



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

Northwest Regional Office • 3190 160th Ave SE • Bellevue, WA 98008-5452 • 425-649-7000  
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

February 7, 2017

Mike Young  
Public Health-Seattle & King County  
3020 Rucker Avenue, Suite 300  
Everett, WA 98201

**Re: Response to the Variance Request for J.H. Baxter North and South Woodwaste Landfills, Arlington, Washington.**

Dear Mr. Young:

The Department of Ecology (Ecology) reviewed the *Groundwater Sampling and Analysis Plan, J.H. Baxter & Co. Closed North and South Woodwaste Landfills, Arlington, Washington; Attachments 1 & 2*, dated November 2015, and the October 17, 2016 letter from J.H Baxter to Snohomish Health District (SHD) including all three attachments (*Attachment A: North Woodwaste Landfill Arsenic Transport Model and Calculations, Attachment B: South Woodwaste Landfill Arsenic Transport Model and Calculations, and Attachment C: Revised Groundwater Sampling and Analysis Plan*, dated October, 2016).

**Ecology cannot yet concur with the Application of Variance requesting the North and South Woodwaste Landfills be sampled semi-annually with a reduced well network.**

**Ecology can concur with an Application of Variance if completed per the following:**

- **North Woodwaste Landfill:** Semi-annual groundwater sampling at BXN-2, -3, and -4, and quarterly groundwater sampling at BXN-1 (two year trial period).
- **South Woodwaste Landfill:** Semi-annual groundwater sampling at BXS-1, -2, and -4, and quarterly groundwater sampling at BXS-3 (two year trial period).

If statistically significant changes in groundwater quality are noted, groundwater sampling will resume per the approved current SAP for analytes and frequency.

The rationale for the variance response for these two landfills are addressed separately below. This letter also addresses issues brought up in both the June 24<sup>th</sup> Ecology Memorandum to SHD and the Baxter October 17, 2016 Response letter.



### **North Woodwaste Landfill Rational**

The North Woodwaste Landfill is located at the northwest corner of 198<sup>th</sup> Street NE and 67<sup>th</sup> Avenue NE in Arlington, Snohomish County, Washington. The site is a former sand and gravel quarry. The depth to groundwater is approximately 42 feet below ground surface. The landfill accepted an estimated 335,000 cubic yards of woodwaste fill until 1991.

The Technical Memorandum [Attachment 1 of the referenced November 2015 Groundwater Sampling and Analysis Plan (SAP)] *Proposal to Reduce Groundwater Monitoring Activities* requests the following:

1. Eliminate five parameters from sampling
2. Eliminate groundwater monitoring at well BXN-3 and BXN-2
3. Reduce sampling frequency to semi-annual basis

### **Ecology's Response:**

1. Ecology agrees that cadmium, copper, nickel, zinc, and total coliform can be eliminated from the parameters routinely monitored based on existing data and SHD's previous letter from 2015 for total coliform. Ecology noted during the review that the statistics were done with data from 2007 through 2010 for BXN-3 and not the entire 7 year period as stated in the Technical Memorandum Attachment 1. This decision was based on the data from BXN-1, BXN-2, and BXN-4.
2. Ecology suggests Baxter continue to sample all four monitoring wells. We acknowledge Baxter's comment that they will attempt to locate and assess the condition of BXN-3 during the next sampling event. This monitoring well is important as it meets the WAC 173-304-490 (2) (a) requirements of three downgradient wells. The loss of data from BXN-3 prevents demonstrating that the arsenic plume in the vicinity is stable or shrinking.
3. Ecology does not agree to semi-annual groundwater sampling at all wells at the North Woodwaste Landfill. Ecology suggests: BXN-1 continue with quarterly sampling and BXN-2, -3 and -4 to reduce sampling frequency to semi-annual. Baxter should continue to sample BXN-1 quarterly due to the exceedances of arsenic above the groundwater quality standard. Samples from this well show that arsenic is migrating offsite. Modeling supports this conclusion. Continued quarterly monitoring is necessary to track the exceedances at BXN-1.

