6-24-15	
Phenol	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
Aniline	**ND**	0.19	EPA 8270D	6-23-15	6-24-15	
bis(2-Chloroethyl)ether	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
2-Chlorophenol	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
1,3-Dichlorobenzene	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
1,4-Dichlorobenzene	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
Benzyl alcohol	**ND**	0.19	EPA 8270D	6-23-15	6-24-15	
1,2-Dichlorobenzene	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
2-Methylphenol (o-Cresol)	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
bis(2-Chloroisopropyl)ether	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
n-Nitroso-di-n-propylamine	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
Hexachloroethane	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
Nitrobenzene	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
Isophorone	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
2-Nitrophenol	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
2,4-Dimethylphenol	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
bis(2-Chloroethoxy)methane	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
2,4-Dichlorophenol	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
1,2,4-Trichlorobenzene	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
Naphthalene	**ND**	0.0075	EPA 8270D/SIM	6-23-15	6-24-15	
4-Chloroaniline	**ND**	0.19	EPA 8270D	6-23-15	6-24-15	
Hexachlorobutadiene	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
4-Chloro-3-methylphenol	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
2-Methylnaphthalene	**ND**	0.0075	EPA 8270D/SIM	6-23-15	6-24-15	
1-Methylnaphthalene	**ND**	0.0075	EPA 8270D/SIM	6-23-15	6-24-15	
Hexachlorocyclopentadiene	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
2,4,6-Trichlorophenol	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
2,3-Dichloroaniline	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
2,4,5-Trichlorophenol	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
2-Chloronaphthalene	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
2-Nitroaniline	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
1,4-Dinitrobenzene	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
Dimethylphthalate	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
1,3-Dinitrobenzene	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
2,6-Dinitrotoluene	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
1,2-Dinitrobenzene	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
Acenaphthylene	**ND**	0.0075	EPA 8270D/SIM	6-23-15	6-24-15	
3-Nitroaniline	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

SEMIVOLATILES EPA 8270D/SIM
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-S**					
Laboratory ID:	06-191-03					
2,4-Dinitrophenol	**ND**	0.19	EPA 8270D	6-23-15	6-24-15	
Acenaphthene	**ND**	0.0075	EPA 8270D/SIM	6-23-15	6-24-15	
4-Nitrophenol	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
2,4-Dinitrotoluene	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
Dibenzofuran	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
2,3,5,6-Tetrachlorophenol	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
2,3,4,6-Tetrachlorophenol	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
Diethylphthalate	**ND**	0.19	EPA 8270D	6-23-15	6-24-15	
4-Chlorophenyl-phenylether	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
4-Nitroaniline	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
Fluorene	**ND**	0.0075	EPA 8270D/SIM	6-23-15	6-24-15	
4,6-Dinitro-2-methylphenol	**ND**	0.19	EPA 8270D	6-23-15	6-24-15	
n-Nitrosodiphenylamine	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
1,2-Diphenylhydrazine	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
4-Bromophenyl-phenylether	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
Hexachlorobenzene	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
Pentachlorophenol	**ND**	0.19	EPA 8270D	6-23-15	6-24-15	
Phenanthrene	**ND**	0.0075	EPA 8270D/SIM	6-23-15	6-24-15	
Anthracene	**0.015**	0.0075	EPA 8270D/SIM	6-23-15	6-24-15	
Carbazole	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
Di-n-butylphthalate	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
Fluoranthene	**ND**	0.0075	EPA 8270D/SIM	6-23-15	6-24-15	
Benzidine	**ND**	0.38	EPA 8270D	6-23-15	6-24-15	
Pyrene	**0.012**	0.0075	EPA 8270D/SIM	6-23-15	6-24-15	
Butylbenzylphthalate	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
bis-2-Ethylhexyladipate	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
3,3'-Dichlorobenzidine	**ND**	0.19	EPA 8270D	6-23-15	6-24-15	
Benzo[a]anthracene	**ND**	0.0075	EPA 8270D/SIM	6-23-15	6-24-15	
Chrysene	**ND**	0.0075	EPA 8270D/SIM	6-23-15	6-24-15	
bis(2-Ethylhexyl)phthalate	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
Di-n-octylphthalate	**ND**	0.038	EPA 8270D	6-23-15	6-24-15	
Benzo[b]fluoranthene	**ND**	0.0075	EPA 8270D/SIM	6-23-15	6-24-15	
Benzo(j,k)fluoranthene	**ND**	0.0075	EPA 8270D/SIM	6-23-15	6-24-15	
Benzo[a]pyrene	**ND**	0.0075	EPA 8270D/SIM	6-23-15	6-24-15	
Indeno[1,2,3-cd]pyrene	**ND**	0.0075	EPA 8270D/SIM	6-23-15	6-24-15	
Dibenz[a,h]anthracene	**ND**	0.0075	EPA 8270D/SIM	6-23-15	6-24-15	
Benzo[g,h,i]perylene	**ND**	0.0075	EPA 8270D/SIM	6-23-15	6-24-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorophenol	*84*	*31 - 110*				
Phenol-d6	*86*	*34 - 109*				
Nitrobenzene-d5	*79*	*30 - 109*				
2-Fluorobiphenyl	*81*	*39 - 103*				
2,4,6-Tribromophenol	*103*	*25 - 120*				
Terphenyl-d14	*86*	*40 - 117*				

