2016 ANNUAL ENVIRONMENTAL MONITORING REPORT

INMAN LANDFILL

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2016 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 2016 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 2016, 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 three quarterly monitoring events during 2016 (March, 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 2016; 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 2016 for the perched aquifer ranged from 9.06 feet above mean sea level (amsl) to 13.51 feet amsl (Table 1).

Table 1. **2016 Static Water Level Elevations: Perched Aquifer**

Well	March	September	December
B-6	10.87	9.89	10.81
B-7	Dry	Dry	Dry
B-8	13.51	11.98	13.01
B-9	10.01	9.06	10.06
B-11	9.18	9.52	8.76
B-13	11.80	NM	11.78
GP-6	13.48	12.47	12.22

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

The water table contour maps indicate that perched groundwater flow was fairly consistent during 2016, 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 2016 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 2016 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 2016 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 2016 for the upper regional aquifer ranged from 2.13 feet amsl to 8.81 feet amsl (Table 2).

Table 2. 2015 Static Water Level Elevations: Upper Regional Aquifer

Well	March	September	December
B-1	8.16	8.31	8.28
B-2	8.79	8.48	8.69
B-3	8.81	8.03	8.20
B-4	8.67	7.52	8.65
B-5	6.47	2.13	4.05
B-10	8.44	8.72	8.81
B-12	8.27	7.97	8.10

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

The water table contour maps for 2016 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 2016 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 2016 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 2016 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 2016, 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 2016 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 2016 was conducted in March, September, and December. Sampling was not conducted during the second quarter in June due to staffing issues. 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. The water level in Well B-13 also declines below the pump intake periodically 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 2016. 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.

All tabulated groundwater monitoring results for 2016 are presented in Appendix A-1 and B-1 for the perched and upper regional aquifers, respectively. Time-series plots were generated from data collected from 1994 through 2016 (87 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 2016 (Table 3).

Table 3. Summary of Maximum Concentrations of Analytes Exceeding Groundwater Quality Standards in Perched Aquifer Wells: 2016

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	0.0014	0.003	0.0009	0.001	NS
Vinyl Chloride (µg/L)	0.02	NE	0.036	NE	NE	NS
Secondary						
Iron, dissolved (mg/L)	0.3	NE	5.42	NE	NE	NS
Manganese, dissolved (mg/L)	0.05	NE	0.316	NE	NE	NS
pH (standard units)	6.5 – 8.5	NE	NE	NE	NE	NS
Total dissolved solids (mg/L)	500	NE	532	NE	NE	NS

NE: Not exceeded NS: Not sampled

The 2016 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 three quarterly sampling events in 2016. Seven wells were

found to exceed state groundwater standards (Chapter 173-200 WAC) for at least one sampling event during 2016 in the upper regional aquifer (Table 4).

Table 4. Summary of Maximum Concentrations of Analytes Exceeding Groundwater Quality Standards in Upper Regional Aquifer Wells: 2016

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	0.002	0.005	0.004	0.004	0.003	0.005
Vinyl chloride (µg/L)	0.02	NE	NE	0.094	NE	0.184	NE	NE
Secondary								
Iron, dissolved (mg/L)	0.3	2.17	NE	7.86	6.38	24.3	2.24	0.55
Manganese, dissolved (mg/L)	0.05	1.775	NE	0.88	1.626	2.28	0.655	0.066
pH (standard units)	6.5-8.5	NE	NE	NE	NE	NE	NE	NE
Total dissolved solids (mg/L)	500	513	NE	NE	730	520	NE	NE

NE: Not exceeded

The 2016 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 2016, 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 2016 monitoring events.

5.3. Domestic Wells

No domestic wells were sampled in 2016. 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 (1994-2016) 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 2016 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 2016 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:

$$\text{Ratio} = (\text{sum of cations})/(\text{sum of anions})*100\%$$

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 2016. 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 7.2%, 100%, and 13.52%, respectively (Appendix E-1). The cation-anion balances calculated for each quarterly monitoring event in the upper regional aquifer are 1.7%, 31.01%, and 6.6%, 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 2016 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: 2016

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: 2015

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 operated only from November 16th to the end of the year during 2016 due to low methane levels within the landfill and equipment failure.

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, 3rd, and 4th quarterly monitoring events in 2016. 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 2016 are depicted in Figures 9a through 9d.

Comparisons of the methane results to the air quality standard shows that there were two detections of methane exceeding the LEL in any of the monitoring probes in 2016. Methane was detected at 29.7% and 19.3% in the shallow probe of GDW-1 in the third and fourth quarter monitoring events, respectively. 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 2016 show a slight decrease from the concentrations measured in 2015. 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 2016 was 29.7% in the shallow probe of GDW-1 during the second quarter monitoring event. This decrease is likely due to the continued intermittent operation of the LFG system at the landfill during 2016.

8.0 INSPECTIONS

Inspections were not conducted at Inman Landfill due to the change in staff personnel. Monthly inspections will resume 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 2016. 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 2016 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 2016 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 2016. 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 20 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 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 continued 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**

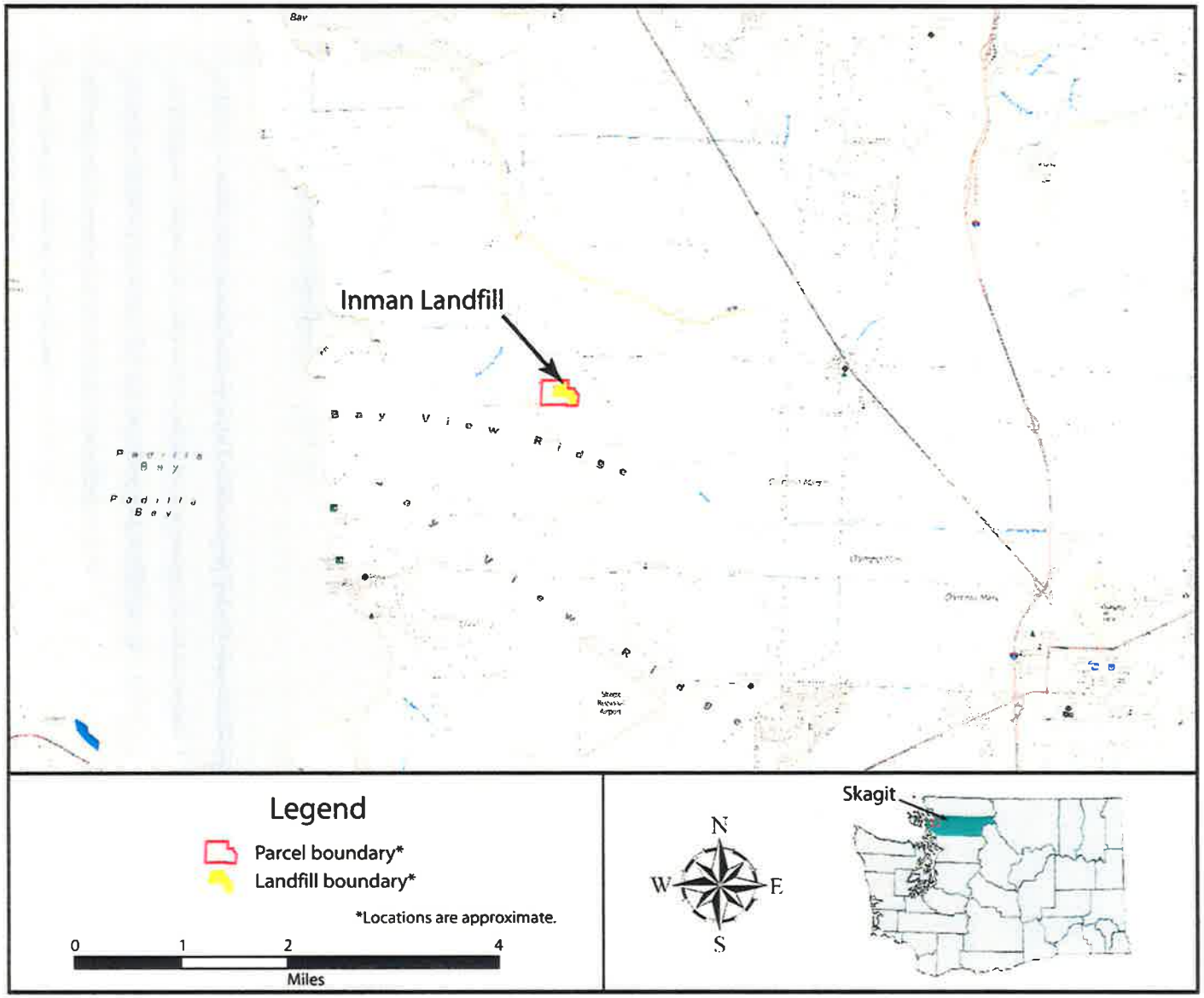


Figure 2. **Annual Volume of Leachate Disposed.**

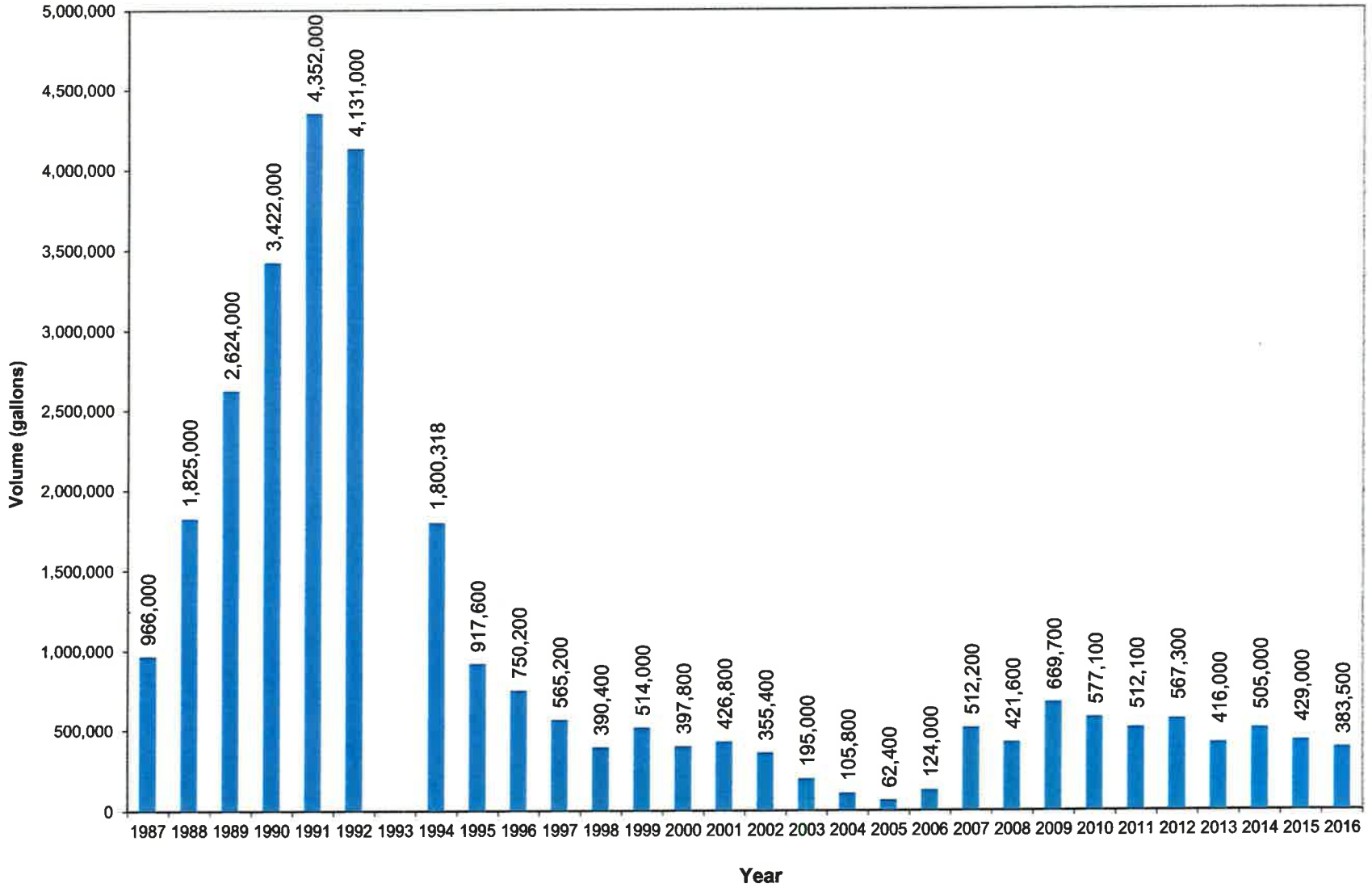
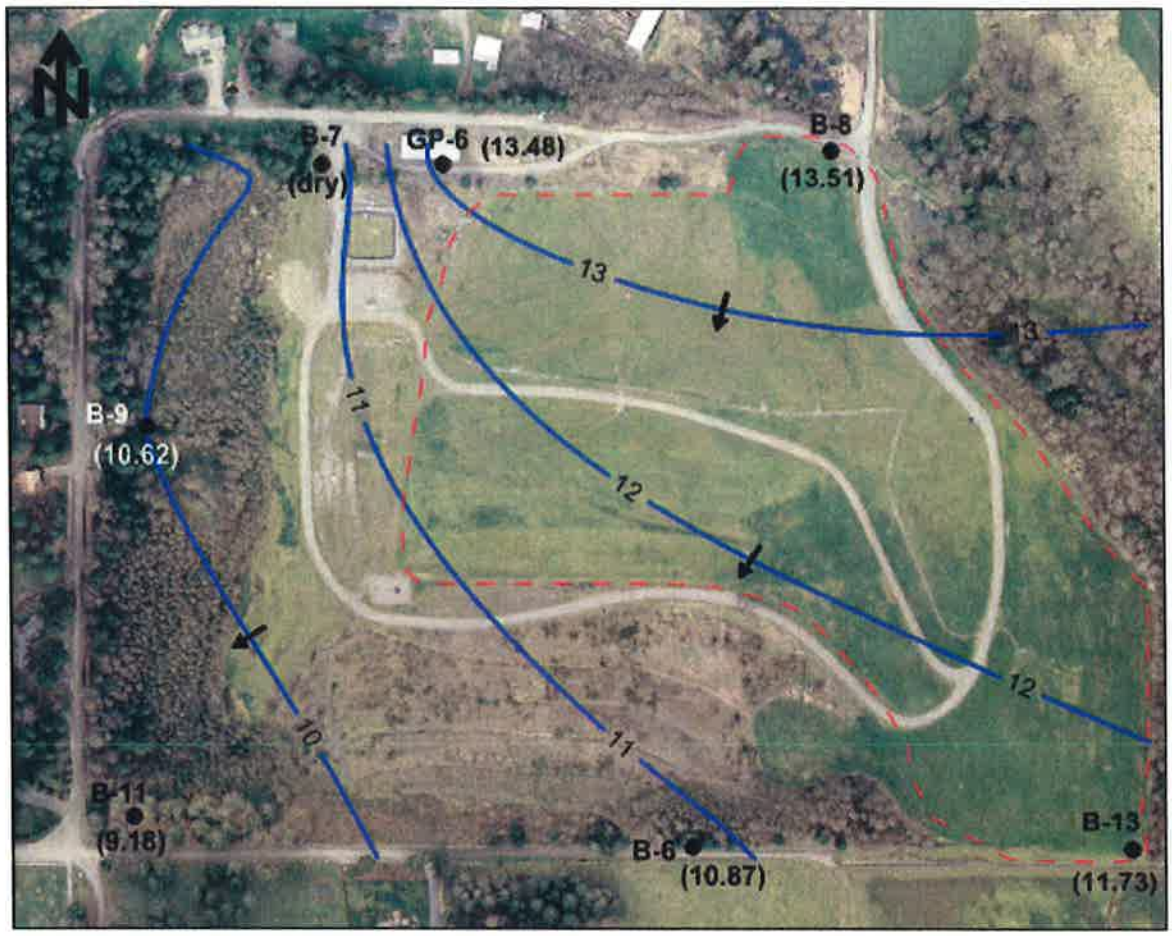


Figure 3. Perched Aquifer Monitoring Well Locations.

Figure 3a. Potentiometric Surface Contour Map, Perched Aquifer, March 2016.



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, September 2016.

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, December 2016.**

0 500 1000

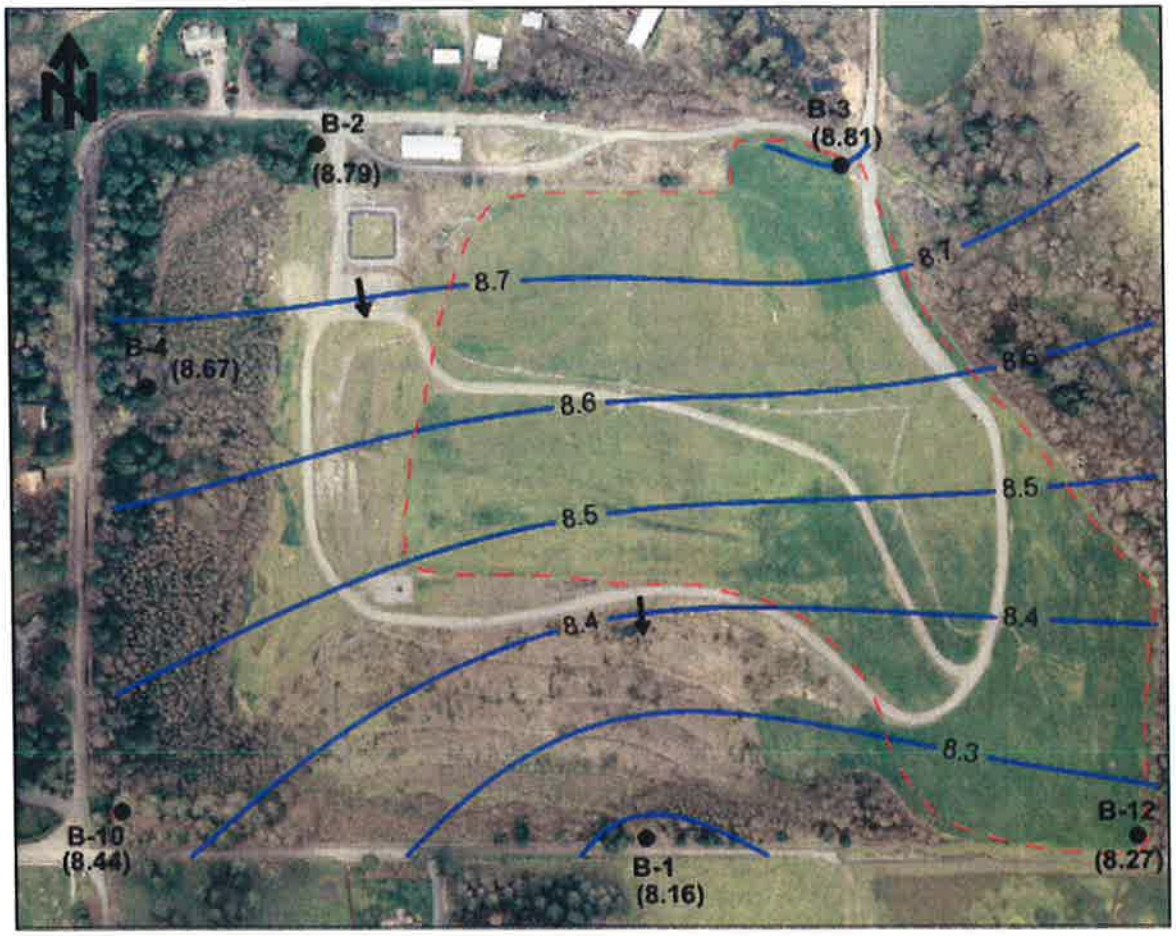
Scale (feet)

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 2016.



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, September 2016.

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, December 2016.

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, 1994-2016**

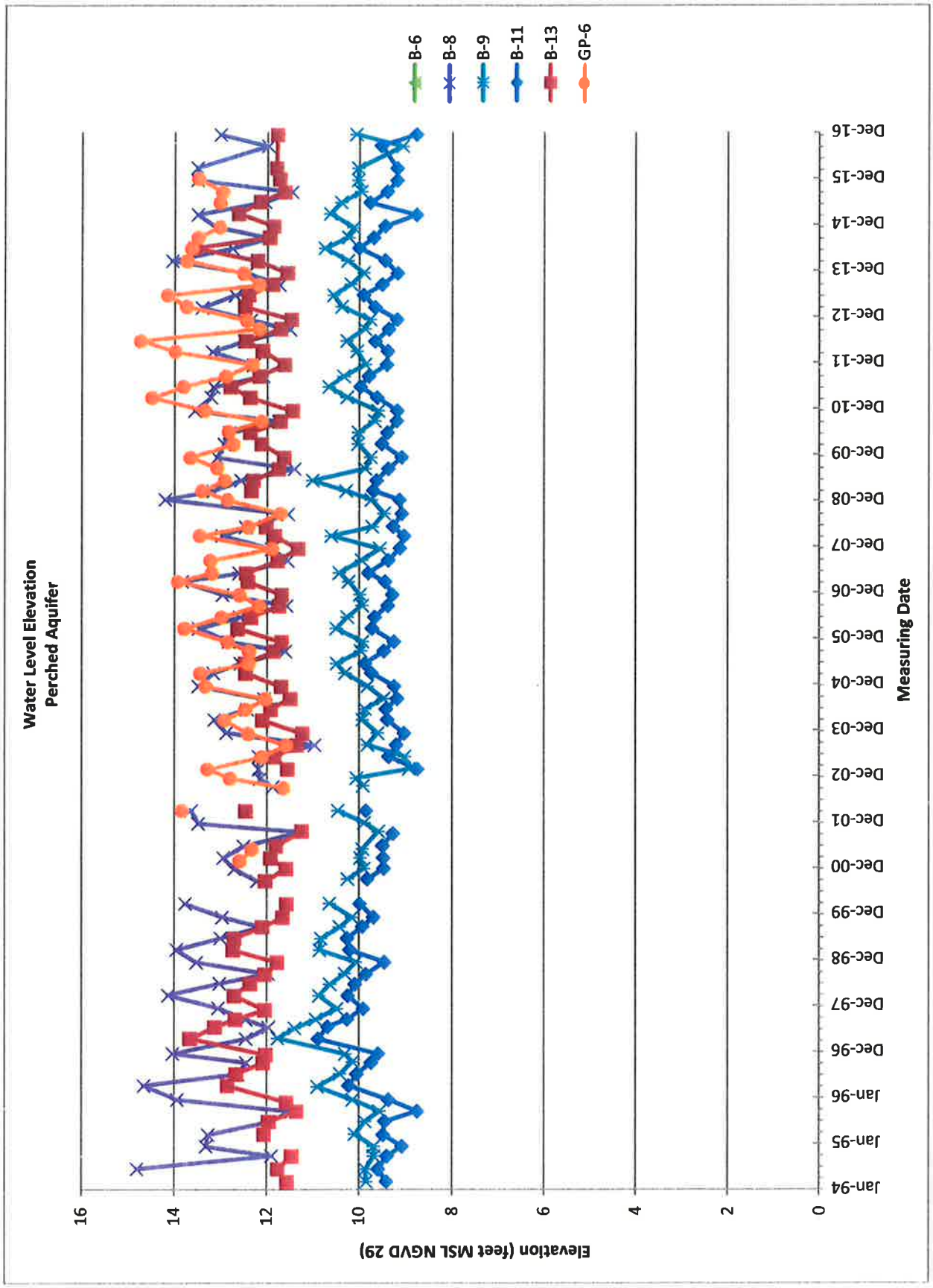


Figure 6. **Regional Aquifer Hydrograph, 1994 – 2016**

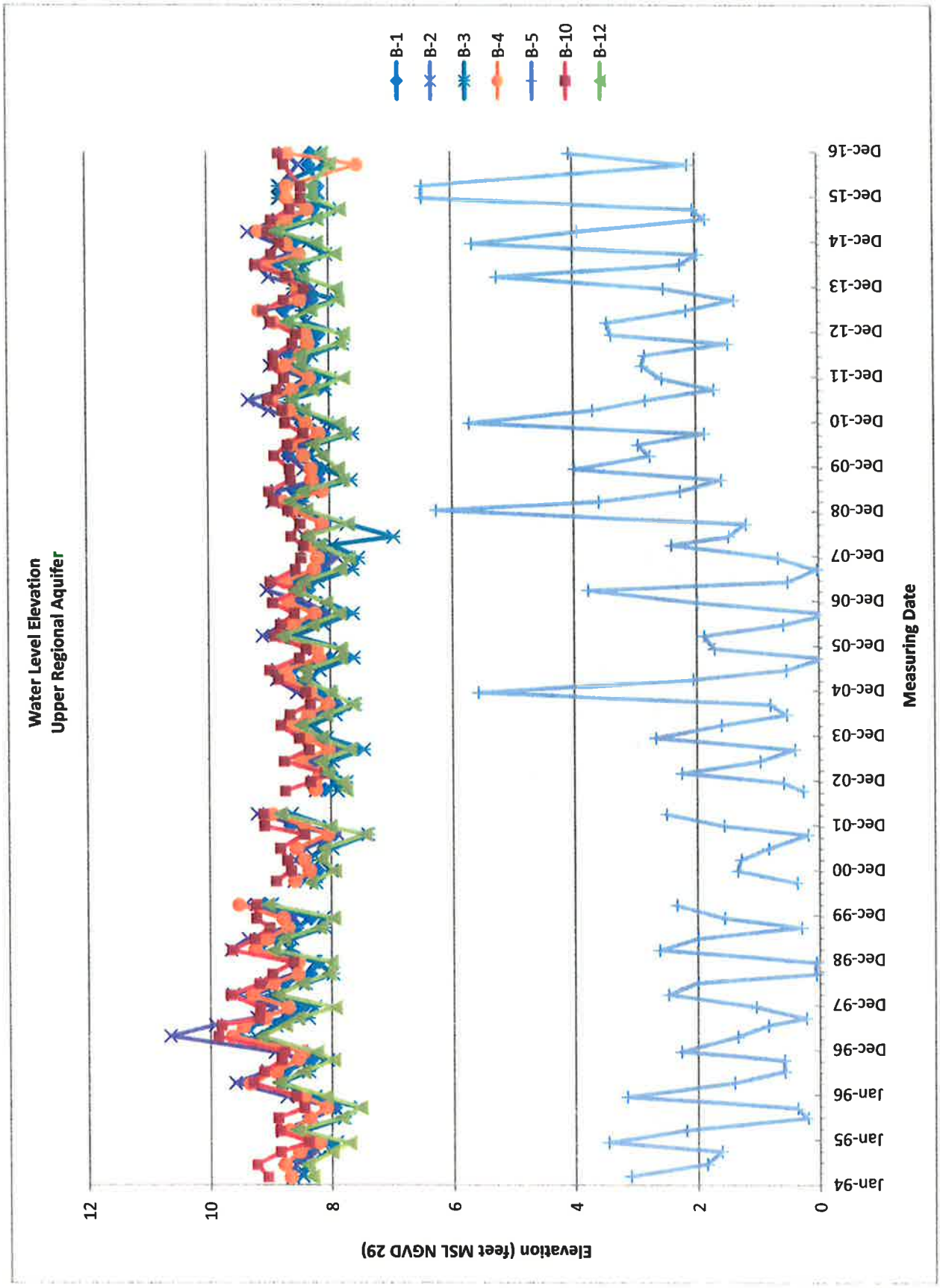
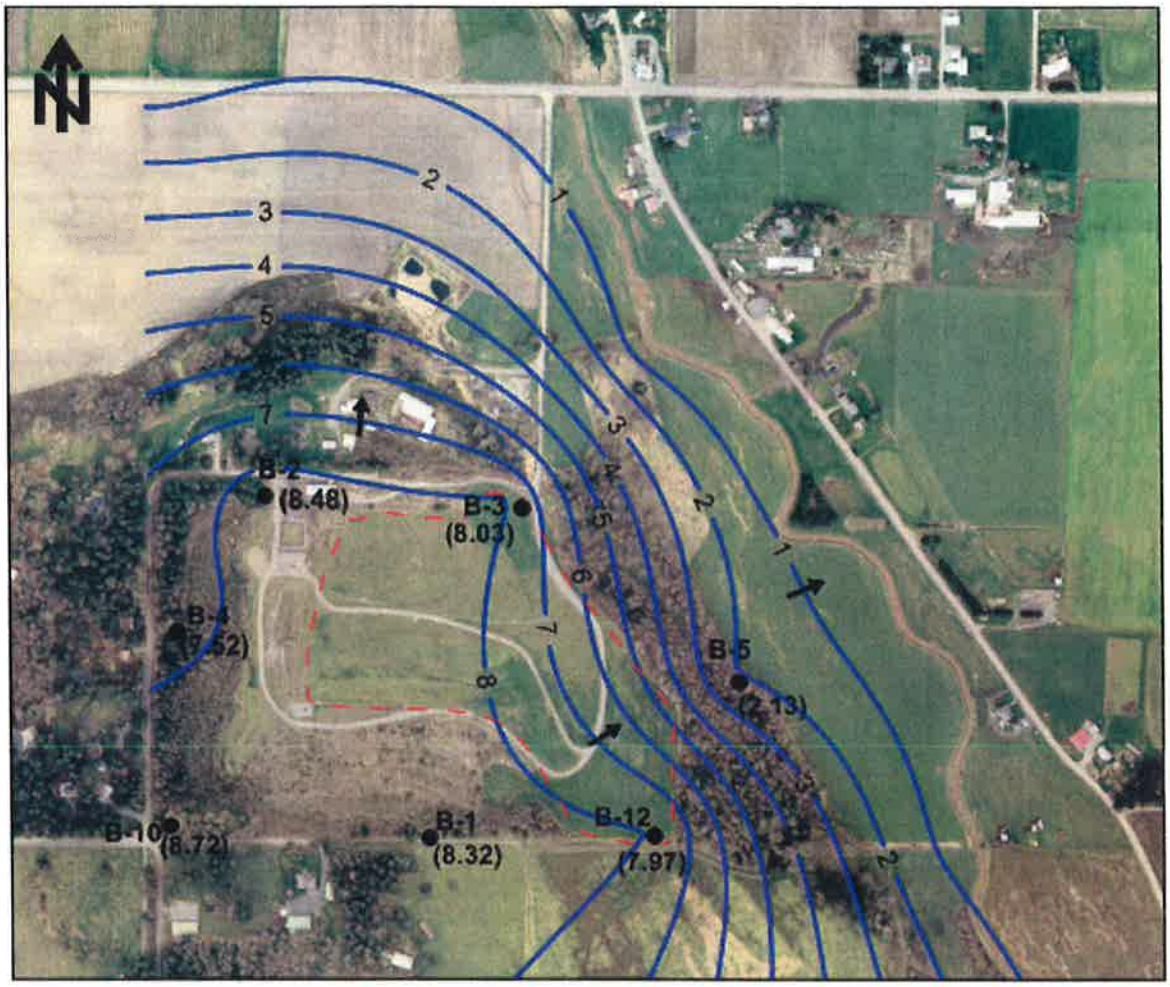


Figure 7a. Potentiometric Surface Contour Map, Regional Aquifer, March 2016.

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 7b. Potentiometric Surface Contour Map, Regional Aquifer, September 2016.



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 7c. Potentiometric Surface Contour Map, Regional Aquifer, December 2016.

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

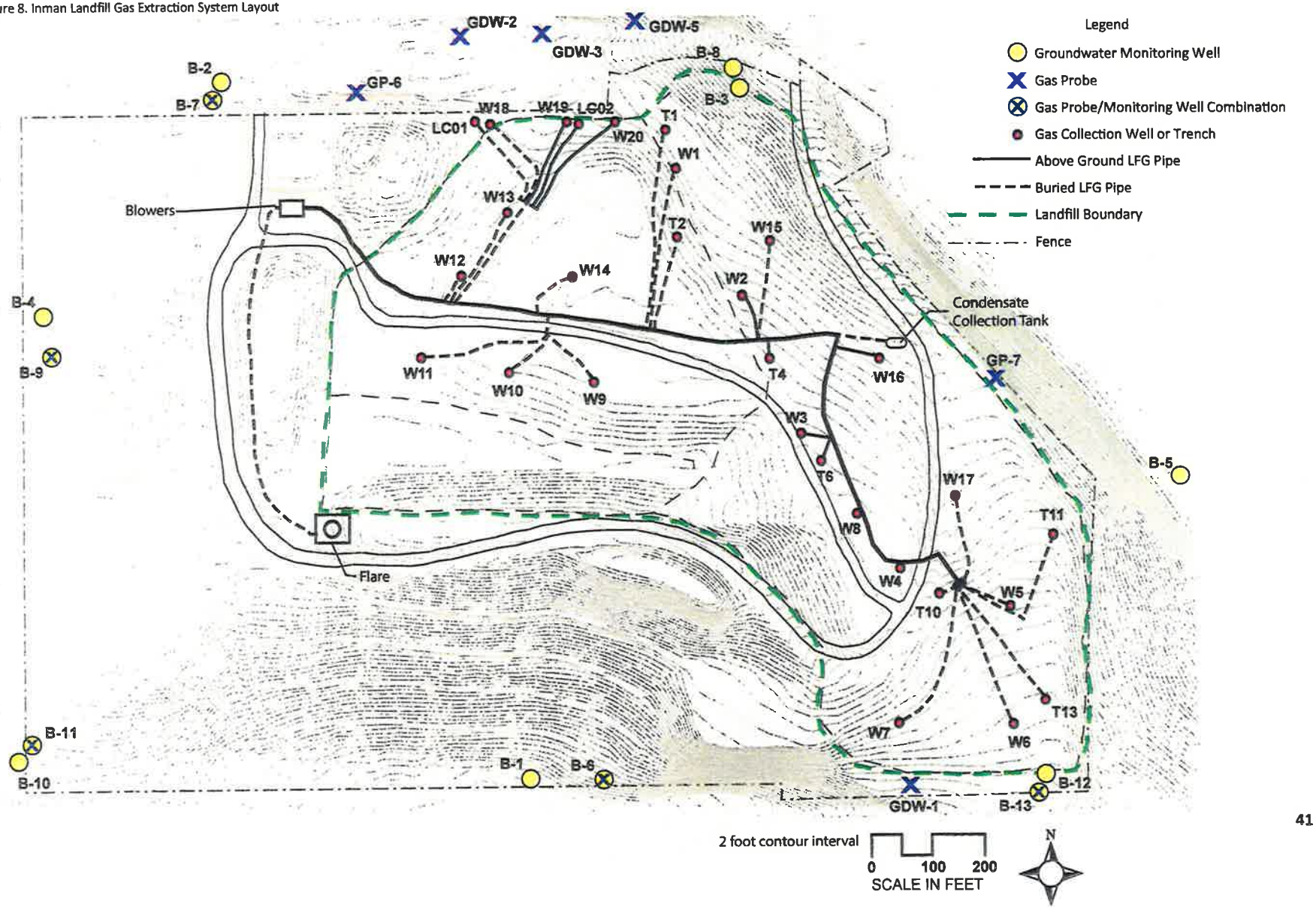


Figure 9. **Landfill Gas Perimeter Monitoring Probe Locations.**

LEGEND

B-6 ● Perimeter Gas Monitoring Well

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

– – – Approximate Landfill Boundary

Figure 9a. **Landfill Gas Perimeter Monitoring Results, March 2016.**

0 500 1000

Scale (feet)

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 2016.**

0 500 1000

Scale (feet)

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, December 2016.**

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:
2016 Groundwater Monitoring Data – Perched Aquifer

2016 Inorganic Monitoring Results
Inman Landfill

AQUIFER			Perched		
MONITORING WELL Sampling Date			B-6 3/21/2016	B-6 9/12/2016	B-6 12/12/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
CONVENTIONALS					
Chemical Oxygen Demand	mg/L		13	8 U	8 U
Total Organic Carbon	mg/L		2.07	1.89	2.01
Total Dissolved Solids †	mg/L	**500	307	289	228
Alkalinity †	mg/L		254	242	177
Bicarbonate †	mg CaCO3/L		254	242 U	177
Ammonia as nitrogen	mg/L		0.01 U	0.02	0.01 U
Nitrate as nitrogen	mg/L	*10	4.71	4.4	3.98
Nitrite as nitrogen	mg/L		0.1 U	0.1 U	0.1 U
Chloride	mg/L	**250	4.4	3.3	2.2
Sulfate	mg/L	**250	8.4	9 J	10.7
pH	SU	**6.5-8.5	7.15	6.95	7.4
Specific Conductance	µS/cm		511	373	400
Temperature	C		10.48	11.52	9.89
METALS					
Dissolved Antimony †	mg/L		0.0002 J	0.00027 J	0.001 U
Dissolved Arsenic	mg/L	***0.00005	**0.0009**	**0.0007**	**0.0014**
Dissolved Barium †	mg/L	*1.0	0.03	0.033	0.027
Dissolved Cadmium	mg/L	*0.01	0.00025 U	0.00025 U	0.00025 U
Dissolved Chromium †	mg/L	*0.05	0.0011	0.0008 J	0.0004 J
Dissolved Cobalt †	mg/L		0.001 U	0.0005 U	0.0001 J
Dissolved Copper †	mg/L	**1.0	0.0012 J	0.001 J	0.0016 J
Dissolved Iron	mg/L	**0.3	0.05 U	0.05 U	0.05 U
Dissolved Lead	mg/L	*0.05	0.0005 U	0.0005 U	0.0005 U
Dissolved Manganese	mg/L	**0.05	0.0004 J	0.0004 J	0.0006 J
Dissolved Mercury	mg/L	*0.002	0.0002 U	0.0002 U	0.0002 U
Dissolved Nickel †	mg/L		0.0013	0.001	0.002
Dissolved Selenium †	mg/L	*0.01	0.00037 J	0.0004 J	0.0007 J
Dissolved Vanadium †	mg/L		0.0023	0.002	0.002
Dissolved Zinc	mg/L	**5.0	0.0005 J	0.00055 J	0.001 J
Total Calcium	mg/L		58.1	56.5	48.3
Total Magnesium †	mg/L		25.8	24.1	20
Total Potassium †	mg/L		2.5	2.6	2.5
Total Sodium	mg/L		3.8	4.3	5.3

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

2016 Inorganic Monitoring Results
Inman Landfill

AQUIFER			Perched		
MONITORING WELL Sampling Date			B-8 3/24/2016	B-8 9/13/2016	B-8 12/13/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
CONVENTIONALS					
Chemical Oxygen Demand	mg/L		15	30	10
Total Organic Carbon	mg/L		5.75	14.47	6.95
Total Dissolved Solids †	mg/L	**500	434	**532**	439
Alkalinity †	mg/L		379	520	378
Bicarbonate †	mg CaCO3/L		379	520 U	378
Ammonia as nitrogen	mg/L		0.01 U	1.01	0.15
Nitrate as nitrogen	mg/L	*10	0.1 U	0.1 U	0.51
Nitrite as nitrogen	mg/L		0.1 U	0.1 U	0.1 U
Chloride	mg/L	**250	4.2	7.4	5.9
Sulfate	mg/L	**250	27.5	7.1	0.1 U
pH	SU	**6.5-8.5	6.69	6.74	7.04
Specific Conductance	µS/cm		705	960	702
Temperature	C		10.07	14.97	12.98
METALS					
Dissolved Antimony †	mg/L		9E-05 J	0.0003 J	0.001 U
Dissolved Arsenic	mg/L	***0.00005	**0.0007** J	**0.002**	**0.003**
Dissolved Barium †	mg/L	*1.0	0.091	0.119	0.105
Dissolved Cadmium	mg/L	*0.01	4E-05 J	0.00025 U	0.00025 U
Dissolved Chromium †	mg/L	*0.05	0.0007 J	0.001	0.0005 J
Dissolved Cobalt †	mg/L		0.0002 J	0.002	0.001
Dissolved Copper †	mg/L	**1.0	0.004	0.0022	0.002
Dissolved Iron	mg/L	**0.3	0.05 U	**5.42**	**1.74**
Dissolved Lead	mg/L	*0.05	0.00001 J	0.0005 U	0.0005 U
Dissolved Manganese	mg/L	**0.05	0.0006 J	**0.316**	**0.144**
Dissolved Mercury	mg/L	*0.002	0.0002 U	0.0002 U	0.0002 U
Dissolved Nickel †	mg/L		0.004	0.008	0.007
Dissolved Selenium †	mg/L	*0.01	0.0006 J	0.0005 J	0.0005 J
Dissolved Vanadium †	mg/L		0.002	0.003	0.002
Dissolved Zinc	mg/L	**5.0	0.002	0.0012 J	0.0015 J
Total Calcium	mg/L		63.2	84.1	59.1
Total Magnesium †	mg/L		40.8	52.9	41.1
Total Potassium †	mg/L		7.37	10.4	8.9
Total Sodium	mg/L		25.4	29.9	33.5

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

2016 Inorganic Monitoring Results
Inman Landfill

AQUIFER			Perched		
MONITORING WELL Sampling Date			B-9 3/22/2016	B-9 9/12/2016	B-9 12/14/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
CONVENTIONALS					
Chemical Oxygen Demand	mg/L		8 U	8 U	8 U
Total Organic Carbon	mg/L		1.35	1.67	1.66
Total Dissolved Solids †	mg/L	**500	162	153	145
Alkalinity †	mg/L		120	107	108
Bicarbonate †	mg CaCO3/L		120	107 U	108
Ammonia as nitrogen	mg/L		0.01 U	0.01	0.01 U
Nitrate as nitrogen	mg/L	*10	0.68	1.6	1.29
Nitrite as nitrogen	mg/L		0.1 U	0.1 U	0.1 U
Chloride	mg/L	**250	1.5	1.6	1.4
Sulfate	mg/L	**250	7.8	10.3	12
pH	SU	**6.5-8.5	6.81	6.67	7.08
Specific Conductance	µS/cm		239	228	239
Temperature	C		10.2	10.68	10.08
METALS					
Dissolved Antimony †	mg/L		4E-05 J	0.00016 J	0.001 U
Dissolved Arsenic	mg/L	***0.00005	**0.0009** J	**0.0008**	**0.0008**
Dissolved Barium †	mg/L	*1.0	0.015	0.015	0.016
Dissolved Cadmium	mg/L	*0.01	0.00025 U	0.00025 U	0.00025 U
Dissolved Chromium †	mg/L	*0.05	0.001	0.001	0.001
Dissolved Cobalt †	mg/L		0.00005 J	0.0005 U	0.001 U
Dissolved Copper †	mg/L	**1.0	0.001 J	0.0012 J	0.0015 J
Dissolved Iron	mg/L	**0.3	0.05 U	0.05 U	0.05 U
Dissolved Lead	mg/L	*0.05	0.0005 U	0.0005 U	0.0005 U
Dissolved Manganese	mg/L	**0.05	0.0003 J	0.0002 J	0.004
Dissolved Mercury	mg/L	*0.002	0.0002 U	0.0002 U	0.0002 U
Dissolved Nickel †	mg/L		0.001	0.001	0.002
Dissolved Selenium †	mg/L	*0.01	0.002	0.001	0.001
Dissolved Vanadium †	mg/L		0.002	0.002	0.002
Dissolved Zinc	mg/L	**5.0	0.0007 J	0.0007 J	0.005
Total Calcium	mg/L		22	20.4	20.4
Total Magnesium †	mg/L		13.8	14.2	14.5
Total Potassium †	mg/L		1.8	1.9	2
Total Sodium	mg/L		3.9	3.7	4.29

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

2016 Inorganic Monitoring Results
Inman Landfill

AQUIFER			Perched		
MONITORING WELL Sampling Date			B-11 3/21/2016	B-11 9/15/2016	B-11 12/14/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
CONVENTIONALS					
Chemical Oxygen Demand	mg/L		11	8 U	8 U
Total Organic Carbon	mg/L		1.62	1.77	1.85
Total Dissolved Solids †	mg/L	**500	232	186	197
Alkalinity †	mg/L		161	111	103
Bicarbonate †	mg CaCO3/L		161	111 U	103
Ammonia as nitrogen	mg/L		0.01 U	0.01 U	0.01 U
Nitrate as nitrogen	mg/L	*10	6.8	8.2	8.03
Nitrite as nitrogen	mg/L		0.1 U	0.1 U	0.1 U
Chloride	mg/L	**250	1.9	2.4	2.2
Sulfate	mg/L	**250	12.2	9	10.2
pH	SU	**6.5-8.5	7.17	7.16	7.6
Specific Conductance	µS/cm		871	302	320
Temperature	C		10.29	11.55	8.91
METALS					
Dissolved Antimony †	mg/L		0.001 U	0.001 U	0.001 U
Dissolved Arsenic	mg/L	***0.00005	**0.001**	**0.001**	**0.001**
Dissolved Barium †	mg/L	*1.0	0.014	0.011	0.012
Dissolved Cadmium	mg/L	*0.01	0.00025 U	0.00025 U	0.00025 U
Dissolved Chromium †	mg/L	*0.05	0.002	0.001	0.001
Dissolved Cobalt †	mg/L		0.001 U	0.0005 U	0.001 U
Dissolved Copper †	mg/L	**1.0	0.0017 J	0.002	0.002
Dissolved Iron	mg/L	**0.3	0.05 U	0.05 U	0.05 U
Dissolved Lead	mg/L	*0.05	0.0005 U	0.0005 U	0.0005 U
Dissolved Manganese	mg/L	**0.05	0.001 U	0.001 U	0.002
Dissolved Mercury	mg/L	*0.002	0.0002 U	0.0002 U	0.0002 U
Dissolved Nickel †	mg/L		0.001	0.0009	0.002
Dissolved Selenium †	mg/L	*0.01	0.0006 J	0.001 U	0.0002 J
Dissolved Vanadium †	mg/L		0.003	0.002	0.0025
Dissolved Zinc	mg/L	**5.0	0.0005 J	0.0025 U	0.0015 J
Total Calcium	mg/L		29.5	25.6	23.5
Total Magnesium †	mg/L		21.3	19.5	18.3
Total Potassium †	mg/L		1.4	1.7	1.52
Total Sodium	mg/L		6.4	6.6	6.58

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

2016 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Perched		
MONITORING WELL Sampling Date			B-6 3/21/2016	B-6 9/12/2016	B-6 12/12/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
1,1,1,2-tetrachloroethane	µg/L		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
1,1,2,2-tetrachloroethane	µg/L		0.4 U	0.4 U	0.4 U
1,1,2-trichloroethane	µg/L		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
1,1-dichloroethane	µg/L	1.0***	0.4 U	0.4 U	0.4 U
1,1-dichloroethene	µg/L	7****	0.4 U	0.4 U	0.4 U
1,1-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
1,2,3-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
1,2,3-trichloropropane	µg/L		0.4 U	0.4 U	0.4 U
1,2,4-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
1,2,4-trimethylbenzene	µg/L		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
1,2-dibromoethane (EDB)	µg/L	0.001***	0.01 U	0.01 U	0.01 U
1,2-dichlorobenzene	µg/L		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
1,2-dichloropropane	µg/L	0.6***	0.4 U	0.4 U	0.4 U
1,3,5-trimethylbenzene	µg/L		0.4 U	0.4 U	0.4 U
1,3-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U
1,4-dichlorobenzene	µg/L	4***	0.4 U	0.4 U	0.4 U
1,4-dioxane	µg/L	7***	5 U	5 U	5 U
2,2-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U
2-butanone	µg/L		3 U	3 U	3 U
2-chloroethyl vinyl ether	µg/L		5 U	5 U	5 U
2-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U
2-nitropropane	µg/L		10 U	10 U	10 U
2-phenylbutane	µg/L		0.4 U	0.4 U	0.4 U
4-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U
4-methyl-2-pentanone	µg/L		4 U	4 U	4 U
Acetone	µg/L		3 U	3 U	3 U
Acrolein	µg/L		4 U	4 U	4 U
Acrylonitrile	µg/L	0.07***	0.05 U	0.05 U	0.05 U
Allyl chloride	µg/L		2 U	2 U	2 U
Benzene	µg/L	1.0***	0.4 U	0.4 U	0.4 U
Bromobenzene	µg/L		0.4 U	0.4 U	0.4 U
Bromodichloromethane	µg/L	0.3***	0.4 U	0.4 U	0.4 U
Bromomethane	µg/L		0.4 U	0.4 U	0.4 U
Carbon disulfide	µg/L		0.4 U	0.4 U	0.4 U
Carbon tetrachloride	µg/L	0.3***	0.4 U	0.4 U	0.4 U
Chlorobenzene	µg/L	100****	0.4 U	0.4 U	0.4 U
Chlorobromomethane	µg/L		0.4 U	0.4 U	0.4 U
Chlorodibromomethane	µg/L	0.5***	0.4 U	0.4 U	0.4 U
Chlorodifluoromethane (Freon-22)	µg/L		0.4 U	0.4 U	0.4 U
Chloroethane	µg/L		0.4 U	0.4 U	0.4 U
Chloroform	µg/L	7.0***	0.4 U	0.4 U	0.4 U
Chloromethane	µg/L		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
cis-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
Cymene	µg/L		0.4 U	0.4 U	0.4 U
Dibromomethane	µg/L		0.4 U	0.4 U	0.4 U
Dichlorodifluoromethane (CFC-12)	µg/L		0.4 U	0.4 U	0.4 U
Dichloromethane	µg/L	5***	0.4 U	0.4 U	0.4 U
Dichloromonofluoromethane (Freon-21)	µg/L		0.4 U	0.4 U	0.4 U
Diethyl ether	µg/L		0.4 U	0.4 U	0.4 U

2016 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Perched		
MONITORING WELL Sampling Date			B-6 3/21/2016	B-6 9/12/2016	B-6 12/12/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
Ethyl methacrylate	µg/L		3 U	3 U	3 U
Ethylbenzene	µg/L	700****	0.4 U	0.4 U	0.4 U
Hexachloro-1,3-butadiene	µg/L		0.4 U	0.4 U	0.4 U
Hexachloroethane	µg/L		0.4 U	0.4 U	0.4 U
Isopropylbenzene	µg/L		0.4 U	0.4 U	0.4 U
m+p-xylene	µg/L		0.4 U	0.4 U	0.4 U
m-dichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
Methyl acrylate	µg/L		2 U	2 U	2 U
Methyl iodide	µg/L		5 U	5 U	5 U
Methyl methacrylate	µg/L		2 U	2 U	2 U
Methyl n-butyl ketone	µg/L		5 U	5 U	5 U
Methyl tert-butyl ether	µg/L		1 U	1 U	0.4 U
Methylacrylonitrile	µg/L		4 U	4 U	4 U
Naphthalene	µg/L		1 U	1 U	1 U
n-butyl chloride	µg/L		0.4 U	0.4 U	0.4 U
n-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U
n-propylbenzene	µg/L		0.4 U	0.4 U	0.4 U
o-xylene	µg/L		0.4 U	0.4 U	0.4 U
Pentachloroethane	µg/L		0.4 U	0.4 U	0.4 U
Styrene (monomer)	µg/L	100****	0.4 U	0.4 U	0.4 U
Tert-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U
Tetrachloroethene	µg/L	0.8***	0.4 U	0.4 U	0.4 U
Tetrahydrofuran	µg/L		3 U	3 U	3 U
Toluene	µg/L	1****	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
Trans-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
Trans-1,4-dichlorobutene	µg/L		5 U	5 U	5 U
Tribromomethane (Bromoform)	µg/L	5***	0.4 U	0.4 U	0.4 U
Trichloroethene	µg/L	3***	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane (CFC-11)	µg/L		0.4 U	0.4 U	0.4 U
Vinyl chloride	µg/L	0.02***	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.

2016 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Perched		
MONITORING WELL Sampling Date			B-8 3/24/2016	B-8 9/13/2016	B-8 12/13/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
1,1,1,2-tetrachloroethane	µg/L		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
1,1,2,2-tetrachloroethane	µg/L		0.4 U	0.4 U	0.4 U
1,1,2-trichloroethane	µg/L		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
1,1-dichloroethane	µg/L	1.0***	0.4 U	0.4 U	0.4 U
1,1-dichloroethene	µg/L	7****	0.4 U	0.4 U	0.4 U
1,1-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
1,2,3-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
1,2,3-trichloropropane	µg/L		0.4 U	0.4 U	0.4 U
1,2,4-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
1,2,4-trimethylbenzene	µg/L		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
1,2-dibromoethane (EDB)	µg/L	0.001***	0.01 U	0.01 U	0.01 U
1,2-dichlorobenzene	µg/L		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
1,2-dichloropropane	µg/L	0.6***	0.4 U	0.4 U	0.4 U
1,3,5-trimethylbenzene	µg/L		0.4 U	0.4 U	0.4 U
1,3-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U
1,4-dichlorobenzene	µg/L	4***	0.4 U	0.4 U	0.4 U
1,4-dioxane	µg/L	7***	5 U	5 U	5 U
2,2-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U
2-butanone	µg/L		3 U	3 U	3 U
2-chloroethyl vinyl ether	µg/L		5 U	5 U	5 U
2-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U
2-nitropropane	µg/L		10 U	10 U	10 U
2-phenylbutane	µg/L		0.4 U	0.4 U	0.4 U
4-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U
4-methyl-2-pentanone	µg/L		4 U	4 U	4 U
Acetone	µg/L		3 U	3 U	3 U
Acrolein	µg/L		4 U	4 U	4 U
Acrylonitrile	µg/L	0.07***	0.05 U	0.05 U	0.05 U
Allyl chloride	µg/L		2 U	2 U	2 U
Benzene	µg/L	1.0***	0.4 U	0.4 U	0.4 U
Bromobenzene	µg/L		0.4 U	0.4 U	0.4 U
Bromodichloromethane	µg/L	0.3***	0.4 U	0.4 U	0.4 U
Bromomethane	µg/L		0.4 U	0.4 U	0.4 U
Carbon disulfide	µg/L		0.6	0.4 U	0.4 U
Carbon tetrachloride	µg/L	0.3***	0.4 U	0.4 U	0.4 U
Chlorobenzene	µg/L	100****	0.4 U	0.4 U	0.4 U
Chlorobromomethane	µg/L		0.4 U	0.4 U	0.4 U
Chlorodibromomethane	µg/L	0.5***	0.4 U	0.4 U	0.4 U
Chlorodifluoromethane (Freon-22)	µg/L		0.4 U	0.4 U	0.4 U
Chloroethane	µg/L		0.4 U	0.4 U	0.4 U
Chloroform	µg/L	7.0***	0.4 U	0.4 U	0.4 U
Chloromethane	µg/L		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
cis-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
Cymene	µg/L		0.4 U	0.4 U	0.4 U
Dibromomethane	µg/L		0.4 U	0.4 U	0.4 U
Dichlorodifluoromethane (CFC-12)	µg/L		0.4 U	0.4 U	0.4 U
Dichloromethane	µg/L	5***	0.4 U	0.4 U	0.4 U
Dichloromonofluoromethane (Freon-21)	µg/L		0.4 U	0.3 J	0.4 U
Diethyl ether	µg/L		0.4 U	1.7	0.4 U

2016 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Perched		
MONITORING WELL Sampling Date			B-8 3/24/2016	B-8 9/13/2016	B-8 12/13/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
Ethyl methacrylate	µg/L		3 U	3 U	3 U
Ethylbenzene	µg/L	700****	0.4 U	0.4 U	0.4 U
Hexachloro-1,3-butadiene	µg/L		0.4 U	0.4 U	0.4 U
Hexachloroethane	µg/L		0.4 U	0.4 U	0.4 U
Isopropylbenzene	µg/L		0.4 U	0.4 U	0.4 U
m+p-xylene	µg/L		0.4 U	0.4 U	0.4 U
m-dichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
Methyl acrylate	µg/L		2 U	2 U	2 U
Methyl iodide	µg/L		5 U	5 U	5 U
Methyl methacrylate	µg/L		2 U	2 U	2 U
Methyl n-butyl ketone	µg/L		5 U	5 U	5 U
Methyl tert-butyl ether	µg/L		0.4 U	1 U	0.4 U
Methylacrylonitrile	µg/L		4 U	4 U	4 U
Naphthalene	µg/L		1 U	1 U	1 U
n-butyl chloride	µg/L		0.4 U	0.4 U	0.4 U
n-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U
n-propylbenzene	µg/L		0.4 U	0.4 U	0.4 U
o-xylene	µg/L		0.4 U	0.4 U	0.4 U
Pentachloroethane	µg/L		0.4 U	0.4 U	0.4 U
Styrene (monomer)	µg/L	100****	0.4 U	0.4 U	0.4 U
Tert-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U
Tetrachloroethene	µg/L	0.8***	0.4 U	0.4 U	0.4 U
Tetrahydrofuran	µg/L		3 U	3 U	3 U
Toluene	µg/L	1****	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
Trans-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
Trans-1,4-dichlorobutene	µg/L		5 U	5 U	5 U
Tribromomethane (Bromoform)	µg/L	5***	0.4 U	0.4 U	0.4 U
Trichloroethene	µg/L	3***	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane (CFC-11)	µg/L		0.4 U	0.4 U	0.4 U
Vinyl chloride	µg/L	0.02***	0.01 U	**0.036**	0.01

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.

2016 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Perched		
MONITORING WELL Sampling Date			B-9 3/22/2016	B-9 9/12/2016	B-9 12/14/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
1,1,1,2-tetrachloroethane	µg/L		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
1,1,2,2-tetrachloroethane	µg/L		0.4 U	0.4 U	0.4 U
1,1,2-trichloroethane	µg/L		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
1,1-dichloroethane	µg/L	1.0***	0.4 U	0.4 U	0.4 U
1,1-dichloroethene	µg/L	7****	0.4 U	0.4 U	0.4 U
1,1-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
1,2,3-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
1,2,3-trichloropropane	µg/L		0.4 U	0.4 U	0.4 U
1,2,4-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
1,2,4-trimethylbenzene	µg/L		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
1,2-dibromoethane (EDB)	µg/L	0.001***	0.01 U	0.01 U	0.01 U
1,2-dichlorobenzene	µg/L		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
1,2-dichloropropane	µg/L	0.6***	0.4 U	0.4 U	0.4 U
1,3,5-trimethylbenzene	µg/L		0.4 U	0.4 U	0.4 U
1,3-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U
1,4-dichlorobenzene	µg/L	4***	0.4 U	0.4 U	0.4 U
1,4-dioxane	µg/L	7***	5 U	5 U	5 U
2,2-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U
2-butanone	µg/L		3 U	3 U	3 U
2-chloroethyl vinyl ether	µg/L		5 U	5 U	5 U
2-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U
2-nitropropane	µg/L		10 U	10 U	10 U
2-phenylbutane	µg/L		0.4 U	0.4 U	0.4 U
4-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U
4-methyl-2-pentanone	µg/L		4 U	4 U	4 U
Acetone	µg/L		3 U	3 U	3 U
Acrolein	µg/L		4 U	4 U	4 U
Acrylonitrile	µg/L	0.07***	0.05 U	0.05 U	0.05 U
Allyl chloride	µg/L		2 U	2 U	2 U
Benzene	µg/L	1.0***	0.4 U	0.4 U	0.4 U
Bromobenzene	µg/L		0.4 U	0.4 U	0.4 U
Bromodichloromethane	µg/L	0.3***	0.4 U	0.4 U	0.4 U
Bromomethane	µg/L		0.4 U	0.4 U	0.4 U
Carbon disulfide	µg/L		0.4 U	0.4 U	0.4 U
Carbon tetrachloride	µg/L	0.3***	0.4 U	0.4 U	0.4 U
Chlorobenzene	µg/L	100****	0.4 U	0.4 U	0.4 U
Chlorobromomethane	µg/L		0.4 U	0.4 U	0.4 U
Chlorodibromomethane	µg/L	0.5***	0.4 U	0.4 U	0.4 U
Chlorodifluoromethane (Freon-22)	µg/L		0.4 U	0.4 U	0.4 U
Chloroethane	µg/L		0.4 U	0.4 U	0.4 U
Chloroform	µg/L	7.0***	0.4 U	0.4 U	0.4 U
Chloromethane	µg/L		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
cis-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
Cymene	µg/L		0.4 U	0.4 U	0.4 U
Dibromomethane	µg/L		0.4 U	0.4 U	0.4 U
Dichlorodifluoromethane (CFC-12)	µg/L		0.9	0.6	0.9
Dichloromethane	µg/L	5***	0.4 U	0.4 U	0.4 U
Dichloromonofluoromethane (Freon-21)	µg/L		0.4 U	0.4 U	0.4 U
Diethyl ether	µg/L		0.4 U	0.4 U	0.4 U

2016 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Perched		
MONITORING WELL Sampling Date			B-9 3/22/2016	B-9 9/12/2016	B-9 12/14/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
Ethyl methacrylate	µg/L		3 U	3 U	3 U
Ethylbenzene	µg/L	700****	0.4 U	0.4 U	0.4 U
Hexachloro-1,3-butadiene	µg/L		0.4 U	0.4 U	0.4 U
Hexachloroethane	µg/L		0.4 U	0.4 U	0.4 U
Isopropylbenzene	µg/L		0.4 U	0.4 U	0.4 U
m+p-xylene	µg/L		0.4 U	0.4 U	0.4 U
m-dichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
Methyl acrylate	µg/L		2 U	2 U	2 U
Methyl iodide	µg/L		5 U	5 U	5 U
Methyl methacrylate	µg/L		2 U	2 U	2 U
Methyl n-butyl ketone	µg/L		5 U	5 U	5 U
Methyl tert-butyl ether	µg/L		1 U	1 U	0.4 U
Methylacrylonitrile	µg/L		4 U	4 U	4 U
Naphthalene	µg/L		1 U	1 U	1 U
n-butyl chloride	µg/L		0.4 U	0.4 U	0.4 U
n-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U
n-propylbenzene	µg/L		0.4 U	0.4 U	0.4 U
o-xylene	µg/L		0.4 U	0.4 U	0.4 U
Pentachloroethane	µg/L		0.4 U	0.4 U	0.4 U
Styrene (monomer)	µg/L	100****	0.4 U	0.4 U	0.4 U
Tert-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U
Tetrachloroethene	µg/L	0.8***	0.4 U	0.4 U	0.4 U
Tetrahydrofuran	µg/L		3 U	3 U	3 U
Toluene	µg/L	1****	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
Trans-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
Trans-1,4-dichlorobutene	µg/L		5 U	5 U	5 U
Tribromomethane (Bromoform)	µg/L	5***	0.4 U	0.4 U	0.4 U
Trichloroethene	µg/L	3***	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane (CFC-11)	µg/L		0.3 J	0.3 J	0.4 U
Vinyl chloride	µg/L	0.02***	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.

2016 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Perched		
MONITORING WELL Sampling Date			B-11 3/21/2016	B-11 9/15/2016	B-11 12/14/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
1,1,1,2-tetrachloroethane	µg/L		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
1,1,2,2-tetrachloroethane	µg/L		0.4 U	0.4 U	0.4 U
1,1,2-trichloroethane	µg/L		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
1,1-dichloroethane	µg/L	1.0***	0.4 U	0.4 U	0.4 U
1,1-dichloroethene	µg/L	7****	0.4 U	0.4 U	0.4 U
1,1-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
1,2,3-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
1,2,3-trichloropropane	µg/L		0.4 U	0.4 U	0.4 U
1,2,4-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
1,2,4-trimethylbenzene	µg/L		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
1,2-dibromoethane (EDB)	µg/L	0.001***	0.01 U	0.01 U	0.01 U
1,2-dichlorobenzene	µg/L		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
1,2-dichloropropane	µg/L	0.6***	0.4 U	0.4 U	0.4 U
1,3,5-trimethylbenzene	µg/L		0.4 U	0.4 U	0.4 U
1,3-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U
1,4-dichlorobenzene	µg/L	4***	0.4 U	0.4 U	0.4 U
1,4-dioxane	µg/L	7***	5 U	5 U	5 U
2,2-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U
2-butanone	µg/L		3 U	3 U	3 U
2-chloroethyl vinyl ether	µg/L		5 U	5 U	5 U
2-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U
2-nitropropane	µg/L		10 U	10 U	10 U
2-phenylbutane	µg/L		0.4 U	0.4 U	0.4 U
4-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U
4-methyl-2-pentanone	µg/L		4 U	4 U	4 U
Acetone	µg/L		3 U	3 U	3 U
Acrolein	µg/L		4 U	4 U	4 U
Acrylonitrile	µg/L	0.07***	0.05 U	0.05 U	0.05 U
Allyl chloride	µg/L		2 U	2 U	2 U
Benzene	µg/L	1.0***	0.4 U	0.4 U	0.4 U
Bromobenzene	µg/L		0.4 U	0.4 U	0.4 U
Bromodichloromethane	µg/L	0.3***	0.4 U	0.4 U	0.4 U
Bromomethane	µg/L		0.4 U	0.4 U	0.4 U
Carbon disulfide	µg/L		0.4 U	0.4 U	0.4 U
Carbon tetrachloride	µg/L	0.3***	0.4 U	0.4 U	0.4 U
Chlorobenzene	µg/L	100****	0.4 U	0.4 U	0.4 U
Chlorobromomethane	µg/L		0.4 U	0.4 U	0.4 U
Chlorodibromomethane	µg/L	0.5***	0.4 U	0.4 U	0.4 U
Chlorodifluoromethane (Freon-22)	µg/L		0.4 U	0.4 U	0.4 U
Chloroethane	µg/L		0.4 U	0.4 U	0.4 U
Chloroform	µg/L	7.0***	0.4 U	0.4 U	0.4 U
Chloromethane	µg/L		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
cis-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
Cymene	µg/L		0.4 U	0.4 U	0.4 U
Dibromomethane	µg/L		0.4 U	0.4 U	0.4 U
Dichlorodifluoromethane (CFC-12)	µg/L		0.4 U	0.4 U	0.4 U
Dichloromethane	µg/L	5***	0.4 U	0.4 U	0.4 U
Dichloromonofluoromethane (Freon-21)	µg/L		0.4 U	0.4 U	0.4 U
Diethyl ether	µg/L		0.4 U	0.4 U	0.4 U

2016 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Perched		
MONITORING WELL Sampling Date			B-11 3/21/2016	B-11 9/15/2016	B-11 12/14/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
Ethyl methacrylate	µg/L		3 U	3 U	3 U
Ethylbenzene	µg/L	700****	0.4 U	0.4 U	0.4 U
Hexachloro-1,3-butadiene	µg/L		0.4 U	0.4 U	0.4 U
Hexachloroethane	µg/L		0.4 U	0.4 U	0.4 U
Isopropylbenzene	µg/L		0.4 U	0.4 U	0.4 U
m+p-xylene	µg/L		0.4 U	0.4 U	0.4 U
m-dichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
Methyl acrylate	µg/L		2 U	2 U	2 U
Methyl iodide	µg/L		5 U	5 U	5 U
Methyl methacrylate	µg/L		2 U	2 U	2 U
Methyl n-butyl ketone	µg/L		5 U	5 U	5 U
Methyl tert-butyl ether	µg/L		1 U	1 U	0.4 U
Methylacrylonitrile	µg/L		4 U	4 U	4 U
Naphthalene	µg/L		1 U	1 U	1 U
n-butyl chloride	µg/L		0.4 U	0.4 U	0.4 U
n-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U
n-propylbenzene	µg/L		0.4 U	0.4 U	0.4 U
o-xylene	µg/L		0.4 U	0.4 U	0.4 U
Pentachloroethane	µg/L		0.4 U	0.4 U	0.4 U
Styrene (monomer)	µg/L	100****	0.4 U	0.4 U	0.4 U
Tert-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U
Tetrachloroethene	µg/L	0.8***	0.4 U	0.4 U	0.4 U
Tetrahydrofuran	µg/L		3 U	3 U	3 U
Toluene	µg/L	1****	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
Trans-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
Trans-1,4-dichlorobutene	µg/L		5 U	5 U	5 U
Tribromomethane (Bromoform)	µg/L	5***	0.4 U	0.4 U	0.4 U
Trichloroethene	µg/L	3***	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane (CFC-11)	µg/L		0.4 U	0.4 U	0.4 U
Vinyl chloride	µg/L	0.02***	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.

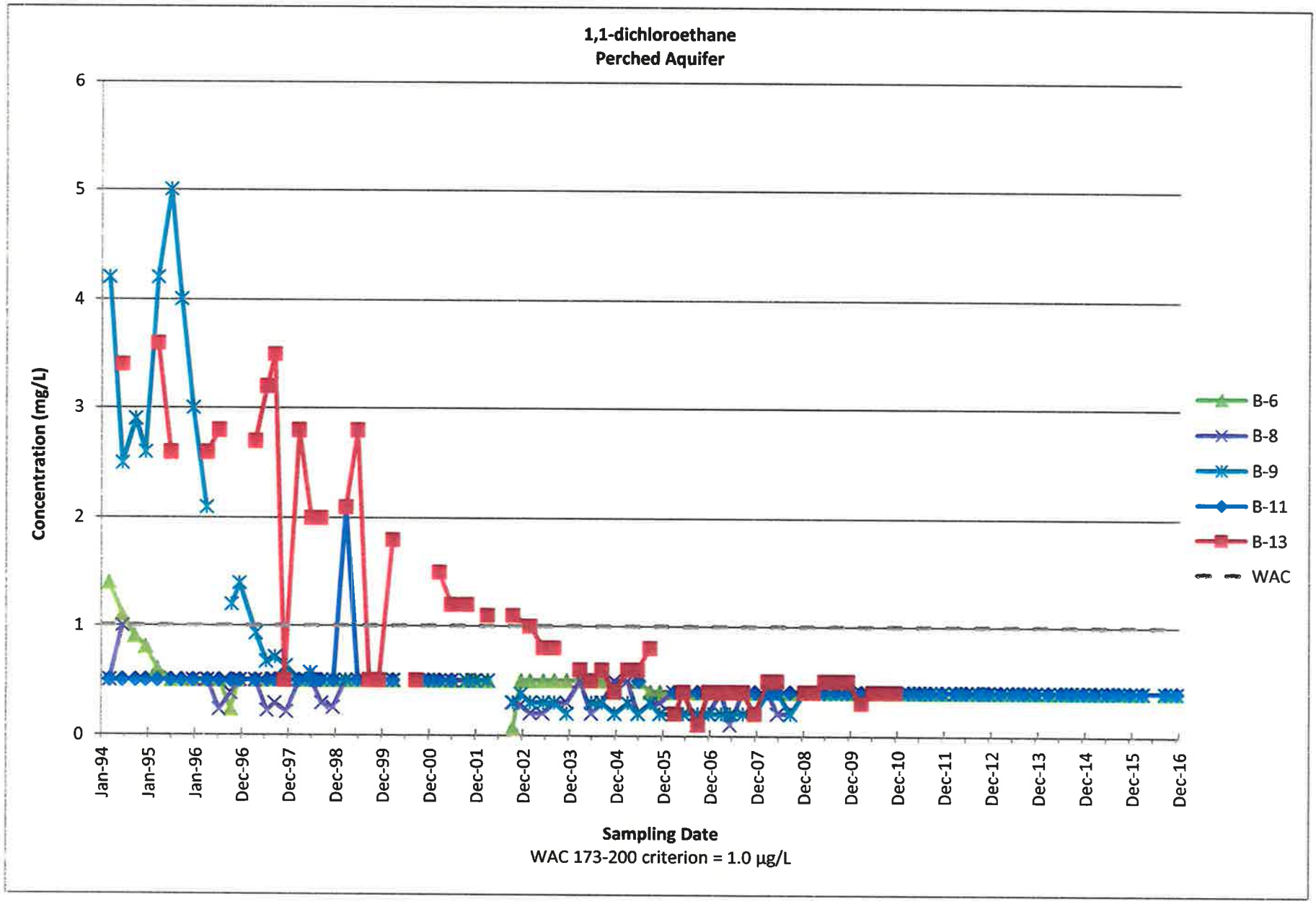
J — Indicates the analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.

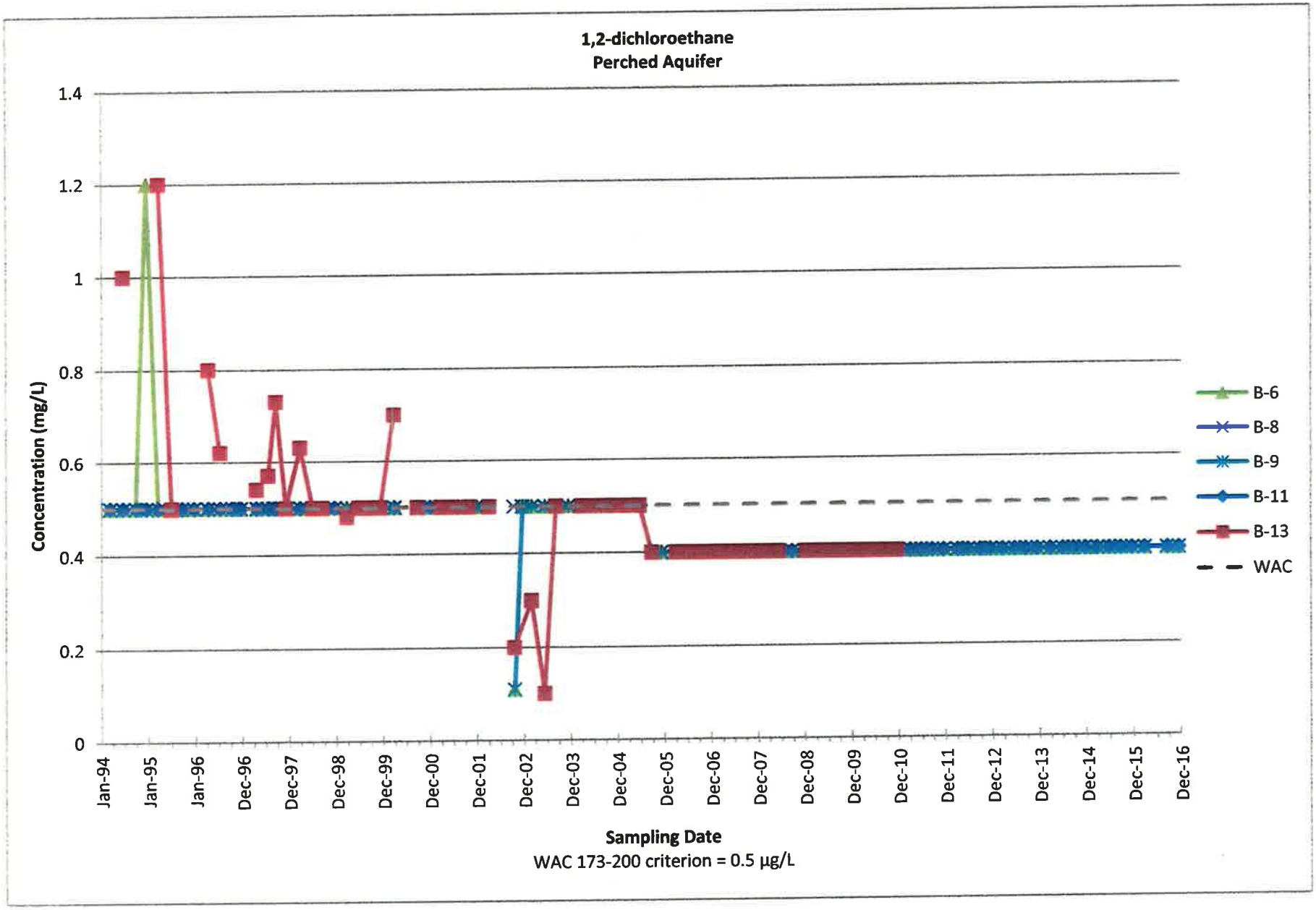
Units:

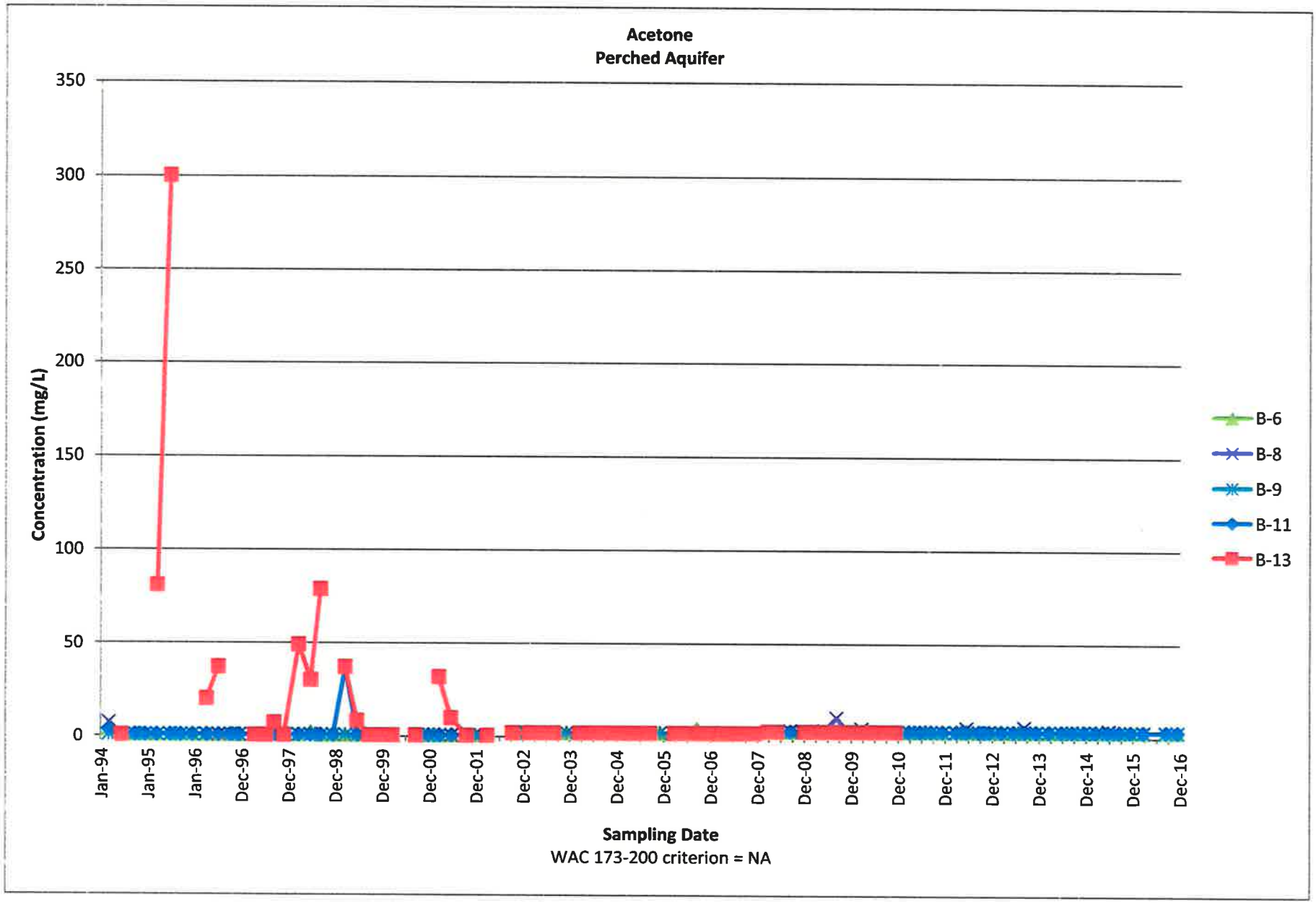
µg/L= micrograms per liter

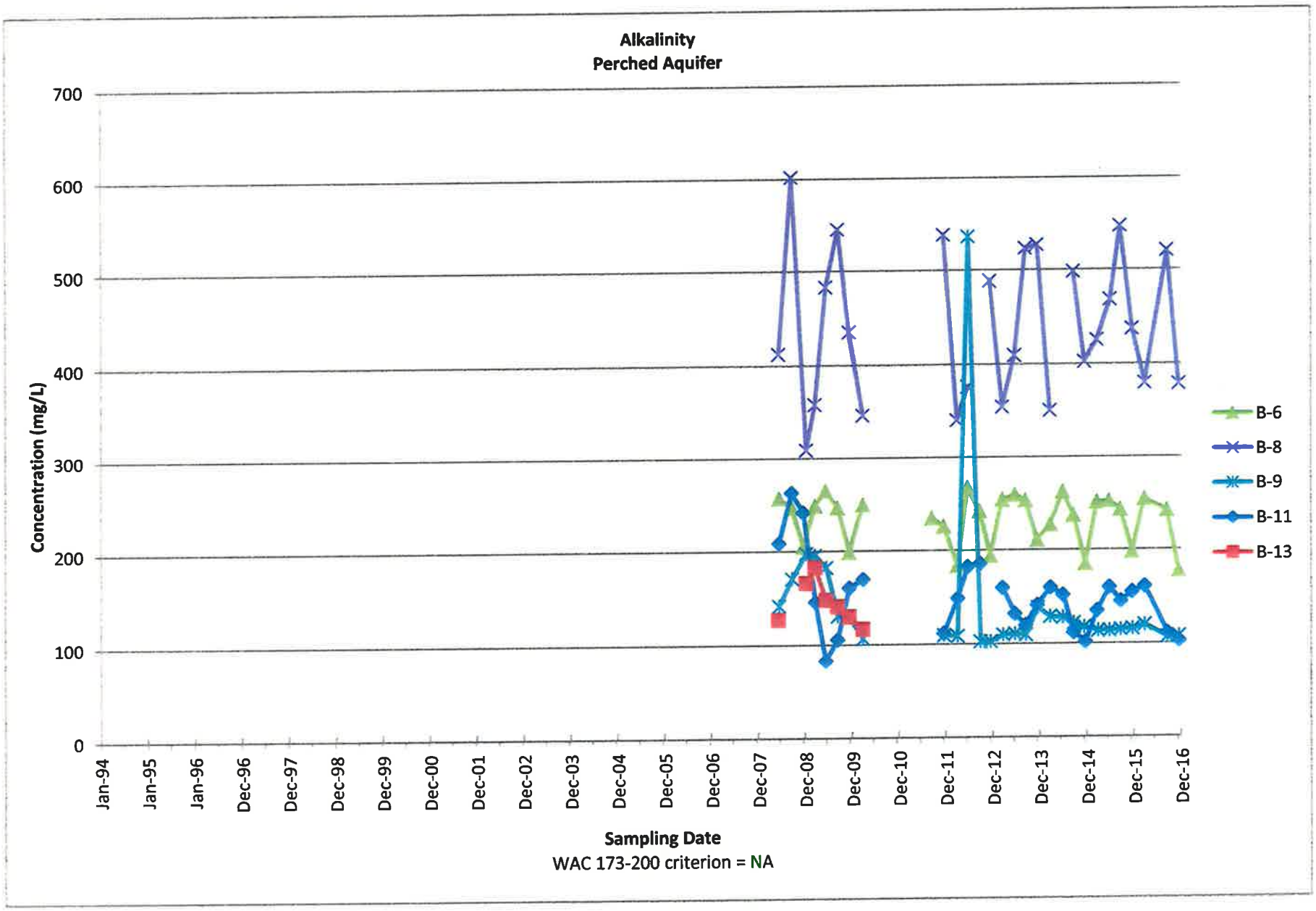
Results shown in bold exceed Ground Water Quality Criteria.

