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TECHNICAL MEMORANDUM

Date:	February 1, 2011
To:	Steve Teel - Department of Ecology
From:	David Dinkuhn, PE
Subject:	Solid Wood Incorporated Site Quarterly Groundwater Monitoring Results, Quarter 8 December 2010
cc:	Kip Summers, PE, 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 8 GROUNDWATER MONITORING RESULTS, DECEMBER 2010

This technical memorandum presents results for the eighth round of quarterly groundwater monitoring conducted 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 eighth quarterly monitoring event conducted under the site's ongoing Remedial Investigation/Feasibility Study (RI/FS).

QUARTER 8 GROUNDWATER SAMPLING

Groundwater samples were collected from three monitoring wells (MW-08 through MW-10) located in the vicinity of the former wood burner, from three surface water stations (SW-01 through SW-03), and two groundwater seeps (SEEP 4 and SEEP 5) depicted on Figures 1and 2. The purpose of the wells is to monitor groundwater conditions in the vicinity of Area D (Figure 2), which was cleaned up during the Interim Action performed in summer 2009 (Parametrix 2010). Quarter eight represents the fourth quarterly sampling event for the three wells (i.e., they were not sampled during quarters one through four). The wells were to be sampled for a minimum of four total quarters under the RI/FS work plan. The purpose of the surface water and seep samples was to obtain information on existing surface water quality conditions in the West Bay of Budd Inlet and to continue to assess metals concentration in the seeps.

Groundwater samples were collected on December 2, 2010 using a peristaltic pump 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 surface water and seep samples were also collected on December 2, 2010. Seep samples were collected from shallow depressions excavated in the beach sediment at each seep location. Turbid water created by the

excavation activities was allowed to dissipate until the water in the depressions appeared visually clear. Seep samples were collected by submerging the appropriate sample containers below the surface of the water in the depressions. Care was taken not to introduce sediments into the samples and to avoid the loss of preservative from the containers. Surface water samples were collected by submerging the appropriate sample containers into the surface water at near-shore locations where the surface water was approximately 1-foot deep. Care was taken to prevent loss of preservative.

Water quality parameter measurements for the monitoring wells, seeps, and the surface water samples are provided in Table 1. Field data sheets from the sample collection are attached. All samples were collected on a low slack tide. A tide chart for December 2, 2010 at Olympia, Washington is attached for reference as well as boring logs. Approximate sampling times are provided in Table 1.

Water samples were submitted to Onsite Environmental of Redmond, Washington for chemical analysis of priority pollutant metals (total and dissolved), chloride, and dissolved organic carbon (DOC). A summary of the sample results is presented in Tables 2 and 3. The tables also include remedial levels (RLs) for groundwater as established in the RI/FS work plan. A Quality Assurance/Quality Control (QA/QC) data review memorandum and the laboratory data report are attached.

The depth to groundwater was measured in each well to provide data used to develop inferred elevation contours as shown on Figure 2. 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

Location ID	Date/Time	pH (units)	Conductivity (S/m)	Dissolved Oxygen (mg/l)	Temperature (ºC)	Turbidity (NTU)	Redox (mV)
MW-08	12/2/10 @ 0821	7.13	6.33	0.04	11.09	<0.1	-350
MW-09	12/2/10 @ 0901	7.11	6.44	0	11.79	18	-372
MW-10	12/2/10 @ 0939	6.72	5.99	0	10.81	0.50	-323
SW-01	12/2/10@0840	7.75	8.25	7.84	8.23	15.6	-183
SW-02	12/2/10 @ 0820	7.73	9.79	6.19	8.70	1.5	-167
SW-03	12/2/10 @ 0850	7.42	9.82	6.60	8.72	3.2	-182
SEEP-4	12/2/10 @ 1022	7.74	8.31	10.55	11.48	7.2	-208
SEEP-5	8/23/10 @ 0920	7.67	9.76	2.71	11.68	*	-215

Notes:
S/m = siemens per meter.
mg/l = milligrams per liter.
ºC = degrees Celsius.
NTU = nephelometric turbidity units.
mV = millivolts.
% = percent.
* = turbidity meter malfunction, water was clear.

RESULTS

Results for the monitoring well samples, provided in Table 2, show that both total and dissolved copper and nickel concentrations exceeded RLs in all three wells. The concentrations detected are relatively consistent with

those measured during the previous three monitoring events. To illustrate this, charts of copper and nickel concentrations with time are provided on Figures 3 through 6 The copper and nickel in the groundwater were initially thought to originate from the former wood burner area, which contained soils with elevated levels of copper, lead, nickel, zinc, and dioxins. However, since these soils were successfully removed during the Interim Action (Parametrix 2010), they should not be a contributing source of copper and nickel in groundwater.

Total and dissolved copper and nickel also exceeded RLs in the seep samples, as shown in Table 3. However, note from Figures 3 through 6 that concentrations exhibit a general downward trend between the initial samples collected in January 2009 and the samples from May and December 2010. This trend indicates that the removal of metal debris from the beach near the seeps in Summer 2009 likely had a beneficial effect on groundwater quality (see Area E; Figure 2).

Surface water samples were collected from West Bay (SW01, SW02, and SW03; Figure 1) to assess the possibility that the copper and nickel concentrations detected in the wells and seeps reflected area background conditions in marine waters adjacent to the site. As shown in Tables 2 and 3, total and dissolved copper and nickel concentrations detected in the surface water samples were similar to or higher than concentrations detected in the wells and seeps. Note that samples SW01, SW02, and SW03 were collected at low slack tide from near-shore locations situated approximately 100 feet, 1,600 feet and 400 feet respectively from the former wood burner location. Table 3 also provides sample results from a surface water sample collected previously from station SW01 during the 7th quarter monitoring event. This sample was collected during an outgoing tide when a discernable tidal current in the northward direction was present.

Marine surface water quality is relevant to the quality of the well and seep samples since the near-shore groundwater in the wells and seeps consists of a mixture of marine and freshwater. The ratio of the mixture is illustrated by the concentrations of chloride measured in the seep and groundwater samples - 1,100 to 13,000 milligrams per liter (mg/l). Typical seawater has a chloride concentration on the order of 19,000 mg/L (USGS 2011); typical background chloride concentrations in groundwater are on the order of 100 mg/l. The measured chloride concentrations suggest that the well and seep samples consist of 6 to 68 percent seawater. Note that chloride in the West Bay surface water samples ranged from 8,400 to 19,000 mg/l, reflecting the effect of freshwater input from sources such as the Deschutes River.

Dissolved organic carbon concentrations in the groundwater and seep samples ranged from 31 to 120 mg/l. DOC values in this range can reduce the bioavailability and resulting toxicity of dissolved copper (Arnold et al 2005). The DOC data is for informational purposes only at this time.

CONCLUSIONS AND RECOMMENDATIONS

The monitoring data indicates that the source of the metals in the well and seep samples is the marine surface water. Supporting analysis is provided below.

- Figures 3 and 4 show that total and dissolved copper concentrations in marine surface waters were either higher than or similar to those measured in the well and seep samples. If groundwater seeping from the former burner location is the source of the copper, concentrations measured in surface water adjacent to the site (such as SW01) should be significantly lower due to dilution. At locations such as SW02, we would not expect to detect any copper and/or nickel originating from groundwater seeping from the former wood burner location. This is due not only to the distance separating the SW02 station from the former wood burner (approximately 1,600 feet), but also to the location of SW02 relative to tidal currents. SW02 was collected at low slack tide when the tidal current was negligible; prior to sample collection, the tide was outgoing and the tidal current was in the northward direction. Since the SW02 location is south of the former wood burner, SW02 water quality represents upgradient conditions.

- Plots of total and dissolved copper versus chloride are provided on Figures 7 and 8. Linear regression trend lines were added to the data series to illustrate concentration trends. If marine water is the source of the copper, we would expect copper concentrations to increase with increasing amounts of marine water in the samples (as indicated by increasing chloride concentrations). As shown, a clear trend of increasing copper concentrations with increasing chloride may be observed from the plotted data. Conversely, if the copper source were groundwater, we would expect to see decreasing copper concentrations as chloride concentrations increase; instead, the data show an opposite trend.

- Figures 5 and 6 show that, like copper, total and dissolved nickel concentrations in marine surface water were similar to or higher than those measured in the wells and seeps. Figures 9 and 10 provide plots of total and dissolved nickel concentrations versus chloride. Again, the plots are similar to the copper plots in that a clear trend of generally increasing nickel concentrations with chloride is observable. Note that, in the case of dissolved nickel in wells MW08 and MW09, the trend lines show a slight decreasing trend in nickel concentrations with increasing chloride.

It is our opinion that the copper and nickel concentrations in wells MW-08 through MW-10 and Seeps 4 and 5 reflect area background conditions in West Bay. We recommend that Ecology consider the monitoring completed to date in wells MW-08 through MW-10 and Seeps 4 and 5 as sufficient for the purposes of the RI/FS.

REFERENCES

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Ecology. 1995. Washington State Department of Ecology Toxics Cleanup Program, Guidance on Sampling and Data Analysis Methods. Publication No. 94-49. January.

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Parametrix. 2010. Solid Wood Incorporated Site (West Bay Park) Interim Action Report Prepared for City of Olympia Parks, Arts, and Recreation Department. September.

USGS. 2011. ca.water.usgs.gov/archive/fact_sheets/b07/up.html

ATTACHMENTS:

Tables 2-3

Figures 1-10

Groundwater Field Data Sheets

Tide Chart

Boring Logs

Data Validation Technical Memorandum

Laboratory Report

TABLES 2-3

Table 2
Solid Wood Incorporated Site RI/FS
Quarter 8 Groundwater Results, December 2010

	Location ID		MW-08					MW-09						MW-10				
ANALYTE	**Date Sampled**		**2/3/10**	**5/3/10**	**8/23/10**	**12/2/10**	**12/2/10[a]**	**2/3/10**	**2/3/10[a]**	**5/3/10**	**8/23/10**	**8/23/10[a]**	**12/2/10**	**2/3/10**	**5/3/10**	**5/3/10[a]**	**8/23/10**	**12/2/10**
	Units	**RL**																
TOTAL METALS																		
Antimony	µg/l	6[b]	6U	0.50U	0.50U	0.50U	0.50U	6U	6U	0.50U	0.50U	0.50U	0.50U	6U	0.50U	0.50U	1.3U	0.50U
Arsenic	µg/l	5	*6.5U*	1.8U	2.0U	1.0U	1.0U	5U	5U	0.50U	1.2U	2U	1.0U	*7.5U*	2.0U	2.5U	4.0U	1.2U
Beryllium	µg/l	4[b]	4U	0.50U	0.50U	0.50U	0.50U	4U	4U	0.50U	0.50U	0.50U	0.50U	4U	0.50U	0.50U	0.50U	0.50U
Cadmium	µg/l	5	5U	0.50U	0.50U	0.50U	0.50U	5U	5U	0.50U	0.50U	0.50U	0.50U	5U	0.50U	0.50U	0.50U	0.50U
Chromium	µg/l	50	50U	1.3	1.3	1.1	1.6	50U	50U	0.98	0.89	1.0	1.7	50U	1.4	1.4	1.3	1.4
Copper	µg/l	2.4[c]	5.4	5.1	4.6	4.8	6.6	4	3.4	2.7	3.6	3.8	5.1	6.8	4.5	4.5	6.1	4.6
Lead	µg/l	8.1[c]	8U	0.50U	0.50U	0.50U	0.50	8U	8U	0.50U	0.50U	0.50U	0.50U	8U	0.50U	0.50U	0.50U	0.50U
Mercury	µg/l	0.025[c]	*0.038U*	0.025U	0.025U	0.025U	0.025U	*0.038U*	*0.038U*	0.025	0.025U	0.025U	0.025U	*0.038U*	0.025U	0.025U	0.025U	0.025U
Nickel	µg/l	8.2[c]	9.8	15	9.3	16	14	11	11	11	9.8	11	13	13	14	13	14	11
Selenium	µg/l	50[b]	50U	8.0U	20U	10U	10U	50U	50U	1.6U	18U	15U	10U	50U	2.5U	4.5U	24U	10U
Silver	µg/l	1.9[c]	1.9U	0.50U	0.50U	0.50U	0.50U	1.9U	1.9U	0.50U	0.50U	0.50U	0.50U	1.9U	0.50U	0.50U	1.3U	0.50U
Thallium	µg/l	0.47[c]	0.45U	*0.50U*	*0.50U*	*0.50U*	*0.50U*	0.45U	0.45U	*0.50U*	*0.50U*	*0.50U*	*0.50U*	0.45U	*0.50U*	*0.50U*	*0.50U*	*0.50U*
Zinc	µg/l	81[c]	80U	18	18J	7.0	12	80U	80U	8.7	9.8J	4.7J	6.8	80U	12	11	11J	6.8
DISSOLVED METALS																		
Antimony	µg/l	6[b]	6U	0.50U	0.50U	0.50U	0.50U	6U	6U	0.50U	0.50U	0.50U	0.50U	6U	0.50U	0.50U	1.3U	0.50U
Arsenic	µg/l	5	*8U*	1.4U	1.2U	1.0U	1.0U	*6U*	5U	0.50U	1.2U	1.2U	1.0U	*7.5U*	0.50U	2.2U	3.5U	1.0U
Beryllium	µg/l	4[b]	4U	0.50U	0.50U	0.50U	0.50U	4U	4U	0.50U	0.50U	0.50U	0.50U	4U	0.50U	0.50U	0.50U	0.50U
Cadmium	µg/l	5	5U	0.50U	0.50U	0.50U	0.50U	5U	5U	0.50U	0.50U	0.50U	0.50U	5U	0.50U	0.50U	0.50U	0.50U
Chromium	µg/l	50	50U	0.66	1.1	1.2	1.1	50U	50U	0.50U	0.75	0.8	1.1	50U	0.76	0.66	1.4	1.5
Copper	µg/l	2.4[c]	5.5	4.9	4.2	4.8	4.4	4.1	3.4	3.3	3.5	3.4	4.4	5.9	4.8	4.5	5.1	4.8
Lead	µg/l	8.1[c]	8U	0.50U	0.50U	0.50U	0.50U	8U	8U	0.50U	0.50U	0.50U	0.50U	8U	0.50U	0.50U	0.50U	0.50U
Mercury	µg/l	0.025[c]	*0.038U*	0.025U	0.025U	0.025U	0.025U	*0.038U*	*0.038U*	0.025U	0.025U	0.025U	0.025U	*0.038U*	0.025U	0.025U	0.025U	0.025U
Nickel	µg/l	8.2[c]	12	11	10	18	18	11	8.9	9.0	7.8	8.3	15	11	11	10	12	12
Selenium	µg/l	50[b]	50U	6.0U	24U	10U	12U	50U	50U	2.0U	18U	16U	10U	50U	5.0U	4.0U	27U	10U
Silver	µg/l	1.9[c]	1.9U	0.50U	0.50U	0.50U	0.50	1.9U	1.9U	0.50U	0.50U	0.50U	0.50U	1.9U	0.50U	0.50U	1.3U	0.50U
Thallium	µg/l	0.47[c]	0.45U	*0.50U*	*0.50U*	*0.50U*	*0.50U*	0.45U	0.45U	*0.50U*	*0.50U*	*0.50U*	*0.50U*	0.45U	*0.50U*	*0.50U*	*0.50U*	*0.050U*
Zinc	µg/l	81[c]	80U	15	5.9	6.1	5.4	80U	80U	6.3	4.5	4.1	3.5	80U	8	11	4.8	4.3
GENERAL CHEMISTRY																		
Chloride	mg/l	-	11,000	12,000	8,800	9,100	10,000	8,600	8,400	8,500	9,100	8,500	9,000	13,000	10,000	9,600	12,000	8,000
DOC	mg/l	-	--	--	100J	83	92	--	--	--	72J	120J	100	--	--	--	38J	76

Notes:

[a] = Duplicate sample.
[b] = State and federal groundater maximum contaminant level (MCL).
[c] = Surface water applicable or relevant and appropriate requirement (ARAR).
italics = PQL exceeds screening level.
J= Analyte was detected. The reported concentration should be considered an estimate.
mg/l = milligrams per liter.
DOC Dissolved Organic Carbon.
RL = Remedial level.
µg/l = micrograms per liter.
U = Not detected at given practical quantitation limit (PQL).
-- = Not analyzed.
Exceeds RL.

