2017 ANNUAL ENVIRONMENTAL MONITORING REPORT

INMAN LANDFILL

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2017 Annual Environmental Monitoring Report
Inman Landfill
Skagit County, Washington

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1.0 INTRODUCTION

This report presents a summary of environmental monitoring data collected during 2017 at the Inman Landfill. Annual reporting of environmental monitoring data is required by *Minimum Functional Standards for Solid Waste Handling* (Chapter 173-304 Washington Administrative Code [WAC]) and *Special Incinerator Ash Management Standards* (Chapter 173-306 WAC). This annual monitoring report includes a summary of leachate generation, groundwater quality and flow characteristics, landfill gas extraction system operations, methane concentrations measured in perimeter gas probes, and surface water quality.

1.1. Site Background

Inman Landfill is located in the northwestern portion of Skagit County, approximately 7.5 miles northwest of Mount Vernon, Washington (Figure 1). The site occupies a former gravel pit and was operated as a solid waste disposal facility by Skagit County beginning in 1973. The site stopped accepting waste in April 1994 and closure construction was completed in 1995.

Solid waste was first disposed in an unlined area covering approximately 16 acres in the eastern portion of the site (Phase I). Beginning in 1986, solid waste was disposed in a lined portion of the site (Phase II), which covers approximately 10 acres, part of which overlaps the Phase I area. Incinerator ash was also disposed in the lined (Phase II) area. The lined portion of the site includes a combination of composite, geomembrane, and soil liner systems. The leachate collection system consists of a series of perforated pipes placed above the bottom liner. The perforated pipes collect and route leachate through a pump station to a lined aeration pond where it is subsequently hauled to a local wastewater treatment plant for disposal.

1.2. Landfill Closure

The landfill stopped receiving waste on April 8, 1994. Closure activities followed in accordance with the approved closure plans. An assessment of potential contaminant sources was conducted in response to the detection of groundwater impacts in the landfill monitoring wells. Based on the results of this assessment, several corrective actions were incorporated into the final closure design to reduce or eliminate identified potential contaminant sources and to protect public health. Corrective actions implemented during and after closure included:

- Relining the leachate aeration pond and upgrading the pump station.
- Improving the surface water collection, conveyance, and storage facilities.
- Recapping the Phase I portion of the landfill with a cover that exceeded the standards required at the time.
- Connecting surrounding homes to a public water system and abandoning drinking water wells.

In addition to these corrective actions, closure activities also included the construction of a landfill gas (LFG) extraction system and expansion of the perimeter gas monitoring probe network. The LFG extraction system has operated since closure to alleviate the accumulation of methane beneath the landfill cap and to control off-site methane migration.

These measures were intended to reduce leachate generation by reducing surface water infiltration, minimizing the potential transport of contaminants in the gas stream into groundwater, and eliminating suspected groundwater contaminant sources and potential exposure pathways. Since closure was completed, these actions have resulted in a gradual long-term decrease in leachate generation and a long-term improvement of groundwater quality as discussed in subsequent sections of this report.

2.0 LEACHATE

2.1. Leachate Collection System Operation

Post-closure activities at Inman Landfill include operation of a leachate collection system. The leachate collection system consists of a network of drain pipes situated under the newer (Phase II) portion of the landfill. These drain pipes lead to a single concrete sump and pump station (PS#1). Leachate enters the sump and is pumped up to a double-lined leachate collection pond. Leachate in the pond is pre-treated with aerators. The pre-treated leachate is periodically pumped from the pond and hauled to the City of Mount Vernon wastewater treatment plant for disposal as authorized by a State Wastewater Discharge Permit.

2.2. Leachate Generation

The amount of leachate collected from the lined, Phase II portion of the landfill generally increased each year until closure in 1994 (Figure 2). Since 1994 leachate generation has generally decreased. In 2006, leachate generation was 3 percent of the amount collected during 1991 and 1992, which was prior to installation of the landfill cover system. Leachate generation rates leveled off approximately twelve years ago, and then decreased again from 2002 through 2005 before increasing in 2007. There was an approximate four-fold increase between 2006 and 2007; this increase was due to the complete draining of the leachate pond during the third quarter of 2007 for cleaning and repair. In 2017, leachate was produced in quantities similar to those from 1997 to 2001, and 2007 to 2015.

The stabilization of leachate generation rates during the late 1990s may indicate the removal of easily-drained leachate that entered the landfill prior to construction of the existing cover system. One point that is clear from the graph is that the landfill cover has been effective in reducing the amount of precipitation entering the landfill and, consequently the amount of leachate that is generated.

The Phase I area of the landfill does not have a bottom liner and therefore, no leachate collection system. A significant amount of leachate generated from this portion of the site does potentially reach the underlying groundwater system. However, since the landfill cover system placed over the Phase I area is similar to that placed over the Phase II area, it is reasonable to assume that potential leachate generated from the Phase I area has also decreased in amounts proportional to those observed for the Phase II area.

3.0 HYDROGEOLOGY

Inman Landfill is located on the north side of Bay View Ridge. Bay View Ridge is composed of a series of glacial and glaciomarine deposits and rises up to 200 feet above the surrounding delta valleys. A previous investigation concludes that the Inman Landfill site is underlain by two aquifers (Sweet Edwards & Associates 1987). These aquifers consist of a shallow, unconfined perched aquifer that is typically located above sea level, and a deeper regional aquifer (referred to as the upper regional aquifer or the regional aquifer) that is situated near or below sea level. The shallow perched aquifer occurs in a sand unit that is situated above a dense silt/clay layer at elevations of approximately 1 to 13 feet above sea level. The silt/clay layer appears to dip to the west and southwest into Bay View Ridge. Monitoring Wells B-6, B-7, B-8, B-9, B-11, and B-13 and Gas Probe GP-6 are screened in the perched aquifer (Figure 3). Previous groundwater measurements in these wells indicate that groundwater in this aquifer follows the dip of the silt/clay layer and flows generally to the southwest into Bay View Ridge.

The upper regional aquifer is located in fine to coarse sand deposits that are present beneath the silt/clay layer (Sweet Edwards & Associates 1987). The upper regional aquifer is confined by the overlying silt/clay layer. The top of this aquifer is reportedly situated at elevations ranging from 6 to 14 feet below sea level. Monitoring Wells B-1, B-2, B-3, B-4, B-5, B-10, and B-12 are screened in the upper regional aquifer (Figure 4). Previous groundwater measurements in these wells indicate that groundwater in this aquifer flows in a radial pattern away from Bay View Ridge to the north, northeast, and east.

Water level measurements were collected during four quarterly monitoring events during 2017 (March, June, September, and December) from monitoring wells completed within each aquifer. Based on the measured water levels, computer-generated potentiometric surface maps were created for each aquifer for each of these quarters (Figures 3a-3d, 4a-4d). These maps were prepared with the kriging method in the Surfer™ 8.0 contouring software package using elevations from the monitoring wells in each aquifer (Table 1 & 2). Well B-7 was dry during each of the measuring events in 2017; therefore, this well was not used to construct the water table contour map. Hydrographs of groundwater elevations collected since landfill closure for both aquifers were also prepared (Figures 5 & 6).

3.1. Perched Aquifer

Static water level elevations measured in 2017 for the perched aquifer ranged from 8.18 feet above mean sea level (amsl) to 13.93 feet amsl (Table 1).

Table 1. 2017 Static Water Level Elevations: Perched Aquifer

Well	March	June	September	December
B-6	11.72	11.39	10.73	10.80
B-7	Dry	Dry	Dry	Dry
B-8	13.93	12.33	11.47	11.47
B-9	10.33	10.67	10.08	9.99
B-11	9.35	8.18	Dy	Dry
B-13	Dry	12.40	12.56	12.56
GP-6	0.43	11.97	NM	NM

Elevations are in feet above mean sea level (NGVD 29)

The water table contour maps indicate that perched groundwater flow was fairly consistent during 2017, flowing from the north and northeast, and moving through the site in a southwesterly direction (Figures 3a-3d). Local groundwater velocities can be variable because of the complex local groundwater flow patterns. For simplicity, the average groundwater velocity across the site within this aquifer was calculated using gradients observed across the central and southern portions of the site.

Based on these criteria, the average gradient in 2017 ranged from about 0.0012 to 0.0028 feet per foot (ft/ft), with an average gradient of approximately 0.0020 ft/ft. The average porosity of the perched aquifer material was estimated to be approximately 27.5 percent and the hydraulic conductivity was estimated to be approximately 28 feet per day (ft/day) (Sweet Edwards & Associates 1987). These parameters were used in conjunction with the average hydraulic gradient of 0.0020 ft/ft to estimate the average linear velocity of groundwater in the perched aquifer using Darcy's Law, where: **V = Ki/n,** and

V = average linear velocity,
K = hydraulic conductivity,
i = hydraulic gradient, and
n = porosity.

This calculation indicates that the average linear velocity of groundwater in the perched aquifer during 2017 was approximately 0.20 ft/day.

A review of the hydrograph for the perched aquifer (Figure 5) shows that the water levels fluctuate in a typical seasonal manner. Prior to 2004 the hydrograph shows an overall slightly decreasing trend in all of the wells since 1995; however, the 2004 through 2017 measurements indicate that this decreasing trend has stabilized. The decreasing trend may be a result of reduced infiltration of rainwater over the landfill since construction of the cap was completed in 1995.

3.2. Upper Regional Aquifer

Static water level elevations measured in 2017 for the upper regional aquifer ranged from 1.55 feet amsl to 9.21 feet amsl (Table 2).

Table 2. 2017 Static Water Level Elevations: Upper Regional Aquifer

Well	March	June	September	December
B-1	8.75	8.99	8.33	8.33
B-2	9.21	9.01	8.37	8.46
B-3	8.91	8.26	7.88	8.06
B-4	9.07	8.87	8.35	8.59
B-5	4.54	1.99	1.55	3.95
B-10	9.09	9.02	8.68	8.67
B-12	8.70	8.38	7.82	7.96

Elevations are in feet above mean sea level (NGVD 29)

The water table contour maps for 2017 indicate that the upper regional aquifer groundwater generally flowed from the west and southwest to the east and northeast (Figures 4a-4d). Using the information in these maps, hydraulic gradients were calculated between Well B-10, the most upgradient well, and Well B-12, the most downgradient well for the majority of the monitoring events. The calculated hydraulic

gradients from Well B-10 to Well B-12 for 2017 ranged from 0.0001 to 0.0005 ft/ft, with an average of approximately 0.0003 ft/ft.

In addition to the construction of the potentiometric surface maps, groundwater elevations were also used to calculate estimated groundwater flow velocities for the upper regional aquifer. Because of the similarity in material in the perched and upper regional aquifers, the same values for porosity and hydraulic conductivity used for the perched aquifer were also used for the upper regional aquifer. These parameters were used in conjunction with the average hydraulic gradient for 2017 of 0.0003 ft/ft (calculated previously) to estimate the average linear velocity of groundwater in the upper regional aquifer using Darcy's Law. The result of this calculation indicates that the average linear velocity of groundwater in the upper regional aquifer during 2017 was approximately 0.03 ft/day across the central landfill site.

In addition to the potentiometric surface map showing the central landfill area, potentiometric surface maps were also prepared showing groundwater contours beyond the northern and eastern boundaries of the landfill and into the topographically lower Samish River Valley (Figures 7a-7d). These maps were also prepared with the wells used for the central landfill area in addition to elevations from a single well located in the valley (Well B-5; refer to Table 2) and estimated groundwater elevations for points located along nearby Joe Leary Slough. Groundwater elevations along Joe Leary Slough were estimated using the elevation of surface water measured in the slough. It should be noted that water level elevations in both the slough and in Well B-5 show significant tidal influence.

The flow pattern in the upper regional aquifer continues to be a radial flow into the Samish River valley, although the hydraulic gradient appears to increase significantly as groundwater enters the Samish River Valley from the central landfill area. Also, flow in the upper regional aquifer appears more radial than in the perched aquifer, flowing from the western side of the site toward the north, northeast, and east.

Hydraulic gradients were calculated from the west side of the landfill and extending into the valley. The gradients were calculated using the groundwater elevations measured at Well B-10, located in the southwestern portion of the site, and Well B-5, which is located in the valley and downgradient of Well B-10. The gradients calculated between these two points ranged from approximately 0.0009 to 0.0034 ft/ft during 2017, with an average of approximately 0.0025 ft/ft. This gradient is steeper than that calculated for the central landfill area because it combines the flatter gradient beneath the landfill with the steeper gradient measured between the landfill proper and the Samish Valley. As noted above, this gradient is significantly influenced by the tide. Using this average hydraulic gradient and the aquifer parameters presented above, the resulting average linear velocity of groundwater in the upper regional aquifer across the landfill area and into the Samish Valley in 2017 was approximately 0.25 ft/day.

A review of the hydrograph for the upper regional aquifer (Figure 6) shows that the water levels fluctuate in a typical seasonal manner. Well B-5 shows the greatest variation of all wells in the upper regional aquifer, but this variation is likely a reflection of different tidal stages in which measurements are made and is to a lesser extent due to seasonal variation. Prior to 2004 the hydrograph shows an overall slightly decreasing trend in all of the wells except Well B-5; however, since 2004 generally water levels have stabilized. The decreasing trend may be a result of reduced infiltration of rainwater over the landfill since construction of the cap was completed in 1995.

4.0 GROUNDWATER SAMPLING METHODS

4.1. Sample Locations and Frequency

Groundwater sampling at Inman Landfill is conducted on a quarterly basis. The Inman Landfill groundwater monitoring network consists of 13 monitoring wells: seven wells screened in the upper regional aquifer (B-1, B-2, B-3, B-4, B-5, B-10, and B-12), and six wells screened in the perched aquifer (B-6, B-7, B-8, B-9, B-11, and B-13). Quarterly sampling in 2017 was conducted in March, June, September, and December. Well B-7 has been dry for over 20 years and has not been sampled since landfill closure in 1994. Similarly, the water level in Well B-11 had been below the pump from 2001 through 2005, except for in June 2005. However, in 2006, the pump was adjusted in a manner that allowed the collection of samples from Well B-11 during each monitoring event since the adjustment. There was only sufficient water at B-11 to collect a sample during the March 2017 sampling event. Similarly, declining water levels in the perched aquifer prevented sample collection at Well B-8 during the September and December sampling events in 2017. The water level in Well B-13 also periodically declines below the pump intake prohibiting the collection of samples during some sampling events. Due to low water levels, Well B-13 was not sampled during any monitoring events in 2017. Well B-13 was last sampled during the fourth quarter of 2010.

4.2. Sample Collection

All monitoring wells were purged and sampled in accordance with the *Quality Assurance Project Plan* (QAPP) for Inman Landfill (Skagit County Public Works (SCPW) Dept., 2010).

4.3. Analytical Parameters

Groundwater samples were submitted to Edge Analytical of Burlington, Washington for analysis. Parameters tested consisted of analytes specified in the QAPP (SCPW Dept., 2010). Beginning with the second quarter of 2008 sampling event, additional parameters were tested during each subsequent quarterly sampling event. These additional parameters were measured for a two year period based on a request from the Washington Department of Ecology to further characterize groundwater at the landfill site. These additional parameters were measured for the last time during the first quarter 2010 monitoring event. These additional parameters include total dissolved solids (TDS), alkalinity, bicarbonate, total calcium, total magnesium, total potassium, total sodium, and the following dissolved metals: antimony, barium, beryllium, cobalt, copper, nickel, selenium, silver, thallium, and vanadium.

Based on a subsequent request from the Washington Department of Ecology, most of these additional parameters were sampled again beginning in the third quarter of 2011. The parameters that were never detected above practical quantitation limits during the 2008 to 2010 sampling rounds were dropped from the sampling request. The additional parameters from the most recent request include TDS, alkalinity, bicarbonate, total magnesium, total potassium, and the following dissolved metals: antimony, barium, chromium, cobalt, copper, nickel, selenium, and vanadium. For quality assurance purposes, duplicate samples were collected from Well B-3 during each sampling round. The annually required gamma spectral analysis was conducted during the third quarter sampling event.

5.0 GROUNDWATER QUALITY RESULTS

A discussion of groundwater quality based on analytical results from the monitoring well network is presented in this section. Separate discussions are included for the perched and upper regional aquifers, respectively. A background well has not been established for either the perched aquifer or the upper regional aquifer monitoring networks because of apparent or potential landfill impacts at each monitoring well location as indicated by historical monitoring results.

Tabulated groundwater monitoring results for 2017 are presented in Appendices A-1 and B-1 for the perched and upper regional aquifers, respectively. Time-series plots were generated from data collected from 1994 through 2017 (91 sampling events). Thirty-nine long-term time-series plots (Appendix A-2) were generated from the perched aquifer analytical results. Thirty long-term time-series plots (Appendix B-2) were generated from the upper regional aquifer analytical results. Time-series plots were not generated for parameters when the results were all or nearly all detected at levels below the laboratory practical quantitation limits (PQLs).

For quality assurance purposes, a data validation report was generated that reviews laboratory groundwater quality data from the sampling event. The fourth quarter data validation report is presented in Appendix C.

5.1. Perched Aquifer

The perched aquifer monitoring system for the site is comprised of Monitoring Wells B-6, B-7, B-8, B-9, B-11, and B-13. Five analytes were found to exceed state groundwater standards (Chapter 173-200 WAC) in the perched aquifer during 2017 (Table 3).

Table 3. Summary of Maximum Concentrations of Analytes Exceeding Groundwater Quality Standards in Perched Aquifer Wells: 2017

Contaminant	GW Quality Standards (173-200 WAC)	Maximum Concentration Detected				
		B-6	B-8	B-9	B-11	B-13
Carcinogen						
Arsenic (mg/L)	0.00005	0.0009	0.001	0.0009	0.001	NS
Vinyl Chloride (µg/L)	0.02	NE	NE	NE	NE	NS
Secondary						
Iron, dissolved (mg/L)	0.3	NE	1.42	NE	NE	NS
Manganese, dissolved (mg/L)	0.05	NE	0.054	NE	NE	NS
pH (standard units)	6.5 – 8.5	NE	NE	NE	NE	NS
Total dissolved solids (mg/L)	500	NE	NE	NE	NE	NS

NE: Not exceeded NS: Not sampled

The 2017 analytical data indicate that elevated concentrations of dissolved arsenic tended to be widespread, with exceedances of the water quality standards occurring in each of the perched aquifer wells sampled.

5.2. Upper Regional Aquifer

The upper regional aquifer monitoring well network comprises Wells B-1, B-2, B-3, B-4, B-5, B-10, and B-12. All wells were sampled during each of the four quarterly sampling events in 2017. Seven wells were

found to exceed state groundwater standards (Chapter 173-200 WAC) for at least one sampling event during 2017 in the upper regional aquifer (Table 4).

Table 4. Summary of Maximum Concentrations of Analytes Exceeding Groundwater Quality Standards in Upper Regional Aquifer Wells: 2017

Contaminant	GW Quality Standards (173-200 WAC)	Maximum Concentration Detected						
		B-1	B-2	B-3	B-4	B-5	B-10	B-12
Carcinogen								
Arsenic, dissolved (mg/L)	0.00005	0.036	0.001	0.003	0.003	0.004	0.002	0.005
Vinyl chloride (µg/L)	0.02	NE	NE	0.079	NE	0.135	NE	NE
Secondary								
Iron, dissolved (mg/L)	0.3	2.39	NE	7.76	6.87	22.4	2.17	1.05
Manganese, dissolved (mg/L)	0.05	2.106	NE	0.813	1.569	2.58	0.553	0.063
pH (standard units)	6.5-8.5	NE	NE	NE	NE	NE	NE	NE
Total dissolved solids (mg/L)	500	532	NE	NE	711	NE	NE	NE

NE: Not exceeded

The 2017 analytical data for the upper regional aquifer show areal distribution trends that are somewhat similar to those observed in the perched aquifer. For instance, elevated concentrations of metals, tended to be widespread, with exceedances of water quality standards for dissolved arsenic, iron, and manganese occurring in almost all of the upper regional aquifer wells. Vinyl chloride concentrations tended to be more localized in the upper regional aquifer in 2017, with water quality standards exceeded in only two wells (B-3 and B-5), which are located in the northwestern and western margins of the landfill.

In general, concentrations of all analytes tended to be lower in upgradient wells (B-1, B-10, and B-12) and higher in downgradient wells (B-2, B-3, B-4, and B-5), as would be expected. VOCs were not detected above PQLs in either well B-1, B-2, B-4, B-10, or B-12 during any of the 2017 monitoring events.

5.3. Domestic Wells

No domestic wells were sampled in 2017. Domestic wells located to the southwest and southeast of the landfill site have been sampled previously. The results of these analyses were presented in earlier annual reports. Refer to those reports for a discussion of domestic well results.

6.0 STATISTICAL EVALUATION OF GROUNDWATER RESULTS

Statistical analysis of groundwater monitoring data from Sauk Landfill is conducted using Microsoft Excel and WQStat Plus v.9 or equivalent software in accordance with the EPA guidance document (EPA 2009). Statistical analysis is conducted using data from the entire monitoring period (1994-2017) unless otherwise noted.

6.1. Piper Diagrams

Piper diagrams are a graphical display of the proportions of the major cations and anions in a sample. Piper diagrams are constructed by plotting the proportions of the major cations (calcium, magnesium, sodium and potassium) on one triangular diagram, the proportions of the major anions (alkalinity, chloride, sulfate) on another, and then combining the information from the two triangular plots onto a quadrilateral plot (Drever 2002). A piper diagram was created using the data from each quarterly monitoring event in 2017 for both the perched aquifer (Appendix D-1) and the upper regional aquifer (Appendix E-1).

6.1.1. Perched Aquifer

The piper diagrams indicate that all the monitoring wells in the perched aquifer have similar chemical signatures. The results also show that general chemistry of the perched aquifer does not significantly change throughout the year.

6.1.2. Regional Aquifer

The piper diagrams indicate that the monitoring wells in the regional aquifer have mostly similar chemical signatures. Wells B-2, B-4, and B-5 do appear to each have their own slightly different chemical signature that varies from the rest of the monitoring wells. The results also indicate that the general chemistry of the upper regional aquifer does not significantly change throughout the year.

6.2. Stiff Diagrams

A stiff diagram is another graphical representation of the major ion composition of a water analysis. A polygonal shape is created from three horizontal axes extending on either side of a vertical axis. The three major anions are plotted to the right of the center axis and the three major cations are plotted to the left of the center axis. The points are connected to create the polygonal shape. The larger the area of the polygonal shape, the greater the concentrations of the analytes (Drever 2002). Stiff diagrams were produced for every well with the data from each quarterly monitoring event in 2017 for both the perched (Appendix D-2) and upper regional (Appendix E-2) aquifers.

6.2.1. Perched Aquifer

The polygons produced at each well are similar to each other in shape, but do vary in overall size. Well B-8 has the largest polygonal shape, which indicates that it has the greatest concentration of analytes. The polygon shapes and sizes remain similar for each quarterly monitoring event.

6.2.2. Upper Regional Aquifer

Generally, the polygons produced at each well are similar to each other, and are similar for each quarterly monitoring event. Well B-4 has the largest polygonal shape, which indicates that it has the greatest concentration of analytes.

6.3. Cation-Anion Balance

Cation-anion balance is the ratio of cations to anions within the water sample. Since water samples are electrically neutral, the sum of the cations should equal the sum of the anions. The cations are magnesium, calcium, sodium and potassium. The anions are sulfate, chloride, carbonate and bicarbonate. The ratio would be determined as:

Ratio = (sum of cations)/(sum of anions)*100%

Since water is electrically neutral, we would expect the ratio to be 1 or 100%. The cation-anion balance was calculated for the monitoring wells in each aquifer during every quarterly monitoring event of 2017. The results are displayed on the quarterly piper diagrams in Appendix D-1 and Appendix E-1.

The cation-anion balances calculated for each quarterly monitoring event in the perched aquifer are 37.15%, 47.64%, 39.45%, and 37.32%%, respectively (Appendix E-1). The cation-anion balances calculated for each quarterly monitoring event in the upper regional aquifer are 7.713%, 5.204%, 4.656%, and 1.504%, respectively (Appendix F-1). These results indicate that there are more anions than cations in the results. There could be a couple of reasons for this ratio imbalance. One is the fact that some analyte values are for dissolved metals and some analyte values are for total metals. Another reason could be that not all species were analyzed in the water sample, and were therefore not included in the cation-anion balance. The most common species were analyzed, but there could be less common species present in the water that were not included in the calculation.

6.4. Box Plots

Box plots are useful in providing a visual display of the distribution of a data set (EPA 2009). The central box of the plot shows the interquartile range from the 25^{th} to the 75^{th} percentiles. A line (whisker) is drawn to the minimum and maximum values from the 25^{th} and 75^{th} percentiles, respectively. The 50^{th} percentile is drawn within the box. The mean value of the data set is plotted within the box as a separate mark. Significantly staggered boxes could be an indication of spatial variability.

Box-plots were created with data collected from 1994 through 2017 of all analytes with detections. Forty-four box plots were created from the perched aquifer analytical results (Appendix D-3) and forty-six box plots were created from the upper regional aquifer analytical results (Appendix E-3). Box plots were not generated for parameters when the results were all or nearly all detected at levels below the laboratory practical quantitation limits.

The box plots were visually analyzed to see if there were significant differences between the wells (Table 5 & Table 6). A significant difference would be if one of the boxes in the plot did not overlap with any of the others. This significant difference could indicate that there are statistically different average concentrations between the wells.

6.4.1. Perched Aquifer

Twenty out of the 44 analytes plotted had wells with statistically different average concentrations (Table 5). In 9 of the 20 analytes (alkalinity, dissolved barium, COD, chloride, magnesium, potassium, sodium, TDS, and TOC), the values measured in B-8 were significantly higher than those values measured in the rest of the wells in the perched aquifer. In 4 of the 23 analytes (1,1-DCA, cis-1,2-DCE, tetrachlorothene, and trichlorothene), the values measured in B-13 were significant higher than the rest of the wells. B-9 is significantly higher in CFC-12. Freon-22, diethyl ether, dissolved iron, and dissolved nickel were significantly higher in both B-8 and B-13. Calcium is significantly higher in B-6 and B-8, and nitrate is significantly higher in B-6 and B-11.

These results indicate that B-8 shows the most impacts from the landfill. B-13 shows some significant impacts. The results show some impacts in B-6, B-9, and B-13.

Table 5. Summary of Box Plot Visual Analysis in Perched Aquifer Wells: 2017

Significantly Staggered Analyte	Distribution of Boxes
1,1-dichloroethane (1,1-DCA)	B-13 is higher
Alkalinity	B-8 is higher
Barium, dissolved	B-8 is higher
Calcium, total	B-6 and B-8 are higher
Chemical oxygen demand (COD)	B-8 is higher
Chloride	B-8 is higher
Chlorodifluoromethane (Freon 22)	B-8 and B-13 are higher
Cis-1,2-dichloroethene (cis-1,2-DCE)	B-13 is higher
Dichlorodifluoromethane (CFC-12)	B-9 is higher
Diethyl ether	B-8 and B-13 are higher
Iron, dissolved	B-8 and B-13 are higher
Magnesium, total	B-8 is higher
Nickel, dissolved	B-8 and B-13 are higher
Nitrate-N	B-6 and B-11 are higher
Potassium, total	B-8 is higher
Sodium, total	B-8 is higher
Tetrachlorothene	B-13 is higher
Total dissolved solids (TDS)	B-8 is higher
Total organic carbon (TOC)	B-8 is higher
Trichlorothene	B-13 is higher

6.4.2. Upper Regional Aquifer

Thirteen out of the 46 analytes plotted had wells with statistically different average concentrations (Table 6). In 6 out of 13 analytes (alkalinity, dissolved barium, bicarbonate, Freon-22, magnesium, TDS), the values measured in B-4 were significantly higher than the values measured in the rest of the wells. In 3 out of the 13 analytes (CFC-12, nitrate-N, and potassium), the values measured in B-2 were significantly higher than the values measured in the rest of the wells. Both B-1 and B-5 were significantly higher in one analyte each (dissolved arsenic and iron). Wells B-3 and B-5 were both significantly higher

in diethyl ether than the other wells. Wells B-4 and B-5 were both significantly higher in dissolved manganese than the other wells.

These results indicate that the B-2, B-4, and B-5 show the most impacts from the landfill. B-1 and B-3 were both significantly higher in one analyte each. B-12 was not significantly higher in any analyte in the upper regional aquifer.

Table 6. Summary of Box Plot Visual Analysis in Upper Regional Aquifer Wells: 2017

Significantly Staggered Analyte	Distribution of Boxes
Alkalinity	B-4 is higher
Arsenic, dissolved	B-1 is higher
Barium, dissolved	B-4 is higher
Bicarbonate	B-4 is higher
Chlorodifluoromethane (Freon 22)	B-4 is higher
Dichlorodifluoromethane (CFC-12)	B-2 is higher
Diethyl ether	B-3 and B-5 are higher
Iron, dissolved	B-5 is higher
Magnesium, total	B-4 is higher
Manganese, dissolved	B-4 and B-5 are higher
Nitrate-N	B-2 is higher
Potassium, total	B-2 is higher
Total dissolved solids	B-4 is higher

6.5. Mann-Kendall Trend Test

The presence of significant increasing or decreasing trends was determined using the Mann-Kendall test. The Mann-Kendall test evaluates possible trends by comparing random pairs of data within the data set. The test statistic will increase if the later value is greater than the earlier value, and decrease if the later value is less than the earlier value. After the test statistic is determined, the Z-score is calculated from the test statistic. The farther the Z-score is from zero, the more significant the trend (EPA 2009).

A Mann-Kendall test was run on each well in every long-term and short-term time-series plot. The Mann-Kendall results show the slope of the trend, the Z-score, the critical threshold of significance for the Z-score, and if the Z-score is significant at the 98% confidence interval. Each analyte concentration is tested. Mann-Kendall long-term trend test results for the perched and upper regional aquifers are included in Appendix D-4 and E-4. Mann-Kendall short-term trend test results for the perched and upper regional aquifers are included in Appendix D-5 and E-5. A positive slope indicates an increasing trend, and a negative slope indicates a decreasing trend. Some results state the presence of a statistically significant increasing or decreasing trend in the data, but there were either no or very few actual detections within the data set. These trends are not considered statistically significant since they are the result of a change in laboratory detection limit of the analyte, and not an actual change in detected concentrations.

6.5.1. Perched Aquifer

Overall, the Mann-Kendall results indicate that every well shows improvement in water quality (Table 7). Most of the statistically significant decreasing trends have been found in the long-term data set. A few

analytes have shown significant increasing trends in the long-term data set in Wells B-6, B-8, B-9, and B-13.

Table 7. Mann-Kendall Significant Trends: Perched Aquifer

Well	Analytes with Decreasing trends		Analytes with Increasing trends
B-6	**Ammonia-N** Antimony, dissolved Arsenic, dissolved Cadmium, dissolved Calcium, total Chemical oxygen demand Chromium, dissolved Copper, dissolved Iron, dissolved **Manganese, dissolved** **Selenium, dissolved** Sodium, total Specific conductance Sulfate Total organic carbon (TOC) Vanadium, dissolved Zinc, dissolved		**Nickel, dissolved** Nitrate-N pH
B-8	1,1-dichloroethane Arsenic, dissolved Calcium, total Chloride Chlorodifluoromethane (Freon 22) **Chromium, dissolved** Copper, dissolved Diethyl ether **Selenium, dissolved** Sodium, total Specific conductance Sulfate Vanadium, dissolved Zinc, dissolved		Ammonia-N
B-9	1,1-dichloroethane Arsenic, dissolved Calcium, total **Chloride** Chromium, dissolved Copper, dissolved Dichlorofluoromethane (CFC-12) Magnesium, total Manganese, dissolved Potassium	**Selenium, dissolved** **Sodium, total** Specific conductance Sulfate Total dissolved solids TOC Vanadium, dissolved Vinyl chloride Zinc, dissolved	pH

Regular text denotes a long-term trend only
Bold text denotes both a long-term and short-term trend
Italicized text denotes a short-term trend only

Table 7. Mann-Kendall Significant Trends: Perched Aquifer (cont.)

Well	Analytes with Decreasing trends	Analytes with Increasing trends
B-11	*Ammonia-N* Arsenic, dissolved **Calcium, total** COD **Chloride** Chromium, dissolved Copper, dissolved Iron, dissolved Manganese, dissolved Selenium, dissolved **Sodium, total** Specific conductance **Sulfate** TOC Vanadium, dissolved Zinc, dissolved	pH
B-13	1,1-dichloroethane 1,2- dichloroethane Arsenic, dissolved Calcium, total Chlorodifluoromethane (Freon 22) cis-1,2-dichloroethene Diethyl ether Iron, dissolved Manganese, dissolved Sodium, total Specific conductance TOC Trichloroethene Vinyl chloride Zinc, dissolved	Chloride Nitrate-N

Regular text denotes a long-term trend only
Bold text denotes both a long-term and short-term trend
Italicized text denotes a short-term trend only

6.5.2. Upper Regional Aquifer

Statistically significant long-term and short-term trends discerned from the upper regional aquifer data indicate that Wells B-2 and B-3 show the most long-term decreasing concentration trends for landfill analytes during the long-term monitoring period (Table 8). Wells B-1, B-4, B-5, B-10, and B-12 show the most increasing concentration trends, in both the long-term and short-term data sets. These increasing trends are all inorganic analytes, except for Freon-22 in Wells B-1 and B-4.

Table 8. Mann-Kendall Significant Trends: Upper Regional Aquifer

Well	Analytes with Decreasing trends		Analytes with Increasing trends	
B-1	Chromium, dissolved **Copper, dissolved** Selenium, dissolved *Sulfate* **Zinc, dissolved**		**Alkalinity** **Ammonia-N** **Barium, dissolved** **Bicarbonate** **Calcium, total** **Chloride** *Freon 22* **Iron, dissolved** **Magnesium, total**	**Manganese, dissolved** **Nickel, dissolved** pH **Potassium, total** Specific conductance Sodium, total Sulfate **TDS** **TOC**
B-2	1,1-dichloroethane *Ammonia-N* Arsenic, dissolved Calcium, total **Chloride** Chromium, dissolved **Copper, dissolved** CFC-12 Iron, dissolved Magnesium, total **Manganese, dissolved** Nickel, dissolved	*Nitrate-N* Selenium, dissolved **Sodium, total** Specific conductance Sulfate TDS TOC Vanadium, dissolved Vinyl chloride **Zinc, dissolved**	Potassium	
B-3	Calcium, total Chloride Chromium, dissolved Copper, dissolved Diethyl ether Iron, dissolved Manganese, dissolved	*Selenium, dissolved* Sodium, total Specific conductance TOC Vanadium, dissolved Vinyl chloride Zinc, dissolved	pH	
B-4	**Alkalinity** *Ammonia-N* Arsenic, dissolved *Barium, dissolved* **Bicarbonate** *Calcium, total* **Chromium, dissolved** **Copper, dissolved**	*Manganese, dissolved* *Sodium, total* Vanadium, dissolved **Vinyl chloride** Zinc, dissolved	Ammonia-N Calcium, total Chloride **COD** Freon 22 Iron, dissolved	Manganese, dissolved Sodium, total Specific conductance Sulfate **TOC**
B-5	*Arsenic, dissolved* Freon 22 Chromium, dissolved *Copper, dissolved* CFC-12 Freon 21	Manganese, dissolved Selenium, dissolved Vanadium, dissolved Vinyl chloride Zinc, dissolved	Calcium, total Chloride COD *Cobalt, dissolved* Nickel, dissolved	*Potassium, total* **Sodium, total** Specific conductance Tetrahydrofuran TDS

Regular text denotes a long-term trend only
Bold text denotes both a long-term and short-term trend
Italicized text denotes a short-term trend only

Table 8. Mann-Kendall Significant Trends: Upper Regional Aquifer (cont).

Well	Analytes with Decreasing trends	Analytes with Increasing trends	
B-10	Arsenic, dissolved Chromium, dissolved **Copper, dissolved** Vanadium, dissolved Zinc, dissolved	Alkalinity Ammonia-N Barium, dissolved Bicarbonate Calcium, total Chloride **Iron, dissolved** Magnesium, total	**Manganese, dissolved** Potassium Sodium, total Specific conductance Sulfate TDS TOC
B-12	Arsenic, dissolved *Chloride* **Copper, dissolved** Manganese, dissolved TOC Zinc, dissolved	**Alkalinity** **Barium, dissolved** **Bicarbonate** *Calcium, total* Chloride *Iron, dissolved* **Magnesium, total**	pH Potassium, total **Specific conductance** Sodium, total **Sulfate** **TDS**

Regular text denotes a long-term trend only
Bold text denotes both a long-term and short-term trend
Italicized text denotes a short-term trend only

7.0 LANDFILL GAS EXTRACTION AND MONITORING ACTIVITIES

To alleviate the accumulation of methane beneath the landfill cap and to control off-site methane migration, Inman Landfill has a LFG extraction system consisting of 27 wells and trenches (Figure 8). The landfill also contains perimeter LFG monitoring probes to monitor for off-site migration of LFG.

7.1. LFG Extraction System Operation

The LFG system was not operated during 2017 due to low methane levels within the landfill and over-capacity of the current equipment configuration.

7.2. Perimeter Monitoring

Section (2)(b)(i) of Chapter 173-304-460 WAC specifies minimum functional air quality standards for landfills. These standards limit the concentration of explosive gases at the property boundary to the lower explosive limit (LEL) for that gas. For methane, the LEL occurs at a concentration of approximately 5 percent by volume. To monitor for potential exceedance of this standard, concentrations of methane and associated landfill gases (oxygen and carbon dioxide) are measured in 10 nested perimeter LFG monitoring probe sets that include a total of 24 individual probes. Measurements of LFG concentrations in perimeter monitoring probes were conducted during the 1st, 2nd, 3rd, and 4th quarterly monitoring events in 2017. The 4th quarter LFG measurements were collected in January 2017 due to equipment repair that was conducted in December 2017. The results of these measurements are presented in Table G-1 located in Appendix G.

The LFG probes are located on all sides of the landfill perimeter as depicted in Figure 9. Some of the probes are co-located with groundwater monitoring wells (Wells B-6, B-7, B-9, B-11, and B-13) and some are stand-alone probes (Probes GDW-1, GDW-2, GDW-3, GDW-5, GP-6, and GP-7). The depths of the screened intervals of the probes vary from 7 to 87 feet below ground surface (Table F-1). For assessment purposes, methane concentrations measured in each probe were compared to the methane air quality standard of 5 percent methane by volume. The maximum concentrations of methane detected at each LFG monitoring probe set during each measuring event in 2017 are depicted in Figures 9a through 9d.

Comparisons of the methane results to the air quality standard shows that there were no detections of methane exceeding the LEL in any of the monitoring probes in 2017. Historically, methane has been detected in GDW-1 and B-13 at concentrations above the LEL. Probe set GDW-1 is located near the southeastern corner of the Inman Landfill site. The properties adjacent to the east and south of the landfill are vacant. Currently, subsurface methane concentrations in this area do not appear to present an immediate risk to the public.

In general, concentrations detected in 2017 show a decrease from the concentrations measured in 2016. In 2014, two methane concentrations were above the LEL, and in 2015, three methane concentrations were above the LEL. The highest methane concentration measured in 2014 was 14.8% in the deep probe of B-13 during the second quarter monitoring event. The highest methane concentration measured in 2017 was 4.4% in the shallow probe of GDW-1 during the first quarter monitoring event.

8.0 INSPECTIONS

Inspections were conducted in conjunction with quarterly groundwater monitoring in 2017.

9.0 SUMMARY AND CONCLUSIONS

Inman Landfill closed in 1994. Post-closure activities have been on-going since closure was completed in 1995. These activities include: leachate collection and disposal, LFG collection, perimeter groundwater monitoring, subsurface LFG monitoring, surface water monitoring, and site maintenance. Groundwater monitoring activities include collection of groundwater samples from two aquifers: an unconfined perched aquifer and a confined upper regional aquifer. Monitoring data indicate that groundwater in the perched aquifer generally flows to the west and southwest and the upper regional aquifer flows in a radial pattern toward the north, northeast, and east.

Assessment of groundwater monitoring results shows that several groundwater quality standards were exceeded at one or more monitoring wells in both aquifers during 2017. Standards exceeded include the WAC 173-200 carcinogen standards for dissolved arsenic and vinyl chloride, and the WAC 173-200 secondary standards for dissolved iron, dissolved manganese, and total dissolved solids.

All perched aquifer monitoring wells sampled during 2017 contained elevated concentrations of landfill-related analytes, specifically dissolved arsenic, relative to state standards, which could indicate impact from the landfill. The degree of apparent impact varied from well to well. Exceedance of standards for metals tended to be widespread, while exceedance of standards for TDS only occurred in Well B-8. Every well has shown improved water quality in recent years compared to that observed in 1994, particularly with regards to VOCs. Four inorganic analytes (ammonia, chloride, nitrate, and pH) are showing increasing trends. Regulatory limits were not exceeded for ammonia, chloride, or nitrate. No VOCs show any increasing trends. Out of all of the perched aquifer wells, 17 inorganic analytes show decreasing trends, although dissolved arsenic, iron, and manganese are still exceeding regulatory limits in some wells. VOCs are showing decreasing trends with one of these VOCs, vinyl chloride, still exceeding regulatory limits.

All wells screened in the upper regional aquifer sampled during 2017 contained elevated concentrations of landfill-related analytes relative to state standards, which could indicate impact from the landfill. As in the perched aquifer, the degree of apparent impact varied from well to well. Exceedance of standards for metals also tended to be widespread, while exceedance of standards for VOCs also tended to be more localized, occurring in only two wells (B-3 and B-5). Eighteen inorganic analytes show increasing trends. Four of these inorganic analytes (dissolved iron, dissolved manganese, pH, and TDS) exceed regulatory limits. Significant VOC concentrations were limited to wells B-3, and B-5. One VOC are shows increasing trends, however this VOCs doesn't have regulatory limits. Twenty-five inorganics and 5 VOCs are exhibiting decreasing trends with only one of these VOCs (vinyl chloride) currently exceeding regulatory limits. VOCs were not detected above laboratory PQLs in Wells B-1 or B-10 during 2017. This VOC distribution is consistent with the regional groundwater flow characteristics for this aquifer.

Although apparent impacts from the landfill continue within both aquifers, most of the time-series plots and Mann-Kendall trend tests for the last 23 years show decreasing concentration trends in most wells, indicating that groundwater in the vicinity of the landfill is continuing to improve. Decreasing trends were most apparent in wells completed within the perched aquifer, which historically has shown the highest degree of impact. However, there are some increasing trends in the regional aquifer which could indicate continued impact to the groundwater quality below the landfill. Improvements to groundwater quality underlying the site appear to be directly attributable to several specific corrective actions conducted at suspected groundwater contaminant sources during general closure activities conducted in 1994 and 1995. These corrective actions included:

- Recapping the old, unlined (Phase I) portion of the landfill which reduced the amount of precipitation infiltrating the landfill, and consequently the amount of leachate entering groundwater.

- Eliminating leachate seeps that allowed leachate to enter into the drainage system.

- Improving the old infiltration basin and constructing a new infiltration basin.

- Relining the pre-treatment leachate pond and pump station.

- Constructing and operating an active LFG extraction system that reduced the potential for VOCs to enter groundwater via partitioning.

- Making other drainage improvements which eliminated surface water run-on to the site and consequently reduced the amount of leachate generated.

In addition to these corrective actions, Skagit County has connected several homes located southwest and southeast of the landfill to a public water system and subsequently abandoned their drinking water wells. Because of their location and well construction characteristics, these wells had the potential to be impacted by contaminants from the landfill. These connections have removed the threat of impacts to nearby drinking water sources.

The results of perimeter gas monitoring activities indicate that the historical operation of the LFG system has been effective at controlling landfill gas migration in the vicinity of Probes GDW-1 and B-13.

10.0 RECOMMENDATIONS

As a result of closure activities and the implementation of corrective actions, groundwater quality at the site has shown signs of significant improvement and is expected to further improve with time. Furthermore, the risk of potential impacts to domestic wells located southeast and southwest of the landfill has been eliminated due to their abandonment and the connection of the homes to a public water source. The increasing trends of inorganic analytes in the upper regional aquifer will continue to be monitored.

Perimeter gas monitoring results indicate that the historical operation of the LFG system is effective at control methane concentrations in the vicinity of GDW-1.

11.0 REFERENCES

Environmental Protection Agency. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities. EPA 530-R-09-007. March 2009.

Skagit County Public Works Department. 2010. Quality Assurance Project Plan. Appendix B of Post-Closure Operations and Maintenance Manual, Inman Landfill. February 2010.

Sweet, Edwards, and Associates, Inc. 1987. Inman Landfill Hydrogeology Investigation Phase II Report. January 16, 1987.

FIGURES

Figure 1. **Inman Landfill Location Map**

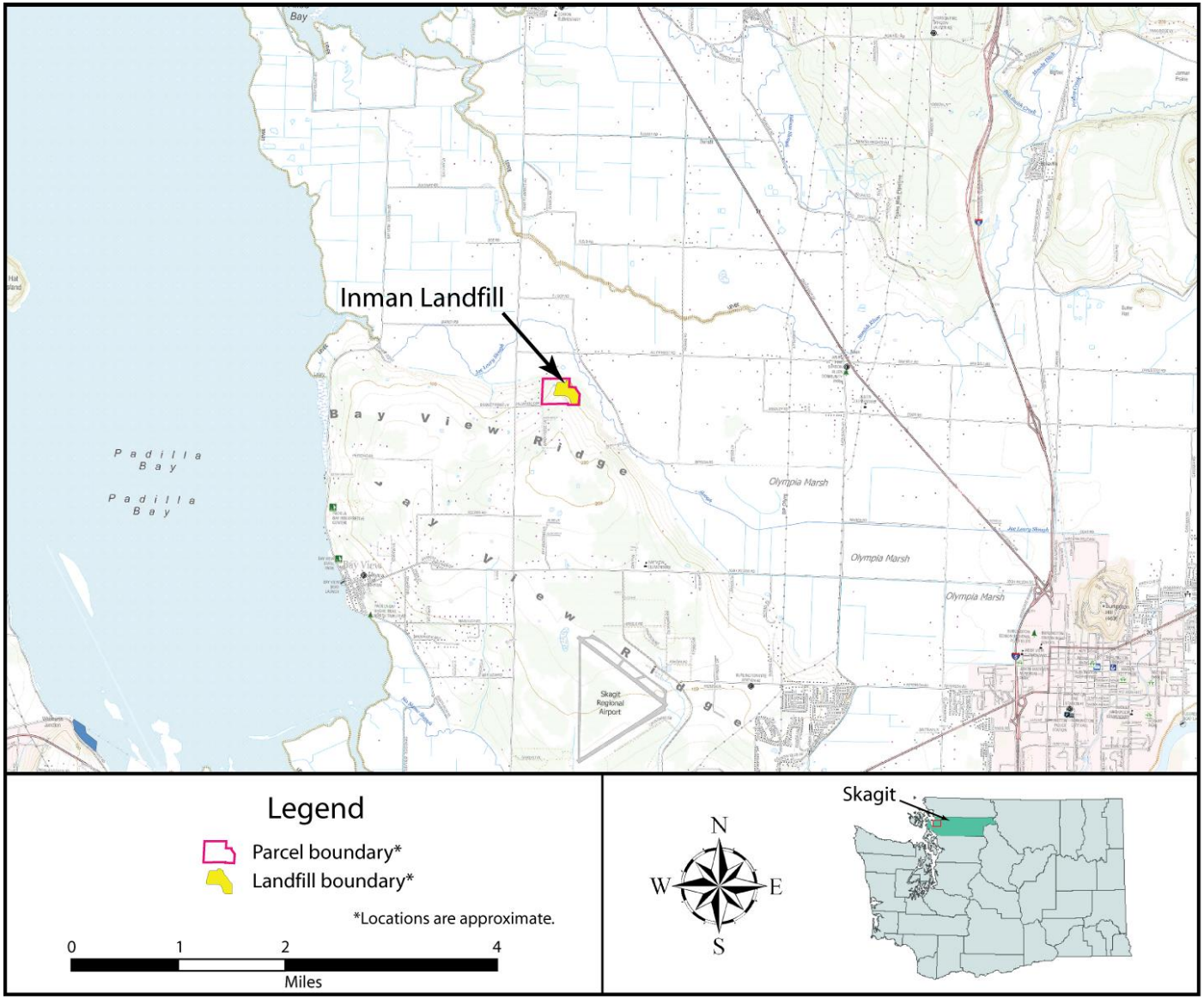


Figure 2. Annual Volume of Leachate Disposed.

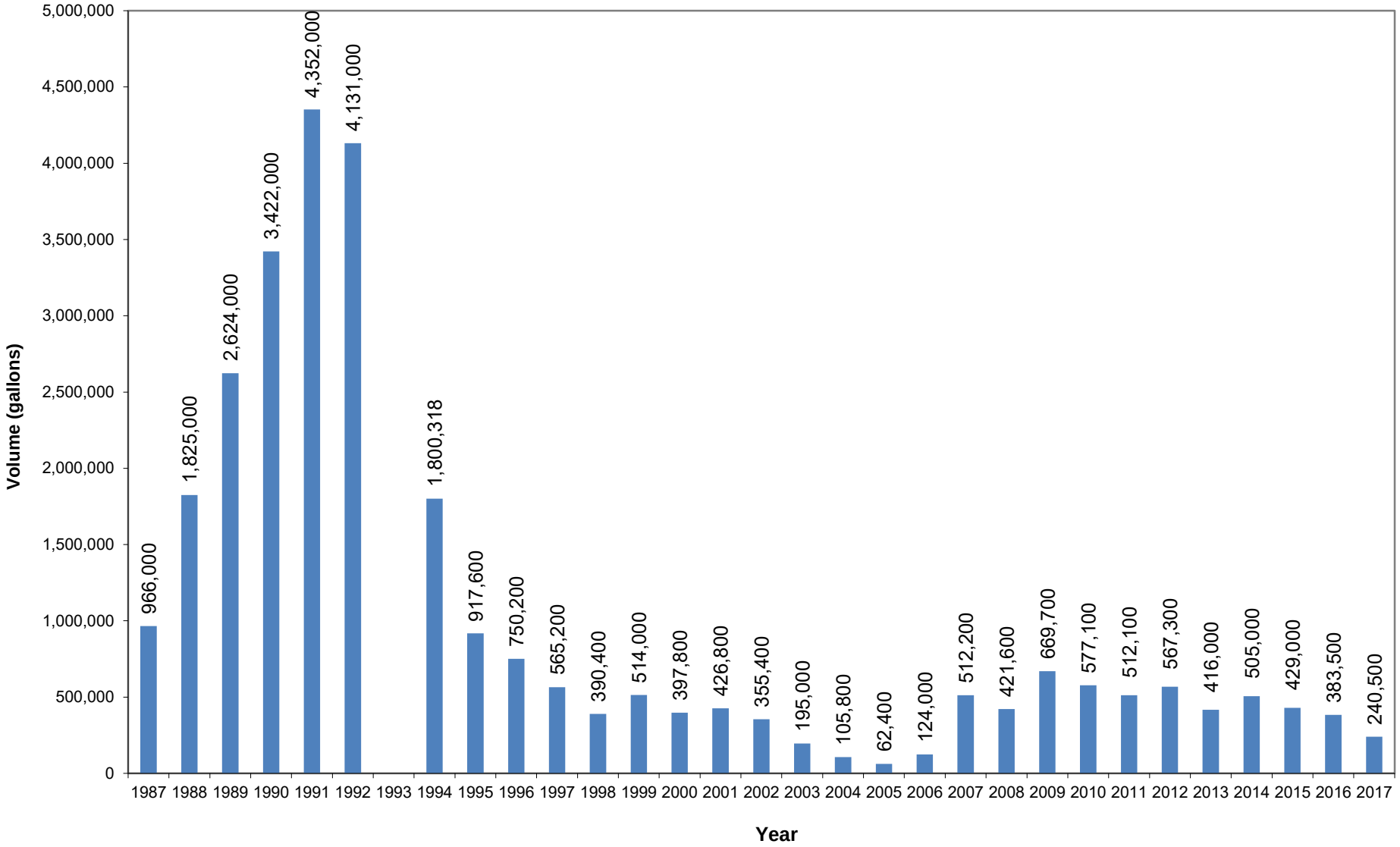
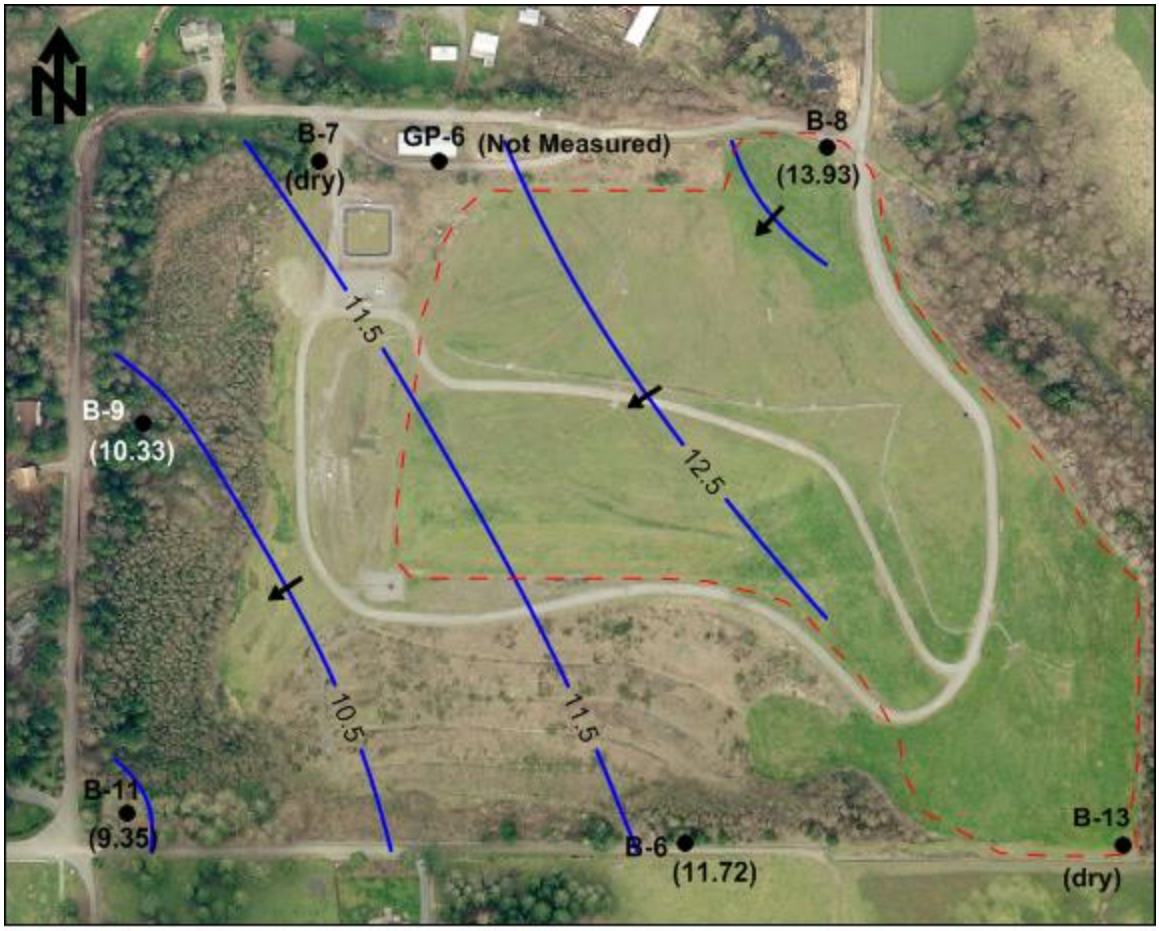


Figure 3. Perched Aquifer Monitoring Well Locations.

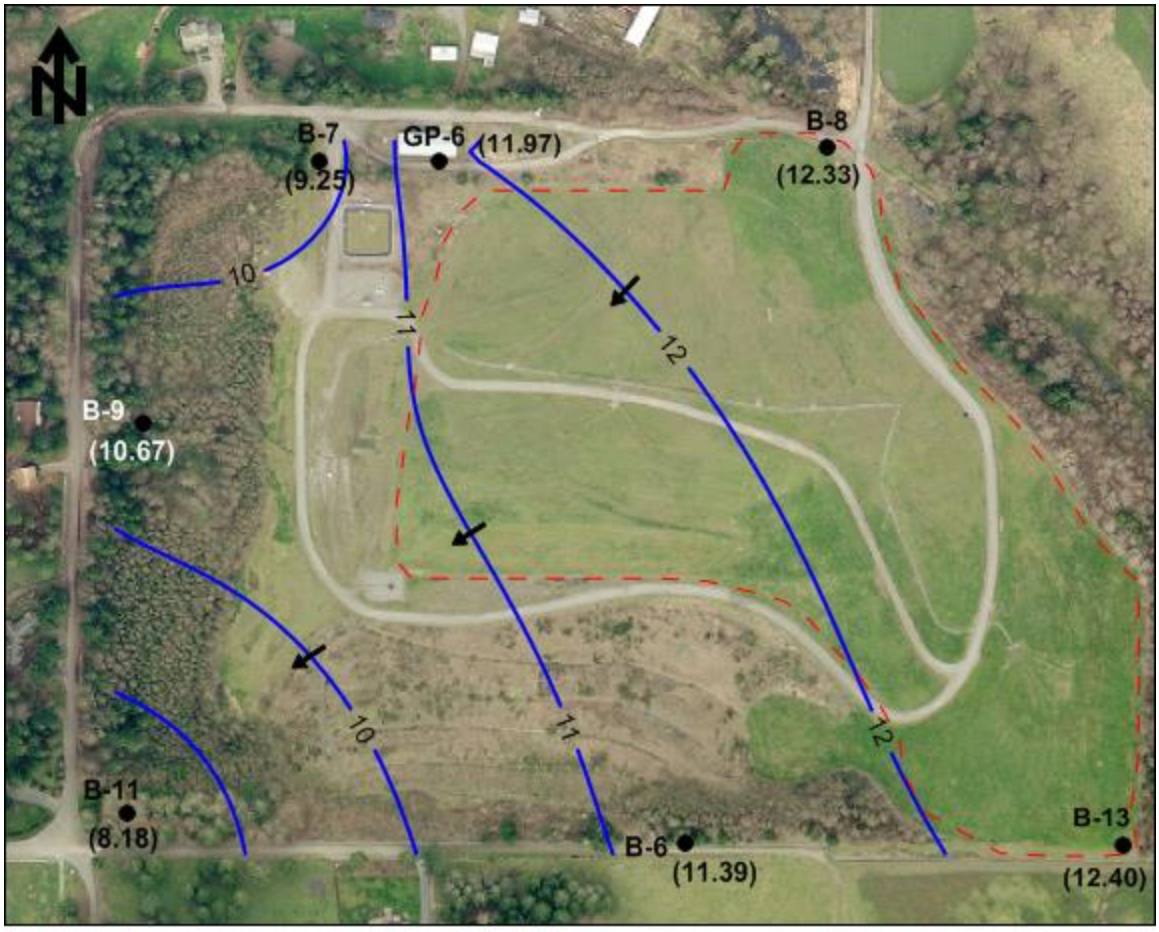
Figure 3a. Potentiometric Surface Contour Map, Perched Aquifer, March 2017.



LEGEND

B-6 ●	Monitoring Well
—12.5—	Potentiometric Surface Contour (feet above MSL)
↙	Direction of Groundwater Flow
(9.03)	Measured Static Water-Level Elevation (feet above MSL)
– – –	Approximate Landfill Boundary

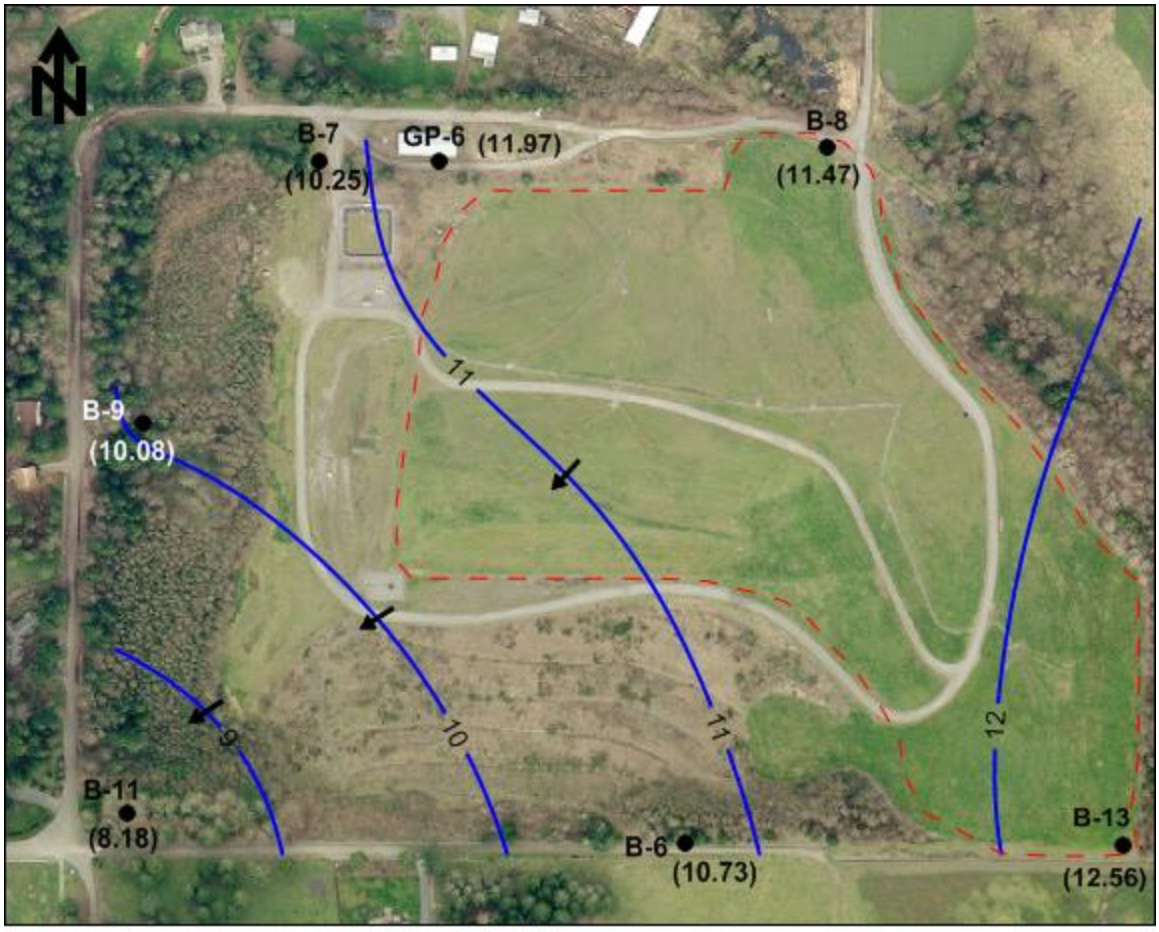
Figure 3b. Potentiometric Surface Contour Map, Perched Aquifer, June 2017.



LEGEND

B-6 ●	Monitoring Well
—12.5—	Potentiometric Surface Contour (feet above MSL)
↙	Direction of Groundwater Flow
(9.03)	Measured Static Water-Level Elevation (feet above MSL)
– – –	Approximate Landfill Boundary

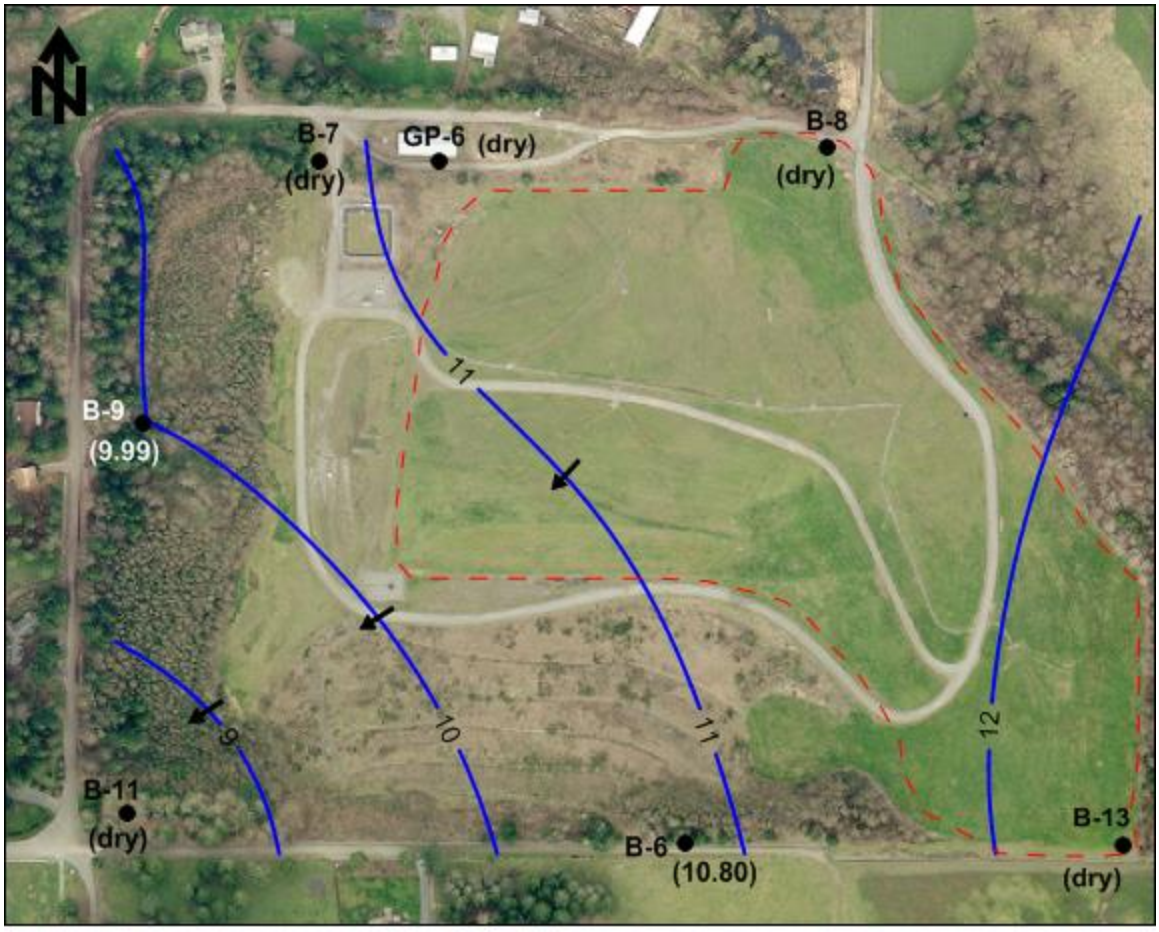
Figure 3c. Potentiometric Surface Contour Map, Perched Aquifer, September 2017.



LEGEND

B-6 ●	Monitoring Well
—12.5—	Potentiometric Surface Contour (feet above MSL)
↙	Direction of Groundwater Flow
(9.03)	Measured Static Water-Level Elevation (feet above MSL)
– – –	Approximate Landfill Boundary

Figure 3d. Potentiometric Surface Contour Map, Perched Aquifer, December 2017.



LEGEND

B-6 ●	Monitoring Well
—12.5—	Potentiometric Surface Contour (feet above MSL)
↙	Direction of Groundwater Flow
(9.03)	Measured Static Water-Level Elevation (feet above MSL)
– – –	Approximate Landfill Boundary

Figure 4. **Regional Aquifer Monitoring Well Locations.**

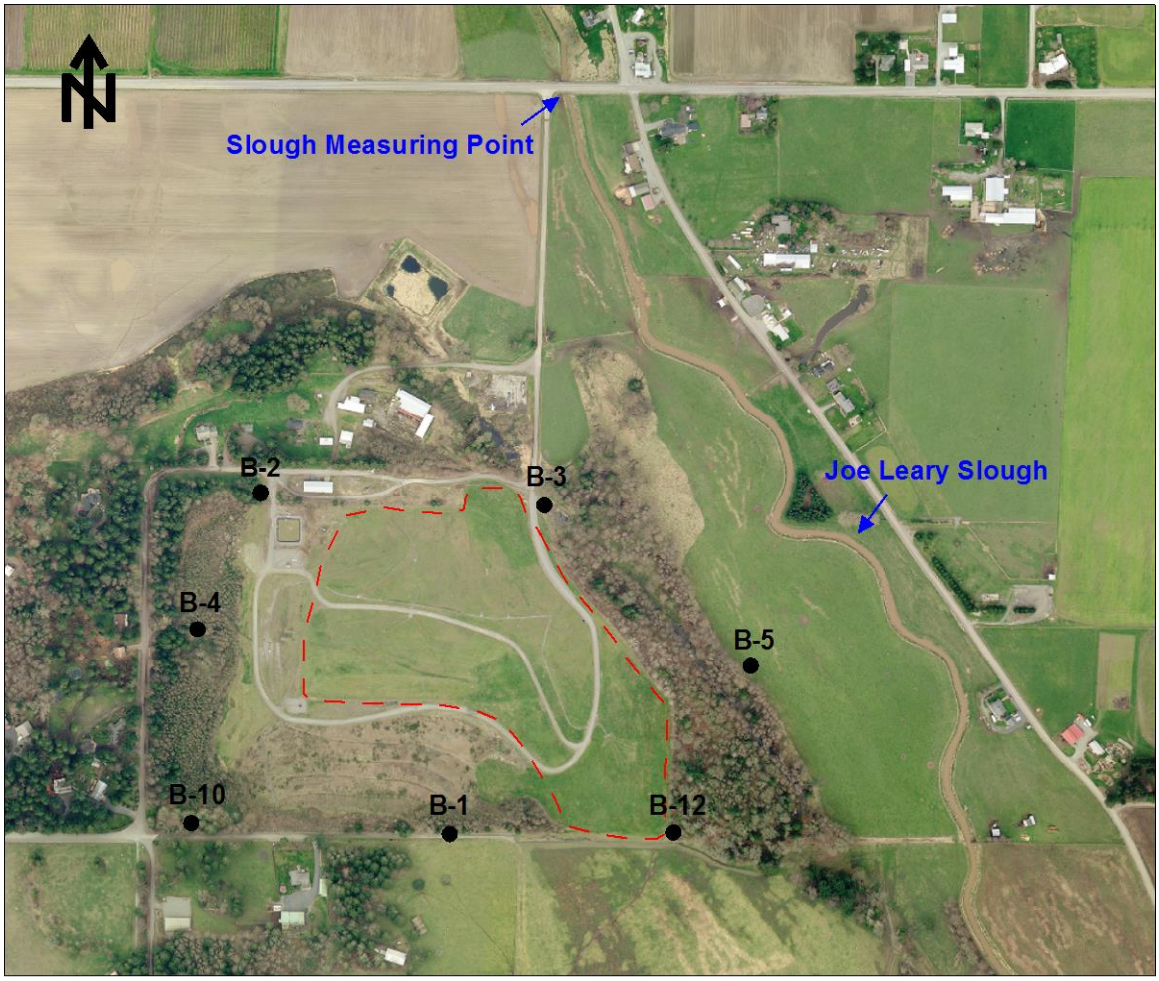


Figure 4a. Potentiometric Surface Contour, Central Landfill, Regional Aquifer, March 2017.

LEGEND

B-6 Monitoring Well

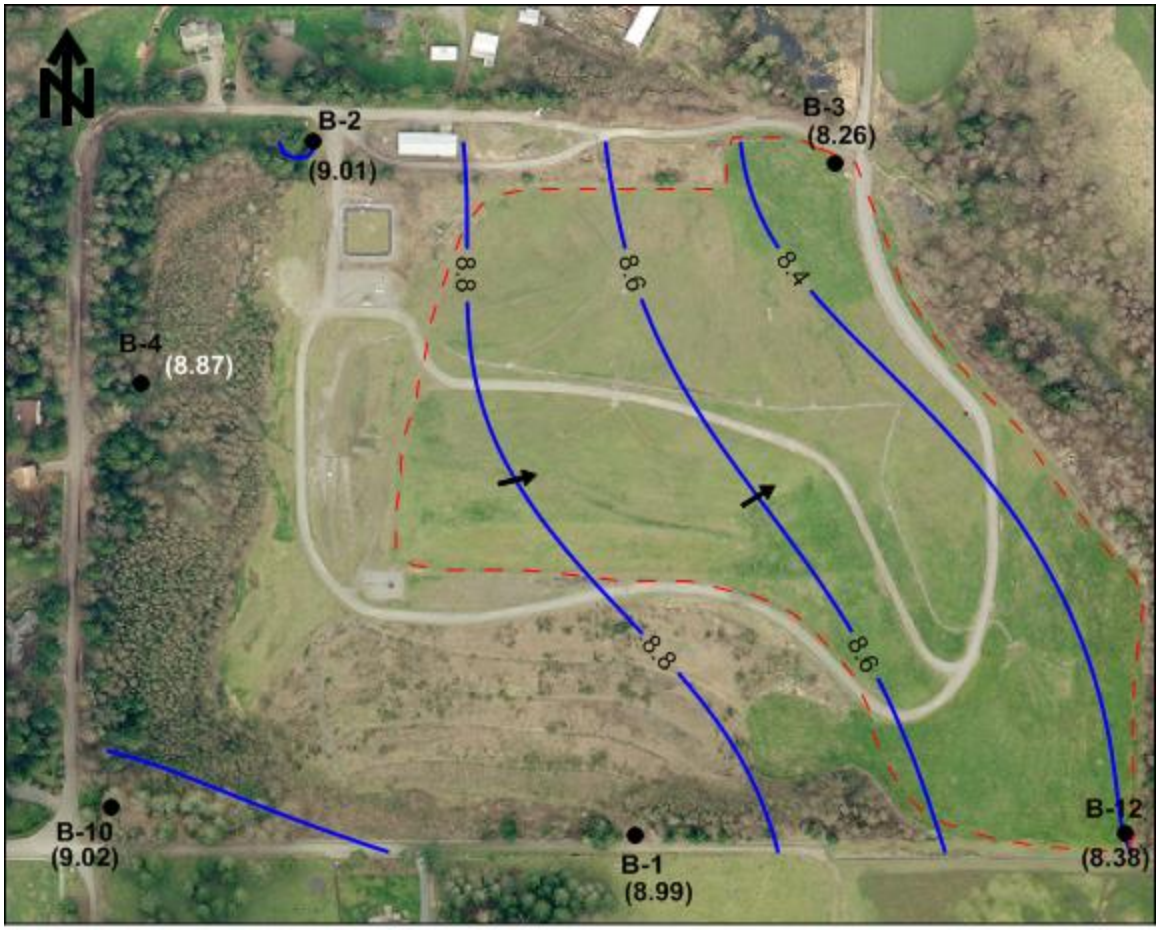
—8.2— Potentiometric Surface Contour (feet above MSL)

Direction of Groundwater Flow

(8.43) Measured Static Water-Level Elevation (feet above MSL)

Approximate Landfill Boundary

Figure 4b. Potentiometric Surface Contour, Central Landfill, Regional Aquifer, June 2017.



LEGEND

B-6 Monitoring Well

—8.2— Potentiometric Surface Contour (feet above MSL)

Direction of Groundwater Flow

(8.43) Measured Static Water-Level Elevation (feet above MSL)

Approximate Landfill Boundary

Figure 4c. Potentiometric Surface Contour, Central Landfill, Regional Aquifer, September 2017.

LEGEND

B-6 Monitoring Well

—8.2— Potentiometric Surface Contour (feet above MSL)

Direction of Groundwater Flow

(8.43) Measured Static Water-Level Elevation (feet above MSL)

Approximate Landfill Boundary

Figure 4d. Potentiometric Surface Contour, Central Landfill, Regional Aquifer, December 2017.

0 500 1000

Scale (feet)

LEGEND

B-6 Monitoring Well

—8.2— Potentiometric Surface Contour (feet above MSL)

Direction of Groundwater Flow

(8.43) Measured Static Water-Level Elevation (feet above MSL)

Approximate Landfill Boundary

Figure 5. **Perched Aquifer Hydrograph, 1994-2017**

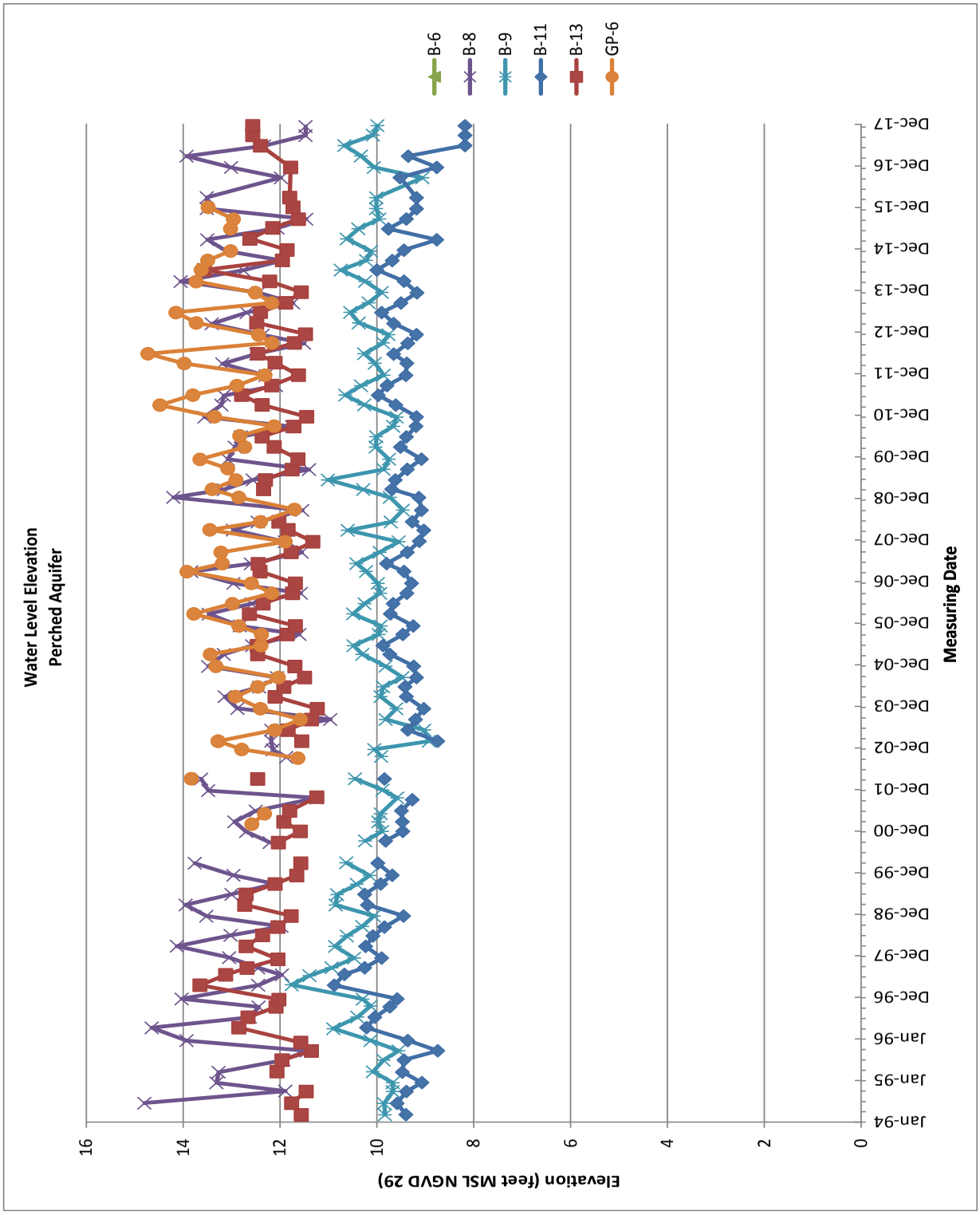


Figure 6. Regional Aquifer Hydrograph, 1994 – 2017

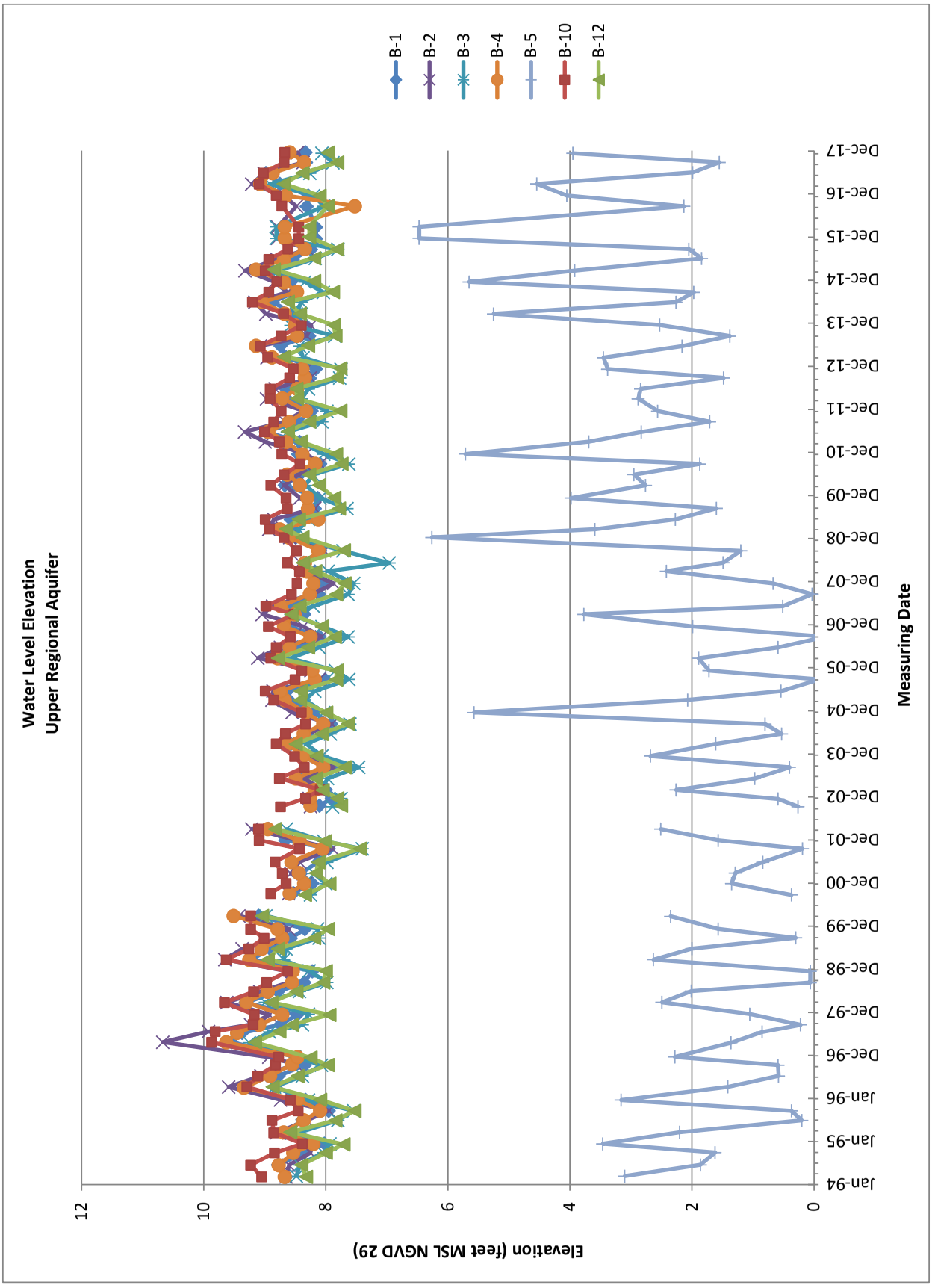


Figure 7a. Potentiometric Surface Contour Map, Regional Aquifer, March 2017.

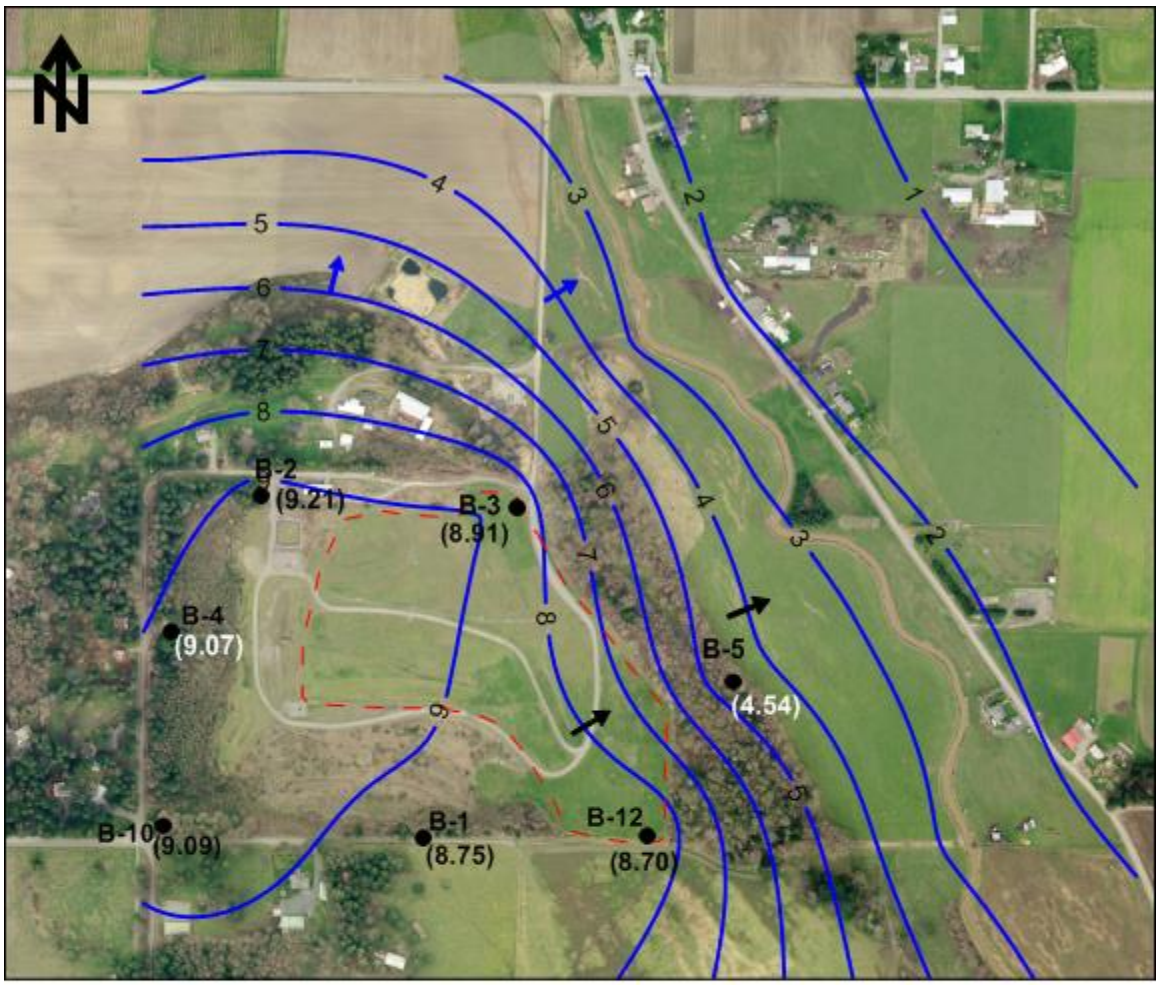


Figure 7b. Potentiometric Surface Contour Map, Regional Aquifer, June 2017.

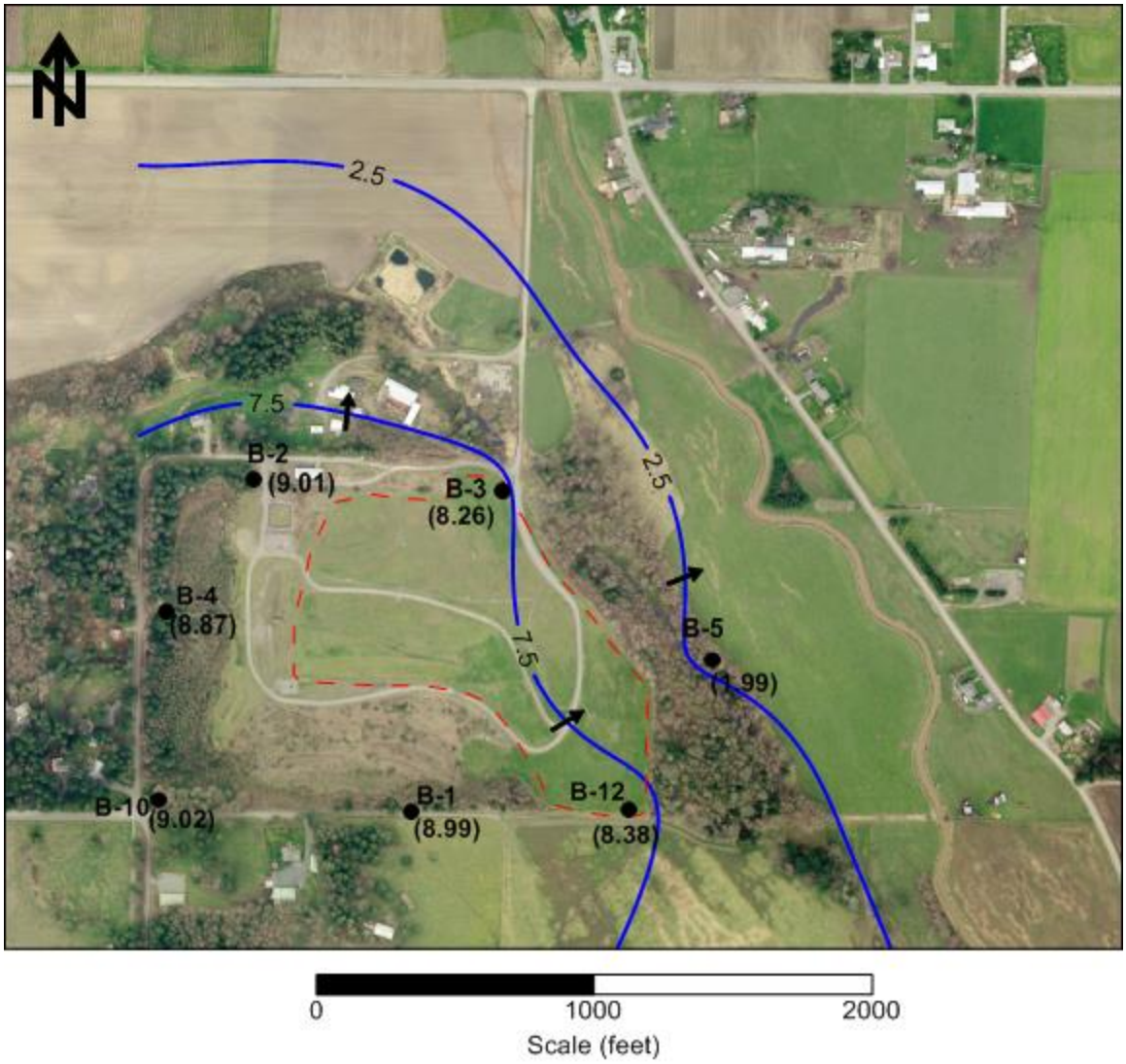


Figure 7c. Potentiometric Surface Contour Map, Regional Aquifer, September 2017.

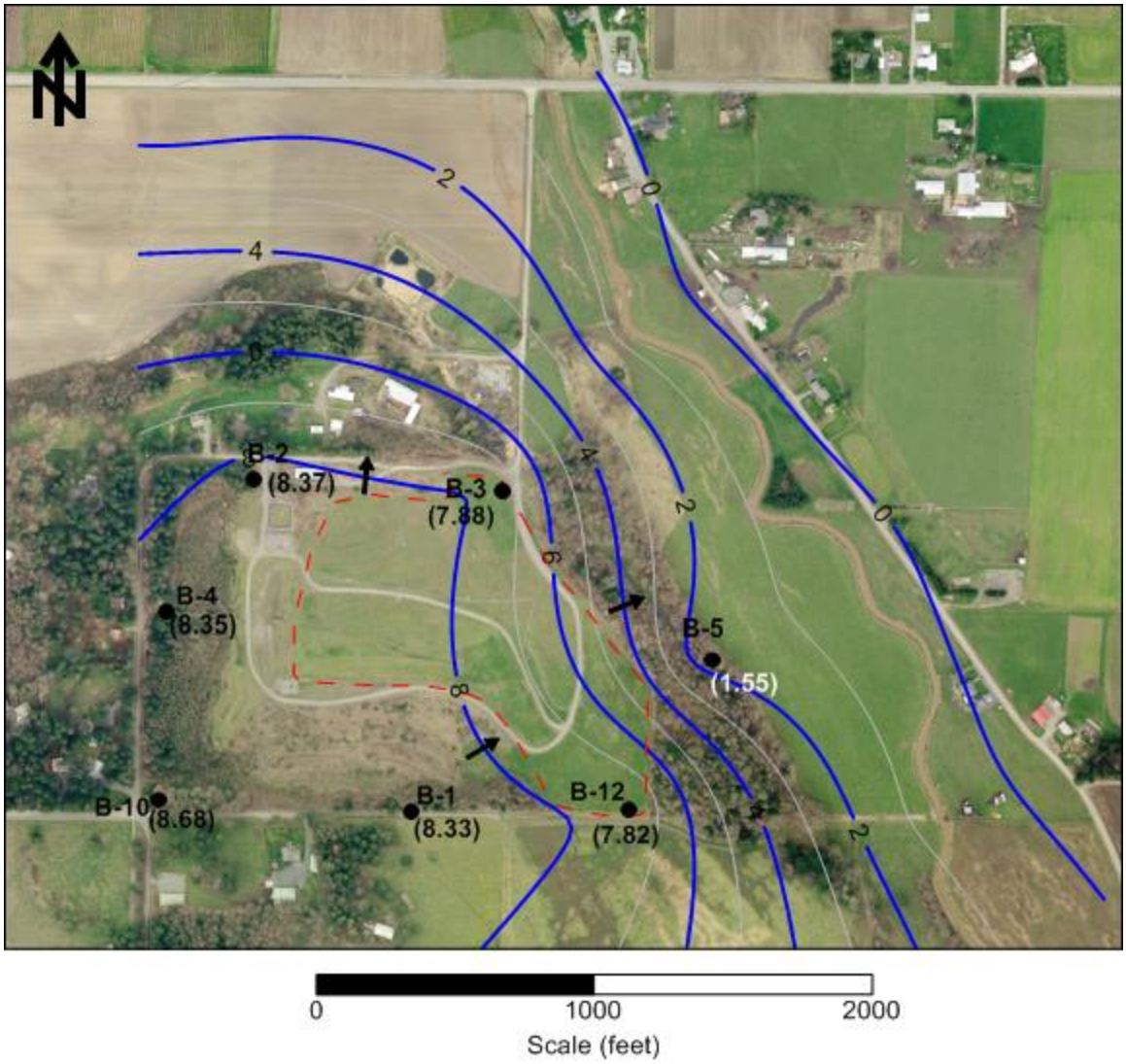
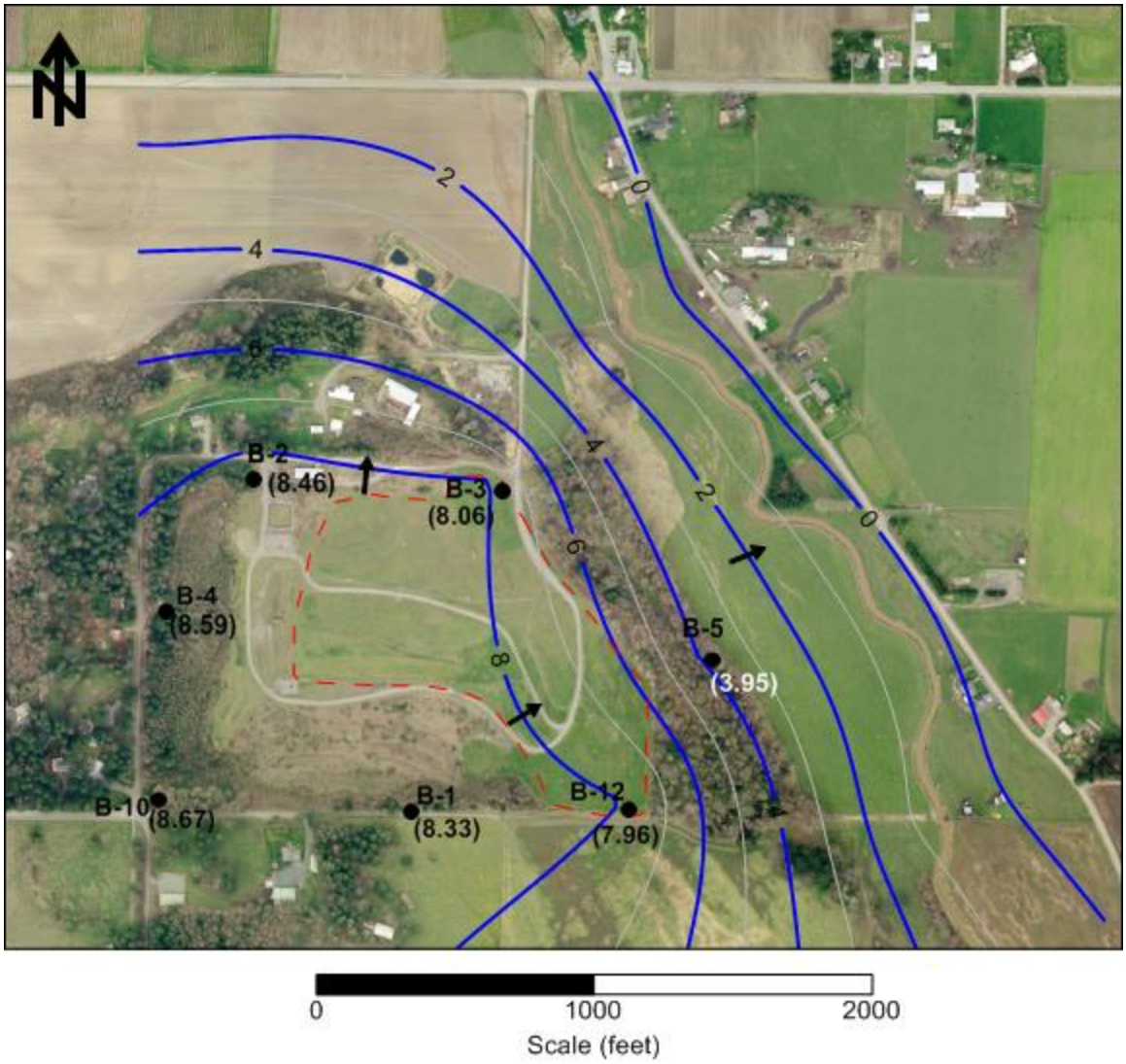


Figure 7d. Potentiometric Surface Contour Map, Regional Aquifer, December 2017.



LEGEND

B-10 ●	Monitoring Well
— 8 —	Potentiometric Surface Contour (feet above MSL)
(8.18)	Measured Static Water-Level Elevation (feet above MSL)
→	Direction of Groundwater Flow
- - -	Approximate Landfill Boundary

Figure 8. Inman Landfill Gas Extraction System Layout

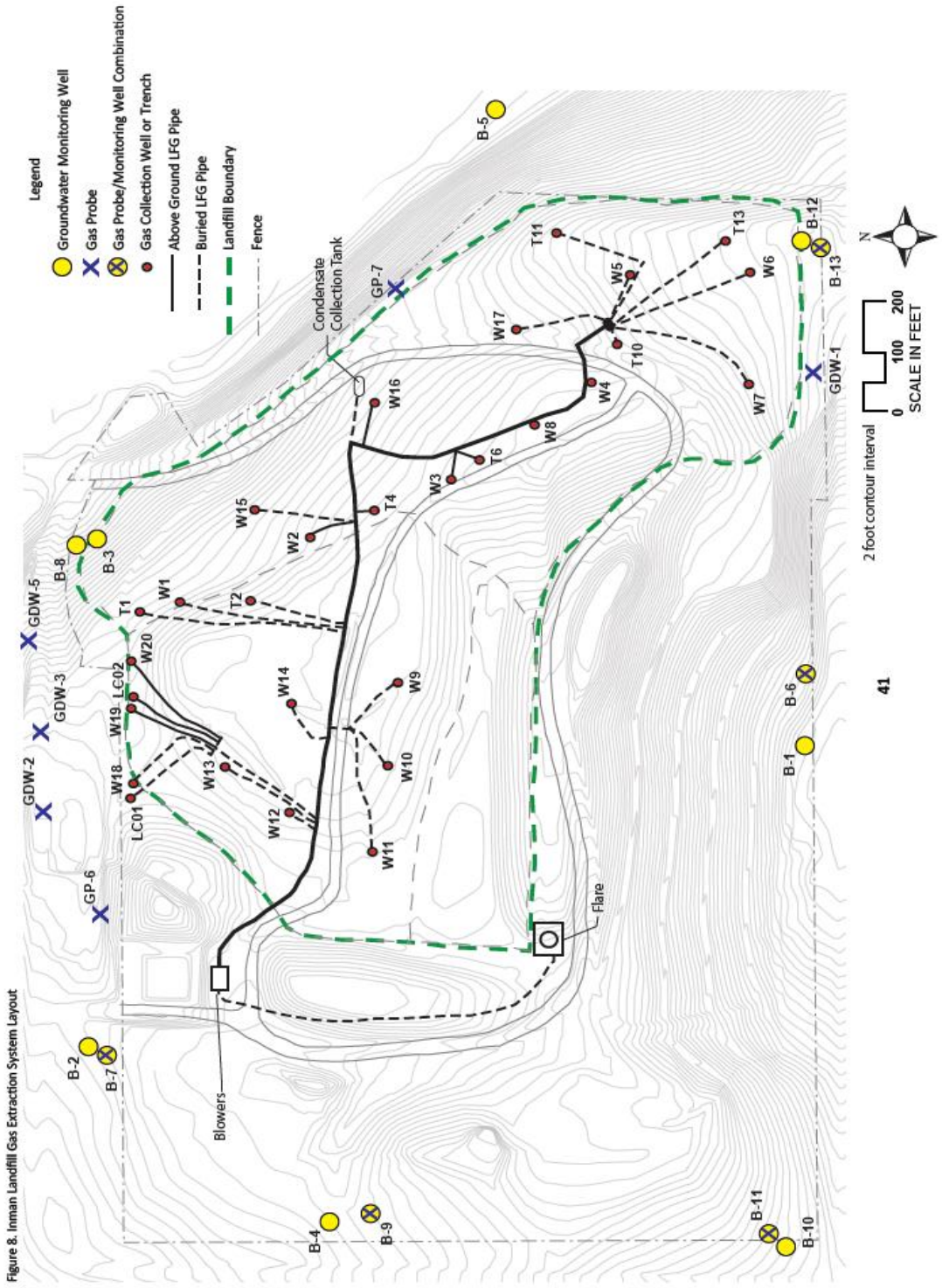


Figure 9. Landfill Gas Perimeter Monitoring Probe Locations.

Figure 9a. Landfill Gas Perimeter Monitoring Results, March 2017.

LEGEND

B-6 Perimeter Gas Monitoring Well

(6.9%) Maximum methane concentration (<=0.1% for wells with no concentrations shown)

Approximate Landfill Boundary

Figure 9b. Landfill Gas Perimeter Monitoring Results, June 2017.

LEGEND

B-6 Perimeter Gas Monitoring Well

(6.9%) Maximum methane concentration (<=0.1% for wells with no concentrations shown)

Approximate Landfill Boundary

Figure 9c. Landfill Gas Perimeter Monitoring Results, September 2017.

LEGEND

B-6 Perimeter Gas Monitoring Well

(6.9%) Maximum methane concentration (<=0.1% for wells with no concentrations shown)

Approximate Landfill Boundary

Figure 9d. Landfill Gas Perimeter Monitoring Results, September 2017.

LEGEND

B-6 Perimeter Gas Monitoring Well

(6.9%) Maximum methane concentration (<=0.1% for wells with no concentrations shown)

Approximate Landfill Boundary

APPENDIX A-1:
2017 Groundwater Monitoring Data – Perched Aquifer

2017 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Perched			
MONITORING WELL Sampling Date			B-6 3/22/2017	B-6 6/22/2017	B-6 9/20/2017	B-6 12/14/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
1,1,1,2-tetrachloroethane	µg/L		0.4	0.4 U	0.4 U	0.4 U
1,1,1-trichloroethane	µg/L	200*	0.4	0.4 U	0.4 U	0.4 U
1,1,2,2-tetrachloroethane	µg/L		0.4	0.4 U	0.4 U	0.4 U
1,1,2-trichloroethane	µg/L		0.4	0.4 U	0.4 U	0.4 U
1,1,2-trichlorofluorotoluene (Freon-113)	µg/L		0.4	0.4 U	0.4 U	0.4 U
1,1-dichloroethane	µg/L	1.0***	0.4	0.4 U	0.4 U	0.4 U
1,1-dichloroethene	µg/L	7****	0.4	0.4 U	0.4 U	0.4 U
1,1-dichloropropene	µg/L		0.4	0.4 U	0.4 U	0.4 U
1,2,3-trichlorobenzene	µg/L		0.01	0.01 U	0.01 U	0.01 U
1,2,3-trichloropropane	µg/L		4	4 U	4 U	4 U
1,2,4-trichlorobenzene	µg/L		2	2 U	2 U	2 U
1,2,4-trimethylbenzene	µg/L		0.4	0.4 U	0.4 U	0.4 U
1,2-dibromo-3-chloropropane (DBCP)	µg/L	0.2****	0.05	0.05 U	0.05 U	0.05 U
1,2-dibromoethane (EDB)	µg/L	0.001***	4	4 U	4 U	4 U
1,2-dichlorobenzene	µg/L		0.4	0.4 U	0.4 U	0.4 U
1,2-dichloroethane	µg/L	0.5***	0.4	0.4 U	0.4 U	0.4 U
1,2-dichloropropane	µg/L	0.6***	0.4	0.4 U	0.4 U	0.4 U
1,3,5-trimethylbenzene	µg/L		0.4	0.4 U	0.4 U	0.4 U
1,3-dichloropropane	µg/L		0.4	0.4 U	0.4 U	0.4 U
1,4-dichlorobenzene	µg/L	4***	3	3 U	3 U	3 U
1,4-dioxane	µg/L	7***	5	5 U	5 U	5 U
2,2-dichloropropane	µg/L		2	2 U	2 U	5 U
2-butanone	µg/L		0.4	0.4 U	0.4 U	0.4 U
2-chloroethyl vinyl ether	µg/L		5	5 U	5 U	5 U
2-chlorotoluene	µg/L		0.4	0.4 U	0.4 U	0.4 U
2-nitropropane	µg/L		4	4 U	4 U	4 U
2-phenylbutane	µg/L		0.4	0.4 U	0.4 U	0.4 U
4-chlorotoluene	µg/L		0.4	0.4 U	0.4 U	0.4 U
4-methyl-2-pentanone	µg/L		0.4	0.4 U	0.4 U	0.4 U
Acetone	µg/L		0.4	0.4 U	0.4 U	0.4 U
Acrolein	µg/L		0.4	0.4 U	0.4 U	0.4 U
Acrylonitrile	µg/L	0.07***	0.4	0.4 U	0.4 U	0.4 U
Allyl chloride	µg/L		1	1 U	1 U	1 U
Benzene	µg/L	1.0***	0.4	0.4 U	0.4 U	0.4 U
Bromobenzene	µg/L		0.4	0.4 U	0.4 U	0.4 U
Bromodichloromethane	µg/L	0.3***	0.4	0.4 U	0.4 U	0.4 U
Bromomethane	µg/L		5	5 U	5 U	5 U
Carbon disulfide	µg/L		0.4	0.4 U	0.4 U	0.4 U
Carbon tetrachloride	µg/L	0.3***	0.4	0.4 U	0.4 U	0.4 U
Chlorobenzene	µg/L	100****	0.4	0.4 U	0.4 U	0.4 U
Chlorobromomethane	µg/L		3	3 U	3 U	3 U
Chlorodibromomethane	µg/L	0.5***	0.4	0.4 U	0.4 U	0.4 U
Chlorodifluoromethane (Freon-22)	µg/L		0.4	0.4 U	0.4 U	0.4 U
Chloroethane	µg/L		0.4	0.4 U	0.4 U	0.4 U
Chloroform	µg/L	7.0***	0.4	0.4 U	0.4 U	0.4 U
Chloromethane	µg/L		0.4	0.4 U	0.4 U	0.4 U
cis-1,2-dichloroethene	µg/L	70****	0.4	0.4 U	0.4 U	0.4 U
cis-1,3-dichloropropene	µg/L		5	5 U	5 U	5 U
Cymene	µg/L		0.4	0.4 U	0.4 U	0.4 U
Dibromomethane	µg/L		0.4	0.4 U	0.4 U	0.4 U
Dichlorodifluoromethane (CFC-12)	µg/L		0.4	0.4 U	0.4 U	0.4 U
Dichloromethane	µg/L	5***	0.01	0.01 U	0.01 U	0.01 U
Dichloromonofluoromethane (Freon-21)	µg/L		0.4	0.4 U	0.4 U	0.4 U
Diethyl ether	µg/L		0.4	0.4 U	0.4 U	0.4 U

2017 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Perched			
MONITORING WELL Sampling Date			B-6 3/22/2017	B-6 6/22/2017	B-6 9/20/2017	B-6 12/14/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
Ethyl methacrylate	µg/L		0.4	0.4 U	0.4 U	0.4 U
Ethylbenzene	µg/L	700****	0.4	0.4 U	0.4 U	0.4 U
Hexachloro-1,3-butadiene	µg/L		0.4	0.4 U	0.4 U	0.4 U
Hexachloroethane	µg/L		0.4	0.4 U	0.4 U	0.4 U
Isopropylbenzene	µg/L		0.4	0.4 U	0.4 U	0.4 U
m+p-xylene	µg/L		0.4	0.4 U	0.4 U	0.4 U
m-dichlorobenzene	µg/L		0.4	0.4 U	0.4 U	0.4 U
Methyl acrylate	µg/L		0.4	0.4 U	0.4 U	0.4 U
Methyl iodide	µg/L		0.4	0.4 U	0.4 U	0.4 U
Methyl methacrylate	µg/L		0.4	0.4 U	0.4 U	0.4 U
Methyl n-butyl ketone	µg/L		0.4	0.4 U	0.4 U	0.4 U
Methyl tert-butyl ether	µg/L		3	3 U	3 U	2 U
Methylacrylonitrile	µg/L		0.4	0.4 U	0.4 U	0.4 U
Naphthalene	µg/L		0.4	0.4 U	0.4 U	0.4 U
n-butyl chloride	µg/L		0.4	0.4 U	0.4 U	0.4 U
n-butylbenzene	µg/L		10	10 U	10 U	10 U
n-propylbenzene	µg/L		2	2 U	2 U	1 U
o-xylene	µg/L		0.4	0.4 U	0.4 U	0.4 U
Pentachloroethane	µg/L		0.4	0.4 U	0.4 U	0.4 U
Styrene (monomer)	µg/L	100****	1	1 U	1 U	1 U
Tert-butylbenzene	µg/L		0.4	0.4 U	0.4 U	0.4 U
Tetrachloroethene	µg/L	0.8***	0.4	0.4 U	0.4 U	0.4 U
Tetrahydrofuran	µg/L		0.4	0.4 U	0.4 U	0.4 U
Toluene	µg/L	1****	0.4	0.4 U	0.4 U	0.4 U
Trans-1,2-dichloroethene	µg/L	100****	1	1 U	1 U	1 U
Trans-1,3-dichloropropene	µg/L		0.4	0.4 U	0.4 U	0.4 U
Trans-1,4-dichlorobutene	µg/L		2	2 U	2 U	0.8 U
Tribromomethane (Bromoform)	µg/L	5***	3	3 U	3 U	2 U
Trichloroethene	µg/L	3***	0.4	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane (CFC-11)	µg/L		0.4	0.4 U	0.4 U	0.4 U
Vinyl chloride	µg/L	0.02***	0.4	0.4 U	0.4 U	0.4 U

Groundwater Quality Criteria:

* = Primary Contaminant
** = Secondary Contaminant
*** = Carcinogen
**** = 246-290 WAC criteria

Qualifiers:

U — Indicates the analyte of interest was not detected, to the limit of detection indicated.

J — Indicates the analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.

Units:

µg/L= micrograms per liter

Results shown in bold exceed Ground Water Quality Criteria.

2017 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Perched			
MONITORING WELL Sampling Date			B-8 3/21/2017	B-8 6/21/2017	B-8 3Q - 2017	B-8 4Q - 2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
1,1,1,2-tetrachloroethane	µg/L		0.4 U	0.4 U	NS	NS
1,1,1-trichloroethane	µg/L	200*	0.4 U	0.4 U	NS	NS
1,1,2,2-tetrachloroethane	µg/L		0.4 U	0.4 U	NS	NS
1,1,2-trichloroethane	µg/L		0.4 U	0.4 U	NS	NS
1,1,2-trichlorofluorotoluene (Freon-113)	µg/L		0.4 U	0.4 U	NS	NS
1,1-dichloroethane	µg/L	1.0***	0.4 U	0.4 U	NS	NS
1,1-dichloroethene	µg/L	7****	0.4 U	0.4 U	NS	NS
1,1-dichloropropene	µg/L		0.4 U	0.4 U	NS	NS
1,2,3-trichlorobenzene	µg/L		0.01 U	0.01 U	NS	NS
1,2,3-trichloropropane	µg/L		4 U	4 U	NS	NS
1,2,4-trichlorobenzene	µg/L		2 U	2 U	NS	NS
1,2,4-trimethylbenzene	µg/L		0.4 U	0.4 U	NS	NS
1,2-dibromo-3-chloropropane (DBCP)	µg/L	0.2****	0.05 U	0.05 U	NS	NS
1,2-dibromoethane (EDB)	µg/L	0.001***	4 U	4 U	NS	NS
1,2-dichlorobenzene	µg/L		0.4 U	0.4 U	NS	NS
1,2-dichloroethane	µg/L	0.5***	0.4 U	0.4 U	NS	NS
1,2-dichloropropane	µg/L	0.6***	0.4 U	0.4 U	NS	NS
1,3,5-trimethylbenzene	µg/L		0.4 U	0.4 U	NS	NS
1,3-dichloropropane	µg/L		0.4 U	0.4 U	NS	NS
1,4-dichlorobenzene	µg/L	4***	3 U	3 U	NS	NS
1,4-dioxane	µg/L	7***	5 U	5 U	NS	NS
2,2-dichloropropane	µg/L		2 U	2 U	NS	NS
2-butanone	µg/L		0.4 U	0.4 U	NS	NS
2-chloroethyl vinyl ether	µg/L		5 U	5 U	NS	NS
2-chlorotoluene	µg/L		0.4 U	0.4 U	NS	NS
2-nitropropane	µg/L		4 U	4 U	NS	NS
2-phenylbutane	µg/L		0.4 U	0.4 U	NS	NS
4-chlorotoluene	µg/L		0.4 U	0.4 U	NS	NS
4-methyl-2-pentanone	µg/L		0.4 U	0.4 U	NS	NS
Acetone	µg/L		0.4 U	0.4 U	NS	NS
Acrolein	µg/L		0.4 U	0.4 U	NS	NS
Acrylonitrile	µg/L	0.07***	0.4 U	0.4 U	NS	NS
Allyl chloride	µg/L		1 U	1 U	NS	NS
Benzene	µg/L	1.0***	0.4 U	0.4 U	NS	NS
Bromobenzene	µg/L		0.4 U	0.4 U	NS	NS
Bromodichloromethane	µg/L	0.3***	0.4 U	0.4 U	NS	NS
Bromomethane	µg/L		5 U	5 U	NS	NS
Carbon disulfide	µg/L		0.4 U	0.4 U	NS	NS
Carbon tetrachloride	µg/L	0.3***	0.4 U	0.7	NS	NS
Chlorobenzene	µg/L	100****	0.4 U	0.4 U	NS	NS
Chlorobromomethane	µg/L		3 U	3.3	NS	NS
Chlorodibromomethane	µg/L	0.5***	0.4 U	0.4 U	NS	NS
Chlorodifluoromethane (Freon-22)	µg/L		0.4 U	0.4 U	NS	NS
Chloroethane	µg/L		0.4 U	0.4 U	NS	NS
Chloroform	µg/L	7.0***	0.4 U	0.4 U	NS	NS
Chloromethane	µg/L		0.4 U	0.4 U	NS	NS
cis-1,2-dichloroethene	µg/L	70****	0.4 U	0.4 U	NS	NS
cis-1,3-dichloropropene	µg/L		5 U	5 U	NS	NS
Cymene	µg/L		0.4 U	0.4 U	NS	NS
Dibromomethane	µg/L		0.4 U	0.4 U	NS	NS
Dichlorodifluoromethane (CFC-12)	µg/L		0.4 U	0.4 U	NS	NS
Dichloromethane	µg/L	5***	0.01 U	0.01 U	NS	NS
Dichloromonofluoromethane (Freon-21)	µg/L		0.4 U	0.4 U	NS	NS
Diethyl ether	µg/L		0.4 U	0.4 U	NS	NS

2017 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Perched			
MONITORING WELL Sampling Date			B-8 3/21/2017	B-8 6/21/2017	B-8 3Q - 2017	B-8 4Q - 2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
Ethyl methacrylate	µg/L		0.4 U	0.4 U	NS	NS
Ethylbenzene	µg/L	700****	0.4 U	0.4 U	NS	NS
Hexachloro-1,3-butadiene	µg/L		0.4 U	0.4 U	NS	NS
Hexachloroethane	µg/L		0.4 U	0.4 U	NS	NS
Isopropylbenzene	µg/L		0.4 U	0.4 U	NS	NS
m+p-xylene	µg/L		0.4 U	0.4 U	NS	NS
m-dichlorobenzene	µg/L		0.4 U	0.4 U	NS	NS
Methyl acrylate	µg/L		0.4 U	0.4 U	NS	NS
Methyl iodide	µg/L		0.4 U	0.4 U	NS	NS
Methyl methacrylate	µg/L		0.4 U	0.4 U	NS	NS
Methyl n-butyl ketone	µg/L		0.4 U	0.4 U	NS	NS
Methyl tert-butyl ether	µg/L		3 U	3 U	NS	NS
Methylacrylonitrile	µg/L		0.4 U	0.4 U	NS	NS
Naphthalene	µg/L		0.4 U	0.4 U	NS	NS
n-butyl chloride	µg/L		0.4 U	0.4 U	NS	NS
n-butylbenzene	µg/L		10 U	10 U	NS	NS
n-propylbenzene	µg/L		2 U	2 U	NS	NS
o-xylene	µg/L		0.4 U	0.4 U	NS	NS
Pentachloroethane	µg/L		0.4 U	0.4 U	NS	NS
Styrene (monomer)	µg/L	100****	1 U	1 U	NS	NS
Tert-butylbenzene	µg/L		0.4 U	0.4 U	NS	NS
Tetrachloroethene	µg/L	0.8***	0.4 U	0.4 U	NS	NS
Tetrahydrofuran	µg/L		0.4 U	0.4 U	NS	NS
Toluene	µg/L	1****	0.4 U	0.4 U	NS	NS
Trans-1,2-dichloroethene	µg/L	100****	1 U	1 U	NS	NS
Trans-1,3-dichloropropene	µg/L		0.4 U	0.4 U	NS	NS
Trans-1,4-dichlorobutene	µg/L		2 U	2 U	NS	NS
Tribromomethane (Bromoform)	µg/L	5***	3 U	3 U	NS	NS
Trichloroethene	µg/L	3***	0.4 U	0.4 U	NS	NS
Trichlorofluoromethane (CFC-11)	µg/L		0.4 U	0.4 U	NS	NS
Vinyl chloride	µg/L	0.02***	0.4 U	0.4 U	NS	NS

Groundwater Quality Criteria:

* = Primary Contaminant
** = Secondary Contaminant
*** = Carcinogen
**** = 246-290 WAC criteria

Qualifiers:

U — Indicates the analyte of interest was not detected, to the limit of detection indicated.

