B&L Woodwaste Site
Pierce County, Washington

Compliance Monitoring Data Report April 2014

Prepared for

B&L Custodial Trust
606 Columbia Street NW, Suite 212
Olympia, Washington 98501

July 2014

amec
600 University Street • Suite 600
Seattle, Washington 98101

FLOYD | SNIDER
strategy • science • engineering
Two Union Square • 601 Union Street • Suite 600
Seattle, Washington 98101 • tel: 206.292.2078

LIMITATIONS

This report has been prepared for the exclusive use of the B&L Woodwaste Site Custodial Trust*;* its authorized agents, and regulatory agencies. It has been prepared following the described methods and information available at the time of the work. No other party should use this report for any purpose other than that originally intended, unless Floyd|Snider agrees in advance to such reliance in writing. The information contained herein should not be utilized for any purpose or project except the one originally intended. Under no circumstances shall this document be altered, updated, or revised without written authorization of Floyd|Snider.

Table of Contents

List of Tables

List of Figures

List of Appendices

List of Abbreviations and Acronyms

Abbreviation/ Acronym	Definition
CAP	Cleanup Action Plan
CMDR	Compliance Monitoring Data Report
CMP	Compliance Monitoring Plan
Consent Decree	Consent Decree No. 08-2-10610-7
CPOC	Conditional point of compliance
CUL	Cleanup level
Ecology	Washington State Department of Ecology
Landfill	B&L Woodwaste Landfill
µg/L	Micrograms per liter
LSAq	Lower Sand Aquifer
OMMP	Operations, Maintenance and Monitoring Plan
QAPP	Quality Assurance Project Plan
SAP	Sampling and Analysis Plan
Site	B&L Woodwaste Site
USAq	Upper Sand Aquifer
USEPA	U.S. Environmental Protection Agency

1.0 Introduction

This Compliance Monitoring Data Report (CMDR) summarizes the results of the April 2014 semiannual groundwater and surface water monitoring event for the B&L Woodwaste Site (Site). This CMDR was prepared for the B&L Custodial Trust in accordance with the Compliance Monitoring Plan (CMP), which comprises Appendix B of the B&L Woodwaste Site Operations, Maintenance and Monitoring Plan (OMMP; Floyd|Snider/AMEC 2013). The monitoring program described in the CMP is intended to support long-term compliance monitoring following implementation of remedy specified in the 2008 Cleanup Action Plan (CAP). The CAP was issued by the Washington State Department of Ecology (Ecology) under Consent Decree No. 08-2-10610-7 (Consent Decree). The CAP remedy is being implemented in phases in accordance with the Scope of Work included in the Consent Decree. Phase 3 consists of the long-term operations, maintenance, and monitoring of the CAP remedy.

Phase 3 compliance monitoring is designed to meet the monitoring requirements specified in the Consent Decree and CAP and the substantive requirements of regulations issued pursuant to the Washington State Model Toxics Control Act and the Washington State Solid Waste Management, Reduction, and Recycle Act. Compliance monitoring is used to regularly assess plume stability and trends in site groundwater and surface water, confirm the long-term effectiveness of the cleanup action completed at the Site, and eventually confirm compliance with cleanup standards at the point of compliance.

In this CMDR, groundwater elevation measurements and potentiometric contours, ditch surface water arsenic results, groundwater arsenic results from monitoring wells located in the Upper Sand Aquifer (USAq) and Lower Sand Aquifer (LSAq), and trends over time are reported. A more comprehensive report with additional discussion of remediation status, hydraulic containment, and other issues will be submitted as an annual report following the second semiannual monitoring event of the year.

1.1 CLEANUP STANDARD

The cleanup standard for the Site includes the cleanup level (CUL) to be met at the points of compliance specified in the CAP. The constituent of concern for the Site is arsenic; the CUL for arsenic in groundwater and surface water is 5 micrograms per liter (µg/L). A conditional point of compliance (CPOC) for soil, ditch sediment, groundwater, and surface water was established in the CAP at the B&L Woodwaste Landfill (Landfill)/cap perimeter (edge of waste). As noted in the OMMP, the plume of affected groundwater extends downgradient of the designated CPOC location; therefore, it is expected that a substantial period of time will be needed to achieve the CULs at the CPOC. Compliance monitoring during remedy implementation is designed to monitor plume stability in addition to attaining the cleanup standards for the Site.

1.2 COMPLIANCE MONITORING NETWORK

The compliance monitoring network described in the CMP includes 14 USAq monitoring wells, 4 LSAq monitoring wells, and 3 surface water sampling locations in the drainage ditch system adjacent to the Landfill. Locations for groundwater monitoring wells and surface water sampling points are shown on Figure 1.1.

1.3 METHODS

Groundwater and surface water samples were collected from April 28 to 30, 2014. Methods used in compliance monitoring, including water level measurements, water quality parameter measurements, groundwater and surface water sampling, equipment decontamination, and field quality control procedures, were carried out in general accordance with the CMP and the Sampling Analysis Plan/Quality Assurance Project Plan (SAP/QAPP; refer to Appendix B of the OMMP).

Groundwater samples were submitted to Analytical Resources, Inc. for total arsenic analysis and surface water samples were submitted for total and dissolved arsenic in accordance with the analytical methods, reporting limits, sample collection, and sample preservation requirements provided in the SAP/QAPP. As described in the SAP/QAPP, a Level 1 data validation was performed on all analytical results and is described in Section 2.2.

2.0 Compliance Monitoring Results

The results of the April 2014 monitoring event are presented in this section. Deviations from the CMP and SAP/QAPP are noted where applicable.

2.1 WATER LEVEL MEASUREMENTS AND POTENTIOMETRIC SURFACE

Water level data for compliance monitoring wells, showing head differences across the barrier wall and between the USAq and LSAq, are presented in Table 2.1. Potentiometric contour maps indicating inferred groundwater flow directions and horizontal hydraulic gradients for the USAq and LSAq are presented in Figures 2.1 and 2.2, respectively. The potentiometric contours illustrated on both figures include measurements from selected piezometers in accordance with the CMP in addition to measurements from the compliance monitoring network. Water levels in the North Pond and West Pond are shown for reference and not used in potentiometric contouring. Hydraulic containment status is described in the Annual Compliance Monitoring Report.

2.2 DATA VALIDATION

A Compliance Screening, Tier I data quality review was performed on the metals data resulting from laboratory analysis. The analytical data for metals were validated in accordance with the U.S. Environmental Protection Agency (USEPA) Contract Laboratory Program's *National Functional Guidelines for Inorganic Data Review* (USEPA 1994, 2004).

A total of 20 groundwater and 6 surface water samples were submitted in two sample delivery groups, YI57 and YI58, for analysis. For all sample delivery groups, the analytical holding times were met. The method blanks, matrix spike and laboratory control sample recoveries, and sample/sample duplicate relative percent differences all met USEPA requirements.

No qualifiers were added to the analytical results based on the data quality review. Data are determined to be of acceptable quality for use as reported by the lab.

2.3 GROUNDWATER RESULTS

Field parameters and analytical results for the April 2 groundwater monitoring event are presented in Tables 2.2 and 2.3, respectively. April 2014 arsenic concentrations are presented in Figure 1.1. Time-concentration plots[1] for the USAq and LSAq are presented in Appendix A. Laboratory analytical reports for the April 2014 monitoring event are included as Appendix B.

Groundwater monitoring results are generally consistent with previous measurements. A brief summary of results is presented in this section. Additional discussion of remediation progress and compliance status will be presented in the Annual Compliance Monitoring Report.

[1] The analytical detection limits used in site monitoring and reported in Appendix A have varied slightly over time. Non-detect results with detection limits of less than 5 µg/L (i.e., equal to the CUL) have been plotted at the detection limit. Non-detect results with detection limits greater than 5 µg/L have been omitted from the time-concentration plots to avoid inaccurate interpretation of trends.

2.3.1 Upper Sand Aquifer

Arsenic in USAq groundwater exceeded the CUL of 5 µg/L in all compliance monitoring wells. Total arsenic concentrations in compliance monitoring wells sampled in the USAq ranged from 5.4 to 1,430 µg/L. In the 6 months since the previous semiannual compliance monitoring event, concentrations of arsenic have decreased or remained nearly unchanged in 10 of the 14 USAq wells that were sampled during that event (i.e., D-6A, D-7A, D-9A, D-10A, MW-13, MW-30, MW-31A, MW-33, MW-35, and W-1). Concentrations increased relative to the previous monitoring event in four USAq monitoring wells (D-5U, D-8A, MW-15, and PD-141). With the exception of D 8A, the observed increases in arsenic concentrations in these wells were generally slight and characteristic of seasonal fluctuations. The largest increase was observed at Monitoring Well D-8A, where concentrations increased during this period from 168 to 415 µg/L. Monitoring Well D-8A is located on the western edge of the Landfill in an area where the Lower Silt Aquitard is absent and where altered flow paths following installation of the barrier wall appear to have locally affected the groundwater arsenic concentration.

2.3.2 Lower Sand Aquifer

Total groundwater arsenic concentrations in all LSAq wells were less than 5 µg/L and consistent with previous measurements, with the exception of D-8B, where arsenic decreased from 13.9 µg/L to 10.5 µg/L since the October 2013 monitoring event. Arsenic concentrations have been decreasing at D-8B during every monitoring event following an increase from 28.2 to 370 µg/L in April 2012. Monitoring Well D-8B is located on the western edge of the Landfill in an area where the Lower Silt Aquitard is absent and where altered flow paths following installation of the barrier wall appear to have locally affected the groundwater arsenic concentration. With the exception of the slight decrease in arsenic at D-8B, groundwater arsenic concentrations have remained stable in the LSAq monitoring wells during the 6 months since the last monitoring event.

2.4 SURFACE WATER RESULTS

Surface water results are presented in Table 2.4 and Figure 1.1. Historical trends in total and dissolved arsenic concentrations at the surface water sampling locations are plotted in Appendix A.

Consistent with previous observations, total and dissolved arsenic were detected at concentrations greater than the CUL of 5 µg/L in all of the surface water monitoring locations. The highest concentration of dissolved arsenic was 13.3 µg/L at SW-05, which is located west of the Landfill near the end of the Interurban Trail. The highest concentration of total arsenic was 18.1 µg/L, also at SW-05. Surface water total arsenic concentrations decreased in all three locations from the October 2013 monitoring event and the April 2013 event.

3.0 References

Floyd|Snider and AMEC (Floyd|Snider/AMEC). 2013. *Operations, Monitoring, and Maintenance Plan.* Prepared for the B&L Custodial Trust. May.

U.S. Environmental Protection Agency (USEPA). 1994. *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review.* EPA 540/R-94/013. February.

———. 2004. *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review Draft Final.* EPA 540-R-04-004. July.

B&L Woodwaste Site

Compliance Monitoring Data Report April 2014

Tables

Table 2.1
Groundwater Elevations and Head Differences

Location	Aquifer	Date	Time	Groundwater Elevation (ft NAVD 88)	Head Difference: LSAq - USAq (ft)	Head Difference: Outside - Inside
Upgradient Areas East of Landfill						
D-10A	USAq	4/29/2014	9:40	19.10	--	--
D-11A	USAq	4/29/2014	10:10	18.55	0.04	--
D-11B	LSAq	4/29/2014	10:09	18.59		
MW-35	USAq	4/29/2014	9:50	17.25	--	--
MW-36	USAq	4/29/2014	10:08	18.26	--	--
PD-38	USAq	4/29/2014	10:17	18.85	--	--
PD-60	USAq	4/29/2014	10:44	17.43	--	--
PD-61	USAq	4/29/2014	10:35	18.95	--	--
PD-63B	USAq	4/29/2014	10:59	16.84	--	--
PD-64	USAq	4/28/2014	10:56	18.10	--	--
PD-65	USAq	4/28/2014	16:40	19.66	--	--
PD-201	USAq	4/29/2014	16:21	23.24	--	--
PD-202	USAq	4/29/2014	16:29	28.24	--	--
PD-203	USAq	4/29/2014	16:46	23.38	--	--
R-12	USAq	4/29/2014	10:35	11.94	--	--
R-13	USAq	4/29/2014	9:40	18.39	--	--
Landfill and Perimeter						
D-7A	USAq	4/30/2014	9:41	14.56	-0.61	--
D-7B	LSAq	4/30/2014	9:43	13.96		
D-8A	USAq	4/29/2014	14:08	13.33	0.06	--
D-8B	LSAq	4/29/2014	14:08	13.40		
D-9A	USAq	4/29/2014	15:35	14.84	--	--
North Pond	--	4/29/2014	11:25	18.14	--	--
PD-214	USAq	4/29/2014	15:37	13.23	--	--
PD-215	USAq	4/29/2014	15:33	13.98	--	--
PZ-1A	USAq	4/29/2014	11:35	14.46	--	1.63
PZ-1B	USAq	4/29/2014	11:36	12.83		
PZ-2A	USAq	4/29/2014	11:42	14.32	--	2.08
PZ-2B	USAq	4/29/2014	11:40	12.24		
PZ-3A	USAq	4/29/2014	11:47	13.45	--	0.75
PZ-3B	USAq	4/29/2014	11:45	12.70		
PZ-4A	USAq	4/29/2014	11:51	13.59	--	-0.01
PZ-4B	USAq	4/29/2014	11:53	13.60	-0.03	
PZ-4C	LSAq	4/29/2014	11:54	13.57		
PZ-5A	USAq	4/29/2014	12:03	14.04	--	0.26
PZ-5B	USAq	4/29/2014	12:05	13.78	0.30	
PZ-5C	LSAq	4/29/2014	12:04	14.08		--
PZ-6A	USAq	4/29/2014	12:11	15.97	--	1.36
PZ-6B	USAq	4/29/2014	12:10	14.61		
PZ-7A	USAq	4/29/2014	11:14	17.31	--	1.90
PZ-7B	USAq	4/29/2014	11:15	15.41		
PZ-8A	USAq	4/29/2014	11:19	18.25	--	0.76
PZ-8B	USAq	4/29/2014	11:30	17.49	0.09	
PZ-8C	LSAq	4/29/2014	11:21	17.58		--
PZ-12	USAq	4/29/2014	13:10	13.62	--	--
PD-109	USAq	4/29/2014	12:38	15.24		
R-1	USAq	4/29/2014	12:52	12.97	--	--
R-2	USAq	4/29/2014	12:44	11.36	--	--
R-3	USAq	4/29/2014	12:47	12.911	--	--
R-6	USAq	4/29/2014	13:21	13.22	--	--
R-7	USAq	4/29/2014	13:14	13.57	--	--
R-8	USAq	4/29/2014	13:06	13.71	--	--
R-9	USAq	4/29/2014	13:02	11.69	--	--
R-10	USAq	4/29/2014	12:58	6.96	--	--
West Pond	--	4/29/2014	11:58	22.23	--	--
Wetlands North of Landfill						
D-1U	USAq	4/28/2014	14:52	15.09	-1.02	--
D-1L	LSAq	4/28/2014	14:54	14.07		
D-5U	USAq	4/28/2014	13:40	13.98	0.28	--
D-5L	LSAq	4/28/2014	13:35	14.27		
D-6A	USAq	4/30/2014	11:45	13.93	0.50	--
D-6B	LSAq	4/30/2014	11:45	14.43		
MW-13	USAq	4/28/2014	11:22	14.02	--	--
MW-14	USAq	4/28/2014	12:48	14.25	--	--
MW-15	USAq	4/28/2014	11:50	14.02	--	--
MW-16	USAq	4/28/2014	11:20	14.18	--	--