Table 3
Solid Wood Incorporated Site RI/FS
Quarter 8 Surface Water and Seep Results, December 2010

	Location ID		SW01		SW02	SW03	SEEP 4			SEEP 5		
ANALYTE	**Date Sampled**		**8/23/10**	**12/2/10**	**12/2/10**	**12/2/10**	**1/14/09**	**5/3/10**	**12/2/10**	**1/14/09**	**5/3/10**	**12/2/10**
	Units	**RL**										
TOTAL METALS												
Antimony	µg/l	6[b]	1.3U	--	--	--	5.6U	0.50U	--	5.6U	0.50U	--
Arsenic	µg/l	5	*6U*	1.0U	1.0U	2.5U	3.3U	1.6	1.0U	3.3U	1.2	1.1
Beryllium	µg/l	4[b]	0.50U	--	--	--	4.0U	0.50U	--	4.0U	0.50U	--
Cadmium	µg/l	5	0.50U	--	--	--	4.4U	0.50U	--	4.4U	0.50U	--
Chromium	µg/l	50	3.2	--	--	--	11U	1.0	--	11U	1.4	--
Copper	µg/l	2.4[c]	14	4.0	6.3	11	5.9	1.1	4.6	8.4	3.8	3.2
Lead	µg/l	8.1[c]	1.1	--	--	--	1.1U	0.50U	--	1.1U	0.57	--
Mercury	µg/l	0.025[c]	0.025U	--	--	--	*0.125U*	0.025U	--	*0.125U*	0.025U	--
Nickel	µg/l	8.2[c]	16	8.0	13	18	14	3.1	6.6	8.1	5.8	4.4
Selenium	µg/l	50[b]	25U	--	--	--	28U	1.0U	--	28U	1.0U	--
Silver	µg/l	1.9[c]	1.3U	--	--	--	1.9U	0.50U	--	1.9U	0.50U	--
Thallium	µg/l	0.47[c]	*0.50U*	--	--	--	0.47U	0.50U	--	0.47U	0.50U	--
Zinc	µg/l	81[c]	6.3U	--	--	--	69U	5.0	--	69U	5.0	--
DISSOLVED METALS												
Antimony	µg/l	6[b]	--	--	--	--	5.6U	0.50U	--	5.6U	0.50U	--
Arsenic	µg/l	5	--	1.0U	1.0U	3.0U	3.3U	1.7	1.0U	3.3U	1.3	1.5
Beryllium	µg/l	4[b]	--	--	--	--	4.0U	0.50U	--	4.0U	0.50U	--
Cadmium	µg/l	5	--	--	--	--	4.4U	0.50U	--	4.4U	0.50U	--
Chromium	µg/l	50	--	--	--	--	11U	0.75	--	11U	0.55	--
Copper	µg/l	2.4[c]	--	6.6	6.8	8.7	4.0	1.0	3.5	13	3.4	1.6
Lead	µg/l	8.1[c]	--	--	--	--	1.1U	0.50U	--	1.1U	0.50U	--
Mercury	µg/l	0.025[c]	--	--	--	--	*0.125U*	0.025U	--	*0.125U*	0.025U	--
Nickel	µg/l	8.2[c]	--	13	15	19	13	3.0	6.1	8.5	4.0	3.8
Selenium	µg/l	50[b]	--	--	--	--	28U	1.0U	--	28U	1.2U	--
Silver	µg/l	1.9[c]	--	--	--	--	1.9U	0.50U	--	1.9U	0.50U	--
Thallium	µg/l	0.47[c]	--	--	--	--	0.47U	0.50U	--	0.47U	0.50U	--
Zinc	µg/l	81[c]	--	--	--	--	69U	2.6	--	69U	3.5	--
GENERAL CHEMISTRY				--	--	--						
Chloride	mg/l	-	19,000	8,400	9,500	15,000	4,200	1,500	2,400	4,200	4,000	1,100
DOC	mg/l	-	23J	14	13	17	--	--	65	--	--	31

Notes:

[a] = Duplicate sample.
[b] = State and federal groundater maximum contaminant level (MCL).
[c] = Surface water applicable or relevant and appropriate requirement (ARAR).
italics = PQL exceeds screening level.
J= Analyte was detected. The reported concentration should be considered an estimate.
mg/l = milligrams per liter.
DOC Dissolved Organic Carbon.
RL = Remedial level.
µg/l = micrograms per liter.
U = Not detected at given practical quantitation limit (PQL).
-- = Not analyzed.
Exceeds RL.

FIGURES 1-10

Parametrix DATE: 1/12/2011 1:32 PM FILE: BR1577024P04T04F-01B

N

0 220

SCALE IN FEET

LEGEND

- SURFACE WATER SAMPLE LOCATION

Figure 1
Solid Wood Incorporated Site (West Bay Park)
Olympia, Washington
Site Plan and Surface Water Sampling Locations

AREA A
AREA B
AREA C
AREA D
AREA E
(ESTIMATED)
FORMER LOADING DOCK
FORMER RAIL SPUR
AREA D FORMER
BURNER LOCATION
WEST BAY PARK PHASE I
PROJECT LIMITS
20'
MW-01
MW-05
MW-06
MW-07
MW-08
8.89
MW-09
8.19
MW-10
9.67
SEEP 1
SEEP 2
SEEP 3
SEEP 4
SEEP 5
SW01
SW03
MHHW
14.6
10
9
8

Parametrix DATE: 06/03/10 2:18pm FILE: BR1577024P04T04F-02B

N

0 60

SCALE IN FEET

LEGEND

- INTERIM ACTION AREAS FROM SUMMER 2009 CLEANUP ACTIVITIES
- EXISTING MONITORING WELL NOT SAMPLED
- SEEPS SAMPLED PREVIOUSLY DURING THE RI
- SEEPS SAMPLED 12/2/10
- SURFACE WATER SAMPLE LOCATION
- 10 — INFERRED GROUND WATER SURFACE ELEVATION CONTOUR
- MW-10 9.67 — MONITORING WELL SAMPLED AND GROUNDWATER ELEVATION MEASURED 12/2/2010
- GROUNDWATER FLOW

NOTES

1. ELEVATION DATUM: MLLW
2. TOPOGRAPHY SHOWN BASED ON PRE-PARK CONSTRUCTION CONDITIONS.

Figure 2
Solid Wood Incorporated Site
(West Bay Park)
Olympia, Washington
Qtr 8 GW Surface Elevation Contours
December 2010

Figure 3. Dissolved Copper Results for Seeps 4 and 5, Surface Water Samples, MW-8, MW-9, and MW-10

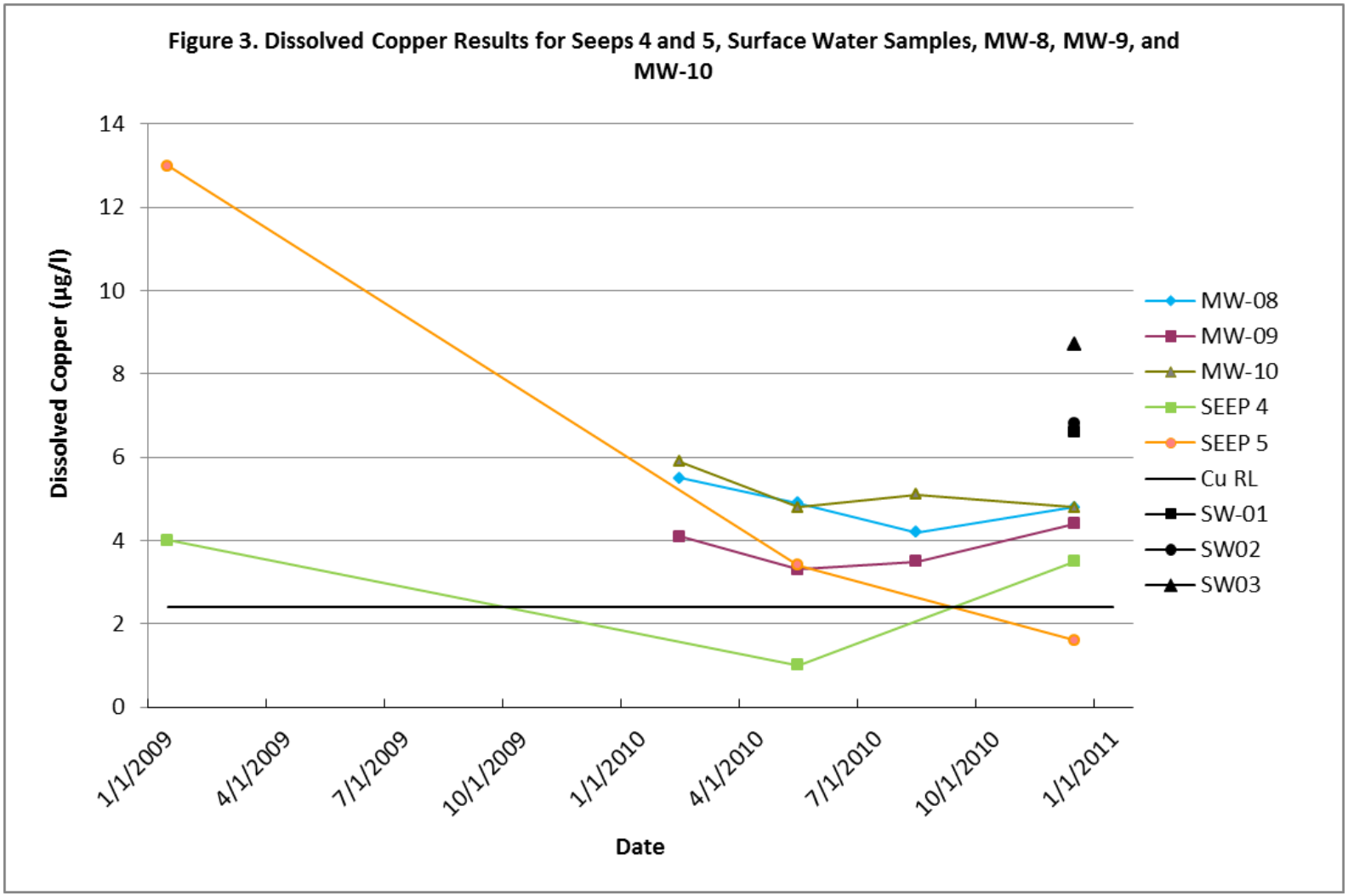
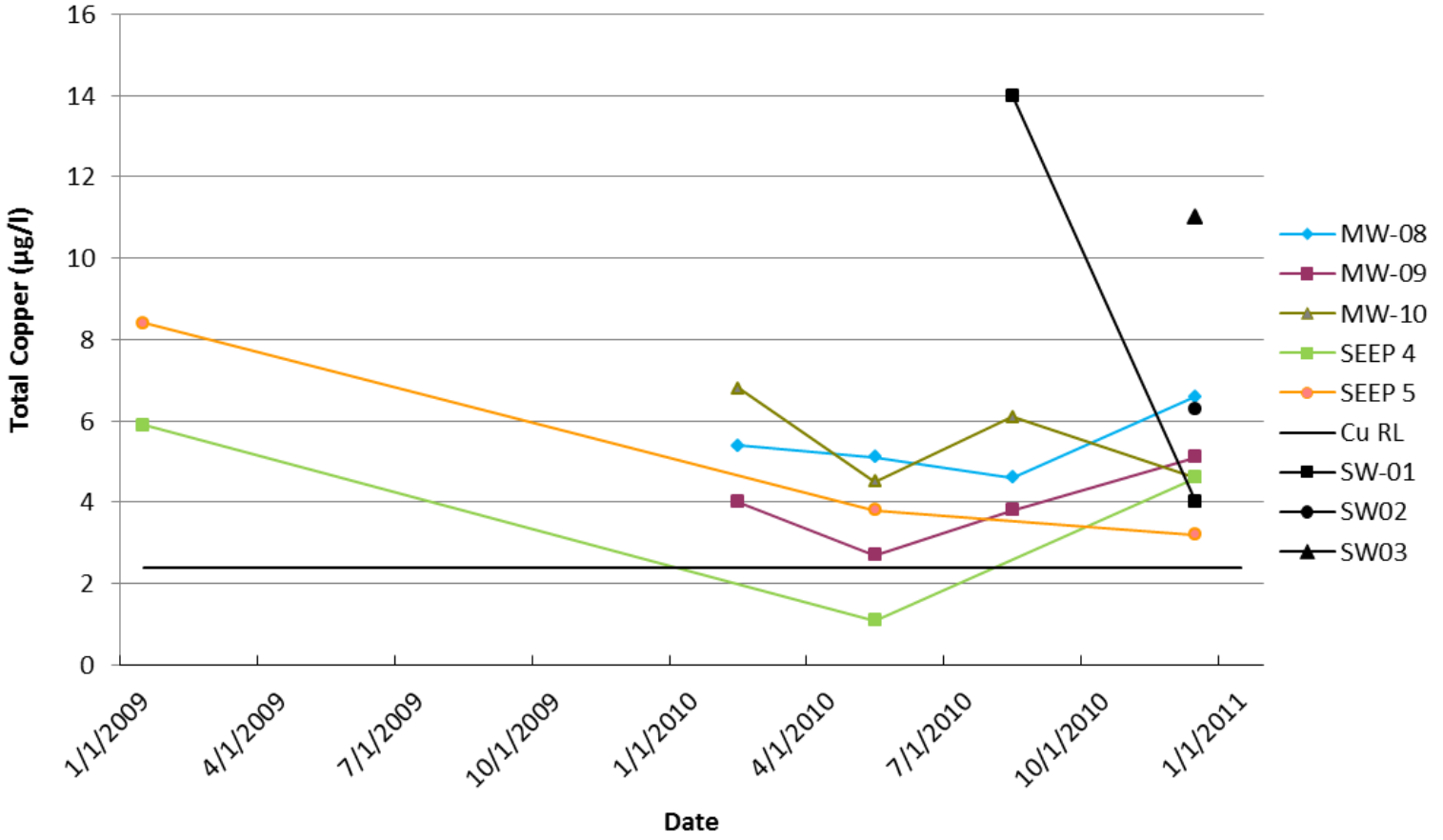