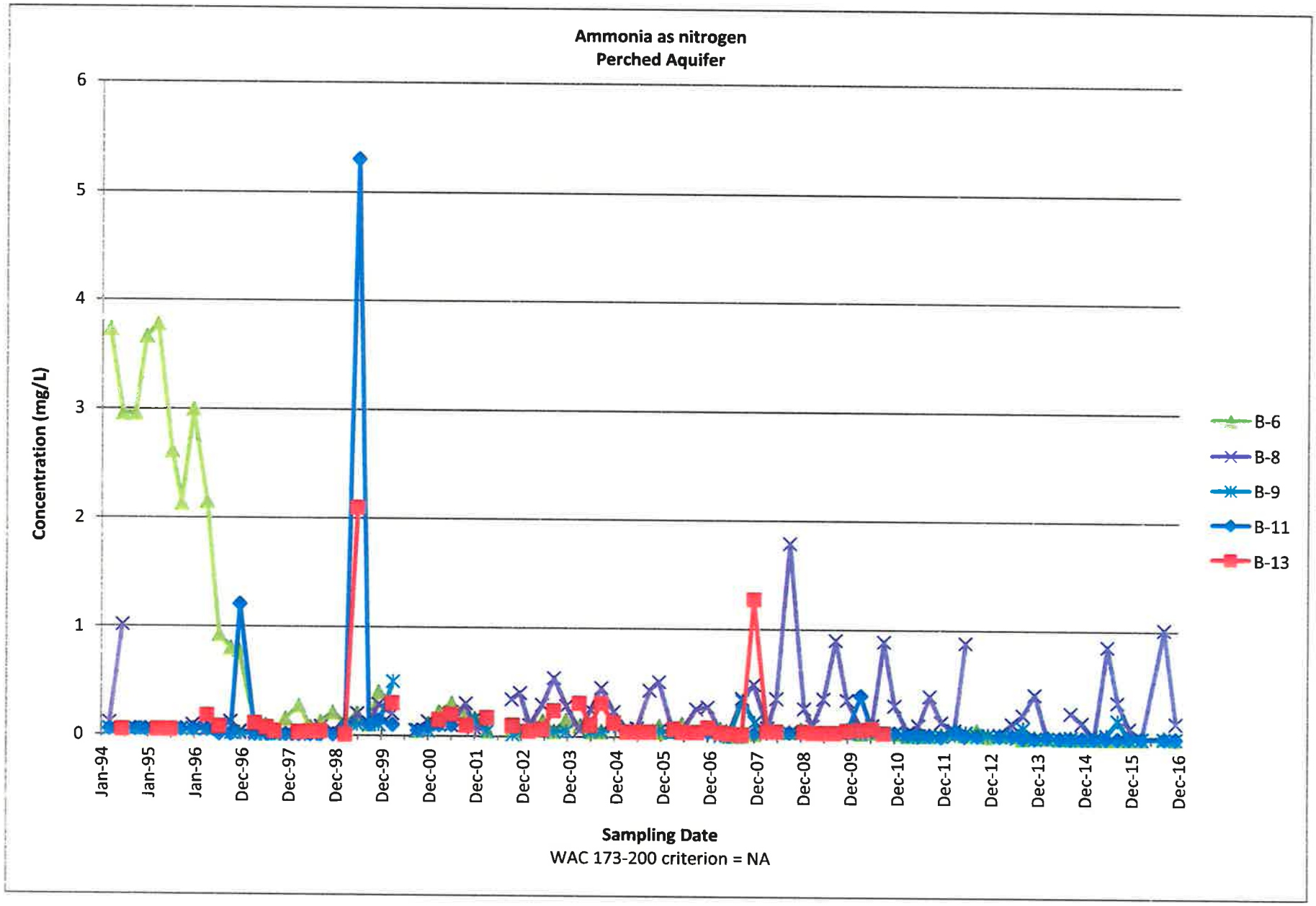
APPENDIX A-2:
Long Term Time Series Plots 1994-2016 – Perched Aquifer

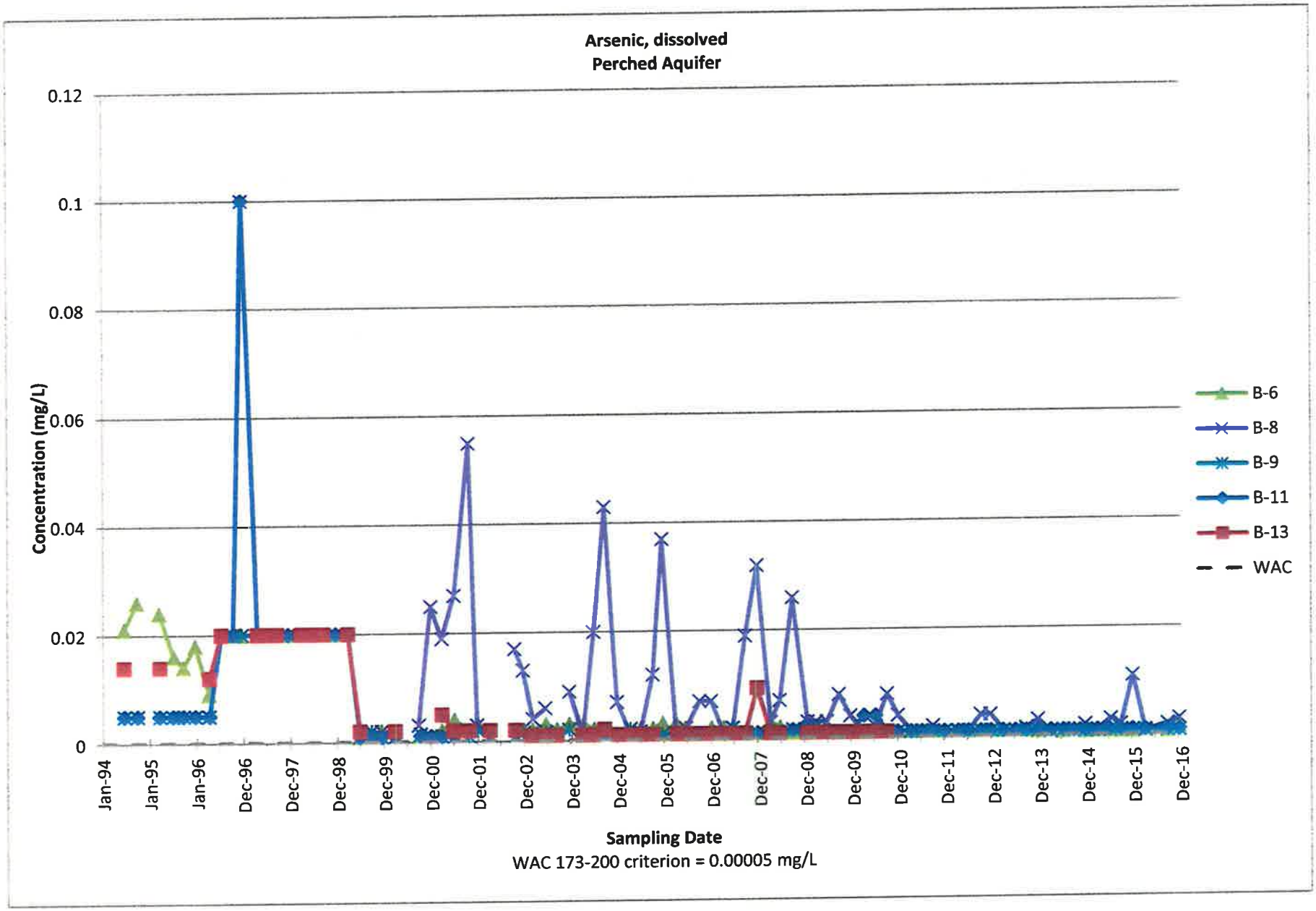

1,1-dichloroethane
Perched Aquifer
Concentration (mg/L)
0
1
2
3
4
5
6
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-6
B-8
B-9
B-11
B-13
WAC
Sampling Date
WAC 173-200 criterion =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

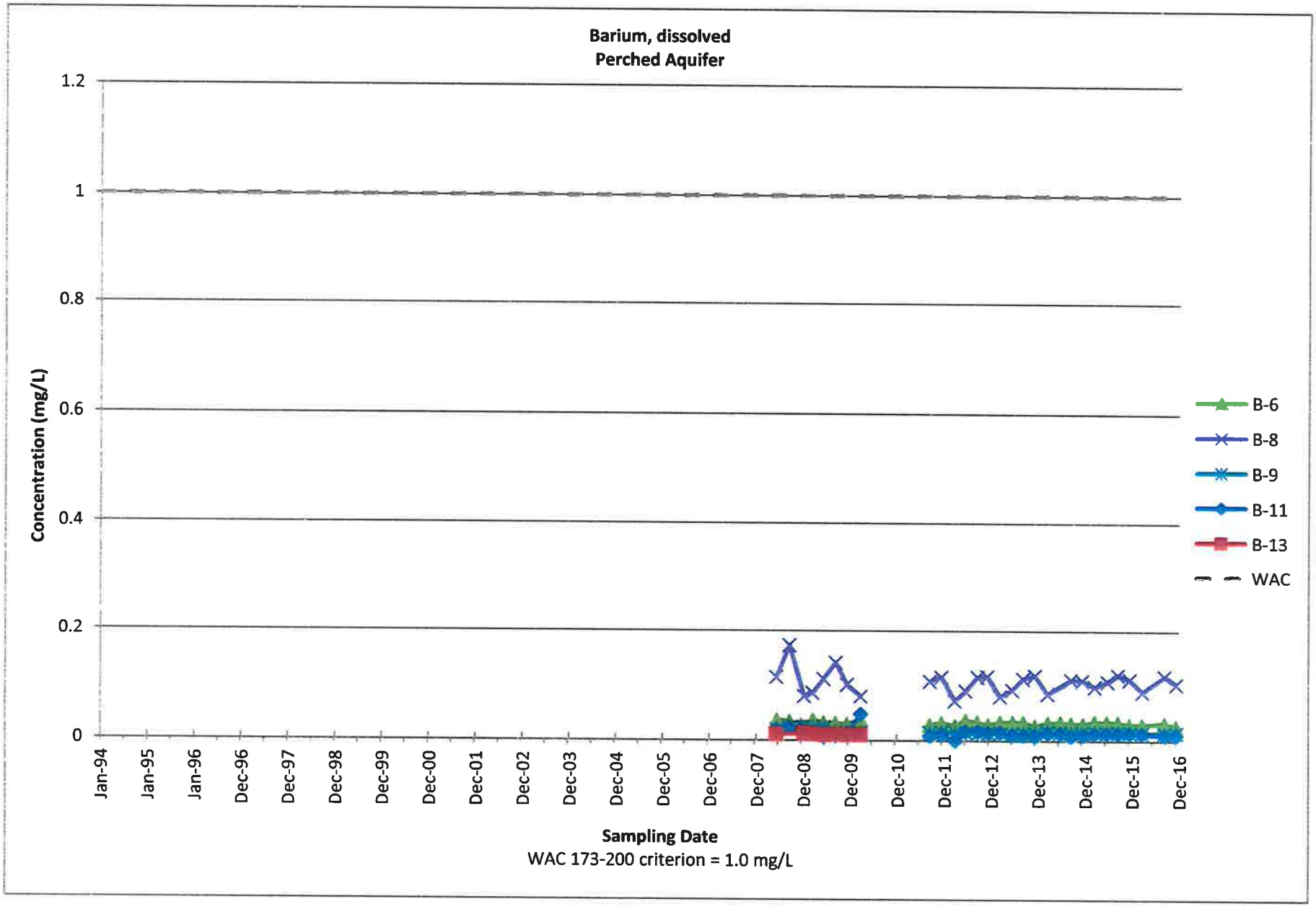

1,2-dichloroethane
Perched Aquifer
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
B-6
B-8
B-9
B-11
B-13
WAC
WAC 173-200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

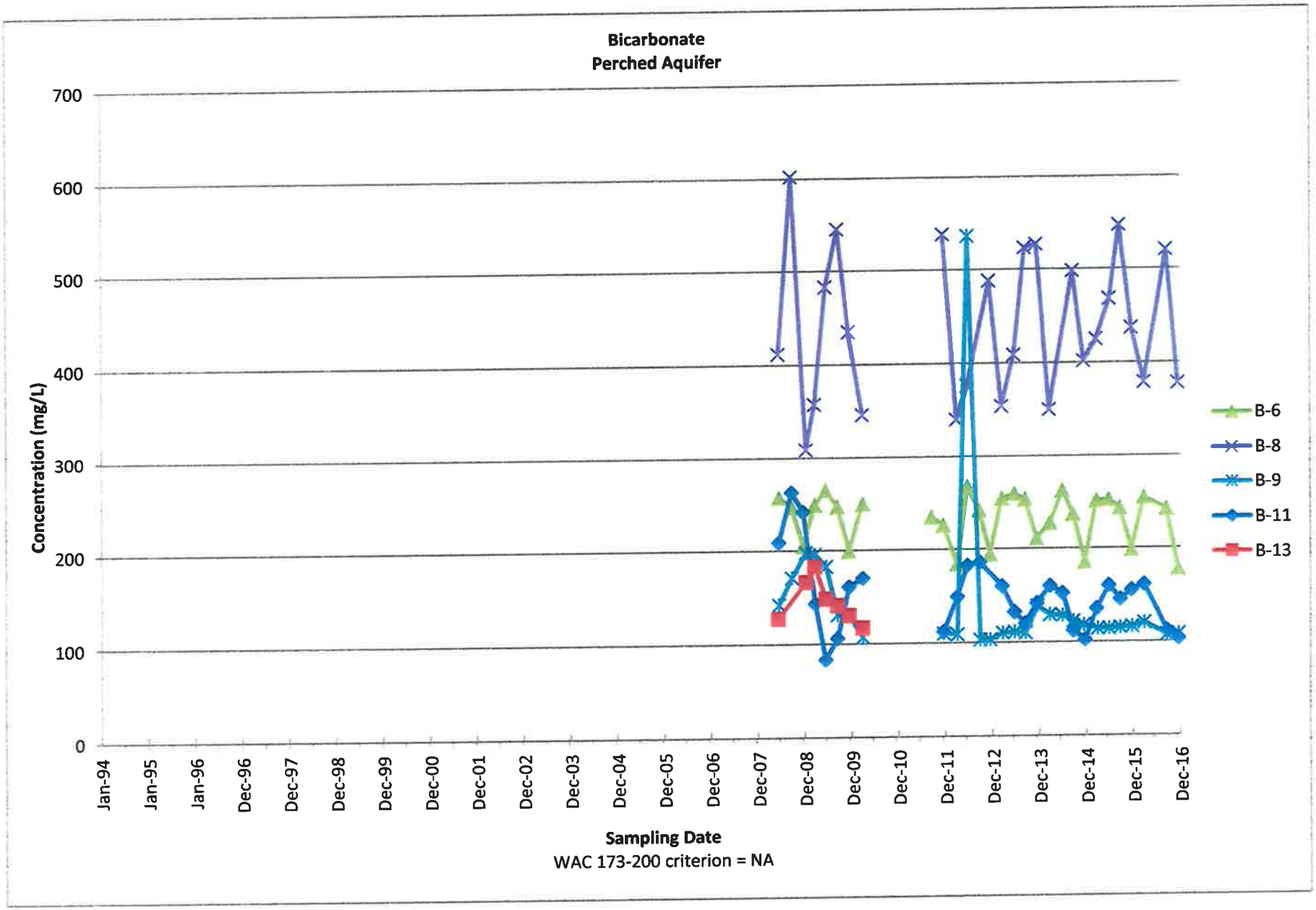

Acetone
Perched Aquifer
350
300
250
200
150
100
50
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-6
B-8
B-9
B-11
B-13

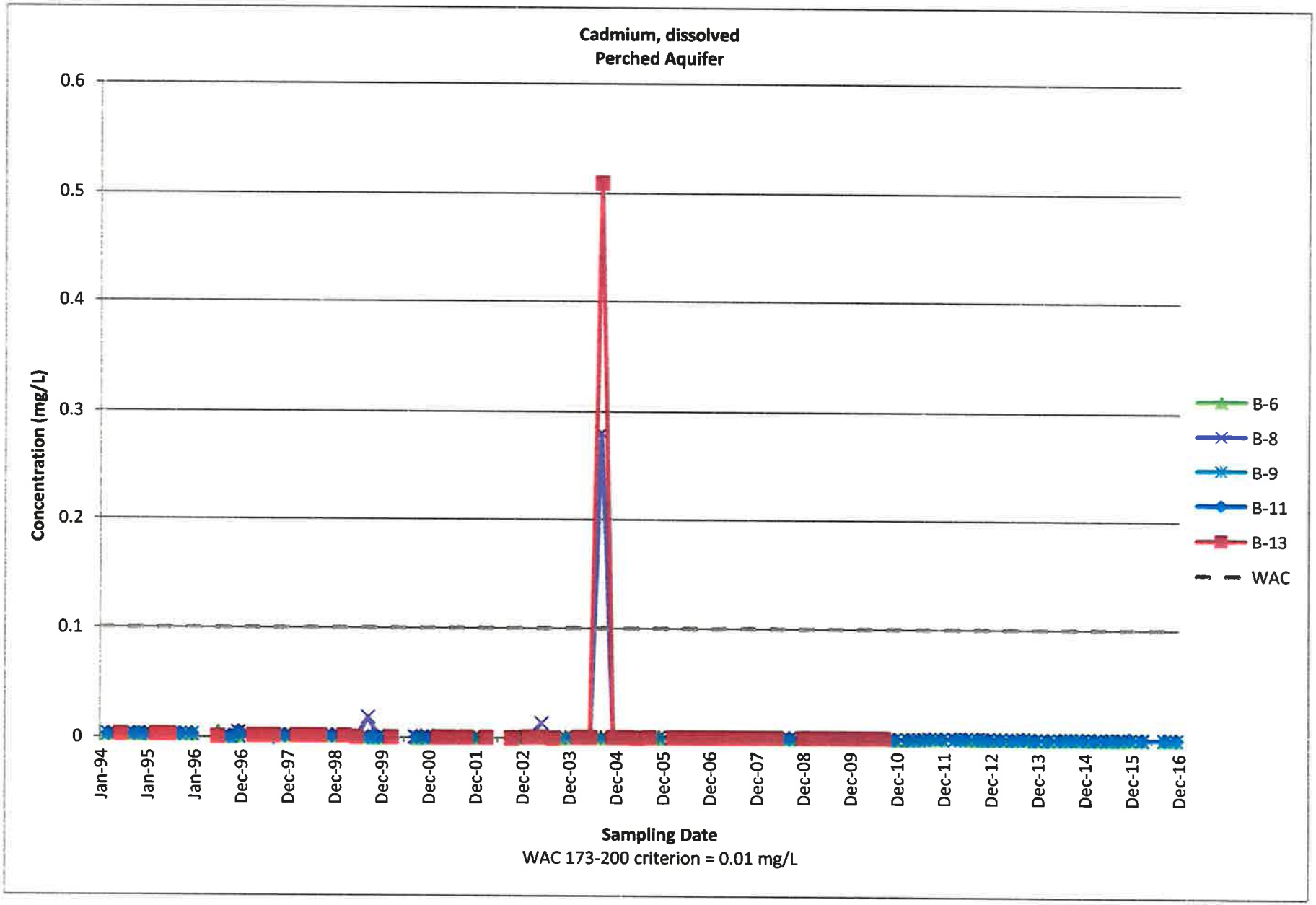

Alkalinity
Perched Aquifer
700
600
500
400
300
200
100
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-6
B-8
B-9
B-11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

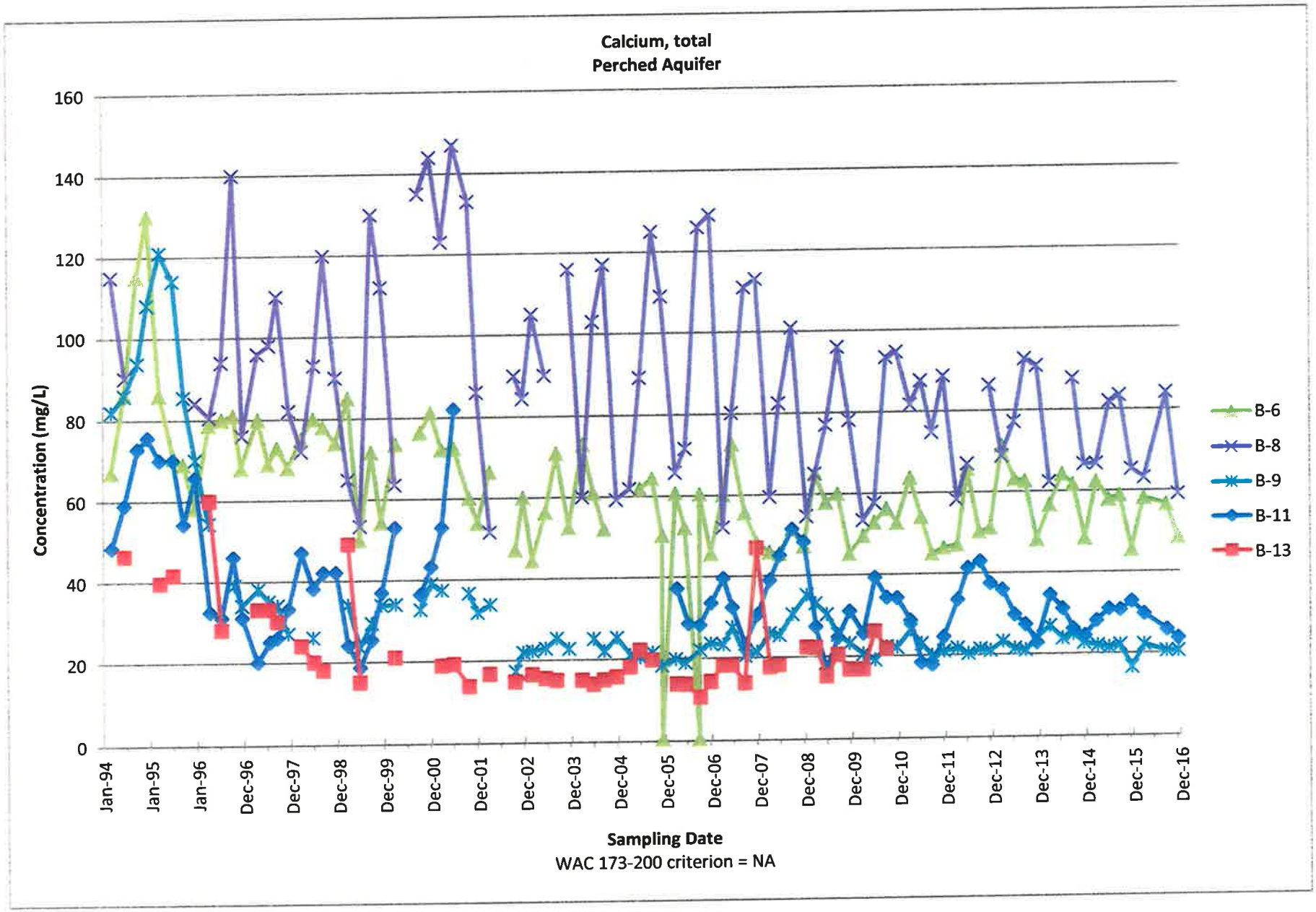

Ammonia as nitrogen
Perched Aquifer
Concentration (mg/L)
0
1
2
3
4
5
6
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-6
B-8
B-9
B-11
B-13
Sampling Date
WAC 173-200 criterion = NA

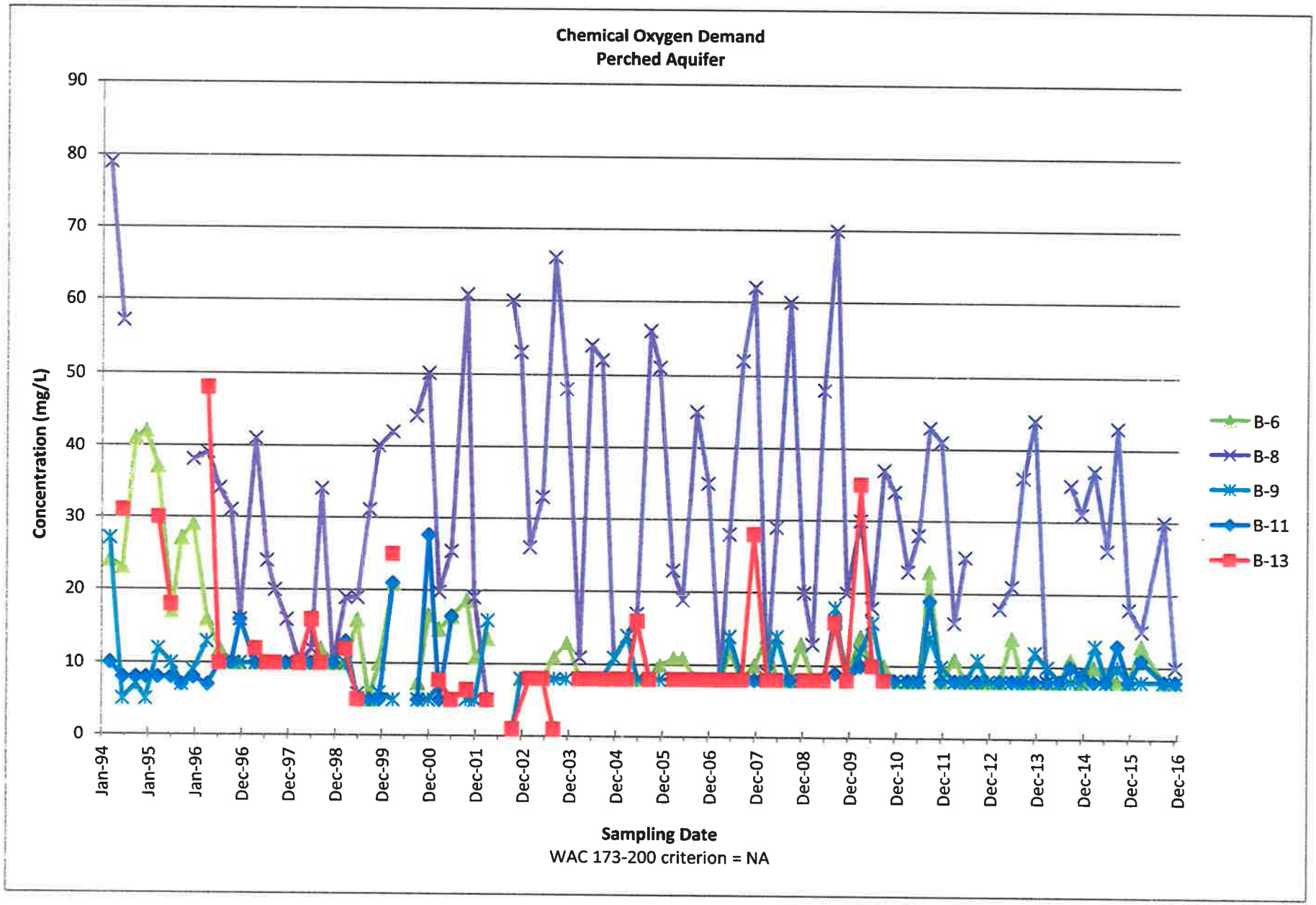

Arsenic, dissolved
Perched Aquifer
0.12
0.1
0.08
0.06
0.04
0.02
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
B-6
B-8
B-9
B-11
B-13
WAC
WAC 173-200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

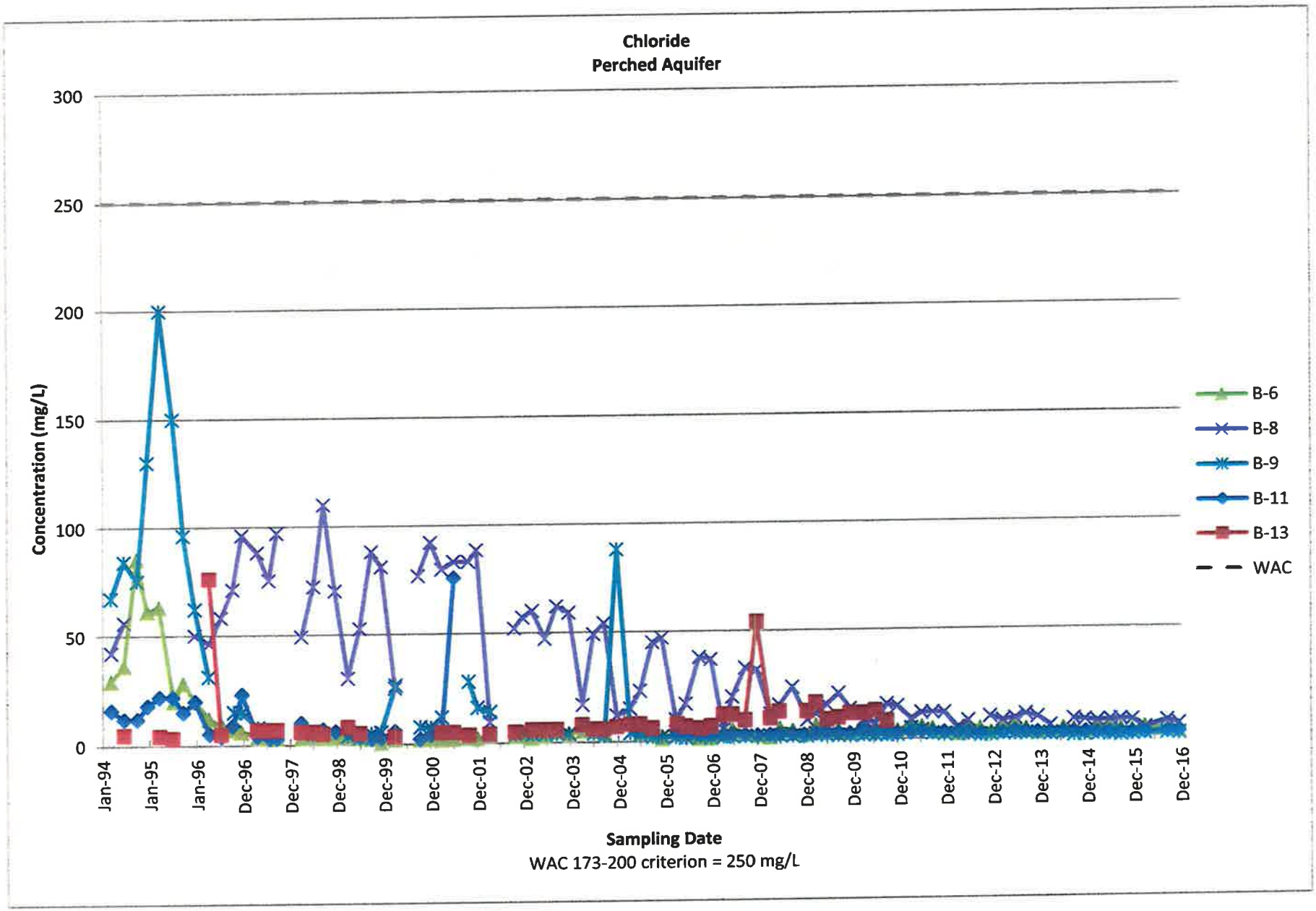

Barium, dissolved
Perched Aquifer
Concentration (mg/L)
1.2
1
0.8
0.6
0.4
0.2
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-6
B-8
B-9
B-11
B-13
WAC
Sampling Date
WAC 173-200 criterion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

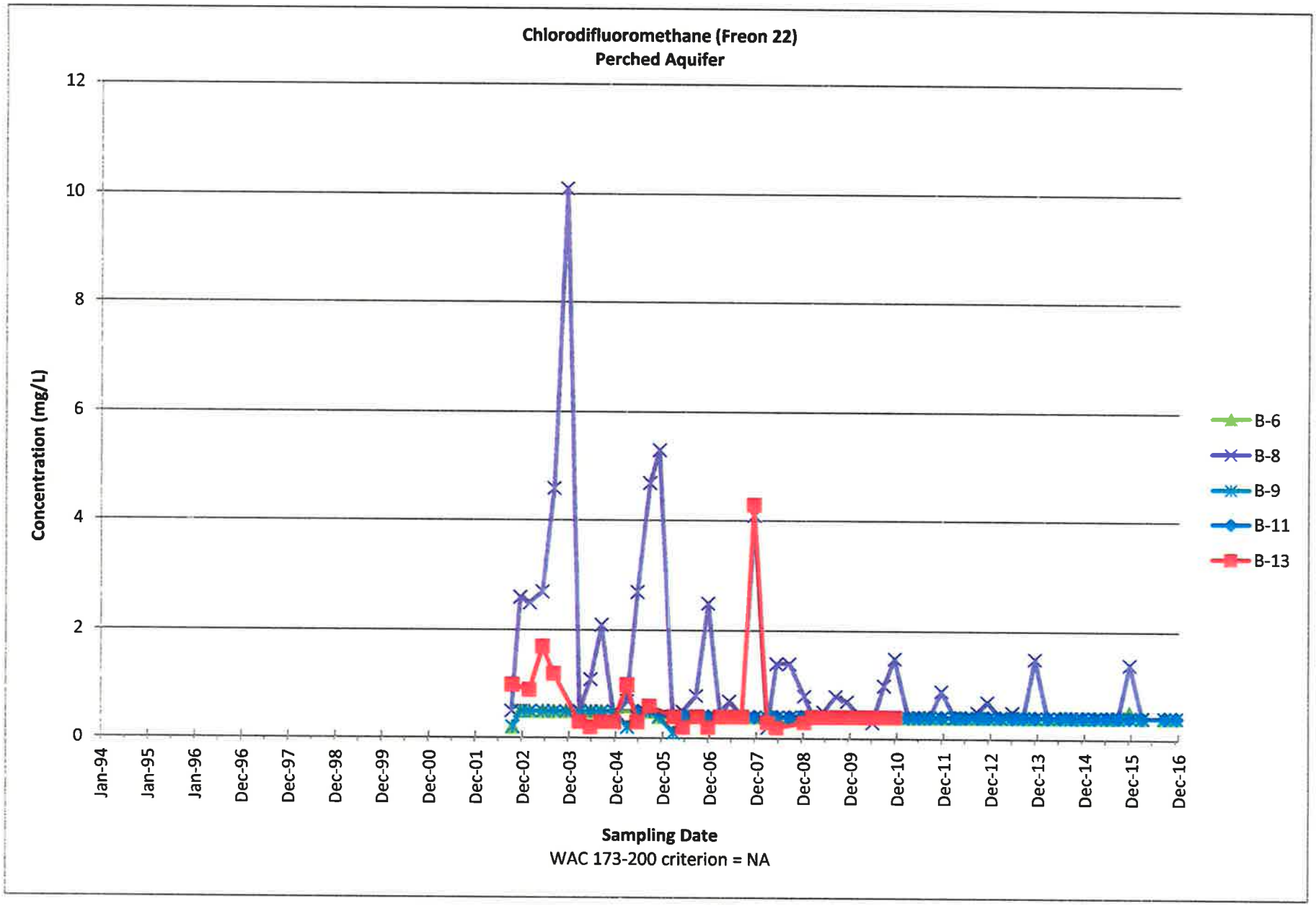

Bicarbonate
Perched Aquifer
Concentration (mg/L)
700
600
500
400
300
200
100
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-6
B-8
B-9
B-11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

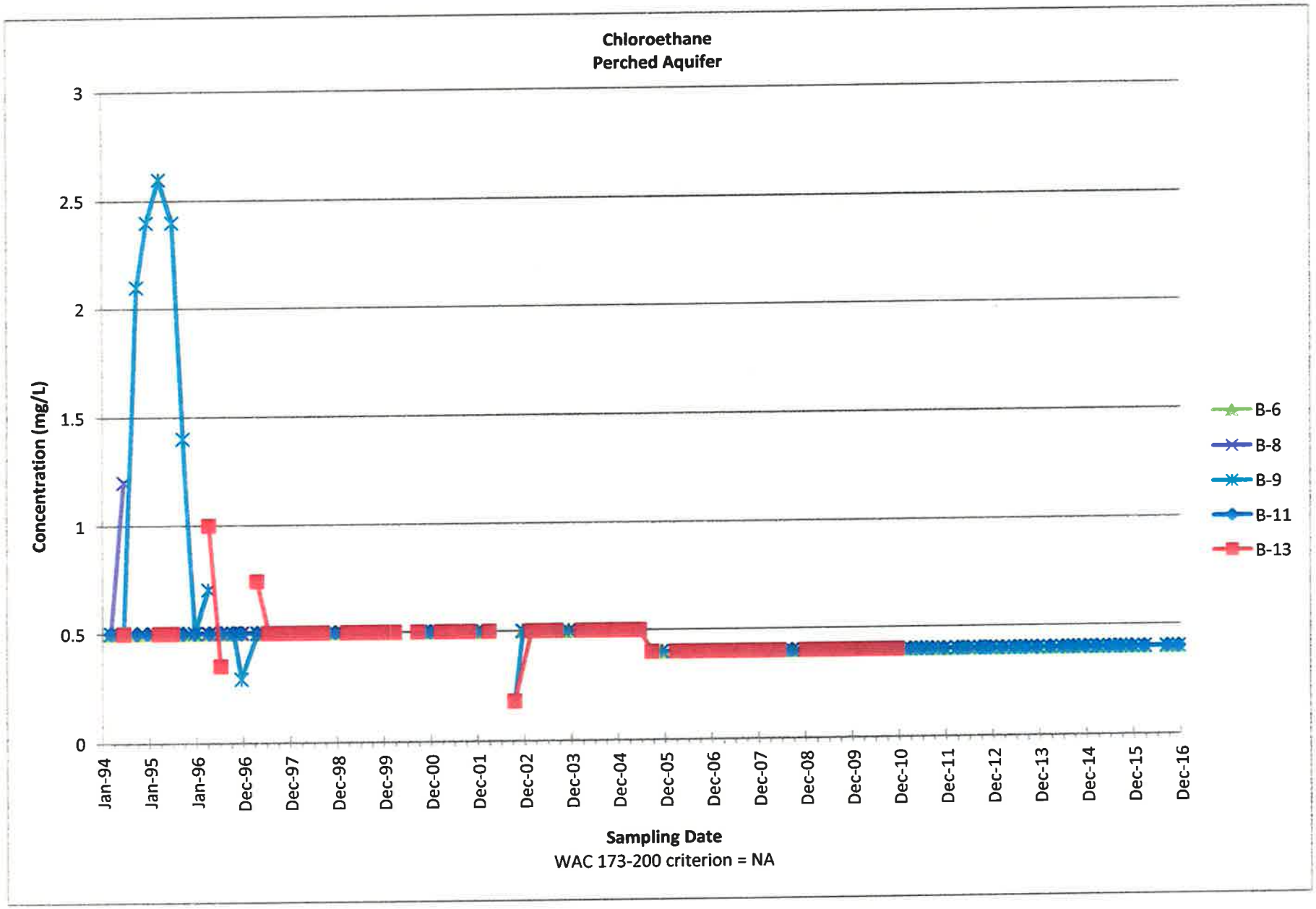

Cadmium, dissolved
Perched Aquifer
Concentration (mg/L)
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-6
B-8
B-9
B-11
B-13
WAC
Sampling Date
WAC 173-200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

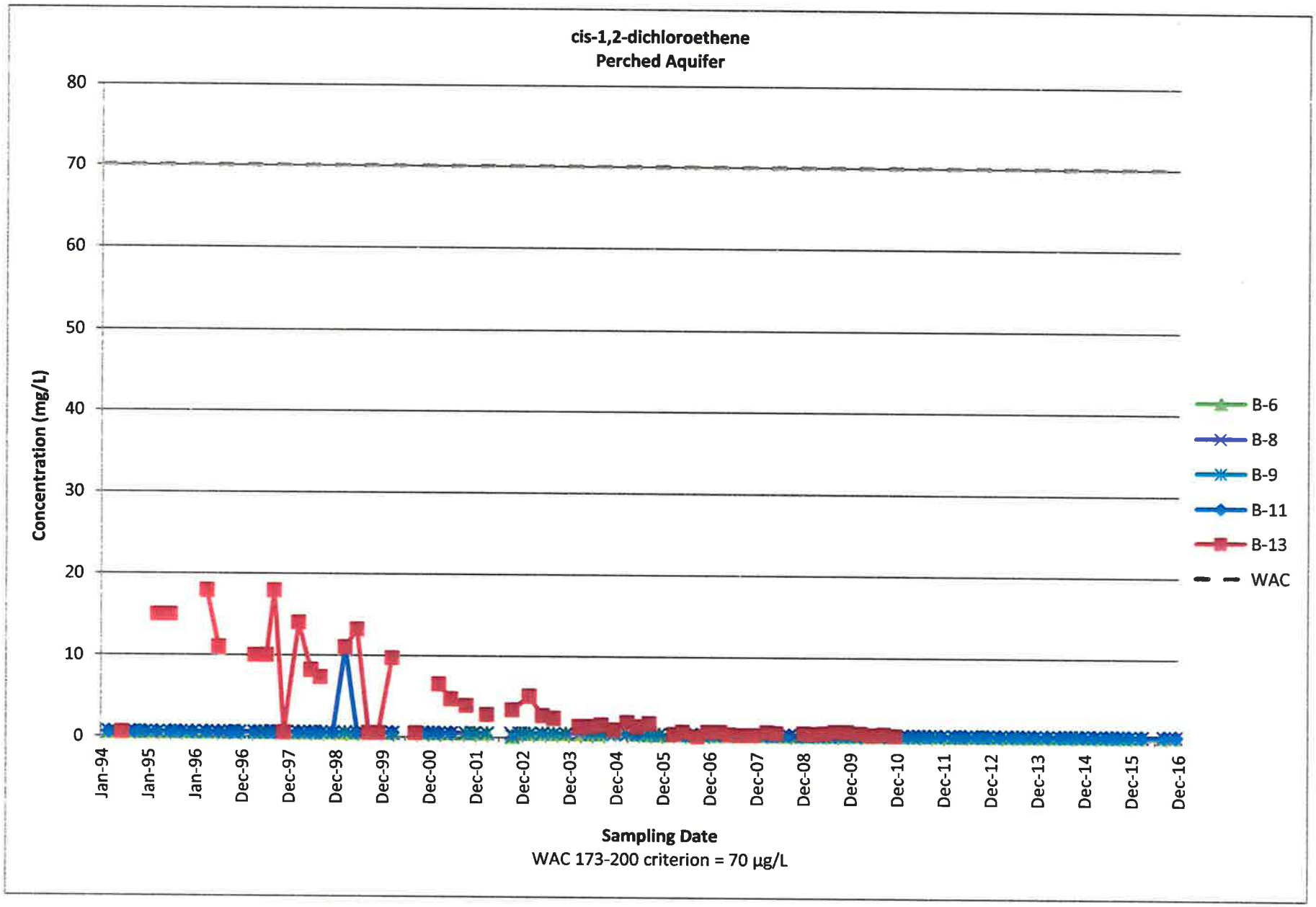

Calcium, total
Perched Aquifer
Concentration (mg/L)
160
140
120
100
80
60
40
20
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-6
B-8
B-9
B-11
B-13
Sampling Date
WAC 173-200 criterion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

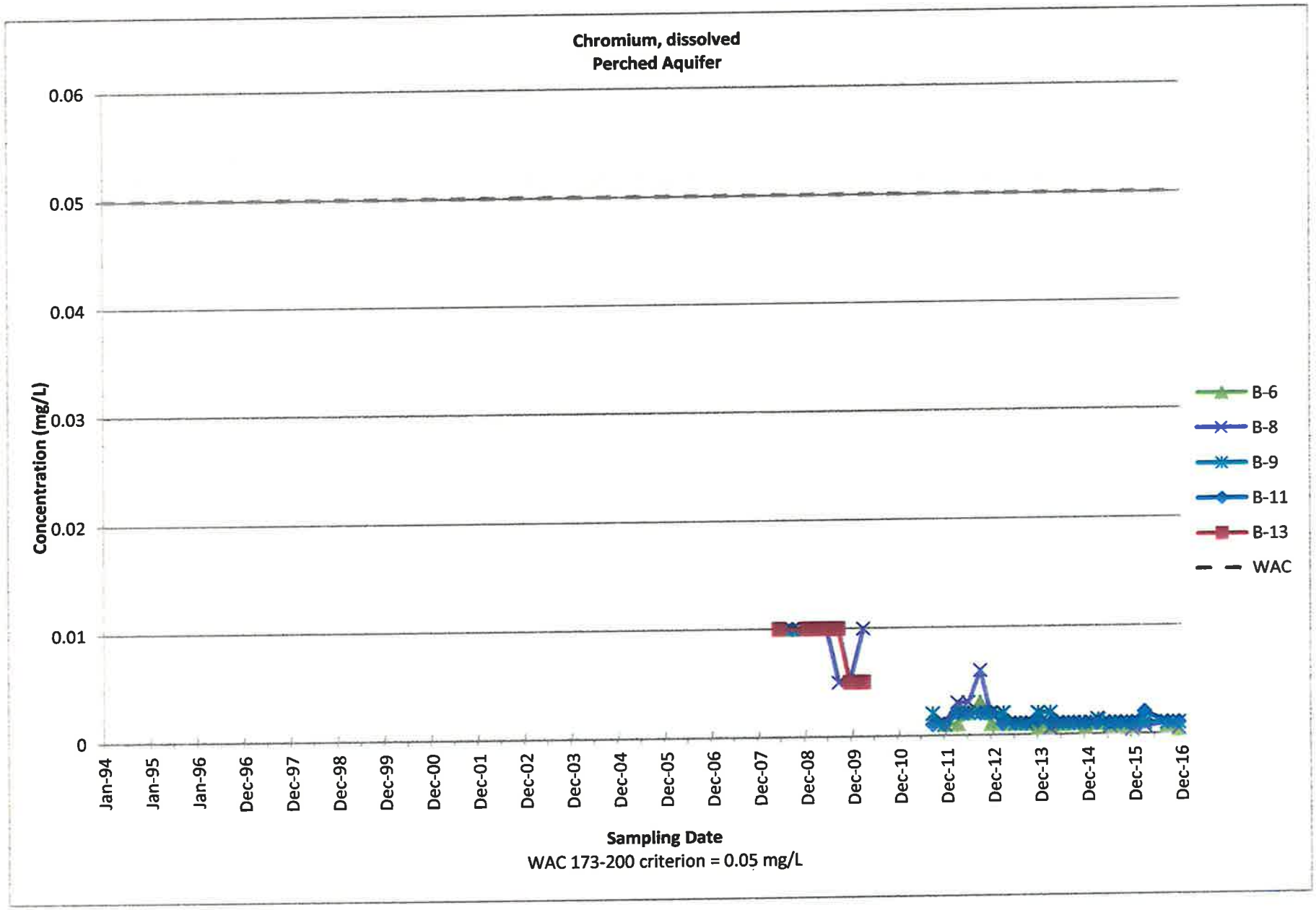

Chemical Oxygen Demand
Perched Aquifer
Concentration (mg/L)
90
80
70
60
50
40
30
20
10
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-6
B-8
B-9
B-11
B-13
Sampling Date
WAC 173-200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

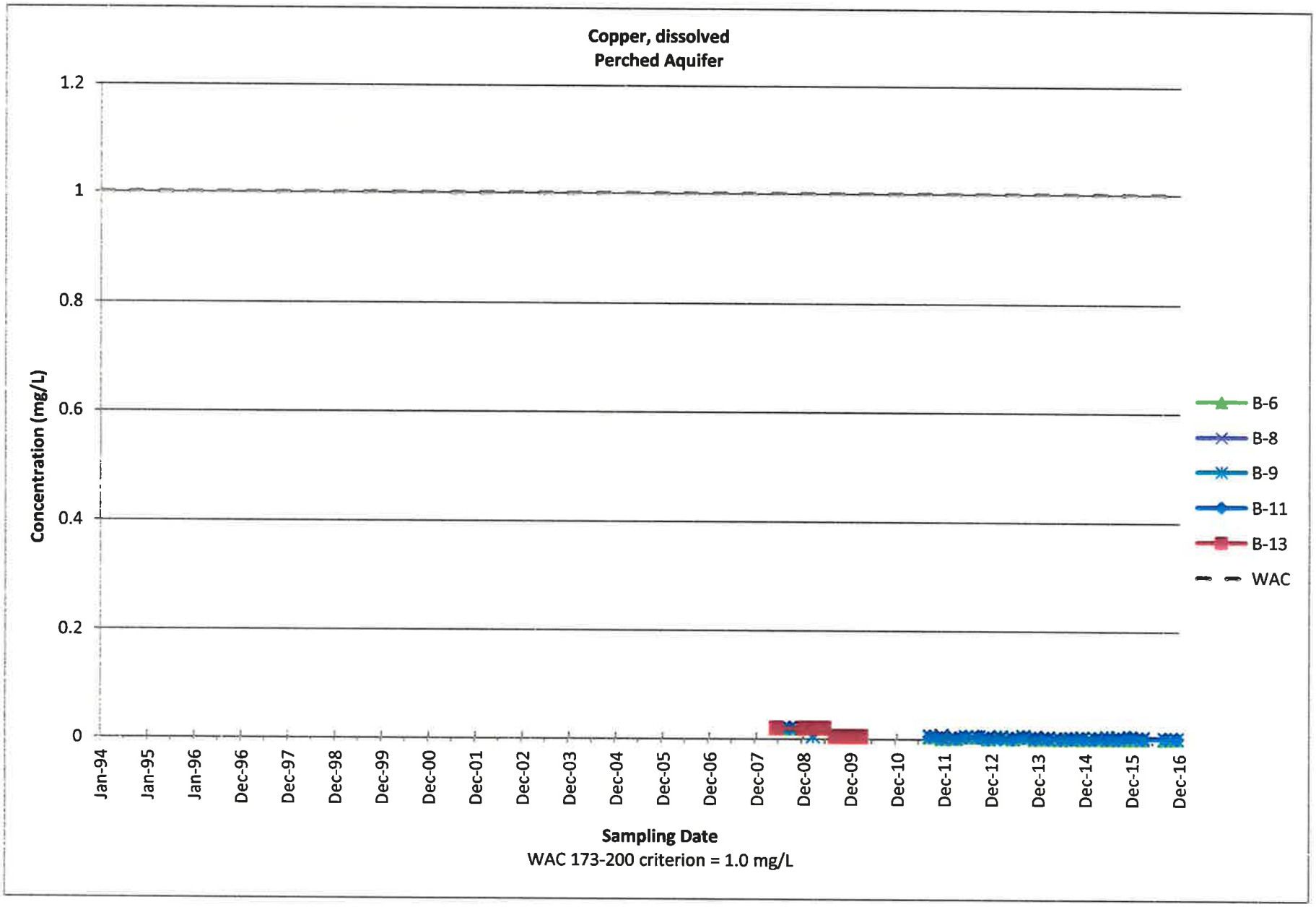

Chloride
Perched Aquifer
300
250
200
150
100
50
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
B-6
B-8
B-9
B-11
B-13
WAC
WAC 173-200 criterion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

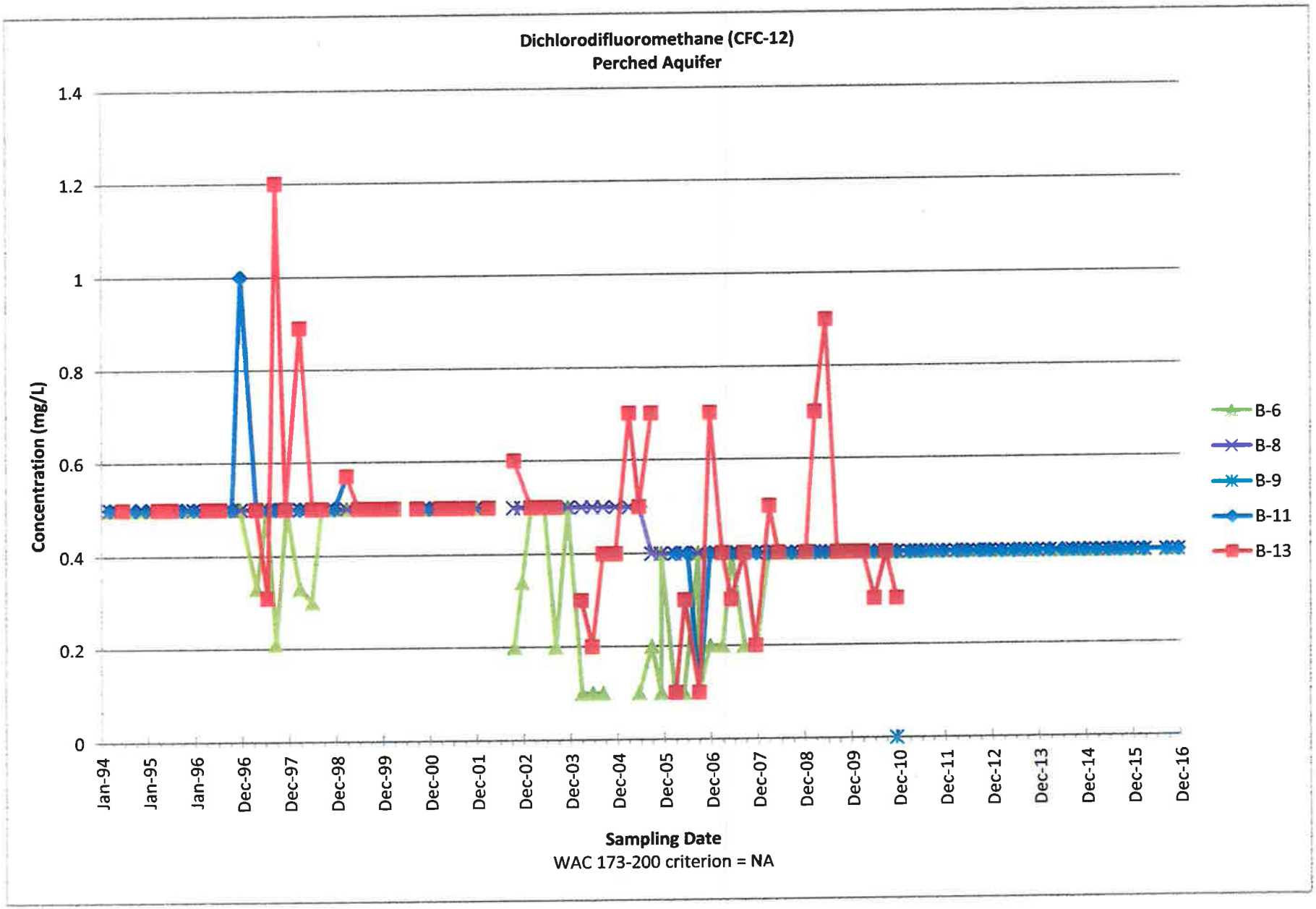

Chlorodifluoromethane (Freon 22)
Perched Aquifer
Concentration (mg/L)
12
10
8
6
4
2
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-6
B-8
B-9
B-11
B-13
Sampling Date
WAC 173-200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

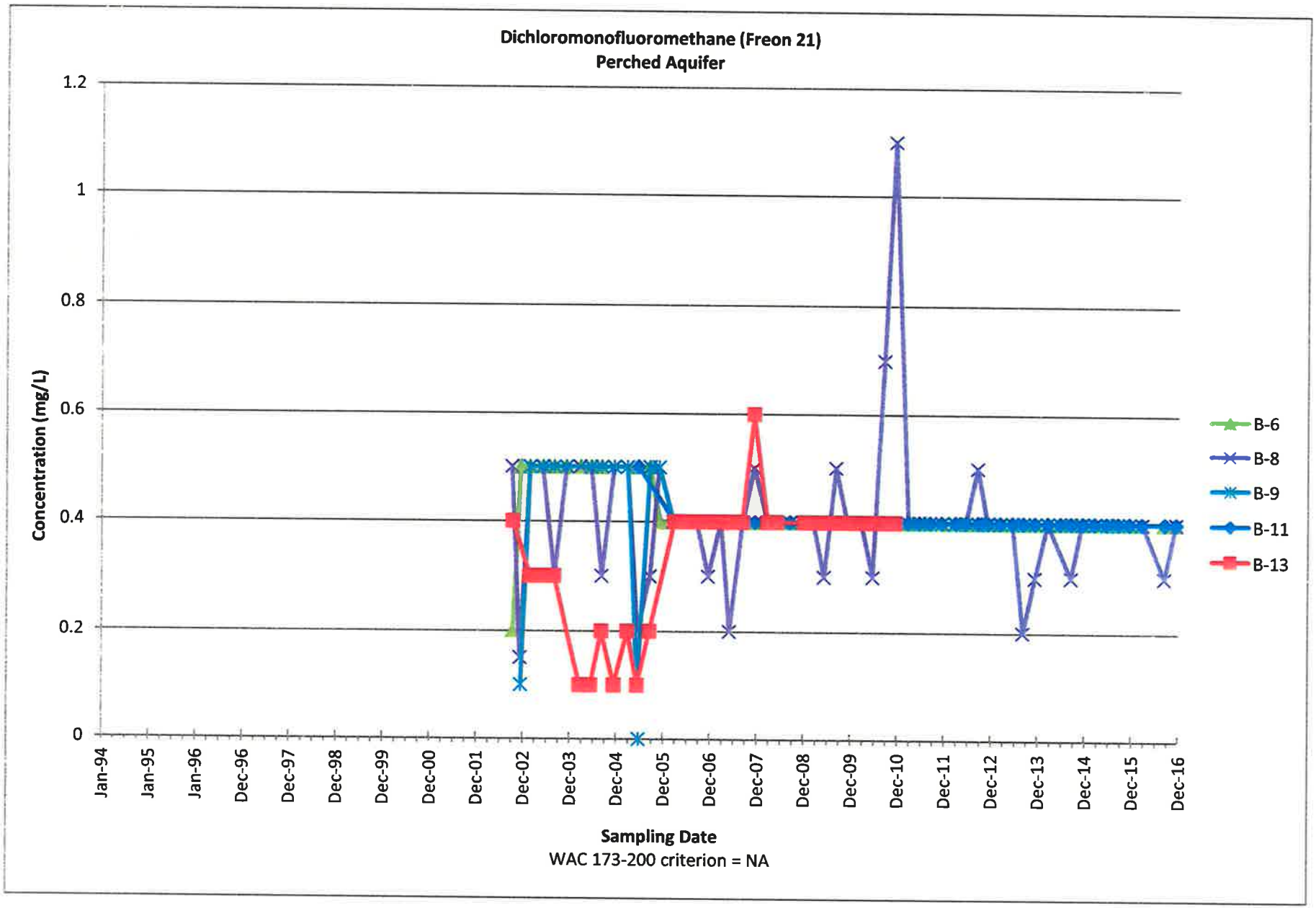

Chloroethane
Perched Aquifer
Concentration (mg/L)
3
2.5
2
1.5
1
0.5
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-6
B-8
B-9
B-11
B-13

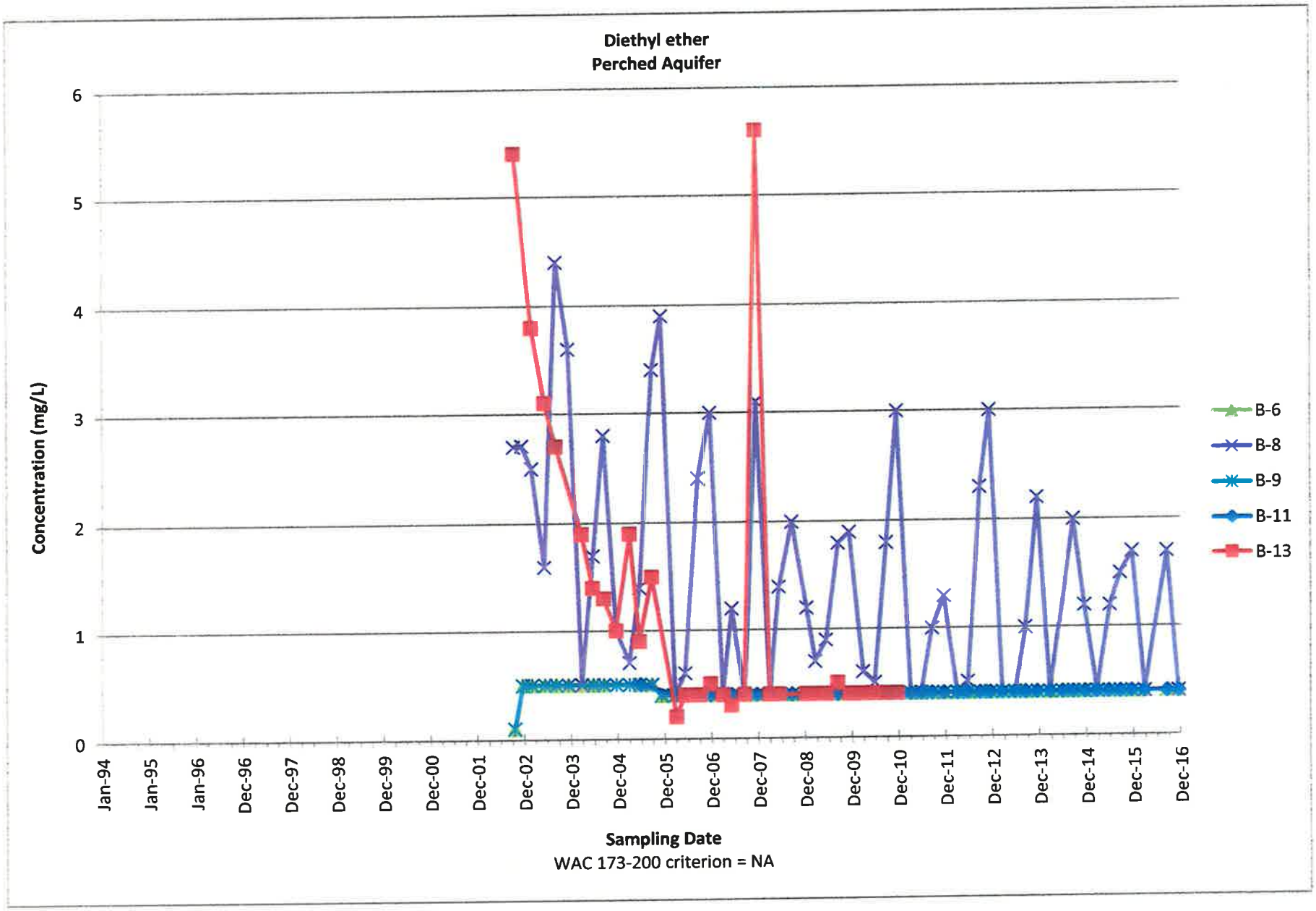

cis-1,2-dichloroethene
Perched Aquifer
Concentration (mg/L)
80
70
60
50
40
30
20
10
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-6
B-8
B-9
B-11
B-13
WAC
Sampling Date
WAC 173-200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

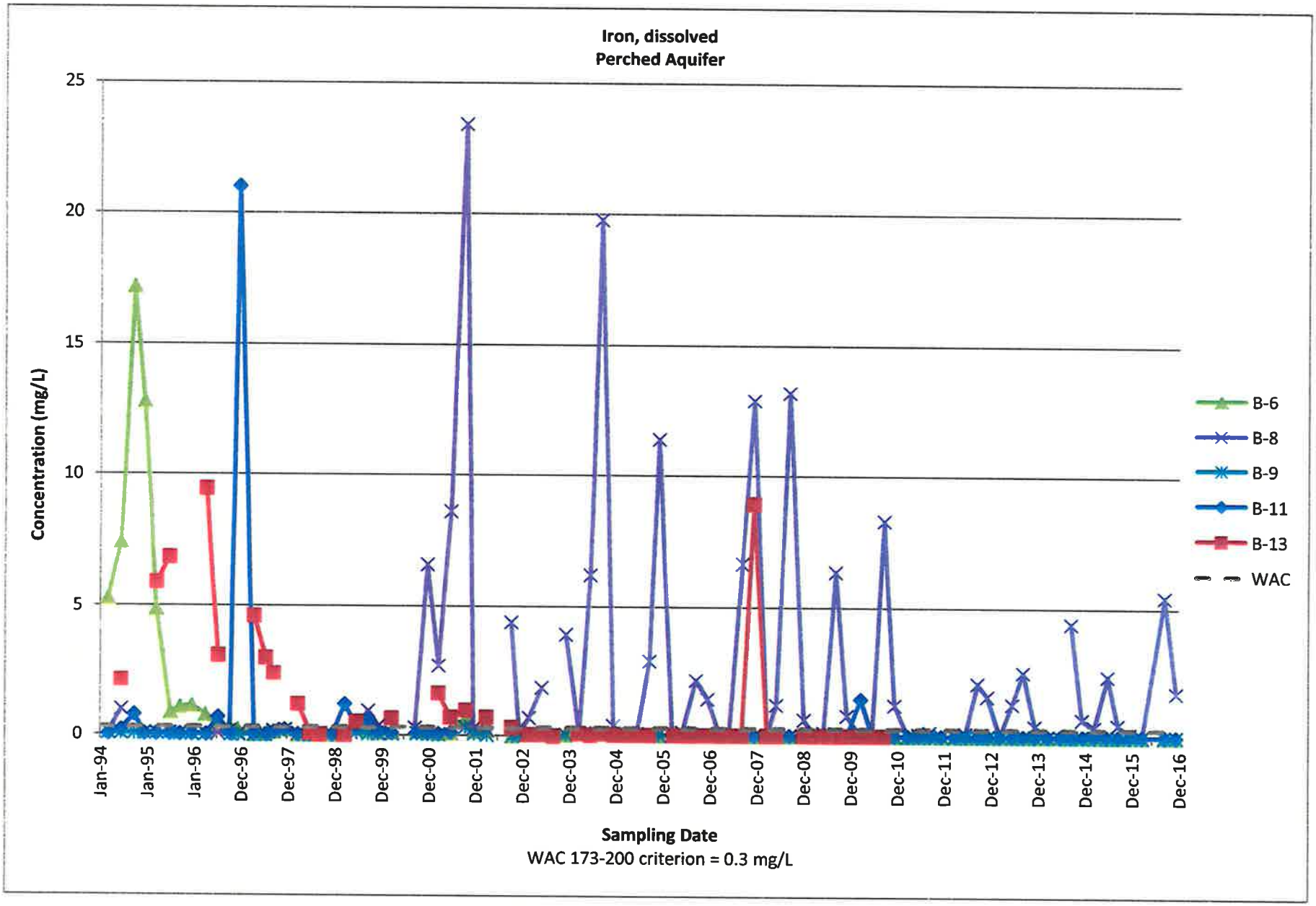

Chromium, dissolved
Perched Aquifer
0.06
0.05
0.04
0.03
0.02
0.01
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
B-6
B-8
B-9
B-11
B-13
WAC
WAC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

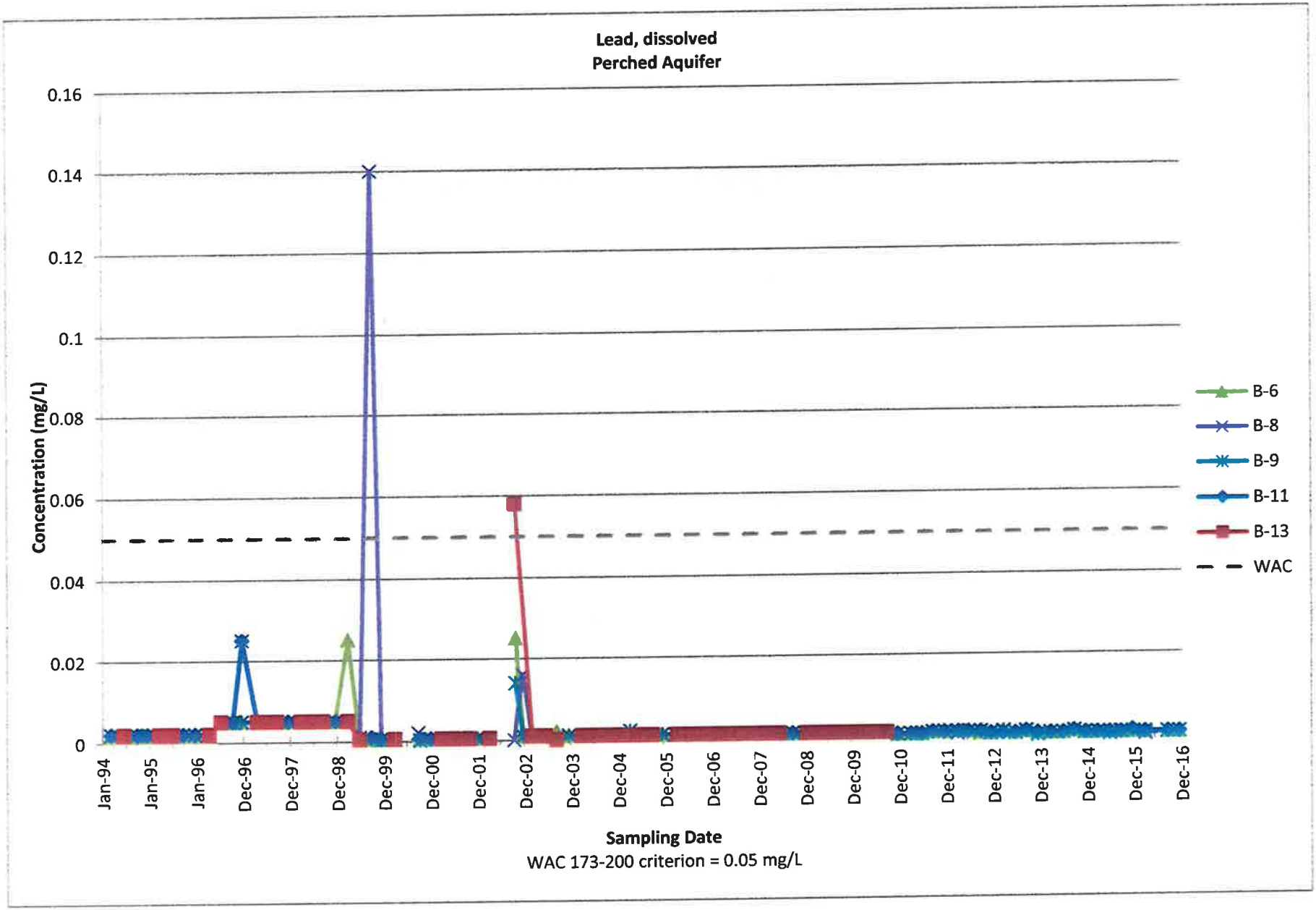

Copper, dissolved
Perched Aquifer
1.2
1
0.8
0.6
0.4
0.2
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
B-6
B-8
B-9
B-11
B-13
WAC
WAC 173-200 criterion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

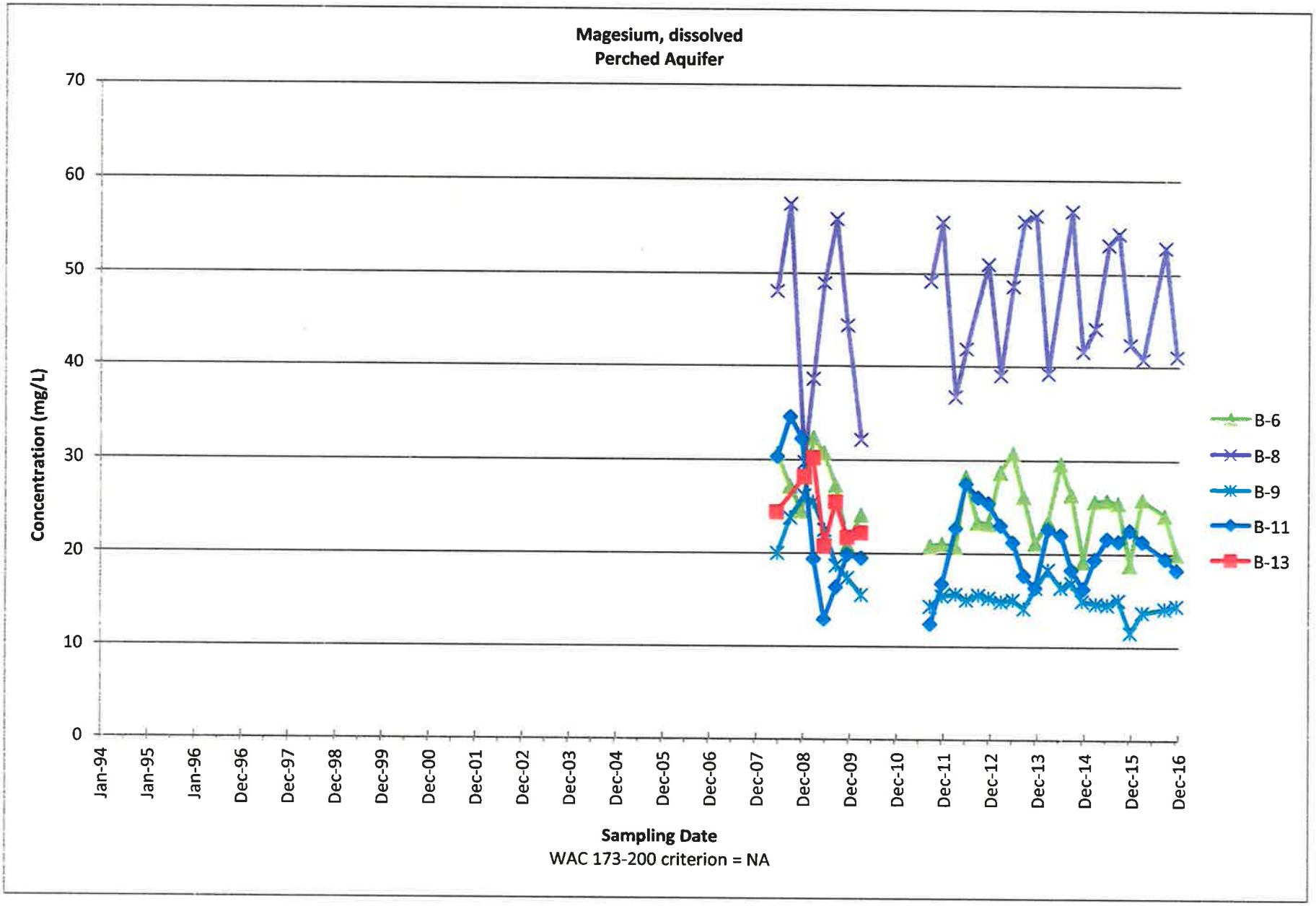

Dichlorodifluoromethane (CFC-12)
Perched Aquifer
Concentration (mg/L)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-6
B-8
B-9
B-11
B-13
Sampling Date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

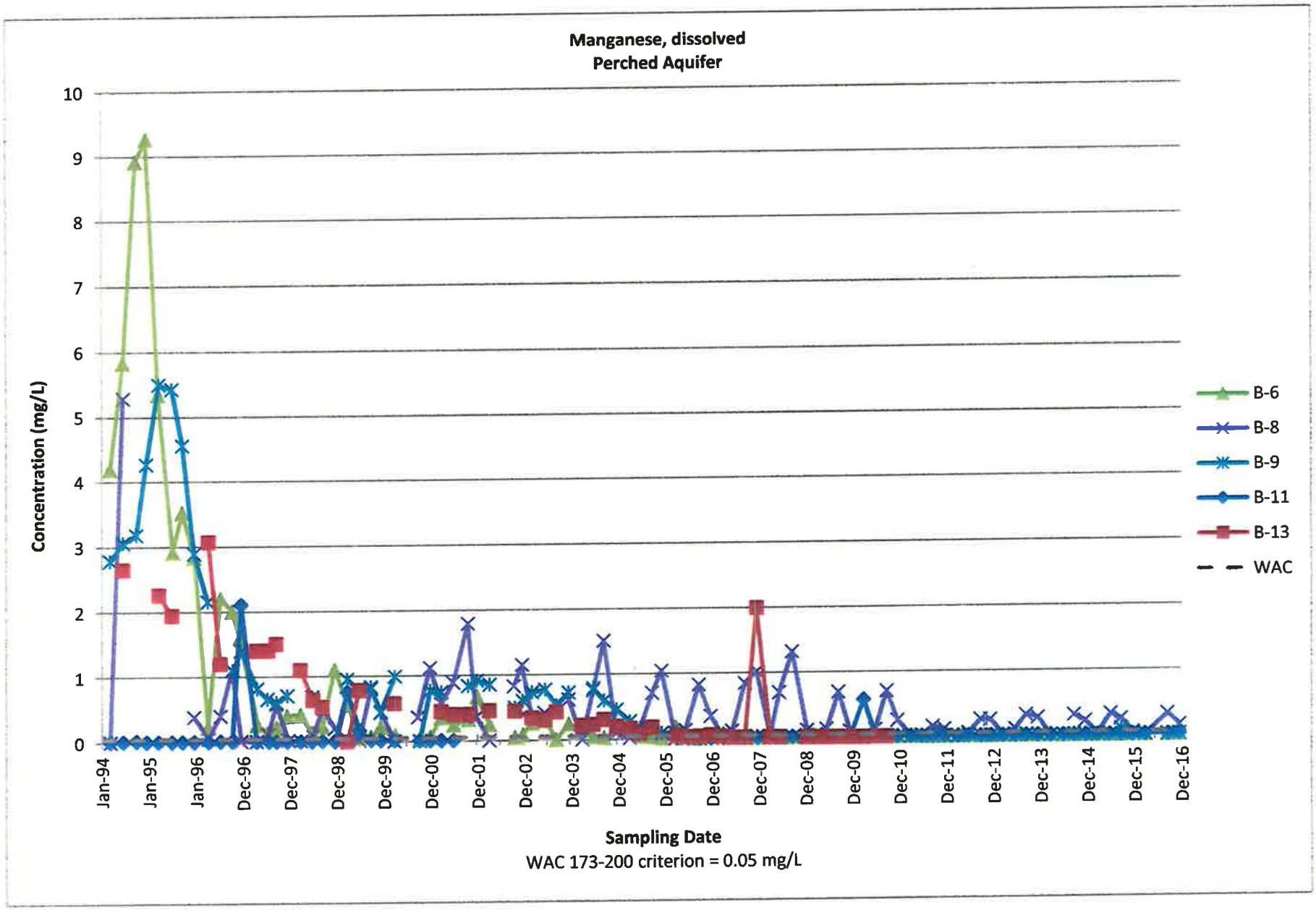

Dichloromonofluoromethane (Freon 21)
Perched Aquifer
Concentration (mg/L)
1.2
1
0.8
0.6
0.4
0.2
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion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

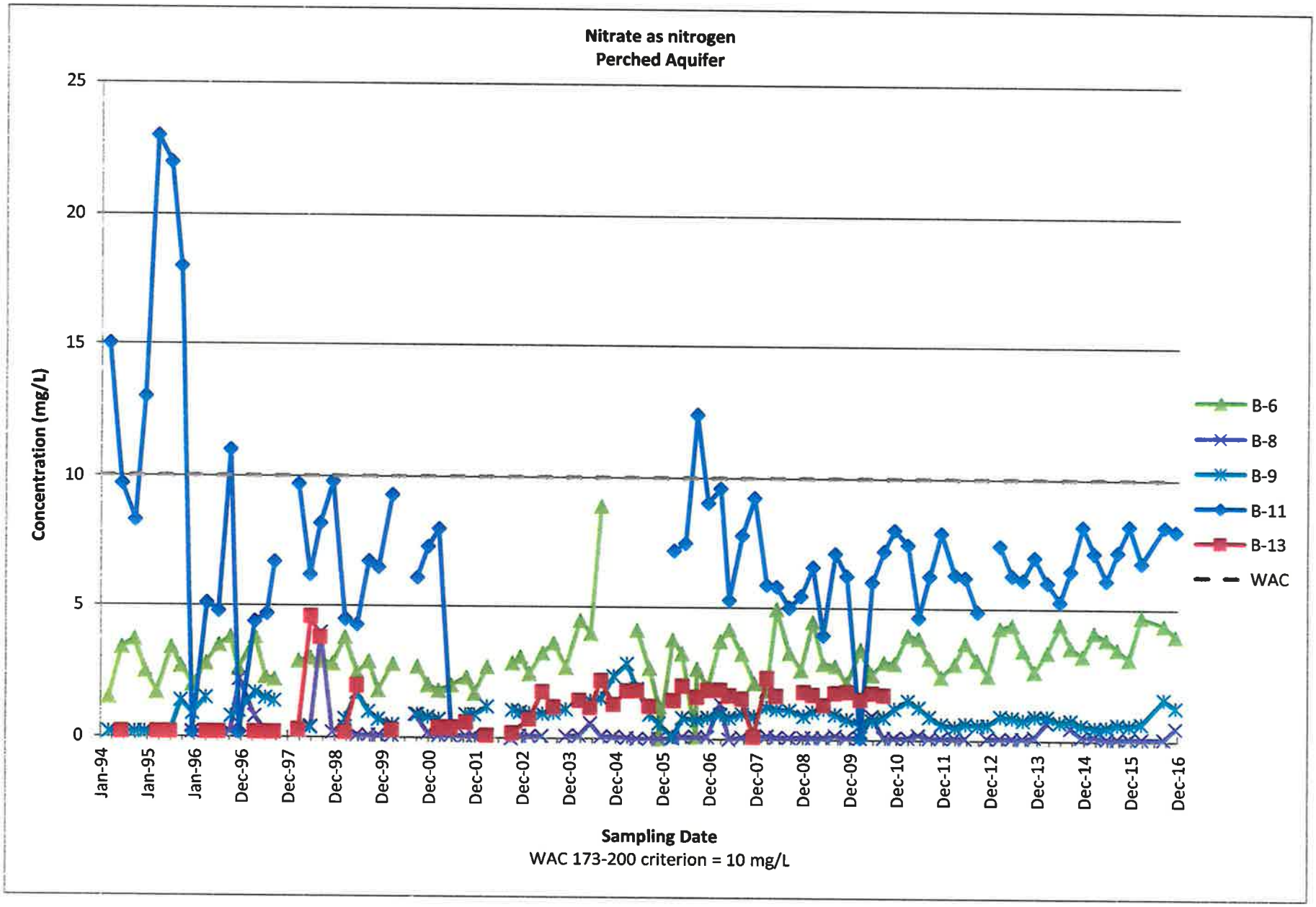

Diethyl ether
Perched Aquifer
Concentration (mg/L)
0
1
2
3
4
5
6
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-6
B-8
B-9
B-11
B-13
Sampling Date
WAC 173-200 criterion = NA

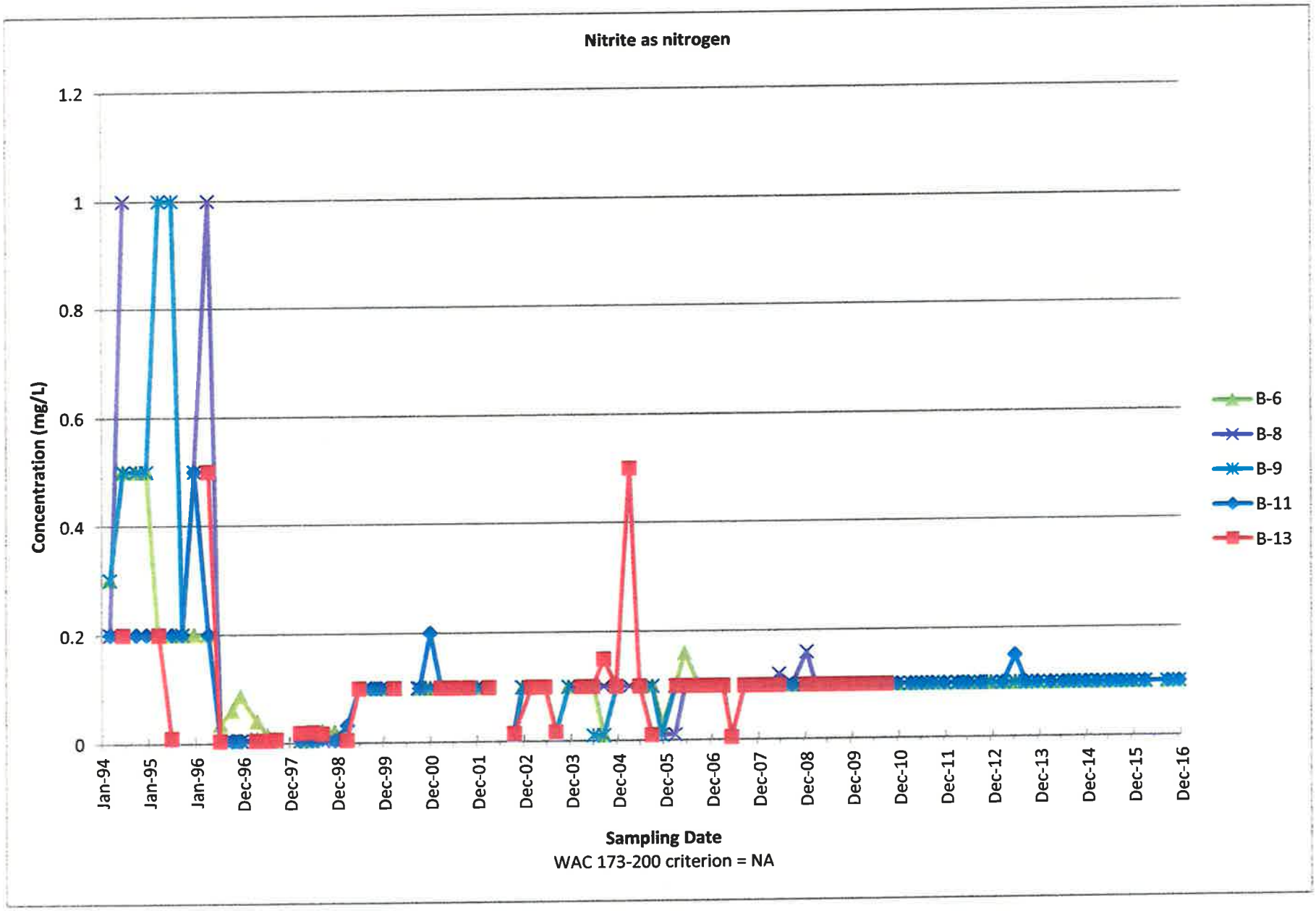

Iron, dissolved
Perched Aquifer
Concentration (mg/L)
25
20
15
10
5
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-6
B-8
B-9
B-11
B-13
WAC
Sampling Date
WAC 173-200 criterion =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

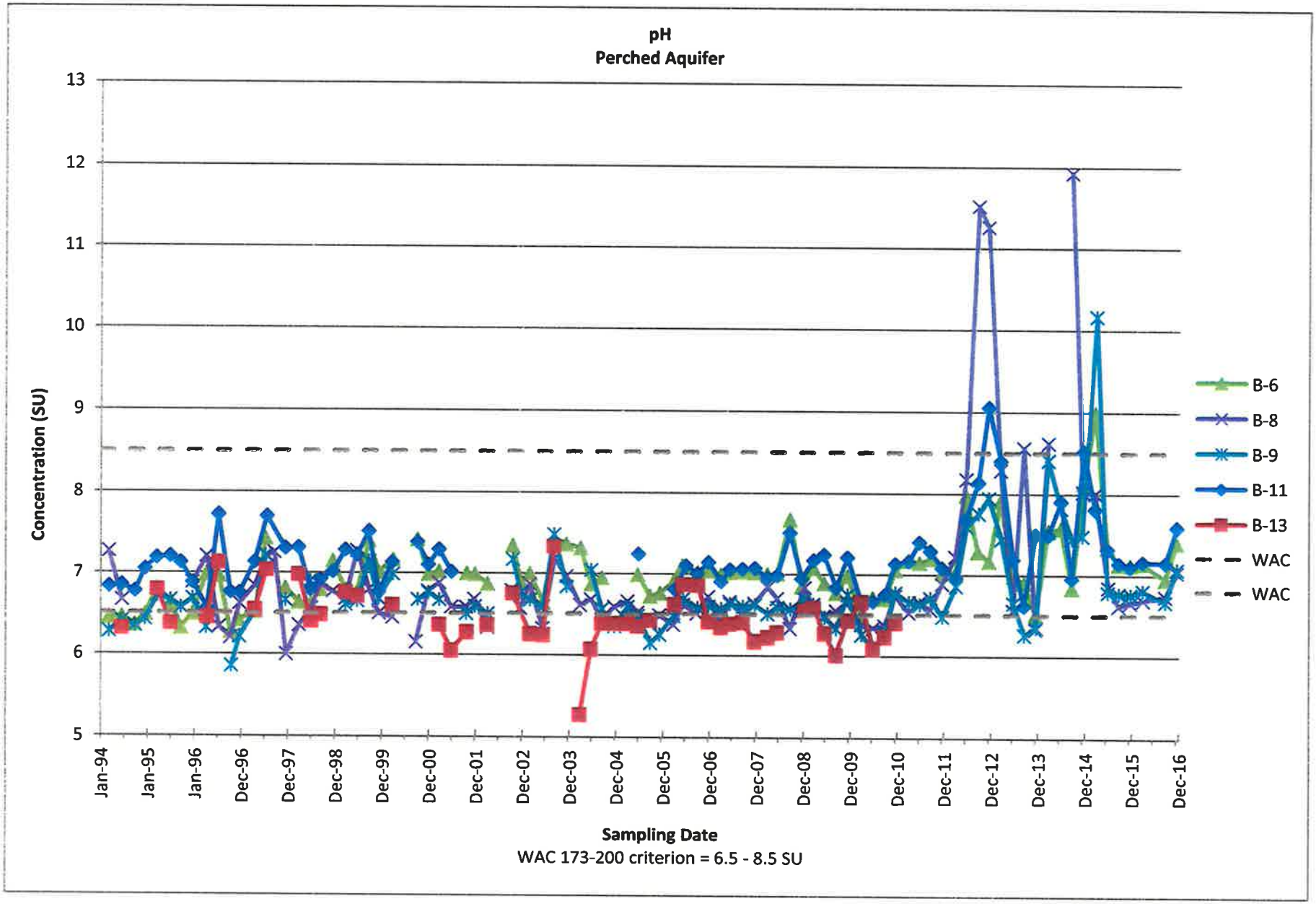

Lead, dissolved
Perched Aquifer
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
B-6
B-8
B-9
B-11
B-13
WAC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

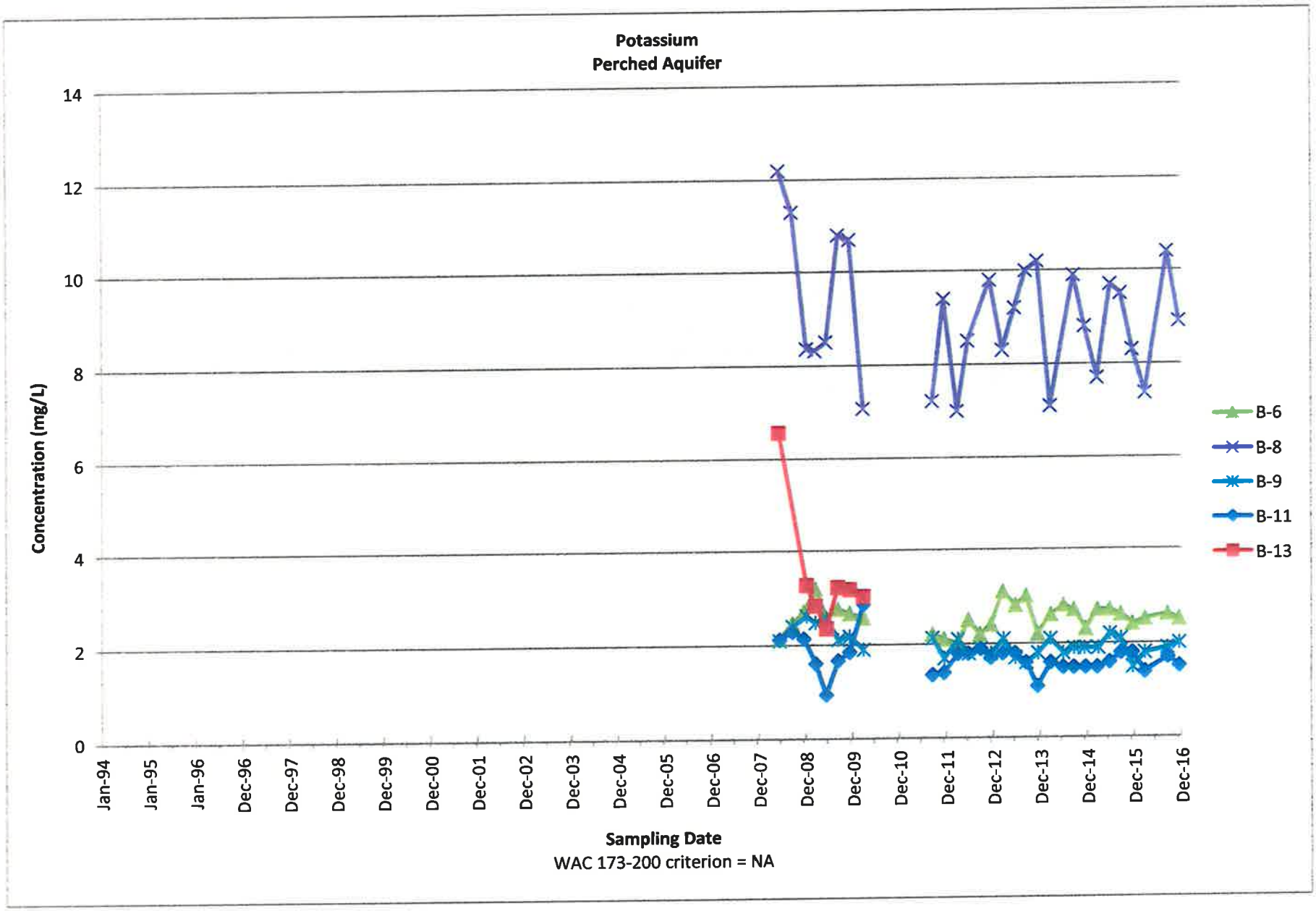

Magesium, dissolved
Perched Aquifer
Concentration (mg/L)
70
60
50
40
30
20
10
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-6
B-8
B-9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

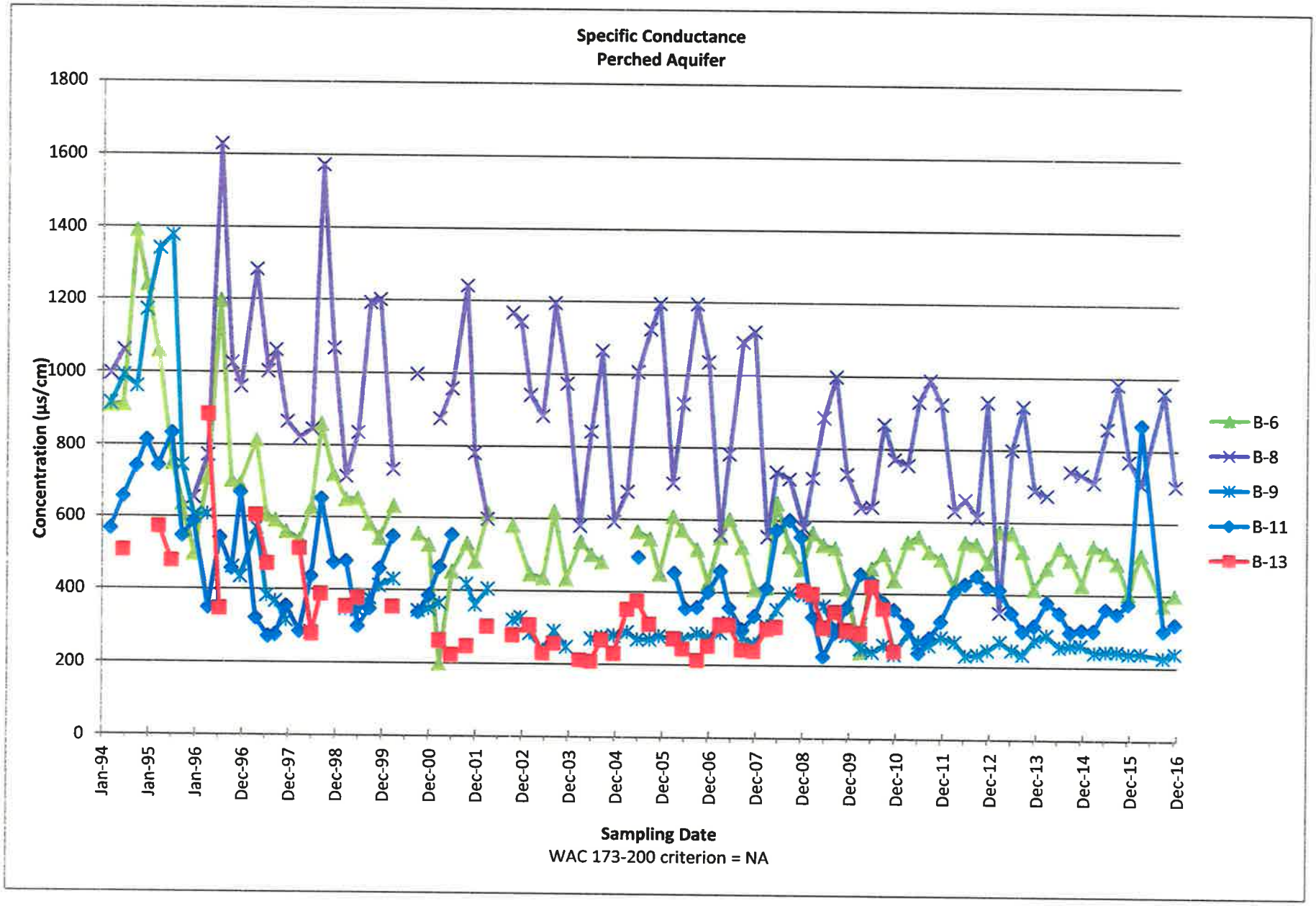

Manganese, dissolved
Perched Aquifer
Concentration (mg/L)
10
9
8
7
6
5
4
3
2
1
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-6
B-8
B-9
B-11
B-13
WAC
Sampling Date
WAC 173-200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