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

SEMIVOLATILES EPA 8270D/SIM
METHOD BLANK QUALITY CONTROL
page 1 of 2

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0623S1					
n-Nitrosodimethylamine	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Pyridine	**ND**	0.33	EPA 8270D	6-23-15	6-23-15	
Phenol	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Aniline	**ND**	0.17	EPA 8270D	6-23-15	6-23-15	
bis(2-Chloroethyl)ether	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2-Chlorophenol	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
1,3-Dichlorobenzene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
1,4-Dichlorobenzene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Benzyl alcohol	**ND**	0.17	EPA 8270D	6-23-15	6-23-15	
1,2-Dichlorobenzene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2-Methylphenol (o-Cresol)	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
bis(2-Chloroisopropyl)ether	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
(3+4)-Methylphenol (m,p-Cresol)	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
n-Nitroso-di-n-propylamine	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Hexachloroethane	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Nitrobenzene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Isophorone	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2-Nitrophenol	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2,4-Dimethylphenol	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
bis(2-Chloroethoxy)methane	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2,4-Dichlorophenol	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
1,2,4-Trichlorobenzene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Naphthalene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
4-Chloroaniline	**ND**	0.17	EPA 8270D	6-23-15	6-23-15	
Hexachlorobutadiene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
4-Chloro-3-methylphenol	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2-Methylnaphthalene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
1-Methylnaphthalene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
Hexachlorocyclopentadiene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2,4,6-Trichlorophenol	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2,3-Dichloroaniline	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2,4,5-Trichlorophenol	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2-Chloronaphthalene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2-Nitroaniline	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
1,4-Dinitrobenzene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Dimethylphthalate	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
1,3-Dinitrobenzene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2,6-Dinitrotoluene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
1,2-Dinitrobenzene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Acenaphthylene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
3-Nitroaniline	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

SEMIVOLATILES EPA 8270D/SIM
METHOD BLANK QUALITY CONTROL
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0623S1					
2,4-Dinitrophenol	**ND**	0.17	EPA 8270D	6-23-15	6-23-15	
Acenaphthene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
4-Nitrophenol	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2,4-Dinitrotoluene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Dibenzofuran	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2,3,5,6-Tetrachlorophenol	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
2,3,4,6-Tetrachlorophenol	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Diethylphthalate	**ND**	0.17	EPA 8270D	6-23-15	6-23-15	
4-Chlorophenyl-phenylether	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
4-Nitroaniline	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Fluorene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
4,6-Dinitro-2-methylphenol	**ND**	0.17	EPA 8270D	6-23-15	6-23-15	
n-Nitrosodiphenylamine	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
1,2-Diphenylhydrazine	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
4-Bromophenyl-phenylether	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Hexachlorobenzene	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Pentachlorophenol	**ND**	0.17	EPA 8270D	6-23-15	6-23-15	
Phenanthrene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
Anthracene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
Carbazole	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Di-n-butylphthalate	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Fluoranthene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
Benzidine	**ND**	0.33	EPA 8270D	6-23-15	6-23-15	
Pyrene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
Butylbenzylphthalate	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
bis-2-Ethylhexyladipate	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
3,3'-Dichlorobenzidine	**ND**	0.17	EPA 8270D	6-23-15	6-23-15	
Benzo[a]anthracene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
Chrysene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
bis(2-Ethylhexyl)phthalate	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Di-n-octylphthalate	**ND**	0.033	EPA 8270D	6-23-15	6-23-15	
Benzo[b]fluoranthene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
Benzo(j,k)fluoranthene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
Benzo[a]pyrene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
Indeno[1,2,3-cd]pyrene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
Dibenz[a,h]anthracene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
Benzo[g,h,i]perylene	**ND**	0.0067	EPA 8270D/SIM	6-23-15	6-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorophenol	*82*	*31 - 110*				
Phenol-d6	*84*	*34 - 109*				
Nitrobenzene-d5	*81*	*30 - 109*				
2-Fluorobiphenyl	*79*	*39 - 103*				
2,4,6-Tribromophenol	*89*	*25 - 120*				
Terphenyl-d14	*87*	*40 - 117*				