Table 2.1
Groundwater Elevations and Head Differences

Location	Aquifer	Date	Time	Groundwater Elevation (ft NAVD 88)	Head Difference: LSAq - USAq (ft)	Head Difference: Outside - Inside
Wetlands North of Landfill (continued)						
MW-17	USAq	4/28/2014	15:30	14.01	--	--
MW-31A	USAq	4/28/2014	15:28	13.99	0.69	--
MW-31B	LSAq	4/28/2014	15:40	14.68		
MW-32	USAq	4/28/2014	13:45	14.89	--	--
PD-1B	USAq	4/28/2014	15:37	14.00	--	--
PD-6	USAq	4/28/2014	15:37	14.04	--	--
PD-51	USAq	4/28/2014	12:56	13.98	--	--
PD-101	USAq	4/28/2014	13:25	15.05	--	--
PD-140	USAq	4/28/2014	14:07	14.25	--	--
PD-141	USAq	4/28/2014	13:54	14.19	--	--
PD-142	USAq	4/28/2014	14:09	14.49	--	--
PD-204	USAq	4/28/2014	15:20	14.42	--	--
W-3	USAq	4/28/2014	14:40	14.05	--	--
R-16	USAq	4/29/2014	13:35	13.51	--	--
R-17	USAq	4/29/2014	13:31	14.15	--	--
R-18	USAq	4/28/2014	11:13	13.91	--	--
R-19	USAq	4/28/2014	13:50	13.31	--	--
R-20	USAq	4/28/2014	11:23	13.58	--	--
R-21	USAq	4/28/2014	12:40	14.13	--	--
Interurban Trail and Agricultural Fields West of Landfill						
MW-30	USAq	4/28/2014	11:40	14.27	--	--
MW-33	USAq	4/30/2014	10:40	13.85	--	--
MW-34	USAq	4/29/2014	15:41	13.82	--	--
PD-212	USAq	4/29/2014	13:45	11.63	--	--
PD-213	USAq	4/29/2014	13:48	14.35	--	--
PD-216	USAq	4/29/2014	15:54	16.44	--	--
W-1	USAq	4/30/2014	10:45	13.44	--	--
R-14	USAq	4/30/2014	10:48	6.39	--	--
R-15	USAq	4/30/2014	10:47	7.18	--	--

Note:

-- Not collected or not applicable.

Abbreviations:

ft Feet
LSAq Lower Sand Aquifer
NAVD 88 North American Vertical Datum 1988
USAq Upper Sand Aquifer

Table 2.2
Field Water Quality Parameters[1]

Location	Sample Date	Temperature (°C)	pH	Specific Conductivity (mS/cm)	Oxidation-Reduction Potential (mV)
Upper Sand Aquifer					
D-5U	10/7/2013	11.45	6.49	1.28	--
D-6A	10/8/2013	11.23	6.57	0.381	33
D-7A	10/7/2013	12.76	6.26	1.03	22
D-8A	10/7/2013	--	6.58	0.327	5
D-9A	10/7/2013	13.30	7.78	0.290	13
D-10A	10/7/2013	10.80	6.13	0.310	140
MW-13	10/8/2013	10.00	5.78	1.30	38
MW-15	10/8/2013	10.87	5.80	1.78	12
MW-30	10/7/2013	12.48	6.67	0.373	--
MW-31A	10/8/2013	10.87	6.60	1.65	--
MW-33	10/8/2013	11.34	6.57	0.422	23
MW-35	10/7/2013	11.63	7.39	0.298	115
PD-141	10/9/2013	11.31	6.06	1.59	6
W-1	10/8/2013	11.90	7.32	0.410	-53
Lower Sand Aquifer					
D-5L	10/7/2013	12.00	5.93	0.430	39
D-6B	10/8/2013	11.90	7.25	0.410	-7
D-7B	10/7/2013	12.80	7.16	0.410	-40
D-8B	10/7/2013	12.90	7.07	0.310	4

Notes:

-- Not measured or not applicable.

1 Field parameters collected with Horiba U-50, Horiba U-22, and YSI water quality instruments and flow-through cells. Reported measurements were recorded when stabilization criteria were reached.

Abbreviations:

C Celsius
mS/cm Millisiemens per centimeter
mV Millivolt

amec FLOYD | SNIDER

Table 2.3
Groundwater Arsenic Results[1]

Sample Date	Upper Sand Aquifer Total Arsenic (µg/L)								
	D-5U	D-6A	D-7A	D-8A	D-9A	D-10A	MW-13	MW-15	MW-30
Compliance Monitoring Events									
April 2014	17.6	63.7	48.8	415	37.2	183	1,430	1,260	136
October 2013	12.4	107	53.8	168	40.2	181	1,740	1,220	174
April 2013	16.5	163	29.5	363	38.0	199	1,910	1,580	252
October 2012	40.8	184	17.1	196	40.1	231	2,350	1,580	261
April 2012	43.8	287	60.8	137	38.3	107	2,180	1,480	305
September 2011	86.3	885	22.5	99.6	38.2	213	2,520	1,520	640
April 2011	90	1,170	31.5	126	38.7	203	2,720	1,610	854
October 2010	86.4	1,290	40.7	34	37.4	211	2,220	1,460	1,580
April 2010	100	1,370	27.4	31.1	36.6	159	2,450	1,610	2,410
October 2009	113	1,320	37.7	39.8	36.6	202	2,220	1,390	2,060
April 2009	144	1,490	331	68.2	38.3	175	2,340	1,630	2,190
October 2008	143	1,430	97.5	37.7	38.1	204	2,510	1,720	2,270
Historical Events									
March 2007	NS	NS	NS	NS	NS	NS	NS	NS	NS
August 2006	89	1,900	56	450	38	200	3,800	3,700	NS
September 2005	132	1,790	50 U	86.1	50 U	266	3,530	1,810	NS
March 2005	NS	NS	NS	NS	NS	NS	NS	NS	NS
December 2003	NS	NS	NS	NS	NS	NS	NS	NS	NS
September 2003	190	1,900	5	110	31	300	4,600	2,800	NS
June 2003	240	1,800	5 U	370	38	270	4,600	2,600	NS
March 2003	230	1,700	5 U	330	38	240	4,300	2,500	NS
December 2002	230	1,600	5 U	58	36	310	4,500	2,500	NS
September 2002	220	1,600	5 U	97	35	280	4,500	2,300	NS
June 2002	240	1,800	5	280	38	260	4,700	2,500	NS
April 2002	300	1,800	5 U	400	50	300	4,300	2,500	NS
December 2001	NS	NS	NS	NS	NS	NS	NS	NS	NS
June 2001	NS	NS	NS	NS	NS	NS	NS	NS	NS
March 2001	280	1,800	3	130	39	230	4,300	2,700	NS
December 2000	280	2,100	3	62	39	270	5,300	3,100	NS
September 2000	260	2,000	5	68	58	350	4,600	2,700	NS
June 2000	180	1,500	5 U	96	40	250	3,200	2,500	NS
March 2000	310	1,600	5 U	150	39	220	6,200	2,300	NS
January 2000	300	1,400	5 U	130	40	240	4,300	2,600	NS
September 1999	300	1,900	5 U	140	47	310	5,600	3,400	NS
June 1999	300	1,800	5 U	180	38	260	4,600	2,600	NS
March 1999	340	2,000	5 U	200	39	260	4,600	3,000	NS
December 1998	320	980	6	100	38	260	5,700	3,200	NS
September 1998	290	1,800	5 U	150	52	340	NS	NS	NS
June 1998	320	1,900	5 U	69	42	360	NS	NS	NS
March 1998	380	2,400	5 U	97	38	350	NS	NS	NS
December 1997	480	2,600	5 U	130	41	490	NS	NS	NS
September 1997	340	2,400	5 U	210	56	390	NS	NS	NS
June 1997	390	2,200	5 U	200	49	350	NS	NS	NS
March 1997	360	1,900	5	110	36	340	NS	NS	NS
January 1997	310	2,000	5 U	130	39	310	NS	NS	NS
September 1996	300	2,000	5 U	260	73	470	NS	NS	NS
June 1996	NS	NS	5 U	130	49	470	NS	NS	NS
March 1996	NS	NS	5 U	150	39	420	NS	NS	NS
December 1995	NS	NS	5 U	270	44	540	NS	NS	NS
June 1995	300	2,200	5 U	170	55	540	NS	NS	NS
March 1995	350	2,400	5 U	180	34	320	NS	NS	NS
December 1994	312	2,494	5 U	130	42	492	NS	NS	NS
August 1994	314	3,252	5 U	145	84	542	NS	NS	NS
May 1994	307	2,745	5 U	133	39	363	NS	NS	NS
January 1994	284	2,505	5 U	165	64	402	NS	NS	NS
May 1993	170	NS	NS	NS	NS	NS	NS	NS	NS
August 1990	22	NS	NS	NS	NS	NS	NS	NS	NS
December 1989	NS	NS	NS	NS	NS	NS	NS	NS	NS
September 1989	NS	NS	NS	NS	NS	NS	NS	NS	NS

Note:

1 Reported value is the maximum concentration per location, per sampling date.

Abbreviations:

µg/L Micrograms per liter

NS Not sampled

Qualifier:

U Analyte is undetected at given reporting limit

Table 2.3
Groundwater Arsenic Results[1]

Sample Date	Upper Sand Aquifer Total Arsenic (µg/L) MW-31A	MW-33	MW-35	PD-141	W-1	Lower Sand Aquifer Total Arsenic (µg/L) D-5L	D-6B	D-7B	D-8B
Compliance Monitoring Events									
April 2014	5.4	376	23.2	326	10.1	3.4	3.9	4	10.5
October 2013	5.3	404	21.9	302	12	3.5	3.6	4.6	13.9
April 2013	6.6	398	23.8	296	10.9	2.8	4.5	4.6	16.6
October 2012	12.8	NS	NS	NS	NS	3.6	3.0	4.8	155
April 2012	18.7	NS	NS	NS	NS	4.1	4.3	4.8	370
September 2011	21.7	NS	NS	NS	NS	4.2	3.5	4.8	28.2
April 2011	5.7	NS	NS	NS	NS	3.2	3.3	5.1	21.2
October 2010	5.9	NS	NS	NS	NS	3.4	3.4	4.8	6.1
April 2010	15.5	NS	NS	NS	NS	3.5	4.1	4.6	12.8
October 2009	16.3	NS	NS	NS	NS	3.4	2.4	4.6	11
April 2009	22.4	NS	NS	NS	NS	2.8	3.2	4.8	11.1
October 2008	22.2	NS	NS	NS	NS	3.3	2.4	4.6	12.2
Historical Events									
March 2007	NS	NS	NS	NS	NS	5	3	5	18
August 2006	NS	NS	NS	NS	NS	NS	NS	NS	NS
September 2005	NS	NS	NS	NS	NS	NS	NS	NS	NS
March 2005	NS	NS	NS	NS	NS	7.4	2.5 U	5.2	21.2
December 2003	NS	NS	NS	NS	NS	6	5 U	6	21
September 2003	NS	NS	NS	NS	NS	6	5	8	20
June 2003	NS	NS	NS	NS	NS	5	5 U	6	30
March 2003	NS	NS	NS	NS	NS	5 U	5 U	5 U	30
December 2002	NS	NS	NS	NS	NS	5 U	5 U	5 U	20
September 2002	NS	NS	NS	NS	NS	5 U	5 U	5	20
June 2002	NS	NS	NS	NS	NS	5 U	5 U	6	30
April 2002	NS	NS	NS	NS	NS	5 U	5 U	5	30
December 2001	NS	NS	NS	NS	NS	8	8	5 U	30
June 2001	NS	NS	NS	NS	NS	4	4	6	30
March 2001	NS	NS	NS	NS	NS	3	3	6	30
December 2000	NS	NS	NS	NS	NS	4	4	6	20
September 2000	NS	NS	NS	NS	NS	4	5	6	20
June 2000	NS	NS	NS	NS	NS	5 U	5 U	5 U	20
March 2000	NS	NS	NS	NS	NS	5 U	5 U	5 U	20
January 2000	NS	NS	NS	NS	NS	5 U	5 U	6	30
September 1999	NS	NS	NS	NS	NS	4	5	6	20
June 1999	NS	NS	NS	NS	NS	5 U	5 U	5 U	20
March 1999	NS	NS	NS	NS	NS	5 U	5 U	6	30
December 1998	NS	NS	NS	NS	NS	5 U	5 U	7	30
September 1998	NS	NS	NS	NS	NS	5 U	5 U	5 U	20
June 1998	NS	NS	NS	NS	NS	5 U	5 U	5 U	20
March 1998	NS	NS	NS	NS	NS	5 U	5 U	5 U	40
December 1997	NS	NS	NS	NS	NS	5 U	5 U	7	60
September 1997	NS	NS	NS	NS	NS	5 U	5 U	5 U	60
June 1997	NS	NS	NS	NS	NS	5 U	5 U	5	60
March 1997	NS	NS	NS	NS	NS	5 U	5 U	7	60
January 1997	NS	NS	NS	NS	NS	5 U	5 U	5 U	90
September 1996	NS	NS	NS	NS	NS	5	6	5	100
June 1996	NS	NS	NS	NS	NS	NS	NS	5	100
March 1996	NS	NS	NS	NS	NS	NS	NS	5 U	100
December 1995	NS	NS	NS	NS	NS	NS	NS	5	100
June 1995	NS	NS	NS	NS	NS	5 U	5 U	5 U	200
March 1995	NS	NS	NS	NS	NS	5 U	5 U	5 U	200
December 1994	NS	NS	NS	NS	NS	5 U	5 U	5 U	300
August 1994	NS	NS	NS	NS	NS	5 U	5 U	5 U	400
May 1994	NS	NS	NS	NS	NS	5 U	5 U	9	700
January 1994	NS	NS	NS	NS	NS	5 U	5 U	5 U	800
May 1993	NS	NS	NS	NS	NS	20 U	NS	NS	NS
August 1990	NS	NS	NS	NS	NS	NS	NS	NS	NS
December 1989	NS	NS	NS	NS	NS	NS	NS	NS	NS
September 1989	NS	NS	NS	NS	NS	NS	NS	NS	NS

