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MARCH 2010
GROUNDWATER MONITORING STATUS REPORT

FORMER CUMMINGS OIL LEASE SITE
908 NORTHWEST KERRON AVENUE
WINLOCK, WASHINGTON
VCP NO. SW0775

Farallon Consulting, L.L.C.
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Farallon PN: 683-009

For:

BNSF RAILWAY

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September 13, 2010

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ACRONYMS AND ABBREVIATIONS

BNSF	BNSF Railway Company
BTEX	benzene, toluene, ethylbenzene, and xylenes
cPAHs	carcinogenic polycyclic aromatic hydrocarbons
DRO	diesel-range organics
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
Farallon	Farallon Consulting, L.L.C.
GRO	gasoline-range organics
µg/l	micrograms per liter
mg/l	milligrams per liter
MTCA	Washington State Model Toxics Control Act Cleanup Regulation
ORP	oxidation-reduction potential
ORO	oil-range organics
PAHs	polycyclic aromatic hydrocarbons
PQLs	practical quantitation limits
Site	Former Cummings Oil Lease Site located at 908 Northwest Kerron Avenue in Winlock, Washington
TPH	total petroleum hydrocarbons
VCP	voluntary cleanup program

1.0 INTRODUCTION

This Groundwater Monitoring Status Report has been prepared on behalf of BNSF Railway Company (BNSF) to summarize the results of the groundwater monitoring and sampling event conducted on March 11, 2010 at the Former Cummings Oil Lease Site at 908 Northwest Kerron Avenue in Winlock, Lewis County, Washington (herein referred to as the Site) (Figure 1). Prior investigations and cleanup actions have confirmed that concentrations of total petroleum hydrocarbons (TPH) as gasoline-range organics (GRO), as diesel-range organics (DRO), and as oil-range organics (ORO); and benzene, toluene, ethylbenzene, and xylenes (BTEX) were released to the subsurface as a result of historical activities at the Site. The groundwater monitoring and sampling is being performed to monitor concentrations of TPH previously detected in groundwater above Washington State Model Toxics Control Act Cleanup Regulation (MTCA) Method A cleanup levels and to assess whether natural attenuation is occurring.

The cleanup action at the Site was performed under the Washington State Department of Ecology (Ecology) Voluntary Cleanup Program (VCP) in accordance with MTCA as established in Chapter 173-340 of the Washington Administrative Code (WAC 173-340); and the *Cleanup Action Work Plan, Former Cummings Oil Lease Site, 908 Northwest Kerron Avenue, Winlock, Washington* dated December 18, 2008, prepared by Farallon (2008) (Work Plan). The Site was entered into the VCP in 2006 and is listed under the Ecology Toxics Cleanup Program as Identification No. SW0775.

The Work Plan presented the selected cleanup approach and specified the cleanup standards and associated requirements for the cleanup action. The selected cleanup action for the Site was executed in conjunction with tank closure activities conducted at the Site between March 10 and August 1, 2008. The tank closure and cleanup action included removal of two underground storage tanks and four aboveground storage tanks; excavation and off-Site disposal of soil with concentrations of TPH above the MTCA cleanup levels; and installation of monitoring wells to delineate the nature and extent of TPH in groundwater and assess groundwater cleanup by natural attenuation. The results of the tank closure and cleanup action are summarized in the *Tank Closure Report, Former Cummings Oil Lease Site, 908 Northwest Kerron Avenue, Winlock, Washington* dated March 11, 2010, prepared by Farallon (2010). Additional information regarding previous activities conducted at the Site is available in the documents presented in Section 4, References.

2.0 MONITORING ACTIVITIES AND RESULTS

The monitoring activities conducted at the Site by Farallon on March 11, 2010 included measuring groundwater levels and collecting groundwater quality data and samples for laboratory analysis. The monitoring activities and results are summarized in the following sections.

2.1 GROUNDWATER MONITORING ACTIVITIES

The groundwater monitoring and sampling event included:

- Measuring the depth to groundwater in monitoring wells MW-1, MW-2, MW-4, and MW-5;
- Purging and sampling monitoring wells MW-1, MW-2, MW-4, and MW-5 using U.S. Environmental Protection Agency (EPA) low-flow sampling methods;
- Measuring water quality parameters during monitoring well purging to assess natural attenuation; and
- Submitting the groundwater samples for laboratory analysis.

Farallon opened monitoring wells MW-1, MW-2, MW-4, and MW-5 to allow the water levels to equilibrate with atmospheric pressure for a minimum of 15 minutes prior to obtaining groundwater level measurements. Monitoring well MW-3 was not accessible during this event due to standing surface water covering the flush-mounted well monument as a result of its relative location and elevation on the Site. Groundwater levels in the accessible monitoring wells were measured to an accuracy of 0.01 foot using an electronic water-level meter.

Following collection of groundwater level measurements, monitoring wells MW-1, MW-2, MW-4, and MW-5 were purged and sampled using a peristaltic pump and polyethylene tubing. The purging was conducted at flow rates ranging from 100 to 300 milliliters per minute, with the intake tubing placed at a maximum of 3 feet below the water table in each monitoring well. During purging, water quality was monitored using a Yellow Springs Instrument water-quality meter equipped with a flow-through cell. The water quality parameters monitored and recorded during purging and sampling included temperature, pH, specific conductance, dissolved oxygen, and oxidation-reduction potential (ORP). The monitoring wells were purged until the water quality parameters stabilized in accordance with EPA guidelines for low-flow sampling. The groundwater samples were transferred directly from the tubing into laboratory-prepared containers. The containers from each sampling event were placed on ice in a cooler and transported to an Ecology-accredited laboratory under standard chain-of-custody protocols. The groundwater samples were analyzed for DRO and ORO by Northwest Method NWTPH-Dx; GRO by Northwest Method NWTPH-Gx; BTEX by EPA Method 8260B; ethene, ethane, and methane by Method RSK 175; nitrate and sulfate by EPA Method 300.0; and polycyclic aromatic hydrocarbons (PAHs) and naphthalene by EPA Method 8270 Selective Ion Monitoring.

Purge water generated by groundwater sampling is stored in a 35-gallon drum located on the Site. The purge water will be scheduled for disposal during a future groundwater monitoring and sampling event.

2.2 GROUNDWATER MONITORING RESULTS

Groundwater level measurements and elevations are summarized in Table 1. Figure 2 provides a groundwater elevation contour map illustrating the estimated groundwater flow direction and gradient for the groundwater monitoring and sampling event conducted on March 11, 2010. The groundwater level measurements indicate an approximate groundwater flow direction to the northwest, and an average approximate hydraulic gradient at the Site of 0.03 foot per foot. The groundwater flow direction during groundwater monitoring events conducted in December 2005 and August 2008 was to the southwest and west, respectively.

The current and previous groundwater analytical results are summarized in Tables 2 and 3. The analytical data for the groundwater samples collected on March 11, 2010 are illustrated on Figure 3.

The laboratory analytical results for March 11, 2010 indicate the following:

- Concentrations of DRO exceeded the MTCA Method A cleanup level of 500 micrograms per liter (µg/l) in groundwater samples collected from monitoring wells MW-1 and MW-2.
- Concentrations of ORO exceeded the MTCA Method A cleanup level of 500 µg/l in a groundwater sample collected from monitoring well MW-1;
- Concentrations of BTEX were not detected above the laboratory practical quantitation limit (PQL), with the exception of benzene, which exceeded the MTCA Method A cleanup level of 5 µg/l in a groundwater sample collected from monitoring well MW-2;
- PAHs (acenaphthene, fluorine, and phenanthrene) were detected above the laboratory PQL but below the MTCA Method B cleanup level in a groundwater sample collected from monitoring well MW-2;
- Concentrations of carcinogenic polycyclic aromatic hydrocarbons (cPAHs) were not detected above the laboratory PQL in any of the groundwater samples collected; and
- The calculated toxicity equivalent factor for cPAHs was not detected above the MTCA Method A cleanup level of 0.1 for benzo(a)pyrene in all groundwater samples collected.

The laboratory analytical report for the groundwater monitoring events is provided in Appendix A. The laboratory report noted that one cooler containing sample bottles was above the acceptable temperature of 6 degrees Celsius (°C) by 0.2°C for the following analyses:

- Northwest Method NWTPH-Dx and EPA Method 8270 for samples collected from monitoring well MW-1; and

- Northwest Method NWTPH-Dx, EPA Method 8270, Northwest Method NWTPH-Gx, EPA Method 8260, Method RSK 175, and Method 300.0 for samples collected from monitoring well MW-2.

2.3 NATURAL ATTENUATION RESULTS

An assessment of the potential for natural attenuation via biodegradation processes to reduce the concentrations of residual TPH and BTEX in groundwater was conducted during the March 11, 2010 groundwater monitoring and sampling event. The assessment included laboratory analyses and measurement of field parameters that provide data to assess whether and, if so, by what processes biodegradation is occurring. The laboratory analyses and field measurements for the assessment included the following:

- Primary electron receptors that are potential energy sources for native bacteria capable of biodegradation of petroleum compounds, and indicators of groundwater geochemistry:
  - Dissolved oxygen (O_2);
  - Nitrate (NO_3); and
  - Sulfate (SO_4^{-2}).
- Metabolic byproducts of biodegradation and indicators of groundwater geochemistry:
  - Methane (CH_4).
- Geochemical indicators of whether the subsurface environment is amenable to biodegradation of petroleum compounds:
  - ORP;
  - Temperature; and
  - pH.

The laboratory analytical results and field measurements for natural attenuation parameters and geochemical indicators are summarized in Table 4. The results of the assessment for the March 11, 2010 sampling event are as follows:

- **Dissolved Oxygen**—Measurements less than 1 milligram per liter (mg/l) indicate that available oxygen is trending toward more anaerobic conditions. The concentrations of dissolved oxygen in groundwater at monitoring wells MW-1, MW-2, and MW-4 were below 1 mg/l during the March 11, 2010 monitoring and sampling event. These dissolved oxygen measurements indicate that the available oxygen likely is being used as an energy source for biodegradation in areas with residual petroleum hydrocarbons.
- **Nitrite**—Nitrite is formed by anaerobic microbial process nitrate reduction, referred to as de-nitrification. The anaerobic respiratory process reduces nitrate (NO_3^-) to nitrite (NO_2^-). Concentrations of nitrite were not detected in monitoring wells with anaerobic conditions (monitoring wells MW-1 through MW-4). Therefore, de-nitrification was not being used in microbial respiration in Site monitoring wells during this sampling period.
- **Sulfate**—Concentrations of sulfate greater than 1 mg/l indicate a favorable environment for sulfate-reducing conditions. The concentrations of sulfate in groundwater samples

collected from monitoring wells MW-1, MW-2, MW-4, and MW-5 ranged from 3.2 to 74.4 mg/l.

- **Methane**—Concentrations of methane in the groundwater samples collected from monitoring wells MW-1, MW-2, MW-4, and MW-5 ranged from <10.0 to 1,620 mg/l during the monitoring and sampling event conducted at the Site. The elevated concentrations of methane indicate that methanogenesis is occurring in some Site monitoring wells.

- **Ethane and Ethene**—Ethane and ethane are by-products of reductive dechlorination of chlorinated compounds. Concentrations of ethane and ethene were not detected in any of the wells analyzed, as anticipated. Ethane and ethene will not be reported in future groundwater monitoring reports.

- **ORP**—The ORP measured at monitoring wells MW-1, MW-2, MW-4, and MW-5 during the monitoring event ranged from 85.60 to 117.7 millivolts, which is within a range typically considered indicative of moderate aerobic conditions. However, the dissolved oxygen results indicate that the subsurface environment is predominantly anaerobic.

- **Temperature**—The groundwater temperature measured at monitoring wells MW-1, MW-2, MW-4, and MW-5 ranged from 9.59 to 10.30°C during the groundwater monitoring and sampling event. Biodegradation processes occur at these temperatures but typically are accelerated at higher temperatures, approaching 20°C or greater.

- **pH**—The values for pH measured at monitoring wells MW-1, MW-2, MW-4, and MW-5 ranged from 6.70 to 7.92, with 7 being a neutral value. These pH values are within a range amenable to the bacteria capable of biodegrading petroleum hydrocarbons.

3.0 CONCLUSIONS

The groundwater flow direction and hydraulic gradient estimated for the March 11, 2010 groundwater monitoring event was to the northwest at a gradient of 0.03 foot per foot. During the previous two monitoring events, the groundwater flow direction and hydraulic gradient were to the west and southwest.

