B&L Woodwaste Site
Pierce County, Washington

Annual Compliance Monitoring Report October 2013

Prepared for

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LIMITATIONS

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List of Abbreviations and Acronyms

Abbreviation/ Acronym	Definition
CAP	Cleanup Action Plan
CMP	Compliance Monitoring Plan
CMR	Compliance Monitoring Annual Report
Consent Decree	Consent Decree No. 08-2-10610-7
CPOC	Conditional Point of Compliance
CUL	Cleanup level
ft/ft	Feet/foot
Landfill	B&L Woodwaste Landfill
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
µg/L	Micrograms per liter
USAq	Upper Sand Aquifer
USEPA	U.S. Environmental Protection Agency

1.0 Introduction

This Annual Compliance Monitoring Report (CMR) summarizes the results of the October 2013 semiannual groundwater and surface water monitoring event for the B&L Woodwaste Site (Site). This CMR was prepared for the B&L Custodial Trust in accordance with the Compliance Monitoring Plan (CMP), which comprises Appendix A of the B&L Woodwaste Site Operations, Maintenance, and Monitoring Plan (OMMP; Floyd|Snider/AMEC 2013a). 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 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. Phases 1 and 2 consisted of remedy construction and have been completed. 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 CMR, 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. Additional discussion of both the April and October 2013 monitoring events, including remediation status and hydraulic containment is also included in this report.

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 October 7 to 9, 2013. 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 A 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 October 2013 monitoring event are presented in this section.

2.1 WATER LEVEL MEASUREMENTS AND POTENTIOMETRIC SURFACE

Water level data for compliance monitoring wells are presented in Table 2.1. Potentiometric contour maps 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 level measurements were collected from recovery well sounding tubes to assist with capture zone analysis (refer to the Annual Operations Report). Water levels in the North Pond and West Pond are shown for reference and were not used in potentiometric contouring.

The groundwater flow direction in the USAq is generally northwesterly, from the upland bluff areas east and southeast of the Landfill to the wetlands area north of the Landfill, where the flow direction shifts to the west, toward Hylebos Creek. The groundwater flow direction in the LSAq in the vicinity of the Landfill is westerly, toward Hylebos Creek. The effects of the barrier wall on the local shallow groundwater flow regime are evident in Figure 2.1. Water level measurements indicate that groundwater generally flows around the Landfill parallel to the barrier wall, which has a negligible effect on water levels in the downgradient Wetlands area.

The horizontal gradient for the USAq at the time of measurement was consistently about 0.01 to 0.02 feet/foot (ft/ft) in the area to the east, upgradient of the Landfill. Horizontal gradients in the Wetlands area immediately north of the Landfill, where the majority of the groundwater arsenic plume is located, are relatively flat. Pumping from the groundwater recovery wells in the wetlands has created a slight depression in the vicinity of these wells with horizontal gradients of 0.001 to 0.003 ft/ft. Based on these data, large areas of the wetlands where elevated arsenic is present were found to be within capture zones resulting from recovery well operation (refer to the Annual Operations Report). Outside these capture zones, groundwater flow is generally northwesterly toward Hylebos Creek.

A Landfill hydraulic containment performance assessment based on transducer head measurements taken throughout the year is provided in the Annual Operations Report. Head measurements from landfill perimeter piezometers provide an additional opportunity to observe landfill hydraulic containment performance based on a single monitoring event. During the October event, head measurements outside the barrier wall were generally higher than inside the barrier wall as shown in Table 2.1. The groundwater elevations in the PZ-4a/b well pair located in the aquitard gap at the southwest corner of the Landfill were the only perimeter pair for which the elevation outside the barrier wall was lower than inside the barrier wall. The results are consistent with the landfill hydraulic performance data, which continue to indicate challenges in attaining a 0.5-foot head difference as measured by piezometer pairs in the southwest corner of the Landfill.

Consideration of the head differences between paired wells completed in the USAq and LSAq provides an indication of vertical gradients; head differences between USAq and LSAq wells are presented in Table 2.1. Potentiometric elevations in LSAq wells located north of the Landfill and

in the Wetlands area (D-1L, D-6B, D-7B, and MW-31B) were generally higher than in the corresponding USAq wells by 0.48 to 0.99 feet, indicating relatively strong upward gradients. On the east and west sides of the Landfill, potentiometric elevations in D-11B and D-8B were approximately equal to their corresponding USAq wells, D-11A and D-8A, indicating approximately neutral vertical gradients in both areas consistent with the presence of known aquitard gaps in these areas.

2.2 DATA VALIDATION

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

A total of 20 groundwater and 6 surface water samples were submitted in 2 sample delivery groups, XJ22 and XJ23, for analysis. For all sample delivery groups, the analytical holding times were met and the method blanks had no detections. The 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 laboratory.

2.3 GROUNDWATER RESULTS

Field parameters and analytical results for the October 2013 groundwater monitoring event are presented in Tables 2.2 and 2.3, respectively. Arsenic concentration contours are presented for the USAq in Figure 2.3, with baseline October 2012 concentration contours shown for comparison in Figure 1.1. Time-concentration plots for the USAq and LSAq are presented in Appendix B. Analytical detection limits 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. Laboratory analytical reports for the October 2013 monitoring event are included as Appendix A.

2.3.1 Upper Sand Aquifer

Field parameters in the USAq monitoring wells are consistent with previous measurements, indicating neutral to slightly acidic, generally mildly reducing groundwater that is elevated in specific conductivity in affected areas downgradient of the Landfill (refer to Table 2.2).

As observed in previous monitoring events, arsenic in USAq groundwater exceeded the CUL of 5 µg/L in all compliance monitoring wells. Total arsenic concentrations in the wells sampled in the USAq ranged from 5.3 to 1,740 µg/L. The highest concentration was measured at MW-13 in the central area of the Wetlands Plume. The minimum arsenic concentration was observed in MW-31A, located farthest downgradient in the Wetlands Plume, and only slightly exceeded the CUL. Exceedances at D-9A are associated with the upgradient “halo” adjacent to the Landfill, which may be associated with soil containing elevated arsenic concentrations in the ditch bank adjacent to the Landfill to the south. Exceedances at D-10A are considered a distinct “mini-plume” area upgradient of the Landfill (referred to as the Fife Way Mini-Plume). Exceedances at

MW-35 are associated with the Eastern Boundary Mini-Plume. The remainder of the exceedances are associated with the plume of elevated arsenic in groundwater that has emanated from the Landfill (lobes of which are referred to as the Wetlands Plume and Agricultural Field Plume).

Results from several wells illustrate progress in remediation of groundwater. Results from D-6A and MW-30 of 107 and 174 µg/L, respectively, show a continued decline in arsenic concentrations immediately downgradient of the barrier wall since its installation in 2009. Concentration trends for other high-concentration wells targeted for groundwater recovery are also consistent with a pattern of steeply reducing concentrations. In the initial year following the onset of groundwater recovery (represented by the April and October 2013 results), the arsenic concentration at MW-13 decreased by 610 µg/L (approximately 26 percent) to less than 2,000 µg/L for the first time. Over this period, the arsenic concentration at MW-15 has decreased by 360 µg/L (approximately 23 percent) to less than 1,300 µg/L for the first time.

Results were compared to the results of the April 2013 monitoring event (Floyd|Snider/AMEC 2013b) and to available historical data spanning approximately 20 years to assess plume stability and concentration trends (refer to Table 2.3 and time-concentration plots presented in Appendix B). In the 6 months since the previous semiannual compliance monitoring event, concentrations of arsenic have decreased or remained unchanged in 10 of the 14 USAq wells that were sampled during that event (i.e., D-5U, D-6A, D-8A, D-10A, MW-13, MW-15, MW-30, MW-31A, MW-35, and W-1). Concentrations increased relative to the previous monitoring event in four USAq monitoring wells (D-7A, D-9A, MW-33, and PD-14). The increases in USAq arsenic concentrations appear to be consistent with seasonal and other fluctuations at these wells.

The decrease in arsenic concentration at Monitoring Well D-8A to 168 µg/L observed in the October 2013 event follows a substantial increase from 196 µg/L in October 2012 to 363 µg/L in April 2013 monitoring. Monitoring Well D-8A is located on the western edge of the Landfill in an area where the LSAq is absent. Arsenic concentrations had generally increased in groundwater from the D-8A/B well pair following barrier wall installation but prior to the onset of groundwater recovery due to accumulation of groundwater inside the barrier wall. This accumulated water likely flowed beneath the barrier wall through the aquitard gap prior to the onset of groundwater recovery. The substantially decreased arsenic concentration of 168 µg/L during the October 2013 event, as well as similar decreases in the D-8B well discussed in detail below, suggest that the residual elevated arsenic concentration in this area (D-8A) is decreasing over time with ongoing groundwater recovery.

2.3.2 Lower Sand Aquifer

Field parameters for the LSAq are generally consistent with previous sampling. LSAq groundwater is slightly acidic to neutral, with relatively consistent specific conductivity in the range of 0.2 to 0.3 millisiemens per centimeter. Groundwater in the LSAq is generally mildly reducing.

Total groundwater arsenic concentrations in all LSAq wells were less than 5 µg/L and consistent with previous measurements. At Monitoring Well D-8B, the measured arsenic concentration of 13.9 µg/L, together with the April 2013 result of 16.6 µg/L, demonstrates a clear trend following increases to concentrations as high as 370 µg/L during the April 2012 monitoring event. The increased arsenic concentration at D-8B in 2012 was attributed to downward groundwater flow

in the area of the aquitard gap caused by groundwater mounding inside the barrier wall. Groundwater recovery appears to have alleviated this mounding effect.

Groundwater arsenic results for the LSAq were compared to the April 2013 results and to historical data to assess concentration trends (refer to Table 2.3 and time-concentration plots presented in Appendix B). Groundwater arsenic concentrations have remained stable in the LSAq monitoring wells during the 6 months since the last monitoring event. The current results for all LSAq wells are consistent with longer-term trends of stable, low-level arsenic concentrations in the LSAq, which may be attributed to naturally-occurring background arsenic concentrations.

2.4 SURFACE WATER RESULTS

Surface water results are presented in Table 2.4 and Figure 2.3. Historical trends in total and dissolved arsenic concentrations at the surface water sampling locations are plotted in Appendix B.

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 9.9 µg/L at SW-02, which is located adjacent to the northwest corner of the Landfill. The highest concentration of total arsenic was at SW-05, located west of the Landfill at the end of the Interurban Trail, with a concentration of 15.9 µg/L.

All surface water arsenic concentrations decreased from the April 2013 monitoring event, and have continued to decrease since the October 2012 event, which took place during active excavation for the Phase 2 Part 2 Ditch Sediment Cleanup portion of the site remedy. Disturbed ditch sediment contributed substantially to elevated arsenic concentrations during that event. The observed decline during the October 2013 monitoring event is consistent with the trend of stable or decreasing surface water arsenic concentrations prior to the 2012 construction season and concentrations are expected to continue to decrease as a result of the ditch sediment cleanup and groundwater remediation activities.

2.5 COMPLIANCE MONITORING WELL INSPECTION AND MAINTENANCE

In accordance with the CMP, all groundwater monitoring wells sampled for compliance or monitored for water levels were inspected during each sampling event. The following items were inspected at each monitoring well: the lock condition; the monument or cover condition; the paint condition of monument, cover, and bollards, if present; the gripper plug or well cap condition; and obstructive vegetation surrounding the well. The condition of the surface seal and any bollards was inspected. Measuring points and well identification numbers were checked and re-marked as needed.

The depth to the bottom of the well is measured annually in each active monitoring well. The total measured well depth is compared to the available well depth information for evidence of excessive silt accumulation in Table 2.5. Because available well depth information is approximated based on ground surface elevation and total well casing depth, accurate measurement of siltation to date is not possible based on 2013 data. Instead, the 2013 well bottom elevation presented in Table 2.5 will be used for comparison with future well bottom elevation to assess potential siltation over time.

No conditions were identified requiring major maintenance. Conditions requiring minor maintenance were addressed during the monitoring event or will be incorporated into future compliance monitoring events. These activities include installation of new bolts, vegetation trimming, and lock replacement.

3.0 Summary of Findings

The primary findings associated with the October 2013 compliance monitoring results are summarized as follows:

- Potentiometric contours, inferred flow directions, and hydraulic gradients outside the Landfill for both the USAq and LSAq are generally consistent with those previously measured at the Site. Water level data collected during the October 2013 monitoring event are consistent with the capture zone analysis and hydraulic containment performance assessment presented in the Annual Operations Report. Groundwater recovery outside the barrier wall is producing a measurable cone of depression, and groundwater recovery inside the barrier wall is producing inward gradients in nearly all piezometer pairs.
- Arsenic in USAq groundwater exceeded the CUL of 5 µg/L in all of the USAq monitoring wells, which is consistent with previous results. The highest total arsenic concentration detected in the USAq was 1,740 µg/L at MW-13. In the 6 months since the previous semiannual compliance monitoring event, concentrations of arsenic have decreased or remained stable in all of the previously sampled USAq wells, which is part of a pattern of generally decreasing arsenic concentrations in groundwater over time.
- The positive effects of remediation continue to be apparent at several monitoring wells located downgradient of the barrier wall and in areas targeted for groundwater recovery. Notable and continued decreases in arsenic concentrations in D-6A and MW-30 can be attributed to the effectiveness of the barrier wall at containing leachate in this area. Notable decreases in MW-13 and MW-15 indicate a positive response to groundwater recovery in the highest concentration area of the plume.
- Arsenic concentrations at the D-8A/B well pair have stabilized following wide fluctuations during previous monitoring events due to temporarily altered flow paths resulting from the accumulation of groundwater inside the barrier wall. Pumping for hydraulic control has alleviated these effects at D-8B, and begun to restore D-8A to pre-barrier wall concentrations, though residual elevated arsenic concentrations remain in D-8A.
- Groundwater arsenic concentrations have remained relatively stable or have decreased and are within normal recent fluctuation ranges in the LSAq monitoring wells. Results for LSAq monitoring wells are consistent with a continuing pattern of stable, low-level arsenic concentrations in the LSAq.
- Surface water arsenic concentrations were greater than the CUL of 5 µg/L at all monitoring locations, however all surface water concentrations decreased during October 2013 monitoring relative to the April 2013 and October 2012 events. These surface water results were consistent with a long-term pattern of stable or decreasing total and dissolved arsenic concentrations and are expected to follow this pattern during subsequent monitoring.