Note:
1 Reported value is the maximum concentration per location, per sampling date.

Abbreviations:
µg/L Micrograms per liter
NS Not sampled

Qualifier:
U Analyte is undetected at given reporting limit

Table 2.4
Surface Water Arsenic Results[1]

Sampling Date	SW-02		SW-03		SW-05	
	Dissolved Arsenic (µg/L)	Total Arsenic (µg/L)	Dissolved Arsenic (µg/L)	Total Arsenic (µg/L)	Dissolved Arsenic (µg/L)	Total Arsenic (µg/L)
Compliance Monitoring Events						
April 2014	7.6	10.3	5.7	9.6	13.3	18.1
October 2013	10.5	15.6	5.8	9.9	8.4	15.9
April 2013	18.1	22.1	7.9	10.4	11.5	23.4
October 2012	NS	NS	29.4	54.6	11.5	51.2
April 2012	9.3	10.3	4.1	8.2	16.8	24.4
September 2011	8.6	10.1	4.5	5.4	7.9	24.2
April 2011	9.1	9.1	3	6.2	12.4	18.4
October 2010	8	NA	5.3	NA	10.1	NA
April 2010	9.8	10.9	4.5	48	14.3	20.7
October 2009	5.7	7	4.7	8.9	10.1	22.6
April 2009	5.1	8.7	5.6	7	10.5	15.1
October 2008	17.6	25	4.3	8.7	8	54
Historical Events						
December 2006	NS	7	NS	10	NS	14
July 2006	NS	NS	NS	97	NS	65
September 2003	16	53	8	21	NS	NS
June 2003	11	580	NS	NS	NS	NS
March 2003	9	11	11	24	NS	NS
December 2002	5 U	5 U	5 U	5 U	NS	NS
September 2002	10	370	5 U	5 U	NS	NS
June 2002	24	30	14	15	NS	NS
April 2002	22	26	11	17	NS	NS
March 2001	22	75	40	110	NS	NS
December 2000	31	81	24	24	NS	NS
September 2000	13	2,220	92	1,800	NS	NS
June 2000	15	85	37	220	NS	NS
March 2000	23	73	15	20	NS	NS
January 2000	14	18	9	10	NS	NS
June 1999	21	24	8	10	NS	NS
March 1999	10	11	12	19	NS	NS
December 1998	42	40	19	18	NS	NS
March 1997	NS	NS	NS	NS	NS	NS
January 1997	NS	NS	10	9	NS	NS
March 1996	NS	NS	NS	NS	NS	NS
December 1995	NS	NS	NS	NS	NS	NS
June 1995	54	42	21	150	NS	NS
March 1995	31	86	25	41	NS	NS
December 1994	7	14	28	58	NS	NS
August 1994	61	101	60	104	NS	NS
May 1994	41	64	52	95	NS	NS
January 1994	NS	NS	72	222,000	NS	NS
May 1993	90 U	50 U	33	30 U	NS	NS
January 1990	230	370	89	110	NS	NS
November 1989	390	3,400	93	390	NS	NS
October 1989	38	170	49	60	NS	NS

Note:

1 Reported value is the maximum concentration per location, per sampling date.

Abbreviations:

µg/L Micrograms per liter
NA Not analyzed
NS Not sampled

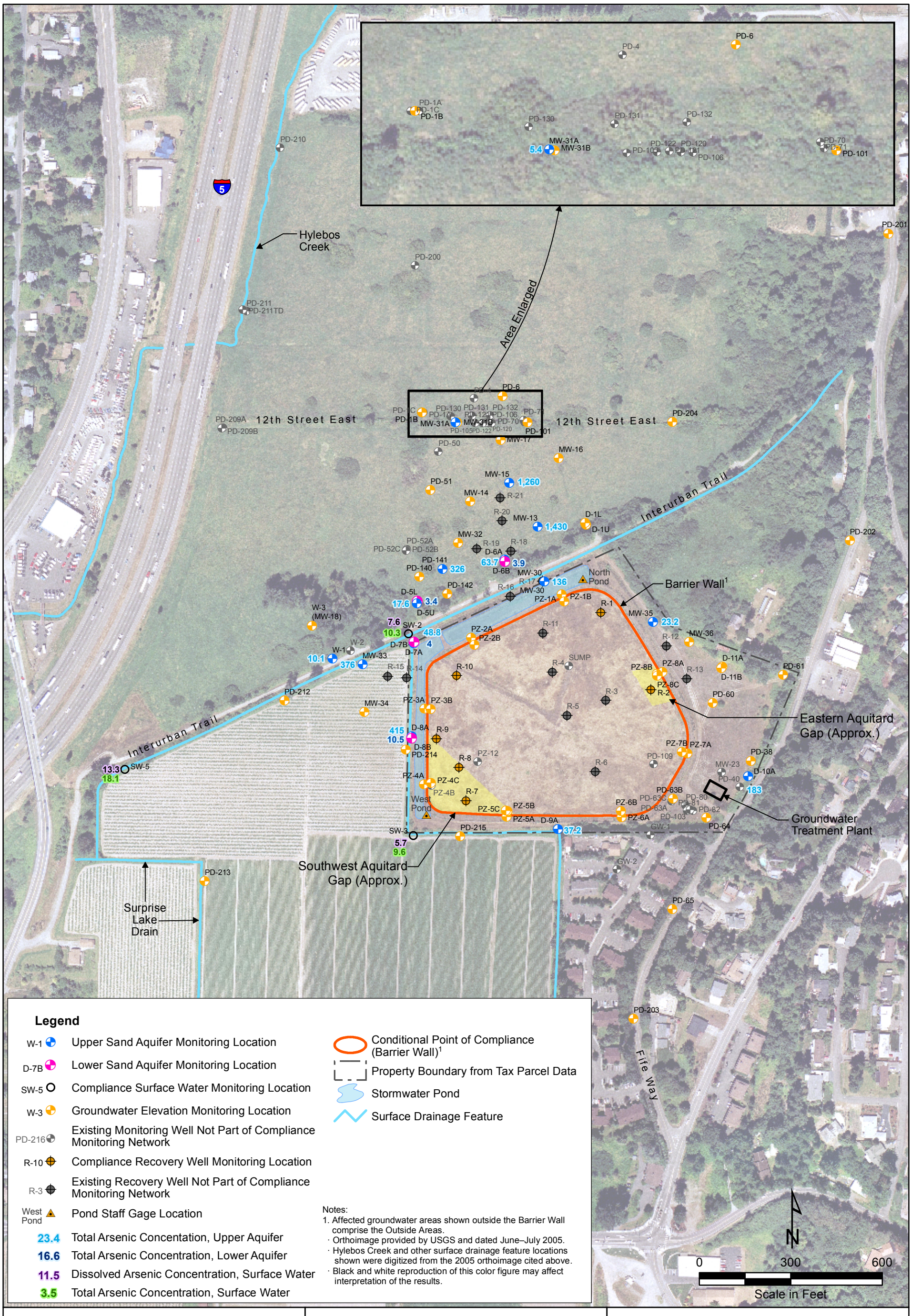
Qualifier:

U Analyte is undetected at given reporting limit

B&L Woodwaste Site

Compliance Monitoring Data Report April 2014

Figures



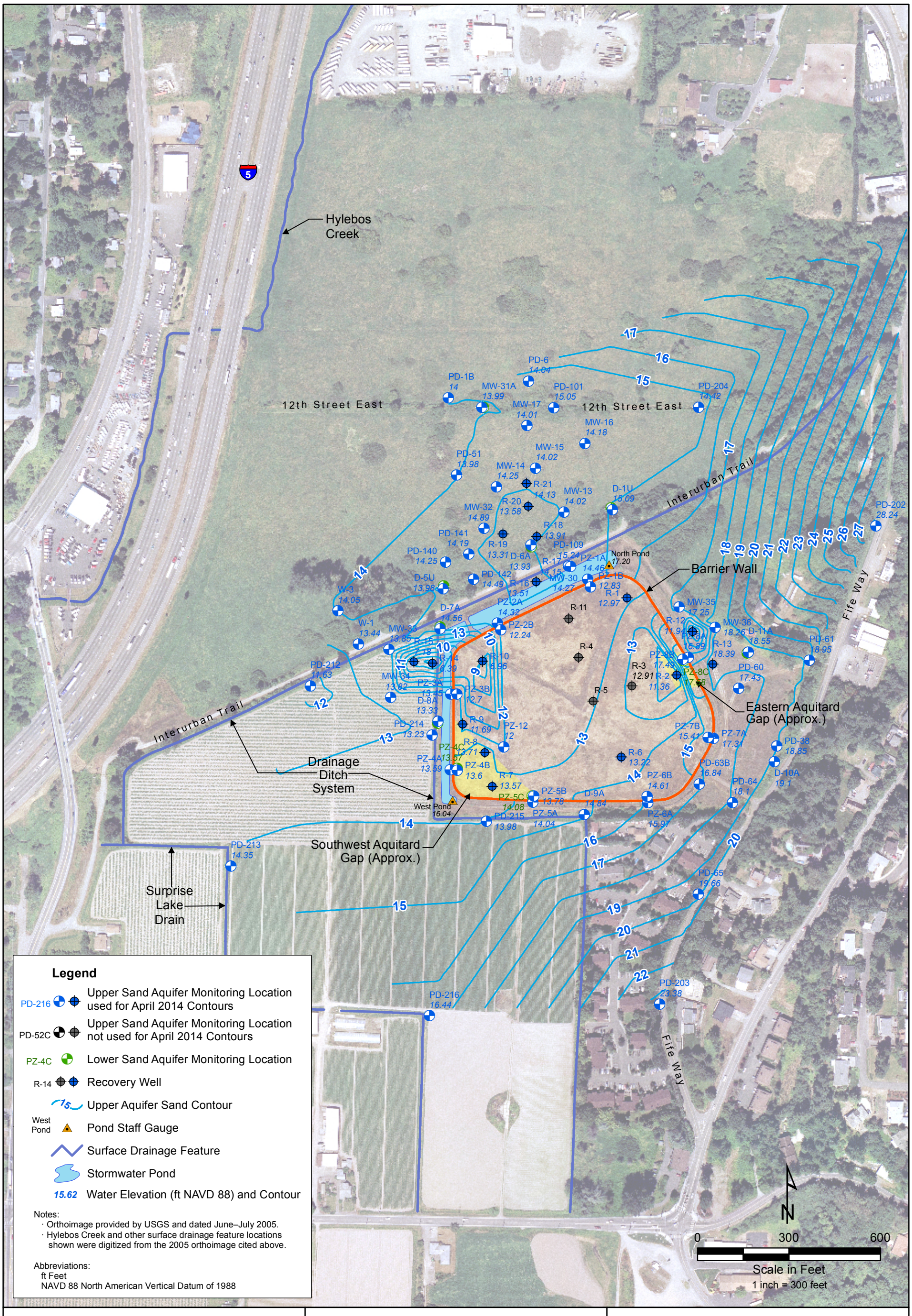
FLOYD | SNIDER
strategy • science • engineering

amec

Compliance Monitoring Data Report
B&L Woodwaste Site
Pierce County, Washington

Figure1.1
April 2014 Arsenic Results

Path: I:\GIS\Projects\B&L-O&M\MXD\Compliance Monitoring Report\April 2014\Figure 1.1 (April 2014 Arsenic Results).mxd
Date: 7/15/2014



Legend

- PD-216 — Upper Sand Aquifer Monitoring Location used for April 2014 Contours
- PD-52C — Upper Sand Aquifer Monitoring Location not used for April 2014 Contours
- PZ-4C — Lower Sand Aquifer Monitoring Location
- R-14 — Recovery Well
- 15 — Upper Aquifer Sand Contour
- West Pond — Pond Staff Gauge
- Surface Drainage Feature
- Stormwater Pond
- 15.62 — Water Elevation (ft NAVD 88) and Contour

Notes:
· Orthoimage provided by USGS and dated June–July 2005.
· Hylebos Creek and other surface drainage feature locations shown were digitized from the 2005 orthoimage cited above.