Groundwater samples collected from monitoring wells MW-4 and MW-5 during the March 2010 groundwater monitoring and sampling event had no detectable concentrations of GRO, DRO, ORO, or BTEX above the laboratory PQL. Samples collected from monitoring wells MW-1 and MW-2, located directly west of the Former UST Excavation Area on the western portion of the Site, had concentrations of DRO, ORO, and/or benzene detected above the MTCA Method A cleanup levels.

The rate of biodegradation of TPH and BTEX compounds in groundwater remains unknown. However, the results of the assessment of natural attenuation of TPH and BTEX compounds in groundwater indicate that biodegradation of petroleum hydrocarbons is occurring under anaerobic conditions. Dissolved oxygen, an electron receptor, appears to be depleted in monitoring wells MW-1 and MW-2, indicating that the available oxygen is being used as an energy source for biodegradation. The concentrations of the metabolic by-product indicator methane detected in groundwater at monitoring wells MW-1 and MW-2 indicate that biodegradation of petroleum hydrocarbons is occurring by methanogenesis.

The groundwater analytical data collected during the March 11, 2010 groundwater monitoring and sampling event demonstrate that the cleanup levels have not been met for groundwater at the Site. However, the assessment of natural attenuation process indicates that biodegradation of petroleum hydrocarbons is occurring at the Site. Groundwater monitoring and sampling at the Site will be conducted in June 2010.

4.0 REFERENCES

Farallon Consulting, L.L.C. (Farallon). 2006. *Supplemental Subsurface Investigation, BNSF Winlock, 908 Northwest Kerron Avenue, Winlock, Washington.* Prepared for BNSF Railway Company, Seattle, Washington. May 31.

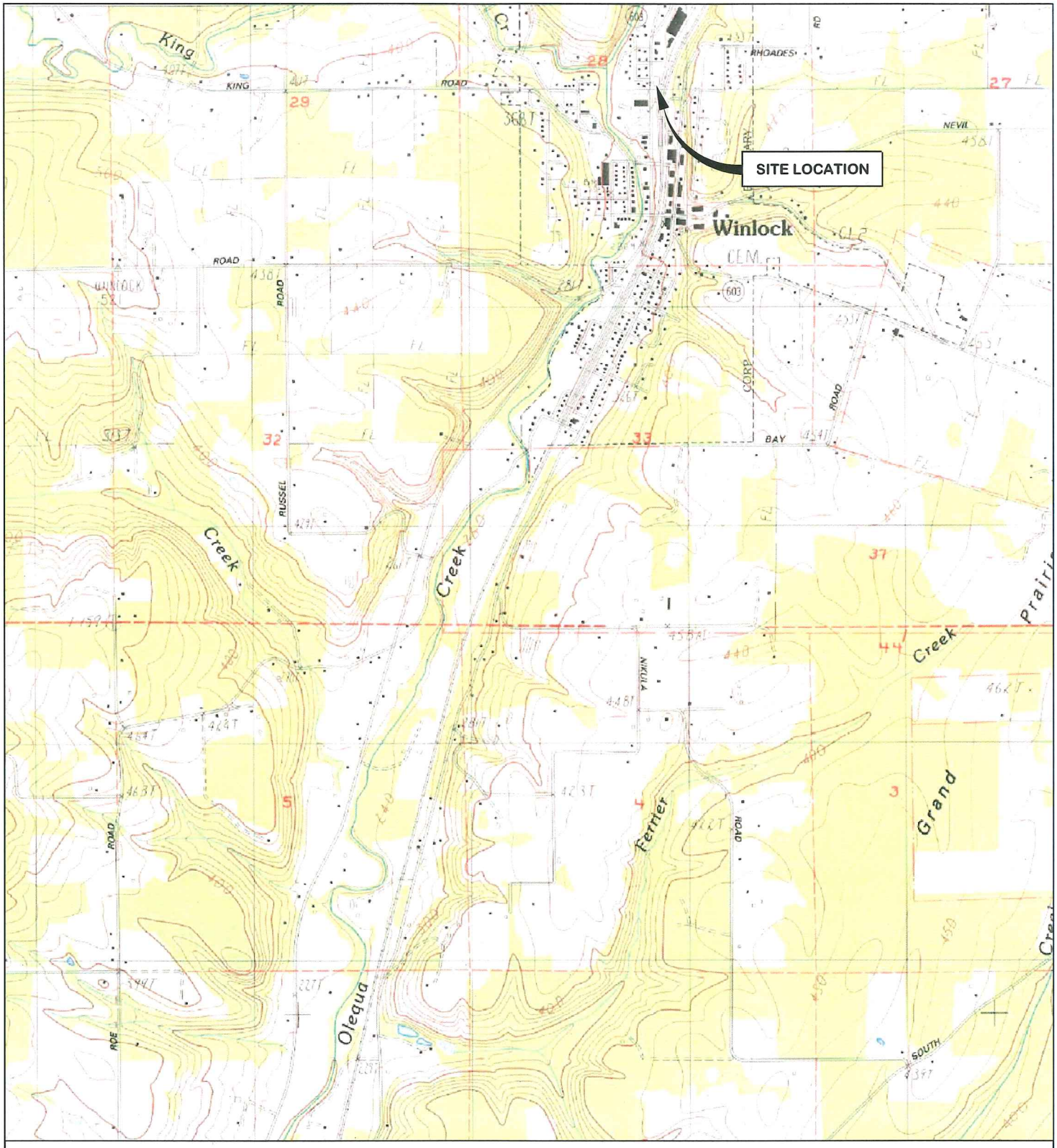
———. 2008. *Cleanup Action Work Plan, Former Cummings Oil Lease Site, 908 Northwest Kerron Avenue, Winlock, Washington.* Prepared for BNSF. December 18.

———. 2010. *Tank Closure Report, Former Cummings Oil Lease Site, 908 Northwest Kerron Avenue, Winlock, Washington.* Prepared for BNSF. March 11.

FIGURES

GROUNDWATER MONITORING STATUS REPORT
Former Cummings Oil Lease Site
908 Northwest Kerron Avenue
Winlock, Washington
VCP No. SW0775

Farallon PN: 683-009



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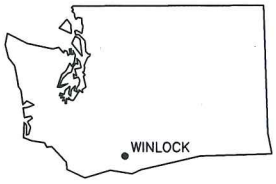

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FIGURE 1

SITE VICINITY MAP
FORMER CUMMINGS OIL LEASE SITE
908 NORTHWEST KERRON AVENUE
WINLOCK, WASHINGTON

FARALLON PN: 683-009

Drawn By: DEW	Checked By: SP	Date: 2/25/09	Disk Reference: 683009

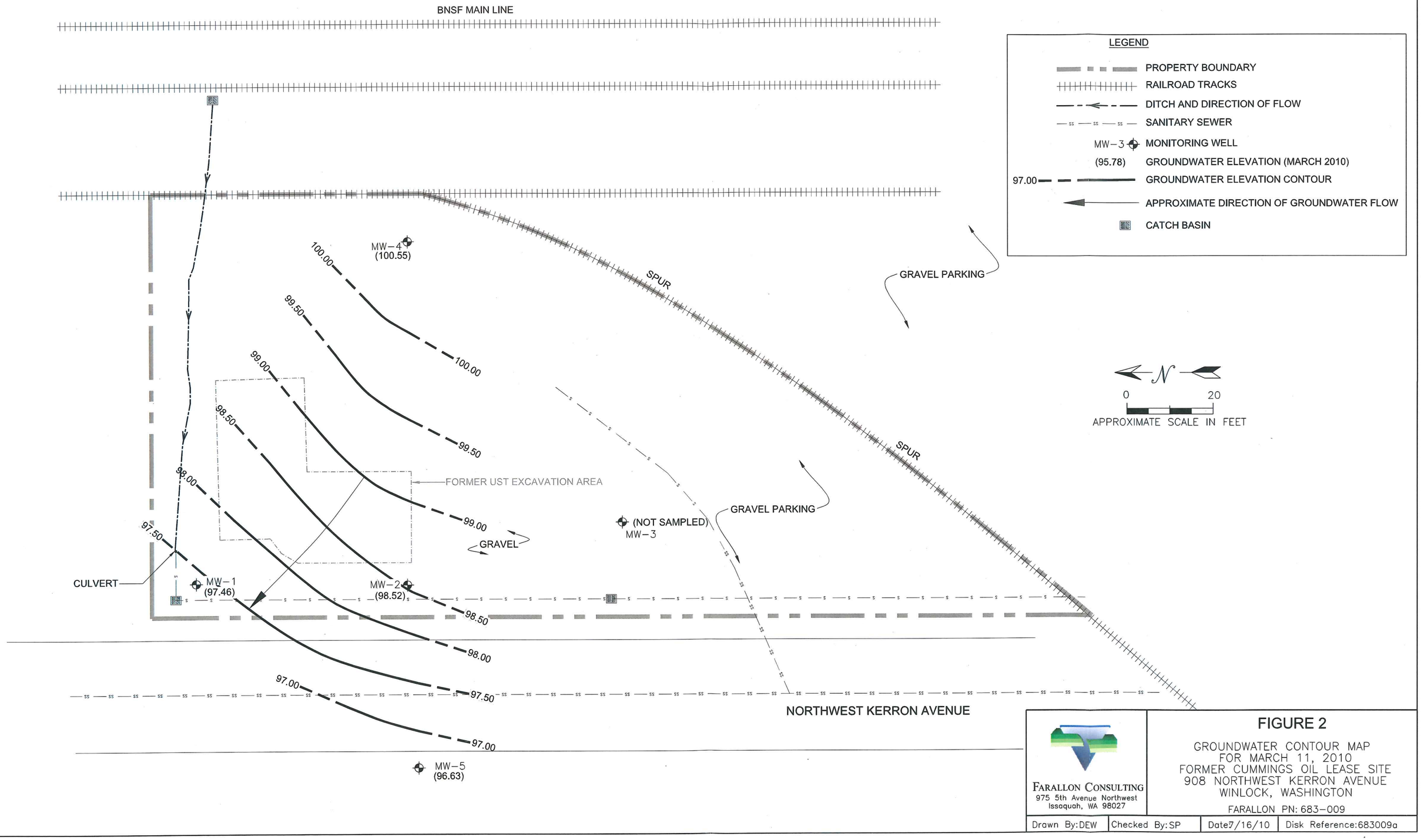

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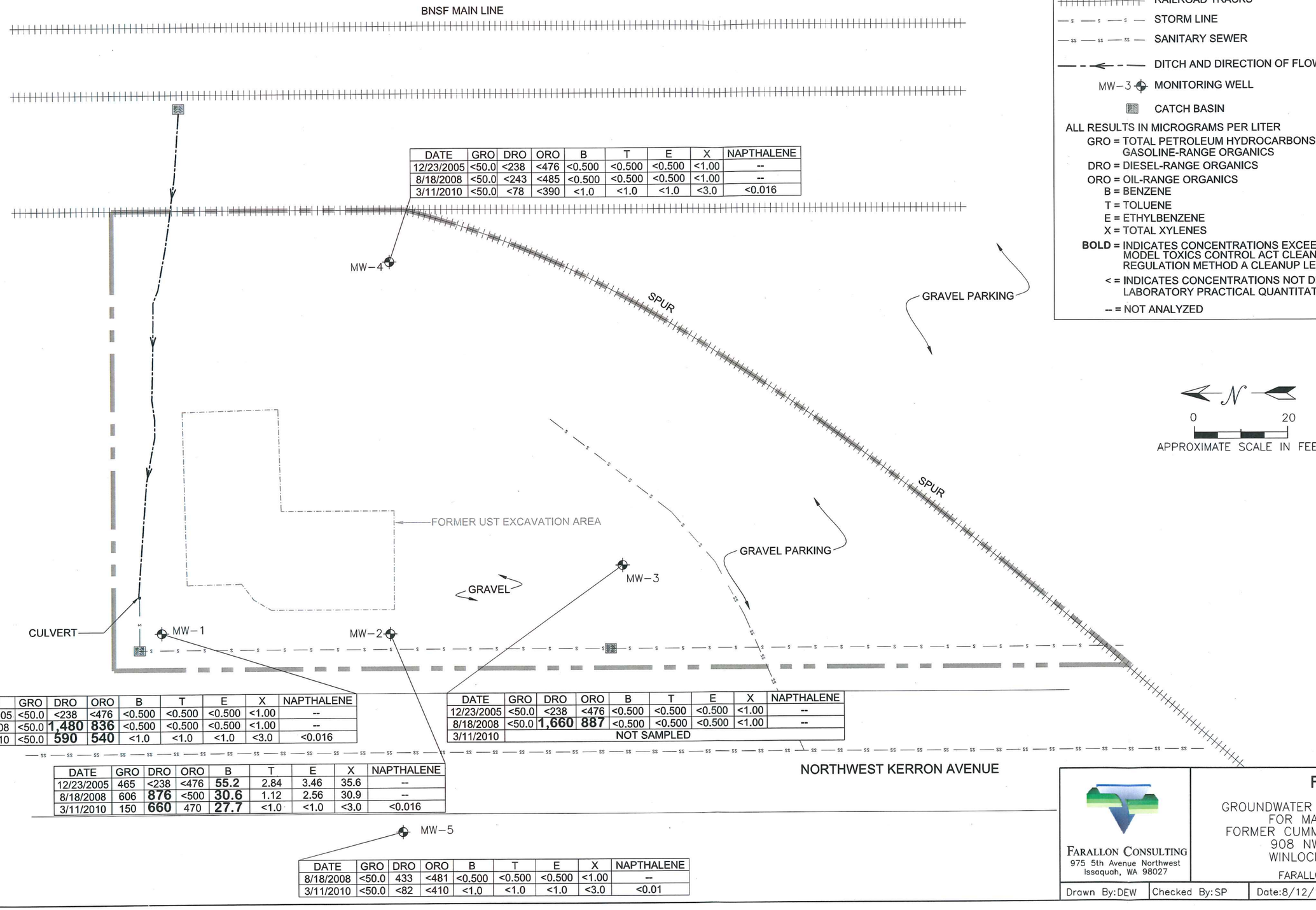
FIGURE 2