4.0 References

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

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

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Tables

Table 2.1
Groundwater Elevations and Head Differences

Location	Aquifer	Date	Time	Groundwater Elevation (ft NAVD 88)	Vertical Head Difference: LSAq - USAq (ft)	Cross-Barrier Head Difference: Outside - Inside (ft)
Upgradient Areas East of Landfill						
D-10A	USAq	10/7/2013	9:50	17.05	--	--
D-11A	USAq	10/7/2013	13:26	16.87	0.04	--
D-11B	LSAq	10/7/2013	13:23	16.91		
MW-35	USAq	10/7/2013	10:30	16.75	--	--
MW-36	USAq	10/7/2013	13:32	17.09	--	--
PD-38	USAq	10/7/2013	13:13	17.23	--	--
PD-60	USAq	10/7/2013	13:28	16.58	--	--
PD-61	USAq	10/7/2013	13:18	17.19	--	--
PD-63B	USAq	10/8/2013	15:52	16.93	--	--
PD-64	USAq	10/8/2013	15:55	17.14	--	--
PD-65	USAq	10/9/2013	10:45	17.69	--	--
PD-201	USAq	10/8/2013	15:30	21.95	--	--
PD-202	USAq	10/8/2013	15:40	28.21	--	--
PD-203	USAq	10/9/2013	10:55	22.65	--	--
R-12	USAq	10/7/2013	15:55	9.94[1]	--	--
R-13	USAq	10/7/2013	13:54	16.75	--	--
Landfill and Perimeter						
D-7A	USAq	10/7/2013	13:00	14.25	0.94	--
D-7B	LSAq	10/7/2013	13:00	15.20		
D-8A	USAq	10/7/2013	11:18	14.45	0.00	--
D-8B	LSAq	10/7/2013	10:23	14.46		
D-9A	USAq	10/7/2013	11:10	15.36	--	--
North Pond	--	10/7/2013	12:16	18.13	--	--
PD-214	USAq	10/8/2013	15:29	14.26	--	--
PD-215	USAq	10/8/2013	15:54	14.82	--	--
PZ-1A	USAq	10/7/2013	12:08	14.65	--	0.49
PZ-1B	USAq	10/7/2013	12:14	14.16		
PZ-2A	USAq	10/7/2013	12:24	14.62	--	1.04
PZ-2B	USAq	10/7/2013	12:27	13.58		
PZ-3A	USAq	10/7/2013	12:40	14.50	--	0.63
PZ-3B	USAq	10/7/2013	12:43	13.87		
PZ-4A	USAq	10/7/2013	10:05	14.56	--	-0.02
PZ-4B	USAq	10/7/2013	10:14	14.58	-0.03	
PZ-4C	LSAq	10/7/2013	10:09	14.55		
PZ-5A	USAq	10/7/2013	10:35	14.87	--	0.16
PZ-5B	USAq	10/7/2013	10:53	14.71	0.15	
PZ-5C	LSAq	10/7/2013	10:39	14.86		--
PZ-6A	USAq	10/7/2013	11:02	15.84	--	0.72
PZ-6B	USAq	10/7/2013	11:06	15.12		
PZ-7A	USAq	10/7/2013	11:16	16.95	--	1.53
PZ-7B	USAq	10/7/2013	11:19	15.42		
PZ-8A	USAq	10/7/2013	11:29	16.89	--	0.26
PZ-8B	USAq	10/7/2013	11:38	16.63	0.11	
PZ-8C	LSAq	10/7/2013	11:34	16.74		--
PZ-12	USAq	10/9/2013	10:09	14.82	--	--
PD-109	USAq	10/9/2013	9:51	15.18		
R-1	USAq	10/7/2013	12:00	14.14	--	--
R-2	USAq	10/7/2013	11:43	17.95	--	--
R-3	USAq	10/9/2013	9:57	37.48[1]	--	--
R-6	USAq	10/9/2013	9:40	14.53	--	--
R-7	USAq	10/7/2013	10:24	14.87	--	--
R-8	USAq	10/7/2013	10:19	5.42[1]	--	--
R-9	USAq	10/7/2013	12:25	14.71	--	--
R-10	USAq	10/7/2013	12:32	13.25	--	--
West Pond	--	10/7/2013	12:54	22.27	--	--
Wetlands North of Landfill						
D-1U	USAq	10/8/2013	10:05	14.04	0.99	--
D-1L	LSAq	10/8/2013	10:08	15.03		
D-5U	USAq	10/7/2013	14:05	14.14	0.48	--
D-5L	LSAq	10/7/2013	14:00	14.63		
D-6A	USAq	10/8/2013	11:05	13.93	0.61	--
D-6B	LSAq	10/8/2013	11:05	14.54		
MW-13	USAq	10/8/2013	12:03	13.89	--	--
MW-14	USAq	10/8/2013	12:45	14.02	--	--
MW-15	USAq	10/8/2013	12:00	13.82	--	--
MW-16	USAq	10/8/2013	10:30	14.02	--	--

Table 2.1
Groundwater Elevations and Head Differences

Location	Aquifer	Date	Time	Groundwater Elevation (ft NAVD 88)	Vertical Head Difference: LSAq - USAq (ft)	Cross-Barrier Head Difference: Outside - Inside (ft)
Wetlands North of Landfill (continued)						
MW-17	USAq	10/8/2013	14:37	13.80	--	--
MW-31A	USAq	10/8/2013	14:25	13.88	0.75	--
MW-31B	LSAq	10/8/2013	14:24	14.63		
MW-32	USAq	10/8/2013	12:32	14.75	--	--
PD-1B	USAq	10/8/2013	16:30	13.71	--	--
PD-6	USAq	10/8/2013	14:45	13.83	--	--
PD-51	USAq	10/8/2013	12:40	14.37	--	--
PD-101	USAq	10/9/2013	11:47	13.85	--	--
PD-140	USAq	10/8/2013	12:26	14.35	--	--
PD-141	USAq	10/9/2013	11:12	13.96	--	--
PD-142	USAq	10/8/2013	12:21	14.30	--	--
PD-204	USAq	10/8/2013	14:15	14.42	--	--
W-3	USAq	10/8/2013	9:51	14.11	--	--
R-16	USAq	10/7/2013	14:17	14.64	--	--
R-17	USAq	10/7/2013	15:50	14.59	--	--
R-18	USAq	10/8/2013	12:01	14.02	--	--
R-19	USAq	10/9/2013	11:04	13.50	--	--
R-20	USAq	10/8/2013	11:56	13.68	--	--
R-21	USAq	10/8/2013	11:41	13.92	--	--
Interurban Trail and Agricultural Fields West of Landfill						
MW-30	USAq	--	--	--	--	--
MW-33	USAq	10/8/2013	14:27	14.81	--	--
MW-34	USAq	10/8/2013	15:16	14.71	--	--
PD-212	USAq	10/8/2013	15:08	12.34	--	--
PD-213	USAq	10/8/2013	15:40	14.74	--	--
PD-216	USAq	10/8/2013	15:47	16.70	--	--
W-1	USAq	10/8/2013	9:50	14.26	--	--
R-14	USAq	10/8/2013	15:23	14.19	--	--
R-15	USAq	10/8/2013	15:20	14.16	--	--

Notes:

-- Not collected or not applicable.

1 Depth sounder had potentially erroneus reading due to decreased sensitivity at this monitoring point.

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	13.70	6.11	1.50	-102
D-6A	10/8/2013	12.70	6.02	0.300	-89
D-7A	10/7/2013	14.40	6.07	1.10	-103
D-8A	10/7/2013	13.34	6.60	0.251	-10
D-9A	10/7/2013	12.60	7.15	0.280	-80
D-10A	10/7/2013	15.30	5.71	0.380	32
MW-13	10/8/2013	10.63	6.38	1.22	2
MW-15	10/8/2013	11.30	5.75	1.80	-50
MW-30	10/7/2013	16.03	6.44	0.280	5
MW-31A	10/8/2013	10.66	6.42	1.69	0
MW-33	10/8/2013	14.10	6.07	0.420	-89
MW-35	10/7/2013	13.20	6.91	0.300	-95
PD-141	10/9/2013	12.30	5.82	1.60	-96
W-1	10/8/2013	12.69	7.06	0.339	-35
Lower Sand Aquifer					
D-5L	10/7/2013	12.29	6.63	0.358	-7
D-6B	10/8/2013	12.03	6.84	0.327	-15
D-7B	10/7/2013	14.83	6.66	0.331	-18
D-8B	10/7/2013	13.29	6.66	0.275	-2

Note:
1 Field parameters collected with Horiba U-50 and U-22 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

Table 2.3
Groundwater Arsenic Results[1]

	Upper Sand Aquifer Total Arsenic (µg/L)														Lower Sand Aquifer Total Arsenic (µg/L)			
Sample Date	**D-5U**	**D-6A**	**D-7A**	**D-8A**	**D-9A**	**D-10A**	**MW-13**	**MW-15**	**MW-30**	**MW-31A**	**MW-33**	**MW-35**	**PD-141**	**W-1**	**D-5L**	**D-6B**	**D-7B**	**D-8B**
Compliance Monitoring Events																		
October 2013	12.4	107	53.8	168	40.2	181	1,740	1,220	174	5.3	404	21.9	302	12	3.5	3.6	4.6	13.9
April 2013	16.5	163	29.5	363	38.0	199	1,910	1,580	252	6.6	398	23.8	296	10.9	2.8	4.5	4.6	16.6
October 2012	40.8	184	17.1	196	40.1	231	2,350	1,580	261	12.8	NS	NS	NS	NS	3.6	3.0	4.8	155
April 2012	43.8	287	60.8	137	38.3	107	2,180	1,480	305	18.7	NS	NS	NS	NS	4.1	4.3	4.8	370
September 2011	86.3	885	22.5	99.6	38.2	213	2,520	1,520	640	21.7	NS	NS	NS	NS	4.2	3.5	4.8	28.2
April 2011	90	1,170	31.5	126	38.7	203	2,720	1,610	854	5.7	NS	NS	NS	NS	3.2	3.3	5.1	21.2
October 2010	86.4	1,290	40.7	34	37.4	211	2,220	1,460	1,580	5.9	NS	NS	NS	NS	3.4	3.4	4.8	6.1
April 2010	100	1,370	27.4	31.1	36.6	159	2,450	1,610	2,410	15.5	NS	NS	NS	NS	3.5	4.1	4.6	12.8
October 2009	113	1,320	37.7	39.8	36.6	202	2,220	1,390	2,060	16.3	NS	NS	NS	NS	3.4	2.4	4.6	11
April 2009	144	1,490	331	68.2	38.3	175	2,340	1,630	2,190	22.4	NS	NS	NS	NS	2.8	3.2	4.8	11.1
October 2008	143	1,430	97.5	37.7	38.1	204	2,510	1,720	2,270	22.2	NS	NS	NS	NS	3.3	2.4	4.6	12.2
Historical Events																		
March 2007		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	5	3	5	18
August 2006	89	1,900	56	450	38	200	3,800	3,700	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
September 2005	132	1,790	50 U	86.1	50 U	266	3,530	1,810	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
March 2005	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	7.4	2.5 U	5.2	21.2
December 2003	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	6	5 U	6	21
September 2003	190	1,900	5	110	31	300	4,600	2,800	NS	NS	NS	NS	NS	NS	6	5	8	20
June 2003	240	1,800	5 U	370	38	270	4,600	2,600	NS	NS	NS	NS	NS	NS	5	5 U	6	30
March 2003	230	1,700	5 U	330	38	240	4,300	2,500	NS	NS	NS	NS	NS	NS	5 U	5 U	5 U	30
December 2002	230	1,600	5 U	58	36	310	4,500	2,500	NS	NS	NS	NS	NS	NS	5 U	5 U	5 U	20
September 2002	220	1,600	5 U	97	35	280	4,500	2,300	NS	NS	NS	NS	NS	NS	5 U	5 U	5	20
June 2002	240	1,800	5	280	38	260	4,700	2,500	NS	NS	NS	NS	NS	NS	5 U	5 U	6	30
April 2002	300	1,800	5 U	400	50	300	4,300	2,500	NS	NS	NS	NS	NS	NS	5 U	5 U	5	30
December 2001	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	8	8	5 U	30
June 2001	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	4	4	6	30
March 2001	280	1,800	3	130	39	230	4,300	2,700	NS	NS	NS	NS	NS	NS	3	3	6	30
December 2000	280	2,100	3	62	39	270	5,300	3,100	NS	NS	NS	NS	NS	NS	4	4	6	20
September 2000	260	2,000	5	68	58	350	4,600	2,700	NS	NS	NS	NS	NS	NS	4	5	6	20
June 2000	180	1,500	5 U	96	40	250	3,200	2,500	NS	NS	NS	NS	NS	NS	5 U	5 U	5 U	20
March 2000	310	1,600	5 U	150	39	220	6,200	2,300	NS	NS	NS	NS	NS	NS	5 U	5 U	5 U	20
January 2000	300	1,400	5 U	130	40	240	4,300	2,600	NS	NS	NS	NS	NS	NS	5 U	5 U	6	30
September 1999	300	1,900	5 U	140	47	310	5,600	3,400	NS	NS	NS	NS	NS	NS	4	5	6	20
June 1999	300	1,800	5 U	180	38	260	4,600	2,600	NS	NS	NS	NS	NS	NS	5 U	5 U	5 U	20
March 1999	340	2,000	5 U	200	39	260	4,600	3,000	NS	NS	NS	NS	NS	NS	5 U	5 U	6	30
December 1998	320	980	6	100	38	260	5,700	3,200	NS	NS	NS	NS	NS	NS	5 U	5 U	7	30
September 1998	290	1,800	5 U	150	52	340	NS	NS	NS	NS	NS	NS	NS	NS	5 U	5 U	5 U	20
June 1998	320	1,900	5 U	69	42	360	NS	NS	NS	NS	NS	NS	NS	NS	5 U	5 U	5 U	20
March 1998	380	2,400	5 U	97	38	350	NS	NS	NS	NS	NS	NS	NS	NS	5 U	5 U	5 U	40
December 1997	480	2,600	5 U	130	41	490	NS	NS	NS	NS	NS	NS	NS	NS	5 U	5 U	7	60
September 1997	340	2,400	5 U	210	56	390	NS	NS	NS	NS	NS	NS	NS	NS	5 U	5 U	5 U	60
June 1997	390	2,200	5 U	200	49	350	NS	NS	NS	NS	NS	NS	NS	NS	5 U	5 U	5	60
March 1997	360	1,900	5	110	36	340	NS	NS	NS	NS	NS	NS	NS	NS	5 U	5 U	7	60
January 1997	310	2,000	5 U	130	39	310	NS	NS	NS	NS	NS	NS	NS	NS	5 U	5 U	5 U	90
September 1996	300	2,000	5 U	260	73	470	NS	NS	NS	NS	NS	NS	NS	NS	5	6	5	100
June 1996	NS	NS	5 U	130	49	470	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	5	100
March 1996	NS	NS	5 U	150	39	420	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	5 U	100
December 1995	NS	NS	5 U	270	44	540	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	5	100
June 1995	300	2,200	5 U	170	55	540	NS	NS	NS	NS	NS	NS	NS	NS	5 U	5 U	5 U	200
March 1995	350	2,400	5 U	180	34	320	NS	NS	NS	NS	NS	NS	NS	NS	5 U	5 U	5 U	200
December 1994	312	2,494	5 U	130	42	492	NS	NS	NS	NS	NS	NS	NS	NS	5 U	5 U	5 U	300
August 1994	314	3,252	5 U	145	84	542	NS	NS	NS	NS	NS	NS	NS	NS	5 U	5 U	5 U	400
May 1994	307	2,745	5 U	133	39	363	NS	NS	NS	NS	NS	NS	NS	NS	5 U	5 U	9	700
January 1994	284	2,505	5 U	165	64	402	NS	NS	NS	NS	NS	NS	NS	NS	5 U	5 U	5 U	800
May 1993	170	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	20 U	NS	NS	NS
August 1990	22	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
December 1989	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
September 1989	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Note:

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

Abbreviations:

NS Not sampled

µg/L Micrograms per liter

Qualifier:

U Analyte is undetected at given reporting limit

Table 2.4
Surface Water Arsenic Results[1]

Sampling Date	SW-02 Dissolved Arsenic (µg/L)	SW-02 Total Arsenic (µg/L)	SW-03 Dissolved Arsenic (µg/L)	SW-03 Total Arsenic (µg/L)	SW-05 Dissolved Arsenic (µg/L)	SW-05 Total Arsenic (µg/L)
Compliance Monitoring Events						
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		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:

NA Not analyzed

NS Not sampled

Qualifier:

U Analyte is undetected at given reporting limit

Table 2.5
2013 Monitoring Well Information

Monitoring Well	Installed By	Date Installed	Total Depth Drilled (feet bgs)	Total Depth Cased (feet bgs)	Screened Interval (feet bgs)	Casing Size (ID) (inches)	Approximate Ground Surface Elevation (feet NAVD88)[1]	Measuring Point Elevation (feet NAVD88)[1]	Northing (feet NAD 83/98)	Easting (feet NAD 83/98)	Approximate Bottom Elevation (feet NAVD88)	2013 Measured Depth to Bottom (feet bgs)	2013 Measured Bottom Elevation (feet NAVD88)	2013 Measured vs. Approximate Bottom Elevation (feet)
Upper Sand Aquifer														
D-5U	AGI	7/25/1990	16.5	13.5	8.5–13.5	2	13.34	17.36	702,321.47	1,185,708.41	-0.16	18.63	-1.27	-1.11
D-6A	Hydrometrics	10/26/1993	15	15	10–15	2	13.09	14.13	702,465.58	1,185,996.46	-1.91	15.42	-1.29	0.61
D-7A	Hydrometrics	10/25/1993	14.5	14.5	9.5-14.5	2	15.27	15.85	702,190.98	1,185,698.42	0.77	15.40	0.45	-0.32
D-8A	Hydrometrics	11/10/1993	17	15	10–15	2	14.95	16.17	701,886.38	1,185,691.53	-0.05	15.83	0.34	0.39
D-9A	Hydrometrics	11/11/1993	16	13.5	8.5–13.5	2	15.51	17.16	701,581.35	1,186,172.04	2.01	17.91	-0.75	-2.76
D-10A	Hydrometrics	11/9/1993	15	15	10–15	2	19.50	21.53	701,754.65	1,186,794.84	4.50	17.80	3.73	-0.77
MW-30	Floyd|Snider	9/14/2006	21	21	16–21	0.75	18.52	18.61	702,394.49	1,186,126.76	-2.48	NA	NA	NA
MW-13	Hydrometrics	9/16/1998	15	14.5	9.5–14.5	2	13.30	15.43	702,573.91	1,186,104.44	-1.20	17.14	-1.71	-0.51
MW-15	Hydrometrics	9/17/1998	15	15	10–15	2	12.75	15.32	702,717.81	1,186,011.71	-2.25	16.50	-1.18	1.07
MW-31A	Floyd|Snider	3/23/2007	22	22	17–22	2	14.06	16.48	702,917.22	1,185,835.90	-7.94	24.82	-8.34	-0.40
MW-33	Floyd|Snider	8/4/2011	17	17	7–17	2	NA	18.50	702,122.29	1,185,530.73		19.88	-1.38	-1.38
MW-35	Floyd|Snider	7/20/2011	24.5	21	11–21	2	16.73	19.31	702,261.68	1,186,483.03	-4.27	23.76	-4.45	-0.18
PD-141	Floyd|Snider	8/16/2011	19.5	19	9–19	2	15.55	15.51	702,435.23	1,185,792.59	-3.45	21.72	-6.21	-2.76
W-1	Floyd|Snider	9/16/2009	25	22.25	12.25–22.25	2	18.62	18.28	702,140.98	1,185,431.27	-3.63	22.18	-3.90	-0.27
Lower Sand Aquifer														
D-5L	AGI	7/24/1990	30.75	30.3	25.3–30.3	2	13.59	17.19	702,330.40	1,185,711.00	-16.71	35.17	-17.98	-1.27
D-6B	Hydrometrics	10/26/1993	33	33	28–33	2	13.04	14.54	702,460.20	1,185,997.90	-19.96	34.36	-19.82	0.14
D-7B	Hydrometrics	10/25/1993	34	33	28–33	2	15.17	16.43	702,196.25	1,185,699.32	-17.83	34.59	-18.16	-0.33
D-8B	Hydrometrics	11/11/1993	35	33	28–33	2	14.78	16.18	701,881.04	1,185,691.09	-18.22	34.35	-18.17	0.04

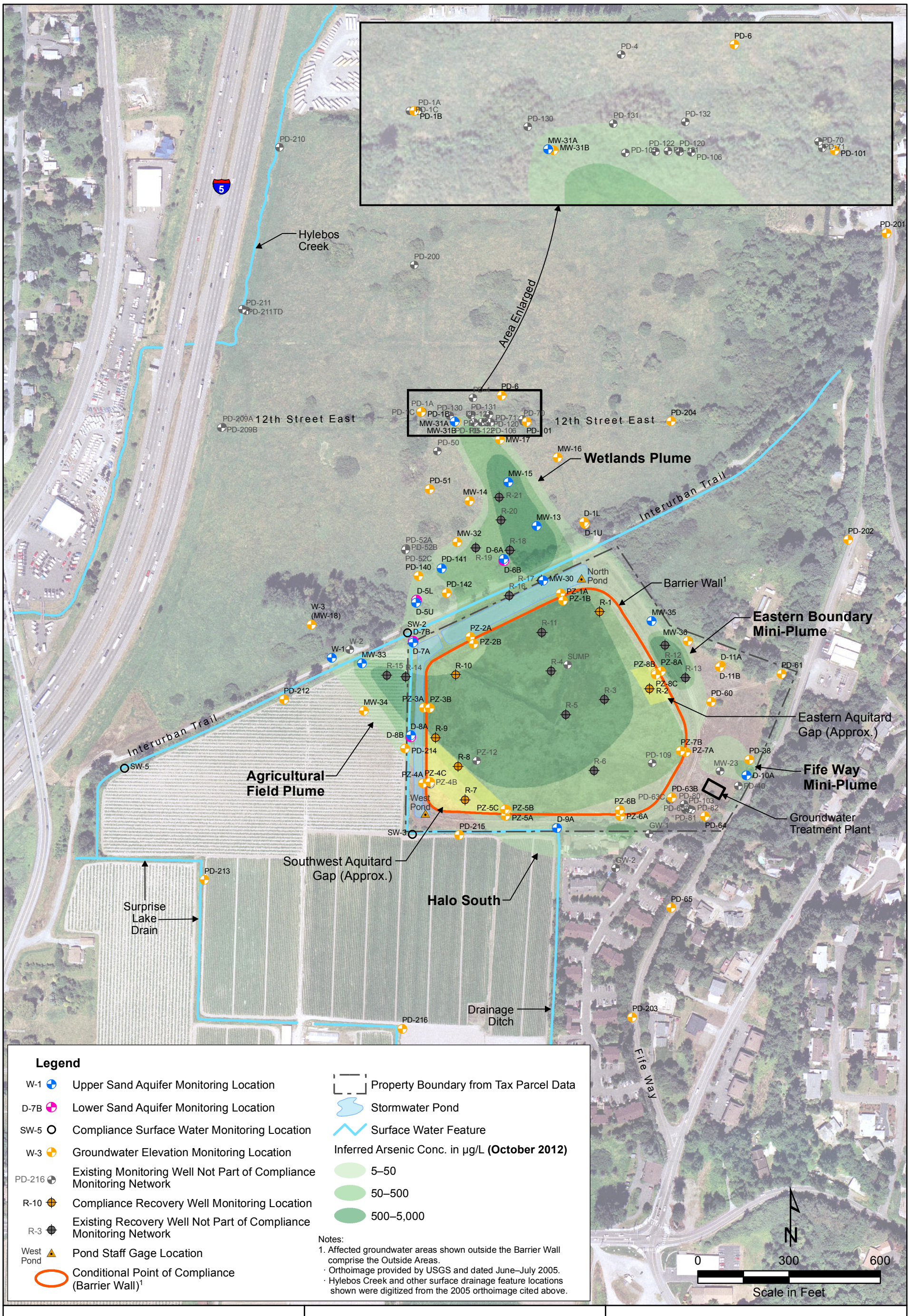
Abbreviations:

AGI	Applied Geosciences, Inc.
bgs	Below ground surface
NA	Not applicable or not available
NAD 83/98	North American Datum of 1983/1998

B&L Woodwaste Site

Annual Compliance Monitoring Report October 2013

Figures



Legend

- W-1 — Upper Sand Aquifer Monitoring Location
- D-7B — Lower Sand Aquifer Monitoring Location
- SW-5 — Compliance Surface Water Monitoring Location
- W-3 — Groundwater Elevation Monitoring Location
- PD-216 — Existing Monitoring Well Not Part of Compliance Monitoring Network
- R-10 — Compliance Recovery Well Monitoring Location
- R-3 — Existing Recovery Well Not Part of Compliance Monitoring Network
- West Pond — Pond Staff Gage Location
- Conditional Point of Compliance (Barrier Wall)[1]
- Property Boundary from Tax Parcel Data
- Stormwater Pond
- Surface Water Feature

Inferred Arsenic Conc. in µg/L **(October 2012)**

- 5–50
- 50–500
- 500–5,000

Notes:

1. Affected groundwater areas shown outside the Barrier Wall comprise the Outside Areas.
   - 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.

