# 2018 Groundwater Monitoring Report
# South Woodwaste Landfill
# Arlington, Washington

Submitted to

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Date: 14 June 2019

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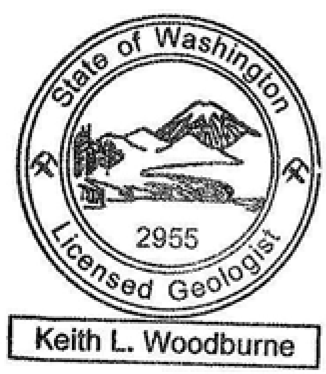


Date: 14 June 2019

Keith Woodburne, LG (#2955)

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# 1. Introduction

This report presents quarterly groundwater data collected from March to November 2018 by Jeff Lervick PLE LLC for J.H. Baxter & Co's (Baxter) closed South Woodwaste Landfill (South Landfill, Site), located at 6520 188th Street NE in Arlington, Snohomish County, Washington (Figure 1, Source: GSI Water Solutions, Inc.). Baxter closed the South Landfill in 1991; it is covered with a vegetated soil cap.

Four monitoring wells were installed in 1988. Monitoring wells BXS-1, BXS-2, and BXS-3 are located hydraulically downgradient of the South Landfill. Monitoring well BXS-4 is located hydraulically upgradient of the South Landfill (Figures 2 and 3, Source: GSI Water Solutions, Inc.). Monitoring well BXS-4 represents background groundwater quality providing the benchmark to compare with the water quality data from downgradient wells. Boring logs, groundwater monitoring procedures, and a summary of site conditions encountered during the installation of the monitoring wells are included in the hydrogeologic report prepared by Sweet-Edwards/EMCON, Inc. (EMCON, 1989).

Sampling in 2018 was conducted in March, June, September, and November in accordance with the Washington State Department of Ecology (Ecology)-approved sampling and analysis plan (SAP) dated March 2017 (GSI 2017). Groundwater samples were collected on a quarterly basis from monitoring well BXS-3 and on a semi-annual basis from the remaining wells.

# 2. Hydrogeology

Bi-quarterly groundwater monitoring events included collecting groundwater level measurements at the four monitoring wells to understand the flow direction and gradient of the shallow groundwater.

## 2.1 Groundwater Elevations

Groundwater levels were measured at the four monitoring wells before purging the wells for groundwater sampling. Groundwater elevation data for 2018 are summarized in Table 1.

During the September 2018 monitoring event, groundwater elevations were highest in monitoring well BXS-4 and lowest in BXS-1. The groundwater level in BXS-4 and BXS-1 varied by 22.45 feet during the third quarter.

Groundwater elevation contour maps for February 2016 (Figure 2, Source: GSI Water Solutions, Inc.) and September 2016 (Figure 3, Source: GSI Water Solutions, Inc.) are provided for reference. Groundwater flow direction in 2018 was toward the northwest and is consistent with the regional groundwater flow in the aquifer (Figure 4, Source: GSI Water Solutions, Inc.).

## 2.2 Groundwater Velocities

Groundwater velocities ($v_x$) were estimated using Darcy's law:

$v_x = - Ki / n_e$

Hydraulic conductivity (K) in the fine sand beneath the Site was estimated at $3 \times 10^{-2}$ to $6 \times 10^{-2}$ centimeters per second based on slug tests performed in monitoring wells BXS-2 and BXS-4 (EMCON, 1989). Porosity ($n_e$) was assumed to be 0.300 (i.e., 30 percent).

The gradient (i) between wells BXS-2 and BXS-4, which are 1,080 feet apart, was 0.0195 (Table 2). This slope results in velocity estimates of 5.7 to 11.4 feet per day. Table 2 shows the calculated hydraulic gradients and groundwater velocities during the third quarter 2018. The gradient and groundwater velocity are similar to previous years.

# 3. Groundwater Quality

Groundwater monitoring events were conducted on March 17-18, 2018, for the first quarter; June 16, 2018, for the second quarter; September 29, 2018, for the third quarter; and November 17, 2018, for the fourth quarter. Groundwater sampling was performed using submersible bladder pumps and tubing dedicated to each well. Sampling procedures are described in the latest SAP (GSI 2017).

Field measurements were taken for pH, conductivity, temperature, oxidation-reduction potential (ORP), and dissolved oxygen before groundwater sampling. Groundwater samples for conventional parameters and dissolved metals were collected quarterly. In accordance with the latest SAP, groundwater samples were analyzed by AmTest Laboratories of Kirkland, WA, for the following:

- **Conventional Parameters:** ammonia as nitrogen, chemical oxygen demand (COD), chloride, sulfate, tannin and lignin, total dissolved solids (TDS), and total organic carbon (TOC)
- **Dissolved Metals:** Arsenic, barium, iron, manganese, and nickel

## 3.1 Groundwater Sampling

Field measurements collected from February 2007 through September 2018 are summarized in Table 3A. Field sampling records are included in Appendix A. The analytical data from 2007 through 2018 are summarized in Tables 3B and 3C. Laboratory analytical reports and chain-of-custody (COC) forms for the 2018 groundwater monitoring events are included in Appendix B.

# 4. Data Review

This section describes the data review process to evaluate the adequacy and quality of the analytical data from the 2018 groundwater monitoring events. The objective of the data review is to identify estimated, unreliable, or invalid measurements. Information about the reliability of the data is critical to the interpretation of the results. The review was performed according to guidelines prepared by the U.S. Environmental Protection Agency (EPA; EPA, 2010).

## 4.1 Field Quality Assurance (QA) /QC

During the quarterly groundwater monitoring events, field duplicates were prepared and collected by field personnel in accordance with standard practice. The March 2018 monitoring event field duplicate sample was collected from monitoring well BXS-2 and labeled as BXS-102. The September 2018 monitoring event duplicate was collected from monitoring well BXS-3 and labeled as BXS-103.

Field duplicate results aid in the assessment of sampling and analytical precision. Analytical results for the original and duplicate samples collected from each sampling event were evaluated using the relative percent difference (RPD). RPD is the difference between the two results divided by the mean and expressed as a percent. The RPD was calculated for an analyte when both the primary sample and duplicate sample had a detected concentration. For analytes with concentrations greater than or equal to five times the associated method reporting limit (MRL) and when the RPD is greater than 35 percent, the reported values are considered estimated concentrations. For analytes with concentrations less than five times the associated MRL, the reported values are considered estimated if the absolute difference between primary and duplicate is greater than the value of the MRL. The following analytes for samples at monitoring well BXS-2 and BXS-3 were qualified as estimated concentrations (J-flag):

- **BXS-2 March 2018:** TOC
- **BXS-3 September 2018:** Chloride

## 4.2 Laboratory QA/QC

Sample coolers for each quarterly monitoring event arrived at the laboratories in good condition and with no broken bottles. The laboratory reports are complete and contain results for all samples and corresponding analyses requested on the COC forms.

All analyses were performed within the required holding time for the parameters of interest. The EPA method for pH analysis of water samples, Method 150.1 (EPA, 1999a), specifies that pH analyses be performed "as soon as possible preferably in the field at the time of sampling." For that reason, the field-analyzed pH results are used for trend analysis and statistical evaluation.

Only barium from the fourth quarter analyses and TDS for the first quarter analyses were detected in the method blanks above the MRL. Blank concentrations, however, amounted to less than 1 percent of the lowest detected barium or TDS levels in correlated well samples.

Laboratory duplicate RPDs were below laboratory limits or, for sample concentrations less than five times the MRL, the difference between parent and duplicate sample concentrations was less than the MRL, and as such, data were not modified. Analytical values derived from measurements close to the MDL are not subject to the same accuracy and precision criteria as results derived from measurements higher on the calibration range for the method.

Matrix spike (MS) recoveries were within laboratory limits, or the analyte concentration was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

## 4.3 Statistical Analysis of Data

Groundwater sample analysis results were statistically evaluated to assess if there was a significant difference between the downgradient wells (BXS-1, BXS-2, and BXS-3) and the upgradient well (BXS-4). The following approach was used for performing the statistical analysis:

- **Non-Detects:** Non-detect results were replaced with a value of half the laboratory MRL.
- **Data Distribution:** The data are assumed to be normally distributed to meet key assumptions of the Student's t-test.
- **Parametric Hypothesis Testing:** Parametric hypothesis testing was performed using the Student's t-test for all parameters in both the upgradient and downgradient wells. For each comparison, the null hypothesis was that there was no difference between the downgradient and upgradient concentrations. The null hypothesis was tested using a two-tailed test at a significance level of 0.05. The t-test statistic ($t_{stat}$) was calculated from the average and variance of quarterly sampling results in a downgradient well and the upgradient well. Each quarterly sample was compared to the previous three quarterly samples to provide a four-sample running average. The average concentration in the downgradient well was significantly higher than the upgradient well if $t_{stat}$ was greater than the critical test statistic ($t_c$). Similarly, the average concentration in the downgradient well was significantly lower than the upgradient well if $t_{stat}$ was less than the negative value of the critical test statistic ($t_c$). The critical test statistic was computed using the percent point function (ppf). The ppf is the inverse of the cumulative distribution function.

Statistically significant detections above background well (BXS-4) concentrations are shown in **bold** in the tables included in Appendix C. Statistically significant detections below background concentrations are shown in gray in the tables included in Appendix C. Historical statistically higher values above background well concentrations since 1989 are shown in Table 4.

# 5. Discussion of Results

## 5.1 Statistical Results

Appendix C presents the results of the statistical analyses for each individual parameter tested in the groundwater samples from monitoring wells BXS-1 through BXS-4. Results show average concentration, variance, standard deviation, and the Student's t-test statistic. The parameters detected at a statistically higher concentration in specific downgradient wells compared to the upgradient well are:

- Iron and manganese in BXS-3
- TDS, TOC, manganese, and tannin and lignin in BXS-2
- Sulfate in BXS-1

## 5.2 Concentration Trends over Time

Figures 5 through 17 show the concentration trends from 2007 through 2018 for each of the following parameters:

- **Ammonia as Nitrogen** (Figure 5)**:** In 2018, ammonia concentrations in BXS-4 (upgradient well) spiked in September and were greater than BXS-3 for the first time since 2011. Ammonia concentrations in BXS-3 have been on the decline since 2014. In BXS-1 and BXS-2, concentrations have been well below background concentrations with the exception of first quarter 2017.
- **Arsenic** (Figure 6)**:** Arsenic concentrations are highest in BXS-3 and have been consistently above levels in BXN-4 (upgradient well). Concentrations in BXS-3 in 2018, however, were at their lowest levels since 2009. Arsenic in BXS-4, BXS-2 and BXS-1 have been regularly at or slightly greater than MDLs.
- **Barium** (Figure 7)**:** Barium concentrations in BXS-3 and BXS-2 have typically been higher than those in BXS-4 (upgradient well). In 2018, however, barium levels in all wells were similar.
- **COD** (Figure 8)**:** COD increased in all wells but BXS-3 in 2018. The highest levels still reside in BXS-3. COD concentrations have usually been higher in BXS-3 and BXS-2 compared to BXS-4 (upgradient well), but levels were similar in all wells in 2018.
- **Chloride** (Figure 9)**:** Chloride concentrations have consistently been greater in BXS-1 and BXS-2 relative to BXS-4 (upgradient well). Since 2017, chloride levels in all wells have fluctuated. Values peaked in BXS-3 in 2018.
- **Iron** (Figure 10)**:** Iron concentrations have been highest in BXS-3 and regularly exceed levels in BXS-4 (upgradient well). In 2018, however, iron in BXS-3 decreased to its lowest level since 2009. Background concentrations and levels in other downgradient wells have been relatively consistent but iron in BXS-4 spiked in 2017 and 2108, increasing to levels greater than BXS-1 and BXS-2.
- **Manganese** (Figure 11)**:** Manganese concentrations in BXS-3 and BXS-2 have routinely been greater than those in BXS-4 (upgradient well). Levels fluctuate the most and are highest in BXS-3 but concentrations show a decreasing trend. With the exception of increases in the third quarters of 2009 and 2017, manganese levels in other wells have been relatively consistent.
- **Nickel** (Figure 12)**:** Since the second quarter of 2013, nickel levels in all downgradient wells have been higher than those in BXS-4 (upgradient well). Concentrations have typically been highest in BXS-2. With the exception of an increase in the third quarter of 2009, nickel levels in all wells have been fairly consistent.

- **Sulfate** (Figure 13)**:** Except for peaks in BXS-2 in 2017 and 2018, sulfate concentrations in BXS-1 have been routinely greater than those in other wells. Concentrations in BXS-2 and BXS-3 have been consistent and lower or similar to background with the exception of aforementioned spikes in BXS-2.
- **Tannin and Lignin** (Figure 14)**:** Tannin and lignin concentrations in BXS-3 and BXS-2 have regularly exceeded levels in BXS-4 (upgradient well). Concentrations are highest in BXS-3 and appear to be increasing. Tannin and lignin in BXS-1 were slightly below the background concentration. With the exception of BXS-3, the trend in concentrations in downgradient wells has been stable.
- **TOC** (Figure 15)**:** TOC levels in BXS-3, BXS-2, and BXS-1 were consistently above those in BXS-4 (upgradient well). Concentrations have been stable in BXS-4, but fluctuate more in downgradient wells. TOC is highest in BXS-3.
- **Field pH** (Figure 16)**:** Field pH has been consistently lower in wells BXS-1, BXS-2, and BXS-3 relative to BXS-4 (upgradient well). Field pH is decreasing in all wells, but less substantially in the downgradient wells.
- **TDS** (Figure 17)**:** TDS in BXS-3, BXS-2, and BXS-1 has been consistently higher relative to BXS-4 (upgradient well). TDS concentrations in BXS-4 have been consistent. Levels are more variable in downgradient wells but are showing a decreasing trend. TDS is highest in BXS-2.

## 5.3 Comparison to Standards

In Washington, water quality standards for groundwater are provided in the Washington Administrative Code (WAC) 173-200-040 (Washington, 2003). Washington water quality standards for groundwater are listed in Tables 3A, 3B, and 3C.

### 5.3.1 Comparison to Washington State Standards

There were no detections in 2018 that exceeded Washington water quality standards for groundwater, with the following exceptions:

- **Arsenic:** In BXS-3, arsenic concentrations exceeded Washington's water quality standard for groundwater of 0.05 µg/L in all quarterly monitoring events. Concentrations in BXS-3 ranged from 51 to 96 µg/L.
- **Iron:** In BXS-4 (background well), iron levels exceeded the standard of 300 µg/L in the first and third quarters. In BXS-3 and BXS-2, concentrations exceeded the standard in all quarters and the first quarter, respectively. Levels in BXS-4, BXS-3 and BXS-2 peaked at 886, 109,000 and 338 µg/L, respectively.
- **Manganese:** In all monitoring wells, concentrations exceeded the standard of 50 µg/L in each quarterly monitoring event. Concentrations were highest in BXS-3, ranging from 4,890 to 7,930 µg/L.
- **Field pH:** In all wells, pH levels were below the groundwater standard of 6.5 to 8.5 for all quarterly monitoring events, with the exception of BXS-4 in the third quarter. pH levels ranged from 5.71-7.92.

Per the Snohomish Health District's request in a letter dated August 28, 2015, a dissolved arsenic plume delineation was performed in 2018. Arsenic is a naturally occurring element that can become mobilized by reduced geochemical conditions, such as those present at the Site. Once mixed with oxic downgradient waters, arsenic would immobilize through precipitation, sorption, or other complexing forces favorable for arsenic in more aerobic environments. However, to provide a conservative estimate of downgradient transport, arsenic was modeled as non-reactive solute using the Domenico equation for advection and dispersion. Calculations were performed with the Quick Domenico worksheet used by California and Pennsylvania to screen potential landfill impacts and the plume extent plotted in Figure 18. A description of the model inputs and results is provided in Appendix D.

The Domenico model was run for the upper range of site hydraulic conductivity (Table 2). The model was set to a 10-year run period (3650 days), at which point the modeled concentration has reached the furthest downgradient extent given a constant source, the concentration being peak arsenic measured in 2018 (Table D-2). The largest areal extent with arsenic concentrations meeting or exceeding the Washington groundwater standard of 5 µg/L is plotted in Figure 18. Arsenic concentrations exceeding the groundwater standard were not found to persist greater than 350 feet downgradient of BXS-3.

# 6. Summary

Quarterly groundwater monitoring samples were collected from one upgradient well (BXS-4) and three downgradient wells (BXS-1 through BXS-3) during 2018 at the South Woodwaste Landfill. The samples were analyzed for 7 groundwater quality parameters and 5 dissolved metals.

Some groundwater samples collected during the monitoring events in 2018 exceeded particular Washington water quality standards for groundwater. At times, arsenic, iron, and manganese concentrations did not comply with state standards. Manganese levels in all wells were higher than the standard in each quarter. Arsenic and iron in BXS-3 exceeded state criteria in each quarter; iron in BXS-2 and BXS-4 exceeded 300 µg/L in the first quarter and first/third quarters, respectively. Furthermore, most field pH measurements in downgradient wells were lower than 6.5.

# 7. References

APHA. 1998. Standard Methods for the Examination of Water and Wastewater, 20th Edition. American Public Health Association.

EMCON. 1989. Hydrogeologic Report, J.H. Baxter South Woodwaste Landfill, Arlington, Washington. Prepared for J.H. Baxter by EMCON, Bothell, Washington. January 1989.

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GSI Water Solutions, Inc. (GSI) 2017. Revised groundwater sampling and analysis plan, north and south woodwaste landfills, Arlington, WA. Prepared for J.H. Baxter Co., Eugene, OR.

Washington. 2003. Washington Administrative Code (WAC) 173-200-040. Washington State Legislature. Last updated in 2003.

## Tables

**Table 1. Groundwater Elevation Summary for 2018**

Former J.H. Baxter South Woodwaste Landfill

*Arlington, Washington*

| Well ID | Inner Casing Diameter (inches) | Total Depth (ft bgs) | Screen Length (ft) | Screened Interval (ft bgs) | TOC Elevation[1] (ft msl) | Date | Depth to Groundwater (ft below TOC) | Groundwater Elevation (ft msl) |
|---|---|---|---|---|---|---|---|---|
| BXS-1 | 2 | 47.90 | 10 | 37.90 - 47.90 | 142.65 | 3/17/2018 | 29.10 | 113.55 |
| | | | | | | 6/16/2018 | NM | NA |
| | | | | | | 9/29/2018 | 33.99 | 108.66 |
| | | | | | | 11/17/2018 | NM | NA |
| BXS-2 | 2 | 45.40 | 10 | 35.40 - 45.40 | 142.89 | 3/17/2018 | ND | NA |
| | | | | | | 6/16/2018 | 27.57 | 115.32 |
| | | | | | | 9/29/2018 | 32.55 | 110.34 |
| | | | | | | 11/17/2018 | NM | NA |
| BXS-3 | 2 | 44.15 | 10 | 34.15 - 44.15 | 142.07 | 3/17/2018 | 22.75 | 119.32 |
| | | | | | | 6/16/2018 | NM | NA |
| | | | | | | 9/29/2018 | 28.28 | 113.79 |
| | | | | | | 11/17/2018 | ND | NA |
| BXS-4 | 2 | 47.40 | 10 | 37.40 - 47.40 | 143.42 | 3/17/2018 | ND | NA |
| | | | | | | 6/16/2018 | NM | NA |
| | | | | | | 9/29/2018 | 11.45 | 131.97 |
| | | | | | | 11/17/2018 | NM | NA |

**Notes**

bgs = below ground surface.

ft = feet.

msl = mean sea level.

TOC = top of casing.

NM - not monitored; ND - no data.

[1] Wells resurveyed in October 2002.

**Table 2. Hydraulic Gradient and Groundwater Velocity**

Former J.H. Baxter South Woodwaste Landfill

*Arlington, Washington*

| Date | Gradient (i) | Hydraulic Conductivity (K) (cm/sec) | Porosity ($n_e$) | Velocity ($v_x$) (cm/sec) | Velocity ($v_x$) (ft/day) |
|---|---|---|---|---|---|
| 9/29/2018 | 0.020 | 0.0300 to 0.0600 | 0.300 | 0.002 -- 0.004 | 5.7 -- 11.4 |

**Notes**

cm = centimeter.

ft = feet.

NC = not calculated.

sec = second.

**Table 3A. Summary of Groundwater Sampling Field Parameters: 2007 through 2018**

Former J.H. Baxter South Woodwaste Landfill

*Arlington, Washington*

| Date | pH (standard unit) | | | | Conductivity (µS/cm) | | | | Temperature (°C) | | | | ORP (mV) | | | | Dissolved Oxygen (mg/L) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SMCL | 6.5 - 8.5 | | | | -- | | | | -- | | | | -- | | | | -- | | | |
| WA WQ Std | 6.5 - 8.5 | | | | -- | | | | -- | | | | -- | | | | -- | | | |
| Well ID | BXS-4 | BXS-3 | BXS-2 | BXS-1 | BXS-4 | BXS-3 | BXS-2 | BXS-1 | BXS-4 | BXS-3 | BXS-2 | BXS-1 | BXS-4 | BXS-3 | BXS-2 | BXS-1 | BXS-4 | BXS-3 | BXS-2 | BXS-1 |
| 2/5/2007 | 8.60 | 7.12 | 6.81 | 6.75 | 166 | 730 | 672 | 299 | 9.5 | 13.2 | 12.1 | 11.4 | -40 | -103 | 1 | 241 | 9.80 | 2.40 | 3.00 | 2.30 |
| 4/18/2007 | 8.09 | 6.62 | 6.47 | 6.31 | 176 | 808 | 796 | 379 | 9.5 | 13.1 | 12.3 | 11.7 | -136 | -113 | 45 | 187 | 1.20 | 1.80 | 1.20 | 0.80 |
| 7/18/2007 | 8.25 | 6.64 | 6.52 | 6.38 | 222 | 867 | 922 | 415 | 9.8 | 13.1 | 12.5 | 12.0 | -145 | -113 | 62 | 219 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10/9/2007 | 7.83 | 6.30 | 6.19 | 6.02 | 199 | 810 | 804 | 495 | 9.8 | 12.8 | 12.5 | 12.0 | -148 | -97 | 40 | 226 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1/9/2008 | 7.81 | 6.25 | 6.18 | 5.91 | 196 | 788 | 772 | 369 | 9.3 | 12.1 | 12.1 | 11.4 | -147 | -67 | 54 | 251 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4/30/2008 | 7.66 | 6.23 | 6.10 | 5.98 | 201 | 846 | 794 | 485 | 9.1 | 12.9 | 12.2 | 11.8 | -157 | -126 | 32 | 138 | 0.00 | 0.00 | 0.08 | 0.15 |
| 7/29/2008 | 7.98 | 6.42 | 6.37 | 6.14 | 180 | 726 | 732 | 510 | 9.4 | 12.9 | 12.4 | 12.0 | -150 | -90 | 31 | 185 | 0.33 | 0.37 | 1.77 | 5.80 |
| 10/22/2008 | 8.32 | 6.55 | 6.48 | 6.28 | 177 | 722 | 733 | 496 | 9.6 | 12.7 | 12.4 | 12.0 | -173 | -93 | 20 | 157 | 0.07 | 0.12 | 0.14 | 1.10 |
| 2/1/2009 | 8.09 | 6.77 | 6.56 | 6.42 | 176 | 734 | 749 | 401 | 9.2 | 12.7 | 12.0 | 11.6 | -154 | -118 | 59 | 299 | 2.33 | 2.04 | 1.87 | 2.66 |
| 5/1/2009 | 8.25 | 6.44 | 6.35 | 6.33 | 185 | 736 | 812 | 335 | 9.4 | 13.2 | 12.6 | 12.0 | -192 | -99 | 86 | 121 | 1.21 | 0.08 | 0.10 | 0.53 |
| 8/1/2009 | 7.89 | 6.52 | 6.64 | 6.41 | 185 | 695 | 797 | 309 | 9.4 | 12.6 | 12.3 | 11.9 | -172 | -128 | 36 | 245 | 8.60 | 6.28 | 6.03 | 6.04 |
| 11/1/2009 | 7.96 | 6.50 | 6.46 | 6.37 | 192 | 755 | 815 | 315 | 9.3 | 12.2 | 12.0 | 11.5 | -167 | -98 | 52 | 257 | 6.73 | 2.86 | 1.98 | 1.18 |
| 2/10/2010 | 8.05 | 6.59 | 6.55 | 6.58 | 180 | 726 | 799 | 274 | 9.3 | 12.9 | 12.1 | 12.0 | -183 | -73 | -3 | 74 | 0.11 | 0.17 | 0.31 | 1.23 |
| 5/26/2010 | 7.46 | 6.04 | 5.96 | 5.90 | 189 | 719 | 853 | 288 | 9.3 | 12.8 | 17.0 | 12.0 | -247 | -142 | 59 | 129 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8/18/2010 | 7.63 | 5.98 | 5.87 | 5.94 | 230 | 690 | 833 | 309 | 9.7 | 12.5 | 12.3 | 12.3 | -285 | -51 | 141 | 258 | 0.00 | 0.18 | 0.38 | 0.93 |
| 11/18/2010 | 7.99 | 6.37 | 6.52 | 6.34 | 184 | 694 | 813 | 344 | 9.7 | 12.8 | 12.1 | 11.9 | -287 | -193 | -42 | -30 | 0.43 | 0.12 | 1.98 | 0.24 |
| 2/9/2011 | 8.02 | 6.22 | 6.16 | 6.24 | 187 | 710 | 844 | 334 | 9.5 | 12.8 | 11.9 | 12.0 | -164 | -128 | 36 | -167 | 0.10 | 0.11 | 0.26 | 0.28 |
| 5/17/2011 | 7.99 | 6.24 | 6.20 | 6.25 | 183 | 732 | 929 | 315 | 9.9 | 12.8 | 12.2 | 12.6 | -205 | -120 | 32.0 | 158 | 0.36 | 0.38 | 0.43 | 0.45 |
| 8/24/2011 | 7.77 | 5.79 | 5.73 | 5.75 | 190 | 741 | 833 | 337 | 10.2 | 13.0 | 12.4 | 12.4 | -172 | -115 | 45 | 164 | 0.09 | 0.09 | 0.19 | 0.18 |
| 11/3/2011 | 8.36 | 6.43 | 6.37 | 6.46 | 192 | 673 | 852 | 346 | 9.8 | 12.5 | 12.0 | 12.0 | -274 | -140 | 39 | 150 | 1.12 | 1.04 | 1.19 | 1.29 |
| 2/14/2012 | 7.72 | 6.92 | 6.74 | 6.67 | 192 | 696 | 865 | 359 | 10.4 | 13.1 | 12.5 | 12.6 | -142 | -118 | 74 | 302 | 3.10 | 4.17 | 4.21 | 5.76 |
| 5/2/2012 | 6.97 | 5.70 | 5.65 | 5.06 | 193 | 693 | 914 | 319 | 10.4 | 13.1 | 12.7 | 12.6 | -98 | -49 | 141 | 396 | 1.37 | 1.86 | 2.23 | 3.94 |
| 8/21/2012 | 6.62 | 5.33 | 5.34 | 4.90 | 192 | 707 | 895 | 308 | 10.7 | 13.1 | 12.8 | 12.8 | -84 | -47 | 182 | 330 | 1.53 | 1.97 | 2.39 | 2.28 |
| 11/13/2012 | 7.68 | 6.29 | 6.26 | 6.10 | 147 | 520 | 641 | 239 | 12.5 | 12.5 | 12.9 | 10.5 | -125 | -82 | 216 | 439 | 2.39 | 4.73 | 7.79 | 6.45 |
| 2/12/2013 | 7.07 | 5.66 | 5.72 | 5.57 | 184 | 529 | 869 | 278 | 9.7 | 12.4 | 11.8 | 12.0 | -118 | -92 | 76 | 337 | 2.16 | 3.68 | 0.82 | 0.91 |
| 6/4/2013 | 7.32 | 5.92 | 5.84 | 5.69 | 190 | 635 | 892 | 271 | 10.1 | 12.2 | 12.0 | 12.2 | -141 | -99 | 90 | 313 | 0.83 | 2.62 | 1.52 | 0.44 |
| 8/25/2013 | 7.62 | 6.30 | 6.22 | 6.03 | 193 | 709 | 871 | 299 | 10.2 | 12.2 | 12.0 | 12.5 | -119 | -104 | 118 | 315 | 0.36 | 0.80 | 2.96 | 2.22 |
| 12/2/2013 | 7.39 | 5.88 | 5.66 | 5.63 | 198 | 699 | 882 | 313 | 9.8 | 11.9 | 11.6 | 12.1 | -124 | -112 | 135 | 328 | 1.02 | 5.46 | 5.74 | 2.36 |
| 3/17/2014 | 5.92 | 6.28 | 6.16 | 6.06 | 189 | 730 | 817 | 299 | 10.0 | 12.2 | 11.6 | 12.7 | -112 | -94 | 128 | 268 | 1.85 | 8.84 | 12.60 | 2.07 |
| 6/2/2014 | 7.47 | 5.72 | 5.79 | 5.64 | 213 | 793 | 952 | 318 | 10.1 | 12.3 | 12.2 | 13.3 | -92 | -86 | 84 | 213 | 0.15 | 0.00 | 0.00 | 0.00 |
| 9/29/2014 | 7.69 | 6.25 | 6.15 | 5.99 | 212 | 733 | 918 | 306 | 10.5 | 12.3 | 12.0 | 12.5 | -126 | -94 | 106 | 273 | 0.00 | 0.00 | 0.00 | 0.00 |

**Table 3A. Summary of Groundwater Sampling Field Parameters: 2007 through 2018**

Former J.H. Baxter South Woodwaste Landfill

*Arlington, Washington*

| Date | pH (standard unit) | | | | Conductivity (µS/cm) | | | | Temperature (°C) | | | | ORP (mV) | | | | Dissolved Oxygen (mg/L) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SMCL | 6.5 - 8.5 | | | | -- | | | | -- | | | | -- | | | | -- | | | |
| WA WQ Std | 6.5 - 8.5 | | | | -- | | | | -- | | | | -- | | | | -- | | | |
| Well ID | BXS-4 | BXS-3 | BXS-2 | BXS-1 | BXS-4 | BXS-3 | BXS-2 | BXS-1 | BXS-4 | BXS-3 | BXS-2 | BXS-1 | BXS-4 | BXS-3 | BXS-2 | BXS-1 | BXS-4 | BXS-3 | BXS-2 | BXS-1 |
| 11/17/2014 | 7.48 | 5.99 | 5.88 | 5.69 | 192 | 675 | 822 | 285 | 10.2 | 11.9 | 11.6 | 12.2 | -117 | -77 | 111 | 285 | 0.00 | 10.75 | 0.71 | 0.00 |
| 2/23/2015 | 7.28 | 5.84 | 5.78 | 5.86 | 194 | 682 | 798 | 269 | 10.2 | 12.4 | 11.8 | 12.8 | -102 | -71 | 125 | 299 | 1.02 | 1.28 | 1.25 | 1.58 |
| 9/14/2015 | 7.50 | 6.26 | 6.24 | 6.02 | 196 | 674 | 778 | 268 | 10.8 | 12.2 | 11.9 | 13.3 | -136 | -107 | 142 | 114 | 1.09 | 1.33 | 1.32 | 1.23 |
| 12/7/2015 | 7.06 | 6.04 | 5.94 | 5.28 | 187 | 676 | 732 | 286 | 10.3 | 12.0 | 11.7 | 12.4 | -143 | -112 | 159 | 286 | 1.25 | 1.04 | 1.07 | 1.18 |
| 2/29/2016 | 6.98 | 6.00 | 5.95 | 5.86 | 196 | 644 | 795 | 280 | 10.5 | 12.4 | 11.8 | 12.4 | -74 | -102 | 153 | 365 | 1.37 | 0.92 | 0.98 | 1.15 |
| 6/16/2016 | 7.69 | 6.49 | 6.57 | 6.03 | 197 | 663 | 754 | 356 | 11.1 | 12.4 | 12.4 | 12.9 | -162 | -120 | 13.2 | 339 | 0.79 | 0.72 | 2.54 | 0.74 |
| 9/26/2016 | 6.84 | 6.19 | 6.10 | 5.81 | 189 | 627 | 637 | 344 | 11.8 | 12.5 | 12.5 | 12.8 | -128 | -153 | 148 | 315 | 0.75 | 0.75 | 2.97 | 0.90 |
| 3/8/2017 | 7.28 | 6.12 | 6.08 | 5.87 | 188 | 694 | 680 | 373 | 12.7 | 13.1 | 12.8 | 13.1 | 57 | 109 | 57 | 161 | 3.37 | 1.37 | 0.76 | 2.43 |
| 6/10/2017 | NT | NT | 6.36 | NT | NT | NT | 354 | NT | NT | NT | 12.4 | NT | NT | NT | 106 | NT | NT | NT | 2.90 | NT |
| 9/16/2017 | 6.97 | 6.18 | 6.12 | | 156 | 507 | 567 | | 12.9 | 12.8 | 12.3 | | -146.4 | -126 | -120.9 | | 0.88 | 1.62 | 2.56 | |
| 12/14/2017 | NT | NT | 6.26 | NT | NT | NT | 587 | NT | NT | NT | 12.4 | NT | NT | NT | 78.9 | NT | NT | NT | 0.42 | NT |
| 3/17/2018 | | 6.28 | | 6.18 | | 335 | | 186 | | 10.4 | | 14.1 | | 18.9 | | -50.1 | | 5.77 | | 1.62 |
| 6/16/2018 | | | 6.15 | | | | 375 | | | | 12.7 | | | | 68.4 | | | | 0.35 | |
| 9/29/2018 | 7.92 | 6.13 | 6.01 | 5.71 | 243 | 447 | 505 | 247 | 15.3 | 12.7 | 12.1 | 12.5 | -67 | -61 | 136 | 265 | 0.08 | 0.03 | 0.00 | 0.00 |
| 11/17/2018 | | | | | | | | | | | | | | | | | | | | |

**Notes**

µS/cm = microSiemen per centimete °C = degree Celsius. mg/L = milligram per liter. mV = millivolt. NT = not tested.