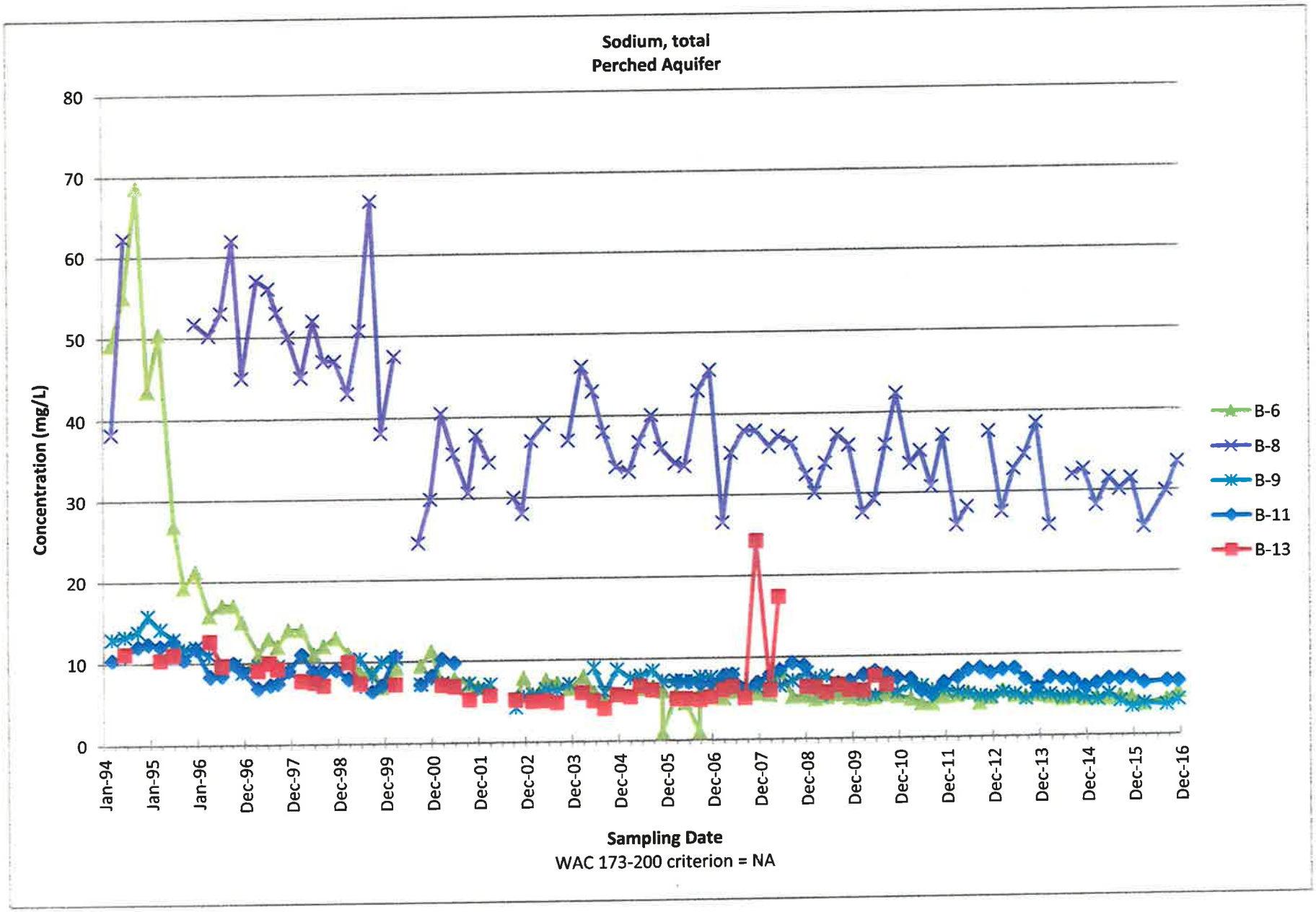

Nitrate as nitrogen
Perched Aquifer
Concentration (mg/L)
25
20
15
10
5
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-6
B-8
B-9
B-11
B-13
WAC
Sampling Date
WAC 173-200 criterion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

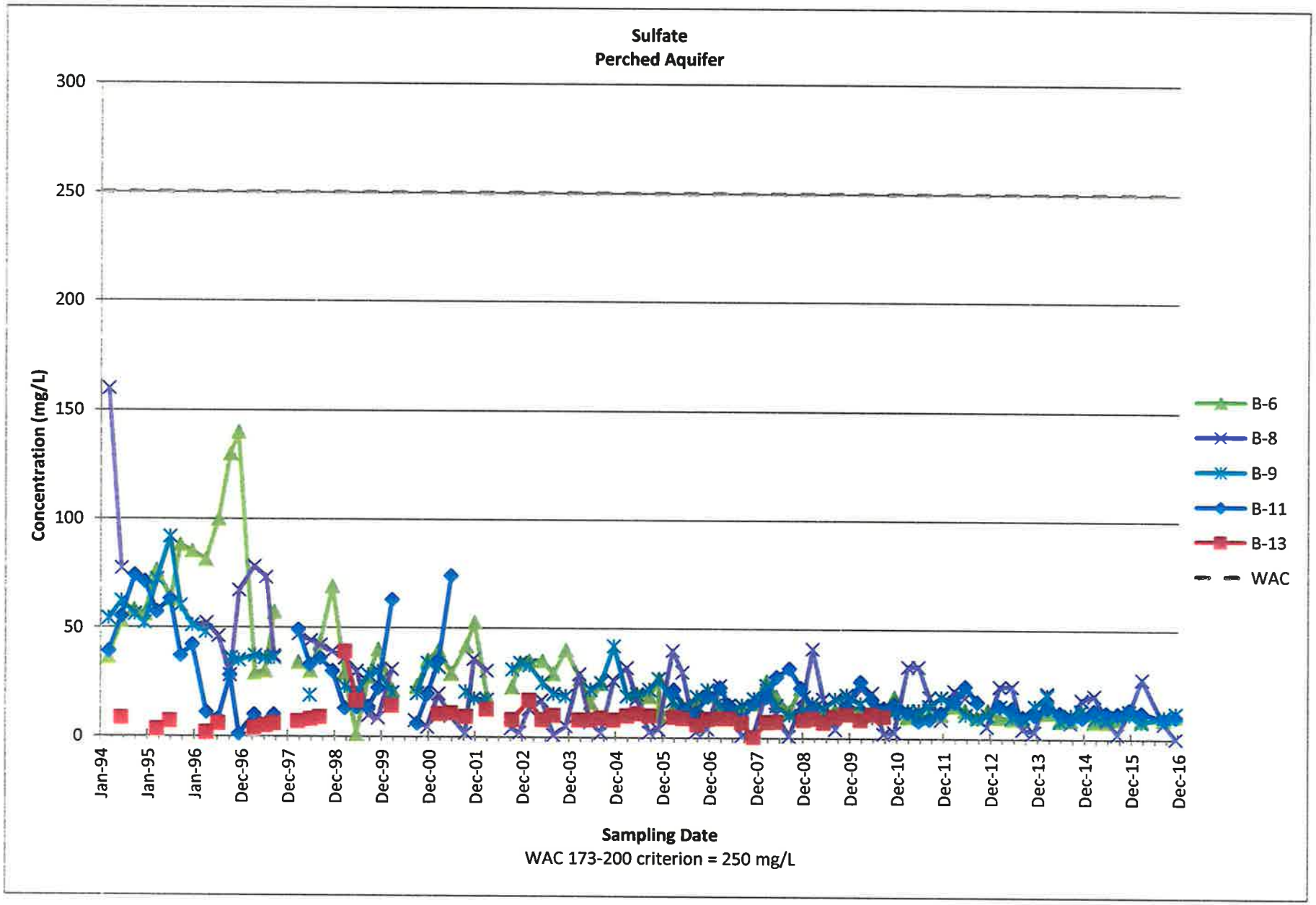

Nitrite as nitrogen
1.2
1
0.8
0.6
0.4
0.2
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-6
B-8
B-9
B-11
B-13

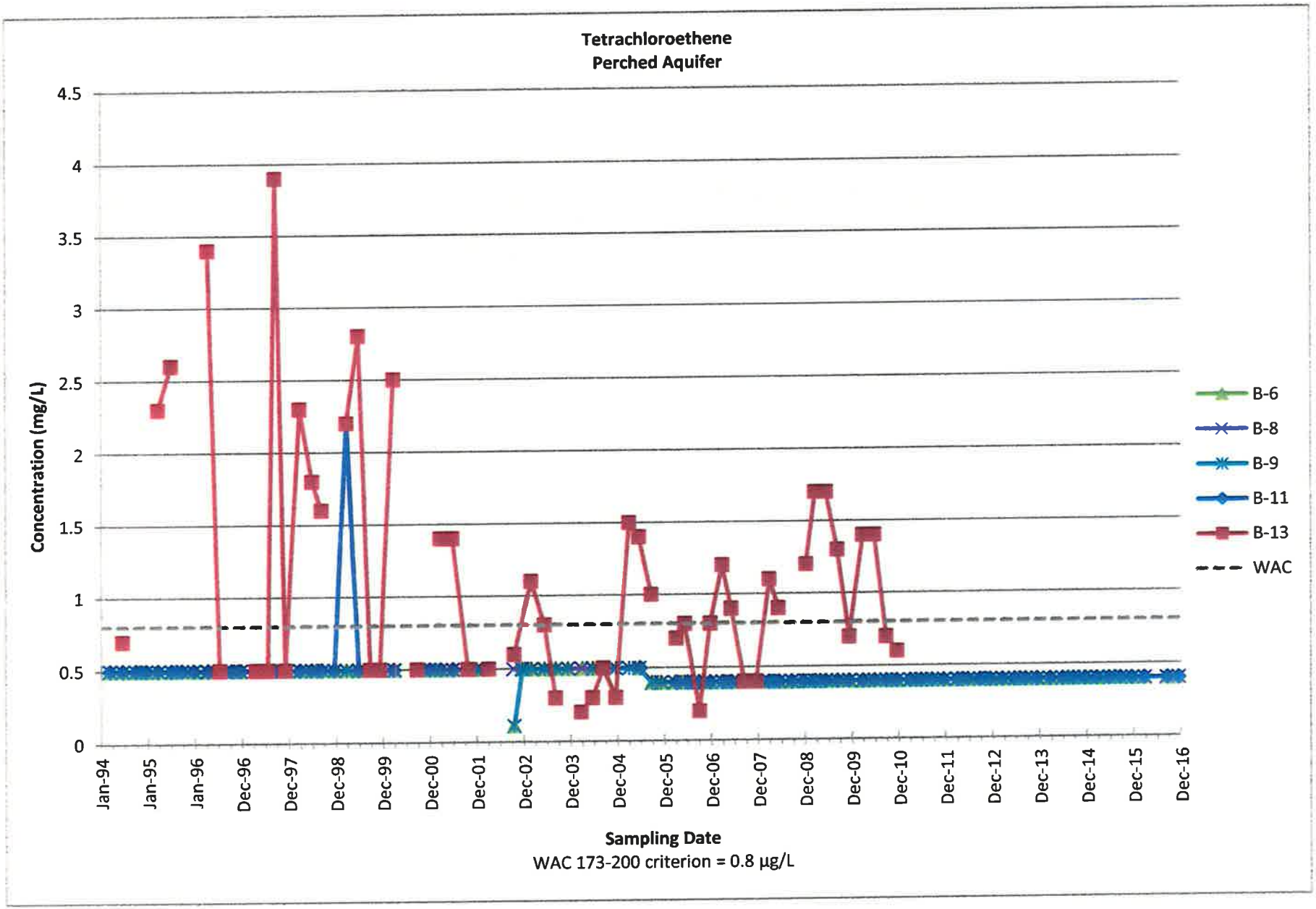

pH
Perched Aquifer
Concentration (SU)
13
12
11
10
9
8
7
6
5
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = 6.5 - 8.5 SU
B-6
B-8
B-9
B-11
B-13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

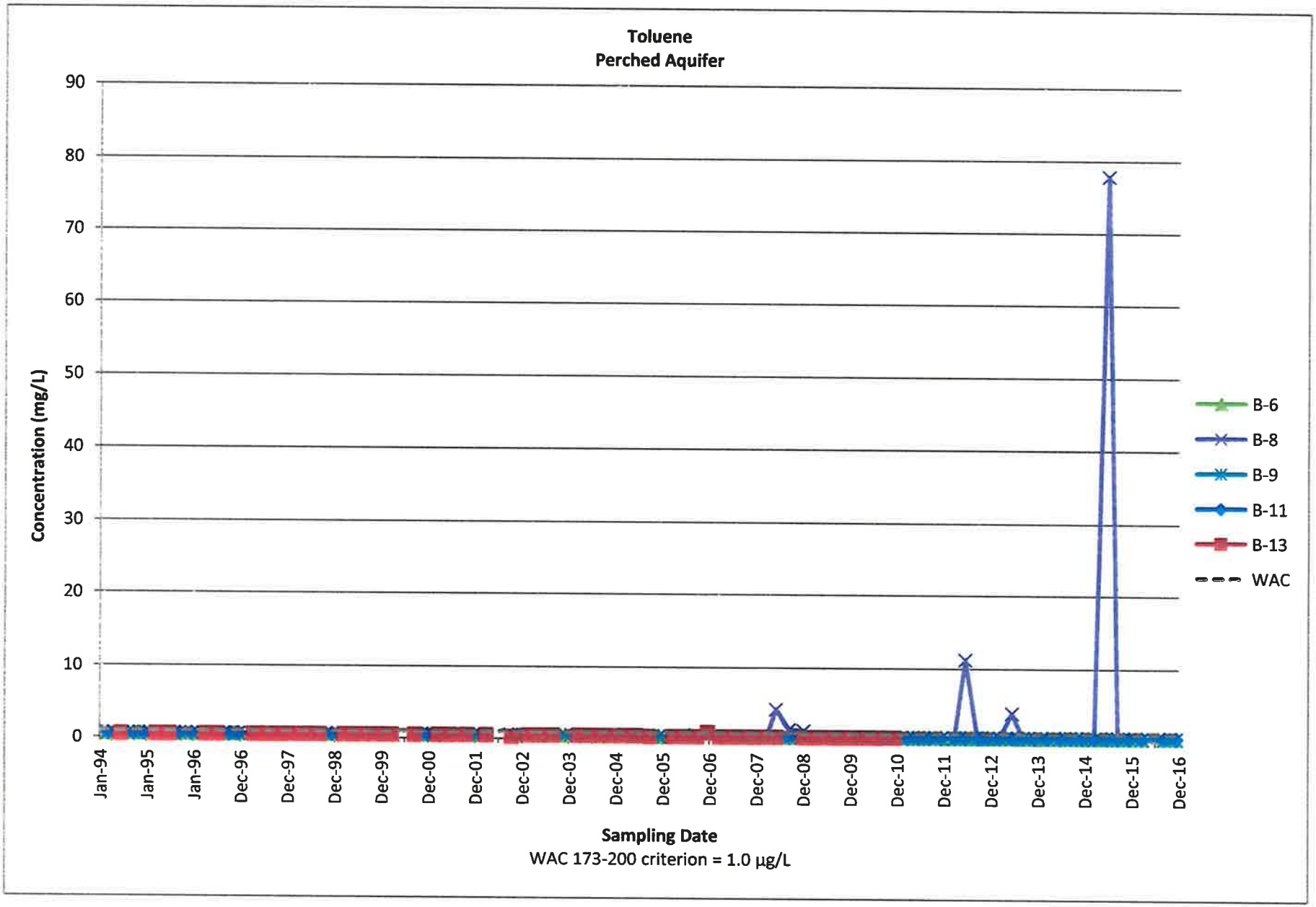

Potassium
Perched Aquifer
Concentration (mg/L)
14
12
10
8
6
4
2
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-6
B-8
B-9
B-11
B-13

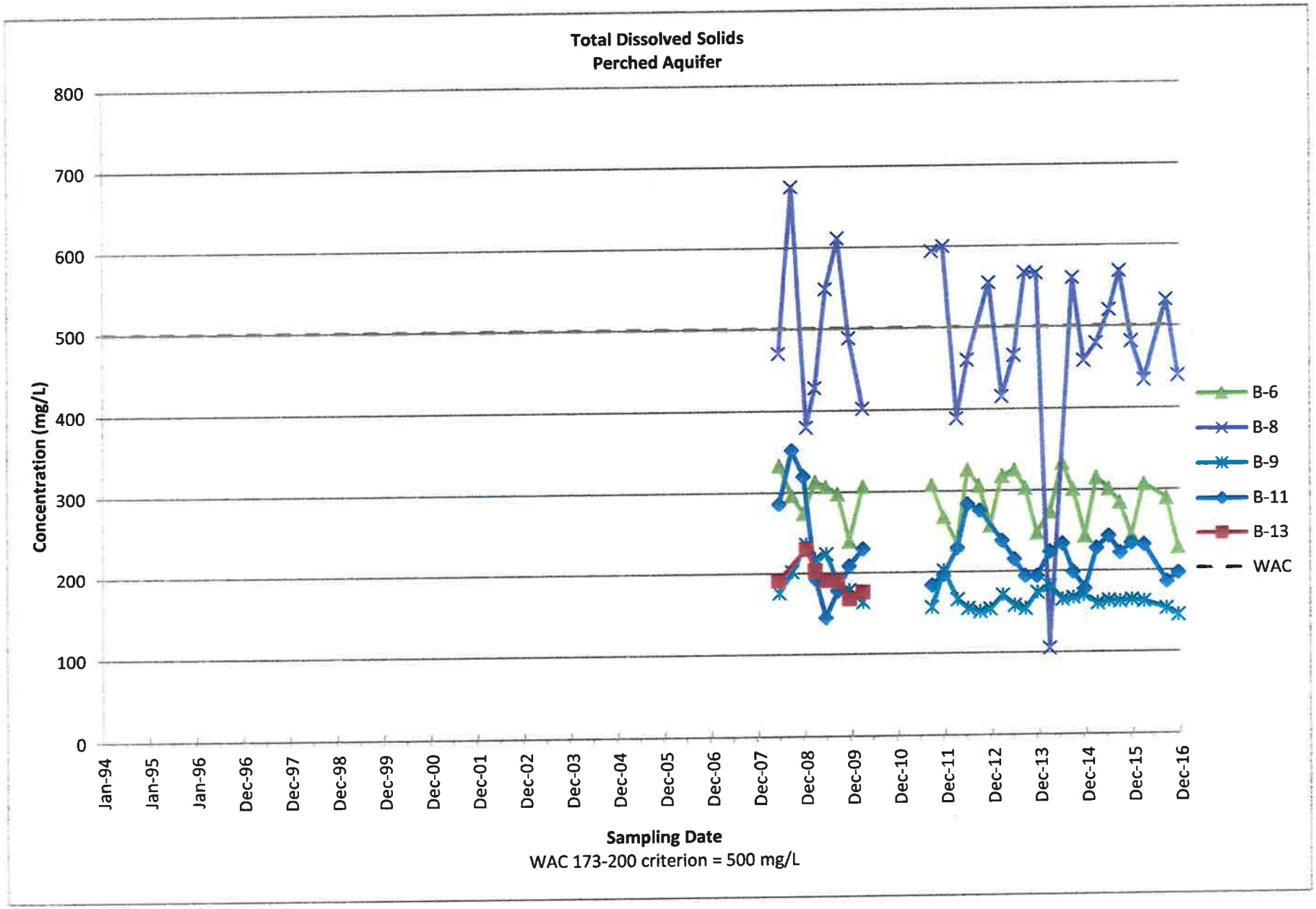

Specific Conductance
Perched Aquifer
Concentration (µs/cm)
1800
1600
1400
1200
1000
800
600
400
200
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion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

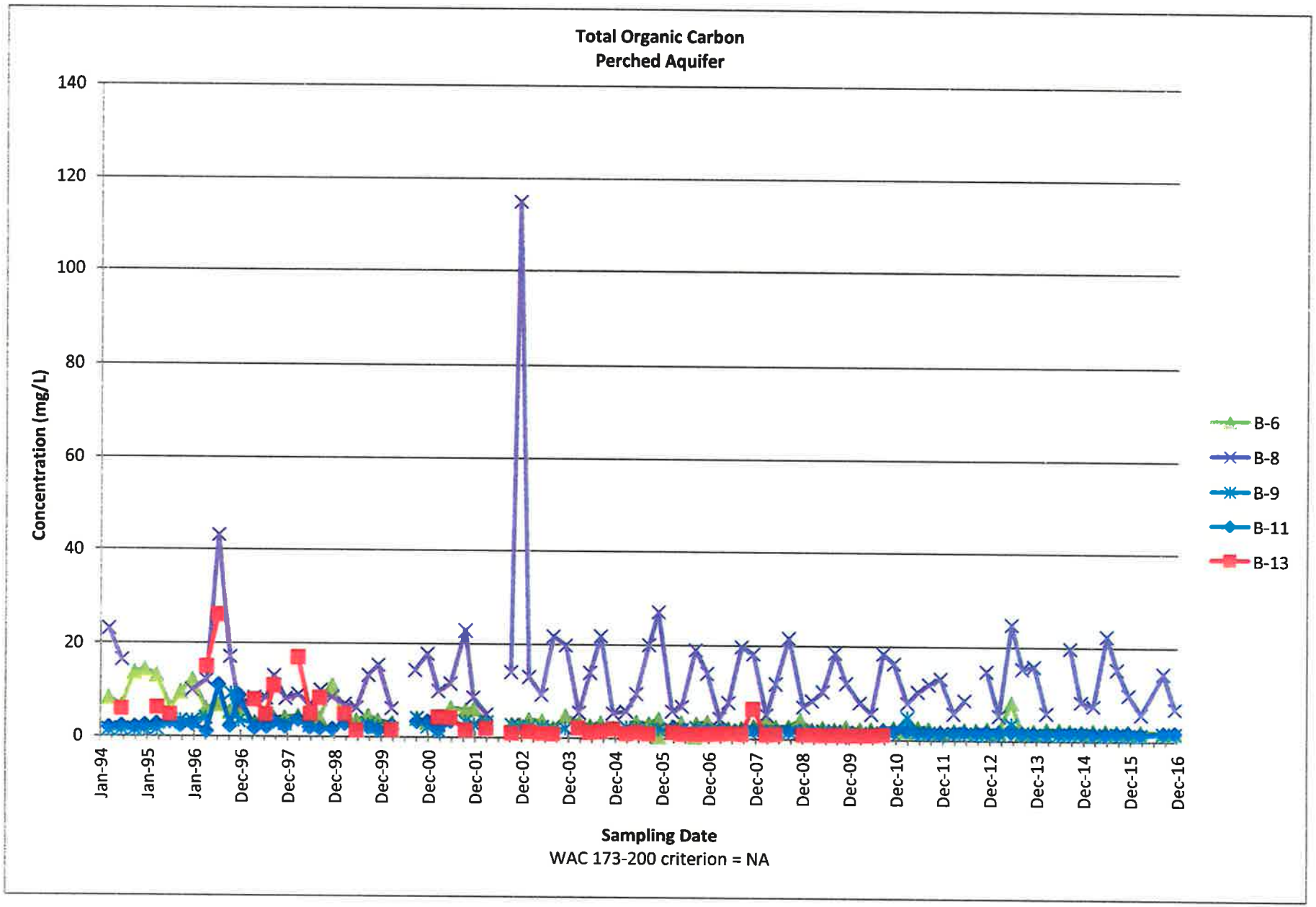

Sodium, total
Perched Aquifer
Concentration (mg/L)
80
70
60
50
40
30
20
10
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-6
B-8
B-9
B-11
B-13
Sampling Date
WAC 173-200 criterion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

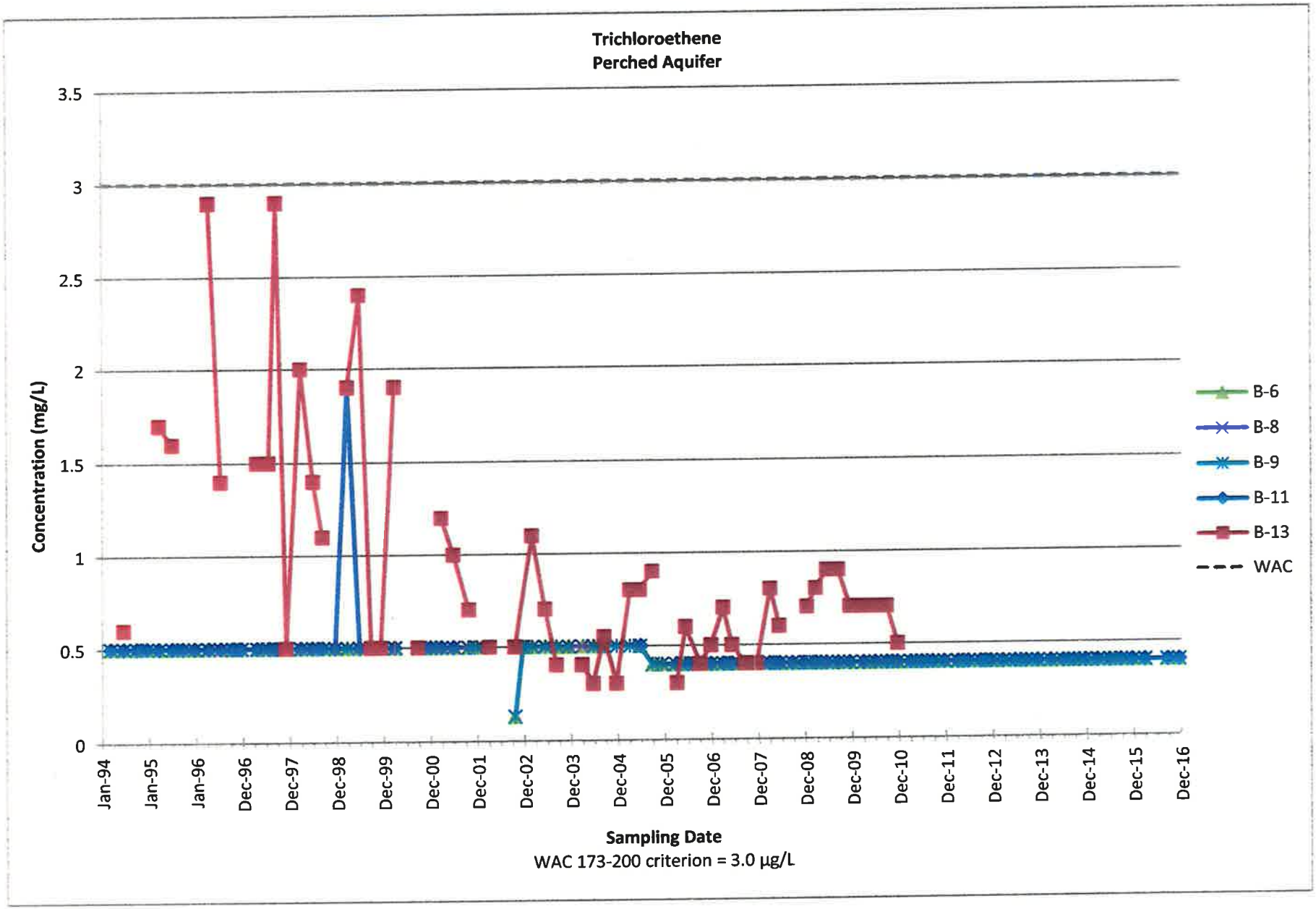

Sulfate
Perched Aquifer
300
250
200
150
100
50
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
B-6
B-8
B-9
B-11
B-13
WAC
WAC 173-200 criterion =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

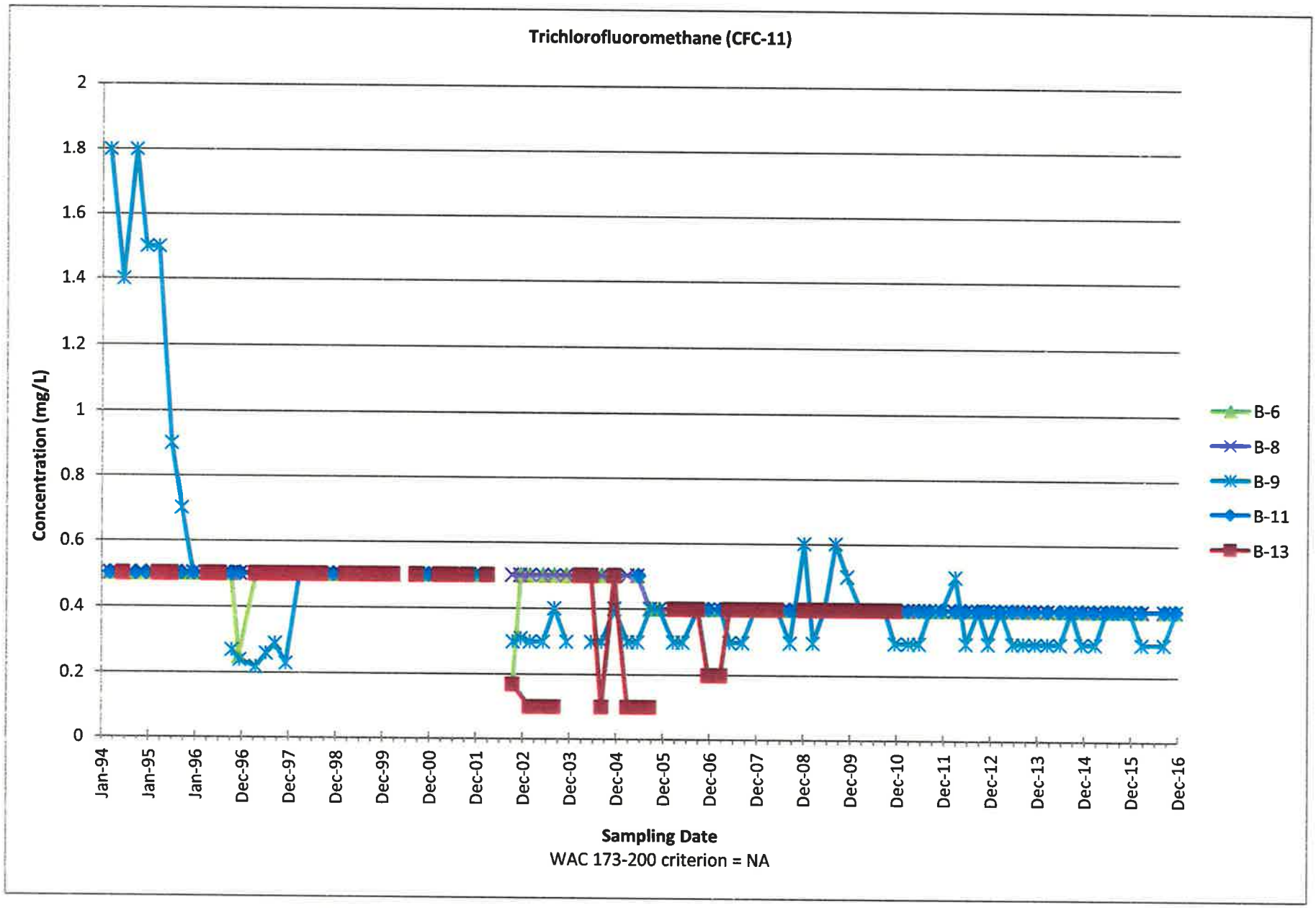

Tetrachloroethene
Perched Aquifer
Concentration (mg/L)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-6
B-8
B-9
B-11
B-13
WAC
Sampling Date
WAC 173-200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

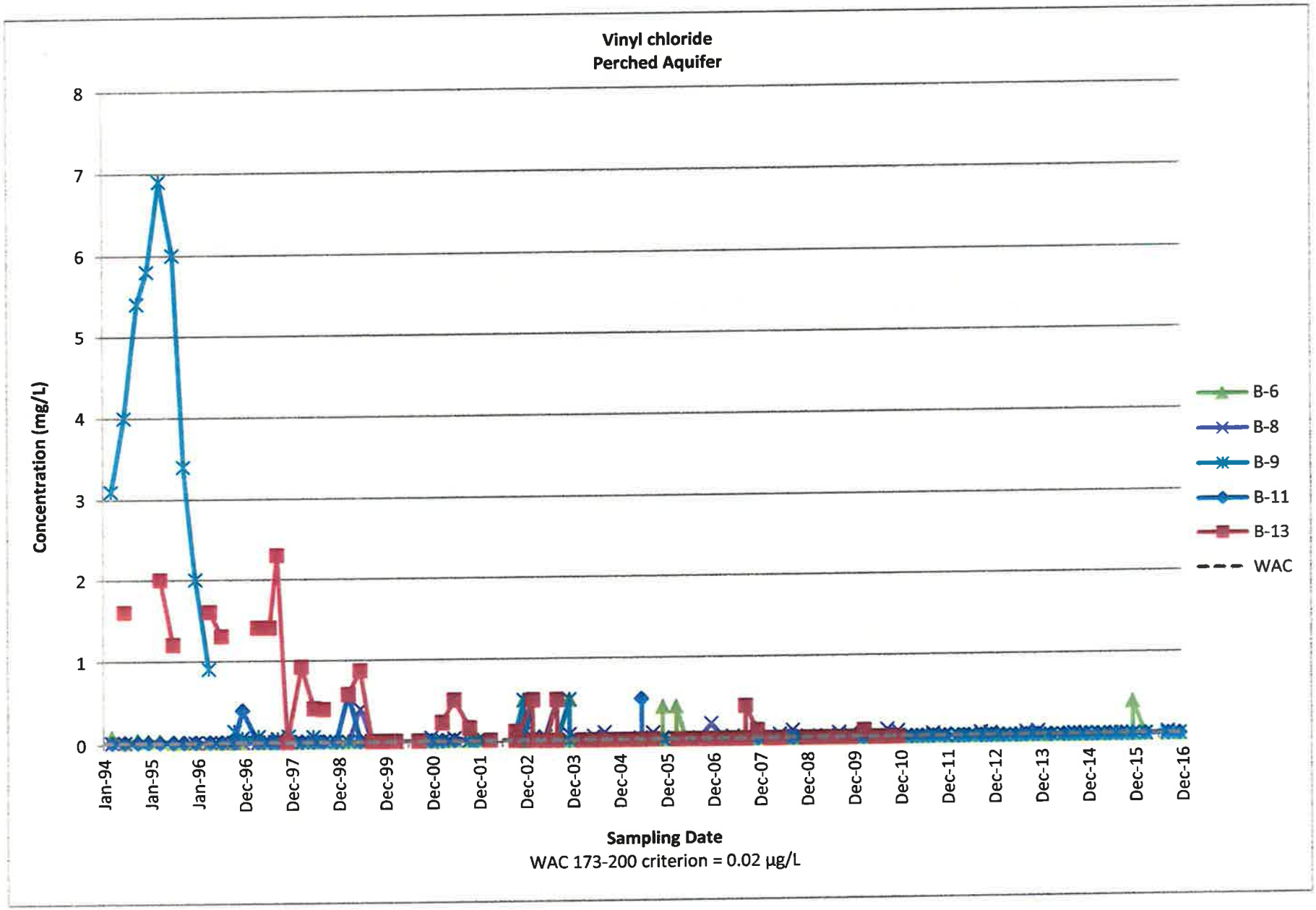

Toluene
Perched Aquifer
Concentration (mg/L)
90
80
70
60
50
40
30
20
10
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-6
B-8
B-9
B-11
B-13
WAC
Sampling Date
WAC 173-200 criterion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

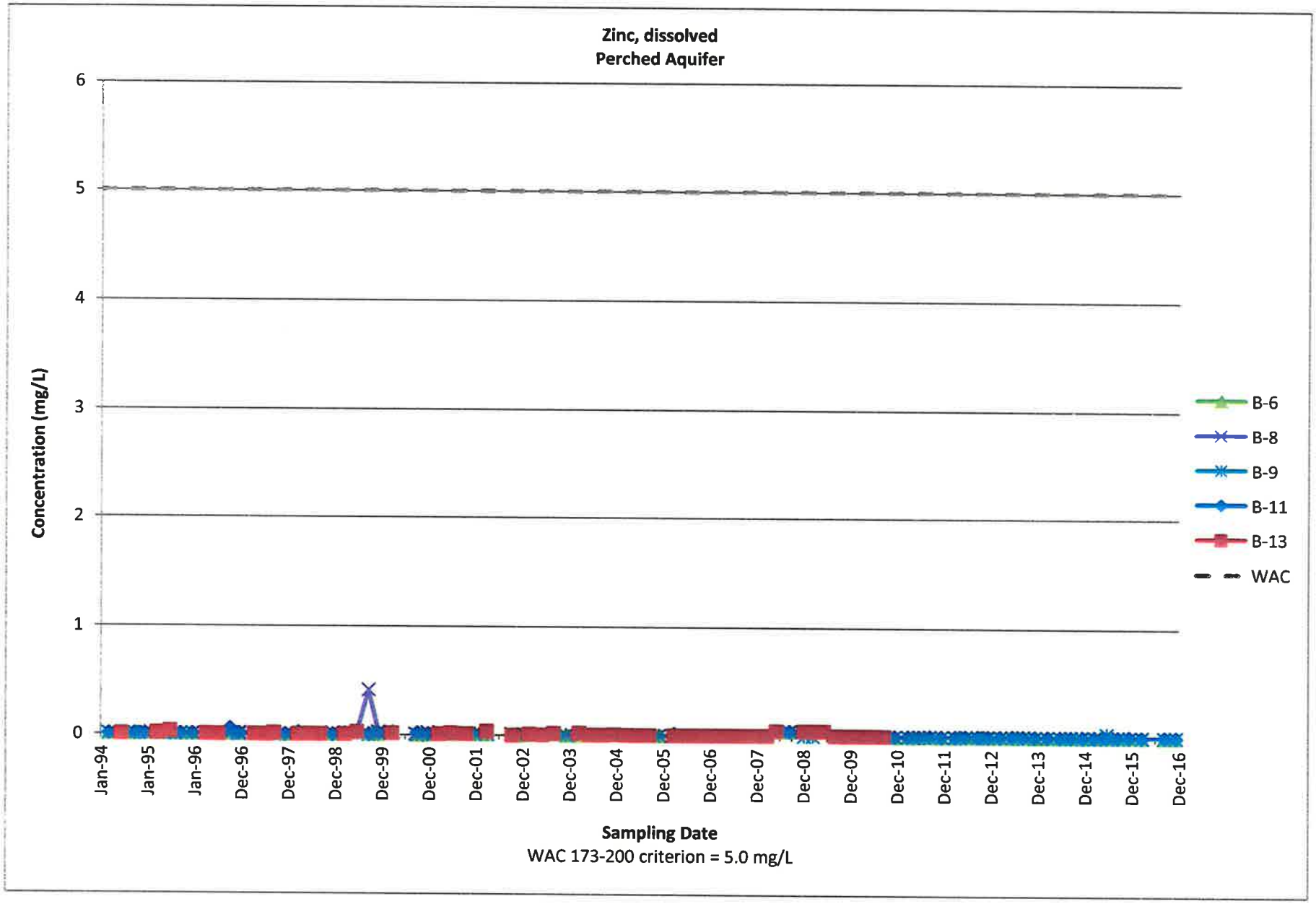

Total Dissolved Solids
Perched Aquifer
Concentration (mg/L)
800
700
600
500
400
300
200
100
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-6
B-8
B-9
B-11
B-13
WAC
Sampling Date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


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
B-6
B-8
B-9
B-11
B-13
Sampling Date
WAC 173-200 criterion = NA


Vinyl chloride
Perched Aquifer
Concentration (mg/L)
0
1
2
3
4
5
6
7
8
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 = 0.02 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:
2016 Groundwater Monitoring Data – Upper Regional Aquifer

2016 Inorganic Monitoring Results
Inman Landfill

AQUIFER			Regional		
MONITORING WELL Sampling Date			B-1 3/21/2016	B-1 9/12/2016	B-1 12/12/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
CONVENTIONALS					
Chemical Oxygen Demand	mg/L		16	8 U	9
Total Organic Carbon	mg/L		2.26	2.38	2.69
Total Dissolved Solids †	mg/L	**500	477	494	**513**
Alkalinity †	mg/L		381	407	398
Bicarbonate †	mg CaCO3/L		381	407 U	398
Ammonia as nitrogen	mg/L		0.32	0.35	0.29
Nitrate as nitrogen	mg/L	*10	0.1 U	0.1 U	0.1 U
Nitrite as nitrogen	mg/L		0.1 U	0.1 U	0.1 U
Chloride	mg/L	**250	43	51	55
Sulfate	mg/L	**250	4.3	5.2 J	5.4
pH	SU	**6.5-8.5	7.13	7.32	7.4
Specific Conductance	µS/cm		826	882	647
Temperature	C		10.86	11.57	10.58
METALS					
Dissolved Antimony †	mg/L		0.001 U	0.001 U	0.001 U
Dissolved Arsenic	mg/L	***0.00005	**0.036**	**0.03**	**0.033**
Dissolved Barium †	mg/L	*1.0	0.029	0.037	0.035
Dissolved Cadmium	mg/L	*0.01	0.00025 U	0.00025 U	0.00025 U
Dissolved Chromium †	mg/L	*0.05	0.0017	0.001	0.0006 J
Dissolved Cobalt †	mg/L		0.0005 J	0.0006	0.0007 J
Dissolved Copper †	mg/L	**1.0	0.0005 J	0.0003 J	0.0005 J
Dissolved Iron	mg/L	**0.3	**1.82**	**2.17**	**1.95**
Dissolved Lead	mg/L	*0.05	0.0005 U	0.0005 U	0.0005 U
Dissolved Manganese	mg/L	**0.05	**1.497**	**1.775**	**1.761**
Dissolved Mercury	mg/L	*0.002	0.0002 U	0.0002 U	0.0002 U
Dissolved Nickel †	mg/L		0.0035	0.004	0.005
Dissolved Selenium †	mg/L	*0.01	0.00075 J	0.0005 J	0.001
Dissolved Vanadium †	mg/L		0.0024	0.002	0.002
Dissolved Zinc	mg/L	**5.0	0.00036 J	0.0025 U	0.0015 J
Total Calcium	mg/L		60.1	80.1	77.3
Total Magnesium †	mg/L		41.6	53	55.5
Total Potassium †	mg/L		3.8	5.6	5.5
Total Sodium	mg/L		13	15.5	16.3

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

2016 Inorganic Monitoring Results
Inman Landfill

AQUIFER			Regional		
MONITORING WELL Sampling Date			B-2 3/22/2016	B-2 9/13/2016	B-2 12/12/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
CONVENTIONALS					
Chemical Oxygen Demand	mg/L		8 U	8 U	15
Total Organic Carbon	mg/L		0.7	0.74	0.8
Total Dissolved Solids †	mg/L	**500	224	227	255
Alkalinity †	mg/L		134	127	144
Bicarbonate †	mg CaCO3/L		134	127 U	144
Ammonia as nitrogen	mg/L		0.01 U	0.01 U	0.01 U
Nitrate as nitrogen	mg/L	*10	0.68	1.5	2.31
Nitrite as nitrogen	mg/L		0.1 U	0.1 U	0.1 U
Chloride	mg/L	**250	6.9	6.4	11
Sulfate	mg/L	**250	24.7	30	33.1
pH	SU	**6.5-8.5	6.69	7.04	6.88
Specific Conductance	µS/cm		844	345	415
Temperature	C		11	11.48	10.73
METALS					
Dissolved Antimony †	mg/L		0.001 U	0.001 U	0.001 U
Dissolved Arsenic	mg/L	***0.00005	**0.001**	**0.00094**	**0.002**
Dissolved Barium †	mg/L	*1.0	0.031	0.032	0.04
Dissolved Cadmium	mg/L	*0.01	2E-05 J	0.00025 U	0.00025 U
Dissolved Chromium †	mg/L	*0.05	0.002	0.002	0.001
Dissolved Cobalt †	mg/L		0.00007 J	0.0005 U	0.0001 J
Dissolved Copper †	mg/L	**1.0	0.0005 J	0.0005 J	0.0005 J
Dissolved Iron	mg/L	**0.3	0.05 U	0.05 U	0.05 U
Dissolved Lead	mg/L	*0.05	0.0005 U	0.0005 U	0.0005 U
Dissolved Manganese	mg/L	**0.05	0.004	0.003	0.01
Dissolved Mercury	mg/L	*0.002	0.0002 U	0.0002 U	0.0002 U
Dissolved Nickel †	mg/L		0.02	0.002	0.003
Dissolved Selenium †	mg/L	*0.01	0.004	0.002	0.002
Dissolved Vanadium †	mg/L		0.002	0.002	0.002
Dissolved Zinc	mg/L	**5.0	0.0006 J	0.0025 U	0.0007 J
Total Calcium	mg/L		23.3	26.4	29.5
Total Magnesium †	mg/L		8.7	10.9	12.3
Total Potassium †	mg/L		27	30.6	31.3
Total Sodium	mg/L		8.4	9.2	10.5

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

2016 Inorganic Monitoring Results
Inman Landfill

AQUIFER			Regional		
MONITORING WELL Sampling Date			B-3 3/24/2016	B-3 9/13/2016	B-3 12/13/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
CONVENTIONALS					
Chemical Oxygen Demand	mg/L		16	8 U	14
Total Organic Carbon	mg/L		3.56	1.51	3.76
Total Dissolved Solids †	mg/L	**500	252	156	283
Alkalinity †	mg/L		167	107	182
Bicarbonate †	mg CaCO3/L		167	107 U	182
Ammonia as nitrogen	mg/L		1.7	0.94	1.42
Nitrate as nitrogen	mg/L	*10	0.1 U	0.1 U	0.1 U
Nitrite as nitrogen	mg/L		0.1 U	0.1 U	0.1 U
Chloride	mg/L	**250	20.7	4.1	23
Sulfate	mg/L	**250	0.2 U	10 U	0.1 U
pH	SU	**6.5-8.5	6.86	7.51	7.18
Specific Conductance	µS/cm		421	229	453
Temperature	C		13.79	13.92	13.49
METALS					
Dissolved Antimony †	mg/L		0.001 U	0.001 U	0.001 U
Dissolved Arsenic	mg/L	***0.00005	**0.003**	**0.002**	**0.005**
Dissolved Barium †	mg/L	*1.0	0.134	0.06	0.143
Dissolved Cadmium	mg/L	*0.01	0.00025 U	0.00025 U	0.00025 U
Dissolved Chromium †	mg/L	*0.05	0.0015	0.0007 J	0.0005 J
Dissolved Cobalt †	mg/L		0.0004 J	0.0005 U	0.0004 J
Dissolved Copper †	mg/L	**1.0	0.0002 J	0.002 U	0.0006 J
Dissolved Iron	mg/L	**0.3	**7.44**	**2.83**	**7.86**
Dissolved Lead	mg/L	*0.05	0.0005 U	0.0005 U	0.0005 U
Dissolved Manganese	mg/L	**0.05	**0.85**	**0.363**	**0.88**
Dissolved Mercury	mg/L	*0.002	0.0002 U	0.0002 U	0.0002 U
Dissolved Nickel †	mg/L		0.002	0.0004 J	0.002
Dissolved Selenium †	mg/L	*0.01	0.0004 J	0.001 U	0.0009 J
Dissolved Vanadium †	mg/L		0.0009 J	0.0006 J	0.001
Dissolved Zinc	mg/L	**5.0	0.0005 J	0.0025 U	0.0008 J
Total Calcium	mg/L		28.9	16.5	31.7
Total Magnesium †	mg/L		20	11.3	23.6
Total Potassium †	mg/L		5.38	4.1	5.9
Total Sodium	mg/L		13.2	8.4	14

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

2016 Inorganic Monitoring Results
Inman Landfill

AQUIFER			Regional		
MONITORING WELL Sampling Date			B-4 3/22/2016	B-4 9/12/2016	B-4 12/14/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
CONVENTIONALS					
Chemical Oxygen Demand	mg/L		17	8 U	14
Total Organic Carbon	mg/L		1.9	1.81	2.01
Total Dissolved Solids †	mg/L	**500	**720**	**730**	**703**
Alkalinity †	mg/L		409	2020	388
Bicarbonate †	mg CaCO3/L		409	2020 U	388
Ammonia as nitrogen	mg/L		1.34	1.25	1.19
Nitrate as nitrogen	mg/L	*10	0.1 U	0.1 U	0.1 U
Nitrite as nitrogen	mg/L		0.1 U	0.1 U	0.1 U
Chloride	mg/L	**250	150	156	147
Sulfate	mg/L	**250	55.4	64	60
pH	SU	**6.5-8.5	6.99	6.94	7.17
Specific Conductance	µS/cm		1332	1321	1288
Temperature	C		10.14	10.66	9.78
METALS					
Dissolved Antimony †	mg/L		0.001 U	0.001 U	0.001 U
Dissolved Arsenic	mg/L	***0.00005	**0.003**	**0.003**	**0.004**
Dissolved Barium †	mg/L	*1.0	0.131	0.134	0.137
Dissolved Cadmium	mg/L	*0.01	0.00025 U	0.00025 U	0.00025 U
Dissolved Chromium †	mg/L	*0.05	0.003	0.003	0.001
Dissolved Cobalt †	mg/L		0.0003 J	0.0003 J	0.00024 J
Dissolved Copper †	mg/L	**1.0	0.0008 J	0.0005 J	0.0009 J
Dissolved Iron	mg/L	**0.3	**5.62**	**6.16**	**6.38**
Dissolved Lead	mg/L	*0.05	0.00004 J	0.0005 U	0.0005 U
Dissolved Manganese	mg/L	**0.05	**1.626**	**1.58**	**1.534**
Dissolved Mercury	mg/L	*0.002	0.0002 U	0.0002 U	0.0002 U
Dissolved Nickel †	mg/L		0.003	0.003	0.005
Dissolved Selenium †	mg/L	*0.01	0.002	0.001	0.004
Dissolved Vanadium †	mg/L		0.001	0.0013	0.001
Dissolved Zinc	mg/L	**5.0	0.001 J	0.0008 J	0.0028
Total Calcium	mg/L		106.4	101.5	96.3
Total Magnesium †	mg/L		82	80.7	87.3
Total Potassium †	mg/L		6.9	7.3	7.41
Total Sodium	mg/L		22.6	19.9	20.5

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

2016 Inorganic Monitoring Results
Inman Landfill

	AQUIFER		Regional		
	MONITORING WELL		B-5	B-5	B-5
	Sampling Date		3/24/2016	9/13/2016	12/13/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
CONVENTIONALS					
Chemical Oxygen Demand	mg/L		37	23	36
Total Organic Carbon	mg/L		8.75	7.74	9.48
Total Dissolved Solids †	mg/L	**500	488	440	**520**
Alkalinity †	mg/L		308	1350	271
Bicarbonate †	mg CaCO3/L		308	1350 U	271
Ammonia as nitrogen	mg/L		1.58	1.47	1.94
Nitrate as nitrogen	mg/L	*10	0.23	0.1 U	0.1 U
Nitrite as nitrogen	mg/L		0.1 U	0.1 U	0.1 U
Chloride	mg/L	**250	85.5	79	92
Sulfate	mg/L	**250	0.23	0.3	0.24
pH	SU	**6.5-8.5	6.68	7.13	7.01
Specific Conductance	µS/cm		879	813	899
Temperature	C		11.16	11.43	11.15
METALS					
Dissolved Antimony †	mg/L		0.001 U	0.001 U	0.001 U
Dissolved Arsenic	mg/L	***0.00005	**0.002**	**0.004**	**0.004**
Dissolved Barium †	mg/L	*1.0	0.105	0.098	0.12
Dissolved Cadmium	mg/L	*0.01	3E-05 J	0.00025 U	0.00025 U
Dissolved Chromium †	mg/L	*0.05	0.002	0.003	0.001
Dissolved Cobalt †	mg/L		0.0009 J	0.0007	0.001
Dissolved Copper †	mg/L	**1.0	0.0005 J	0.002 U	0.0004 J
Dissolved Iron	mg/L	**0.3	**17.3**	**17.21**	**24.3**
Dissolved Lead	mg/L	*0.05	0.0005 U	0.0005 U	0.0005 U
Dissolved Manganese	mg/L	**0.05	**2.28**	**1.924**	**2.02**
Dissolved Mercury	mg/L	*0.002	0.0002 U	0.0002 U	0.0002 U
Dissolved Nickel †	mg/L		0.007	0.006	0.007
Dissolved Selenium †	mg/L	*0.01	0.002	0.001 U	0.003
Dissolved Vanadium †	mg/L		0.001	0.001	0.002
Dissolved Zinc	mg/L	**5.0	0.001 J	0.0025 U	0.0014 J
Total Calcium	mg/L		51.7	51.7	48.2
Total Magnesium †	mg/L		42.6	44.3	45.3
Total Potassium †	mg/L		5.6	5.6	5.4
Total Sodium	mg/L		39.4	34.3	47.4

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

2016 Inorganic Monitoring Results
Inman Landfill

AQUIFER			Regional		
MONITORING WELL Sampling Date			B-10 3/21/2016	B-10 9/13/2016	B-10 12/14/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
CONVENTIONALS					
Chemical Oxygen Demand	mg/L		8	8 U	8 U
Total Organic Carbon	mg/L		0.97	0.89	1.06
Total Dissolved Solids †	mg/L	**500	280	268	267
Alkalinity †	mg/L		225	195	188
Bicarbonate †	mg CaCO3/L		225	195 U	188
Ammonia as nitrogen	mg/L		0.47	0.46	0.29
Nitrate as nitrogen	mg/L	*10	0.1 U	0.1 U	0.1 U
Nitrite as nitrogen	mg/L		0.1 U	0.1 U	0.1 U
Chloride	mg/L	**250	4.2	4.4	4.6
Sulfate	mg/L	**250	34.3	33	33
pH	SU	**6.5-8.5	7.21	7.51	7.56
Specific Conductance	µS/cm		468	453	436
Temperature	C		10.65	10.59	9.48
METALS					
Dissolved Antimony †	mg/L		0.001 U	0.001 U	0.001 U
Dissolved Arsenic	mg/L	***0.00005	**0.0024**	**0.002**	**0.003**
Dissolved Barium †	mg/L	*1.0	0.053	0.058	0.056
Dissolved Cadmium	mg/L	*0.01	0.00025 U	0.00025 U	0.00025 U
Dissolved Chromium †	mg/L	*0.05	0.0008 J	0.0005 J	0.0002
Dissolved Cobalt †	mg/L		0.001 U	0.0005 U	0.001 U
Dissolved Copper †	mg/L	**1.0	0.0003 J	0.0002 J	0.0003
Dissolved Iron	mg/L	**0.3	**2.01**	**2.24**	**2.17**
Dissolved Lead	mg/L	*0.05	0.0005 U	0.0005 U	0.0005 U
Dissolved Manganese	mg/L	**0.05	**0.648**	**0.655**	**0.612**
Dissolved Mercury	mg/L	*0.002	0.0002 U	0.0002 U	0.0002 U
Dissolved Nickel †	mg/L		0.0007	0.0006	0.0014
Dissolved Selenium †	mg/L	*0.01	0.00017 J	0.001 U	0.0003
Dissolved Vanadium †	mg/L		0.0007 J	0.0007 J	0.0005
Dissolved Zinc	mg/L	**5.0	0.00017 J	0.0025 U	0.001
Total Calcium	mg/L		34.4	39.5	35.1
Total Magnesium †	mg/L		25.1	29.3	26.4
Total Potassium †	mg/L		3.1	4	3.83
Total Sodium	mg/L		8.1	10.4	9.75

Groundwater Quality Criteria:

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Units:

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

Qualifiers:

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

2016 Inorganic Monitoring Results
Inman Landfill

AQUIFER			Regional	
MONITORING WELL Sampling Date			B-12 9/15/2016	B-12 12/13/2016
Analyte	Units	GW Quality Standards (173-200 WAC)		
CONVENTIONALS				
Chemical Oxygen Demand	mg/L		8 U	8 U
Total Organic Carbon	mg/L		0.35	0.44
Total Dissolved Solids †	mg/L	**500	196	199
Alkalinity †	mg/L		140	139
Bicarbonate †	mg CaCO3/L		140 U	139
Ammonia as nitrogen	mg/L		0.07	0.1
Nitrate as nitrogen	mg/L	*10	0.1 U	0.1 U
Nitrite as nitrogen	mg/L		0.1 U	0.1 U
Chloride	mg/L	**250	3.2	3.18
Sulfate	mg/L	**250	15	15
pH	SU	**6.5-8.5	NM	7.02
Specific Conductance	µS/cm		NM	302
Temperature	C		NM	11.51
METALS				
Dissolved Antimony †	mg/L		0.001 U	0.001 U
Dissolved Arsenic	mg/L	***0.00005	**0.0005** U	**0.005**
Dissolved Barium †	mg/L	*1.0	0.028	0.03
Dissolved Cadmium	mg/L	*0.01	0.00025 U	0.00025 U
Dissolved Chromium †	mg/L	*0.05	0.001 U	0.0002 J
Dissolved Cobalt †	mg/L		0.0005 U	0.001 U
Dissolved Copper †	mg/L	**1.0	0.0002 J	0.0002 J
Dissolved Iron	mg/L	**0.3	**0.55**	**0.5**
Dissolved Lead	mg/L	*0.05	0.0005 U	0.0005 U
Dissolved Manganese	mg/L	**0.05	**0.061**	**0.066**
Dissolved Mercury	mg/L	*0.002	0.0002 U	0.0002 U
Dissolved Nickel †	mg/L		0.0003 J	0.0008
Dissolved Selenium †	mg/L	*0.01	0.005	0.001 U
Dissolved Vanadium †	mg/L		0.001	0.001
Dissolved Zinc	mg/L	**5.0	0.0025 U	0.0007 J
Total Calcium	mg/L		21.5	19.5
Total Magnesium †	mg/L		20.9	20
Total Potassium †	mg/L		3.9	3.94
Total Sodium	mg/L		10.8	11

Groundwater Quality Criteria:

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*** = Carcinogen

Units:

mg/L = milligrams per liter
µg/L = micrograms per liter
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µS/cm = microsiemens per centimeter
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mg CaCO3/L = milligrams of calcium carbonate per liter

Qualifiers:

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NT — Not tested.

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

2016 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional		
MONITORING WELL Sampling Date			B-1 3/21/2016	B-1 9/12/2016	B-1 12/12/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
1,1,1,2-tetrachloroethane	µg/L		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
1,1,2,2-tetrachloroethane	µg/L		0.4 U	0.4 U	0.4 U
1,1,2-trichloroethane	µg/L		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
1,1-dichloroethane	µg/L	1.0***	0.4 U	0.4 U	0.4 U
1,1-dichloroethene	µg/L	7****	0.4 U	0.4 U	0.4 U
1,1-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
1,2,3-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
1,2,3-trichloropropane	µg/L		0.4 U	0.4 U	0.4 U
1,2,4-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
1,2,4-trimethylbenzene	µg/L		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
1,2-dibromoethane (EDB)	µg/L	0.001***	0.01 U	0.01 U	0.01 U
1,2-dichlorobenzene	µg/L		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
1,2-dichloropropane	µg/L	0.6***	0.4 U	0.4 U	0.4 U
1,3,5-trimethylbenzene	µg/L		0.4 U	0.4 U	0.4 U
1,3-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U
1,4-dichlorobenzene	µg/L	4***	0.4 U	0.4 U	0.4 U
1,4-dioxane	µg/L	7***	5 U	5 U	5 U
2,2-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U
2-butanone	µg/L		3 U	3 U	3 U
2-chloroethyl vinyl ether	µg/L		5 U	5 U	5 U
2-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U
2-nitropropane	µg/L		10 U	10 U	10 U
2-phenylbutane	µg/L		0.4 U	0.4 U	0.4 U
4-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U
4-methyl-2-pentanone	µg/L		4 U	4 U	4 U
Acetone	µg/L		3 U	3 U	3 U
Acrolein	µg/L		4 U	4 U	4 U
Acrylonitrile	µg/L	0.07***	0.05 U	0.05 U	0.05 U
Allyl chloride	µg/L		2 U	2 U	2 U
Benzene	µg/L	1.0***	0.4 U	0.4 U	0.4 U
Bromobenzene	µg/L		0.4 U	0.4 U	0.4 U
Bromodichloromethane	µg/L	0.3***	0.4 U	0.4 U	0.4 U
Bromomethane	µg/L		0.4 U	0.4 U	0.4 U
Carbon disulfide	µg/L		0.4 U	0.4 U	0.4 U
Carbon tetrachloride	µg/L	0.3***	0.4 U	0.4 U	0.4 U
Chlorobenzene	µg/L	100****	0.4 U	0.4 U	0.4 U
Chlorobromomethane	µg/L		0.4 U	0.4 U	0.4 U
Chlorodibromomethane	µg/L	0.5***	0.4 U	0.4 U	0.4 U
Chlorodifluoromethane (Freon-22)	µg/L		1.7	0.7	1.7
Chloroethane	µg/L		0.4 U	0.4 U	0.4 U
Chloroform	µg/L	7.0***	0.4 U	0.4 U	0.4 U
Chloromethane	µg/L		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
cis-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
Cymene	µg/L		0.4 U	0.4 U	0.4 U
Dibromomethane	µg/L		0.4 U	0.4 U	0.4 U
Dichlorodifluoromethane (CFC-12)	µg/L		0.4 U	0.4 U	0.4 U
Dichloromethane	µg/L	5***	0.4 U	0.4 U	0.4 U
Dichloromonofluoromethane (Freon-21)	µg/L		0.4 U	0.4 U	0.4 U
Diethyl ether	µg/L		0.4 U	0.4 U	0.4 U

2016 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional		
MONITORING WELL Sampling Date			B-1 3/21/2016	B-1 9/12/2016	B-1 12/12/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
Ethyl methacrylate	µg/L		3 U	3 U	3 U
Ethylbenzene	µg/L	700****	0.4 U	0.4 U	0.4 U
Hexachloro-1,3-butadiene	µg/L		0.4 U	0.4 U	0.4 U
Hexachloroethane	µg/L		0.4 U	0.4 U	0.4 U
Isopropylbenzene	µg/L		0.4 U	0.4 U	0.4 U
m+p-xylene	µg/L		0.4 U	0.4 U	0.4 U
m-dichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
Methyl acrylate	µg/L		2 U	2 U	2 U
Methyl iodide	µg/L		5 U	5 U	5 U
Methyl methacrylate	µg/L		2 U	2 U	2 U
Methyl n-butyl ketone	µg/L		5 U	5 U	5 U
Methyl tert-butyl ether	µg/L		1 U	1 U	0.4 U
Methylacrylonitrile	µg/L		4 U	4 U	4 U
Naphthalene	µg/L		1 U	1 U	1 U
n-butyl chloride	µg/L		0.4 U	0.4 U	0.4 U
n-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U
n-propylbenzene	µg/L		0.4 U	0.4 U	0.4 U
o-xylene	µg/L		0.4 U	0.4 U	0.4 U
Pentachloroethane	µg/L		0.4 U	0.4 U	0.4 U
Styrene (monomer)	µg/L	100****	0.4 U	0.4 U	0.4 U
Tert-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U
Tetrachloroethene	µg/L	0.8***	0.4 U	0.4 U	0.4 U
Tetrahydrofuran	µg/L		3 U	3 U	3 U
Toluene	µg/L	1****	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
Trans-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
Trans-1,4-dichlorobutene	µg/L		5 U	5 U	5 U
Tribromomethane (Bromoform)	µg/L	5***	0.4 U	0.4 U	0.4 U
Trichloroethene	µg/L	3***	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane (CFC-11)	µg/L		0.4 U	0.4 U	0.4 U
Vinyl chloride	µg/L	0.02***	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.

2016 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional		
MONITORING WELL Sampling Date			B-2 3/22/2016	B-2 9/13/2016	B-2 12/12/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
1,1,1,2-tetrachloroethane	µg/L		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
1,1,2,2-tetrachloroethane	µg/L		0.4 U	0.4 U	0.4 U
1,1,2-trichloroethane	µg/L		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
1,1-dichloroethane	µg/L	1.0***	0.4 U	0.4 U	0.4 U
1,1-dichloroethene	µg/L	7****	0.4 U	0.4 U	0.4 U
1,1-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
1,2,3-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
1,2,3-trichloropropane	µg/L		0.4 U	0.4 U	0.4 U
1,2,4-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
1,2,4-trimethylbenzene	µg/L		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
1,2-dibromoethane (EDB)	µg/L	0.001***	0.01 U	0.01 U	0.01 U
1,2-dichlorobenzene	µg/L		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
1,2-dichloropropane	µg/L	0.6***	0.4 U	0.4 U	0.4 U
1,3,5-trimethylbenzene	µg/L		0.4 U	0.4 U	0.4 U
1,3-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U
1,4-dichlorobenzene	µg/L	4***	0.4 U	0.4 U	0.4 U
1,4-dioxane	µg/L	7***	5 U	5 U	5 U
2,2-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U
2-butanone	µg/L		3 U	3 U	3 U
2-chloroethyl vinyl ether	µg/L		5 U	5 U	5 U
2-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U
2-nitropropane	µg/L		10 U	10 U	10 U
2-phenylbutane	µg/L		0.4 U	0.4 U	0.4 U
4-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U
4-methyl-2-pentanone	µg/L		4 U	4 U	4 U
Acetone	µg/L		3 U	3 U	3 U
Acrolein	µg/L		4 U	4 U	4 U
Acrylonitrile	µg/L	0.07***	0.05 U	0.05 U	0.05 U
Allyl chloride	µg/L		2 U	2 U	2 U
Benzene	µg/L	1.0***	0.4 U	0.4 U	0.4 U
Bromobenzene	µg/L		0.4 U	0.4 U	0.4 U
Bromodichloromethane	µg/L	0.3***	0.4 U	0.4 U	0.4 U
Bromomethane	µg/L		0.4 U	0.4 U	0.4 U
Carbon disulfide	µg/L		0.4 U	0.4 U	0.4 U
Carbon tetrachloride	µg/L	0.3***	0.4 U	0.4 U	0.4 U
Chlorobenzene	µg/L	100****	0.4 U	0.4 U	0.4 U
Chlorobromomethane	µg/L		0.4 U	0.4 U	0.4 U
Chlorodibromomethane	µg/L	0.5***	0.4 U	0.4 U	0.4 U
Chlorodifluoromethane (Freon-22)	µg/L		0.4 U	0.4 U	0.4 U
Chloroethane	µg/L		0.4 U	0.4 U	0.4 U
Chloroform	µg/L	7.0***	0.4 U	0.4 U	0.4 U
Chloromethane	µg/L		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
cis-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
Cymene	µg/L		0.4 U	0.4 U	0.4 U
Dibromomethane	µg/L		0.4 U	0.4 U	0.4 U
Dichlorodifluoromethane (CFC-12)	µg/L		1.5	1	1.1
Dichloromethane	µg/L	5***	0.4 U	0.4 U	0.4 U
Dichloromonofluoromethane (Freon-21)	µg/L		0.4 U	0.4 U	0.4 U
Diethyl ether	µg/L		0.4 U	0.4 U	0.4 U

2016 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional		
MONITORING WELL Sampling Date			B-2 3/22/2016	B-2 9/13/2016	B-2 12/12/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
Ethyl methacrylate	µg/L		3 U	3 U	3 U
Ethylbenzene	µg/L	700****	0.4 U	0.4 U	0.4 U
Hexachloro-1,3-butadiene	µg/L		0.4 U	0.4 U	0.4 U
Hexachloroethane	µg/L		0.4 U	0.4 U	0.4 U
Isopropylbenzene	µg/L		0.4 U	0.4 U	0.4 U
m+p-xylene	µg/L		0.4 U	0.4 U	0.4 U
m-dichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
Methyl acrylate	µg/L		2 U	2 U	2 U
Methyl iodide	µg/L		5 U	5 U	5 U
Methyl methacrylate	µg/L		2 U	2 U	2 U
Methyl n-butyl ketone	µg/L		5 U	5 U	5 U
Methyl tert-butyl ether	µg/L		1 U	1 U	0.4 U
Methylacrylonitrile	µg/L		4 U	4 U	4 U
Naphthalene	µg/L		1 U	1 U	1 U
n-butyl chloride	µg/L		0.4 U	0.4 U	0.4 U
n-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U
n-propylbenzene	µg/L		0.4 U	0.4 U	0.4 U
o-xylene	µg/L		0.4 U	0.4 U	0.4 U
Pentachloroethane	µg/L		0.4 U	0.4 U	0.4 U
Styrene (monomer)	µg/L	100****	0.4 U	0.4 U	0.4 U
Tert-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U
Tetrachloroethene	µg/L	0.8***	0.4 U	0.4 U	0.4 U
Tetrahydrofuran	µg/L		3 U	3 U	3 U
Toluene	µg/L	1****	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
Trans-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
Trans-1,4-dichlorobutene	µg/L		5 U	5 U	5 U
Tribromomethane (Bromoform)	µg/L	5***	0.4 U	0.4 U	0.4 U
Trichloroethene	µg/L	3***	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane (CFC-11)	µg/L		0.4 U	0.3 J	0.4 U
Vinyl chloride	µg/L	0.02***	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.

2016 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional		
MONITORING WELL Sampling Date			B-3 3/24/2016	B-3 9/13/2016	B-3 12/13/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
1,1,1,2-tetrachloroethane	µg/L		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
1,1,2,2-tetrachloroethane	µg/L		0.4 U	0.4 U	0.4 U
1,1,2-trichloroethane	µg/L		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
1,1-dichloroethane	µg/L	1.0***	0.4 U	0.4 U	0.4 U
1,1-dichloroethene	µg/L	7****	0.4 U	0.4 U	0.4 U
1,1-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
1,2,3-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
1,2,3-trichloropropane	µg/L		0.4 U	0.4 U	0.4 U
1,2,4-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
1,2,4-trimethylbenzene	µg/L		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
1,2-dibromoethane (EDB)	µg/L	0.001***	0.01 U	0.01 U	0.01 U
1,2-dichlorobenzene	µg/L		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
1,2-dichloropropane	µg/L	0.6***	0.4 U	0.4 U	0.4 U
1,3,5-trimethylbenzene	µg/L		0.4 U	0.4 U	0.4 U
1,3-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U
1,4-dichlorobenzene	µg/L	4***	0.4 U	0.4 U	0.4 U
1,4-dioxane	µg/L	7***	5 U	5 U	5 U
2,2-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U
2-butanone	µg/L		3 U	3 U	3 U
2-chloroethyl vinyl ether	µg/L		5 U	5 U	5 U
2-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U
2-nitropropane	µg/L		10 U	10 U	10 U
2-phenylbutane	µg/L		0.4 U	0.4 U	0.4 U
4-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U
4-methyl-2-pentanone	µg/L		4 U	4 U	4 U
Acetone	µg/L		3 U	3 U	3 U
Acrolein	µg/L		4 U	4 U	4 U
Acrylonitrile	µg/L	0.07***	0.05 U	0.05 U	0.05 U
Allyl chloride	µg/L		2 U	2 U	2 U
Benzene	µg/L	1.0***	0.4 U	0.4 U	0.4 U
Bromobenzene	µg/L		0.4 U	0.4 U	0.4 U
Bromodichloromethane	µg/L	0.3***	0.4 U	0.4 U	0.4 U
Bromomethane	µg/L		0.4 U	0.4 U	0.4 U
Carbon disulfide	µg/L		0.6	0.4 U	0.4 U
Carbon tetrachloride	µg/L	0.3***	0.4 U	0.4 U	0.4 U
Chlorobenzene	µg/L	100****	0.4 U	0.4 U	0.4 U
Chlorobromomethane	µg/L		0.4 U	0.4 U	0.4 U
Chlorodibromomethane	µg/L	0.5***	0.4 U	0.4 U	0.4 U
Chlorodifluoromethane (Freon-22)	µg/L		1.5	0.4 U	1.4
Chloroethane	µg/L		0.4 U	0.4 U	0.4 U
Chloroform	µg/L	7.0***	0.4 U	0.4 U	0.4 U
Chloromethane	µg/L		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
cis-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
Cymene	µg/L		0.4 U	0.4 U	0.4 U
Dibromomethane	µg/L		0.4 U	0.4 U	0.4 U
Dichlorodifluoromethane (CFC-12)	µg/L		0.4 U	0.4 U	0.4 U
Dichloromethane	µg/L	5***	0.4 U	0.4 U	0.4 U
Dichloromonofluoromethane (Freon-21)	µg/L		0.9	0.4 U	0.6
Diethyl ether	µg/L		2.9	0.4 U	3.3

2016 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional		
MONITORING WELL Sampling Date			B-3 3/24/2016	B-3 9/13/2016	B-3 12/13/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
Ethyl methacrylate	µg/L		3 U	3 U	3 U
Ethylbenzene	µg/L	700****	0.4 U	0.4 U	0.4 U
Hexachloro-1,3-butadiene	µg/L		0.4 U	0.4 U	0.4 U
Hexachloroethane	µg/L		0.4 U	0.4 U	0.4 U
Isopropylbenzene	µg/L		0.4 U	0.4 U	0.4 U
m+p-xylene	µg/L		0.4 U	0.4 U	0.4 U
m-dichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
Methyl acrylate	µg/L		2 U	2 U	2 U
Methyl iodide	µg/L		5 U	5 U	5 U
Methyl methacrylate	µg/L		2 U	2 U	2 U
Methyl n-butyl ketone	µg/L		5 U	5 U	5 U
Methyl tert-butyl ether	µg/L		0.4	1 U	0.3 J
Methylacrylonitrile	µg/L		4 U	4 U	4 U
Naphthalene	µg/L		1 U	1 U	1 U
n-butyl chloride	µg/L		0.4 U	0.4 U	0.4 U
n-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U
n-propylbenzene	µg/L		0.4 U	0.4 U	0.4 U
o-xylene	µg/L		0.4 U	0.4 U	0.4 U
Pentachloroethane	µg/L		0.4 U	0.4 U	0.4 U
Styrene (monomer)	µg/L	100****	0.4 U	0.4 U	0.4 U
Tert-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U
Tetrachloroethene	µg/L	0.8***	0.4 U	0.4 U	0.4 U
Tetrahydrofuran	µg/L		3 U	3 U	3 U
Toluene	µg/L	1****	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
Trans-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
Trans-1,4-dichlorobutene	µg/L		5 U	5 U	5 U
Tribromomethane (Bromoform)	µg/L	5***	0.4 U	0.4 U	0.4 U
Trichloroethene	µg/L	3***	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane (CFC-11)	µg/L		0.4 U	0.4 U	0.4 U
Vinyl chloride	µg/L	0.02***	**0.094**	0.01 U	**0.072**

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.

2016 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional		
MONITORING WELL Sampling Date			B-4 3/22/2016	B-4 9/12/2016	B-4 12/14/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
1,1,1,2-tetrachloroethane	µg/L		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
1,1,2,2-tetrachloroethane	µg/L		0.4 U	0.4 U	0.4 U
1,1,2-trichloroethane	µg/L		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
1,1-dichloroethane	µg/L	1.0***	0.3 J	0.4 U	0.4 U
1,1-dichloroethene	µg/L	7****	0.4 U	0.4 U	0.4 U
1,1-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
1,2,3-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
1,2,3-trichloropropane	µg/L		0.4 U	0.4 U	0.4 U
1,2,4-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
1,2,4-trimethylbenzene	µg/L		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
1,2-dibromoethane (EDB)	µg/L	0.001***	0.01 U	0.01 U	0.01 U
1,2-dichlorobenzene	µg/L		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
1,2-dichloropropane	µg/L	0.6***	0.4 U	0.4 U	0.4 U
1,3,5-trimethylbenzene	µg/L		0.4 U	0.4 U	0.4 U
1,3-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U
1,4-dichlorobenzene	µg/L	4***	0.4 U	0.4 U	0.4 U
1,4-dioxane	µg/L	7***	5 U	5 U	5 U
2,2-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U
2-butanone	µg/L		3 U	3 U	3 U
2-chloroethyl vinyl ether	µg/L		5 U	5 U	5 U
2-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U
2-nitropropane	µg/L		10 U	10 U	10 U
2-phenylbutane	µg/L		0.4 U	0.4 U	0.4 U
4-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U
4-methyl-2-pentanone	µg/L		4 U	4 U	4 U
Acetone	µg/L		3 U	3 U	3 U
Acrolein	µg/L		4 U	4 U	4 U
Acrylonitrile	µg/L	0.07***	0.05 U	0.05 U	0.05 U
Allyl chloride	µg/L		2 U	2 U	2 U
Benzene	µg/L	1.0***	0.4 U	0.4 U	0.4 U
Bromobenzene	µg/L		0.4 U	0.4 U	0.4 U
Bromodichloromethane	µg/L	0.3***	0.4 U	0.4 U	0.4 U
Bromomethane	µg/L		0.4 U	0.4 U	0.4 U
Carbon disulfide	µg/L		0.4 U	0.4 U	0.4 U
Carbon tetrachloride	µg/L	0.3***	0.4 U	0.4 U	0.4 U
Chlorobenzene	µg/L	100****	0.4 U	0.4 U	0.4 U
Chlorobromomethane	µg/L		0.4 U	0.4 U	0.4 U
Chlorodibromomethane	µg/L	0.5***	0.4 U	0.4 U	0.4 U
Chlorodifluoromethane (Freon-22)	µg/L		8.7	7.9	6.9
Chloroethane	µg/L		0.4 U	0.4 U	0.4 U
Chloroform	µg/L	7.0***	0.4 U	0.4 U	0.4 U
Chloromethane	µg/L		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
cis-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
Cymene	µg/L		0.4 U	0.4 U	0.4 U
Dibromomethane	µg/L		0.4 U	0.4 U	0.4 U
Dichlorodifluoromethane (CFC-12)	µg/L		0.4	0.4 U	0.4 U
Dichloromethane	µg/L	5***	0.4 U	0.4 U	0.4 U
Dichloromonofluoromethane (Freon-21)	µg/L		0.4 U	0.4 U	0.4 U
Diethyl ether	µg/L		0.4 U	0.4 U	0.4 U

2016 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional		
MONITORING WELL Sampling Date			B-4 3/22/2016	B-4 9/12/2016	B-4 12/14/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
Ethyl methacrylate	µg/L		3 U	3 U	3 U
Ethylbenzene	µg/L	700****	0.4 U	0.4 U	0.4 U
Hexachloro-1,3-butadiene	µg/L		0.4 U	0.4 U	0.4 U
Hexachloroethane	µg/L		0.4 U	0.4 U	0.4 U
Isopropylbenzene	µg/L		0.4 U	0.4 U	0.4 U
m+p-xylene	µg/L		0.4 U	0.4 U	0.4 U
m-dichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
Methyl acrylate	µg/L		2 U	2 U	2 U
Methyl iodide	µg/L		5 U	5 U	5 U
Methyl methacrylate	µg/L		2 U	2 U	2 U
Methyl n-butyl ketone	µg/L		5 U	5 U	5 U
Methyl tert-butyl ether	µg/L		1 U	1 U	0.4 U
Methylacrylonitrile	µg/L		4 U	4 U	4 U
Naphthalene	µg/L		1 U	1 U	1 U
n-butyl chloride	µg/L		0.4 U	0.4 U	0.4 U
n-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U
n-propylbenzene	µg/L		0.4 U	0.4 U	0.4 U
o-xylene	µg/L		0.4 U	0.4 U	0.4 U
Pentachloroethane	µg/L		0.4 U	0.4 U	0.4 U
Styrene (monomer)	µg/L	100****	0.4 U	0.4 U	0.4 U
Tert-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U
Tetrachloroethene	µg/L	0.8***	0.4 U	0.4 U	0.4 U
Tetrahydrofuran	µg/L		3 U	3 U	3 U
Toluene	µg/L	1****	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
Trans-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
Trans-1,4-dichlorobutene	µg/L		5 U	5 U	5 U
Tribromomethane (Bromoform)	µg/L	5***	0.4 U	0.4 U	0.4 U
Trichloroethene	µg/L	3***	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane (CFC-11)	µg/L		0.4 U	0.4 U	0.4 U
Vinyl chloride	µg/L	0.02***	0.02	0.017	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.

2016 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional		
MONITORING WELL Sampling Date			B-5 3/24/2016	B-5 9/13/2016	B-5 12/13/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
1,1,1,2-tetrachloroethane	µg/L		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
1,1,2,2-tetrachloroethane	µg/L		0.4 U	0.4 U	0.4 U
1,1,2-trichloroethane	µg/L		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
1,1-dichloroethane	µg/L	1.0***	0.4 U	0.4 U	0.4 U
1,1-dichloroethene	µg/L	7****	0.4 U	0.4 U	0.4 U
1,1-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
1,2,3-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
1,2,3-trichloropropane	µg/L		0.4 U	0.4 U	0.4 U
1,2,4-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
1,2,4-trimethylbenzene	µg/L		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
1,2-dibromoethane (EDB)	µg/L	0.001***	0.01 U	0.01 U	0.01 U
1,2-dichlorobenzene	µg/L		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
1,2-dichloropropane	µg/L	0.6***	0.4 U	0.4 U	0.4 U
1,3,5-trimethylbenzene	µg/L		0.4 U	0.4 U	0.4 U
1,3-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U
1,4-dichlorobenzene	µg/L	4***	0.4 U	0.4 U	0.4 U
1,4-dioxane	µg/L	7***	7.7	7.8	8.7
2,2-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U
2-butanone	µg/L		3 U	3 U	3 U
2-chloroethyl vinyl ether	µg/L		5 U	5 U	5 U
2-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U
2-nitropropane	µg/L		10 U	10 U	10 U
2-phenylbutane	µg/L		0.4 U	0.4 U	0.4 U
4-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U
4-methyl-2-pentanone	µg/L		4 U	4 U	4 U
Acetone	µg/L		3 U	3 U	3 U
Acrolein	µg/L		4 U	4 U	4 U
Acrylonitrile	µg/L	0.07***	0.05 U	0.05 U	0.05 U
Allyl chloride	µg/L		2 U	2 U	2 U
Benzene	µg/L	1.0***	0.4 U	0.4 U	0.4 U
Bromobenzene	µg/L		0.4 U	0.4 U	0.4 U
Bromodichloromethane	µg/L	0.3***	0.4 U	0.4 U	0.4 U
Bromomethane	µg/L		0.4 U	0.4 U	0.4 U
Carbon disulfide	µg/L		0.6	0.4 U	0.4 U
Carbon tetrachloride	µg/L	0.3***	0.4 U	0.4 U	0.4 U
Chlorobenzene	µg/L	100****	0.4 U	0.4 U	0.4 U
Chlorobromomethane	µg/L		0.4 U	0.4 U	0.4 U
Chlorodibromomethane	µg/L	0.5***	0.4 U	0.4 U	0.4 U
Chlorodifluoromethane (Freon-22)	µg/L		1.6	0.5	1.5
Chloroethane	µg/L		0.4 U	0.4 U	0.4 U
Chloroform	µg/L	7.0***	0.4 U	0.4 U	0.4 U
Chloromethane	µg/L		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
cis-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
Cymene	µg/L		0.4 U	0.4 U	0.4 U
Dibromomethane	µg/L		0.4 U	0.4 U	0.4 U
Dichlorodifluoromethane (CFC-12)	µg/L		0.4 U	0.4 U	0.4 U
Dichloromethane	µg/L	5***	0.4 U	0.4 U	0.4 U
Dichloromonofluoromethane (Freon-21)	µg/L		0.4	0.5	0.6
Diethyl ether	µg/L		3.4	2.9	4.9

2016 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional		
MONITORING WELL Sampling Date			B-5 3/24/2016	B-5 9/13/2016	B-5 12/13/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
Ethyl methacrylate	µg/L		3 U	3 U	3 U
Ethylbenzene	µg/L	700****	0.4 U	0.4 U	0.4 U
Hexachloro-1,3-butadiene	µg/L		0.4 U	0.4 U	0.4 U
Hexachloroethane	µg/L		0.4 U	0.4 U	0.4 U
Isopropylbenzene	µg/L		0.4 U	0.4 U	0.4 U
m+p-xylene	µg/L		0.4 U	0.4 U	0.4 U
m-dichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
Methyl acrylate	µg/L		2 U	2 U	2 U
Methyl iodide	µg/L		5 U	5 U	5 U
Methyl methacrylate	µg/L		2 U	2 U	2 U
Methyl n-butyl ketone	µg/L		5 U	5 U	5 U
Methyl tert-butyl ether	µg/L		0.4 U	1 U	0.4 U
Methylacrylonitrile	µg/L		4 U	4 U	4 U
Naphthalene	µg/L		1 U	1 U	1 U
n-butyl chloride	µg/L		0.4 U	0.4 U	0.4 U
n-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U
n-propylbenzene	µg/L		0.4 U	0.4 U	0.4 U
o-xylene	µg/L		0.4 U	0.4 U	0.4 U
Pentachloroethane	µg/L		0.4 U	0.4 U	0.4 U
Styrene (monomer)	µg/L	100****	0.4 U	0.4 U	0.4 U
Tert-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U
Tetrachloroethene	µg/L	0.8***	0.4 U	0.4 U	0.4 U
Tetrahydrofuran	µg/L		6	3.8	5.7
Toluene	µg/L	1****	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
Trans-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
Trans-1,4-dichlorobutene	µg/L		5 U	5 U	5 U
Tribromomethane (Bromoform)	µg/L	5***	0.4 U	0.4 U	0.4 U
Trichloroethene	µg/L	3***	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane (CFC-11)	µg/L		0.4 U	0.4 U	0.4 U
Vinyl chloride	µg/L	0.02***	**0.155**	**0.11**	**0.184**

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.

2016 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional		
MONITORING WELL Sampling Date			B-10 3/21/2016	B-10 9/13/2016	B-10 12/14/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
1,1,1,2-tetrachloroethane	µg/L		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
1,1,2,2-tetrachloroethane	µg/L		0.4 U	0.4 U	0.4 U
1,1,2-trichloroethane	µg/L		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
1,1-dichloroethane	µg/L	1.0***	0.4 U	0.4 U	0.4 U
1,1-dichloroethene	µg/L	7****	0.4 U	0.4 U	0.4 U
1,1-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
1,2,3-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
1,2,3-trichloropropane	µg/L		0.4 U	0.4 U	0.4 U
1,2,4-trichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
1,2,4-trimethylbenzene	µg/L		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
1,2-dibromoethane (EDB)	µg/L	0.001***	0.01 U	0.01 U	0.01 U
1,2-dichlorobenzene	µg/L		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
1,2-dichloropropane	µg/L	0.6***	0.4 U	0.4 U	0.4 U
1,3,5-trimethylbenzene	µg/L		0.4 U	0.4 U	0.4 U
1,3-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U
1,4-dichlorobenzene	µg/L	4***	0.4 U	0.4 U	0.4 U
1,4-dioxane	µg/L	7***	5 U	5 U	5 U
2,2-dichloropropane	µg/L		0.4 U	0.4 U	0.4 U
2-butanone	µg/L		3 U	3 U	3 U
2-chloroethyl vinyl ether	µg/L		5 U	5 U	5 U
2-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U
2-nitropropane	µg/L		10 U	10 U	10 U
2-phenylbutane	µg/L		0.4 U	0.4 U	0.4 U
4-chlorotoluene	µg/L		0.4 U	0.4 U	0.4 U
4-methyl-2-pentanone	µg/L		4 U	4 U	4 U
Acetone	µg/L		3 U	3 U	3 U
Acrolein	µg/L		4 U	4 U	4 U
Acrylonitrile	µg/L	0.07***	0.05 U	0.05 U	0.05 U
Allyl chloride	µg/L		2 U	2 U	2 U
Benzene	µg/L	1.0***	0.4 U	0.4 U	0.4 U
Bromobenzene	µg/L		0.4 U	0.4 U	0.4 U
Bromodichloromethane	µg/L	0.3***	0.4 U	0.4 U	0.4 U
Bromomethane	µg/L		0.4 U	0.4 U	0.4 U
Carbon disulfide	µg/L		0.4 U	0.4 U	0.4 U
Carbon tetrachloride	µg/L	0.3***	0.4 U	0.4 U	0.4 U
Chlorobenzene	µg/L	100****	0.4 U	0.4 U	0.4 U
Chlorobromomethane	µg/L		0.4 U	0.4 U	0.4 U
Chlorodibromomethane	µg/L	0.5***	0.4 U	0.4 U	0.4 U
Chlorodifluoromethane (Freon-22)	µg/L		0.4 U	0.4 U	0.4 U
Chloroethane	µg/L		0.4 U	0.4 U	0.4 U
Chloroform	µg/L	7.0***	0.4 U	0.4 U	0.4 U
Chloromethane	µg/L		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
cis-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
Cymene	µg/L		0.4 U	0.4 U	0.4 U
Dibromomethane	µg/L		0.4 U	0.4 U	0.4 U
Dichlorodifluoromethane (CFC-12)	µg/L		0.4 U	0.4 U	0.4 U
Dichloromethane	µg/L	5***	0.4 U	0.4 U	0.4 U
Dichloromonofluoromethane (Freon-21)	µg/L		0.4 U	0.4 U	0.4 U
Diethyl ether	µg/L		0.4 U	0.4 U	0.4 U

2016 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional		
MONITORING WELL Sampling Date			B-10 3/21/2016	B-10 9/13/2016	B-10 12/14/2016
Analyte	Units	GW Quality Standards (173-200 WAC)			
Ethyl methacrylate	µg/L		3 U	3 U	3 U
Ethylbenzene	µg/L	700****	0.4 U	0.4 U	0.4 U
Hexachloro-1,3-butadiene	µg/L		0.4 U	0.4 U	0.4 U
Hexachloroethane	µg/L		0.4 U	0.4 U	0.4 U
Isopropylbenzene	µg/L		0.4 U	0.4 U	0.4 U
m+p-xylene	µg/L		0.4 U	0.4 U	0.4 U
m-dichlorobenzene	µg/L		0.4 U	0.4 U	0.4 U
Methyl acrylate	µg/L		2 U	2 U	2 U
Methyl iodide	µg/L		5 U	5 U	5 U
Methyl methacrylate	µg/L		2 U	2 U	2 U
Methyl n-butyl ketone	µg/L		5 U	5 U	5 U
Methyl tert-butyl ether	µg/L		1 U	1 U	0.4 U
Methylacrylonitrile	µg/L		4 U	4 U	4 U
Naphthalene	µg/L		1 U	1 U	1 U
n-butyl chloride	µg/L		0.4 U	0.4 U	0.4 U
n-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U
n-propylbenzene	µg/L		0.4 U	0.4 U	0.4 U
o-xylene	µg/L		0.4 U	0.4 U	0.4 U
Pentachloroethane	µg/L		0.4 U	0.4 U	0.4 U
Styrene (monomer)	µg/L	100****	0.4 U	0.4 U	0.4 U
Tert-butylbenzene	µg/L		0.4 U	0.4 U	0.4 U
Tetrachloroethene	µg/L	0.8***	0.4 U	0.4 U	0.4 U
Tetrahydrofuran	µg/L		3 U	3 U	3 U
Toluene	µg/L	1****	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
Trans-1,3-dichloropropene	µg/L		0.4 U	0.4 U	0.4 U
Trans-1,4-dichlorobutene	µg/L		5 U	5 U	5 U
Tribromomethane (Bromoform)	µg/L	5***	0.4 U	0.4 U	0.4 U
Trichloroethene	µg/L	3***	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane (CFC-11)	µg/L		0.4 U	0.4 U	0.4 U
Vinyl chloride	µg/L	0.02***	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.