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Pierce County, Washington

Figure 1.1
Compliance Monitoring Locations
and Baseline Arsenic Concentrations

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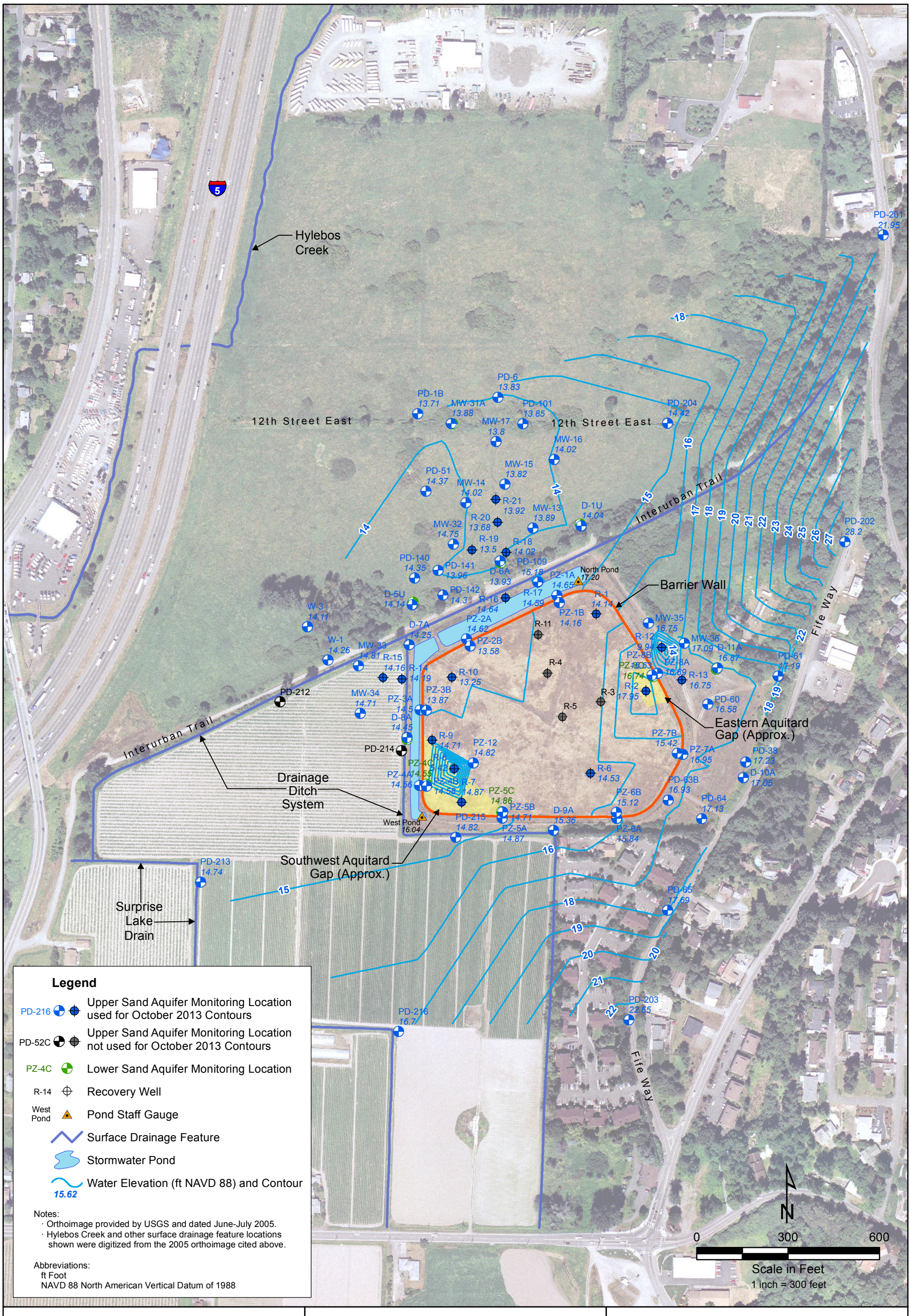
Date: 4/4/2014



Legend

- PD-216 — Upper Sand Aquifer Monitoring Location used for October 2013 Contours
- PD-52C — Upper Sand Aquifer Monitoring Location not used for October 2013 Contours
- PZ-4C — Lower Sand Aquifer Monitoring Location
- R-14 — Recovery Well
- 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 Foot
NAVD 88 North American Vertical Datum of 1988

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Pierce County, Washington

Figure 2.1
October 2013
Upper Sand Aquifer
Potentiometric Contours

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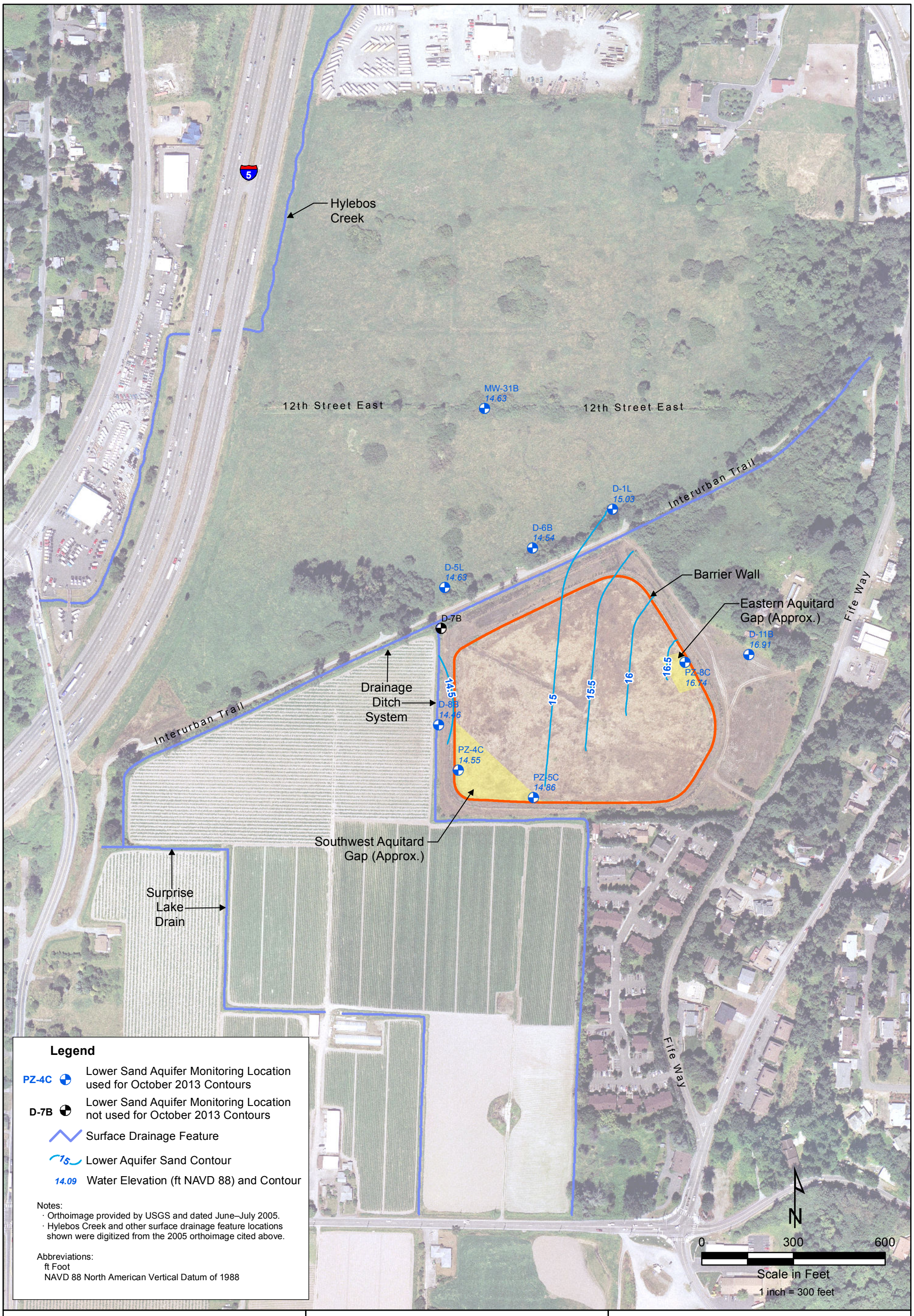

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Figure 2.2
October 2013
Lower Sand Aquifer
Potentiometric Contours

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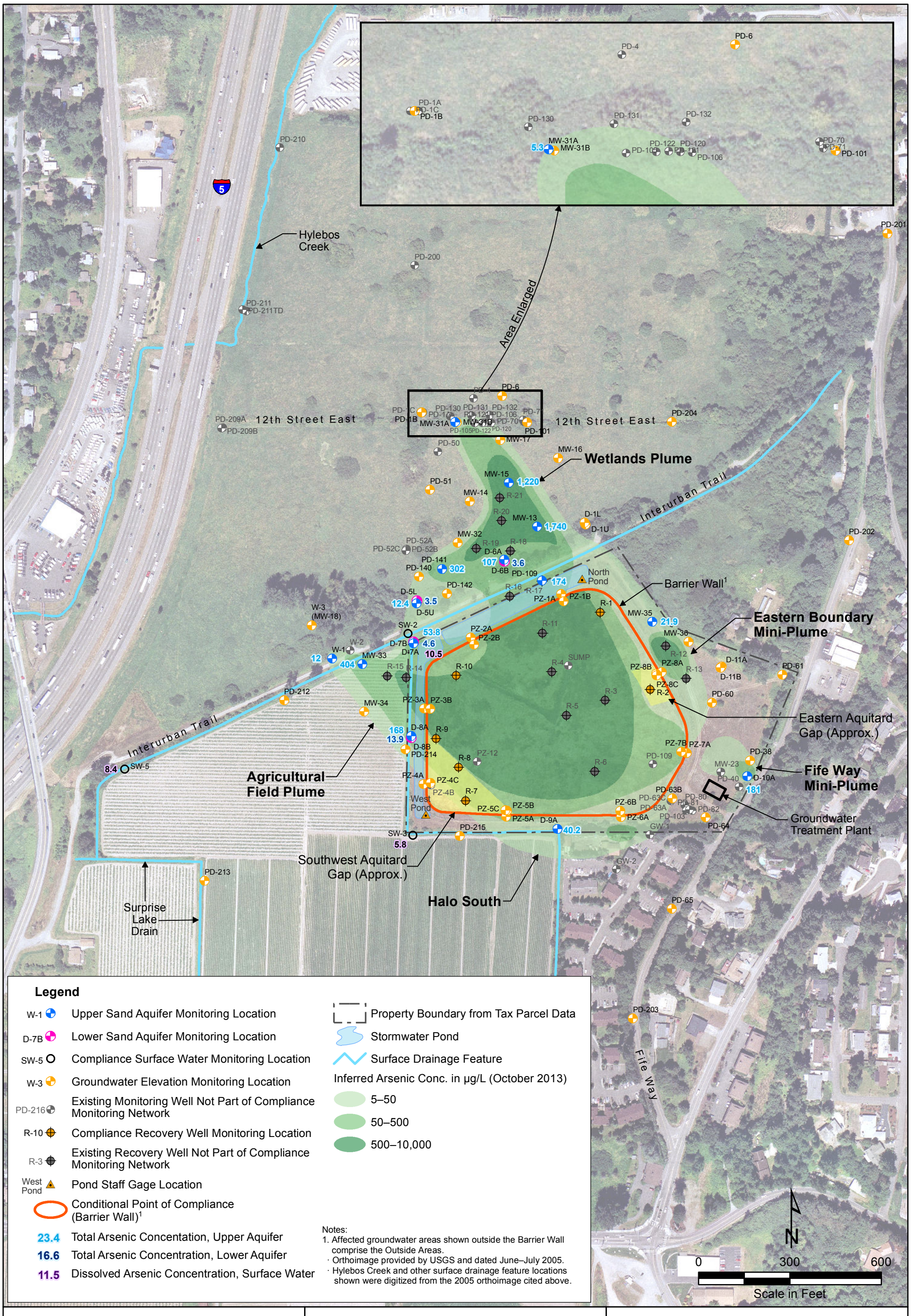

Legend

- W-1 — Upper Sand Aquifer Monitoring Location
- D-7B — Lower Sand Aquifer Monitoring Location
- SW-5 — Compliance Surface Water Monitoring Location
- W-3 — Groundwater Elevation Monitoring Location
- PD-216 — Existing Monitoring Well Not Part of Compliance Monitoring Network
- R-10 — Compliance Recovery Well Monitoring Location
- R-3 — Existing Recovery Well Not Part of Compliance Monitoring Network
- West Pond — Pond Staff Gage Location
- Conditional Point of Compliance (Barrier Wall)[1]
- 23.4 — Total Arsenic Concentation, Upper Aquifer
- 16.6 — Total Arsenic Concentration, Lower Aquifer
- 11.5 — Dissolved Arsenic Concentration, Surface Water
- Property Boundary from Tax Parcel Data
- Stormwater Pond
- Surface Drainage Feature

Inferred Arsenic Conc. in µg/L (October 2013)

- 5–50
- 50–500
- 500–10,000

Notes:
1. Affected groundwater areas shown outside the Barrier Wall comprise the Outside Areas.
· 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.

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Figure 2.3
October 2013 Arsenic Results and Concentration Contours

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Date: 4/4/2014

B&L Woodwaste Site

Annual Compliance Monitoring Report October 2013

Appendix A
Analytical Laboratory Results

Analytical Resources, Incorporated
Analytical Chemists and Consultants

October 18, 2013

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

RE: B&L Landfill, 1507
ARI Job No.: XJ22

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 eighteen water samples on October 9, 2013. 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.

There were no problems 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.

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

cc: eFile XJ22

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:	Turn-around Requested: Standard	Page: 1 of 3	
ARI Client Company: Floyd Snider	Phone: 206·292·2078	Date: 10/9/13	Ice Present? Y
Client Contact: Brett Beaulieu		No of Coolers: 1	Cooler Temps: 1.7
Client Project Name: BFI Landfill			
Client Project #: 1507	Samplers: L. Meoli; J. Graves, K. Anderson		

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

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TOT. ABS								Notes/Comments
BLW-GW-D9A	10/7/13	11:40	GW	1	X								
BLW-GW-10A	10/7/13	10:20	GW	1	X								
BLW-GW-D5L	10/7/13	14:35	GW	1	X								
BLW-GW-D5U	"	14:35	GW	1	X								
BLW-GW-D6A	10/8/13	11:35	GW	1	X								
BLW-GW-D6B	10/8/13	11:35	GW	1	X								
BLW-GW-D7A	10/7/13	13:35	GW	1	X								
BLW-GW-D7B	10/7/13	13:35	GW	1	X								
BLW-GW-D8A	"	11:50	GW	1	X								
BLW-GW-D8B	"	11:10	GW	1	X								

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by (Signature)	Received by (Signature)
	Printed Name: Kristin Anderson	Printed Name: Taylor Streeter	Printed Name	Printed Name
	Company: Floyd Snider	Company: ARI	Company	Company
	Date & Time: 10/9/13 1345	Date & Time: 10-9-13 1345	Date & Time	Date & Time

X122 : 00002

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.

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)

ARI Assigned Number:	Turn-around Requested: Standard	Page: 2	of 3
ARI Client Company: Floyd Snider	Phone: 206-292-2078	Date: 10/9/13	Ice Present?
Client Contact: Brett Beaulieu		No. of Coolers:	Cooler Temps:
Client Project Name: BtL Landfill			
Client Project #: 1507	Samplers: L. Meoli; J. Graves, K Anderson		

Sample ID	Date	Time	Matrix	No Containers	Tot. As	Diss. As (Field Filtered)						Notes/Comments
BLW-GW-MW35	10/7/13	11:00	GW	1	X							
BLW-GW-MW30	11	1540	GW	1	X							
BLW-GW-W1	10/8/13	10:25	GW	1	X							
BLW-GW-MW13	11	12:20	GW	1	X							
BLW-GW-MW15	11	12:25	GW	1	X							
BLW-SW-2	10/8/13	10:00	GW	~~2~~ 1	X	~~X~~ (KNA)						
BLW-SW-5	10/8/13	10:15	GW	~~2~~ 1	X	~~X~~						
BLW-SW-3	↓	1410	W	1	X							
BLW-SW-3-F	↓	1410	W	1		X						
BLW-SW-2-F	↓	10:00	W	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: Taylor Stravette	Printed Name	Printed Name
	Company: Floyd Snider	Company: ARI	Company	Company
	Date & Time: 10/9/13 1345	Date & Time: 10-9-13 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.