Figure 4. Total Copper Results for Seeps 4 and 5, Surface Water Samples, MW-8, MW-9, and MW-10



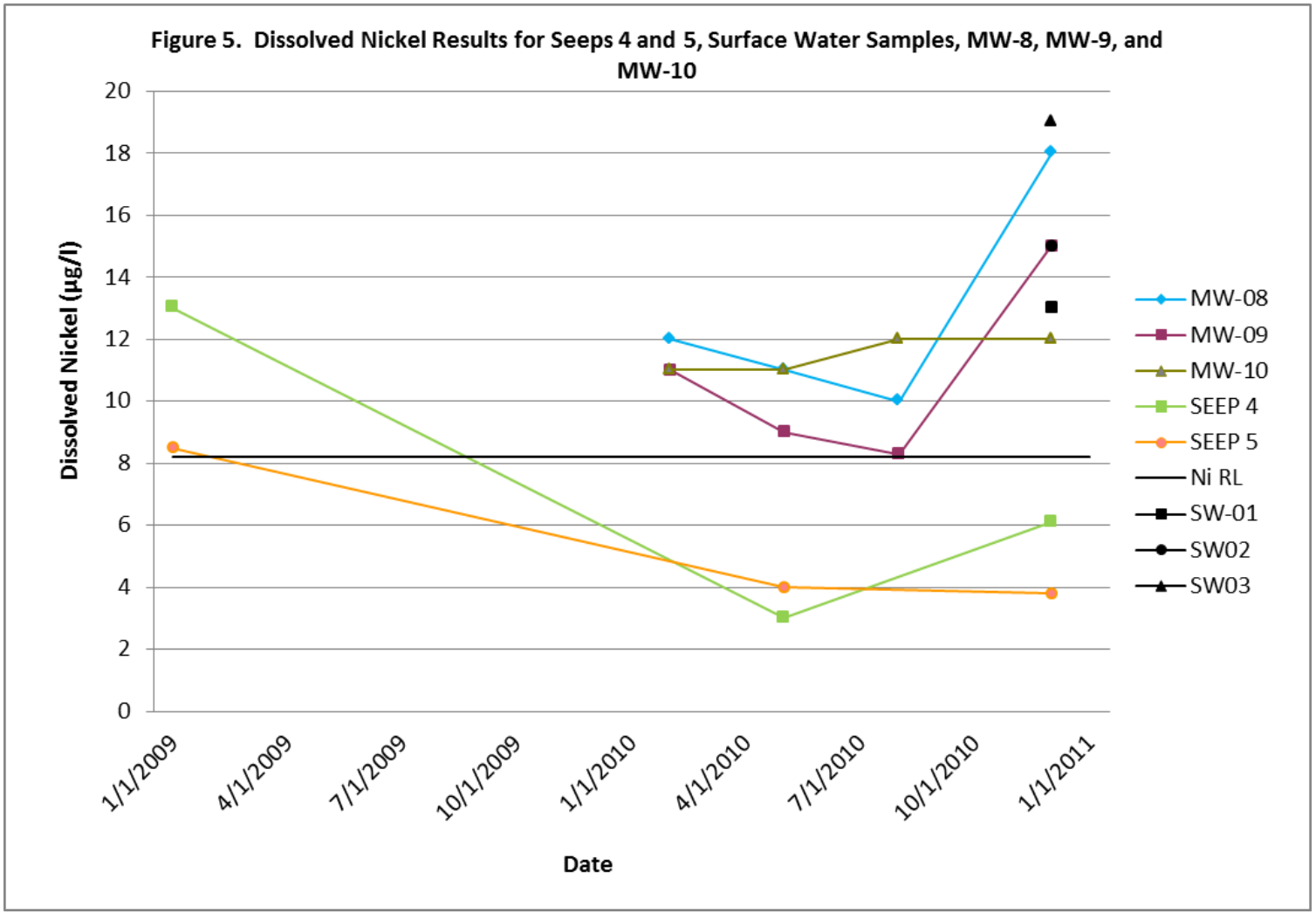


Figure 5. Dissolved Nickel Results for Seeps 4 and 5, Surface Water Samples, MW-8, MW-9, and MW-10
Dissolved Nickel (µg/l)
20
18
16
14
12
10
8
6
4
2
0
1/1/2009
4/1/2009
7/1/2009
10/1/2009
1/1/2010
4/1/2010
7/1/2010
10/1/2010
1/1/2011
Date
MW-08
MW-09
MW-10
SEEP 4
SEEP 5
Ni RL
SW-01
SW02
SW03

Figure 6. Total Nickel Results for Seeps 4 and 5, Surface Water Samples, MW-8, MW-9, and MW-10

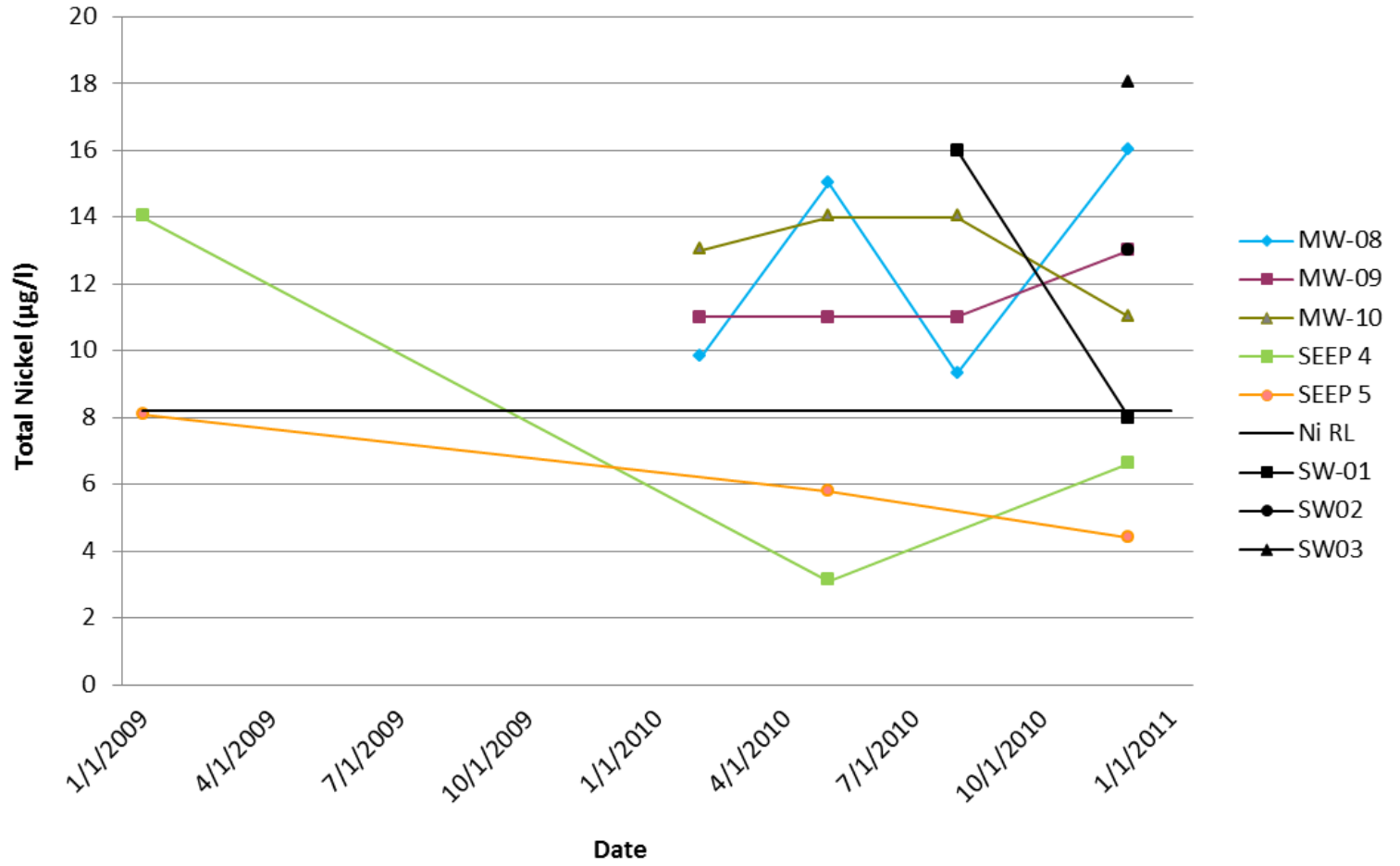
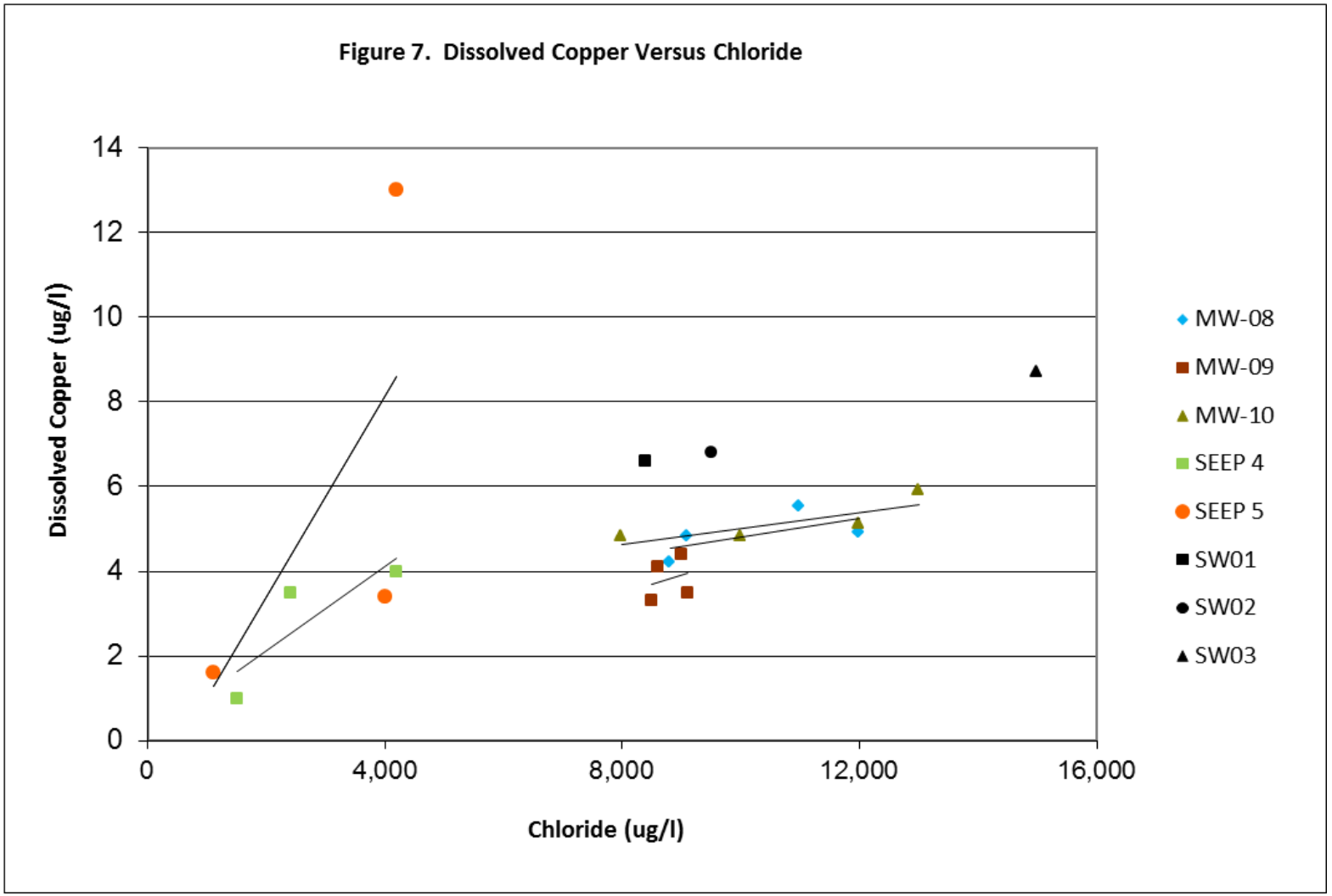
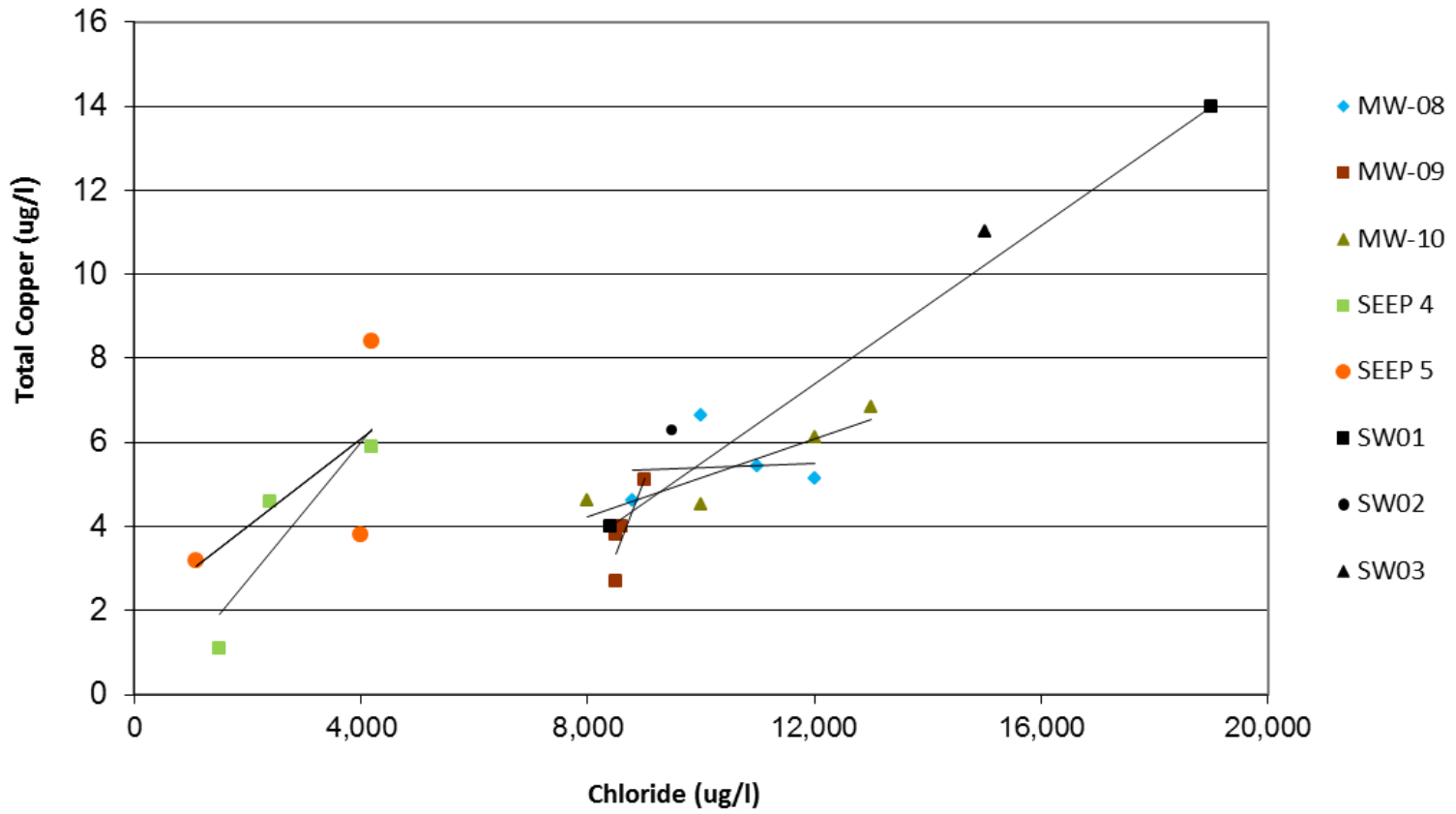