GROUNDWATER CONTOUR MAP
FOR MARCH 11, 2010
FORMER CUMMINGS OIL LEASE SITE
908 NORTHWEST KERRON AVENUE
WINLOCK, WASHINGTON

FARALLON PN: 683-009

Drawn By: DEW	Checked By: SP	Date 7/16/10	Disk Reference: 683009a



DATE	GRO	DRO	ORO	B	T	E	X	NAPTHALENE
12/23/2005	<50.0	<238	<476	<0.500	<0.500	<0.500	<1.00	--
8/18/2008	<50.0	<243	<485	<0.500	<0.500	<0.500	<1.00	--
3/11/2010	<50.0	<78	<390	<1.0	<1.0	<1.0	<3.0	<0.016

DATE	GRO	DRO	ORO	B	T	E	X	NAPTHALENE
12/23/2005	<50.0	<238	<476	<0.500	<0.500	<0.500	<1.00	--
8/18/2008	<50.0	**1,480**	**836**	<0.500	<0.500	<0.500	<1.00	--
3/11/2010	<50.0	**590**	**540**	<1.0	<1.0	<1.0	<3.0	<0.016

DATE	GRO	DRO	ORO	B	T	E	X	NAPTHALENE
12/23/2005	<50.0	<238	<476	<0.500	<0.500	<0.500	<1.00	--
8/18/2008	<50.0	**1,660**	**887**	<0.500	<0.500	<0.500	<1.00	--
3/11/2010	NOT SAMPLED							

DATE	GRO	DRO	ORO	B	T	E	X	NAPTHALENE
12/23/2005	465	<238	<476	**55.2**	2.84	3.46	35.6	--
8/18/2008	606	**876**	<500	**30.6**	1.12	2.56	30.9	--
3/11/2010	150	**660**	470	**27.7**	<1.0	<1.0	<3.0	<0.016

DATE	GRO	DRO	ORO	B	T	E	X	NAPTHALENE
8/18/2008	<50.0	433	<481	<0.500	<0.500	<0.500	<1.00	--
3/11/2010	<50.0	<82	<410	<1.0	<1.0	<1.0	<3.0	<0.01

LEGEND

- PROPERTY BOUNDARY
- RAILROAD TRACKS
- STORM LINE
- SANITARY SEWER
- DITCH AND DIRECTION OF FLOW
- MW-3 MONITORING WELL
- CATCH BASIN

ALL RESULTS IN MICROGRAMS PER LITER

GRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS GASOLINE-RANGE ORGANICS

DRO = DIESEL-RANGE ORGANICS

ORO = OIL-RANGE ORGANICS

B = BENZENE

T = TOLUENE

E = ETHYLBENZENE

X = TOTAL XYLENES

BOLD = INDICATES CONCENTRATIONS EXCEED WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION METHOD A CLEANUP LEVELS

< = INDICATES CONCENTRATIONS NOT DETECTED ABOVE THE STATED LABORATORY PRACTICAL QUANTITATION LIMIT

-- = NOT ANALYZED

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FIGURE 3

GROUNDWATER ANALYTICAL RESULTS
FOR MARCH 11, 2010
FORMER CUMMINGS OIL LEASE SITE
908 NW KERRON AVE
WINLOCK, WASHINGTON

FARALLON PN: 683-009

Drawn By: DEW	Checked By: SP	Date: 8/12/10	Disk Reference: 683009a

TABLES

GROUNDWATER MONITORING STATUS REPORT
Former Cummings Oil Lease Site
908 Northwest Kerron Avenue
Winlock, Washington
VCP No. SW0775

Farallon PN: 683-009

Table 1
Summary of Groundwater Elevation Data
Former Cummings Oil Lease Site
Winlock, Washington
Farallon PN: 683-009

Well Identification	Monitoring Date	Depth of Monitoring Well (feet)	Monitoring Well Screened Interval (feet bgs)	Wellhead Elevation [1] (feet)	Depth to Water (feet bgs)	Groundwater Elevation (feet)
MW-1	12/23/2005	12	5-12	100.46	2.13	98.33
	8/18/2008				4.50	95.96
	3/11/2010				3.00	97.46
MW-2	12/23/2005	11	5-11	100.4	2.50	97.90
	8/18/2008				4.67	95.73
	3/11/2010				1.88	98.52
MW-3	12/23/2005	10	5-10	100.18	2.21	97.97
	8/18/2008				4.40	95.78
	3/11/2010				--	--
MW-4	12/23/2005	12	5-12	102.45	0.50	101.95
	8/18/2008				5.02	97.43
	3/11/2010				1.90	100.55
MW-5	8/18/2008	10	5-10	99.92	5.54	94.38
	3/11/2010				3.29	96.63

NOTES
[1]Elevations based on survey conducted by Farallon Consulting, L.L.C. to a benchmark of 105.59.

bgs = below ground surface
-- = not measured

Table 2
Summary of Groundwater Analytical Results for Total Petroleum Hydrocarbons
Former Cummings Oil Lease Site
Winlock, Washington
Farallon PN: 683-009

Sample Identification	Well Identification	Sample Date	Analytical Results (micrograms per liter)						
			GRO[1]	DRO[2]	ORO[2]	Benzene[3]	Toluene[3]	Ethylbenzene[3]	Total Xylenes[3]
MW1-122305	MW-1	12/23/2005	<50.0	<238	<476	<0.500	<0.500	<0.500	<1.00
MW1-081808		8/18/2008	<50.0	**1,480**	**836**	<0.500	<0.500	<0.500	<1.00
MW1-031110		3/11/2010	<50.0	**590**	**540**	<1.0	<1.0	<1.0	<3.0
MW2-122305	MW-2	12/23/2005	465	<238	<476	**55.2**	2.84	3.46	35.6
MW2-081808		8/18/2008	606	**876**	<500	**30.6**	1.12	2.56	30.9
MW2-031110		3/11/2010	150	**660**	470	**27.7**	<1.0	<1.0	<3.0
MW3-122305	MW-3	12/23/2005	<50.0	<238	<476	<0.500	<0.500	<0.500	<1.00
MW3-081808		8/18/2008	<50.0	**1,660**	**887**	<0.500	<0.500	<0.500	<1.00
		3/11/2010	--	--	--	--	--	--	--
MW4-122305	MW-4	12/23/2005	<50.0	<238	<476	<0.500	<0.500	<0.500	<1.00
MW4-081808		8/18/2008	<50.0	<243	<485	<0.500	<0.500	<0.500	<1.00
MW4-031110		3/11/2010	<50.0	<78	<390	<1.0	<1.0	<1.0	<3.0
MW5-081808	MW-5	8/18/2008	<50.0	433	<481	<0.500	<0.500	<0.500	<1.00
MW5-031110		3/11/2010	<50.0	<82	<410	<1.0	<1.0	<1.0	<3.0
MTCA Method A Cleanup Levels[5]			**800**	**500**	**500**	**5**	**1,000**	**700**	**1,000**

NOTES

Results in **bold** denote concentrations above applicable cleanup levels.

< denotes analyte not detected at or above the reporting limit listed.

-- = not analyzed

[1] Analyzed by Northwest Method NWTPH-Gx.

[2] Analyzed by Northwest Method NWTPH-Dx.

[3] Analyzed by U.S. Environmental Protection Agency (EPA) Method 8260B.

[4] Analyzed by EPA Method 8270 SIM.

[5] Washington State Model Toxics Control Act Cleanup Regulation (MTCA) Method A Cleanup Levels for Groundwater, Table 720-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, as revised November 2007.

DRO = total petroleum hydrocarbons (TPH) as diesel-range organics

GRO = TPH as gasoline-range organics

ORO = TPH as oil-range organics

SIM = Selective Ion Monitoring

Table 3
Summary of Groundwater Analytical Results for Polycyclic Aromatic Hydrocarbons
Former Cummings Oil Lease Site
Winlock, Washington
Farallon PN: 683-009

				Analytical Results (micrograms per liter)											
							Carcinogenic Polycyclic Aromatic Hydrocarbons [1]								
Sample Identification	Well Identification	Sample Date	Naphthalene[1]	Acenaphthene	Fluorene[1]	Phenanthrene[1]	Benzo(a)pyrene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3-c,d)pyrene	Benzo(a)anthracene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Total cPAHs TEF [2,3]
MW1-031110	MW-1	3/11/2010	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	0.0121
MW2-031110	MW-2	3/11/2010	<0.016	0.059	0.12	0.023	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	0.0121
MW4-031110	MW-4	3/11/2010	<0.015	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	0.0121
MW5-031110	MW-5	3/11/2010	<0.016	<0.016	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.0113
MTCA Cleanup Levels for Groundwater			**160**	**960[4]**	**160[4]**	**NE**								**0.10**

NOTES

< Denotes analyte not detected at or above the reporting limit listed.

[1] Analyzed by U.S. Environmental Protection Agency (EPA) Method 8270C. The full list of polycyclic aromatic hydrocarbons (PAHs) was analyzed for by EPA Method 8270C. Only the PAHs detected above the laboratory PQL and cPAHs are summarized here.

[2] Total carcinogenic polycyclic aromatic hydrocarbons (cPAHs) derived using the total toxicity equivalency method in Section 708(8) of Chapter 173-340 of the Washington Administrative Code.

[3] For concentrations reported at less than the laboratory reporting limit, half the reporting limit was used to calculate the TEF.

[4] Washington State Department of Ecology Cleanup Levels and Risk Calculations under MTCA, Version 3.1 Standard Method B Formula Values for Groundwater https://fortress.wa.gov/ecy/clarc/Reporting/ChemicalQuery.aspx. (Unrestricted Land Use) - Non-carcinogen.

NE = no cleanup level has ben established

TEF = toxicity equivalency factor

Table 4
Summary of Groundwater Geochemical Parameters
Former Cummings Oil Lease Site
Winlock, Washington
Farallon PN: 683-009

Well Identification	Sample Date	Geochemical Results										
		Temperature (°C)	Specific Conductance (mS/cm)	pH (pH units)	Dissolved Oxygen (mg/l)	Oxidation-Reduction Potential (mV)	Sulfate[1] (mg/l)	Nitrate[1] (mg/l as Nitrogen)	Nitrite (mg/l)	Methane[2] (µg/l)	Ethane[2] (µg/l)	Ethene[2] (µg/l)
MW-1	8/18/2008	17.60	0.221	6.03	0.92	-7.70	—	—	—	—	—	—
	3/11/2010	10.08	0.289	6.70	0.47	117.7	74.4	<0.20	<0.20	289	<10.0	<10.0
MW-2	8/18/2008	17.65	0.316	6.64	0.99	-77.20	0.420	<0.200	—	1,660	<10.0	<10.0
	3/11/2010	9.93	0.247	7.28	0.77	101.2	30.31	<0.20	<0.10	1,620	<10.0	<10.0
MW-3	8/18/2008	17.38	0.382	6.34	1.08	-75.60	—	—	—	—	—	—
MW-4	8/18/2008	13.78	0.241	6.75	0.97	-74.90	16.7	<0.200	—	22.8	<10.0	<10.0
	3/11/2010	9.59	0.255	7.92	0.57	85.60	17.6	<0.20	<0.20	47.6	<10.0	<10.0
MW-5	8/18/2008	17.57	0.466	6.62	1.45	-31.60	8.03	<0.200	—	40.6	<10.0	<10.0
	3/11/2010	10.30	0.067	7.63	5.66	107.9	3.2	0.61	<0.10	<10.0	<10.0	<10.0

NOTES

[1] Analyzed by U.S. Environmental Protection Agency (EPA) Method 300.0.