2016 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional	
MONITORING WELL Sampling Date			B-12 9/15/2016	B-12 12/13/2016
Analyte	Units	GW Quality Standards (173-200 WAC)		
1,1,1,2-tetrachloroethane	µg/L		0.4 U	0.4 U
1,1,1-trichloroethane	µg/L	200*	0.4 U	0.4 U
1,1,2,2-tetrachloroethane	µg/L		0.4 U	0.4 U
1,1,2-trichloroethane	µg/L		0.4 U	0.4 U
1,1,2-trichlorofluorotoluene (Freon-113)	µg/L		0.4 U	0.4 U
1,1-dichloroethane	µg/L	1.0***	0.4 U	0.4 U
1,1-dichloroethene	µg/L	7****	0.4 U	0.4 U
1,1-dichloropropene	µg/L		0.4 U	0.4 U
1,2,3-trichlorobenzene	µg/L		0.4 U	0.4 U
1,2,3-trichloropropane	µg/L		0.4 U	0.4 U
1,2,4-trichlorobenzene	µg/L		0.4 U	0.4 U
1,2,4-trimethylbenzene	µg/L		0.4 U	0.4 U
1,2-dibromo-3-chloropropane (DBCP)	µg/L	0.2****	1 U	1 U
1,2-dibromoethane (EDB)	µg/L	0.001***	0.01 U	0.01 U
1,2-dichlorobenzene	µg/L		0.4 U	0.4 U
1,2-dichloroethane	µg/L	0.5***	0.4 U	0.4 U
1,2-dichloropropane	µg/L	0.6***	0.4 U	0.4 U
1,3,5-trimethylbenzene	µg/L		0.4 U	0.4 U
1,3-dichloropropane	µg/L		0.4 U	0.4 U
1,4-dichlorobenzene	µg/L	4***	0.4 U	0.4 U
1,4-dioxane	µg/L	7***	5 U	5 U
2,2-dichloropropane	µg/L		0.4 U	0.4 U
2-butanone	µg/L		3 U	3 U
2-chloroethyl vinyl ether	µg/L		5 U	5 U
2-chlorotoluene	µg/L		0.4 U	0.4 U
2-nitropropane	µg/L		10 U	10 U
2-phenylbutane	µg/L		0.4 U	0.4 U
4-chlorotoluene	µg/L		0.4 U	0.4 U
4-methyl-2-pentanone	µg/L		4 U	4 U
Acetone	µg/L		3 U	3 U
Acrolein	µg/L		4 U	4 U
Acrylonitrile	µg/L	0.07***	0.05 U	0.05 U
Allyl chloride	µg/L		2 U	2 U
Benzene	µg/L	1.0***	0.4 U	0.4 U
Bromobenzene	µg/L		0.4 U	0.4 U
Bromodichloromethane	µg/L	0.3***	0.4 U	0.4 U
Bromomethane	µg/L		0.4 U	0.4 U
Carbon disulfide	µg/L		0.4 U	0.4 U
Carbon tetrachloride	µg/L	0.3***	0.4 U	0.4 U
Chlorobenzene	µg/L	100****	0.4 U	0.4 U
Chlorobromomethane	µg/L		0.4 U	0.4 U
Chlorodibromomethane	µg/L	0.5***	0.4 U	0.4 U
Chlorodifluoromethane (Freon-22)	µg/L		0.4 U	0.4 U
Chloroethane	µg/L		0.4 U	0.4 U
Chloroform	µg/L	7.0***	0.4 U	0.4 U
Chloromethane	µg/L		0.4 U	0.4 U
cis-1,2-dichloroethene	µg/L	70****	0.4 U	0.4 U
cis-1,3-dichloropropene	µg/L		0.4 U	0.4 U
Cymene	µg/L		0.4 U	0.4 U
Dibromomethane	µg/L		0.4 U	0.4 U
Dichlorodifluoromethane (CFC-12)	µg/L		0.4 U	0.4 U
Dichloromethane	µg/L	5***	0.4 U	0.4 U
Dichloromonofluoromethane (Freon-21)	µg/L		0.4 U	0.4 U
Diethyl ether	µg/L		0.4 U	0.4 U

2016 Volatile Organic Compound Monitoring Results
Inman Landfill

AQUIFER			Regional	
MONITORING WELL Sampling Date			B-12 9/15/2016	B-12 12/13/2016
Analyte	Units	GW Quality Standards (173-200 WAC)		
Ethyl methacrylate	µg/L		3 U	3 U
Ethylbenzene	µg/L	700****	0.4 U	0.4 U
Hexachloro-1,3-butadiene	µg/L		0.4 U	0.4 U
Hexachloroethane	µg/L		0.4 U	0.4 U
Isopropylbenzene	µg/L		0.4 U	0.4 U
m+p-xylene	µg/L		0.4 U	0.4 U
m-dichlorobenzene	µg/L		0.4 U	0.4 U
Methyl acrylate	µg/L		2 U	2 U
Methyl iodide	µg/L		5 U	5 U
Methyl methacrylate	µg/L		2 U	2 U
Methyl n-butyl ketone	µg/L		5 U	5 U
Methyl tert-butyl ether	µg/L		1 U	0.4 U
Methylacrylonitrile	µg/L		4 U	4 U
Naphthalene	µg/L		1 U	1 U
n-butyl chloride	µg/L		0.4 U	0.4 U
n-butylbenzene	µg/L		0.4 U	0.4 U
n-propylbenzene	µg/L		0.4 U	0.4 U
o-xylene	µg/L		0.4 U	0.4 U
Pentachloroethane	µg/L		0.4 U	0.4 U
Styrene (monomer)	µg/L	100****	0.4 U	0.4 U
Tert-butylbenzene	µg/L		0.4 U	0.4 U
Tetrachloroethene	µg/L	0.8***	0.4 U	0.4 U
Tetrahydrofuran	µg/L		3 U	3 U
Toluene	µg/L	1****	0.4 U	0.4 U
Trans-1,2-dichloroethene	µg/L	100****	0.4 U	0.4 U
Trans-1,3-dichloropropene	µg/L		0.4 U	0.4 U
Trans-1,4-dichlorobutene	µg/L		5 U	5 U
Tribromomethane (Bromoform)	µg/L	5***	0.4 U	0.4 U
Trichloroethene	µg/L	3***	0.4 U	0.4 U
Trichlorofluoromethane (CFC-11)	µg/L		0.4 U	0.4 U
Vinyl chloride	µg/L	0.02***	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

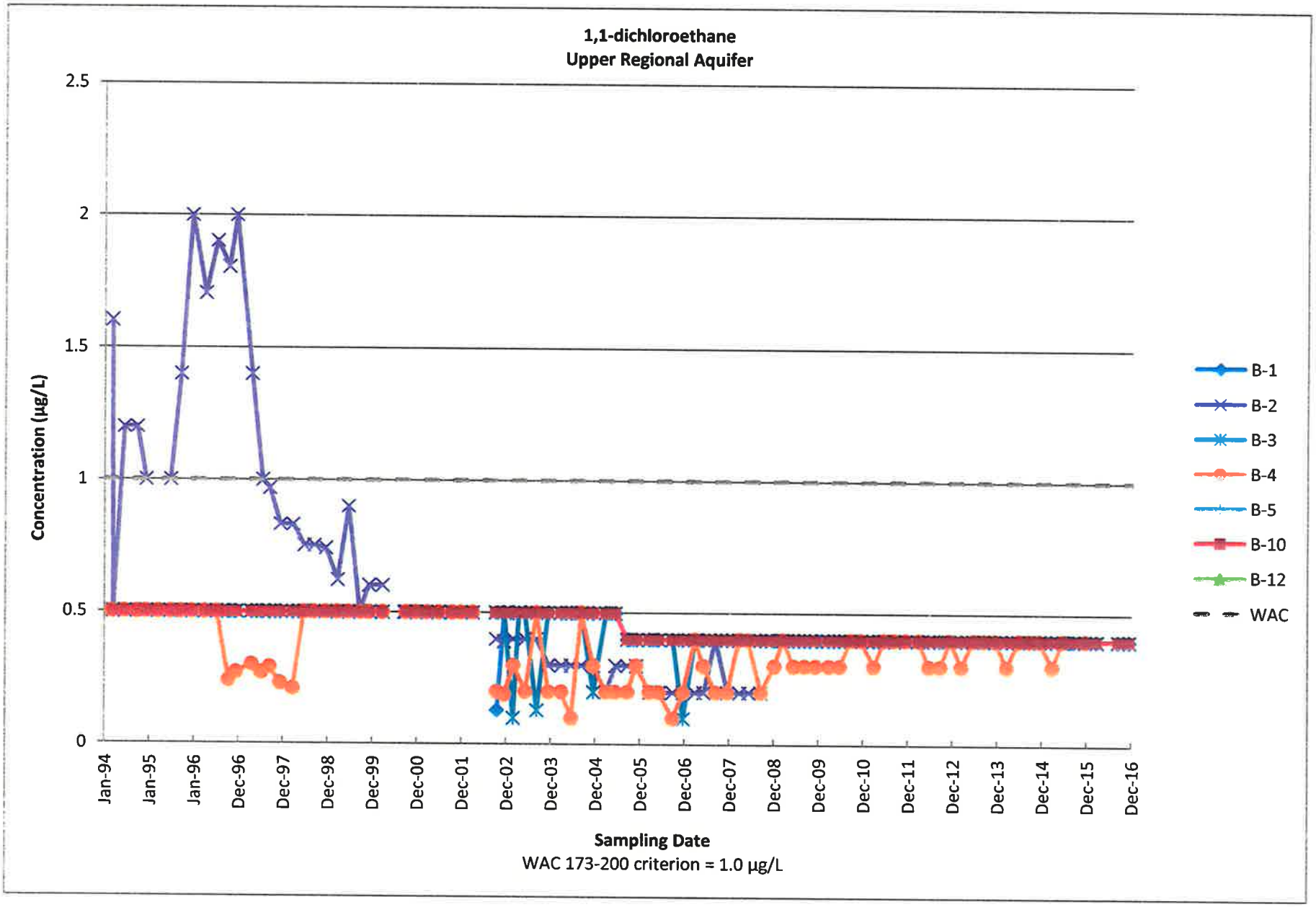
J — Indicates the analyte of interest was detected below the routine reporting limit. This value

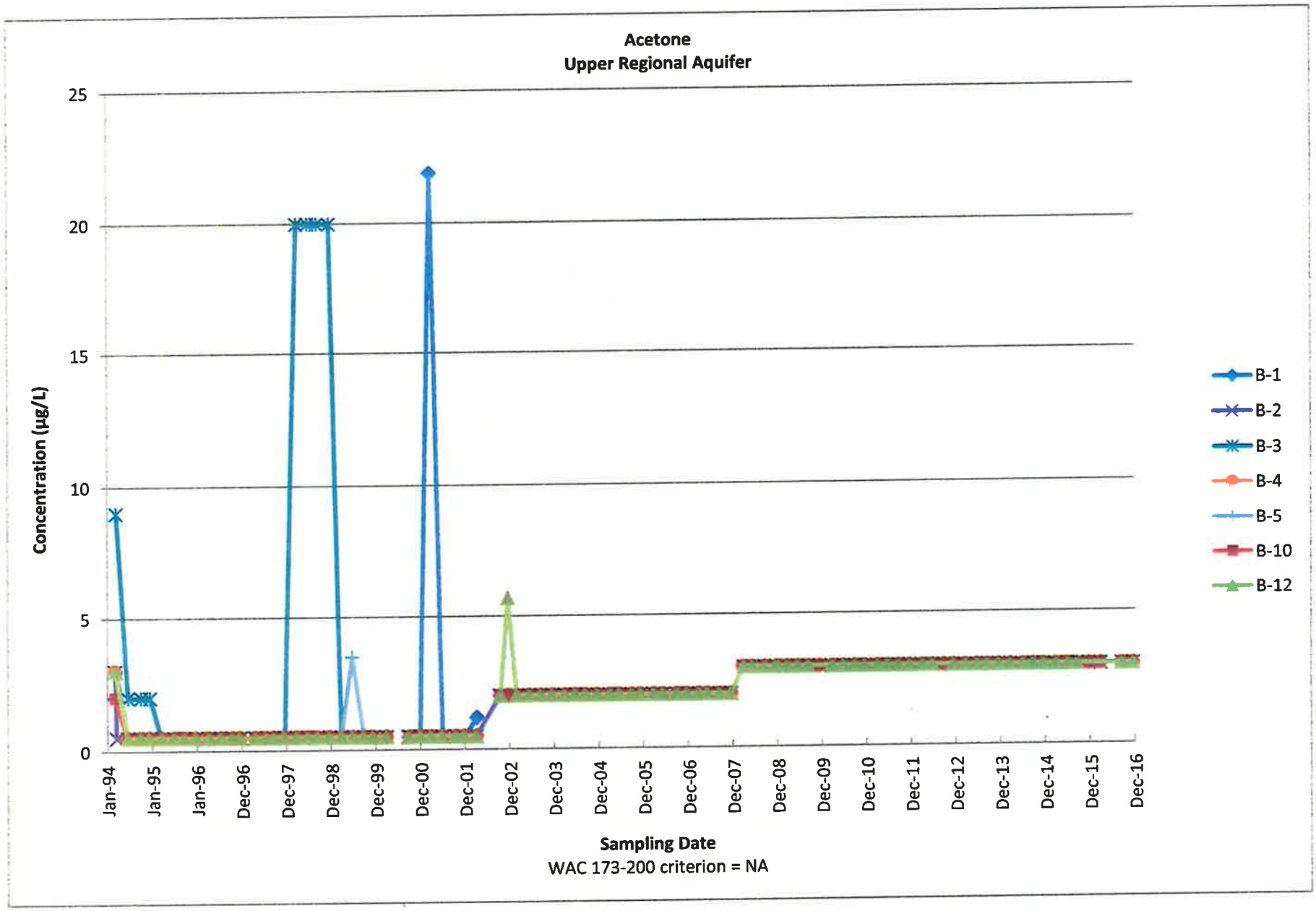
Units:

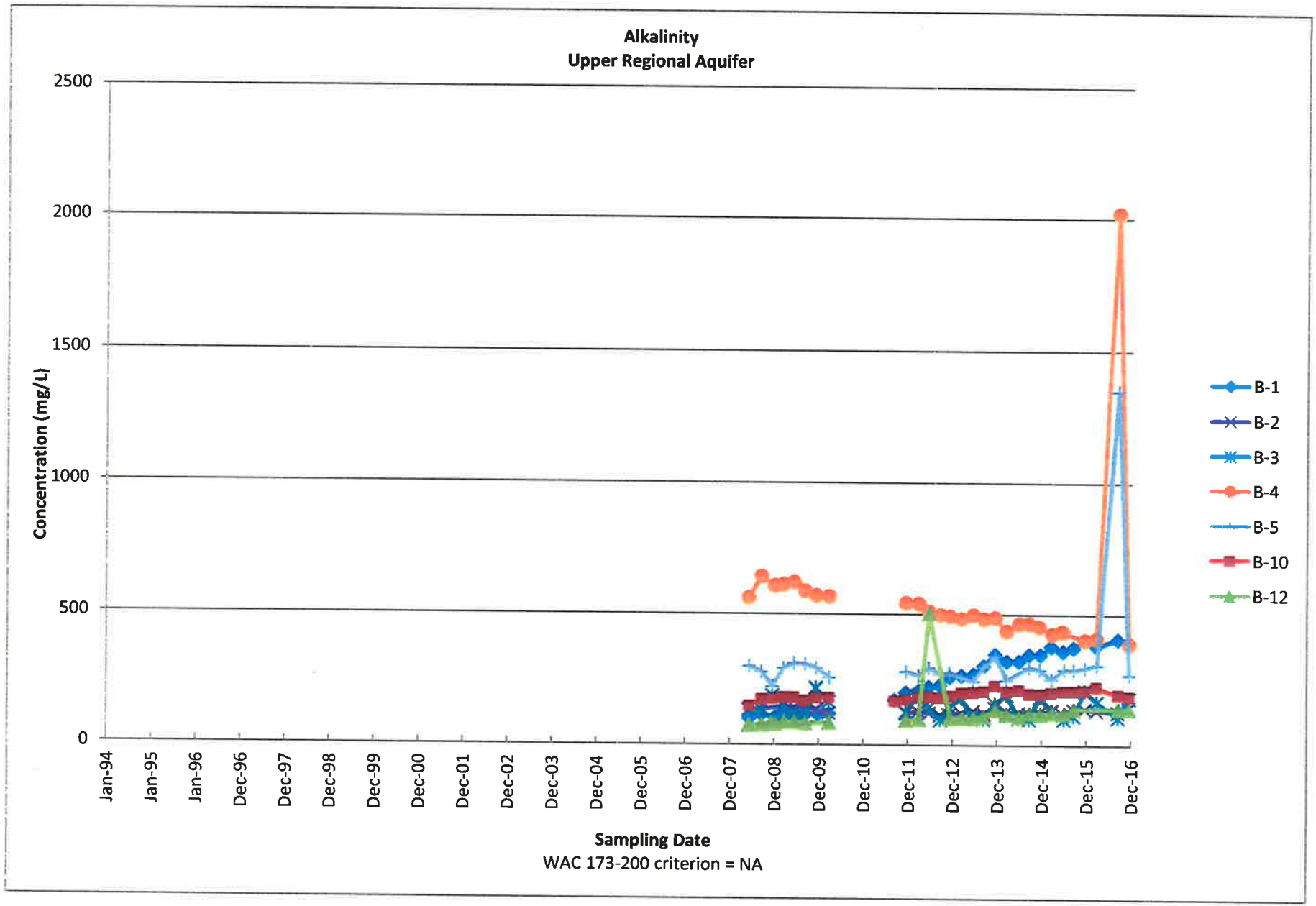
µg/L= micrograms per liter

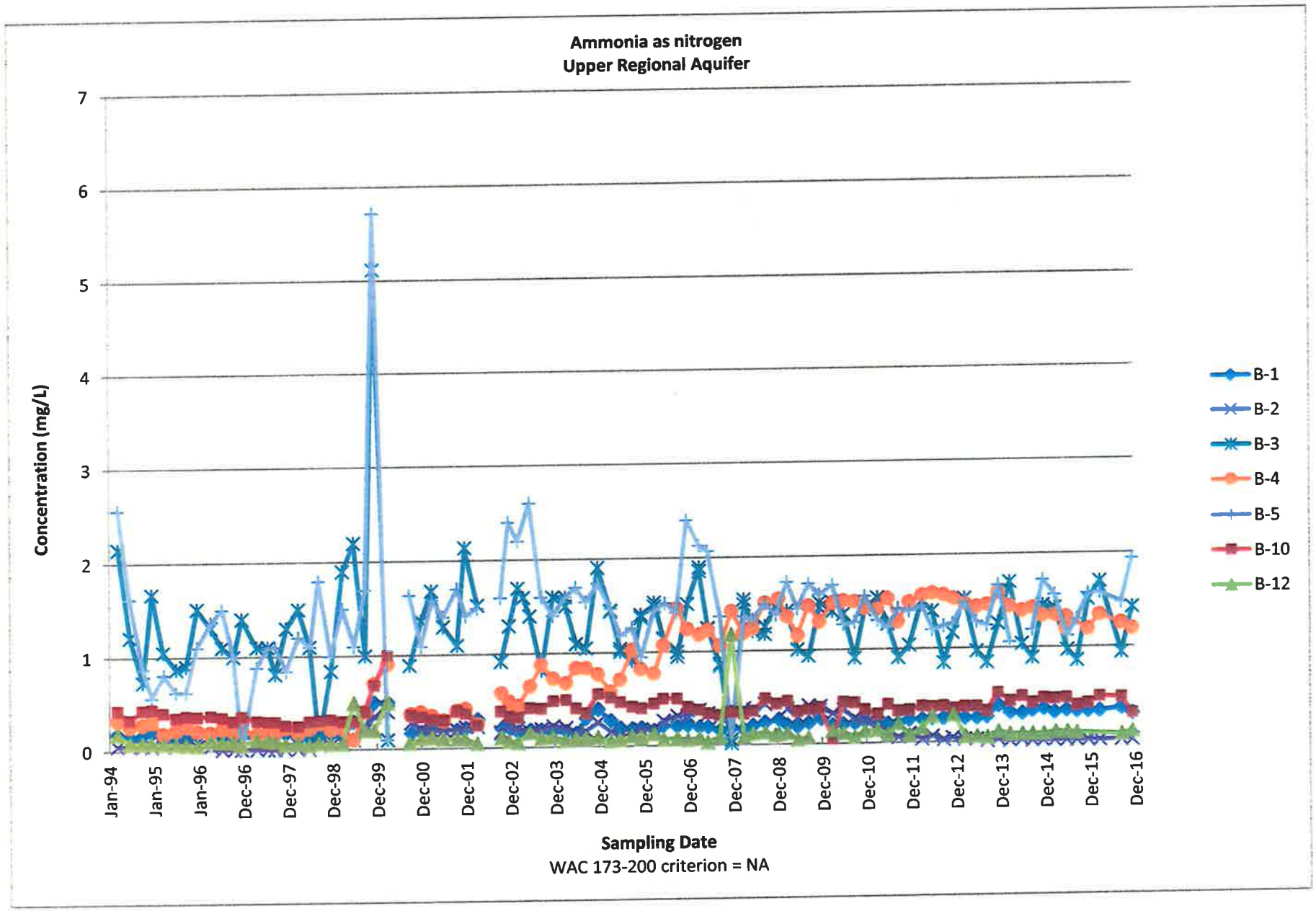
Results shown in bold exceed Ground Water Quality Criteria.

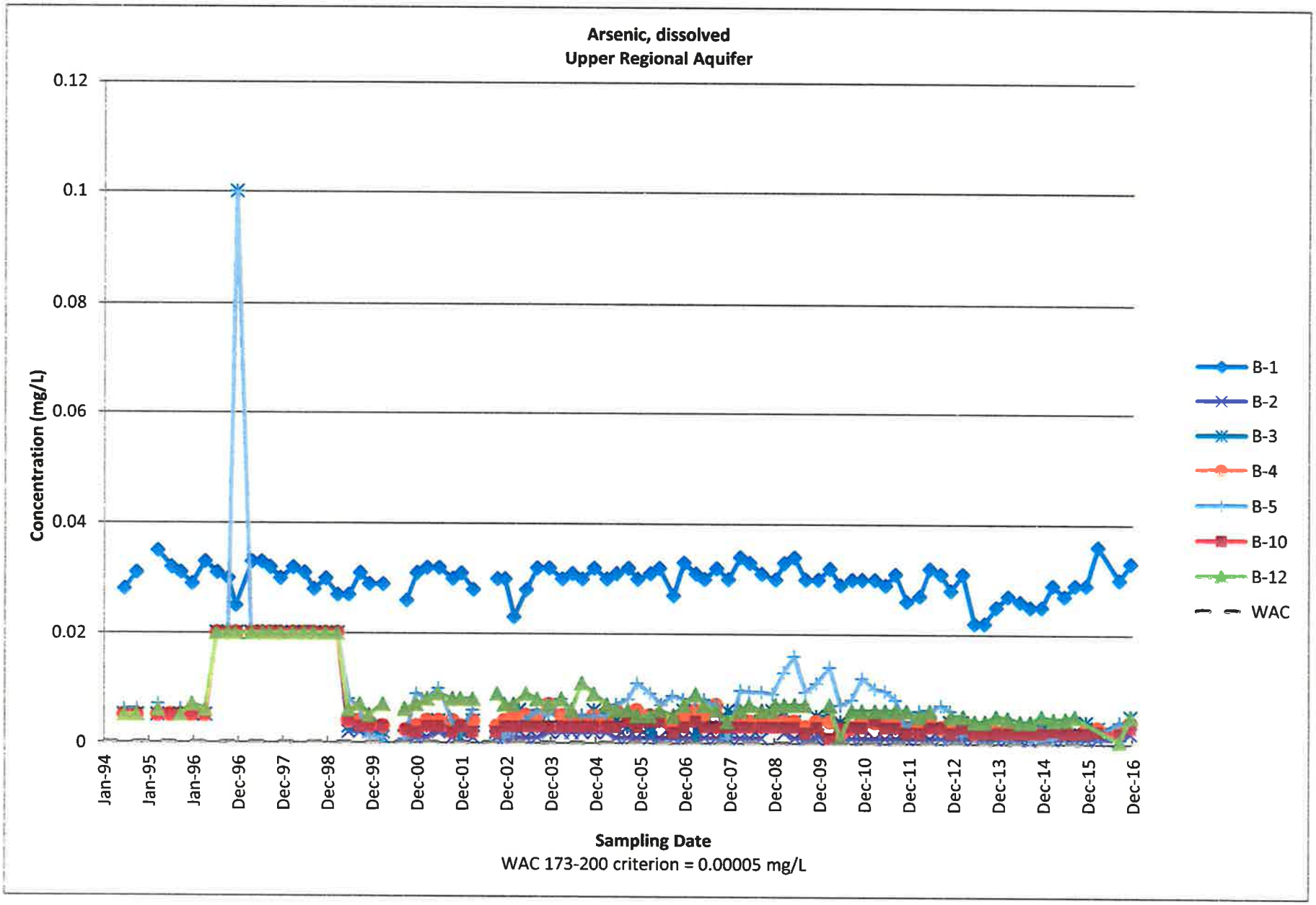
APPENDIX B-2:
Long-Term Time Series Plots 1994-2016 – Upper Regional Aquifer

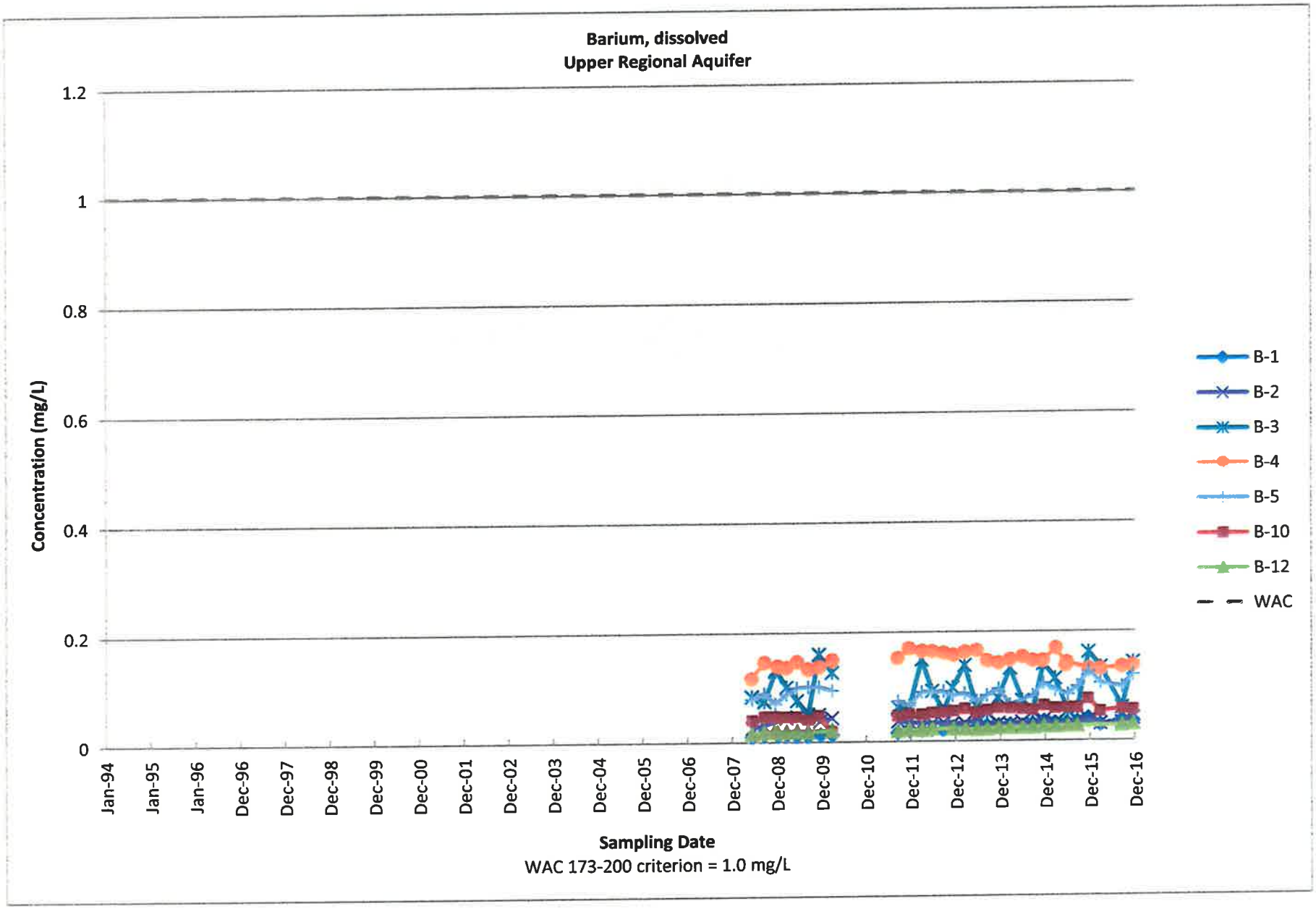

1,1-dichloroethane
Upper Regional Aquifer
Concentration (µg/L)
2.5
2
1.5
1
0.5
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = 1.0 µg/L
B-1
B-2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

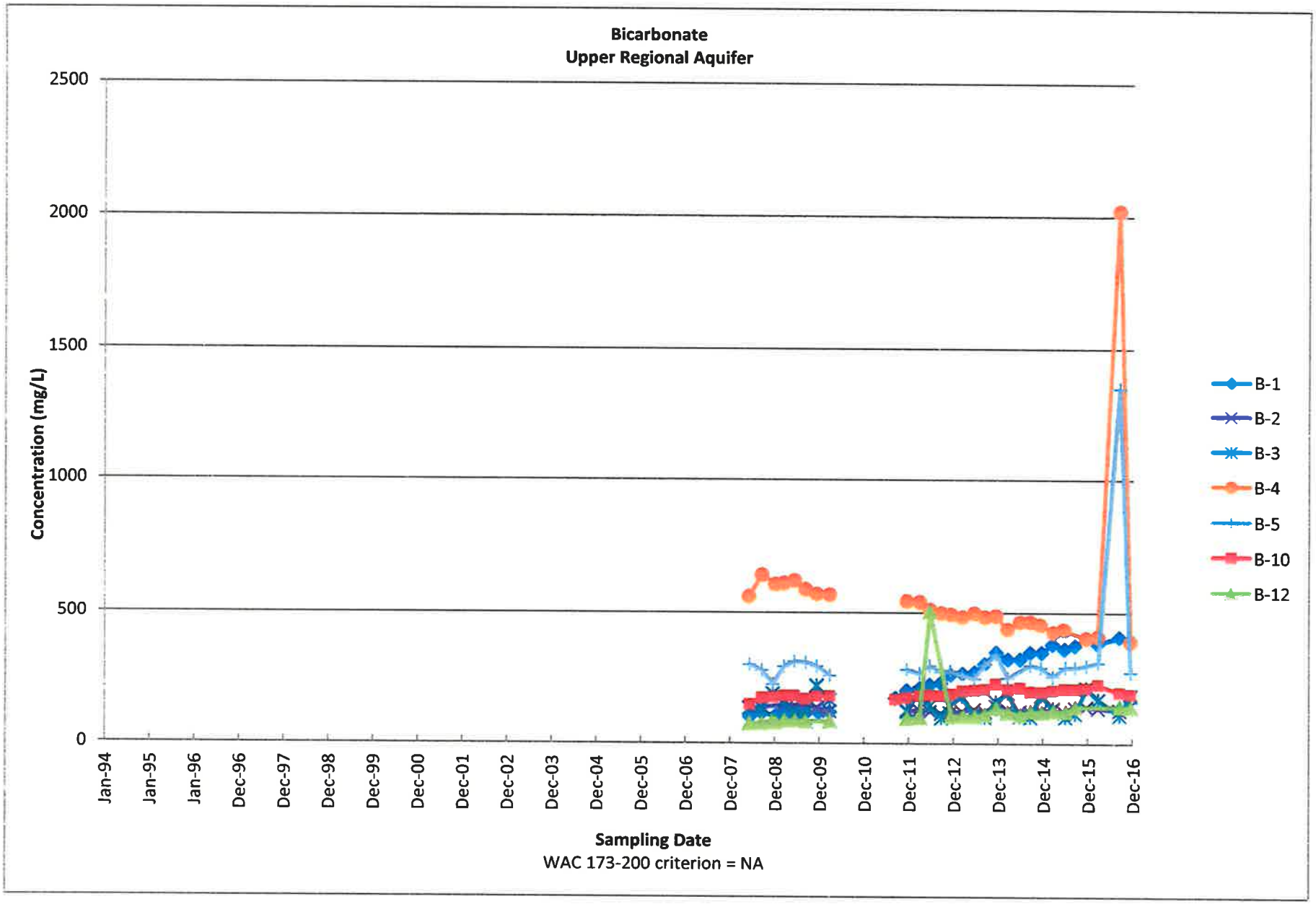

Acetone
Upper Regional Aquifer
Concentration (µg/L)
25
20
15
10
5
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-1
B-2
B-3
B-4
B-5
B-10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

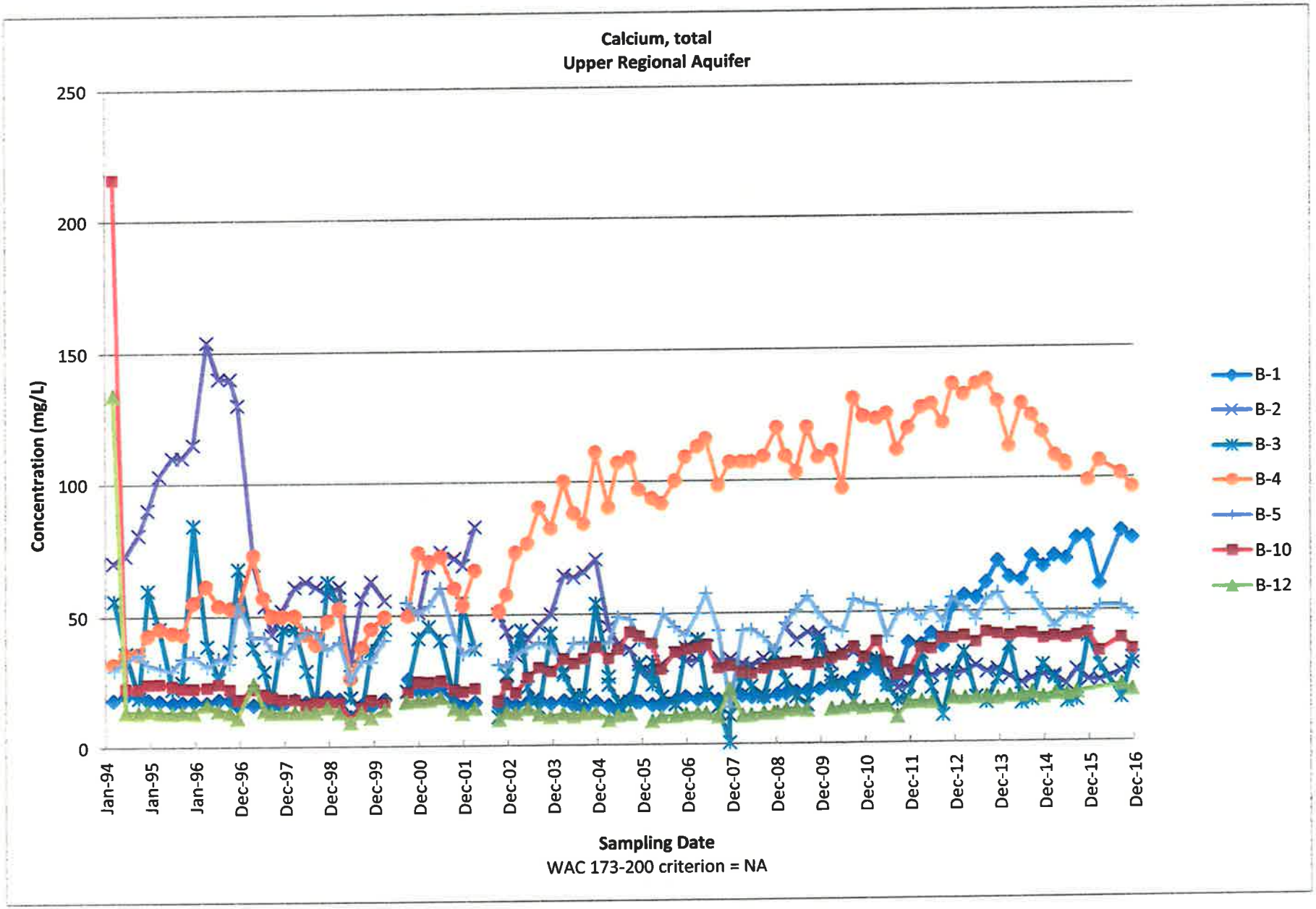

Alkalinity
Upper Regional Aquifer
2500
2000
1500
1000
500
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-1
B-2
B-3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

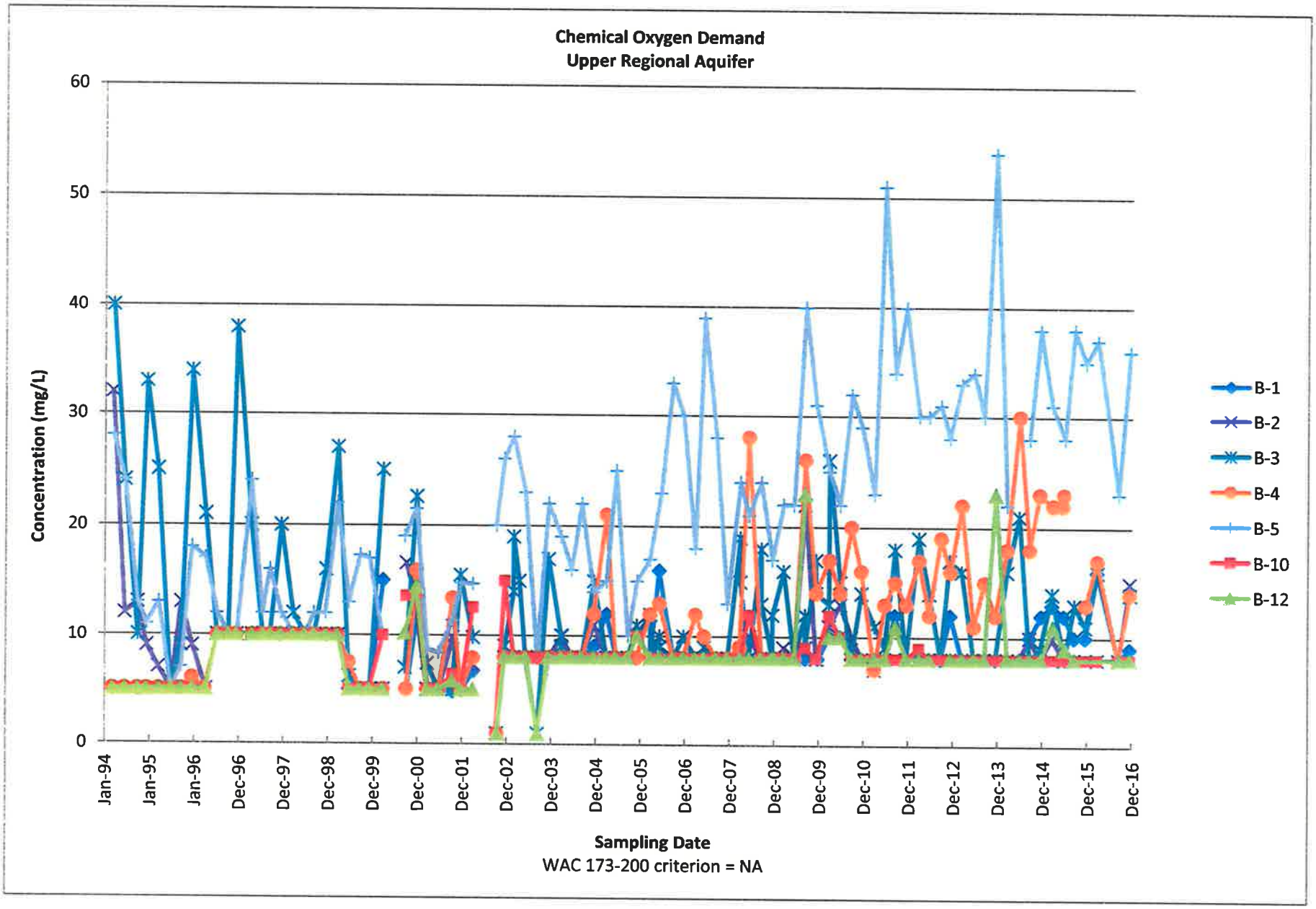

Ammonia as nitrogen
Upper Regional Aquifer
Concentration (mg/L)
0
1
2
3
4
5
6
7
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-1
B-2
B-3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

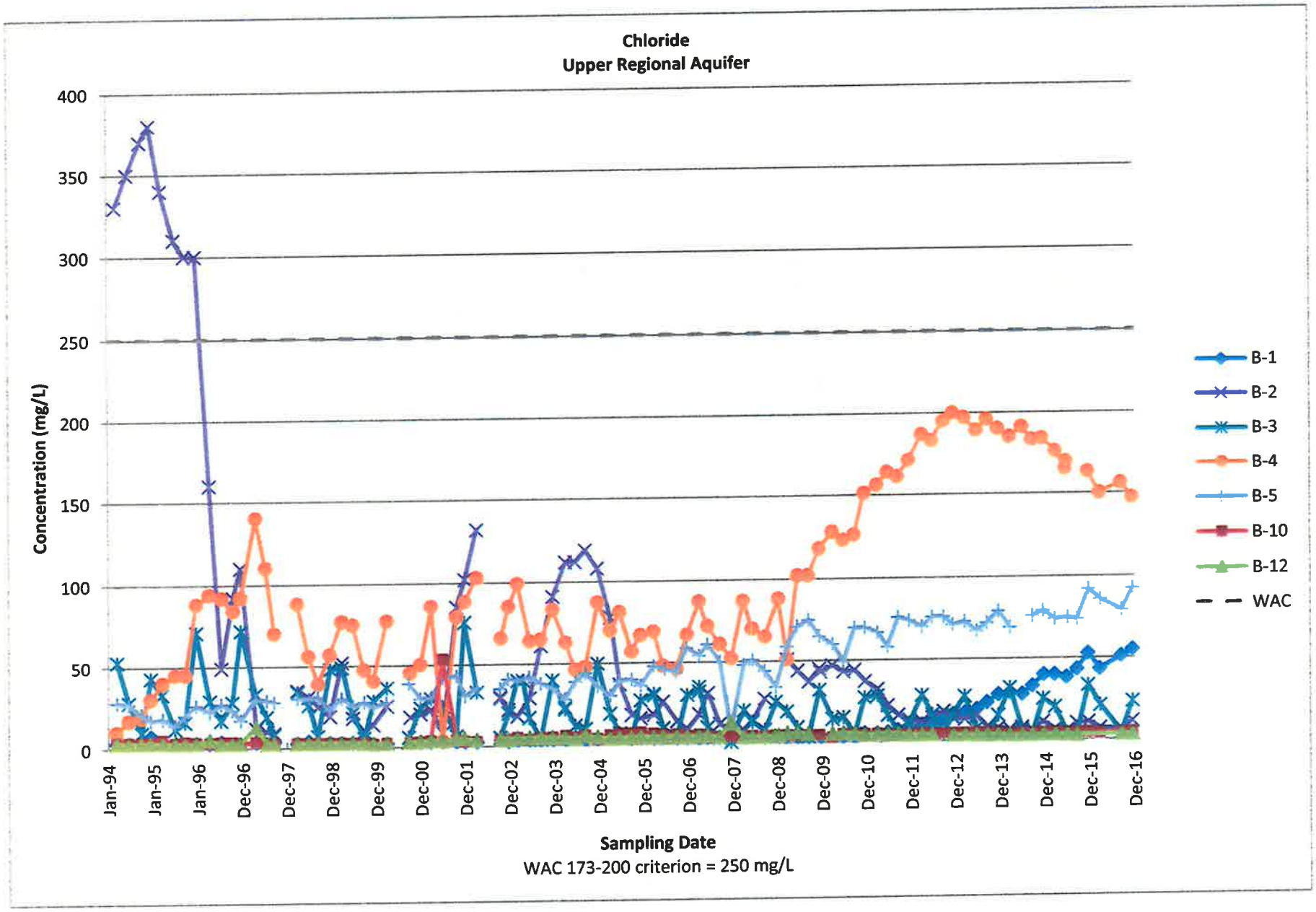

Arsenic, dissolved
Upper Regional Aquifer
0.12
0.1
0.08
0.06
0.04
0.02
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = 0.00005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

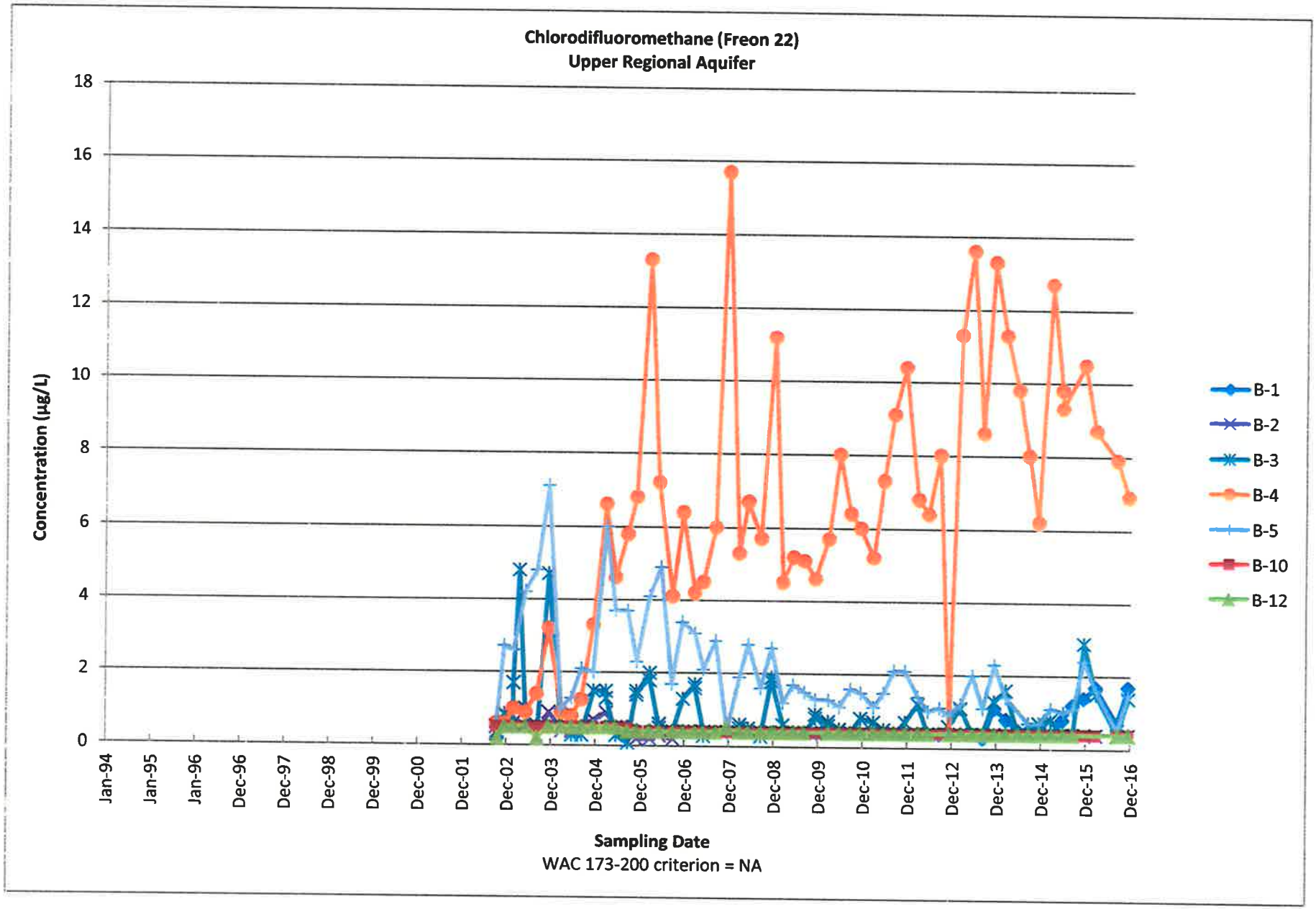

Barium, dissolved
Upper Regional Aquifer
Concentration (mg/L)
1.2
1
0.8
0.6
0.4
0.2
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-1
B-2
B-3
B-4
B-5
B-10
B-12
WAC
Sampling Date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

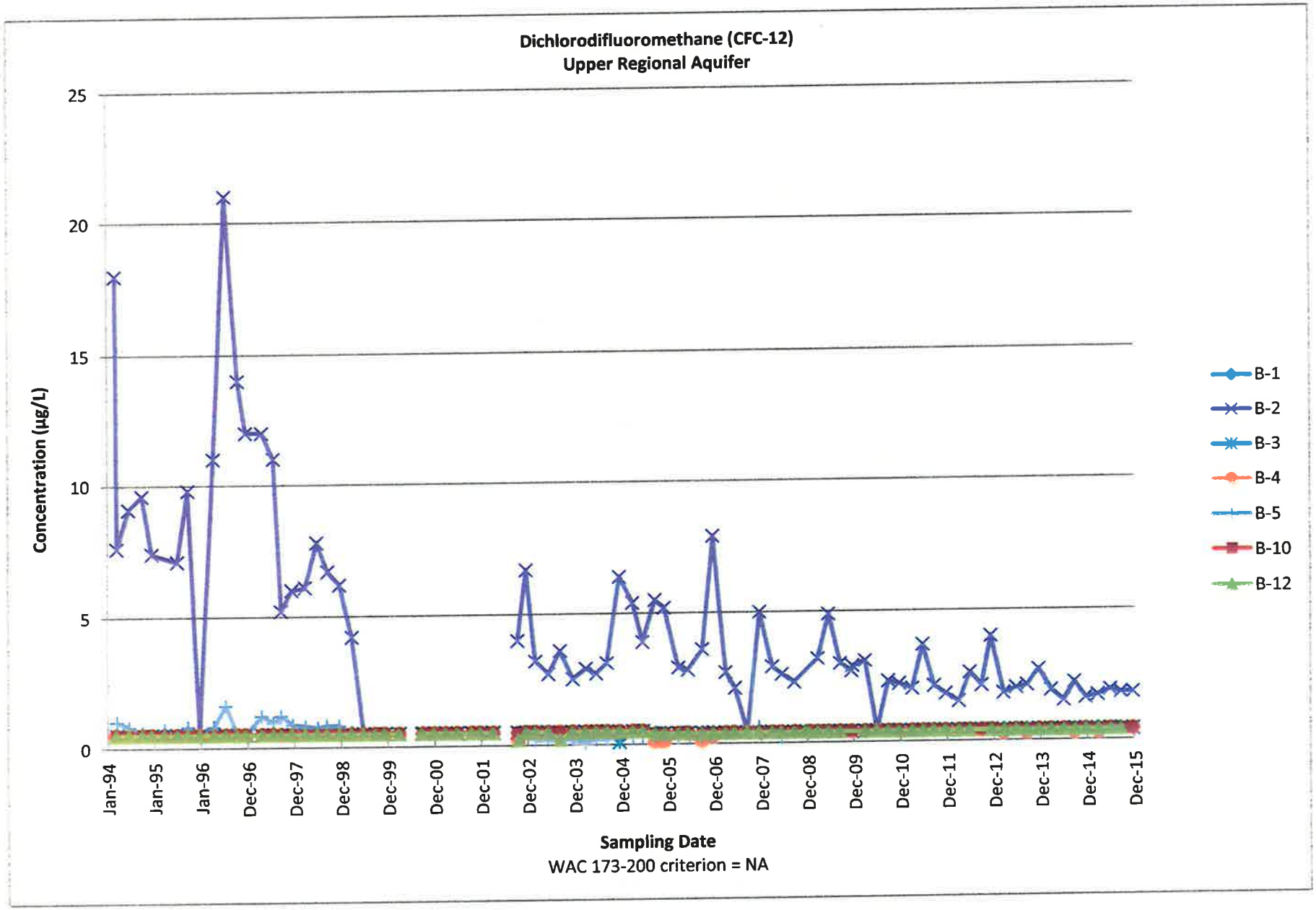

Bicarbonate
Upper Regional Aquifer
2500
2000
1500
1000
500
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-1
B-2
B-3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

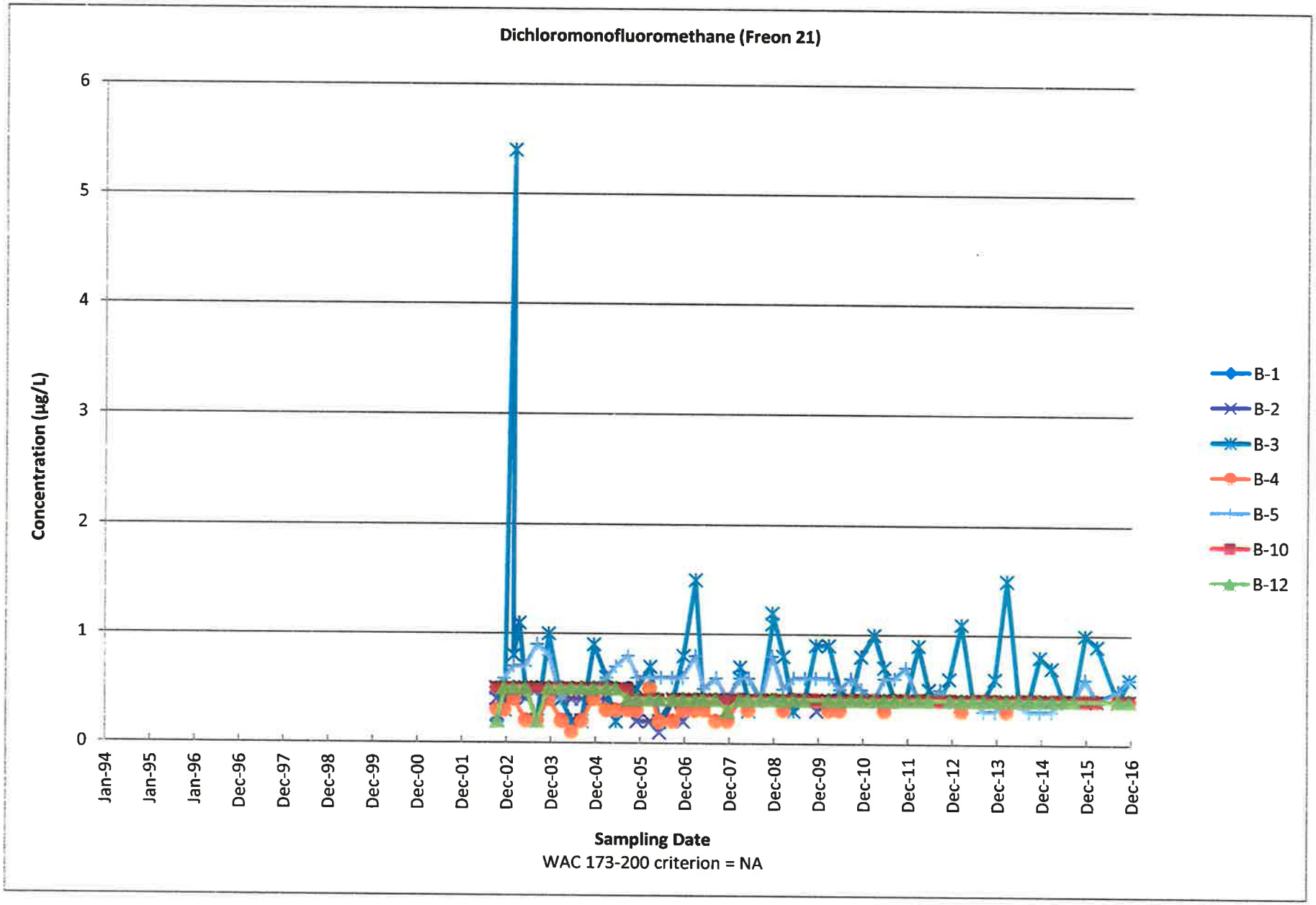

Calcium, total
Upper Regional Aquifer
Concentration (mg/L)
250
200
150
100
50
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-1
B-2
B-3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

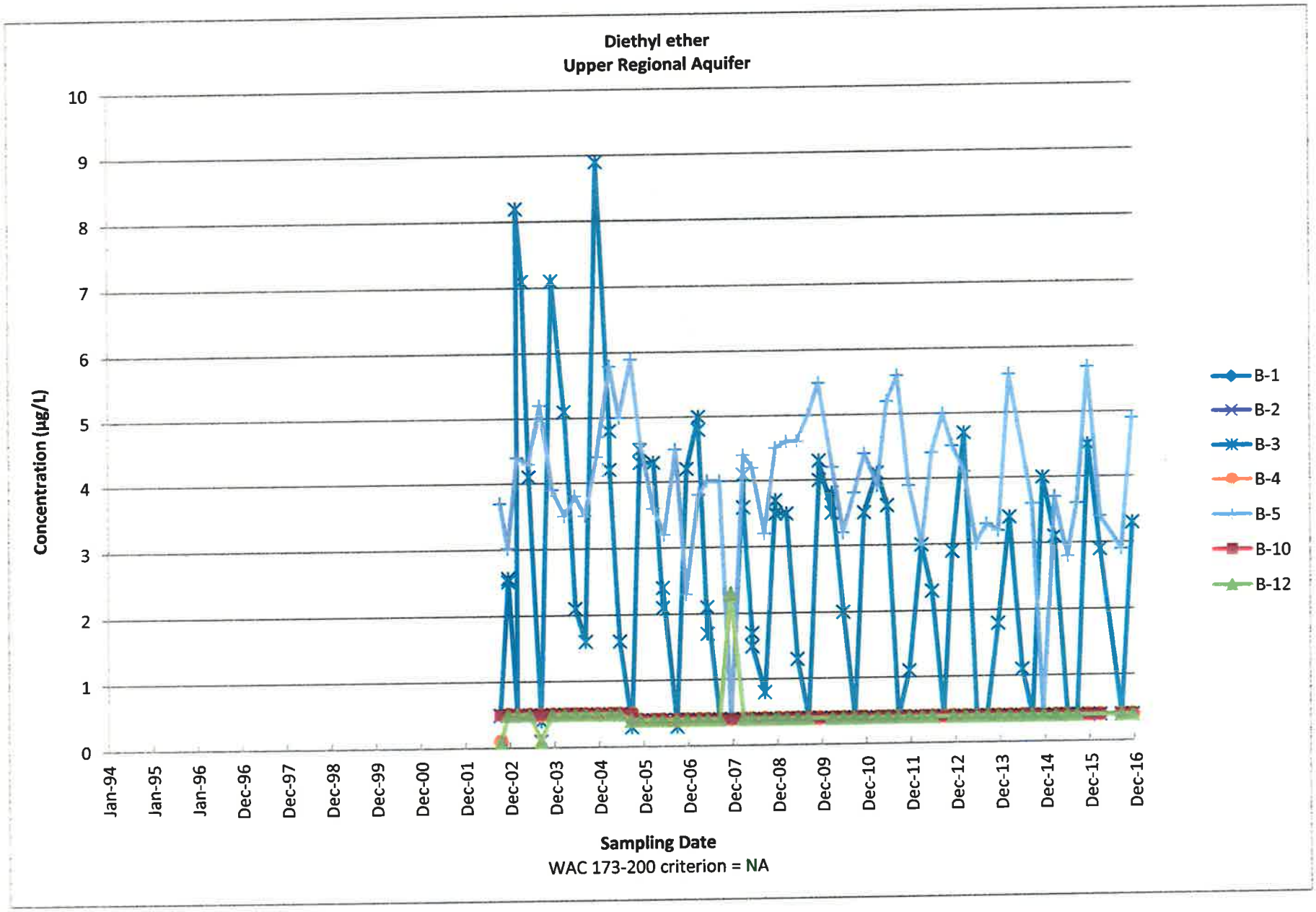

Chemical Oxygen Demand
Upper Regional Aquifer
Concentration (mg/L)
60
50
40
30
20
10
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-1
B-2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

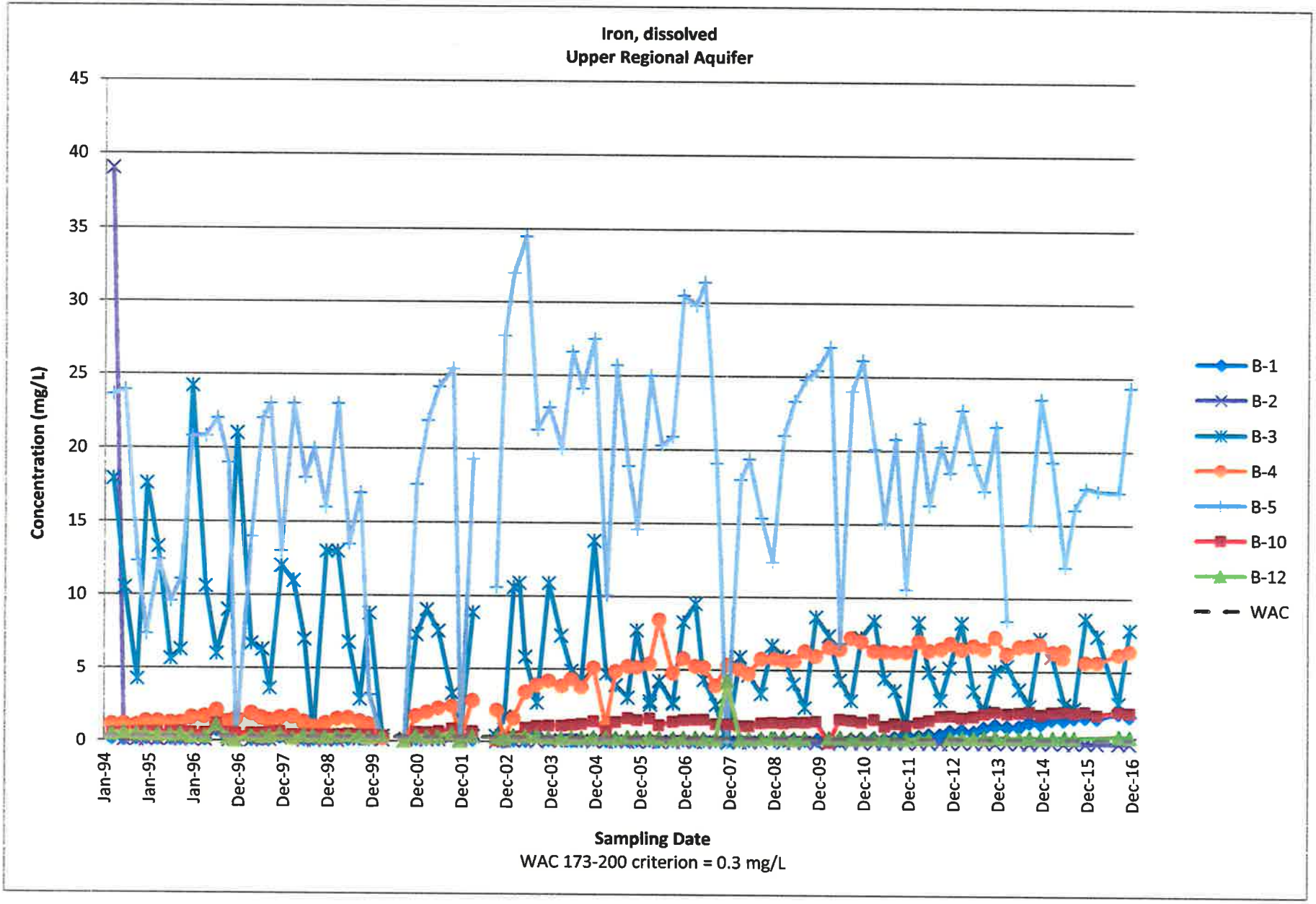

Chloride
Upper Regional Aquifer
Concentration (mg/L)
400
350
300
250
200
150
100
50
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = 250 mg/L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

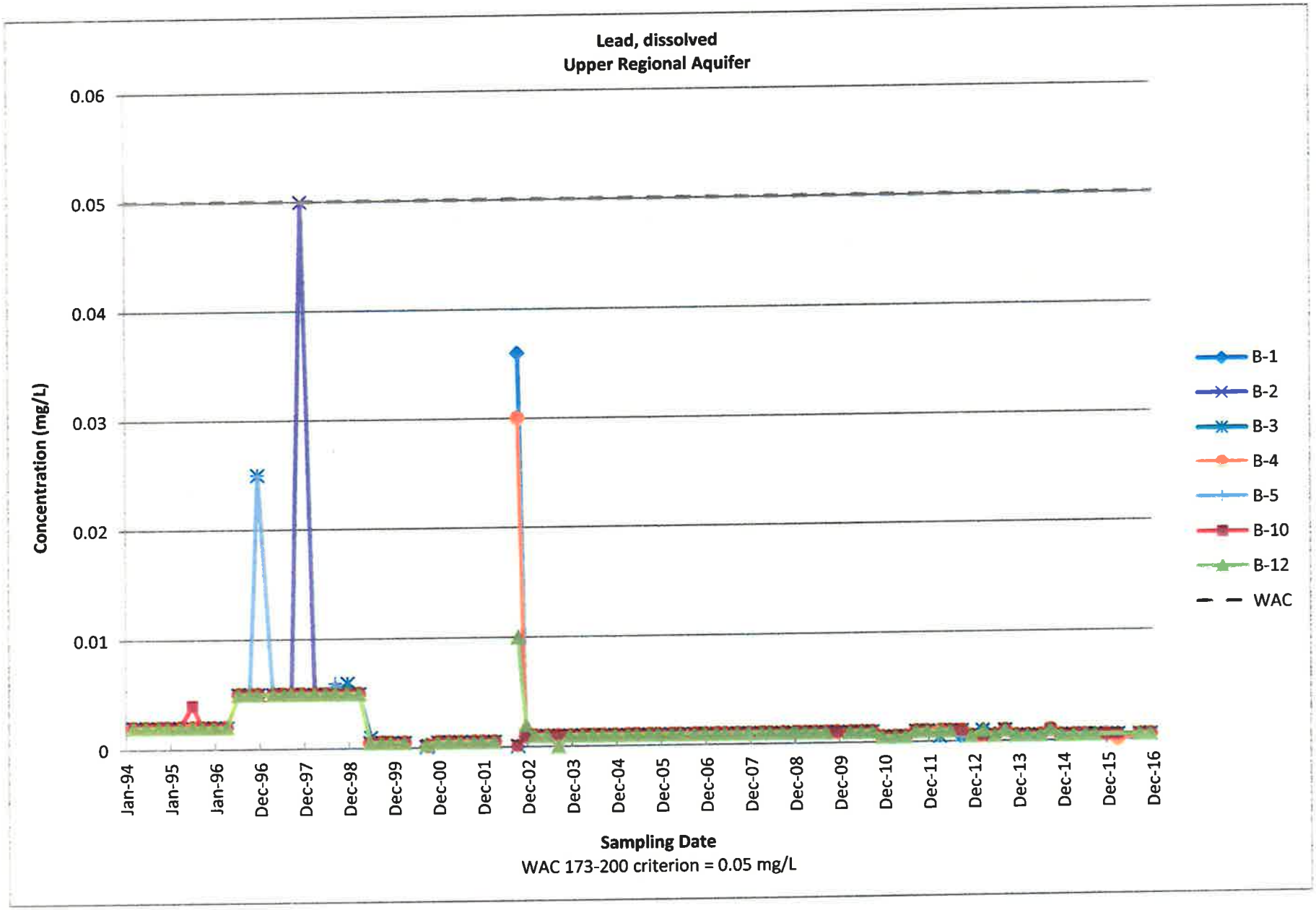

Chlorodifluoromethane (Freon 22)
Upper Regional Aquifer
Concentration (µg/L)
18
16
14
12
10
8
6
4
2
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion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

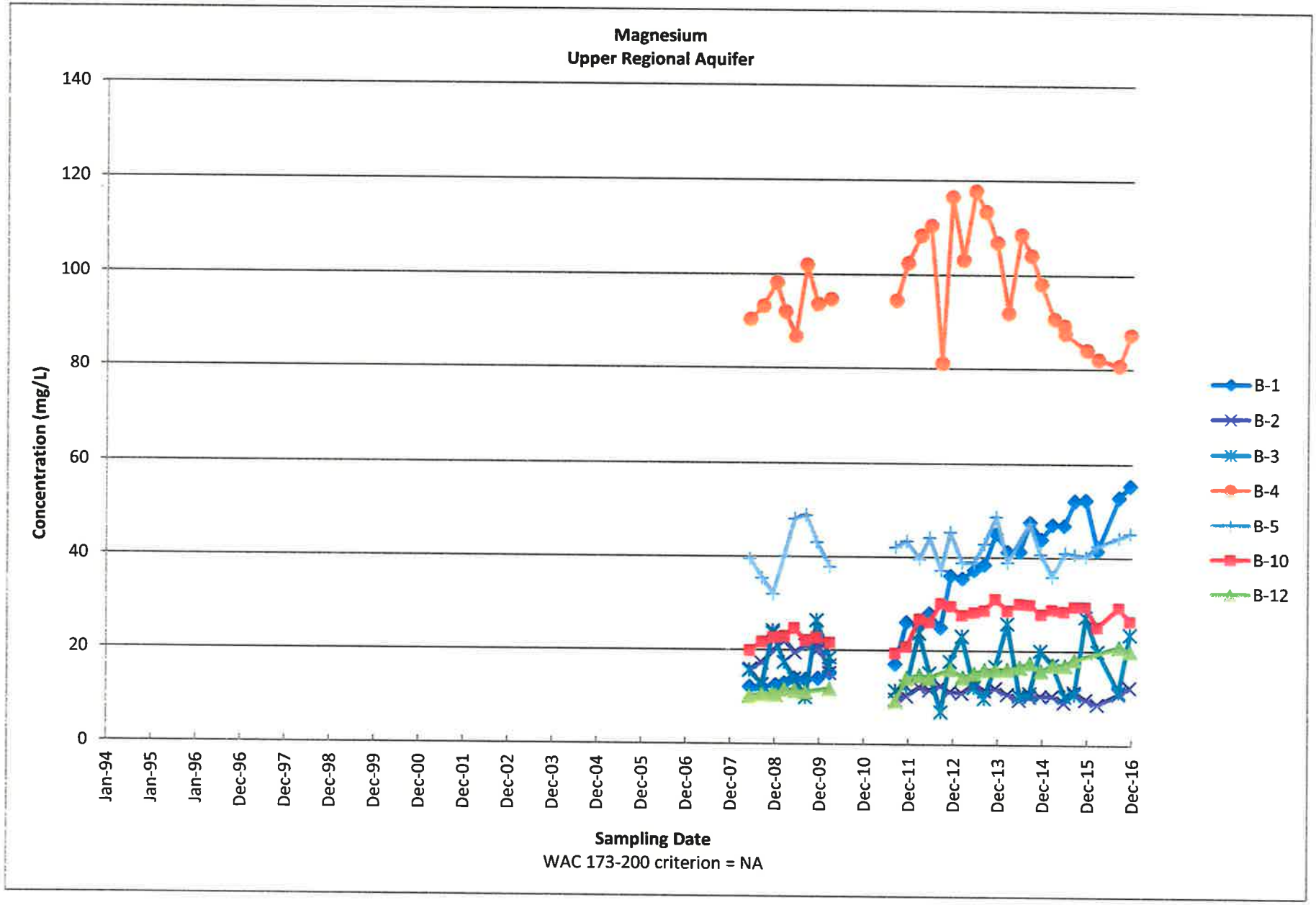

Dichlorodifluoromethane (CFC-12)
Upper Regional Aquifer
Concentration (µg/L)
25
20
15
10
5
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Sampling Date
WAC 173-200 criterion = NA
B-1
B-2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

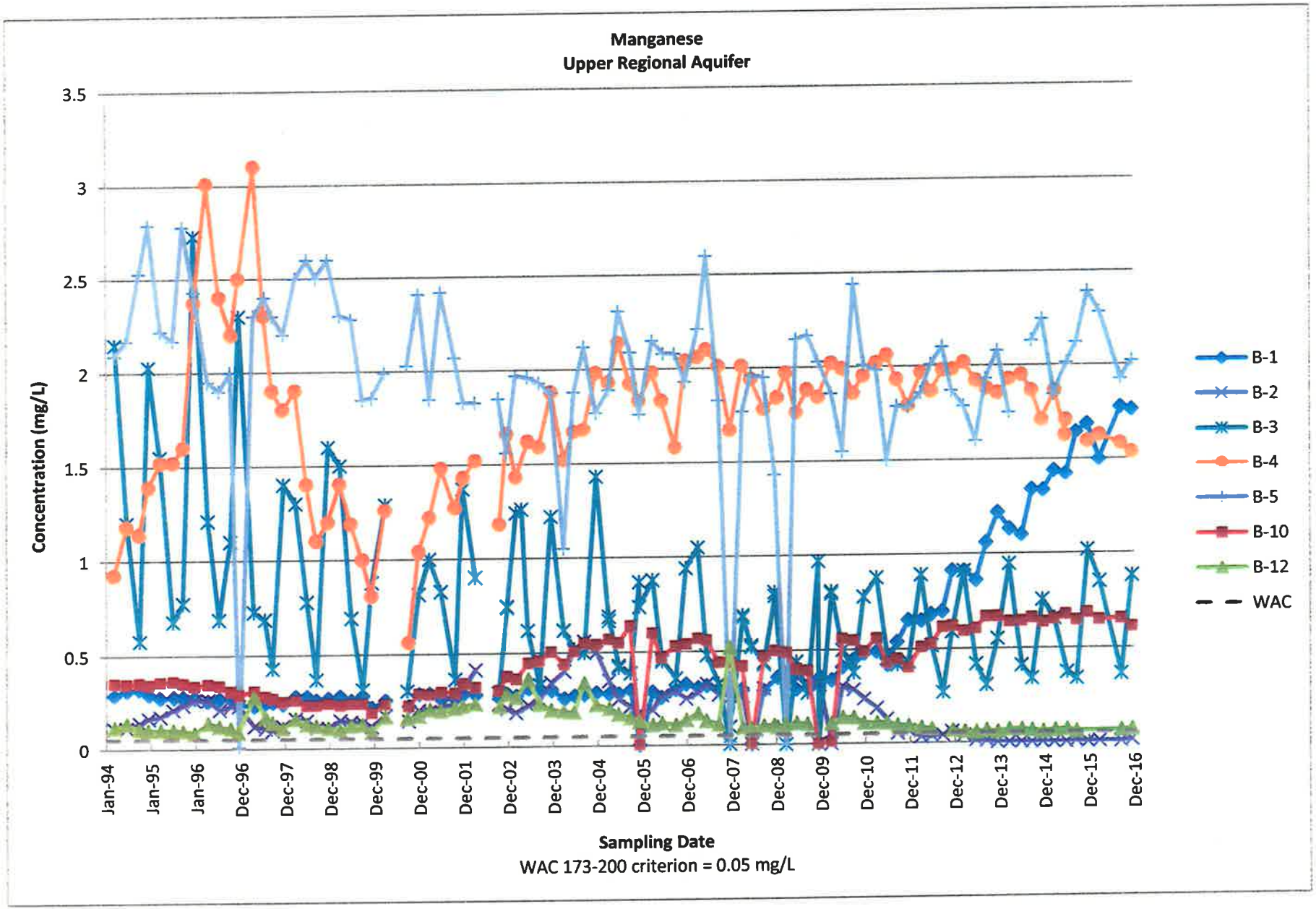

Dichloromonofluoromethane (Freon 21)
Concentration (µg/L)
0
1
2
3
4
5
6
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-1
B-2
B-3
B-4
B-5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

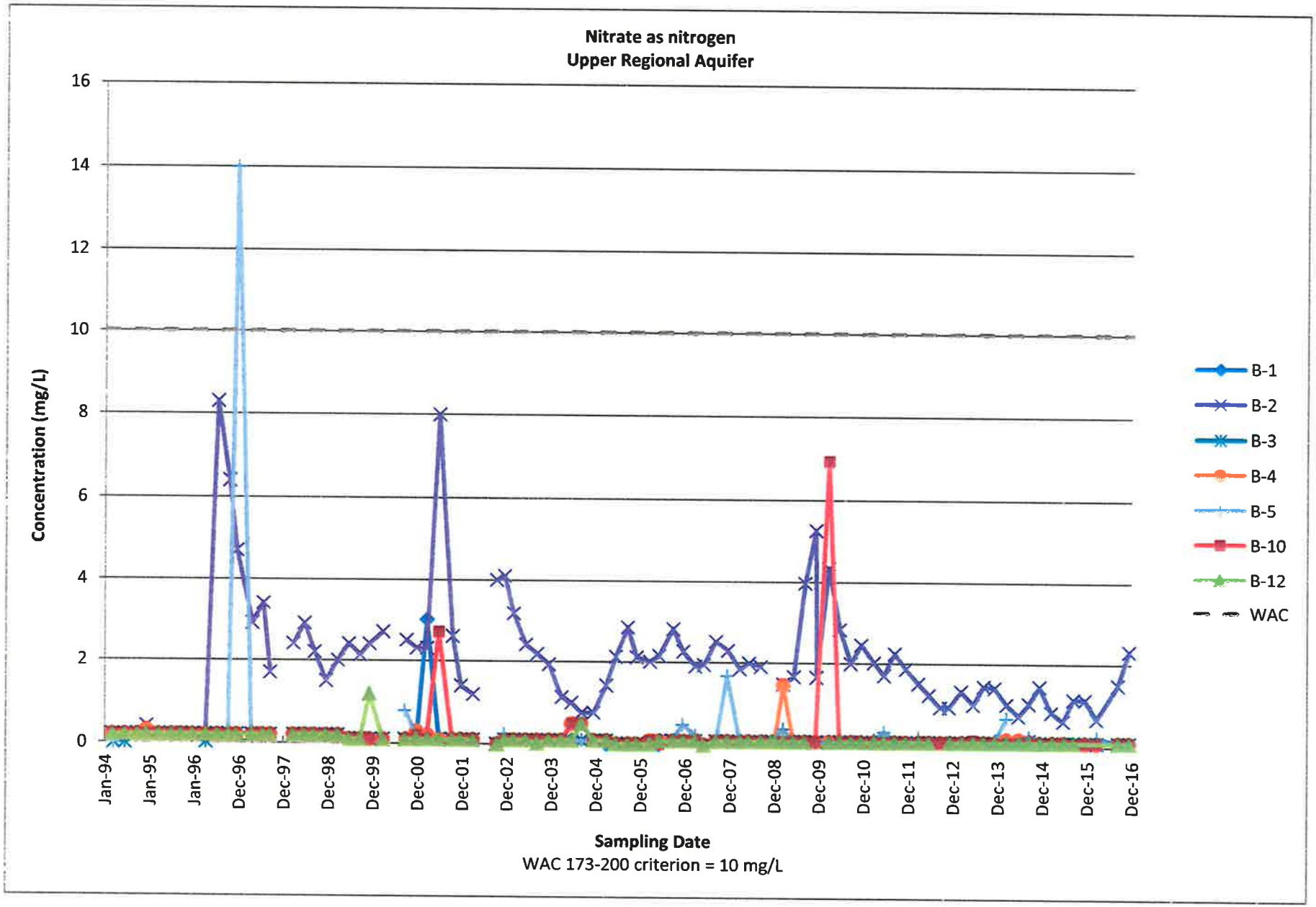

Diethyl ether
Upper Regional Aquifer
Concentration (µg/L)
10
9
8
7
6
5
4
3
2
1
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-1
B-2
B-3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

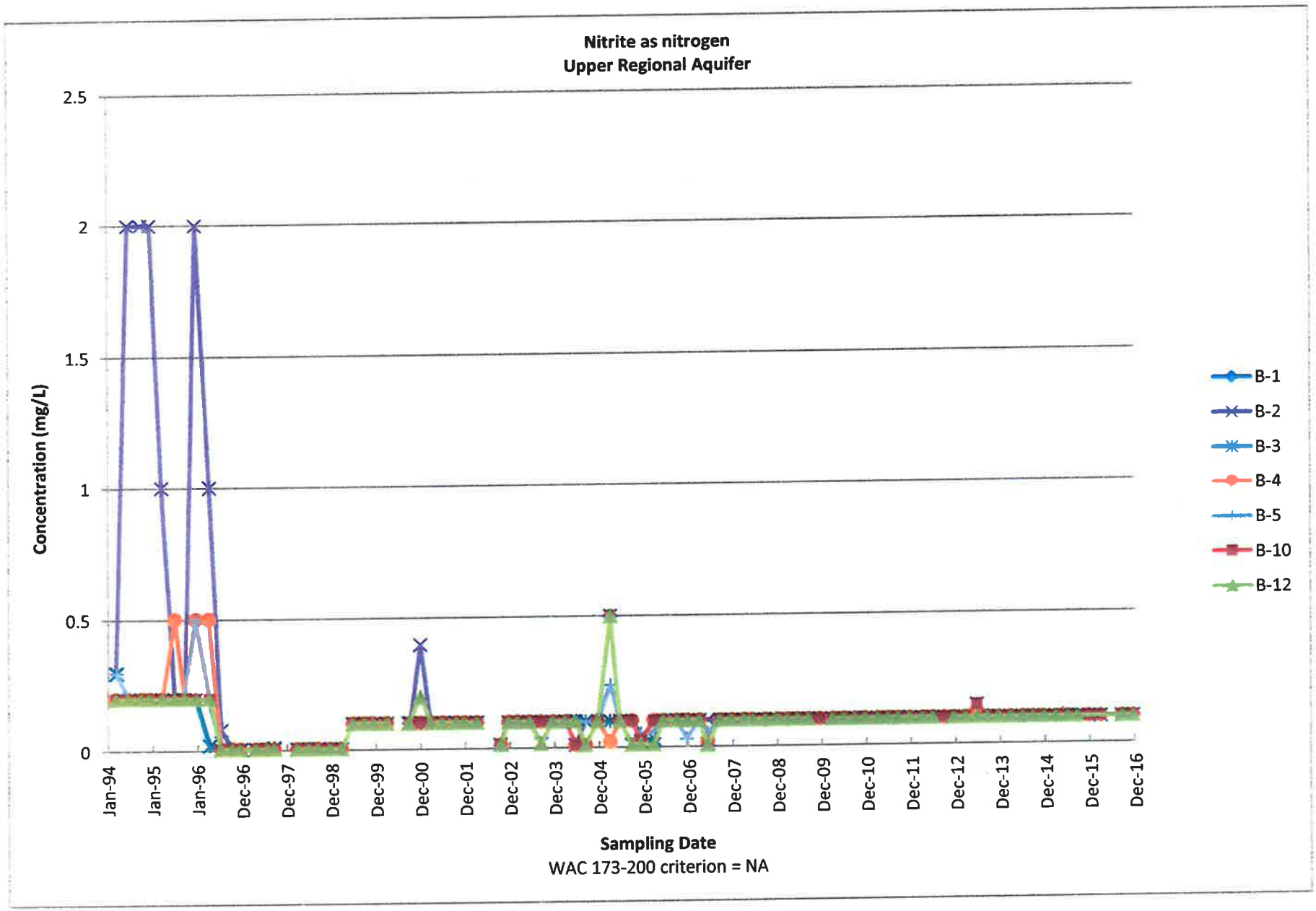

Iron, dissolved
Upper Regional Aquifer
Concentration (mg/L)
45
40
35
30
25
20
15
10
5
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = 0.3 mg/L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

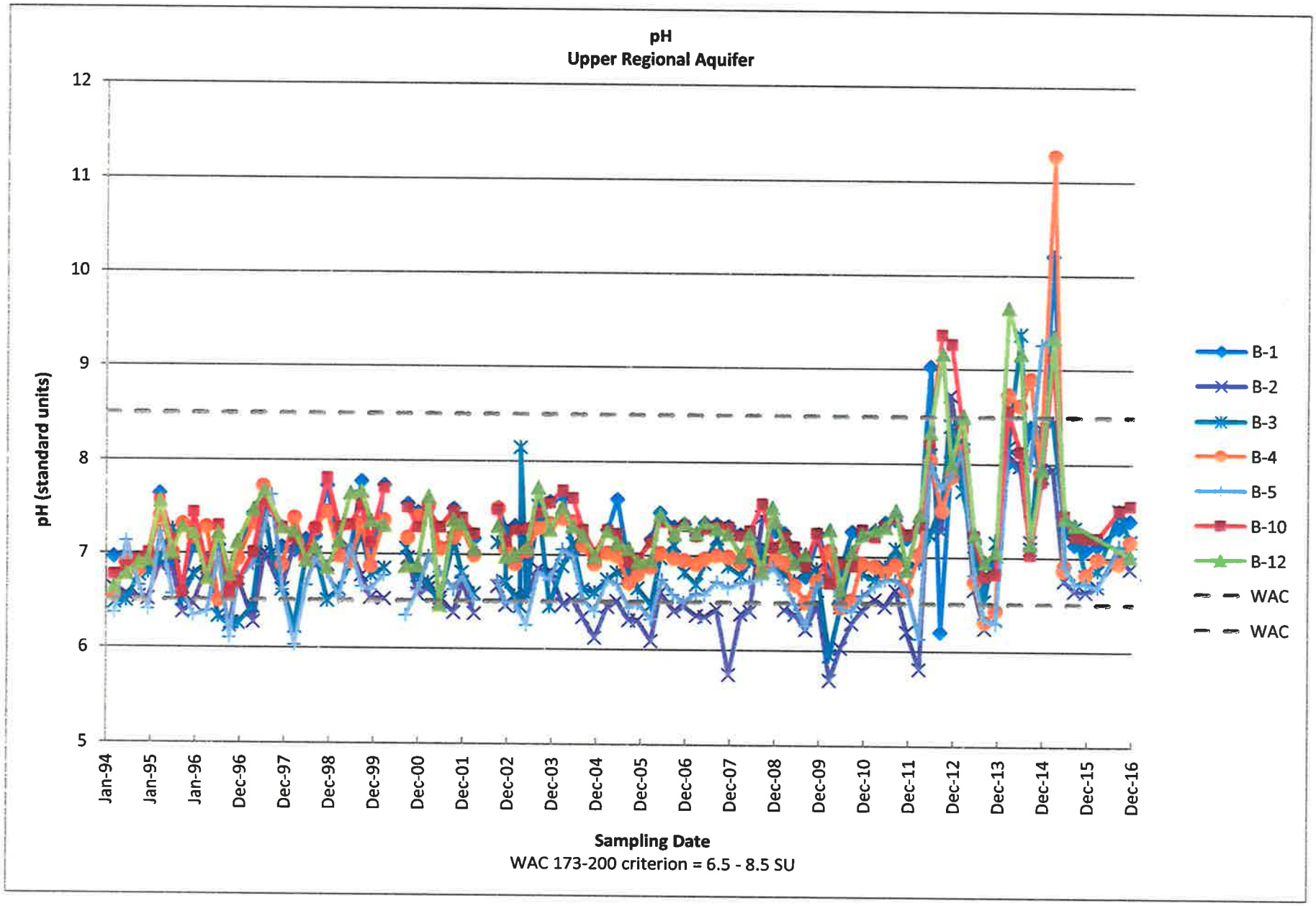

Lead, dissolved
Upper Regional Aquifer
Concentration (mg/L)
0.06
0.05
0.04
0.03
0.02
0.01
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = 0.05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

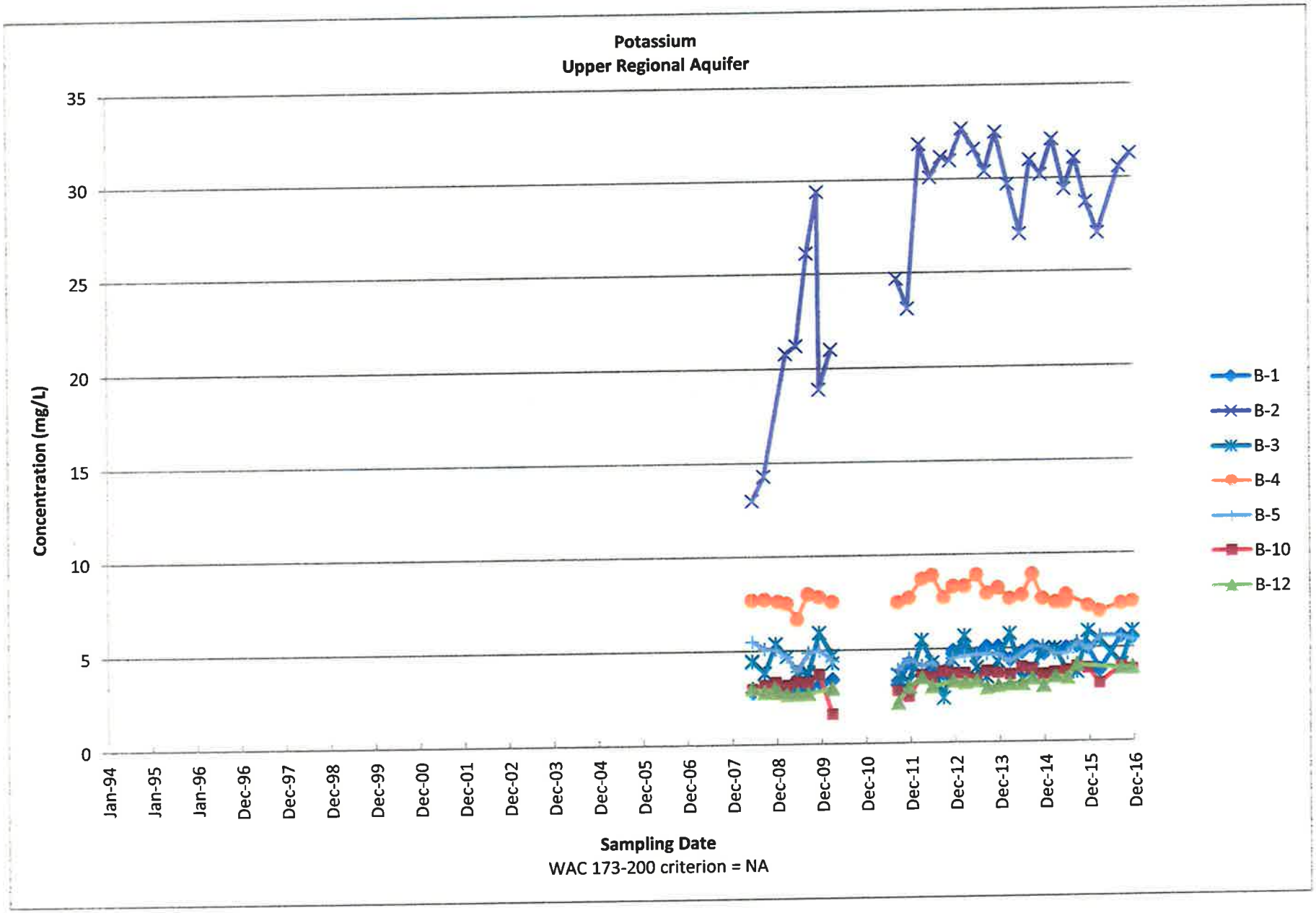

Magnesium
Upper Regional Aquifer
Concentration (mg/L)
140
120
100
80
60
40
20
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-1
B-2
B-3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