J — Indicates the analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.

Units:

µg/L= micrograms per liter

Results shown in bold exceed Ground Water Quality Criteria.

2017 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Perched			
MONITORING WELL Sampling Date			B-9 3/24/2017	B-9 6/23/2017	B-9 9/22/2017	B-9 12/15/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
1,1,1,2-tetrachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1,1-trichloroethane	µg/L	200*	0.4 U	0.4 U	0.4 U	0.4 U
1,1,2,2-tetrachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1,2-trichloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1,2-trichlorofluorotoluene (Freon-113)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1-dichloroethane	µg/L	1.0***	0.4 U	0.4 U	0.4 U	0.4 U
1,1-dichloroethene	µg/L	7****	0.4 U	0.4 U	0.4 U	0.4 U
1,1-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,3-trichlorobenzene	µg/L		0.01 U	0.01 U	0.01 U	0.01 U
1,2,3-trichloropropane	µg/L		4 U	4 U	4 U	4 U
1,2,4-trichlorobenzene	µg/L		2 U	2 U	2 U	2 U
1,2,4-trimethylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2-dibromo-3-chloropropane (DBCP)	µg/L	0.2****	0.05 U	0.05 U	0.05 U	0.05 U
1,2-dibromoethane (EDB)	µg/L	0.001***	4 U	4 U	4 U	4 U
1,2-dichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2-dichloroethane	µg/L	0.5***	0.4 U	0.4 U	0.4 U	0.4 U
1,2-dichloropropane	µg/L	0.6***	0.4 U	0.4 U	0.4 U	0.4 U
1,3,5-trimethylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,3-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,4-dichlorobenzene	µg/L	4***	3 U	3 U	3 U	3 U
1,4-dioxane	µg/L	7***	5 U	5 U	5 U	5 U
2,2-dichloropropane	µg/L		2 U	2 U	2 U	2 U
2-butanone	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
2-chloroethyl vinyl ether	µg/L		5 U	5 U	5 U	5 U
2-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
2-nitropropane	µg/L		4 U	4 U	4 U	4 U
2-phenylbutane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
4-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
4-methyl-2-pentanone	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Acetone	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Acrolein	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Acrylonitrile	µg/L	0.07***	0.4 U	0.4 U	0.4 U	0.4 U
Allyl chloride	µg/L		1 U	1 U	1 U	1 U
Benzene	µg/L	1.0***	0.4 U	0.4 U	0.4 U	0.4 U
Bromobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Bromodichloromethane	µg/L	0.3***	0.4 U	0.4 U	0.4 U	0.4 U
Bromomethane	µg/L		5 U	5 U	5 U	5 U
Carbon disulfide	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Carbon tetrachloride	µg/L	0.3***	0.4 U	0.4 U	0.4 U	0.4 U
Chlorobenzene	µg/L	100****	0.4 U	0.4 U	0.4 U	0.4 U
Chlorobromomethane	µg/L		3 U	3 U	3 U	3 U
Chlorodibromomethane	µg/L	0.5***	0.4 U	0.4 U	0.4 U	0.4 U
Chlorodifluoromethane (Freon-22)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Chloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Chloroform	µg/L	7.0***	0.4 U	0.4 U	0.4 U	0.4 U
Chloromethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
cis-1,2-dichloroethene	µg/L	70****	0.4 U	0.4 U	0.4 U	0.4 U
cis-1,3-dichloropropene	µg/L		5 U	5 U	5 U	5 U
Cymene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Dibromomethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Dichlorodifluoromethane (CFC-12)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Dichloromethane	µg/L	5***	0.01 U	0.01 U	0.01 U	0.01 U
Dichloromonofluoromethane (Freon-21)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Diethyl ether	µg/L		0.4 U	0.4 U	0.4 U	0.4 U

APPENDIX D-5:
Short-Term Mann-Kendall Trend Tests 2013-2017 – Perched Aquifer

2017 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Perched			
MONITORING WELL Sampling Date			B-9 3/24/2017	B-9 6/23/2017	B-9 9/22/2017	B-9 12/15/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
Ethyl methacrylate	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Ethylbenzene	µg/L	700****	0.4 U	0.4 U	0.4 U	0.4 U
Hexachloro-1,3-butadiene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Hexachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Isopropylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
m+p-xylene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
m-dichlorobenzene	µg/L		0.3 J	0.4 U	0.4 U	0.4 U
Methyl acrylate	µg/L		0.7	0.6	0.6	0.6
Methyl iodide	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Methyl methacrylate	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Methyl n-butyl ketone	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Methyl tert-butyl ether	µg/L		3 U	3 U	3 U	3 U
Methylacrylonitrile	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Naphthalene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
n-butyl chloride	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
n-butylbenzene	µg/L		10 U	10 U	10 U	10 U
n-propylbenzene	µg/L		2 U	2 U	2 U	2 U
o-xylene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Pentachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Styrene (monomer)	µg/L	100****	1 U	1 U	1 U	1 U
Tert-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Tetrachloroethene	µg/L	0.8***	0.4 U	0.4 U	0.4 U	0.4 U
Tetrahydrofuran	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Toluene	µg/L	1****	0.4 U	0.4 U	0.4 U	0.4 U
Trans-1,2-dichloroethene	µg/L	100****	1 U	1 U	1 U	1 U
Trans-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Trans-1,4-dichlorobutene	µg/L		2 U	2 U	2 U	2 U
Tribromomethane (Bromoform)	µg/L	5***	3 U	3 U	3 U	3 U
Trichloroethene	µg/L	3***	0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane (CFC-11)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Vinyl chloride	µg/L	0.02***	0.4 U	0.4 U	0.4 U	0.4 U

Groundwater Quality Criteria:

* = Primary Contaminant
** = Secondary Contaminant
*** = Carcinogen
**** = 246-290 WAC criteria

Qualifiers:

U — Indicates the analyte of interest was not detected, to the limit of detection indicated.
J — Indicates the analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.

Units:

µg/L= micrograms per liter

Results shown in bold exceed Ground Water Quality Criteria.

2017 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Perched			
MONITORING WELL Sampling Date			B-11 3/22/2017	B-11 2Q - 2017	B-11 3Q - 2017	B-11 4Q - 2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
1,1,1,2-tetrachloroethane	µg/L		0.4	NS	NS	NS
1,1,1-trichloroethane	µg/L	200*	0.4	NS	NS	NS
1,1,2,2-tetrachloroethane	µg/L		0.4	NS	NS	NS
1,1,2-trichloroethane	µg/L		0.4	NS	NS	NS
1,1,2-trichlorofluorotoluene (Freon-113)	µg/L		0.4	NS	NS	NS
1,1-dichloroethane	µg/L	1.0***	0.4	NS	NS	NS
1,1-dichloroethene	µg/L	7****	0.4	NS	NS	NS
1,1-dichloropropene	µg/L		0.4	NS	NS	NS
1,2,3-trichlorobenzene	µg/L		0.01	NS	NS	NS
1,2,3-trichloropropane	µg/L		4	NS	NS	NS
1,2,4-trichlorobenzene	µg/L		2	NS	NS	NS
1,2,4-trimethylbenzene	µg/L		0.4	NS	NS	NS
1,2-dibromo-3-chloropropane (DBCP)	µg/L	0.2****	0.05	NS	NS	NS
1,2-dibromoethane (EDB)	µg/L	0.001***	4	NS	NS	NS
1,2-dichlorobenzene	µg/L		0.4	NS	NS	NS
1,2-dichloroethane	µg/L	0.5***	0.4	NS	NS	NS
1,2-dichloropropane	µg/L	0.6***	0.4	NS	NS	NS
1,3,5-trimethylbenzene	µg/L		0.4	NS	NS	NS
1,3-dichloropropane	µg/L		0.4	NS	NS	NS
1,4-dichlorobenzene	µg/L	4***	3	NS	NS	NS
1,4-dioxane	µg/L	7***	5	NS	NS	NS
2,2-dichloropropane	µg/L		2	NS	NS	NS
2-butanone	µg/L		0.4	NS	NS	NS
2-chloroethyl vinyl ether	µg/L		5	NS	NS	NS
2-chlorotoluene	µg/L		0.4	NS	NS	NS
2-nitropropane	µg/L		4	NS	NS	NS
2-phenylbutane	µg/L		0.4	NS	NS	NS
4-chlorotoluene	µg/L		0.4	NS	NS	NS
4-methyl-2-pentanone	µg/L		0.4	NS	NS	NS
Acetone	µg/L		0.4	NS	NS	NS
Acrolein	µg/L		0.4	NS	NS	NS
Acrylonitrile	µg/L	0.07***	0.4	NS	NS	NS
Allyl chloride	µg/L		1	NS	NS	NS
Benzene	µg/L	1.0***	0.4	NS	NS	NS
Bromobenzene	µg/L		0.4	NS	NS	NS
Bromodichloromethane	µg/L	0.3***	0.4	NS	NS	NS
Bromomethane	µg/L		5	NS	NS	NS
Carbon disulfide	µg/L		0.4	NS	NS	NS
Carbon tetrachloride	µg/L	0.3***	0.4	NS	NS	NS
Chlorobenzene	µg/L	100****	0.4	NS	NS	NS
Chlorobromomethane	µg/L		3	NS	NS	NS
Chlorodibromomethane	µg/L	0.5***	0.4	NS	NS	NS
Chlorodifluoromethane (Freon-22)	µg/L		0.4	NS	NS	NS
Chloroethane	µg/L		0.4	NS	NS	NS
Chloroform	µg/L	7.0***	0.4	NS	NS	NS
Chloromethane	µg/L		0.4	NS	NS	NS
cis-1,2-dichloroethene	µg/L	70****	0.4	NS	NS	NS
cis-1,3-dichloropropene	µg/L		5	NS	NS	NS
Cymene	µg/L		0.4	NS	NS	NS
Dibromomethane	µg/L		0.4	NS	NS	NS
Dichlorodifluoromethane (CFC-12)	µg/L		0.4	NS	NS	NS
Dichloromethane	µg/L	5***	0.01	NS	NS	NS
Dichloromonofluoromethane (Freon-21)	µg/L		0.4	NS	NS	NS
Diethyl ether	µg/L		0.4	NS	NS	NS

2017 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Perched			
MONITORING WELL Sampling Date			B-11 3/22/2017	B-11 2Q - 2017	B-11 3Q - 2017	B-11 4Q - 2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
Ethyl methacrylate	µg/L		0.4	NS	NS	NS
Ethylbenzene	µg/L	700****	0.4	NS	NS	NS
Hexachloro-1,3-butadiene	µg/L		0.4	NS	NS	NS
Hexachloroethane	µg/L		0.4	NS	NS	NS
Isopropylbenzene	µg/L		0.4	NS	NS	NS
m+p-xylene	µg/L		0.4	NS	NS	NS
m-dichlorobenzene	µg/L		0.4	NS	NS	NS
Methyl acrylate	µg/L		0.4	NS	NS	NS
Methyl iodide	µg/L		0.4	NS	NS	NS
Methyl methacrylate	µg/L		0.4	NS	NS	NS
Methyl n-butyl ketone	µg/L		0.4	NS	NS	NS
Methyl tert-butyl ether	µg/L		3	NS	NS	NS
Methylacrylonitrile	µg/L		0.4	NS	NS	NS
Naphthalene	µg/L		0.4	NS	NS	NS
n-butyl chloride	µg/L		0.4	NS	NS	NS
n-butylbenzene	µg/L		10	NS	NS	NS
n-propylbenzene	µg/L		2	NS	NS	NS
o-xylene	µg/L		0.4	NS	NS	NS
Pentachloroethane	µg/L		0.4	NS	NS	NS
Styrene (monomer)	µg/L	100****	1	NS	NS	NS
Tert-butylbenzene	µg/L		0.4	NS	NS	NS
Tetrachloroethene	µg/L	0.8***	0.4	NS	NS	NS
Tetrahydrofuran	µg/L		0.4	NS	NS	NS
Toluene	µg/L	1****	0.4	NS	NS	NS
Trans-1,2-dichloroethene	µg/L	100****	1	NS	NS	NS
Trans-1,3-dichloropropene	µg/L		0.4	NS	NS	NS
Trans-1,4-dichlorobutene	µg/L		2	NS	NS	NS
Tribromomethane (Bromoform)	µg/L	5***	3	NS	NS	NS
Trichloroethene	µg/L	3***	0.4	NS	NS	NS
Trichlorofluoromethane (CFC-11)	µg/L		0.4	NS	NS	NS
Vinyl chloride	µg/L	0.02***	0.4	NS	NS	NS

Groundwater Quality Criteria:

* = Primary Contaminant
** = Secondary Contaminant
*** = Carcinogen
**** = 246-290 WAC criteria

Qualifiers:

U — Indicates the analyte of interest was not detected, to the limit of detection indicated.

J — Indicates the analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.

Units:

µg/L= micrograms per liter

Results shown in bold exceed Ground Water Quality Criteria.

2017 Inorganic Monitoring Results
Inman Landfill

AQUIFER			Perched			
MONITORING WELL			B-6	B-6	B-6	B-6
Sampling Date			3/22/2017	6/22/2017	9/20/2017	12/14/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
CONVENTIONALS						
Chemical Oxygen Demand	mg/L		8	8 U	31	8 U
Total Organic Carbon	mg/L		2.33	2.23	2.3	2.27
Total Dissolved Solids †	mg/L	**500	248	310	289	244
Alkalinity †	mg/L		180	236	212	164
Bicarbonate †	mg CaCO3/L		180	236	210	164 U
Ammonia as nitrogen	mg/L		0.01	0.01 U	0.01 U	0.01 U
Nitrate as nitrogen	mg/L	*10	4.68	4.94	3.68	3.68
Nitrite as nitrogen	mg/L		0.1	0.1 U	0.1 U	0.1 U
Chloride	mg/L	**250	2.44	4.7	2.9	2
Sulfate	mg/L	**250	14	9.2	9.6	11.2
pH	SU	**6.5-8.5	7.06	7.11	6.92	7.27
Specific Conductance	µS/cm		410	524	464	389
Temperature	C		10.22	10.46	10.55	9.9
METALS						
Dissolved Antimony †	mg/L		0.0003	0.0002 J	0.0003 J	0.0003 J
Dissolved Arsenic	mg/L	***0.00005	**0.0009**	**0.0007** J	**0.0007** J	**0.0006** J
Dissolved Barium †	mg/L	*1.0	0.028	0.033	0.03	0.025
Dissolved Cadmium	mg/L	*0.01	6E-05	6E-05 J	5E-05 J	1E-05 J
Dissolved Chromium †	mg/L	*0.05	0.0006	0.001	0.001	0.0004 J
Dissolved Cobalt †	mg/L		8E-05	8E-05 J	9E-05 J	4E-05 J
Dissolved Copper †	mg/L	**1.0	0.001	0.0009 J	0.001 J	0.001 J
Dissolved Iron	mg/L	**0.3	0.05	0.05 U	0.02 J	0.05 U
Dissolved Lead	mg/L	*0.05	2E-05	0.001 U	2E-05 J	0.001 U
Dissolved Manganese	mg/L	**0.05	0.0004	7E-05 J	0.0002 J	0.0001 J
Dissolved Mercury	mg/L	*0.002	0.0002	0.0002 U	0.0002 U	0.0002 U
Dissolved Nickel †	mg/L		0.0007	0.001 U	0.001	0.0005 J
Dissolved Selenium †	mg/L	*0.01	0.0006	0.0004 J	0.0004 J	0.0007 J
Dissolved Vanadium †	mg/L		0.002	0.002	0.001	0.001
Dissolved Zinc	mg/L	**5.0	0.0009	0.0009 J	0.0008 J	0.0004 J
Total Calcium	mg/L		48.1	59	52.6	36
Total Magnesium †	mg/L		20	26.4	23	14.4
Total Potassium †	mg/L		2.42	2.78	2.7	2.3
Total Sodium	mg/L		4.35	4.16	4.4	4.5

Groundwater Quality Criteria:
* = Primary Contaminant
** = Secondary Contaminant
*** = Carcinogen

Units:
mg/L = milligrams per liter
µg/L = micrograms per liter
SU = standard units
µS/cm = microsiemens per centimeter
C = degrees centigrade
mg CaCO3/L = milligrams of calcium carbonate per liter

Qualifiers:
U — Indicates the analyte of interest was not detected, to the limit of detection indicated.
J — Indicates the analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.
NT — Not tested.

Results shown in bold exceed Ground Water Quality Criteria.
† Indicates supplement analytes measured due to Ecology request

2017 Inorganic Monitoring Results
Inman Landfill

AQUIFER			Perched			
MONITORING WELL			B-8	B-8	B-8	B-8
Sampling Date			3/21/2017	6/21/2017	3Q - 2017	4Q - 2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
CONVENTIONALS						
Chemical Oxygen Demand	mg/L		8 U	11	NS	NS
Total Organic Carbon	mg/L		4.97	7.6	NS	NS
Total Dissolved Solids †	mg/L	**500	347	425	NS	NS
Alkalinity †	mg/L		298	390	NS	NS
Bicarbonate †	mg CaCO3/L		298	390	NS	NS
Ammonia as nitrogen	mg/L		0.01	0.02	NS	NS
Nitrate as nitrogen	mg/L	*10	0.18	0.1 U	NS	NS
Nitrite as nitrogen	mg/L		0.1 U	0.1 U	NS	NS
Chloride	mg/L	**250	3.1	5.1	NS	NS
Sulfate	mg/L	**250	26.9	22.1	NS	NS
pH	SU	**6.5-8.5	6.83	6.75	NS	NS
Specific Conductance	µS/cm		891	648	NS	NS
Temperature	C		16.3	13.11	NS	NS
METALS						
Dissolved Antimony †	mg/L		0.0002 J	0.0003 J	NS	NS
Dissolved Arsenic	mg/L	***0.00005	**0.0009** J	**0.001**	NS	NS
Dissolved Barium †	mg/L	*1.0	0.074	0.095	NS	NS
Dissolved Cadmium	mg/L	*0.01	5E-05 J	1E-05 J	NS	NS
Dissolved Chromium †	mg/L	*0.05	0.0006 J	0.0006 J	NS	NS
Dissolved Cobalt †	mg/L		0.0005 J	0.0009 J	NS	NS
Dissolved Copper †	mg/L	**1.0	0.002	0.002	NS	NS
Dissolved Iron	mg/L	**0.3	**0.96**	**1.42**	NS	NS
Dissolved Lead	mg/L	*0.05	0.001 U	0.0005 U	NS	NS
Dissolved Manganese	mg/L	**0.05	0.023	**0.054**	NS	NS
Dissolved Mercury	mg/L	*0.002	0.0002 U	0.0002 U	NS	NS
Dissolved Nickel †	mg/L		0.003	0.004	NS	NS
Dissolved Selenium †	mg/L	*0.01	0.0002 J	0.0003 J	NS	NS
Dissolved Vanadium †	mg/L		0.002	0.01 U	NS	NS
Dissolved Zinc	mg/L	**5.0	0.001	0.0014 J	NS	NS
Total Calcium	mg/L		57.1	6.62	NS	NS
Total Magnesium †	mg/L		34.5	45.6	NS	NS
Total Potassium †	mg/L		6.83	7.86	NS	NS
Total Sodium	mg/L		20.5	25.2	NS	NS

Groundwater Quality Criteria:
* = Primary Contaminant
** = Secondary Contaminant
*** = Carcinogen

Units:
mg/L = milligrams per liter
µg/L = micrograms per liter
SU = standard units
µS/cm = microsiemens per centimeter
C = degrees centigrade
mg CaCO3/L = milligrams of calcium carbonate per liter

Qualifiers:
U — Indicates the analyte of interest was not detected, to the limit of detection indicated.
J — Indicates the analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.
NT — Not tested.

Results shown in bold exceed Ground Water Quality Criteria.
† Indicates supplement analytes measured due to Ecology request

2017 Inorganic Monitoring Results
Inman Landfill

AQUIFER			Perched			
MONITORING WELL			B-9	B-9	B-9	B-9
Sampling Date			3/24/2017	6/23/2017	9/22/2017	12/15/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
CONVENTIONALS						
Chemical Oxygen Demand	mg/L		8 U	8 U	15	8 U
Total Organic Carbon	mg/L		1.71	1.53	1.55	1.67
Total Dissolved Solids †	mg/L	**500	135	156	148	164
Alkalinity †	mg/L		95.2	108	105	117
Bicarbonate †	mg CaCO3/L		95.2	108	110.7	117 U
Ammonia as nitrogen	mg/L		0.01 U	0.01 U	0.05 U	0.01 U
Nitrate as nitrogen	mg/L	*10	1.65	1.51	1.19	1.21
Nitrite as nitrogen	mg/L		0.1 U	0.1 U	0.1 U	0.1 U
Chloride	mg/L	**250	1.4	1.6	1.5	1.4
Sulfate	mg/L	**250	7.93	8.4	8	10
pH	SU	**6.5-8.5	6.74	6.81	6.77	6.90
Specific Conductance	µS/cm		213	245	229	237
Temperature	C		10.42	10.52	10.47	10.07
METALS						
Dissolved Antimony †	mg/L		0.0002 J	0.0001 J	0.00016 J	0.00015 J
Dissolved Arsenic	mg/L	***0.00005	**0.0009** J	**0.0009** J	**0.0008** J	**0.0008** J
Dissolved Barium †	mg/L	*1.0	0.012	0.015	0.013	0.015
Dissolved Cadmium	mg/L	*0.01	3E-05 J	0.0001 J	5E-05 J	2E-05 J
Dissolved Chromium †	mg/L	*0.05	0.001	0.001	0.001	0.001
Dissolved Cobalt †	mg/L		6E-05 J	6E-05 J	5E-05 J	2E-05 J
Dissolved Copper †	mg/L	**1.0	0.001	0.0015 J	0.001 J	0.002
Dissolved Iron	mg/L	**0.3	0.05 U	0.05 U	0.03 J	0.05 U
Dissolved Lead	mg/L	*0.05	3E-05 J	5E-05 J	4E-05 J	0.001 U
Dissolved Manganese	mg/L	**0.05	0.0001 J	0.001	0.001 U	0.0002 J
Dissolved Mercury	mg/L	*0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Dissolved Nickel †	mg/L		0.001	0.0006 J	0.0009 J	0.0009 J
Dissolved Selenium †	mg/L	*0.01	0.001	0.002	0.001	0.001
Dissolved Vanadium †	mg/L		0.002	0.002	0.01 U	0.002
Dissolved Zinc	mg/L	**5.0	0.001	0.003	0.006	0.003
Total Calcium	mg/L		18.2	22	19.6	20.8
Total Magnesium †	mg/L		13.9	15.4	13.5	13.4
Total Potassium †	mg/L		1.88	2.27	2.08	2.21
Total Sodium	mg/L		3.68	4.21	3.8	3.6

Groundwater Quality Criteria:

* = Primary Contaminant
** = Secondary Contaminant
*** = Carcinogen

Units:

mg/L = milligrams per liter
µg/L = micrograms per liter
SU = standard units
µS/cm = microsiemens per centimeter
C = degrees centigrade
mg CaCO3/L = milligrams of calcium carbonate per liter

Qualifiers:

U — Indicates the analyte of interest was not detected, to the limit of detection indicated.
J — Indicates the analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.
NT — Not tested.

Results shown in bold exceed Ground Water Quality Criteria.
† Indicates supplement analytes measured due to Ecology request

2017 Inorganic Monitoring Results
Inman Landfill

AQUIFER			Perched			
MONITORING WELL Sampling Date			B-11 3/22/2017	B-11 2Q - 2017	B-11 3Q - 2017	B-11 4Q - 2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
CONVENTIONALS						
Chemical Oxygen Demand	mg/L		8	NS	NS	NS
Total Organic Carbon	mg/L		1.79	NS	NS	NS
Total Dissolved Solids †	mg/L	**500	221	NS	NS	NS
Alkalinity †	mg/L		152	NS	NS	NS
Bicarbonate †	mg CaCO3/L		152	NS	NS	NS
Ammonia as nitrogen	mg/L		0.01	NS	NS	NS
Nitrate as nitrogen	mg/L	*10	6.38	NS	NS	NS
Nitrite as nitrogen	mg/L		0.1	NS	NS	NS
Chloride	mg/L	**250	2.1	NS	NS	NS
Sulfate	mg/L	**250	13	NS	NS	NS
pH	SU	**6.5-8.5	7.06	NS	NS	NS
Specific Conductance	µS/cm		379	NS	NS	NS
Temperature	C		10.1	NS	NS	NS
METALS						
Dissolved Antimony †	mg/L		8E-05	NS	NS	NS
Dissolved Arsenic	mg/L	***0.00005	0.001	NS	NS	NS
Dissolved Barium †	mg/L	*1.0	0.014	NS	NS	NS
Dissolved Cadmium	mg/L	*0.01	2E-05	NS	NS	NS
Dissolved Chromium †	mg/L	*0.05	0.001	NS	NS	NS
Dissolved Cobalt †	mg/L		5E-05	NS	NS	NS
Dissolved Copper †	mg/L	**1.0	0.002	NS	NS	NS
Dissolved Iron	mg/L	**0.3	0.05	NS	NS	NS
Dissolved Lead	mg/L	*0.05	1E-05	NS	NS	NS
Dissolved Manganese	mg/L	**0.05	0.001	NS	NS	NS
Dissolved Mercury	mg/L	*0.002	0.0002	NS	NS	NS
Dissolved Nickel †	mg/L		0.001	NS	NS	NS
Dissolved Selenium †	mg/L	*0.01	0.0005	NS	NS	NS
Dissolved Vanadium †	mg/L		0.002	NS	NS	NS
Dissolved Zinc	mg/L	**5.0	0.0007	NS	NS	NS
Total Calcium	mg/L		31.7	NS	NS	NS
Total Magnesium †	mg/L		24.1	NS	NS	NS
Total Potassium †	mg/L		1.7	NS	NS	NS
Total Sodium	mg/L		7.2	NS	NS	NS

Groundwater Quality Criteria:

* = Primary Contaminant
** = Secondary Contaminant
*** = Carcinogen

Units:

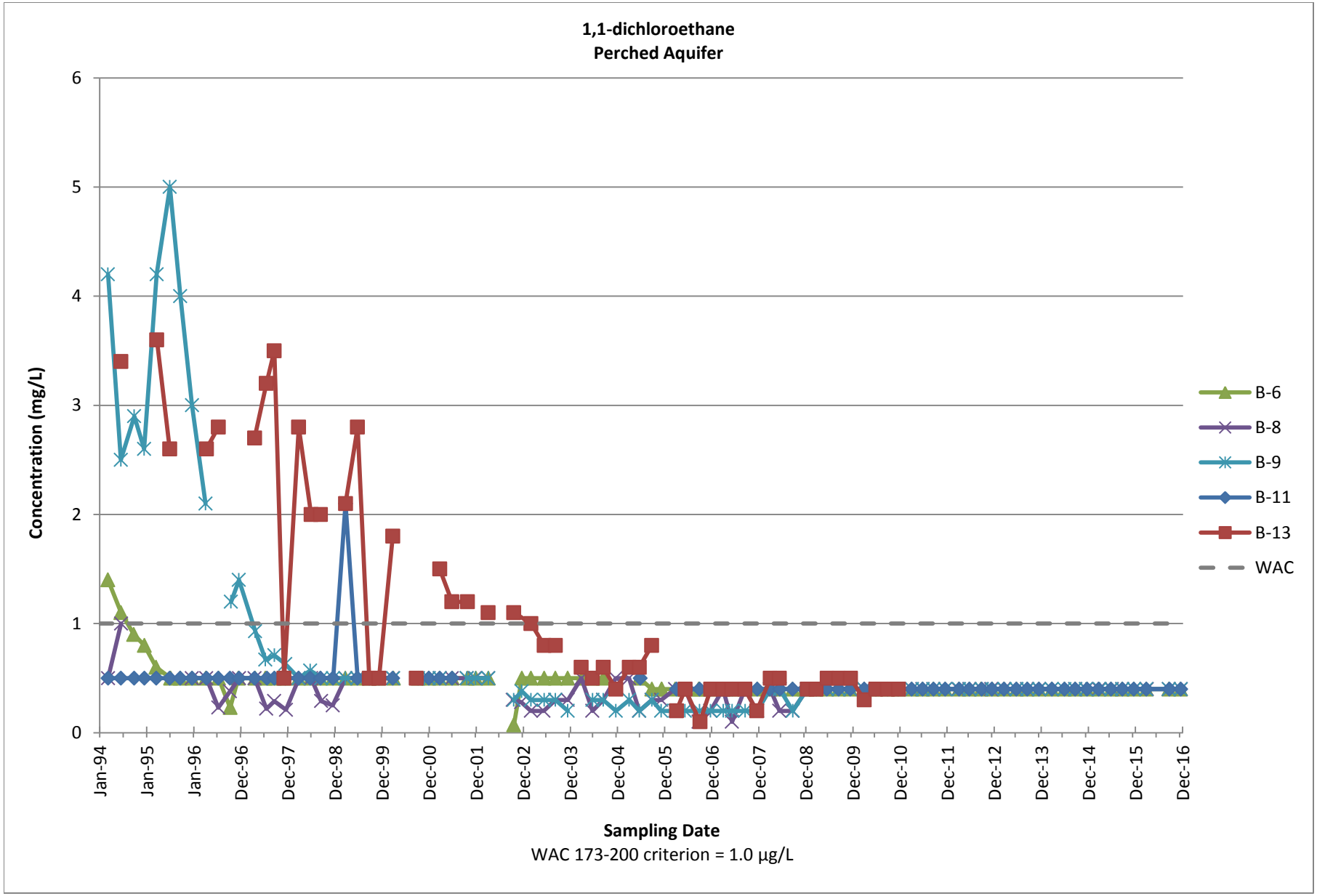
mg/L = milligrams per liter
µg/L = micrograms per liter
SU = standard units
µS/cm = microsiemens per centimeter
C = degrees centigrade
mg CaCO3/L = milligrams of calcium carbonate per liter

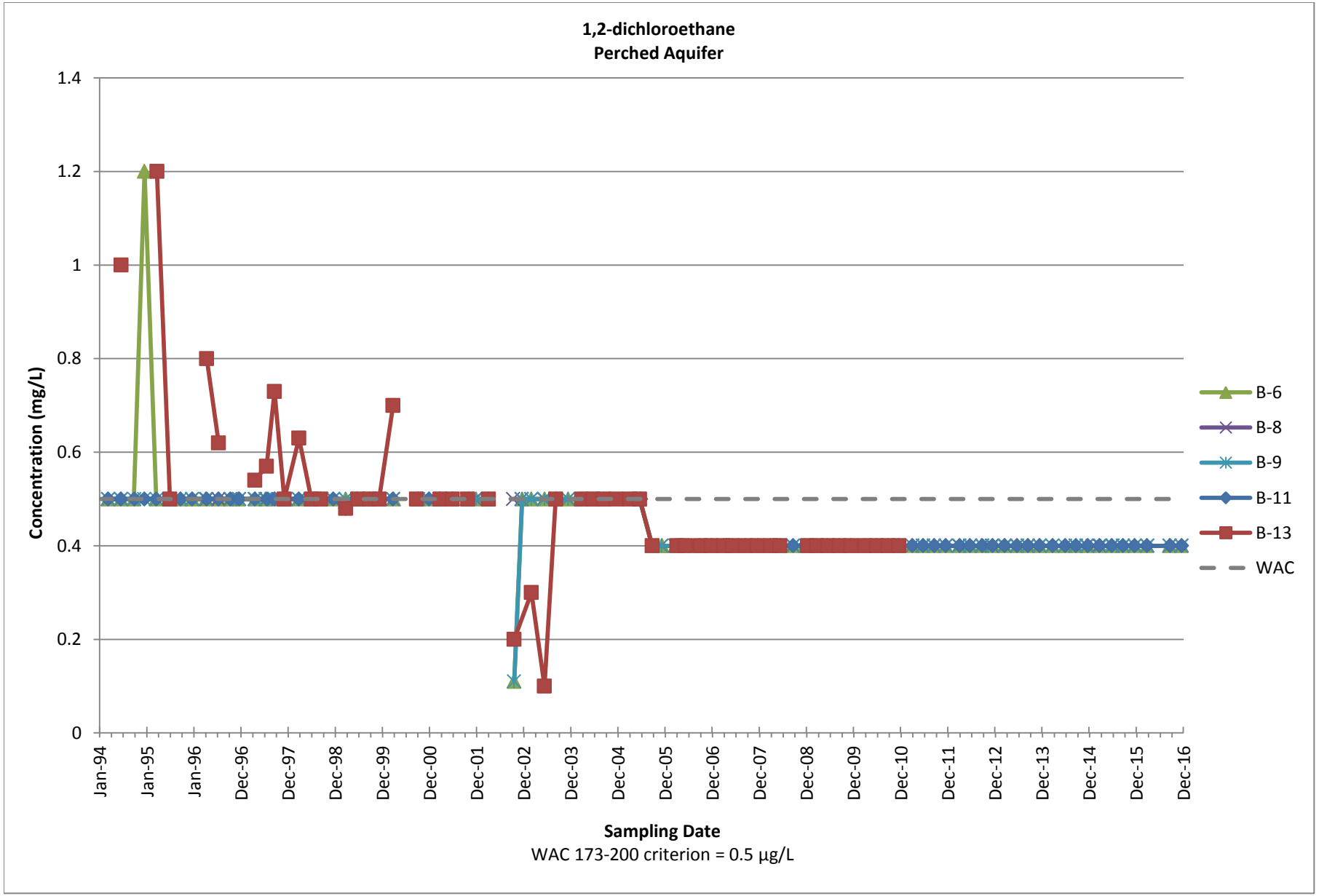
Qualifiers:

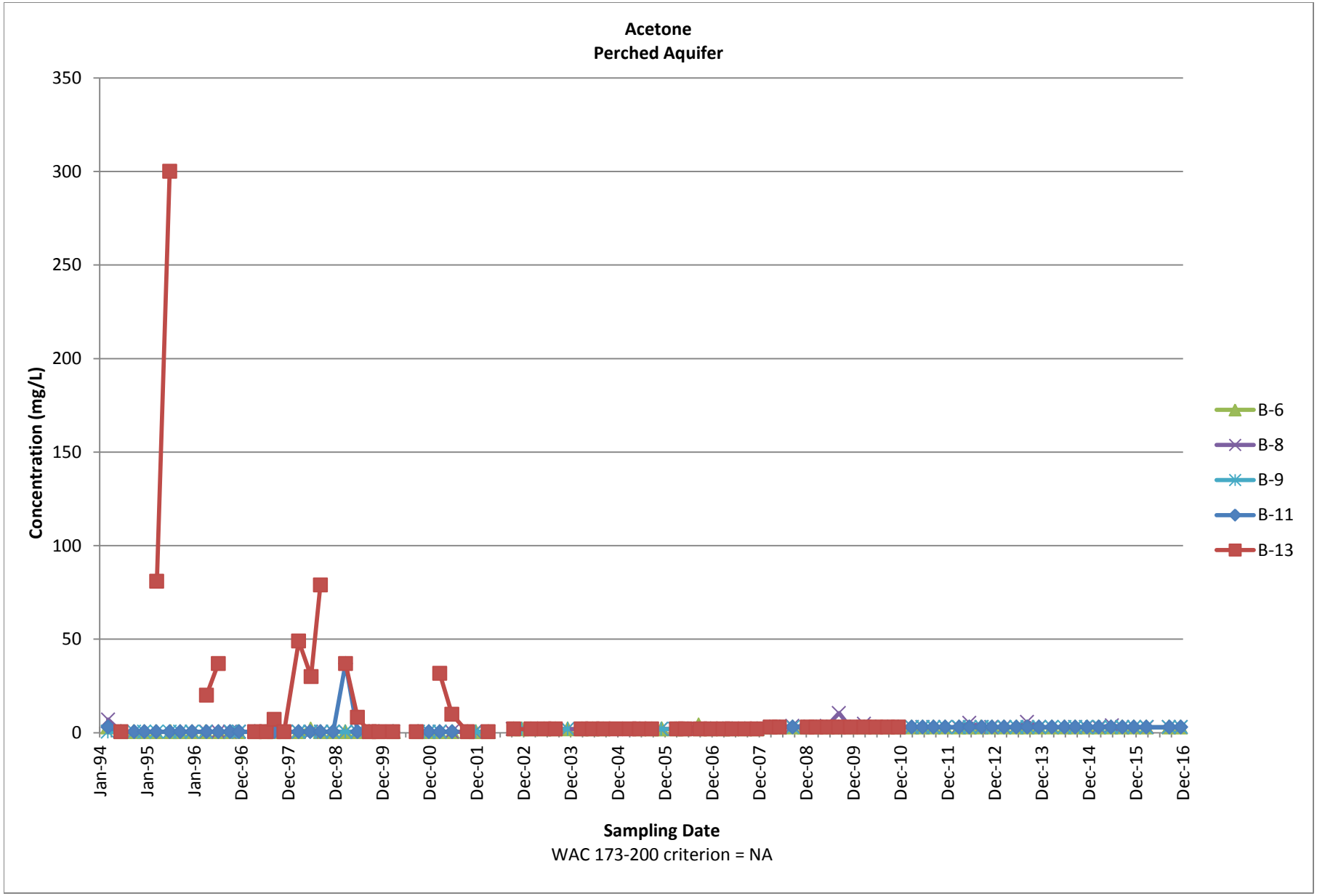
U — Indicates the analyte of interest was not detected, to the limit of detection indicated.
J — Indicates the analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.
NT — Not tested.

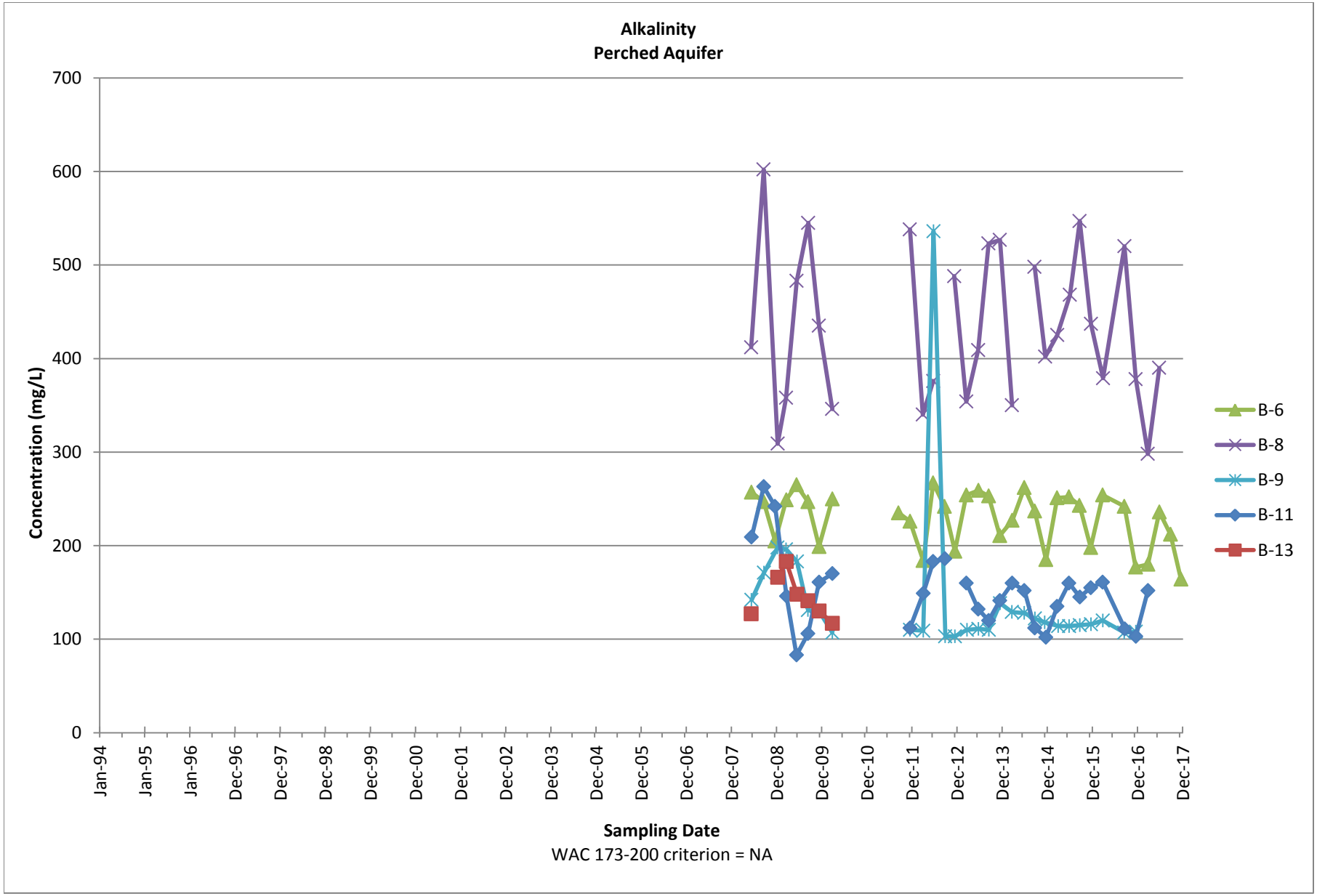
Results shown in bold exceed Ground Water Quality Criteria.
† Indicates supplement analytes measured due to Ecology request

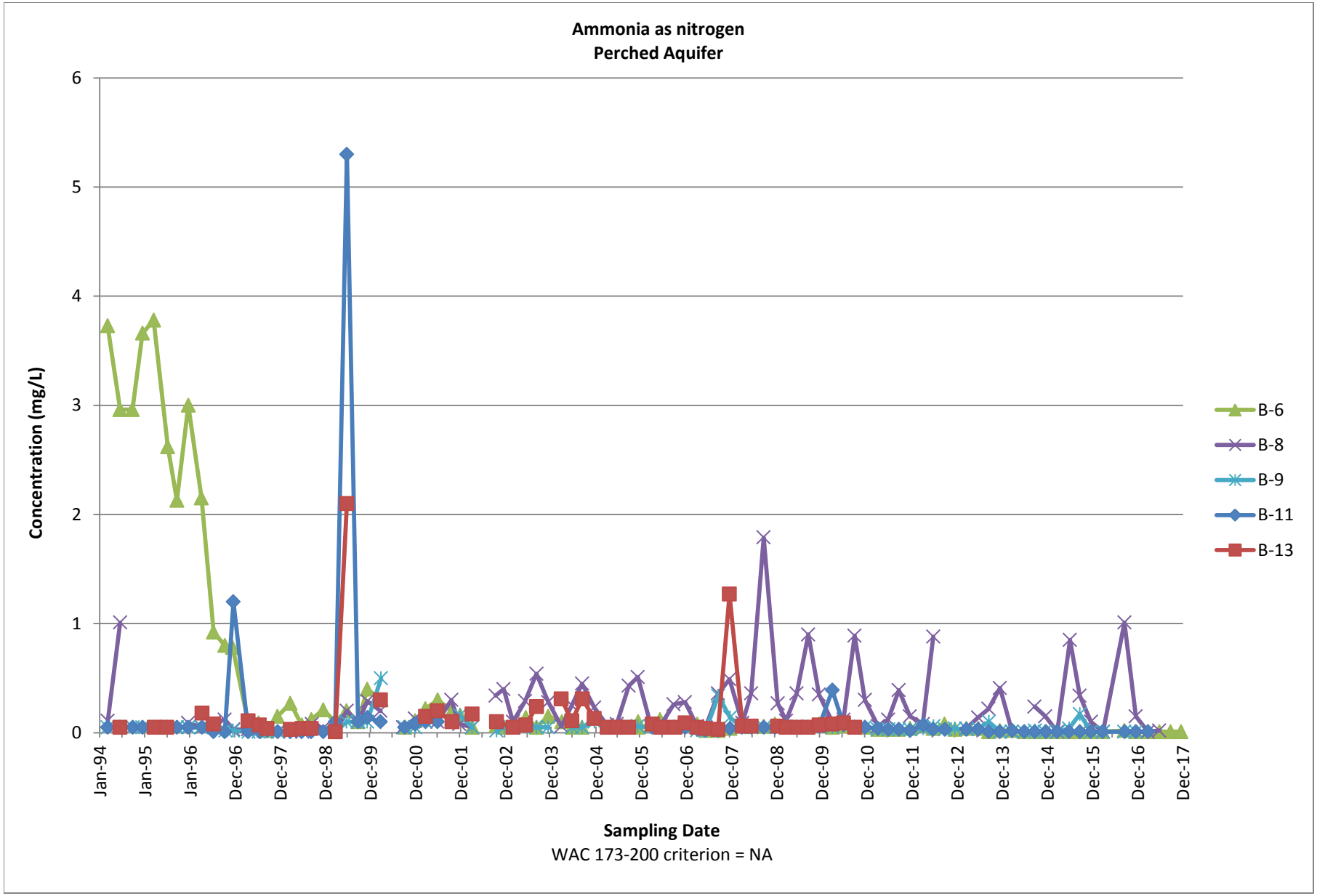
APPENDIX A-2:
Long Term Time Series Plots 1994-2017 – Perched Aquifer

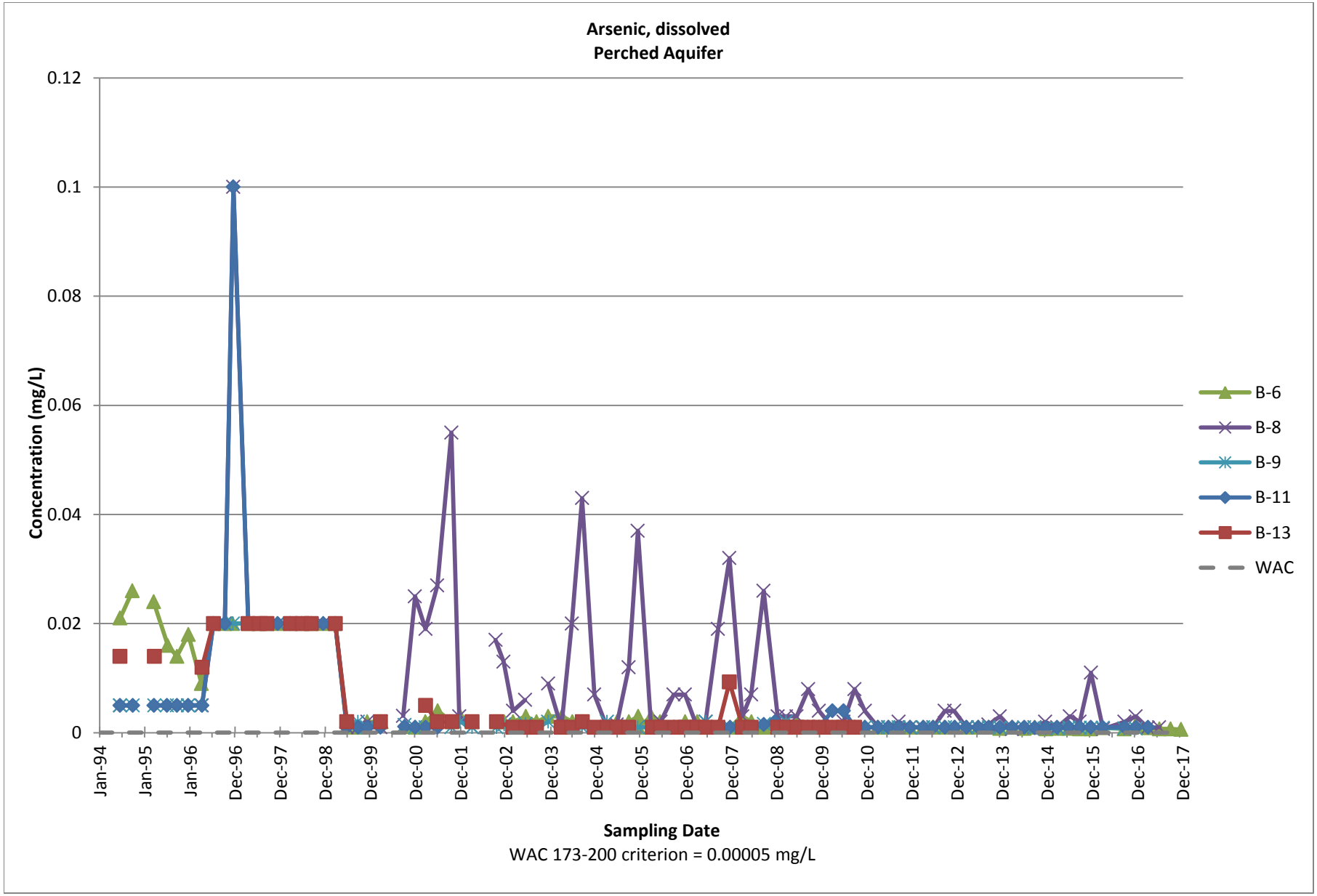

1,1-dichloroethane
Perched Aquifer
Concentration (mg/L)
0
1
2
3
4
5
6
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-6
B-8
B-9
B-11
B-13
WAC
Sampling Date
WAC 173-200 criterion = 1.0 µg/L

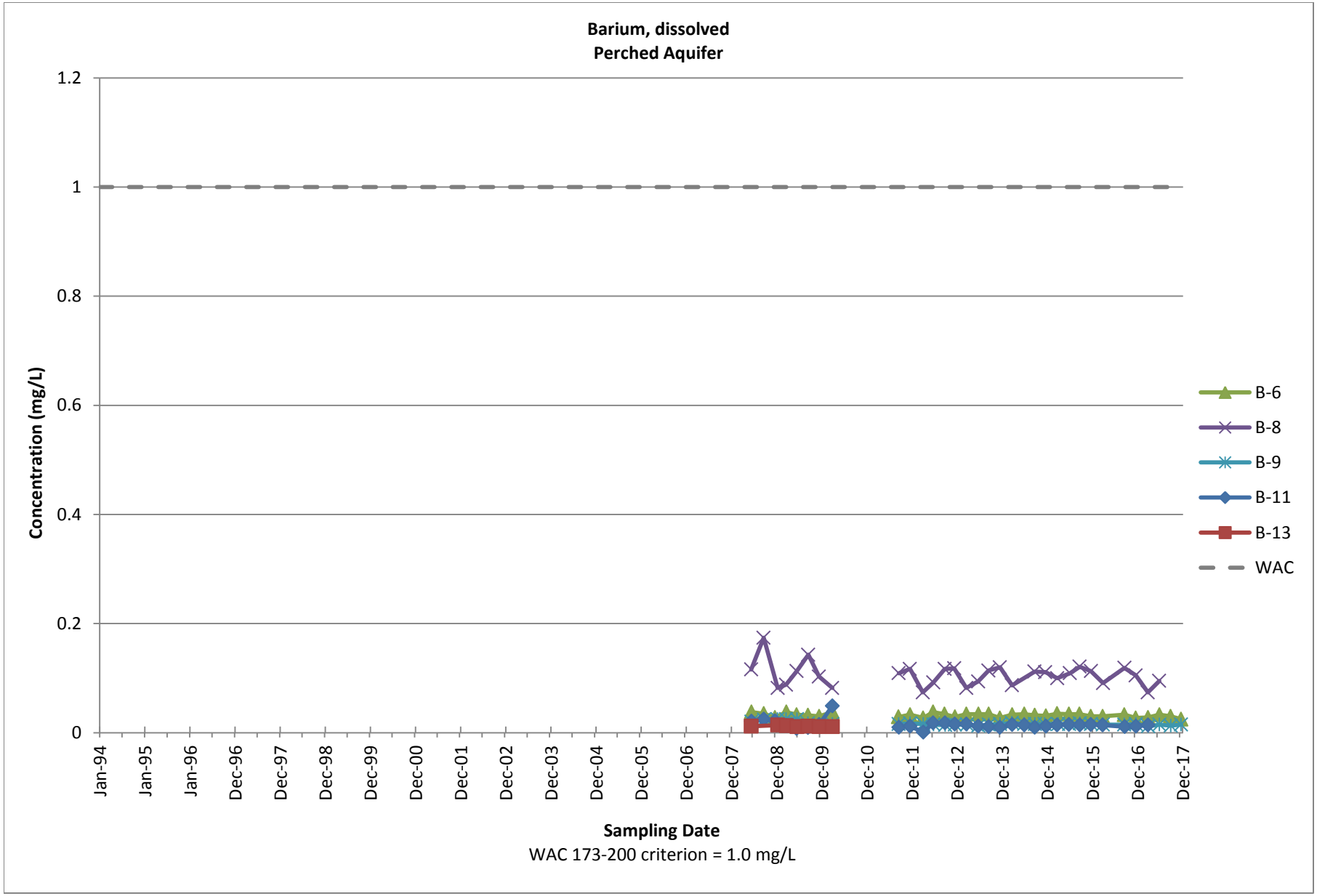

1,2-dichloroethane
Perched Aquifer
Concentration (mg/L)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
B-6
B-8
B-9
B-11
B-13
WAC
WAC 173-200 criterion = 0.5 µg/L

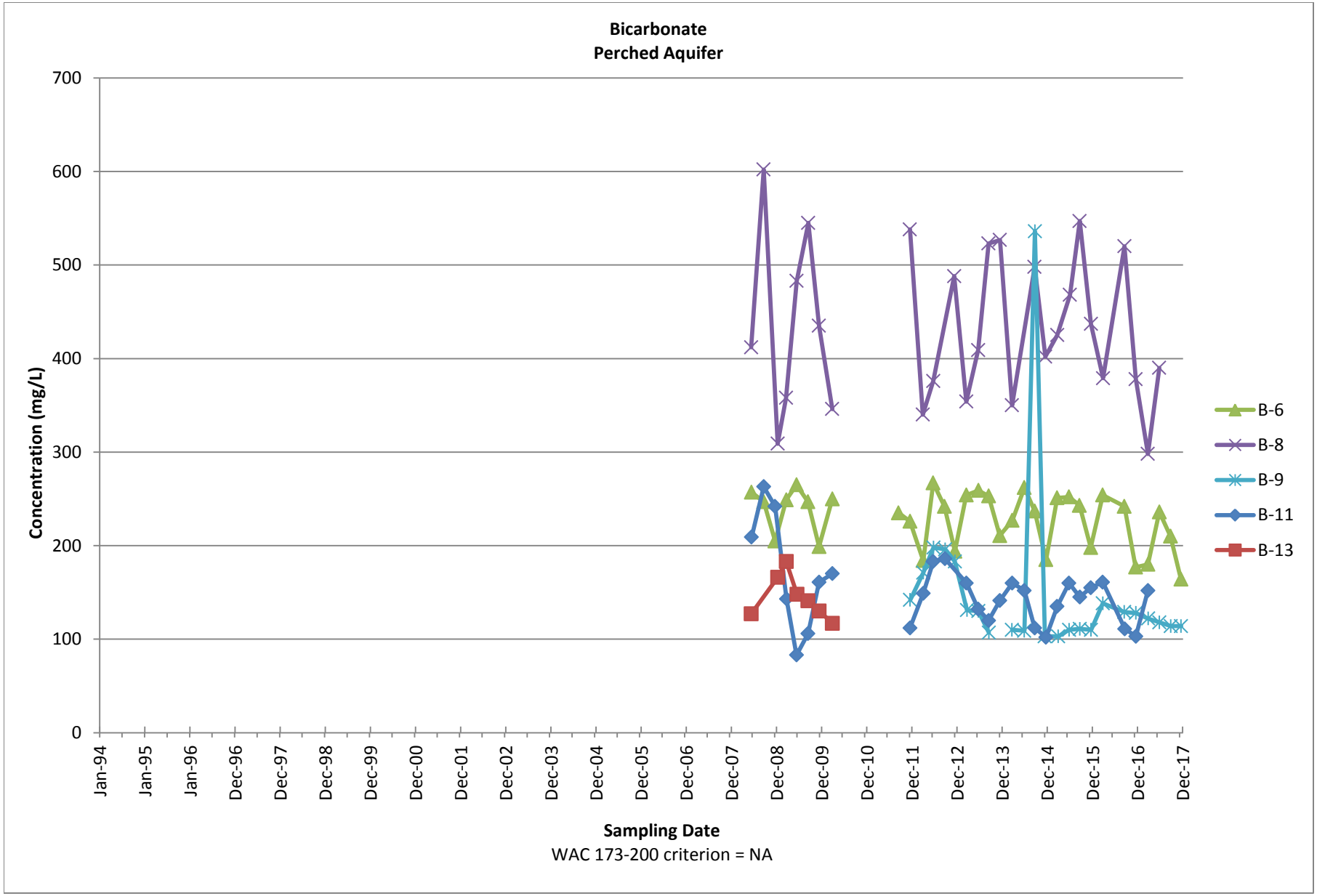

Acetone
Perched Aquifer
350
300
250
200
150
100
50
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-6
B-8
B-9
B-11
B-13

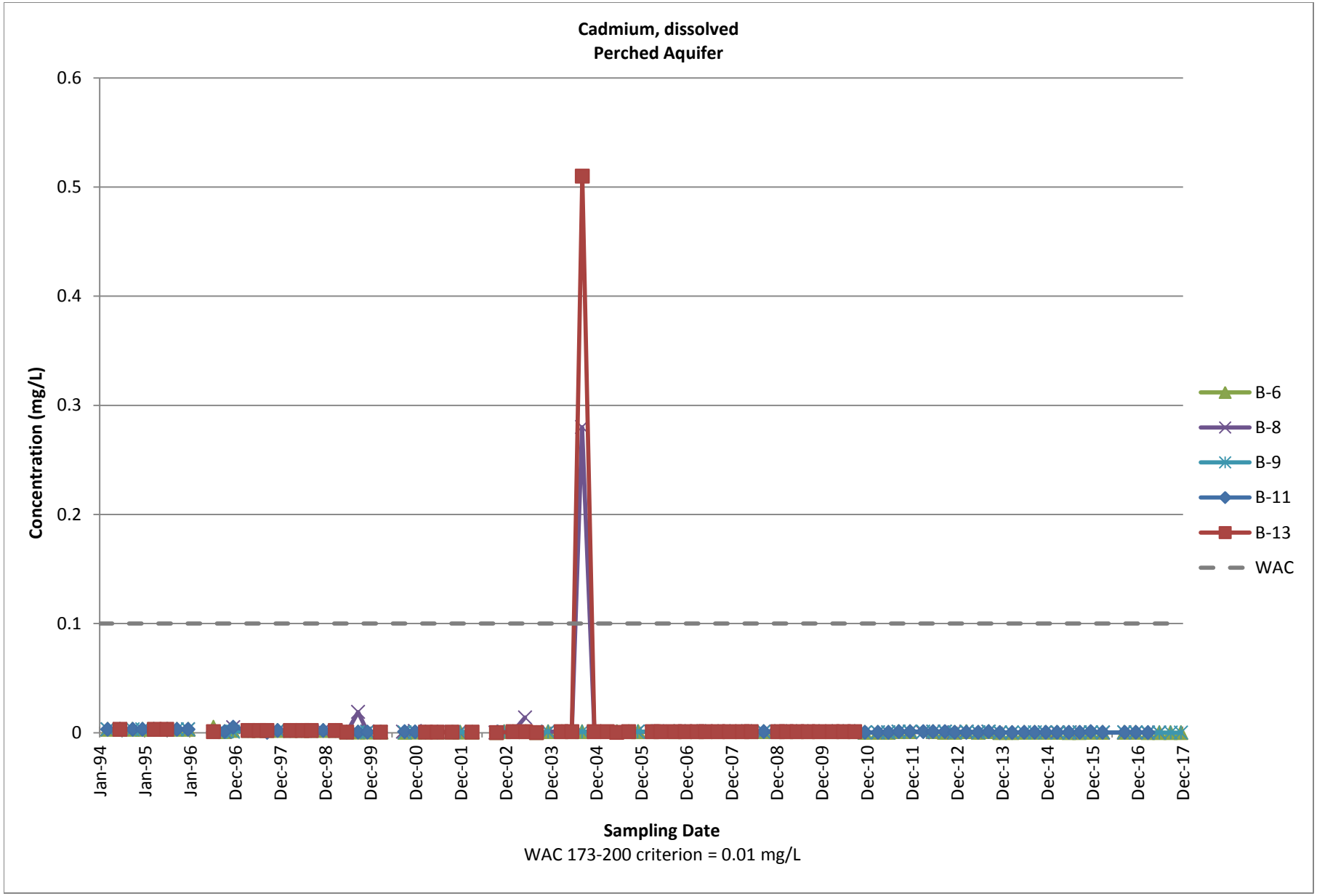

Alkalinity
Perched Aquifer
Concentration (mg/L)
700
600
500
400
300
200
100
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
WAC 173-200 criterion = NA
B-6
B-8
B-9
B-11
B-13

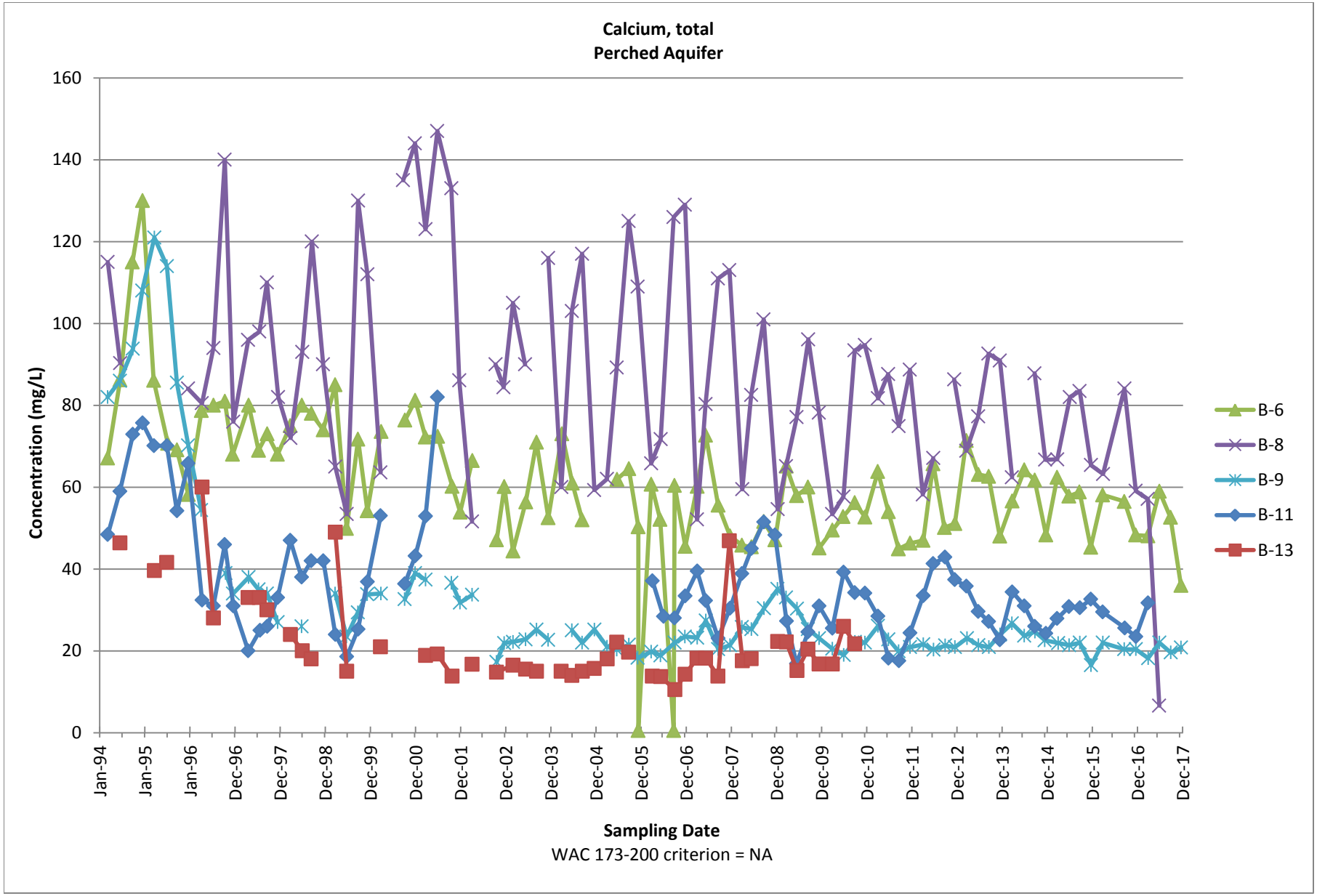

Ammonia as nitrogen
Perched Aquifer
Concentration (mg/L)
0
1
2
3
4
5
6
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
B-6
B-8
B-9
B-11
B-13
Sampling Date
WAC 173-200 criterion = NA

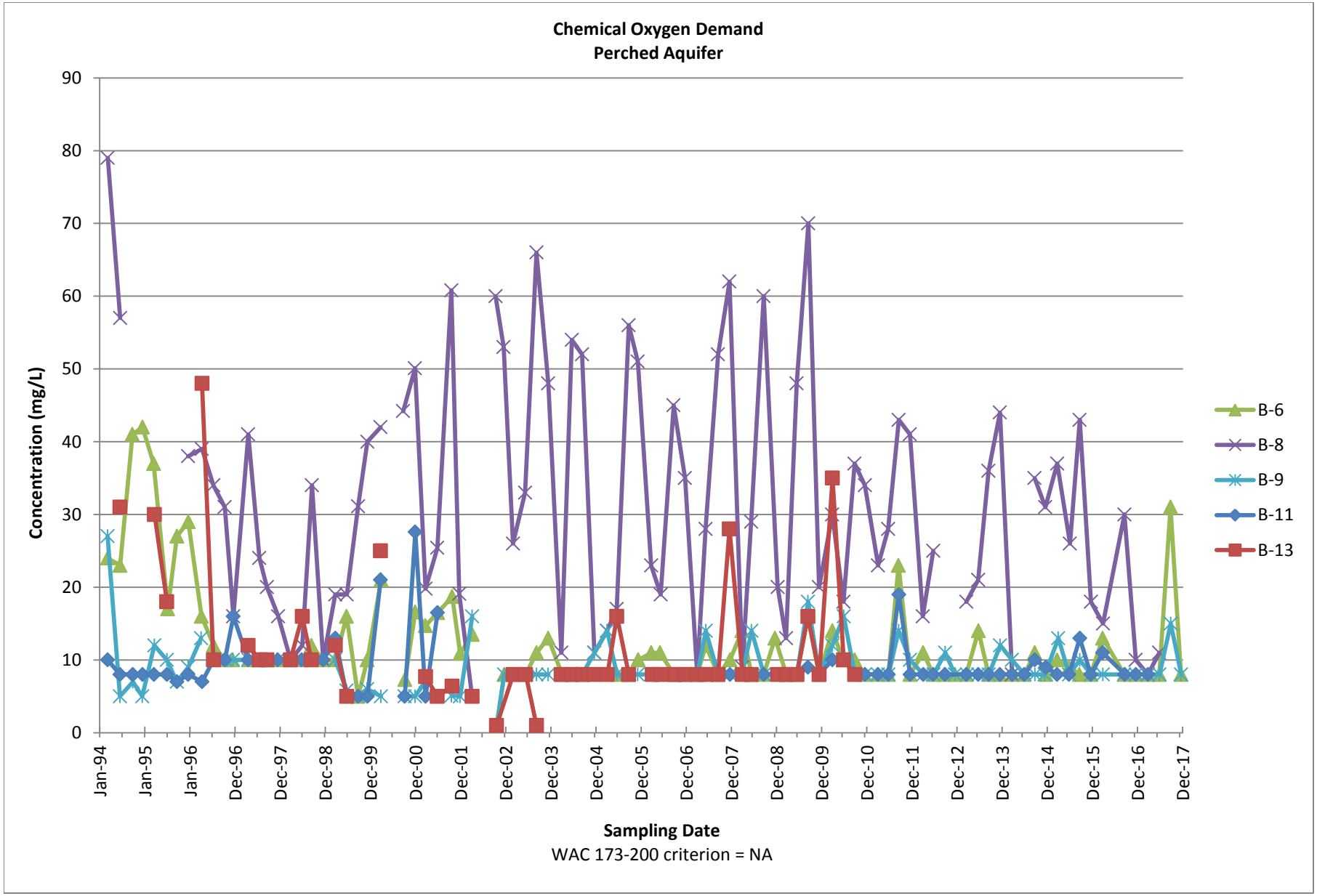

Arsenic, dissolved
Perched Aquifer
0.12
0.1
0.08
0.06
0.04
0.02
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
B-6
B-8
B-9
B-11
B-13
WAC
WAC 173-200 criterion = 0.00005 mg/L

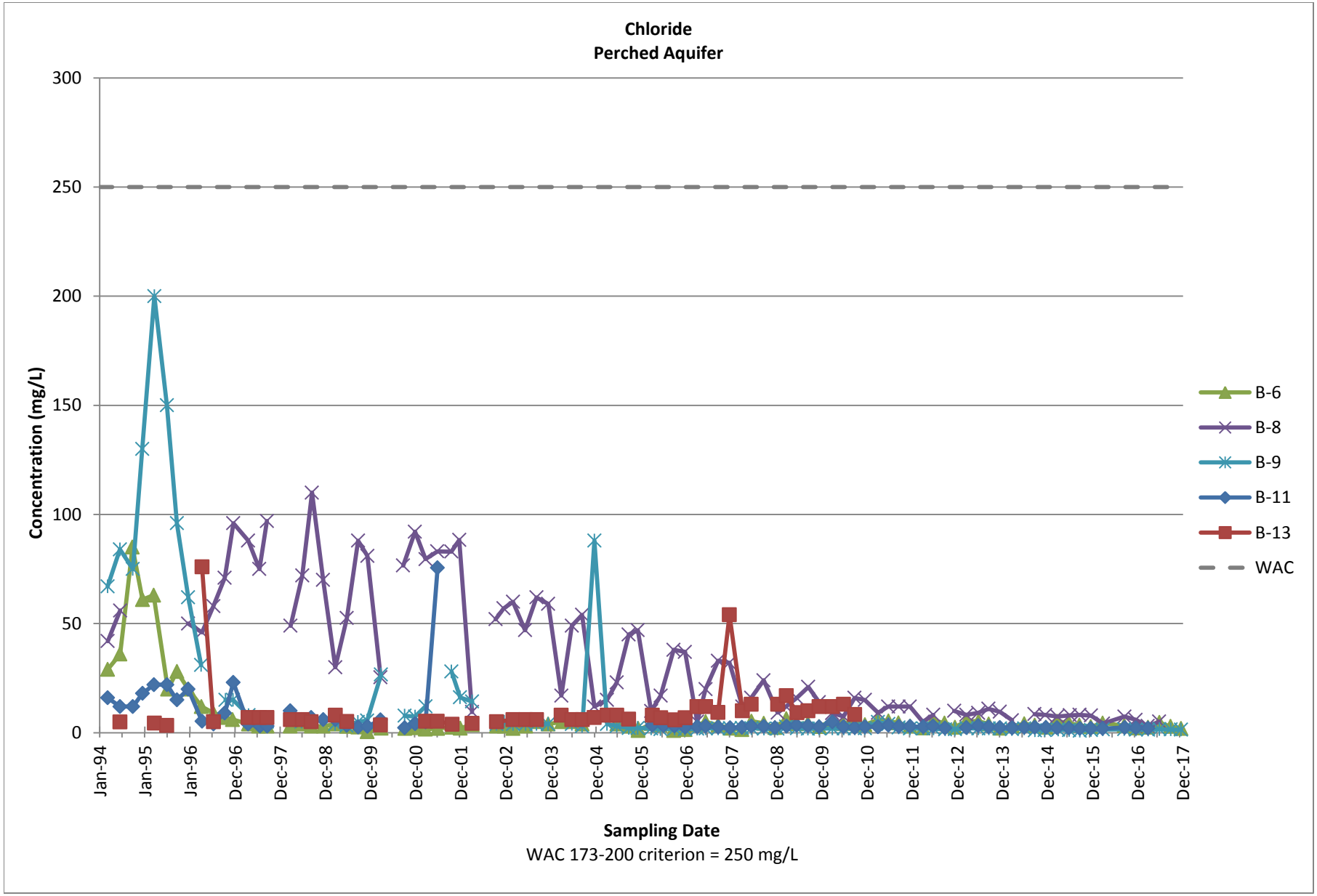

Barium, dissolved
Perched Aquifer
1.2
1
0.8
0.6
0.4
0.2
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
B-6
B-8
B-9
B-11
B-13
WAC
Sampling Date
WAC 173-200 criterion = 1.0 mg/L

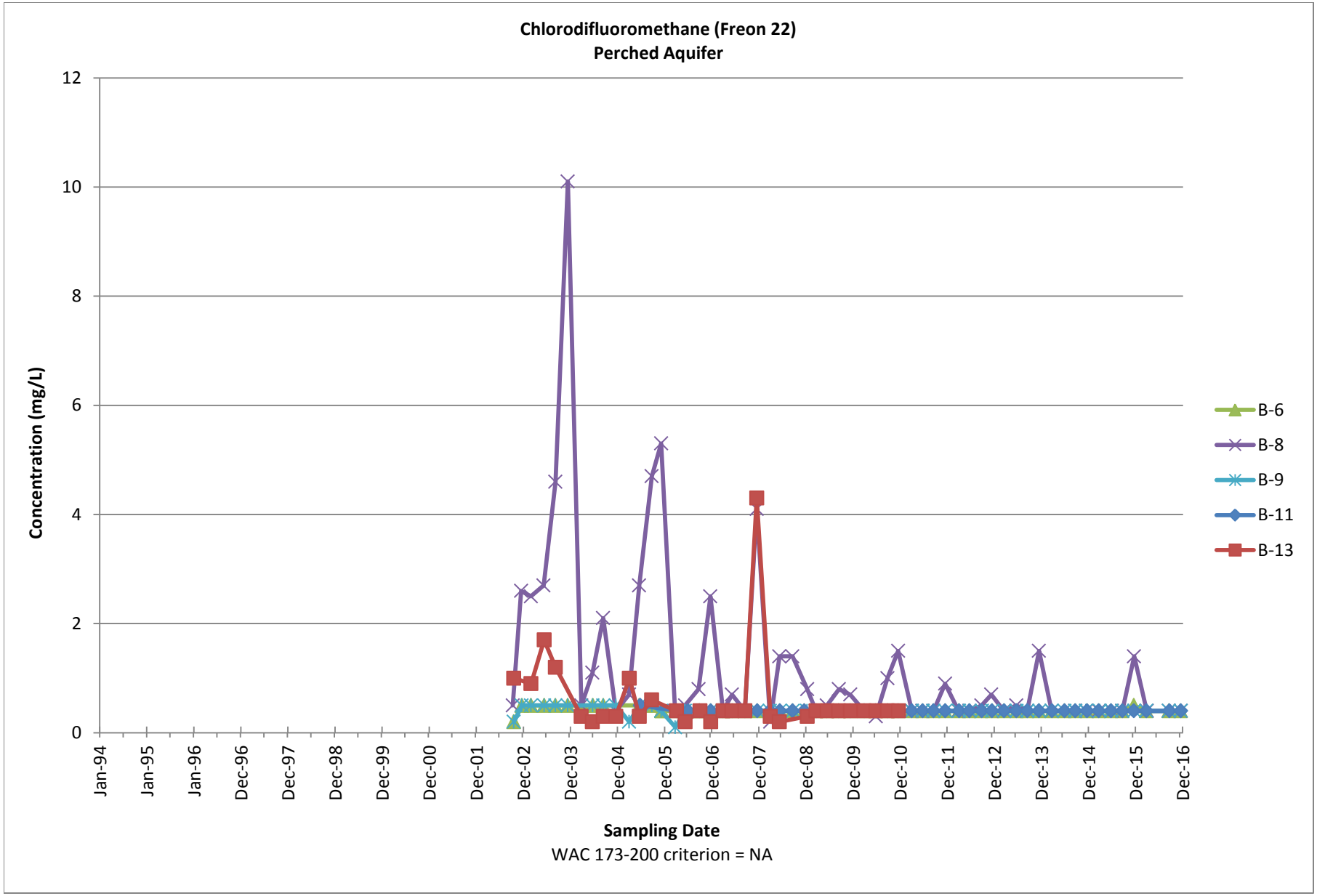

Bicarbonate
Perched Aquifer
Concentration (mg/L)
700
600
500
400
300
200
100
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
WAC 173-200 criterion = NA
B-6
B-8
B-9
B-11
B-13

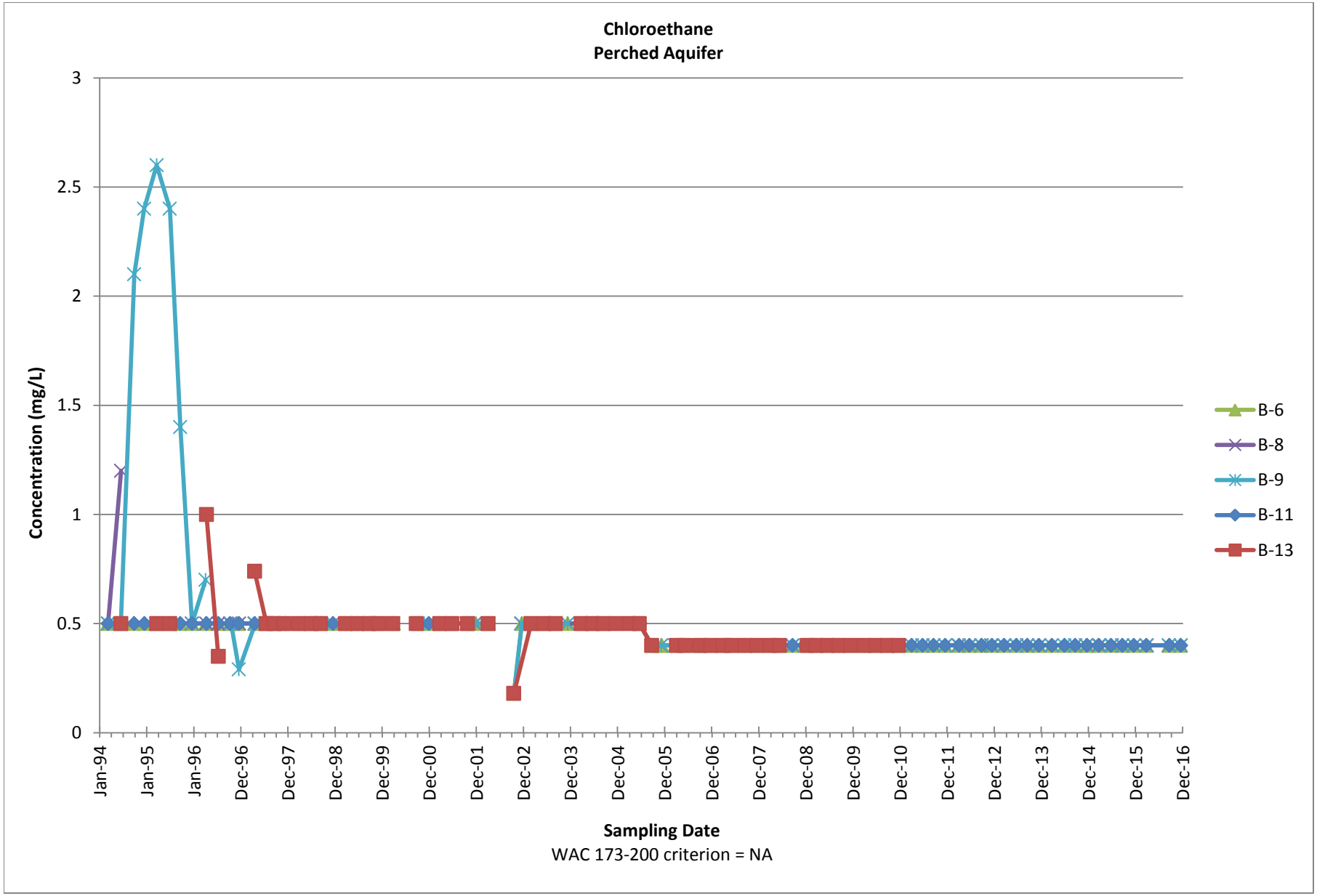

Cadmium, dissolved
Perched Aquifer
Concentration (mg/L)
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
B-6
B-8
B-9
B-11
B-13
WAC
Sampling Date
WAC 173-200 criterion = 0.01 mg/L

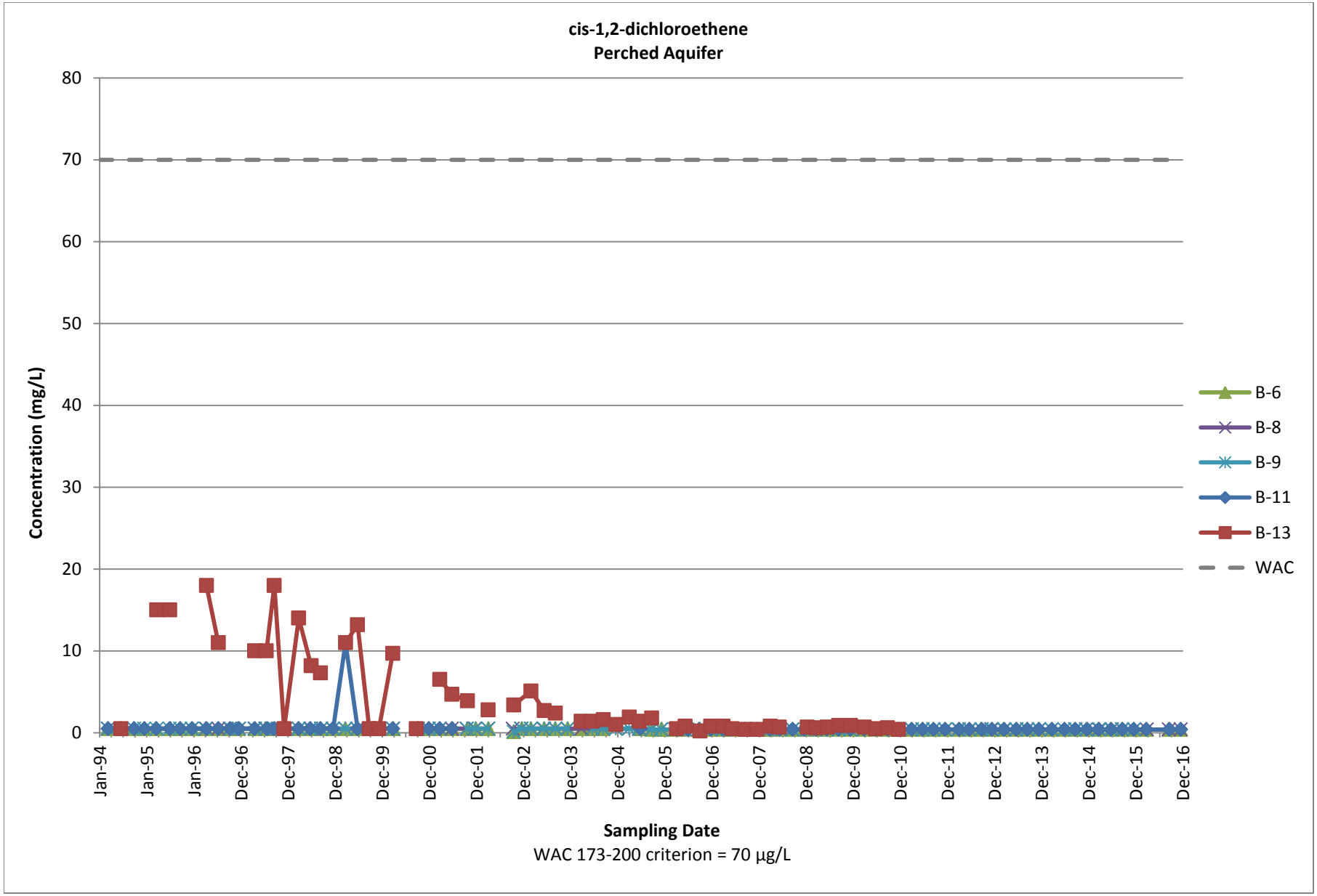

Calcium, total
Perched Aquifer
Concentration (mg/L)
160
140
120
100
80
60
40
20
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
B-6
B-8
B-9
B-11
B-13
Sampling Date
WAC 173-200 criterion = NA

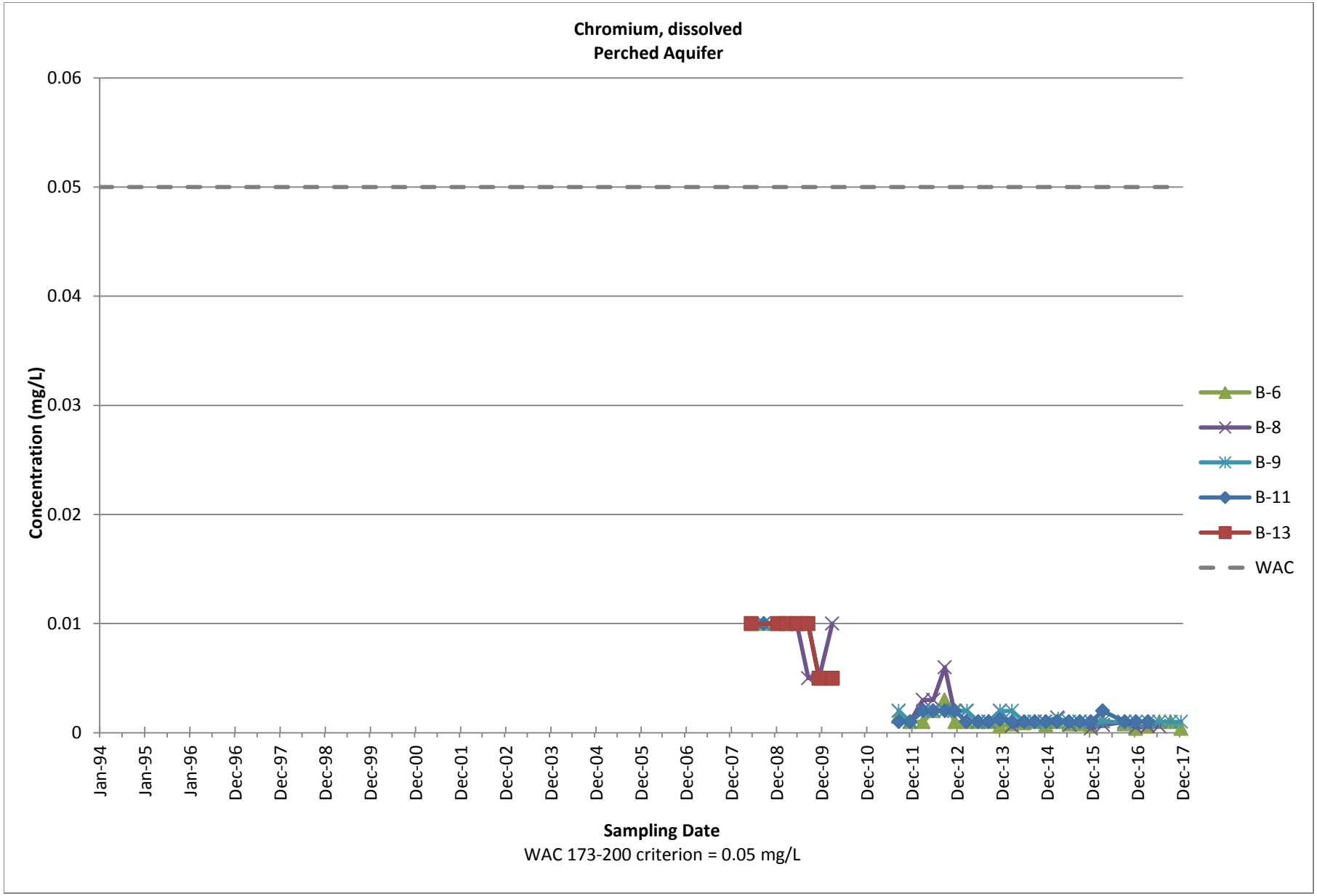

Chemical Oxygen Demand
Perched Aquifer
Concentration (mg/L)
90
80
70
60
50
40
30
20
10
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
B-6
B-8
B-9
B-11
B-13
Sampling Date
WAC 173-200 criterion = NA

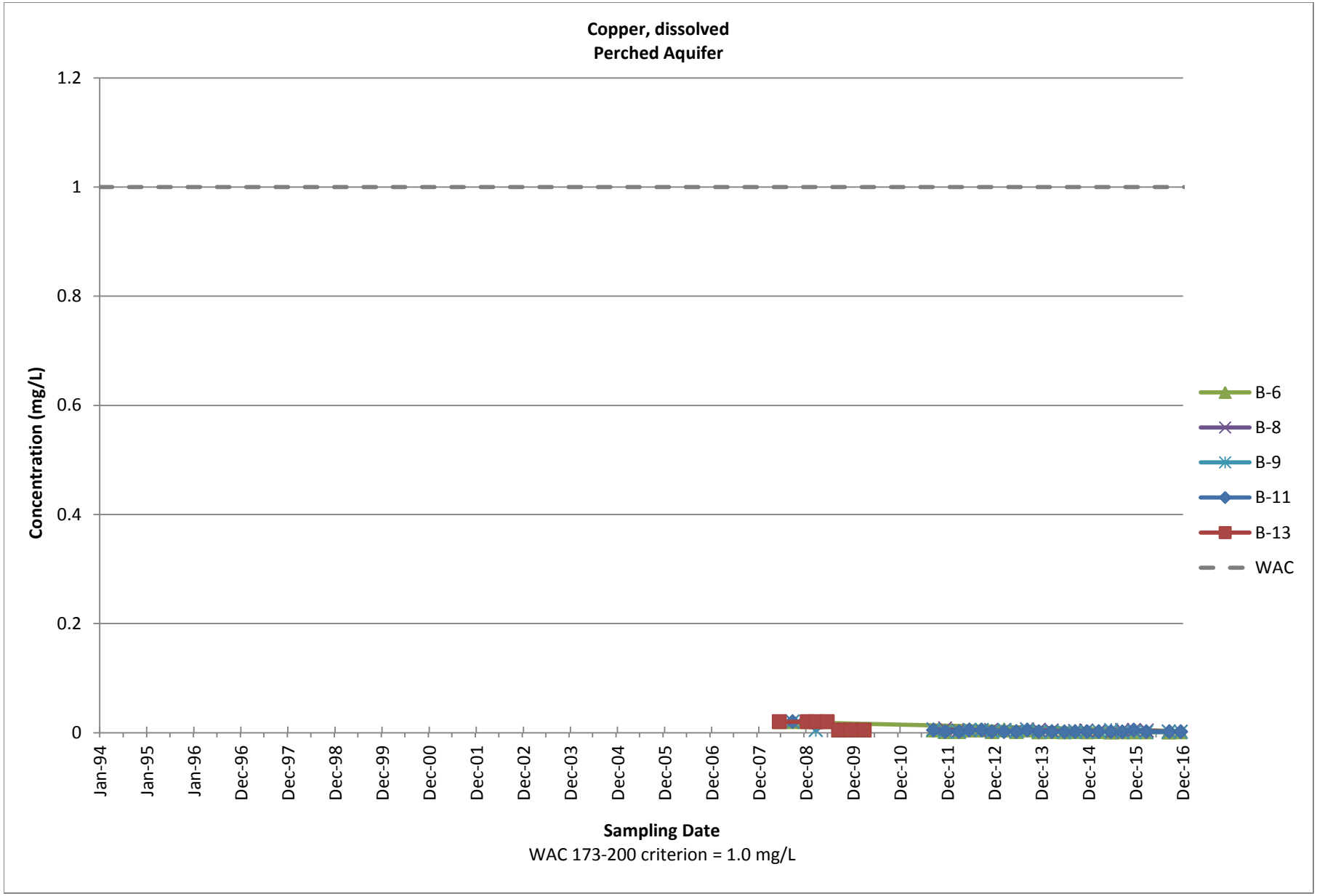

Chloride
Perched Aquifer
300
250
200
150
100
50
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
B-6
B-8
B-9
B-11
B-13
WAC
WAC 173-200 criterion = 250 mg/L

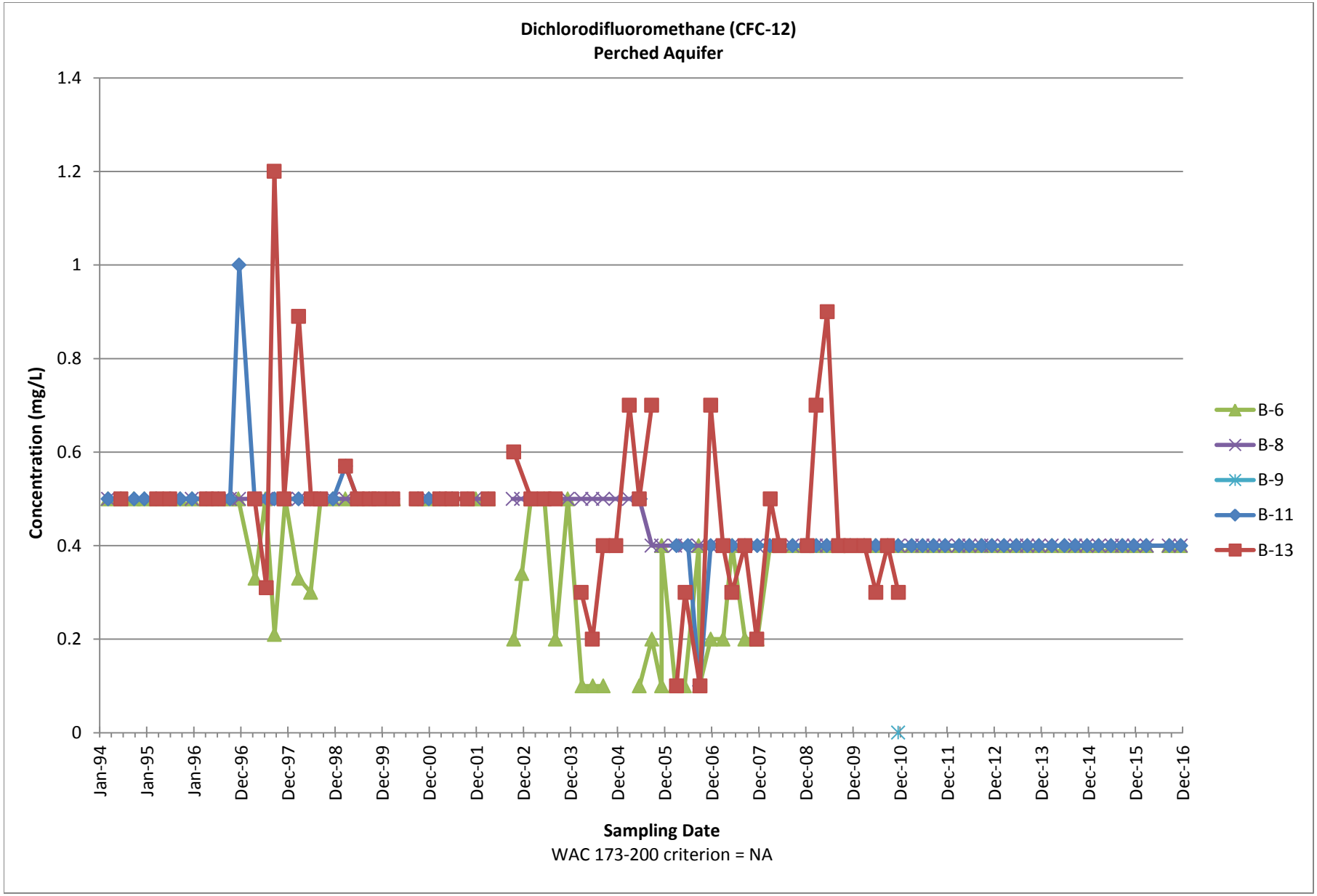

Chlorodifluoromethane (Freon 22)
Perched Aquifer
Concentration (mg/L)
12
10
8
6
4
2
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-6
B-8
B-9
B-11
B-13

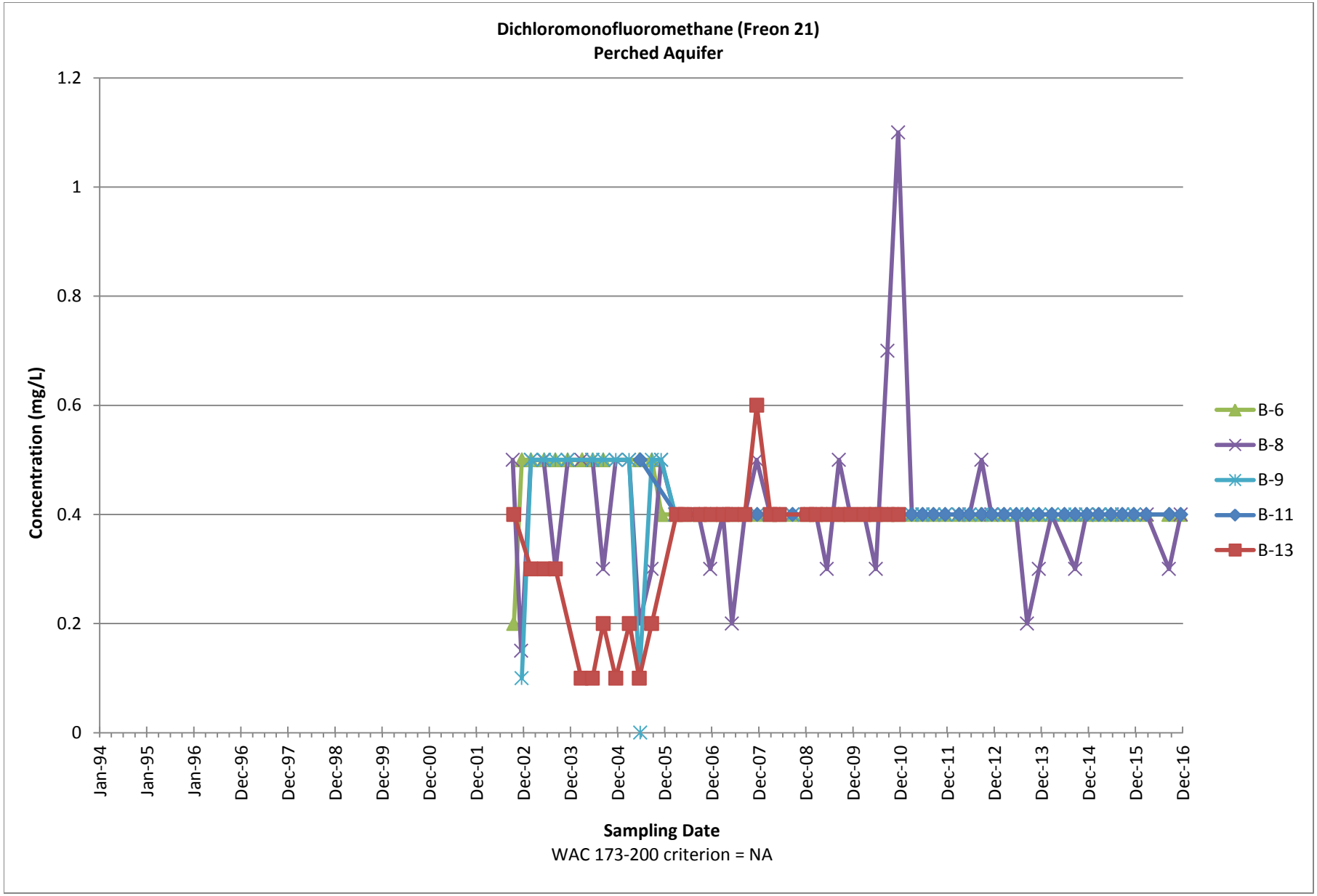

Chloroethane
Perched Aquifer
Concentration (mg/L)
3
2.5
2
1.5
1
0.5
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-6
B-8
B-9
B-11
B-13

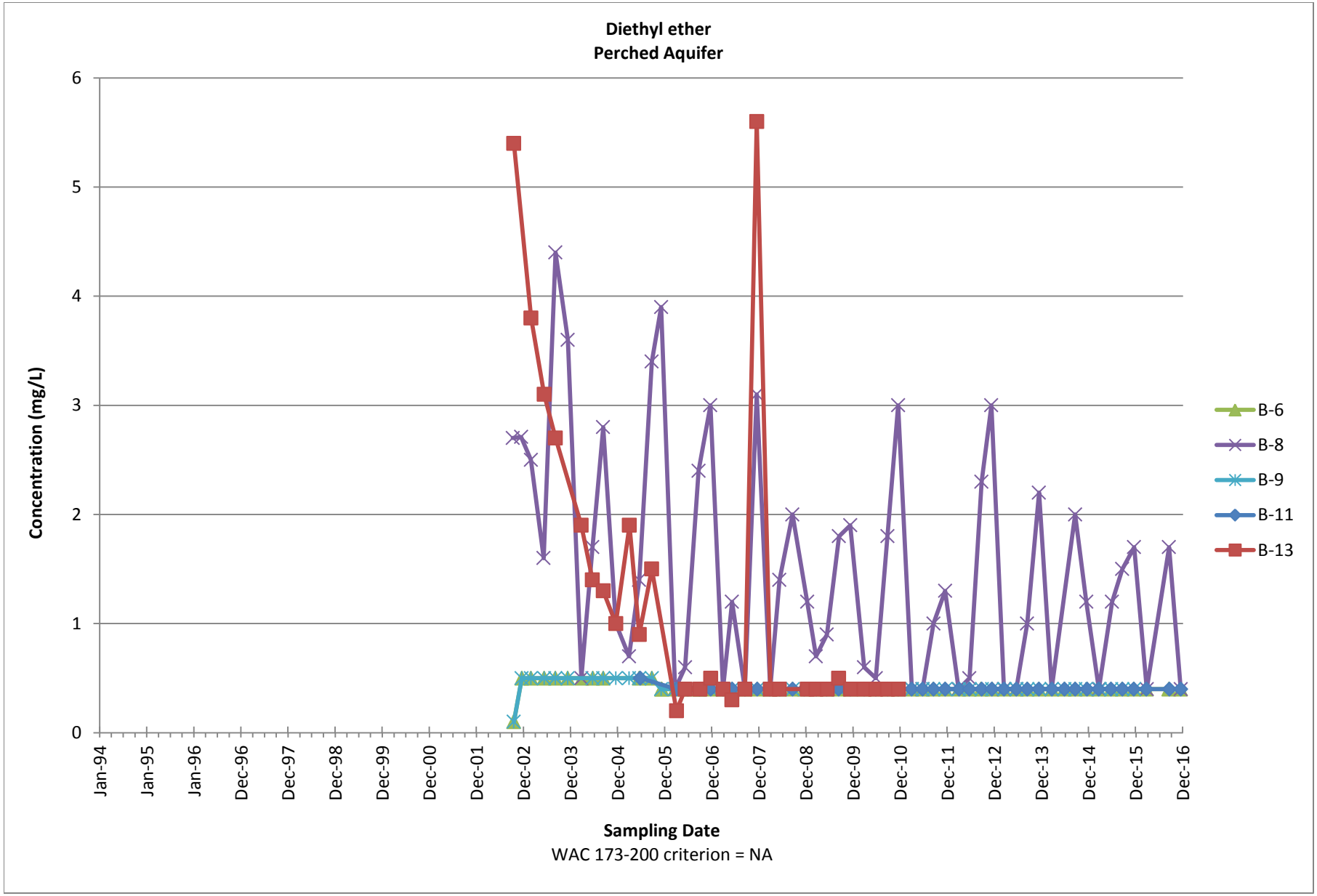

cis-1,2-dichloroethene
Perched Aquifer
Concentration (mg/L)
80
70
60
50
40
30
20
10
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-6
B-8
B-9
B-11
B-13
WAC
Sampling Date
WAC 173-200 criterion = 70 µg/L

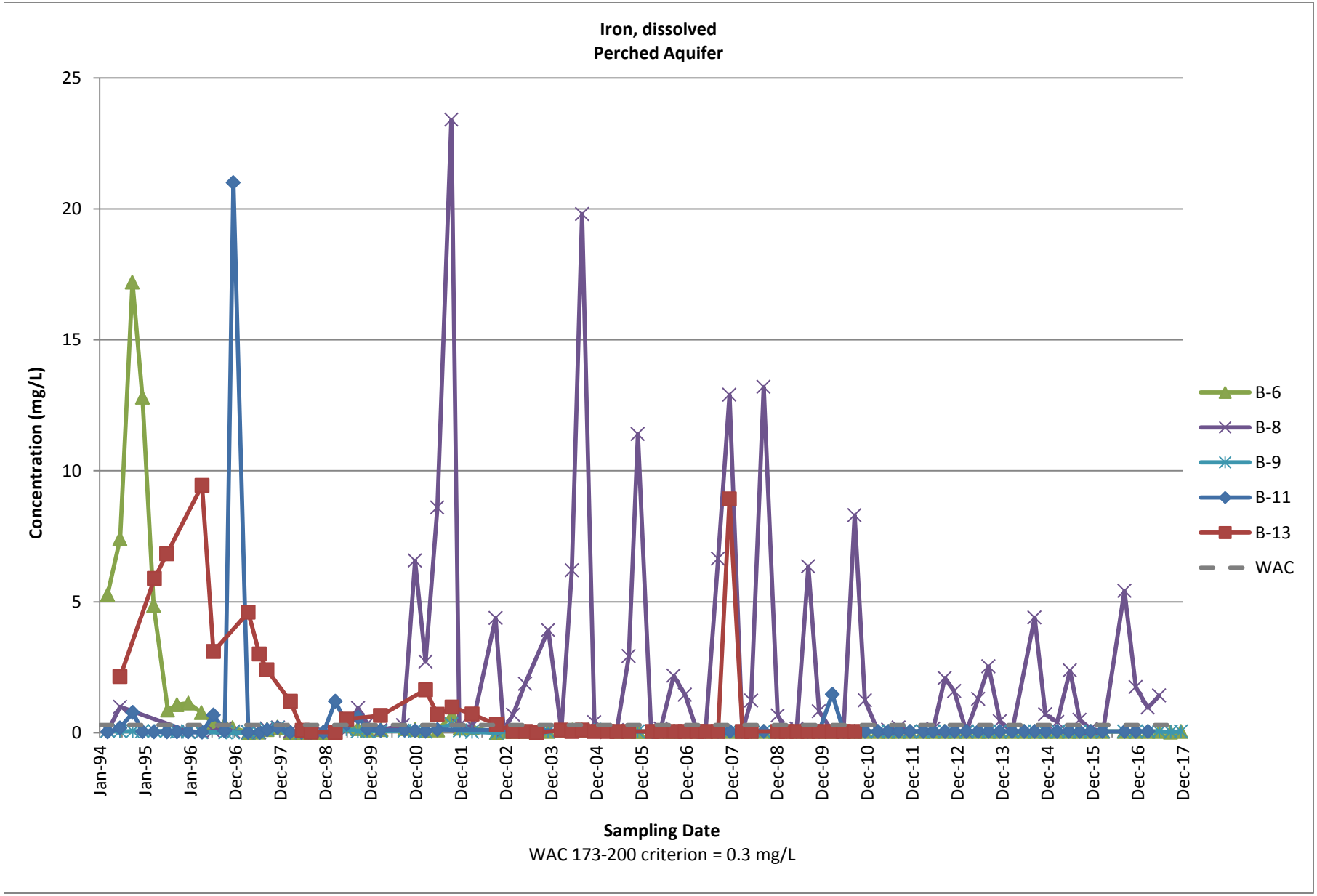

Chromium, dissolved
Perched Aquifer
0.06
0.05
0.04
0.03
0.02
0.01
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
B-6
B-8
B-9
B-11
B-13
WAC
WAC 173-200 criterion = 0.05 mg/L

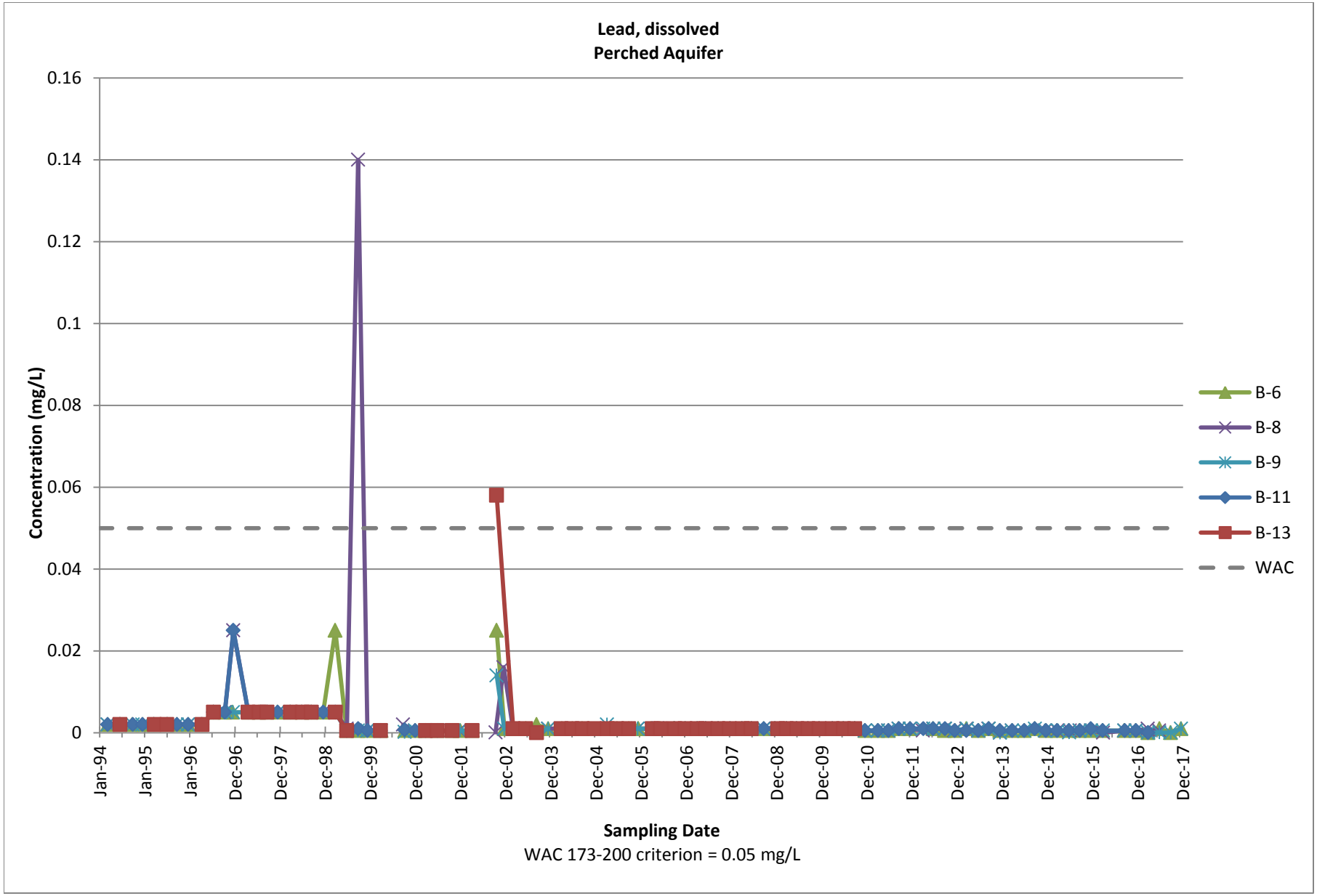

Copper, dissolved
Perched Aquifer
1.2
1
0.8
0.6
0.4
0.2
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
B-6
B-8
B-9
B-11
B-13
WAC
WAC 173-200 criterion = 1.0 mg/L

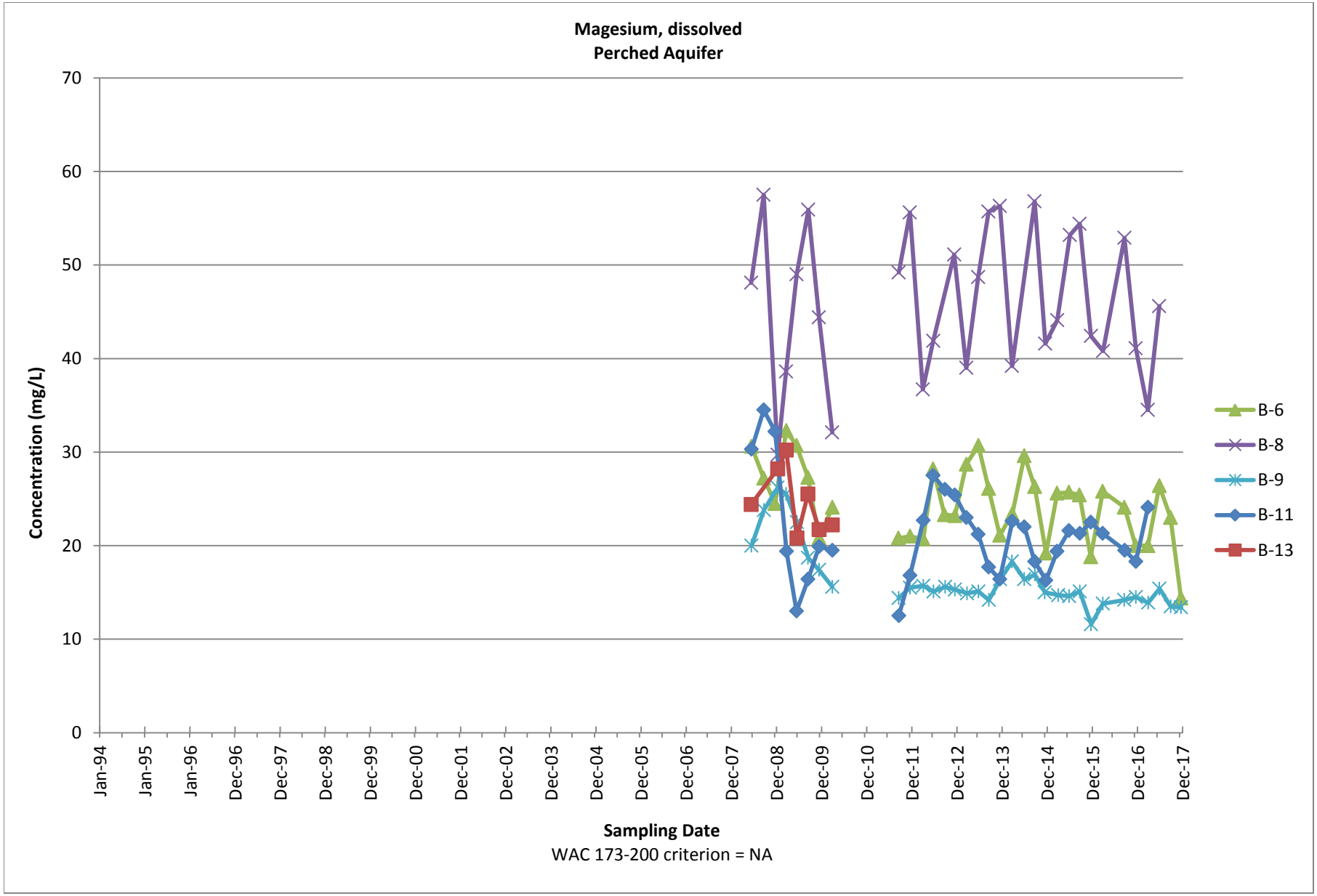

Dichlorodifluoromethane (CFC-12)
Perched Aquifer
Concentration (mg/L)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-6
B-8
B-9
B-11
B-13