2 Analyzed by EPA Method RSK 175.

— = not measured/analyzed
°C = degrees Celsius
µg/l = micrograms per liter
mg/l = milligrams per liter
mS/cm = millisiemens per centimeter
mV = millivolts

APPENDIX A
LABORATORY ANALYTICAL REPORT

GROUNDWATER MONITORING STATUS REPORT
Former Cummings Oil Lease Site
908 Northwest Kerron Avenue
Winlock, Washington
VCP No. SW0775

Farallon PN: 683-009

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March 29, 2010

Stacy Patterson
Farallon Consulting LLC
975 5th Avenue Northwest
Issaquah, WA 98027

RE: Project: Winlock
Pace Project No.: 253265

Dear Stacy Patterson:
Enclosed are the analytical results for sample(s) received by the laboratory on March 12, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

Two coolers were received; one was outside of method recommended temperature tolerances at 6.2 C degrees. See page 3 of COC for affected samples.

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

Sincerely,

Heidi Geri

heidi.geri@pacelabs.com
Project Manager

Enclosures

cc: Carla Brock, Farallon Consulting

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CERTIFICATIONS

Project: Winlock
Pace Project No.: 253265

Minnesota Certification IDs

Alaska Certification #: UST-078
Arizona Certification #: AZ-0014
1700 Elm Street SE, Suite 200 Minneapolis, MN 55414
Wisconsin Certification #: 999407970
Washington Certification #: C754
Tennessee Certification #: 02818
Pennsylvania Certification #: 68-00563
Oregon Certification #: MN200001
North Dakota Certification #: R-036
California Certification #: 01155CA
Florida/NELAP Certification #: E87605
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Louisiana Certification #: LA080009
Maine Certification #: 2007029
Michigan DEQ Certification #: 9909
Minnesota Certification #: 027-053-137
Montana Certification #: MT CERT0092
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530

Washington Certification IDs

Washington Certification #: C1229
Oregon Certification #: WA200007
Florida/NELAP Certification #: E87617
California Certification #: 01153CA
Alaska Drinking Water Micro Certification #: WA01230
Alaska Drinking Water VOC Certification #: WA01-09
Alaska CS Certification #: UST-025
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SAMPLE ANALYTE COUNT

Project: Winlock
Pace Project No.: 253265

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
253265001	MW4	RSK 175	CJR	3	PASI-M
		NWTPH-Dx	DMT	4	PASI-S
		NWTPH-Gx	LPM	3	PASI-S
		EPA 8270 by SIM	DMT	18	PASI-S
		EPA 5030B/8260	LPM	10	PASI-S
		EPA 300.0	CMS	2	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 353.2	BPR	1	PASI-S
253265002	MW5	RSK 175	CJR	3	PASI-M
		NWTPH-Dx	DMT	4	PASI-S
		NWTPH-Gx	LPM	3	PASI-S
		EPA 8270 by SIM	DMT	18	PASI-S
		EPA 5030B/8260	LPM	10	PASI-S
		EPA 300.0	CMS	2	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 353.2	BPR	1	PASI-S
253265003	MW2	RSK 175	CJR	3	PASI-M
		NWTPH-Dx	DMT	4	PASI-S
		NWTPH-Gx	LPM	3	PASI-S
		EPA 8270 by SIM	DMT	18	PASI-S
		EPA 5030B/8260	LPM	10	PASI-S
		EPA 300.0	CMS	2	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 353.2	BPR	1	PASI-S
253265004	MW1	RSK 175	CJR	3	PASI-M
		NWTPH-Dx	DMT	4	PASI-S
		NWTPH-Gx	LPM	3	PASI-S
		EPA 8270 by SIM	DMT	18	PASI-S
		EPA 5030B/8260	LNH	10	PASI-S
		EPA 300.0	CMS	2	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 353.2	BPR	1	PASI-S
253265005	Trip Blank Cooler AAT442	NWTPH-Gx	LPM	3	PASI-S
		EPA 5030B/8260	LPM	10	PASI-S
253265006	Trip Blank Cooler AAN071	NWTPH-Gx	LNH	3	PASI-S
		EPA 5030B/8260	LNH	10	PASI-S

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PROJECT NARRATIVE

Project: Winlock
Pace Project No.: 253265

Method: **RSK 175**
Description: RSK 175 AIR Headspace
Client: Farallon Consulting LLC
Date: March 29, 2010

General Information:
4 samples were analyzed for RSK 175. All samples were received in acceptable condition with any exceptions noted below.

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

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

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

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

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

Additional Comments:

Sample Comments:

Cooler AAT442 was received outside of method allowable temperature tolerances at 6.2 C degrees. The following sample containers for sample MW-2 were present in this cooler: TPH-Dx, PAH/SIM, TPH-Gx, VOC 8260, RSK 175, Nitrate, and Nitrite.
- MW2 (Lab ID: 253265003)

Cooler AAT442 was received outside of method allowable temperature tolerances at 6.2 C degrees. The following sample containers for sample MW-1 were present in this cooler: TPH-Dx, PAH/SIM.
- MW1 (Lab ID: 253265004)

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PROJECT NARRATIVE

Project: Winlock
Pace Project No.: 253265

Method: **NWTPH-Dx**
Description: NWTPH-Dx GCS
Client: Farallon Consulting LLC
Date: March 29, 2010

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

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

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

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

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

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

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

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

Additional Comments:

Sample Comments:

Cooler AAT442 was received outside of method allowable temperature tolerances at 6.2 C degrees. The following sample containers for sample MW-2 were present in this cooler: TPH-Dx, PAH/SIM, TPH-Gx, VOC 8260, RSK 175, Nitrate, and Nitrite.
- MW2 (Lab ID: 253265003)

Cooler AAT442 was received outside of method allowable temperature tolerances at 6.2 C degrees. The following sample containers for sample MW-1 were present in this cooler: TPH-Dx, PAH/SIM.
- MW1 (Lab ID: 253265004)

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PROJECT NARRATIVE

Project: Winlock
Pace Project No.: 253265

Method: **NWTPH-Gx**
Description: NWTPH-Gx GCV
Client: Farallon Consulting LLC
Date: March 29, 2010

General Information:
6 samples were analyzed for NWTPH-Gx. All samples were received in acceptable condition with any exceptions noted below.

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

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

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

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

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

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

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

QC Batch: GCV/1472

R1: RPD value was outside control limits.
- DUP (Lab ID: 23771)
  - Gasoline Range Organics

Additional Comments:

Sample Comments:

Cooler AAT442 was received outside of method allowable temperature tolerances at 6.2 C degrees. The following sample containers for sample MW-2 were present in this cooler: TPH-Dx, PAH/SIM, TPH-Gx, VOC 8260, RSK 175, Nitrate, and Nitrite.
- MW2 (Lab ID: 253265003)

Cooler AAT442 was received outside of method allowable temperature tolerances at 6.2 C degrees. The following sample containers for sample MW-1 were present in this cooler: TPH-Dx, PAH/SIM.
- MW1 (Lab ID: 253265004)

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PROJECT NARRATIVE

Project: Winlock
Pace Project No.: 253265

Method: **NWTPH-Gx**
Description: NWTPH-Gx GCV
Client: Farallon Consulting LLC
Date: March 29, 2010

Sample Comments:

Cooler AAT442 was received outside of method allowable temperature tolerances at 6.2 C degrees. The following sample containers for Trip Blank AAT442 were present in this cooler: TPH-Gx, and VOC 8260.

- Trip Blank Cooler AAT442 (Lab ID: 253265005)

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PROJECT NARRATIVE

Project: Winlock
Pace Project No.: 253265

Method: **EPA 8270 by SIM**
Description: 8270 MSSV Low Level PAH SIM
Client: Farallon Consulting LLC
Date: March 29, 2010

General Information:
4 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

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

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

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

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

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

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

QC Batch: OEXT/1996

S0: Surrogate recovery outside laboratory control limits.

- LCS (Lab ID: 23813)
  - 2-Fluorobiphenyl (S)
- LCSD (Lab ID: 23814)
  - 2-Fluorobiphenyl (S)
- MW1 (Lab ID: 253265004)
  - 2-Fluorobiphenyl (S)
- MW2 (Lab ID: 253265003)
  - 2-Fluorobiphenyl (S)
- MW4 (Lab ID: 253265001)
  - 2-Fluorobiphenyl (S)
- MW5 (Lab ID: 253265002)
  - 2-Fluorobiphenyl (S)

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

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PROJECT NARRATIVE

Project: Winlock
Pace Project No.: 253265

Method: **EPA 8270 by SIM**
Description: 8270 MSSV Low Level PAH SIM
Client: Farallon Consulting LLC
Date: March 29, 2010

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

Additional Comments:

Sample Comments:

Cooler AAT442 was received outside of method allowable temperature tolerances at 6.2 C degrees. The following sample containers for sample MW-2 were present in this cooler: TPH-Dx, PAH/SIM, TPH-Gx, VOC 8260, RSK 175, Nitrate, and Nitrite.
- MW2 (Lab ID: 253265003)

Cooler AAT442 was received outside of method allowable temperature tolerances at 6.2 C degrees. The following sample containers for sample MW-1 were present in this cooler: TPH-Dx, PAH/SIM.
- MW1 (Lab ID: 253265004)

Analyte Comments:

QC Batch: OEXT/1996

1n: Reported results were confirmed for all target analytes by the analysis of an out-of-hold re-extract sample, with passing surrogate recoveries, on 03/24/10 at 22:58 on instrument MSS1.
- MW4 (Lab ID: 253265001)
  - 2-Fluorobiphenyl (S)

2n: Reported results were confirmed for all target analytes by the analysis of an out-of-hold re-extract sample, with passing surrogate recoveries, on 03/24/10 at 23:16 on instrument MSS1.
- MW5 (Lab ID: 253265002)
  - 2-Fluorobiphenyl (S)

3n: Reported results were confirmed for all target analytes by the analysis of an out-of-hold re-extract sample, with passing surrogate recoveries, on 03/24/10 at 23:33 on instrument MSS1.
- MW2 (Lab ID: 253265003)
  - 2-Fluorobiphenyl (S)

4n: Reported results were confirmed for all target analytes by the analysis of an out-of-hold re-extract sample, with passing surrogate recoveries, on 03/24/10 at 23:51 on instrument MSS1.
- MW1 (Lab ID: 253265004)
  - 2-Fluorobiphenyl (S)

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PROJECT NARRATIVE

Project: Winlock
Pace Project No.: 253265

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Farallon Consulting LLC
Date: March 29, 2010

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

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

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

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

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

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

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: MSV/2183

L0: Analyte recovery in the laboratory control sample (LCS) was outside QC limits.
- LCS (Lab ID: 24132)
  - Benzene

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

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

Additional Comments:

Sample Comments:

Cooler AAT442 was received outside of method allowable temperature tolerances at 6.2 C degrees. The following sample containers for sample MW-2 were present in this cooler: TPH-Dx, PAH/SIM, TPH-Gx, VOC 8260, RSK 175, Nitrate, and Nitrite.
- MW2 (Lab ID: 253265003)

Cooler AAT442 was received outside of method allowable temperature tolerances at 6.2 C degrees. The following sample containers for sample MW-1 were present in this cooler: TPH-Dx, PAH/SIM.
- MW1 (Lab ID: 253265004)

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PROJECT NARRATIVE

Project: Winlock
Pace Project No.: 253265

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Farallon Consulting LLC
Date: March 29, 2010

Sample Comments:

Cooler AAT442 was received outside of method allowable temperature tolerances at 6.2 C degrees. The following sample containers for Trip Blank AAT442 were present in this cooler: TPH-Gx, and VOC 8260.