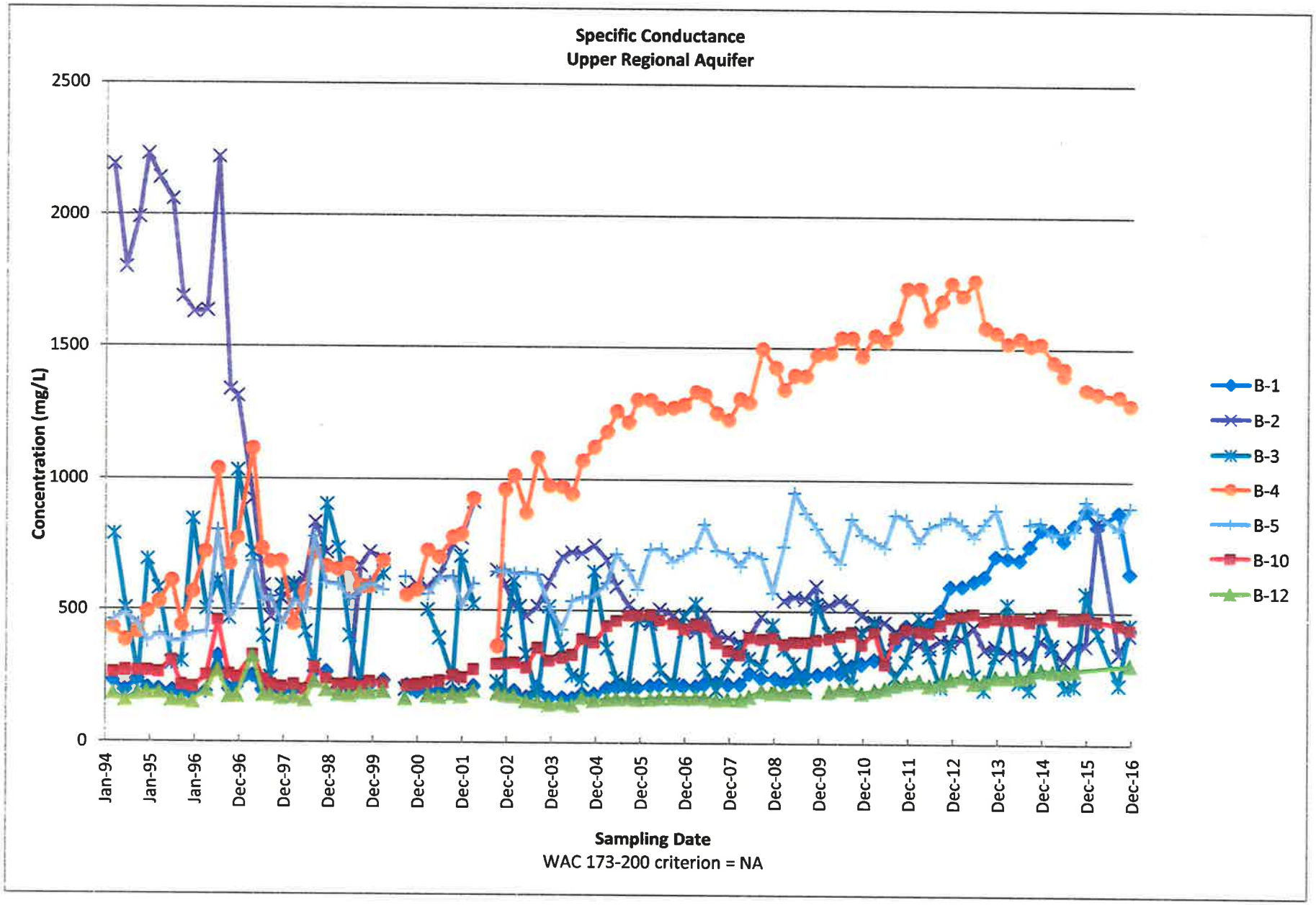

Manganese
Upper Regional Aquifer
Concentration (mg/L)
3.5
3
2.5
2
1.5
1
0.5
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = 0.05 mg/L
B-1
B-2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

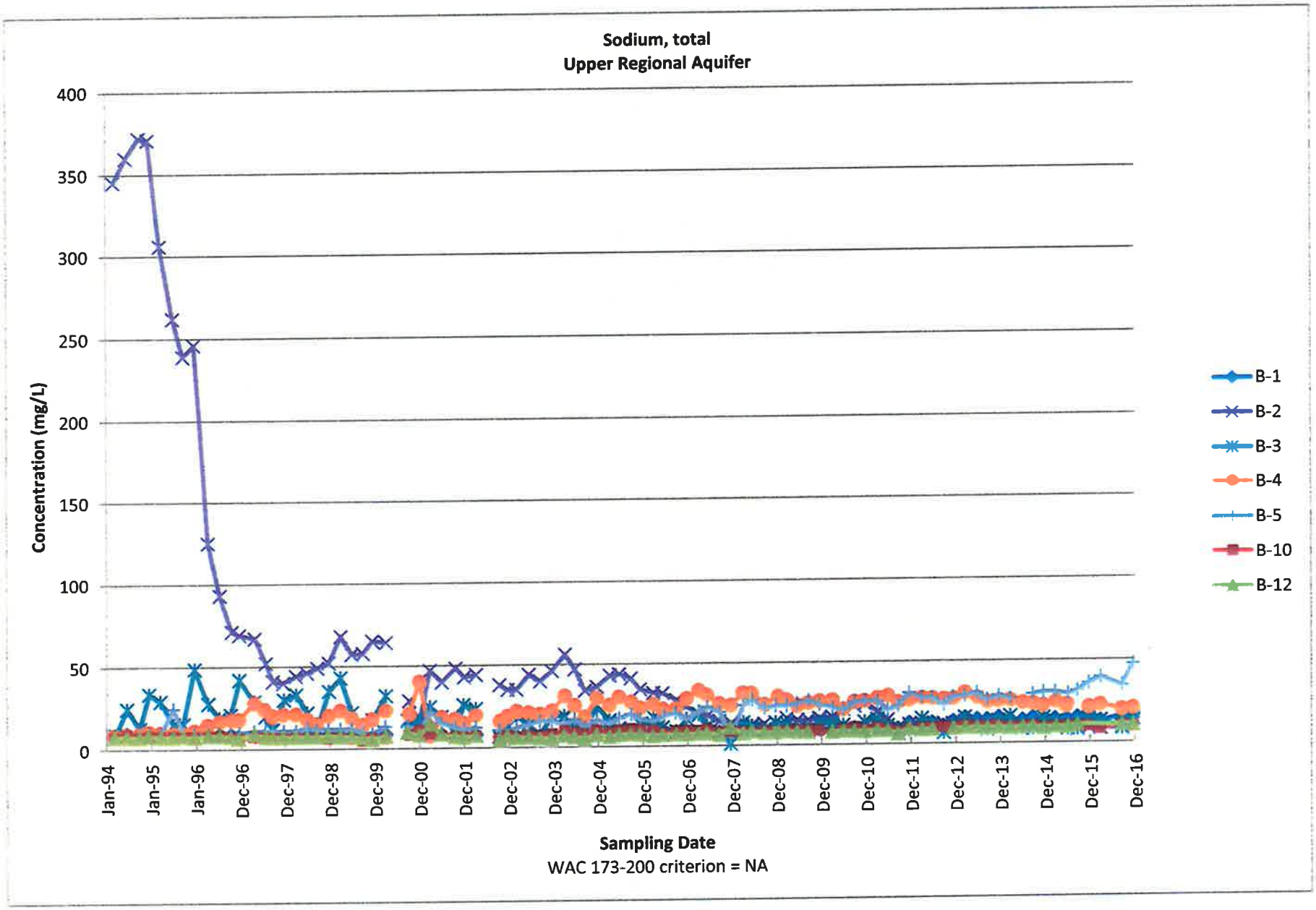

Nitrate as nitrogen
Upper Regional Aquifer
Concentration (mg/L)
16
14
12
10
8
6
4
2
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
B-1
B-2
B-3
B-4
B-5
B-10
B-12
WAC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

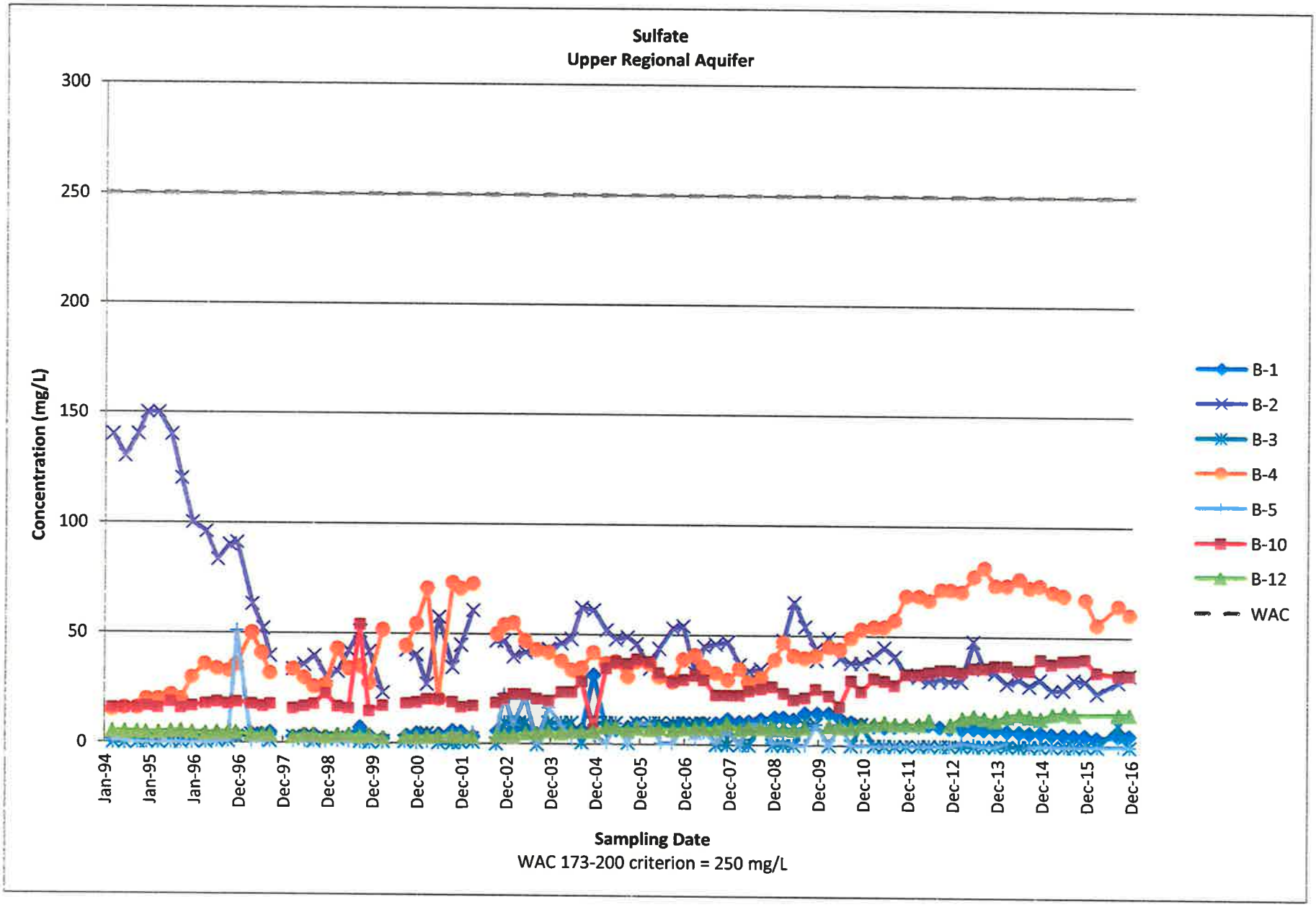

Nitrite as nitrogen
Upper Regional Aquifer
Concentration (mg/L)
2.5
2
1.5
1
0.5
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
B-1
B-2
B-3
B-4
B-5
B-10
B-12
Sampling Date
WAC 173-200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

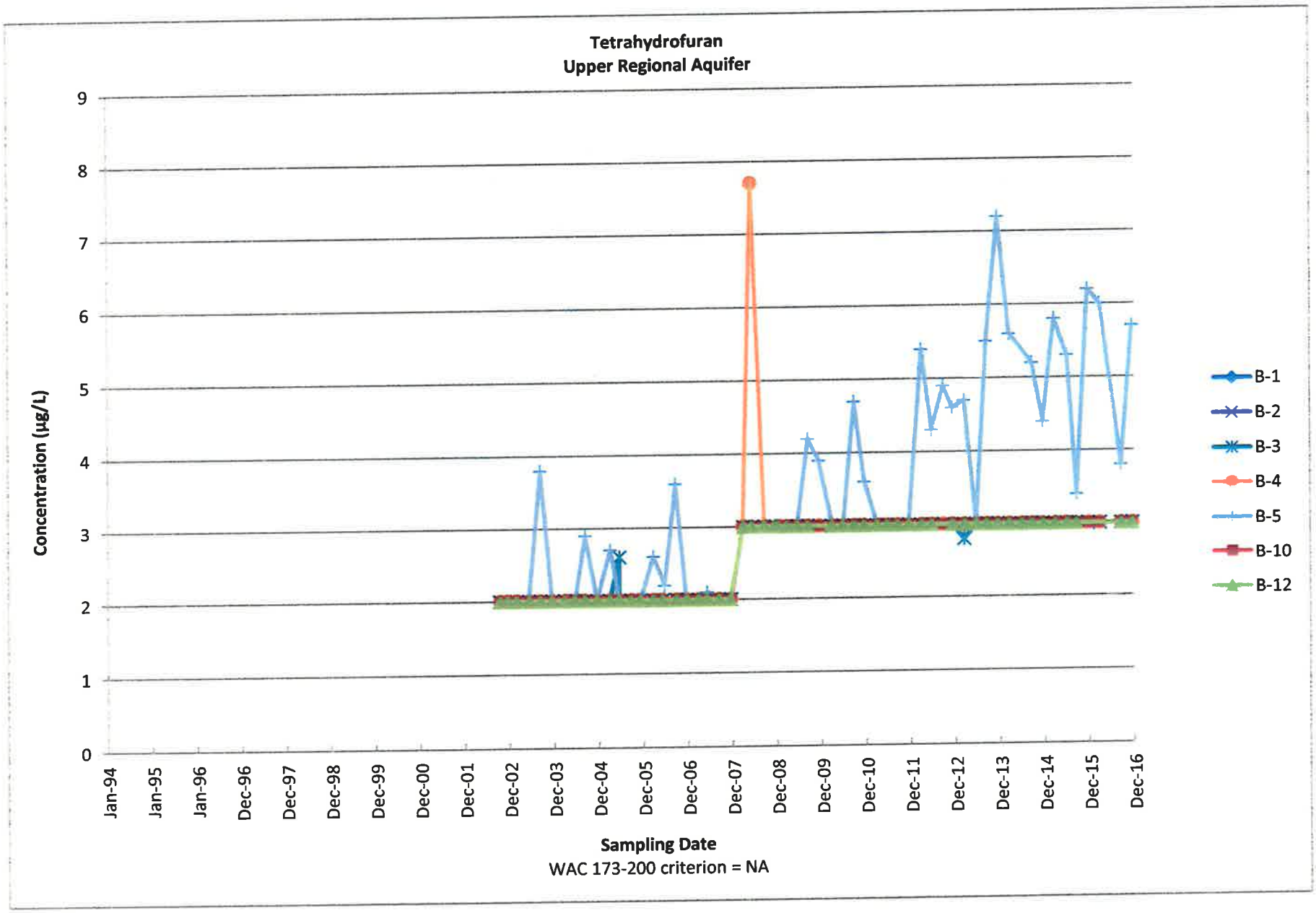

pH
Upper Regional Aquifer
pH (standard units)
12
11
10
9
8
7
6
5
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = 6.5 - 8.5 SU
B-1
B-2
B-3
B-4
B-5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

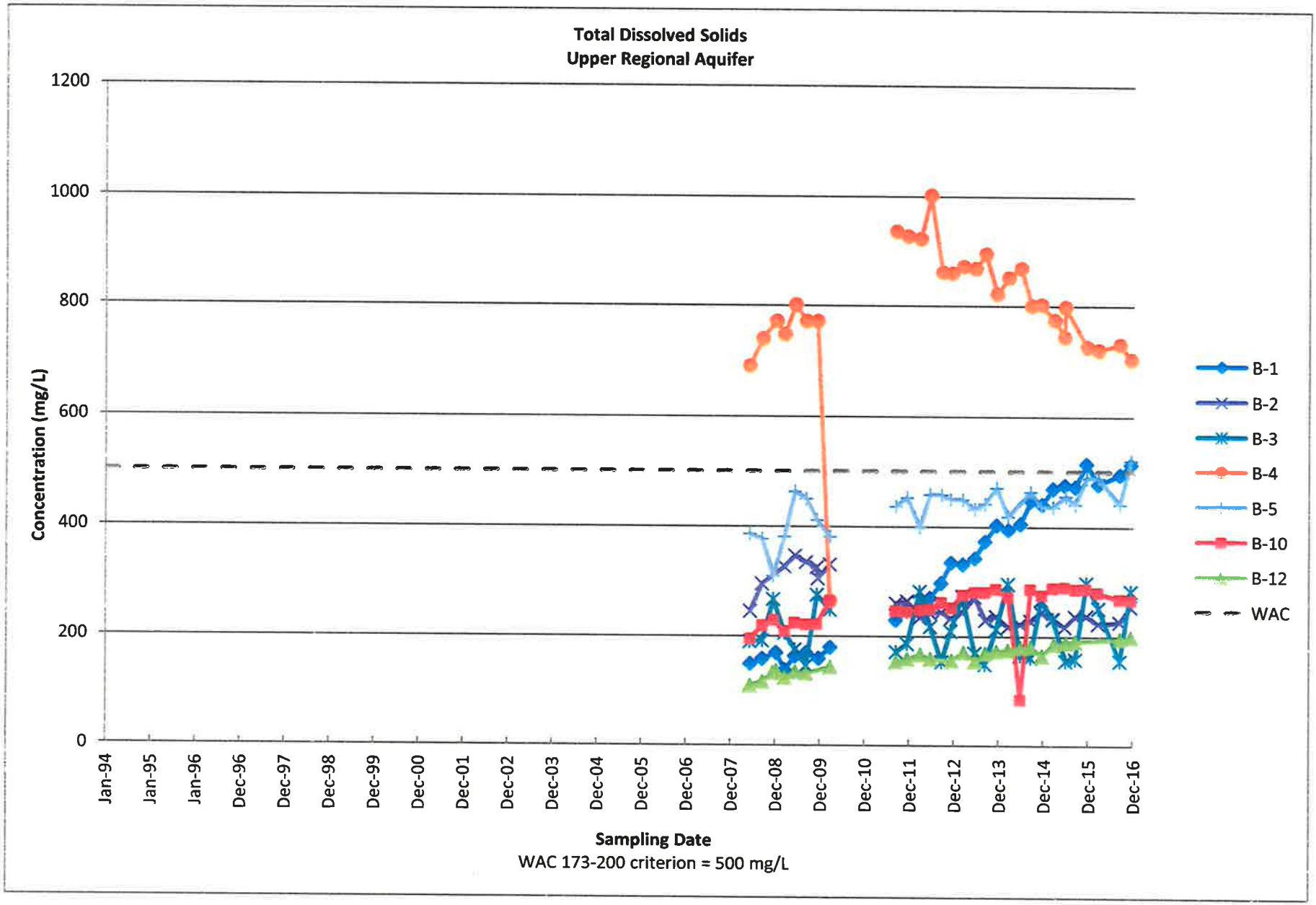

Potassium
Upper Regional Aquifer
Concentration (mg/L)
35
30
25
20
15
10
5
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-1
B-2
B-3
B-4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

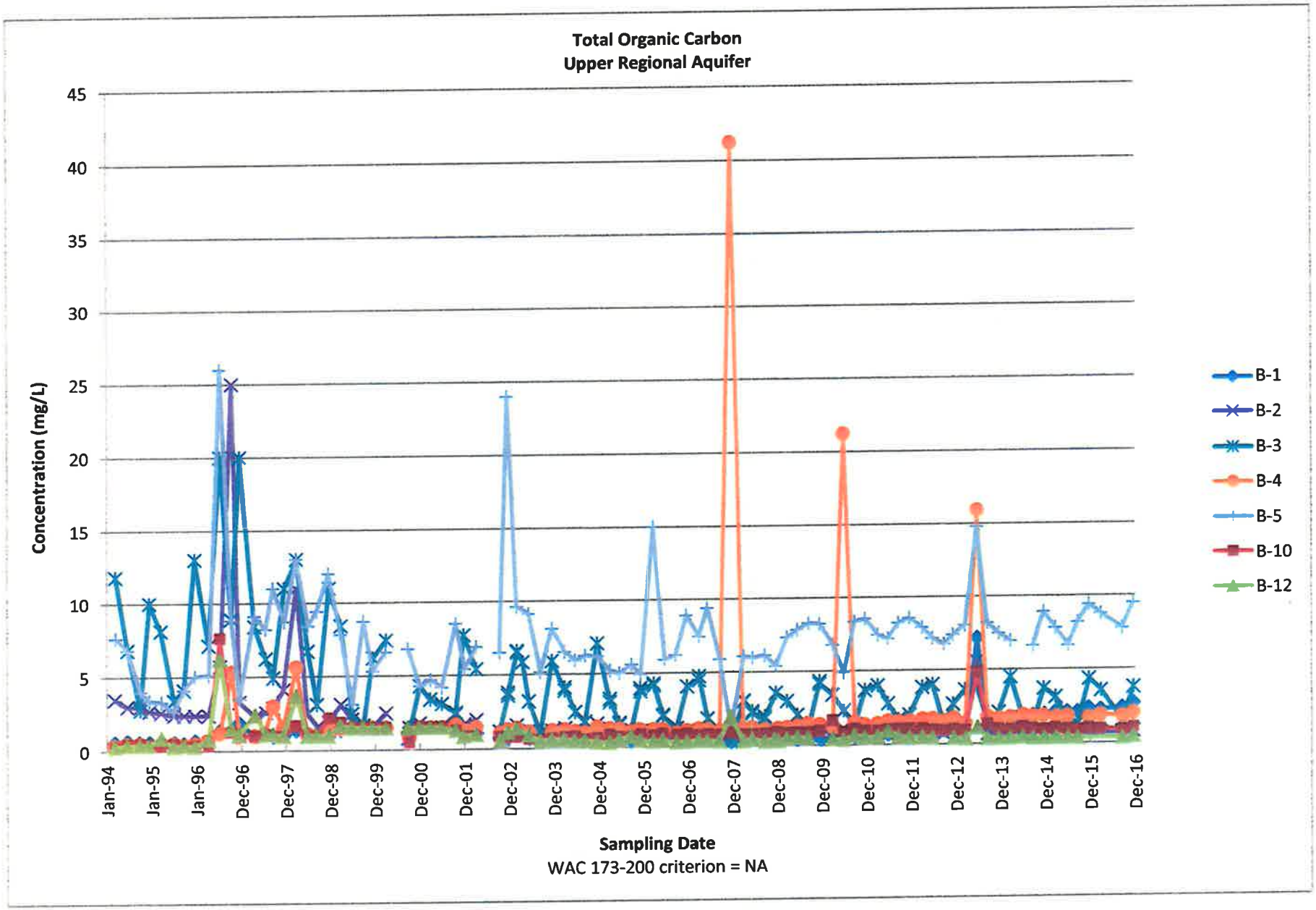

Specific Conductance
Upper Regional Aquifer
2500
2000
1500
1000
500
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-1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

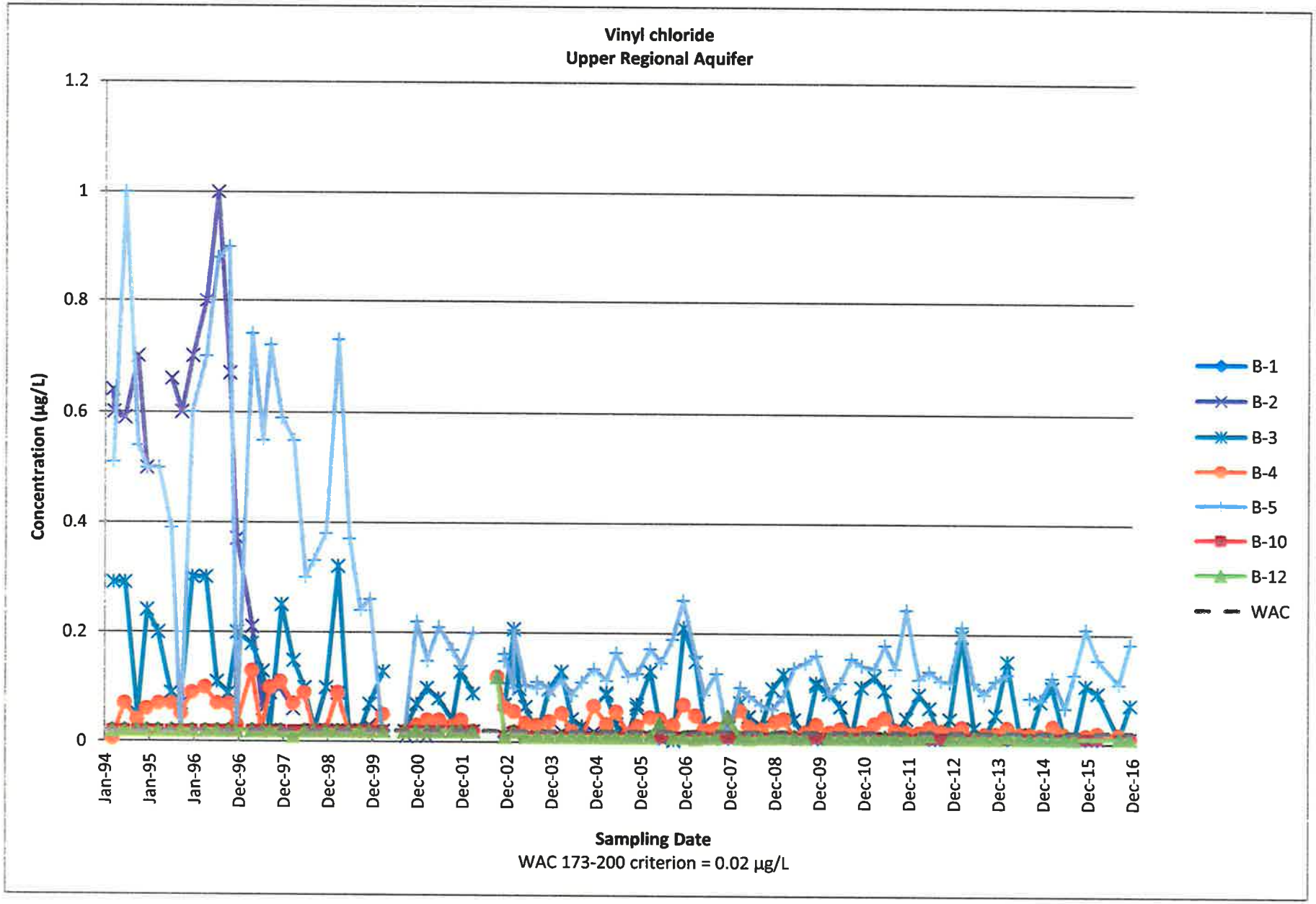

Sodium, total
Upper Regional Aquifer
Concentration (mg/L)
400
350
300
250
200
150
100
50
0
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = NA
B-1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

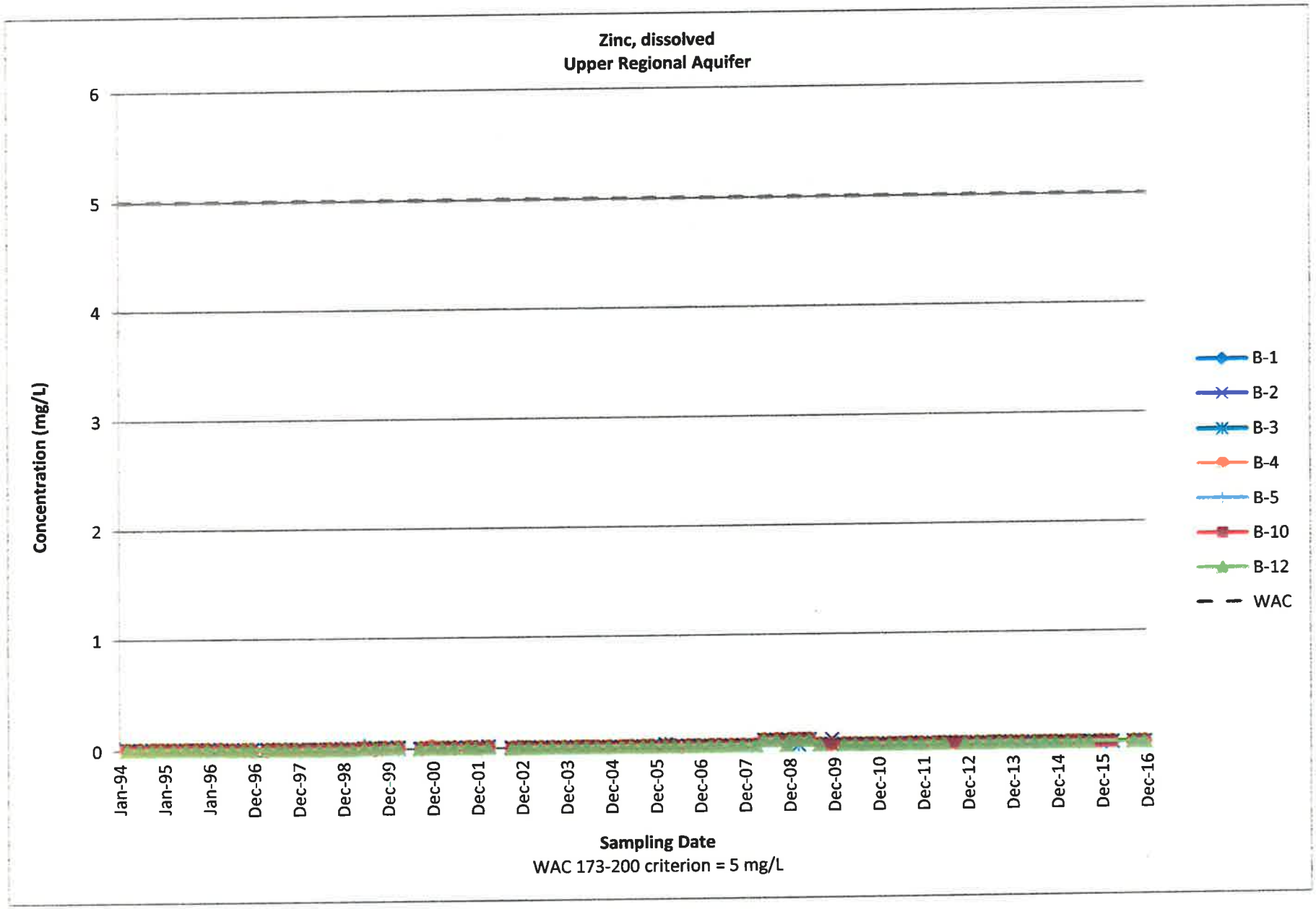

Sulfate
Upper Regional Aquifer
300
250
200
150
100
50
0
Concentration (mg/L)
Jan-94
Jan-95
Jan-96
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Sampling Date
WAC 173-200 criterion = 250 mg/L
B-1
B-2
B-3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


Total Dissolved Solids
Upper Regional Aquifer
1200
1000
800
600
400
200
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 = 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
Sampling Date
WAC 173-200 criterion = NA
B-1
B-2
B-3
B-4
B-5
B-10
B-12


Vinyl chloride
Upper Regional Aquifer
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
Sampling Date
WAC 173-200 criterion = 0.02 µg/L
B-1
B-2
B-3
B-4
B-5
B-10
B-12
WAC


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
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 2016

INMAN LANDFILL FOURTH QUARTER 2016 MONITORING EVENT
DATA VALIDATION REPORT

1. INTRODUCTION

This report presents the results of data validation for laboratory reports16-30366, 16-30497, and 16-30622 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	2741	55068	16-30366	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 Gamma: E901.1
B-2	2742	55443	16-30366	
B-3	2743	55444	16-30497	
B-3 Duplicate	2744	55445	16-30497	
B-4	2745	55071	16-30622	
B-5	2746	55446	16-30497	
B-6	2747	55069	16-30366	
Field Blank	2748	56302	16-30622	
B-8	2749	55447	16-30497	
B-9	2750	55070	16-30622	
B-10	2751	56300	16-30622	
B-11	2752	56301	16-30622	
B-12	2753	56299	16-30497	

The samples were collected on December 12, 13, and 14, 2016.

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.

2.8 Gamma

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.

3.8 Gamma

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.

4.8 Gamma

No information was provided regarding a method blank for gamma analysis.

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

There are three analytes that did not meet the recovery limits of 80-120% in the laboratory fortified blank including 2-butanone, 2-hexanone, and pentachloroethane. These recoveries were flagged that the low or high recoveries cannot be accounted for but there is adequate sensitivity to detect the compound at the lower PQL. There weren't any sample detections so no further action for this analysis batch.

5.7 Properties

Goals for LCS recovery were met.

5.8 Gamma

No information was provided regarding a laboratory fortified blank for gamma analysis.

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.

6.8 Gamma

No information was provided regarding laboratory duplicate precision for gamma analysis.

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE ANALYSIS

7.1 Dissolved Metals

The matrix spike (MS) recovery for calcium was above the 70-130% recovery limits. The recovery was flagged that the ratio of the spike concentration to sample background was too low to meet performance criteria. No further action was taken on the data set.

The matrix spike and matrix spike duplicate (MS/MSD) analyses were in control for all other 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 matrix spike (MS) recovery for ammonia-nitrogen was above the 70-130% recovery limits. The recovery was flagged that the ratio of the spike concentration to sample background was too low to meet performance criteria. No further action was taken on the data set.

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 (2743)	B-3 Duplicate (2744)	RPD (%)
Dissolved Metals (mg/L)			
Arsenic	0.005	0.004	**22.2**
Barium	0.143	0.146	2.1
Iron	7.86	7.78	1.0
Manganese	0.88	0.86	2.3
Nickel	0.002	0.002	0.0
Vanadium	0.001	0.001	0.0
Total Metals (mg/L)			
Calcium	31.7	31.9	0.6
Magnesium	23.6	23.7	0.4
Potassium	5.9	5.9	0.0
Sodium	14.0	14.0	0.0
Inorganic Anions (mg/L)			
Chloride	23	23	0.0
Nutrients (mg/L)			
Ammonia	1.42	1.41	0.7
Demand (mg/L)			
Total organic carbon	3.76	3.92	4.2
Properties (mg/L)			
Alkalinity	182	184	1.1
Bicarbonate	182	184	1.1
Total dissolved solids	283	274	3.2

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% except for arsenic.

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 ≤ 20%.

8.7 Properties

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

9. FIELD BLANK

Analyte	Field Blank (2748)	Analyte	Field Blank (2748)
Dissolved Metals (mg/L)		*Inorganic Anions (mg/L)*	
Antimony	0.001 U	Chloride	0.10 U
Arsenic	0.0005 U	Sulfate	0.20 U
Barium	0.001 U	Nitrate	0.1 U
Beryllium	0.0005 U	Nitrite	0.1 U
Cadmium	0.00025 U	*Nutrients (mg/L)*	
Chromium	0.001 U	Ammonia	0.01 U
Cobalt	0.001 U	*Demand (mg/L)*	
Copper	0.002 U	Chemical Oxygen Demand	8.0 U
Iron	0.050 U	Total Organic Carbon	0.15 U
Lead	0.0005 U	*Organics (µg/L)*	
Manganese	0.001 U	All	ND
Mercury	0.0002 U	*Properties*	
Nickel	0.0005 U	Alkalinity	5.0 U
Selenium	0.001 U	Bicarbonate	5.0 U
Silver	0.0002 U	Total dissolved solids	10 U
Thallium	0.00036 U	U – No detection. PQL is given as result J – Estimated value	
Vanadium	0.001		
Zinc	0.0025 U		
Total Metals (mg/L)			
Calcium	0.5 U		
Magnesium	0.5 U		
Potassium	0.5 U		
Sodium	0.62		

9.1 Dissolved Metals

No other target analytes were detected above reporting limits in the field blank.

9.2 Total Metals

Sodium was detected above reporting limits in the field blank. No target analytes were detected above reporting limits in the field blank.

9.3 Inorganic Anions

Chloride and Sulfate were detected above reporting limits in the field blank. No target analytes were detected above reporting limits in the field blank.

9.4 Nutrients

No target analytes were detected above reporting limits in the field blank.

9.5 Demand

No other target analytes were detected above reporting limits in the field blank.

9.6 Organics

No target analytes were detected above reporting limits in the field blank.

9.7 Properties

No target analytes were detected above reporting limits in the field blank.

10. 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.

10.1 Dissolved Metals – 200.8/Filter, 245.1/Filter

Detection limit goals were met for all results.

10.2 Total Metals – 200.7

Detection limit goals were met for all results.

10.3 Inorganic Anions – 300.0

Detection limit goals were met for all results.

10.4 Nutrients – SM 4500

Detection limit goals were met for all results.

10.5 Demand – SM 5310B, SM 5220D

Detection limit goals were met for all results.

10.6 Organics – 8260B, 8260SIM

Detection limit goals were met for all results.

10.7 Properties – SM2320 B, SM2540 C

Detection limit goals were met for all results.

11. DATA VALIDATION AND USABILITY

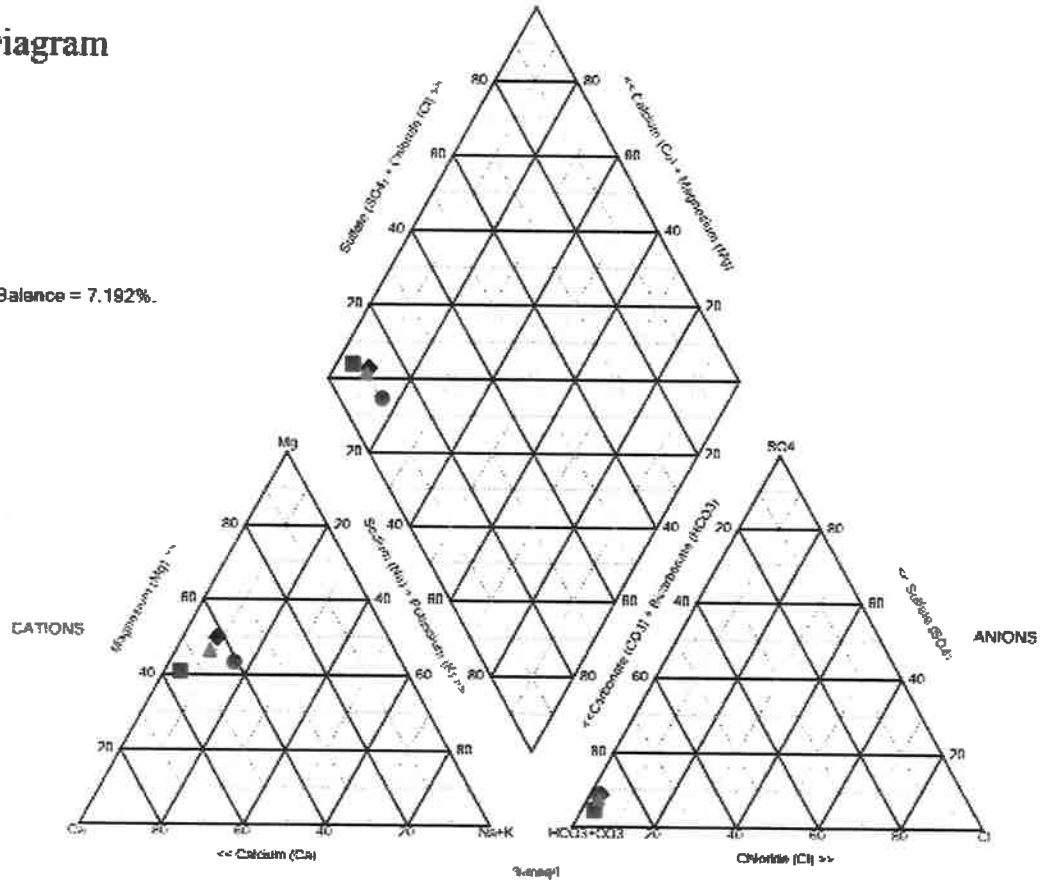
With the exception of the above noted anomalies, standard analytical protocols were followed in the analysis of the samples and all laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits. Limitations were stated and clearly identified 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 2016 – Perched Aquifer

WQStat Plus™ v.9.4.41

Piper Diagram

Cation-Anion Balance = 7.192%



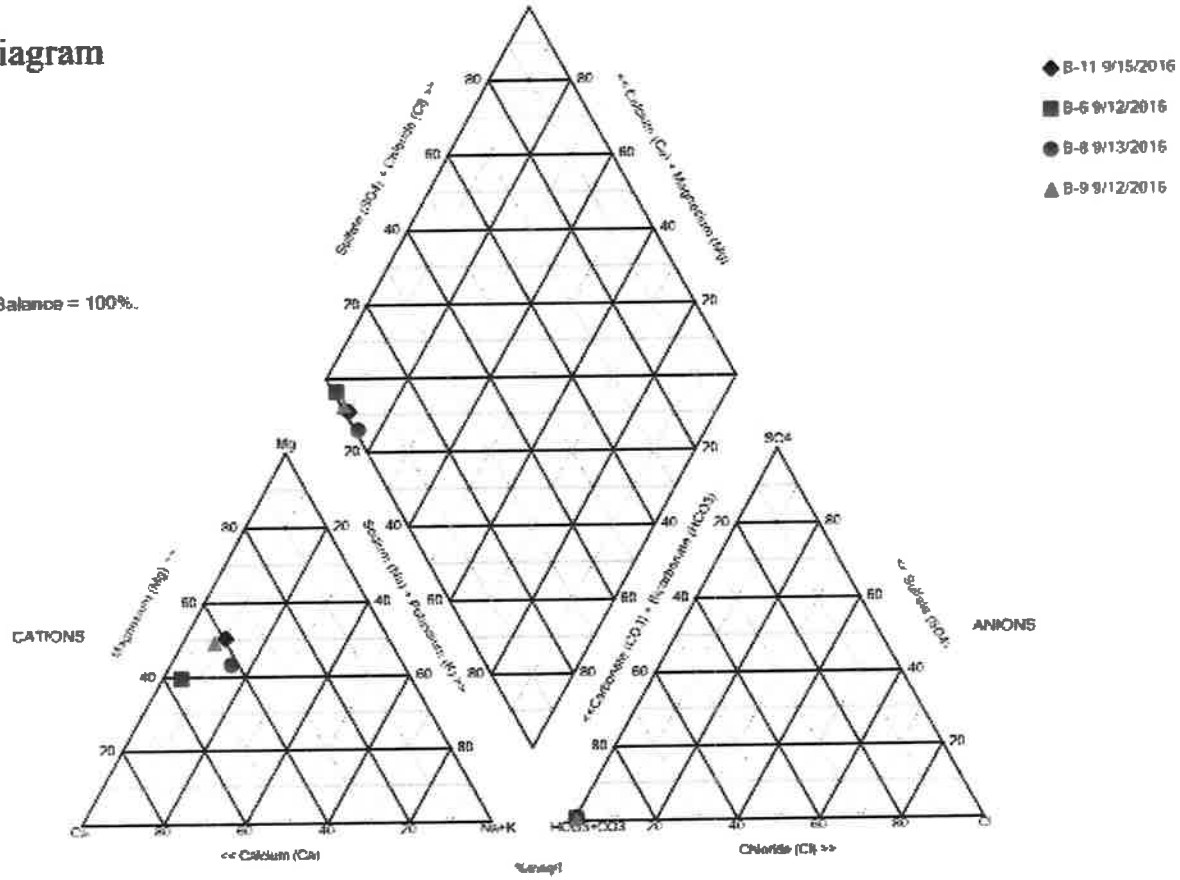
Analysis Run 2/24/2017 12:57 PM

Facility: inman perched Data File: inman_perched_inorganic_(1994-2016)

WQStat Plus™ v 9.4.41

Piper Diagram

Cation-Anion Balance = 100%.

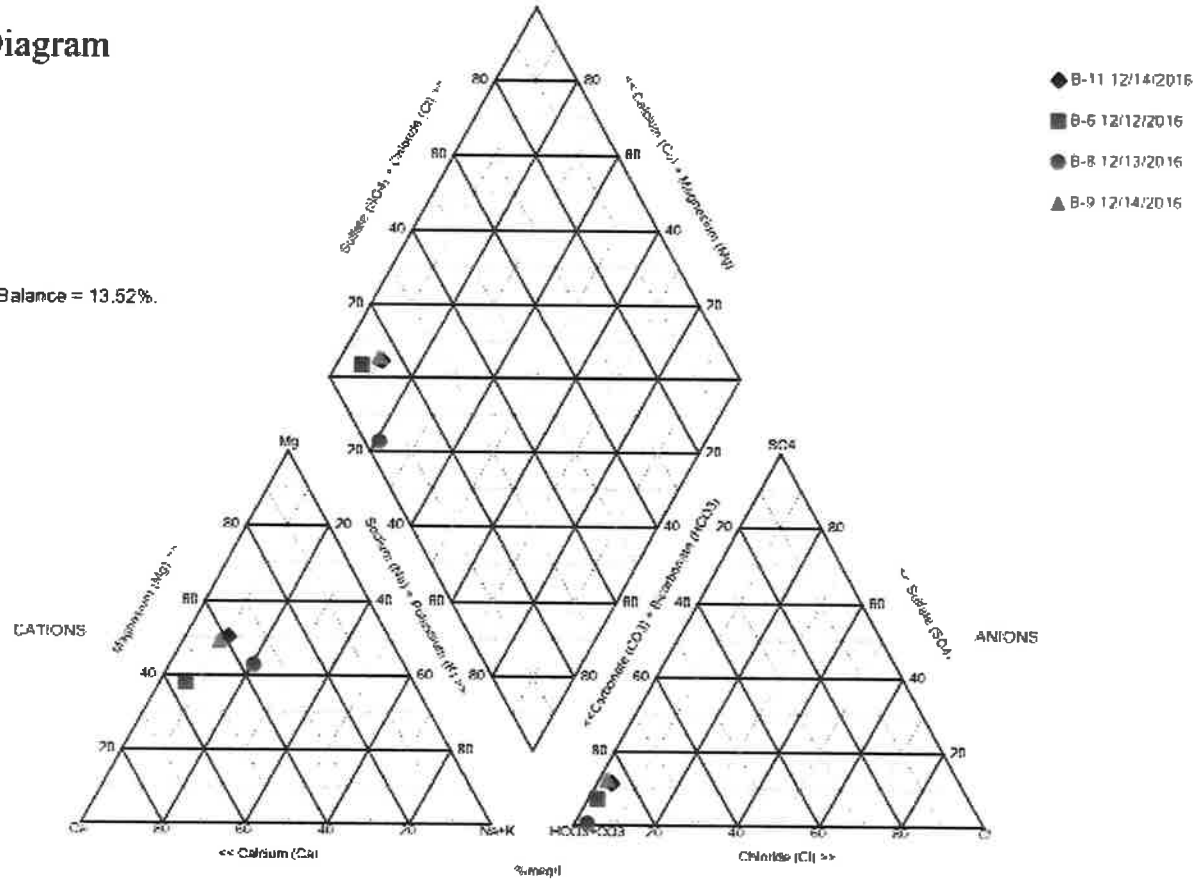


Analysis Run 2/24/2017 12:58 PM

Facility: inman perched Data File: inman_perched_inorganic_(1994-2016)

Piper Diagram

Cation-Anion Balance = 13.52%.

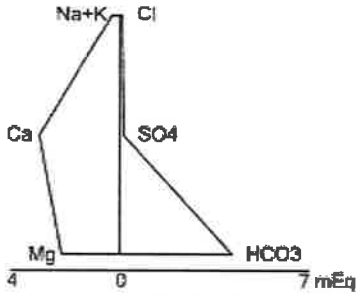


Analysis Run 2/24/2017 12:58 PM

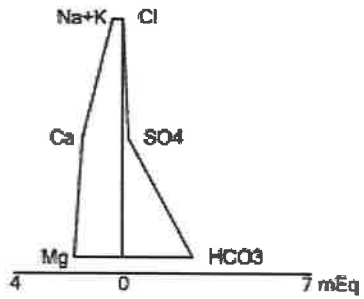
Facility: inman perched Data File: inman perched inorganic (1994-2016)

APPENDIX D-2:
Stiff Diagrams 2016 – Perched Aquifer

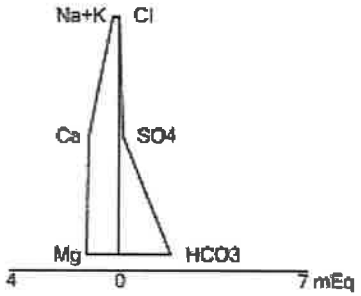
WQStat Plus™ v.9.4.41



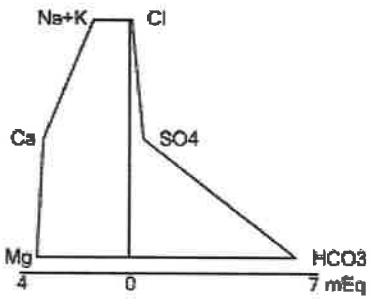
B-6 3/21/2016



B-11 3/21/2016



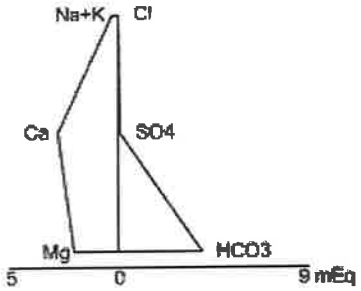
B-9 3/22/2016



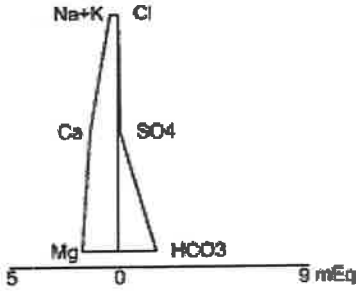
B-8 3/24/2016

Stiff Diagram Analysis Run 2/24/2017 1:00 PM

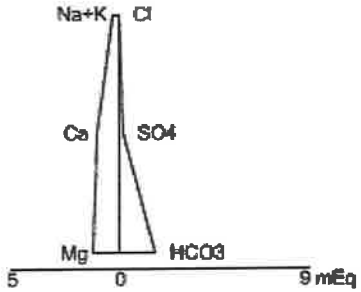
Facility: inman perched Data File: inman_perched_inorganic_(1994-2016)



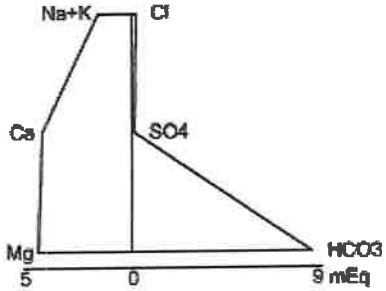
B-6 9/12/2016



B-11 9/15/2016



B-9 9/12/2016

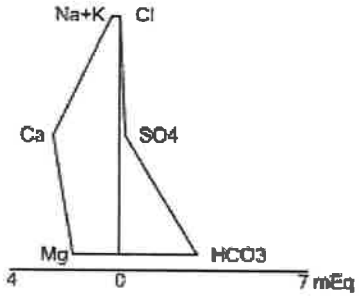


B-8 9/13/2016

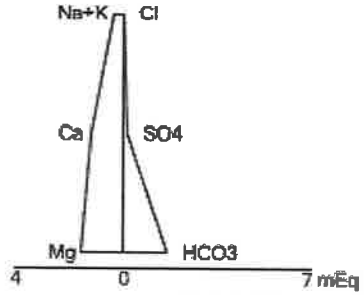
Stiff Diagram Analysis Run 3/15/2017 9:30 AM

Facility: Inman Data File: inorganic_1994_thru_2016

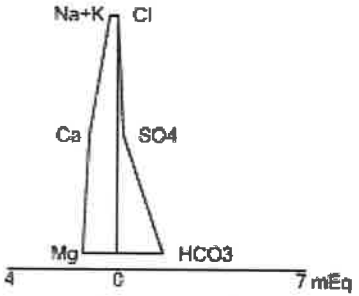
WQStat Plus™ v.9.4.41



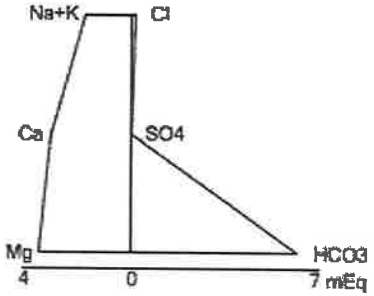
B-6 12/12/2016



B-11 12/14/2016



B-9 12/14/2016

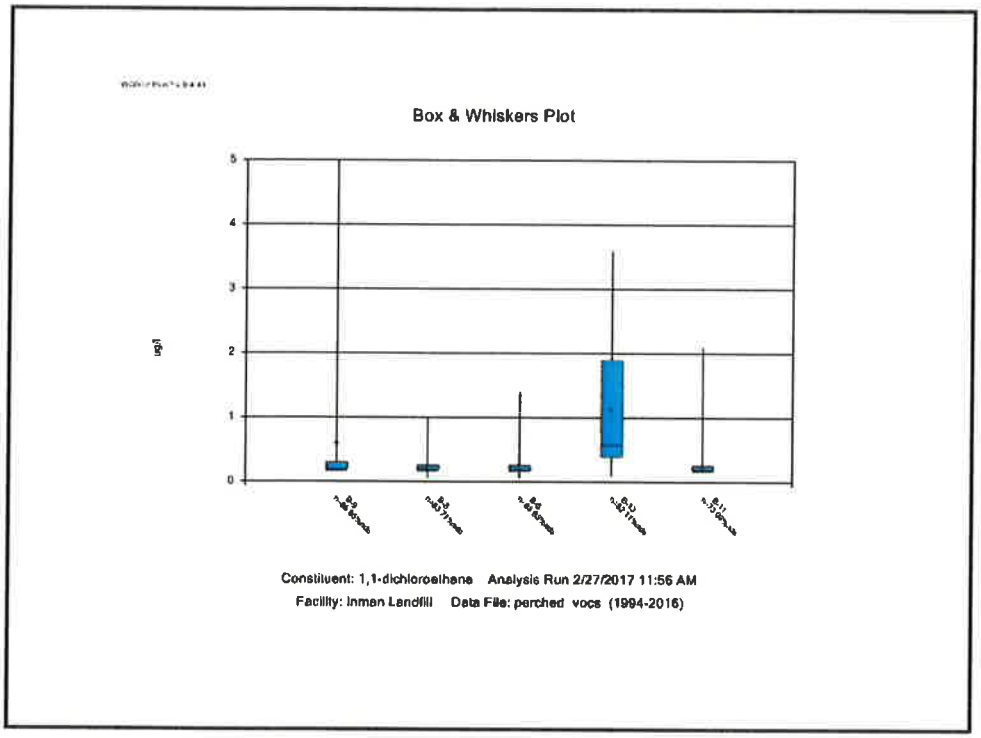


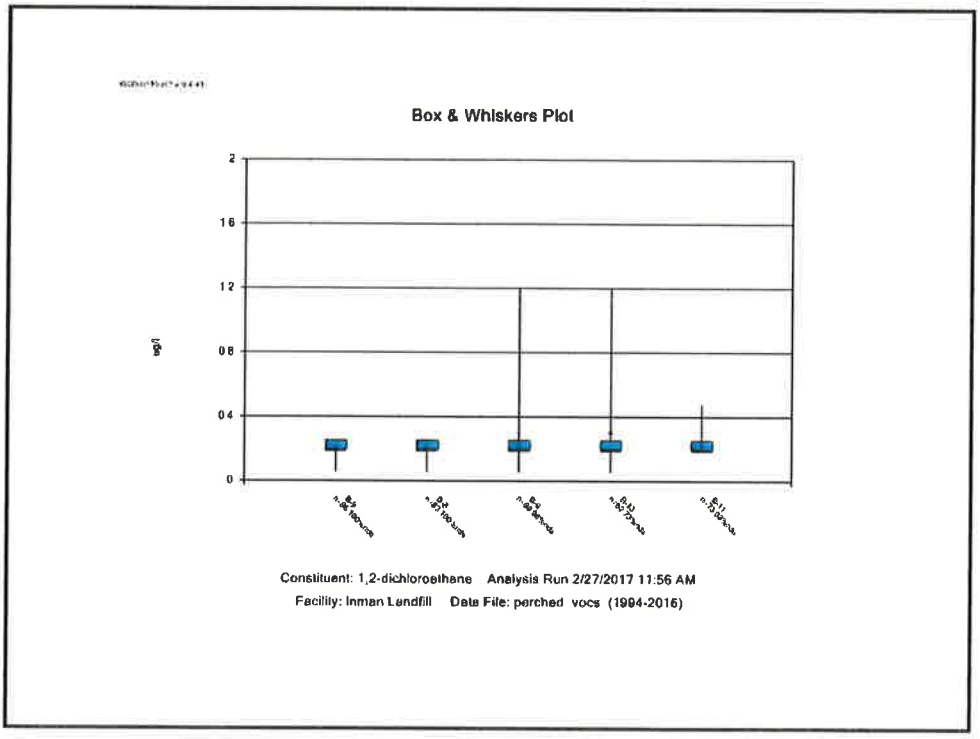
B-8 12/13/2016

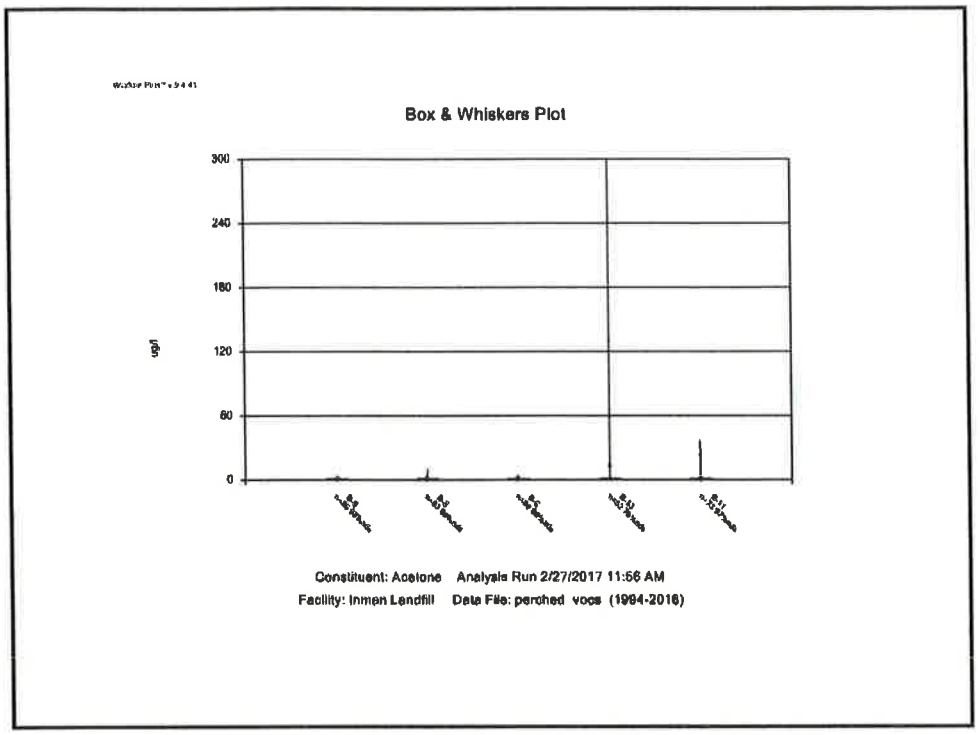
Stiff Diagram Analysis Run 2/24/2017 1:00 PM

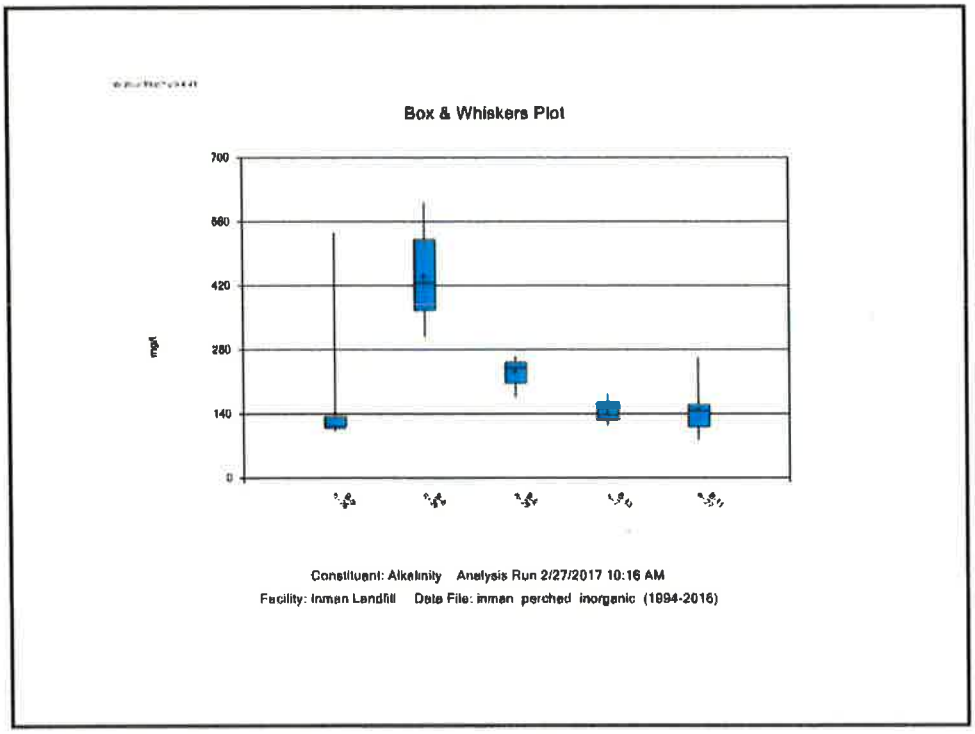
Facility: inman perched Data File: inman_perched_inorganic_(1994-2016)

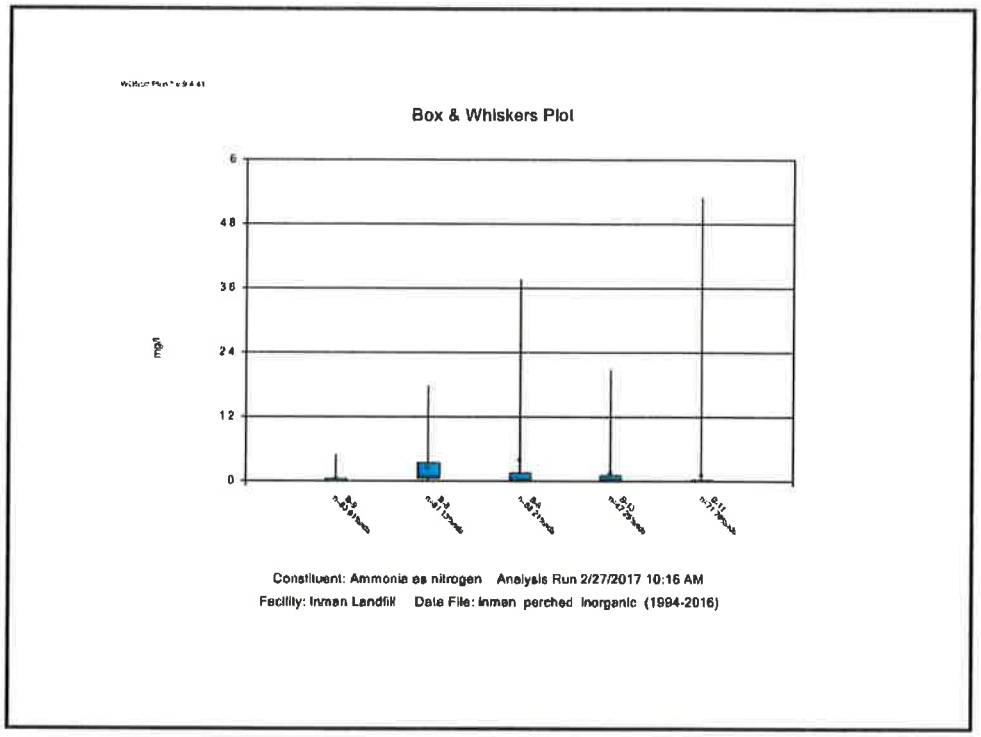
APPENDIX D-3:
Box Plots 1994-2016 – Perched Aquifer

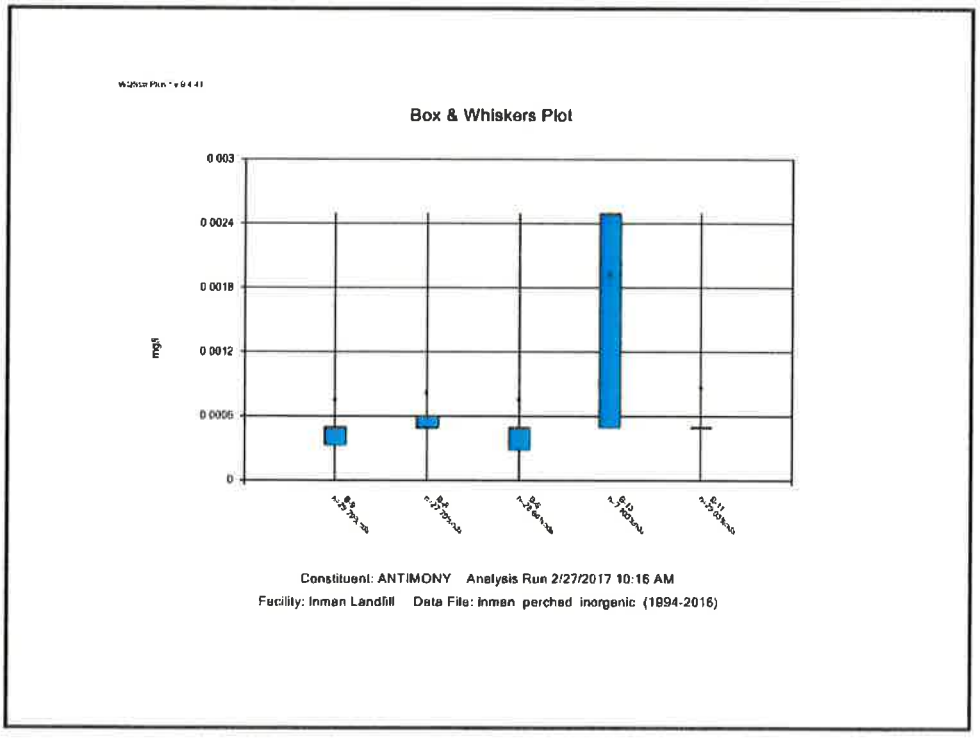

Box & Whiskers Plot
ug/l
5
4
3
2
1
0
Constituent: 1,1-dichloroethane Analysis Run 2/27/2017 11:56 AM
Facility: Inman Landfill Data File: perched vocs (1994-2016)

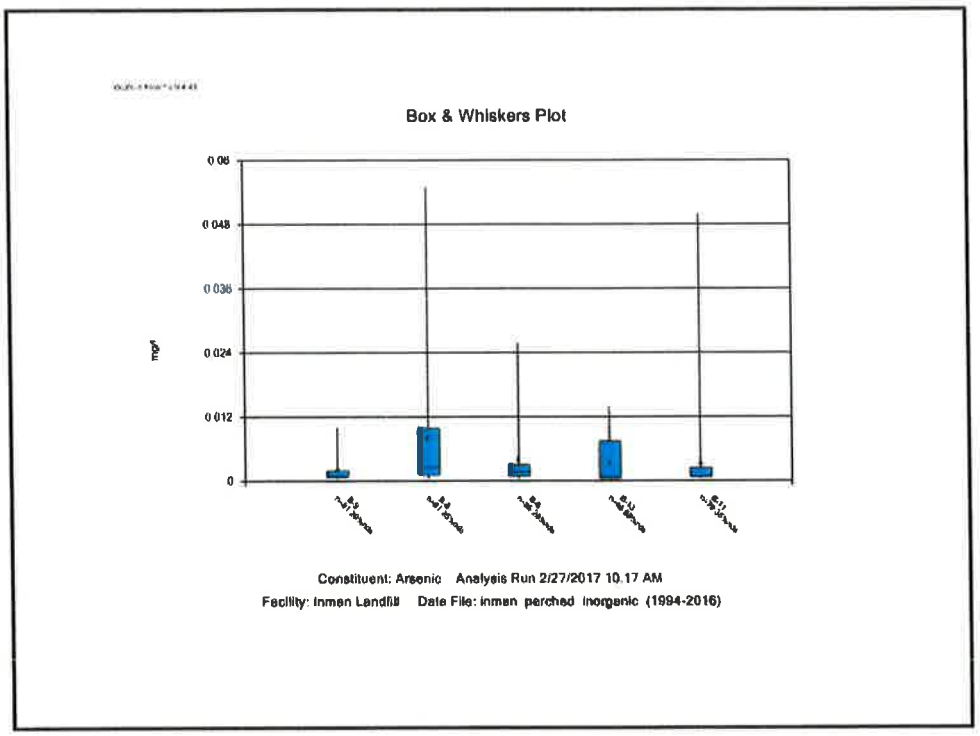

Box & Whiskers Plot
ug/l
2
1.6
1.2
0.8
0.4
0
Constituent: 1,2-dichloroethane Analysis Run 2/27/2017 11:56 AM
Facility: Inman Landfill Data File: perched vocs (1994-2016)

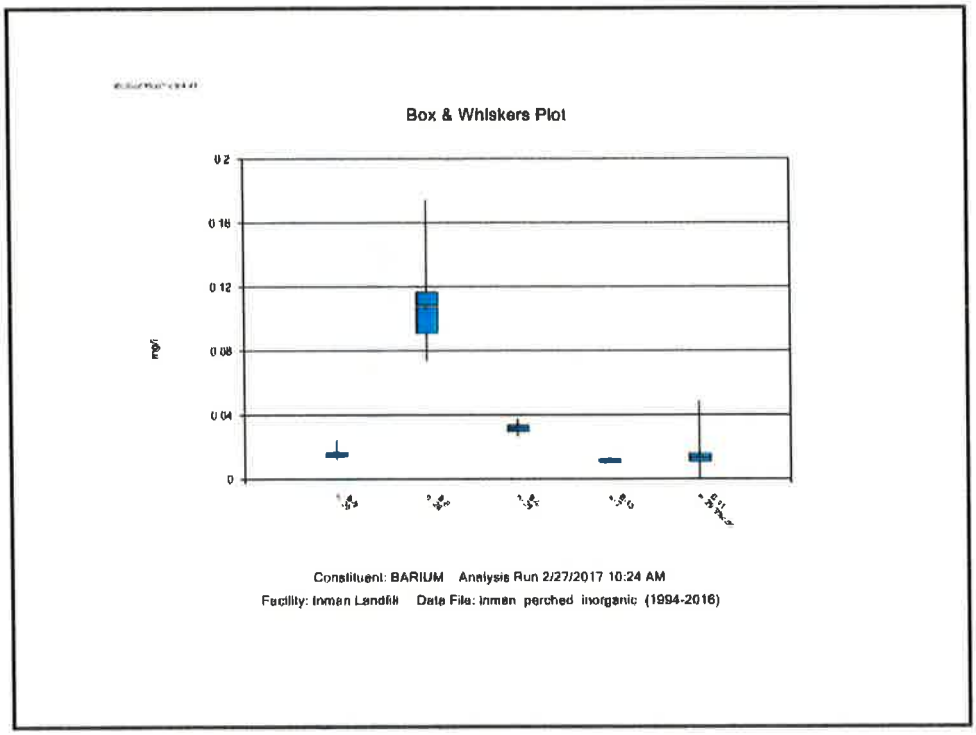

Box & Whiskers Plot
300
240
180
120
60
0
ug/l
Constituent: Acetone Analysis Run 2/27/2017 11:56 AM
Facility: Inman Landfill Data File: perched vocs (1994-2016)

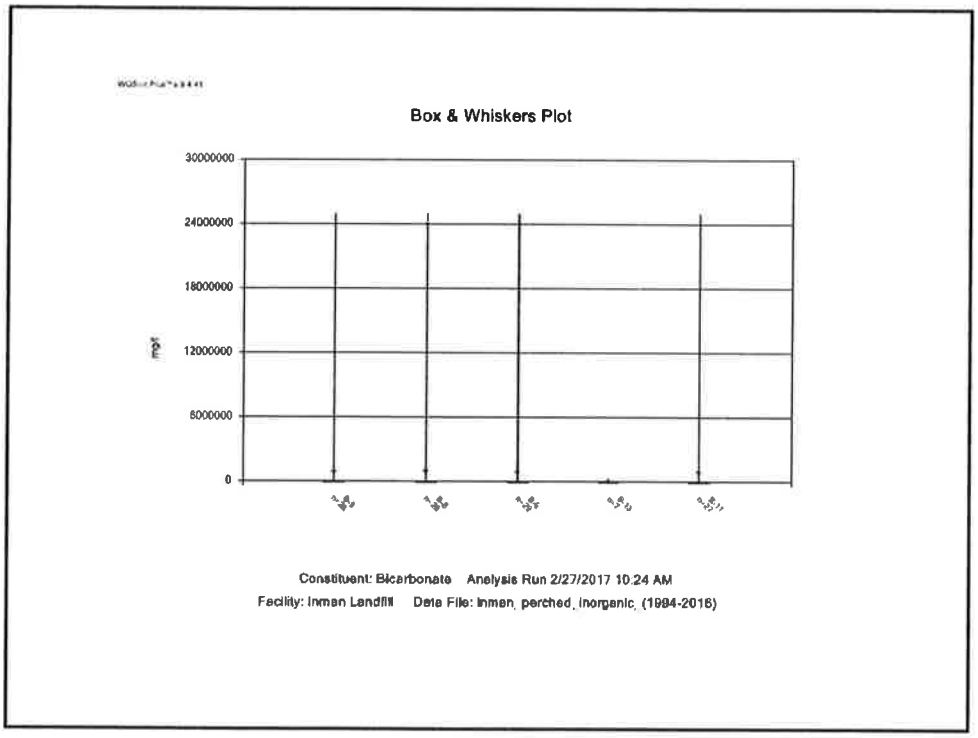

Box & Whiskers Plot
700
560
420
280
140
0
mg/l
Constituent: Alkalinity Analysis Run 2/27/2017 10:16 AM
Facility: Inman Landfill Data File: inman perched inorganic (1994-2016)

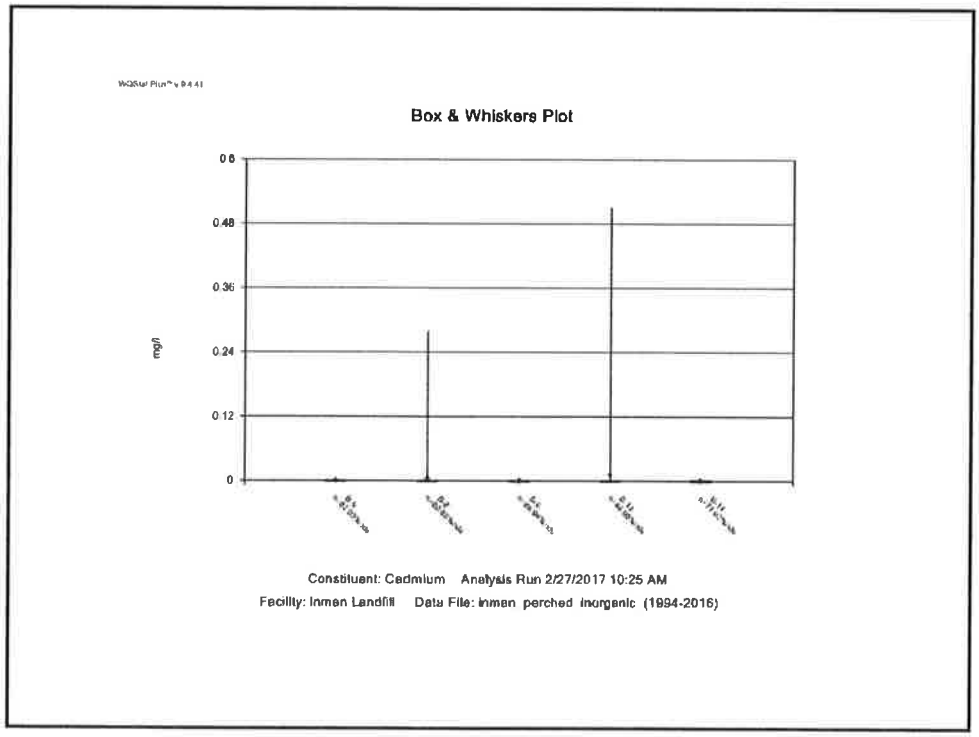

Box & Whiskers Plot
6
4 8
3 6
2 4
1 2
0
mg/l
Constituent: Ammonia as nitrogen Analysis Run 2/27/2017 10:16 AM
Facility: Inman Landfill Data File: Inman perched inorganic (1994-2016)

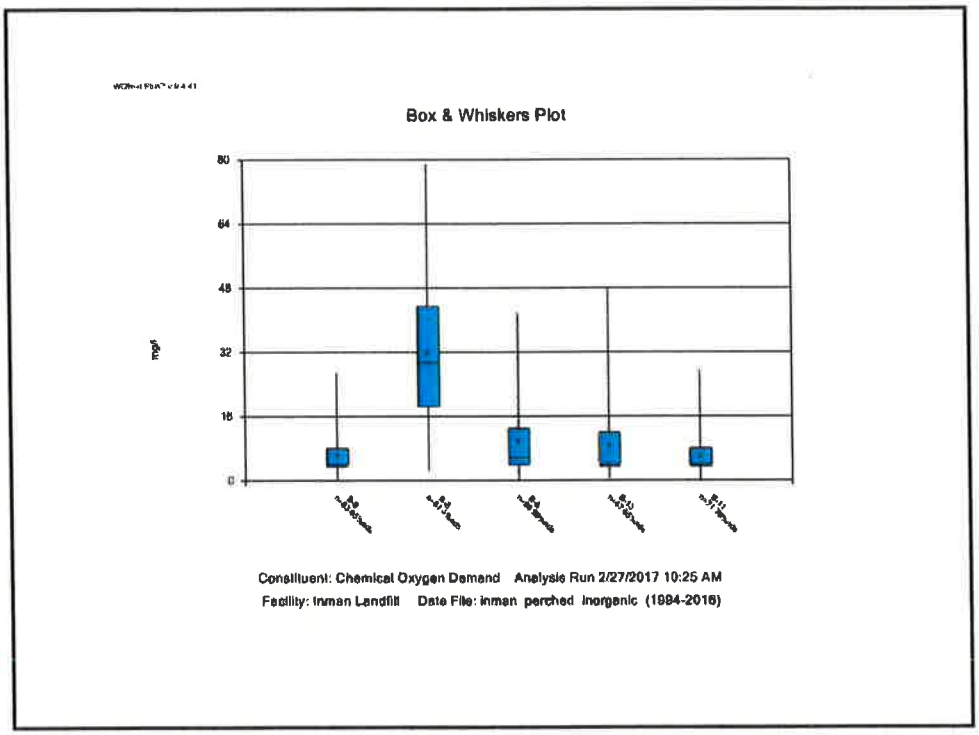

Box & Whiskers Plot
0 003
0 0024
0 0018
0 0012
0 0006
0
mg/l
Constituent: ANTIMONY Analysis Run 2/27/2017 10:16 AM
Facility: Inman Landfill Data File: Inman perched inorganic (1994-2016)

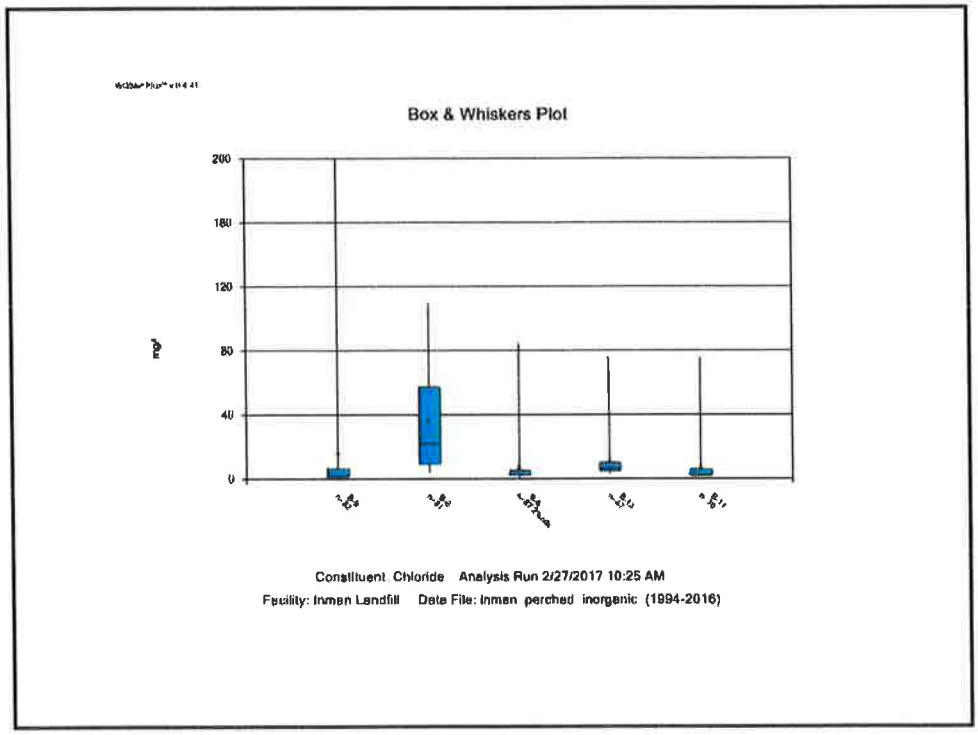

Box & Whiskers Plot
0.06
0.048
0.036
0.024
0.012
0
mg/l
Constituent: Arsenic Analysis Run 2/27/2017 10:17 AM
Facility: Inman Landfill Data File: inman perched inorganic (1994-2016)

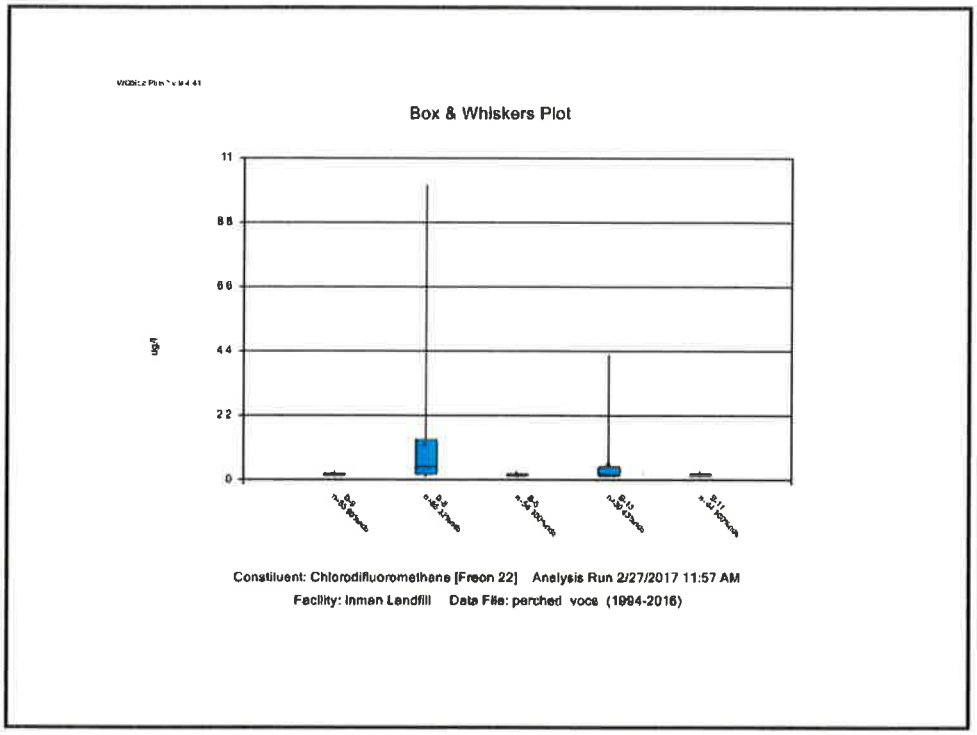

Box & Whiskers Plot
0.2
0.16
0.12
0.08
0.04
0
mg/l
Constituent: BARIUM Analysis Run 2/27/2017 10:24 AM
Facility: Inman Landfill Data File: inman perched inorganic (1994-2016)

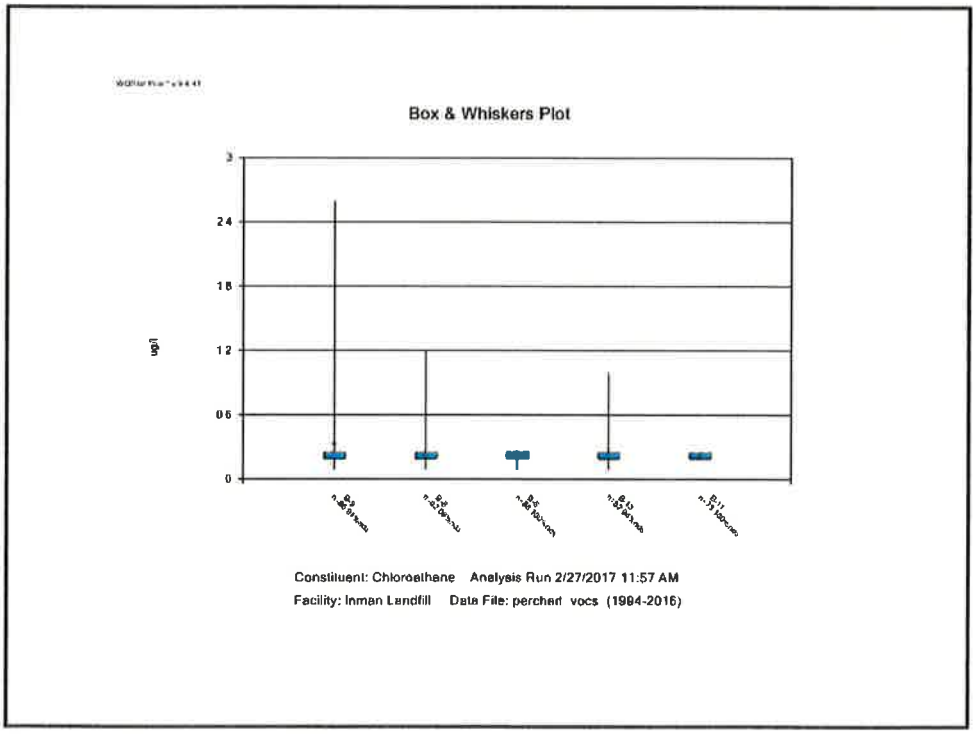

Box & Whiskers Plot
30000000
24000000
18000000
12000000
6000000
0
mg/l
Constituent: Bicarbonate Analysis Run 2/27/2017 10:24 AM
Facility: Inmen Landfill Data File: Inmen_perched_inorganic_(1994-2016)

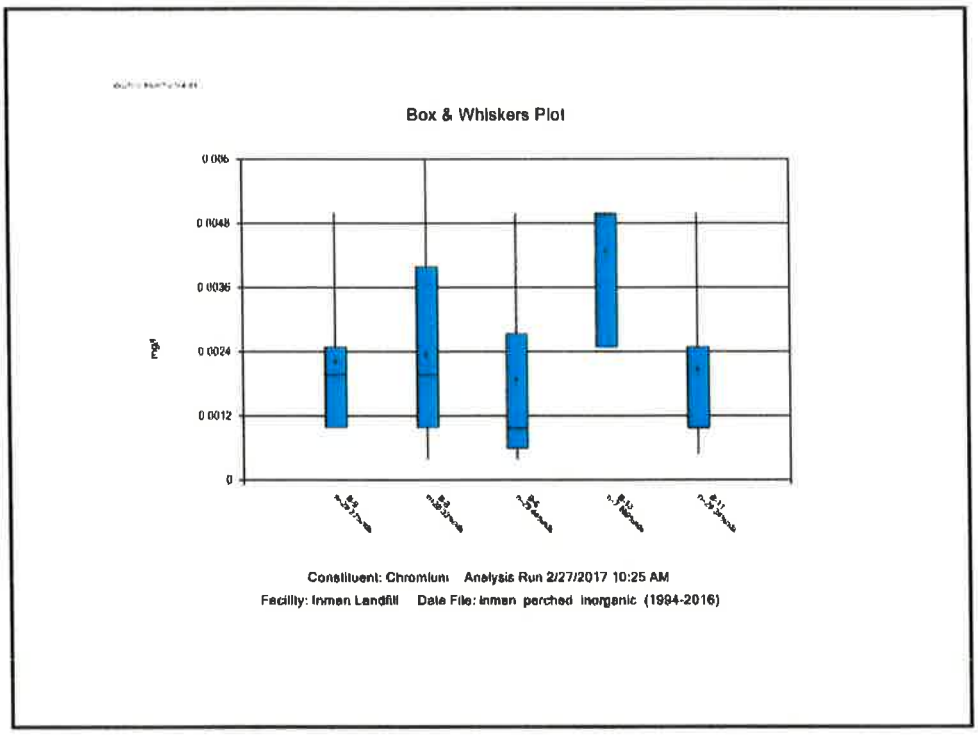

Box & Whiskers Plot
0.6
0.48
0.36
0.24
0.12
0
mg/l
Constituent: Cadmium Analysis Run 2/27/2017 10:25 AM
Facility: Inmen Landfill Data File: Inmen_perched_inorganic_(1994-2016)

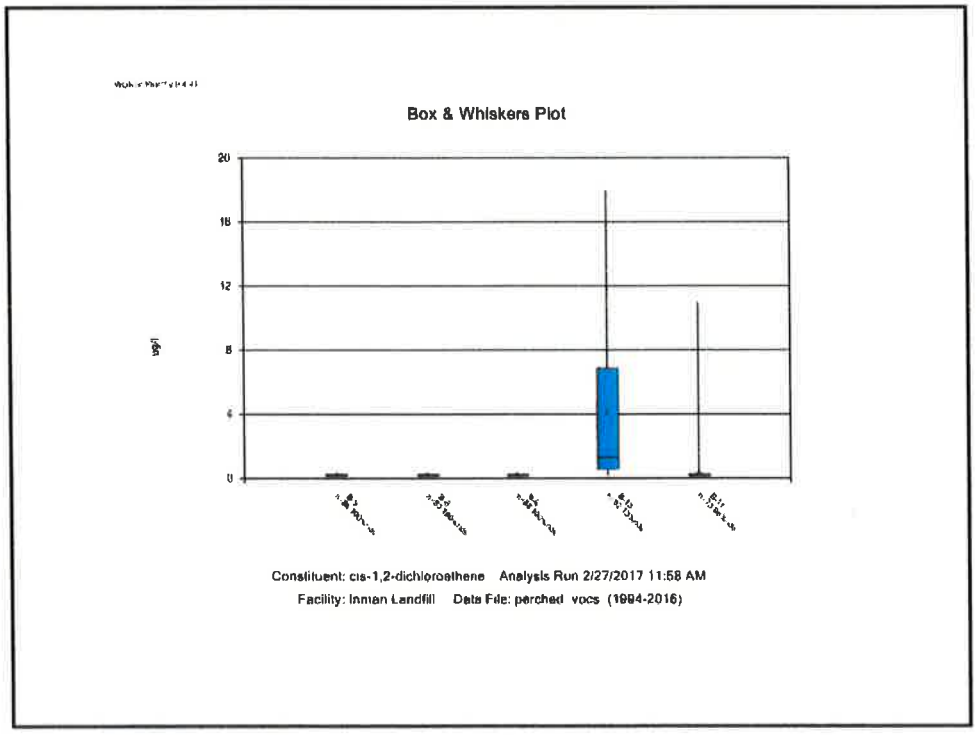

Box & Whiskers Plot
80
64
48
32
16
0
mg/l
Constituent: Chemical Oxygen Demand Analysis Run 2/27/2017 10:25 AM
Facility: Inman Landfill Data File: inman perched inorganic (1994-2016)