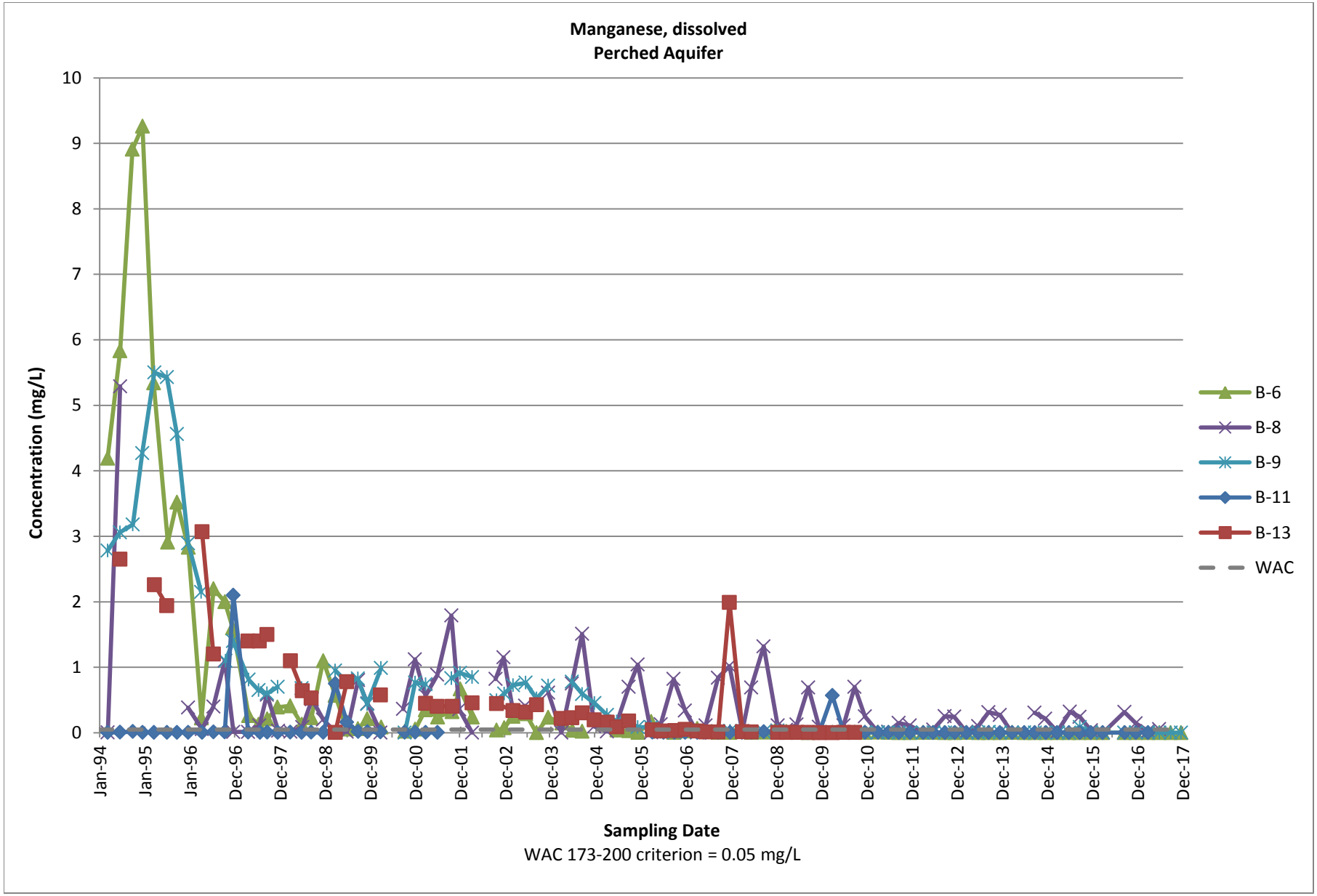

Dichloromonofluoromethane (Freon 21)
Perched Aquifer
Concentration (mg/L)
1.2
1
0.8
0.6
0.4
0.2
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-6
B-8
B-9
B-11
B-13

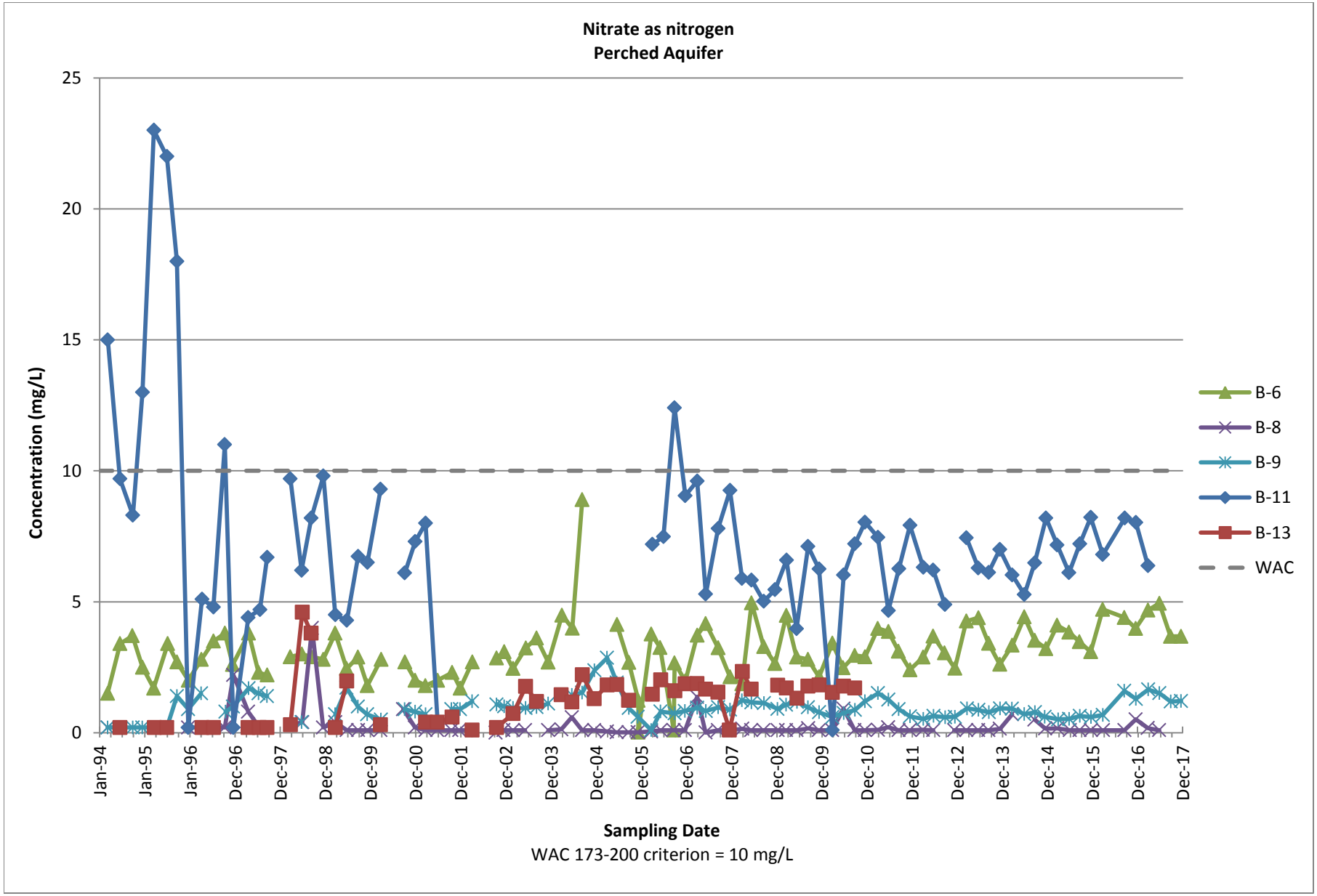

Diethyl ether
Perched Aquifer
Concentration (mg/L)
0
1
2
3
4
5
6
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-6
B-8
B-9
B-11
B-13

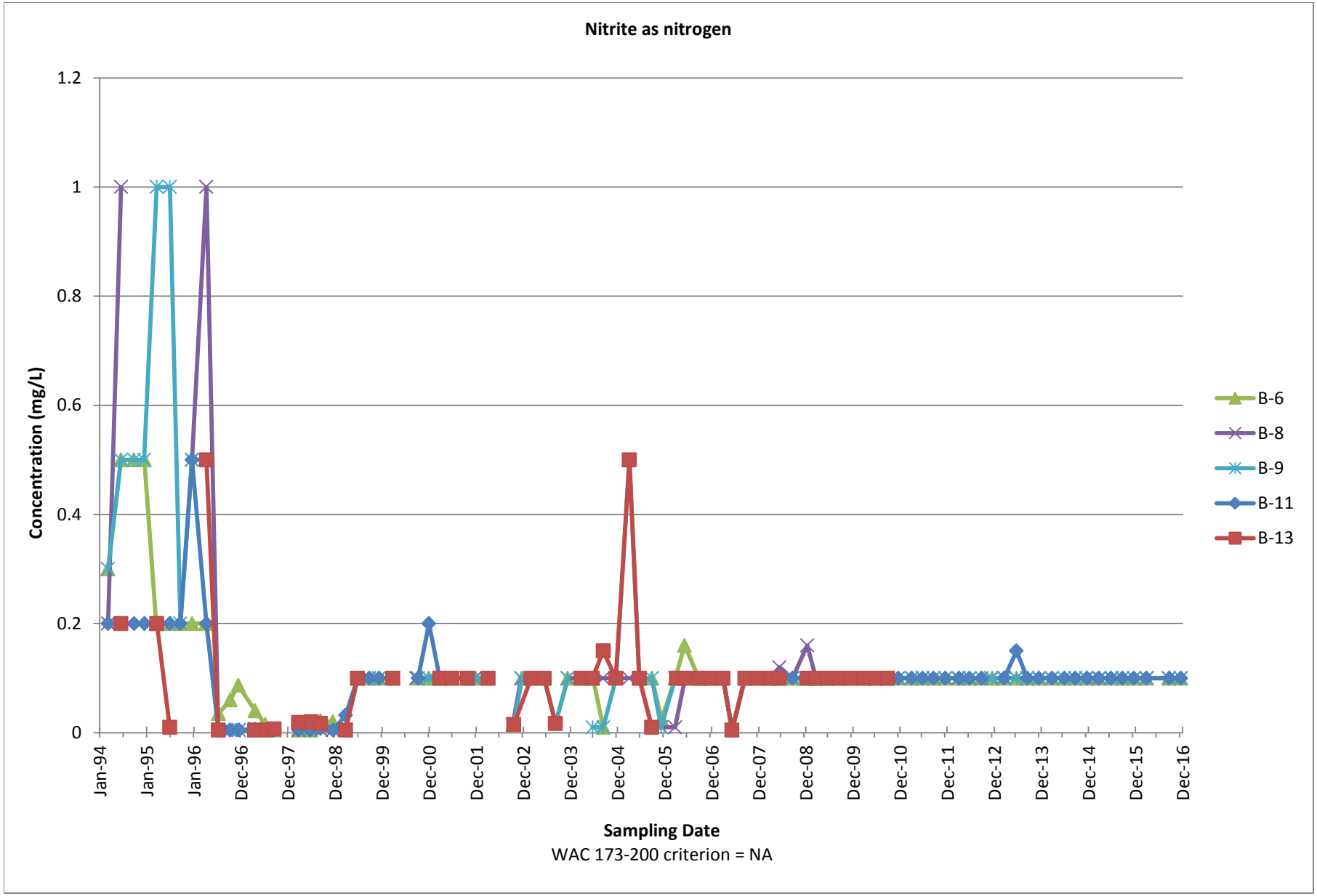

Iron, dissolved
Perched Aquifer
Concentration (mg/L)
25
20
15
10
5
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
B-6
B-8
B-9
B-11
B-13
WAC
Sampling Date
WAC 173-200 criterion = 0.3 mg/L

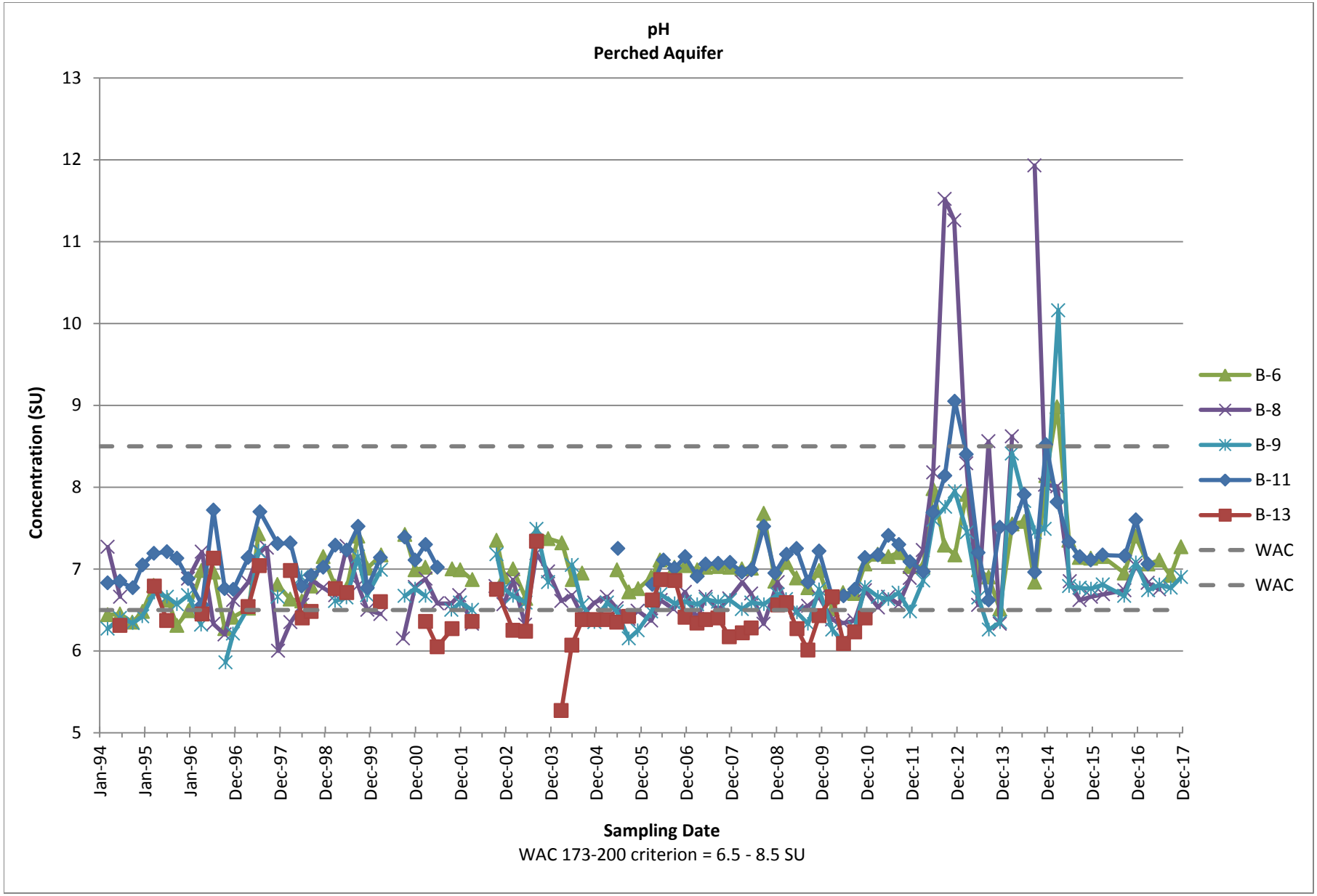

Lead, dissolved
Perched Aquifer
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
B-6
B-8
B-9
B-11
B-13
WAC
WAC 173-200 criterion = 0.05 mg/L

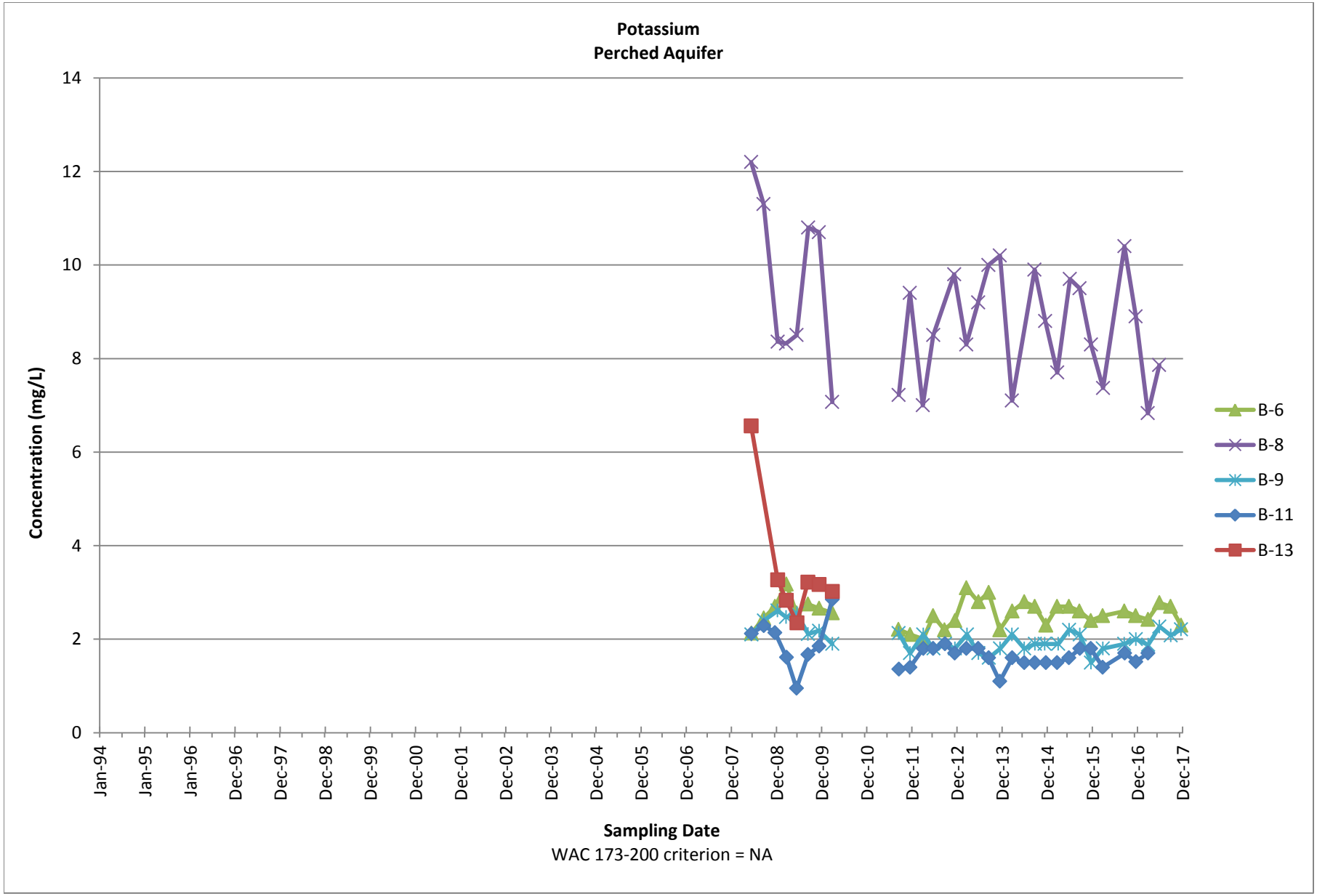

Magesium, dissolved
Perched Aquifer
Concentration (mg/L)
70
60
50
40
30
20
10
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
WAC 173-200 criterion = NA
B-6
B-8
B-9
B-11
B-13

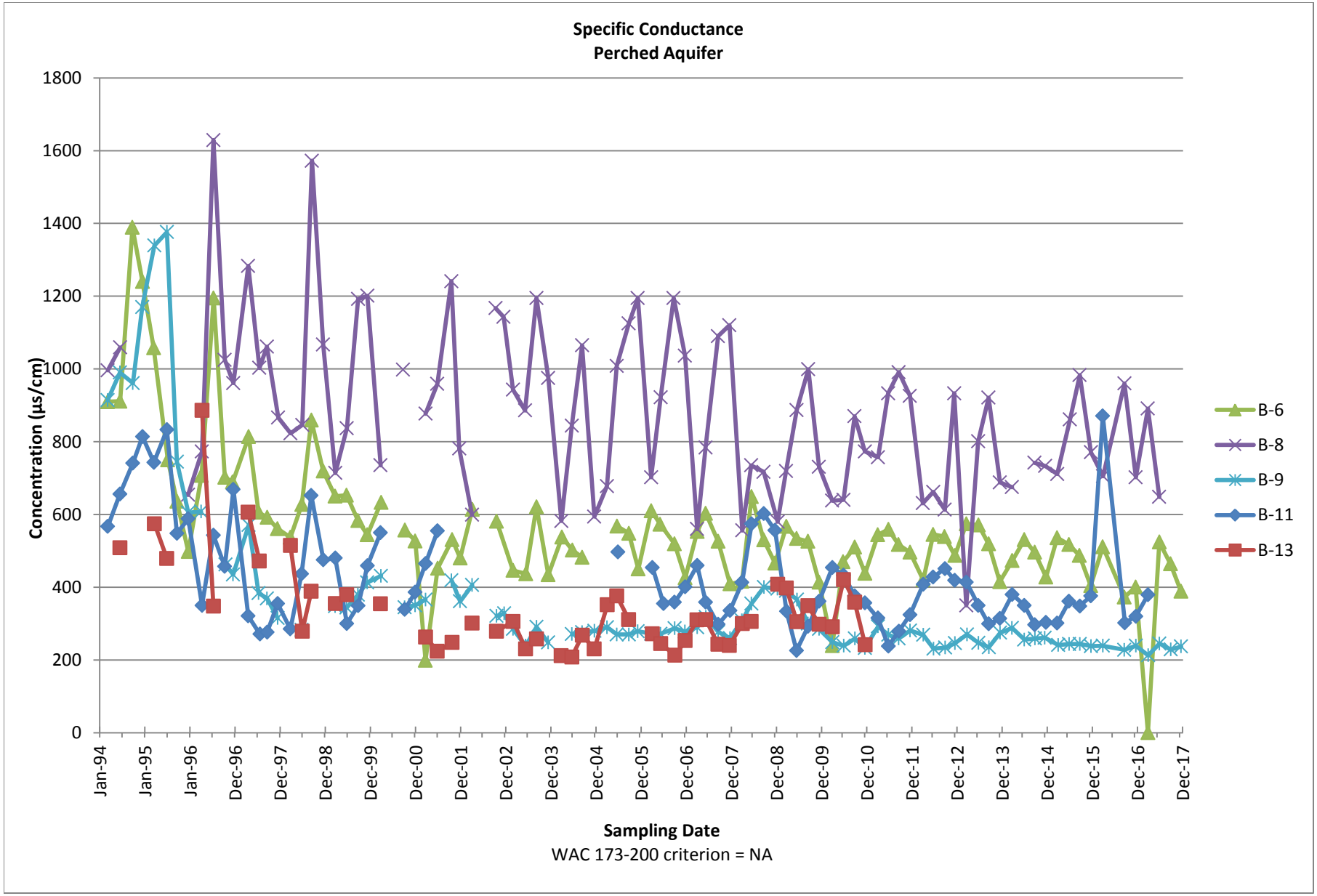

Manganese, dissolved
Perched Aquifer
Concentration (mg/L)
10
9
8
7
6
5
4
3
2
1
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
B-6
B-8
B-9
B-11
B-13
WAC
Sampling Date
WAC 173-200 criterion = 0.05 mg/L

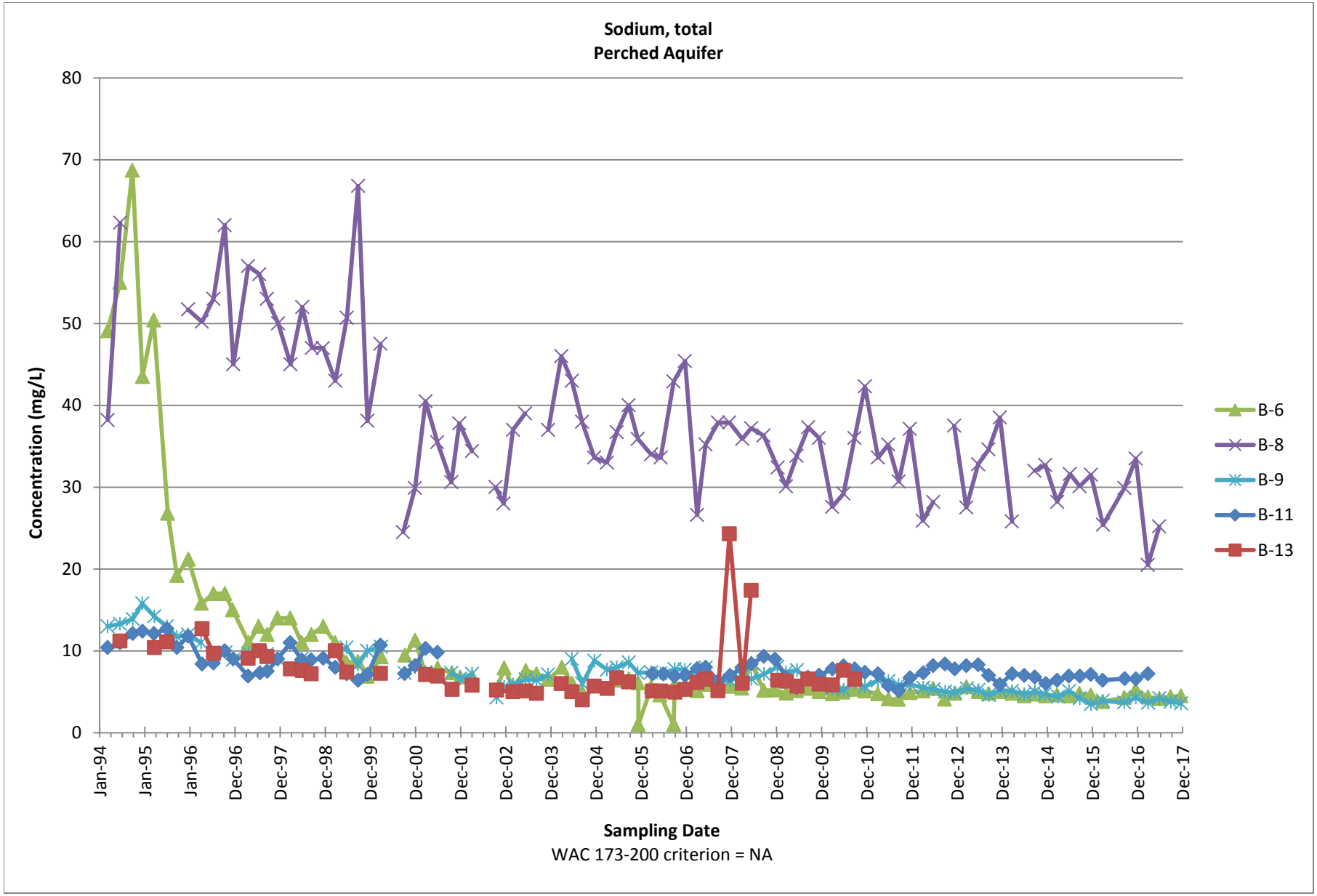

Nitrate as nitrogen
Perched Aquifer
Concentration (mg/L)
25
20
15
10
5
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
B-6
B-8
B-9
B-11
B-13
WAC
Sampling Date
WAC 173-200 criterion = 10 mg/L

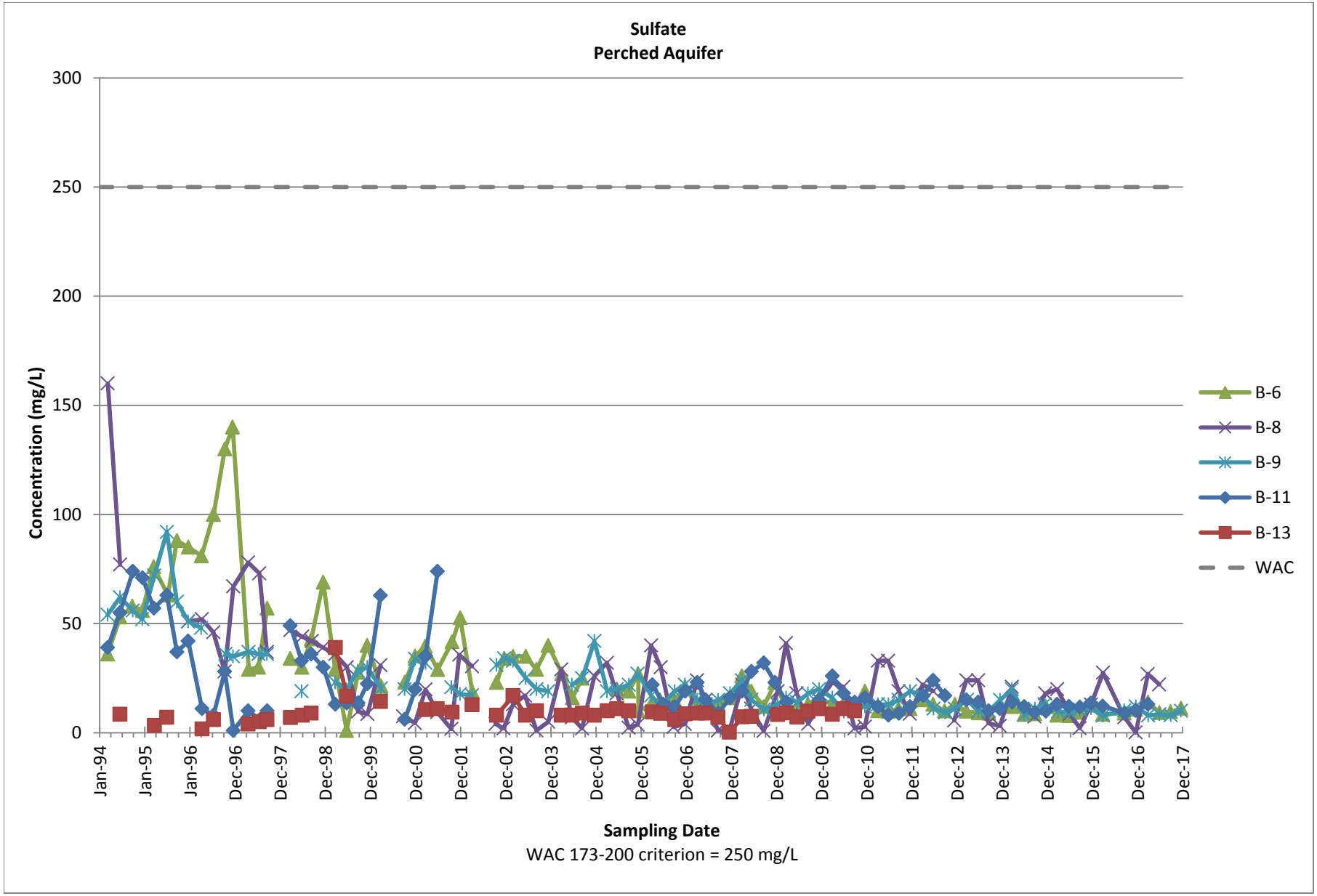

Nitrite as nitrogen
1.2
1
0.8
0.6
0.4
0.2
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-6
B-8
B-9
B-11
B-13


pH
Perched Aquifer
Concentration (SU)
13
12
11
10
9
8
7
6
5
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
B-6
B-8
B-9
B-11
B-13
WAC
WAC
Sampling Date
WAC 173-200 criterion = 6.5 - 8.5 SU


Potassium
Perched Aquifer
Concentration (mg/L)
14
12
10
8
6
4
2
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
B-6
B-8
B-9
B-11
B-13
Sampling Date
WAC 173-200 criterion = NA


Specific Conductance
Perched Aquifer
Concentration (µs/cm)
1800
1600
1400
1200
1000
800
600
400
200
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
B-6
B-8
B-9
B-11
B-13
Sampling Date
WAC 173-200 criterion = NA


Sodium, total
Perched Aquifer
Concentration (mg/L)
80
70
60
50
40
30
20
10
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
B-6
B-8
B-9
B-11
B-13
Sampling Date
WAC 173-200 criterion = NA


Sulfate
Perched Aquifer
300
250
200
150
100
50
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
B-6
B-8
B-9
B-11
B-13
WAC
Sampling Date
WAC 173-200 criterion = 250 mg/L

sample_date	result_numeric (B-11)	result_numeric (B-13)	result_numeric (B-6)
3/8/1994	39		
6/15/1994	55		
9/27/1994	74		
12/14/1994	71		
3/16/1995	57		
6/30/1995	63		
9/19/1995	37		
12/19/1995	42		
4/9/1996	11		
7/10/1996	8		
10/9/1996	28		
12/18/1996	1		
4/17/1997	10		
7/21/1997	6		
9/18/1997	10		
3/24/1998	49		
6/23/1998	33		
9/9/1998	36		
12/16/1998	30		
3/23/1999	13		
6/24/1999	13.6		
9/23/1999	13.7		
12/8/1999	22.4		
3/23/2000	62.9		
10/5/2000	6.1		
12/28/2000	19.8		
3/22/2001	35.2		
6/27/2001	74		
3/31/2006	22		
6/29/2006	13		
9/26/2006	12		
12/21/2006	19		
3/28/2007	23		
6/5/2007	15		
9/13/2007	8.9		
12/18/2007	16		
3/24/2008	19		
6/9/2008	28		
9/16/2008	32		
12/16/2008	23		
3/19/2009	14		
6/8/2009	7.6		
9/9/2009	10		
12/8/2009	15		
3/25/2010	26		
6/24/2010	18		
9/23/2010	14		
12/14/2010	16		

3/29/2011	12	
6/22/2011	8	
9/15/2011	8.9	
12/14/2011	12	
3/30/2012	17	
6/18/2012	24	
9/21/2012	17	
3/14/2013	15	
6/18/2013	14	
9/10/2013	10	
12/9/2013	11	
3/20/2014	14	
6/26/2014	12	
9/17/2014	9.28	
12/18/2014	9.8	
3/18/2015	13	
6/22/2015	12.1	
9/17/2015	11.7	
12/15/2015	13.6	
3/21/2016	12.2	
9/15/2016	9	
12/14/2016	10.2	
3/22/2017	13	
6/16/1994		8.4
3/21/1995		3.3
6/29/1995		7.1
4/9/1996		1.7
7/10/1996		6
4/17/1997		4
7/17/1997		5
9/16/1997		6
3/25/1998		7
6/29/1998		8
9/9/1998		9
3/23/1999		39
6/24/1999		16.7
3/23/2000		14.3
3/22/2001		10.6
6/25/2001		11
10/23/2001		9.4
4/2/2002		12.8
10/17/2002		8

2/28/2003	17	
6/9/2003	8	
9/5/2003	10	
3/23/2004	8	
6/17/2004	8	
9/9/2004	9	
12/15/2004	8	
3/31/2005	10	
6/16/2005	11	
9/20/2005	10	
3/31/2006	9.5	
6/6/2006	8.9	
9/29/2006	6	
12/21/2006	8.7	
3/27/2007	9	
6/4/2007	9	
9/12/2007	7.1	
12/14/2007	0.2	
3/28/2008	7.3	
6/6/2008	7.5	
1/7/2009	8.3	
3/18/2009	9.1	
6/12/2009	7.2	
9/8/2009	9.8	
12/9/2009	11	
3/26/2010	8.4	
6/24/2010	11	
9/22/2010	10	
3/7/1994		36
6/16/1994		53
9/23/1994		58
12/14/1994		56
3/15/1995		76
7/6/1995		63
9/19/1995		88
12/20/1995		85
4/4/1996		81
7/11/1996		100
10/10/1996		130
12/12/1996		140
4/21/1997		29
7/10/1997		30
9/18/1997		57
3/24/1998		34
6/25/1998		30
9/10/1998		43
12/15/1998		69
3/22/1999		29

6/22/1999	1
9/22/1999	27.6
12/7/1999	40
3/28/2000	21.2
10/6/2000	23.2
12/28/2000	35.1
3/21/2001	39.7
6/28/2001	28.9
10/23/2001	41.7
12/27/2001	52.7
4/4/2002	18.8
10/17/2002	23
12/18/2002	34
2/27/2003	35
6/10/2003	35
9/5/2003	29
12/9/2003	40
3/29/2004	27
6/21/2004	16
9/9/2004	25
6/17/2005	20
9/21/2005	19
12/6/2005	27
12/6/2005	10
3/21/2006	13
6/1/2006	15
9/19/2006	10
9/26/2006	15
12/21/2006	21
3/28/2007	12
6/5/2007	12
9/13/2007	13
12/18/2007	16
3/24/2008	26
6/9/2008	19
9/16/2008	12
12/16/2008	23
3/18/2009	11
6/8/2009	11
9/9/2009	13
12/8/2009	16
3/25/2010	13
6/21/2010	13
9/23/2010	12
12/14/2010	19
3/28/2011	10
6/22/2011	9.7
9/12/2011	11
12/14/2011	11

3/29/2012	15
6/18/2012	13
9/17/2012	9.9
12/11/2012	13
3/13/2013	9.8
6/19/2013	9.1
9/10/2013	9
12/9/2013	13
3/20/2014	12
6/26/2014	8.37
9/17/2014	8.62
12/18/2014	12
3/18/2015	8.06
6/22/2015	7.8
9/15/2015	9.3
12/15/2015	12.6
3/21/2016	8.4
9/12/2016	9
12/12/2016	10.7
3/22/2017	14
6/22/2017	9.2
9/20/2017	9.6
12/14/2017	11.2
3/8/1994	
6/17/1994	
12/18/1995	
4/8/1996	
7/10/1996	
10/9/1996	
12/18/1996	
4/17/1997	
7/17/1997	
9/16/1997	
3/26/1998	
6/29/1998	
9/15/1998	
12/14/1998	
3/23/1999	
6/24/1999	
9/23/1999	
12/8/1999	
3/23/2000	
9/21/2000	
12/26/2000	
3/22/2001	
6/25/2001	
10/17/2001	
12/20/2001	
4/2/2002	

10/9/2002
12/13/2002
2/27/2003
6/5/2003
9/5/2003
12/9/2003
3/24/2004
6/17/2004
9/8/2004
12/15/2004
3/28/2005
6/15/2005
9/20/2005
12/2/2005
3/20/2006
6/6/2006
9/18/2006
12/19/2006
3/27/2007
6/4/2007
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3/27/2008
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1/7/2009
3/16/2009
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9/11/2009
12/7/2009
3/24/2010
6/23/2010
9/21/2010
12/13/2010
3/30/2011
6/20/2011
9/14/2011
12/13/2011
3/26/2012
6/19/2012

12/5/2012
3/13/2013
6/17/2013
9/9/2013
12/10/2013
3/18/2014

9/16/2014
12/12/2014
3/19/2015

6/29/2015
9/16/2015
12/17/2015
3/24/2016
9/13/2016
12/13/2016
3/21/2017
6/21/2017
3/7/1994
6/15/1994
9/27/1994
12/12/1994
3/20/1995
6/30/1995
9/19/1995
12/19/1995
4/1/1996

10/16/1996
12/16/1996
4/21/1997
7/10/1997
9/17/1997

6/23/1998

3/22/1999
6/22/1999
9/21/1999
12/6/1999
3/27/2000

10/5/2000
12/27/2000
3/22/2001

10/18/2001
12/26/2001
4/3/2002

10/17/2002
12/17/2002
2/27/2003
6/9/2003
9/5/2003
12/9/2003

6/18/2004
9/9/2004
12/16/2004
3/29/2005
6/16/2005

9/21/2005	
12/2/2005	
3/21/2006	
6/5/2006	
9/27/2006	
12/19/2006	
3/28/2007	
6/5/2007	
9/14/2007	
12/18/2007	
3/24/2008	
6/9/2008	
9/18/2008	
1/6/2009	
3/16/2009	
6/12/2009	
9/9/2009	
12/8/2009	
3/25/2010	
6/25/2010	
9/24/2010	
12/13/2010	
3/30/2011	
6/23/2011	
9/13/2011	
12/15/2011	
3/30/2012	
6/21/2012	
9/24/2012	
12/11/2012	
3/19/2013	
6/19/2013	
9/12/2013	
12/12/2013	
3/18/2014	
6/26/2014	
9/19/2014	
12/8/2014	
3/27/2015	
6/23/2015	
9/17/2015	
12/18/2015	
3/22/2016	
9/12/2016	
12/14/2016	
3/24/2017	
6/23/2017	
9/22/2017	
12/15/2017	
1/1/1994	250
12/31/2017	250

result_numeric (B-8) result_numeric (B-9)

160
77

51
52
46
28
67
78
73
37

47
44
42
39
36
30
9.74
8.5
30.9

7.5
4.4
19.8
9.4
1.7
35.7
30.4

4
2
13
17
1
5
29
7
2
26
32
18
2.3
3.7
40
30
2.6
4
24
15
1
1.1
22
11
0.8
19
41
18
4.1
15
23
21
2
2.8
33
33
19
8.7
22
19

5.6
24
24
4.3
3.1
21

7.37
18
20

8.6		
2.1		
12.9		
27.5		
7.1		
0.1		
26.9		
22.1		
	54	
	62	
	56	
	52	
	72	
	92	
	60	
	51	
	48	
	36	
	35	
	37	
	36	
	36	
	19	
	23	
	19.8	
	28.4	
	30	
	20.3	
	20	
	33.8	
	32	
	20.8	
	17.7	
	17.2	
	31	
	34	
	33	
	25	
	20	
	19	
	22	
	25	
	42	
	19	
	20	

22
27
17
12
19
22
15
13
15
18
24
15
10.6
13
16
14
18
20
16
9.6
12
12
13
13
15
19
17
11
9.3
11
15
9.9
10
15
20
8.14
11
13
9.73
9.3
10.6
11.2
7.8
10.3
12
7.93
8.4
8
10

sample_date	result_numeric (B-11)	result_numeric (B-13)	result_numeric (B-6)	result_numeric (B-8)
3/8/1994	48.4			
6/15/1994	59			
9/27/1994	72.9			
12/14/1994	75.7			
3/16/1995	70.1			
6/30/1995	70.1			
9/19/1995	54.2			
12/19/1995	65.8			
4/9/1996	32.4			
7/10/1996	31			
10/9/1996	46			
12/18/1996	31			
4/17/1997	20			
7/21/1997	25			
9/18/1997	26			
12/11/1997	33			
3/24/1998	47			
6/23/1998	38			
9/9/1998	42			
12/16/1998	42			
3/23/1999	24			
6/24/1999	18.6			
9/23/1999	25.3			
12/8/1999	36.9			
3/23/2000	53			
10/5/2000	36.4			
12/28/2000	43.2			
3/22/2001	52.9			
6/27/2001	82			
3/31/2006	37.1			
6/29/2006	28.4			
9/26/2006	28			
12/21/2006	33.4			
3/28/2007	39.5			
6/5/2007	32.3			
9/13/2007	23.1			
12/18/2007	30.4			
3/24/2008	38.9			
6/9/2008	45			
9/16/2008	51.5			
12/16/2008	48.3			
3/19/2009	27.3			
6/8/2009	16.9			
9/9/2009	24.6			
12/8/2009	31			
3/25/2010	25.5			
6/24/2010	39.2			
9/23/2010	34.2			
12/14/2010	34.1			

3/29/2011	28.5	
6/22/2011	18.2	
9/15/2011	17.6	
12/14/2011	24.4	
3/30/2012	33.5	
6/18/2012	41.3	
9/21/2012	42.9	
12/10/2012	37.4	
3/14/2013	35.8	
6/18/2013	29.6	
9/10/2013	27.2	
12/9/2013	22.7	
3/20/2014	34.4	
6/26/2014	31	
9/17/2014	26	
12/18/2014	24.3	
3/18/2015	27.9	
6/22/2015	30.8	
9/17/2015	30.5	
12/15/2015	32.6	
3/21/2016	29.5	
9/15/2016	25.6	
12/14/2016	23.5	
3/22/2017	31.7	
6/16/1994		46.4
3/21/1995		39.6
6/29/1995		41.6
4/9/1996		60
7/10/1996		28
4/17/1997		33
7/17/1997		33
9/16/1997		30
3/25/1998		24
6/29/1998		20
9/9/1998		18
3/23/1999		49
6/24/1999		15
3/23/2000		21
3/22/2001		18.9
6/25/2001		19.2
10/23/2001		13.8
4/2/2002		16.7
10/17/2002		14.8

2/28/2003	16.5	
6/9/2003	15.5	
9/5/2003	15	
3/23/2004	15	
6/17/2004	14	
9/9/2004	15	
12/15/2004	15.7	
3/31/2005	18	
6/16/2005	22.1	
9/20/2005	19.7	
3/31/2006	13.8	
6/6/2006	13.7	
9/29/2006	10.5	
12/21/2006	14.3	
3/27/2007	18.2	
6/4/2007	18.2	
9/12/2007	13.8	
12/14/2007	46.9	
3/28/2008	17.6	
6/6/2008	18.1	
1/7/2009	22.3	
3/18/2009	22.2	
6/12/2009	15.2	
9/8/2009	20.4	
12/9/2009	16.8	
3/26/2010	16.8	
6/24/2010	26	
9/22/2010	21.7	
3/7/1994		67.1
6/16/1994		86.2
9/23/1994		115
12/14/1994		130
3/15/1995		86.1
7/6/1995		70.7
9/19/1995		69.1
12/20/1995		58.2
4/4/1996		78.7
7/11/1996		80
10/10/1996		81
12/12/1996		68
4/21/1997		80
7/10/1997		69
9/18/1997		73
12/10/1997		68
3/24/1998		75
6/25/1998		80
9/10/1998		78
12/15/1998		74
3/22/1999		85

6/22/1999	49.9
9/22/1999	71.7
12/7/1999	54.2
3/28/2000	73.6
10/6/2000	76.4
12/28/2000	81.2
3/21/2001	72.2
6/28/2001	72.4
10/23/2001	60.2
12/27/2001	53.9
4/4/2002	66.5
10/17/2002	47.1
12/18/2002	60.1
2/27/2003	44.4
6/10/2003	56.4
9/5/2003	71
12/9/2003	52.5
3/29/2004	73
6/21/2004	61
9/9/2004	52
6/17/2005	61.9
9/21/2005	64.5
12/6/2005	50.3
12/6/2005	0.5
3/21/2006	60.7
6/1/2006	52.1
9/19/2006	0.5
9/26/2006	60.4
12/21/2006	45.5
3/28/2007	60.2
6/5/2007	72.7
9/13/2007	55.6
12/18/2007	48.1
3/24/2008	45.8
6/9/2008	45.4
9/16/2008	51.6
12/16/2008	47.1
3/18/2009	65.1
6/8/2009	57.9
9/9/2009	60
12/8/2009	45.1
3/25/2010	49.5
6/21/2010	52.8
9/23/2010	56.2
12/14/2010	52.7
3/28/2011	63.8
6/22/2011	54
9/12/2011	44.9
12/14/2011	46.3

3/29/2012	47	
6/18/2012	65.7	
9/17/2012	50.1	
12/11/2012	51.1	
3/13/2013	71.4	
6/19/2013	63.1	
9/10/2013	62.6	
12/9/2013	48	
3/20/2014	56.6	
6/26/2014	64.2	
9/17/2014	61.7	
12/18/2014	48.3	
3/18/2015	62.4	
6/22/2015	57.8	
9/15/2015	58.8	
12/15/2015	45.3	
3/21/2016	58.1	
9/12/2016	56.5	
12/12/2016	48.3	
3/22/2017	48.1	
6/22/2017	59	
9/20/2017	52.6	
12/14/2017	36	
3/8/1994		115
6/17/1994		90.3
12/18/1995		84.1
4/8/1996		80.5
7/10/1996		94
10/9/1996		140
12/18/1996		76
4/17/1997		96
7/17/1997		98
9/16/1997		110
12/16/1997		82
3/26/1998		72
6/29/1998		93
9/15/1998		120
12/14/1998		90
3/23/1999		65
6/24/1999		53.4
9/23/1999		130
12/8/1999		112
3/23/2000		63.6
9/21/2000		135
12/26/2000		144
3/22/2001		123
6/25/2001		147
10/17/2001		133
12/20/2001		86.1
4/2/2002		51.6

10/9/2002	90
12/13/2002	84.4
2/27/2003	105
6/5/2003	90
12/9/2003	116
3/24/2004	60
6/17/2004	103
9/8/2004	117
12/15/2004	59.3
3/28/2005	62
6/15/2005	89.2
9/20/2005	125
12/2/2005	109
3/20/2006	65.8
6/6/2006	71.7
9/18/2006	126
12/19/2006	129
3/27/2007	52.1
6/4/2007	80.3
9/12/2007	111
12/14/2007	113
3/27/2008	59.5
6/6/2008	82.5
9/15/2008	101
1/7/2009	54.6
3/16/2009	65.1
6/9/2009	77.1
9/11/2009	96.1
12/7/2009	78.2
3/24/2010	53.4
6/23/2010	57.7
9/21/2010	93.4
12/13/2010	94.7
3/30/2011	81.7
6/20/2011	87.6
9/14/2011	74.9
12/13/2011	88.7
3/26/2012	58.2
6/19/2012	67.1
12/5/2012	86.3
3/13/2013	68.9
6/17/2013	77.3
9/9/2013	92.6
12/10/2013	90.9
3/18/2014	62.4
9/16/2014	87.8
12/12/2014	66.7
3/19/2015	66.8

6/29/2015	82
9/16/2015	83.5
12/17/2015	65.4
3/24/2016	63.2
9/13/2016	84.1
12/13/2016	59.1
3/21/2017	57.1
6/21/2017	6.62
3/7/1994	
6/15/1994	
9/27/1994	
12/12/1994	
3/20/1995	
6/30/1995	
9/19/1995	
12/19/1995	
4/1/1996	
10/16/1996	
12/16/1996	
4/21/1997	
7/10/1997	
9/17/1997	
12/11/1997	
6/23/1998	
3/22/1999	
6/22/1999	
9/21/1999	
12/6/1999	
3/27/2000	
10/5/2000	
12/27/2000	
3/22/2001	
10/18/2001	
12/26/2001	
4/3/2002	
10/17/2002	
12/17/2002	
2/27/2003	
6/9/2003	
9/5/2003	
12/9/2003	
6/18/2004	
9/9/2004	
12/16/2004	
3/29/2005	

6/16/2005
9/21/2005
12/2/2005
3/21/2006
6/5/2006
9/27/2006
12/19/2006
3/28/2007
6/5/2007
9/14/2007
12/18/2007
3/24/2008
6/9/2008
9/18/2008
1/6/2009
3/16/2009
6/12/2009
9/9/2009
12/8/2009
3/25/2010
6/25/2010
9/24/2010
12/13/2010
3/30/2011
6/23/2011
9/13/2011
12/15/2011
3/30/2012
6/21/2012
9/24/2012
12/11/2012
3/19/2013
6/19/2013
9/12/2013
12/12/2013
3/18/2014
6/26/2014
9/19/2014
12/8/2014
3/27/2015
6/23/2015
9/17/2015
12/18/2015
3/22/2016
9/12/2016
12/14/2016
3/24/2017
6/23/2017
9/22/2017
12/15/2017

result_numeric (B-9)

82
86
93.8
108
121
114
85.5
70.2
54.4

39
34
38
35
34
27

26

34
23.5
29.4
33.8
34

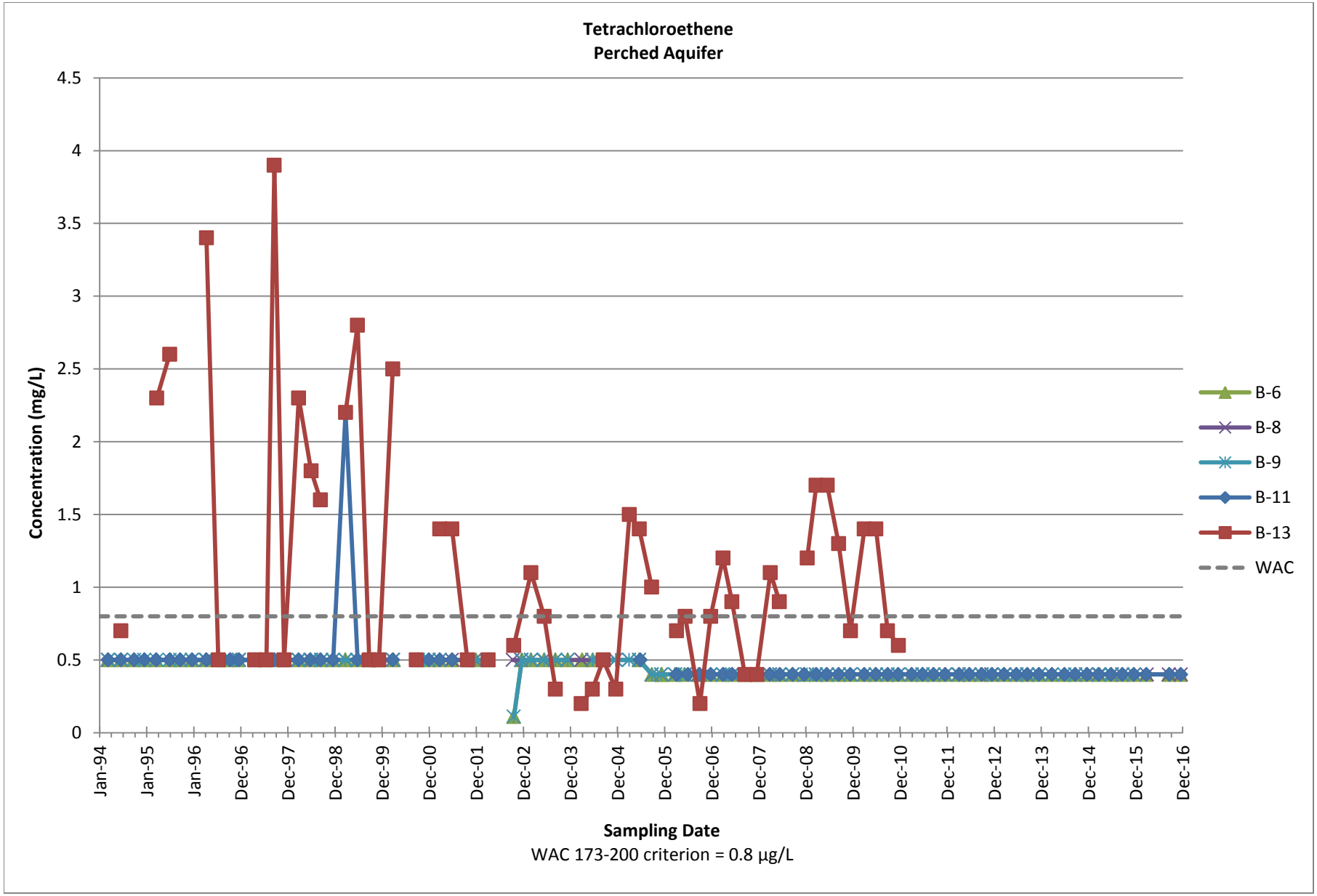
32.6
39
37.4

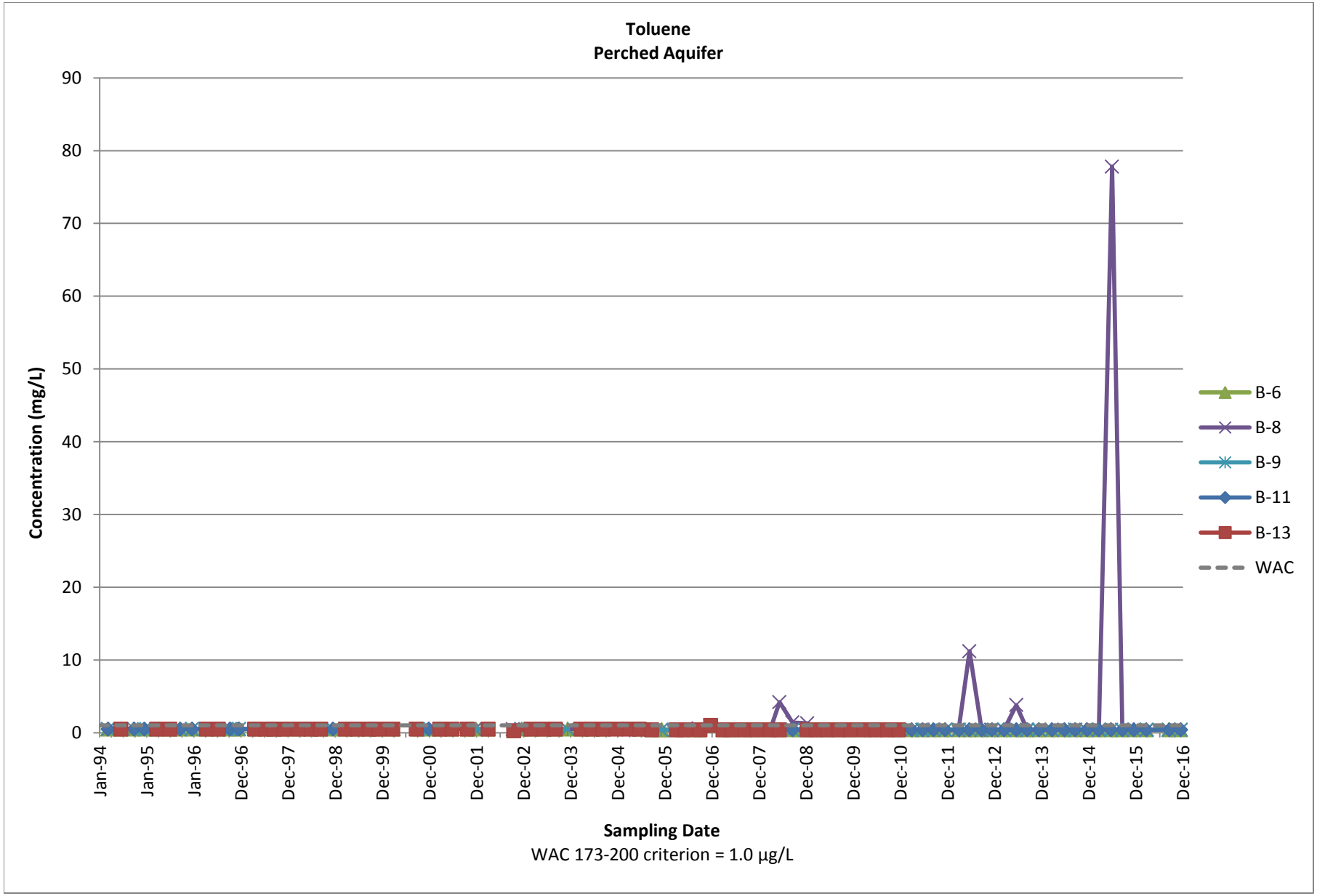
36.6
31.8
33.7

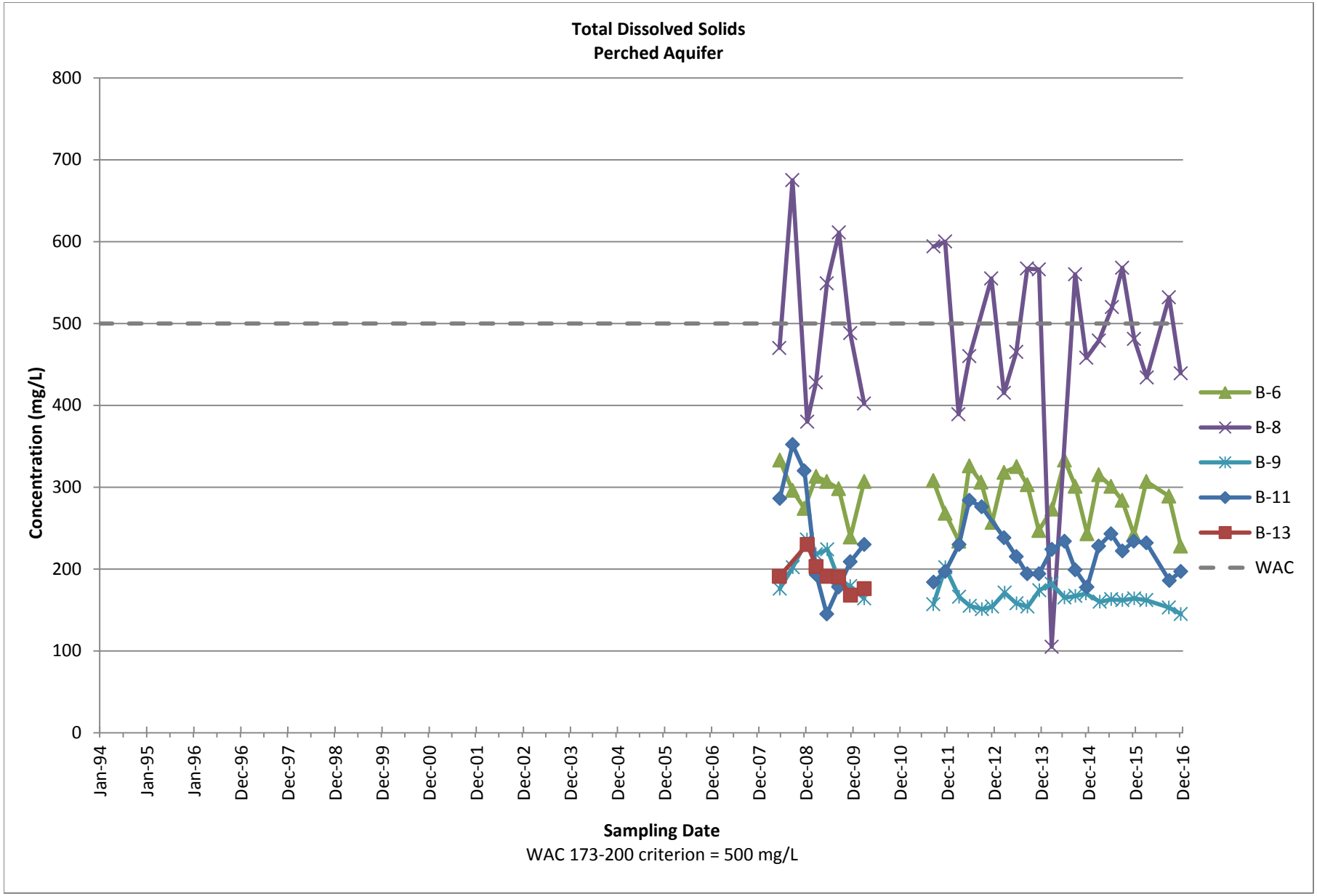
17.3
21.9
22.2
22.8
25.2
22.7

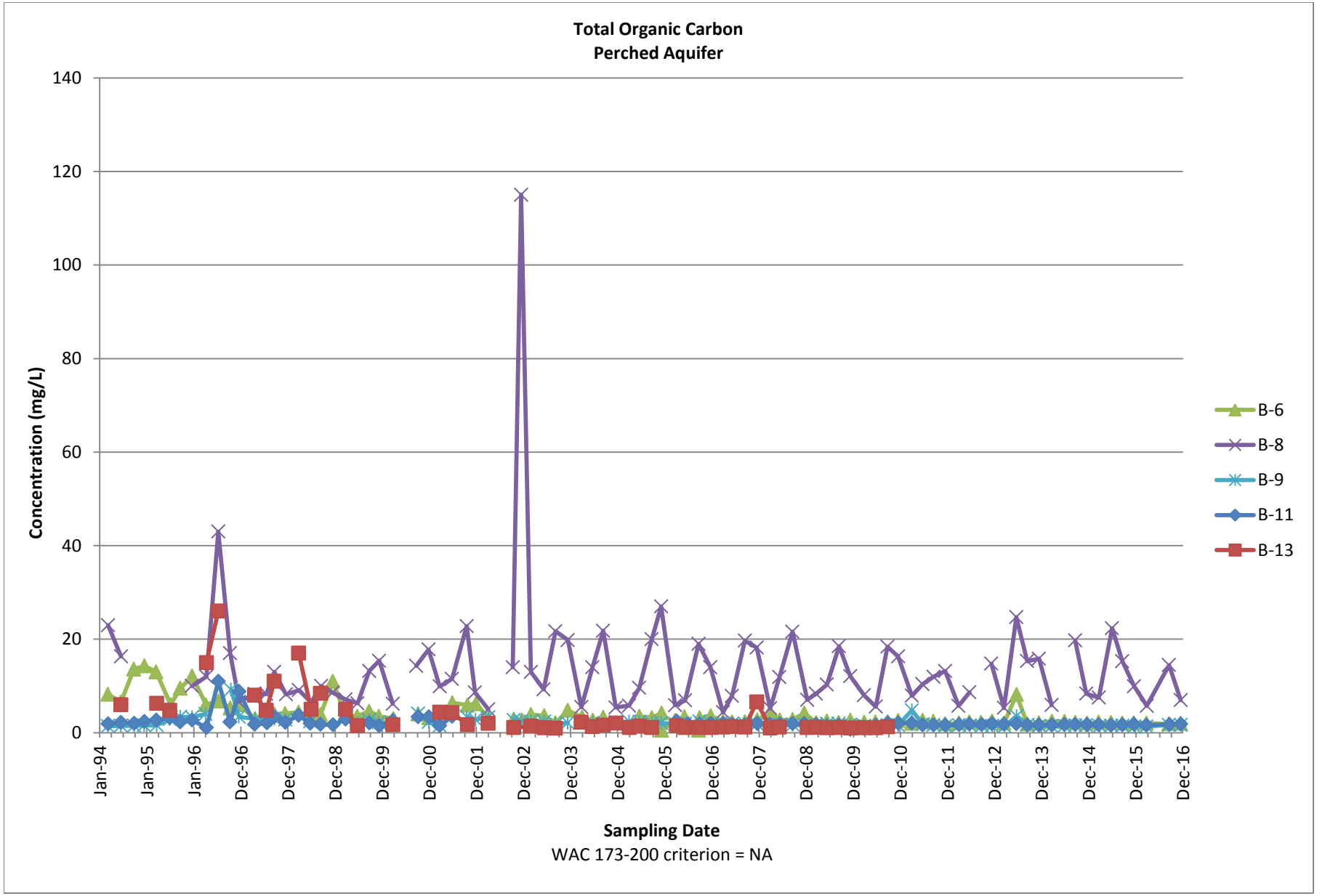
25
22
25.2
21

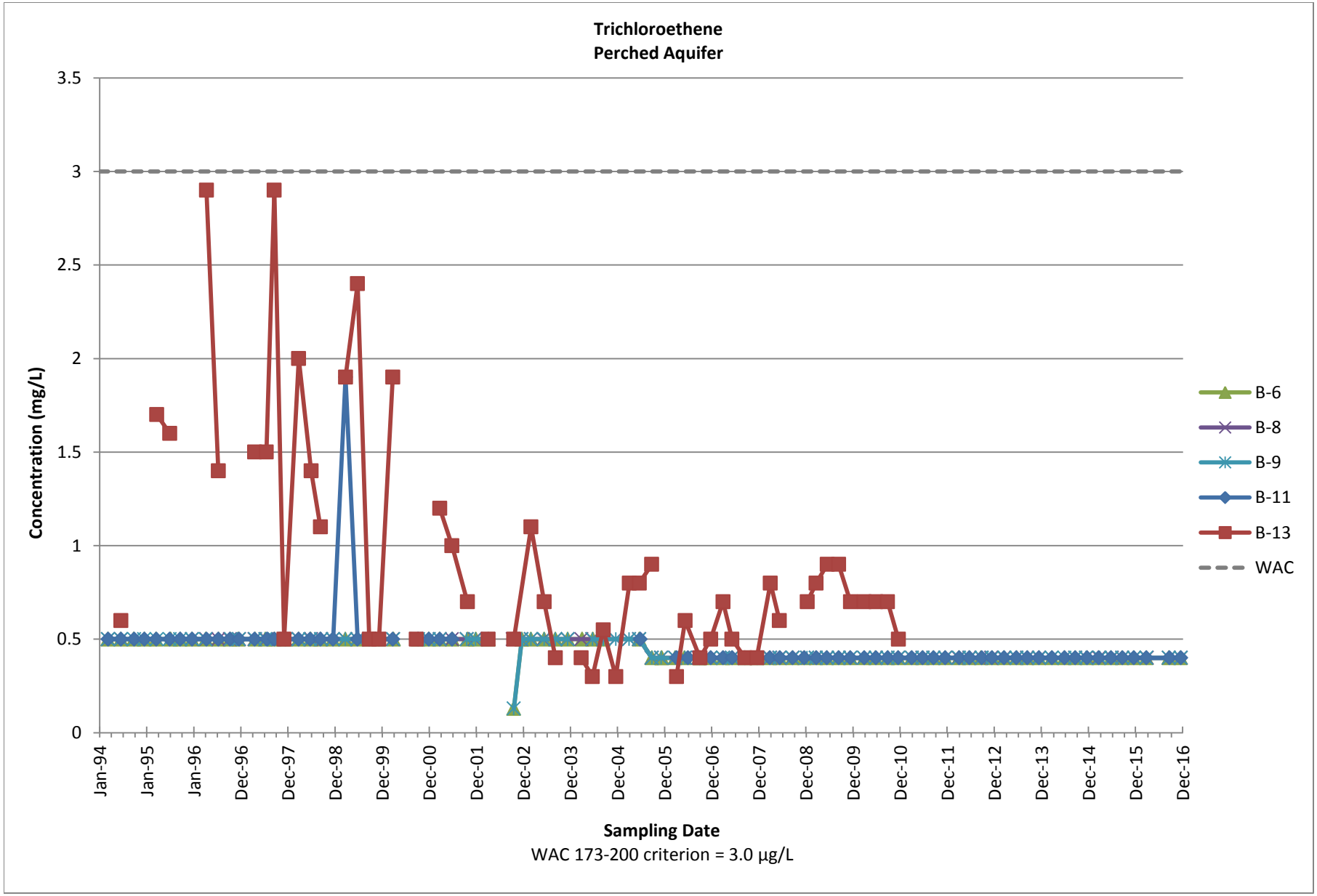
20.3
21.5
18.3
19.8
18.9
22
23.5
23.2
27.4
20.4
21.4
25.8
25.3
30.4
35.1
33
30.3
25.3
23.1
20.5
19
22.2
22
26.1
22.8
19.9
20.9
21.6
20.3
21.3
20.9
23.1
21.4
20.9
24
26.7
23.7
24.7
22.6
21.9
21.4
22
16.5
22
20.4
20.4
18.2
22
19.6
20.8

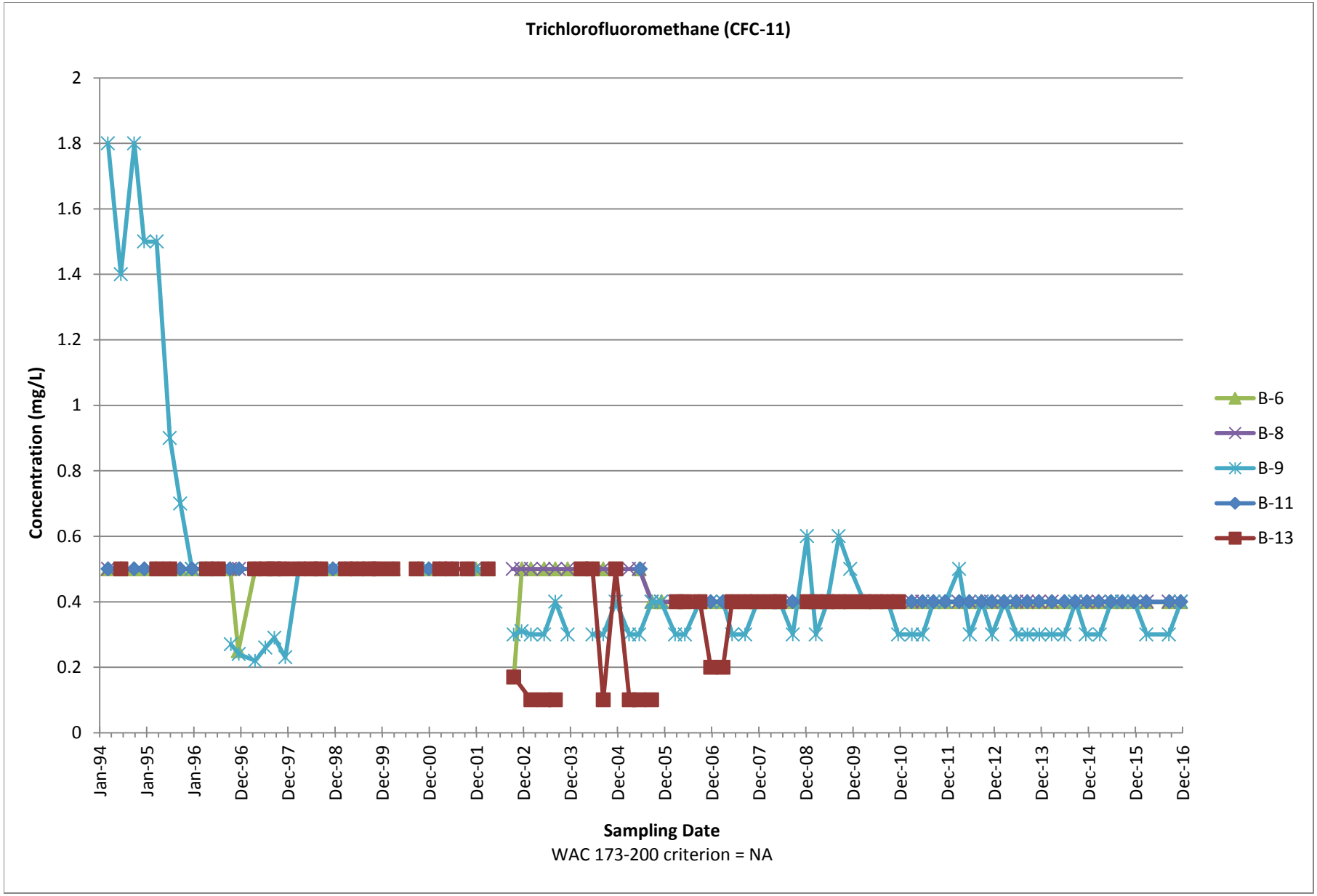

Tetrachloroethene
Perched Aquifer
Concentration (mg/L)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-6
B-8
B-9
B-11
B-13
WAC
Sampling Date
WAC 173-200 criterion = 0.8 µg/L

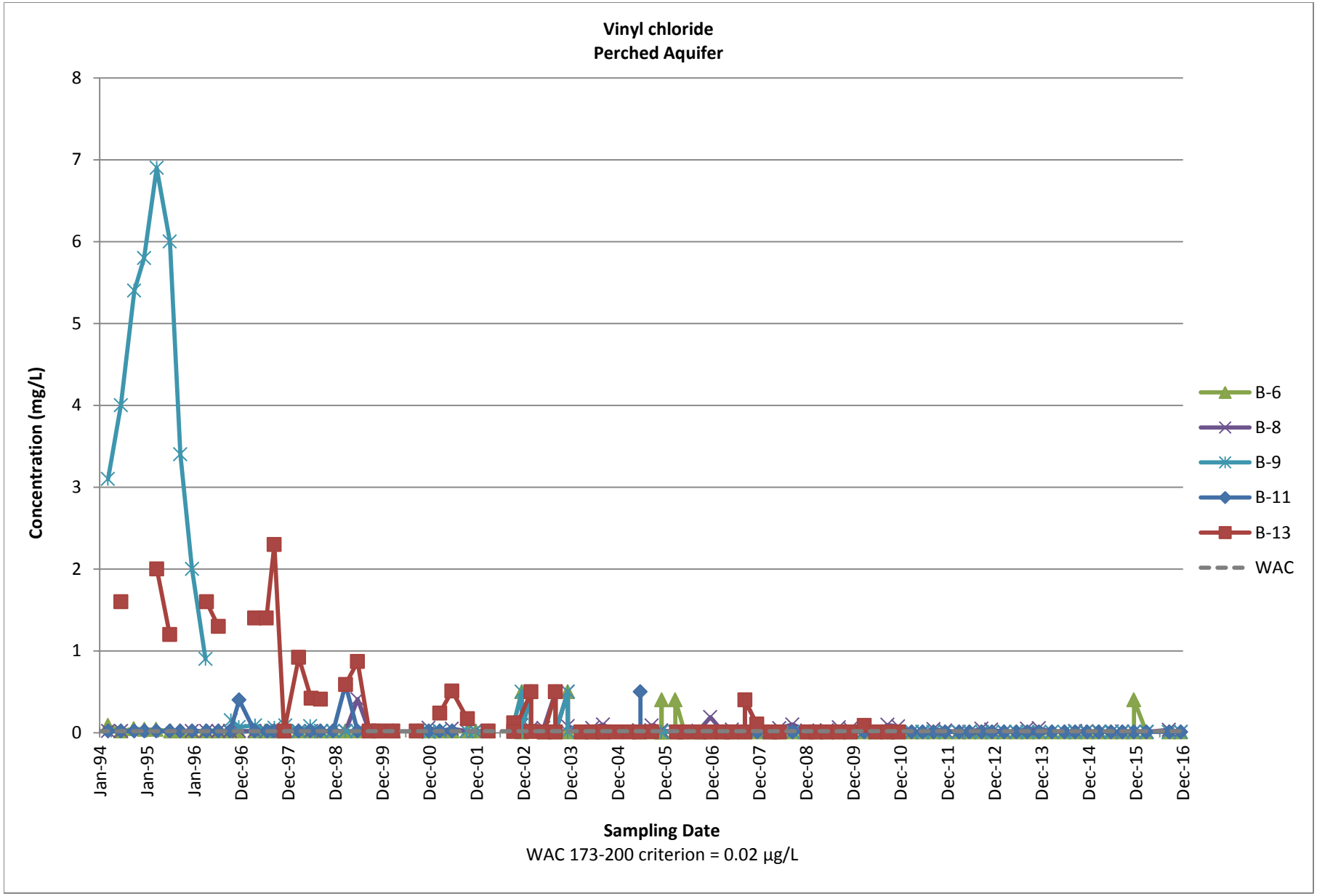

Toluene
Perched Aquifer
Concentration (mg/L)
90
80
70
60
50
40
30
20
10
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
B-6
B-8
B-9
B-11
B-13
WAC
WAC 173-200 criterion = 1.0 µg/L

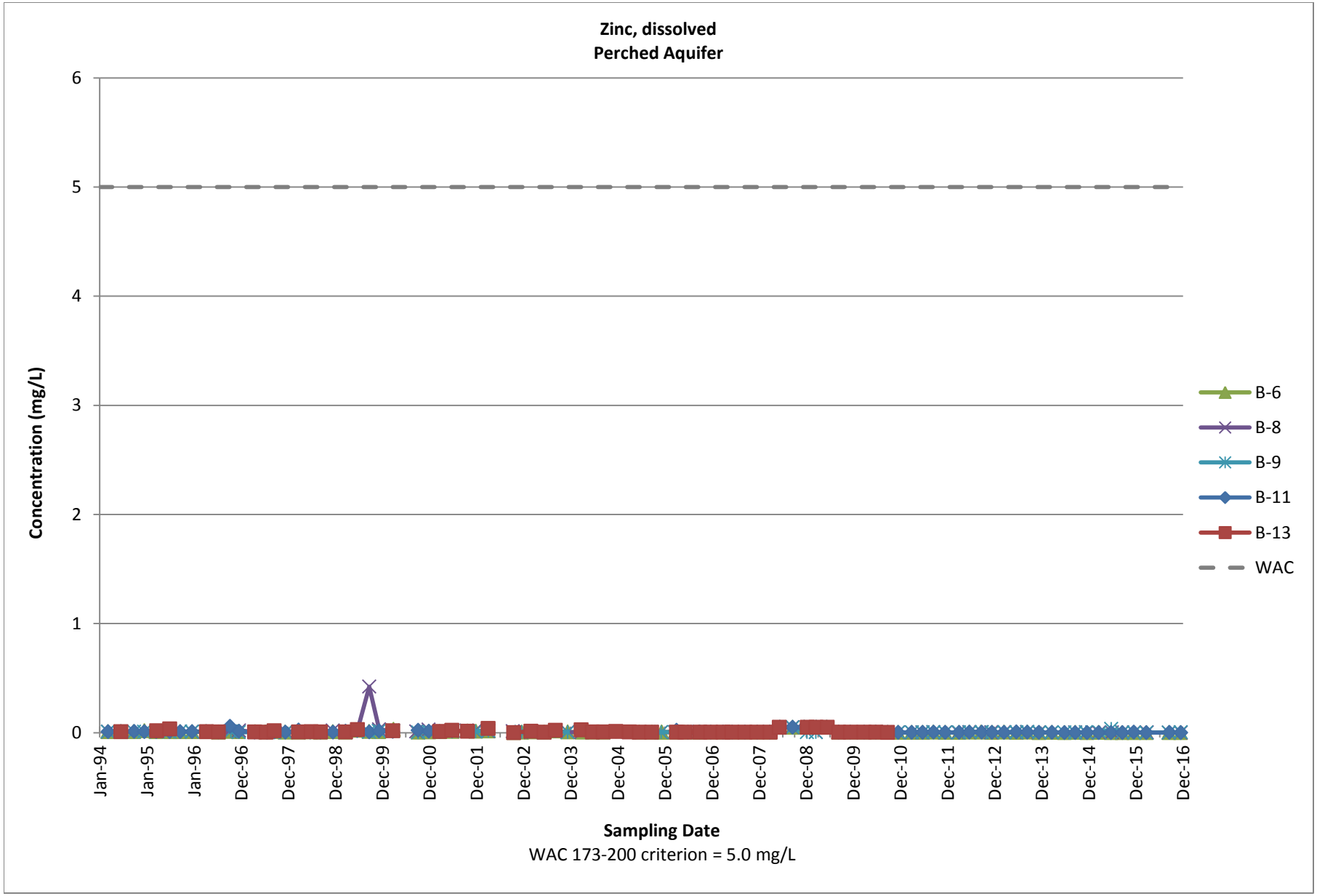

Total Dissolved Solids
Perched Aquifer
Concentration (mg/L)
800
700
600
500
400
300
200
100
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
B-6
B-8
B-9
B-11
B-13
WAC
WAC 173-200 criterion = 500 mg/L


Total Organic Carbon
Perched Aquifer
Concentration (mg/L)
140
120
100
80
60
40
20
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-6
B-8
B-9
B-11
B-13


Trichloroethene
Perched Aquifer
Concentration (mg/L)
3.5
3
2.5
2
1.5
1
0.5
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-6
B-8
B-9
B-11
B-13
WAC
Sampling Date
WAC 173-200 criterion = 3.0 µg/L


Trichlorofluoromethane (CFC-11)
Concentration (mg/L)
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-6
B-8
B-9
B-11
B-13


Vinyl chloride
Perched Aquifer
Concentration (mg/L)
8
7
6
5
4
3
2
1
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-6
B-8
B-9
B-11
B-13
WAC
Sampling Date
WAC 173-200 criterion = 0.02 µg/L


Zinc, dissolved
Perched Aquifer
Concentration (mg/L)
6
5
4
3
2
1
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-6
B-8
B-9
B-11
B-13
WAC
Sampling Date
WAC 173-200 criterion = 5.0 mg/L

APPENDIX B-1:
2017 Groundwater Monitoring Data – Upper Regional Aquifer

2017 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional			
MONITORING WELL Sampling Date			B-1 3/23/2017	B-1 6/22/2017	B-1 9/20/2017	B-1 12/14/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
1,1,1,2-tetrachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1,1-trichloroethane	µg/L	200*	0.4 U	0.4 U	0.4 U	0.4 U
1,1,2,2-tetrachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1,2-trichloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1,2-trichlorofluorotoluene (Freon-113)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1-dichloroethane	µg/L	1.0***	0.4 U	0.4 U	0.4 U	0.4 U
1,1-dichloroethene	µg/L	7****	0.4 U	0.4 U	0.4 U	0.4 U
1,1-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,3-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,3-trichloropropane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,4-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,4-trimethylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2-dibromo-3-chloropropane (DBCP)	µg/L	0.2****	1 U	1 U	1 U	1 U
1,2-dibromoethane (EDB)	µg/L	0.001***	0.01 U	0.01 U	0.01 U	0.01 U
1,2-dichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2-dichloroethane	µg/L	0.5***	0.4 U	0.4 U	0.4 U	0.4 U
1,2-dichloropropane	µg/L	0.6***	0.4 U	0.4 U	0.4 U	0.4 U
1,3,5-trimethylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,3-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,4-dichlorobenzene	µg/L	4***	0.4 U	0.4 U	0.4 U	0.4 U
1,4-dioxane	µg/L	7***	5 U	5 U	5 U	5 U
2,2-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
2-butanone	µg/L		3 U	3 U	3 U	2 U
2-chloroethyl vinyl ether	µg/L		2 U	2 U	2 U	5 U
2-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
2-nitropropane	µg/L		10 U	10 U	10 U	10 U
2-phenylbutane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
4-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
4-methyl-2-pentanone	µg/L		4 U	4 U	4 U	4 U
Acetone	µg/L		3 U	3 U	3 U	3 U
Acrolein	µg/L		4 U	4 U	4 U	4 U
Acrylonitrile	µg/L	0.07***	0.05 U	0.05 U	0.05 U	0.05 U
Allyl chloride	µg/L		2 U	2 U	2 U	2 U
Benzene	µg/L	1.0***	0.4 U	0.4 U	0.4 U	0.4 U
Bromobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Bromodichloromethane	µg/L	0.3***	0.4 U	0.4 U	0.4 U	0.4 U
Bromomethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Carbon disulfide	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Carbon tetrachloride	µg/L	0.3***	0.4 U	0.4 U	0.4 U	0.4 U
Chlorobenzene	µg/L	100****	0.4 U	0.4 U	0.4 U	0.4 U
Chlorobromomethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Chlorodibromomethane	µg/L	0.5***	0.4 U	0.4 U	0.4 U	0.4 U
Chlorodifluoromethane (Freon-22)	µg/L		1.2	1.4	1.2	0.3 J
Chloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Chloroform	µg/L	7.0***	0.4 U	0.4 U	0.4 U	0.4 U
Chloromethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
cis-1,2-dichloroethene	µg/L	70****	0.4 U	0.4 U	0.4 U	0.4 U
cis-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Cymene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Dibromomethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Dichlorodifluoromethane (CFC-12)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Dichloromethane	µg/L	5***	0.4 U	0.4 U	0.4 U	0.4 U
Dichloromonofluoromethane (Freon-21)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Diethyl ether	µg/L		0.4 U	0.4 U	0.4 U	0.4 U

2017 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional			
MONITORING WELL Sampling Date			B-1 3/23/2017	B-1 6/22/2017	B-1 9/20/2017	B-1 12/14/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
Ethyl methacrylate	µg/L		3 U	3 U	3 U	2 U
Ethylbenzene	µg/L	700****	0.4 U	0.4 U	0.4 U	0.4 U
Hexachloro-1,3-butadiene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Hexachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Isopropylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
m+p-xylene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
m-dichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Methyl acrylate	µg/L		2 U	2 U	2 U	0.8 U
Methyl iodide	µg/L		5 U	5 U	5 U	5 U
Methyl methacrylate	µg/L		2 U	2 U	2 U	1 U
Methyl n-butyl ketone	µg/L		5 U	5 U	5 U	5 U
Methyl tert-butyl ether	µg/L		1 U	1 U	1 U	1 U
Methylacrylonitrile	µg/L		4 U	4 U	4 U	4 U
Naphthalene	µg/L		1 U	1 U	1 U	1 U
n-butyl chloride	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
n-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
n-propylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
o-xylene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Pentachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Styrene (monomer)	µg/L	100****	0.4 U	0.4 U	0.4 U	0.4 U
Tert-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Tetrachloroethene	µg/L	0.8***	0.4 U	0.4 U	0.4 U	0.4 U
Tetrahydrofuran	µg/L		3 U	3 U	3 U	3 U
Toluene	µg/L	1****	0.4 U	0.4 U	0.4 U	0.4 U
Trans-1,2-dichloroethene	µg/L	100****	0.4 U	0.4 U	0.4 U	0.4 U
Trans-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Trans-1,4-dichlorobutene	µg/L		5 U	5 U	5 U	5 U
Tribromomethane (Bromoform)	µg/L	5***	0.4 U	0.4 U	0.4 U	0.4 U
Trichloroethene	µg/L	3***	0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane (CFC-11)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Vinyl chloride	µg/L	0.02***	0.01 U	0.01 U	0.01 U	0.01 U

Groundwater Quality Criteria:

* = Primary Contaminant
** = Secondary Contaminant
*** = Carcinogen
**** = 246-290 WAC criteria

Qualifiers:

U — Indicates the analyte of interest was not detected, to the limit of detection indicated.

J — Indicates the analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.

Units:

µg/L= micrograms per liter

Results shown in bold exceed Ground Water Quality Criteria.

2017 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional			
MONITORING WELL Sampling Date			B-2 3/21/2017	B-2 6/21/2017	B-2 9/20/2017	B-2 12/13/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
1,1,1,2-tetrachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1,1-trichloroethane	µg/L	200*	0.4 U	0.4 U	0.4 U	0.4 U
1,1,2,2-tetrachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1,2-trichloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1,2-trichlorofluorotoluene (Freon-113)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1-dichloroethane	µg/L	1.0***	0.4 U	0.4 U	0.4 U	0.4 U
1,1-dichloroethene	µg/L	7****	0.4 U	0.4 U	0.4 U	0.4 U
1,1-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,3-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,3-trichloropropane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,4-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,4-trimethylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2-dibromo-3-chloropropane (DBCP)	µg/L	0.2****	1 U	1 U	1 U	1 U
1,2-dibromoethane (EDB)	µg/L	0.001***	0.01 U	0.01 U	0.01 U	0.01 U
1,2-dichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2-dichloroethane	µg/L	0.5***	0.4 U	0.4 U	0.4 U	0.4 U
1,2-dichloropropane	µg/L	0.6***	0.4 U	0.4 U	0.4 U	0.4 U
1,3,5-trimethylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,3-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,4-dichlorobenzene	µg/L	4***	0.4 U	0.4 U	0.4 U	0.4 U
1,4-dioxane	µg/L	7***	5 U	5 U	5 U	5 U
2,2-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
2-butanone	µg/L		3 U	3 U	3 U	2 U
2-chloroethyl vinyl ether	µg/L		2 U	2 U	2 U	5 U
2-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
2-nitropropane	µg/L		10 U	10 U	10 U	10 U
2-phenylbutane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
4-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
4-methyl-2-pentanone	µg/L		4 U	4 U	4 U	4 U
Acetone	µg/L		3 U	3 U	3 U	3 U
Acrolein	µg/L		4 U	4 U	4 U	4 U
Acrylonitrile	µg/L	0.07***	0.05 U	0.05 U	0.05 U	0.05 U
Allyl chloride	µg/L		2 U	2 U	2 U	2 U
Benzene	µg/L	1.0***	0.4 U	0.4 U	0.4 U	0.4 U
Bromobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Bromodichloromethane	µg/L	0.3***	0.4 U	0.4 U	0.4 U	0.4 U
Bromomethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Carbon disulfide	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Carbon tetrachloride	µg/L	0.3***	0.4 U	0.4 U	0.4 U	0.4 U
Chlorobenzene	µg/L	100****	0.4 U	0.4 U	0.4 U	0.4 U
Chlorobromomethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Chlorodibromomethane	µg/L	0.5***	0.4 U	0.4 U	0.4 U	0.4 U
Chlorodifluoromethane (Freon-22)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Chloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Chloroform	µg/L	7.0***	0.4 U	0.4 U	0.4 U	0.4 U
Chloromethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
cis-1,2-dichloroethene	µg/L	70****	0.4 U	0.4 U	0.4 U	0.4 U
cis-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Cymene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Dibromomethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Dichlorodifluoromethane (CFC-12)	µg/L		1.3	1.1	1.3	1.3
Dichloromethane	µg/L	5***	0.4 U	0.4 U	0.4 U	0.4 U
Dichloromonofluoromethane (Freon-21)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Diethyl ether	µg/L		0.4 U	0.4 U	0.4 U	0.4 U

2017 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional			
MONITORING WELL Sampling Date			B-2 3/21/2017	B-2 6/21/2017	B-2 9/20/2017	B-2 12/13/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
Ethyl methacrylate	µg/L		3 U	3 U	3 U	2 U
Ethylbenzene	µg/L	700****	0.4 U	0.4 U	0.4 U	0.4 U
Hexachloro-1,3-butadiene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Hexachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Isopropylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
m+p-xylene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
m-dichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Methyl acrylate	µg/L		2 U	2 U	2 U	0.8 U
Methyl iodide	µg/L		5 U	5 U	5 U	5 U
Methyl methacrylate	µg/L		2 U	2 U	2 U	1 U
Methyl n-butyl ketone	µg/L		5 U	5 U	5 U	5 U
Methyl tert-butyl ether	µg/L		1 U	1 U	1 U	1 U
Methylacrylonitrile	µg/L		4 U	4 U	4 U	4 U
Naphthalene	µg/L		1 U	1 U	1 U	1 U
n-butyl chloride	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
n-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
n-propylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
o-xylene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Pentachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Styrene (monomer)	µg/L	100****	0.4 U	0.4 U	0.4 U	0.4 U
Tert-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Tetrachloroethene	µg/L	0.8***	0.4 U	0.4 U	0.4 U	0.4 U
Tetrahydrofuran	µg/L		3 U	3 U	3 U	3 U
Toluene	µg/L	1****	0.4 U	0.4 U	0.4 U	0.4 U
Trans-1,2-dichloroethene	µg/L	100****	0.4 U	0.4 U	0.4 U	0.4 U
Trans-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Trans-1,4-dichlorobutene	µg/L		5 U	5 U	5 U	5 U
Tribromomethane (Bromoform)	µg/L	5***	0.4 U	0.4 U	0.4 U	0.4 U
Trichloroethene	µg/L	3***	0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane (CFC-11)	µg/L		0.4 U	0.4 U	0.3 J	0.4 U
Vinyl chloride	µg/L	0.02***	0.01 U	0.01 U	0.01 U	0.01 U

Groundwater Quality Criteria:

* = Primary Contaminant
** = Secondary Contaminant
*** = Carcinogen
**** = 246-290 WAC criteria

Qualifiers:

U — Indicates the analyte of interest was not detected, to the limit of detection indicated.

J — Indicates the analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.

Units:

µg/L= micrograms per liter

Results shown in bold exceed Ground Water Quality Criteria.

2017 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional			
MONITORING WELL Sampling Date			B-3 3/21/2017	B-3 6/21/2017	B-3 9/19/2017	B-3 12/7/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
1,1,1,2-tetrachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1,1-trichloroethane	µg/L	200*	0.4 U	0.4 U	0.4 U	0.4 U
1,1,2,2-tetrachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1,2-trichloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1,2-trichlorofluorotoluene (Freon-113)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1-dichloroethane	µg/L	1.0***	0.4 U	0.4 U	0.4 U	0.4 U
1,1-dichloroethene	µg/L	7****	0.4 U	0.4 U	0.4 U	0.4 U
1,1-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,3-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,3-trichloropropane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,4-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,4-trimethylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2-dibromo-3-chloropropane (DBCP)	µg/L	0.2****	1 U	1 U	1 U	1 U
1,2-dibromoethane (EDB)	µg/L	0.001***	0.01 U	0.01 U	0.01 U	0.01 U
1,2-dichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2-dichloroethane	µg/L	0.5***	0.4 U	0.4 U	0.4 U	0.4 U
1,2-dichloropropane	µg/L	0.6***	0.4 U	0.4 U	0.4 U	0.4 U
1,3,5-trimethylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,3-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,4-dichlorobenzene	µg/L	4***	0.4 U	0.4 U	0.4 U	0.4 U
1,4-dioxane	µg/L	7***	5 U	5 U	5 U	5 U
2,2-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
2-butanone	µg/L		3 U	3 U	3 U	2 U
2-chloroethyl vinyl ether	µg/L		2 U	2 U	2 U	5 U
2-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
2-nitropropane	µg/L		10 U	10 U	10 U	10 U
2-phenylbutane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
4-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
4-methyl-2-pentanone	µg/L		4 U	4 U	4 U	4 U
Acetone	µg/L		3 U	3 U	3 U	3 U
Acrolein	µg/L		4 U	4 U	4 U	4 U
Acrylonitrile	µg/L	0.07***	0.05 U	0.05 U	0.05 U	0.05 U
Allyl chloride	µg/L		2 U	2 U	2 U	2 U
Benzene	µg/L	1.0***	0.4 U	0.4 U	0.4 U	0.4 U
Bromobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Bromodichloromethane	µg/L	0.3***	0.4 U	0.4 U	0.4 U	0.4 U
Bromomethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Carbon disulfide	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Carbon tetrachloride	µg/L	0.3***	0.4 U	0.4 U	0.4 U	0.4 U
Chlorobenzene	µg/L	100****	0.4 U	0.4 U	0.4 U	0.4 U
Chlorobromomethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Chlorodibromomethane	µg/L	0.5***	0.4 U	0.4 U	0.4 U	0.4 U
Chlorodifluoromethane (Freon-22)	µg/L		0.9	0.4 U	0.4 U	0.9
Chloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Chloroform	µg/L	7.0***	0.4 U	0.4 U	0.4 U	0.4 U
Chloromethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
cis-1,2-dichloroethene	µg/L	70****	0.4 U	0.4 U	0.4 U	0.4 U
cis-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Cymene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Dibromomethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Dichlorodifluoromethane (CFC-12)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Dichloromethane	µg/L	5***	0.4 U	0.4 U	0.4 U	0.4 U
Dichloromonofluoromethane (Freon-21)	µg/L		0.6	0.4 U	0.4 U	0.5
Diethyl ether	µg/L		2.9	0.6	0.4 U	1.8

2017 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional			
MONITORING WELL Sampling Date			B-3 3/21/2017	B-3 6/21/2017	B-3 9/19/2017	B-3 12/7/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
Ethyl methacrylate	µg/L		3 U	3 U	3 U	2 U
Ethylbenzene	µg/L	700****	0.4 U	0.4 U	0.4 U	0.4 U
Hexachloro-1,3-butadiene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Hexachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Isopropylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
m+p-xylene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
m-dichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Methyl acrylate	µg/L		2 U	2 U	2 U	0.8 U
Methyl iodide	µg/L		5 U	5 U	5 U	5 U
Methyl methacrylate	µg/L		2 U	2 U	2 U	1 U
Methyl n-butyl ketone	µg/L		5 U	5 U	5 U	5 U
Methyl tert-butyl ether	µg/L		1 U	1 U	1 U	1 U
Methylacrylonitrile	µg/L		4 U	4 U	4 U	4 U
Naphthalene	µg/L		1 U	1 U	1 U	1 U
n-butyl chloride	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
n-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
n-propylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
o-xylene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Pentachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Styrene (monomer)	µg/L	100****	0.4 U	0.4 U	0.4 U	0.4 U
Tert-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Tetrachloroethene	µg/L	0.8***	0.4 U	0.4 U	0.4 U	0.4 U
Tetrahydrofuran	µg/L		3 U	3 U	3 U	3 U
Toluene	µg/L	1****	0.4 U	0.4 U	0.4 U	0.4 U
Trans-1,2-dichloroethene	µg/L	100****	0.4 U	0.4 U	0.4 U	0.4 U
Trans-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Trans-1,4-dichlorobutene	µg/L		5 U	5 U	5 U	5 U
Tribromomethane (Bromoform)	µg/L	5***	0.4 U	0.4 U	0.4 U	0.4 U
Trichloroethene	µg/L	3***	0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane (CFC-11)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Vinyl chloride	µg/L	0.02***	0.079	0.014	0.01 U	0.039

Groundwater Quality Criteria:

* = Primary Contaminant
** = Secondary Contaminant
*** = Carcinogen
**** = 246-290 WAC criteria

Qualifiers:

U — Indicates the analyte of interest was not detected, to the limit of detection indicated.

J — Indicates the analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.

Units:

µg/L= micrograms per liter

Results shown in bold exceed Ground Water Quality Criteria.

2017 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional			
MONITORING WELL Sampling Date			B-4 3/24/2017	B-4 6/23/2017	B-4 9/22/2017	B-4 12/15/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
1,1,1,2-tetrachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1,1-trichloroethane	µg/L	200*	0.4 U	0.4 U	0.4 U	0.4 U
1,1,2,2-tetrachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1,2-trichloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1,2-trichlorofluorotoluene (Freon-113)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1-dichloroethane	µg/L	1.0***	0.4 U	0.4 U	0.4 U	0.4 U
1,1-dichloroethene	µg/L	7****	0.4 U	0.4 U	0.4 U	0.4 U
1,1-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,3-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,3-trichloropropane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,4-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,4-trimethylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2-dibromo-3-chloropropane (DBCP)	µg/L	0.2****	1 U	1 U	1 U	1 U
1,2-dibromoethane (EDB)	µg/L	0.001***	0.01 U	0.01 U	0.01 U	0.01 U
1,2-dichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2-dichloroethane	µg/L	0.5***	0.4 U	0.4 U	0.4 U	0.4 U
1,2-dichloropropane	µg/L	0.6***	0.4 U	0.4 U	0.4 U	0.4 U
1,3,5-trimethylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,3-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,4-dichlorobenzene	µg/L	4***	0.4 U	0.4 U	0.4 U	0.4 U
1,4-dioxane	µg/L	7***	5 U	5 U	5 U	5 U
2,2-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
2-butanone	µg/L		3 U	3 U	3 U	2 U
2-chloroethyl vinyl ether	µg/L		2 U	2 U	2 U	5 U
2-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
2-nitropropane	µg/L		10 U	10 U	10 U	10 U
2-phenylbutane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
4-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
4-methyl-2-pentanone	µg/L		4 U	4 U	4 U	4 U
Acetone	µg/L		3 U	3 U	3 U	3 U
Acrolein	µg/L		4 U	4 U	4 U	4 U
Acrylonitrile	µg/L	0.07***	0.05 U	0.05 U	0.05 U	0.05 U
Allyl chloride	µg/L		2 U	2 U	2 U	2 U
Benzene	µg/L	1.0***	0.4 U	0.4 U	0.4 U	0.4 U
Bromobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Bromodichloromethane	µg/L	0.3***	0.4 U	0.4 U	0.4 U	0.4 U
Bromomethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Carbon disulfide	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Carbon tetrachloride	µg/L	0.3***	0.4 U	0.4 U	0.4 U	0.4 U
Chlorobenzene	µg/L	100****	0.4 U	0.4 U	0.4 U	0.4 U
Chlorobromomethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Chlorodibromomethane	µg/L	0.5***	0.4 U	0.4 U	0.4 U	0.4 U
Chlorodifluoromethane (Freon-22)	µg/L		7.1	6	5.1	7.8
Chloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Chloroform	µg/L	7.0***	0.4 U	0.4 U	0.4 U	0.4 U
Chloromethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
cis-1,2-dichloroethene	µg/L	70****	0.4 U	0.4 U	0.4 U	0.4 U
cis-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Cymene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Dibromomethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Dichlorodifluoromethane (CFC-12)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Dichloromethane	µg/L	5***	0.4 U	0.4 U	0.4 U	0.4 U
Dichloromonofluoromethane (Freon-21)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Diethyl ether	µg/L		0.4 U	0.4 U	0.4 U	0.4 U

2017 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional			
MONITORING WELL Sampling Date			B-4 3/24/2017	B-4 6/23/2017	B-4 9/22/2017	B-4 12/15/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
Ethyl methacrylate	µg/L		3 U	3 U	3 U	2 U
Ethylbenzene	µg/L	700****	0.4 U	0.4 U	0.4 U	0.4 U
Hexachloro-1,3-butadiene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Hexachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Isopropylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
m+p-xylene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
m-dichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Methyl acrylate	µg/L		2 U	2 U	2 U	0.8 U
Methyl iodide	µg/L		5 U	5 U	5 U	5 U
Methyl methacrylate	µg/L		2 U	2 U	2 U	1 U
Methyl n-butyl ketone	µg/L		5 U	5 U	5 U	5 U
Methyl tert-butyl ether	µg/L		1 U	1 U	1 U	1 U
Methylacrylonitrile	µg/L		4 U	4 U	4 U	4 U
Naphthalene	µg/L		1 U	1 U	1 U	1 U
n-butyl chloride	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
n-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
n-propylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
o-xylene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Pentachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Styrene (monomer)	µg/L	100****	0.4 U	0.4 U	0.4 U	0.4 U
Tert-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Tetrachloroethene	µg/L	0.8***	0.4 U	0.4 U	0.4 U	0.4 U
Tetrahydrofuran	µg/L		3 U	3 U	3 U	3 U
Toluene	µg/L	1****	0.4 U	0.4 U	0.4 U	0.4 U
Trans-1,2-dichloroethene	µg/L	100****	0.4 U	0.4 U	0.4 U	0.4 U
Trans-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Trans-1,4-dichlorobutene	µg/L		5 U	5 U	5 U	5 U
Tribromomethane (Bromoform)	µg/L	5***	0.4 U	0.4 U	0.4 U	0.4 U
Trichloroethene	µg/L	3***	0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane (CFC-11)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Vinyl chloride	µg/L	0.02***	0.01 U	0.01 U	0.013	0.013 U

Groundwater Quality Criteria:

* = Primary Contaminant
** = Secondary Contaminant
*** = Carcinogen
**** = 246-290 WAC criteria

Qualifiers:

U — Indicates the analyte of interest was not detected, to the limit of detection indicated.

J — Indicates the analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.

Units:

µg/L= micrograms per liter

Results shown in bold exceed Ground Water Quality Criteria.

2017 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional			
MONITORING WELL Sampling Date			B-5 3/23/2017	B-5 6/27/2017	B-5 9/21/2017	B-5 12/7/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
1,1,1,2-tetrachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1,1-trichloroethane	µg/L	200*	0.4 U	0.4 U	0.4 U	0.4 U
1,1,2,2-tetrachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1,2-trichloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1,2-trichlorofluorotoluene (Freon-113)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1-dichloroethane	µg/L	1.0***	0.4 U	0.4 U	0.4 U	0.4 U
1,1-dichloroethene	µg/L	7****	0.4 U	0.4 U	0.4 U	0.4 U
1,1-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,3-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,3-trichloropropane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,4-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,4-trimethylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2-dibromo-3-chloropropane (DBCP)	µg/L	0.2****	1 U	1 U	1 U	1 U
1,2-dibromoethane (EDB)	µg/L	0.001***	0.01 U	0.01 U	0.01 U	0.01 U
1,2-dichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2-dichloroethane	µg/L	0.5***	0.4 U	0.4 U	0.4 U	0.4 U
1,2-dichloropropane	µg/L	0.6***	0.4 U	0.4 U	0.4 U	0.4 U
1,3,5-trimethylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,3-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,4-dichlorobenzene	µg/L	4***	0.4 U	0.4 U	0.4 U	0.4 U
1,4-dioxane	µg/L	7***	7.4	5 U	6.7	6.7
2,2-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
2-butanone	µg/L		3 U	3 U	3 U	2 U
2-chloroethyl vinyl ether	µg/L		2 U	2 U	2 U	5 U
2-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
2-nitropropane	µg/L		10 U	10 U	10 U	10 U
2-phenylbutane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
4-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
4-methyl-2-pentanone	µg/L		4 U	4 U	4 U	4 U
Acetone	µg/L		3 U	3 U	3 U	3 U
Acrolein	µg/L		4 U	4 U	4 U	4 U
Acrylonitrile	µg/L	0.07***	0.05 U	0.05 U	0.05 U	0.05 U
Allyl chloride	µg/L		2 U	2 U	2 U	2 U
Benzene	µg/L	1.0***	0.4 U	0.4 U	0.4 U	0.4 U
Bromobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Bromodichloromethane	µg/L	0.3***	0.4 U	0.4 U	0.4 U	0.4 U
Bromomethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Carbon disulfide	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Carbon tetrachloride	µg/L	0.3***	0.4 U	0.4 U	0.4 U	0.4 U
Chlorobenzene	µg/L	100****	0.4 U	0.4 U	0.4 U	0.4 U
Chlorobromomethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Chlorodibromomethane	µg/L	0.5***	0.4 U	0.4 U	0.4 U	0.4 U
Chlorodifluoromethane (Freon-22)	µg/L		0.8	0.8	0.7	1.3
Chloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Chloroform	µg/L	7.0***	0.4 U	0.4 U	0.4 U	0.4 U
Chloromethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
cis-1,2-dichloroethene	µg/L	70****	0.4 U	0.4 U	0.4 U	0.4 U
cis-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Cymene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Dibromomethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Dichlorodifluoromethane (CFC-12)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Dichloromethane	µg/L	5***	0.4 U	0.4 U	0.4 U	0.4 U
Dichloromonofluoromethane (Freon-21)	µg/L		0.3 J	0.4	0.4 U	0.4
Diethyl ether	µg/L		3.3	3.6	2.4	3.3

2017 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional			
MONITORING WELL Sampling Date			B-5 3/23/2017	B-5 6/27/2017	B-5 9/21/2017	B-5 12/7/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
Ethyl methacrylate	µg/L		3 U	3 U	3 U	2 U
Ethylbenzene	µg/L	700****	0.4 U	0.4 U	0.4 U	0.4 U
Hexachloro-1,3-butadiene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Hexachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Isopropylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
m+p-xylene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
m-dichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Methyl acrylate	µg/L		2 U	2 U	2 U	0.8 U
Methyl iodide	µg/L		5 U	5 U	5 U	5 U
Methyl methacrylate	µg/L		2 U	2 U	2 U	1 U
Methyl n-butyl ketone	µg/L		5 U	5 U	5 U	5 U
Methyl tert-butyl ether	µg/L		1 U	1 U	1 U	1 U
Methylacrylonitrile	µg/L		4 U	4 U	4 U	4 U
Naphthalene	µg/L		1 U	1 U	1 U	1 U
n-butyl chloride	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
n-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
n-propylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
o-xylene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Pentachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Styrene (monomer)	µg/L	100****	0.4 U	0.4 U	0.4 U	0.4 U
Tert-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Tetrachloroethene	µg/L	0.8***	0.4 U	0.4 U	0.4 U	0.4 U
Tetrahydrofuran	µg/L		4	3.4	3.7	4.3
Toluene	µg/L	1****	0.4 U	0.4 U	0.4 U	0.4 U
Trans-1,2-dichloroethene	µg/L	100****	0.4 U	0.4 U	0.4 U	0.4 U
Trans-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Trans-1,4-dichlorobutene	µg/L		5 U	5 U	5 U	5 U
Tribromomethane (Bromoform)	µg/L	5***	0.4 U	0.4 U	0.4 U	0.4 U
Trichloroethene	µg/L	3***	0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane (CFC-11)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Vinyl chloride	µg/L	0.02***	0.135	0.104	0.083	0.103

Groundwater Quality Criteria:

* = Primary Contaminant
** = Secondary Contaminant
*** = Carcinogen
**** = 246-290 WAC criteria

Qualifiers:

U — Indicates the analyte of interest was not detected, to the limit of detection indicated.

J — Indicates the analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.

Units:

µg/L= micrograms per liter

Results shown in bold exceed Ground Water Quality Criteria.

2017 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional			
MONITORING WELL Sampling Date			B-10 3/22/2017	B-10 6/23/2017	B-10 9/21/2017	B-10 12/14/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
1,1,1,2-tetrachloroethane	µg/L		0.4	0.4 U	0.4 U	0.4 U
1,1,1-trichloroethane	µg/L	200*	0.4	0.4 U	0.4 U	0.4 U
1,1,2,2-tetrachloroethane	µg/L		0.4	0.4 U	0.4 U	0.4 U
1,1,2-trichloroethane	µg/L		0.4	0.4 U	0.4 U	0.4 U
1,1,2-trichlorofluorotoluene (Freon-113)	µg/L		0.4	0.4 U	0.4 U	0.4 U
1,1-dichloroethane	µg/L	1.0***	0.4	0.4 U	0.4 U	0.4 U
1,1-dichloroethene	µg/L	7****	0.4	0.4 U	0.4 U	0.4 U
1,1-dichloropropene	µg/L		0.4	0.4 U	0.4 U	0.4 U
1,2,3-trichlorobenzene	µg/L		0.4	0.4 U	0.4 U	0.4 U
1,2,3-trichloropropane	µg/L		0.4	0.4 U	0.4 U	0.4 U
1,2,4-trichlorobenzene	µg/L		0.4	0.4 U	0.4 U	0.4 U
1,2,4-trimethylbenzene	µg/L		0.4	0.4 U	0.4 U	0.4 U
1,2-dibromo-3-chloropropane (DBCP)	µg/L	0.2****	1	1 U	1 U	1 U
1,2-dibromoethane (EDB)	µg/L	0.001***	0.01	0.01 U	0.01 U	0.01 U
1,2-dichlorobenzene	µg/L		0.4	0.4 U	0.4 U	0.4 U
1,2-dichloroethane	µg/L	0.5***	0.4	0.4 U	0.4 U	0.4 U
1,2-dichloropropane	µg/L	0.6***	0.4	0.4 U	0.4 U	0.4 U
1,3,5-trimethylbenzene	µg/L		0.4	0.4 U	0.4 U	0.4 U
1,3-dichloropropane	µg/L		0.4	0.4 U	0.4 U	0.4 U
1,4-dichlorobenzene	µg/L	4***	0.4	0.4 U	0.4 U	0.4 U
1,4-dioxane	µg/L	7***	5	5 U	5 U	5 U
2,2-dichloropropane	µg/L		0.4	0.4 U	0.4 U	0.4 U
2-butanone	µg/L		3	3 U	3 U	2 U
2-chloroethyl vinyl ether	µg/L		2	2 U	2 U	5 U
2-chlorotoluene	µg/L		0.4	0.4 U	0.4 U	0.4 U
2-nitropropane	µg/L		10	10 U	10 U	10 U
2-phenylbutane	µg/L		0.4	0.4 U	0.4 U	0.4 U
4-chlorotoluene	µg/L		0.4	0.4 U	0.4 U	0.4 U
4-methyl-2-pentanone	µg/L		4	4 U	4 U	4 U
Acetone	µg/L		3	3 U	3 U	3 U
Acrolein	µg/L		4	4 U	4 U	4 U
Acrylonitrile	µg/L	0.07***	0.05	0.05 U	0.05 U	0.05 U
Allyl chloride	µg/L		2	2 U	2 U	2 U
Benzene	µg/L	1.0***	0.4	0.4 U	0.4 U	0.4 U
Bromobenzene	µg/L		0.4	0.4 U	0.4 U	0.4 U
Bromodichloromethane	µg/L	0.3***	0.4	0.4 U	0.4 U	0.4 U
Bromomethane	µg/L		0.4	0.4 U	0.4 U	0.4 U
Carbon disulfide	µg/L		0.4	0.4 U	0.4 U	0.4 U
Carbon tetrachloride	µg/L	0.3***	0.4	0.4 U	0.4 U	0.4 U
Chlorobenzene	µg/L	100****	0.4	0.4 U	0.4 U	0.4 U
Chlorobromomethane	µg/L		0.4	0.4 U	0.4 U	0.4 U
Chlorodibromomethane	µg/L	0.5***	0.4	0.4 U	0.4 U	0.4 U
Chlorodifluoromethane (Freon-22)	µg/L		0.4	0.4 U	0.4 U	0.4 U
Chloroethane	µg/L		0.4	0.4 U	0.4 U	0.4 U
Chloroform	µg/L	7.0***	0.4	0.4 U	0.4 U	0.4 U
Chloromethane	µg/L		0.4	0.4 U	0.4 U	0.4 U
cis-1,2-dichloroethene	µg/L	70****	0.4	0.4 U	0.4 U	0.4 U
cis-1,3-dichloropropene	µg/L		0.4	0.4 U	0.4 U	0.4 U
Cymene	µg/L		0.4	0.4 U	0.4 U	0.4 U
Dibromomethane	µg/L		0.4	0.4 U	0.4 U	0.4 U
Dichlorodifluoromethane (CFC-12)	µg/L		0.4	0.4 U	0.4 U	0.4 U
Dichloromethane	µg/L	5***	0.4	0.4 U	0.4 U	0.4 U
Dichloromonofluoromethane (Freon-21)	µg/L		0.4	0.4 U	0.4 U	0.4 U
Diethyl ether	µg/L		0.4	0.4 U	0.4 U	0.4 U

2017 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional			
MONITORING WELL Sampling Date			B-10 3/22/2017	B-10 6/23/2017	B-10 9/21/2017	B-10 12/14/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
Ethyl methacrylate	µg/L		3	3 U	3 U	2 U
Ethylbenzene	µg/L	700****	0.4	0.4 U	0.4 U	0.4 U
Hexachloro-1,3-butadiene	µg/L		0.4	0.4 U	0.4 U	0.4 U
Hexachloroethane	µg/L		0.4	0.4 U	0.4 U	0.4 U
Isopropylbenzene	µg/L		0.4	0.4 U	0.4 U	0.4 U
m+p-xylene	µg/L		0.4	0.4 U	0.4 U	0.4 U
m-dichlorobenzene	µg/L		0.4	0.4 U	0.4 U	0.4 U
Methyl acrylate	µg/L		1	2 U	2 U	0.8 U
Methyl iodide	µg/L		5	5 U	5 U	5 U
Methyl methacrylate	µg/L		2	2 U	2 U	1 U
Methyl n-butyl ketone	µg/L		5	5 U	5 U	5 U
Methyl tert-butyl ether	µg/L		1	1 U	1 U	1 U
Methylacrylonitrile	µg/L		4	4 U	4 U	4 U
Naphthalene	µg/L		1	1 U	1 U	1 U
n-butyl chloride	µg/L		0.4	0.4 U	0.4 U	0.4 U
n-butylbenzene	µg/L		0.4	0.4 U	0.4 U	0.4 U
n-propylbenzene	µg/L		0.4	0.4 U	0.4 U	0.4 U
o-xylene	µg/L		0.4	0.4 U	0.4 U	0.4 U
Pentachloroethane	µg/L		0.4	0.4 U	0.4 U	0.4 U
Styrene (monomer)	µg/L	100****	0.4	0.4 U	0.4 U	0.4 U
Tert-butylbenzene	µg/L		0.4	0.4 U	0.4 U	0.4 U
Tetrachloroethene	µg/L	0.8***	0.4	0.4 U	0.4 U	0.4 U
Tetrahydrofuran	µg/L		3	3 U	3 U	3 U
Toluene	µg/L	1****	0.4	0.4 U	0.4 U	0.4 U
Trans-1,2-dichloroethene	µg/L	100****	0.4	0.4 U	0.4 U	0.4 U
Trans-1,3-dichloropropene	µg/L		0.4	0.4 U	0.4 U	0.4 U
Trans-1,4-dichlorobutene	µg/L		5	5 U	5 U	5 U
Tribromomethane (Bromoform)	µg/L	5***	0.4	0.4 U	0.4 U	0.4 U
Trichloroethene	µg/L	3***	0.4	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane (CFC-11)	µg/L		0.4	0.4 U	0.4 U	0.4 U
Vinyl chloride	µg/L	0.02***	0.01	0.01 U	0.01 U	0.01 U

Groundwater Quality Criteria:

* = Primary Contaminant
** = Secondary Contaminant
*** = Carcinogen
**** = 246-290 WAC criteria

Qualifiers:

U — Indicates the analyte of interest was not detected, to the limit of detection indicated.
J — Indicates the analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.