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

SEMIVOLATILES EPA 8270D/SIM
MS/MSD QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	06-181-01										
	MS	MSD	MS	MSD		MS	MSD				
Phenol	**0.938**	**1.06**	1.33	1.33	ND	71	80	33 - 111	12	33	
2-Chlorophenol	**0.929**	**1.11**	1.33	1.33	ND	70	83	34 - 107	18	39	
1,4-Dichlorobenzene	**0.475**	**0.608**	0.667	0.667	0.0518	63	83	35 - 106	25	39	
n-Nitroso-di-n-propylamine	**0.473**	**0.523**	0.667	0.667	ND	71	78	34 - 106	10	33	
1,2,4-Trichlorobenzene	**0.500**	**0.591**	0.667	0.667	ND	75	89	35 - 106	17	39	
4-Chloro-3-methylphenol	**1.12**	**1.16**	1.33	1.33	ND	84	87	44 - 114	4	22	
Acenaphthene	**0.479**	**0.499**	0.667	0.667	ND	72	75	37 - 108	4	25	
4-Nitrophenol	**1.24**	**1.20**	1.33	1.33	ND	93	90	35 - 111	3	24	
2,4-Dinitrotoluene	**0.535**	**0.544**	0.667	0.667	ND	80	82	33 - 113	2	23	
Pentachlorophenol	**1.26**	**1.23**	1.33	1.33	ND	95	92	25 - 110	2	34	
Pyrene	**0.535**	**0.537**	0.667	0.667	ND	80	81	37 - 120	0	36	
Surrogate:											
2-Fluorophenol						*73*	*83*	*31 - 110*			
Phenol-d6						*75*	*84*	*34 - 109*			
Nitrobenzene-d5						*68*	*79*	*30 - 109*			
2-Fluorobiphenyl						*75*	*78*	*39 - 103*			
2,4,6-Tribromophenol						*93*	*91*	*25 - 120*			
Terphenyl-d14						*83*	*83*	*40 - 117*			