ORP = oxidation-reduction potential.

SMCL = Federal secondary maximum contaminant levels for drinking water.

WA WQ Std = State of Washington's water quality standards for groundwater (WAC 173-200).

**Table 3B. Summary of Groundwater Conventional Parameters: 2007 through 2018**

Former J.H. Baxter South Woodwaste Landfill

*Arlington, Washington*

| Date | pH (standard unit) | | | | | | | | | Conductivity (µS/cm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCL/SMCL | 6.5 - 8.5 | | | | | | | | | -- | | | | | | | | |
| WA WQ Std | 6.5 - 8.5 | | | | | | | | | -- | | | | | | | | |
| Well ID | BXS-4 | BXS-4 Dup | BXS-3 | BXS-3 Dup | BXS-2 | BXS-2 Dup | BXS-1 | BXS-1 Dup | Field Blank | BXS-4 | BXS-4 Dup | BXS-3 | BXS-3 Dup | BXS-2 | BXS-2 Dup | BXS-1 | BXS-1 Dup | Field Blank |
| 2/1/2007 | 7.81 | 7.90 | 6.38 | | 6.36 | | 6.36 | | 5.79 | 193 | 192 | 517 | | 743 | | 338 | | 4 |
| 4/18/2007 | 7.61 | 7.45 | 6.05 | | 6.10 | | 5.94 | | 5.66 | 195 | 199 | 565 | | 779 | | 377 | | 2 |
| 7/18/2007 | 7.69 | | 6.34 | | 6.96 | | 6.28 | 6.23 | 6.04 | 201 | | 518 | | 798 | | 410 | 401 | 2 |
| 10/9/2007 | 7.82 | 7.85 | 6.36 | | 6.35 | | 6.18 | | 5.72 | 200 | 201 | 638 | | 814 | | 482 | | 3 |
| 1/9/2008 | 7.75 | | 6.41 | | 6.46 | | 6.23 | 6.25 | 5.10 | 215 | | 681 | | 747 | | 375 | 360 | 5 |
| 4/30/2008 | 7.76 | | 6.36 | | 6.44 | | 6.38 | 6.38 | 6.21 | 188 | | 658 | | 797 | | 475 | 472 | 2,630 |
| 7/29/2008 | 7.83 | | 6.32 | | 6.45 | 6.40 | 6.27 | | 5.30 | 206 | | 659 | | 853 | 865 | 592 | | 4 |
| 10/22/2008 | 7.83 | | 6.33 | | 6.41 | 6.40 | 6.49 | | | 210 | | 700 | | 892 | 877 | 592 | | |
| 2/1/2009 | 7.94 | | 6.30 | | 6.50 | | 6.67 | 6.42 | 5.89 | 209 | | 604 | | 889 | | 489 | 479 | 6 |
| 5/1/2009 | 7.92 | | 6.29 | | 6.29 | | 6.38 | 6.30 | 5.64 | 171 | | 496 | | 768 | | 357 | 328 | 2 |
| 8/1/2009 | 6.32 | | 6.45 | 6.42 | 6.40 | | 6.31 | | 5.44 | 176 | | 412 | 413 | 757 | | 299 | | 3 |
| 11/1/2009 | 7.66 | | 6.41 | | 6.41 | | 6.42 | 6.42 | 6.40 | 194 | | 598 | | 823 | | 299 | 314 | 3 |
| 2/10/2010 | 8.04 | | 6.38 | | 6.56 | 6.56 | 6.70 | | 6.43 | 187 | | 634 | | 848 | 854 | 298 | | 2 J |
| 5/26/2010 | 7.87 | | 6.26 | | 6.33 | | 6.41 | 6.48 | 4.93 | 192 | | 461 | | 881 | | 297 | 300 | 4 |
| 8/18/2010 | 7.83 | | 6.15 | | 6.30 | | 6.42 | 6.46 | 7.91 | 209 | | 423 | | 805 | | 311 | 316 | 137 |
| 11/18/2010 | 7.72 | | 5.99 | | 6.27 | | 6.35 | 6.34 | 6.00 | 172 | | 543 | | 901 | | 377 | 364 | 3 |
| 2/9/2011 | 7.88 | | 6.23 | | 6.38 | | 6.49 | 6.51 | | 155 | | 371 | | 729 | | 296 | 296 | 5 |
| 5/17/2011 | 7.79 | | 6.28 | | 6.42 | | 6.32 | 6.50 | 6.06 | 219 | | 377 | | 801 | | 321 | 310 | 3 |
| 8/24/2011 | 8.14 | | 6.45 | | 6.47 | | 6.46 | 6.74 | 6.03 | 202 | | 603 | | 941 | | 359 | 359 | 2 J |
| 11/3/2011 | 7.78 | | 6.35 | | 6.49 | | 6.75 | 6.57 | 7.33 | 195 | | 505 | | 884 | | 360 | 361 | 2 |
| 2/14/2012 | 7.94 | | 6.42 | | 6.54 | | 6.64 | 6.59 | 6.04 | 194 | | 425 | | 873 | | 363 | 361 | 2 |
| 5/2/2012 | 7.91 | | 6.35 | | 6.68 | | 6.70 | 6.59 | 6.86 | 168 | | 435 | | 925 | | 329 | 288 | 3 |
| 8/21/2012 | 7.66 | | 6.32 | | 6.62 | | 6.43 | 6.69 | 6.39 | 192 | | 451 | | 898 | | 311 | 315 | 3 |
| 11/13/2012 | 8.09 | | 6.62 | | 6.63 | | 6.81 | 6.77 | 7.42 | 193 | | 463 | | 867 | | 316 | 326 | 2,490 |
| 2/12/2013 | 8.28 | | 6.60 | | 7.03 | | 7.07 | 6.93 | 7.27 | 194 | | 377 | | 939 | | 303 | 299 | 2 J |
| 6/4/2013 | 8.21 | | 6.60 | | 6.75 | | 6.94 | 6.78 | 7.32 | 202 | | 516 | | 945 | | 290 | 299 | 2 J |
| 8/27/2013 | 8.04 | | 6.54 | | 6.62 | | 6.69 | 6.63 | 6.43 | 188 | | 428 | | 876 | | 293 | 292 | 2 J |
| 12/2/2013 | 8.13 | | 6.58 | | 6.88 | | 6.93 | 6.79 | 6.20 | 193 | | 513 | | 866 | | 312 | 310 | 2 J |
| 3/17/2014 | 8.30 | | 6.57 | | 6.76 | | 6.80 | 6.75 | 6.38 | 170 | | 408 | | 774 | | 314 | 260 | 7 |
| 6/2/2014 | 8.00 | | 6.44 | | 6.42 | | 6.52 | 6.48 | 5.97 | 192 | | 4,790 | | 861 | | 290 | 292 | 2 J |
| 9/29/2014 | 8.04 | | 6.59 | | 7.26 | | 7.11 | 7.34 | 6.35 | 192 | | 396 | | 840 | | 281 | 284 | 3 |
| 11/17/2014 | 7.61 | | 6.23 | | 6.69 | | 7.04 | 6.75 | 7.77 | 190 | | 406 | | 819 | | 281 | 294 | 3 |
| 2/23/2015 | 7.90 H | | 6.33 H | | 6.59 H | | 6.78 H | 6.55 H | 6.22 H | 209 | | 430 | | 876 | | 292 | 279 | 2 J |
| 9/14/2015 | 7.92 H | | 6.31 H | | 6.61 H | | 6.71 H | 6.51 H | 7.00 H | 204 | | 348 | | 807 | | 283 | 280 | 2 J |
| 12/7/2015 | 7.82 H | | 6.19 H | | 6.52 H | | 6.49 H | 6.54 H | | 204 | | 396 | | 784 | | 312 | 303 | |
| 2/29/2016 | 7.83 | | 6.27 | | 6.67 | | 6.45 | 6.56 | 6.44 | 220 | | 413 | | 866 | | 317 | 315 | 2.9 |
| 6/16/2016 | 8.06 | | 6.24 | | 6.55 | | 6.57 | 6.63 | 5.80 | 216 | | 450 | | 817 | | 397 | 396 | 1.5 J |
| 9/26/2016 | 8.00 | | 6.29 | | 6.54 | | 6.39 | 6.48 | 5.81 | 207 | | 548 | | 747 | | 380 | 385 | 10.8 |
| 3/8/2017 | 7.7 | | 6.42 | | 6.42 | | 6.80 | 6.40 | | 198 | | 425 | | 704 | | 396 | 398 | |
| 6/10/2017 | | | | | 6.96 | | | | | | | | | 445 | | | | |
| 9/16/2017 | | | | | | | | | | 195 | | | | | | | | |
| 12/14/2017 | | | | | | | | | | | | | | | | | | |
| 3/17/2018 | 8.3 | | | | | | | | | 207 | | | | | | | | |
| 6/16/2018 | | | | | | | | | | | | | | | | | | |
| 9/29/2018 | | | | | | | | | | | | | | | | | | |
| 11/17/2018 | | | | | | | | | | | | | | | | | | |

**Table 3B. Summary of Groundwater Conventional Parameters: 2007 through 2018**

Former J.H. Baxter South Woodwaste Landfill

*Arlington, Washington*

| Date | Chloride (mg/L) | | | | | | | | | Nitrate + Nitrite as N (mg/L) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCL/SMCL | 250 | | | | | | | | | 10 | | | | | | | | |
| WA WQ Std | 250 | | | | | | | | | 10 | | | | | | | | |
| Well ID | BXS-4 | BXS-4 Dup | BXS-3 | BXS-3 Dup | BXS-2 | BXS-2 Dup | BXS-1 | BXS-1 Dup | Field Blank | BXS-4 | BXS-4 Dup | BXS-3 | BXS-3 Dup | BXS-2 | BXS-2 Dup | BXS-1 | BXS-1 Dup | Field Blank |
| 2/1/2007 | 1.6 | 1.6 | 3.1 | | 4.9 | | 6.4 | | 0.2 U | 0.28 | 0.58 | 0.96 | | 0.94 | | 0.75 | | 0.03 J |
| 4/18/2007 | 1.9 | 1.9 | 2.3 | | 4.5 | | 5.4 | | 0.2 U | 0.23 | 1.21 | 0.20 | | 0.63 | | 0.85 | | 0.01 J |
| 7/18/2007 | 1.7 | | 2.8 | | 4.1 | | 5.1 | 5.0 | 0.2 U | 0.05 U | | 0.19 | | 0.08 | | 0.70 | 0.68 | 0.01 J |
| 10/9/2007 | 1.7 | 1.7 | 2.7 | | 4.3 | | 5.2 | | 0.1 J | 0.05 U | 0.05 U | 0.17 | | 0.05 U | | 0.47 | | 0.05 U |
| 1/9/2008 | 2.0 | | 3.1 | | 4.5 | | 5.8 | 5.8 | 0.2 U | 0.05 U | | 0.07 | | 0.05 U | | 0.58 | 0.54 | 0.05 U |
| 4/30/2008 | 1.8 | | 2.4 | | 4.4 | | 5.0 | 5.1 | 0.0 J | 0.05 U | | 0.05 U | | 0.05 U | | 0.74 | 0.73 | 0.05 U |
| 7/29/2008 | 1.8 | | 2.8 | | 4.2 | 4.4 | 4.5 | | 0.2 U | 0.10 | | 0.15 | | 0.05 U | 0.05 U | 1.48 | | 0.05 U |
| 10/22/2008 | 1.9 | | 3.6 | | 4.9 | 4.9 | 5.1 | | | 0.05 U | | 0.10 | | 0.03 J | 0.01 J | 0.51 | | |
| 2/1/2009 | 1.7 | | 2.6 | | 4.2 | | 7.6 | 7.6 | 0.0 J | 0.05 U | | 0.17 | | 0.01 J | | 0.99 | 1.02 | 0.05 |
| 5/1/2009 | 2.2 | | 4.5 | | 6.1 | | 7.3 | 7.3 | 0.2 U | 0.01 J | | 0.21 | | 0.03 J | | 0.12 | 0.13 | 0.02 J |
| 8/1/2009 | 1.8 | | 3.8 | 3.7 | 4.3 | | 5.9 | | 0.2 U | 0.05 U | | 0.17 | 0.17 | 0.02 J | | 0.11 | | 0.05 U |
| 11/1/2009 | 1.9 | | 3.3 | | 4.4 | | 6.5 | 6.6 | 0.2 U | 0.05 U | | 0.06 | | 0.05 U | | 0.05 U | 0.05 U | 0.05 U |
| 2/10/2010 | 1.81 | | 2.90 | | 4.20 | 4.20 | 5.30 | | 0.06 J | 0.05 U | | 0.13 | | 0.05 U | 0.05 U | 0.04 J | | 0.05 U |
| 5/26/2010 | 1.88 | | 3.40 | | 4.10 | | 5.90 | 6.00 | 0.04 J | 0.03 J | | 0.22 | | 0.04 J | | 0.11 | 0.11 | 0.04 J |
| 8/18/2010 | 1.91 | | 3.04 | | 3.32 | | 5.67 | 5.70 | 1.57 | 0.04 J | | 0.18 | | 0.04 J | | 0.14 | 0.14 | 0.17 |
| 11/18/2010 | 1.57 | | 2.74 | | 3.21 | | 5.38 | 5.29 | 0.40 U | 0.05 U | | 0.12 | | 0.05 U | | 0.09 | 0.09 | 0.05 U |
| 2/9/2011 | 2.10 | | 2.37 | | 3.43 | | 6.99 | 7.09 | 0.40 U | 0.05 U | | 190 | | 0.05 U | | 0.05 U | 0.05 U | 0.05 U |
| 5/17/2011 | 1.65 | | 2.07 | | 3.05 | | 6.17 | 5.94 | 0.40 U | 0.01 J | | 0.14 | | 0.02 J | | 0.15 | 0.14 | 0.01 J |
| 8/24/2011 | 1.69 | | 1.85 | | 2.88 | | 5.71 | 5.71 | 0.40 U | 0.01 J | | 0.10 | | 0.01 J | | 0.06 | 0.06 | 0.01 J |
| 11/3/2011 | 1.93 | | 2.49 | | 3.38 | | 6.01 | 5.74 | 0.40 U | 0.05 U | | 0.14 | | 0.01 J | | 0.10 | 0.09 | 0.05 U |
| 2/14/2012 | 1.67 | | 2.11 | | 2.91 | | 5.33 | 5.37 | 0.40 U | 0.03 J | | 0.13 | | 0.02 J | | 0.08 | 0.08 | 0.03 J |
| 5/2/2012 | 1.66 | | 1.50 | | 2.97 | | 5.70 | 5.65 | 0.40 U | 0.05 U | | 0.10 | | 0.01 J | | 0.05 J | 0.03 J | 0.05 U |
| 8/21/2012 | 1.62 | | 1.58 | | 2.96 | | 4.75 | 4.72 | 0.40 U | 0.05 U | | 0.10 | | 0.05 U | | 0.05 | 0.07 | 0.05 U |
| 11/13/2012 | 1.63 | | 1.69 | | 3.00 | | 4.80 | 4.80 | 0.40 U | 0.01 J | | 0.05 U | | 0.01 J | | 0.04 J | 0.03 J | 0.05 U |
| 2/12/2013 | 1.61 | | 2.08 | | 3.07 | | 5.70 | 5.70 | 0.40 U | 0.02 J | | 0.13 | | 0.05 U | | 0.09 | 0.09 | 0.05 U |
| 6/4/2013 | 1.62 | | 1.98 | | 3.00 | | 3.60 | 3.60 | 0.40 U | 0.05 U | | 0.05 | | 0.05 U | | 0.09 | 0.07 | 0.05 U |
| 8/27/2013 | 1.90 | | 1.88 | | 3.39 | | 4.00 | 3.90 | 0.40 U | 0.02 J | | 0.03 J | | 0.02 J | | 0.13 | 0.14 | 0.04 J |
| 12/2/2013 | 1.54 | | 1.57 | | 2.65 | | 3.56 | 3.56 | 0.40 U | 0.05 U | | 0.20 | | 0.01 J | | 0.03 J | 0.03 J | 0.01 J |
| 3/17/2014 | 1.81 | | 2.20 J | | 2.90 | | 5.97 | 5.89 | 0.40 U | 0.05 U | | 0.18 U | | 0.05 U | | 0.13 U | 0.13 U | 0.03 J |
| 6/2/2014 | 1.64 | | 1.73 | | 2.74 | | 5.23 | 5.18 | 0.40 U | 0.05 U | | 0.05 U | | 0.05 U | | 0.14 | 0.14 | 0.05 U |
| 9/29/2014 | 1.62 | | 1.71 | | 2.57 | | 4.44 | 4.45 | 0.40 U | 0.05 U | | 0.05 U | | 0.05 U | | 0.05 U | 0.05 U | 0.06 |
| 11/17/2014 | 2.02 | | 1.76 | | 3.16 | | 5.04 J | 0.52 J | 0.40 U | 0.05 U | | 0.05 U | | 0.05 U | | 0.05 U | 0.05 U | 0.03 J |
| 2/23/2015 | 1.58 | | 1.38 | | 2.32 | | 4.56 | 4.58 | 0.40 U | 0.05 U | | 0.05 U | | 0.05 U | | 0.07 | 0.07 | 0.05 U |
| 9/14/2015 | 1.93 | | 1.97 | | 2.54 | | 5.41 | 5.51 | 0.20 U | 0.05 U | | 0.03 J | | 0.05 U | | 0.16 J | 0.09 J | 0.05 U |
| 12/7/2015 | 1.66 | | 1.54 | | 2.06 | | 4.58 | 4.69 | | 0.05 U | | 0.05 U | | 0.05 U | | 0.37 | 0.36 | |
| 2/29/2016 | 1.83 | | 1.62 | | 2.37 | | 4.90 | 4.73 | 0.20 U | 0.05 J | | 0.05 U | | 0.05 U | | 0.39 | 0.38 | 0.05 U |
| 6/16/2016 | 1.97 | | 1.57 | | 2.52 | | 3.44 | 3.45 | 0.20 U | 0.05 U | | 0.05 U | | 0.05 U | | 0.22 | 0.14 | 0.05 U |
| 9/26/2016 | 1.91 | | 2.13 | | 2.53 | | 3.41 | 3.53 | 0.20 U | 0.05 U | | 0.16 | | 0.05 | | 0.22 | 0.16 | 0.05 U |
| 3/8/2017 | 1.97 | | 1.77 | | 2.16 | | 3.01 | 3.04 | | 0.359 | | 0.04 J | | 0.05 U | | 0.26 J | 0.57 J | |
| 6/10/2017 | | | | | 5.71 | | | | | | | | | 0.165 | | | | |
| 9/16/2017 | 2.00 | | | | | | | | | 0.055 | | | | | | | | |
| 12/14/2017 | | | | | 4.78 | | | | | | | | | 0.005 U | | | | |
| 3/17/2018 | 1.96 | | 2.20 | | 2.20 | 2.20 | 4.1 | | | 0.05 U | | | | | | | | |
| 6/16/2018 | | | | | 2.20 | | | | | | | | | | | | | |
| 9/29/2018 | | | 0.11 J | 2.3 | 2.30 | | 5.70 | | | | | 0.01 | 0.01 | 0.01 | | 0.20 | | |
| 11/17/2018 | | | 8.50 | | | | | | | | | | | | | | | |

**Table 3B. Summary of Groundwater Conventional Parameters: 2007 through 2018**

Former J.H. Baxter South Woodwaste Landfill

*Arlington, Washington*

| Date | Solids, total dissolved (TDS) (mg/L) | | | | | | | | | Sulfate (mg/L) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCL/SMCL | 500 | | | | | | | | | 250 | | | | | | | | |
| WA WQ Std | 500 | | | | | | | | | 250 | | | | | | | | |
| Well ID | BXS-4 | BXS-4 Dup | BXS-3 | BXS-3 Dup | BXS-2 | BXS-2 Dup | BXS-1 | BXS-1 Dup | Field Blank | BXS-4 | BXS-4 Dup | BXS-3 | BXS-3 Dup | BXS-2 | BXS-2 Dup | BXS-1 | BXS-1 Dup | Field Blank |
| 2/1/2007 | 142 | 146 | 522 | | 420 | | 231 | | 5 U | 1.4 | 1.4 | 0.1 J | | 0.2 J | | 14.8 | | 0.2 U |
| 4/18/2007 | 151 | 140 | 493 | | 490 | | 229 | | 5 U | 1.3 | 1.3 | 0.2 U | | 0.2 U | | 13.9 | | 0.2 U |
| 7/18/2007 | 154 | | 414 | | 495 | | 262 | 248 | 5 U | 1.4 | | 0.2 U | | 0.2 U | | 11.3 | 11.4 | 0.2 U |
| 10/9/2007 | 159 | 151 | 476 | | 478 | | 294 | | 5 U | 1.3 | 1.3 | 0.1 J | | 0.1 J | | 9.4 | | 0.2 U |
| 1/9/2008 | 148 | | 578 | | 508 | | 239 | 233 | 5 U | 0.8 | | 0.2 U | | 0.2 U | | 14.0 | 14.9 | 0.2 U |
| 4/30/2008 | 118 | | 496 | | 430 | | 265 | 256 | 5 U | 1.3 | | 0.1 J | | 0.2 J | | 9.6 | 9.7 | 0.2 U |
| 7/29/2008 | 161 | | 415 | | 506 | 505 | 363 | | 5 U | 1.3 | | 0.1 J | | 0.1 J | 0.2 | 6.2 | | 0.2 U |
| 10/22/2008 | 139 | | 465 | | 478 | 491 | 323 | | | 1.1 | | 0.1 J | | 0.2 J | 0.4 | 6.7 | | |
| 2/1/2009 | 136 | | 461 | | 498 | | 261 | 263 | 5 U | 1.4 | | 0.1 J | | 0.1 J | | 6.4 | 6.4 | 0.0 J |
| 5/1/2009 | 130 | | 460 | | 513 | | 223 | 220 | 7 | 1.7 | | 0.4 | | 0.2 U | | 6.7 | 6.6 | 0.2 U |
| 8/1/2009 | 119 | | 378 | 425 | 491 | | 178 | | 5 U | 1.1 | | 0.1 J | 0.1 J | 0.1 J | | 13.9 | | 0.2 U |
| 11/1/2009 | 121 | | 452 | | 496 | | 198 | 201 | 5 U | 3.3 | | 0.2 U | | 0.2 U | | 15.0 | 14.9 | 0.2 U |
| 2/10/2010 | 152 | | 422 | | 518 | 501 | 186 | | 5 | 1.6 | | 0.1 J | | 0.1 J | 0.1 J | 19.6 | | 0.0 J |
| 5/26/2010 | 129 | | 340 | | 508 | | 166 | 178 | 5 U | 1.5 | | 0.8 | | 0.2 J | | 15.3 | 13.4 | 0.4 |
| 8/18/2010 | 202 | | 381 | | 564 | | 250 | 241 | 134 | 1.6 | | 0.8 | | 1.1 | | 14.1 | 14.0 | 1.1 |
| 11/18/2010 | 98 | | 330 | | 462 | | 153 | 161 | 5 U | 1.1 | | 0.4 U | | 0.4 U | | 12.3 | 11.7 | 0.4 U |
| 2/9/2011 | 165 | | 377 | | 512 | | 211 | 216 | 5 U | 1.5 | | 1.0 | | 1.3 | | 15.2 | 15.4 | 0.4 U |
| 5/17/2011 | 129 | | 374 | | 559 | | 209 | 194 | 5 U | 0.9 | | 0.2 J | | 0.3 J | | 15.9 | 15.1 | 0.4 U |
| 8/24/2011 | 128 | | 399 | | 550 | | 188 | 199 | 5 U | 1.0 | | 0.4 J | | 0.6 | | 16.2 | 16.7 | 0.4 U |
| 11/3/2011 | 115 | | 350 | | 532 | | 217 | 220 | 5 U | 1.1 | | 0.6 | | 0.8 | | 15.8 | 15.0 | 0.4 U |
| 2/14/2012 | 131 | | 344 | | 518 | | 214 | 269 | 5 U | 0.9 | | 0.3 J | | 0.4 J | | 15.7 | 15.6 | 0.4 U |
| 5/2/2012 | 129 | | 336 | | 547 | | 230 | 222 | 5.5 | 0.8 | | 0.3 J | | 0.3 J | | 16.4 | 16.3 | 0.4 U |
| 8/21/2012 | 119 | | 376 | | 569 | | 189 | 210 | 5 U | 0.8 | | 0.4 | | 0.5 | | 14.7 | 14.6 | 0.2 U |
| 11/13/2012 | 131 | | 331 | | 537 | | 188 | 188 | 5 U | 0.9 | | 0.4 | | 0.5 | | 14.5 | 14.5 | 0.2 U |
| 2/12/2013 | 107 | | 288 | | 539 | | 160 | 174 | 5.5 | 0.8 | | 0.2 | | 0.3 | | 14.3 | 14.6 | 0.2 U |
| 6/4/2013 | 141 | | 340 | | 553 | | 179 | 168 | 5 U | 0.8 | | 0.4 | | 0.6 | | 13.5 | 13.3 | 0.2 U |
| 8/27/2013 | 141 | | 349 | | 574 | | 201 | 189 | 5 U | 0.8 | | 0.1 J | | 0.2 J | | 12.7 | 12.6 | 0.2 U |
| 12/2/2013 | 132 | | 356 | | 530 | | 223 | 197 | 5.5 | 0.8 | | 0.1 J | | 0.2 J | | 12.3 | 11.9 | 0.2 U |
| 3/17/2014 | 137 | | 332 | | 504 | | 176 | 184 | 5 U | 1.0 | | 2.0 Ui | | 0.3 | | 12.7 | 12.7 | 0.2 U |
| 6/2/2014 | NT | | NT | | NT | | NT | NT | NT | 0.9 | | 0.2 U | | 0.1 J | | 10.1 | 9.9 | 0.2 U |
| 9/29/2014 | 131 | | 312 | | 513 | | 169 | 162 | 5 U | 0.8 | | 0.1 J | | 0.2 | | 7.2 | 7.0 | 0.2 U |
| 11/17/2014 | NT | | NT | | NT | | NT | NT | NT | 1.6 | | 0.2 J* | | 0.3 | | 8.4 J* | 0.8 J* | 0.2 U |
| 2/23/2015 | 122 | | 325 | | 479 | | 156 | 157 | 5 U | 0.8 | | 0.2 | | 0.3 | | 7.7 | 7.7 | 0.2 U |
| 9/14/2015 | 111 | | 267 | | 430 | | 140 | 147 | 5 U | 1.2 | | 0.4 | | 0.5 | | 9.7 | 9.9 | 0.2 U |
| 12/7/2015 | 112 | | 285 | | 424 | | 146 | 155 | | 1.1 | | 0.2 J | | 0.3 | | 10.7 | 10.6 | |
| 2/29/2016 | 101 | | 290 | | 447 | | 145 | 125 | 5 U | 0.2 U | | 0.2 U | | 0.2 U | | 9.0 | 9.1 | 0.15 J |
| 6/16/2016 | 118 | | 301 | | 443 | | 190 | 197 | 5 U | 1.1 | | 0.4 | | 0.5 | | 6.9 | 7.5 | 0.2 U |
| 9/26/2016 | 143 | | 311 | | 419 | | 213 | 194 | 5.0 U | 1.5 | | 0.2 U | | 0.2 | | 6.0 | 5.3 | 0.2 U |
| 3/8/2017 | 128 | | | | | | 226 | 221 | | 2.1 | | 0.1 J | | 0.2 J | | 4.3 | 4.6 | |
| 6/10/2017 | | | | | 252 | | | | | | | | | 7.36 | | | | |
| 9/16/2017 | 139 | | 216 | | 406 | | 193 | 188 | 2 | 1.9 | | 0.2 U | | 0.2 U | | 5.6 | 5.7 | ND U |
| 12/14/2017 | | | | | 460 | | | | | | | | | 51.6 | | | | |
| 3/17/2018 | 133 | | 440 | | 450 | 460 | 240 | | | 1.7 | | 0.2 | | 0.3 | 0.4 | 9.1 | | |
| 6/16/2018 | | | | | 430 | | | | | | | | | 0.5 | | | | |
| 9/29/2018 | 159 | | 210 | 260 | 420 | | 200 | | | 0.6 | | 0.1 | 0.15 | 0.3 | | 10.9 | | |
| 11/17/2018 | | | 330 | | | | | | | | | 2.0 | | | | | | |