Figure 7. Dissolved Copper Versus Chloride

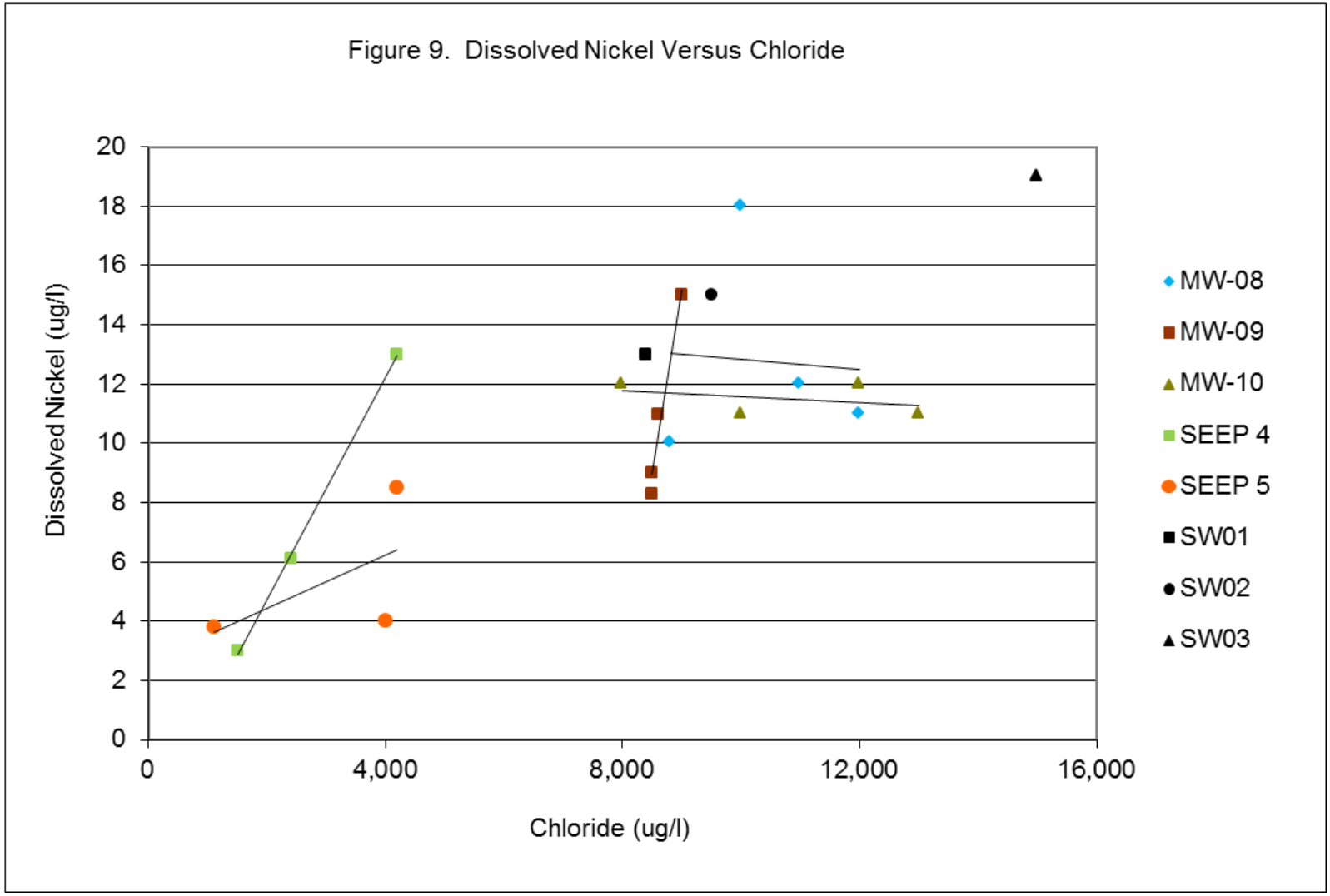


Note: Trend lines shown were developed using Excel linear regression function.

Figure 8. Total Copper Versus Chloride

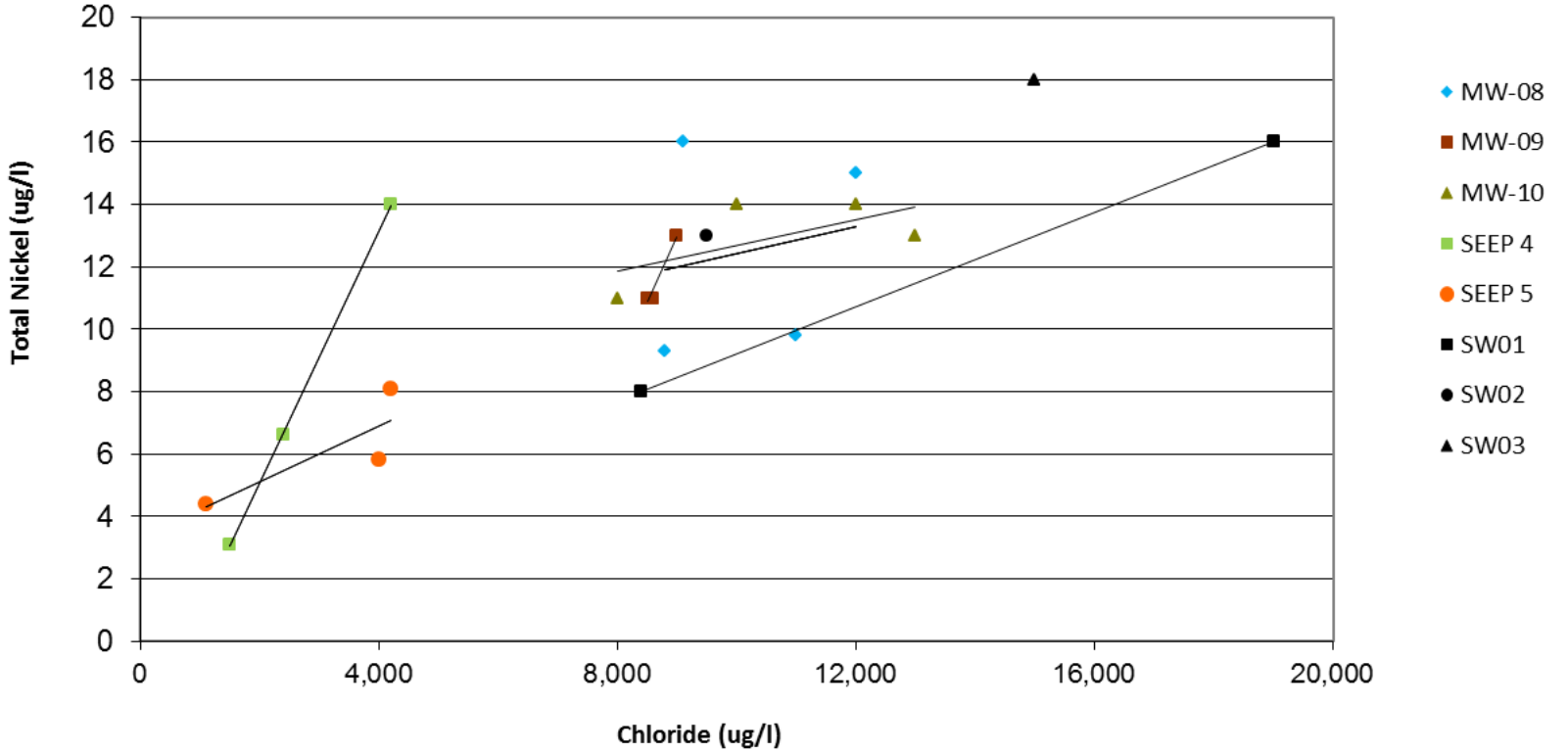


Note: Trend lines shown were developed using Excel linear regression function.



Note: Trend lines shown were developed using Excel linear regression function.

Figure 10. Total Nickel Versus Chloride



Note: Trend lines shown were developed using Excel linear regression function.

GROUNDWATER FIELD DATA SHEETS

Parametrix, Inc.

Well #: MW-03
Sample #: WB-GW-MW08-0090

Groundwater Sampling Field Data Sheet

Project Number	235-1578-024 04/03	Date	12/2/10
Project Name	West Bay Outfall	Location	Burner Pt - N
Project Address	West Bay Dr	Sampled By	L. Links
Client Name	City of Olympia	Purged By	"

Casing Diameter: 2" ____ 4" ____ 6" ____ Other 3/4"

Depth to Water (feet)	2.05	Purge Vol. Meas.Method	Stopwatch/meas.cup
Depth of Well (feet)	14.87	Date Purged	12/2/10
Reference Point (surveyors notch/etc)	TOC	Purge Time (from/to)	0805 - 0831
Date/Time Sampled	12/2/10 0825		300 ml/min, 200ml/min

Purge Volume Calculation: $(\pi r^2 h)(7.48\ gal/ft^3)$(# Casing volumes)
Purge Volume (gallons) for 2" = (0.16)(h)(#Cv); 4" = (0.653)(h)(#Cv); 6" = (1.48)(h)(#Cv)
Calculated Purge Volume (gallons) _____ Actual Purge Volume (gallons) _____

TIME (2400 hr)	WATER LEVEL (feet)	pH (units) ± 0.1	COND (µS/cm) ± 3%	DO (mg/L) ±10%	TEMP °C	TURB. ±10%	ORP (mV)	CUM. VOL. (gal)	Sal (ppt)
0805	2.40	6.85	5.86	0.41	11.38	11.8	-319		3.9
0809	2.52	7.05	6.14	0.49	11.25	<0.1	-314		>4.0
0813	2.36	7.09	6.33	0.11	11.11	<0.1	-340		>4.0
0817	2.39	7.12	6.31	0.08	11.10	<0.1	-344		>4.0
0821	2.40	7.13	6.33	0.04	11.09	<0.1	-350	2 gal	>4.0

Purge Equipment	Peristaltic	Sampling Equipment	Same
Laboratory	Onsite	Date Sent to Lab	12/3/10
Chain-of-Custody (yes/no)	YES	Field QC Sample Number	WB-GW-MW08-1090
Shipment Method	Courier	Split with (name(s)/organization)	N/A

Well Integrity: Good
Remarks: Water in monument
Signature: L. Links

Page 1 of 1

Field duplicate collected @ 0830 WB-GW-MW08-1090

Parametrix, Inc.

Well #: MW-01
Sample #: _____

Groundwater Sampling Field Data Sheet

WB-GW-MW01-0000

Project Number	235-1597-024.04/03	Date	12/2/10
Project Name	West Bay Outfall	Location	Burner Pt - mid
Project Address	West Bay Dr	Sampled By	L. Lucas
Client Name	City of Olympia	Purged By	"

Casing Diameter: 2" _____ 4" _____ 6" _____ Other 3/4"

Depth to Water (feet)	2.08	Purge Vol. Meas.Method	bmp watch means .cup
Depth of Well (feet)	14ft	Date Purged	12/2/10
Reference Point (surveyors notch/etc)	TOC	Purge Time (from/to)	0845 - 0901
Date/Time Sampled	12/2/10 0911	200 ml/min	

Purge Volume Calculation: $(\pi r^2 h)(7.48\ gal/ft^3)$(# Casing volumes)
Purge Volume (gallons) for 2" = (0.16)(h)(#Cv); 4" = (0.653)(h)(#Cv); 6" = (1.48)(h)(#Cv)
Calculated Purge Volume (gallons) _____ Actual Purge Volume (gallons) _____

TIME (2400 hr)	WATER LEVEL (feet)	pH (units) ± 0.1	COND (mS/cm) ± 3%	DO (mg/L) ±10%	TEMP °C	TURB. ±10%	ORP (mV)	CUM. VOL. (gal)	Sat(%)
0845	2.37	7.21	6.54	0.62	11.64	0.2	-355		>4.0
0849	2.38	7.14	6.48	0.0	11.75	8.3	-363		>4.0
0853	2.38	7.13	6.41	0.0	11.79	18.0	-367		>4.0
0857	2.39	7.11	6.40	0.0	11.79	18.0	-370		>4.0
0901	2.39	7.11	6.44	0.0	11.79	18.8	-372	2.5gal	>4.0

Purge Equipment	Peristaltic	Sampling Equipment	same
Laboratory	Onsite	Date Sent to Lab	12/3/10
Chain-of-Custody (yes/no)	YES	Field QC Sample Number	N/A
Shipment Method	Courier	Split with (name(s)/organization)	N/A

Well Integrity: Good
Remarks: Water in monument
Signature: [signature]

Page 1 of 1

Parametrix, Inc.