Units:

µg/L= micrograms per liter

Results shown in bold exceed Ground Water Quality Criteria.

2017 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional			
MONITORING WELL Sampling Date			B-12 3/23/2017	B-12 6/22/2017	B-12 9/21/2017	B-12 12/13/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
1,1,1,2-tetrachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1,1-trichloroethane	µg/L	200*	0.4 U	0.4 U	0.4 U	0.4 U
1,1,2,2-tetrachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1,2-trichloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1,2-trichlorofluorotoluene (Freon-113)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,1-dichloroethane	µg/L	1.0***	0.4 U	0.4 U	0.4 U	0.4 U
1,1-dichloroethene	µg/L	7****	0.4 U	0.4 U	0.4 U	0.4 U
1,1-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,3-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,3-trichloropropane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,4-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2,4-trimethylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2-dibromo-3-chloropropane (DBCP)	µg/L	0.2****	1 U	1 U	1 U	1 U
1,2-dibromoethane (EDB)	µg/L	0.001***	0.01 U	0.01 U	0.01 U	0.01 U
1,2-dichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,2-dichloroethane	µg/L	0.5***	0.4 U	0.4 U	0.4 U	0.4 U
1,2-dichloropropane	µg/L	0.6***	0.4 U	0.4 U	0.4 U	0.4 U
1,3,5-trimethylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,3-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
1,4-dichlorobenzene	µg/L	4***	0.4 U	0.4 U	0.4 U	0.4 U
1,4-dioxane	µg/L	7***	5 U	5 U	5 U	5 U
2,2-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
2-butanone	µg/L		3 U	3 U	3 U	2 U
2-chloroethyl vinyl ether	µg/L		2 U	2 U	2 U	5 U
2-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
2-nitropropane	µg/L		10 U	10 U	10 U	10 U
2-phenylbutane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
4-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
4-methyl-2-pentanone	µg/L		4 U	4 U	4 U	4 U
Acetone	µg/L		3 U	3 U	3 U	3 U
Acrolein	µg/L		4 U	4 U	4 U	4 U
Acrylonitrile	µg/L	0.07***	0.05 U	0.05 U	0.05 U	0.05 U
Allyl chloride	µg/L		2 U	2 U	2 U	2 U
Benzene	µg/L	1.0***	0.4 U	0.4 U	0.4 U	0.4 U
Bromobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Bromodichloromethane	µg/L	0.3***	0.4 U	0.4 U	0.4 U	0.4 U
Bromomethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Carbon disulfide	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Carbon tetrachloride	µg/L	0.3***	0.4 U	0.4 U	0.4 U	0.4 U
Chlorobenzene	µg/L	100****	0.4 U	0.4 U	0.4 U	0.4 U
Chlorobromomethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Chlorodibromomethane	µg/L	0.5***	0.4 U	0.4 U	0.4 U	0.4 U
Chlorodifluoromethane (Freon-22)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Chloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Chloroform	µg/L	7.0***	0.4 U	0.4 U	0.4 U	0.4 U
Chloromethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
cis-1,2-dichloroethene	µg/L	70****	0.4 U	0.4 U	0.4 U	0.4 U
cis-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Cymene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Dibromomethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Dichlorodifluoromethane (CFC-12)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Dichloromethane	µg/L	5***	0.4 U	0.4 U	0.4 U	0.4 U
Dichloromonofluoromethane (Freon-21)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Diethyl ether	µg/L		0.4 U	0.4 U	0.4 U	0.4 U

2017 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional			
MONITORING WELL Sampling Date			B-12 3/23/2017	B-12 6/22/2017	B-12 9/21/2017	B-12 12/13/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
Ethyl methacrylate	µg/L		3 U	3 U	3 U	2 U
Ethylbenzene	µg/L	700****	0.4 U	0.4 U	0.4 U	0.4 U
Hexachloro-1,3-butadiene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Hexachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Isopropylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
m+p-xylene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
m-dichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Methyl acrylate	µg/L		2 U	2 U	2 U	0.8 U
Methyl iodide	µg/L		5 U	5 U	5 U	5 U
Methyl methacrylate	µg/L		2 U	2 U	2 U	1 U
Methyl n-butyl ketone	µg/L		5 U	5 U	5 U	5 U
Methyl tert-butyl ether	µg/L		1 U	1 U	1 U	1 U
Methylacrylonitrile	µg/L		4 U	4 U	4 U	4 U
Naphthalene	µg/L		1 U	1 U	1 U	1 U
n-butyl chloride	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
n-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
n-propylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
o-xylene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Pentachloroethane	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Styrene (monomer)	µg/L	100****	0.4 U	0.4 U	0.4 U	0.4 U
Tert-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Tetrachloroethene	µg/L	0.8***	0.4 U	0.4 U	0.4 U	0.4 U
Tetrahydrofuran	µg/L		3 U	3 U	3 U	3 U
Toluene	µg/L	1****	0.4 U	0.4 U	0.4 U	0.4 U
Trans-1,2-dichloroethene	µg/L	100****	0.4 U	0.4 U	0.4 U	0.4 U
Trans-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Trans-1,4-dichlorobutene	µg/L		5 U	5 U	5 U	5 U
Tribromomethane (Bromoform)	µg/L	5***	0.4 U	0.4 U	0.4 U	0.4 U
Trichloroethene	µg/L	3***	0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane (CFC-11)	µg/L		0.4 U	0.4 U	0.4 U	0.4 U
Vinyl chloride	µg/L	0.02***	0.01 U	0.01 U	0.01 U	0.01 U

Groundwater Quality Criteria:

* = Primary Contaminant
** = Secondary Contaminant
*** = Carcinogen
**** = 246-290 WAC criteria

Qualifiers:

U — Indicates the analyte of interest was not detected, to the limit of detection indicated.

J — Indicates the analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.

Units:

µg/L= micrograms per liter

Results shown in bold exceed Ground Water Quality Criteria.

2017 Inorganic Monitoring Results
Inman Landfill

AQUIFER			Regional			
MONITORING WELL			B-1	B-1	B-1	B-1
Sampling Date			3/23/2017	6/22/2017	9/20/2017	12/14/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
CONVENTIONALS						
Chemical Oxygen Demand	mg/L		8 U	8 U	18	19
Total Organic Carbon	mg/L		2.79	2.9	2.68	1.47
Total Dissolved Solids †	mg/L	**500	490	**532**	499	314
Alkalinity †	mg/L		375	398	392	231
Bicarbonate †	mg CaCO3/L		375	398	386	231 U
Ammonia as nitrogen	mg/L		0.3	0.33	0.28	0.23
Nitrate as nitrogen	mg/L	*10	0.1 U	0.1 U	0.1 U	0.1 U
Nitrite as nitrogen	mg/L		0.1 U	0.1 U	0.1 U	0.1 U
Chloride	mg/L	**250	54.7	61.4	57.3	22.3
Sulfate	mg/L	**250	5	5.8	6.1	2.3
pH	SU	**6.5-8.5	7.17	7.2	7.05	7.4
Specific Conductance	µS/cm		391	275	818	650
Temperature	C		10.74	10.92	11.18	10.53
METALS						
Dissolved Antimony †	mg/L		8E-05 J	4E-05 J	8E-05 J	5E-05 J
Dissolved Arsenic	mg/L	***0.00005	**0.035**	**0.036**	**0.036**	**0.041**
Dissolved Barium †	mg/L	*1.0	0.035	0.036	0.035	0.038
Dissolved Cadmium	mg/L	*0.01	1E-05 J	0.001 U	1E-05 J	0.001 U
Dissolved Chromium †	mg/L	*0.05	0.002	0.001	0.0008 J	0.0009 J
Dissolved Cobalt †	mg/L		0.0007 J	0.0005 J	0.0006 J	0.001 J
Dissolved Copper †	mg/L	**1.0	0.0004 J	0.0001 J	0.0004 J	0.0003 J
Dissolved Iron	mg/L	**0.3	**2.27**	**2.39**	**2.14**	**1.09**
Dissolved Lead	mg/L	*0.05	0.0001 J	2E-05 J	5E-05 J	3E-05 J
Dissolved Manganese	mg/L	**0.05	**2.036**	**1.89**	**2.106**	**1.82**
Dissolved Mercury	mg/L	*0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Dissolved Nickel †	mg/L		0.003	0.003	0.004	0.004
Dissolved Selenium †	mg/L	*0.01	0.0004 J	0.0004 J	0.0004 J	0.001
Dissolved Vanadium †	mg/L		0.002	0.001	0.001	0.002
Dissolved Zinc	mg/L	**5.0	0.0005 J	0.0004 J	0.001 J	0.0007 J
Total Calcium	mg/L		76.3	80.2	79.1	39.7
Total Magnesium †	mg/L		52.9	54.7	55.2	28.1
Total Potassium †	mg/L		5.32	4.63	6.3	4.02
Total Sodium	mg/L		14.8	14.2	15	11.4

Groundwater Quality Criteria:

* = Primary Contaminant
** = Secondary Contaminant
*** = Carcinogen

Units:

mg/L = milligrams per liter
µg/L = micrograms per liter
SU = standard units
µS/cm = microsiemens per centimeter
C = degrees centigrade
mg CaCO3/L = milligrams of calcium carbonate per liter

Qualifiers:

U — Indicates the analyte of interest was not detected, to the limit of detection indicated.
J — Indicates the analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.
NT — Not tested.

Results shown in bold exceed Ground Water Quality Criteria.
† Indicates supplement analytes measured due to Ecology request

2017 Inorganic Monitoring Results
Inman Landfill

AQUIFER			Regional			
MONITORING WELL			B-2	B-2	B-2	B-2
Sampling Date			3/21/2017	6/21/2017	9/20/2017	12/13/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
CONVENTIONALS						
Chemical Oxygen Demand	mg/L		8 U	8 U	17	8 U
Total Organic Carbon	mg/L		1.15	1.11	1.09	0.77
Total Dissolved Solids †	mg/L	**500	223	246	234	240
Alkalinity †	mg/L		137	126	118	129
Bicarbonate †	mg CaCO3/L		137	126	116	129 U
Ammonia as nitrogen	mg/L		0.01 U	0.05	0.11	0.01 U
Nitrate as nitrogen	mg/L	*10	1.71	1.84	2.57	2.7
Nitrite as nitrogen	mg/L		0.1 U	0.1 U	0.1 U	0.1 U
Chloride	mg/L	**250	5.66	8.8	5.5	9.7
Sulfate	mg/L	**250	25.8	32.3	28.6	30.4
pH	SU	**6.5-8.5	6.62	6.73	6.71	6.60
Specific Conductance	µS/cm		368	376	342	370
Temperature	C		10.85	11.2	11.08	10.7
METALS						
Dissolved Antimony †	mg/L		0.0001 J	7E-05 J	0.0001 J	0.0001 J
Dissolved Arsenic	mg/L	***0.00005	**0.001**	**0.0009** J	**0.0009** J	**0.0009** J
Dissolved Barium †	mg/L	*1.0	0.032	0.033	0.029	0.032
Dissolved Cadmium	mg/L	*0.01	6E-05 J	4E-05 J	6E-05 J	2E-05 J
Dissolved Chromium †	mg/L	*0.05	0.002	0.001	0.001	0.002
Dissolved Cobalt †	mg/L		6E-05 J	4E-05 J	6E-05 J	5E-05 J
Dissolved Copper †	mg/L	**1.0	0.0006 J	0.0008 J	0.0007 J	0.0006 J
Dissolved Iron	mg/L	**0.3	0.05	0.032	0.03 J	0.05 U
Dissolved Lead	mg/L	*0.05	0.001 U	0.0005 U	2E-05 J	0.001 U
Dissolved Manganese	mg/L	**0.05	0.001 U	0.001 U	0.0008 J	0.001
Dissolved Mercury	mg/L	*0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Dissolved Nickel †	mg/L		0.002	0.001	0.001	0.002
Dissolved Selenium †	mg/L	*0.01	0.004	0.004	0.002	0.002
Dissolved Vanadium †	mg/L		0.002	0.01 U	0.002	0.002
Dissolved Zinc	mg/L	**5.0	0.002 J	0.002 J	0.002 J	0.0006 J
Total Calcium	mg/L		29.2	29.8	24.5	19.4
Total Magnesium †	mg/L		11.2	12.1	10.2	7.82
Total Potassium †	mg/L		32.2	32.7	32.1	23
Total Sodium	mg/L		9.58	9.6	8.7	7.27

Groundwater Quality Criteria:
* = Primary Contaminant
** = Secondary Contaminant
*** = Carcinogen

Units:
mg/L = milligrams per liter
µg/L = micrograms per liter
SU = standard units
µS/cm = microsiemens per centimeter
C = degrees centigrade
mg CaCO3/L = milligrams of calcium carbonate per liter

Qualifiers:
U — Indicates the analyte of interest was not detected, to the limit of detection indicated.
J — Indicates the analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.
NT — Not tested.

Results shown in bold exceed Ground Water Quality Criteria.
† Indicates supplement analytes measured due to Ecology request

2017 Inorganic Monitoring Results
Inman Landfill

AQUIFER			Regional			
MONITORING WELL			B-3	B-3	B-3	B-3
Sampling Date			3/21/2017	6/21/2017	9/19/2017	12/7/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
CONVENTIONALS						
Chemical Oxygen Demand	mg/L		8 U	8 U	11	16
Total Organic Carbon	mg/L		4.02	1.69	1.22	2.91
Total Dissolved Solids †	mg/L	**500	249	175	163	242
Alkalinity †	mg/L		173	104	102	161
Bicarbonate †	mg CaCO3/L		173	104	102	178.6 U
Ammonia as nitrogen	mg/L		1.43	0.97	0.82	1.19
Nitrate as nitrogen	mg/L	*10	0.1 U	0.1 U	0.1 U	0.1 U
Nitrite as nitrogen	mg/L		0.1 U	0.1 U	0.1 U	0.1 U
Chloride	mg/L	**250	23	6.5	3.7	18.3
Sulfate	mg/L	**250	10 U	10 U	10 U	10 U
pH	SU	**6.5-8.5	6.88	7.1	7.01	6.98
Specific Conductance	µS/cm		445	251	213	408
Temperature	C		13.87	13.89	13.79	13.77
METALS						
Dissolved Antimony †	mg/L		0.001 U	2E-05 J	0.001 U	0.005 U
Dissolved Arsenic	mg/L	***0.00005	**0.003**	**0.002**	**0.002**	**0.003**
Dissolved Barium †	mg/L	*1.0	0.138	0.071	0.054	0.11
Dissolved Cadmium	mg/L	*0.01	0.001 U	0.00025 U	0.001 U	1E-05 J
Dissolved Chromium †	mg/L	*0.05	0.001	0.001 U	0.0002 J	0.0005 J
Dissolved Cobalt †	mg/L		0.0004 J	0.0001 J	3E-05 J	0.0002 J
Dissolved Copper †	mg/L	**1.0	0.0001 J	0.002 U	0.002 U	0.0001 J
Dissolved Iron	mg/L	**0.3	**7.76**	**2.55**	**2.56**	**5.91**
Dissolved Lead	mg/L	*0.05	0.001 U	0.0005 U	5E-05 J	1E-05 J
Dissolved Manganese	mg/L	**0.05	**0.813**	**0.341**	**0.266**	**0.575**
Dissolved Mercury	mg/L	*0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Dissolved Nickel †	mg/L		0.001	0.0005 U	0.0002 J	0.001
Dissolved Selenium †	mg/L	*0.01	0.0002 J	0.0001 J	0.0003 J	9E-05 J
Dissolved Vanadium †	mg/L		0.0009 J	0.01 U	0.0004 J	0.0006 J
Dissolved Zinc	mg/L	**5.0	0.0003 J	0.0025 U	0.0002 J	0.0003 J
Total Calcium	mg/L		33.2	12.2	16	28.2
Total Magnesium †	mg/L		21.5	8.86	10.9	19.3
Total Potassium †	mg/L		5.76	3.27	4.16	5.47
Total Sodium	mg/L		14	7.77	8.76	11.5

Groundwater Quality Criteria:
* = Primary Contaminant
** = Secondary Contaminant
*** = Carcinogen

Units:
mg/L = milligrams per liter
µg/L = micrograms per liter
SU = standard units
µS/cm = microsiemens per centimeter
C = degrees centigrade
mg CaCO3/L = milligrams of calcium carbonate per liter

Qualifiers:
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J — Indicates the analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.
NT — Not tested.

Results shown in bold exceed Ground Water Quality Criteria.
† Indicates supplement analytes measured due to Ecology request

2017 Inorganic Monitoring Results
Inman Landfill

AQUIFER			Regional			
MONITORING WELL			B-4	B-4	B-4	B-4
Sampling Date			3/24/2017	6/23/2017	9/22/2017	12/15/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
CONVENTIONALS						
Chemical Oxygen Demand	mg/L		11	8 U	24	8
Total Organic Carbon	mg/L		2.23	1.95	2.19	1.89
Total Dissolved Solids †	mg/L	**500	**691**	**711**	**678**	**654**
Alkalinity †	mg/L		378	403	384	340
Bicarbonate †	mg CaCO3/L		378	403	416.4	340 U
Ammonia as nitrogen	mg/L		1.19	1.19	1.1	1.05
Nitrate as nitrogen	mg/L	*10	0.1 U	0.1 U	0.37	0.1 U
Nitrite as nitrogen	mg/L		0.1 U	0.1 U	0.1 U	0.1 U
Chloride	mg/L	**250	146	150	143	129
Sulfate	mg/L	**250	59	64.5	58	51.4
pH	SU	**6.5-8.5	6.86	6.93	6.83	6.91
Specific Conductance	µS/cm		1262	1308	1246	1160
Temperature	C		10.12	10.27	10.24	9.73
METALS						
Dissolved Antimony †	mg/L		1E-05 J	0.005 U	3E-05 J	0.005 U
Dissolved Arsenic	mg/L	***0.00005	**0.003**	**0.002**	**0.002**	**0.003**
Dissolved Barium †	mg/L	*1.0	0.125	0.134	0.12	0.116
Dissolved Cadmium	mg/L	*0.01	2E-05 J	0.001 U	1E-05 J	0.001 U
Dissolved Chromium †	mg/L	*0.05	0.003	0.002	0.001	0.001
Dissolved Cobalt †	mg/L		0.0003 J	0.0002 J	0.0002 J	0.0002 J
Dissolved Copper †	mg/L	**1.0	0.0005 J	0.0002 J	0.0003 J	0.0004 J
Dissolved Iron	mg/L	**0.3	**6.36**	**6.87**	**5.89**	**5.56**
Dissolved Lead	mg/L	*0.05	2E-05 J	0.001 U	0.0005 U	0.001 U
Dissolved Manganese	mg/L	**0.05	**1.562**	**1.569**	**1.545**	**1.45**
Dissolved Mercury	mg/L	*0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Dissolved Nickel †	mg/L		0.002	0.0006 J	0.001	0.001
Dissolved Selenium †	mg/L	*0.01	0.001	0.0009 J	0.001	0.002
Dissolved Vanadium †	mg/L		0.0009 J	0.0006 J	0.01 U	0.0006 J
Dissolved Zinc	mg/L	**5.0	0.0005 J	0.001 J	0.001 J	0.001 J
Total Calcium	mg/L		103	110	94.9	88
Total Magnesium †	mg/L		87.6	92.9	79.5	70
Total Potassium †	mg/L		7.06	7.49	8.14	7.93
Total Sodium	mg/L		20.4	19	19.9	19.7

Groundwater Quality Criteria:
* = Primary Contaminant
** = Secondary Contaminant
*** = Carcinogen

Units:
mg/L = milligrams per liter
µg/L = micrograms per liter
SU = standard units
µS/cm = microsiemens per centimeter
C = degrees centigrade
mg CaCO3/L = milligrams of calcium carbonate per liter

Qualifiers:
U — Indicates the analyte of interest was not detected, to the limit of detection indicated.
J — Indicates the analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.
NT — Not tested.

Results shown in bold exceed Ground Water Quality Criteria.
† Indicates supplement analytes measured due to Ecology request

2017 Inorganic Monitoring Results
Inman Landfill

AQUIFER			Regional			
MONITORING WELL			B-5	B-5	B-5	B-5
Sampling Date			3/23/2017	6/27/2017	9/21/2017	12/7/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
CONVENTIONALS						
Chemical Oxygen Demand	mg/L		23	9	25	38
Total Organic Carbon	mg/L		7.28	7.45	7.15	8.49
Total Dissolved Solids †	mg/L	**500	424	399	474	488
Alkalinity †	mg/L		244	238	271	266
Bicarbonate †	mg CaCO3/L		244	238	314.8	318 U
Ammonia as nitrogen	mg/L		1.5	1.55	1.35	1.54
Nitrate as nitrogen	mg/L	*10	0.73	0.25	0.23	0.1 U
Nitrite as nitrogen	mg/L		0.1 U	0.1 U	0.1 U	0.1 U
Chloride	mg/L	**250	80.8	71.1	85.5	99.6
Sulfate	mg/L	**250	0.79	10 U	0.2	10 U
pH	SU	**6.5-8.5	6.68	6.81	6.82	6.64
Specific Conductance	µS/cm		777	711	845	934
Temperature	C		11.36	11.63	11.44	11.21
METALS						
Dissolved Antimony †	mg/L		3E-05 J	2E-05	4E-05 J	2E-05 J
Dissolved Arsenic	mg/L	***0.00005	**0.002**	**0.002**	**0.003**	**0.003**
Dissolved Barium †	mg/L	*1.0	0.093	0.067	0.087	0.104
Dissolved Cadmium	mg/L	*0.01	1E-05 J	0.001 U	2E-05 J	1E-05 J
Dissolved Chromium †	mg/L	*0.05	0.002	0.001	0.001	0.001
Dissolved Cobalt †	mg/L		0.0007 J	0.0005	0.0006 J	0.0008 J
Dissolved Copper †	mg/L	**1.0	0.0002 J	0.0002	0.001 J	0.0001 J
Dissolved Iron	mg/L	**0.3	**18.8**	**8.63**	**15.93**	**22.4**
Dissolved Lead	mg/L	*0.05	0.001 U	0.001 U	5E-05 J	2E-05 J
Dissolved Manganese	mg/L	**0.05	**1.89**	**1.734**	**2.58**	**2.33**
Dissolved Mercury	mg/L	*0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Dissolved Nickel †	mg/L		0.005	0.003	0.004	0.006
Dissolved Selenium †	mg/L	*0.01	0.001	0.0009	0.001 J	0.0009 J
Dissolved Vanadium †	mg/L		0.001	0.0005	0.0005	0.0008 J
Dissolved Zinc	mg/L	**5.0	0.0008 J	0.0005	0.0009 J	0.0006 J
Total Calcium	mg/L		44	36.4	53.8	52.2
Total Magnesium †	mg/L		36.7	30.5	46.8	45.5
Total Potassium †	mg/L		4.57	4.39	6.6	6.6
Total Sodium	mg/L		39.5	33	30.9	43.8

Groundwater Quality Criteria:

* = Primary Contaminant
** = Secondary Contaminant
*** = Carcinogen

Units:

mg/L = milligrams per liter
µg/L = micrograms per liter
SU = standard units
µS/cm = microsiemens per centimeter
C = degrees centigrade
mg CaCO3/L = milligrams of calcium carbonate per liter

Qualifiers:

U — Indicates the analyte of interest was not detected, to the limit of detection indicated.
J — Indicates the analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.
NT — Not tested.

Results shown in bold exceed Ground Water Quality Criteria.
† Indicates supplement analytes measured due to Ecology request

2017 Inorganic Monitoring Results
Inman Landfill

AQUIFER			Regional			
MONITORING WELL			B-10	B-10	B-10	B-10
Sampling Date			3/22/2017	6/23/2017	9/21/2017	12/14/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
CONVENTIONALS						
Chemical Oxygen Demand	mg/L		8	8 U	20	16
Total Organic Carbon	mg/L		0.99	1.01	0.97	0.95
Total Dissolved Solids †	mg/L	**500	237	230	225	213
Alkalinity †	mg/L		175	166	162	164
Bicarbonate †	mg CaCO3/L		175	166	170.4	164 U
Ammonia as nitrogen	mg/L		0.42	0.42	0.45	0.41
Nitrate as nitrogen	mg/L	*10	0.1	0.1 U	0.1 U	0.15
Nitrite as nitrogen	mg/L		0.1	0.1 U	0.1 U	0.1 U
Chloride	mg/L	**250	4.43	4.7	4.5	4.5
Sulfate	mg/L	**250	28.1	27.7	26.4	25.3
pH	SU	**6.5-8.5	7.21	7.28	7.25	7.33
Specific Conductance	µS/cm		414	389	378	383
Temperature	C		10.15	10.75	10.35	10.00
METALS						
Dissolved Antimony †	mg/L		0.001	0.005 U	0.005 U	0.001 U
Dissolved Arsenic	mg/L	***0.00005	**0.001**	**0.002**	**0.002**	**0.002**
Dissolved Barium †	mg/L	*1.0	0.045	0.051	0.046	0.049
Dissolved Cadmium	mg/L	*0.01	0.00025	0.001 U	2E-05 J	0.001 U
Dissolved Chromium †	mg/L	*0.05	0.0005	0.0003 J	0.0002 J	0.0002 J
Dissolved Cobalt †	mg/L		0.001	6E-05 J	4E-05 J	2E-05 J
Dissolved Copper †	mg/L	**1.0	0.0001	0.02 U	0.02 U	0.002 U
Dissolved Iron	mg/L	**0.3	0.05	**2.17**	**1.8**	**1.38**
Dissolved Lead	mg/L	*0.05	2E-05	0.001 U	0.001 U	0.001 U
Dissolved Manganese	mg/L	**0.05	**0.553**	**0.427**	**0.453**	**0.472**
Dissolved Mercury	mg/L	*0.002	0.0002	0.0002 U	0.0002 U	0.0002 U
Dissolved Nickel †	mg/L		0.0003	0.001 U	0.0001 J	0.0001 J
Dissolved Selenium †	mg/L	*0.01	7E-05	0.005 U	0.005 U	0.001 U
Dissolved Vanadium †	mg/L		0.01	0.0002 J	0.0002 J	0.0003 J
Dissolved Zinc	mg/L	**5.0	0.0008	0.0004 J	0.0004 J	0.0003 J
Total Calcium	mg/L		34	33.1	30.1	25.5
Total Magnesium †	mg/L		24.6	24	23.3	18.8
Total Potassium †	mg/L		3.67	3.71	3.6	3.33
Total Sodium	mg/L		9.29	9.19	8.6	7.35

Groundwater Quality Criteria:

* = Primary Contaminant
** = Secondary Contaminant
*** = Carcinogen

Units:

mg/L = milligrams per liter
µg/L = micrograms per liter
SU = standard units
µS/cm = microsiemens per centimeter
C = degrees centigrade
mg CaCO3/L = milligrams of calcium carbonate per liter

Qualifiers:

U — Indicates the analyte of interest was not detected, to the limit of detection indicated.
J — Indicates the analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.
NT — Not tested.

Results shown in bold exceed Ground Water Quality Criteria.
† Indicates supplement analytes measured due to Ecology request

2017 Inorganic Monitoring Results
Inman Landfill

AQUIFER			Regional			
MONITORING WELL			B-12	B-12	B-12	B-12
Sampling Date			3/23/2017	6/22/2017	9/21/2017	12/13/2017
Analyte	Units	GW Quality Standards (173-200 WAC)				
CONVENTIONALS						
Chemical Oxygen Demand	mg/L		8 U	8 U	15	8 U
Total Organic Carbon	mg/L		0.51	0.5	0.55	0.64
Total Dissolved Solids †	mg/L	**500	198	200	213	201
Alkalinity †	mg/L		137	137	144	152
Bicarbonate †	mg CaCO3/L		137	137	151.9	152 U
Ammonia as nitrogen	mg/L		0.11	0.07	0.06	0.42
Nitrate as nitrogen	mg/L	*10	0.15	0.1 U	0.1 U	0.14
Nitrite as nitrogen	mg/L		0.1 U	0.1 U	0.1 U	0.1 U
Chloride	mg/L	**250	3.3	3.5	3.4	3.2
Sulfate	mg/L	**250	14.7	16.6	15.1	13.1
pH	SU	**6.5-8.5	7.27	7.21	7.21	6.99
Specific Conductance	µS/cm		309	318	316	317
Temperature	C		11.73	11.91	11.95	11.57
METALS						
Dissolved Antimony †	mg/L		0.0001 J	6E-05 J	0.0001 J	5E-05 J
Dissolved Arsenic	mg/L	***0.00005	**0.005**	**0.005**	**0.004**	**0.005**
Dissolved Barium †	mg/L	*1.0	0.031	0.029	0.028	0.029
Dissolved Cadmium	mg/L	*0.01	7E-05 J	0.001 U	1E-05 J	2E-05 J
Dissolved Chromium †	mg/L	*0.05	0.0008 J	0.01 U	0.0003 J	0.0005 J
Dissolved Cobalt †	mg/L		0.0003 J	3E-05 J	4E-05 J	0.0001 J
Dissolved Copper †	mg/L	**1.0	0.0008 J	0.0002 J	0.02 U	0.0005 J
Dissolved Iron	mg/L	**0.3	**1.05**	**0.57**	**0.5**	**0.33**
Dissolved Lead	mg/L	*0.05	0.0002 J	0.001 U	2E-05 J	5E-05 J
Dissolved Manganese	mg/L	**0.05	**0.063**	**0.052**	**0.051**	**0.07**
Dissolved Mercury	mg/L	*0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Dissolved Nickel †	mg/L		0.001	0.001 U	0.0002 J	0.0005 J
Dissolved Selenium †	mg/L	*0.01	6E-05 J	0.005 U	0.005 U	0.001 U
Dissolved Vanadium †	mg/L		0.002	0.0007 J	0.0006 J	0.0009 J
Dissolved Zinc	mg/L	**5.0	0.003	0.0003 J	0.015	0.0009 J
Total Calcium	mg/L		22.2	18.8	21	17.1
Total Magnesium †	mg/L		20.9	18	21.2	18
Total Potassium †	mg/L		3.67	3.24	3.9	3.7
Total Sodium	mg/L		10.4	9.56	10.6	9.05

Groundwater Quality Criteria:

* = Primary Contaminant
** = Secondary Contaminant
*** = Carcinogen

Units:

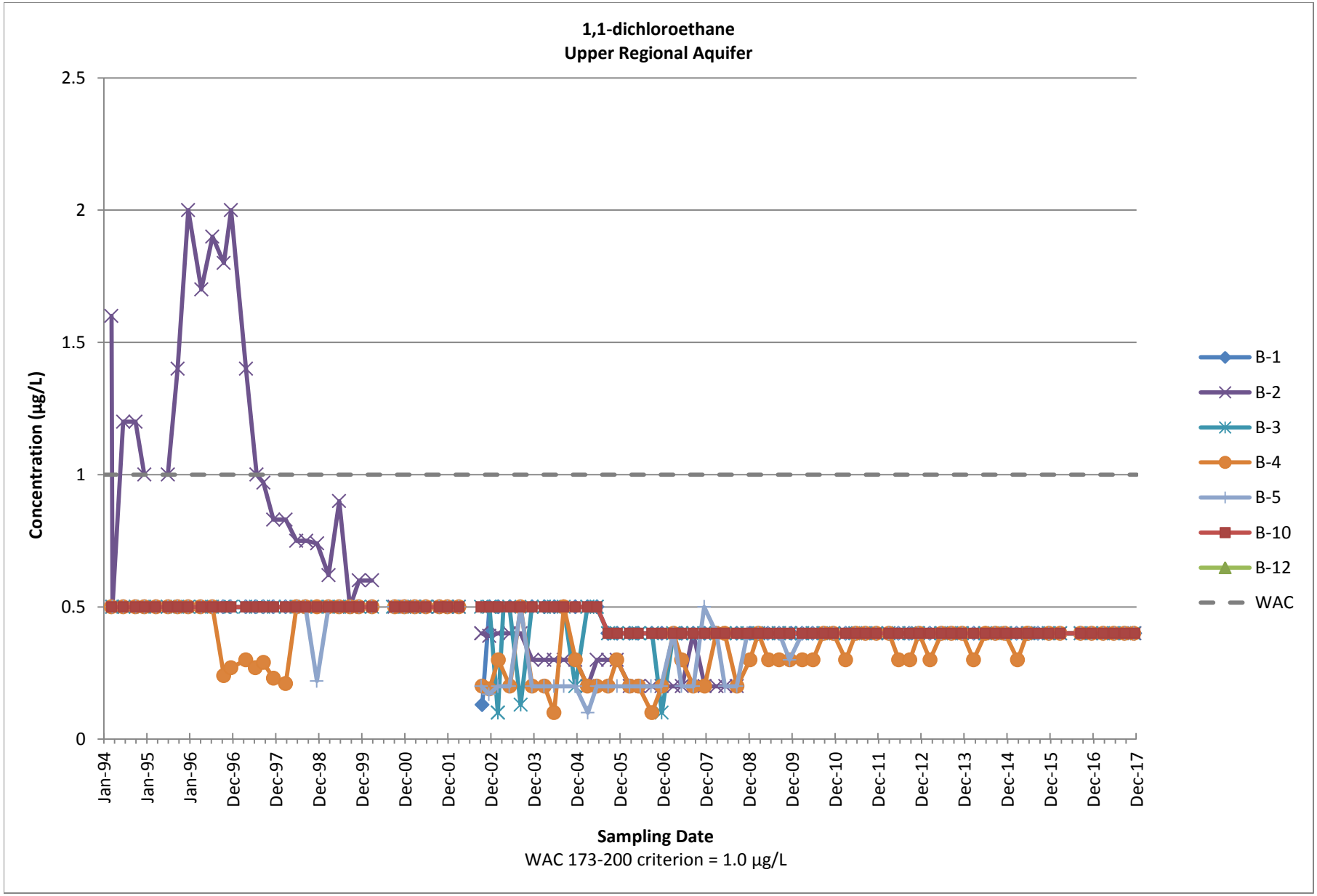
mg/L = milligrams per liter
µg/L = micrograms per liter
SU = standard units
µS/cm = microsiemens per centimeter
C = degrees centigrade
mg CaCO3/L = milligrams of calcium carbonate per liter

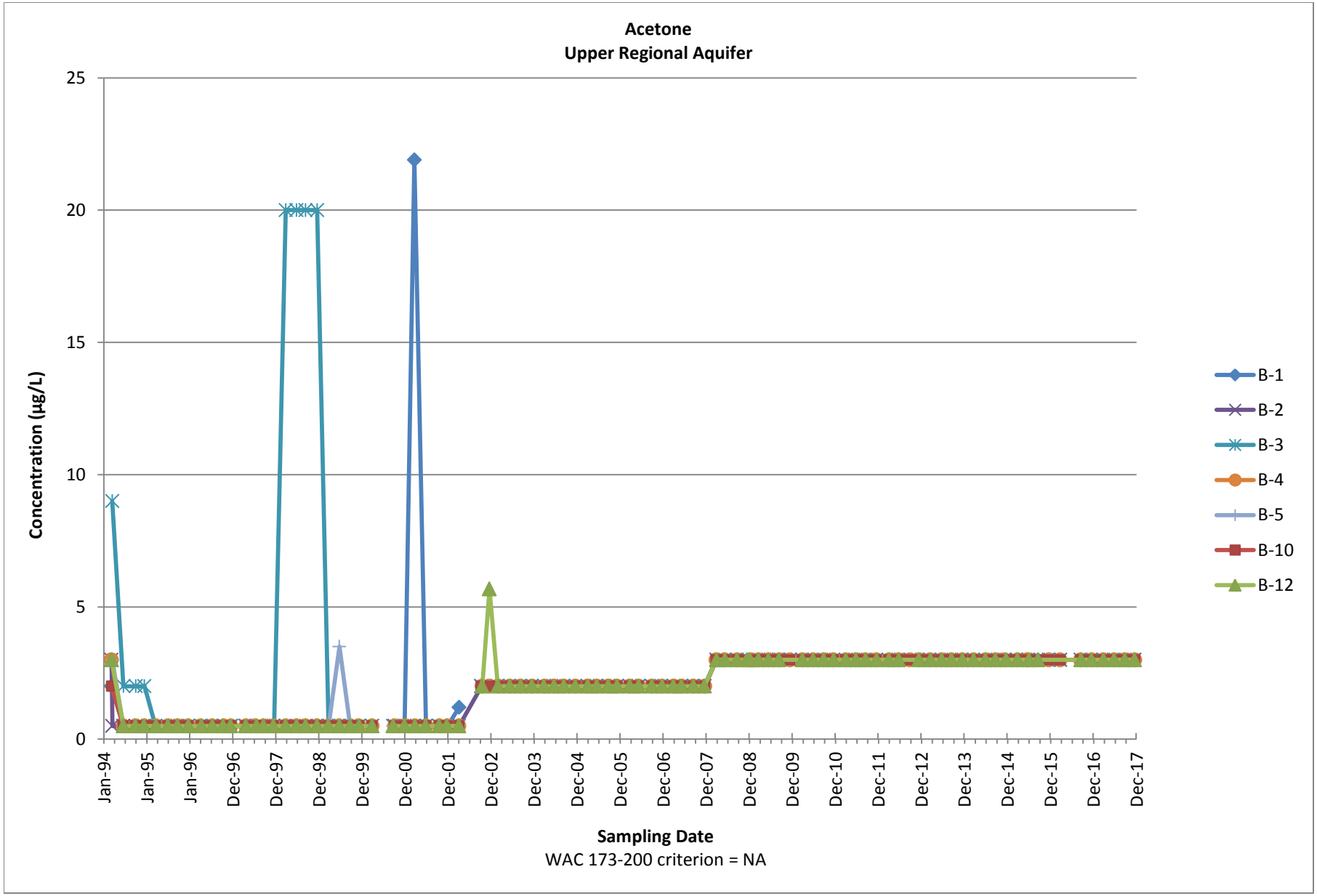
Qualifiers:

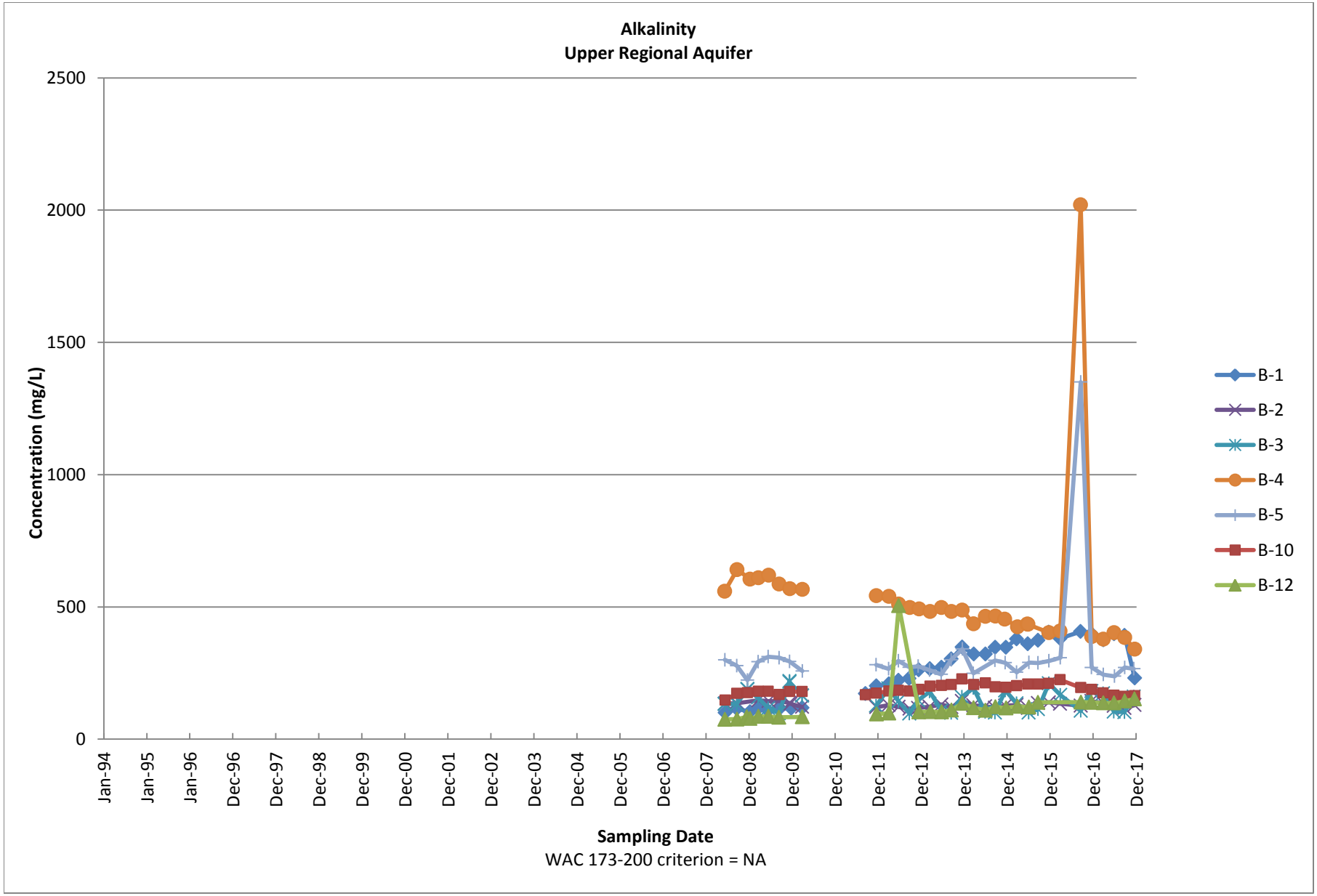
U — Indicates the analyte of interest was not detected, to the limit of detection indicated.
J — Indicates the analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.
NT — Not tested.

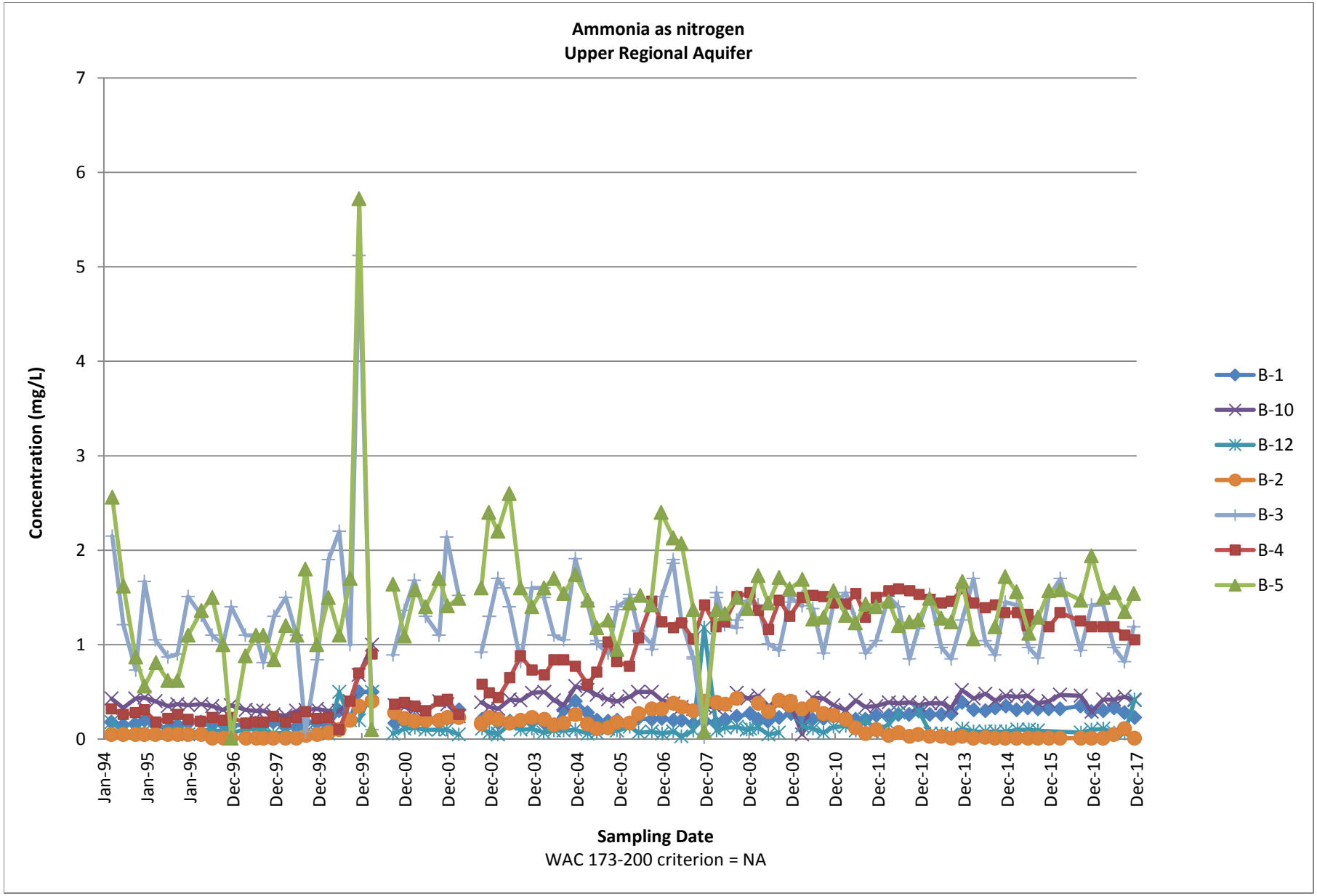
Results shown in bold exceed Ground Water Quality Criteria.
† Indicates supplement analytes measured due to Ecology request

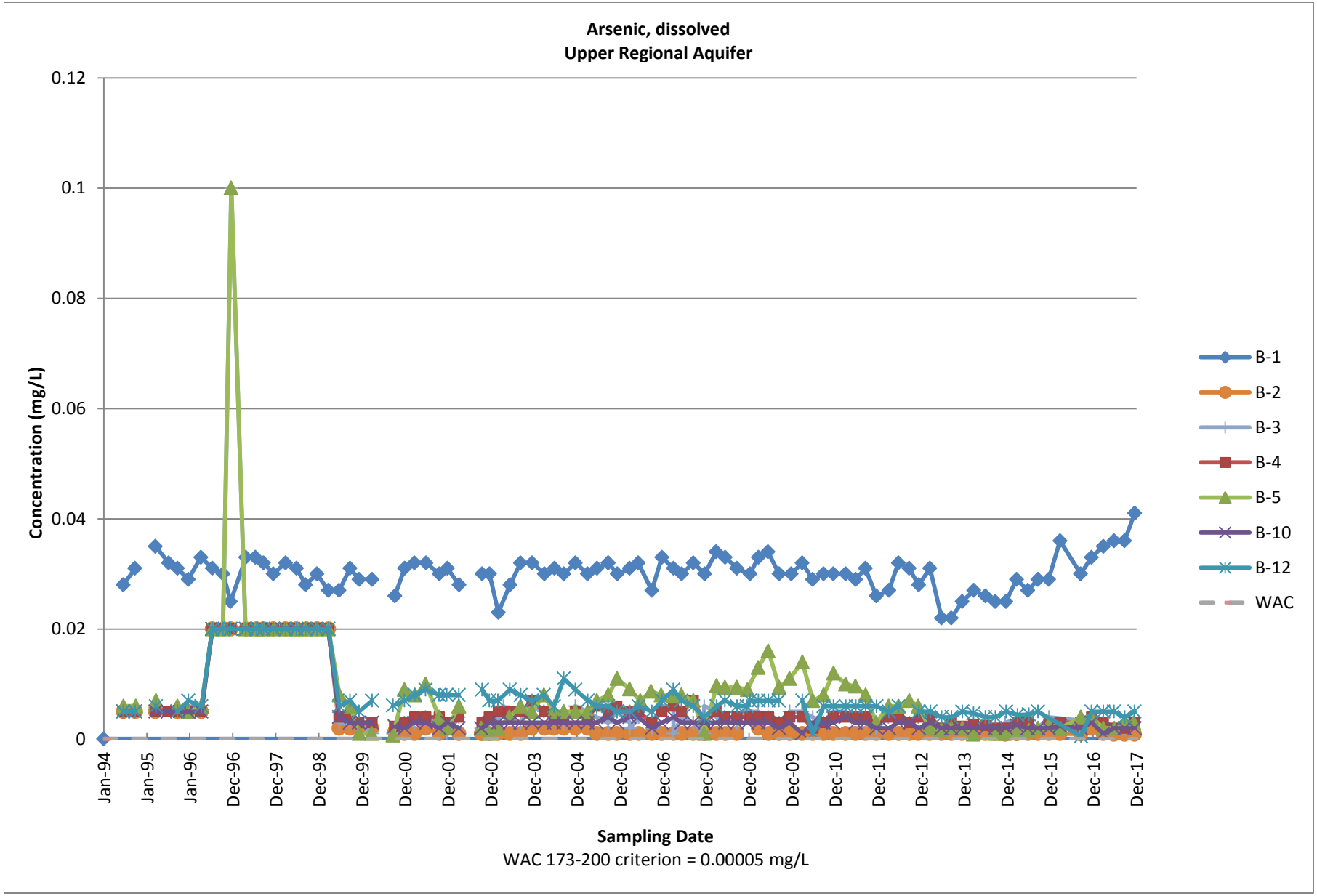
APPENDIX B-2:
Long-Term Time Series Plots 1994-2017 – Upper Regional Aquifer

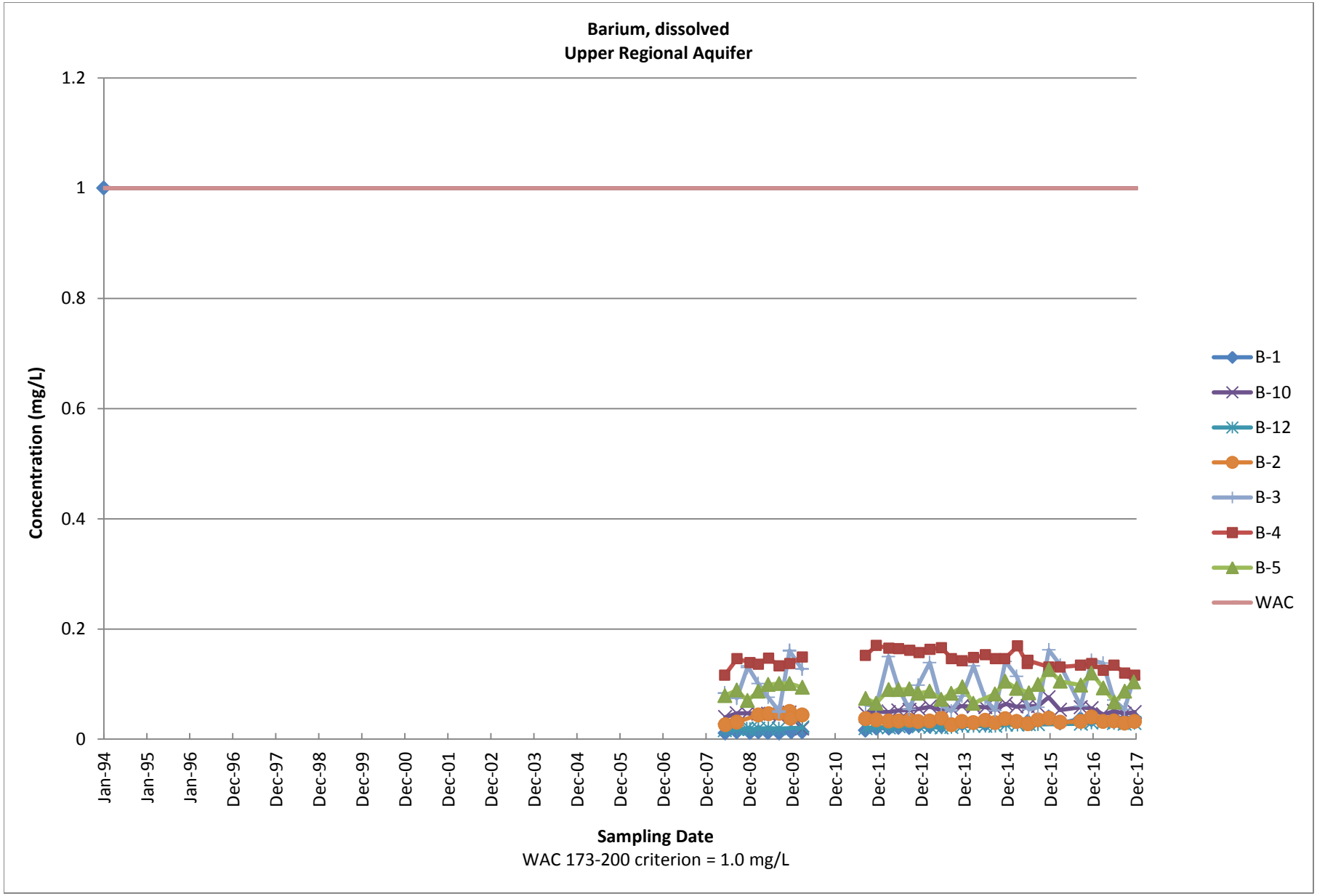

1,1-dichloroethane
Upper Regional Aquifer
Concentration (µg/L)
2.5
2
1.5
1
0.5
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
B-1
B-2
B-3
B-4
B-5
B-10
B-12
WAC
WAC 173-200 criterion = 1.0 µg/L

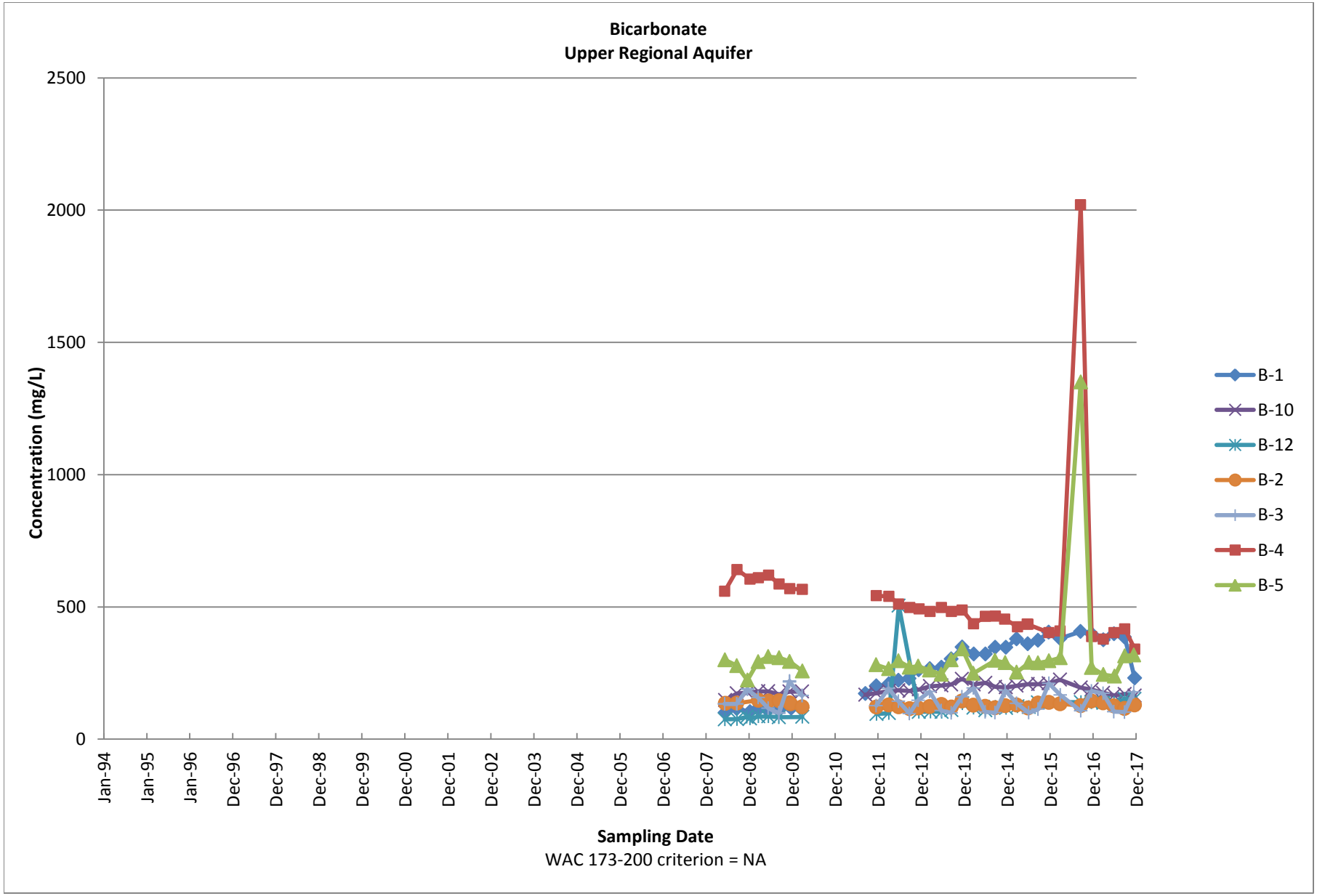

Acetone
Upper Regional Aquifer
Concentration (µg/L)
25
20
15
10
5
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
WAC 173-200 criterion = NA
B-1
B-2
B-3
B-4
B-5
B-10
B-12

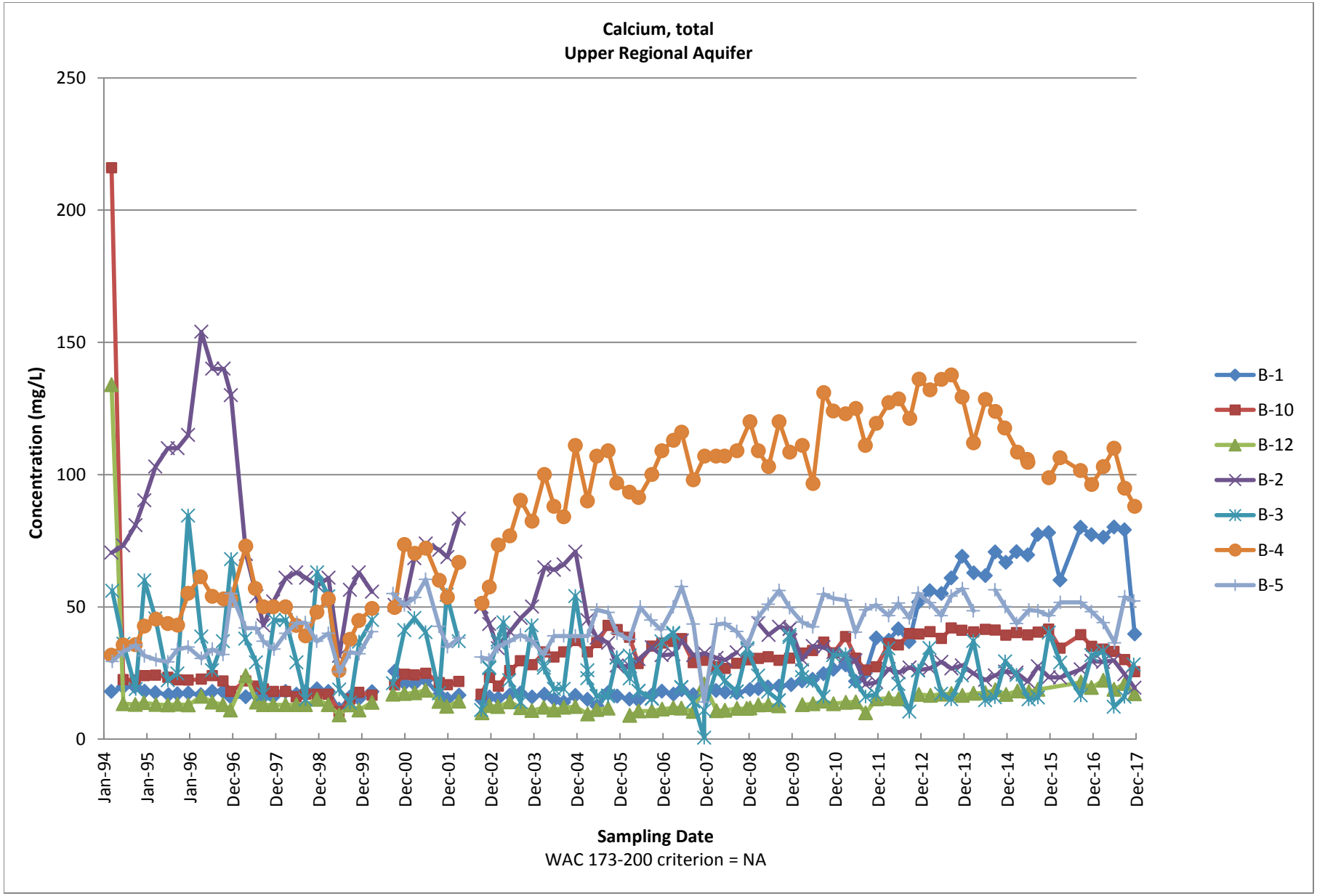

Alkalinity
Upper Regional Aquifer
2500
2000
1500
1000
500
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
WAC 173-200 criterion = NA
B-1
B-2
B-3
B-4
B-5
B-10
B-12

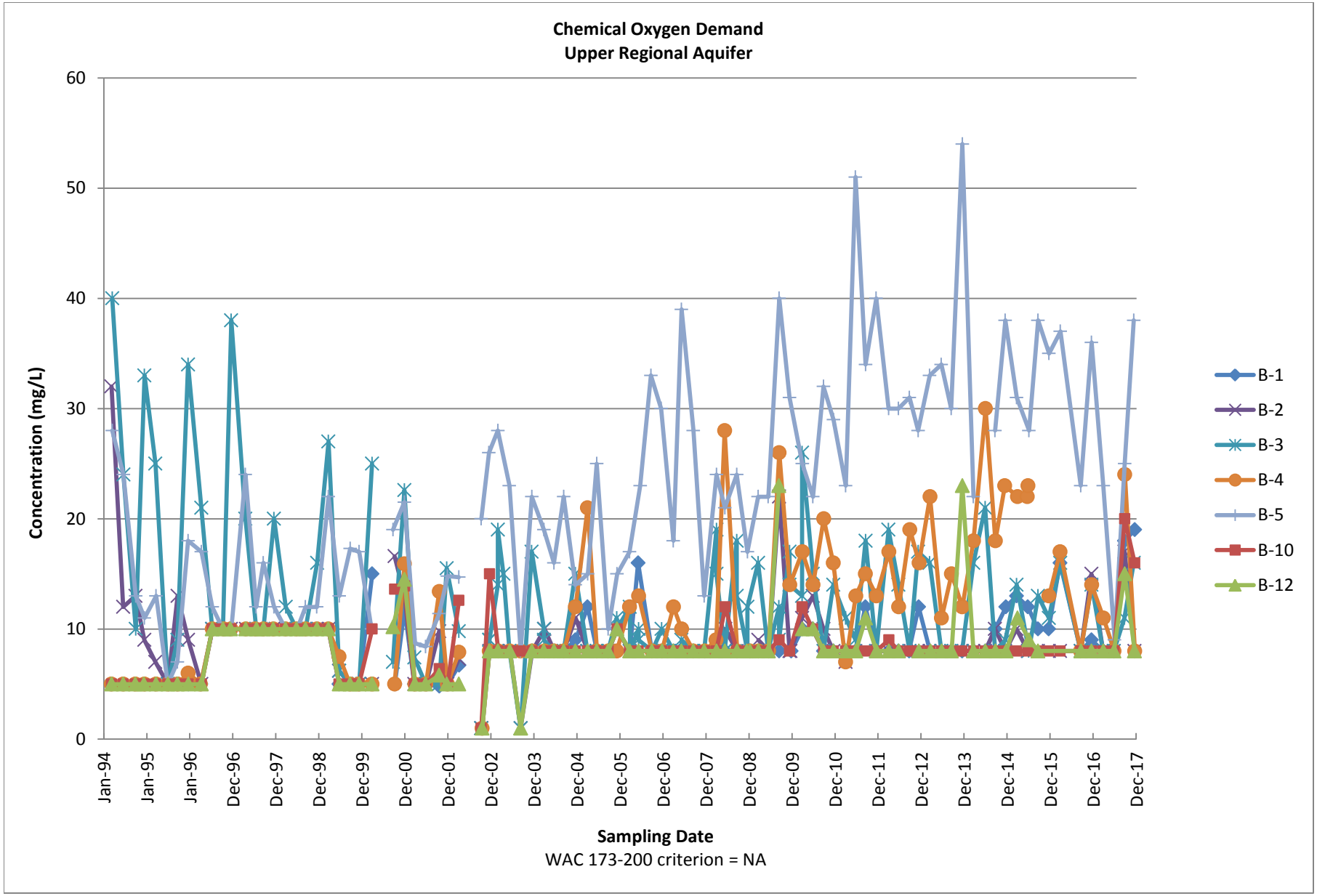

Ammonia as nitrogen
Upper Regional Aquifer
Concentration (mg/L)
0
1
2
3
4
5
6
7
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
WAC 173-200 criterion = NA
B-1
B-10
B-12
B-2
B-3
B-4
B-5

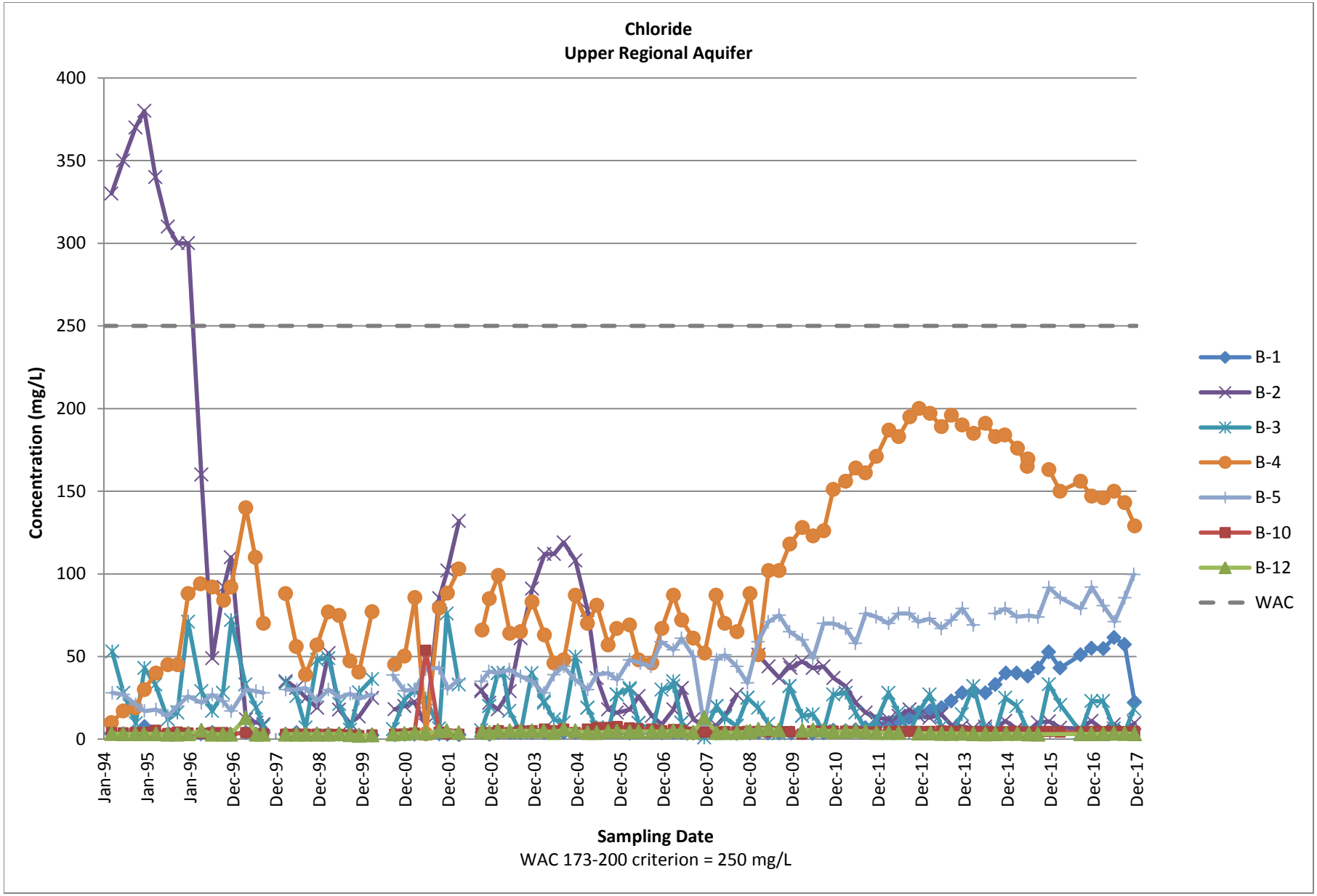

Arsenic, dissolved
Upper Regional Aquifer
0.12
0.1
0.08
0.06
0.04
0.02
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
B-1
B-2
B-3
B-4
B-5
B-10
B-12
WAC
WAC 173-200 criterion = 0.00005 mg/L

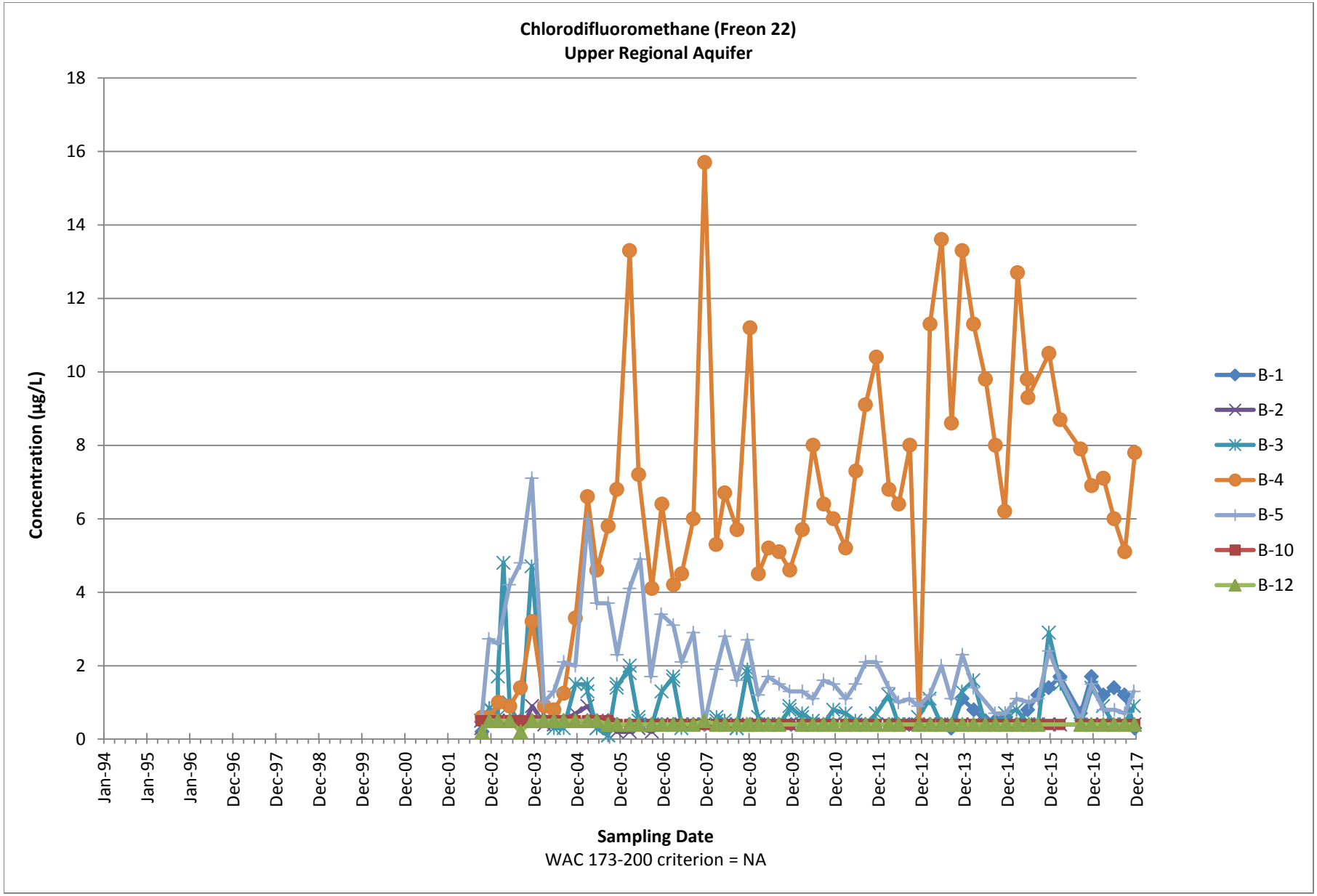

Barium, dissolved
Upper Regional Aquifer
Concentration (mg/L)
1.2
1
0.8
0.6
0.4
0.2
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
B-1
B-10
B-12
B-2
B-3
B-4
B-5
WAC
WAC 173-200 criterion = 1.0 mg/L

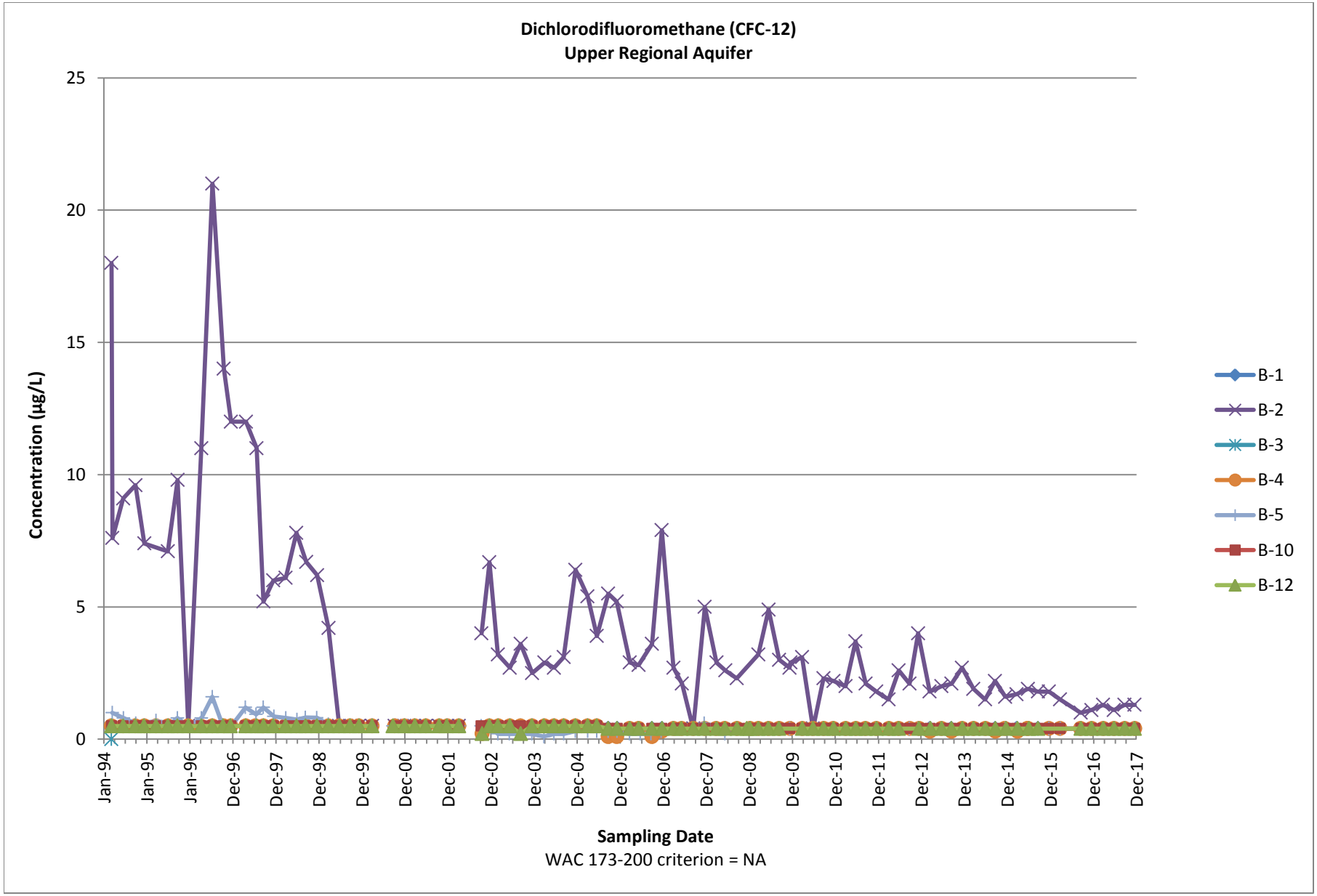

Bicarbonate
Upper Regional Aquifer
2500
2000
1500
1000
500
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
WAC 173-200 criterion = NA
B-1
B-10
B-12
B-2
B-3
B-4
B-5

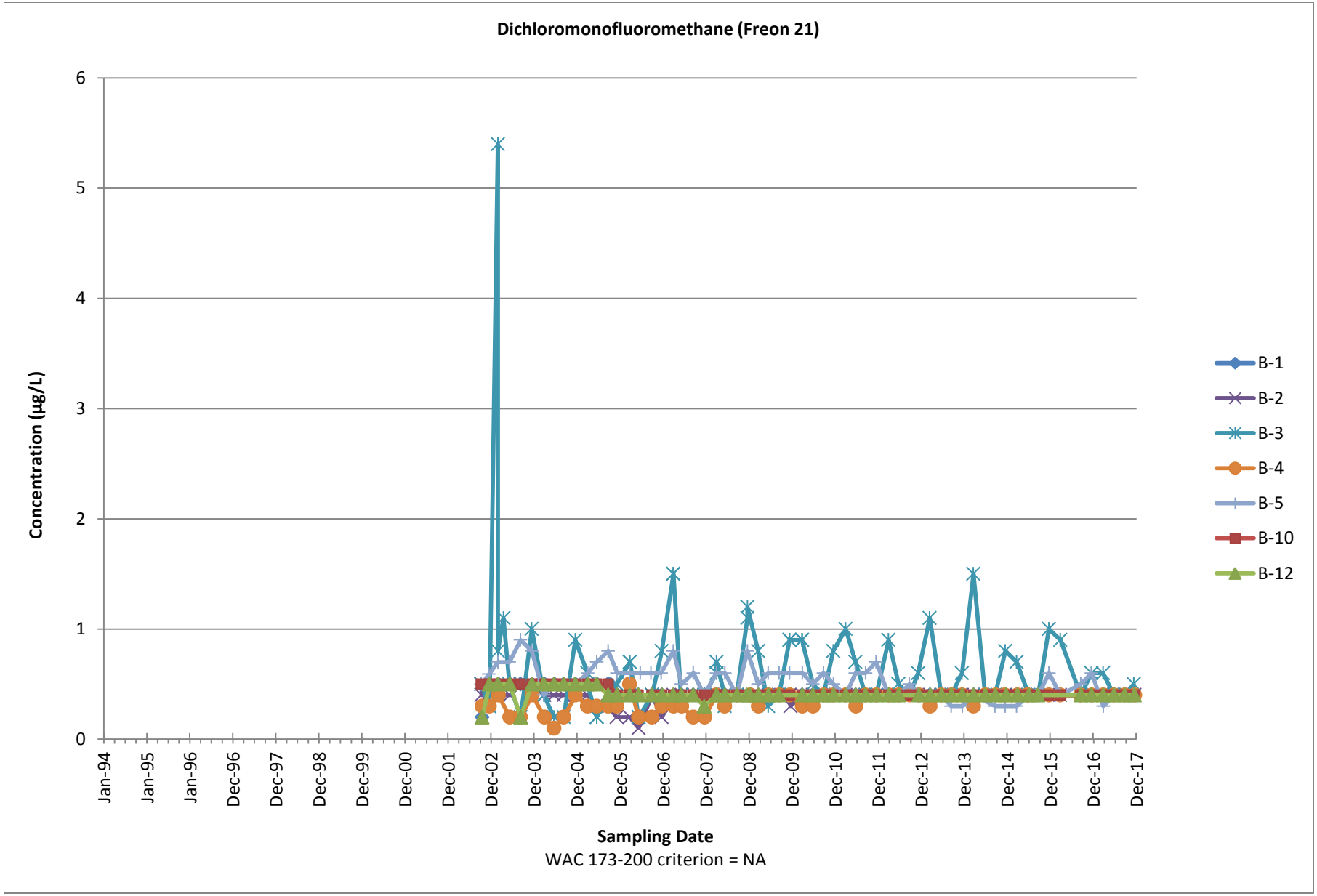

Calcium, total
Upper Regional Aquifer
250
200
150
100
50
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
WAC 173-200 criterion = NA
B-1
B-10
B-12
B-2
B-3
B-4
B-5

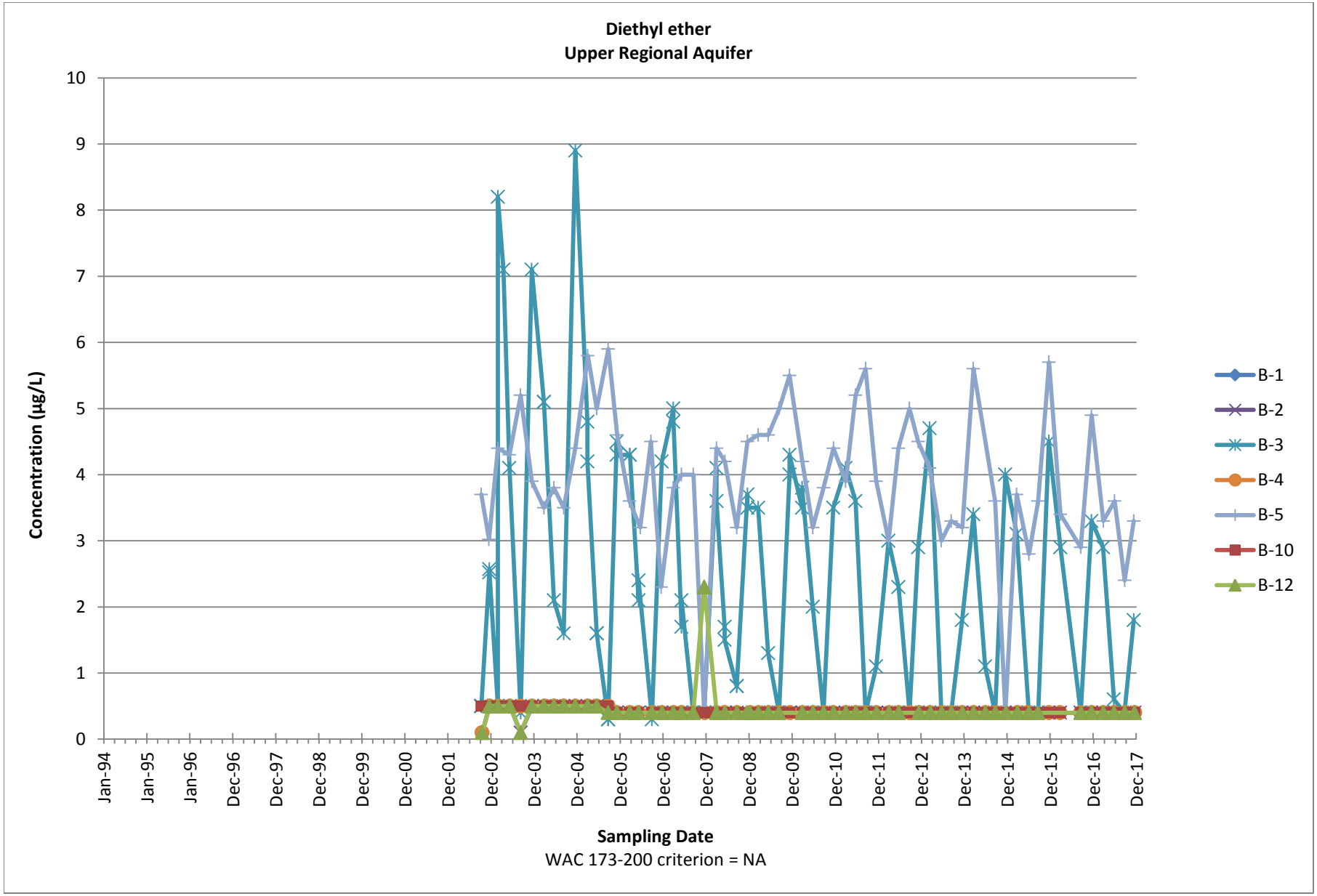

Chemical Oxygen Demand
Upper Regional Aquifer
Concentration (mg/L)
60
50
40
30
20
10
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
WAC 173-200 criterion = NA
B-1
B-2
B-3
B-4
B-5
B-10
B-12

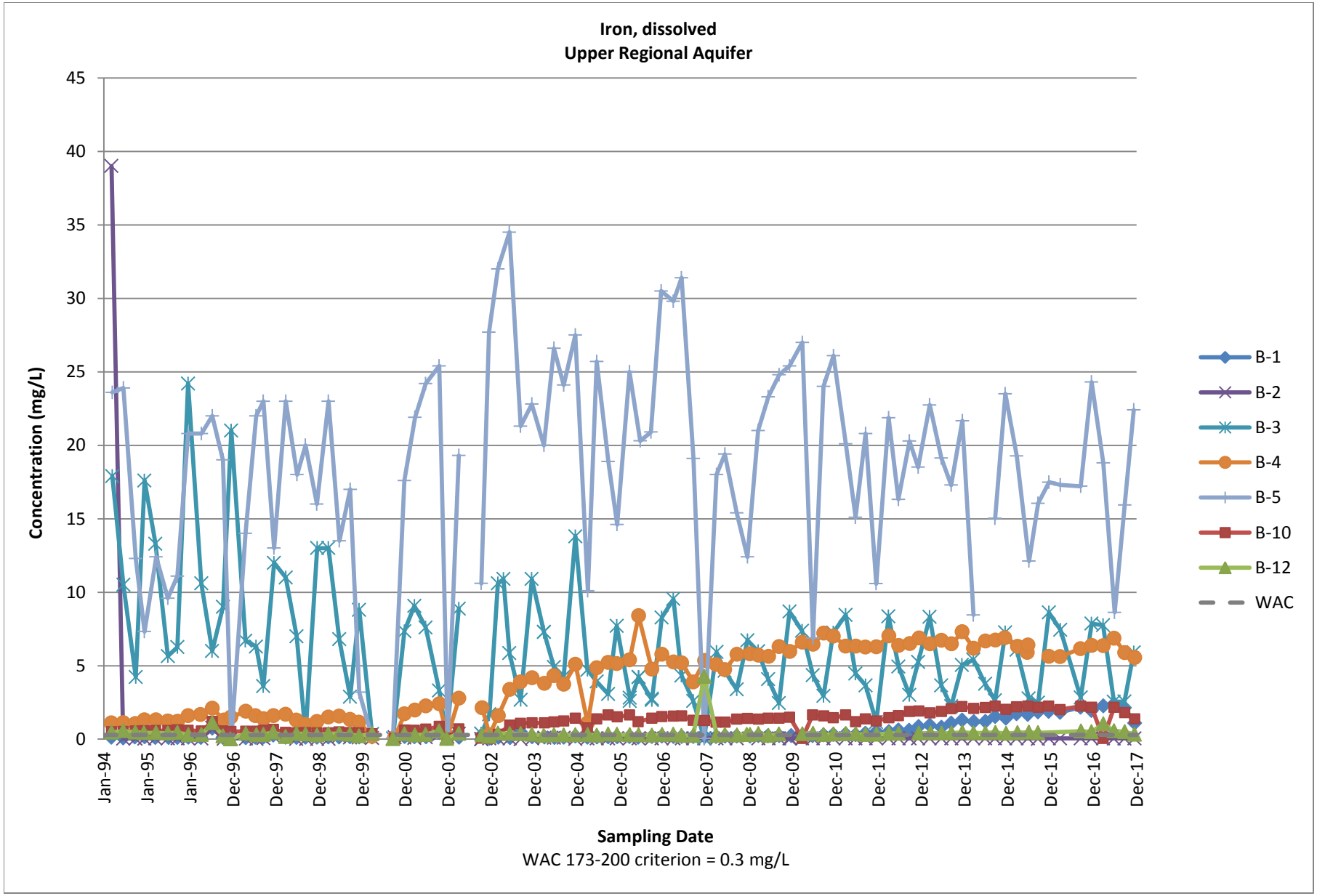

Chloride
Upper Regional Aquifer
Concentration (mg/L)
400
350
300
250
200
150
100
50
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
B-1
B-2
B-3
B-4
B-5
B-10
B-12
WAC
Sampling Date
WAC 173-200 criterion = 250 mg/L

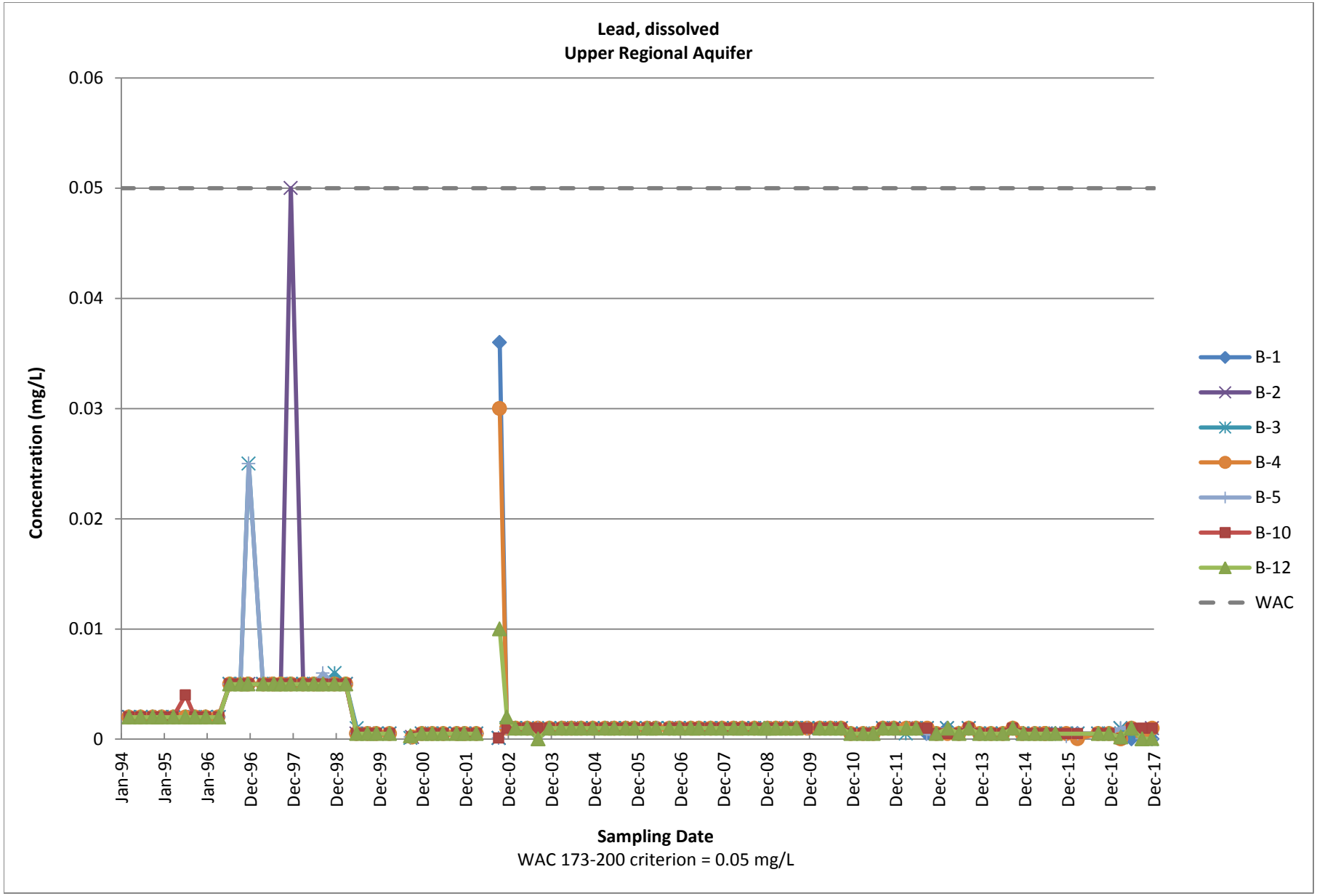

Chlorodifluoromethane (Freon 22)
Upper Regional Aquifer
Concentration (µg/L)
18
16
14
12
10
8
6
4
2
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
WAC 173-200 criterion = NA
B-1
B-2
B-3
B-4
B-5
B-10
B-12

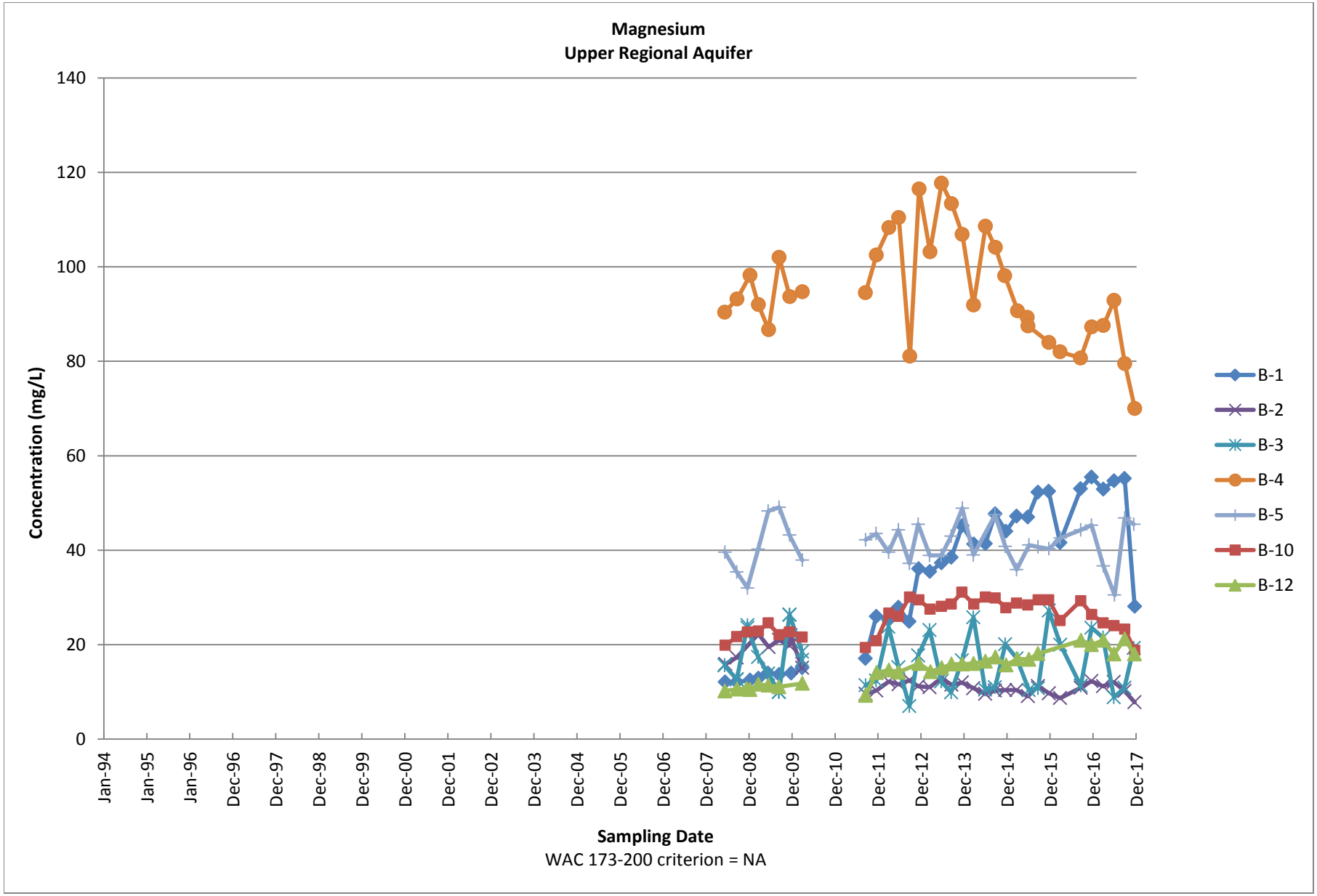

Dichlorodifluoromethane (CFC-12)
Upper Regional Aquifer
Concentration (µg/L)
25
20
15
10
5
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
WAC 173-200 criterion = NA
B-1
B-2
B-3
B-4
B-5
B-10
B-12

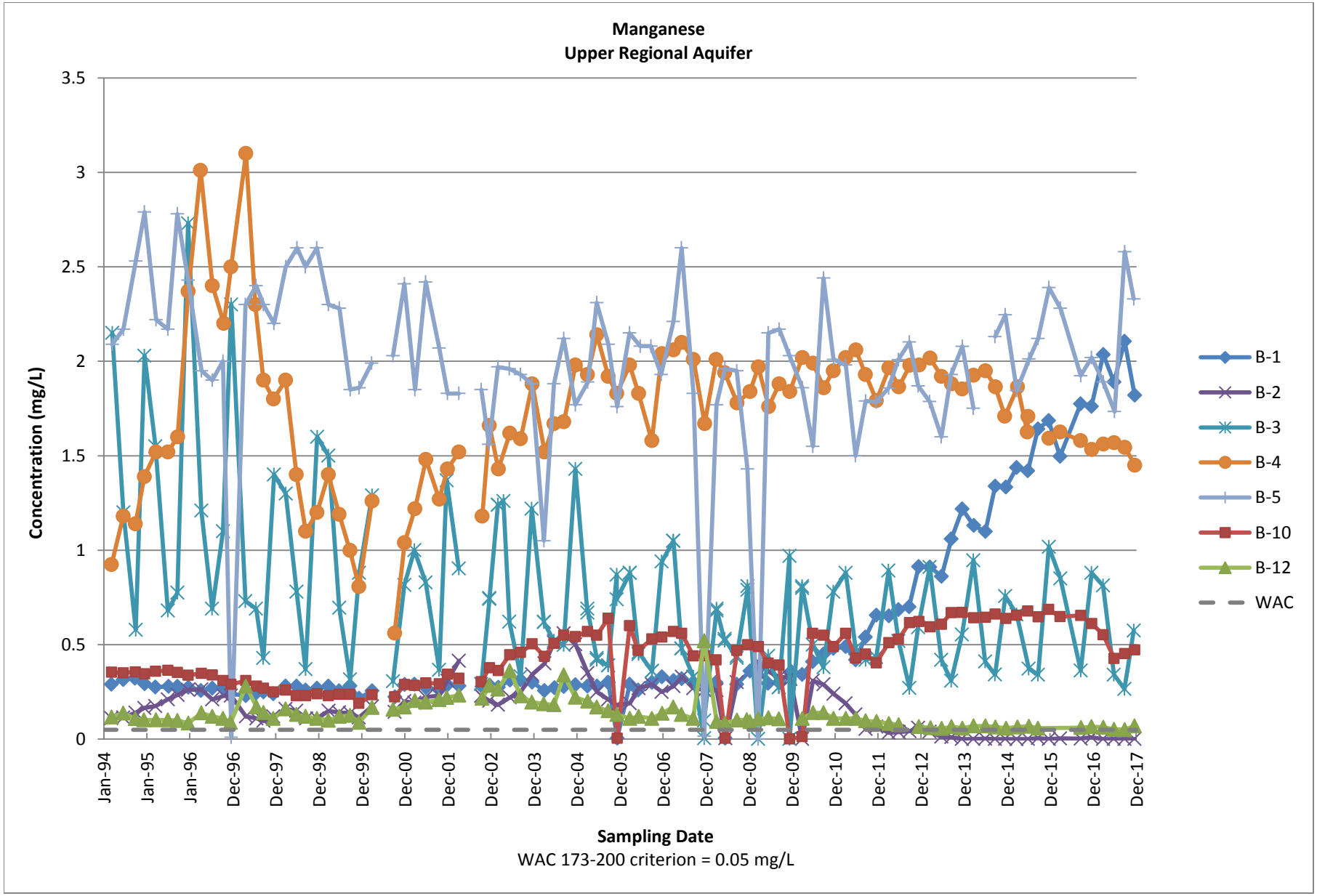

Dichloromonofluoromethane (Freon 21)
Concentration (µg/L)
0
1
2
3
4
5
6
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
WAC 173-200 criterion = NA
B-1
B-2
B-3
B-4
B-5
B-10
B-12

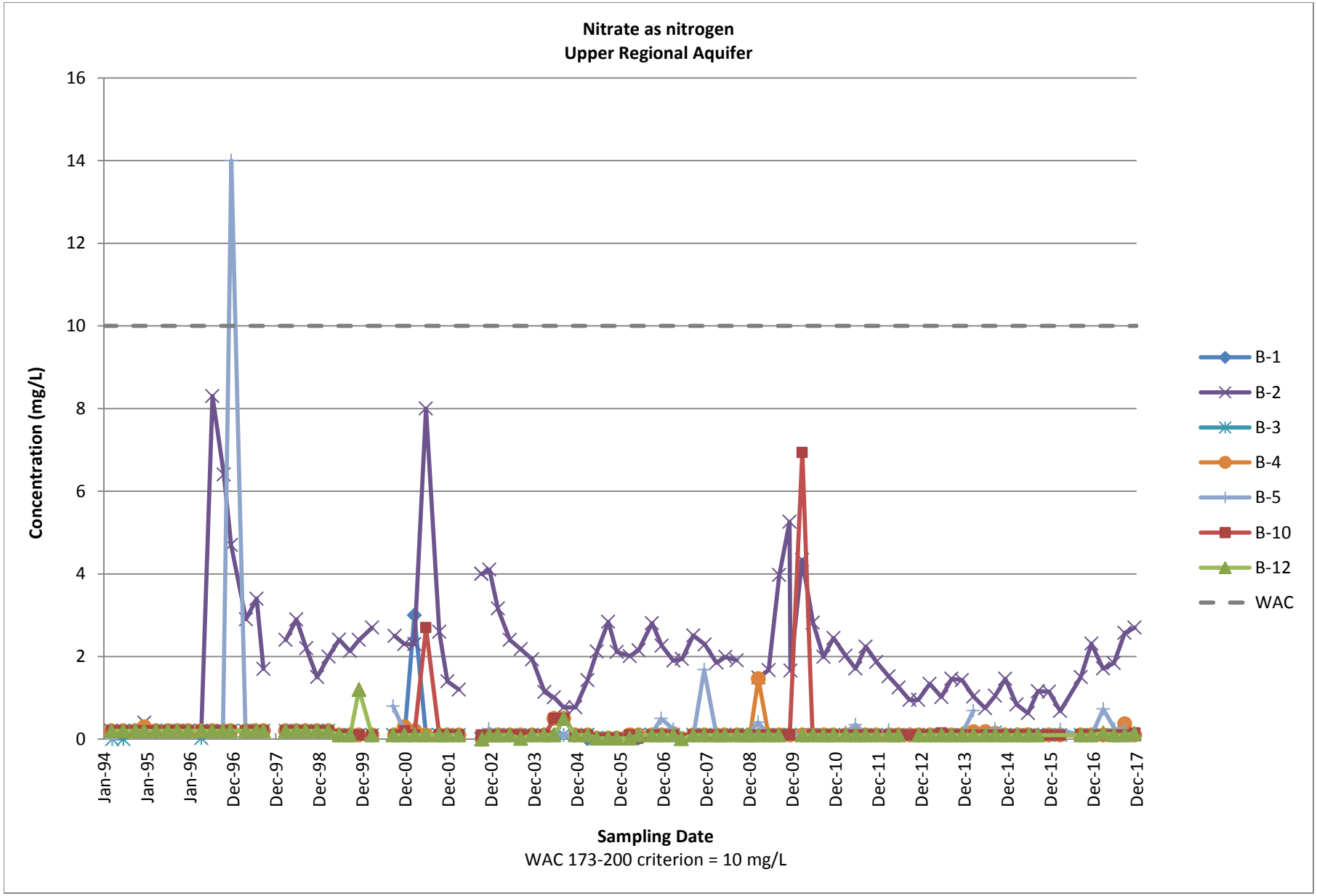

Diethyl ether
Upper Regional Aquifer
Concentration (µg/L)
10
9
8
7
6
5
4
3
2
1
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
WAC 173-200 criterion = NA
B-1
B-2
B-3
B-4
B-5
B-10
B-12

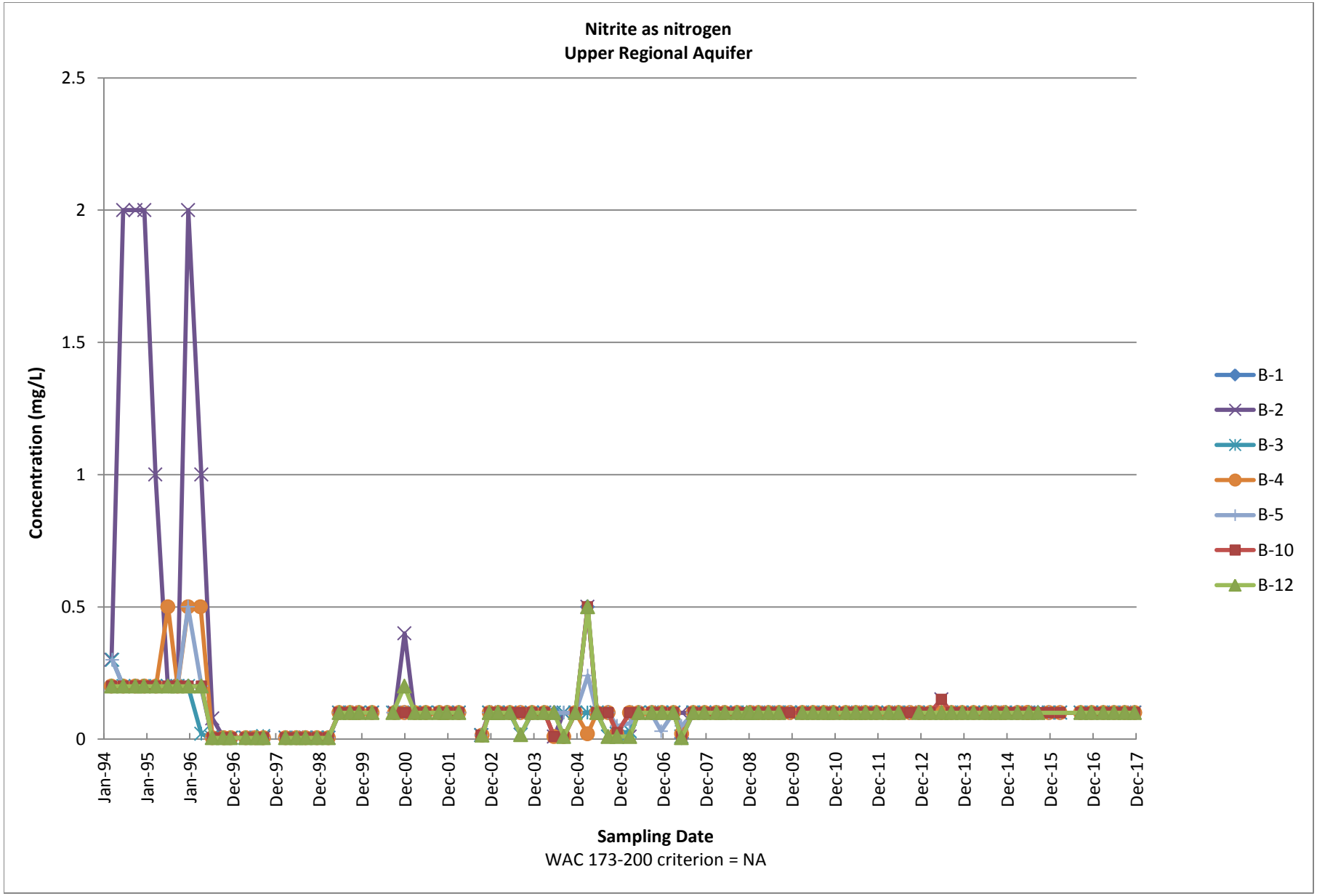

Iron, dissolved
Upper Regional Aquifer
Concentration (mg/L)
45
40
35
30
25
20
15
10
5
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
B-1
B-2
B-3
B-4
B-5
B-10
B-12
WAC
Sampling Date
WAC 173-200 criterion = 0.3 mg/L

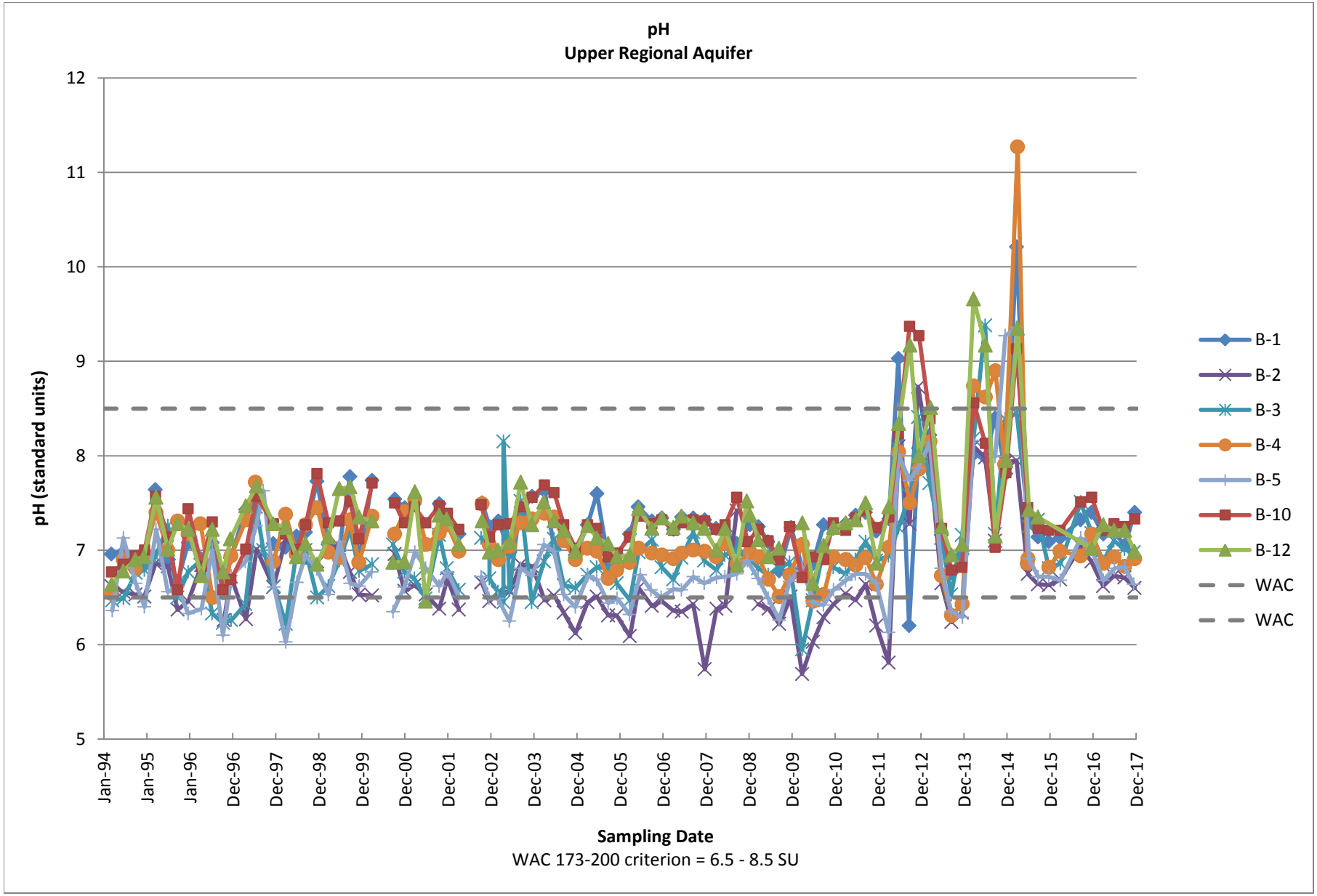

Lead, dissolved
Upper Regional Aquifer
Concentration (mg/L)
0.06
0.05
0.04
0.03
0.02
0.01
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
B-1
B-2
B-3
B-4
B-5
B-10
B-12
WAC
WAC 173-200 criterion = 0.05 mg/L

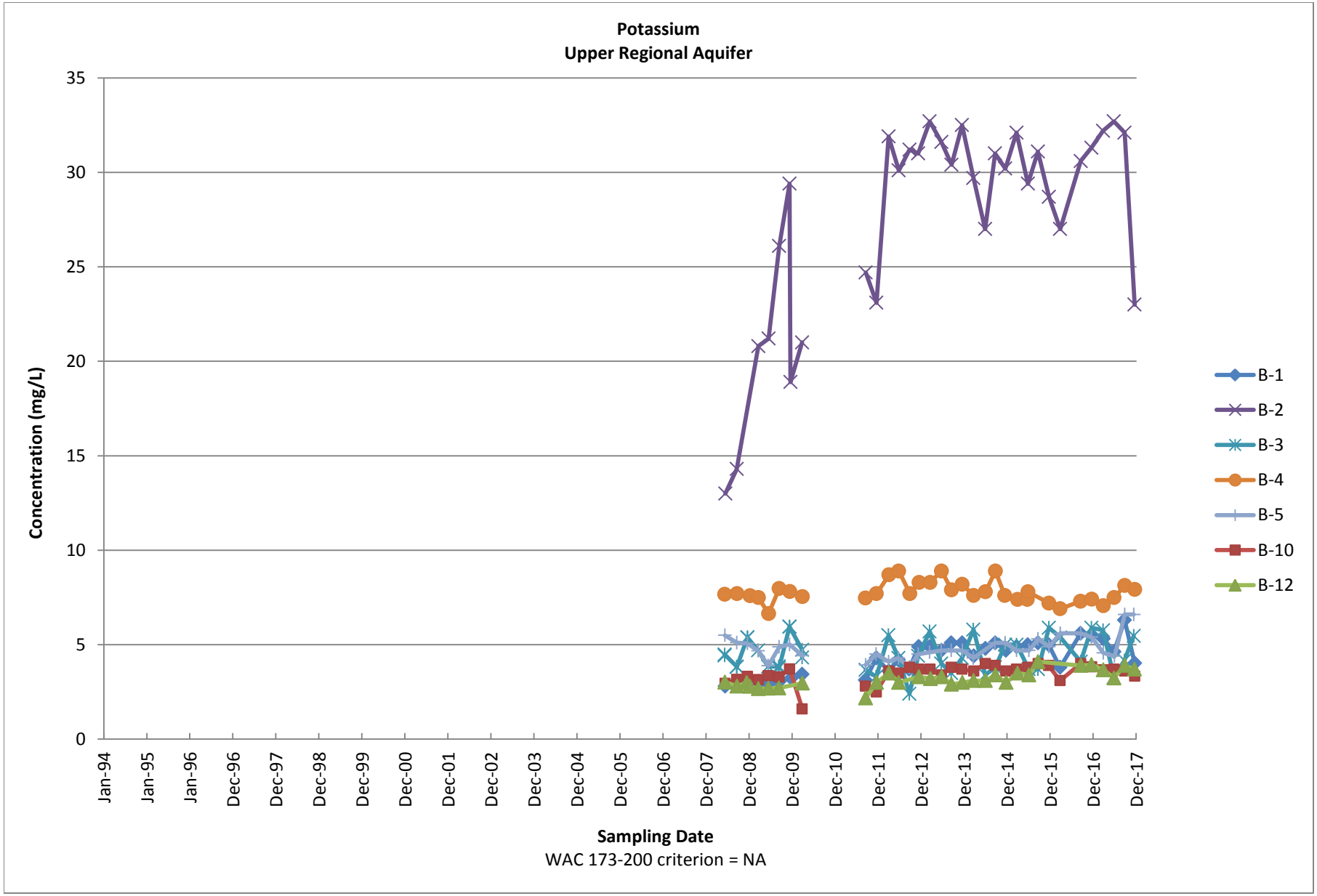

Magnesium
Upper Regional Aquifer
Concentration (mg/L)
140
120
100
80
60
40
20
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
WAC 173-200 criterion = NA
B-1
B-2
B-3
B-4
B-5
B-10
B-12