**Table 3B. Summary of Groundwater Conventional Parameters: 2007 through 2018**

Former J.H. Baxter South Woodwaste Landfill

*Arlington, Washington*

| Date | Ammonia as N (mg/L) | | | | | | | | | Chemical Oxygen Demand (COD) (mg/L) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCL/SMCL | -- | | | | | | | | | -- | | | | | | | | |
| WA WQ Std | -- | | | | | | | | | -- | | | | | | | | |
| Well ID | BXS-4 | BXS-4 Dup | BXS-3 | BXS-3 Dup | BXS-2 | BXS-2 Dup | BXS-1 | BXS-1 Dup | Field Blank | BXS-4 | BXS-4 Dup | BXS-3 | BXS-3 Dup | BXS-2 | BXS-2 Dup | BXS-1 | BXS-1 Dup | Field Blank |
| 2/1/2007 | 0.50 | 0.52 | 0.93 | | 0.05 U | | 0.05 U | | 0.03 J | 5.0 U | 5.0 U | 75 | | 36 | | 6.0 | | 50 U |
| 4/18/2007 | 0.50 | 0.50 | 0.71 | | 0.05 U | | 0.05 U | | 0.05 U | 6.0 | 6.0 | 80 | | 39 | | 14.0 | | 4.0 J |
| 7/18/2007 | 0.50 | | 0.74 | | 0.05 U | | 0.05 U | 0.05 U | 0.05 U | 5.0 U | | 67 | | 31 | | 5.0 U | 6.0 | 5.0 U |
| 10/9/2007 | 0.48 | 0.49 | 0.98 | | 0.05 U | | 0.05 U | | 0.05 U | 5.0 U | 5.0 U | 71 | | 33 | | 17.0 | | 5.0 U |
| 1/9/2008 | 0.55 | | 0.41 | | 0.05 U | | 0.05 U | 0.05 U | 0.02 J | 5.0 U | | 61 | | 35 | | 12.0 | 13.0 | 5.0 U |
| 4/30/2008 | 0.46 | | 0.39 | | 0.05 U | | 0.05 U | 0.05 U | 0.05 U | 3.0 J | | 76 | | 42 | | 13.0 | 14.0 | 5.0 U |
| 7/29/2008 | 0.48 | | 0.75 | | 0.05 U | 0.05 U | 0.05 U | | 0.08 | 6.0 | | 75 | | 37 | 35 | 24 | | 9.0 |
| 10/22/2008 | 0.53 | | 0.54 | | 0.05 U | 0.05 U | 0.05 U | | | 6.0 | | 65 | | 39 | 41 | 16.0 | | |
| 2/1/2009 | 0.51 | | 1.44 | | 0.05 U | | 0.05 U | 0.05 U | 0.05 U | 5.0 U | | 69 | | 42 | | 16.0 | 16.0 | 5.0 U |
| 5/1/2009 | 0.61 | | 1.08 | | 0.05 U | | 0.05 U | 0.05 U | 0.05 U | 22 | | 70 | | 38 | | 13.0 | 11.0 | 5.0 U |
| 8/1/2009 | 0.49 | | 1.24 | 1.14 | 0.05 U | | 0.05 U | | 0.01 J | 3.0 J | | 106 | 83 | 43 | | 12.0 | | 3.0 J |
| 11/1/2009 | 0.54 | | 0.56 | | 0.03 J | | 0.05 J | 0.18 | 0.02 J | 5.0 U | | 66 | | 42 | | 13.7 | 13.7 | 5.0 U |
| 2/10/2010 | 0.53 | | 1.23 | | 0.05 U | 0.05 U | 0.05 U | | 0.05 U | 5.0 U | | 68 | | 35 | 35 | 5.0 U | | 5.0 U |
| 5/26/2010 | 0.56 | | 0.97 | | 0.03 J | | 0.03 J | 0.02 J | 0.05 U | 3.3 J | | 74 | | 41 | | 11.0 | 10.5 | 5.0 U |
| 8/18/2010 | 0.53 | | 1.22 | | 0.05 U | | 0.05 U | 0.05 U | 0.05 U | 5.0 U | | 74 | | 41 | | 10.9 | 11.8 | 5.0 U |
| 11/18/2010 | 0.50 | | 1.02 | | 0.05 U | | 0.05 U | 0.05 U | 0.05 U | 5.6 | | 68 | | 42 | | 14.7 | 12.2 | 7.6 |
| 2/9/2011 | 0.51 | | 1.21 | | 0.05 U | | 0.05 U | 0.05 U | 0.05 U | 5.0 U | | 75 | | 44 | | 9.1 | 5.0 U | 5.0 U |
| 5/17/2011 | 0.54 | | 0.70 | | 0.05 U | | 0.05 U | 0.05 U | 0.05 U | 3.4 J | | 71 | | 45 | | 8.2 | 9.7 | 5.0 U |
| 8/24/2011 | 0.55 | | 0.66 | | 0.05 U | | 0.05 U | 0.05 U | 0.05 U | 5.0 U | | 84 | | 42 | | 9.8 | 8.8 | 5.0 U |
| 11/3/2011 | 0.57 | | 0.05 U | | 0.04 J | | 0.05 U | 0.05 U | 0.05 U | 5.0 U | | 69 | | 38 | | 4.7 J | 7.6 | 5.0 U |
| 2/14/2012 | 0.54 | | 0.81 | | 0.05 U | | 0.02 J | 0.05 U | 0.05 U | 6.1 | | 74 | | 43 | | 19.7 | 60 | 3.5 J |
| 5/2/2012 | 0.54 | | 0.56 | | 0.05 U | | 0.05 U | 0.05 U | 0.05 U | 5.0 U | | 63 | | 42 | | 8.4 | 5.0 U | 5.0 U |
| 8/21/2012 | 0.54 | | 0.58 | | 0.05 U | | 0.05 U | 0.05 U | 0.05 U | 3.6 J | | 69 | | 44 | | 6.6 | 6.1 | 5.0 U |
| 11/13/2012 | 0.51 | | 0.93 | | 0.05 U | | 0.05 U | 0.05 U | 0.05 U | 5.0 U | | 65 | | 38 | | 5.9 | 10.3 | 5.0 U |
| 2/12/2013 | 0.52 | | 0.74 | | 0.05 U | | 0.05 U | 0.05 U | 0.05 U | 5.0 U | | 57 | | 41 | | 6.3 | 7.3 | 5.0 U |
| 6/4/2013 | 0.53 | | 1.01 | | 0.05 U | | 0.05 U | 0.05 U | 0.05 U | 5.0 U | | 63 | | 41 | | 5.9 | 7.4 | 5.0 U |
| 8/27/2013 | 0.54 | | 0.71 | | 0.05 U | | 0.05 U | 0.05 U | 0.05 U | 3.0 J | | 68 | | 42 | | 7.5 | 10.1 | 5.0 U |
| 12/2/2013 | 0.55 | | 0.82 | | 0.05 U | | 0.05 U | 0.05 U | 0.05 U | 5.0 U | | 65 | | 37 | | 6.7 | 5.2 | 5.0 U |
| 3/17/2014 | 0.55 | | 1.21 | | 0.05 U | | 0.05 U | 0.05 U | 0.05 U | 5.0 U | | 73 | | 39 | | 6.7 | 5.7 | 5.0 U |
| 6/2/2014 | 0.58 | | 0.91 | | 0.05 U | | 0.05 U | 0.05 J | 0.05 U | 5.0 U | | 71 | | 40 | | 7.1 | 7.6 | 5.0 U |
| 9/29/2014 | 0.52 | | 1.24 | | 0.05 U | | 0.05 U | 0.05 U | 0.05 U | 5.0 U | | 68 | | 39 | | 6.3 | 5.8 | 5.0 U |
| 11/17/2014 | 0.55 | | 1.08 | | 0.05 U | | 0.05 U | 0.05 U | 0.05 U | 5.0 U | | 65 | | 34 | | 5.6 | 6.6 | 5.0 U |
| 2/23/2015 | 0.54 | | 1.05 | | 0.05 U | | 0.05 U | 0.05 U | 0.05 U | 5.0 U | | 69 | | 37 | | 6.8 | 8.5 | 5.0 U |
| 9/14/2015 | 0.54 | | 1.00 | | 0.05 U | | 0.05 U | 0.05 U | 0.03 J | 5.0 U | | 82 | | 40 | | 8.2 | 6.6 | 5.0 U |
| 12/7/2015 | 0.51 | | 1.00 | | 0.05 U | | 0.05 U | 0.04 J | | 5.0 U | | 73 | | 38 | | 7.3 | 7.7 | |
| 2/29/2016 | 0.45 | | 1.16 | | 0.05 U | | 0.05 U | 0.05 U | 0.025 J | 5.0 U | | 66 | | 44 | | 8.6 | 7.0 | 5.0 U |
| 6/16/2016 | 0.53 | | 1.13 | | 0.05 U | | 0.05 U | 0.10 U | 0.028 J | 4.8 J | | 76 | | 45 | | 12.1 | 10.6 | 5.0 U |
| 9/26/2016 | 0.52 | | 0.94 | | 0.05 U | | 0.46 | 0.05 U | 0.05 U | 5.7 | | 85 | | 41 | | 9.9 | 9.9 | 5.0 U |
| 3/8/2017 | 0.05 U | | 0.88 | | 0.05 U | | 0.05 U | 0.31 | | 9.7 | | 71.1 | | 34.9 | | 9.7 | ND U | |
| 6/10/2017 | | | | | 0.05 U | | | | | | | | | 4.8 J | | | | |
| 9/16/2017 | 0.536 | | 0.993 | | 0.05 U | | 0.05 U | 0.05 U | 0.259 | 3.6 J | | 70 | | 35 | | 8.2 | 9.3 | ND U |
| 12/14/2017 | | | | | 0.00 U | | | | | | | | | 14 | | | | |
| 3/17/2018 | 0.515 | | 0.847 | | 0.012 | 0.015 | 0.006 | | | 11.4 | | 40 | | 19 | 19 | 5 U | | |
| 6/16/2018 | | | | | 0.01 | | | | | | | | | 27 | | | | |
| 9/29/2018 | 2.18 | | 0.844 | 0.842 | 0.005 | | 0.005 | | | 41.6 | | 49 | 62 | 38 | | 27.0 | | |
| 11/17/2018 | | | 0.824 | | | | | | | | | 54 | | | | | | |

**Table 3B. Summary of Groundwater Conventional Parameters: 2007 through 2018**

Former J.H. Baxter South Woodwaste Landfill

*Arlington, Washington*

| Date | Tannin and Lignin (mg/L) | | | | | | | | | Total Organic Carbon (TOC) (mg/L) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCL/SMCL | -- | | | | | | | | | -- | | | | | | | | |
| WA WQ Std | -- | | | | | | | | | -- | | | | | | | | |
| Well ID | BXS-4 | BXS-4 Dup | BXS-3 | BXS-3 Dup | BXS-2 | BXS-2 Dup | BXS-1 | BXS-1 Dup | Field Blank | BXS-4 | BXS-4 Dup | BXS-3 | BXS-3 Dup | BXS-2 | BXS-2 Dup | BXS-1 | BXS-1 Dup | Field Blank |
| 2/1/2007 | 0.30 | 0.40 | 4.10 | | 1.10 | | 0.16 J | | 0.09 J | 1.10 | 1.00 | 28 | | 15.60 | | 3.60 | | 0.08 J |
| 4/18/2007 | 0.30 | 0.30 | 11.90 | | 1.30 | | 0.20 U | | 0.20 U | 1.00 | 1.00 | 28 | | 16.70 | | 4.80 | | 0.25 J |
| 7/18/2007 | 0.30 | | 13.40 | | 1.30 | | 0.12 J | 0.13 J | 0.20 U | 0.90 | | 29 | | 15.60 | | 5.20 | 5.20 | 0.07 J |
| 10/9/2007 | 0.30 | 0.30 | 4.70 | | 1.10 | | 0.30 | | 0.20 U | 1.00 | 0.90 | 26 | | 15.50 | | 7.10 | | 0.08 J |
| 1/9/2008 | 0.30 | | 8.00 | | 1.20 | | 0.30 | 0.30 | 0.06 J | 0.80 | | 24 | | 15.80 | | 6.00 | 6.10 | 0.14 J |
| 4/30/2008 | 0.30 | | 23 | | 1.20 | | 0.20 | 0.20 | 0.20 U | 0.90 | | 28 | | 17.50 | | 5.90 | 5.90 | 0.50 U |
| 7/29/2008 | 0.20 | | 11.50 | | 1.20 | 1.20 | 0.20 | | 0.20 U | 0.90 | | 28 | | 15.90 | 16.20 | 8.30 | | 0.50 U |
| 10/22/2008 | 0.30 | | 2.50 | | 1.10 | 1.10 | 0.20 | | | 0.90 | | 24 | | 15.50 | 16.30 | 6.60 | | |
| 2/1/2009 | 0.20 | | 3.40 | | 1.40 | | 0.17 J | 0.20 | 0.20 U | 0.90 | | 22 | | 16.60 | | 5.20 | 5.20 | 0.50 U |
| 5/1/2009 | 0.30 | | 3.50 | | 0.90 | | 0.30 | 0.30 | 0.20 U | 1.00 | | 22 | | 15.80 | | 4.70 | 4.90 | 0.50 U |
| 8/1/2009 | 0.30 | | 10.70 | 31 | 0.90 | | 0.09 J | | 0.20 U | 1.10 | | 29 | 28 | 16.90 | | 5.10 | | 0.17 J |
| 11/1/2009 | 0.39 | | 20.10 | | 1.32 | | 0.19 J | 0.18 J | 0.04 J | 0.72 | | 24 | | 16.70 | | 5.27 | 5.15 | 0.50 U |
| 2/10/2010 | 0.28 | | 10.00 | | 1.30 | 1.04 | 0.07 J | | 0.20 U | 0.77 | | 24 | | 17.10 | 16.50 | 3.91 | | 0.50 U |
| 5/26/2010 | 0.32 | | 31 | | 1.10 | | 0.11 J | 0.11 J | 0.20 U | 0.93 | | 25 | | 17.30 | | 4.17 | 4.14 | 0.10 J |
| 8/18/2010 | 0.34 | | 5.22 | | 1.68 | | 0.18 J | 0.14 J | 0.04 J | 0.81 | | 22 | | 15.30 | | 3.70 | 3.46 | 0.50 U |
| 11/18/2010 | 0.36 | | 13.10 | | 1.43 | | 0.15 J | 0.16 J | 0.04 J | 2.61 | | 25 | | 18.20 | | 7.41 | 7.18 | 0.08 J |
| 2/9/2011 | 0.42 | | 15.70 | | 1.58 | | 0.21 | 0.25 | 0.09 J | 1.15 | | 22 | | 17.20 | | 4.37 | 4.16 | 0.50 U |
| 5/17/2011 | 0.30 | | 15.00 | | 0.46 | | 0.10 J | 0.14 J | 0.20 U | 0.94 | | 18.80 | | 16.40 | | 2.94 | 3.01 | 0.07 J |
| 8/24/2011 | 0.26 | | 21 | | 1.15 | | 0.09 J | 0.12 J | 0.20 U | 0.67 | | 26 | | 14.20 | | 2.98 | 3.06 | 0.50 U |
| 11/3/2011 | 0.36 | | 7.70 | | 1.51 | | 0.24 | 0.24 | 0.07 J | 1.00 | | 4.41 | | 14.60 | | 3.13 | 3.35 | 0.50 U |
| 2/14/2012 | 0.50 | | 22 | | 2.36 | | 0.22 | 0.20 | 0.10 J | 1.19 | | 22 | | 15.40 | | 3.09 | 3.28 | 0.08 J |
| 5/2/2012 | 0.41 | | 50 | | 1.46 | | 0.13 J | 0.18 J | 0.20 U | 0.68 | | 17.30 | | 15.50 | | 2.64 | 4.04 | 0.50 U |
| 8/21/2012 | 0.20 J | | 21 | | 1.42 | | 0.20 U | 0.20 U | 0.20 U | 0.84 | | 19.30 | | 14.80 | | 2.51 | 2.56 | 0.50 U |
| 11/13/2012 | 0.33 | | 12.70 | | 1.63 | | 0.17 | 0.27 | 0.20 U | 0.90 | | 19.80 | | 14.30 | | 2.74 | 2.81 | 0.08 J |
| 2/12/2013 | 0.31 | | 13.20 | | 1.06 | | 0.09 J | 0.09 J | 0.20 U | 0.73 | | 15.40 | | 15.50 | | 2.54 | 2.46 | 0.50 U |
| 6/4/2013 | 0.25 | | 13.10 | | 1.73 | | 0.06 J | 0.07 J | 0.20 U | 0.82 | | 18.40 | | 15.40 | | 2.39 | 2.44 | 0.50 U |
| 8/27/2013 | 0.28 | | 8.60 | | 1.18 | | 0.13 J | 0.15 J | 0.20 U | 0.88 | | 18.90 | | 14.60 | | 2.54 | 2.49 | 0.50 U |
| 12/2/2013 | 0.18 J | | 5.75 | | 1.38 | | 0.10 J | 0.20 U | 0.20 U | 0.90 | | 18.40 | | 14.30 | | 2.48 | 2.54 | 0.08 J |
| 3/17/2014 | 0.23 | | 29 | | 1.52 | | 0.03 J | 0.06 J | 0.20 U | 0.84 | | 20.40 | | 13.30 | | 2.29 | 2.23 | 0.50 U |
| 6/2/2014 | 0.28 | | 20.80 | | 1.27 | | 0.20 U | 1.15 J | 0.12 J | 1.00 U | | 19.80 | | 14.60 | | 2.34 | 2.48 | 0.26 J |
| 9/29/2014 | 0.30 | | 23 | | 0.92 | | 0.10 J | 0.08 J | 0.20 U | 0.78 | | 19.50 | | 14.00 | | 2.25 | 2.15 | 0.50 U |
| 11/17/2014 | 0.29 | | 20.50 | | 1.37 | | 0.11 J | 0.10 J | 0.20 U | 0.78 | | 18.00 | | 13.80 | | 2.45 | 2.32 | 0.12 J |
| 2/23/2015 | 0.31 | | 23 | | 1.33 | | 0.20 U | 0.20 U | 0.060 J | 0.81 U | | 19.00 | | 14.50 | | 2.47 | 2.44 | 0.25 J |
| 9/14/2015 | 0.22 | | 4.49 | | 1.34 | | 0.09 J | 0.08 J | 0.20 U | 1.00 U | | 22 | | 12.80 | | 2.45 U | 2.56 U | 0.80 J |
| 12/7/2015 | 0.34 | | 1.13 | | 1.23 | | 0.14 J | 0.11 J | | 0.94 | | 17.10 | | 12.80 | | 3.00 | 2.78 | |
| 2/29/2016 | 0.20 | | 5.30 | | 1.32 | | 0.05 J | 0.09 J | 0.20 U | 0.79 | | 16.60 | | 15.00 | | 2.76 | 2.65 | 0.13 J |
| 6/16/2016 | 0.21 | | 7.80 | | 1.19 | | 0.09 J | 0.09 J | 0.20 U | 0.85 | | 19.60 | | 13.60 | | 3.06 | 3.07 | 0.27 J |
| 9/26/2016 | 0.12 J | | 3.75 | | 1.04 | | 0.11 J | 0.12 J | 0.20 U | 0.86 | | 22 | | 13.30 | | 3.28 | 3.31 | 0.50 U |
| 3/8/2017 | 0.15 J | | 49.50 | | 1.18 | | 0.13 J | 0.13 J | | 2.96 | | 19.0 | | 14.10 | | 3.82 | 0.37 J | |
| 6/10/2017 | | | | | 1.00 | | | | | | | | | 3.75 | | | | |
| 9/16/2017 | 0.2 J | | 18.5 | | 1.26 | | 0.12 J | 0.08 J | ND U | 1.06 | | 21.3 | | 14.7 | | 3.47 | 3.29 | ND U |
| 12/14/2017 | | | | | 2.8 | | | | | | | | | 11.0 | | | | |
| 3/17/2018 | 0.21 | | 2.2 | | 1.9 | 1.8 | 0.2 | | | 1.53 | | 54.0 | | 59.0 J | 16.0 | 14 | | |
| 6/16/2018 | | | | | 1.5 | | | | | | | | | 30.0 | | | | |
| 9/29/2018 | 0.51 | | 62.0 | 57.0 | 1.5 | | 0.20 | | | 1.66 | | 19.0 | 19.0 | 11.0 | | 2.6 | | |
| 11/17/2018 | | | 50.0 | | | | | | | | | 22.0 | | | | | | |

**Table 3B. Summary of Groundwater Conventional Parameters: 2007 through 2018**

Former J.H. Baxter South Woodwaste Landfill

*Arlington, Washington*

| Date | Total Coliforms | | | | | | | | | Pentachlorophenol | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MPN/100 mL | | | | | | | | | µg/L | | | | | | | | |
| MCL/SMCL | 1/100 mL | | | | | | | | | 1 µg/L/None | | | | | | | | |
| WA WQ Std | 1/100 mL | | | | | | | | | -- | | | | | | | | |
| Well ID | BXS-4 | BXS-4 Dup | BXS-3 | BXS-3 Dup | BXS-2 | BXS-2 Dup | BXS-1 | BXS-1 Dup | Field Blank | BXS-4 | BXS-4 Dup | BXS-3 | BXS-3 Dup | BXS-2 | BXS-2 Dup | BXS-1 | BXS-1 Dup | Field Blank |
| 2/1/2007 | 1.0 U | 1.0 U | 1.0 U | | 1.0 U | | 1.0 U | | 1.0 U | | | | | | | | | |
| 4/18/2007 | 1.0 U | 1.0 U | 1.0 U | | 1.0 U | | 1.0 U | | 1.0 U | | | | | | | | | |
| 7/18/2007 | 1.0 | | 6.0 | | 2,420 > | | 1.0 U | 1.0 | 1.0 U | | | | | | | | | |
| 10/9/2007 | 1.0 U | 1.0 U | 1.0 U | | 5.1 | | 1.0 U | | 1.0 U | | | | | | | | | |
| 1/9/2008 | 1.0 U | | 1.0 U | | 1.0 U | | 1.0 U | 1.0 U | 3.1 | | | | | | | | | |
| 4/30/2008 | 1.0 U | | 1.0 U | | 2.0 | | 1.0 U | 1.0 U | 1.0 U | | | | | | | | | |
| 7/29/2008 | 1.0 U | | 1.0 U | | 249 | 71 | 1.0 U | | 18.7 | | | | | | | | | |
| 10/22/2008 | 1.0 U | | 1.0 U | | 1.0 U | 1.0 U | 1.0 U | | 25 | | | | | | | | | |
| 2/1/2009 | 1.0 U | | 1.0 U | | 17.5 | | 1.0 | 1.0 U | 1.0 U | | | | | | | | | |
| 5/1/2009 | 1.0 U | | 1.0 | | 1.0 | | 1.0 U | 1.0 U | 4.2 | | | | | | | | | |
| 8/1/2009 | 1.0 U | | 1.0 U | 1.0 U | 1.0 U | | 1.0 U | | 1.0 | | | | | | | | | |
| 11/1/2009 | 1.0 U | | 1.0 U | | 1.0 U | | 1.0 U | 1.0 U | 3.1 | | | | | | | | | |
| 2/10/2010 | 1.0 U | | 1.0 U | | 1.0 | 1.0 | 1.0 U | | 1.0 | | | | | | | | | |
| 5/26/2010 | 1.0 U | | 1.0 U | | 2.0 | | 165 | 165 | 48 | | | | | | | | | |
| 8/18/2010 | 1.0 U | | 1.0 U | | 1.0 | | 9.7 | 3.0 | 18.9 | | | | | | | | | |
| 11/18/2010 | 1.0 | | 5.2 | | 2.0 | | 1.0 | 1.0 U | 1.0 | | | | | | | | | |
| 2/9/2011 | 1.0 U | | 1.0 U | | 1.0 U | | 1.0 U | 1.0 U | 1.0 U | | | | | | | | | |
| 5/17/2011 | 2.0 | | 1.0 U | | 1.0 U | | 1.0 U | 1.0 | 1.0 U | | | | | | | | | |
| 8/24/2011 | 1.0 U | | 1.0 U | | 18.1 | | 1.0 U | 1.0 U | 1.0 U | | | | | | | | | |
| 11/3/2011 | 1.0 U | | P | | P | | P | | 1.0 U | | | | | | | | | |
| 2/14/2012 | 2.0 | | 1.0 U | | 5.2 | | 1.0 U | 1.0 U | 1.0 U | | | | | | | | | |
| 5/2/2012 | | | | | | | | | | | | | | | | | | |
| 8/21/2012 | 1.0 U | | 1.0 U | | 1.0 U | | 2.0 | 1.0 U | 1.0 U | | | | | | | | | |
| 11/13/2012 | 1.0 U | | 1.0 U | | 1.0 | | 1.0 U | | 1.0 U | | | | | | | | | |
| 2/12/2013 | 1.0 U | | 10.0 U | | 1.0 U | | 1.0 U | 1.0 U | 1.0 U | | | | | | | | | |
| 6/4/2013 | | | | | | | | | | | | | | | | | | |
| 8/27/2013 | 1.0 U | | 1.0 U | | 1.0 U | | 1.0 U | 1.0 U | 1.0 U | | | | | | | | | |
| 12/2/2013 | 1.0 U | | 1.0 U | | 1.0 U | | 41 J | 24 J | 1.0 U | | | | | | | | | |
| 3/17/2014 | 1.0 U | | 1.0 U | | 1.0 U | | 1.0 U | 1.0 U | 1.0 U | | | | | | | | | |
| 6/2/2014 | 1.0 U | | 1.0 U | | 1.0 U | | 1.0 U | 1.0 U | 1.0 U | | | | | | | | | |
| 9/29/2014 | 1.0 U | | 1.0 U | | 1.0 U | | 1.0 U | 1.0 U | 1.0 U | | | | | | | | | |
| 11/17/2014 | 1.0 U | | 1.0 U | | 1.0 U | | 4.1 | 1.0 U | 1.0 U | | | | | | | | | |
| 2/23/2015 | 1.0 U | | 1.0 U | | 1.0 U | | 1.0 U | 1.0 U | 1.0 U | | | | | | | | | |
| 9/14/2015 | 1.0 U | | 1.0 U | | 1.0 U | | 3.1 | 3.1 | 1.0 U | | | | | | | | | |
| 12/7/2015 | 1.0 U | | 1.0 U | | 1.0 U | | 2.0 | 3.1 | 1.0 U | | | | | | | | | |
| 2/29/2016 | 1.0 U | | 1.0 U | | 1.0 U | | 1.0 U | 1.0 U | 1.0 U | | | | | | | | | |
| 6/16/2016 | 1.0 U | | 1.0 U | | 1.0 U | | 1.0 U | 1.0 U | 1.0 U | | | | | | | | | |
| 9/26/2016 | 1.0 U | | 1.0 U | | 1.0 U | | 1.0 U | 1.0 U | 1.0 U | | | | | | | | | |
| 3/8/2017 | | | | | | | | | | 0.8 | | ND U | | ND U | | 49 D | 41 | ND U |
| 6/10/2017 | | | | | | | | | | | | | | | | | | |
| 9/16/2017 | | | | | | | | | | | | ND U | | ND U[i] | | 32 | 11 | |
| 12/14/2017 | | | | | | | | | | | | | | | | | | |
| 3/17/2018 | | | | | | | | | | | | | | | | | | |
| 6/16/2018 | | | | | | | | | | | | | | | | | | |
| 9/29/2018 | | | | | | | | | | | | | | | | | | |
| 11/17/2018 | | | | | | | | | | | | | | | | | | |

**Table 3B. Summary of Groundwater Conventional Parameters: 2007 through 2018**
Former J.H. Baxter South Woodwaste Landfill
*Arlington, Washington*

| Date<br>MCL/SMCL<br>WA WQ Std | Polynuclear Aromatic Hydrocarbons<br>µg/L<br>0.2 µg/L/None<br>0.01 µg/L | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Well ID | BXS-4 | BXS-4 Dup | BXS-3 | BXS-3 Dup | BXS-2 | BXS-2 Dup | BXS-1 | BXS-1 Dup | Field Blank |
| 2/1/2007 | | | | | | | | | |
| 4/18/2007 | | | | | | | | | |
| 7/18/2007 | | | | | | | | | |
| 10/9/2007 | | | | | | | | | |
| 1/9/2008 | | | | | | | | | |
| 4/30/2008 | | | | | | | | | |
| 7/29/2008 | | | | | | | | | |
| 10/22/2008 | | | | | | | | | |
| 2/1/2009 | | | | | | | | | |
| 5/1/2009 | | | | | | | | | |
| 8/1/2009 | | | | | | | | | |
| 11/1/2009 | | | | | | | | | |
| 2/10/2010 | | | | | | | | | |
| 5/26/2010 | | | | | | | | | |
| 8/18/2010 | | | | | | | | | |
| 11/18/2010 | | | | | | | | | |
| 2/9/2011 | | | | | | | | | |
| 5/17/2011 | | | | | | | | | |
| 8/24/2011 | | | | | | | | | |
| 11/3/2011 | | | | | | | | | |
| 2/14/2012 | | | | | | | | | |
| 5/2/2012 | | | | | | | | | |
| 8/21/2012 | | | | | | | | | |
| 11/13/2012 | | | | | | | | | |
| 2/12/2013 | | | | | | | | | |
| 6/4/2013 | | | | | | | | | |
| 8/27/2013 | | | | | | | | | |
| 12/2/2013 | | | | | | | | | |
| 3/17/2014 | | | | | | | | | |
| 6/2/2014 | | | | | | | | | |
| 9/29/2014 | | | | | | | | | |
| 11/17/2014 | | | | | | | | | |
| 2/23/2015 | | | | | | | | | |
| 9/14/2015 | | | | | | | | | |
| 12/7/2015 | | | | | | | | | |
| 2/29/2016 | | | | | | | | | |
| 6/16/2016 | | | | | | | | | |
| 9/26/2016 | | | | | | | | | |
| 3/8/2017 | | | | | | | | | 0.1 J |
| 6/10/2017 | | | | | | | | | |
| 9/16/2017 | | | 0.013 | | 0.007 | | 0.030 | 0.013 | |
| 12/14/2017 | | | | | | | | | |
| 3/17/2018 | | | | | | | | | |
| 6/16/2018 | | | | | | | | | |
| 9/29/2018 | | | | | | | | | |
| 11/17/2018 | | | | | | | | | |

µS/cm = microSiemen per centimeter. NT = not tested. mg/L = milligram per liter.
J = result is an estimated concentration that is less than the method reporting limit, but greater than or equal to the method detection limit.
J* = result is an estimated concentration because of lab impreci U = analyte was not detected above the reported sample quantification limit.
MCL = Federal maximum contaminant levels for drinking water.
MPN = most probable number.
SMCL = Federal secondary maximum contaminant levels for drinking water.
WA WQ Std = State of Washington's water quality standards for groundwater (WAC 173-200).