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

PCBs
EPA 8082A

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SFS-N**					
Laboratory ID:	06-191-01					
Aroclor 1016	**ND**	0.062	EPA 8082A	6-23-15	6-23-15	
Aroclor 1221	**ND**	0.062	EPA 8082A	6-23-15	6-23-15	
Aroclor 1232	**ND**	0.062	EPA 8082A	6-23-15	6-23-15	
Aroclor 1242	**ND**	0.062	EPA 8082A	6-23-15	6-23-15	
Aroclor 1248	**ND**	0.062	EPA 8082A	6-23-15	6-23-15	
Aroclor 1254	**ND**	0.062	EPA 8082A	6-23-15	6-23-15	
Aroclor 1260	**ND**	0.062	EPA 8082A	6-23-15	6-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*86*	*55-140*				
Client ID:	**SFS-W**					
Laboratory ID:	06-191-02					
Aroclor 1016	**ND**	0.060	EPA 8082A	6-23-15	6-23-15	
Aroclor 1221	**ND**	0.060	EPA 8082A	6-23-15	6-23-15	
Aroclor 1232	**ND**	0.060	EPA 8082A	6-23-15	6-23-15	
Aroclor 1242	**ND**	0.060	EPA 8082A	6-23-15	6-23-15	
Aroclor 1248	**ND**	0.060	EPA 8082A	6-23-15	6-23-15	
Aroclor 1254	**ND**	0.060	EPA 8082A	6-23-15	6-23-15	
Aroclor 1260	**ND**	0.060	EPA 8082A	6-23-15	6-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*85*	*55-140*				
Client ID:	**SFS-S**					
Laboratory ID:	06-191-03					
Aroclor 1016	**ND**	0.056	EPA 8082A	6-23-15	6-23-15	
Aroclor 1221	**ND**	0.056	EPA 8082A	6-23-15	6-23-15	
Aroclor 1232	**ND**	0.056	EPA 8082A	6-23-15	6-23-15	
Aroclor 1242	**ND**	0.056	EPA 8082A	6-23-15	6-23-15	
Aroclor 1248	**ND**	0.056	EPA 8082A	6-23-15	6-23-15	
Aroclor 1254	**ND**	0.056	EPA 8082A	6-23-15	6-23-15	
Aroclor 1260	**ND**	0.056	EPA 8082A	6-23-15	6-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*95*	*55-140*				

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

PCBs EPA 8082A
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0623S1					
Aroclor 1016	**ND**	0.050	EPA 8082A	6-23-15	6-23-15	
Aroclor 1221	**ND**	0.050	EPA 8082A	6-23-15	6-23-15	
Aroclor 1232	**ND**	0.050	EPA 8082A	6-23-15	6-23-15	
Aroclor 1242	**ND**	0.050	EPA 8082A	6-23-15	6-23-15	
Aroclor 1248	**ND**	0.050	EPA 8082A	6-23-15	6-23-15	
Aroclor 1254	**ND**	0.050	EPA 8082A	6-23-15	6-23-15	
Aroclor 1260	**ND**	0.050	EPA 8082A	6-23-15	6-23-15	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*104*	*55-140*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	06-167-02										
	MS	MSD	MS	MSD		MS	MSD				
Aroclor 1260	**0.373**	**0.398**	0.500	0.500	ND	**75**	**80**	46-136	6	17	
Surrogate:											
DCB						*80*	*92*	*55-140*			

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

TOTAL METALS
EPA 6010C/7471B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	06-191-01					
Client ID:	**SFS-N**					
Arsenic	**ND**	12	6010C	6-18-15	6-18-15	
Barium	**59**	3.1	6010C	6-18-15	6-18-15	
Cadmium	**ND**	0.62	6010C	6-18-15	6-18-15	
Chromium	**37**	0.62	6010C	6-18-15	6-18-15	
Lead	**ND**	6.2	6010C	6-18-15	6-18-15	
Mercury	**ND**	0.31	7471B	6-25-15	6-25-15	
Selenium	**ND**	12	6010C	6-18-15	6-18-15	
Silver	**ND**	1.2	6010C	6-18-15	6-18-15	
Lab ID:	06-191-02					
Client ID:	**SFS-W**					
Arsenic	**ND**	12	6010C	6-18-15	6-18-15	
Barium	**120**	3.0	6010C	6-18-15	6-18-15	
Cadmium	**ND**	0.60	6010C	6-18-15	6-18-15	
Chromium	**69**	0.60	6010C	6-18-15	6-18-15	
Lead	**6.2**	6.0	6010C	6-18-15	6-18-15	
Mercury	**ND**	0.30	7471B	6-25-15	6-25-15	
Selenium	**ND**	12	6010C	6-18-15	6-18-15	
Silver	**ND**	1.2	6010C	6-18-15	6-18-15	

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

TOTAL METALS
EPA 6010C/7471B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	06-191-03					
Client ID:	**SFS-S**					
Arsenic	**ND**	11	6010C	6-18-15	6-18-15	
Barium	**27**	2.8	6010C	6-18-15	6-18-15	
Cadmium	**ND**	0.56	6010C	6-18-15	6-18-15	
Chromium	**14**	0.56	6010C	6-18-15	6-18-15	
Lead	**ND**	5.6	6010C	6-18-15	6-18-15	
Mercury	**ND**	0.28	7471B	6-25-15	6-25-15	
Selenium	**ND**	11	6010C	6-18-15	6-18-15	
Silver	**ND**	1.1	6010C	6-18-15	6-18-15	