- Trip Blank Cooler AAT442 (Lab ID: 253265005)

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PROJECT NARRATIVE

Project: Winlock
Pace Project No.: 253265

Method: **EPA 300.0**
Description: 300.0 IC Anions
Client: Farallon Consulting LLC
Date: March 29, 2010

General Information:
4 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

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

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

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

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

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

Additional Comments:

Sample Comments:

Cooler AAT442 was received outside of method allowable temperature tolerances at 6.2 C degrees. The following sample containers for sample MW-2 were present in this cooler: TPH-Dx, PAH/SIM, TPH-Gx, VOC 8260, RSK 175, Nitrate, and Nitrite.
- MW2 (Lab ID: 253265003)

Cooler AAT442 was received outside of method allowable temperature tolerances at 6.2 C degrees. The following sample containers for sample MW-1 were present in this cooler: TPH-Dx, PAH/SIM.
- MW1 (Lab ID: 253265004)

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PROJECT NARRATIVE

Project: Winlock
Pace Project No.: 253265

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Farallon Consulting LLC
Date: March 29, 2010

General Information:
4 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

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

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

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

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

QC Batch: WETA/1441

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253265001

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

- MS (Lab ID: 23896)
  - Sulfate
- MSD (Lab ID: 23897)
  - Sulfate

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

Additional Comments:

Sample Comments:

Cooler AAT442 was received outside of method allowable temperature tolerances at 6.2 C degrees. The following sample containers for sample MW-2 were present in this cooler: TPH-Dx, PAH/SIM, TPH-Gx, VOC 8260, RSK 175, Nitrate, and Nitrite.

- MW2 (Lab ID: 253265003)

Cooler AAT442 was received outside of method allowable temperature tolerances at 6.2 C degrees. The following sample containers for sample MW-1 were present in this cooler: TPH-Dx, PAH/SIM.

- MW1 (Lab ID: 253265004)

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PROJECT NARRATIVE

Project: Winlock
Pace Project No.: 253265

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Farallon Consulting LLC
Date: March 29, 2010

Analyte Comments:

QC Batch: WETA/1441

E: Analyte concentration exceeded the calibration range. The reported result is estimated.
- MS (Lab ID: 23896)
  - Sulfate
- MSD (Lab ID: 23897)
  - Sulfate

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PROJECT NARRATIVE

Project: Winlock
Pace Project No.: 253265

Method: **EPA 353.2**
Description: 353.2 Nitrogen, NO2/NO3 pres.
Client: Farallon Consulting LLC
Date: March 29, 2010

General Information:
4 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below.

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

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

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

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

QC Batch: WETA/1439

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253265001

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 23720)
  - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 23719)
  - Nitrogen, NO2 plus NO3

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

Additional Comments:

Sample Comments:

Cooler AAT442 was received outside of method allowable temperature tolerances at 6.2 C degrees. The following sample containers for sample MW-2 were present in this cooler: TPH-Dx, PAH/SIM, TPH-Gx, VOC 8260, RSK 175, Nitrate, and Nitrite.
- MW2 (Lab ID: 253265003)

Cooler AAT442 was received outside of method allowable temperature tolerances at 6.2 C degrees. The following sample containers for sample MW-1 were present in this cooler: TPH-Dx, PAH/SIM.
- MW1 (Lab ID: 253265004)

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PROJECT NARRATIVE

Project: Winlock
Pace Project No.: 253265

Method: **EPA 353.2**
Description: 353.2 Nitrogen, NO2/NO3 pres.
Client: Farallon Consulting LLC
Date: March 29, 2010

Analyte Comments:

QC Batch: WETA/1439

- BLANK (Lab ID: 23717)
  - Nitrogen, NO2 plus NO3
- LCS (Lab ID: 23718)
  - Nitrogen, NO2 plus NO3
- MS (Lab ID: 23720)
  - Nitrogen, NO2 plus NO3

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

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ANALYTICAL RESULTS

Project: Winlock
Pace Project No.: 253265

Sample: MW4 **Lab ID: 253265001** Collected: 03/11/10 11:20 Received: 03/12/10 11:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	10.0	1		03/22/10 13:24	74-84-0	
Ethene	ND	ug/L	10.0	1		03/22/10 13:24	74-85-1	
Methane	**47.6**	ug/L	10.0	1		03/22/10 13:24	74-82-8	
NWTPH-Dx GCS	Analytical Method: NWTPH-Dx Preparation Method: EPA 3510							
Diesel Range	ND	mg/L	0.078	1	03/17/10 12:45	03/22/10 06:57		
Motor Oil Range	ND	mg/L	0.39	1	03/17/10 12:45	03/22/10 06:57	64742-65-0	
n-Octacosane (S)	96	%	50-150	1	03/17/10 12:45	03/22/10 06:57	630-02-4	
o-Terphenyl (S)	87	%	50-150	1	03/17/10 12:45	03/22/10 06:57	84-15-1	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
Gasoline Range Organics	ND	ug/L	50.0	1		03/15/10 19:40		
a,a,a-Trifluorotoluene (S)	88	%	50-150	1		03/15/10 19:40	98-08-8	
4-Bromofluorobenzene (S)	85	%	50-150	1		03/15/10 19:40	460-00-4	
8270 MSSV Low Level PAH SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510							
Acenaphthene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:23	83-32-9	
Acenaphthylene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:23	208-96-8	
Anthracene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:23	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:23	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:23	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:23	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:23	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:23	207-08-9	
Chrysene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:23	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:23	53-70-3	
Fluoranthene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:23	206-44-0	
Fluorene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:23	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:23	193-39-5	
Naphthalene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:23	91-20-3	
Phenanthrene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:23	85-01-8	
Pyrene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:23	129-00-0	
2-Fluorobiphenyl (S)	26	%	40-106	1	03/17/10 12:45	03/18/10 21:23	321-60-8	1n,S0
Terphenyl-d14 (S)	62	%	55-146	1	03/17/10 12:45	03/18/10 21:23	1718-51-0	
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	ND	ug/L	1.0	1		03/18/10 04:43	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		03/18/10 04:43	100-41-4	
Toluene	ND	ug/L	1.0	1		03/18/10 04:43	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		03/18/10 04:43	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		03/18/10 04:43	1330-20-7	
o-Xylene	ND	ug/L	1.0	1		03/18/10 04:43	95-47-6	
4-Bromofluorobenzene (S)	98	%	80-120	1		03/18/10 04:43	460-00-4	
Dibromofluoromethane (S)	94	%	80-122	1		03/18/10 04:43	1868-53-7	
1,2-Dichloroethane-d4 (S)	98	%	80-124	1		03/18/10 04:43	17060-07-0	
Toluene-d8 (S)	99	%	80-123	1		03/18/10 04:43	2037-26-5	

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ANALYTICAL RESULTS

Project: Winlock
Pace Project No.: 253265

Sample: MW4 **Lab ID: 253265001** Collected: 03/11/10 11:20 Received: 03/12/10 11:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	ND	mg/L	0.20	1		03/12/10 17:25	14797-55-8	
Nitrite as N	ND	mg/L	0.10	1		03/12/10 17:25	14797-65-0	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**17.6**	mg/L	2.0	2		03/17/10 13:04	14808-79-8	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	ND	mg/L	0.050	1		03/28/10 16:15		

Sample: MW5 **Lab ID: 253265002** Collected: 03/11/10 12:30 Received: 03/12/10 11:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	10.0	1		03/22/10 13:39	74-84-0	
Ethene	ND	ug/L	10.0	1		03/22/10 13:39	74-85-1	
Methane	ND	ug/L	10.0	1		03/22/10 13:39	74-82-8	
NWTPH-Dx GCS	Analytical Method: NWTPH-Dx Preparation Method: EPA 3510							
Diesel Range	ND	mg/L	0.082	1	03/17/10 12:45	03/22/10 07:45		
Motor Oil Range	ND	mg/L	0.41	1	03/17/10 12:45	03/22/10 07:45	64742-65-0	
n-Octacosane (S)	78	%	50-150	1	03/17/10 12:45	03/22/10 07:45	630-02-4	
o-Terphenyl (S)	72	%	50-150	1	03/17/10 12:45	03/22/10 07:45	84-15-1	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
Gasoline Range Organics	ND	ug/L	50.0	1		03/15/10 20:27		
a,a,a-Trifluorotoluene (S)	88	%	50-150	1		03/15/10 20:27	98-08-8	
4-Bromofluorobenzene (S)	83	%	50-150	1		03/15/10 20:27	460-00-4	
8270 MSSV Low Level PAH SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510							
Acenaphthene	ND	ug/L	0.015	1	03/17/10 12:45	03/18/10 21:41	83-32-9	
Acenaphthylene	ND	ug/L	0.015	1	03/17/10 12:45	03/18/10 21:41	208-96-8	
Anthracene	ND	ug/L	0.015	1	03/17/10 12:45	03/18/10 21:41	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.015	1	03/17/10 12:45	03/18/10 21:41	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.015	1	03/17/10 12:45	03/18/10 21:41	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.015	1	03/17/10 12:45	03/18/10 21:41	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.015	1	03/17/10 12:45	03/18/10 21:41	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.015	1	03/17/10 12:45	03/18/10 21:41	207-08-9	
Chrysene	ND	ug/L	0.015	1	03/17/10 12:45	03/18/10 21:41	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.015	1	03/17/10 12:45	03/18/10 21:41	53-70-3	
Fluoranthene	ND	ug/L	0.015	1	03/17/10 12:45	03/18/10 21:41	206-44-0	
Fluorene	ND	ug/L	0.015	1	03/17/10 12:45	03/18/10 21:41	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.015	1	03/17/10 12:45	03/18/10 21:41	193-39-5	
Naphthalene	ND	ug/L	0.015	1	03/17/10 12:45	03/18/10 21:41	91-20-3	
Phenanthrene	ND	ug/L	0.015	1	03/17/10 12:45	03/18/10 21:41	85-01-8	

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ANALYTICAL RESULTS

Project: Winlock
Pace Project No.: 253265

Sample: MW5 **Lab ID: 253265002** Collected: 03/11/10 12:30 Received: 03/12/10 11:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Low Level PAH SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510							
Pyrene	ND	ug/L	0.015	1	03/17/10 12:45	03/18/10 21:41	129-00-0	
2-Fluorobiphenyl (S)	24	%	40-106	1	03/17/10 12:45	03/18/10 21:41	321-60-8	2n,S0
Terphenyl-d14 (S)	63	%	55-146	1	03/17/10 12:45	03/18/10 21:41	1718-51-0	
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	ND	ug/L	1.0	1		03/18/10 05:06	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		03/18/10 05:06	100-41-4	
Toluene	ND	ug/L	1.0	1		03/18/10 05:06	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		03/18/10 05:06	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		03/18/10 05:06	1330-20-7	
o-Xylene	ND	ug/L	1.0	1		03/18/10 05:06	95-47-6	
4-Bromofluorobenzene (S)	97	%	80-120	1		03/18/10 05:06	460-00-4	
Dibromofluoromethane (S)	93	%	80-122	1		03/18/10 05:06	1868-53-7	
1,2-Dichloroethane-d4 (S)	96	%	80-124	1		03/18/10 05:06	17060-07-0	
Toluene-d8 (S)	101	%	80-123	1		03/18/10 05:06	2037-26-5	
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**0.61**	mg/L	0.20	1		03/12/10 19:00	14797-55-8	
Nitrite as N	ND	mg/L	0.10	1		03/12/10 19:00	14797-65-0	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**3.2**	mg/L	1.0	1		03/17/10 13:51	14808-79-8	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	**0.082**	mg/L	0.050	1		03/28/10 16:15		

Sample: MW2 **Lab ID: 253265003** Collected: 03/11/10 13:30 Received: 03/12/10 11:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	10.0	1		03/22/10 13:53	74-84-0	
Ethene	ND	ug/L	10.0	1		03/22/10 13:53	74-85-1	
Methane	**1620**	ug/L	10.0	1		03/22/10 13:53	74-82-8	
NWTPH-Dx GCS	Analytical Method: NWTPH-Dx Preparation Method: EPA 3510							
Diesel Range	**0.66**	mg/L	0.082	1	03/17/10 12:45	03/22/10 08:01		
Motor Oil Range	**0.47**	mg/L	0.41	1	03/17/10 12:45	03/22/10 08:01	64742-65-0	
n-Octacosane (S)	98	%	50-150	1	03/17/10 12:45	03/22/10 08:01	630-02-4	
o-Terphenyl (S)	77	%	50-150	1	03/17/10 12:45	03/22/10 08:01	84-15-1	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
Gasoline Range Organics	**150**	ug/L	50.0	1		03/15/10 20:51		
a,a,a-Trifluorotoluene (S)	91	%	50-150	1		03/15/10 20:51	98-08-8	
4-Bromofluorobenzene (S)	91	%	50-150	1		03/15/10 20:51	460-00-4	