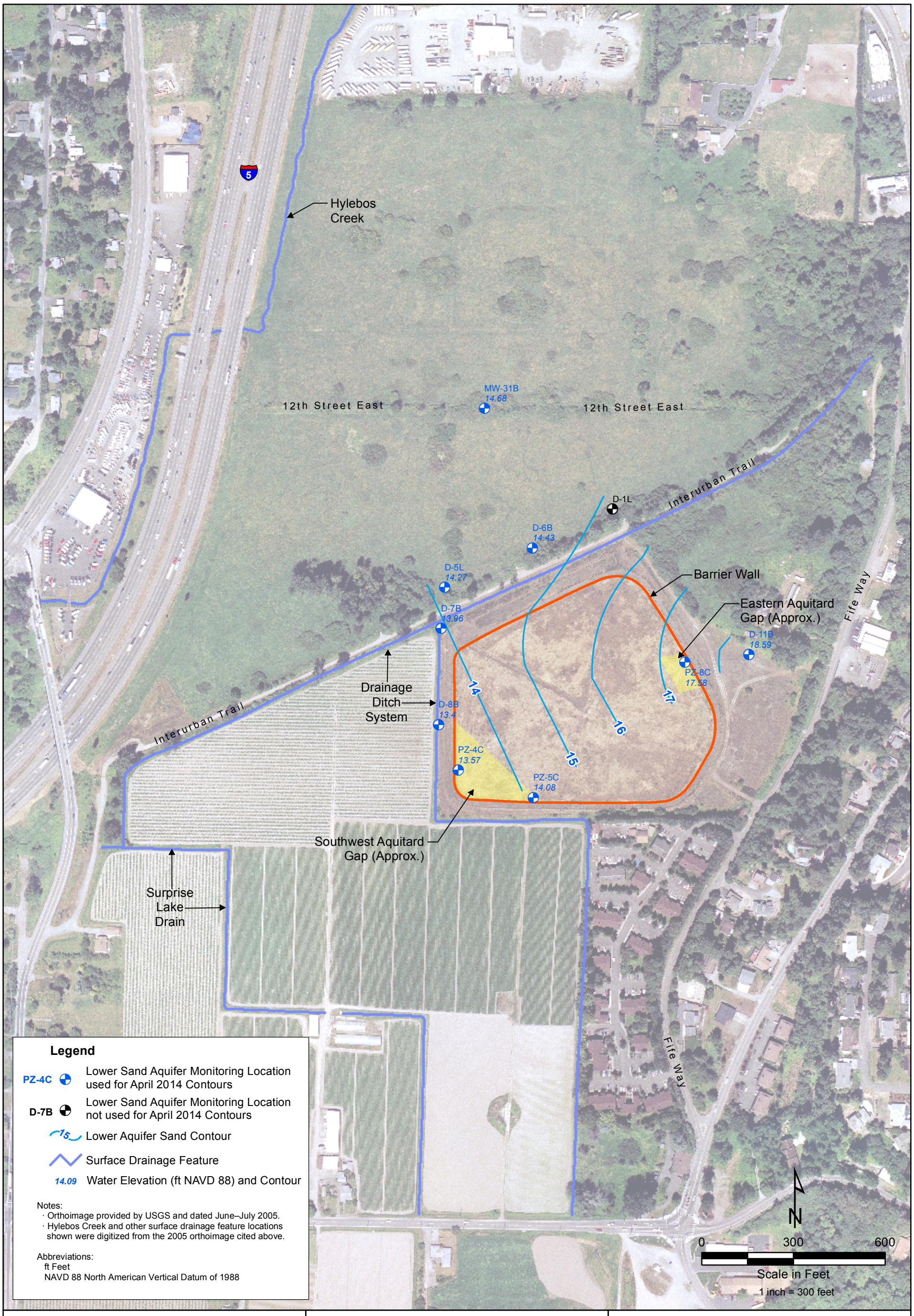
Abbreviations:
ft Feet
NAVD 88 North American Vertical Datum of 1988

FLOYD | SNIDER
strategy • science • engineering
amec

Compliance Monitoring Data Report
B&L Woodwaste Site
Pierce County, Washington

Figure 2.1
April 2014
Upper Sand Aquifer
Potentiometric Contours

I:\GIS\Projects\B&L-O&M\MXD\Compliance Monitoring Report\April 2014\Figure 2.1 (April 2014 Upper Sand Aquifer GW Contours).mxd 7/15/2014



FLOYD | SNIDER
strategy ▪ science ▪ engineering
amec

Compliance Monitoring Data Report
B&L Woodwaste Site
Pierce County, Washington

Figure 2.2
April 2014
Lower Sand Aquifer
Potentiometric Contours

I:\GIS\Projects\B&L-O&M\MXD\Compliance Monitoring Report\April 2014\Figure 2.2 (April 2014 Lower Sand Aquifer GW Contours).mxd 7/17/2014

B&L Woodwaste Site

Compliance Monitoring Data Report April 2014

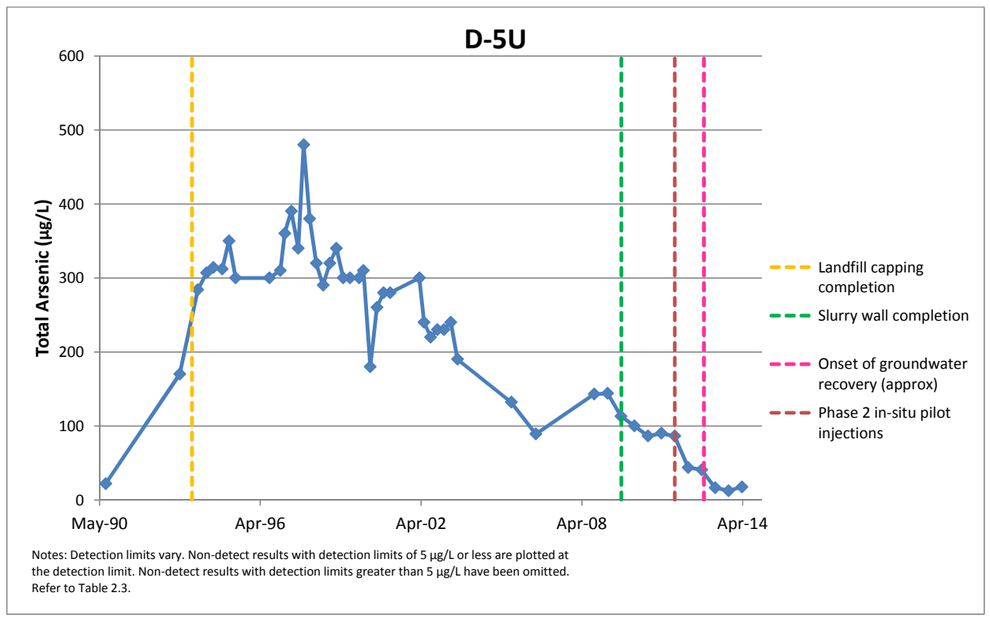
Appendix A Time-Concentration Plots

Table of Contents

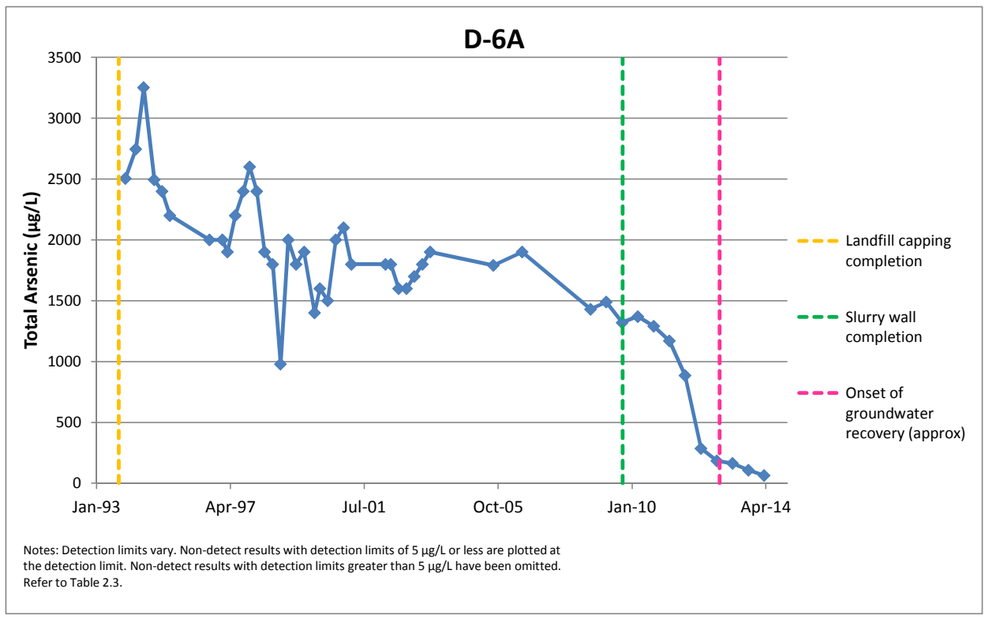
Upper and Lower Sand Aquifer Time-Concentration Plots

Surface Water Trends Time-Concentration Plots

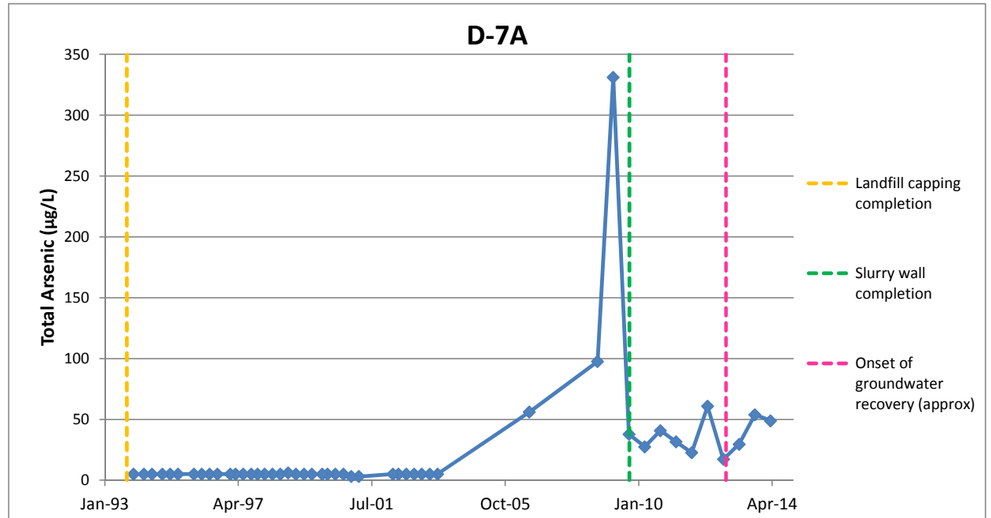
Appendix A
Time-Concentration Plots



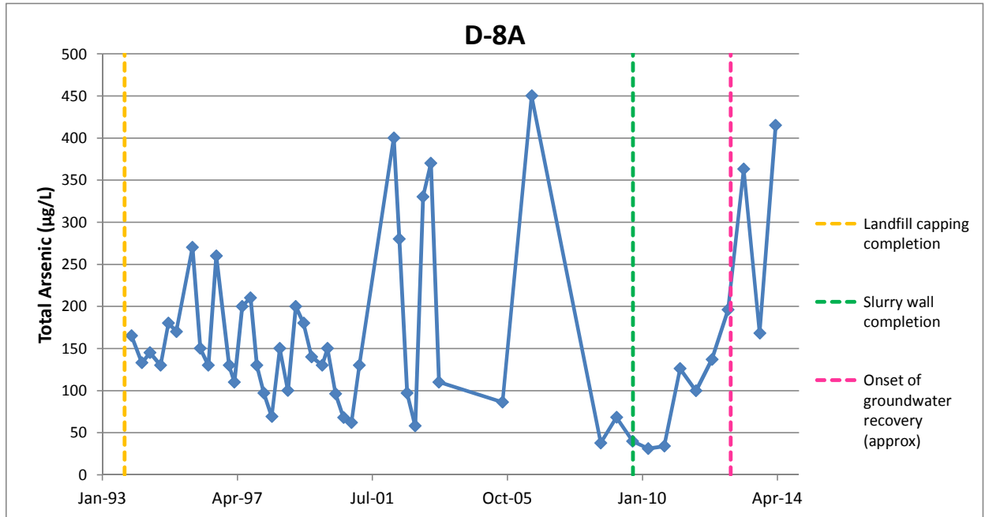
Notes: Detection limits vary. Non-detect results with detection limits of 5 µg/L or less are plotted at the detection limit. Non-detect results with detection limits greater than 5 µg/L have been omitted. Refer to Table 2.3.



Notes: Detection limits vary. Non-detect results with detection limits of 5 µg/L or less are plotted at the detection limit. Non-detect results with detection limits greater than 5 µg/L have been omitted. Refer to Table 2.3.

