

March 15, 2004
10077.004

Oregon Department of Environmental Quality
Northwest Region
2020 SW Fourth Avenue
Suite 400
Portland, Oregon 97201-4987

VIA Email/First Class

Attention: Anna Coates

**Subject: Technical Memorandum
QUARTERLY GROUND-WATER MONITORING
FOURTH QUARTER 2003 – 1st ROUND
Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon
DEQ ECSI File #2277**

Dear Ms. Coates:

This Technical Memorandum presents the results of ground-water monitoring completed in October 2003 for the Remedial Investigation/Feasibility Study (RI/FS) at the Astoria Area-Wide Petroleum Site. The site location is shown on Figure 1 and a site plan is shown on Figure 2. The fieldwork was performed at the site from October 13 through October 23, 2003, in accordance with the Work Plan Addendum, Phase 1 Ground Water Assessment (*EnviroLogic Resources*, 2003b). This technical memorandum presents the analytical results of the first ground-water sampling event (Fourth Quarter 2003). The field sampling activities were performed by *EnviroLogic Resources, Inc.*

Ground-water samples were collected and analyzed for all COIs from all of the monitoring wells during the initial ground-water sampling event, excluding wells that contained free-phase hydrocarbons. A total of 57 samples from 47 wells, including MW-2(M), MW-6(M), MW-7(M), MW-10(M), MW-11(M), MW-12(A) through MW-24(A), MW-26(A) through MW-48(A), MW-1(F), and R-1(M), were collected for laboratory analysis. Sampling methods, containers, preservatives, and holding times for each analytical method are provided in the Field Sampling Plan (Appendix A of the RI/FS Work Plan [*EnviroLogic Resources*, 2002b]). In addition, specific procedures used during the sampling event are presented in Appendix A of this document. The locations of the monitoring wells and recovery wells are shown on Figure 3.

The following field parameters were measured as part of the quarterly monitoring event: pH, temperature, specific conductance, oxidation-reduction potential (ORP), and dissolved oxygen (DO). Ground-water sampling logs are presented in Appendix B. Samples of light nonaqueous phase liquid or “product” was collected from monitoring wells MW-3(M), MW-4(M), MW-8(M), and MW-9(M) during this monitoring event for analysis of specific gravity.

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Appendix A (Field Sampling Plan, FSP) of the RI/FS Work Plan outlined the methods and procedures, which were to be followed while sampling ground water from the monitoring wells at the Astoria Area-Wide site. Modifications to these methods and procedures are documented below:

- No field filtering for metals samples was conducted at wells MW-10(M) and MW-1(F) because of equipment access issues; and
- No field duplicate sample was collected for first batch shipped to the laboratory.

SUMMARY OF THE FOURTH QUARTER 2003 SAMPLING EVENT

A total of 46 monitoring wells and one recovery well were included in the Fourth Quarter 2003 sampling event. The measured potentiometric surface and chemical concentration data representing the key or indicator COIs are presented in the following sections.

The ground-water flow direction at the Astoria Area-Wide site is generally to the northwest and toward Pier 2. A map showing the potentiometric surface is presented on Figure 3. The ground-water elevation data are presented in Table 1. Ground-water elevations have been corrected for the presence of free product using either the measured specific gravity in the well, or 0.87.

A total of 57 water samples were submitted for analysis during this first round of sampling. This included 43 field samples, 2 field duplicates, 2 equipment blanks, and 10 trip blanks. Table 2 shows the chemicals detected and the range of concentrations observed in monitoring wells during the sampling event. Ground-water analytical results from the Fourth Quarter 2003 round of sampling are summarized in Tables 2 through 9. Figures 4 through 7 show the monitoring well locations along with detected concentrations of select petroleum constituents, including iron. Laboratory analytical data sheets, QA/QC data, the data validation report, and chain-of-custody forms for this ground-water sampling event are presented in Appendix C. Data have been qualified where detections in blanks (e.g., laboratory method blanks or equipment blanks) affect the reported analytical result. No data were rejected as a result of the data validation.

The depth to product, product thickness, and depth to water are measured monthly using an interface probe. The product measurement data through the Fourth Quarter 2003 is included in Table 1. Monitoring wells MW-1(M), MW-3(M), MW-4(M), MW-8(M), and MW-9(M) contain measurable product. A petroleum sheen was observed in MW-41(A). The product thickness in the wells varies month to month and product is pumped out of these wells on a monthly basis. The volume of product recovered from these monitoring wells through December 2003 is presented in Table 10.

NEXT MONITORING EVENT

In accordance with the approved ground-water monitoring program, the next or second quarterly ground-water monitoring event was completed in January 2004. A technical memorandum summarizing the results of the January 2004 ground-water monitoring event will be submitted to DEQ in March 2004.

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CLOSING COMMENTS

Please call me at (503)768-5121 if you have any questions or comments regarding this progress report.

Sincerely,
EnviroLogic Resources, Inc.

Thomas J. Calabrese, RG, CWRE
Principal/Hydrogeologist
Project Manager

cc: Distribution list attached

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APPENDICES

- Appendix A Methods and Procedures
- Appendix B Ground-Water Sampling Logs
- Appendix C Laboratory Analytical Reports with Data Validation Reports

REFERENCES

- EnviroLogic Resources, Inc.*, 2002a, RI/FS and IRAM Development Proposal, Remedial Investigation/Feasibility Study, Astoria Area-Wide Petroleum Site, Astoria, Oregon: consultant report dated January 21, 2002.
- EnviroLogic Resources, Inc.*, 2002b, RI/FS and IRAM Development Work Plan, Phase 1, Remedial Investigation/Feasibility Study, Astoria Area-Wide Petroleum Site, Astoria, Oregon: consultant report dated July 15, 2002.
- EnviroLogic Resources, Inc.*, 2003a, Phase 1 Soil Technical Memorandum, Remedial Investigation/Feasibility Study, Astoria Area-Wide Petroleum Site, Astoria, Oregon: consultant report dated January 30, 2003.
- EnviroLogic Resources, Inc.*, 2003b, Work Plan Addendum, Phase 1 Ground Water Assessment, Remedial Investigation/Feasibility Study, Astoria Area-Wide Petroleum Site, Astoria, Oregon: consultant report dated July 2, 2003.
- EnviroLogic Resources, Inc.*, 2003c, Work Plan Addendum, Phase 2 Soil Characterization, Remedial Investigation/Feasibility Study, Astoria Area-Wide Petroleum Site, Astoria, Oregon: consultant report dated July 28, 2003.
- Oregon Department of Environmental Quality, 2003, Risk-based decision making for the remediation of petroleum contaminated sites: DEQ Guidance issued September 22, 2003.
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**ASTORIA AREA-WIDE PETROLEUM SITE
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TABLES

TABLE 1

GROUND-WATER LEVEL MEASUREMENTS

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Date	Time	Observed Tide Levels	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)	Comments
MW-1(F)	10/13/2003	1142	1.5	31.71	np	23.44	0	8.27		
MW-1(F)	10/22/2003	820	0.62	31.71	np	23.87	0	7.84		
MW-1(F)	11/12/2003	1130	0.56	31.71	np	23.03	0	8.68		Iron
MW-1(F)	12/16/2003	1358	0.34	31.71	np	17.25	0	14.46		
MW-1(M)	8/28/2002	1151	-1.99	14.53	9.61	10.08	0.47	4.86	18.27	
MW-1(M)	9/12/2002	1029	-2.84	14.53	9.34	9.88	0.54	5.12		
MW-1(M)	9/13/2002	1536	1.12	14.53	9.13	9.34	0.21	5.37		
MW-1(M)	10/11/2002	1141	-1.52	14.53	9.49	9.92	0.43	4.98	19.41	
MW-1(M)	11/15/2002	1118	3.51	14.53	7.11	7.19	0.08	7.41		
MW-1(M)	12/13/2002	841	4.39	14.53	6.54	6.57	0.03	7.99		
MW-1(M)	1/14/2003	1117	3.45	14.53	6.79	6.81	0.02	7.74		
MW-1(M)	2/12/2003	1126	2.12	14.53	7.55	7.56	0.01	6.98		
MW-1(M)	3/13/2003	1018	3.86	14.53	6.37	6.45	0.08	8.15		
MW-1(M)	4/14/2003	1147	4.17	14.53	np	6.57	0	7.96		Product seep visible
MW-1(M)	5/14/2003	1054	2.59	14.53	8.67	8.7	0.03	5.86		Product seep visible
MW-1(M)	6/17/2003	1431	2.05	14.53	9.19	9.25	0.06	5.33		Product seep visible
MW-1(M)	7/14/2003	1215	0.11	14.53	9.56	9.71	0.15	4.95		Product seep visible
MW-1(M)	8/13/2003	1350	3	14.53	9.31	9.32	0.01	5.22		Product seep visible
MW-1(M)	9/12/2003	1432	3.21	14.53	np	8.10	0	6.43		Product seep visible
MW-1(M)	10/13/2003	846	-2.52	14.53	9.31	9.33	0.02	5.22		Product seep visible
MW-1(M)	11/12/2003	1445	3.39	14.53	np	6.96	0	7.57		Product seep visible
MW-1(M)	12/16/2003	943	1.46	14.53	7.58	7.59	0.01	6.95		Product seep visible
MW-2(M)	8/28/2002	1122	-3.21	15.00	np	8.65	0	6.35	17.9	
MW-2(M)	9/12/2002	1015	-2.84	15.00	np	8.69	0	6.31		
MW-2(M)	9/13/2002	1520	1.12	15.00	np	9.7	0	5.30		
MW-2(M)	10/11/2002	1036	-2.45	15.00	np	8.95	0	6.05	19.03	
MW-2(M)	11/15/2002	930	2.73	15.00	np	8.55	0	6.45		
MW-2(M)	12/13/2002	814	4.26	15.00	np	8.08	0	6.92		
MW-2(M)	1/14/2003	1039	3.45	15.00	np	6.58	0	8.42		
MW-2(M)	2/12/2003	1042	2.12	15.00	np	6.47	0	8.53		
MW-2(M)	3/13/2003	940	3.86	15.00	np	5.91	0	9.09		
MW-2(M)	4/14/2003	1103	4.35	15.00	np	6.02	0	8.98		
MW-2(M)	5/14/2003	1008	1.15	15.00	np	6.91	0	8.09		
MW-2(M)	6/17/2003	1354	0.45	15.00	np	7.51	0	7.49		

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Locator ID	Date	Time	Observed Tide Levels	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)	Comments
MW-2(M)	7/14/2003	1132	0.11	15.00	np	8.02	0	6.98		
MW-2(M)	8/13/2003	1324	1.76	15.00	np	8.34	0	6.66		
MW-2(M)	9/12/2003	1318	2.26	15.00	np	8.58	0	6.42		
MW-2(M)	10/13/2003	852	-2.52	15.00	np	8.62	0	6.38		
MW-2(M)	10/15/2003	1300	2.26	15.00	np	8.62	0	6.38		
MW-2(M)	11/12/2003	1432	3.39	15.00	np	8.29	0	6.71		
MW-2(M)	12/16/2003	910	2.67	15.00	np	6.86	0	8.14		
MW-3(M)	8/28/2002	1345	1.05	15.42	9.45	10.17	0.72	5.87	17.51	
MW-3(M)	9/12/2002	1025	-2.84	15.42	9.42	10.12	0.7	5.90		
MW-3(M)	9/13/2002	1547	2.52	15.42	9.51	9.88	0.37	5.86		
MW-3(M)	10/11/2002	1155	-1.52	15.42	9.61	10.67	1.06	5.66	18.44	
MW-3(M)	11/15/2002	1134	3.51	15.42	9.07	9.7	0.63	6.26		
MW-3(M)	12/13/2002	906	4.39	15.42	8.68	9.02	0.34	6.69		
MW-3(M)	1/14/2003	1130	2.16	15.42	7.54	8.15	0.61	7.80		
MW-3(M)	2/12/2003	1142	0.66	15.42	7.61	8.18	0.57	7.73		
MW-3(M)	3/13/2003	1037	2.91	15.42	7.01	7.91	0.9	8.29		
MW-3(M)	4/14/2003	1207	4.17	15.42	7.06	8.29	1.23	8.19		
MW-3(M)	5/14/2003	1101	2.59	15.42	7.78	8.94	1.16	7.48		
MW-3(M)	6/17/2003	1500	2.05	15.42	8.42	9.15	0.73	6.90		
MW-3(M)	7/14/2003	1226	0.11	15.42	8.86	9.57	0.71	6.46		
MW-3(M)	8/13/2003	1403	3	15.42	9.06	9.64	0.58	6.28		
MW-3(M)	9/12/2003	1449	3.21	15.42	9.26	9.59	0.33	6.11		
MW-3(M)	10/13/2003	921	-2.52	15.42	9.35	9.79	0.44	6.01		
MW-3(M)	10/23/2003	939	2.62	15.42	9.15	9.6	0.45	6.21		
MW-3(M)	11/12/2003	1438	3.39	15.42	8.99	9.16	0.17	6.41		
MW-3(M)	12/16/2003	1003	1.46	15.42	7.76	8.21	0.45	7.60		
MW-4(M)	8/28/2002	1302	-0.5	15.5	9.16	9.45	0.29	6.30	20.59	
MW-4(M)	9/12/2002	1042	-3.1	15.5	9.21	9.58	0.37	6.24		
MW-4(M)	9/13/2002	1544	1.12	15.5	9.26	9.39	0.13	6.22		
MW-4(M)	10/11/2002	1122	-2.45	15.5	9.46	9.77	0.31	6.00	21.11	
MW-4(M)	11/15/2002	1108	3.51	15.5	9.08	9.12	0.04	6.41		
MW-4(M)	12/13/2002	850	4.39	15.5	np	8.66	0	6.84		
MW-4(M)	1/14/2003	1106	3.45	15.5	np	7.18	0	8.32		
MW-4(M)	2/12/2003	1112	2.12	15.5	6.95	7.92	0.97	8.42		
MW-4(M)	3/13/2003	1007	3.86	15.5	6.46	7.49	1.03	8.91		

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MW-4(M)	4/14/2003	1137	4.17	15.5	6.28	8.89	2.61	8.88		
MW-4(M)	5/14/2003	1126	2.59	15.5	7.18	9.48	2.3	8.02		
MW-4(M)	6/17/2003	1452	2.05	15.5	7.98	8.78	0.8	7.42		
MW-4(M)	7/14/2003	1232	1.8	15.5	8.53	8.79	0.26	6.94		
MW-4(M)	8/13/2003	1303	1.76	15.5	8.87	9.14	0.27	6.59		
MW-4(M)	9/12/2003	1445	3.21	15.5	9.07	9.28	0.21	6.40		
MW-4(M)	10/13/2003	914	-2.52	15.5	9.17	9.32	0.15	6.31		
MW-4(M)	10/23/2003	918	1.04	15.5	8.95	9.05	0.1	6.54		
MW-4(M)	11/12/2003	1501	3.39	15.5	np	8.85	0	6.65		
MW-4(M)	12/16/2003	918	2.67	15.5	np	7.45	0	8.05		
MW-5(M)	8/28/2002						0			
MW-6(M)	8/28/2002	1140	-1.99	13.78	np	7.71	0	6.07	18.47	
MW-6(M)	9/12/2002	926	-1.83	13.78	np	8.25	0	5.53		
MW-6(M)	9/13/2002	1515	1.12	13.78	np	7.71	0	6.07		
MW-6(M)	10/11/2002	1012	-2.51	13.78	np	7.92	0	5.86	19.06	
MW-6(M)	11/15/2002	921	2.73	13.78	np	7.41	0	6.37		
MW-6(M)	12/13/2002	802	4.26	13.78	np	8.85	0	4.93		
MW-6(M)	1/14/2003	1028	3.99	13.78	np	7.01	0	6.77		
MW-6(M)	2/12/2003	1031	2.12	13.78	np	6.61	0	7.17		
MW-6(M)	3/13/2003	930	4.37	13.78	np	6.93	0	6.85		
MW-6(M)	4/14/2003	1053	4.35	13.78	np	6.95	0	6.83		
MW-6(M)	5/14/2003	956	1.15	13.78	np	7.14	0	6.64		
MW-6(M)	6/17/2003	1402	0.45	13.78	np	7.12	0	6.66		
MW-6(M)	7/14/2003	1050	-1.9	13.78	np	7.47	0	6.31		
MW-6(M)	8/13/2003	1316	1.76	13.78	np	7.48	0	6.30		
MW-6(M)	9/12/2003	1312	2.26	13.78	np	7.56	0	6.22		
MW-6(M)	10/22/2003	1530	-2.21	13.78	np	7.00	0	6.78		
MW-6(M)	11/12/2003	1348	3.65	13.78	np	8.27	0	5.51		Pressure release
MW-6(M)	12/16/2003	857	2.67	13.78	np	5.86	0	7.92		
MW-7(M)	8/28/2002	1102	-3.21	14.86	np	8.31	0	6.55	18.64	
MW-7(M)	9/12/2002	900	-1.83	14.86	np	8.36	0	6.50		
MW-7(M)	9/13/2002	1455	1.12	14.86	np	8.43	0	6.43		
MW-7(M)	10/11/2002	957	-2.51	14.86	np	8.58	0	6.28	18.93	
MW-7(M)	11/15/2002	914	2.73	14.86	np	8.57	0	6.29		

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MW-7(M)	12/13/2002	754	4.26	14.86	np	7.7	0	7.16		
MW-7(M)	1/14/2003	1017	3.99	14.86	np	6.01	0	8.85		
MW-7(M)	2/12/2003	1021	3.06	14.86	np	5.96	0	8.90		
MW-7(M)	3/13/2003	920	4.37	14.86	np	5.3	0	9.56		
MW-7(M)	4/14/2003	1044	4.35	14.86	np	5.5	0	9.36		
MW-7(M)	5/14/2003	947	1.15	14.86	np	6.42	0	8.44		
MW-7(M)	6/17/2003	1347	0.45	14.86	np	7.13	0	7.73		
MW-7(M)	7/14/2003	1124	-1.9	14.86	np	7.66	0	7.20		
MW-7(M)	8/13/2003	1311	1.76	14.86	np	8.03	0	6.83		
MW-7(M)	9/12/2003	1307	2.26	14.86	np	8.27	0	6.59		
MW-7(M)	10/13/2003	852	-2.52	14.86	np	8.30	0	6.56		
MW-7(M)	10/13/2003	1547	2.54	14.86	np	8.27	0	6.59		
MW-7(M)	11/12/2003	1356	3.65	14.86	np	7.96	0	6.90		
MW-7(M)	12/16/2003	903	2.67	14.86	np	6.41	0	8.45		
MW-8(M)	8/28/2002	1326	-0.5	15.23	9.69	11.08	1.39	5.37	18.89	
MW-8(M)	9/12/2002	1036	-3.1	15.23	9.6	10.85	1.25	5.48		
MW-8(M)	9/13/2002	1540	1.12	15.23	9.7	10.41	0.71	5.44		
MW-8(M)	10/11/2002	1211	-1.52	15.23	9.89	10.91	1.02	5.22	18.74	
MW-8(M)	11/15/2002	1126	3.51	15.23	8.57	9.26	0.69	6.58		
MW-8(M)	12/13/2002	859	4.39	15.23	8.04	8.81	0.77	7.10		
MW-8(M)	1/14/2003	1123	3.45	15.23	8.2	8.53	0.33	6.99		
MW-8(M)	2/12/2003	1133	0.66	15.23	8.27	8.75	0.48	6.90		
MW-8(M)	3/13/2003	1029	3.86	15.23	np	8.22	0	7.01		
MW-8(M)	4/14/2003	1158	4.17	15.23	np	7.72	0	7.51		
MW-8(M)	5/14/2003	1042	2.59	15.23	8.71	9.45	0.74	6.43		
MW-8(M)	6/17/2003	1440	2.05	15.23	8.91	9.77	0.86	6.22		
MW-8(M)	7/14/2003	1221	0.11	15.23	9.32	9.79	0.47	5.85		
MW-8(M)	8/13/2003	1357	3	15.23	9.36	9.63	0.27	5.84		
MW-8(M)	9/12/2003	1437	3.21	15.23	9.19	9.41	0.22	6.01		
MW-8(M)	10/13/2003	932	-1.55	15.23	9.57	9.92	0.35	5.62		
MW-8(M)	10/23/2003	836	1.04	15.23	9.43	9.86	0.43	5.75		
MW-8(M)	11/12/2003	1442	3.39	15.23	8.81	8.86	0.05	6.41		
MW-8(M)	12/16/2003	954	1.46	15.23	np	8.71	0	6.52		
MW-9(M)	8/28/2002	1357	1.05	15.42	9.35	13.21	3.86	5.58	19.12	
MW-9(M)	9/12/2002	1049	-3.1	15.42	9.3	12.08	2.78	5.77		

TABLE 1

GROUND-WATER LEVEL MEASUREMENTS

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Date	Time	Observed Tide Levels	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)	Comments
MW-9(M)	9/13/2002	1552	1.12	15.42	9.61	10.21	0.6	5.73		
MW-9(M)	10/11/2002	1226	-1.52	15.42	9.75	10.92	1.17	5.52	19.47	
MW-9(M)	11/15/2002	1141	2.61	15.42	9.16	10.28	1.12	6.12		
MW-9(M)	12/13/2002	915	4.39	15.42	8.78	9.79	1.01	6.51		
MW-9(M)	1/14/2003	1137	2.16	15.42	7.76	8.55	0.79	7.56		
MW-9(M)	2/12/2003	1150	0.66	15.42	7.85	8.85	1	7.44		
MW-9(M)	3/13/2003	1045	2.91	15.42	7.35	8.21	0.86	7.96		
MW-9(M)	4/14/2003	1217	4.17	15.42	7.33	8.9	1.57	7.89		
MW-9(M)	5/15/2003	1116	2.59	15.42	8.11	10.3	2.19	7.03		
MW-9(M)	6/17/2003	1508	2.05	15.42	8.44	10.65	2.21	6.70		
MW-9(M)	7/14/2003	1241	1.8	15.42	9.00	9.94	0.94	6.30		
MW-9(M)	8/13/2003	1409	3	15.42	9.20	9.8	0.6	6.14		
MW-9(M)	9/12/2003	1456	3.21	15.42	9.38	9.9	0.52	5.97		
MW-9(M)	10/13/2003	939	-1.55	15.42	9.46	10.18	0.72	5.87		
MW-9(M)	10/23/2003	956	2.62	15.42	9.24	9.92	0.68	6.09		
MW-9(M)	11/12/2003	1456	3.39	15.42	9.15	9.49	0.34	6.23		
MW-9(M)	12/16/2003	1009	1.46	15.42	8.02	8.19	0.17	7.38		
MW-10(M)	8/28/2002	1430	1.05	16.32	np	11.23	0	5.09	19.43	
MW-10(M)	9/12/2002	1005	-2.84	16.32	np	11.1	0	5.22		
MW-10(M)	9/13/2002	1526	1.12	16.32	np	11.13	0	5.19		
MW-10(M)	10/11/2002	1055	-2.45	16.32	np	11.22	0	5.10	19.83	
MW-10(M)	11/15/2002	942	3.5	16.32	np	10.63	0	5.69		
MW-10(M)	12/13/2002	821	4.26	16.32	np	10.21	0	6.11		
MW-10(M)	1/14/2003	1048	3.45	16.32	np	9.62	0	6.70		
MW-10(M)	2/12/2003	1051	2.12	16.32	np	9.91	0	6.41		
MW-10(M)	3/13/2003	948	3.86	16.32	np	9.4	0	6.92		
MW-10(M)	4/14/2003	1118	4.35	16.32	np	9.1	0	7.22		
MW-10(M)	5/15/2003	1019	1.15	16.32	np	10.38	0	5.94		
MW-10(M)	6/17/2003	1413	0.45	16.32	np	10.41	0	5.91		
MW-10(M)	7/14/2003	1141	0.11	16.32	np	10.75	0	5.57		
MW-10(M)	8/13/2003	1333	3	16.32	np	10.77	0	5.55		
MW-10(M)	9/12/2003	1348	3.2	16.32	np	10.95	0	5.37		
MW-10(M)	10/13/2003	950	-1.55	16.32	np	10.88	0	5.44		
MW-10(M)	10/15/2003	1500	3.78	16.32	np	10.85	0	5.47		
MW-10(M)	11/12/2003	1334	3.65	16.32	np	10.67	0	5.65		
MW-10(M)	12/16/2003	1027	1.46	16.32	np	9.68	0	6.64		

TABLE 1

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Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
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Locator ID	Date	Time	Observed Tide Levels	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)	Comments
MW-11(M)	8/28/2002	1420	1.05	16.34	np	10.87	0	5.47	19.81	
MW-11(M)	9/12/2002	1000	-2.84	16.34	np	10.8	0	5.54		
MW-11(M)	9/13/2002	1531	1.12	16.34	np	10.83	0	5.51		
MW-11(M)	10/11/2002	1108	-2.45	16.34	np	11.01	0	5.33	19.83	
MW-11(M)	11/15/2002	949	3.5	16.34	np	10.37	0	5.97		
MW-11(M)	12/13/2002	829	4.26	16.34	np	9.94	0	6.40		
MW-11(M)	1/14/2003	1057	3.45	16.34	np	9.08	0	7.26		
MW-11(M)	2/12/2003	1058	2.12	16.34	np	9.25	0	7.09		
MW-11(M)	3/13/2003	958	3.86	16.34	np	8.71	0	7.63		
MW-11(M)	4/14/2003	1127	4.35	16.34	np	8.86	0	7.48		
MW-11(M)	5/15/2003	1028	1.15	16.34	np	9.79	0	6.55		
MW-11(M)	6/17/2003	1422	0.45	16.34	np	10.02	0	6.32		
MW-11(M)	7/14/2003	1149	0.11	16.34	np	10.39	0	5.95		
MW-11(M)	8/13/2003	1340	3	16.34	np	10.41	0	5.93		
MW-11(M)	9/12/2003	1353	3.2	16.34	np	10.6	0	5.74		
MW-11(M)	10/13/2003	956	-1.55	16.34	np	10.72	0	5.62		
MW-11(M)	10/15/2003	1720	2.7	16.34	np	10.41	0	5.93		
MW-11(M)	11/12/2003	1341	3.65	16.34	np	10.29	0	6.05		Slight Odor
MW-11(M)	12/16/2003	1019	1.46	16.34	np	9.27	0	7.07		
MW-12(A)	10/13/2003	1152	1.5	30.58	np	20.00	0	10.58	25.38	
MW-12(A)	10/22/2003	955	3.54	30.58	np	19.61	0	10.97		
MW-12(A)	11/12/2003	1116	0.56	30.58	np	18.87	0	11.71		
MW-12(A)	12/16/2003	1345	0.34	30.58	np	15.44	0	15.14		
MW-13(A)	10/13/2003	1157	1.5	31.36	np	22.68	0	8.68	26.42	
MW-13(A)	10/22/2003	1130	3.62	31.36	np	22.34	0	9.02		Odor
MW-13(A)	11/12/2003	1122	0.56	31.36	np	22.14	0	9.22		
MW-13(A)	12/16/2003	1352	0.34	31.36	np	18.41	0	12.95		
MW-14(A)	10/13/2003	1203	1.5	23.39	np	15.06	0	8.33	18.81	
MW-14(A)	10/21/2003	1645	-1.5	23.39	np	14.7	0	8.69		
MW-14(A)	11/12/2003	1056	0.56	23.39	np	14.55	0	8.84		Iron
MW-14(A)	12/16/2003	1336	0.34	23.39	np	12.01	0	11.38		
MW-15(A)	10/13/2003	1116	-0.1	16.95	np	9.08	0	7.87	14.81	

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Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Date	Time	Observed Tide Levels	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)	Comments
MW-15(A)	10/20/2003	1340	0.06	16.95	np	8.87	0	8.08		
MW-15(A)	11/12/2003	1026	-0.65	16.95	np	8.58	0	8.37		
MW-15(A)	12/16/2003	1239	-0.3	16.95	np	6.35	0	10.60		
MW-16(A)	10/13/2003	1111	-0.1	16.48	np	8.59	0	7.89	15.21	
MW-16(A)	10/20/2003	1510	-0.31	16.48	np	8.39	0	8.09		
MW-16(A)	11/12/2003	1035	0.56	16.48	np	8.18	0	8.30		
MW-16(A)	12/16/2003	1224	-0.19	16.48	np	6.51	0	9.97		possible sheen
MW-17(A)	10/13/2003	1125	-0.1	15.69	np	8.37	0	7.32	15.35	
MW-17(A)	10/17/2003	1240	1.23	15.69	np	8.31	0	7.38		
MW-17(A)	11/12/2003	1020	-0.65	15.69	np	7.88	0	7.81		
MW-17(A)	12/16/2003	1245	-0.3	15.69	np	5.7	0	9.99		
MW-18(A)	10/13/2003	1117	-0.1	16.23	np	8.85	0	7.38	15.36	
MW-18(A)	10/21/2003	1300	0.89	16.23	np	8.58	0	7.65		
MW-18(A)	11/12/2003	1042	0.56	16.23	np	8.39	0	7.84		Possible Sheen
MW-18(A)	12/16/2003	1234	-0.3	16.23	np	6.38	0	9.85		
MW-19(A)	10/13/2003	1049	-0.1	17.98	np	10.59	0	7.39	15.3	
MW-19(A)	10/20/2003	1050	2.89	17.98	np	10.43	0	7.55		
MW-19(A)	11/12/2003	1145	1.93	17.98	np	10.18	0	7.80		
MW-20(A)	10/13/2003	1047	-0.1	17.04	np	10.03	0	7.01	15.39	
MW-20(A)	10/20/2003	1210	1.9	17.04	np	9.88	0	7.16		
MW-20(A)	11/12/2003	1150	1.93	17.04	np	9.65	0	7.39		Iron
MW-20(A)	12/16/2003	1410	0.34	17.04	np	8.03	0	9.01		Iron
MW-21(A)	10/13/2003	1035	-0.1	15.90	np	9.22	0	6.68	15.35	
MW-21(A)	10/20/2003	940	3.26	15.90	np	9.11	0	6.79		
MW-21(A)	11/12/2003	1156	1.93	15.90	np	8.91	0	6.99		
MW-21(A)	12/16/2003	1216	-0.19	15.90	np	7.49	0	8.41		Iron
MW-22(A)	10/13/2003	1037	-0.1	16.13	np	9.24	0	6.89	15.08	
MW-22(A)	10/16/2003	940	0.09	16.13	np	9.21	0	6.92		
MW-22(A)	11/12/2003	1203	1.93	16.13	np	8.8	0	7.33		
MW-22(A)	12/16/2003	1048	0.48	16.13	np	6.91	0	9.22		

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GROUND-WATER LEVEL MEASUREMENTS

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Locator ID	Date	Time	Observed Tide Levels	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)	Comments
MW-23(A)	10/13/2003	1137	1.5	16.22	np	8.86	0	7.36	14.93	
MW-23(A)	10/20/2003	1630	0.49	16.22	np	8.71	0	7.51		
MW-23(A)	11/12/2003	1013	-0.65	16.22	np	8.3	0	7.92		
MW-23(A)	12/16/2003	1250	-0.3	16.22	np	5.36	0	10.86		
MW-24(A)	10/13/2003	1154	1.5	16.56	np	9.15	0	7.41	14.87	
MW-24(A)	10/21/2003	1430	-1.43	16.56	np	8.52	0	8.04		
MW-24(A)	11/12/2003	942	-0.65	16.56	np	8.17	0	8.39		
MW-24(A)	12/16/2003	1304	-0.3	16.56	np	4.45	0	12.11		
MW-26(A)	10/13/2003	1150	1.5	16.27	np	9.14	0	7.13	15.35	
MW-26(A)	10/17/2003	1600	3.29	16.27	np	9.09	0	7.18		
MW-26(A)	11/12/2003	947	-0.65	16.27	np	8.46	0	7.81		
MW-26(A)	12/16/2003	1259	-0.3	16.27	np	5.51	0	10.76		
MW-27(A)	10/13/2003	1213	1.5	16.36	np	9.26	0	7.10	15.24	
MW-27(A)	10/21/2003	905	2.61	16.36	np	9.02	0	7.34		
MW-27(A)	11/12/2003	1000	-0.65	16.36	np	8.54	0	7.82		Slight Odor
MW-27(A)	12/16/2003	1329	-0.3	16.36	np	5.74	0	10.62		
MW-28(A)	10/13/2003	1130	1.5	16.13	np	9.05	0	7.08	15.36	
MW-28(A)	10/17/2003	1415	1.92	16.13	np	9.01	0	7.12		
MW-28(A)	11/12/2003	1007	-0.65	16.13	np	8.51	0	7.62		Slight Odor
MW-28(A)	12/16/2003	1254	-0.3	16.13	np	6.12	0	10.01		Sheen on Cap
MW-29(A)	10/13/2003	1202	1.5	15.84	np	9.88	0	5.96	15.37	
MW-29(A)	10/21/2003	1550	-1.89	15.84	np	8.69	0	7.15		
MW-29(A)	11/12/2003	934	-0.65	15.84	np	8.33	0	7.51		Odor
MW-29(A)	12/16/2003	1309	-0.3	15.84	np	6.02	0	9.82		
MW-30(A)	10/13/2003	1000	-1.55	16.67	np	9.91	0	6.76	15.11	
MW-30(A)	10/16/2003	820	1.18	16.67	np	9.9	0	6.77		
MW-30(A)	11/12/2003	1221	1.93	16.67	np	9.42	0	7.25		Possible slight odor
MW-30(A)	12/16/2003	1201	-0.19	16.67	np	7.49	0	9.18		
MW-31(A)	10/13/2003	950	-1.55	16.23	np	9.81	0	6.42	15.31	

TABLE 1

GROUND-WATER LEVEL MEASUREMENTS

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
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Locator ID	Date	Time	Observed Tide Levels	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)	Comments
MW-31(A)	10/16/2003	1350	2.65	16.23	np	9.77	0	6.46		
MW-31(A)	11/12/2003	1210	1.93	16.23	np	9.48	0	6.75		Iron
MW-31(A)	12/16/2003	1207	-0.19	16.23	np	7.97	0	8.26		
MW-32(A)	10/13/2003	944	-1.55	16.51	np	10.43	0	6.08	15.36	
MW-32(A)	10/14/2003	1350	3.21	16.51	np	10.41	0	6.10		
MW-32(A)	11/12/2003	1316	3.06	16.51	np	10.07	0	6.44		
MW-32(A)	12/16/2003	1039	0.48	16.51	np	8.84	0	7.67		
MW-33(A)	10/13/2003	937	-1.55	16.14	np	10.87	0	5.27	17.31	
MW-33(A)	10/14/2003	838	-2.15	16.14	np	10.7	0	5.44		
MW-33(A)	11/12/2003	1328	3.06	16.14	np	10.33	0	5.81		
MW-33(A)	12/16/2003	1034	0.48	16.14	np	9.47	0	6.67		
MW-34(A)	10/13/2003	1003	-1.55	15.83	np	9.59	0	6.24	15.35	
MW-34(A)	10/15/2003	930	-0.99	15.83	np	9.57	0	6.26		
MW-34(A)	11/12/2003	1308	3.06	15.83	np	9.3	0	6.53		
MW-34(A)	12/16/2003	1054	0.48	15.83	np	7.91	0	7.92		
MW-35(A)	10/13/2003	1007	-1.55	16.50	np	9.9	0	6.60	15.32	
MW-35(A)	10/16/2003	1115	0.27	16.50	np	9.86	0	6.64		
MW-35(A)	11/12/2003	1228	1.93	16.50	np	9.47	0	7.03		
MW-35(A)	12/16/2003	1154	-0.19	16.50	np	7.7	0	8.80		
MW-36(A)	10/13/2003	1124	-0.1	16.14	np	8.96	0	7.18	15.36	
MW-36(A)	10/21/2003	1130	2.25	16.14	np	8.78	0	7.36		
MW-36(A)	11/12/2003	926	-1.42	16.14	np	8.41	0	7.73		
MW-36(A)	12/16/2003	1322	-0.3	16.14	np	5.74	0	10.40		
MW-37(A)	10/13/2003	1011	-1.55	18.22	np	11.31	0	6.91	15.41	
MW-37(A)	10/17/2003	810	1.8	18.22	np	11.23	0	6.99		
MW-37(A)	11/12/2003	1242	3.06	18.22	np	10.83	0	7.39		
MW-37(A)	12/16/2003	1146	-0.19	18.22	8.39	8.4	0.01	9.83		
MW-38(A)	10/13/2003	1130	1.5	17.20	np	8.95	0	8.25	15.38	
MW-38(A)	10/21/2003	1040	3.15	17.20	np	8.53	0	8.67		
MW-38(A)	11/12/2003	919	-1.42	17.20	np	8.33	0	8.87		

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Astoria, Oregon

Locator ID	Date	Time	Observed Tide Levels	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Corrected Water Elevation (feet)	Depth to Bottom (feet)	Comments
MW-38(A)	12/16/2003	1314	-0.3	17.20	np	5.21	0	11.99		
MW-39(A)	10/13/2003	1025	-1.55	17.29	np	9.3	0	7.99	15.41	
MW-39(A)	10/16/2003	1540	3.64	17.29	np	9.22	0	8.07		
MW-39(A)	12/16/2003	1104	0.48	17.29	np	5.79	0	11.50		
MW-40(A)	10/13/2003	1025	-1.55	16.17	np	9.56	0	6.61	15.42	
MW-40(A)	10/17/2003	935	0.7	16.17	np	9.51	0	6.66		
MW-40(A)	11/12/2003	1235	3.06	16.17	9.18	9.27	0.09	6.98		
MW-40(A)	12/16/2003	1138	-0.19	16.17	np	7.45	0	8.72		
MW-41(A)	10/13/2003	907	-2.52	15.67	np	9.23	0	6.44	15.35	
MW-41(A)	10/14/2003	1540	2.91	15.67	np	9.25	0	6.42		sheen
MW-41(A)	11/12/2003	1417	3.65	15.67	np	8.91	0	6.76		
MW-41(A)	12/16/2003	937	1.46	15.67	np	7.39	0	8.28		Odor
MW-42(A)	10/13/2003	859	-2.52	15.91	np	9.39	0	6.52	15.37	
MW-42(A)	10/15/2003	1100	-0.18	15.91	np	9.38	0	6.53		sheen
MW-42(A)	11/12/2003	1408	3.65	15.91	np	9.06	0	6.85		
MW-42(A)	12/16/2003	925	2.67	15.91	np	7.52	0	8.39		
MW-43(A)	10/13/2003	857	-2.52	15.94	np	9.07	0	6.87	15.35	
MW-43(A)	10/13/2003	1645	0.78	15.94	np	9.01	0	6.93		
MW-43(A)	11/12/2003	1403	3.65	15.94	np	8.74	0	7.20		
MW-43(A)	12/16/2003	930	1.46	15.94	np	6.97	0	8.97		
MW-44(A)	10/13/2003	1010	-1.55	15.31	np	8.22	0	7.09	15.41	
MW-44(A)	10/17/2003	1135	0.72	15.31	np	8.17	0	7.14		
MW-44(A)	11/12/2003	1302	3.06	15.31	np	7.95	0	7.36		
MW-44(A)	12/16/2003	1132	-0.19	15.31	5.88	6.02	0.14	9.41		
MW-45(A)	10/13/2003	1018	-1.55	17.32	np	9.92	0	7.40	17.16	
MW-45(A)	10/16/2003	1730	2.55	17.32	np	9.81	0	7.51		
MW-45(A)	11/12/2003	1256	3.06	17.32	np	9.13	0	8.19		
MW-45(A)	12/16/2003	1114	0.48	17.32	np	6.41	0	10.91		
MW-46(A)	10/13/2003	919	-2.52	16.00	np	7.46	0	8.54	15.34	

TABLE 1

GROUND-WATER LEVEL MEASUREMENTS

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

[illegible]

TABLE 2
CHEMICALS DETECTED IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Chemical	Total Number of Analyses	Number of Analyses with a Detection	Frequency of Detection (Percent)	Maximum Value (ug/L)
Diesel Range Organics	43	17	40	5780
Gasoline Range Organics	43	28	65	67,700
Heavy Oil Range Organics	43	6	14	2,500
1,2,4-Trimethylbenzene	43	23	53	3470
1,3,5-Trimethylbenzene	43	21	49	898
1,2-Dichloroethane	43	1	2	0.26
Benzene	43	29	67	3020
Ethylbenzene	43	32	74	2890
Isopropylbenzene	43	26	60	94.7
Methyl-t-butyl ether	43	3	7	0.98
n-Propylbenzene	43	29	67	388
Toluene	43	25	58	5320
Xylenes	43	28	65	14,900
Acenaphthene	43	18	42	2.45
Anthracene	43	3	7	0.137
Benzo(a)anthracene	43	2	5	0.0475
Benzo(a)pyrene	43	1	2	0.069
Benzo(b)fluoranthene	43	1	2	0.0625
Benzo(k)fluoranthene	43	1	2	0.0548
Chrysene	43	3	7	0.0554
Dibenzo(a,h)anthracene	43	1	2	0.0172
Fluoranthene	43	3	7	0.123
Fluorene	43	15	35	4.97
Indeno(1,2,3-cd)pyrene	43	1	2	0.0408
Naphthalene	43	30	70	1640
Phenanthrene	43	11	26	6.93
Pyrene	43	3	7	0.2
Arsenic	43	32	74	37.2
Arsenic, Dissolved	40	20	50	35.6
Barium	43	43	100	254
Barium, Dissolved	40	40	100	82.7
Cadmium	43	2	5	0.7
Cadmium, Dissolved	40	3	8	0.14
Chromium	43	32	74	60.6
Chromium, Dissolved	40	14	35	54.3
Lead	43	40	93	46.4
Lead, Dissolved	40	38	95	3.00
Mercury	43	3	7	0.262
Mercury, Dissolved	40	3	8	0.088
Selenium	43	8	19	2.77
Selenium, Dissolved	40	8	20	2.61
Silver	43	2	5	0.18
Calcium	26	26	100	136 mg/L
Chloride	26	26	100	54.5 mg/L
Iron	41	41	100	68.3 mg/L
Magnesium	26	26	100	46.8 mg/L
Manganese	26	26	100	10.5 mg/L

TABLE 3
DATA QUALIFIER DEFINITIONS

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

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

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

J+ The analyte was positively identified; the associated numerical value appears to be bias high.

J- The analyte was positively identified; the associated numerical value appears to be bias low.

UJ- The analyte was not detected above the reporting limit. However, the reporting limit appears to be bias low and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

C Common laboratory contaminant

B The analyte was also identified in a field or laboratory blank associated with this sample or sample group.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

TABLE 4
PETROLEUM HYDROCARBONS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Diesel Range Organics	Diesel Range Organics	Gasoline Range Organics	Gasoline Range Organics	Heavy Oil Range Organics	Heavy Oil Range Organics
			mg/L	ug/L	mg/L	ug/L	mg/L	ug/L
MW-1(F)	MW-1(F)	10/22/2003	0.25 U	250 U	0.094	94	0.5 U	500 U
MW-1(F)	MW-1-082302	8/23/2002	0.25 U	250 U	0.143	143	0.5 U	500 U
MW-2(M)	MW-2 (M)	10/15/2003	3.26	3260	4.51	4510	1.67	1670
MW-2(M)	MW-2(M)	6/19/2003	2.9	2900	9.44	9440	0.5 U	500 U
MW-6(M)	MW-6(M)	6/19/2003	0.25 U	250 U	0.457	457	0.5 U	500 U
MW-6(M)	MW-6(M)	10/22/2003	0.179 J	179 J	0.08 U	80 U	0.5 U	500 U
MW-7(M)	BM-7(M)	6/19/2003	0.25 U	250 U	0.08 U	80 U	0.5 U	500 U
MW-7(M)	MW-7(M)	6/19/2003	0.25 U	250 U	0.08 U	80 U	0.5 U	500 U
MW-7(M)	MW-7(M)	10/13/2003	0.307	307	0.08 U	80 U	0.5 U	500 U
MW-10(M)	MW-10 (M)	10/15/2003	1.79	1790	3.36	3360	0.302 J	302 J
MW-10(M)	MW-10(M)	6/19/2003	1.43	1430	2.4	2400	0.5 U	500 U
MW-11(M)	MW-11 (M)	10/15/2003	0.25 U	250 U	0.652	652	0.5 U	500 U
MW-11(M)	MW-11(M)	6/19/2003	0.25 U	250 U	0.179	179	0.5 U	500 U
MW-12(A)	MW-12(A)	10/22/2003	0.25 U	250 U	0.0601 J	60.1 J	0.5 U	500 U
MW-13(A)	MW-13(A)	10/22/2003	0.25 U	250 U	10.1	10100	0.5 U	500 U
MW-14(A)	MW-14(A)	10/21/2003	0.25 U	250 U	0.0718 J	71.8 J	0.5 U	500 U
MW-15(A)	MW-15(A)	10/20/2003	0.25 U	250 U	2.55	2550	0.5 U	500 U
MW-16(A)	MW-16(A)	10/20/2003	0.25 U	250 U	0.457	457	0.425 J	425 J

TABLE 4
PETROLEUM HYDROCARBONS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Diesel Range Organics	Diesel Range Organics	Gasoline Range Organics	Gasoline Range Organics	Heavy Oil Range Organics	Heavy Oil Range Organics
			mg/L	ug/L	mg/L	ug/L	mg/L	ug/L
MW-17(A)	MW-17 (A)	10/17/2003	0.25 U	250 U	0.74	740	0.5 U	500 U
MW-18(A)	MW-18(A)	10/21/2003	0.936	936	1.28	1280	2.18	2180
MW-19(A)	BM-19(A)	10/20/2003	0.176 J	176 J	0.08 U	80 U	0.5 U	500 U
MW-19(A)	MW-19(A)	10/20/2003	0.18 J	180 J	0.08 U	80 U	0.5 U	500 U
MW-20(A)	MW-20(A)	10/20/2003	1.37	1370	1.4	1400	0.71	710
MW-21(A)	MW-21(A)	10/20/2003	1.46	1460	0.753	753	0.5 U	500 U
MW-22(A)	MW-22 (A)	10/16/2003	0.25 U	250 U	0.14	140	0.5 U	500 U
MW-23(A)	MW-23(A)	10/20/2003	0.25 U	250 U	0.08 U	80 U	0.5 U	500 U
MW-24(A)	MW-24(A)	10/21/2003	0.25 U	250 U	0.376	376	0.5 U	500 U
MW-26(A)	MW-26 (A)	10/17/2003	0.25 U	250 U	8.05	8050	0.5 U	500 U
MW-27(A)	MW-27(A)	10/21/2003	0.25 U	250 U	0.099	99	0.5 U	500 U
MW-28(A)	MW-28 (A)	10/17/2003	2.13	2130	2.06	2060	0.5 U	500 U
MW-29(A)	MW-29(A)	10/21/2003	4.12	4120	60.2	60200	0.5 U	500 U
MW-30(A)	MW-30 (A)	10/16/2003	0.25 U	250 U	14.7	14700	0.5 U	500 U
MW-31(A)	BM-31 (A)	10/16/2003	0.25 U	250 U	7.39	7390	0.5 U	500 U
MW-31(A)	MW-31 (A)	10/16/2003	0.25 U	250 U	7.2	7200	0.5 U	500 U

TABLE 4
PETROLEUM HYDROCARBONS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Diesel Range Organics	Diesel Range Organics	Gasoline Range Organics	Gasoline Range Organics	Heavy Oil Range Organics	Heavy Oil Range Organics
			mg/L	ug/L	mg/L	ug/L	mg/L	ug/L
MW-32(A)	MW-32(A)	10/14/2003	0.25 U	250 U	0.08 U	80 U	0.5 U	500 U
MW-33(A)	MW-33(A)	10/14/2003	0.25 U	250 U	0.07 J	70 J	0.5 U	500 U
MW-34(A)	MW-34(A)	10/14/2003	0.25 U	250 U	0.08 U	80 U	0.5 U	500 U
MW-35(A)	MW-35 (A)	10/16/2003	0.25 U	250 U	0.08 U	80 U	0.5 U	500 U
MW-36(A)	MW-36(A)	10/21/2003	0.25 U	250 U	0.08 U	80 U	0.5 U	500 U
MW-37(A)	MW-37 (A)	10/17/2003	0.174 J	174 J	1.35	1350	0.5 U	500 U
MW-38(A)	MW-38(A)	10/21/2003	0.25 U	250 U	0.08 U	80 U	0.5 U	500 U
MW-39(A)	MW-39 (A)	10/16/2003	1.25	1250	0.518	518	0.5 U	500 U
MW-40(A)	MW-40 (A)	10/17/2003	3.66	3660	8.27	8270	0.5 U	500 U
MW-41(A)	MW-41(A)	10/14/2003	4.7	4700	7.7	7700	0.319 J	319 J
MW-42(A)	MW-42 (A)	10/15/2003	5.74	5740	18.9	18900	2.5 U	2500 U
MW-43(A)	MW-43(A)	10/13/2003	1	1000	0.08 U	80 U	0.5 U	500 U
MW-44(A)	MW-44 (A)	10/17/2003	5.78	5780	67.7	67700	0.5 U	500 U
MW-45(A)	MW-45 (A)	10/16/2003	0.25 U	250 U	0.08 U	80 U	0.5 U	500 U

TABLE 4
PETROLEUM HYDROCARBONS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Diesel Range Organics	Diesel Range Organics	Gasoline Range Organics	Gasoline Range Organics	Heavy Oil Range Organics	Heavy Oil Range Organics
			mg/L	ug/L	mg/L	ug/L	mg/L	ug/L
MW-46(A)	MW-46(A)	10/14/2003	0.25 U	250 U	0.08 U	80 U	0.5 U	500 U
MW-47(A)	MW-47(A)	10/13/2003	0.25 U	250 U	0.08 U	80 U	0.5 U	500 U
MW-48(A)	MW-48(A)	10/14/2003	0.25 U	250 U	0.08 U	80 U	0.5 U	500 U
R-1(M)	R-1(M)	10/22/2003	0.25 U	250 U	0.08 U	80 U	0.5 U	500 U

TABLE 5
RBDM VOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	1,2,4- Trimethyl benzene ug/L	1,2- Dibromo ethane ug/L	1,2- Dichloro ethane ug/L	1,3,5- Trimethyl benzene ug/L	Benzene ug/L	Ethylbenzene ug/L
MW-1(F)	MW-1-082302	8/23/2002	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-1(F)	MW-1-082302	8/23/2002					0.5 U	0.5 U
MW-1(F)	MW-1(F)	10/22/2003	1.64	0.5 U	0.5 U	0.42 J	0.41 J	3.65
MW-2(M)	MW-2(M)	6/19/2003	100	2.5 U	2.5 U	14.6	48.4	756
MW-2(M)	MW-2 (M)	10/15/2003	2.23	0.5 U	0.5 U	0.5 U	125	92.6
MW-6(M)	MW-6(M)	6/19/2003	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-6(M)	MW-6(M)	10/22/2003	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.41 J
MW-7(M)	BM-7(M)	6/19/2003	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-7(M)	MW-7(M)	6/19/2003	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-7(M)	MW-7(M)	10/13/2003	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-10(M)	MW-10 (M)	10/15/2003	6.3	1 U	1 U	1.34	319	182
MW-10(M)	MW-10(M)	6/19/2003	26.1	0.5 U	0.5 U	7.58	21	25
MW-11(M)	MW-11(M)	6/19/2003	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-11(M)	MW-11 (M)	10/15/2003	1 U B	0.5 U	0.5 U	0.31 J	11.6	0.38 J
MW-12(A)	MW-12(A)	10/22/2003	0.15 J	0.5 U	0.5 U	0.5 U	0.19 J	1.35
MW-13(A)	MW-13(A)	10/22/2003	17.4	2.5 U	2.5 U	42.8	259	915
MW-14(A)	MW-14(A)	10/21/2003	0.53 J	0.5 U	0.5 U	0.17 J	0.77	2.36
MW-15(A)	MW-15(A)	10/20/2003	7.37	0.5 U	0.26 J	6.87	127	27
MW-16(A)	MW-16(A)	10/20/2003	2.09	0.5 U	0.5 U	0.93	11.4	1.86

TABLE 5
RBDM VOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	1,2,4- Trimethyl benzene	1,2- Dibromo ethane	1,2- Dichloro ethane	1,3,5- Trimethyl benzene	Benzene	Ethylbenzene
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-17(A)	MW-17 (A)	10/17/2003	3.19	0.5 U	0.5 U	0.54	9.19	14.7
MW-18(A)	MW-18(A)	10/21/2003	0.72 J	1 U	1 U	1.56	273	2.18
MW-19(A)	BM-19(A)	10/20/2003	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-19(A)	MW-19(A)	10/20/2003	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-20(A)	MW-20(A)	10/20/2003	15.9	0.5 U	0.5 U	2.06	16.9	20.2
MW-21(A)	MW-21(A)	10/20/2003	0.2 J	0.5 U	0.5 U	0.24 J	0.5 U	3.1
MW-22(A)	MW-22 (A)	10/16/2003	1 U B	0.5 U	0.5 U	0.5 U	19.4	52.9
MW-23(A)	MW-23(A)	10/20/2003	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-24(A)	MW-24(A)	10/21/2003	2.05	0.5 U	0.5 U	1.35	0.62	7.69
MW-26(A)	MW-26 (A)	10/17/2003	600	2.5 U	2.5 U	135	3.05	373
MW-27(A)	MW-27(A)	10/21/2003	1 U	0.5 U	0.5 U	0.5 U	0.98	0.12 J
MW-28(A)	MW-28 (A)	10/17/2003	566	5 U	5 U	138	208	334
MW-29(A)	MW-29(A)	10/21/2003	1980	25 U	25 U	446	482	2480
MW-30(A)	MW-30 (A)	10/16/2003	20 U B	10 U	10 U	34.8	262	2080
MW-31(A)	BM-31 (A)	10/16/2003	10 U B	5 U	5 U	3.9 J	1260	728

TABLE 5
RBDM VOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	1,2,4- Trimethyl benzene ug/L	1,2- Dibromo ethane ug/L	1,2- Dichloro ethane ug/L	1,3,5- Trimethyl benzene ug/L	Benzene ug/L	Ethylbenzene ug/L
MW-31(A)	MW-31 (A)	10/16/2003	10 U B	5 U	5 U	3.9	1170	706
MW-32(A)	MW-32(A)	10/14/2003	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-33(A)	MW-33(A)	10/14/2003	1 U	0.5 U	0.5 U	0.5 U	3.49	0.5 U
MW-34(A)	MW-34(A)	10/14/2003	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.29 J
MW-35(A)	MW-35 (A)	10/16/2003	1 U	0.5 U	0.5 U	0.5 U	0.5 U	1.12
MW-36(A)	MW-36(A)	10/21/2003	0.15 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-37(A)	MW-37 (A)	10/17/2003	12.2	0.5 U	0.5 U	2.96	0.16 J	17
MW-38(A)	MW-38(A)	10/21/2003	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-39(A)	MW-39 (A)	10/16/2003	19.7	0.5 U	0.5 U	3.02	3.98	10.9
MW-40(A)	MW-40 (A)	10/17/2003	40.6	2.5 U	2.5 U	8.7	81.2	650
MW-41(A)	MW-41(A)	10/14/2003	15.4	5 U	5 U	5 U	355	1260
MW-42(A)	MW-42 (A)	10/15/2003	44.8	10 U	10 U	11.2	3020	1850
MW-43(A)	MW-43(A)	10/13/2003	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-44(A)	MW-44 (A)	10/17/2003	3470	25 U	25 U	898	898	2890
MW-45(A)	MW-45 (A)	10/16/2003	1 U B	0.5 U	0.5 U	0.5 U	0.16 J	0.32 J

TABLE 5
RBDM VOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	1,2,4- Trimethyl benzene	1,2- Dibromo ethane	1,2- Dichloro ethane	1,3,5- Trimethyl benzene	Benzene	Ethylbenzene
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-46(A)	MW-46(A)	10/14/2003	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-47(A)	MW-47(A)	10/13/2003	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-48(A)	MW-48(A)	10/14/2003	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
R-1(M)	R-1(M)	10/22/2003	1 U B	0.5 U	0.5 U	0.5 U	0.23 J	0.63

TABLE 5
RBDM VOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Isopropyl benzene	Methyl-t- butyl ether	n- Propylbenzene	Toluene	Xylenes
			ug/L	ug/L	ug/L	ug/L	ug/L
MW-1(F)	MW-1-082302	8/23/2002	2 U	2 U	0.5 U	0.5 U	1 U
MW-1(F)	MW-1-082302	8/23/2002				0.5 U	1 U
MW-1(F)	MW-1(F)	10/22/2003	0.17 J	2 U	0.26 J	7.08	16.3
MW-2(M)	MW-2(M)	6/19/2003	70.2	10 U	270	15.5	369
MW-2(M)	MW-2 (M)	10/15/2003	42.9	2 U	159	8.5	21.3
MW-6(M)	MW-6(M)	6/19/2003	2 U	2 U	0.5 U	0.5 U	1 U
MW-6(M)	MW-6(M)	10/22/2003	2 U	2 U	0.5 U	0.5 U B	1 U
MW-7(M)	BM-7(M)	6/19/2003	2 U	2 U	0.5 U	0.5 U	1 U
MW-7(M)	MW-7(M)	6/19/2003	2 U	2 U	0.5 U	0.5 U	1 U
MW-7(M)	MW-7(M)	10/13/2003	2 U	2 U	0.5 U	0.5 U	1 U
MW-10(M)	MW-10 (M)	10/15/2003	18.5	4 U	48.6	19.3	49.6
MW-10(M)	MW-10(M)	6/19/2003	27.8	2 U	26.8	5.55	49
MW-11(M)	MW-11(M)	6/19/2003	2 U	2 U	0.5 U	0.5 U	1 U
MW-11(M)	MW-11 (M)	10/15/2003	4.37	2 U	7.48	0.96 JB	8.39
MW-12(A)	MW-12(A)	10/22/2003	2 U	2 U	0.5 U	2.77	3.77
MW-13(A)	MW-13(A)	10/22/2003	94.7	10 U	228	26.6	94.6
MW-14(A)	MW-14(A)	10/21/2003	0.11 J	2 U	0.2 J	5.91	6.82
MW-15(A)	MW-15(A)	10/20/2003	42.4	0.93 J	90.3	13.5	40.7
MW-16(A)	MW-16(A)	10/20/2003	7.81	2 U	12.3	1.43 J,B	9.74

TABLE 5
RBDM VOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Isopropyl benzene	Methyl-t- butyl ether	n- Propylbenzene	Toluene	Xylenes
			ug/L	ug/L	ug/L	ug/L	ug/L
MW-17(A)	MW-17 (A)	10/17/2003	2.9	2 U	7.97	25.5	35.3
MW-18(A)	MW-18(A)	10/21/2003	25.8	0.98 J	45	21.1	22.4
MW-19(A)	BM-19(A)	10/20/2003	2 U	0.23 J	0.5 U	0.5 U	1 U
MW-19(A)	MW-19(A)	10/20/2003	2 U	0.23 J	0.5 U	0.5 U	1 U
MW-20(A)	MW-20(A)	10/20/2003	1.88 J	2 U	3.62	1.29 J,B	121
MW-21(A)	MW-21(A)	10/20/2003	2.5	2 U	7.31	0.5 U	1.73
MW-22(A)	MW-22 (A)	10/16/2003	2.78	2 U	7	2.96	7.82
MW-23(A)	MW-23(A)	10/20/2003	2 U	2 U	0.15 J	0.5 U	1 U
MW-24(A)	MW-24(A)	10/21/2003	0.94 J	2 U	2.01	1.17 J,B	10.5
MW-26(A)	MW-26 (A)	10/17/2003	32	10 U	83.3	18.4	1040
MW-27(A)	MW-27(A)	10/21/2003	2 U	2 U	0.5 U	0.5 U	1 U
MW-28(A)	MW-28 (A)	10/17/2003	24.4	20 U	85.6	201	1070
MW-29(A)	MW-29(A)	10/21/2003	86 J	100 U	234	5160	13300
MW-30(A)	MW-30 (A)	10/16/2003	88.8	40 U	238	110	663
MW-31(A)	BM-31 (A)	10/16/2003	56.5	20 U	156	41.6	143

TABLE 5
RBDM VOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Isopropyl benzene	Methyl-t- butyl ether	n- Propylbenzene	Toluene	Xylenes
			ug/L	ug/L	ug/L	ug/L	ug/L
MW-31(A)	MW-31 (A)	10/16/2003	54.4	20 U	152	38.4	138
MW-32(A)	MW-32(A)	10/14/2003	2 U	2 U	0.5 U	0.5 U	1 U
MW-33(A)	MW-33(A)	10/14/2003	0.35 J	2 U	0.63	0.5 U	0.28 J
MW-34(A)	MW-34(A)	10/14/2003	2 U	2 U	0.5 U	0.5 U	1 U
MW-35(A)	MW-35 (A)	10/16/2003	2 U	2 U	0.17 J	0.5 U	1 U
MW-36(A)	MW-36(A)	10/21/2003	2 U	2 U	0.5 U	0.5 U	0.28 J
MW-37(A)	MW-37 (A)	10/17/2003	6.72	2 U	10.4	0.72 J	30.6
MW-38(A)	MW-38(A)	10/21/2003	2 U	2 U	0.5 U	0.5 U	1 U
MW-39(A)	MW-39 (A)	10/16/2003	3.42	2 U	5.33	0.5 U B	21.6
MW-40(A)	MW-40 (A)	10/17/2003	44.8	10 U	86.4	57.6	367
MW-41(A)	MW-41(A)	10/14/2003	38.1	20 U	88.9	103	192
MW-42(A)	MW-42 (A)	10/15/2003	63.4	40 U	226	163	370
MW-43(A)	MW-43(A)	10/13/2003	2 U	2 U	0.5 U	0.5 U	1 U
MW-44(A)	MW-44 (A)	10/17/2003	94 J	100 U	388	5320	14900
MW-45(A)	MW-45 (A)	10/16/2003	2 U	2 U	0.21 J	0.5 U	1 U

TABLE 5
RBDM VOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Isopropyl benzene	Methyl-t- butyl ether	n- Propylbenzene	Toluene	Xylenes
			ug/L	ug/L	ug/L	ug/L	ug/L
MW-46(A)	MW-46(A)	10/14/2003	2 U	2 U	0.5 U	0.5 U	1 U
MW-47(A)	MW-47(A)	10/13/2003	2 U	2 U	0.5 U	0.5 U	1 U
MW-48(A)	MW-48(A)	10/14/2003	2 U	2 U	0.5 U	0.5 U	1 U
R-1(M)	R-1(M)	10/22/2003	2 U	2 U	0.5 U	0.5 U B	1 U

TABLE 6
SVOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Acenaphthene ug/L	Acenaphthylene ug/L	Anthracene ug/L	Benzo(a) anthracene ug/L	Benzo(a) pyrene ug/L
MW-1(F)	MW-1-082302	8/23/2002	0.0811	0.05 U	0.05 U	0.01 U	0.01 U
MW-1(F)	MW-1-082302	8/23/2002					
MW-1(F)	MW-1(F)	10/22/2003	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U
MW-1(F)	MW-1(F)	10/22/2003					
MW-2(M)	MW-2 (M)	10/15/2003	0.638	0.05 U	0.0568	0.01 U	0.01 U
MW-2(M)	MW-2 (M)	10/15/2003					
MW-2(M)	MW-2(M)	6/19/2003	1.44	0.5 U	0.5 U	0.5 U	0.5 U
MW-2(M)	MW-2(M)	6/19/2003					
MW-6(M)	MW-6(M)	6/19/2003	0.214	0.1 U	0.1 U	0.1 U	0.1 U
MW-6(M)	MW-6(M)	6/19/2003					
MW-6(M)	MW-6(M)	10/22/2003	0.146	0.05 U	0.05 U	0.01 U	0.01 U
MW-6(M)	MW-6(M)	10/22/2003					
MW-7(M)	BM-7(M)	6/19/2003	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
MW-7(M)	BM-7(M)	6/19/2003					
MW-7(M)	MW-7(M)	6/19/2003	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
MW-7(M)	MW-7(M)	6/19/2003					
MW-7(M)	MW-7(M)	10/13/2003	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U
MW-7(M)	MW-7(M)	10/13/2003					
MW-10(M)	MW-10 (M)	10/15/2003	0.28	0.05 U	0.05 U	0.0475	0.069
MW-10(M)	MW-10 (M)	10/15/2003					
MW-10(M)	MW-10(M)	6/19/2003	2 U	2 U	0.5 U	0.5 U	0.5 U
MW-10(M)	MW-10(M)	6/19/2003					

TABLE 6
SVOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Acenaphthene ug/L	Acenaphthylene ug/L	Anthracene ug/L	Benzo(a) anthracene ug/L	Benzo(a) pyrene ug/L
MW-11(M)	MW-11 (M)	10/15/2003	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U
MW-11(M)	MW-11 (M)	10/15/2003					
MW-11(M)	MW-11(M)	6/19/2003	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
MW-11(M)	MW-11(M)	6/19/2003					
MW-12(A)	MW-12(A)	10/22/2003	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U
MW-12(A)	MW-12(A)	10/22/2003					
MW-13(A)	MW-13(A)	10/22/2003	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U
MW-13(A)	MW-13(A)	10/22/2003					
MW-14(A)	MW-14(A)	10/21/2003	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U
MW-14(A)	MW-14(A)	10/21/2003					
MW-15(A)	MW-15(A)	10/20/2003	0.0916	0.05 U	0.05 U	0.01 U	0.01 U
MW-15(A)	MW-15(A)	10/20/2003					
MW-16(A)	MW-16(A)	10/20/2003	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U
MW-16(A)	MW-16(A)	10/20/2003					
MW-17(A)	MW-17 (A)	10/17/2003	0.0612	0.05 U	0.05 U	0.01 U	0.01 U
MW-17(A)	MW-17 (A)	10/17/2003					
MW-18(A)	MW-18(A)	10/21/2003	0.517	0.05 U	0.05 U	0.01 U	0.01 U
MW-18(A)	MW-18(A)	10/21/2003					

TABLE 6
SVOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Acenaphthene ug/L	Acenaphthylene ug/L	Anthracene ug/L	Benzo(a) anthracene ug/L	Benzo(a) pyrene ug/L
MW-19(A)	BM-19(A)	10/20/2003	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U
MW-19(A)	BM-19(A)	10/20/2003					
MW-19(A)	MW-19(A)	10/20/2003	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U
MW-19(A)	MW-19(A)	10/20/2003					
MW-20(A)	MW-20(A)	10/20/2003	0.318	0.05 U	0.05 U	0.01 U	0.01 U
MW-20(A)	MW-20(A)	10/20/2003					
MW-21(A)	MW-21(A)	10/20/2003	0.224	0.05 U	0.05 U	0.01 U	0.01 U
MW-21(A)	MW-21(A)	10/20/2003					
MW-22(A)	MW-22 (A)	10/16/2003	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U
MW-22(A)	MW-22 (A)	10/16/2003					
MW-23(A)	MW-23(A)	10/20/2003	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U
MW-23(A)	MW-23(A)	10/20/2003					
MW-24(A)	MW-24(A)	10/21/2003	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U
MW-24(A)	MW-24(A)	10/21/2003					
MW-26(A)	MW-26 (A)	10/17/2003	5 U	5 U	5 U	0.01 U	0.01 U
MW-26(A)	MW-26 (A)	10/17/2003					
MW-27(A)	MW-27(A)	10/21/2003	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U
MW-27(A)	MW-27(A)	10/21/2003					

TABLE 6
SVOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Acenaphthene ug/L	Acenaphthylene ug/L	Anthracene ug/L	Benzo(a) anthracene ug/L	Benzo(a) pyrene ug/L
MW-28(A) MW-28(A)	MW-28 (A) MW-28 (A)	10/17/2003 10/17/2003	5 U	5 U	5 U	0.01 U	0.01 U
MW-29(A) MW-29(A)	MW-29(A) MW-29(A)	10/21/2003 10/21/2003	0.0959	0.05 U	0.05 U	0.01 U	0.01 U
MW-30(A) MW-30(A)	MW-30 (A) MW-30 (A)	10/16/2003 10/16/2003	0.0531	0.05 U	0.05 U	0.01 U	0.01 U
MW-31(A) MW-31(A) MW-31(A) MW-31(A)	BM-31 (A) BM-31 (A) MW-31 (A) MW-31 (A)	10/16/2003 10/16/2003 10/16/2003 10/16/2003	0.0594 0.0661	0.05 U 0.05 U	0.05 U 0.05 U	0.01 U 0.01 U	0.01 U 0.01 U
MW-32(A) MW-32(A)	MW-32(A) MW-32(A)	10/14/2003 10/14/2003	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U
MW-33(A) MW-33(A)	MW-33(A) MW-33(A)	10/14/2003 10/14/2003	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U
MW-34(A) MW-34(A)	MW-34(A) MW-34(A)	10/14/2003 10/14/2003	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U
MW-35(A) MW-35(A)	MW-35 (A) MW-35 (A)	10/16/2003 10/16/2003	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U

TABLE 6
SVOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Acenaphthene ug/L	Acenaphthylene ug/L	Anthracene ug/L	Benzo(a) anthracene ug/L	Benzo(a) pyrene ug/L
MW-36(A) MW-36(A)	MW-36(A) MW-36(A)	10/21/2003 10/21/2003	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U
MW-37(A) MW-37(A)	MW-37 (A) MW-37 (A)	10/17/2003 10/17/2003	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U
MW-38(A) MW-38(A)	MW-38(A) MW-38(A)	10/21/2003 10/21/2003	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U
MW-39(A) MW-39(A)	MW-39 (A) MW-39 (A)	10/16/2003 10/16/2003	1.04	0.05 U	0.137	0.01 U	0.01 U
MW-40(A) MW-40(A)	MW-40 (A) MW-40 (A)	10/17/2003 10/17/2003	0.727	0.05 U	0.05 U	0.01 U	0.01 U
MW-41(A) MW-41(A)	MW-41(A) MW-41(A)	10/14/2003 10/14/2003	2.45	1.25 U	1.25 U	0.01 U	0.01 U
MW-42(A) MW-42(A)	MW-42 (A) MW-42 (A)	10/15/2003 10/15/2003	1.1	0.05 U	0.0893	0.01 U	0.01 U
MW-43(A) MW-43(A)	MW-43(A) MW-43(A)	10/13/2003 10/13/2003	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U
MW-44(A)	MW-44 (A)	10/17/2003	0.194	0.05 U	0.08 U	0.01 U	0.01 U

TABLE 6
SVOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Acenaphthene ug/L	Acenaphthylene ug/L	Anthracene ug/L	Benzo(a) anthracene ug/L	Benzo(a) pyrene ug/L
MW-44(A)	MW-44 (A)	10/17/2003					
MW-45(A)	MW-45 (A)	10/16/2003	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U
MW-45(A)	MW-45 (A)	10/16/2003					
MW-46(A)	MW-46(A)	10/14/2003	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U
MW-46(A)	MW-46(A)	10/14/2003					
MW-47(A)	MW-47(A)	10/13/2003	0.05 U	0.05 U	0.05 U	0.01 U	0.01 U
MW-47(A)	MW-47(A)	10/13/2003					
MW-48(A)	MW-48(A)	10/14/2003	0.362	0.05 U	0.05 U	0.0127	0.01 U
MW-48(A)	MW-48(A)	10/14/2003					
R-1(M)	R-1(M)	10/22/2003	0.0873	0.05 U	0.05 U	0.01 U	0.01 U
R-1(M)	R-1(M)	10/22/2003					

TABLE 6
SVOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Benzo(b) fluoranthene	Benzo(g,h,i)p erylene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h)a nthrane
			ug/L	ug/L	ug/L	ug/L	ug/L
MW-1(F)	MW-1-082302	8/23/2002	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-1(F)	MW-1-082302	8/23/2002					
MW-1(F)	MW-1(F)	10/22/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-1(F)	MW-1(F)	10/22/2003					
MW-2(M)	MW-2 (M)	10/15/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-2(M)	MW-2 (M)	10/15/2003					
MW-2(M)	MW-2(M)	6/19/2003	0.5 U	0.5 U	0.5 U	0.5 U	1 U
MW-2(M)	MW-2(M)	6/19/2003					
MW-6(M)	MW-6(M)	6/19/2003	0.1 U	0.1 U	0.1 U	0.1 U	0.2 U
MW-6(M)	MW-6(M)	6/19/2003					
MW-6(M)	MW-6(M)	10/22/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-6(M)	MW-6(M)	10/22/2003					
MW-7(M)	BM-7(M)	6/19/2003	0.1 U	0.1 U	0.1 U	0.1 U	0.2 U
MW-7(M)	BM-7(M)	6/19/2003					
MW-7(M)	MW-7(M)	6/19/2003	0.1 U	0.1 U	0.1 U	0.1 U	0.2 U
MW-7(M)	MW-7(M)	6/19/2003					
MW-7(M)	MW-7(M)	10/13/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-7(M)	MW-7(M)	10/13/2003					
MW-10(M)	MW-10 (M)	10/15/2003	0.0625	0.05 U	0.0548	0.0554	0.0172
MW-10(M)	MW-10 (M)	10/15/2003					
MW-10(M)	MW-10(M)	6/19/2003	0.5 U	0.5 U	0.5 U	0.5 U	1 U
MW-10(M)	MW-10(M)	6/19/2003					

TABLE 6
SVOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Benzo(b) fluoranthene	Benzo(g,h,i)p erylene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h)a nthrane
			ug/L	ug/L	ug/L	ug/L	ug/L
MW-11(M)	MW-11 (M)	10/15/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-11(M)	MW-11 (M)	10/15/2003					
MW-11(M)	MW-11(M)	6/19/2003	0.1 U	0.1 U	0.1 U	0.1 U	0.2 U
MW-11(M)	MW-11(M)	6/19/2003					
MW-12(A)	MW-12(A)	10/22/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-12(A)	MW-12(A)	10/22/2003					
MW-13(A)	MW-13(A)	10/22/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-13(A)	MW-13(A)	10/22/2003					
MW-14(A)	MW-14(A)	10/21/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-14(A)	MW-14(A)	10/21/2003					
MW-15(A)	MW-15(A)	10/20/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-15(A)	MW-15(A)	10/20/2003					
MW-16(A)	MW-16(A)	10/20/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-16(A)	MW-16(A)	10/20/2003					
MW-17(A)	MW-17 (A)	10/17/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-17(A)	MW-17 (A)	10/17/2003					
MW-18(A)	MW-18(A)	10/21/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-18(A)	MW-18(A)	10/21/2003					

TABLE 6
SVOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Benzo(b) fluoranthene	Benzo(g,h,i)p erylene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h)a nthrane
			ug/L	ug/L	ug/L	ug/L	ug/L
MW-19(A)	BM-19(A)	10/20/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-19(A)	BM-19(A)	10/20/2003					
MW-19(A)	MW-19(A)	10/20/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-19(A)	MW-19(A)	10/20/2003					
MW-20(A)	MW-20(A)	10/20/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-20(A)	MW-20(A)	10/20/2003					
MW-21(A)	MW-21(A)	10/20/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-21(A)	MW-21(A)	10/20/2003					
MW-22(A)	MW-22 (A)	10/16/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-22(A)	MW-22 (A)	10/16/2003					
MW-23(A)	MW-23(A)	10/20/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-23(A)	MW-23(A)	10/20/2003					
MW-24(A)	MW-24(A)	10/21/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-24(A)	MW-24(A)	10/21/2003					
MW-26(A)	MW-26 (A)	10/17/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-26(A)	MW-26 (A)	10/17/2003					
MW-27(A)	MW-27(A)	10/21/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-27(A)	MW-27(A)	10/21/2003					

TABLE 6
SVOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Benzo(b) fluoranthene	Benzo(g,h,i)p erylene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h)a nthrane
			ug/L	ug/L	ug/L	ug/L	ug/L
MW-28(A)	MW-28 (A)	10/17/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-28(A)	MW-28 (A)	10/17/2003					
MW-29(A)	MW-29(A)	10/21/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-29(A)	MW-29(A)	10/21/2003					
MW-30(A)	MW-30 (A)	10/16/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-30(A)	MW-30 (A)	10/16/2003					
MW-31(A)	BM-31 (A)	10/16/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-31(A)	BM-31 (A)	10/16/2003					
MW-31(A)	MW-31 (A)	10/16/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-31(A)	MW-31 (A)	10/16/2003					
MW-32(A)	MW-32(A)	10/14/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-32(A)	MW-32(A)	10/14/2003					
MW-33(A)	MW-33(A)	10/14/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-33(A)	MW-33(A)	10/14/2003					
MW-34(A)	MW-34(A)	10/14/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-34(A)	MW-34(A)	10/14/2003					
MW-35(A)	MW-35 (A)	10/16/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-35(A)	MW-35 (A)	10/16/2003					

TABLE 6
SVOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Benzo(b) fluoranthene ug/L	Benzo(g,h,i)p erylene ug/L	Benzo(k) fluoranthene ug/L	Chrysene ug/L	Dibenzo(a,h)a nthrane ug/L
MW-36(A) MW-36(A)	MW-36(A) MW-36(A)	10/21/2003 10/21/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-37(A) MW-37(A)	MW-37 (A) MW-37 (A)	10/17/2003 10/17/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-38(A) MW-38(A)	MW-38(A) MW-38(A)	10/21/2003 10/21/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-39(A) MW-39(A)	MW-39 (A) MW-39 (A)	10/16/2003 10/16/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-40(A) MW-40(A)	MW-40 (A) MW-40 (A)	10/17/2003 10/17/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-41(A) MW-41(A)	MW-41(A) MW-41(A)	10/14/2003 10/14/2003	0.01 U	0.05 U	0.01 U	0.02 U	0.01 U
MW-42(A) MW-42(A)	MW-42 (A) MW-42 (A)	10/15/2003 10/15/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-43(A) MW-43(A)	MW-43(A) MW-43(A)	10/13/2003 10/13/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-44(A)	MW-44 (A)	10/17/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U

TABLE 6
SVOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Benzo(b) fluoranthene ug/L	Benzo(g,h,i)p erylene ug/L	Benzo(k) fluoranthene ug/L	Chrysene ug/L	Dibenzo(a,h)a nthracene ug/L
MW-44(A)	MW-44 (A)	10/17/2003					
MW-45(A)	MW-45 (A)	10/16/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-45(A)	MW-45 (A)	10/16/2003					
MW-46(A)	MW-46(A)	10/14/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-46(A)	MW-46(A)	10/14/2003					
MW-47(A)	MW-47(A)	10/13/2003	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U
MW-47(A)	MW-47(A)	10/13/2003					
MW-48(A)	MW-48(A)	10/14/2003	0.01 U	0.05 U	0.01 U	0.0157	0.01 U
MW-48(A)	MW-48(A)	10/14/2003					
R-1(M)	R-1(M)	10/22/2003	0.01 U	0.05 U	0.01 U	0.015	0.01 U
R-1(M)	R-1(M)	10/22/2003					

TABLE 6
SVOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene
			ug/L	ug/L	ug/L	ug/L	ug/L
MW-1(F)	MW-1-082302	8/23/2002	0.05 U	0.12	0.01 U	2 U	0.05 U
MW-1(F)	MW-1-082302	8/23/2002				0.1 U	
MW-1(F)	MW-1(F)	10/22/2003	0.05 U	0.05 U	0.01 U	2 U B	0.05 U
MW-1(F)	MW-1(F)	10/22/2003				0.947	
MW-2(M)	MW-2 (M)	10/15/2003	0.0693	1.33	0.01 U	125	1.07
MW-2(M)	MW-2 (M)	10/15/2003				89.4	
MW-2(M)	MW-2(M)	6/19/2003	0.5 U	2.16	0.5 U	656	1.45
MW-2(M)	MW-2(M)	6/19/2003				524	
MW-6(M)	MW-6(M)	6/19/2003	0.1 U	0.1 U	0.1 U	2 U	0.1 U
MW-6(M)	MW-6(M)	6/19/2003				0.1 U	
MW-6(M)	MW-6(M)	10/22/2003	0.05 U	0.05 U	0.01 U	2 U	0.05 U
MW-6(M)	MW-6(M)	10/22/2003				0.05 U	
MW-7(M)	BM-7(M)	6/19/2003	0.1 U	0.1 U	0.1 U	2 U	0.1 U
MW-7(M)	BM-7(M)	6/19/2003				0.1 U	
MW-7(M)	MW-7(M)	6/19/2003	0.1 U	0.1 U	0.1 U	2 U	0.1 U
MW-7(M)	MW-7(M)	6/19/2003				0.1 U	
MW-7(M)	MW-7(M)	10/13/2003	0.05 U	0.05 U	0.01 U	2 U	0.05 U
MW-7(M)	MW-7(M)	10/13/2003				0.05 U	
MW-10(M)	MW-10 (M)	10/15/2003	0.0655	0.238	0.0408	65.3	0.104
MW-10(M)	MW-10 (M)	10/15/2003				12	
MW-10(M)	MW-10(M)	6/19/2003	0.5 U	2 U	0.5 U	20.6	0.5 U
MW-10(M)	MW-10(M)	6/19/2003				16.3	