Well #: MW-10
Sample #: _____

Groundwater Sampling Field Data Sheet

WB-GW-MW10-0080

Project Number	235-1577-024 04/03	Date	12/2/10
Project Name	West Bay Drive	Location	Burner Pt - S.
Project Address	West Bay Dr	Sampled By	L. Lincle
Client Name	City of Olympia	Purged By	"

Casing Diameter: 2" ____ 4" ____ 6" ____ Other 3/4"

Depth to Water (feet)	1.41	Purge Vol. Meas.Method	stopwatch/meas.cup
Depth of Well (feet)	9.97	Date Purged	12/2/10
Reference Point (surveyors notch/etc)	TOC	Purge Time (from/to)	0923-0939
Date/Time Sampled	12/2/10 0945	200 ml/min	

Purge Volume Calculation: $(\pi r^2 h)(7.48\ gal/ft^3)$(# Casing volumes)
Purge Volume (gallons) for 2" = (0.16)(h)(#Cv); 4" = (0.653)(h)(#Cv); 6" = (1.48)(h)(#Cv)
Calculated Purge Volume (gallons) _____ Actual Purge Volume (gallons) _____

TIME (2400 hr)	WATER LEVEL (feet)	pH (units) ± 0.1	COND (mS/cm) ± 3%	DO (mg/L) ±10%	TEMP °C	TURB. ±10%	ORP (mV)	CUM. VOL. (gal)	Sed (%)
0923	1.81	7.10	5.15	0.76	10.77	19.0	-308		3.9
0927	1.89	6.83	5.97	0.0	10.81	5.8	-316		3.9
0931	1.92	6.75	5.97	0.0	10.77	2.6	-320		3.9
0935	1.85	6.73	5.98	0.0	10.81	0.6	-321		3.9
0939	1.86	6.72	5.99	0.0	10.81	0.5	-323	2.5 gal	4.0

Purge Equipment	peristaltic	Sampling Equipment	Same
Laboratory	Onsite	Date Sent to Lab	12/3/10
Chain-of-Custody (yes/no)	YES	Field QC Sample Number	N/A
Shipment Method	Courier	Split with (name(s)/organization)	N/A

Well Integrity Good
Remarks Water in monument
Signature L. Lincle

PARAMETRIX

Form 02-EN-100/Rev. 10/02

Sampling Field Data Sheet

Station #: SW01

Project Number:	235-1577-024 04/03	Date:	12/2/10
Project Name:	West Bay Ctrly	Client Name	City of Olympia
Project Address:	West Bay Dr Olympia, WA	Sampled By:	D. Dinkuhn

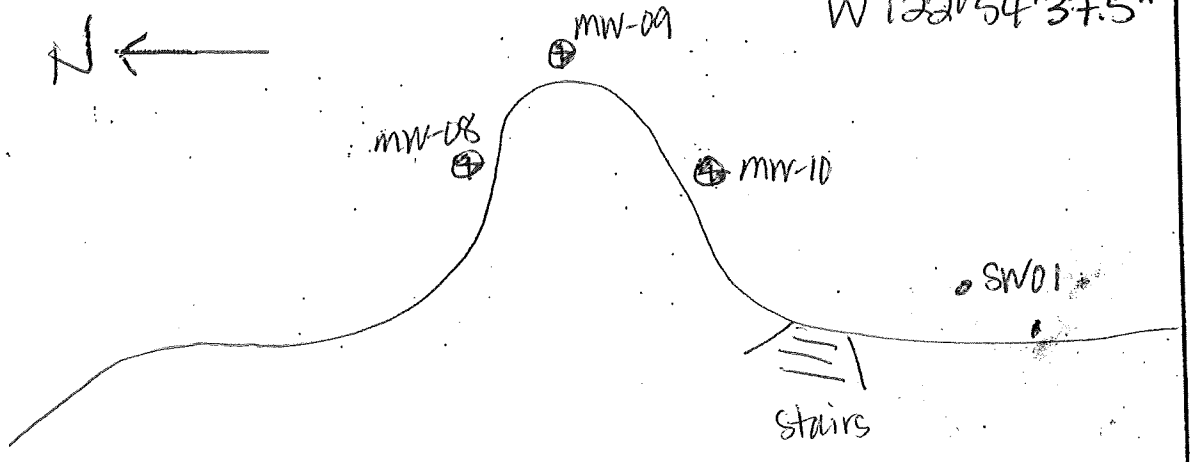
TIME (2400 hr)	pH (units) (± 0.1)	Ec (~~µmhos/cm~~ S/m 25°C) (± 3%)	TEMPERATURE °C	DO (mg/L)	~~COLOR~~ ORP (mV) (visual)	~~TURBIDITY~~ (visual) (NTU)
0840	7.75	8.25	8.23	7.84	-183	15.6

Sampling Equipment:

Laboratory:	Onsite	Date Sent to Lab:	12/3/10
Chain-of-Custody (yes/no):	Yes	Field QC Sample Number:	N/A
Shipment Method:	Courier	Split With (names[s]/organization):	N/A

Remarks:

N 47°03'08.6"
W 122°54'37.5"



Signature: L Linde

PARAMETRIX

Form 02-EN-100/Rev. 10/02

Sampling Field Data Sheet

Station #: SW02

Project Number:	235-1577-024 04/03	Date:	12/2/10
Project Name:	West Bay Ctrlg	Client Name	City of Olympia
Project Address:	West Bay Dr Olympia, WA	Sampled By:	D. Dinkuhn

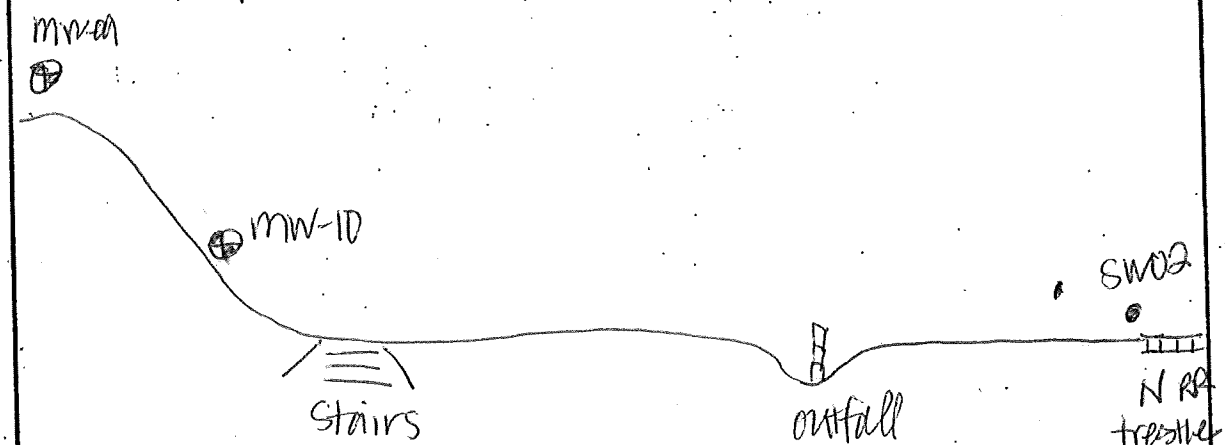
TIME (2400 hr)	pH (units) (± 0.1)	Ec (~~µmhos/cm~~ s/m 25°C) (± 3%)	TEMPERATURE °C	DO (mg/L)	~~COLOR~~ ORP (mV) (visual)	TURBIDITY (visual) (NTU)
0820	7.73	9.79	8.70	6.19	-167	1.5

Sampling Equipment:

Laboratory:	Onsite	Date Sent to Lab:	12/3/10
Chain-of-Custody (yes/no):	Yes	Field QC Sample Number:	N/A
Shipment Method:	Courier	Split With (names[s]/organization):	N/A

Remarks:

N 47°02'53.7"
W 122°54'40.6"



Signature: Dinkuhn

PARAMETRIX

Form 02-EN-100/Rev. 10/02

Sampling Field Data Sheet

Station #: SW03

Project Number:	235-1577-024 04/13	Date:	12/2/10
Project Name:	West Bay Otrlg	Client Name	City of Olympia
Project Address:	West Bay Dr Olympia, WA	Sampled By:	D. Binkley

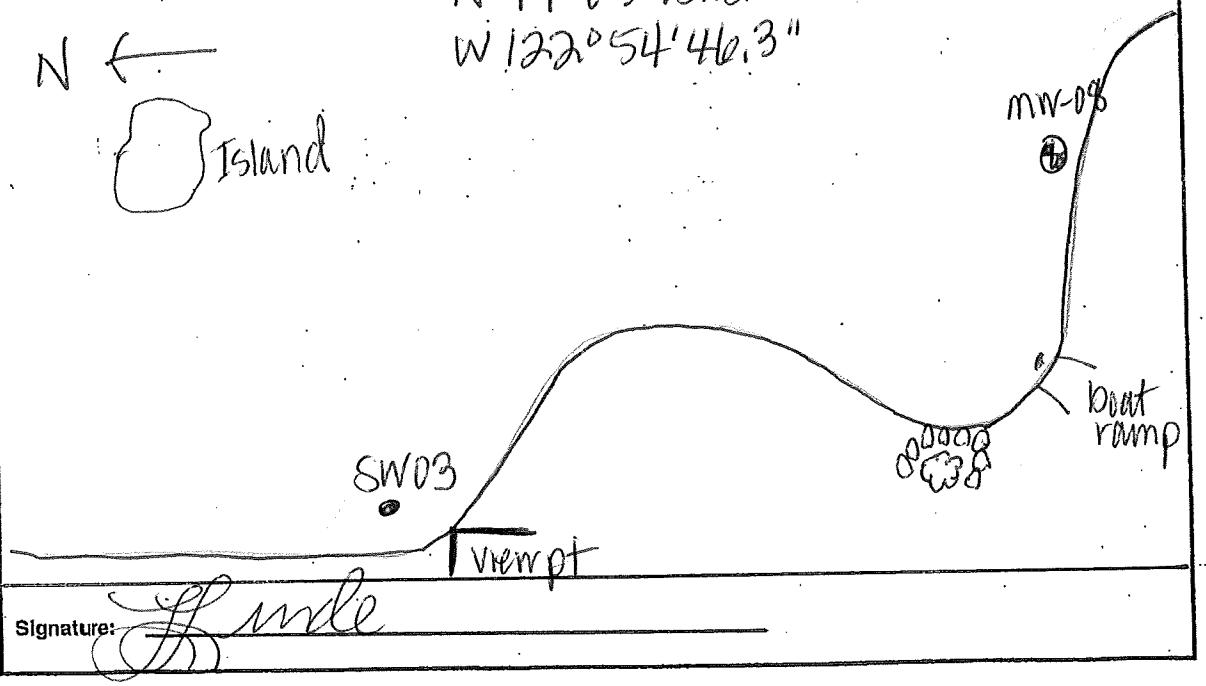
TIME (2400 hr)	pH (units) (± 0.1)	Ec (~~µmhos/cm~~ S/m 25°C) (± 3%)	TEMPERATURE °C	DO (mg/L)	~~COLOR~~ ORP(mV) (visual)	~~TURBIDITY~~ (visual) (NTU)
0850	7.42	9.82	8.72	6.60	-182	3.2

Sampling Equipment:

Laboratory:	Onsite	Date Sent to Lab:	12/3/10
Chain-of-Custody (yes/no):	Yes	Field QC Sample Number:	N/A
Shipment Method:	Courier	Split With (names[s]/organization):	N/A

Remarks:

N 47°03'12.2"
W 122°54'46.3"



Signature: Linde

PARAMETRIX

Form 02-EN-100/Rev. 10/02

Sampling Field Data Sheet

Station #: SEEP 4

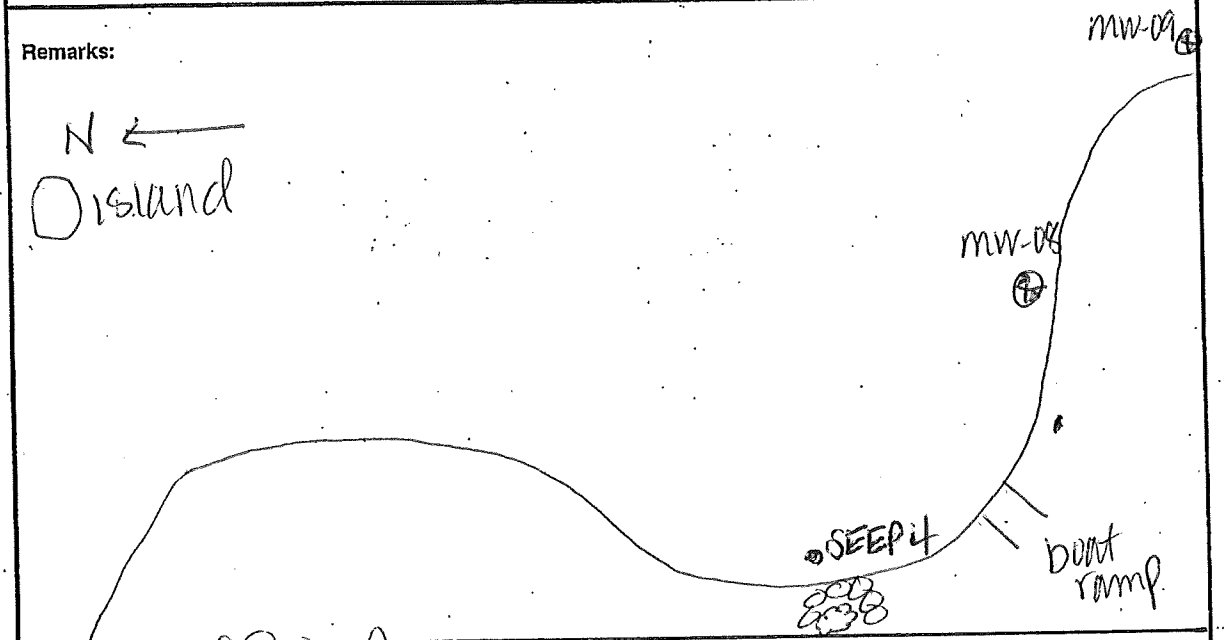
Project Number:	235-1577-024 04/03	Date:	12/2/10
Project Name:	West Bay Ctrlg	Client Name	City of Olympia
Project Address:	West Bay Dr Olympia, WA	Sampled By:	L. Lindle

TIME (2400 hr)	pH (units) (± 0.1)	Ec (~~µmhos/cm~~ S/m 25°C) (± 3%)	TEMPERATURE °C	DO (mg/L)	~~COLOR~~ (visual) ORP (mV)	TURBIDITY (~~visual~~ NTU)
1022	7.74	8.31	11.48	10.55	-208	7.2

Sampling Equipment:

Laboratory:	Onsite	Date Sent to Lab:	12/3/10
Chain-of-Custody (yes/no):	Yes	Field QC Sample Number:	N/A
Shipment Method:	Courier	Split With (names[s]/organization):	N/A

Remarks:



Signature: Lindle

PARAMETRIX

Form 02-EN-100/Rev. 10/02

Sampling Field Data Sheet

Station #: SEEP 5

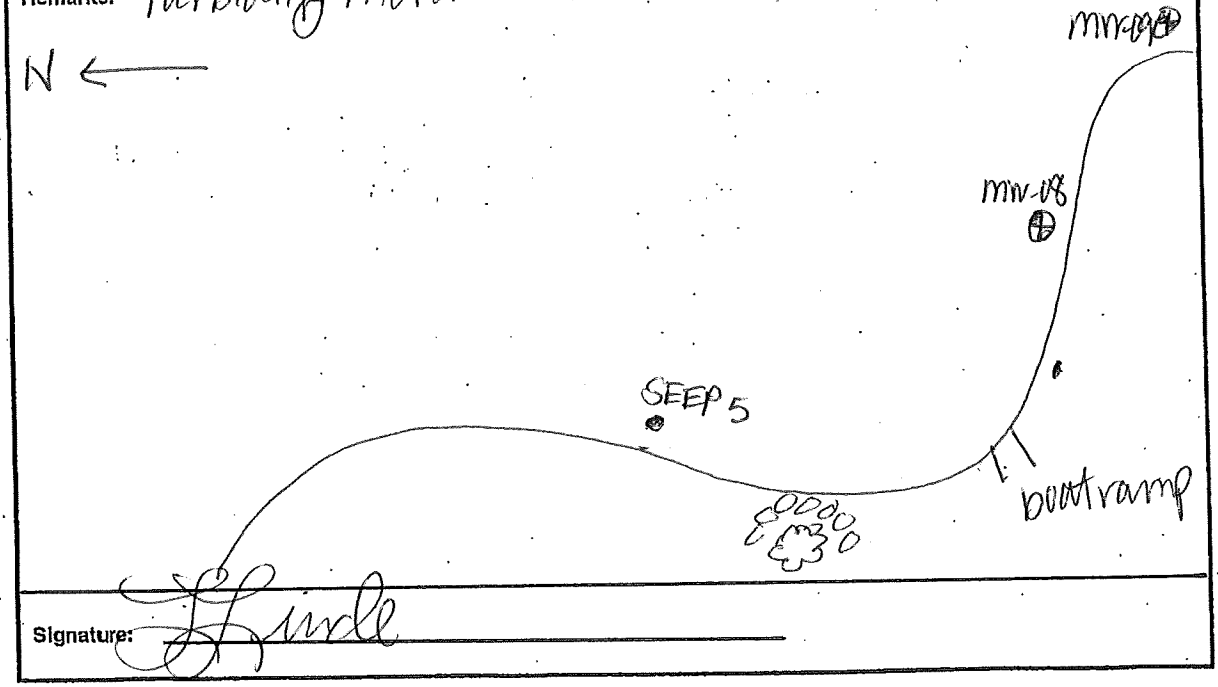
Project Number:	235-1577-024 04/03	Date:	12/2/10
Project Name:	West Bay Outfall	Client Name	City of Olympia
Project Address:	West Bay Dr Olympia, WA	Sampled By:	L. Lindle

TIME (2400 hr)	pH (units) (± 0.1)	Ec (~~µmhos/cm~~ S/m 25°C) (± 3%)	TEMPERATURE °C	DO (mg/L)	~~COLOR~~ ORP (mV) (visual)	~~TURBIDITY~~ (visual) (NTU)
1018	7.67	9.716	11.68	2.71	-215	*596

Sampling Equipment:

Laboratory:	Onsite	Date Sent to Lab:	12/3/10
Chain-of-Custody (yes/no):	Yes	Field QC Sample Number:	N/A
Shipment Method:	Courier	Split With (names[s]/organization):	N/A

Remarks: * turbidity meter malfunction, water was clear



Signature: L Lindle

TIDE CHART

Tides for Olympia, Budd Inlet starting with December 2, 2010.

Day		High /Low	Tide Time	Height Feet	Sunrise Sunset	Moon	Time	% Moon Visible
Th	2	High	3:20 AM	12.5	7:38 AM	Rise	4:15 AM	17
	2	Low	8:22 AM	6.7	4:24 PM	Set	2:09 PM	
	2	High	1:53 PM	15.7				
	2	Low	9:18 PM	-1.3				

Return to the Washington selection page, the FAQs/definitions page, the region selection page, the script licensing page, or to the home page.

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

Typhoons, Hurricanes, etc., are NOT included in the predictions. Tidal current direction changes and tide high and low time predictions can be very different. Tide predictions are PREDICTIONS, they can be wrong so use common sense.

Disclaimer

David Flater (who is author of xtide, the program I use to produce this data) provides the following *disclaimer*, behind which I firmly stand:

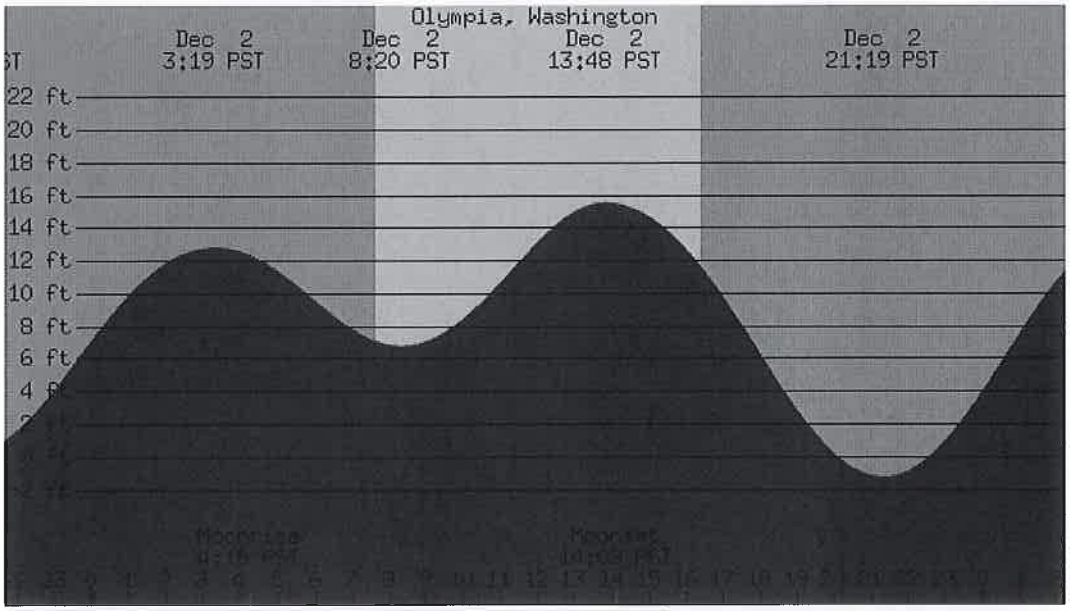
DO NOT RELY ON THE OUTPUT OF THIS PROGRAM FOR DECISIONS THAT CAN RESULT IN HARM TO ANYONE OR ANYTHING. REALLY. I MEAN IT.

Agencies like *NOAA* exist because there is a need for certifiably correct tide predictions. Please don't rely on XTide if you need guaranteed results. There is *no way* I can get certified data on a zero budget. I rely on users like you to tell me when something is wrong. Please continue to do so.

Click this button to hide this disclaimer. (Requires JavaScript and cookie support in your browser.)

Tidal Heights at Olympia, Washington

Thursday, December 2 2010 47°3.1'N 122°54.2'W Map



Other Tide Stations Other Current Stations

Previous Monthly Table Next

The above plot was generated using the program *xtide*, written by *David Flater*.
No guarantees as to the correctness of this data are made or implied.
Do not rely on it to make decisions which can result in harm to anyone or anything.

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Here is a form you can use to submit them.

These tide pages are by *Jeff Dairiki*.
View our privacy policy.

Generated by *xtide-html* version git/7044fcd/20100729T2335Z

BORING LOGS

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

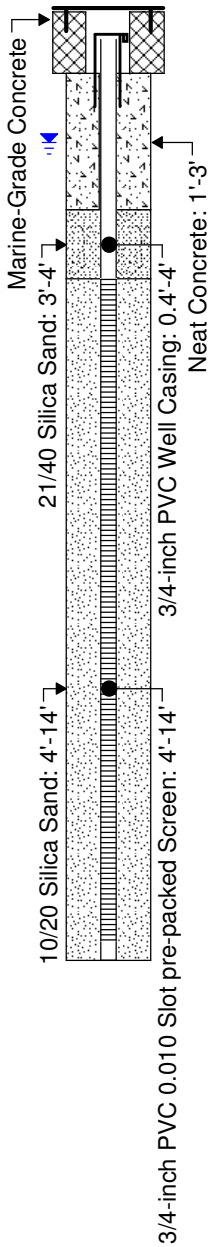
Log ID: MW-08/BCC757

Project Name: West Bay RI/FS
Project #: 235-1577-024
Location: Burner Point
Coordinates: N47°03'10.2" / W122°54'41.6"

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

Drilling Dates: 1-21-2010
Boring Depth: 14 ft
Depth to Water: 2 ft
Ground Elevation: ~11 ft

Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample Details: PID (ppm)	Sample Details: Sample ID	Sample Details: Recovery	Boring Diagram	Lithologic Symbol	Depth (ft)
0		Ground Surface						0
		Imported Gravel and Cobble (Fill) Brown						
5								5
10		**Sand (Native)** Gray, shells, easy drilling						10
		Bottom of boring at 14 feet below ground surface.						
15								15
20								20



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

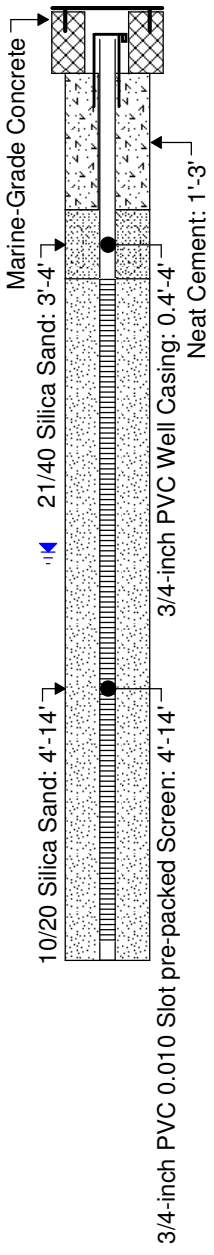
Log ID: MW-09/BCC758

Project Name: West Bay RI/FS
Project #: 235-1577-024
Location: Burner Point
Coordinates: N47°03'09.8" / W122°54'40.6"

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

Drilling Dates: 1-21-2010
Boring Depth: 14 ft
Depth to Water: 8 ft
Ground Elevation: ~9 ft

Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample Details: PID (ppm)	Sample Details: Sample ID	Sample Details: Recovery	Boring Diagram	Lithologic Symbol	Depth (ft)
0		Ground Surface						0
		Imported Gravel and Cobble (Fill) Brown						
5								5
10								10
		Bottom of boring at 14 feet below ground surface.						
15								15
20								20



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

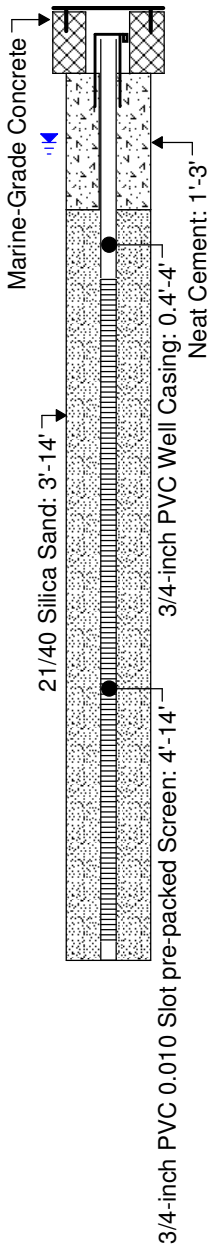
Log ID: MW-10/BCC759

Project Name: West Bay RI/FS
Project #: 235-1577-024
Location: Burner Point
Coordinates: N47°03'09.3" / W122°54'41.3"

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

Drilling Dates: 1-22-2010
Boring Depth: 14 ft
Depth to Water: 2 ft
Ground Elevation: 12 ft

Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample Details: PID (ppm)	Sample Details: Sample ID	Sample Details: Recovery	Boring Diagram	Lithologic Symbol	Depth (ft)
0		Ground Surface						0
		Imported Gravel and Cobble (Fill) Brown						
5								5
10		Hard drilling, difficult to advance						10
		Sand (Native) Gray, shells, easy drilling						
		Bottom of boring at 14 feet below ground surface.						
15								15
20								20



DATA VALIDATION TECHNICAL MEMORANDUM

Parametrix ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

411 108th AVENUE NE, SUITE 1800
BELLEVUE, WA 98004-5571
T. 425.458.6200 F. 425.893.8956
www.parametrix.com

TECHNICAL MEMORANDUM

Date:	January 21, 2011
To:	Project File
From:	Annika Deutsch
Subject:	Quality Assurance/Quality Control Review for West Bay
cc:	David Dinkuhn Lara Linde
Project Number:	235-1577-024 (04/04)
Project Name:	West Bay 8th Quarter, December 2010 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 December 2, 2010. Four groundwater, three surface water, and two seep samples (including a field duplicate [WB-GW-MW08-1090]) were submitted to OnSite Environmental, Inc. (Redmond, WA) for analysis. The dissolved organic carbon analysis was subcontracted to Am Test Inc. (Kirkland, WA).

All groundwater samples were analyzed for total and dissolved priority pollutant metals, chloride, and dissolved organic carbon (DOC). All other samples were analyzed for chloride, DOC, and a subset of total and dissolved metals (copper, nickel, and arsenic).

Final laboratory data were submitted to Parametrix via a Tier II-type data report (On-Site Laboratory Reference Number 1012-038). 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. All analyses requested on the COC were conducted.

No laboratory method blank contamination was observed.

Field duplicate results were acceptable, with the exception of total zinc (relative percent difference [RPD] = 53% [limit = 25%]) and copper (RPD = 32% [limit = 25%]). These high RPDs are likely due to sample heterogeneity; therefore, no data were qualified as a result.

The laboratory case narrative noted that the laboratory duplicate for total arsenic was out of control limits. This was due to the inherently high percentage variability of samples that are within five times the detection limit, and no data were qualified as a result.

All other analytical QC results were in control, indicating acceptable analytical accuracy and precision.

CONCLUSION

All samples were analyzed within holding times, and appropriate standard methods were used. No laboratory method blank contamination was observed. Analytical accuracy and precision were determined to be generally acceptable based on this review. Field duplicate results were acceptable, with the exception of total zinc and copper as noted; however, this is likely due to sample heterogeneity and does not affect data quality. All data reported should be considered valid as qualified by the lab and acceptable for further use.

LABORATORY REPORT

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

December 16, 2010

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. 1012-038

Dear David:

Enclosed are the analytical results and associated quality control data for samples submitted on December 3, 2010.

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 16, 2010
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-038
Project: 235-1577-024 04/03

Case Narrative

Samples were collected on December 2, 2010 and received by the laboratory on December 3, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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.

Total Metals EPA 200.8/7470A Analysis

The practical quantitation limits for Arsenic and Selenium are elevated due to interferences present in the samples.

The duplicate RPD for Arsenic is outside control limits due to the inherently high percentage variability of samples that are within five times the detection limit.

Dissolved Metals by EPA 200.8/7470A Analysis

The practical quantitation limits for Arsenic and Selenium are elevated due to interferences present in the samples.