**Table 3C. Summary of Groundwater Metals: 2007 through 2018**

Former J.H. Baxter South Woodwaste Landfill

*Arlington, Washington*

| Date | Arsenic, dissolved (µg/L) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| MCL/SMCL | 10 | | | | | | | | |
| WA WQ Std | 0.05 | | | | | | | | |
| Well ID | BXS-4 | BXS-4 Dup | BXS-3 | BXS-3 Dup | BXS-2 | BXS-2 Dup | BXS-1 | BXS-1 Dup | Field Blank |
| 2/1/2007 | 6.8 | 5.8 | 145 | | 1.1 B | | 5.0 U | | 5.0 U |
| 4/18/2007 | 6.0 | 6.0 | 113 | | 0.7 B | | 5.0 U | | 1.5 B |
| 7/18/2007 | 5.4 | | 113 | | 5.0 U | | 5.0 U | 5.0 U | 5.0 U |
| 10/9/2007 | 5.4 | 4.8 B | 67 | | 5.0 U | | 5.0 U | | 5.0 U |
| 1/9/2008 | 6.7 | | 43 | | 5.0 U | | 5.0 U | 5.0 U | 0.7 U |
| 4/30/2008 | 4.4 J | | 117 | | 5.0 U | | 5.0 U | 5.0 U | 0.7 U |
| 7/30/2008 | 5.4 | | 111 | | 0.8 J | 5.0 U | 5.0 U | | 0.6 U |
| 10/22/2008 | 7.2 | | 47 | | 5.0 U | 5.0 U | 1.1 J | | |
| 2/1/2009 | 14.4 | | 114 | | 5.0 U | | 5.0 U | 5.0 U | 5.0 U |
| 5/1/2009 | 6.2 | | 120 | | 1.6 J | | 0.6 J | 0.7 J | 5.0 U |
| 8/1/2009 | 0.8 J | | 5.0 U | 2.5 J | 1.5 J | | 0.8 J | | 5.0 U |
| 11/1/2009 | 6.0 | | 64 | | 5.0 U | | 5.0 U | 5.0 U | 5.0 U |
| 2/10/2010 | 7.1 | | 133 | | 3.0 J | 2.5 J | 1.6 J | | 5.0 U |
| 5/26/2010 | 5.5 | | 149 | | 0.9 J | | 5.0 U | 5.0 U | 5.0 U |
| 8/18/2010 | 5.3 | | 139 | | 0.9 J | | 5.0 U | 5.0 U | 3.0 J |
| 11/18/2010 | 5.6 | | 186 | | 5.0 U | | 5.0 U | 5.0 U | 5.0 U |
| 2/9/2011 | 5.5 | | 119 | | 5.0 U | | 5.0 U | 5.0 U | 5.0 U |
| 5/17/2011 | 6.2 | | 139 | | 1.1 J | | 5.0 U | 5.0 U | 5.0 U |
| 8/24/2011 | 6.4 | | 155 | | 5.0 U | | 5.0 U | 5.0 U | 5.0 U |
| 11/3/2011 | 6.2 | | 156 | | 1.0 J | | 5.0 U | 0.6 J | 5.0 U |
| 2/14/2012 | 5.2 | | 158 | | 0.6 J | | 5.0 U | 5.0 U | 5.0 U |
| 5/2/2012 | 5.8 | | 133 | | 0.9 J | | 5.0 U | 5.0 U | 5.0 U |
| 8/21/2012 | 4.9 J | | 135 | | 5.0 U | | 5.0 U | 5.0 U | 5.0 U |
| 11/13/2012 | 6.2 | | 170 | | 5.0 U | | 5.0 U | 5.0 U | 5.0 U |
| 2/12/2013 | 6.1 | | 119 | | 5.0 U | | 5.0 U | 5.0 U | 5.0 U |
| 6/4/2013 | 6.8 | | 138 | | 1.5 J | | 5.0 U | 1.1 J | 1.1 J |
| 8/27/2013 | 6.3 | | 140 | | 1.0 J | | 5.0 U | 5.0 U | 5.0 U |
| 12/2/2013 | 6.4 | | 164 | | 1.3 J | | 5.0 U | 5.0 U | 5.0 U |
| 3/17/2014 | 6.00 | | 175 | | 0.78 | | 0.50 U | 0.50 U | 0.50 U |
| 6/2/2014 | 6.00 | | 157 | | 0.70 | | 0.20 J | 0.30 J | 0.50 U |
| 9/29/2014 | 5.86 | | 191 | | 0.69 | | 0.25 J | 0.24 J | 0.50 U |
| 11/17/2014 | 5.7 | | 174 | | 0.7 | | 0.3 J | 0.3 J | 0.5 U |
| 2/23/2015 | 5.9 | | 163 | | 0.7 | | 0.2 J | 0.3 J | 0.5 U |
| 9/14/2015 | 5.9 | | 185 | | 0.6 | | 0.5 U | 0.2 J | 0.5 U |
| 12/7/2015 | 6.32 | | 174 | | 0.76 | | 0.26 J | 0.26 J | |
| 2/29/2016 | 6.30 | | 147 | | 0.69 | | 0.29 J | 0.23 J | 0.50 U |
| 6/16/2016 | 6.1 | | 138 | | 0.7 | | 0.3 J | 0.3 J | 0.50 U |
| 9/26/2016 | 6.56 | | 191 | | 0.47 J | | 0.25 J | 0.26 J | 0.50 U |
| 3/8/2017 | ND U | | 161 | | ND U | | ND U | ND U | |
| 6/10/2017 | | | | | ND U | | | | |
| 9/16/2017 | 8 J | | 181 | | ND U | | ND U | ND U | ND U |
| 12/14/2017 | | | | | 5.0 | | | | |
| 3/17/2018 | | | 96 | | 5.0 | 5.0 | 5.0 | | |
| 6/16/2018 | | | | | 5.0 | | | | |
| 9/29/2018 | ND U | | 54 | 51 | 6.0 | | | 5.0 U | |
| 11/17/2018 | | | 82 | | | | | | |

**Table 3C. Summary of Groundwater Metals: 2007 through 2018**

Former J.H. Baxter South Woodwaste Landfill

*Arlington, Washington*

| Date | Barium, dissolved (µg/L) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| MCL/SMCL | 2,000 | | | | | | | | |
| WA WQ Std | 1,000 | | | | | | | | |
| Well ID | BXS-4 | BXS-4 Dup | BXS-3 | BXS-3 Dup | BXS-2 | BXS-2 Dup | BXS-1 | BXS-1 Dup | Field Blank |
| 2/1/2007 | 29 | 29 | 101 | | 47 | | 19.1 | | 5.0 U |
| 4/18/2007 | 26 | 26 | 74 | | 40 | | 25 | | 3.0 B |
| 7/18/2007 | 33 | | 81 | | 50 | | 25 | 23 | 5.0 U |
| 10/9/2007 | 29 | 29 | 83 | | 48 | | 27 | | 5.0 U |
| 1/9/2008 | 27 | | 65 | | 42 | | 18.3 | 19.0 | 0.6 U |
| 4/30/2008 | 28 | | 111 | | 42 | | 22 | 23 | 0.6 U |
| 7/30/2008 | 30 | | 122 | | 50 | 51 | 32 | | 0.5 U |
| 10/22/2008 | 27 | | 72 | | 42 | 43 | 25 | | |
| 2/1/2009 | 30 | | 125 | | 50 | | 23 | 23 | 5.0 U |
| 5/1/2009 | 27 | | 111 | | 45 | | 16.7 | 16.8 | 5.0 U |
| 8/1/2009 | 229 | | 15.6 | 23 | 40 | | 230 | | 5.0 U |
| 11/1/2009 | 27 | | 115 | | 46 | | 13.9 | 13.1 | 5.0 U |
| 2/10/2010 | 28 | | 132 | | 50 | 52 | 14.3 | | 5.0 U |
| 5/26/2010 | 28 | | 134 | | 54 | | 14.5 | 14.6 | 5.0 U |
| 8/18/2010 | 26 | | 119 | | 48 | | 14.9 | 14.3 | 1.5 J |
| 11/18/2010 | 25 | | 132 | | 45 | | 15.7 | 15.7 | 5.0 U |
| 2/9/2011 | 29 | | 142 | | 54 | | 16.9 | 16.6 | 5.0 U |
| 5/17/2011 | 25 | | 123 | | 53 | | 15.3 | 15.5 | 5.0 U |
| 8/24/2011 | 24 | | 120 | | 47 | | 15.8 | 15.3 | 5.0 U |
| 11/3/2011 | 25 | | 121 | | 45 | | 15.0 | 15.2 | 5.0 U |
| 2/14/2012 | 27 | | 136 | | 48 | | 16.7 | 16.3 | 0.6 J |
| 5/2/2012 | 29 | | 116 | | 54 | | 16.4 | 15.9 | 5.0 U |
| 8/21/2012 | 28 | | 114 | | 53 | | 15.3 | 15.5 | 5.0 U |
| 11/13/2012 | 28 | | 137 | | 51 | | 15.7 | 15.8 | 5.0 U |
| 2/12/2013 | 26 | | 90 | | 55 | | 13.9 | 14.2 | 5.0 U |
| 6/4/2013 | 26 | | 86 | | 53 | | 13.3 | 13.3 | 4.0 U |
| 8/27/2013 | 28 | | 115 | | 54 | | 16.1 | 15.2 | 4.0 U |
| 12/2/2013 | 26 | | 124 | | 47 | | 15.1 | 15.6 | 4.0 U |
| 3/17/2014 | 27 | | 140 | | 50 | | 15.4 | 15.5 | 4.0 U |
| 6/2/2014 | 28 | | 127 | | 53 | | 15.2 | 15 | 4.0 U |
| 9/29/2014 | 28 | | 135 | | 50 | | 14.9 | 15 | 4.0 U |
| 11/17/2014 | 28 | | 130 | | 50 | | 15.3 | 14.7 | 0.6 J |
| 2/23/2015 | 28 | | 127 | | 47 | | 13.1 | 13.3 | 0.1 J |
| 9/14/2015 | 30 | | 152 | | 47 | | 14.4 | 15.2 | 4.0 U |
| 12/7/2015 | 28 | | 162 | | 44 | | 13.2 | 13.4 | |
| 2/29/2016 | 29 | | 115 | | 48 | | 14.5 | 14.6 | 4.0 U |
| 6/16/2016 | 31 | | 109 | | 44 | | 18.8 | 19.1 | 0.9 J |
| 9/26/2016 | 31 | | 128 | | 32 | | 17.7 | 18 | 4.0 U |
| 3/8/2017 | 28.9 | | 128 | | 40.1 | | 23 | 21.7 | |
| 6/10/2017 | | | | | 20.3 | | | | |
| 9/16/2017 | 30 | | 129 | | 40.5 | | 18.9 J | 29.4 J | ND U |
| 12/14/2017 | | | | | | | 35.2 | | |
| 3/17/2018 | 36 | | 49.7 | | 38 | 37.6 | 16.4 | | |
| 6/16/2018 | | | | | 35.7 | | | | |
| 9/29/2018 | 32 | | 29.5 | 30.4 | 34.6 | | 16.1 | | |
| 11/17/2018 | | | 26 | | | | | | |

**Table 3C. Summary of Groundwater Metals: 2007 through 2018**

Former J.H. Baxter South Woodwaste Landfill

*Arlington, Washington*

| Date | Iron, dissolved (µg/L) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| MCL/SMCL | 300 | | | | | | | | |
| WA WQ Std | 300 | | | | | | | | |
| Well ID | BXS-4 | BXS-4 Dup | BXS-3 | BXS-3 Dup | BXS-2 | BXS-2 Dup | BXS-1 | BXS-1 Dup | Field Blank |
| 2/1/2007 | 39 | 37 | 110,000 | | 846 | | 20 U | | 20 U |
| 4/18/2007 | 43 | 36 | 90,500 | | 771 | | 10.1 B | | 4.7 B |
| 7/18/2007 | 38 | | 88,100 | | 699 | | 20 U | 20 U | 20 U |
| 10/9/2007 | 36 | 36 | 62,700 | | 656 | | 20 U | | 20 U |
| 1/9/2008 | 41 | | 35,500 | | 608 | | 7.8 J | 8.2 J | 3 U |
| 4/30/2008 | 42 | | 102,000 | | 624 | | 8.8 J | 8.3 J | 3 U |
| 7/30/2008 | 35 | | 96,800 | | 593 | 591 | 20 U | | 4 U |
| 10/22/2008 | 75 | | 53,800 | | 560 | 571 | 8.8 J | | |
| 2/1/2009 | 55 | | 109,000 | | 542 | | 4.6 J | 20 U | 4.5 J |
| 5/1/2009 | 52 | | 102,000 | | 473 | | 6.1 J | 4.9 J | 20 U |
| 8/1/2009 | 91 | | 11.6 J | 2,280 | 1,340 | | 91 | | 0.8 J |
| 11/1/2009 | 44 | | 59,700 | | 480 | | 4.7 J | 4.2 J | 20 U |
| 2/10/2010 | 34 | | 94,700 | | 465 | 493 | 20 U | | 20 U |
| 5/26/2010 | 44 | | 104,000 | | 451 | | 3.5 J | 8.9 J | 20 U |
| 8/18/2010 | 39 | | 104,000 | | 482 | | 3.7 J | 1.6 J | 20 U |
| 11/18/2010 | 20 U | | 116,000 | | 420 | | 8.7 J | 6 J | 20 U |
| 2/9/2011 | 47 | | 109,000 | | 466 | | 20 U | 20 U | 20 U |
| 5/17/2011 | 56 | | 110,000 | | 470 | | 11.7 J | 13 J | 6.8 J |
| 8/24/2011 | 35 | | 107,000 | | 412 | | 20 U | 1 J | 20 U |
| 11/3/2011 | 42 | | 100,000 | | 388 | | 7.7 J | 7.6 J | 20 U |
| 2/14/2012 | 43 | | 97,800 | | 375 | | 20 U | 20 U | 20 U |
| 5/2/2012 | 55 | | 97,900 | | 430 | | 20 UJ | 20 UJ | 20 U |
| 8/21/2012 | 43 | | 99,200 | | 417 | | 20 U | 20 U | 20 U |
| 11/13/2012 | 78 | | 98,100 | | 395 | | 20 U | 20 U | 20 U |
| 2/12/2013 | 60 | | 91,600 | | 450 | | 4.4 J | 4.6 J | 20 U |
| 6/4/2013 | 58 | | 93,500 | | 416 | | 3.7 J | 5.9 J | 4.1 J |
| 8/27/2013 | 65 | | 109,000 | | 416 | | 20 U | 5.8 J | 20 U |
| 12/2/2013 | 56 | | 107,000 | | 400 | | 20 U | 3 J | 20 U |
| 3/17/2014 | 69 | | 127,000 | | 424 | | 20 U | 8.5 J | 20 U |
| 6/2/2014 | 52 | | 118,000 | | 421 | | 20 U | 20 U | 20 U |
| 9/29/2014 | 73 | | 111,000 | | 409 | | 20 U | 20 U | 8.3 J |
| 11/17/2014 | 70 | | 120,000 | | 421 | | 20 U | 20 U | 40 U |
| 2/23/2015 | 73 | | 114,000 | | 375 | | 0.1 U | 10.2 J | 28 U |
| 9/14/2015 | 54 | | 122,000 | | 358 | | 6.4 J | 3.9 J | 20 U |
| 12/7/2015 | 56 | | 126,000 | | 361 | | 9 J | 20 U | |
| 2/29/2016 | 95 | | 106,000 | | 398 | | 20 U | 20 U | 4.0 J |
| 6/16/2016 | 55 | | 108,000 | | 359 | | 3 J | 3.8 J | 20.0 U |
| 9/26/2016 | 68 | | 107,000 | | 268 | | 20 J | 20 U | 3.0 J |
| 3/8/2017 | 498 | | 112,000 | | 279 | | 71 J | 37.0 J | |
| 6/10/2017 | | | | | 8 J | | | | |
| 9/16/2017 | 839 | | 108,000 | | 328 | | 11 J | 65.0 J | ND U |
| 12/14/2017 | | | | | | | 198 | | |
| 3/17/2018 | 825 | | 95,400 | | 139 | 184 | 10 | | |
| 6/16/2018 | | | | | 206 | | | | |
| 9/29/2018 | 886 | | 71,100 | 69,600 | 105 | | 10 U | | |
| 11/17/2018 | | | 81,800 | | | | | | |

**Table 3C. Summary of Groundwater Metals: 2007 through 2018**

Former J.H. Baxter South Woodwaste Landfill

*Arlington, Washington*

| Date | Manganese, dissolved (µg/L) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| MCL/SMCL | 50 | | | | | | | | |
| WA WQ Std | 50 | | | | | | | | |
| Well ID | BXS-4 | BXS-4 Dup | BXS-3 | BXS-3 Dup | BXS-2 | BXS-2 Dup | BXS-1 | BXS-1 Dup | Field Blank |
| 2/1/2007 | 112 | 114 | 13,500 | | 1,350 | | 90 | | 5 U |
| 4/18/2007 | 107 | 106 | 13,500 | | 1,330 | | 123 | | 1.6 B |
| 7/18/2007 | 118 | | 14,000 | | 1,330 | | 268 | 268 | 5 U |
| 10/9/2007 | 121 | 120 | 14,700 | | 1,280 | | 353 | | 2.7 B |
| 1/9/2008 | 125 | | 17,900 | | 1,270 | | 422 | 428 | 1.6 B |
| 4/30/2008 | 110 | | 12,600 | | 1,150 | | 240 | 234 | 0.3 B |
| 7/30/2008 | 111 | | 13,100 | | 1,190 | 1,210 | 309 | | 0.2 U |
| 10/22/2008 | 111 | | 15,400 | | 1,290 | 1,300 | 297 | | |
| 2/1/2009 | 120 | | 11,800 | | 1,250 | | 175 | 174 | 0.2 J |
| 5/1/2009 | 108 | | 11,300 | | 1,230 | | 114 | 116 | 0.4 J |
| 8/1/2009 | 4,220 | | 7,870 | 2,540 | 2,500 | | 4,180 | | 0.2 J |
| 11/1/2009 | 110 | | 13,400 | | 1,300 | | 204 | 204 | 0.7 J |
| 2/10/2010 | 116 | | 11,200 | | 1,260 | 1,330 | 36 | | 5 U |
| 5/26/2010 | 115 | | 9,380 | | 1,340 | | 78 | 78 | 5 U |
| 8/18/2010 | 108 | | 9,670 | | 1,310 | | 48 | 47 | 5 U |
| 11/18/2010 | 112 | | 7,880 | | 1,340 | | 93 | 95 | 5 U |
| 2/9/2011 | 125 | | 9,610 | | 1,400 | | 159 | 160 | 0.2 J |
| 5/17/2011 | 100 | | 13,600 | | 1,460 | | 122 | 116 | 5 U |
| 8/24/2011 | 97 | | 14,000 | | 1,340 | | 144 | 136 | 5 U |
| 11/3/2011 | 105 | | | | 1,300 | | 149 | 150 | 0.5 J |
| 2/14/2012 | 114 | | 8,650 | | 1,510 | | 252 | 242 | 0.3 J |
| 5/2/2012 | 116 | | 12,900 | | 1,570 | | 254 | 252 | 5 U |
| 8/21/2012 | 113 | | 14,000 | | 1,510 | | 201 | 200 | 5 U |
| 11/13/2012 | 119 | | 9,650 | | 1,550 | | 242 | 244 | 5 U |
| 2/12/2013 | 110 | | 10,700 | | 1,610 | | 220 | 220 | 5 U |
| 6/4/2013 | 118 | | 14,800 | | 1,680 | | 212 | 209 | 6.2 |
| 8/27/2013 | 119 | | 14,200 | | 1,700 | | 224 | 219 | 0.5 J |
| 12/2/2013 | 111 | | | | 1,580 | | 217 | 221 | 0.1 J |
| 3/17/2014 | 119 | | 10,400 | | 1,640 | | 287 | 282 | 0.3 J |
| 6/2/2014 | 116 | | 12,300 | | 1,680 | | 253 | 250 | 1 U |
| 9/29/2014 | 118 | | 7,310 | | 1,650 | | 240 | 241 | 0.6 J |
| 11/17/2014 | 115 | | 8,620 | | 1,680 | | 265 | 267 | 0.2 J |
| 2/23/2015 | 120 | | 10,100 | | 1,580 | | 311 | 301 | 0.958 J |
| 9/14/2015 | 114 | | 5,290 | | 1,570 | | 238 | 268 | 1 U |
| 12/7/2015 | 110 | | 5,990 | | 1,500 | | 321 | 330 | |
| 2/29/2016 | 105 | | 11,800 | | 1,600 | | 150 | 151 | 0.8 J |
| 6/16/2016 | 118 | | 13,900 | | 1,580 | | 249 | 272 | 1.0 U |
| 9/26/2016 | 124 | | 7,620 | | 1,200 | | 290 | 282 | 0.3 J |
| 3/8/2017 | 74.3 | | 8,730 | | 1,540 | | 667 | 501 | |
| 6/10/2017 | | | | | 324 | | | | |
| 9/16/2017 | 845 | | 6,460 | | 1,490 | | 301 J | 130 J | 0.09 J |
| 12/14/2017 | | | | | | | 1,417 | | |
| 3/17/2018 | 115 | | 8,179 | | 1,575 | 1,578 | 198 | | |
| 6/16/2018 | | | | | 1,475 | | | | |
| 9/29/2018 | 143 | | 5,654 | 5,711 | 1,416 | | 250 | | |
| 11/17/2018 | | | 4,890 | | | | | | |

**Table 3C. Summary of Groundwater Metals: 2007 through 2018**

Former J.H. Baxter South Woodwaste Landfill

*Arlington, Washington*

| Date | Cadmium, dissolved (µg/L) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| MCL/SMCL | 5 | | | | | | | | |
| WA WQ Std | 10 | | | | | | | | |
| Well ID | BXS-4 | BXS-4 Dup | BXS-3 | BXS-3 Dup | BXS-2 | BXS-2 Dup | BXS-1 | BXS-1 Dup | Field Blank |
| 2/1/2007 | 5.0 U | 5.0 U | 5.0 U | | 5.0 U | | 5.0 U | | 5.0 U |
| 4/18/2007 | 5.0 U | 5.0 U | 2.9 B | | 0.7 B | | 1.9 B | | 5.0 U |
| 7/18/2007 | 5.0 U | | 5.0 U | | 5.0 U | | 5.0 U | 5.0 U | |
| 10/9/2007 | 5.0 U | 5.0 U | 5.0 U | | 5.0 U | | 5.0 U | | |
| 1/9/2008 | 5.0 U | | 1.8 J | | 1.4 J | | 5.0 U | 1.3 J | |
| 4/30/2008 | 5.0 U | | 5.0 U | | 1.1 J | | 5.0 U | 0.7 J | |
| 7/30/2008 | 5.0 U | | 4.3 J | | 5.0 U | 5.0 U | 0.2 J | | |
| 10/22/2008 | 5.0 U | | 5.0 U | | 5.0 U | 5.0 U | 5.0 U | | |
| 2/1/2009 | 5.0 U | | 1.2 J | | 5.0 U | | 0.2 J | 0.3 J | 0.2 J |
| 5/1/2009 | 5.0 U | | 2.1 J | | 5.0 U | | 5.0 U | 5.0 U | 5.0 U |
| 8/1/2009 | 5.0 U | | 5.0 U | 5.0 U | 5.0 U | | 5.0 U | | 5.0 U |
| 11/1/2009 | 5.0 U | | 5.0 U | | 5.0 U | | 5.0 U | 5.0 U | 5.0 U |
| 2/10/2010 | 5.0 U | | 5.0 U | | 5.0 U | 5.0 U | 5.0 U | | 5.0 U |
| 5/26/2010 | 5.0 U | | 5.0 U | | 5.0 U | | 5.0 U | 5.0 U | 5.0 U |
| 8/18/2010 | 5.0 U | | 3.0 J | | 5.0 U | | 5.0 U | 5.0 U | 5.0 U |
| 11/18/2010 | 5.0 U | | 4.5 J | | 5.0 U | | 5.0 U | 5.0 U | 5.0 U |
| 2/9/2011 | | | | | | | | | 5.0 U |
| 5/17/2011 | | | | | | | | | 5.0 U |
| 8/24/2011 | | | | | | | | | 5.0 U |
| 11/3/2011 | 5.0 U | | 2.9 J | | 2.6 J | | 5.0 U | | 5.0 U |
| 2/14/2012 | 5.0 U | | 5.0 U | | 5.0 U | | 5.0 U | 5.0 U | 5.0 U |
| 5/2/2012 | 5.0 U | | 5.0 U | | 0.6 J | | 5.0 U | 5.0 U | 5.0 U |
| 8/21/2012 | NT | | NT | | NT | | NT | | NT |
| 11/13/2012 | NT | | NT | | NT | | NT | | NT |
| 2/12/2013 | NT | | NT | | NT | | NT | | NT |
| 6/4/2013 | NT | | NT | | NT | | NT | | NT |
| 8/27/2013 | NT | | NT | | NT | | NT | | NT |
| 12/2/2013 | NT | | NT | | NT | | NT | | NT |
| 3/17/2014 | NT | | NT | | NT | | NT | | NT |
| 6/2/2014 | NT | | NT | | NT | | NT | | NT |
| 9/29/2014 | NT | | NT | | NT | | NT | | NT |
| 11/17/2014 | NT | | NT | | NT | | NT | | NT |
| 2/23/2015 | NT | | NT | | NT | | NT | | NT |
| 9/14/2015 | NT | | NT | | NT | | NT | | NT |
| 12/7/2015 | NT | | NT | | NT | | NT | | NT |
| 2/29/2016 | NT | | NT | | NT | | NT | | NT |
| 6/16/2016 | NT | | NT | | NT | | NT | | NT |
| 9/26/2016 | NT | | NT | | NT | | NT | | NT |
| 3/8/2017 | NT | | NT | | NT | | NT | | NT |
| 6/10/2017 | NT | | NT | | NT | | NT | | NT |
| 9/16/2017 | NT | | NT | | NT | | NT | | NT |
| 12/14/2017 | NT | | NT | | NT | | NT | | NT |
| 3/17/2018 | NT | | NT | | NT | | NT | | NT |
| 6/16/2018 | NT | | NT | | NT | | NT | | NT |
| 9/29/2018 | NT | | NT | | NT | | NT | | NT |
| 11/17/2018 | NT | | NT | | NT | | NT | | NT |

## Table 3C. Summary of Groundwater Metals: 2007 through 2018

Former J.H. Baxter South Woodwaste Landfill

*Arlington, Washington*

| Date | Copper, dissolved (µg/L) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| MCL/SMCL | 1,300 | | | | | | | | |
| WA WQ Std | 1,000 | | | | | | | | |
| Well ID | BXS-4 | BXS-4 Dup | BXS-3 | BXS-3 Dup | BXS-2 | BXS-2 Dup | BXS-1 | BXS-1 Dup | Field Blank |
| 2/1/2007 | 10.0 U | 10.0 U | 10.0 U | | 10.0 U | | 3.0 B | | 10.0 U |
| 4/18/2007 | 10.0 U | 10.0 U | 10.0 U | | 10.0 U | | 10.0 U | | 10.0 U |
| 7/18/2007 | 10.0 U | | 4.4 B | | 5.4 B | | 4.2 B | 6.0 B | 10.0 U |
| 10/9/2007 | 10.0 U | 10.0 U | 10.0 U | | 10.0 U | | 10.0 U | | 10.0 U |
| 1/9/2008 | 10.0 U | | 10.0 U | | 10.0 U | | 10.0 U | 10.0 U | 7.0 U |
| 4/30/2008 | 10.0 U | | 10.0 U | | 10.0 U | | 10.0 U | 10.0 U | 7.0 U |
| 7/30/2008 | 10.0 U | | 10.0 U | | 1.4 J | 1.4 J | 3.3 J | | 1.4 B |
| 10/22/2008 | 10.0 U | | 10.0 U | | 10.0 U | 10.0 U | 10.0 U | | |
| 2/1/2009 | 10.0 U | | 10.0 U | | 2.1 J | | 1.6 J | 2.6 J | 10.0 U |
| 5/1/2009 | 10.0 U | | 10.0 U | | 10.0 U | | 10.0 U | 10.0 U | 5.8 J |
| 8/1/2009 | 22 | | 10.0 U | 10.0 U | 10.0 U | | 21 | | 10.0 U |
| 11/1/2009 | 10.0 U | | 10.0 U | | 10.0 U | | 10.0 U | 10.0 U | 10.0 U |
| 2/10/2010 | 1.3 J | | 2.0 J | | 3.8 J | 4.1 J | 3.9 J | | 10.0 U |
| 5/26/2010 | 10.0 U | | 10.0 U | | 1.6 J | | 2.0 J | 2.3 J | 10.0 U |
| 8/18/2010 | 4.2 J | | 6.9 J | | 4.4 J | | 4.0 J | 6.8 J | 10.0 U |
| 11/18/2010 | 10.0 U | | 10.0 U | | 10.0 U | | 10.0 U | 10.0 U | 5.8 J |
| 2/9/2011 | 10.0 U | | 3.3 J | | 10.0 U | | 2.0 J | 2.0 J | 10.0 U |
| 5/17/2011 | 10.0 U | | 10.0 U | | 2.8 J | | 10.0 U | 10.0 U | 2.2 J |
| 8/24/2011 | 10.0 U | | 10.0 U | | 10.0 U | | 10.0 U | 10.0 U | 10.0 U |
| 11/3/2011 | 10.0 U | | 10.0 U | | 10.0 U | | 10.0 U | 2.3 J | 10.0 U |
| 2/14/2012 | 10.0 U | | 5.2 J | | 1.7 J | | 1.7 J | 2.9 | 10.0 U |
| 5/2/2012 | 0.6 J | | 10.0 U | | 1.7 J | | 2.1 J | 2.2 | 10.0 U |
| 8/21/2012 | 10.0 U | | 10.0 U | | 1.5 J | | 2.1 J | 1.9 | 10.0 U |
| 11/13/2012 | 10.0 U | | 10.0 U | | 3.4 J | | 10.0 U | 10.0 U | 10.0 U |
| 2/12/2013 | 10.0 U | | 10.0 U | | 1.5 J | | 1.4 J | 1.7 J | 10.0 U |
| 6/4/2013 | 4.0 U | | 4.0 U | | 2.8 J | | 2.1 J | 2.0 J | 4.0 U |
| 8/27/2013 | 4.0 U | | 4.0 U | | 2.3 J | | 2.0 J | 1.6 J | 4.0 U |
| 12/2/2013 | 4.0 U | | 4.0 U | | 3.6 J | | 2.6 J | 2.9 J | 4.0 U |
| 3/17/2014 | 4.0 U | | 4.0 U | | 4.0 U | | 4.0 U | 4.0 U | 4.0 U |
| 6/2/2014 | 4.0 U | | 4.0 U | | 2.6 J | | 2.0 J | 2.1 J | 4.0 U |
| 9/29/2014 | 4.0 U | | 4.0 U | | 4.0 U | | 4.0 U | 4.0 U | 1.2 J |
| 11/17/2014 | 4.0 U | | 4.0 U | | 4.0 U | | 4.0 U | 4.0 U | 1.0 J |
| 2/23/2015 | 0.1 U | | 0.3 | | 2.3 | | 1.8 | 1.8 | 0.0 J |
| 9/14/2015 | 4.0 U | | 4.0 U | | 2.1 J | | 13.6 | 10.1 | 4.0 U |
| 12/7/2015 | 4.0 U | | 1.3 J | | 3.4 J | | 3.4 J | 2.2 J | |
| 2/29/2016 | 4.0 U | | 4.0 U | | 2.4 J | | 2.2 J | 4.4 | 4.0 U |
| 6/16/2016 | 4.0 U | | 4.0 U | | 4.0 U | | 8.3 U | 4.0 U | 2.2 J |
| 9/26/2016 | 4.0 U | | 4.0 U | | 4.0 U | | 4.0 U | 4.0 U | 0.9 J |
| 3/8/2017 | NT | | NT | | NT | | NT | NT | NT |
| 6/10/2017 | | | | | 1.8 J | | | | |
| 9/16/2017 | ND U | | ND U | | ND U | | ND U | ND U | ND U |
| 12/14/2017 | NT | | NT | | NT | | NT | | |
| 3/17/2018 | 1.4 J | | NT | | NT | | NT | | |
| 6/16/2018 | NT | | NT | | NT | | NT | | |
| 9/29/2018 | NT | | NT | | NT | | NT | | |
| 11/17/2018 | NT | | NT | | NT | | NT | | |