TABLE 6
SVOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene
			ug/L	ug/L	ug/L	ug/L	ug/L
MW-11(M)	MW-11 (M)	10/15/2003	0.05 U	0.05 U	0.01 U	0.66 J	0.05 U
MW-11(M)	MW-11 (M)	10/15/2003				0.4 U	
MW-11(M)	MW-11(M)	6/19/2003	0.1 U	0.1 U	0.1 U	2 U	0.1 U
MW-11(M)	MW-11(M)	6/19/2003				0.35 U	
MW-12(A)	MW-12(A)	10/22/2003	0.05 U	0.05 U	0.01 U	2 U B	0.05 U
MW-12(A)	MW-12(A)	10/22/2003				0.05 U	
MW-13(A)	MW-13(A)	10/22/2003	0.05 U	0.05 U	0.01 U	122	0.05 U
MW-13(A)	MW-13(A)	10/22/2003				65.4	
MW-14(A)	MW-14(A)	10/21/2003	0.05 U	0.05 U	0.01 U	2 U B	0.05 U
MW-14(A)	MW-14(A)	10/21/2003				0.977	
MW-15(A)	MW-15(A)	10/20/2003	0.05 U	0.0941	0.01 U	2.11 J,B	0.106
MW-15(A)	MW-15(A)	10/20/2003				1.28	
MW-16(A)	MW-16(A)	10/20/2003	0.05 U	0.05 U	0.01 U	2 U B	0.05 U
MW-16(A)	MW-16(A)	10/20/2003				0.35 U	
MW-17(A)	MW-17 (A)	10/17/2003	0.05 U	0.05 U	0.01 U	2.37	0.05 U
MW-17(A)	MW-17 (A)	10/17/2003				4.88	
MW-18(A)	MW-18(A)	10/21/2003	0.05 U	0.22	0.01 U	4 U B	0.05 U
MW-18(A)	MW-18(A)	10/21/2003				0.44	

TABLE 6
SVOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Fluoranthene ug/L	Fluorene ug/L	Indeno(1,2,3- cd)pyrene ug/L	Naphthalene ug/L	Phenanthrene ug/L
MW-19(A)	BM-19(A)	10/20/2003	0.05 U	0.05 U	0.01 U	2 U	0.05 U
MW-19(A)	BM-19(A)	10/20/2003				0.05 U	
MW-19(A)	MW-19(A)	10/20/2003	0.05 U	0.05 U	0.01 U	2 U	0.05 U
MW-19(A)	MW-19(A)	10/20/2003				0.05 U	
MW-20(A)	MW-20(A)	10/20/2003	0.05 U	0.434	0.01 U	11.1	0.0697
MW-20(A)	MW-20(A)	10/20/2003				3.93	
MW-21(A)	MW-21(A)	10/20/2003	0.05 U	0.327	0.01 U	3.04	0.09 U
MW-21(A)	MW-21(A)	10/20/2003				1.83	
MW-22(A)	MW-22 (A)	10/16/2003	0.05 U	0.05 U	0.01 U	2.61	0.05 U
MW-22(A)	MW-22 (A)	10/16/2003				40.5	
MW-23(A)	MW-23(A)	10/20/2003	0.05 U	0.05 U	0.01 U	0.0617	0.05 U
MW-23(A)	MW-23(A)	10/20/2003				2 U	
MW-24(A)	MW-24(A)	10/21/2003	0.05 U	0.05 U	0.01 U	0.05 U	0.05 U
MW-24(A)	MW-24(A)	10/21/2003				2 U B	
MW-26(A)	MW-26 (A)	10/17/2003	5 U	5 U	0.01 U	280	5 U
MW-26(A)	MW-26 (A)	10/17/2003				107	
MW-27(A)	MW-27(A)	10/21/2003	0.05 U	0.05 U	0.01 U	2 U	0.05 U
MW-27(A)	MW-27(A)	10/21/2003				0.158	

TABLE 6
SVOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Fluoranthene ug/L	Fluorene ug/L	Indeno(1,2,3- cd)pyrene ug/L	Naphthalene ug/L	Phenanthrene ug/L
MW-28(A) MW-28(A)	MW-28 (A) MW-28 (A)	10/17/2003 10/17/2003	5 U	5 U	0.01 U	157 112	5 U
MW-29(A) MW-29(A)	MW-29(A) MW-29(A)	10/21/2003 10/21/2003	0.05 U	0.0811	0.01 U	1340 1640	0.0638
MW-30(A) MW-30(A)	MW-30 (A) MW-30 (A)	10/16/2003 10/16/2003	0.05 U	0.0569	0.01 U	531 1130	0.05 U
MW-31(A) MW-31(A) MW-31(A) MW-31(A)	BM-31 (A) BM-31 (A) MW-31 (A) MW-31 (A)	10/16/2003 10/16/2003 10/16/2003 10/16/2003	0.05 U 0.05 U	0.0515 0.0582	0.01 U 0.01 U	15.3 J 8.36 10 16.2	0.05 U 0.05 U
MW-32(A) MW-32(A)	MW-32(A) MW-32(A)	10/14/2003 10/14/2003	0.05 U	0.05 U	0.01 U	2 U 0.05 U	0.05 U
MW-33(A) MW-33(A)	MW-33(A) MW-33(A)	10/14/2003 10/14/2003	0.05 U	0.05 U	0.01 U	2 U 0.07 U	0.05 U
MW-34(A) MW-34(A)	MW-34(A) MW-34(A)	10/14/2003 10/14/2003	0.05 U	0.05 U	0.01 U	2 U 0.0623	0.05 U
MW-35(A) MW-35(A)	MW-35 (A) MW-35 (A)	10/16/2003 10/16/2003	0.05 U	0.05 U	0.01 U	1.04 J 0.124	0.05 U

TABLE 6
SVOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Fluoranthene ug/L	Fluorene ug/L	Indeno(1,2,3- cd)pyrene ug/L	Naphthalene ug/L	Phenanthrene ug/L
MW-36(A) MW-36(A)	MW-36(A) MW-36(A)	10/21/2003 10/21/2003	0.05 U	0.05 U	0.01 U	2 U 0.05 U	0.05 U
MW-37(A) MW-37(A)	MW-37 (A) MW-37 (A)	10/17/2003 10/17/2003	0.05 U	0.05 U	0.01 U	21.5 11.1	0.05 U
MW-38(A) MW-38(A)	MW-38(A) MW-38(A)	10/21/2003 10/21/2003	0.05 U	0.05 U	0.01 U	2 U 0.05 U	0.05 U
MW-39(A) MW-39(A)	MW-39 (A) MW-39 (A)	10/16/2003 10/16/2003	0.05 U	2.24	0.01 U	17.7 22.8	0.806
MW-40(A) MW-40(A)	MW-40 (A) MW-40 (A)	10/17/2003 10/17/2003	0.05 U	0.618	0.01 U	82.5 43.8	0.317
MW-41(A) MW-41(A)	MW-41(A) MW-41(A)	10/14/2003 10/14/2003	1.25 U	4.97	0.01 U	105 82.3	6.93
MW-42(A) MW-42(A)	MW-42 (A) MW-42 (A)	10/15/2003 10/15/2003	0.05 U	2.56	0.01 U	141 190	2.16
MW-43(A) MW-43(A)	MW-43(A) MW-43(A)	10/13/2003 10/13/2003	0.05 U	0.05 U	0.01 U	2 U 0.05 U	0.05 U
MW-44(A)	MW-44 (A)	10/17/2003	0.05 U	0.362	0.01 U	1050	0.44

TABLE 6
SVOCs IN GROUND WATER

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Astoria, Oregon

Locator ID	Sample ID	Sample Date	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene
			ug/L	ug/L	ug/L	ug/L	ug/L
MW-44(A)	MW-44 (A)	10/17/2003				696	
MW-45(A)	MW-45 (A)	10/16/2003	0.05 U	0.05 U	0.01 U	1.11 J	0.05 U
MW-45(A)	MW-45 (A)	10/16/2003				0.0896	
MW-46(A)	MW-46(A)	10/14/2003	0.05 U	0.05 U	0.01 U	2 U	0.05 U
MW-46(A)	MW-46(A)	10/14/2003				0.05 U	
MW-47(A)	MW-47(A)	10/13/2003	0.05 U	0.05 U	0.01 U	2 U	0.05 U
MW-47(A)	MW-47(A)	10/13/2003				0.05 U	
MW-48(A)	MW-48(A)	10/14/2003	0.123	0.204	0.01 U	0.76 J	0.345
MW-48(A)	MW-48(A)	10/14/2003				0.538	
R-1(M)	R-1(M)	10/22/2003	0.05 U	0.05 U	0.01 U	2 U B	0.05 U
R-1(M)	R-1(M)	10/22/2003				0.0972	

TABLE 6
SVOCs IN GROUND WATER

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Astoria, Oregon

Locator ID	Sample ID	Sample Date	Pyrene ug/L
MW-1(F)	MW-1-082302	8/23/2002	0.05 U
MW-1(F)	MW-1-082302	8/23/2002	
MW-1(F)	MW-1(F)	10/22/2003	0.05 U
MW-1(F)	MW-1(F)	10/22/2003	
MW-2(M)	MW-2 (M)	10/15/2003	0.051
MW-2(M)	MW-2 (M)	10/15/2003	
MW-2(M)	MW-2(M)	6/19/2003	0.5 U
MW-2(M)	MW-2(M)	6/19/2003	
MW-6(M)	MW-6(M)	6/19/2003	0.1 U
MW-6(M)	MW-6(M)	6/19/2003	
MW-6(M)	MW-6(M)	10/22/2003	0.05 U
MW-6(M)	MW-6(M)	10/22/2003	
MW-7(M)	BM-7(M)	6/19/2003	0.1 U
MW-7(M)	BM-7(M)	6/19/2003	
MW-7(M)	MW-7(M)	6/19/2003	0.1 U
MW-7(M)	MW-7(M)	6/19/2003	
MW-7(M)	MW-7(M)	10/13/2003	0.05 U
MW-7(M)	MW-7(M)	10/13/2003	
MW-10(M)	MW-10 (M)	10/15/2003	0.0589
MW-10(M)	MW-10 (M)	10/15/2003	
MW-10(M)	MW-10(M)	6/19/2003	0.5 U
MW-10(M)	MW-10(M)	6/19/2003	

TABLE 6
SVOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Pyrene ug/L
MW-11(M)	MW-11 (M)	10/15/2003	0.05 U
MW-11(M)	MW-11 (M)	10/15/2003	
MW-11(M)	MW-11(M)	6/19/2003	0.1 U
MW-11(M)	MW-11(M)	6/19/2003	
MW-12(A)	MW-12(A)	10/22/2003	0.05 U
MW-12(A)	MW-12(A)	10/22/2003	
MW-13(A)	MW-13(A)	10/22/2003	0.05 U
MW-13(A)	MW-13(A)	10/22/2003	
MW-14(A)	MW-14(A)	10/21/2003	0.05 U
MW-14(A)	MW-14(A)	10/21/2003	
MW-15(A)	MW-15(A)	10/20/2003	0.05 U
MW-15(A)	MW-15(A)	10/20/2003	
MW-16(A)	MW-16(A)	10/20/2003	0.05 U
MW-16(A)	MW-16(A)	10/20/2003	
MW-17(A)	MW-17 (A)	10/17/2003	0.05 U
MW-17(A)	MW-17 (A)	10/17/2003	
MW-18(A)	MW-18(A)	10/21/2003	0.05 U
MW-18(A)	MW-18(A)	10/21/2003	

TABLE 6
SVOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Pyrene ug/L
MW-19(A)	BM-19(A)	10/20/2003	0.05 U
MW-19(A)	BM-19(A)	10/20/2003	
MW-19(A)	MW-19(A)	10/20/2003	0.05 U
MW-19(A)	MW-19(A)	10/20/2003	
MW-20(A)	MW-20(A)	10/20/2003	0.05 U
MW-20(A)	MW-20(A)	10/20/2003	
MW-21(A)	MW-21(A)	10/20/2003	0.05 U
MW-21(A)	MW-21(A)	10/20/2003	
MW-22(A)	MW-22 (A)	10/16/2003	0.05 U
MW-22(A)	MW-22 (A)	10/16/2003	
MW-23(A)	MW-23(A)	10/20/2003	0.05 U
MW-23(A)	MW-23(A)	10/20/2003	
MW-24(A)	MW-24(A)	10/21/2003	0.05 U
MW-24(A)	MW-24(A)	10/21/2003	
MW-26(A)	MW-26 (A)	10/17/2003	0.05 U
MW-26(A)	MW-26 (A)	10/17/2003	
MW-27(A)	MW-27(A)	10/21/2003	0.05 U
MW-27(A)	MW-27(A)	10/21/2003	

TABLE 6
SVOCs IN GROUND WATER

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Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Pyrene ug/L
MW-28(A)	MW-28 (A)	10/17/2003	0.05 U
MW-28(A)	MW-28 (A)	10/17/2003	
MW-29(A)	MW-29(A)	10/21/2003	0.05 U
MW-29(A)	MW-29(A)	10/21/2003	
MW-30(A)	MW-30 (A)	10/16/2003	0.05 U
MW-30(A)	MW-30 (A)	10/16/2003	
MW-31(A)	BM-31 (A)	10/16/2003	0.05 U
MW-31(A)	BM-31 (A)	10/16/2003	
MW-31(A)	MW-31 (A)	10/16/2003	0.05 U
MW-31(A)	MW-31 (A)	10/16/2003	
MW-32(A)	MW-32(A)	10/14/2003	0.05 U
MW-32(A)	MW-32(A)	10/14/2003	
MW-33(A)	MW-33(A)	10/14/2003	0.05 U
MW-33(A)	MW-33(A)	10/14/2003	
MW-34(A)	MW-34(A)	10/14/2003	0.05 U
MW-34(A)	MW-34(A)	10/14/2003	
MW-35(A)	MW-35 (A)	10/16/2003	0.05 U
MW-35(A)	MW-35 (A)	10/16/2003	

TABLE 6
SVOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Pyrene ug/L
MW-36(A)	MW-36(A)	10/21/2003	0.05 U
MW-36(A)	MW-36(A)	10/21/2003	
MW-37(A)	MW-37 (A)	10/17/2003	0.05 U
MW-37(A)	MW-37 (A)	10/17/2003	
MW-38(A)	MW-38(A)	10/21/2003	0.05 U
MW-38(A)	MW-38(A)	10/21/2003	
MW-39(A)	MW-39 (A)	10/16/2003	0.05 U
MW-39(A)	MW-39 (A)	10/16/2003	
MW-40(A)	MW-40 (A)	10/17/2003	0.05 U
MW-40(A)	MW-40 (A)	10/17/2003	
MW-41(A)	MW-41(A)	10/14/2003	0.2
MW-41(A)	MW-41(A)	10/14/2003	
MW-42(A)	MW-42 (A)	10/15/2003	0.05 U
MW-42(A)	MW-42 (A)	10/15/2003	
MW-43(A)	MW-43(A)	10/13/2003	0.05 U
MW-43(A)	MW-43(A)	10/13/2003	
MW-44(A)	MW-44 (A)	10/17/2003	0.05 U

TABLE 6
SVOCs IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Pyrene ug/L
MW-44(A)	MW-44 (A)	10/17/2003	
MW-45(A)	MW-45 (A)	10/16/2003	0.05 U
MW-45(A)	MW-45 (A)	10/16/2003	
MW-46(A)	MW-46(A)	10/14/2003	0.05 U
MW-46(A)	MW-46(A)	10/14/2003	
MW-47(A)	MW-47(A)	10/13/2003	0.05 U
MW-47(A)	MW-47(A)	10/13/2003	
MW-48(A)	MW-48(A)	10/14/2003	0.0812
MW-48(A)	MW-48(A)	10/14/2003	
R-1(M)	R-1(M)	10/22/2003	0.05 U
R-1(M)	R-1(M)	10/22/2003	

TABLE 7
TOTAL METALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Arsenic, Total	Barium	Cadmium	Chromium	Lead
			ug/L	ug/L	ug/L	ug/L	ug/L
MW-1(F)	MW-1(F)	10/22/2003	9.53	254	0.24 J	23.7	25.5
MW-2(M)	MW-2(M)	6/19/2003					10 U
MW-2(M)	MW-2 (M)	10/15/2003	21.6	32	1 U	4.98	8.72
MW-6(M)	MW-6(M)	10/22/2003	13.3	20	1 U	2.07	7.57
MW-7(M)	MW-7(M)	10/13/2003	12.6	32.3	1 U	3.54	8.4
MW-10(M)	MW-10(M)	6/19/2003					10 U
MW-10(M)	MW-10 (M)	10/15/2003	25.7	111	0.7 J	13.3	11.5
MW-11(M)	MW-11 (M)	10/15/2003	13.9	10.3	1 U	1 U	1 U
MW-12(A)	MW-12(A)	10/22/2003	1 U	38	1 U	1 U	1 U
MW-13(A)	MW-13(A)	10/22/2003	1 U	15	1 U	1 U	0.83 J
MW-14(A)	MW-14(A)	10/21/2003	1 U	28.3	1 U	1 U	1 U
MW-15(A)	MW-15(A)	10/20/2003	1 U	33.6	1 U	1 U	0.47 J
MW-16(A)	MW-16(A)	10/20/2003	2.13	39.6	1 U	1.09	0.97 J
MW-17(A)	MW-17 (A)	10/17/2003	1 U	49.3	1 U	2.58	1.65
MW-18(A)	MW-18(A)	10/21/2003	1 U	55.6	1 U	1.82	4.57
MW-19(A)	BM-19(A)	10/20/2003	1.69	29	1 U	1 U	0.57 J

TABLE 7
TOTAL METALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Arsenic, Total	Barium	Cadmium	Chromium	Lead
			ug/L	ug/L	ug/L	ug/L	ug/L
MW-19(A)	MW-19(A)	10/20/2003	1.32	29.9	1 U	1 U	0.5 J
MW-20(A)	MW-20(A)	10/20/2003	1.29	23.7	1 U	1.42	1.45
MW-21(A)	MW-21(A)	10/20/2003	1.21	30.6	1 U	1.93	1.8
MW-22(A)	MW-22 (A)	10/16/2003	1.47	24.1	1 U	1.45	0.69 J
MW-23(A)	MW-23(A)	10/20/2003	1 U	25.7	1 U	1 U	0.61 J
MW-24(A)	MW-24(A)	10/21/2003	2.15	57.9	1 U	0.89 J	0.93 J
MW-26(A)	MW-26 (A)	10/17/2003	1.04 J	59.3	1 U	1.37	1.97
MW-27(A)	MW-27(A)	10/21/2003	1	11.2	1 U	1 U	0.33 J
MW-28(A)	MW-28 (A)	10/17/2003	3.45 J	112	1 U	12.8	46.4
MW-29(A)	MW-29(A)	10/21/2003	5.73	33.6	1 U	2.5	5.04
MW-30(A)	MW-30 (A)	10/16/2003	7.95	65.4	1 U	6.53	3.7
MW-31(A)	BM-31 (A)	10/16/2003	13.9	27.1	1 U	0.96 J	0.26 J
MW-31(A)	MW-31 (A)	10/16/2003	13.3	26.5	1 U	0.91 J	0.56 J
MW-32(A)	MW-32(A)	10/14/2003	1.4	27.9	1 U	1.41	0.58 J
MW-33(A)	MW-33(A)	10/14/2003	21.6	18.2	1 U	0.94 J	0.41 J

TABLE 7
TOTAL METALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Arsenic, Total	Barium	Cadmium	Chromium	Lead
			ug/L	ug/L	ug/L	ug/L	ug/L
MW-34(A)	MW-34(A)	10/14/2003	1.42	36.7	1 U	3.05	1.32
MW-35(A)	MW-35 (A)	10/16/2003	1.02	13.6	1 U	1.5	0.24 J
MW-36(A)	MW-36(A)	10/21/2003	2.27	169	1 U	4.74	12.6
MW-37(A)	MW-37 (A)	10/17/2003	1 U	27.5	1 U	0.93 J	0.58 J
MW-38(A)	MW-38(A)	10/21/2003	1 U	20.9	1 U	1 U	0.48 J
MW-39(A)	MW-39 (A)	10/16/2003	1.65	7.54	1 U	1 U	0.19 J
MW-40(A)	MW-40 (A)	10/17/2003	3.81	46.2	1 U	5.42	2.95
MW-41(A)	MW-41(A)	10/14/2003	14.4	23.5	1 U	1 U	0.13 J
MW-42(A)	MW-42 (A)	10/15/2003	37.2	43.6	1 U	4.66	2.75
MW-43(A)	MW-43(A)	10/13/2003	7.52	22.7	1 U	0.85 J	0.23 J
MW-44(A)	MW-44 (A)	10/17/2003	12.2	14.7	1 U	0.85 J	0.86 J
MW-45(A)	MW-45 (A)	10/16/2003	6.55	8.55	1 U	1.11	0.54 J
MW-46(A)	MW-46(A)	10/14/2003	1.25	15.6	1 U	60.6	1.41
MW-47(A)	MW-47(A)	10/13/2003	1 U	19.5	1 U	1.65	0.57 J
MW-48(A)	MW-48(A)	10/14/2003	1 U	43.5	1 U	2.5	21.6

TABLE 7
TOTAL METALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Arsenic, Total	Barium	Cadmium	Chromium	Lead
			ug/L	ug/L	ug/L	ug/L	ug/L
R-1(M)	R-1(M)	10/22/2003	3.56 J	12	1 U	0.99 J	4.01

TABLE 7
TOTAL METALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Mercury	Selenium	Silver
			ug/L	ug/L	ug/L
MW-1(F)	MW-1(F)	10/22/2003	0.2 U B	2.22	0.18 J
MW-2(M)	MW-2(M)	6/19/2003			
MW-2(M)	MW-2 (M)	10/15/2003	0.2 U	1 U	1 U
MW-6(M)	MW-6(M)	10/22/2003	0.2 U B	0.98 J	1 U
MW-7(M)	MW-7(M)	10/13/2003	0.2 U B	2 U	0.11 J
MW-10(M)	MW-10(M)	6/19/2003			
MW-10(M)	MW-10 (M)	10/15/2003	0.262 J+, B	1 U	1 U
MW-11(M)	MW-11 (M)	10/15/2003	0.2 U	1 U	1 U
MW-12(A)	MW-12(A)	10/22/2003	0.2 U	2.77	1 U
MW-13(A)	MW-13(A)	10/22/2003	0.2 U	1 U	1 U
MW-14(A)	MW-14(A)	10/21/2003	0.2 U	1 U	1 U
MW-15(A)	MW-15(A)	10/20/2003	0.2 U	1 U	1 U
MW-16(A)	MW-16(A)	10/20/2003	0.2 U	1 U	1 U
MW-17(A)	MW-17 (A)	10/17/2003	0.2 U	1 U	1 U
MW-18(A)	MW-18(A)	10/21/2003	0.2 U	1 U	1 U
MW-19(A)	BM-19(A)	10/20/2003	0.2 U	1 U	1 U

TABLE 7
TOTAL METALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Mercury	Selenium	Silver
			ug/L	ug/L	ug/L
MW-19(A)	MW-19(A)	10/20/2003	0.2 U	1 U	1 U
MW-20(A)	MW-20(A)	10/20/2003	0.2 U	1 U	1 U
MW-21(A)	MW-21(A)	10/20/2003	0.2 U	0.87 J	1 U
MW-22(A)	MW-22 (A)	10/16/2003	0.2 U	1 U	1 U
MW-23(A)	MW-23(A)	10/20/2003	0.2 U	1 U	1 U
MW-24(A)	MW-24(A)	10/21/2003	0.2 U	0.6 J	1 U
MW-26(A)	MW-26 (A)	10/17/2003	0.223 J+, B	1 U	1 U
MW-27(A)	MW-27(A)	10/21/2003	0.2 U	1.05	1 U
MW-28(A)	MW-28 (A)	10/17/2003	0.2 U	1 U	1 U
MW-29(A)	MW-29(A)	10/21/2003	0.2 U	1 U	1 U
MW-30(A)	MW-30 (A)	10/16/2003	0.248 J+, B	1 U	1 U
MW-31(A)	BM-31 (A)	10/16/2003	0.2 U	1 U	1 U
MW-31(A)	MW-31 (A)	10/16/2003	0.2 U	1 U	1 U
MW-32(A)	MW-32(A)	10/14/2003	0.2 U B	2 U	1 U
MW-33(A)	MW-33(A)	10/14/2003	0.2 U B	2 U	1 U

TABLE 7
TOTAL METALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Mercury	Selenium	Silver
			ug/L	ug/L	ug/L
MW-34(A)	MW-34(A)	10/14/2003	0.2 U B	2 U	1 U
MW-35(A)	MW-35 (A)	10/16/2003	0.2 U	1 U	1 U
MW-36(A)	MW-36(A)	10/21/2003	0.2 U	2.16	1 U
MW-37(A)	MW-37 (A)	10/17/2003	0.2 U	1 U	1 U
MW-38(A)	MW-38(A)	10/21/2003	0.2 U	1 U	1 U
MW-39(A)	MW-39 (A)	10/16/2003	0.2 U	1 U	1 U
MW-40(A)	MW-40 (A)	10/17/2003	0.2 U	1 U	1 U
MW-41(A)	MW-41(A)	10/14/2003	0.2 U B	2 U	1 U
MW-42(A)	MW-42 (A)	10/15/2003	0.2 U	0.71 J	1 U
MW-43(A)	MW-43(A)	10/13/2003	0.2 U B	2 U	1 U
MW-44(A)	MW-44 (A)	10/17/2003	0.2 U	1 U	1 U
MW-45(A)	MW-45 (A)	10/16/2003	0.2 U	1 U	1 U
MW-46(A)	MW-46(A)	10/14/2003	0.2 U B	2 U	1 U
MW-47(A)	MW-47(A)	10/13/2003	0.2 U	2 U	1 U
MW-48(A)	MW-48(A)	10/14/2003	0.2 U	2 U	1 U

TABLE 7
TOTAL METALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Mercury	Selenium	Silver
			ug/L	ug/L	ug/L
R-1(M)	R-1(M)	10/22/2003	0.2 U	1 U	1 U

TABLE 8
DISSOLVED METALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Arsenic	Barium	Cadmium	Chromium	Lead
			ug/L	ug/L	ug/L	ug/L	ug/L
MW-2(M)	MW-2(M)	6/19/2003					
MW-2(M)	MW-2 (M)	10/15/2003	19.3	11.8	1 U	1.37	2.03
MW-6(M)	MW-6(M)	6/19/2003					10 U
MW-6(M)	MW-6(M)	10/22/2003	13.3	12.4	1 U	1.32	0.27 J
MW-7(M)	BM-7(M)	6/19/2003					10 U
MW-7(M)	MW-7(M)	6/19/2003					10 U
MW-7(M)	MW-7(M)	10/13/2003	9.85	17.8	1 U	1 U	1 U
MW-10(M)	MW-10(M)	6/19/2003					
MW-11(M)	MW-11(M)	6/19/2003					10 U
MW-11(M)	MW-11 (M)	10/15/2003	14.8	10	0.14 J	1.02	0.24 J
MW-12(A)	MW-12(A)	10/22/2003	1 U	39.5	1 U	1 U	0.24 J
MW-13(A)	MW-13(A)	10/22/2003	1 U	14.3	1 U	1.18	0.74 J
MW-14(A)	MW-14(A)	10/21/2003	1 U	27.7	1 U	1 U	0.21 J
MW-15(A)	MW-15(A)	10/20/2003	1 U	32.8	1 U	1 U	0.32 J
MW-16(A)	MW-16(A)	10/20/2003	1 U	25.4	1 U	1 U	0.34 J
MW-17(A)	MW-17 (A)	10/17/2003	1 U	36.2	1 U	1 U	0.1 J
MW-18(A)	MW-18(A)	10/21/2003	1 U	44.3	1 U	1 U	0.19 J

TABLE 8
DISSOLVED METALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Arsenic	Barium	Cadmium	Chromium	Lead
			ug/L	ug/L	ug/L	ug/L	ug/L
MW-19(A)	BM-19(A)	10/20/2003	1.88	26.4	1 U	1 U	0.14 J
MW-19(A)	MW-19(A)	10/20/2003	1.73	28.8	1 U	1 U	0.39 J
MW-20(A)	MW-20(A)	10/20/2003	1.18	15	1 U	1 U	0.22 J
MW-21(A)	MW-21(A)	10/20/2003	1 U	15.2	1 U	1 U	0.43 J
MW-22(A)	MW-22 (A)	10/16/2003	1 U	17	1 U	1.04	0.19 J
MW-23(A)	MW-23(A)	10/20/2003	1 U	24.7	1 U	1 U	0.33 J
MW-24(A)	MW-24(A)	10/21/2003	2.43	57.2	1 U	1 U	0.33 J
MW-26(A)	MW-26 (A)	10/17/2003	1 U	52	1 U	1 U	1.16
MW-27(A)	MW-27(A)	10/21/2003	0.99 J	11.9	0.1 J	1 U	0.3 J
MW-28(A)	MW-28 (A)	10/17/2003	1 U	38.1	1 U	1 U	1.02
MW-29(A)	MW-29(A)	10/21/2003	5.97	19.7	1 U	1 U	3
MW-30(A)	MW-30 (A)	10/16/2003	6.93	27.6	1 U	1.25	0.44 J
MW-31(A)	BM-31 (A)	10/16/2003	13.3	23.3	1 U	0.99 J	1 U U
MW-31(A)	MW-31 (A)	10/16/2003	15.3	25.2	1 U	1.11	0.18 J
MW-32(A)	MW-32(A)	10/14/2003	2.28	25	1 U	1 U	0.13 J

TABLE 8
DISSOLVED METALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Arsenic	Barium	Cadmium	Chromium	Lead
			ug/L	ug/L	ug/L	ug/L	ug/L
MW-33(A)	MW-33(A)	10/14/2003	18.2	15.5	1 U	1 U	0.14 J
MW-34(A)	MW-34(A)	10/14/2003	1 U	23.5	1 U	1 U	0.14 J
MW-35(A)	MW-35 (A)	10/16/2003	1 U	13.2	1 U	0.92 J	1 U
MW-36(A)	MW-36(A)	10/21/2003	1 U	82.7	1 U	1 U	0.98 J
MW-37(A)	MW-37 (A)	10/17/2003	1 U	24.8	1 U	2.03	0.41 J
MW-38(A)	MW-38(A)	10/21/2003	1 U	20	1 U	1 U	0.24 J
MW-39(A)	MW-39 (A)	10/16/2003	1.79	6.83	1 U	0.86 J	0.19 J
MW-40(A)	MW-40 (A)	10/17/2003	1.86	22.2	1 U	1.3	0.27 J
MW-41(A)	MW-41(A)	10/14/2003	12.4	23	1 U	1 U	1 U
MW-42(A)	MW-42 (A)	10/15/2003	35.6	20.2	1 U	1 U	0.48 J
MW-43(A)	MW-43(A)	10/13/2003	7.34	23.4	1 U	1 U	0.14 J
MW-44(A)	MW-44 (A)	10/17/2003	11.9	13	1 U	1.09	0.29 J
MW-45(A)	MW-45 (A)	10/16/2003	2.25	3.79	1 U	0.97 J	0.16 J
MW-46(A)	MW-46(A)	10/14/2003	1 U	9.1	1 U	54.3	0.29 J

TABLE 8
DISSOLVED METALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Arsenic	Barium	Cadmium	Chromium	Lead
			ug/L	ug/L	ug/L	ug/L	ug/L
MW-47(A)	MW-47(A)	10/13/2003	1 U	17.4	1 U	1 U	0.18 J
MW-48(A)	MW-48(A)	10/14/2003	1 U	31.4	1 U	1 U	0.51 J

TABLE 8
DISSOLVED METALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Mercury	Selenium	Silver
			ug/L	ug/L	ug/L
MW-2(M)	MW-2(M)	6/19/2003			
MW-2(M)	MW-2 (M)	10/15/2003	0.2 U B	2 U B	1 U
MW-6(M)	MW-6(M)	6/19/2003			
MW-6(M)	MW-6(M)	10/22/2003	0.038 J	0.76 J	1 U
MW-7(M)	BM-7(M)	6/19/2003			
MW-7(M)	MW-7(M)	6/19/2003			
MW-7(M)	MW-7(M)	10/13/2003	0.2 U B	0.93 J	1 U
MW-10(M)	MW-10(M)	6/19/2003			
MW-11(M)	MW-11(M)	6/19/2003			
MW-11(M)	MW-11 (M)	10/15/2003	0.2 U B	2 U B	1 U
MW-12(A)	MW-12(A)	10/22/2003	0.2 U	5 U B	1 U
MW-13(A)	MW-13(A)	10/22/2003	0.2 U	5 U B	1 U
MW-14(A)	MW-14(A)	10/21/2003	0.2 U	5 U B	1 U
MW-15(A)	MW-15(A)	10/20/2003	0.2 U	1 U U	1 U
MW-16(A)	MW-16(A)	10/20/2003	0.2 U	1 U B	1 U
MW-17(A)	MW-17 (A)	10/17/2003	0.2 U	1 U B	1 U
MW-18(A)	MW-18(A)	10/21/2003	0.072 J	1 U B	1 U

TABLE 8
DISSOLVED METALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Mercury	Selenium	Silver
			ug/L	ug/L	ug/L
MW-19(A)	BM-19(A)	10/20/2003	0.2 U	1 U B	1 U
MW-19(A)	MW-19(A)	10/20/2003	0.2 U	1 U B	1 U
MW-20(A)	MW-20(A)	10/20/2003	0.2 U	1 U	1 U
MW-21(A)	MW-21(A)	10/20/2003	0.2 U	1 U B	1 U
MW-22(A)	MW-22 (A)	10/16/2003	0.2 U B	2 U B	1 U
MW-23(A)	MW-23(A)	10/20/2003	0.2 U	1 U	1 U
MW-24(A)	MW-24(A)	10/21/2003	0.2 U	1.27 J+,B	1 U
MW-26(A)	MW-26 (A)	10/17/2003	0.2 U B	1 U B	1 U
MW-27(A)	MW-27(A)	10/21/2003	0.2 U	1.6 J+,B	1 U
MW-28(A)	MW-28 (A)	10/17/2003	0.2 U B	1 U B	1 U
MW-29(A)	MW-29(A)	10/21/2003	0.088 J	5 U	1 U
MW-30(A)	MW-30 (A)	10/16/2003	0.2 U B	2 U B	1 U
MW-31(A)	BM-31 (A)	10/16/2003	0.2 U	1 U	1 U
MW-31(A)	MW-31 (A)	10/16/2003	0.2 U B	1 U B	1 U
MW-32(A)	MW-32(A)	10/14/2003	0.2 U	1 U	1 U

TABLE 8
DISSOLVED METALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Mercury	Selenium	Silver
			ug/L	ug/L	ug/L
MW-33(A)	MW-33(A)	10/14/2003	0.2 U B	1 U	1 U
MW-34(A)	MW-34(A)	10/14/2003	0.2 U	1 U	1 U
MW-35(A)	MW-35 (A)	10/16/2003	0.2 U J	1 U	1 U
MW-36(A)	MW-36(A)	10/21/2003	0.2 U	2.61 J+,B	1 U
MW-37(A)	MW-37 (A)	10/17/2003	0.2 U B	1 U B	1 U
MW-38(A)	MW-38(A)	10/21/2003	0.2 U	1.34 J+,B	1 U
MW-39(A)	MW-39 (A)	10/16/2003	0.2 U B	1.11 J+, B	1 U
MW-40(A)	MW-40 (A)	10/17/2003	0.2 U B	1 U	1 U
MW-41(A)	MW-41(A)	10/14/2003	0.2 U B	1 U	1 U
MW-42(A)	MW-42 (A)	10/15/2003	0.2 U B	2 U B	1 U
MW-43(A)	MW-43(A)	10/13/2003	0.2 U	0.96 J	1 U
MW-44(A)	MW-44 (A)	10/17/2003	0.2 U B	1 U B	1 U
MW-45(A)	MW-45 (A)	10/16/2003	0.2 U	1 U	1 U
MW-46(A)	MW-46(A)	10/14/2003	0.2 U B	1 U	1 U

TABLE 8
DISSOLVED METALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Mercury	Selenium	Silver
			ug/L	ug/L	ug/L
MW-47(A)	MW-47(A)	10/13/2003	0.2 U	1 U	1 U
MW-48(A)	MW-48(A)	10/14/2003	0.2 U J	1 U	1 U

TABLE 9
ANIONS, CATIONS, and MISC CHEMICALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Alkalinity, Total mgCaCO3/L	Calcium mg/L	Chemical Oxygen Demand mg/L	Chloride mg/L	Iron mg/L
MW-1(F)	MW-1(F)	10/22/2003	490	119		17.5	46.6
MW-2(M)	MW-2(M)	6/19/2003			26.1		28.1
MW-2(M)	MW-2 (M)	10/15/2003	116	23.4		16.8	39.3
MW-6(M)	MW-6(M)	6/19/2003			15.8		11.8
MW-7(M)	BM-7(M)	6/19/2003			16.4		12.2
MW-7(M)	MW-7(M)	6/19/2003			14.8		13
MW-7(M)	MW-7(M)	10/13/2003	208	41.8		13.2	19.6
MW-10(M)	MW-10(M)	6/19/2003			30.6		47
MW-10(M)	MW-10 (M)	10/15/2003	225	46.5		9.61	68.3
MW-11(M)	MW-11(M)	6/19/2003			9.51		25.7
MW-11(M)	MW-11 (M)	10/15/2003	115	13.8		20.8	27.8
MW-12(A)	MW-12(A)	10/22/2003					0.87
MW-13(A)	MW-13(A)	10/22/2003	497	136		14.8	1.27
MW-14(A)	MW-14(A)	10/21/2003	132	110		12.9	0.348
MW-15(A)	MW-15(A)	10/20/2003					7.81
MW-16(A)	MW-16(A)	10/20/2003					13.3

TABLE 9
ANIONS, CATIONS, and MISC CHEMICALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Alkalinity, Total mgCaCO3/L	Calcium mg/L	Chemical Oxygen Demand mg/L	Chloride mg/L	Iron mg/L
MW-17(A)	MW-17 (A)	10/17/2003	240	102		13.4	18.4
MW-18(A)	MW-18(A)	10/21/2003					20
MW-19(A)	BM-19(A)	10/20/2003					12.8
MW-19(A)	MW-19(A)	10/20/2003					12.7
MW-20(A)	MW-20(A)	10/20/2003	71.2	17.8		7.24	15.7
MW-21(A)	MW-21(A)	10/20/2003					25
MW-22(A)	MW-22 (A)	10/16/2003					18.6
MW-23(A)	MW-23(A)	10/20/2003	90.3	37.8		11.5	6.21
MW-24(A)	MW-24(A)	10/21/2003	206	12.1		54.5	1.2
MW-26(A)	MW-26 (A)	10/17/2003					13.9
MW-27(A)	MW-27(A)	10/21/2003					0.996
MW-28(A)	MW-28 (A)	10/17/2003					58.5
MW-29(A)	MW-29(A)	10/21/2003					37.6
MW-30(A)	MW-30 (A)	10/16/2003	162	28		8.51	38.2

TABLE 9
ANIONS, CATIONS, and MISC CHEMICALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Alkalinity, Total mgCaCO3/L	Calcium mg/L	Chemical Oxygen Demand mg/L	Chloride mg/L	Iron mg/L
MW-31(A)	BM-31 (A)	10/16/2003	200	33.9		10.8	29.5
MW-31(A)	MW-31 (A)	10/16/2003	202	33.5		10.7	29.1
MW-32(A)	MW-32(A)	10/14/2003	153	12.4		26.7	3.24
MW-33(A)	MW-33(A)	10/14/2003	186	24.1		16.6	16.7
MW-34(A)	MW-34(A)	10/14/2003	179	31.6		19.1	5.5
MW-35(A)	MW-35 (A)	10/16/2003	45.7	9.06		16.6	5.93
MW-36(A)	MW-36(A)	10/21/2003					15
MW-37(A)	MW-37 (A)	10/17/2003					27.1
MW-38(A)	MW-38(A)	10/21/2003	150	32.4		17.2	1.48
MW-39(A)	MW-39 (A)	10/16/2003					6.09
MW-40(A)	MW-40 (A)	10/17/2003	190	28.4		10.4	42.5
MW-41(A)	MW-41(A)	10/14/2003	185	40.6		9.23	35
MW-42(A)	MW-42 (A)	10/15/2003	218	48.3		7.64	48.2
MW-43(A)	MW-43(A)	10/13/2003	91	25.9		9.31	6.25

TABLE 9
ANIONS, CATIONS, and MISC CHEMICALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Alkalinity, Total	Calcium	Chemical Oxygen Demand	Chloride	Iron
			mgCaCO3/L	mg/L	mg/L	mg/L	mg/L
MW-44(A)	MW-44 (A)	10/17/2003	90.8	17.1		14.6	36.8
MW-45(A)	MW-45 (A)	10/16/2003					10.4
MW-46(A)	MW-46(A)	10/14/2003	54	10.1		7.64	15.4
MW-47(A)	MW-47(A)	10/13/2003	36.1	7.89		11.6	0.49
MW-48(A)	MW-48(A)	10/14/2003	83.3	18		11.6	25.7

TABLE 9
ANIONS, CATIONS, and MISC CHEMICALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Magnesium mg/L	Manganese mg/L	Nitrogen, Nitrate (as N) mg/L	Nitrogen, Nitrate- Nitrite mg/L	Potassium mg/L
MW-1(F)	MW-1(F)	10/22/2003	46.8	10.5		1 U	8.54
MW-2(M)	MW-2(M)	6/19/2003			0.1 U		
MW-2(M)	MW-2 (M)	10/15/2003	11.1	1.69		2 U B	6.03
MW-6(M)	MW-6(M)	6/19/2003			0.1 U		
MW-7(M)	BM-7(M)	6/19/2003			0.1 U		
MW-7(M)	MW-7(M)	6/19/2003			0.1 U		
MW-7(M)	MW-7(M)	10/13/2003	19.5	1.06		0.149	6.69
MW-10(M)	MW-10(M)	6/19/2003			0.1 U		
MW-10(M)	MW-10 (M)	10/15/2003	32.6	1.32		2 U B	11.3
MW-11(M)	MW-11(M)	6/19/2003			0.1 U		
MW-11(M)	MW-11 (M)	10/15/2003	17.6	0.473		2 U	8.13
MW-12(A)	MW-12(A)	10/22/2003					
MW-13(A)	MW-13(A)	10/22/2003	20.5	0.131		0.02 U	7.71
MW-14(A)	MW-14(A)	10/21/2003	18.3	0.245		0.0472	7.41
MW-15(A)	MW-15(A)	10/20/2003					
MW-16(A)	MW-16(A)	10/20/2003					

TABLE 9
ANIONS, CATIONS, and MISC CHEMICALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Magnesium mg/L	Manganese mg/L	Nitrogen, Nitrate (as N) mg/L	Nitrogen, Nitrate- Nitrite mg/L	Potassium mg/L
MW-17(A)	MW-17 (A)	10/17/2003	22.4	0.991		2 U	11.8
MW-18(A)	MW-18(A)	10/21/2003					
MW-19(A)	BM-19(A)	10/20/2003					
MW-19(A)	MW-19(A)	10/20/2003					
MW-20(A)	MW-20(A)	10/20/2003	15	0.581		1 U	7.17
MW-21(A)	MW-21(A)	10/20/2003					
MW-22(A)	MW-22 (A)	10/16/2003					
MW-23(A)	MW-23(A)	10/20/2003	11.2	0.293		1 U B	4.71
MW-24(A)	MW-24(A)	10/21/2003	7.62	0.225		1 U B	7.9
MW-26(A)	MW-26 (A)	10/17/2003					
MW-27(A)	MW-27(A)	10/21/2003					
MW-28(A)	MW-28 (A)	10/17/2003					
MW-29(A)	MW-29(A)	10/21/2003					
MW-30(A)	MW-30 (A)	10/16/2003	16.6	1.47		2 U	7.18

TABLE 9
ANIONS, CATIONS, and MISC CHEMICALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Magnesium mg/L	Manganese mg/L	Nitrogen, Nitrate (as N) mg/L	Nitrogen, Nitrate- Nitrite mg/L	Potassium mg/L
MW-31(A)	BM-31 (A)	10/16/2003	23.3	1.75		2 U B	9.03
MW-31(A)	MW-31 (A)	10/16/2003	23.5	1.7		2 U U	8.92
MW-32(A)	MW-32(A)	10/14/2003	24.4	0.11		0.052 J	12
MW-33(A)	MW-33(A)	10/14/2003	14.1	0.575		0.094 J	9.21
MW-34(A)	MW-34(A)	10/14/2003	26	0.324		0.039 J	12.4
MW-35(A)	MW-35 (A)	10/16/2003	6.62	0.206		2 U	4.94
MW-36(A)	MW-36(A)	10/21/2003					
MW-37(A)	MW-37 (A)	10/17/2003					
MW-38(A)	MW-38(A)	10/21/2003	13	0.209		1 U	6.6
MW-39(A)	MW-39 (A)	10/16/2003					
MW-40(A)	MW-40 (A)	10/17/2003	24.9	1.44		2 U	12.4
MW-41(A)	MW-41(A)	10/14/2003	13.6	2.29		0.2 U	5.33
MW-42(A)	MW-42 (A)	10/15/2003	18.1	2.62		2 U	6.49
MW-43(A)	MW-43(A)	10/13/2003	5.58	0.598		0.07 J	4.32

TABLE 9
ANIONS, CATIONS, and MISC CHEMICALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Magnesium mg/L	Manganese mg/L	Nitrogen, Nitrate (as N) mg/L	Nitrogen, Nitrate- Nitrite mg/L	Potassium mg/L
MW-44(A)	MW-44 (A)	10/17/2003	5.1	0.54		2 U	3.42
MW-45(A)	MW-45 (A)	10/16/2003					
MW-46(A)	MW-46(A)	10/14/2003	6.32	0.722		0.112 J	5.74
MW-47(A)	MW-47(A)	10/13/2003	8.34	0.0476		1.03	7.26
MW-48(A)	MW-48(A)	10/14/2003	10.4	0.872		0.2 U	8.76

TABLE 9
ANIONS, CATIONS, and MISC CHEMICALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Sodium mg/L	Sulfate mg/L	Total Dissolved Solids mg/L	Total Organic Carbon (TOC) mg/L
MW-1(F)	MW-1(F)	10/22/2003	96.3	168		
MW-2(M)	MW-2(M)	6/19/2003			138	4.61
MW-2(M)	MW-2 (M)	10/15/2003	12.6	1 U B		
MW-6(M)	MW-6(M)	6/19/2003			163	4.07
MW-7(M)	BM-7(M)	6/19/2003			244	3.96
MW-7(M)	MW-7(M)	6/19/2003			248	3.9
MW-7(M)	MW-7(M)	10/13/2003	14.3	5.76		
MW-10(M)	MW-10(M)	6/19/2003			330	7.59
MW-10(M)	MW-10 (M)	10/15/2003	11.6	0.77 U B		
MW-11(M)	MW-11(M)	6/19/2003			182	1.92
MW-11(M)	MW-11 (M)	10/15/2003	8.56	2.36		
MW-12(A)	MW-12(A)	10/22/2003				
MW-13(A)	MW-13(A)	10/22/2003	62.6	52.6		
MW-14(A)	MW-14(A)	10/21/2003	51.4	353		
MW-15(A)	MW-15(A)	10/20/2003				
MW-16(A)	MW-16(A)	10/20/2003				

TABLE 9
ANIONS, CATIONS, and MISC CHEMICALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Sodium mg/L	Sulfate mg/L	Total Dissolved Solids mg/L	Total Organic Carbon (TOC) mg/L
MW-17(A)	MW-17 (A)	10/17/2003	56.4	204		
MW-18(A)	MW-18(A)	10/21/2003				
MW-19(A)	BM-19(A)	10/20/2003				
MW-19(A)	MW-19(A)	10/20/2003				
MW-20(A)	MW-20(A)	10/20/2003	18	90.5		
MW-21(A)	MW-21(A)	10/20/2003				
MW-22(A)	MW-22 (A)	10/16/2003				
MW-23(A)	MW-23(A)	10/20/2003	20.9	104		
MW-24(A)	MW-24(A)	10/21/2003	92.4	17.6		
MW-26(A)	MW-26 (A)	10/17/2003				
MW-27(A)	MW-27(A)	10/21/2003				
MW-28(A)	MW-28 (A)	10/17/2003				
MW-29(A)	MW-29(A)	10/21/2003				
MW-30(A)	MW-30 (A)	10/16/2003	7.49	1 U		

TABLE 9
ANIONS, CATIONS, and MISC CHEMICALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Sodium mg/L	Sulfate mg/L	Total Dissolved Solids mg/L	Total Organic Carbon (TOC) mg/L
MW-31(A)	BM-31 (A)	10/16/2003	11.4	3.28		
MW-31(A)	MW-31 (A)	10/16/2003	11.6	1.2 J+,B		
MW-32(A)	MW-32(A)	10/14/2003	48.2	64.5		
MW-33(A)	MW-33(A)	10/14/2003	39.6	13.8		
MW-34(A)	MW-34(A)	10/14/2003	14.8	16.4		
MW-35(A)	MW-35 (A)	10/16/2003	8.04	8.64		
MW-36(A)	MW-36(A)	10/21/2003				
MW-37(A)	MW-37 (A)	10/17/2003				
MW-38(A)	MW-38(A)	10/21/2003	29.4	38.9		
MW-39(A)	MW-39 (A)	10/16/2003				
MW-40(A)	MW-40 (A)	10/17/2003	10	1.13		
MW-41(A)	MW-41(A)	10/14/2003	8.68	5.91		
MW-42(A)	MW-42 (A)	10/15/2003	9.19	5.8		
MW-43(A)	MW-43(A)	10/13/2003	6.42	7.61		

TABLE 9
ANIONS, CATIONS, and MISC CHEMICALS IN GROUND WATER

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Locator ID	Sample ID	Sample Date	Sodium mg/L	Sulfate mg/L	Total Dissolved Solids mg/L	Total Organic Carbon (TOC) mg/L
MW-44(A)	MW-44 (A)	10/17/2003	10.3	8.53		
MW-45(A)	MW-45 (A)	10/16/2003				
MW-46(A)	MW-46(A)	10/14/2003	5.77	1.24 J+,B		
MW-47(A)	MW-47(A)	10/13/2003	8.79	25.2		
MW-48(A)	MW-48(A)	10/14/2003	10.6	45.6		

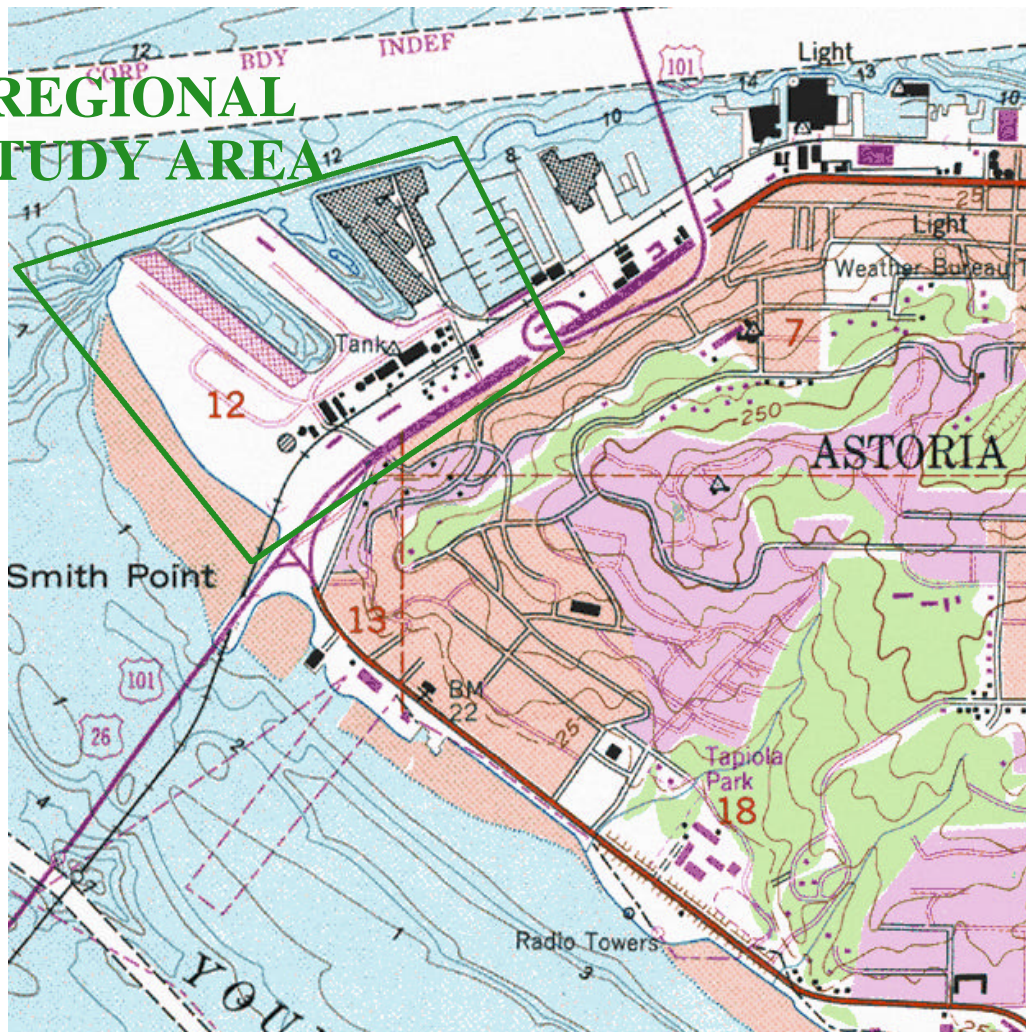
TABLE 10**PRODUCT REMOVAL**

Remedial Investigation/Feasibility Study
 Astoria Area-Wide Petroleum Site
 Astoria, Oregon

Locator ID	Date	Time	Amount of Product Removed (cubic feet)	Amount of Product Removed (ounces)	Amount of Product Removed (gallons)
MW-3(M)	8/13/2003	15:09	0.02		0.150
MW-3(M)	10/23/2003	9:39		9	0.070
MW-3(M)	10/23/2003	10:40		3	0.023
MW-3(M)	11/12/2003	15:20		4	0.030
MW-3(M)	11/12/2003	16:00		2	0.016
MW-3(M)	12/16/2003	15:22		33	0.264
MW-4(M)	7/14/2003	13:49	0.002		0.015
MW-4(M)	7/14/2003	14:52	0.0006		0.004
MW-4(M)	8/13/2003	14:51	0.0004		0.004
MW-4(M)	10/23/2003	9:18		4	0.032
MW-4(M)	10/23/2003	10:29		0.2	0.002
MW-8(M)	7/14/2003	13:34	0.007		0.052
MW-8(M)	7/14/2003	14:29	0.0008		0.006
MW-8(M)	8/13/2003	14:42	0.003		0.022
MW-8(M)	10/23/2003	8:36		15	0.120
MW-8(M)	10/23/2003	10:20		1	0.008
MW-8(M)	11/12/2003	15:30		4	0.032
MW-9(M)	7/14/2003	13:15	0.02		0.150
MW-9(M)	7/14/2003	14:39	0.005		0.037
MW-9(M)	8/13/2003	14:31	0.01		0.075
MW-9(M)	10/23/2003	9:56		18	0.144
MW-9(M)	10/23/2003	11:00		9	0.072
MW-9(M)	11/12/2003	15:45		5	0.040
MW-9(M)	12/16/2003	15:05		6	0.048
MW-40(A)	11/12/2003	16:45		1	0.008

FIGURES

REGIONAL STUDY AREA



(from USGS, Astoria [1984], OR 7.5' Quadrangles)

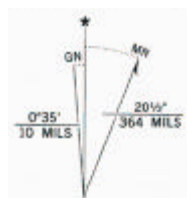
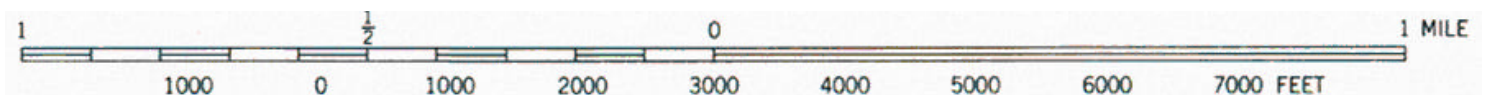


FIGURE 1

SITE LOCATION

Remedial Investigation/Feasibility Study Astoria Area-Wide Petroleum Site Astoria, Oregon

EnviroLogic Resources, Inc.

Consulting Environmental & Water Resources Scientists

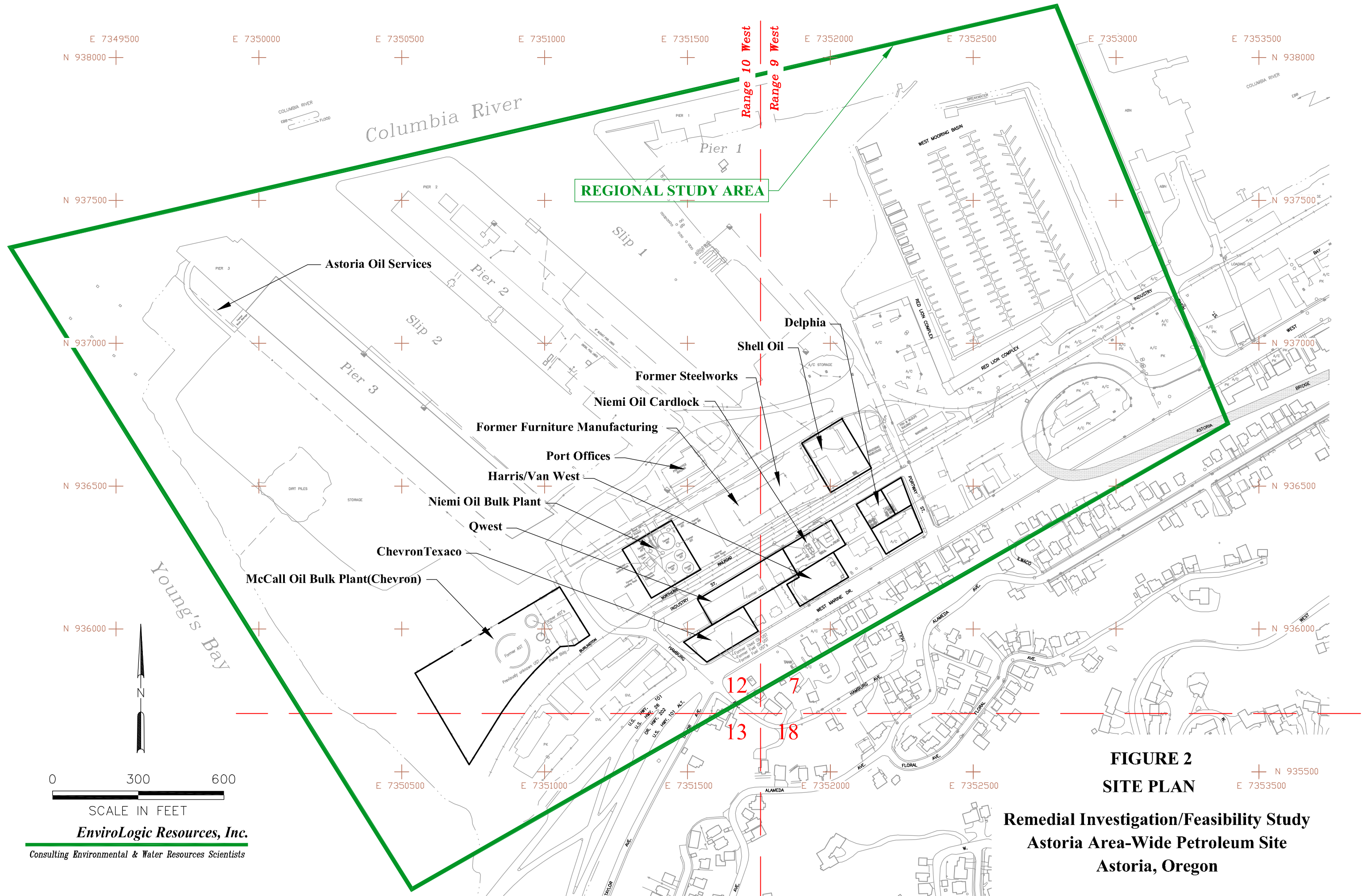
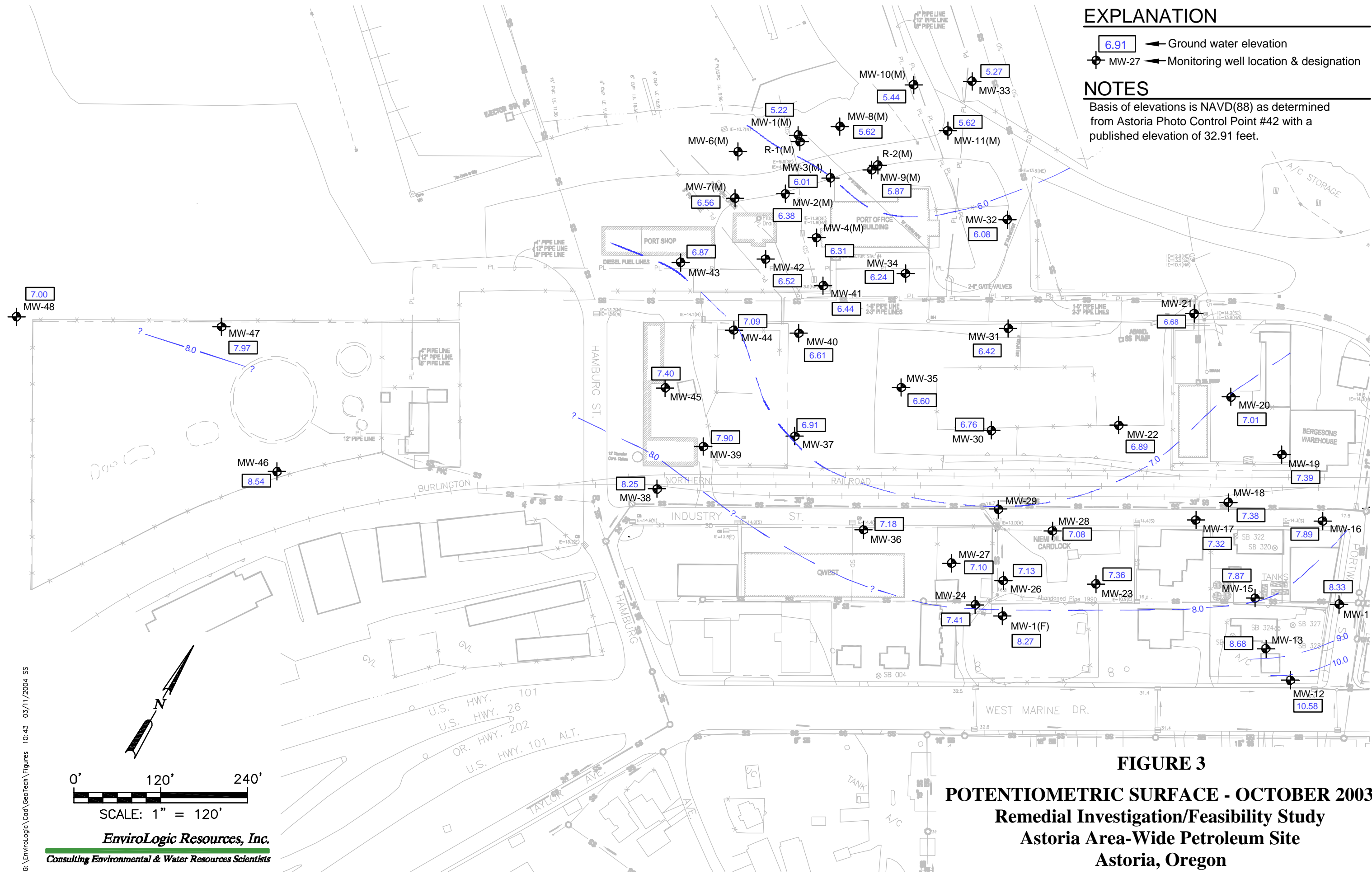


FIGURE 2
SITE PLAN

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon



EXPLANATION

6.91

←

Ground water elevation

MW-27

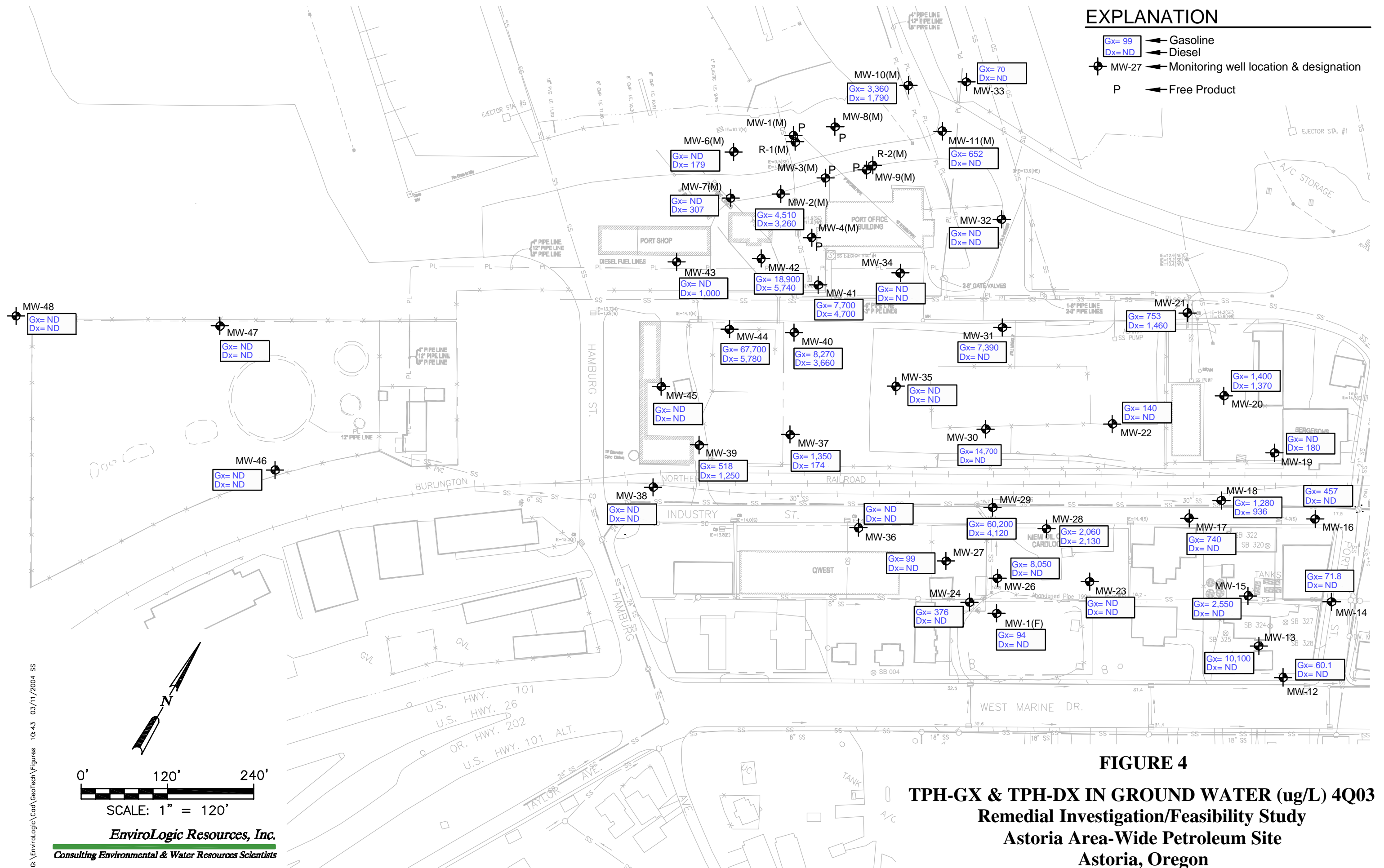
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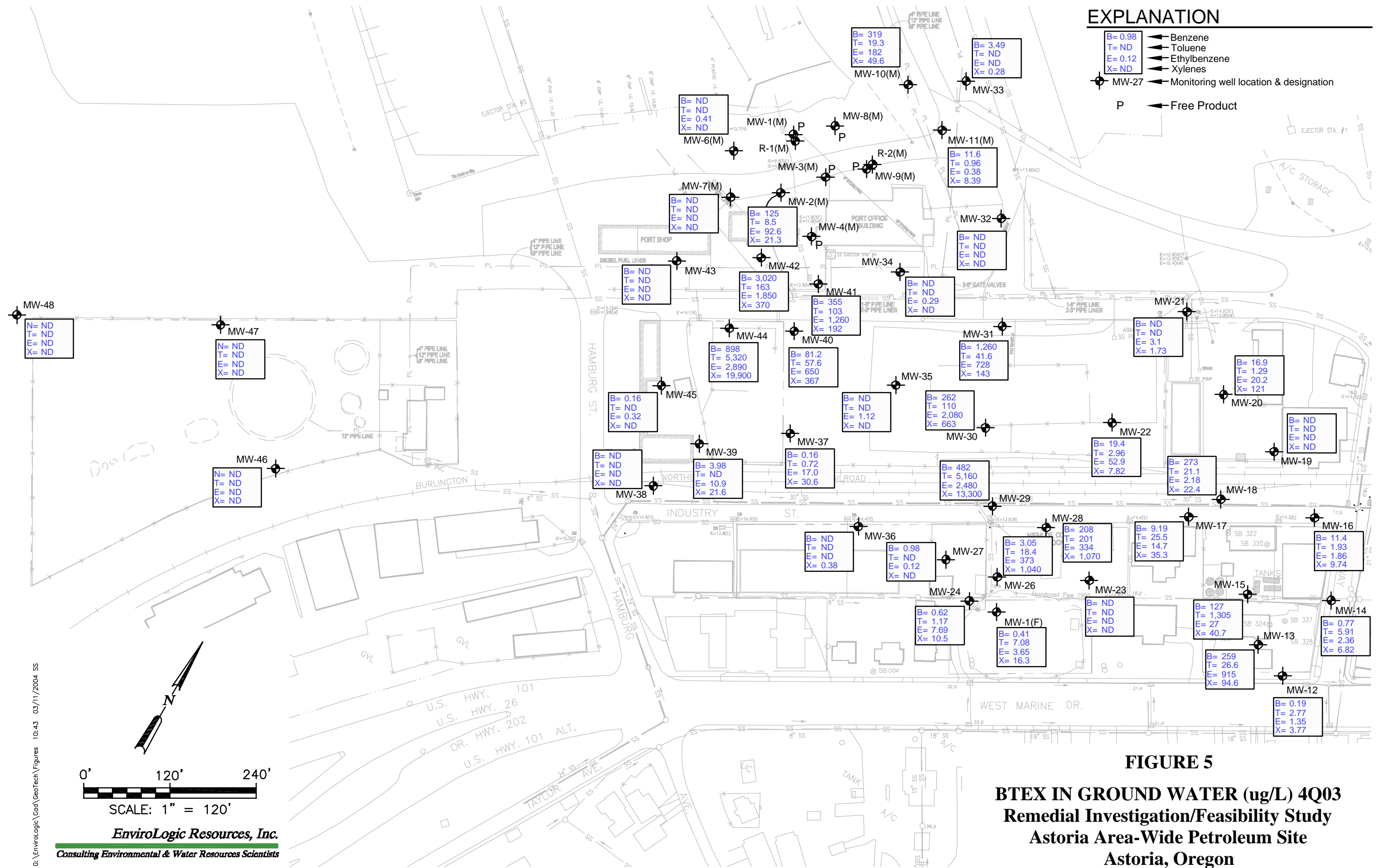
Monitoring well location & designation

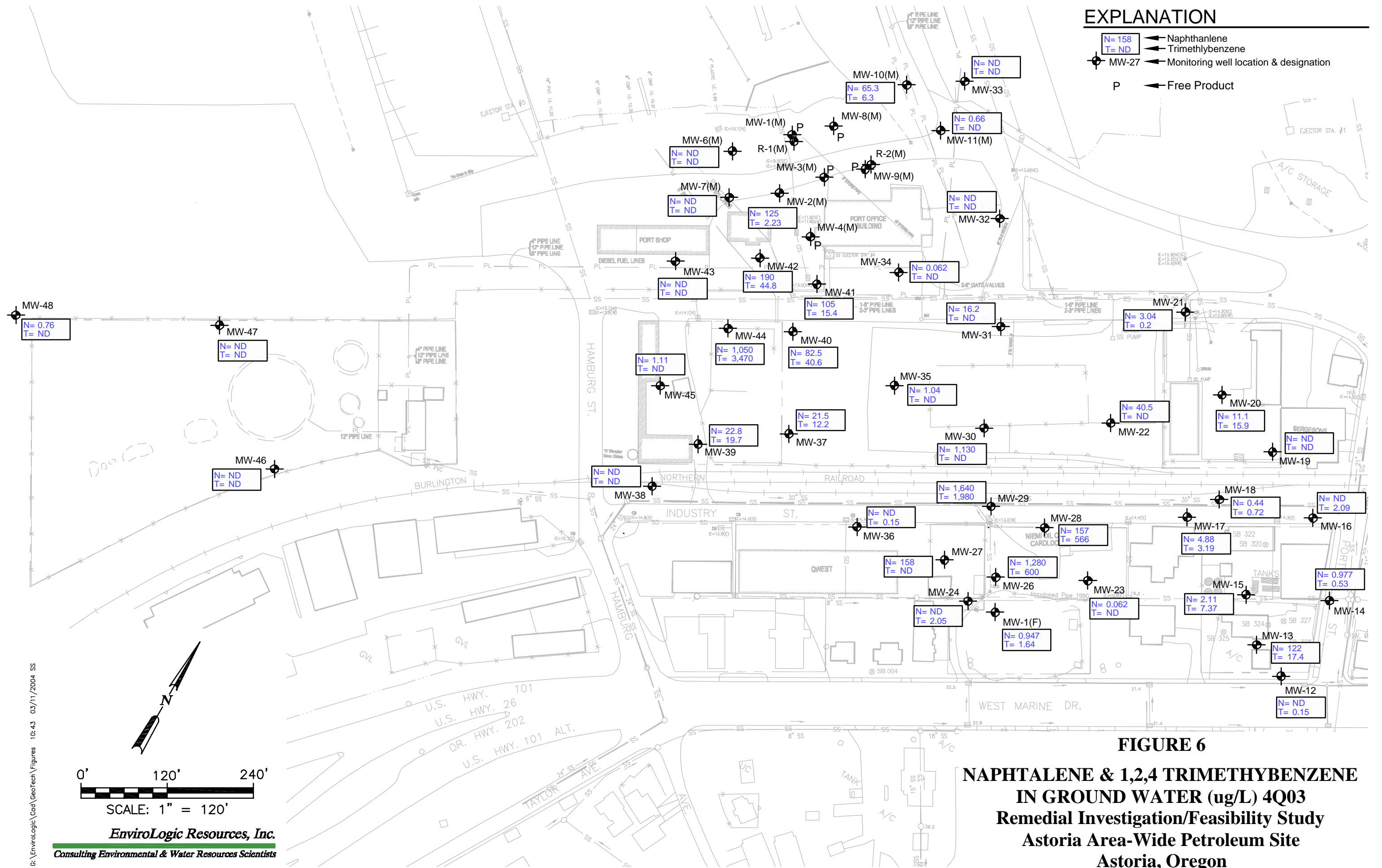
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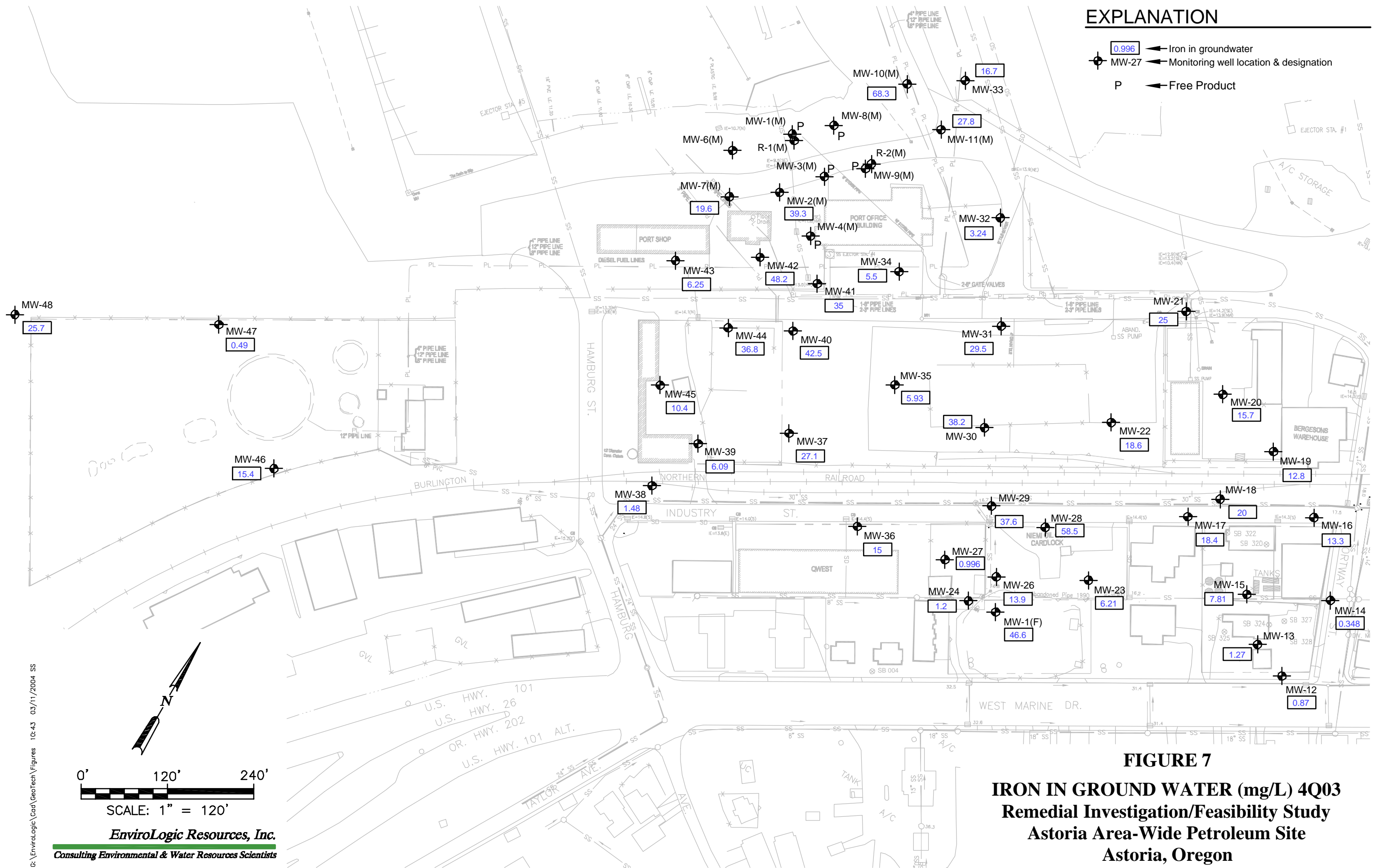
Basis of elevations is NAVD(88) as determined from Astoria Photo Control Point #42 with a published elevation of 32.91 feet.