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

Date of Report: December 16, 2010
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-038
Project: 235-1577-024 04/03

TOTAL METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-038-01					
Client ID:	**WB-GW-MW08-0090**					
Antimony	**ND**	0.50	200.8	12-7-10	12-8-10	
Arsenic	**ND**	1.0	200.8	12-7-10	12-10-10	
Beryllium	**ND**	0.50	200.8	12-7-10	12-8-10	
Cadmium	**ND**	0.50	200.8	12-7-10	12-8-10	
Chromium	**1.1**	0.50	200.8	12-7-10	12-8-10	
Copper	**4.8**	1.0	200.8	12-7-10	12-8-10	
Lead	**ND**	0.50	200.8	12-7-10	12-8-10	
Mercury	**ND**	0.025	7470A	12-8-10	12-8-10	
Nickel	**16**	0.50	200.8	12-7-10	12-8-10	
Selenium	**ND**	10	200.8	12-7-10	12-10-10	
Silver	**ND**	0.50	200.8	12-7-10	12-8-10	
Thallium	**ND**	0.50	200.8	12-7-10	12-8-10	
Zinc	**7.0**	2.5	200.8	12-7-10	12-8-10	

Date of Report: December 16, 2010
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-038
Project: 235-1577-024 04/03

TOTAL METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-038-02					
Client ID:	**WB-GW-MW08-1090**					
Antimony	**ND**	0.50	200.8	12-7-10	12-13-10	
Arsenic	**ND**	1.0	200.8	12-7-10	12-10-10	
Beryllium	**ND**	0.50	200.8	12-7-10	12-8-10	
Cadmium	**ND**	0.50	200.8	12-7-10	12-13-10	
Chromium	**1.6**	0.50	200.8	12-7-10	12-8-10	
Copper	**6.6**	1.0	200.8	12-7-10	12-8-10	
Lead	**0.50**	0.50	200.8	12-7-10	12-9-10	
Mercury	**ND**	0.025	7470A	12-8-10	12-8-10	
Nickel	**14**	0.50	200.8	12-7-10	12-8-10	
Selenium	**ND**	10	200.8	12-7-10	12-10-10	
Silver	**ND**	0.50	200.8	12-7-10	12-13-10	
Thallium	**ND**	0.50	200.8	12-7-10	12-9-10	
Zinc	**12**	2.5	200.8	12-7-10	12-8-10	

Date of Report: December 16, 2010
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-038
Project: 235-1577-024 04/03

TOTAL METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-038-03					
Client ID:	**WB-GW-MW09-0090**					
Antimony	**ND**	0.50	200.8	12-7-10	12-13-10	
Arsenic	**ND**	1.0	200.8	12-7-10	12-10-10	
Beryllium	**ND**	0.50	200.8	12-7-10	12-8-10	
Cadmium	**ND**	0.50	200.8	12-7-10	12-13-10	
Chromium	**1.7**	0.50	200.8	12-7-10	12-8-10	
Copper	**5.1**	1.0	200.8	12-7-10	12-8-10	
Lead	**ND**	0.50	200.8	12-7-10	12-9-10	
Mercury	**ND**	0.025	7470A	12-8-10	12-8-10	
Nickel	**13**	0.50	200.8	12-7-10	12-8-10	
Selenium	**ND**	10	200.8	12-7-10	12-10-10	
Silver	**ND**	0.50	200.8	12-7-10	12-13-10	
Thallium	**ND**	0.50	200.8	12-7-10	12-9-10	
Zinc	**6.8**	2.5	200.8	12-7-10	12-8-10	

Date of Report: December 16, 2010
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-038
Project: 235-1577-024 04/03

TOTAL METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-038-04					
Client ID:	**WB-GW-MW10-0080**					
Antimony	**ND**	0.50	200.8	12-7-10	12-8-10	
Arsenic	**ND**	1.2	200.8	12-7-10	12-10-10	
Beryllium	**ND**	0.50	200.8	12-7-10	12-8-10	
Cadmium	**ND**	0.50	200.8	12-7-10	12-8-10	
Chromium	**1.4**	0.50	200.8	12-7-10	12-8-10	
Copper	**4.6**	1.0	200.8	12-7-10	12-8-10	
Lead	**ND**	0.50	200.8	12-7-10	12-8-10	
Mercury	**ND**	0.025	7470A	12-8-10	12-8-10	
Nickel	**11**	0.50	200.8	12-7-10	12-8-10	
Selenium	**ND**	10	200.8	12-7-10	12-10-10	
Silver	**ND**	0.50	200.8	12-7-10	12-8-10	
Thallium	**ND**	0.50	200.8	12-7-10	12-8-10	
Zinc	**6.8**	2.5	200.8	12-7-10	12-8-10	

Date of Report: December 16, 2010
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-038
Project: 235-1577-024 04/03

TOTAL METALS
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-038-05					
Client ID:	**WB-SW-SW01-0000**					
Arsenic	**ND**	1.0	200.8	12-7-10	12-8-10	
Copper	**4.0**	1.0	200.8	12-7-10	12-8-10	
Nickel	**8.0**	0.50	200.8	12-7-10	12-8-10	
Lab ID:	12-038-06					
Client ID:	**WB-SW-SW02-0000**					
Arsenic	**ND**	1.0	200.8	12-7-10	12-8-10	
Copper	**6.3**	1.0	200.8	12-7-10	12-8-10	
Nickel	**13**	0.50	200.8	12-7-10	12-8-10	
Lab ID:	12-038-07					
Client ID:	**WB-SW-SW03-0000**					
Arsenic	**ND**	2.5	200.8	12-7-10	12-10-10	
Copper	**11**	2.5	200.8	12-7-10	12-10-10	
Nickel	**18**	1.3	200.8	12-7-10	12-10-10	
Lab ID:	12-038-08					
Client ID:	**WB-GW-SEEP4-0000**					
Arsenic	**ND**	1.0	200.8	12-7-10	12-8-10	
Copper	**4.6**	1.0	200.8	12-7-10	12-8-10	
Nickel	**6.6**	0.50	200.8	12-7-10	12-8-10	
Lab ID:	12-038-09					
Client ID:	**WB-GW-SEEP5-0000**					
Arsenic	**1.1**	1.0	200.8	12-7-10	12-8-10	
Copper	**3.2**	1.0	200.8	12-7-10	12-8-10	
Nickel	**4.4**	0.50	200.8	12-7-10	12-8-10	

Date of Report: December 16, 2010
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-038
Project: 235-1577-024 04/03

TOTAL METALS
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Extracted: 12-7-10
Date Analyzed: 12-8-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB1207W1

Analyte	Method	Result	PQL
Antimony	200.8	**ND**	0.50
Arsenic	200.8	**ND**	1.0
Beryllium	200.8	**ND**	0.50
Cadmium	200.8	**ND**	0.50
Chromium	200.8	**ND**	0.50
Copper	200.8	**ND**	1.0
Lead	200.8	**ND**	0.50
Nickel	200.8	**ND**	0.50
Selenium	200.8	**ND**	10
Silver	200.8	**ND**	0.50
Thallium	200.8	**ND**	0.50
Zinc	200.8	**ND**	2.5

Date of Report: December 16, 2010
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-038
Project: 235-1577-024 04/03

TOTAL MERCURY
EPA 7470A
METHOD BLANK QUALITY CONTROL

Date Extracted:	12-8-10
Date Analyzed:	12-8-10
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	MB1208W1

Analyte	Method	Result	PQL
Mercury	7470A	**ND**	0.025

Date of Report: December 16, 2010
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-038
Project: 235-1577-024 04/03

TOTAL METALS
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Extracted: 12-7-10
Date Analyzed: 12-8-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-038-09

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Antimony	**ND**	**ND**	NA	0.50	
Arsenic	**1.14**	**1.57**	32	1.0	**C**
Beryllium	**ND**	**ND**	NA	0.50	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**2.07**	**1.87**	10	0.50	
Copper	**3.16**	**2.97**	6	1.0	
Lead	**0.993**	**0.909**	9	0.50	
Nickel	**4.42**	**4.31**	3	0.50	
Selenium	**ND**	**ND**	NA	10	
Silver	**ND**	**ND**	NA	0.50	
Thallium	**ND**	**ND**	NA	0.50	
Zinc	**2.91**	**2.71**	7	2.5	

Date of Report: December 16, 2010
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-038
Project: 235-1577-024 04/03

TOTAL MERCURY
EPA 7470A
DUPLICATE QUALITY CONTROL

Date Extracted: 12-8-10
Date Analyzed: 12-8-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-038-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Mercury	**ND**	**ND**	NA	0.025	

Date of Report: December 16, 2010
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-038
Project: 235-1577-024 04/03

TOTAL METALS
EPA 200.8
MS/MSD QUALITY CONTROL

Date Extracted: 12-7-10
Date Analyzed: 12-8-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-038-09

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Antimony	100	**93.2**	93	**92.0**	92	1	
Arsenic	100	**96.6**	95	**93.7**	93	3	
Beryllium	100	**77.8**	78	**76.6**	77	2	
Cadmium	100	**85.0**	85	**87.6**	88	3	
Chromium	100	**100**	98	**95.0**	93	6	
Copper	100	**92.1**	89	**87.0**	84	6	
Lead	100	**84.2**	83	**86.6**	86	3	
Nickel	100	**97.5**	93	**90.8**	86	7	
Selenium	100	**99.0**	99	**94.9**	95	4	
Silver	100	**80.5**	81	**81.3**	81	1	
Thallium	100	**82.8**	83	**85.3**	85	3	
Zinc	100	**92.7**	90	**90.5**	88	3	

Date of Report: December 16, 2010
Samples Submitted: December 3, 2010
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Project: 235-1577-024 04/03

TOTAL MERCURY
EPA 7470A
MS/MSD QUALITY CONTROL

Date Extracted: 12-8-10
Date Analyzed: 12-8-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-038-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Mercury	6.25	**5.62**	90	**5.59**	89	0	

Date of Report: December 16, 2010
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CHLORIDE
SM 4500-Cl E

Date Analyzed: 12-7-10

Matrix: Water

Units: mg /L

Client ID	Lab ID	**Result**	PQL
WB-GW-MW08-0090	12-038-01	**9100**	200
WB-GW-MW08-1090	12-038-02	**10000**	200
WB-GW-MW09-0090	12-038-03	**9000**	200
WB-GW-MW10-0080	12-038-04	**8000**	400
WB-SW-SW01-0000	12-038-05	**8400**	200
WB-SW-SW02-0000	12-038-06	**9500**	200
WB-SW-SW03-0000	12-038-07	**15000**	400
WB-GW-SEEP4-0000	12-038-08	**2400**	100
WB-GW-SEEP5-0000	12-038-09	**1100**	40

Date of Report: December 16, 2010
Samples Submitted: December 3, 2010
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CHLORIDE
SM 4500-Cl E
QUALITY CONTROL

Date Analyzed: 12-7-10

Matrix: Water
Units: mg /L

METHOD BLANK QUALITY CONTROL

Lab ID	Result	PQL
MB1207W1	ND	2.0

SPIKE BLANK QUALITY CONTROL

Lab ID	Result	Spiked Amount	Percent Recovery	Control Limit	Flag
SB1207W1	59.9	50.0	120	95-127	

MATRIX SPIKE QUALITY CONTROL

Lab ID	Result	Spiked Amount	Percent Recovery	Control Limit	Flag
12-038-04	8040				
Matrix Spike	19300	10000	113	97-124	

DUPLICATE QUALITY CONTROL

Lab ID	Result	Duplicate Result	RPD	Control Limit	Flag
12-038-04	8040	8090	1	12	

Date of Report: December 16, 2010
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Project: 235-1577-024 04/03

DISSOLVED METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-038-01					
Client ID:	**WB-GW-MW08-0090**					
Antimony	**ND**	0.50	200.8		12-13-10	
Arsenic	**ND**	1.0	200.8		12-10-10	
Beryllium	**ND**	0.50	200.8		12-8-10	
Cadmium	**ND**	0.50	200.8		12-13-10	
Chromium	**1.2**	0.50	200.8		12-8-10	
Copper	**4.8**	0.50	200.8		12-8-10	
Lead	**ND**	0.50	200.8		12-9-10	
Mercury	**ND**	0.025	7470A		12-8-10	
Nickel	**18**	0.50	200.8		12-8-10	
Selenium	**ND**	10	200.8		12-10-10	
Silver	**ND**	0.50	200.8		12-13-10	
Thallium	**ND**	0.50	200.8		12-9-10	
Zinc	**6.1**	2.5	200.8		12-8-10	

Date of Report: December 16, 2010
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-038
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DISSOLVED METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-038-02					
Client ID:	**WB-GW-MW08-1090**					
Antimony	**ND**	0.50	200.8		12-8-10	
Arsenic	**ND**	1.0	200.8		12-8-10	
Beryllium	**ND**	0.50	200.8		12-8-10	
Cadmium	**ND**	0.50	200.8		12-8-10	
Chromium	**1.1**	0.50	200.8		12-8-10	
Copper	**4.4**	0.50	200.8		12-8-10	
Lead	**ND**	0.50	200.8		12-8-10	
Mercury	**ND**	0.025	7470A		12-8-10	
Nickel	**18**	0.50	200.8		12-8-10	
Selenium	**ND**	12	200.8		12-8-10	
Silver	**ND**	0.50	200.8		12-8-10	
Thallium	**ND**	0.50	200.8		12-8-10	
Zinc	**5.4**	2.5	200.8		12-8-10	

Date of Report: December 16, 2010
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-038
Project: 235-1577-024 04/03

DISSOLVED METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-038-03					
Client ID:	**WB-GW-MW09-0090**					
Antimony	**ND**	0.50	200.8		12-8-10	
Arsenic	**ND**	1.0	200.8		12-10-10	
Beryllium	**ND**	0.50	200.8		12-8-10	
Cadmium	**ND**	0.50	200.8		12-8-10	
Chromium	**1.1**	0.50	200.8		12-8-10	
Copper	**4.4**	0.50	200.8		12-8-10	
Lead	**ND**	0.50	200.8		12-9-10	
Mercury	**ND**	0.025	7470A		12-8-10	
Nickel	**15**	0.50	200.8		12-8-10	
Selenium	**ND**	10	200.8		12-10-10	
Silver	**ND**	0.50	200.8		12-8-10	
Thallium	**ND**	0.50	200.8		12-9-10	
Zinc	**3.5**	2.5	200.8		12-8-10	

Date of Report: December 16, 2010
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-038
Project: 235-1577-024 04/03

DISSOLVED METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-038-04					
Client ID:	**WB-GW-MW10-0080**					
Antimony	**ND**	0.50	200.8		12-13-10	
Arsenic	**ND**	1.0	200.8		12-10-10	
Beryllium	**ND**	0.50	200.8		12-8-10	
Cadmium	**ND**	0.50	200.8		12-13-10	
Chromium	**1.5**	0.50	200.8		12-8-10	
Copper	**4.8**	0.50	200.8		12-8-10	
Lead	**ND**	0.50	200.8		12-9-10	
Mercury	**ND**	0.025	7470A		12-8-10	
Nickel	**12**	0.50	200.8		12-8-10	
Selenium	**ND**	10	200.8		12-10-10	
Silver	**ND**	0.50	200.8		12-13-10	
Thallium	**ND**	0.50	200.8		12-9-10	
Zinc	**4.3**	2.5	200.8		12-8-10	