## Table 3C. Summary of Groundwater Metals: 2007 through 2018

Former J.H. Baxter South Woodwaste Landfill

*Arlington, Washington*

| Date | Nickel, dissolved (µg/L) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| MCL/SMCL | 100 | | | | | | | | |
| WA WQ Std | -- | | | | | | | | |
| Well ID | BXS-4 | BXS-4 Dup | BXS-3 | BXS-3 Dup | BXS-2 | BXS-2 Dup | BXS-1 | BXS-1 Dup | Field Blank |
| 2/1/2007 | 20.0 U | 20.0 U | 20.0 U | | 38 | | 20.0 U | | 20.0 U |
| 4/18/2007 | 20.0 U | 20.0 U | 18.2 B | | 34 | | 10.4 B | | 20.0 U |
| 7/18/2007 | 20.0 U | | 20.4 | | 30 | | 20.0 U | 20.0 U | 20.0 U |
| 10/9/2007 | 20.0 U | 20.0 U | 20.0 U | | 31 | | 20.0 U | | 20.0 U |
| 1/9/2008 | 20.0 U | | 17.0 J | | 31 | | 16.0 J | 15.5 J | 2.0 U |
| 4/30/2008 | 20.0 U | | 20.2 | | 32 | | 11.1 J | 11.8 J | 2.0 U |
| 7/30/2008 | 20.0 U | | 4.5 J | | 25 | 25 | 10.2 J | | 0.5 U |
| 10/22/2008 | 20.0 U | | 23 | | 32 | 32 | 15.5 J | | |
| 2/1/2009 | 20.0 U | | 20.6 | | 32 | | 10.7 J | 10.5 J | 20.0 U |
| 5/1/2009 | 20.0 U | | 17.7 J | | 31 | | 7.0 J | 7.9 J | 20.0 U |
| 8/1/2009 | 104 | | 49 | 27 | 134 | | 109 | | 20.0 U |
| 11/1/2009 | 20.0 U | | 13.2 J | | 31 | | 11.1 J | 10.1 J | 20.0 U |
| 2/10/2010 | 20.0 U | | 23 | | 32 | 34 | 5.9 J | | 20.0 U |
| 5/26/2010 | 20.0 U | | 19.5 J | | 33 | | 6.5 J | 6.7 J | 20.0 U |
| 8/18/2010 | 20.0 U | | 12.5 J | | 30 | | 6.8 J | 5.5 J | 20.0 U |
| 11/18/2010 | 20.0 U | | 17.5 J | | 33 | | 5.8 J | 5.2 J | 20.0 U |
| 2/9/2011 | 20.0 U | | 20.8 | | 34 | | 10.0 J | 9.6 J | 20.0 U |
| 5/17/2011 | 20.0 U | | 15.3 J | | 39 | | 8.7 J | 7.0 J | 20.0 U |
| 8/24/2011 | 20.0 U | | 16.2 J | | 32 | | 8.5 J | 9.2 J | 20.0 U |
| 11/3/2011 | 20.0 U | | 11.2 J | | 31 | | 10.6 J | 10.1 J | 20.0 U |
| 2/14/2012 | 20.0 U | | 23 | | 30 | | 9.4 J | 9.3 J | 20.0 U |
| 5/2/2012 | 20.0 U | | 13.0 J | | 34 | | 9.2 J | 8.9 J | 20.0 U |
| 8/21/2012 | 0.7 J | | 15.8 J | | 34 | | 8.9 J | 9.1 J | 20.0 U |
| 11/13/2012 | 20.0 U | | 13.6 J | | 32 | | 8.8 J | 9.7 J | 20.0 U |
| 2/12/2013 | 20.0 U | | 18.2 J | | 36 | | 9.2 J | 9.4 J | 20.0 U |
| 6/4/2013 | 0.4 J | | 18.4 | | 37 | | 8.5 | 8.4 | 4.0 U |
| 8/27/2013 | 2.2 J | | 22 | | 38 | | 11.2 | 10.8 | 4.0 U |
| 12/2/2013 | 5.4 | | 25 | | 38 | | 12.8 | 13.5 | 4.0 U |
| 3/17/2014 | 4.0 U | | 11.2 | | 31 | | 7.4 | 7.6 | 4.0 U |
| 6/2/2014 | 2.2 J | | 21 | | 39 | | 10.9 | 10.4 | 4.0 U |
| 9/29/2014 | 4.0 U | | 16.1 | | 34 | | 8.8 | 9.0 | 0.4 J |
| 11/17/2014 | 1.1 J | | 19.7 | | 36 | | 10.0 | 10.1 | 4.0 U |
| 2/23/2015 | 0.4 U | | 18.9 | | 34 | | 9.3 | 9.3 | 0.1 J |
| 9/14/2015 | 4.0 U | | 18.0 | | 31 | | 7.7 | 8.3 | 0.4 J |
| 12/7/2015 | 4.0 U | | 20.6 | | 29 | | 6.6 | 6.9 | |
| 2/29/2016 | 4.0 U | | 18.4 | | 33 | | 6.6 | 6.7 | 4.0 U |
| 6/16/2016 | 0.4 U | | 20.8 | | 32 | | 9.2 | 9.8 | 4.0 U |
| 9/26/2016 | 4.0 U | | 14.8 | | 22 | | 8.4 | 8.4 | 4.0 U |
| 3/8/2017 | 3.5 J | | 15.3 | | 30.2 | | 17.4 | 14.0 | |
| 6/10/2017 | | | | | 10.2 | | | | |
| 9/16/2017 | 2.7 J | | 21.0 | | 31 | | 12.0 | 8.6 | ND U |
| 12/14/2017 | | | | | | | | | |
| 3/17/2018 | 1.9 J | | 5.0 | | 18.0 | 18.0 | 5.0 | | |
| 6/16/2018 | | | | | 5.0 | | | | |
| 9/29/2018 | ND U | | 26.0 | 26.0 | 32 | | 12.0 | | |
| 11/17/2018 | | | 43.0 | | | | | | |

**Table 3C. Summary of Groundwater Metals: 2007 through 2018**
Former J.H. Baxter South Woodwaste Landfill
*Arlington, Washington*

| Date | Zinc, dissolved (µg/L) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| MCL/SMCL | 5,000 | | | | | | | | |
| WA WQ Std | 5,000 | | | | | | | | |
| Well ID | BXS-4 | BXS-4 Dup | BXS-3 | BXS-3 Dup | BXS-2 | BXS-2 Dup | BXS-1 | BXS-1 Dup | Field Blank |
| 2/1/2007 | 2.4 B | 10.0 U | 12.9 | | 5.8 B | | 4.0 B | | 10.0 U |
| 4/18/2007 | 10.0 U | 10.0 U | 8.5 B | | 30 | | 10.0 U | | 10.0 U |
| 7/18/2007 | 10.0 U | | 12.4 | | 11.1 | | 8.0 B | 6.5 B | 10.0 U |
| 10/9/2007 | 10.0 U | 12.9 | 15.9 | | 22 | | 7.9 B | | 10.0 U |
| 1/9/2008 | 8.3 J | | 10.0 U | | 14.8 | | 10.0 U | 8.0 J | 7.0 U |
| 4/30/2008 | 10.0 U | | 10.0 U | | 10.0 U | | 10.0 U | 10.0 U | 7.0 U |
| 7/30/2008 | 1.0 J | | 4.8 J | | 4.4 J | 4.2 J | 9.1 J | | 1.5 B |
| 10/22/2008 | 10.0 U | | 3.9 J | | 6.2 J | 7.1 J | 12.1 | | |
| 2/1/2009 | 1.5 J | | 2.1 J | | 6.5 J | | 3.6 J | 3.5 J | 1.6 J |
| 5/1/2009 | 10.0 U | | 3.9 J | | 3.7 J | | 1.5 J | 2.2 J | 5.0 J |
| 8/1/2009 | 3.8 J | | 2.6 J | 2.4 J | 10.0 U | | 3.4 J | | 2.4 J |
| 11/1/2009 | 10.0 U | | 1.5 J | | 2.8 J | | 1.5 J | 10.0 U | 10.0 U |
| 2/10/2010 | 10.0 U | | 1.6 J | | 5.3 J | 5.8 J | 1.7 J | | 10.0 U |
| 5/26/2010 | 10.0 U | | 10.0 U | | 3.5 J | | 2.1 J | 2.5 J | 10.0 U |
| 8/18/2010 | 10.0 U | | 10.0 U | | 1.7 J | | 10.0 U | 10.0 U | 1.9 J |
| 11/18/2010 | 10.0 U | | 2.3 J | | 4.8 J | | 10.0 U | 1.9 J | 10.0 U |
| 2/9/2011 | 0.4 J | | 20.0 U | | 4.9 J | | 3.1 J | 2.5 J | 0.3 J |
| 5/17/2011 | | | | | | | | | |
| 8/24/2011 | 10.0 U | | 4.2 J | | 4.7 J | | 1.7 J | 3.1 J | 10.0 U |
| 11/3/2011 | 10.0 U | | 3.0 J | | 4.0 J | | 1.0 J | 1.3 J | 10.0 U |
| 2/14/2012 | 0.7 J | | 6.8 J | | 5.5 J | | 3.0 J | 3.2 J | 0.7 J |
| 5/2/2012 | 0.4 J | | 10.0 U | | 4.3 J | | 2.5 J | 2.3 J | 10.0 U |
| 8/21/2012 | 10.0 U | | 0.8 J | | 2.3 J | | 2.6 J | 2.5 J | 10.0 U |
| 11/13/2012 | 10.0 U | | 0.8 J | | 3.8 J | | 2.7 J | 2.3 J | 10.0 U |
| 2/12/2013 | 10.0 U | | 0.9 J | | 3.2 J | | 2.4 J | 2.1 J | 10.0 U |
| 6/4/2013 | 4.0 U | | 2.7 J | | 3.8 J | | 2.4 J | 2.5 | 4.0 U |
| 8/27/2013 | 4.0 U | | 2.9 J | | 3.6 J | | 2.7 J | 2.5 J | 4.0 U |
| 12/2/2013 | 4.0 U | | 1.9 J | | 3.7 J | | 3.1 J | 3.1 J | 4.0 U |
| 3/17/2014 | 4.0 U | | 0.8 J | | 4.4 | | 2.8 J | 2.8 J | 4.0 U |
| 6/2/2014 | 4.0 U | | 1.3 J | | 3.4 J | | 2.2 J | 2.2 J | 4.0 U |
| 9/29/2014 | 0.5 J | | 1.7 J | | 5.6 | | 3.2 J | 2.4 J | 4.0 U |
| 11/17/2014 | 5.0 U | | 2.3 J | | 4.4 J | | 2.1 J | 2.6 J | 5.0 U |
| 2/23/2015 | 0.4 J | | 2.1 | | 6.5 | | 2.9 | 2.9 | 0.5 U |
| 9/14/2015 | 4.0 U | | 2.0 J | | 3.1 J | | 362 | 268 | 4.0 U |
| 12/7/2015 | 3.2 J | | 0.5 J | | 4.4 | | 13.7 J | 6.7 J | |
| 2/29/2016 | 2.1 J | | 4.1 | | 7.9 | | 8.5 | 32 | 4.0 U |
| 6/16/2016 | 4.3 U | | 4.0 U | | 4.0 U | | 13.0 | 6.6 | 1.0 J |
| 9/26/2016 | 4.0 U | | 2.1 J | | 2.1 J | | 1.2 J | 1.1 J | 4.0 U |
| 3/8/2017 | NT | | NT | | NT | | NT | NT | |
| 6/10/2017 | | | | | 1.9 J | | | | |
| 9/16/2017 | 0.8 J | | 1.5 J | | 1.8 J | | 1.8 J | 5.1 J | 2.2 J |
| 12/14/2017 | NT | | NT | | NT | | NT | | |
| 3/17/2018 | 4.2 | | NT | | | | NT | | |
| 6/16/2018 | NT | | NT | | NT | | NT | | |
| 9/29/2018 | NT | | NT | | NT | | NT | | |
| 11/17/2018 | NT | | NT | | NT | | NT | | |

µg/L = microgram per liter. B = detected in laboratory method blank. NT = not tested. R = rejected value.
J = estimated concentration that is less than the method reporting limit but greater than or = to the method detection limit.
J* = estimated concentration because of lab imprecision. MCL = Federal maximum contaminant levels for drinking water.
SMCL = Federal secondary maximum contaminant levels for drinking water.
U = analyte was not detected above the reported sample quantification limit.

**Table 4. Parameters Statistically Higher than Background: 1989 through 2018**

Former J.H. Baxter South Woodwaste Landfill

*Arlington, Washington*

| Analyte Group | Parameter[1] | Monitoring Period | Unit | Mean Value Downgradient[2,3] | | | Mean Value Upgradient[2] |
|---|---|---|---|---|---|---|---|
| | | | | BXS-1 | BXS-2 | BXS-3 | BXS-4 |
| Conventionals | Ammonia as Nitrogen | 2001 | mg/L | | | 0.10 | 0.50 |
| Conventionals | Ammonia as Nitrogen | 2007 | mg/L | | | 0.84 | 0.50 |
| Conventionals | Ammonia as Nitrogen | 2009 | mg/L | | | 1.08 | 0.54 |
| Conventionals | Ammonia as Nitrogen | 2010 | mg/L | | | 1.11 | 0.53 |
| Conventionals | Ammonia as Nitrogen | 2013 | mg/L | | | 0.82 | 0.53 |
| Conventionals | Ammonia as Nitrogen | 2014 | mg/L | | | 1.11 | 0.55 |
| Conventionals | Ammonia as Nitrogen | 2015 | mg/L | | | 1.03 | 0.53 |
| Conventionals | Ammonia as Nitrogen | 2016 | mg/L | | | 1.05 | 0.51 |
| Conventionals | Carbon, Total Organic | 1992 | mg/L | 3.6 | 5.0 | 18.7 | 1.5 |
| Conventionals | Carbon, Total Organic | 1993 | mg/L | | 7.3 | 20.0 | 2.0 |
| Conventionals | Carbon, Total Organic | 1994 | mg/L | | 8.6 | 22 | 2.3 |
| Conventionals | Carbon, Total Organic | 1995 | mg/L | | 10.7 | 31 | 3.4 |
| Conventionals | Carbon, Total Organic | 1996 | mg/L | 4.9 | 12.7 | 39 | 2.3 |
| Conventionals | Carbon, Total Organic | 1997 | mg/L | | 15.0 | | 3.8 |
| Conventionals | Carbon, Total Organic | 1998 | mg/L | | | 32 | 10.8 |
| Conventionals | Carbon, Total Organic | 1999 | mg/L | | 15.8 | 32 | 6.6 |
| Conventionals | Carbon, Total Organic | 2000 | mg/L | 8.1 | 15.2 | | 1.0 |
| Conventionals | Carbon, Total Organic | 2001 | mg/L | 7.5 | 14.6 | 25 | 3.1 |
| Conventionals | Carbon, Total Organic | 2002 | mg/L | 6.4 | 13.8 | 22 | 2.0 |
| Conventionals | Carbon, Total Organic | 2003 | mg/L | | 14.0 | 22 | 0.7 |
| Conventionals | Carbon, Total Organic | 2004 | mg/L | 5.1 | 14.7 | 23 | 0.9 |
| Conventionals | Carbon, Total Organic | 2005 | mg/L | 5.7 | 15.8 | 25 | 1.1 |
| Conventionals | Carbon, Total Organic | 2006 | mg/L | 5.1 | 14.5 | 28 | 1.0 |
| Conventionals | Carbon, Total Organic | 2007 | mg/L | 5.2 | 15.8 | 28 | 1.0 |
| Conventionals | Carbon, Total Organic | 2008 | mg/L | 6.7 | 16.2 | 26 | 0.9 |
| Conventionals | Carbon, Total Organic | 2009 | mg/L | 5.1 | 16.5 | 24 | 0.9 |
| Conventionals | Carbon, Total Organic | 2010 | mg/L | 4.8 | 17.0 | 24 | 1.3 |
| Conventionals | Carbon, Total Organic | 2011 | mg/L | 3.4 | 15.6 | 17.6 | 0.9 |
| Conventionals | Carbon, Total Organic | 2012 | mg/L | 2.8 | 15.0 | 19.7 | 0.9 |
| Conventionals | Carbon, Total Organic | 2013 | mg/L | 2.5 | 15 | 18 | 0.83 |
| Conventionals | Carbon, Total Organic | 2014 | mg/L | 2.3 | 13.9 | 19.4 | 0.9 |
| Conventionals | Carbon, Total Organic | 2015 | mg/L | 2.6 | 13.5 | 18.9 | 0.9 |
| Conventionals | Carbon, Total Organic | 2016 | mg/L | 3.0 | 13 | 19 | 0.88 |
| Conventionals | Carbon, Total Organic | 2017 | mg/L | | 10.9 | 20.2 | 2.01 |
| Conventionals | Carbon, Total Organic | 2018 | mg/L | | 26 | | 1.60 |
| Conventionals | Chemical Oxygen Demand | 1990 | mg/L | 28 | 41 | 98 | 2.2 |
| Conventionals | Chemical Oxygen Demand | 1993 | mg/L | | | 106 | 31 |
| Conventionals | Chemical Oxygen Demand | 1994 | mg/L | | 30 | 83 | 22 |
| Conventionals | Chemical Oxygen Demand | 1995 | mg/L | | | 90 | 32 |
| Conventionals | Chemical Oxygen Demand | 1996 | mg/L | | 41 | 98 | 16.0 |
| Conventionals | Chemical Oxygen Demand | 1997 | mg/L | | 43 | 87 | 19.0 |
| Conventionals | Chemical Oxygen Demand | 1998 | mg/L | | 51 | 98 | 20.1 |
| Conventionals | Chemical Oxygen Demand | 1999 | mg/L | | | 92 | 41 |
| Conventionals | Chemical Oxygen Demand | 2000 | mg/L | | 44 | 71 | 13.6 |
| Conventionals | Chemical Oxygen Demand | 2001 | mg/L | 22 | 43 | 70 | 17.3 |

## Table 4. Parameters Statistically Higher than Background: 1989 through 2018

Former J.H. Baxter South Woodwaste Landfill

*Arlington, Washington*

| Analyte Group | Parameter[1] | Monitoring Period | Unit | Mean Value Downgradient[2,3] | | | Mean Value Upgradient[2] |
|---|---|---|---|---|---|---|---|
| | | | | BXS-1 | BXS-2 | BXS-3 | BXS-4 |
| Conventionals | Chemical Oxygen Demand | 2002 | mg/L | 19.0 | 38 | 60 | 18.0 |
| Conventionals | Chemical Oxygen Demand | 2003 | mg/L | | 37 | 56 | 2.9 |
| Conventionals | Chemical Oxygen Demand | 2004 | mg/L | | 38 | 59 | 2.9 |
| Conventionals | Chemical Oxygen Demand | 2005 | mg/L | | 43 | 70 | 8.4 |
| Conventionals | Chemical Oxygen Demand | 2006 | mg/L | 12.5 | 36 | 72 | 2.9 |
| Conventionals | Chemical Oxygen Demand | 2007 | mg/L | 9.9 | 35 | 73 | 3.4 |
| Conventionals | Chemical Oxygen Demand | 2008 | mg/L | 16.3 | 38 | 69 | 4.4 |
| Conventionals | Chemical Oxygen Demand | 2009 | mg/L | 13.7 | 41 | 78 | 7.5 |
| Conventionals | Chemical Oxygen Demand | 2010 | mg/L | 9.8 | 40 | 71 | 3.5 |
| Conventionals | Chemical Oxygen Demand | 2011 | mg/L | 8.0 | 42 | 75 | 4.6 |
| Conventionals | Chemical Oxygen Demand | 2012 | mg/L | | 42 | 68 | 3.7 |
| Conventionals | Chemical Oxygen Demand | 2013 | mg/L | 6.6 | 40 | 63 | 4.5 |
| Conventionals | Chemical Oxygen Demand | 2014 | mg/L | 6.4 | 38 | 69 | ND |
| Conventionals | Chemical Oxygen Demand | 2015 | mg/L | 7.0 | 37 | 72 | ND |
| Conventionals | Chemical Oxygen Demand | 2016 | mg/L | 9.5 | 40 | 74 | 3.8 |
| Conventionals | Chemical Oxygen Demand | 2017 | mg/L | 8.3 | 29 | 71 | 6.7 |
| Conventionals | Chloride | 1989 | mg/L | 45 | 61 | 17.0 | 6.6 |
| Conventionals | Chloride | 1990 | mg/L | 23 | 14.5 | 6.8 | 2.2 |
| Conventionals | Chloride | 1992 | mg/L | 16.7 | 6.7 | 7.7 | 2.2 |
| Conventionals | Chloride | 1993 | mg/L | 12.1 | 6.6 | 12.8 | 2.3 |
| Conventionals | Chloride | 1994 | mg/L | 13.0 | 7.4 | 7.4 | 2.1 |
| Conventionals | Chloride | 1995 | mg/L | 14.0 | 10.0 | 9.6 | 1.9 |
| Conventionals | Chloride | 1996 | mg/L | 14.6 | 17.3 | 9.1 | 2.0 |
| Conventionals | Chloride | 1997 | mg/L | 12.6 | 14.8 | 35 | 2.0 |
| Conventionals | Chloride | 1998 | mg/L | 11.6 | 11.0 | 6.3 | 2.1 |
| Conventionals | Chloride | 1999 | mg/L | 10.0 | | 6.1 | 2.2 |
| Conventionals | Chloride | 2000 | mg/L | 7.8 | 8.3 | 5.0 | 2.1 |
| Conventionals | Chloride | 2001 | mg/L | 5.9 | 7.4 | 4.7 | 2.1 |
| Conventionals | Chloride | 2002 | mg/L | 5.3 | 6.5 | 3.8 | 2.0 |
| Conventionals | Chloride | 2003 | mg/L | 4.6 | 5.5 | | 2.0 |
| Conventionals | Chloride | 2004 | mg/L | | 4.3 | 2.3 | 1.8 |
| Conventionals | Chloride | 2005 | mg/L | 4.5 | 4.4 | 3.7 | 1.8 |
| Conventionals | Chloride | 2006 | mg/L | 4.0 | 3.5 | 2.8 | 1.7 |
| Conventionals | Chloride | 2007 | mg/L | 5.5 | 4.4 | 2.7 | 1.7 |
| Conventionals | Chloride | 2008 | mg/L | 5.1 | 4.5 | 3.0 | 1.9 |
| Conventionals | Chloride | 2009 | mg/L | 6.8 | 4.8 | 3.6 | 1.9 |
| Conventionals | Chloride | 2010 | mg/L | 5.6 | 3.7 | 3.0 | 1.8 |
| Conventionals | Chloride | 2011 | mg/L | 6.2 | 3.2 | | 1.8 |
| Conventionals | Chloride | 2012 | mg/L | | 3.0 | | 1.7 |
| Conventionals | Chloride | 2013 | mg/L | 4.2 | 3.0 | 1.9 | 1.7 |
| Conventionals | Chloride | 2014 | mg/L | 5.2 | 2.8 | 1.9 | 1.8 |
| Conventionals | Chloride | 2015 | mg/L | 4.9 | 2.5 | | 1.8 |
| Conventionals | Chloride | 2016 | mg/L | 4.1 | 2.5 | | 1.8 |
| Conventionals | Chloride | 2017 | mg/L | 3.2 | | | 2.0 |
| Conventionals | Coliform, total | 2010 | mg/L | | 2.0 | | 0.6 |

**Table 4. Parameters Statistically Higher than Background: 1989 through 2018**

Former J.H. Baxter South Woodwaste Landfill

*Arlington, Washington*

| Analyte Group | Parameter[1] | Monitoring Period | Unit | Mean Value Downgradient[2,3] | | | Mean Value Upgradient[2] |
|---|---|---|---|---|---|---|---|
| | | | | BXS-1 | BXS-2 | BXS-3 | BXS-4 |
| Conventionals | Coliform, total | 2015 | mg/L | 2.4 | | | ND |
| Conventionals | Conductivity | 1989 | µS/cm | 351 | 607 | 514 | 180 |
| Conventionals | Conductivity | 1990 | µS/cm | 366 | 624 | 500 | 214 |
| Conventionals | Conductivity | 1992 | µS/cm | 292 | 586 | 533 | 189 |
| Conventionals | Conductivity | 1993 | µS/cm | | 487 | 526 | 173 |
| Conventionals | Conductivity | 1994 | µS/cm | 214 | 479 | 602 | 169 |
| Conventionals | Conductivity | 1995 | µS/cm | 333 | 623 | | 149 |
| Conventionals | Conductivity | 1996 | µS/cm | 290 | 602 | 787 | 161 |
| Conventionals | Conductivity | 1997 | µS/cm | 326 | | 765 | 169 |
| Conventionals | Conductivity | 1998 | µS/cm | 393 | 678 | 738 | 177 |
| Conventionals | Conductivity | 1999 | µS/cm | 406 | 786 | 748 | 177 |
| Conventionals | Conductivity | 2000 | µS/cm | 417 | 762 | 651 | 166 |
| Conventionals | Conductivity | 2001 | µS/cm | 493 | 878 | 886 | 193 |
| Conventionals | Conductivity | 2002 | µS/cm | 470 | 849 | 825 | 187 |
| Conventionals | Conductivity | 2004 | µS/cm | | 821 | 853 | 198 |
| Conventionals | Conductivity | 2005 | µS/cm | 393 | 788 | 750 | 192 |
| Conventionals | Conductivity | 2006 | µS/cm | 414 | 773 | 785 | 191 |
| Conventionals | Conductivity | 2007 | µS/cm | 397 | 799 | 804 | 191 |
| Conventionals | Conductivity | 2008 | µS/cm | 465 | 758 | 771 | 189 |
| Conventionals | Conductivity | 2009 | µS/cm | 340 | 793 | 730 | 185 |
| Conventionals | Conductivity | 2010 | µS/cm | 304 | 825 | 707 | 196 |
| Conventionals | Conductivity | 2011 | µS/cm | 334 | 839 | 464 | 193 |
| Conventionals | Conductivity | 2012 | µS/cm | 330 | 891 | 444 | 187 |
| Conventionals | Conductivity | 2013 | µS/cm | 290 | 879 | 643 | 191 |
| Conventionals | Conductivity | 2014 | µS/cm | 292 | 824 | 1,500 | 186 |
| Conventionals | Conductivity | 2015 | µS/cm | 292 | 822 | 395 | 202 |
| Conventionals | Conductivity | 2016 | µS/cm | 352 | 817 | 427 | 210 |
| Conventionals | Conductivity | 2017 | µS/cm | 377 | 503 | 605 | 172 |
| Conventionals | Nitrate + Nitrite as Nitrogen | 1990 | mg/L | 0.72 | | | 0.10 |
| Conventionals | Nitrate + Nitrite as Nitrogen | 1993 | mg/L | 0.79 | | | 0.18 |
| Conventionals | Nitrate + Nitrite as Nitrogen | 1994 | mg/L | 0.50 | | | ND |
| Conventionals | Nitrate + Nitrite as Nitrogen | 1996 | mg/L | 1.65 | | | ND |
| Conventionals | Nitrate + Nitrite as Nitrogen | 1997 | mg/L | 0.75 | | | ND |
| Conventionals | Nitrate + Nitrite as Nitrogen | 1999 | mg/L | 0.43 | | | ND |
| Conventionals | Nitrate + Nitrite as Nitrogen | 2000 | mg/L | 0.33 | | | 0.10 |
| Conventionals | Nitrate + Nitrite as Nitrogen | 2002 | mg/L | 0.50 | | | 0.20 |
| Conventionals | Nitrate + Nitrite as Nitrogen | 2004 | mg/L | 0.85 | | | 0.06 |
| Conventionals | Nitrate + Nitrite as Nitrogen | 2005 | mg/L | 0.75 | | | 0.06 |
| Conventionals | Nitrate + Nitrite as Nitrogen | 2006 | mg/L | 0.71 | | | 0.04 |
| Conventionals | Nitrate + Nitrite as Nitrogen | 2007 | mg/L | 0.69 | | | 0.14 |
| Conventionals | Nitrate + Nitrite as Nitrogen | 2008 | mg/L | 0.83 | | | 0.04 |
| Conventionals | Nitrate + Nitrite as Nitrogen | 2009 | mg/L | 0.31 | | 0.15 | 0.02 |
| Conventionals | Nitrate + Nitrite as Nitrogen | 2010 | mg/L | 0.09 | | 0.16 | 0.03 |
| Conventionals | Nitrate + Nitrite as Nitrogen | 2011 | mg/L | 48 | | | 0.02 |
| Conventionals | Nitrate + Nitrite as Nitrogen | 2012 | mg/L | 0.05 | | 0.09 | 0.02 |

