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TECHNICAL MEMORANDUM

Date:	January 5, 2010
To:	Steve Teel – Department of Ecology
From:	David Dinkuhn, P.E. - Parametrix DLD
Subject:	Solid Wood Incorporated Site Quarterly Groundwater Monitoring Results, Quarter 4, November 2009
cc:	Kip Summers – City of Olympia David Hanna – City of Olympia Tom Morrill – City of Olympia
Project Number:	235-1577-024
Project Name:	Solid Wood Incorporated (West Bay Park) Site RI/FS and Interim Action

SOLID WOOD INCORPORATED SITE - QUARTER 4 GROUNDWATER MONITORING RESULTS, NOVEMBER 2009

This technical memorandum presents results for the fourth round of quarterly groundwater monitoring at the Solid Wood Incorporated Site in Olympia, Washington. Quarterly groundwater monitoring is being conducted in accordance with the site's Agreed Order (No. DE-08-TCPSR-5415) and project work plan (Parametrix 2008). This sampling round is the fourth quarterly monitoring event conducted under the site's ongoing Remedial Investigation/Feasibility Study (RI/FS).

QUARTER 4 GROUNDWATER MONITORING RESULTS

Groundwater samples were collected from seven monitoring wells (MW-01 through MW-07) installed in the SB-04 and Area A study areas in accordance with the work plan. Monitoring well locations are shown on attached Figure 1. Groundwater samples were collected on November 5 and 18, 2009 using a down hole pump with variable speed controller and low-flow purging/sampling techniques. Prior to sampling, the wells were purged until measured water quality parameters stabilized according to criteria specified in the work plan. Upon stabilization, groundwater samples were collected into the appropriate containers. The final set of water quality parameter measurements is provided in Table 1. At the time of the sampling, the site was being prepared for asphalt and hydro seeding, and the wells could not be accessed by vehicle. Due to these conditions, the equipment had to be carried to each location and the two person field team collected all of the samples except for MW-5 on November 5, 2009. All samples were collected on an outgoing or low slack tide. A tide chart for November 5 through 18, 2009 at Olympia, Washington is attached for reference. Approximate sampling times are provided in Table 1.

During the November 5 sampling event it was noted that MW-5 had been covered with logs and other woody debris. The location of the monitoring well was marked by surveyors, and cleared by the construction contractor onsite. The well was sampled on November 18, 2009. In addition, water levels were collected for all of the wells to provide information on the groundwater gradient at the site.

Groundwater samples were submitted to Onsite Environmental of Redmond, Washington for chemical analysis of diesel range organics, lube oil range organics, lead (total and dissolved), polycyclic aromatic hydrocarbons (PAHs), nitrate, nitrite, and alkalinity. A summary of the sampling results is presented in Table 2. An analytical data review memorandum and the laboratory data report are attached.

The depth to groundwater was measured in each well on November 18, 2009 to provide data used to develop inferred elevation contours as shown on Figure 1. The measurements were collected within a 1-hour period to give a representative snapshot of groundwater elevations. Figure 1 also shows inferred groundwater flow directions based on the elevation contours.

Table 1. Final Water Quality Parameters

Well ID	Date/Time	pH (units)	Conductivity (μS/cm)	Dissolved Oxygen (mg/l)	Temperature (°C)	Turbidity (NTU)	Redox (mV)	Salinity (%)
MW-01	11/05/09 @ 1544	8.34	131	0.49	13.99	0.0	-247.1	NM
MW-02	11/05/09 @ 1408	6.35	305	0.13	14.91	3.4	-224.9	NM
MW-03	11/05/09 @ 1212	6.75	10,324	0.49	15.34	0.0	-123.3	NM
MW-04	11/05/09 @ 1312	7.17	13,059	1.54	14.02	0.3	-153.8	NM
MW-05	11/18/09 @ 1334	5.64	81.5	0.98	16.1	2.3	-156.0	NM
MW-06	11/05/09 @ 1020	7.36	322	0.34	14.06	0.0	-242.1	NM
MW-07	11/05/09 @ 1115	7.00	730	0.39	13.88	0.1	-164.3	NM

Notes:
μS/cm = microsiemens per centimeter.
mg/l = milligrams per liter.
°C = degrees Celsius.
NTU = nephelometric turbidity units.
NM = not measured
mV = millivolts.
% = percent.

DISCUSSION

Sample results are compared to the screening levels established for the site in Table 2. As shown, no constituent concentration exceeded its respective screening level. The primary contaminants of concern at the SB-04 and Area A study areas are lube oil range organics and Bunker C fuel oil. Bunker C contains both diesel and lube oil range organics. Diesel and lube oil range organics were not detected in any well.

SB-04 Study Area

Groundwater in the SB-04 area is being investigated due to the 2007 detection of lube oil range organics in SB-04 at a concentration of 2.2 mg/l, which exceeds the screening level. Monitoring wells MW-02 through MW-04 were installed to bracket SB-04 and establish the extent of the contaminated groundwater plume. Sampling results indicate that the plume is localized around SB-04; in particular, it is noted that the plume does not appear to extend off site into Budd Inlet.

Area A Study Area

Groundwater in the Area A study area is being investigated to establish the extent of the contaminated groundwater plume resulting from the documented Bunker C fuel oil spill near SB-05. Similar to the SB-04 results, the sampling data indicates that any remaining groundwater contamination in the SB-05 area is not migrating off site into Budd Inlet.

Interim Action cleanup activities were performed at the site between August and October 2009 including the excavation and removal of contaminated soils. Cleanup of Interim Action Area A was completed in early September. Based on the fourth quarter monitoring results, it does not appear that contamination from Area A soils was mobilized into the groundwater during the cleanup activities. Since no constituents have been detected at concentrations above screening levels during the four quarterly sampling events conducted, the City requests that groundwater monitoring in wells MW-1 through MW-7 be considered complete for the purposes of the RI/FS.

REFERENCES

Parametrix. 2008. Work Plan for Remedial Investigation/Feasibility Study and Interim Action, Solid Wood Incorporated Site (West Bay Park). Prepared for City of Olympia Parks, Arts, and Recreation Department. October.

Attachments: Table 2

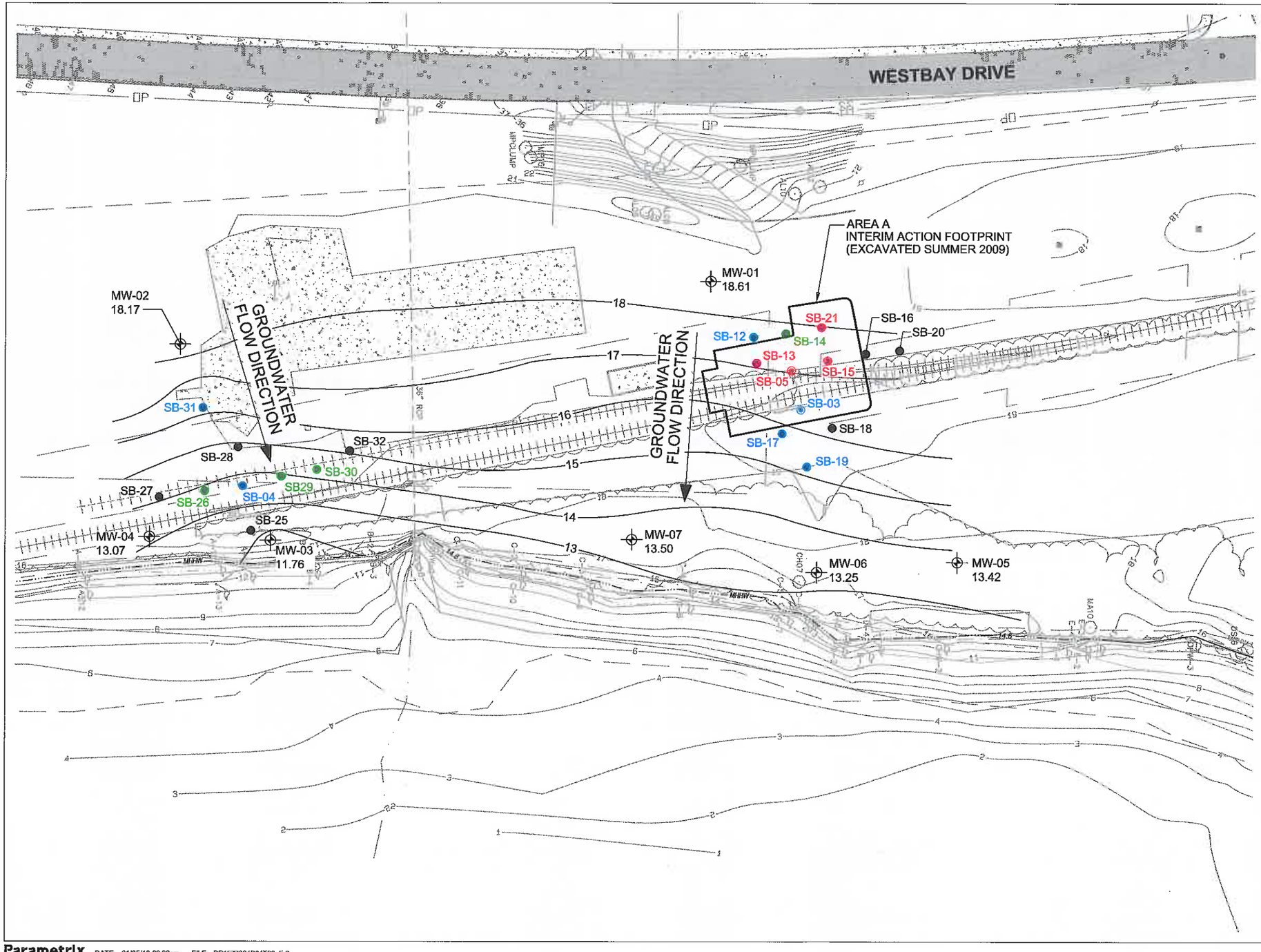
Figure 1

Tide Chart

Monitoring Well Logs

Data Validation Technical Memorandum

Laboratory Report



LEGEND

MW-04 12.35 — EXISTING MONITORING WELL WITH ELEVATION OF GROUNDWATER TABLE MEASURED 11/18/09

—16— INFERRED GROUNDWATER SURFACE ELEVATION CONTOUR

GROUNDWATER CONCENTRATIONS EXCEED SCREENING LEVELS

SOIL CONCENTRATIONS EXCEED SCREENING LEVELS

SOIL AND GROUNDWATER CONCENTRATIONS EXCEED SCREENING LEVELS

SB — SOIL BORING LOCATION

NOTE:

CONTOUR DATUM: MLLW

Parametrix DATE: 01/05/10 09:22am FILE: BR1577024P04T03_F-2

N

0 80

SCALE IN FEET

Figure 1
Solid Wood Incorporated Site
(West Bay Park)
Olympia, Washington
Quarter 4 Groundwater Surface Elevation Contours
December 2009

Table 2
Solid Wood Incorporated Site RI/FS
Quarter 2 Groundwater Results, May 2009