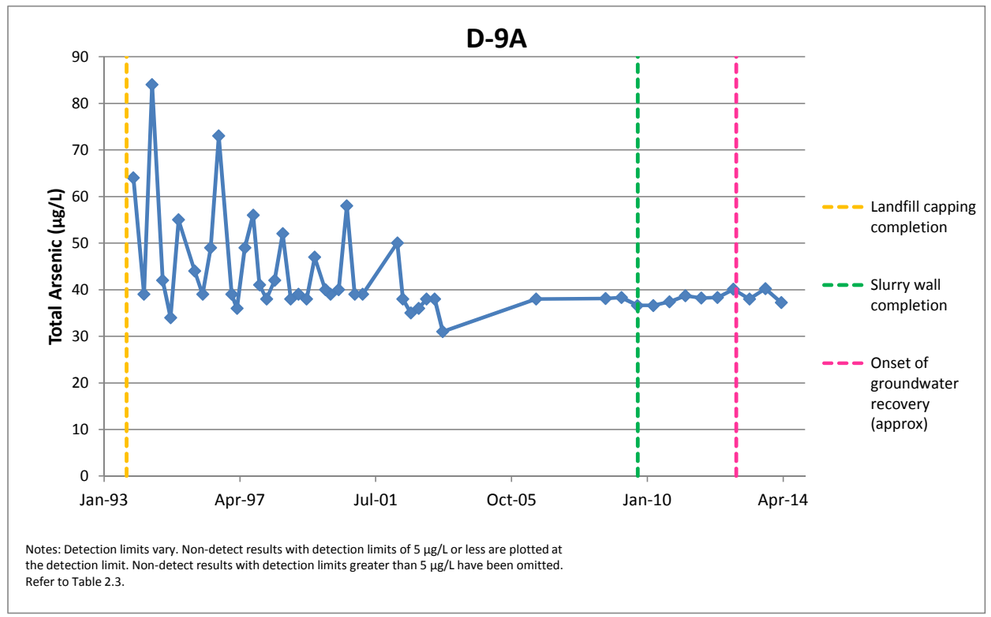


Notes: Detection limits vary. Non-detect results with detection limits of 5 µg/L or less are plotted at the detection limit. Non-detect results with detection limits greater than 5 µg/L have been omitted. Refer to Table 2.3.

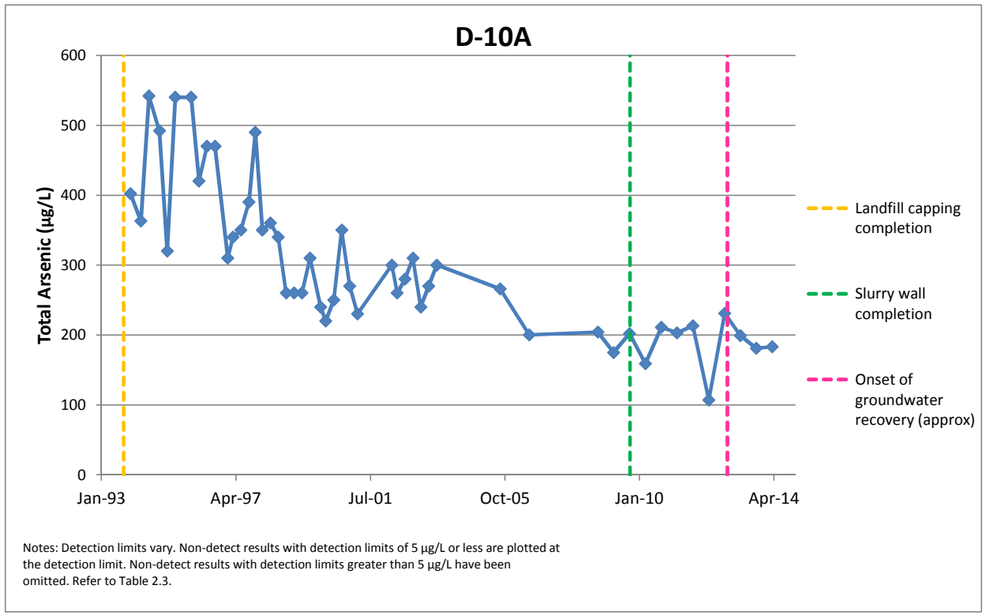


Notes: Detection limits vary. Non-detect results with detection limits of 5 µg/L or less are plotted at the detection limit. Non-detect results with detection limits greater than 5 µg/L have been omitted. Refer to Table 2.3.

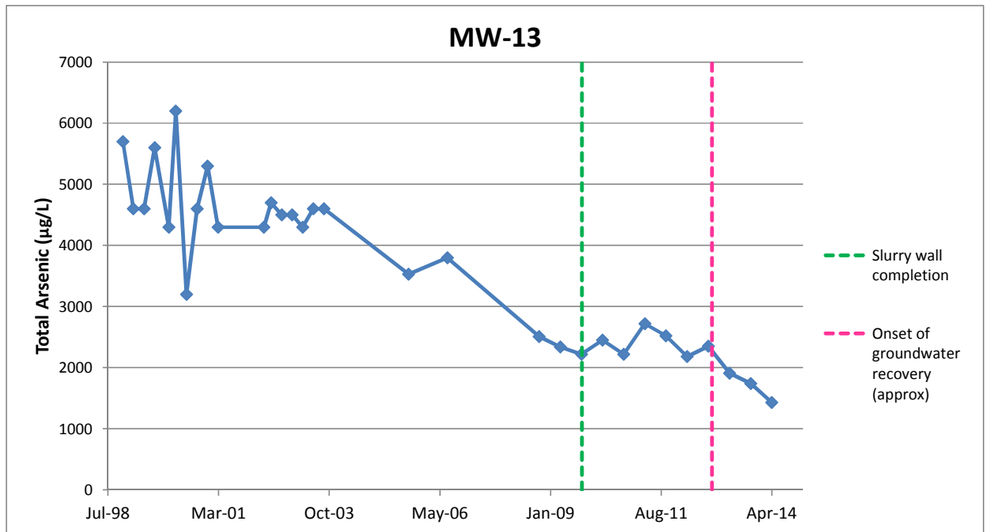
Appendix A
Time-Concentration Plots



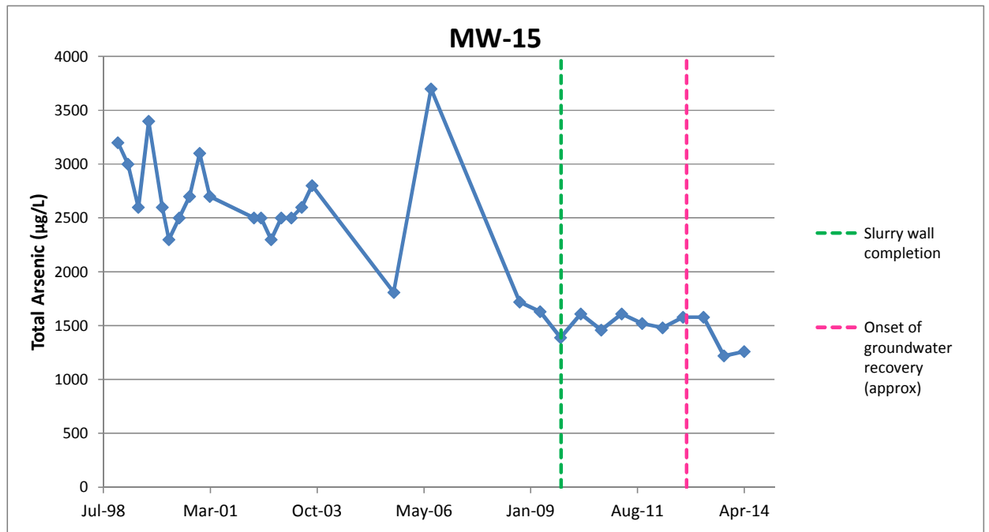
Notes: Detection limits vary. Non-detect results with detection limits of 5 µg/L or less are plotted at the detection limit. Non-detect results with detection limits greater than 5 µg/L have been omitted. Refer to Table 2.3.



Notes: Detection limits vary. Non-detect results with detection limits of 5 µg/L or less are plotted at the detection limit. Non-detect results with detection limits greater than 5 µg/L have been omitted. Refer to Table 2.3.

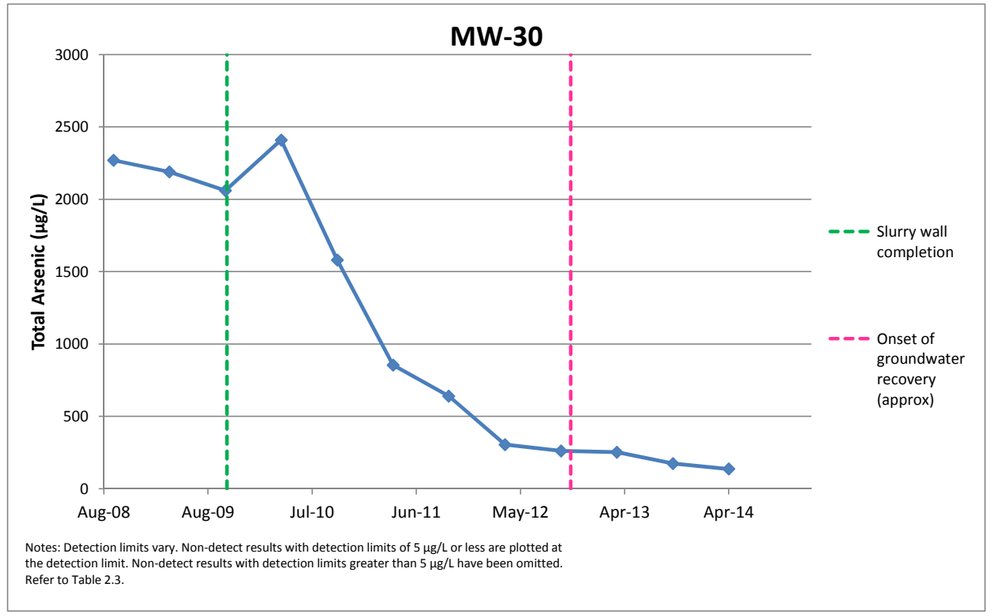


Notes: Detection limits vary. Non-detect results with detection limits of 5 µg/L or less are plotted at the detection limit. Non-detect results with detection limits greater than 5 µg/L have been omitted. Refer to Table 2.3.

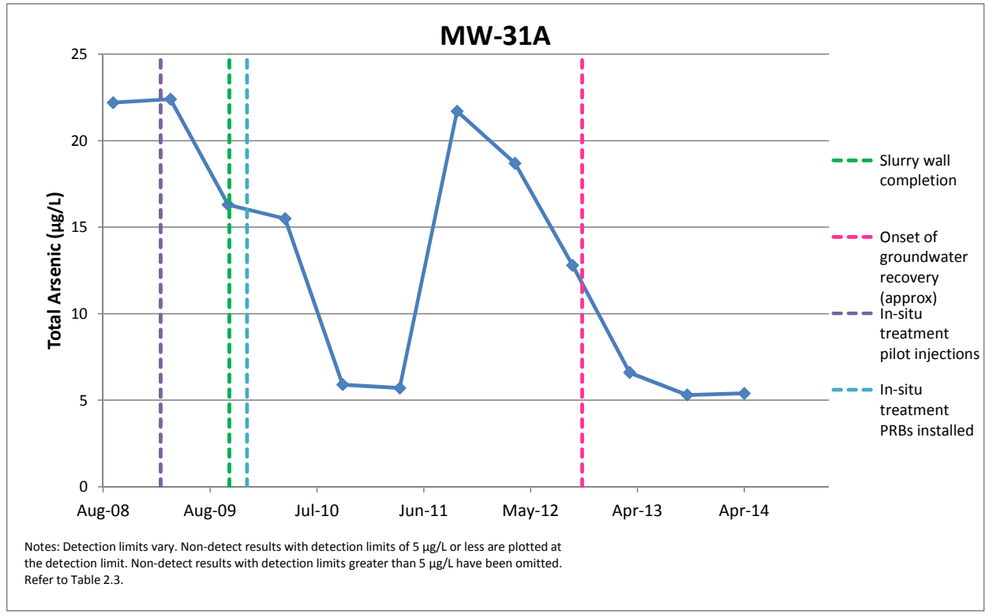


Notes: Detection limits vary. Non-detect results with detection limits of 5 µg/L or less are plotted at the detection limit. Non-detect results with detection limits greater than 5 µg/L have been omitted. Refer to Table 2.3.

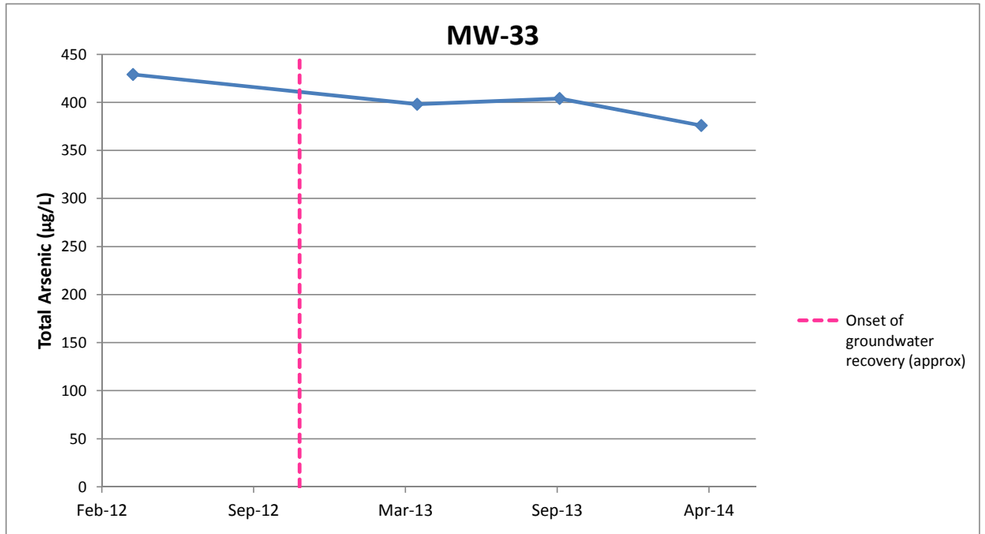
Appendix A
Time-Concentration Plots



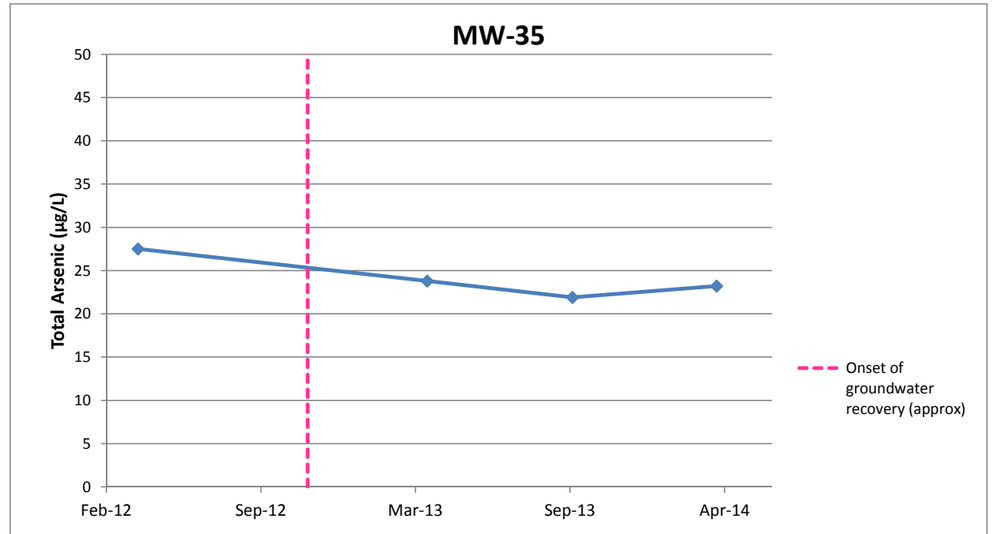
Notes: Detection limits vary. Non-detect results with detection limits of 5 µg/L or less are plotted at the detection limit. Non-detect results with detection limits greater than 5 µg/L have been omitted. Refer to Table 2.3.