FIGURE 3
POTENTIOMETRIC SURFACE - OCTOBER 2003
Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon









APPENDIX A

METHODS AND PROCEDURES

APPENDIX A
METHODS AND PROCEDURES
GROUND-WATER SAMPLING

Standardized methods and procedures were developed prior to commencement of field activities. This protocol helped to control the quality of samples collected and helped to protect the health and safety of all site personnel. Quality-assurance protocols utilized are discussed in detail in the Quality Assurance Project Plan (QAPP) in Appendix B of the RI/FS Work Plan. Sampling procedures and protocols for each sampling activity were developed to meet the project data quality objectives and were based on proven and acceptable sampling methods as established by EPA guidance documents, Oregon state regulations, and professional judgment.

EnviroLogic Resources, Inc., performed all ground-water sampling and related activities. Ground-water level measurements were recorded from the monitoring wells at the start of the sampling event.

Ground-water samples were collected from 47 wells. The monitoring wells were first checked for free product, water levels were measured, and then approximately 3-borehole volumes of ground water were removed. Wells were purged using an ES-40 purge pump connected to clear vinyl PVC tubing. The water was transferred into a 250-gallon tote. Once the appropriate amount of water was purged from the well, the pH, temperature, and conductivity were measured continuously until stabilization using an Oakton meter. If the well was purged of all water, then the purging process was considered complete. Once ground water recovered or the field parameter readings were stable, the DO was measured down hole using a YSI 55 DO meter. Next, ground water was sampled with a weighted disposable PVC bailer to fill the VOA bottles. After filling the VOA bottles, polyethylene tubing was inserted into the well and connected to silicon tubing, and ground water was sampled through this tubing into the appropriate bottles using a Model 410 Solinst peristaltic pump. Finally, ground water was collected into a glass beaker and field parameters (pH, temperature, conductivity, and ORP) were measured and recorded.

The ORP was measured with an ORPTestr. Field parameters are presented on the Ground-Water Sampling Logs in Appendix B. The tubing was left inside the well casing to be used during the next sampling event, and the well was closed. When the tote was full of purged water, the water was pumped into a 4,000-gallon Baker tank, which is stored near the bank at the base of Slip 2.

Product was sampled using polyethylene tubing and a peristaltic pump. The tubing was held at the elevation of the product to collect only product to the extent possible. The product was contained in 8-ounce glass jars, which were sealed in plastic bags, then stored in a cooler with ice until delivered to the laboratory. Product was analyzed at North Creek Analytical, Inc., in Beaverton, Oregon, and the Shell Oil research laboratory in Houston, Texas.

Investigation derived waste (IDW), including purged and decontamination water are stored on-site in one staging area. The water is stored in a 4,000-gallon Baker tank. Samples of the water in the Baker Tank were collected and analyzed to compare concentrations to the discharge limits set by DEQ in a letter dated August 27, 2003. The concentrations of constituents in the decontamination and purge water were below discharge limits and the water was discharged from the Baker tank to a nearby storm water catch basin that has an outfall in Slip 2.

Field equipment blanks were collected and analyzed along with laboratory method blanks to evaluate whether the analytical results are representative of the sampled material and not influenced by non-site related contamination. Laboratory QC samples included laboratory matrix or method spikes, laboratory matrix spike duplicates, laboratory duplicates, and laboratory method blanks. These are described in Appendix B of the RI/FS Work Plan (*EnviroLogic Resources, 2002b*).

APPENDIX B
WATER SAMPLING LOGS

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: R-1(M)

Sampled By: Melanie Bocianowski, Alex Shook

Date: 10/22/2003	Sample Number: R-1(M)
Time Sample Collected: 1340	Well or Boring No.: R-1(M)
COC and RFA No.:	
Static Water Level: 4.55 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or “Geoprobe” Diameter:
Amount Purged: Approx. 50 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer	
Pump intake depth:	
Discharge rate during sampling:	DO: 5.3 %
Color: Transparent light grey to clear	Temperature: 17.2 deg C
Turbidity: Medium cloudy	ORP: 162 mV
Conductance: 104 μ S	pH: 7.39
Odor: None	Other:
Analysis Requested:	
Comments: Tubing would not go down well, therefore no field filtering. Silting caused purging to stop.	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-1(F)

Sampled By: Melanie Bocianowski, Alex Shook

Date: 10/22/2003	Sample Number: MW-1(F)
Time Sample Collected: 820	Well or Boring No.: MW-1(F)
COC and RFA No.:	
Static Water Level: 23.87 feet dtw	Time:
Well Depth: 26.85 feet	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 12 gallons	Bailer or Well Point Depth:
Sample Collection Method:	
Bailer	
Pump intake depth:	
Discharge rate during sampling:	DO: 15.1 %
Color: Transparent light grayish tan	Temperature: 14.3 deg C
Turbidity: Cloudy	ORP: 100 mV
Conductance: 182 μ S	pH: 7.06
Odor: None	Other:
Analysis Requested:	
Comments:	
Tubing would not go down well, therefore no field filtering. Well dry after 12 gallons purged.	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-2(M)

Sampled By: Melanie Bocianowski, Alex Shook

Date: 10/15/2003	Sample Number: MW-2(M)
Time Sample Collected: 1300	Well or Boring No.: MW-2(M)
COC and RFA No.:	
Static Water Level: 8.62 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 70 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 7.3 %
Color: Mostly clear	Temperature: 15.7 deg C
Turbidity: Clear	ORP: -21 mV
Conductance: 253 μ S	pH: 6.91
Odor: Slight	Other:
Analysis Requested:	
Comments:	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-6(M)

Sampled By: Melanie Bocianowski, Alex Shook

Date: 10/22/2003	Sample Number: MW-6(M)
Time Sample Collected: 1530	Well or Boring No.: MW-6(M)
COC and RFA No.:	
Static Water Level: 7.00 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 56 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 10.4 %
Color: clear	Temperature: 15.7 deg C
Turbidity: Clear	ORP: 9 mV
Conductance: 120 μ S	pH: 7.28
Odor: None	Other:
Analysis Requested:	
Comments:	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-7(M)

Sampled By: Melanie Bocianowski, Nancy East-Smith

Date: 10/13/2003	Sample Number: MW-7(M)
Time Sample Collected: 1547	Well or Boring No.: MW-7(M)
COC and RFA No.:	
Static Water Level: 8.27 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 70 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 7.6 %
Color: clear	Temperature: 16.8 deg C
Turbidity: Clear	ORP: 0.43 mV
Conductance: 414 μ S	pH: 6.73
Odor: None	Other:
Analysis Requested:	
Comments:	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-10(M)

Sampled By: Melanie Bocianowski, Alex Shook

Date: 10/15/2003	Sample Number: MW-10(M)
Time Sample Collected: 1500	Well or Boring No.: MW-10(M)
COC and RFA No.:	
Static Water Level: 10.85 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 50 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer	
Pump intake depth:	
Discharge rate during sampling:	DO: 12.8 %
Color: Transparent light gray	Temperature: 15.2 deg C
Turbidity: Slightly murky to clear	ORP: -34 mV
Conductance: 330 μ S	pH: 6.72
Odor: Slight	Other:
Analysis Requested:	
Comments: Tubing would not go down well therefore no field filtering	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-11(M)

Sampled By: Melanie Bocianowski, Alex Shook

Date: 10/15/2003	Sample Number: MW-11(M)
Time Sample Collected: 1720	Well or Boring No.: MW-11(M)
COC and RFA No.:	
Static Water Level: 10.41 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 60 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: n/a
Color: Mostly clear	Temperature: 13.9 deg C
Turbidity: Clear	ORP: -37 mV
Conductance: 161 μ S	pH: 6.86
Odor: Slight to medium	Other:
Analysis Requested:	
Comments: Started with grey (sandy) water, strong odor; Cleared by end of sampling with less odor	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-12(A)

Sampled By: Melanie Bocianowski, Alex Shook

Date: 10/22/2003	Sample Number: MW-12(A)
Time Sample Collected: 955	Well or Boring No.: MW-12(A)
COC and RFA No.:	
Static Water Level: 19.61 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 12 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 9.1 %
Color: clear	Temperature: 15.9 deg C
Turbidity: Clear	ORP: 130 mV
Conductance: 357 μ S	pH: 7.28
Odor: None	Other:
Analysis Requested:	
Comments: Orange water at start of pumping	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-13(A)

Sampled By: Melanie Bocianowski, Alex Shook

Date: 10/22/2003	Sample Number: MW-13(A)
Time Sample Collected: 1130	Well or Boring No.: MW-13(A)
COC and RFA No.:	
Static Water Level: 22.34 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 35 gallons	Bailer or Well Point Depth:
Sample Collection Method:	
Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 4.5 %
Color: clear	Temperature: 15.5 deg C
Turbidity: Clear	ORP: -10 mV
Conductance: 340 μ S	pH: 7.90
Odor: Medium to strong	Other:
Analysis Requested:	
Comments:	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-14(A)

Sampled By: Melanie Bocianowski, Nancy East-Smith

Date: 10/21/2003	Sample Number: MW-14(A)
Time Sample Collected: 1645	Well or Boring No.: MW-14(A)
COC and RFA No.:	
Static Water Level: 14.70 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 20 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 17.3 %
Color: clear	Temperature: 16.1 deg C
Turbidity: Clear	ORP: 203 mV
Conductance: 170 μ S	pH: 6.73
Odor: None	Other:
Analysis Requested:	
Comments: Well went dry after 20 gallons purged.	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-15(A)

Sampled By: Melanie Bocianowski, Nancy East-Smith

Date: 10/20/2003	Sample Number: MW-15(A)
Time Sample Collected: 1340	Well or Boring No.: MW-15(A)
COC and RFA No.:	
Static Water Level: 8.87 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 60 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 6.7 %
Color: clear	Temperature: 15.8 deg C
Turbidity: Clear	ORP: -52 mV
Conductance: 424 μ S	pH: 7.24
Odor: Fresh "strong gas" odor	Other:
Analysis Requested:	
Comments: Occasional sheen on water	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-16(A)

Sampled By: Melanie Bocianowski, Nancy East-Smith

Date: 10/20/2003	Sample Number: MW-16(A)
Time Sample Collected: 1510	Well or Boring No.: MW-16(A)
COC and RFA No.:	
Static Water Level: 8.39 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 50 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 8.4 %
Color: Slightly orangish to clear	Temperature: 16.8 deg C
Turbidity: Clear	ORP: 22 mV
Conductance: 193 μ S	pH: 7.04
Odor: Medium to strong	Other:
Analysis Requested:	
Comments: First bailer contained high amounts of iron.	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-17(A)

Sampled By: Melanie Bocianowski, Alex Shook

Date: 10/17/2003	Sample Number: MW-17(A)
Time Sample Collected: 1300	Well or Boring No.: MW-17(A)
COC and RFA No.:	
Static Water Level: 8.31 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 15 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 6.4 %
Color: clear	Temperature: 15.9 deg C
Turbidity: Clear	ORP: -21 mV
Conductance: 430 μ S	pH: 6.90
Odor: Slight	Other:
Analysis Requested:	
Comments: Well dry after 15 gallons purged.	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-18(A)

Sampled By: Melanie Bocianowski, Nancy East-Smith

Date: 10/21/2003	Sample Number: MW-18(A)
Time Sample Collected: 1300	Well or Boring No.: MW-18(A)
COC and RFA No.:	
Static Water Level: 8.58 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 61 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 4.1 %
Color: clear	Temperature: 18.1 deg C
Turbidity: Clear	ORP: -76 mV
Conductance: 342 μ S	pH: 7.18
Odor: Slight to medium	Other:
Analysis Requested:	
Comments:	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-19(A)

Sampled By: Melanie Bocianowski, Nancy East-Smith

Date: 10/20/2003	Sample Number: MW-19(A)
Time Sample Collected: 1050	Well or Boring No.: MW-19(A)
COC and RFA No.:	
Static Water Level: 10.43 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 37 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 8.2 %
Color: clear	Temperature: 16.5 deg C
Turbidity: Slight	ORP: n/a
Conductance: 364 μ S	pH: 6.88
Odor: none	Other:
Analysis Requested:	
Comments:	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-20(A)

Sampled By: Melanie Bocianowski, Nancy East-Smith

Date: 10/20/2003	Sample Number: MW-20(A)
Time Sample Collected: 1210	Well or Boring No.: MW-20(A)
COC and RFA No.:	
Static Water Level: 9.88 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 42 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 7.6 %
Color: clear	Temperature: 16.7 deg C
Turbidity: Clear	ORP: -25 mV
Conductance: 166 μ S	pH: 6.86
Odor: Medium to strong	Other:
Analysis Requested:	
Comments:	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-21(A)

Sampled By: Melanie Bocianowski, Nancy East-Smith

Date: 10/20/2003	Sample Number: MW-21(A)
Time Sample Collected: 940	Well or Boring No.: MW-21(A)
COC and RFA No.:	
Static Water Level: 9.11 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 45 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 7.5 %
Color: clear, slightly cloudy	Temperature: 17.3 deg C
Turbidity: Slight	ORP: -1 mV
Conductance: 158 μ S	pH: 6.35
Odor: Slight	Other:
Analysis Requested:	
Comments:	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-22(A)

Sampled By: Melanie Bocianowski, Alex Shook

Date: 10/16/2003	Sample Number: MW-22(A)
Time Sample Collected: 940	Well or Boring No.: MW-22(A)
COC and RFA No.:	
Static Water Level: 9.21 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 45 gallons	Bailer or Well Point Depth:
Sample Collection Method:	
Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 11.0 %
Color: clear	Temperature: 14.7 deg C
Turbidity: Clear	ORP: 183 mV
Conductance: 193 μ S	pH: 6.94
Odor: None	Other:
Analysis Requested:	
Comments:	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-23(A)

Sampled By: Melanie Bocianowski, Nancy East-Smith

Date: 10/20/2003	Sample Number: MW-23(A)
Time Sample Collected: 1630	Well or Boring No.: MW-23(A)
COC and RFA No.:	
Static Water Level: 8.71 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 50 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 6.0 %
Color: clear	Temperature: 15.1 deg C
Turbidity: Clear	ORP: 105 mV
Conductance: 153 μ S	pH: 6.73
Odor: None	Other:
Analysis Requested:	
Comments: Gasoline odor in and around well may be from current local equipment	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-24(A)

Sampled By: Melanie Bocianowski, Nancy East-Smith

Date: 10/21/2003	Sample Number: MW-24(A)
Time Sample Collected: 1430	Well or Boring No.: MW-24(A)
COC and RFA No.:	
Static Water Level: 8.52 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 10 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 10.8 %
Color: clear	Temperature: 16.5 deg C
Turbidity: Mostly clear	ORP: 67 mV
Conductance: 327 μ S	pH: 7.34
Odor: None	Other:
Analysis Requested:	
Comments: Well dry after 10 gallons of purged water	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-26(A)

Sampled By: Melanie Bocianowski, Alex Shook

Date: 10/17/2003	Sample Number: MW-26(A)
Time Sample Collected: 1600	Well or Boring No.: MW-26(A)
COC and RFA No.:	
Static Water Level: 9.09 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 12 gallons	Bailer or Well Point Depth:
Sample Collection Method:	
Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 24.6 %
Color: clear	Temperature: 15.0 deg C
Turbidity: Clear	ORP: 46 mV
Conductance: 361 μ S	pH: 6.74
Odor: Slight	Other:
Analysis Requested:	
Comments:	
Well dry after 12 gallons of purged water	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-27(A)

Sampled By: Melanie Bocianowski, Nancy East-Smith

Date: 10/21/2003	Sample Number: MW-27(A)
Time Sample Collected: 905	Well or Boring No.: MW-27(A)
COC and RFA No.:	
Static Water Level: 9.02 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 25 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 19.5 %
Color: clear	Temperature: 15.5 deg C
Turbidity: Clear	ORP: -25 mV
Conductance: 136 μ S	pH: 6.46
Odor: None	Other:
Analysis Requested:	
Comments: Well dry afte 25 gallons purged	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-28(A)

Sampled By: Melanie Bocianowski, Alex Shook

Date: 10/17/2003	Sample Number: MW-28(A)
Time Sample Collected: 1415	Well or Boring No.: MW-28(A)
COC and RFA No.:	
Static Water Level: 9.01 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 10 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 5.7 %
Color: clear	Temperature: 17.6 deg C
Turbidity: Clear	ORP: 28 mV
Conductance: 320 μ S	pH: 6.46
Odor: Slight to none	Other:
Analysis Requested:	
Comments: Slight sheen; Well dry after 10 gallons purged	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-29(A)

Sampled By: Melanie Bocianowski, Nancy East-Smith

Date: 10/21/2003	Sample Number: MW-29(A)
Time Sample Collected: 1550	Well or Boring No.: MW-29(A)
COC and RFA No.:	
Static Water Level: 8.69 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 52 gallons	Bailer or Well Point Depth:
Sample Collection Method:	
Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 5.4 %
Color: clear	Temperature: 17.1 deg C
Turbidity: Clear	ORP: -14 mV
Conductance: 118 μ S	pH: 6.80
Odor: Slight	Other:
Analysis Requested:	
Comments:	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-30(A)

Sampled By: Melanie Bocianowski, Alex Shook

Date: 10/16/2003	Sample Number: MW-30(A)
Time Sample Collected: 820	Well or Boring No.: MW-30(A)
COC and RFA No.:	
Static Water Level: 9.90 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 35 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 6.6 %
Color: slightly cloudy	Temperature: 14.4 deg C
Turbidity: Slightly cloudy	ORP: -12 mV
Conductance: 258 μ S	pH: 6.76
Odor: Slight to none	Other:
Analysis Requested:	
Comments:	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-31(A)

Sampled By: Melanie Bocianowski, Alex Shook

Date: 10/20/2003	Sample Number: MW-31(A); BM-31(A)
Time Sample Collected: 1350	Well or Boring No.: MW-31(A)
COC and RFA No.:	
Static Water Level: 9.77 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 48 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 5.9 %
Color: clear	Temperature: 15.3 deg C
Turbidity: Clear	ORP: -32 mV
Conductance: 297 μ S	pH: 6.99
Odor: None	Other:
Analysis Requested:	
Comments:	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-32(A)

Sampled By: Melanie Bocianowski, Nancy East-Smith

Date: 10/14/2003	Sample Number: MW-32(A)
Time Sample Collected: 1350	Well or Boring No.: MW-32(A)
COC and RFA No.:	
Static Water Level: 10.41 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 32 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 6.0 %
Color: clear	Temperature: 16.3 deg C
Turbidity: Slight to none	ORP: 52 mV
Conductance: 373 μ S	pH: 7.07
Odor: None	Other:
Analysis Requested:	
Comments: Several diesel trucks drove by during sampling.	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-33(A)

Sampled By: Melanie Bocianowski, Nancy East-Smith

Date: 10/14/2003	Sample Number: MW-33(A)
Time Sample Collected: 838	Well or Boring No.: MW-33(A)
COC and RFA No.:	
Static Water Level: 10.70 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 45 gallons	Bailer or Well Point Depth:
Sample Collection Method:	
Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 13.5 %
Color: clear	Temperature: 15.4 deg C
Turbidity: Clear	ORP: 30 mV
Conductance: 330 μ S	pH: 6.75
Odor: Slight to none	Other:
Analysis Requested:	
Comments:	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-34(A)

Sampled By: Melanie Bocianowski, Alex Shook

Date: 10/15/2003	Sample Number: MW-34(A)
Time Sample Collected: 930	Well or Boring No.: MW-34(A)
COC and RFA No.:	
Static Water Level: 9.57 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 51 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 4.9 %
Color: clear	Temperature: 14.8 deg C
Turbidity: Clear	ORP: 181 mV
Conductance: 312 μ S	pH: 7.07
Odor: None	Other:
Analysis Requested:	
Comments:	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-35(A)

Sampled By: Melanie Bocianowski, Alex Shook

Date: 10/16/2003	Sample Number: MW-35(A)
Time Sample Collected: 1115	Well or Boring No.: MW-35(A)
COC and RFA No.:	
Static Water Level: 9.86 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 42 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 6.2 %
Color: clear	Temperature: 15.1 deg C
Turbidity: Clear	ORP: 235 mV
Conductance: 134 μ S	pH: 6.90
Odor: None	Other:
Analysis Requested:	
Comments: MS/MSD duplicates taken	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-36(A)

Sampled By: Melanie Bocianowski, Nancy East-Smith

Date: 10/21/2003	Sample Number: MW-36(A)
Time Sample Collected: 1130	Well or Boring No.: MW-36(A)
COC and RFA No.:	
Static Water Level: 8.78 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 18 gallons	Bailer or Well Point Depth:
Sample Collection Method:	
Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 5.1 %
Color: Transparent light orangish brown	Temperature: 16.5 deg C
Turbidity: Slight	ORP: 168 mV
Conductance: 579 μ S	pH: 7.13
Odor: None	Other:
Analysis Requested:	
Comments:	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-37(A)

Sampled By: Melanie Bocianowski, Alex Shook

Date: 10/17/2003	Sample Number: MW-37(A)
Time Sample Collected: 810	Well or Boring No.: MW-37(A)
COC and RFA No.:	
Static Water Level: 11.23 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 31 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 6.7 %
Color: clear	Temperature: 15.1 deg C
Turbidity: Clear	ORP: -2 mV
Conductance: 298 μ S	pH: 6.96
Odor: None	Other:
Analysis Requested:	
Comments:	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-38(A)

Sampled By: Melanie Bocianowski, Nancy East-Smith

Date: 10/21/2003	Sample Number: MW-38(A)
Time Sample Collected: 1040	Well or Boring No.: MW-38(A)
COC and RFA No.:	
Static Water Level: 8.53 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 40 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 19.7 %
Color: clear	Temperature: 17.7 deg C
Turbidity: Clear	ORP: 131 mV
Conductance: 174 μ S	pH: 6.76
Odor: None	Other:
Analysis Requested:	
Comments: Well dry after 40 gallons purged	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-39(A)

Sampled By: Melanie Bocianowski, Alex Shook

Date: 10/16/2003	Sample Number: MW-39(A)
Time Sample Collected: 1540	Well or Boring No.: MW-39(A)
COC and RFA No.:	
Static Water Level: 9.22 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 30 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 15.4 %
Color: clear	Temperature: 15.4 deg C
Turbidity: Mostly clear	ORP: 218 mV
Conductance: 143 μ S	pH: 6.93
Odor: None	Other:
Analysis Requested:	
Comments:	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-40(A)

Sampled By: Melanie Bocianowski, Alex Shook

Date: 10/17/2003	Sample Number: MW-40(A)
Time Sample Collected: 935	Well or Boring No.: MW-40(A)
COC and RFA No.:	
Static Water Level: 9.51 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 48 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 5.8 %
Color: Mostly clear	Temperature: 15.6 deg C
Turbidity: Slightly cloudy	ORP: -4 mV
Conductance: 193 μ S	pH: 6.77
Odor: Slight to medium	Other:
Analysis Requested:	
Comments:	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-41(A)

Sampled By: Melanie Bocianowski, Alex Shook

Date: 10/14/2003	Sample Number: MW-41(A); BM-41(A)
Time Sample Collected: 1540	Well or Boring No.: MW-41(A)
COC and RFA No.:	
Static Water Level: 9.25 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 45 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 4.8 %
Color: clear	Temperature: 15.7 deg C
Turbidity: Slight to clear	ORP: -12 mV
Conductance: 190.5 μ S	pH: 6.87
Odor: strong	Other:
Analysis Requested:	
Comments: Sheen visible	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-42(A)

Sampled By: Melanie Bocianowski, Alex Shook

Date: 10/15/2003	Sample Number: MW-42(A)
Time Sample Collected: 1100	Well or Boring No.: MW-42(A)
COC and RFA No.:	
Static Water Level: 9.38 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 50 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 5.1 %
Color: mostly clear, slightly cloudy	Temperature: 15.3 deg C
Turbidity: Clear	ORP: -8 mV
Conductance: 194 μ S	pH: 6.80
Odor: strong	Other:
Analysis Requested:	
Comments: Sheen visible	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-43(A)

Sampled By: Melanie Bocianowski, Nancy East-Smith

Date: 10/13/2003	Sample Number: MW-43(A)
Time Sample Collected: 1645	Well or Boring No.: MW-43(A)
COC and RFA No.:	
Static Water Level: 9.01 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 45 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 14.3 %
Color: clear	Temperature: 15.6 deg C
Turbidity: Clear	ORP: 92 mV
Conductance: 174 μ S	pH: 6.63
Odor: None	Other:
Analysis Requested:	
Comments:	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-44(A)

Sampled By: Melanie Bocianowski, Alex Shook

Date: 10/17/2003	Sample Number: MW-44(A)
Time Sample Collected: 1135	Well or Boring No.: MW-44(A)
COC and RFA No.:	
Static Water Level: 8.17 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 40 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 6.1 %
Color: mostly clear	Temperature: 16.0 deg C
Turbidity: Clear	ORP: -3 mV
Conductance: 165 μ S	pH: 6.47
Odor: Slight	Other:
Analysis Requested:	
Comments: Well dry after 40 gallons purged	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-45(A)

Sampled By: Melanie Bocianowski, Alex Shook

Date: 10/16/2003	Sample Number: MW-45(A)
Time Sample Collected: 1730	Well or Boring No.: MW-45(A)
COC and RFA No.:	
Static Water Level: 9.81 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 57 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 5.6 %
Color: slightly transparent light yellow	Temperature: 15.4 deg C
Turbidity: Slightly cloudy to clear	ORP: 217 mV
Conductance: 155 μ S	pH: 6.89
Odor: None	Other:
Analysis Requested:	
Comments: Very milky orange color at start of purging	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-46(A)

Sampled By: Melanie Bocianowski, Nancy East-Smith

Date: 10/14/2003	Sample Number: MW-46(A)
Time Sample Collected: 1015	Well or Boring No.: MW-46(A)
COC and RFA No.:	
Static Water Level: 7.38 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 56 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 6.3 %
Color: transparent yellow	Temperature: 14.7 deg C
Turbidity: Clear	ORP: 142 mV
Conductance: 130 μ S	pH: 6.86
Odor: Slight to none	Other:
Analysis Requested:	
Comments:	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-47(A)

Sampled By: Melanie Bocianowski, Nancy East-Smith

Date: 10/13/2003	Sample Number: MW-47(A)
Time Sample Collected: 1745	Well or Boring No.: MW-47(A)
COC and RFA No.:	
Static Water Level: 8.39 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 52 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 20.1 %
Color: clear	Temperature: 14.9 deg C
Turbidity: Clear	ORP: 165 mV
Conductance: 151 μ S	pH: 6.45
Odor: None	Other:
Analysis Requested:	
Comments:	

WATER SAMPLE LOG

Project Number: 10077.004

Project Name: Astoria Area-Wide Petroleum Site – 4th Quarter 2003

Facility: Astoria Area-Wide

Locator: MW-48(A)

Sampled By: Melanie Bocianowski, Nancy East-Smith

Date: 10/20/2003	Sample Number: MW-48(A)
Time Sample Collected: 1215	Well or Boring No.: MW-48(A)
COC and RFA No.:	
Static Water Level: 8.48 feet dtw	Time:
Well Depth:	Date Drilled:
Filter Pack Thickness:	Casing or "Geoprobe" Diameter:
Amount Purged: Approx. 51 gallons	Bailer or Well Point Depth:
Sample Collection Method: Bailer and peristaltic pump	
Pump intake depth:	
Discharge rate during sampling:	DO: 7.3 %
Color: clear	Temperature: 14.6 deg C
Turbidity: Clear	ORP: 28 mV
Conductance: 260 μ S	pH: 6.84
Odor: None	Other:
Analysis Requested:	
Comments: Well ticking like a watch sound	

APPENDIX C
LABORATORY ANALYTICAL REPORTS
WITH DATA VALIDATION REPORTS

MEMORANDUM

To: File – 10077.004

From: Nancy East-Smith

Date: November 25, 2003

Subject: **QUALITY ASSURANCE/QUALITY CONTROL REVIEW**
First Complete Ground Water Sampling Event - 4th Quarter 2003
ASTORIA AREA WIDE SITE

This report presents the results of our review of laboratory analytical reports and the data validation conducted based on the laboratory reports. The samples were collected on October 13, 14, 15, 16, 17, 20, 21, 23, 2003, as part of the first complete ground-water sampling event after the installation of the ground-water monitoring wells at the Astoria Area-Wide Petroleum Site. Sample handling, analysis and quality control (QC) procedures were established in the July 15, 2002, Remedial Investigation/Feasibility Study, Astoria Area-Wide Petroleum Site, Astoria, Oregon, Phase I Work Plan (Phase 1 RI/FS) and the Work Plan Addendum, Phase 1 Ground Water Assessment, Astoria Area-Wide Petroleum Site, Astoria, Oregon, DEQ ECSI File #2277. Both documents were prepared by *EnviroLogic Resources, Inc.* The samples were submitted to North Creek Analytical, Inc., (NCA) of Beaverton, Oregon, for analysis.

A total of 57 water samples were submitted for analysis. This included 43 field samples, 2 field duplicates, 2 equipment blanks and 10 trip blanks. The samples were submitted in 4 groups, each group was assigned a lab order number. Basic information about each lab order number is presented below:

Lab Order	Number of Samples	Sample Type	Date Collected	Field Locations
P3J0539	9 3 1	Field Samples Trip Blanks Equipment Blank	10/13,14,15/2003	MW-7, MW-43, MW-47, MW-33, MW-34, MW-41, MW-32, MW-48, MW-46
P3J0654	16 1 3	Field Samples Field Duplicate Trip Blank	10/15,16,17/2003	MW-42, MW-2, MW-10, MW-11, MW-30, MW-22, MW-35, MW-39, MW-31, BM-31, MW-45, MW-37, MW-40, MW-44, MW-17, MW-28, MW-26

P3J0775	16 1 1 3	Field Samples Field Duplicate Equipment Blank Trip Blanks	10/20, 21, 22/2003	MW-21, MW-19, BM-19, MW-20, MW-15, MW-16, MW-23, MW-38, MW-27, MW-36, MW-18, MW-24, MW-29, MW-14, MW-1, MW-13, MW-12,
P3J0859	2 1	Field Samples Trip Blank	10/22,23 /2003	MW-6, R-1

As stated in Appendix B, Sections 8.0, 9.0, and 10.0 of the Phase I RI/FS our goal was to review the laboratory reports and chain of custodies for Quality Assurance/Quality Control (QA/QC) parameters and statistical parameters. The findings of our review are presented in the following pages. Qualified data is presented in the attached tables. Analyses performed are listed below.

Analysis	Reference
Gasoline Hydrocarbons	NWTPH-Gx
Diesel and Heavy Range Hydrocarbons	NWTPH-Dx
Total Metals	EPA Method 6000/7000
Dissolved Metals	EPA Method 6000/7000
Volatile Organic Compounds (VOCs)	EPA Method 8260B
Polynuclear Aromatic Compounds (PAHs)	EPA Method 8270M-SIM
Conventional Chemistry (Nitrate/Nitrite-Nitrogen)	EPA Method 353.2
Anions	EPA Method 300.0
Total Alkalinity by Conventional Chemistry Parameters	EPA Method 2320B

EPA = U.S. Environmental Protection Agency
 NWTPH = Northwest Total Petroleum Hydrocarbons
 SIM = Selected Ion Monitoring

CHAIN OF CUSTODY REVIEW

Chain of custodies (COC) were reviewed to determine sample condition upon arrival at the lab, to determine if analysis requested was in accordance with the RI/FS Work Plan, and that analyses requested were performed.

- Two special conditions were noted on COCs to indicate sample containers were broken or otherwise in an adverse condition upon arrival at the laboratory. For MW-14(A) the cap on one of the 1-liter amber jars was cracked and one sample jar for MW-2(M) was broken.

- Cooler temperatures recorded at the laboratory upon receipt ranged from -0.6°C to 11.4°C.
- Analyses requested on the COC generally reflect the analysis presented in the laboratory reports. However, modifications to analytical requests made subsequent to the initial COC submittal were not noted on the submitted COC. Although, the COC does not completely reflect analyses presented in the report our review indicates that the analyses conducted were requested and that no requested analysis was omitted.

QUALITY CONTROL/QUALITY ASSURANCE REVIEW

DATA QUALIFIERS

The following data qualifiers are used in this data validation report:

- **B.** The analyte was also identified in a field or laboratory blank associated with this sample or sample group.
- **J.** The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- **J+.** The analyte was positively identified; the associated numerical value is the estimated high of the analyte in the sample
- **U.** The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

The attached tables present the original result and the qualified result for all analyses that were qualified. The tables are organized by analytical method and only qualified analytical results are included.

HOLDING TIMES

We reviewed the laboratory reports and compared sample dates, prepared dates and analyzed dates for all the analyses. No holding time exceptions were noted.

FIELD BLANKS

Equipment Blanks

Equipment blanks were analyzed at the required frequency. A total of two equipment blanks were submitted for analysis of gasoline range hydrocarbons and VOCs. One equipment blank was obtained by running de-ionized water through a sample bailer and a second equipment blank was obtained by running de-ionized water through sample tubing used with the low flow sample pump. Toluene was detected in the bailer equipment blank as noted below.

Analyte	Detected Concentration	MDL	RL
Toluene	0.290J µg/l	0.155 µg/l	0.500 µg/l

MDL = Method Detection Limit

RL = Reporting Limit

ug/l = micrograms per liter

Water samples which had this analyte detected within 5 times the concentration detected in the equipment blank are qualified with a UB flag and reported at the RL if the concentration was less than the RL or qualified with a JB flag (at the detected concentration) if the concentration is greater than the RL. Where field samples had analytes detected at concentrations greater than the 5 times the data is not qualified. Laboratory dilution of field samples was considered.

Trip Blanks

A total of 10 trip blanks were submitted for VOC analyses with the 4 lab orders. The trip blanks were provided by the laboratory and consisted of water in a 40 ml clear VOA (volatile organic analysis) vial.

The only analytes detected in a trip blank were for sample group P3J0859, naphthalene and 1,2,4-trimethylbenzene were detected as noted below.

Lab Order	Analyte	Detected Concentration	MDL	RL
P3J0859	Naphthalene	0.390J µg/l	0.0989 µg/l	2.00 µg/l
P3J0859	1,2,4-Trimethylbenzene	0.110J µg/l	0.0884 µg/l	1.00 µg/l

Water samples that had this analyte detected within 5 times the concentration detected in the trip blank (for the same sample delivery group) were qualified. If the detected concentration was less than the RL the detected result was reported at the RL and qualified with a UB flag. If the detected concentration was greater than the RL (but still within 5 times) the detected concentration is qualified with a JB flag. Where field samples had analytes detected at concentrations greater than the 5 times the data is not qualified. Laboratory dilution of field samples was considered.

Laboratory Method Blanks

Laboratory method blanks were analyzed at the required frequency. Laboratory blanks were performed on sample batches so each blank is associated with a batch of field samples. The batch sample associated with each field sample is identified in the laboratory report. Analytes detected in laboratory blanks are noted below:

Lab Order/ Batch No.	Field Samples Qualified	Analyte Detected in Laboratory Blank	Analytical Method	Blank MDL	Blank RL
P3J0654					
3101103	MW-10, MW-30, MW-26	Mercury 0.0000630J mg/l	EPA 6000/ 7000 (Total)	0.0000358 mg/l	0.000200 mg/l
3101129	None	Manganese – 0.0000500J mg/l	EPA 6000/ 7000 (Total)	0.0000136 mg/l	0.00200 mg/l
3100767/ 3101130	MW-42, MW-2, MW-11, MW-30, MW-22, MW-35, MW-39, MW-31, MW-37, MW-40, MW-44, MW-17, MW-28, MW-26	Mercury – 0.000105J mg/l Barium – 0.000100J mg/l Selenium – 0.000800J mg/l	EPA 6000/ 7000 (Dissolved)	0.0000358 mg/l 0.0000910 mg/l 0.000566 mg/l	0.000200 mg/l 0.00100 mg/l 0.00200 mg/l
3100972	MW-11, MW-45, MW-30, MW-22, MW-31, BM-31	1,2,4-Trimethylbenzene-0.120J ug/l	EPA 8260B	0.0884 ug/l	1.0 ug/l
3100995	MW-10, MW-2, BM-31	Nitrate/Nitrite-Nitrogen – 0.00270J mg/l	APHA/EPA	0.00250 mg/l	0.00500 mg/l
3100802	MW-2, MW-10, MW-31, MW-40	Sulfate – 0.210J mg/l	EPA 300.0	0.0860 mg/l	1.00 mg/l
3J23034	None	Calcium – 0.0442J mg/l Magnesium – 0.0532J mg/l	EPA 6000/ 7000 (Total)	0.0360 mg/l 0.0180 mg/l	0.250 mg/l 0.500 mg/l
P3J0775					
3101028	MW-1(F)	Mercury – 0.0000420J mg/l	EPA 6000/ 7000 (Total)	0.0000358 mg/l	0.000200 mg/l
3101206	None	Barium – 0.000100J mg/l Manganese – 0.0000400J mg/l	EPA 6000/ 7000 (Total)	0.0000910 mg/l 0.0000136 mg/l	0.00100 mg/l 0.00200 mg/l
3110047	MW-21, MW-19, BM-19, MW-16, MW-38, MW-27, MW-36, MW-18, MW-24, MW-14, MW-13, MW-12	Selenium – 0.000740J mg/l	EPA 6000/ 7000 (Dissolved)	0.000566 mg/l	0.00100 mg/l
3100977	MW-15, MW-16, MW-18, MW-24, MW-14, MW-1(F), MW-12	Napthalene – 0.430J ug/l	EPA 8260B	0.0989 ug/l	2.00 ug/l
3101060	MW-23, MW-24	Nitrate/Nitrite-Nitrogen – 0.00370J mg/l	APHA/EPA	0.00250 mg/l	0.00500 mg/l
3100897	None	Sulfate - 0.310J mg/l	EPA 300.0	0.0860 mg/l	1.00 mg/l
P3J0859					

311074	MW-6	Mercury – 0.0000530J mg/l	EPA 6000/ 7000 (Total)	0.0000358 mg/l	0.000200 mg/l
P3J0539					
3101035/ 3101036	MW-7, MW-43, MW-33, MW-34, MW-41, MW-32 , MW-46	Manganese – 0.0000700J mg/l Mercury 0.0000660J mg/l	EPA 6000/ 7000 (Total)	0.0000136 mg/l 0.0000358 mg/l	0.00200 mg/l 0.000200 mg/l
3100731	MW-7, MW-33, MW-41, MW-48, MW-46	Mercury – 0.0000400J	EPA 6000/ 7000 (Dissolved)	0.0000358 mg/l	0.000200 mg/l
3100742	MW-46	Sulfate – 0.190J	EPA 300.0	0.0860 mg/l	1.00 mg/l
3123034	None	Calcium – 0.0442J Magnesium – 0.0532J	EPA 6000/ 7000 (Total)	0.0360 mg/l 0.0180 mg/l	0.250 mg/l 0.500 mg/l

Field samples in the same batch that had analytes detected within 5 times the blank concentration (10 times for inorganics) are qualified by placing a J and B flag next to the detected concentration (J+ and B flag for inorganics) if the detected concentration is greater than the RL. Where the detected concentration is less than the RL, the RL value is reported with a UB flag (for both organics and inorganics). Data is not qualified where field samples had analytes detected at concentrations greater than 5 (or 10 times for inorganics) times the corresponding blank concentration. Laboratory dilution of field samples was considered.

SURROGATE RECOVERIES

Field Samples

One or more surrogates were utilized for each analysis except for metals, conventional chemistry, anions and total alkalinity. We reviewed all of the surrogate recoveries relative to the specified control limits and observed exceptions for 3 samples. Where surrogate recoveries were not within control limits batch specific QC information and laboratory notes were reviewed to evaluate the data. This evaluation resulted in no data being qualified due to surrogate recovery issues.

SPIKE AND SURROGATE RECOVERIES

Laboratory Control Samples

Laboratory Control Samples (LCS) were conducted at the required frequency. Based on our review all LCS quality control information was acceptable. No data was qualified.

Matrix Spike Samples

Matrix Spike (MS) were conducted at the required frequency. Based on our review several spike compounds and/or surrogates did not meet quality control limits. Where

surrogate recoveries were not within control limits batch specific QC information and laboratory notes were reviewed to evaluate the data. This evaluation resulted in no data being qualified due to spike recovery issues.

LABORATORY AND FIELD DUPLICATES/RELATIVE PERCENT DIFFERENCE

Field duplicate samples were obtained at the frequency of 3 for 43 field samples. Two duplicates were submitted for analyses the third field duplicate was utilized by the laboratory for QA/QC purposes. The field duplicate frequency set by the Work Plan was one for every 20 field samples. MSD, Laboratory Control Sample Duplicates (LCSDs), laboratory duplicates and field duplicate analytical information was reviewed. Based on our review several laboratory duplicate sample relative percent differences (RPDs) were not within acceptable limits. Where RPDs were not within control limits, batch specific QC information and laboratory notes were reviewed to evaluate the data. This evaluation resulted in no data being qualified due to RPD exceptions. MS/MSD exceptions for duplicate samples were included in the previous section. Field duplicate exceptions are noted below.

Lab Order	Sample	Analysis/ Sample Type	QC Exception	Comment
P3J0654	MW-31 and BM-31	Anions/Field Duplicate	RPD for sulfate was outside the control limit of 20.	One analyte result was already qualified as a result of blank data validation. No additional qualification was added.
P3J0775	MW-19 and BM-19	Total Metals/ Field Duplicate	RPD for arsenic was 24.5%. The control limit is 20%	The detected arsenic concentrations were within 5 times the RL. Generally RPD data is not evaluated for concentrations within 5 times the RL. No data is qualified

STATISTICAL EVALUATION

Precision

Precision is a measure of the ability to reproduce data and is evaluated using duplicate samples. This includes field duplicates, laboratory duplicates, MSDs and LCSDs. Relative percent difference (RPD) is used to measure the reproducibility as described in section 10.1 of Appendix B of the RI/FS Work Plan. The RPD control limits are listed in the laboratory reports. These control limits may be slightly different than those presented in the Work Plan, but they are still acceptable. Overall precision for the analysis was acceptable

RPD's outside the control limits would represent statistical exceptions and indicate a lack of ability to reproduce the data. LCSD evaluate the effect laboratory conditions have on precision -- no RPD exceptions were noted in LCSDs. Field duplicates, MSDs and lab duplicates evaluate the effect field and laboratory conditions have on precision. The only exceptions noted in the duplicates did not indicate there was an out-of-control condition

for the batch. Overall, the precision of the laboratory data is acceptable, and no data is qualified due to lack of precision.

Accuracy

Accuracy measures the bias in a system and is evaluated using percent recovery of surrogate, spikes and LCS. LCS evaluates bias due to laboratory conditions. Bias due to field and laboratory conditions is evaluated using surrogates and matrix spikes. Our review indicates accuracy was acceptable.

Representatives

Equipment blanks, laboratory blanks and field duplicate samples evaluate how representative analytical results are of actual site conditions. Blanks evaluate the introduction of “analytes” from outside sources such as field equipment, transportation equipment and the laboratory environment. In general there were some problems with laboratory and field equipment introducing analytes that were not representative of sample conditions. These problems are summarized here and were discussed in detail previously. Each of these problems should be addressed to prevent further non-representative samples during future phases of fieldwork.

- Toluene was noted in the equipment blank taken on 10/21/03. This equipment blank was obtained by running de-ionized water through a new disposable bailer. The toluene detection indicates there is either toluene in the de-ionized water or the disposable bailers.
- Nine different analytes were detected in the laboratory method blanks at concentrations above the MDL but below the RL. These detected analytes, as noted in the Laboratory Method Blank section of this report would not be considered representative of field conditions. In particular low concentrations of mercury and selenium were prevalent in the metals’ method blanks.

Duplicate field samples attempt to evaluate how representative a sample is of site conditions. Duplicate water samples met all QC criteria.

Completeness

Completeness evaluates how successful the data set is at being valid. Our data group was 100 percent complete with respect to rejected analysis.

REFERENCES

- USEPA (U.S. Environmental Protection Agency). 2002. USEPA Contract Laboratory Program, National Functional Guidelines For Inorganics Data Review. Office of Emergency and Remedial Response, U.S. Environmental Protection Agency. EPA 540/R-01/008.
- USEPA (United States Environmental Protection Agency). 2001. USEPA Contract Laboratory Program, National Functional Guidelines for Low Concentration Organic Data Review. Office of Emergency and Remedial Response, U.S. Environmental Protection Agency. EPA 540/R-00/006.
- USEPA (United States Environmental Protection Agency). 2003. Inorganic National Functional Guidelines Proposed Changes. <http://www.epa.gov/superfund/programs/clp/inorgfgchanges.htm>
- EnviroLogic Resources, Inc.* RI/FS and IRAM Development Work Plan, Phase I, Remedial Investigation/Feasibility Study, Astoria Area-Wide Petroleum Site, Astoria, Oregon, July 15, 2002.
- EnviroLogic Resources, Inc.* Work Plan Addendum, Phase 1 Ground Water Assessment, Astoria Area-Wide Petroleum Site, Astoria, Oregon, DEQ ECSI File #2277, July 2, 2003.



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03 November 2003

Tom Calabrese
EnviroLogic Resources, Inc.
P.O. Box 80762
Portland, OR 97280-0762
RE: Astoria Area-Wide Petroleum Site RI-1

Enclosed are the results of analyses for samples received by the laboratory on 10/15/03 13:25. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Joy D. Chang
Project Manager



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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-7(M)	P3J0539-01	Water	10/13/03 15:47	10/15/03 13:25
MW-43(A)	P3J0539-02	Water	10/13/03 16:45	10/15/03 13:25
MW-47(A)	P3J0539-03	Water	10/13/03 17:45	10/15/03 13:25
MW-33(A)	P3J0539-04	Water	10/14/03 08:38	10/15/03 13:25
MW-34(A)	P3J0539-05	Water	10/14/03 09:30	10/15/03 13:25
MW-41(A)	P3J0539-06	Water	10/14/03 15:40	10/15/03 13:25
MW-32(A)	P3J0539-07	Water	10/14/03 13:50	10/15/03 13:25
MW-48(A)	P3J0539-08	Water	10/14/03 12:15	10/15/03 13:25
MW-46(A)	P3J0539-09	Water	10/14/03 10:15	10/15/03 13:25
Trip Blank	P3J0539-10	Water	10/13/03 15:47	10/15/03 13:25
Trip Blank	P3J0539-14	Water	10/15/03 09:30	10/15/03 13:25
Trip Blank	P3J0539-18	Water	10/14/03 10:15	10/15/03 13:25
Equipment Blank	P3J0539-19	Water	10/14/03 10:15	10/15/03 13:25

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Gasoline Hydrocarbons per NW TPH-Gx Method North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-7(M) (P3J0539-01RE1) Water Sampled: 10/13/03 15:47 Received: 10/15/03 13:25										
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l	1	3100655	10/16/03	10/16/03	NW TPH-G	U
Surrogate: 4-BFB	97.0 %		50-150			"	"	"	"	
MW-43(A) (P3J0539-02) Water Sampled: 10/13/03 16:45 Received: 10/15/03 13:25										
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l	1	3100593	10/15/03	10/16/03	NW TPH-G	U
Surrogate: 4-BFB	101 %		50-150			"	"	"	"	
MW-47(A) (P3J0539-03) Water Sampled: 10/13/03 17:45 Received: 10/15/03 13:25										
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l	1	3100593	10/15/03	10/16/03	NW TPH-G	U
Surrogate: 4-BFB	98.0 %		50-150			"	"	"	"	
MW-33(A) (P3J0539-04) Water Sampled: 10/14/03 08:38 Received: 10/15/03 13:25										
Gasoline Range Hydrocarbons	70.0	50.0	80.0	ug/l	1	3100593	10/15/03	10/16/03	NW TPH-G	J
Surrogate: 4-BFB	101 %		50-150			"	"	"	"	
MW-34(A) (P3J0539-05) Water Sampled: 10/14/03 09:30 Received: 10/15/03 13:25										
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l	1	3100593	10/15/03	10/16/03	NW TPH-G	U
Surrogate: 4-BFB	114 %		50-150			"	"	"	"	
MW-41(A) (P3J0539-06) Water Sampled: 10/14/03 15:40 Received: 10/15/03 13:25										
Gasoline Range Hydrocarbons	7700	500	800	ug/l	10	3100593	10/15/03	10/16/03	NW TPH-G	D
Surrogate: 4-BFB	117 %		50-150			"	"	"	"	
MW-32(A) (P3J0539-07) Water Sampled: 10/14/03 13:50 Received: 10/15/03 13:25										
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l	1	3100593	10/15/03	10/16/03	NW TPH-G	U
Surrogate: 4-BFB	101 %		50-150			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Gasoline Hydrocarbons per NW TPH-Gx Method
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-48(A) (P3J0539-08) Water Sampled: 10/14/03 12:15 Received: 10/15/03 13:25										
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l	1	3100593	10/15/03	10/16/03	NW TPH-G	U
Surrogate: 4-BFB	95.2 %		50-150			"	"	"	"	
MW-46(A) (P3J0539-09) Water Sampled: 10/14/03 10:15 Received: 10/15/03 13:25										
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l	1	3100593	10/15/03	10/16/03	NW TPH-G	U
Surrogate: 4-BFB	97.6 %		50-150			"	"	"	"	

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Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-7(M) (P3J0539-01) Water Sampled: 10/13/03 15:47 Received: 10/15/03 13:25										
Diesel Range Organics	0.307	0.153	0.250	mg/l	1	3100678	10/17/03	10/17/03	NWTPH-Dx	D-17
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	59.8 %		50-150			"	"	"	"	
MW-43(A) (P3J0539-02) Water Sampled: 10/13/03 16:45 Received: 10/15/03 13:25										
Diesel Range Organics	1.00	0.153	0.250	mg/l	1	3100678	10/17/03	10/17/03	NWTPH-Dx	D-17
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	120 %		50-150			"	"	"	"	
MW-47(A) (P3J0539-03) Water Sampled: 10/13/03 17:45 Received: 10/15/03 13:25										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100678	10/17/03	10/17/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	73.4 %		50-150			"	"	"	"	
MW-33(A) (P3J0539-04) Water Sampled: 10/14/03 08:38 Received: 10/15/03 13:25										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100678	10/17/03	10/17/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	91.2 %		50-150			"	"	"	"	
MW-34(A) (P3J0539-05) Water Sampled: 10/14/03 09:30 Received: 10/15/03 13:25										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100678	10/17/03	10/17/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	68.3 %		50-150			"	"	"	"	
MW-41(A) (P3J0539-06) Water Sampled: 10/14/03 15:40 Received: 10/15/03 13:25										
Diesel Range Organics	4.70	0.153	0.250	mg/l	1	3100678	10/17/03	10/17/03	NWTPH-Dx	A-01
Heavy Oil Range Hydrocarbons	0.319	0.286	0.500	"	"	"	"	"	"	J
Surrogate: 1-Chlorooctadecane	96.4 %		50-150			"	"	"	"	

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Joy D. Chang, Project Manager

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P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method
North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-32(A) (P3J0539-07) Water Sampled: 10/14/03 13:50 Received: 10/15/03 13:25										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100678	10/17/03	10/17/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	83.6 %		50-150			"	"	"	"	
MW-48(A) (P3J0539-08) Water Sampled: 10/14/03 12:15 Received: 10/15/03 13:25										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100678	10/17/03	10/17/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	90.1 %		50-150			"	"	"	"	
MW-46(A) (P3J0539-09) Water Sampled: 10/14/03 10:15 Received: 10/15/03 13:25										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100678	10/17/03	10/17/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	55.3 %		50-150			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Total Metals per EPA 6000/7000 Series Methods North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-7(M) (P3J0539-01) Water Sampled: 10/13/03 15:47 Received: 10/15/03 13:25										
Silver	0.000110	0.0000460	0.00100	mg/l	1	3101035	10/27/03	10/29/03	EPA 6020	J
Arsenic	0.0126	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0323	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.00354	0.000791	0.00100	"	"	"	"	"	"	
Mercury	0.0000430	0.0000358	0.000200	"	"	3101036	10/28/03	10/28/03	EPA 7470A	J
Manganese	1.06	0.0000136	0.00200	"	"	3101035	10/27/03	10/29/03	EPA 6020	
Lead	0.00840	0.0000870	0.00100	"	"	"	"	"	"	
Selenium	ND	0.000566	0.00200	"	"	"	"	"	"	U
MW-43(A) (P3J0539-02) Water Sampled: 10/13/03 16:45 Received: 10/15/03 13:25										
Silver	ND	0.0000460	0.00100	mg/l	1	3101035	10/27/03	10/29/03	EPA 6020	U
Arsenic	0.00752	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0227	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.000850	0.000791	0.00100	"	"	"	"	"	"	J
Mercury	0.0000660	0.0000358	0.000200	"	"	3101036	10/28/03	10/28/03	EPA 7470A	J
Manganese	0.598	0.0000136	0.00200	"	"	3101035	10/27/03	10/29/03	EPA 6020	
Lead	0.000230	0.0000870	0.00100	"	"	"	"	"	"	J
Selenium	ND	0.000566	0.00200	"	"	"	"	"	"	U
MW-47(A) (P3J0539-03) Water Sampled: 10/13/03 17:45 Received: 10/15/03 13:25										
Silver	ND	0.0000460	0.00100	mg/l	1	3101035	10/27/03	10/29/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0195	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.00165	0.000791	0.00100	"	"	"	"	"	"	
Mercury	ND	0.0000358	0.000200	"	"	3101036	10/28/03	10/28/03	EPA 7470A	U
Manganese	0.0476	0.0000136	0.00200	"	"	3101035	10/27/03	10/29/03	EPA 6020	
Lead	0.000570	0.0000870	0.00100	"	"	"	"	"	"	J
Selenium	ND	0.000566	0.00200	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Total Metals per EPA 6000/7000 Series Methods North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-33(A) (P3J0539-04) Water Sampled: 10/14/03 08:38 Received: 10/15/03 13:25										
Silver	ND	0.0000460	0.00100	mg/l	1	3101035	10/27/03	10/29/03	EPA 6020	U
Arsenic	0.0216	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0182	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.000940	0.000791	0.00100	"	"	"	"	"	"	J
Mercury	0.0000500	0.0000358	0.000200	"	"	3101036	10/28/03	10/28/03	EPA 7470A	J
Manganese	0.575	0.0000136	0.00200	"	"	3101035	10/27/03	10/29/03	EPA 6020	
Lead	0.000410	0.0000870	0.00100	"	"	"	"	"	"	J
Selenium	ND	0.000566	0.00200	"	"	"	"	"	"	U
MW-34(A) (P3J0539-05) Water Sampled: 10/14/03 09:30 Received: 10/15/03 13:25										
Silver	ND	0.0000460	0.00100	mg/l	1	3101035	10/27/03	10/29/03	EPA 6020	U
Arsenic	0.00142	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0367	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.00305	0.000791	0.00100	"	"	"	"	"	"	
Mercury	0.000132	0.0000358	0.000200	"	"	3101036	10/28/03	10/28/03	EPA 7470A	J
Manganese	0.324	0.0000136	0.00200	"	"	3101035	10/27/03	10/29/03	EPA 6020	
Lead	0.00132	0.0000870	0.00100	"	"	"	"	"	"	
Selenium	ND	0.000566	0.00200	"	"	"	"	"	"	U
MW-41(A) (P3J0539-06) Water Sampled: 10/14/03 15:40 Received: 10/15/03 13:25										
Silver	ND	0.0000460	0.00100	mg/l	1	3101035	10/27/03	10/29/03	EPA 6020	U
Arsenic	0.0144	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0235	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	0.0000450	0.0000358	0.000200	"	"	3101036	10/28/03	10/28/03	EPA 7470A	J
Manganese	2.29	0.0000680	0.0100	"	5	3101035	10/27/03	10/30/03	EPA 6020	D
Lead	0.000130	0.0000870	0.00100	"	1	"	"	10/29/03	"	J
Selenium	ND	0.000566	0.00200	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

**Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-32(A) (P3J0539-07) Water Sampled: 10/14/03 13:50 Received: 10/15/03 13:25										
Silver	ND	0.0000460	0.00100	mg/l	1	3101035	10/27/03	10/29/03	EPA 6020	U
Arsenic	0.00140	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0279	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.00141	0.000791	0.00100	"	"	"	"	"	"	
Mercury	0.0000570	0.0000358	0.000200	"	"	3101036	10/28/03	10/28/03	EPA 7470A	J
Manganese	0.110	0.0000136	0.00200	"	"	3101035	10/27/03	10/29/03	EPA 6020	
Lead	0.000580	0.0000870	0.00100	"	"	"	"	"	"	J
Selenium	ND	0.000566	0.00200	"	"	"	"	"	"	U
MW-48(A) (P3J0539-08) Water Sampled: 10/14/03 12:15 Received: 10/15/03 13:25										
Silver	ND	0.0000460	0.00100	mg/l	1	3101035	10/27/03	10/29/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0435	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.00250	0.000791	0.00100	"	"	"	"	"	"	
Mercury	ND	0.0000358	0.000200	"	"	3101036	10/28/03	10/28/03	EPA 7470A	U
Manganese	0.872	0.0000136	0.00200	"	"	3101035	10/27/03	10/29/03	EPA 6020	
Lead	0.0216	0.0000870	0.00100	"	"	"	"	"	"	
Selenium	ND	0.000566	0.00200	"	"	"	"	"	"	U
MW-46(A) (P3J0539-09) Water Sampled: 10/14/03 10:15 Received: 10/15/03 13:25										
Silver	ND	0.0000460	0.00100	mg/l	1	3101035	10/27/03	10/29/03	EPA 6020	U
Arsenic	0.00125	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0156	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.0606	0.000791	0.00100	"	"	"	"	"	"	
Mercury	0.0000640	0.0000358	0.000200	"	"	3101036	10/28/03	10/28/03	EPA 7470A	J
Manganese	0.722	0.0000136	0.00200	"	"	3101035	10/27/03	10/29/03	EPA 6020	
Lead	0.00141	0.0000870	0.00100	"	"	"	"	"	"	
Selenium	ND	0.000566	0.00200	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-7(M) (P3J0539-01) Water Sampled: 10/13/03 15:47 Received: 10/15/03 13:25										
Silver	ND	0.0000460	0.00100	mg/l	1	3101018	10/27/03	10/30/03	EPA 6020	U
Arsenic	0.00985	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0178	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	0.000170	0.0000358	0.000200	"	"	3100731	10/20/03	10/20/03	EPA 7470A	J
Lead	ND	0.0000870	0.00100	"	"	3101018	10/27/03	10/30/03	EPA 6020	U
Selenium	0.000930	0.000566	0.00100	"	"	"	"	10/31/03	"	J
MW-43(A) (P3J0539-02) Water Sampled: 10/13/03 16:45 Received: 10/15/03 13:25										
Silver	ND	0.0000460	0.00100	mg/l	1	3101018	10/27/03	10/30/03	EPA 6020	U
Arsenic	0.00734	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0234	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3100731	10/20/03	10/20/03	EPA 7470A	U
Lead	0.000140	0.0000870	0.00100	"	"	3101018	10/27/03	10/30/03	EPA 6020	J
Selenium	0.000960	0.000566	0.00100	"	"	"	"	10/31/03	"	J
MW-47(A) (P3J0539-03) Water Sampled: 10/13/03 17:45 Received: 10/15/03 13:25										
Silver	ND	0.0000460	0.00100	mg/l	1	3101018	10/27/03	10/30/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0174	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3100731	10/20/03	10/20/03	EPA 7470A	U
Lead	0.000180	0.0000870	0.00100	"	"	3101018	10/27/03	10/30/03	EPA 6020	J
Selenium	ND	0.000566	0.00100	"	"	"	"	10/30/03	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Dissolved Metals per EPA 6000/7000 Series Methods North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-33(A) (P3J0539-04) Water Sampled: 10/14/03 08:38 Received: 10/15/03 13:25										
Silver	ND	0.0000460	0.00100	mg/l	1	3101018	10/27/03	10/30/03	EPA 6020	U
Arsenic	0.0182	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0155	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	0.0000870	0.0000358	0.000200	"	"	3100731	10/20/03	10/20/03	EPA 7470A	J
Lead	0.000140	0.0000870	0.00100	"	"	3101018	10/27/03	10/30/03	EPA 6020	J
Selenium	ND	0.000566	0.00100	"	"	"	"	10/30/03	"	U
MW-34(A) (P3J0539-05) Water Sampled: 10/14/03 09:30 Received: 10/15/03 13:25										
Silver	ND	0.0000460	0.00100	mg/l	1	3101018	10/27/03	10/30/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0235	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3100731	10/20/03	10/20/03	EPA 7470A	U
Lead	0.000140	0.0000870	0.00100	"	"	3101018	10/27/03	10/30/03	EPA 6020	J
Selenium	ND	0.000566	0.00100	"	"	"	"	10/30/03	"	U
MW-41(A) (P3J0539-06) Water Sampled: 10/14/03 15:40 Received: 10/15/03 13:25										
Silver	ND	0.0000460	0.00100	mg/l	1	3101018	10/27/03	10/30/03	EPA 6020	U
Arsenic	0.0124	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0230	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	0.000167	0.0000358	0.000200	"	"	3100731	10/20/03	10/20/03	EPA 7470A	J
Lead	ND	0.0000870	0.00100	"	"	3101018	10/27/03	10/30/03	EPA 6020	U
Selenium	ND	0.000566	0.00100	"	"	"	"	10/30/03	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Dissolved Metals per EPA 6000/7000 Series Methods North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-32(A) (P3J0539-07) Water Sampled: 10/14/03 13:50 Received: 10/15/03 13:25										
Silver	ND	0.0000460	0.00100	mg/l	1	3101018	10/27/03	10/30/03	EPA 6020	U
Arsenic	0.00228	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0250	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3100731	10/20/03	10/20/03	EPA 7470A	U
Lead	0.000130	0.0000870	0.00100	"	"	3101018	10/27/03	10/30/03	EPA 6020	J
Selenium	ND	0.000566	0.00100	"	"	"	"	10/30/03	"	U
MW-48(A) (P3J0539-08) Water Sampled: 10/14/03 12:15 Received: 10/15/03 13:25										
Silver	ND	0.0000460	0.00100	mg/l	1	3101018	10/27/03	10/30/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0314	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	0.0000930	0.0000358	0.000200	"	"	3100731	10/20/03	10/20/03	EPA 7470A	J
Lead	0.000510	0.0000870	0.00100	"	"	3101018	10/27/03	10/30/03	EPA 6020	J
Selenium	ND	0.000566	0.00100	"	"	"	"	10/30/03	"	U
MW-46(A) (P3J0539-09) Water Sampled: 10/14/03 10:15 Received: 10/15/03 13:25										
Silver	ND	0.0000460	0.00100	mg/l	1	3101018	10/27/03	10/30/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.00910	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	0.0543	0.000791	0.00100	"	"	"	"	"	"	
Mercury	0.0000370	0.0000358	0.000200	"	"	3100731	10/20/03	10/20/03	EPA 7470A	J
Lead	0.000290	0.0000870	0.00100	"	"	3101018	10/27/03	10/30/03	EPA 6020	J
Selenium	ND	0.000566	0.00100	"	"	"	"	10/30/03	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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MW-7(M) (P3J0539-01) Water Sampled: 10/13/03 15:47 Received: 10/15/03 13:25

1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100723	10/20/03	10/20/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	102 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	94.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	93.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	97.5 %		80-120			"	"	"	"	

MW-43(A) (P3J0539-02) Water Sampled: 10/13/03 16:45 Received: 10/15/03 13:25

1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100723	10/20/03	10/20/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	97.0 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	96.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	96.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	97.0 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Selected Volatile Organic Compounds per EPA Method 8260B North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-47(A) (P3J0539-03) Water Sampled: 10/13/03 17:45 Received: 10/15/03 13:25										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100723	10/20/03	10/20/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	98.5 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	93.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	95.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	93.0 %		80-120			"	"	"	"	
MW-33(A) (P3J0539-04) Water Sampled: 10/14/03 08:38 Received: 10/15/03 13:25										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100723	10/20/03	10/20/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	3.49	0.147	0.500	"	"	"	"	"	"	
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	0.280	0.262	1.00	"	"	"	"	"	"	J
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	0.350	0.107	2.00	"	"	"	"	"	"	J
n-Propylbenzene	0.630	0.138	0.500	"	"	"	"	"	"	
Surrogate: 4-BFB	97.5 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	94.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	95.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	90.5 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-34(A) (P3J0539-05) Water Sampled: 10/14/03 09:30 Received: 10/15/03 13:25										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100723	10/20/03	10/20/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	0.290	0.110	0.500	"	"	"	"	"	"	J
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	99.0 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	95.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	97.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	93.5 %		80-120			"	"	"	"	
MW-41(A) (P3J0539-06) Water Sampled: 10/14/03 15:40 Received: 10/15/03 13:25										
1,2-Dibromoethane	ND	1.87	5.00	ug/l	10	3100723	10/20/03	10/20/03	EPA 8260B	D, U
1,2-Dichloroethane	ND	1.42	5.00	"	"	"	"	"	"	D, U
Benzene	355	1.47	5.00	"	"	"	"	"	"	D
Toluene	103	1.55	5.00	"	"	"	"	"	"	D
Ethylbenzene	1260	1.10	5.00	"	"	"	"	"	"	D
Xylenes (total)	192	2.62	10.0	"	"	"	"	"	"	D
Methyl tert-butyl ether	ND	0.865	20.0	"	"	"	"	"	"	D, U
Naphthalene	105	0.989	20.0	"	"	"	"	"	"	D
1,2,4-Trimethylbenzene	15.4	0.884	10.0	"	"	"	"	"	"	D
1,3,5-Trimethylbenzene	ND	1.57	5.00	"	"	"	"	"	"	D, U
Isopropylbenzene	38.1	1.07	20.0	"	"	"	"	"	"	D
n-Propylbenzene	88.9	1.38	5.00	"	"	"	"	"	"	D
Surrogate: 4-BFB	103 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	93.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	95.5 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	98.5 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-32(A) (P3J0539-07) Water Sampled: 10/14/03 13:50 Received: 10/15/03 13:25										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100723	10/20/03	10/20/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	86.5 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	91.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	91.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	85.0 %		80-120			"	"	"	"	
MW-48(A) (P3J0539-08) Water Sampled: 10/14/03 12:15 Received: 10/15/03 13:25										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100723	10/20/03	10/20/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	0.760	0.0989	2.00	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	97.0 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	99.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	98.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	91.5 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Selected Volatile Organic Compounds per EPA Method 8260B North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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MW-46(A) (P3J0539-09) Water Sampled: 10/14/03 10:15 Received: 10/15/03 13:25

1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100723	10/20/03	10/20/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	92.0 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	102 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	100 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	97.0 %		80-120			"	"	"	"	

Trip Blank (P3J0539-10) Water Sampled: 10/13/03 15:47 Received: 10/15/03 13:25

1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100723	10/20/03	10/20/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	99.0 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	99.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	98.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	99.5 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Selected Volatile Organic Compounds per EPA Method 8260B North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Trip Blank (P3J0539-14) Water Sampled: 10/15/03 09:30 Received: 10/15/03 13:25										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100723	10/20/03	10/21/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	93.0 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	99.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	98.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	87.5 %		80-120			"	"	"	"	
Trip Blank (P3J0539-18) Water Sampled: 10/14/03 10:15 Received: 10/15/03 13:25										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100723	10/20/03	10/21/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	94.0 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	102 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	99.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	100 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Equipment Blank (P3J0539-19) Water Sampled: 10/14/03 10:15 Received: 10/15/03 13:25										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100723	10/20/03	10/21/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	96.0 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	102 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	100 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	101 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-7(M) (P3J0539-01) Water Sampled: 10/13/03 15:47 Received: 10/15/03 13:25										
Acenaphthene	ND	0.0500	0.0500	ug/l	1	3100671	10/17/03	10/20/03	EPA 8270m	U
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	83.9 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	72.5 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	52.1 %		10-150			"	"	"	"	

MW-43(A) (P3J0539-02) Water Sampled: 10/13/03 16:45 Received: 10/15/03 13:25

Acenaphthene	ND	0.0500	0.0500	ug/l	1	3100671	10/17/03	10/20/03	EPA 8270m	U
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-43(A) (P3J0539-02) Water Sampled: 10/13/03 16:45 Received: 10/15/03 13:25										
Naphthalene	ND	0.0500	0.0500	ug/l	1	3100671	10/17/03	10/20/03	EPA 8270m	U
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	89.4 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	81.4 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	76.7 %		10-150			"	"	"	"	
MW-47(A) (P3J0539-03) Water Sampled: 10/13/03 17:45 Received: 10/15/03 13:25										
Acenaphthene	ND	0.0500	0.0500	ug/l	1	3100671	10/17/03	10/20/03	EPA 8270m	U
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	78.0 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	78.0 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	75.8 %		10-150			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-33(A) (P3J0539-04) Water Sampled: 10/14/03 08:38 Received: 10/15/03 13:25										
Acenaphthene	ND	0.0500	0.0500	ug/l	1	3100671	10/17/03	10/20/03	EPA 8270m	U
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	ND	0.0700	0.0700	"	"	"	"	"	"	R-03, U
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	89.4 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	89.8 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	78.0 %		10-150			"	"	"	"	

MW-34(A) (P3J0539-05) Water Sampled: 10/14/03 09:30 Received: 10/15/03 13:25

Acenaphthene	ND	0.0500	0.0500	ug/l	1	3100671	10/17/03	10/21/03	EPA 8270m	U
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-34(A) (P3J0539-05) Water Sampled: 10/14/03 09:30 Received: 10/15/03 13:25										
Naphthalene	0.0623	0.0500	0.0500	ug/l	1	3100671	10/17/03	10/21/03	EPA 8270m	
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	81.4 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	76.3 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	69.5 %		10-150			"	"	"	"	
MW-41(A) (P3J0539-06) Water Sampled: 10/14/03 15:40 Received: 10/15/03 13:25										
Acenaphthene	2.45	1.25	1.25	ug/l	25	3100671	10/17/03	10/21/03	EPA 8270m	D
Acenaphthylene	ND	1.25	1.25	"	"	"	"	"	"	R-03, D, U
Anthracene	ND	1.25	1.25	"	"	"	"	"	"	R-03, D, U
Benzo (a) anthracene	ND	0.0100	0.0100	"	1	"	"	10/20/03	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0200	0.0200	"	"	"	"	"	"	R-03, U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	1.25	1.25	"	25	"	"	10/21/03	"	R-03, D, U
Fluorene	4.97	1.25	1.25	"	"	"	"	"	"	D
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	1	"	"	10/20/03	"	U
Naphthalene	82.3	1.25	1.25	"	25	"	"	10/21/03	"	D
Phenanthrene	6.93	1.25	1.25	"	"	"	"	"	"	D
Pyrene	0.200	0.0500	0.0500	"	1	"	"	10/20/03	"	
Surrogate: Fluorene-d10	69.1 %		25-150			"	"	10/21/03	"	D
Surrogate: Pyrene-d10	78.8 %		23-150			"	"	10/20/03	"	
Surrogate: Benzo (a) pyrene-d12	71.6 %		10-150			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-32(A) (P3J0539-07) Water Sampled: 10/14/03 13:50 Received: 10/15/03 13:25										
Acenaphthene	ND	0.0500	0.0500	ug/l	1	3100671	10/17/03	10/20/03	EPA 8270m	U
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	85.6 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	84.7 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	80.1 %		10-150			"	"	"	"	

MW-48(A) (P3J0539-08) Water Sampled: 10/14/03 12:15 Received: 10/15/03 13:25

Acenaphthene	0.362	0.0500	0.0500	ug/l	1	3100671	10/17/03	10/20/03	EPA 8270m	
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	0.0127	0.0100	0.0100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	0.0157	0.0100	0.0100	"	"	"	"	"	"	
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	0.123	0.0500	0.0500	"	"	"	"	"	"	
Fluorene	0.204	0.0500	0.0500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-48(A) (P3J0539-08) Water Sampled: 10/14/03 12:15 Received: 10/15/03 13:25										
Naphthalene	0.538	0.0500	0.0500	ug/l	1	3100671	10/17/03	10/20/03	EPA 8270m	
Phenanthrene	0.345	0.0500	0.0500	"	"	"	"	"	"	
Pyrene	0.0812	0.0500	0.0500	"	"	"	"	"	"	
<i>Surrogate: Fluorene-d10</i>	83.1 %		25-150			"	"	"	"	
<i>Surrogate: Pyrene-d10</i>	82.2 %		23-150			"	"	"	"	
<i>Surrogate: Benzo (a) pyrene-d12</i>	74.6 %		10-150			"	"	"	"	
MW-46(A) (P3J0539-09) Water Sampled: 10/14/03 10:15 Received: 10/15/03 13:25										
Acenaphthene	ND	0.0500	0.0500	ug/l	1	3100671	10/17/03	10/20/03	EPA 8270m	U
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
<i>Surrogate: Fluorene-d10</i>	78.8 %		25-150			"	"	"	"	
<i>Surrogate: Pyrene-d10</i>	78.0 %		23-150			"	"	"	"	
<i>Surrogate: Benzo (a) pyrene-d12</i>	67.8 %		10-150			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Conventional Chemistry Parameters per APHA/EPA Methods
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-7(M) (P3J0539-01) Water Sampled: 10/13/03 15:47 Received: 10/15/03 13:25 R-03										
Nitrate/Nitrite-Nitrogen	0.149	0.0250	0.200	mg/l	10	3100810	10/21/03	10/22/03	EPA 353.2	J, D
MW-43(A) (P3J0539-02) Water Sampled: 10/13/03 16:45 Received: 10/15/03 13:25 R-03										
Nitrate/Nitrite-Nitrogen	0.0700	0.0250	0.200	mg/l	10	3100810	10/21/03	10/22/03	EPA 353.2	J, D
MW-47(A) (P3J0539-03) Water Sampled: 10/13/03 17:45 Received: 10/15/03 13:25										
Nitrate/Nitrite-Nitrogen	1.03	0.0250	0.0500	mg/l	10	3100810	10/21/03	10/22/03	EPA 353.2	D
MW-33(A) (P3J0539-04) Water Sampled: 10/14/03 08:38 Received: 10/15/03 13:25 R-03										
Nitrate/Nitrite-Nitrogen	0.0940	0.0250	0.200	mg/l	10	3100810	10/21/03	10/22/03	EPA 353.2	J, D
MW-34(A) (P3J0539-05) Water Sampled: 10/14/03 09:30 Received: 10/15/03 13:25 R-03										
Nitrate/Nitrite-Nitrogen	0.0390	0.0250	0.200	mg/l	10	3100810	10/21/03	10/22/03	EPA 353.2	J, D
MW-41(A) (P3J0539-06) Water Sampled: 10/14/03 15:40 Received: 10/15/03 13:25 R-03										
Nitrate/Nitrite-Nitrogen	ND	0.0250	0.200	mg/l	10	3100810	10/21/03	10/22/03	EPA 353.2	D, U
MW-32(A) (P3J0539-07) Water Sampled: 10/14/03 13:50 Received: 10/15/03 13:25 R-03										
Nitrate/Nitrite-Nitrogen	0.0520	0.0250	0.200	mg/l	10	3100810	10/21/03	10/22/03	EPA 353.2	J, D
MW-48(A) (P3J0539-08) Water Sampled: 10/14/03 12:15 Received: 10/15/03 13:25 R-03										
Nitrate/Nitrite-Nitrogen	ND	0.0250	0.200	mg/l	10	3100810	10/21/03	10/22/03	EPA 353.2	D, U
MW-46(A) (P3J0539-09) Water Sampled: 10/14/03 10:15 Received: 10/15/03 13:25 R-03										
Nitrate/Nitrite-Nitrogen	0.112	0.0250	0.200	mg/l	10	3100810	10/21/03	10/22/03	EPA 353.2	J, D

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Anions per EPA Method 300.0
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-7(M) (P3J0539-01) Water Sampled: 10/13/03 15:47 Received: 10/15/03 13:25										
Chloride	13.2	0.0508	0.500	mg/l	1	3100674	10/17/03	10/17/03	EPA 300.0	
Sulfate	5.76	0.0860	1.00	"	"	"	"	"	"	
MW-43(A) (P3J0539-02) Water Sampled: 10/13/03 16:45 Received: 10/15/03 13:25										
Chloride	9.31	0.0508	0.500	mg/l	1	3100674	10/17/03	10/17/03	EPA 300.0	
Sulfate	7.61	0.0860	1.00	"	"	"	"	"	"	
MW-47(A) (P3J0539-03) Water Sampled: 10/13/03 17:45 Received: 10/15/03 13:25										
Chloride	11.6	0.0508	0.500	mg/l	1	3100674	10/17/03	10/17/03	EPA 300.0	
Sulfate	25.2	0.0860	1.00	"	"	"	"	"	"	
MW-33(A) (P3J0539-04) Water Sampled: 10/14/03 08:38 Received: 10/15/03 13:25										
Chloride	16.6	0.0508	0.500	mg/l	1	3100674	10/17/03	10/17/03	EPA 300.0	
Sulfate	13.8	0.0860	1.00	"	"	"	"	"	"	
MW-34(A) (P3J0539-05) Water Sampled: 10/14/03 09:30 Received: 10/15/03 13:25										
Chloride	19.1	0.0508	0.500	mg/l	1	3100674	10/17/03	10/17/03	EPA 300.0	
Sulfate	16.4	0.0860	1.00	"	"	"	"	"	"	
MW-41(A) (P3J0539-06) Water Sampled: 10/14/03 15:40 Received: 10/15/03 13:25										
Chloride	9.23	0.0508	0.500	mg/l	1	3100742	10/20/03	10/20/03	EPA 300.0	
Sulfate	5.91	0.0860	1.00	"	"	"	"	"	"	
MW-32(A) (P3J0539-07) Water Sampled: 10/14/03 13:50 Received: 10/15/03 13:25										
Chloride	26.7	0.0508	0.500	mg/l	1	3100742	10/20/03	10/20/03	EPA 300.0	
Sulfate	64.5	0.430	5.00	"	5	"	"	10/24/03	"	D

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Anions per EPA Method 300.0
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-48(A) (P3J0539-08) Water Sampled: 10/14/03 12:15 Received: 10/15/03 13:25										
Chloride	11.6	0.0508	0.500	mg/l	1	3100742	10/20/03	10/20/03	EPA 300.0	
Sulfate	45.6	0.430	5.00	"	5	"	"	10/24/03	"	D
MW-46(A) (P3J0539-09) Water Sampled: 10/14/03 10:15 Received: 10/15/03 13:25										
Chloride	7.64	0.0508	0.500	mg/l	1	3100742	10/20/03	10/20/03	EPA 300.0	
Sulfate	1.24	0.0860	1.00	"	"	"	"	10/24/03	"	