	Well ID		MW-01					MW-02					MW-03				
ANALYTE	Date Sampled		1/28/09	5/8/09	7/30/09	11/5/09	11/5/09 (Dup.)	1/28/09	5/8/09	5/8/09 (Dup.)	7/30/09	11/5/09	1/28/09	5/8/09	7/30/09	7/30/09 (Dup.)	11/5/09
	Units	SL															
TOTAL PETROLEUM HYDROCARBONS																	
Diesel Range Organics	mg/l	0.5	0.13U	0.17U	0.18U	0.18U	0.17U	0.13U	0.17U	0.17U	0.17U	0.17U	0.13U	0.17U	0.17U	0.17U	0.18U
Lube Oil	mg/l	0.5	0.20U	0.27U	0.28U	0.29U	0.28U	0.25	0.27U	0.27U	0.27U	0.27U	0.20U	0.27U	0.27U	0.27U	0.28U
BTEX																	
Benzene	µg/l	5	1.0U	1.0U	1.0U	1.0U	1.0U	4.0U	1.0U	1.0U	1.0U	4.0U	1.0U	1.0U	1.0U	1.0U	1.0U
Toluene	µg/l	1,000	1.0U	1.0U	1.0U	1.0U	1.0U	6.0JB	4.4	4.5	1.0U	4.6	1.0U	1.0U	1.0U	1.0U	1.0U
Ethylbenzene	µg/l	700	1.0U	1.0U	1.0U	1.0U	1.0U	4.0U	1.0U	1.0U	1.0U	4.0U	1.0U	1.0U	1.0U	1.0U	1.0U
Xylenes (m,p)	µg/l	1,000	1.0U	1.0U	1.0U	1.0U	1.0U	4.0U	1.0U	1.0U	1.0U	5.1	1.0U	1.0U	1.0U	1.0U	1.0U
POLYCYCLIC AROMATIC HYDROCARBONS																	
Naphthalene	µg/l	-	0.095U	0.14	0.095U	0.10U	0.10U	0.095U	0.095U	0.095U	0.095U	0.098U	0.095U	0.095U	0.094U	0.094U	0.099U
2-Methylnaphthalene	µg/l	-	0.095U	0.097U	0.095U	0.10U	0.10U	0.095U	0.095U	0.095U	0.095U	0.098U	0.095U	0.095U	0.094U	0.094U	0.099U
1-Methylnaphthalene	µg/l	-	0.095U	0.097U	0.095U	0.10U	0.10U	0.095U	0.095U	0.095U	0.095U	0.098U	0.095U	0.095U	0.094U	0.094U	0.099U
Acenaphthylene	µg/l	-	0.095U	0.097U	0.095U	0.10U	0.10U	0.095U	0.095U	0.095U	0.095U	0.098U	0.095U	0.095U	0.094U	0.094U	0.099U
Acenaphthene	µg/l	-	0.095U	0.097U	0.095U	0.10U	0.10U	0.095U	0.095U	0.095U	0.095U	0.098U	0.095U	0.095U	0.094U	0.094U	0.099U
Fluorene	µg/l	-	0.095U	0.097U	0.095U	0.10U	0.10U	0.095U	0.095U	0.095U	0.095U	0.098U	0.095U	0.095U	0.094U	0.094U	0.099U
Phenanthrene	µg/l	-	0.095U	0.097U	0.095U	0.10U	0.10U	0.095U	0.095U	0.095U	0.095U	0.098U	0.095U	0.095U	0.094U	0.094U	0.099U
Anthracene	µg/l	-	0.095U	0.097U	0.095U	0.10U	0.10U	0.095U	0.095U	0.095U	0.095U	0.098U	0.095U	0.095U	0.094U	0.094U	0.099U
Flouranthene	µg/l	-	0.095U	0.097U	0.095U	0.10U	0.10U	0.095U	0.095U	0.095U	0.095U	0.098U	0.095U	0.095U	0.094U	0.094U	0.099U
Pyrene	µg/l	-	0.095U	0.097U	0.095U	0.10U	0.10U	0.095U	0.095U	0.095U	0.095U	0.098U	0.095U	0.095U	0.094U	0.094U	0.099U
Benzo(a)anthracene	µg/l	-	0.0095U	0.0097U	0.0095U	0.010U	0.010U	0.0095U	0.0095U	0.0095U	0.0095U	0.013	0.0095U	0.0095U	0.0094U	0.0094U	0.0099U
Chrysene	µg/l	-	0.0095U	0.0097U	0.0095U	0.010U	0.010U	0.0095U	0.0095U	0.0095U	0.0095U	0.0098U	0.0095U	0.0095U	0.0094U	0.0094U	0.0099U
Benzo(b)fluoranthrene	µg/l	-	0.0095U	0.0097U	0.0095U	0.010U	0.010U	0.0095U	0.0095U	0.0095U	0.0095U	0.0098U	0.0095U	0.0095U	0.0094U	0.0094U	0.0099U
Benzo(k)fluoranthene	µg/l	-	0.0095U	0.0097U	0.0095U	0.010U	0.010U	0.0095U	0.0095U	0.0095U	0.0095U	0.0098U	0.0095U	0.0095U	0.0094U	0.0094U	0.0099U
Benzo(a)pyrene	µg/l	0.1	0.0095U	0.0097U	0.0095U	0.010U	0.010U	0.0095U	0.0095U	0.0095U	0.0095U	0.0098U	0.0095U	0.0095U	0.0094U	0.0094U	0.0099U
Indeno(1,2,3-c,d)pyrene	µg/l	-	0.0095U	0.0097U	0.0095U	0.010U	0.010U	0.0095U	0.0095U	0.0095U	0.0095U	0.0098U	0.0095U	0.0095U	0.0094U	0.0094U	0.0099U
Dibenz(a,h)anthracene	µg/l	-	0.0095U	0.0097U	0.0095U	0.010U	0.010U	0.0095U	0.0095U	0.0095U	0.0095U	0.0098U	0.0095U	0.0095U	0.0094U	0.0094U	0.0099U
Benzo(g,h,i)perylene	µg/l	-	0.0095U	0.0097U	0.0095U	0.010U	0.010U	0.0095U	0.0095U	0.0095U	0.0095U	0.0098U	0.0095U	0.0095U	0.0094U	0.0094U	0.0099U
Total cPAHs as Benzo(a)pyrene[a]	µg/l	0.1	0.0072	0.0073	0.0072	0.0076	0.0076	0.0072	0.0072	0.0072	0.0072	0.0082	0.0072	0.0072	0.0071	0.0071	0.0075
DISSOLVED METALS																	
Lead	µg/l	8.1	-	-	-	-	-	5.6U	-	-	-	-	-	-	-	-	-
TOTAL METALS																	
Lead	µg/l	8.1	5.6U	1.1U	1.1U	1.1U	1.1U	5.6U	1.1U	1.1U	1.1U	1.1U	5.6U	1.1U	1.1U	1.1U	1.6
GENERAL CHEMISTRY																	
Nitrate	mg/l	-	0.050UJH	0.050UJH	0.050U	0.050U	0.050U	0.050UJH	0.050UJH	-	0.050U	0.050U	0.050UJH	0.10JH	0.064	0.067	0.10
Nitrite	mg/l	-	0.050UJH	0.050UJH	0.050U	0.050U	0.050U	0.050UJH	0.050UJH	-	0.050U	0.050U	0.050UJH	0.050UJH	0.050U	0.050U	0.050U
Chloride	mg/l	-	-	2.7	2.4	2.0U	2.0U	-	3.9	-	2.6	4.5	-	1700	4200	3800	4300
Alkalinity	mg$CaCO_3$/l	-	70	74	72	71	72	370	210	-	99	170	400	380	390	400	350

(Table Continues)

Table 2
Solid Wood Incorporated Site RI/FS
Quarter 2 Groundwater Results, May 2009

	Well ID		MW-04				MW-05				MW-06				MW-07			
ANALYTE	Date Sampled		1/28/09	5/8/09	7/30/09	11/5/09	1/29/09	5/8/09	7/29/09	11/18/09	1/29/09	5/8/09	7/29/09	11/5/09	1/29/09	5/8/09	7/29/09	11/5/09
	Units	SL																
TOTAL PETROLEUM HYDROCARBONS																		
Diesel Range Organics	mg/l	0.5	0.13U	0.17U	0.17U	0.17U	0.13U	0.17U	0.17U	0.18U	0.13U	0.18U	0.18U	0.18U	0.13U	0.17U	0.17U	0.18U
Lube Oil	mg/l	0.5	0.20U	0.27U	0.27U	0.28U	0.21U	0.27U	0.27U	0.29U	0.20U	0.29U	0.28U	0.28U	0.20U	0.27U	0.27U	0.29U
BTEX																		
Benzene	µg/l	5	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U
Toluene	µg/l	1,000	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U
Ethylbenzene	µg/l	700	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U
Xylenes (m,p)	µg/l	1,000	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U
POLYCYCLIC AROMATIC HYDROCARBONS																		
Naphthalene	µg/l	-	0.094U	0.095U	0.098U	0.10U	0.098U	0.096U	0.095U	0.097U	0.094U	0.096U	0.095U	0.11U	0.096U	0.096U	0.095U	0.099U
2-Methylnaphthalene	µg/l	-	0.094U	0.095U	0.098U	0.10U	0.098U	0.096U	0.095U	0.097U	0.094U	0.096U	0.095U	0.11U	0.096U	0.096U	0.095U	0.099U
1-Methylnaphthalene	µg/l	-	0.094U	0.095U	0.098U	0.10U	0.098U	0.096U	0.095U	0.097U	0.094U	0.096U	0.095U	0.11U	0.096U	0.096U	0.095U	0.099U
Acenaphthylene	µg/l	-	0.094U	0.095U	0.098U	0.10U	0.098U	0.096U	0.095U	0.097U	0.094U	0.096U	0.095U	0.11U	0.096U	0.096U	0.095U	0.099U
Acenaphthene	µg/l	-	0.11	0.095U	0.098U	0.10U	0.098U	0.096U	0.095U	0.097U	0.094U	0.096U	0.095U	0.11U	0.13	0.13	0.17	0.12
Fluorene	µg/l	-	0.094U	0.095U	0.098U	0.10U	0.098U	0.096U	0.095U	0.097U	0.094U	0.096U	0.095U	0.11U	0.096U	0.096U	0.095U	0.099U
Phenanthrene	µg/l	-	0.094U	0.095U	0.098U	0.10U	0.098U	0.096U	0.095U	0.097U	0.094U	0.096U	0.095U	0.11U	0.096U	0.096U	0.095U	0.099U
Anthracene	µg/l	-	0.094U	0.095U	0.098U	0.10U	0.098U	0.096U	0.095U	0.097U	0.094U	0.096U	0.095U	0.11U	0.096U	0.096U	0.095U	0.099U
Flouranthene	µg/l	-	0.094U	0.095U	0.098U	0.10U	0.098U	0.096U	0.095U	0.097U	0.094U	0.096U	0.095U	0.11U	0.096U	0.096U	0.095U	0.099U
Pyrene	µg/l	-	0.094U	0.095U	0.098U	0.10U	0.098U	0.096U	0.095U	0.097U	0.094U	0.096U	0.095U	0.11U	0.096U	0.096U	0.095U	0.099U
Benzo(a)anthracene	µg/l	-	0.0094U	0.0095U	0.0098U	0.010U	0.0098U	0.0096U	0.0095U	0.0097U	0.0094U	0.0096U	0.0095U	0.011U	0.0096U	0.0096U	0.0095U	0.0099U
Chrysene	µg/l	-	0.0094U	0.0095U	0.0098U	0.010U	0.0098U	0.0096U	0.0095U	0.0097U	0.0094U	0.0096U	0.0095U	0.011U	0.0096U	0.0096U	0.0095U	0.0099U
Benzo(b)fluoranthrene	µg/l	-	0.0094U	0.0095U	0.0098U	0.010U	0.0098U	0.0096U	0.0095U	0.0097U	0.0094U	0.0096U	0.0095U	0.011U	0.0096U	0.0096U	0.0095U	0.0099U
Benzo(k)fluoranthene	µg/l	-	0.0094U	0.0095U	0.0098U	0.010U	0.0098U	0.0096U	0.0095U	0.0097U	0.0094U	0.0096U	0.0095U	0.011U	0.0096U	0.0096U	0.0095U	0.0099U
Benzo(a)pyrene	µg/l	0.1	0.0094U	0.0095U	0.0098U	0.010U	0.0098U	0.0096U	0.0095U	0.0097U	0.0094U	0.0096U	0.0095U	0.011U	0.0096U	0.0096U	0.0095U	0.0099U
Indeno(1,2,3-c,d)pyrene	µg/l	-	0.0094U	0.0095U	0.0098U	0.010U	0.0098U	0.0096U	0.0095U	0.0097U	0.0094U	0.0096U	0.0095U	0.011U	0.0096U	0.0096U	0.0095U	0.0099U
Dibenz(a,h)anthracene	µg/l	-	0.0094U	0.0095U	0.0098U	0.010U	0.0098U	0.0096U	0.0095U	0.0097U	0.0094U	0.0096U	0.0095U	0.011U	0.0096U	0.0096U	0.0095U	0.0099U
Benzo(g,h,i)perylene	µg/l	-	0.0094U	0.0095U	0.0098U	0.010U	0.0098U	0.0096U	0.0095U	0.0097U	0.0094U	0.0096U	0.0095U	0.011U	0.0096U	0.0096U	0.0095U	0.0099U
Total cPAHs as Benzo(a)pyrene[a]	µg/l	0.1	0.0071	0.0072	0.0074	0.0076	0.0074	0.0072	0.0072	0.0073	0.0071	0.0072	0.0072	0.0083	0.0072	0.0072	0.0072	0.0075
DISSOLVED METALS																		
Lead	µg/l	8.1	-	-	1.0U	-	-	-	-	-	-	-	-	-	-	-	1.0U	-
TOTAL METALS																		
Lead	µg/l	8.1	5.6U	1.1U	1.1U	1.3	5.6U	1.1U	1.1U	1.1U	5.6U	1.5	3.9	2.4	5.6U	1.1U	1.1U	1.2
GENERAL CHEMISTRY																		
Nitrate	mg/l	-	0.10JH	0.47JH	0.16	0.22	0.050UJH	0.050UJH	0.050U	0.050U	0.066JH	0.050UJH	0.050U	1.2	0.050UJH	0.050UJH	0.050U	0.14
Nitrite	mg/l	-	0.050UJH	0.050UJH	0.050U	0.050U	0.050UJH	0.050UJH	0.050U	0.050U	0.050UJH	0.050UJH	0.050U	0.050U	0.050UJH	0.050UJH	0.050U	0.050U
Chloride	mg/l	-	-	3000	4300	5400	-	4.3	4.8	51	-	880	4.5	5.4	-	4.0	4.6	54
Alkalinity	$mgCaCO_3/l$	-	250	320	300	300	360	290	300	260	180	190	180	170	270	220	250	190

Notes:

- = Not available/not analyzed.