XJ22:00003

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client. Floyd Snider

Project Name: B + L Landfill

COC No(s): _____ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other. _____

Assigned ARI Job No: XJ22

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) 1.7

Time: 1345

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

Temp Gun ID#: 90267952

Cooler Accepted by: TS Date: 10-9-13 Time: 1745

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:_____

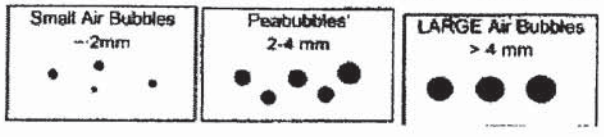
Samples Logged by. TS Date: 10-10-13 Time: 756

***** 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 10/10/13
Page 1 of 2

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **XJ22**

Inquiry Number: NONE
Analysis Requested: 10/09/13
Contact: Beaulieu, Brett
Client: Floyd-Snider
Logged by: TS
Sample Set Used: Yes-481
Validatable Package: No
Deliverables:

PC: Kelly
VTSR: 10/09/13

Project #: 1507
Project: B&L Landfill
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
13-22052 **XJ22A**	BLW-GW-D9A						TOT Pass															
13-22053 **XJ22B**	BLW-GW-10A						TOT Pass															
13-22054 **XJ22C**	BLW-GW-D5L						TOT Pass															
13-22055 **XJ22D**	BLW-GW-D5U						TOT Pass															
13-22056 **XJ22E**	BLW-GW-D6A						TOT Pass															
13-22057 **XJ22F**	BLW-GW-D6B						TOT Pass															
13-22058 **XJ22G**	BLW-GW-D7A						TOT Pass															
13-22059 **XJ22H**	BLW-GW-D7B						TOT Pass															
13-22060 **XJ22I**	BLW-GW-D8A						TOT Pass															
13-22061 **XJ22J**	BLW-GW-D8B						TOT Pass															
13-22062 **XJ22K**	BLW-GW-MW35						TOT Pass															
13-22063 **XJ22L**	BLW-GW-MW30						TOT Pass															
13-22064 **XJ22M**	BLW-GW-W1						TOT Pass															
13-22065 **XJ22N**	BLW-GW-MW13						TOT Pass															

XJ22 09065

Checked By TS Date 10-16-13

PRESERVATION VERIFICATION 10/10/13
Page 2 of 2

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **XJ22**

Client: Floyd-Snider

Project #: 1507
Project: B&L Landfill

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
13-22066 **XJ22O**	BLW-GW-MW15						TOT pass															
13-22067 **XJ22P**	BLW-SW-2						TOT pass															
13-22068 **XJ22Q**	BLW-SW-5						TOT pass															
13-22069 **XJ22R**	BLW-SW-3						TOT pass															
13-22070 **XJ22S**	BLW-SW-3-F						DIS pass									Y						
13-22071 **XJ22T**	BLW-SW-2-F						DIS pass									Y						

XJ22:00006

Checked By JS Date 10-10-13

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: XJ22
Client: Floyd-Snider
Project Event: 1507
Project Name: B&L Landfill

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	BLW-GW-D9A	XJ22A	13-22052	Water	10/07/13 11:40	10/09/13 13:45
2.	BLW-GW-10A	XJ22B	13-22053	Water	10/07/13 10:20	10/09/13 13:45
3.	BLW-GW-D5L	XJ22C	13-22054	Water	10/07/13 14:35	10/09/13 13:45
4.	BLW-GW-D5U	XJ22D	13-22055	Water	10/07/13 14:35	10/09/13 13:45
5.	BLW-GW-D6A	XJ22E	13-22056	Water	10/08/13 11:35	10/09/13 13:45
6.	BLW-GW-D6B	XJ22F	13-22057	Water	10/08/13 11:35	10/09/13 13:45
7.	BLW-GW-D7A	XJ22G	13-22058	Water	10/07/13 13:35	10/09/13 13:45
8.	BLW-GW-D7B	XJ22H	13-22059	Water	10/07/13 13:35	10/09/13 13:45
9.	BLW-GW-D8A	XJ22I	13-22060	Water	10/07/13 11:50	10/09/13 13:45
10.	BLW-GW-D8B	XJ22J	13-22061	Water	10/07/13 11:10	10/09/13 13:45
11.	BLW-GW-MW35	XJ22K	13-22062	Water	10/07/13 11:00	10/09/13 13:45
12.	BLW-GW-MW30	XJ22L	13-22063	Water	10/07/13 15:40	10/09/13 13:45
13.	BLW-GW-W1	XJ22M	13-22064	Water	10/08/13 10:25	10/09/13 13:45
14.	BLW-GW-MW13	XJ22N	13-22065	Water	10/08/13 12:20	10/09/13 13:45
15.	BLW-GW-MW15	XJ22O	13-22066	Water	10/08/13 12:25	10/09/13 13:45
16.	BLW-SW-2	XJ22P	13-22067	Water	10/08/13 10:00	10/09/13 13:45
17.	BLW-SW-5	XJ22Q	13-22068	Water	10/08/13 10:15	10/09/13 13:45
18.	BLW-SW-3	XJ22R	13-22069	Water	10/08/13 14:10	10/09/13 13:45
19.	BLW-SW-3-F	XJ22S	13-22070	Water	10/08/13 14:10	10/09/13 13:45
20.	BLW-SW-2-F	XJ22T	13-22071	Water	10/08/13 10:00	10/09/13 13:45

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Duplicate RPD is not within established control limits

B — Reported value is less than the CRDL but ≥ the Reporting Limit

N — Matrix Spike recovery not within established control limits

NA — Not Applicable, analyte not spiked

H — The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L — Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Flagged value is not within established control limits

B — Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J — Estimated concentration when the value is less than ARI's established reporting limits

D — The spiked compound was not detected due to sample extract dilution

E — Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q — Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A	The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
F	Samples were frozen prior to particle size determination
SM	Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
SS	Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
W	Weight of sample in some pipette aliquots was below the level required for accurate weighting

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-GW-D9A
SAMPLE

Lab Sample ID: XJ22A
LIMS ID: 13-22052
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: 10/07/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	0.2	**40.2**	

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-D9A
DUPLICATE

Lab Sample ID: XJ22A
LIMS ID: 13-22052
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: 10/07/13
Date Received: 10/09/13

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	200.8	40.2	43.4	7.7%	+/- 20%	

Reported in µg/L

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: BLW-GW-D9A
MATRIX SPIKE

Lab Sample ID: XJ22A
LIMS ID: 13-22052
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: 10/07/13
Date Received: 10/09/13

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	200.8	40.2	64.1	25.0	95.6%	

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-10A
SAMPLE

Lab Sample ID: XJ22B
LIMS ID: 13-22053
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: 10/07/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	0.5	**181**	

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: XJ22C
LIMS ID: 13-22054
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: 10/07/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	0.2	**3.5**	

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-D5U
SAMPLE

Lab Sample ID: XJ22D
LIMS ID: 13-22055
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: 10/07/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	0.5	**12.4**	

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-D6A
SAMPLE

Lab Sample ID: XJ22E
LIMS ID: 13-22056
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: 10/08/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	0.5	**107**	

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: XJ22F
LIMS ID: 13-22057
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: 10/08/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	0.2	**3.6**	

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-D7A
SAMPLE

Lab Sample ID: XJ22G
LIMS ID: 13-22058
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: 10/07/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	0.5	**53.8**	

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-D7B
SAMPLE

Lab Sample ID: XJ22H
LIMS ID: 13-22059
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: 10/07/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	0.2	**4.6**	

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-D8A
SAMPLE

Lab Sample ID: XJ22I
LIMS ID: 13-22060
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: 10/07/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	0.5	**168**	

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: XJ22J
LIMS ID: 13-22061
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: 10/07/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	0.2	**13.9**	

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-MW35
SAMPLE

Lab Sample ID: XJ22K
LIMS ID: 13-22062
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: 10/07/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	0.2	**21.9**	

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-MW30
SAMPLE

Lab Sample ID: XJ22L
LIMS ID: 13-22063
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: 10/07/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	0.5	**174**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: BLW-GW-W1
SAMPLE

Lab Sample ID: XJ22M
LIMS ID: 13-22064
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: 10/08/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	0.2	**12.0**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: BLW-GW-MW13
SAMPLE

Lab Sample ID: XJ22N
LIMS ID: 13-22065
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: 10/08/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	5	**1,740**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: BLW-GW-MW15
SAMPLE

Lab Sample ID: XJ220
LIMS ID: 13-22066
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: 10/08/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	5	**1,220**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: BLW-SW-2
SAMPLE

Lab Sample ID: XJ22P
LIMS ID: 13-22067
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: 10/08/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	0.2	**15.6**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: BLW-SW-5
SAMPLE

Lab Sample ID: XJ22Q
LIMS ID: 13-22068
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: 10/08/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	0.2	**15.9**	

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-SW-3
SAMPLE

Lab Sample ID: XJ22R
LIMS ID: 13-22069
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: 10/08/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	0.2	**9.9**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: BLW-SW-3-F
SAMPLE

Lab Sample ID: XJ22S
LIMS ID: 13-22070
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: 10/08/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	0.2	**5.8**	

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 DUPLICATE

Lab Sample ID: XJ22S
LIMS ID: 13-22070
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill 1507
Date Sampled: 10/08/13
Date Received: 10/09/13

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	200.8	5.8	5.8	0.0%	+/- 20%	

Reported in µg/L

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: BLW-SW-3-F
MATRIX SPIKE

Lab Sample ID: XJ22S
LIMS ID: 13-22070
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: 10/08/13
Date Received: 10/09/13

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	200.8	5.8	30.4	25.0	98.4%	

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
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Sample ID: BLW-SW-2-F
SAMPLE

Lab Sample ID: XJ22T
LIMS ID: 13-22071
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: 10/08/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**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: METHOD BLANK

Lab Sample ID: XJ22MB
LIMS ID: 13-22053
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	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

Sample ID: LAB CONTROL

Lab Sample ID: XJ22LCS
LIMS ID: 13-22053
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	200.8	24.8	25.0	99.2%	

Reported in µg/L

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: XJ22MB
LIMS ID: 13-22071
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	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
DISSOLVED METALS
Page 1 of 1

Sample ID: LAB CONTROL

Lab Sample ID: XJ22LCS
LIMS ID: 13-22071
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XJ22-Floyd-Snider
Project: B&L Landfill
1507
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	200.8	25.0	25.0	100%	

Reported in µg/L

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

XJ22:00038

Analytical Resources, Incorporated
Analytical Chemists and Consultants

October 18, 2013

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

RE: B&L O+M
ARI Job Nos.: XJ23

Dear Brett:

Please find enclosed the original Chain-of-Custody records (COCs), sample receipt documentation, and the final results for samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted six water samples on October 9, 2013. 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 COCs.

There were no anomalies associated with the analyses of these samples.

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.

Kelly Bottem
Client Services Manager
kellyb@arilabs.com
206-695-6211

cc: eFile XJ23

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: XJ22	Turn-around Requested: std	Page: 3 of 3	
ARI Client Company: Floyd | Snider	Phone:	Date: 10/9/13	Ice Present?
Client Contact: Brett Beaulieu		No. of Coolers:	Cooler Temps:
Client Project Name: B+L O+M			
Client Project #: 1507	Samplers: L. Meoli, J. Graves, K. Anderson		

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

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: As (total)	As Ed.35							Notes/Comments
BLW-SW-5-F	10/8/13	1015	W	1		X							
BLW-GW-MW33	↓	1505	W	1	X								
BLW-GW-MW31A	↓	1500	W	1	X								
BLW-GW-PD141	10/9/13	1200	W	1	X								
BLW-GW-D5U-D	10/7/13	1440	W	1	X								
BLW-GW-W1-D	10/8/13	1030	GW	1	X								

Comments/Special Instructions	Relinquished by: (Signature)	Received by (Signature)	Relinquished by (Signature)	Received by (Signature)
	Printed Name: Kristin Anderson	Printed Name: Taylor Stream	Printed Name.	Printed Name
	Company: Floyd | Snider	Company: ARI	Company	Company
	Date & Time: 10/9/13 1345	Date & Time: 10/9/13 1545	Date & Time	Date & Time

XJ22:00002

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.