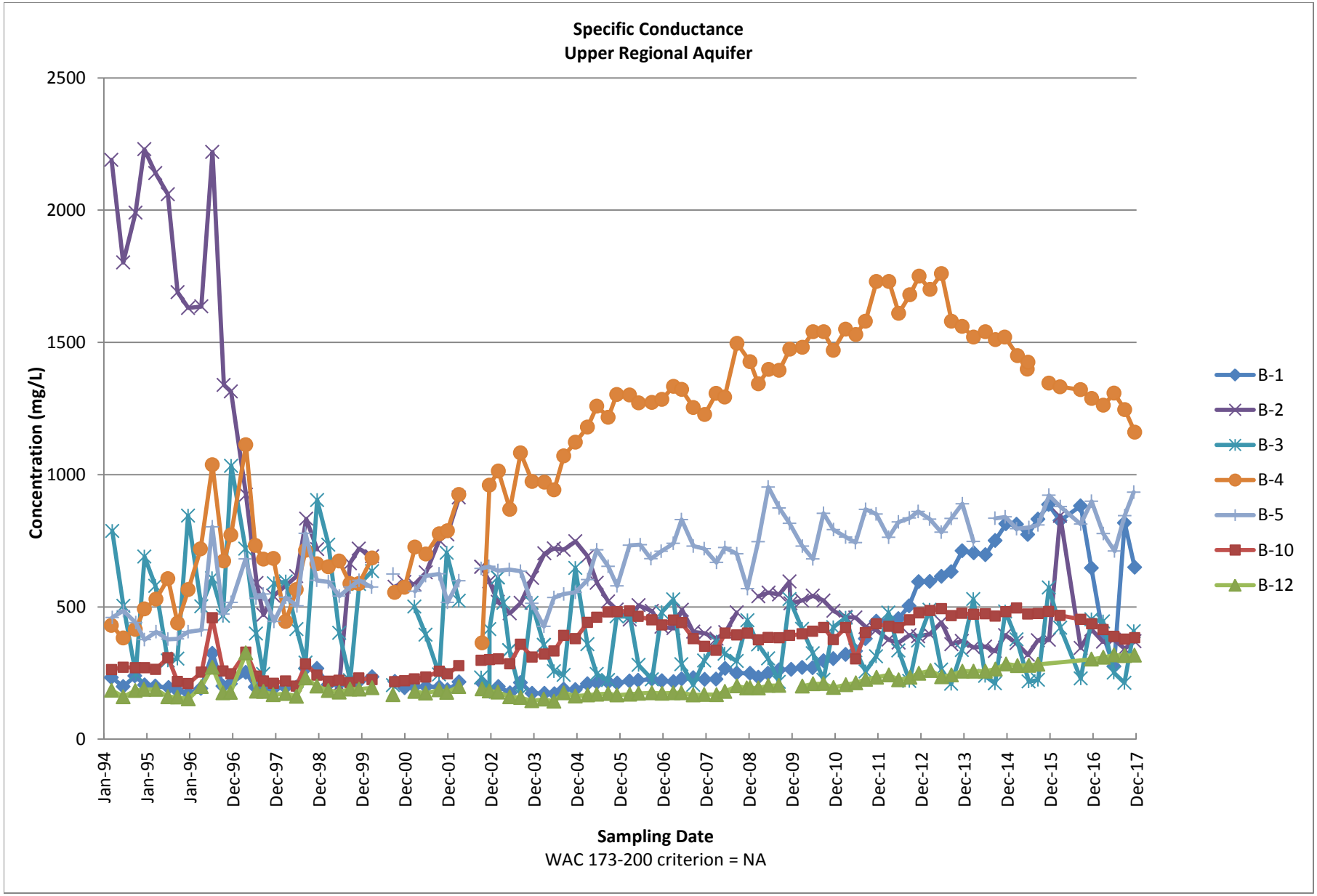

Manganese
Upper Regional Aquifer
Concentration (mg/L)
3.5
3
2.5
2
1.5
1
0.5
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
B-1
B-2
B-3
B-4
B-5
B-10
B-12
WAC
WAC 173-200 criterion = 0.05 mg/L

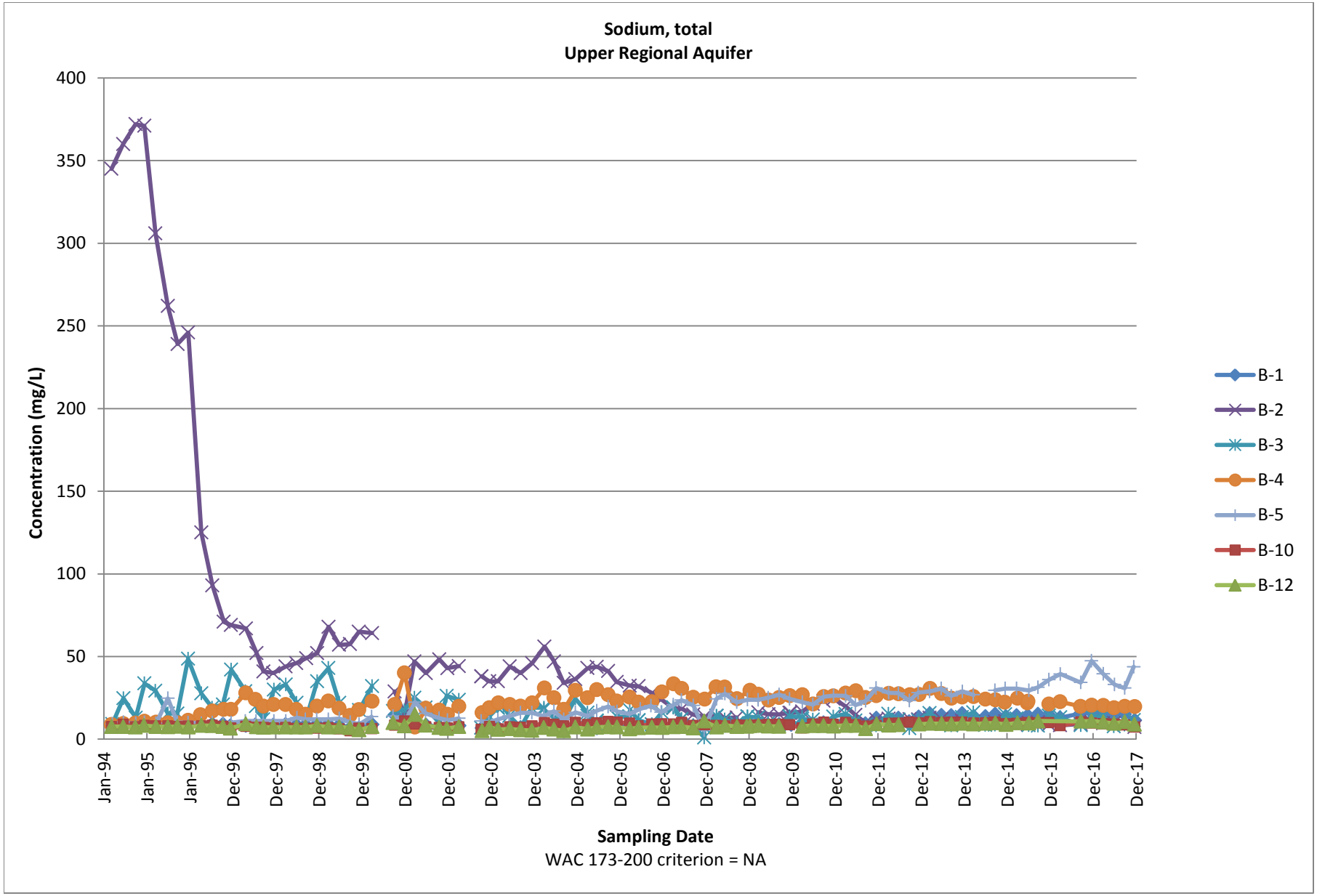

Nitrate as nitrogen
Upper Regional Aquifer
Concentration (mg/L)
16
14
12
10
8
6
4
2
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
B-1
B-2
B-3
B-4
B-5
B-10
B-12
WAC
WAC 173-200 criterion = 10 mg/L

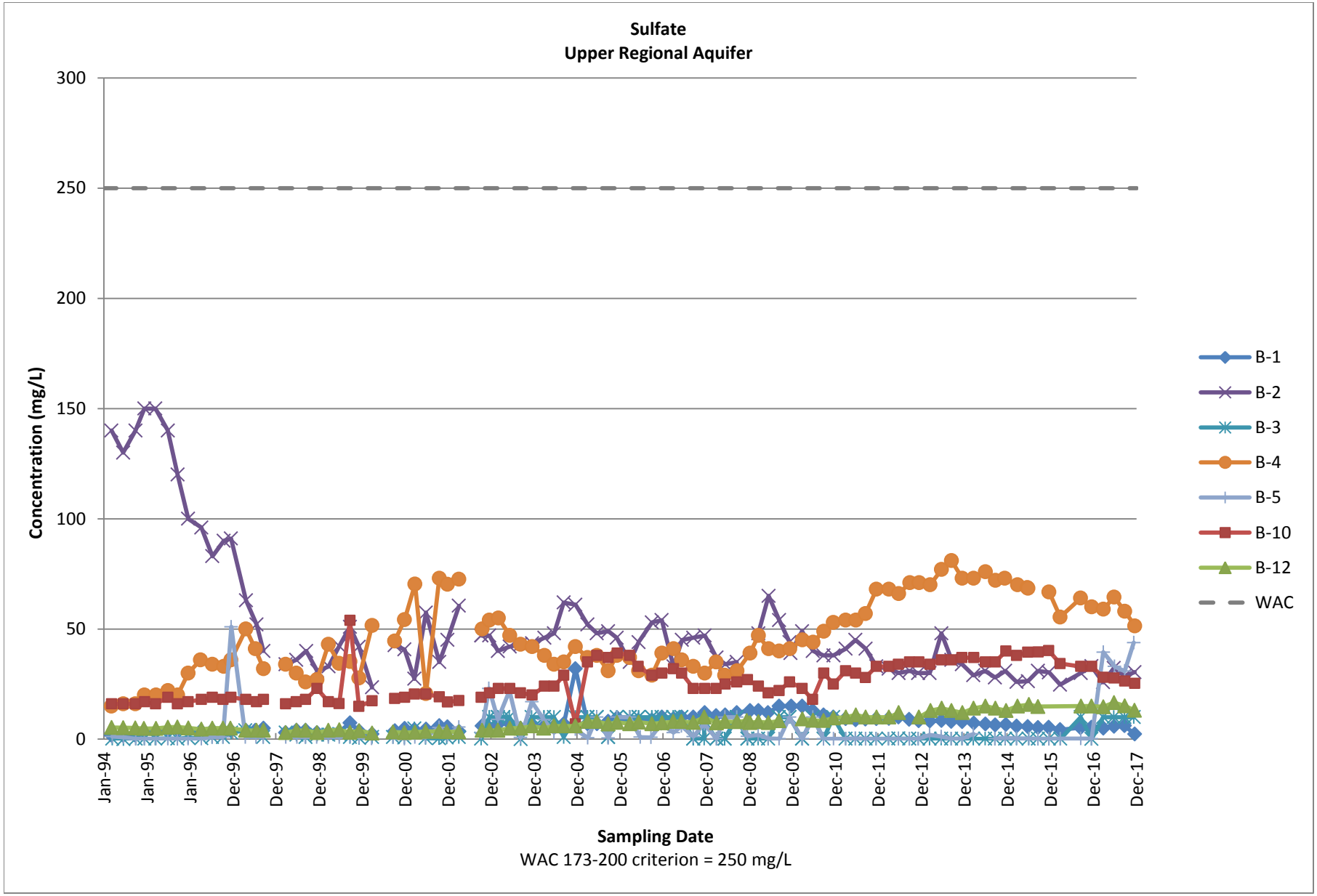

Nitrite as nitrogen
Upper Regional Aquifer
Concentration (mg/L)
2.5
2
1.5
1
0.5
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
B-1
B-2
B-3
B-4
B-5
B-10
B-12
Sampling Date
WAC 173-200 criterion = NA

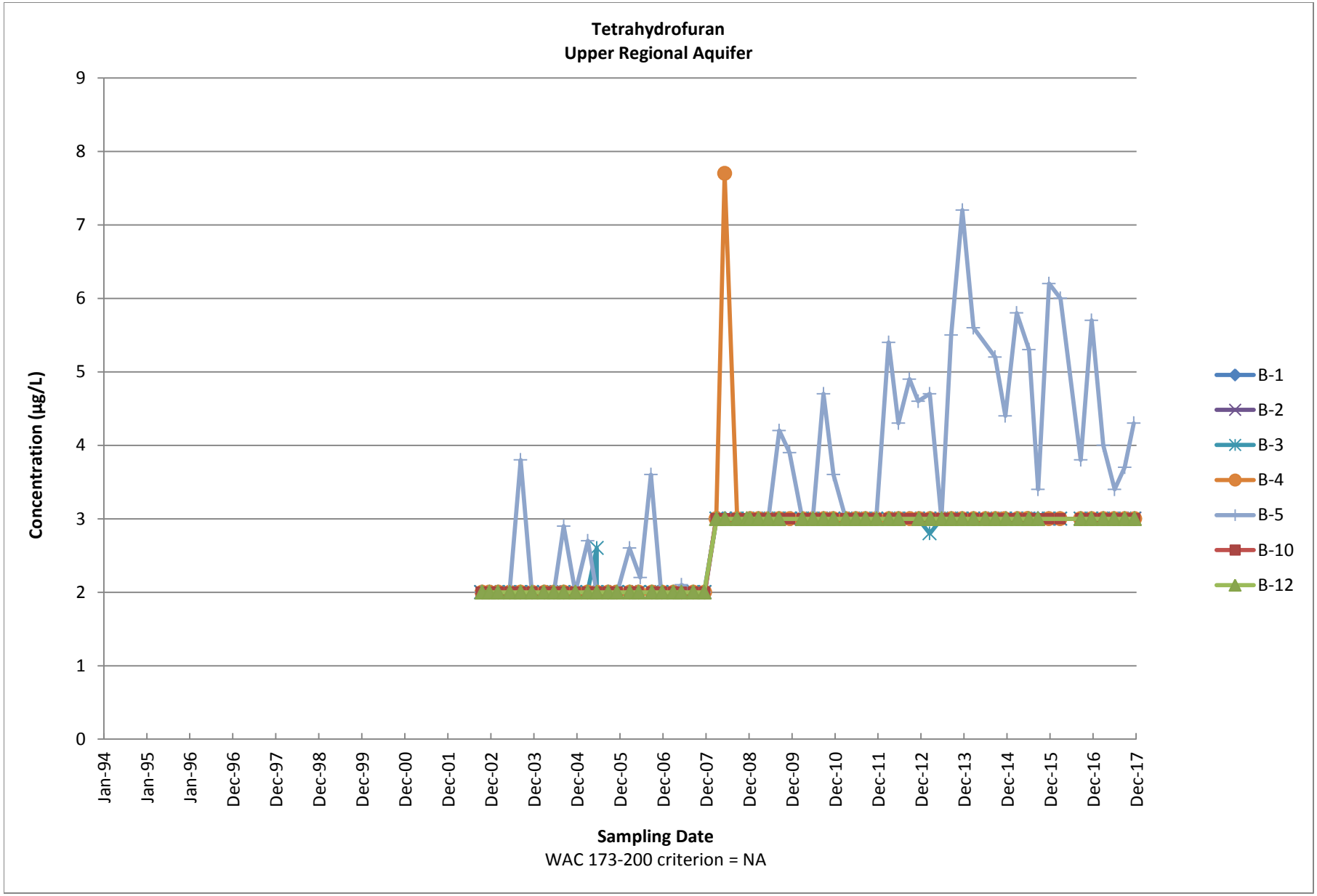

pH
Upper Regional Aquifer
pH (standard units)
12
11
10
9
8
7
6
5
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
WAC 173-200 criterion = 6.5 - 8.5 SU
B-1
B-2
B-3
B-4
B-5
B-10
B-12
WAC
WAC

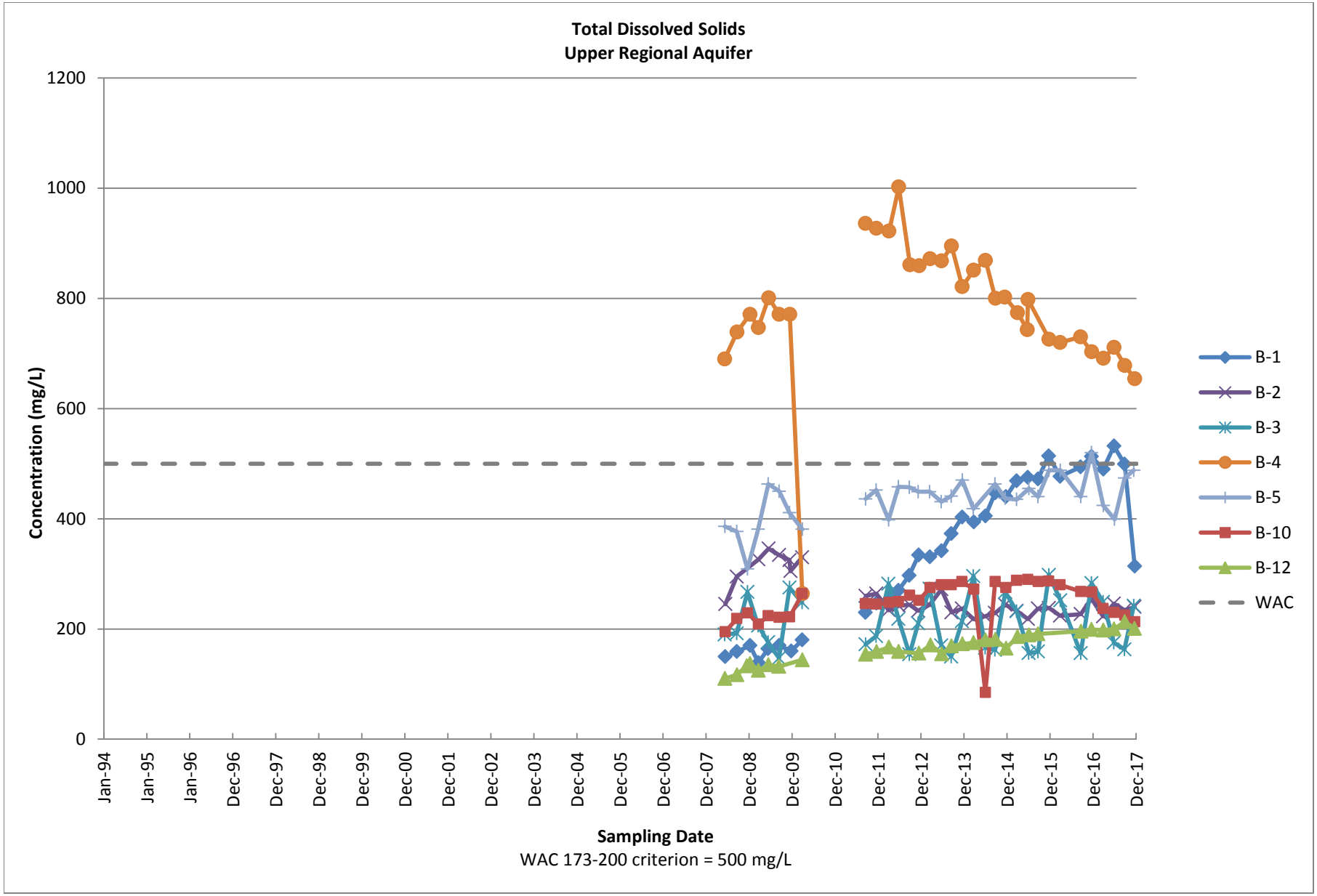

Potassium
Upper Regional Aquifer
Concentration (mg/L)
35
30
25
20
15
10
5
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
WAC 173-200 criterion = NA
B-1
B-2
B-3
B-4
B-5
B-10
B-12

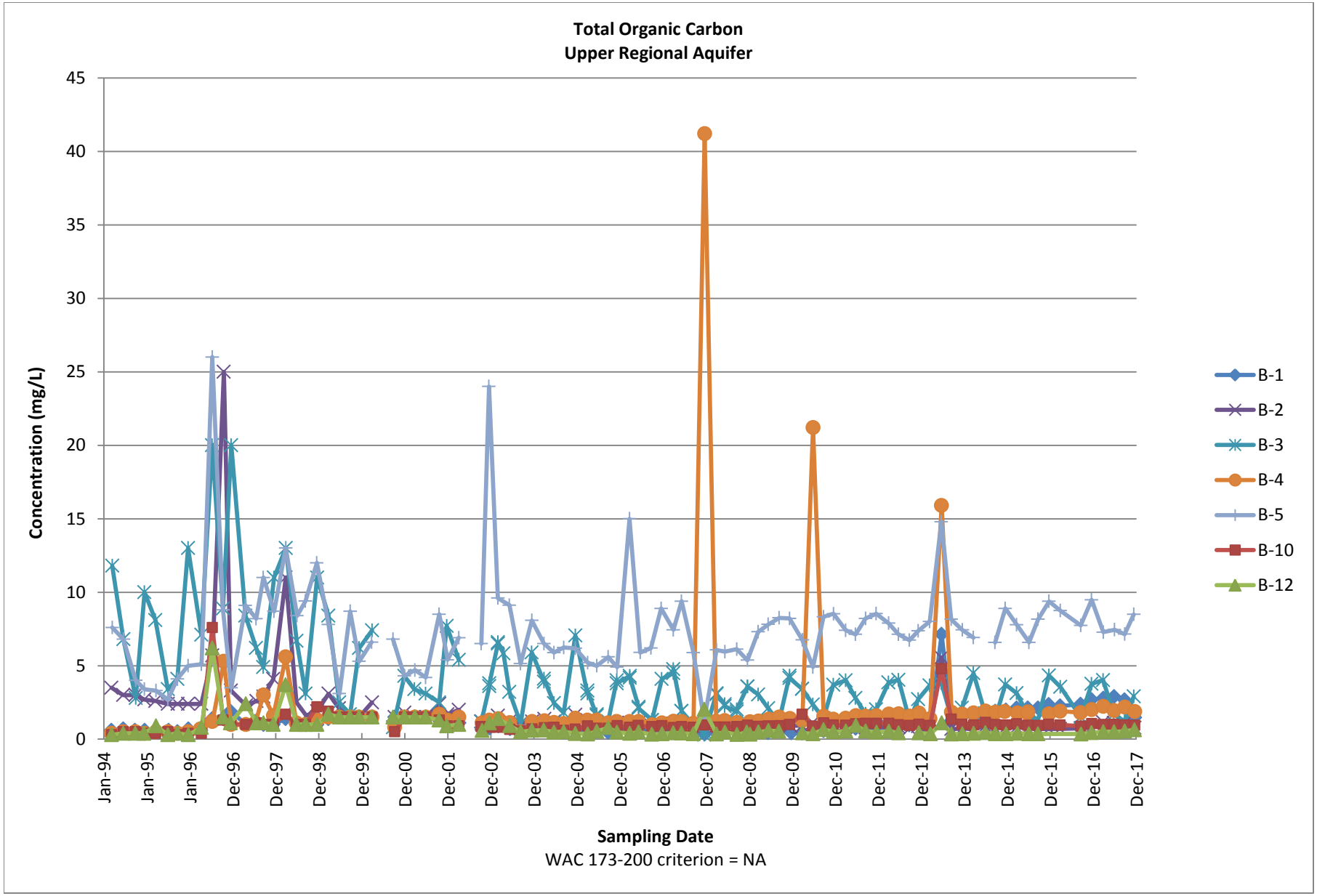

Specific Conductance
Upper Regional Aquifer
Concentration (mg/L)
2500
2000
1500
1000
500
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
WAC 173-200 criterion = NA
B-1
B-2
B-3
B-4
B-5
B-10
B-12

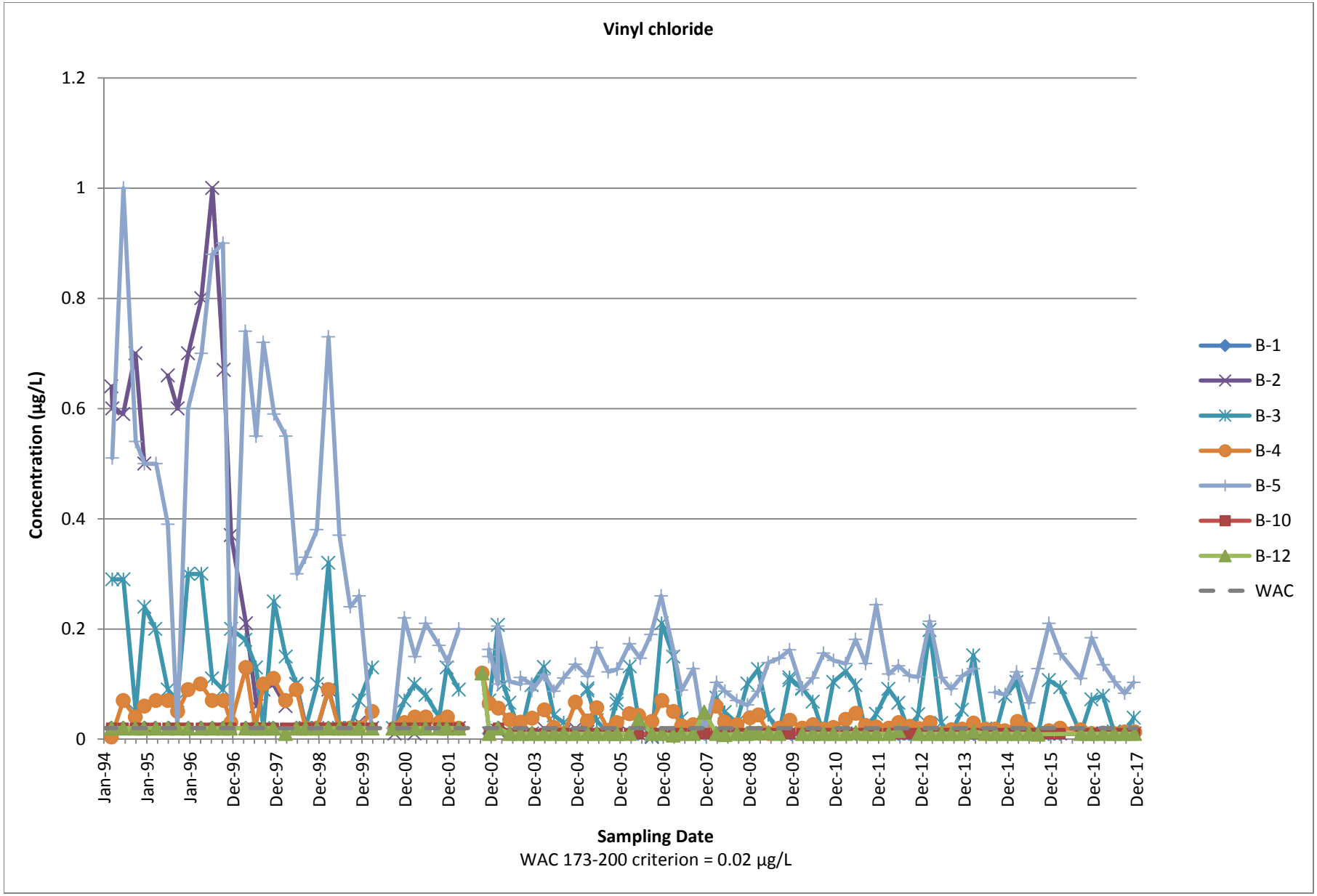

Sodium, total
Upper Regional Aquifer
Concentration (mg/L)
400
350
300
250
200
150
100
50
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
WAC 173-200 criterion = NA
B-1
B-2
B-3
B-4
B-5
B-10
B-12

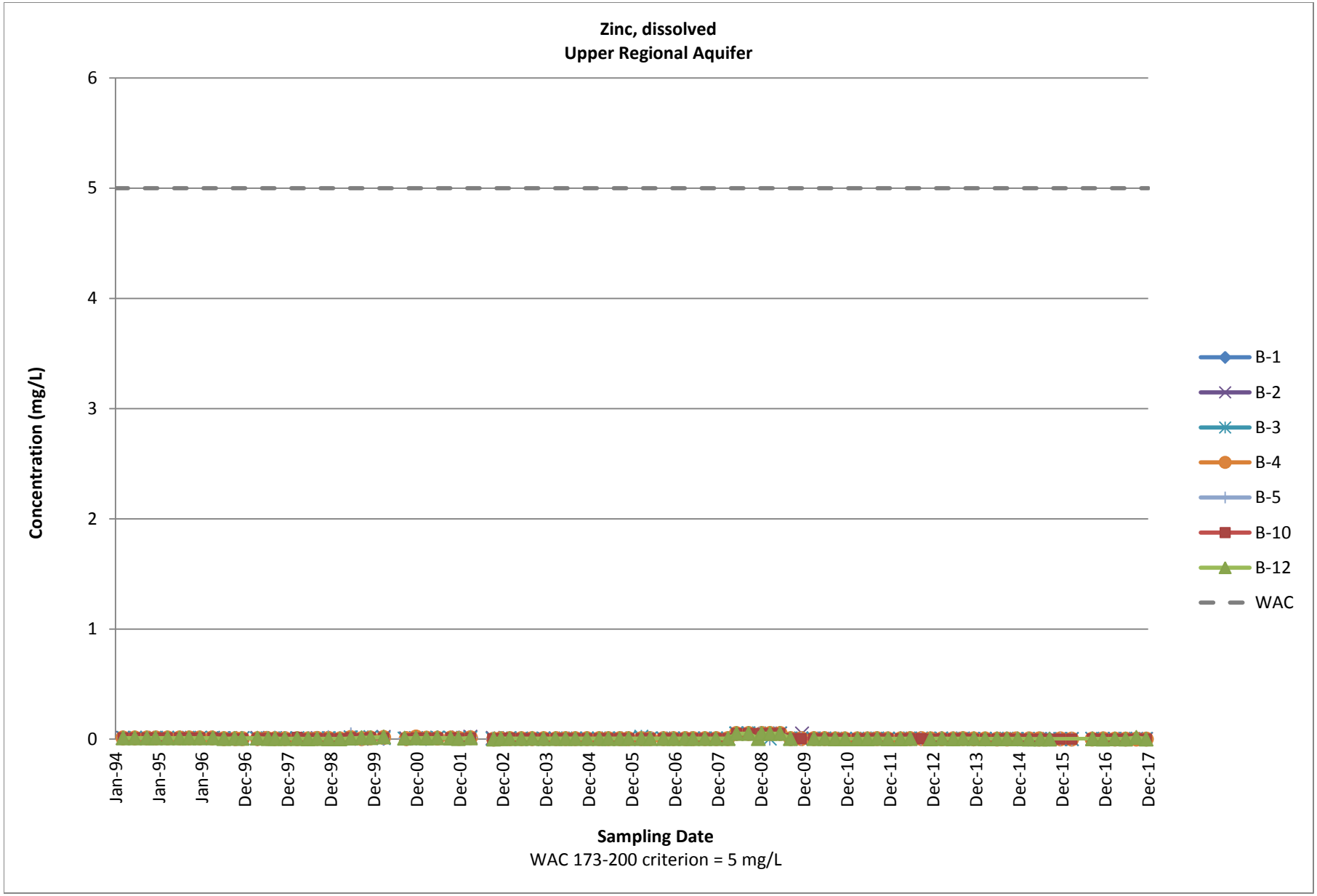

Sulfate
Upper Regional Aquifer
300
250
200
150
100
50
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
WAC 173-200 criterion = 250 mg/L
B-1
B-2
B-3
B-4
B-5
B-10
B-12
WAC


Tetrahydrofuran
Upper Regional Aquifer
Concentration (µg/L)
0
1
2
3
4
5
6
7
8
9
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
B-1
B-2
B-3
B-4
B-5
B-10
B-12
WAC 173-200 criterion = NA


Total Dissolved Solids
Upper Regional Aquifer
Concentration (mg/L)
1200
1000
800
600
400
200
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
WAC 173-200 criterion = 500 mg/L
B-1
B-2
B-3
B-4
B-5
B-10
B-12
WAC


Total Organic Carbon
Upper Regional Aquifer
Concentration (mg/L)
45
40
35
30
25
20
15
10
5
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
WAC 173-200 criterion = NA
B-1
B-2
B-3
B-4
B-5
B-10
B-12


Vinyl chloride
Concentration (µg/L)
1.2
1
0.8
0.6
0.4
0.2
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Sampling Date
B-1
B-2
B-3
B-4
B-5
B-10
B-12
WAC
WAC 173-200 criterion = 0.02 µg/L


Zinc, dissolved
Upper Regional Aquifer
Concentration (mg/L)
6
5
4
3
2
1
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
B-1
B-2
B-3
B-4
B-5
B-10
B-12
WAC
Sampling Date
WAC 173-200 criterion = 5 mg/L

APPENDIX C:
Data Validation Report
Fourth Quarter 2017

INMAN LANDFILL FOURTH QUARTER 2017 MONITORING EVENT
DATA VALIDATION REPORT

1. INTRODUCTION

This report presents the results of data validation for laboratory reports 17-35843, 17-36551, 17-36791, and 17-36950 by Edge Analytical, Burlington, Washington. Sample identifications and the analyses requested are provided in the following table.

Sample Location	Skagit County Sample ID	Lab Sample ID	Lab Report	Analysis (All Samples)
B-1	2836	79233	17-36791	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn: 200.7/Filter, 200.8/Filter, 245.1/Filter Total Metals (Ca, K, Mg, Na): 200.7 Inorganic Anions (NO_3, NO_2, Cl, SO_4): 300.0 Nutrients (NH_3): SM 4500 Demand (TOC, COD): SM 5310B, SM 5220D Organics (VOCs): 8260B, 8260SIM Properties (Alkalinity, TDS, Bicarbonate): SM 2320B, SM 2540C
B-2	2837	78613	17-36551	
B-3	2838	77189	17-35843	
B-3 Duplicate	2839	77190	17-35843	
B-4	2840	79563	17-36950	
B-5	2841	77188	17-35843	
B-6	2842	79235	17-36791	
B-9	2845	79564	17-36950	
B-10	2846	79234	17-36791	
B-12	2848	78614	17-36551	

The samples were collected on December 7, 13, 14, and 15, 2017.

2. SAMPLE HANDLING AND CUSTODY REQUIREMENTS

Samples were transported off site for analysis. Custody of the samples was controlled and documented on a chain of custody form. Unique sample identification numbers were recorded on the chain of custody forms along with date, time, matrix type, preservative, analysis required for each sample, and other required information.

2.1 Dissolved Metals

Sample custody was maintained throughout collection, transport, and lab receipt.

2.2 Total Metals

Sample custody was maintained throughout collection, transport, and lab receipt.

2.3 Inorganic Anions

Sample custody was maintained throughout collection, transport, and lab receipt.

2.4 Nutrients

Sample custody was maintained throughout collection, transport, and lab receipt.

2.5 Demand

Sample custody was maintained throughout collection, transport, and lab receipt.

2.6 Organics

Sample custody was maintained throughout collection, transport, and lab receipt.

2.7 Properties

Sample custody was maintained throughout collection, transport, and lab receipt.

3. HOLDING TIME

3.1 Dissolved Metals

All analyses were performed within the recommended maximum holding time.

3.2 Total Metals

All analyses were performed within the recommended maximum holding time.

3.3 Inorganic Anions

All analyses were performed within the recommended maximum holding time.

3.4 Nutrients

All analyses were performed within the recommended maximum holding time.

3.5 Demand

All analyses were performed within the recommended maximum holding time.

3.6 Organics

All analyses were performed within the recommended maximum holding time.

3.7 Properties

All analyses were performed within the recommended maximum holding time.

4. METHOD BLANKS

The assessment of blank analysis results is to determine the existence and magnitude of contamination resulting from laboratory activities.

4.1 Dissolved Metals

Goals for blank analyses were met. Method blanks were analyzed and were target analyte free.

4.2 Total Metals

Goals for blank analyses were met. Method blanks were analyzed and were target analyte free.

4.3 Inorganic Anions

No method blanks were analyzed for inorganic anions.

4.4 Nutrients

Goals for blank analyses were met. Method blanks were analyzed and were target analyte free.

4.5 Demand

Goals for blank analyses were met. Method blanks were analyzed and were target analyte free.

4.6 Organics

Goals for blank analyses were met. Method blanks were analyzed and were target analyte free.

4.7 Properties

Goals for blank analyses were met. Method blanks were analyzed and were target analyte free.

5. LABORATORY FORTIFIED BLANK

Data for laboratory control samples (LCS) were provided in order to evaluate the accuracy and performance of the analytical method. GC and GC/MS method performance on individual samples is established by means of spiking system monitoring compounds (surrogates), and internal standards which are added just prior to analyses.

5.1 Dissolved Metals

Goals for LCS recovery were met.

5.2 Total Metals

Goals for LCS recovery were met.

5.3 Inorganic Anions

Goals for LCS recovery were met.

5.4 Nutrients

Goals for LCS recovery were met.

5.5 Demand

Goals for LCS recovery were met.

5.6 Organics

Goals for LCS recovery were met.

5.7 Properties

Goals for LCS recovery were met.

6. LABORATORY DUPLICATE PRECISION

6.1 Dissolved Metals

The RPD values for duplicate analyses performed on dissolved metal samples were within acceptable limits.

6.2 Total Metals

The RPD values for duplicate analyses performed on total metal samples were within acceptable limits.

6.3 Inorganic Anions

The RPD values for duplicate analyses performed on inorganic anion samples were within acceptable limits.

6.4 Nutrients

The RPD values for duplicate analyses performed on nutrient samples were within acceptable limits.

6.5 Demand

The RPD values for duplicate analyses performed on demand samples were within acceptable limits.

6.6 Organics

The RPD values for duplicate analyses performed on organic samples were within acceptable limits.

6.7 Properties

The RPD values for duplicate analyses performed on organic samples were within acceptable limits.

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE ANALYSIS

7.1 Dissolved Metals

The matrix spike and matrix spike duplicate (MS/MSD) analyses were in control for all recoveries.

7.2 Total Metals

The matrix spike and matrix spike duplicate (MS/MSD) analyses were in control for all recoveries.

7.3 Inorganic Anions

The matrix spike and matrix spike duplicate (MS/MSD) analyses were in control for all other recoveries.

7.4 Nutrients

The MS/MSD analyses performed on the nutrient samples were in control for all recoveries and RPDs.

7.5 Demand

The MS/MSD analyses performed on the demand samples were in control for all recoveries and RPDs.

7.6 Organics

The MS/MSD analyses performed on the organic samples were in control for all recoveries and RPDs.

7.7 Properties

The MS/MSD analyses performed on other samples were in control for all recoveries and RPDs.

8. FIELD DUPLICATE

Analyte	Field Duplicate		
	B-3 (2838)	B-3 Duplicate (2839)	RPD (%)
Dissolved Metals (mg/L)			
Arsenic	0.003	0.003	0.00%
Barium	0.110	0.112	1.8%
Chromium	0.0005	0.0005	0.00%
Iron	5.91	5.95	0.70%
Manganese	0.575	0.571	0.70%
Nickel	0.001	0.001	0.00%
Vanadium	0.0006	0.0006	0.00%
Total Metals (mg/L)			
Calcium	28.2	28.5	0.00%
Magnesium	19.3	19.5	0.00%
Potassium	5.47	5.83	6.40%
Sodium	11.5	11.5	0.11%
Inorganic Anions (mg/L)			
Chloride	18.3	16.8	8.50%
Nutrients (mg/L)			
Ammonia	1.19	1.11	7.00%
Demand (mg/L)			
Chemical oxygen demand	16	16	0.00%
Total organic carbon	2.91	2.85	0.82%
Properties (mg/L)			
Alkalinity	161	155	3.8%
Bicarbonate	178.6	177.9	0.40%
Total dissolved solids	242	238	1.70%

Bold = Relative Percent Difference (RPD) exceeds 20% acceptance criteria
Non-detects are not shown.

8.1 Dissolved Metals

All RPDs between the duplicate samples were within $\leq$ 20%.

8.2 Total Metals

All RPDs between the duplicate samples were within $\leq$ 20%.

8.3 Inorganic Anions

All RPDs between the duplicate samples were within $\leq$ 20%.

8.4 Nutrients

All RPDs between the duplicate samples were within $\leq$ 20%.

8.5 Demand

All RPDs between the duplicate samples were within $\leq$ 20%.

8.6 Organics

All RPDs between the duplicate samples were within $\leq$ 20%.

8.7 Properties

All RPDs between the duplicate samples were within ≤ 20%.

9. DETECTION LIMITS

If detection limit goals are met, then the analytic method is considered to have provided detection limits low enough to allow site data to be compared to the applicable groundwater criteria.

9.1 Dissolved Metals – 200.8/Filter, 245.1/Filter

Detection limit goals were met for all results.

9.2 Total Metals – 200.7

Detection limit goals were met for all results.

9.3 Inorganic Anions – 300.0

Detection limit goals were met for all results.

9.4 Nutrients – SM 4500

Detection limit goals were met for all results.

9.5 Demand – SM 5310B, SM 5220D

Detection limit goals were met for all results.

9.6 Organics – 8260B, 8260SIM

Detection limit goals were met for all results.

9.7 Properties – SM2320 B, SM2540 C

Detection limit goals were met for all results.

10. DATA VALIDATION AND USABILITY

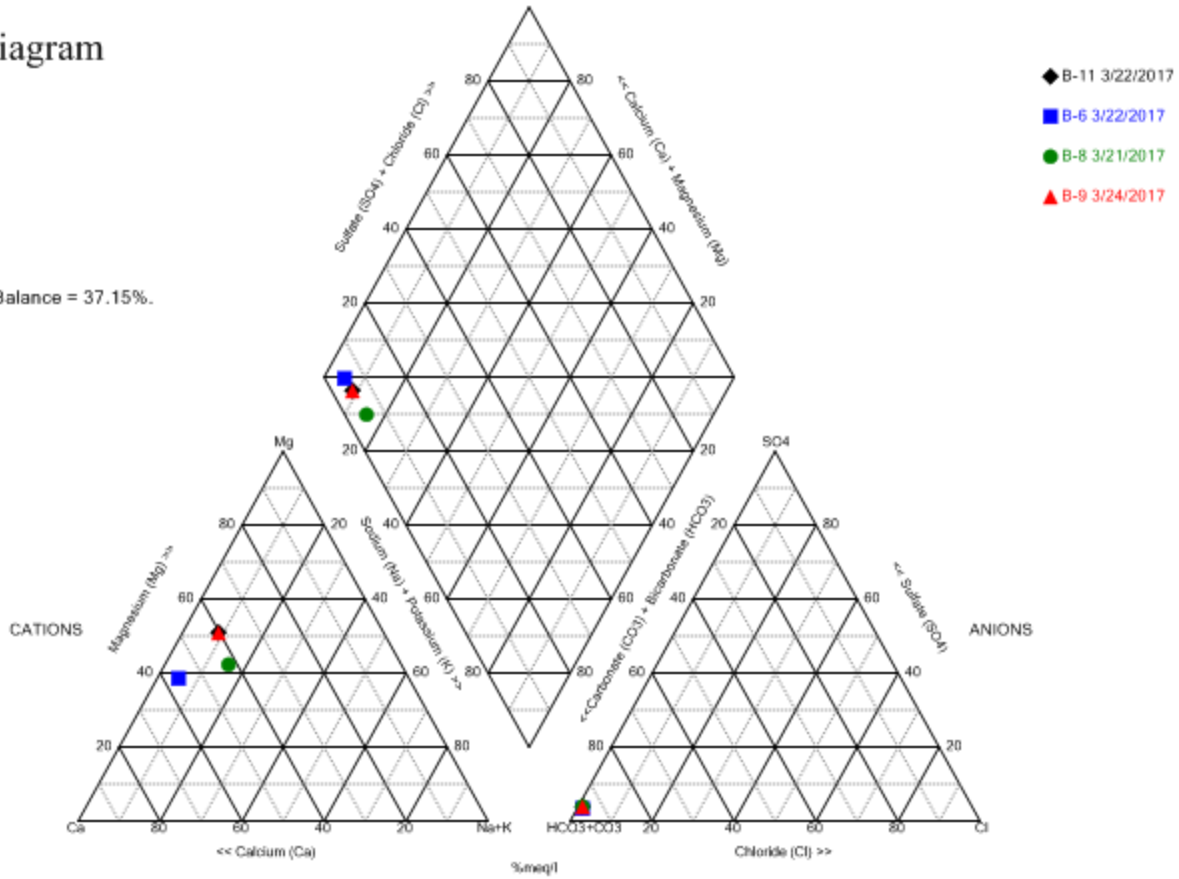
With the exception of the above noted anomalies, standard analytical protocols were followed in the analysis of the samples and all laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits. Limitations were stated and clearly identified where applicable. As a result of this review, the data are found to be acceptable as reported by the laboratory for the intended use in this project.

APPENDIX D-1:
Piper Diagrams 2017 – Perched Aquifer

WQStat Plus™ v.9.4.41

Piper Diagram

Cation-Anion Balance = 37.15%.



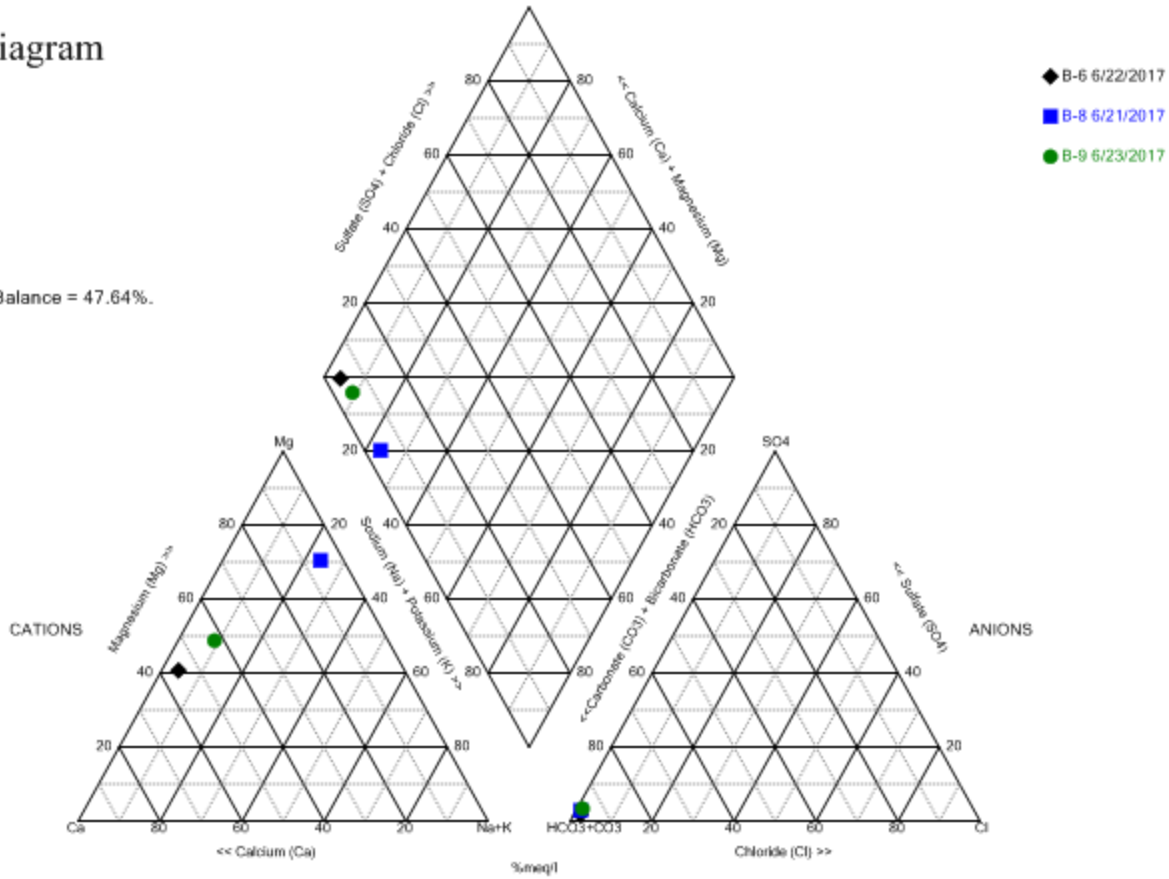
Analysis Run 2/8/2018 10:12 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

WQStat Plus™ v.9.4.41

Piper Diagram

Cation-Anion Balance = 47.64%.



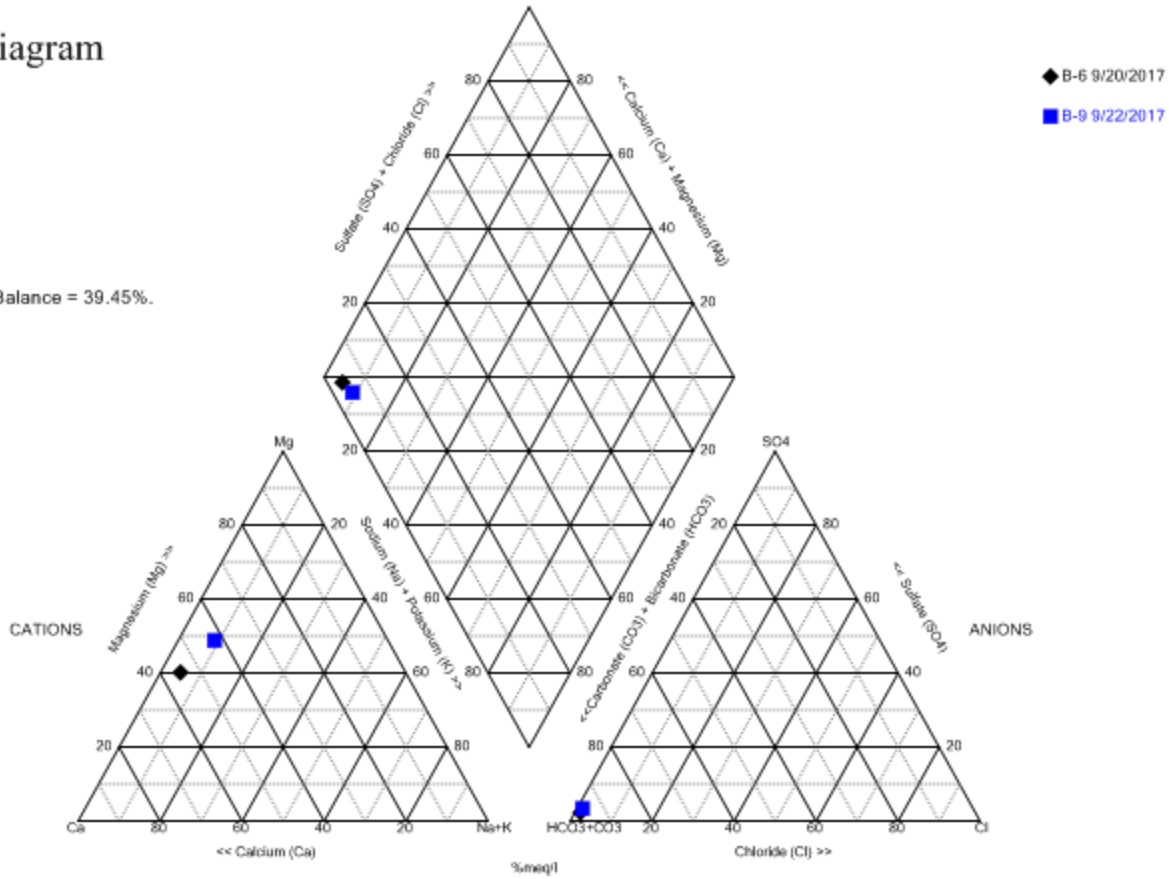
Analysis Run 2/8/2018 10:13 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

WQStat Plus™ v.9.4.41

Piper Diagram

Cation-Anion Balance = 39.45%.



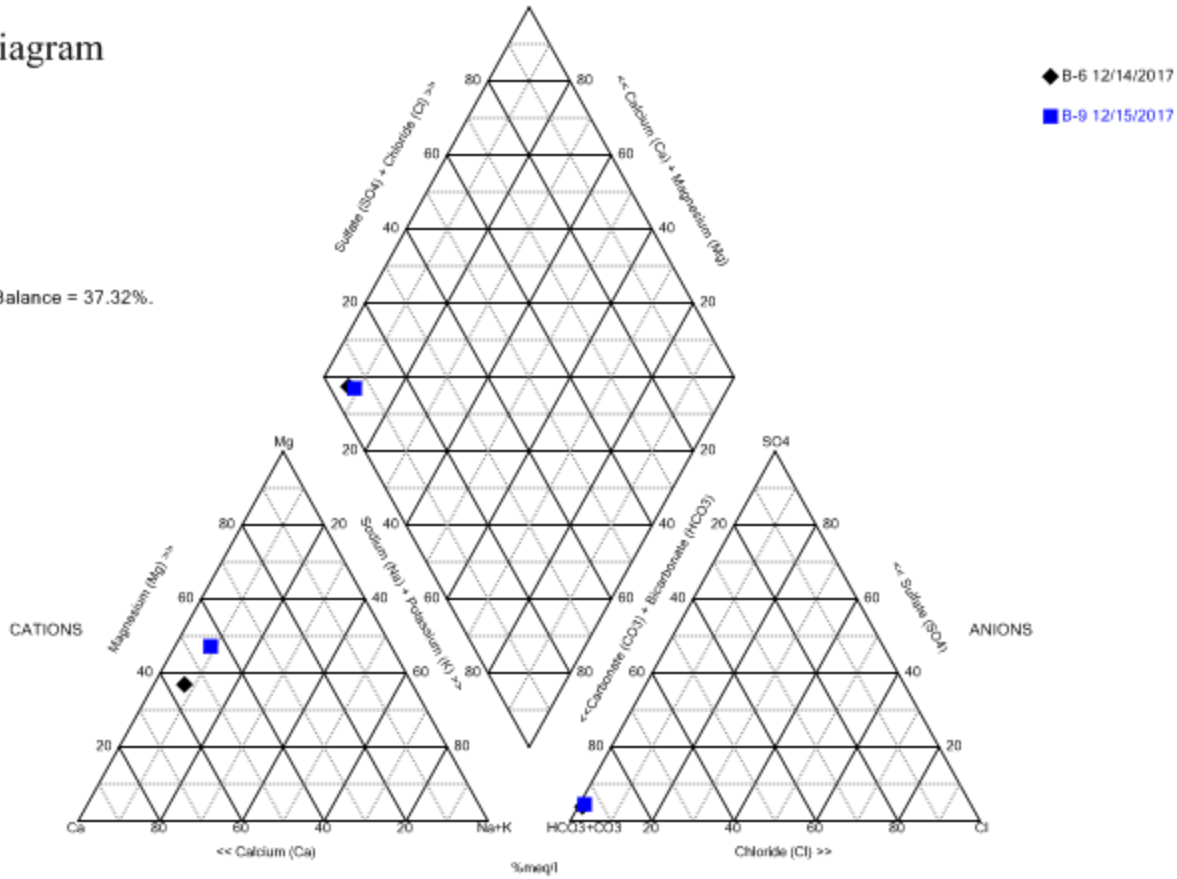
Analysis Run 2/8/2018 10:13 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

WQStat Plus™ v.9.4.41

Piper Diagram

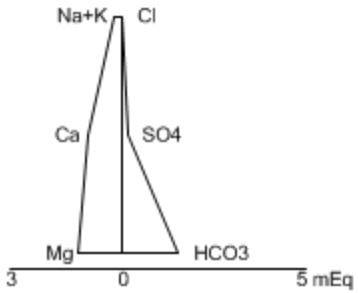
Cation-Anion Balance = 37.32%.



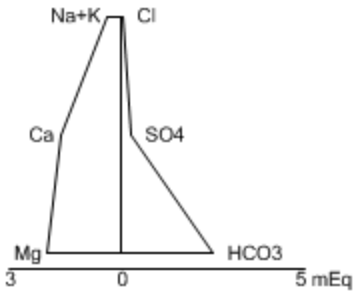
Analysis Run 2/8/2018 10:14 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

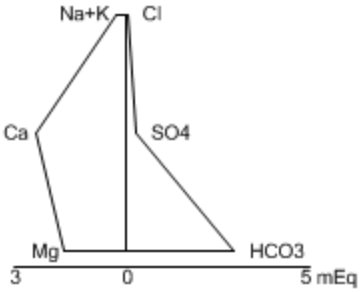
APPENDIX D-2:
Stiff Diagrams 2017 – Perched Aquifer



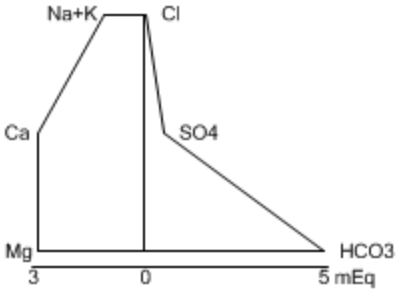
B-9 3/24/2017



B-11 3/22/2017



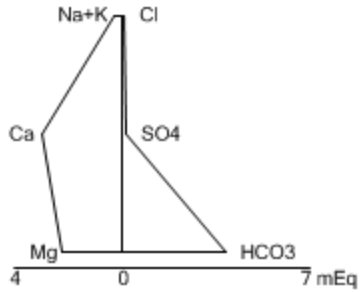
B-6 3/22/2017



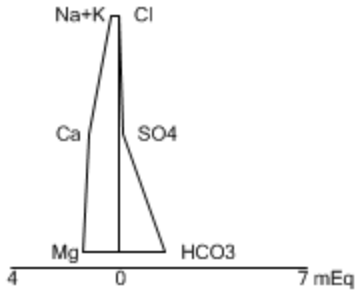
B-8 3/21/2017

Stiff Diagram Analysis Run 2/8/2018 10:16 AM

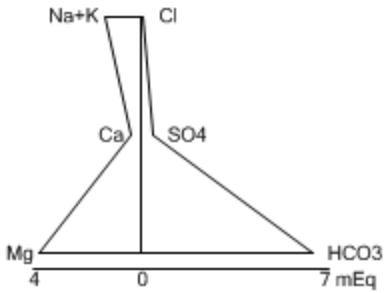
Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)



B-6 6/22/2017



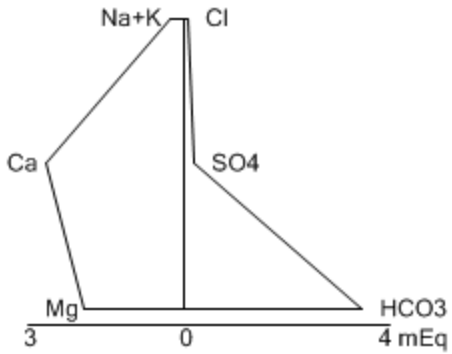
B-9 6/23/2017



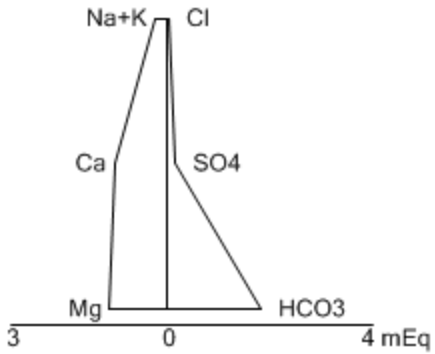
B-8 6/21/2017

Stiff Diagram Analysis Run 2/8/2018 10:16 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)



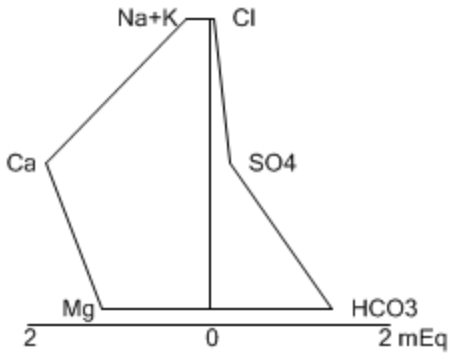
B-6 9/20/2017



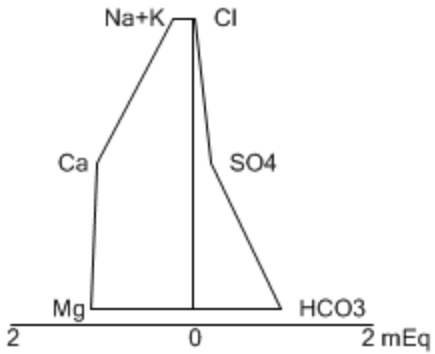
B-9 9/22/2017

Stiff Diagram Analysis Run 2/8/2018 10:17 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)



B-6 12/14/2017

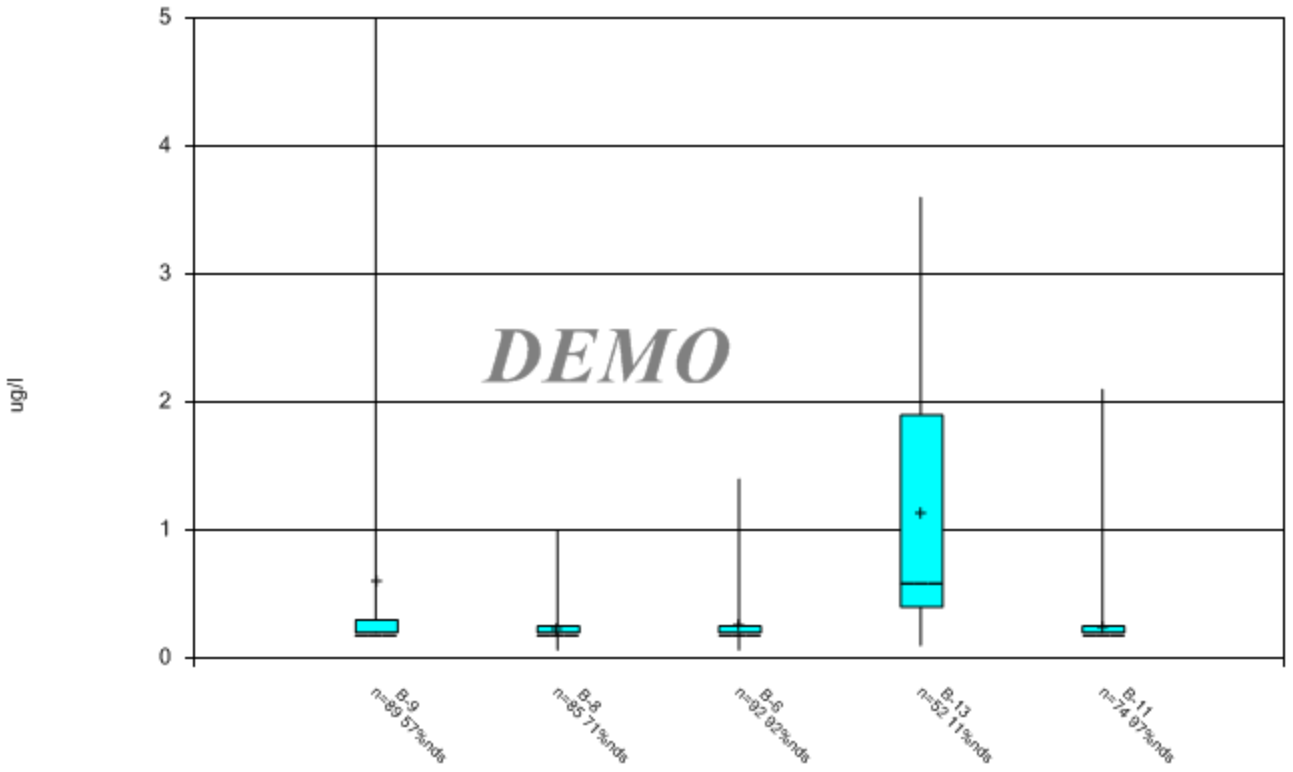


B-9 12/15/2017

Stiff Diagram Analysis Run 2/8/2018 10:17 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

Box & Whiskers Plot

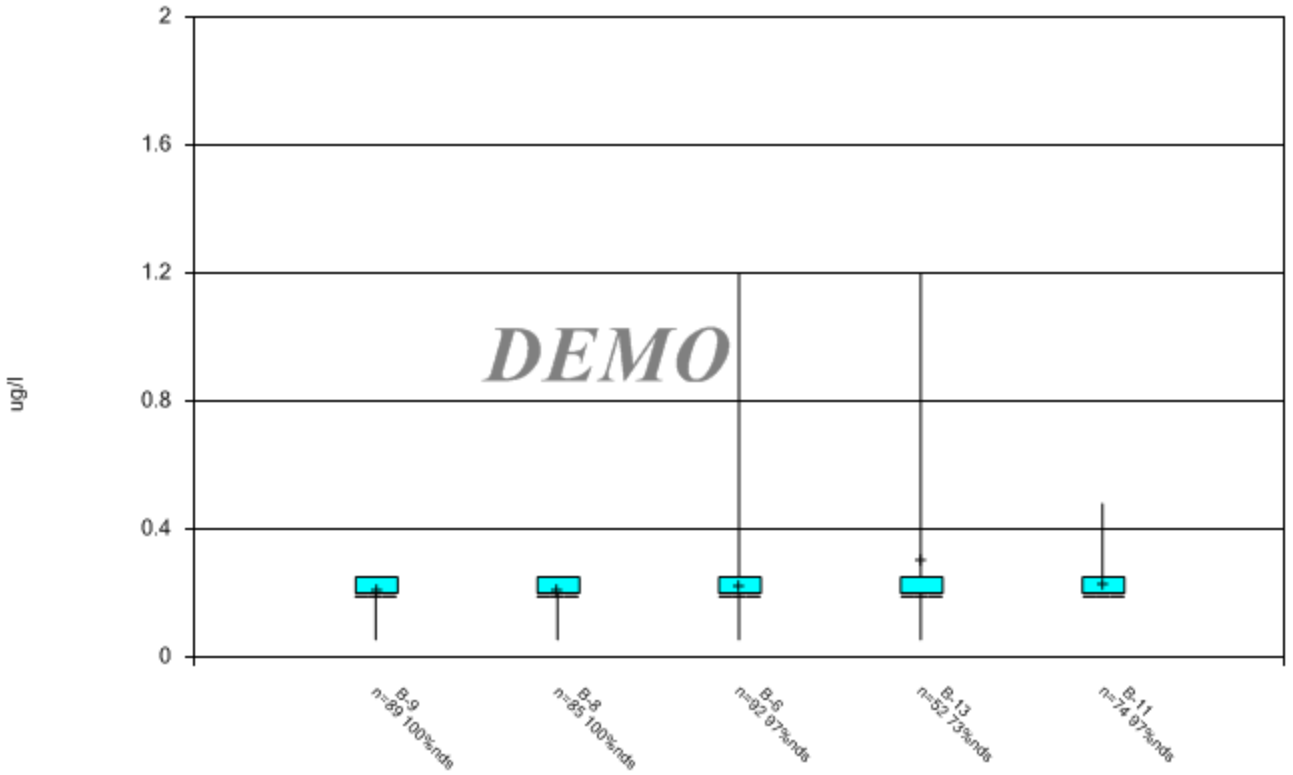


Constituent: 1,1-dichloroethane Analysis Run 2/28/2018 12:36 PM

Facility: Inman Landfill Data File: inman_perched_vocs_(1994-2017)

APPENDIX D-3:
Box Plots 1994-2017 – Perched Aquifer

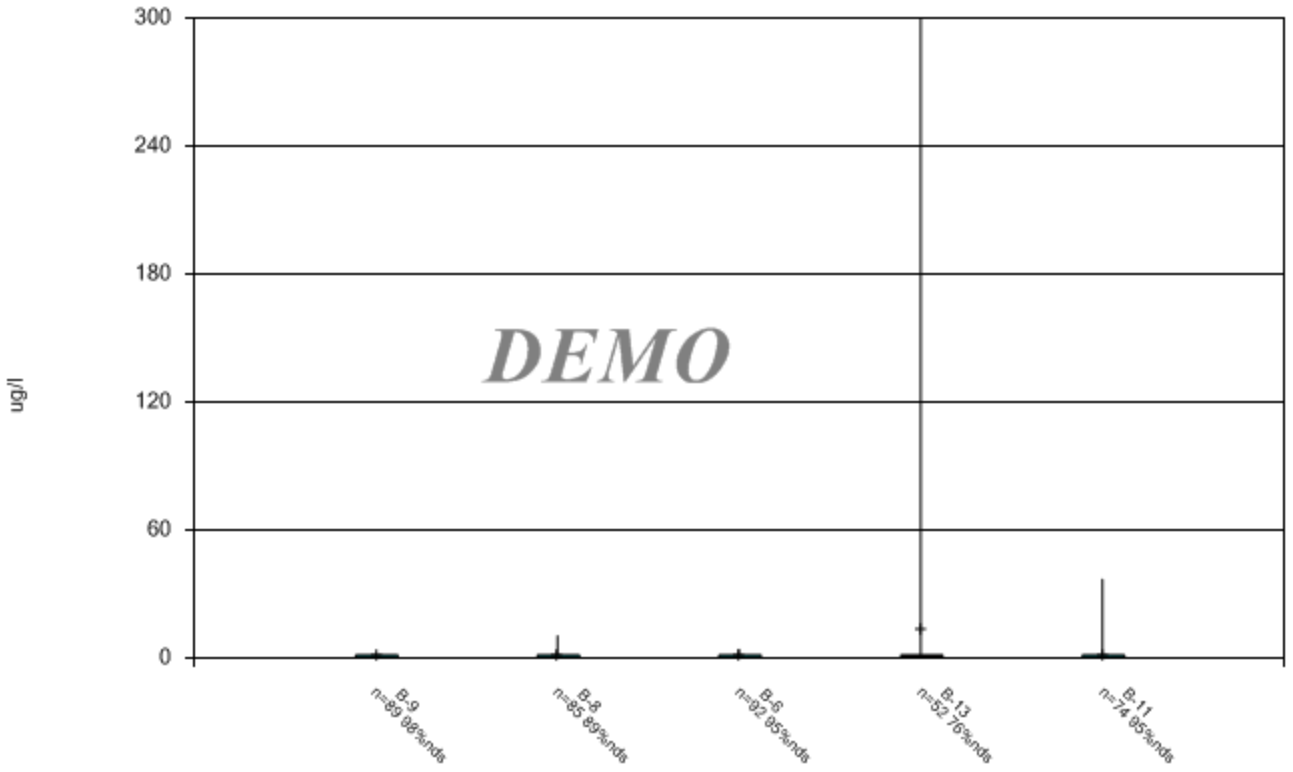
Box & Whiskers Plot



Constituent: 1,2-dichloroethane Analysis Run 2/28/2018 12:37 PM

Facility: Inman Landfill Data File: inman_perched_vocs_(1994-2017)

Box & Whiskers Plot

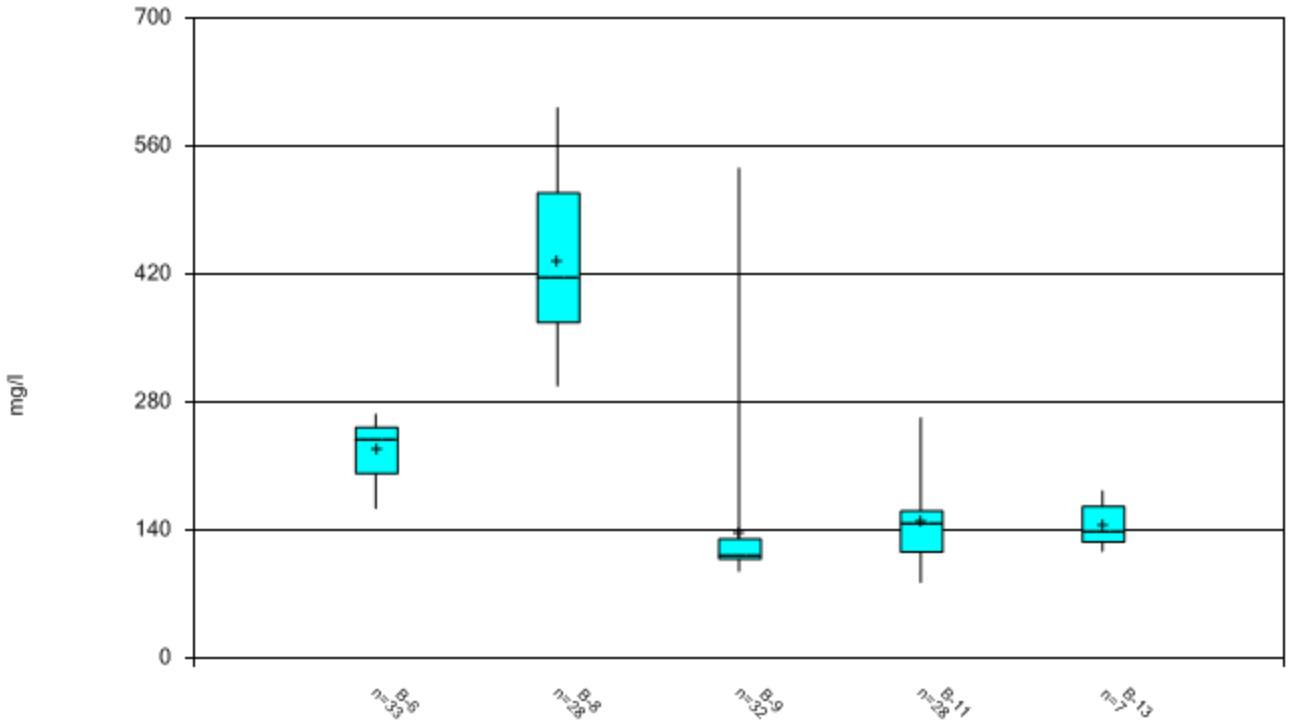


Constituent: Acetone Analysis Run 2/28/2018 12:38 PM

Facility: Inman Landfill Data File: inman_perched_vocs_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

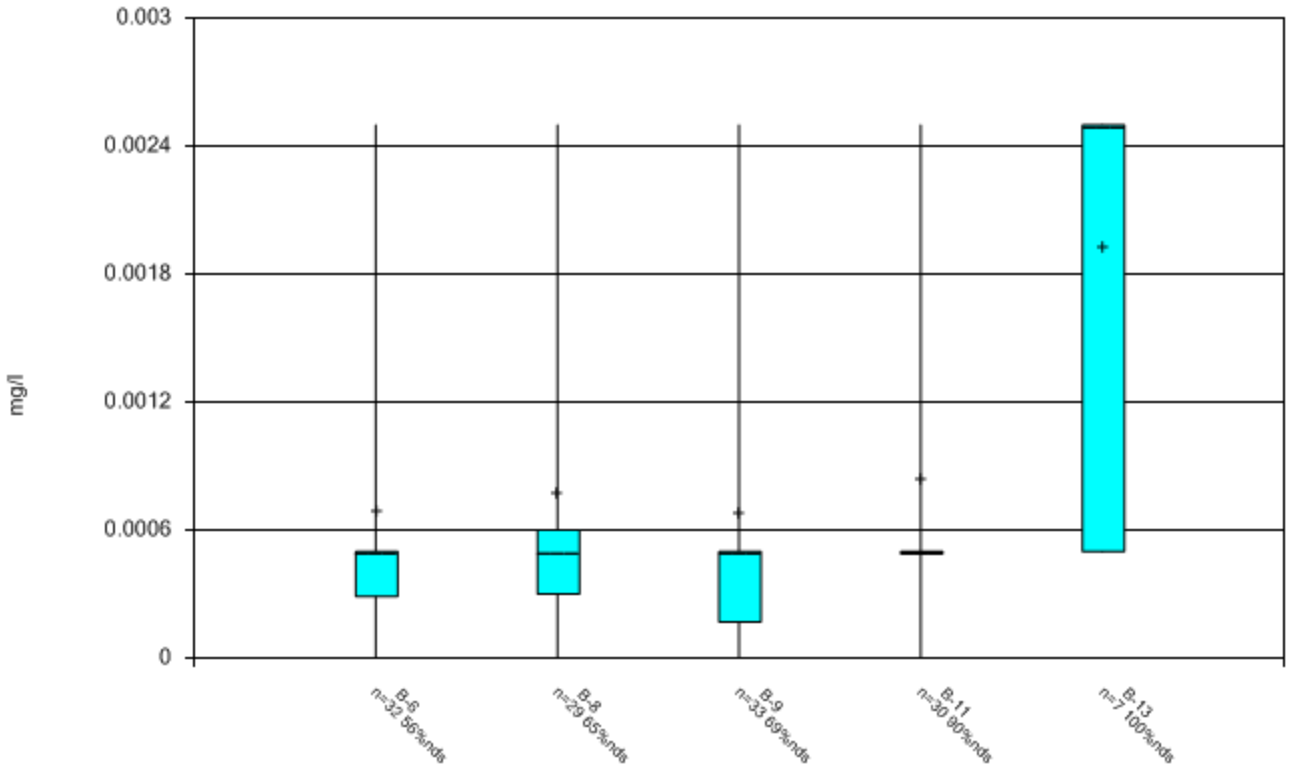


Constituent: Alkalinity Analysis Run 2/8/2018 10:05 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

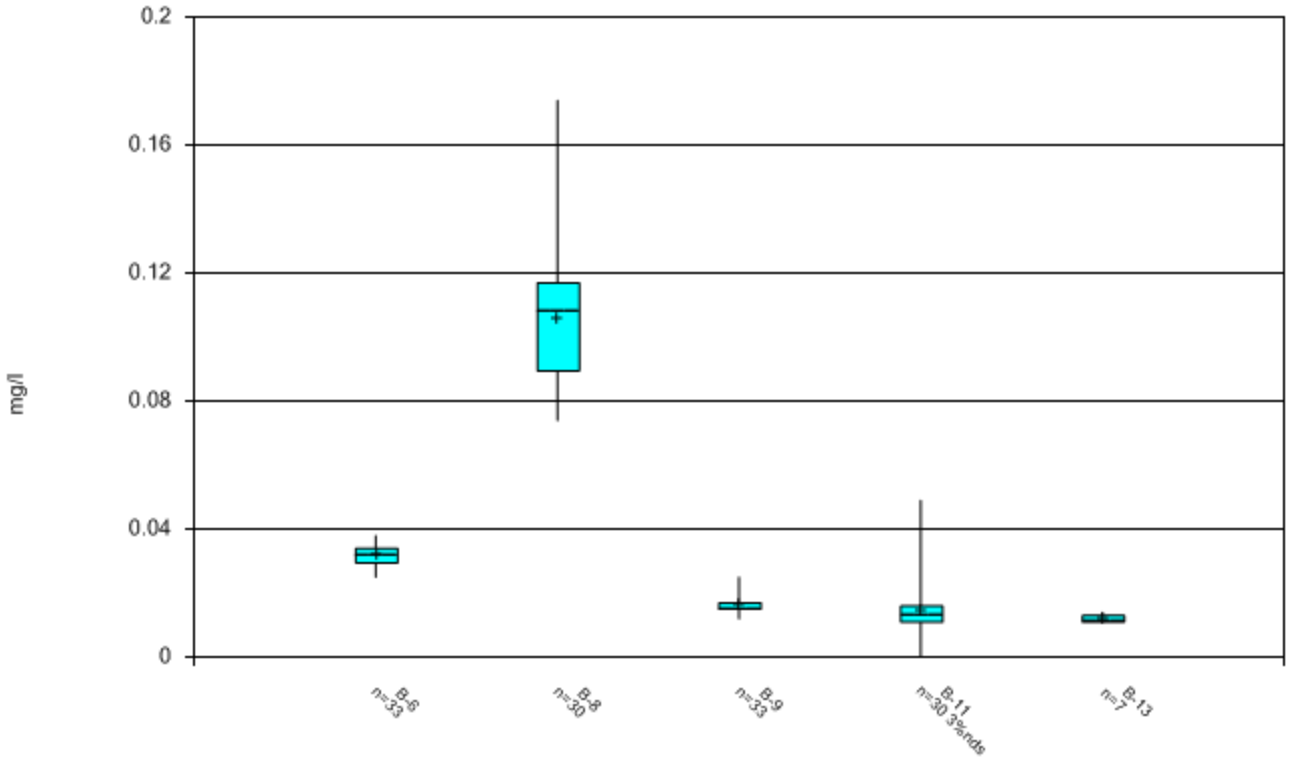


Constituent: ANTIMONY Analysis Run 2/8/2018 10:06 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

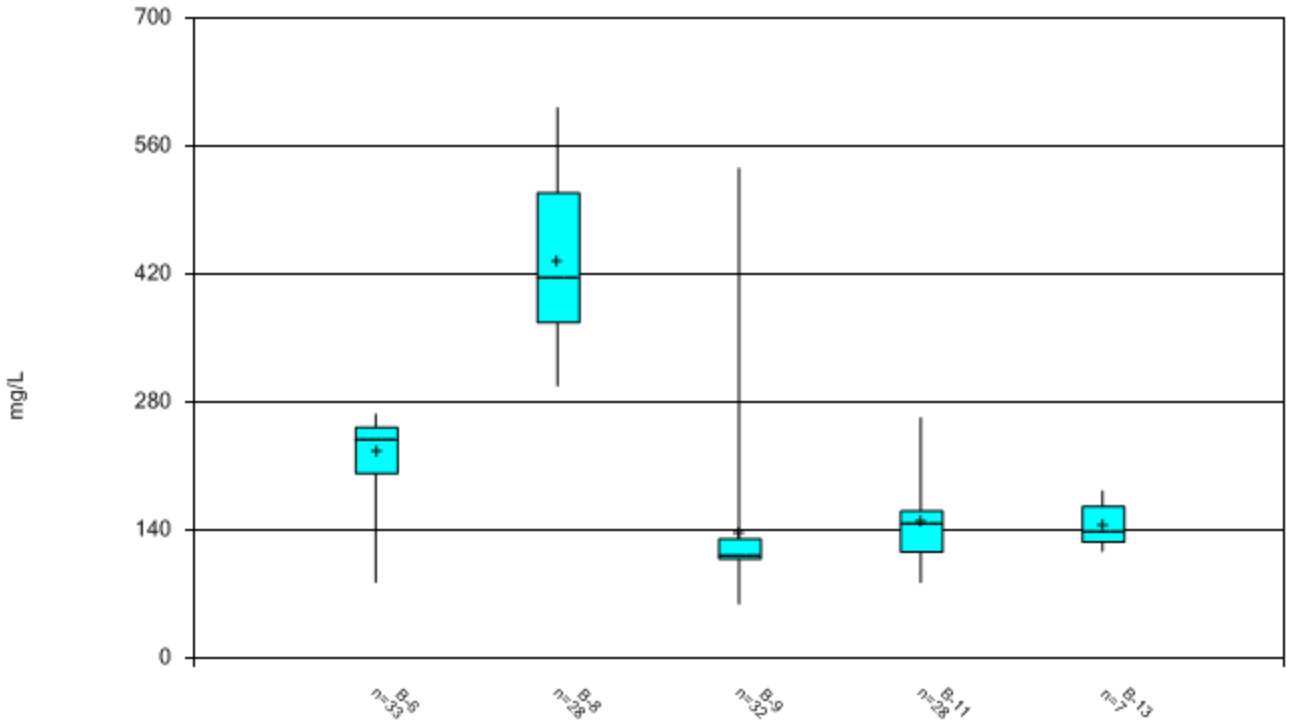


Constituent: BARIUM Analysis Run 2/8/2018 10:06 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

WQStat Plus™ v.9.4.41

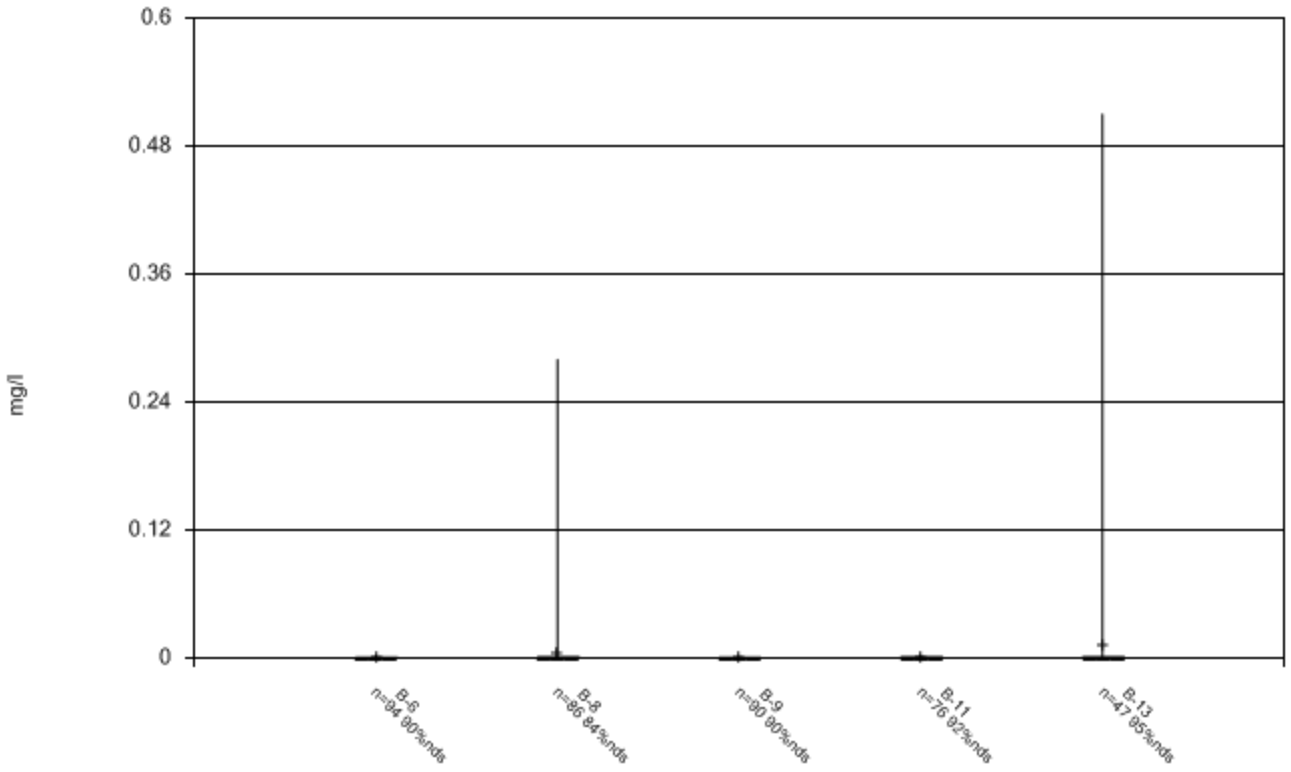
Box & Whiskers Plot



Constituent: Bicarbonate Analysis Run 2/8/2018 10:25 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

Box & Whiskers Plot

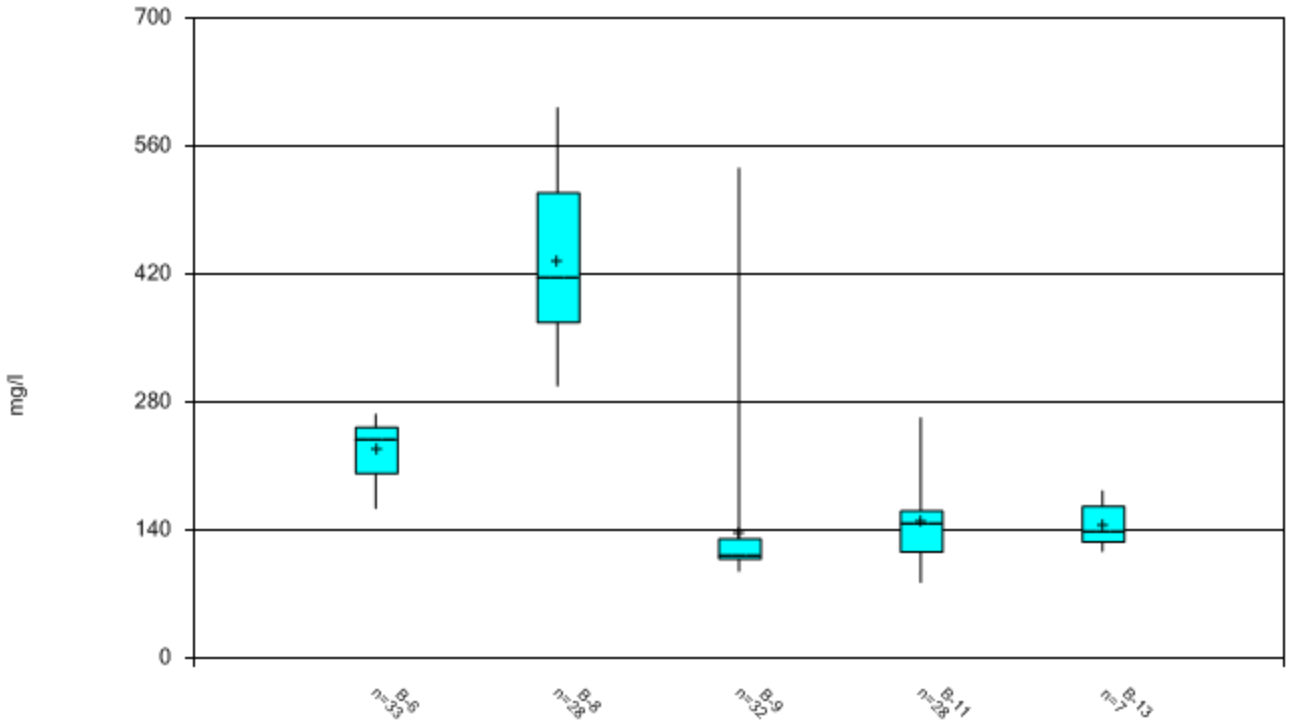


Constituent: Cadmium Analysis Run 2/8/2018 10:26 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

WQStat Plus™ v.9.4.41

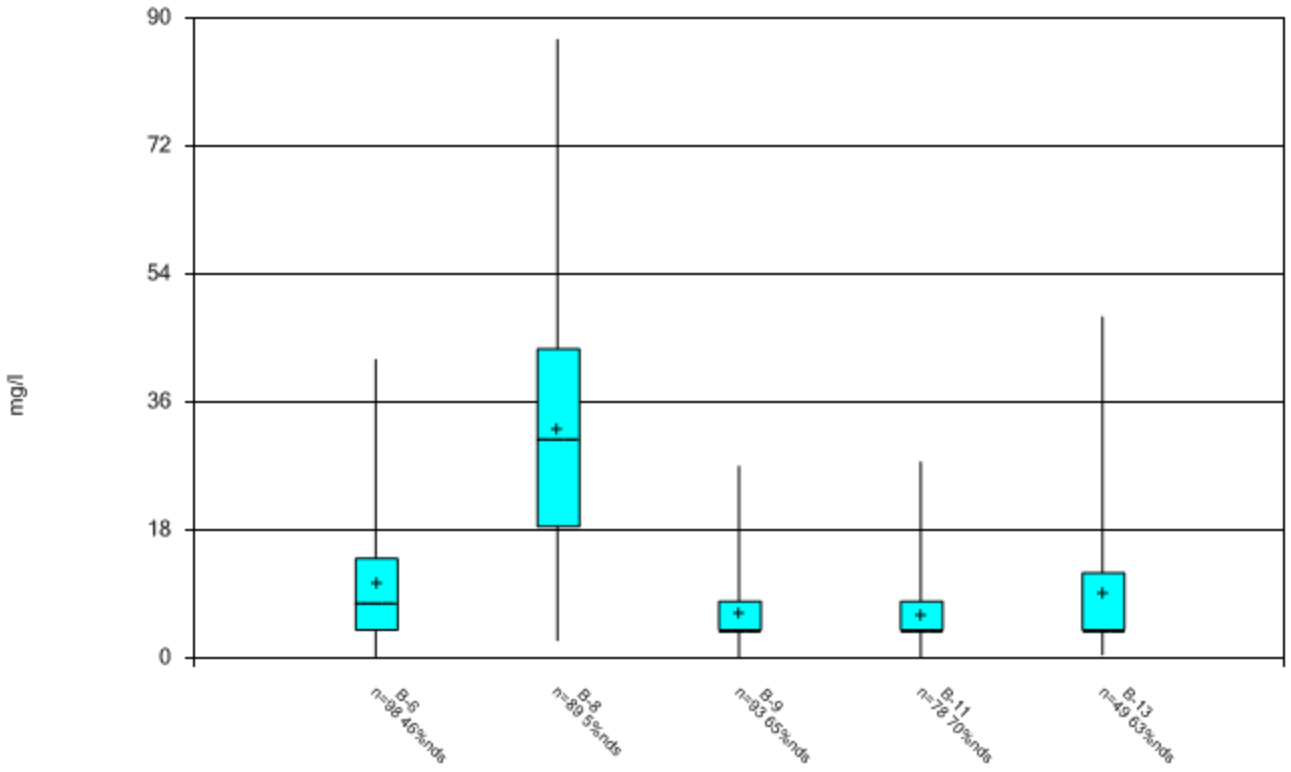
Box & Whiskers Plot



Constituent: Carbonate Analysis Run 2/8/2018 10:26 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

Box & Whiskers Plot

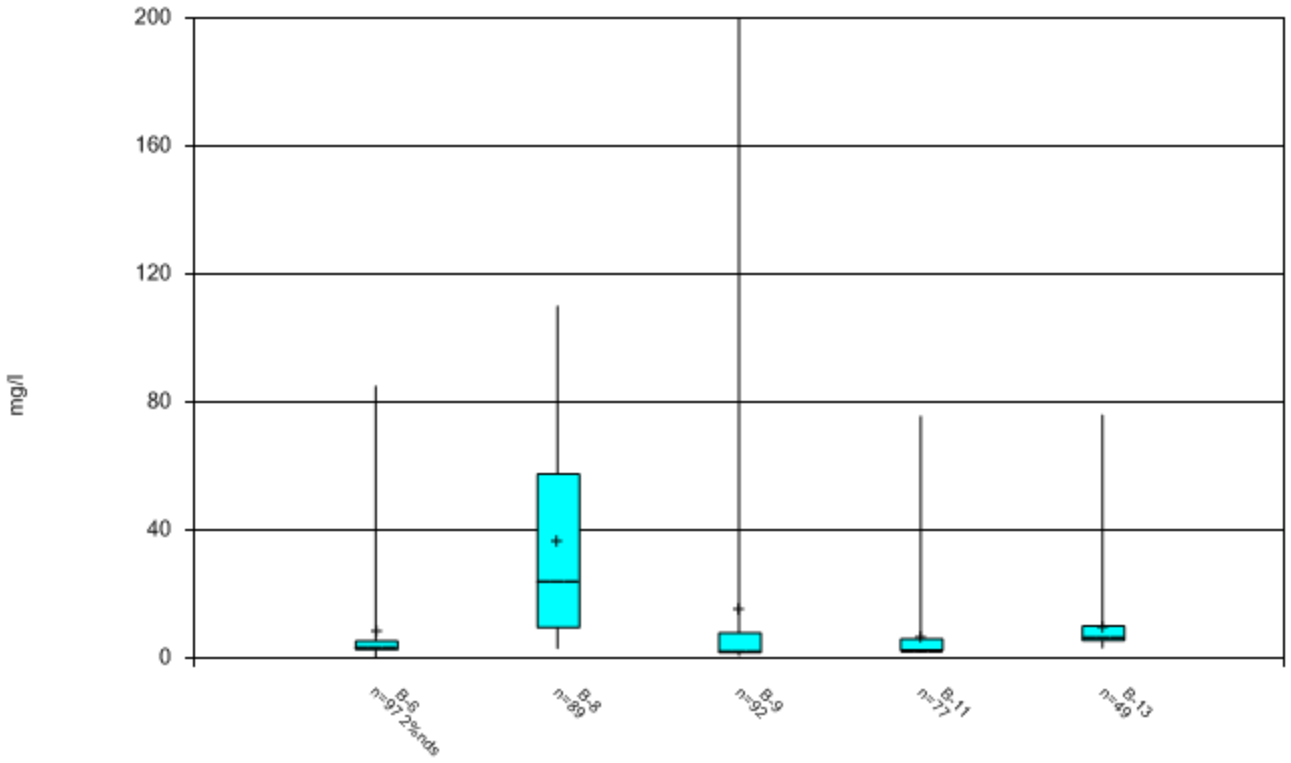


Constituent: Chemical Oxygen Demand Analysis Run 2/8/2018 10:27 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

WQStat Plus™ v.9.4.41

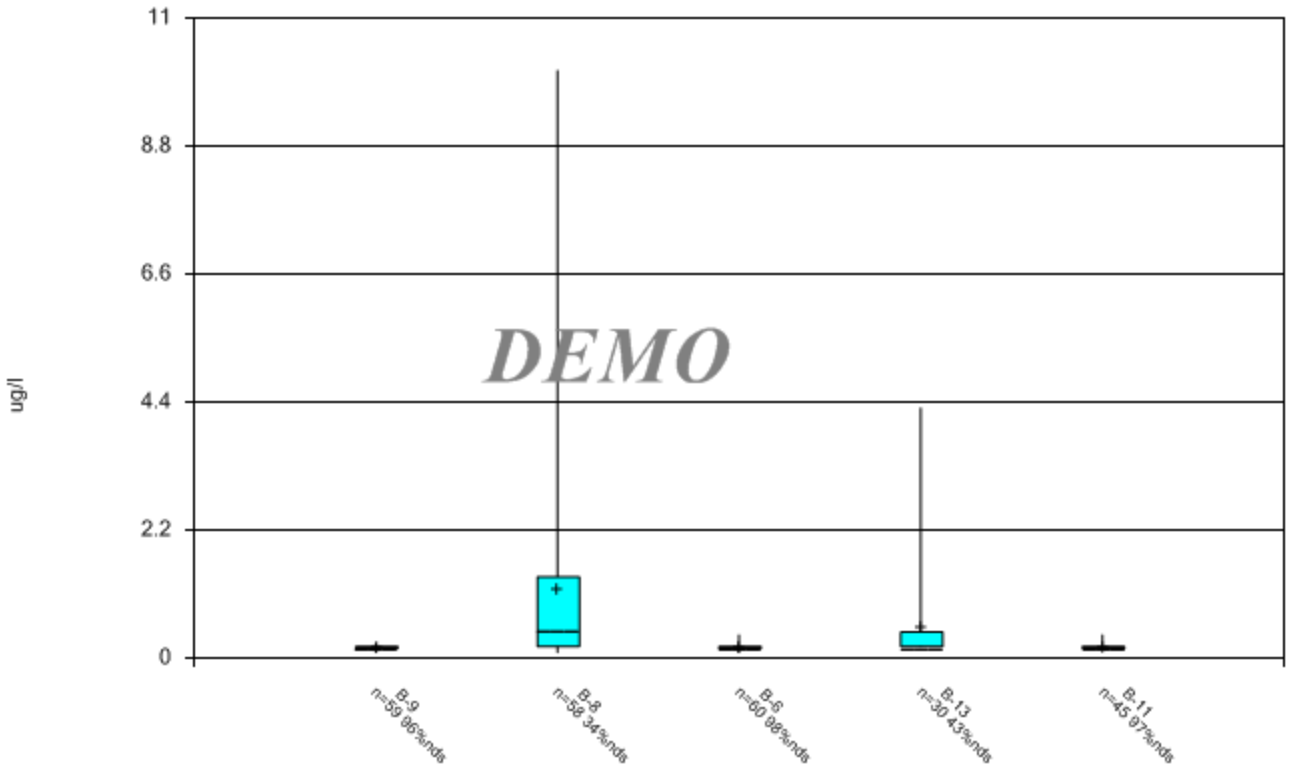
Box & Whiskers Plot



Constituent: Chloride Analysis Run 2/8/2018 10:27 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

Box & Whiskers Plot

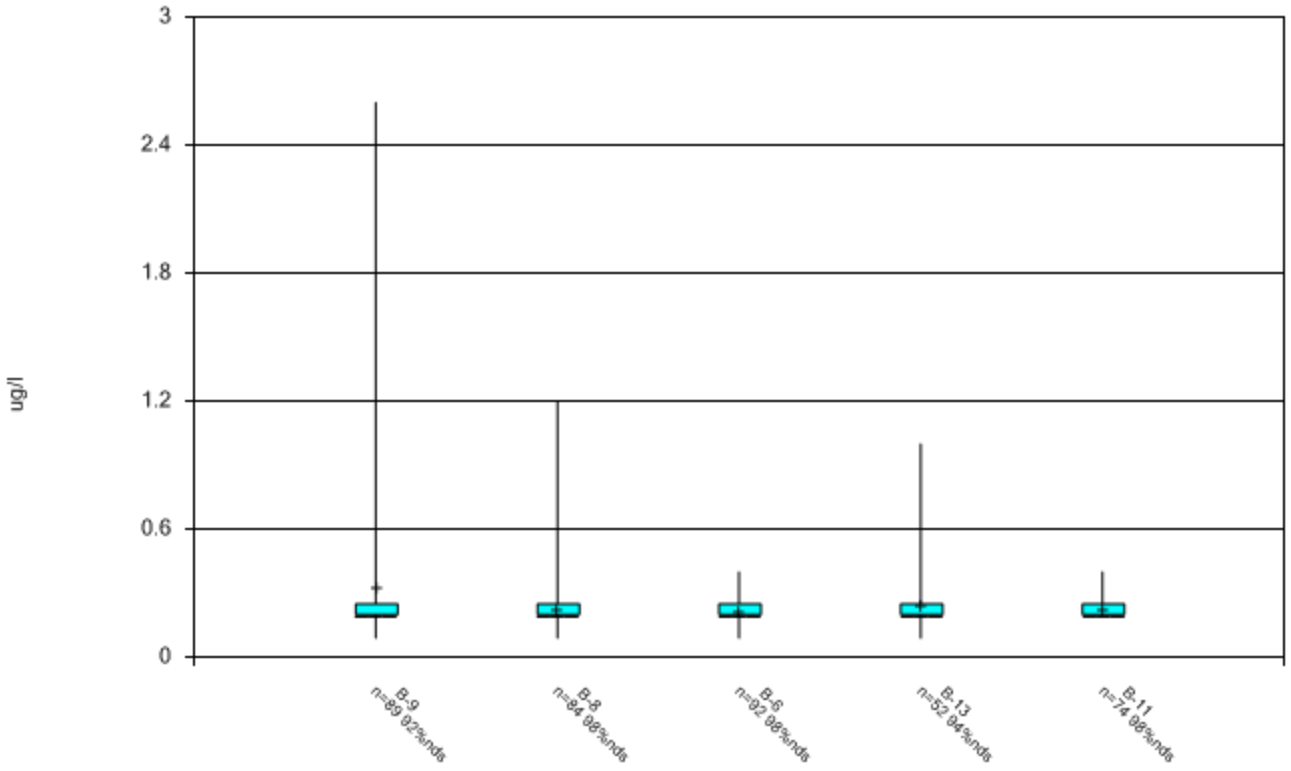


Constituent: Chlorodifluoromethane [Freon 22] Analysis Run 2/28/2018 12:40 PM

Facility: Inman Landfill Data File: inman_perched_vocs_(1994-2017)

WQStat Plus™ v.9.4.41

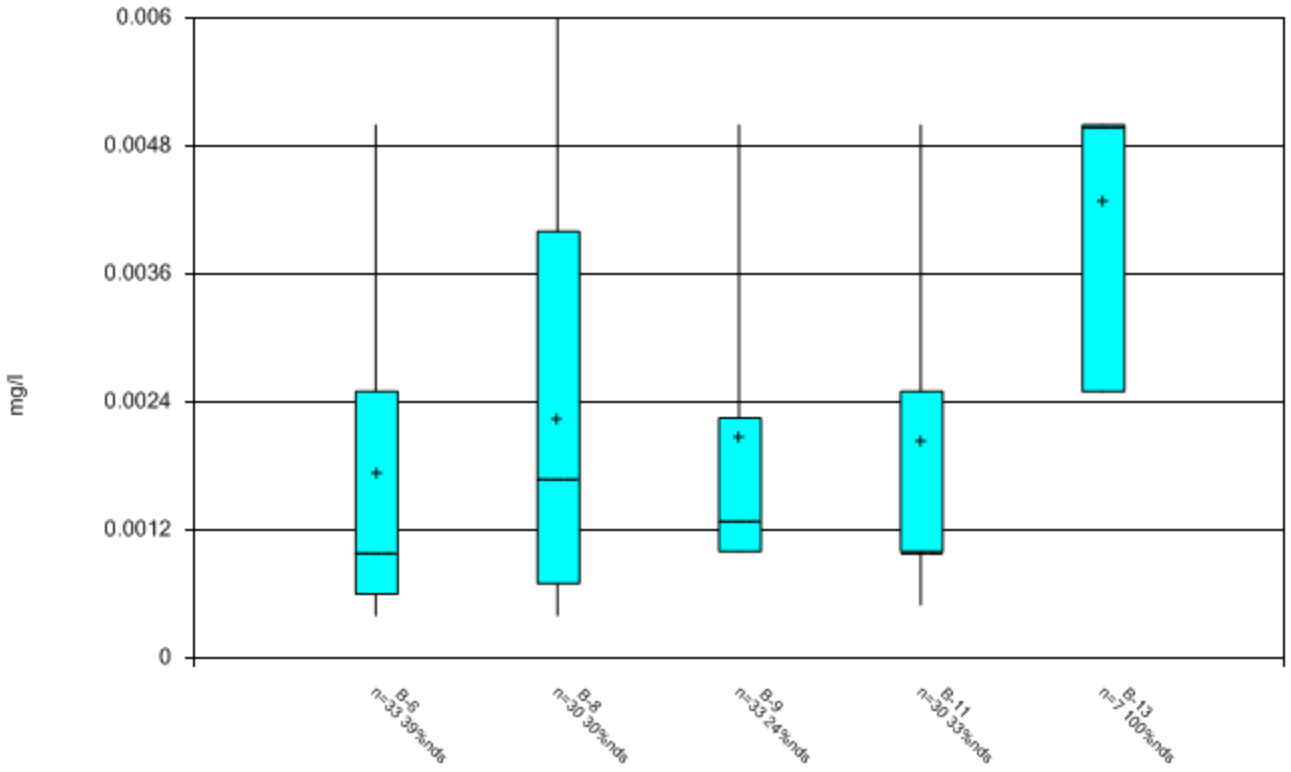
Box & Whiskers Plot



Constituent: Chloroethane Analysis Run 3/5/2018 9:29 AM

Facility: Inman Landfill Data File: inman_perched_vocs_(1994-2017)

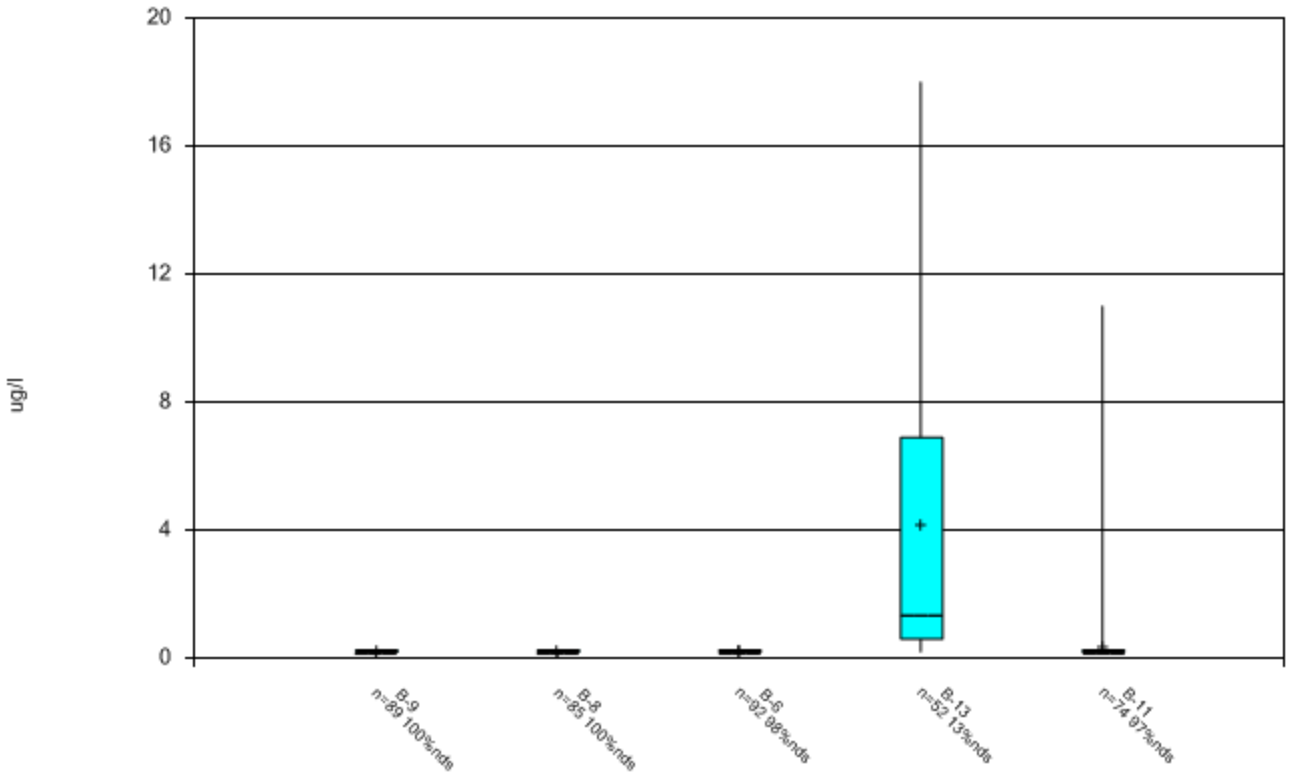
Box & Whiskers Plot



Constituent: Chromium Analysis Run 2/8/2018 10:27 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

Box & Whiskers Plot

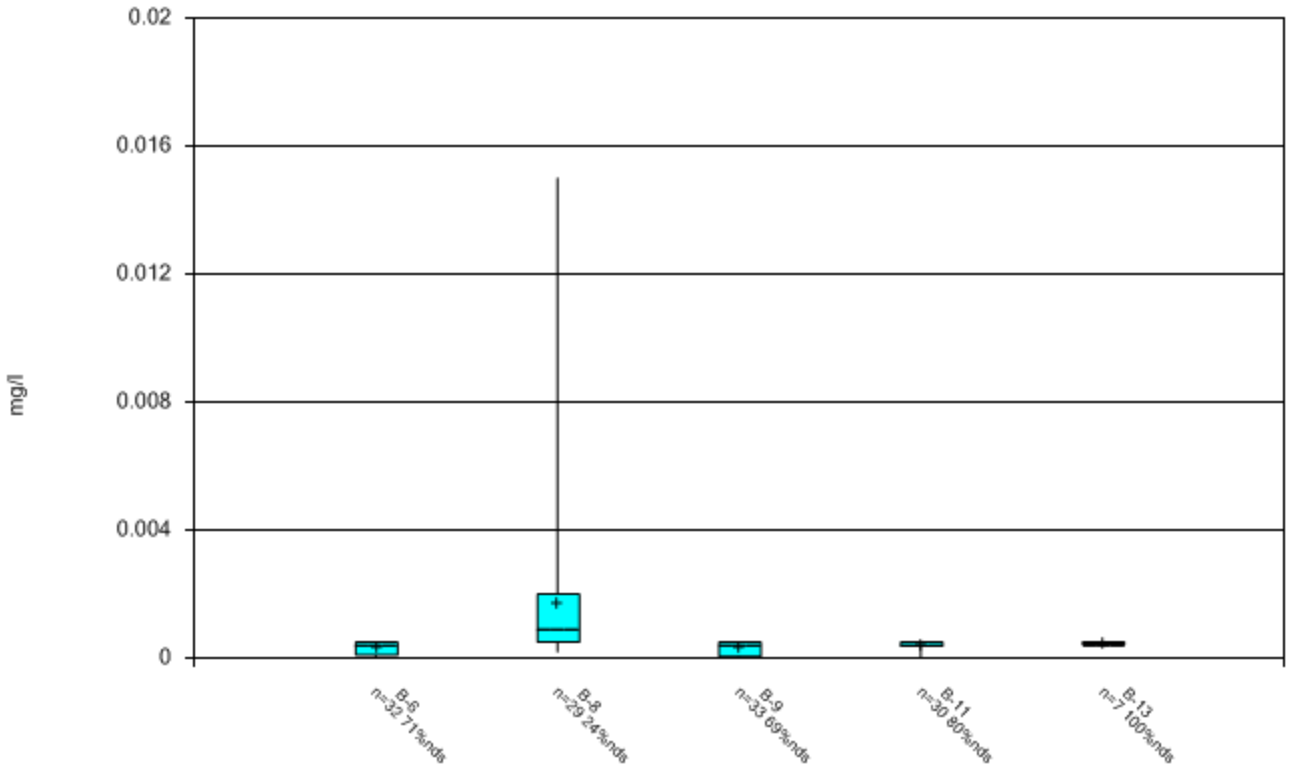


Constituent: cis-1,2-dichloroethene Analysis Run 3/5/2018 9:30 AM

Facility: Inman Landfill Data File: inman_perched_vocs_(1994-2017)

WQStat Plus™ v.9.4.41

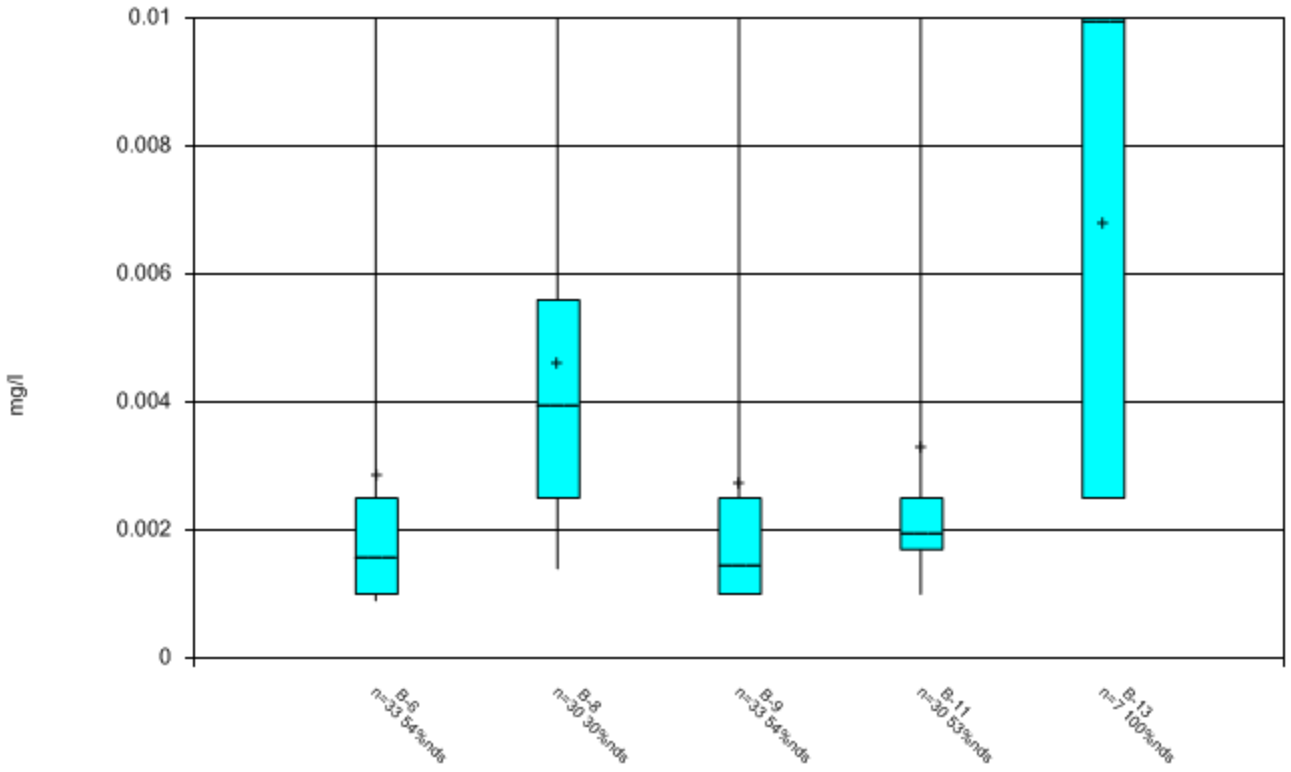
Box & Whiskers Plot



Constituent: COBALT Analysis Run 2/8/2018 10:28 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

Box & Whiskers Plot

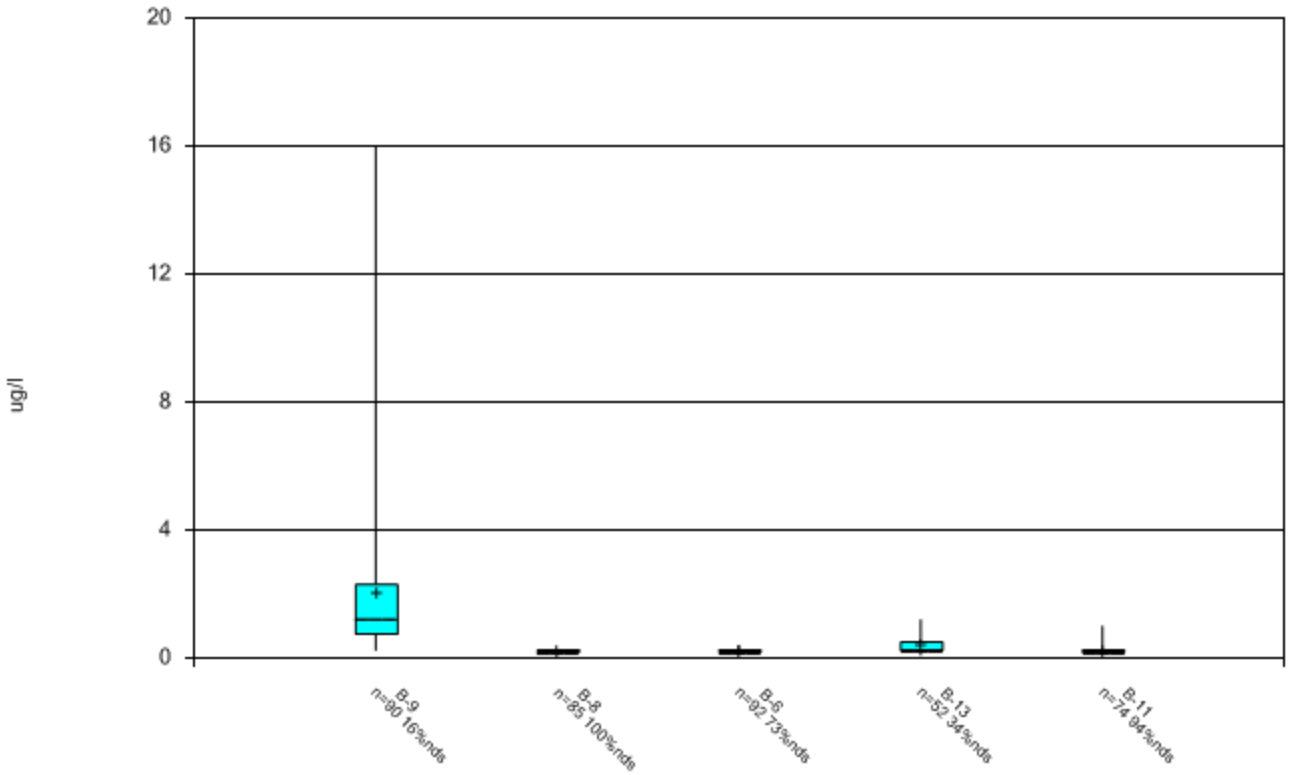


Constituent: Copper Analysis Run 2/8/2018 10:28 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