[a] = Total of individual cPAHs multiplied by benzo(a)pyrene toxicity equivalency factor. 1/2 the reporting limit was used for non-detected concentrations.

cPAHs = Carcinogenic polycyclic aromatic hydrocarbons.

Dup. = Duplicate sample.

JB = Analyte was detected. Concentration reported should be considered an estimate due to equipment blank contamination.

JH = Analyte was detected; the reported concentration should be considered an estimate due to exceeded method holding time.

$mgCaCO_3/l$ = mg/l as calcium carbonate.

mg/l = milligrams per liter.

SL = Screening Level.

U = Analyte not detected above given practical quantitation limit.

µg/l = micrograms per liter.

UJH = Analyte was not detected above given practical quantitation limit. Concentration reported should be considered an estimate due to exceeded method holding time.

Pacific Northwest Tide Tables - Search results

Tide tables for Budd Inlet, Olympia Shoal starting on November 5, 2009:

Day		High /Low	Tide Time	Height Feet	Sunrise Sunset	Moon Time	% Moon Visible
Th	5	Low	12:39 AM	-3.0	7:01 AM	Set 10:41 AM	94
	5	High	7:51 AM	15.4	4:49 PM	Rise 6:53 PM	
	5	Low	1:23 PM	8.2			
	5	High	5:54 PM	13.9			
F	6	Low	1:25 AM	-3.0	7:03 AM	Set 11:35 AM	88
	6	High	8:43 AM	15.4	4:48 PM	Rise 8:05 PM	
	6	Low	2:19 PM	8.4			
	6	High	6:41 PM	13.4			
Sa	7	Low	2:14 AM	-2.5	7:04 AM	Set 12:17 PM	79
	7	High	9:39 AM	15.1	4:46 PM	Rise 9:23 PM	
	7	Low	3:24 PM	8.3			
	7	High	7:38 PM	12.5			
Su	8	Low	3:08 AM	-1.7	7:06 AM	Set 12:51 PM	69
	8	High	10:38 AM	15.0	4:45 PM	Rise 10:44 PM	
	8	Low	4:42 PM	7.8			
	8	High	8:52 PM	11.5			
M	9	Low	4:06 AM	-0.5	7:07 AM	Set 1:18 PM	58
	9	High	11:34 AM	15.0	4:44 PM		
	9	Low	6:06 PM	6.7			
	9	High	10:24 PM	10.6			
Tu	10	Low	5:09 AM	0.9	7:09 AM	Rise 12:02 AM	47
	10	High	12:25 PM	15.0	4:42 PM	Set 1:40 PM	
	10	Low	7:16 PM	5.1			
W	11	High	12:04 AM	10.3	7:10 AM	Rise 1:19 AM	36
	11	Low	6:17 AM	2.3	4:41 PM	Set 2:01 PM	
	11	High	1:10 PM	15.2			
	11	Low	8:10 PM	3.3			
Th	12	High	1:41 AM	10.8	7:11 AM	Rise 2:35 AM	25
	12	Low	7:25 AM	3.7	4:40 PM	Set 2:21 PM	
	12	High	1:49 PM	15.2			
	12	Low	8:54 PM	1.5			
F	13	High	3:05 AM	11.9	7:13 AM	Rise 3:50 AM	16
	13	Low	8:31 AM	4.9	4:39 PM	Set 2:42 PM	
	13	High	2:24 PM	15.4			
	13	Low	9:34 PM	0.0			
Sa	14	High	4:13 AM	13.2	7:14 AM	Rise 5:05 AM	9
	14	Low	9:31 AM	5.9	4:38 PM	Set 3:06 PM	
	14	High	2:57 PM	15.2			
	14	Low	10:10 PM	-1.2			
Su	15	High	5:10 AM	14.2	7:16 AM	Rise 6:19 AM	4
	15	Low	10:27 AM	6.8	4:36 PM	Set 3:34 PM	
	15	High	3:29 PM	14.8			
	15	Low	10:46 PM	-1.9			
M	16	High	5:59 AM	15.1	7:17 AM	Rise 7:31 AM	0
	16	Low	11:19 AM	7.6	4:35 PM	Set 4:09 PM	
	16	High	4:03 PM	14.4			
	16	Low	11:20 PM	-2.4			
Tu	17	High	6:43 AM	15.5	7:19 AM	Rise 8:38 AM	0
	17	Low	12:09 PM	8.0	4:34 PM	Set 4:52 PM	
	17	High	4:37 PM	13.9			
	17	Low	11:56 PM	-2.4			
W	18	High	7:23 AM	15.6	7:20 AM	Rise 9:37 AM	1
	18	Low	12:58 PM	8.2	4:33 PM	Set 5:43 PM	
	18	High	5:13 PM	13.3			

For information on regulations for fishing in Washington contact:
Washington Department of Fish and Wildlife

Parametrix *inspired people - inspired solutions - making a difference*

Log ID: MW-01

Project Name: West Bay RI/FS
Project #: 235-1577-024
Location: Olympia, WA
Coordinates:

Drilling Company: ESN Northwest
Drilling Method: HSA
Logged by: David Dinkuhn, P.E.
Checked by: M. Marshall, R.G.

Drilling Dates: 7/14/08
Boring Depth: 14 ft
Depth to Water: 5 ft
Ground Elevation:

Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample Details: PID (ppm)	Sample ID	Recovery	Boring Diagram	Lithologic Symbol	Depth (ft)
0		Ground Surface						0
		Silty Sandy Gravel (FILL) Gray, damp, no odor	0		44/48			
5		**Sand (SP)** Gray to black, medium grained, no odor, wet (beach)	0		44/48			5
		30% shells 5 to 7 feet interbedded with sand 10% shells 7 to 12 feet						
10			0		48/48			10
15		Bottom of boring at 14 feet below ground surface.						15
20								20

Boring Diagram: Bentonite Chips: 1'-2'; 10/20 Silica Sand: 2'-14'; 2-inch PVC Well Casing: 0.4'-5'; 2-inch PVC 0.010 Slot Screen: 4'-14'

Parametrix *inspired people - inspired solutions - making a difference*

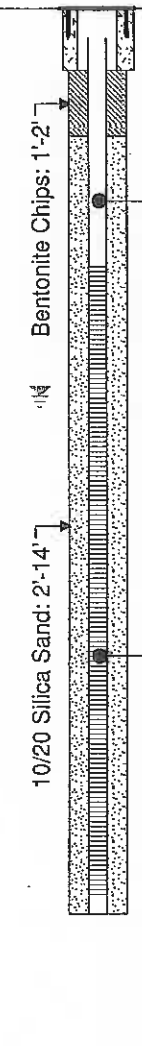
Log ID: MW-02/BBK307

Project Name: West Bay RI/FS
Project #: 235-1577-024
Location: Olympia, WA
Coordinates:

Drilling Company: ESN Northwest
Drilling Method: HSA
Logged by: L. Linde
Checked by: M. Marshall, R.G.

Drilling Dates: 1/13/09
Boring Depth: 14 ft
Depth to Water: 6 ft
Ground Elevation:

Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample Details: PID (ppm)	Sample Details: Sample ID	Sample Details: Recovery
0		Ground Surface			
		Bark Debris			
		Sand and Gravel (FILL) Moist, no odor	0		44/48
5		**Sand (SP)** Brown grading to gray, f-m, loose, NP, no odor			
		Wet	0		38/48
		80% shells 8 to 12 feet, fine gravel lense with silt			
10			0		32/48
		100% shells 12 to 13 feet, wood plug in drill shoe			
		Silt (ML/CL) Dark brown to black, SP, loose, 25% shells, grades to clay/peat horizon, no odor	0		12/24
15		Bottom of boring at 14 feet below ground surface.			
20					



Parametrix *inspired people - inspired solutions - making a difference*

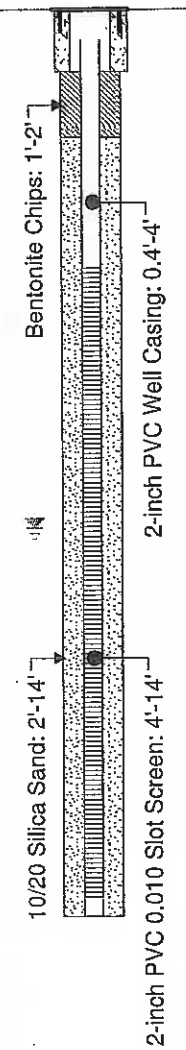
Log ID: MW-03/BBK308

Project Name: West Bay RI/FS
Project #: 235-1577-024
Location: Olympia, WA
Coordinates:

Drilling Company: ESN Northwest
Drilling Method: HSA
Logged by: L. Linde
Checked by: M. Marshall, R.G.

Drilling Dates: 1/13/09
Boring Depth: 14 ft
Depth to Water: 6 ft
Ground Elevation:

Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample Details: PID (ppm)	Sample Details: Sample ID	Sample Details: Recovery
0		Ground Surface			
		Bark Debris			
		Asphalt			
		Sand and Gravel (FILL) Brown, fine sand, no odor	0		36/48
5		Charred wood, no odor	0		36/48
		Sand (SP) Gray brown, f-m, loose, NP, 90% shells 7.5 to 13.5 feet, no odor Silt (ML) lense, wet	0		36/48
10		Shells absent	0		24/24
		Bottom of boring at 14 feet below ground surface.			
15					
20					



Lithologic Symbol
Depth (ft)
0
5
10
15
20

Parametrix *inspired people - inspired solutions - making a difference*

Log ID: MW-04/BBK309

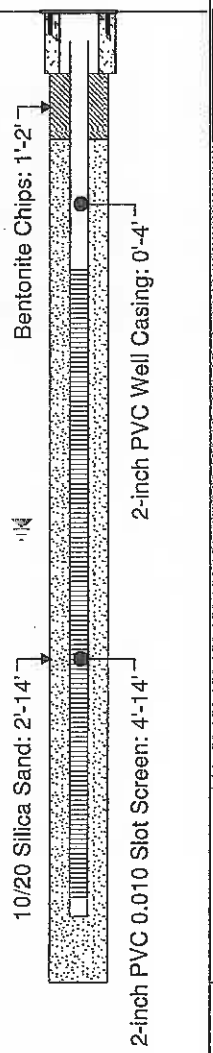
Project Name: West Bay RI/FS
Project #: 235-1577-024
Location: Olympia, WA
Coordinates:

Drilling Company: ESN Northwest
Drilling Method: HSA
Logged by: L. Linde
Checked by: M. Marshall, R.G.

Drilling Dates: 1/13/09
Boring Depth: 15 ft
Depth to Water: 8 ft
Ground Elevation:

Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample Details: PID (ppm)	Sample ID	Recovery
0		Ground Surface			
		Asphalt/Quarry spall (RR ballast)			
		Sand and Gravel (FILL) Brown, fine sand, no odor	0		24/48
5		**Sand (SP)** Gray, f-m, loose, NP, moist, no odor 90% shells 5 to 11.5 feet	0		30/48
		Rust Wet			
10		Shells absent No Recovery, rock in shoe	0		48/48
			NS		0/24
15		Bottom of boring at 15 feet below ground surface.			
20					

Boring Diagram



Lithologic Symbol | Depth (ft)
0 | 5 | 10 | 15 | 20

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Log ID: MW-05/BBK310

Project Name: West Bay RI/FS
Project #: 235-1577-024
Location: Olympia, WA
Coordinates:

Drilling Company: ESN Northwest
Drilling Method: HSA
Logged by: L. Linde
Checked by: M. Marshall, R.G.