Notes: Detection limits vary. Non-detect results with detection limits of 5 µg/L or less are plotted at the detection limit. Non-detect results with detection limits greater than 5 µg/L have been omitted. Refer to Table 2.3.

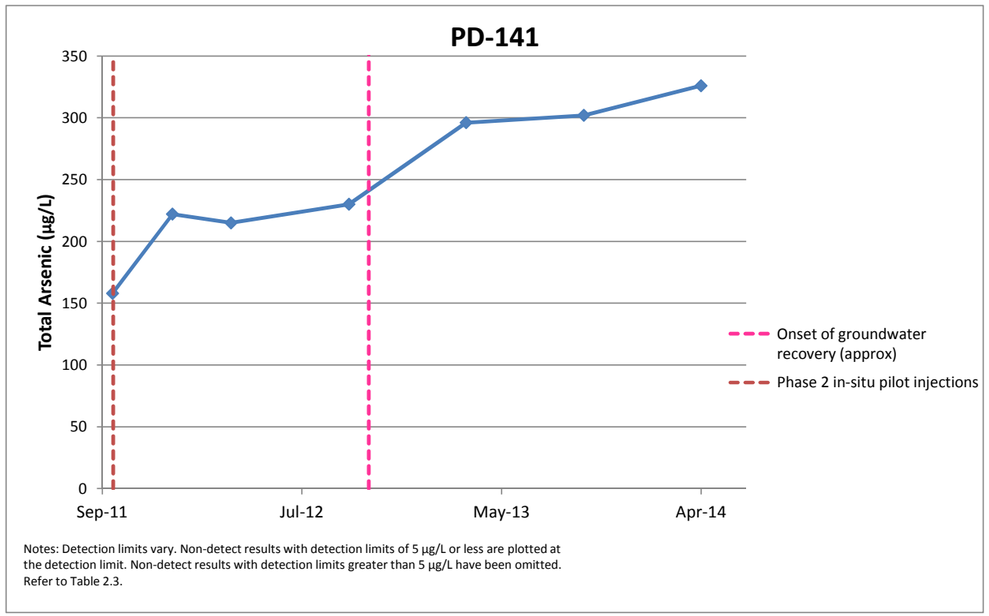


Notes: Detection limits vary. Non-detect results with detection limits of 5 µg/L or less are plotted at the detection limit. Non-detect results with detection limits greater than 5 µg/L have been omitted. Refer to Table 2.3.

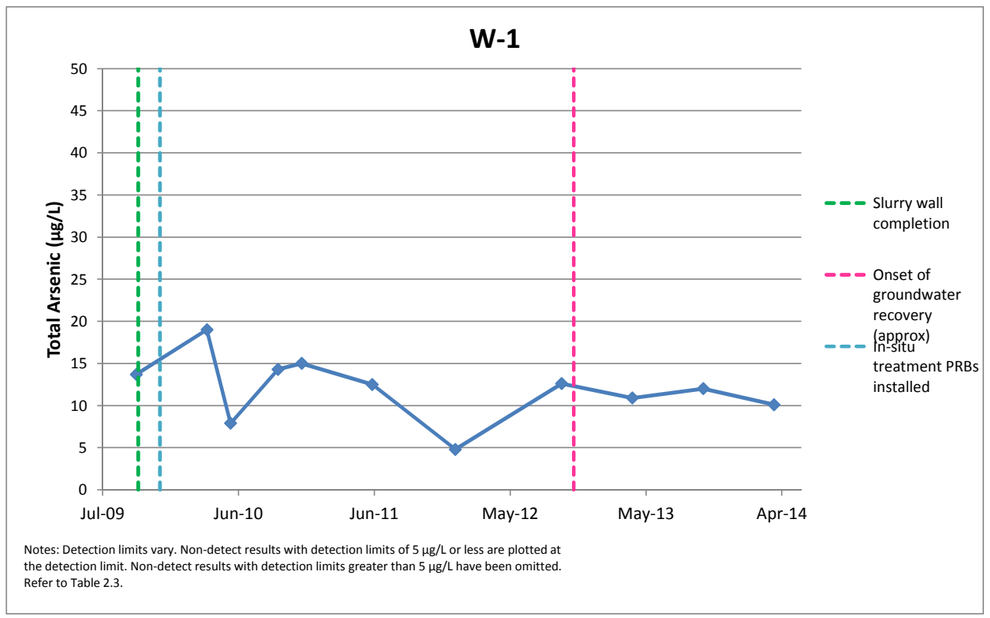


Notes: Detection limits vary. Non-detect results with detection limits of 5 µg/L or less are plotted at the detection limit. Non-detect results with detection limits greater than 5 µg/L have been omitted. Refer to Table 2.3.

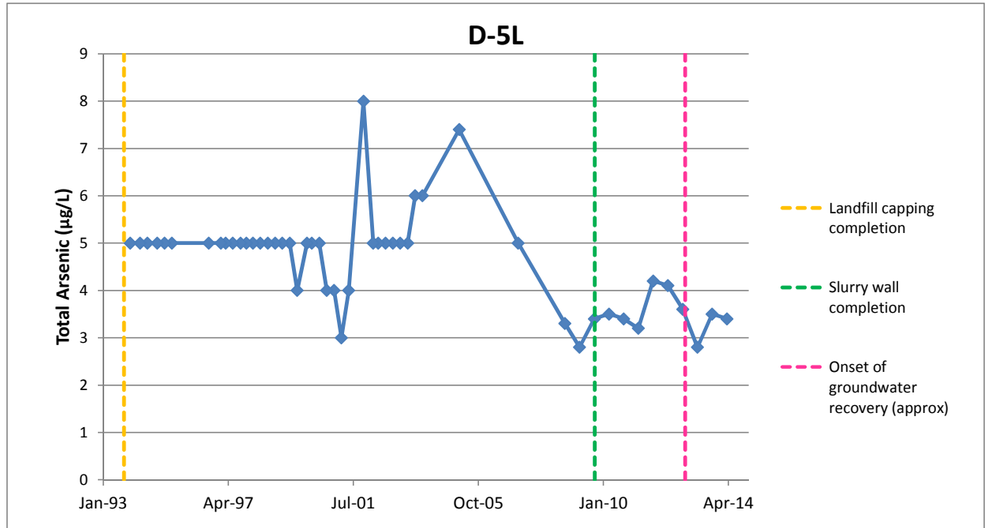
Appendix A
Time-Concentration Plots



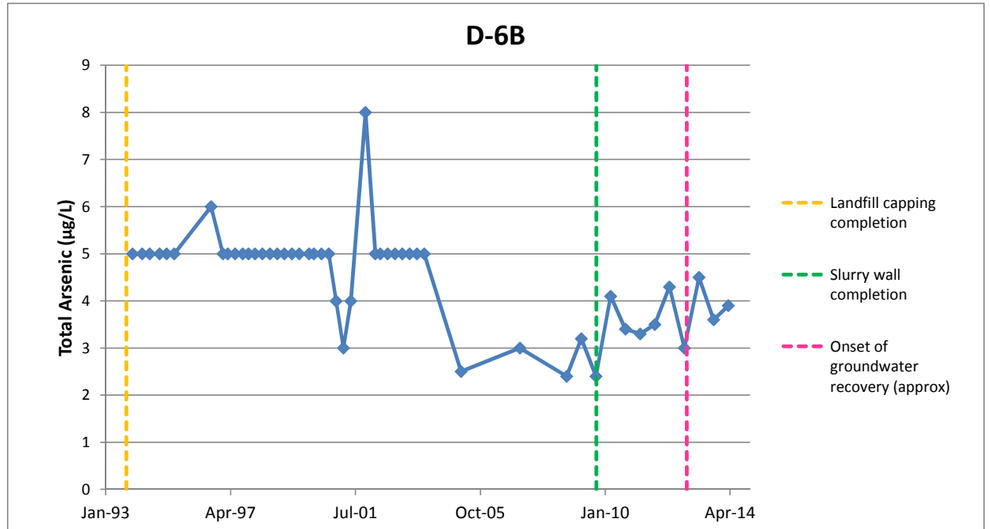
Notes: Detection limits vary. Non-detect results with detection limits of 5 µg/L or less are plotted at the detection limit. Non-detect results with detection limits greater than 5 µg/L have been omitted. Refer to Table 2.3.



Notes: Detection limits vary. Non-detect results with detection limits of 5 µg/L or less are plotted at the detection limit. Non-detect results with detection limits greater than 5 µg/L have been omitted. Refer to Table 2.3.

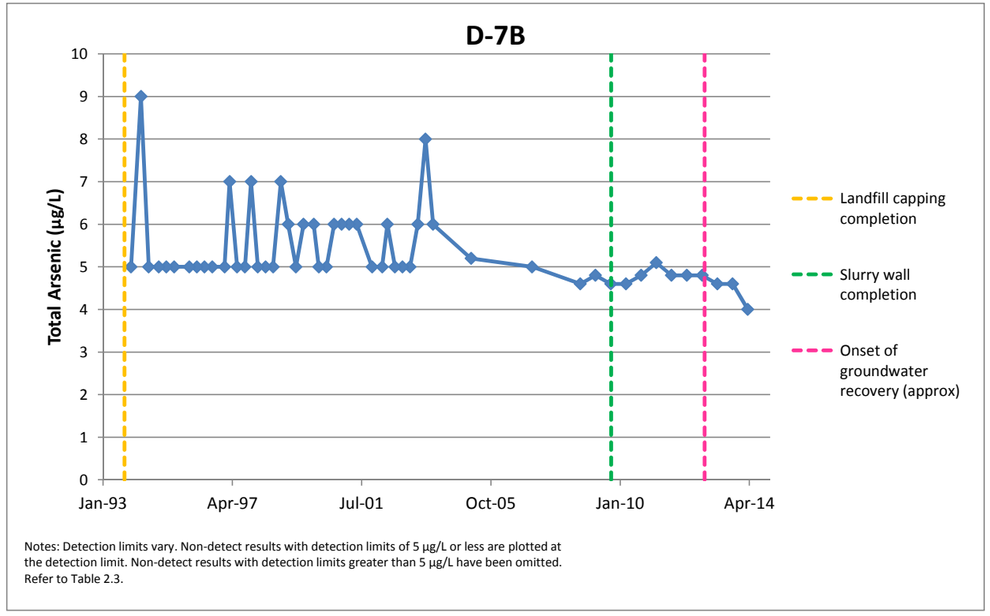


Notes: Detection limits vary. Non-detect results with detection limits of 5 µg/L or less are plotted at the detection limit. Non-detect results with detection limits greater than 5 µg/L have been omitted. Refer to Table 2.3.

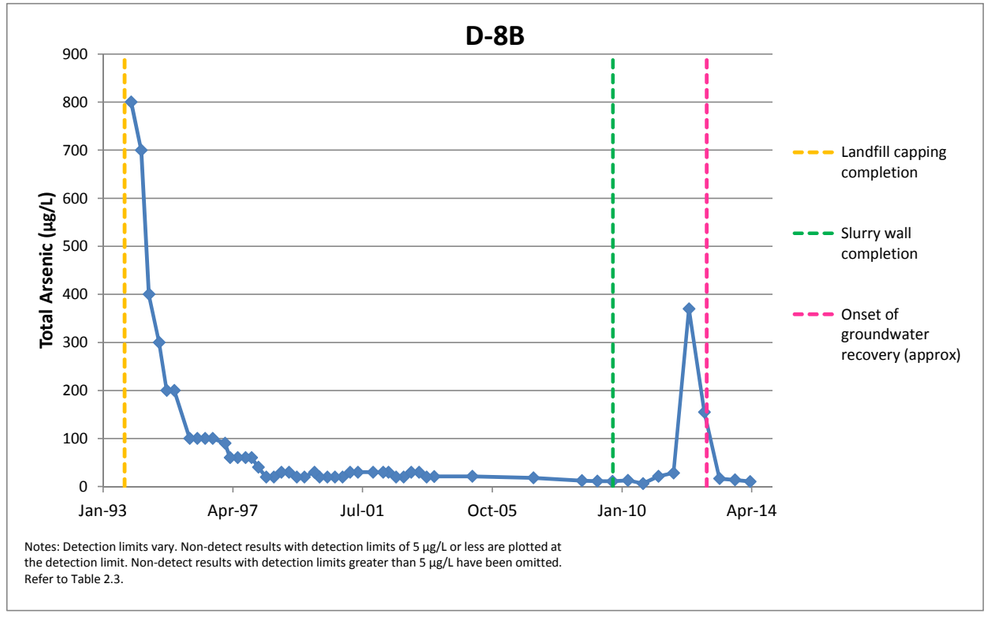


Notes: Detection limits vary. Non-detect results with detection limits of 5 µg/L or less are plotted at the detection limit. Non-detect results with detection limits greater than 5 µg/L have been omitted. Refer to Table 2.3.