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: XJ23
Client: Floyd-Snider
Project Event: 1507
Project Name: B+L O+M

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	BLW-SW-5-F	XJ23A	13-22072	Water	10/08/13 10:15	10/09/13 13:45
2.	BLW-GW-MW33	XJ23B	13-22073	Water	10/08/13 15:05	10/09/13 13:45
3.	BLW-GW-MW31A	XJ23C	13-22074	Water	10/08/13 15:00	10/09/13 13:45
4.	BLW-GW-PD141	XJ23D	13-22075	Water	10/09/13 12:00	10/09/13 13:45
5.	BLW-GW-D5U-D	XJ23E	13-22076	Water	10/07/13 14:40	10/09/13 13:45
6.	BLW-GW-W1-D	XJ23F	13-22077	Water	10/08/13 10:30	10/09/13 13:45

PRESERVATION VERIFICATION 10/10/13
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ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **XJ23**

Inquiry Number: NONE
Analysis Requested: 10/09/13
Contact: Beaulieu, Brett
Client: Floyd-Snider
Logged by: TS
Sample Set Used: Yes-481
Validatable Package: No
Deliverables:

PC: Kelly
VTSR: 10/09/13

Project #: 1507
Project: B+L O+M
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
13-22072 **XJ23A**	BLW-SW-5-F						DIS									Y						
13-22073 **XJ23B**	BLW-GW-MW33						TOT															
13-22074 **XJ23C**	BLW-GW-MW31A						TOT															
13-22075 **XJ23D**	BLW-GW-PD141						TOT															
13-22076 **XJ23E**	BLW-GW-D5U-D						TOT															
13-22077 **XJ23F**	BLW-GW-W1-D						TOT															

h0000 : 23fX

Checked By TS Date 10-10-13

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Floyd Snider

Project Name: B + L ~~Landfill~~ O+M

COC No(s): _____ NA

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

Assigned ARI Job No. XJ23

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) 17

Time: 1345

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

Temp Gun ID#: 90277952

Cooler Accepted by: TS Date: 10-9-13 Time: 1745

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: _____

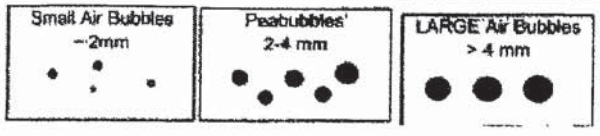
Samples Logged by: TS Date: 10-10-13 Time: 756

*** 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)

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: BLW-GW-MW33
SAMPLE

Lab Sample ID: XJ23B
LIMS ID: 13-22073
Matrix: Water
Data Release Authorized:
Reported: 10/18/13

QC Report No: XJ23-Floyd-Snider
Project: B+L O+M
1507
Date Sampled: 10/08/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/17/13	**7440-38-2**	**Arsenic**	1	**404**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: BLW-GW-MW31A
SAMPLE

Lab Sample ID: XJ23C
LIMS ID: 13-22074
Matrix: Water
Data Release Authorized:
Reported: 10/18/13

QC Report No: XJ23-Floyd-Snider
Project: B+L O+M
1507
Date Sampled: 10/08/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	0.5	**5.3**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: BLW-GW-PD141
SAMPLE

Lab Sample ID: XJ23D
LIMS ID: 13-22075
Matrix: Water
Data Release Authorized:
Reported: 10/18/13

QC Report No: XJ23-Floyd-Snider
Project: B+L O+M
1507
Date Sampled: 10/09/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	0.5	**302**	

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-D
SAMPLE

Lab Sample ID: XJ23E
LIMS ID: 13-22076
Matrix: Water
Data Release Authorized:
Reported: 10/18/13

QC Report No: XJ23-Floyd-Snider
Project: B+L O+M
1507
Date Sampled: 10/07/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	0.5	**12.3**	

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-W1-D
SAMPLE

Lab Sample ID: XJ23F
LIMS ID: 13-22077
Matrix: Water
Data Release Authorized:
Reported: 10/18/13

QC Report No: XJ23-Floyd-Snider
Project: B+L O+M
1507
Date Sampled: 10/08/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	0.2	**12.0**	

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: XJ23A
LIMS ID: 13-22072
Matrix: Water
Data Release Authorized:
Reported: 10/18/13

QC Report No: XJ23-Floyd-Snider
Project: B+L O+M
1507
Date Sampled: 10/08/13
Date Received: 10/09/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	0.2	**8.4**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Sample ID: METHOD BLANK

Lab Sample ID: XJ23MB
LIMS ID: 13-22073
Matrix: Water
Data Release Authorized:
Reported: 10/18/13

QC Report No: XJ23-Floyd-Snider
Project: B+L O+M
1507
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	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
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Sample ID: LAB CONTROL

Lab Sample ID: XJ23LCS
LIMS ID: 13-22073
Matrix: Water
Data Release Authorized:
Reported: 10/18/13

QC Report No: XJ23-Floyd-Snider
Project: B+L O+M
1507
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	200.8	24.6	25.0	98.4%	

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: XJ23MB
LIMS ID: 13-22072
Matrix: Water
Data Release Authorized:
Reported: 10/18/13

QC Report No: XJ23-Floyd-Snider
Project: B+L O+M
1507
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/13	200.8	10/16/13	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
DISSOLVED METALS
Page 1 of 1

Sample ID: LAB CONTROL

Lab Sample ID: XJ23LCS
LIMS ID: 13-22072
Matrix: Water
Data Release Authorized:
Reported: 10/18/13

QC Report No: XJ23-Floyd-Snider
Project: B+L O+M
1507
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	200.8	25.0	25.0	100%	

Reported in µg/L

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

B&L Woodwaste Site

Annual Compliance Monitoring Report October 2013

Appendix B Time-Concentration Plots

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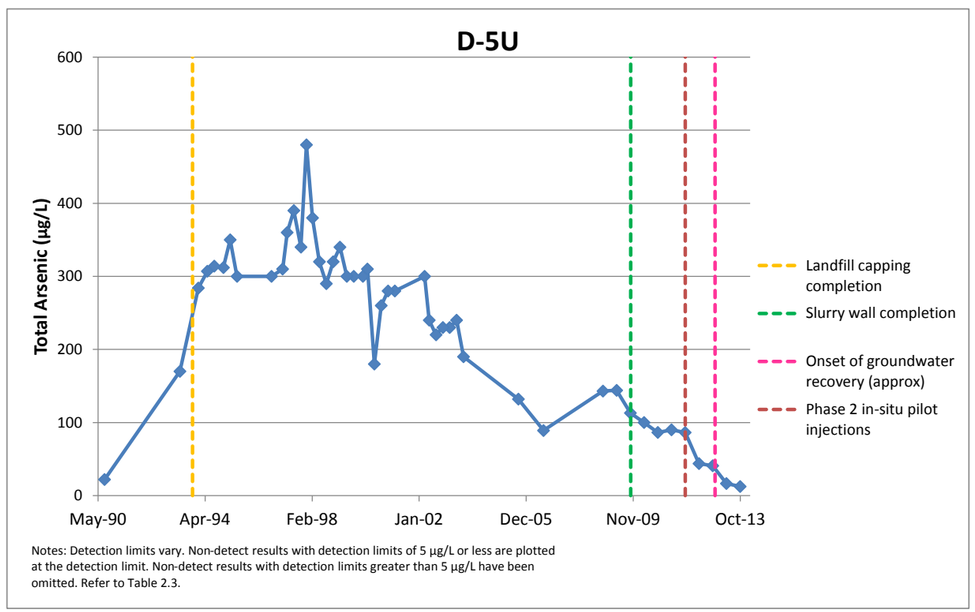
Upper and Lower Sand Aquifer Time-Concentration Plots

Surface Water Trends Time-Concentration Plots

Appendix B
Time-Concentration Plots



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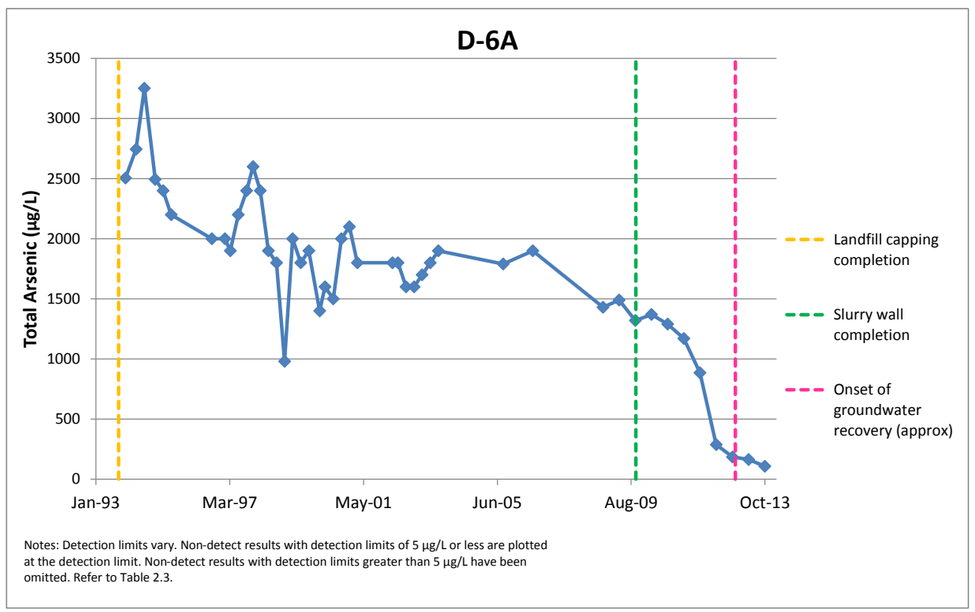

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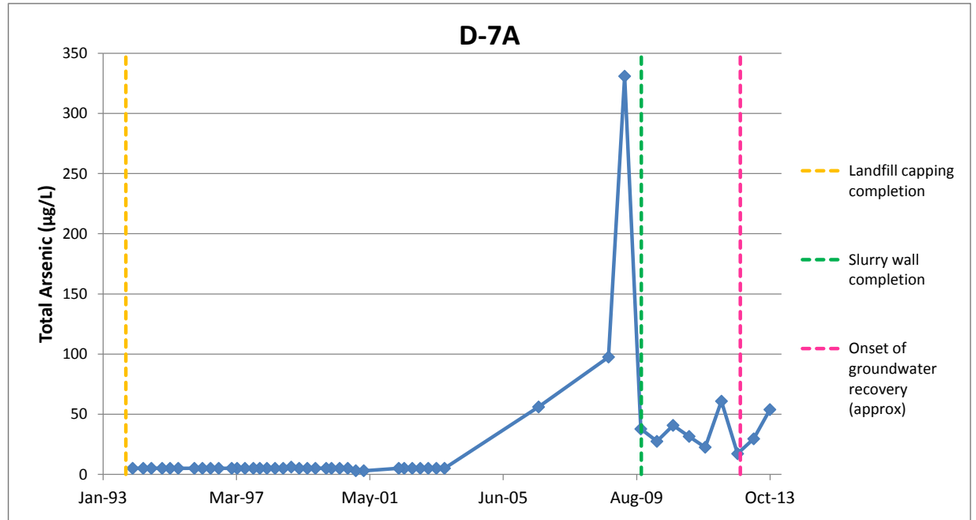

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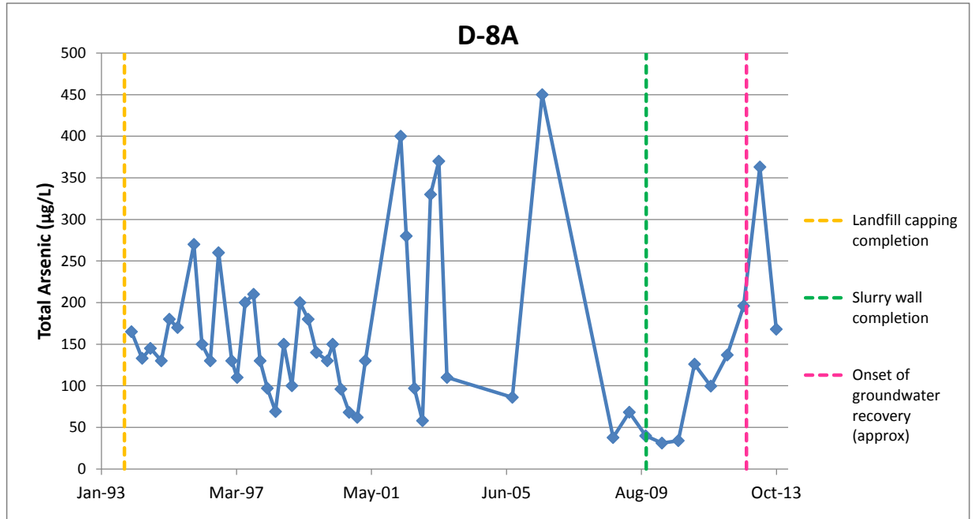

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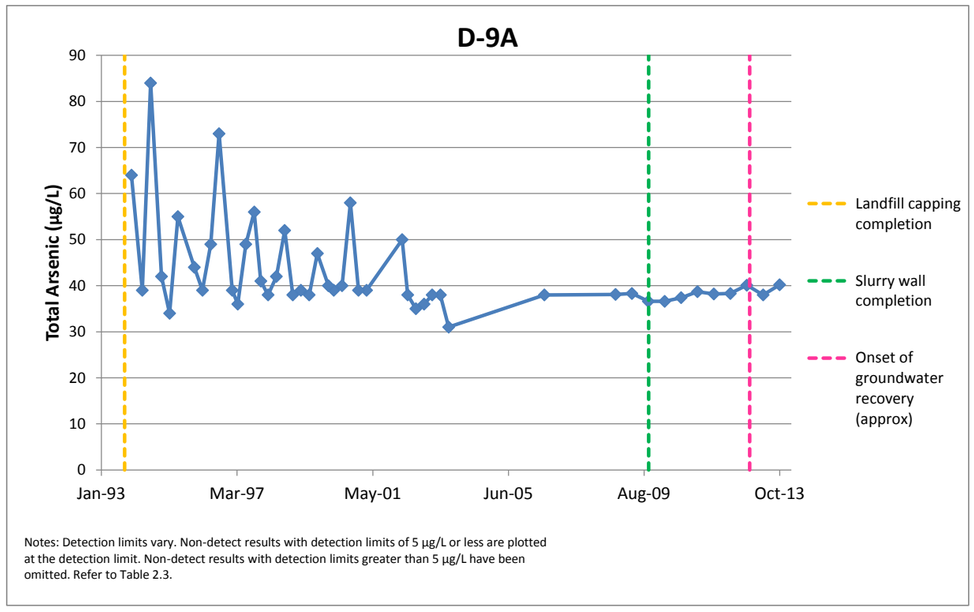