North Creek Analytical - Portland

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Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Total Alkalinity by Conventional Chemistry Parameters per APHA/EPA Methods
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-7(M) (P3J0539-01) Water Sampled: 10/13/03 15:47 Received: 10/15/03 13:25										
Bicarbonate Alkalinity	208	0.208	10.0mg/L as CaC	1	3100676	10/17/03	10/17/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	208	0.208	10.0	"	"	"	"	"	"	
MW-43(A) (P3J0539-02) Water Sampled: 10/13/03 16:45 Received: 10/15/03 13:25										
Bicarbonate Alkalinity	91.0	0.208	10.0mg/L as CaC	1	3100676	10/17/03	10/17/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	91.0	0.208	10.0	"	"	"	"	"	"	
MW-47(A) (P3J0539-03) Water Sampled: 10/13/03 17:45 Received: 10/15/03 13:25										
Bicarbonate Alkalinity	36.1	0.208	10.0mg/L as CaC	1	3100676	10/17/03	10/17/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	36.1	0.208	10.0	"	"	"	"	"	"	
MW-33(A) (P3J0539-04) Water Sampled: 10/14/03 08:38 Received: 10/15/03 13:25										
Bicarbonate Alkalinity	186	0.208	10.0mg/L as CaC	1	3100676	10/17/03	10/17/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	186	0.208	10.0	"	"	"	"	"	"	
MW-34(A) (P3J0539-05) Water Sampled: 10/14/03 09:30 Received: 10/15/03 13:25										
Bicarbonate Alkalinity	179	0.208	10.0mg/L as CaC	1	3100676	10/17/03	10/17/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	179	0.208	10.0	"	"	"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Total Alkalinity by Conventional Chemistry Parameters per APHA/EPA Methods
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-41(A) (P3J0539-06) Water Sampled: 10/14/03 15:40 Received: 10/15/03 13:25										
Bicarbonate Alkalinity	185	0.208	10.0mg/L as CaC	1	3100725	10/20/03	10/21/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	185	0.208	10.0	"	"	"	"	"	"	
MW-32(A) (P3J0539-07) Water Sampled: 10/14/03 13:50 Received: 10/15/03 13:25										
Bicarbonate Alkalinity	153	0.208	10.0mg/L as CaC	1	3100725	10/20/03	10/21/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	153	0.208	10.0	"	"	"	"	"	"	
MW-48(A) (P3J0539-08) Water Sampled: 10/14/03 12:15 Received: 10/15/03 13:25										
Bicarbonate Alkalinity	83.3	0.208	10.0mg/L as CaC	1	3100725	10/20/03	10/21/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	83.3	0.208	10.0	"	"	"	"	"	"	
MW-46(A) (P3J0539-09) Water Sampled: 10/14/03 10:15 Received: 10/15/03 13:25										
Bicarbonate Alkalinity	54.0	0.208	10.0mg/L as CaC	1	3100725	10/20/03	10/21/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	54.0	0.208	10.0	"	"	"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

**Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-7(M) (P3J0539-01) Water Sampled: 10/13/03 15:47 Received: 10/15/03 13:25										
Calcium	41.8	0.0360	0.250	mg/l	1	3J23034	10/23/03	10/24/03	EPA 6010B	
Iron	19.6	0.0620	0.150	"	"	"	"	"	"	
Potassium	6.69	0.255	2.00	"	"	"	"	10/27/03	"	
Magnesium	19.5	0.0180	0.500	"	"	"	"	10/24/03	"	
Sodium	14.3	0.0420	0.250	"	"	"	"	"	"	
MW-43(A) (P3J0539-02) Water Sampled: 10/13/03 16:45 Received: 10/15/03 13:25										
Calcium	25.9	0.0360	0.250	mg/l	1	3J23034	10/23/03	10/24/03	EPA 6010B	
Iron	6.25	0.0620	0.150	"	"	"	"	"	"	
Potassium	4.32	0.255	2.00	"	"	"	"	10/27/03	"	
Magnesium	5.58	0.0180	0.500	"	"	"	"	10/24/03	"	
Sodium	6.42	0.0420	0.250	"	"	"	"	"	"	
MW-47(A) (P3J0539-03) Water Sampled: 10/13/03 17:45 Received: 10/15/03 13:25										
Calcium	7.89	0.0360	0.250	mg/l	1	3J23034	10/23/03	10/24/03	EPA 6010B	
Iron	0.490	0.0620	0.150	"	"	"	"	"	"	
Potassium	7.26	0.255	2.00	"	"	"	"	10/27/03	"	
Magnesium	8.34	0.0180	0.500	"	"	"	"	10/24/03	"	
Sodium	8.79	0.0420	0.250	"	"	"	"	"	"	
MW-33(A) (P3J0539-04) Water Sampled: 10/14/03 08:38 Received: 10/15/03 13:25										
Calcium	24.1	0.0360	0.250	mg/l	1	3J23034	10/23/03	10/24/03	EPA 6010B	
Iron	16.7	0.0620	0.150	"	"	"	"	"	"	
Potassium	9.21	0.255	2.00	"	"	"	"	10/27/03	"	
Magnesium	14.1	0.0180	0.500	"	"	"	"	10/24/03	"	
Sodium	39.6	0.0420	0.250	"	"	"	"	"	"	

North Creek Analytical - Portland

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EnviroLogic Resources, Inc.
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Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Total Metals by EPA 6000/7000 Series Methods North Creek Analytical - Bothell

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-34(A) (P3J0539-05) Water Sampled: 10/14/03 09:30 Received: 10/15/03 13:25										
Calcium	31.6	0.0360	0.250	mg/l	1	3J23034	10/23/03	10/24/03	EPA 6010B	
Iron	5.50	0.0620	0.150	"	"	"	"	"	"	
Potassium	12.4	0.255	2.00	"	"	"	"	10/27/03	"	
Magnesium	26.0	0.0180	0.500	"	"	"	"	10/24/03	"	
Sodium	14.8	0.0420	0.250	"	"	"	"	"	"	
MW-41(A) (P3J0539-06) Water Sampled: 10/14/03 15:40 Received: 10/15/03 13:25										
Calcium	40.6	0.0360	0.250	mg/l	1	3J23034	10/23/03	10/24/03	EPA 6010B	
Iron	35.0	0.0620	0.150	"	"	"	"	"	"	
Potassium	5.33	0.255	2.00	"	"	"	"	10/27/03	"	
Magnesium	13.6	0.0180	0.500	"	"	"	"	10/24/03	"	
Sodium	8.68	0.0420	0.250	"	"	"	"	"	"	
MW-32(A) (P3J0539-07) Water Sampled: 10/14/03 13:50 Received: 10/15/03 13:25										
Calcium	12.4	0.0360	0.250	mg/l	1	3J23034	10/23/03	10/24/03	EPA 6010B	
Iron	3.24	0.0620	0.150	"	"	"	"	"	"	
Potassium	12.0	0.255	2.00	"	"	"	"	10/27/03	"	
Magnesium	24.4	0.0180	0.500	"	"	"	"	10/24/03	"	
Sodium	48.2	0.0420	0.250	"	"	"	"	"	"	
MW-48(A) (P3J0539-08) Water Sampled: 10/14/03 12:15 Received: 10/15/03 13:25										
Calcium	18.0	0.0360	0.250	mg/l	1	3J23034	10/23/03	10/24/03	EPA 6010B	
Iron	25.7	0.0620	0.150	"	"	"	"	"	"	
Potassium	8.76	0.255	2.00	"	"	"	"	10/27/03	"	
Magnesium	10.4	0.0180	0.500	"	"	"	"	10/24/03	"	
Sodium	10.6	0.0420	0.250	"	"	"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

**Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-46(A) (P3J0539-09) Water Sampled: 10/14/03 10:15 Received: 10/15/03 13:25										
Calcium	10.1	0.0360	0.250	mg/l	1	3J23034	10/23/03	10/24/03	EPA 6010B	
Iron	15.4	0.0620	0.150	"	"	"	"	"	"	
Potassium	5.74	0.255	2.00	"	"	"	"	10/27/03	"	
Magnesium	6.32	0.0180	0.500	"	"	"	"	10/24/03	"	
Sodium	5.77	0.0420	0.250	"	"	"	"	"	"	

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Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Gasoline Hydrocarbons per NW TPH-Gx Method - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3100593: Prepared 10/15/03 Using EPA 5030B											
Blank (3100593-BLK1)											
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l							U
Surrogate: 4-BFB	51.6			"	50.0		103	50-150			
LCS (3100593-BS2)											
Gasoline Range Hydrocarbons	1230	50.0	80.0	ug/l	1250		98.4	70-130			
Surrogate: 4-BFB	53.2			"	50.0		106	50-150			
Duplicate (3100593-DUP1)						Source: P3J0411-02					
Gasoline Range Hydrocarbons	3710	500	800	ug/l		3770			1.60	40	D
Surrogate: 4-BFB	51.6			"	50.0		103	50-150			
Duplicate (3100593-DUP2)						Source: P3J0539-06					
Gasoline Range Hydrocarbons	7970	500	800	ug/l		7700			3.45	40	D
Surrogate: 4-BFB	59.8			"	50.0		120	50-150			
Batch 3100655: Prepared 10/16/03 Using EPA 5030B											
Blank (3100655-BLK1)											
Gasoline Range Hydrocarbons	52.6	50.0	80.0	ug/l							J
Surrogate: 4-BFB	47.5			"	50.0		95.0	50-150			
LCS (3100655-BS2)											
Gasoline Range Hydrocarbons	1250	50.0	80.0	ug/l	1250		100	70-130			
Surrogate: 4-BFB	53.1			"	50.0		106	50-150			
LCS Dup (3100655-BSD2)											
Gasoline Range Hydrocarbons	1200	50.0	80.0	ug/l	1250		96.0	70-130	4.08	40	
Surrogate: 4-BFB	51.0			"	50.0		102	50-150			

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Gasoline Hydrocarbons per NW TPH-Gx Method - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100655: Prepared 10/16/03 Using EPA 5030B

Duplicate (3100655-DUP1)

Source: P3J0539-01RE1

Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l		ND				40	U
Surrogate: 4-BFB	48.5			"	50.0		97.0	50-150			

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Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100678: Prepared 10/17/03 Using EPA 3510 Fuels

Blank (3100678-BLK1)

Diesel Range Organics	ND	0.153	0.250	mg/l							U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"							U
Surrogate: 1-Chlorooctadecane	0.101			"	0.0960		105	50-150			

LCS (3100678-BS1)

Diesel Range Organics	2.89	0.153	0.250	mg/l	2.50		116	50-150			
Heavy Oil Range Hydrocarbons	1.84	0.286	0.500	"	1.50		123	50-150			
Surrogate: 1-Chlorooctadecane	0.0949			"	0.0960		98.9	50-150			

LCS Dup (3100678-BS1)

Diesel Range Organics	2.83	0.153	0.250	mg/l	2.50		113	50-150	2.10	50	
Heavy Oil Range Hydrocarbons	1.82	0.286	0.500	"	1.50		121	50-150	1.09	50	
Surrogate: 1-Chlorooctadecane	0.0965			"	0.0960		101	50-150			

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Project: Astoria Area-Wide Petroleum Site RI-1
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Reported:
11/03/03 17:06

Total Metals per EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3101035: Prepared 10/27/03 Using EPA 200/3005

Blank (3101035-BLK1)

Arsenic	ND	0.000964	0.00100	mg/l							U
Barium	ND	0.0000910	0.00100	"							U
Cadmium	ND	0.000178	0.00100	"							U
Chromium	ND	0.000791	0.00100	"							U
Lead	ND	0.0000870	0.00100	"							U
Manganese	0.0000700	0.0000136	0.00200	"							J
Selenium	ND	0.000566	0.00200	"							U
Silver	ND	0.0000460	0.00100	"							U

LCS (3101035-BS1)

Arsenic	0.101	0.000964	0.00100	mg/l	0.100		101	80-120			
Barium	0.102	0.0000910	0.00100	"	0.100		102	80-120			
Cadmium	0.101	0.000178	0.00100	"	0.100		101	80-120			
Chromium	0.102	0.000791	0.00100	"	0.100		102	80-120			
Lead	0.102	0.0000870	0.00100	"	0.100		102	80-120			
Manganese	0.103	0.0000136	0.00200	"	0.100		103	80-120			
Selenium	0.102	0.000566	0.00200	"	0.100		102	80-120			
Silver	0.0524	0.0000460	0.00100	"	0.0500		105	80-120			

Duplicate (3101035-DUP1)

Source: P3J0539-01

Arsenic	0.0120	0.000964	0.00100	mg/l		0.0126			4.88	20	
Barium	0.0333	0.0000910	0.00100	"		0.0323			3.05	20	
Cadmium	ND	0.000178	0.00100	"		ND				20	U
Chromium	0.00360	0.000791	0.00100	"		0.00354			1.68	20	
Lead	0.00848	0.0000870	0.00100	"		0.00840			0.948	20	
Manganese	1.05	0.0000136	0.00200	"		1.06			0.948	20	
Selenium	ND	0.000566	0.00200	"		ND				20	U
Silver	0.0000600	0.0000460	0.00100	"		0.000110			58.8	20	Q-06, J

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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11/03/03 17:06

Total Metals per EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 3101035: Prepared 10/27/03 Using EPA 200/3005

Matrix Spike (3101035-MS1)

Source: P3J0539-01

Arsenic	0.120	0.00462	0.00479	mg/l	0.100	0.0126	107	75-125			D
Barium	0.130	0.0000910	0.00100	"	0.100	0.0323	97.7	75-125			
Cadmium	0.105	0.000178	0.00100	"	0.100	ND	105	75-125			
Chromium	0.110	0.000791	0.00100	"	0.100	0.00354	106	75-125			
Lead	0.107	0.0000870	0.00100	"	0.100	0.00840	98.6	75-125			
Manganese	1.19	0.0000651	0.00958	"	0.100	1.06	130	75-125			Q-07, D
Selenium	0.104	0.000566	0.00200	"	0.100	ND	104	75-125			
Silver	0.0540	0.0000460	0.00100	"	0.0500	0.000110	108	75-125			

Matrix Spike (3101035-MS2)

Source: P3J0539-02

Arsenic	0.110	0.00443	0.00460	mg/l	0.100	0.00752	102	75-125			D
Barium	0.126	0.0000910	0.00100	"	0.100	0.0227	103	75-125			
Cadmium	0.108	0.000178	0.00100	"	0.100	ND	108	75-125			
Chromium	0.106	0.000791	0.00100	"	0.100	0.000850	105	75-125			
Lead	0.105	0.0000870	0.00100	"	0.100	0.000230	105	75-125			
Manganese	0.695	0.0000136	0.00200	"	0.100	0.598	97.0	75-125			
Selenium	0.106	0.000566	0.00200	"	0.100	ND	106	75-125			
Silver	0.0541	0.0000460	0.00100	"	0.0500	ND	108	75-125			

Batch 3101036: Prepared 10/28/03 Using EPA 7470

Blank (3101036-BLK1)

Mercury	0.0000660	0.0000358	0.000200	mg/l							J
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LCS (3101036-BS1)

Mercury	0.00537	0.0000358	0.000200	mg/l	0.00500		107	85-115			
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North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Total Metals per EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3101036: Prepared 10/28/03 Using EPA 7470											
Duplicate (3101036-DUP1)						Source: P3J0539-01					
Mercury	ND	0.0000358	0.000200	mg/l		0.000043			20		U
Duplicate (3101036-DUP2)						Source: P3J0539-06					
Mercury	0.0000830	0.0000358	0.000200	mg/l		0.000045			59.4	20	Q-06, J
Matrix Spike (3101036-MS1)						Source: P3J0539-01					
Mercury	0.00435	0.0000358	0.000200	mg/l	0.00500	0.000043	86.1	75-125			
Matrix Spike (3101036-MS2)						Source: P3J0539-02					
Mercury	0.00480	0.0000358	0.000200	mg/l	0.00500	0.000066	94.7	75-125			
Matrix Spike (3101036-MS3)						Source: P3J0539-06					
Mercury	0.00424	0.0000358	0.000200	mg/l	0.00500	0.000045	83.9	75-125			

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Dissolved Metals per EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100731: Prepared 10/20/03 Using EPA 200/3005

Blank (3100731-BLK1)

Mercury	0.0000400	0.0000358	0.000200	mg/l							J
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LCS (3100731-BS1)

Mercury	0.00535	0.0000358	0.000200	mg/l	0.00500		107	85-115			
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Duplicate (3100731-DUP1)

Source: P3J0442-02

Mercury	ND	0.0000358	0.000200	mg/l		0.000075			20		U
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Matrix Spike (3100731-MS1)

Source: P3J0442-02

Mercury	0.00503	0.0000358	0.000200	mg/l	0.00500	0.000075	99.1	75-125			
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Matrix Spike (3100731-MS2)

Source: P3J0539-01

Mercury	0.00554	0.0000358	0.000200	mg/l	0.00500	0.000170	107	75-125			
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Batch 3101018: Prepared 10/27/03 Using EPA 200/3005 Diss

Blank (3101018-BLK1)

Arsenic	ND	0.000964	0.00100	mg/l							U
Barium	ND	0.0000910	0.00100	"							U
Cadmium	ND	0.0000730	0.00100	"							U
Chromium	ND	0.000791	0.00100	"							U
Lead	ND	0.0000870	0.00100	"							U
Selenium	ND	0.000566	0.00200	"							U
Silver	ND	0.0000460	0.00100	"							U

LCS (3101018-BS1)

Arsenic	0.100	0.000964	0.00100	mg/l	0.100		100	80-120			
Barium	0.105	0.0000910	0.00100	"	0.100		105	80-120			
Cadmium	0.103	0.0000730	0.00100	"	0.100		103	80-120			
Chromium	0.106	0.000791	0.00100	"	0.100		106	80-120			
Lead	0.0998	0.0000870	0.00100	"	0.100		99.8	80-120			
Selenium	0.0980	0.000566	0.00200	"	0.100		98.0	80-120			
Silver	0.0522	0.0000460	0.00100	"	0.0500		104	80-120			

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Dissolved Metals per EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3101018: Prepared 10/27/03 Using EPA 200/3005 Diss

Duplicate (3101018-DUP1)

Source: P3J0539-01

Arsenic	0.00990	0.000964	0.00100	mg/l		0.00985			0.506	20	
Barium	0.0184	0.0000910	0.00100	"		0.0178			3.31	20	
Cadmium	ND	0.0000730	0.00100	"		ND				20	U
Chromium	ND	0.000791	0.00100	"		ND				20	U
Lead	ND	0.0000870	0.00100	"		ND				20	U
Selenium	0.000830	0.000566	0.00100	"		0.000930			11.4	20	J
Silver	ND	0.0000460	0.00100	"		ND				20	U

Matrix Spike (3101018-MS1)

Source: P3J0539-01

Arsenic	0.113	0.000964	0.00100	mg/l	0.100	0.00985	103	75-125
Barium	0.130	0.0000910	0.00100	"	0.100	0.0178	112	75-125
Cadmium	0.105	0.0000730	0.00100	"	0.100	ND	105	75-125
Chromium	0.106	0.000791	0.00100	"	0.100	ND	106	75-125
Lead	0.103	0.0000870	0.00100	"	0.100	ND	103	75-125
Selenium	0.107	0.000566	0.00100	"	0.100	0.000930	106	75-125
Silver	0.0529	0.0000460	0.00100	"	0.0500	ND	106	75-125

Matrix Spike (3101018-MS2)

Source: P3J0539-02

Arsenic	0.112	0.000964	0.00100	mg/l	0.100	0.00734	105	75-125
Barium	0.140	0.0000910	0.00100	"	0.100	0.0234	117	75-125
Cadmium	0.108	0.0000730	0.00100	"	0.100	ND	108	75-125
Chromium	0.110	0.000791	0.00100	"	0.100	ND	110	75-125
Lead	0.108	0.0000870	0.00100	"	0.100	0.000140	108	75-125
Selenium	0.107	0.000566	0.00100	"	0.100	0.000960	106	75-125
Silver	0.0544	0.0000460	0.00100	"	0.0500	ND	109	75-125

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Selected Volatile Organic Compounds per EPA Method 8260B - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100723: Prepared 10/20/03 Using EPA 5030B

Blank (3100723-BLK1)

1,2-Dibromoethane	ND	0.187	0.500	ug/l							U
1,2-Dichloroethane	ND	0.142	0.500	"							U
Benzene	ND	0.147	0.500	"							U
Toluene	ND	0.155	0.500	"							U
Ethylbenzene	ND	0.110	0.500	"							U
Xylenes (total)	ND	0.262	1.00	"							U
Methyl tert-butyl ether	ND	0.0865	2.00	"							U
Naphthalene	ND	0.0989	2.00	"							U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"							U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"							U
Isopropylbenzene	ND	0.107	2.00	"							U
n-Propylbenzene	ND	0.138	0.500	"							U
Surrogate: 4-BFB	20.1			"	20.0		100	75-120			
Surrogate: 1,2-DCA-d4	18.3			"	20.0		91.5	77-129			
Surrogate: Dibromofluoromethane	18.9			"	20.0		94.5	80-121			
Surrogate: Toluene-d8	19.9			"	20.0		99.5	80-120			

LCS (3100723-BS1)

Benzene	20.0	0.147	0.500	ug/l	20.0		100	80-120			
Toluene	19.7	0.155	0.500	"	20.0		98.5	80-124			
Ethylbenzene	22.0	0.110	0.500	"	20.0		110	80-120			
Xylenes (total)	67.9	0.262	1.00	"	60.0		113	73-124			
Surrogate: 4-BFB	21.2			"	20.0		106	75-120			
Surrogate: 1,2-DCA-d4	19.0			"	20.0		95.0	77-129			
Surrogate: Dibromofluoromethane	19.2			"	20.0		96.0	80-121			
Surrogate: Toluene-d8	19.8			"	20.0		99.0	80-120			

Matrix Spike (3100723-MS1)

Source: P3J0539-06

Benzene	551	1.47	5.00	ug/l	200	355	98.0	80-124			D
Toluene	302	1.55	5.00	"	200	103	99.5	79.7-131			D
Ethylbenzene	1410	1.10	5.00	"	200	1260	75.0	80-124			Q-15, D
Xylenes (total)	815	2.62	10.0	"	600	192	104	44.6-154			D
Surrogate: 4-BFB	19.8			"	20.0		99.0	75-120			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Selected Volatile Organic Compounds per EPA Method 8260B - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100723: Prepared 10/20/03 Using EPA 5030B

Matrix Spike (3100723-MS1)

Source: P3J0539-06

Surrogate: 1,2-DCA-d4	18.9			ug/l	20.0		94.5	77-129			
Surrogate: Dibromofluoromethane	19.3			"	20.0		96.5	80-121			
Surrogate: Toluene-d8	20.1			"	20.0		100	80-120			

Matrix Spike Dup (3100723-MSD1)

Source: P3J0539-06

Benzene	545	1.47	5.00	ug/l	200	355	95.0	80-124	1.09	25	D
Toluene	301	1.55	5.00	"	200	103	99.0	79.7-131	0.332	25	D
Ethylbenzene	1430	1.10	5.00	"	200	1260	85.0	80-124	1.41	25	D
Xylenes (total)	868	2.62	10.0	"	600	192	113	44.6-154	6.30	25	D
Surrogate: 4-BFB	21.6			"	20.0		108	75-120			
Surrogate: 1,2-DCA-d4	18.9			"	20.0		94.5	77-129			
Surrogate: Dibromofluoromethane	19.2			"	20.0		96.0	80-121			
Surrogate: Toluene-d8	20.2			"	20.0		101	80-120			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100671: Prepared 10/17/03 Using EPA 3520/600 Series

Blank (3100671-BLK1)

Acenaphthene	ND	0.0500	0.0500	ug/l							U
Acenaphthylene	ND	0.0500	0.0500	"							U
Anthracene	ND	0.0500	0.0500	"							U
Benzo (a) anthracene	ND	0.0100	0.0100	"							U
Benzo (a) pyrene	ND	0.0100	0.0100	"							U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"							U
Benzo (ghi) perylene	ND	0.0500	0.0500	"							U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"							U
Chrysene	ND	0.0100	0.0100	"							U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"							U
Fluoranthene	ND	0.0500	0.0500	"							U
Fluorene	ND	0.0500	0.0500	"							U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"							U
Naphthalene	ND	0.0500	0.0500	"							U
Phenanthrene	ND	0.0500	0.0500	"							U
Pyrene	ND	0.0500	0.0500	"							U
Surrogate: Fluorene-d10	2.20			"	2.50		88.0	25-150			
Surrogate: Pyrene-d10	1.98			"	2.50		79.2	23-150			
Surrogate: Benzo (a) pyrene-d12	2.08			"	2.50		83.2	10-150			

LCS (3100671-BS1)

Acenaphthene	1.81	0.0500	0.0500	ug/l	2.50		72.4	26-150			
Benzo (a) pyrene	1.83	0.0100	0.0100	"	2.50		73.2	38-150			
Pyrene	1.78	0.0500	0.0500	"	2.50		71.2	33-150			
Surrogate: Fluorene-d10	2.09			"	2.50		83.6	25-150			
Surrogate: Pyrene-d10	2.07			"	2.50		82.8	23-150			
Surrogate: Benzo (a) pyrene-d12	2.12			"	2.50		84.8	10-150			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100671: Prepared 10/17/03 Using EPA 3520/600 Series

LCS Dup (3100671-BSD1)

Acenaphthene	1.75	0.0500	0.0500	ug/l	2.50		70.0	26-150	3.37	60	
Benzo (a) pyrene	1.81	0.0100	0.0100	"	2.50		72.4	38-150	1.10	60	
Pyrene	2.60	0.0500	0.0500	"	2.50		104	33-150	37.4	60	
Surrogate: Fluorene-d10	2.05			"	2.50		82.0	25-150			
Surrogate: Pyrene-d10	2.94			"	2.50		118	23-150			
Surrogate: Benzo (a) pyrene-d12	2.02			"	2.50		80.8	10-150			

Matrix Spike (3100671-MS1)

Source: P3J0539-06

Acenaphthene	4.17	1.25	1.25	ug/l	2.36	2.45	72.9	26-135			D
Benzo (a) pyrene	1.06	0.0100	0.0100	"	2.36	ND	44.9	38-137			
Pyrene	1.78	0.0500	0.0500	"	2.36	0.200	66.9	33-133			
Surrogate: Fluorene-d10	1.61			"	2.36		68.2	25-150			D
Surrogate: Pyrene-d10	1.78			"	2.36		75.4	23-150			
Surrogate: Benzo (a) pyrene-d12	1.39			"	2.36		58.9	10-150			

Matrix Spike Dup (3100671-MSD1)

Source: P3J0539-06

Acenaphthene	4.08	1.25	1.25	ug/l	2.36	2.45	69.1	26-135	2.18	60	D
Benzo (a) pyrene	0.997	0.0100	0.0100	"	2.36	ND	42.2	38-137	6.13	60	
Pyrene	1.73	0.0500	0.0500	"	2.36	0.200	64.8	33-133	2.85	60	
Surrogate: Fluorene-d10	1.55			"	2.36		65.7	25-150			D
Surrogate: Pyrene-d10	1.68			"	2.36		71.2	23-150			
Surrogate: Benzo (a) pyrene-d12	1.35			"	2.36		57.2	10-150			

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Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Conventional Chemistry Parameters per APHA/EPA Methods - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100810: Prepared 10/21/03 Using Wet Chem

Blank (3100810-BLK1)

Nitrate/Nitrite-Nitrogen	ND	0.00250	0.00500	mg/l							U
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LCS (3100810-BS1)

Nitrate/Nitrite-Nitrogen	0.0946	0.00250	0.00500	mg/l	0.100		94.6	85-115			
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Duplicate (3100810-DUP1)

Source: P3J0489-01

Nitrate/Nitrite-Nitrogen	ND	0.00250	0.00500	mg/l		ND			20		U
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Matrix Spike (3100810-MS1)

Source: P3J0489-01

Nitrate/Nitrite-Nitrogen	0.0976	0.00500	0.0100	mg/l	0.100	ND	97.6	75-125			D
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Matrix Spike Dup (3100810-MSD1)

Source: P3J0489-01

Nitrate/Nitrite-Nitrogen	0.0960	0.00500	0.0100	mg/l	0.100	ND	96.0	75-125	1.65	20	D
--------------------------	--------	---------	--------	------	-------	----	------	--------	------	----	---

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Anions per EPA Method 300.0 - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3100674: Prepared 10/17/03 Using Wet Chem											
Blank (3100674-BLK1)											
Chloride	ND	0.0508	0.500	mg/l							U
Sulfate	ND	0.0860	1.00	"							U
LCS (3100674-BS1)											
Chloride	9.67	0.0508	0.500	mg/l	10.0		96.7	90-110			
Sulfate	31.0	0.0860	1.00	"	30.0		103	90-110			
Duplicate (3100674-DUP1)						Source: P3J0596-01					
Chloride	194	0.508	5.00	mg/l		192			1.04	20	D
Sulfate	0.220	0.0860	1.00	"		0.250			12.8	20	J
Matrix Spike (3100674-MS1)						Source: P3J0596-01					
Sulfate	4.79	0.0955	1.11	mg/l	4.44	0.250	102	80-120			D
Matrix Spike (3100674-MS2)						Source: P3J0615-01					
Chloride	4.39	0.0564	0.556	mg/l	2.22	2.10	103	80-120			D
Sulfate	6.10	0.0955	1.11	"	4.44	1.32	108	80-120			D
Matrix Spike (3100674-MS3)						Source: P3J0596-01					
Chloride	200	0.564	5.56	mg/l	22.2	192	36.0	80-120			Q-02, D
Matrix Spike Dup (3100674-MSD1)						Source: P3J0596-01					
Sulfate	4.70	0.0955	1.11	mg/l	4.44	0.250	100	80-120	1.90	20	D
Matrix Spike Dup (3100674-MSD2)						Source: P3J0615-01					
Chloride	4.38	0.0564	0.556	mg/l	2.22	2.10	103	80-120	0.228	20	D
Sulfate	6.31	0.0955	1.11	"	4.44	1.32	112	80-120	3.38	20	D

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Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Anions per EPA Method 300.0 - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3100674: Prepared 10/17/03 Using Wet Chem											
Matrix Spike Dup (3100674-MSD3)						Source: P3J0596-01					
Chloride	199	0.564	5.56	mg/l	22.2	192	31.5	80-120	0.501	20	Q-02, D
Batch 3100742: Prepared 10/20/03 Using Wet Chem											
Blank (3100742-BLK1)											
Chloride	ND	0.0508	0.500	mg/l							U
Sulfate	0.190	0.0860	1.00	"							J
LCS (3100742-BS1)											
Chloride	9.79	0.0508	0.500	mg/l	10.0		97.9	90-110			
Sulfate	31.0	0.0860	1.00	"	30.0		103	90-110			
Duplicate (3100742-DUP1)						Source: P3J0621-02					
Chloride	20.7	0.0508	0.500	mg/l		20.6			0.484	20	
Sulfate	217	0.860	10.0	"		218			0.460	20	D
Matrix Spike (3100742-MS1)						Source: P3J0621-02					
Chloride	21.7	0.0564	0.556	mg/l	2.22	20.6	49.5	80-120			Q-02, D
Matrix Spike (3100742-MS2)						Source: P3J0530-03					
Chloride	18.9	0.0564	0.556	mg/l	2.22	18.2	31.5	80-120			Q-02, D
Sulfate	16.9	0.0955	1.11	"	4.44	12.1	108	80-120			D
Matrix Spike (3100742-MS3)						Source: P3J0621-02					
Sulfate	265	0.955	11.1	mg/l	44.4	218	106	80-120			D
Matrix Spike Dup (3100742-MSD1)						Source: P3J0621-02					
Chloride	21.7	0.0564	0.556	mg/l	2.22	20.6	49.5	80-120	0.00	20	Q-02, D

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Anions per EPA Method 300.0 - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100742: Prepared 10/20/03 Using Wet Chem

Matrix Spike Dup (3100742-MSD2)

Source: P3J0530-03

Chloride	18.8	0.0564	0.556	mg/l	2.22	18.2	27.0	80-120	0.531	20	Q-02, D
Sulfate	16.8	0.0955	1.11	"	4.44	12.1	106	80-120	0.593	20	D

Matrix Spike Dup (3100742-MSD3)

Source: P3J0621-02

Sulfate	265	0.955	11.1	mg/l	44.4	218	106	80-120	0.00	20	D
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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Total Alkalinity by Conventional Chemistry Parameters per APHA/EPA Methods - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100676: Prepared 10/17/03 Using Wet Chem

Blank (3100676-BLK1)

Bicarbonate Alkalinity	ND	0.208	10.0	mg/L as CaCO ₃							U
Carbonate Alkalinity	ND	0.208	10.0	"							U
Hydroxide Alkalinity	ND	0.208	10.0	"							U
Total Alkalinity	ND	0.208	10.0	"							U

LCS (3100676-BS1)

Bicarbonate Alkalinity	91.8	0.208	10.0	mg/L as CaCO ₃	100		91.8	85-115			
Carbonate Alkalinity	102	0.208	10.0	"	100		102	85-115			
Total Alkalinity	190	0.208	10.0	"	200		95.0	85-115			

Duplicate (3100676-DUP1)

Source: P3J0214-01

Bicarbonate Alkalinity	6.38	0.208	10.0	mg/L as CaCO ₃		6.52			2.17	20	J
Carbonate Alkalinity	ND	0.208	10.0	"		ND				20	U
Hydroxide Alkalinity	ND	0.208	10.0	"		ND				20	U
Total Alkalinity	6.38	0.208	10.0	"		6.52			2.17	20	J

Batch 3100725: Prepared 10/20/03 Using Wet Chem

Blank (3100725-BLK1)

Bicarbonate Alkalinity	ND	0.208	10.0	mg/L as CaCO ₃							U
Carbonate Alkalinity	ND	0.208	10.0	"							U
Hydroxide Alkalinity	ND	0.208	10.0	"							U
Total Alkalinity	ND	0.208	10.0	"							U

LCS (3100725-BS1)

Bicarbonate Alkalinity	91.3	0.208	10.0	mg/L as CaCO ₃	100		91.3	85-115			
Carbonate Alkalinity	105	0.208	10.0	"	100		105	85-115			
Total Alkalinity	196	0.208	10.0	"	200		98.0	85-115			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Total Alkalinity by Conventional Chemistry Parameters per APHA/EPA Methods - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100725: Prepared 10/20/03 Using Wet Chem

Duplicate (3100725-DUP1)

Source: P3J0585-02

Bicarbonate Alkalinity	159	0.208	10.0	mg/L as CaCO ₃		157		1.27	20	
Carbonate Alkalinity	ND	0.208	10.0	"		ND			20	U
Hydroxide Alkalinity	ND	0.208	10.0	"		ND			20	U
Total Alkalinity	159	0.208	10.0	"		157		1.27	20	

North Creek Analytical - Portland

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Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3J23034: Prepared 10/23/03 Using EPA 3010A

Blank (3J23034-BLK1)

Calcium	0.0442	0.0360	0.250	mg/l							J
Iron	ND	0.0620	0.150	"							U
Magnesium	0.0532	0.0180	0.500	"							J
Potassium	ND	0.255	2.00	"							U
Sodium	ND	0.0420	0.250	"							U

LCS (3J23034-BS1)

Calcium	5.19	0.0360	0.250	mg/l	5.00		104	80-120			
Iron	5.15	0.0620	0.150	"	5.00		103	80-120			
Magnesium	5.23	0.0180	0.500	"	5.00		105	80-120			
Potassium	10.7	0.255	2.00	"	10.0		107	80-120			
Sodium	5.06	0.0420	0.250	"	5.00		101	80-120			

LCS Dup (3J23034-BSD1)

Calcium	5.10	0.0360	0.250	mg/l	5.00		102	80-120	1.75	20	
Iron	5.04	0.0620	0.150	"	5.00		101	80-120	2.16	20	
Magnesium	5.13	0.0180	0.500	"	5.00		103	80-120	1.93	20	
Potassium	10.8	0.255	2.00	"	10.0		108	80-120	0.930	20	
Sodium	4.94	0.0420	0.250	"	5.00		98.8	80-120	2.40	20	

Matrix Spike (3J23034-MS1)

Source: P3J0539-06

Calcium	48.7	0.0360	0.250	mg/l	5.00	40.6	162	75-125			Q-03
Iron	42.2	0.0620	0.150	"	5.00	35.0	144	75-125			Q-03
Magnesium	19.6	0.0180	0.500	"	5.00	13.6	120	80-120			
Potassium	16.2	0.255	2.00	"	10.0	5.33	109	80-120			
Sodium	14.2	0.0420	0.250	"	5.00	8.68	110	75-125			

Matrix Spike (3J23034-MS2)

Source: B3J0556-06

Calcium	14.8	0.0360	0.250	mg/l	5.00	9.06	115	75-125			
Iron	11.4	0.0620	0.150	"	5.00	5.93	109	75-125			
Magnesium	12.1	0.0180	0.500	"	5.00	6.62	110	80-120			
Potassium	15.5	0.255	2.00	"	10.0	4.94	106	80-120			
Sodium	13.5	0.0420	0.250	"	5.00	8.04	109	75-125			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3J23034: Prepared 10/23/03 Using EPA 3010A

Matrix Spike Dup (3J23034-MSD1)

Source: P3J0539-06

Calcium	47.8	0.0360	0.250	mg/l	5.00	40.6	144	75-125	1.87	20	Q-03
Iron	41.4	0.0620	0.150	"	5.00	35.0	128	75-125	1.91	20	Q-03
Magnesium	19.3	0.0180	0.500	"	5.00	13.6	114	80-120	1.54	20	
Potassium	16.3	0.255	2.00	"	10.0	5.33	110	80-120	0.615	20	
Sodium	13.9	0.0420	0.250	"	5.00	8.68	104	75-125	2.14	20	

Matrix Spike Dup (3J23034-MSD2)

Source: B3J0556-06

Calcium	14.5	0.0360	0.250	mg/l	5.00	9.06	109	75-125	2.05	20	
Iron	11.2	0.0620	0.150	"	5.00	5.93	105	75-125	1.77	20	
Magnesium	11.8	0.0180	0.500	"	5.00	6.62	104	80-120	2.51	20	
Potassium	15.1	0.255	2.00	"	10.0	4.94	102	80-120	2.61	20	
Sodium	13.1	0.0420	0.250	"	5.00	8.04	101	75-125	3.01	20	

Post Spike (3J23034-PS1)

Source: P3J0539-06

Calcium	45.9	0.0360	0.250	mg/l	5.00	40.6	106	75-125			
Iron	39.9	0.0620	0.150	"	5.00	35.0	98.0	75-125			
Magnesium	18.6	0.0180	0.500	"	5.00	13.6	100	75-125			
Potassium	15.3	0.255	2.00	"	10.0	5.33	99.7	75-125			
Sodium	13.5	0.0420	0.250	"	5.00	8.68	96.4	75-125			

Post Spike (3J23034-PS2)

Source: B3J0556-06

Calcium	14.2	0.0360	0.250	mg/l	5.00	9.06	103	75-125			
Iron	10.9	0.0620	0.150	"	5.00	5.93	99.4	75-125			
Magnesium	11.6	0.0180	0.500	"	5.00	6.62	99.6	75-125			
Potassium	14.7	0.255	2.00	"	10.0	4.94	97.6	75-125			
Sodium	12.8	0.0420	0.250	"	5.00	8.04	95.2	75-125			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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Environmental Laboratory Network

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/03/03 17:06

Notes and Definitions

- A-01 Detected hydrocarbons appear to be due primarily to the overlap of gasoline, however, there is weathered diesel, as well as biogenic interference also present.
- D Data reported from a preparation or analytical dilution.
- D-17 Detected hydrocarbons in the diesel range do not have a distinct diesel pattern and may be due to heavily weathered diesel or possibly biogenic interference.
- J Estimated value.
- Q-02 The spike recovery for this QC sample is outside of established control limits due to sample matrix interference.
- Q-03 The percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte already present in the sample.
- Q-06 Analyses are not controlled on RPD values from sample concentrations less than 5 times the reporting limit.
- Q-07 The recovery of this spike is outside control limits due to sample dilution required from high analyte concentration and/or matrix interferences.
- Q-15 Analyses are not controlled on matrix spike RPD and/or percent recoveries when the sample concentration is significantly higher than the spike level.
- R-03 The reporting limit for this analyte was raised due to matrix interference.
- U Analyte included in the analysis but not detected.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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Environmental Laboratory Network

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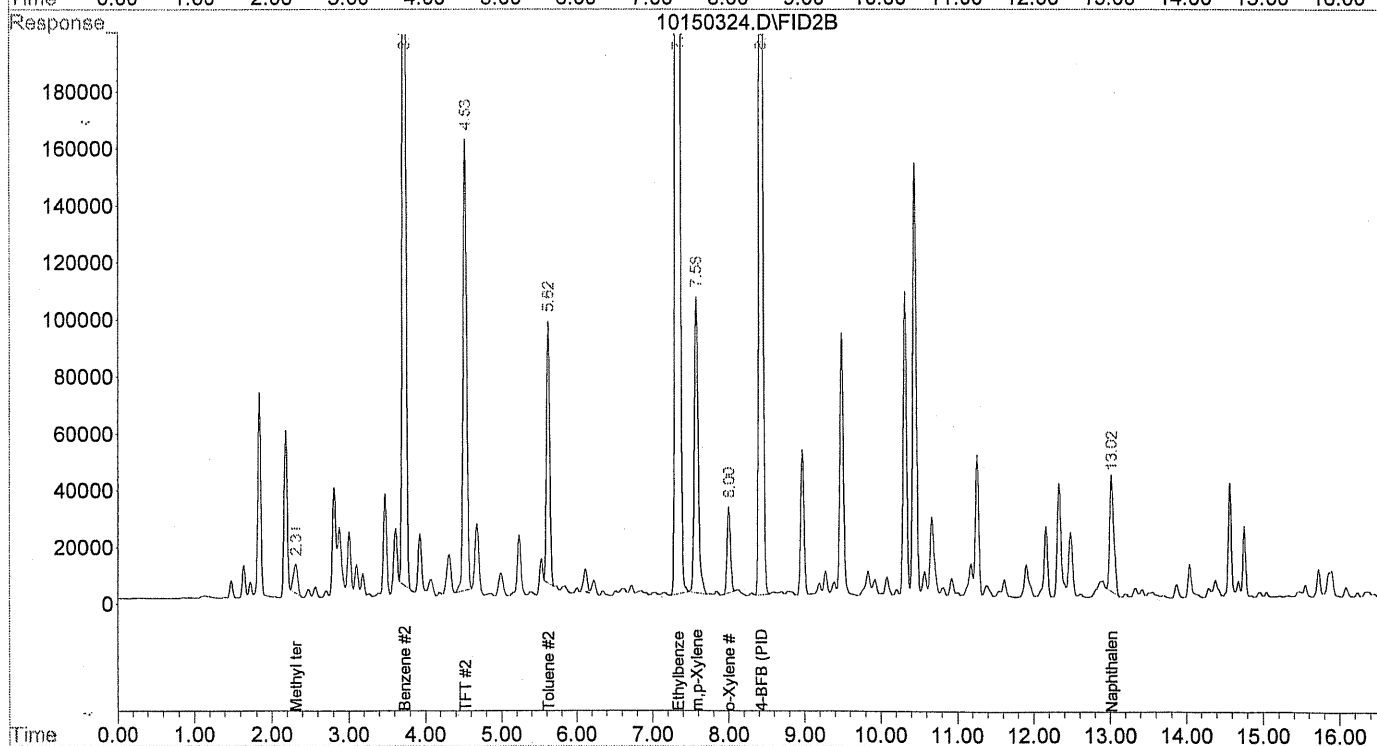
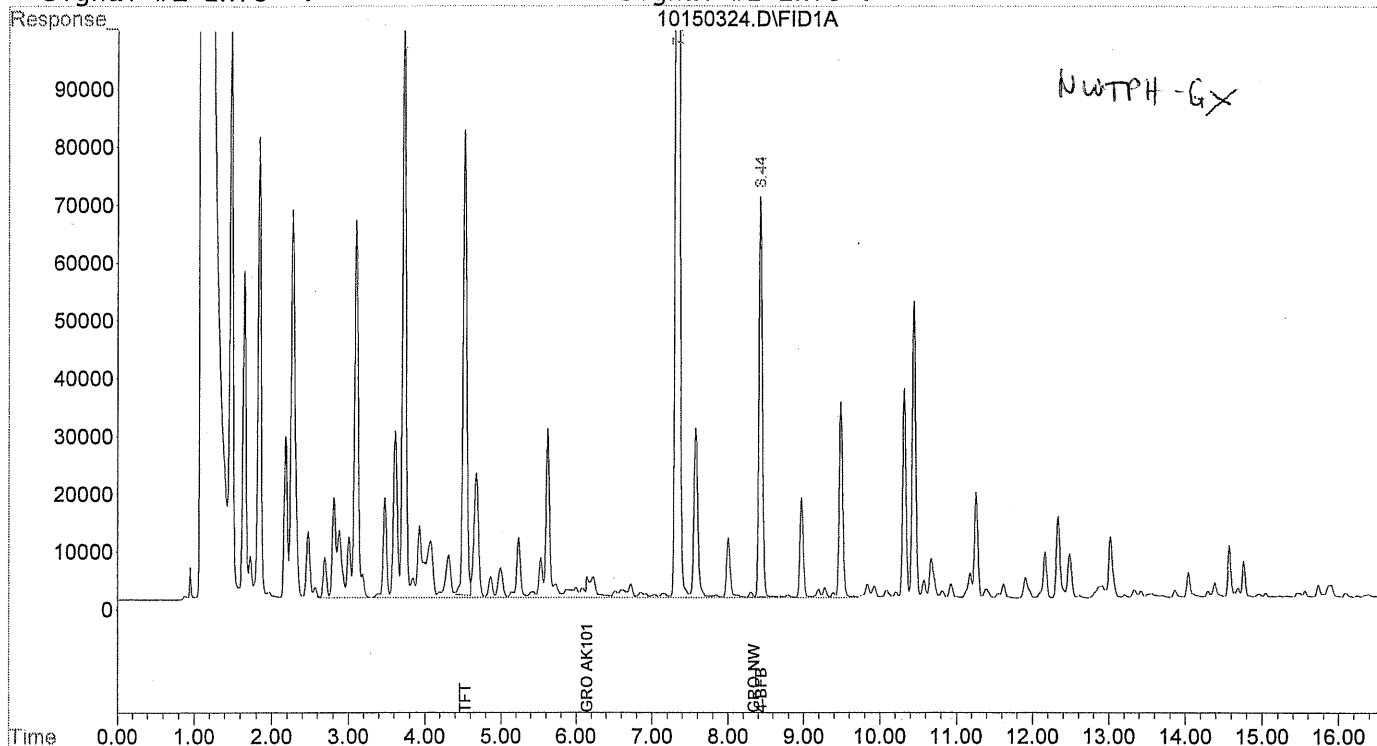
Fuels Raw Data

*NWTPH-Gx and NWTPH-Dx
Chromatograms*

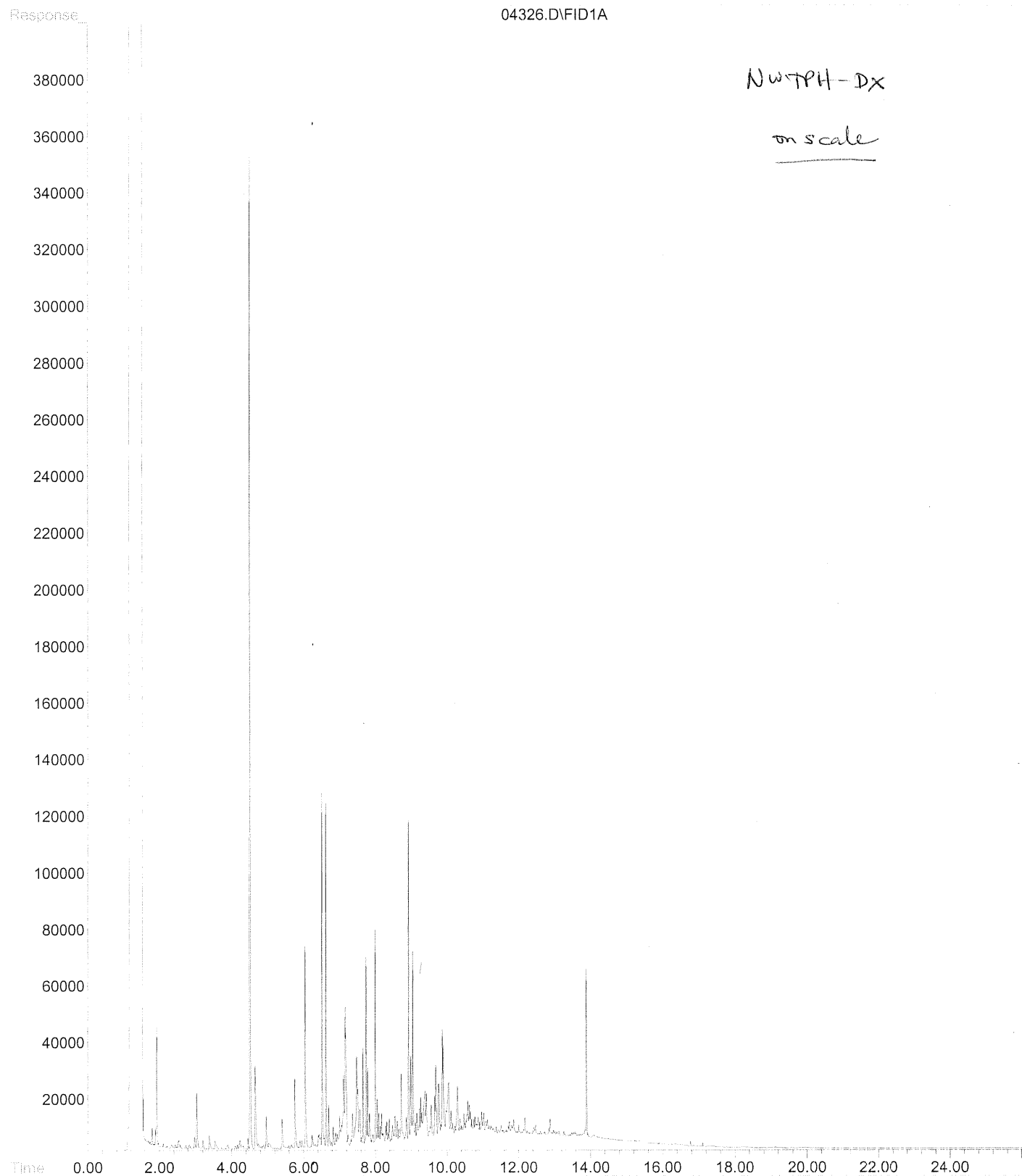
Signal #1 : C:\HPCHEM\2\DATA\101503\10150324.D\FID1A.CH al: 18
Signal #2 : C:\HPCHEM\2\DATA\101503\10150324.D\FID2B.CH
Acq On : 16 Oct 2003 4:15 Operator: AMB
Sample : P3J0539-06 ELR Inst : VolsgC2
Misc : 10x Multiplr: 1.00
IntFile Signal #1: autoint1.e IntFile Signal #2: autoint2.e
Quant Time: Oct 16 4:32 2003 Quant Results File: 030929.RES

Quant Method : C:\HPCHEM\2\METHODS\030929.M (Chemstation Integrator)
Title : G/BTEX NW&AK101
Last Update : Mon Sep 29 18:50:50 2003
Response via : Multiple Level Calibration
DataAcq Meth : 030929.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



File : D:\HPCHEM\2\DATA\031017\04326.D
Operator : AAC
Acquired : 17 Oct 2003 19:44 using AcqMethod NWF403.M
Instrument : DualFID2
Sample Name: P3J0539-06
Misc Info : 1X
Vial Number: 40



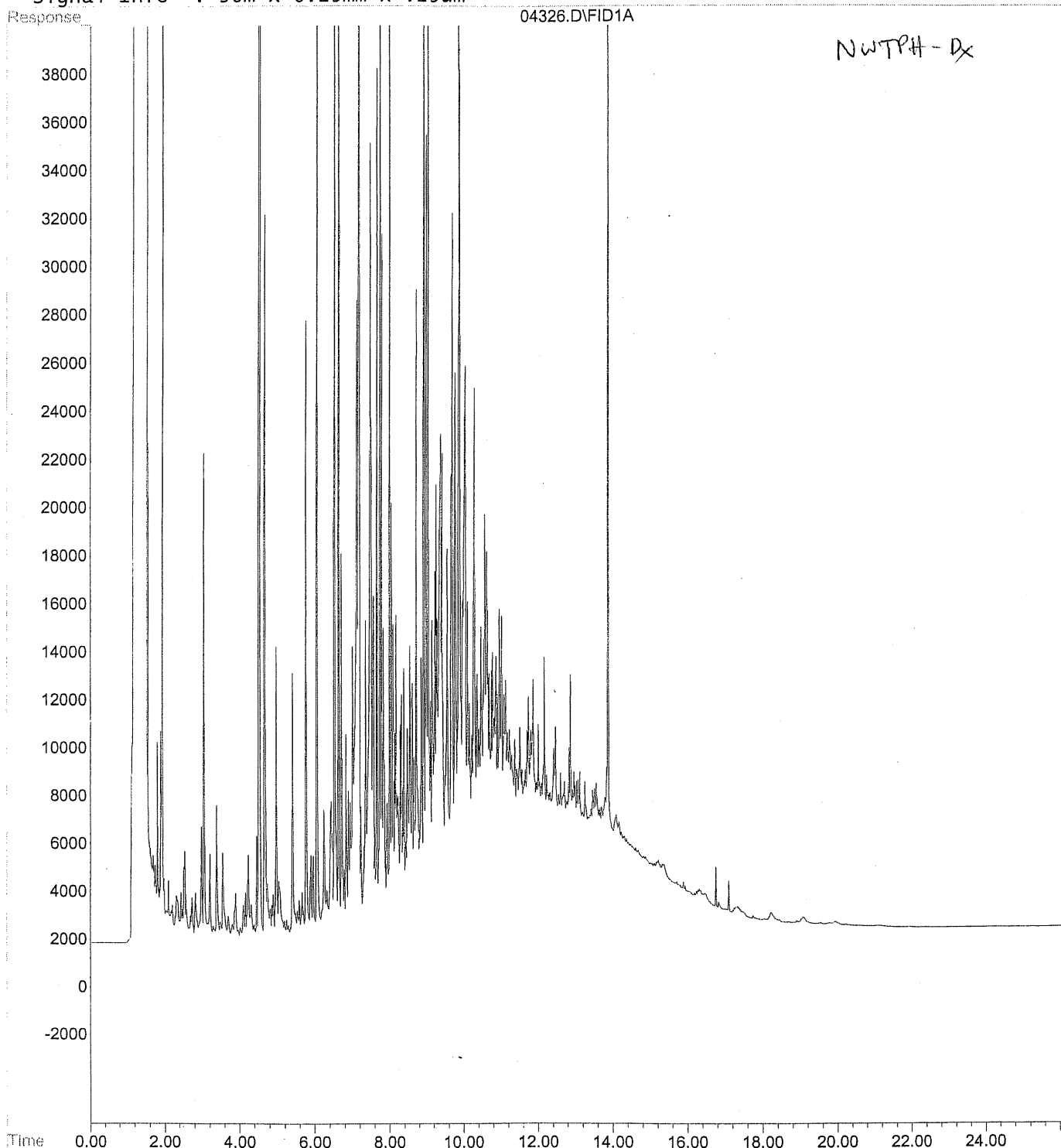
Quantitation Report

Data File : D:\HPCHEM\2\A\031017\04326.D
 Acq On : 17 Oct 2003 19:44
 Sample : P3J0539-06
 Misc : 1X
 IntFile : E1.E
 Quant Time: Oct 17 20:11 2003 Quant Results File: NWF403.RES

al: 40
 Operator: AAC
 Inst : DualFID2
 Multiplr: 1.00

Quant Method : D:\HPCHEM\2\METHODS\NWF403.M (Chemstation Integrator)
 Title : DUALFID2: Front Column TPH-D Methods
 Last Update : Mon Oct 13 12:22:41 2003
 Response via : Multiple Level Calibration
 DataAcq Meth : NWF403.M

Volume Inj. : 2uL
 Signal Phase : Restek XTI-5
 Signal Info : 30m x 0.25mm x .25um





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05 November 2003

Tom Calabrese
EnviroLogic Resources, Inc.
P.O. Box 80762
Portland, OR 97280-0762
RE: Astoria Area-Wide Petroleum Site RI-1

Enclosed are the results of analyses for samples received by the laboratory on 10/18/03 10:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Joy D. Chang
Project Manager



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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-42 (A)	P3J0654-01	Water	10/15/03 11:00	10/18/03 10:30
MW-2 (M)	P3J0654-02	Water	10/15/03 13:00	10/18/03 10:30
MW-10 (M)	P3J0654-03	Water	10/15/03 15:00	10/18/03 10:30
MW-11 (M)	P3J0654-04	Water	10/15/03 17:20	10/18/03 10:30
MW-30 (A)	P3J0654-05	Water	10/16/03 08:20	10/18/03 10:30
MW-22 (A)	P3J0654-06	Water	10/16/03 09:40	10/18/03 10:30
MW-35 (A)	P3J0654-07	Water	10/16/03 11:15	10/18/03 10:30
MW-39 (A)	P3J0654-08	Water	10/16/03 15:40	10/18/03 10:30
MW-31 (A)	P3J0654-09	Water	10/16/03 13:50	10/18/03 10:30
BM-31 (A)	P3J0654-10	Water	10/16/03 13:50	10/18/03 10:30
MW-45 (A)	P3J0654-11	Water	10/16/03 17:30	10/18/03 10:30
MW-37 (A)	P3J0654-12	Water	10/17/03 08:10	10/18/03 10:30
MW-40 (A)	P3J0654-13	Water	10/17/03 09:35	10/18/03 10:30
MW-44 (A)	P3J0654-14	Water	10/17/03 12:00	10/18/03 10:30
MW-17 (A)	P3J0654-15	Water	10/17/03 12:40	10/18/03 10:30
MW-28 (A)	P3J0654-16	Water	10/17/03 14:15	10/18/03 10:30
MW-26 (A)	P3J0654-17	Water	10/17/03 16:00	10/18/03 10:30
Trip Blank MW-2 (M)	P3J0654-19	Water	10/15/03 13:00	10/18/03 10:30
Trip Blank MW-45 (A)	P3J0654-28	Water	10/16/03 17:30	10/18/03 10:30
Trip Blank MW-40 (A)	P3J0654-30	Water	10/17/03 09:35	10/18/03 10:30

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Gasoline Hydrocarbons per NW TPH-Gx Method North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-42 (A) (P3J0654-01) Water Sampled: 10/15/03 11:00 Received: 10/18/03 10:30										
Gasoline Range Hydrocarbons	18900	2500	4000	ug/l	50	3100795	10/21/03	10/21/03	NW TPH-G	D
Surrogate: 4-BFB	105 %		50-150			"	"	"	"	
MW-2 (M) (P3J0654-02) Water Sampled: 10/15/03 13:00 Received: 10/18/03 10:30										
Gasoline Range Hydrocarbons	4510	250	400	ug/l	5	3100795	10/21/03	10/21/03	NW TPH-G	D
Surrogate: 4-BFB	143 %		50-150			"	"	"	"	
MW-10 (M) (P3J0654-03) Water Sampled: 10/15/03 15:00 Received: 10/18/03 10:30										
Gasoline Range Hydrocarbons	3360	250	400	ug/l	5	3100795	10/21/03	10/21/03	NW TPH-G	D
Surrogate: 4-BFB	124 %		50-150			"	"	"	"	
MW-11 (M) (P3J0654-04) Water Sampled: 10/15/03 17:20 Received: 10/18/03 10:30										
Gasoline Range Hydrocarbons	652	250	400	ug/l	5	3100795	10/21/03	10/21/03	NW TPH-G	D
Surrogate: 4-BFB	104 %		50-150			"	"	"	"	
MW-30 (A) (P3J0654-05) Water Sampled: 10/16/03 08:20 Received: 10/18/03 10:30										
Gasoline Range Hydrocarbons	14700	250	400	ug/l	5	3100795	10/21/03	10/21/03	NW TPH-G	D
Surrogate: 4-BFB	174 %		50-150			"	"	"	"	S-09
MW-22 (A) (P3J0654-06) Water Sampled: 10/16/03 09:40 Received: 10/18/03 10:30										
Gasoline Range Hydrocarbons	140	50.0	80.0	ug/l	1	3100795	10/21/03	10/21/03	NW TPH-G	
Surrogate: 4-BFB	104 %		50-150			"	"	"	"	
MW-35 (A) (P3J0654-07RE1) Water Sampled: 10/16/03 11:15 Received: 10/18/03 10:30										
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l	1	3100863	10/22/03	10/22/03	NW TPH-G	U
Surrogate: 4-BFB	99.0 %		50-150			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Gasoline Hydrocarbons per NW TPH-Gx Method
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-39 (A) (P3J0654-08) Water Sampled: 10/16/03 15:40 Received: 10/18/03 10:30										
Gasoline Range Hydrocarbons	518	50.0	80.0	ug/l	1	3100795	10/21/03	10/21/03	NW TPH-G	
Surrogate: 4-BFB	124 %		50-150			"	"	"	"	
MW-31 (A) (P3J0654-09RE1) Water Sampled: 10/16/03 13:50 Received: 10/18/03 10:30										
Gasoline Range Hydrocarbons	7200	500	800	ug/l	10	3100863	10/22/03	10/22/03	NW TPH-G	D
Surrogate: 4-BFB	120 %		50-150			"	"	"	"	
BM-31 (A) (P3J0654-10RE1) Water Sampled: 10/16/03 13:50 Received: 10/18/03 10:30										
Gasoline Range Hydrocarbons	7390	500	800	ug/l	10	3100863	10/22/03	10/23/03	NW TPH-G	D
Surrogate: 4-BFB	122 %		50-150			"	"	"	"	
MW-45 (A) (P3J0654-11) Water Sampled: 10/16/03 17:30 Received: 10/18/03 10:30										
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l	1	3100795	10/21/03	10/21/03	NW TPH-G	U
Surrogate: 4-BFB	99.8 %		50-150			"	"	"	"	
MW-37 (A) (P3J0654-12) Water Sampled: 10/17/03 08:10 Received: 10/18/03 10:30										
Gasoline Range Hydrocarbons	1350	50.0	80.0	ug/l	1	3100795	10/21/03	10/21/03	NW TPH-G	
Surrogate: 4-BFB	108 %		50-150			"	"	"	"	
MW-40 (A) (P3J0654-13) Water Sampled: 10/17/03 09:35 Received: 10/18/03 10:30										
Gasoline Range Hydrocarbons	8270	500	800	ug/l	10	3100795	10/21/03	10/21/03	NW TPH-G	D
Surrogate: 4-BFB	122 %		50-150			"	"	"	"	
MW-44 (A) (P3J0654-14RE1) Water Sampled: 10/17/03 12:00 Received: 10/18/03 10:30										
Gasoline Range Hydrocarbons	67700	5000	8000	ug/l	100	3100863	10/22/03	10/23/03	NW TPH-G	D
Surrogate: 4-BFB	104 %		50-150			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Gasoline Hydrocarbons per NW TPH-Gx Method
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-17 (A) (P3J0654-15) Water Sampled: 10/17/03 12:40 Received: 10/18/03 10:30										
Gasoline Range Hydrocarbons	740	50.0	80.0	ug/l	1	3100795	10/21/03	10/21/03	NW TPH-G	
<i>Surrogate: 4-BFB</i>	<i>115 %</i>		<i>50-150</i>			<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
MW-28 (A) (P3J0654-16) Water Sampled: 10/17/03 14:15 Received: 10/18/03 10:30										
Gasoline Range Hydrocarbons	2060	50.0	80.0	ug/l	1	3100795	10/21/03	10/21/03	NW TPH-G	
<i>Surrogate: 4-BFB</i>	<i>123 %</i>		<i>50-150</i>			<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
MW-26 (A) (P3J0654-17RE1) Water Sampled: 10/17/03 16:00 Received: 10/18/03 10:30										
Gasoline Range Hydrocarbons	8050	500	800	ug/l	10	3100863	10/22/03	10/23/03	NW TPH-G	D
<i>Surrogate: 4-BFB</i>	<i>111 %</i>		<i>50-150</i>			<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-42 (A) (P3J0654-01) Water Sampled: 10/15/03 11:00 Received: 10/18/03 10:30										
Diesel Range Organics	5.74	0.765	1.25	mg/l	5	3100729	10/20/03	10/20/03	NWTPH-Dx	A-01, D
Heavy Oil Range Hydrocarbons	ND	1.43	2.50	"	"	"	"	"	"	R-05, D, U
<i>Surrogate: 1-Chlorooctadecane</i>	<i>103 %</i>		<i>50-150</i>			"	"	"	"	<i>D</i>
MW-2 (M) (P3J0654-02) Water Sampled: 10/15/03 13:00 Received: 10/18/03 10:30										
Diesel Range Organics	3.26	0.153	0.250	mg/l	1	3100729	10/20/03	10/21/03	NWTPH-Dx	D-15
Heavy Oil Range Hydrocarbons	1.67	0.286	0.500	"	"	"	"	"	"	D-15
<i>Surrogate: 1-Chlorooctadecane</i>	<i>92.7 %</i>		<i>50-150</i>			"	"	"	"	
MW-10 (M) (P3J0654-03) Water Sampled: 10/15/03 15:00 Received: 10/18/03 10:30										
Diesel Range Organics	1.79	0.153	0.250	mg/l	1	3100729	10/20/03	10/21/03	NWTPH-Dx	D-15
Heavy Oil Range Hydrocarbons	0.302	0.286	0.500	"	"	"	"	"	"	J
<i>Surrogate: 1-Chlorooctadecane</i>	<i>106 %</i>		<i>50-150</i>			"	"	"	"	
MW-11 (M) (P3J0654-04) Water Sampled: 10/15/03 17:20 Received: 10/18/03 10:30										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100729	10/20/03	10/20/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
<i>Surrogate: 1-Chlorooctadecane</i>	<i>97.1 %</i>		<i>50-150</i>			"	"	"	"	
MW-30 (A) (P3J0654-05) Water Sampled: 10/16/03 08:20 Received: 10/18/03 10:30										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100832	10/23/03	10/23/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
<i>Surrogate: 1-Chlorooctadecane</i>	<i>79.1 %</i>		<i>50-150</i>			"	"	"	"	
MW-22 (A) (P3J0654-06) Water Sampled: 10/16/03 09:40 Received: 10/18/03 10:30										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100832	10/23/03	10/23/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
<i>Surrogate: 1-Chlorooctadecane</i>	<i>76.8 %</i>		<i>50-150</i>			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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North Creek Analytical, Inc.
Environmental Laboratory Network

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-35 (A) (P3J0654-07) Water Sampled: 10/16/03 11:15 Received: 10/18/03 10:30										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100832	10/23/03	10/23/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	78.0 %		50-150			"	"	"	"	
MW-39 (A) (P3J0654-08) Water Sampled: 10/16/03 15:40 Received: 10/18/03 10:30										
Diesel Range Organics	1.25	0.153	0.250	mg/l	1	3100832	10/23/03	10/23/03	NWTPH-Dx	D-15
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	90.1 %		50-150			"	"	"	"	
MW-31 (A) (P3J0654-09) Water Sampled: 10/16/03 13:50 Received: 10/18/03 10:30										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100832	10/23/03	10/23/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	83.1 %		50-150			"	"	"	"	
BM-31 (A) (P3J0654-10) Water Sampled: 10/16/03 13:50 Received: 10/18/03 10:30										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100832	10/23/03	10/23/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	80.9 %		50-150			"	"	"	"	
MW-45 (A) (P3J0654-11) Water Sampled: 10/16/03 17:30 Received: 10/18/03 10:30										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100832	10/23/03	10/23/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	81.5 %		50-150			"	"	"	"	
MW-37 (A) (P3J0654-12) Water Sampled: 10/17/03 08:10 Received: 10/18/03 10:30										
Diesel Range Organics	0.174	0.153	0.250	mg/l	1	3100832	10/23/03	10/23/03	NWTPH-Dx	J
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	72.3 %		50-150			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method
North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-40 (A) (P3J0654-13) Water Sampled: 10/17/03 09:35 Received: 10/18/03 10:30										
Diesel Range Organics	3.66	0.153	0.250	mg/l	1	3100832	10/23/03	10/23/03	NWTPH-Dx	A-02
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	77.6 %		50-150			"	"	"	"	
MW-44 (A) (P3J0654-14) Water Sampled: 10/17/03 12:00 Received: 10/18/03 10:30										
Diesel Range Organics	5.78	0.153	0.250	mg/l	1	3100832	10/23/03	10/23/03	NWTPH-Dx	D-15
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	83.9 %		50-150			"	"	"	"	
MW-17 (A) (P3J0654-15) Water Sampled: 10/17/03 12:40 Received: 10/18/03 10:30										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100832	10/23/03	10/23/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	56.4 %		50-150			"	"	"	"	
MW-28 (A) (P3J0654-16) Water Sampled: 10/17/03 14:15 Received: 10/18/03 10:30										
Diesel Range Organics	2.13	0.153	0.250	mg/l	1	3100832	10/23/03	10/23/03	NWTPH-Dx	A-02
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	99.9 %		50-150			"	"	"	"	
MW-26 (A) (P3J0654-17) Water Sampled: 10/17/03 16:00 Received: 10/18/03 10:30										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100832	10/23/03	10/23/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	76.3 %		50-150			"	"	"	"	

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

**Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-42 (A) (P3J0654-01) Water Sampled: 10/15/03 11:00 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101129	10/29/03	11/01/03	EPA 6020	U
Arsenic	0.0372	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0436	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.00466	0.000791	0.00100	"	"	"	"	"	"	
Mercury	ND	0.0000358	0.000200	"	"	3101103	10/29/03	10/29/03	EPA 7470A	U
Manganese	2.62	0.0000680	0.0100	"	5	3101129	10/29/03	11/04/03	EPA 6020	D
Lead	0.00275	0.0000870	0.00100	"	1	"	"	11/01/03	"	
Selenium	0.000710	0.000566	0.00100	"	"	"	"	"	"	J
MW-2 (M) (P3J0654-02) Water Sampled: 10/15/03 13:00 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101129	10/29/03	11/01/03	EPA 6020	U
Arsenic	0.0216	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0320	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.00498	0.000791	0.00100	"	"	"	"	"	"	
Mercury	ND	0.0000358	0.000200	"	"	3101103	10/29/03	10/29/03	EPA 7470A	U
Manganese	1.69	0.0000680	0.0100	"	5	3101129	10/29/03	11/04/03	EPA 6020	D
Lead	0.00872	0.0000870	0.00100	"	1	"	"	11/01/03	"	
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U
MW-10 (M) (P3J0654-03) Water Sampled: 10/15/03 15:00 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101129	10/29/03	11/01/03	EPA 6020	U
Arsenic	0.0257	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.111	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	0.000700	0.000178	0.00100	"	"	"	"	"	"	J
Chromium	0.0133	0.000791	0.00100	"	"	"	"	"	"	
Mercury	0.000262	0.0000358	0.000200	"	"	3101103	10/29/03	10/29/03	EPA 7470A	
Manganese	1.32	0.0000680	0.0100	"	5	3101129	10/29/03	11/04/03	EPA 6020	D
Lead	0.0115	0.0000870	0.00100	"	1	"	"	11/01/03	"	
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Total Metals per EPA 6000/7000 Series Methods North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-11 (M) (P3J0654-04) Water Sampled: 10/15/03 17:20 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101129	10/29/03	11/01/03	EPA 6020	U
Arsenic	0.0139	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0103	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3101103	10/29/03	10/29/03	EPA 7470A	U
Manganese	0.473	0.0000136	0.00200	"	"	3101129	10/29/03	11/04/03	EPA 6020	
Lead	ND	0.0000870	0.00100	"	"	"	"	11/01/03	"	U
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U
MW-30 (A) (P3J0654-05) Water Sampled: 10/16/03 08:20 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101129	10/29/03	11/01/03	EPA 6020	U
Arsenic	0.00795	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0654	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.00653	0.000791	0.00100	"	"	"	"	"	"	
Mercury	0.000248	0.0000358	0.000200	"	"	3101103	10/29/03	10/29/03	EPA 7470A	
Manganese	1.47	0.0000680	0.0100	"	5	3101129	10/29/03	11/04/03	EPA 6020	D
Lead	0.00370	0.0000870	0.00100	"	1	"	"	11/01/03	"	
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U
MW-22 (A) (P3J0654-06) Water Sampled: 10/16/03 09:40 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101129	10/29/03	11/01/03	EPA 6020	U
Arsenic	0.00147	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0241	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.00145	0.000791	0.00100	"	"	"	"	"	"	
Mercury	ND	0.0000358	0.000200	"	"	3101103	10/29/03	10/29/03	EPA 7470A	U
Lead	0.000690	0.0000870	0.00100	"	"	3101129	10/29/03	11/01/03	EPA 6020	J
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

**Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-35 (A) (P3J0654-07) Water Sampled: 10/16/03 11:15 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101129	10/29/03	10/31/03	EPA 6020	U
Arsenic	0.00102	0.000964	0.00100	"	"	"	"	11/01/03	"	
Barium	0.0136	0.0000910	0.00100	"	"	"	"	10/31/03	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.00150	0.000791	0.00100	"	"	"	"	"	"	
Mercury	ND	0.0000358	0.000200	"	"	3101103	10/29/03	10/29/03	EPA 7470A	U
Manganese	0.206	0.0000136	0.00200	"	"	3101129	10/29/03	10/31/03	EPA 6020	
Lead	0.000240	0.0000870	0.00100	"	"	"	"	"	"	J
Selenium	ND	0.000566	0.00100	"	"	"	"	11/01/03	"	U
MW-39 (A) (P3J0654-08) Water Sampled: 10/16/03 15:40 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101129	10/29/03	11/01/03	EPA 6020	U
Arsenic	0.00165	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.00754	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3101103	10/29/03	10/29/03	EPA 7470A	U
Lead	0.000190	0.0000870	0.00100	"	"	3101129	10/29/03	11/01/03	EPA 6020	J
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U
MW-31 (A) (P3J0654-09) Water Sampled: 10/16/03 13:50 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101129	10/29/03	11/01/03	EPA 6020	U
Arsenic	0.0133	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0265	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.000910	0.000791	0.00100	"	"	"	"	"	"	J
Mercury	ND	0.0000358	0.000200	"	"	3101103	10/29/03	10/29/03	EPA 7470A	U
Manganese	1.70	0.0000680	0.0100	"	5	3101129	10/29/03	11/04/03	EPA 6020	D
Lead	0.000560	0.0000870	0.00100	"	1	"	"	11/01/03	"	J
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

**Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BM-31 (A) (P3J0654-10) Water Sampled: 10/16/03 13:50 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101129	10/29/03	11/01/03	EPA 6020	U
Arsenic	0.0139	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0271	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.000960	0.000791	0.00100	"	"	"	"	"	"	J
Mercury	ND	0.0000358	0.000200	"	"	3101103	10/29/03	10/29/03	EPA 7470A	U
Manganese	1.75	0.0000680	0.0100	"	5	3101129	10/29/03	11/04/03	EPA 6020	D
Lead	0.000260	0.0000870	0.00100	"	1	"	"	11/01/03	"	J
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U
MW-45 (A) (P3J0654-11) Water Sampled: 10/16/03 17:30 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101129	10/29/03	11/01/03	EPA 6020	U
Arsenic	0.00655	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.00855	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.00111	0.000791	0.00100	"	"	"	"	"	"	
Mercury	ND	0.0000358	0.000200	"	"	3101103	10/29/03	10/29/03	EPA 7470A	U
Lead	0.000540	0.0000870	0.00100	"	"	3101129	10/29/03	11/01/03	EPA 6020	J
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U
MW-37 (A) (P3J0654-12) Water Sampled: 10/17/03 08:10 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101129	10/29/03	11/01/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0275	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.000930	0.000791	0.00100	"	"	"	"	"	"	J
Mercury	ND	0.0000358	0.000200	"	"	3101103	10/29/03	10/29/03	EPA 7470A	U
Lead	0.000580	0.0000870	0.00100	"	"	3101129	10/29/03	11/01/03	EPA 6020	J
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U

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Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

**Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-40 (A) (P3J0654-13) Water Sampled: 10/17/03 09:35 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101129	10/29/03	11/01/03	EPA 6020	U
Arsenic	0.00381	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0462	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.00542	0.000791	0.00100	"	"	"	"	"	"	
Mercury	ND	0.0000358	0.000200	"	"	3101103	10/29/03	10/29/03	EPA 7470A	U
Manganese	1.44	0.0000680	0.0100	"	5	3101129	10/29/03	11/04/03	EPA 6020	D
Lead	0.00295	0.0000870	0.00100	"	1	"	"	11/01/03	"	
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U
MW-44 (A) (P3J0654-14) Water Sampled: 10/17/03 12:00 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101129	10/29/03	11/01/03	EPA 6020	U
Arsenic	0.0122	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0147	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.000850	0.000791	0.00100	"	"	"	"	"	"	J
Mercury	ND	0.0000358	0.000200	"	"	3101103	10/29/03	10/29/03	EPA 7470A	U
Manganese	0.540	0.0000136	0.00200	"	"	3101129	10/29/03	11/04/03	EPA 6020	
Lead	0.000860	0.0000870	0.00100	"	"	"	"	11/01/03	"	J
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U
MW-17 (A) (P3J0654-15) Water Sampled: 10/17/03 12:40 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101129	10/29/03	11/01/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0493	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.00258	0.000791	0.00100	"	"	"	"	"	"	
Mercury	ND	0.0000358	0.000200	"	"	3101103	10/29/03	10/29/03	EPA 7470A	U
Manganese	0.991	0.0000680	0.0100	"	5	3101129	10/29/03	11/04/03	EPA 6020	D
Lead	0.00165	0.0000870	0.00100	"	1	"	"	11/01/03	"	
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-28 (A) (P3J0654-16) Water Sampled: 10/17/03 14:15 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101129	10/29/03	11/01/03	EPA 6020	U
Arsenic	0.00345	0.000964	0.00500	"	"	"	"	"	"	J
Barium	0.112	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.0128	0.000791	0.00100	"	"	"	"	"	"	
Mercury	ND	0.0000358	0.000200	"	"	3101103	10/29/03	10/29/03	EPA 7470A	U
Lead	0.0464	0.0000870	0.00100	"	"	3101129	10/29/03	11/01/03	EPA 6020	
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U
MW-26 (A) (P3J0654-17) Water Sampled: 10/17/03 16:00 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101129	10/29/03	11/01/03	EPA 6020	U
Arsenic	0.00104	0.000964	0.00500	"	"	"	"	"	"	J
Barium	0.0593	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.00137	0.000791	0.00100	"	"	"	"	"	"	
Mercury	0.000223	0.0000358	0.000200	"	"	3101103	10/29/03	10/29/03	EPA 7470A	
Lead	0.00197	0.0000870	0.00100	"	"	3101129	10/29/03	11/01/03	EPA 6020	
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-42 (A) (P3J0654-01) Water Sampled: 10/15/03 11:00 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101130	10/29/03	11/03/03	EPA 6020	U
Arsenic	0.0356	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0202	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	0.000120	0.0000358	0.000200	"	"	3100767	10/20/03	10/20/03	EPA 7470A	J
Lead	0.000480	0.0000870	0.00100	"	"	3101130	10/29/03	11/03/03	EPA 6020	J
Selenium	0.00107	0.000566	0.00200	"	"	"	"	"	"	J
MW-2 (M) (P3J0654-02) Water Sampled: 10/15/03 13:00 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101130	10/29/03	11/03/03	EPA 6020	U
Arsenic	0.0193	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0118	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	0.00137	0.000791	0.00100	"	"	"	"	"	"	
Mercury	0.0000460	0.0000358	0.000200	"	"	3100767	10/20/03	10/20/03	EPA 7470A	J
Lead	0.00203	0.0000870	0.00100	"	"	3101130	10/29/03	11/03/03	EPA 6020	
Selenium	0.000790	0.000566	0.00200	"	"	"	"	"	"	J
MW-11 (M) (P3J0654-04) Water Sampled: 10/15/03 17:20 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101130	10/29/03	11/03/03	EPA 6020	U
Arsenic	0.0148	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0100	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	0.000140	0.0000730	0.00100	"	"	"	"	"	"	J
Chromium	0.00102	0.000791	0.00100	"	"	"	"	"	"	
Mercury	0.0000430	0.0000358	0.000200	"	"	3100767	10/20/03	10/20/03	EPA 7470A	J
Lead	0.000240	0.0000870	0.00100	"	"	3101130	10/29/03	11/03/03	EPA 6020	J
Selenium	0.000680	0.000566	0.00200	"	"	"	"	"	"	J

