

# Memorandum

**To:** Andrew Smith and Cam Penner-Ash, Washington State Department of Ecology  
**Copies:** Dan Silver, B&L Woodwaste Custodial Trust  
**From:** Brett Beaulieu and Pamela Osterhout, Floyd|Snider  
**Date:** October 19, 2017 (revised April 24, 2024)  
**Project No:** B&L O&M 1507  
**Re:** **B&L Woodwaste Compliance Monitoring Plan Addendum**

This memorandum serves as an addendum to the Compliance Monitoring Plan (CMP) for the B&L Woodwaste Site, which was submitted as Appendix B of the B&L Woodwaste Site Operations, Maintenance, and Monitoring Plan (Floyd|Snider and AMEC 2013). The monitoring program described in the CMP is intended to support long-term compliance monitoring after implementation of the remedy specified in the 2008 Cleanup Action Plan (CAP). The 2017 CMP Addendum was implemented between 2018 and 2023 to monitor groundwater conditions after shutdown of the groundwater recovery and treatment program. The goal of this revision is to update the groundwater monitoring program for current conditions at the B&L Woodwaste Site.

In 2024, a permeable reactive barrier (PRB) will be installed along the west side of the landfill to treat leachate exiting the landfill through the aquitard gap in the southwest corner. The agricultural field ditch running south to north along the west side of the landfill will also be filled in coordination with the Washing State Department of Transportation (WSDOT) work, which includes rerouting the Surprise Lake Tributary and reclaiming the agricultural land west of the B&L site as wetlands (refer to Figure 1). The corresponding changes to the groundwater monitoring program include the following:

1. Decreasing the frequency from quarterly to semiannual in the spring and fall (approximately April and October).
2. Reducing the scope of monitoring to focus on sampling wells and surface water on the west side of the landfill and in the agricultural field triangle downgradient of the PRB semiannually, with sitewide monitoring occurring every other year (biennially) in the fall. Biennial monitoring would begin in 2025.
3. Reduce the scope of sitewide monitoring north of the landfill and water treatment plant. Discontinue monitoring of PD-60, MW-30, MW-31A, D-5L, and D-6B.
4. Discontinue surface water monitoring of SW-5, which has been hydraulically disconnected from the site by WSDOT's rerouting of the Surprise Lake Tributary.

The specific monitoring wells to be sampled are summarized in the following table.

Event/Timing	Monitoring Wells and Surface Water Sampling Locations	Data Objectives
Semiannual: April and October	Upper Aquifer: D-7A, D-8A, PD-214, PZ-3A, PZ-4A, PZ-5A, MW-33, MW-34, MW-41, MW-42, and W-1 Lower Aquifer: MW-40B and D-8B Surface Water: SW-2 and SW-3	Monitor agricultural field and PRB remediation performance.
Biennial: October	Upper Aquifer: D-5U, D-6A, D-7A, D-8A, D-9A, D-10A, PD-141, PD-214, PZ-3A, PZ-4A, PZ-5A, MW-13, MW-15, MW-33, MW-34, MW-35, MW-41, MW-42, and W-1 Lower Aquifer: MW-40B, D-7B, and D-8B Surface Water: SW-2 and SW-3	Monitor sitewide conditions, including agricultural field and PRB remediation performance, wetlands plume, landfill property, lower aquifer, and surface water.

**OTHER COMPLIANCE MONITORING PLAN CHANGES**

Compliance monitoring will be conducted in accordance with the procedures described in the CMP, except where noted.

**Water Level Measurements**

Water level measurements will continue to be collected from the monitoring wells sampled during each event.

Manual water level measurements will also be collected semiannually from all landfill perimeter piezometers to monitor cross-barrier hydraulics in place of pressure transducers, which will no longer be monitored.

To provide additional water level data in years when no sitewide monitoring occurs, so that potentiometric maps of the upper and lower sand aquifers can be prepared, supplemental water level measurements will be collected in the fall during opposite years from the sitewide biennial monitoring event. Supplemental water level data will be collected from the following locations (in addition to the landfill perimeter piezometers and semiannual monitoring locations listed above):

Aquifer	Monitoring Well IDs
Upper Sand Aquifer	D-5U, D-6A, D-9A, D-10A, MW-13, and MW-35
Lower Sand Aquifer	D-7B and D-11B

**Purge Water Disposal**

Purge water from compliance monitoring wells generated during sampling will be collected in containers, transported to the secure area at the groundwater treatment plant, and transferred to a U.S. Department of Transportation-approved 55-gallon container. Purge water will be stored on-site until transported and disposed of off-site at an appropriate facility.

**Reporting**

Compliance monitoring reports will consist of the following:

- **Spring Semiannual Reports:** Groundwater arsenic results table, surface water arsenic results table, groundwater and surface water arsenic results figure, and analytical laboratory reports.
- **Annual Reports:** Groundwater elevations and head difference table, groundwater arsenic results table, surface water arsenic results table, groundwater and surface water arsenic results figure, upper aquifer potentiometric contours, lower aquifer potentiometric contours, time concentration plots, and analytical laboratory reports.