Drilling Dates: 1/14/09
Boring Depth: 15 ft
Depth to Water: 6 ft
Ground Elevation:

Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample Details: PID (ppm)	Sample ID	Recovery	Boring Diagram	Lithologic Symbol	Depth (ft)
0		Ground Surface						0
		Bark and Organic Debris						
		Sand and Gravel (FILL) Brown, fine sand, no odor	0		30/48			
5		Wet	0		45/48			5
		Sand (SP) Gray, f-m, loose, NP, moist, no odor, 100% shells, alternating sand and 80% shells 8 to 14 feet						
10			0		42/48			10
			0		14/24			
15		Bottom of boring at 14 feet below ground surface.						15
20								20

Boring Diagram labels: Bentonite Chips: 1'-2'; 2-inch PVC Well Casing: 0.4'-4'; 10/20 Silica Sand: 2'-14'; 2-inch PVC 0.010 Slot Screen: 4'-14'

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Log ID: MW-06/BBK311

Project Name: West Bay RI/FS
Project #: 235-1577-024
Location: Olympia, WA
Coordinates:

Drilling Company: ESN Northwest
Drilling Method: HSA
Logged by: L. Linde
Checked by: M. Marshall, R.G.

Drilling Dates: 1/14/09
Boring Depth: 15 ft
Depth to Water: 6 ft
Ground Elevation:

Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample Details: PID (ppm)	Sample ID	Recovery	Boring Diagram	Lithologic Symbol	Depth (ft)
0		Ground Surface						0
		Bark Debris						
		Sand and Gravel (FILL) No odor						
		Sawdust	0		36/48			
5		**Creosote Piling and Associated Debris**						5
		Sand (SP) Gray, f-m, loose, NP, moist, no odor, 75% shells 7 to 13.5 feet, saturated						
			0		18/48			
10			0		46/48			10
		Shells absent	0		24/24			
		Bottom of boring at 14 feet below ground surface.						
15								15
20								20

Boring Diagram: Bentonite Chips: 1'-2'; 2-inch PVC Well Casing: 0.4'-4'; 10/20 Silica Sand: 2'-14'; 2-inch PVC 0.010 Slot Screen: 4'-14'

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Log ID: MW-07/BBK312

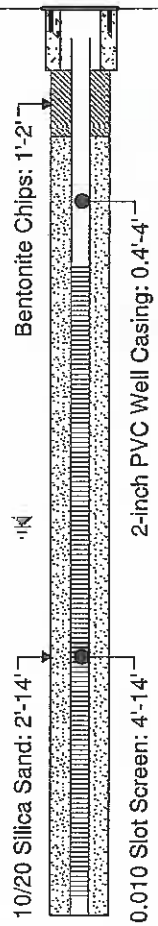
Project Name: West Bay RI/FS
Project #: 235-1577-024
Location: Olympia, WA
Coordinates:

Drilling Company: ESN Northwest
Drilling Method: HSA
Logged by: L. Linde
Checked by: M. Marshall, R.G.

Drilling Dates: 1/14/09
Boring Depth: 15 ft
Depth to Water: 8 ft
Ground Elevation:

Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample Details: PID (ppm)	Sample ID	Recovery
0		Ground Surface			
		Bark Debris			
		Sand and Gravel (FILL) No odor	0		24/48
5		**Sand (SP)** Gray, f-c, loose, NP, moist, no odor Organics 50% shells 4.5 to 7.5 feet	0		40/48
		Silt lense, no odor			
10		Purple, 90% shells 8 to 14 feet, saturated	0		44/48
			0		12/24
15		Bottom of boring at 14 feet below ground surface.			
20					

Boring Diagram



Lithologic Symbol
Depth (ft)
0
5
10
15
20

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www.parametrix.com

TECHNICAL MEMORANDUM

Date:	January 4, 2010
To:	Project File
From:	Annika Deutsch
Subject:	Quality Assurance/Quality Control Review for West Bay
cc:	David Dinkuhn
Project Number:	235-1577-024 (04/04)
Project Name:	West Bay Fourth Quarter 2009 Groundwater Monitoring

INTRODUCTION

This technical memorandum summarizes the results of an internal quality assurance/quality control (QA/QC) review of analytical results for groundwater samples collected on November 5 and 18, 2009. Ten groundwater samples (including a field duplicate [WB-GW-MW01-28] and two trip blanks) were submitted to OnSite Environmental, Inc. (Redmond, WA) for analysis.

With the exception of the trip blanks, all groundwater samples were analyzed for BTEX, NWTPH-Dx, PAHs (SIM), nitrate, nitrite, alkalinity, chloride, and total lead. The trip blanks were analyzed only for BTEX.

Final laboratory data were submitted to Parametrix via a Tier II-type data report (On-Site Laboratory Reference Number 0911-155 and 0911-056). All data and analytical QC elements were reviewed against laboratory and method QC criteria, and qualifiers were applied where judged appropriate.

DATA REVIEW SUMMARY

All samples collected were prepared and analyzed using standard methods. All method holding times were met, except for following:

- Nitrate and Nitrite from Repot #0911-056: According to the COC, all samples were collected on 11/5/09, and received by the laboratory on 11/6/09. The samples were analyzed for nitrate and nitrite on 11/9/09, 4 days after collection (the method holding time is 48 hours). All samples analyzed for nitrate and nitrite on 11/9/09 exceed the method holding time, which could potentially result in a loss of target analytes. All affected sample results were qualified as estimated ("JH" if detected, "UJH" if not detected).

All analyses requested on the COC were conducted.

No laboratory method blank contamination was observed. Ethylbenzene and m,p- and o-xylenes were detected in the trip blank for Report #0911-155; however, no associated samples had detections. Therefore, no results were qualified as a result of this trip blank contamination.

All other analytical QC results were in control, indicating acceptable analytical accuracy and precision. Field duplicate results were acceptable. Table 1 summarizes all data qualified based on this review (i.e., does not include laboratory qualified data).

Q4

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

November 17, 2009

David Dinkuhn
Parametrix, Inc.
4660 Kitsap Way, Suite A
Bremerton, WA 98312

Re: Analytical Data for Project 235-1577-024 04/03
Laboratory Reference No. 0911-056

Dear David:

Enclosed are the analytical results and associated quality control data for samples submitted on November 6, 2009.

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

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

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: November 17, 2009
Samples Submitted: November 6, 2009
Laboratory Reference: 0911-056
Project: 235-1577-024 04/03

Case Narrative

Samples were collected on November 5 and 6, 2009, and received by the laboratory on November 6, 2009. They were maintained at the laboratory at a temperature of 2°C to 6°C except as noted below.

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

Date of Report: November 17, 2009
Samples Submitted: November 6, 2009
Lab Traveler: 0911-056
Project: 235-1577-024 04/03

BTEX
EPA 8021B

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Date Prepared	Date Analyzed	Flags
Lab ID:	11-056-01				
Client ID:	**WB-GW-MW01-08**				
Benzene	**ND**	1.0	11-9-09	11-9-09	
Toluene	**ND**	1.0	11-9-09	11-9-09	
Ethyl Benzene	**ND**	1.0	11-9-09	11-9-09	
m,p-Xylene	**ND**	1.0	11-9-09	11-9-09	
o-Xylene	**ND**	1.0	11-9-09	11-9-09	
Surrogate: Fluorobenzene	96%	74-121			
Lab ID:	11-056-02				
Client ID:	**WB-GW-MW01-28**				
Benzene	**ND**	1.0	11-9-09	11-9-09	
Toluene	**ND**	1.0	11-9-09	11-9-09	
Ethyl Benzene	**ND**	1.0	11-9-09	11-9-09	
m,p-Xylene	**ND**	1.0	11-9-09	11-9-09	
o-Xylene	**ND**	1.0	11-9-09	11-9-09	
Surrogate: Fluorobenzene	96%	74-121			
Lab ID:	11-056-03				
Client ID:	**WB-GW-MW02-06**				
Benzene	**ND**	4.0	11-9-09	11-9-09	
Toluene	**4.6**	4.0	11-9-09	11-9-09	
Ethyl Benzene	**ND**	4.0	11-9-09	11-9-09	
m,p-Xylene	**5.1**	4.0	11-9-09	11-9-09	
o-Xylene	**ND**	4.0	11-9-09	11-9-09	
Surrogate: Fluorobenzene	91%	74-121			

Date of Report: November 17, 2009
Samples Submitted: November 6, 2009
Lab Traveler: 0911-056
Project: 235-1577-024 04/03

BTEX
EPA 8021B

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Date Prepared	Date Analyzed	Flags
Lab ID:	11-056-04				
Client ID:	**WB-GW-MW03-09**				
Benzene	**ND**	1.0	11-9-09	11-9-09	
Toluene	**ND**	1.0	11-9-09	11-9-09	
Ethyl Benzene	**ND**	1.0	11-9-09	11-9-09	
m,p-Xylene	**ND**	1.0	11-9-09	11-9-09	
o-Xylene	**ND**	1.0	11-9-09	11-9-09	
Surrogate: Fluorobenzene	96%	74-121			
Lab ID:	11-056-05				
Client ID:	**WB-GW-MW04-08**				
Benzene	**ND**	1.0	11-9-09	11-9-09	
Toluene	**ND**	1.0	11-9-09	11-9-09	
Ethyl Benzene	**ND**	1.0	11-9-09	11-9-09	
m,p-Xylene	**ND**	1.0	11-9-09	11-9-09	
o-Xylene	**ND**	1.0	11-9-09	11-9-09	
Surrogate: Fluorobenzene	96%	74-121			
Lab ID:	11-056-06				
Client ID:	**WB-GW-MW06-06**				
Benzene	**ND**	1.0	11-9-09	11-9-09	
Toluene	**ND**	1.0	11-9-09	11-9-09	
Ethyl Benzene	**ND**	1.0	11-9-09	11-9-09	
m,p-Xylene	**ND**	1.0	11-9-09	11-9-09	
o-Xylene	**ND**	1.0	11-9-09	11-9-09	
Surrogate: Fluorobenzene	95%	74-121			

Date of Report: November 17, 2009
Samples Submitted: November 6, 2009
Lab Traveler: 0911-056
Project: 235-1577-024 04/03

BTEX
EPA 8021B

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Date Prepared	Date Analyzed	Flags
Lab ID:	11-056-07				
Client ID:	**WB-GW-MW07-08**				
Benzene	**ND**	1.0	11-9-09	11-9-09	
Toluene	**ND**	1.0	11-9-09	11-9-09	
Ethyl Benzene	**ND**	1.0	11-9-09	11-9-09	
m,p-Xylene	**ND**	1.0	11-9-09	11-9-09	
o-Xylene	**ND**	1.0	11-9-09	11-9-09	
Surrogate: Fluorobenzene	95%	74-121			
Lab ID:	11-056-08				
Client ID:	**TRIP BLANK**				
Benzene	**ND**	1.0	11-9-09	11-9-09	
Toluene	**ND**	1.0	11-9-09	11-9-09	
Ethyl Benzene	**ND**	1.0	11-9-09	11-9-09	
m,p-Xylene	**ND**	1.0	11-9-09	11-9-09	
o-Xylene	**ND**	1.0	11-9-09	11-9-09	
Surrogate: Fluorobenzene	96%	74-121			

Date of Report: November 17, 2009
Samples Submitted: November 6, 2009
Lab Traveler: 0911-056
Project: 235-1577-024 04/03

BTEX
EPA 8021B
METHOD BLANK QUALITY CONTROL

Date Extracted: 11-9-09
Date Analyzed: 11-9-09

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB1109W1

	Result	Flags	PQL
Benzene	**ND**		1.0
Toluene	**ND**		1.0
Ethyl Benzene	**ND**		1.0
m,p-Xylene	**ND**		1.0
o-Xylene	**ND**		1.0
Surrogate Recovery:			
Fluorobenzene	99%		

Date of Report: November 17, 2009
Samples Submitted: November 6, 2009
Lab Traveler: 0911-056
Project: 235-1577-024 04/03

BTEX
EPA 8021B
DUPLICATE QUALITY CONTROL

Date Extracted: 11-9-09
Date Analyzed: 11-9-09

Matrix: Water
Units: ug/L (ppb)