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-30 (A) (P3J0654-05) Water Sampled: 10/16/03 08:20 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101130	10/29/03	11/03/03	EPA 6020	U
Arsenic	0.00693	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0276	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	0.00125	0.000791	0.00100	"	"	"	"	"	"	
Mercury	0.0000630	0.0000358	0.000200	"	"	3100767	10/20/03	10/20/03	EPA 7470A	J
Lead	0.000440	0.0000870	0.00100	"	"	3101130	10/29/03	11/03/03	EPA 6020	J
Selenium	0.000790	0.000566	0.00200	"	"	"	"	"	"	J
MW-22 (A) (P3J0654-06) Water Sampled: 10/16/03 09:40 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101130	10/29/03	11/03/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0170	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	0.00104	0.000791	0.00100	"	"	"	"	"	"	
Mercury	0.0000600	0.0000358	0.000200	"	"	3100767	10/20/03	10/20/03	EPA 7470A	J
Lead	0.000190	0.0000870	0.00100	"	"	3101130	10/29/03	11/03/03	EPA 6020	J
Selenium	0.000710	0.000566	0.00200	"	"	"	"	"	"	J
MW-35 (A) (P3J0654-07) Water Sampled: 10/16/03 11:15 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101130	10/29/03	11/03/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0132	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	0.000920	0.000791	0.00100	"	"	"	"	"	"	J
Mercury	0.0000460	0.0000358	0.000200	"	"	3100767	10/20/03	10/20/03	EPA 7470A	J
Lead	ND	0.0000870	0.00100	"	"	3101130	10/29/03	11/03/03	EPA 6020	U
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-39 (A) (P3J0654-08) Water Sampled: 10/16/03 15:40 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101130	10/29/03	11/03/03	EPA 6020	U
Arsenic	0.00179	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.00683	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	0.000860	0.000791	0.00100	"	"	"	"	"	"	J
Mercury	0.0000600	0.0000358	0.000200	"	"	3100767	10/20/03	10/20/03	EPA 7470A	J
Lead	0.000190	0.0000870	0.00100	"	"	3101130	10/29/03	11/03/03	EPA 6020	J
Selenium	0.00111	0.000566	0.00100	"	"	"	"	"	"	
MW-31 (A) (P3J0654-09) Water Sampled: 10/16/03 13:50 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101130	10/29/03	11/03/03	EPA 6020	U
Arsenic	0.0153	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0252	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	0.00111	0.000791	0.00100	"	"	"	"	"	"	
Mercury	0.0000930	0.0000358	0.000200	"	"	3100767	10/20/03	10/20/03	EPA 7470A	J
Lead	0.000180	0.0000870	0.00100	"	"	3101130	10/29/03	11/03/03	EPA 6020	J
Selenium	0.000980	0.000566	0.00100	"	"	"	"	"	"	J
BM-31 (A) (P3J0654-10) Water Sampled: 10/16/03 13:50 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101130	10/29/03	11/03/03	EPA 6020	U
Arsenic	0.0133	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0233	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	0.000990	0.000791	0.00100	"	"	"	"	"	"	J
Mercury	ND	0.0000358	0.000200	"	"	3100767	10/20/03	10/20/03	EPA 7470A	U
Lead	ND	0.0000870	0.00100	"	"	3101130	10/29/03	11/03/03	EPA 6020	U
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U

North Creek Analytical - Portland

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Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Dissolved Metals per EPA 6000/7000 Series Methods North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-45 (A) (P3J0654-11) Water Sampled: 10/16/03 17:30 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101130	10/29/03	11/03/03	EPA 6020	U
Arsenic	0.00225	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.00379	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	0.000970	0.000791	0.00100	"	"	"	"	"	"	J
Mercury	ND	0.0000358	0.000200	"	"	3100767	10/20/03	10/20/03	EPA 7470A	U
Lead	0.000160	0.0000870	0.00100	"	"	3101130	10/29/03	11/03/03	EPA 6020	J
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U
MW-37 (A) (P3J0654-12) Water Sampled: 10/17/03 08:10 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101130	10/29/03	11/03/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0248	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	0.00203	0.000791	0.00100	"	"	"	"	"	"	
Mercury	0.0000750	0.0000358	0.000200	"	"	3100767	10/20/03	10/20/03	EPA 7470A	J
Lead	0.000410	0.0000870	0.00100	"	"	3101130	10/29/03	11/03/03	EPA 6020	J
Selenium	0.000860	0.000566	0.00100	"	"	"	"	"	"	J
MW-40 (A) (P3J0654-13) Water Sampled: 10/17/03 09:35 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101130	10/29/03	11/03/03	EPA 6020	U
Arsenic	0.00186	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0222	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	0.00130	0.000791	0.00100	"	"	"	"	"	"	
Mercury	0.0000630	0.0000358	0.000200	"	"	3100767	10/20/03	10/20/03	EPA 7470A	J
Lead	0.000270	0.0000870	0.00100	"	"	3101130	10/29/03	11/03/03	EPA 6020	J
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Dissolved Metals per EPA 6000/7000 Series Methods North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-44 (A) (P3J0654-14) Water Sampled: 10/17/03 12:00 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101130	10/29/03	11/03/03	EPA 6020	U
Arsenic	0.0119	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0130	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	0.00109	0.000791	0.00100	"	"	"	"	"	"	
Mercury	0.0000720	0.0000358	0.000200	"	"	3100767	10/20/03	10/20/03	EPA 7470A	J
Lead	0.000290	0.0000870	0.00100	"	"	3101130	10/29/03	11/03/03	EPA 6020	J
Selenium	0.000620	0.000566	0.00100	"	"	"	"	"	"	J
MW-17 (A) (P3J0654-15) Water Sampled: 10/17/03 12:40 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101130	10/29/03	11/03/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0362	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3100767	10/20/03	10/20/03	EPA 7470A	U
Lead	0.000100	0.0000870	0.00100	"	"	3101130	10/29/03	11/03/03	EPA 6020	J
Selenium	0.000840	0.000566	0.00100	"	"	"	"	"	"	J
MW-28 (A) (P3J0654-16) Water Sampled: 10/17/03 14:15 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101130	10/29/03	11/03/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0381	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	0.0000490	0.0000358	0.000200	"	"	3100767	10/20/03	10/20/03	EPA 7470A	J
Lead	0.00102	0.0000870	0.00100	"	"	3101130	10/29/03	11/03/03	EPA 6020	
Selenium	0.000820	0.000566	0.00100	"	"	"	"	"	"	J

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

**Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-26 (A) (P3J0654-17) Water Sampled: 10/17/03 16:00 Received: 10/18/03 10:30										
Silver	ND	0.0000460	0.00100	mg/l	1	3101130	10/29/03	11/03/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0520	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	0.0000990	0.0000358	0.000200	"	"	3100767	10/20/03	10/20/03	EPA 7470A	J
Lead	0.00116	0.0000870	0.00100	"	"	3101130	10/29/03	11/03/03	EPA 6020	
Selenium	0.000660	0.000566	0.00100	"	"	"	"	"	"	J

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-42 (A) (P3J0654-01) Water Sampled: 10/15/03 11:00 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	3.74	10.0	ug/l	20	3100972	10/24/03	10/25/03	EPA 8260B	D, U
1,2-Dichloroethane	ND	2.84	10.0	"	"	"	"	"	"	D, U
Benzene	3020	2.94	10.0	"	"	"	"	"	"	D
Toluene	163	3.10	10.0	"	"	"	"	"	"	D
Ethylbenzene	1850	2.20	10.0	"	"	"	"	"	"	D
Xylenes (total)	370	5.24	20.0	"	"	"	"	"	"	D
Methyl tert-butyl ether	ND	1.73	40.0	"	"	"	"	"	"	D, U
Naphthalene	190	1.98	40.0	"	"	"	"	"	"	D
1,2,4-Trimethylbenzene	44.8	1.77	20.0	"	"	"	"	"	"	D
1,3,5-Trimethylbenzene	11.2	3.14	10.0	"	"	"	"	"	"	D
Isopropylbenzene	63.4	2.14	40.0	"	"	"	"	"	"	D
n-Propylbenzene	226	2.76	10.0	"	"	"	"	"	"	D
Surrogate: 4-BFB	102 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	92.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	94.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	98.5 %		80-120			"	"	"	"	

MW-2 (M) (P3J0654-02) Water Sampled: 10/15/03 13:00 Received: 10/18/03 10:30

1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100972	10/24/03	10/25/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	125	0.147	0.500	"	"	"	"	"	"	
Toluene	8.50	0.155	0.500	"	"	"	"	"	"	
Ethylbenzene	92.6	0.110	0.500	"	"	"	"	"	"	
Xylenes (total)	21.3	0.262	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	125	0.0989	2.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	2.23	0.0884	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	42.9	0.107	2.00	"	"	"	"	"	"	
n-Propylbenzene	159	0.138	0.500	"	"	"	"	"	"	
Surrogate: 4-BFB	104 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	96.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	96.5 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	95.0 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-10 (M) (P3J0654-03) Water Sampled: 10/15/03 15:00 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	9.35	25.0	ug/l	50	3100972	10/24/03	10/25/03	EPA 8260B	D, U
1,2-Dichloroethane	ND	7.10	25.0	"	"	"	"	"	"	D, U
Benzene	7970	7.35	25.0	"	"	"	"	"	"	D
Toluene	482	7.75	25.0	"	"	"	"	"	"	D
Ethylbenzene	4560	5.50	25.0	"	"	"	"	"	"	D
Xylenes (total)	1240	13.1	50.0	"	"	"	"	"	"	D
Methyl tert-butyl ether	ND	4.32	100	"	"	"	"	"	"	D, U
Naphthalene	1630	4.94	100	"	"	"	"	"	"	D
1,2,4-Trimethylbenzene	158	4.42	50.0	"	"	"	"	"	"	D
1,3,5-Trimethylbenzene	33.5	7.85	25.0	"	"	"	"	"	"	D
Isopropylbenzene	462	5.35	100	"	"	"	"	"	"	D
n-Propylbenzene	1210	6.90	25.0	"	"	"	"	"	"	D
Surrogate: 4-BFB	102 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	92.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	92.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	90.5 %		80-120			"	"	"	"	
MW-11 (M) (P3J0654-04) Water Sampled: 10/15/03 17:20 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100972	10/24/03	10/24/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	11.6	0.147	0.500	"	"	"	"	"	"	
Toluene	0.960	0.155	0.500	"	"	"	"	"	"	
Ethylbenzene	0.380	0.110	0.500	"	"	"	"	"	"	J
Xylenes (total)	8.39	0.262	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	0.660	0.0989	2.00	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	0.300	0.0884	1.00	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	0.310	0.157	0.500	"	"	"	"	"	"	J
Isopropylbenzene	4.37	0.107	2.00	"	"	"	"	"	"	
n-Propylbenzene	7.48	0.138	0.500	"	"	"	"	"	"	
Surrogate: 4-BFB	104 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	95.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	94.5 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	96.5 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-30 (A) (P3J0654-05RE1) Water Sampled: 10/16/03 08:20 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	3.74	10.0	ug/l	20	3100976	10/25/03	10/26/03	EPA 8260B	D, U
1,2-Dichloroethane	ND	2.84	10.0	"	"	"	"	"	"	D, U
Benzene	262	2.94	10.0	"	"	"	"	"	"	D
Toluene	110	3.10	10.0	"	"	"	"	"	"	D
Ethylbenzene	2080	2.20	10.0	"	"	"	"	"	"	D
Xylenes (total)	663	5.24	20.0	"	"	"	"	"	"	D
Methyl tert-butyl ether	ND	1.73	40.0	"	"	"	"	"	"	D, U
Naphthalene	1130	1.98	40.0	"	"	"	"	"	"	D
1,2,4-Trimethylbenzene	3.60	1.77	20.0	"	"	"	"	"	"	J, D
1,3,5-Trimethylbenzene	34.8	3.14	10.0	"	"	"	"	"	"	D
Isopropylbenzene	88.8	2.14	40.0	"	"	"	"	"	"	D
n-Propylbenzene	238	2.76	10.0	"	"	"	"	"	"	D
Surrogate: 4-BFB	103 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	92.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	95.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	98.0 %		80-120			"	"	"	"	
MW-22 (A) (P3J0654-06RE1) Water Sampled: 10/16/03 09:40 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100976	10/25/03	10/25/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	19.4	0.147	0.500	"	"	"	"	"	"	
Toluene	2.96	0.155	0.500	"	"	"	"	"	"	
Ethylbenzene	52.9	0.110	0.500	"	"	"	"	"	"	
Xylenes (total)	7.82	0.262	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	40.5	0.0989	2.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	0.210	0.0884	1.00	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	2.78	0.107	2.00	"	"	"	"	"	"	
n-Propylbenzene	7.00	0.138	0.500	"	"	"	"	"	"	
Surrogate: 4-BFB	101 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	95.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	94.5 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	87.0 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-35 (A) (P3J0654-07) Water Sampled: 10/16/03 11:15 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100972	10/24/03	10/24/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	1.12	0.110	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	1.04	0.0989	2.00	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	0.170	0.138	0.500	"	"	"	"	"	"	J
Surrogate: 4-BFB	96.5 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	102 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	99.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	91.5 %		80-120			"	"	"	"	
MW-39 (A) (P3J0654-08) Water Sampled: 10/16/03 15:40 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100972	10/24/03	10/24/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	3.98	0.147	0.500	"	"	"	"	"	"	
Toluene	0.380	0.155	0.500	"	"	"	"	"	"	J
Ethylbenzene	10.9	0.110	0.500	"	"	"	"	"	"	
Xylenes (total)	21.6	0.262	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	22.8	0.0989	2.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	19.7	0.0884	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	3.02	0.157	0.500	"	"	"	"	"	"	
Isopropylbenzene	3.42	0.107	2.00	"	"	"	"	"	"	
n-Propylbenzene	5.33	0.138	0.500	"	"	"	"	"	"	
Surrogate: 4-BFB	102 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	99.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	97.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	94.0 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-31 (A) (P3J0654-09RE1) Water Sampled: 10/16/03 13:50 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	1.87	5.00	ug/l	10	3100976	10/25/03	10/26/03	EPA 8260B	D, U
1,2-Dichloroethane	ND	1.42	5.00	"	"	"	"	"	"	D, U
Benzene	1170	1.47	5.00	"	"	"	"	"	"	D
Toluene	38.4	1.55	5.00	"	"	"	"	"	"	D
Ethylbenzene	706	1.10	5.00	"	"	"	"	"	"	D
Xylenes (total)	138	2.62	10.0	"	"	"	"	"	"	D
Methyl tert-butyl ether	ND	0.865	20.0	"	"	"	"	"	"	D, U
Naphthalene	16.2	0.989	20.0	"	"	"	"	"	"	J, D
1,2,4-Trimethylbenzene	1.60	0.884	10.0	"	"	"	"	"	"	J, D
1,3,5-Trimethylbenzene	3.90	1.57	5.00	"	"	"	"	"	"	J, D
Isopropylbenzene	54.4	1.07	20.0	"	"	"	"	"	"	D
n-Propylbenzene	152	1.38	5.00	"	"	"	"	"	"	D
Surrogate: 4-BFB	109 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	97.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	97.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	101 %		80-120			"	"	"	"	
BM-31 (A) (P3J0654-10) Water Sampled: 10/16/03 13:50 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	1.87	5.00	ug/l	10	3100972	10/24/03	10/25/03	EPA 8260B	D, U
1,2-Dichloroethane	ND	1.42	5.00	"	"	"	"	"	"	D, U
Benzene	1260	1.47	5.00	"	"	"	"	"	"	D
Toluene	41.6	1.55	5.00	"	"	"	"	"	"	D
Ethylbenzene	728	1.10	5.00	"	"	"	"	"	"	D
Xylenes (total)	143	2.62	10.0	"	"	"	"	"	"	D
Methyl tert-butyl ether	ND	0.865	20.0	"	"	"	"	"	"	D, U
Naphthalene	15.3	0.989	20.0	"	"	"	"	"	"	J, D
1,2,4-Trimethylbenzene	1.70	0.884	10.0	"	"	"	"	"	"	J, D
1,3,5-Trimethylbenzene	3.90	1.57	5.00	"	"	"	"	"	"	J, D
Isopropylbenzene	56.5	1.07	20.0	"	"	"	"	"	"	D
n-Propylbenzene	156	1.38	5.00	"	"	"	"	"	"	D
Surrogate: 4-BFB	105 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	90.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	94.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	97.5 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-45 (A) (P3J0654-11) Water Sampled: 10/16/03 17:30 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100972	10/24/03	10/25/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	0.160	0.147	0.500	"	"	"	"	"	"	J
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	0.320	0.110	0.500	"	"	"	"	"	"	J
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	1.11	0.0989	2.00	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	0.210	0.0884	1.00	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	0.210	0.138	0.500	"	"	"	"	"	"	J
Surrogate: 4-BFB	100 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	99.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	96.5 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	91.5 %		80-120			"	"	"	"	
MW-37 (A) (P3J0654-12) Water Sampled: 10/17/03 08:10 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100972	10/24/03	10/25/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	0.160	0.147	0.500	"	"	"	"	"	"	J
Toluene	0.720	0.155	0.500	"	"	"	"	"	"	
Ethylbenzene	17.0	0.110	0.500	"	"	"	"	"	"	
Xylenes (total)	30.6	0.262	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	21.5	0.0989	2.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	12.2	0.0884	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	2.96	0.157	0.500	"	"	"	"	"	"	
Isopropylbenzene	6.72	0.107	2.00	"	"	"	"	"	"	
n-Propylbenzene	10.4	0.138	0.500	"	"	"	"	"	"	
Surrogate: 4-BFB	100 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	98.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	98.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	92.0 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-40 (A) (P3J0654-13) Water Sampled: 10/17/03 09:35 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	0.935	2.50	ug/l	5	3100972	10/24/03	10/25/03	EPA 8260B	D, U
1,2-Dichloroethane	ND	0.710	2.50	"	"	"	"	"	"	D, U
Benzene	81.2	0.735	2.50	"	"	"	"	"	"	D
Toluene	57.6	0.775	2.50	"	"	"	"	"	"	D
Ethylbenzene	650	0.550	2.50	"	"	"	"	"	"	D
Xylenes (total)	367	1.31	5.00	"	"	"	"	"	"	D
Methyl tert-butyl ether	ND	0.432	10.0	"	"	"	"	"	"	D, U
Naphthalene	82.5	0.494	10.0	"	"	"	"	"	"	D
1,2,4-Trimethylbenzene	40.6	0.442	5.00	"	"	"	"	"	"	D
1,3,5-Trimethylbenzene	8.70	0.785	2.50	"	"	"	"	"	"	D
Isopropylbenzene	44.8	0.535	10.0	"	"	"	"	"	"	D
n-Propylbenzene	86.4	0.690	2.50	"	"	"	"	"	"	D
Surrogate: 4-BFB	102 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	92.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	95.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	96.5 %		80-120			"	"	"	"	
MW-44 (A) (P3J0654-14) Water Sampled: 10/17/03 12:00 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	9.35	25.0	ug/l	50	3100972	10/24/03	10/25/03	EPA 8260B	D, U
1,2-Dichloroethane	ND	7.10	25.0	"	"	"	"	"	"	D, U
Benzene	898	7.35	25.0	"	"	"	"	"	"	D
Toluene	5320	7.75	25.0	"	"	"	"	"	"	D
Ethylbenzene	2890	5.50	25.0	"	"	"	"	"	"	D
Xylenes (total)	14900	13.1	50.0	"	"	"	"	"	"	D
Methyl tert-butyl ether	ND	4.32	100	"	"	"	"	"	"	D, U
Naphthalene	1050	4.94	100	"	"	"	"	"	"	D
1,2,4-Trimethylbenzene	3470	4.42	50.0	"	"	"	"	"	"	D
1,3,5-Trimethylbenzene	898	7.85	25.0	"	"	"	"	"	"	D
Isopropylbenzene	94.0	5.35	100	"	"	"	"	"	"	J, D
n-Propylbenzene	388	6.90	25.0	"	"	"	"	"	"	D
Surrogate: 4-BFB	110 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	93.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	97.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	101 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-17 (A) (P3J0654-15) Water Sampled: 10/17/03 12:40 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100972	10/24/03	10/25/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	9.19	0.147	0.500	"	"	"	"	"	"	
Toluene	25.5	0.155	0.500	"	"	"	"	"	"	
Ethylbenzene	14.7	0.110	0.500	"	"	"	"	"	"	
Xylenes (total)	35.3	0.262	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	4.88	0.0989	2.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	3.19	0.0884	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	0.540	0.157	0.500	"	"	"	"	"	"	
Isopropylbenzene	2.90	0.107	2.00	"	"	"	"	"	"	
n-Propylbenzene	7.97	0.138	0.500	"	"	"	"	"	"	
Surrogate: 4-BFB	100 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	94.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	96.5 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	89.5 %		80-120			"	"	"	"	
MW-28 (A) (P3J0654-16) Water Sampled: 10/17/03 14:15 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	1.87	5.00	ug/l	10	3100972	10/24/03	10/25/03	EPA 8260B	D, U
1,2-Dichloroethane	ND	1.42	5.00	"	"	"	"	"	"	D, U
Benzene	208	1.47	5.00	"	"	"	"	"	"	D
Toluene	201	1.55	5.00	"	"	"	"	"	"	D
Ethylbenzene	334	1.10	5.00	"	"	"	"	"	"	D
Xylenes (total)	1070	2.62	10.0	"	"	"	"	"	"	D
Methyl tert-butyl ether	ND	0.865	20.0	"	"	"	"	"	"	D, U
Naphthalene	157	0.989	20.0	"	"	"	"	"	"	D
1,2,4-Trimethylbenzene	566	0.884	10.0	"	"	"	"	"	"	D
1,3,5-Trimethylbenzene	138	1.57	5.00	"	"	"	"	"	"	D
Isopropylbenzene	24.4	1.07	20.0	"	"	"	"	"	"	D
n-Propylbenzene	85.6	1.38	5.00	"	"	"	"	"	"	D
Surrogate: 4-BFB	106 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	92.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	94.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	98.0 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-26 (A) (P3J0654-17) Water Sampled: 10/17/03 16:00 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	0.935	2.50	ug/l	5	3100972	10/24/03	10/25/03	EPA 8260B	D, U
1,2-Dichloroethane	ND	0.710	2.50	"	"	"	"	"	"	D, U
Benzene	3.05	0.735	2.50	"	"	"	"	"	"	D
Toluene	18.4	0.775	2.50	"	"	"	"	"	"	D
Ethylbenzene	373	0.550	2.50	"	"	"	"	"	"	D
Xylenes (total)	1040	1.31	5.00	"	"	"	"	"	"	D
Methyl tert-butyl ether	ND	0.432	10.0	"	"	"	"	"	"	D, U
Naphthalene	280	0.494	10.0	"	"	"	"	"	"	D
1,2,4-Trimethylbenzene	600	0.442	5.00	"	"	"	"	"	"	D
1,3,5-Trimethylbenzene	135	0.785	2.50	"	"	"	"	"	"	D
Isopropylbenzene	32.0	0.535	10.0	"	"	"	"	"	"	D
n-Propylbenzene	83.3	0.690	2.50	"	"	"	"	"	"	D
Surrogate: 4-BFB	106 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	92.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	94.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	98.5 %		80-120			"	"	"	"	

Trip Blank MW-2 (M) (P3J0654-19) Water Sampled: 10/15/03 13:00 Received: 10/18/03 10:30

1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100972	10/24/03	10/24/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	95.5 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	96.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	95.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	98.5 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Trip Blank MW-45 (A) (P3J0654-28) Water Sampled: 10/16/03 17:30 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100972	10/24/03	10/24/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	96.5 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	98.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	97.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	98.0 %		80-120			"	"	"	"	
Trip Blank MW-40 (A) (P3J0654-30) Water Sampled: 10/17/03 09:35 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100972	10/24/03	10/24/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	96.0 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	97.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	97.5 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	98.5 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-42 (A) (P3J0654-01) Water Sampled: 10/15/03 11:00 Received: 10/18/03 10:30										
Acenaphthene	1.10	0.0500	0.0500	ug/l	1	3100791	10/21/03	10/22/03	EPA 8270m	
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	0.0893	0.0500	0.0500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	2.56	0.0500	0.0500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	141	5.00	5.00	"	100	"	"	10/23/03	"	D
Phenanthrene	2.16	0.0500	0.0500	"	1	"	"	10/22/03	"	
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	57.6 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	67.8 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	42.3 %		10-150			"	"	"	"	

MW-2 (M) (P3J0654-02) Water Sampled: 10/15/03 13:00 Received: 10/18/03 10:30

Acenaphthene	0.638	0.0500	0.0500	ug/l	1	3100791	10/21/03	10/23/03	EPA 8270m	
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	0.0568	0.0500	0.0500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	0.0693	0.0500	0.0500	"	"	"	"	"	"	
Fluorene	1.33	0.0500	0.0500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-2 (M) (P3J0654-02) Water Sampled: 10/15/03 13:00 Received: 10/18/03 10:30										
Naphthalene	89.4	5.00	5.00	ug/l	100	3100791	10/21/03	10/30/03	EPA 8270m	D
Phenanthrene	1.07	0.0500	0.0500	"	1	"	"	10/23/03	"	
Pyrene	0.0510	0.0500	0.0500	"	"	"	"	"	"	
<i>Surrogate: Fluorene-d10</i>	<i>61.0 %</i>		<i>25-150</i>			"	"	"	"	
<i>Surrogate: Pyrene-d10</i>	<i>75.0 %</i>		<i>23-150</i>			"	"	"	"	
<i>Surrogate: Benzo (a) pyrene-d12</i>	<i>54.7 %</i>		<i>10-150</i>			"	"	"	"	
MW-10 (M) (P3J0654-03) Water Sampled: 10/15/03 15:00 Received: 10/18/03 10:30										
Acenaphthene	0.280	0.0500	0.0500	ug/l	1	3100791	10/21/03	10/23/03	EPA 8270m	
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	0.0475	0.0100	0.0100	"	"	"	"	"	"	
Benzo (a) pyrene	0.0690	0.0100	0.0100	"	"	"	"	"	"	
Benzo (b) fluoranthene	0.0625	0.0100	0.0100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	0.0548	0.0100	0.0100	"	"	"	"	"	"	
Chrysene	0.0554	0.0100	0.0100	"	"	"	"	"	"	
Dibenzo (a,h) anthracene	0.0172	0.0100	0.0100	"	"	"	"	"	"	
Fluoranthene	0.0655	0.0500	0.0500	"	"	"	"	"	"	
Fluorene	0.238	0.0500	0.0500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	0.0408	0.0100	0.0100	"	"	"	"	"	"	
Naphthalene	12.0	5.00	5.00	"	100	"	"	10/30/03	"	D
Phenanthrene	0.104	0.0500	0.0500	"	1	"	"	10/23/03	"	
Pyrene	0.0589	0.0500	0.0500	"	"	"	"	"	"	
<i>Surrogate: Fluorene-d10</i>	<i>77.1 %</i>		<i>25-150</i>			"	"	"	"	
<i>Surrogate: Pyrene-d10</i>	<i>72.5 %</i>		<i>23-150</i>			"	"	"	"	
<i>Surrogate: Benzo (a) pyrene-d12</i>	<i>58.5 %</i>		<i>10-150</i>			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-11 (M) (P3J0654-04) Water Sampled: 10/15/03 17:20 Received: 10/18/03 10:30										
Acenaphthene	ND	0.0500	0.0500	ug/l	1	3100791	10/21/03	10/23/03	EPA 8270m	U
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	ND	0.400	0.400	"	"	"	"	"	"	R-03, U
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	75.8 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	83.5 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	71.2 %		10-150			"	"	"	"	

MW-30 (A) (P3J0654-05) Water Sampled: 10/16/03 08:20 Received: 10/18/03 10:30

Acenaphthene	0.0531	0.0500	0.0500	ug/l	1	3100791	10/21/03	10/23/03	EPA 8270m	
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	0.0569	0.0500	0.0500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-30 (A) (P3J0654-05) Water Sampled: 10/16/03 08:20 Received: 10/18/03 10:30										
Naphthalene	531	12.5	12.5	ug/l	250	3100791	10/21/03	10/30/03	EPA 8270m	D
Phenanthrene	ND	0.0500	0.0500	"	1	"	"	10/23/03	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	69.1 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	69.1 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	66.5 %		10-150			"	"	"	"	
MW-22 (A) (P3J0654-06) Water Sampled: 10/16/03 09:40 Received: 10/18/03 10:30										
Acenaphthene	ND	0.0500	0.0500	ug/l	1	3100791	10/21/03	10/30/03	EPA 8270m	U
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	2.61	0.0500	0.0500	"	"	"	"	"	"	
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	72.0 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	84.7 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	75.4 %		10-150			"	"	"	"	

North Creek Analytical - Portland

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Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-35 (A) (P3J0654-07) Water Sampled: 10/16/03 11:15 Received: 10/18/03 10:30										
Acenaphthene	ND	0.0500	0.0500	ug/l	1	3100791	10/21/03	10/22/03	EPA 8270m	U
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	0.124	0.0500	0.0500	"	"	"	"	"	"	
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	72.0 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	78.0 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	79.7 %		10-150			"	"	"	"	

MW-39 (A) (P3J0654-08) Water Sampled: 10/16/03 15:40 Received: 10/18/03 10:30

Acenaphthene	1.04	0.0500	0.0500	ug/l	1	3100791	10/21/03	10/23/03	EPA 8270m	
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	0.137	0.0500	0.0500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	2.24	0.0500	0.0500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-39 (A) (P3J0654-08) Water Sampled: 10/16/03 15:40 Received: 10/18/03 10:30										
Naphthalene	17.7	0.500	0.500	ug/l	10	3100791	10/21/03	10/23/03	EPA 8270m	D
Phenanthrene	0.806	0.0500	0.0500	"	1	"	"	10/23/03	"	
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	76.7 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	90.3 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	69.5 %		10-150			"	"	"	"	
MW-31 (A) (P3J0654-09) Water Sampled: 10/16/03 13:50 Received: 10/18/03 10:30										
Acenaphthene	0.0661	0.0500	0.0500	ug/l	1	3100791	10/21/03	10/23/03	EPA 8270m	
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	0.0582	0.0500	0.0500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	10.0	0.500	0.500	"	10	"	"	10/30/03	"	D
Phenanthrene	ND	0.0500	0.0500	"	1	"	"	10/23/03	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	93.6 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	81.8 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	64.0 %		10-150			"	"	"	"	

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Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BM-31 (A) (P3J0654-10) Water Sampled: 10/16/03 13:50 Received: 10/18/03 10:30										
Acenaphthene	0.0594	0.0500	0.0500	ug/l	1	3100791	10/21/03	10/23/03	EPA 8270m	
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	0.0515	0.0500	0.0500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	8.36	0.500	0.500	"	10	"	"	10/30/03	"	D
Phenanthrene	ND	0.0500	0.0500	"	1	"	"	10/23/03	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	85.6 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	79.2 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	67.4 %		10-150			"	"	"	"	

MW-45 (A) (P3J0654-11) Water Sampled: 10/16/03 17:30 Received: 10/18/03 10:30

Acenaphthene	ND	0.0500	0.0500	ug/l	1	3100791	10/21/03	10/23/03	EPA 8270m	U
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-45 (A) (P3J0654-11) Water Sampled: 10/16/03 17:30 Received: 10/18/03 10:30										
Naphthalene	0.0896	0.0500	0.0500	ug/l	1	3100791	10/21/03	10/23/03	EPA 8270m	
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	78.8 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	83.9 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	76.7 %		10-150			"	"	"	"	
MW-37 (A) (P3J0654-12) Water Sampled: 10/17/03 08:10 Received: 10/18/03 10:30										
Acenaphthene	ND	0.0500	0.0500	ug/l	1	3100791	10/21/03	10/23/03	EPA 8270m	U
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	11.1	0.500	0.500	"	10	"	"	10/30/03	"	D
Phenanthrene	ND	0.0500	0.0500	"	1	"	"	10/23/03	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	83.9 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	83.9 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	58.1 %		10-150			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-40 (A) (P3J0654-13) Water Sampled: 10/17/03 09:35 Received: 10/18/03 10:30										
Acenaphthene	0.727	0.0500	0.0500	ug/l	1	3100791	10/21/03	10/23/03	EPA 8270m	
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	0.618	0.0500	0.0500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	43.8	5.00	5.00	"	100	"	"	10/30/03	"	D
Phenanthrene	0.317	0.0500	0.0500	"	1	"	"	10/23/03	"	
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	94.5 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	79.2 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	60.6 %		10-150			"	"	"	"	

MW-44 (A) (P3J0654-14) Water Sampled: 10/17/03 12:00 Received: 10/18/03 10:30

Acenaphthene	0.194	0.0500	0.0500	ug/l	1	3100791	10/21/03	10/23/03	EPA 8270m	
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0800	0.0800	"	"	"	"	"	"	R-03, U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	0.362	0.0500	0.0500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-44 (A) (P3J0654-14) Water Sampled: 10/17/03 12:00 Received: 10/18/03 10:30										
Naphthalene	696	10.0	10.0	ug/l	200	3100791	10/21/03	10/30/03	EPA 8270m	D
Phenanthrene	0.440	0.0500	0.0500	"	1	"	"	10/23/03	"	
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
<i>Surrogate: Fluorene-d10</i>	<i>51.7 %</i>		<i>25-150</i>			"	"	"	"	
<i>Surrogate: Pyrene-d10</i>	<i>75.4 %</i>		<i>23-150</i>			"	"	"	"	
<i>Surrogate: Benzo (a) pyrene-d12</i>	<i>52.1 %</i>		<i>10-150</i>			"	"	"	"	
MW-17 (A) (P3J0654-15) Water Sampled: 10/17/03 12:40 Received: 10/18/03 10:30										
Acenaphthene	0.0612	0.0500	0.0500	ug/l	1	3100791	10/21/03	10/30/03	EPA 8270m	
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	2.37	0.0500	0.0500	"	"	"	"	"	"	
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
<i>Surrogate: Fluorene-d10</i>	<i>71.6 %</i>		<i>25-150</i>			"	"	"	"	
<i>Surrogate: Pyrene-d10</i>	<i>88.1 %</i>		<i>23-150</i>			"	"	"	"	
<i>Surrogate: Benzo (a) pyrene-d12</i>	<i>62.7 %</i>		<i>10-150</i>			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-28 (A) (P3J0654-16) Water Sampled: 10/17/03 14:15 Received: 10/18/03 10:30										
Acenaphthene	ND	5.00	5.00	ug/l	100	3100791	10/21/03	10/30/03	EPA 8270m	R-03, D, U
Acenaphthylene	ND	5.00	5.00	"	"	"	"	"	"	R-03, D, U
Anthracene	ND	5.00	5.00	"	"	"	"	"	"	R-03, D, U
Benzo (a) anthracene	ND	0.0100	0.0100	"	1	"	"	10/23/03	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	5.00	5.00	"	100	"	"	10/30/03	"	R-03, D, U
Fluorene	ND	5.00	5.00	"	"	"	"	"	"	R-03, D, U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	1	"	"	10/23/03	"	U
Naphthalene	112	5.00	5.00	"	100	"	"	10/30/03	"	D
Phenanthrene	ND	5.00	5.00	"	"	"	"	"	"	R-03, D, U
Pyrene	ND	0.0500	0.0500	"	1	"	"	10/23/03	"	U
Surrogate: Fluorene-d10	79.2 %		25-150			"	"	10/30/03	"	D
Surrogate: Pyrene-d10	77.5 %		23-150			"	"	10/23/03	"	
Surrogate: Benzo (a) pyrene-d12	59.3 %		10-150			"	"	"	"	

MW-26 (A) (P3J0654-17) Water Sampled: 10/17/03 16:00 Received: 10/18/03 10:30

Acenaphthene	ND	5.00	5.00	ug/l	100	3100791	10/21/03	10/30/03	EPA 8270m	R-03, D, U
Acenaphthylene	ND	5.00	5.00	"	"	"	"	"	"	R-03, D, U
Anthracene	ND	5.00	5.00	"	"	"	"	"	"	R-03, D, U
Benzo (a) anthracene	ND	0.0100	0.0100	"	1	"	"	10/23/03	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	5.00	5.00	"	100	"	"	10/30/03	"	R-03, D, U
Fluorene	ND	5.00	5.00	"	"	"	"	"	"	R-03, D, U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	1	"	"	10/23/03	"	U

North Creek Analytical - Portland

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-26 (A) (P3J0654-17) Water Sampled: 10/17/03 16:00 Received: 10/18/03 10:30										
Naphthalene	107	5.00	5.00	ug/l	100	3100791	10/21/03	10/30/03	EPA 8270m	D
Phenanthrene	ND	5.00	5.00	"	"	"	"	"	"	R-03, D, U
Pyrene	ND	0.0500	0.0500	"	1	"	"	10/23/03	"	U
<i>Surrogate: Fluorene-d10</i>	<i>71.6 %</i>		<i>25-150</i>			"	"	<i>10/30/03</i>	"	<i>D</i>
<i>Surrogate: Pyrene-d10</i>	<i>83.5 %</i>		<i>23-150</i>			"	"	<i>10/23/03</i>	"	
<i>Surrogate: Benzo (a) pyrene-d12</i>	<i>61.0 %</i>		<i>10-150</i>			"	"	"	"	

North Creek Analytical - Portland

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Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Conventional Chemistry Parameters per APHA/EPA Methods North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-42 (A) (P3J0654-01) Water										R-05
Nitrate/Nitrite-Nitrogen	ND	0.250	2.00	mg/l	100	3100995	10/27/03	10/27/03	EPA 353.2	D, U
MW-2 (M) (P3J0654-02) Water										R-05
Nitrate/Nitrite-Nitrogen	1.76	0.250	2.00	mg/l	100	3100995	10/27/03	10/27/03	EPA 353.2	J, D
MW-10 (M) (P3J0654-03) Water										R-05
Nitrate/Nitrite-Nitrogen	0.410	0.250	2.00	mg/l	100	3100995	10/27/03	10/27/03	EPA 353.2	J, D
MW-11 (M) (P3J0654-04) Water										R-05
Nitrate/Nitrite-Nitrogen	ND	0.250	2.00	mg/l	100	3100995	10/27/03	10/27/03	EPA 353.2	D, U
MW-30 (A) (P3J0654-05) Water										R-05
Nitrate/Nitrite-Nitrogen	ND	0.250	2.00	mg/l	100	3100995	10/27/03	10/27/03	EPA 353.2	D, U
MW-35 (A) (P3J0654-07) Water										R-05
Nitrate/Nitrite-Nitrogen	ND	0.250	2.00	mg/l	100	3100995	10/27/03	10/27/03	EPA 353.2	D, U
MW-31 (A) (P3J0654-09) Water										R-05
Nitrate/Nitrite-Nitrogen	ND	0.250	2.00	mg/l	100	3100995	10/27/03	10/27/03	EPA 353.2	D, U
BM-31 (A) (P3J0654-10) Water										R-05
Nitrate/Nitrite-Nitrogen	1.59	0.250	2.00	mg/l	100	3100995	10/27/03	10/27/03	EPA 353.2	J, D
MW-40 (A) (P3J0654-13) Water										R-05
Nitrate/Nitrite-Nitrogen	ND	0.250	2.00	mg/l	100	3100995	10/27/03	10/27/03	EPA 353.2	D, U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Conventional Chemistry Parameters per APHA/EPA Methods
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-44 (A) (P3J0654-14) Water										R-05
Sampled: 10/17/03 12:00 Received: 10/18/03 10:30										
Nitrate/Nitrite-Nitrogen	ND	0.250	2.00	mg/l	100	3100995	10/27/03	10/27/03	EPA 353.2	D, U
MW-17 (A) (P3J0654-15) Water										R-05
Sampled: 10/17/03 12:40 Received: 10/18/03 10:30										
Nitrate/Nitrite-Nitrogen	ND	0.250	2.00	mg/l	100	3100995	10/27/03	10/27/03	EPA 353.2	D, U

North Creek Analytical - Portland

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Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Anions per EPA Method 300.0
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-42 (A) (P3J0654-01) Water Sampled: 10/15/03 11:00 Received: 10/18/03 10:30										
Chloride	7.64	0.0508	0.500	mg/l	1	3100802	10/21/03	10/22/03	EPA 300.0	
Sulfate	5.80	0.0860	1.00	"	"	"	"	"	"	
MW-2 (M) (P3J0654-02) Water Sampled: 10/15/03 13:00 Received: 10/18/03 10:30										
Chloride	16.8	0.0508	0.500	mg/l	1	3100802	10/21/03	10/22/03	EPA 300.0	
Sulfate	0.540	0.0860	1.00	"	"	"	"	"	"	J
MW-10 (M) (P3J0654-03) Water Sampled: 10/15/03 15:00 Received: 10/18/03 10:30										
Chloride	9.61	0.0508	0.500	mg/l	1	3100802	10/21/03	10/22/03	EPA 300.0	
Sulfate	0.770	0.0860	1.00	"	"	"	"	"	"	J
MW-11 (M) (P3J0654-04) Water Sampled: 10/15/03 17:20 Received: 10/18/03 10:30										
Chloride	20.8	0.0508	0.500	mg/l	1	3100802	10/21/03	10/22/03	EPA 300.0	
Sulfate	2.36	0.0860	1.00	"	"	"	"	"	"	
MW-30 (A) (P3J0654-05) Water Sampled: 10/16/03 08:20 Received: 10/18/03 10:30										
Chloride	8.51	0.0508	0.500	mg/l	1	3100802	10/21/03	10/22/03	EPA 300.0	
Sulfate	ND	0.0860	1.00	"	"	"	"	"	"	U
MW-35 (A) (P3J0654-07) Water Sampled: 10/16/03 11:15 Received: 10/18/03 10:30										
Chloride	16.6	0.0508	0.500	mg/l	1	3100802	10/21/03	10/22/03	EPA 300.0	
Sulfate	8.64	0.0860	1.00	"	"	"	"	"	"	
MW-31 (A) (P3J0654-09) Water Sampled: 10/16/03 13:50 Received: 10/18/03 10:30										
Chloride	10.7	0.0508	0.500	mg/l	1	3100802	10/21/03	10/22/03	EPA 300.0	
Sulfate	1.20	0.0860	1.00	"	"	"	"	"	"	

North Creek Analytical - Portland

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Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Anions per EPA Method 300.0
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BM-31 (A) (P3J0654-10) Water Sampled: 10/16/03 13:50 Received: 10/18/03 10:30										
Chloride	10.8	0.0508	0.500	mg/l	1	3100802	10/21/03	10/22/03	EPA 300.0	
Sulfate	3.28	0.0860	1.00	"	"	"	"	"	"	
MW-40 (A) (P3J0654-13) Water Sampled: 10/17/03 09:35 Received: 10/18/03 10:30										
Chloride	10.4	0.0508	0.500	mg/l	1	3100802	10/21/03	10/22/03	EPA 300.0	
Sulfate	1.13	0.0860	1.00	"	"	"	"	"	"	
MW-44 (A) (P3J0654-14) Water Sampled: 10/17/03 12:00 Received: 10/18/03 10:30										
Chloride	14.6	0.0508	0.500	mg/l	1	3100802	10/21/03	10/22/03	EPA 300.0	
Sulfate	8.53	0.0860	1.00	"	"	"	"	"	"	
MW-17 (A) (P3J0654-15) Water Sampled: 10/17/03 12:40 Received: 10/18/03 10:30										
Chloride	13.4	0.0508	0.500	mg/l	1	3100802	10/21/03	10/22/03	EPA 300.0	
Sulfate	204	0.860	10.0	"	10	"	"	10/23/03	"	D

North Creek Analytical - Portland

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Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Total Alkalinity by Conventional Chemistry Parameters per APHA/EPA Methods North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-42 (A) (P3J0654-01) Water Sampled: 10/15/03 11:00 Received: 10/18/03 10:30										
Bicarbonate Alkalinity	218	0.208	10.0mg/L as CaC	1	3100775	10/20/03	10/24/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	218	0.208	10.0	"	"	"	"	"	"	
MW-2 (M) (P3J0654-02) Water Sampled: 10/15/03 13:00 Received: 10/18/03 10:30										
Bicarbonate Alkalinity	116	0.208	10.0mg/L as CaC	1	3100775	10/20/03	10/24/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	116	0.208	10.0	"	"	"	"	"	"	
MW-10 (M) (P3J0654-03) Water Sampled: 10/15/03 15:00 Received: 10/18/03 10:30										
Bicarbonate Alkalinity	225	0.208	10.0mg/L as CaC	1	3100775	10/20/03	10/24/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	225	0.208	10.0	"	"	"	"	"	"	
MW-11 (M) (P3J0654-04) Water Sampled: 10/15/03 17:20 Received: 10/18/03 10:30										
Bicarbonate Alkalinity	115	0.208	10.0mg/L as CaC	1	3100775	10/20/03	10/24/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	115	0.208	10.0	"	"	"	"	"	"	
MW-30 (A) (P3J0654-05) Water Sampled: 10/16/03 08:20 Received: 10/18/03 10:30										
Bicarbonate Alkalinity	162	0.208	10.0mg/L as CaC	1	3100775	10/20/03	10/24/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	162	0.208	10.0	"	"	"	"	"	"	

North Creek Analytical - Portland

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Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Total Alkalinity by Conventional Chemistry Parameters per APHA/EPA Methods
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-35 (A) (P3J0654-07) Water Sampled: 10/16/03 11:15 Received: 10/18/03 10:30										
Bicarbonate Alkalinity	45.7	0.208	10.0mg/L as CaC	1	3100775	10/20/03	10/24/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	45.7	0.208	10.0	"	"	"	"	"	"	
MW-31 (A) (P3J0654-09) Water Sampled: 10/16/03 13:50 Received: 10/18/03 10:30										
Bicarbonate Alkalinity	202	0.208	10.0mg/L as CaC	1	3100775	10/20/03	10/24/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	202	0.208	10.0	"	"	"	"	"	"	
BM-31 (A) (P3J0654-10) Water Sampled: 10/16/03 13:50 Received: 10/18/03 10:30										
Bicarbonate Alkalinity	200	0.208	10.0mg/L as CaC	1	3100775	10/20/03	10/24/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	200	0.208	10.0	"	"	"	"	"	"	
MW-40 (A) (P3J0654-13) Water Sampled: 10/17/03 09:35 Received: 10/18/03 10:30										
Bicarbonate Alkalinity	190	0.208	10.0mg/L as CaC	1	3100775	10/20/03	10/24/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	190	0.208	10.0	"	"	"	"	"	"	
MW-44 (A) (P3J0654-14) Water Sampled: 10/17/03 12:00 Received: 10/18/03 10:30										
Bicarbonate Alkalinity	90.8	0.208	10.0mg/L as CaC	1	3100775	10/20/03	10/24/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	90.8	0.208	10.0	"	"	"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Total Alkalinity by Conventional Chemistry Parameters per APHA/EPA Methods
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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MW-17 (A) (P3J0654-15) Water **Sampled: 10/17/03 12:40** **Received: 10/18/03 10:30**

Bicarbonate Alkalinity	240	0.208	10.0mg/L as CaC	1	3100775	10/20/03	10/24/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	240	0.208	10.0	"	"	"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

**Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-42 (A) (P3J0654-01) Water Sampled: 10/15/03 11:00 Received: 10/18/03 10:30										
Calcium	48.3	0.0360	0.250	mg/l	1	3J23034	10/23/03	10/24/03	EPA 6010B	
Iron	48.2	0.0620	0.150	"	"	"	"	"	"	
Potassium	6.49	0.255	2.00	"	"	"	"	10/27/03	"	
Magnesium	18.1	0.0180	0.500	"	"	"	"	10/24/03	"	
Sodium	9.19	0.0420	0.250	"	"	"	"	"	"	
MW-2 (M) (P3J0654-02) Water Sampled: 10/15/03 13:00 Received: 10/18/03 10:30										
Calcium	23.4	0.0360	0.250	mg/l	1	3J23034	10/23/03	10/24/03	EPA 6010B	
Iron	39.3	0.0620	0.150	"	"	"	"	"	"	
Potassium	6.03	0.255	2.00	"	"	"	"	10/27/03	"	
Magnesium	11.1	0.0180	0.500	"	"	"	"	10/24/03	"	
Sodium	12.6	0.0420	0.250	"	"	"	"	"	"	
MW-10 (M) (P3J0654-03) Water Sampled: 10/15/03 15:00 Received: 10/18/03 10:30										
Calcium	46.5	0.0360	0.250	mg/l	1	3J23034	10/23/03	10/24/03	EPA 6010B	
Iron	68.3	0.0620	0.150	"	"	"	"	"	"	
Potassium	11.3	0.255	2.00	"	"	"	"	10/27/03	"	
Magnesium	32.6	0.0180	0.500	"	"	"	"	10/24/03	"	
Sodium	11.6	0.0420	0.250	"	"	"	"	"	"	
MW-11 (M) (P3J0654-04) Water Sampled: 10/15/03 17:20 Received: 10/18/03 10:30										
Calcium	13.8	0.0360	0.250	mg/l	1	3J23034	10/23/03	10/24/03	EPA 6010B	
Iron	27.8	0.0620	0.150	"	"	"	"	"	"	
Potassium	8.13	0.255	2.00	"	"	"	"	10/27/03	"	
Magnesium	17.6	0.0180	0.500	"	"	"	"	10/24/03	"	
Sodium	8.56	0.0420	0.250	"	"	"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

**Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-30 (A) (P3J0654-05) Water Sampled: 10/16/03 08:20 Received: 10/18/03 10:30										
Calcium	28.0	0.0360	0.250	mg/l	1	3J23034	10/23/03	10/24/03	EPA 6010B	
Iron	38.2	0.0620	0.150	"	"	"	"	"	"	
Potassium	7.18	0.255	2.00	"	"	"	"	10/27/03	"	
Magnesium	16.6	0.0180	0.500	"	"	"	"	10/24/03	"	
Sodium	7.49	0.0420	0.250	"	"	"	"	"	"	
MW-35 (A) (P3J0654-07) Water Sampled: 10/16/03 11:15 Received: 10/18/03 10:30										
Calcium	9.06	0.0360	0.250	mg/l	1	3J23034	10/23/03	10/24/03	EPA 6010B	
Iron	5.93	0.0620	0.150	"	"	"	"	"	"	
Potassium	4.94	0.255	2.00	"	"	"	"	10/27/03	"	
Magnesium	6.62	0.0180	0.500	"	"	"	"	10/24/03	"	
Sodium	8.04	0.0420	0.250	"	"	"	"	"	"	
MW-31 (A) (P3J0654-09) Water Sampled: 10/16/03 13:50 Received: 10/18/03 10:30										
Calcium	33.5	0.0360	0.250	mg/l	1	3J23034	10/23/03	10/24/03	EPA 6010B	
Iron	29.1	0.0620	0.150	"	"	"	"	"	"	
Potassium	8.92	0.255	2.00	"	"	"	"	10/27/03	"	
Magnesium	23.5	0.0180	0.500	"	"	"	"	10/24/03	"	
Sodium	11.6	0.0420	0.250	"	"	"	"	"	"	
BM-31 (A) (P3J0654-10) Water Sampled: 10/16/03 13:50 Received: 10/18/03 10:30										
Calcium	33.9	0.0360	0.250	mg/l	1	3J23034	10/23/03	10/24/03	EPA 6010B	
Iron	29.5	0.0620	0.150	"	"	"	"	"	"	
Potassium	9.03	0.255	2.00	"	"	"	"	10/27/03	"	
Magnesium	23.3	0.0180	0.500	"	"	"	"	10/24/03	"	
Sodium	11.4	0.0420	0.250	"	"	"	"	"	"	

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Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

**Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-40 (A) (P3J0654-13) Water Sampled: 10/17/03 09:35 Received: 10/18/03 10:30										
Calcium	28.4	0.0360	0.250	mg/l	1	3J23034	10/23/03	10/24/03	EPA 6010B	
Iron	42.5	0.0620	0.150	"	"	"	"	"	"	
Potassium	12.4	0.255	2.00	"	"	"	"	10/27/03	"	
Magnesium	24.9	0.0180	0.500	"	"	"	"	10/24/03	"	
Sodium	10.0	0.0420	0.250	"	"	"	"	"	"	
MW-44 (A) (P3J0654-14) Water Sampled: 10/17/03 12:00 Received: 10/18/03 10:30										
Calcium	17.1	0.0360	0.250	mg/l	1	3J23034	10/23/03	10/24/03	EPA 6010B	
Iron	36.8	0.0620	0.150	"	"	"	"	"	"	
Potassium	3.42	0.255	2.00	"	"	"	"	10/27/03	"	
Magnesium	5.10	0.0180	0.500	"	"	"	"	10/24/03	"	
Sodium	10.3	0.0420	0.250	"	"	"	"	"	"	
MW-17 (A) (P3J0654-15) Water Sampled: 10/17/03 12:40 Received: 10/18/03 10:30										
Calcium	102	0.0360	0.250	mg/l	1	3J23034	10/23/03	10/24/03	EPA 6010B	
Iron	18.4	0.0620	0.150	"	"	"	"	"	"	
Potassium	11.8	0.255	2.00	"	"	"	"	10/27/03	"	
Magnesium	22.4	0.0180	0.500	"	"	"	"	10/24/03	"	
Sodium	56.4	0.0420	0.250	"	"	"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Gasoline Hydrocarbons per NW TPH-Gx Method - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch 3100795: Prepared 10/21/03 Using EPA 5030B										
Blank (3100795-BLK1)										
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l						U
Surrogate: 4-BFB	48.7			"	50.0		97.4	50-150		
LCS (3100795-BS1)										
Gasoline Range Hydrocarbons	1330	50.0	80.0	ug/l	1250		106	70-130		
Surrogate: 4-BFB	57.5			"	50.0		115	50-150		
Duplicate (3100795-DUP1) Source: P3J0654-01										
Gasoline Range Hydrocarbons	20400	2500	4000	ug/l		18900		7.63	40	D
Surrogate: 4-BFB	53.1			"	50.0		106	50-150		
Duplicate (3100795-DUP2) Source: P3J0654-11										
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l		ND			40	U
Surrogate: 4-BFB	48.5			"	50.0		97.0	50-150		
Batch 3100863: Prepared 10/22/03 Using EPA 5030B										
Blank (3100863-BLK1)										
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l						U
Surrogate: 4-BFB	45.8			"	50.0		91.6	50-150		
LCS (3100863-BS1)										
Gasoline Range Hydrocarbons	1280	50.0	80.0	ug/l	1250		102	70-130		
Surrogate: 4-BFB	54.5			"	50.0		109	50-150		
Duplicate (3100863-DUP1) Source: P3J0748-01										
Gasoline Range Hydrocarbons	4820	50.0	80.0	ug/l		4980		3.27	40	
Surrogate: 4-BFB	84.8			"	50.0		170	50-150		S-09

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Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Gasoline Hydrocarbons per NW TPH-Gx Method - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100863: Prepared 10/22/03 Using EPA 5030B

Duplicate (3100863-DUP2)

Source: P3J0654-07RE1

Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l		ND			40	U
Surrogate: 4-BFB	48.4			"	50.0		96.8	50-150		

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Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method - Quality Control

North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 3100729: Prepared 10/20/03 Using EPA 3510 Fuels

Blank (3100729-BLK1)

Diesel Range Organics	ND	0.153	0.250	mg/l							U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"							U
Surrogate: 1-Chlorooctadecane	0.0880			"	0.0960		91.7	50-150			

LCS (3100729-BS1)

Diesel Range Organics	2.80	0.153	0.250	mg/l	2.50		112	50-150			
Heavy Oil Range Hydrocarbons	1.80	0.286	0.500	"	1.50		120	50-150			
Surrogate: 1-Chlorooctadecane	0.104			"	0.0960		108	50-150			

LCS Dup (3100729-BSD1)

Diesel Range Organics	2.60	0.153	0.250	mg/l	2.50		104	50-150	7.41	50	
Heavy Oil Range Hydrocarbons	1.67	0.286	0.500	"	1.50		111	50-150	7.49	50	
Surrogate: 1-Chlorooctadecane	0.119			"	0.0960		124	50-150			

Batch 3100832: Prepared 10/23/03 Using EPA 3510 Fuels

Blank (3100832-BLK1)

Diesel Range Organics	ND	0.153	0.250	mg/l							U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"							U
Surrogate: 1-Chlorooctadecane	0.0786			"	0.0960		81.9	50-150			

LCS (3100832-BS1)

Diesel Range Organics	2.26	0.153	0.250	mg/l	2.50		90.4	50-150			
Heavy Oil Range Hydrocarbons	1.36	0.286	0.500	"	1.50		90.7	50-150			
Surrogate: 1-Chlorooctadecane	0.0961			"	0.0960		100	50-150			

LCS Dup (3100832-BSD1)

Diesel Range Organics	2.39	0.153	0.250	mg/l	2.50		95.6	50-150	5.59	50	
Heavy Oil Range Hydrocarbons	1.48	0.286	0.500	"	1.50		98.7	50-150	8.45	50	
Surrogate: 1-Chlorooctadecane	0.103			"	0.0960		107	50-150			

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Joy D. Chang, Project Manager

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P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch 3100832: Prepared 10/23/03 Using EPA 3510 Fuels

Matrix Spike (3100832-MS1)

Source: P3J0654-07

Diesel Range Organics	2380	153	250	mg/l	2500	ND	95.2	50-150			D
Heavy Oil Range Hydrocarbons	1460	286	500	"	1500	ND	97.3	50-150			D
Surrogate: 1-Chlorooctadecane	87.0			"	96.0		90.6	50-150			D

Matrix Spike Dup (3100832-MSD1)

Source: P3J0654-07

Diesel Range Organics	1750	153	250	mg/l	2500	ND	70.0	50-150	30.5	50	D
Heavy Oil Range Hydrocarbons	1150	286	500	"	1500	ND	76.7	50-150	23.8	50	D
Surrogate: 1-Chlorooctadecane	75.1			"	96.0		78.2	50-150			D

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Total Metals per EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3101103: Prepared 10/29/03 Using EPA 7470

Blank (3101103-BLK1)

Mercury	0.0000630	0.0000358	0.000200	mg/l							J
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LCS (3101103-BS1)

Mercury	0.00538	0.0000358	0.000200	mg/l	0.00500		108	85-115			
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Duplicate (3101103-DUP1)

Source: P3J0654-01

Mercury	ND	0.0000358	0.000200	mg/l		ND			20		U
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Duplicate (3101103-DUP2)

Source: P3J0654-07

Mercury	ND	0.0000358	0.000200	mg/l		ND			20		U
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Matrix Spike (3101103-MS1)

Source: P3J0654-01

Mercury	0.00504	0.0000358	0.000200	mg/l	0.00500	ND	101	75-125			
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Matrix Spike (3101103-MS2)

Source: P3J0654-07

Mercury	0.00514	0.0000358	0.000200	mg/l	0.00500	ND	103	75-125			
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Batch 3101129: Prepared 10/29/03 Using EPA 200/3005

Blank (3101129-BLK1)

Arsenic	ND	0.000964	0.00100	mg/l							U
Barium	ND	0.0000910	0.00100	"							U
Cadmium	ND	0.000178	0.00100	"							U
Chromium	ND	0.000791	0.00100	"							U
Lead	ND	0.0000870	0.00100	"							U
Manganese	0.0000500	0.0000136	0.00200	"							J
Selenium	ND	0.000566	0.00100	"							U
Silver	ND	0.0000460	0.00100	"							U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Total Metals per EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3101129: Prepared 10/29/03 Using EPA 200/3005

LCS (3101129-BS1)

Arsenic	0.106	0.000964	0.00100	mg/l	0.100		106	80-120			
Barium	0.103	0.0000910	0.00100	"	0.100		103	80-120			
Cadmium	0.105	0.000178	0.00100	"	0.100		105	80-120			
Chromium	0.112	0.000791	0.00100	"	0.100		112	80-120			
Lead	0.102	0.0000870	0.00100	"	0.100		102	80-120			
Manganese	0.111	0.0000136	0.00200	"	0.100		111	80-120			
Selenium	0.0984	0.000566	0.00100	"	0.100		98.4	80-120			
Silver	0.0568	0.0000460	0.00100	"	0.0500		114	80-120			

Duplicate (3101129-DUP1)

Source: P3J0654-07

Arsenic	0.000990	0.000964	0.00100	mg/l		0.00102			2.99	20	J
Barium	0.0131	0.0000910	0.00100	"		0.0136			3.75	20	
Cadmium	ND	0.000178	0.00100	"		ND				20	U
Chromium	0.00162	0.000791	0.00100	"		0.00150			7.69	20	
Lead	0.000230	0.0000870	0.00100	"		0.000240			4.26	20	J
Manganese	0.200	0.0000136	0.00200	"		0.206			2.96	20	
Selenium	ND	0.000566	0.00100	"		ND				20	U
Silver	ND	0.0000460	0.00100	"		ND				20	U

Matrix Spike (3101129-MS1)

Source: P3J0654-07

Arsenic	0.0962	0.000964	0.00100	mg/l	0.100	0.00102	95.2	75-125			
Barium	0.109	0.0000910	0.00100	"	0.100	0.0136	95.4	75-125			
Cadmium	0.100	0.000178	0.00100	"	0.100	ND	100	75-125			
Chromium	0.107	0.000791	0.00100	"	0.100	0.00150	106	75-125			
Lead	0.0930	0.0000870	0.00100	"	0.100	0.000240	92.8	75-125			
Manganese	0.319	0.0000136	0.00200	"	0.100	0.206	113	75-125			
Selenium	0.0967	0.000566	0.00100	"	0.100	ND	96.7	75-125			
Silver	0.0532	0.0000460	0.00100	"	0.0500	ND	106	75-125			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Total Metals per EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3101129: Prepared 10/29/03 Using EPA 200/3005

Matrix Spike Dup (3101129-MSD1)

Source: P3J0654-07

Arsenic	0.0984	0.000964	0.00100	mg/l	0.100	0.00102	97.4	75-125	2.26	20	
Barium	0.115	0.0000910	0.00100	"	0.100	0.0136	101	75-125	5.36	20	
Cadmium	0.106	0.000178	0.00100	"	0.100	ND	106	75-125	5.83	20	
Chromium	0.115	0.000791	0.00100	"	0.100	0.00150	114	75-125	7.21	20	
Lead	0.0980	0.0000870	0.00100	"	0.100	0.000240	97.8	75-125	5.24	20	
Manganese	0.338	0.0000136	0.00200	"	0.100	0.206	132	75-125	5.78	20	Q-01
Selenium	0.0992	0.000566	0.00100	"	0.100	ND	99.2	75-125	2.55	20	
Silver	0.0563	0.0000460	0.00100	"	0.0500	ND	113	75-125	5.66	20	

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Dissolved Metals per EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100767: Prepared 10/20/03 Using EPA 200/3005

Blank (3100767-BLK1)

Mercury	0.000105	0.0000358	0.000200	mg/l							J
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LCS (3100767-BS1)

Mercury	0.00535	0.0000358	0.000200	mg/l	0.00500		107	85-115			
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Duplicate (3100767-DUP1)

Source: P3J0654-01

Mercury	0.000173	0.0000358	0.000200	mg/l		0.000120			36.2	20	Q-06, J
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Matrix Spike (3100767-MS1)

Source: P3J0654-01

Mercury	0.00596	0.0000358	0.000200	mg/l	0.00500	0.000120	117	75-125			
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Matrix Spike (3100767-MS2)

Source: P3J0654-02

Mercury	0.00565	0.0000358	0.000200	mg/l	0.00500	0.000046	112	75-125			
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Batch 3101130: Prepared 10/29/03 Using EPA 200/3005 Diss

Blank (3101130-BLK1)

Arsenic	ND	0.000964	0.00100	mg/l							U
Barium	0.000100	0.0000910	0.00100	"							J
Cadmium	ND	0.0000730	0.00100	"							U
Chromium	ND	0.000791	0.00100	"							U
Lead	ND	0.0000870	0.00100	"							U
Selenium	0.000800	0.000566	0.00200	"							J
Silver	ND	0.0000460	0.00100	"							U

LCS (3101130-BS1)

Arsenic	0.0969	0.000964	0.00100	mg/l	0.100		96.9	80-120			
Barium	0.101	0.0000910	0.00100	"	0.100		101	80-120			
Cadmium	0.0983	0.0000730	0.00100	"	0.100		98.3	80-120			
Chromium	0.105	0.000791	0.00100	"	0.100		105	80-120			
Lead	0.101	0.0000870	0.00100	"	0.100		101	80-120			
Selenium	0.0940	0.000566	0.00200	"	0.100		94.0	80-120			
Silver	0.0519	0.0000460	0.00100	"	0.0500		104	80-120			

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Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Dissolved Metals per EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3101130: Prepared 10/29/03 Using EPA 200/3005 Diss

Duplicate (3101130-DUP1)

Source: P3J0654-07

Arsenic	ND	0.000964	0.00100	mg/l		ND				20	U
Barium	0.0132	0.0000910	0.00100	"		0.0132			0.00	20	
Cadmium	ND	0.0000730	0.00100	"		ND				20	U
Chromium	0.000830	0.000791	0.00100	"		0.000920			10.3	20	J
Lead	ND	0.0000870	0.00100	"		ND				20	U
Selenium	ND	0.000566	0.00100	"		ND				20	U
Silver	ND	0.0000460	0.00100	"		ND				20	U

Matrix Spike (3101130-MS1)

Source: P3J0654-07

Arsenic	0.102	0.000964	0.00100	mg/l	0.100	ND	102	75-125			
Barium	0.118	0.0000910	0.00100	"	0.100	0.0132	105	75-125			
Cadmium	0.103	0.0000730	0.00100	"	0.100	ND	103	75-125			
Chromium	0.107	0.000791	0.00100	"	0.100	0.000920	106	75-125			
Lead	0.106	0.0000870	0.00100	"	0.100	ND	106	75-125			
Selenium	0.103	0.000566	0.00100	"	0.100	ND	103	75-125			
Silver	0.0527	0.0000460	0.00100	"	0.0500	ND	105	75-125			

Matrix Spike Dup (3101130-MSD1)

Source: P3J0654-07

Arsenic	0.106	0.000964	0.00100	mg/l	0.100	ND	106	75-125	3.85	20	
Barium	0.120	0.0000910	0.00100	"	0.100	0.0132	107	75-125	1.68	20	
Cadmium	0.103	0.0000730	0.00100	"	0.100	ND	103	75-125	0.00	20	
Chromium	0.110	0.000791	0.00100	"	0.100	0.000920	109	75-125	2.76	20	
Lead	0.106	0.0000870	0.00100	"	0.100	ND	106	75-125	0.00	20	
Selenium	0.104	0.000566	0.00100	"	0.100	ND	104	75-125	0.966	20	
Silver	0.0537	0.0000460	0.00100	"	0.0500	ND	107	75-125	1.88	20	

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Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Selected Volatile Organic Compounds per EPA Method 8260B - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100972: Prepared 10/24/03 Using EPA 5030B

Blank (3100972-BLK1)

1,2-Dibromoethane	ND	0.187	0.500	ug/l							U
1,2-Dichloroethane	ND	0.142	0.500	"							U
Benzene	ND	0.147	0.500	"							U
Toluene	ND	0.155	0.500	"							U
Ethylbenzene	ND	0.110	0.500	"							U
Xylenes (total)	ND	0.262	1.00	"							U
Methyl tert-butyl ether	ND	0.0865	2.00	"							U
Naphthalene	ND	0.0989	2.00	"							U
1,2,4-Trimethylbenzene	0.120	0.0884	1.00	"							J
1,3,5-Trimethylbenzene	ND	0.157	0.500	"							U
Isopropylbenzene	ND	0.107	2.00	"							U
n-Propylbenzene	ND	0.138	0.500	"							U
Surrogate: 4-BFB	19.1			"	20.0		95.5	75-120			
Surrogate: 1,2-DCA-d4	19.2			"	20.0		96.0	77-129			
Surrogate: Dibromofluoromethane	18.9			"	20.0		94.5	80-121			
Surrogate: Toluene-d8	19.6			"	20.0		98.0	80-120			

LCS (3100972-BS1)

Benzene	19.6	0.147	0.500	ug/l	20.0		98.0	80-120			
Toluene	20.0	0.155	0.500	"	20.0		100	80-124			
Ethylbenzene	21.9	0.110	0.500	"	20.0		110	80-120			
Xylenes (total)	65.5	0.262	1.00	"	60.0		109	73-124			
Surrogate: 4-BFB	20.6			"	20.0		103	75-120			
Surrogate: 1,2-DCA-d4	19.4			"	20.0		97.0	77-129			
Surrogate: Dibromofluoromethane	19.2			"	20.0		96.0	80-121			
Surrogate: Toluene-d8	19.9			"	20.0		99.5	80-120			

Matrix Spike (3100972-MS1)

Source: P3J0654-07

Benzene	20.4	0.147	0.500	ug/l	20.0	ND	102	80-124			
Toluene	17.6	0.155	0.500	"	20.0	ND	88.0	79.7-131			
Ethylbenzene	20.0	0.110	0.500	"	20.0	1.12	94.4	80-124			
Xylenes (total)	39.6	0.262	1.00	"	60.0	ND	66.0	44.6-154			
Surrogate: 4-BFB	20.4			"	20.0		102	75-120			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Selected Volatile Organic Compounds per EPA Method 8260B - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100972: Prepared 10/24/03 Using EPA 5030B

Matrix Spike (3100972-MS1)

Source: P3J0654-07

Surrogate: 1,2-DCA-d4	18.8			ug/l	20.0		94.0	77-129			
Surrogate: Dibromofluoromethane	19.3			"	20.0		96.5	80-121			
Surrogate: Toluene-d8	18.5			"	20.0		92.5	80-120			

Matrix Spike Dup (3100972-MSD1)

Source: P3J0654-07

Benzene	20.3	0.147	0.500	ug/l	20.0	ND	102	80-124	0.491	25	
Toluene	16.5	0.155	0.500	"	20.0	ND	82.5	79.7-131	6.45	25	
Ethylbenzene	19.1	0.110	0.500	"	20.0	1.12	89.9	80-124	4.60	25	
Xylenes (total)	35.2	0.262	1.00	"	60.0	ND	58.7	44.6-154	11.8	25	
Surrogate: 4-BFB	20.6			"	20.0		103	75-120			
Surrogate: 1,2-DCA-d4	18.9			"	20.0		94.5	77-129			
Surrogate: Dibromofluoromethane	19.6			"	20.0		98.0	80-121			
Surrogate: Toluene-d8	18.0			"	20.0		90.0	80-120			

Batch 3100976: Prepared 10/25/03 Using EPA 5030B

Blank (3100976-BLK1)

1,2-Dibromoethane	ND	0.187	0.500	ug/l							U
1,2-Dichloroethane	ND	0.142	0.500	"							U
Benzene	ND	0.147	0.500	"							U
Toluene	ND	0.155	0.500	"							U
Ethylbenzene	ND	0.110	0.500	"							U
Xylenes (total)	ND	0.262	1.00	"							U
Methyl tert-butyl ether	ND	0.0865	2.00	"							U
Naphthalene	ND	0.0989	2.00	"							U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"							U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"							U
Isopropylbenzene	ND	0.107	2.00	"							U
n-Propylbenzene	ND	0.138	0.500	"							U
Surrogate: 4-BFB	19.6			"	20.0		98.0	75-120			
Surrogate: 1,2-DCA-d4	18.8			"	20.0		94.0	77-129			
Surrogate: Dibromofluoromethane	19.4			"	20.0		97.0	80-121			
Surrogate: Toluene-d8	19.9			"	20.0		99.5	80-120			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Selected Volatile Organic Compounds per EPA Method 8260B - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100976: Prepared 10/25/03 Using EPA 5030B

LCS (3100976-BS1)

Benzene	19.0	0.147	0.500	ug/l	20.0		95.0	80-120			
Toluene	19.3	0.155	0.500	"	20.0		96.5	80-124			
Ethylbenzene	21.2	0.110	0.500	"	20.0		106	80-120			
Xylenes (total)	62.8	0.262	1.00	"	60.0		105	73-124			
Surrogate: 4-BFB	20.7			"	20.0		104	75-120			
Surrogate: 1,2-DCA-d4	18.8			"	20.0		94.0	77-129			
Surrogate: Dibromofluoromethane	19.1			"	20.0		95.5	80-121			
Surrogate: Toluene-d8	19.7			"	20.0		98.5	80-120			

Matrix Spike (3100976-MS1)

Source: P3J0713-01

Benzene	19.9	0.147	0.500	ug/l	20.0	0.190	98.6	80-124			
Toluene	18.4	0.155	0.500	"	20.0	ND	92.0	79.7-131			
Ethylbenzene	23.2	0.110	0.500	"	20.0	3.13	100	80-124			
Xylenes (total)	51.8	0.262	1.00	"	60.0	ND	86.3	44.6-154			
Surrogate: 4-BFB	20.1			"	20.0		100	75-120			
Surrogate: 1,2-DCA-d4	18.3			"	20.0		91.5	77-129			
Surrogate: Dibromofluoromethane	19.3			"	20.0		96.5	80-121			
Surrogate: Toluene-d8	19.0			"	20.0		95.0	80-120			

Matrix Spike Dup (3100976-MSD1)

Source: P3J0713-01

Benzene	20.8	0.147	0.500	ug/l	20.0	0.190	103	80-124	4.42	25	
Toluene	19.7	0.155	0.500	"	20.0	ND	98.5	79.7-131	6.82	25	
Ethylbenzene	24.9	0.110	0.500	"	20.0	3.13	109	80-124	7.07	25	
Xylenes (total)	60.3	0.262	1.00	"	60.0	ND	100	44.6-154	15.2	25	
Surrogate: 4-BFB	20.3			"	20.0		102	75-120			
Surrogate: 1,2-DCA-d4	18.4			"	20.0		92.0	77-129			
Surrogate: Dibromofluoromethane	19.2			"	20.0		96.0	80-121			
Surrogate: Toluene-d8	19.1			"	20.0		95.5	80-120			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100791: Prepared 10/21/03 Using EPA 3520/600 Series

Blank (3100791-BLK1)

Acenaphthene	ND	0.0500	0.0500	ug/l							U
Acenaphthylene	ND	0.0500	0.0500	"							U
Anthracene	ND	0.0500	0.0500	"							U
Benzo (a) anthracene	ND	0.0100	0.0100	"							U
Benzo (a) pyrene	ND	0.0100	0.0100	"							U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"							U
Benzo (ghi) perylene	ND	0.0500	0.0500	"							U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"							U
Chrysene	ND	0.0100	0.0100	"							U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"							U
Fluoranthene	ND	0.0500	0.0500	"							U
Fluorene	ND	0.0500	0.0500	"							U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"							U
Naphthalene	ND	0.0500	0.0500	"							U
Phenanthrene	ND	0.0500	0.0500	"							U
Pyrene	ND	0.0500	0.0500	"							U

Surrogate: Fluorene-d10	2.13			"	2.50		85.2	25-150			
Surrogate: Pyrene-d10	2.31			"	2.50		92.4	23-150			
Surrogate: Benzo (a) pyrene-d12	2.17			"	2.50		86.8	10-150			

LCS (3100791-BS1)

Acenaphthene	1.63	0.0500	0.0500	ug/l	2.50		65.2	26-150			
Benzo (a) pyrene	1.88	0.0100	0.0100	"	2.50		75.2	38-150			
Pyrene	1.87	0.0500	0.0500	"	2.50		74.8	33-150			
Surrogate: Fluorene-d10	1.93			"	2.50		77.2	25-150			
Surrogate: Pyrene-d10	2.20			"	2.50		88.0	23-150			
Surrogate: Benzo (a) pyrene-d12	2.11			"	2.50		84.4	10-150			

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Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100791: Prepared 10/21/03 Using EPA 3520/600 Series

LCS Dup (3100791-BSD1)

Acenaphthene	1.93	0.0500	0.0500	ug/l	2.50		77.2	26-150	16.9	60	
Benzo (a) pyrene	2.00	0.0100	0.0100	"	2.50		80.0	38-150	6.19	60	
Pyrene	2.00	0.0500	0.0500	"	2.50		80.0	33-150	6.72	60	
Surrogate: Fluorene-d10	2.19			"	2.50		87.6	25-150			
Surrogate: Pyrene-d10	2.28			"	2.50		91.2	23-150			
Surrogate: Benzo (a) pyrene-d12	2.21			"	2.50		88.4	10-150			

Matrix Spike (3100791-MS1)

Source: P3J0654-07

Acenaphthene	1.58	0.0500	0.0500	ug/l	2.36	ND	66.9	26-135			
Benzo (a) pyrene	1.51	0.0100	0.0100	"	2.36	ND	64.0	38-137			
Pyrene	1.49	0.0500	0.0500	"	2.36	ND	63.1	33-133			
Surrogate: Fluorene-d10	1.72			"	2.36		72.9	25-150			
Surrogate: Pyrene-d10	1.68			"	2.36		71.2	23-150			
Surrogate: Benzo (a) pyrene-d12	1.72			"	2.36		72.9	10-150			

Matrix Spike Dup (3100791-MSD1)

Source: P3J0654-07

Acenaphthene	1.50	0.0500	0.0500	ug/l	2.36	ND	63.6	26-135	5.19	60	
Benzo (a) pyrene	1.59	0.0100	0.0100	"	2.36	ND	67.4	38-137	5.16	60	
Pyrene	1.45	0.0500	0.0500	"	2.36	ND	61.4	33-133	2.72	60	
Surrogate: Fluorene-d10	1.64			"	2.36		69.5	25-150			
Surrogate: Pyrene-d10	1.68			"	2.36		71.2	23-150			
Surrogate: Benzo (a) pyrene-d12	1.79			"	2.36		75.8	10-150			

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Conventional Chemistry Parameters per APHA/EPA Methods - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3100995: Prepared 10/27/03 Using Wet Chem											
Blank (3100995-BLK1)											
Nitrate/Nitrite-Nitrogen	ND	0.00250	0.00500	mg/l							U
Blank (3100995-BLK2)											
Nitrate/Nitrite-Nitrogen	0.00270	0.00250	0.00500	mg/l							J
LCS (3100995-BS1)											
Nitrate/Nitrite-Nitrogen	0.0915	0.00250	0.00500	mg/l	0.100		91.5	85-115			
LCS (3100995-BS2)											
Nitrate/Nitrite-Nitrogen	0.0952	0.00250	0.00500	mg/l	0.100		95.2	85-115			
Duplicate (3100995-DUP1)						Source: P3J0520-01					
Nitrate/Nitrite-Nitrogen	15.4	0.250	0.500	mg/l		16.0			3.82	20	D
Duplicate (3100995-DUP2)						Source: P3J0654-03					
Nitrate/Nitrite-Nitrogen	ND	0.250	0.500	mg/l		0.410				20	D, U
Matrix Spike (3100995-MS1)						Source: P3J0520-01					
Nitrate/Nitrite-Nitrogen	19.3	0.250	0.500	mg/l	5.00	16.0	66.0	75-125			Q-03a, D
Matrix Spike (3100995-MS2)						Source: P3J0654-03					
Nitrate/Nitrite-Nitrogen	1.77	0.250	0.500	mg/l	5.00	0.410	27.2	75-125			Q-08, D
Matrix Spike Dup (3100995-MSD1)						Source: P3J0520-01					
Nitrate/Nitrite-Nitrogen	20.3	0.250	0.500	mg/l	5.00	16.0	86.0	75-125	5.05	20	D
Matrix Spike Dup (3100995-MSD2)						Source: P3J0654-03					
Nitrate/Nitrite-Nitrogen	1.78	0.250	0.500	mg/l	5.00	0.410	27.4	75-125	0.563	20	Q-08, D

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Anions per EPA Method 300.0 - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100802: Prepared 10/21/03 Using Wet Chem

Blank (3100802-BLK1)

Chloride	ND	0.0508	0.500	mg/l							U
Sulfate	0.210	0.0860	1.00	"							J

LCS (3100802-BS1)