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ANALYTICAL RESULTS

Project: Winlock
Pace Project No.: 253265

Sample: MW2 **Lab ID: 253265003** Collected: 03/11/10 13:30 Received: 03/12/10 11:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Low Level PAH SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510							
Acenaphthene	**0.059**	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:58	83-32-9	
Acenaphthylene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:58	208-96-8	
Anthracene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:58	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:58	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:58	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:58	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:58	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:58	207-08-9	
Chrysene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:58	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:58	53-70-3	
Fluoranthene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:58	206-44-0	
Fluorene	**0.12**	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:58	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:58	193-39-5	
Naphthalene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:58	91-20-3	
Phenanthrene	**0.023**	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:58	85-01-8	
Pyrene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 21:58	129-00-0	
2-Fluorobiphenyl (S)	33	%	40-106	1	03/17/10 12:45	03/18/10 21:58	321-60-8	3n,S0
Terphenyl-d14 (S)	69	%	55-146	1	03/17/10 12:45	03/18/10 21:58	1718-51-0	
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	**27.7**	ug/L	1.0	1		03/18/10 05:29	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		03/18/10 05:29	100-41-4	
Toluene	ND	ug/L	1.0	1		03/18/10 05:29	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		03/18/10 05:29	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		03/18/10 05:29	1330-20-7	
o-Xylene	ND	ug/L	1.0	1		03/18/10 05:29	95-47-6	
4-Bromofluorobenzene (S)	96	%	80-120	1		03/18/10 05:29	460-00-4	
Dibromofluoromethane (S)	100	%	80-122	1		03/18/10 05:29	1868-53-7	
1,2-Dichloroethane-d4 (S)	104	%	80-124	1		03/18/10 05:29	17060-07-0	
Toluene-d8 (S)	104	%	80-123	1		03/18/10 05:29	2037-26-5	
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	ND	mg/L	0.20	1		03/12/10 19:31	14797-55-8	
Nitrite as N	ND	mg/L	0.10	1		03/12/10 19:31	14797-65-0	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**30.3**	mg/L	2.0	2		03/17/10 14:07	14808-79-8	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	ND	mg/L	0.050	1		03/28/10 16:15		

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ANALYTICAL RESULTS

Project: Winlock
Pace Project No.: 253265

Sample: MW1 **Lab ID: 253265004** Collected: 03/11/10 14:50 Received: 03/12/10 11:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	10.0	1		03/22/10 14:07	74-84-0	
Ethene	ND	ug/L	10.0	1		03/22/10 14:07	74-85-1	
Methane	**289**	ug/L	10.0	1		03/22/10 14:07	74-82-8	
NWTPH-Dx GCS	Analytical Method: NWTPH-Dx Preparation Method: EPA 3510							
Diesel Range	**0.59**	mg/L	0.076	1	03/17/10 12:45	03/22/10 08:17		
Motor Oil Range	**0.54**	mg/L	0.38	1	03/17/10 12:45	03/22/10 08:17	64742-65-0	
n-Octacosane (S)	97	%	50-150	1	03/17/10 12:45	03/22/10 08:17	630-02-4	
o-Terphenyl (S)	94	%	50-150	1	03/17/10 12:45	03/22/10 08:17	84-15-1	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
Gasoline Range Organics	ND	ug/L	50.0	1		03/15/10 21:15		
a,a,a-Trifluorotoluene (S)	87	%	50-150	1		03/15/10 21:15	98-08-8	
4-Bromofluorobenzene (S)	87	%	50-150	1		03/15/10 21:15	460-00-4	
8270 MSSV Low Level PAH SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510							
Acenaphthene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 22:15	83-32-9	
Acenaphthylene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 22:15	208-96-8	
Anthracene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 22:15	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 22:15	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 22:15	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 22:15	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 22:15	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 22:15	207-08-9	
Chrysene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 22:15	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 22:15	53-70-3	
Fluoranthene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 22:15	206-44-0	
Fluorene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 22:15	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 22:15	193-39-5	
Naphthalene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 22:15	91-20-3	
Phenanthrene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 22:15	85-01-8	
Pyrene	ND	ug/L	0.016	1	03/17/10 12:45	03/18/10 22:15	129-00-0	
2-Fluorobiphenyl (S)	37	%	40-106	1	03/17/10 12:45	03/18/10 22:15	321-60-8	4n,S0
Terphenyl-d14 (S)	76	%	55-146	1	03/17/10 12:45	03/18/10 22:15	1718-51-0	
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	ND	ug/L	1.0	1		03/18/10 14:33	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		03/18/10 14:33	100-41-4	
Toluene	ND	ug/L	1.0	1		03/18/10 14:33	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		03/18/10 14:33	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		03/18/10 14:33	1330-20-7	
o-Xylene	ND	ug/L	1.0	1		03/18/10 14:33	95-47-6	
4-Bromofluorobenzene (S)	99	%	80-120	1		03/18/10 14:33	460-00-4	
Dibromofluoromethane (S)	108	%	80-122	1		03/18/10 14:33	1868-53-7	
1,2-Dichloroethane-d4 (S)	105	%	80-124	1		03/18/10 14:33	17060-07-0	
Toluene-d8 (S)	103	%	80-123	1		03/18/10 14:33	2037-26-5	

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ANALYTICAL RESULTS

Project: Winlock
Pace Project No.: 253265

Sample: MW1 **Lab ID: 253265004** Collected: 03/11/10 14:50 Received: 03/12/10 11:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	ND	mg/L	0.20	1		03/12/10 20:50	14797-55-8	
Nitrite as N	ND	mg/L	0.10	1		03/12/10 20:50	14797-65-0	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**74.4**	mg/L	5.0	5		03/17/10 14:22	14808-79-8	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	ND	mg/L	0.050	1		03/28/10 16:15		

Sample: Trip Blank Cooler AAT442 **Lab ID: 253265005** Collected: 03/11/10 11:10 Received: 03/12/10 11:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
Gasoline Range Organics	ND	ug/L	50.0	1		03/15/10 11:20		
a,a,a-Trifluorotoluene (S)	88	%	50-150	1		03/15/10 11:20	98-08-8	
4-Bromofluorobenzene (S)	81	%	50-150	1		03/15/10 11:20	460-00-4	
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	ND	ug/L	1.0	1		03/16/10 19:58	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		03/16/10 19:58	100-41-4	
Toluene	ND	ug/L	1.0	1		03/16/10 19:58	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		03/16/10 19:58	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		03/16/10 19:58	1330-20-7	
o-Xylene	ND	ug/L	1.0	1		03/16/10 19:58	95-47-6	
4-Bromofluorobenzene (S)	94	%	80-120	1		03/16/10 19:58	460-00-4	
Dibromofluoromethane (S)	101	%	80-122	1		03/16/10 19:58	1868-53-7	
1,2-Dichloroethane-d4 (S)	104	%	80-124	1		03/16/10 19:58	17060-07-0	
Toluene-d8 (S)	98	%	80-123	1		03/16/10 19:58	2037-26-5	

Sample: Trip Blank Cooler AAN071 **Lab ID: 253265006** Collected: 03/11/10 13:30 Received: 03/12/10 11:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
Gasoline Range Organics	ND	ug/L	50.0	1		03/17/10 18:11		
a,a,a-Trifluorotoluene (S)	96	%	50-150	1		03/17/10 18:11	98-08-8	
4-Bromofluorobenzene (S)	83	%	50-150	1		03/17/10 18:11	460-00-4	
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	ND	ug/L	1.0	1		03/19/10 14:02	71-43-2	L1
Ethylbenzene	ND	ug/L	1.0	1		03/19/10 14:02	100-41-4	
Toluene	ND	ug/L	1.0	1		03/19/10 14:02	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		03/19/10 14:02	1330-20-7	

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ANALYTICAL RESULTS

Project: Winlock
Pace Project No.: 253265

Sample: Trip Blank Cooler AAN071 **Lab ID: 253265006** Collected: 03/11/10 13:30 Received: 03/12/10 11:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
m&p-Xylene	ND	ug/L	2.0	1		03/19/10 14:02	1330-20-7	
o-Xylene	ND	ug/L	1.0	1		03/19/10 14:02	95-47-6	
4-Bromofluorobenzene (S)	101	%	80-120	1		03/19/10 14:02	460-00-4	
Dibromofluoromethane (S)	106	%	80-122	1		03/19/10 14:02	1868-53-7	
1,2-Dichloroethane-d4 (S)	104	%	80-124	1		03/19/10 14:02	17060-07-0	
Toluene-d8 (S)	102	%	80-123	1		03/19/10 14:02	2037-26-5	

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QUALITY CONTROL DATA

Project: Winlock
Pace Project No.: 253265

QC Batch: AIR/9929 Analysis Method: RSK 175
QC Batch Method: RSK 175 Analysis Description: RSK 175 AIR HEADSPACE
Associated Lab Samples: 253265001, 253265002, 253265003, 253265004

METHOD BLANK: 762360 Matrix: Water
Associated Lab Samples: 253265001, 253265002, 253265003, 253265004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethane	ug/L	ND	10.0	03/22/10 13:10	
Ethene	ug/L	ND	10.0	03/22/10 13:10	
Methane	ug/L	ND	10.0	03/22/10 13:10	

LABORATORY CONTROL SAMPLE & LCSD: 762361 762362

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Ethane	ug/L	114	115	120	101	106	70-130	4	30	
Ethene	ug/L	106	109	116	102	109	70-130	6	30	
Methane	ug/L	60.7	58.4	59.7	96	98	70-130	2	30	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Winlock
Pace Project No.: 253265

QC Batch: OEXT/2008 Analysis Method: NWTPH-Dx
QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
Associated Lab Samples: 253265001, 253265002, 253265003, 253265004

METHOD BLANK: 23933 Matrix: Water
Associated Lab Samples: 253265001, 253265002, 253265003, 253265004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.080	03/22/10 05:53	
Motor Oil Range	mg/L	ND	0.40	03/22/10 05:53	
n-Octacosane (S)	%	106	50-150	03/22/10 05:53	
o-Terphenyl (S)	%	95	50-150	03/22/10 05:53	

LABORATORY CONTROL SAMPLE & LCSD: 23934 23935

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range	mg/L	5	4.5	4.4	89	87	51-147	2	30	
Motor Oil Range	mg/L	5	5.0	5.0	101	101	20-160	.06	30	
n-Octacosane (S)	%				102	99	50-150			
o-Terphenyl (S)	%				79	78	50-150			

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QUALITY CONTROL DATA

Project: Winlock
Pace Project No.: 253265

QC Batch: GCV/1472 Analysis Method: NWTPH-Gx
QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx GCV Water
Associated Lab Samples: 253265001, 253265002, 253265003, 253265004, 253265005

METHOD BLANK: 23692 Matrix: Water
Associated Lab Samples: 253265001, 253265002, 253265003, 253265004, 253265005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	03/15/10 07:18	
4-Bromofluorobenzene (S)	%	90	50-150	03/15/10 07:18	
a,a,a-Trifluorotoluene (S)	%	90	50-150	03/15/10 07:18	

LABORATORY CONTROL SAMPLE: 23693

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	250	258	103	50-163	
4-Bromofluorobenzene (S)	%			92	50-150	
a,a,a-Trifluorotoluene (S)	%			95	50-150	

SAMPLE DUPLICATE: 23771

Parameter	Units	253268001 Result	Dup Result	RPD	Qualifiers
Gasoline Range Organics	ug/L	100	63.0	46	R1
4-Bromofluorobenzene (S)	%	94	91	3	
a,a,a-Trifluorotoluene (S)	%	92	91	2	

SAMPLE DUPLICATE: 23772

Parameter	Units	253265001 Result	Dup Result	RPD	Qualifiers
Gasoline Range Organics	ug/L	ND	15.5J		
4-Bromofluorobenzene (S)	%	85	82	3	
a,a,a-Trifluorotoluene (S)	%	88	84	4	

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QUALITY CONTROL DATA

Project: Winlock
Pace Project No.: 253265

QC Batch: GCV/1475
QC Batch Method: NWTPH-Gx
Associated Lab Samples: 253265006

Analysis Method: NWTPH-Gx
Analysis Description: NWTPH-Gx GCV Water

METHOD BLANK: 23959 Matrix: Water
Associated Lab Samples: 253265006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	03/17/10 11:32	
4-Bromofluorobenzene (S)	%	83	50-150	03/17/10 11:32	
a,a,a-Trifluorotoluene (S)	%	97	50-150	03/17/10 11:32	

LABORATORY CONTROL SAMPLE: 23960

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	250	225	90	50-163	
4-Bromofluorobenzene (S)	%			79	50-150	
a,a,a-Trifluorotoluene (S)	%			83	50-150	