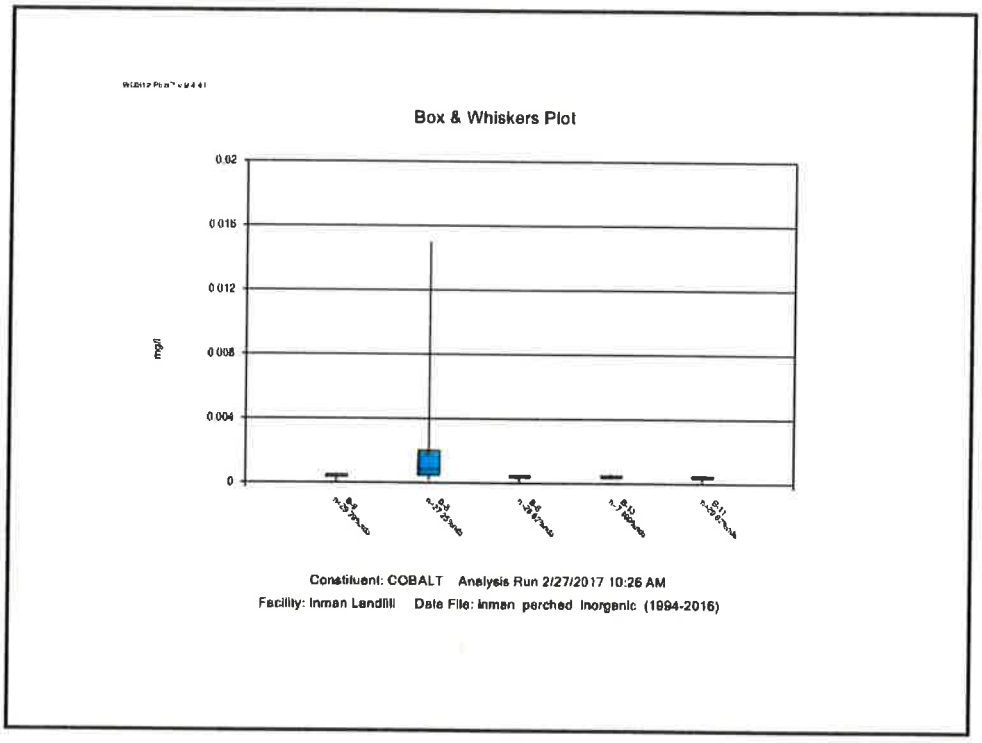

Box & Whiskers Plot
200
160
120
80
40
0
mg/l
Constituent: Chloride Analysis Run 2/27/2017 10:25 AM
Facility: Inman Landfill Data File: inman perched inorganic (1994-2016)

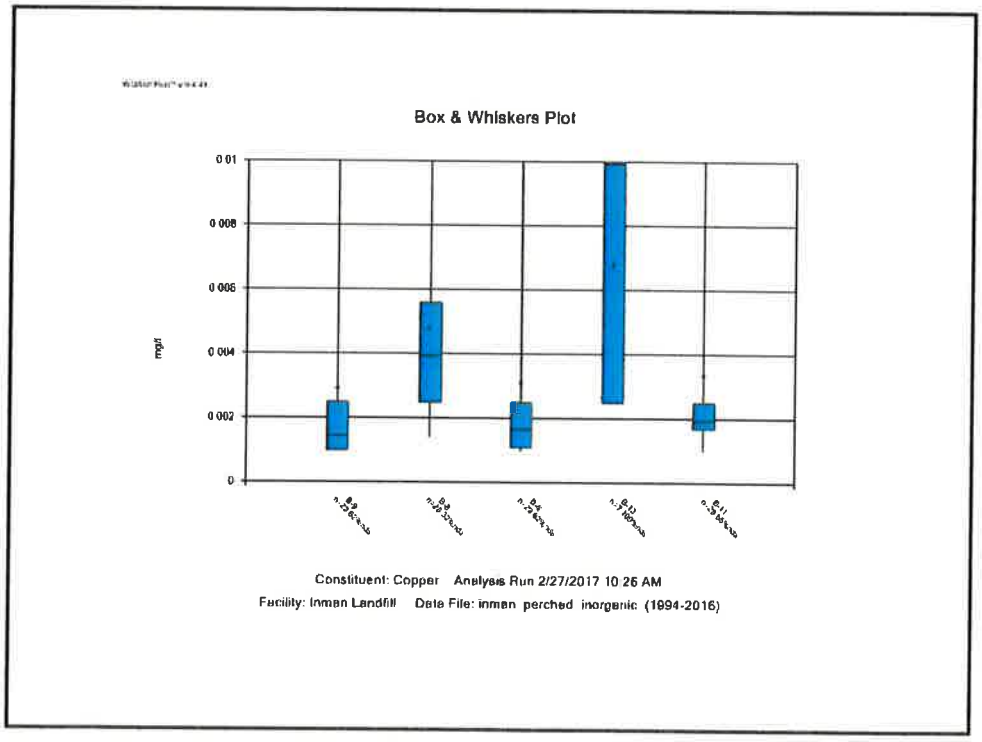

Box & Whiskers Plot
11
8.8
6.6
4.4
2.2
0
ug/l
Constituent: Chlorodifluoromethane [Freon 22] Analysis Run 2/27/2017 11:57 AM
Facility: Inman Landfill Data File: perched vocs (1994-2016)

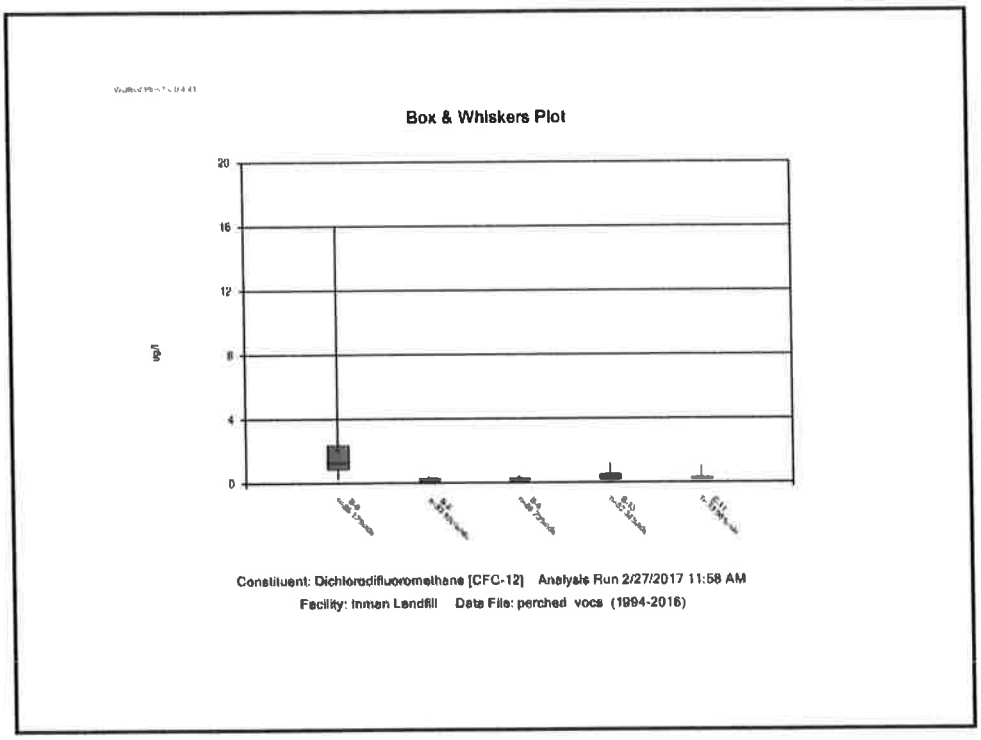

Box & Whiskers Plot
3
2.4
1.8
1.2
0.6
0
ug/l
Constituent: Chloroethane Analysis Run 2/27/2017 11:57 AM
Facility: Inman Landfill Data File: perched vocs (1994-2016)


Box & Whiskers Plot
0.006
0.0048
0.0036
0.0024
0.0012
0
mg/l
Constituent: Chromium Analysis Run 2/27/2017 10:25 AM
Facility: Inman Landfill Data File: inman perched inorganic (1994-2016)

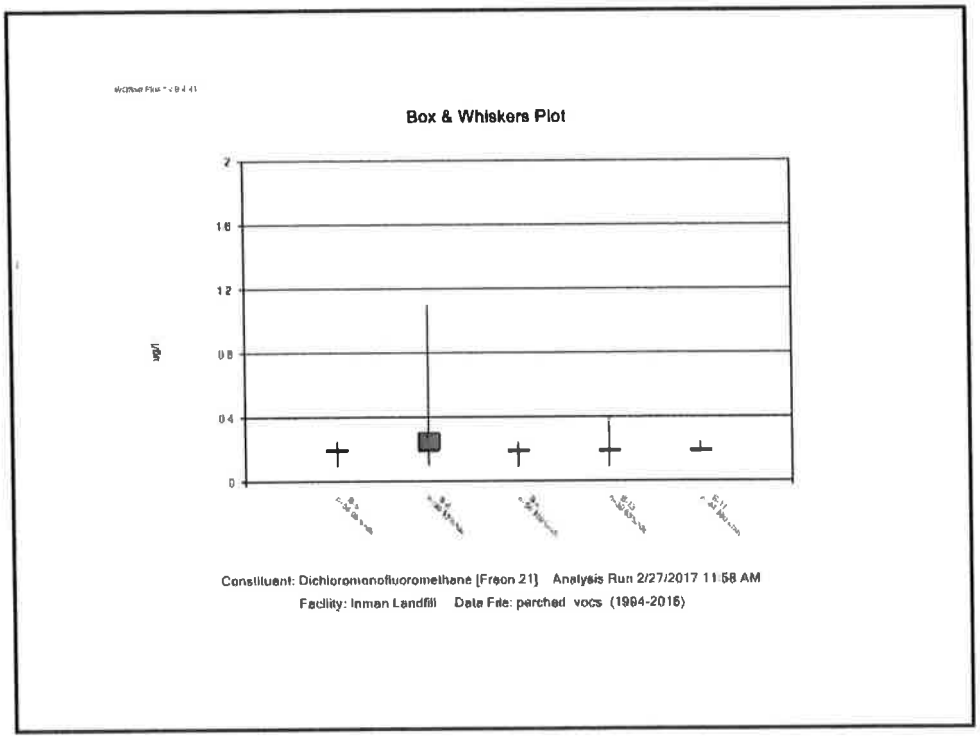

Box & Whiskers Plot
20
16
12
8
4
0
ug/l
Constituent: cis-1,2-dichloroethene Analysis Run 2/27/2017 11:58 AM
Facility: Inman Landfill Data File: perched vocs (1994-2016)


Box & Whiskers Plot
0.02
0.016
0.012
0.008
0.004
0
mg/l
Constituent: COBALT Analysis Run 2/27/2017 10:26 AM
Facility: Inman Landfill Data File: inman perched inorganic (1994-2016)

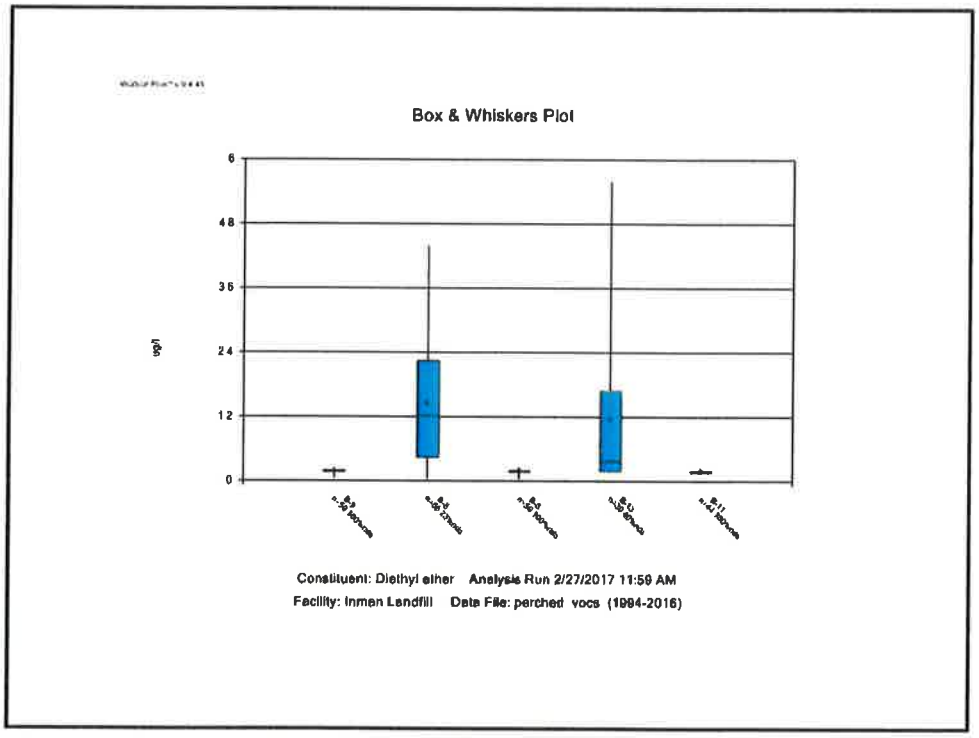

Box & Whiskers Plot
0.01
0.008
0.006
0.004
0.002
0
mg/l
Constituent: Copper Analysis Run 2/27/2017 10:26 AM
Facility: Inman Landfill Data File: inman perched inorganic (1994-2016)

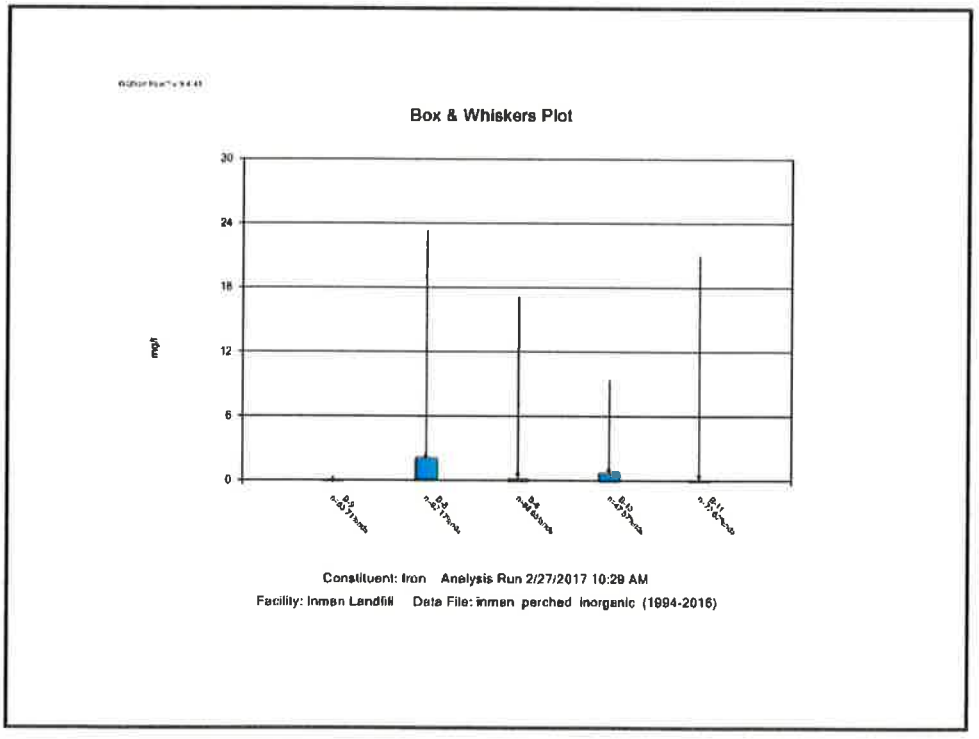


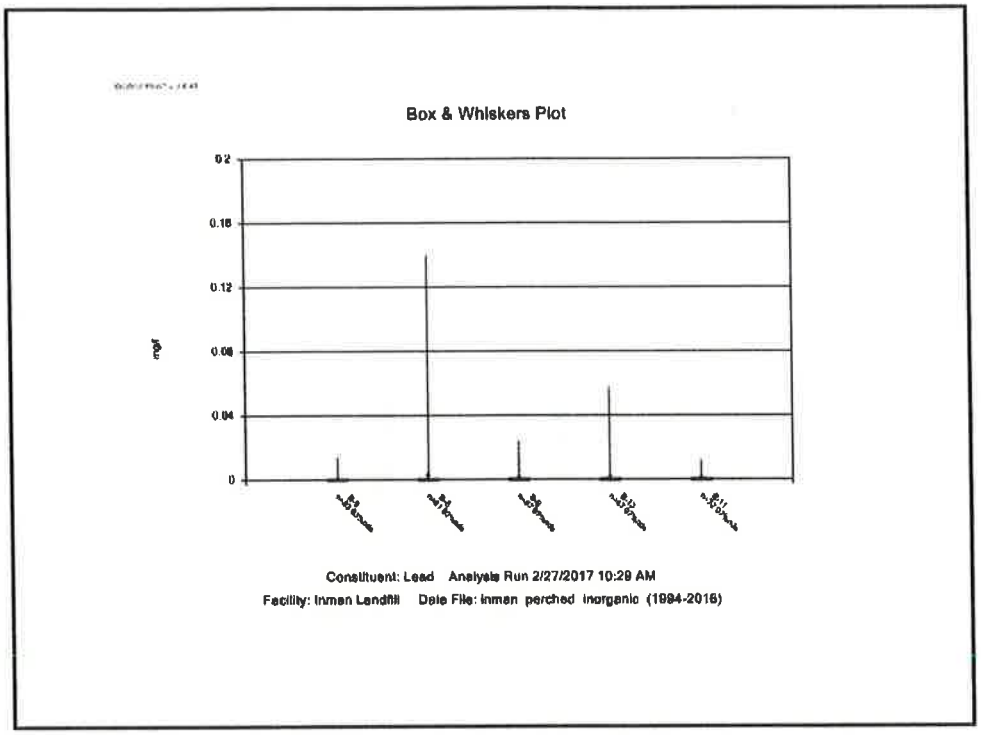
Constituent: Dichlorodifluoromethane [CFC-12] Analysis Run 2/27/2017 11:58 AM
Facility: Inman Landfill Data File: perched vocs (1994-2016)

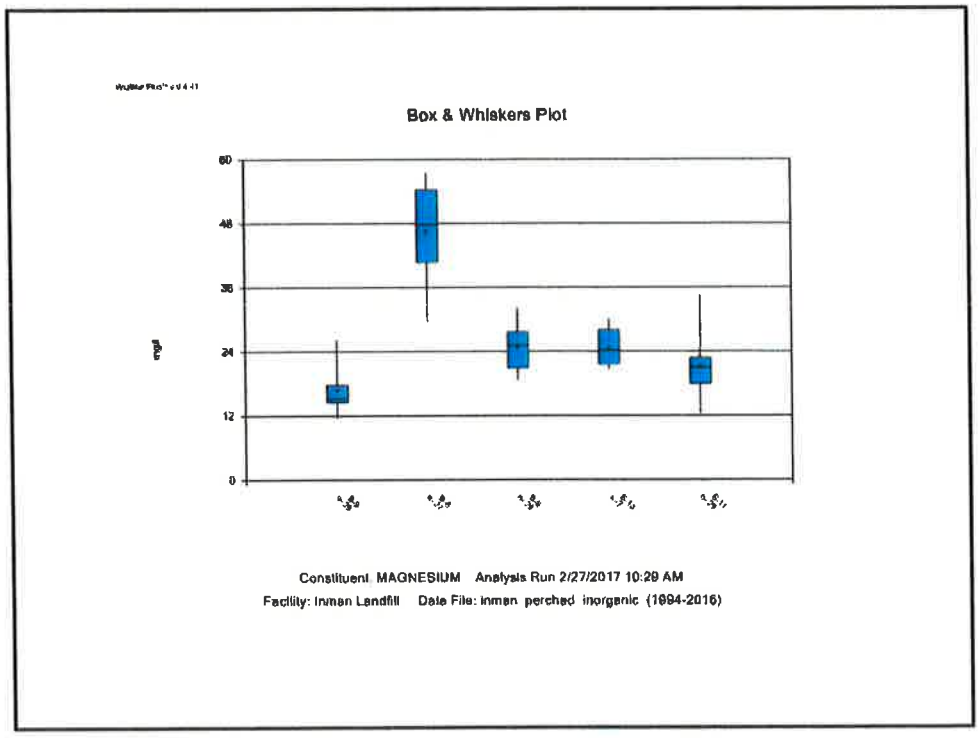


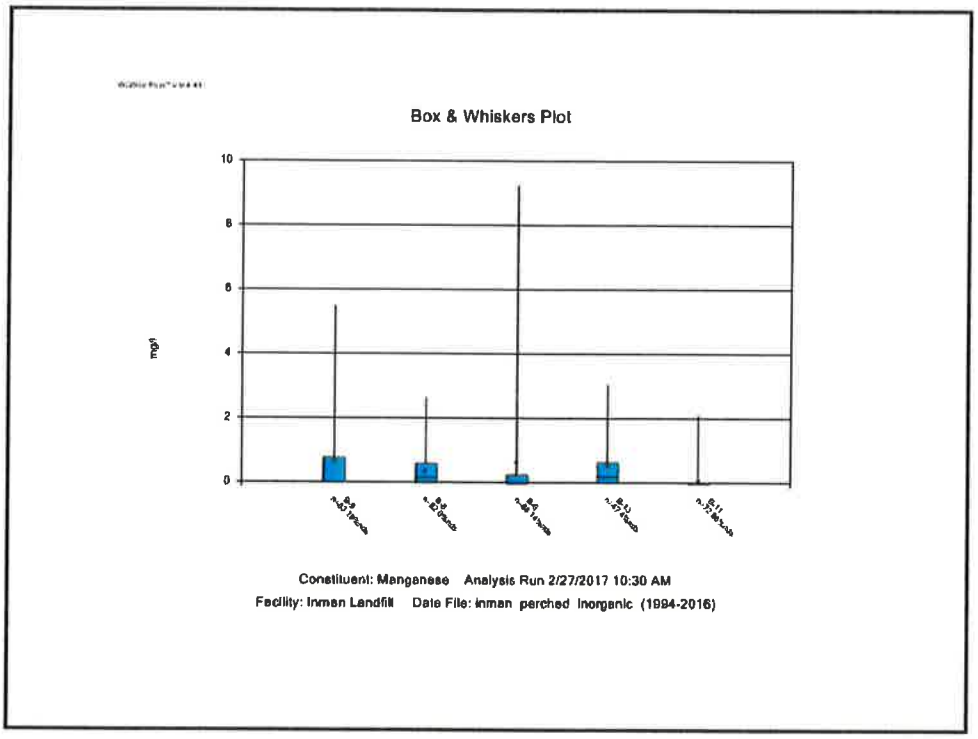
Constituent: Dichloromonofluoromethane [Freon 21] Analysis Run 2/27/2017 11:58 AM
Facility: Inman Landfill Data File: perched vocs (1994-2016)

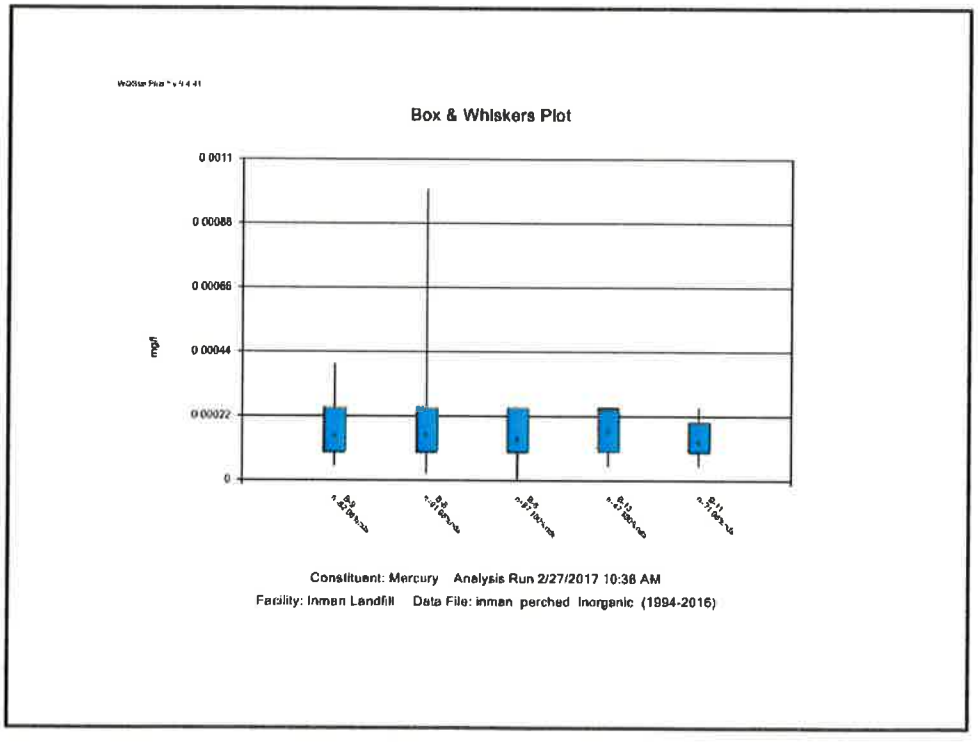

Box & Whiskers Plot
6
4.8
3.6
2.4
1.2
0
ug/l
Constituent: Diethyl ether Analysis Run 2/27/2017 11:59 AM
Facility: Inmen Landfill Data File: perched vocs (1994-2016)

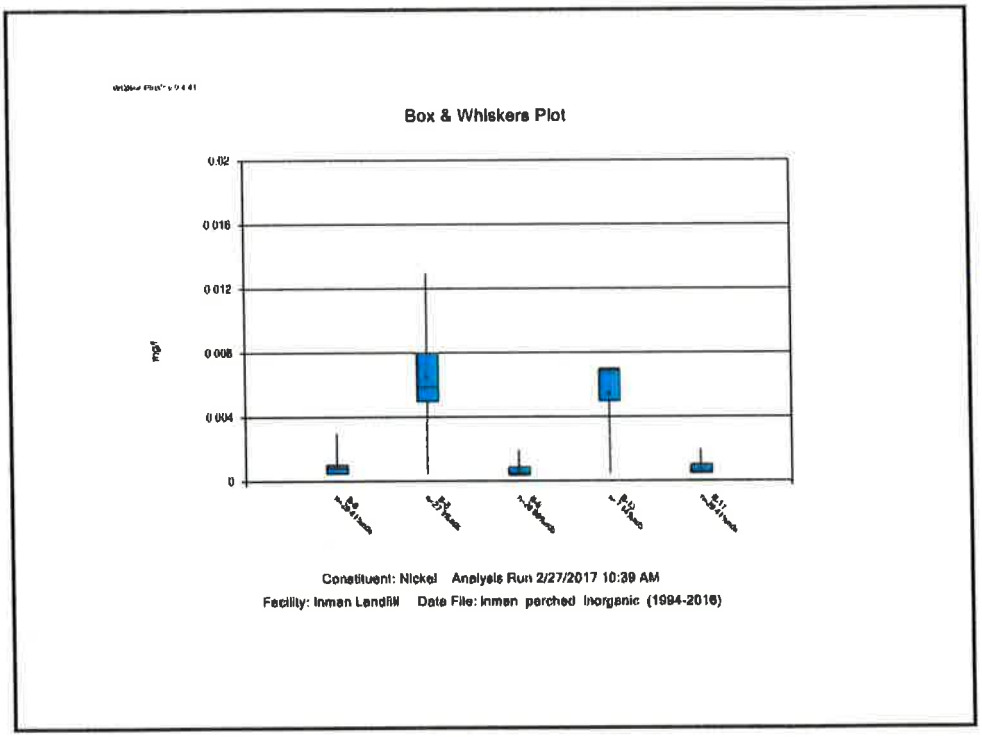

Box & Whiskers Plot
30
24
18
12
6
0
mg/l
Constituent: Iron Analysis Run 2/27/2017 10:29 AM
Facility: Inmen Landfill Data File: inmen perched inorganic (1994-2016)

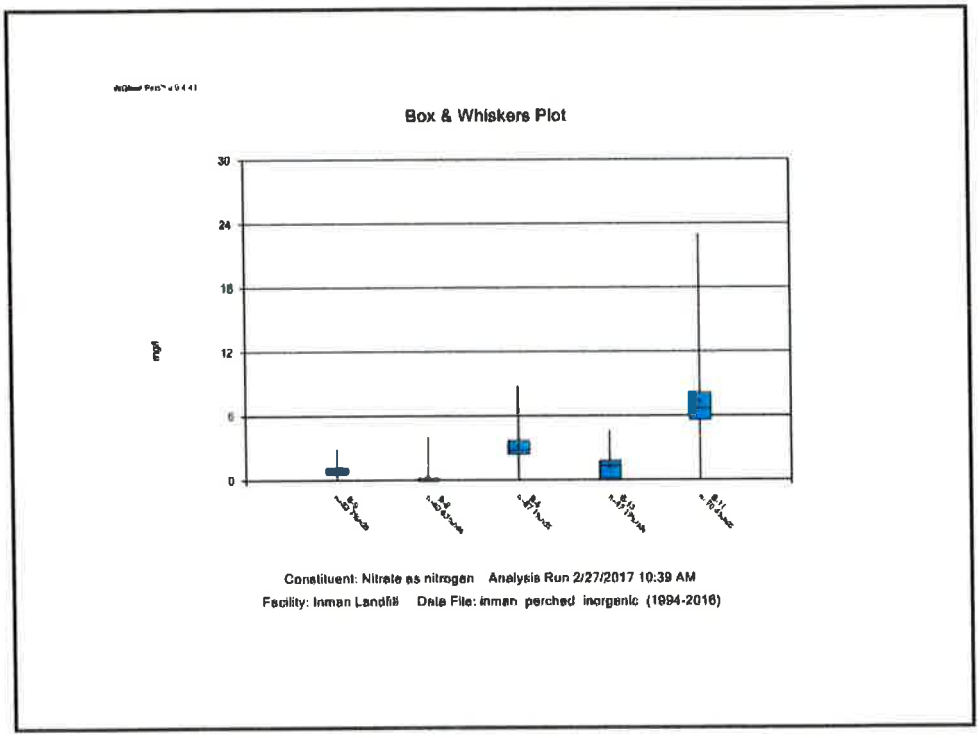

Box & Whiskers Plot
0.2
0.16
0.12
0.08
0.04
0
mg/l
Constituent: Lead Analysis Run 2/27/2017 10:29 AM
Facility: Inman Landfill Data File: inman perched inorganic (1994-2016)

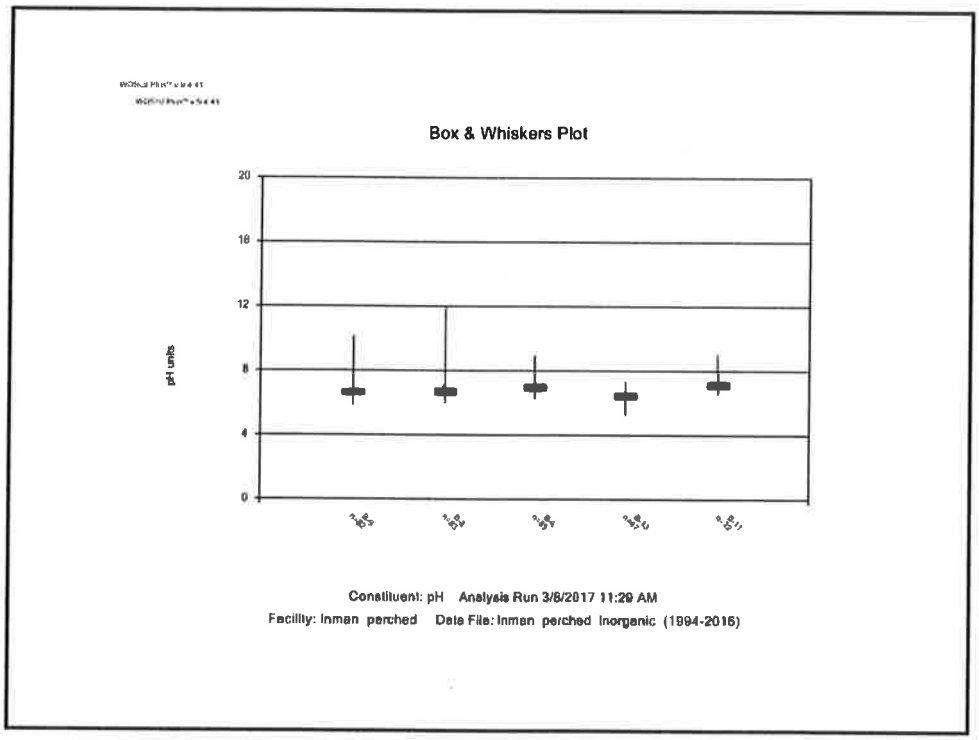

Box & Whiskers Plot
60
48
36
24
12
0
mg/l
Constituent: MAGNESIUM Analysis Run 2/27/2017 10:29 AM
Facility: Inman Landfill Data File: inman perched inorganic (1994-2016)

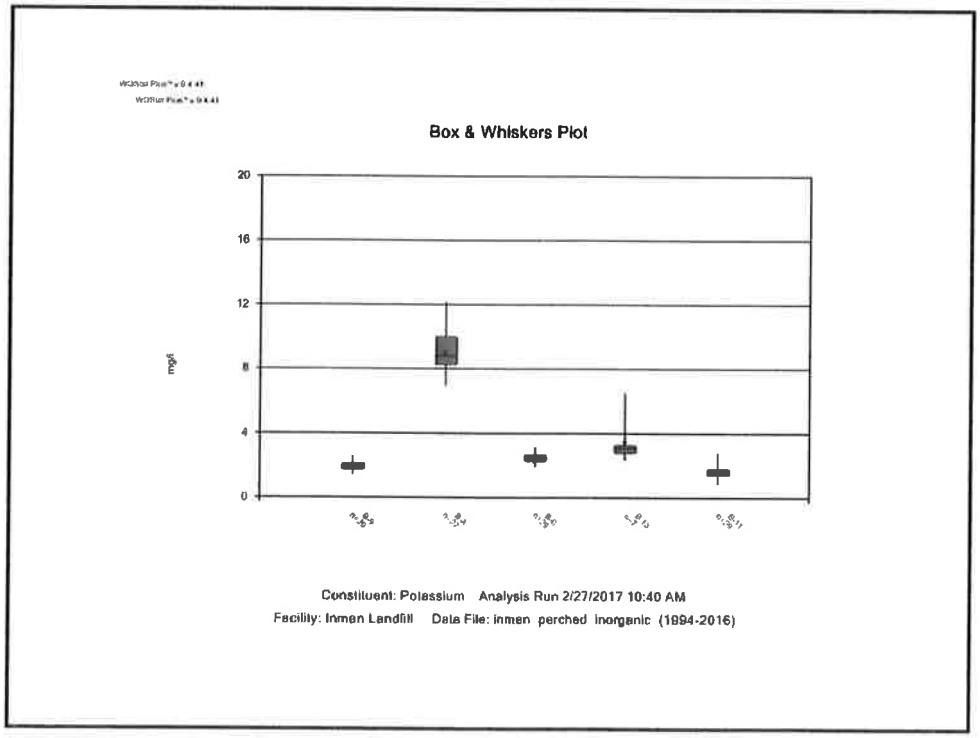

Box & Whiskers Plot
10
8
6
4
2
0
mg/l
Constituent: Manganese Analysis Run 2/27/2017 10:30 AM
Facility: Inman Landfill Data File: inman perched inorganic (1994-2016)

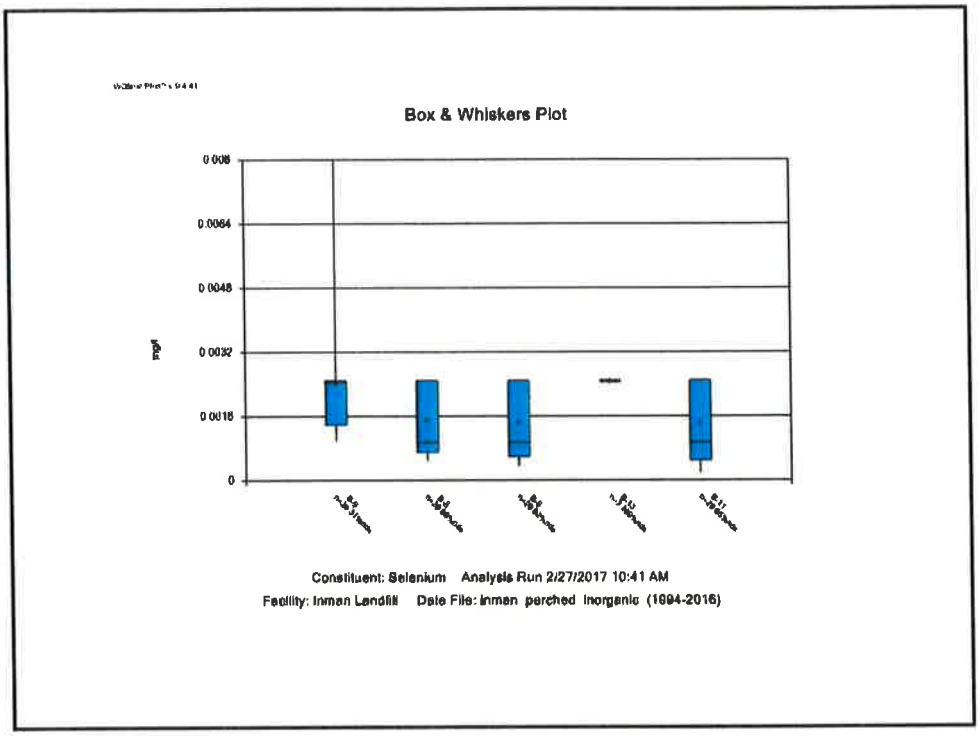

Box & Whiskers Plot
0 0011
0 00088
0 00066
0 00044
0 00022
0
mg/l
Constituent: Mercury Analysis Run 2/27/2017 10:38 AM
Facility: Inman Landfill Data File: inman perched inorganic (1994-2016)

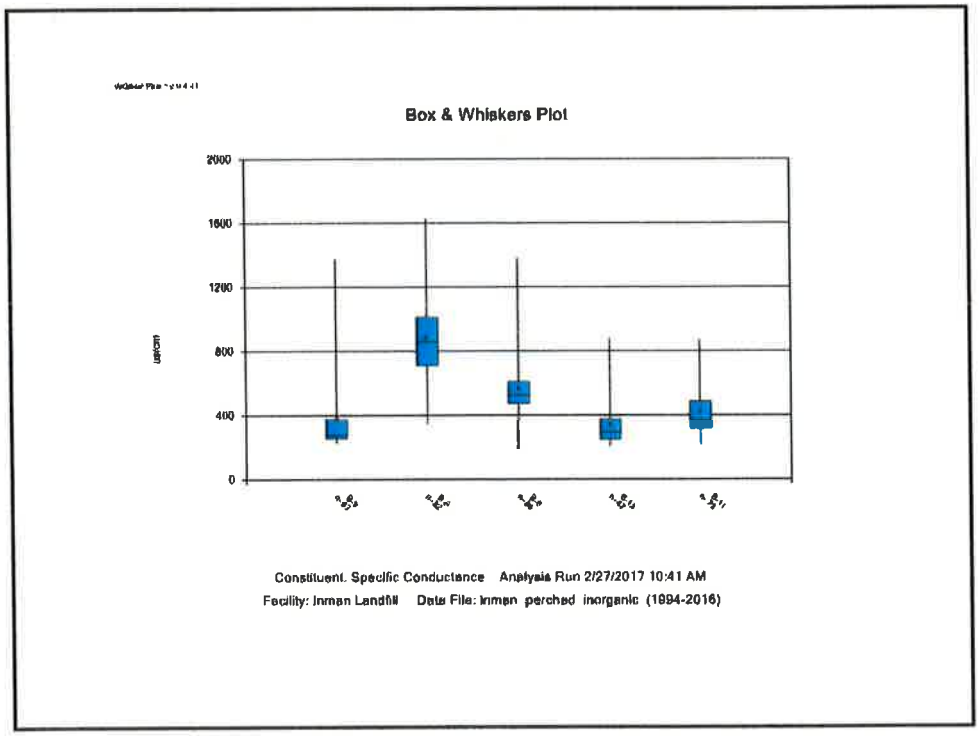

Box & Whiskers Plot
0.02
0.016
0.012
0.008
0.004
0
mg/l
Constituent: Nickel Analysis Run 2/27/2017 10:39 AM
Facility: Inman Landfill Data File: inman perched inorganic (1994-2016)

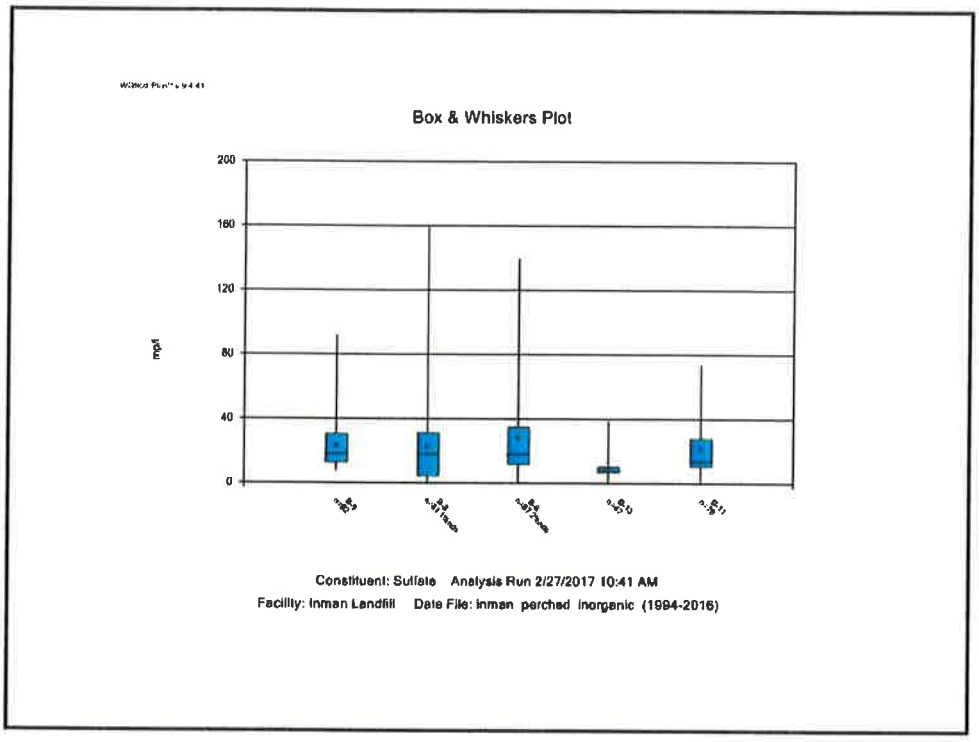

Box & Whiskers Plot
30
24
18
12
6
0
mg/l
Constituent: Nitrate as nitrogen Analysis Run 2/27/2017 10:39 AM
Facility: Inman Landfill Data File: inman perched inorganic (1994-2016)

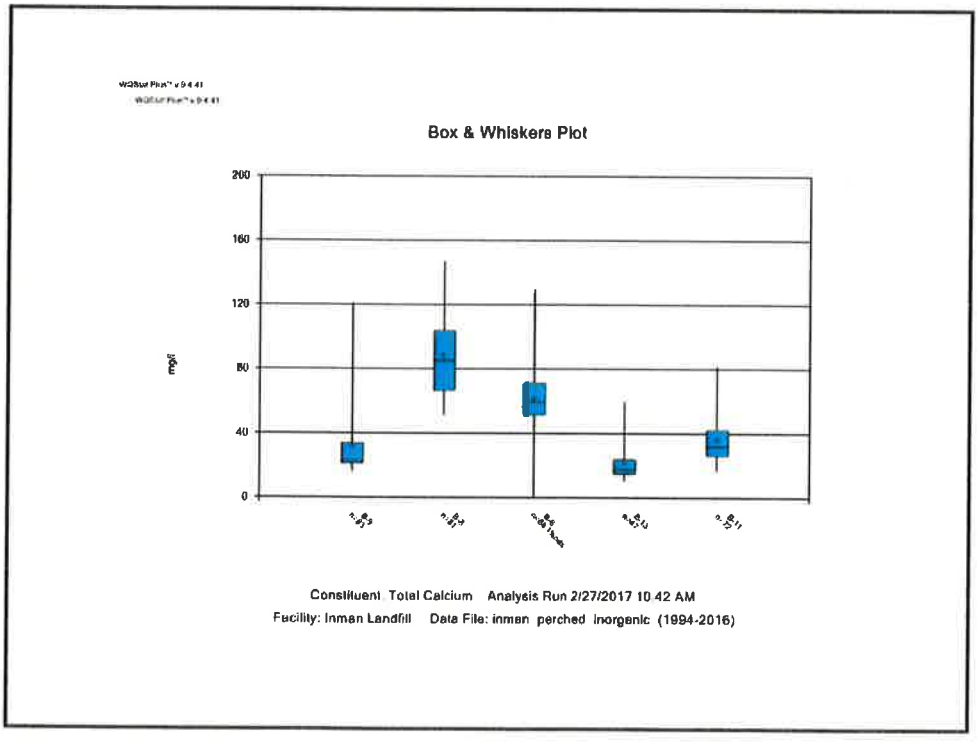

Box & Whiskers Plot
pH units
20
16
12
8
4
0
Constituent: pH Analysis Run 3/8/2017 11:29 AM
Facility: Inman perched Data File: Inman perched Inorganic (1994-2016)

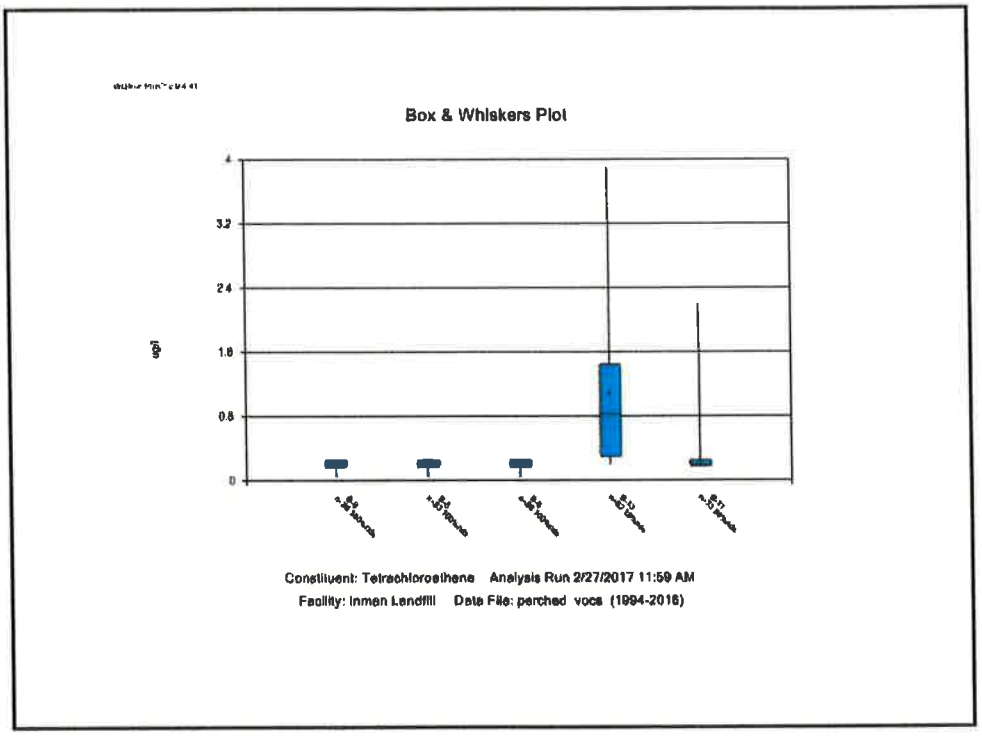

Box & Whiskers Plot
mg/l
20
16
12
8
4
0
Constituent: Potassium Analysis Run 2/27/2017 10:40 AM
Facility: Inman Landfill Data File: inman perched inorganic (1994-2016)

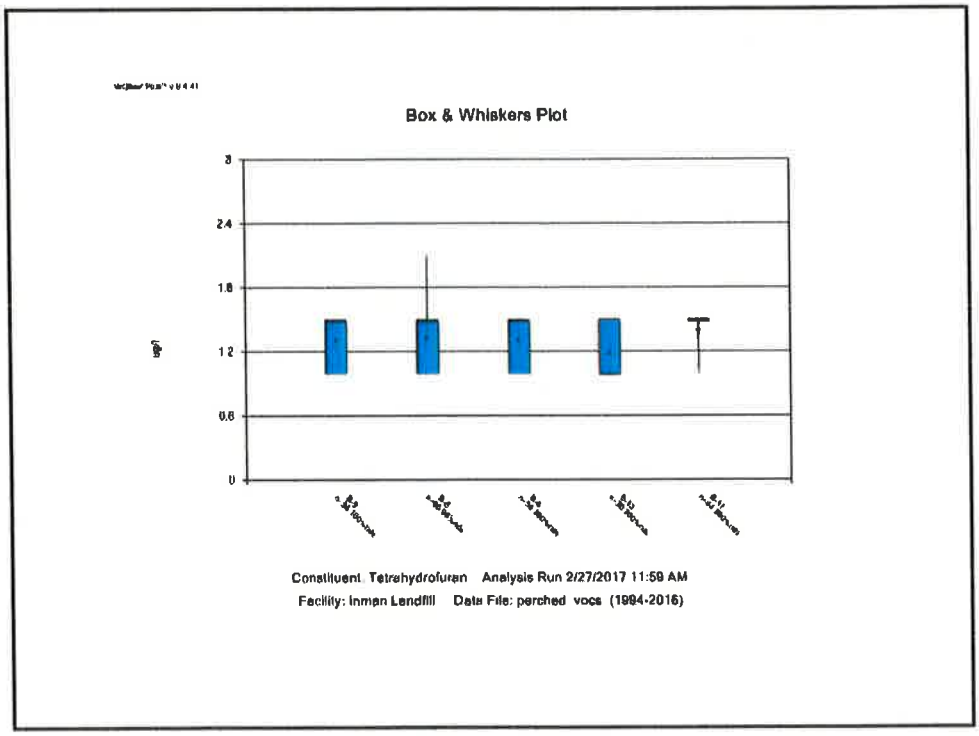

Box & Whiskers Plot
0.008
0.0064
0.0048
0.0032
0.0016
0
mg/l
Constituent: Selenium Analysis Run 2/27/2017 10:41 AM
Facility: Inman Landfill Data File: Inman perched inorganic (1994-2016)

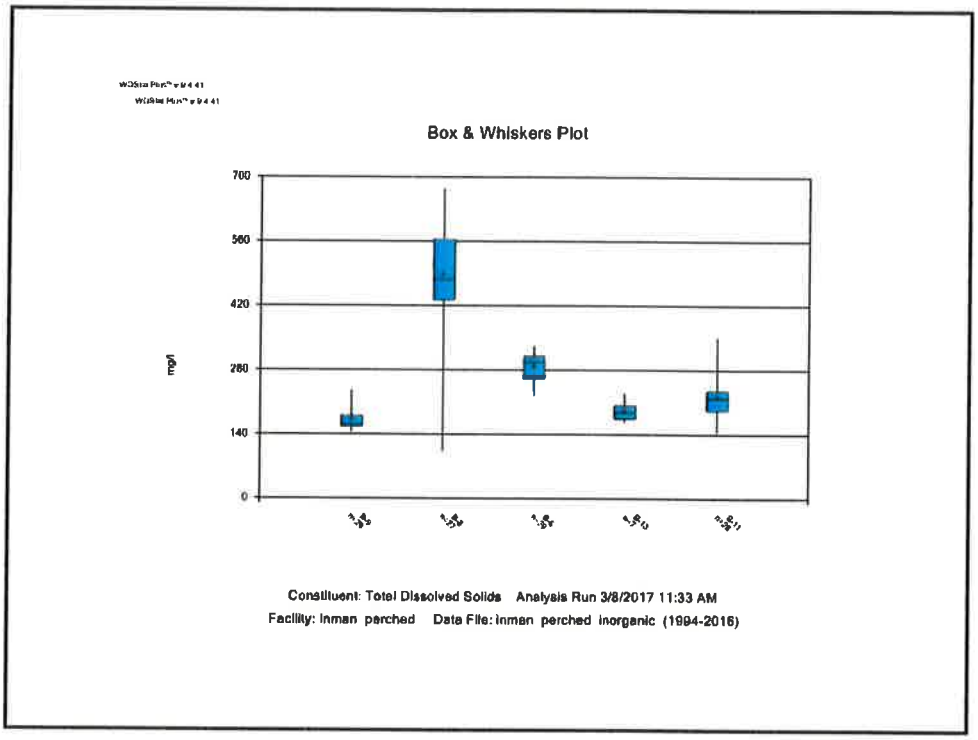

Box & Whiskers Plot
2000
1600
1200
800
400
0
uS/cm
Constituent: Specific Conductance Analysis Run 2/27/2017 10:41 AM
Facility: Inman Landfill Data File: Inman perched inorganic (1994-2016)

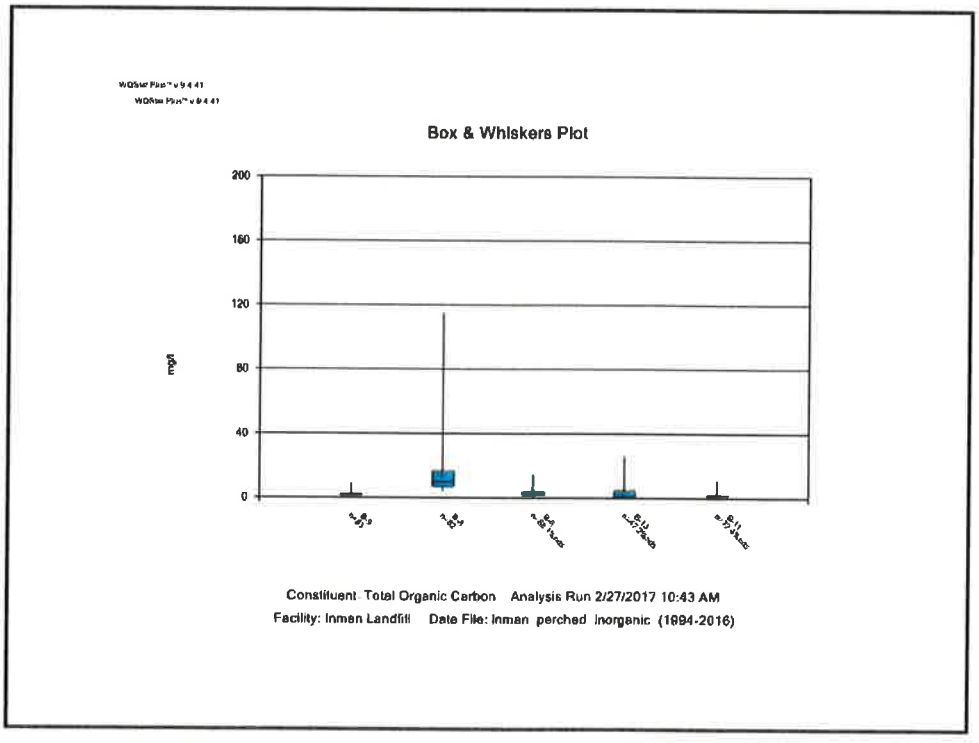

Box & Whiskers Plot
200
160
120
80
40
0
mg/l
Constituent: Sulfate Analysis Run 2/27/2017 10:41 AM
Facility: Inman Landfill Data File: inman perched inorganic (1994-2016)

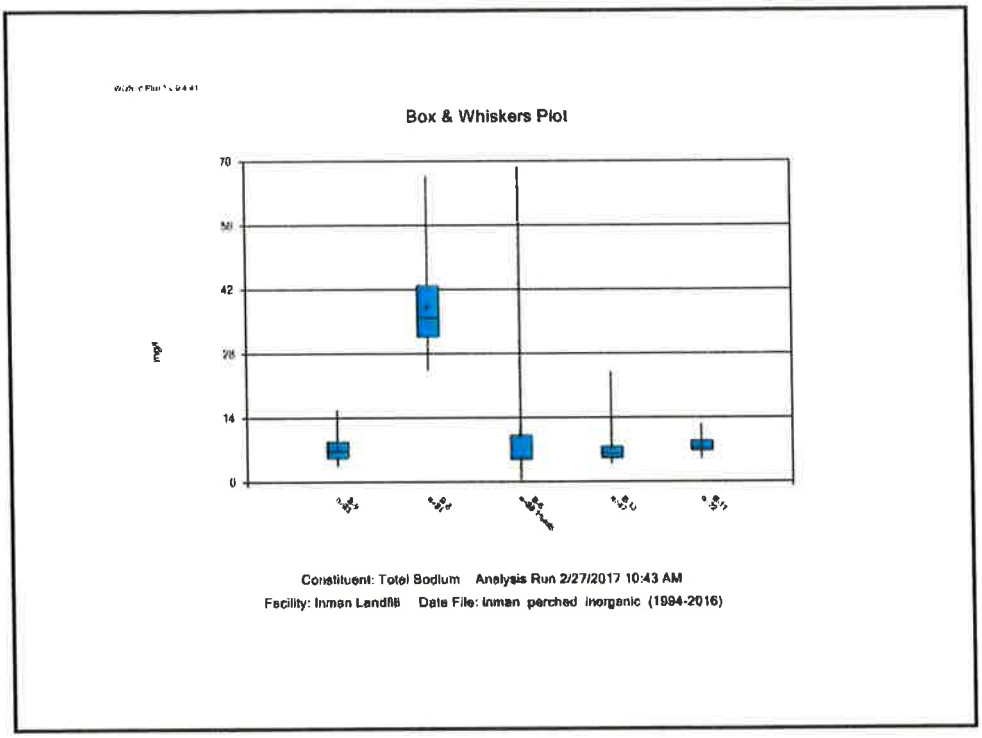

Box & Whiskers Plot
200
160
120
80
40
0
mg/l
Constituent Total Calcium Analysis Run 2/27/2017 10:42 AM
Facility: Inman Landfill Data File: inman perched inorganic (1994-2016)

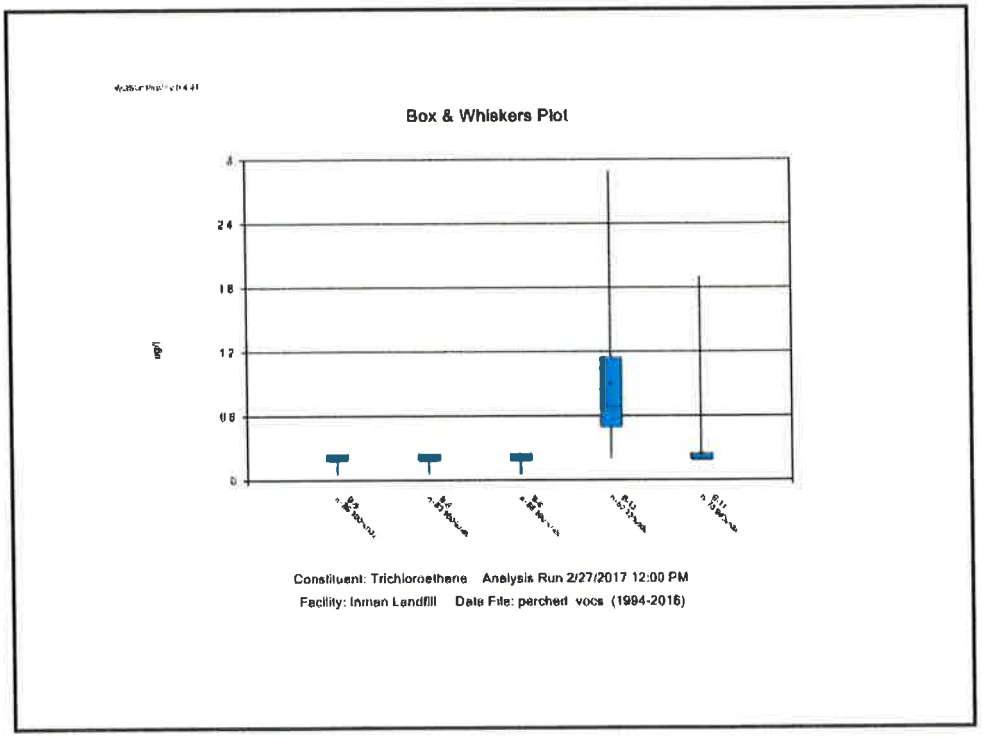

Box & Whiskers Plot
4
3.2
2.4
1.6
0.8
0
ug/l
Constituent: Tetrachloroethene Analysis Run 2/27/2017 11:59 AM
Facility: Inman Landfill Data File: perched vocs (1994-2016)

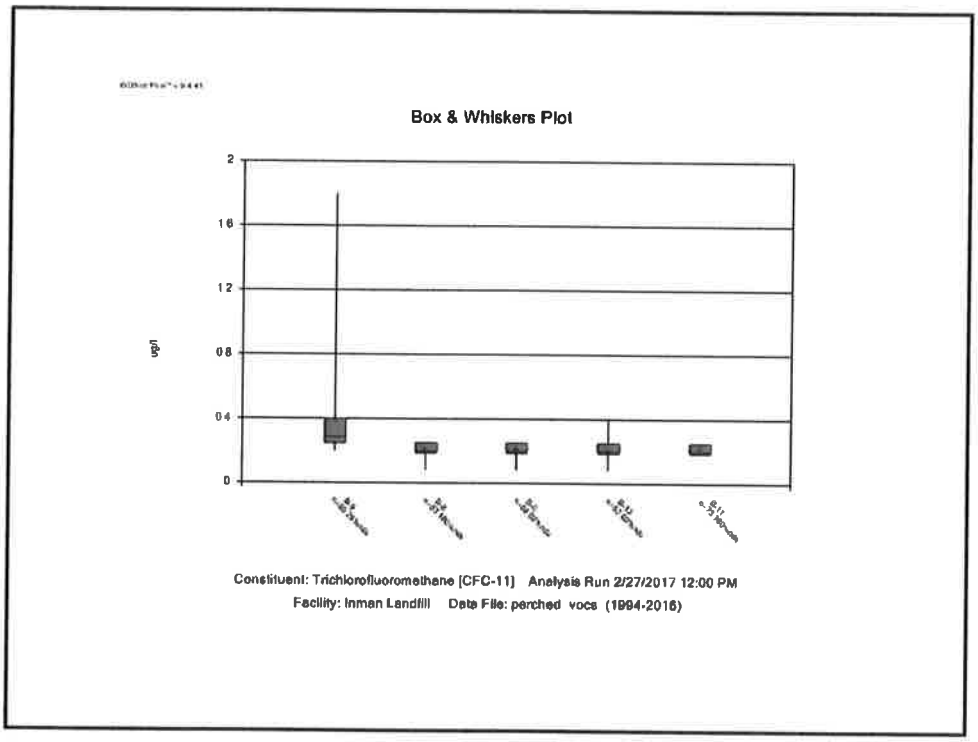

Box & Whiskers Plot
3
2.4
1.8
1.2
0.6
0
ug/l
Constituent: Tetrahydrofuran Analysis Run 2/27/2017 11:59 AM
Facility: Inman Landfill Data File: perched vocs (1994-2016)

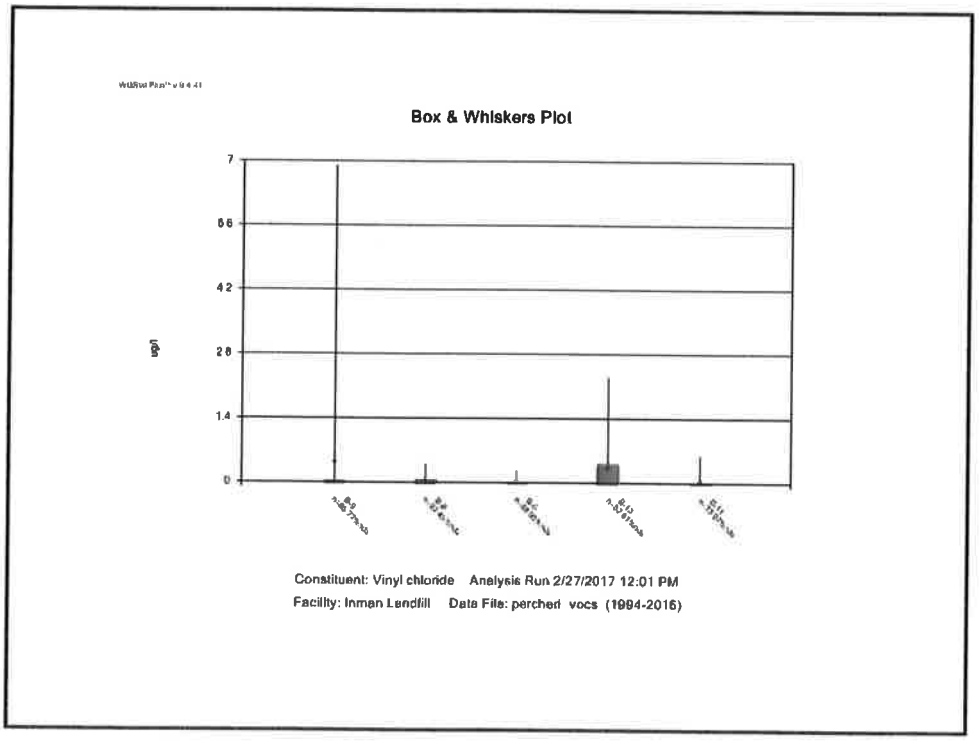

Box & Whiskers Plot
700
560
420
280
140
0
mg/l
Constituent: Total Dissolved Solids Analysis Run 3/8/2017 11:33 AM
Facility: Inman perched Data File: Inman perched inorganic (1994-2016)

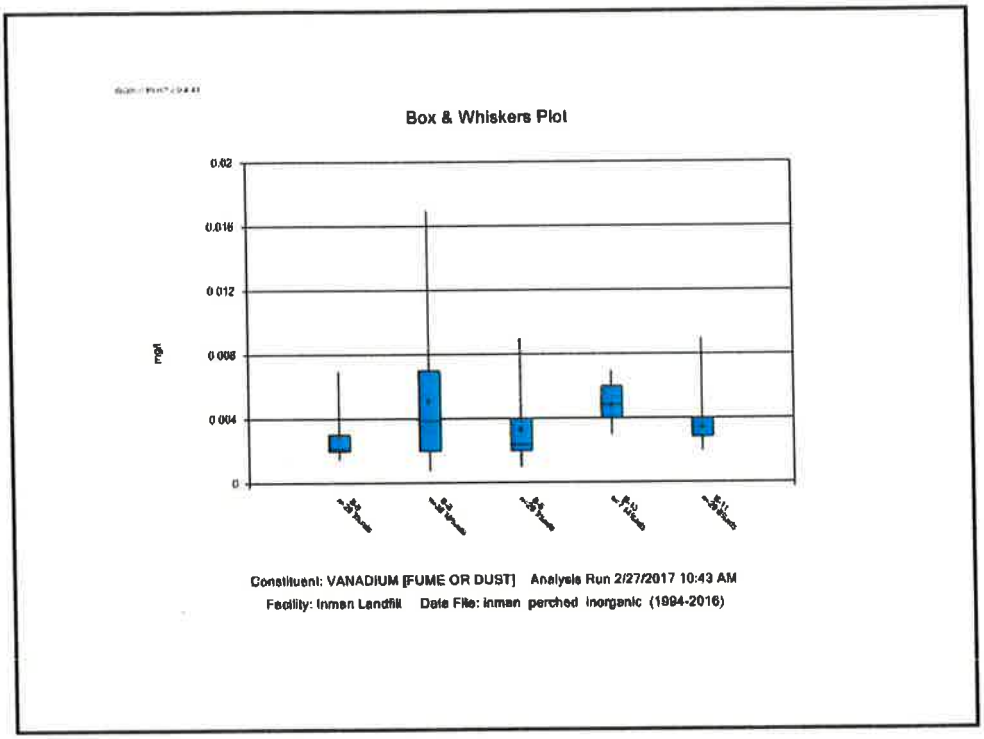

Box & Whiskers Plot
200
160
120
80
40
0
mg/l
Constituent: Total Organic Carbon Analysis Run 2/27/2017 10:43 AM
Facility: Inman Landfill Data File: Inman perched inorganic (1994-2016)

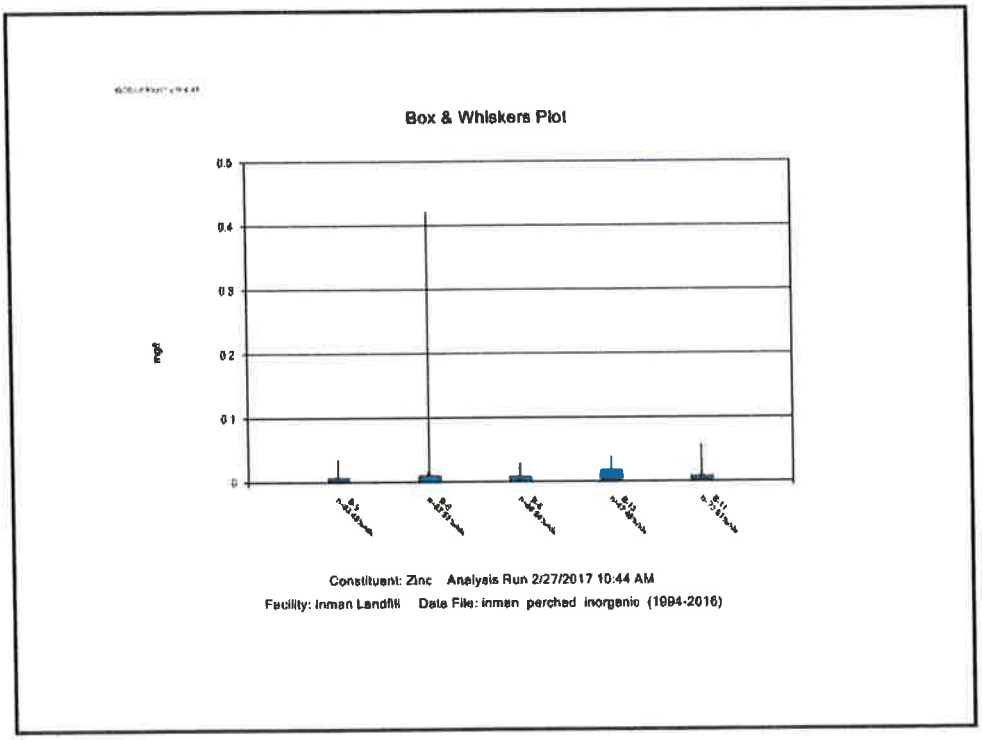

Box & Whiskers Plot
70
56
42
28
14
0
mg/l
Constituent: Total Sodium Analysis Run 2/27/2017 10:43 AM
Facility: Inman Landfill Data File: inman perched inorganic (1994-2016)


Box & Whiskers Plot
24
18
12
6
0
ug/l
Constituent: Trichloroethene Analysis Run 2/27/2017 12:00 PM
Facility: Inman Landfill Data File: perched vocs (1994-2016)


Box & Whiskers Plot
ug/l
2
1.6
1.2
0.8
0.4
0
Constituent: Trichlorofluoromethane [CFC-11] Analysis Run 2/27/2017 12:00 PM
Facility: Inman Landfill Data File: perched vocs (1994-2016)


Box & Whiskers Plot
ug/l
7
5.6
4.2
2.8
1.4
0
Constituent: Vinyl chloride Analysis Run 2/27/2017 12:01 PM
Facility: Inman Landfill Data File: perched vocs (1994-2016)


Box & Whiskers Plot
0.02
0.016
0.012
0.008
0.004
0
mg/l
Constituent: VANADIUM [FUME OR DUST] Analysis Run 2/27/2017 10:43 AM
Facility: Inman Landfill Data File: inman perched inorganic (1994-2016)


Box & Whiskers Plot
0.5
0.4
0.3
0.2
0.1
0
mg/l
Constituent: Zinc Analysis Run 2/27/2017 10:44 AM
Facility: Inman Landfill Data File: inman perched inorganic (1994-2016)

APPENDIX D-4:
Long-Term Mann-Kendall Trend Tests 1994-2016 – Perched Aquifer

Long-Term Mann-Kendall Trend Tests 1994-2016
Perched Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Alpha
1,1-dichloroethane	ug/L	B-6	-0.002748	-6.879	-2.33	Yes	88	93.18	0.02
		B-8	-0.001581	-5.68	-2.33	Yes	83	71.08	0.02
		B-9	-0.006096	-8.795	-2.33	Yes	86	55.81	0.02
		B-11	0	-7.131	-2.33	Yes	73	98.63	0.02
		B-13	-0.162	-6.011	-2.33	Yes	52	11.54	0.02
1,2-dichloroethane	ug/L	B-6	0	-6.511	-2.33	Yes	88	98.86	0.02
		B-8	0	-5.794	-2.33	Yes	83	100	0.02
		B-9	0	-6.007	-2.33	Yes	86	100	0.02
		B-11	0	-7.131	-2.33	Yes	73	98.63	0.02
		B-13	-0.00772	-5.291	-2.33	Yes	52	73.08	0.02
Acetone	ug/L	B-6	0.06688	8.498	2.33	Yes	88	96.59	0.02
		B-8	0.07681	8.532	2.33	Yes	83	90.36	0.02
		B-9	0.0691	9.734	2.33	Yes	86	98.84	0.02
		B-11	0.06503	7.299	2.33	Yes	73	97.26	0.02
		B-13	0	0.7606	2.33	No	52	76.92	0.02
Alkalinity	mg/L	B-6	-1.298	-43	-125	No	29	0	0.02
		B-8	2.691	19	106	No	26	0	0.02
		B-9	-4.087	-110	-119	No	28	0	0.02
		B-11	-5.971	-88	-112	No	27	0	0.02
		B-13	-39.11	-9	-17	No	7	0	0.02
Ammonia as nitrogen	mg/L	B-6	-0.01146	-8.776	-2.33	Yes	88	21.59	0.02
		B-8	0.006842	2.939	2.33	Yes	81	13.58	0.02
		B-9	0	-0.1403	-2.33	No	83	61.45	0.02
		B-11	-0.0002604	-2.274	-2.33	No	71	70.42	0.02
		B-13	0	-0.1014	-2.33	No	47	25.53	0.02
Antimony, dissolved	mg/L	B-6	-0.00007279	-203	-119	Yes	28	64.29	0.02
		B-8	-0.00006827	-134	-112	Yes	27	70.37	0.02
		B-9	-0.0000505	-161	-125	Yes	29	79.31	0.02
		B-11	0	-124	-125	No	29	93.1	0.02
		B-13	0	-8	-17	No	7	100	0.02
Arsenic, dissolved	mg/L	B-6	-0.000223	-9.145	-2.33	Yes	86	20.93	0.02
		B-8	-0.0003027	-3.506	-2.33	Yes	81	25.93	0.02
		B-9	-0.00004607	-7.9	-2.33	Yes	81	20.99	0.02
		B-11	-6.685E-06	-4.493	-2.33	Yes	70	35.71	0.02
		B-13	-0.0003771	-6.139	-2.33	Yes	46	50	0.02
Barium, dissolved	mg/L	B-6	-0.0002949	-70	-125	No	29	0	0.02
		B-8	0.0002844	14	119	No	28	0	0.02
		B-9	-0.0002295	-102	-125	No	29	0	0.02
		B-11	-0.0005734	-64	-125	No	29	3.448	0.02
		B-13	-0.001834	-11	-17	No	7	0	0.02
Bicarbonate	mg/L	B-6	-0.6119	-12	-125	No	29	0	0.02
		B-8	5.495	31	106	No	26	0	0.02
		B-9	-3.041	-65	-119	No	28	0	0.02
		B-11	-2.874	-42	-112	No	27	0	0.02
		B-13	-39.11	-9	-17	No	7	0	0.02
Cadmium, dissolved	mg/L	B-6	-0.00004348	-6.131	-2.33	Yes	86	94.19	0.02
		B-8	-0.00004039	-5.395	-2.33	Yes	80	86.25	0.02
		B-9	-0.00003129	-5.156	-2.33	Yes	82	93.9	0.02
		B-11	-0.00004761	-6.797	-2.33	Yes	71	92.96	0.02
		B-13	0	-1.635	-2.33	No	46	95.65	0.02
Calcium, total	mg/L	B-6	-1.173	-5.662	-2.33	Yes	88	1.136	0.02
		B-8	-1.406	-3.21	-2.33	Yes	81	0	0.02
		B-9	-0.8738	-6.657	-2.33	Yes	83	0	0.02
		B-11	-0.8343	-3.967	-2.33	Yes	72	0	0.02
		B-13	-0.6144	-2.487	-2.33	Yes	47	0	0.02
Chemical Oxygen Demand	mg/L	B-6	-0.1488	-3.643	-2.33	Yes	88	50	0.02
		B-8	-0.2327	-0.718	-2.33	No	81	4.938	0.02
		B-9	0	-0.9426	-2.33	No	83	65.06	0.02
		B-11	0	-2.737	-2.33	Yes	71	70.42	0.02
		B-13	-0.09674	-2.018	-2.33	No	47	65.96	0.02

Long-Term Mann-Kendall Trend Tests 1994-2016
Perched Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Alpha
Chloride	mg/L	B-6	-0.05543	-1.502	-2.33	No	87	2.299	0.02
		B-8	**-3.577**	**-8.747**	**-2.33**	**Yes**	**81**	**0**	**0.02**
		B-9	**-0.3533**	**-9.362**	**-2.33**	**Yes**	**82**	**0**	**0.02**
		B-11	**-0.1968**	**-7.557**	**-2.33**	**Yes**	**70**	**0**	**0.02**
		B-13	**0.443**	**5.155**	**2.33**	**Yes**	**47**	**0**	**0.02**
Chlorodifluoromethane (Freon 22)	ug/L	B-6	0	0.8619	2.33	No	56	100	0.02
		B-8	**-0.0784**	**-3.7**	**-2.33**	**Yes**	**56**	**32.14**	**0.02**
		B-9	0	0.8126	2.33	No	56	96.43	0.02
		B-11	0	-1.654	-2.33	No	44	100	0.02
		B-13	**-0.0183**	**-179**	**-132**	**Yes**	**30**	**43.33**	**0.02**
Chloroethane	ug/L	**B-6**	**0**	**-6.416**	**-2.33**	**Yes**	**88**	**100**	**0.02**
		B-8	**0**	**-5.786**	**-2.33**	**Yes**	**82**	**98.78**	**0.02**
		B-9	**-0.002897**	**-6.578**	**-2.33**	**Yes**	**86**	**91.86**	**0.02**
		B-11	**0**	**-7.226**	**-2.33**	**Yes**	**73**	**100**	**0.02**
		B-13	**-0.00409**	**-4.808**	**-2.33**	**Yes**	**52**	**94.23**	**0.02**
Chromium, dissolved	mg/L	**B-6**	**-0.0004017**	**-200**	**-125**	**Yes**	**29**	**44.83**	**0.02**
		B-8	**-0.0005447**	**-230**	**-119**	**Yes**	**28**	**32.14**	**0.02**
		B-9	**-0.000343**	**-262**	**-125**	**Yes**	**29**	**27.59**	**0.02**
		B-11	**-0.0003153**	**-197**	**-125**	**Yes**	**29**	**34.48**	**0.02**
		B-13	0	-10	-17	No	7	100	0.02
cis-1,2-dichloroethene	ug/L	**B-6**	**0**	**-6.416**	**-2.33**	**Yes**	**88**	**100**	**0.02**
		B-8	**0**	**-5.794**	**-2.33**	**Yes**	**83**	**100**	**0.02**
		B-9	**0**	**-6.007**	**-2.33**	**Yes**	**86**	**100**	**0.02**
		B-11	**0**	**-7.131**	**-2.33**	**Yes**	**73**	**98.63**	**0.02**
		B-13	**-0.6354**	**-5.58**	**-2.33**	**Yes**	**52**	**13.46**	**0.02**
Cobalt, dissolved	mg/L	B-6	0	-79	-119	No	28	82.14	0.02
		B-8	0	-13	-112	No	27	25.93	0.02
		B-9	0	-109	-125	No	29	79.31	0.02
		B-11	0	-82	-125	No	29	82.76	0.02
		B-13	0	0	17	No	7	100	0.02
Copper, dissolved	mg/L	**B-6**	**-0.0003086**	**-198**	**-125**	**Yes**	**29**	**62.07**	**0.02**
		B-8	**-0.0004949**	**-135**	**-119**	**Yes**	**28**	**32.14**	**0.02**
		B-9	**-0.0002727**	**-169**	**-125**	**Yes**	**29**	**62.07**	**0.02**
		B-11	**-0.0001832**	**-181**	**-125**	**Yes**	**29**	**55.17**	**0.02**
		B-13	-0.004968	-12	-17	No	7	100	0.02
Dichlorodifluoromethane (CFC-12)	ug/L	**B-6**	**-0.0006108**	**-5.069**	**-2.33**	**Yes**	**88**	**73.86**	**0.02**
		B-8	**0**	**-5.794**	**-2.33**	**Yes**	**83**	**100**	**0.02**
		B-9	**-0.1006**	**-3.991**	**-2.33**	**Yes**	**86**	**17.44**	**0.02**
		B-11	**-0.002258**	**-6.868**	**-2.33**	**Yes**	**73**	**95.89**	**0.02**
		B-13	0	1.632	2.33	No	52	34.62	0.02
Dichloromonofluoromethane (Freon 21)	ug/L	B-6	0	0.4508	2.33	No	56	100	0.02
		B-8	0	0.04496	2.33	No	56	53.57	0.02
		B-9	0	0.8522	2.33	No	56	96.43	0.02
		B-11	0	-1.654	-2.33	No	44	100	0.02
		B-13	0	-25	-132	No	30	63.33	0.02
Diethyl ether	ug/L	B-6	0	0.4508	2.33	No	56	100	0.02
		B-8	**-0.08595**	**-2.474**	**-2.33**	**Yes**	**56**	**23.21**	**0.02**
		B-9	0	0.8522	2.33	No	56	100	0.02
		B-11	0	-1.654	-2.33	No	44	100	0.02
		B-13	**-0.2631**	**-258**	**-132**	**Yes**	**30**	**40**	**0.02**
Iron, dissolved	mg/L	**B-6**	**0**	**-4.259**	**-2.33**	**Yes**	**88**	**65.91**	**0.02**
		B-8	0.009079	1.914	2.33	No	82	17.07	0.02
		B-9	0	-2.254	-2.33	No	83	71.08	0.02
		B-11	**0**	**-3.182**	**-2.33**	**Yes**	**72**	**62.5**	**0.02**
		B-13	**-0.06808**	**-4.307**	**-2.33**	**Yes**	**47**	**57.45**	**0.02**
Lead, dissolved	mg/L	**B-6**	**-0.00002946**	**-4.959**	**-2.33**	**Yes**	**87**	**97.7**	**0.02**
		B-8	**-0.00003356**	**-4.792**	**-2.33**	**Yes**	**81**	**92.59**	**0.02**
		B-9	**-0.00002632**	**-4.298**	**-2.33**	**Yes**	**83**	**93.98**	**0.02**
		B-11	**-0.0000356**	**-6.297**	**-2.33**	**Yes**	**72**	**97.22**	**0.02**
		B-13	0	-1.736	-2.33	No	47	97.87	0.02

Long-Term Mann-Kendall Trend Tests 1994-2016
Perched Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Alpha
Magnesium, total	mg/L	B-6	-0.4629	-89	-125	No	29	0	0.02
		B-8	0.3131	19	112	No	27	0	0.02
		B-9	**-0.7347**	**-232**	**-125**	**Yes**	**29**	**0**	**0.02**
		B-11	-0.404	-57	-125	No	29	0	0.02
		B-13	-3.542	-5	-17	No	7	0	0.02
Manganese, dissolved	mg/L	**B-6**	**-0.01671**	**-10.27**	**-2.33**	**Yes**	**88**	**14.77**	**0.02**
		B-8	-0.004184	-1.438	-2.33	No	82	6.098	0.02
		B-9	**-0.0602**	**-9.66**	**-2.33**	**Yes**	**83**	**19.28**	**0.02**
		B-11	**-0.0002947**	**-6.816**	**-2.33**	**Yes**	**72**	**56.94**	**0.02**
		B-13	**-0.07596**	**-8.101**	**-2.33**	**Yes**	**47**	**4.255**	**0.02**
Mercury, dissolved	mg/L	B-6	0	-1.486	-2.33	No	87	100	0.02
		B-8	0	-1.025	-2.33	No	81	98.77	0.02
		B-9	**0**	**-2.493**	**-2.33**	**Yes**	**82**	**98.78**	**0.02**
		B-11	**0**	**-2.353**	**-2.33**	**Yes**	**71**	**98.59**	**0.02**
		B-13	0	0.1324	2.33	No	47	100	0.02
Nickel, dissolved	mg/L	**B-6**	**0.0000308**	**163**	**119**	**Yes**	**28**	**60.71**	**0.02**
		B-8	-0.00008653	-38	-112	No	27	3.704	0.02
		B-9	**0.0000637**	**136**	**125**	**Yes**	**29**	**41.38**	**0.02**
		B-11	**0.00003626**	**132**	**125**	**Yes**	**29**	**41.38**	**0.02**
		B-13	0	-6	-17	No	7	14.29	0.02
Nitrate as nitrogen	mg/L	**B-6**	**0.04753**	**3.407**	**2.33**	**Yes**	**87**	**1.149**	**0.02**
		B-8	0	-1.102	-2.33	No	80	63.75	0.02
		B-9	-0.00361	-0.5449	-2.33	No	82	7.317	0.02
		B-11	-0.04655	-1.07	-2.33	No	70	4.286	0.02
		B-13	**0.1155**	**4.112**	**2.33**	**Yes**	**47**	**17.02**	**0.02**
Nitrite as nitrogen	mg/L	B-6	0	-0.5868	-2.33	No	87	89.66	0.02
		B-8	**0**	**3.208**	**2.33**	**Yes**	**80**	**95**	**0.02**
		B-9	0	0.1281	2.33	No	82	96.34	0.02
		B-11	0	0.2502	2.33	No	70	94.29	0.02
		B-13	0	1.767	2.33	No	47	87.23	0.02
pH	mg/L	**B-6**	**0.02668**	**4.97**	**2.33**	**Yes**	**85**	**0**	**0.02**
		B-8	0.009746	1.538	2.33	No	83	0	0.02
		B-9	**0.01409**	**2.824**	**2.33**	**Yes**	**82**	**0**	**0.02**
		B-11	**0.01559**	**2.713**	**2.33**	**Yes**	**72**	**0**	**0.02**
		B-13	-0.01595	-1.991	-2.33	No	47	0	0.02
Potassium, total	mg/L	B-6	0	10	125	No	29	0	0.02
		B-8	-0.1065	-35	-112	No	27	0	0.02
		B-9	**-0.05449**	**-132**	**-125**	**Yes**	**29**	**0**	**0.02**
		B-11	-0.04778	-104	-125	No	29	0	0.02
		B-13	-0.3668	-9	-17	No	7	0	0.02
Selenium, dissolved	mg/L	**B-6**	**-0.0002721**	**-261**	**-125**	**Yes**	**29**	**62.07**	**0.02**
		B-8	**-0.0002494**	**-232**	**-119**	**Yes**	**28**	**60.71**	**0.02**
		B-9	**-0.0002241**	**-214**	**-125**	**Yes**	**29**	**31.03**	**0.02**
		B-11	**-0.0002853**	**-212**	**-125**	**Yes**	**29**	**65.52**	**0.02**
		B-13	0	0	17	No	7	100	0.02
Sodium, total	mg/L	**B-6**	**-0.4496**	**-10.4**	**-2.33**	**Yes**	**88**	**1.136**	**0.02**
		B-8	**-0.9588**	**-6.689**	**-2.33**	**Yes**	**81**	**0**	**0.02**
		B-9	**-0.3321**	**-9.849**	**-2.33**	**Yes**	**83**	**0**	**0.02**
		B-11	**-0.1441**	**-5.923**	**-2.33**	**Yes**	**72**	**0**	**0.02**
		B-13	**-0.2233**	**-3.054**	**-2.33**	**Yes**	**47**	**0**	**0.02**
Specific Conductance	us/cm	**B-6**	**-11.12**	**-6.457**	**-2.33**	**Yes**	**86**	**0**	**0.02**
		B-8	**-13.28**	**-3.56**	**-2.33**	**Yes**	**82**	**0**	**0.02**
		B-9	**-9.796**	**-8.394**	**-2.33**	**Yes**	**83**	**0**	**0.02**
		B-11	**-8.855**	**-3.872**	**-2.33**	**Yes**	**73**	**0**	**0.02**
		B-13	-7.337	-2.201	-2.33	No	47	0	0.02
Sulfate	mg/L	**B-6**	**-1.878**	**-9.386**	**-2.33**	**Yes**	**87**	**2.299**	**0.02**
		B-8	**-1.388**	**-4.275**	**-2.33**	**Yes**	**81**	**1.235**	**0.02**
		B-9	**-1.471**	**-9.186**	**-2.33**	**Yes**	**82**	**0**	**0.02**
		B-11	**-1.003**	**-4.068**	**-2.33**	**Yes**	**70**	**0**	**0.02**
		B-13	0.1022	1.342	2.33	No	47	0	0.02