Lab ID:	11-054-01 **Original**	11-054-01 **Duplicate**	**RPD**	**Flags**
Benzene	**ND**	**ND**	NA	
Toluene	**ND**	**ND**	NA	
Ethyl Benzene	**ND**	**ND**	NA	
m,p-Xylene	**ND**	**ND**	NA	
o-Xylene	**ND**	**ND**	NA	
Surrogate Recovery: Fluorobenzene	99%	97%		

Date of Report: November 17, 2009
Samples Submitted: November 6, 2009
Lab Traveler: 0911-056
Project: 235-1577-024 04/03

BTEX
EPA 8021B
MS/MSD QUALITY CONTROL

Date Extracted: 11-9-09
Date Analyzed: 11-9-09

Matrix: Water
Units: ug/L (ppb)

Spike Level: 50.0 ppb

Lab ID:	11-054-01 **MS**	Percent Recovery	11-054-01 **MSD**	Percent Recovery	**RPD**	**Flags**
Benzene	**47.5**	**95**	**46.8**	**94**	2	
Toluene	**50.1**	**100**	**49.8**	**100**	1	
Ethyl Benzene	**52.3**	**105**	**51.6**	**103**	1	
m,p-Xylene	**52.1**	**104**	**51.4**	**103**	1	
o-Xylene	**52.0**	**104**	**51.7**	**103**	1	

Surrogate Recovery:			
Fluorobenzene	100%		98%

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NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Date Prepared	Date Analyzed	Flags
Lab ID:	11-056-01				
Client ID:	**WB-GW-MW01-08**				
Diesel Range	**ND**	0.18	11-13-09	11-16-09	Y
Lube Oil Range	**ND**	0.29	11-13-09	11-16-09	Y
Surrogate: o-terphenyl	81%	50-150			
Lab ID:	11-056-02				
Client ID:	**WB-GW-MW01-28**				
Diesel Range	**ND**	0.17	11-13-09	11-16-09	Y
Lube Oil Range	**ND**	0.28	11-13-09	11-16-09	Y
Surrogate: o-terphenyl	80%	50-150			
Lab ID:	11-056-03				
Client ID:	**WB-GW-MW02-06**				
Diesel Range	**ND**	0.17	11-13-09	11-16-09	Y
Lube Oil Range	**ND**	0.27	11-13-09	11-16-09	Y
Surrogate: o-terphenyl	63%	50-150			
Lab ID:	11-056-04				
Client ID:	**WB-GW-MW03-09**				
Diesel Range	**ND**	0.18	11-13-09	11-16-09	Y
Lube Oil Range	**ND**	0.28	11-13-09	11-16-09	Y
Surrogate: o-terphenyl	83%	50-150			
Lab ID:	11-056-05				
Client ID:	**WB-GW-MW04-08**				
Diesel Range	**ND**	0.17	11-13-09	11-16-09	Y
Lube Oil Range	**ND**	0.28	11-13-09	11-16-09	Y
Surrogate: o-terphenyl	82%	50-150			

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NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Date Prepared	Date Analyzed	Flags
Lab ID:	11-056-06				
Client ID:	**WB-GW-MW06-06**				
Diesel Range	**ND**	0.18	11-13-09	11-16-09	Y
Lube Oil Range	**ND**	0.28	11-13-09	11-16-09	Y
Surrogate: o-terphenyl	74%	50-150			
Lab ID:	11-056-07				
Client ID:	**WB-GW-MW07-08**				
Diesel Range	**ND**	0.18	11-13-09	11-16-09	Y
Lube Oil Range	**ND**	0.29	11-13-09	11-16-09	Y
Surrogate: o-terphenyl	81%	50-150			

Date of Report: November 17, 2009
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Project: 235-1577-024 04/03

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	11-13-09
Date Analyzed:	11-16-09
Matrix:	Water
Units:	mg/L (ppm)
Lab ID:	MB1113W1
Diesel Range:	**ND**
PQL:	0.17
Identification:	---
Lube Oil Range:	**ND**
PQL:	0.27
Identification:	---
Surrogate Recovery	
o-Terphenyl:	82%
Flags:	Y

Date of Report: November 17, 2009
Samples Submitted: November 6, 2009
Laboratory Reference: 0911-056
Project: 235-1577-024 04/03

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted:	11-13-09
Date Analyzed:	11-16-09
Matrix:	Water
Units:	mg/L (ppm)

Lab ID:	11-056-01	11-056-01 DUP
Diesel Range:	**ND**	**ND**
PQL:	0.18	0.18
RPD:	N/A	
Surrogate Recovery		
o-Terphenyl:	81%	84%
Flags:	Y	Y

Date of Report: November 17, 2009
Samples Submitted: November 6, 2009
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Project: 235-1577-024 04/03

PAHs by EPA 8270D/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**WB-GW-MW01-08**					
Laboratory ID:	11-056-01					
Naphthalene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
2-Methylnaphthalene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
1-Methylnaphthalene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Acenaphthylene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Acenaphthene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Fluorene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Phenanthrene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Anthracene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Fluoranthene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Pyrene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[a]anthracene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Chrysene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[k]fluoranthene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[a]pyrene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[g,h,i]perylene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*75*	*35 - 100*				
Pyrene-d10	*71*	*27 - 108*				
Terphenyl-d14	*77*	*36 - 125*				

Date of Report: November 17, 2009
Samples Submitted: November 6, 2009
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Project: 235-1577-024 04/03

PAHs by EPA 8270D/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**WB-GW-MW01-28**					
Laboratory ID:	11-056-02					
Naphthalene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
2-Methylnaphthalene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
1-Methylnaphthalene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Acenaphthylene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Acenaphthene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Fluorene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Phenanthrene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Anthracene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Fluoranthene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Pyrene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[a]anthracene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Chrysene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[k]fluoranthene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[a]pyrene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[g,h,i]perylene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*76*	*35 - 100*				
Pyrene-d10	*73*	*27 - 108*				
Terphenyl-d14	*77*	*36 - 125*				

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PAHs by EPA 8270D/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**WB-GW-MW02-06**					
Laboratory ID:	11-056-03					
Naphthalene	**ND**	0.098	EPA 8270/SIM	11-10-09	11-13-09	
2-Methylnaphthalene	**ND**	0.098	EPA 8270/SIM	11-10-09	11-13-09	
1-Methylnaphthalene	**ND**	0.098	EPA 8270/SIM	11-10-09	11-13-09	
Acenaphthylene	**ND**	0.098	EPA 8270/SIM	11-10-09	11-13-09	
Acenaphthene	**ND**	0.098	EPA 8270/SIM	11-10-09	11-13-09	
Fluorene	**ND**	0.098	EPA 8270/SIM	11-10-09	11-13-09	
Phenanthrene	**ND**	0.098	EPA 8270/SIM	11-10-09	11-13-09	
Anthracene	**ND**	0.098	EPA 8270/SIM	11-10-09	11-13-09	
Fluoranthene	**ND**	0.098	EPA 8270/SIM	11-10-09	11-13-09	
Pyrene	**ND**	0.098	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[a]anthracene	**0.013**	0.0098	EPA 8270/SIM	11-10-09	11-13-09	
Chrysene	**ND**	0.0098	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[b]fluoranthene	**ND**	0.0098	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[k]fluoranthene	**ND**	0.0098	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[a]pyrene	**ND**	0.0098	EPA 8270/SIM	11-10-09	11-13-09	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0098	EPA 8270/SIM	11-10-09	11-13-09	
Dibenz[a,h]anthracene	**ND**	0.0098	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[g,h,i]perylene	**ND**	0.0098	EPA 8270/SIM	11-10-09	11-13-09	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*64*	*35 - 100*				
Pyrene-d10	*43*	*27 - 108*				
Terphenyl-d14	*51*	*36 - 125*				

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PAHs by EPA 8270D/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**WB-GW-MW03-09**					
Laboratory ID:	11-056-04					
Naphthalene	**ND**	0.099	EPA 8270/SIM	11-10-09	11-13-09	
2-Methylnaphthalene	**ND**	0.099	EPA 8270/SIM	11-10-09	11-13-09	
1-Methylnaphthalene	**ND**	0.099	EPA 8270/SIM	11-10-09	11-13-09	
Acenaphthylene	**ND**	0.099	EPA 8270/SIM	11-10-09	11-13-09	
Acenaphthene	**ND**	0.099	EPA 8270/SIM	11-10-09	11-13-09	
Fluorene	**ND**	0.099	EPA 8270/SIM	11-10-09	11-13-09	
Phenanthrene	**ND**	0.099	EPA 8270/SIM	11-10-09	11-13-09	
Anthracene	**ND**	0.099	EPA 8270/SIM	11-10-09	11-13-09	
Fluoranthene	**ND**	0.099	EPA 8270/SIM	11-10-09	11-13-09	
Pyrene	**ND**	0.099	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[a]anthracene	**ND**	0.0099	EPA 8270/SIM	11-10-09	11-13-09	
Chrysene	**ND**	0.0099	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[b]fluoranthene	**ND**	0.0099	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[k]fluoranthene	**ND**	0.0099	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[a]pyrene	**ND**	0.0099	EPA 8270/SIM	11-10-09	11-13-09	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0099	EPA 8270/SIM	11-10-09	11-13-09	
Dibenz[a,h]anthracene	**ND**	0.0099	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[g,h,i]perylene	**ND**	0.0099	EPA 8270/SIM	11-10-09	11-13-09	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*53*	*35 - 100*				
Pyrene-d10	*57*	*27 - 108*				
Terphenyl-d14	*70*	*36 - 125*				

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PAHs by EPA 8270D/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**WB-GW-MW04-08**					
Laboratory ID:	11-056-05					
Naphthalene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
2-Methylnaphthalene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
1-Methylnaphthalene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Acenaphthylene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Acenaphthene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Fluorene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Phenanthrene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Anthracene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Fluoranthene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Pyrene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[a]anthracene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Chrysene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[k]fluoranthene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[a]pyrene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[g,h,i]perylene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*62*	*35 - 100*				
Pyrene-d10	*63*	*27 - 108*				
Terphenyl-d14	*69*	*36 - 125*				

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PAHs by EPA 8270D/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**WB-GW-MW06-06**					
Laboratory ID:	11-056-06					
Naphthalene	**ND**	0.11	EPA 8270/SIM	11-10-09	11-13-09	
2-Methylnaphthalene	**ND**	0.11	EPA 8270/SIM	11-10-09	11-13-09	
1-Methylnaphthalene	**ND**	0.11	EPA 8270/SIM	11-10-09	11-13-09	
Acenaphthylene	**ND**	0.11	EPA 8270/SIM	11-10-09	11-13-09	
Acenaphthene	**ND**	0.11	EPA 8270/SIM	11-10-09	11-13-09	
Fluorene	**ND**	0.11	EPA 8270/SIM	11-10-09	11-13-09	
Phenanthrene	**ND**	0.11	EPA 8270/SIM	11-10-09	11-13-09	
Anthracene	**ND**	0.11	EPA 8270/SIM	11-10-09	11-13-09	
Fluoranthene	**ND**	0.11	EPA 8270/SIM	11-10-09	11-13-09	
Pyrene	**ND**	0.11	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[a]anthracene	**ND**	0.011	EPA 8270/SIM	11-10-09	11-13-09	
Chrysene	**ND**	0.011	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[b]fluoranthene	**ND**	0.011	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[k]fluoranthene	**ND**	0.011	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[a]pyrene	**ND**	0.011	EPA 8270/SIM	11-10-09	11-13-09	
Indeno(1,2,3-c,d)pyrene	**ND**	0.011	EPA 8270/SIM	11-10-09	11-13-09	
Dibenz[a,h]anthracene	**ND**	0.011	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[g,h,i]perylene	**ND**	0.011	EPA 8270/SIM	11-10-09	11-13-09	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*69*	*35 - 100*				
Pyrene-d10	*65*	*27 - 108*				
Terphenyl-d14	*70*	*36 - 125*				