**REFERENCES**

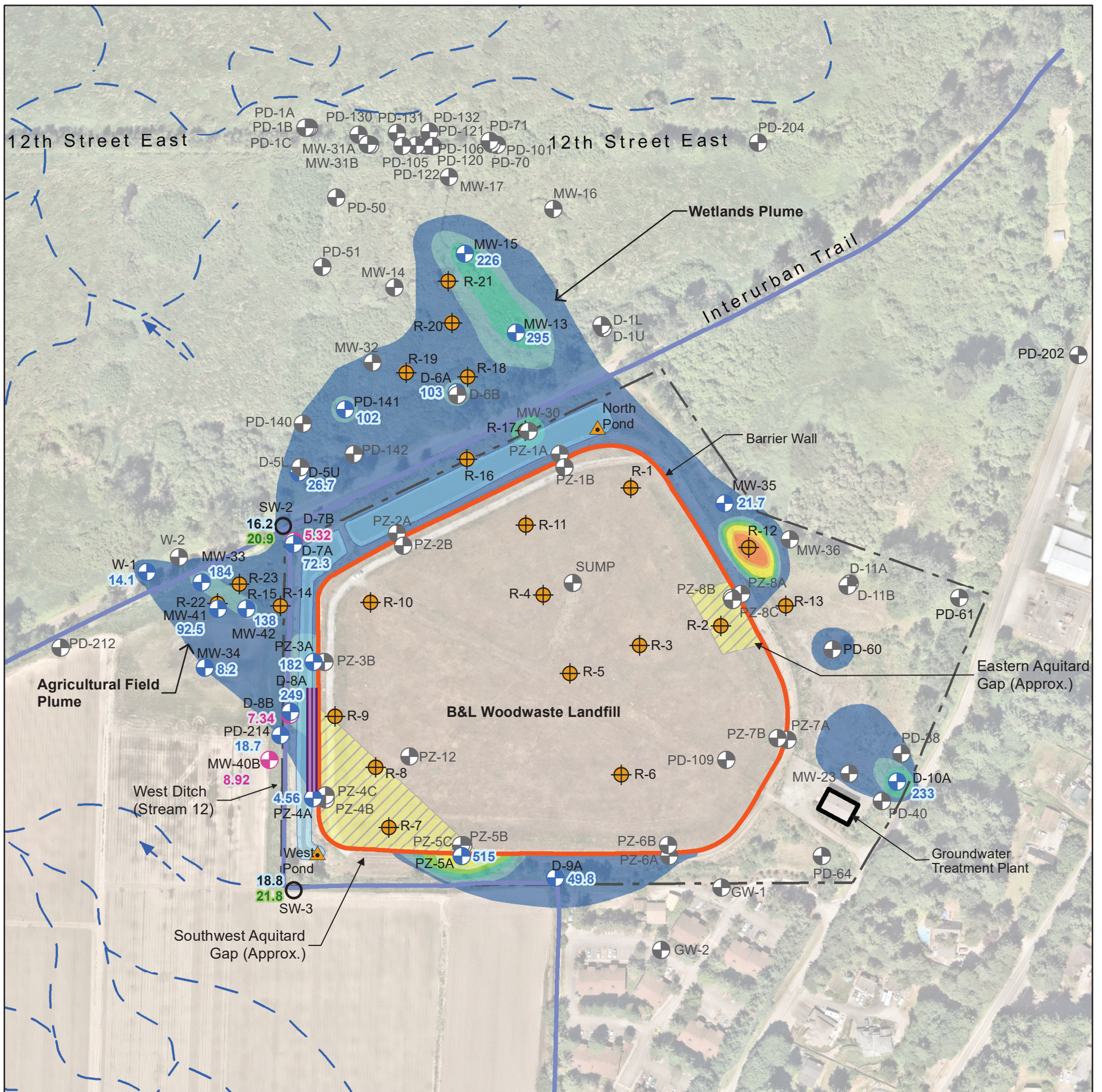
Floyd|Snider and AMEC 2013. *B&L Woodwaste Site, Pierce County, Washington, Operations, Monitoring, and Maintenance Plan*. Prepared for B&L Custodial Trust. May.

**LIST OF ATTACHMENTS**

Figure 1      Compliance Monitoring Locations

**Figure**





**Legend**

- W-1 Upper Sand Aquifer Monitoring Location
- D-7B Lower Sand Aquifer Monitoring Location
- SW-5 Compliance Surface Water Monitoring Location
- PD-216 Monitoring Well or Piezometer
- R-10 Recovery Well Location
- West Pond Pond Staff Gauge Location
- Planned Permeable Reactive Barrier
- WSDOT Planned Surface Drainage Flow Direction
- WSDOT Planned Surface Drainage Feature
- Conditional Point of Compliance (Barrier Wall)
- Property Boundary from Tax Parcel Data
- Stormwater Pond
- Surface Drainage Feature
- Aquitard Gaps

**Inferred Arsenic Concentration, Upper Sand Aquifer in µg/L (October 2023)<sup>(1)</sup>**

- 5–100
- 501–600
- 101–200
- 601–700
- 201–300
- 701–800
- 301–400
- 801–900
- 401–500
- 901–1,000

- 23.4** Total Arsenic Concentration (µg/L), Upper Aquifer
- 16.6** Total Arsenic Concentration (µg/L), Lower Aquifer
- 11.5** Dissolved Arsenic Concentration (µg/L), Surface Water
- 3.5** Total Arsenic Concentration (µg/L), Surface Water

**Notes:**

- 1. Inferred concentrations are based on previous results where current data are not available.
- Orthoimage obtained from Nearmap, June, 2021.
- Hylebos Creek and other surface drainage feature locations shown were digitized from the 2005 USGS orthoimage.
- Black and white reproduction of this color figure may affect interpretation of the results.

**Abbreviation:**

- µg/L = Micrograms per liter
- USGS = U.S. Geological Survey
- WSDOT = Washington State Department of Transportation