## Table 4. Parameters Statistically Higher than Background: 1989 through 2018

Former J.H. Baxter South Woodwaste Landfill

*Arlington, Washington*

| Analyte Group | Parameter[1] | Monitoring Period | Unit | Mean Value Downgradient[2,3] | | | Mean Value Upgradient[2] |
|---|---|---|---|---|---|---|---|
| | | | | BXS-1 | BXS-2 | BXS-3 | BXS-4 |
| Conventionals | Nitrate + Nitrite as Nitrogen | 2013 | mg/L | 0.08 | | 0.10 | 0.03 |
| Conventionals | Nitrate + Nitrite as Nitrogen | 2014 | mg/L | 0.09 | | 0.08 | 0.05 |
| Conventionals | Nitrate + Nitrite as Nitrogen | 2016 | mg/L | 0.30 | | | 0.04 |
| Conventionals | pH | 1992 | -- | 6.1 | 6.3 | 6.4 | 7.9 |
| Conventionals | pH | 2000 | -- | 6.1 | 6.4 | 6.5 | 7.9 |
| Conventionals | pH | 2001 | -- | 6.1 | 6.4 | 6.7 | 7.9 |
| Conventionals | Solids, Total Dissolved | 1990 | mg/L | | 397 | 436 | 228 |
| Conventionals | Solids, Total Dissolved | 1992 | mg/L | | 352 | 351 | 147 |
| Conventionals | Solids, Total Dissolved | 1993 | mg/L | | 330 | | 141 |
| Conventionals | Solids, Total Dissolved | 1994 | mg/L | 161 | 330 | 418 | 134 |
| Conventionals | Solids, Total Dissolved | 1995 | mg/L | 188 | 361 | 492 | 141 |
| Conventionals | Solids, Total Dissolved | 1996 | mg/L | 224 | 423 | 604 | 153 |
| Conventionals | Solids, Total Dissolved | 1997 | mg/L | 236 | 456 | 613 | 150 |
| Conventionals | Solids, Total Dissolved | 1998 | mg/L | 273 | 473 | 562 | 137 |
| Conventionals | Solids, Total Dissolved | 1999 | mg/L | 256 | 524 | 517 | 156 |
| Conventionals | Solids, Total Dissolved | 2000 | mg/L | 297 | 544 | 527 | 140 |
| Conventionals | Solids, Total Dissolved | 2001 | mg/L | 261 | 299 | 346 | 135 |
| Conventionals | Solids, Total Dissolved | 2002 | mg/L | 298 | 466 | 518 | 145 |
| Conventionals | Solids, Total Dissolved | 2003 | mg/L | 291 | 525 | 572 | 132 |
| Conventionals | Solids, Total Dissolved | 2004 | mg/L | 228 | 439 | 493 | 127 |
| Conventionals | Solids, Total Dissolved | 2005 | mg/L | 255 | 516 | 449 | 135 |
| Conventionals | Solids, Total Dissolved | 2006 | mg/L | 259 | 507 | 526 | 145 |
| Conventionals | Solids, Total Dissolved | 2007 | mg/L | 254 | 471 | 476 | 152 |
| Conventionals | Solids, Total Dissolved | 2008 | mg/L | 298 | 481 | 489 | 142 |
| Conventionals | Solids, Total Dissolved | 2009 | mg/L | 215 | 500 | 438 | 127 |
| Conventionals | Solids, Total Dissolved | 2010 | mg/L | 189 | 513 | 368 | 145 |
| Conventionals | Solids, Total Dissolved | 2011 | mg/L | 206 | 538 | 375 | 134 |
| Conventionals | Solids, Total Dissolved | 2012 | mg/L | 205 | 543 | 347 | 128 |
| Conventionals | Solids, Total Dissolved | 2013 | mg/L | 191 | 549 | 333 | 103 |
| Conventionals | Solids, Total Dissolved | 2014 | mg/L | 173 | 509 | 322 | 134 |
| Conventionals | Solids, Total Dissolved | 2015 | mg/L | 153 | 462 | 297 | 119 |
| Conventionals | Solids, Total Dissolved | 2016 | mg/L | | | 296 | 119 |
| Conventionals | Solids, Total Dissolved | 2017 | mg/L | 206 | 373 | | 134 |
| Conventionals | Solids, Total Dissolved | 2018 | mg/L | | 435 | | 146 |
| Conventionals | Sulfate | 1989 | mg/L | 5.9 | | | 2.3 |
| Conventionals | Sulfate | 1990 | mg/L | 6.6 | | | 1.9 |
| Conventionals | Sulfate | 1992 | mg/L | 9.1 | | | 2.0 |
| Conventionals | Sulfate | 1993 | mg/L | 10.0 | | | 2.0 |
| Conventionals | Sulfate | 1994 | mg/L | 11.8 | | | 1.9 |
| Conventionals | Sulfate | 1995 | mg/L | 12.0 | | | 1.8 |
| Conventionals | Sulfate | 1996 | mg/L | 10.7 | | | 1.7 |
| Conventionals | Sulfate | 1997 | mg/L | 11.8 | | | 1.6 |
| Conventionals | Sulfate | 1998 | mg/L | 9.5 | | | 1.3 |
| Conventionals | Sulfate | 1999 | mg/L | 7.8 | | | 1.4 |
| Conventionals | Sulfate | 2001 | mg/L | 7.5 | | | 1.4 |

**Table 4. Parameters Statistically Higher than Background: 1989 through 2018**

Former J.H. Baxter South Woodwaste Landfill

*Arlington, Washington*

| Analyte Group | Parameter[1] | Monitoring Period | Unit | Mean Value Downgradient[2,3] | | | Mean Value Upgradient[2] |
|---|---|---|---|---|---|---|---|
| | | | | BXS-1 | BXS-2 | BXS-3 | BXS-4 |
| Conventionals | Sulfate | 2002 | mg/L | 7.3 | | | 1.4 |
| Conventionals | Sulfate | 2005 | mg/L | 10.1 | | | 1.3 |
| Conventionals | Sulfate | 2006 | mg/L | 11.3 | | | 1.4 |
| Conventionals | Sulfate | 2007 | mg/L | 12.4 | | | 1.4 |
| Conventionals | Sulfate | 2008 | mg/L | 9.1 | | | 1.1 |
| Conventionals | Sulfate | 2009 | mg/L | 10.5 | | | 1.9 |
| Conventionals | Sulfate | 2010 | mg/L | 15.3 | | | 1.4 |
| Conventionals | Sulfate | 2011 | mg/L | 15.8 | | | 1.1 |
| Conventionals | Sulfate | 2012 | mg/L | 15.3 | | | 0.8 |
| Conventionals | Sulfate | 2013 | mg/L | 13 | | | 0.82 |
| Conventionals | Sulfate | 2014 | mg/L | 10 | | | 1.10 |
| Conventionals | Sulfate | 2015 | mg/L | 9 | | | 1.17 |
| Conventionals | Sulfate | 2016 | mg/L | 8 | | | 1.14 |
| Conventionals | Sulfate | 2016 | mg/L | 5 | | | 1.98 |
| Conventionals | Sulfate | 2018 | mg/L | 10 | | | 1.17 |
| Conventionals | Tannin and Lignin | 1990 | mg/L | | | 3.1 | 1.4 |
| Conventionals | Tannin and Lignin | 1993 | mg/L | | 0.5 | | 0.3 |
| Conventionals | Tannin and Lignin | 1994 | mg/L | | 0.5 | 1.0 | 0.2 |
| Conventionals | Tannin and Lignin | 1995 | mg/L | | | 3.1 | 0.6 |
| Conventionals | Tannin and Lignin | 1996 | mg/L | | 0.7 | 5.6 | 0.3 |
| Conventionals | Tannin and Lignin | 1998 | mg/L | | | 8.1 | 0.7 |
| Conventionals | Tannin and Lignin | 1999 | mg/L | | | 12.2 | 0.5 |
| Conventionals | Tannin and Lignin | 2000 | mg/L | | 9.1 | 9.2 | 0.4 |
| Conventionals | Tannin and Lignin | 2002 | mg/L | | 1.6 | 11.1 | 0.4 |
| Conventionals | Tannin and Lignin | 2003 | mg/L | | | 6.3 | 0.4 |
| Conventionals | Tannin and Lignin | 2004 | mg/L | | 1.4 | | 0.5 |
| Conventionals | Tannin and Lignin | 2005 | mg/L | | | 8.1 | 0.4 |
| Conventionals | Tannin and Lignin | 2006 | mg/L | | | 11.5 | 0.4 |
| Conventionals | Tannin and Lignin | 2007 | mg/L | | 1.2 | 8.5 | 0.3 |
| Conventionals | Tannin and Lignin | 2008 | mg/L | | 1.2 | 11.1 | 0.3 |
| Conventionals | Tannin and Lignin | 2009 | mg/L | | 1.1 | 9.4 | 0.3 |
| Conventionals | Tannin and Lignin | 2010 | mg/L | | 1.4 | 14.9 | 0.3 |
| Conventionals | Tannin and Lignin | 2011 | mg/L | | 1.2 | 15.0 | 0.3 |
| Conventionals | Tannin and Lignin | 2012 | mg/L | | 1.7 | 27 | 0.4 |
| Conventionals | Tannin and Lignin | 2013 | mg/L | | 1.3 | 10 | 0.26 |
| Conventionals | Tannin and Lignin | 2014 | mg/L | | 1.3 | 23 | 0.28 |
| Conventionals | Tannin and Lignin | 2015 | mg/L | | 1.3 | 12 | 0.29 |
| Conventionals | Tannin and Lignin | 2016 | mg/L | | 1.2 | 5 | 0.22 |
| Conventionals | Tannin and Lignin | 2017 | mg/L | | 1.6 | | 0.18 |
| Conventionals | Tannin and Lignin | 2018 | mg/L | | 1.6 | | 0.36 |
| Organics | PCP | 2017 | µg/L | | 1.2 | | 0.18 |
| Organics | PCP | 2017 | µg/L | | 1.6 | | 0.18 |
| Metals | Arsenic | 1996 | µg/L | | | 9.0 | 4.0 |
| Metals | Arsenic | 1997 | µg/L | | | 15.0 | 5.0 |
| Metals | Arsenic | 1998 | µg/L | | | 20.0 | 4.6 |

**Table 4. Parameters Statistically Higher than Background: 1989 through 2018**

Former J.H. Baxter South Woodwaste Landfill

*Arlington, Washington*

| Analyte Group | Parameter[1] | Monitoring Period | Unit | Mean Value Downgradient[2,3] | | | Mean Value Upgradient[2] |
|---|---|---|---|---|---|---|---|
| | | | | BXS-1 | BXS-2 | BXS-3 | BXS-4 |
| Metals | Arsenic | 1999 | µg/L | | | 34 | 5.8 |
| Metals | Arsenic | 2002 | µg/L | | | 10.4 | 3.8 |
| Metals | Arsenic | 2007 | µg/L | | | 110 | 5.9 |
| Metals | Arsenic | 2008 | µg/L | | | 79 | 5.9 |
| Metals | Arsenic | 2009 | µg/L | | | 75 | 6.9 |
| Metals | Arsenic | 2010 | µg/L | | | 152 | 5.9 |
| Metals | Arsenic | 2011 | µg/L | | | 142 | 6.1 |
| Metals | Arsenic | 2012 | µg/L | | | 149 | 5.5 |
| Metals | Arsenic | 2013 | µg/L | | | 140 | 6.4 |
| Metals | Arsenic | 2014 | µg/L | | | 174 | 5.9 |
| Metals | Arsenic | 2015 | µg/L | | | 174 | 6.0 |
| Metals | Arsenic | 2016 | µg/L | | | 163 | 6.3 |
| Metals | Arsenic | 2017 | µg/L | | | 171 | 9.3 |
| Metals | Barium | 1993 | µg/L | | | 38 | 28 |
| Metals | Barium | 1994 | µg/L | | 38 | 51 | 25 |
| Metals | Barium | 1995 | µg/L | | 45 | 58 | 27 |
| Metals | Barium | 1996 | µg/L | | 48 | 74 | 26 |
| Metals | Barium | 1997 | µg/L | | 50 | 58 | 21.0 |
| Metals | Barium | 1998 | µg/L | | 51 | 65 | 26 |
| Metals | Barium | 1999 | µg/L | | 51 | 58 | 27 |
| Metals | Barium | 2000 | µg/L | | | 88 | 27 |
| Metals | Barium | 2001 | µg/L | 28 | 51 | 60 | 27 |
| Metals | Barium | 2002 | µg/L | | 50 | 78 | 28 |
| Metals | Barium | 2003 | µg/L | | 46 | 55 | 29 |
| Metals | Barium | 2004 | µg/L | | 48 | 71 | 23 |
| Metals | Barium | 2005 | µg/L | | 44 | 88 | 29 |
| Metals | Barium | 2006 | µg/L | | 46 | 95 | 31 |
| Metals | Barium | 2007 | µg/L | | 46 | 85 | 29 |
| Metals | Barium | 2008 | µg/L | | 44 | 93 | 28 |
| Metals | Barium | 2009 | µg/L | | 45 | 92 | 78 |
| Metals | Barium | 2011 | µg/L | | 50 | 127 | 26 |
| Metals | Barium | 2012 | µg/L | | 51 | 126 | 28 |
| Metals | Barium | 2013 | µg/L | | 52 | 104 | 26 |
| Metals | Barium | 2014 | µg/L | | 51 | 133 | 28 |
| Metals | Barium | 2015 | µg/L | | 47 | 143 | 28 |
| Metals | Barium | 2016 | µg/L | | 42 | 129 | 30 |
| Metals | Barium | 2017 | µg/L | | | 129 | 29 |
| Metals | Cadmium | 2002 | µg/L | | 1.1 | 1.1 | ND |
| Metals | Copper | 1993 | µg/L | | | 8 | 5 |
| Metals | Copper | 2015 | µg/L | | 2 | | 2 |
| Metals | Iron | 1990 | µg/L | | 140 | 1,950 | 48 |
| Metals | Iron | 1994 | µg/L | | 748 | 1,950 | 45 |
| Metals | Iron | 1995 | µg/L | | 1,120 | 341 | 50 |
| Metals | Iron | 1996 | µg/L | | 1,520 | 9,490 | 46 |
| Metals | Iron | 1997 | µg/L | | 1,220 | 17,800 | 50 |

**Table 4. Parameters Statistically Higher than Background: 1989 through 2018**
Former J.H. Baxter South Woodwaste Landfill
*Arlington, Washington*

| Analyte Group | Parameter[1] | Monitoring Period | Unit | Mean Value Downgradient[2,3] | | | Mean Value Upgradient[2] |
|---|---|---|---|---|---|---|---|
| | | | | BXS-1 | BXS-2 | BXS-3 | BXS-4 |
| Metals | Iron | 1998 | µg/L | | 1,130 | 20,700 | 56 |
| Metals | Iron | 1999 | µg/L | | 950 | 34,500 | 30 |
| Metals | Iron | 2000 | µg/L | | 665 | 37,740 | 48 |
| Metals | Iron | 2001 | µg/L | | 715 | 6,538 | 43 |
| Metals | Iron | 2002 | µg/L | | 729 | 10,474 | 42 |
| Metals | Iron | 2003 | µg/L | | 814 | | 42 |
| Metals | Iron | 2004 | µg/L | | 784 | | 38 |
| Metals | Iron | 2005 | µg/L | | 758 | 10,013 | 43 |
| Metals | Iron | 2006 | µg/L | | 813 | 47,648 | 40 |
| Metals | Iron | 2007 | µg/L | | 743 | 87,825 | 39 |
| Metals | Iron | 2008 | µg/L | | 596 | 72,025 | 48 |
| Metals | Iron | 2009 | µg/L | | 709 | 67,678 | 60 |
| Metals | Iron | 2010 | µg/L | | 455 | 104,675 | 31 |
| Metals | Iron | 2011 | µg/L | | 434 | 106,500 | 45 |
| Metals | Iron | 2012 | µg/L | | 404 | 98,250 | 55 |
| Metals | Iron | 2013 | µg/L | | 421 | 100,275 | 60 |
| Metals | Iron | 2014 | µg/L | | 419 | 119,000 | 66 |
| Metals | Iron | 2015 | µg/L | | 379 | 120,500 | 63 |
| Metals | Iron | 2016 | µg/L | | 379 | 111,750 | 69 |
| Metals | Iron | 2017 | µg/L | | | 110,000 | 669 |
| Metals | Iron | 2018 | µg/L | | | 82,517 | 856 |
| Metals | Lead | 1993 | µg/L | | | 2 | 1 |
| Metals | Manganese | 1989 | µg/L | 210 | 580 | 1,100 | 120 |
| Metals | Manganese | 1990 | µg/L | | 650 | 1,820 | 99 |
| Metals | Manganese | 1993 | µg/L | | 570 | | 110 |
| Metals | Manganese | 1994 | µg/L | | 670 | 1,110 | 120 |
| Metals | Manganese | 1995 | µg/L | | 834 | 3,780 | 122 |
| Metals | Manganese | 1996 | µg/L | | 1,120 | 10,800 | 121 |
| Metals | Manganese | 1997 | µg/L | | 1,510 | 13,000 | 90 |
| Metals | Manganese | 1998 | µg/L | 175 | 1,650 | 13,800 | 126 |
| Metals | Manganese | 1999 | µg/L | 200 | 1,420 | 14,800 | 116 |
| Metals | Manganese | 2000 | µg/L | 331 | 1,450 | 15,025 | 124 |
| Metals | Manganese | 2001 | µg/L | 426 | 1,513 | 15,350 | 119 |
| Metals | Manganese | 2002 | µg/L | 430 | 1,502 | 15,763 | 119 |
| Metals | Manganese | 2003 | µg/L | | 1,523 | 15,750 | 113 |
| Metals | Manganese | 2004 | µg/L | | 1,420 | 16,625 | 103 |
| Metals | Manganese | 2005 | µg/L | | 1,305 | 13,503 | 112 |
| Metals | Manganese | 2006 | µg/L | | 1,330 | 15,275 | 113 |
| Metals | Manganese | 2007 | µg/L | | 1,323 | 13,925 | 114 |
| Metals | Manganese | 2008 | µg/L | 317 | 1,225 | 14,750 | 114 |
| Metals | Manganese | 2009 | µg/L | | 1,570 | 11,093 | 1,140 |
| Metals | Manganese | 2010 | µg/L | | | 9,533 | 113 |
| Metals | Manganese | 2011 | µg/L | 144 | 1,375 | 12,403 | 107 |
| Metals | Manganese | 2012 | µg/L | 237 | 1,535 | 11,300 | 116 |
| Metals | Manganese | 2013 | µg/L | 218 | 1,643 | 13,233 | 115 |

## Table 4. Parameters Statistically Higher than Background: 1989 through 2018

Former J.H. Baxter South Woodwaste Landfill

*Arlington, Washington*

| Analyte Group | Parameter[1] | Monitoring Period | Unit | Mean Value Downgradient[2,3] | | | Mean Value Upgradient[2] |
|---|---|---|---|---|---|---|---|
| | | | | BXS-1 | BXS-2 | BXS-3 | BXS-4 |
| Metals | Manganese | 2014 | µg/L | 261 | 1,663 | 9,658 | 117 |
| Metals | Manganese | 2015 | µg/L | 284 | 1,583 | 7,500 | 115 |
| Metals | Manganese | 2016 | µg/L | 253 | 1,470 | 9,078 | 114 |
| Metals | Manganese | 2017 | µg/L | | | 7,595 | 460 |
| Metals | Manganese | 2018 | µg/L | | 1,489 | 6,251 | 129 |
| Metals | Nickel | 1993 | µg/L | | 18.0 | | 1.0 |
| Metals | Nickel | 1994 | µg/L | | 18.0 | | ND |
| Metals | Nickel | 1995 | µg/L | | 21.0 | 30 | ND |
| Metals | Nickel | 1996 | µg/L | | | 25 | ND |
| Metals | Nickel | 1997 | µg/L | | 34 | 20.0 | ND |
| Metals | Nickel | 1998 | µg/L | | 43 | 29 | ND |
| Metals | Nickel | 1999 | µg/L | | 36 | 22 | ND |
| Metals | Nickel | 2000 | µg/L | | 37 | | ND |
| Metals | Nickel | 2001 | µg/L | 20.3 | 38 | 17.5 | 10.0 |
| Metals | Nickel | 2002 | µg/L | 21 | 39 | 24 | 5.5 |
| Metals | Nickel | 2003 | µg/L | | 37 | | 10.0 |
| Metals | Nickel | 2004 | µg/L | | 41 | | 10.0 |
| Metals | Nickel | 2005 | µg/L | | 36 | | 10.0 |
| Metals | Nickel | 2006 | µg/L | | 34 | | 10.0 |
| Metals | Nickel | 2007 | µg/L | | 33 | | 10.0 |
| Metals | Nickel | 2008 | µg/L | | 30 | 16.1 | 10.0 |
| Metals | Nickel | 2009 | µg/L | | 57 | | 34 |
| Metals | Nickel | 2011 | µg/L | | 31 | | 12.5 |
| Metals | Nickel | 2012 | µg/L | | 32 | 16.3 | 7.7 |
| Metals | Nickel | 2013 | µg/L | 10 | 37 | 21 | 7 |
| Metals | Nickel | 2014 | µg/L | 9 | 35 | 17 | 3 |
| Metals | Nickel | 2015 | µg/L | 8 | 32 | 19 | 1 |
| Metals | Nickel | 2016 | µg/L | 19 | 29 | 8 | 2 |
| Metals | Nickel | 2017 | µg/L | 13 | 23 | 18 | 3 |
| Metals | Zinc | 2002 | µg/L | 8.0 | 6.8 | | ND |
| Metals | Zinc | 2005 | µg/L | 10.0 | | | 5.0 |
| Metals | Zinc | 2007 | µg/L | 6.2 | 17.3 | 12.4 | 4.4 |
| Metals | Zinc | 2008 | µg/L | | 7.6 | | 4.8 |
| Metals | Zinc | 2014 | µg/L | | 4.5 | 6.1 | 3.4 |
| Metals | Zinc | 2015 | µg/L | | 4.6 | 6.1 | 2.0 |
| Metals | Zinc | 2016 | µg/L | | 4.4 | | 2.9 |

**Notes:**

µg/L = microgram per liter.

µS/cm = microSiemen per centimeter.

mg/L = milligram per liter.

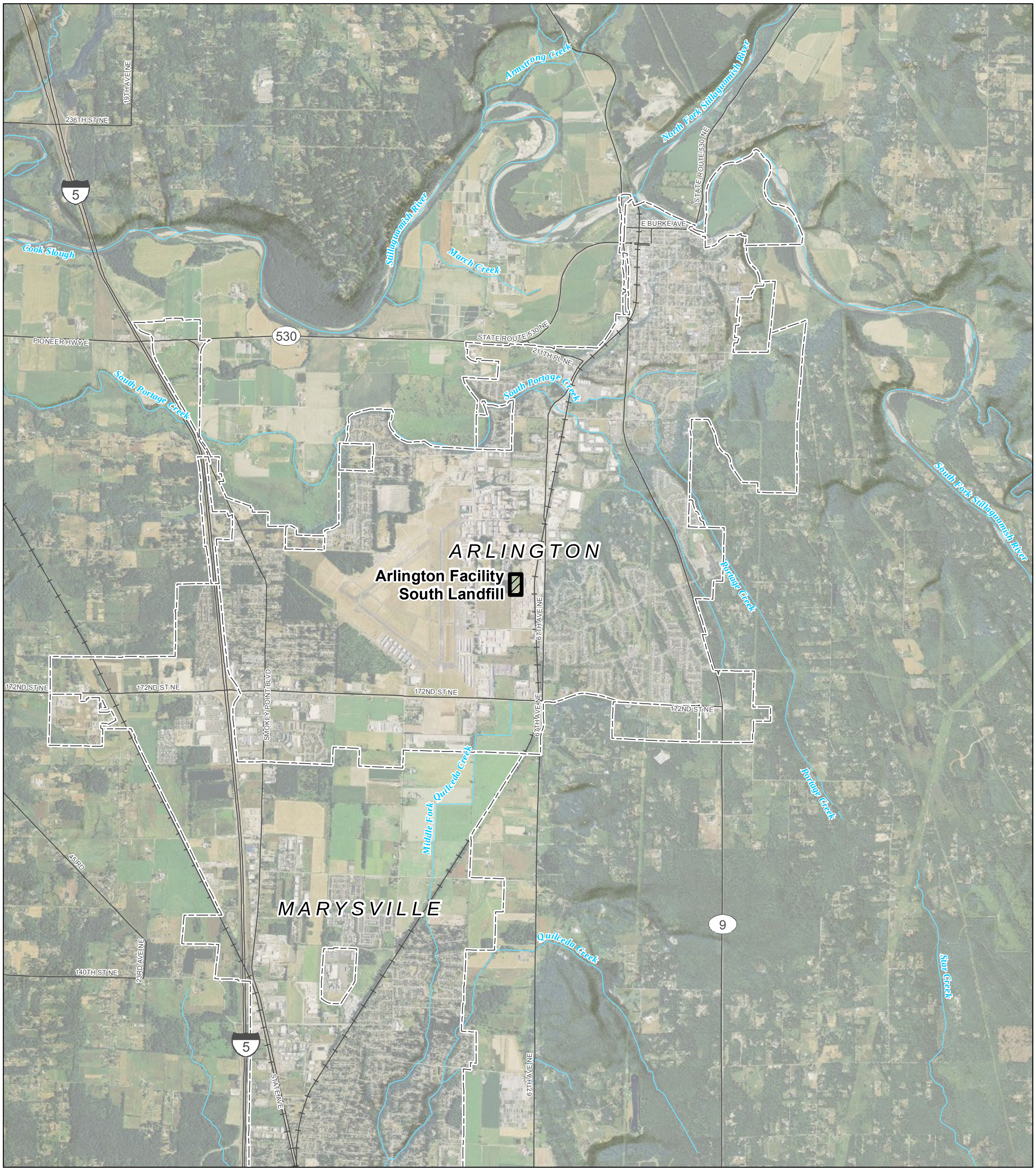
ND = not detected.

[1] Parameters listed only when at least one downgradient well has a higher mean value than the upgradient well.

[2] Mean values are yearly averages.

[3] Mean values in downgradient wells shown when exceeding the mean value of the upgradient well. Value in downgradient wells not shown if the mean value does not exceed the upgradient well's mean value.

## Figures





**LEGEND**

Cities

Railroads

Major Roads

Watercourses

**MAP NOTES:**
Date: March 31, 2015
Data Sources: Air photo taken on July 15, 2013 by the USDA

# FIGURE 1

## Site Vicinity Map

Former J.H. Baxter South Woodwaste Landfill
Arlington, Washington

N

0 0.5 1
Miles

GSI Water Solutions, Inc.

Document Path: P:\Portland\302 - Baxter\GIS\Arlington_Landfills\Project_mxds\South\2014_Annual_Report\Figure1_Site_Vicinity_Map.mxd


# FIGURE 2

Groundwater Elevation Contour Map:
First Quarter 2016

Former J.H. Baxter South Woodwaste Landfill
Arlington, Washington

**LEGEND**

Groundwater Elevation Contours (dashed where inferred)

Monitoring Well (February 2016 Groundwater Elevation)

Direction of Groundwater Flow

**NOTES:**
1. All elevations exist in NAVD88.

N

0 100 200 300
Feet

**MAP NOTES:**
Date: 3/23/2017
Data Sources: AMEC, ESRI, Air photo taken on July 15, 2013 by the USDA

GSI Water Solutions, Inc.

Document Path: P:\Portland\302 - Baxter\GIS\Arlington_Landfills\Project_mxds\2016_Annual_Report\S_FigureX_GW_Elev_1Q_2016.mxd

# FIGURE 3

## Groundwater Elevation Contour Map: Third Quarter 2016

## Former J.H. Baxter South Woodwaste Landfill
## Arlington, Washington


**LEGEND**

- Groundwater Elevation Contours (dashed where inferred)
- Monitoring Well (September 2016 Groundwater Elevation)
- Direction of Groundwater Flow

**NOTES:**
1. All elevations exist in NAVD88.

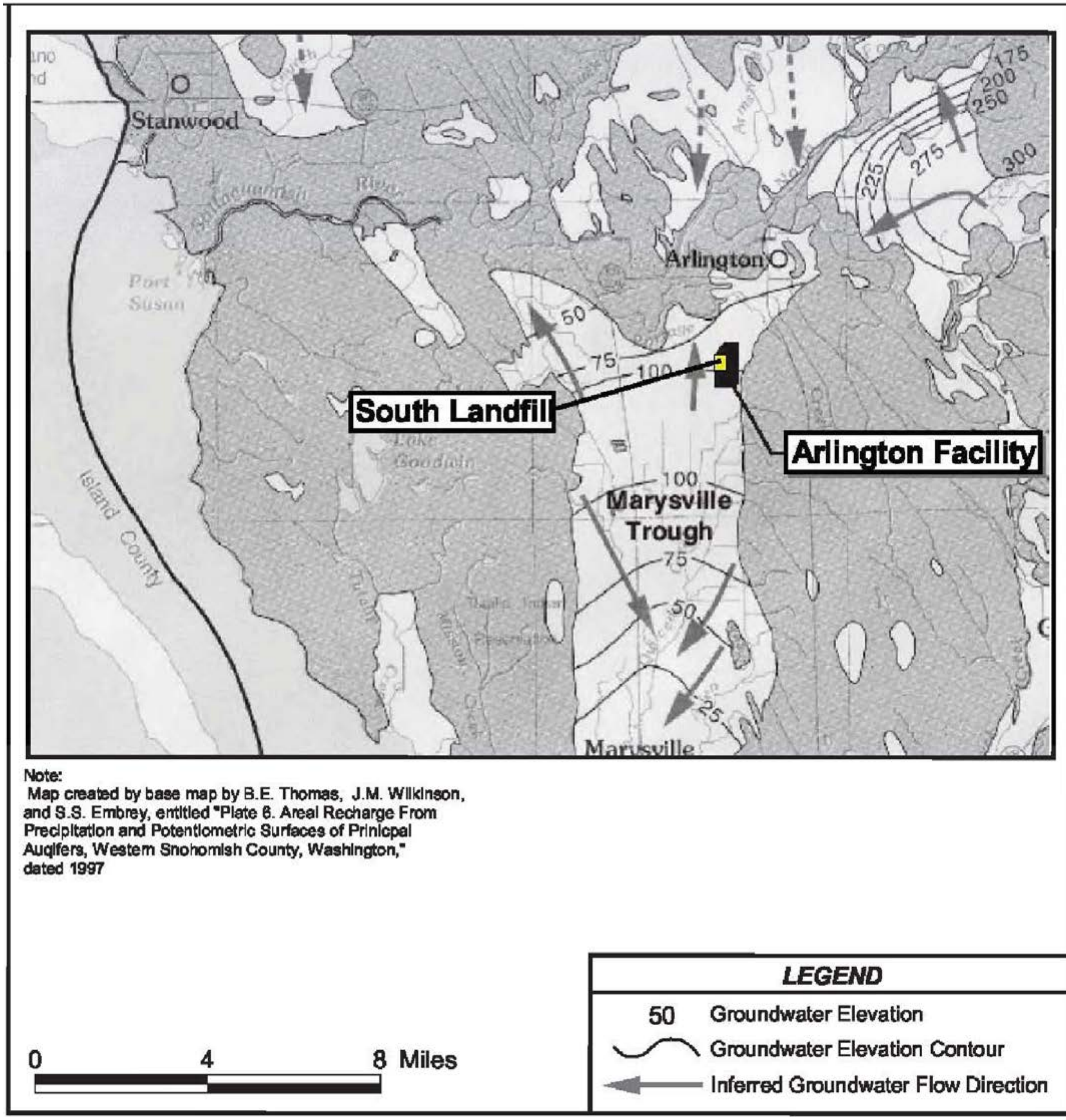
N

0 100 200 300
Feet

**MAP NOTES:**
Date: 3/23/2017
Data Sources: AMEC, ESRI, Air photo taken on July 15, 2013 by the USDA

GSI Water Solutions, Inc.