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PAHs by EPA 8270D/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**WB-GW-MW07-08**					
Laboratory ID:	11-056-07					
Naphthalene	**ND**	0.099	EPA 8270/SIM	11-10-09	11-13-09	
2-Methylnaphthalene	**ND**	0.099	EPA 8270/SIM	11-10-09	11-13-09	
1-Methylnaphthalene	**ND**	0.099	EPA 8270/SIM	11-10-09	11-13-09	
Acenaphthylene	**ND**	0.099	EPA 8270/SIM	11-10-09	11-13-09	
Acenaphthene	**0.12**	0.099	EPA 8270/SIM	11-10-09	11-13-09	
Fluorene	**ND**	0.099	EPA 8270/SIM	11-10-09	11-13-09	
Phenanthrene	**ND**	0.099	EPA 8270/SIM	11-10-09	11-13-09	
Anthracene	**ND**	0.099	EPA 8270/SIM	11-10-09	11-13-09	
Fluoranthene	**ND**	0.099	EPA 8270/SIM	11-10-09	11-13-09	
Pyrene	**ND**	0.099	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[a]anthracene	**ND**	0.0099	EPA 8270/SIM	11-10-09	11-13-09	
Chrysene	**ND**	0.0099	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[b]fluoranthene	**ND**	0.0099	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[k]fluoranthene	**ND**	0.0099	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[a]pyrene	**ND**	0.0099	EPA 8270/SIM	11-10-09	11-13-09	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0099	EPA 8270/SIM	11-10-09	11-13-09	
Dibenz[a,h]anthracene	**ND**	0.0099	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[g,h,i]perylene	**ND**	0.0099	EPA 8270/SIM	11-10-09	11-13-09	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*68*	*35 - 100*				
Pyrene-d10	*62*	*27 - 108*				
Terphenyl-d14	*69*	*36 - 125*				

Date of Report: November 17, 2009
Samples Submitted: November 6, 2009
Laboratory Reference: 0911-056
Project: 235-1577-024 04/03

PAHs by EPA 8270D/SIM
METHOD BLANK QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB1110W2					
Naphthalene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
2-Methylnaphthalene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
1-Methylnaphthalene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Acenaphthylene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Acenaphthene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Fluorene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Phenanthrene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Anthracene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Fluoranthene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Pyrene	**ND**	0.10	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[a]anthracene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Chrysene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[k]fluoranthene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[a]pyrene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Benzo[g,h,i]perylene	**ND**	0.010	EPA 8270/SIM	11-10-09	11-13-09	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*76*	*35 - 100*				
Pyrene-d10	*69*	*27 - 108*				
Terphenyl-d14	*76*	*36 - 125*				

Date of Report: November 17, 2009
Samples Submitted: November 6, 2009
Laboratory Reference: 0911-056
Project: 235-1577-024 04/03

PAHs by EPA 8270D/SIM
SB/SBD QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1110W2									
	SB	SBD	SB	SBD	SB	SBD				
Naphthalene	**0.342**	**0.321**	0.500	0.500	68	64	35 - 111	6	30	
Acenaphthylene	**0.337**	**0.288**	0.500	0.500	67	58	30 - 109	16	30	
Acenaphthene	**0.356**	**0.341**	0.500	0.500	71	68	46 - 101	4	29	
Fluorene	**0.363**	**0.334**	0.500	0.500	73	67	50 - 104	8	25	
Phenanthrene	**0.351**	**0.326**	0.500	0.500	70	65	55 - 97	7	23	
Anthracene	**0.371**	**0.344**	0.500	0.500	74	69	49 - 101	8	32	
Fluoranthene	**0.350**	**0.324**	0.500	0.500	70	65	59 - 102	8	23	
Pyrene	**0.341**	**0.335**	0.500	0.500	68	67	62 - 104	2	22	
Benzo[a]anthracene	**0.366**	**0.340**	0.500	0.500	73	68	57 - 100	7	25	
Chrysene	**0.369**	**0.346**	0.500	0.500	74	69	58 - 103	6	25	
Benzo[b]fluoranthene	**0.374**	**0.350**	0.500	0.500	75	70	61 - 100	7	27	
Benzo[k]fluoranthene	**0.375**	**0.344**	0.500	0.500	75	69	53 - 103	9	30	
Benzo[a]pyrene	**0.353**	**0.324**	0.500	0.500	71	65	35 - 107	9	32	
Indeno(1,2,3-c,d)pyrene	**0.316**	**0.289**	0.500	0.500	63	58	47 - 105	9	34	
Dibenz[a,h]anthracene	**0.302**	**0.283**	0.500	0.500	60	57	39 - 108	6	33	
Benzo[g,h,i]perylene	**0.319**	**0.291**	0.500	0.500	64	58	41 - 104	9	40	
Surrogate:										
2-Fluorobiphenyl					*70*	*68*	*35 - 100*			
Pyrene-d10					*67*	*64*	*27 - 108*			
Terphenyl-d14					*72*	*70*	*36 - 125*			

Date of Report: November 17, 2009
Samples Submitted: November 6, 2009
Laboratory Reference: 0911-056
Project: 235-1577-024 04/03

TOTAL LEAD
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	11-056-01					
Client ID:	**WB-GW-MW01-08**					
Lead	**ND**	1.1	200.8	11-17-09	11-17-09	
Lab ID:	11-056-02					
Client ID:	**WB-GW-MW01-28**					
Lead	**ND**	1.1	200.8	11-17-09	11-17-09	
Lab ID:	11-056-03					
Client ID:	**WB-GW-MW02-06**					
Lead	**ND**	1.1	200.8	11-17-09	11-17-09	
Lab ID:	11-056-04					
Client ID:	**WB-GW-MW03-09**					
Lead	**1.6**	1.1	200.8	11-17-09	11-17-09	
Lab ID:	11-056-05					
Client ID:	**WB-GW-MW04-08**					
Lead	**1.3**	1.1	200.8	11-17-09	11-17-09	
Lab ID:	11-056-06					
Client ID:	**WB-GW-MW06-06**					
Lead	**2.4**	1.1	200.8	11-17-09	11-17-09	
Lab ID:	11-056-07					
Client ID:	**WB-GW-MW07-08**					
Lead	**1.2**	1.1	200.8	11-17-09	11-17-09	

Date of Report: November 17, 2009
Samples Submitted: November 6, 2009
Laboratory Reference: 0911-056
Project: 235-1577-024 04/03

TOTAL LEAD
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Extracted:	11-17-09
Date Analyzed:	11-17-09
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	MB1117W2

Analyte	Method	Result	PQL
Lead	200.8	**ND**	1.1

Date of Report: November 17, 2009
Samples Submitted: November 6, 2009
Laboratory Reference: 0911-056
Project: 235-1577-024 04/03

TOTAL LEAD
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Extracted: 11-17-09
Date Analyzed: 11-17-09

Matrix: Water
Units: ug/L (ppb)

Lab ID: 11-056-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Lead	**ND**	**ND**	NA	1.1	

Date of Report: November 17, 2009
Samples Submitted: November 6, 2009
Laboratory Reference: 0911-056
Project: 235-1577-024 04/03

TOTAL LEAD
EPA 200.8
MS/MSD QUALITY CONTROL

Date Extracted: 11-17-09
Date Analyzed: 11-17-09

Matrix: Water
Units: ug/L (ppb)

Lab ID: 11-056-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Lead	110	**109**	99	**113**	103	4	

Date of Report: November 17, 2009
Samples Submitted: November 6, 2009
Laboratory Reference: 0911-056
Project: 235-1577-024 04/03

NITRATE (as Nitrogen)
EPA 353.2

Date Analyzed: 11-9-09

Matrix: Water
Units: mg /L

Client ID	Lab ID	Result	PQL
WB-GW-MW01-08	11-056-01	**ND**	0.050
WB-GW-MW01-28	11-056-02	**ND**	0.050
WB-GW-MW02-06	11-056-03	**ND**	0.050
WB-GW-MW03-09	11-056-04	**0.10**	0.050
WB-GW-MW04-08	11-056-05	**0.22**	0.050
WB-GW-MW06-06	11-056-06	**1.2**	0.050
WB-GW-MW07-08	11-056-07	**0.14**	0.050

Date of Report: November 17, 2009
Samples Submitted: November 6, 2009
Laboratory Reference: 0911-056
Project: 235-1577-024 04/03

NITRATE (as Nitrogen)
EPA 353.2
QUALITY CONTROL

Date Analyzed: 11-9-09

Matrix: Water
Units: mg /L

METHOD BLANK QUALITY CONTROL

Lab ID	Result	PQL
MB1109W1	ND	0.050

SPIKE BLANK QUALITY CONTROL

Lab ID	Result	Spiked Amount	Percent Recovery	Control Limit	Flag
SB1109W1	2.08	2.00	104	82-119	

MATRIX SPIKE QUALITY CONTROL

Lab ID	Result	Spiked Amount	Percent Recovery	Control Limit	Flag
11-056-01	ND				
Matrix Spike	2.00	2.00	100	81-121	

DUPLICATE QUALITY CONTROL

Lab ID	Result	Duplicate Result	RPD	Control Limit	Flag
11-056-01	ND	ND	NA	12	

Date of Report: November 17, 2009
Samples Submitted: November 6, 2009
Laboratory Reference: 0911-056
Project: 235-1577-024 04/03

NITRITE (as Nitrogen)
EPA 353.2

Date Analyzed: 11-9-09

Matrix: Water
Units: mg /L

Client ID	Lab ID	**Result**	PQL
WB-GW-MW01-08	11-056-01	**ND**	0.050
WB-GW-MW01-28	11-056-02	**ND**	0.050
WB-GW-MW02-06	11-056-03	**ND**	0.050
WB-GW-MW03-09	11-056-04	**ND**	0.050
WB-GW-MW04-08	11-056-05	**ND**	0.050
WB-GW-MW06-06	11-056-06	**ND**	0.050
WB-GW-MW07-08	11-056-07	**ND**	0.050

Date of Report: November 17, 2009
Samples Submitted: November 6, 2009
Laboratory Reference: 0911-056
Project: 235-1577-024 04/03

NITRITE (as Nitrogen)
EPA 353.2
QUALITY CONTROL

Date Analyzed: 11-9-09

Matrix: Water
Units: mg /L

METHOD BLANK QUALITY CONTROL

Lab ID	Result	PQL
MB1109W1	ND	0.050

SPIKE BLANK QUALITY CONTROL

Lab ID	Result	Spiked Amount	Percent Recovery	Control Limit	Flag
SB1109W1	0.247	0.250	99	85-127	

MATRIX SPIKE QUALITY CONTROL

Lab ID	Result	Spiked Amount	Percent Recovery	Control Limit	Flag
11-056-01	ND				
Matrix Spike	0.256	0.250	102	82-129	

DUPLICATE QUALITY CONTROL

Lab ID	Result	Duplicate Result	RPD	Control Limit	Flag
11-056-01	ND	ND	NA	13	

Date of Report: November 17, 2009
Samples Submitted: November 6, 2009
Laboratory Reference: 0911-056
Project: 235-1577-024 04/03

ALKALINITY
EPA 310.2

Date Analyzed: 11-10-09

Matrix: Water
Units: mg CaCO3/L

Client ID	Lab ID	Result	PQL
WB-GW-MW01-08	11-056-01	**71**	20
WB-GW-MW01-28	11-056-02	**72**	20
WB-GW-MW02-06	11-056-03	**170**	20
WB-GW-MW03-09	11-056-04	**350**	40
WB-GW-MW04-08	11-056-05	**300**	40
WB-GW-MW06-06	11-056-06	**170**	40
WB-GW-MW07-08	11-056-07	**190**	20

Date of Report: November 17, 2009
Samples Submitted: November 6, 2009
Laboratory Reference: 0911-056
Project: 235-1577-024 04/03

ALKALINITY
EPA 310.2
QUALITY CONTROL

Date Analyzed: 11-10-09

Matrix: Water
Units: mg CaCO3/L

METHOD BLANK QUALITY CONTROL

Lab ID	Result	PQL
MB1110W1	ND	20

SPIKE BLANK QUALITY CONTROL

Lab ID	Result	Spiked Amount	Percent Recovery	Control Limit	Flag
SB1110W1	92.7	100	93	73-117	

MATRIX SPIKE QUALITY CONTROL

Lab ID	Result	Spiked Amount	Percent Recovery	Control Limit	Flag
11-056-01	71.2				
Matrix Spike	181	100	110	75-125	

DUPLICATE QUALITY CONTROL

Lab ID	Result	Duplicate Result	RPD	Control Limit	Flag
11-056-01	71.2	73.3	3	18	

Date of Report: November 17, 2009
Samples Submitted: November 6, 2009
Laboratory Reference: 0911-056
Project: 235-1577-024 04/03

CHLORIDE
SM 4500-Cl E

Date Analyzed: 11-10-09

Matrix: Water
Units: mg /L

Client ID	Lab ID	Result	PQL
WB-GW-MW01-08	11-056-01	**ND**	2.0
WB-GW-MW01-28	11-056-02	**ND**	2.0
WB-GW-MW02-06	11-056-03	**4.5**	2.0
WB-GW-MW03-09	11-056-04	**4300**	100
WB-GW-MW04-08	11-056-05	**5400**	200
WB-GW-MW06-06	11-056-06	**5.4**	2.0
WB-GW-MW07-08	11-056-07	**54**	2.0

Date of Report: November 17, 2009
Samples Submitted: November 6, 2009
Laboratory Reference: 0911-056
Project: 235-1577-024 04/03

CHLORIDE
SM 4500-Cl E
QUALITY CONTROL

Date Analyzed: 11-10-09

Matrix: Water
Units: mg /L

METHOD BLANK QUALITY CONTROL

Lab ID	Result	PQL
MB1110W1	ND	2.0

SPIKE BLANK QUALITY CONTROL

Lab ID	Result	Spiked Amount	Percent Recovery	Control Limit	Flag
SB1110W1	54.7	50.0	109	91-127	

MATRIX SPIKE QUALITY CONTROL

Lab ID	Result	Spiked Amount	Percent Recovery	Control Limit	Flag
11-056-01	ND				
Matrix Spike	57.4	50.0	115	91-125	

DUPLICATE QUALITY CONTROL

Lab ID	Result	Duplicate Result	RPD	Control Limit	Flag
11-056-01	ND	2.13	NA	15	

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

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

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

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

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

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

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

I - Compound recovery is outside of the control limits.