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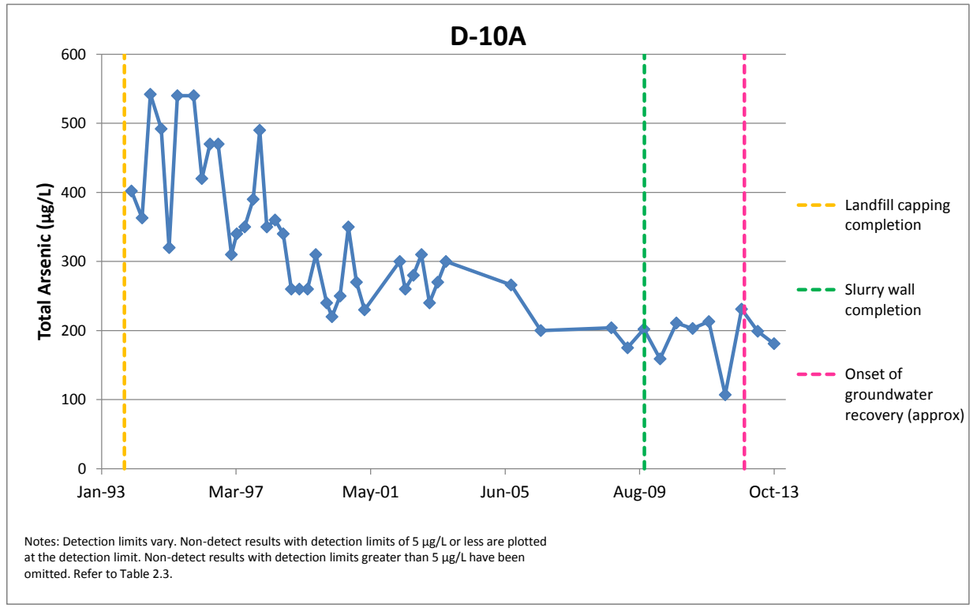

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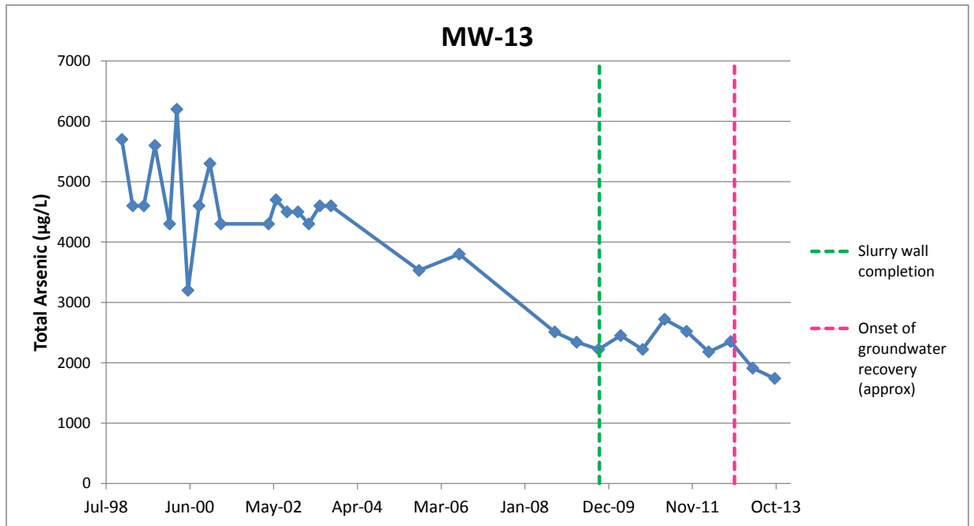

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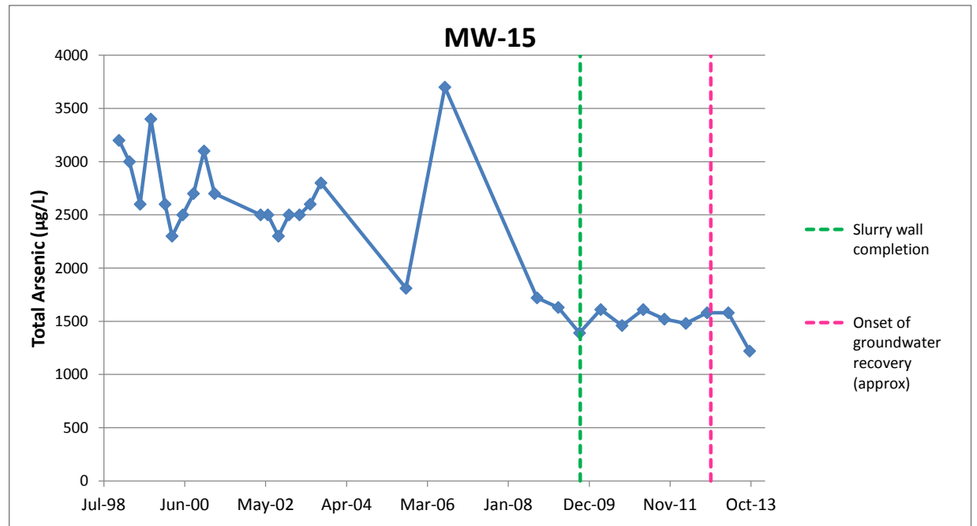

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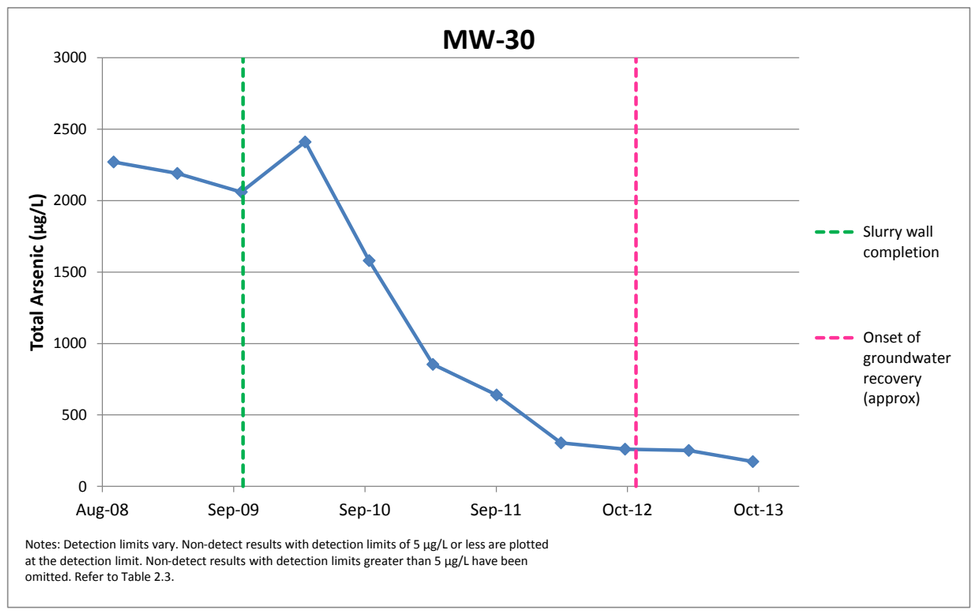

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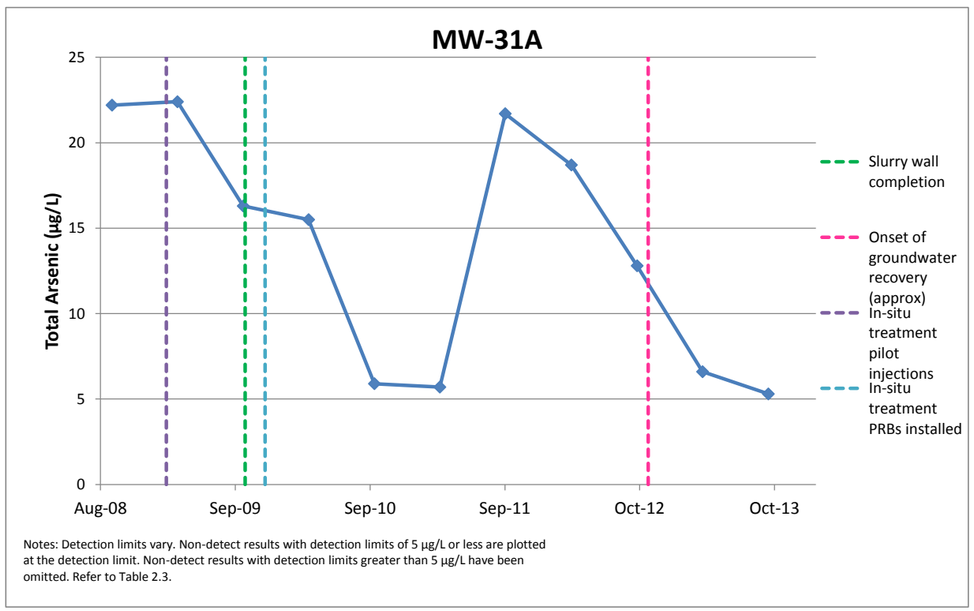

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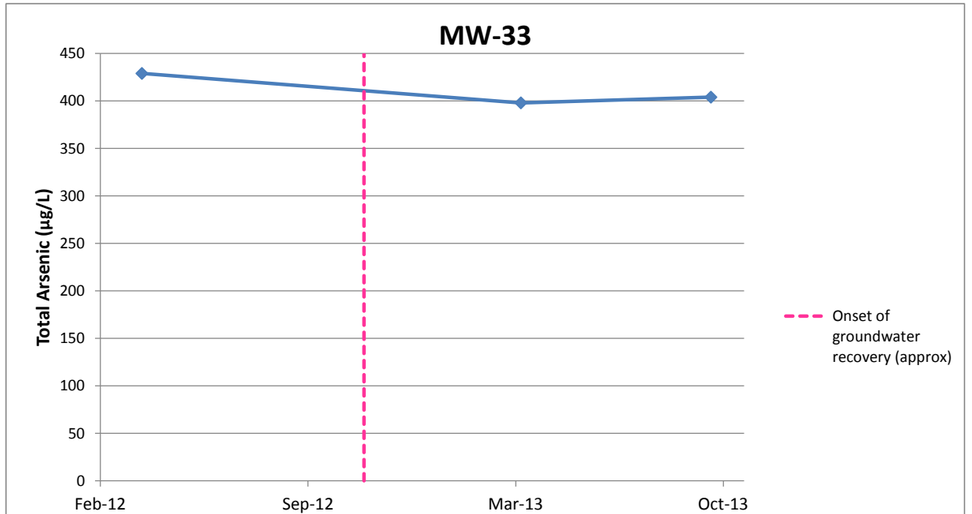

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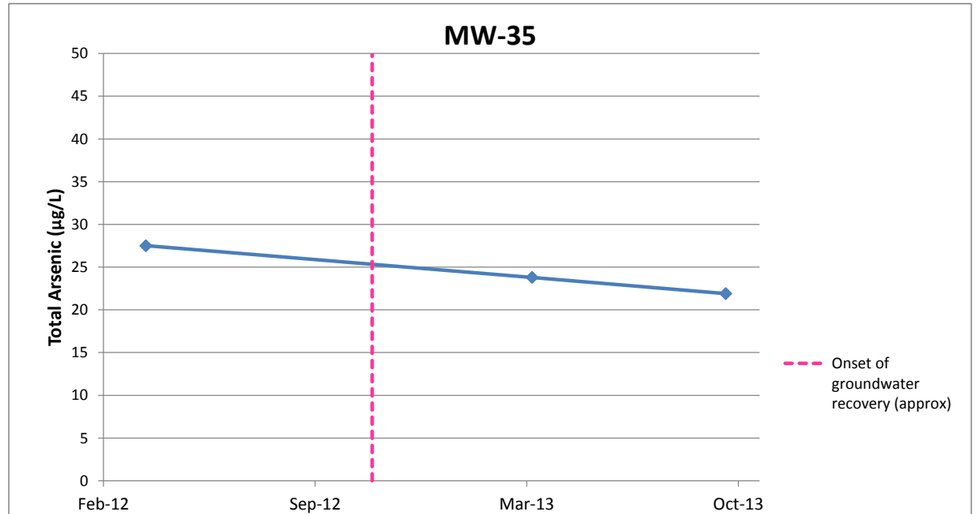

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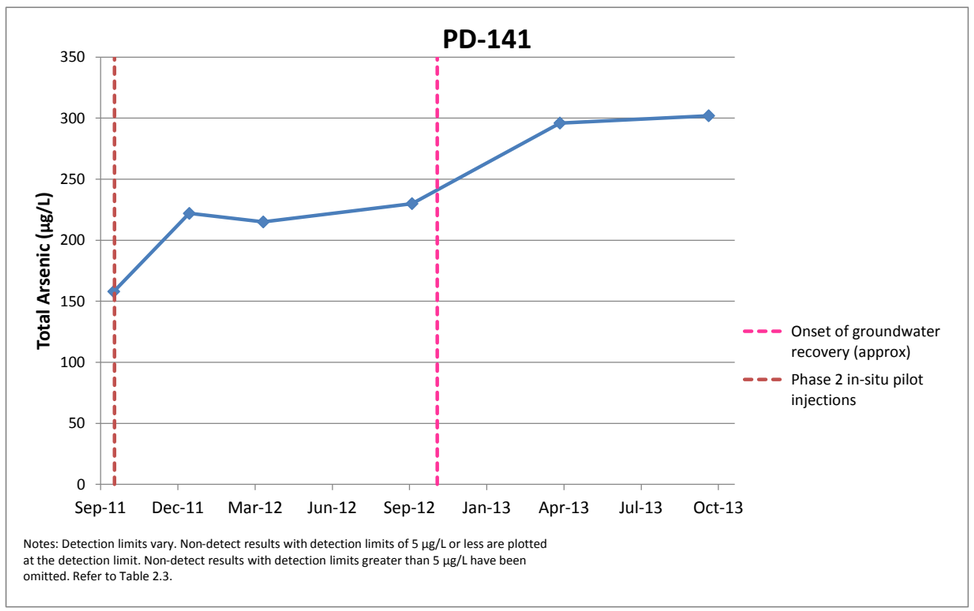