Appendix A
Time-Concentration Plots

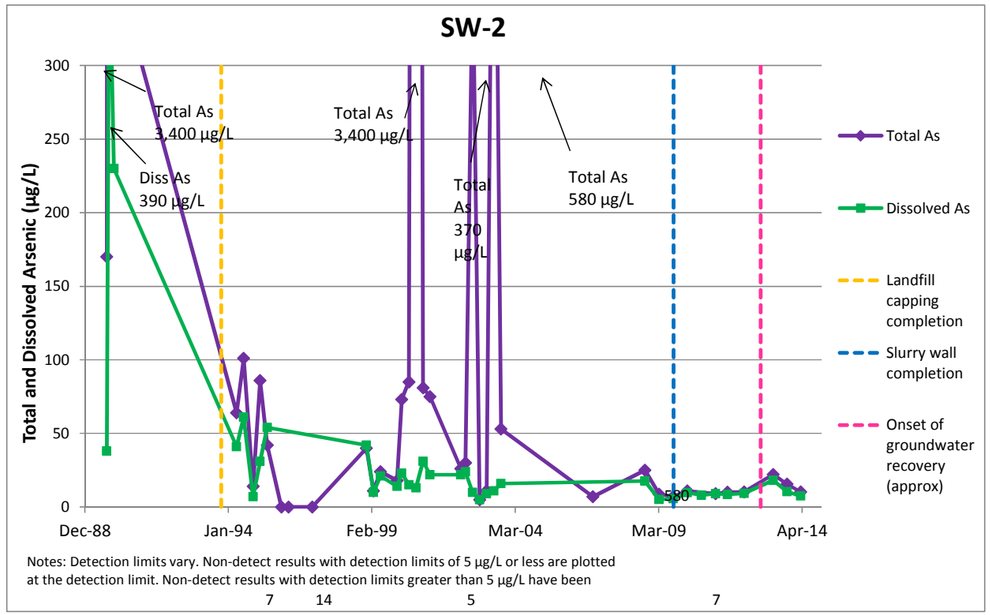


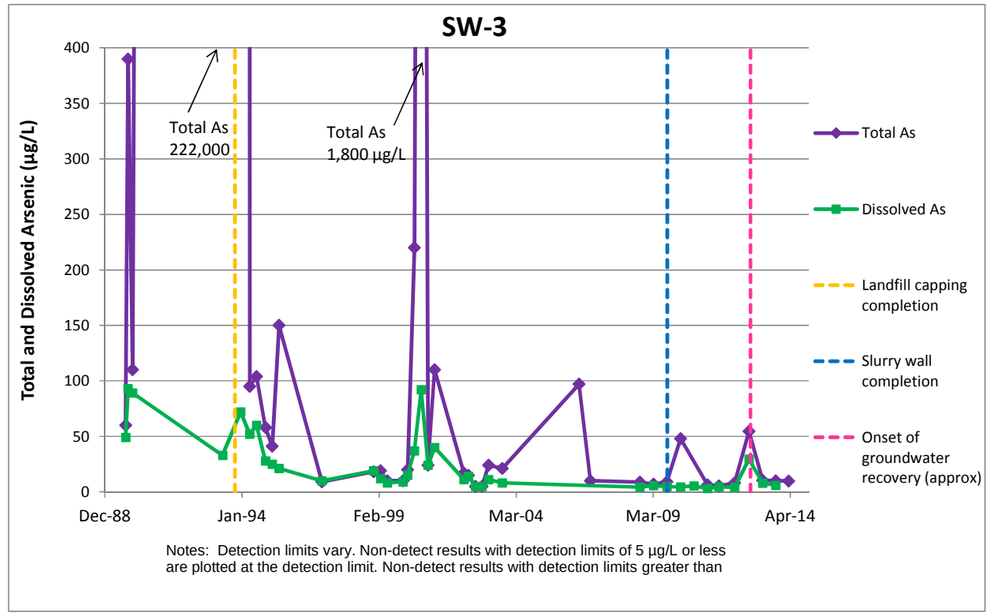
Notes: Detection limits vary. Non-detect results with detection limits of 5 µg/L or less are plotted at the detection limit. Non-detect results with detection limits greater than 5 µg/L have been omitted. Refer to Table 2.3.

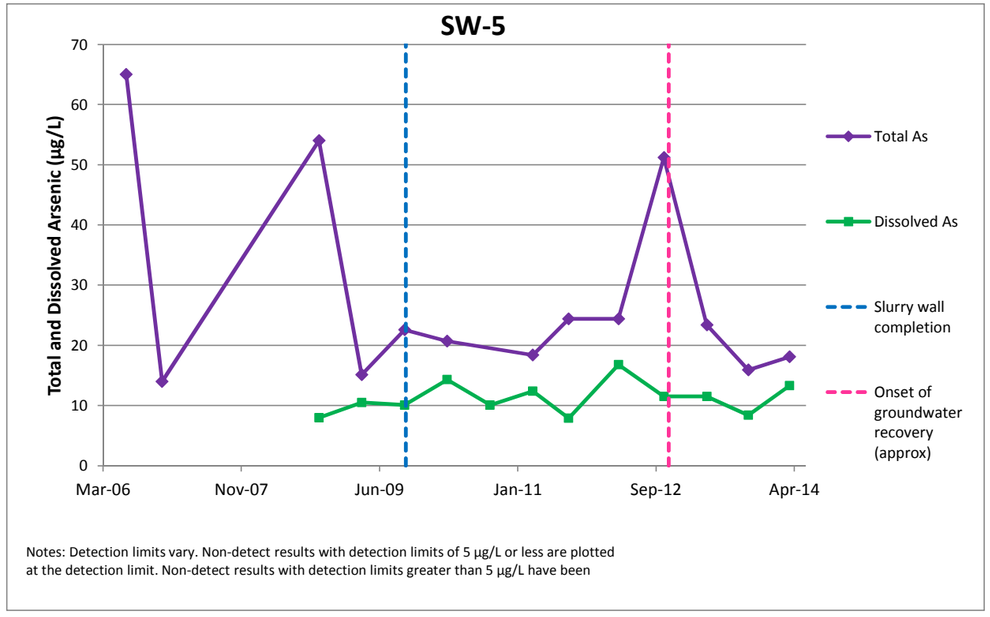


Notes: Detection limits vary. Non-detect results with detection limits of 5 µg/L or less are plotted at the detection limit. Non-detect results with detection limits greater than 5 µg/L have been omitted. Refer to Table 2.3.

Appendix A
Time-Concentration Plots







B&L Woodwaste Site

Compliance Monitoring
Data Report
April 2014

Appendix B
Analytical Laboratory Results

Analytical Resources, Incorporated
Analytical Chemists and Consultants

May 7, 2014

Brett Beaulieu
Floyd Snider
600 Union Street, Suite 600
Seattle, WA 98101-2341

RE: B&L O+M, 1507
ARI Job No.: YI57, YI58

Dear Brett:

Please find enclosed the original Chain-of-Custody record (COC), sample receipt documentation, and the final results for the samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted twenty-six water samples on April 30, 2014. For further details regarding sample receipt, please refer to the enclosed Cooler Receipt Form.

The samples were analyzed for total and dissolved arsenic, as requested on the COC.

Arsenic was detected in the method blank associated with the dissolved metals analysis. As arsenic was present in all associated samples at levels ten times greater than the amount present in the method blank, no corrective actions were taken.

There were no other anomalies associated with these analyses.

An electronic copy of this report and all associated raw data will remain on file with ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Bob Conglets
-For-
Kelly Bottem
Client Services Manger
kellyb@arilabs.com
206-695-6211

cc: eFile YI57, YI58

Enclosures

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: Y157	Turn-around Requested: Standard	Page: 1 of 3	
ARI Client Company: Floyd | Snider	Phone: 206-292-2078	Date: 4/30/14	Ice Present? √
Client Contact: Bret Beaulieu		No. of Coolers: 1	Cooler Temps: 3.3
Client Project Name: B+L O+M f. 1507			
Client Project #:	Samplers: K. Andersen, J. Graves, E. Murray		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No Containers	Analysis Requested: As (tot) 200.8	Analysis Requested: As (diss)* 200.8	Notes/Comments
BLW-GW-MW13	4/28/14	1150	water	1	X		* Field filtered
BLW-SW-5	"	1200	"	1	X		
BLW-SW-5-F	"	1200	"	1		X	
BLW-GW-MW30	"	1215	"	1	X		
BLW-SW-2	"	1215	"	1	X		
BLW-SW-2-F	"	1215	"	1		X	
BLW-GW-MW15	"	1235	"	1	X		
BLW-GW-D5U	"	1405	"	1	X		
BLW-GW-D5L	"	1410	"	1	X		
BLW-GW-MW29	"	1230	"	1	X		

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by (Signature)	Received by (Signature)
	Printed Name: Kristin Andersen	Printed Name: A. Volgardsen	Printed Name	Printed Name.
	Company: Floyd | Snider	Company: ARI	Company	Company:
	Date & Time: 4/30/14 1345	Date & Time: 4/30/14 1345	Date & Time	Date & Time.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested: Standard	Page: 2 of 3	
ARI Client Company: Floyd | Snider	Phone:	Date: 4/30/14	Ice Present?
Client Contact: Brett Beaulieu		No. of Coolers:	Cooler Temps:
Client Project Name: B+L O+M E. 1507			
Client Project #:	Samplers: KA, JG, EM		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	As (tot) 200.8	As (diss) 200.8 *							Notes/Comments
BLW-GW-M100	4/28/14	1300	water	1	X								* field filtered
BLW-GW-PD141	↓	1425	↓	1	X								
BLW-GW-MW31A	↓	1555	↓	1	X								
BLW-GW-D10A	4/29/14	1020	↓	1	X								
BLW-GW-MW35	↓	1025	↓	1	X								
BLW-GW-D8B	↓	1435	↓	1	X								
BLW-GW-D8A	↓	1440	↓	1	X								
BLW-GW-D9A	↓	1605	↓	1	X								
BLW-SW-3	↓	1615	↓	1	X								
BLW-SW-3-F	↓	1620	↓	1		X							

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by (Signature)	Received by (Signature)
	Printed Name: Kristin Andersen	Printed Name: A. Volgardsen	Printed Name:	Printed Name:
	Company: Floyd | Snider	Company: ARI	Company:	Company
	Date & Time: 4/30/14 1345	Date & Time: 4/30/14 1345	Date & Time	Date & Time:

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Floyd Snider
Project Name: BLO+M+.1507
COC No(s): _____ (NA)
Delivered by: Fed-Ex UPS Courier (Hand Delivered) Other: _____
Assigned ARI Job No: _____
Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry): 3.3
Time: 1345
If cooler temperature is out of compliance fill out form 00070F
Temp Gun ID#: 90877952

Cooler Accepted by: AV Date: 4/30/14 Time: 1345

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?	Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other: _____		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	(NO)
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	(YES)	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)		

Was Sample Split by ARI: (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

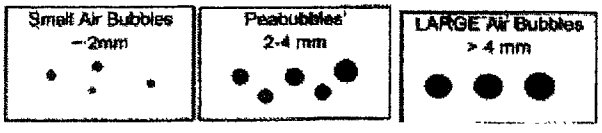
Samples Logged by: AV Date: 4/30/14 Time: 1500

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC
BLW-SW-SW5	BLW-SW-5	BLW-GW-MW100	BLW-GW-M100
BLW-SW-SW5-F	BLW-SW-5-F		
BLW-SW-SW2	BLW-SW-2		
BLW-SW-SW2-F	BLW-SW-2-F		

Additional Notes, Discrepancies, & Resolutions:

By: Date:



Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)

1157.00004

PRESERVATION VERIFICATION 04/30/14
Page 1 of 2

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **YI57**

PC: Kelly
VTSR: 04/30/14

Inquiry Number: NONE
Analysis Requested: 04/30/14
Contact: Beaulieu, Brett
Client: Floyd-Snider
Logged by: AV
Sample Set Used: Yes-481
Validatable Package: No
Deliverables:

Project #:
Project: B+L O+M t. 1507
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	TPHD <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
14-8292 **YI57A**	BLW-GW-MW13						TOT															
14-8293 **YI57B**	BLW-SW-5						TOT															
14-8294 **YI57C**	BLW-GW-MW30						TOT															
14-8295 **YI57D**	BLW-SW-2						TOT															
14-8296 **YI57E**	BLW-GW-MW15						TOT															
14-8297 **YI57F**	BLW-GW-D5U						TOT															
14-8298 **YI57G**	BLW-GW-D5L						TOT															
14-8299 **YI57H**	BLW-GW-MW29						TOT															
14-8300 **YI57I**	BLW-GW-M100						TOT															
14-8301 **YI57J**	BLW-GW-PD141						TOT															
14-8302 **YI57K**	BLW-GW-MW31A						TOT															
14-8303 **YI57L**	BLW-GW-D10A						TOT															
14-8304 **YI57M**	BLW-GW-MW35						TOT															
14-8305 **YI57N**	BLW-GW-D8B						TOT															