Long-Term Mann-Kendall Trend Tests 1994-2016
Perched Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Alpha
Tetrachloroethene	ug/L	**B-6**	**0**	**-6.416**	**-2.33**	**Yes**	**88**	**100**	**0.02**
		B-8	**0**	**-5.794**	**-2.33**	**Yes**	**83**	**100**	**0.02**
		B-9	**0**	**-6.007**	**-2.33**	**Yes**	**86**	**100**	**0.02**
		B-11	**0**	**-7.131**	**-2.33**	**Yes**	**73**	**98.63**	**0.02**
		B-13	-0.005198	-0.6335	-2.33	No	52	19.23	0.02
Tetrahydrofuran	ug/L	**B-6**	**0**	**6.211**	**2.33**	**Yes**	**56**	**100**	**0.02**
		B-8	**0**	**5.622**	**2.33**	**Yes**	**56**	**98.21**	**0.02**
		B-9	**0**	**6.211**	**2.33**	**Yes**	**56**	**100**	**0.02**
		B-11	**0**	**4.568**	**2.33**	**Yes**	**44**	**100**	**0.02**
		B-13	**0**	**209**	**132**	**Yes**	**30**	**100**	**0.02**
Toluene	ug/L	**B-6**	**0**	**-6.221**	**-2.33**	**Yes**	**88**	**100**	**0.02**
		B-8	**0**	**-3.581**	**-2.33**	**Yes**	**83**	**91.57**	**0.02**
		B-9	**0**	**-5.814**	**-2.33**	**Yes**	**85**	**100**	**0.02**
		B-11	**0**	**-7.024**	**-2.33**	**Yes**	**73**	**100**	**0.02**
		B-13	**0**	**-4.126**	**-2.33**	**Yes**	**52**	**100**	**0.02**
Total Dissolved Solids	mg/L	B-6	-2.205	-69	-125	No	29	0	0.02
		B-8	-3.636	-17	-112	No	27	0	0.02
		B-9	**-4.653**	**-176**	**-125**	**Yes**	**29**	**0**	**0.02**
		B-11	-1.609	-27	-119	No	28	0	0.02
		B-13	-26.42	-14	-17	No	7	0	0.02
Total Organic Carbon	mg/L	**B-6**	**-0.1525**	**-8.875**	**-2.33**	**Yes**	**88**	**1.136**	**0.02**
		B-8	-0.03453	-0.3644	-2.33	No	82	0	0.02
		B-9	**-0.06854**	**-6.512**	**-2.33**	**Yes**	**83**	**0**	**0.02**
		B-11	**-0.02875**	**-4.402**	**-2.33**	**Yes**	**72**	**4.167**	**0.02**
		B-13	**-0.2874**	**-5.327**	**-2.33**	**Yes**	**47**	**2.128**	**0.02**
Trichloroethene	ug/L	**B-6**	**0**	**-6.416**	**-2.33**	**Yes**	**88**	**100**	**0.02**
		B-8	**0**	**-5.794**	**-2.33**	**Yes**	**83**	**100**	**0.02**
		B-9	**0**	**-6.007**	**-2.33**	**Yes**	**86**	**100**	**0.02**
		B-11	**0**	**-7.131**	**-2.33**	**Yes**	**73**	**98.63**	**0.02**
		B-13	**-0.05592**	**-2.828**	**-2.33**	**Yes**	**52**	**13.46**	**0.02**
Trichlorofluoromethane (CFC-11)	ug/L	**B-6**	**0**	**-6.416**	**-2.33**	**Yes**	**88**	**98.86**	**0.02**
		B-8	**0**	**-5.794**	**-2.33**	**Yes**	**83**	**100**	**0.02**
		B-9	0	-0.0115	-2.33	No	86	26.74	0.02
		B-11	**0**	**-7.226**	**-2.33**	**Yes**	**73**	**100**	**0.02**
		B-13	**0**	**-3.29**	**-2.33**	**Yes**	**52**	**80.77**	**0.02**
Vanadium, dissolved	mg/L	**B-6**	**-0.0003978**	**-196**	**-125**	**Yes**	**29**	**3.448**	**0.02**
		B-8	**-0.000872**	**-180**	**-119**	**Yes**	**28**	**10.71**	**0.02**
		B-9	**-0.0002511**	**-201**	**-125**	**Yes**	**29**	**3.448**	**0.02**
		B-11	**-0.0002657**	**-197**	**-125**	**Yes**	**29**	**6.897**	**0.02**
		B-13	-0.0008239	-7	-17	No	7	14.29	0.02
Vinyl chloride	ug/L	**B-6**	**-0.0002686**	**-6.684**	**-2.33**	**Yes**	**88**	**95.45**	**0.02**
		B-8	0	0.3169	2.33	No	82	46.34	0.02
		B-9	**-0.0005012**	**-8.507**	**-2.33**	**Yes**	**86**	**77.91**	**0.02**
		B-11	**-0.000222**	**-6.955**	**-2.33**	**Yes**	**73**	**97.26**	**0.02**
		B-13	**-0.02876**	**-6.449**	**-2.33**	**Yes**	**52**	**61.54**	**0.02**
Zinc, dissolved	mg/L	**B-6**	**-0.0002174**	**-5.777**	**-2.33**	**Yes**	**88**	**54.55**	**0.02**
		B-8	**-0.0002272**	**-5.513**	**-2.33**	**Yes**	**82**	**51.22**	**0.02**
		B-9	**-0.0001767**	**-3.827**	**-2.33**	**Yes**	**83**	**48.19**	**0.02**
		B-11	**-0.0002137**	**-5.574**	**-2.33**	**Yes**	**72**	**51.39**	**0.02**
		B-13	**-0.0004265**	**-2.955**	**-2.33**	**Yes**	**47**	**46.81**	**0.02**

APPENDIX D-5:
Short-Term Mann-Kendall Trend Tests 2012-2016 – Perched Aquifer

Short-Term Mann-Kendall Trend Tests 2012-2016
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	0	68	No	19	100	0.02
		B-8	0	0	63	No	18	100	0.02
		B-9	0	0	68	No	19	100	0.02
		B-11	0	0	68	No	19	100	0.02
1,2-dichloroethane	ug/L	B-6	0	0	68	No	19	100	0.02
		B-8	0	0	63	No	18	100	0.02
		B-9	0	0	68	No	19	100	0.02
		B-11	0	0	68	No	19	100	0.02
Acetone	ug/L	B-6	0	0	68	No	19	100	0.02
		B-8	0	-14	-63	No	18	83.33	0.02
		B-9	0	0	68	No	19	100	0.02
		B-11	0	0	68	No	19	100	0.02
Alkalinity	mg/L	B-6	-2.473	-19	-68	No	19	0	0.02
		B-8	11.11	26	58	No	17	0	0.02
		B-9	0.6874	4	68	No	19	0	0.02
		B-11	-7.849	-38	-63	No	18	0	0.02
Ammonia as nitrogen	mg/L	**B-6**	**-0.008488**	**-98**	**-68**	**Yes**	**19**	**36.84**	**0.02**
		B-8	0.004113	6	53	No	16	18.75	0.02
		B-9	-0.006648	-59	-68	No	19	36.84	0.02
		B-11	**-0.003309**	**-82**	**-63**	**Yes**	**18**	**72.22**	**0.02**
Antimony, dissolved	mg/L	**B-6**	-0.00001342	-33	-63	No	18	44.44	0.02
		B-8	0	-15	-58	No	17	52.94	0.02
		B-9	0	-12	-68	No	19	68.42	0.02
		B-11	0	24	68	No	19	89.47	0.02
Arsenic, dissolved	mg/L	B-6	0	-9	-68	No	19	21.05	0.02
		B-8	0.0002359	28	63	No	18	5.556	0.02
		B-9	**-0.00003635**	**-96**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-11	0	2	68	No	19	5.263	0.02
Barium, dissolved	mg/L	B-6	-0.0002854	-29	-68	No	19	0	0.02
		B-8	0.002897	27	63	No	18	0	0.02
		B-9	0	38	68	No	19	0	0.02
		B-11	-0.000573	-29	-68	No	19	5.263	0.02
Bicarbonate	mg/L	B-6	0	0	68	No	19	0	0.02
		B-8	14.6	32	58	No	17	0	0.02
		B-9	1.978	32	68	No	19	0	0.02
		B-11	-2.874	-8	-63	No	18	0	0.02
Cadmium, dissolved	mg/L	B-6	0	1	63	No	18	77.78	0.02
		B-8	0	-14	-58	No	17	82.35	0.02
		B-9	0	-30	-68	No	19	84.21	0.02
		B-11	0	-6	-68	No	19	84.21	0.02
Carbonate	mg/L	B-6	0	16	68	No	19	0	0.02
		B-8	0	14	58	No	17	0	0.02
		B-9	0	16	68	No	19	0	0.02
		B-11	0	15	63	No	18	0	0.02
Chemical Oxygen Demand	mg/L	B-6	0	13	68	No	19	52.63	0.02
		B-8	-0.408	-3	-53	No	16	0	0.02
		B-9	0	8	68	No	19	68.42	0.02
		B-11	0	43	63	No	18	72.22	0.02
Chloride	mg/L	B-6	-0.2724	-31	-68	No	19	0	0.02
		B-8	-0.5118	-49	-58	No	17	0	0.02
		B-9	-0.1367	-62	-68	No	19	0	0.02
		B-11	**-0.1653**	**-73**	**-63**	**Yes**	**18**	**0**	**0.02**
Chlorodifluoromethane (Freon 22)	ug/L	B-6	0	12	68	No	19	100	0.02
		B-8	0	-20	-63	No	18	55.56	0.02
		B-9	0	0	68	No	19	100	0.02
		B-11	0	0	68	No	19	100	0.02
Chloroethane	ug/L	B-6	0	0	68	No	19	100	0.02
		B-8	0	0	63	No	18	100	0.02
		B-9	0	0	68	No	19	100	0.02
		B-11	0	0	68	No	19	100	0.02
Chromium, dissolved	mg/L	B-6	-0.0000307	-21	-68	No	19	21.05	0.02
		B-8	**-0.0004982**	**-91**	**-63**	**Yes**	**18**	**0**	**0.02**
		B-9	**-0.0001744**	**-77**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-11	0	-41	-68	No	19	5.263	0.02

Short-Term Mann-Kendall Trend Tests 2012-2016
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	0	68	No	19	100	0.02
		B-8	0	0	63	No	18	100	0.02
		B-9	0	0	68	No	19	100	0.02
		B-11	0	0	68	No	19	100	0.02
Cobalt, dissolved	mg/L	B-6	0	-19	-63	No	18	72.22	0.02
		B-8	0	13	58	No	17	23.53	0.02
		B-9	0	-39	-68	No	19	68.42	0.02
		B-11	0	-22	-68	No	19	73.68	0.02
Copper, dissolved	mg/L	B-6	-0.00005659	-27	-68	No	19	42.11	0.02
		B-8	-0.00007078	-15	-63	No	18	16.67	0.02
		B-9	-1.40E-11	-12	-68	No	19	42.11	0.02
		B-11	0	-14	-68	No	19	31.58	0.02
Dichlorodifluoromethane (CFC-12)	ug/L	B-6	0	0	68	No	19	100	0.02
		B-8	0	0	63	No	18	100	0.02
		B-9	-0.08075	-35	-68	No	19	0	0.02
		B-11	0	0	68	No	19	100	0.02
Dichloromonofluoromethane (Freon 21)	ug/L	B-6	0	0	68	No	19	100	0.02
		B-8	0	-18	-63	No	18	66.67	0.02
		B-9	0	0	68	No	19	100	0.02
		B-11	0	0	68	No	19	100	0.02
Diethyl ether	ug/L	B-6	0	0	68	No	19	100	0.02
		B-8	0	-2	-63	No	18	38.89	0.02
		B-9	0	0	68	No	19	100	0.02
		B-11	0	0	68	No	19	100	0.02
Iron, dissolved	mg/L	B-6	0	0	68	No	19	100	0.02
		B-8	0.09534	18	63	No	18	22.22	0.02
		B-9	0	0	68	No	19	100	0.02
		B-11	0	0	68	No	19	100	0.02
Lead, dissolved	mg/L	B-6	0	-34	-63	No	18	100	0.02
		B-8	0	-41	-58	No	17	88.24	0.02
		B-9	0	-55	-68	No	19	89.47	0.02
		B-11	0	-40	-68	No	19	100	0.02
Magnesium, dissolved	mg/L	B-6	-0.6648	-27	-68	No	19	0	0.02
		B-8	0.6723	14	58	No	17	0	0.02
		B-9	-0.2782	-66	-68	No	19	0	0.02
		B-11	-1.124	-67	-68	No	19	0	0.02
Manganese	mg/L	**B-6**	**-0.0001993**	**-79**	**-68**	**Yes**	**19**	**21.05**	**0.02**
		B-8	0.00885	13	63	No	18	0	0.02
		B-9	0	-10	-68	No	19	26.32	0.02
		B-11	0	14	68	No	19	78.95	0.02
Mercury, dissolved	mg/L	B-6	0	0	63	No	18	100	0.02
		B-8	0	0	58	No	17	100	0.02
		B-9	0	0	68	No	19	100	0.02
		B-11	0	0	68	No	19	100	0.02
Nickel, dissolved	mg/L	**B-6**	**0.000149**	**87**	**63**	**Yes**	**18**	**44.44**	**0.02**
		B-8	0.0002498	16	58	No	17	5.882	0.02
		B-9	0.0001332	64	68	No	19	26.32	0.02
		B-11	0.000113	62	68	No	19	26.32	0.02
Nitrate as nitrogen	mg/L	B-6	0.201	49	68	No	19	0	0.02
		B-8	0	9	58	No	17	58.82	0.02
		B-9	0.02576	20	68	No	19	0	0.02
		B-11	0.4069	56	63	No	18	0	0.02
Nitrite as nitrogen	mg/L	B-6	0	0	68	No	19	100	0.02
		B-8	0	0	58	No	17	100	0.02
		B-9	0	0	68	No	19	100	0.02
		B-11	0	-9	-63	No	18	100	0.02
pH	pH units	B-6	-0.01328	-7	-68	No	19	0	0.02
		B-8	-0.4393	-43	-63	No	18	0	0.02
		B-9	-0.09887	-26	-68	No	19	0	0.02
		B-11	-0.1254	-29	-68	No	19	0	0.02
Potassium	mg/L	B-6	0	5	68	No	19	0	0.02
		B-8	0.09085	11	58	No	17	0	0.02
		B-9	0	13	68	No	19	0	0.02
		B-11	-0.05757	-50	-68	No	19	0	0.02

Short-Term Mann-Kendall Trend Tests 2012-2016
Perched Aquifer

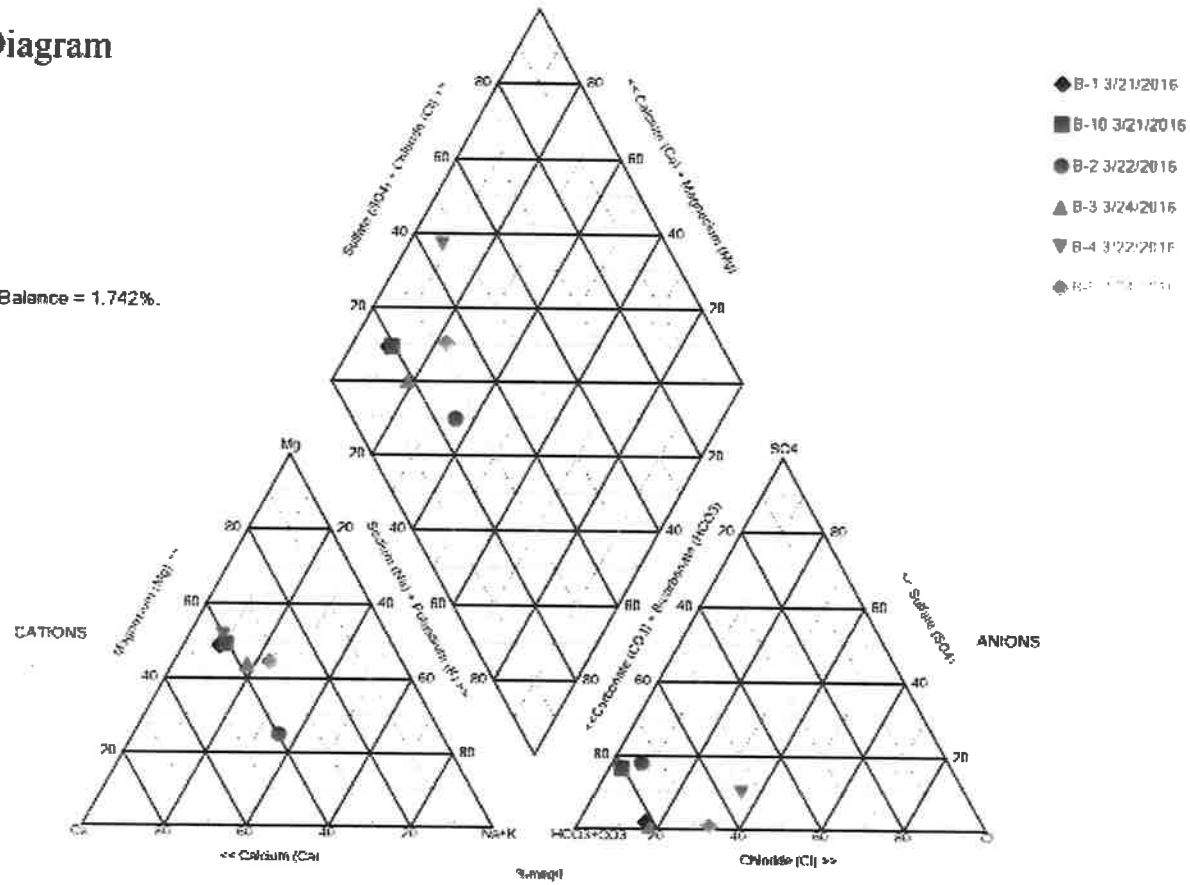
Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Alpha
Selenium, dissolved	mg/L	**B-6**	**-0.0001347**	**-91**	**-68**	**Yes**	**19**	**42.11**	**0.02**
		B-8	**-0.000118**	**-72**	**-63**	**Yes**	**18**	**38.89**	**0.02**
		B-9	**-0.0003713**	**-93**	**-68**	**Yes**	**19**	**5.263**	**0.02**
		B-11	-0.0001425	-52	-68	No	19	47.37	0.02
Specific Conductance	us/cm	B-6	-20.83	-64	-68	No	19	0	0.02
		B-8	29.51	43	63	No	18	0	0.02
		B-9	-2.97	-33	-68	No	19	0	0.02
		B-11	-19.41	-48	-68	No	19	0	0.02
Sulfate	mg/L	B-6	-0.64	-62	-68	No	19	0	0.02
		B-8	-1.864	-33	-58	No	17	5.882	0.02
		B-9	-0.3937	-26	-68	No	19	0	0.02
		B-11	**-1.372**	**-71**	**-63**	**Yes**	**18**	**0**	**0.02**
Tetrachloroethene	ug/L	B-6	0	0	68	No	19	100	0.02
		B-8	0	0	63	No	18	100	0.02
		B-9	0	0	68	No	19	100	0.02
		B-11	0	0	68	No	19	100	0.02
Tetrahydrofuran	ug/L	B-6	0	0	68	No	19	100	0.02
		B-8	0	0	63	No	18	100	0.02
		B-9	0	0	68	No	19	100	0.02
		B-11	0	0	68	No	19	100	0.02
Calcium, total	mg/L	B-6	-1.387	-30	-68	No	19	0	0.02
		B-8	-1.122	-14	-58	No	17	0	0.02
		B-9	-0.1535	-11	-68	No	19	0	0.02
		B-11	**-2.491**	**-77**	**-68**	**Yes**	**19**	**0**	**0.02**
Toluene	ug/L	B-6	0	0	68	No	19	100	0.02
		B-8	0	-14	-63	No	18	83.33	0.02
		B-9	0	0	68	No	19	100	0.02
		B-11	0	0	68	No	19	100	0.02
Total Dissolved Solids	mg/L	B-6	-5.73	-36	-68	No	19	0	0.02
		B-8	6.136	14	58	No	17	0	0.02
		B-9	-0.8147	-17	-68	No	19	0	0.02
		B-11	-8.264	-37	-63	No	18	0	0.02
Total Organic Carbon	mg/L	B-6	-0.06385	-59	-68	No	19	0	0.02
		B-8	-0.002476	-1	-58	No	17	0	0.02
		B-9	-0.009759	-11	-68	No	19	0	0.02
		B-11	-0.01685	-25	-68	No	19	0	0.02
Sodium, total	mg/L	B-6	-0.1629	-62	-68	No	19	0	0.02
		B-8	-0.1616	-7	-58	No	17	0	0.02
		B-9	**-0.3256**	**-109**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-11	**-0.3185**	**-81**	**-68**	**Yes**	**19**	**0**	**0.02**
Trichloroethene	ug/L	**B-6**	**0**	**-6.416**	**-2.33**	**Yes**	**88**	**100**	**0.02**
		B-8	**0**	**-5.794**	**-2.33**	**Yes**	**83**	**100**	**0.02**
		B-9	**0**	**-6.007**	**-2.33**	**Yes**	**86**	**100**	**0.02**
		B-11	**0**	**-7.131**	**-2.33**	**Yes**	**73**	**98.63**	**0.02**
Trichlorofluoromethane (CFC-11)	ug/L	**B-6**	**0**	**-6.416**	**-2.33**	**Yes**	**88**	**98.86**	**0.02**
		B-8	**0**	**-5.794**	**-2.33**	**Yes**	**83**	**100**	**0.02**
		B-9	0	-0.0115	-2.33	No	86	26.74	0.02
		B-11	**0**	**-7.226**	**-2.33**	**Yes**	**73**	**100**	**0.02**
Vanadium, dissolved	mg/L	B-6	0	-27	-68	No	19	0	0.02
		B-8	-0.0007366	-54	-63	No	18	5.556	0.02
		B-9	0	-21	-68	No	19	0	0.02
		B-11	0	-49	-68	No	19	0	0.02
Vinyl chloride	ug/L	**B-6**	**-0.0002686**	**-6.684**	**-2.33**	**Yes**	**88**	**95.45**	**0.02**
		B-8	0	0.3169	2.33	No	82	46.34	0.02
		B-9	**-0.0005012**	**-8.507**	**-2.33**	**Yes**	**86**	**77.91**	**0.02**
		B-11	**-0.000222**	**-6.955**	**-2.33**	**Yes**	**73**	**97.26**	**0.02**
Zinc, dissolved	mg/L	B-6	-0.0002514	-66	-68	No	19	42.11	0.02
		B-8	0	-15	-63	No	18	38.89	0.02
		B-9	-0.00002001	-13	-68	No	19	31.58	0.02
		B-11	-0.0002287	-53	-68	No	19	42.11	0.02

APPENDIX E-1:
Piper Diagrams 2016 – Upper Regional Aquifer

WQStat Plus™ v.9.4.41

Piper Diagram

Cation-Anion Balance = 1.742%.



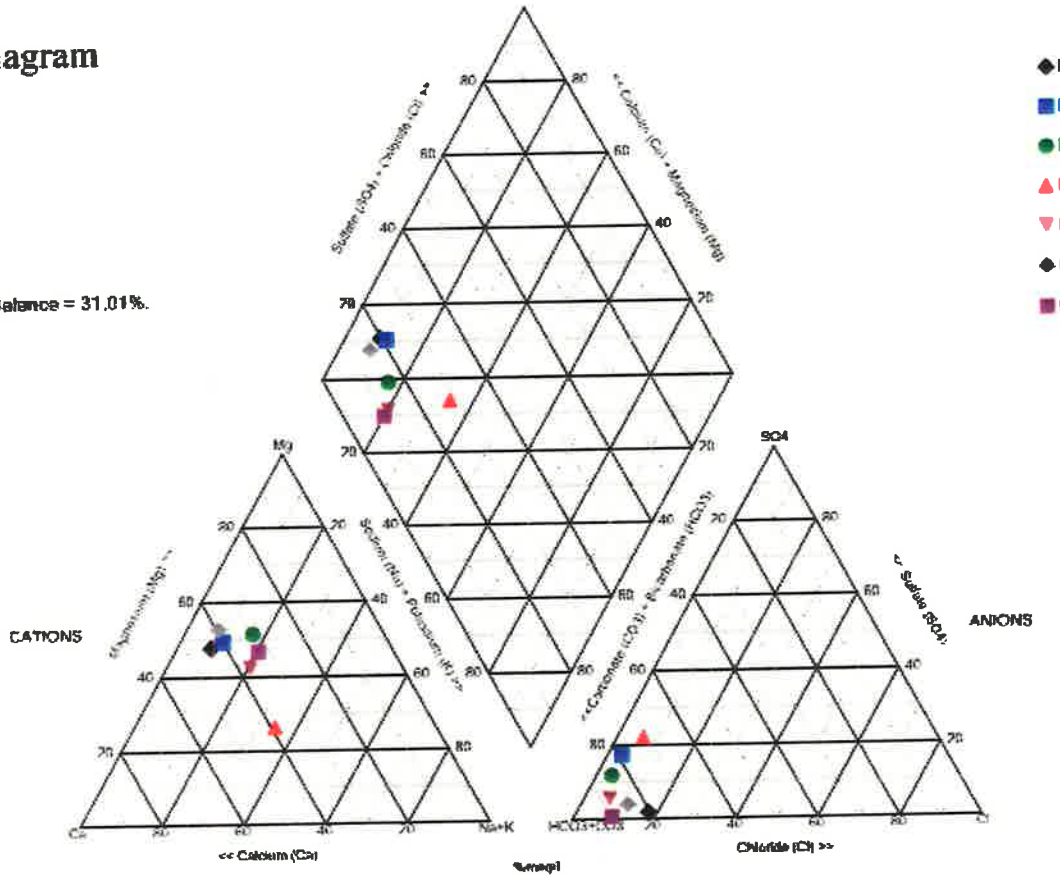
Analysis Run 2/24/2017 12:40 PM

Facility: inman Data File: inman regional inorganic (1994-2016)

WQStat Plus™ v 9.4.41

Piper Diagram

Cation-Anion Balance = 31.01%.

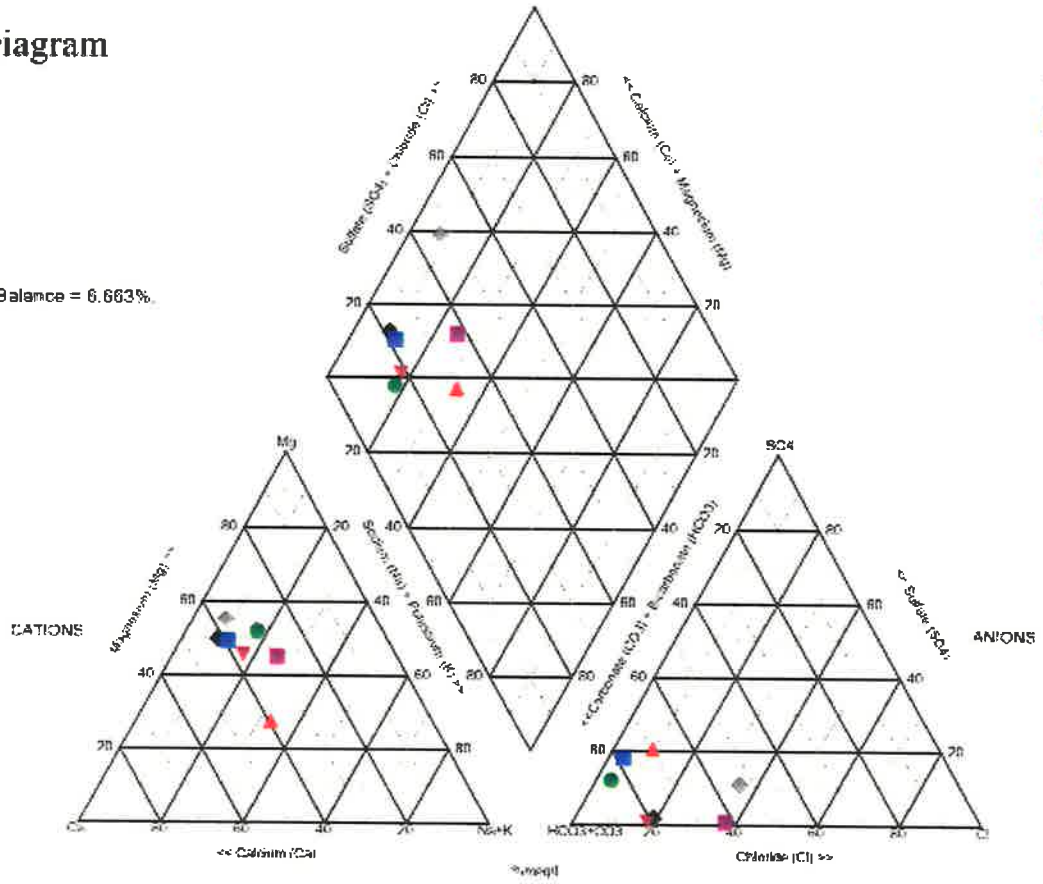


Analysis Run 2/24/2017 12:41 PM

Facility: inman Data File: inman_regional_inorganic_(1994-2016)

Piper Diagram

Cation-Anion Balance = 6.663%

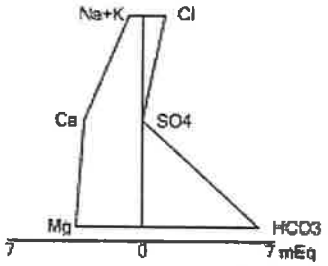


Analysis Run 2/24/2017 12:42 PM

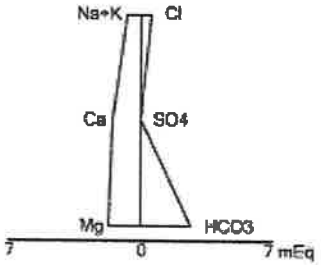
Facility: inman Data File: inman regional inorganic (1994-2016)

APPENDIX E-2:
Stiff Diagrams 2016 – Upper Regional Aquifer

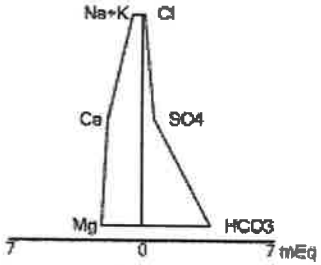
WQStat Plus™ v.9.4.41



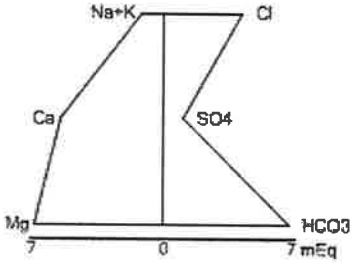
B-1 3/21/2016



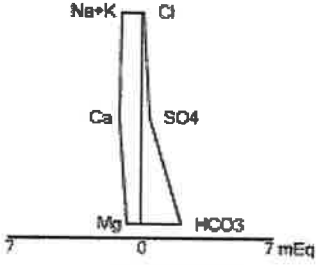
B-3 3/24/2016



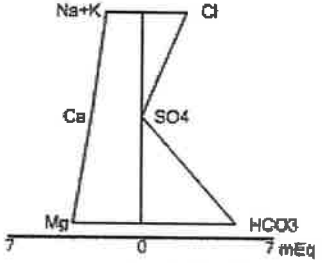
B-10 3/21/2016



B-4 3/22/2016



B-2 3/22/2016

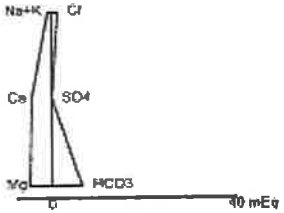


B-5 3/24/2016

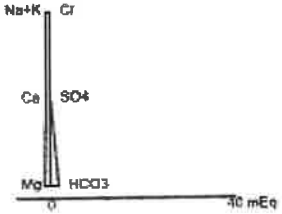
Stiff Diagram Analysis Run 2/24/2017 12:45 PM

Facility: inman Data File: inman_regional_inorganic_(1994-2016)

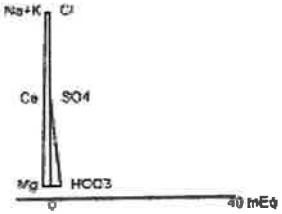
WQStat Plus™ v.9.4.41



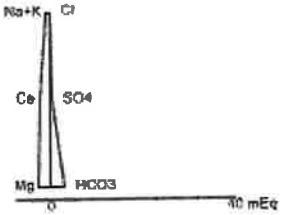
B-1 9/12/2016



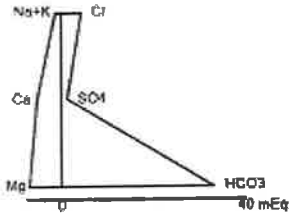
B-3 9/13/2016



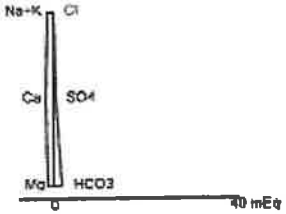
B-12 9/15/2016



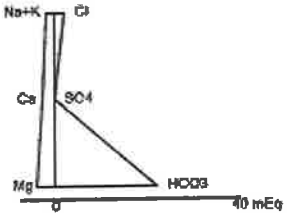
B-10 9/13/2016



B-4 9/12/2016



B-2 9/13/2016

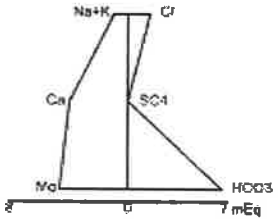


B-5 9/13/2016

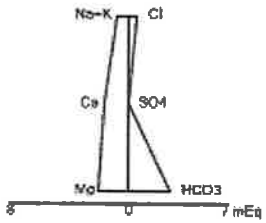
Stiff Diagram Analysis Run 2/24/2017 12:46 PM

Facility: inman Data File: inman_regional_inorganic_(1994-2016)

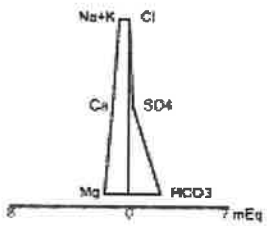
WQStat Plus™ v 9.4.41



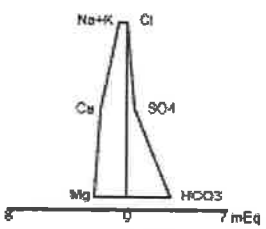
B-1 12/12/2016



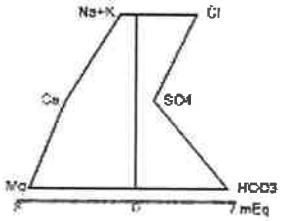
B-3 12/13/2016



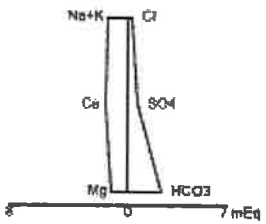
B-12 12/13/2016



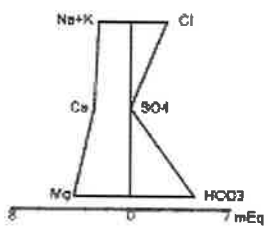
B-10 12/14/2016



B-4 12/14/2016



B-2 12/12/2016

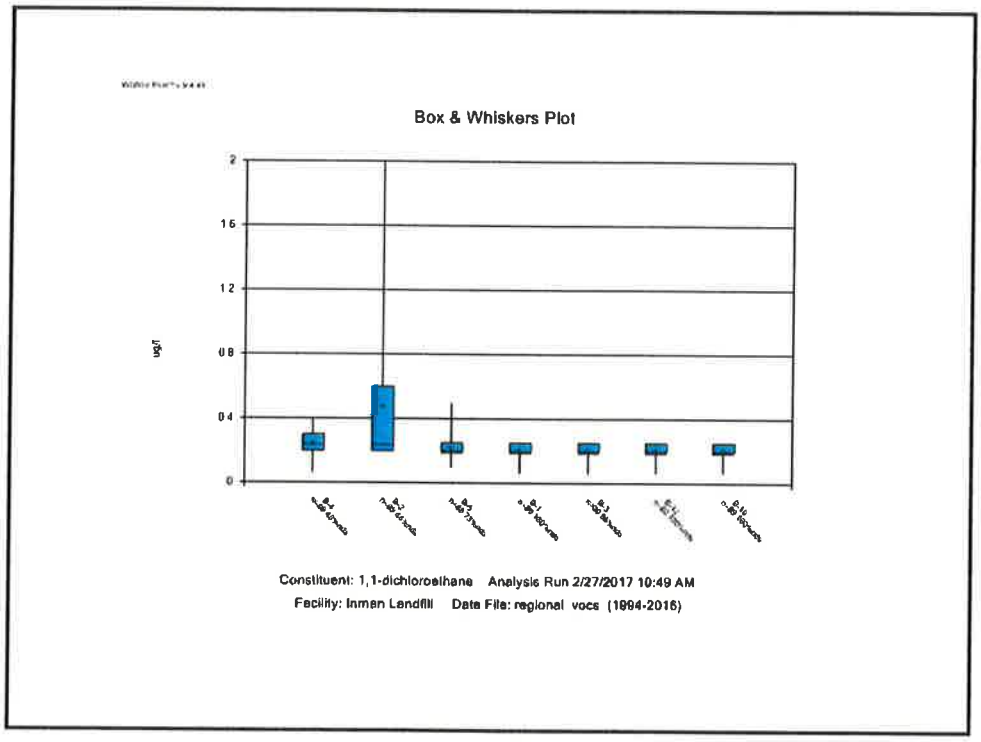


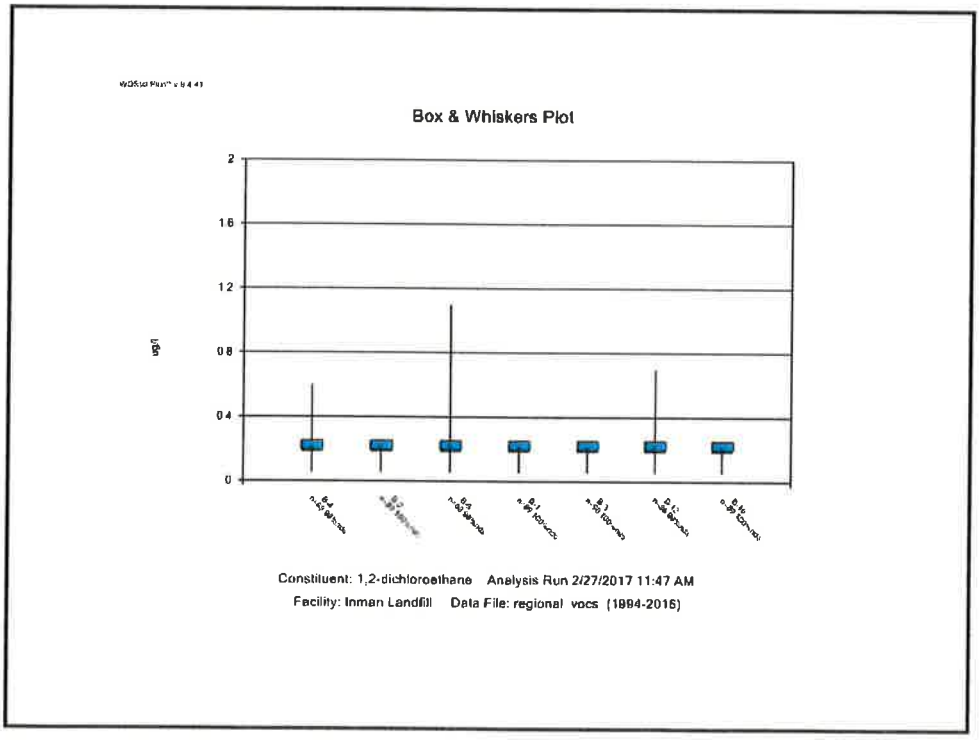
B-5 12/13/2016

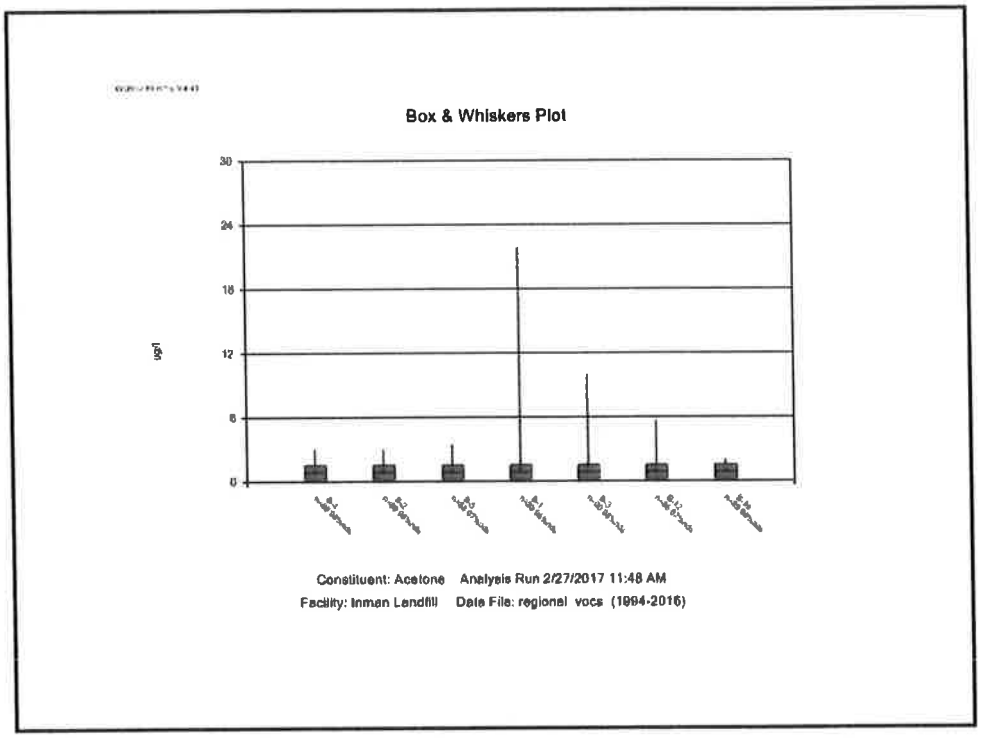
Stiff Diagram Analysis Run 2/24/2017 12:46 PM

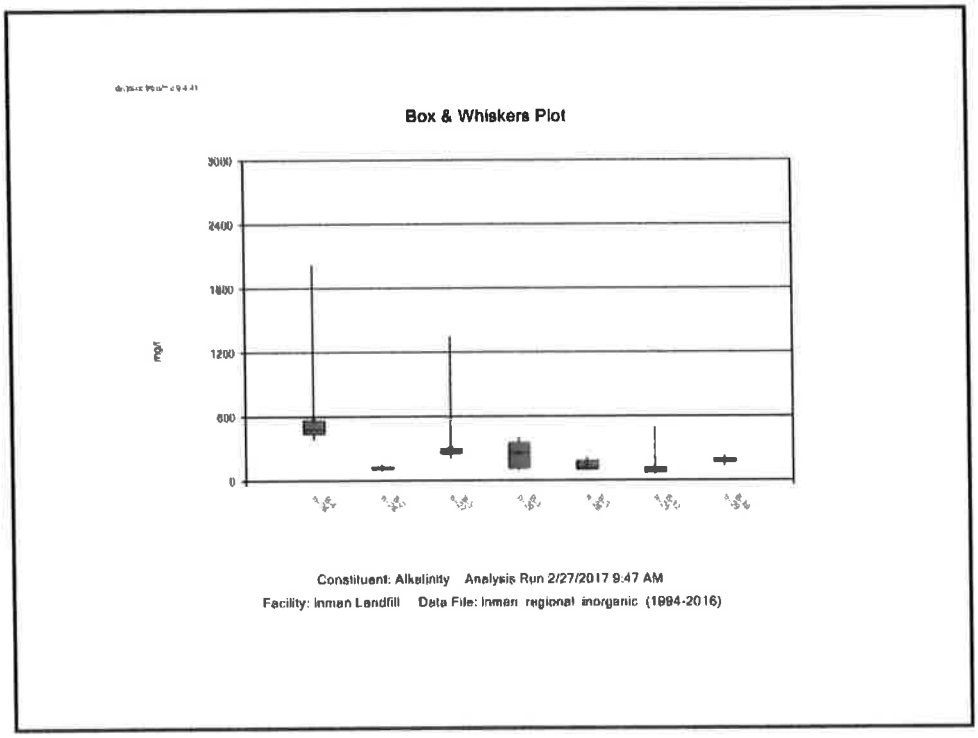
Facility: inman Data File: inman_regional_inorganic_(1994-2016)

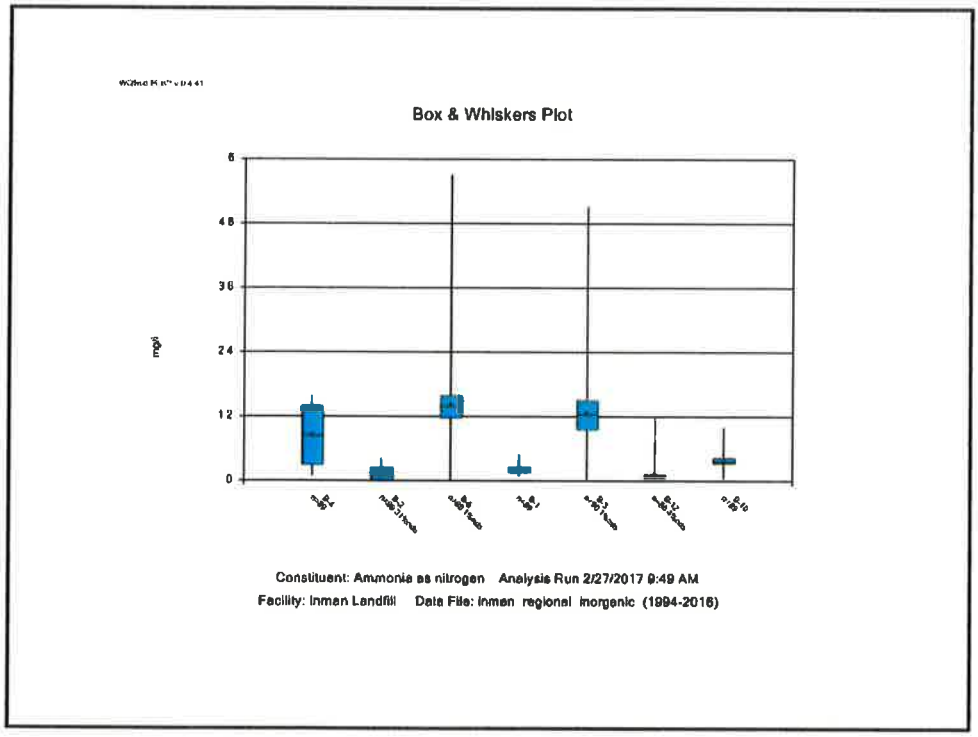
APPENDIX E-3:
Box Plots 1994-2016 – Upper Regional Aquifer

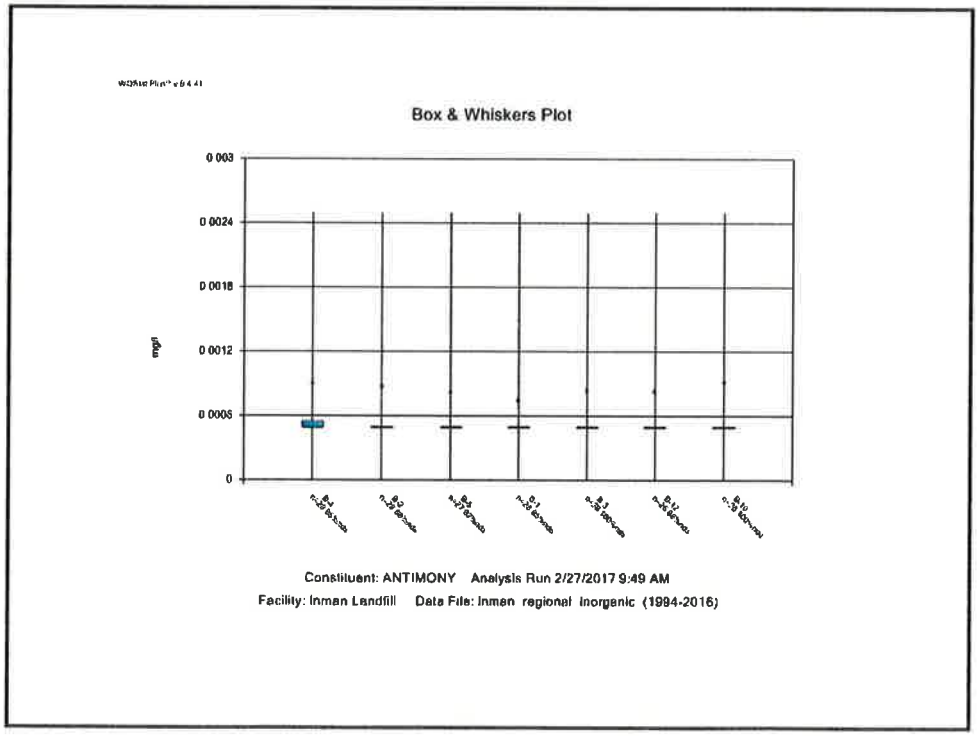

Box & Whiskers Plot
ug/l
2
1.6
1.2
0.8
0.4
0
Constituent: 1,1-dichloroethane Analysis Run 2/27/2017 10:49 AM
Facility: Inman Landfill Data File: regional vocs (1994-2016)

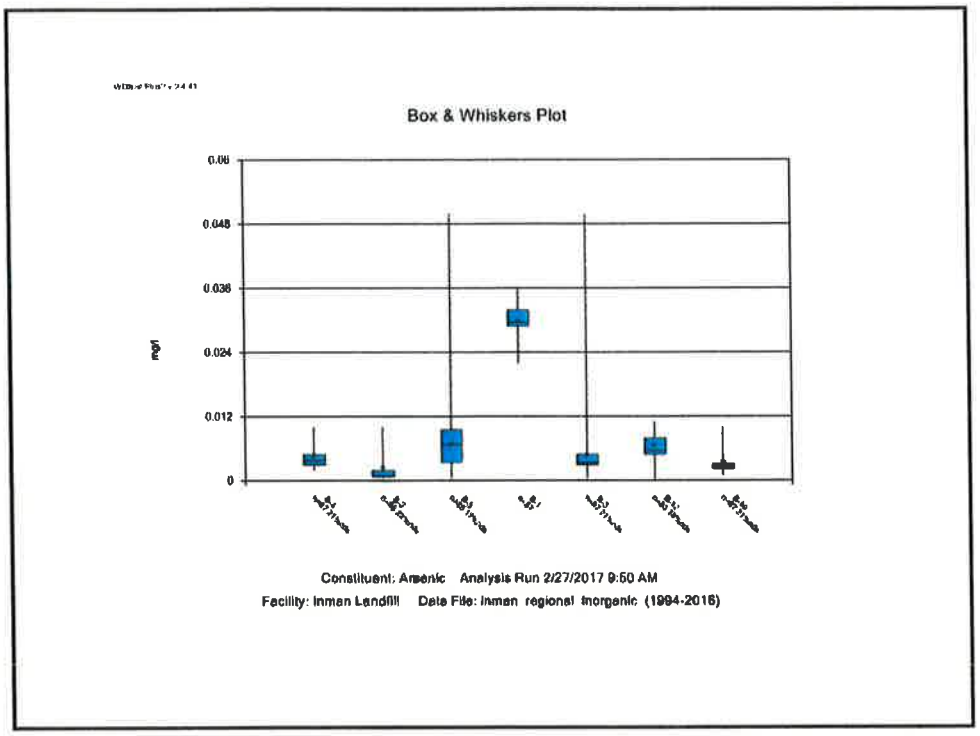

Box & Whiskers Plot
ug/l
2
1.6
1.2
0.8
0.4
0
Constituent: 1,2-dichloroethane Analysis Run 2/27/2017 11:47 AM
Facility: Inman Landfill Data File: regional vocs (1994-2016)

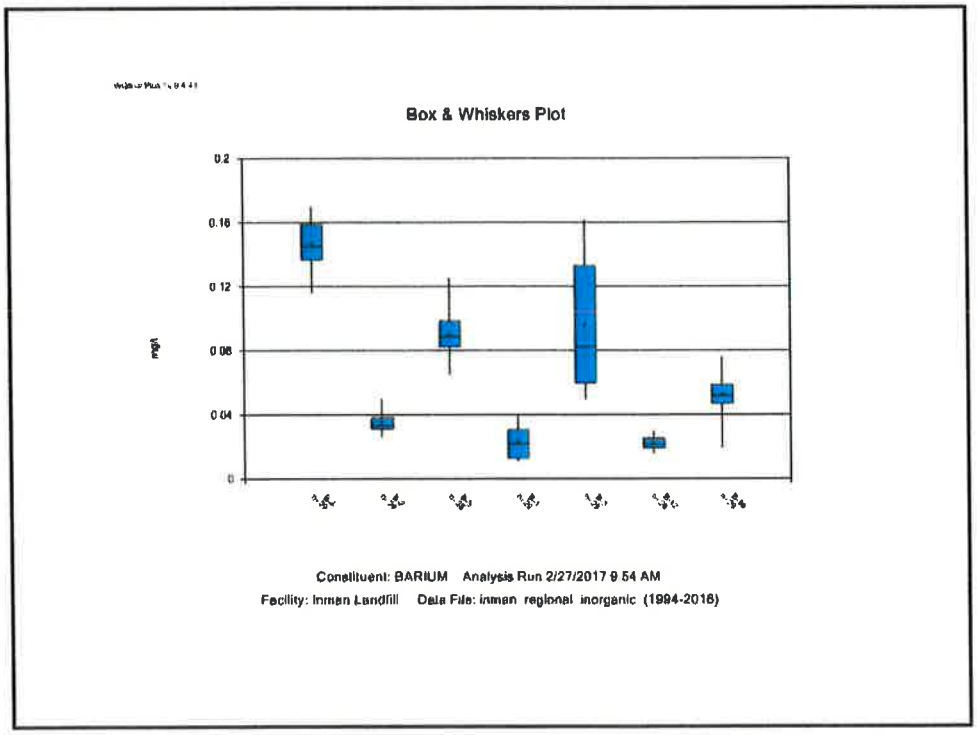

Box & Whiskers Plot
30
24
18
12
6
0
ug/l
Constituent: Acetone Analysis Run 2/27/2017 11:48 AM
Facility: Inman Landfill Data File: regional vocs (1994-2016)

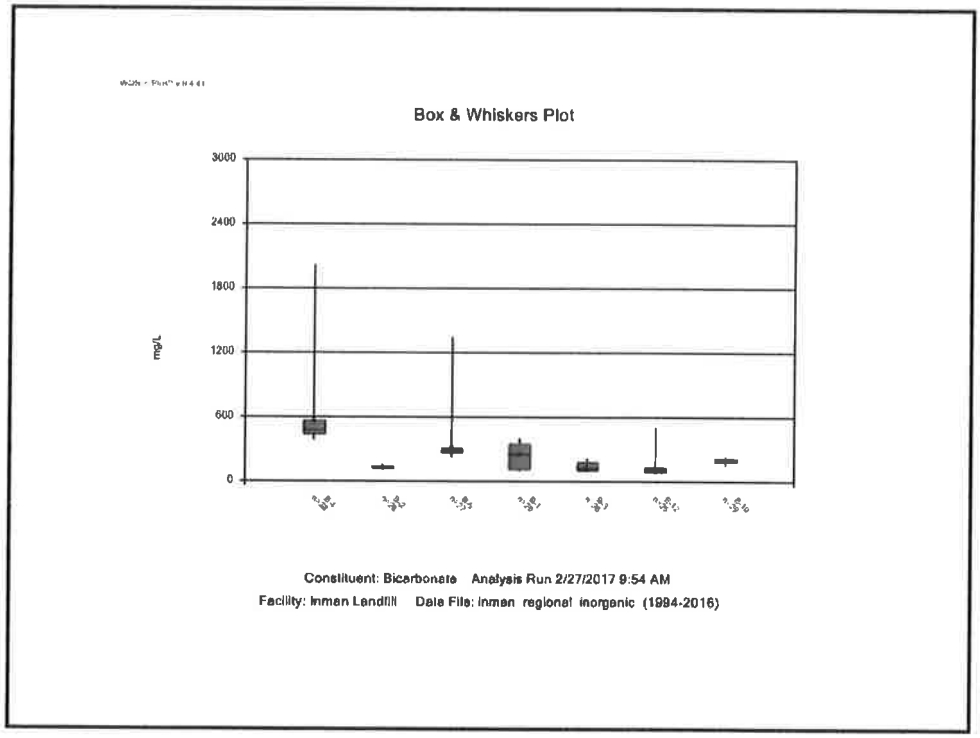

Box & Whiskers Plot
3000
2400
1800
1200
600
0
mg/l
Constituent: Alkalinity Analysis Run 2/27/2017 9:47 AM
Facility: Inman Landfill Data File: Inman regional inorganic (1994-2016)

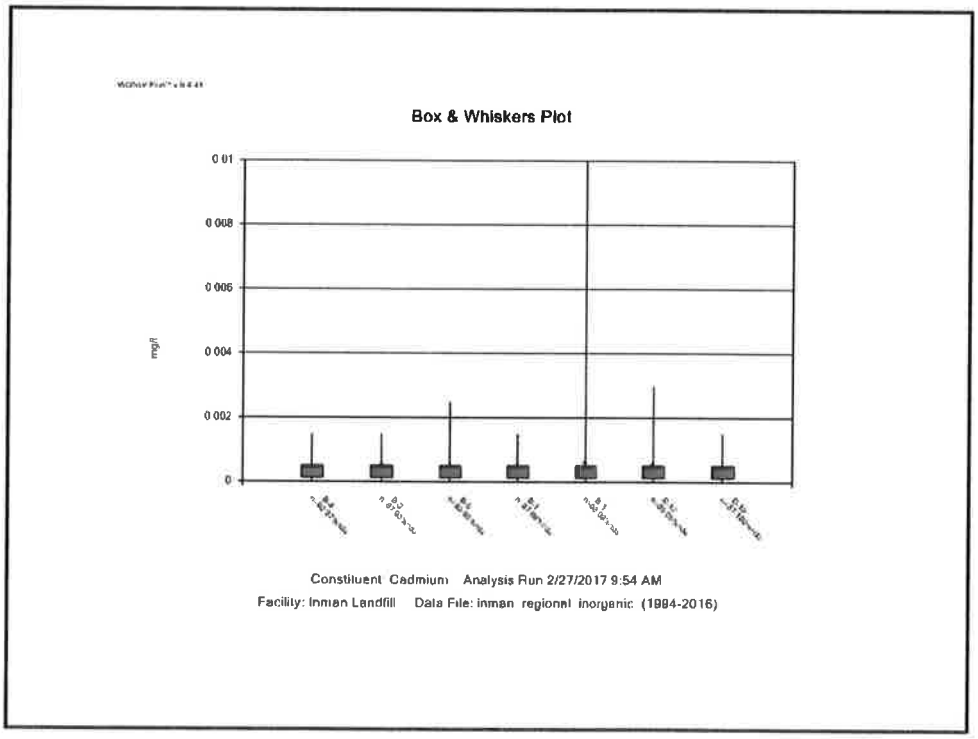

Box & Whiskers Plot
mg/l
6
4.8
3.6
2.4
1.2
0
Constituent: Ammonia as nitrogen Analysis Run 2/27/2017 9:49 AM
Facility: Inman Landfill Data File: Inman regional inorganic (1994-2016)

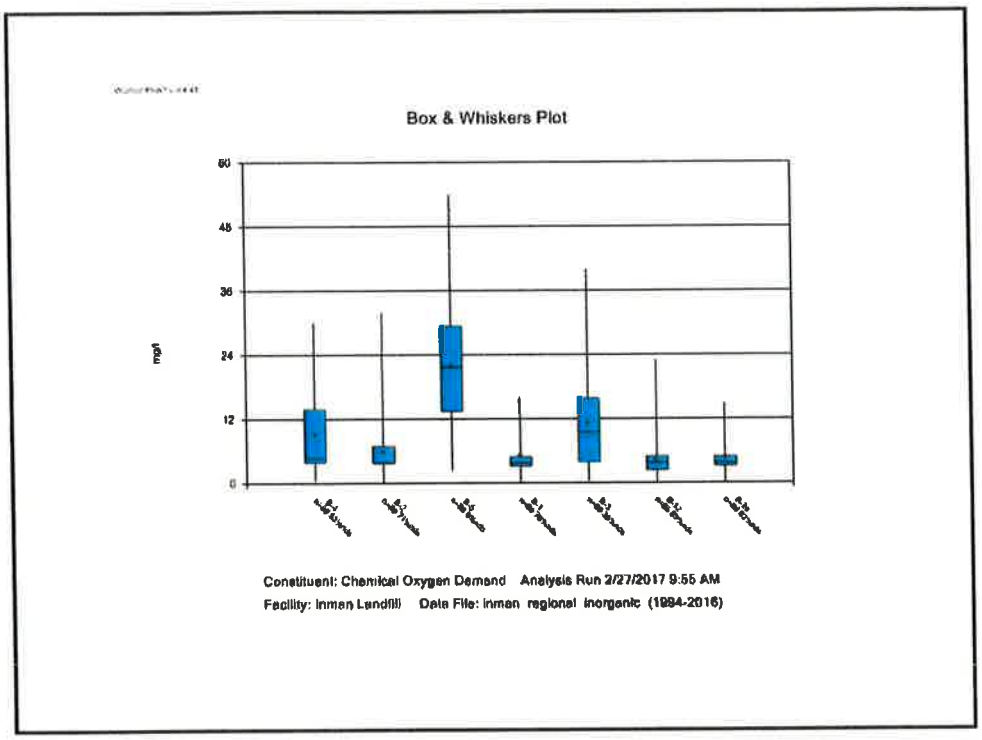

Box & Whiskers Plot
mg/l
0.003
0.0024
0.0018
0.0012
0.0006
0
Constituent: ANTIMONY Analysis Run 2/27/2017 9:49 AM
Facility: Inman Landfill Data File: Inman regional inorganic (1994-2016)

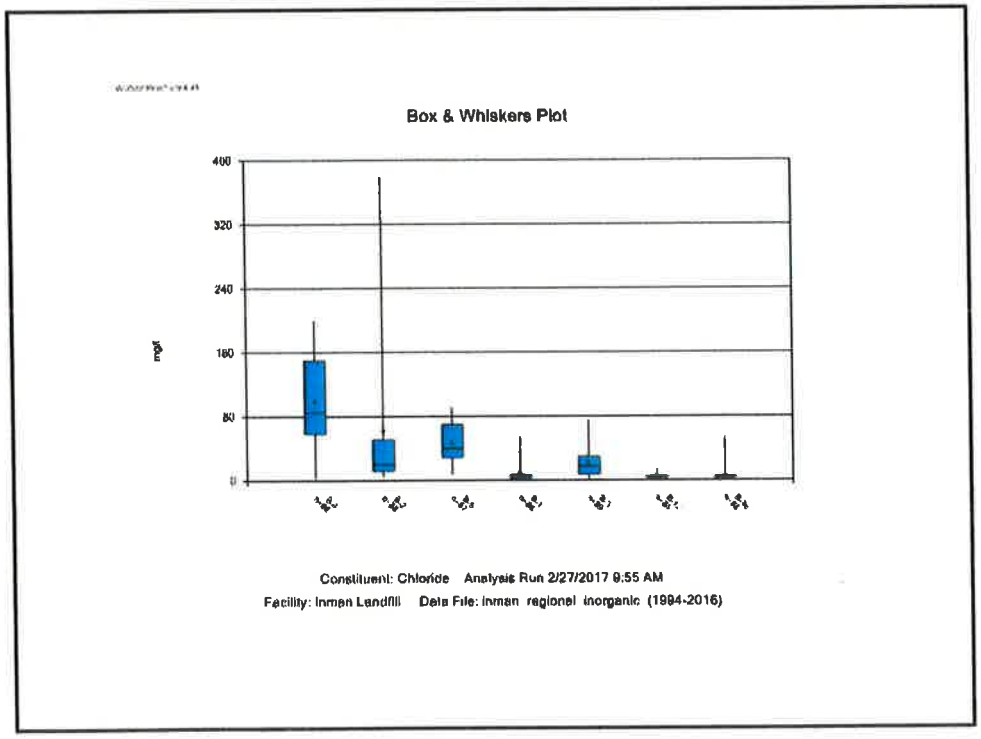

Box & Whiskers Plot
0.06
0.048
0.036
0.024
0.012
0
mg/l
Constituent: Arsenic Analysis Run 2/27/2017 9:50 AM
Facility: Inman Landfill Data File: Inman regional inorganic (1994-2016)

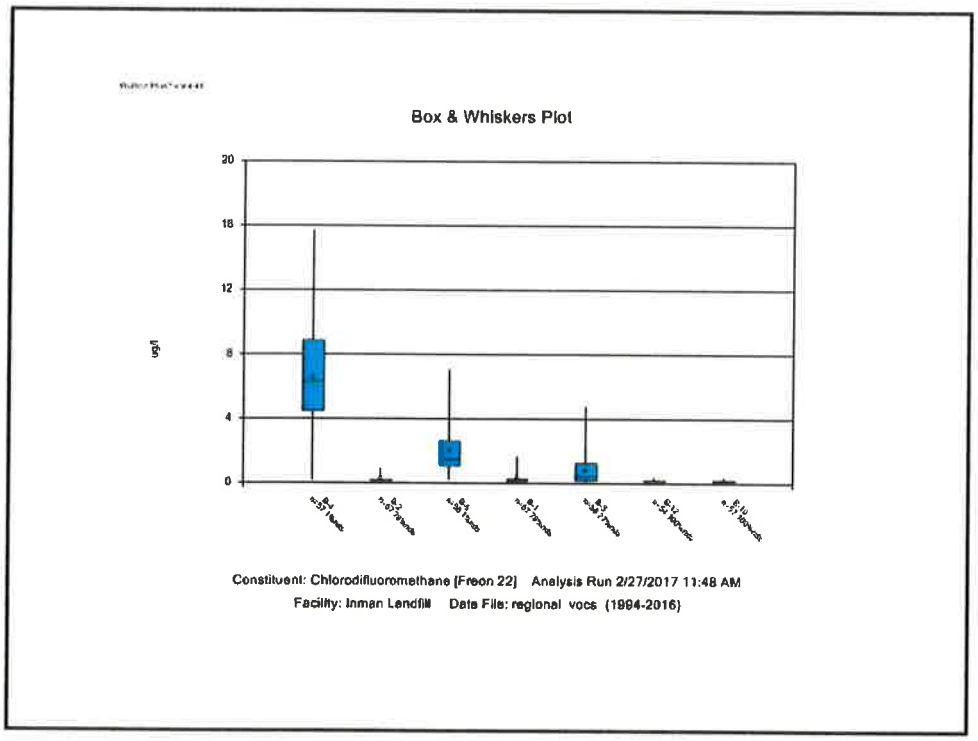

Box & Whiskers Plot
0.2
0.16
0.12
0.08
0.04
0
mg/l
Constituent: BARIUM Analysis Run 2/27/2017 9 54 AM
Facility: Inman Landfill Data File: inman regional inorganic (1994-2016)

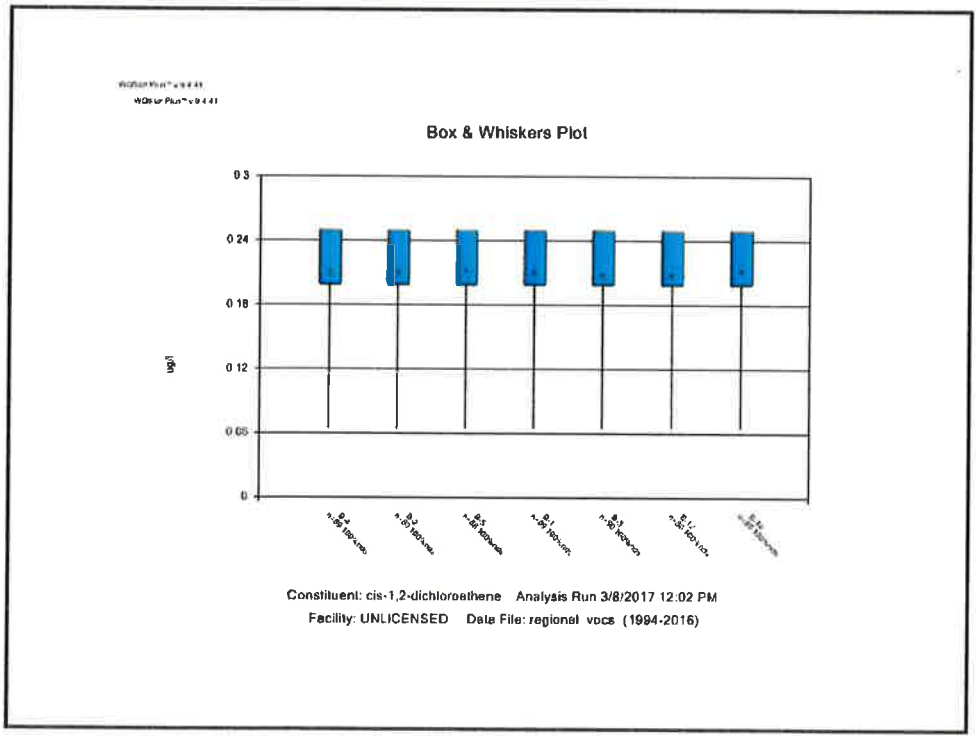

Box & Whiskers Plot
3000
2400
1800
1200
600
0
mg/L
Constituent: Bicarbonate Analysis Run 2/27/2017 9:54 AM
Facility: Inman Landfill Data File: inman regional inorganic (1994-2016)

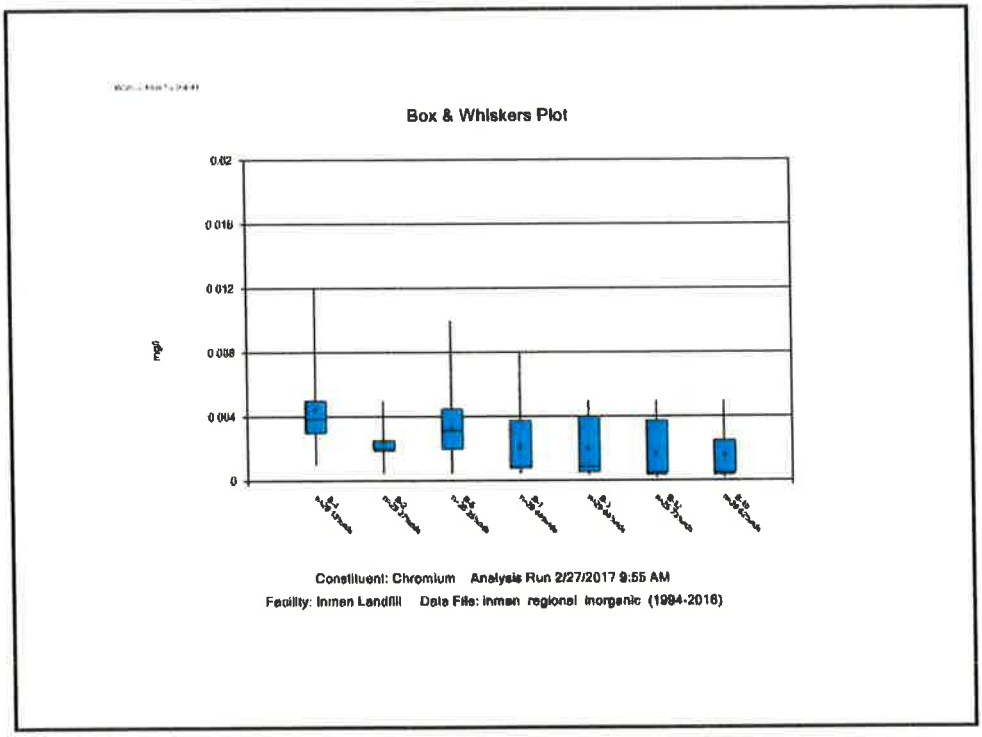

Box & Whiskers Plot
0 01
0 008
0 006
0 004
0 002
0
mg/l
Constituent Cadmium Analysis Run 2/27/2017 9:54 AM
Facility: Inman Landfill Data File: inman regional inorganic (1994-2016)

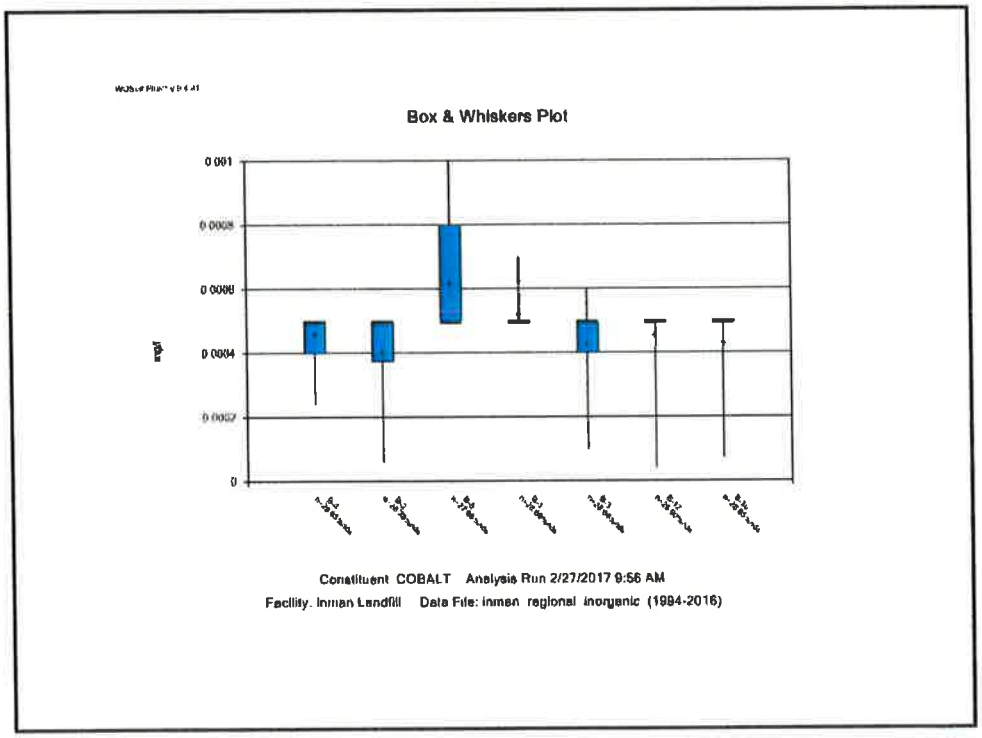

Box & Whiskers Plot
mg/l
60
48
36
24
12
0
Constituent: Chemical Oxygen Demand Analysis Run 2/27/2017 9:55 AM
Facility: Inman Landfill Data File: inman regional inorganic (1994-2016)

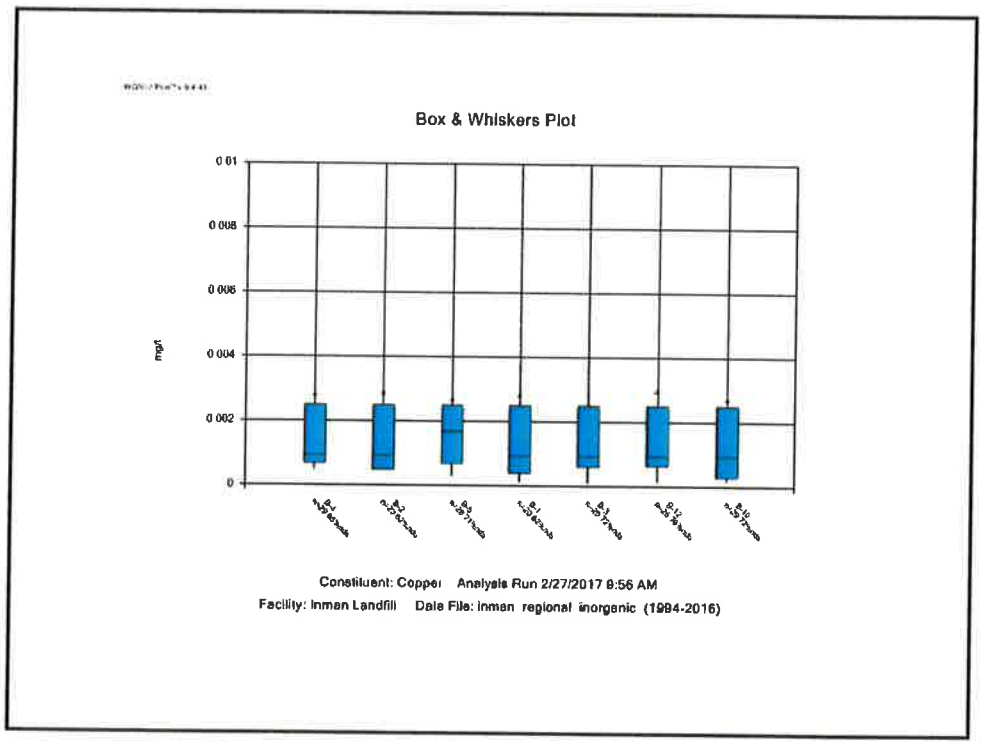

Box & Whiskers Plot
mg/l
400
320
240
160
80
0
Constituent: Chloride Analysis Run 2/27/2017 9:55 AM
Facility: Inman Landfill Data File: inman regional inorganic (1994-2016)

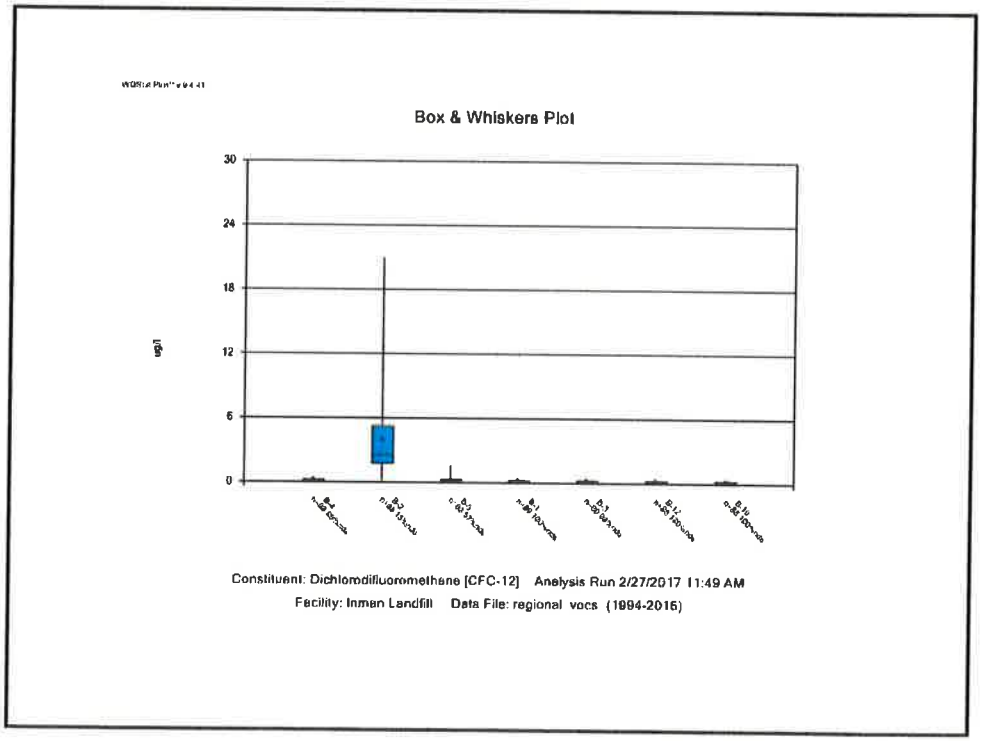

Box & Whiskers Plot
20
18
12
8
4
0
ug/l
Constituent: Chlorodifluoromethane (Freon 22) Analysis Run 2/27/2017 11:48 AM
Facility: Inman Landfill Data File: regional vocs (1994-2016)

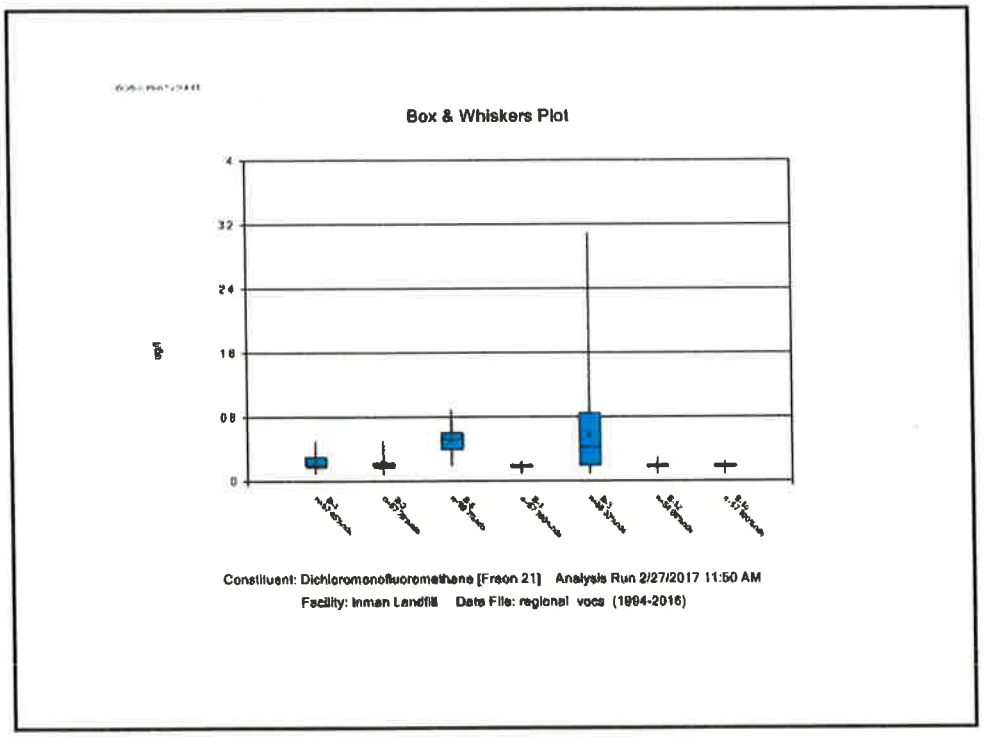

Box & Whiskers Plot
0.3
0.24
0.18
0.12
0.06
0
ug/l
Constituent: cis-1,2-dichloroethene Analysis Run 3/8/2017 12:02 PM
Facility: UNLICENSED Data File: regional vocs (1994-2016)

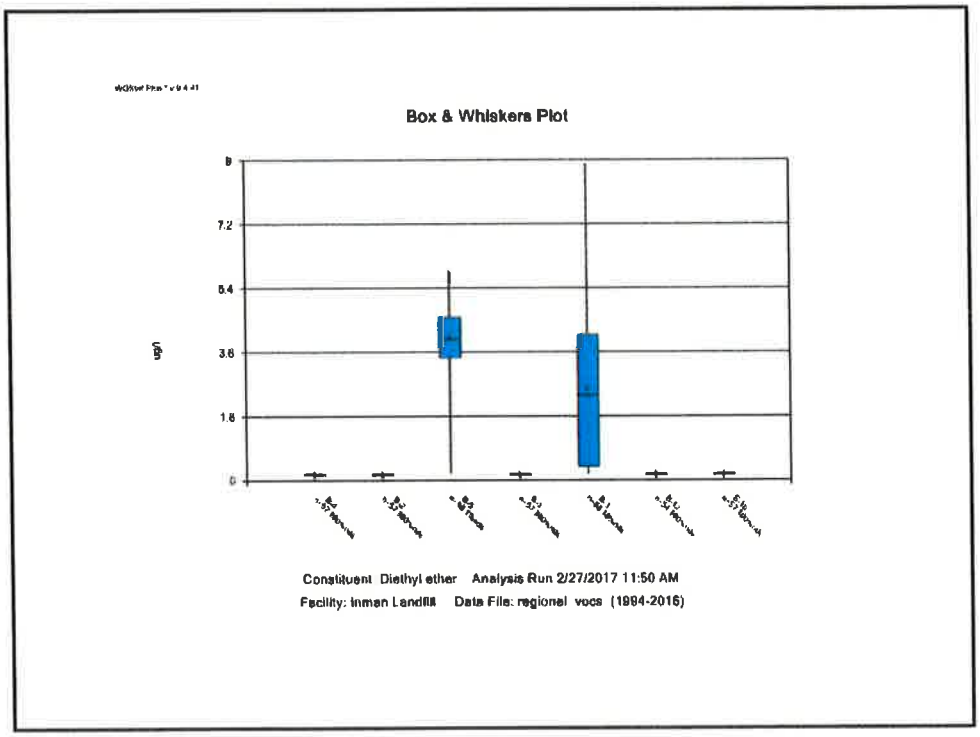

Box & Whiskers Plot
0.02
0.016
0.012
0.008
0.004
0
mg/l
Constituent: Chromium Analysis Run 2/27/2017 9:55 AM
Facility: Inman Landfill Data File: inman regional inorganic (1984-2016)

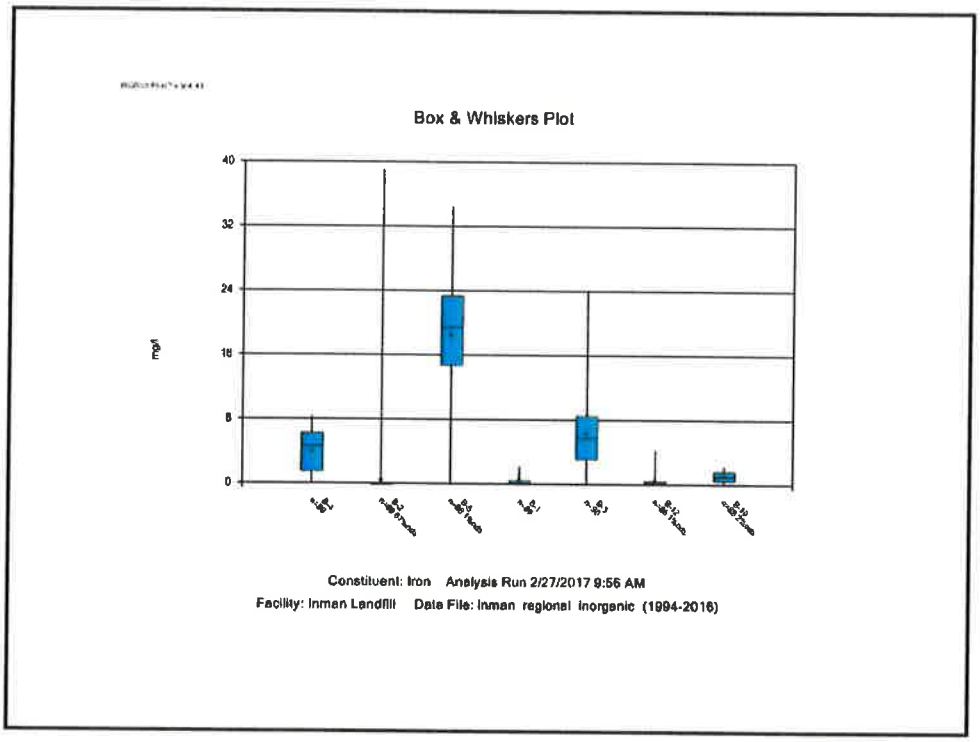

Box & Whiskers Plot
0.001
0.0008
0.0006
0.0004
0.0002
0
mg/l
Constituent COBALT Analysis Run 2/27/2017 9:56 AM
Facility. Inman Landfill Data File: inman regional inorganic (1984-2016)

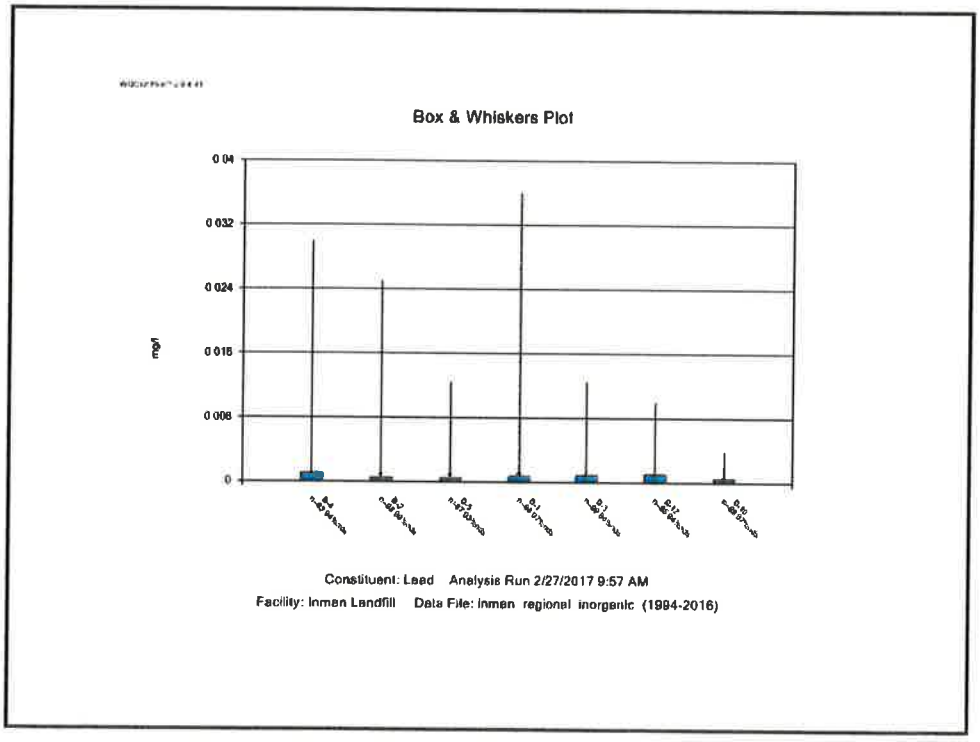

Box & Whiskers Plot
0.01
0.008
0.006
0.004
0.002
0
mg/l
Constituent: Copper Analysis Run 2/27/2017 8:56 AM
Facility: Inman Landfill Data File: Inman regional inorganic (1994-2016)

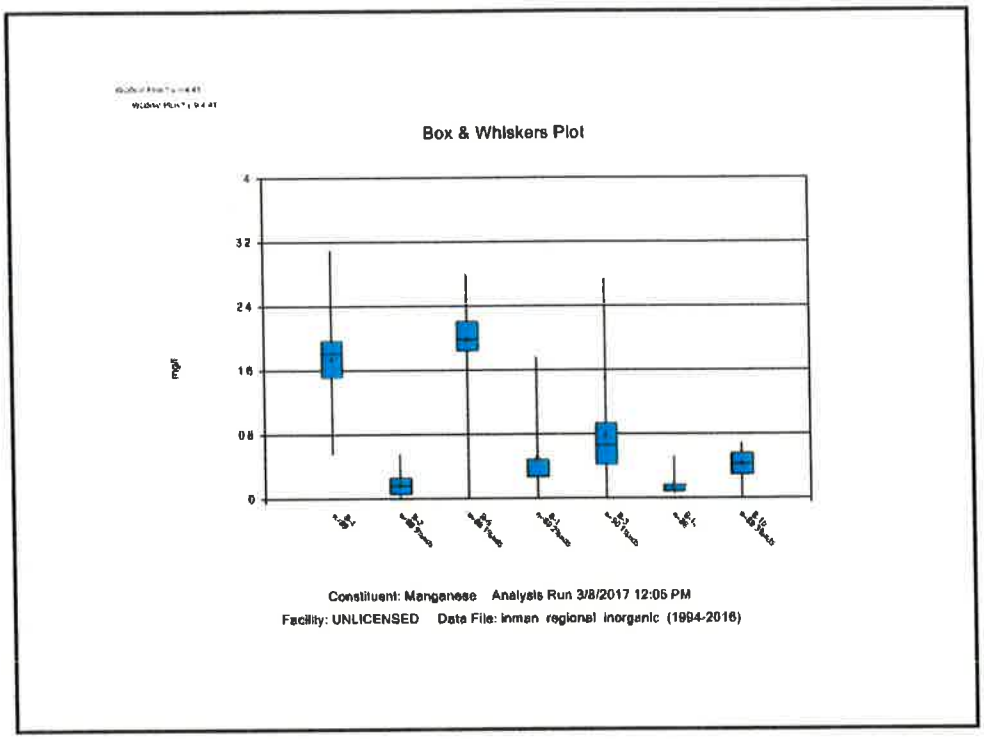

Box & Whiskers Plot
30
24
18
12
6
0
ug/l
Constituent: Dichlorodifluoromethane [CFC-12] Analysis Run 2/27/2017 11:49 AM
Facility: Inman Landfill Data File: regional vocs (1994-2016)