Chloride	9.61	0.0508	0.500	mg/l	10.0		96.1	90-110			
Sulfate	30.2	0.0860	1.00	"	30.0		101	90-110			

Duplicate (3100802-DUP1)

Source: P3J0703-01

Chloride	8.37	0.0508	0.500	mg/l		8.42			0.596	20	
Sulfate	1.35	0.0860	1.00	"		1.37			1.47	20	

Matrix Spike (3100802-MS1)

Source: P3J0703-01

Chloride	9.54	0.0564	0.556	mg/l	2.22	8.42	50.5	80-120			Q-02, D
Sulfate	6.03	0.0955	1.11	"	4.44	1.37	105	80-120			D

Matrix Spike (3100802-MS2)

Source: P3J0688-01

Chloride	8.30	0.0564	0.556	mg/l	2.22	6.94	61.3	80-120			Q-02, D
Sulfate	18.8	0.0955	1.11	"	4.44	14.1	106	80-120			D

Matrix Spike Dup (3100802-MSD1)

Source: P3J0703-01

Chloride	9.53	0.0564	0.556	mg/l	2.22	8.42	50.0	80-120	0.105	20	Q-02, D
Sulfate	6.02	0.0955	1.11	"	4.44	1.37	105	80-120	0.166	20	D

Matrix Spike Dup (3100802-MSD2)

Source: P3J0688-01

Chloride	8.36	0.0564	0.556	mg/l	2.22	6.94	64.0	80-120	0.720	20	Q-02, D
Sulfate	18.5	0.0955	1.11	"	4.44	14.1	99.1	80-120	1.61	20	D

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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Environmental Laboratory Network

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Total Alkalinity by Conventional Chemistry Parameters per APHA/EPA Methods - Quality Control North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100775: Prepared 10/20/03 Using Wet Chem

Blank (3100775-BLK1)

Bicarbonate Alkalinity	ND	0.208	10.0	mg/L as CaCO ₃							U
Carbonate Alkalinity	ND	0.208	10.0	"							U
Hydroxide Alkalinity	ND	0.208	10.0	"							U
Total Alkalinity	ND	0.208	10.0	"							U

LCS (3100775-BS1)

Bicarbonate Alkalinity	91.4	0.208	10.0	mg/L as CaCO ₃	100		91.4	85-115			
Carbonate Alkalinity	107	0.208	10.0	"	100		107	85-115			
Total Alkalinity	199	0.208	10.0	"	200		99.5	85-115			

Duplicate (3100775-DUP1)

Source: P3J0535-01

Bicarbonate Alkalinity	582	0.208	10.0	mg/L as CaCO ₃		578			0.690	20	
Carbonate Alkalinity	ND	0.208	10.0	"		ND				20	U
Hydroxide Alkalinity	ND	0.208	10.0	"		ND				20	U
Total Alkalinity	582	0.208	10.0	"		578			0.690	20	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Total Metals by EPA 6000/7000 Series Methods - Quality Control North Creek Analytical - Bothell

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3J23034: Prepared 10/23/03 Using EPA 3010A

Blank (3J23034-BLK1)

Calcium	0.0442	0.0360	0.250	mg/l							J
Iron	ND	0.0620	0.150	"							U
Magnesium	0.0532	0.0180	0.500	"							J
Potassium	ND	0.255	2.00	"							U
Sodium	ND	0.0420	0.250	"							U

LCS (3J23034-BS1)

Calcium	5.19	0.0360	0.250	mg/l	5.00		104	80-120			
Iron	5.15	0.0620	0.150	"	5.00		103	80-120			
Magnesium	5.23	0.0180	0.500	"	5.00		105	80-120			
Potassium	10.7	0.255	2.00	"	10.0		107	80-120			
Sodium	5.06	0.0420	0.250	"	5.00		101	80-120			

LCS Dup (3J23034-BSD1)

Calcium	5.10	0.0360	0.250	mg/l	5.00		102	80-120	1.75	20	
Iron	5.04	0.0620	0.150	"	5.00		101	80-120	2.16	20	
Magnesium	5.13	0.0180	0.500	"	5.00		103	80-120	1.93	20	
Potassium	10.8	0.255	2.00	"	10.0		108	80-120	0.930	20	
Sodium	4.94	0.0420	0.250	"	5.00		98.8	80-120	2.40	20	

Matrix Spike (3J23034-MS1)

Source: B3J0555-06

Calcium	48.7	0.0360	0.250	mg/l	5.00	40.6	162	75-125			Q-03
Iron	42.2	0.0620	0.150	"	5.00	35.0	144	75-125			Q-03
Magnesium	19.6	0.0180	0.500	"	5.00	13.6	120	80-120			
Potassium	16.2	0.255	2.00	"	10.0	5.33	109	80-120			
Sodium	14.2	0.0420	0.250	"	5.00	8.68	110	75-125			

Matrix Spike (3J23034-MS2)

Source: P3J0654-07

Calcium	14.8	0.0360	0.250	mg/l	5.00	9.06	115	75-125			
Iron	11.4	0.0620	0.150	"	5.00	5.93	109	75-125			
Magnesium	12.1	0.0180	0.500	"	5.00	6.62	110	80-120			
Potassium	15.5	0.255	2.00	"	10.0	4.94	106	80-120			
Sodium	13.5	0.0420	0.250	"	5.00	8.04	109	75-125			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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North Creek Analytical, Inc.
Environmental Laboratory Network

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch 3J23034: Prepared 10/23/03 Using EPA 3010A

Matrix Spike Dup (3J23034-MSD1)

Source: B3J0555-06

Calcium	47.8	0.0360	0.250	mg/l	5.00	40.6	144	75-125	1.87	20	Q-03
Iron	41.4	0.0620	0.150	"	5.00	35.0	128	75-125	1.91	20	Q-03
Magnesium	19.3	0.0180	0.500	"	5.00	13.6	114	80-120	1.54	20	
Potassium	16.3	0.255	2.00	"	10.0	5.33	110	80-120	0.615	20	
Sodium	13.9	0.0420	0.250	"	5.00	8.68	104	75-125	2.14	20	

Matrix Spike Dup (3J23034-MSD2)

Source: P3J0654-07

Calcium	14.5	0.0360	0.250	mg/l	5.00	9.06	109	75-125	2.05	20	
Iron	11.2	0.0620	0.150	"	5.00	5.93	105	75-125	1.77	20	
Magnesium	11.8	0.0180	0.500	"	5.00	6.62	104	80-120	2.51	20	
Potassium	15.1	0.255	2.00	"	10.0	4.94	102	80-120	2.61	20	
Sodium	13.1	0.0420	0.250	"	5.00	8.04	101	75-125	3.01	20	

Post Spike (3J23034-PS1)

Source: B3J0555-06

Calcium	45.9	0.0360	0.250	mg/l	5.00	40.6	106	75-125			
Iron	39.9	0.0620	0.150	"	5.00	35.0	98.0	75-125			
Magnesium	18.6	0.0180	0.500	"	5.00	13.6	100	75-125			
Potassium	15.3	0.255	2.00	"	10.0	5.33	99.7	75-125			
Sodium	13.5	0.0420	0.250	"	5.00	8.68	96.4	75-125			

Post Spike (3J23034-PS2)

Source: P3J0654-07

Calcium	14.2	0.0360	0.250	mg/l	5.00	9.06	103	75-125			
Iron	10.9	0.0620	0.150	"	5.00	5.93	99.4	75-125			
Magnesium	11.6	0.0180	0.500	"	5.00	6.62	99.6	75-125			
Potassium	14.7	0.255	2.00	"	10.0	4.94	97.6	75-125			
Sodium	12.8	0.0420	0.250	"	5.00	8.04	95.2	75-125			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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North Creek Analytical, Inc.
Environmental Laboratory Network

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/05/03 13:35

Notes and Definitions

- A-01 Detected hydrocarbons appear to be due to weathered gas as well as weathered diesel.
- A-02 Detected hydrocarbons are mainly due to overlap from the gasoline range; however, there appears to be some weathered diesel detected.
- D Data reported from a preparation or analytical dilution.
- D-15 Detected hydrocarbons have non-petroleum peaks or elution pattern that suggests the presence of biogenic interference.
- J Estimated value.
- Q-01 The spike recovery, and/or RPD, for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.
- Q-02 The spike recovery for this QC sample is outside of established control limits due to sample matrix interference.
- Q-03 The percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte already present in the sample.
- Q-03a The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte already present in the sample.
- Q-06 Analyses are not controlled on RPD values from sample concentrations less than 5 times the reporting limit.
- Q-08 Unable to quantitate spike recovery due to matrix interference and/or dilution necessary for analysis.
- R-03 The reporting limit for this analyte was raised due to matrix interference.
- R-05 Reporting limits raised due to dilution necessary for analysis. Sample contains high levels of reported analyte, non-target analyte, and/or matrix interference.
- S-09 Surrogate recovery is outside control limits due to matrix interference.
- U Analyte included in the analysis but not detected.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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907.334.0200 fax 907.334.0210

20 November 2003

Tom Calabrese
EnviroLogic Resources, Inc.
P.O. Box 80762
Portland, OR 97280-0762
RE: Astoria Area-Wide Petroleum Site RI-1

Enclosed are the results of analyses for samples received by the laboratory on 10/18/03 10:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Joy D. Chang
Project Manager



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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/20/03 14:39

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-22 (A)	P3J0654-06	Water	10/16/03 09:40	10/18/03 10:30
MW-39 (A)	P3J0654-08	Water	10/16/03 15:40	10/18/03 10:30
MW-45 (A)	P3J0654-11	Water	10/16/03 17:30	10/18/03 10:30
MW-37 (A)	P3J0654-12	Water	10/17/03 08:10	10/18/03 10:30
MW-28 (A)	P3J0654-16	Water	10/17/03 14:15	10/18/03 10:30
MW-26 (A)	P3J0654-17	Water	10/17/03 16:00	10/18/03 10:30

North Creek Analytical - Portland

Joy D. Chang, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

North Creek Analytical, Inc.
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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/20/03 14:39

**Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-22 (A) (P3J0654-06) Water Sampled: 10/16/03 09:40 Received: 10/18/03 10:30										
Iron	18.6	0.0620	0.150	mg/l	1	3K12041	11/12/03	11/15/03	EPA 6010B	
MW-39 (A) (P3J0654-08) Water Sampled: 10/16/03 15:40 Received: 10/18/03 10:30										
Iron	6.09	0.0620	0.150	mg/l	1	3K12041	11/12/03	11/15/03	EPA 6010B	
MW-45 (A) (P3J0654-11) Water Sampled: 10/16/03 17:30 Received: 10/18/03 10:30										
Iron	10.4	0.0620	0.150	mg/l	1	3K12041	11/12/03	11/15/03	EPA 6010B	
MW-37 (A) (P3J0654-12) Water Sampled: 10/17/03 08:10 Received: 10/18/03 10:30										
Iron	27.1	0.0620	0.150	mg/l	1	3K12041	11/12/03	11/15/03	EPA 6010B	
MW-28 (A) (P3J0654-16) Water Sampled: 10/17/03 14:15 Received: 10/18/03 10:30										
Iron	58.5	0.0620	0.150	mg/l	1	3K12041	11/12/03	11/15/03	EPA 6010B	
MW-26 (A) (P3J0654-17) Water Sampled: 10/17/03 16:00 Received: 10/18/03 10:30										
Iron	13.9	0.0620	0.150	mg/l	1	3K12041	11/12/03	11/15/03	EPA 6010B	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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North Creek Analytical, Inc.
Environmental Laboratory Network

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/20/03 14:39

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3K12041: Prepared 11/12/03 Using EPA 3010A											
Blank (3K12041-BLK1)											
Iron	ND	0.0620	0.150	mg/l							U
LCS (3K12041-BS1)											
Iron	5.09	0.0620	0.150	mg/l	5.00		102	80-120			
LCS Dup (3K12041-BSD1)											
Iron	5.10	0.0620	0.150	mg/l	5.00		102	80-120	0.196	20	
Matrix Spike (3K12041-MS1)						Source: P3J0654-06					
Iron	23.2	0.0620	0.150	mg/l	5.00	18.6	92.0	75-125			
Matrix Spike Dup (3K12041-MSD1)						Source: P3J0654-06					
Iron	24.4	0.0620	0.150	mg/l	5.00	18.6	116	75-125	5.04	20	
Post Spike (3K12041-PS1)						Source: P3J0654-06					
Iron	22.8	0.0620	0.150	mg/l	5.00	18.6	84.0	75-125			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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North Creek Analytical, Inc.
Environmental Laboratory Network

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/20/03 14:39

Notes and Definitions

U Analyte included in the analysis but not detected.
DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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North Creek Analytical, Inc.
Environmental Laboratory Network

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907.563.9200 fax 907.563.9210

February 3, 2004

Envirologic Resources, Inc.
PO Box 80762
Portland, OR 97280-0762

Attention: Tom Calabrese

RE: Astoria Area-Wide Petroleum Site RI-1

Enclosed is the amended report for 8260 VOC analysis for samples received by the laboratory on 10/18/03. The original result submitted on 11/05/03 for sample **MW-10(M)** had a dilution error by a factor of 50X. The correct dilution factor should have been 2X. The amended report should show the correct dilution and a much lower result for VOCs specific compounds. For your reference, this analysis has been assigned our NCA work order # **P3J0654-03**.

Please call if you have any questions.

Respectfully,

Joy Chang
North Creek Analytical-Portland
Project Manager



Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
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907.334.9200 fax 907.334.9210

03 February 2004

Tom Calabrese
EnviroLogic Resources, Inc.
P.O. Box 80762
Portland, OR 97280-0762

RE: Astoria Area-Wide Petroleum Site RI-1

Enclosed are the results of analyses for samples received by the laboratory on 10/18/03 10:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Joy D. Chang
Project Manager



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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
02/03/04 14:51

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-42 (A)	P3J0654-01	Water	10/15/03 11:00	10/18/03 10:30
MW-2 (M)	P3J0654-02	Water	10/15/03 13:00	10/18/03 10:30
MW-10 (M)	P3J0654-03	Water	10/15/03 15:00	10/18/03 10:30
MW-11 (M)	P3J0654-04	Water	10/15/03 17:20	10/18/03 10:30
MW-30 (A)	P3J0654-05	Water	10/16/03 08:20	10/18/03 10:30
MW-22 (A)	P3J0654-06	Water	10/16/03 09:40	10/18/03 10:30
MW-35 (A)	P3J0654-07	Water	10/16/03 11:15	10/18/03 10:30
MW-39 (A)	P3J0654-08	Water	10/16/03 15:40	10/18/03 10:30
MW-31 (A)	P3J0654-09	Water	10/16/03 13:50	10/18/03 10:30
BM-31 (A)	P3J0654-10	Water	10/16/03 13:50	10/18/03 10:30
MW-45 (A)	P3J0654-11	Water	10/16/03 17:30	10/18/03 10:30
MW-37 (A)	P3J0654-12	Water	10/17/03 08:10	10/18/03 10:30
MW-40 (A)	P3J0654-13	Water	10/17/03 09:35	10/18/03 10:30
MW-44 (A)	P3J0654-14	Water	10/17/03 12:00	10/18/03 10:30
MW-17 (A)	P3J0654-15	Water	10/17/03 12:40	10/18/03 10:30
MW-28 (A)	P3J0654-16	Water	10/17/03 14:15	10/18/03 10:30
MW-26 (A)	P3J0654-17	Water	10/17/03 16:00	10/18/03 10:30
Trip Blank MW-2 (M)	P3J0654-19	Water	10/15/03 13:00	10/18/03 10:30
Trip Blank MW-45 (A)	P3J0654-28	Water	10/16/03 17:30	10/18/03 10:30
Trip Blank MW-40 (A)	P3J0654-30	Water	10/17/03 09:35	10/18/03 10:30

North Creek Analytical - Portland

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Joy D. Chang, Project Manager

North Creek Analytical, Inc.
Environmental Laboratory Network

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
02/03/04 14:51

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-42 (A) (P3J0654-01) Water Sampled: 10/15/03 11:00 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	3.74	10.0	ug/l	20	3100972	10/24/03	10/25/03	EPA 8260B	D, U
1,2-Dichloroethane	ND	2.84	10.0	"	"	"	"	"	"	D, U
Benzene	3020	2.94	10.0	"	"	"	"	"	"	D
Toluene	163	3.10	10.0	"	"	"	"	"	"	D
Ethylbenzene	1850	2.20	10.0	"	"	"	"	"	"	D
Xylenes (total)	370	5.24	20.0	"	"	"	"	"	"	D
Methyl tert-butyl ether	ND	1.73	40.0	"	"	"	"	"	"	D, U
Naphthalene	190	1.98	40.0	"	"	"	"	"	"	D
1,2,4-Trimethylbenzene	44.8	1.77	20.0	"	"	"	"	"	"	D
1,3,5-Trimethylbenzene	11.2	3.14	10.0	"	"	"	"	"	"	D
Isopropylbenzene	63.4	2.14	40.0	"	"	"	"	"	"	D
n-Propylbenzene	226	2.76	10.0	"	"	"	"	"	"	D
Surrogate: 4-BFB	102 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	92.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethan	94.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	98.5 %		80-120			"	"	"	"	
MW-2 (M) (P3J0654-02) Water Sampled: 10/15/03 13:00 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100972	10/24/03	10/25/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	125	0.147	0.500	"	"	"	"	"	"	
Toluene	8.50	0.155	0.500	"	"	"	"	"	"	
Ethylbenzene	92.6	0.110	0.500	"	"	"	"	"	"	
Xylenes (total)	21.3	0.262	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	125	0.0989	2.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	2.23	0.0884	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	42.9	0.107	2.00	"	"	"	"	"	"	
n-Propylbenzene	159	0.138	0.500	"	"	"	"	"	"	
Surrogate: 4-BFB	104 %		75-120			"	"	"	"	

North Creek Analytical - Portland

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
02/03/04 14:51

Selected Volatile Organic Compounds per EPA Method 8260B North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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MW-2 (M) (P3J0654-02) Water Sampled: 10/15/03 13:00 Received: 10/18/03 10:30

Surrogate: 1,2-DCA-d4	96.5 %		77-129			3100972	10/24/03	10/25/03	EPA 8260B	
Surrogate: Dibromofluoromethan	96.5 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	95.0 %		80-120			"	"	"	"	

MW-10 (M) (P3J0654-03) Water Sampled: 10/15/03 15:00 Received: 10/18/03 10:30

1,2-Dibromoethane	ND	0.374	1.00	ug/l	2	3100972	10/24/03	10/25/03	EPA 8260B	D, U
1,2-Dichloroethane	ND	0.284	1.00	"	"	"	"	"	"	D, U
Benzene	319	0.294	1.00	"	"	"	"	"	"	D
Toluene	19.3	0.310	1.00	"	"	"	"	"	"	D
Ethylbenzene	182	0.220	1.00	"	"	"	"	"	"	D
Xylenes (total)	49.6	0.524	2.00	"	"	"	"	"	"	D
Methyl tert-butyl ether	ND	0.173	4.00	"	"	"	"	"	"	D, U
Naphthalene	65.3	0.198	4.00	"	"	"	"	"	"	D
1,2,4-Trimethylbenzene	6.30	0.177	2.00	"	"	"	"	"	"	D
1,3,5-Trimethylbenzene	1.34	0.314	1.00	"	"	"	"	"	"	D
Isopropylbenzene	18.5	0.214	4.00	"	"	"	"	"	"	D
n-Propylbenzene	48.6	0.276	1.00	"	"	"	"	"	"	D
Surrogate: 4-BFB	102 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	92.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethan	92.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	90.5 %		80-120			"	"	"	"	

MW-11 (M) (P3J0654-04) Water Sampled: 10/15/03 17:20 Received: 10/18/03 10:30

1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100972	10/24/03	10/24/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	11.6	0.147	0.500	"	"	"	"	"	"	
Toluene	0.960	0.155	0.500	"	"	"	"	"	"	
Ethylbenzene	0.380	0.110	0.500	"	"	"	"	"	"	J
Xylenes (total)	8.39	0.262	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	0.660	0.0989	2.00	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	0.300	0.0884	1.00	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	0.310	0.157	0.500	"	"	"	"	"	"	J
Isopropylbenzene	4.37	0.107	2.00	"	"	"	"	"	"	

North Creek Analytical - Portland

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
02/03/04 14:51

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-11 (M) (P3J0654-04) Water Sampled: 10/15/03 17:20 Received: 10/18/03 10:30										
n-Propylbenzene	7.48	0.138	0.500	ug/l	1	3100972	10/24/03	10/24/03	EPA 8260B	
Surrogate: 4-BFB	104 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	95.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethan	94.5 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	96.5 %		80-120			"	"	"	"	
MW-30 (A) (P3J0654-05RE1) Water Sampled: 10/16/03 08:20 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	3.74	10.0	ug/l	20	3100976	10/25/03	10/26/03	EPA 8260B	D, U
1,2-Dichloroethane	ND	2.84	10.0	"	"	"	"	"	"	D, U
Benzene	262	2.94	10.0	"	"	"	"	"	"	D
Toluene	110	3.10	10.0	"	"	"	"	"	"	D
Ethylbenzene	2080	2.20	10.0	"	"	"	"	"	"	D
Xylenes (total)	663	5.24	20.0	"	"	"	"	"	"	D
Methyl tert-butyl ether	ND	1.73	40.0	"	"	"	"	"	"	D, U
Naphthalene	1130	1.98	40.0	"	"	"	"	"	"	D
1,2,4-Trimethylbenzene	3.60	1.77	20.0	"	"	"	"	"	"	J, D
1,3,5-Trimethylbenzene	34.8	3.14	10.0	"	"	"	"	"	"	D
Isopropylbenzene	88.8	2.14	40.0	"	"	"	"	"	"	D
n-Propylbenzene	238	2.76	10.0	"	"	"	"	"	"	D
Surrogate: 4-BFB	103 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	92.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethan	95.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	98.0 %		80-120			"	"	"	"	
MW-22 (A) (P3J0654-06RE1) Water Sampled: 10/16/03 09:40 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100976	10/25/03	10/25/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	19.4	0.147	0.500	"	"	"	"	"	"	
Toluene	2.96	0.155	0.500	"	"	"	"	"	"	
Ethylbenzene	52.9	0.110	0.500	"	"	"	"	"	"	
Xylenes (total)	7.82	0.262	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	40.5	0.0989	2.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	0.210	0.0884	1.00	"	"	"	"	"	"	J

North Creek Analytical - Portland

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
02/03/04 14:51

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-22 (A) (P3J0654-06RE1) Water Sampled: 10/16/03 09:40 Received: 10/18/03 10:30										
1,3,5-Trimethylbenzene	ND	0.157	0.500	ug/l	1	3100976	10/25/03	10/25/03	EPA 8260B	U
Isopropylbenzene	2.78	0.107	2.00	"	"	"	"	"	"	
n-Propylbenzene	7.00	0.138	0.500	"	"	"	"	"	"	
Surrogate: 4-BFB	101 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	95.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethan	94.5 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	87.0 %		80-120			"	"	"	"	
MW-35 (A) (P3J0654-07) Water Sampled: 10/16/03 11:15 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100972	10/24/03	10/24/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	1.12	0.110	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	1.04	0.0989	2.00	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	0.170	0.138	0.500	"	"	"	"	"	"	J
Surrogate: 4-BFB	96.5 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	102 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethan	99.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	91.5 %		80-120			"	"	"	"	

North Creek Analytical - Portland

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907.334.9200 fax 907.334.9210

EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
02/03/04 14:51

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-39 (A) (P3J0654-08) Water Sampled: 10/16/03 15:40 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100972	10/24/03	10/24/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	3.98	0.147	0.500	"	"	"	"	"	"	
Toluene	0.380	0.155	0.500	"	"	"	"	"	"	J
Ethylbenzene	10.9	0.110	0.500	"	"	"	"	"	"	
Xylenes (total)	21.6	0.262	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	22.8	0.0989	2.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	19.7	0.0884	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	3.02	0.157	0.500	"	"	"	"	"	"	
Isopropylbenzene	3.42	0.107	2.00	"	"	"	"	"	"	
n-Propylbenzene	5.33	0.138	0.500	"	"	"	"	"	"	
Surrogate: 4-BFB	102 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	99.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethan	97.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	94.0 %		80-120			"	"	"	"	
MW-31 (A) (P3J0654-09RE1) Water Sampled: 10/16/03 13:50 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	1.87	5.00	ug/l	10	3100976	10/25/03	10/26/03	EPA 8260B	D, U
1,2-Dichloroethane	ND	1.42	5.00	"	"	"	"	"	"	D, U
Benzene	1170	1.47	5.00	"	"	"	"	"	"	D
Toluene	38.4	1.55	5.00	"	"	"	"	"	"	D
Ethylbenzene	706	1.10	5.00	"	"	"	"	"	"	D
Xylenes (total)	138	2.62	10.0	"	"	"	"	"	"	D
Methyl tert-butyl ether	ND	0.865	20.0	"	"	"	"	"	"	D, U
Naphthalene	16.2	0.989	20.0	"	"	"	"	"	"	J, D
1,2,4-Trimethylbenzene	1.60	0.884	10.0	"	"	"	"	"	"	J, D
1,3,5-Trimethylbenzene	3.90	1.57	5.00	"	"	"	"	"	"	J, D
Isopropylbenzene	54.4	1.07	20.0	"	"	"	"	"	"	D
n-Propylbenzene	152	1.38	5.00	"	"	"	"	"	"	D
Surrogate: 4-BFB	109 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	97.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethan	97.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	101 %		80-120			"	"	"	"	

North Creek Analytical - Portland

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
02/03/04 14:51

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BM-31 (A) (P3J0654-10) Water Sampled: 10/16/03 13:50 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	1.87	5.00	ug/l	10	3100972	10/24/03	10/25/03	EPA 8260B	D, U
1,2-Dichloroethane	ND	1.42	5.00	"	"	"	"	"	"	D, U
Benzene	1260	1.47	5.00	"	"	"	"	"	"	D
Toluene	41.6	1.55	5.00	"	"	"	"	"	"	D
Ethylbenzene	728	1.10	5.00	"	"	"	"	"	"	D
Xylenes (total)	143	2.62	10.0	"	"	"	"	"	"	D
Methyl tert-butyl ether	ND	0.865	20.0	"	"	"	"	"	"	D, U
Naphthalene	15.3	0.989	20.0	"	"	"	"	"	"	J, D
1,2,4-Trimethylbenzene	1.70	0.884	10.0	"	"	"	"	"	"	J, D
1,3,5-Trimethylbenzene	3.90	1.57	5.00	"	"	"	"	"	"	J, D
Isopropylbenzene	56.5	1.07	20.0	"	"	"	"	"	"	D
n-Propylbenzene	156	1.38	5.00	"	"	"	"	"	"	D
Surrogate: 4-BFB	105 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	90.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethan	94.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	97.5 %		80-120			"	"	"	"	
MW-45 (A) (P3J0654-11) Water Sampled: 10/16/03 17:30 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100972	10/24/03	10/25/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	0.160	0.147	0.500	"	"	"	"	"	"	J
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	0.320	0.110	0.500	"	"	"	"	"	"	J
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	1.11	0.0989	2.00	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	0.210	0.0884	1.00	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	0.210	0.138	0.500	"	"	"	"	"	"	J
Surrogate: 4-BFB	100 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	99.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethan	96.5 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	91.5 %		80-120			"	"	"	"	

North Creek Analytical - Portland

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Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
02/03/04 14:51

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-37 (A) (P3J0654-12) Water Sampled: 10/17/03 08:10 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100972	10/24/03	10/25/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	0.160	0.147	0.500	"	"	"	"	"	"	J
Toluene	0.720	0.155	0.500	"	"	"	"	"	"	
Ethylbenzene	17.0	0.110	0.500	"	"	"	"	"	"	
Xylenes (total)	30.6	0.262	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	21.5	0.0989	2.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	12.2	0.0884	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	2.96	0.157	0.500	"	"	"	"	"	"	
Isopropylbenzene	6.72	0.107	2.00	"	"	"	"	"	"	
n-Propylbenzene	10.4	0.138	0.500	"	"	"	"	"	"	
Surrogate: 4-BFB	100 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	98.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethan	98.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	92.0 %		80-120			"	"	"	"	
MW-40 (A) (P3J0654-13) Water Sampled: 10/17/03 09:35 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	0.935	2.50	ug/l	5	3100972	10/24/03	10/25/03	EPA 8260B	D, U
1,2-Dichloroethane	ND	0.710	2.50	"	"	"	"	"	"	D, U
Benzene	81.2	0.735	2.50	"	"	"	"	"	"	D
Toluene	57.6	0.775	2.50	"	"	"	"	"	"	D
Ethylbenzene	650	0.550	2.50	"	"	"	"	"	"	D
Xylenes (total)	367	1.31	5.00	"	"	"	"	"	"	D
Methyl tert-butyl ether	ND	0.432	10.0	"	"	"	"	"	"	D, U
Naphthalene	82.5	0.494	10.0	"	"	"	"	"	"	D
1,2,4-Trimethylbenzene	40.6	0.442	5.00	"	"	"	"	"	"	D
1,3,5-Trimethylbenzene	8.70	0.785	2.50	"	"	"	"	"	"	D
Isopropylbenzene	44.8	0.535	10.0	"	"	"	"	"	"	D
n-Propylbenzene	86.4	0.690	2.50	"	"	"	"	"	"	D
Surrogate: 4-BFB	102 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	92.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethan	95.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	96.5 %		80-120			"	"	"	"	

North Creek Analytical - Portland

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
02/03/04 14:51

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-44 (A) (P3J0654-14) Water Sampled: 10/17/03 12:00 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	9.35	25.0	ug/l	50	3100972	10/24/03	10/25/03	EPA 8260B	D, U
1,2-Dichloroethane	ND	7.10	25.0	"	"	"	"	"	"	D, U
Benzene	898	7.35	25.0	"	"	"	"	"	"	D
Toluene	5320	7.75	25.0	"	"	"	"	"	"	D
Ethylbenzene	2890	5.50	25.0	"	"	"	"	"	"	D
Xylenes (total)	14900	13.1	50.0	"	"	"	"	"	"	D
Methyl tert-butyl ether	ND	4.32	100	"	"	"	"	"	"	D, U
Naphthalene	1050	4.94	100	"	"	"	"	"	"	D
1,2,4-Trimethylbenzene	3470	4.42	50.0	"	"	"	"	"	"	D
1,3,5-Trimethylbenzene	898	7.85	25.0	"	"	"	"	"	"	D
Isopropylbenzene	94.0	5.35	100	"	"	"	"	"	"	J, D
n-Propylbenzene	388	6.90	25.0	"	"	"	"	"	"	D
Surrogate: 4-BFB	110 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	93.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethan	97.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	101 %		80-120			"	"	"	"	
MW-17 (A) (P3J0654-15) Water Sampled: 10/17/03 12:40 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100972	10/24/03	10/25/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	9.19	0.147	0.500	"	"	"	"	"	"	
Toluene	25.5	0.155	0.500	"	"	"	"	"	"	
Ethylbenzene	14.7	0.110	0.500	"	"	"	"	"	"	
Xylenes (total)	35.3	0.262	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	4.88	0.0989	2.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	3.19	0.0884	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	0.540	0.157	0.500	"	"	"	"	"	"	
Isopropylbenzene	2.90	0.107	2.00	"	"	"	"	"	"	
n-Propylbenzene	7.97	0.138	0.500	"	"	"	"	"	"	
Surrogate: 4-BFB	100 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	94.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethan	96.5 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	89.5 %		80-120			"	"	"	"	

North Creek Analytical - Portland

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Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
02/03/04 14:51

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-28 (A) (P3J0654-16) Water Sampled: 10/17/03 14:15 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	1.87	5.00	ug/l	10	3100972	10/24/03	10/25/03	EPA 8260B	D, U
1,2-Dichloroethane	ND	1.42	5.00	"	"	"	"	"	"	D, U
Benzene	208	1.47	5.00	"	"	"	"	"	"	D
Toluene	201	1.55	5.00	"	"	"	"	"	"	D
Ethylbenzene	334	1.10	5.00	"	"	"	"	"	"	D
Xylenes (total)	1070	2.62	10.0	"	"	"	"	"	"	D
Methyl tert-butyl ether	ND	0.865	20.0	"	"	"	"	"	"	D, U
Naphthalene	157	0.989	20.0	"	"	"	"	"	"	D
1,2,4-Trimethylbenzene	566	0.884	10.0	"	"	"	"	"	"	D
1,3,5-Trimethylbenzene	138	1.57	5.00	"	"	"	"	"	"	D
Isopropylbenzene	24.4	1.07	20.0	"	"	"	"	"	"	D
n-Propylbenzene	85.6	1.38	5.00	"	"	"	"	"	"	D
Surrogate: 4-BFB	106 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	92.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethan	94.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	98.0 %		80-120			"	"	"	"	
MW-26 (A) (P3J0654-17) Water Sampled: 10/17/03 16:00 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	0.935	2.50	ug/l	5	3100972	10/24/03	10/25/03	EPA 8260B	D, U
1,2-Dichloroethane	ND	0.710	2.50	"	"	"	"	"	"	D, U
Benzene	3.05	0.735	2.50	"	"	"	"	"	"	D
Toluene	18.4	0.775	2.50	"	"	"	"	"	"	D
Ethylbenzene	373	0.550	2.50	"	"	"	"	"	"	D
Xylenes (total)	1040	1.31	5.00	"	"	"	"	"	"	D
Methyl tert-butyl ether	ND	0.432	10.0	"	"	"	"	"	"	D, U
Naphthalene	280	0.494	10.0	"	"	"	"	"	"	D
1,2,4-Trimethylbenzene	600	0.442	5.00	"	"	"	"	"	"	D
1,3,5-Trimethylbenzene	135	0.785	2.50	"	"	"	"	"	"	D
Isopropylbenzene	32.0	0.535	10.0	"	"	"	"	"	"	D
n-Propylbenzene	83.3	0.690	2.50	"	"	"	"	"	"	D
Surrogate: 4-BFB	106 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	92.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethan	94.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	98.5 %		80-120			"	"	"	"	

North Creek Analytical - Portland

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Joy D. Chang, Project Manager



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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
02/03/04 14:51

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Trip Blank MW-2 (M) (P3J0654-19) Water Sampled: 10/15/03 13:00 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100972	10/24/03	10/24/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	95.5 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	96.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethan	95.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	98.5 %		80-120			"	"	"	"	
Trip Blank MW-45 (A) (P3J0654-28) Water Sampled: 10/16/03 17:30 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100972	10/24/03	10/24/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	96.5 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	98.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethan	97.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	98.0 %		80-120			"	"	"	"	

North Creek Analytical - Portland

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
02/03/04 14:51

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Trip Blank MW-40 (A) (P3J0654-30) Water Sampled: 10/17/03 09:35 Received: 10/18/03 10:30										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100972	10/24/03	10/24/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	96.0 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	97.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethan	97.5 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	98.5 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
02/03/04 14:51

Selected Volatile Organic Compounds per EPA Method 8260B - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100972: Prepared 10/24/03 Using EPA 5030B

Blank (3100972-BLK1)

1,2-Dibromoethane	ND	0.187	0.500	ug/l							U
1,2-Dichloroethane	ND	0.142	0.500	"							U
Benzene	ND	0.147	0.500	"							U
Toluene	ND	0.155	0.500	"							U
Ethylbenzene	ND	0.110	0.500	"							U
Xylenes (total)	ND	0.262	1.00	"							U
Methyl tert-butyl ether	ND	0.0865	2.00	"							U
Naphthalene	ND	0.0989	2.00	"							U
1,2,4-Trimethylbenzene	0.120	0.0884	1.00	"							J
1,3,5-Trimethylbenzene	ND	0.157	0.500	"							U
Isopropylbenzene	ND	0.107	2.00	"							U
n-Propylbenzene	ND	0.138	0.500	"							U
Surrogate: 4-BFB	19.1			"	20.0		95.5	75-120			
Surrogate: 1,2-DCA-d4	19.2			"	20.0		96.0	77-129			
Surrogate: Dibromofluoromethane	18.9			"	20.0		94.5	80-121			
Surrogate: Toluene-d8	19.6			"	20.0		98.0	80-120			

LCS (3100972-BS1)

Benzene	19.6	0.147	0.500	ug/l	20.0		98.0	80-120			
Toluene	20.0	0.155	0.500	"	20.0		100	80-124			
Ethylbenzene	21.9	0.110	0.500	"	20.0		110	80-120			
Xylenes (total)	65.5	0.262	1.00	"	60.0		109	73-124			
Surrogate: 4-BFB	20.6			"	20.0		103	75-120			
Surrogate: 1,2-DCA-d4	19.4			"	20.0		97.0	77-129			
Surrogate: Dibromofluoromethane	19.2			"	20.0		96.0	80-121			
Surrogate: Toluene-d8	19.9			"	20.0		99.5	80-120			

Matrix Spike (3100972-MS1)

Source: P3J0654-07

Benzene	20.4	0.147	0.500	ug/l	20.0	ND	102	80-124			
Toluene	17.6	0.155	0.500	"	20.0	ND	88.0	79.7-131			
Ethylbenzene	20.0	0.110	0.500	"	20.0	1.12	94.4	80-124			
Xylenes (total)	39.6	0.262	1.00	"	60.0	ND	66.0	44.6-154			

North Creek Analytical - Portland

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Joy D. Chang, Project Manager



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907.334.9200 fax 907.334.9210

EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
02/03/04 14:51

Selected Volatile Organic Compounds per EPA Method 8260B - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch 3100972: Prepared 10/24/03 Using EPA 5030B

Matrix Spike (3100972-MS1)

Source: P3J0654-07

Surrogate: 4-BFB	20.4			ug/l	20.0		102	75-120		
Surrogate: 1,2-DCA-d4	18.8			"	20.0		94.0	77-129		
Surrogate: Dibromofluoromethane	19.3			"	20.0		96.5	80-121		
Surrogate: Toluene-d8	18.5			"	20.0		92.5	80-120		

Matrix Spike Dup (3100972-MSD1)

Source: P3J0654-07

Benzene	20.3	0.147	0.500	ug/l	20.0	ND	102	80-124	0.491	25
Toluene	16.5	0.155	0.500	"	20.0	ND	82.5	79.7-131	6.45	25
Ethylbenzene	19.1	0.110	0.500	"	20.0	1.12	89.9	80-124	4.60	25
Xylenes (total)	35.2	0.262	1.00	"	60.0	ND	58.7	44.6-154	11.8	25
Surrogate: 4-BFB	20.6			"	20.0		103	75-120		
Surrogate: 1,2-DCA-d4	18.9			"	20.0		94.5	77-129		
Surrogate: Dibromofluoromethane	19.6			"	20.0		98.0	80-121		
Surrogate: Toluene-d8	18.0			"	20.0		90.0	80-120		

Batch 3100976: Prepared 10/25/03 Using EPA 5030B

Blank (3100976-BLK1)

1,2-Dibromoethane	ND	0.187	0.500	ug/l							U
1,2-Dichloroethane	ND	0.142	0.500	"							U
Benzene	ND	0.147	0.500	"							U
Toluene	ND	0.155	0.500	"							U
Ethylbenzene	ND	0.110	0.500	"							U
Xylenes (total)	ND	0.262	1.00	"							U
Methyl tert-butyl ether	ND	0.0865	2.00	"							U
Naphthalene	ND	0.0989	2.00	"							U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"							U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"							U
Isopropylbenzene	ND	0.107	2.00	"							U
n-Propylbenzene	ND	0.138	0.500	"							U
Surrogate: 4-BFB	19.6			"	20.0		98.0	75-120			
Surrogate: 1,2-DCA-d4	18.8			"	20.0		94.0	77-129			
Surrogate: Dibromofluoromethane	19.4			"	20.0		97.0	80-121			
Surrogate: Toluene-d8	19.9			"	20.0		99.5	80-120			

North Creek Analytical - Portland

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Joy D. Chang, Project Manager



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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
02/03/04 14:51

Selected Volatile Organic Compounds per EPA Method 8260B - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----	--------------------	-------	----------------	------------------	----------------	-----	--------------	-------

Batch 3100976: Prepared 10/25/03 Using EPA 5030B

LCS (3100976-BS1)

Benzene	19.0	0.147	0.500	ug/l	20.0		95.0	80-120		
Toluene	19.3	0.155	0.500	"	20.0		96.5	80-124		
Ethylbenzene	21.2	0.110	0.500	"	20.0		106	80-120		
Xylenes (total)	62.8	0.262	1.00	"	60.0		105	73-124		
Surrogate: 4-BFB	20.7			"	20.0		104	75-120		
Surrogate: 1,2-DCA-d4	18.8			"	20.0		94.0	77-129		
Surrogate: Dibromofluoromethane	19.1			"	20.0		95.5	80-121		
Surrogate: Toluene-d8	19.7			"	20.0		98.5	80-120		

Matrix Spike (3100976-MS1)

Source: P3J0713-01

Benzene	19.9	0.147	0.500	ug/l	20.0	0.190	98.6	80-124		
Toluene	18.4	0.155	0.500	"	20.0	ND	92.0	79.7-131		
Ethylbenzene	23.2	0.110	0.500	"	20.0	3.13	100	80-124		
Xylenes (total)	51.8	0.262	1.00	"	60.0	ND	86.3	44.6-154		
Surrogate: 4-BFB	20.1			"	20.0		100	75-120		
Surrogate: 1,2-DCA-d4	18.3			"	20.0		91.5	77-129		
Surrogate: Dibromofluoromethane	19.3			"	20.0		96.5	80-121		
Surrogate: Toluene-d8	19.0			"	20.0		95.0	80-120		

Matrix Spike Dup (3100976-MSD1)

Source: P3J0713-01

Benzene	20.8	0.147	0.500	ug/l	20.0	0.190	103	80-124	4.42	25
Toluene	19.7	0.155	0.500	"	20.0	ND	98.5	79.7-131	6.82	25
Ethylbenzene	24.9	0.110	0.500	"	20.0	3.13	109	80-124	7.07	25
Xylenes (total)	60.3	0.262	1.00	"	60.0	ND	100	44.6-154	15.2	25
Surrogate: 4-BFB	20.3			"	20.0		102	75-120		
Surrogate: 1,2-DCA-d4	18.4			"	20.0		92.0	77-129		
Surrogate: Dibromofluoromethane	19.2			"	20.0		96.0	80-121		
Surrogate: Toluene-d8	19.1			"	20.0		95.5	80-120		

North Creek Analytical - Portland

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Joy D. Chang, Project Manager

North Creek Analytical, Inc.
Environmental Laboratory Network

Page 15 of 16



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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
02/03/04 14:51

Notes and Definitions

D Data reported from a preparation or analytical dilution.
J Estimated value.
U Analyte included in the analysis but not detected.
DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference

North Creek Analytical - Portland

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Joy D. Chang, Project Manager



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ASTORIA AREA-WIDE PETROLEUM SITE CHAIN OF CUSTODY REPORT

Work Order #: 430054

CLIENT: Environmental Resources		INVOICE TO: Environmental Resources															
REPORT TO: TOM CARROLL		E-mail: @															
ADDRESS: PO BOX 80963 ASTORIA, OR 97138																	
PHONE: 503-768-5121	FAX: 503-768-5123	P.O. NUMBER: 10077.004															
PROJECT NAME: Astoria Area-Wide Petro Site RI-1																	
PROJECT NUMBER: 10077.004																	
SAMPLED BY: MW3, AS																	
LOCATOR ID	SAMPLE ID	SAMPLING DATE/TIME	NWTFH-DX	NWTFH-CX	8260B RBCA	8270 SIM PAH	RCRA 8 METALS	RCRA 8 METALS	Dissolved	Total Cations: Na, K, Ca, Mg, Fe, Mn	Chloride 300.0	Sulfate 300.0	ALH/CO3/CO3	SM/230B	Nitrate/Nitrite 35.2	COMMENTS	
1 MW-43(A)	MW-43(A)	10/15/03 11:11:00	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
2 MW-2(M)	MW-2(M)	10/15/03 11:13:00	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
3 MW-10(M)	MW-10(M)	10/15/03 11:15:00	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
4 MW-11(M)	MW-11(M)	10/15/03 11:17:00	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
5 MW-30(A)	MW-30(A)	10/16/03 11:15:00	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
6 MW-33(A)	MW-33(A)	10/16/03 11:19:00	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
7 MW-35(A)	MW-35(A)	10/16/03 11:11:15	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
8 MW-39(A)	MW-39(A)	10/16/03 11:15:40	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
9 MW-31(A)	MW-31(A)	10/16/03 11:13:50	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
10 BM-31(A)	BM-31(A)	10/16/03 11:13:50	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
11 MW-45(A)	MW-45(A)	10/16/03 11:17:30	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
12 MW-37(A)	MW-37(A)	10/17/03 11:18:10	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
13 MW-40(A)	MW-40(A)	10/17/03 11:19:35	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
14 MW-44(A)	MW-44(A)	10/17/03 11:19:35	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
15 TRIP BANK	TRIP BANK	10/15/03 11:13:00	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
RELINQUISHED BY: Alvin A. Burt	DATE: 10/17/03	RECEIVED BY: Environmental Resources	DATE: 10/17/03														
PRINT NAME: Alvin A. Burt	FIRM: Environmental Resources	PRINT NAME: Environmental Resources	FIRM: Environmental Resources														
RELINQUISHED BY:	DATE:	RELINQUISHED BY:	DATE:														
PRINT NAME:	FIRM:	PRINT NAME:	FIRM:														
ADDITIONAL REMARKS:	TEMP:	PAGE	OF														
2.8, 2.3, 3.0, 0.0, 4.6, 3.3, 3.3, 4.2, 0.5, 2.8, 4.3, 5.1, 0.2, 0.3 0.8, 1.3, 4.3, 2.5	10.8	10.3	10.3														



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ASTORIA AREA-WIDE PETROLEUM SITE CHAIN OF CUSTODY REPORT

Work Order #: **1300654**

CLIENT: Environmental Resources		INVOICE TO: Environmental Resources		TURNAROUND REQUEST in Business Days *												
REPORT TO: Tom Labadie		E-mail: @		Organic & Inorganic Analyses												
ADDRESS: PO BOX 80763 Portland, OR 97280		FAX: 503-765-5121		Petroleum Hydrocarbon Analyses												
PHONE: 503-765-5121		P.O. NUMBER: 10077.004		Specify:												
PROJECT NAME: Astoria Area-Wide Petro Site RI-1		REQUESTED ANALYSES		OTHER												
PROJECT NUMBER: 10077.004		Requested Analyses		Specify:												
SAMPLED BY: MNB, AS		Requested Analyses		Specify:												
LOCATOR ID	SAMPLE ID	SAMPLING DATE/TIME	8260B RBGA	8270 SIM PAH	RCRA 8 METALS	RCRA 8 METALS	Dissolved	Total Cations: Na, K, Ca, Mg, Fe, Mn	Chloride 300.0	Sulfate 300.0	Al/HC/CO3/CO3	SM2320B	Nitrate/Nitrite 35.2	MATRIX (gov, Soil)	# OF CONT.	COMMENTS
1 TRIP BLANK	TRIP BLANK	10/16/03 11:14:10	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	2	w/ MW-33(A)
2 TRIP BLANK	TRIP BLANK	10/16/03 11:17:30	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	2	w/ MW-45(A)
3 TRIP BLANK	TRIP BLANK	10/17/03 11:19:35	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	2	w/ MW-40(A)
4 MW-17(A)	MW-17(A)	10/17/03 11:13:10	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	14	
5 MW-38(A)	MW-38(A)	10/17/03 11:14:15	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	14	
6 MW-36(A)	MW-36(A)	10/17/03 11:16:00	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	14	
7 TRIP BLANK	TRIP BLANK	10/17/03 11:16:00	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	2	w/ MW-36(A)
8		11/1/03														
9		11/1/03														
10		11/1/03														
11		11/1/03														
12		11/1/03														
13		11/1/03														
14		11/1/03														
15		11/1/03														

RELINQUISHED BY: M.A. A. B. L.	DATE: 10-18-03	RECEIVED BY: Erica Baker	DATE: 10/18/03
PRINT NAME: M.A. A. B. L.	TIME: 10:30	PRINT NAME: Erica Baker	TIME: 10:30
RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:
PRINT NAME:	TIME:	PRINT NAME:	TIME:
ADDITIONAL REMARKS: - 2.8, 2.3, 3.0, 0.0, 4.6, 3.3, 3.3, 4.2, 0.5, 2.8, 4.3, 6.1, 1.0, 2.3, 0.8, 1.3, 4.3, 2.5			

NORTH CREEK ANALYTICAL COOLER RECEIPT FORM

(Army Corp. compliant)

Client: Environmental Resources

1. Please sign for receipt and opening of 18 cooler or other

By (print) Erica Vakan (sign) Erica Vakan

2. Date samples received 10/18/03 Date opened: Same ☒ or 1/1/

3. Delivered by: NCA courier FedEx UPS Courier ☒ Client Other
Airbill # if applicable _____ (Put copy of shipping papers in file)

4. There were 0 custody seals present, signed by _____ date 1/1/

5. Were the custody seals unbroken and intact at the date and time of arrival? Yes No

6. Was ice used? ☒ yes no Type of ice: blue ice gel ice ☒ real ice
Temperature (degrees C) see COC Raytek thermometer _____ Digi-Therm (probe temperature blank)

7. Are custody papers sealed in a plastic bag and taped inside to lid? ☒ Yes No

8. Were custody papers filled out properly (ink, signed, etc.)? ☒ Yes No
If "no" please specify: _____

9. Was project identifiable from custody papers? ☒ Yes No
Name of project ASD Area-Wide (if applicable)

10. Initial and date for unpacking: ED (initials) date 10/18/03

11. Packing material: bubble wrap/bag styrofoam cardboard none other

12. Were samples in bags? Yes ☒ No

13. Did all containers indicated on the COC arrive? ☒ Yes No
If "no" please indicate which containers were absent MW 2(m) broken

14. Were all containers unbroken and labels in good condition? ☒ Yes No
If "no" please indicate which containers _____

15. Were all bottle labels complete (ID, date, time, signature, etc.)? ☒ Yes No
Do the IDs, times, etc. agree with the COC? ☒ Yes No
If "no" please indicate which containers _____

16. Are containers properly preserved for indicated analysis? ☒ Yes No

17. Is there adequate volume for the test(s) requested? ☒ Yes No

18. If voa vials were submitted, are they free of bubbles? N/A ☒ Yes No

19. Log-in phase: Date samples were logged in: 10/18/03 Elm Project # P350654

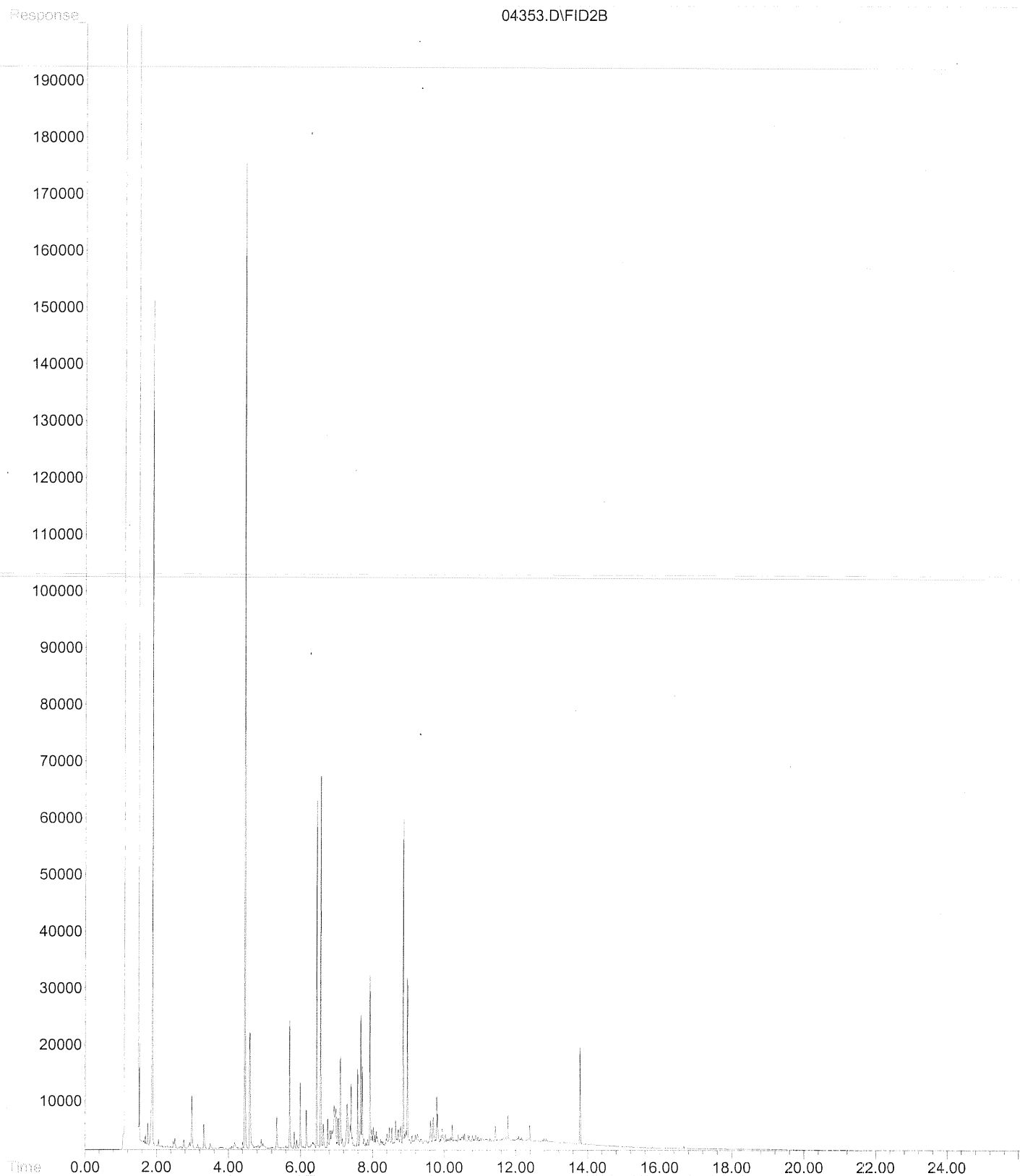
20. Logged in by (print) Erica Vakan (sign) Erica Vakan

21. Was the project manager notified of status? (Use back of form as a record) Yes No

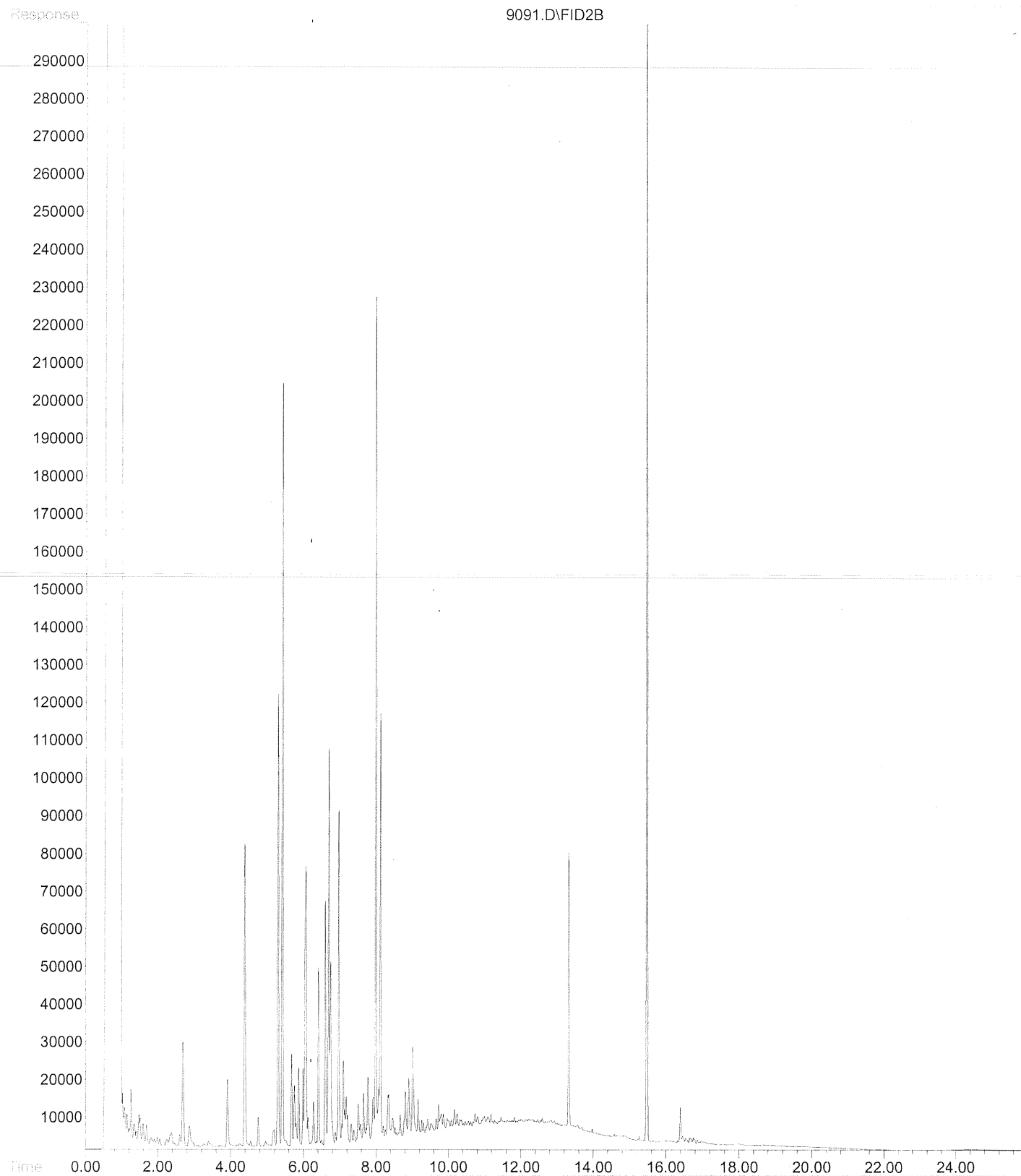
Fuels Raw Data

*NWTPH-Gx and NWTPH-Dx
Chromatograms*

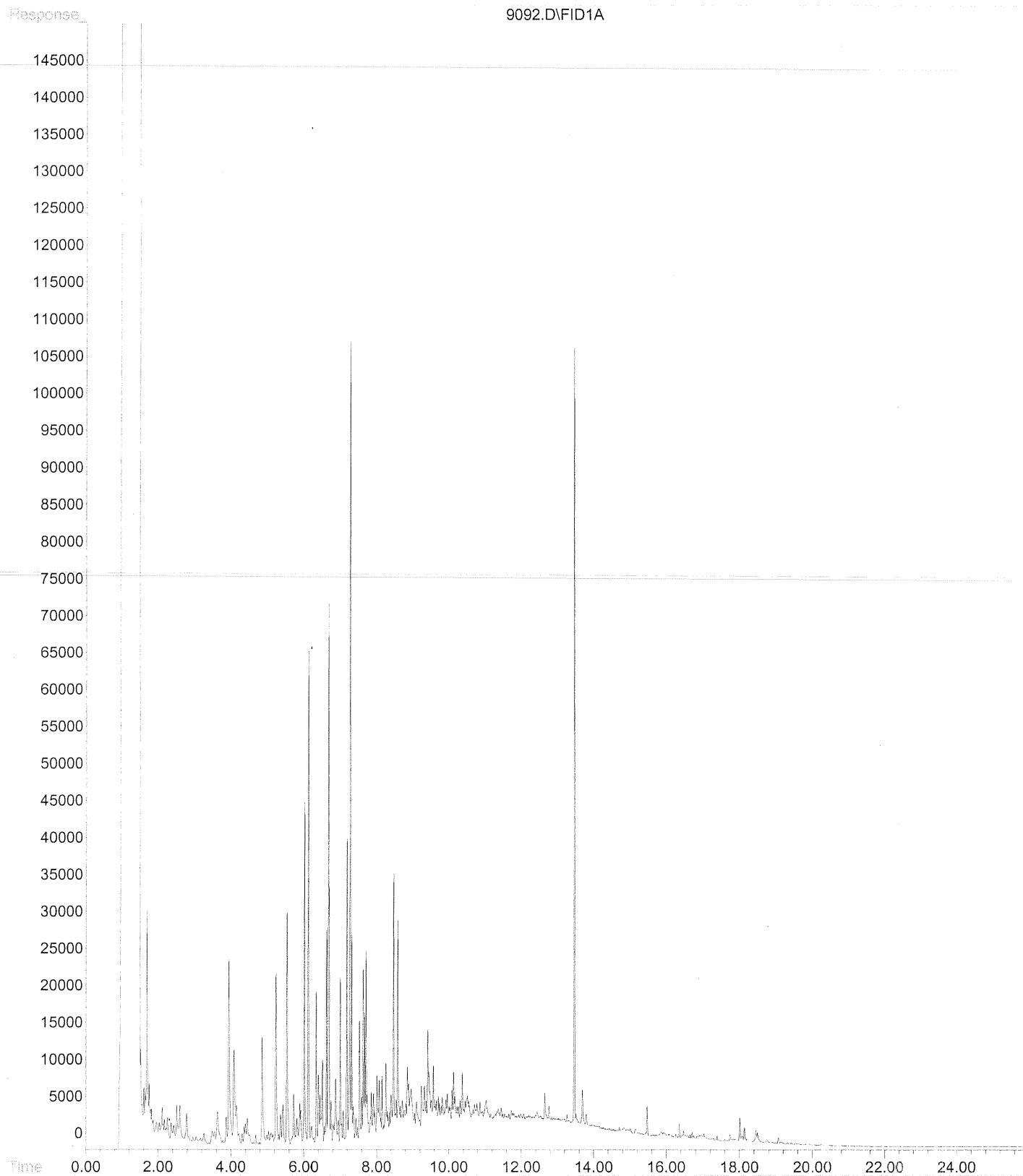
File : E:\2003-FUELS\2003-10 FUELS ENVIROQUANT\DualFID 2\031020.SEC\04353.D
Operator : AAC
Acquired : 20 Oct 2003 17:32 using AcqMethod NWF403.M
Instrument : DualFID2
Sample Name: P3J0654-01
Misc Info : 5X
Vial Number: 86



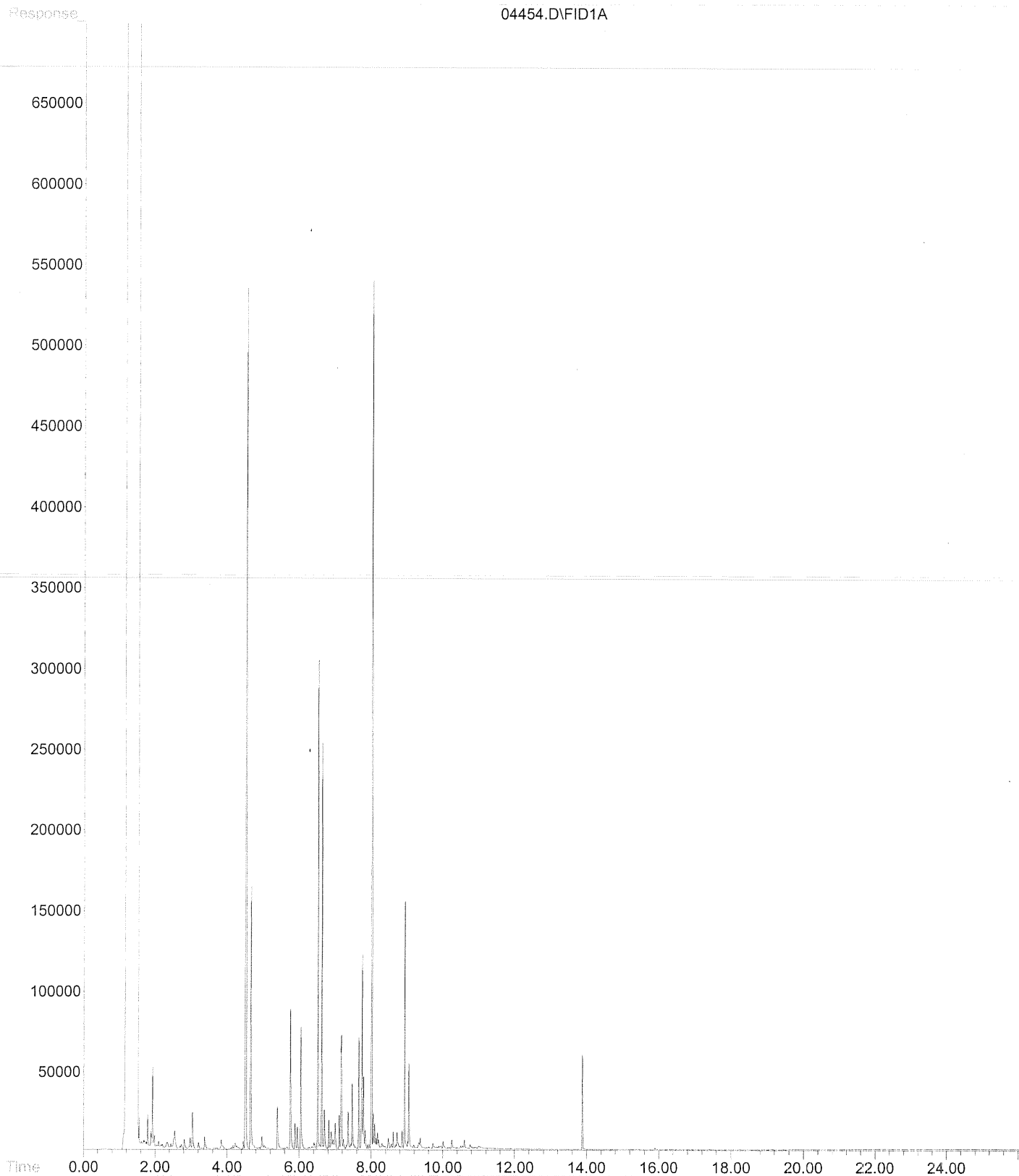
File : G:\3\DATA\031020.SEC\9091.D
Operator : BWJ
Acquired : 21 Oct 2003 1:09 using AcqMethod ND3F1202.M
Instrument : DualFID3
Sample Name: P3J0654-02
Misc Info : 1X
Vial Number: 90



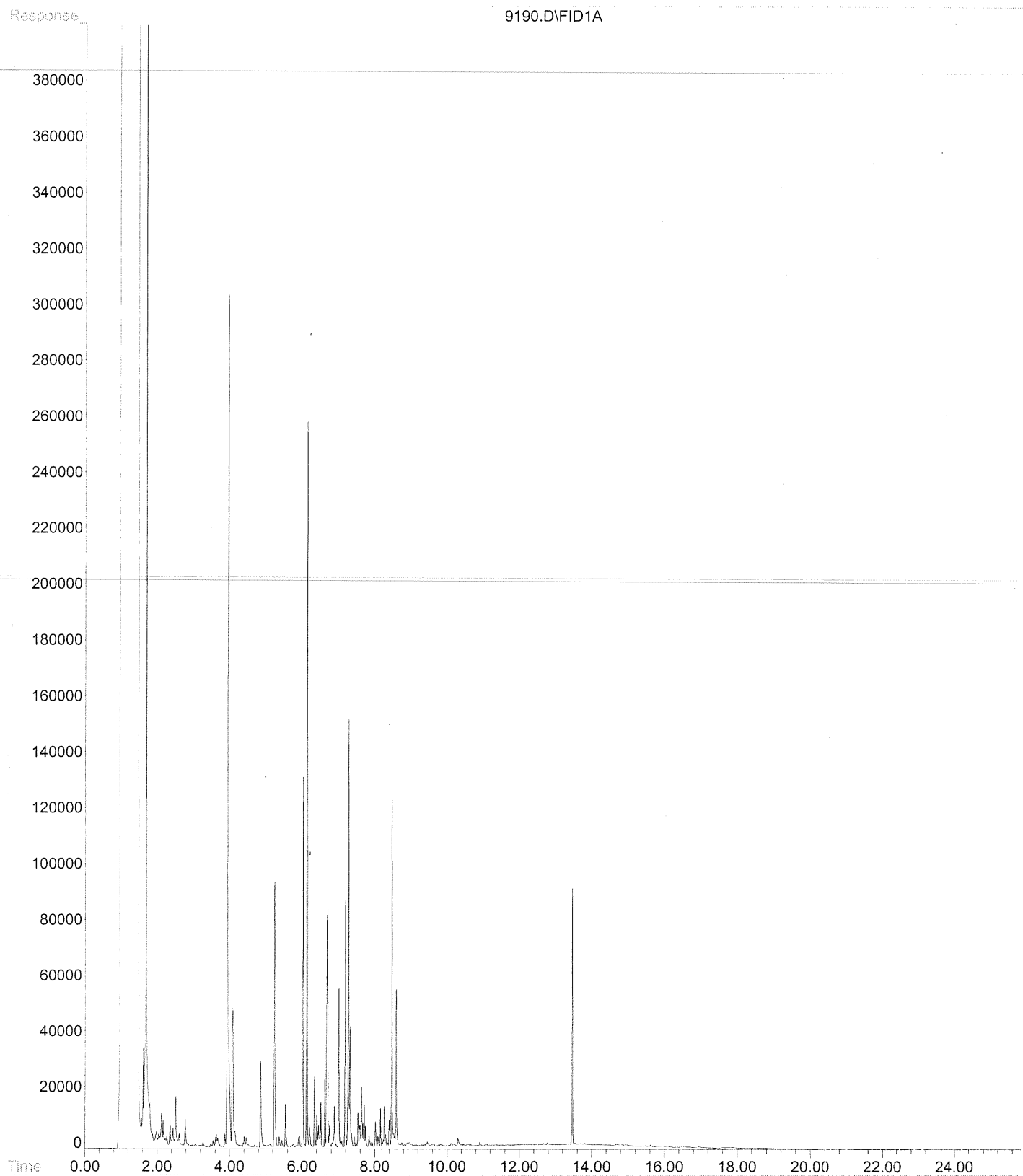
File : G:\3\DATA\031020\9092.D
Operator : BWJ
Acquired : 21 Oct 2003 1:09 using AcqMethod ND3F1202.M
Instrument : DualFID3
Sample Name: P3J0654-03
Misc Info : 1X
Vial Number: 44



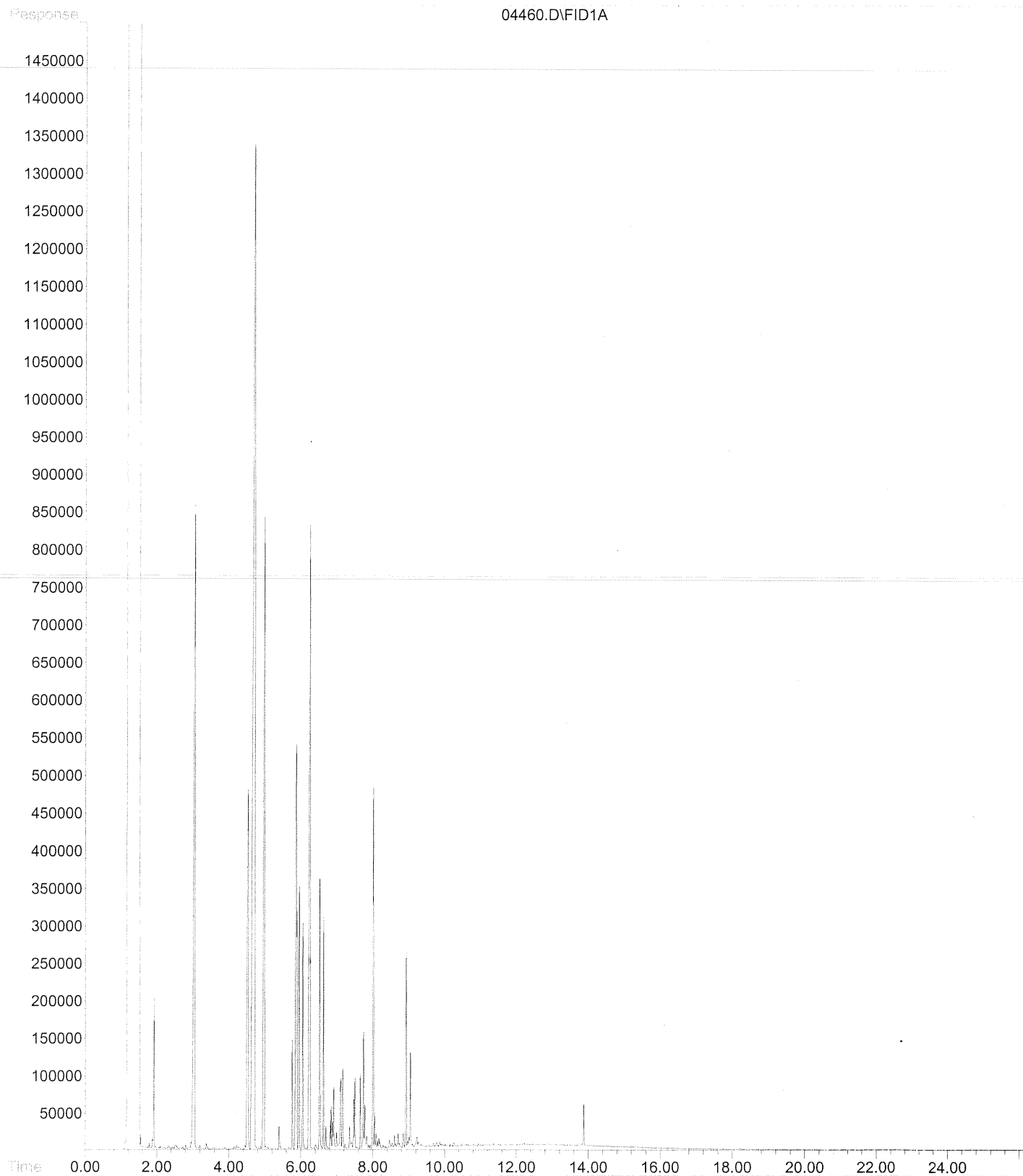
File : E:\2003-FUELS\2003-10 FUELS ENVIROQUANT\DualFID 2\031023\04454.D
Operator : AAC
Acquired : 23 Oct 2003 19:49 .using AcqMethod NWF403.M
Instrument : DualFID2
Sample Name: P3J0654-05
Misc Info : 1X
Vial Number: 31



File : G:\3\DATA\031023\9190.D
Operator : BWJ
Acquired : 23 Oct 2003 22:44 using AcqMethod ND3F1202.M
Instrument : DualFID3
Sample Name: P3J0654-09
Misc Info : 1X
Vial Number: 9



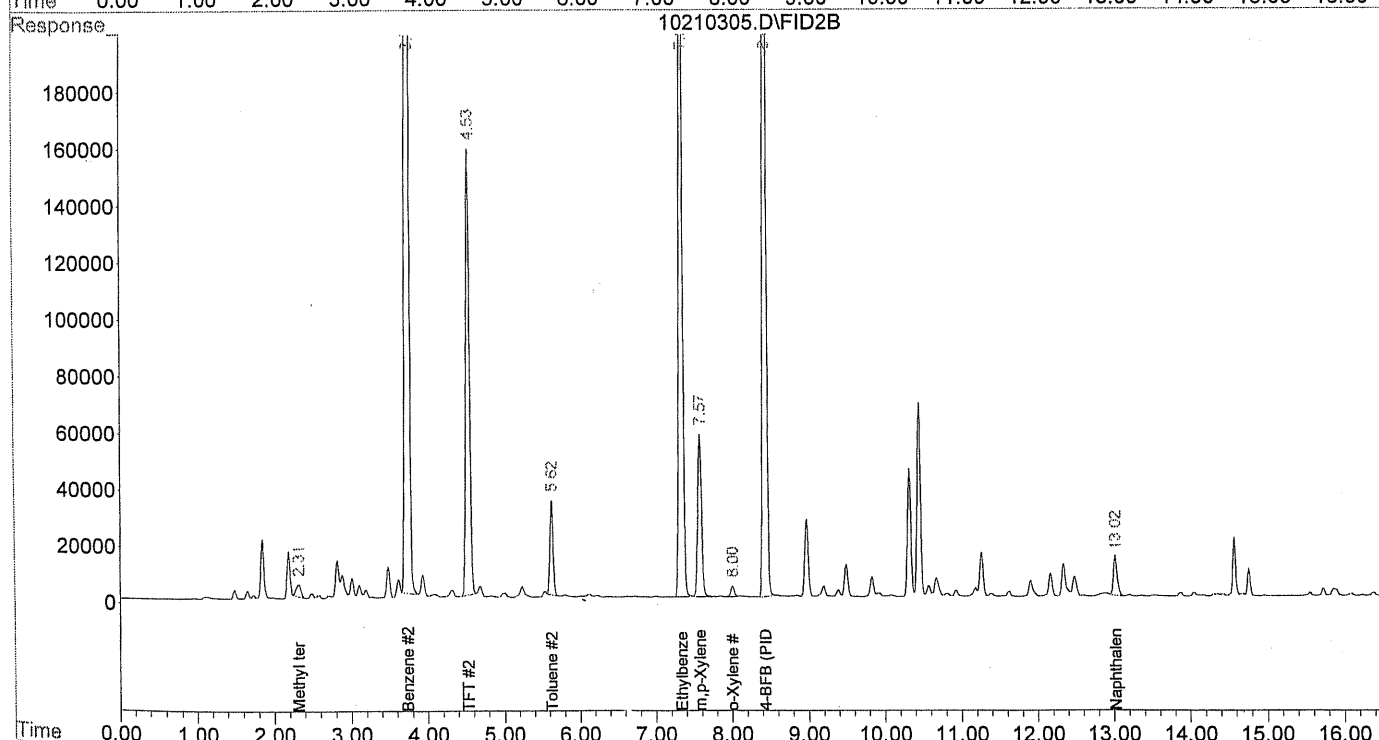
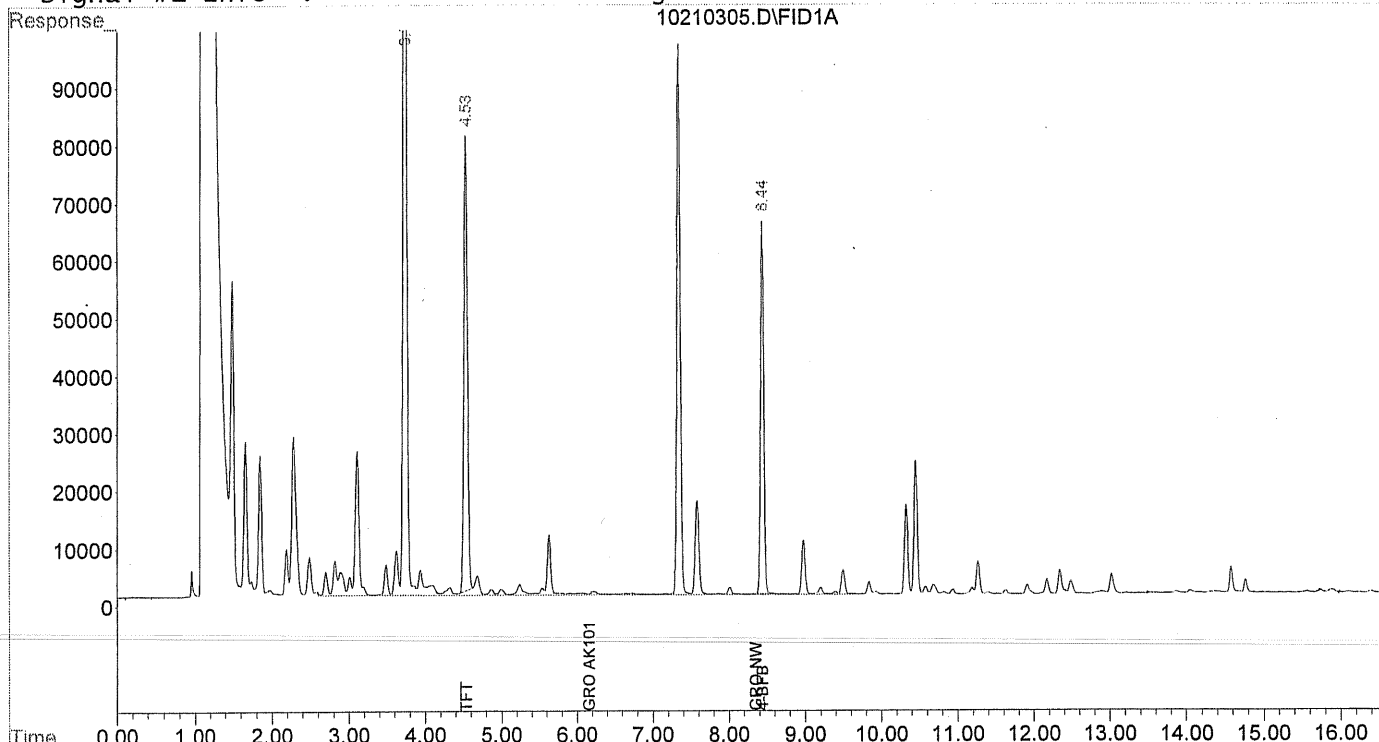
File : E:\2003-FUELS\2003-10 FUELS ENVIROQUANT\DUALFID 2\031023\04460.D
Operator : AAC
Acquired : 23 Oct 2003 21:35 using AcqMethod NWF403.M
Instrument : DualFID2
Sample Name: P3J0654-14
Misc Info : 1X
Vial Number: 34