P=Pass

Checked By AV Date 4/30/14

PRESERVATION VERIFICATION 04/30/14
Page 2 of 2

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **YI57**

Client: Floyd-Snider

Project #:
Project: B+L O+M t. 1507

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	TPHD <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
14-8306 **YI57O**	BLW-GW-D8A						TOT															
14-8307 **YI57P**	BLW-GW-D9A						TOT															
14-8308 **YI57Q**	BLW-SW-3						TOT															
14-8309 **YI57R**	BLW-SW-5-F						DIS									Y						
14-8310 **YI57S**	BLW-SW-2-F						DIS									Y						
14-8311 **YI57T**	BLW-SW-3-F						DIS									Y						

Checked By AV Date 4/30/14

Chain of Custody Record & Laboratory Analysis Request

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

ARI Assigned Number: Y152	Turn-around Requested: Standard
ARI Client Company: Floyd | Snider	Phone: 206-292-2078
Client Contact: Brett Beaulieu	
Client Project Name: BH OTM t. 1507	
Client Project #:	Samplers: KA, JG, EM

Page: 3 of 3	
Date: 4/30/14	Ice Present?
No. of Coolers:	Cooler Temps:

Sample ID	Date	Time	Matrix	No Containers	As (tot) 200.8								Notes/Comments
BLW-GW-D7A	4/30/14	1020	water	1	X								
BLW-GW-D7B		1020		1	X								
BLW-GW-MW33		1110		1	X								
BLW-GW-W1		1115		1	X								
BLW-GW-D6B		1210		1	X								
BLW-GW-D6A		1215		1	X								

Comments/Special Instructions	Relinquished by	Received by	Relinquished by	Received by
	(Signature) [signature]	(Signature) [signature]	(Signature)	(Signature)
	Printed Name: Kristin Anderson	Printed Name: A. Volgardsen	Printed Name	Printed Name
	Company: Floyd | Snider	Company: ARI	Company	Company
	Date & Time: 4/30/14 1345	Date & Time: 4/30/14 1345	Date & Time	Date & Time

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Floyd Snider

Project Name: B+L C+M+ 1567

COC No(s): _____ (NA)

Delivered by: Fed-Ex UPS Courier (Hand Delivered) Other: _____

Assigned ARI Job No: _____

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES (NO)

Were custody papers included with the cooler? ..... (YES) NO

Were custody papers properly filled out (ink, signed, etc.) ..... (YES) NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 3.3

Time: 1345

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: 90877952

Cooler Accepted by: AV Date: 4/30/14 Time: 1345

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? ..... YES (NO)

What kind of packing material was used? ... Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? ..... NA (YES) NO

Were all bottles sealed in individual plastic bags? ..... YES (NO)

Did all bottles arrive in good condition (unbroken)? ..... (YES) NO

Were all bottle labels complete and legible? ..... (YES) NO

Did the number of containers listed on COC match with the number of containers received? ..... (YES) NO

Did all bottle labels and tags agree with custody papers? ..... (YES) NO

Were all bottles used correct for the requested analyses? ..... (YES) NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... NA (YES) NO

Were all VOC vials free of air bubbles? ..... (NA) YES NO

Was sufficient amount of sample sent in each bottle? ..... (YES) NO

Date VOC Trip Blank was made at ARI.. ..... (NA) _____

Was Sample Split by ARI: (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

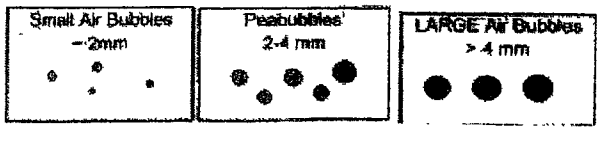
Samples Logged by: AV Date: 4/30/14 Time: 1500

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:



Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)

PRESERVATION VERIFICATION 04/30/14

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **YI58**

Inquiry Number: NONE
Analysis Requested: 04/30/14
Contact: Beaulieu, Brett
Client: Floyd-Snider
Logged by: AV
Sample Set Used: Yes-481
Validatable Package: No
Deliverables:

PC: Kelly
VTSR: 04/30/14

Project #:
Project: B+L O+M t. 1507
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	TPHD <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
14-8312 **YI58A**	BLW-GW-D7A						TOT P															
14-8313 **YI58B**	BLW-GW-D7B						TOT P															
14-8314 **YI58C**	BLW-GW-MW33						TOT P															
14-8315 **YI58D**	BLW-GW-W1						TOT P															
14-8316 **YI58E**	BLW-GW-D6B						TOT P															
14-8317 **YI58F**	BLW-GW-D6A						TOT P															

P=Pass

Checked By AV Date 4/30/14

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: YI57
Client: Floyd-Snider
Project Event: N/A
Project Name: B+L O+M t. 1507

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	BLW-GW-MW13	YI57A	14-8292	Water	04/28/14 11:50	04/30/14 13:45
2.	BLW-SW-5	YI57B	14-8293	Water	04/28/14 12:00	04/30/14 13:45
3.	BLW-GW-MW30	YI57C	14-8294	Water	04/28/14 12:15	04/30/14 13:45
4.	BLW-SW-2	YI57D	14-8295	Water	04/28/14 12:15	04/30/14 13:45
5.	BLW-GW-MW15	YI57E	14-8296	Water	04/28/14 12:35	04/30/14 13:45
6.	BLW-GW-D5U	YI57F	14-8297	Water	04/28/14 14:05	04/30/14 13:45
7.	BLW-GW-D5L	YI57G	14-8298	Water	04/28/14 14:10	04/30/14 13:45
8.	BLW-GW-MW29	YI57H	14-8299	Water	04/28/14 12:30	04/30/14 13:45
9.	BLW-GW-M100	YI57I	14-8300	Water	04/28/14 13:00	04/30/14 13:45
10.	BLW-GW-PD141	YI57J	14-8301	Water	04/28/14 14:25	04/30/14 13:45
11.	BLW-GW-MW31A	YI57K	14-8302	Water	04/28/14 15:55	04/30/14 13:45
12.	BLW-GW-D10A	YI57L	14-8303	Water	04/29/14 10:20	04/30/14 13:45
13.	BLW-GW-MW35	YI57M	14-8304	Water	04/29/14 10:25	04/30/14 13:45
14.	BLW-GW-D8B	YI57N	14-8305	Water	04/29/14 14:35	04/30/14 13:45
15.	BLW-GW-D8A	YI57O	14-8306	Water	04/29/14 14:40	04/30/14 13:45
16.	BLW-GW-D9A	YI57P	14-8307	Water	04/29/14 16:05	04/30/14 13:45
17.	BLW-SW-3	YI57Q	14-8308	Water	04/29/14 16:15	04/30/14 13:45
18.	BLW-SW-5-F	YI57R	14-8309	Water	04/28/14 12:00	04/30/14 13:45
19.	BLW-SW-2-F	YI57S	14-8310	Water	04/28/14 12:15	04/30/14 13:45
20.	BLW-SW-3-F	YI57T	14-8311	Water	04/29/14 16:20	04/30/14 13:45

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: YI58
Client: Floyd-Snider
Project Event: N/A
Project Name: B+L O+M t. 1507

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	BLW-GW-D7A	YI58A	14-8312	Water	04/30/14 10:20	04/30/14 13:45
2.	BLW-GW-D7B	YI58B	14-8313	Water	04/30/14 10:20	04/30/14 13:45
3.	BLW-GW-MW33	YI58C	14-8314	Water	04/30/14 11:10	04/30/14 13:45
4.	BLW-GW-W1	YI58D	14-8315	Water	04/30/14 11:15	04/30/14 13:45
5.	BLW-GW-D6B	YI58E	14-8316	Water	04/30/14 12:10	04/30/14 13:45
6.	BLW-GW-D6A	YI58F	14-8317	Water	04/30/14 12:15	04/30/14 13:45

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: YI57MB
LIMS ID: 14-8293
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	7440-38-2	Arsenic	0.2	0.2	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-GW-MW13
SAMPLE

Lab Sample ID: YI57A
LIMS ID: 14-8292
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/28/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	5	**1,430**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-SW-5
SAMPLE

Lab Sample ID: YI57B
LIMS ID: 14-8293
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/28/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	0.2	**18.1**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-GW-MW30
SAMPLE

Lab Sample ID: YI57C
LIMS ID: 14-8294
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/28/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	0.2	**136**	

U-Analyte undetected at given RL
RL-Reporting Limit

YI57.05014

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-SW-2
SAMPLE

Lab Sample ID: YI57D
LIMS ID: 14-8295
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/28/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	0.2	**10.3**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-GW-MW15
SAMPLE

Lab Sample ID: YI57E
LIMS ID: 14-8296
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/28/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	5	**1,260**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-GW-D5U
SAMPLE

Lab Sample ID: YI57F
LIMS ID: 14-8297
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/28/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	0.2	**17.6**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-GW-D5L
SAMPLE

Lab Sample ID: YI57G
LIMS ID: 14-8298
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/28/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	0.2	**3.4**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: BLW-GW-MW29**
Page 1 of 1 **SAMPLE**

Lab Sample ID: YI57H
LIMS ID: 14-8299
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/28/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	5	**1,210**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-GW-M100
SAMPLE

Lab Sample ID: YI57I
LIMS ID: 14-8300
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/28/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	0.2	**136**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-GW-PD141
SAMPLE

Lab Sample ID: YI57J
LIMS ID: 14-8301
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/28/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	0.5	**326**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-GW-MW31A
SAMPLE

Lab Sample ID: YI57K
LIMS ID: 14-8302
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/28/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	0.2	**5.4**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-GW-D10A
SAMPLE

Lab Sample ID: YI57L
LIMS ID: 14-8303
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/29/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	0.2	**183**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-GW-MW35
SAMPLE

Lab Sample ID: YI57M
LIMS ID: 14-8304
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/29/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	0.2	**23.2**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-GW-D8B
SAMPLE

Lab Sample ID: YI57N
LIMS ID: 14-8305
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/29/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	0.2	**10.5**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-GW-D8A
SAMPLE

Lab Sample ID: YI57O
LIMS ID: 14-8306
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/29/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	0.5	**415**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-GW-D9A
SAMPLE

Lab Sample ID: YI57P
LIMS ID: 14-8307
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/29/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	0.2	**37.2**	

U-Analyte undetected at given RL
RL-Reporting Limit

YI57.00027

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-SW-3
SAMPLE

Lab Sample ID: YI57Q
LIMS ID: 14-8308
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/29/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	0.2	**9.6**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-GW-MW13
MATRIX SPIKE

Lab Sample ID: YI57A
LIMS ID: 14-8292
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/28/14
Date Received: 04/30/14

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	200.8	1,430	1,450	25	80.0%	H

Reported in µg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked
NR-Not Recovered

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-GW-MW13
DUPLICATE

Lab Sample ID: YI57A
LIMS ID: 14-8292
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/28/14
Date Received: 04/30/14

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	200.8	1,430	1,380	3.6%	+/- 20%	

Reported in µg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: LAB CONTROL**

Lab Sample ID: YI57LCS
LIMS ID: 14-8293
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	200.8	29.1	25.0	116%	

Reported in µg/L

N-Control limit not met
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS **Sample ID: METHOD BLANK**

Lab Sample ID: YI57MB
LIMS ID: 14-8310
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	0.2	**0.3**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: BLW-SW-5-F
SAMPLE

Lab Sample ID: YI57R
LIMS ID: 14-8309
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/28/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	0.2	**13.3**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample ID: BLW-SW-2-F
SAMPLE

Lab Sample ID: YI57S
LIMS ID: 14-8310
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/28/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	0.2	**7.6**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: BLW-SW-3-F
SAMPLE

Lab Sample ID: YI57T
LIMS ID: 14-8311
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/29/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	0.2	**5.7**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample ID: BLW-SW-5-F
MATRIX SPIKE

Lab Sample ID: YI57R
LIMS ID: 14-8309
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/28/14
Date Received: 04/30/14

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	200.8	13.3	42.0	25.0	115%	

Reported in µg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: BLW-SW-5-F
DUPLICATE

Lab Sample ID: YI57R
LIMS ID: 14-8309
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/28/14
Date Received: 04/30/14

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	200.8	13.3	13.0	2.3%	+/- 20%	

Reported in µg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS **Sample ID: LAB CONTROL**

Lab Sample ID: YI57LCS
LIMS ID: 14-8310
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI57-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	200.8	29.2	25.0	117%	

Reported in µg/L

N-Control limit not met
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: YI58MB
LIMS ID: 14-8312
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI58-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	7440-38-2	Arsenic	0.2	0.2	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-GW-D7A
SAMPLE

Lab Sample ID: YI58A
LIMS ID: 14-8312
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI58-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/30/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	0.2	**48.8**	

U-Analyte undetected at given RL
RL-Reporting Limit

YI58.00046

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-GW-D7B
SAMPLE

Lab Sample ID: YI58B
LIMS ID: 14-8313
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI58-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/30/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	0.2	**4.0**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-GW-MW33
SAMPLE

Lab Sample ID: YI58C
LIMS ID: 14-8314
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI58-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/30/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	1	**376**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-GW-W1
SAMPLE

Lab Sample ID: YI58D
LIMS ID: 14-8315
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI58-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/30/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	0.2	**10.1**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-GW-D6B
SAMPLE

Lab Sample ID: YI58E
LIMS ID: 14-8316
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI58-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/30/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	0.2	**3.9**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-GW-D6A
SAMPLE

Lab Sample ID: YI58F
LIMS ID: 14-8317
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI58-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: 04/30/14
Date Received: 04/30/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/01/14	200.8	05/06/14	**7440-38-2**	**Arsenic**	0.2	**63.7**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: LAB CONTROL**

Lab Sample ID: YI58LCS
LIMS ID: 14-8312
Matrix: Water
Data Release Authorized:
Reported: 05/07/14

QC Report No: YI58-Floyd-Snider
Project: B+L O+M t. 1507

Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	200.8	29.4	25.0	118%	

Reported in µg/L

N-Control limit not met
Control Limits: 80-120%