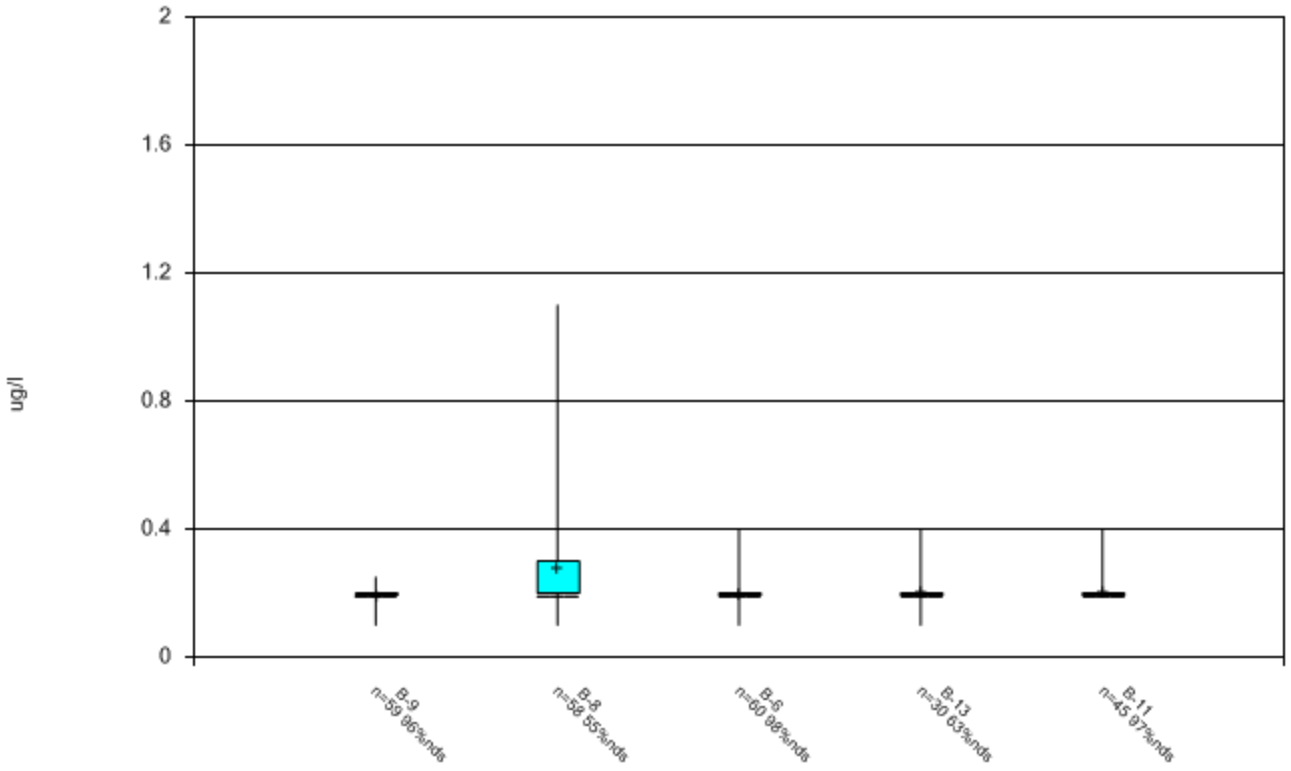


Constituent: Dichlorodifluoromethane [CFC-12] Analysis Run 3/5/2018 9:31 AM

Facility: Inman Landfill Data File: inman_perched_vocs_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

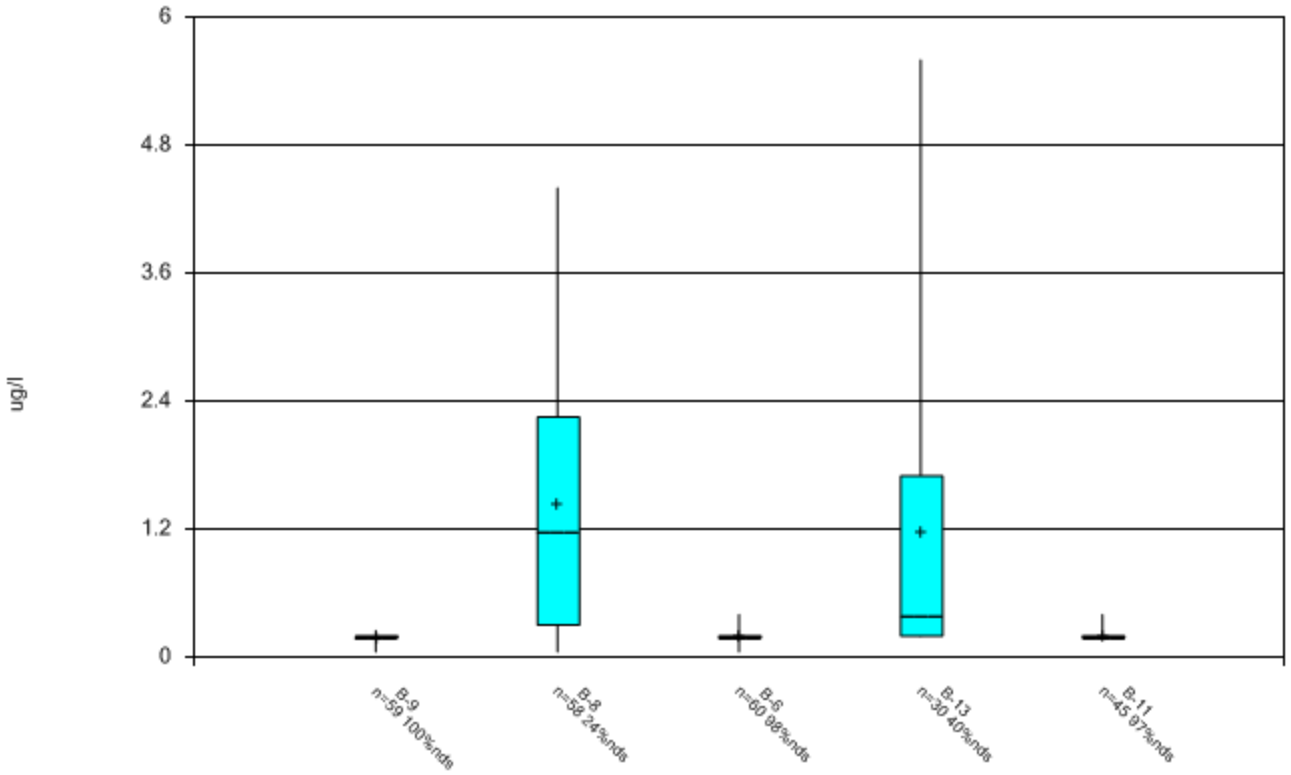


Constituent: Dichloromonofluoromethane [Freon 21] Analysis Run 3/5/2018 9:32 AM

Facility: Inman Landfill Data File: inman_perched_vocs_(1994-2017)

WQStat Plus™ v.9.4.41

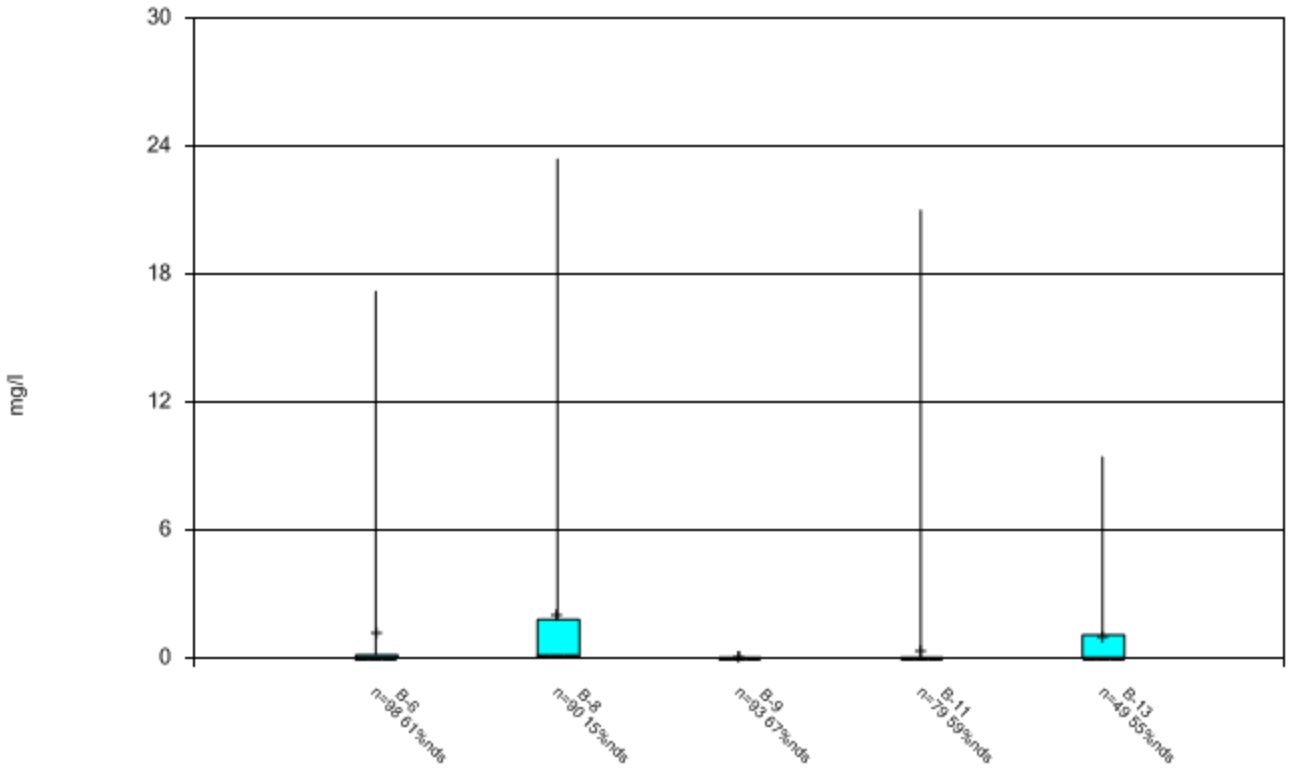
Box & Whiskers Plot



Constituent: Diethyl ether Analysis Run 3/5/2018 9:33 AM

Facility: Inman Landfill Data File: inman_perched_vocs_(1994-2017)

Box & Whiskers Plot

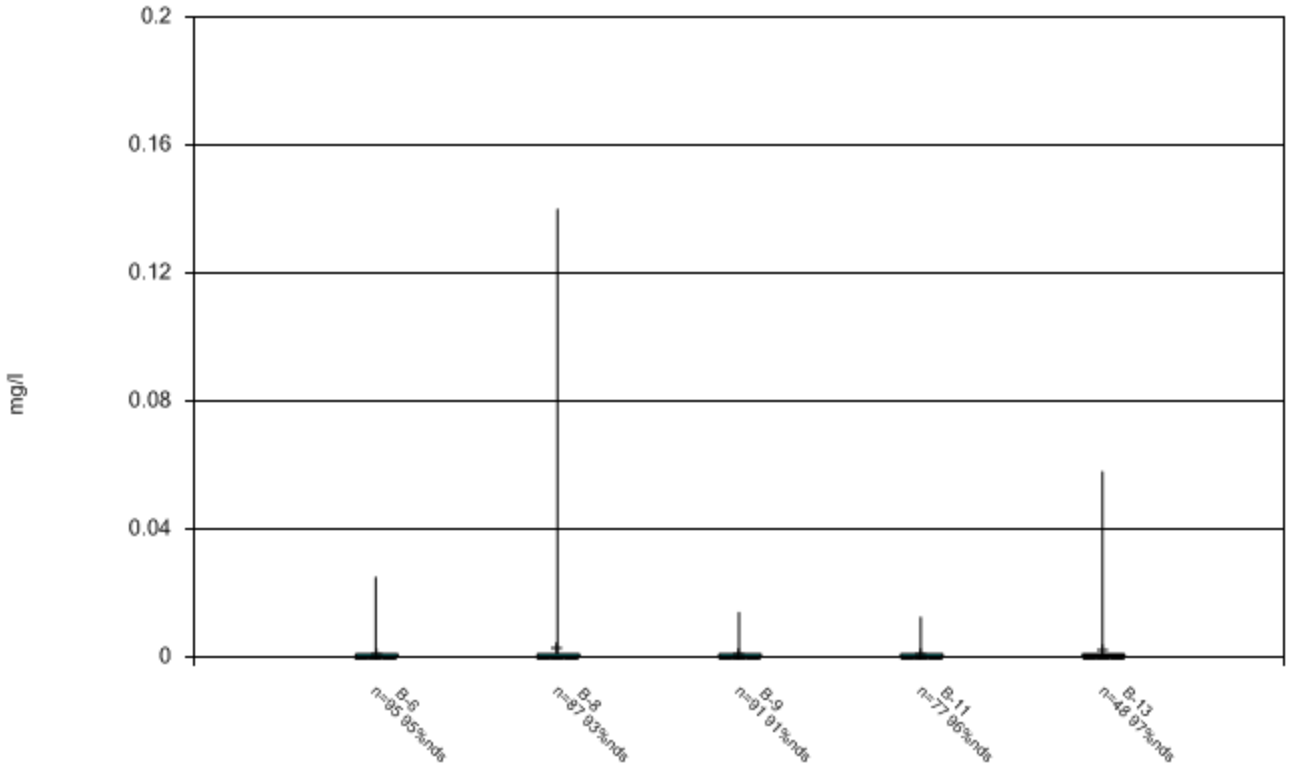


Constituent: Iron Analysis Run 2/8/2018 10:29 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

WQStat Plus™ v.9.4.41

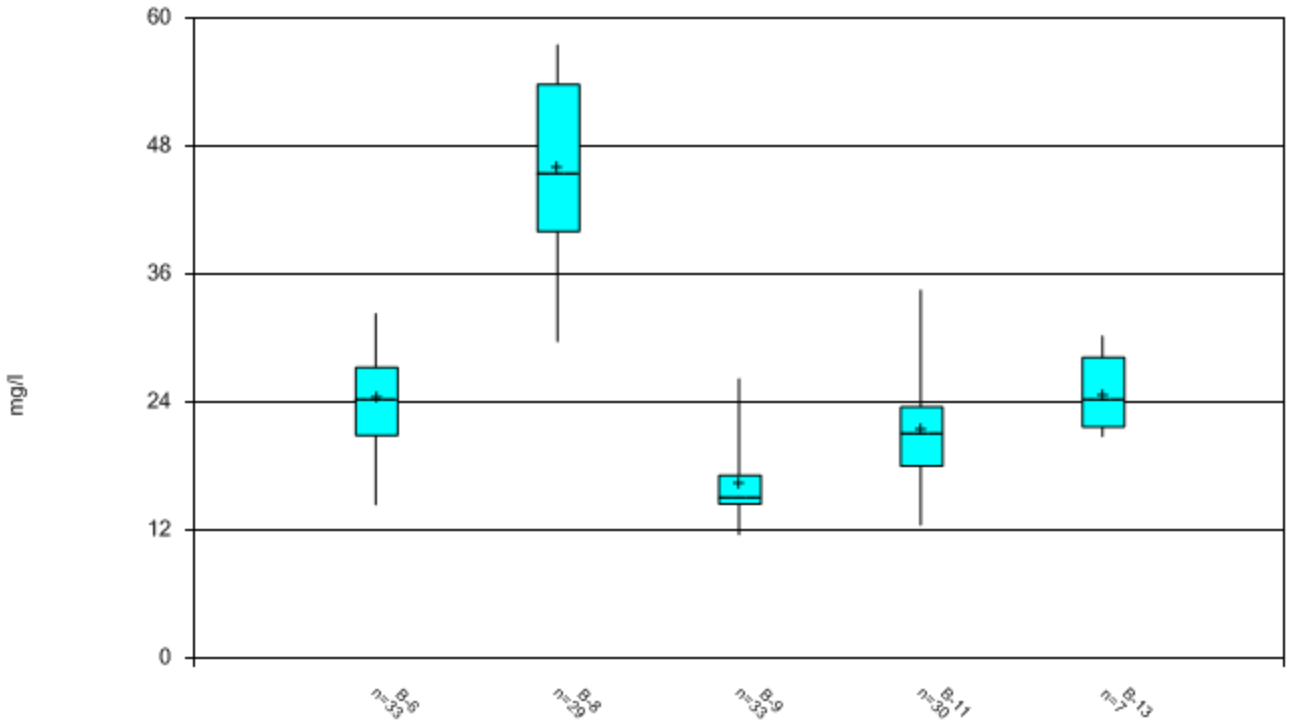
Box & Whiskers Plot



Constituent: Lead Analysis Run 2/8/2018 10:29 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

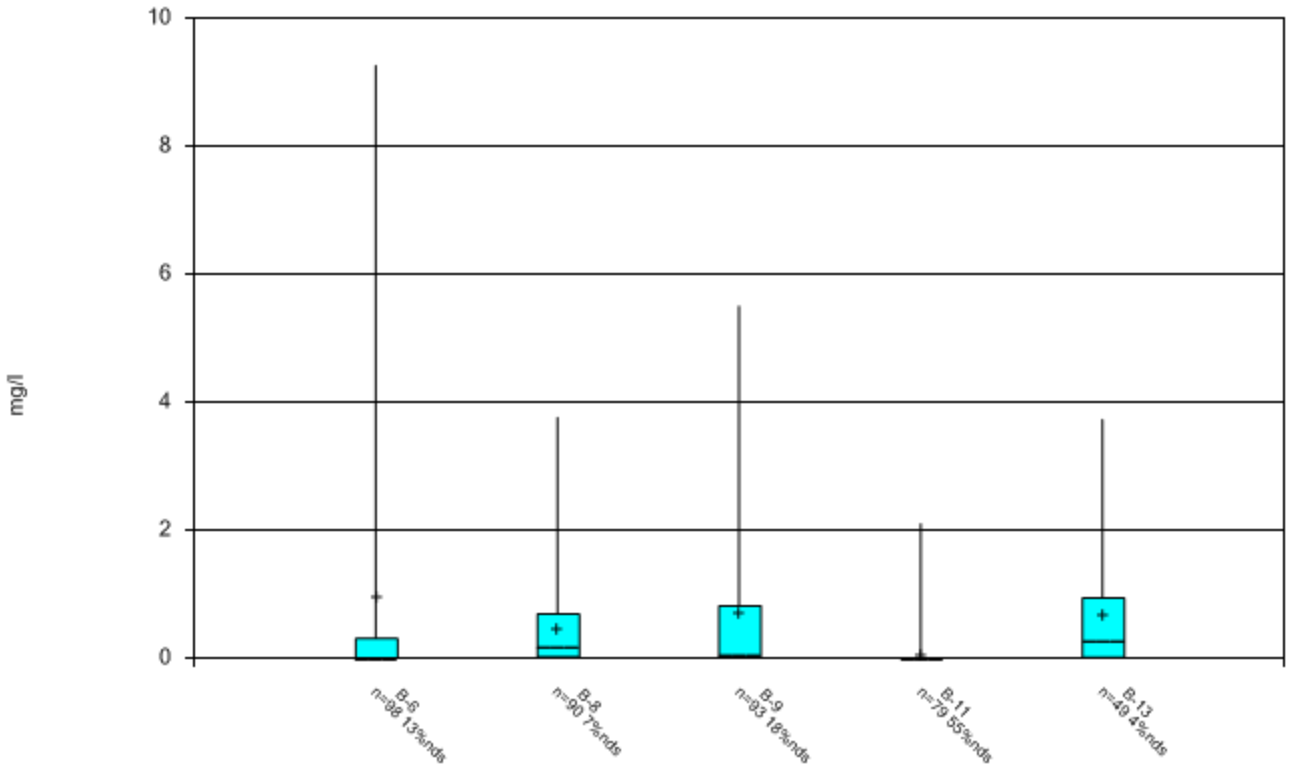
Box & Whiskers Plot



Constituent: MAGNESIUM Analysis Run 2/8/2018 10:30 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

Box & Whiskers Plot

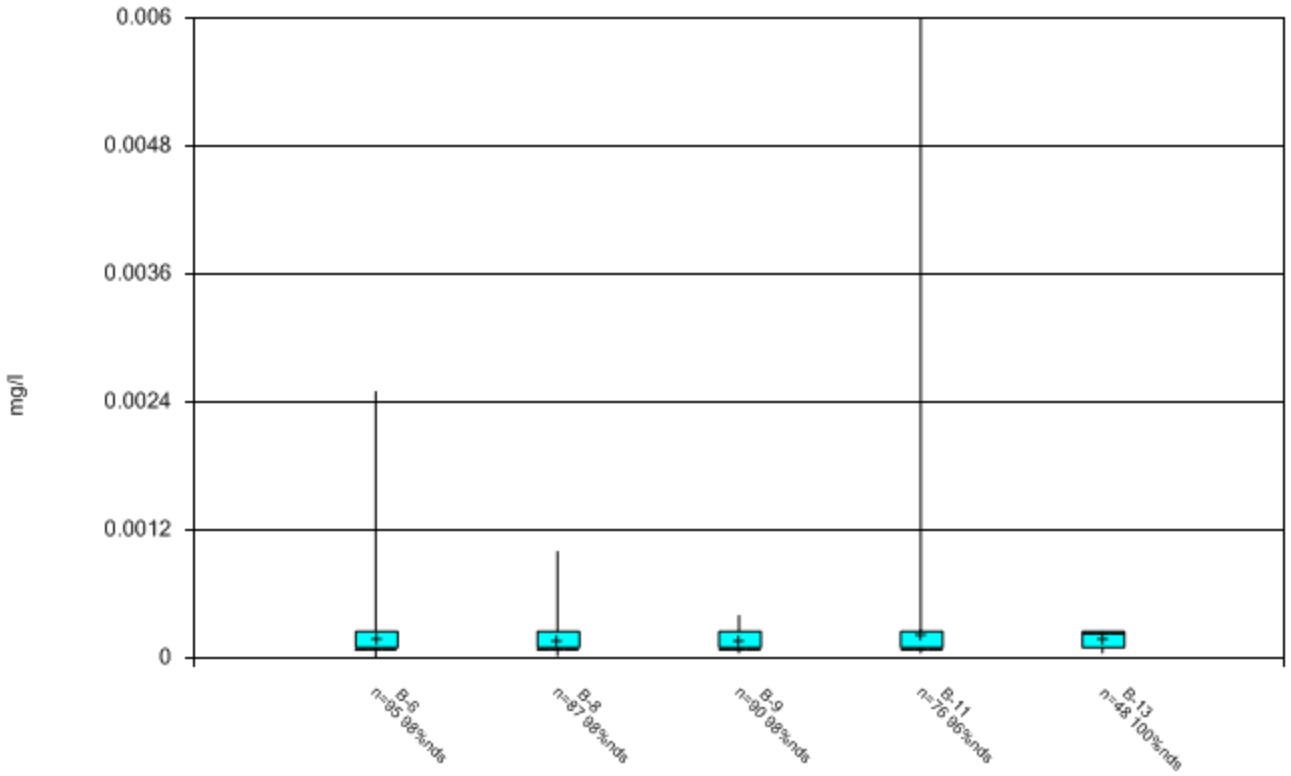


Constituent: Manganese Analysis Run 2/8/2018 10:30 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

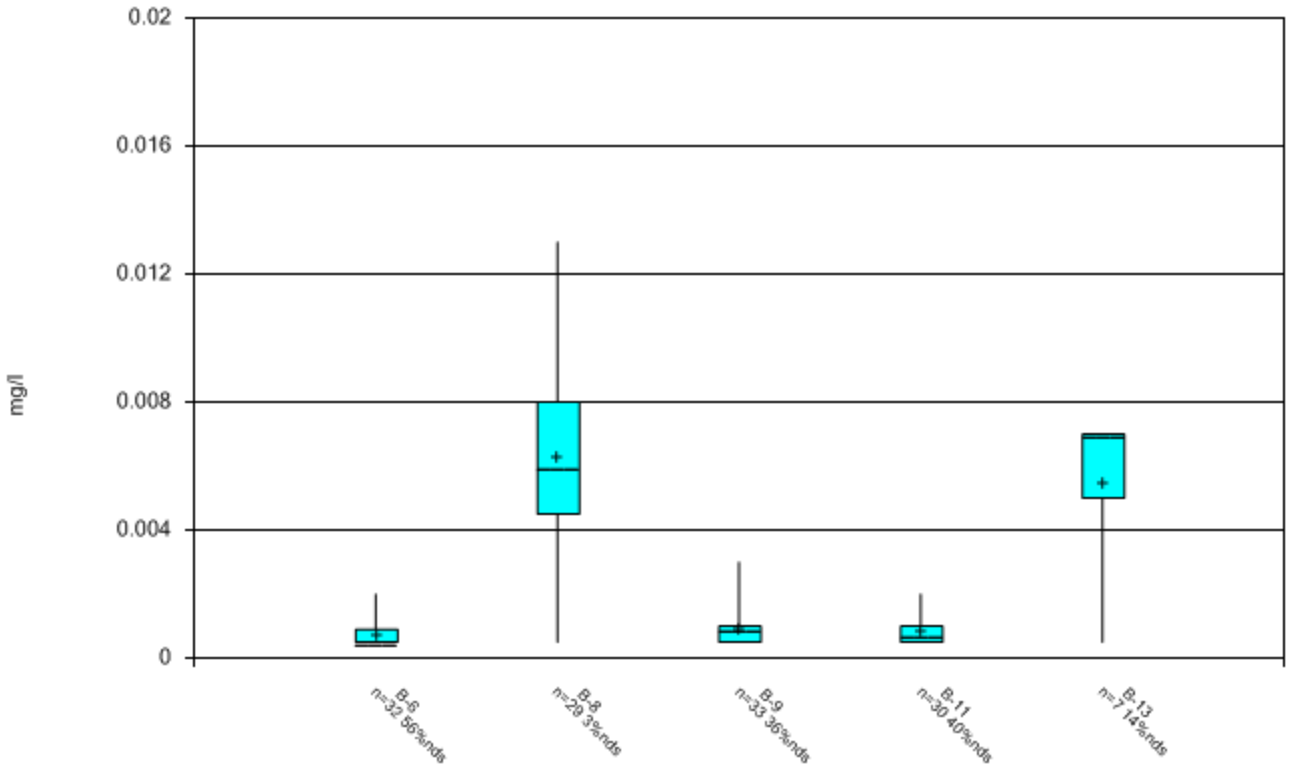


Constituent: Mercury Analysis Run 2/8/2018 10:30 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

WQStat Plus™ v.9.4.41

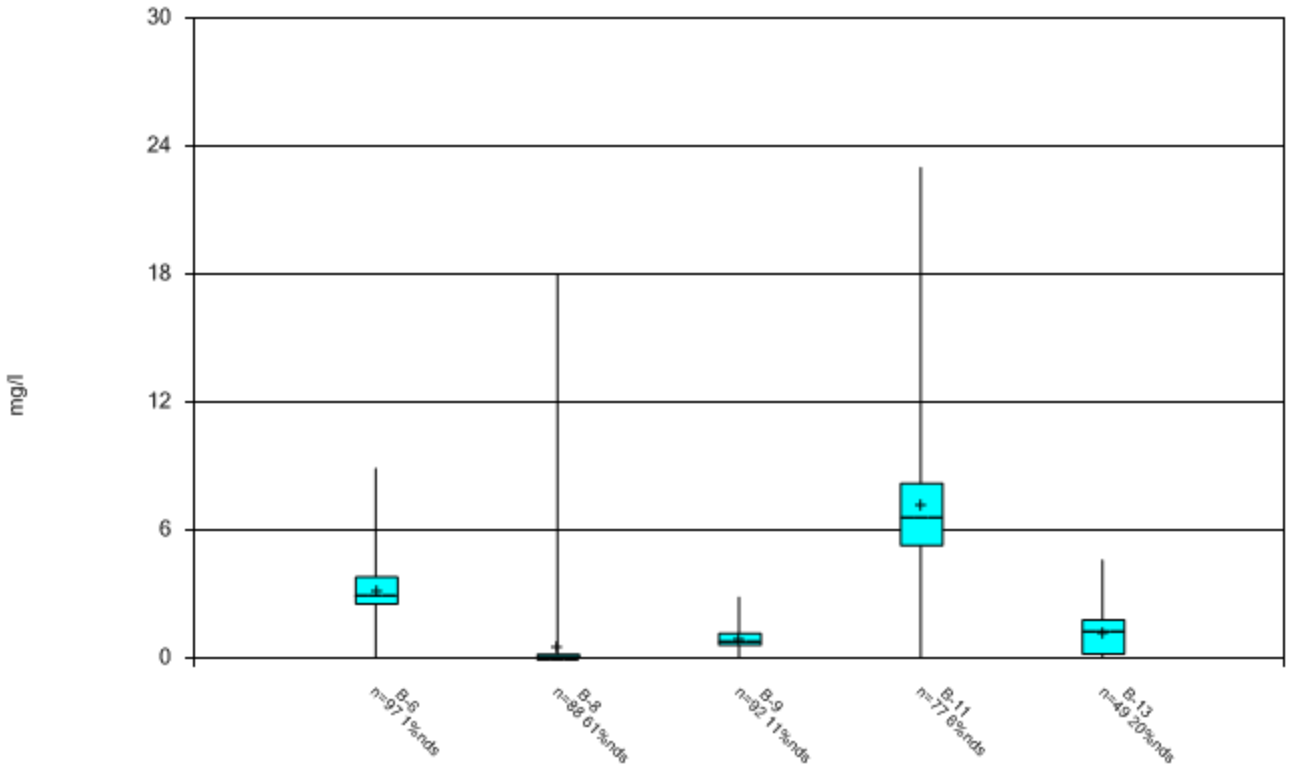
Box & Whiskers Plot



Constituent: Nickel Analysis Run 2/8/2018 10:38 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

Box & Whiskers Plot

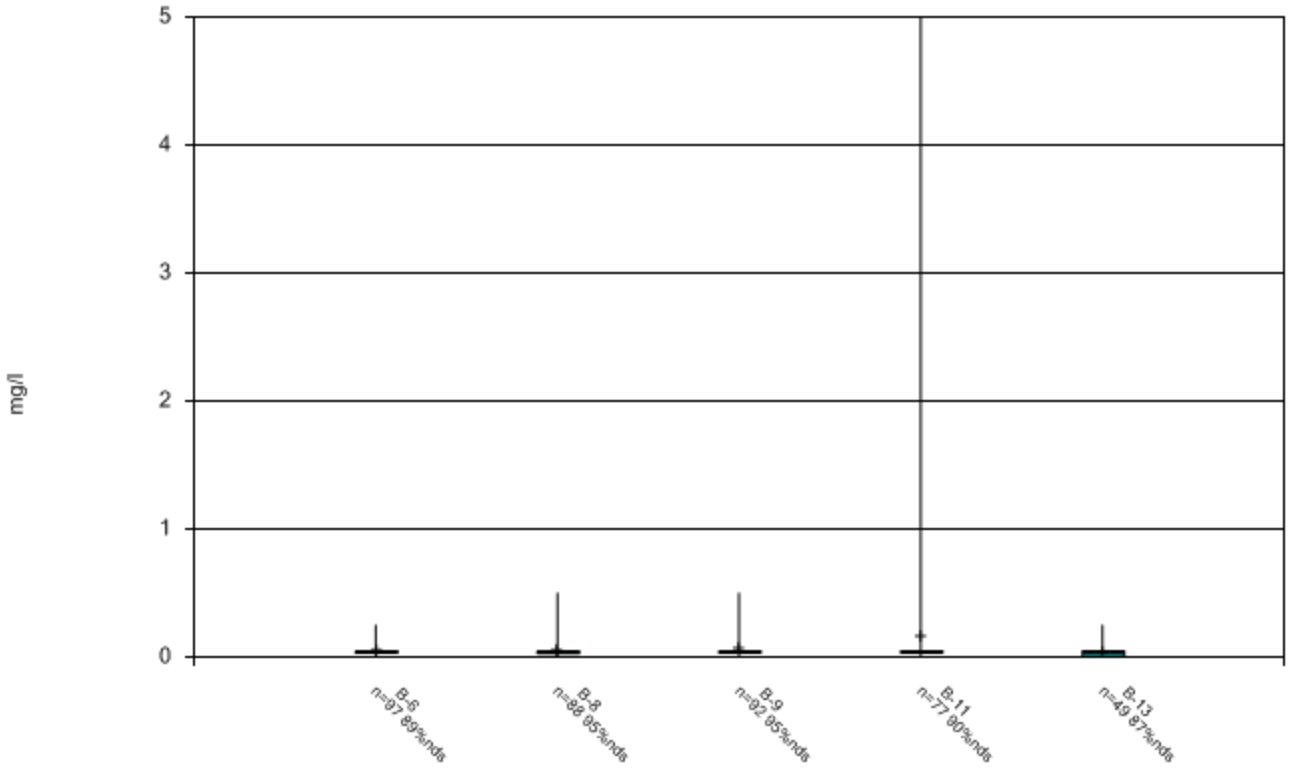


Constituent: Nitrate as nitrogen Analysis Run 2/8/2018 10:38 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

WQStat Plus™ v.9.4.41

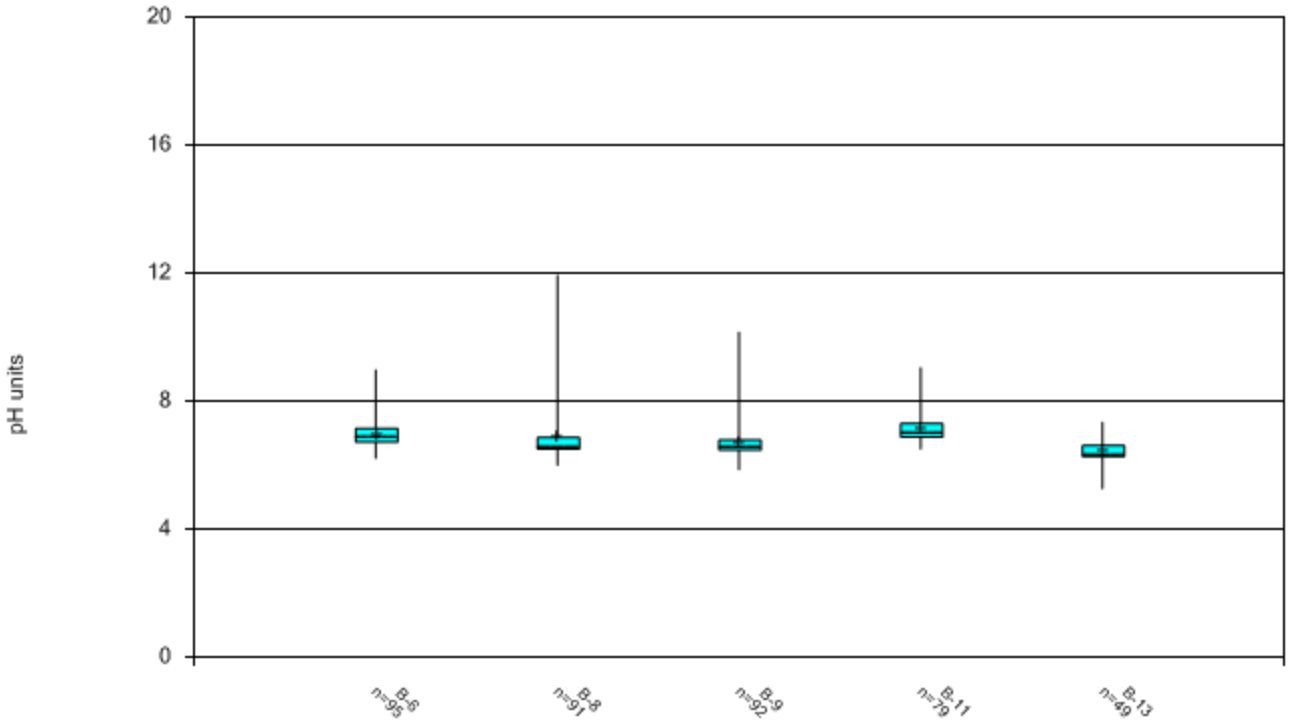
Box & Whiskers Plot



Constituent: Nitrite as nitrogen Analysis Run 2/8/2018 10:38 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

Box & Whiskers Plot

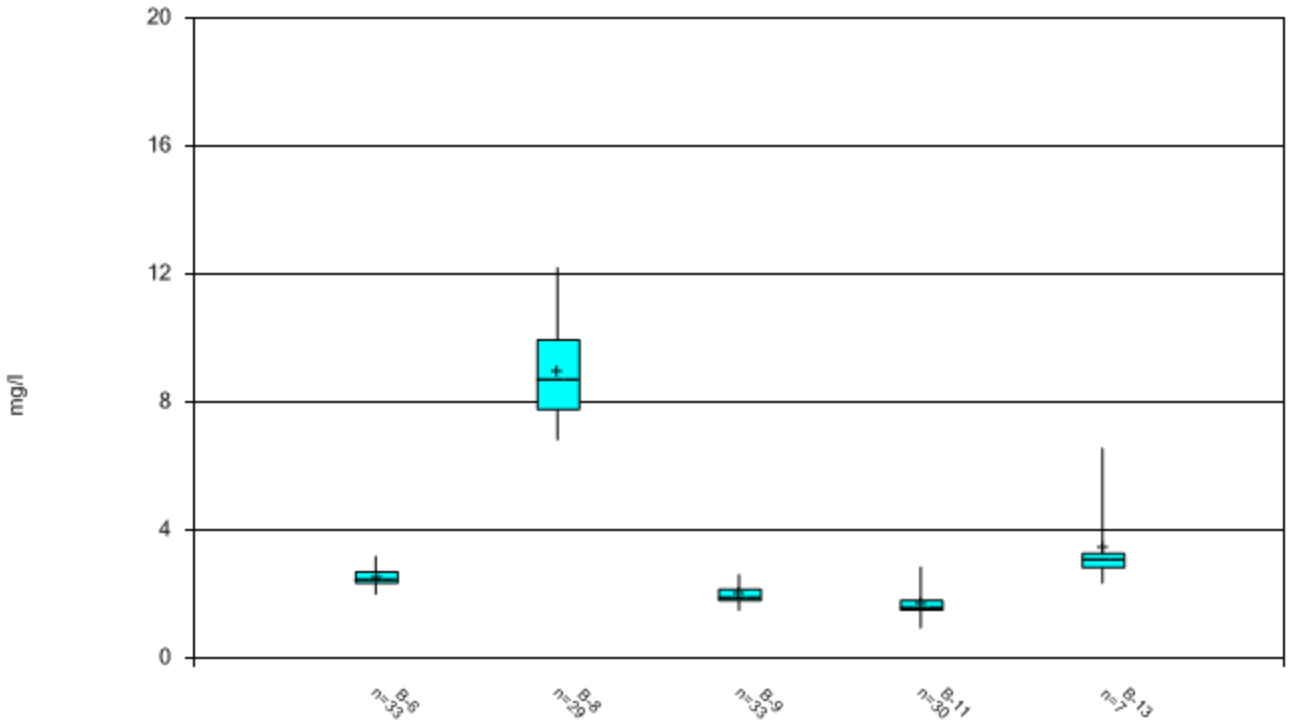


Constituent: pH Analysis Run 2/8/2018 10:38 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

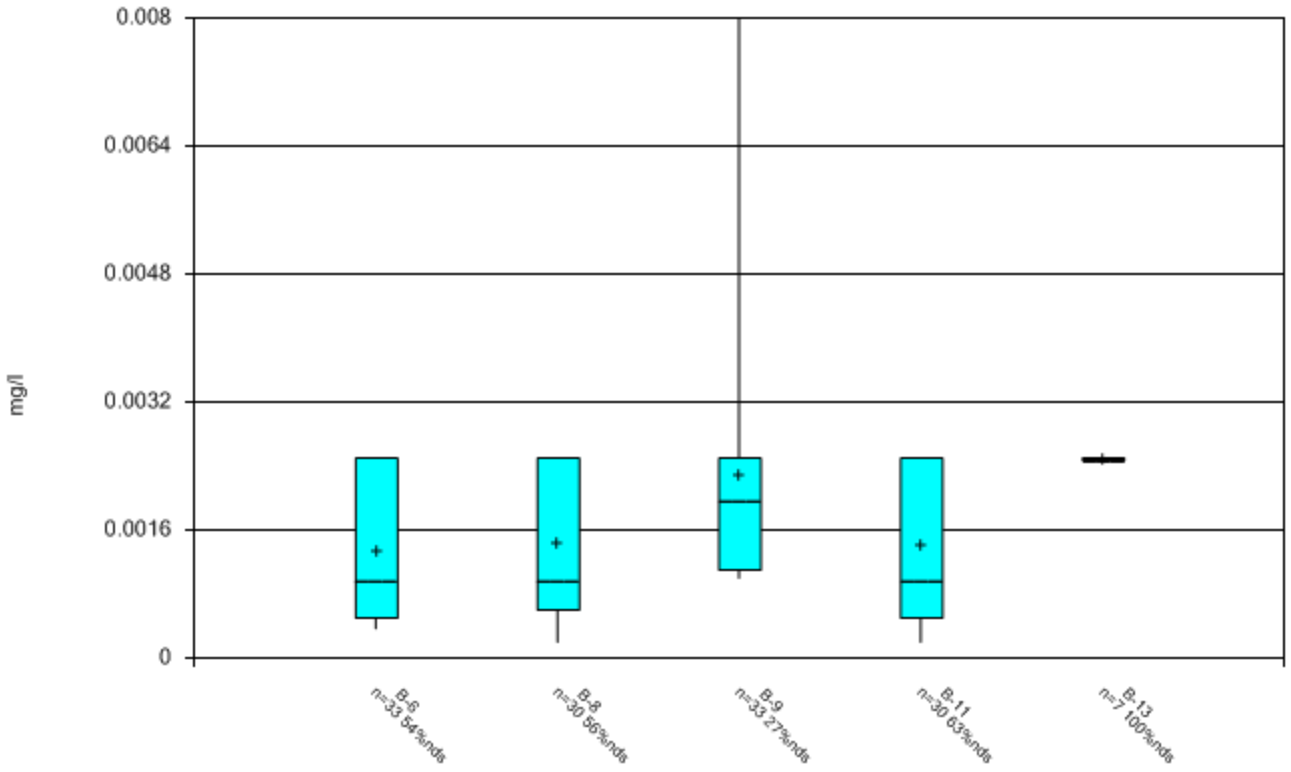


Constituent: Potassium Analysis Run 2/8/2018 10:39 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

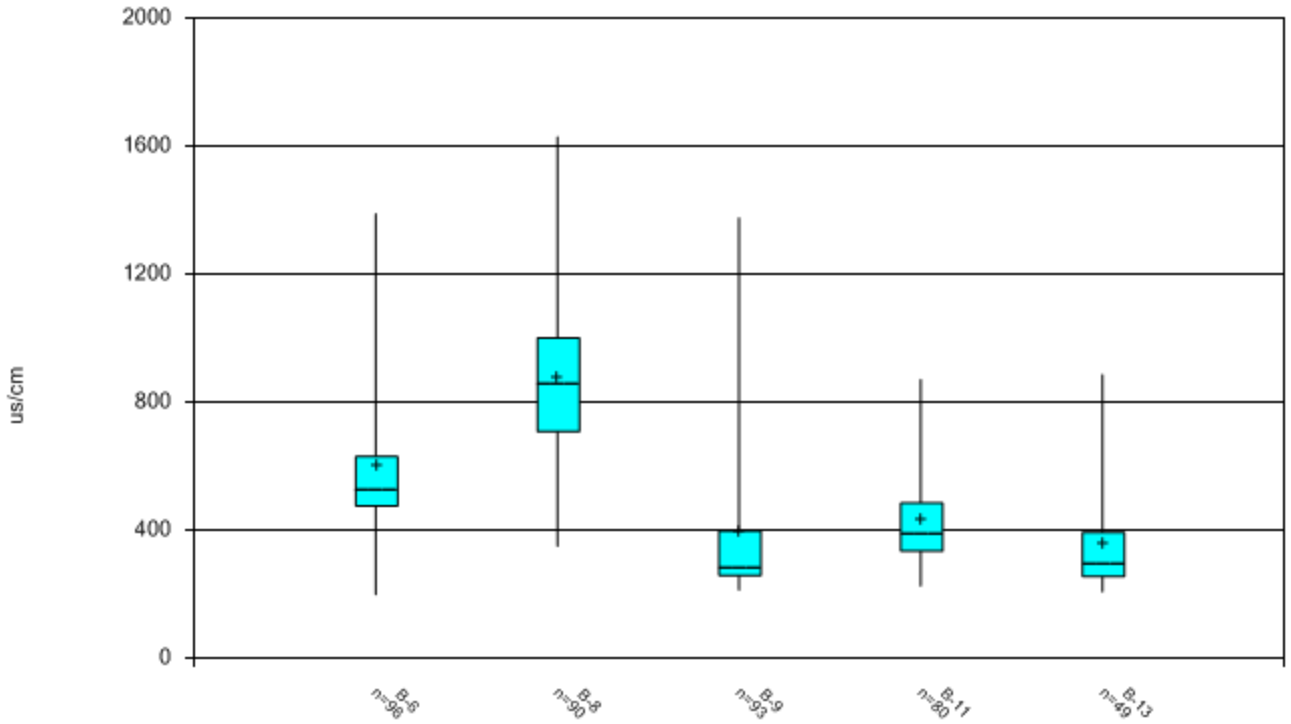


Constituent: Selenium Analysis Run 2/8/2018 10:42 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

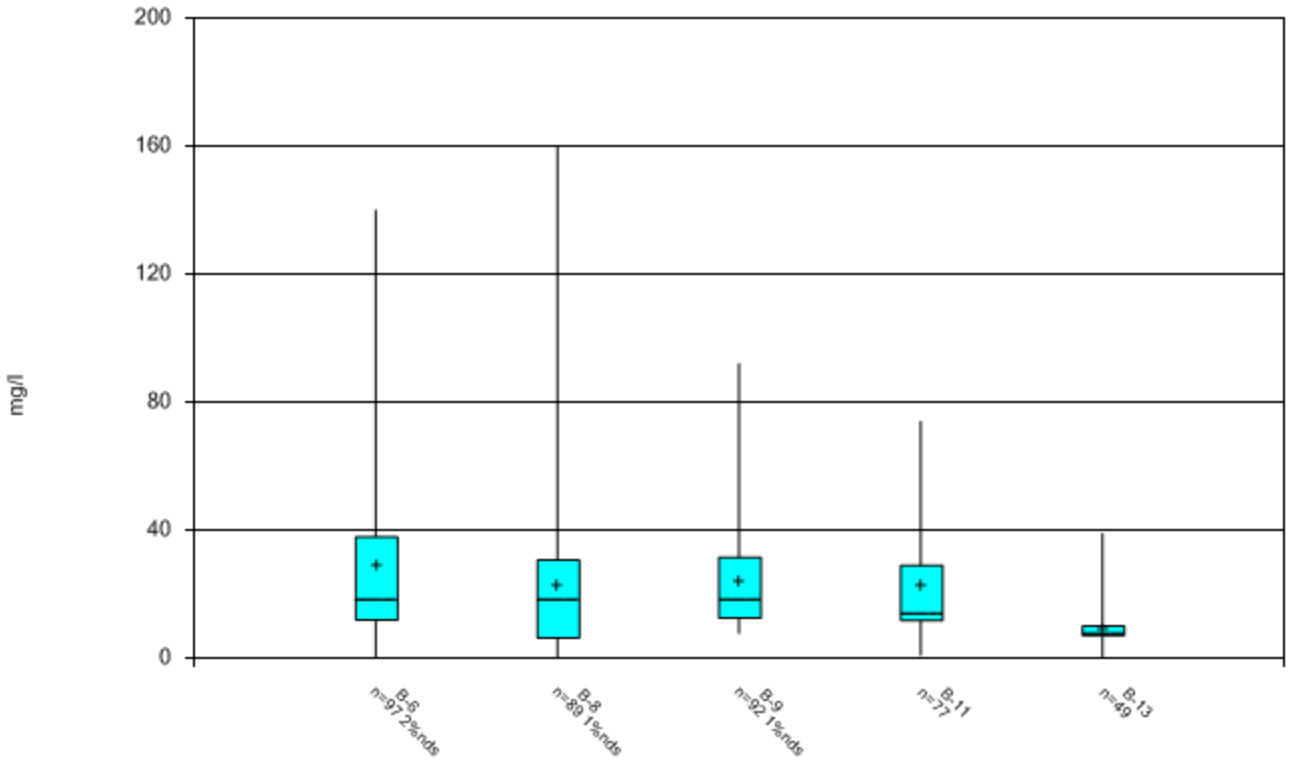


Constituent: Specific Conductance Analysis Run 2/8/2018 10:43 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

WQStat Plus™ v.9.4.41

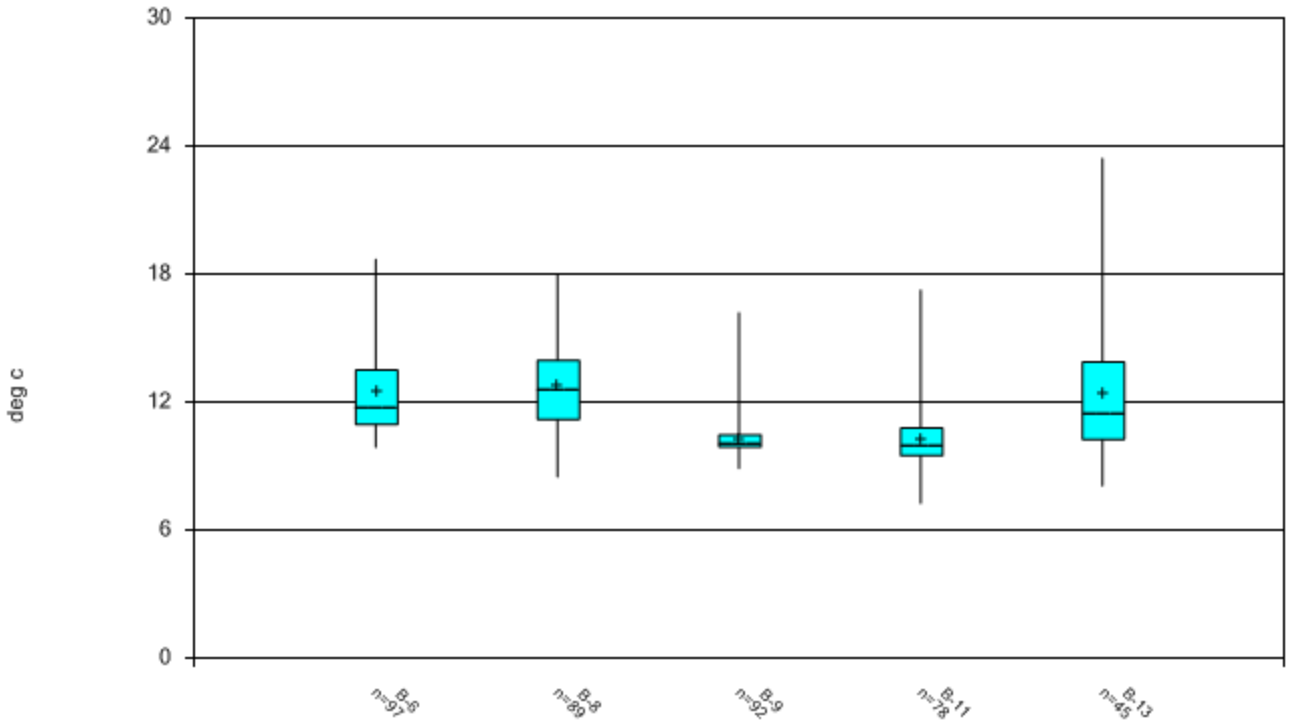
Box & Whiskers Plot



Constituent: Sulfate Analysis Run 2/8/2018 10:43 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

Box & Whiskers Plot

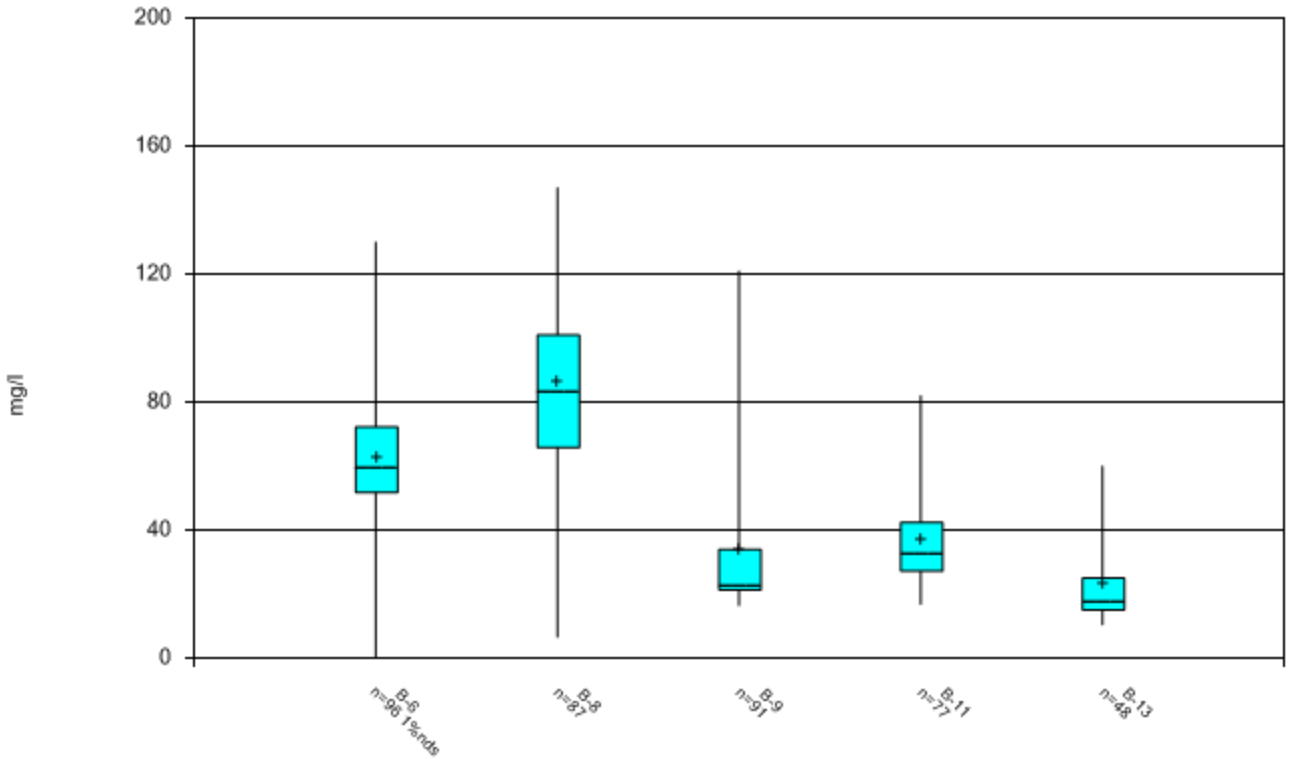


Constituent: Temperature Analysis Run 2/8/2018 10:43 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

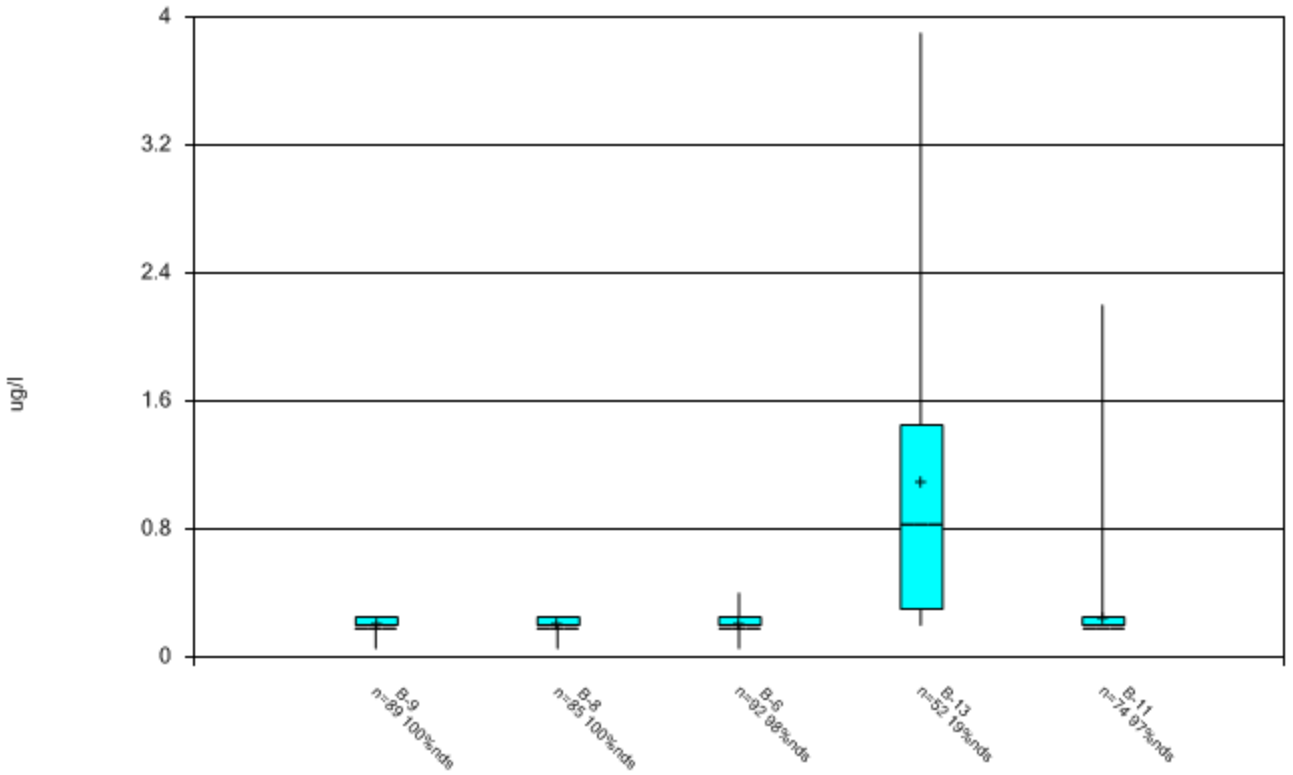


Constituent: Total Calcium Analysis Run 2/8/2018 10:43 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

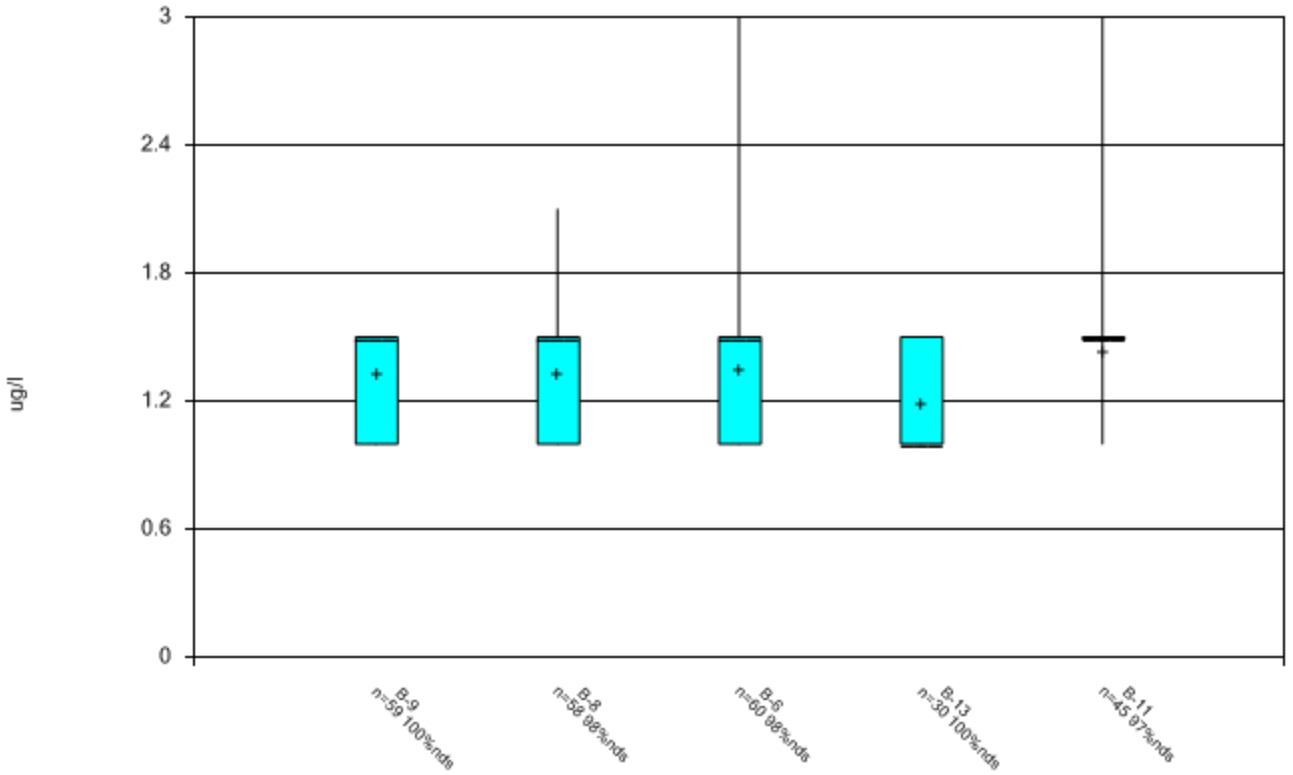


Constituent: Tetrachloroethene Analysis Run 3/5/2018 9:36 AM

Facility: Inman Landfill Data File: inman_perched_vocs_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

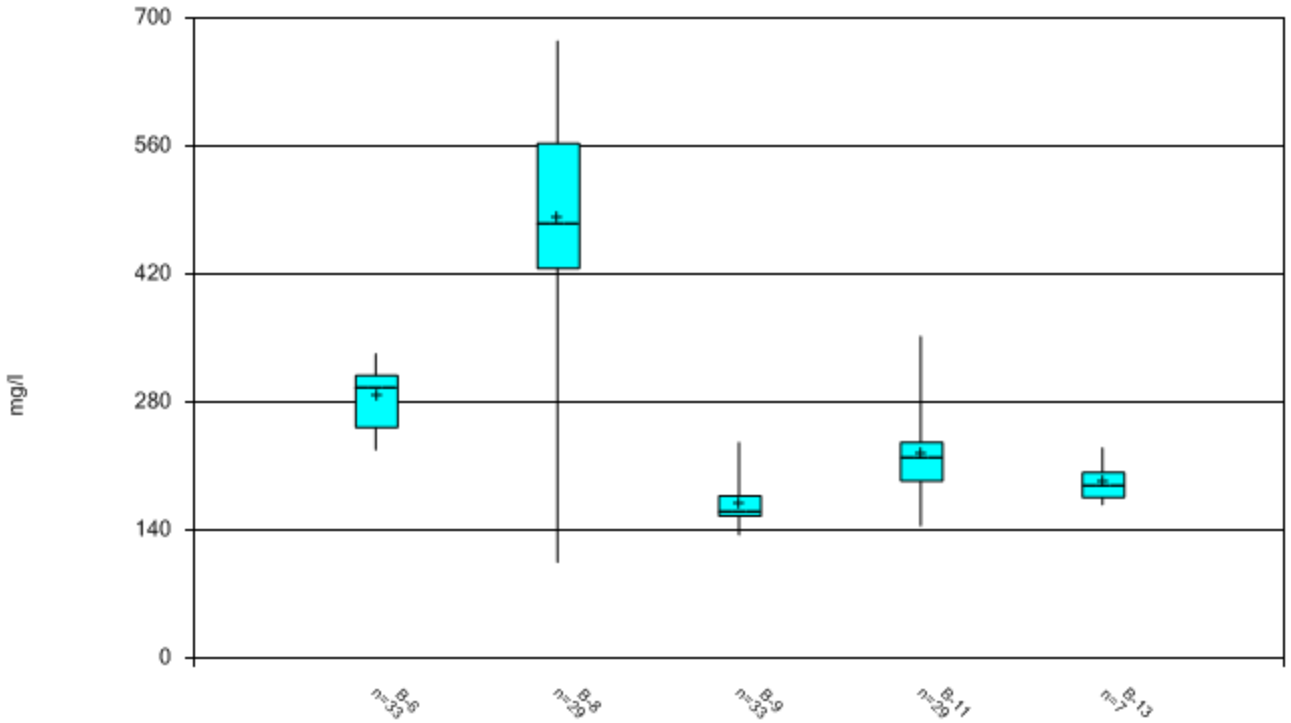


Constituent: Tetrahydrofuran Analysis Run 3/5/2018 9:36 AM

Facility: Inman Landfill Data File: inman_perched_vocs_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

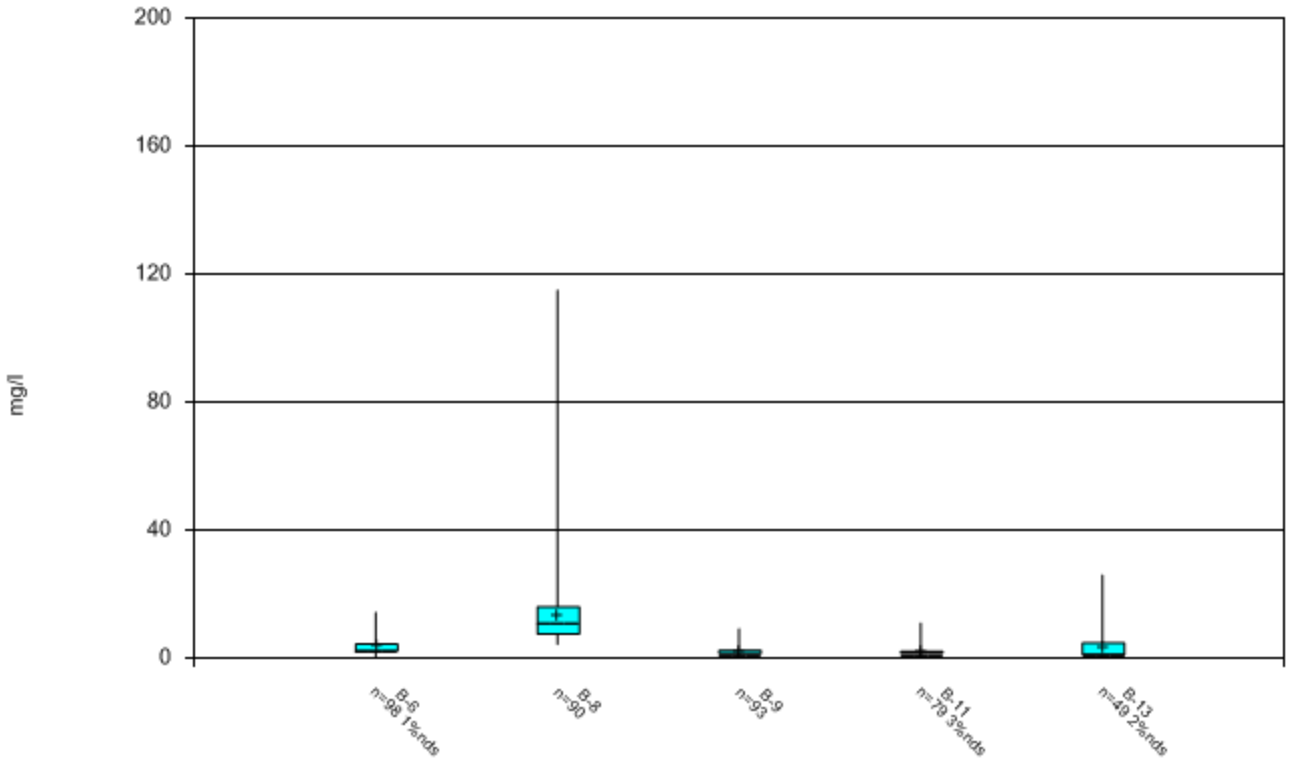


Constituent: Total Dissolved Solids Analysis Run 2/8/2018 10:44 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

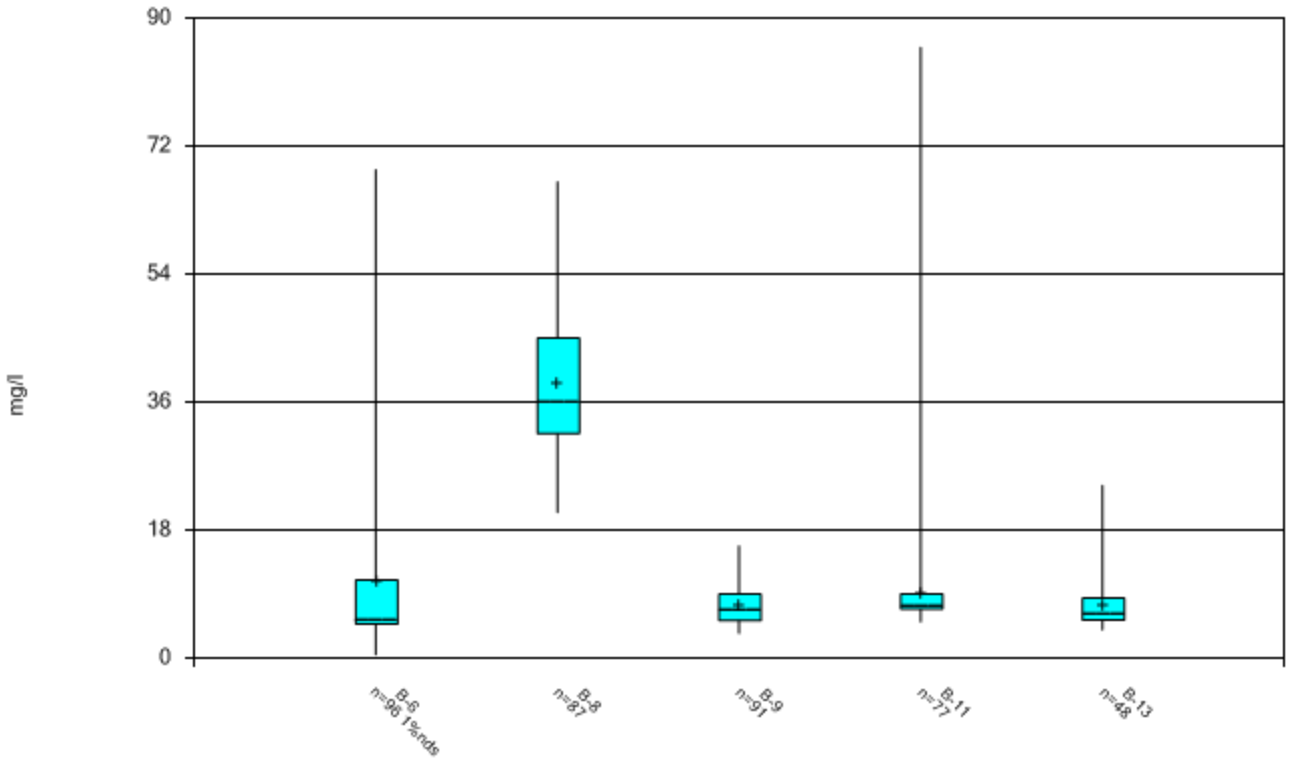


Constituent: Total Organic Carbon Analysis Run 2/8/2018 10:44 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

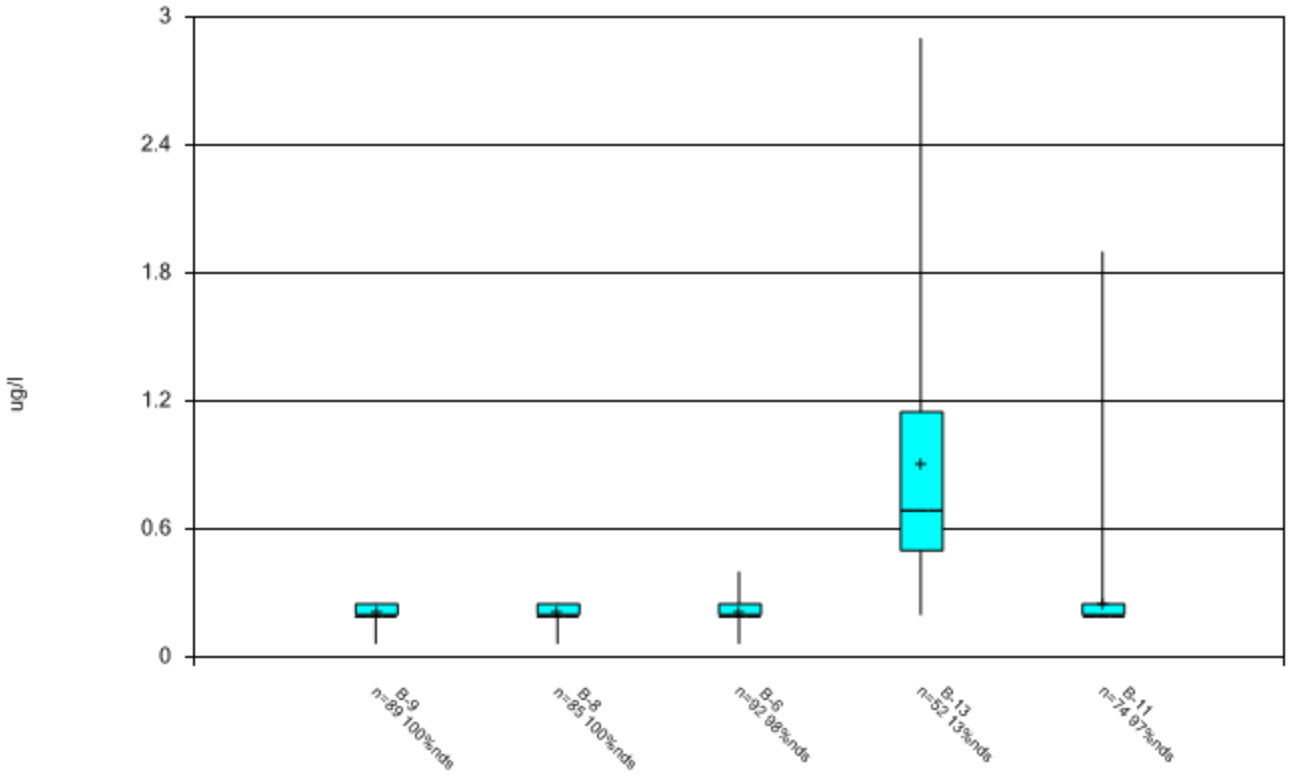


Constituent: Total Sodium Analysis Run 2/8/2018 10:44 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

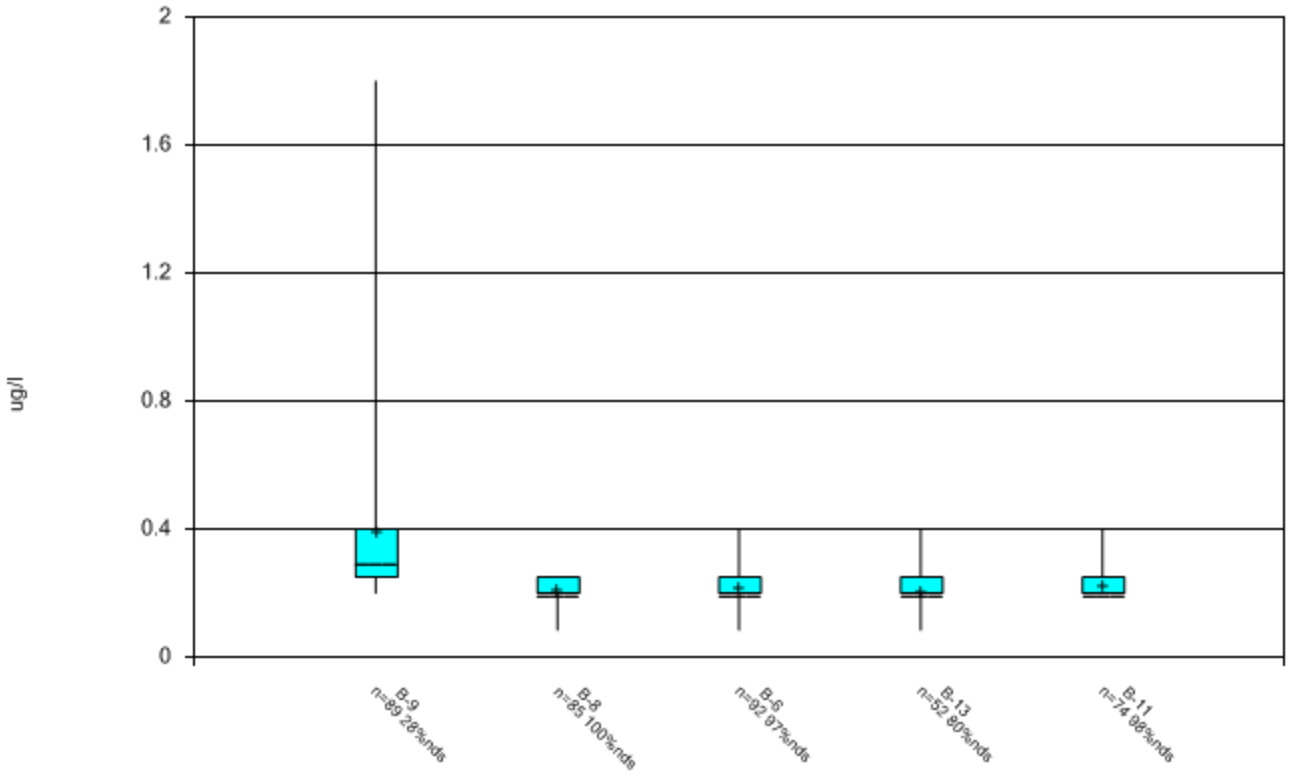


Constituent: Trichloroethene Analysis Run 3/5/2018 9:38 AM

Facility: Inman Landfill Data File: inman_perched_vocs_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

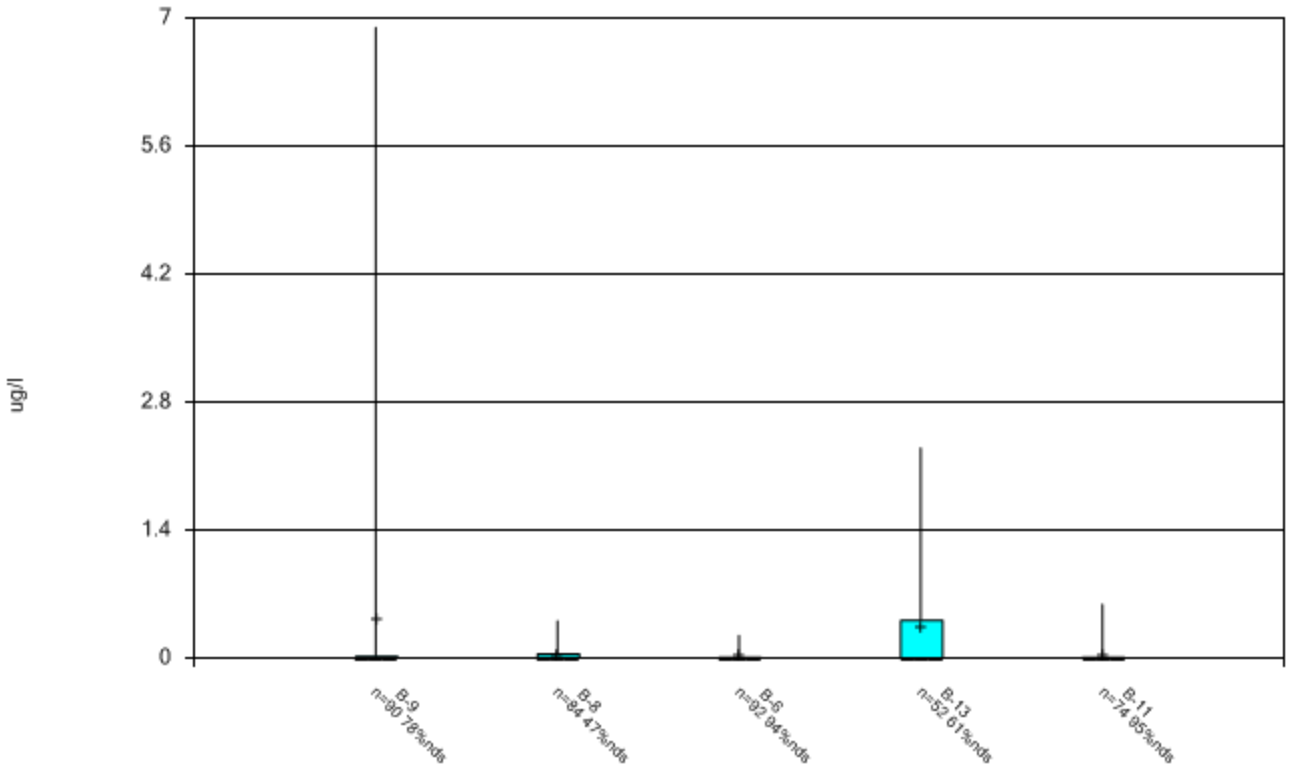


Constituent: Trichlorofluoromethane [CFC-11] Analysis Run 3/5/2018 9:38 AM

Facility: Inman Landfill Data File: inman_perched_vocs_(1994-2017)

WQStat Plus™ v.9.4.41

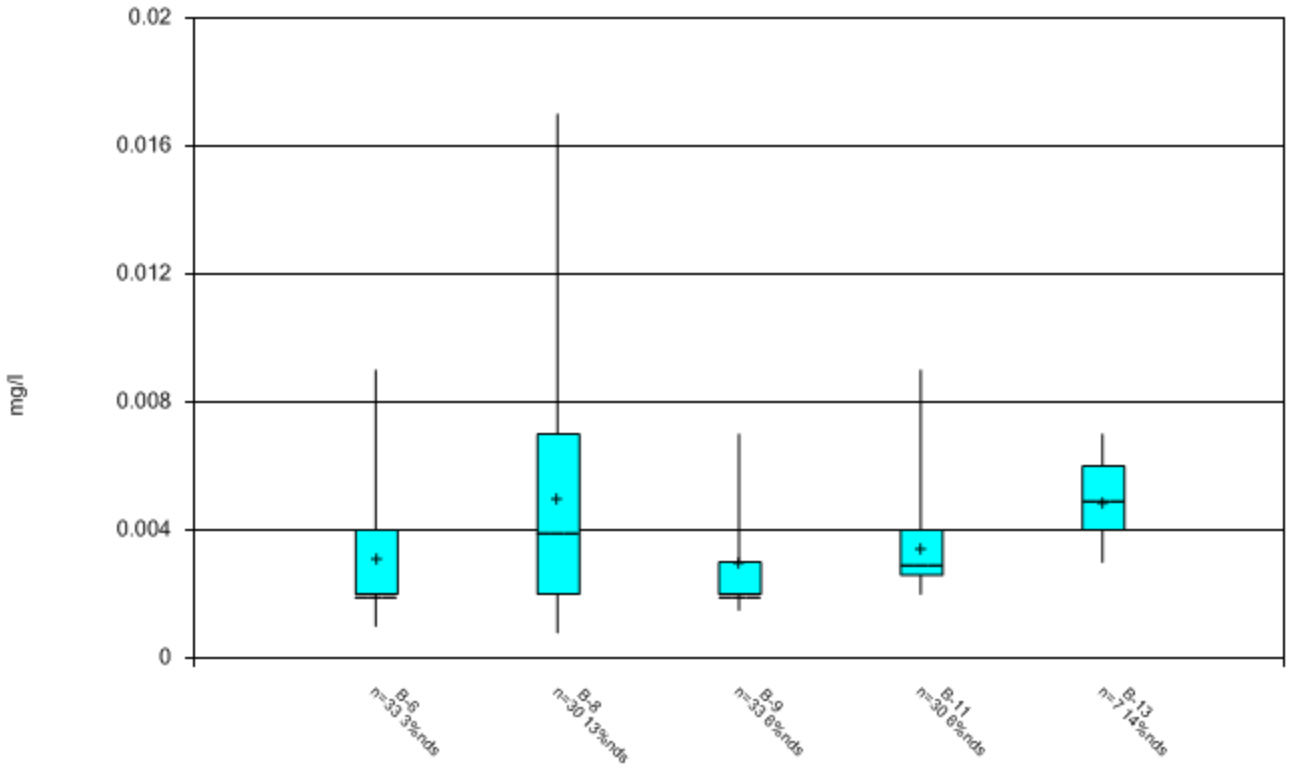
Box & Whiskers Plot



Constituent: Vinyl chloride Analysis Run 3/5/2018 9:40 AM

Facility: Inman Landfill Data File: inman_perched_vocs_(1994-2017)

Box & Whiskers Plot

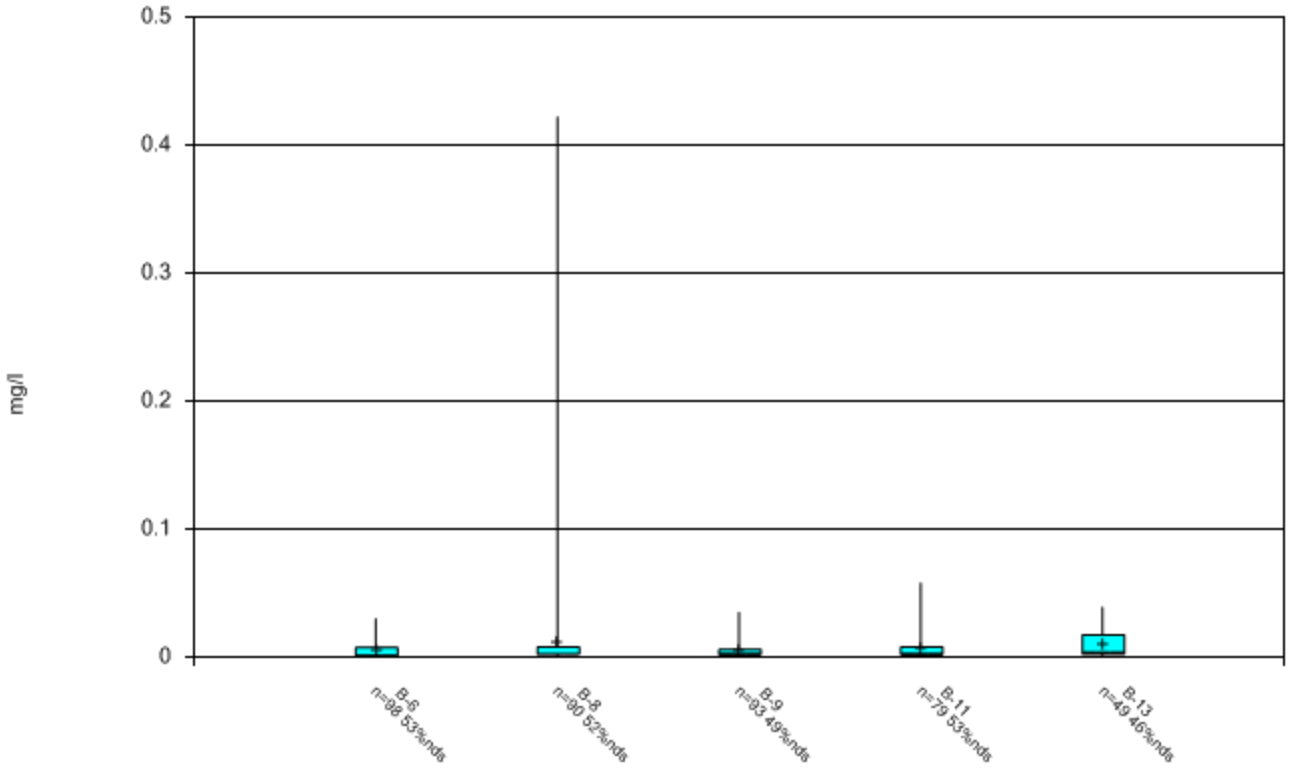


Constituent: VANADIUM [FUME OR DUST] Analysis Run 2/8/2018 10:45 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot



Constituent: Zinc Analysis Run 2/8/2018 10:45 AM

Facility: Inman Landfill Data File: inman_perched_inorganic_(1990-2017)

APPENDIX D-4:
Long-Term Mann-Kendall Trend Tests 1994-2017 – Perched Aquifer

Long-Term Mann-Kendall Trend Tests 1994-2017
Perched Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Alpha
1,1-dichloroethane	ug/L	**B-6**	**-0.002411**	**-6.506**	**-2.33**	**Yes**	**92**	**92.39**	**0.02**
		B-8	**-0.001288**	**-5.752**	**-2.33**	**Yes**	**85**	**71.76**	**0.02**
		B-9	**-0.005453**	**-8.885**	**-2.33**	**Yes**	**89**	**57.3**	**0.02**
		B-11	**0**	**-6.551**	**-2.33**	**Yes**	**74**	**97.3**	**0.02**
		B-13	**-0.162**	**-6.011**	**-2.33**	**Yes**	**52**	**11.54**	**0.02**
1,2-dichloroethane	ug/L	**B-6**	**0**	**-6.12**	**-2.33**	**Yes**	**92**	**97.83**	**0.02**
		B-8	**0**	**-5.826**	**-2.33**	**Yes**	**85**	**100**	**0.02**
		B-9	**0**	**-6.058**	**-2.33**	**Yes**	**89**	**100**	**0.02**
		B-11	**0**	**-6.551**	**-2.33**	**Yes**	**74**	**97.3**	**0.02**
		B-13	**-0.00772**	**-5.291**	**-2.33**	**Yes**	**52**	**73.08**	**0.02**
Acetone	ug/L	**B-6**	**0.06552**	**8.758**	**2.33**	**Yes**	**92**	**95.65**	**0.02**
		B-8	**0.07677**	**8.652**	**2.33**	**Yes**	**85**	**89.41**	**0.02**
		B-9	**0.06651**	**9.857**	**2.33**	**Yes**	**89**	**98.88**	**0.02**
		B-11	**0.06659**	**7.481**	**2.33**	**Yes**	**74**	**95.95**	**0.02**
		B-13	0	0.7606	2.33	No	52	76.92	0.02
Alkalinity	mg/L	B-6	-3.18	-121	-151	No	33	0	0.02
		B-8	-1.745	-14	-119	No	28	0	0.02
		B-9	**-3.969**	**-177**	**-145**	**Yes**	**32**	**0**	**0.02**
		B-11	-5.069	-86	-119	No	28	0	0.02
		B-13	-39.11	-9	-17	No	7	0	0.02
Ammonia as nitrogen	mg/L	**B-6**	**-0.01352**	**-10.1**	**-2.33**	**Yes**	**98**	**22.45**	**0.02**
		B-8	0.003236	1.387	2.33	No	89	13.48	0.02
		B-9	0	-0.8624	-2.33	No	93	65.59	0.02
		B-11	**-0.0005116**	**-2.773**	**-2.33**	**Yes**	**78**	**69.23**	**0.02**
		B-13	0	0.4778	2.33	No	49	28.57	0.02
Antimony, dissolved	mg/L	**B-6**	**-0.00005422**	**-254**	**-145**	**Yes**	**32**	**56.25**	**0.02**
		B-8	**-0.00006732**	**-169**	**-125**	**Yes**	**29**	**65.52**	**0.02**
		B-9	**-0.000068**	**-247**	**-151**	**Yes**	**33**	**69.7**	**0.02**
		B-11	**0**	**-149**	**-132**	**Yes**	**30**	**90**	**0.02**
		B-13	0	-8	-17	No	7	100	0.02
Arsenic, dissolved	mg/L	**B-6**	**-0.0001997**	**-9.504**	**-2.33**	**Yes**	**90**	**20**	**0.02**
		B-8	**-0.000315**	**-3.84**	**-2.33**	**Yes**	**83**	**25.3**	**0.02**
		B-9	**-0.00003996**	**-8.394**	**-2.33**	**Yes**	**85**	**20**	**0.02**
		B-11	**0**	**-4.501**	**-2.33**	**Yes**	**71**	**35.21**	**0.02**
		B-13	**-0.0003771**	**-6.139**	**-2.33**	**Yes**	**46**	**50**	**0.02**
Barium, dissolved	mg/L	B-6	-0.0004986	-138	-151	No	33	0	0.02
		B-8	-0.0004403	-22	-132	No	30	0	0.02
		B-9	**-0.0003821**	**-190**	**-151**	**Yes**	**33**	**0**	**0.02**
		B-11	-0.0004398	-63	-132	No	30	3.333	0.02
		B-13	-0.001834	-11	-17	No	7	0	0.02
Bicarbonate	mg/L	B-6	-3.18	-123	-151	No	33	0	0.02
		B-8	-1.745	-14	-119	No	28	0	0.02
		B-9	**-5.219**	**-195**	**-145**	**Yes**	**32**	**0**	**0.02**
		B-11	-5.037	-84	-119	No	28	0	0.02
		B-13	-39.11	-9	-17	No	7	0	0.02
Cadmium, dissolved	mg/L	**B-6**	**-0.00004766**	**-7.373**	**-2.33**	**Yes**	**94**	**90.43**	**0.02**
		B-8	**-0.00004748**	**-6.396**	**-2.33**	**Yes**	**86**	**84.88**	**0.02**
		B-9	**-0.00004158**	**-6.479**	**-2.33**	**Yes**	**90**	**90**	**0.02**
		B-11	**-0.00005162**	**-7.571**	**-2.33**	**Yes**	**76**	**92.11**	**0.02**
		B-13	0	-1.977	-2.33	No	47	95.74	0.02
Calcium, total	mg/L	**B-6**	**-1.316**	**-6.66**	**-2.33**	**Yes**	**96**	**1.042**	**0.02**
		B-8	**-1.215**	**-3.094**	**-2.33**	**Yes**	**87**	**0**	**0.02**
		B-9	**-0.9434**	**-7.624**	**-2.33**	**Yes**	**91**	**0**	**0.02**
		B-11	**-0.7366**	**-4.152**	**-2.33**	**Yes**	**77**	**0**	**0.02**
		B-13	**-0.707**	**-2.81**	**-2.33**	**Yes**	**48**	**0**	**0.02**
Chemical Oxygen Demand	mg/L	**B-6**	**-0.2948**	**-4.414**	**-2.33**	**Yes**	**98**	**46.94**	**0.02**
		B-8	-0.5443	-1.886	-2.33	No	89	5.618	0.02
		B-9	0	-0.1206	-2.33	No	93	65.59	0.02
		B-11	0	-0.8049	-2.33	No	78	70.51	0.02
		B-13	-0.117	-2.323	-2.33	No	49	63.27	0.02

Long-Term Mann-Kendall Trend Tests 1994-2017
Perched Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Alpha
Chloride	mg/L	**B-6**	**-0.1352**	**-3.164**	**-2.33**	**Yes**	**97**	**2.062**	**0.02**
		B-8	**-3.069**	**-8.94**	**-2.33**	**Yes**	**89**	**0**	**0.02**
		B-9	**-0.3511**	**-9.908**	**-2.33**	**Yes**	**92**	**0**	**0.02**
		B-11	**-0.221**	**-8.047**	**-2.33**	**Yes**	**77**	**0**	**0.02**
		B-13	**0.3645**	**4.558**	**2.33**	**Yes**	**49**	**0**	**0.02**
Chlorodifluoromethane (Freon 22)	ug/L	B-6	0	1.245	2.33	No	60	98.33	0.02
		B-8	**-0.07293**	**-4.031**	**-2.33**	**Yes**	**58**	**34.48**	**0.02**
		B-9	0	0.8231	2.33	No	59	96.61	0.02
		B-11	0	0	2.33	No	45	97.78	0.02
		B-13	**-0.0183**	**-179**	**-132**	**Yes**	**30**	**43.33**	**0.02**
Chloroethane	ug/L	**B-6**	**0**	**-6.021**	**-2.33**	**Yes**	**92**	**98.91**	**0.02**
		B-8	**0**	**-5.813**	**-2.33**	**Yes**	**84**	**98.81**	**0.02**
		B-9	**-0.002676**	**-6.609**	**-2.33**	**Yes**	**89**	**92.13**	**0.02**
		B-11	**0**	**-6.629**	**-2.33**	**Yes**	**74**	**98.65**	**0.02**
		B-13	**-0.00409**	**-4.808**	**-2.33**	**Yes**	**52**	**94.23**	**0.02**
Chromium, dissolved	mg/L	**B-6**	**-0.0002926**	**-240**	**-151**	**Yes**	**33**	**39.39**	**0.02**
		B-8	**-0.0005017**	**-272**	**-132**	**Yes**	**30**	**30**	**0.02**
		B-9	**-0.0002663**	**-330**	**-151**	**Yes**	**33**	**24.24**	**0.02**
		B-11	**-0.0002863**	**-209**	**-132**	**Yes**	**30**	**33.33**	**0.02**
		B-13	0	-10	-17	No	7	100	0.02
cis-1,2-dichloroethene	ug/L	**B-6**	**0**	**-6.021**	**-2.33**	**Yes**	**92**	**98.91**	**0.02**
		B-8	**0**	**-5.826**	**-2.33**	**Yes**	**85**	**100**	**0.02**
		B-9	**0**	**-6.058**	**-2.33**	**Yes**	**89**	**100**	**0.02**
		B-11	**0**	**-6.551**	**-2.33**	**Yes**	**74**	**97.3**	**0.02**
		B-13	**-0.6354**	**-5.58**	**-2.33**	**Yes**	**52**	**13.46**	**0.02**
Cobalt, dissolved	mg/L	**B-6**	**0**	**-186**	**-145**	**Yes**	**32**	**71.88**	**0.02**
		B-8	0	-33	-125	No	29	24.14	0.02
		B-9	**0**	**-204**	**-151**	**Yes**	**33**	**69.7**	**0.02**
		B-11	0	-111	-132	No	30	80	0.02
		B-13	0	0	17	No	7	100	0.02
Copper, dissolved	mg/L	**B-6**	**-0.0002765**	**-292**	**-151**	**Yes**	**33**	**54.55**	**0.02**
		B-8	**-0.0004953**	**-185**	**-132**	**Yes**	**30**	**30**	**0.02**
		B-9	**-0.0002074**	**-205**	**-151**	**Yes**	**33**	**54.55**	**0.02**
		B-11	**-0.000166**	**-185**	**-132**	**Yes**	**30**	**53.33**	**0.02**
		B-13	-0.004968	-12	-17	No	7	100	0.02
Dichlorodifluoromethane (CFC-12)	ug/L	**B-6**	**0**	**-4.771**	**-2.33**	**Yes**	**92**	**73.91**	**0.02**
		B-8	**0**	**-5.826**	**-2.33**	**Yes**	**85**	**100**	**0.02**
		B-9	**-0.1**	**-4.476**	**-2.33**	**Yes**	**90**	**16.67**	**0.02**
		B-11	**0**	**-6.316**	**-2.33**	**Yes**	**74**	**94.59**	**0.02**
		B-13	0	1.632	2.33	No	52	34.62	0.02
Dichloromonofluoromethane (Freon 21)	ug/L	B-6	0	0.9175	2.33	No	60	98.33	0.02
		B-8	0	-0.2291	-2.33	No	58	55.17	0.02
		B-9	0	0.8605	2.33	No	59	96.61	0.02
		B-11	0	0	2.33	No	45	97.78	0.02
		B-13	0	-25	-132	No	30	63.33	0.02
Diethyl ether	ug/L	B-6	0	0.9175	2.33	No	60	98.33	0.02
		B-8	**-0.09053**	**-2.749**	**-2.33**	**Yes**	**58**	**24.14**	**0.02**
		B-9	0	0.8605	2.33	No	59	100	0.02
		B-11	0	0	2.33	No	45	97.78	0.02
		B-13	**-0.2631**	**-258**	**-132**	**Yes**	**30**	**40**	**0.02**
Iron, dissolved	mg/L	**B-6**	**-0.004805**	**-5.483**	**-2.33**	**Yes**	**98**	**61.22**	**0.02**
		B-8	**0.01376**	**2.884**	**2.33**	**Yes**	**90**	**15.56**	**0.02**
		B-9	**0**	**-2.546**	**-2.33**	**Yes**	**93**	**67.74**	**0.02**
		B-11	**0**	**-2.635**	**-2.33**	**Yes**	**79**	**59.49**	**0.02**
		B-13	**-0.07909**	**-4.582**	**-2.33**	**Yes**	**49**	**55.1**	**0.02**
Lead, dissolved	mg/L	**B-6**	**-0.00003096**	**-5.508**	**-2.33**	**Yes**	**95**	**95.79**	**0.02**
		B-8	**-0.00003238**	**-5.139**	**-2.33**	**Yes**	**87**	**93.1**	**0.02**
		B-9	**-0.00003017**	**-5.249**	**-2.33**	**Yes**	**91**	**91.21**	**0.02**
		B-11	**-0.00003496**	**-6.703**	**-2.33**	**Yes**	**77**	**96.1**	**0.02**
		B-13	0	-1.912	-2.33	No	48	97.92	0.02

Long-Term Mann-Kendall Trend Tests 1994-2017
Perched Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Alpha
Magnesium, total	mg/L	B-6	-0.5909	-146	-151	No	33	0	0.02
		B-8	-0.06567	-4	-125	No	29	0	0.02
		B-9	**-0.6363**	**-316**	**-151**	**Yes**	**33**	**0**	**0.02**
		B-11	-0.3036	-40	-132	No	30	0	0.02
		B-13	-3.542	-5	-17	No	7	0	0.02
Manganese, dissolved	mg/L	**B-6**	**-0.02086**	**-11.41**	**-2.33**	**Yes**	**98**	**13.27**	**0.02**
		B-8	-0.009021	-2.154	-2.33	No	90	7.778	0.02
		B-9	**-0.06345**	**-10.46**	**-2.33**	**Yes**	**93**	**18.28**	**0.02**
		B-11	**-0.0002507**	**-6.517**	**-2.33**	**Yes**	**79**	**55.7**	**0.02**
		B-13	**-0.0853**	**-8.433**	**-2.33**	**Yes**	**49**	**4.082**	**0.02**
Mercury, dissolved	mg/L	**B-6**	**0**	**-2.362**	**-2.33**	**Yes**	**95**	**98.95**	**0.02**
		B-8	0	-1.923	-2.33	No	87	98.85	0.02
		B-9	**0**	**-3.333**	**-2.33**	**Yes**	**90**	**98.89**	**0.02**
		B-11	**0**	**-3.078**	**-2.33**	**Yes**	**76**	**96.05**	**0.02**
		B-13	**0**	**-0.0792**	**-2.33**	**No**	**48**	**100**	**0.02**
Nickel, dissolved	mg/L	**B-6**	**0**	**166**	**145**	**Yes**	**32**	**56.25**	**0.02**
		B-8	-0.0002463	-83	-125	No	29	3.448	0.02
		B-9	0	138	151	No	33	36.36	0.02
		B-11	**0.00003788**	**146**	**132**	**Yes**	**30**	**40**	**0.02**
		B-13	0	-6	-17	No	7	14.29	0.02
Nitrate as nitrogen	mg/L	**B-6**	**0.04103**	**3.008**	**2.33**	**Yes**	**97**	**1.031**	**0.02**
		B-8	0	-2.212	-2.33	No	88	61.36	0.02
		B-9	0.01526	1.891	2.33	No	92	11.96	0.02
		B-11	-0.005097	-0.2024	-2.33	No	77	6.494	0.02
		B-13	**0.1105**	**4.514**	**2.33**	**Yes**	**49**	**20.41**	**0.02**
Nitrite as nitrogen	mg/L	B-6	0	-1.803	-2.33	No	97	89.69	0.02
		B-8	0	1.077	2.33	No	88	95.45	0.02
		B-9	0	-1.454	-2.33	No	92	95.65	0.02
		B-11	0	-1.41	-2.33	No	77	90.91	0.02
		B-13	0	0.8722	2.33	No	49	87.76	0.02
pH	mg/L	**B-6**	**0.0296**	**6.165**	**2.33**	**Yes**	**95**	**0**	**0.02**
		B-8	0.009028	2.065	2.33	No	91	0	0.02
		B-9	**0.01776**	**4.315**	**2.33**	**Yes**	**92**	**0**	**0.02**
		B-11	**0.01921**	**3.781**	**2.33**	**Yes**	**79**	**0**	**0.02**
		B-13	-0.01138	-1.553	-2.33	No	49	0	0.02
Potassium, total	mg/L	B-6	0	13	151	No	33	0	0.02
		B-8	-0.1734	-76	-125	No	29	0	0.02
		B-9	-0.02418	-96	-151	No	33	0	0.02
		B-11	-0.03544	-101	-132	No	30	0	0.02
		B-13	-0.3668	-9	-17	No	7	0	0.02
Selenium, dissolved	mg/L	**B-6**	**-0.0002371**	**-335**	**-151**	**Yes**	**33**	**54.55**	**0.02**
		B-8	**-0.000254**	**-287**	**-132**	**Yes**	**30**	**56.67**	**0.02**
		B-9	**-0.000211**	**-295**	**-151**	**Yes**	**33**	**27.27**	**0.02**
		B-11	**-0.0002743**	**-225**	**-132**	**Yes**	**30**	**63.33**	**0.02**
		B-13	0	0	17	No	7	100	0.02
Sodium, total	mg/L	**B-6**	**-0.4696**	**-11.06**	**-2.33**	**Yes**	**96**	**1.042**	**0.02**
		B-8	**-1.061**	**-7.406**	**-2.33**	**Yes**	**87**	**0**	**0.02**
		B-9	**-0.3513**	**-10.79**	**-2.33**	**Yes**	**91**	**0**	**0.02**
		B-11	**-0.1518**	**-6.437**	**-2.33**	**Yes**	**77**	**0**	**0.02**
		B-13	**-0.2529**	**-3.325**	**-2.33**	**Yes**	**48**	**0**	**0.02**
Specific Conductance	us/cm	**B-6**	**-13.89**	**-7.784**	**-2.33**	**Yes**	**96**	**0**	**0.02**
		B-8	**-9.251**	**-2.903**	**-2.33**	**Yes**	**90**	**0**	**0.02**
		B-9	**-11.43**	**-9.516**	**-2.33**	**Yes**	**93**	**0**	**0.02**
		B-11	**-7.306**	**-4.06**	**-2.33**	**Yes**	**80**	**0**	**0.02**
		B-13	**-10.07**	**-2.854**	**-2.33**	**Yes**	**49**	**0**	**0.02**
Sulfate	mg/L	**B-6**	**-1.832**	**-9.824**	**-2.33**	**Yes**	**97**	**2.062**	**0.02**
		B-8	**-0.9218**	**-3.658**	**-2.33**	**Yes**	**89**	**1.124**	**0.02**
		B-9	**-1.341**	**-9.818**	**-2.33**	**Yes**	**92**	**1.087**	**0.02**
		B-11	**-0.9017**	**-4.651**	**-2.33**	**Yes**	**77**	**0**	**0.02**
		B-13	0.1125	1.693	2.33	No	49	0	0.02

Long-Term Mann-Kendall Trend Tests 1994-2017
Perched Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Alpha
Tetrachloroethene	ug/L	**B-6**	**0**	**-6.021**	**-2.33**	**Yes**	**92**	**98.91**	**0.02**
		B-8	**0**	**-5.826**	**-2.33**	**Yes**	**85**	**100**	**0.02**
		B-9	**0**	**-6.058**	**-2.33**	**Yes**	**89**	**100**	**0.02**
		B-11	**0**	**-6.551**	**-2.33**	**Yes**	**74**	**97.3**	**0.02**
		B-13	-0.005198	-0.6335	-2.33	No	52	19.23	0.02
Tetrahydrofuran	ug/L	**B-6**	**0**	**6.489**	**2.33**	**Yes**	**60**	**98.33**	**0.02**
		B-8	**0**	**5.692**	**2.33**	**Yes**	**58**	**98.28**	**0.02**
		B-9	**0**	**6.309**	**2.33**	**Yes**	**59**	**100**	**0.02**
		B-11	**0**	**4.872**	**2.33**	**Yes**	**45**	**97.78**	**0.02**
		B-13	**0**	**209**	**132**	**Yes**	**30**	**100**	**0.02**
Toluene	ug/L	**B-6**	**0**	**-5.858**	**-2.33**	**Yes**	**92**	**98.91**	**0.02**
		B-8	**0**	**-3.735**	**-2.33**	**Yes**	**85**	**91.76**	**0.02**
		B-9	**0**	**-5.884**	**-2.33**	**Yes**	**88**	**100**	**0.02**
		B-11	**0**	**-6.451**	**-2.33**	**Yes**	**74**	**98.65**	**0.02**
		B-13	**0**	**-4.126**	**-2.33**	**Yes**	**52**	**100**	**0.02**
Total Dissolved Solids	mg/L	B-6	-2.49	-98	-151	No	33	0	0.02
		B-8	-7.339	-58	-125	No	29	0	0.02
		B-9	**-4.445**	**-248**	**-151**	**Yes**	**33**	**0**	**0.02**
		B-11	-1.481	-29	-125	No	29	0	0.02
		B-13	-26.42	-14	-17	No	7	0	0.02
Total Organic Carbon	mg/L	**B-6**	**-0.1452**	**-9.216**	**-2.33**	**Yes**	**98**	**1.02**	**0.02**
		B-8	-0.08235	-1.074	-2.33	No	90	0	0.02
		B-9	**-0.04926**	**-5.328**	**-2.33**	**Yes**	**93**	**0**	**0.02**
		B-11	**-0.01771**	**-2.702**	**-2.33**	**Yes**	**79**	**3.797**	**0.02**
		B-13	**-0.1997**	**-5.3**	**-2.33**	**Yes**	**49**	**2.041**	**0.02**
Trichloroethene	ug/L	**B-6**	**0**	**-6.021**	**-2.33**	**Yes**	**92**	**98.91**	**0.02**
		B-8	**0**	**-5.826**	**-2.33**	**Yes**	**85**	**100**	**0.02**
		B-9	**0**	**-6.058**	**-2.33**	**Yes**	**89**	**100**	**0.02**
		B-11	**0**	**-6.551**	**-2.33**	**Yes**	**74**	**97.3**	**0.02**
		B-13	**-0.05592**	**-2.828**	**-2.33**	**Yes**	**52**	**13.46**	**0.02**
Trichlorofluoromethane (CFC-11)	ug/L	**B-6**	**0**	**-6.021**	**-2.33**	**Yes**	**92**	**97.83**	**0.02**
		B-8	**0**	**-5.826**	**-2.33**	**Yes**	**85**	**100**	**0.02**
		B-9	0	-0.5924	-2.33	No	89	28.09	0.02
		B-11	**0**	**-6.629**	**-2.33**	**Yes**	**74**	**98.65**	**0.02**
		B-13	**0**	**-3.29**	**-2.33**	**Yes**	**52**	**80.77**	**0.02**
Vanadium, dissolved	mg/L	**B-6**	**-0.0003625**	**-284**	**-151**	**Yes**	**33**	**3.03**	**0.02**
		B-8	**-0.0007505**	**-187**	**-132**	**Yes**	**30**	**13.33**	**0.02**
		B-9	**-0.0001997**	**-217**	**-151**	**Yes**	**33**	**6.061**	**0.02**
		B-11	**-0.0002743**	**-222**	**-132**	**Yes**	**30**	**6.667**	**0.02**
		B-13	-0.0008239	-7	-17	No	7	14.29	0.02
Vinyl chloride	ug/L	**B-6**	0	-5.917	-2.33	Yes	92	94.57	0.02
		B-8	0	-0.2039	-2.33	No	84	47.62	0.02
		B-9	**-0.0004198**	**-8.158**	**-2.33**	**Yes**	**90**	**78.89**	**0.02**
		B-11	**0**	**-6.408**	**-2.33**	**Yes**	**74**	**95.95**	**0.02**
		B-13	**-0.02876**	**-6.449**	**-2.33**	**Yes**	**52**	**61.54**	**0.02**
Zinc, dissolved	mg/L	**B-6**	**-0.0002081**	**-6.623**	**-2.33**	**Yes**	**98**	**53.06**	**0.02**
		B-8	**-0.000194**	**-5.6**	**-2.33**	**Yes**	**90**	**52.22**	**0.02**
		B-9	**-0.0001566**	**-3.807**	**-2.33**	**Yes**	**93**	**49.46**	**0.02**
		B-11	**-0.0001943**	**-5.651**	**-2.33**	**Yes**	**79**	**53.16**	**0.02**
		B-13	**-0.0004127**	**-2.964**	**-2.33**	**Yes**	**49**	**46.94**	**0.02**

Short-Term Mann-Kendall Trend Tests 2013-2017
Perched Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Alpha
1,1-dichloroethane	ug/L	B-6	0	12	68	No	19	94.74	0.02
		B-8	0	0	53	No	16	100	0.02
		B-9	0	0	63	No	18	100	0.02
		B-11	0	15	53	No	16	93.75	0.02
1,2-dichloroethane	ug/L	B-6	0	12	68	No	19	94.74	0.02
		B-8	0	0	53	No	16	100	0.02
		B-9	0	0	63	No	18	100	0.02
		B-11	0	15	53	No	16	93.75	0.02
Acetone	ug/L	B-6	0	12	68	No	19	94.74	0.02
		B-8	0	2	53	No	16	81.25	0.02
		B-9	0	0	63	No	18	100	0.02
		B-11	0	15	53	No	16	93.75	0.02
Alkalinity	mg/L	**B-6**	**-9.346**	**-72**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-8	-9.853	-16	-53	No	16	0	0.02
		B-9	-3.685	-54	-68	No	19	0	0.02
		B-11	-0.2503	-4	-53	No	16	0	0.02
Ammonia as nitrogen	mg/L	**B-6**	**-0.002497**	**-77**	**-68**	**Yes**	**19**	**47.37**	**0.02**
		B-8	-0.002338	-4	-53	No	16	18.75	0.02
		B-9	-0.001523	-47	-68	No	19	52.63	0.02
		B-11	0	-32	-53	No	16	75	0.02
Antimony, dissolved	mg/L	B-6	-0.00001086	-37	-68	No	19	26.32	0.02
		B-8	-0.00003321	-21	-48	No	15	40	0.02
		B-9	-0.000004011	-48	-68	No	19	47.37	0.02
		B-11	0	1	53	No	16	81.25	0.02
Arsenic, dissolved	mg/L	B-6	0	-3	-68	No	19	15.79	0.02
		B-8	0.0001136	22	53	No	16	6.25	0.02
		B-9	**-0.00003085**	**-80**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-11	0	17	53	No	16	6.25	0.02
Barium, dissolved	mg/L	**B-6**	**-0.001235**	**-69**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-8	-0.0007617	-4	-53	No	16	0	0.02
		B-9	0	-31	-68	No	19	0	0.02
		B-11	0	2	53	No	16	0	0.02
Bicarbonate	mg/L	**B-6**	**-10.11**	**-74**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-8	-9.853	-16	-53	No	16	0	0.02
		B-9	-4.776	-68	-68	No	19	0	0.02
		B-11	-0.2503	-4	-53	No	16	0	0.02
Cadmium, dissolved	mg/L	B-6	-0.00002173	-66	-68	No	19	57.89	0.02
		B-8	-0.00002412	-40	-48	No	15	66.67	0.02
		B-9	-0.00001372	-62	-68	No	19	63.16	0.02
		B-11	0	-9	-53	No	16	75	0.02
Chemical Oxygen Demand	mg/L	B-6	0	-7	-68	No	19	47.37	0.02
		B-8	-4.663	-37	-53	No	16	6.25	0.02
		B-9	0	-6	-68	No	19	68.42	0.02
		B-11	0	24	53	No	16	62.5	0.02
Chloride	mg/L	B-6	-0.3706	-56	-68	No	19	0	0.02
		B-8	**-1.042**	**-73**	**-53**	**Yes**	**16**	**0**	**0.02**
		B-9	-0.09991	-48	-68	No	19	0	0.02
		B-11	**-0.1642**	**-62**	**-53**	**Yes**	**16**	**0**	**0.02**
Chlorodifluoromethane (Freon 22)	ug/L	B-6	0	17	68	No	19	94.74	0.02
		B-8	0	-30	-53	No	16	62.5	0.02
		B-9	0	0	63	No	18	100	0.02
		B-11	0	15	53	No	16	93.75	0.02
Chloroethane	ug/L	B-6	0	12	68	No	19	94.74	0.02
		B-8	0	0	53	No	16	100	0.02
		B-9	0	0	63	No	18	100	0.02
		B-11	0	15	53	No	16	93.75	0.02
Chromium, dissolved	mg/L	B-6	0	10	68	No	19	15.79	0.02
		B-8	**-0.0001558**	**-54**	**-53**	**Yes**	**16**	**0**	**0.02**
		B-9	0	-45	-68	No	19	0	0.02
		B-11	0	14	53	No	16	6.25	0.02

Short-Term Mann-Kendall Trend Tests 2013-2017
Perched Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Alpha
cis-1,2-dichloroethene	ug/L	B-6	0	12	68	No	19	94.74	0.02
		B-8	0	0	53	No	16	100	0.02
		B-9	0	0	63	No	18	100	0.02
		B-11	0	15	53	No	16	93.75	0.02
Cobalt, dissolved	mg/L	B-6	-0.000009986	-56	-68	No	19	52.63	0.02
		B-8	-0.00007935	-17	-48	No	15	6.667	0.02
		B-9	-0.00001209	-50	-68	No	19	47.37	0.02
		B-11	0	-13	-53	No	16	62.5	0.02
Copper, dissolved	mg/L	**B-6**	**-0.0001354**	**-70**	**-68**	**Yes**	**19**	**21.05**	**0.02**
		B-8	-0.0004207	-41	-53	No	16	6.25	0.02
		B-9	0	-6	-68	No	19	21.05	0.02
		B-11	0	7	53	No	16	18.75	0.02
Dichlorodifluoromethane (CFC-12)	ug/L	B-6	0	12	68	No	19	94.74	0.02
		B-8	0	0	53	No	16	100	0.02
		B-9	**-0.1134**	**-73**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-11	0	15	53	No	16	93.75	0.02
Dichloromonofluoromethane (Freon 21)	ug/L	B-6	0	12	68	No	19	94.74	0.02
		B-8	0	-5	-53	No	16	75	0.02
		B-9	0	0	63	No	18	100	0.02
		B-11	0	15	53	No	16	93.75	0.02
Diethyl ether	ug/L	B-6	0	12	68	No	19	94.74	0.02
		B-8	0	1	53	No	16	43.75	0.02
		B-9	0	0	63	No	18	100	0.02
		B-11	0	15	53	No	16	93.75	0.02
Iron, dissolved	mg/L	B-6	0	-3	-68	No	19	89.47	0.02
		B-8	0.1216	13	53	No	16	18.75	0.02
		B-9	0	16	68	No	19	94.74	0.02
		B-11	0	15	53	No	16	93.75	0.02
Lead, dissolved	mg/L	B-6	0	-30	-68	No	19	89.47	0.02
		B-8	0	-9	-48	No	15	86.67	0.02
		B-9	0	-41	-68	No	19	73.68	0.02
		B-11	0	-19	-53	No	16	93.75	0.02
Magnesium, dissolved	mg/L	B-6	-1.307	-66	-68	No	19	0	0.02
		B-8	-1.271	-18	-53	No	16	0	0.02
		B-9	**-0.4712**	**-72**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-11	0.05559	6	53	No	16	0	0.02
Manganese	mg/L	**B-6**	**-0.0001596**	**-97**	**-68**	**Yes**	**19**	**15.79**	**0.02**
		B-8	-0.006134	-6	-53	No	16	0	0.02
		B-9	-0.00009959	-38	-68	No	19	26.32	0.02
		B-11	0	35	53	No	16	68.75	0.02
Mercury, dissolved	mg/L	B-6	0	12	68	No	19	94.74	0.02
		B-8	0	0	48	No	15	100	0.02
		B-9	0	0	68	No	19	100	0.02
		B-11	0	15	53	No	16	93.75	0.02
Nickel, dissolved	mg/L	B-6	0.00005615	39	68	No	19	31.58	0.02
		B-8	-0.0004919	-16	-48	No	15	6.667	0.02
		B-9	0	4	68	No	19	10.53	0.02
		B-11	0.0001143	34	53	No	16	12.5	0.02
Nitrate as nitrogen	mg/L	B-6	0.1041	32	68	No	19	0	0.02
		B-8	0	2	53	No	16	56.25	0.02
		B-9	0.08295	27	68	No	19	0	0.02
		B-11	0.2143	27	53	No	16	0	0.02
Nitrite as nitrogen	mg/L	B-6	0	12	68	No	19	94.74	0.02
		B-8	0	0	53	No	16	100	0.02
		B-9	0	0	68	No	19	100	0.02
		B-11	0	3	53	No	16	93.75	0.02
pH	pH units	B-6	-0.04011	-15	-68	No	19	0	0.02
		B-8	-0.3606	-20	-53	No	16	0	0.02
		B-9	-0.01977	-8	-68	No	19	0	0.02
		B-11	-0.1247	-24	-53	No	16	0	0.02
Potassium	mg/L	B-6	-0.08608	-55	-68	No	19	0	0.02
		B-8	-0.3236	-25	-53	No	16	0	0.02
		B-9	0.06447	51	68	No	19	0	0.02
		B-11	0	0	53	No	16	0	0.02

Short-Term Mann-Kendall Trend Tests 2013-2017
Perched Aquifer

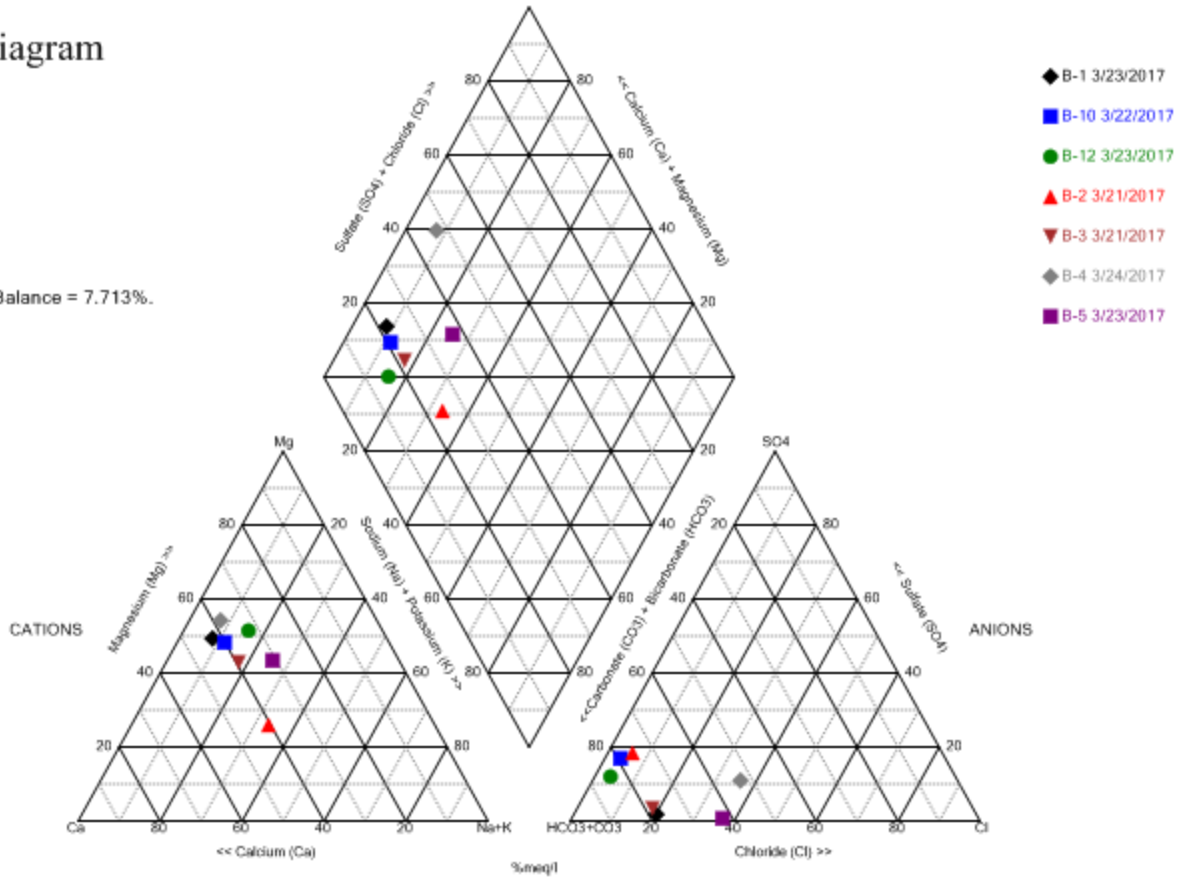
Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Alpha
Selenium, dissolved	mg/L	**B-6**	**-0.00008848**	**-66**	**-68**	**No**	**19**	**21.05**	**0.02**
		B-8	**-0.0001407**	**-60**	**-53**	**Yes**	**16**	**18.75**	**0.02**
		B-9	**-0.0002022**	**-79**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-11	0	-12	-53	No	16	31.25	0.02
Specific Conductance	us/cm	B-6	-24.2	-73	-68	Yes	19	0	0.02
		B-8	16.11	10	53	No	16	0	0.02
		B-9	-8.283	-85	-68	Yes	19	0	0.02
		B-11	2.177	9	53	No	16	0	0.02
Sulfate	mg/L	B-6	0.1489	15	68	No	19	0	0.02
		B-8	-0.4588	-5	-53	No	16	6.25	0.02
		B-9	-0.7612	-53	-68	No	19	0	0.02
		B-11	-0.3954	-20	-53	No	16	0	0.02
Tetrachloroethene	ug/L	B-6	0	12	68	No	19	94.74	0.02
		B-8	0	0	53	No	16	100	0.02
		B-9	0	0	63	No	18	100	0.02
		B-11	0	15	53	No	16	93.75	0.02
Tetrahydrofuran	ug/L	B-6	0	12	68	No	19	94.74	0.02
		B-8	0	0	53	No	16	100	0.02
		B-9	0	0	63	No	18	100	0.02
		B-11	0	15	53	No	16	93.75	0.02
Calcium, total	mg/L	**B-6**	**-3.036**	**-78**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-8	**-5.29**	**-54**	**-53**	**Yes**	**16**	**0**	**0.02**
		B-9	**-0.7993**	**-72**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-11	-0.7865	-14	-53	No	16	0	0.02
Toluene	ug/L	B-6	0	12	68	No	19	94.74	0.02
		B-8	0	-11	-53	No	16	87.5	0.02
		B-9	0	0	63	No	18	100	0.02
		B-11	0	15	53	No	16	93.75	0.02
Total Dissolved Solids	mg/L	B-6	-7.755	-51	-68	No	19	0	0.02
		B-8	-11.96	-20	-53	No	16	0	0.02
		B-9	**-4.776**	**-71**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-11	-0.7763	-4	-53	No	16	0	0.02
Total Organic Carbon	mg/L	B-6	0	1	68	No	19	0	0.02
		B-8	-1.629	-32	-53	No	16	0	0.02
		B-9	0.02777	23	68	No	19	0	0.02
		B-11	0.006309	7	53	No	16	0	0.02
Sodium, total	mg/L	**B-6**	**-0.1586**	**-84**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-8	-1.457	-42	-53	No	16	0	0.02
		B-9	**-0.364**	**-114**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-11	-0.1513	-24	-53	No	16	0	0.02
Trichloroethene	ug/L	B-6	0	12	68	No	19	94.74	0.02
		B-8	0	0	53	No	16	100	0.02
		B-9	0	0	63	No	18	100	0.02
		B-11	0	15	53	No	16	93.75	0.02
Trichlorofluoromethane (CFC-11)	ug/L	B-6	0	12	68	No	19	94.74	0.02
		B-8	0	0	53	No	16	100	0.02
		B-9	0	-23	-63	No	18	38.89	0.02
		B-11	0	15	53	No	16	93.75	0.02
Vanadium, dissolved	mg/L	B-6	0	-23	-68	No	19	0	0.02
		B-8	0	10	53	No	16	12.5	0.02
		B-9	0	33	68	No	19	5.263	0.02
		B-11	0	-29	-53	No	16	0	0.02
Vinyl chloride	ug/L	B-6	0	34	68	No	19	94.74	0.02
		B-8	0	-19	-53	No	16	43.75	0.02
		B-9	0	12	68	No	19	100	0.02
		B-11	0	15	53	No	16	93.75	0.02
Zinc, dissolved	mg/L	**B-6**	**-0.000262**	**-89**	**-68**	**Yes**	**19**	**21.05**	**0.02**
		B-8	-0.0002576	-37	-53	No	16	18.75	0.02
		B-9	0	-2	-68	No	19	10.53	0.02
		B-11	-0.0003188	-42	-53	No	16	25	0.02

APPENDIX E-1:
Piper Diagrams 2017 – Upper Regional Aquifer

WQStat Plus™ v.9.4.41

Piper Diagram

Cation-Anion Balance = 7.713%.