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

TOTAL METALS
EPA 6010C
METHOD BLANK QUALITY CONTROL

Date Extracted: 6-18-15
Date Analyzed: 6-18-25

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0618SM1

Analyte	Method	Result	PQL
Arsenic	6010C	**ND**	10
Barium	6010C	**ND**	2.5
Cadmium	6010C	**ND**	0.50
Chromium	6010C	**ND**	0.50
Lead	6010C	**ND**	5.0
Selenium	6010C	**ND**	10
Silver	6010C	**ND**	1.0

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

TOTAL MERCURY
EPA 7471B
METHOD BLANK QUALITY CONTROL

Date Extracted:	6-25-15
Date Analyzed:	6-25-15
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0625S1

Analyte	Method	Result	PQL
Mercury	7471B	**ND**	0.25

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

TOTAL METALS
EPA 6010C
DUPLICATE QUALITY CONTROL

Date Extracted: 6-18-15
Date Analyzed: 6-18-25

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 06-184-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Barium	**3100**	**3180**	3	25	
Cadmium	**1.39**	**1.33**	4	0.50	
Chromium	**125**	**127**	1	0.50	
Lead	**67.5**	**66.9**	1	5.0	
Selenium	**ND**	**ND**	NA	10	
Silver	**ND**	**ND**	NA	1.0	

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

TOTAL MERCURY
EPA 7471B
DUPLICATE QUALITY CONTROL

Date Extracted: 6-25-15
Date Analyzed: 6-25-15

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 06-179-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Mercury	**ND**	**ND**	NA	0.25	

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

TOTAL METALS
EPA 6010C
MS/MSD QUALITY CONTROL

Date Extracted: 6-18-15
Date Analyzed: 6-18-25

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 06-184-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**86.1**	86	**83.3**	83	3	
Barium	100	**3190**	93	**3240**	139	1	A
Cadmium	50.0	**46.3**	90	**45.7**	89	1	
Chromium	100	**200**	75	**204**	79	2	
Lead	250	**271**	81	**267**	80	2	
Selenium	100	**85.8**	86	**84.4**	84	2	
Silver	25.0	**21.7**	87	**21.8**	87	0	

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

TOTAL MERCURY
EPA 7471B
MS/MSD QUALITY CONTROL

Date Extracted: 6-25-15
Date Analyzed: 6-25-15

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 06-179-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Mercury	0.500	**0.527**	105	**0.531**	106	1	

Date of Report: June 26, 2015
Samples Submitted: June 18, 2015
Laboratory Reference: 1506-191
Project: Signals Fuel Site

% MOISTURE

Date Analyzed: 6-18-15

Client ID	Lab ID	% Moisture
SFS-N	06-191-01	20
SFS-W	06-191-02	16
SFS-S	06-191-03	11

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a Sulfuric acid/Silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

Page _____ of _____

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Laboratory Number: 06-191

Company: WSDOT
Project Number:
Project Name: WSDOT Signal Fuel Site
Project Manager: Trent Ensminger
Sampled by: JJ

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☑ Standard (7 Days) (TPH analysis 5 Days)
☐ _____ (other)

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260C	Halogenated Volatiles 8260C	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A						% Moisture
1	SFS-N	6/18/15	0700	soil	6			✓	✓	✓		✓		✓				✓									X
2	SFS-W		↓																								X
3	SFS-S	↓	1000	↓	↓			✓	✓	✓		✓		✓				✓									X

	Signature	Company	Date	Time
Relinquished	[signature]	WSDOT	6/18/15	1105
Received	[signature]	SPECD7	6/18/15	1105
Relinquished	[signature]	SPECD7	6/18/15	1144
Received	Alex Armantrout	OSE	6/18/15	1144
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

Chromatograms with final report ☐

Data Package: Standard ☐ Level III ☐ Level IV ☐

Electronic Data Deliverables (EDDs) ☐ _____