Document Path: P:\Portland\302 - Baxter\GIS\Arlington_Landfills\Project_mxds\2016_Annual_Report\S_FigureX_GW_Elev_3Q_2016.mxd




Note:
Map created by base map by B.E. Thomas, J.M. Wilkinson, and S.S. Embrey, entitled "Plate 6. Areal Recharge From Precipitation and Potentiometric Surfaces of Prinicpal Auqifers, Western Snohomish County, Washington," dated 1997

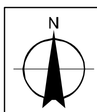



FIGURE 4

Regional Groundwater Flow

Former J.H. Baxter South Woodwaste Landfill
Arlington, Washington

**MAP NOTES:**
Date: April 13, 2015
Data Sources: AMEC Figure 4 from 2013 Annual Report

GSI Water Solutions, Inc.

Document Path: P:\Portland\302 - Baxter\GIS\Arlington_Landfills\Project_mxds\South\2014_Annual_Report\Figure4_Regional_GW_Flow.mxd

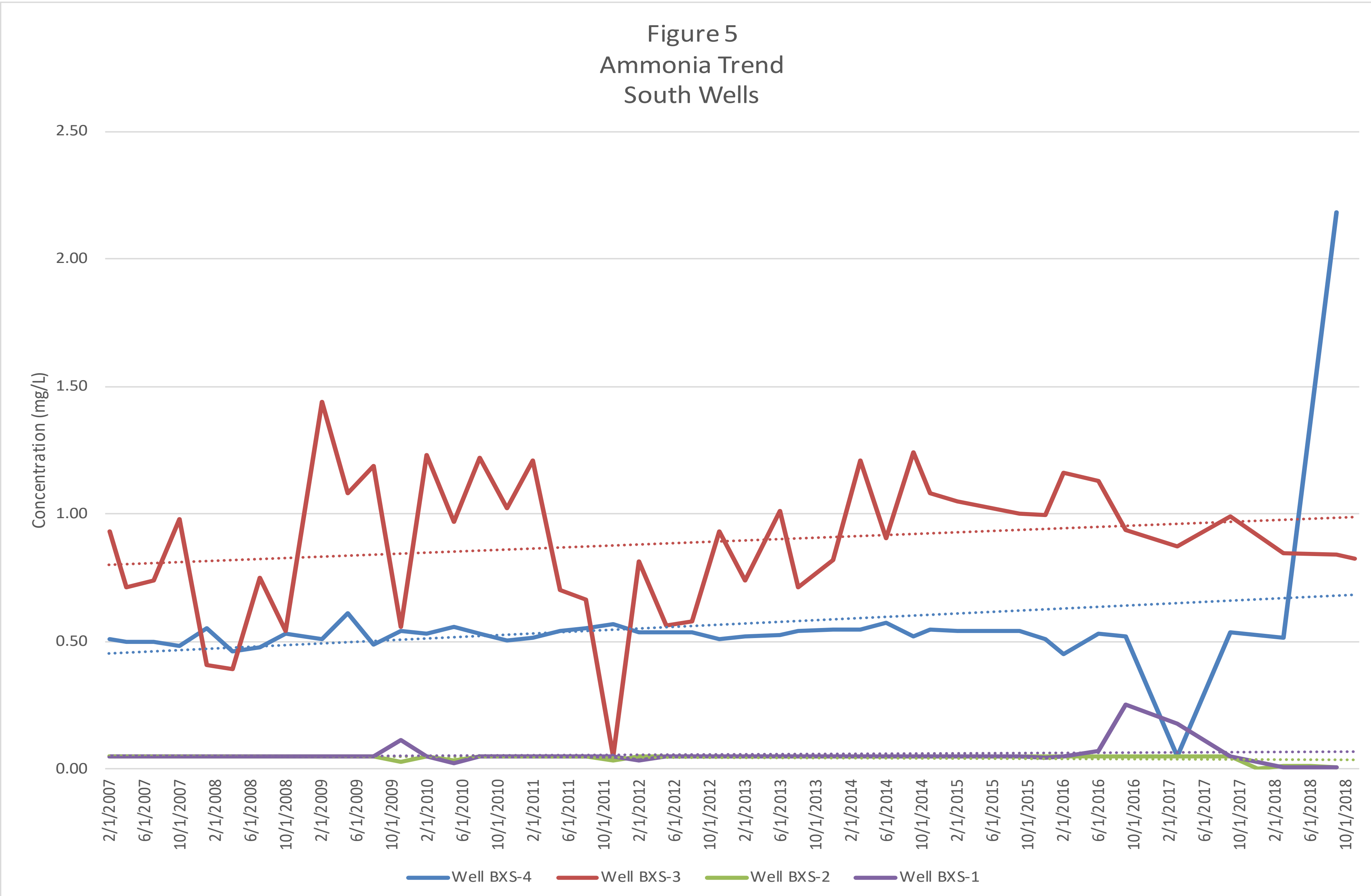


Figure 5
Ammonia Trend
South Wells
2.50
2.00
1.50
1.00
0.50
0.00
Concentration (mg/L)
2/1/2007
6/1/2007
10/1/2007
2/1/2008
6/1/2008
10/1/2008
2/1/2009
6/1/2009
10/1/2009
2/1/2010
6/1/2010
10/1/2010
2/1/2011
6/1/2011
10/1/2011
2/1/2012
6/1/2012
10/1/2012
2/1/2013
6/1/2013
10/1/2013
2/1/2014
6/1/2014
10/1/2014
2/1/2015
6/1/2015
10/1/2015
2/1/2016
6/1/2016
10/1/2016
2/1/2017
6/1/2017
10/1/2017
2/1/2018
6/1/2018
10/1/2018
Well BXS-4
Well BXS-3
Well BXS-2
Well BXS-1

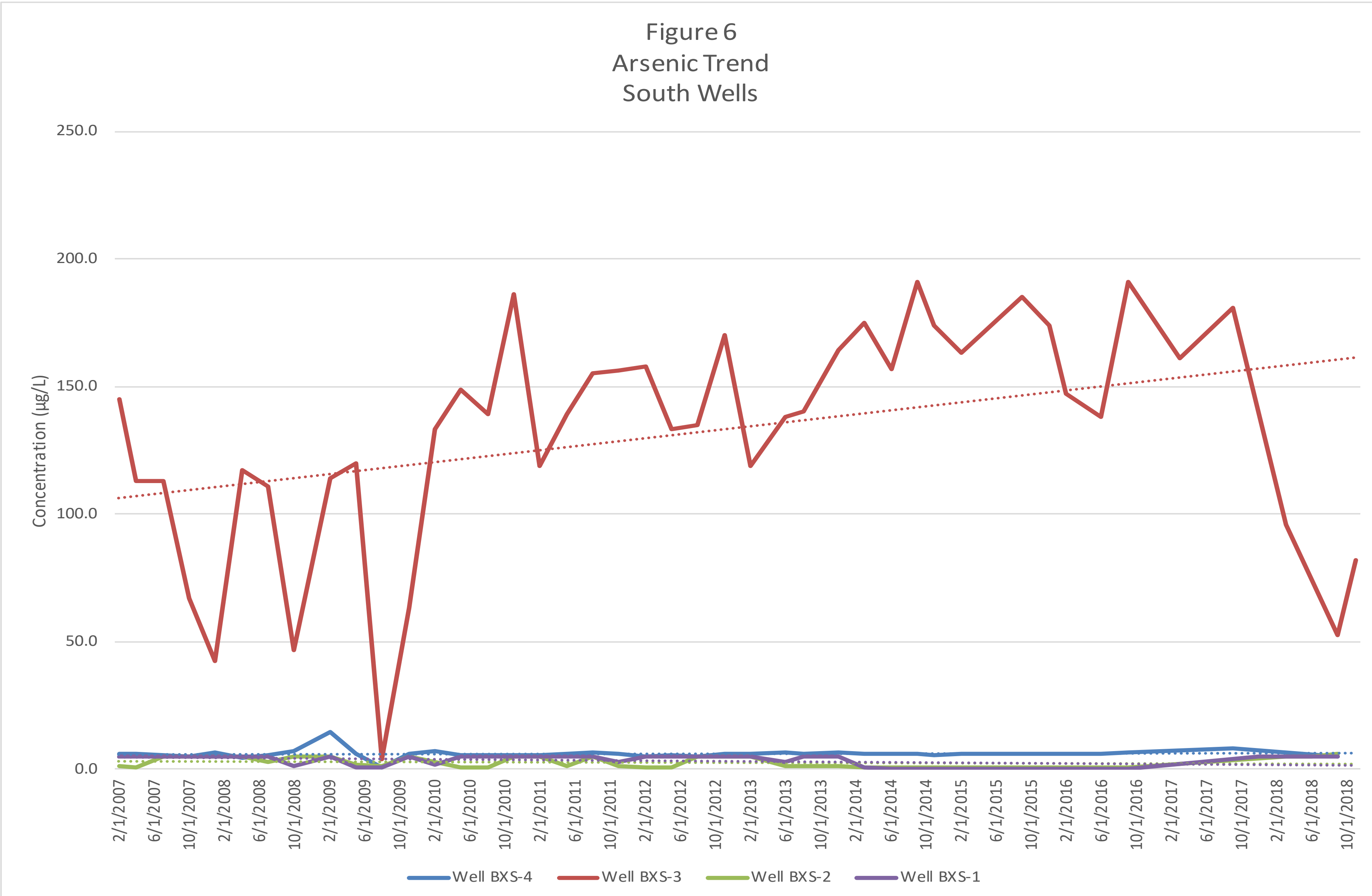


Figure 6
Arsenic Trend
South Wells
Concentration (µg/L)
250.0
200.0
150.0
100.0
50.0
0.0
2/1/2007
6/1/2007
10/1/2007
2/1/2008
6/1/2008
10/1/2008
2/1/2009
6/1/2009
10/1/2009
2/1/2010
6/1/2010
10/1/2010
2/1/2011
6/1/2011
10/1/2011
2/1/2012
6/1/2012
10/1/2012
2/1/2013
6/1/2013
10/1/2013
2/1/2014
6/1/2014
10/1/2014
2/1/2015
6/1/2015
10/1/2015
2/1/2016
6/1/2016
10/1/2016
2/1/2017
6/1/2017
10/1/2017
2/1/2018
6/1/2018
10/1/2018
Well BXS-4
Well BXS-3
Well BXS-2
Well BXS-1

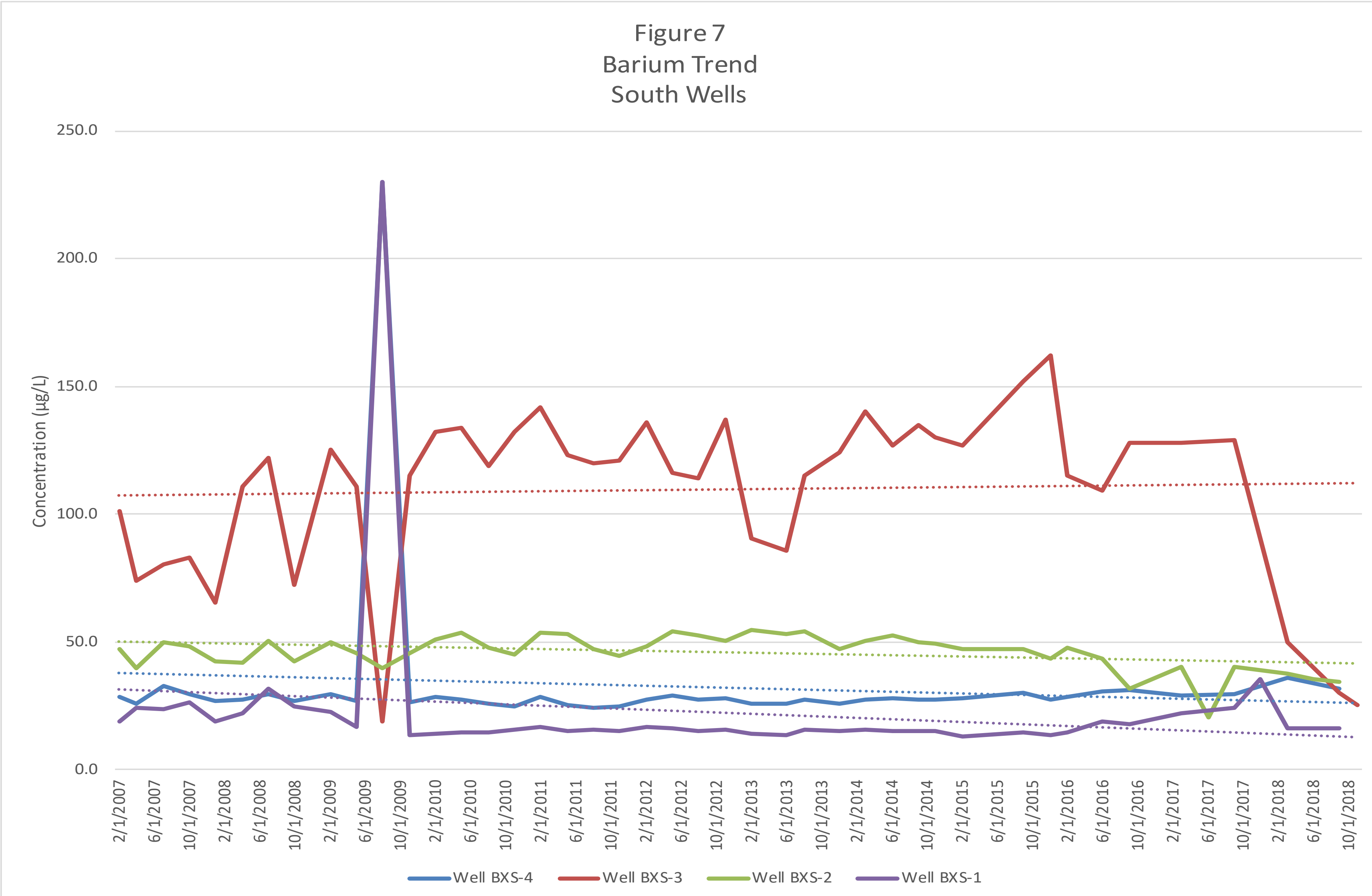


Figure 7
Barium Trend
South Wells
Concentration (µg/L)
250.0
200.0
150.0
100.0
50.0
0.0
2/1/2007
6/1/2007
10/1/2007
2/1/2008
6/1/2008
10/1/2008
2/1/2009
6/1/2009
10/1/2009
2/1/2010
6/1/2010
10/1/2010
2/1/2011
6/1/2011
10/1/2011
2/1/2012
6/1/2012
10/1/2012
2/1/2013
6/1/2013
10/1/2013
2/1/2014
6/1/2014
10/1/2014
2/1/2015
6/1/2015
10/1/2015
2/1/2016
6/1/2016
10/1/2016
2/1/2017
6/1/2017
10/1/2017
2/1/2018
6/1/2018
10/1/2018
Well BXS-4
Well BXS-3
Well BXS-2
Well BXS-1

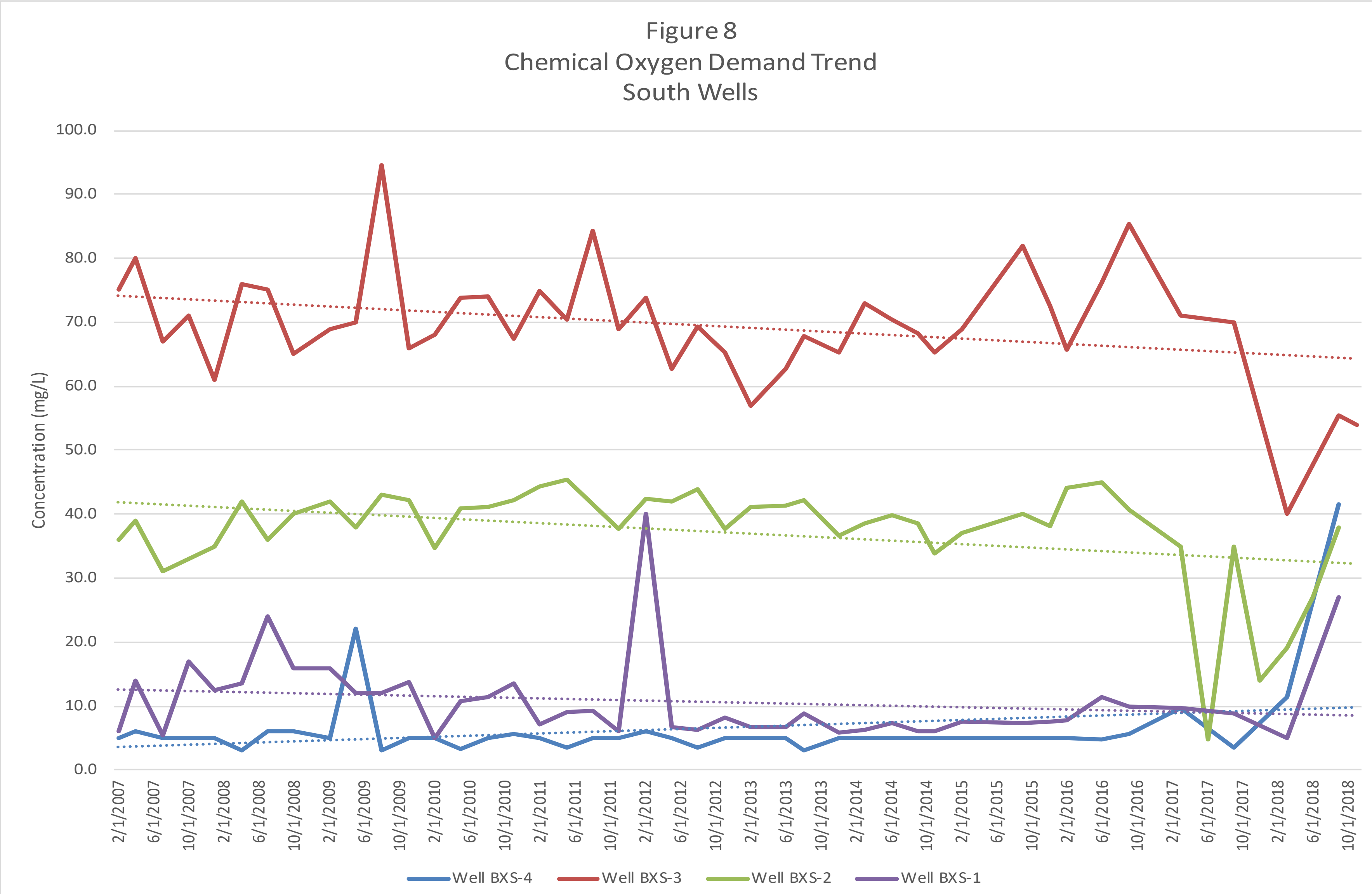


Figure 8
Chemical Oxygen Demand Trend
South Wells
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Concentration (mg/L)
2/1/2007
6/1/2007
10/1/2007
2/1/2008
6/1/2008
10/1/2008
2/1/2009
6/1/2009
10/1/2009
2/1/2010
6/1/2010
10/1/2010
2/1/2011
6/1/2011
10/1/2011
2/1/2012
6/1/2012
10/1/2012
2/1/2013
6/1/2013
10/1/2013
2/1/2014
6/1/2014
10/1/2014
2/1/2015
6/1/2015
10/1/2015
2/1/2016
6/1/2016
10/1/2016
2/1/2017
6/1/2017
10/1/2017
2/1/2018
6/1/2018
10/1/2018
Well BXS-4
Well BXS-3
Well BXS-2
Well BXS-1

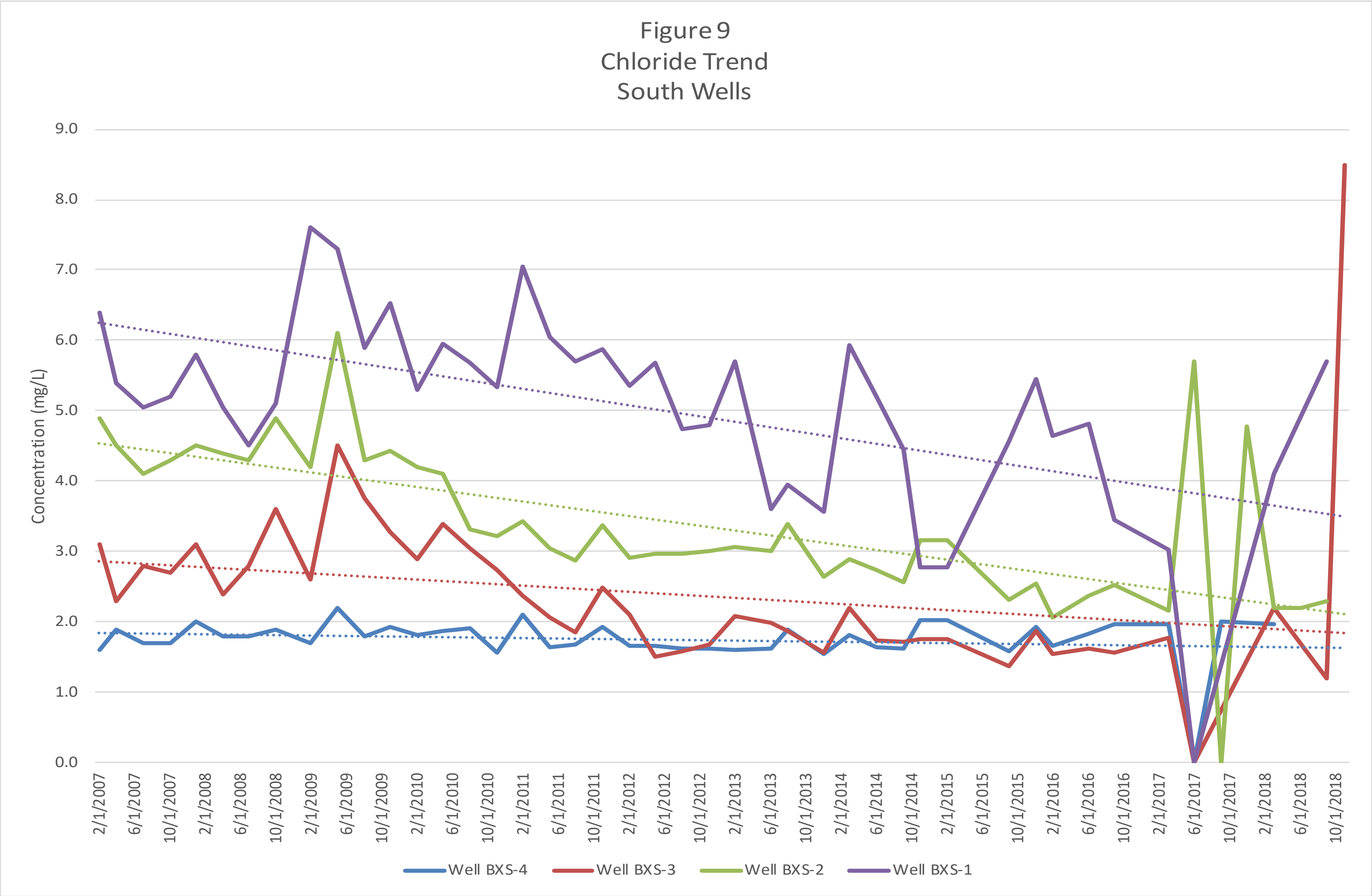


Figure 9
Chloride Trend
South Wells
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Concentration (mg/L)
2/1/2007
6/1/2007
10/1/2007
2/1/2008
6/1/2008
10/1/2008
2/1/2009
6/1/2009
10/1/2009
2/1/2010
6/1/2010
10/1/2010
2/1/2011
6/1/2011
10/1/2011
2/1/2012
6/1/2012
10/1/2012
2/1/2013
6/1/2013
10/1/2013
2/1/2014
6/1/2014
10/1/2014
2/1/2015
6/1/2015
10/1/2015
2/1/2016
6/1/2016
10/1/2016
2/1/2017
6/1/2017
10/1/2017
2/1/2018
6/1/2018
10/1/2018
Well BXS-4
Well BXS-3
Well BXS-2
Well BXS-1

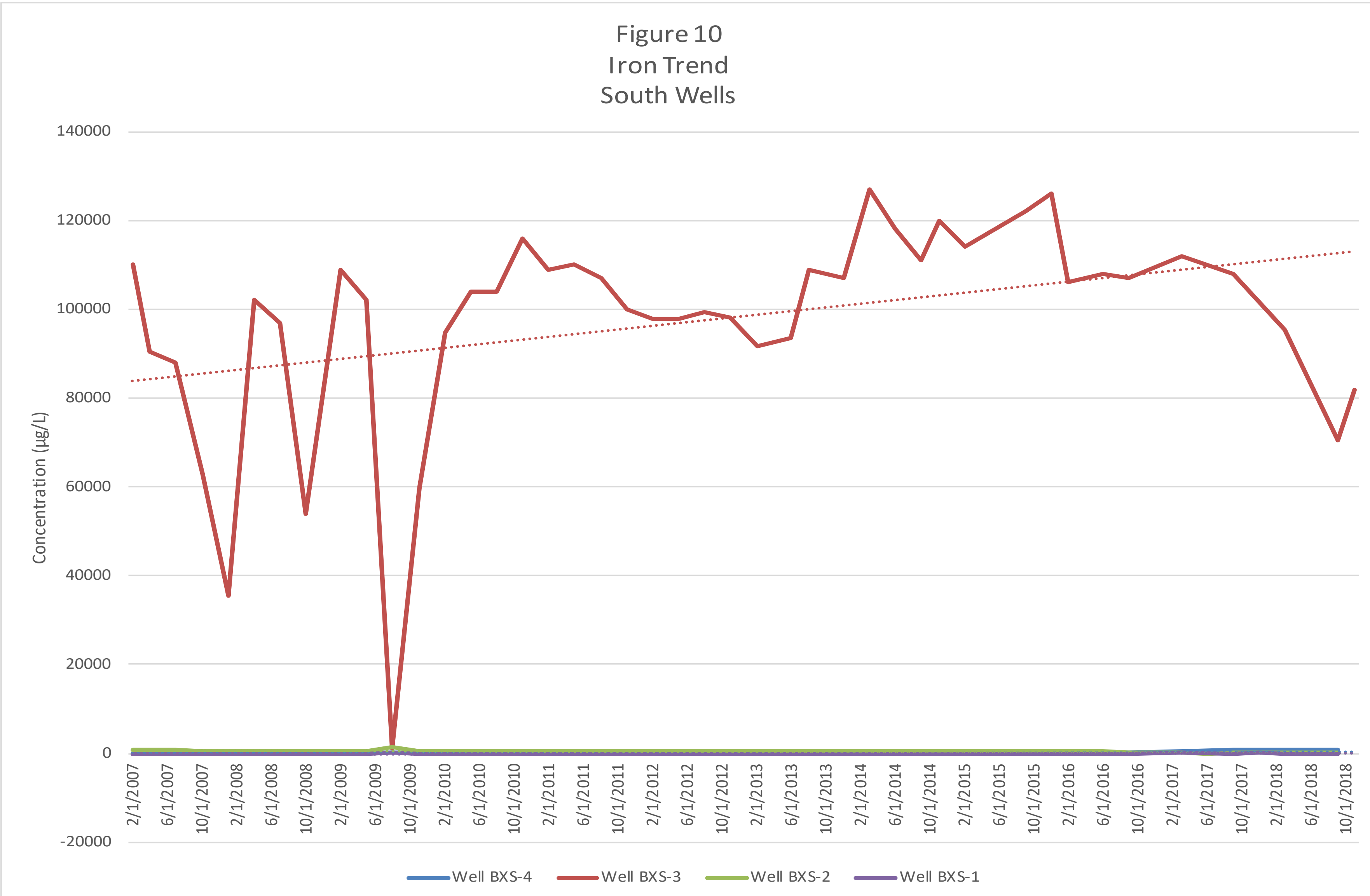


Figure 10
Iron Trend
South Wells
Concentration (µg/L)
140000
120000
100000
80000
60000
40000
20000
0
-20000
2/1/2007
6/1/2007
10/1/2007
2/1/2008
6/1/2008
10/1/2008
2/1/2009
6/1/2009
10/1/2009
2/1/2010
6/1/2010
10/1/2010
2/1/2011
6/1/2011
10/1/2011
2/1/2012
6/1/2012
10/1/2012
2/1/2013
6/1/2013
10/1/2013
2/1/2014
6/1/2014
10/1/2014
2/1/2015
6/1/2015
10/1/2015
2/1/2016
6/1/2016
10/1/2016
2/1/2017
6/1/2017
10/1/2017
2/1/2018
6/1/2018
10/1/2018
Well BXS-4
Well BXS-3
Well BXS-2
Well BXS-1