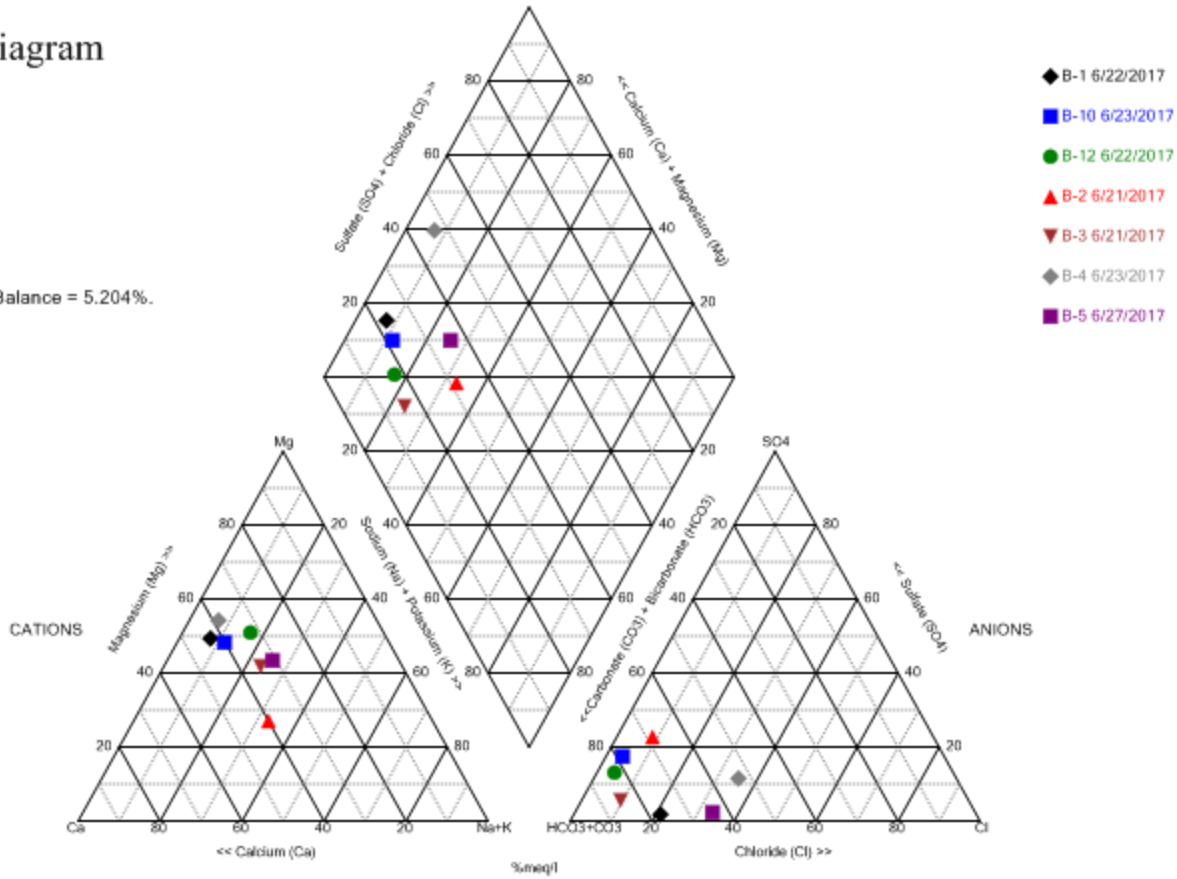


Analysis Run 2/28/2018 11:49 AM

Facility: Inman Landfill Data File: inman_regional_inorganic_(1994-2017)

Piper Diagram

Cation-Anion Balance = 5.204%.



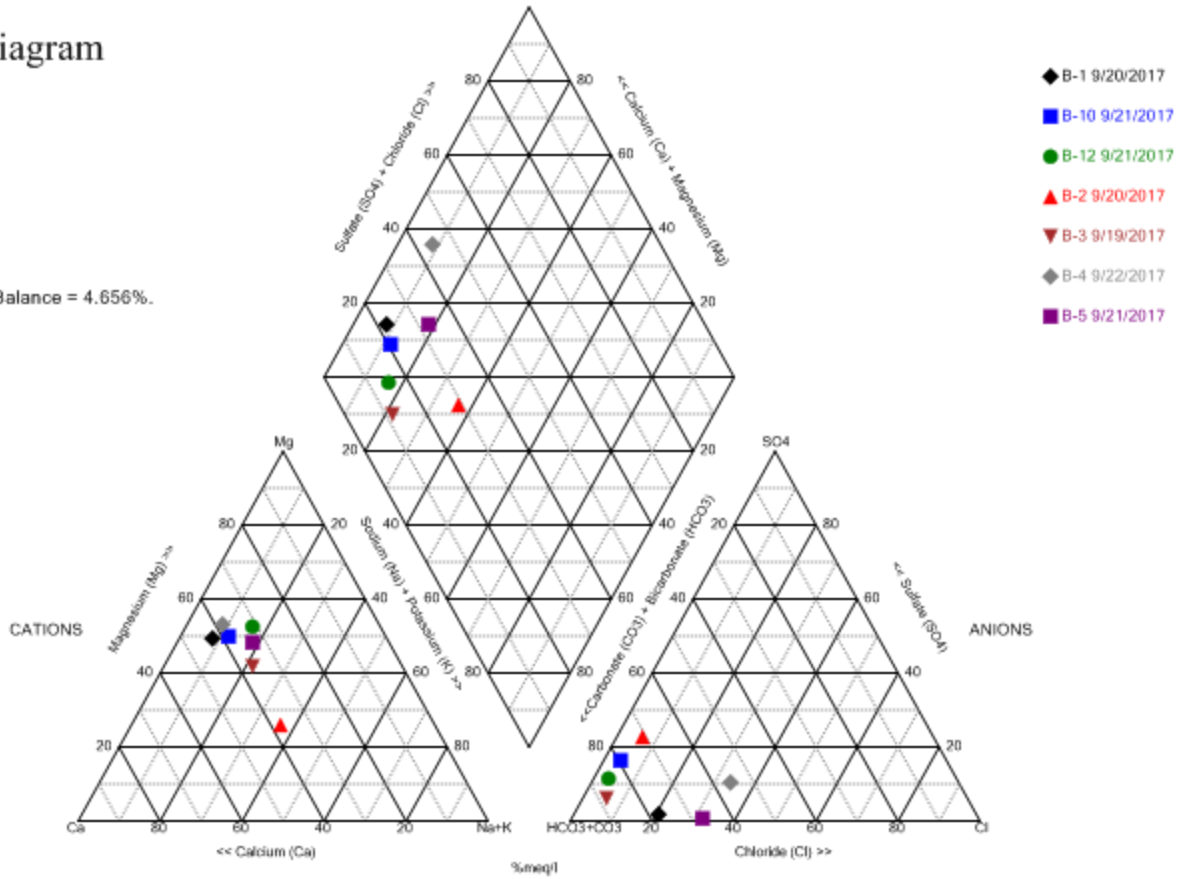
Analysis Run 2/28/2018 11:49 AM

Facility: Inman Landfill Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

Piper Diagram

Cation-Anion Balance = 4.656%.



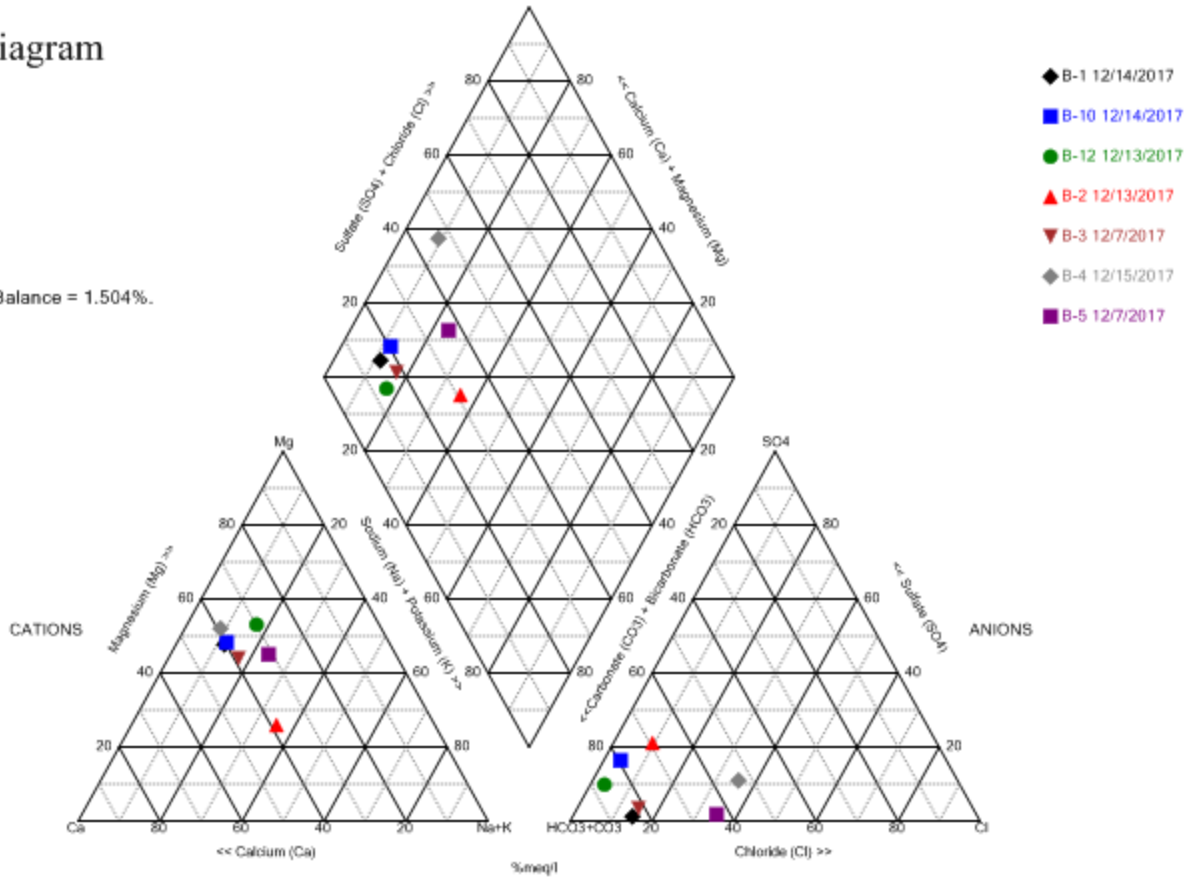
Analysis Run 2/28/2018 11:50 AM

Facility: Inman Landfill Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

Piper Diagram

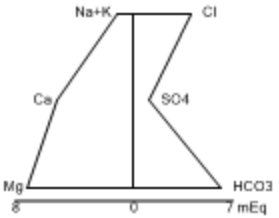
Cation-Anion Balance = 1.504%.



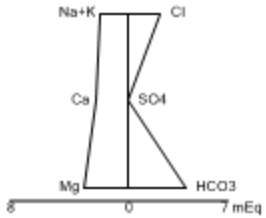
Analysis Run 2/28/2018 11:50 AM

Facility: Inman Landfill Data File: inman_regional_inorganic_(1994-2017)

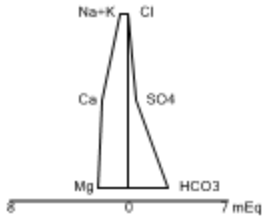
APPENDIX E-2:
Stiff Diagrams 2017 – Upper Regional Aquifer



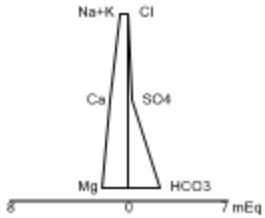
B-4 3/24/2017



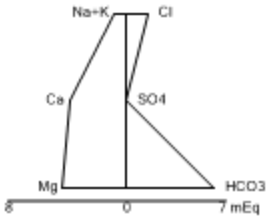
B-5 3/23/2017



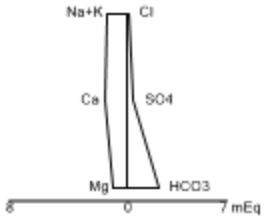
B-10 3/22/2017



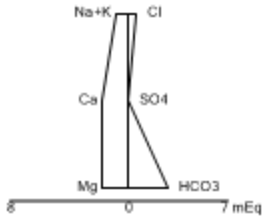
B-12 3/23/2017



B-1 3/23/2017



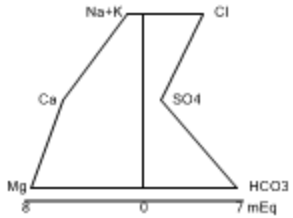
B-2 3/21/2017



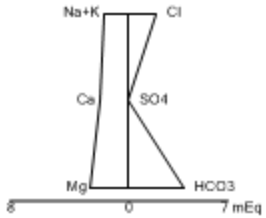
B-3 3/21/2017

Stiff Diagram Analysis Run 2/28/2018 9:23 AM

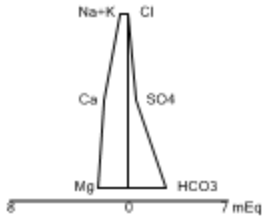
Facility: Inman Landfill Data File: inman_regional_inorganic_(1994-2017)



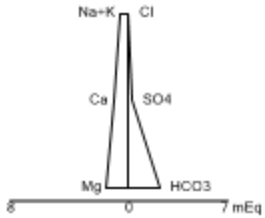
B-4 6/23/2017



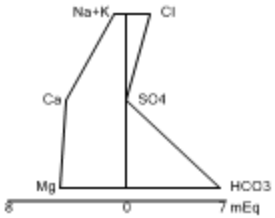
B-5 6/27/2017



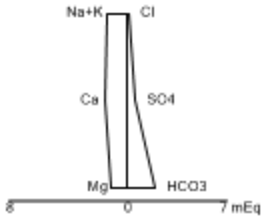
B-10 6/23/2017



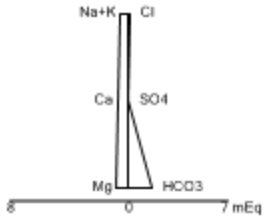
B-12 6/22/2017



B-1 6/22/2017



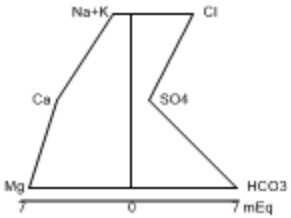
B-2 6/21/2017



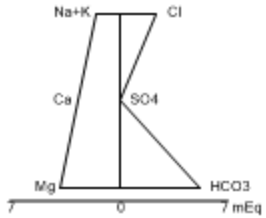
B-3 6/21/2017

Stiff Diagram Analysis Run 2/28/2018 9:23 AM

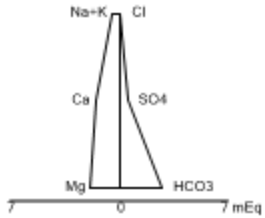
Facility: Inman Landfill Data File: inman_regional_inorganic_(1994-2017)



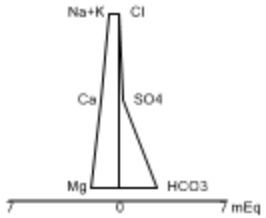
B-4 9/22/2017



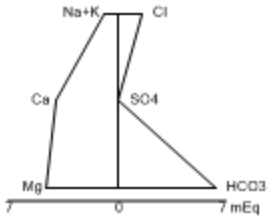
B-5 9/21/2017



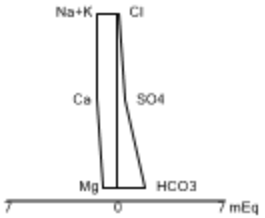
B-10 9/21/2017



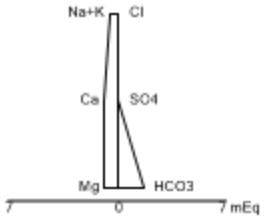
B-12 9/21/2017



B-1 9/20/2017



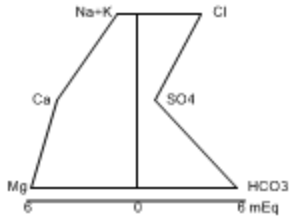
B-2 9/20/2017



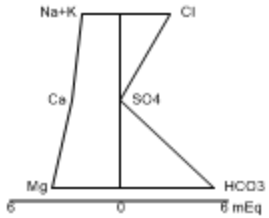
B-3 9/19/2017

Stiff Diagram Analysis Run 2/28/2018 9:24 AM

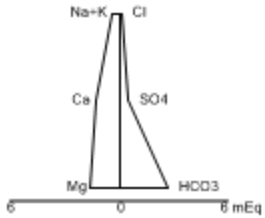
Facility: Inman Landfill Data File: inman_regional_inorganic_(1994-2017)



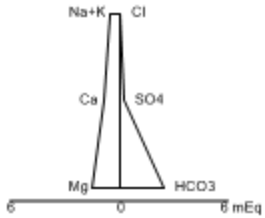
B-4 12/15/2017



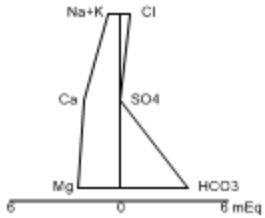
B-5 12/7/2017



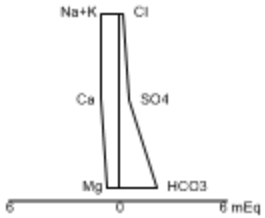
B-10 12/14/2017



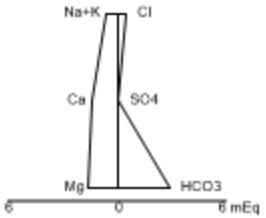
B-12 12/13/2017



B-1 12/14/2017



B-2 12/13/2017



B-3 12/7/2017

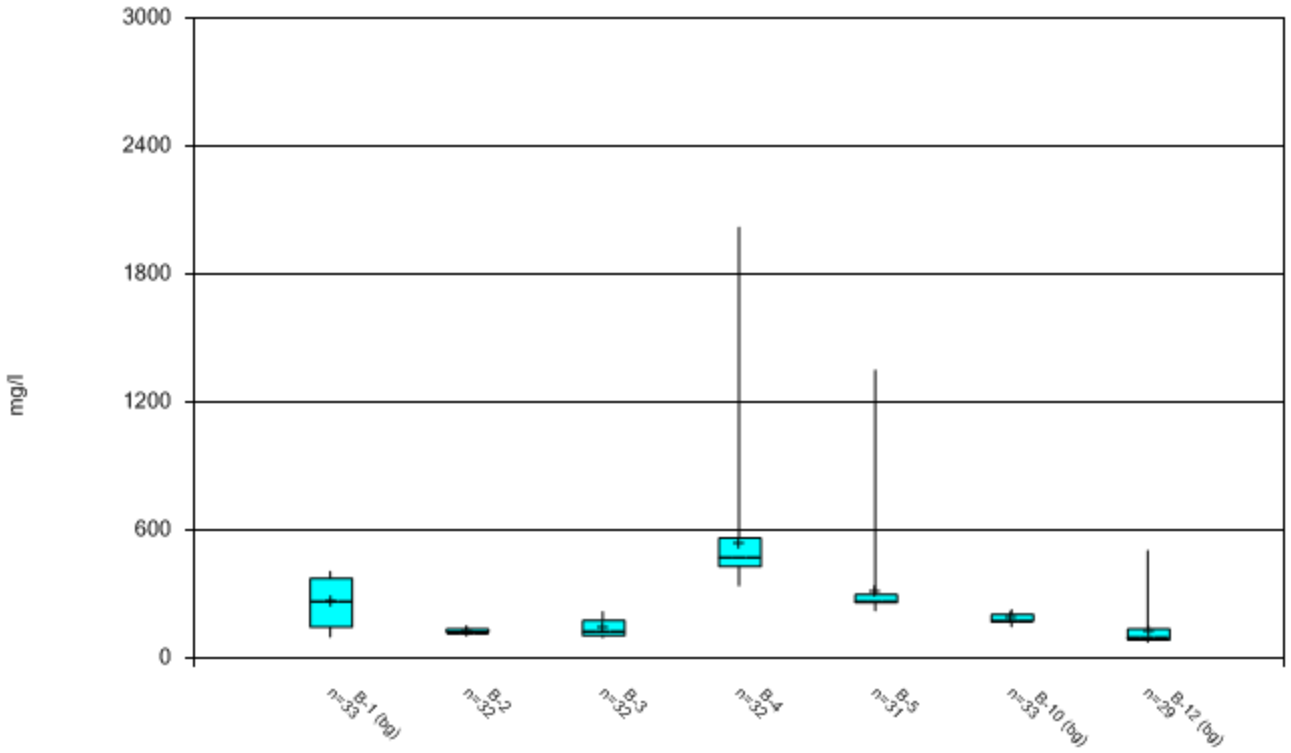
Stiff Diagram Analysis Run 2/28/2018 9:24 AM

Facility: Inman Landfill Data File: inman_regional_inorganic_(1994-2017)

APPENDIX E-3:
Box Plots 1994-2017 – Upper Regional Aquifer

WQStat Plus™ v.9.4.41

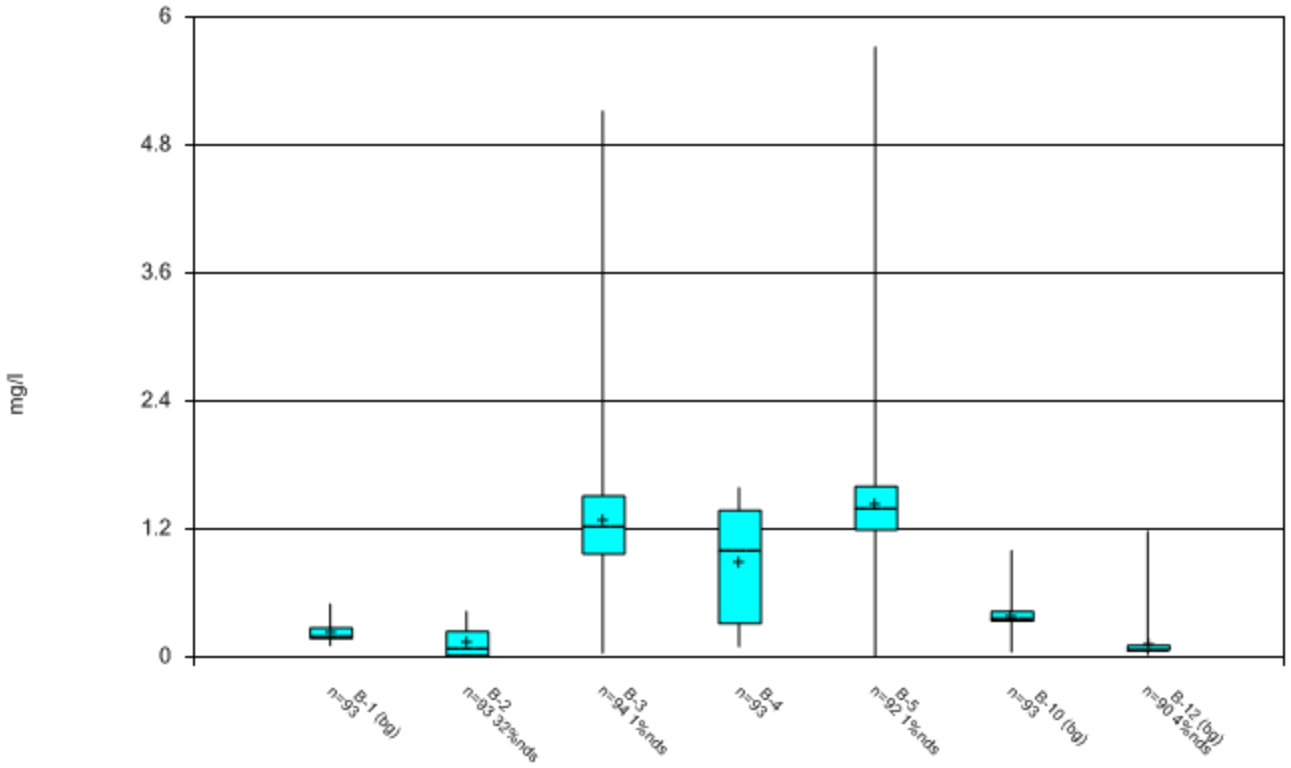
Box & Whiskers Plot



Constituent: Alkalinity Analysis Run 3/5/2018 9:50 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

Box & Whiskers Plot

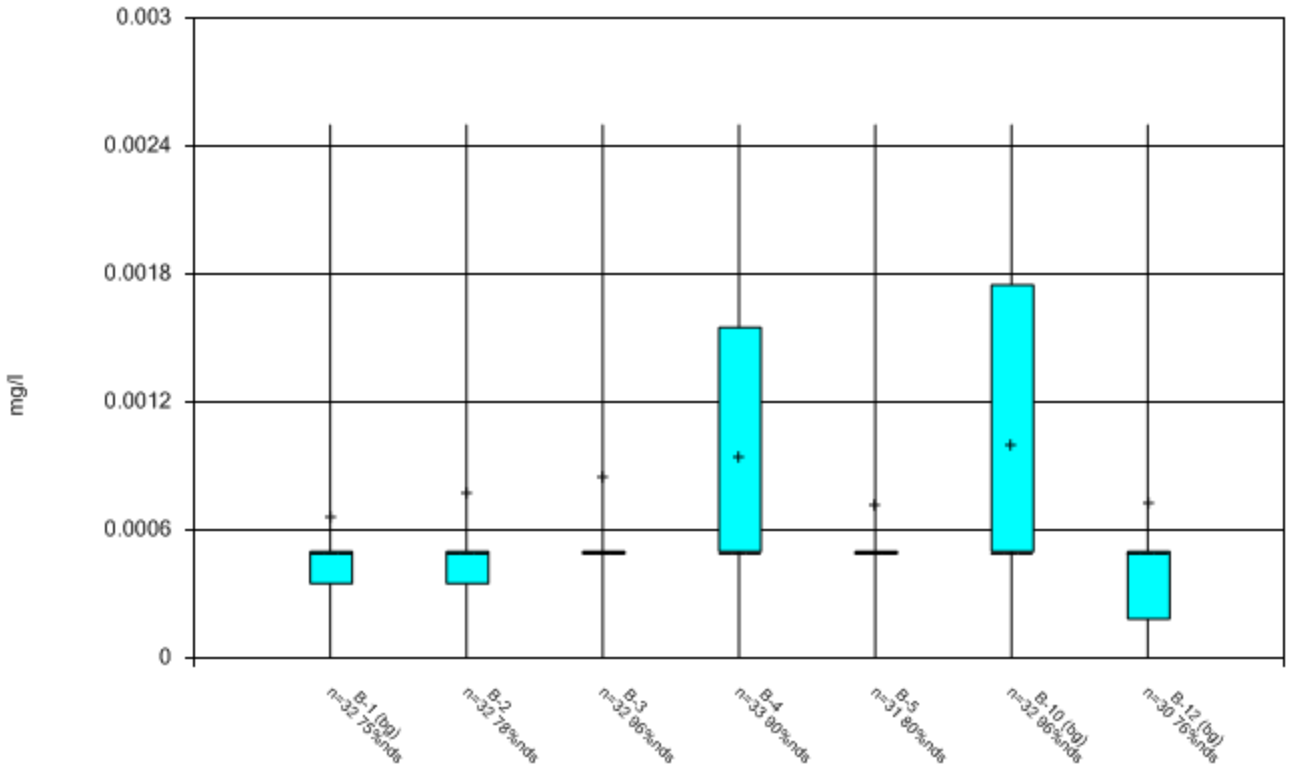


Constituent: Ammonia as nitrogen Analysis Run 3/5/2018 9:52 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

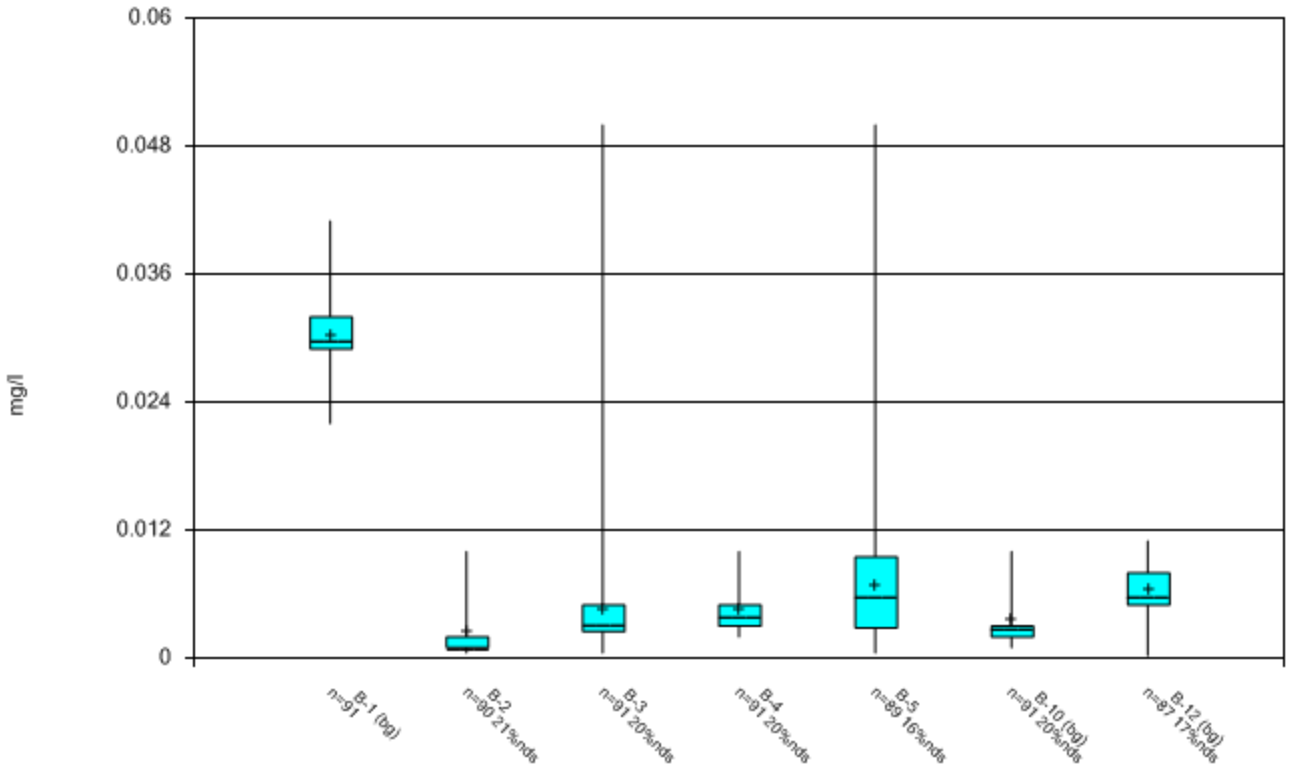


Constituent: ANTIMONY Analysis Run 3/5/2018 9:53 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

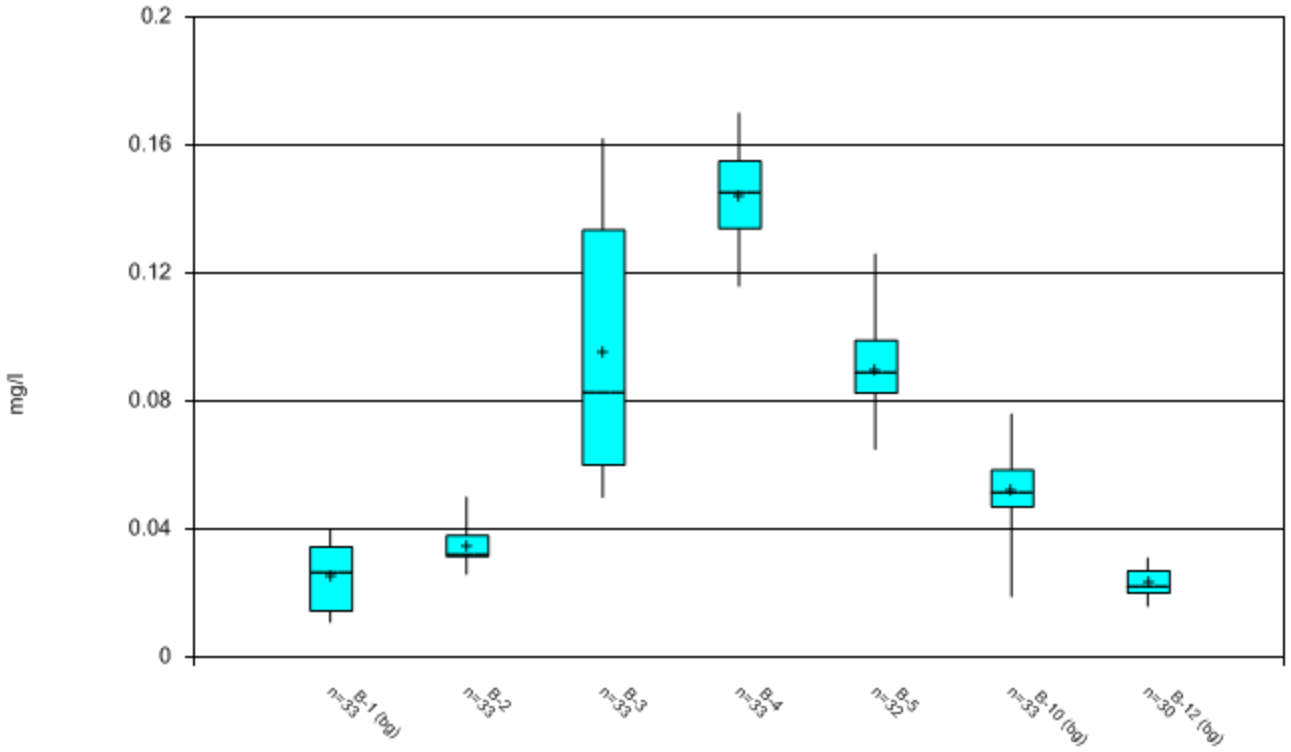


Constituent: Arsenic Analysis Run 3/5/2018 9:53 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

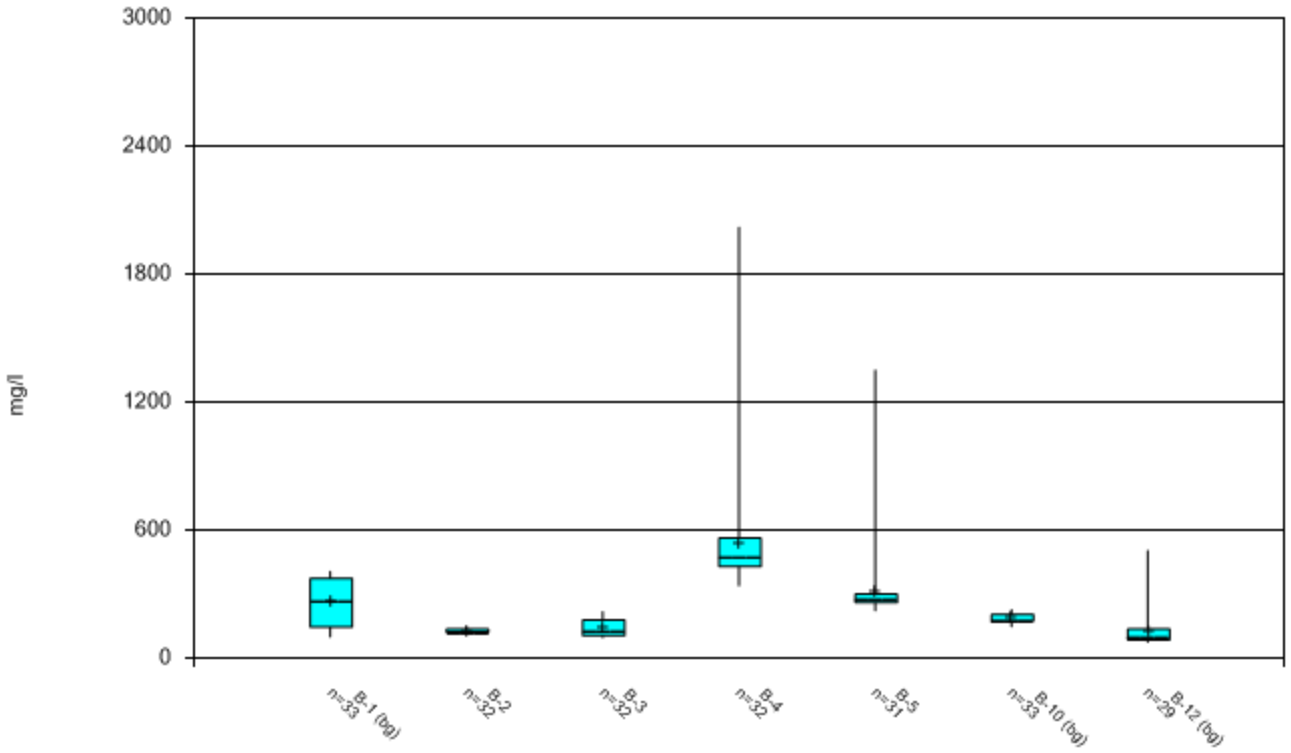


Constituent: BARIUM Analysis Run 3/5/2018 9:54 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

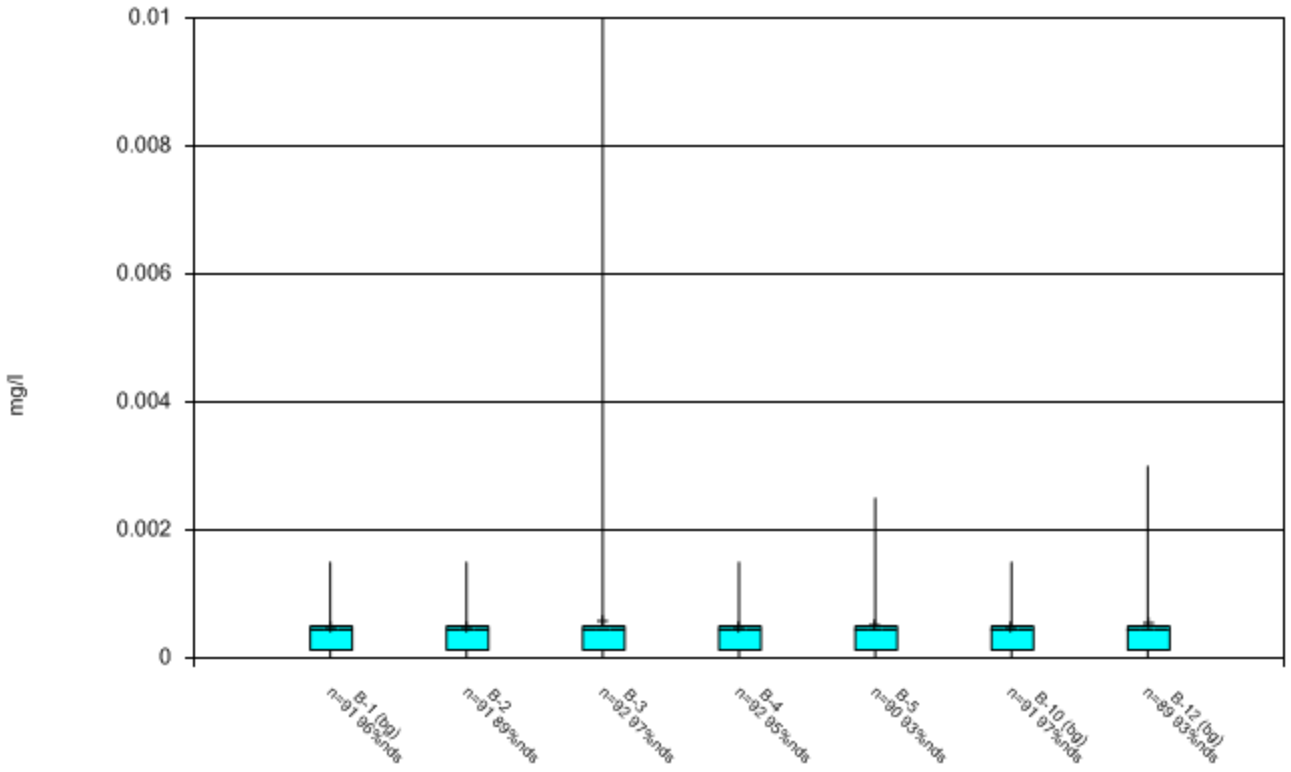


Constituent: Bicarbonate Analysis Run 3/5/2018 9:54 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

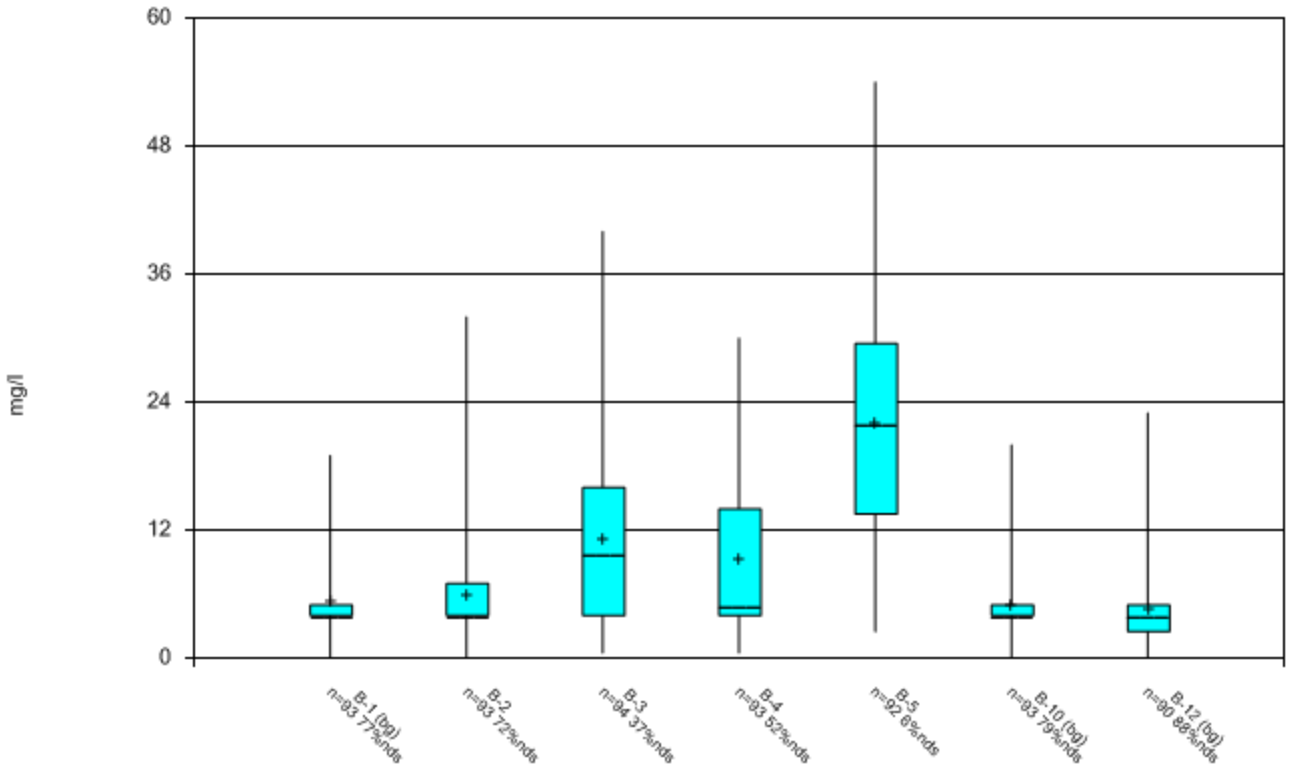


Constituent: Cadmium Analysis Run 3/5/2018 9:55 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

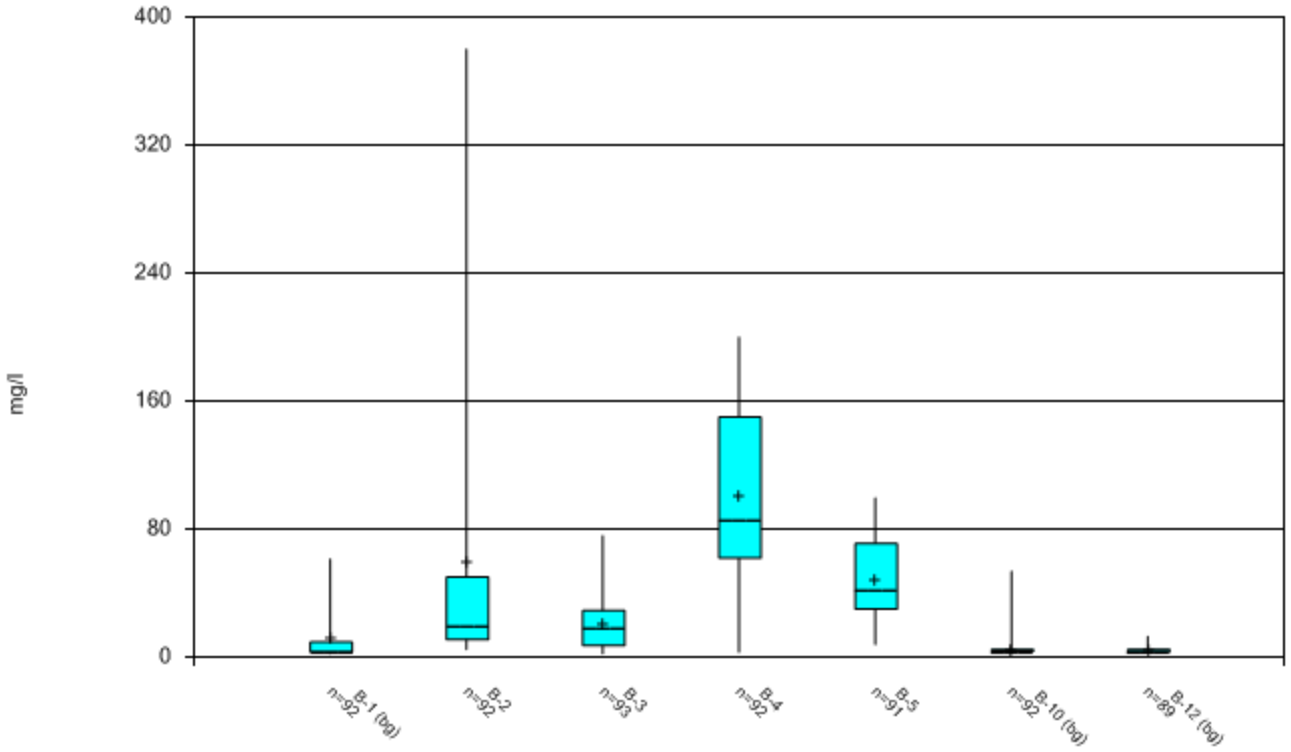


Constituent: Chemical Oxygen Demand Analysis Run 3/5/2018 9:55 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

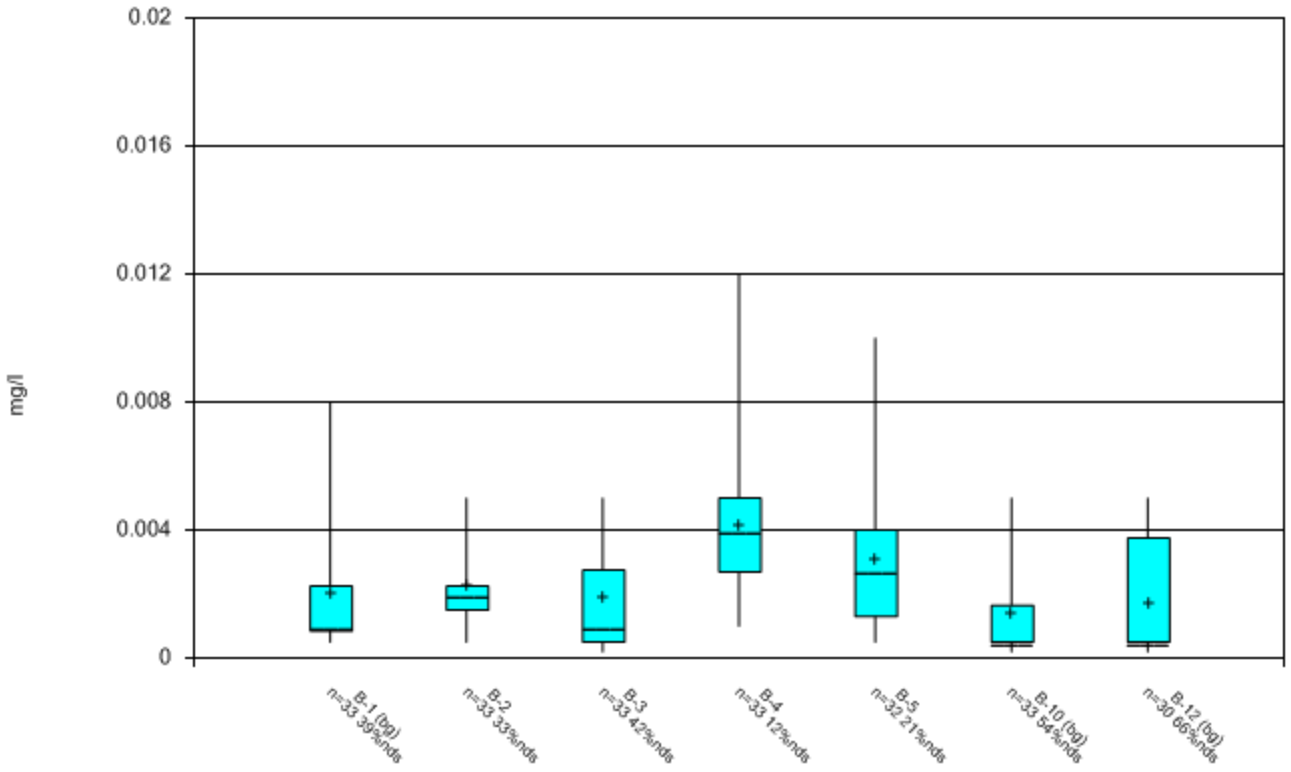


Constituent: Chloride Analysis Run 3/5/2018 9:56 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

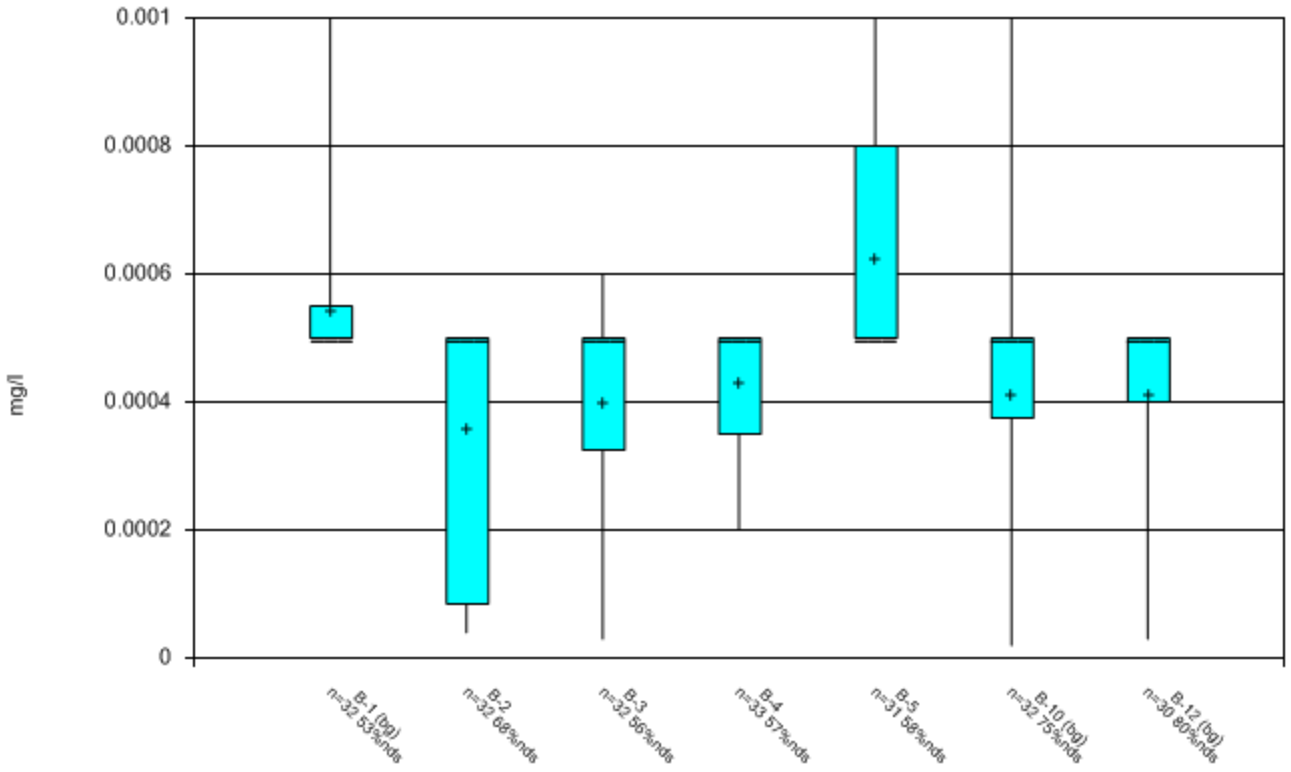


Constituent: Chromium Analysis Run 3/5/2018 9:56 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

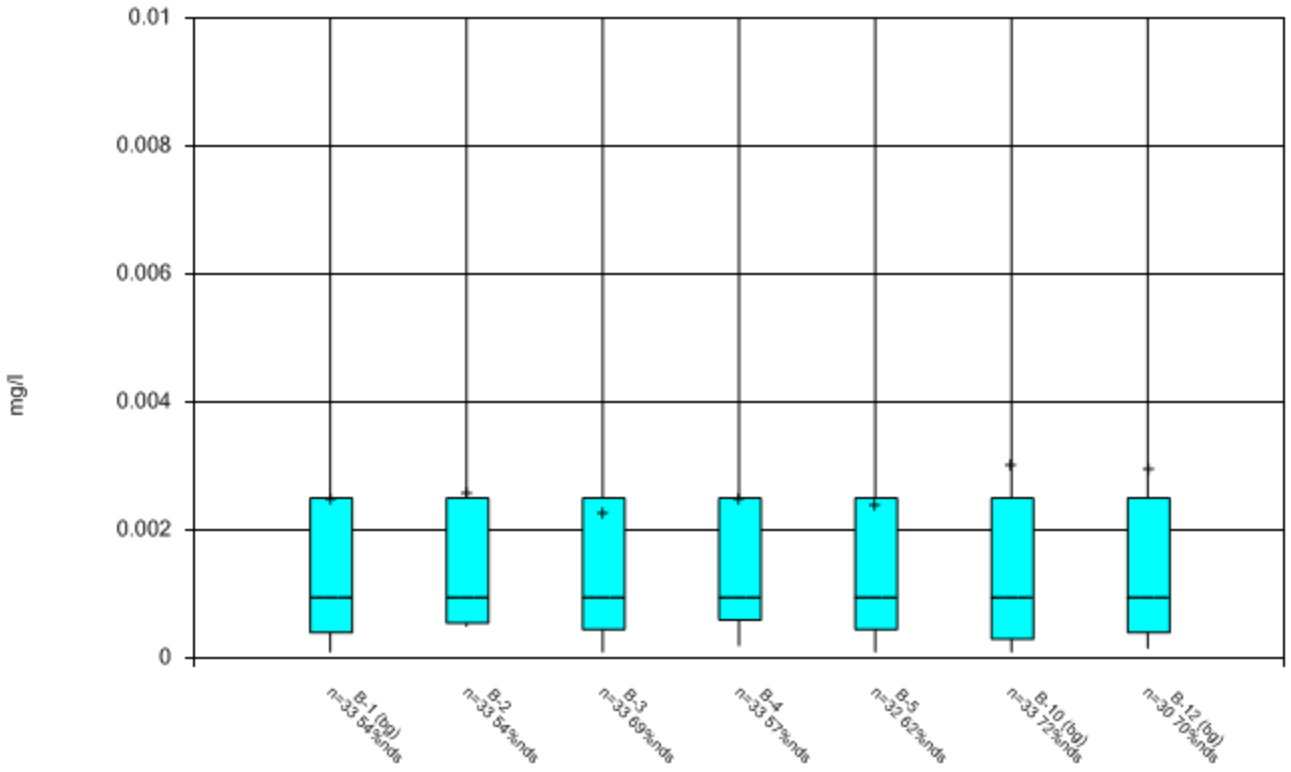
Box & Whiskers Plot



Constituent: COBALT Analysis Run 3/5/2018 9:57 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

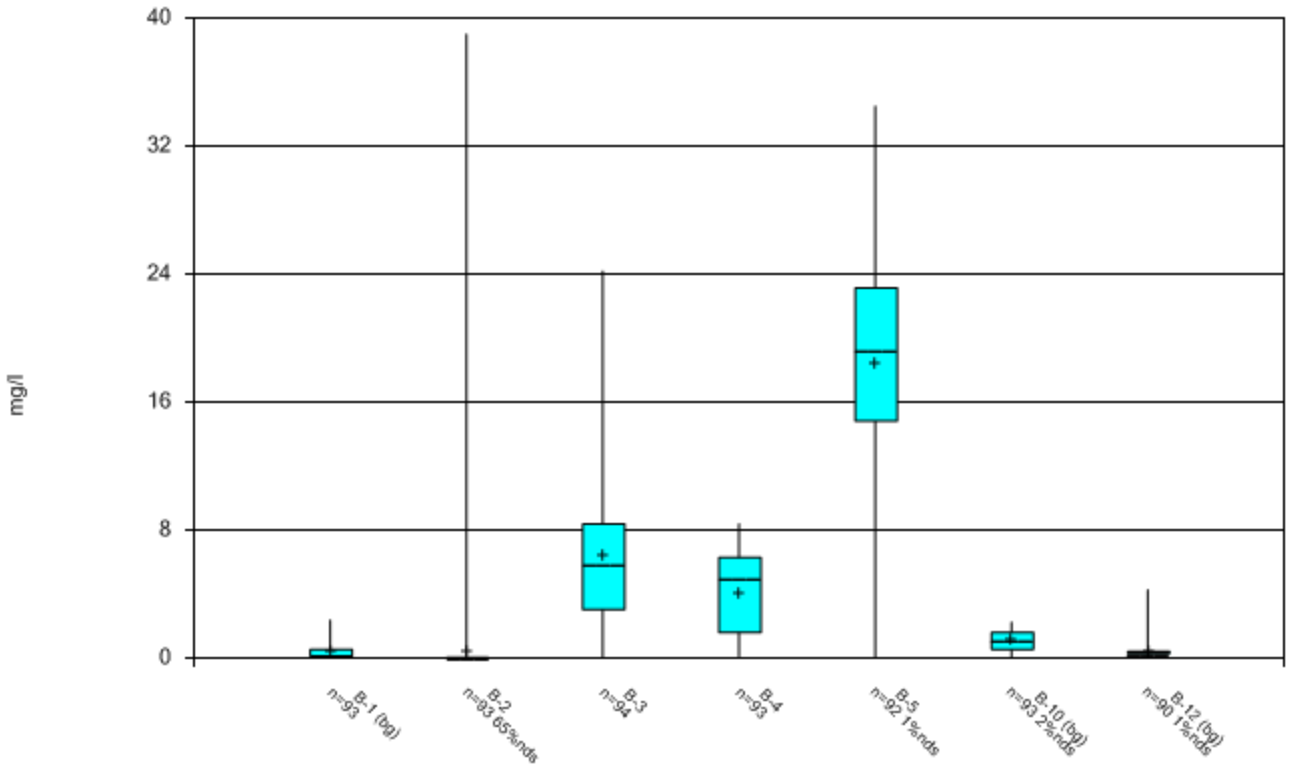
Box & Whiskers Plot



Constituent: Copper Analysis Run 3/5/2018 9:57 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

Box & Whiskers Plot

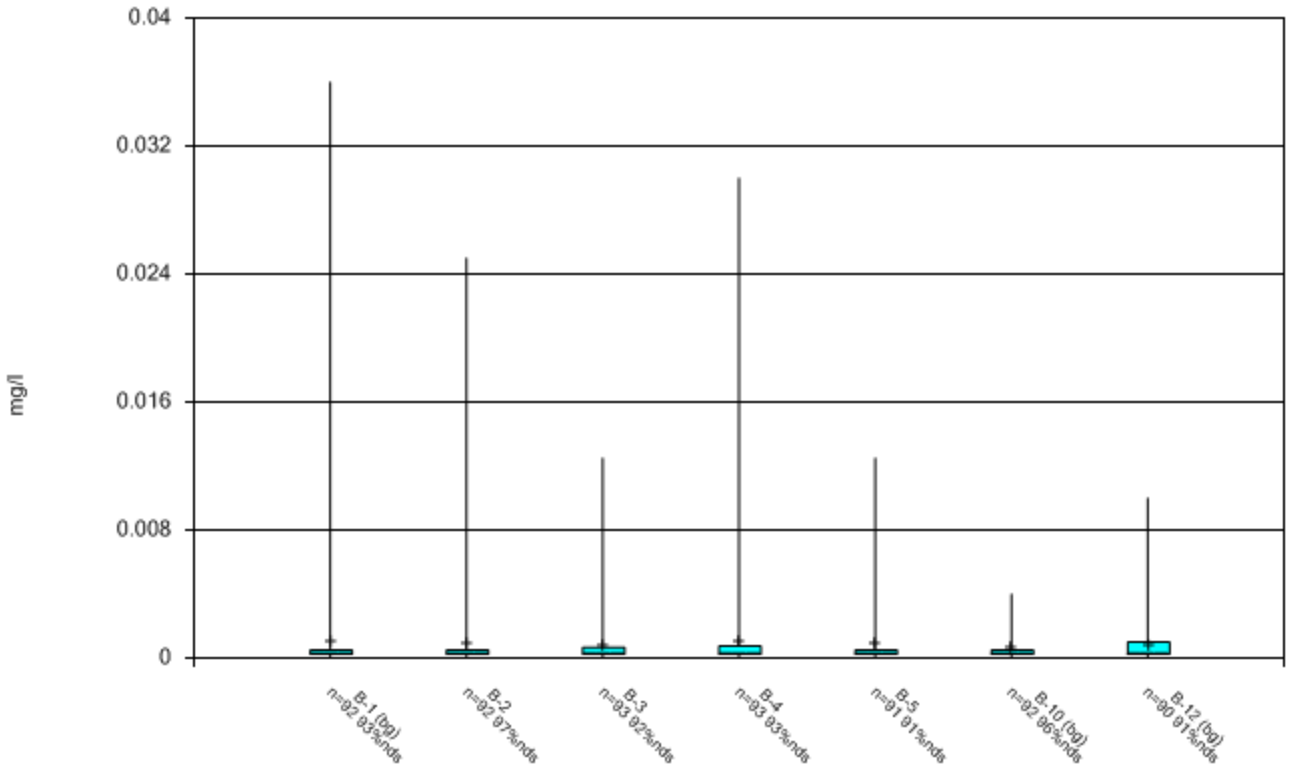


Constituent: Iron Analysis Run 3/5/2018 9:58 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

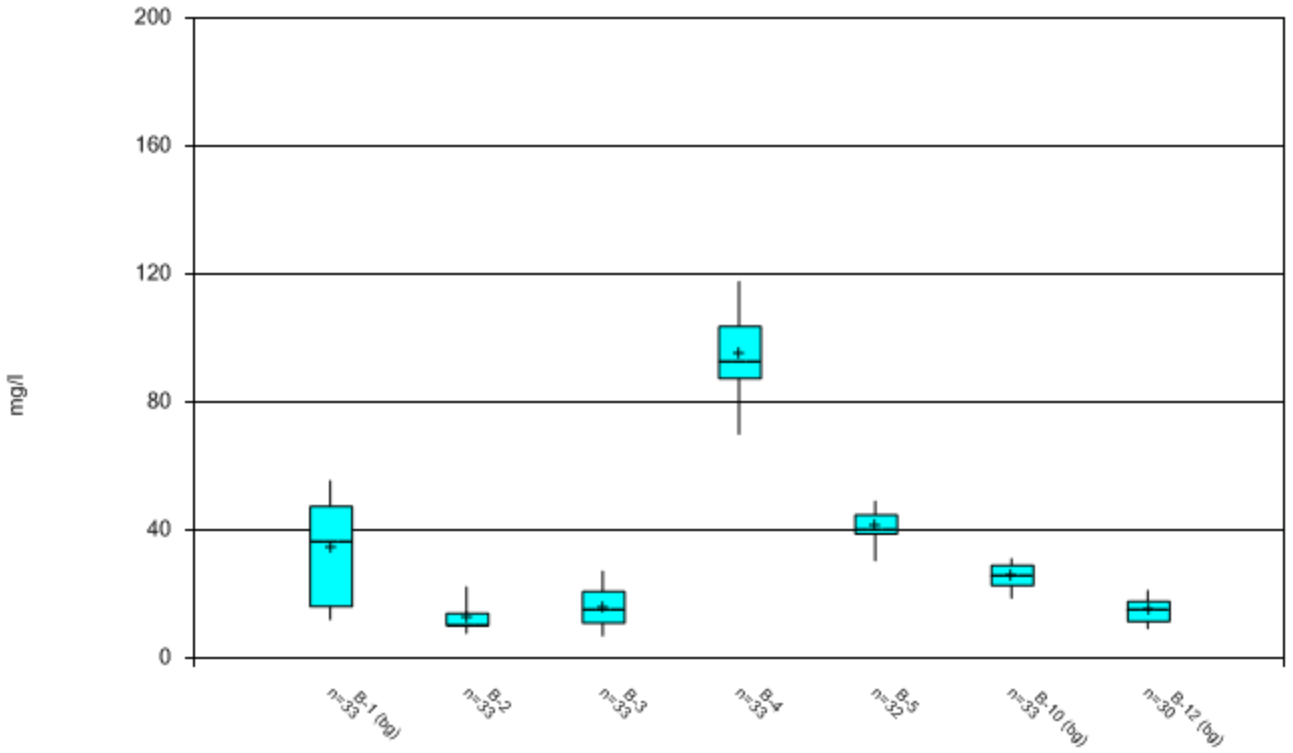


Constituent: Lead Analysis Run 3/5/2018 9:58 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

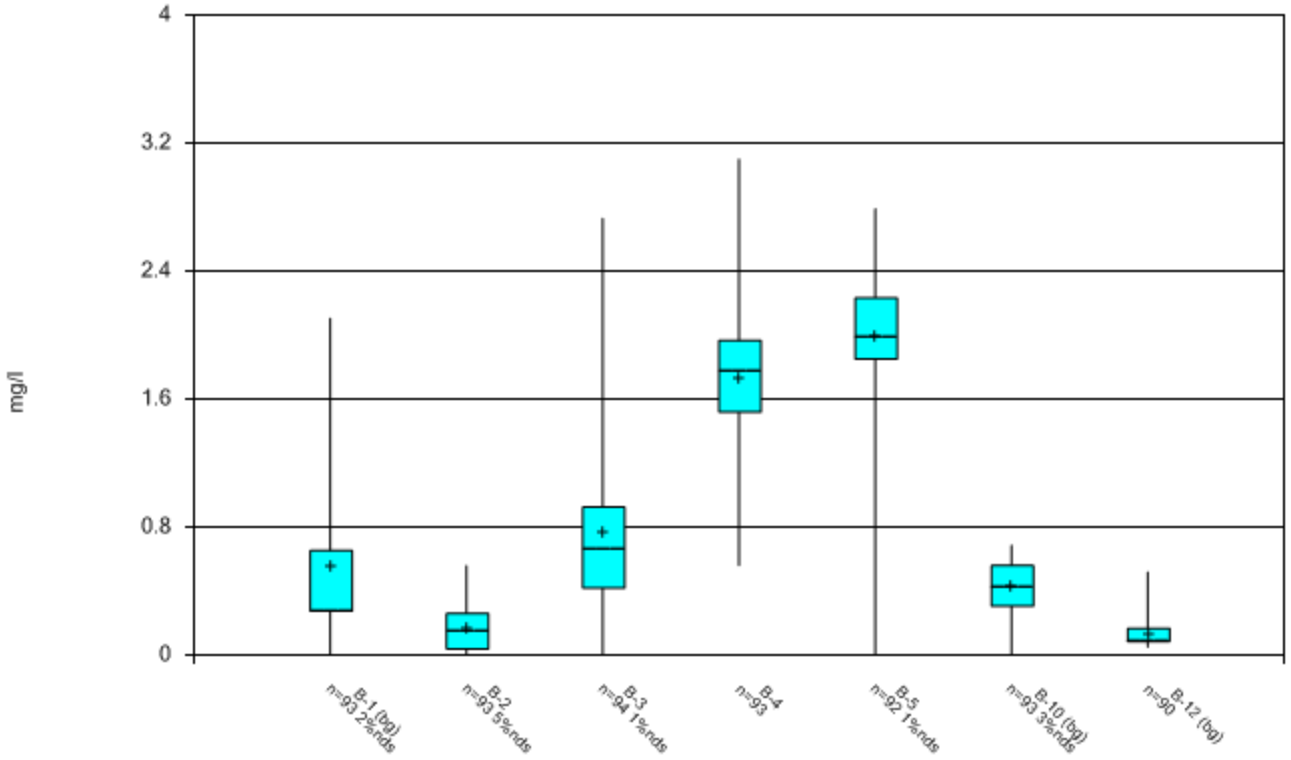


Constituent: MAGNESIUM Analysis Run 3/5/2018 9:59 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

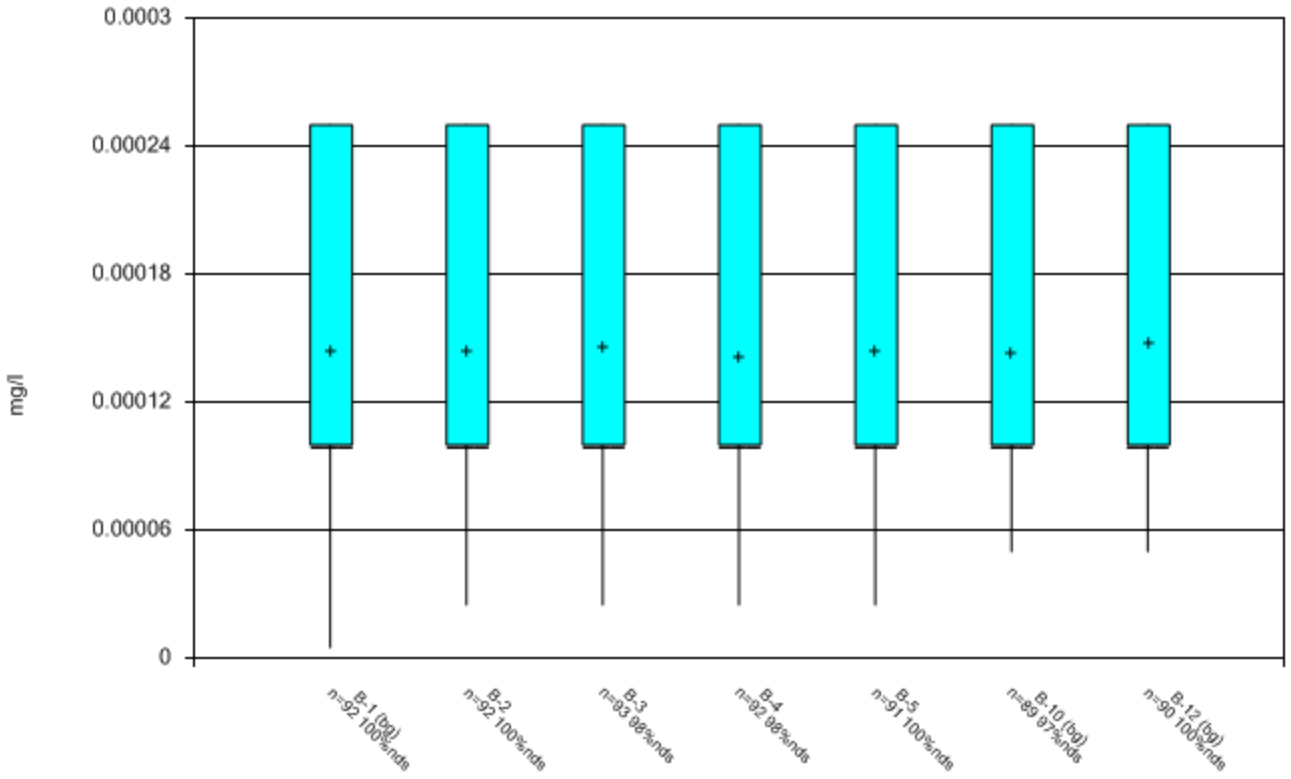


Constituent: Manganese Analysis Run 3/5/2018 9:59 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

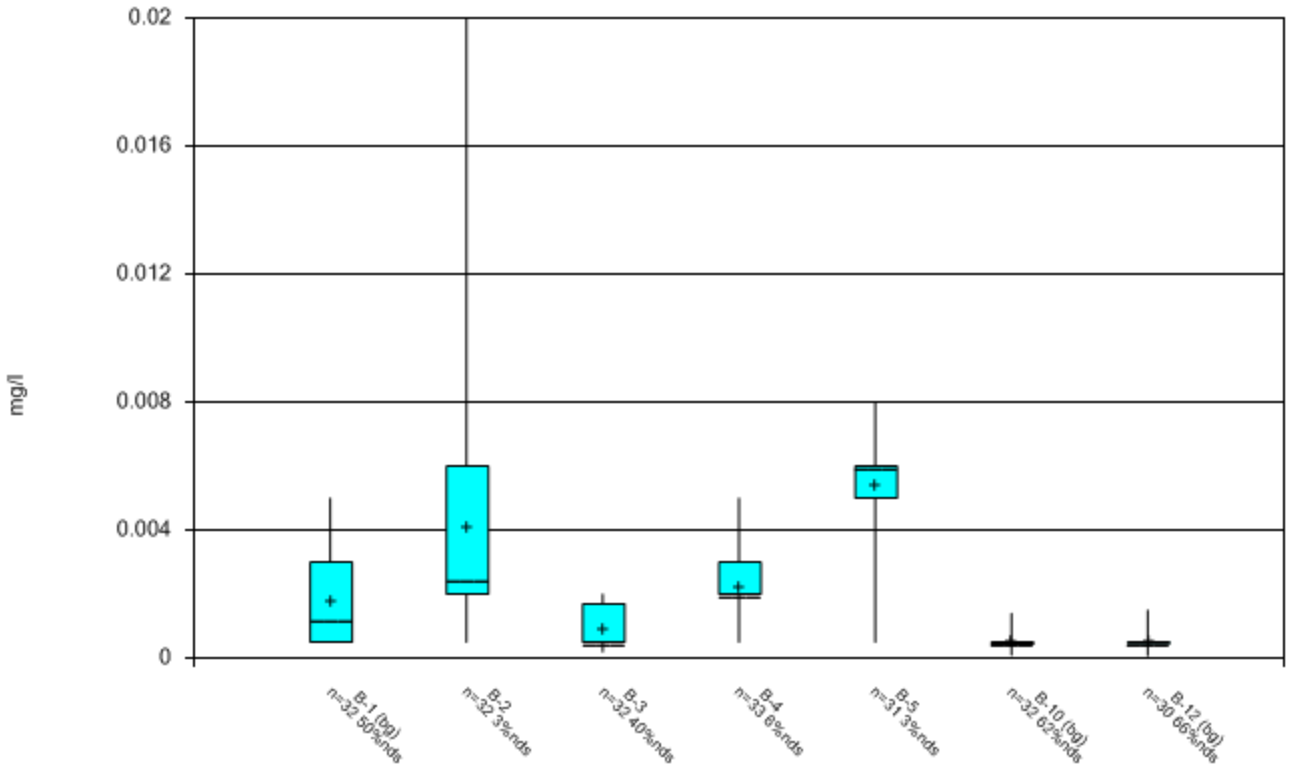


Constituent: Mercury Analysis Run 3/5/2018 9:59 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

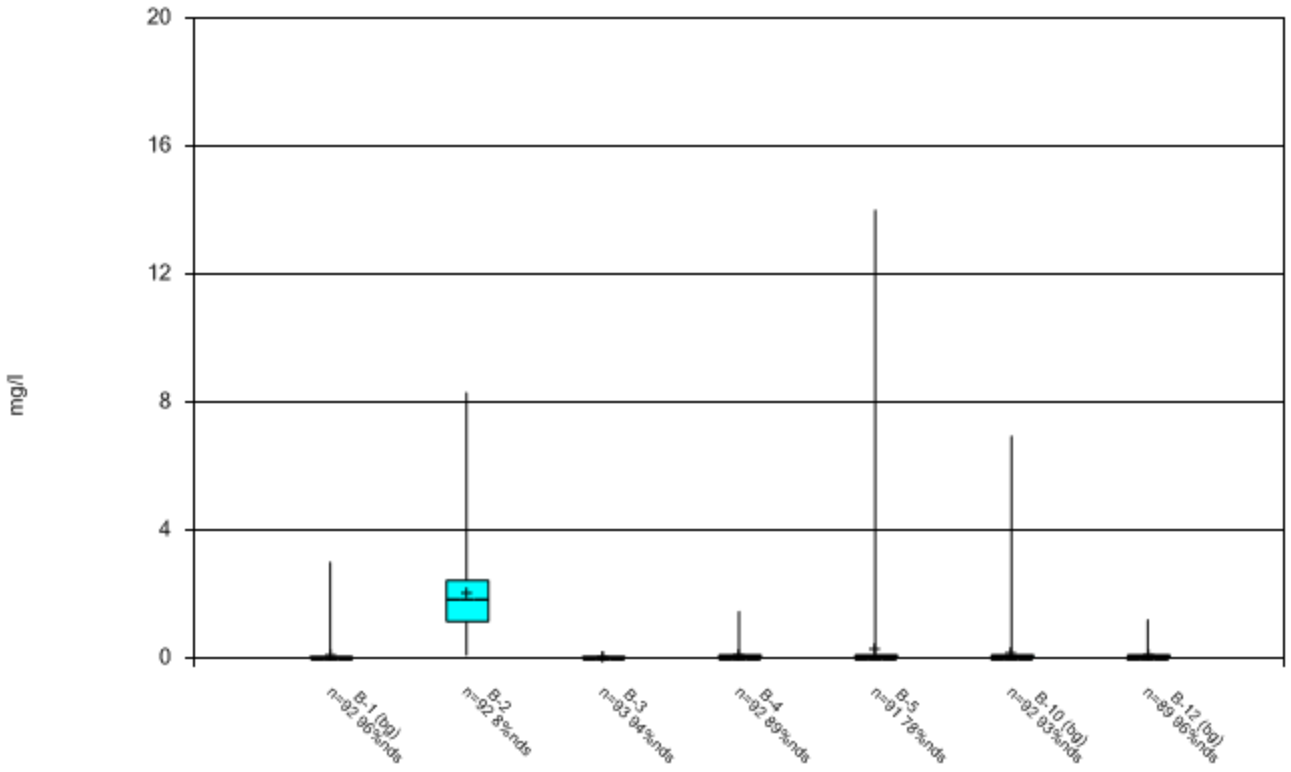
Box & Whiskers Plot



Constituent: Nickel Analysis Run 3/5/2018 10:00 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

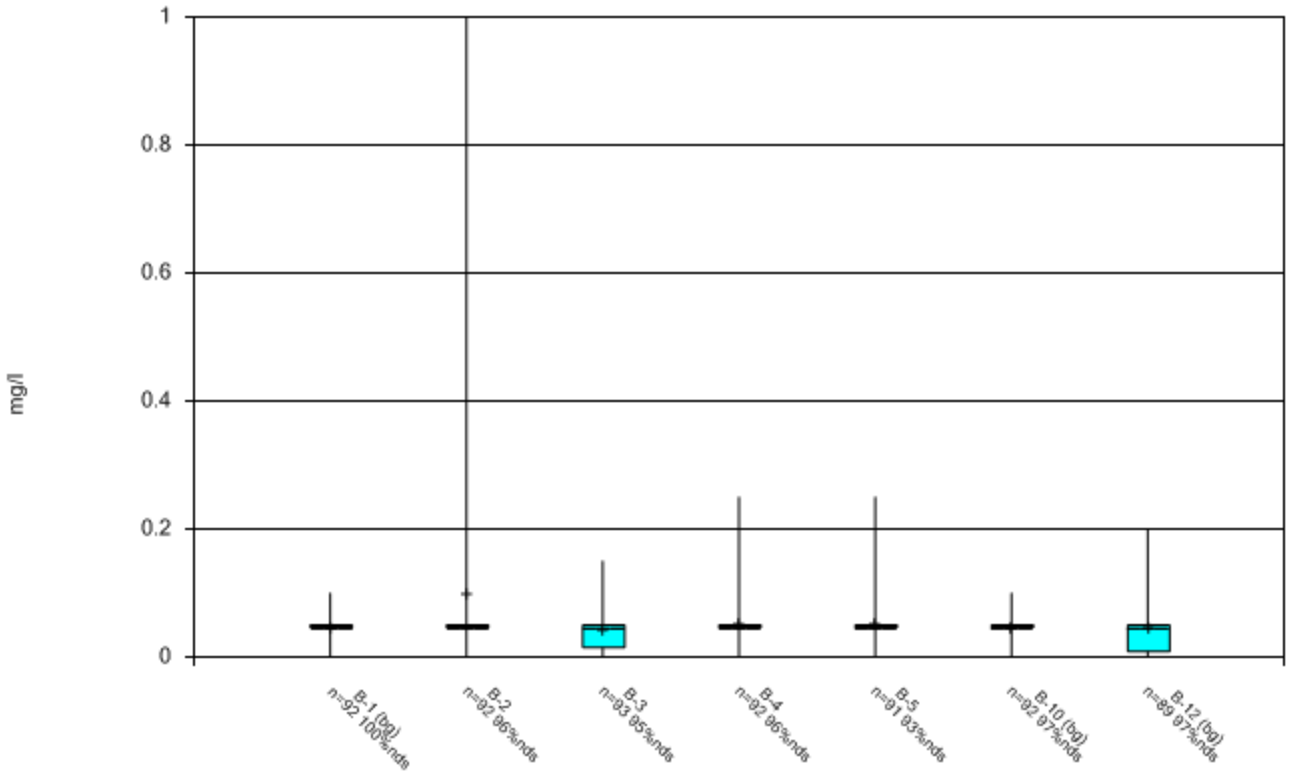
Box & Whiskers Plot



Constituent: Nitrate as nitrogen Analysis Run 3/5/2018 10:00 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

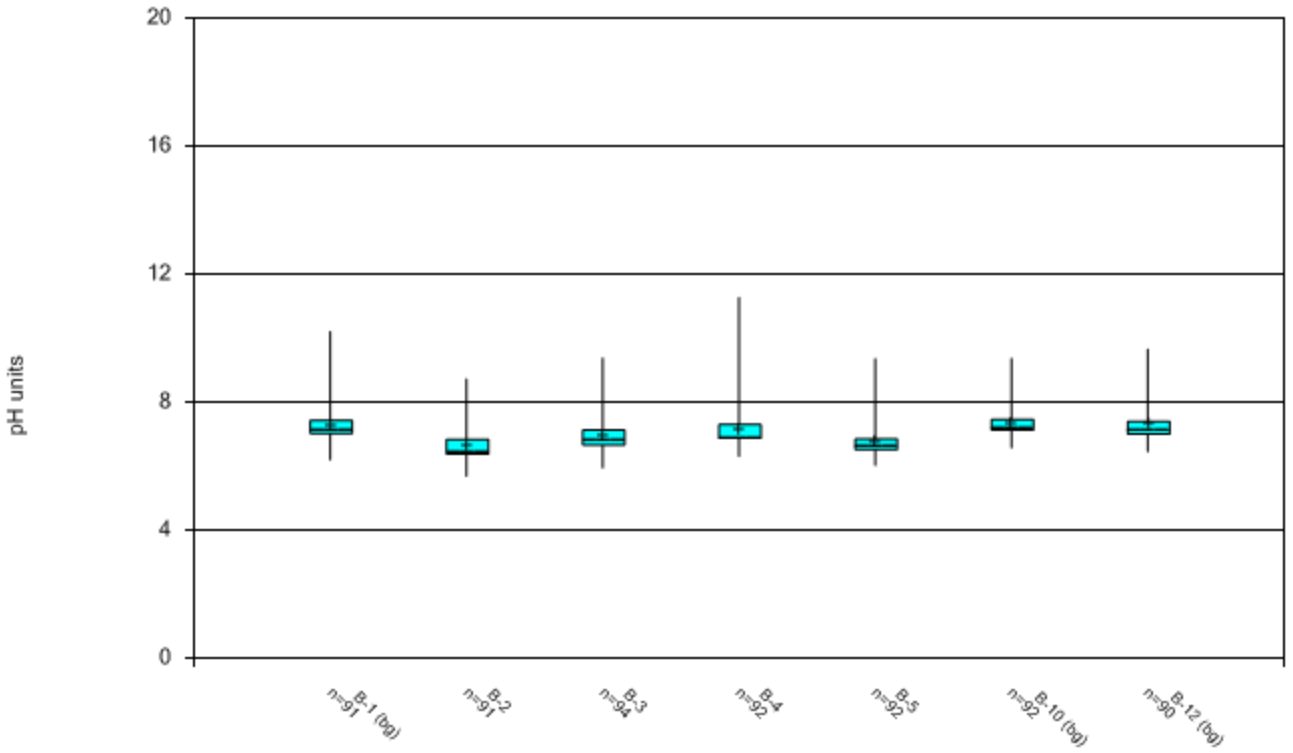
Box & Whiskers Plot



Constituent: Nitrite as nitrogen Analysis Run 3/5/2018 10:01 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

Box & Whiskers Plot

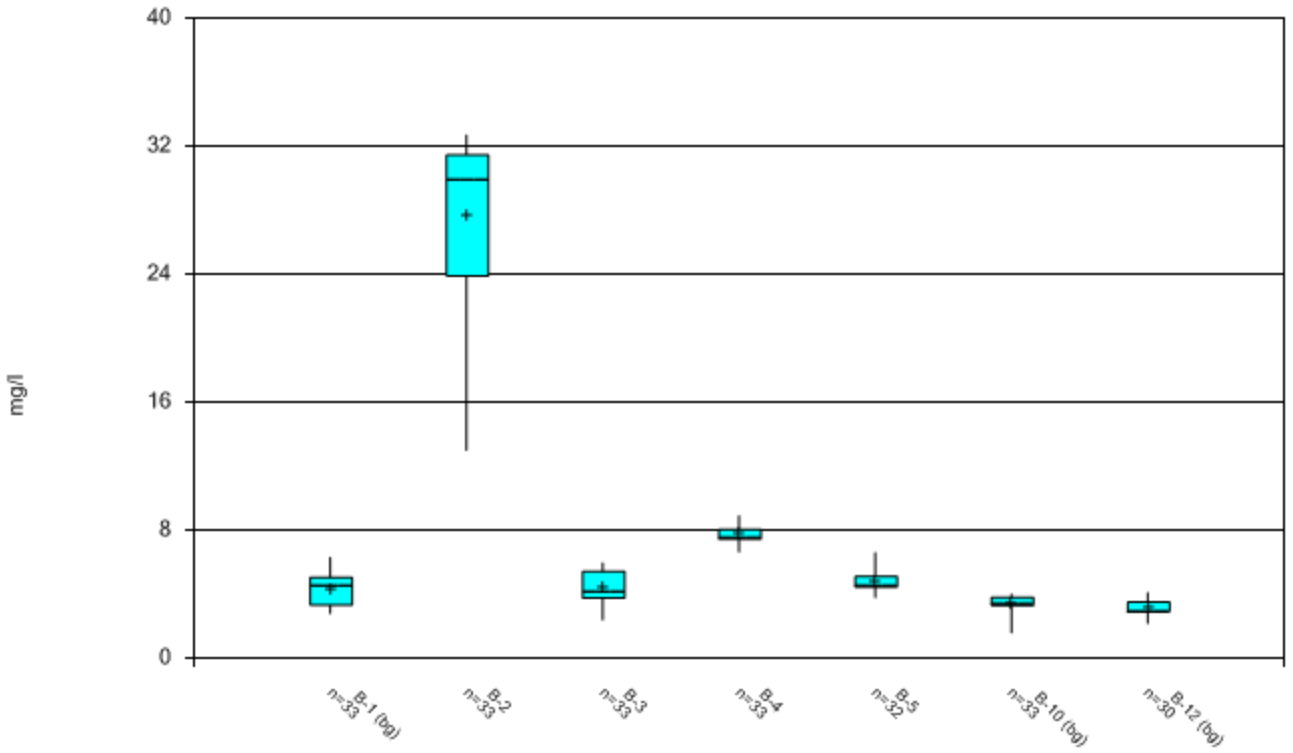


Constituent: pH Analysis Run 3/5/2018 10:11 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

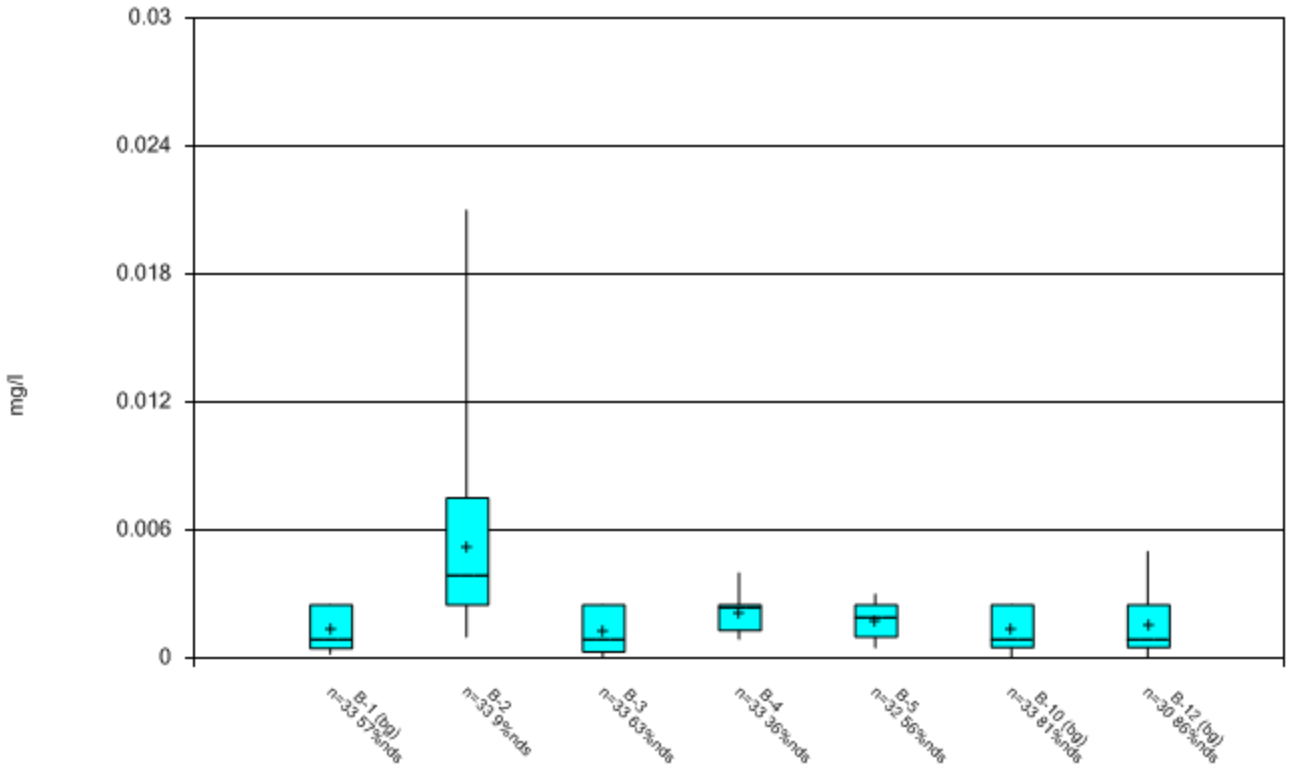


Constituent: Potassium Analysis Run 3/5/2018 10:11 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

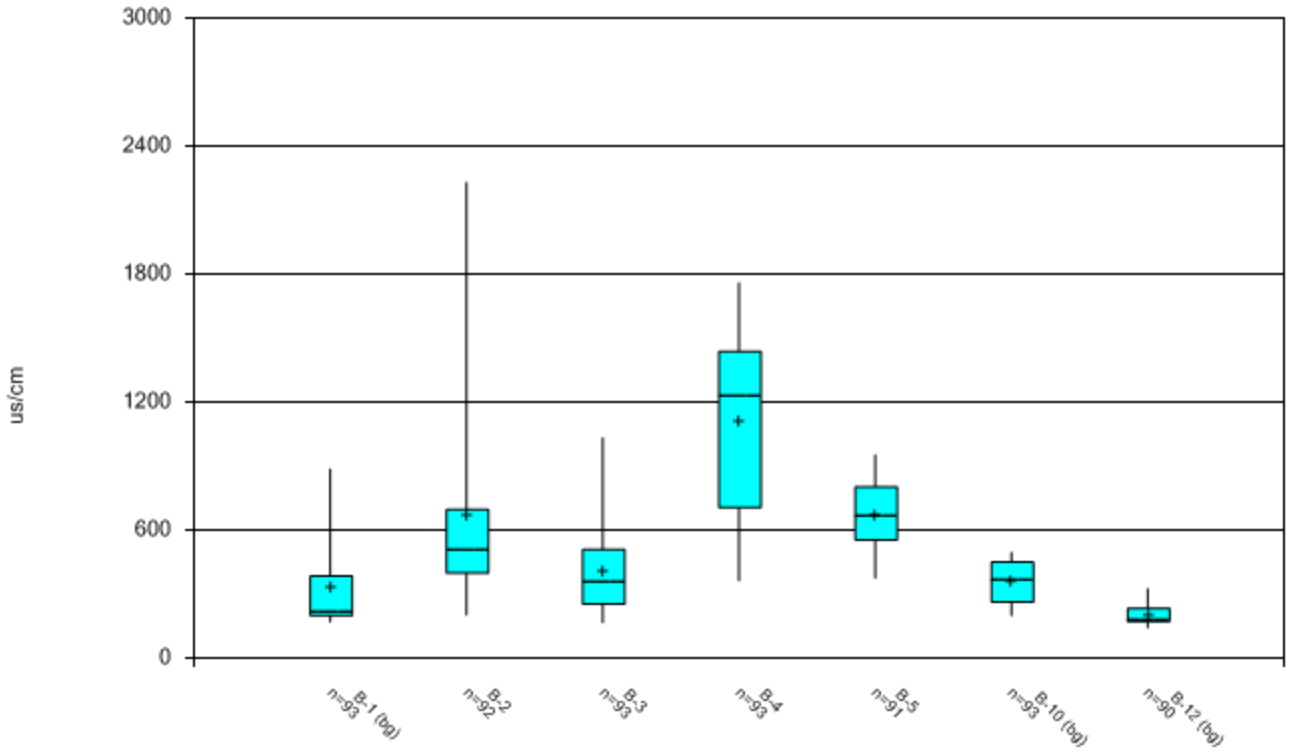


Constituent: Selenium Analysis Run 3/5/2018 10:12 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

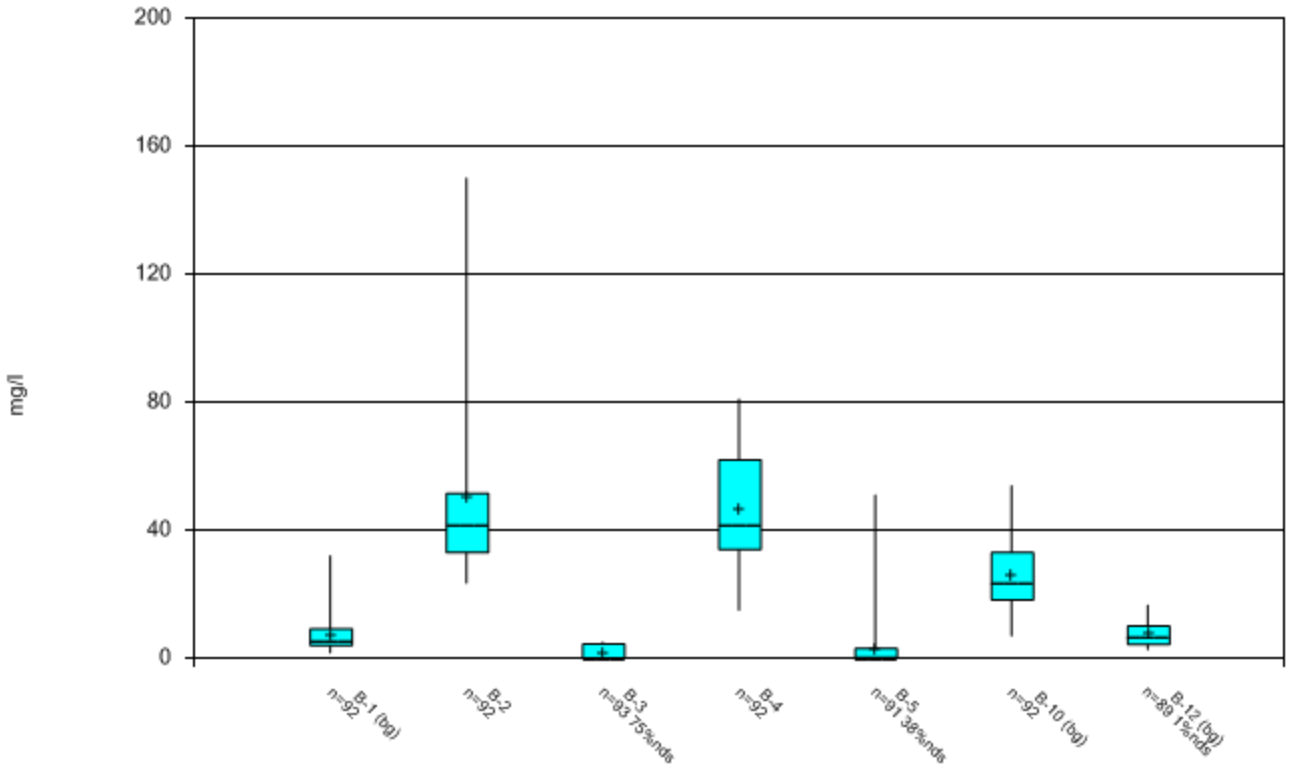


Constituent: Specific Conductance Analysis Run 3/5/2018 10:20 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

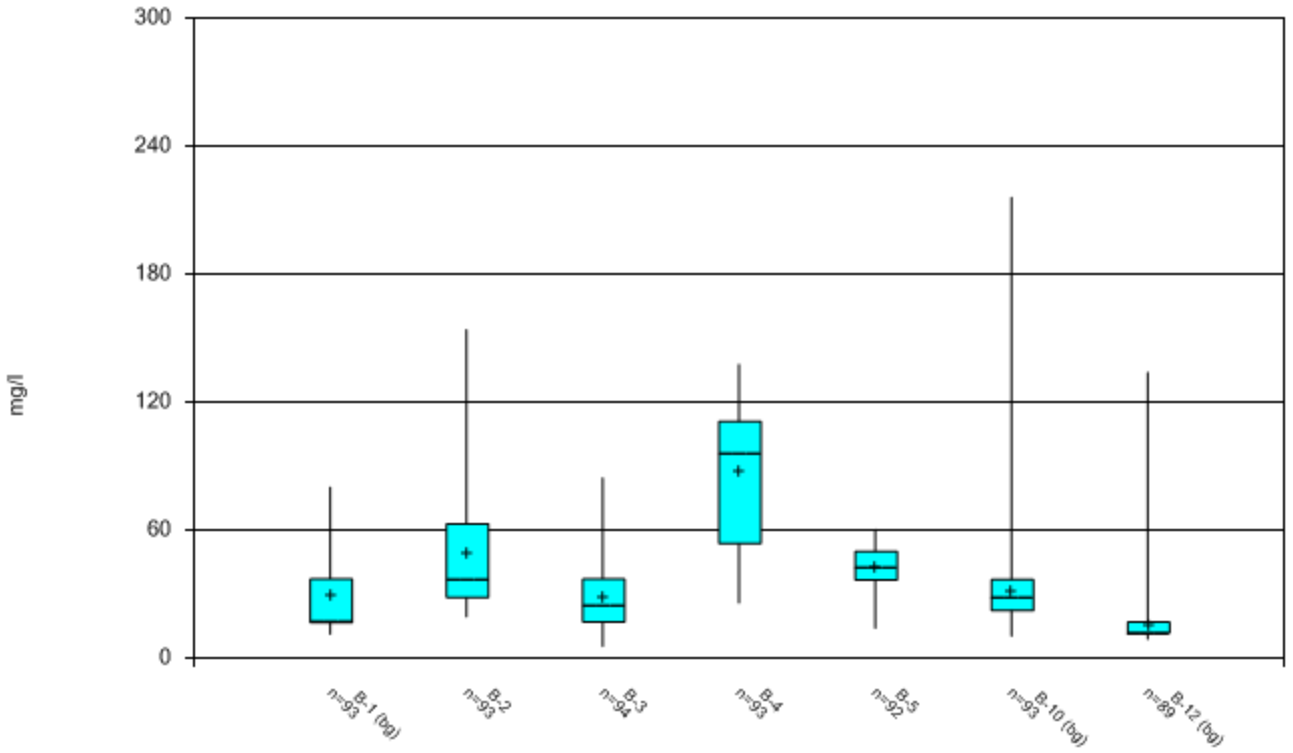


Constituent: Sulfate Analysis Run 3/5/2018 10:21 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

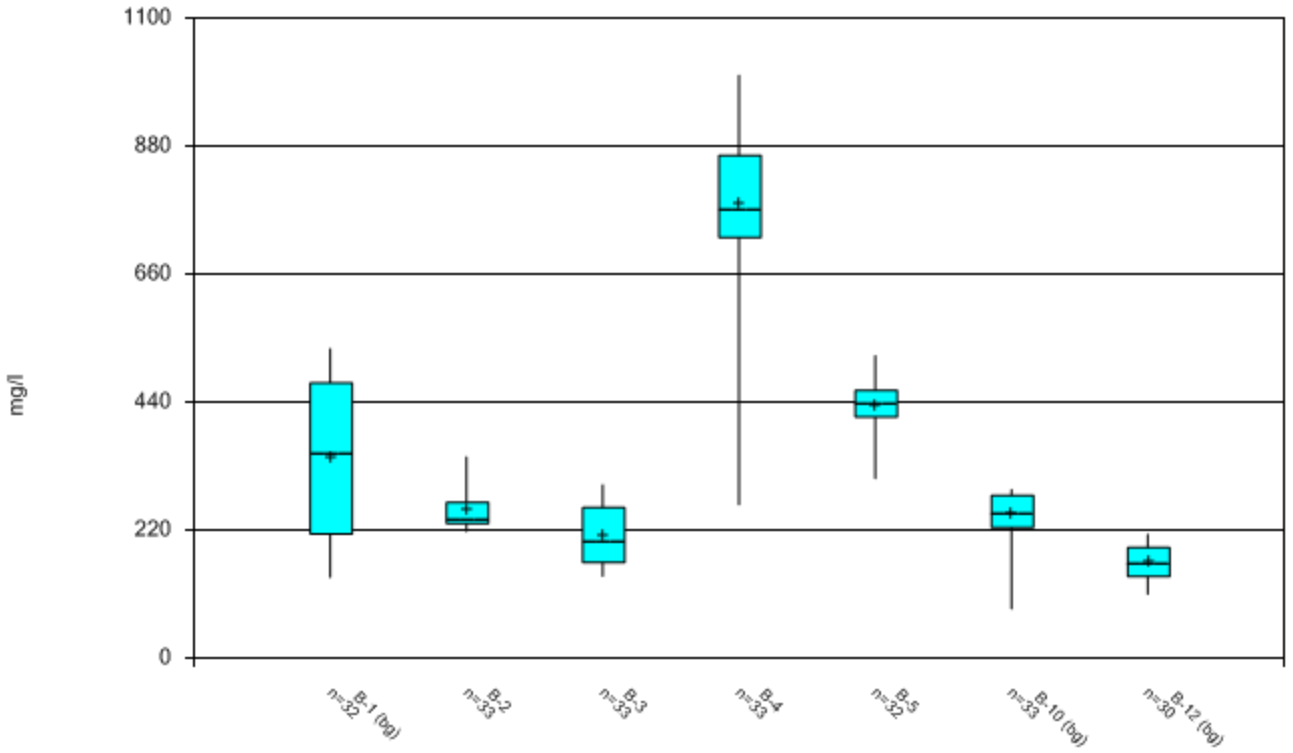


Constituent: Total Calcium Analysis Run 3/5/2018 10:22 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

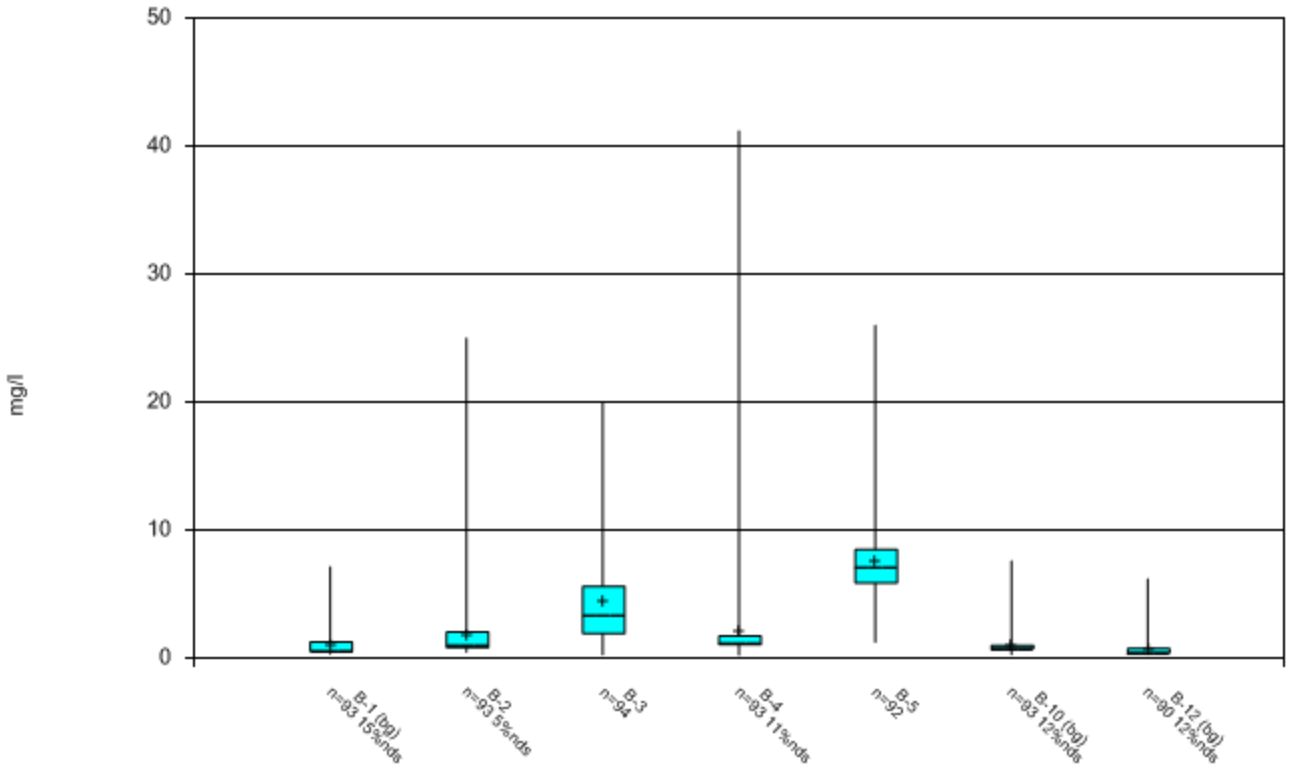
Box & Whiskers Plot



Constituent: Total Dissolved Solids Analysis Run 3/5/2018 10:23 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