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

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

L - The RPD is outside of the control limits.

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

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

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

N1 - Hydrocarbons in the diesel range are impacting the lube oil range result.

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

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

Q - Surrogate recovery is outside of the control limits.

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

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

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

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

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

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

X - Sample extract treated with a mercury cleanup procedure.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

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

Chain of Custody

OnSite Environmental Inc.
Phone: (425) 883-3881 • Fax: (425) 885-4603

Company: Parametrix
Project Number: 235-1577-024 04/03
Project Name: West Bay Park
Project Manager: David Dinkuhn
Sampled by: Lily Vagelatos

Turnaround Request (in working days)

(Check One)

- ☐ Same Day ☐ 1 Day
- ☐ 2 Day ☐ 3 Day
- ☒ Standard (7 working days) (TPH analysis 5 working days)
- ☐ _____ (other)

Laboratory Number: 11-056

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont	NWTPH-HCID	NWTPH-Gx (BTEX only)	NWTPH-Dx (ⓔ)	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	Total Pb	Nitrate	Nitrite	Alkalinity	Chloride		% Moisture
1	WB-GW-MW01-08	11/5/09	1545	H_2O	7		X	X				X							X	X	X	X	X		
2	WB-GW-MW01-28	11/5/09	1550	H_2O																					
3	WB-GW-MW02-06	11/5/09	1410	↓																					
4	WB-GW-MW03-09		1215																						
5	WB-GW-MW04-08		1315																						
6	WB-GW-MW06-06		1025																						
7	WB-GW-MW07-08	↓	1120	↓	↓		↓	↓				↓							↓	↓	↓	↓	↓		
8	TRIP BLANK	11/6/09	1300	↓	2		X																		

	Signature	Company	Date	Time
Relinquished by	Lily Vagelatos	Parametrix	11/6/09	1300
Received by			11/6/09	1630
Relinquished by				
Received by				
Relinquished by				
Received by				
Reviewed by/Date		Reviewed by/Date		

Comments/Special Instructions:

① PLEASE REPORT PQLs SO THAT DIESEL & LUBE OIL REPORTING LIMITS ADD UP TO ≤ 0.5 mg/l
EIM EDDS

Chromatograms with final report ☐

DISTRIBUTION LEGEND: White - OnSite Copy, Yellow - Report Copy, Pink - Client Copy

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

December 3, 2009

David Dinkuhn
Parametrix, Inc.
4660 Kitsap Way, Suite A
Bremerton, WA 98312

Re: Analytical Data for Project 235-1577-024 04/03
Laboratory Reference No. 0911-155

Dear David:

Enclosed are the analytical results and associated quality control data for samples submitted on November 20, 2009.

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

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

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: December 3, 2009
Samples Submitted: November 20, 2009
Laboratory Reference: 0911-155
Project: 235-1577-024 04/03

Case Narrative

Samples were collected on November 18, 2009, and received by the laboratory on November 20, 2009. They were maintained at the laboratory at a temperature of 2°C to 6°C except as noted below.

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

Date of Report: December 3, 2009
Samples Submitted: November 20, 2009
Lab Traveler: 0911-155
Project: 235-1577-024 04/03

BTEX
EPA 8021B

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Date Prepared	Date Analyzed	Flags
Lab ID:	11-155-01				
Client ID:	**WB-GW-MW5-0070**				
Benzene	**ND**	1.0	11-20-09	11-20-09	
Toluene	**ND**	1.0	11-20-09	11-20-09	
Ethyl Benzene	**ND**	1.0	11-20-09	11-20-09	
m,p-Xylene	**ND**	1.0	11-20-09	11-20-09	
o-Xylene	**ND**	1.0	11-20-09	11-20-09	
Surrogate: Fluorobenzene	99%	74-121			
Lab ID:	11-155-02				
Client ID:	**TRIP BLANK**				
Benzene	**ND**	1.0	11-20-09	11-20-09	
Toluene	**ND**	1.0	11-20-09	11-20-09	
Ethyl Benzene	**2.6**	1.0	11-20-09	11-20-09	
m,p-Xylene	**10**	1.0	11-20-09	11-20-09	
o-Xylene	**2.3**	1.0	11-20-09	11-20-09	
Surrogate: Fluorobenzene	101%	74-121			

Date of Report: December 3, 2009
Samples Submitted: November 20, 2009
Lab Traveler: 0911-155
Project: 235-1577-024 04/03

BTEX
EPA 8021B
METHOD BLANK QUALITY CONTROL

Date Extracted: 11-20-09
Date Analyzed: 11-20-09

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB1120W1

	Result	Flags	PQL
Benzene	**ND**		1.0
Toluene	**ND**		1.0
Ethyl Benzene	**ND**		1.0
m,p-Xylene	**ND**		1.0
o-Xylene	**ND**		1.0

Surrogate Recovery:
Fluorobenzene 107%

Date of Report: December 3, 2009
Samples Submitted: November 20, 2009
Lab Traveler: 0911-155
Project: 235-1577-024 04/03

BTEX
EPA 8021B
DUPLICATE QUALITY CONTROL

Date Extracted: 11-20-09
Date Analyzed: 11-20-09

Matrix: Water
Units: ug/L (ppb)

Lab ID:	11-150-01 **Original**	11-150-01 **Duplicate**	**RPD**	**Flags**
Benzene	**ND**	**ND**	NA	
Toluene	**ND**	**ND**	NA	
Ethyl Benzene	**ND**	**ND**	NA	
m,p-Xylene	**ND**	**ND**	NA	
o-Xylene	**ND**	**ND**	NA	
Surrogate Recovery:				
Fluorobenzene	109%	103%		

Date of Report: December 3, 2009
Samples Submitted: November 20, 2009
Lab Traveler: 0911-155
Project: 235-1577-024 04/03

BTEX
EPA 8021B
MS/MSD QUALITY CONTROL

Date Extracted: 11-20-09
Date Analyzed: 11-20-09

Matrix: Water
Units: ug/L (ppb)

Spike Level: 50.0 ppb

Lab ID:	11-150-01 **MS**	Percent Recovery	11-150-01 **MSD**	Percent Recovery	**RPD**	**Flags**
Benzene	**54.2**	**108**	**53.9**	**108**	1	
Toluene	**54.0**	**108**	**53.6**	**107**	1	
Ethyl Benzene	**53.8**	**108**	**53.3**	**107**	1	
m,p-Xylene	**54.3**	**109**	**53.8**	**108**	1	
o-Xylene	**53.5**	**107**	**53.1**	**106**	1	

Surrogate Recovery:			
Fluorobenzene	104%		107%

Date of Report: December 3, 2009
Samples Submitted: November 20, 2009
Laboratory Reference: 0911-155
Project: 235-1577-024 04/03

NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Date Prepared	Date Analyzed	Flags
Lab ID:	11-155-01				
Client ID:	**WB-GW-MW5-0070**				
Diesel Range	**ND**	0.18	11-24-09	11-24-09	Y
Lube Oil Range	**ND**	0.29	11-24-09	11-24-09	Y
Surrogate: o-terphenyl	71%	50-150			

Date of Report: December 3, 2009
Samples Submitted: November 20, 2009
Laboratory Reference: 0911-155
Project: 235-1577-024 04/03

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	11-24-09
Date Analyzed:	11-24-09
Matrix:	Water
Units:	mg/L (ppm)
Lab ID:	MB1124W1
Diesel Range:	**ND**
PQL:	0.17
Identification:	---
Lube Oil Range:	**ND**
PQL:	0.27
Identification:	---
Surrogate Recovery	
o-Terphenyl:	86%
Flags:	Y

Date of Report: December 3, 2009
Samples Submitted: November 20, 2009
Laboratory Reference: 0911-155
Project: 235-1577-024 04/03

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted:	11-24-09	
Date Analyzed:	11-24-09	
Matrix:	Water	
Units:	mg/L (ppm)	
Lab ID:	11-160-01	11-160-01 DUP
Diesel Range:	**ND**	**ND**
PQL:	0.25	0.25
RPD:	N/A	
Surrogate Recovery		
o-Terphenyl:	75%	80%
Flags:	Y	Y

Date of Report: December 3, 2009
Samples Submitted: November 20, 2009
Laboratory Reference: 0911-155
Project: 235-1577-024 04/03

PAHs by EPA 8270D/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**WB-GW-MW5-0070**					
Laboratory ID:	11-155-01					
Naphthalene	**ND**	0.097	EPA 8270/SIM	11-23-09	11-23-09	
2-Methylnaphthalene	**ND**	0.097	EPA 8270/SIM	11-23-09	11-23-09	
1-Methylnaphthalene	**ND**	0.097	EPA 8270/SIM	11-23-09	11-23-09	
Acenaphthylene	**ND**	0.097	EPA 8270/SIM	11-23-09	11-23-09	
Acenaphthene	**ND**	0.097	EPA 8270/SIM	11-23-09	11-23-09	
Fluorene	**ND**	0.097	EPA 8270/SIM	11-23-09	11-23-09	
Phenanthrene	**ND**	0.097	EPA 8270/SIM	11-23-09	11-23-09	
Anthracene	**ND**	0.097	EPA 8270/SIM	11-23-09	11-23-09	
Fluoranthene	**ND**	0.097	EPA 8270/SIM	11-23-09	11-23-09	
Pyrene	**ND**	0.097	EPA 8270/SIM	11-23-09	11-23-09	
Benzo[a]anthracene	**ND**	0.0097	EPA 8270/SIM	11-23-09	11-23-09	
Chrysene	**ND**	0.0097	EPA 8270/SIM	11-23-09	11-23-09	
Benzo[b]fluoranthene	**ND**	0.0097	EPA 8270/SIM	11-23-09	11-23-09	
Benzo[k]fluoranthene	**ND**	0.0097	EPA 8270/SIM	11-23-09	11-23-09	
Benzo[a]pyrene	**ND**	0.0097	EPA 8270/SIM	11-23-09	11-23-09	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0097	EPA 8270/SIM	11-23-09	11-23-09	
Dibenz[a,h]anthracene	**ND**	0.0097	EPA 8270/SIM	11-23-09	11-23-09	
Benzo[g,h,i]perylene	**ND**	0.0097	EPA 8270/SIM	11-23-09	11-23-09	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*65*	*35 - 100*				
Pyrene-d10	*74*	*27 - 108*				
Terphenyl-d14	*82*	*36 - 125*				

Date of Report: December 3, 2009
Samples Submitted: November 20, 2009
Laboratory Reference: 0911-155
Project: 235-1577-024 04/03