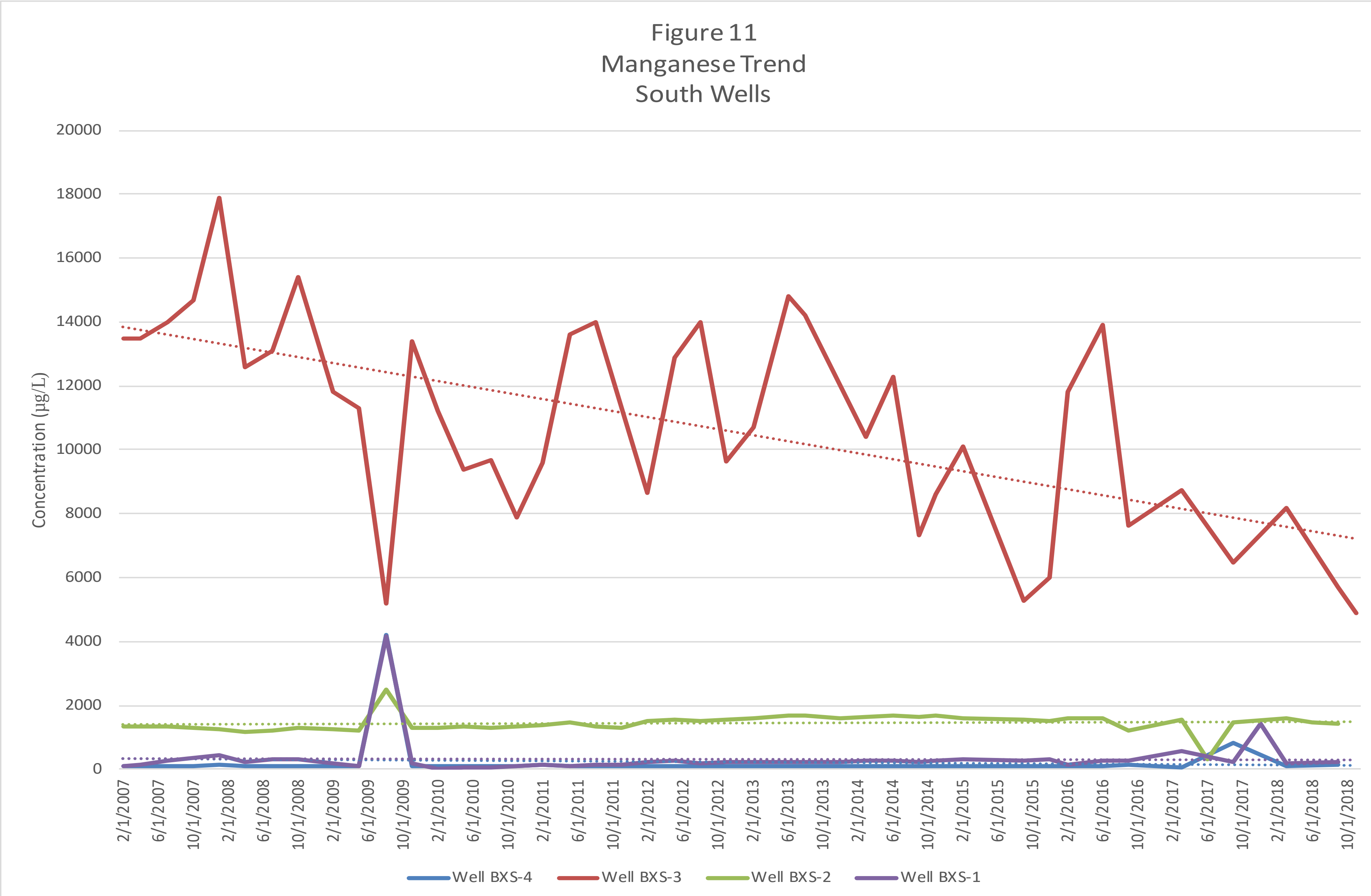


Figure 11
Manganese Trend
South Wells
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Concentration (µg/L)
2/1/2007
6/1/2007
10/1/2007
2/1/2008
6/1/2008
10/1/2008
2/1/2009
6/1/2009
10/1/2009
2/1/2010
6/1/2010
10/1/2010
2/1/2011
6/1/2011
10/1/2011
2/1/2012
6/1/2012
10/1/2012
2/1/2013
6/1/2013
10/1/2013
2/1/2014
6/1/2014
10/1/2014
2/1/2015
6/1/2015
10/1/2015
2/1/2016
6/1/2016
10/1/2016
2/1/2017
6/1/2017
10/1/2017
2/1/2018
6/1/2018
10/1/2018
Well BXS-4
Well BXS-3
Well BXS-2
Well BXS-1

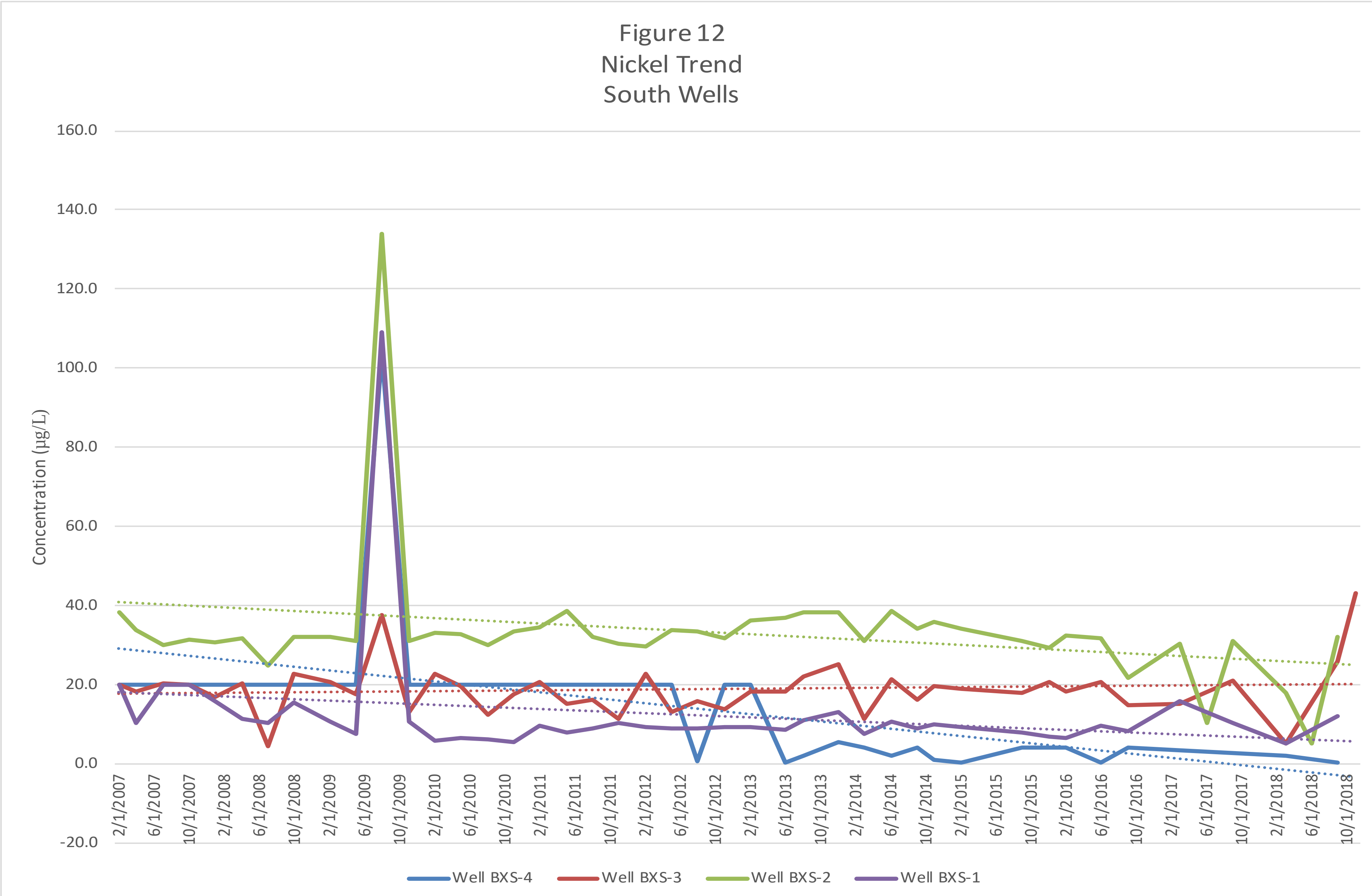


Figure 12
Nickel Trend
South Wells
Concentration (µg/L)
160.0
140.0
120.0
100.0
80.0
60.0
40.0
20.0
0.0
-20.0
2/1/2007
6/1/2007
10/1/2007
2/1/2008
6/1/2008
10/1/2008
2/1/2009
6/1/2009
10/1/2009
2/1/2010
6/1/2010
10/1/2010
2/1/2011
6/1/2011
10/1/2011
2/1/2012
6/1/2012
10/1/2012
2/1/2013
6/1/2013
10/1/2013
2/1/2014
6/1/2014
10/1/2014
2/1/2015
6/1/2015
10/1/2015
2/1/2016
6/1/2016
10/1/2016
2/1/2017
6/1/2017
10/1/2017
2/1/2018
6/1/2018
10/1/2018
Well BXS-4
Well BXS-3
Well BXS-2
Well BXS-1

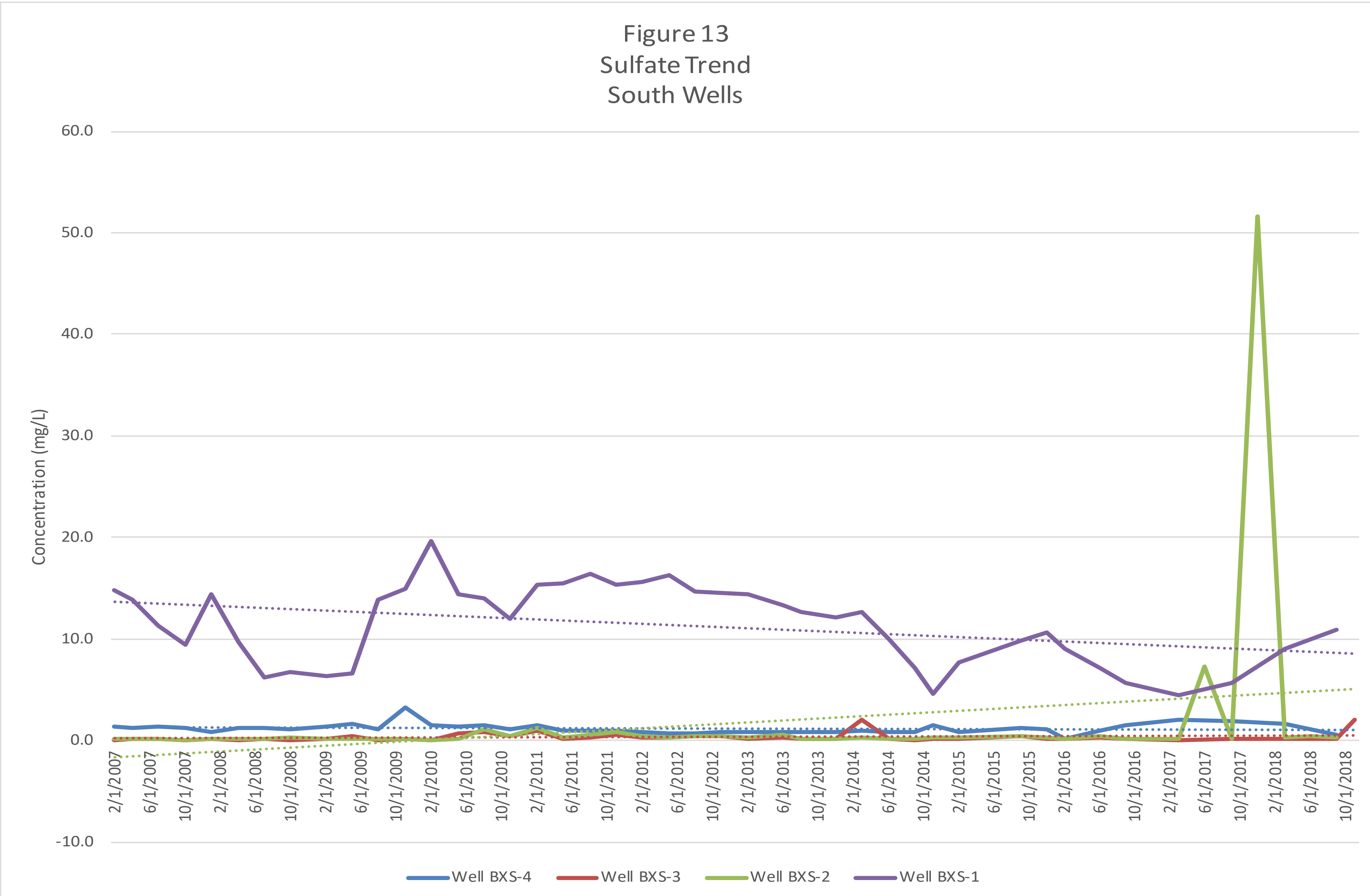


Figure 13
Sulfate Trend
South Wells
Concentration (mg/L)
60.0
50.0
40.0
30.0
20.0
10.0
0.0
-10.0
2/1/2007
6/1/2007
10/1/2007
2/1/2008
6/1/2008
10/1/2008
2/1/2009
6/1/2009
10/1/2009
2/1/2010
6/1/2010
10/1/2010
2/1/2011
6/1/2011
10/1/2011
2/1/2012
6/1/2012
10/1/2012
2/1/2013
6/1/2013
10/1/2013
2/1/2014
6/1/2014
10/1/2014
2/1/2015
6/1/2015
10/1/2015
2/1/2016
6/1/2016
10/1/2016
2/1/2017
6/1/2017
10/1/2017
2/1/2018
6/1/2018
10/1/2018
Well BXS-4
Well BXS-3
Well BXS-2
Well BXS-1

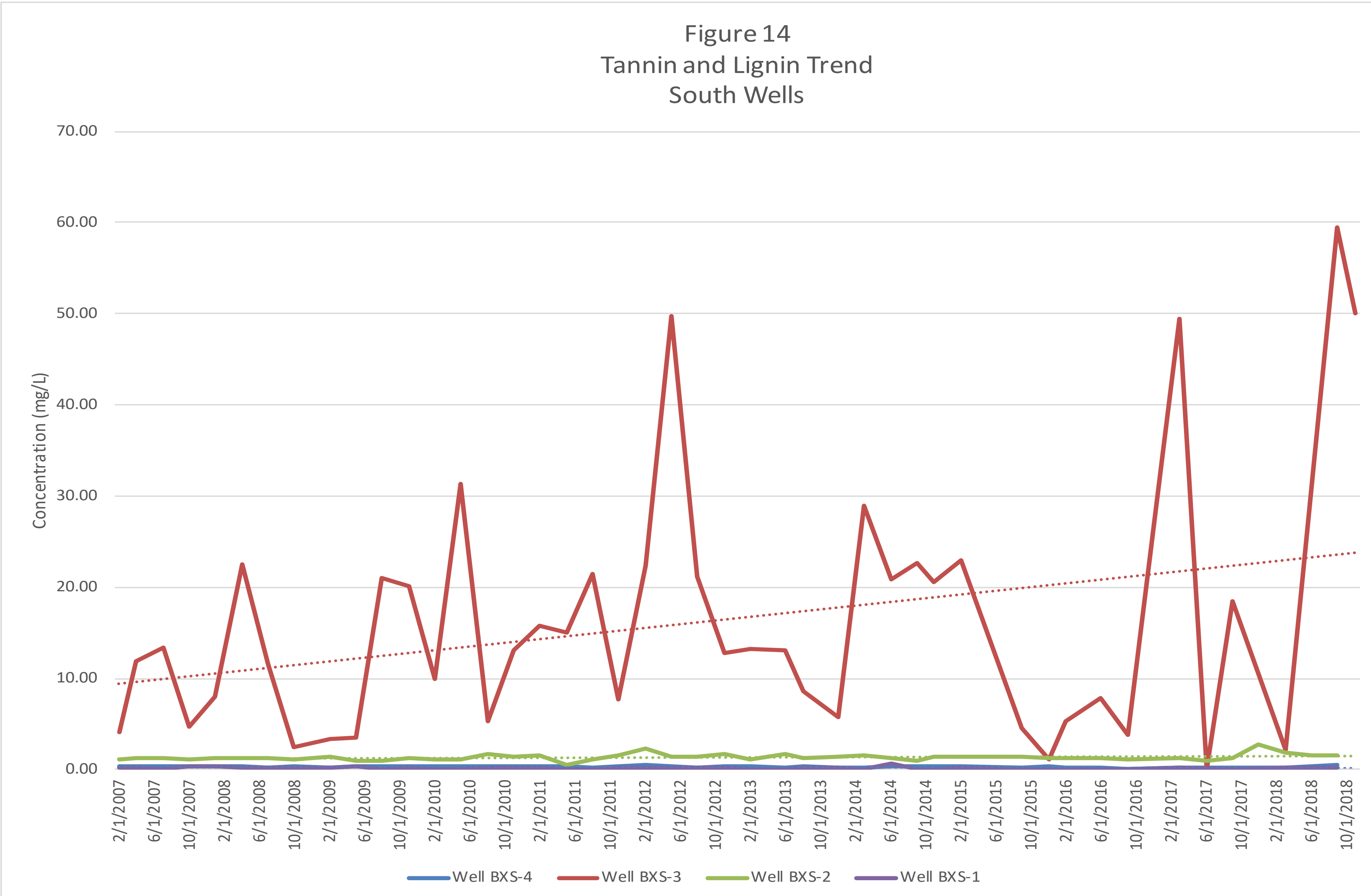


Figure 14
Tannin and Lignin Trend
South Wells
Concentration (mg/L)
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
2/1/2007
6/1/2007
10/1/2007
2/1/2008
6/1/2008
10/1/2008
2/1/2009
6/1/2009
10/1/2009
2/1/2010
6/1/2010
10/1/2010
2/1/2011
6/1/2011
10/1/2011
2/1/2012
6/1/2012
10/1/2012
2/1/2013
6/1/2013
10/1/2013
2/1/2014
6/1/2014
10/1/2014
2/1/2015
6/1/2015
10/1/2015
2/1/2016
6/1/2016
10/1/2016
2/1/2017
6/1/2017
10/1/2017
2/1/2018
6/1/2018
10/1/2018
Well BXS-4
Well BXS-3
Well BXS-2
Well BXS-1

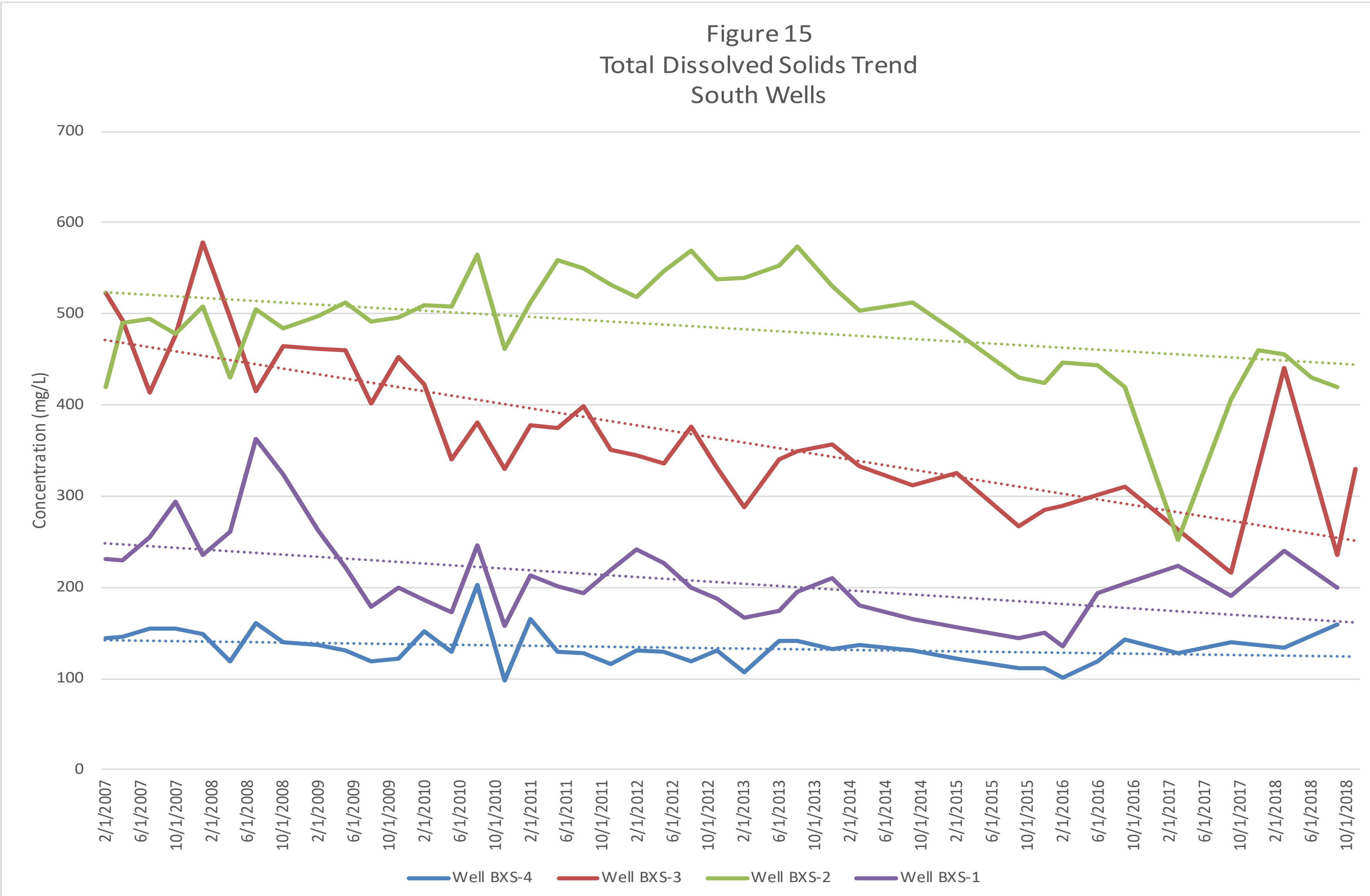


Figure 15
Total Dissolved Solids Trend
South Wells
Concentration (mg/L)
700
600
500
400
300
200
100
0
2/1/2007
6/1/2007
10/1/2007
2/1/2008
6/1/2008
10/1/2008
2/1/2009
6/1/2009
10/1/2009
2/1/2010
6/1/2010
10/1/2010
2/1/2011
6/1/2011
10/1/2011
2/1/2012
6/1/2012
10/1/2012
2/1/2013
6/1/2013
10/1/2013
2/1/2014
6/1/2014
10/1/2014
2/1/2015
6/1/2015
10/1/2015
2/1/2016
6/1/2016
10/1/2016
2/1/2017
6/1/2017
10/1/2017
2/1/2018
6/1/2018
10/1/2018
Well BXS-4
Well BXS-3
Well BXS-2
Well BXS-1

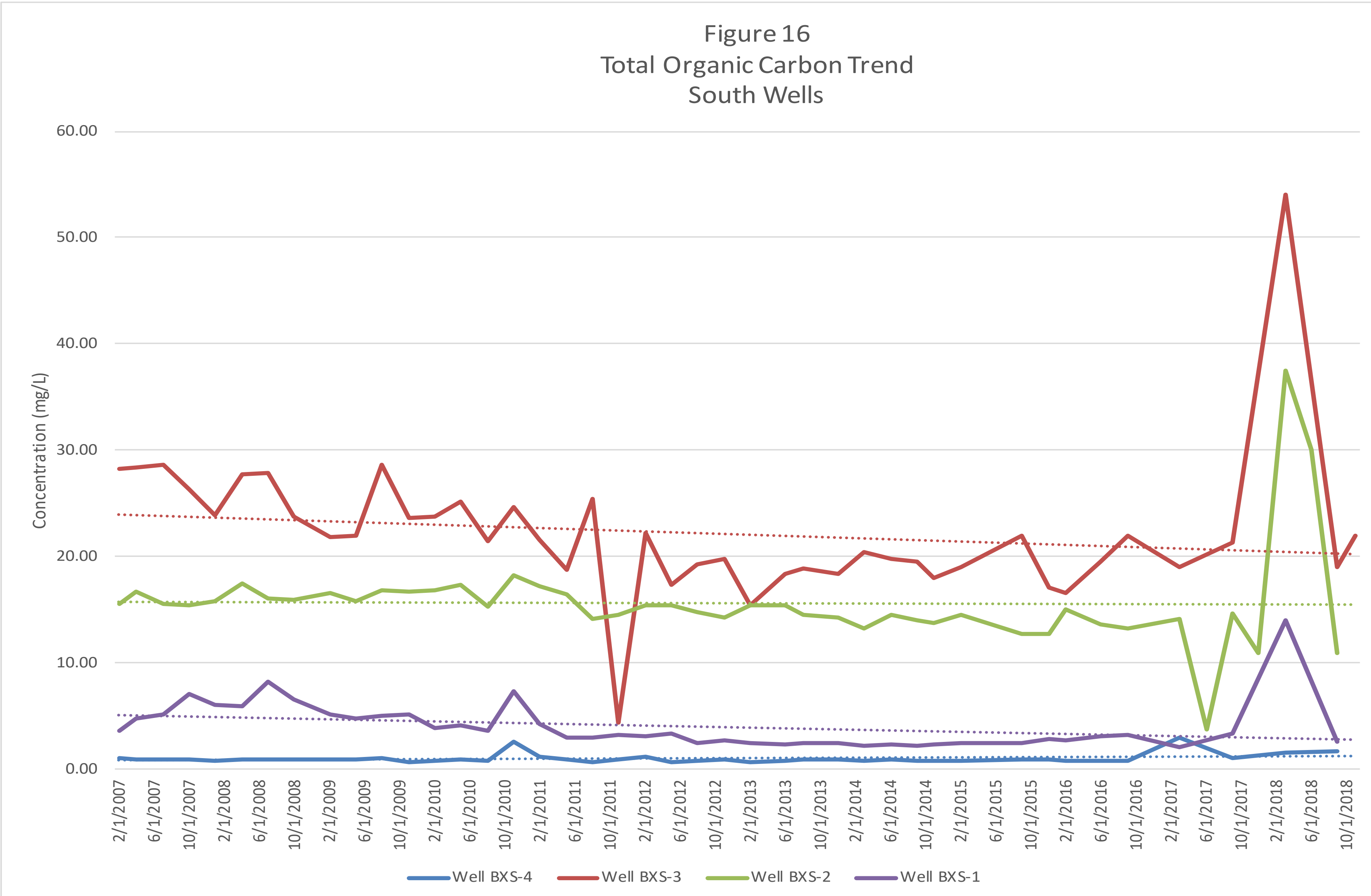


Figure 16
Total Organic Carbon Trend
South Wells
Concentration (mg/L)
60.00
50.00
40.00
30.00
20.00
10.00
0.00
2/1/2007
6/1/2007
10/1/2007
2/1/2008
6/1/2008
10/1/2008
2/1/2009
6/1/2009
10/1/2009
2/1/2010
6/1/2010
10/1/2010
2/1/2011
6/1/2011
10/1/2011
2/1/2012
6/1/2012
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2/1/2013
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10/1/2013
2/1/2014
6/1/2014
10/1/2014
2/1/2015
6/1/2015
10/1/2015
2/1/2016
6/1/2016
10/1/2016
2/1/2017
6/1/2017
10/1/2017
2/1/2018
6/1/2018
10/1/2018
Well BXS-4
Well BXS-3
Well BXS-2
Well BXS-1

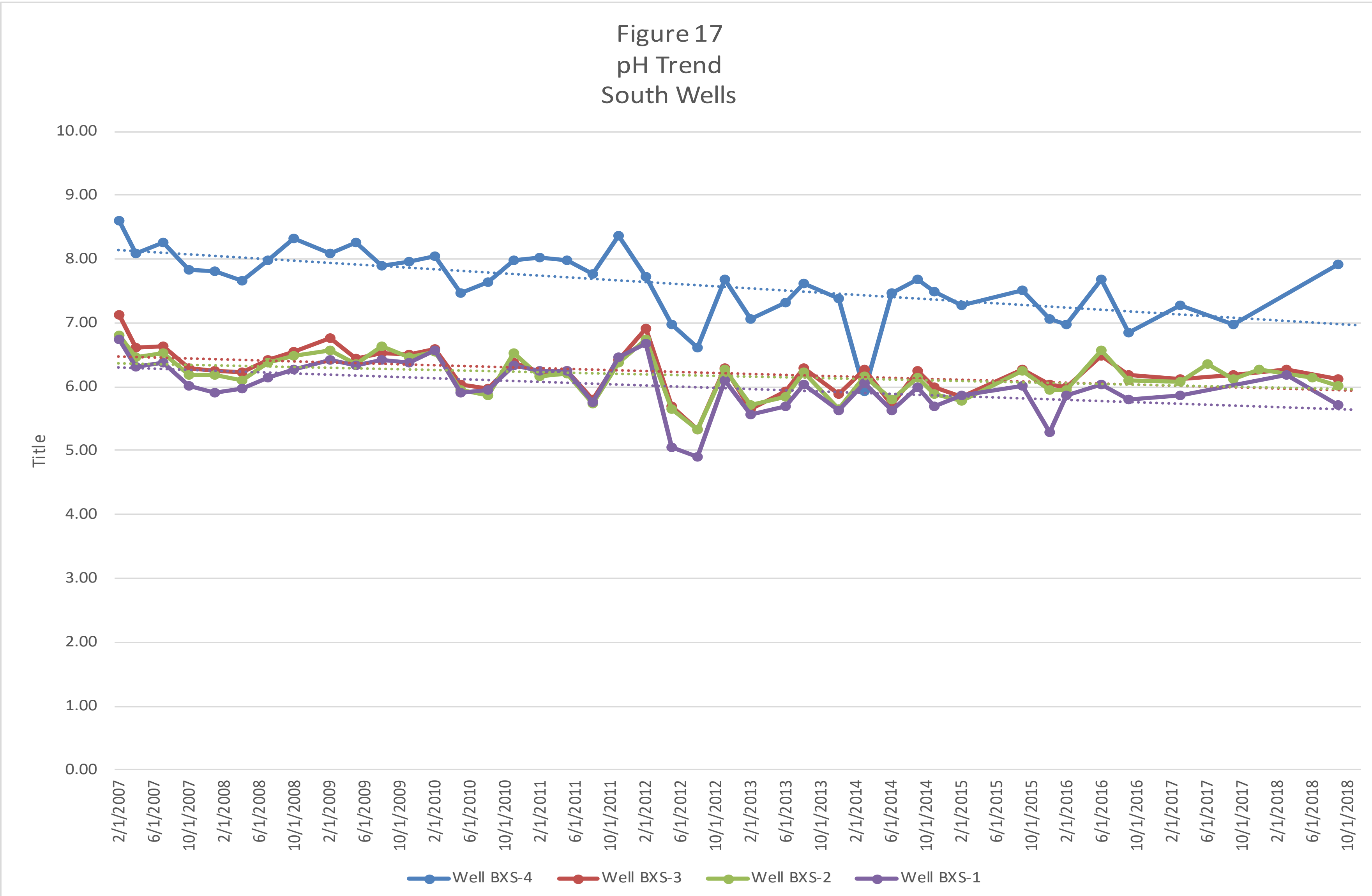
Figure 17
pH Trend
South Wells
Title
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
2/1/2007
6/1/2007
10/1/2007
2/1/2008
6/1/2008
10/1/2008
2/1/2009
6/1/2009
10/1/2009
2/1/2010
6/1/2010
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10/1/2018
Well BXS-4
Well BXS-3
Well BXS-2
Well BXS-1


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# FIGURE 18

## Arsenic Isopleth Map: Third Quarter 2018

Former J.H. Baxter
South Woodwaste Landfill
Arlington, Washington

**LEGEND**

- Monitoring Well (Peak 2018 Arsenic Concentration)
- Arsenic Contours (dashed where inferred)
- Modeled Source Area
- Direction of Groundwater Flow

**NOTES:**

1. All elevations exist in NAVD88.
2. J = estimated
3. U = undetected
4. Arsenic contouring estimated using Quick Domenico approximately.
5. Concentrations in micrograms/L.
6. Data from peak arsenic detections per well in 2018.

N

0 100 200 300
Feet

Date: May 15, 2019
Data Sources: AMEC, ESRI, Air photo taken on July 15, 2013 by the USDA

GSI Water Solutions, Inc.