Signal #1 : C:\HPCHEM\2\DATA\102103\10210305.D\FID1A.CH
Signal #2 : C:\HPCHEM\2\DATA\102103\10210305.D\FID2B.CH
Acq On : 21 Oct 2003 12:23
Sample : P3J0654-01
Misc : 50X
IntFile Signal #1: AUTOINT1.E
IntFile Signal #2: autoint2.e
Quant Time: Oct 21 12:40 2003
Quant Results File: 030929.RES

Quant Method : C:\HPCHEM\2\METHODS\030929.M (Chemstation Integrator)
Title : G/BTEX NW&AK101
Last Update : Mon Sep 29 18:50:50 2003
Response via : Multiple Level Calibration
DataAcq Meth : 030929.M

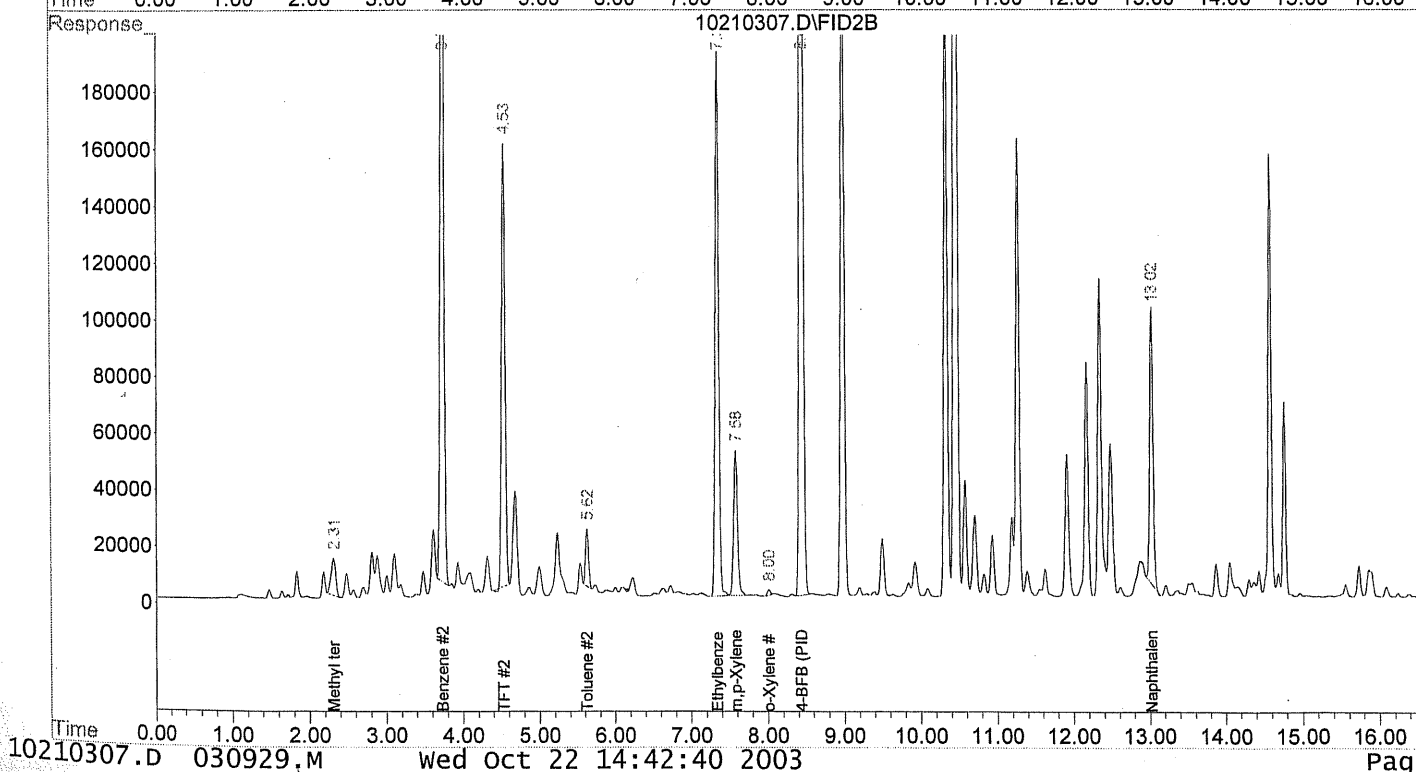
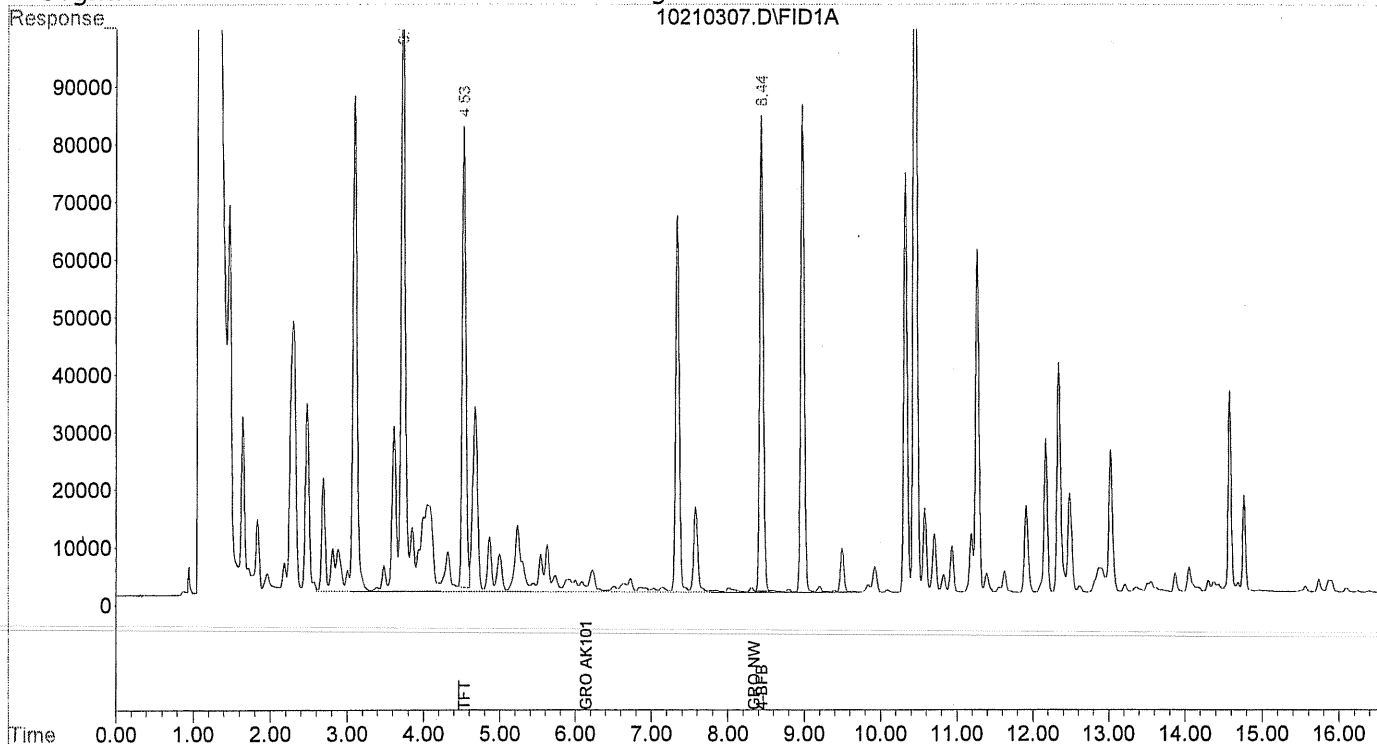
Volume Inj. :
Signal #1 Phase :
Signal #1 Info :
Signal #2 Phase :
Signal #2 Info :



Signal #1 : C:\HPCHEM\2\DATA\102103\10210307.D\FID1A.CH
Signal #2 : C:\HPCHEM\2\DATA\102103\10210307.D\FID2B.CH
Acq On : 21 Oct 2003 13:18 Operator: klp
Sample : P3J0654-02 Inst : VolSGC2
Misc : 5X Multiplr: 1.00
IntFile Signal #1: AUTOINT1.E IntFile Signal #2: autoint2.e
Quant Time: Oct 21 13:35 2003 Quant Results File: 030929.RES

Quant Method : C:\HPCHEM\2\METHODS\030929.M (Chemstation Integrator)
Title : G/BTEX NW&AK101
Last Update : Mon Sep 29 18:50:50 2003
Response via : Multiple Level Calibration
DataAcq Meth : 030929.M

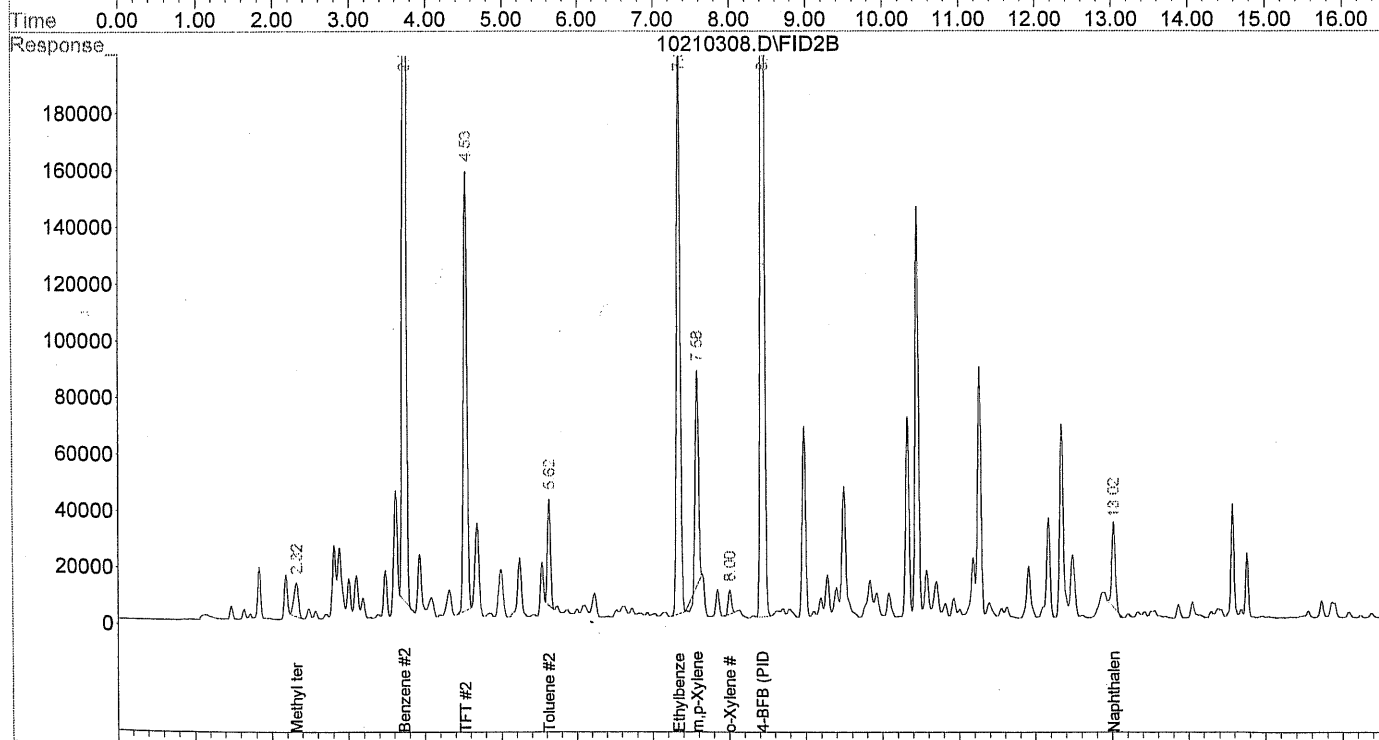
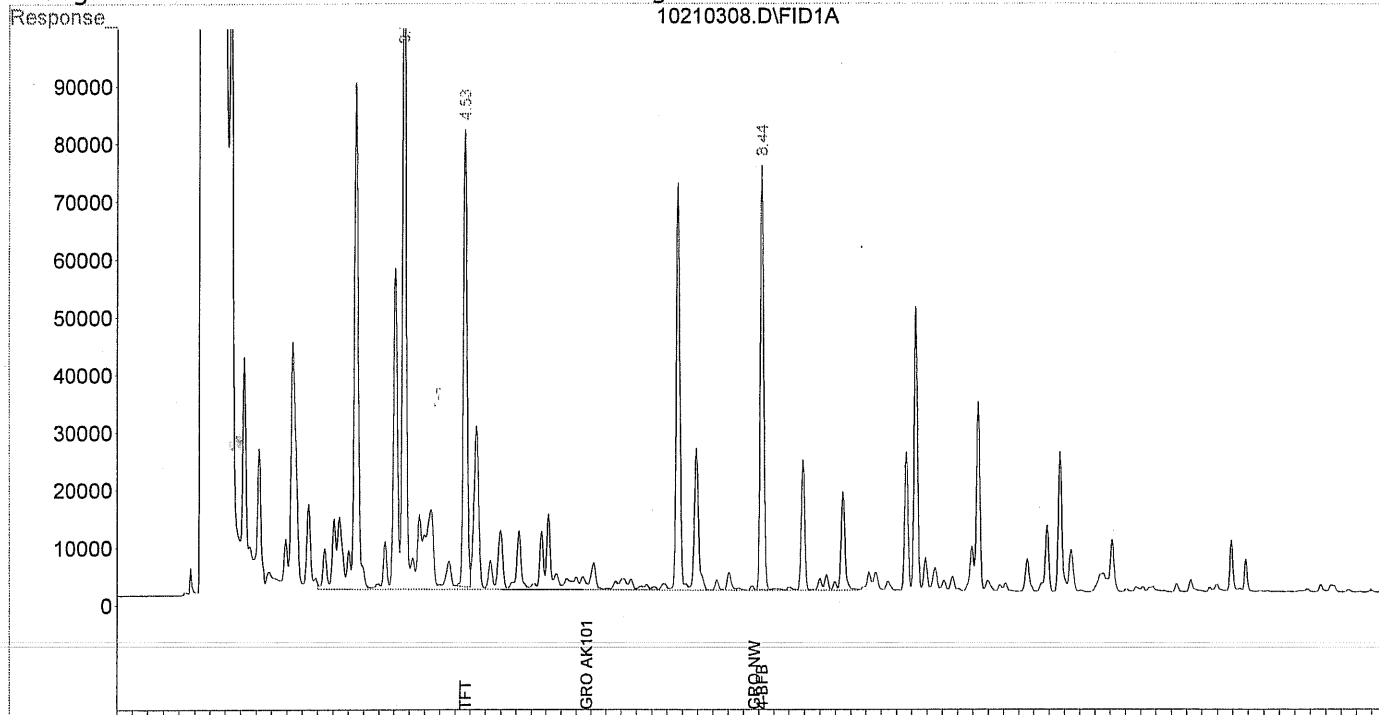
Volume Inj. :
Signal #1 Phase :
Signal #1 Info :
Signal #2 Phase :
Signal #2 Info :



Signal #1 : C:\HPCHEM\2\DATA\102103\10210308.D\FID1A.CH Cal: 6
Signal #2 : C:\HPCHEM\2\DATA\102103\10210308.D\FID2B.CH
Acq On : 21 Oct 2003 13:46 Operator: klp
Sample : P3J0654-03 Inst : VolSGC2
Misc : 5X Multiplr: 1.00
IntFile Signal #1: AUTOINT1.E IntFile Signal #2: autoint2.e
Quant Time: Oct 21 14:02 2003 Quant Results File: 030929.RES

Quant Method : C:\HPCHEM\2\METHODS\030929.M (Chemstation Integrator)
Title : G/BTEX NW&AK101
Last Update : Mon Sep 29 18:50:50 2003
Response via : Multiple Level Calibration
DataAcq Meth : 030929.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

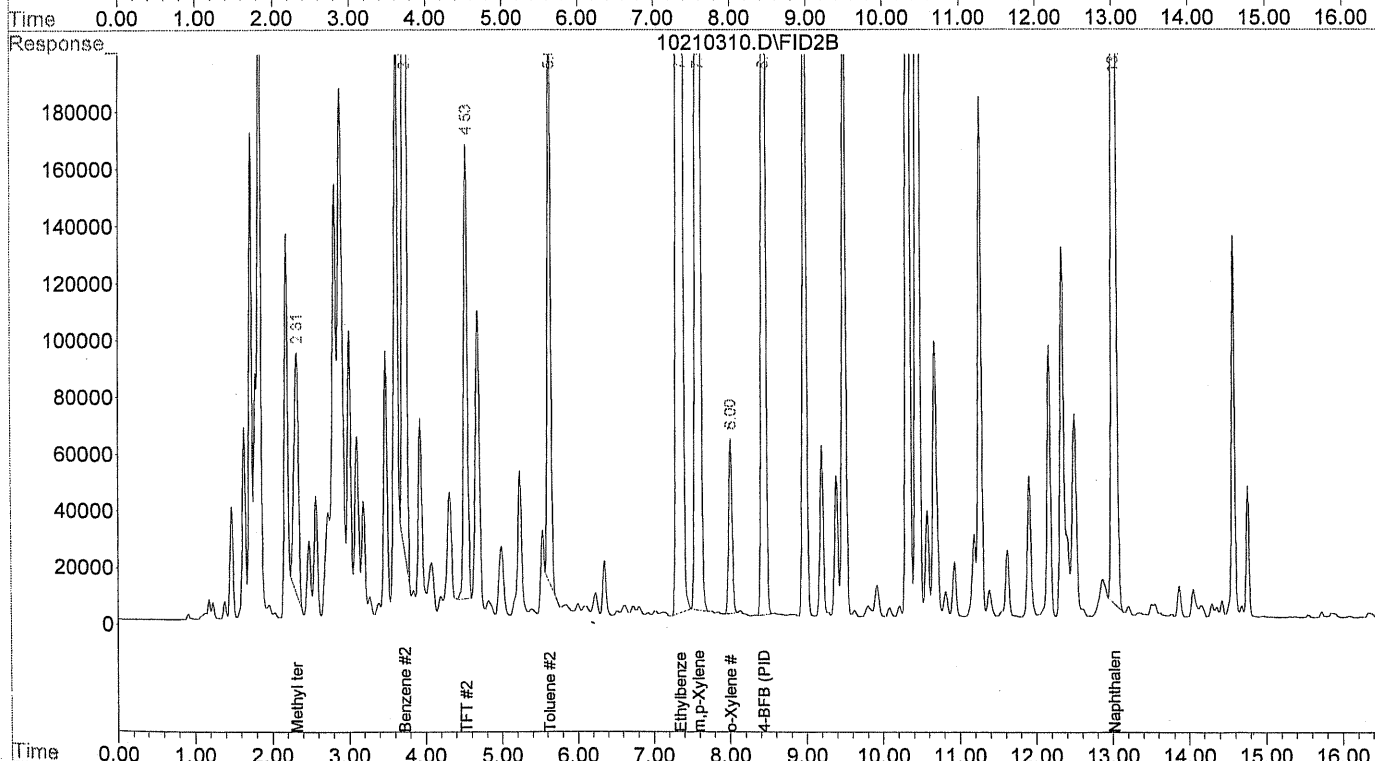
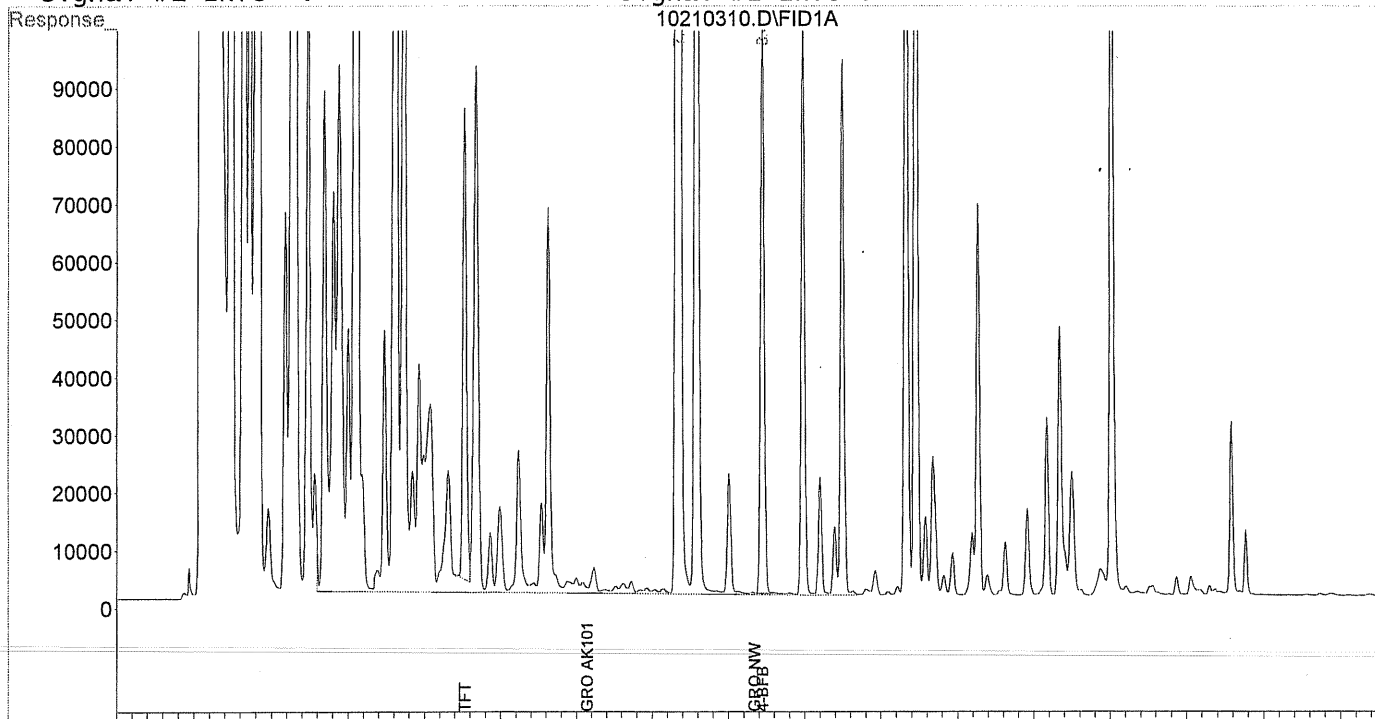


Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\102103\10210310.D\FID1A.CH Cal: 8
 Signal #2 : C:\HPCHEM\2\DATA\102103\10210310.D\FID2B.CH
 Acq On : 21 Oct 2003 14:41 Operator: klp
 Sample : P3J0654-05 Inst : VolsGC2
 Misc : 5X Multiplr: 1.00
 IntFile Signal #1: AUTOINT1.E IntFile Signal #2: autoint2.e
 Quant Time: Oct 21 14:57 2003 Quant Results File: 030929.RES

Quant Method : C:\HPCHEM\2\METHODS\030929.M (Chemstation Integrator)
 Title : G/BTEX NW&AK101
 Last Update : Mon Sep 29 18:50:50 2003
 Response via : Multiple Level Calibration
 DataAcq Meth : 030929.M

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

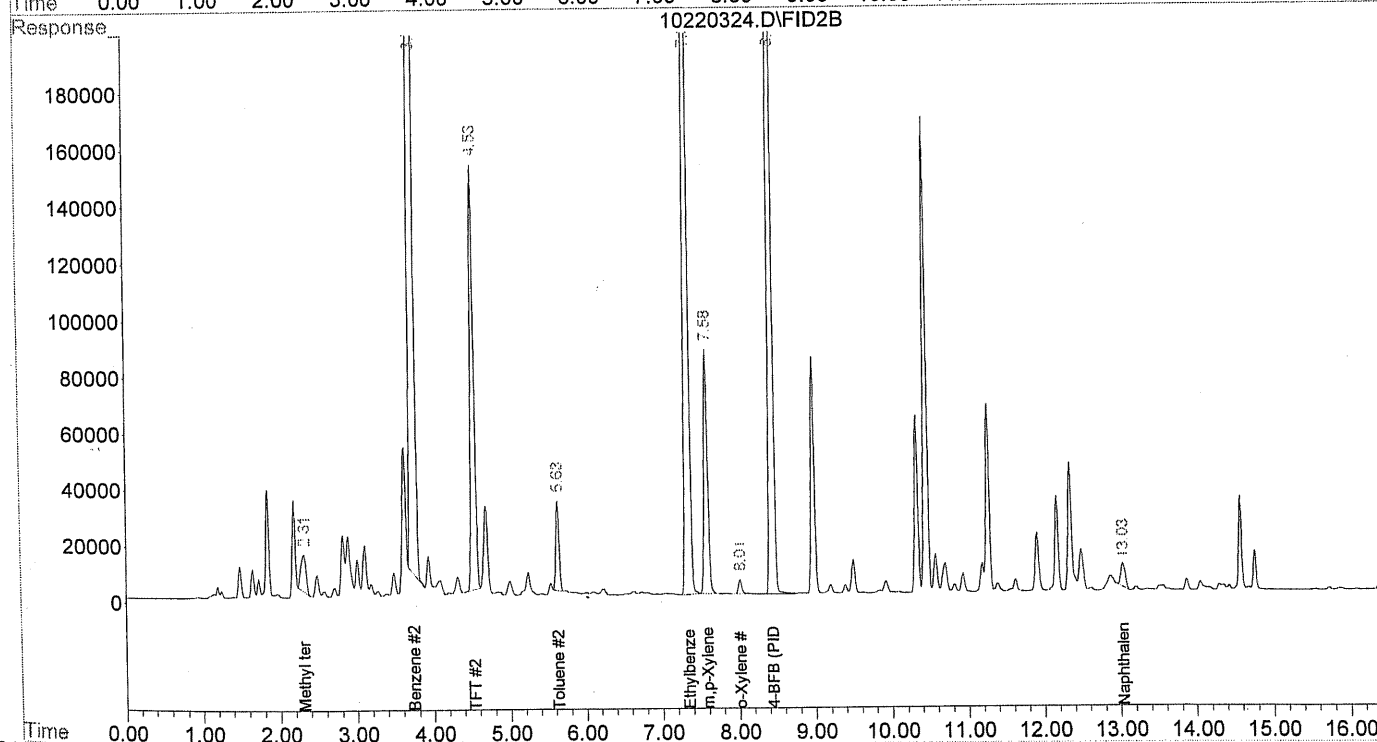
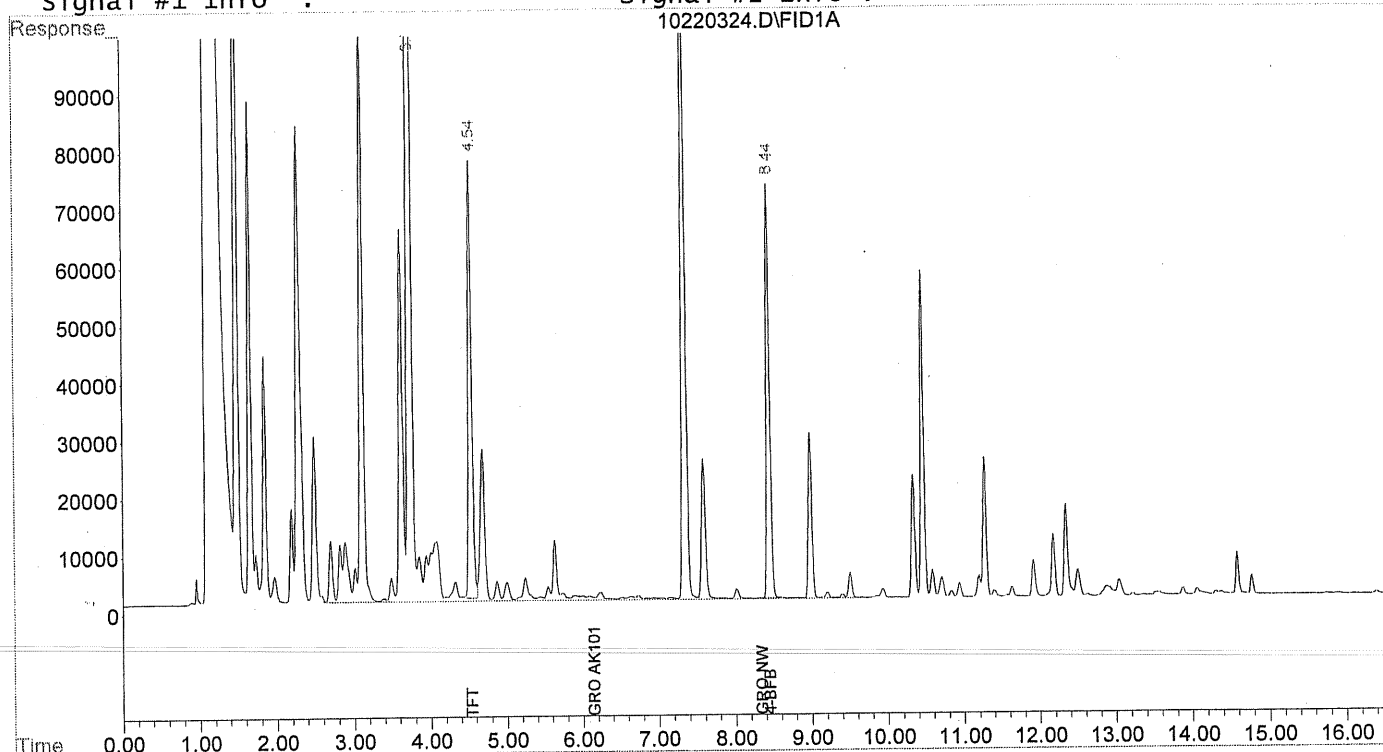


Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\A\102203\10220324.D\FID1A.CH 1: 24
 Signal #2 : C:\HPCHEM\2\DATA\102203\10220324.D\FID2B.CH
 Acq On : 22 Oct 2003 23:45 Operator: AMB
 Sample : P3J0654-09RE1 EL Inst : VolSGC2
 Misc : 10X Multiplr: 1.00
 IntFile Signal #1: AUTOINT1.E IntFile Signal #2: autoint2.e
 Quant Time: Oct 23 0:02 2003 Quant Results File: 030929.RES

Quant Method : C:\HPCHEM\2\METHODS\030929.M (Chemstation Integrator)
 Title : G/BTEX NW&AK101
 Last Update : Mon Sep 29 18:50:50 2003
 Response via : Multiple Level Calibration
 DataAcq Meth : 030929.M

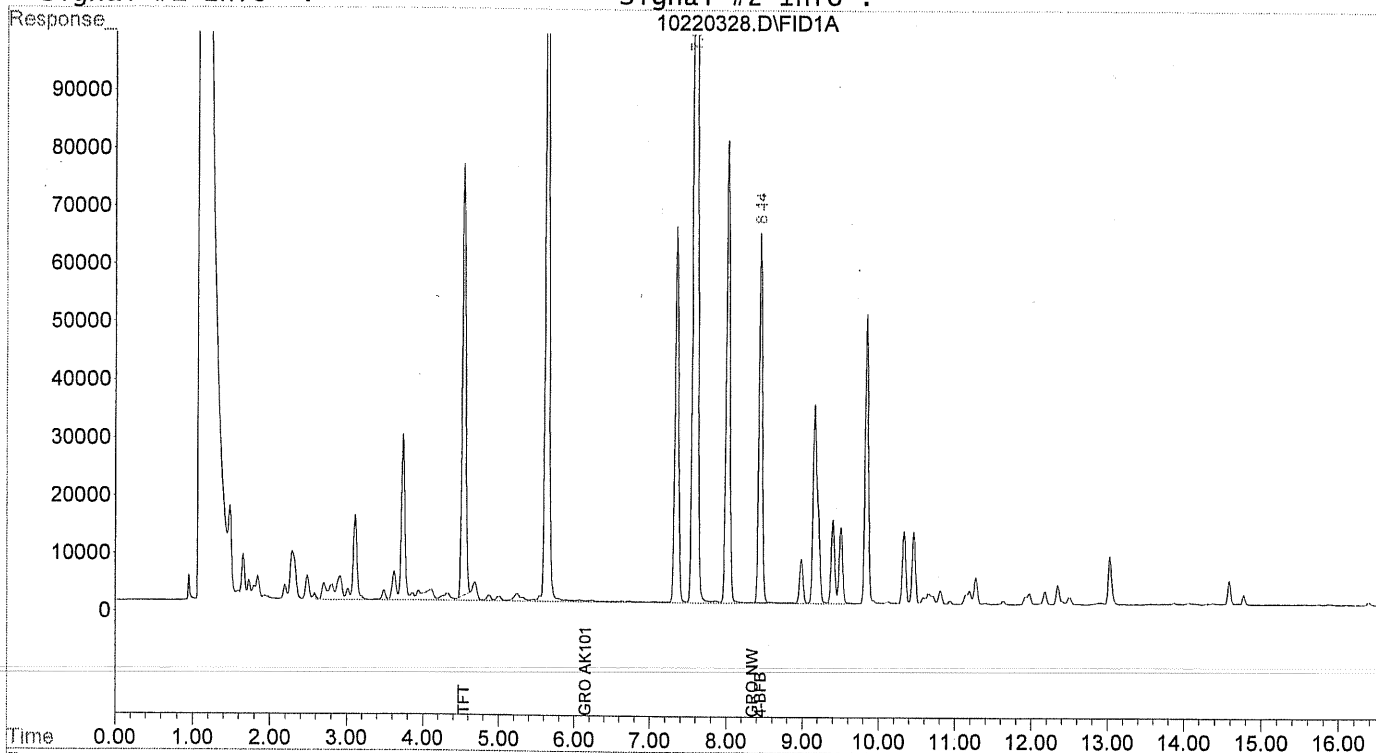
Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :



Signal #1 : C:\HPCHEM\2\DATA\102203\10220328.D\FID1A.CH 1: 28
Signal #2 : C:\HPCHEM\2\DATA\102203\10220328.D\FID2B.CH
Acq On : 23 Oct 2003 1:35 Operator: AMB
Sample : P3J0654-14RE1 EL Inst : VolSGC2
Misc : 100X Multiplr: 1.00
IntFile Signal #1: AUTOINT1.E IntFile Signal #2: autoint2.e
Quant Time: Oct 23 1:52 2003 Quant Results File: 030929.RES

Quant Method : C:\HPCHEM\2\METHODS\030929.M (Chemstation Integrator)
Title : G/BTEX NW&AK101
Last Update : Mon Sep 29 18:50:50 2003
Response via : Multiple Level Calibration
DataAcq Meth : 030929.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





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907.334.0200 fax 907.334.0210

06 November 2003

Tom Calabrese
EnviroLogic Resources, Inc.
P.O. Box 80762
Portland, OR 97280-0762
RE: Astoria Area-Wide Petroleum Site RI-1

Enclosed are the results of analyses for samples received by the laboratory on 10/22/03 15:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Joy D. Chang
Project Manager



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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-21(A)	P3J0775-01	Water	10/20/03 09:40	10/22/03 15:20
MW-19(A)	P3J0775-02	Water	10/20/03 10:50	10/22/03 15:20
BM-19(A)	P3J0775-03	Water	10/20/03 10:50	10/22/03 15:20
MW-20(A)	P3J0775-04	Water	10/20/03 12:10	10/22/03 15:20
MW-15(A)	P3J0775-05	Water	10/20/03 13:40	10/22/03 15:20
EQUIP Blank	P3J0775-06	Water	10/21/03 10:40	10/22/03 15:20
MW-16(A)	P3J0775-07	Water	10/20/03 15:10	10/22/03 15:20
MW-23(A)	P3J0775-08	Water	10/20/03 16:30	10/22/03 15:20
MW-38(A)	P3J0775-09	Water	10/21/03 10:40	10/22/03 15:20
MW-27(A)	P3J0775-10	Water	10/21/03 09:05	10/22/03 15:20
MW-36(A)	P3J0775-11	Water	10/21/03 11:30	10/22/03 15:20
MW-18(A)	P3J0775-12	Water	10/21/03 13:30	10/22/03 15:20
MW-24(A)	P3J0775-13	Water	10/21/03 14:30	10/22/03 15:20
MW-29(A)	P3J0775-14	Water	10/21/03 15:50	10/22/03 15:20
MW-14(A)	P3J0775-15	Water	10/21/03 16:45	10/22/03 15:20
MW-1(F)	P3J0775-16	Water	10/22/03 08:20	10/22/03 15:20
MW-13(A)	P3J0775-17	Water	10/22/03 11:30	10/22/03 15:20
MW-12(A)	P3J0775-18	Water	10/22/03 09:55	10/22/03 15:20
Trip Blank MW-20(A)	P3J0775-22	Water	10/20/03 12:10	10/22/03 15:20
Trip Blank MW-14(A)	P3J0775-32	Water	10/21/03 16:45	10/22/03 15:20
Trip Blank MW-12(A)	P3J0775-35	Water	10/22/03 09:55	10/22/03 15:20

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Gasoline Hydrocarbons per NW TPH-Gx Method North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-21(A) (P3J0775-01) Water Sampled: 10/20/03 09:40 Received: 10/22/03 15:20										
Gasoline Range Hydrocarbons	753	250	400	ug/l	5	3100905	10/23/03	10/23/03	NW TPH-G	D
Surrogate: 4-BFB	94.6 %		50-150			"	"	"	"	
MW-19(A) (P3J0775-02) Water Sampled: 10/20/03 10:50 Received: 10/22/03 15:20										
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l	1	3100905	10/23/03	10/23/03	NW TPH-G	U
Surrogate: 4-BFB	97.8 %		50-150			"	"	"	"	
BM-19(A) (P3J0775-03) Water Sampled: 10/20/03 10:50 Received: 10/22/03 15:20										
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l	1	3100905	10/23/03	10/23/03	NW TPH-G	U
Surrogate: 4-BFB	76.4 %		50-150			"	"	"	"	
MW-20(A) (P3J0775-04) Water Sampled: 10/20/03 12:10 Received: 10/22/03 15:20										
Gasoline Range Hydrocarbons	1400	250	400	ug/l	5	3100905	10/23/03	10/23/03	NW TPH-G	D
Surrogate: 4-BFB	87.6 %		50-150			"	"	"	"	
MW-15(A) (P3J0775-05) Water Sampled: 10/20/03 13:40 Received: 10/22/03 15:20										
Gasoline Range Hydrocarbons	2550	500	800	ug/l	10	3100905	10/23/03	10/23/03	NW TPH-G	D
Surrogate: 4-BFB	96.0 %		50-150			"	"	"	"	
EQUIP Blank (P3J0775-06) Water Sampled: 10/21/03 10:40 Received: 10/22/03 15:20										
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l	1	3100905	10/23/03	10/23/03	NW TPH-G	U
Surrogate: 4-BFB	97.2 %		50-150			"	"	"	"	
MW-16(A) (P3J0775-07) Water Sampled: 10/20/03 15:10 Received: 10/22/03 15:20										
Gasoline Range Hydrocarbons	457	50.0	80.0	ug/l	1	3100905	10/23/03	10/23/03	NW TPH-G	
Surrogate: 4-BFB	126 %		50-150			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Gasoline Hydrocarbons per NW TPH-Gx Method North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-23(A) (P3J0775-08) Water Sampled: 10/20/03 16:30 Received: 10/22/03 15:20										
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l	1	3100905	10/23/03	10/23/03	NW TPH-G	U
Surrogate: 4-BFB	97.2 %		50-150			"	"	"	"	
MW-38(A) (P3J0775-09RE1) Water Sampled: 10/21/03 10:40 Received: 10/22/03 15:20										
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l	1	3100956	10/24/03	10/24/03	NW TPH-G	U
Surrogate: 4-BFB	86.2 %		50-150			"	"	"	"	
MW-27(A) (P3J0775-10) Water Sampled: 10/21/03 09:05 Received: 10/22/03 15:20										
Gasoline Range Hydrocarbons	99.0	50.0	80.0	ug/l	1	3100905	10/23/03	10/23/03	NW TPH-G	
Surrogate: 4-BFB	82.0 %		50-150			"	"	"	"	
MW-36(A) (P3J0775-11) Water Sampled: 10/21/03 11:30 Received: 10/22/03 15:20										
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l	1	3100905	10/23/03	10/24/03	NW TPH-G	U
Surrogate: 4-BFB	99.6 %		50-150			"	"	"	"	
MW-18(A) (P3J0775-12RE1) Water Sampled: 10/21/03 13:30 Received: 10/22/03 15:20										
Gasoline Range Hydrocarbons	1280	50.0	80.0	ug/l	1	3100956	10/24/03	10/24/03	NW TPH-G	
Surrogate: 4-BFB	161 %		50-150			"	"	"	"	S-09
MW-24(A) (P3J0775-13) Water Sampled: 10/21/03 14:30 Received: 10/22/03 15:20										
Gasoline Range Hydrocarbons	376	50.0	80.0	ug/l	1	3100905	10/23/03	10/24/03	NW TPH-G	
Surrogate: 4-BFB	92.2 %		50-150			"	"	"	"	
MW-29(A) (P3J0775-14) Water Sampled: 10/21/03 15:50 Received: 10/22/03 15:20										
Gasoline Range Hydrocarbons	60200	2500	4000	ug/l	50	3100905	10/23/03	10/24/03	NW TPH-G	D
Surrogate: 4-BFB	99.4 %		50-150			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Gasoline Hydrocarbons per NW TPH-Gx Method
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-14(A) (P3J0775-15) Water Sampled: 10/21/03 16:45 Received: 10/22/03 15:20										
Gasoline Range Hydrocarbons	71.8	50.0	80.0	ug/l	1	3100905	10/23/03	10/24/03	NW TPH-G	J
<i>Surrogate: 4-BFB</i>	<i>96.4 %</i>		<i>50-150</i>			<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
MW-1(F) (P3J0775-16) Water Sampled: 10/22/03 08:20 Received: 10/22/03 15:20										
Gasoline Range Hydrocarbons	94.0	50.0	80.0	ug/l	1	3100905	10/23/03	10/24/03	NW TPH-G	
<i>Surrogate: 4-BFB</i>	<i>98.6 %</i>		<i>50-150</i>			<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
MW-13(A) (P3J0775-17) Water Sampled: 10/22/03 11:30 Received: 10/22/03 15:20										
Gasoline Range Hydrocarbons	10100	2500	4000	ug/l	50	3100905	10/23/03	10/24/03	NW TPH-G	D
<i>Surrogate: 4-BFB</i>	<i>95.6 %</i>		<i>50-150</i>			<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
MW-12(A) (P3J0775-18) Water Sampled: 10/22/03 09:55 Received: 10/22/03 15:20										
Gasoline Range Hydrocarbons	60.1	50.0	80.0	ug/l	1	3100905	10/23/03	10/24/03	NW TPH-G	J
<i>Surrogate: 4-BFB</i>	<i>96.4 %</i>		<i>50-150</i>			<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-21(A) (P3J0775-01) Water Sampled: 10/20/03 09:40 Received: 10/22/03 15:20										
Diesel Range Organics	1.46	0.153	0.250	mg/l	1	3100936	10/24/03	10/24/03	NWTPH-Dx	D-17
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	108 %		50-150			"	"	"	"	
MW-19(A) (P3J0775-02) Water Sampled: 10/20/03 10:50 Received: 10/22/03 15:20										
Diesel Range Organics	0.180	0.153	0.250	mg/l	1	3100936	10/24/03	10/24/03	NWTPH-Dx	J
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	84.4 %		50-150			"	"	"	"	
BM-19(A) (P3J0775-03) Water Sampled: 10/20/03 10:50 Received: 10/22/03 15:20										
Diesel Range Organics	0.176	0.153	0.250	mg/l	1	3100936	10/24/03	10/24/03	NWTPH-Dx	J
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	89.0 %		50-150			"	"	"	"	
MW-20(A) (P3J0775-04) Water Sampled: 10/20/03 12:10 Received: 10/22/03 15:20										
Diesel Range Organics	1.37	0.153	0.250	mg/l	1	3100936	10/24/03	10/25/03	NWTPH-Dx	D-17
Heavy Oil Range Hydrocarbons	0.710	0.286	0.500	"	"	"	"	"	"	D-15
Surrogate: 1-Chlorooctadecane	103 %		50-150			"	"	"	"	
MW-15(A) (P3J0775-05) Water Sampled: 10/20/03 13:40 Received: 10/22/03 15:20										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100936	10/24/03	10/24/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	96.7 %		50-150			"	"	"	"	
MW-16(A) (P3J0775-07) Water Sampled: 10/20/03 15:10 Received: 10/22/03 15:20										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100936	10/24/03	10/24/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	0.425	0.286	0.500	"	"	"	"	"	"	J
Surrogate: 1-Chlorooctadecane	63.6 %		50-150			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-23(A) (P3J0775-08) Water Sampled: 10/20/03 16:30 Received: 10/22/03 15:20										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100936	10/24/03	10/24/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	80.1 %		50-150			"	"	"	"	
MW-38(A) (P3J0775-09) Water Sampled: 10/21/03 10:40 Received: 10/22/03 15:20										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100936	10/24/03	10/24/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	57.3 %		50-150			"	"	"	"	
MW-27(A) (P3J0775-10) Water Sampled: 10/21/03 09:05 Received: 10/22/03 15:20										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100936	10/24/03	10/24/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	82.7 %		50-150			"	"	"	"	
MW-36(A) (P3J0775-11) Water Sampled: 10/21/03 11:30 Received: 10/22/03 15:20										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100936	10/24/03	10/24/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	47.0 %		50-150			"	"	"	"	S-09
MW-18(A) (P3J0775-12) Water Sampled: 10/21/03 13:30 Received: 10/22/03 15:20										
Diesel Range Organics	0.936	0.153	0.250	mg/l	1	3100936	10/24/03	10/24/03	NWTPH-Dx	D-17
Heavy Oil Range Hydrocarbons	2.18	0.286	0.500	"	"	"	"	"	"	D-15
Surrogate: 1-Chlorooctadecane	62.9 %		50-150			"	"	"	"	
MW-24(A) (P3J0775-13) Water Sampled: 10/21/03 14:30 Received: 10/22/03 15:20										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100936	10/24/03	10/24/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	79.8 %		50-150			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-29(A) (P3J0775-14) Water Sampled: 10/21/03 15:50 Received: 10/22/03 15:20										
Diesel Range Organics	4.12	0.153	0.250	mg/l	1	3100936	10/24/03	10/24/03	NWTPH-Dx	A-01
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	93.8 %		50-150			"	"	"	"	
MW-14(A) (P3J0775-15) Water Sampled: 10/21/03 16:45 Received: 10/22/03 15:20										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100936	10/24/03	10/24/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	83.9 %		50-150			"	"	"	"	
MW-1(F) (P3J0775-16) Water Sampled: 10/22/03 08:20 Received: 10/22/03 15:20										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100982	10/27/03	10/27/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	52.1 %		50-150			"	"	"	"	
MW-13(A) (P3J0775-17) Water Sampled: 10/22/03 11:30 Received: 10/22/03 15:20										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100982	10/27/03	10/27/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	79.2 %		50-150			"	"	"	"	
MW-12(A) (P3J0775-18) Water Sampled: 10/22/03 09:55 Received: 10/22/03 15:20										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100982	10/27/03	10/27/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	90.8 %		50-150			"	"	"	"	

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Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

**Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-21(A) (P3J0775-01) Water Sampled: 10/20/03 09:40 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3101206	10/31/03	11/04/03	EPA 6020	U
Arsenic	0.00121	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0306	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.00193	0.000791	0.00100	"	"	"	"	"	"	
Mercury	ND	0.0000358	0.000200	"	"	3101028	10/27/03	10/27/03	EPA 7470A	U
Lead	0.00180	0.0000870	0.00100	"	"	3101206	10/31/03	11/04/03	EPA 6020	
Selenium	0.000870	0.000566	0.00100	"	"	"	"	"	"	J
MW-19(A) (P3J0775-02) Water Sampled: 10/20/03 10:50 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3101206	10/31/03	11/04/03	EPA 6020	U
Arsenic	0.00132	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0299	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3101028	10/27/03	10/27/03	EPA 7470A	U
Lead	0.000500	0.0000870	0.00100	"	"	3101206	10/31/03	11/04/03	EPA 6020	J
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U
BM-19(A) (P3J0775-03) Water Sampled: 10/20/03 10:50 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3101206	10/31/03	11/04/03	EPA 6020	U
Arsenic	0.00169	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0290	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3101028	10/27/03	10/27/03	EPA 7470A	U
Lead	0.000570	0.0000870	0.00100	"	"	3101206	10/31/03	11/04/03	EPA 6020	J
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

**Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-20(A) (P3J0775-04) Water Sampled: 10/20/03 12:10 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3101206	10/31/03	11/04/03	EPA 6020	U
Arsenic	0.00129	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0237	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.00142	0.000791	0.00100	"	"	"	"	"	"	
Mercury	ND	0.0000358	0.000200	"	"	3101028	10/27/03	10/27/03	EPA 7470A	U
Manganese	0.581	0.0000136	0.00200	"	"	3101206	10/31/03	11/04/03	EPA 6020	
Lead	0.00145	0.0000870	0.00100	"	"	"	"	"	"	
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U
MW-15(A) (P3J0775-05) Water Sampled: 10/20/03 13:40 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3101206	10/31/03	11/04/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0336	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3101028	10/27/03	10/27/03	EPA 7470A	U
Lead	0.000470	0.0000870	0.00100	"	"	3101206	10/31/03	11/04/03	EPA 6020	J
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U
MW-16(A) (P3J0775-07) Water Sampled: 10/20/03 15:10 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3101206	10/31/03	11/04/03	EPA 6020	U
Arsenic	0.00213	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0396	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.00109	0.000791	0.00100	"	"	"	"	"	"	
Mercury	ND	0.0000358	0.000200	"	"	3101028	10/27/03	10/27/03	EPA 7470A	U
Lead	0.000970	0.0000870	0.00100	"	"	3101206	10/31/03	11/04/03	EPA 6020	J
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Total Metals per EPA 6000/7000 Series Methods North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-23(A) (P3J0775-08) Water Sampled: 10/20/03 16:30 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3101206	10/31/03	11/04/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0257	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3101028	10/27/03	10/27/03	EPA 7470A	U
Manganese	0.293	0.0000136	0.00200	"	"	3101206	10/31/03	11/04/03	EPA 6020	
Lead	0.000610	0.0000870	0.00100	"	"	"	"	"	"	J
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U
MW-38(A) (P3J0775-09) Water Sampled: 10/21/03 10:40 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3101206	10/31/03	11/04/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0209	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3101028	10/27/03	10/27/03	EPA 7470A	U
Manganese	0.209	0.0000136	0.00200	"	"	3101206	10/31/03	11/04/03	EPA 6020	
Lead	0.000480	0.0000870	0.00100	"	"	"	"	"	"	J
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U
MW-27(A) (P3J0775-10) Water Sampled: 10/21/03 09:05 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3101206	10/31/03	11/04/03	EPA 6020	U
Arsenic	0.00100	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0112	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3101028	10/27/03	10/27/03	EPA 7470A	U
Lead	0.000330	0.0000870	0.00100	"	"	3101206	10/31/03	11/04/03	EPA 6020	J
Selenium	0.00105	0.000566	0.00100	"	"	"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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Reported:
11/06/03 17:07

Total Metals per EPA 6000/7000 Series Methods North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-36(A) (P3J0775-11) Water Sampled: 10/21/03 11:30 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3101206	10/31/03	11/04/03	EPA 6020	U
Arsenic	0.00227	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.169	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.00474	0.000791	0.00100	"	"	"	"	"	"	
Mercury	ND	0.0000358	0.000200	"	"	3101028	10/27/03	10/27/03	EPA 7470A	U
Lead	0.0126	0.0000870	0.00100	"	"	3101206	10/31/03	11/04/03	EPA 6020	
Selenium	0.00216	0.000566	0.00100	"	"	"	"	"	"	
MW-18(A) (P3J0775-12) Water Sampled: 10/21/03 13:30 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3101206	10/31/03	11/04/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0556	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.00182	0.000791	0.00100	"	"	"	"	"	"	
Mercury	ND	0.0000358	0.000200	"	"	3101028	10/27/03	10/27/03	EPA 7470A	U
Lead	0.00457	0.0000870	0.00100	"	"	3101206	10/31/03	11/04/03	EPA 6020	
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U
MW-24(A) (P3J0775-13) Water Sampled: 10/21/03 14:30 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3101206	10/31/03	11/04/03	EPA 6020	U
Arsenic	0.00215	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0579	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.000890	0.000791	0.00100	"	"	"	"	"	"	J
Mercury	ND	0.0000358	0.000200	"	"	3101028	10/27/03	10/27/03	EPA 7470A	U
Manganese	0.225	0.0000136	0.00200	"	"	3101206	10/31/03	11/04/03	EPA 6020	
Lead	0.000930	0.0000870	0.00100	"	"	"	"	"	"	J
Selenium	0.000600	0.000566	0.00100	"	"	"	"	"	"	J

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

**Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-29(A) (P3J0775-14) Water Sampled: 10/21/03 15:50 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3101206	10/31/03	11/04/03	EPA 6020	U
Arsenic	0.00573	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0336	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.00250	0.000791	0.00100	"	"	"	"	"	"	
Mercury	ND	0.0000358	0.000200	"	"	3101028	10/27/03	10/27/03	EPA 7470A	U
Lead	0.00504	0.0000870	0.00100	"	"	3101206	10/31/03	11/04/03	EPA 6020	
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U
MW-14(A) (P3J0775-15) Water Sampled: 10/21/03 16:45 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3101206	10/31/03	11/04/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0283	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3101028	10/27/03	10/27/03	EPA 7470A	U
Manganese	0.245	0.0000136	0.00200	"	"	3101206	10/31/03	11/04/03	EPA 6020	
Lead	ND	0.0000870	0.00100	"	"	"	"	"	"	U
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U
MW-1(F) (P3J0775-16) Water Sampled: 10/22/03 08:20 Received: 10/22/03 15:20										
Silver	0.000180	0.0000460	0.00100	mg/l	1	3101206	10/31/03	11/04/03	EPA 6020	J
Arsenic	0.00953	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.254	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	0.000240	0.000178	0.00100	"	"	"	"	"	"	J
Chromium	0.0237	0.000791	0.00100	"	"	"	"	"	"	
Mercury	0.0000900	0.0000358	0.000200	"	"	3101028	10/27/03	10/27/03	EPA 7470A	J
Manganese	10.5	0.000272	0.0400	"	20	3101206	10/31/03	11/05/03	EPA 6020	D
Lead	0.0255	0.0000870	0.00100	"	1	"	"	11/04/03	"	
Selenium	0.00222	0.000566	0.00100	"	"	"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-13(A) (P3J0775-17) Water Sampled: 10/22/03 11:30 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3101206	10/31/03	11/04/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0150	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3101028	10/27/03	10/27/03	EPA 7470A	U
Manganese	0.131	0.0000136	0.00200	"	"	3101206	10/31/03	11/04/03	EPA 6020	
Lead	0.000830	0.0000870	0.00100	"	"	"	"	"	"	J
Selenium	ND	0.000566	0.00100	"	"	"	"	"	"	U
MW-12(A) (P3J0775-18) Water Sampled: 10/22/03 09:55 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3101206	10/31/03	11/04/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0380	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3101028	10/27/03	10/27/03	EPA 7470A	U
Lead	ND	0.0000870	0.00100	"	"	3101206	10/31/03	11/04/03	EPA 6020	U
Selenium	0.00277	0.000566	0.00100	"	"	"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-21(A) (P3J0775-01) Water Sampled: 10/20/03 09:40 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3110047	11/03/03	11/05/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0152	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3100933	10/24/03	10/24/03	EPA 7470A	U
Lead	0.000430	0.0000870	0.00100	"	"	3110047	11/03/03	11/05/03	EPA 6020	J
Selenium	0.000580	0.000566	0.00100	"	"	"	"	11/05/03	"	J
MW-19(A) (P3J0775-02) Water Sampled: 10/20/03 10:50 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3110047	11/03/03	11/05/03	EPA 6020	U
Arsenic	0.00173	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0288	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3100933	10/24/03	10/24/03	EPA 7470A	U
Lead	0.000390	0.0000870	0.00100	"	"	3110047	11/03/03	11/05/03	EPA 6020	J
Selenium	0.000640	0.000566	0.00100	"	"	"	"	11/05/03	"	J
BM-19(A) (P3J0775-03) Water Sampled: 10/20/03 10:50 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3110047	11/03/03	11/05/03	EPA 6020	U
Arsenic	0.00188	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0264	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3100933	10/24/03	10/24/03	EPA 7470A	U
Lead	0.000140	0.0000870	0.00100	"	"	3110047	11/03/03	11/05/03	EPA 6020	J
Selenium	0.000740	0.000566	0.00100	"	"	"	"	11/05/03	"	J

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-20(A) (P3J0775-04) Water Sampled: 10/20/03 12:10 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3110047	11/03/03	11/05/03	EPA 6020	U
Arsenic	0.00118	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0150	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3100933	10/24/03	10/24/03	EPA 7470A	U
Lead	0.000220	0.0000870	0.00100	"	"	3110047	11/03/03	11/05/03	EPA 6020	J
Selenium	ND	0.000566	0.00100	"	"	"	"	11/05/03	"	U
MW-15(A) (P3J0775-05) Water Sampled: 10/20/03 13:40 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3110047	11/03/03	11/05/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0328	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3100933	10/24/03	10/24/03	EPA 7470A	U
Lead	0.000320	0.0000870	0.00100	"	"	3110047	11/03/03	11/05/03	EPA 6020	J
Selenium	ND	0.000566	0.00100	"	"	"	"	11/05/03	"	U
MW-16(A) (P3J0775-07) Water Sampled: 10/20/03 15:10 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3110047	11/03/03	11/05/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0254	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3100933	10/24/03	10/24/03	EPA 7470A	U
Lead	0.000340	0.0000870	0.00100	"	"	3110047	11/03/03	11/05/03	EPA 6020	J
Selenium	0.000890	0.000566	0.00100	"	"	"	"	11/05/03	"	J

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-23(A) (P3J0775-08) Water Sampled: 10/20/03 16:30 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3110047	11/03/03	11/05/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0247	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3100933	10/24/03	10/24/03	EPA 7470A	U
Lead	0.000330	0.0000870	0.00100	"	"	3110047	11/03/03	11/05/03	EPA 6020	J
Selenium	ND	0.000566	0.00100	"	"	"	"	11/05/03	"	U
MW-38(A) (P3J0775-09) Water Sampled: 10/21/03 10:40 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3110047	11/03/03	11/05/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0200	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3100933	10/24/03	10/24/03	EPA 7470A	U
Lead	0.000240	0.0000870	0.00100	"	"	3110047	11/03/03	11/05/03	EPA 6020	J
Selenium	0.00134	0.000566	0.00100	"	"	"	"	11/05/03	"	
MW-27(A) (P3J0775-10) Water Sampled: 10/21/03 09:05 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3110047	11/03/03	11/05/03	EPA 6020	U
Arsenic	0.000990	0.000964	0.00100	"	"	"	"	"	"	J
Barium	0.0119	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	0.000100	0.0000730	0.00100	"	"	"	"	"	"	J
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3100933	10/24/03	10/24/03	EPA 7470A	U
Lead	0.000300	0.0000870	0.00100	"	"	3110047	11/03/03	11/05/03	EPA 6020	J
Selenium	0.00160	0.000566	0.00100	"	"	"	"	11/05/03	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-36(A) (P3J0775-11) Water Sampled: 10/21/03 11:30 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3110047	11/03/03	11/05/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0827	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3100933	10/24/03	10/24/03	EPA 7470A	U
Lead	0.000980	0.0000870	0.00100	"	"	3110047	11/03/03	11/05/03	EPA 6020	J
Selenium	0.00261	0.000566	0.00100	"	"	"	"	11/05/03	"	
MW-18(A) (P3J0775-12) Water Sampled: 10/21/03 13:30 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3110047	11/03/03	11/05/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0443	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	0.0000720	0.0000358	0.000200	"	"	3100933	10/24/03	10/24/03	EPA 7470A	J
Lead	0.000190	0.0000870	0.00100	"	"	3110047	11/03/03	11/05/03	EPA 6020	J
Selenium	0.000640	0.000566	0.00100	"	"	"	"	11/05/03	"	J
MW-24(A) (P3J0775-13) Water Sampled: 10/21/03 14:30 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3110047	11/03/03	11/05/03	EPA 6020	U
Arsenic	0.00243	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0572	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3100933	10/24/03	10/24/03	EPA 7470A	U
Lead	0.000330	0.0000870	0.00100	"	"	3110047	11/03/03	11/05/03	EPA 6020	J
Selenium	0.00127	0.000566	0.00100	"	"	"	"	11/05/03	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-29(A) (P3J0775-14) Water Sampled: 10/21/03 15:50 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3110047	11/03/03	11/05/03	EPA 6020	U
Arsenic	0.00597	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0197	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	0.0000880	0.0000358	0.000200	"	"	3100933	10/24/03	10/24/03	EPA 7470A	J
Lead	0.00300	0.0000870	0.00100	"	"	3110047	11/03/03	11/05/03	EPA 6020	
Selenium	ND	0.000566	0.00500	"	"	"	"	11/05/03	"	U
MW-14(A) (P3J0775-15) Water Sampled: 10/21/03 16:45 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3110047	11/03/03	11/05/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0277	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3100933	10/24/03	10/24/03	EPA 7470A	U
Lead	0.000210	0.0000870	0.00100	"	"	3110047	11/03/03	11/05/03	EPA 6020	J
Selenium	0.00130	0.000566	0.00500	"	"	"	"	11/05/03	"	J
MW-13(A) (P3J0775-17) Water Sampled: 10/22/03 11:30 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3110047	11/03/03	11/05/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0143	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	0.00118	0.000791	0.00100	"	"	"	"	"	"	
Mercury	ND	0.0000358	0.000200	"	"	3100933	10/24/03	10/24/03	EPA 7470A	U
Lead	0.000740	0.0000870	0.00100	"	"	3110047	11/03/03	11/05/03	EPA 6020	J
Selenium	0.00145	0.000566	0.00500	"	"	"	"	11/05/03	"	J

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-12(A) (P3J0775-18) Water Sampled: 10/22/03 09:55 Received: 10/22/03 15:20										
Silver	ND	0.0000460	0.00100	mg/l	1	3110047	11/03/03	11/05/03	EPA 6020	U
Arsenic	ND	0.000964	0.00100	"	"	"	"	"	"	U
Barium	0.0395	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	ND	0.000791	0.00100	"	"	"	"	"	"	U
Mercury	ND	0.0000358	0.000200	"	"	3100933	10/24/03	10/24/03	EPA 7470A	U
Lead	0.000240	0.0000870	0.00100	"	"	3110047	11/03/03	11/05/03	EPA 6020	J
Selenium	0.00415	0.000566	0.00500	"	"	"	"	11/05/03	"	J

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Selected Volatile Organic Compounds per EPA Method 8260B North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-21(A) (P3J0775-01) Water Sampled: 10/20/03 09:40 Received: 10/22/03 15:20										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100977	10/26/03	10/26/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	3.10	0.110	0.500	"	"	"	"	"	"	
Xylenes (total)	1.73	0.262	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	3.04	0.0989	2.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	0.200	0.0884	1.00	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	0.240	0.157	0.500	"	"	"	"	"	"	J
Isopropylbenzene	2.50	0.107	2.00	"	"	"	"	"	"	
n-Propylbenzene	7.31	0.138	0.500	"	"	"	"	"	"	
Surrogate: 4-BFB	99.5 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	102 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	99.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	96.0 %		80-120			"	"	"	"	
MW-19(A) (P3J0775-02) Water Sampled: 10/20/03 10:50 Received: 10/22/03 15:20										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100977	10/26/03	10/26/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	0.230	0.0865	2.00	"	"	"	"	"	"	J
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	96.0 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	100 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	97.5 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	93.0 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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BM-19(A) (P3J0775-03) Water Sampled: 10/20/03 10:50 Received: 10/22/03 15:20

1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100977	10/26/03	10/26/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	0.230	0.0865	2.00	"	"	"	"	"	"	J
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	94.0 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	98.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	98.5 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	90.5 %		80-120			"	"	"	"	

MW-20(A) (P3J0775-04) Water Sampled: 10/20/03 12:10 Received: 10/22/03 15:20

1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100977	10/26/03	10/26/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	16.9	0.147	0.500	"	"	"	"	"	"	
Toluene	1.29	0.155	0.500	"	"	"	"	"	"	
Ethylbenzene	20.2	0.110	0.500	"	"	"	"	"	"	
Xylenes (total)	121	0.262	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	11.1	0.0989	2.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	15.9	0.0884	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	2.06	0.157	0.500	"	"	"	"	"	"	
Isopropylbenzene	1.88	0.107	2.00	"	"	"	"	"	"	J
n-Propylbenzene	3.62	0.138	0.500	"	"	"	"	"	"	
Surrogate: 4-BFB	102 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	100 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	96.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	92.0 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-15(A) (P3J0775-05) Water Sampled: 10/20/03 13:40 Received: 10/22/03 15:20										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100977	10/26/03	10/26/03	EPA 8260B	U
1,2-Dichloroethane	0.260	0.142	0.500	"	"	"	"	"	"	J
Benzene	127	0.147	0.500	"	"	"	"	"	"	
Toluene	13.5	0.155	0.500	"	"	"	"	"	"	
Ethylbenzene	27.0	0.110	0.500	"	"	"	"	"	"	
Xylenes (total)	40.7	0.262	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	0.930	0.0865	2.00	"	"	"	"	"	"	J
Naphthalene	2.11	0.0989	2.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	7.37	0.0884	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	6.87	0.157	0.500	"	"	"	"	"	"	
Isopropylbenzene	42.4	0.107	2.00	"	"	"	"	"	"	
n-Propylbenzene	90.3	0.138	0.500	"	"	"	"	"	"	
Surrogate: 4-BFB	102 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	98.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	98.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	96.0 %		80-120			"	"	"	"	
EQUIP Blank (P3J0775-06) Water Sampled: 10/21/03 10:40 Received: 10/22/03 15:20										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100977	10/26/03	10/26/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	0.290	0.155	0.500	"	"	"	"	"	"	J
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	93.0 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	101 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	100 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	99.5 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-16(A) (P3J0775-07) Water Sampled: 10/20/03 15:10 Received: 10/22/03 15:20										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100977	10/26/03	10/26/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	11.4	0.147	0.500	"	"	"	"	"	"	
Toluene	1.43	0.155	0.500	"	"	"	"	"	"	
Ethylbenzene	1.86	0.110	0.500	"	"	"	"	"	"	
Xylenes (total)	9.74	0.262	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	0.830	0.0989	2.00	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	2.09	0.0884	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	0.930	0.157	0.500	"	"	"	"	"	"	
Isopropylbenzene	7.81	0.107	2.00	"	"	"	"	"	"	
n-Propylbenzene	12.3	0.138	0.500	"	"	"	"	"	"	
Surrogate: 4-BFB	99.0 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	96.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	95.5 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	97.5 %		80-120			"	"	"	"	
MW-23(A) (P3J0775-08) Water Sampled: 10/20/03 16:30 Received: 10/22/03 15:20										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100977	10/26/03	10/26/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	0.150	0.138	0.500	"	"	"	"	"	"	J
Surrogate: 4-BFB	98.5 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	99.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	96.5 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	90.0 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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MW-38(A) (P3J0775-09) Water Sampled: 10/21/03 10:40 Received: 10/22/03 15:20

1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100977	10/26/03	10/26/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	92.5 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	97.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	99.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	94.0 %		80-120			"	"	"	"	

MW-27(A) (P3J0775-10) Water Sampled: 10/21/03 09:05 Received: 10/22/03 15:20

1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100977	10/26/03	10/26/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	0.980	0.147	0.500	"	"	"	"	"	"	
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	0.120	0.110	0.500	"	"	"	"	"	"	J
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	98.0 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	99.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	97.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	97.0 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-36(A) (P3J0775-11) Water Sampled: 10/21/03 11:30 Received: 10/22/03 15:20										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100977	10/26/03	10/26/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	0.280	0.262	1.00	"	"	"	"	"	"	J
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	0.150	0.0884	1.00	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	98.5 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	102 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	99.5 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	101 %		80-120			"	"	"	"	

MW-18(A) (P3J0775-12) Water Sampled: 10/21/03 13:30 Received: 10/22/03 15:20

1,2-Dibromoethane	ND	0.374	1.00	ug/l	2	3100977	10/26/03	10/26/03	EPA 8260B	D, U
1,2-Dichloroethane	ND	0.284	1.00	"	"	"	"	"	"	D, U
Benzene	273	0.294	1.00	"	"	"	"	"	"	D
Toluene	21.1	0.310	1.00	"	"	"	"	"	"	D
Ethylbenzene	2.18	0.220	1.00	"	"	"	"	"	"	D
Xylenes (total)	22.4	0.524	2.00	"	"	"	"	"	"	D
Methyl tert-butyl ether	0.980	0.173	4.00	"	"	"	"	"	"	J, D
Naphthalene	1.66	0.198	4.00	"	"	"	"	"	"	J, D
1,2,4-Trimethylbenzene	0.720	0.177	2.00	"	"	"	"	"	"	J, D
1,3,5-Trimethylbenzene	1.56	0.314	1.00	"	"	"	"	"	"	D
Isopropylbenzene	25.8	0.214	4.00	"	"	"	"	"	"	D
n-Propylbenzene	45.0	0.276	1.00	"	"	"	"	"	"	D
Surrogate: 4-BFB	104 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	100 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	99.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	96.5 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-24(A) (P3J0775-13) Water Sampled: 10/21/03 14:30 Received: 10/22/03 15:20										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100977	10/26/03	10/26/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	0.620	0.147	0.500	"	"	"	"	"	"	
Toluene	1.17	0.155	0.500	"	"	"	"	"	"	
Ethylbenzene	7.69	0.110	0.500	"	"	"	"	"	"	
Xylenes (total)	10.5	0.262	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	0.980	0.0989	2.00	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	2.05	0.0884	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	1.35	0.157	0.500	"	"	"	"	"	"	
Isopropylbenzene	0.940	0.107	2.00	"	"	"	"	"	"	J
n-Propylbenzene	2.01	0.138	0.500	"	"	"	"	"	"	
Surrogate: 4-BFB	100 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	99.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	98.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	96.5 %		80-120			"	"	"	"	
MW-29(A) (P3J0775-14) Water Sampled: 10/21/03 15:50 Received: 10/22/03 15:20										
1,2-Dibromoethane	ND	9.35	25.0	ug/l	50	3100977	10/26/03	10/26/03	EPA 8260B	D, U
1,2-Dichloroethane	ND	7.10	25.0	"	"	"	"	"	"	D, U
Benzene	482	7.35	25.0	"	"	"	"	"	"	D
Toluene	5160	7.75	25.0	"	"	"	"	"	"	D
Ethylbenzene	2480	5.50	25.0	"	"	"	"	"	"	D
Xylenes (total)	13300	13.1	50.0	"	"	"	"	"	"	D
Methyl tert-butyl ether	ND	4.32	100	"	"	"	"	"	"	D, U
Naphthalene	1340	4.94	100	"	"	"	"	"	"	D
1,2,4-Trimethylbenzene	1980	4.42	50.0	"	"	"	"	"	"	D
1,3,5-Trimethylbenzene	446	7.85	25.0	"	"	"	"	"	"	D
Isopropylbenzene	86.0	5.35	100	"	"	"	"	"	"	J, D
n-Propylbenzene	234	6.90	25.0	"	"	"	"	"	"	D
Surrogate: 4-BFB	102 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	99.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	98.5 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	100 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-14(A) (P3J0775-15) Water Sampled: 10/21/03 16:45 Received: 10/22/03 15:20										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100977	10/26/03	10/26/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	0.770	0.147	0.500	"	"	"	"	"	"	
Toluene	5.91	0.155	0.500	"	"	"	"	"	"	
Ethylbenzene	2.36	0.110	0.500	"	"	"	"	"	"	
Xylenes (total)	6.82	0.262	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	1.27	0.0989	2.00	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	0.530	0.0884	1.00	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	0.170	0.157	0.500	"	"	"	"	"	"	J
Isopropylbenzene	0.110	0.107	2.00	"	"	"	"	"	"	J
n-Propylbenzene	0.200	0.138	0.500	"	"	"	"	"	"	J
Surrogate: 4-BFB	95.5 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	99.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	98.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	94.5 %		80-120			"	"	"	"	
MW-1(F) (P3J0775-16) Water Sampled: 10/22/03 08:20 Received: 10/22/03 15:20										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100977	10/26/03	10/26/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	0.410	0.147	0.500	"	"	"	"	"	"	J
Toluene	7.08	0.155	0.500	"	"	"	"	"	"	
Ethylbenzene	3.65	0.110	0.500	"	"	"	"	"	"	
Xylenes (total)	16.3	0.262	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	1.49	0.0989	2.00	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	1.64	0.0884	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	0.420	0.157	0.500	"	"	"	"	"	"	J
Isopropylbenzene	0.170	0.107	2.00	"	"	"	"	"	"	J
n-Propylbenzene	0.260	0.138	0.500	"	"	"	"	"	"	J
Surrogate: 4-BFB	100 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	98.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	97.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	97.0 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-13(A) (P3J0775-17) Water Sampled: 10/22/03 11:30 Received: 10/22/03 15:20										
1,2-Dibromoethane	ND	0.935	2.50	ug/l	5	3100977	10/26/03	10/26/03	EPA 8260B	D, U
1,2-Dichloroethane	ND	0.710	2.50	"	"	"	"	"	"	D, U
Benzene	259	0.735	2.50	"	"	"	"	"	"	D
Toluene	26.6	0.775	2.50	"	"	"	"	"	"	D
Ethylbenzene	915	0.550	2.50	"	"	"	"	"	"	D
Xylenes (total)	94.6	1.31	5.00	"	"	"	"	"	"	D
Methyl tert-butyl ether	ND	0.432	10.0	"	"	"	"	"	"	D, U
Naphthalene	122	0.494	10.0	"	"	"	"	"	"	D
1,2,4-Trimethylbenzene	17.4	0.442	5.00	"	"	"	"	"	"	D
1,3,5-Trimethylbenzene	42.8	0.785	2.50	"	"	"	"	"	"	D
Isopropylbenzene	94.7	0.535	10.0	"	"	"	"	"	"	D
n-Propylbenzene	228	0.690	2.50	"	"	"	"	"	"	D
Surrogate: 4-BFB	106 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	99.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	97.5 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	101 %		80-120			"	"	"	"	

MW-12(A) (P3J0775-18) Water Sampled: 10/22/03 09:55 Received: 10/22/03 15:20

1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3101089	10/29/03	10/29/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	0.190	0.147	0.500	"	"	"	"	"	"	J
Toluene	2.77	0.155	0.500	"	"	"	"	"	"	
Ethylbenzene	1.35	0.110	0.500	"	"	"	"	"	"	
Xylenes (total)	3.77	0.262	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	0.690	0.0989	2.00	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	0.150	0.0884	1.00	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	107 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	110 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	105 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	103 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Selected Volatile Organic Compounds per EPA Method 8260B North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Trip Blank MW-20(A) (P3J0775-22) Water Sampled: 10/20/03 12:10 Received: 10/22/03 15:20										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100977	10/26/03	10/26/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	90.5 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	96.0 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	95.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	96.0 %		80-120			"	"	"	"	
Trip Blank MW-14(A) (P3J0775-32) Water Sampled: 10/21/03 16:45 Received: 10/22/03 15:20										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100977	10/26/03	10/26/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	95.5 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	101 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	98.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	101 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Trip Blank MW-12(A) (P3J0775-35) Water Sampled: 10/22/03 09:55 Received: 10/22/03 15:20										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3100977	10/26/03	10/26/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	94.0 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	102 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	99.5 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	102 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-21(A) (P3J0775-01) Water Sampled: 10/20/03 09:40 Received: 10/22/03 15:20										
Acenaphthene	0.224	0.0500	0.0500	ug/l	1	3100883	10/23/03	10/30/03	EPA 8270m	
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	0.327	0.0500	0.0500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	1.83	0.0500	0.0500	"	"	"	"	"	"	
Phenanthrene	ND	0.0900	0.0900	"	"	"	"	"	"	R-03, U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	57.2 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	70.3 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	57.6 %		10-150			"	"	"	"	

MW-19(A) (P3J0775-02) Water Sampled: 10/20/03 10:50 Received: 10/22/03 15:20

Acenaphthene	ND	0.0500	0.0500	ug/l	1	3100883	10/23/03	10/30/03	EPA 8270m	U
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-19(A) (P3J0775-02) Water Sampled: 10/20/03 10:50 Received: 10/22/03 15:20										
Naphthalene	ND	0.0500	0.0500	ug/l	1	3100883	10/23/03	10/30/03	EPA 8270m	U
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	66.5 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	75.0 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	51.3 %		10-150			"	"	"	"	
BM-19(A) (P3J0775-03) Water Sampled: 10/20/03 10:50 Received: 10/22/03 15:20										
Acenaphthene	ND	0.0500	0.0500	ug/l	1	3100883	10/23/03	10/31/03	EPA 8270m	U
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	66.5 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	78.8 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	57.6 %		10-150			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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907.334.9200 fax 907.334.9210

EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-20(A) (P3J0775-04) Water Sampled: 10/20/03 12:10 Received: 10/22/03 15:20										
Acenaphthene	0.318	0.0500	0.0500	ug/l	1	3100883	10/23/03	10/31/03	EPA 8270m	
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	0.434	0.0500	0.0500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	3.93	0.0500	0.0500	"	"	"	"	"	"	
Phenanthrene	0.0697	0.0500	0.0500	"	"	"	"	"	"	
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	58.9 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	68.2 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	56.8 %		10-150			"	"	"	"	

MW-15(A) (P3J0775-05) Water Sampled: 10/20/03 13:40 Received: 10/22/03 15:20

Acenaphthene	0.0916	0.0500	0.0500	ug/l	1	3100883	10/23/03	10/31/03	EPA 8270m	
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	0.0941	0.0500	0.0500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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907.334.9200 fax 907.334.9210

EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-15(A) (P3J0775-05) Water Sampled: 10/20/03 13:40 Received: 10/22/03 15:20										
Naphthalene	1.28	0.0500	0.0500	ug/l	1	3100883	10/23/03	10/31/03	EPA 8270m	
Phenanthrene	0.106	0.0500	0.0500	"	"	"	"	"	"	
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	61.9 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	77.1 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	64.4 %		10-150			"	"	"	"	
MW-16(A) (P3J0775-07) Water Sampled: 10/20/03 15:10 Received: 10/22/03 15:20										
Acenaphthene	ND	0.0500	0.0500	ug/l	1	3100883	10/23/03	10/31/03	EPA 8270m	U
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	ND	0.350	0.350	"	"	"	"	"	"	R-03, U
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	63.6 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	72.9 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	55.1 %		10-150			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-23(A) (P3J0775-08) Water Sampled: 10/20/03 16:30 Received: 10/22/03 15:20										
Acenaphthene	ND	0.0500	0.0500	ug/l	1	3100883	10/23/03	10/31/03	EPA 8270m	U
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	0.0617	0.0500	0.0500	"	"	"	"	"	"	
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	59.3 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	71.2 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	39.7 %		10-150			"	"	"	"	