Date of Report: December 16, 2010
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DISSOLVED METALS
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-038-05					
Client ID:	**WB-SW-SW01-0000**					
Arsenic	**ND**	1.0	200.8	12-3-10	12-10-10	
Copper	**6.6**	0.50	200.8	12-3-10	12-8-10	
Nickel	**13**	0.50	200.8	12-3-10	12-8-10	
Lab ID:	12-038-06					
Client ID:	**WB-SW-SW02-0000**					
Arsenic	**ND**	1.0	200.8	12-3-10	12-10-10	
Copper	**6.8**	0.50	200.8	12-3-10	12-8-10	
Nickel	**15**	0.50	200.8	12-3-10	12-8-10	
Lab ID:	12-038-07					
Client ID:	**WB-SW-SW03-0000**					
Arsenic	**ND**	3.0	200.8	12-3-10	12-8-10	
Copper	**8.7**	0.50	200.8	12-3-10	12-8-10	
Nickel	**19**	0.50	200.8	12-3-10	12-8-10	
Lab ID:	12-038-08					
Client ID:	**WB-GW-SEEP4-0000**					
Arsenic	**ND**	1.0	200.8	12-3-10	12-10-10	
Copper	**3.5**	0.50	200.8	12-3-10	12-8-10	
Nickel	**6.1**	0.50	200.8	12-3-10	12-8-10	
Lab ID:	12-038-09					
Client ID:	**WB-GW-SEEP5-0000**					
Arsenic	**1.5**	1.0	200.8	12-3-10	12-8-10	
Copper	**1.6**	0.50	200.8	12-3-10	12-8-10	
Nickel	**3.8**	0.50	200.8	12-3-10	12-8-10	

Date of Report: December 16, 2010
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-038
Project: 235-1577-024 04/03

DISSOLVED METALS
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Filtered:	12-3-10
Date Analyzed:	12-8-10
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	MB1203F1

Analyte	Method	Result	PQL
Antimony	200.8	**ND**	0.50
Arsenic	200.8	**ND**	1.0
Beryllium	200.8	**ND**	0.50
Cadmium	200.8	**ND**	0.50
Chromium	200.8	**ND**	0.50
Copper	200.8	**ND**	0.50
Lead	200.8	**ND**	0.50
Nickel	200.8	**ND**	0.50
Selenium	200.8	**ND**	10
Silver	200.8	**ND**	0.50
Thallium	200.8	**ND**	0.50
Zinc	200.8	**ND**	2.5

Date of Report: December 16, 2010
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-038
Project: 235-1577-024 04/03

DISSOLVED ANTIMONY
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Filtered:	12-3-10
Date Analyzed:	12-10-10
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	MB1203F1

Analyte	Method	Result	PQL
Antimony	200.8	**ND**	0.50

Date of Report: December 16, 2010
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-038
Project: 235-1577-024 04/03

DISSOLVED MERCURY
EPA 7470A
METHOD BLANK QUALITY CONTROL

Date Analyzed: 12-8-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB1208D1

Analyte	Method	Result	PQL
Mercury	7470A	**ND**	0.025

Date of Report: December 16, 2010
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-038
Project: 235-1577-024 04/03

DISSOLVED METALS
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Filtered: 12-3-10
Date Analyzed: 12-8-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-038-09

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Antimony	**ND**	**ND**	NA	0.50	
Arsenic	**1.46**	**1.19**	20	1.0	
Beryllium	**ND**	**ND**	NA	0.50	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**0.862**	**0.844**	2	0.50	
Copper	**1.56**	**1.56**	0	0.50	
Lead	**ND**	**ND**	NA	0.50	
Nickel	**3.85**	**4.00**	4	0.50	
Selenium	**ND**	**ND**	NA	10	
Silver	**ND**	**ND**	NA	0.50	
Thallium	**ND**	**ND**	NA	0.50	
Zinc	**ND**	**2.93**	NA	2.5	

Date of Report: December 16, 2010
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-038
Project: 235-1577-024 04/03

DISSOLVED ANTIMONY
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Filtered: 12-3-10
Date Analyzed: 12-10-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-038-09

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Antimony	**ND**	**ND**	NA	0.50	

Date of Report: December 16, 2010
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-038
Project: 235-1577-024 04/03

DISSOLVED MERCURY
EPA 7470A
DUPLICATE QUALITY CONTROL

Date Analyzed: 12-8-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-038-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Mercury	**ND**	**ND**	NA	0.025	

Date of Report: December 16, 2010
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-038
Project: 235-1577-024 04/03

DISSOLVED METALS
EPA 200.8
MS/MSD QUALITY CONTROL

Date Filtered: 12-3-10
Date Analyzed: 12-8-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-038-09

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Antimony	100	**99.3**	99	**106**	106	6	
Arsenic	100	**97.8**	96	**104**	103	7	
Beryllium	100	**83.1**	83	**87.2**	87	5	
Cadmium	100	**93.6**	94	**96.8**	97	3	
Chromium	100	**103**	103	**112**	111	8	
Copper	100	**92.7**	91	**101**	99	8	
Lead	100	**91.6**	92	**93.2**	93	2	
Nickel	100	**99.5**	96	**109**	105	9	
Selenium	100	**98.1**	98	**105**	105	7	
Silver	100	**85.3**	85	**92.3**	92	8	
Thallium	100	**91.1**	91	**92.2**	92	1	
Zinc	100	**95.1**	95	**100**	100	5	

Date of Report: December 16, 2010
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-038
Project: 235-1577-024 04/03

DISSOLVED ANTIMONY
EPA 200.8
MS/MSD QUALITY CONTROL

Date Filtered: 12-3-10
Date Analyzed: 12-10-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-038-09

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Antimony	80	**83.7**	105	**86.3**	108	3	

Date of Report: December 16, 2010
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-038
Project: 235-1577-024 04/03

DISSOLVED MERCURY
EPA 7470A
MS/MSD QUALITY CONTROL

Date Analyzed: 12-8-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-038-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Mercury	6.25	**5.66**	90	**6.10**	98	8	

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

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

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

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

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

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

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

I - Compound recovery is outside of the control limits.

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

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

L - The RPD is outside of the control limits.

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

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

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

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

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

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

Q - Surrogate recovery is outside of the control limits.

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

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

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

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

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

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

X - Sample extract treated with a mercury cleanup procedure.

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

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

Professional Analytical Services

Dec 16 2010
On-Site Environmental
14648 NE 95th ST
Redmond, WA 98052
Attention: David Baumeister

Dear David Baumeister:

Enclosed please find the analytical data for your project.

The following is a cross correlation of client and laboratory identifications for your convenience.

CLIENT ID	MATRIX	AMTEST ID	TEST
WB-GW-MW08-0090	Water	10-A019346	CONV
WB-GW-MW08-1090	Water	10-A019347	CONV
WB-GW-MW09-0090	Water	10-A019348	CONV
WB-GW-MW10-0080	Water	10-A019349	CONV
WB-SW-SW01-0000	Water	10-A019350	CONV
WB-SW-SW02-0000	Water	10-A019351	CONV
WB-SW-SW03-0000	Water	10-A019352	CONV
WB-GW-SEEP4-0000	Water	10-A019353	CONV
WB-GW-SEEP5-0000	Water	10-A019354	CONV

Your samples were received on Friday, December 3, 2010. At the time of receipt, the samples were logged in and properly maintained prior to the subsequent analysis.

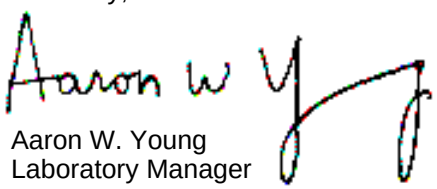
The analytical procedures used at AmTest are well documented and are typically derived from the protocols of the EPA, USDA, FDA or the Army Corps of Engineers.

Following the analytical data you will find the Quality Control (QC) results.

Please note that the detection limits that are listed in the body of the report refer to the Method Detection Limits (MDL's), as opposed to Practical Quantitation Limits (PQL's).

If you should have any questions pertaining to the data package, please feel free to conact me.

Sincerely,



Aaron W. Young
Laboratory Manager

Project #: 235-1577-024
PO Number: 12-038

BACT = Bacteriological
CONV = Conventionals
MET = Metals
ORG = Organics
NUT=Nutrients
DEM=Demand
MIN=Minerals

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

Professional Analytical Services

ANALYSIS REPORT

On-Site Environmental
14648 NE 95th ST
Redmond, WA 98052
Attention: David Baumeister
Project #: 235-1577-024
PO Number: 12-038
All results reported on an as received basis.

Date Received: 12/03/10
Date Reported: 12/16/10

AMTEST Identification Number **10-A019346**
Client Identification **WB-GW-MW08-0090**
Sampling Date **12/02/10, 08:25**

Conventionals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Dissolved Organic Carbon	83.	mg/l		0.50	SM 5310B	NLN	12/13/10

AMTEST Identification Number **10-A019347**
Client Identification **WB-GW-MW08-1090**
Sampling Date **12/02/10, 08:30**

Conventionals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Dissolved Organic Carbon	92.	mg/l		0.50	SM 5310B	NLN	12/13/10

AMTEST Identification Number **10-A019348**
Client Identification **WB-GW-MW09-0090**
Sampling Date **12/02/10, 09:10**

Conventionals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Dissolved Organic Carbon	100	mg/l		0.50	SM 5310B	NLN	12/13/10

AMTEST Identification Number **10-A019349**
Client Identification **WB-GW-MW10-0080**
Sampling Date **12/02/10, 09:45**

Conventionals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Dissolved Organic Carbon	76.	mg/l		0.50	SM 5310B	NLN	12/13/10

AMTEST Identification Number **10-A019350**
Client Identification **WB-SW-SW01-0000**
Sampling Date **12/02/10, 08:40**

Conventionals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Dissolved Organic Carbon	14.	mg/l		0.50	SM 5310B	NLN	12/13/10

AMTEST Identification Number **10-A019351**
Client Identification **WB-SW-SW02-0000**
Sampling Date **12/02/10, 08:20**

Conventionals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Dissolved Organic Carbon	13.	mg/l		0.50	SM 5310B	NLN	12/13/10

AMTEST Identification Number **10-A019352**
Client Identification **WB-SW-SW03-0000**
Sampling Date **12/02/10, 08:50**

Conventionals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Dissolved Organic Carbon	17.	mg/l		0.50	SM 5310B	NLN	12/13/10

AMTEST Identification Number **10-A019353**
Client Identification **WB-GW-SEEP4-0000**
Sampling Date **12/02/10, 10:22**

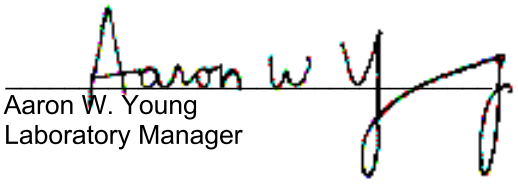
Conventionals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Dissolved Organic Carbon	65.	mg/l		0.50	SM 5310B	NLN	12/13/10

AMTEST Identification Number **10-A019354**
Client Identification **WB-GW-SEEP5-0000**
Sampling Date **12/02/10, 10:18**

Conventionals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Dissolved Organic Carbon	31.	mg/l		0.50	SM 5310B	NLN	12/13/10



Aaron W. Young
Laboratory Manager

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

AMTEST LABORATORIES

Professional Analytical Services

QC Summary for sample numbers: 10-A019346 to 10-A019354

DUPLICATES

SAMPLE #	ANALYTE	UNITS	SAMPLE VALUE	DUP VALUE	RPD
10-A019349	Dissolved Organic Carbon	mg/l	76.	68.	11.

MATRIX SPIKES

SAMPLE #	ANALYTE	UNITS	SAMPLE VALUE	SMPL+ SPK	SPK AMT	RECOVERY
10-A019351	Dissolved Organic Carbon	mg/l	13.	52.	50.	78.00 %

STANDARD REFERENCE MATERIALS

ANALYTE	UNITS	TRUE VALUE	MEASURED VALUE	RECOVERY
Dissolved Organic Carbon	mg/l	100	100	100. %

BLANKS

ANALYTE	UNITS	RESULT
Dissolved Organic Carbon	mg/l	< 0.5

OnSite Environmental Inc.

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

Laboratory Reference #: 12-038

Subcontract Laboratory: AmTest Laboratories

Turnaround Request: 1 Day 2 Day 3 Day (Standard)

Project Manager: David Baumeister

Attention: Aaron Young

email: dbaumeister@onsite-env.com

13600 NE 126th Pl Kirkland, WA 98034

Project Number: 235-1577-024

Phone Number: ~~(206) 695-6200~~ 885 1664

Other:

Project Name:

Date/Time:

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	Requested Analysis
19346	WB-GW-MW08-0090	12/2/10	0825	GW	2	DOC
347	WB-GW-MW08-1090		0830			
348	WB-GW-MW09-0090		0910			
349	WB-GW-MW10-0080		0945	↓		
350	WB-SW-SW01-0000		0840	SW		
351	WB-SW-SW02-0000		0820			
352	WB-SW-SW03-0000		0850	↓		
353	WB-GW-SEEP4-0000		1022	GW		
354	WB-GW-SEEP5-0000	↓	1018	↓	↓	↓

	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished by:		OnSite Env	12/3/10	1427	EIM
Received by:		JOlson	12/3/10	1427	
Relinquished by:					
Received by:					
Relinquished by:					
Received by:					

Chain of Custody

Page 1 of 1

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

Company: Parametrix
Project Number: 235-1577-024 04/03
Project Name: West Bay Park
Project Manager: D. Dinkuhn
Sampled by: L. Linde

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

Laboratory Number: 12-038

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA / MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664	PP metals (Total)**	PP metals (Diss)*	Cl-	Cu, Ni, As (Total)**	Cu, Ni, As (Diss)*	DOC	% Moisture
1	WB-GW-MW08-0090	12/2/10	0825	GW	5																X	X	X			X	
2	WB-GW-MW08-1090		0830																								
3	WB-GW-MW09-0090		0910																								
4	WB-GW-MW10-0080		0945																								
5	WB-SW-SW01-0000		0840	SW																				X	X		
6	WB-SW-SW02-0000		0820																								
7	WB-SW-SW03-0000		0850																								
8	WB-GW-SEEP4-0000		1022	GW																							
9	WB-GW-SEEP5-0000		1018																								

	Signature	Company	Date	Time
Relinquished	Lara Linde	Parametrix	12/3/10	0950
Received	DAVE Theimer	Thunderdog NEL	12/3/10	9:50
Relinquished	DAVE Theimer	Thunderdog Delivery	12/3/10	12:30
Received		CSE	12/3/10	1230
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
* field filtered
** lab to filter
EIM EDDs
PQLs to meet RI/FS requirements
(SEE ATTACHED LIST)

Chromatograms with final report ☐

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