SAMPLE DUPLICATE: 24006

Parameter	Units	253267014 Result	Dup Result	RPD	Qualifiers
Gasoline Range Organics	ug/L	282	274	3	
4-Bromofluorobenzene (S)	%	93	117	23	
a,a,a-Trifluorotoluene (S)	%	104	131	23	

SAMPLE DUPLICATE: 24007

Parameter	Units	253285001 Result	Dup Result	RPD	Qualifiers
Gasoline Range Organics	ug/L	108	80.5	30	
4-Bromofluorobenzene (S)	%	77	84	9	
a,a,a-Trifluorotoluene (S)	%	97	102	5	

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QUALITY CONTROL DATA

Project: Winlock
Pace Project No.: 253265

QC Batch: OEXT/1996
QC Batch Method: EPA 3510
Analysis Method: EPA 8270 by SIM
Analysis Description: 8270 Low Level PAH SIM
Associated Lab Samples: 253265001, 253265002, 253265003, 253265004

METHOD BLANK: 23812 Matrix: Water
Associated Lab Samples: 253265001, 253265002, 253265003, 253265004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	ND	0.015	03/18/10 20:14	
Acenaphthylene	ug/L	ND	0.015	03/18/10 20:14	
Anthracene	ug/L	ND	0.015	03/18/10 20:14	
Benzo(a)anthracene	ug/L	ND	0.015	03/18/10 20:14	
Benzo(a)pyrene	ug/L	ND	0.015	03/18/10 20:14	
Benzo(b)fluoranthene	ug/L	ND	0.015	03/18/10 20:14	
Benzo(g,h,i)perylene	ug/L	ND	0.015	03/18/10 20:14	
Benzo(k)fluoranthene	ug/L	ND	0.015	03/18/10 20:14	
Chrysene	ug/L	ND	0.015	03/18/10 20:14	
Dibenz(a,h)anthracene	ug/L	ND	0.015	03/18/10 20:14	
Fluoranthene	ug/L	ND	0.015	03/18/10 20:14	
Fluorene	ug/L	ND	0.015	03/18/10 20:14	
Indeno(1',2,3-cd)pyrene	ug/L	ND	0.015	03/18/10 20:14	
Naphthalene	ug/L	ND	0.015	03/18/10 20:14	
Phenanthrene	ug/L	ND	0.015	03/18/10 20:14	
Pyrene	ug/L	ND	0.015	03/18/10 20:14	
2-Fluorobiphenyl (S)	%	46	40-106	03/18/10 20:14	
Terphenyl-d14 (S)	%	83	55-146	03/18/10 20:14	

LABORATORY CONTROL SAMPLE & LCSD: 23813 23814

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Acenaphthene	ug/L	1.2	0.82	0.73	65	59	32-124	11	30	
Acenaphthylene	ug/L	1.2	0.73	0.65	58	52	34-128	11	30	
Anthracene	ug/L	1.2	0.99	0.95	80	76	50-129	4	30	
Benzo(a)anthracene	ug/L	1.2	1.1	1.1	88	84	58-161	4	30	
Benzo(a)pyrene	ug/L	1.2	1.2	1.1	93	89	52-156	5	30	
Benzo(b)fluoranthene	ug/L	1.2	1.2	1.1	93	90	61-167	4	30	
Benzo(g,h,i)perylene	ug/L	1.2	1.2	1.1	95	91	56-167	5	30	
Benzo(k)fluoranthene	ug/L	1.2	1.2	1.1	93	90	60-149	3	30	
Chrysene	ug/L	1.2	1.2	1.2	97	92	61-141	5	30	
Dibenz(a,h)anthracene	ug/L	1.2	1.2	1.1	96	92	60-176	4	30	
Fluoranthene	ug/L	1.2	1.2	1.1	93	88	63-155	6	30	
Fluorene	ug/L	1.2	0.80	0.73	64	58	44-129	9	30	
Indeno(1,2,3-cd)pyrene	ug/L	1.2	1.2	1.1	93	89	51-159	4	30	
Naphthalene	ug/L	1.2	0.78	0.67	63	53	29-120	16	30	
Phenanthrene	ug/L	1.2	1.1	1.0	87	82	56-136	6	30	
Pyrene	ug/L	1.2	1.1	1.1	92	88	61-143	4	30	
2-Fluorobiphenyl (S)	%				28	24	40-106			S0
Terphenyl-d14 (S)	%				81	78	55-146			

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QUALITY CONTROL DATA

Project: Winlock
Pace Project No.: 253265

QC Batch: MSV/2166
QC Batch Method: EPA 5030B/8260
Analysis Method: EPA 5030B/8260
Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 253265005

METHOD BLANK: 23850
Matrix: Water
Associated Lab Samples: 253265005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	03/16/10 19:35	
Ethylbenzene	ug/L	ND	1.0	03/16/10 19:35	
m&p-Xylene	ug/L	ND	2.0	03/16/10 19:35	
o-Xylene	ug/L	ND	1.0	03/16/10 19:35	
Toluene	ug/L	ND	1.0	03/16/10 19:35	
Xylene (Total)	ug/L	ND	3.0	03/16/10 19:35	
1,2-Dichloroethane-d4 (S)	%	104	80-124	03/16/10 19:35	
4-Bromofluorobenzene (S)	%	93	80-120	03/16/10 19:35	
Dibromofluoromethane (S)	%	98	80-122	03/16/10 19:35	
Toluene-d8 (S)	%	101	80-123	03/16/10 19:35	

LABORATORY CONTROL SAMPLE & LCSD: 23851 23852

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	ug/L	20	21.5	20.8	108	104	75-124	3	30	
Ethylbenzene	ug/L	20	23.4	21.9	117	110	76-124	7	30	
m&p-Xylene	ug/L	40	39.8	37.8	100	95	75-124	5	30	
o-Xylene	ug/L	20	20.8	19.3	104	97	76-121	7	30	
Toluene	ug/L	20	22.3	20.9	112	104	75-124	7	30	
Xylene (Total)	ug/L	60	60.6	57.1	101	95	76-123	6	30	
1,2-Dichloroethane-d4 (S)	%				107	106	80-124			
4-Bromofluorobenzene (S)	%				90	94	80-120			
Dibromofluoromethane (S)	%				106	104	80-122			
Toluene-d8 (S)	%				102	100	80-123			

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QUALITY CONTROL DATA

Project: Winlock
Pace Project No.: 253265

QC Batch: MSV/2171 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 253265001, 253265002, 253265003

METHOD BLANK: 23948 Matrix: Water
Associated Lab Samples: 253265001, 253265002, 253265003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	03/18/10 00:53	
Ethylbenzene	ug/L	ND	1.0	03/18/10 00:53	
m&p-Xylene	ug/L	ND	2.0	03/18/10 00:53	
o-Xylene	ug/L	ND	1.0	03/18/10 00:53	
Toluene	ug/L	ND	1.0	03/18/10 00:53	
Xylene (Total)	ug/L	ND	3.0	03/18/10 00:53	
1,2-Dichloroethane-d4 (S)	%	100	80-124	03/18/10 00:53	
4-Bromofluorobenzene (S)	%	96	80-120	03/18/10 00:53	
Dibromofluoromethane (S)	%	104	80-122	03/18/10 00:53	
Toluene-d8 (S)	%	98	80-123	03/18/10 00:53	

LABORATORY CONTROL SAMPLE & LCSD: 23949 23950

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	ug/L	20	18.9	22.1	94	111	75-124	16	30	
Ethylbenzene	ug/L	20	21.0	24.1	105	121	76-124	14	30	
m&p-Xylene	ug/L	40	36.8	41.6	92	104	75-124	12	30	
o-Xylene	ug/L	20	19.2	21.5	96	107	76-121	11	30	
Toluene	ug/L	20	18.6	21.6	93	108	75-124	15	30	
Xylene (Total)	ug/L	60	56.0	63.1	93	105	76-123	12	30	
1,2-Dichloroethane-d4 (S)	%				97	102	80-124			
4-Bromofluorobenzene (S)	%				90	90	80-120			
Dibromofluoromethane (S)	%				107	109	80-122			
Toluene-d8 (S)	%				101	102	80-123			

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QUALITY CONTROL DATA

Project: Winlock
Pace Project No.: 253265

QC Batch: MSV/2178
QC Batch Method: EPA 5030B/8260
Associated Lab Samples: 253265004

Analysis Method: EPA 5030B/8260
Analysis Description: 8260 MSV Water 10 mL Purge

METHOD BLANK: 24033
Matrix: Water
Associated Lab Samples: 253265004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	03/18/10 09:24	
Ethylbenzene	ug/L	ND	1.0	03/18/10 09:24	
m&p-Xylene	ug/L	ND	2.0	03/18/10 09:24	
o-Xylene	ug/L	ND	1.0	03/18/10 09:24	
Toluene	ug/L	ND	1.0	03/18/10 09:24	
Xylene (Total)	ug/L	ND	3.0	03/18/10 09:24	
1,2-Dichloroethane-d4 (S)	%	111	80-124	03/18/10 09:24	
4-Bromofluorobenzene (S)	%	102	80-120	03/18/10 09:24	
Dibromofluoromethane (S)	%	112	80-122	03/18/10 09:24	
Toluene-d8 (S)	%	102	80-123	03/18/10 09:24	

LABORATORY CONTROL SAMPLE & LCSD: 24034 24035

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	ug/L	20	23.8	23.4	119	117	75-124	2	30	
Ethylbenzene	ug/L	20	23.0	22.3	115	111	76-124	3	30	
m&p-Xylene	ug/L	40	47.2	45.4	118	114	75-124	4	30	
o-Xylene	ug/L	20	24.0	23.0	120	115	76-121	4	30	
Toluene	ug/L	20	22.2	21.1	111	105	75-124	5	30	
Xylene (Total)	ug/L	60	71.2	68.4	119	114	76-123	4	30	
1,2-Dichloroethane-d4 (S)	%				109	108	80-124			
4-Bromofluorobenzene (S)	%				102	101	80-120			
Dibromofluoromethane (S)	%				109	110	80-122			
Toluene-d8 (S)	%				106	104	80-123			

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

QUALITY CONTROL DATA

Project: Winlock
Pace Project No.: 253265

QC Batch: MSV/2183
QC Batch Method: EPA 5030B/8260
Analysis Method: EPA 5030B/8260
Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 253265006

METHOD BLANK: 24131
Matrix: Water
Associated Lab Samples: 253265006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	03/19/10 12:18	
Ethylbenzene	ug/L	ND	1.0	03/19/10 12:18	
m&p-Xylene	ug/L	ND	2.0	03/19/10 12:18	
o-Xylene	ug/L	ND	1.0	03/19/10 12:18	
Toluene	ug/L	ND	1.0	03/19/10 12:18	
Xylene (Total)	ug/L	ND	3.0	03/19/10 12:18	
1,2-Dichloroethane-d4 (S)	%	106	80-124	03/19/10 12:18	
4-Bromofluorobenzene (S)	%	101	80-120	03/19/10 12:18	
Dibromofluoromethane (S)	%	107	80-122	03/19/10 12:18	
Toluene-d8 (S)	%	104	80-123	03/19/10 12:18	

LABORATORY CONTROL SAMPLE & LCSD: 24132 24133

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	ug/L	40	50.4	48.9	126	122	75-124	3	30	L0
Ethylbenzene	ug/L	40	47.2	45.7	118	114	76-124	3	30	
m&p-Xylene	ug/L	80	95.8	93.0	120	116	75-124	3	30	
o-Xylene	ug/L	40	48.4	46.7	121	117	76-121	4	30	
Toluene	ug/L	40	46.8	44.6	117	112	75-124	5	30	
Xylene (Total)	ug/L	120	144	140	120	116	76-123	3	30	
1,2-Dichloroethane-d4 (S)	%				103	102	80-124			
4-Bromofluorobenzene (S)	%				108	111	80-120			
Dibromofluoromethane (S)	%				106	105	80-122			
Toluene-d8 (S)	%				103	102	80-123			

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

QUALITY CONTROL DATA

Project: Winlock
Pace Project No.: 253265

QC Batch: WETA/1434 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 253265001, 253265002, 253265003, 253265004

METHOD BLANK: 23578 Matrix: Water
Associated Lab Samples: 253265001, 253265002, 253265003, 253265004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.20	03/12/10 17:09	
Nitrite as N	mg/L	ND	0.10	03/12/10 17:09	

LABORATORY CONTROL SAMPLE: 23579

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	2.5	2.5	99	90-110	
Nitrite as N	mg/L	2.5	2.5	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 23580 23581

Parameter	Units	253265001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Nitrate as N	mg/L	ND	2.5		2.6	2.6	103		90-110	.06	
Nitrite as N	mg/L	ND	2.5		2.5	2.5	102		90-110	.1	

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

QUALITY CONTROL DATA

Project: Winlock
Pace Project No.: 253265

QC Batch: WETA/1441 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 253265001, 253265002, 253265003, 253265004

METHOD BLANK: 23894 Matrix: Water
Associated Lab Samples: 253265001, 253265002, 253265003, 253265004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	03/17/10 12:32	

LABORATORY CONTROL SAMPLE: 23895

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	15	16.2	108	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 23896 23897

Parameter	Units	253265001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Sulfate	mg/L	17.6	30	30	51.6	51.2	113	112	90-110	.8	E,M1

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(206)767-5060

QUALITY CONTROL DATA

Project: Winlock
Pace Project No.: 253265

QC Batch: WETA/1439 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 253265001, 253265002, 253265003, 253265004

METHOD BLANK: 23717 Matrix: Water
Associated Lab Samples: 253265001, 253265002, 253265003, 253265004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	ND	0.050	03/28/10 16:15	

LABORATORY CONTROL SAMPLE: 23718

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	0.96	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 23720 23719

Parameter	Units	253265001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	ND	1	1	1.2	1.2	123	120	90-110	2	M0

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(206)767-5060

QUALIFIERS

Project: Winlock
Pace Project No.: 253265

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

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

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis
PASI-S	Pace Analytical Services - Seattle

SAMPLE QUALIFIERS

Sample: 253265003

[1] Cooler AAT442 was received outside of method allowable temperature tolerances at 6.2 C degrees. The following sample containers for sample MW-2 were present in this cooler: TPH-Dx, PAH/SIM, TPH-Gx, VOC 8260, RSK 175, Nitrate, and Nitrite.