### **Additional hydrogeologic comments for the North Woodwaste Landfill:**

#### **Pentachlorophenol**

The October 17, 2016 letter from Baxter to SHD indicates that the landfill was used specifically for the disposal of untreated woodwaste. The Landau Technical Memorandum dated December 17, 2009 noted pentachlorophenol (PCP) in soil in each of the three test pits sampled at the North Woodwaste Landfill (not above any cleanup levels-but none the less detected in all three test pits) and in groundwater at BXN-3 above the U.S. Environmental Protection Agency (EPA) maximum contaminant level (MCL). Total petroleum hydrocarbons oil-range was also detected

in this Landau groundwater sample. Ecology acknowledges that at least 12 sampling events were conducted for PCP with the contaminant found only once. Due to the presence of PCP in the Landau test pits:

- Ecology suggests that PCP be sampled in all four monitoring wells annually.

#### **South Woodwaste Landfill Rational**

The South Woodwaste Landfill is located at 6520 188<sup>th</sup> St. NE, Arlington, Snohomish County, Washington. The site is adjacent to the Former J. H. Baxter and Co. Wood Treating Facility, on Baxter property. The landfill accepted an estimated 300,000 cubic yards of woodwaste fill until 1991.

The Technical Memorandum (Attachment 2 of the referenced November 2015 Groundwater Sampling and Analysis Plan (SAP)) *Proposal to Reduce Groundwater Monitoring Activities* requests the following:

1. Eliminate six parameters from sampling
2. Eliminate monitoring well BXS-3 from sampling
3. Reduce sampling frequency to semi-annual basis

#### **Ecology's Response:**

1. Ecology agrees that cadmium, copper, zinc, chloride, and nitrate+nitrite, and total coliform can be eliminated from the parameters routinely monitored based on existing data and SHD's previous letter from 2015 for total coliform.
2. Ecology acknowledges that Baxter has adjusted the SAP to include all four monitoring wells.
3. Ecology does not agree to semi-annual groundwater sampling at all wells at the South Woodwaste Landfill. Ecology suggests: BXS-3 continue with quarterly sampling and BXS-1, -2 and -4 to reduce sampling frequency to semi-annual. Baxter should continue to sample BXS-3 quarterly due to the exceedances of arsenic above the groundwater quality standard. Samples from this well show that arsenic is migrating offsite. Modeling supports this conclusion. Continued quarterly monitoring at BXS-3 is necessary to track the exceedances at this location

#### **Ecology's Comments on the Revised Groundwater Sampling and Analysis Plan, North and South Woodwaste Landfills, Arlington, Washington dated October, 2016.**

Ecology has the following comments on the Revised SAP at this time. Ecology and SHD would like to attend the next groundwater sampling event in 2017 to ensure:

1. Sampling is conducted from least contaminated to most contaminated wells as outlined in the Revised SAP. Confusingly, the North Landfill 2015 Annual Report indicates that dedicated submersible bladder pumps are used, yet field blank data is provided.

2. A complete set of static water level measurements is obtained site wide before sampling, as outlined in Section 2.1.1 of the Revised SAP. In previous sampling events, it appears that the depth to groundwater is collected prior to sampling at each individual well.

Ecology appreciates that Baxter/GSI's has completed a lot of work on these sites, unfortunately we were not able to fully concur with the last variance application. However, it appears we are coming closer to an agreement, for example, the reduction of monitoring parameters. Please let me know if they have any questions or are able to revise the variance and SAP to accommodate these requests. You can contact me at 425-649-7051 or [tim.oconnor@ecy.wa.gov](mailto:tim.oconnor@ecy.wa.gov) if you have any questions.

Sincerely,



Tim O'Connor LG, LHG  
Waste 2 Resources Program

cc: Pat Shanley/Ecology  
Peter Christiansen/Ecology