MW-38(A) (P3J0775-09) Water Sampled: 10/21/03 10:40 Received: 10/22/03 15:20

Acenaphthene	ND	0.0500	0.0500	ug/l	1	3100883	10/23/03	10/30/03	EPA 8270m	U
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-38(A) (P3J0775-09) Water Sampled: 10/21/03 10:40 Received: 10/22/03 15:20										
Naphthalene	ND	0.0500	0.0500	ug/l	1	3100883	10/23/03	10/30/03	EPA 8270m	U
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	68.2 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	75.4 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	68.6 %		10-150			"	"	"	"	
MW-27(A) (P3J0775-10) Water Sampled: 10/21/03 09:05 Received: 10/22/03 15:20										
Acenaphthene	ND	0.0500	0.0500	ug/l	1	3100883	10/23/03	10/31/03	EPA 8270m	U
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	0.158	0.0500	0.0500	"	"	"	"	"	"	
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	66.9 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	73.7 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	55.1 %		10-150			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-36(A) (P3J0775-11) Water Sampled: 10/21/03 11:30 Received: 10/22/03 15:20										
Acenaphthene	ND	0.0500	0.0500	ug/l	1	3100883	10/23/03	10/31/03	EPA 8270m	U
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	58.1 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	72.9 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	54.7 %		10-150			"	"	"	"	

MW-18(A) (P3J0775-12) Water Sampled: 10/21/03 13:30 Received: 10/22/03 15:20

Acenaphthene	0.517	0.0500	0.0500	ug/l	1	3100883	10/23/03	10/31/03	EPA 8270m	
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	0.220	0.0500	0.0500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-18(A) (P3J0775-12) Water Sampled: 10/21/03 13:30 Received: 10/22/03 15:20										
Naphthalene	0.440	0.0500	0.0500	ug/l	1	3100883	10/23/03	10/31/03	EPA 8270m	
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	56.4 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	71.6 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	52.1 %		10-150			"	"	"	"	
MW-24(A) (P3J0775-13) Water Sampled: 10/21/03 14:30 Received: 10/22/03 15:20										
Acenaphthene	ND	0.0500	0.0500	ug/l	1	3100883	10/23/03	10/31/03	EPA 8270m	U
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	53.4 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	68.2 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	47.9 %		10-150			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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P.O. Box 80762
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Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-29(A) (P3J0775-14) Water Sampled: 10/21/03 15:50 Received: 10/22/03 15:20										
Acenaphthene	0.0959	0.0500	0.0500	ug/l	1	3100883	10/23/03	10/31/03	EPA 8270m	
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	0.0811	0.0500	0.0500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	1640	50.0	50.0	"	1000	"	"	11/03/03	"	D
Phenanthrene	0.0638	0.0500	0.0500	"	1	"	"	10/31/03	"	
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	66.9 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	68.6 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	46.2 %		10-150			"	"	"	"	

MW-14(A) (P3J0775-15) Water Sampled: 10/21/03 16:45 Received: 10/22/03 15:20

Acenaphthene	ND	0.0500	0.0500	ug/l	1	3100883	10/23/03	11/03/03	EPA 8270m	U
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-14(A) (P3J0775-15) Water Sampled: 10/21/03 16:45 Received: 10/22/03 15:20										
Naphthalene	0.977	0.0500	0.0500	ug/l	1	3100883	10/23/03	11/03/03	EPA 8270m	
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	54.7 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	68.2 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	60.2 %		10-150			"	"	"	"	
MW-1(F) (P3J0775-16) Water Sampled: 10/22/03 08:20 Received: 10/22/03 15:20										
Acenaphthene	ND	0.0500	0.0500	ug/l	1	3100883	10/23/03	10/31/03	EPA 8270m	U
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	0.947	0.0500	0.0500	"	"	"	"	"	"	
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	64.8 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	58.9 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	37.9 %		10-150			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-13(A) (P3J0775-17) Water Sampled: 10/22/03 11:30 Received: 10/22/03 15:20										
Acenaphthene	ND	0.0500	0.0500	ug/l	1	3100883	10/23/03	10/31/03	EPA 8270m	U
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	65.4	5.00	5.00	"	100	"	"	11/03/03	"	D
Phenanthrene	ND	0.0500	0.0500	"	1	"	"	10/31/03	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	61.4 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	75.4 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	60.2 %		10-150			"	"	"	"	

MW-12(A) (P3J0775-18) Water Sampled: 10/22/03 09:55 Received: 10/22/03 15:20

Acenaphthene	ND	0.0500	0.0500	ug/l	1	3100883	10/23/03	10/31/03	EPA 8270m	U
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-12(A) (P3J0775-18) Water Sampled: 10/22/03 09:55 Received: 10/22/03 15:20										
Naphthalene	ND	0.0500	0.0500	ug/l	1	3100883	10/23/03	10/31/03	EPA 8270m	U
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	64.8 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	77.1 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	60.6 %		10-150			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Conventional Chemistry Parameters per APHA/EPA Methods
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-20(A) (P3J0775-04) Water Sampled: 10/20/03 12:10 Received: 10/22/03 15:20 R-05										
Nitrate/Nitrite-Nitrogen	ND	0.250	1.00	mg/l	100	3101060	10/28/03	10/28/03	EPA 353.2	D, U
MW-23(A) (P3J0775-08) Water Sampled: 10/20/03 16:30 Received: 10/22/03 15:20 R-05										
Nitrate/Nitrite-Nitrogen	0.250	0.250	1.00	mg/l	100	3101060	10/28/03	10/28/03	EPA 353.2	J, D
MW-38(A) (P3J0775-09) Water Sampled: 10/21/03 10:40 Received: 10/22/03 15:20 R-05										
Nitrate/Nitrite-Nitrogen	ND	0.250	1.00	mg/l	100	3101060	10/28/03	10/28/03	EPA 353.2	D, U
MW-24(A) (P3J0775-13) Water Sampled: 10/21/03 14:30 Received: 10/22/03 15:20 R-05										
Nitrate/Nitrite-Nitrogen	0.330	0.250	1.00	mg/l	100	3101060	10/28/03	10/28/03	EPA 353.2	J, D
MW-14(A) (P3J0775-15) Water Sampled: 10/21/03 16:45 Received: 10/22/03 15:20										
Nitrate/Nitrite-Nitrogen	0.0472	0.00250	0.00500	mg/l	1	3101060	10/28/03	10/28/03	EPA 353.2	
MW-1(F) (P3J0775-16) Water Sampled: 10/22/03 08:20 Received: 10/22/03 15:20 R-05										
Nitrate/Nitrite-Nitrogen	ND	0.250	1.00	mg/l	100	3101060	10/28/03	10/28/03	EPA 353.2	D, U
MW-13(A) (P3J0775-17) Water Sampled: 10/22/03 11:30 Received: 10/22/03 15:20 R-05										
Nitrate/Nitrite-Nitrogen	ND	0.00500	0.0200	mg/l	2	3101060	10/28/03	10/28/03	EPA 353.2	D, U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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Environmental Laboratory Network

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Anions per EPA Method 300.0
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-20(A) (P3J0775-04) Water Sampled: 10/20/03 12:10 Received: 10/22/03 15:20										
Chloride	7.24	0.0508	0.500	mg/l	1	3100897	10/23/03	10/23/03	EPA 300.0	
Sulfate	90.5	0.0860	1.00	"	"	"	"	"	"	
MW-23(A) (P3J0775-08) Water Sampled: 10/20/03 16:30 Received: 10/22/03 15:20										
Chloride	11.5	0.0508	0.500	mg/l	1	3100897	10/23/03	10/23/03	EPA 300.0	
Sulfate	104	0.860	10.0	"	10	"	"	10/24/03	"	D
MW-38(A) (P3J0775-09) Water Sampled: 10/21/03 10:40 Received: 10/22/03 15:20										
Chloride	17.2	0.0508	0.500	mg/l	1	3100897	10/23/03	10/23/03	EPA 300.0	
Sulfate	38.9	0.0860	1.00	"	"	"	"	"	"	
MW-24(A) (P3J0775-13) Water Sampled: 10/21/03 14:30 Received: 10/22/03 15:20										
Chloride	54.5	0.508	5.00	mg/l	10	3100897	10/23/03	10/25/03	EPA 300.0	D
Sulfate	17.6	0.0860	1.00	"	1	"	"	10/23/03	"	
MW-14(A) (P3J0775-15) Water Sampled: 10/21/03 16:45 Received: 10/22/03 15:20										
Chloride	12.9	0.0508	0.500	mg/l	1	3100897	10/23/03	10/23/03	EPA 300.0	
Sulfate	353	0.860	10.0	"	10	"	"	10/25/03	"	D
MW-1(F) (P3J0775-16) Water Sampled: 10/22/03 08:20 Received: 10/22/03 15:20										
Chloride	17.5	0.0508	0.500	mg/l	1	3100897	10/23/03	10/23/03	EPA 300.0	
Sulfate	168	0.860	10.0	"	10	"	"	10/25/03	"	D
MW-13(A) (P3J0775-17) Water Sampled: 10/22/03 11:30 Received: 10/22/03 15:20										
Chloride	14.8	0.0508	0.500	mg/l	1	3100897	10/23/03	10/23/03	EPA 300.0	
Sulfate	52.6	0.0860	1.00	"	"	"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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Environmental Laboratory Network

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Total Alkalinity by Conventional Chemistry Parameters per APHA/EPA Methods North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-20(A) (P3J0775-04) Water Sampled: 10/20/03 12:10 Received: 10/22/03 15:20										
Bicarbonate Alkalinity	71.2	0.208	10.0mg/L as CaC	1	3100981	10/27/03	10/27/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	71.2	0.208	10.0	"	"	"	"	"	"	
MW-23(A) (P3J0775-08) Water Sampled: 10/20/03 16:30 Received: 10/22/03 15:20										
Bicarbonate Alkalinity	90.3	0.208	10.0mg/L as CaC	1	3100981	10/27/03	10/27/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	90.3	0.208	10.0	"	"	"	"	"	"	
MW-38(A) (P3J0775-09) Water Sampled: 10/21/03 10:40 Received: 10/22/03 15:20										
Bicarbonate Alkalinity	150	0.208	10.0mg/L as CaC	1	3100981	10/27/03	10/27/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	150	0.208	10.0	"	"	"	"	"	"	
MW-24(A) (P3J0775-13) Water Sampled: 10/21/03 14:30 Received: 10/22/03 15:20										
Bicarbonate Alkalinity	206	0.208	10.0mg/L as CaC	1	3100981	10/27/03	10/27/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	206	0.208	10.0	"	"	"	"	"	"	
MW-14(A) (P3J0775-15) Water Sampled: 10/21/03 16:45 Received: 10/22/03 15:20										
Bicarbonate Alkalinity	132	0.208	10.0mg/L as CaC	1	3100981	10/27/03	10/27/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	132	0.208	10.0	"	"	"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Total Alkalinity by Conventional Chemistry Parameters per APHA/EPA Methods
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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MW-1(F) (P3J0775-16) Water Sampled: 10/22/03 08:20 Received: 10/22/03 15:20

Bicarbonate Alkalinity	490	0.208	10.0mg/L as CaC	1	3100981	10/27/03	10/27/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	490	0.208	10.0	"	"	"	"	"	"	

MW-13(A) (P3J0775-17) Water Sampled: 10/22/03 11:30 Received: 10/22/03 15:20

Bicarbonate Alkalinity	497	0.208	10.0mg/L as CaC	1	3100981	10/27/03	10/27/03	SM 2320B		
Carbonate Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Hydroxide Alkalinity	ND	0.208	10.0	"	"	"	"	"	"	U
Total Alkalinity	497	0.208	10.0	"	"	"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Total Metals by EPA 6000/7000 Series Methods North Creek Analytical - Bothell

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-20(A) (P3J0775-04) Water Sampled: 10/20/03 12:10 Received: 10/22/03 15:20										
Calcium	17.8	0.0360	0.250	mg/l	1	3J30040	10/30/03	10/31/03	EPA 6010B	
Iron	15.7	0.0620	0.150	"	"	"	"	"	"	
Potassium	7.17	0.255	2.00	"	"	"	"	"	"	
Magnesium	15.0	0.0180	0.500	"	"	"	"	"	"	
Sodium	18.0	0.0420	0.250	"	"	"	"	"	"	
MW-23(A) (P3J0775-08) Water Sampled: 10/20/03 16:30 Received: 10/22/03 15:20										
Calcium	37.8	0.0360	0.250	mg/l	1	3J30040	10/30/03	10/31/03	EPA 6010B	
Iron	6.21	0.0620	0.150	"	"	"	"	"	"	
Potassium	4.71	0.255	2.00	"	"	"	"	"	"	
Magnesium	11.2	0.0180	0.500	"	"	"	"	"	"	
Sodium	20.9	0.0420	0.250	"	"	"	"	"	"	
MW-38(A) (P3J0775-09) Water Sampled: 10/21/03 10:40 Received: 10/22/03 15:20										
Calcium	32.4	0.0360	0.250	mg/l	1	3J30040	10/30/03	10/31/03	EPA 6010B	
Iron	1.48	0.0620	0.150	"	"	"	"	"	"	
Potassium	6.60	0.255	2.00	"	"	"	"	"	"	
Magnesium	13.0	0.0180	0.500	"	"	"	"	"	"	
Sodium	29.4	0.0420	0.250	"	"	"	"	"	"	
MW-24(A) (P3J0775-13) Water Sampled: 10/21/03 14:30 Received: 10/22/03 15:20										
Calcium	12.1	0.0360	0.250	mg/l	1	3J30040	10/30/03	10/31/03	EPA 6010B	
Iron	1.20	0.0620	0.150	"	"	"	"	"	"	
Potassium	7.90	0.255	2.00	"	"	"	"	"	"	
Magnesium	7.62	0.0180	0.500	"	"	"	"	"	"	
Sodium	92.4	0.0420	0.250	"	"	"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

**Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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MW-14(A) (P3J0775-15) Water Sampled: 10/21/03 16:45 Received: 10/22/03 15:20

Calcium	110	0.0360	0.250	mg/l	1	3J30040	10/30/03	10/31/03	EPA 6010B	
Iron	0.348	0.0620	0.150	"	"	"	"	"	"	
Potassium	7.41	0.255	2.00	"	"	"	"	"	"	
Magnesium	18.3	0.0180	0.500	"	"	"	"	"	"	
Sodium	51.4	0.0420	0.250	"	"	"	"	"	"	

MW-1(F) (P3J0775-16) Water Sampled: 10/22/03 08:20 Received: 10/22/03 15:20

Calcium	119	0.0360	0.250	mg/l	1	3J30040	10/30/03	10/31/03	EPA 6010B	
Iron	46.6	0.0620	0.150	"	"	"	"	"	"	
Potassium	8.54	0.255	2.00	"	"	"	"	"	"	
Magnesium	46.8	0.0180	0.500	"	"	"	"	"	"	
Sodium	96.3	0.0420	0.250	"	"	"	"	"	"	

MW-13(A) (P3J0775-17) Water Sampled: 10/22/03 11:30 Received: 10/22/03 15:20

Calcium	136	0.0360	0.250	mg/l	1	3J30040	10/30/03	10/31/03	EPA 6010B	
Iron	1.27	0.0620	0.150	"	"	"	"	"	"	
Potassium	7.71	0.255	2.00	"	"	"	"	"	"	
Magnesium	20.5	0.0180	0.500	"	"	"	"	"	"	
Sodium	62.6	0.0420	0.250	"	"	"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Gasoline Hydrocarbons per NW TPH-Gx Method - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch 3100905: Prepared 10/23/03 Using EPA 5030B										
Blank (3100905-BLK1)										
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l						U
Surrogate: 4-BFB	41.6			"	50.0		83.2 50-150			
LCS (3100905-BS1)										
Gasoline Range Hydrocarbons	1420	50.0	80.0	ug/l	1250		114 70-130			
Surrogate: 4-BFB	52.3			"	50.0		105 50-150			
Duplicate (3100905-DUP1) Source: P3J0775-01										
Gasoline Range Hydrocarbons	764	250	400	ug/l		753		1.45 40		D
Surrogate: 4-BFB	44.4			"	50.0		88.8 50-150			
Duplicate (3100905-DUP2) Source: P3J0775-11										
Gasoline Range Hydrocarbons	55.8	50.0	80.0	ug/l		ND			40	J
Surrogate: 4-BFB	47.1			"	50.0		94.2 50-150			
Batch 3100956: Prepared 10/24/03 Using EPA 5030B										
Blank (3100956-BLK1)										
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l						U
Surrogate: 4-BFB	46.8			"	50.0		93.6 50-150			
LCS (3100956-BS1)										
Gasoline Range Hydrocarbons	1270	50.0	80.0	ug/l	1250		102 70-130			
Surrogate: 4-BFB	42.3			"	50.0		84.6 50-150			
Duplicate (3100956-DUP1) Source: P3J0775-09RE1										
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l		ND			40	U
Surrogate: 4-BFB	42.5			"	50.0		85.0 50-150			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Gasoline Hydrocarbons per NW TPH-Gx Method - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch 3100956: Prepared 10/24/03 Using EPA 5030B

Duplicate (3100956-DUP2)

Source: P3J0852-03

Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l		ND				40	U
Surrogate: 4-BFB	42.3			"	50.0		84.6	50-150			

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100936: Prepared 10/24/03 Using EPA 3510 Fuels

Blank (3100936-BLK1)

Diesel Range Organics	ND	0.153	0.250	mg/l							U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"							U
Surrogate: 1-Chlorooctadecane	0.0755			"	0.0960		78.6	50-150			

LCS (3100936-BS1)

Diesel Range Organics	2.20	0.153	0.250	mg/l	2.50		88.0	50-150			
Heavy Oil Range Hydrocarbons	1.45	0.286	0.500	"	1.50		96.7	50-150			
Surrogate: 1-Chlorooctadecane	0.0893			"	0.0960		93.0	50-150			

LCS Dup (3100936-BSD1)

Diesel Range Organics	1.68	0.153	0.250	mg/l	2.50		67.2	50-150	26.8	50	
Heavy Oil Range Hydrocarbons	1.11	0.286	0.500	"	1.50		74.0	50-150	26.6	50	
Surrogate: 1-Chlorooctadecane	0.0636			"	0.0960		66.2	50-150			

Matrix Spike (3100936-MS1)

Source: P3J0775-09

Diesel Range Organics	1.84	0.153	0.250	mg/l	2.36	ND	78.0	50-150			
Heavy Oil Range Hydrocarbons	1.34	0.286	0.500	"	1.42	ND	94.4	50-150			
Surrogate: 1-Chlorooctadecane	0.0735			"	0.0906		81.1	50-150			

Matrix Spike Dup (3100936-MSD1)

Source: P3J0775-09

Diesel Range Organics	1.97	0.153	0.250	mg/l	2.36	ND	83.5	50-150	6.82	50	
Heavy Oil Range Hydrocarbons	1.42	0.286	0.500	"	1.42	ND	100	50-150	5.80	50	
Surrogate: 1-Chlorooctadecane	0.0815			"	0.0906		90.0	50-150			

Batch 3100982: Prepared 10/27/03 Using EPA 3510 Fuels

Blank (3100982-BLK1)

Diesel Range Organics	ND	0.153	0.250	mg/l							U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"							U
Surrogate: 1-Chlorooctadecane	0.0948			"	0.0960		98.8	50-150			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100982: Prepared 10/27/03 Using EPA 3510 Fuels

LCS (3100982-BS1)

Diesel Range Organics	2.47	0.153	0.250	mg/l	2.50		98.8	50-150			
Heavy Oil Range Hydrocarbons	1.59	0.286	0.500	"	1.50		106	50-150			
Surrogate: 1-Chlorooctadecane	0.0914			"	0.0960		95.2	50-150			

LCS Dup (3100982-BSD1)

Diesel Range Organics	2.59	0.153	0.250	mg/l	2.50		104	50-150	4.74	50	
Heavy Oil Range Hydrocarbons	1.64	0.286	0.500	"	1.50		109	50-150	3.10	50	
Surrogate: 1-Chlorooctadecane	0.0995			"	0.0960		104	50-150			

North Creek Analytical - Portland

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Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Total Metals per EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3101028: Prepared 10/27/03 Using EPA 7470

Blank (3101028-BLK1)

Mercury	0.0000420	0.0000358	0.000200	mg/l							J
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LCS (3101028-BS1)

Mercury	0.00474	0.0000358	0.000200	mg/l	0.00500		94.8	85-115			
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Duplicate (3101028-DUP1)

Source: P3J0810-01

Mercury	ND	0.0000358	0.000200	mg/l		ND			20		U
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Matrix Spike (3101028-MS1)

Source: P3J0810-01

Mercury	0.00445	0.0000358	0.000200	mg/l	0.00500	ND	89.0	75-125			
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Matrix Spike (3101028-MS2)

Source: P3J0775-09

Mercury	0.00420	0.0000358	0.000200	mg/l	0.00500	ND	84.0	75-125			
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Batch 3101206: Prepared 10/31/03 Using EPA 200/3005

Blank (3101206-BLK1)

Arsenic	ND	0.000964	0.00100	mg/l							U
Barium	0.000100	0.0000910	0.00100	"							J
Cadmium	ND	0.000178	0.00100	"							U
Chromium	ND	0.000791	0.00100	"							U
Lead	ND	0.0000870	0.00100	"							U
Manganese	0.0000400	0.0000136	0.00200	"							J
Selenium	ND	0.000566	0.00100	"							U
Silver	ND	0.0000460	0.00100	"							U

LCS (3101206-BS1)

Arsenic	0.0984	0.000964	0.00100	mg/l	0.100		98.4	80-120			
Barium	0.0971	0.0000910	0.00100	"	0.100		97.1	80-120			
Cadmium	0.0991	0.000178	0.00100	"	0.100		99.1	80-120			
Chromium	0.100	0.000791	0.00100	"	0.100		100	80-120			
Lead	0.0982	0.0000870	0.00100	"	0.100		98.2	80-120			
Manganese	0.0976	0.0000136	0.00200	"	0.100		97.6	80-120			
Selenium	0.101	0.000566	0.00100	"	0.100		101	80-120			
Silver	0.0526	0.0000460	0.00100	"	0.0500		105	80-120			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Total Metals per EPA 6000/7000 Series Methods - Quality Control

North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 3101206: Prepared 10/31/03 Using EPA 200/3005

Duplicate (3101206-DUP1)

Source: P3J0775-09

Arsenic	ND	0.000964	0.00100	mg/l		ND				20	U
Barium	0.0218	0.0000910	0.00100	"		0.0209			4.22	20	
Cadmium	ND	0.000178	0.00100	"		ND				20	U
Chromium	ND	0.000791	0.00100	"		ND				20	U
Lead	0.000100	0.0000870	0.00100	"		0.000480			131	20	Q-06, J
Manganese	0.218	0.0000136	0.00200	"		0.209			4.22	20	
Selenium	0.000610	0.000566	0.00100	"		ND				20	J
Silver	ND	0.0000460	0.00100	"		ND				20	U

Matrix Spike (3101206-MS1)

Source: P3J0775-09

Arsenic	0.0985	0.000964	0.00100	mg/l	0.100	ND	98.5	75-125			
Barium	0.115	0.0000910	0.00100	"	0.100	0.0209	94.1	75-125			
Cadmium	0.0991	0.000178	0.00100	"	0.100	ND	99.1	75-125			
Chromium	0.0990	0.000791	0.00100	"	0.100	ND	99.0	75-125			
Lead	0.0941	0.0000870	0.00100	"	0.100	0.000480	93.6	75-125			
Manganese	0.312	0.0000136	0.00200	"	0.100	0.209	103	75-125			
Selenium	0.0971	0.000566	0.00100	"	0.100	ND	97.1	75-125			
Silver	0.0520	0.0000460	0.00100	"	0.0500	ND	104	75-125			

Matrix Spike Dup (3101206-MSD1)

Source: P3J0775-09

Arsenic	0.105	0.000964	0.00100	mg/l	0.100	ND	105	75-125	6.39	20	
Barium	0.122	0.0000910	0.00100	"	0.100	0.0209	101	75-125	5.91	20	
Cadmium	0.102	0.000178	0.00100	"	0.100	ND	102	75-125	2.88	20	
Chromium	0.103	0.000791	0.00100	"	0.100	ND	103	75-125	3.96	20	
Lead	0.0986	0.0000870	0.00100	"	0.100	0.000480	98.1	75-125	4.67	20	
Manganese	0.320	0.0000136	0.00200	"	0.100	0.209	111	75-125	2.53	20	
Selenium	0.108	0.000566	0.00100	"	0.100	ND	108	75-125	10.6	20	
Silver	0.0542	0.0000460	0.00100	"	0.0500	ND	108	75-125	4.14	20	

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Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Dissolved Metals per EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100933: Prepared 10/24/03 Using EPA 200/3005

Blank (3100933-BLK1)

Mercury	ND	0.0000358	0.000200	mg/l							U
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LCS (3100933-BS1)

Mercury	0.00521	0.0000358	0.000200	mg/l	0.00500		104	85-115			
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Duplicate (3100933-DUP1)

Source: P3J0775-01

Mercury	ND	0.0000358	0.000200	mg/l		ND			20		U
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Matrix Spike (3100933-MS1)

Source: P3J0775-01

Mercury	0.00520	0.0000358	0.000200	mg/l	0.00500	ND	104	75-125			
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Matrix Spike (3100933-MS2)

Source: P3J0775-02

Mercury	0.00519	0.0000358	0.000200	mg/l	0.00500	ND	104	75-125			
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Batch 3110047: Prepared 11/03/03 Using EPA 200/3005 Diss

Blank (3110047-BLK1)

Arsenic	ND	0.000964	0.00100	mg/l							U
Barium	ND	0.0000910	0.00100	"							U
Cadmium	ND	0.0000730	0.00100	"							U
Chromium	ND	0.000791	0.00100	"							U
Lead	ND	0.0000870	0.00100	"							U
Selenium	0.000740	0.000566	0.00100	"							J
Silver	ND	0.0000460	0.00100	"							U

LCS (3110047-BS1)

Arsenic	0.0965	0.000964	0.00100	mg/l	0.100		96.5	80-120			
Barium	0.0974	0.0000910	0.00100	"	0.100		97.4	80-120			
Cadmium	0.0974	0.0000730	0.00100	"	0.100		97.4	80-120			
Chromium	0.0990	0.000791	0.00100	"	0.100		99.0	80-120			
Lead	0.102	0.0000870	0.00100	"	0.100		102	80-120			
Selenium	0.0943	0.000566	0.00100	"	0.100		94.3	80-120			
Silver	0.0517	0.0000460	0.00100	"	0.0500		103	80-120			

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Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Dissolved Metals per EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3110047: Prepared 11/03/03 Using EPA 200/3005 Diss

Duplicate (3110047-DUP1)

Source: P3J0775-09

Arsenic	ND	0.000964	0.00100	mg/l		ND				20	U
Barium	0.0194	0.0000910	0.00100	"		0.0200			3.05	20	
Cadmium	ND	0.0000730	0.00100	"		ND				20	U
Chromium	ND	0.000791	0.00100	"		ND				20	U
Lead	0.000240	0.0000870	0.00100	"		0.000240			0.00	20	J
Selenium	0.000910	0.000566	0.00100	"		0.00134			38.2	20	Q-06, J
Silver	ND	0.0000460	0.00100	"		ND				20	U

Matrix Spike (3110047-MS1)

Source: P3J0775-09

Arsenic	0.0994	0.000964	0.00100	mg/l	0.100	ND	99.4	75-125			
Barium	0.118	0.0000910	0.00100	"	0.100	0.0200	98.0	75-125			
Cadmium	0.0990	0.0000730	0.00100	"	0.100	ND	99.0	75-125			
Chromium	0.100	0.000791	0.00100	"	0.100	ND	100	75-125			
Lead	0.104	0.0000870	0.00100	"	0.100	0.000240	104	75-125			
Selenium	0.0965	0.000566	0.00100	"	0.100	0.00134	95.2	75-125			
Silver	0.0514	0.0000460	0.00100	"	0.0500	ND	103	75-125			

Matrix Spike Dup (3110047-MSD1)

Source: P3J0775-09

Arsenic	0.100	0.000964	0.00100	mg/l	0.100	ND	100	75-125	0.602	20	
Barium	0.117	0.0000910	0.00100	"	0.100	0.0200	97.0	75-125	0.851	20	
Cadmium	0.0960	0.0000730	0.00100	"	0.100	ND	96.0	75-125	3.08	20	
Chromium	0.0998	0.000791	0.00100	"	0.100	ND	99.8	75-125	0.200	20	
Lead	0.107	0.0000870	0.00100	"	0.100	0.000240	107	75-125	2.84	20	
Selenium	0.0981	0.000566	0.00100	"	0.100	0.00134	96.8	75-125	1.64	20	
Silver	0.0512	0.0000460	0.00100	"	0.0500	ND	102	75-125	0.390	20	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Selected Volatile Organic Compounds per EPA Method 8260B - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100977: Prepared 10/26/03 Using EPA 5030B

Blank (3100977-BLK1)

1,2-Dibromoethane	ND	0.187	0.500	ug/l							U
1,2-Dichloroethane	ND	0.142	0.500	"							U
Benzene	ND	0.147	0.500	"							U
Toluene	ND	0.155	0.500	"							U
Ethylbenzene	ND	0.110	0.500	"							U
Xylenes (total)	ND	0.262	1.00	"							U
Methyl tert-butyl ether	ND	0.0865	2.00	"							U
Naphthalene	0.430	0.0989	2.00	"							J
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"							U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"							U
Isopropylbenzene	ND	0.107	2.00	"							U
n-Propylbenzene	ND	0.138	0.500	"							U
Surrogate: 4-BFB	19.1			"	20.0		95.5	75-120			
Surrogate: 1,2-DCA-d4	19.4			"	20.0		97.0	77-129			
Surrogate: Dibromofluoromethane	19.1			"	20.0		95.5	80-121			
Surrogate: Toluene-d8	19.6			"	20.0		98.0	80-120			

LCS (3100977-BS1)

Benzene	19.5	0.147	0.500	ug/l	20.0		97.5	80-120			
Toluene	20.2	0.155	0.500	"	20.0		101	80-124			
Ethylbenzene	21.2	0.110	0.500	"	20.0		106	80-120			
Xylenes (total)	63.3	0.262	1.00	"	60.0		106	73-124			
Surrogate: 4-BFB	20.3			"	20.0		102	75-120			
Surrogate: 1,2-DCA-d4	19.6			"	20.0		98.0	77-129			
Surrogate: Dibromofluoromethane	19.6			"	20.0		98.0	80-121			
Surrogate: Toluene-d8	20.0			"	20.0		100	80-120			

Matrix Spike (3100977-MS1)

Source: P3J0775-09

Benzene	20.2	0.147	0.500	ug/l	20.0	ND	101	80-124			
Toluene	19.4	0.155	0.500	"	20.0	ND	97.0	79.7-131			
Ethylbenzene	19.4	0.110	0.500	"	20.0	ND	97.0	80-124			
Xylenes (total)	47.0	0.262	1.00	"	60.0	ND	78.3	44.6-154			
Surrogate: 4-BFB	18.9			"	20.0		94.5	75-120			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Selected Volatile Organic Compounds per EPA Method 8260B - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100977: Prepared 10/26/03 Using EPA 5030B

Matrix Spike (3100977-MS1)

Source: P3J0775-09

Surrogate: 1,2-DCA-d4	19.2			ug/l	20.0		96.0	77-129			
Surrogate: Dibromofluoromethane	19.9			"	20.0		99.5	80-121			
Surrogate: Toluene-d8	19.6			"	20.0		98.0	80-120			

Matrix Spike Dup (3100977-MSD1)

Source: P3J0775-09

Benzene	20.2	0.147	0.500	ug/l	20.0	ND	101	80-124	0.00	25	
Toluene	18.9	0.155	0.500	"	20.0	ND	94.5	79.7-131	2.61	25	
Ethylbenzene	20.0	0.110	0.500	"	20.0	ND	100	80-124	3.05	25	
Xylenes (total)	50.8	0.262	1.00	"	60.0	ND	84.7	44.6-154	7.77	25	
Surrogate: 4-BFB	20.2			"	20.0		101	75-120			
Surrogate: 1,2-DCA-d4	19.2			"	20.0		96.0	77-129			
Surrogate: Dibromofluoromethane	19.4			"	20.0		97.0	80-121			
Surrogate: Toluene-d8	19.2			"	20.0		96.0	80-120			

Batch 3101089: Prepared 10/29/03 Using EPA 5030B

Blank (3101089-BLK1)

1,2-Dibromoethane	ND	0.187	0.500	ug/l							U
1,2-Dichloroethane	ND	0.142	0.500	"							U
Benzene	ND	0.147	0.500	"							U
Toluene	ND	0.155	0.500	"							U
Ethylbenzene	ND	0.110	0.500	"							U
Xylenes (total)	ND	0.262	1.00	"							U
Methyl tert-butyl ether	ND	0.0865	2.00	"							U
Naphthalene	ND	0.0989	2.00	"							U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"							U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"							U
Isopropylbenzene	ND	0.107	2.00	"							U
n-Propylbenzene	ND	0.138	0.500	"							U
Surrogate: 4-BFB	20.7			"	20.0		104	75-120			
Surrogate: 1,2-DCA-d4	23.0			"	20.0		115	77-129			
Surrogate: Dibromofluoromethane	21.7			"	20.0		108	80-121			
Surrogate: Toluene-d8	21.6			"	20.0		108	80-120			

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Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Selected Volatile Organic Compounds per EPA Method 8260B - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3101089: Prepared 10/29/03 Using EPA 5030B

LCS (3101089-BS1)

Benzene	19.2	0.147	0.500	ug/l	20.0		96.0	80-120			
Toluene	20.2	0.155	0.500	"	20.0		101	80-124			
Ethylbenzene	20.4	0.110	0.500	"	20.0		102	80-120			
Xylenes (total)	61.7	0.262	1.00	"	60.0		103	73-124			
Surrogate: 4-BFB	22.0			"	20.0		110	75-120			
Surrogate: 1,2-DCA-d4	23.8			"	20.0		119	77-129			
Surrogate: Dibromofluoromethane	22.6			"	20.0		113	80-121			
Surrogate: Toluene-d8	22.4			"	20.0		112	80-120			

Matrix Spike (3101089-MS1)

Source: P3J0859-01

Benzene	19.2	0.147	0.500	ug/l	20.0	ND	96.0	80-124			
Toluene	17.0	0.155	0.500	"	20.0	0.190	84.0	79.7-131			
Ethylbenzene	17.4	0.110	0.500	"	20.0	0.410	85.0	80-124			
Xylenes (total)	39.5	0.262	1.00	"	60.0	ND	65.8	44.6-154			
Surrogate: 4-BFB	22.0			"	20.0		110	75-120			
Surrogate: 1,2-DCA-d4	23.1			"	20.0		116	77-129			
Surrogate: Dibromofluoromethane	22.0			"	20.0		110	80-121			
Surrogate: Toluene-d8	20.5			"	20.0		102	80-120			

Matrix Spike Dup (3101089-MSD1)

Source: P3J0859-01

Benzene	19.6	0.147	0.500	ug/l	20.0	ND	98.0	80-124	2.06	25	
Toluene	16.6	0.155	0.500	"	20.0	0.190	82.0	79.7-131	2.38	25	
Ethylbenzene	17.2	0.110	0.500	"	20.0	0.410	84.0	80-124	1.16	25	
Xylenes (total)	45.9	0.262	1.00	"	60.0	ND	76.5	44.6-154	15.0	25	
Surrogate: 4-BFB	22.2			"	20.0		111	75-120			
Surrogate: 1,2-DCA-d4	23.2			"	20.0		116	77-129			
Surrogate: Dibromofluoromethane	22.3			"	20.0		112	80-121			
Surrogate: Toluene-d8	20.4			"	20.0		102	80-120			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100883: Prepared 10/23/03 Using EPA 3520/600 Series

Blank (3100883-BLK1)

Acenaphthene	ND	0.0500	0.0500	ug/l							U
Acenaphthylene	ND	0.0500	0.0500	"							U
Anthracene	ND	0.0500	0.0500	"							U
Benzo (a) anthracene	ND	0.0100	0.0100	"							U
Benzo (a) pyrene	ND	0.0100	0.0100	"							U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"							U
Benzo (ghi) perylene	ND	0.0500	0.0500	"							U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"							U
Chrysene	ND	0.0100	0.0100	"							U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"							U
Fluoranthene	ND	0.0500	0.0500	"							U
Fluorene	ND	0.0500	0.0500	"							U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"							U
Naphthalene	ND	0.0500	0.0500	"							U
Phenanthrene	ND	0.0500	0.0500	"							U
Pyrene	ND	0.0500	0.0500	"							U
Surrogate: Fluorene-d10	1.46			"	2.50		58.4	25-150			
Surrogate: Pyrene-d10	1.90			"	2.50		76.0	23-150			
Surrogate: Benzo (a) pyrene-d12	1.66			"	2.50		66.4	10-150			

LCS (3100883-BS1)

Acenaphthene	1.77	0.0500	0.0500	ug/l	2.50		70.8	26-150			
Benzo (a) pyrene	1.75	0.0100	0.0100	"	2.50		70.0	38-150			
Pyrene	1.87	0.0500	0.0500	"	2.50		74.8	33-150			
Surrogate: Fluorene-d10	1.66			"	2.50		66.4	25-150			
Surrogate: Pyrene-d10	1.95			"	2.50		78.0	23-150			
Surrogate: Benzo (a) pyrene-d12	1.75			"	2.50		70.0	10-150			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch 3100883: Prepared 10/23/03 Using EPA 3520/600 Series

LCS Dup (3100883-BSD1)

Acenaphthene	1.88	0.0500	0.0500	ug/l	2.50		75.2	26-150	6.03	60	
Benzo (a) pyrene	1.76	0.0100	0.0100	"	2.50		70.4	38-150	0.570	60	
Pyrene	1.90	0.0500	0.0500	"	2.50		76.0	33-150	1.59	60	
Surrogate: Fluorene-d10	1.71			"	2.50		68.4	25-150			
Surrogate: Pyrene-d10	1.90			"	2.50		76.0	23-150			
Surrogate: Benzo (a) pyrene-d12	1.69			"	2.50		67.6	10-150			

Matrix Spike (3100883-MS1)

Source: P3J0775-09

Acenaphthene	1.88	0.0500	0.0500	ug/l	2.50	ND	75.2	26-135			
Benzo (a) pyrene	1.58	0.0100	0.0100	"	2.50	ND	63.2	38-137			
Pyrene	1.82	0.0500	0.0500	"	2.50	ND	72.8	33-133			
Surrogate: Fluorene-d10	1.63			"	2.50		65.2	25-150			
Surrogate: Pyrene-d10	1.84			"	2.50		73.6	23-150			
Surrogate: Benzo (a) pyrene-d12	1.58			"	2.50		63.2	10-150			

Matrix Spike Dup (3100883-MSD1)

Source: P3J0775-09

Acenaphthene	1.62	0.0500	0.0500	ug/l	2.50	ND	64.8	26-135	14.9	60	
Benzo (a) pyrene	1.58	0.0100	0.0100	"	2.50	ND	63.2	38-137	0.00	60	
Pyrene	1.71	0.0500	0.0500	"	2.50	ND	68.4	33-133	6.23	60	
Surrogate: Fluorene-d10	1.45			"	2.50		58.0	25-150			
Surrogate: Pyrene-d10	1.70			"	2.50		68.0	23-150			
Surrogate: Benzo (a) pyrene-d12	1.54			"	2.50		61.6	10-150			

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Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Conventional Chemistry Parameters per APHA/EPA Methods - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch 3101060: Prepared 10/28/03 Using Wet Chem

Blank (3101060-BLK1)

Nitrate/Nitrite-Nitrogen	0.00370	0.00250	0.00500	mg/l							J
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LCS (3101060-BS1)

Nitrate/Nitrite-Nitrogen	0.0922	0.00250	0.00500	mg/l	0.100		92.2	85-115			
--------------------------	--------	---------	---------	------	-------	--	------	--------	--	--	--

Duplicate (3101060-DUP1)

Source: P3J0709-01

Nitrate/Nitrite-Nitrogen	0.0635	0.00250	0.00500	mg/l		0.0653			2.80	20	
--------------------------	--------	---------	---------	------	--	--------	--	--	------	----	--

Matrix Spike (3101060-MS1)

Source: P3J0709-01

Nitrate/Nitrite-Nitrogen	0.158	0.00500	0.0100	mg/l	0.100	0.0653	92.7	75-125			D
--------------------------	-------	---------	--------	------	-------	--------	------	--------	--	--	---

Matrix Spike Dup (3101060-MSD1)

Source: P3J0709-01

Nitrate/Nitrite-Nitrogen	0.158	0.00500	0.0100	mg/l	0.100	0.0653	92.7	75-125	0.00	20	D
--------------------------	-------	---------	--------	------	-------	--------	------	--------	------	----	---

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Anions per EPA Method 300.0 - Quality Control North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3100897: Prepared 10/23/03 Using Wet Chem											
Blank (3100897-BLK1)											
Chloride	ND	0.0508	0.500	mg/l							U
Sulfate	0.310	0.0860	1.00	"							J
LCS (3100897-BS1)											
Chloride	9.76	0.0508	0.500	mg/l	10.0		97.6	90-110			
Sulfate	30.1	0.0860	1.00	"	30.0		100	90-110			
Duplicate (3100897-DUP1)						Source: P3J0775-04					
Chloride	7.24	0.0508	0.500	mg/l		7.24			0.00	20	
Sulfate	90.9	0.0860	1.00	"		90.5			0.441	20	
Matrix Spike (3100897-MS1)						Source: P3J0775-04					
Chloride	9.11	0.0564	0.556	mg/l	2.22	7.24	84.2	80-120			D
Sulfate	95.3	0.0955	1.11	"	4.44	90.5	108	80-120			D
Matrix Spike (3100897-MS2)						Source: P3J0794-01					
Chloride	10.8	0.0564	0.556	mg/l	2.22	8.95	83.3	80-120			D
Sulfate	33.9	0.0955	1.11	"	4.44	29.6	96.8	80-120			D
Matrix Spike Dup (3100897-MSD1)						Source: P3J0775-04					
Chloride	9.14	0.0564	0.556	mg/l	2.22	7.24	85.6	80-120	0.329	20	D
Sulfate	94.6	0.0955	1.11	"	4.44	90.5	92.3	80-120	0.737	20	D
Matrix Spike Dup (3100897-MSD2)						Source: P3J0794-01					
Chloride	10.8	0.0564	0.556	mg/l	2.22	8.95	83.3	80-120	0.00	20	D
Sulfate	34.1	0.0955	1.11	"	4.44	29.6	101	80-120	0.588	20	D

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Total Alkalinity by Conventional Chemistry Parameters per APHA/EPA Methods - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 3100981: Prepared 10/27/03 Using Wet Chem

Blank (3100981-BLK1)

Bicarbonate Alkalinity	ND	0.208	10.0	mg/L as CaCO ₃							U
Carbonate Alkalinity	ND	0.208	10.0	"							U
Hydroxide Alkalinity	ND	0.208	10.0	"							U
Total Alkalinity	ND	0.208	10.0	"							U

LCS (3100981-BS1)

Bicarbonate Alkalinity	93.3	0.208	10.0	mg/L as CaCO ₃	100		93.3	85-115			
Carbonate Alkalinity	105	0.208	10.0	"	100		105	85-115			
Total Alkalinity	199	0.208	10.0	"	200		99.5	85-115			

Duplicate (3100981-DUP1)

Source: P3J0703-01

Bicarbonate Alkalinity	670	0.208	10.0	mg/L as CaCO ₃		673			0.447	20	
Carbonate Alkalinity	ND	0.208	10.0	"		ND				20	U
Hydroxide Alkalinity	ND	0.208	10.0	"		ND				20	U
Total Alkalinity	670	0.208	10.0	"		673			0.447	20	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 3J30040: Prepared 10/30/03 Using EPA 3010A

Blank (3J30040-BLK1)

Calcium	ND	0.0360	0.250	mg/l							U
Iron	ND	0.0620	0.150	"							U
Magnesium	ND	0.0180	0.500	"							U
Potassium	ND	0.255	2.00	"							U
Sodium	ND	0.0420	0.250	"							U

LCS (3J30040-BS1)

Calcium	4.62	0.0360	0.250	mg/l	5.00		92.4	80-120			
Iron	4.59	0.0620	0.150	"	5.00		91.8	80-120			
Magnesium	4.88	0.0180	0.500	"	5.00		97.6	80-120			
Potassium	9.70	0.255	2.00	"	10.0		97.0	80-120			
Sodium	4.72	0.0420	0.250	"	5.00		94.4	80-120			

LCS Dup (3J30040-BSD1)

Calcium	4.67	0.0360	0.250	mg/l	5.00		93.4	80-120	1.08	20	
Iron	4.62	0.0620	0.150	"	5.00		92.4	80-120	0.651	20	
Magnesium	4.91	0.0180	0.500	"	5.00		98.2	80-120	0.613	20	
Potassium	9.92	0.255	2.00	"	10.0		99.2	80-120	2.24	20	
Sodium	4.75	0.0420	0.250	"	5.00		95.0	80-120	0.634	20	

Matrix Spike (3J30040-MS1)

Source: P3J0775-09

Calcium	39.0	0.0360	0.250	mg/l	5.00	32.4	132	75-125			Q-03
Iron	6.31	0.0620	0.150	"	5.00	1.48	96.6	75-125			
Magnesium	18.7	0.0180	0.500	"	5.00	13.0	114	80-120			
Potassium	16.8	0.255	2.00	"	10.0	6.60	102	80-120			
Sodium	36.2	0.0420	0.250	"	5.00	29.4	136	75-125			Q-03

Matrix Spike Dup (3J30040-MSD1)

Source: P3J0775-09

Calcium	38.2	0.0360	0.250	mg/l	5.00	32.4	116	75-125	2.07	20	
Iron	6.29	0.0620	0.150	"	5.00	1.48	96.2	75-125	0.317	20	
Magnesium	18.3	0.0180	0.500	"	5.00	13.0	106	80-120	2.16	20	
Potassium	17.0	0.255	2.00	"	10.0	6.60	104	80-120	1.18	20	
Sodium	35.1	0.0420	0.250	"	5.00	29.4	114	75-125	3.09	20	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch 3J30040: Prepared 10/30/03 Using EPA 3010A

Post Spike (3J30040-PS1)

Source: P3J0775-09

Calcium	36.5	0.0360	0.250	mg/l	5.00	32.4	82.0	75-125			
Iron	6.04	0.0620	0.150	"	5.00	1.48	91.2	75-125			
Magnesium	17.6	0.0180	0.500	"	5.00	13.0	92.0	75-125			
Potassium	15.9	0.255	2.00	"	10.0	6.60	93.0	75-125			
Sodium	34.0	0.0420	0.250	"	5.00	29.4	92.0	75-125			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/06/03 17:07

Notes and Definitions

- A-01 Detected hydrocarbons are mainly due to overlap from the gasoline range; however, there appears to be some weathered diesel detected.
- D Data reported from a preparation or analytical dilution.
- D-15 Detected hydrocarbons have non-petroleum peaks or elution pattern that suggests the presence of biogenic interference.
- D-17 Detected hydrocarbons in the diesel range do not have a distinct diesel pattern and may be due to heavily weathered diesel or possibly biogenic interference.
- J Estimated value.
- Q-03 The percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte already present in the sample.
- Q-06 Analyses are not controlled on RPD values from sample concentrations less than 5 times the reporting limit.
- R-03 The reporting limit for this analyte was raised due to matrix interference.
- R-05 Reporting limits raised due to dilution necessary for analysis. Sample contains high levels of reported analyte, non-target analyte, and/or matrix interference.
- S-09 Surrogate recovery is outside control limits due to matrix interference.
- U Analyte included in the analysis but not detected.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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20 November 2003

Tom Calabrese
EnviroLogic Resources, Inc.
P.O. Box 80762
Portland, OR 97280-0762
RE: Astoria Area-Wide Petroleum Site RI-1

Enclosed are the results of analyses for samples received by the laboratory on 10/22/03 15:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Joy D. Chang
Project Manager



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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/20/03 14:51

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-21(A)	P3J0775-01	Water	10/20/03 09:40	10/22/03 15:20
MW-19(A)	P3J0775-02	Water	10/20/03 10:50	10/22/03 15:20
BM-19(A)	P3J0775-03	Water	10/20/03 10:50	10/22/03 15:20
MW-15(A)	P3J0775-05	Water	10/20/03 13:40	10/22/03 15:20
MW-16(A)	P3J0775-07	Water	10/20/03 15:10	10/22/03 15:20
MW-27(A)	P3J0775-10	Water	10/21/03 09:05	10/22/03 15:20
MW-36(A)	P3J0775-11	Water	10/21/03 11:30	10/22/03 15:20
MW-18(A)	P3J0775-12	Water	10/21/03 13:30	10/22/03 15:20
MW-29(A)	P3J0775-14	Water	10/21/03 15:50	10/22/03 15:20
MW-12(A)	P3J0775-18	Water	10/22/03 09:55	10/22/03 15:20

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/20/03 14:51

Total Metals by EPA 6000/7000 Series Methods North Creek Analytical - Bothell

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-21(A) (P3J0775-01) Water Sampled: 10/20/03 09:40 Received: 10/22/03 15:20										
Iron	25.0	0.0620	0.150	mg/l	1	3K12041	11/12/03	11/15/03	EPA 6010B	
MW-19(A) (P3J0775-02) Water Sampled: 10/20/03 10:50 Received: 10/22/03 15:20										
Iron	12.7	0.0620	0.150	mg/l	1	3K12041	11/12/03	11/15/03	EPA 6010B	
BM-19(A) (P3J0775-03) Water Sampled: 10/20/03 10:50 Received: 10/22/03 15:20										
Iron	12.8	0.0620	0.150	mg/l	1	3K12041	11/12/03	11/15/03	EPA 6010B	
MW-15(A) (P3J0775-05) Water Sampled: 10/20/03 13:40 Received: 10/22/03 15:20										
Iron	7.81	0.0620	0.150	mg/l	1	3K12041	11/12/03	11/15/03	EPA 6010B	
MW-16(A) (P3J0775-07) Water Sampled: 10/20/03 15:10 Received: 10/22/03 15:20										
Iron	13.3	0.0620	0.150	mg/l	1	3K12041	11/12/03	11/15/03	EPA 6010B	
MW-27(A) (P3J0775-10) Water Sampled: 10/21/03 09:05 Received: 10/22/03 15:20										
Iron	0.996	0.0620	0.150	mg/l	1	3K12041	11/12/03	11/15/03	EPA 6010B	
MW-36(A) (P3J0775-11) Water Sampled: 10/21/03 11:30 Received: 10/22/03 15:20										
Iron	15.0	0.0620	0.150	mg/l	1	3K12041	11/12/03	11/15/03	EPA 6010B	
MW-18(A) (P3J0775-12) Water Sampled: 10/21/03 13:30 Received: 10/22/03 15:20										
Iron	20.0	0.0620	0.150	mg/l	1	3K12041	11/12/03	11/15/03	EPA 6010B	
MW-29(A) (P3J0775-14) Water Sampled: 10/21/03 15:50 Received: 10/22/03 15:20										
Iron	37.6	0.0620	0.150	mg/l	1	3K12041	11/12/03	11/15/03	EPA 6010B	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/20/03 14:51

**Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-12(A) (P3J0775-18) Water Sampled: 10/22/03 09:55 Received: 10/22/03 15:20										
Iron	0.870	0.0620	0.150	mg/l	1	3K12041	11/12/03	11/15/03	EPA 6010B	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/20/03 14:51

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3K12041: Prepared 11/12/03 Using EPA 3010A											
Blank (3K12041-BLK1)											
Iron	ND	0.0620	0.150	mg/l							U
LCS (3K12041-BS1)											
Iron	5.09	0.0620	0.150	mg/l	5.00		102	80-120			
LCS Dup (3K12041-BSD1)											
Iron	5.10	0.0620	0.150	mg/l	5.00		102	80-120	0.196	20	
Matrix Spike (3K12041-MS1)											
						Source: B3J0556-12					
Iron	23.2	0.0620	0.150	mg/l	5.00	18.6	92.0	75-125			
Matrix Spike Dup (3K12041-MSD1)											
						Source: B3J0556-12					
Iron	24.4	0.0620	0.150	mg/l	5.00	18.6	116	75-125	5.04	20	
Post Spike (3K12041-PS1)											
						Source: B3J0556-12					
Iron	22.8	0.0620	0.150	mg/l	5.00	18.6	84.0	75-125			

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Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/20/03 14:51

Notes and Definitions

U Analyte included in the analysis but not detected.
DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference

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12 November 2003

Tom Calabrese
EnviroLogic Resources, Inc.
P.O. Box 80762
Portland, OR 97280-0762
RE: Astoria Area-Wide Petroleum Site RI-1

Enclosed are the results of analyses for samples received by the laboratory on 10/24/03 12:05. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Joy D. Chang
Project Manager



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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/12/03 12:16

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-6(M)	P3J0859-01	Water	10/22/03 15:30	10/24/03 12:05
R-1(M)	P3J0859-02	Water	10/22/03 13:40	10/24/03 12:05
Trip Blank MW-6(M)	P3J0859-03	Water	10/23/03 15:30	10/24/03 12:05

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/12/03 12:16

Gasoline Hydrocarbons per NW TPH-Gx Method North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-6(M) (P3J0859-01) Water Sampled: 10/22/03 15:30 Received: 10/24/03 12:05										
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l	1	3100956	10/24/03	10/25/03	NW TPH-G	U
Surrogate: 4-BFB	115 %		50-150			"	"	"	"	
R-1(M) (P3J0859-02) Water Sampled: 10/22/03 13:40 Received: 10/24/03 12:05										
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l	1	3100956	10/24/03	10/25/03	NW TPH-G	U
Surrogate: 4-BFB	82.8 %		50-150			"	"	"	"	

North Creek Analytical - Portland

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/12/03 12:16

**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method
North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-6(M) (P3J0859-01) Water Sampled: 10/22/03 15:30 Received: 10/24/03 12:05										
Diesel Range Organics	0.179	0.153	0.250	mg/l	1	3100982	10/27/03	10/28/03	NWTPH-Dx	J
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	68.5 %		50-150			"	"	"	"	
R-1(M) (P3J0859-02) Water Sampled: 10/22/03 13:40 Received: 10/24/03 12:05										
Diesel Range Organics	ND	0.153	0.250	mg/l	1	3100982	10/27/03	10/28/03	NWTPH-Dx	U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"	"	"	"	"	"	U
Surrogate: 1-Chlorooctadecane	64.6 %		50-150			"	"	"	"	

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EnviroLogic Resources, Inc.
P.O. Box 80762
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Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/12/03 12:16

Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-6(M) (P3J0859-01) Water Sampled: 10/22/03 15:30 Received: 10/24/03 12:05										
Silver	ND	0.0000460	0.00100	mg/l	1	3110028	11/03/03	11/04/03	EPA 6020	U
Arsenic	0.0133	0.000964	0.00500	"	"	"	"	"	"	
Barium	0.0200	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.00207	0.000791	0.00100	"	"	"	"	"	"	
Mercury	0.0000380	0.0000358	0.000200	"	"	3110074	11/04/03	11/04/03	EPA 7470A	J
Lead	0.00757	0.0000870	0.00100	"	"	3110028	11/03/03	11/04/03	EPA 6020	
Selenium	0.000980	0.000566	0.00100	"	"	"	"	11/05/03	"	J
R-1(M) (P3J0859-02) Water Sampled: 10/22/03 13:40 Received: 10/24/03 12:05										
Silver	ND	0.0000460	0.00100	mg/l	1	3110028	11/03/03	11/04/03	EPA 6020	U
Arsenic	0.00356	0.000964	0.00500	"	"	"	"	"	"	J
Barium	0.0120	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.000178	0.00100	"	"	"	"	"	"	U
Chromium	0.000990	0.000791	0.00100	"	"	"	"	"	"	J
Mercury	ND	0.0000358	0.000200	"	"	3110074	11/04/03	11/04/03	EPA 7470A	U
Lead	0.00401	0.0000870	0.00100	"	"	3110028	11/03/03	11/04/03	EPA 6020	
Selenium	ND	0.000566	0.00100	"	"	"	"	11/05/03	"	U

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Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/12/03 12:16

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-6(M) (P3J0859-01) Water Sampled: 10/22/03 15:30 Received: 10/24/03 12:05										
Silver	ND	0.0000460	0.00100	mg/l	1	3110104	11/04/03	11/06/03	EPA 6020	U
Arsenic	0.0133	0.000964	0.00100	"	"	"	"	"	"	
Barium	0.0124	0.0000910	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.0000730	0.00100	"	"	"	"	"	"	U
Chromium	0.00132	0.000791	0.00100	"	"	"	"	"	"	
Mercury	0.0000380	0.0000358	0.000200	"	"	3110073	11/04/03	11/04/03	EPA 7470A	J
Lead	0.000270	0.0000870	0.00100	"	"	3110104	11/04/03	11/06/03	EPA 6020	J
Selenium	0.000760	0.000566	0.00100	"	"	"	"	11/08/03	"	J

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Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/12/03 12:16

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-6(M) (P3J0859-01) Water Sampled: 10/22/03 15:30 Received: 10/24/03 12:05										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3101089	10/29/03	10/29/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	0.190	0.155	0.500	"	"	"	"	"	"	J
Ethylbenzene	0.410	0.110	0.500	"	"	"	"	"	"	J
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	101 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	119 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	110 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	103 %		80-120			"	"	"	"	
R-1(M) (P3J0859-02) Water Sampled: 10/22/03 13:40 Received: 10/24/03 12:05										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3101089	10/29/03	10/29/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	0.230	0.147	0.500	"	"	"	"	"	"	J
Toluene	0.250	0.155	0.500	"	"	"	"	"	"	J
Ethylbenzene	0.630	0.110	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	0.470	0.0989	2.00	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	0.120	0.0884	1.00	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	100 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	116 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	108 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	100 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/12/03 12:16

Selected Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Trip Blank MW-6(M) (P3J0859-03) Water Sampled: 10/23/03 15:30 Received: 10/24/03 12:05										
1,2-Dibromoethane	ND	0.187	0.500	ug/l	1	3101089	10/29/03	10/29/03	EPA 8260B	U
1,2-Dichloroethane	ND	0.142	0.500	"	"	"	"	"	"	U
Benzene	ND	0.147	0.500	"	"	"	"	"	"	U
Toluene	ND	0.155	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.110	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.262	1.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	2.00	"	"	"	"	"	"	U
Naphthalene	0.390	0.0989	2.00	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	0.110	0.0884	1.00	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	ND	0.157	0.500	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	0.500	"	"	"	"	"	"	U
Surrogate: 4-BFB	93.0 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	118 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	108 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	104 %		80-120			"	"	"	"	

North Creek Analytical - Portland

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/12/03 12:16

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-6(M) (P3J0859-01) Water Sampled: 10/22/03 15:30 Received: 10/24/03 12:05										
Acenaphthene	0.146	0.0500	0.0500	ug/l	1	3100993	10/27/03	10/31/03	EPA 8270m	
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Naphthalene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Surrogate: Fluorene-d10	60.6 %		25-150			"	"	"	"	
Surrogate: Pyrene-d10	67.4 %		23-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	51.3 %		10-150			"	"	"	"	

R-1(M) (P3J0859-02) Water Sampled: 10/22/03 13:40 Received: 10/24/03 12:05

Acenaphthene	0.0873	0.0500	0.0500	ug/l	1	3100993	10/27/03	10/31/03	EPA 8270m	
Acenaphthylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Anthracene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (a) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (a) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Benzo (ghi) perylene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Chrysene	0.0150	0.0100	0.0100	"	"	"	"	"	"	
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"	"	"	"	"	"	U
Fluoranthene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Fluorene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"	"	"	"	"	"	U

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/12/03 12:16

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
R-1(M) (P3J0859-02) Water Sampled: 10/22/03 13:40 Received: 10/24/03 12:05										
Naphthalene	0.0972	0.0500	0.0500	ug/l	1	3100993	10/27/03	10/31/03	EPA 8270m	
Phenanthrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
Pyrene	ND	0.0500	0.0500	"	"	"	"	"	"	U
<i>Surrogate: Fluorene-d10</i>	<i>58.1 %</i>		<i>25-150</i>			"	"	"	"	
<i>Surrogate: Pyrene-d10</i>	<i>57.2 %</i>		<i>23-150</i>			"	"	"	"	
<i>Surrogate: Benzo (a) pyrene-d12</i>	<i>38.0 %</i>		<i>10-150</i>			"	"	"	"	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/12/03 12:16

Gasoline Hydrocarbons per NW TPH-Gx Method - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3100956: Prepared 10/24/03 Using EPA 5030B											
Blank (3100956-BLK1)											
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l							U
Surrogate: 4-BFB	46.8			"	50.0		93.6	50-150			
LCS (3100956-BS1)											
Gasoline Range Hydrocarbons	1270	50.0	80.0	ug/l	1250		102	70-130			
Surrogate: 4-BFB	42.3			"	50.0		84.6	50-150			
Duplicate (3100956-DUP1)						Source: P3J0775-09RE1					
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l		ND			40		U
Surrogate: 4-BFB	42.5			"	50.0		85.0	50-150			
Duplicate (3100956-DUP2)						Source: P3J0852-03					
Gasoline Range Hydrocarbons	ND	50.0	80.0	ug/l		ND			40		U
Surrogate: 4-BFB	42.3			"	50.0		84.6	50-150			

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/12/03 12:16

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100982: Prepared 10/27/03 Using EPA 3510 Fuels

Blank (3100982-BLK1)

Diesel Range Organics	ND	0.153	0.250	mg/l							U
Heavy Oil Range Hydrocarbons	ND	0.286	0.500	"							U
Surrogate: 1-Chlorooctadecane	0.0948			"	0.0960		98.8	50-150			

LCS (3100982-BS1)

Diesel Range Organics	2.47	0.153	0.250	mg/l	2.50		98.8	50-150			
Heavy Oil Range Hydrocarbons	1.59	0.286	0.500	"	1.50		106	50-150			
Surrogate: 1-Chlorooctadecane	0.0914			"	0.0960		95.2	50-150			

LCS Dup (3100982-BSD1)

Diesel Range Organics	2.59	0.153	0.250	mg/l	2.50		104	50-150	4.74	50	
Heavy Oil Range Hydrocarbons	1.64	0.286	0.500	"	1.50		109	50-150	3.10	50	
Surrogate: 1-Chlorooctadecane	0.0995			"	0.0960		104	50-150			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/12/03 12:16

Total Metals per EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3110028: Prepared 11/03/03 Using EPA 200/3005

Blank (3110028-BLK1)

Arsenic	ND	0.000964	0.00100	mg/l							U
Barium	ND	0.0000910	0.00100	"							U
Cadmium	ND	0.000178	0.00100	"							U
Chromium	ND	0.000791	0.00100	"							U
Lead	ND	0.0000870	0.00100	"							U
Selenium	ND	0.000566	0.00100	"							U
Silver	ND	0.0000460	0.00100	"							U

LCS (3110028-BS1)

Arsenic	0.107	0.000964	0.00500	mg/l	0.100		107	80-120			
Barium	0.109	0.0000910	0.00100	"	0.100		109	80-120			
Cadmium	0.109	0.000178	0.00100	"	0.100		109	80-120			
Chromium	0.115	0.000791	0.00100	"	0.100		115	80-120			
Lead	0.111	0.0000870	0.00100	"	0.100		111	80-120			
Selenium	0.102	0.000566	0.00100	"	0.100		102	80-120			
Silver	0.0556	0.0000460	0.00100	"	0.0500		111	80-120			

Duplicate (3110028-DUP1)

Source: P3J0859-01

Arsenic	0.0133	0.000964	0.00500	mg/l		0.0133			0.00	20	
Barium	0.0202	0.0000910	0.00100	"		0.0200			0.995	20	
Cadmium	ND	0.000178	0.00100	"		ND				20	U
Chromium	0.00185	0.000791	0.00100	"		0.00207			11.2	20	
Lead	0.00764	0.0000870	0.00100	"		0.00757			0.920	20	
Selenium	0.000790	0.000566	0.00100	"		0.000980			21.5	20	Q-06, J
Silver	ND	0.0000460	0.00100	"		ND				20	U

Matrix Spike (3110028-MS1)

Source: P3J0859-01

Arsenic	0.113	0.00428	0.0222	mg/l	0.100	0.0133	99.7	75-125			D
Barium	0.126	0.0000910	0.00100	"	0.100	0.0200	106	75-125			
Cadmium	0.107	0.000178	0.00100	"	0.100	ND	107	75-125			
Chromium	0.116	0.000791	0.00100	"	0.100	0.00207	114	75-125			
Lead	0.115	0.0000870	0.00100	"	0.100	0.00757	107	75-125			
Selenium	0.108	0.000566	0.00100	"	0.100	0.000980	107	75-125			
Silver	0.0545	0.0000460	0.00100	"	0.0500	ND	109	75-125			

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Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/12/03 12:16

Total Metals per EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3110028: Prepared 11/03/03 Using EPA 200/3005

Matrix Spike (3110028-MS2)

Source: P3J0859-02

Arsenic	0.106	0.000964	0.00500	mg/l	0.100	0.00356	102	75-125			
Barium	0.119	0.0000910	0.00100	"	0.100	0.0120	107	75-125			
Cadmium	0.104	0.000178	0.00100	"	0.100	ND	104	75-125			
Chromium	0.110	0.000791	0.00100	"	0.100	0.000990	109	75-125			
Lead	0.112	0.0000870	0.00100	"	0.100	0.00401	108	75-125			
Selenium	0.110	0.00275	0.00486	"	0.100	ND	110	75-125			D
Silver	0.0529	0.0000460	0.00100	"	0.0500	ND	106	75-125			

Batch 3110074: Prepared 11/04/03 Using EPA 7470

Blank (3110074-BLK1)

Mercury	0.0000530	0.0000358	0.000200	mg/l							J
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LCS (3110074-BS1)

Mercury	0.00488	0.0000358	0.000200	mg/l	0.00500		97.6	85-115			
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Duplicate (3110074-DUP1)

Source: P3J0859-01

Mercury	0.0000420	0.0000358	0.000200	mg/l		0.000038			10.0	20	J
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Matrix Spike (3110074-MS1)

Source: P3J0859-01

Mercury	0.00496	0.0000358	0.000200	mg/l	0.00500	0.000038	98.4	75-125			
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Matrix Spike (3110074-MS2)

Source: P3J0859-02

Mercury	0.00500	0.0000358	0.000200	mg/l	0.00500	ND	100	75-125			
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North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/12/03 12:16

Dissolved Metals per EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3110073: Prepared 11/04/03 Using EPA 7470

Blank (3110073-BLK1)

Mercury	ND	0.0000358	0.000200	mg/l							U
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LCS (3110073-BS1)

Mercury	0.00546	0.0000358	0.000200	mg/l	0.00500		109	85-115			
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Duplicate (3110073-DUP1)

Source: P3J0859-01

Mercury	0.0000500	0.0000358	0.000200	mg/l		0.000038			27.3	20	Q-06, J
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Matrix Spike (3110073-MS1)

Source: P3J0859-01

Mercury	0.00569	0.0000358	0.000200	mg/l	0.00500	0.000038	113	75-125			
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Batch 3110104: Prepared 11/04/03 Using EPA 200/3005

Blank (3110104-BLK1)

Arsenic	ND	0.000964	0.00100	mg/l							U
Barium	ND	0.0000910	0.00100	"							U
Cadmium	ND	0.0000730	0.00100	"							U
Chromium	ND	0.000791	0.00100	"							U
Lead	ND	0.0000870	0.00100	"							U
Selenium	ND	0.000566	0.00100	"							U
Silver	ND	0.0000460	0.00100	"							U

LCS (3110104-BS1)

Arsenic	0.0990	0.000964	0.00100	mg/l	0.100		99.0	80-120			
Barium	0.100	0.0000910	0.00100	"	0.100		100	80-120			
Cadmium	0.0984	0.0000730	0.00100	"	0.100		98.4	80-120			
Chromium	0.104	0.000791	0.00100	"	0.100		104	80-120			
Lead	0.104	0.0000870	0.00100	"	0.100		104	80-120			
Selenium	0.0984	0.000566	0.00100	"	0.100		98.4	80-120			
Silver	0.0522	0.0000460	0.00100	"	0.0500		104	80-120			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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Environmental Laboratory Network

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/12/03 12:16

Dissolved Metals per EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3110104: Prepared 11/04/03 Using EPA 200/3005

Duplicate (3110104-DUP1)

Source: P3J0877-01

Arsenic	0.00132	0.000964	0.00100	mg/l		0.00138			4.44	20	
Barium	0.0122	0.0000910	0.00100	"		0.0130			6.35	20	
Cadmium	0.0000900	0.0000730	0.00100	"		ND				20	J
Chromium	0.00204	0.000791	0.00100	"		0.00209			2.42	20	
Lead	0.000400	0.0000870	0.00100	"		0.000460			14.0	20	J
Selenium	ND	0.000566	0.00200	"		ND				20	U
Silver	ND	0.0000460	0.00100	"		ND				20	U

Matrix Spike (3110104-MS1)

Source: P3J0877-01

Arsenic	0.110	0.000964	0.00100	mg/l	0.100	0.00138	109	75-125
Barium	0.126	0.0000910	0.00100	"	0.100	0.0130	113	75-125
Cadmium	0.108	0.0000730	0.00100	"	0.100	ND	108	75-125
Chromium	0.115	0.000791	0.00100	"	0.100	0.00209	113	75-125
Lead	0.116	0.0000870	0.00100	"	0.100	0.000460	116	75-125
Selenium	0.109	0.000566	0.00200	"	0.100	ND	109	75-125
Silver	0.0543	0.0000460	0.00100	"	0.0500	ND	109	75-125

Matrix Spike (3110104-MS2)

Source: P3J0877-03

Arsenic	0.104	0.000964	0.00100	mg/l	0.100	0.00142	103	75-125
Barium	0.122	0.0000910	0.00100	"	0.100	0.0137	108	75-125
Cadmium	0.104	0.0000730	0.00100	"	0.100	0.000390	104	75-125
Chromium	0.106	0.000791	0.00100	"	0.100	0.00198	104	75-125
Lead	0.113	0.0000870	0.00100	"	0.100	0.000500	112	75-125
Selenium	0.103	0.000566	0.00200	"	0.100	ND	103	75-125
Silver	0.0528	0.0000460	0.00100	"	0.0500	ND	106	75-125

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/12/03 12:16

Selected Volatile Organic Compounds per EPA Method 8260B - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3101089: Prepared 10/29/03 Using EPA 5030B

Blank (3101089-BLK1)

1,2-Dibromoethane	ND	0.187	0.500	ug/l							U
1,2-Dichloroethane	ND	0.142	0.500	"							U
Benzene	ND	0.147	0.500	"							U
Toluene	ND	0.155	0.500	"							U
Ethylbenzene	ND	0.110	0.500	"							U
Xylenes (total)	ND	0.262	1.00	"							U
Methyl tert-butyl ether	ND	0.0865	2.00	"							U
Naphthalene	ND	0.0989	2.00	"							U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"							U
1,3,5-Trimethylbenzene	ND	0.157	0.500	"							U
Isopropylbenzene	ND	0.107	2.00	"							U
n-Propylbenzene	ND	0.138	0.500	"							U
Surrogate: 4-BFB	20.7			"	20.0		104	75-120			
Surrogate: 1,2-DCA-d4	23.0			"	20.0		115	77-129			
Surrogate: Dibromofluoromethane	21.7			"	20.0		108	80-121			
Surrogate: Toluene-d8	21.6			"	20.0		108	80-120			

LCS (3101089-BS1)

Benzene	19.2	0.147	0.500	ug/l	20.0		96.0	80-120			
Toluene	20.2	0.155	0.500	"	20.0		101	80-124			
Ethylbenzene	20.4	0.110	0.500	"	20.0		102	80-120			
Xylenes (total)	61.7	0.262	1.00	"	60.0		103	73-124			
Surrogate: 4-BFB	22.0			"	20.0		110	75-120			
Surrogate: 1,2-DCA-d4	23.8			"	20.0		119	77-129			
Surrogate: Dibromofluoromethane	22.6			"	20.0		113	80-121			
Surrogate: Toluene-d8	22.4			"	20.0		112	80-120			

Matrix Spike (3101089-MS1)

Source: P3J0859-01

Benzene	19.2	0.147	0.500	ug/l	20.0	ND	96.0	80-124			
Toluene	17.0	0.155	0.500	"	20.0	0.190	84.0	79.7-131			
Ethylbenzene	17.4	0.110	0.500	"	20.0	0.410	85.0	80-124			
Xylenes (total)	39.5	0.262	1.00	"	60.0	ND	65.8	44.6-154			
Surrogate: 4-BFB	22.0			"	20.0		110	75-120			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/12/03 12:16

Selected Volatile Organic Compounds per EPA Method 8260B - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch 3101089: Prepared 10/29/03 Using EPA 5030B

Matrix Spike (3101089-MS1)

Source: P3J0859-01

Surrogate: 1,2-DCA-d4	23.1			ug/l	20.0		116	77-129			
Surrogate: Dibromofluoromethane	22.0			"	20.0		110	80-121			
Surrogate: Toluene-d8	20.5			"	20.0		102	80-120			

Matrix Spike Dup (3101089-MSD1)

Source: P3J0859-01

Benzene	19.6	0.147	0.500	ug/l	20.0	ND	98.0	80-124	2.06	25	
Toluene	16.6	0.155	0.500	"	20.0	0.190	82.0	79.7-131	2.38	25	
Ethylbenzene	17.2	0.110	0.500	"	20.0	0.410	84.0	80-124	1.16	25	
Xylenes (total)	45.9	0.262	1.00	"	60.0	ND	76.5	44.6-154	15.0	25	
Surrogate: 4-BFB	22.2			"	20.0		111	75-120			
Surrogate: 1,2-DCA-d4	23.2			"	20.0		116	77-129			
Surrogate: Dibromofluoromethane	22.3			"	20.0		112	80-121			
Surrogate: Toluene-d8	20.4			"	20.0		102	80-120			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/12/03 12:16

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100993: Prepared 10/27/03 Using EPA 3520/600 Series

Blank (3100993-BLK1)

Acenaphthene	ND	0.0500	0.0500	ug/l							U
Acenaphthylene	ND	0.0500	0.0500	"							U
Anthracene	ND	0.0500	0.0500	"							U
Benzo (a) anthracene	ND	0.0100	0.0100	"							U
Benzo (a) pyrene	ND	0.0100	0.0100	"							U
Benzo (b) fluoranthene	ND	0.0100	0.0100	"							U
Benzo (ghi) perylene	ND	0.0500	0.0500	"							U
Benzo (k) fluoranthene	ND	0.0100	0.0100	"							U
Chrysene	ND	0.0100	0.0100	"							U
Dibenzo (a,h) anthracene	ND	0.0100	0.0100	"							U
Fluoranthene	ND	0.0500	0.0500	"							U
Fluorene	ND	0.0500	0.0500	"							U
Indeno (1,2,3-cd) pyrene	ND	0.0100	0.0100	"							U
Naphthalene	ND	0.0500	0.0500	"							U
Phenanthrene	ND	0.0500	0.0500	"							U
Pyrene	ND	0.0500	0.0500	"							U

Surrogate: Fluorene-d10	1.46			"	2.50		58.4	25-150			
Surrogate: Pyrene-d10	1.67			"	2.50		66.8	23-150			
Surrogate: Benzo (a) pyrene-d12	1.56			"	2.50		62.4	10-150			

LCS (3100993-BS1)

Acenaphthene	1.66	0.0500	0.0500	ug/l	2.50		66.4	26-150			
Benzo (a) pyrene	1.74	0.0100	0.0100	"	2.50		69.6	38-150			
Pyrene	1.75	0.0500	0.0500	"	2.50		70.0	33-150			
Surrogate: Fluorene-d10	1.57			"	2.50		62.8	25-150			
Surrogate: Pyrene-d10	1.79			"	2.50		71.6	23-150			
Surrogate: Benzo (a) pyrene-d12	1.71			"	2.50		68.4	10-150			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/12/03 12:16

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Quality Control
North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3100993: Prepared 10/27/03 Using EPA 3520/600 Series

LCS Dup (3100993-BSD1)

Acenaphthene	1.62	0.0500	0.0500	ug/l	2.50		64.8	26-150	2.44	60	
Benzo (a) pyrene	1.73	0.0100	0.0100	"	2.50		69.2	38-150	0.576	60	
Pyrene	1.68	0.0500	0.0500	"	2.50		67.2	33-150	4.08	60	
Surrogate: Fluorene-d10	1.38			"	2.50		55.2	25-150			
Surrogate: Pyrene-d10	1.68			"	2.50		67.2	23-150			
Surrogate: Benzo (a) pyrene-d12	1.65			"	2.50		66.0	10-150			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/12/03 12:16

Notes and Definitions

D Data reported from a preparation or analytical dilution.
J Estimated value.
Q-06 Analyses are not controlled on RPD values from sample concentrations less than 5 times the reporting limit.
U Analyte included in the analysis but not detected.
DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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20 November 2003

Tom Calabrese
EnviroLogic Resources, Inc.
P.O. Box 80762
Portland, OR 97280-0762
RE: Astoria Area-Wide Petroleum Site RI-1

Enclosed are the results of analyses for samples received by the laboratory on 10/24/03 12:05. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Joy D. Chang
Project Manager



Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/20/03 15:03

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-6(M)	P3J0859-01	Water	10/22/03 15:30	10/24/03 12:05
R-1(M)	P3J0859-02	Water	10/22/03 13:40	10/24/03 12:05

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/20/03 15:03

**Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-6(M) (P3J0859-01) Water Sampled: 10/22/03 15:30 Received: 10/24/03 12:05										
Iron	26.5	0.0620	0.150	mg/l	1	3K12041	11/12/03	11/15/03	EPA 6010B	
R-1(M) (P3J0859-02) Water Sampled: 10/22/03 13:40 Received: 10/24/03 12:05										
Iron	10.1	0.0620	0.150	mg/l	1	3K12041	11/12/03	11/15/03	EPA 6010B	

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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EnviroLogic Resources, Inc.
P.O. Box 80762
Portland OR, 97280-0762

Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/20/03 15:03

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3K12041: Prepared 11/12/03 Using EPA 3010A											
Blank (3K12041-BLK1)											
Iron	ND	0.0620	0.150	mg/l							
LCS (3K12041-BS1)											
Iron	5.09	0.0620	0.150	mg/l	5.00		102	80-120			
LCS Dup (3K12041-BSD1)											
Iron	5.10	0.0620	0.150	mg/l	5.00		102	80-120	0.196	20	
Matrix Spike (3K12041-MS1)											
						Source: B3J0556-12					
Iron	23.2	0.0620	0.150	mg/l	5.00	18.6	92.0	75-125			
Matrix Spike Dup (3K12041-MSD1)											
						Source: B3J0556-12					
Iron	24.4	0.0620	0.150	mg/l	5.00	18.6	116	75-125	5.04	20	
Post Spike (3K12041-PS1)											
						Source: B3J0556-12					
Iron	22.8	0.0620	0.150	mg/l	5.00	18.6	84.0	75-125			

North Creek Analytical - Portland

Joy D. Chang, Project Manager

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Project: Astoria Area-Wide Petroleum Site RI-1
Project Number: 10077.004
Project Manager: Tom Calabrese

Reported:
11/20/03 15:03

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference

North Creek Analytical - Portland

Joy D. Chang, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.