Sample: 253265004

[1] Cooler AAT442 was received outside of method allowable temperature tolerances at 6.2 C degrees. The following sample containers for sample MW-1 were present in this cooler: TPH-Dx, PAH/SIM.

Sample: 253265005

[1] Cooler AAT442 was received outside of method allowable temperature tolerances at 6.2 C degrees. The following sample containers for Trip Blank AAT442 were present in this cooler: TPH-Gx, and VOC 8260.

ANALYTE QUALIFIERS

1n	Reported results were confirmed for all target analytes by the analysis of an out-of-hold re-extract sample, with passing surrogate recoveries, on 03/24/10 at 22:58 on instrument MSS1.
2n	Reported results were confirmed for all target analytes by the analysis of an out-of-hold re-extract sample, with passing surrogate recoveries, on 03/24/10 at 23:16 on instrument MSS1.
3n	Reported results were confirmed for all target analytes by the analysis of an out-of-hold re-extract sample, with passing surrogate recoveries, on 03/24/10 at 23:33 on instrument MSS1.
4n	Reported results were confirmed for all target analytes by the analysis of an out-of-hold re-extract sample, with passing surrogate recoveries, on 03/24/10 at 23:51 on instrument MSS1.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
L0	Analyte recovery in the laboratory control sample (LCS) was outside QC limits.
L1	Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.
S0	Surrogate recovery outside laboratory control limits.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Winlock
Pace Project No.: 253265

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
253265001	MW4	RSK 175	AIR/9929		
253265002	MW5	RSK 175	AIR/9929		
253265003	MW2	RSK 175	AIR/9929		
253265004	MW1	RSK 175	AIR/9929		
253265001	MW4	EPA 3510	OEXT/2008	NWTPH-Dx	GCSV/1527
253265002	MW5	EPA 3510	OEXT/2008	NWTPH-Dx	GCSV/1527
253265003	MW2	EPA 3510	OEXT/2008	NWTPH-Dx	GCSV/1527
253265004	MW1	EPA 3510	OEXT/2008	NWTPH-Dx	GCSV/1527
253265001	MW4	NWTPH-Gx	GCV/1472		
253265002	MW5	NWTPH-Gx	GCV/1472		
253265003	MW2	NWTPH-Gx	GCV/1472		
253265004	MW1	NWTPH-Gx	GCV/1472		
253265005	Trip Blank Cooler AAT442	NWTPH-Gx	GCV/1472		
253265006	Trip Blank Cooler AAN071	NWTPH-Gx	GCV/1475		
253265001	MW4	EPA 3510	OEXT/1996	EPA 8270 by SIM	MSSV/1245
253265002	MW5	EPA 3510	OEXT/1996	EPA 8270 by SIM	MSSV/1245
253265003	MW2	EPA 3510	OEXT/1996	EPA 8270 by SIM	MSSV/1245
253265004	MW1	EPA 3510	OEXT/1996	EPA 8270 by SIM	MSSV/1245
253265001	MW4	EPA 5030B/8260	MSV/2171		
253265002	MW5	EPA 5030B/8260	MSV/2171		
253265003	MW2	EPA 5030B/8260	MSV/2171		
253265004	MW1	EPA 5030B/8260	MSV/2178		
253265005	Trip Blank Cooler AAT442	EPA 5030B/8260	MSV/2166		
253265006	Trip Blank Cooler AAN071	EPA 5030B/8260	MSV/2183		
253265001	MW4	EPA 300.0	WETA/1434		
253265002	MW5	EPA 300.0	WETA/1434		
253265003	MW2	EPA 300.0	WETA/1434		
253265004	MW1	EPA 300.0	WETA/1434		
253265001	MW4	EPA 300.0	WETA/1441		
253265002	MW5	EPA 300.0	WETA/1441		
253265003	MW2	EPA 300.0	WETA/1441		
253265004	MW1	EPA 300.0	WETA/1441		
253265001	MW4	EPA 353.2	WETA/1439		
253265002	MW5	EPA 353.2	WETA/1439		
253265003	MW2	EPA 353.2	WETA/1439		
253265004	MW1	EPA 353.2	WETA/1439		

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Sample Condition Upon Receipt

Pace Analytical

Client Name: Farallon Consulting

Project # 253265

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace Other _____

Optional: Proj. Due Date: Proj. Name:

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other _____

Thermometer Used: Horiba 132013 Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature: 6.2, 4.1 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 3/12/10 AR

Comments:

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

1.
2.
3.
4.
5.
6. NO_2/NO_3
7.
8.
9.
10.
11.
12.
13. One cooler received above temperature requirements (4.2) Containing mw1 - 4 amber bottles and mw2 - 4 ambers, 15amL unpres., 1 5amL H_2SO_4, 1 set TB
14.
15.
16.

Initial when completed | Lot # of added preservative: 1 set of VOAs and 7 set 25K vials.

Field Data Required? Y / N

Client Notification/ Resolution:

Person Contacted: Stacey Patterson Date/Time: 3/12 3:55

Comments/ Resolution: See Attached email. Run anyway & Note in Narrative. Cooler AA1442 @ 6.2 C° (confirmed): MW-1 Dx & PAH; MW-2 Dx, PAH, Gx, 8260, Anions, RSK, TB.

Project Manager Review: _____ Date: _____

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

Heidi Geri - RE: 253265_Out of Temp 253265

From: "Stacy Patterson" <spatterson@farallonconsulting.com>
To: "'Heidi Geri'" <Heidi.Geri@pacelabs.com>
Date: 3/15/2010 8:51 AM
Subject: RE: 253265_Out of Temp

Heidi – I was out of the office on Friday. Please run the samples and make note of the temp in the lab notes. Thanks

Stacy Patterson
Farallon Consulting, L.L.C.
Direct (425)295-0812
Cell (425) 466-1121

From: Heidi Geri [mailto:Heidi.Geri@pacelabs.com]
Sent: Friday, March 12, 2010 3:55 PM
To: spatterson@farallonconsulting.com
Subject: 253265_Out of Temp
Importance: High

Hi Stacy,

One of the two coolers was out of temp (barely) at 6.2 C degrees; cooler AAT442 contained the following: MW-1 Dx & PAH; MW-2 Dx, PAH, Gx, 8260, Anions, RSK, TB.

Sample receiving said the ice was sitting on top of the samples, instead of being distributed around the samples; also, there was not enough ice to adequately cool the samples.

Please let me know ASAP if you would like these samples processed. I will keep everything but the nitrate and nitrite on hold until I hear from back from you. (Nitrate and Nitrite have a 48-hour holding time.)

Thank you,

Heidi Geri
Project Manager
Pace Analytical

940 S Harney St
Seattle WA, 98108
206-767-5060 main
206-957-2429 direct

253265

From: Heidi Geri
To: spatterson@farallonconsulting.com
Date: 3/12/2010 3:55 PM
Subject: 253265_Out of Temp
Attachments: Geri, Heidi.vcf

Hi Stacy,

One of the two coolers was out of temp (barely) at 6.2 C degrees; cooler AAT442 contained the following: MW-1 Dx & PAH; MW-2 Dx, PAH, Gx, 8260, Anions, RSK, TB.

Sample receiving said the ice was sitting on top of the samples, instead of being distributed around the samples; also, there was not enough ice to adequately cool the samples.

Please let me know ASAP if you would like these samples processed. I will keep everything but the nitrate and nitrite on hold until I hear from back from you. (Nitrate and Nitrite have a 48-hour holding time.)

Thank you,

Heidi Geri
Project Manager
Pace Analytical

940 S Harney St
Seattle WA, 98108
206-767-5060 main
206-957-2429 direct
heidi.geri@pacelabs.com

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253265

Heidi Geri - RE: 253265_Winlock

From: "Stacy Patterson" <spatterson@farallonconsulting.com>
To: "'Heidi Geri'" <Heidi.Geri@pacelabs.com>
Date: 3/15/2010 8:51 AM
Subject: RE: 253265_Winlock

Yes, ethene too.

Stacy Patterson
Farallon Consulting, L.L.C.
Direct (425)295-0812
Cell (425) 466-1121

From: Heidi Geri [mailto:Heidi.Geri@pacelabs.com]
Sent: Friday, March 12, 2010 4:03 PM
To: spatterson@farallonconsulting.com
Subject: 253265_Winlock

Hi Stacy,

The COC is just asking for methane and ethane: Do you want ethene also?

Thank you,

Heidi Geri
Project Manager
Pace Analytical

940 S Harney St
Seattle WA, 98108
206-767-5060 main
206-957-2429 direct
heidi.geri@pacelabs.com

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CHAIN-OF-CUSTODY / Analytical Request Document

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

253265

Page: 1 of 1

1309859

Section A Required Client Information:

Company: Farallon Consulting
Address: 975 5th Ave NW
Issaquah, WA 98027
Email To: spatterson@farallonconsulting.com
Phone: 425-295-0800 Fax: 425-295-0850
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Stacy Patterson
Copy To: —
Purchase Order No.: 683-009
Project Name: Winlock
Project Number: 683-009

Section C Invoice Information:

Attention: Stacy Patterson
Company Name: Farallon
Address: 975 5th Ave NW, 98027
Pace Quote Reference:
Pace Project Manager: Heidi Geri
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: WA

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes — MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N: NWTPH-Dx LVOs	NW TPH-Gx	BTEX	PAH/SIM	EPA 300.0 Sulfate	EPA 300.0 Nitrate/Nitrite	RSK 175 Methane, Ethane	Trip Blank BTEX & GX	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW4	WT	G			3-11-10	1110	9.5	15	X	X		X					X	X	X	X	X	X	X				
2	MW5	WT	G			3-11-10	1230	10.3	15	X	X		X					X	X	X	X	X	X	X				
3	MW2	WT	G			3-11-10	1330	9.6	15	X	X		X					X	X	X	X	X	X	X				
4	MW1	WT	G			3-11-10	1450	10.0	15	X	X		X					X	X	X	X	X	X	X				
5	Trip Blank																								X			
6																												
7																												
8																												
9																												
10																												
11																												
12																												

JR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
~~Hold Trip Blank, Stacy JR~~	Farallon	3/12/10	0815	Bulk PACE	3/12/10	1000				
Will call on Monday	Bulk PACE	3/12/10	1130	Courier/Pace	3/12/10	1145	4.2 4.1	Y	N	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jason Buark Ryan Hibbs

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 3/12/10

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Sample Container Count

253265

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CLIENT: Farallon Consulting

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Sample Line Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WGFU	WGKU	VSG			Comments
1	6	2 (ca2)	2			1	1 Bisulfate		1 (ca2)			3			
2	↓	↓	↓			↓			↓			↓			
3															
4															Trip blank
5															
6															
7															
8															
9															
10															
11															Trip Blank?
12															

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