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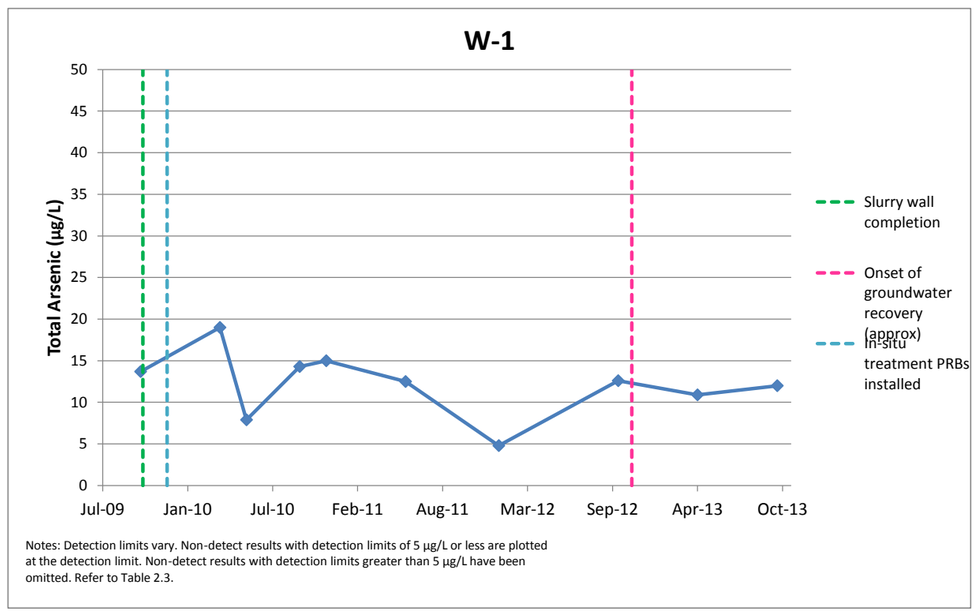

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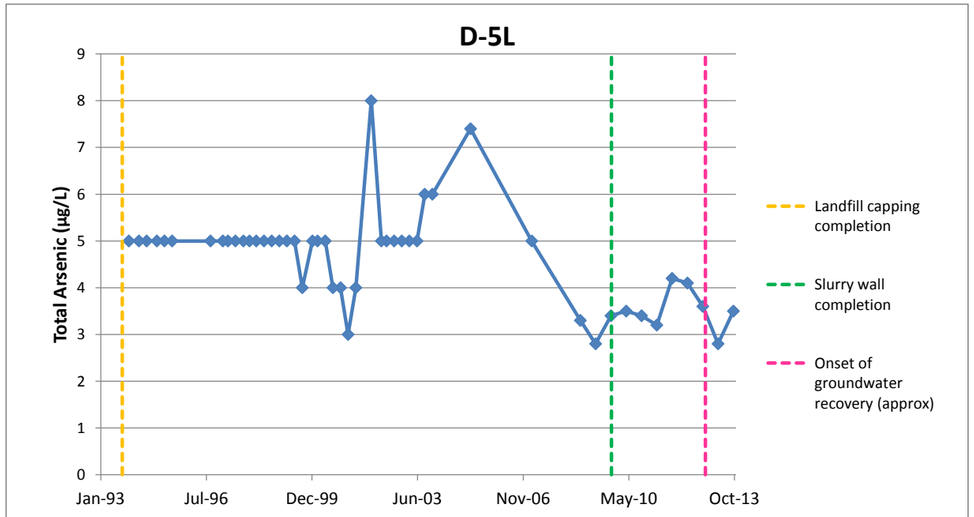

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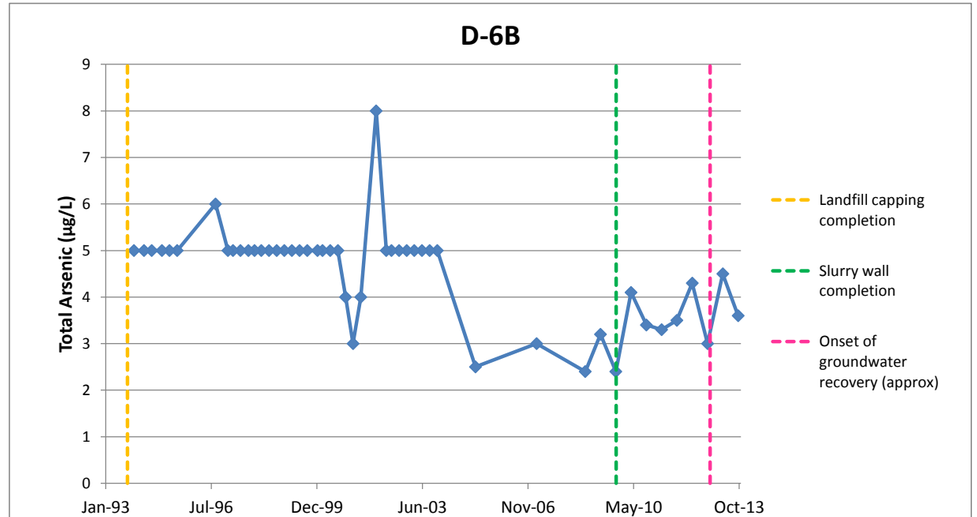

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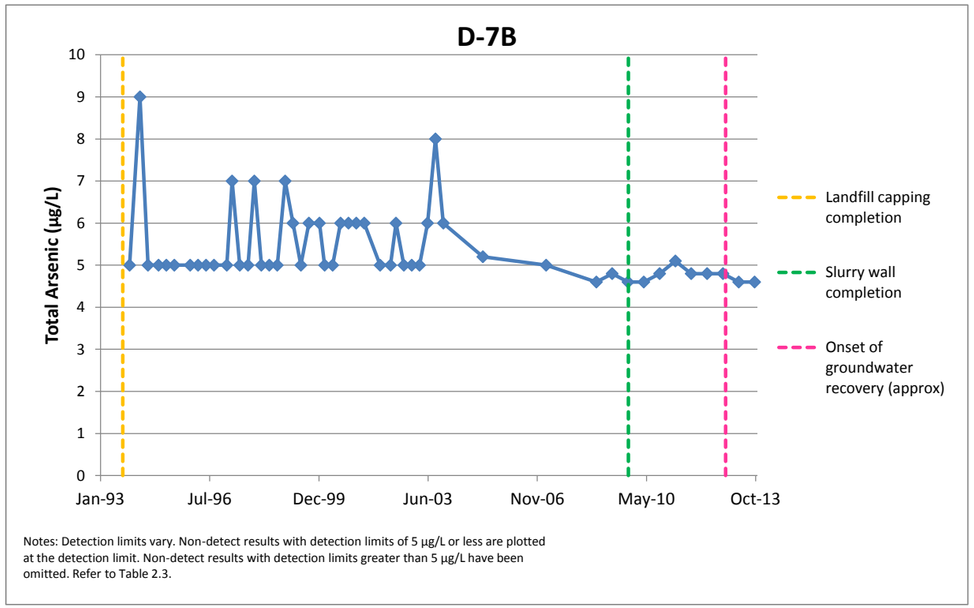

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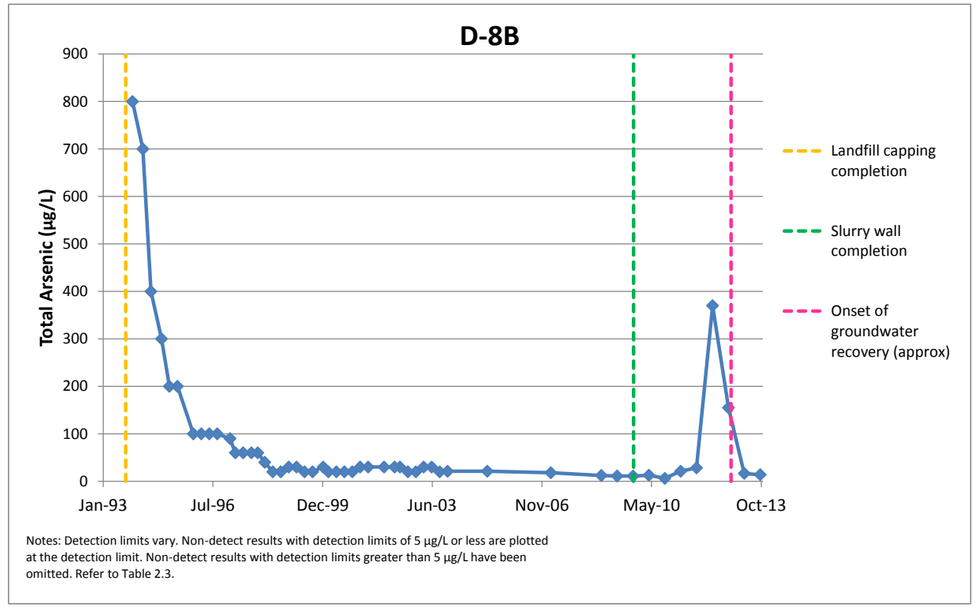

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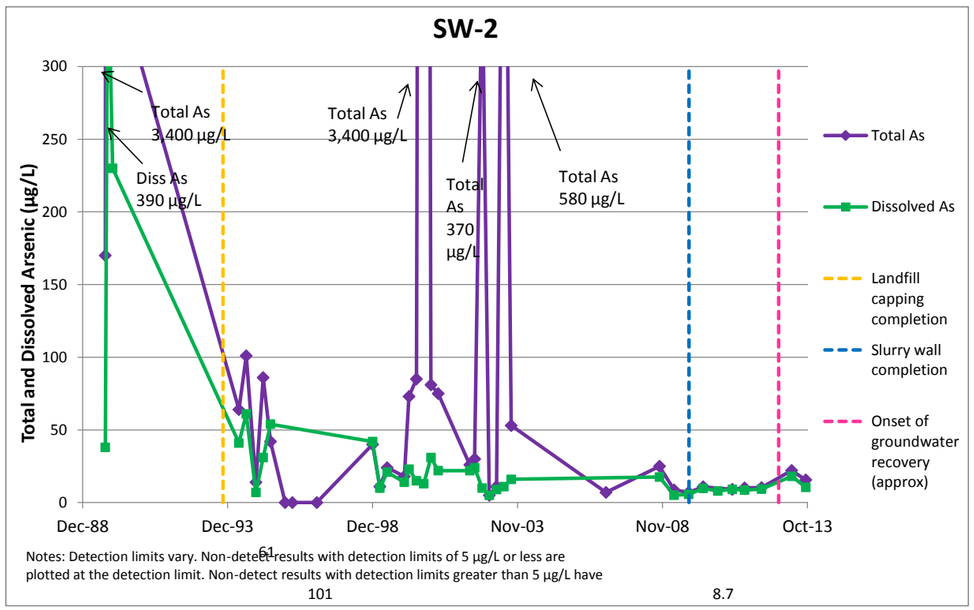

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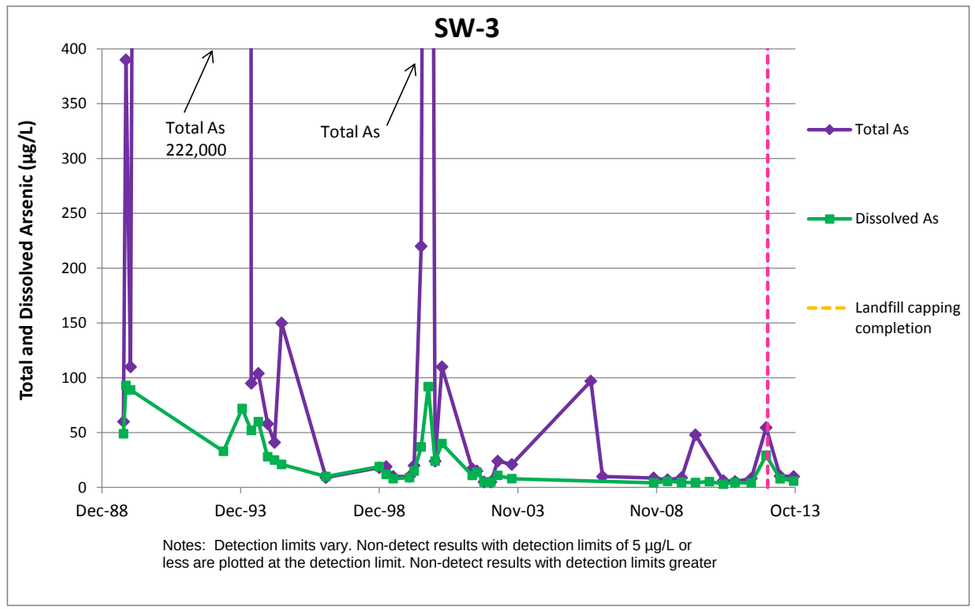

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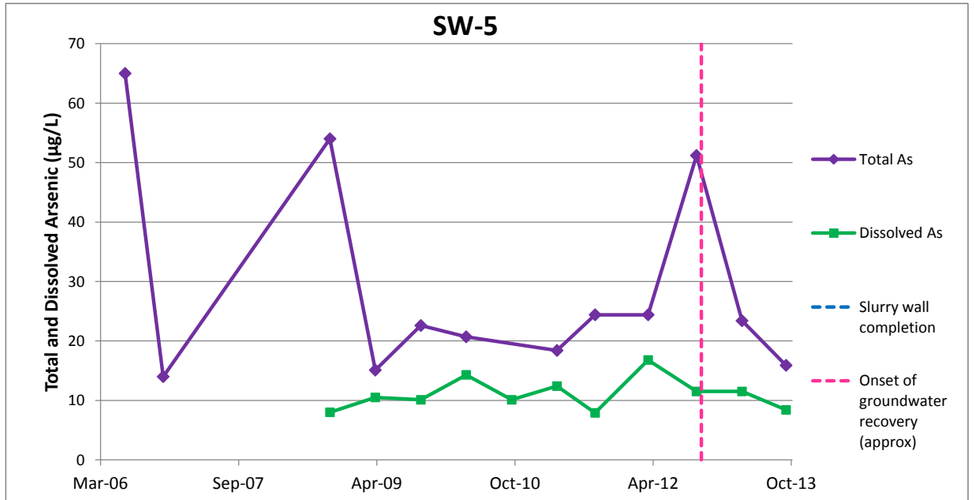

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