PAHs by EPA 8270D/SIM
METHOD BLANK QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB1123W1					
Naphthalene	**ND**	0.10	EPA 8270/SIM	11-23-09	11-23-09	
2-Methylnaphthalene	**ND**	0.10	EPA 8270/SIM	11-23-09	11-23-09	
1-Methylnaphthalene	**ND**	0.10	EPA 8270/SIM	11-23-09	11-23-09	
Acenaphthylene	**ND**	0.10	EPA 8270/SIM	11-23-09	11-23-09	
Acenaphthene	**ND**	0.10	EPA 8270/SIM	11-23-09	11-23-09	
Fluorene	**ND**	0.10	EPA 8270/SIM	11-23-09	11-23-09	
Phenanthrene	**ND**	0.10	EPA 8270/SIM	11-23-09	11-23-09	
Anthracene	**ND**	0.10	EPA 8270/SIM	11-23-09	11-23-09	
Fluoranthene	**ND**	0.10	EPA 8270/SIM	11-23-09	11-23-09	
Pyrene	**ND**	0.10	EPA 8270/SIM	11-23-09	11-23-09	
Benzo[a]anthracene	**ND**	0.010	EPA 8270/SIM	11-23-09	11-23-09	
Chrysene	**ND**	0.010	EPA 8270/SIM	11-23-09	11-23-09	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270/SIM	11-23-09	11-23-09	
Benzo[k]fluoranthene	**ND**	0.010	EPA 8270/SIM	11-23-09	11-23-09	
Benzo[a]pyrene	**ND**	0.010	EPA 8270/SIM	11-23-09	11-23-09	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270/SIM	11-23-09	11-23-09	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270/SIM	11-23-09	11-23-09	
Benzo[g,h,i]perylene	**ND**	0.010	EPA 8270/SIM	11-23-09	11-23-09	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*65*	*35 - 100*				
Pyrene-d10	*72*	*27 - 108*				
Terphenyl-d14	*70*	*36 - 125*				

Date of Report: December 3, 2009
Samples Submitted: November 20, 2009
Laboratory Reference: 0911-155
Project: 235-1577-024 04/03

PAHs by EPA 8270D/SIM
SB/SBD QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1123W1									
	SB	SBD	SB	SBD	SB	SBD				
Naphthalene	**0.339**	**0.371**	0.500	0.500	68	74	35 - 111	9	30	
Acenaphthylene	**0.323**	**0.373**	0.500	0.500	65	75	30 - 109	14	30	
Acenaphthene	**0.371**	**0.388**	0.500	0.500	74	78	46 - 101	4	29	
Fluorene	**0.387**	**0.413**	0.500	0.500	77	83	50 - 104	7	25	
Phenanthrene	**0.391**	**0.410**	0.500	0.500	78	82	55 - 97	5	23	
Anthracene	**0.402**	**0.435**	0.500	0.500	80	87	49 - 101	8	32	
Fluoranthene	**0.405**	**0.423**	0.500	0.500	81	85	59 - 102	4	23	
Pyrene	**0.418**	**0.431**	0.500	0.500	84	86	62 - 104	3	22	
Benzo[a]anthracene	**0.402**	**0.421**	0.500	0.500	80	84	57 - 100	5	25	
Chrysene	**0.426**	**0.438**	0.500	0.500	85	88	58 - 103	3	25	
Benzo[b]fluoranthene	**0.429**	**0.434**	0.500	0.500	86	87	61 - 100	1	27	
Benzo[k]fluoranthene	**0.415**	**0.442**	0.500	0.500	83	88	53 - 103	6	30	
Benzo[a]pyrene	**0.402**	**0.417**	0.500	0.500	80	83	35 - 107	4	32	
Indeno(1,2,3-c,d)pyrene	**0.350**	**0.366**	0.500	0.500	70	73	47 - 105	4	34	
Dibenz[a,h]anthracene	**0.349**	**0.365**	0.500	0.500	70	73	39 - 108	4	33	
Benzo[g,h,i]perylene	**0.338**	**0.375**	0.500	0.500	68	75	41 - 104	10	40	
Surrogate:										
2-Fluorobiphenyl					*68*	*74*	*35 - 100*			
Pyrene-d10					*78*	*82*	*27 - 108*			
Terphenyl-d14					*79*	*83*	*36 - 125*			

Date of Report: December 3, 2009
Samples Submitted: November 20, 2009
Laboratory Reference: 0911-155
Project: 235-1577-024 04/03

TOTAL LEAD
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	11-155-01					
Client ID:	**WB-GW-MW5-0070**					
Lead	**ND**	1.1	200.8	11-23-09	11-24-09	

Date of Report: December 3, 2009
Samples Submitted: November 20, 2009
Laboratory Reference: 0911-155
Project: 235-1577-024 04/03

TOTAL LEAD
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Extracted:	11-23-09
Date Analyzed:	11-24-09
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	MB1123W3

Analyte	Method	Result	PQL
Lead	200.8	**ND**	1.1

Date of Report: December 3, 2009
Samples Submitted: November 20, 2009
Laboratory Reference: 0911-155
Project: 235-1577-024 04/03

TOTAL LEAD
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Extracted: 11-23-09
Date Analyzed: 11-24-09

Matrix: Water
Units: ug/L (ppb)

Lab ID: 11-153-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Lead	**2.45**	**2.63**	7	1.1	

Date of Report: December 3, 2009
Samples Submitted: November 20, 2009
Laboratory Reference: 0911-155
Project: 235-1577-024 04/03

TOTAL LEAD
EPA 200.8
MS/MSD QUALITY CONTROL

Date Extracted: 11-23-09
Date Analyzed: 11-24-09

Matrix: Water
Units: ug/L (ppb)

Lab ID: 11-153-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Lead	110	**105**	93	**107**	95	2	

Date of Report: December 3, 2009
Samples Submitted: November 20, 2009
Laboratory Reference: 0911-155
Project: 235-1577-024 04/03

NITRATE (as Nitrogen)
EPA 353.2

Date Analyzed: 11-20-09

Matrix: Water
Units: mg /L

Client ID	Lab ID	**Result**	PQL
WB-GW-MW5-0070	11-155-01	**ND**	0.050

Date of Report: December 3, 2009
Samples Submitted: November 20, 2009
Laboratory Reference: 0911-155
Project: 235-1577-024 04/03

NITRATE (as Nitrogen)
EPA 353.2
QUALITY CONTROL

Date Analyzed: 11-20-09

Matrix: Water
Units: mg /L

METHOD BLANK QUALITY CONTROL

Lab ID	Result	PQL
MB1120W1	ND	0.050

SPIKE BLANK QUALITY CONTROL

Lab ID	Result	Spiked Amount	Percent Recovery	Control Limit	Flag
SB1120W1	2.03	2.00	102	82-119	

MATRIX SPIKE QUALITY CONTROL

Lab ID	Result	Spiked Amount	Percent Recovery	Control Limit	Flag
11-155-01	ND				
Matrix Spike	2.17	2.00	109	81-121	

DUPLICATE QUALITY CONTROL

Lab ID	Result	Duplicate Result	RPD	Control Limit	Flag
11-155-01	ND	ND	NA	12	

Date of Report: December 3, 2009
Samples Submitted: November 20, 2009
Laboratory Reference: 0911-155
Project: 235-1577-024 04/03

NITRITE (as Nitrogen)
EPA 353.2

Date Analyzed: 11-20-09

Matrix: Water
Units: mg /L

Client ID	Lab ID	**Result**	PQL
WB-GW-MW5-0070	11-155-01	**ND**	0.050

Date of Report: December 3, 2009
Samples Submitted: November 20, 2009
Laboratory Reference: 0911-155
Project: 235-1577-024 04/03

NITRITE (as Nitrogen)
EPA 353.2
QUALITY CONTROL

Date Analyzed: 11-20-09

Matrix: Water
Units: mg /L

METHOD BLANK QUALITY CONTROL

Lab ID	Result	PQL
MB1120W1	ND	0.050

SPIKE BLANK QUALITY CONTROL

Lab ID	Result	Spiked Amount	Percent Recovery	Control Limit	Flag
SB1120W1	0.252	0.250	101	85-127	

MATRIX SPIKE QUALITY CONTROL

Lab ID	Result	Spiked Amount	Percent Recovery	Control Limit	Flag
11-155-01	ND				
Matrix Spike	0.233	0.250	93	82-129	

DUPLICATE QUALITY CONTROL

Lab ID	Result	Duplicate Result	RPD	Control Limit	Flag
11-155-01	ND	ND	NA	13	

Date of Report: December 3, 2009
Samples Submitted: November 20, 2009
Laboratory Reference: 0911-155
Project: 235-1577-024 04/03

ALKALINITY
EPA 310.2

Date Analyzed: 11-23-09

Matrix: Water
Units: mg CaCO3/L

Client ID	Lab ID	**Result**	PQL
WB-GW-MW5-0070	11-155-01	**260**	100

Date of Report: December 3, 2009
Samples Submitted: November 20, 2009
Laboratory Reference: 0911-155
Project: 235-1577-024 04/03

ALKALINITY
EPA 310.2
QUALITY CONTROL

Date Analyzed: 11-23-09

Matrix: Water
Units: mg CaCO3/L

METHOD BLANK QUALITY CONTROL

Lab ID	Result	PQL
MB1123W1	ND	20

SPIKE BLANK QUALITY CONTROL

Lab ID	Result	Spiked Amount	Percent Recovery	Control Limit	Flag
SB1123W1	94.0	100	94	73-117	

MATRIX SPIKE QUALITY CONTROL

Lab ID	Result	Spiked Amount	Percent Recovery	Control Limit	Flag
11-155-01	257				
Matrix Spike	777	500	104	75-125	

DUPLICATE QUALITY CONTROL

Lab ID	Result	Duplicate Result	RPD	Control Limit	Flag
11-155-01	257	252	2	18	

Date of Report: December 3, 2009
Samples Submitted: November 20, 2009
Laboratory Reference: 0911-155
Project: 235-1577-024 04/03

CHLORIDE
SM 4500-Cl E

Date Analyzed: 11-23-09

Matrix: Water
Units: mg /L

Client ID	Lab ID	**Result**	PQL
WB-GW-MW5-0070	11-155-01	**51**	2.0

Date of Report: December 3, 2009
Samples Submitted: November 20, 2009
Laboratory Reference: 0911-155
Project: 235-1577-024 04/03

CHLORIDE
SM 4500-Cl E
QUALITY CONTROL

Date Analyzed: 11-23-09

Matrix: Water
Units: mg /L

METHOD BLANK QUALITY CONTROL

Lab ID	Result	PQL
MB1123W1	ND	2.0

SPIKE BLANK QUALITY CONTROL

Lab ID	Result	Spiked Amount	Percent Recovery	Control Limit	Flag
SB1123W1	53.4	50.0	107	91-127	

MATRIX SPIKE QUALITY CONTROL

Lab ID	Result	Spiked Amount	Percent Recovery	Control Limit	Flag
11-155-01	51.5				
Matrix Spike	106	50.0	109	91-125	

DUPLICATE QUALITY CONTROL

Lab ID	Result	Duplicate Result	RPD	Control Limit	Flag
11-155-01	51.5	53.1	3	15	

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

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

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

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

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

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

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

I - Compound recovery is outside of the control limits.

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

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

L - The RPD is outside of the control limits.

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

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

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

N1 - Hydrocarbons in the diesel range are impacting the lube oil range result.

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

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

Q - Surrogate recovery is outside of the control limits.

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

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

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

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

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

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

X - Sample extract treated with a mercury cleanup procedure.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

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

Chain of Custody

Page 1 of 1

OnSite Environmental Inc.

Phone: (425) 883-3881 • Fax: (425) 885-4603

Company: Parametrix

Project Number: 235-1577-024 04/03

Project Name: West Bay Park

Project Manager: David DinKuhn

Sampled by:

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Day
- ☐ 3 Day
- ☒ Standard (7 working days) (TPH analysis 5 working days)
- ☐ _____ (other)

Laboratory Number: 11-155

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx (BTEX only)	NWTPH-Dx (1)	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D	PAHs by 8270D / (SIM)	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	Total Pb	Nitrate / Nitrite	Alkalinity	Chloride			% Moisture
1	WB-GW-MW5-0070	11/18/09	1340	H_2O	7		X	X				X							X	X	X	X			
2	TRIP BLANK	11/18/09	1000	↓	2		X																		

	Signature	Company	Date	Time
Relinquished by	Lily Vagelatos	Parametrix	11/19/09	1500
Received by			11/20/09	1000
Relinquished by				
Received by				
Relinquished by				
Received by				
Reviewed by/Date		Reviewed by/Date		

Comments/Special Instructions:

1.) Please report PQLs so that diesel & lube oil reporting limits add up to ≤ 0.5 mg/L

EIM EDDs

Chromatograms with final report ☐

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Report Copy Pink - Client Copy