Box & Whiskers Plot

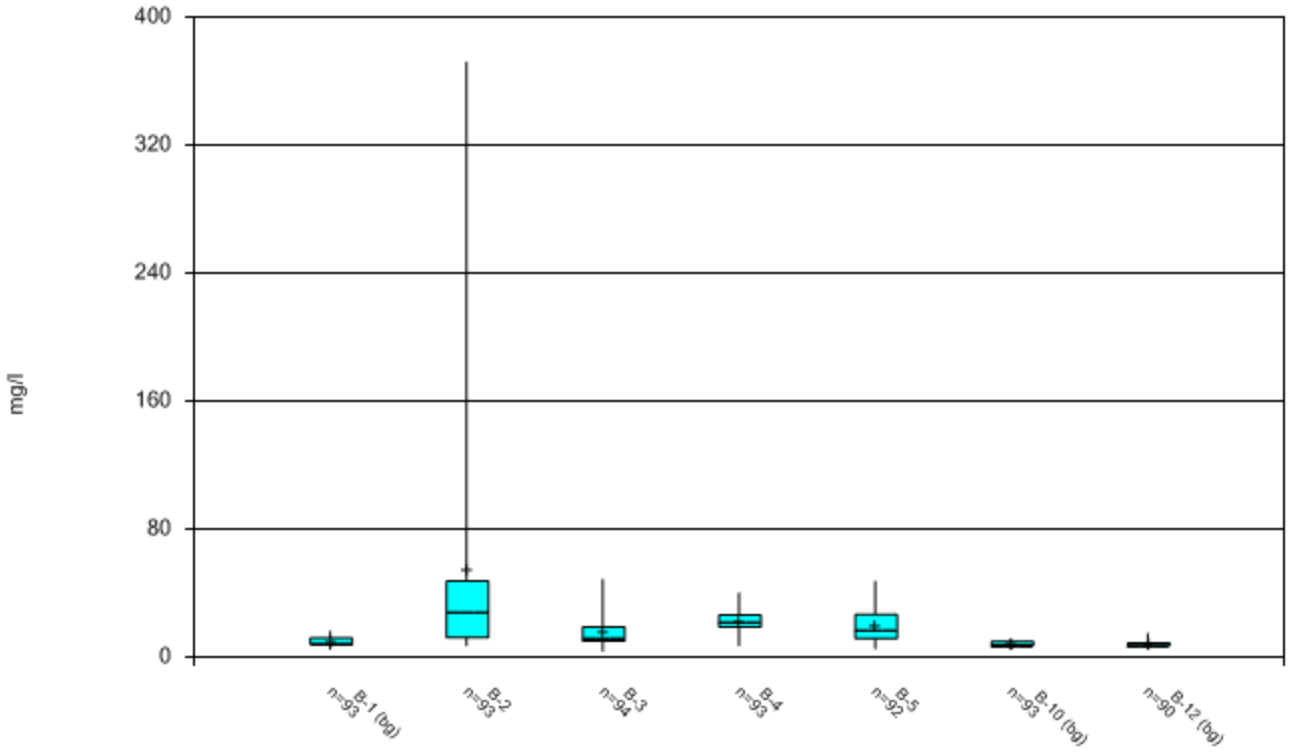


Constituent: Total Organic Carbon Analysis Run 3/5/2018 10:23 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

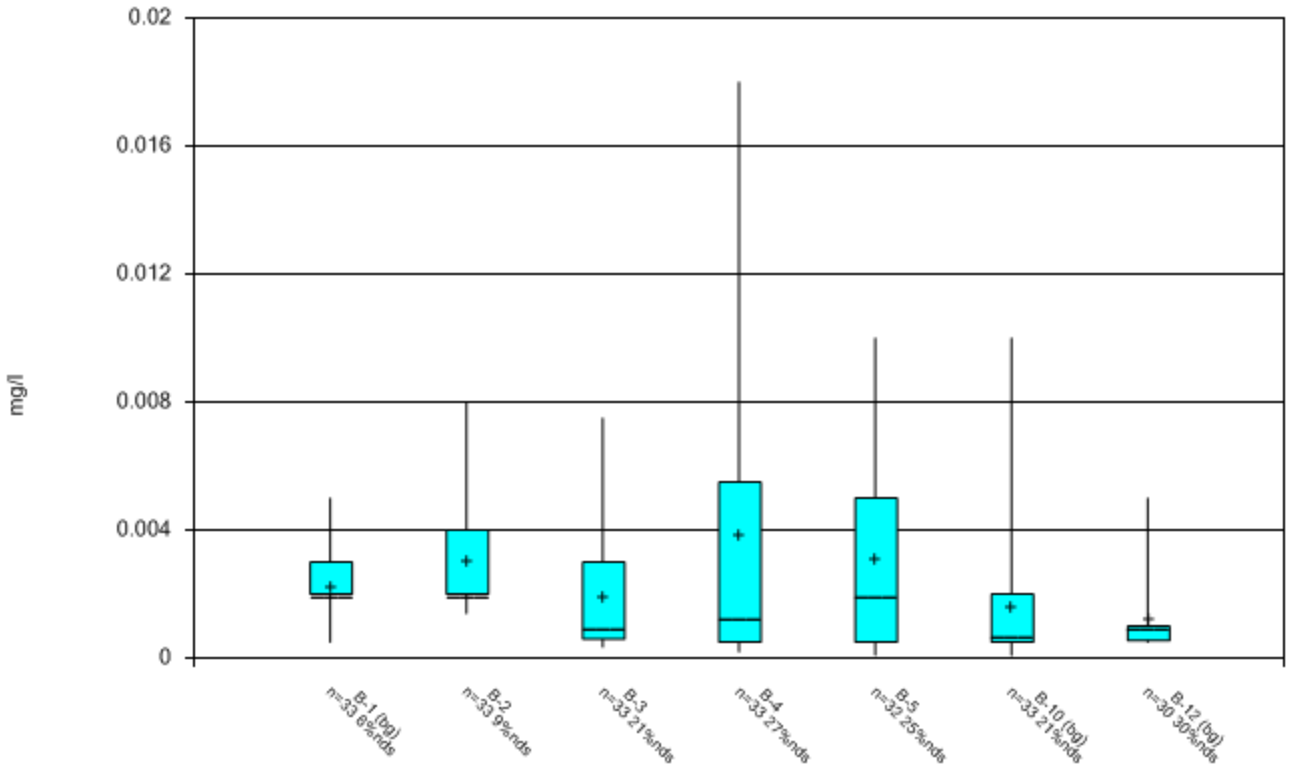


Constituent: Total Sodium Analysis Run 3/5/2018 10:23 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

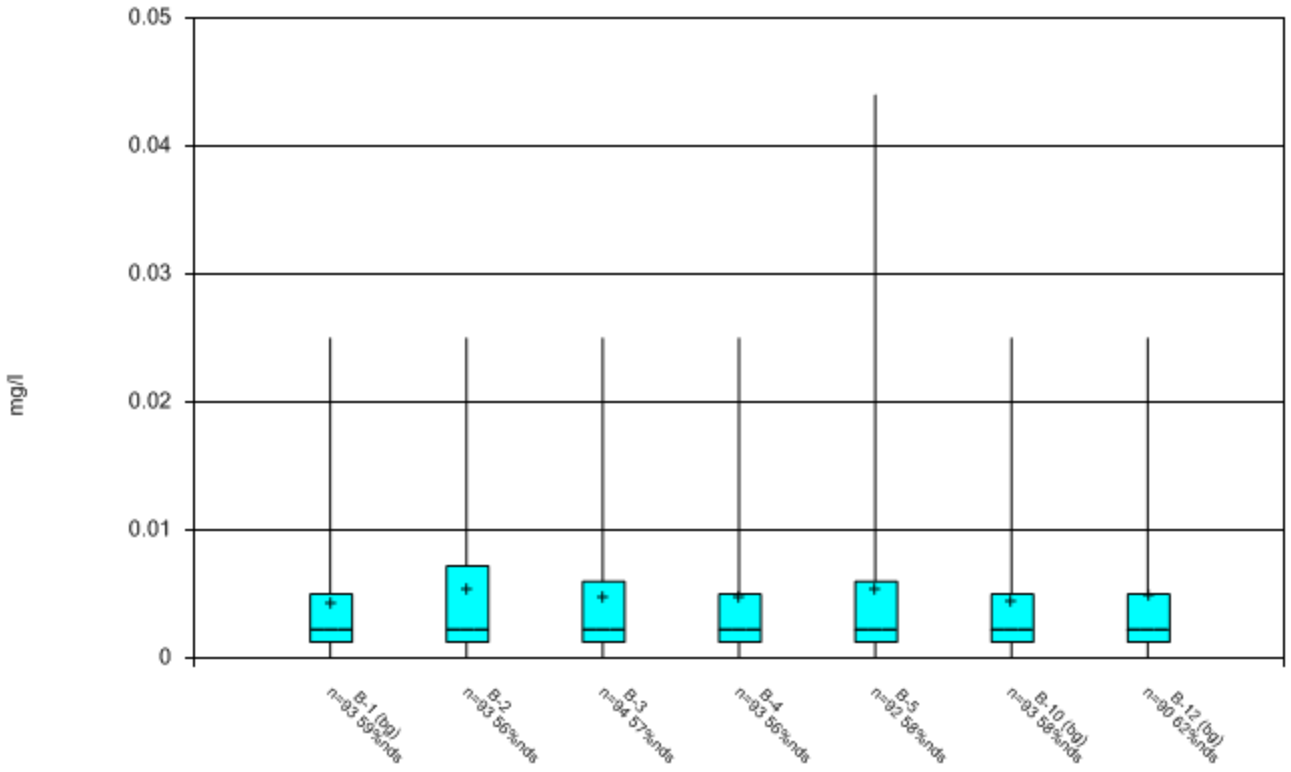
Box & Whiskers Plot



Constituent: VANADIUM [FUME OR DUST] Analysis Run 3/5/2018 10:24 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

Box & Whiskers Plot

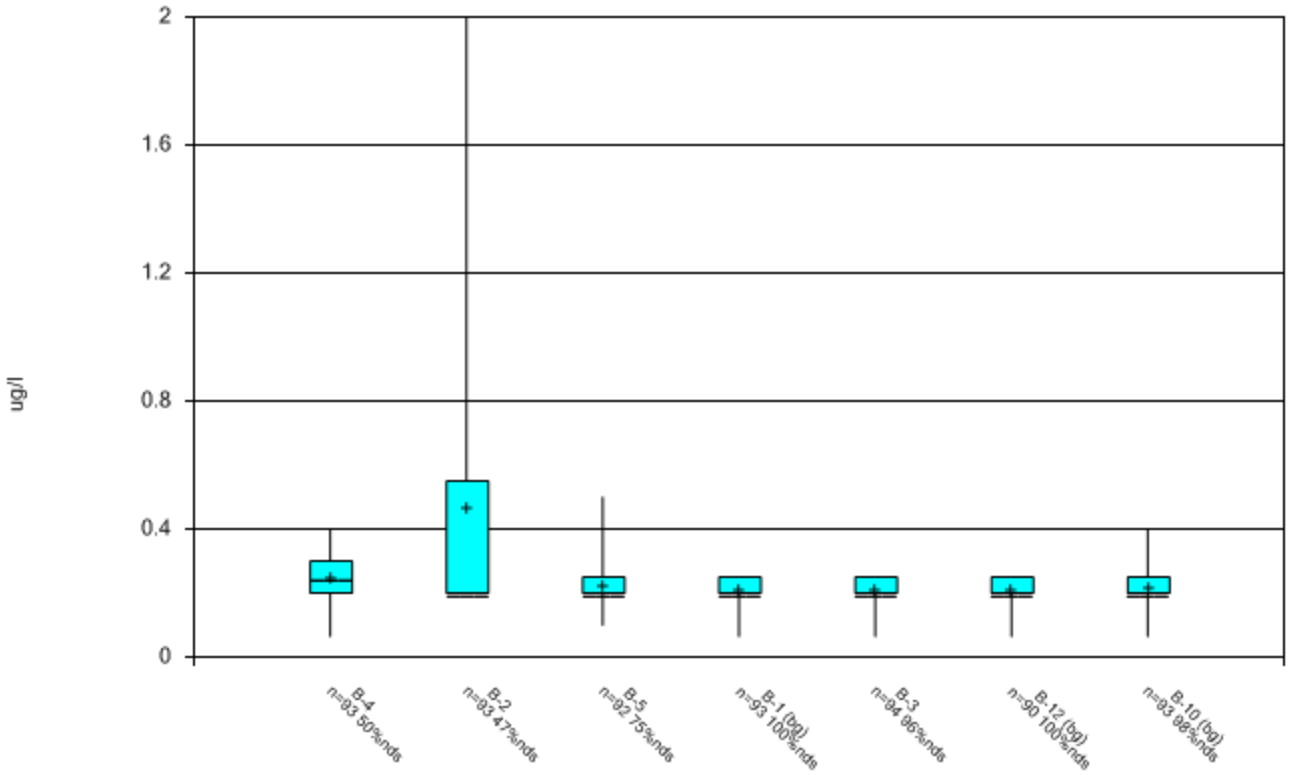


Constituent: Zinc Analysis Run 3/5/2018 10:24 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_inorganic_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

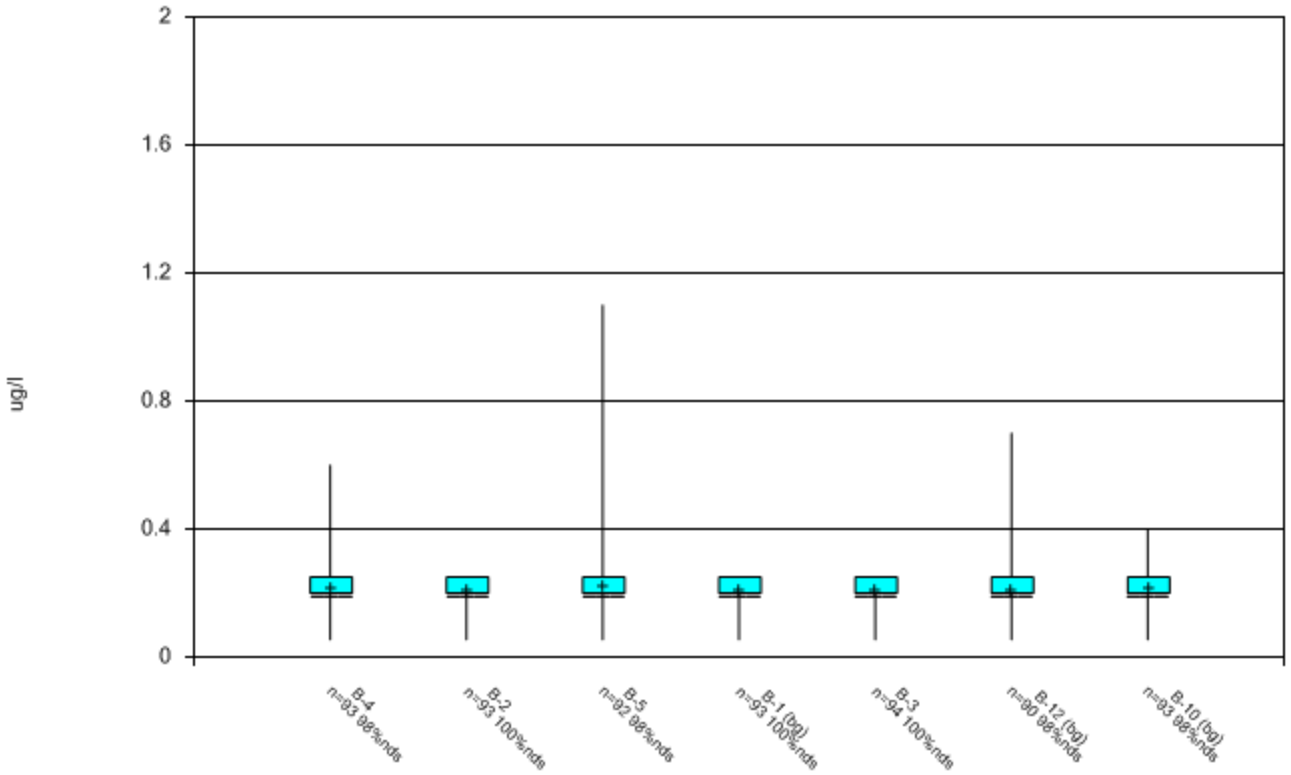


Constituent: 1,1-dichloroethane Analysis Run 3/5/2018 10:42 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_vocs_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

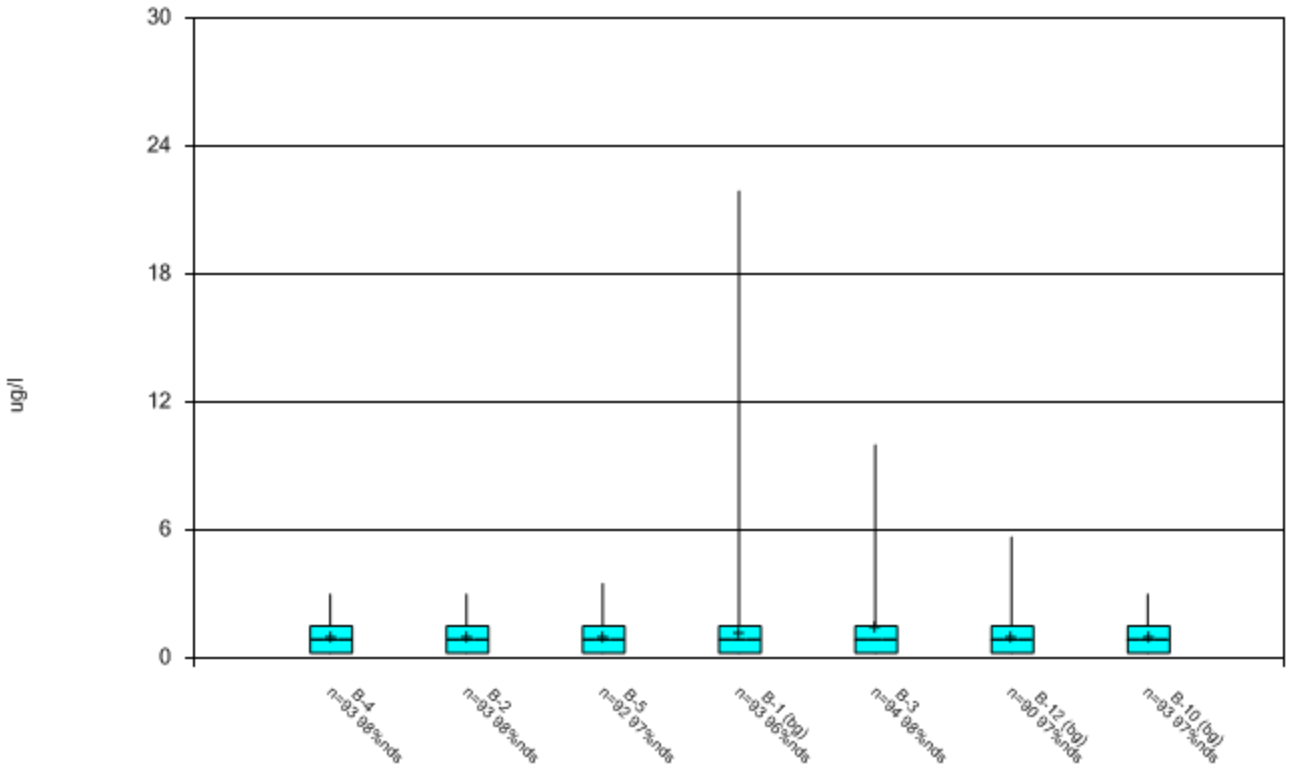


Constituent: 1,2-dichloroethane Analysis Run 3/5/2018 10:43 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_vocs_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

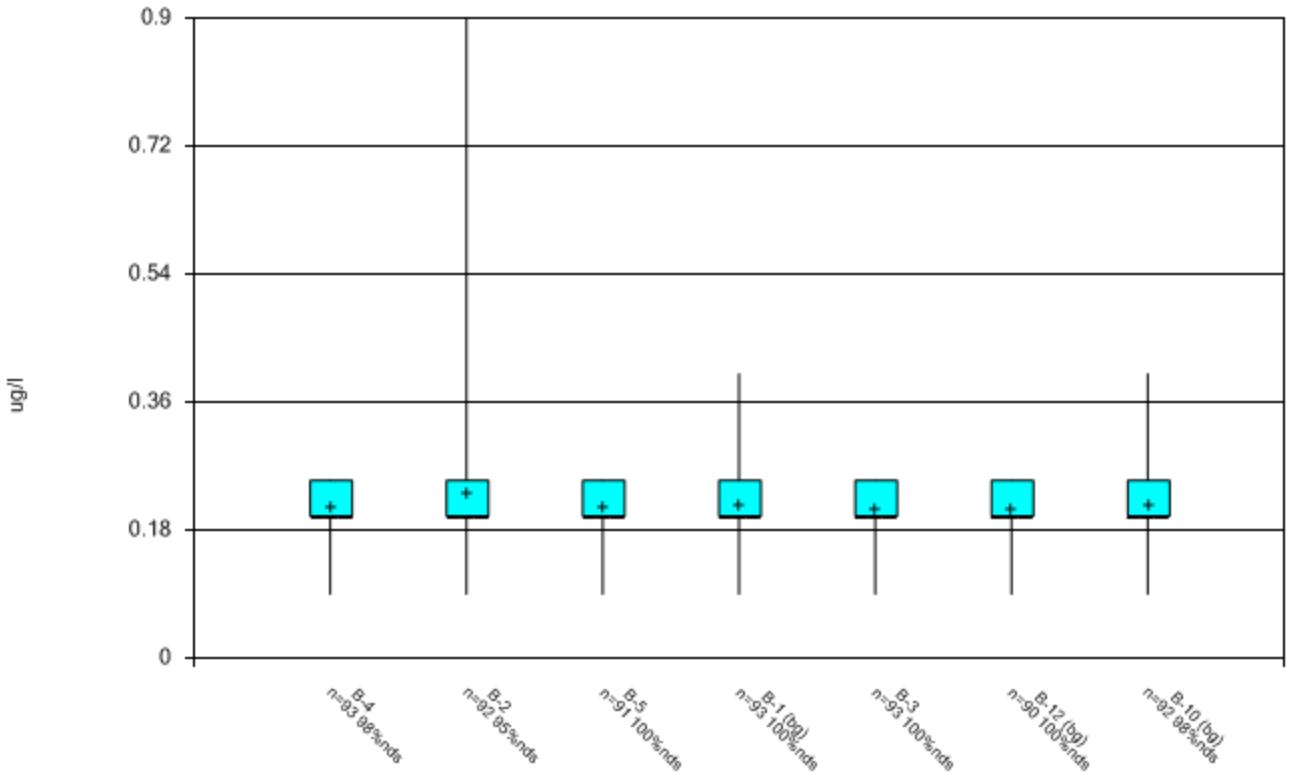


Constituent: Acetone Analysis Run 3/5/2018 10:43 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_vocs_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

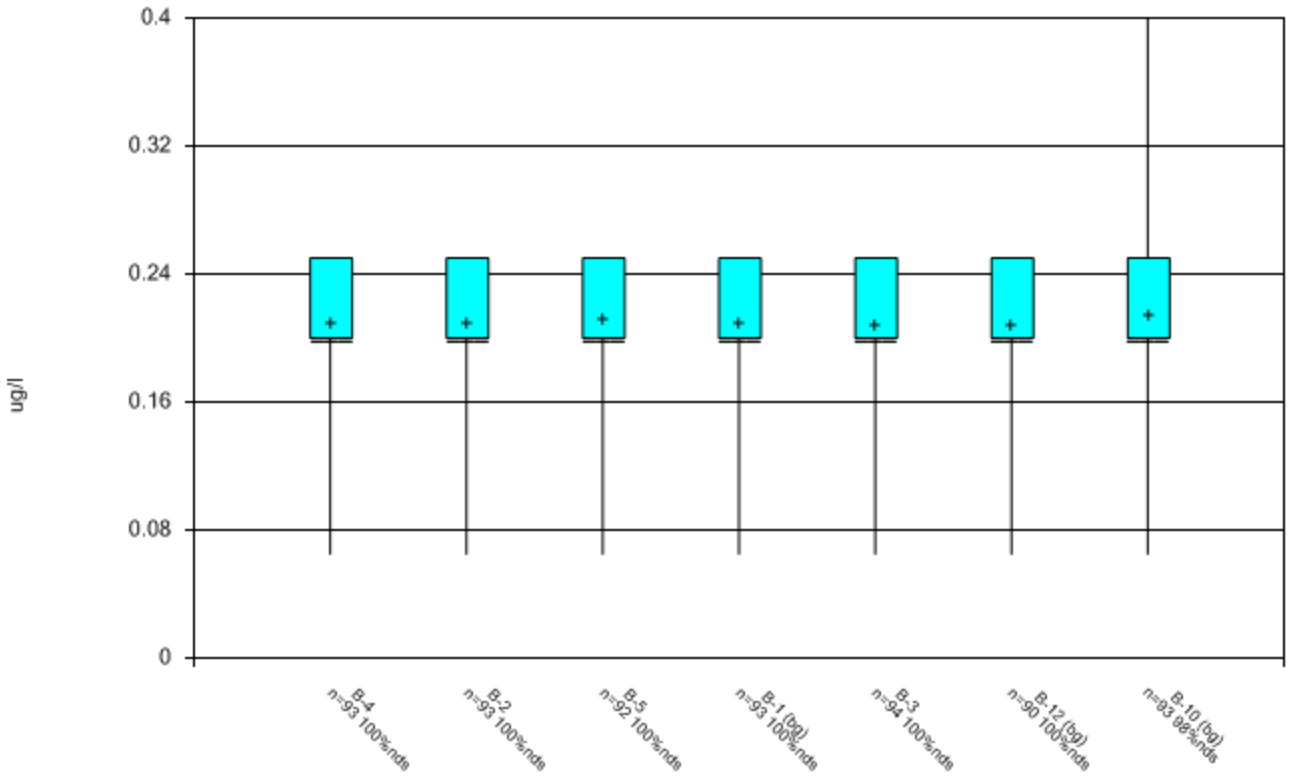


Constituent: Chloroethane Analysis Run 3/5/2018 10:43 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_vocs_(1994-2017)

WQStat Plus™ v.9.4.41

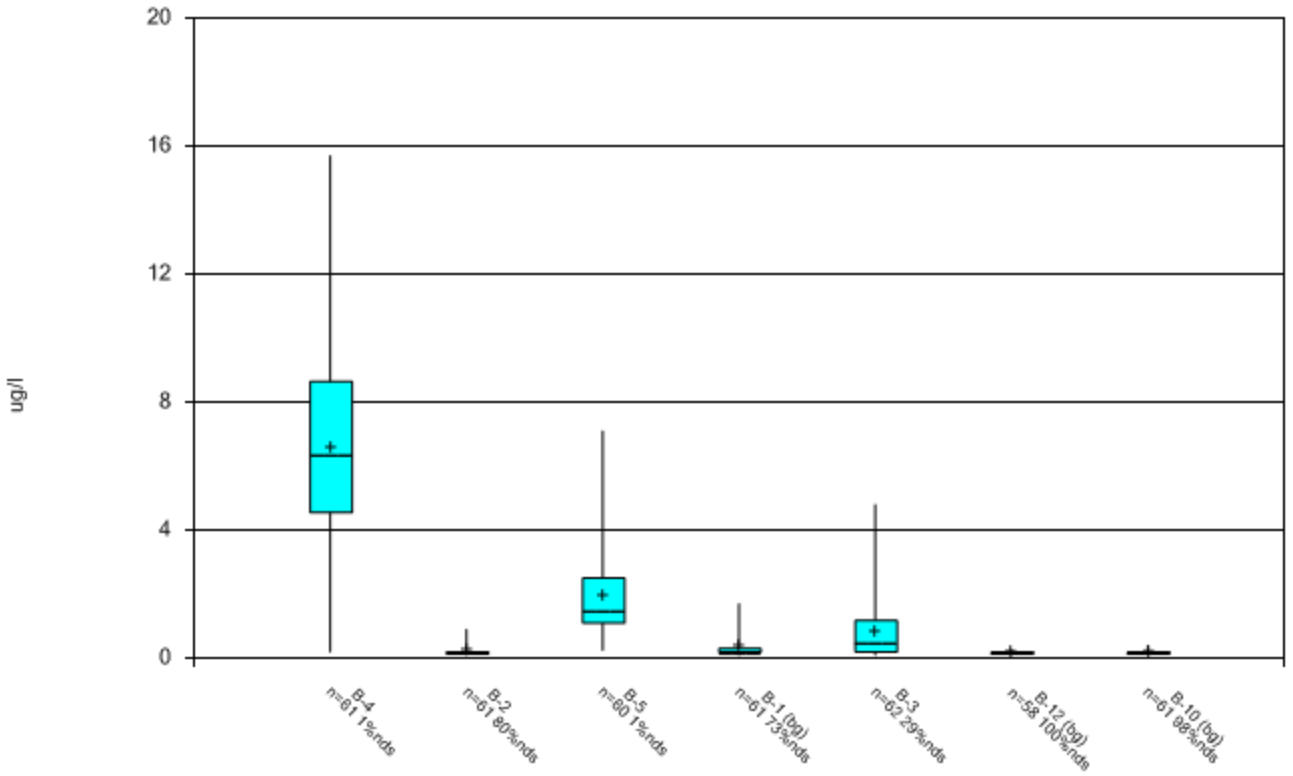
Box & Whiskers Plot



Constituent: cis-1,2-dichloroethene Analysis Run 3/5/2018 10:44 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_vocs_(1994-2017)

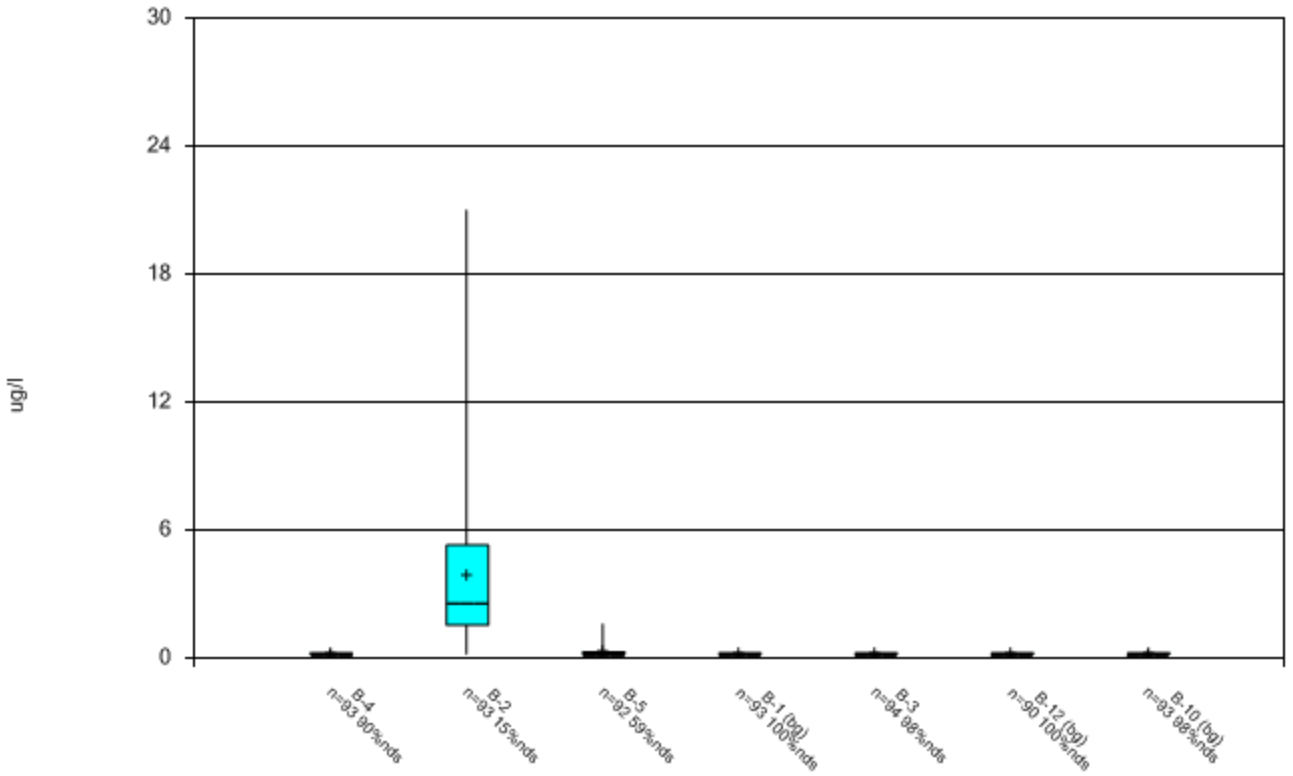
Box & Whiskers Plot



Constituent: Chlorodifluoromethane [Freon 22] Analysis Run 3/5/2018 10:44 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_vocs_(1994-2017)

Box & Whiskers Plot

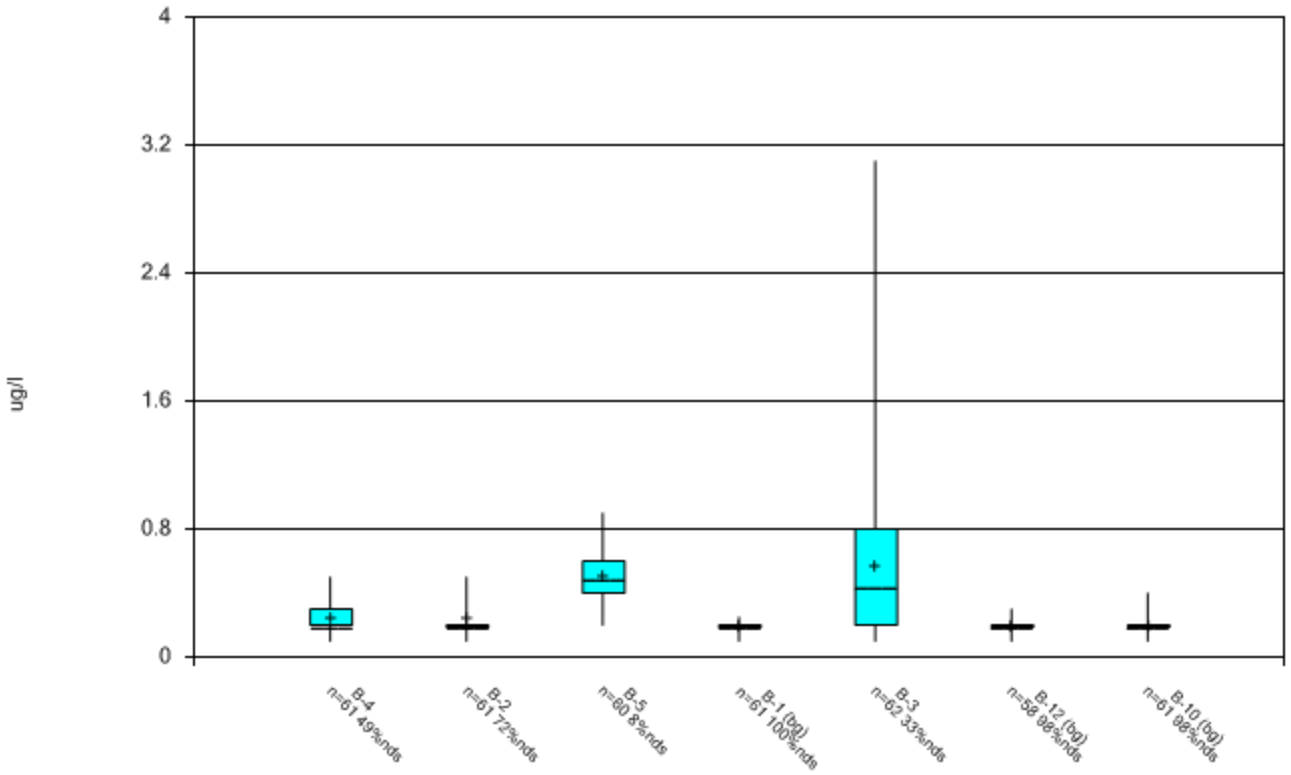


Constituent: Dichlorodifluoromethane [CFC-12] Analysis Run 3/5/2018 10:45 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_vocs_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

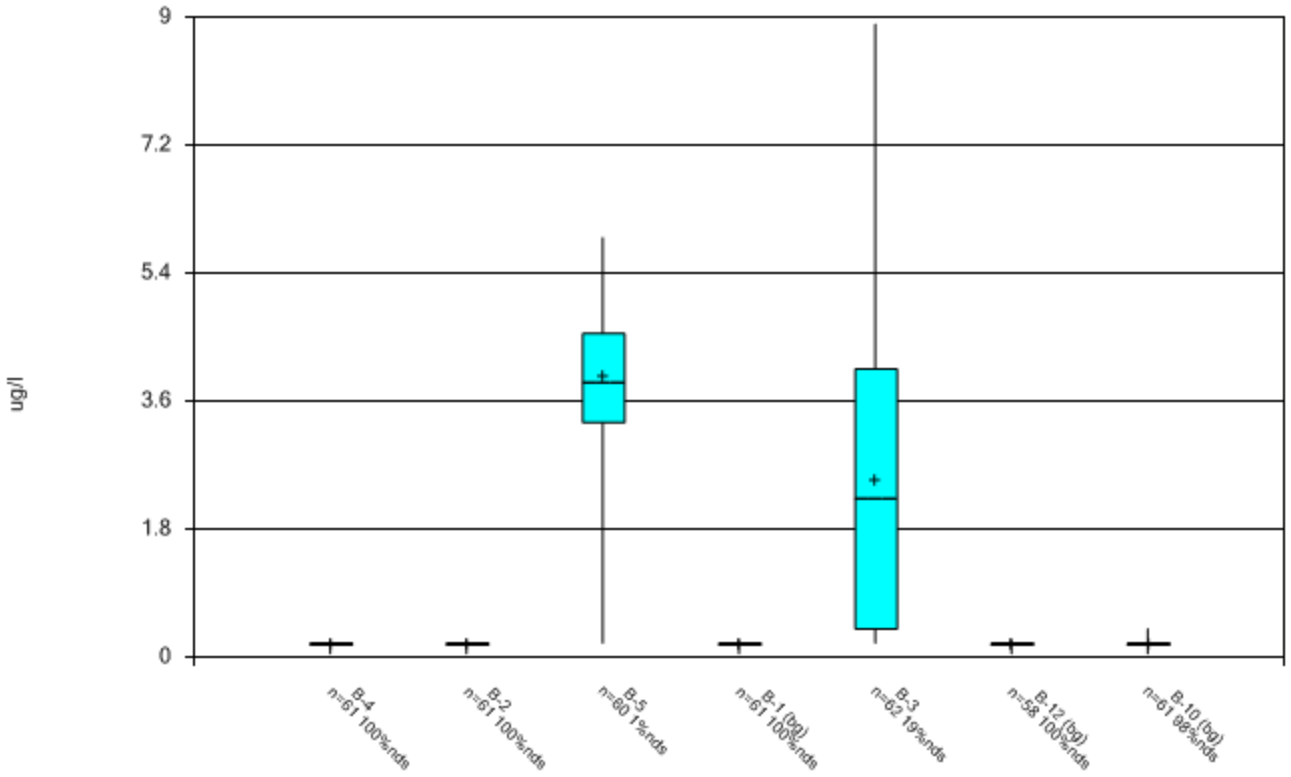


Constituent: Dichloromonofluoromethane [Freon 21] Analysis Run 3/5/2018 10:46 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_vocs_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

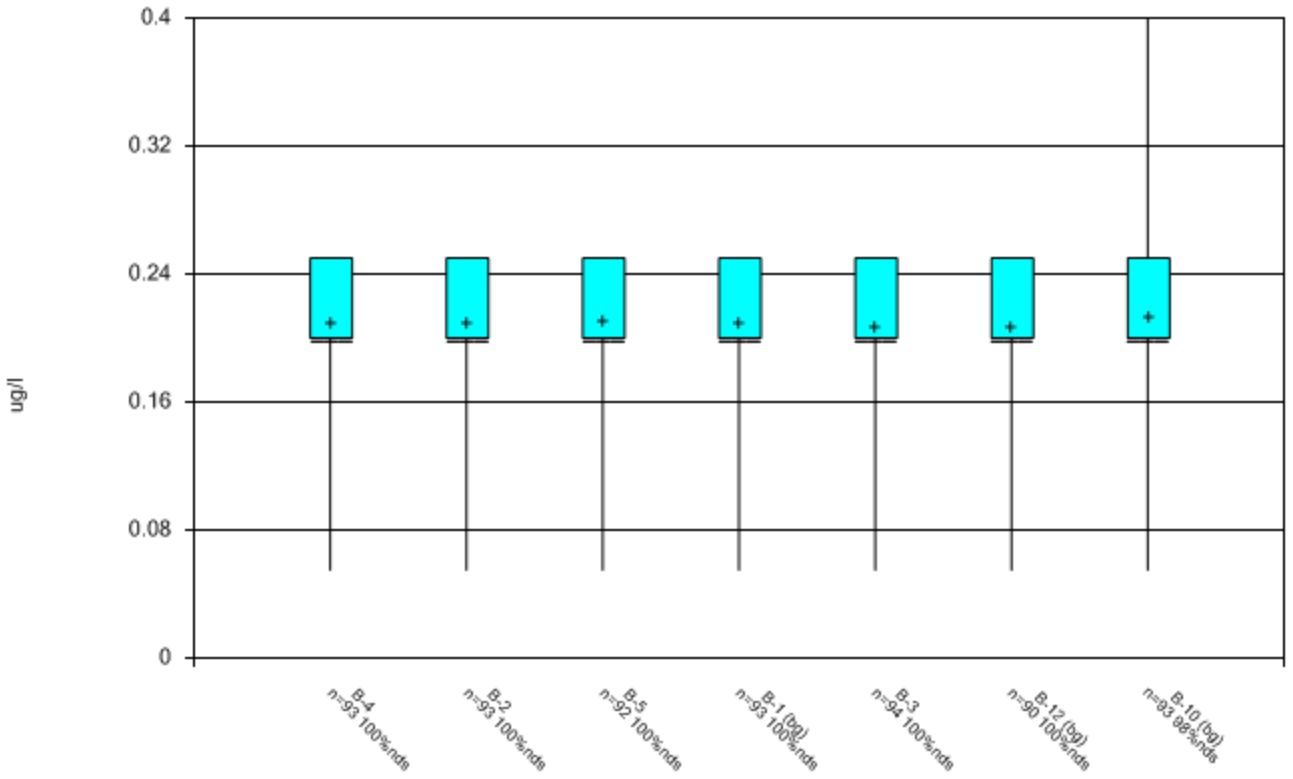


Constituent: Diethyl ether Analysis Run 3/5/2018 10:46 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_vocs_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

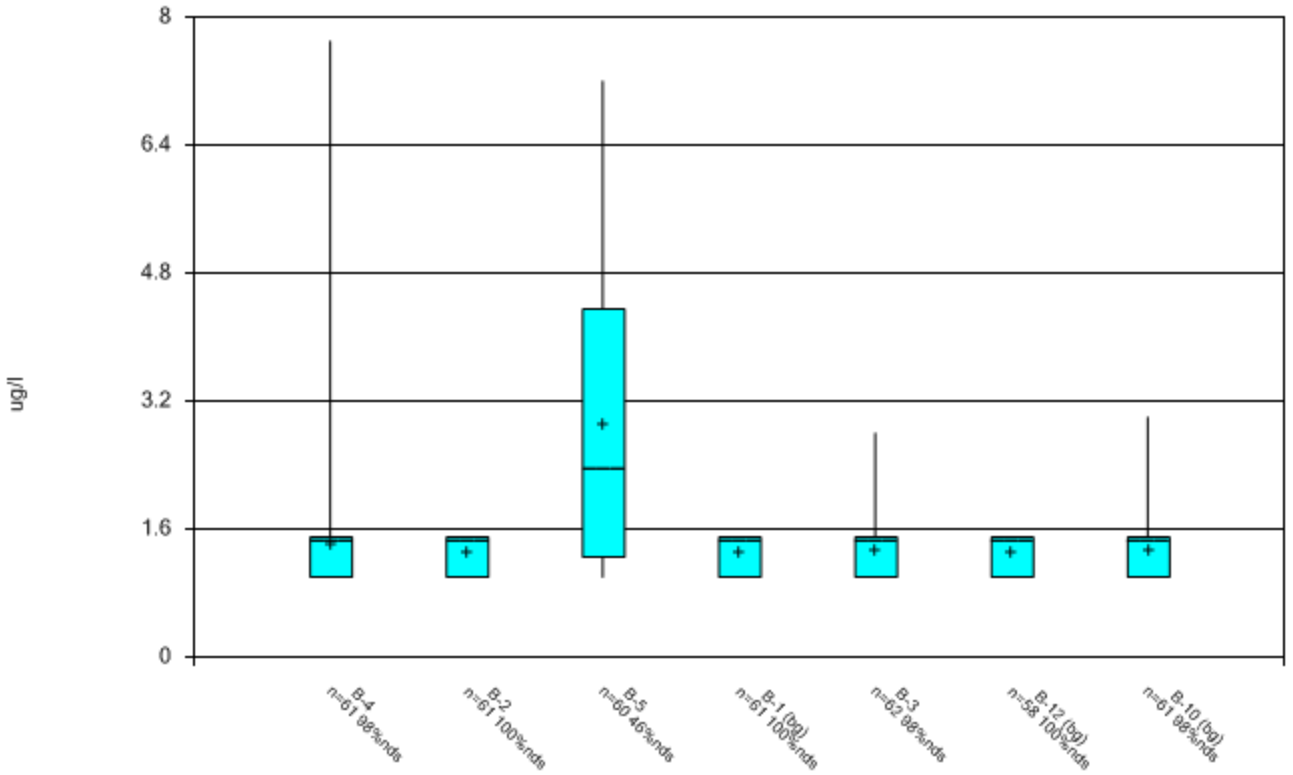


Constituent: Tetrachloroethene Analysis Run 3/5/2018 10:46 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_vocs_(1994-2017)

WQStat Plus™ v.9.4.41

Box & Whiskers Plot

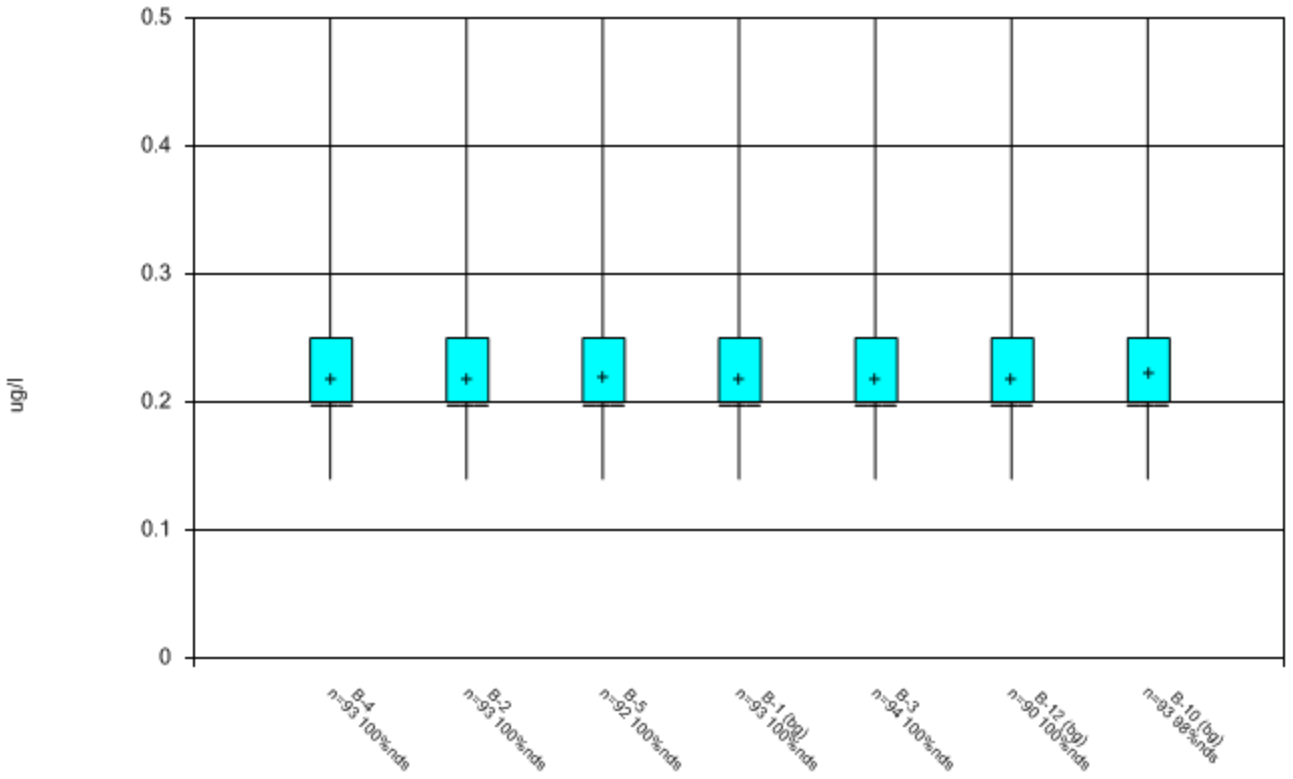


Constituent: Tetrahydrofuran Analysis Run 3/5/2018 10:47 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_vocs_(1994-2017)

WQStat Plus™ v.9.4.41

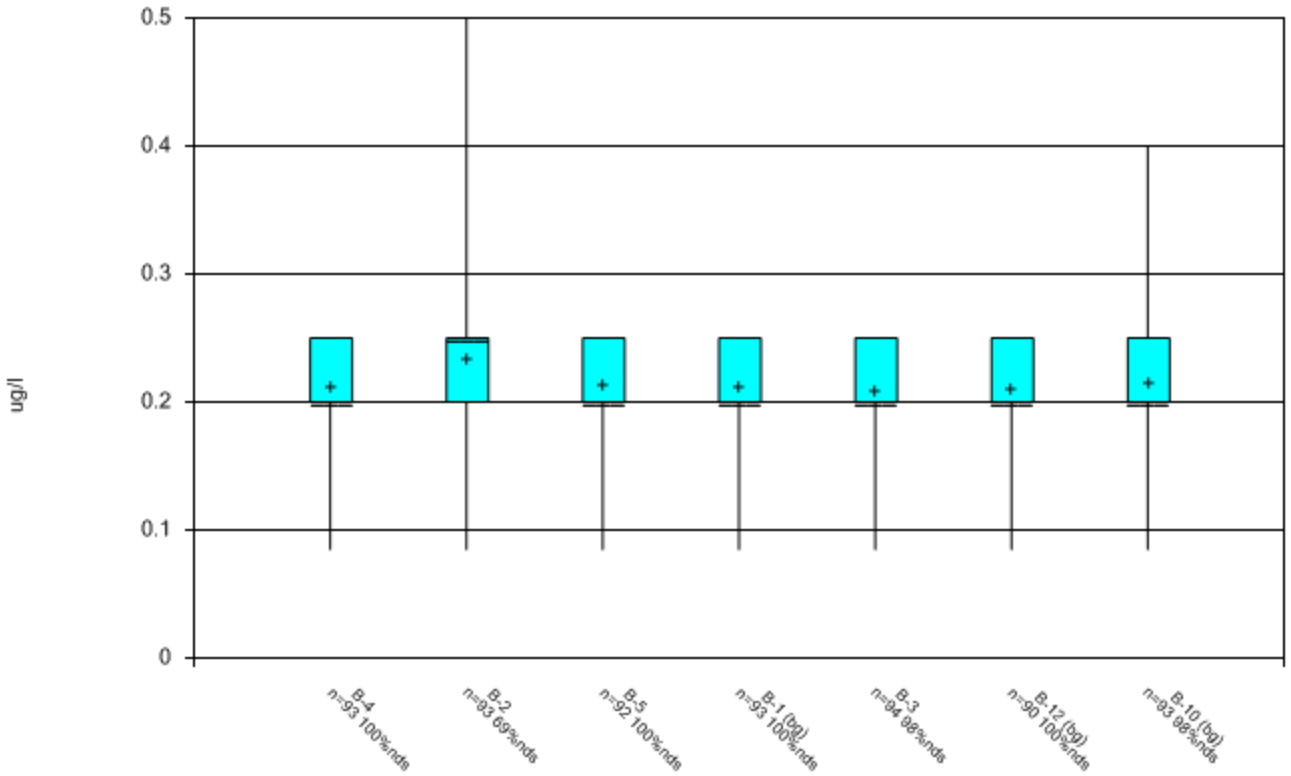
Box & Whiskers Plot



Constituent: Toluene Analysis Run 3/5/2018 10:47 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_vocs_(1994-2017)

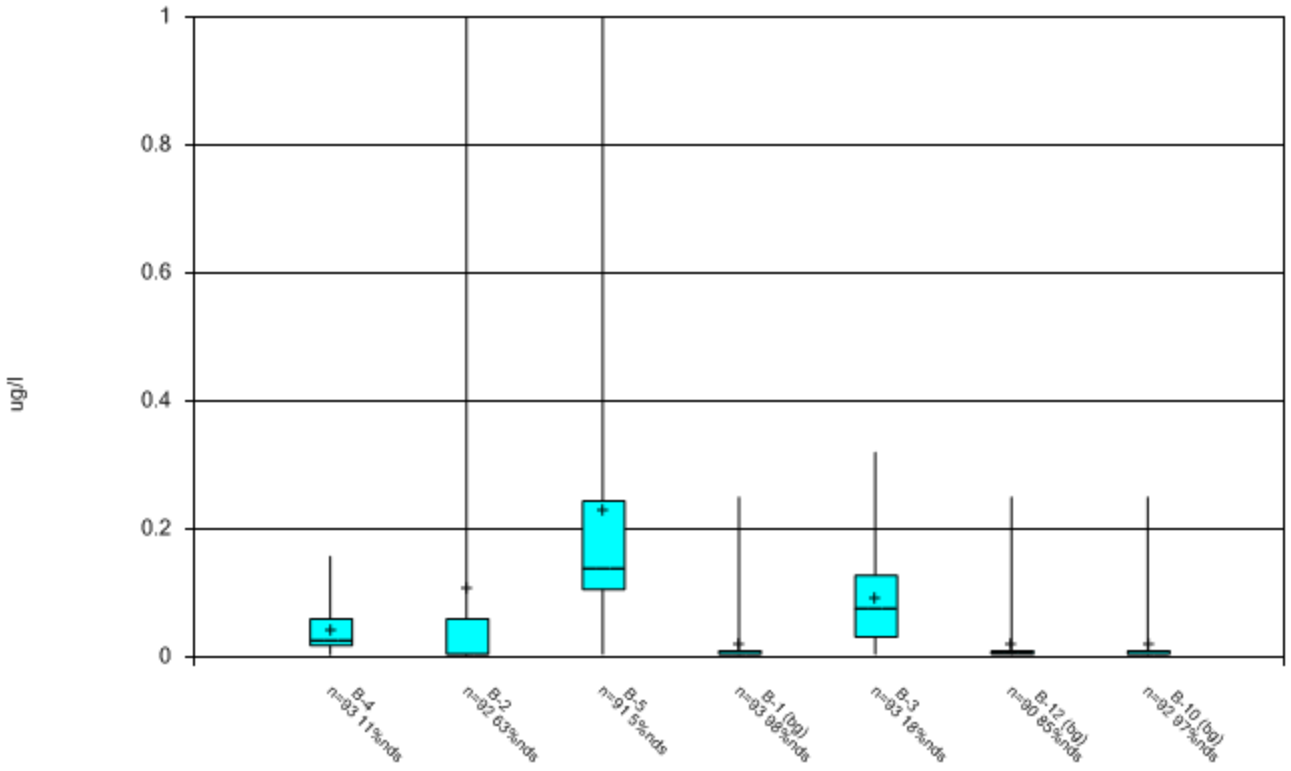
Box & Whiskers Plot



Constituent: Trichlorofluoromethane [CFC-11] Analysis Run 3/5/2018 10:48 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_vocs_(1994-2017)

Box & Whiskers Plot



Constituent: Vinyl chloride Analysis Run 3/5/2018 10:48 AM

Facility: Inman Landfill (1994-2017) Data File: inman_regional_vocs_(1994-2017)

APPENDIX E-4:
Long-Term Mann-Kendall Trend Tests 1994-2017 – Upper Regional Aquifer

Long-Term Mann-Kendall Trend Tests 1994-2017
Upper Regional Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Significance Level
1,1-dichloroethane	ug/L	**B-1**	**0**	**-6.383**	**-2.33**	**Yes**	**93**	**100**	**0.02**
		B-2	**-0.02209**	**-9.55**	**-2.33**	**Yes**	**93**	**47.31**	**0.02**
		B-3	**0**	**-5.988**	**-2.33**	**Yes**	**94**	**96.81**	**0.02**
		B-4	0	-1.603	-2.33	No	93	50.54	0.02
		B-5	**0**	**-6.878**	**-2.33**	**Yes**	**92**	**75**	**0.02**
		B-10	**0**	**-6.215**	**-2.33**	**Yes**	**93**	**98.92**	**0.02**
		B-12	**0**	**-6.058**	**-2.33**	**Yes**	**90**	**100**	**0.02**
1,2-dichloroethane	ug/L	**B-1**	**0**	**-6.383**	**-2.33**	**Yes**	**93**	**100**	**0.02**
		B-2	**0**	**-6.413**	**-2.33**	**Yes**	**93**	**100**	**0.02**
		B-3	**0**	**-6.227**	**-2.33**	**Yes**	**94**	**100**	**0.02**
		B-4	**0**	**-6.467**	**-2.33**	**Yes**	**93**	**98.92**	**0.02**
		B-5	**0**	**-6.766**	**-2.33**	**Yes**	**92**	**98.91**	**0.02**
		B-10	**0**	**-6.215**	**-2.33**	**Yes**	**93**	**98.92**	**0.02**
		B-12	**0**	**-6.143**	**-2.33**	**Yes**	**90**	**98.89**	**0.02**
Acetone	ug/L	**B-1**	**0.06285**	**8.999**	**2.33**	**Yes**	**93**	**96.77**	**0.02**
		B-2	**0.06467**	**9.436**	**2.33**	**Yes**	**93**	**98.92**	**0.02**
		B-3	**0.05116**	**7.308**	**2.33**	**Yes**	**94**	**98.94**	**0.02**
		B-4	**0.0649**	**9.436**	**2.33**	**Yes**	**93**	**98.92**	**0.02**
		B-5	**0.06421**	**8.985**	**2.33**	**Yes**	**92**	**97.83**	**0.02**
		B-10	**0.06674**	**9.526**	**2.33**	**Yes**	**93**	**97.85**	**0.02**
		B-12	**0.06624**	**8.962**	**2.33**	**Yes**	**90**	**97.78**	**0.02**
Alkalinity	mg/L	**B-1**	**37693**	**435**	**151**	**Yes**	**33**	**0**	**0.02**
		B-2	-664.5	-61	-145	No	32	0	0.02
		B-3	-935.8	-16	-145	No	32	0	0.02
		B-4	**-27391**	**-393**	**-145**	**Yes**	**32**	**0**	**0.02**
		B-5	-1594	-54	-138	No	31	0	0.02
		B-10	3241	146	151	No	33	0	0.02
		B-12	**7263**	**313**	**125**	**Yes**	**29**	**0**	**0.02**
Ammonia as nitrogen	mg/L	**B-1**	**14.91**	**10.42**	**2.33**	**Yes**	**99**	**0**	**0.02**
		B-2	**0.07443**	**3.082**	**2.33**	**Yes**	**99**	**35.35**	**0.02**
		B-3	**57.81**	**5.891**	**2.33**	**Yes**	**94**	**1.064**	**0.02**
		B-4	**74.42**	**8.924**	**2.33**	**Yes**	**99**	**0**	**0.02**
		B-5	**67.73**	**6.238**	**2.33**	**Yes**	**98**	**1.02**	**0.02**
		B-10	**19.73**	**6.377**	**2.33**	**Yes**	**99**	**0**	**0.02**
		B-12	**4.919**	**6.752**	**2.33**	**Yes**	**96**	**5.208**	**0.02**
Antimony, dissolved	mg/L	B-1	0	8	145	No	32	75	0.02
		B-2	0	19	145	No	32	78.13	0.02
		B-3	0	-55	-145	No	32	96.88	0.02
		B-4	0	-4	-151	No	33	90.91	0.02
		B-5	0	28	138	No	31	80.65	0.02
		B-10	0	-55	-145	No	32	96.88	0.02
		B-12	0	48	132	No	30	76.67	0.02
Arsenic, dissolved	mg/L	**B-1**	**1.412**	**5.952**	**2.33**	**Yes**	**91**	**0**	**0.02**
		B-2	**0.0002702**	**4.393**	**2.33**	**Yes**	**90**	**21.11**	**0.02**
		B-3	**0.1327**	**4.519**	**2.33**	**Yes**	**91**	**20.88**	**0.02**
		B-4	**0.1111**	**3.408**	**2.33**	**Yes**	**91**	**20.88**	**0.02**
		B-5	**0.1399**	**4.424**	**2.33**	**Yes**	**89**	**16.85**	**0.02**
		B-10	**0.05897**	**3.99**	**2.33**	**Yes**	**91**	**20.88**	**0.02**
		B-12	**0.1998**	**3.417**	**2.33**	**Yes**	**87**	**17.24**	**0.02**
Barium, dissolved	mg/L	**B-1**	**3.099**	**446**	**151**	**Yes**	**33**	**0**	**0.02**
		B-2	-0.8147	-139	-151	No	33	0	0.02
		B-3	0.1244	4	151	No	33	0	0.02
		B-4	-2.306	-138	-151	No	33	0	0.02
		B-5	1.131	93	145	No	32	0	0.02
		B-10	**1.678**	**205**	**151**	**Yes**	**33**	**0**	**0.02**
		B-12	**1.279**	**375**	**132**	**Yes**	**30**	**0**	**0.02**

Long-Term Mann-Kendall Trend Tests 1994-2017
Upper Regional Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Significance Level
Bicarbonate	mg/L	**B-1**	**37693**	**421**	**151**	**Yes**	**33**	**0**	**0.02**
		B-2	-1100	-95	-145	No	32	0	0.02
		B-3	-2791	-56	-145	No	32	0	0.02
		B-4	**-27249**	**-385**	**-145**	**Yes**	**32**	**0**	**0.02**
		B-5	-1313	-36	-138	No	31	0	0.02
		B-10	3241	148	151	No	33	0	0.02
		B-12	**6967**	**263**	**125**	**Yes**	**29**	**0**	**0.02**
Cadmium, dissolved	mg/L	**B-1**	**-0.00003832**	**-5.521**	**-2.33**	**Yes**	**95**	**95.79**	**0.02**
		B-2	**-0.00000821**	**-2.873**	**-2.33**	**Yes**	**95**	**89.47**	**0.02**
		B-3	**-0.00002548**	**-4.767**	**-2.33**	**Yes**	**92**	**97.83**	**0.02**
		B-4	**-0.00003647**	**-5.552**	**-2.33**	**Yes**	**96**	**95.83**	**0.02**
		B-5	**-0.00001988**	**-3.862**	**-2.33**	**Yes**	**94**	**93.62**	**0.02**
		B-10	**-0.00003392**	**-5.265**	**-2.33**	**Yes**	**95**	**97.89**	**0.02**
		B-12	**-0.00003734**	**-4.723**	**-2.33**	**Yes**	**93**	**93.55**	**0.02**
Chemical Oxygen Demand	mg/L	**B-1**	**0.08952**	**4.138**	**2.33**	**Yes**	**99**	**77.78**	**0.02**
		B-2	**0**	**-2.372**	**-2.33**	**Yes**	**99**	**68.69**	**0.02**
		B-3	**3.939**	**2.554**	**2.33**	**Yes**	**94**	**37.23**	**0.02**
		B-4	**588.7**	**7.047**	**2.33**	**Yes**	**99**	**55.56**	**0.02**
		B-5	**1584**	**8.119**	**2.33**	**Yes**	**98**	**6.122**	**0.02**
		B-10	**0.068**	**3.489**	**2.33**	**Yes**	**99**	**80.81**	**0.02**
		B-12	**0**	**3.075**	**2.33**	**Yes**	**96**	**89.58**	**0.02**
Chloride	mg/L	**B-1**	**594.5**	**9.075**	**2.33**	**Yes**	**98**	**0**	**0.02**
		B-2	**387.1**	**2.944**	**2.33**	**Yes**	**98**	**1.02**	**0.02**
		B-3	**528.9**	**5.792**	**2.33**	**Yes**	**93**	**0**	**0.02**
		B-4	**8338**	**10.52**	**2.33**	**Yes**	**98**	**0**	**0.02**
		B-5	**4010**	**11.69**	**2.33**	**Yes**	**97**	**0**	**0.02**
		B-10	**202.2**	**5.044**	**2.33**	**Yes**	**98**	**0**	**0.02**
		B-12	**163.3**	**4.661**	**2.33**	**Yes**	**95**	**0**	**0.02**
Chlorodifluoromethane (Freon 22)	ug/L	**B-1**	**0.01477**	**5.205**	**2.33**	**Yes**	**61**	**73.77**	**0.02**
		B-2	**0**	**-4.162**	**-2.33**	**Yes**	**61**	**80.33**	**0.02**
		B-3	0	-0.7482	-2.33	No	62	29.03	0.02
		B-4	**0.4848**	**5.018**	**2.33**	**Yes**	**61**	**1.639**	**0.02**
		B-5	**-0.1363**	**-4.969**	**-2.33**	**Yes**	**60**	**1.667**	**0.02**
		B-10	0	-0.0849	-2.33	No	61	98.36	0.02
		B-12	0	1.65	2.33	No	58	100	0.02
Chloroethane	ug/L	**B-1**	**0**	**-5.998**	**-2.33**	**Yes**	**93**	**100**	**0.02**
		B-2	**-0.002197**	**-6.503**	**-2.33**	**Yes**	**92**	**95.65**	**0.02**
		B-3	**0**	**-6.121**	**-2.33**	**Yes**	**93**	**100**	**0.02**
		B-4	**0**	**-6.31**	**-2.33**	**Yes**	**93**	**98.92**	**0.02**
		B-5	**0**	**-6.578**	**-2.33**	**Yes**	**91**	**100**	**0.02**
		B-10	**0**	**-6.12**	**-2.33**	**Yes**	**92**	**98.91**	**0.02**
		B-12	**0**	**-6.058**	**-2.33**	**Yes**	**90**	**100**	**0.02**
Chromium, dissolved	mg/L	B-1	0.09369	103	151	No	33	39.39	0.02
		B-2	0	151	151	No	33	33.33	0.02
		B-3	0.02321	61	151	No	33	42.42	0.02
		B-4	-0.398	-125	-151	No	33	12.12	0.02
		B-5	0	5	145	No	32	21.88	0.02
		B-10	0.03285	123	151	No	33	54.55	0.02
		B-12	0	55	132	No	30	66.67	0.02
cis-1,2-dichloroethene	ug/L	**B-1**	**0**	**-6.383**	**-2.33**	**Yes**	**93**	**100**	**0.02**
		B-2	**0**	**-6.413**	**-2.33**	**Yes**	**93**	**100**	**0.02**
		B-3	**0**	**-6.227**	**-2.33**	**Yes**	**94**	**100**	**0.02**
		B-4	**0**	**-6.383**	**-2.33**	**Yes**	**93**	**100**	**0.02**
		B-5	**0**	**-6.671**	**-2.33**	**Yes**	**92**	**100**	**0.02**
		B-10	**0**	**-6.215**	**-2.33**	**Yes**	**93**	**98.92**	**0.02**
		B-12	**0**	**-6.058**	**-2.33**	**Yes**	**90**	**100**	**0.02**

Long-Term Mann-Kendall Trend Tests 1994-2017
Upper Regional Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Significance Level
Copper, dissolved	mg/L	**B-1**	**0.04224**	**181**	**151**	**Yes**	**33**	**54.55**	**0.02**
		B-2	**0.07233**	**191**	**151**	**Yes**	**33**	**54.55**	**0.02**
		B-3	0	21	151	No	33	69.7	0.02
		B-4	0.04423	130	151	No	33	57.58	0.02
		B-5	0.01682	104	145	No	32	62.5	0.02
		B-10	0	29	151	No	33	72.73	0.02
		B-12	0.001427	85	132	No	30	70	0.02
Dichlorodifluoromethane (CFC-12)	ug/L	**B-1**	**0**	**-6.383**	**-2.33**	**Yes**	**93**	**100**	**0.02**
		B-2	**-0.2245**	**-5.93**	**-2.33**	**Yes**	**93**	**15.05**	**0.02**
		B-3	**0**	**-6.244**	**-2.33**	**Yes**	**94**	**98.94**	**0.02**
		B-4	**0**	**-3.969**	**-2.33**	**Yes**	**93**	**90.32**	**0.02**
		B-5	**-0.003996**	**-7.286**	**-2.33**	**Yes**	**92**	**59.78**	**0.02**
		B-10	**0**	**-6.215**	**-2.33**	**Yes**	**93**	**98.92**	**0.02**
		B-12	**0**	**-6.058**	**-2.33**	**Yes**	**90**	**100**	**0.02**
Dichloromonofluoromethane (Freon 21)	ug/L	B-1	0	0.3583	2.33	No	61	100	0.02
		B-2	**0**	**-5.053**	**-2.33**	**Yes**	**61**	**72.13**	**0.02**
		B-3	0	-0.1245	-2.33	No	62	33.87	0.02
		B-4	**0**	**-3.614**	**-2.33**	**Yes**	**61**	**49.18**	**0.02**
		B-5	**-0.02077**	**-4.322**	**-2.33**	**Yes**	**60**	**8.333**	**0.02**
		B-10	0	-0.0849	-2.33	No	61	98.36	0.02
		B-12	0	1.424	2.33	No	58	98.28	0.02
Diethyl ether	ug/L	B-1	0	0.3583	2.33	No	61	100	0.02
		B-2	0	0.6852	2.33	No	61	100	0.02
		B-3	**-0.109**	**-2.66**	**-2.33**	**Yes**	**62**	**19.35**	**0.02**
		B-4	0	0.3583	2.33	No	61	100	0.02
		B-5	-0.04409	-1.52	-2.33	No	60	1.667	0.02
		B-10	0	-0.0849	-2.33	No	61	98.36	0.02
		B-12	0	1.65	2.33	No	58	100	0.02
Iron, dissolved	mg/L	**B-1**	**31.36**	**12.45**	**2.33**	**Yes**	**99**	**1.01**	**0.02**
		B-2	0	-2.004	-2.33	No	99	61.62	0.02
		B-3	**244.6**	**6.023**	**2.33**	**Yes**	**94**	**0**	**0.02**
		B-4	**333.1**	**10.6**	**2.33**	**Yes**	**99**	**0**	**0.02**
		B-5	**845.4**	**5.602**	**2.33**	**Yes**	**98**	**1.02**	**0.02**
		B-10	**100.6**	**9.902**	**2.33**	**Yes**	**99**	**2.02**	**0.02**
		B-12	**22.68**	**9.593**	**2.33**	**Yes**	**96**	**1.042**	**0.02**
Lead, dissolved	mg/L	**B-1**	**-0.00002375**	**-3.608**	**-2.33**	**Yes**	**96**	**92.71**	**0.02**
		B-2	**-0.00002566**	**-4.291**	**-2.33**	**Yes**	**96**	**97.92**	**0.02**
		B-3	**-0.00002262**	**-3.341**	**-2.33**	**Yes**	**93**	**92.47**	**0.02**
		B-4	**-0.00002559**	**-4.315**	**-2.33**	**Yes**	**97**	**93.81**	**0.02**
		B-5	**-0.0000217**	**-3.51**	**-2.33**	**Yes**	**95**	**91.58**	**0.02**
		B-10	**-0.00002496**	**-4.379**	**-2.33**	**Yes**	**96**	**96.88**	**0.02**
		B-12	**-0.00002376**	**-3.593**	**-2.33**	**Yes**	**94**	**91.49**	**0.02**
Magnesium, total	mg/L	**B-1**	**5228**	**440**	**151**	**Yes**	**33**	**0**	**0.02**
		B-2	**-832.3**	**-257**	**-151**	**Yes**	**33**	**0**	**0.02**
		B-3	-88.84	-20	-151	No	33	0	0.02
		B-4	-1499	-144	-151	No	33	0	0.02
		B-5	246.7	46	145	No	32	0	0.02
		B-10	548.1	115	151	No	33	0	0.02
		B-12	**1071**	**355**	**132**	**Yes**	**30**	**0**	**0.02**
Manganese, dissolved	mg/L	**B-1**	**45.33**	**10.44**	**2.33**	**Yes**	**99**	**3.03**	**0.02**
		B-2	**0.04613**	**3.577**	**2.33**	**Yes**	**99**	**5.051**	**0.02**
		B-3	**27.1**	**5.553**	**2.33**	**Yes**	**94**	**1.064**	**0.02**
		B-4	**76.3**	**6.64**	**2.33**	**Yes**	**99**	**0**	**0.02**
		B-5	**96.87**	**6.802**	**2.33**	**Yes**	**98**	**1.02**	**0.02**
		B-10	**29.23**	**7.54**	**2.33**	**Yes**	**99**	**3.03**	**0.02**
		B-12	**2.823**	**4.572**	**2.33**	**Yes**	**96**	**0**	**0.02**

Long-Term Mann-Kendall Trend Tests 1994-2017
Upper Regional Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Significance Level
Mercury, dissolved	mg/L	**B-1**	**0**	**-2.537**	**-2.33**	**Yes**	**96**	**98.96**	**0.02**
		B-2	**0**	**-2.439**	**-2.33**	**Yes**	**96**	**100**	**0.02**
		B-3	0	-1.821	-2.33	No	93	98.92	0.02
		B-4	0	-2.229	-2.33	No	96	98.96	0.02
		B-5	**0**	**-2.391**	**-2.33**	**Yes**	**95**	**100**	**0.02**
		B-10	0	-1.902	-2.33	No	93	97.85	0.02
		B-12	**0**	**-2.81**	**-2.33**	**Yes**	**94**	**100**	**0.02**
Nickel, dissolved	mg/L	**B-1**	**0.4595**	**318**	**145**	**Yes**	**32**	**50**	**0.02**
		B-2	**-0.4304**	**-236**	**-145**	**Yes**	**32**	**3.125**	**0.02**
		B-3	0	96	145	No	32	40.63	0.02
		B-4	0	33	151	No	33	6.061	0.02
		B-5	0	92	138	No	31	3.226	0.02
		B-10	**0.01058**	**196**	**145**	**Yes**	**32**	**62.5**	**0.02**
		B-12	**0**	**155**	**132**	**Yes**	**30**	**66.67**	**0.02**
Nitrate as nitrogen	mg/L	**B-1**	**0**	**-4.907**	**-2.33**	**Yes**	**98**	**96.94**	**0.02**
		B-2	**68.42**	**5.902**	**2.33**	**Yes**	**97**	**13.4**	**0.02**
		B-3	0	-2.052	-2.33	No	93	94.62	0.02
		B-4	**0**	**-3.56**	**-2.33**	**Yes**	**98**	**89.8**	**0.02**
		B-5	0	-0.5017	-2.33	No	97	79.38	0.02
		B-10	**0**	**-3.994**	**-2.33**	**Yes**	**98**	**93.88**	**0.02**
		B-12	**0**	**-4.278**	**-2.33**	**Yes**	**95**	**96.84**	**0.02**
Nitrite as nitrogen	mg/L	B-1	0	-0.7275	-2.33	No	98	100	0.02
		B-2	0	-0.1848	-2.33	No	95	96.84	0.02
		B-3	0	1.787	2.33	No	93	95.7	0.02
		B-4	0	-0.6689	-2.33	No	98	96.94	0.02
		B-5	0	-0.8074	-2.33	No	97	93.81	0.02
		B-10	0	-0.2479	-2.33	No	98	97.96	0.02
		B-12	0	-0.6888	-2.33	No	95	97.89	0.02
pH	mg/L	**B-1**	**314.2**	**7.824**	**2.33**	**Yes**	**97**	**0**	**0.02**
		B-2	**305.5**	**8.241**	**2.33**	**Yes**	**97**	**0**	**0.02**
		B-3	**302.1**	**8.467**	**2.33**	**Yes**	**94**	**0**	**0.02**
		B-4	**317.4**	**7.343**	**2.33**	**Yes**	**98**	**0**	**0.02**
		B-5	**313.4**	**8.565**	**2.33**	**Yes**	**98**	**0**	**0.02**
		B-10	**325.6**	**8.209**	**2.33**	**Yes**	**98**	**0**	**0.02**
		B-12	**340.8**	**8.379**	**2.33**	**Yes**	**96**	**0**	**0.02**
Potassium, total	mg/L	**B-1**	**301.4**	**337**	**151**	**Yes**	**33**	**0**	**0.02**
		B-2	**994.8**	**219**	**151**	**Yes**	**33**	**0**	**0.02**
		B-3	38.73	32	151	No	33	0	0.02
		B-4	-30.22	-65	-151	No	33	0	0.02
		B-5	87.19	133	145	No	32	0	0.02
		B-10	**72.24**	**197**	**151**	**Yes**	**33**	**0**	**0.02**
		B-12	**102.4**	**248**	**132**	**Yes**	**30**	**0**	**0.02**
Selenium, dissolved	mg/L	**B-1**	**0.05479**	**214**	**151**	**Yes**	**33**	**57.58**	**0.02**
		B-2	**-0.7509**	**-231**	**-151**	**Yes**	**33**	**9.091**	**0.02**
		B-3	0.009609	112	151	No	33	63.64	0.02
		B-4	**0.1613**	**167**	**151**	**Yes**	**33**	**36.36**	**0.02**
		B-5	0.09812	95	145	No	32	56.25	0.02
		B-10	0	-63	-151	No	33	81.82	0.02
		B-12	0	-102	-132	No	30	86.67	0.02
Specific Conductance	us/cm	**B-1**	**11.71**	**8.061**	**2.33**	**Yes**	**99**	**0**	**0.02**
		B-2	**-32.55**	**-10.17**	**-2.33**	**Yes**	**98**	**0**	**0.02**
		B-3	**-8.368**	**-3.399**	**-2.33**	**Yes**	**93**	**0**	**0.02**
		B-4	**56.98**	**10.19**	**2.33**	**Yes**	**99**	**0**	**0.02**
		B-5	**18.84**	**9.902**	**2.33**	**Yes**	**97**	**0**	**0.02**
		B-10	**10.76**	**8.178**	**2.33**	**Yes**	**99**	**0**	**0.02**
		B-12	**3.811**	**5.908**	**2.33**	**Yes**	**96**	**0**	**0.02**

Long-Term Mann-Kendall Trend Tests 1994-2017
Upper Regional Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Significance Level
Sulfate	mg/L	**B-1**	**342.3**	**6.824**	**2.33**	**Yes**	**98**	**0**	**0.02**
		B-2	**1367**	**2.68**	**2.33**	**Yes**	**98**	**0**	**0.02**
		B-3	0	0.00341	2.33	No	93	75.27	0.02
		B-4	**3266**	**10.85**	**2.33**	**Yes**	**98**	**0**	**0.02**
		B-5	**0.5335**	**4.427**	**2.33**	**Yes**	**97**	**40.21**	**0.02**
		B-10	**1740**	**9.974**	**2.33**	**Yes**	**98**	**0**	**0.02**
		B-12	**692.9**	**9.512**	**2.33**	**Yes**	**95**	**1.053**	**0.02**
Tetrachloroethene	ug/L	**B-1**	**0**	**-6.383**	**-2.33**	**Yes**	**93**	**100**	**0.02**
		B-2	**0**	**-6.413**	**-2.33**	**Yes**	**93**	**100**	**0.02**
		B-3	**0**	**-6.227**	**-2.33**	**Yes**	**94**	**100**	**0.02**
		B-4	**0**	**-6.383**	**-2.33**	**Yes**	**93**	**100**	**0.02**
		B-5	**0**	**-6.671**	**-2.33**	**Yes**	**92**	**100**	**0.02**
		B-10	**0**	**-6.215**	**-2.33**	**Yes**	**93**	**98.92**	**0.02**
		B-12	**0**	**-6.058**	**-2.33**	**Yes**	**90**	**100**	**0.02**
Tetrahydrofuran	ug/L	**B-1**	**0**	**6.436**	**2.33**	**Yes**	**61**	**100**	**0.02**
		B-2	**0**	**6.436**	**2.33**	**Yes**	**61**	**100**	**0.02**
		B-3	**0**	**6.457**	**2.33**	**Yes**	**62**	**98.39**	**0.02**
		B-4	**0**	**6.079**	**2.33**	**Yes**	**61**	**98.36**	**0.02**
		B-5	**0.2481**	**5.983**	**2.33**	**Yes**	**60**	**46.67**	**0.02**
		B-10	**0**	**6.583**	**2.33**	**Yes**	**61**	**98.36**	**0.02**
		B-12	**0**	**6.338**	**2.33**	**Yes**	**58**	**100**	**0.02**
Toluene	ug/L	**B-1**	**0**	**-6.213**	**-2.33**	**Yes**	**93**	**100**	**0.02**
		B-2	**0**	**-6.243**	**-2.33**	**Yes**	**93**	**100**	**0.02**
		B-3	**0**	**-6.062**	**-2.33**	**Yes**	**94**	**100**	**0.02**
		B-4	**0**	**-6.213**	**-2.33**	**Yes**	**93**	**100**	**0.02**
		B-5	**0**	**-6.487**	**-2.33**	**Yes**	**92**	**100**	**0.02**
		B-10	**0**	**-6.044**	**-2.33**	**Yes**	**93**	**98.92**	**0.02**
		B-12	**0**	**-5.882**	**-2.33**	**Yes**	**90**	**100**	**0.02**
Calcium, total	mg/L	**B-1**	**2414**	**10.9**	**2.33**	**Yes**	**97**	**0**	**0.02**
		B-2	**1178**	**3.095**	**2.33**	**Yes**	**97**	**0**	**0.02**
		B-3	**1178**	**6.161**	**2.33**	**Yes**	**94**	**0**	**0.02**
		B-4	**5817**	**9.473**	**2.33**	**Yes**	**97**	**0**	**0.02**
		B-5	**2483**	**9.93**	**2.33**	**Yes**	**96**	**0**	**0.02**
		B-10	**1914**	**8.197**	**2.33**	**Yes**	**97**	**0**	**0.02**
		B-12	**920.9**	**10.01**	**2.33**	**Yes**	**93**	**0**	**0.02**
Total Dissolved Solids	mg/L	**B-1**	**45638**	**417**	**145**	**Yes**	**32**	**0**	**0.02**
		B-2	**-7712**	**-236**	**-151**	**Yes**	**33**	**0**	**0.02**
		B-3	417.1	7	151	No	33	0	0.02
		B-4	**-23122**	**-163**	**-151**	**Yes**	**33**	**0**	**0.02**
		B-5	5636	117	145	No	32	0	0.02
		B-10	**5801**	**175**	**151**	**Yes**	**33**	**0**	**0.02**
		B-12	**8690**	**384**	**132**	**Yes**	**30**	**0**	**0.02**
Total Organic Carbon	mg/L	**B-1**	**64.41**	**10.12**	**2.33**	**Yes**	**99**	**14.14**	**0.02**
		B-2	**35.87**	**3.015**	**2.33**	**Yes**	**99**	**5.051**	**0.02**
		B-3	**121.7**	**5.445**	**2.33**	**Yes**	**94**	**0**	**0.02**
		B-4	**92.01**	**11.22**	**2.33**	**Yes**	**99**	**11.11**	**0.02**
		B-5	**391**	**7.99**	**2.33**	**Yes**	**98**	**0**	**0.02**
		B-10	**50.55**	**10.81**	**2.33**	**Yes**	**99**	**12.12**	**0.02**
		B-12	**22.37**	**7.046**	**2.33**	**Yes**	**96**	**11.46**	**0.02**
Trichloroethene	ug/L	**B-1**	**0**	**-6.383**	**-2.33**	**Yes**	**93**	**100**	**0.02**
		B-2	**0**	**-6.413**	**-2.33**	**Yes**	**93**	**100**	**0.02**
		B-3	**0**	**-6.227**	**-2.33**	**Yes**	**94**	**100**	**0.02**
		B-4	**0**	**-6.383**	**-2.33**	**Yes**	**93**	**100**	**0.02**
		B-5	**0**	**-6.671**	**-2.33**	**Yes**	**92**	**100**	**0.02**
		B-10	**0**	**-6.215**	**-2.33**	**Yes**	**93**	**98.92**	**0.02**
		B-12	**0**	**-6.058**	**-2.33**	**Yes**	**90**	**100**	**0.02**

Long-Term Mann-Kendall Trend Tests 1994-2017
Upper Regional Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Significance Level
Trichlorofluoromethane (CFC-11)	ug/L	**B-1**	**0**	**-6.383**	**-2.33**	**Yes**	**93**	**100**	**0.02**
		B-2	0	-0.921	-2.33	No	93	69.89	0.02
		B-3	**0**	**-5.966**	**-2.33**	**Yes**	**94**	**98.94**	**0.02**
		B-4	**0**	**-6.383**	**-2.33**	**Yes**	**93**	**100**	**0.02**
		B-5	**0**	**-6.671**	**-2.33**	**Yes**	**92**	**100**	**0.02**
		B-10	**0**	**-6.215**	**-2.33**	**Yes**	**93**	**98.92**	**0.02**
		B-12	**0**	**-6.058**	**-2.33**	**Yes**	**90**	**100**	**0.02**
Sodium, total	mg/L	**B-1**	**708.1**	**10.12**	**2.33**	**Yes**	**97**	**0**	**0.02**
		B-2	388.1	1.141	2.33	No	97	0	0.02
		B-3	**536.4**	**5.455**	**2.33**	**Yes**	**94**	**0**	**0.02**
		B-4	**1072**	**6.858**	**2.33**	**Yes**	**97**	**0**	**0.02**
		B-5	**1677**	**12.26**	**2.33**	**Yes**	**96**	**0**	**0.02**
		B-10	**447.4**	**7.697**	**2.33**	**Yes**	**97**	**0**	**0.02**
		B-12	**482.3**	**10.15**	**2.33**	**Yes**	**94**	**0**	**0.02**
Vanadium, dissolved	mg/L	B-1	0	-96	-151	No	33	6.061	0.02
		B-2	**-0.1231**	**-157**	**-151**	**Yes**	**33**	**9.091**	**0.02**
		B-3	**-0.2343**	**-185**	**-151**	**Yes**	**33**	**21.21**	**0.02**
		B-4	-0.6069	-124	-151	No	33	27.27	0.02
		B-5	-0.4994	-140	-145	No	32	25	0.02
		B-10	-0.1334	-87	-151	No	33	21.21	0.02
		B-12	0	-40	-132	No	30	30	0.02
Vinyl chloride	ug/L	**B-1**	**0**	**-6.346**	**-2.33**	**Yes**	**93**	**98.92**	**0.02**
		B-2	**-0.001199**	**-8.566**	**-2.33**	**Yes**	**92**	**63.04**	**0.02**
		B-3	**-0.004206**	**-4.136**	**-2.33**	**Yes**	**93**	**18.28**	**0.02**
		B-4	**-0.001805**	**-4.609**	**-2.33**	**Yes**	**93**	**11.83**	**0.02**
		B-5	**-0.01049**	**-5.411**	**-2.33**	**Yes**	**91**	**5.495**	**0.02**
		B-10	**0**	**-6.4**	**-2.33**	**Yes**	**92**	**97.83**	**0.02**
		B-12	**0**	**-4.03**	**-2.33**	**Yes**	**90**	**85.56**	**0.02**
Zinc, dissolved	mg/L	B-1	0	-0.4683	-2.33	No	99	60.61	0.02
		B-2	0	0.0061	2.33	No	99	59.6	0.02
		B-3	0	-0.537	-2.33	No	94	57.45	0.02
		B-4	0	0.4711	2.33	No	99	59.6	0.02
		B-5	0	-0.7151	-2.33	No	98	61.22	0.02
		B-10	0	-0.4884	-2.33	No	99	59.6	0.02
		B-12	0	-0.848	-2.33	No	96	64.58	0.02

APPENDIX E-5:
Short-Term Mann-Kendall Trend Tests 2013-2017 – Upper Regional Aquifer

Short-Term Mann-Kendall Trend Tests 2013-2017
Regional Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Alpha
1,1-dichloroethane	ug/L	B-1	0	0	68	No	19	100	0.02
		B-2	0	0	68	No	19	100	0.02
		B-3	0	0	68	No	19	100	0.02
		B-4	0	-24	-68	No	19	78.95	0.02
		B-5	0	0	63	No	18	100	0.02
		B-10	0	12	68	No	19	94.74	0.02
		B-12	0	0	58	No	17	100	0.02
1,2-dichloroethane	ug/L	B-1	0	0	68	No	19	100	0.02
		B-2	0	0	68	No	19	100	0.02
		B-3	0	0	68	No	19	100	0.02
		B-4	0	0	68	No	19	100	0.02
		B-5	0	0	63	No	18	100	0.02
		B-10	0	12	68	No	19	94.74	0.02
		B-12	0	0	58	No	17	100	0.02
Acetone	ug/L	B-1	0	0	68	No	19	100	0.02
		B-2	0	0	68	No	19	100	0.02
		B-3	0	0	68	No	19	100	0.02
		B-4	0	0	68	No	19	100	0.02
		B-5	0	0	63	No	18	100	0.02
		B-10	0	12	68	No	19	94.74	0.02
		B-12	0	0	58	No	17	100	0.02
Alkalinity	mg/L	**B-1**	**37.69**	**435**	**151**	**Yes**	**33**	**0**	**0.02**
		B-2	-0.6645	-61	-145	No	32	0	0.02
		B-3	-0.9358	-16	-145	No	32	0	0.02
		B-4	**-27.39**	**-393**	**-145**	**Yes**	**32**	**0**	**0.02**
		B-5	-1.594	-54	-138	No	31	0	0.02
		B-10	3.241	146	151	No	33	0	0.02
		B-12	**7.263**	**313**	**125**	**Yes**	**29**	**0**	**0.02**
Ammonia as nitrogen	mg/L	**B-1**	**0.006485**	**7.802**	**2.33**	**Yes**	**93**	**0**	**0.02**
		B-2	0	-0.03003	-2.33	No	93	32.26	0.02
		B-3	-0.001941	-0.415	-2.33	No	94	1.064	0.02
		B-4	**0.06507**	**8.791**	**2.33**	**Yes**	**93**	**0**	**0.02**
		B-5	0.01065	1.761	2.33	No	92	1.087	0.02
		B-10	**0.003224**	**2.885**	**2.33**	**Yes**	**93**	**0**	**0.02**
		B-12	0.000563	1.317	2.33	No	90	4.444	0.02
Antimony, dissolved	mg/L	**B-1**	**-0.00005382**	**-202**	**-145**	**Yes**	**32**	**75**	**0.02**
		B-2	**-0.00006964**	**-221**	**-145**	**Yes**	**32**	**78.13**	**0.02**
		B-3	0	-107	-145	No	32	96.88	0.02
		B-4	0	-116	-151	No	33	90.91	0.02
		B-5	**-0.00005759**	**-204**	**-138**	**Yes**	**31**	**80.65**	**0.02**
		B-10	0	-63	-145	No	32	96.88	0.02
		B-12	**-0.00007201**	**-220**	**-132**	**Yes**	**30**	**76.67**	**0.02**
Arsenic, dissolved	mg/L	B-1	0	-0.689	-2.33	No	91	0	0.02
		B-2	**-0.00005139**	**-7.776**	**-2.33**	**Yes**	**90**	**21.11**	**0.02**
		B-3	**-0.00006669**	**-2.819**	**-2.33**	**Yes**	**91**	**20.88**	**0.02**
		B-4	**-0.0001081**	**-4.152**	**-2.33**	**Yes**	**91**	**20.88**	**0.02**
		B-5	**-0.0001881**	**-3.093**	**-2.33**	**Yes**	**89**	**16.85**	**0.02**
		B-10	**-0.0000408**	**-5.052**	**-2.33**	**Yes**	**91**	**20.88**	**0.02**
		B-12	**-0.0002167**	**-6.473**	**-2.33**	**Yes**	**87**	**17.24**	**0.02**
Barium, dissolved	mg/L	**B-1**	**0.003099**	**446**	**151**	**Yes**	**33**	**0**	**0.02**
		B-2	-0.0008147	-139	-151	No	33	0	0.02
		B-3	0.0001244	4	151	No	33	0	0.02
		B-4	-0.002306	-138	-151	No	33	0	0.02
		B-5	0.001131	93	145	No	32	0	0.02
		B-10	**0.001678**	**205**	**151**	**Yes**	**33**	**0**	**0.02**
		B-12	**0.001279**	**375**	**132**	**Yes**	**30**	**0**	**0.02**
Bicarbonate	mg/L	**B-1**	**37.69**	**435**	**151**	**Yes**	**33**	**0**	**0.02**
		B-2	-0.7592	-63	-145	No	32	0	0.02
		B-3	-0.5658	-10	-145	No	32	0	0.02
		B-4	**-27.21**	**-385**	**-145**	**Yes**	**32**	**0**	**0.02**
		B-5	0.908	20	138	No	31	0	0.02
		B-10	3.241	150	151	No	33	0	0.02
		B-12	**7.372**	**313**	**125**	**Yes**	**29**	**0**	**0.02**
Cadmium, dissolved	mg/L	B-1	0	-26	-68	No	19	89.47	0.02
		B-2	-0.00002119	-51	-63	No	18	55.56	0.02
		B-3	0	-17	-63	No	18	94.44	0.02
		B-4	0	-11	-68	No	19	89.47	0.02
		B-5	-9.201E-06	-47	-58	No	17	70.59	0.02
		B-10	0	17	68	No	19	89.47	0.02
		B-12	0	-50	-58	No	17	82.35	0.02

Short-Term Mann-Kendall Trend Tests 2013-2017
Regional Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Alpha
Calcium, total	mg/L	**B-1**	**4.641**	**81**	**68**	**Yes**	**19**	**0**	**0.02**
		B-2	-0.3603	-14	-68	No	19	0	0.02
		B-3	0.06642	2	68	No	19	0	0.02
		B-4	**-9.631**	**-129**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-5	-0.8541	-22	-63	No	18	0	0.02
		B-10	**-2.124**	**-97**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-12	**0.8022**	**78**	**58**	**Yes**	**17**	**0**	**0.02**
Chemical Oxygen Demand	mg/L	B-1	2.028	57	68	No	19	47.37	0.02
		B-2	0	23	68	No	19	78.95	0.02
		B-3	0	5	68	No	19	42.11	0.02
		B-4	-1.744	-32	-68	No	19	10.53	0.02
		B-5	-1.347	-18	-63	No	18	0	0.02
		B-10	0	59	68	No	19	63.16	0.02
		B-12	0	6	58	No	17	70.59	0.02
Chloride	mg/L	**B-1**	**8.996**	**122**	**68**	**Yes**	**19**	**0**	**0.02**
		B-2	-0.5542	-40	-68	No	19	0	0.02
		B-3	-0.08979	-3	-68	No	19	0	0.02
		B-4	**-13.35**	**-150**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-5	**3.663**	**73**	**63**	**Yes**	**18**	**0**	**0.02**
		B-10	-0.03315	-24	-68	No	19	0	0.02
		B-12	-0.042	-20	-58	No	17	0	0.02
Chlorodifluoromethane (Freon 22)	ug/L	**B-1**	**0.233**	**74**	**68**	**Yes**	**19**	**15.79**	**0.02**
		B-2	0	0	68	No	19	100	0.02
		B-3	0	-6	-68	No	19	42.11	0.02
		B-4	**-1.354**	**-99**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-5	-0.1004	-30	-63	No	18	0	0.02
		B-10	0	12	68	No	19	94.74	0.02
		B-12	0	0	58	No	17	100	0.02
Chloroethane	ug/L	B-1	0	-10	-68	No	19	100	0.02
		B-2	0	0	68	No	19	100	0.02
		B-3	0	0	68	No	19	100	0.02
		B-4	0	0	68	No	19	100	0.02
		B-5	0	0	63	No	18	100	0.02
		B-10	0	12	68	No	19	94.74	0.02
		B-12	0	0	58	No	17	100	0.02
Chromium, dissolved	mg/L	B-1	0	9	68	No	19	15.79	0.02
		B-2	0	-17	-68	No	19	5.263	0.02
		B-3	-0.00006612	-40	-68	No	19	21.05	0.02
		B-4	**-0.0006618**	**-72**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-5	-0.0003098	-39	-63	No	18	0	0.02
		B-10	-0.00006648	-55	-68	No	19	21.05	0.02
		B-12	0	-11	-58	No	17	47.06	0.02
cis-1,2-dichloroethene	ug/L	B-1	0	0	68	No	19	100	0.02
		B-2	0	0	68	No	19	100	0.02
		B-3	0	0	68	No	19	100	0.02
		B-4	0	0	68	No	19	100	0.02
		B-5	0	0	63	No	18	100	0.02
		B-10	0	12	68	No	19	94.74	0.02
		B-12	0	0	58	No	17	100	0.02
Cobalt, dissolved	mg/L	**B-1**	**0.00002852**	**75**	**68**	**Yes**	**19**	**21.05**	**0.02**
		B-2	**-0.00007118**	**-76**	**-63**	**Yes**	**18**	**44.44**	**0.02**
		B-3	-0.00005245	-62	-63	No	18	22.22	0.02
		B-4	**-0.00007235**	**-125**	**-68**	**Yes**	**19**	**26.32**	**0.02**
		B-5	0.00002411	24	58	No	17	23.53	0.02
		B-10	0	-35	-68	No	19	57.89	0.02
		B-12	-1.531E-06	-48	-58	No	17	64.71	0.02
Copper, dissolved	mg/L	B-1	-0.00008147	-54	-68	No	19	21.05	0.02
		B-2	-0.00004495	-48	-68	No	19	21.05	0.02
		B-3	-0.00006636	-45	-68	No	19	47.37	0.02
		B-4	**-0.0001261**	**-81**	**-68**	**Yes**	**19**	**26.32**	**0.02**
		B-5	**-0.0002022**	**-72**	**-63**	**Yes**	**18**	**33.33**	**0.02**
		B-10	0	-17	-68	No	19	52.63	0.02
		B-12	-0.0001101	-41	-58	No	17	47.06	0.02
Dichlorodifluoromethane (CFC-12)	ug/L	B-1	0	0	68	No	19	100	0.02
		B-2	**-0.1988**	**-92**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-3	0	0	68	No	19	100	0.02
		B-4	0	-30	-68	No	19	73.68	0.02
		B-5	0	0	63	No	18	100	0.02
		B-10	0	12	68	No	19	94.74	0.02
		B-12	0	0	58	No	17	100	0.02

Short-Term Mann-Kendall Trend Tests 2013-2017
Regional Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Alpha
		B-1	0	0	68	No	19	100	0.02
		B-2	0	0	68	No	19	100	0.02
		B-3	0	-18	-68	No	19	47.37	0.02
ichloromonofluoromethane (Freon 2	ug/L	B-4	0	-28	-68	No	19	89.47	0.02
		B-5	0	29	63	No	18	16.67	0.02
		B-10	0	12	68	No	19	94.74	0.02
		B-12	0	0	58	No	17	100	0.02
		B-1	0	0	68	No	19	100	0.02
		B-2	0	0	68	No	19	100	0.02
		B-3	0	-12	-68	No	19	36.84	0.02
Diethyl ether	ug/L	B-4	0	0	68	No	19	100	0.02
		B-5	-0.05859	-11	-63	No	18	5.556	0.02
		B-10	0	12	68	No	19	94.74	0.02
		B-12	0	0	58	No	17	100	0.02
		B-1	**0.3068**	**118**	**68**	**Yes**	**19**	**0**	**0.02**
		B-2	0	34	68	No	19	78.95	0.02
		B-3	0.04056	5	68	No	19	0	0.02
Iron, dissolved	mg/L	B-4	-0.1542	-64	-68	No	19	0	0.02
		B-5	-0.2384	-11	-63	No	18	0	0.02
		B-10	0	1	68	No	19	0	0.02
		B-12	0.02228	55	58	No	17	0	0.02
		B-1	**-0.00005734**	**-88**	**-68**	**Yes**	**19**	**78.95**	**0.02**
		B-2	0	-15	-63	No	18	94.44	0.02
		B-3	0	-60	-63	No	18	83.33	0.02
Lead, dissolved	mg/L	B-4	0	-7	-68	No	19	89.47	0.02
		B-5	0	-29	-58	No	17	82.35	0.02
		B-10	0	15	68	No	19	94.74	0.02
		B-12	-6.656E-06	-51	-58	No	17	82.35	0.02
		B-1	**4.06**	**99**	**68**	**Yes**	**19**	**0**	**0.02**
		B-2	-0.3417	-35	-68	No	19	0	0.02
		B-3	0.04973	1	68	No	19	0	0.02
Magnesium, dissolved	mg/L	**B-4**	**-7.353**	**-119**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-5	0.5887	18	63	No	18	0	0.02
		B-10	**-1.314**	**-73**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-12	**1.313**	**97**	**58**	**Yes**	**17**	**0**	**0.02**
		B-1	**0.2377**	**145**	**68**	**Yes**	**19**	**0**	**0.02**
		B-2	-0.0003985	-53	-68	No	19	15.79	0.02
		B-3	-0.01968	-18	-68	No	19	0	0.02
Manganese	mg/L	**B-4**	**-0.1051**	**-136**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-5	0.0941	45	63	No	18	0	0.02
		B-10	-0.01356	-41	-68	No	19	0	0.02
		B-12	-0.0001992	-8	-58	No	17	0	0.02
		B-1	0	0	68	No	19	100	0.02
		B-2	0	0	63	No	18	100	0.02
		B-3	0	0	63	No	18	100	0.02
Mercury, dissolved	mg/L	B-4	0	0	68	No	19	100	0.02
		B-5	0	0	58	No	17	100	0.02
		B-10	0	12	68	No	19	94.74	0.02
		B-12	0	0	58	No	17	100	0.02
		B-1	**0.0006661**	**110**	**68**	**Yes**	**19**	**15.79**	**0.02**
		B-2	0	-2	-63	No	18	5.556	0.02
		B-3	0	-10	-63	No	18	16.67	0.02
Nickel, dissolved	mg/L	B-4	0	-32	-68	No	19	0	0.02
		B-5	0	-19	-58	No	17	0	0.02
		B-10	-1.10E-11	-23	-68	No	19	36.84	0.02
		B-12	-6.20E-12	-16	-58	No	17	41.18	0.02
		B-1	0	-6	-68	No	19	94.74	0.02
		B-2	0.248	68	68	No	19	0	0.02
		B-3	0	-6	-68	No	19	94.74	0.02
Nitrate as nitrogen	mg/L	B-4	0	-7	-68	No	19	78.95	0.02
		B-5	0	10	63	No	18	55.56	0.02
		B-10	0	17	68	No	19	89.47	0.02
		B-12	0	25	58	No	17	88.24	0.02
		B-1	0	0	68	No	19	100	0.02
		B-2	0	-16	-68	No	19	100	0.02
		B-3	0	0	68	No	19	100	0.02
Nitrite as nitrogen	mg/L	B-4	0	0	68	No	19	100	0.02
		B-5	0	0	63	No	18	100	0.02
		B-10	0	-3	-68	No	19	94.74	0.02
		B-12	0	0	58	No	17	100	0.02

Short-Term Mann-Kendall Trend Tests 2013-2017
Regional Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Alpha
pH	mg/L	B-1	-0.2383	-45	-68	No	19	0	0.02
		B-2	-0.08022	-42	-68	No	19	0	0.02
		B-3	-0.1126	-35	-68	No	19	0	0.02
		B-4	-0.04171	-13	-68	No	19	0	0.02
		B-5	-0.05637	-28	-63	No	18	0	0.02
		B-10	-0.005317	-5	-68	No	19	0	0.02
		B-12	-0.1158	-33	-58	No	17	0	0.02
Potassium, dissolved	mg/L	B-1	0.09812	24	68	No	19	0	0.02
		B-2	-0.1324	-12	-68	No	19	0	0.02
		B-3	0.07221	20	68	No	19	0	0.02
		B-4	-0.1998	-61	-68	No	19	0	0.02
		B-5	0.2774	60	63	No	18	0	0.02
		B-10	0	-8	-68	No	19	0	0.02
		B-12	**0.174**	**66**	**58**	**Yes**	**17**	**0**	**0.02**
Selenium, dissolved	mg/L	B-1	0	-1	-68	No	19	26.32	0.02
		B-2	0	-27	-68	No	19	5.263	0.02
		B-3	-0.0001538	-58	-68	No	19	36.84	0.02
		B-4	0	-14	-68	No	19	5.263	0.02
		B-5	-2.70E-11	-19	-63	No	18	27.78	0.02
		B-10	-3.324E-06	-28	-68	No	19	68.42	0.02
		B-12	0	-11	-58	No	17	76.47	0.02
Sodium, total	mg/L	B-1	0	-9	-68	No	19	0	0.02
		B-2	**-0.6685**	**-102**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-3	-0.3252	-26	-68	No	19	0	0.02
		B-4	**-1.692**	**-139**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-5	**2.483**	**95**	**63**	**Yes**	**18**	**0**	**0.02**
		B-10	**-0.3006**	**-89**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-12	0.244	41	58	No	17	0	0.02
Specific Conductance	mg/L	B-1	39.15	37	68	No	19	0	0.02
		B-2	-1.422	-7	-68	No	19	0	0.02
		B-3	-2.245	-1	-68	No	19	0	0.02
		B-4	**-98.93**	**-158**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-5	7.984	25	63	No	18	0	0.02
		B-10	**-17.66**	**-97**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-12	**17.11**	**112**	**58**	**Yes**	**17**	**0**	**0.02**
Sulfate	mg/L	**B-1**	**-0.9308**	**-122**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-2	-0.8975	-41	-68	No	19	0	0.02
		B-3	0	55	68	No	19	100	0.02
		B-4	**-4.65**	**-129**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-5	-0.008913	-7	-63	No	18	22.22	0.02
		B-10	-1.604	-61	-68	No	19	0	0.02
		B-12	0.4119	56	58	No	17	0	0.02
Tetrachloroethene	ug/L	B-1	0	0	68	No	19	100	0.02
		B-2	0	0	68	No	19	100	0.02
		B-3	0	0	68	No	19	100	0.02
		B-4	0	0	68	No	19	100	0.02
		B-5	0	0	63	No	18	100	0.02
		B-10	0	12	68	No	19	94.74	0.02
		B-12	0	0	58	No	17	100	0.02
Tetrahydrofuran	ug/L	B-1	0	0	68	No	19	100	0.02
		B-2	0	0	68	No	19	100	0.02
		B-3	0	-18	-68	No	19	94.74	0.02
		B-4	0	0	68	No	19	100	0.02
		B-5	-0.2562	-24	-63	No	18	5.556	0.02
		B-10	0	12	68	No	19	94.74	0.02
		B-12	0	0	58	No	17	100	0.02
Toluene	ug/L	B-1	0	0	68	No	19	100	0.02
		B-2	0	0	68	No	19	100	0.02
		B-3	0	0	68	No	19	100	0.02
		B-4	0	0	68	No	19	100	0.02
		B-5	0	0	63	No	18	100	0.02
		B-10	0	12	68	No	19	94.74	0.02
		B-12	0	0	58	No	17	100	0.02
Total Dissolved Solids	mg/L	**B-1**	**36.88**	**111**	**68**	**Yes**	**19**	**0**	**0.02**
		B-2	0.398	5	68	No	19	0	0.02
		B-3	0	0	68	No	19	0	0.02
		B-4	**-47.02**	**-145**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-5	4.033	25	63	No	18	0	0.02
		B-10	-9.442	-56	-68	No	19	0	0.02
		B-12	**8.277**	**116**	**58**	**Yes**	**17**	**0**	**0.02**

Short-Term Mann-Kendall Trend Tests 2013-2017
Regional Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Alpha
		B-1	**0.3529**	**96**	**68**	**Yes**	**19**	**0**	**0.02**
		B-2	0.03008	46	68	No	19	0	0.02
		B-3	-0.08078	-21	-68	No	19	0	0.02
Total Organic Carbon	mg/L	B-4	0.04895	57	68	No	19	0	0.02
		B-5	-0.07417	-6	-63	No	18	0	0.02
		B-10	-0.01962	-39	-68	No	19	0	0.02
		B-12	0.02907	42	58	No	17	0	0.02
		B-1	0	0	68	No	19	100	0.02
		B-2	0	0	68	No	19	100	0.02
		B-3	0	0	68	No	19	100	0.02
Trichloroethene	ug/L	B-4	0	0	68	No	19	100	0.02
		B-5	0	0	63	No	18	100	0.02
		B-10	0	12	68	No	19	94.74	0.02
		B-12	0	0	58	No	17	100	0.02
		B-1	0	0	68	No	19	100	0.02
		B-2	0	3	68	No	19	63.16	0.02
		B-3	0	0	68	No	19	100	0.02
Trichlorofluoromethane (CFC-11)	ug/L	B-4	0	0	68	No	19	100	0.02
		B-5	0	0	63	No	18	100	0.02
		B-10	0	12	68	No	19	94.74	0.02
		B-12	0	0	58	No	17	100	0.02
		B-1	0	-19	-68	No	19	0	0.02
		B-2	0	25	68	No	19	5.263	0.02
		B-3	0.00003318	29	68	No	19	26.32	0.02
Vanadium, dissolved	mg/L	B-4	0.0001133	47	68	No	19	26.32	0.02
		B-5	0	4	63	No	18	27.78	0.02
		B-10	0	10	68	No	19	15.79	0.02
		B-12	0.00008682	58	58	No	17	29.41	0.02
		B-1	0	30	68	No	19	100	0.02
		B-2	0	18	68	No	19	100	0.02
		B-3	-0.00432	-24	-68	No	19	31.58	0.02
Vinyl chloride	ug/L	B-4	0	-10	-68	No	19	15.79	0.02
		B-5	-0.001816	-8	-63	No	18	0	0.02
		B-10	0	29	68	No	19	94.74	0.02
		B-12	0	25	58	No	17	88.24	0.02
		B-1	-0.0001696	-53	-68	No	19	31.58	0.02
		B-2	0	-14	-68	No	19	31.58	0.02
		B-3	-0.0002013	-52	-68	No	19	36.84	0.02
Zinc, dissolved	mg/L	B-4	-0.00006887	-50	-68	No	19	21.05	0.02
		B-5	-0.0001861	-62	-63	No	18	33.33	0.02
		B-10	**-0.0001946**	**-87**	**-68**	**Yes**	**19**	**26.32**	**0.02**
		B-12	-0.0001376	-29	-58	No	17	41.18	0.02

APPENDIX F:
Landfill Gas Monitoring Data – 2017

Table G-1. Perimeter Landfill Gas Measurements, 2017
Inman Landfill

Well Identifier	Probe Identifier	Screened Interval Depth (ft bgs)	Date	CH4 Concentration (%v/v)	CO2 Concentration (%v/v)	O2 Concentration (%v/v)	Barometric Pressure mm Hg	Static Pressure (inches H2O)	LFG Extraction System Status
GDW-1	Shallow	19-21	3/23/17	4.4	3.2	11.3	29.9	1.4	off
			6/23/17	4.1	3.2	11.3	29.9	1.4	off
			10/3/17	0.0	0.1	19.8	30.2	1.0	off
			1/3/2018	0.1	2.0	17.4	30.2	0.9	off
GDW-1	Intermediate	58-60	NM	NM	NM	NM	NM	NM	off
			NM	NM	NM	NM	NM	NM	off
			NM	NM	NM	NM	NM	NM	off
			NM	NM	NM	NM	NM	NM	off
GDW-1	Deep	82-84	3/23/17	0.0	0.2	20.2	30.1	1.1	off
			6/23/17	0.0	0.2	20.2	30.1	1.1	off
			10/3/17	0.0	0.1	19.7	30.2	0.9	off
			1/3/2018	0.1	1.1	18.6	30.2	1.5	off
GDW-2	Shallow	14.5-15.5	04/04/17	0.0	0.8	20.1	30.1	0.9	off
			6/23/17	0.0	0.8	20.1	30.1	0.9	off
			NM	NM	NM	NM	NM	NM	off
GDW-2	Intermediate	27-28	04/04/17	0.0	6.2	12.8	30.1	1.0	off
			6/23/17	0.0	6.2	12.8	30.1	1.0	off
			NM	NM	NM	NM	NM	NM	off
			NM	NM	NM	NM	NM	NM	off
GDW-2	Deep	44-45	04/04/17	0.0	3.8	15.0	30.0	1.0	off
			6/23/17	0.0	3.8	15.0	30.0	1.0	off
			NM	NM	NM	NM	NM	NM	off
			NM	NM	NM	NM	NM	NM	off
GDW-5	Shallow	9-10	NM	NM	NM	NM	NM	NM	off
			NM	NM	NM	NM	NM	NM	off
			NM	NM	NM	NM	NM	NM	off
			NM	NM	NM	NM	NM	NM	off
GDW-5	Intermediate	19-20	NM	NM	NM	NM	NM	NM	off
			NM	NM	NM	NM	NM	NM	off
			NM	NM	NM	NM	NM	NM	off
			NM	NM	NM	NM	NM	NM	off
GDW-5	Deep	29-30	NM	NM	NM	NM	NM	NM	off
			NM	NM	NM	NM	NM	NM	off
			NM	NM	NM	NM	NM	NM	off
			NM	NM	NM	NM	NM	NM	off

Table G-1. Perimeter Landfill Gas Measurements, 2017
Inman Landfill

Well Identifier	Probe Identifier	Screened Interval Depth (ft bgs)	Date	CH4 Concentration (%v/v)	CO2 Concentration (%v/v)	O2 Concentration (%v/v)	Barometric Pressure mm Hg	Static Pressure (inches H2O)	LFG Extraction System Status
GP-6	Shallow	7-27	04/03/17	0.0	0.2	20.2	30.5	1.2	off
			6/23/17	0.0	0.2	20.2	30.5	1.2	off
			10/3/17	0.0	3.8	16.7	30.4	0.8	off
			1/3/2018	0.1	2.5	14.9	30.2	0.9	off
GP-6	Deep	34-74	04/04/17	0.0	3.2	16.5	30.1	1.0	off
			6/23/17	0.0	3.2	16.5	30.1	1.0	off
			10/3/17	0.0	2.9	16.4	30.4	0.8	Off
			NM	NM	NM	NM	NM	NM	off
GP-7	Shallow	7-17	04/04/17	0.0	10.4	9.8	30.1	0.9	off
			6/23/17	0.0	10.4	9.8	30.1	0.9	off
			10/3/17	0.0	7.5	13.5	30.4	0.8	off
			1/3/2018	0.0	11.1	6.1	30.2	0.9	off
GP-7	Deep	26-49	04/04/17	0.0	4.9	17.9	30.1	1.2	off
			6/23/17	0.0	4.9	17.9	30.1	1.2	off
			10/3/17	0.1	0.7	18.9	30.4	0.8	Off
			1/3/2018	0.0	2.7	18.0	30.2	1.2	off
B-6	Shallow	39-40	03/22/17	0.0	0.6	19.7	29.8	1.0	off
			6/23/17	0.0	0.6	19.7	29.8	1.0	off
			10/3/17	0.0	0.4	19.8	30.3	0.8	off
			NM	NM	NM	NM	NM	NM	off
B-6	Intermediate	94-95	03/22/17	0.0	0.1	20.4	29.8	1.0	off
			6/23/17	0.0	0.1	20.4	29.8	1.0	off
			10/3/17	0.0	0.0	20.1	30.3	-0.2	Off
			NM	NM	NM	NM	NM	NM	off
B-6	Deep	134-135	03/22/17	0.0	1.2	18.9	29.8	1.1	off
			6/23/17	0.0	1.2	18.9	29.8	1.1	off
			10/3/17	0.0	0.1	20.0	30.3	0.7	off
			NM	NM	NM	NM	NM	NM	off
B-7	Shallow	14-15	04/03/17	0.0	0.2	20.3	30.5	1.2	off
			6/23/17	0.0	0.2	20.3	30.5	1.2	off
			10/3/17	0.0	0.0	20.1	30.3	0.8	Off
				0.0	0.1	20.0	30.2	0.9	off
B-7	Deep	50-51	04/03/17	0.0	0.2	20.2	30.5	1.2	off
			6/23/17	0.0	0.2	20.2	30.5	1.2	off
			10/3/17	0.1	0.7	18.9	30.4	0.8	off
			1/3/2018	0.0	0.0	19.9	30.2	0.8	off

Table G-1. Perimeter Landfill Gas Measurements, 2017
Inman Landfill

Well Identifier	Probe Identifier	Screened Interval Depth (ft bgs)	Date	CH4 Concentration (%v/v)	CO2 Concentration (%v/v)	O2 Concentration (%v/v)	Barometric Pressure mm Hg	Static Pressure (inches H2O)	LFG Extraction System Status
B-9	Shallow	10-11	NM	NM	NM	NM	NM	NM	off
			NM	NM	NM	NM	NM	NM	off
			NM	NM	NM	NM	NM	NM	off
			NM	NM	NM	NM	NM	NM	off
B-9	Deep	49-50	NM	NM	NM	NM	NM	NM	off
			NM	NM	NM	NM	NM	NM	off
			NM	NM	NM	NM	NM	NM	off
			NM	NM	NM	NM	NM	NM	off
B-11	Shallow	66-67	03/22/17	0.0	0.4	19.5	29.9	0.6	off
			6/23/17	0.0	0.4	19.5	29.9	0.6	off
			10/3/17	0.0	0.1	20.0	30.4	0.9	off
			NM	NM	NM	NM	NM	NM	off
B-11	Deep	86-87	03/22/17	0.0	0.3	19.6	29.9	1.3	off
			6/23/17	0.0	0.4	19.5	29.9	0.6	off
			10/3/17	0.0	0.0	20.2	30.4	0.1	Off
			NM	NM	NM	NM	NM	NM	off
B-13	Shallow	38-40	03/23/17	0.0	0.1	20.2	30.1	1.0	off
			6/23/17	0.0	0.1	20.2	30.1	1.0	off
			10/3/17	0.0	0.1	19.8	30.3	0.4	off
				0.0	0.1	20.0	30.2	1.3	off
B-13	Deep	73-74	03/23/17	0.0	1.7	17.8	30.1	1.1	off
			6/23/17	0.0	1.7	17.8	30.1	1.1	off
			10/3/17	0.0	0.0	19.9	30.4	0.4	off
			1/3/2018	0.0	0.1	20.0	30.2	1.6	off

Notes:
ft bgs = feet below ground surface
%v/v = percent by volume
NA = Flow restriction error.
NM = Not measured
Methane results above lower explosive limit shown in **bold.**