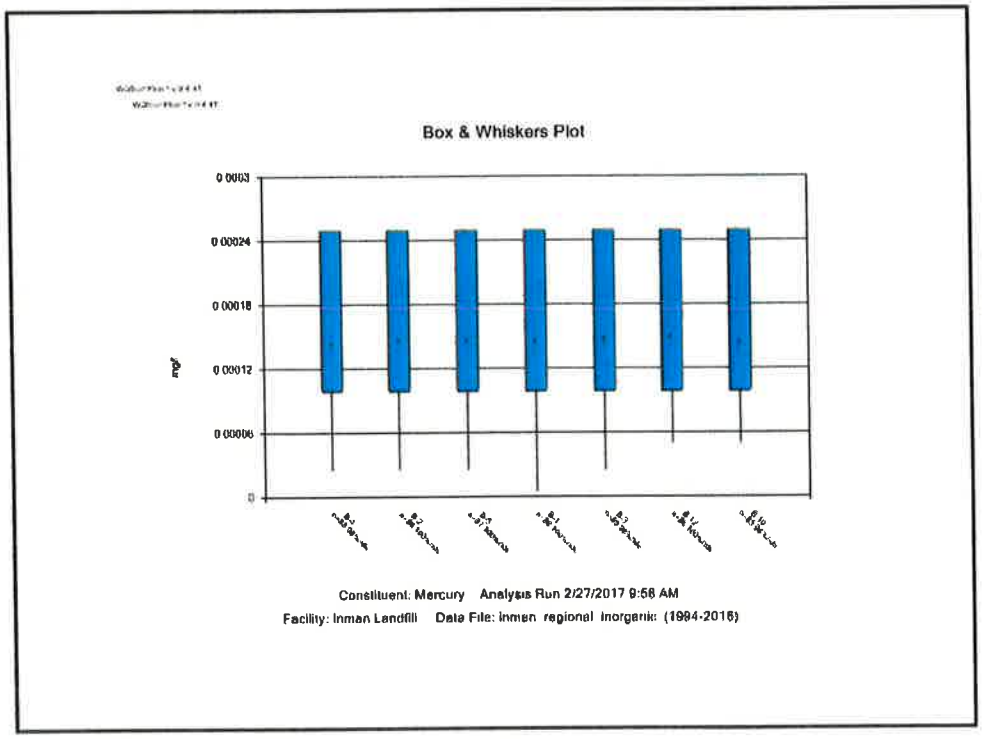

Box & Whiskers Plot
ug/l
32
24
16
08
0
Constituent: Dichloromonofluoromethane [Freon 21] Analysis Run 2/27/2017 11:50 AM
Facility: Inman Landfill Data File: regional vocs (1994-2016)

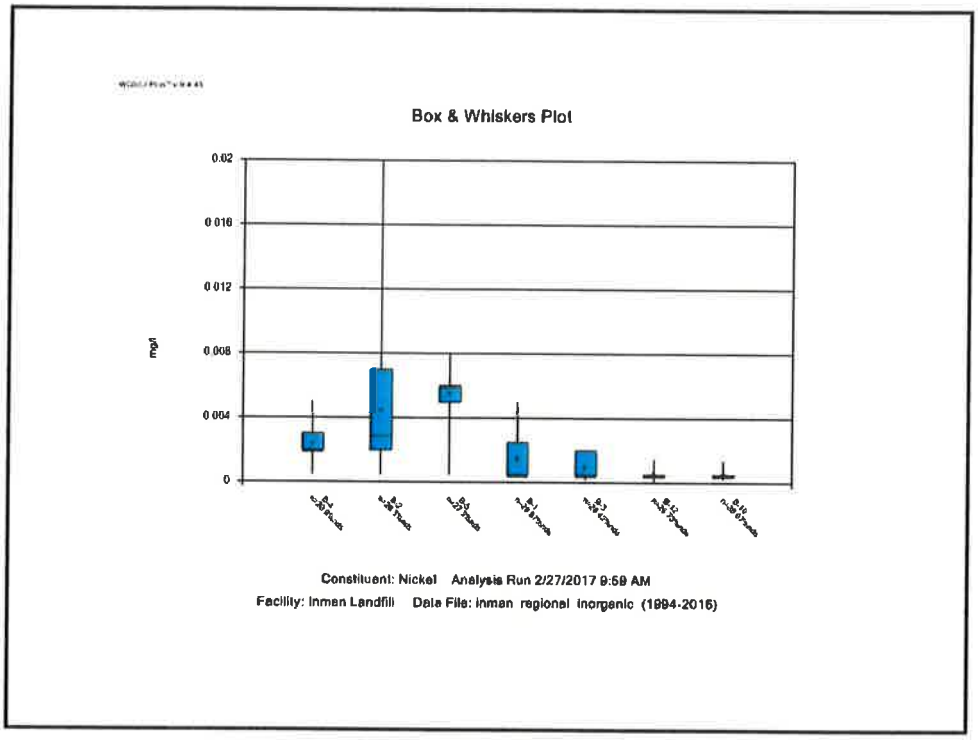

Box & Whiskers Plot
ug/l
7.2
5.4
3.6
1.8
0
Constituent Diethyl ether Analysis Run 2/27/2017 11:50 AM
Facility: Inman Landfill Data File: regional vocs (1994-2016)

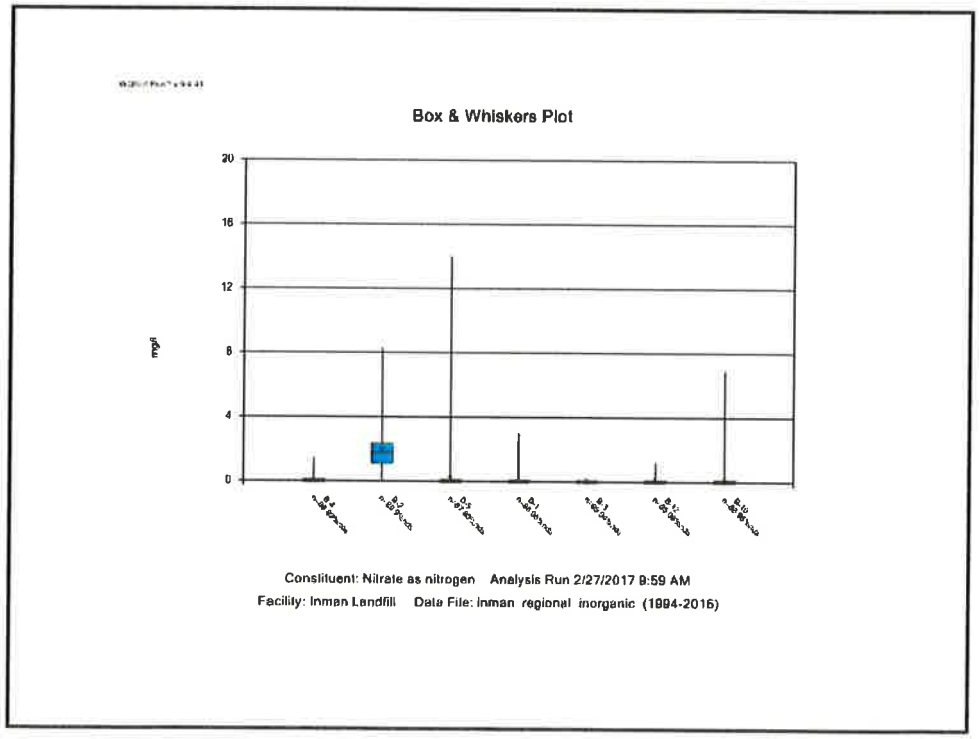

Box & Whiskers Plot
40
32
24
16
8
0
mg/l
Constituent: Iron Analysis Run 2/27/2017 9:56 AM
Facility: Inman Landfill Data File: Inman regional inorganic (1994-2016)

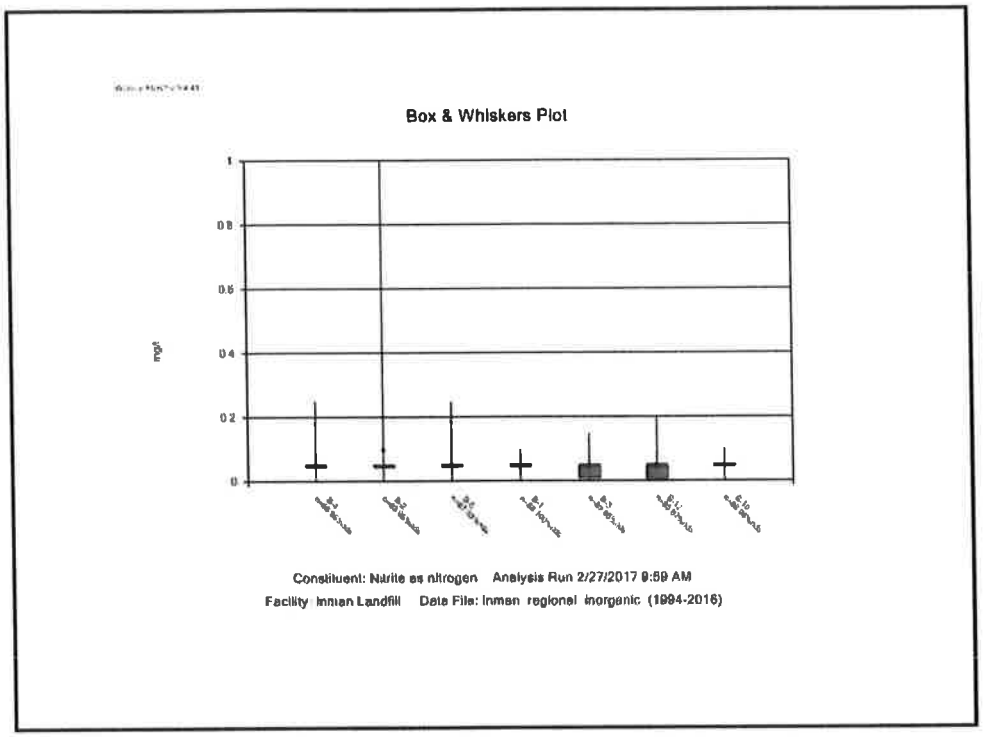

Box & Whiskers Plot
0 04
0 032
0 024
0 016
0 008
0
mg/l
Constituent: Lead Analysis Run 2/27/2017 9:57 AM
Facility: Inman Landfill Data File: Inman regional inorganic (1994-2016)

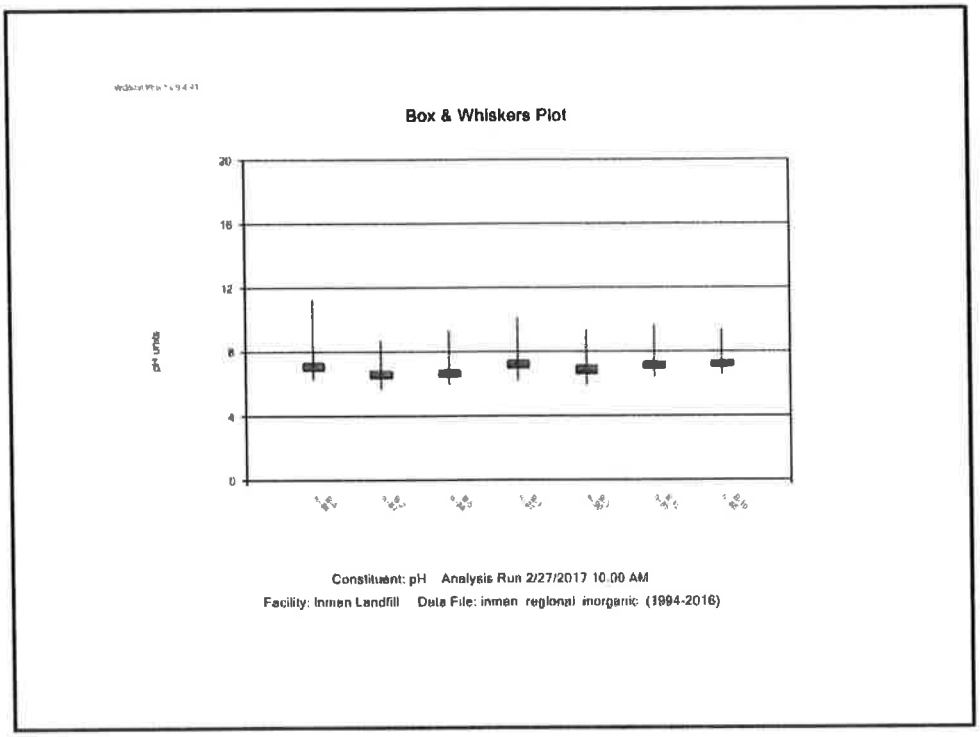

Box & Whiskers Plot
mg/l
4
3.2
2.4
1.6
0.8
0
Constituent: Manganese Analysis Run 3/8/2017 12:05 PM
Facility: UNLICENSED Data File: inman regional inorganic (1994-2016)

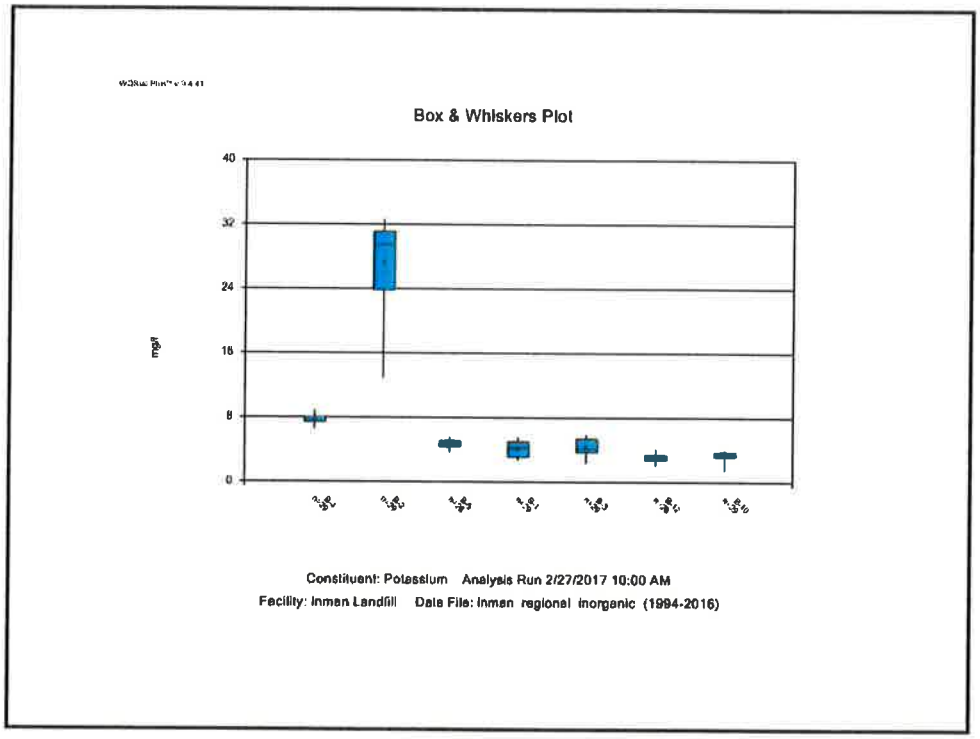

Box & Whiskers Plot
mg/l
0.0003
0.00024
0.00018
0.00012
0.00006
0
Constituent: Mercury Analysis Run 2/27/2017 9:58 AM
Facility: Inman Landfill Data File: inman regional inorganic (1994-2016)

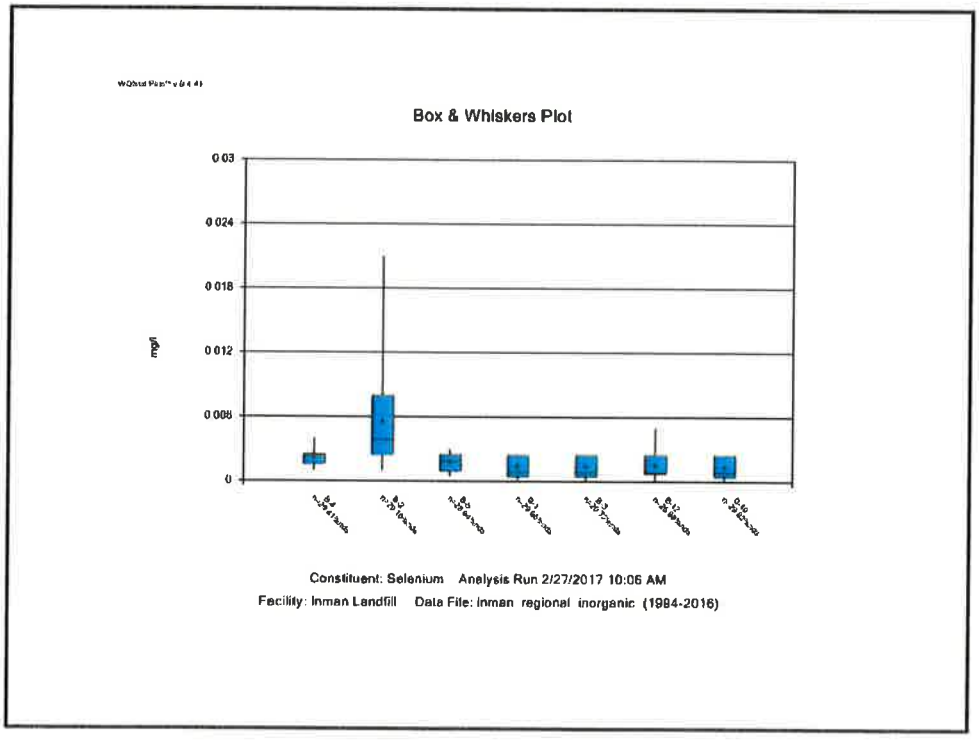

Box & Whiskers Plot
0.02
0.016
0.012
0.008
0.004
0
mg/l
Constituent: Nickel Analysis Run 2/27/2017 9:59 AM
Facility: Inman Landfill Data File: inman regional inorganic (1994-2016)

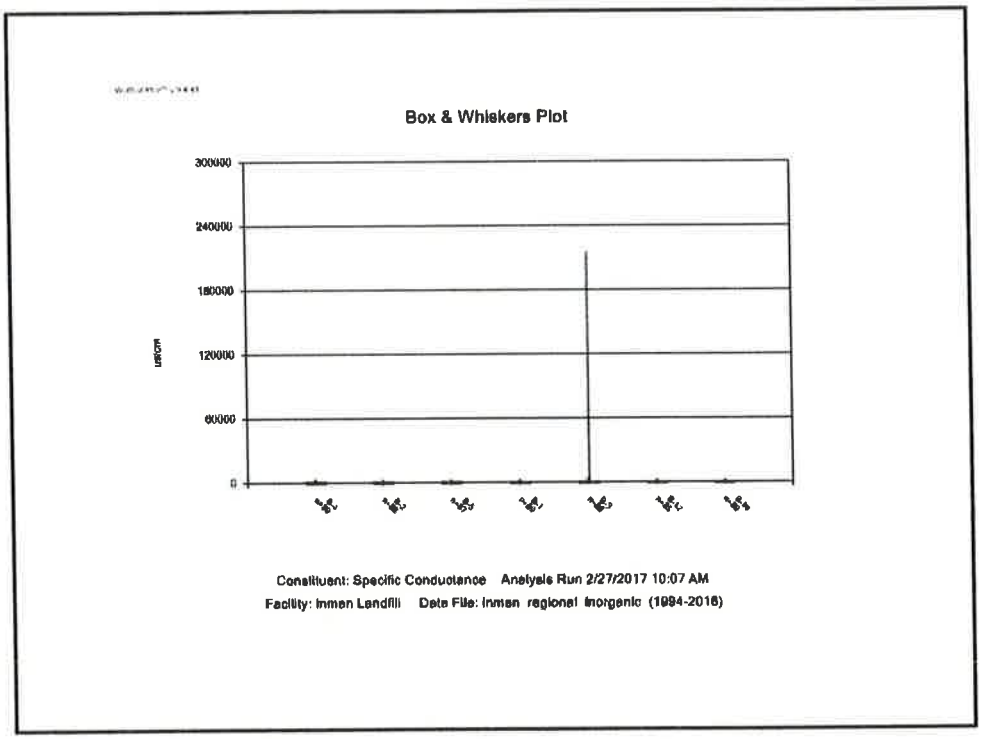

Box & Whiskers Plot
20
16
12
8
4
0
mg/l
Constituent: Nitrate as nitrogen Analysis Run 2/27/2017 9:59 AM
Facility: Inman Landfill Data File: inman regional inorganic (1994-2016)

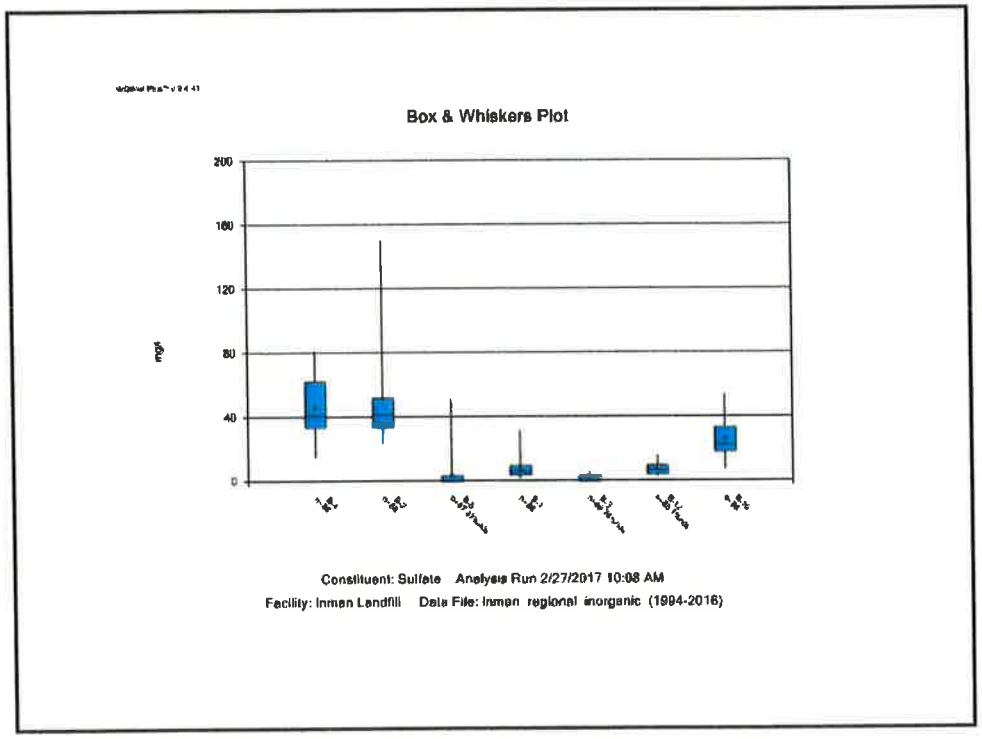

Box & Whiskers Plot
mg/l
1
0.8
0.6
0.4
0.2
0
Constituent: Nitrite as nitrogen Analysis Run 2/27/2017 8:59 AM
Facility: Inman Landfill Data File: Inman regional inorganic (1994-2016)

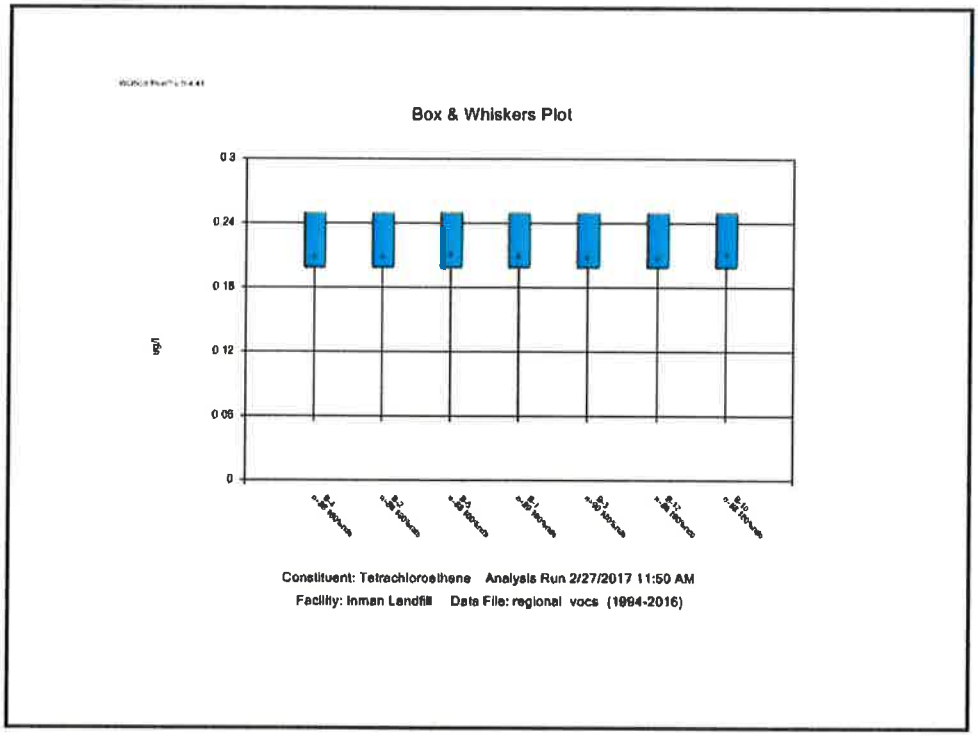

Box & Whiskers Plot
pH units
20
16
12
8
4
0
Constituent: pH Analysis Run 2/27/2017 10:00 AM
Facility: Inman Landfill Data File: inman regional inorganic (1994-2016)

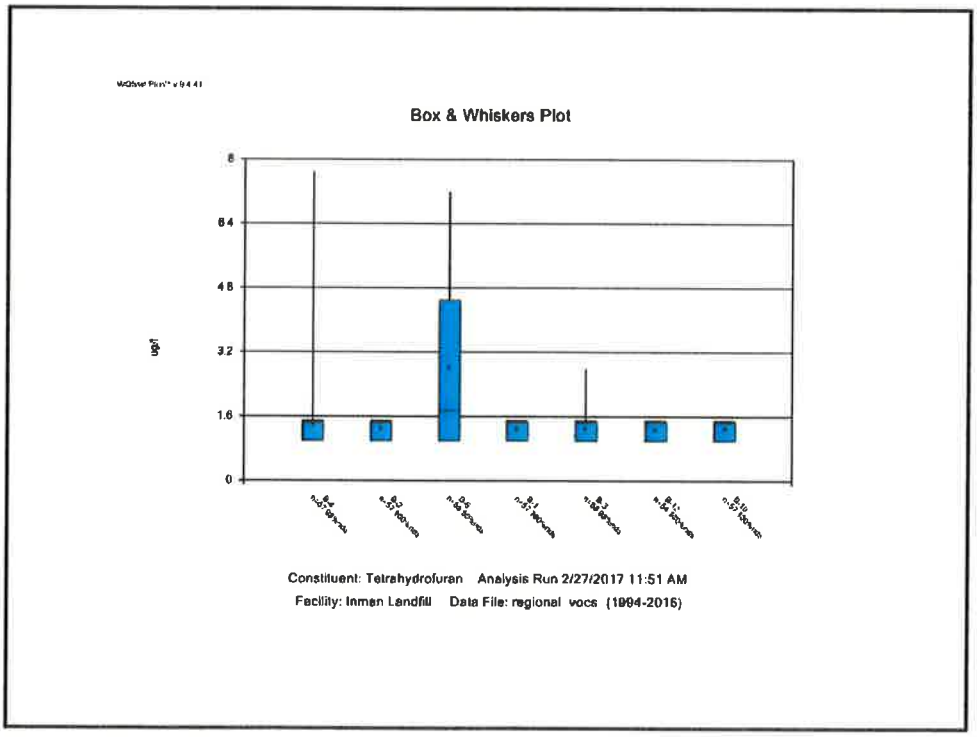

Box & Whiskers Plot
mg/l
40
32
24
16
8
0
Constituent: Potassium Analysis Run 2/27/2017 10:00 AM
Facility: Inman Landfill Data File: Inman regional inorganic (1994-2016)

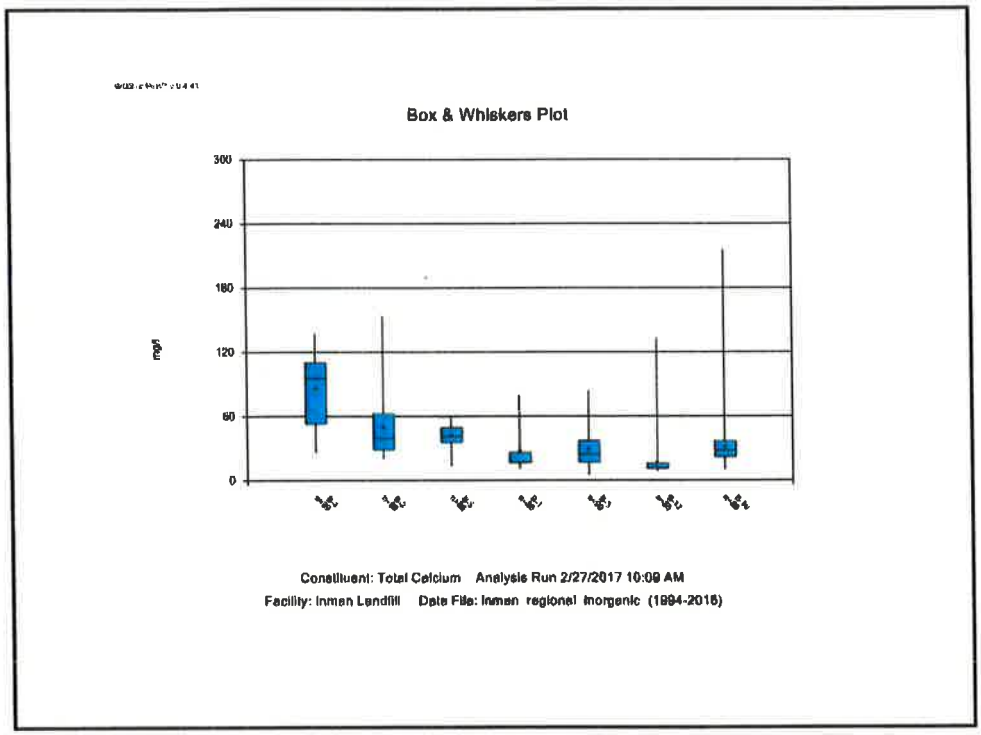

Box & Whiskers Plot
mg/l
0 03
0 024
0 018
0 012
0 006
0
Constituent: Selenium Analysis Run 2/27/2017 10:06 AM
Facility: Inman Landfill Data File: Inman regional inorganic (1994-2016)

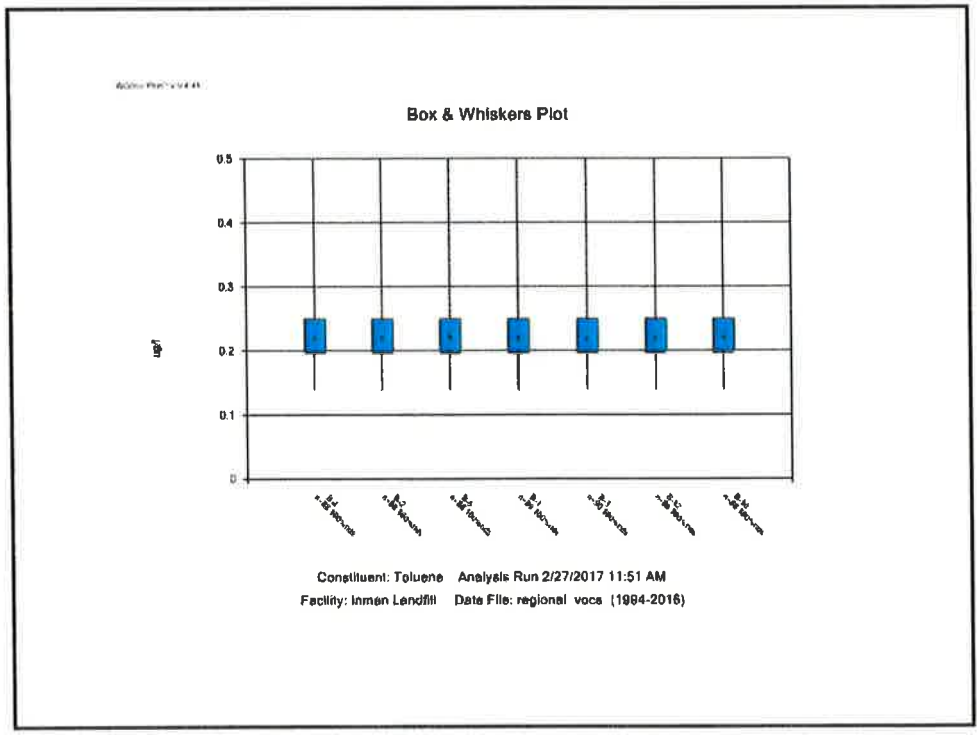

Box & Whiskers Plot
300000
240000
180000
120000
60000
0
umhos
Constituent: Specific Conductance Analysis Run 2/27/2017 10:07 AM
Facility: Inman Landfill Data File: Inman regional inorganic (1994-2016)

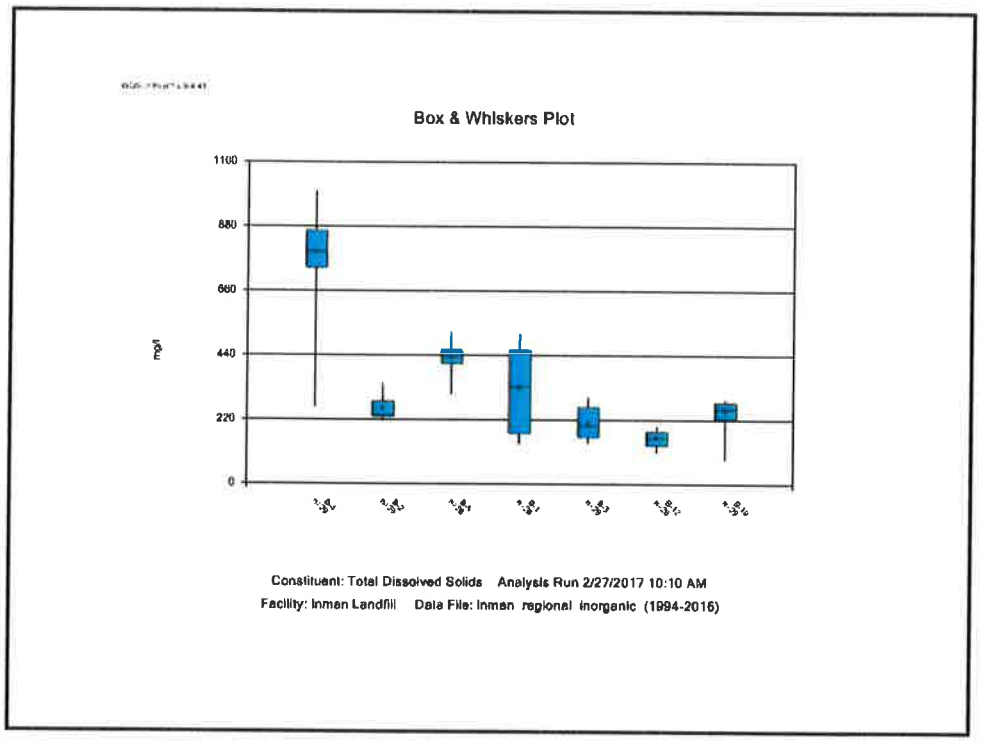

Box & Whiskers Plot
200
160
120
80
40
0
mg/l
Constituent: Sulfate Analysis Run 2/27/2017 10:08 AM
Facility: Inman Landfill Data File: Inman regional inorganic (1994-2016)

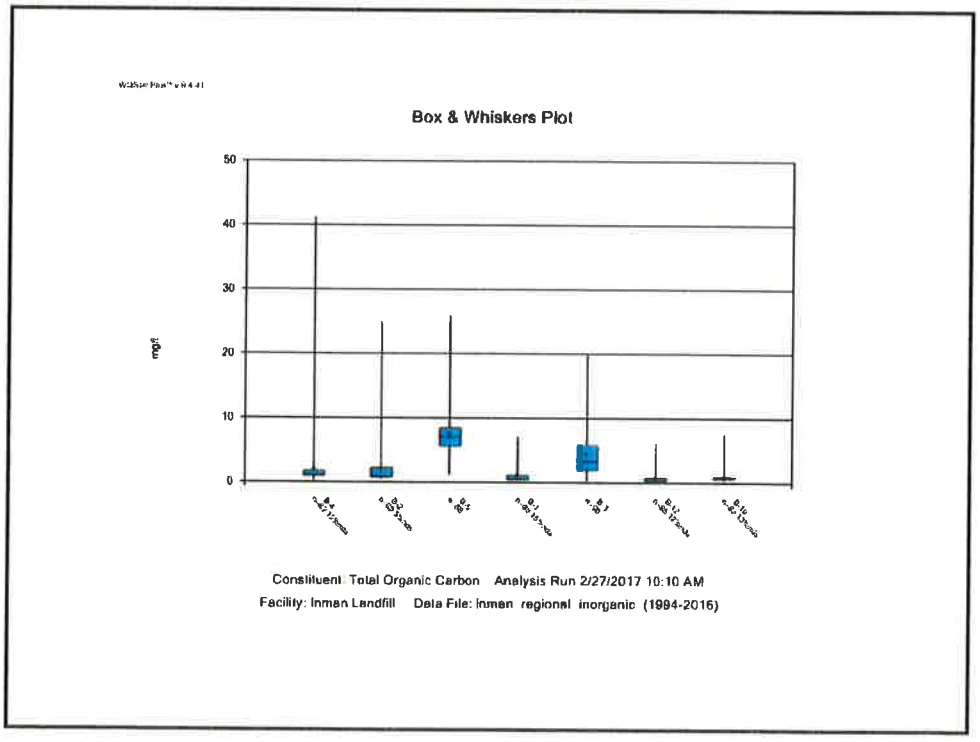

Box & Whiskers Plot
0.3
0.24
0.18
0.12
0.06
0
ug/l
Constituent: Tetrachloroethene Analysis Run 2/27/2017 11:50 AM
Facility: Inman Landfill Data File: regional vocs (1994-2016)

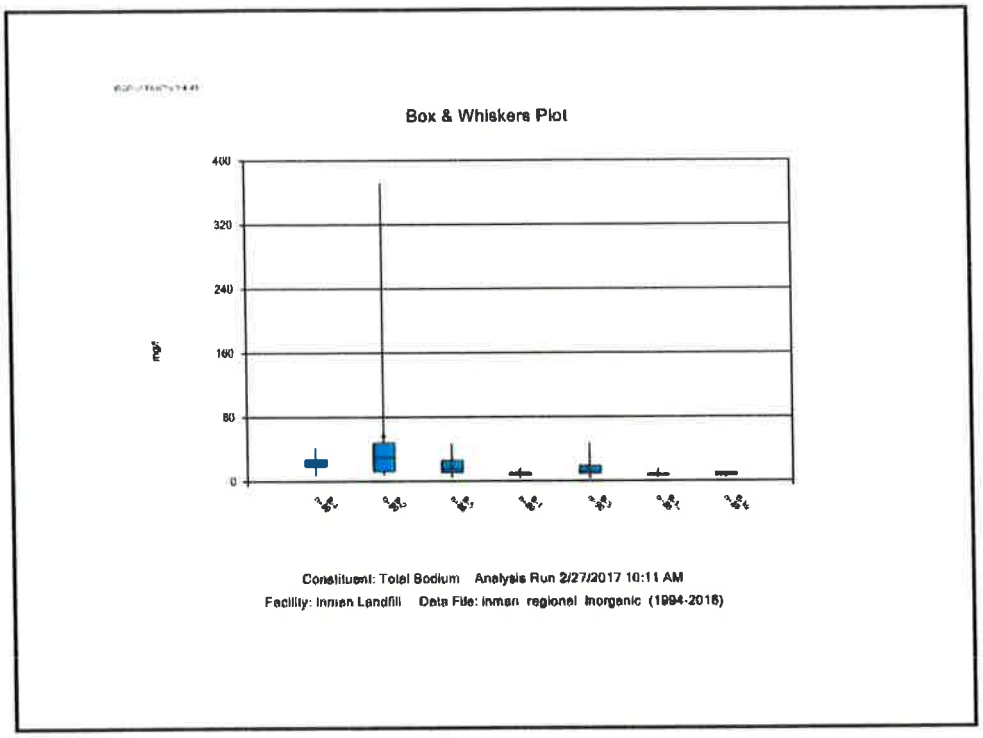

Box & Whiskers Plot
8
6.4
4.8
3.2
1.6
0
ug/l
Constituent: Tetrahydrofuran Analysis Run 2/27/2017 11:51 AM
Facility: Inman Landfill Data File: regional vocs (1994-2016)

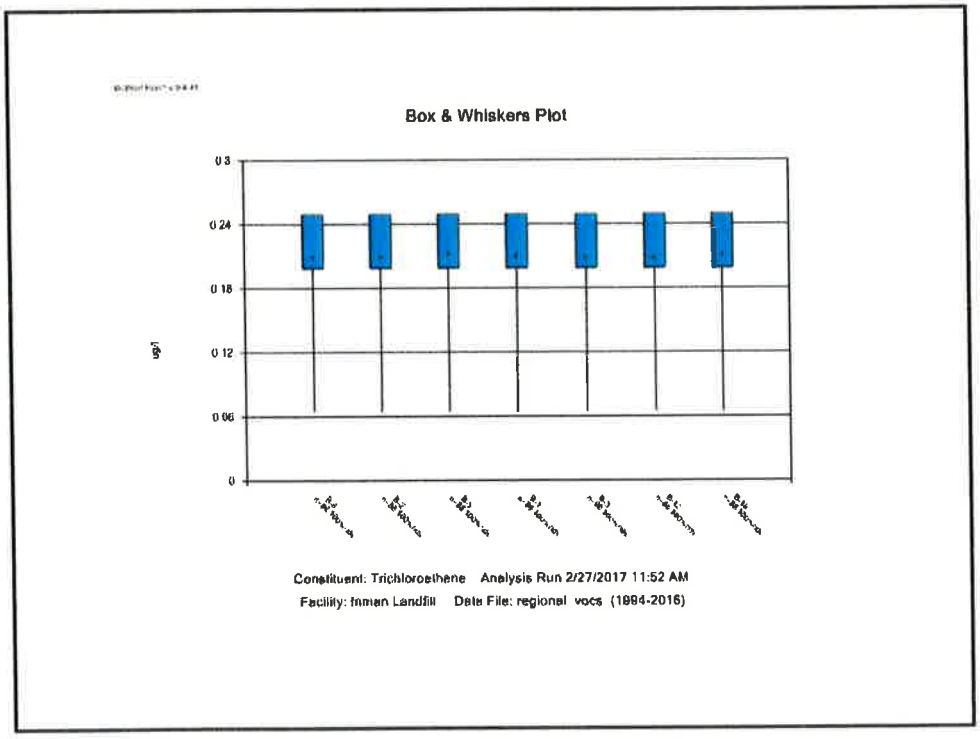

Box & Whiskers Plot
300
240
180
120
60
0
mg/l
Constituent: Total Calcium Analysis Run 2/27/2017 10:09 AM
Facility: Inman Landfill Data File: Inman regional inorganic (1994-2016)

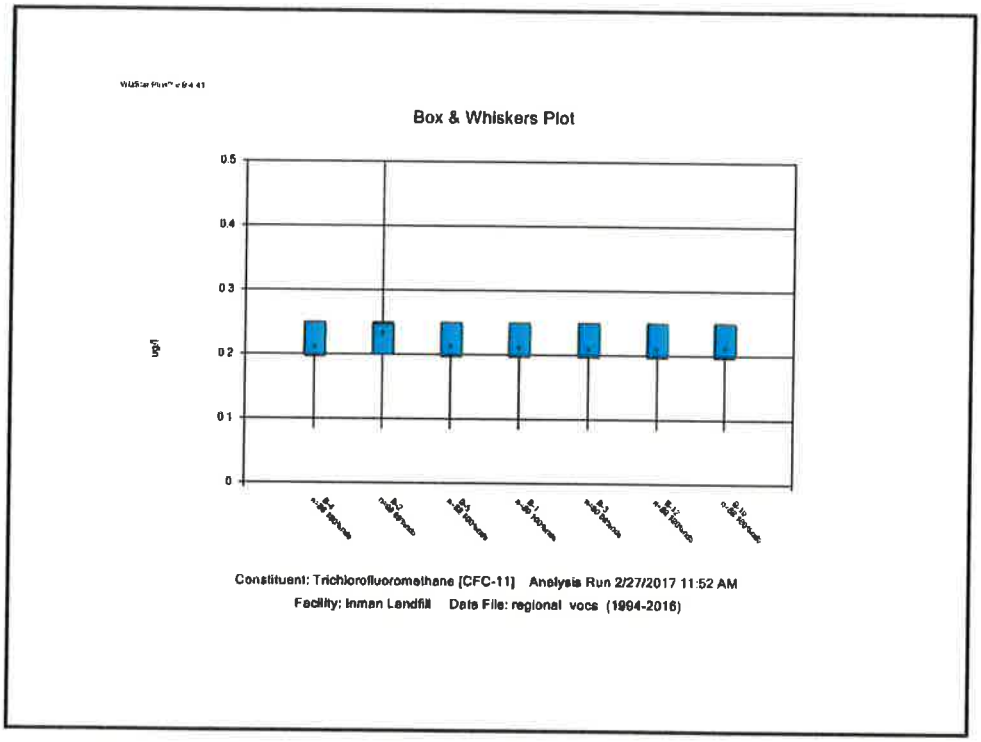

Box & Whiskers Plot
0.5
0.4
0.3
0.2
0.1
0
ug/l
Constituent: Toluene Analysis Run 2/27/2017 11:51 AM
Facility: Inman Landfill Data File: regional vocs (1984-2016)

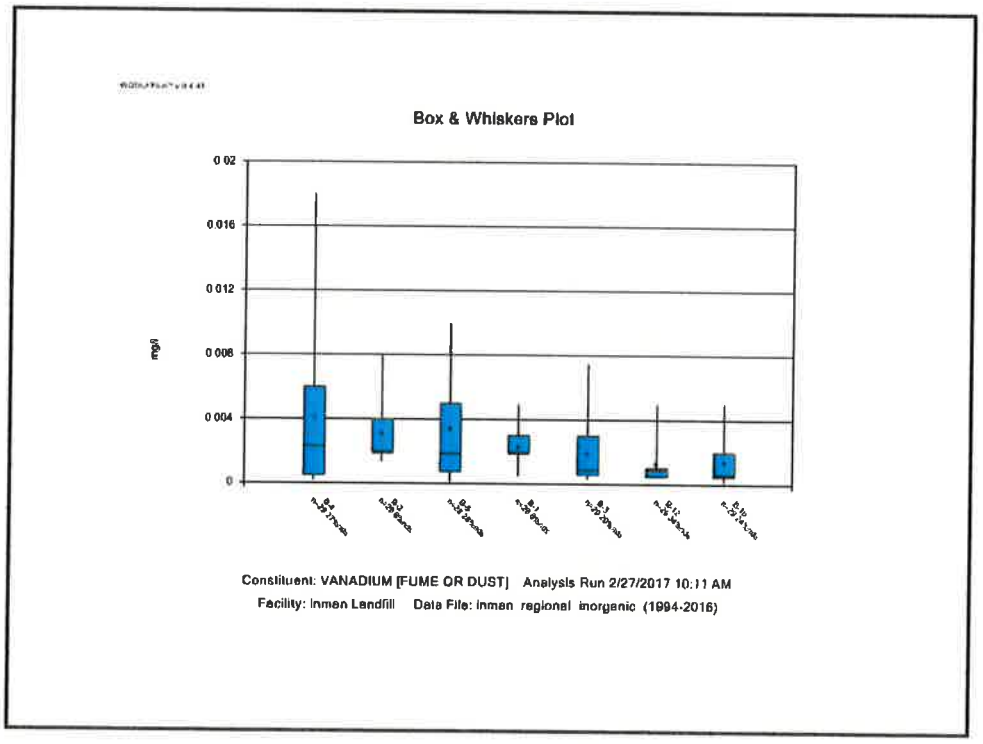

Box & Whiskers Plot
1100
880
660
440
220
0
mg/l
Constituent: Total Dissolved Solids Analysis Run 2/27/2017 10:10 AM
Facility: Inman Landfill Data File: Inman regional inorganic (1994-2016)

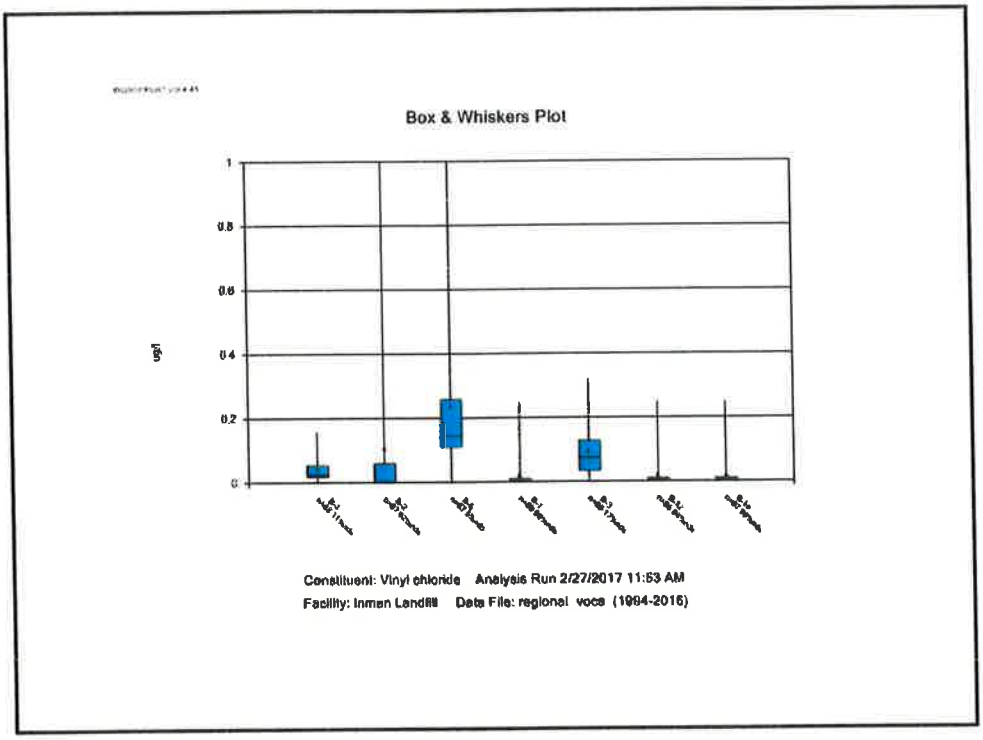

Box & Whiskers Plot
50
40
30
20
10
0
mg/l
Constituent: Total Organic Carbon Analysis Run 2/27/2017 10:10 AM
Facility: Inman Landfill Data File: Inman regional inorganic (1994-2016)

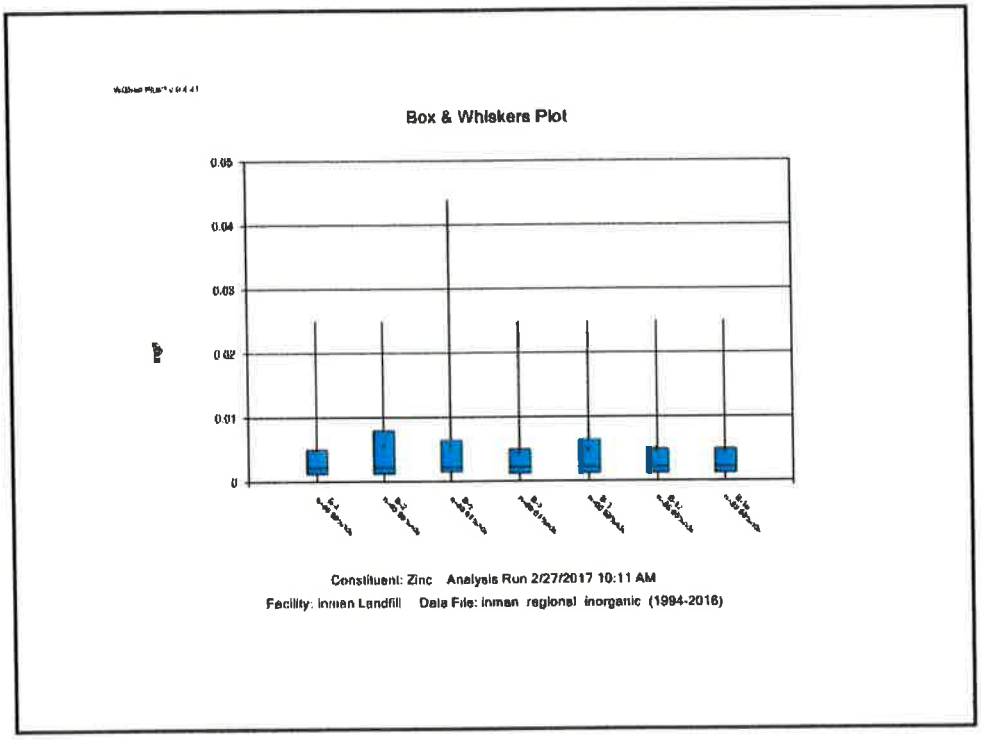

Box & Whiskers Plot
400
320
240
160
80
0
mg/l
Constituent: Total Sodium Analysis Run 2/27/2017 10:11 AM
Facility: Inman Landfill Data File: inman regional inorganic (1994-2016)


Box & Whiskers Plot
0 3
0 24
0 18
0 12
0 06
0
ug/l
Constituent: Trichloroethene Analysis Run 2/27/2017 11:52 AM
Facility: Inman Landfill Data File: regional vocs (1994-2016)


Box & Whiskers Plot
0.5
0.4
0.3
0.2
0.1
0
ug/l
Constituent: Trichlorofluoromethane (CFC-11) Analysis Run 2/27/2017 11:52 AM
Facility: Inman Landfill Data File: regional vocs (1994-2016)


Box & Whiskers Plot
0.02
0.016
0.012
0.008
0.004
0
mg/l
Constituent: VANADIUM [FUME OR DUST] Analysis Run 2/27/2017 10:11 AM
Facility: Inman Landfill Data File: inman regional inorganic (1994-2016)


Box & Whiskers Plot
ug/l
1
0.8
0.6
0.4
0.2
0
Constituent: Vinyl chloride Analysis Run 2/27/2017 11:53 AM
Facility: Inman Landfill Data File: regional voca (1994-2016)


Box & Whiskers Plot
mg/l
0.05
0.04
0.03
0.02
0.01
0
Constituent: Zinc Analysis Run 2/27/2017 10:11 AM
Facility: Inman Landfill Data File: inman regional inorganic (1994-2016)

APPENDIX E-4:
Long-Term Mann-Kendall Trend Tests 1994-2016 – Upper Regional Aquifer

Long-Term Mann-Kendall Trend Tests 1994-2016
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	-6.305	-2.33	Yes	89	100	0.02
		B-2	-0.02624	-9.411	-2.33	Yes	89	44.94	0.02
		B-3	0	-5.936	-2.33	Yes	90	96.67	0.02
		B-4	0	-0.9411	-2.33	No	89	48.31	0.02
		B-5	0	-6.729	-2.33	Yes	88	73.86	0.02
		B-10	0	-6.603	-2.33	Yes	89	100	0.02
		B-12	0	-5.988	-2.33	Yes	86	100	0.02
1,2-dichloroethane	ug/L	B-1	0	-6.305	-2.33	Yes	89	100	0.02
		B-2	0	-6.336	-2.33	Yes	89	100	0.02
		B-3	0	-6.16	-2.33	Yes	90	100	0.02
		B-4	0	-6.393	-2.33	Yes	89	98.88	0.02
		B-5	-0.002327	-6.679	-2.33	Yes	88	98.86	0.02
		B-10	0	-6.603	-2.33	Yes	89	100	0.02
		B-12	0	-6.078	-2.33	Yes	86	98.84	0.02
Acetone	ug/L	B-1	0.06678	8.82	2.33	Yes	89	96.63	0.02
		B-2	0.06847	9.256	2.33	Yes	89	98.88	0.02
		B-3	0.05692	7.103	2.33	Yes	90	98.89	0.02
		B-4	0.0686	9.256	2.33	Yes	89	98.88	0.02
		B-5	0.06821	8.802	2.33	Yes	88	97.73	0.02
		B-10	0.06861	9.256	2.33	Yes	89	98.88	0.02
		B-12	0.07022	8.773	2.33	Yes	86	97.67	0.02
Alkalinity	mg/L	B-1	41.72	374	125	Yes	29	0	0.02
		B-2	-0.7315	-42	-119	No	28	0	0.02
		B-3	0	0	119	No	28	0	0.02
		B-4	-27.75	-282	-119	Yes	28	0	0.02
		B-5	1.013	20	112	No	27	0	0.02
		B-10	5.768	250	125	Yes	29	0	0.02
		B-12	7.05	228	101	Yes	25	0	0.02
Ammonia as nitrogen	mg/L	B-1	0.006614	7.612	2.33	Yes	89	0	0.02
		B-2	0	0.5269	2.33	No	89	31.46	0.02
		B-3	0	-0.0697	-2.33	No	90	1.111	0.02
		B-4	0.07009	9.241	2.33	Yes	89	0	0.02
		B-5	0.01109	1.666	2.33	No	88	1.136	0.02
		B-10	0.003128	2.548	2.33	Yes	89	0	0.02
		B-12	0.0006147	1.331	2.33	No	86	4.651	0.02
Antimony, dissolved	mg/L	B-1	0	-101	-119	No	28	85.71	0.02
		B-2	0	-121	-119	Yes	28	89.29	0.02
		B-3	0	-99	-119	No	28	100	0.02
		B-4	0	-111	-125	No	29	96.55	0.02
		B-5	0	-104	-112	No	27	92.59	0.02
		B-10	0	-117	-119	No	28	100	0.02
		B-12	0	-121	-106	Yes	26	88.46	0.02
Arsenic, dissolved	mg/L	B-1	-0.00007165	-2.028	-2.33	No	87	0	0.02
		B-2	-0.00006065	-7.226	-2.33	Yes	86	22.09	0.02
		B-3	-0.00005214	-2.285	-2.33	No	87	21.84	0.02
		B-4	-0.00009089	-3.539	-2.33	Yes	87	21.84	0.02
		B-5	-0.0001574	-2.573	-2.33	Yes	85	17.65	0.02
		B-10	-0.000026	-4.348	-2.33	Yes	87	21.84	0.02
		B-12	-0.0002284	-6.101	-2.33	Yes	83	18.07	0.02
Barium, dissolved	mg/L	B-1	0.003245	345	125	Yes	29	0	0.02
		B-2	-0.0009503	-89	-125	No	29	0	0.02
		B-3	0.0004209	12	125	No	29	0	0.02
		B-4	-0.0004435	-32	-125	No	29	0	0.02
		B-5	0.002132	95	119	No	28	0	0.02
		B-10	0.002278	264	125	Yes	29	0	0.02
		B-12	0.001272	281	106	Yes	26	0	0.02

Long-Term Mann-Kendall Trend Tests 1994-2016
Upper Regional Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Significance Level
Bicarbonate	mg/L	**B-1**	**41.72**	**374**	**125**	**Yes**	**29**	**0**	**0.02**
		B-2	-0.7315	-42	-119	No	28	0	0.02
		B-3	0	0	119	No	28	0	0.02
		B-4	**-27.75**	**-282**	**-119**	**Yes**	**28**	**0**	**0.02**
		B-5	1.013	20	112	No	27	0	0.02
		B-10	**5.768**	**250**	**125**	**Yes**	**29**	**0**	**0.02**
		B-12	**7.05**	**228**	**101**	**Yes**	**25**	**0**	**0.02**
Cadmium, dissolved	mg/L	**B-1**	**-0.00003849**	**-5.888**	**-2.33**	**Yes**	**87**	**98.85**	**0.02**
		B-2	**-0.0000384**	**-5.488**	**-2.33**	**Yes**	**87**	**93.1**	**0.02**
		B-3	**-0.00003753**	**-5.382**	**-2.33**	**Yes**	**88**	**98.86**	**0.02**
		B-4	**-0.00003753**	**-5.929**	**-2.33**	**Yes**	**88**	**97.73**	**0.02**
		B-5	**-0.00003688**	**-5.411**	**-2.33**	**Yes**	**86**	**96.51**	**0.02**
		B-10	**-0.00003533**	**-5.624**	**-2.33**	**Yes**	**87**	**100**	**0.02**
		B-12	**-0.00003947**	**-5.344**	**-2.33**	**Yes**	**85**	**96.47**	**0.02**
Chemical Oxygen Demand	mg/L	**B-1**	**0.07796**	**3.084**	**2.33**	**Yes**	**89**	**78.65**	**0.02**
		B-2	0	-1.961	-2.33	No	89	71.91	0.02
		B-3	-0.05736	-0.9311	-2.33	No	90	36.67	0.02
		B-4	**0.681**	**6.223**	**2.33**	**Yes**	**89**	**53.93**	**0.02**
		B-5	**1.141**	**7.374**	**2.33**	**Yes**	**88**	**6.818**	**0.02**
		B-10	0	1.943	2.33	No	86	89.53	0.02
		B-12	0	1.507	2.33	No	89	82.02	0.02
Chloride	mg/L	**B-1**	**0.2419**	**7.631**	**2.33**	**Yes**	**88**	**0**	**0.02**
		B-2	**-2.774**	**-6.381**	**-2.33**	**Yes**	**88**	**0**	**0.02**
		B-3	**-0.708**	**-3.456**	**-2.33**	**Yes**	**89**	**0**	**0.02**
		B-4	**6.133**	**7.079**	**2.33**	**Yes**	**88**	**0**	**0.02**
		B-5	**2.948**	**10.55**	**2.33**	**Yes**	**87**	**0**	**0.02**
		B-10	**0.04379**	**3.483**	**2.33**	**Yes**	**88**	**0**	**0.02**
		B-12	0.01772	1.748	2.33	No	85	0	0.02
Chlorodifluoromethane (Freon 22)	ug/L	**B-1**	**0.01131**	**4.48**	**2.33**	**Yes**	**57**	**78.95**	**0.02**
		B-2	**0**	**-4.051**	**-2.33**	**Yes**	**57**	**78.95**	**0.02**
		B-3	0	-0.5816	-2.33	No	58	27.59	0.02
		B-4	**0.6074**	**5.544**	**2.33**	**Yes**	**57**	**1.754**	**0.02**
		B-5	**-0.1443**	**-4.389**	**-2.33**	**Yes**	**56**	**1.786**	**0.02**
		B-10	0	-0.575	-2.33	No	57	100	0.02
		B-12	0	1.621	2.33	No	54	100	0.02
Chloroethane	ug/L	**B-1**	**0**	**-5.884**	**-2.33**	**Yes**	**89**	**100**	**0.02**
		B-2	**-0.002468**	**-6.438**	**-2.33**	**Yes**	**88**	**95.45**	**0.02**
		B-3	**0**	**-6.057**	**-2.33**	**Yes**	**89**	**100**	**0.02**
		B-4	**0**	**-6.226**	**-2.33**	**Yes**	**89**	**98.88**	**0.02**
		B-5	**0**	**-6.489**	**-2.33**	**Yes**	**87**	**100**	**0.02**
		B-10	**0**	**-6.513**	**-2.33**	**Yes**	**88**	**100**	**0.02**
		B-12	**0**	**-5.988**	**-2.33**	**Yes**	**86**	**100**	**0.02**
Chromium, dissolved	mg/L	**B-1**	**-0.0003331**	**-134**	**-125**	**Yes**	**29**	**44.83**	**0.02**
		B-2	**-0.0001138**	**-157**	**-125**	**Yes**	**29**	**37.93**	**0.02**
		B-3	**-0.0005026**	**-195**	**-125**	**Yes**	**29**	**44.83**	**0.02**
		B-4	**-0.0004146**	**-171**	**-125**	**Yes**	**29**	**13.79**	**0.02**
		B-5	**-0.0002848**	**-152**	**-119**	**Yes**	**28**	**25**	**0.02**
		B-10	**-0.0001888**	**-169**	**-125**	**Yes**	**29**	**62.07**	**0.02**
		B-12	**-0.0003087**	**-194**	**-106**	**Yes**	**26**	**73.08**	**0.02**
cis-1,2-dichloroethene	ug/L	**B-1**	**0**	**-6.305**	**-2.33**	**Yes**	**89**	**100**	**0.02**
		B-2	**0**	**-6.336**	**-2.33**	**Yes**	**89**	**100**	**0.02**
		B-3	**0**	**-6.16**	**-2.33**	**Yes**	**90**	**100**	**0.02**
		B-4	**0**	**-6.305**	**-2.33**	**Yes**	**89**	**100**	**0.02**
		B-5	**0**	**-6.579**	**-2.33**	**Yes**	**88**	**100**	**0.02**
		B-10	**0**	**-6.603**	**-2.33**	**Yes**	**89**	**100**	**0.02**
		B-12	**0**	**-5.988**	**-2.33**	**Yes**	**86**	**100**	**0.02**

Long-Term Mann-Kendall Trend Tests 1994-2016
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	-0.0005421	-257	-125	Yes	29	62.07	0.02
		B-2	-0.0004864	-297	-125	Yes	29	62.07	0.02
		B-3	-0.0004607	-249	-125	Yes	29	72.41	0.02
		B-4	-0.0004262	-265	-125	Yes	29	65.52	0.02
		B-5	-0.0004206	-247	-119	Yes	28	71.43	0.02
		B-10	-0.0005126	-275	-125	Yes	29	72.41	0.02
		B-12	-0.0005427	-223	-106	Yes	26	76.92	0.02
Dichlorodifluoromethane (CFC-12)	ug/L	B-1	0	-6.305	-2.33	Yes	89	100	0.02
		B-2	-0.2345	-5.524	-2.33	Yes	89	15.73	0.02
		B-3	0	-6.178	-2.33	Yes	90	98.89	0.02
		B-4	0	-3.722	-2.33	Yes	89	89.89	0.02
		B-5	-0.004377	-7.052	-2.33	Yes	88	57.95	0.02
		B-10	0	-6.603	-2.33	Yes	89	100	0.02
		B-12	0	-5.988	-2.33	Yes	86	100	0.02
Dichloromonofluoromethane (Freon 21)	ug/L	B-1	0	0.3488	2.33	No	57	100	0.02
		B-2	0	-4.992	-2.33	Yes	57	70.18	0.02
		B-3	0	0.254	2.33	No	58	32.76	0.02
		B-4	0	-3.269	-2.33	Yes	57	45.61	0.02
		B-5	-0.01992	-3.708	-2.33	Yes	56	7.143	0.02
		B-10	0	-0.575	-2.33	No	57	100	0.02
		B-12	0	1.422	2.33	No	54	98.15	0.02
Diethyl ether	ug/L	B-1	0	0.3488	2.33	No	57	100	0.02
		B-2	0	0.6608	2.33	No	57	100	0.02
		B-3	-0.1006	-2.384	-2.33	Yes	58	18.97	0.02
		B-4	0	0.3488	2.33	No	57	100	0.02
		B-5	-0.02234	-0.736	-2.33	No	56	1.786	0.02
		B-10	0	-0.575	-2.33	No	57	100	0.02
		B-12	0	1.621	2.33	No	54	100	0.02
Iron, dissolved	mg/L	B-1	0.02476	9.806	2.33	Yes	89	0	0.02
		B-2	0	-2.722	-2.33	Yes	89	67.42	0.02
		B-3	-0.1915	-2.983	-2.33	Yes	90	0	0.02
		B-4	0.3045	9.456	2.33	Yes	89	0	0.02
		B-5	0.07424	0.6055	2.33	No	88	1.136	0.02
		B-10	0.08214	8.967	2.33	Yes	89	2.247	0.02
		B-12	0.003679	2.067	2.33	No	86	1.163	0.02
Lead, dissolved	mg/L	B-1	-0.00002818	-4.668	-2.33	Yes	88	97.73	0.02
		B-2	-0.00002769	-4.313	-2.33	Yes	88	98.86	0.02
		B-3	-0.00003015	-4.404	-2.33	Yes	89	94.38	0.02
		B-4	-0.00003074	-5.009	-2.33	Yes	89	94.38	0.02
		B-5	-0.00002855	-4.455	-2.33	Yes	87	93.1	0.02
		B-10	-0.00002798	-4.637	-2.33	Yes	88	97.73	0.02
		B-12	-0.00002798	-4.637	-2.33	Yes	88	97.73	0.02
Magnesium, total	mg/L	B-1	5.601	364	125	Yes	29	0	0.02
		B-2	-0.9703	-207	-125	Yes	29	0	0.02
		B-3	-0.01574	-2	-125	No	29	0	0.02
		B-4	-1.034	-62	-125	No	29	0	0.02
		B-5	0.3933	55	119	No	28	0	0.02
		B-10	0.996	182	125	Yes	29	0	0.02
		B-12	1.071	265	106	Yes	26	0	0.02
Manganese, dissolved	mg/L	B-1	0.0195	9.019	2.33	Yes	89	2.247	0.02
		B-2	-0.006425	-2.52	-2.33	Yes	89	3.371	0.02
		B-3	-0.02547	-3.953	-2.33	Yes	90	1.111	0.02
		B-4	0.01721	2.573	2.33	Yes	89	0	0.02
		B-5	-0.01416	-2.909	-2.33	Yes	88	1.136	0.02
		B-10	0.01705	7.145	2.33	Yes	89	3.371	0.02
		B-12	-0.003559	-4.582	-2.33	Yes	86	0	0.02

Long-Term Mann-Kendall Trend Tests 1994-2016
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	-1.495	-2.33	No	88	100	0.02
		B-2	0	-1.495	-2.33	No	88	100	0.02
		B-3	0	-1.605	-2.33	No	89	98.88	0.02
		B-4	0	-1.408	-2.33	No	88	98.86	0.02
		B-5	0	-1.441	-2.33	No	87	100	0.02
		B-10	0	-1.476	-2.33	No	85	98.82	0.02
		B-12	0	-1.897	-2.33	No	86	100	0.02
Nickel, dissolved	mg/L	**B-1**	**0.000372**	**228**	**119**	**Yes**	**28**	**57.14**	**0.02**
		B-2	**-0.0005014**	**-156**	**-119**	**Yes**	**28**	**3.571**	**0.02**
		B-3	0	-10	-119	No	28	42.86	0.02
		B-4	0	117	125	No	29	6.897	0.02
		B-5	**0.0002359**	**142**	**112**	**Yes**	**27**	**3.704**	**0.02**
		B-10	0	78	119	No	28	67.86	0.02
		B-12	0	-73	-106	No	26	73.08	0.02
Nitrate as nitrogen	mg/L	**B-1**	**0**	**-3.935**	**-2.33**	**Yes**	**88**	**96.59**	**0.02**
		B-2	-0.04432	-2.091	-2.33	No	88	9.091	0.02
		B-3	0	-2.023	-2.33	No	89	94.38	0.02
		B-4	**0**	**-3.213**	**-2.33**	**Yes**	**88**	**89.77**	**0.02**
		B-5	0	-0.9527	-2.33	No	87	80.46	0.02
		B-10	**0**	**-3.884**	**-2.33**	**Yes**	**88**	**95.45**	**0.02**
		B-12	**0**	**-4.19**	**-2.33**	**Yes**	**85**	**98.82**	**0.02**
Nitrite as nitrogen	mg/L	B-1	0	1.083	2.33	No	88	100	0.02
		B-2	0	0.7068	2.33	No	88	96.59	0.02
		B-3	0	2.068	2.33	No	89	95.51	0.02
		B-4	0	1.385	2.33	No	88	96.59	0.02
		B-5	0	0.7511	2.33	No	87	93.1	0.02
		B-10	0	1.298	2.33	No	88	98.86	0.02
		B-12	0	1.077	2.33	No	85	97.65	0.02
pH	mg/L	**B-1**	**0.01409**	**2.354**	**2.33**	**Yes**	**87**	**0**	**0.02**
		B-2	-0.00182	-0.2897	-2.33	No	87	0	0.02
		B-3	**0.02748**	**4.581**	**2.33**	**Yes**	**90**	**0**	**0.02**
		B-4	-0.004698	-0.8904	-2.33	No	88	0	0.02
		B-5	0.01001	1.878	2.33	No	88	0	0.02
		B-10	0.01124	1.897	2.33	No	88	0	0.02
		B-12	**0.01678**	**2.927**	**2.33**	**Yes**	**85**	**0**	**0.02**
Potassium, total	mg/L	**B-1**	**0.3216**	**289**	**125**	**Yes**	**29**	**0**	**0.02**
		B-2	**1.252**	**163**	**125**	**Yes**	**29**	**0**	**0.02**
		B-3	0.03917	24	125	No	29	0	0.02
		B-4	-0.0332	-60	-125	No	29	0	0.02
		B-5	0.08013	100	119	No	28	0	0.02
		B-10	**0.09912**	**204**	**125**	**Yes**	**29**	**0**	**0.02**
		B-12	**0.1041**	**177**	**106**	**Yes**	**26**	**0**	**0.02**
Selenium, dissolved	mg/L	**B-1**	**-0.0002751**	**-203**	**-125**	**Yes**	**29**	**65.52**	**0.02**
		B-2	**-0.0008541**	**-203**	**-125**	**Yes**	**29**	**10.34**	**0.02**
		B-3	**-0.0002847**	**-224**	**-125**	**Yes**	**29**	**72.41**	**0.02**
		B-4	-0.00007096	-99	-125	No	29	41.38	0.02
		B-5	**-0.0001425**	**-163**	**-119**	**Yes**	**28**	**64.29**	**0.02**
		B-10	**-0.0003065**	**-264**	**-125**	**Yes**	**29**	**82.76**	**0.02**
		B-12	**-0.0002778**	**-172**	**-106**	**Yes**	**26**	**88.46**	**0.02**
Specific Conductance	us/cm	**B-1**	**13.89**	**7.663**	**2.33**	**Yes**	**89**	**0**	**0.02**
		B-2	**-26.82**	**-7.799**	**-2.33**	**Yes**	**88**	**0**	**0.02**
		B-3	-4.445	-1.35	-2.33	No	89	0	0.02
		B-4	**55.23**	**6.262**	**2.33**	**Yes**	**89**	**0**	**0.02**
		B-5	**17.56**	**5.426**	**2.33**	**Yes**	**87**	**0**	**0.02**
		B-10	**13.07**	**7.12**	**2.33**	**Yes**	**89**	**0**	**0.02**
		B-12	**4.476**	**5.774**	**2.33**	**Yes**	**85**	**0**	**0.02**

Long-Term Mann-Kendall Trend Tests 1994-2016
Upper Regional Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Significance Level
Sulfate	mg/L	B-1	0.3159	5.984	2.33	Yes	88	0	0.02
		B-2	-1.692	-6.57	-2.33	Yes	88	0	0.02
		B-3	0	-1.582	-2.33	No	89	74.16	0.02
		B-4	1.874	6.933	2.33	Yes	88	0	0.02
		B-5	0	-0.8844	-2.33	No	87	37.93	0.02
		B-10	0.9799	8.603	2.33	Yes	88	0	0.02
		B-12	0.5019	9.15	2.33	Yes	85	1.176	0.02
Tetrachloroethene	ug/L	B-1	0	-6.305	-2.33	Yes	89	100	0.02
		B-2	0	-6.336	-2.33	Yes	89	100	0.02
		B-3	0	-6.16	-2.33	Yes	90	100	0.02
		B-4	0	-6.305	-2.33	Yes	89	100	0.02
		B-5	0	-6.579	-2.33	Yes	88	100	0.02
		B-10	0	-6.603	-2.33	Yes	89	100	0.02
		B-12	0	-5.988	-2.33	Yes	86	100	0.02
Tetrahydrofuran	ug/L	B-1	0	6.303	2.33	Yes	57	100	0.02
		B-2	0	6.303	2.33	Yes	57	100	0.02
		B-3	0	6.356	2.33	Yes	58	98.28	0.02
		B-4	0	5.959	2.33	Yes	57	98.25	0.02
		B-5	0.2831	6.105	2.33	Yes	56	50	0.02
		B-10	0	6.188	2.33	Yes	54	100	0.02
		B-12	0	6.303	2.33	Yes	57	100	0.02
Toluene	ug/L	B-1	0	-6.113	-2.33	Yes	89	100	0.02
		B-2	0	-6.145	-2.33	Yes	89	100	0.02
		B-3	0	-5.973	-2.33	Yes	90	100	0.02
		B-4	0	-6.113	-2.33	Yes	89	100	0.02
		B-5	0	-6.371	-2.33	Yes	88	100	0.02
		B-10	0	-5.788	-2.33	Yes	86	100	0.02
		B-12	0	-6.401	-2.33	Yes	89	100	0.02
Calcium, total	mg/L	B-1	1.116	6.942	2.33	Yes	89	0	0.02
		B-2	-2.535	-9.519	-2.33	Yes	89	0	0.02
		B-3	-0.7393	-3.747	-2.33	Yes	90	0	0.02
		B-4	4.487	9.269	2.33	Yes	89	0	0.02
		B-5	0.8513	6.377	2.33	Yes	88	0	0.02
		B-10	0.9935	7.503	2.33	Yes	89	0	0.02
		B-12	0.1384	2.143	2.33	No	85	0	0.02
Total Dissolved Solids	mg/L	B-1	49.27	349	119	Yes	28	0	0.02
		B-2	-9.83	-208	-125	Yes	29	0	0.02
		B-3	1.108	13	125	No	29	0	0.02
		B-4	-7.635	-57	-125	No	29	0	0.02
		B-5	9.169	153	119	Yes	28	0	0.02
		B-10	9.406	245	125	Yes	29	0	0.02
		B-12	8.922	278	106	Yes	26	0	0.02
Total Organic Carbon	mg/L	B-1	0.01529	2.559	2.33	Yes	89	15.73	0.02
		B-2	-0.08522	-8.892	-2.33	Yes	89	5.618	0.02
		B-3	-0.2198	-5.064	-2.33	Yes	90	0	0.02
		B-4	0.06121	7.805	2.33	Yes	89	12.36	0.02
		B-5	0.1005	2.296	2.33	No	88	0	0.02
		B-10	0.02483	6.528	2.33	Yes	89	13.48	0.02
		B-12	-0.01858	-4.037	-2.33	Yes	86	12.79	0.02
Trichloroethene	ug/L	B-1	0	-6.305	-2.33	Yes	89	100	0.02
		B-2	0	-6.336	-2.33	Yes	89	100	0.02
		B-3	0	-6.16	-2.33	Yes	90	100	0.02
		B-4	0	-6.305	-2.33	Yes	89	100	0.02
		B-5	0	-6.579	-2.33	Yes	88	100	0.02
		B-10	0	-5.988	-2.33	Yes	86	100	0.02
		B-12	0	-6.603	-2.33	Yes	89	100	0.02

Long-Term Mann-Kendall Trend Tests 1994-2016
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	-6.305	-2.33	Yes	89	100	0.02
		B-2	0	-0.7766	-2.33	No	89	69.66	0.02
		B-3	0	-5.913	-2.33	Yes	90	98.89	0.02
		B-4	0	-6.305	-2.33	Yes	89	100	0.02
		B-5	0	-6.579	-2.33	Yes	88	100	0.02
		B-10	0	-6.603	-2.33	Yes	89	100	0.02
		B-12	0	-5.988	-2.33	Yes	86	100	0.02
Sodium, total	mg/L	B-1	0.2299	5.182	2.33	Yes	89	0	0.02
		B-2	-3.285	-11.21	-2.33	Yes	89	0	0.02
		B-3	-0.6142	-5.615	-2.33	Yes	90	0	0.02
		B-4	0.5508	5.508	2.33	Yes	89	0	0.02
		B-5	1.106	10.56	2.33	Yes	88	0	0.02
		B-10	0.1302	5.973	2.33	Yes	89	0	0.02
		B-12	0.09892	4.615	2.33	Yes	86	0	0.02
Vanadium, dissolved	mg/L	B-1	0	-90	-125	No	29	6.897	0.02
		B-2	-0.0003333	-199	-125	Yes	29	6.897	0.02
		B-3	-0.0003291	-166	-125	Yes	29	20.69	0.02
		B-4	-0.0009918	-184	-125	Yes	29	27.59	0.02
		B-5	-0.0007502	-168	-119	Yes	28	28.57	0.02
		B-10	-0.0002386	-160	-125	Yes	29	24.14	0.02
		B-12	-0.0000365	-87	-106	No	26	34.62	0.02
Vinyl chloride	ug/L	B-1	0	-7.196	-2.33	Yes	89	98.88	0.02
		B-2	-0.00153	-8.863	-2.33	Yes	88	61.36	0.02
		B-3	-0.00424	-3.774	-2.33	Yes	89	17.98	0.02
		B-4	-0.001941	-4.943	-2.33	Yes	89	11.24	0.02
		B-5	-0.01196	-5.21	-2.33	Yes	87	5.747	0.02
		B-10	0	-7.263	-2.33	Yes	88	98.86	0.02
		B-12	-6.90E-11	-4.582	-2.33	Yes	86	84.88	0.02
Zinc, dissolved	mg/L	B-1	-0.0001752	-6.007	-2.33	Yes	89	61.8	0.02
		B-2	-0.0002063	-5.407	-2.33	Yes	89	59.55	0.02
		B-3	-0.0002268	-5.644	-2.33	Yes	90	58.89	0.02
		B-4	-0.0001852	-5.817	-2.33	Yes	89	59.55	0.02
		B-5	-0.0002206	-5.91	-2.33	Yes	88	61.36	0.02
		B-10	-0.0001872	-6.125	-2.33	Yes	89	60.67	0.02
		B-12	-0.0001859	-4.996	-2.33	Yes	86	65.12	0.02

APPENDIX E-5:
Short-Term Mann-Kendall Trend Tests 2012-2016 – Upper Regional Aquifer

Short-Term Mann-Kendall Trend Tests 2012-2016
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	-14	-68	No	19	94.74	0.02
		B-3	0	0	68	No	19	100	0.02
		B-4	0	-22	-68	No	19	68.42	0.02
		B-5	0	0	63	No	18	100	0.02
		B-10	0	0	68	No	19	100	0.02
		B-12	0	0	53	No	16	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	0	68	No	19	100	0.02
		B-12	0	0	53	No	16	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	0	68	No	19	100	0.02
		B-12	0	0	53	No	16	100	0.02
Alkalinity	mg/L	**B-1**	**43.31**	**151**	**68**	**Yes**	**19**	**0**	**0.02**
		B-2	3.198	56	68	No	19	0	0.02
		B-3	1.508	12	68	No	19	0	0.02
		B-4	**-28.94**	**-113**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-5	6.577	34	63	No	18	0	0.02
		B-10	6.171	57	68	No	19	0	0.02
		B-12	**8.616**	**62**	**53**	**Yes**	**16**	**0**	**0.02**
Ammonia as nitrogen	mg/L	**B-1**	**0.01718**	**82**	**68**	**Yes**	**19**	**0**	**0.02**
		B-2	**-0.007833**	**-103**	**-68**	**Yes**	**19**	**47.37**	**0.02**
		B-3	0.003346	6	68	No	19	0	0.02
		B-4	**-0.08295**	**-134**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-5	0.05774	46	63	No	18	0	0.02
		B-10	0.01206	31	68	No	19	0	0.02
		B-12	0	-8	-53	No	16	0	0.02
Antimony, dissolved	mg/L	B-1	0	32	63	No	18	83.33	0.02
		B-2	0	23	63	No	18	83.33	0.02
		B-3	0	15	63	No	18	100	0.02
		B-4	0	25	68	No	19	94.74	0.02
		B-5	0	15	58	No	17	88.24	0.02
		B-10	0	17	63	No	18	100	0.02
		B-12	0	-2	-53	No	16	81.25	0.02
Arsenic, dissolved	mg/L	B-1	0.001006	36	68	No	19	0	0.02
		B-2	0	-10	-68	No	19	0	0.02
		B-3	0	-14	-68	No	19	0	0.02
		B-4	0	-17	-68	No	19	0	0.02
		B-5	-0.0002212	-20	-63	No	18	0	0.02
		B-10	0	-7	-68	No	19	0	0.02
		B-12	0	-25	-53	No	16	6.25	0.02
Barium, dissolved	mg/L	**B-1**	**0.003712**	**133**	**68**	**Yes**	**19**	**0**	**0.02**
		B-2	0	11	68	No	19	0	0.02
		B-3	0.001338	12	68	No	19	0	0.02
		B-4	**-0.007055**	**-100**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-5	0.004387	58	63	No	18	0	0.02
		B-10	0.001945	67	68	No	19	0	0.02
		B-12	**0.001818**	**95**	**53**	**Yes**	**16**	**0**	**0.02**
Bicarbonate	mg/L	**B-1**	**43.31**	**151**	**68**	**Yes**	**19**	**0**	**0.02**
		B-2	3.198	56	68	No	19	0	0.02
		B-3	1.508	12	68	No	19	0	0.02
		B-4	**-28.94**	**-113**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-5	6.577	34	63	No	18	0	0.02
		B-10	6.171	57	68	No	19	0	0.02
		B-12	**8.616**	**62**	**53**	**Yes**	**16**	**0**	**0.02**
Cadmium, dissolved	mg/L	B-1	0	-3	-63	No	18	100	0.02
		B-2	0	-34	-63	No	18	77.78	0.02
		B-3	0	-15	-63	No	18	100	0.02
		B-4	0	-23	-68	No	19	100	0.02
		B-5	0	-29	-58	No	17	88.24	0.02
		B-10	0	-7	-63	No	18	100	0.02
		B-12	0	-17	-53	No	16	100	0.02

Short-Term Mann-Kendall Trend Tests 2012-2016
Regional Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Alpha
Nitrate as nitrogen	mg/L	B-1	0	2	68	No	19	94.74	0.02
		B-2	0	-1	-68	No	19	0	0.02
		B-3	0	2	68	No	19	94.74	0.02
		B-4	0	-2	-68	No	19	84.21	0.02
		B-5	0	-9	-63	No	18	66.67	0.02
		B-10	0	-8	-68	No	19	100	0.02
		B-12	0	0	53	No	16	100	0.02
Nitrite as nitrogen	mg/L	B-1	0	0	68	No	19	100	0.02
		B-2	0	-8	-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	-8	-68	No	19	100	0.02
		B-12	0	0	53	No	16	100	0.02
pH	mg/L	B-1	-0.05024	-15	-68	No	19	0	0.02
		B-2	-0.09062	-27	-68	No	19	0	0.02
		B-3	0.003303	1	68	No	19	0	0.02
		B-4	-0.02019	-3	-68	No	19	0	0.02
		B-5	-0.008902	-2	-63	No	18	0	0.02
		B-10	-0.1639	-33	-68	No	19	0	0.02
		B-12	-0.1408	-19	-53	No	16	0	0.02
Potassium, dissolved	mg/L	**B-1**	**0.2122**	**74**	**68**	**Yes**	**19**	**0**	**0.02**
		B-2	-0.3638	-41	-68	No	19	0	0.02
		B-3	0.1504	25	68	No	19	0	0.02
		B-4	**-0.3476**	**-100**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-5	**0.3017**	**108**	**63**	**Yes**	**18**	**0**	**0.02**
		B-10	0.05887	51	68	No	19	0	0.02
		B-12	0.1756	45	53	No	16	0	0.02
Selenium, dissolved	mg/L	B-1	-0.0001427	-43	-68	No	19	47.37	0.02
		B-2	**-0.001142**	**-83**	**-68**	**Yes**	**19**	**5.263**	**0.02**
		B-3	-0.0001323	-54	-68	No	19	57.89	0.02
		B-4	-0.0001656	-29	-68	No	19	10.53	0.02
		B-5	-0.00007783	-23	-63	No	18	44.44	0.02
		B-10	**-0.0001999**	**-84**	**-68**	**Yes**	**19**	**73.68**	**0.02**
		B-12	0	-32	-53	No	16	81.25	0.02
Sodium, total	mg/L	B-1	0.5771	66	68	No	19	0	0.02
		B-2	**-0.8302**	**-109**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-3	-0.09865	-11	-68	No	19	0	0.02
		B-4	**-1.701**	**-130**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-5	**2.232**	**105**	**63**	**Yes**	**18**	**0**	**0.02**
		B-10	-0.0361	-12	-68	No	19	0	0.02
		B-12	**0.4629**	**83**	**53**	**Yes**	**16**	**0**	**0.02**
Specific Conductance	mg/L	**B-1**	78.18	59	68	No	19	0	0.02
		B-2	4.469	13	68	No	19	0	0.02
		B-3	18.9	13	68	No	19	0	0.02
		B-4	-97.77	-63	-68	No	19	0	0.02
		B-5	2.758	1	63	No	18	0	0.02
		B-10	6.924	15	68	No	19	0	0.02
		B-12	16.42	53	53	No	16	0	0.02
Sulfate	mg/L	**B-1**	**-1.144**	**-152**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-2	-0.6887	-39	-68	No	19	0	0.02
		B-3	0	-30	-68	No	19	89.47	0.02
		B-4	-2.719	-58	-68	No	19	0	0.02
		B-5	0	5	63	No	18	22.22	0.02
		B-10	1.144	43	68	No	19	0	0.02
		B-12	**0.9865**	**76**	**53**	**Yes**	**16**	**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	0	68	No	19	100	0.02
		B-12	0	0	53	No	16	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	-10	-68	No	19	94.74	0.02
		B-4	0	0	68	No	19	100	0.02
		B-5	0.1968	27	63	No	18	5.556	0.02
		B-10	0	0	68	No	19	100	0.02
		B-12	0	0	53	No	16	100	0.02

Short-Term Mann-Kendall Trend Tests 2012-2016
Regional Aquifer

Analyte	Units	Well	Slope	Z-Score	Critical Value	Significant Trend?	# of Samples	% Non-detects	Alpha
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	0	68	No	19	100	0.02
		B-12	0	0	53	No	16	100	0.02
Total Dissolved Solids	mg/L	**B-1**	**57.56**	**157**	**68**	**Yes**	**19**	**0**	**0.02**
		B-2	-1.587	-23	-68	No	19	0	0.02
		B-3	0.2118	2	68	No	19	0	0.02
		B-4	**-47.11**	**-131**	**-68**	**Yes**	**19**	**0**	**0.02**
		B-5	8.066	34	63	No	18	0	0.02
		B-10	4.577	58	68	No	19	0	0.02
		B-12	**8.985**	**90**	**53**	**Yes**	**16**	**0**	**0.02**
Total Organic Carbon	mg/L	**B-1**	**0.3966**	**134**	**68**	**Yes**	**19**	**0**	**0.02**
		B-2	-0.01931	-29	-68	No	19	0	0.02
		B-3	-0.06239	-17	-68	No	19	0	0.02
		B-4	0.04331	63	68	No	19	0	0.02
		B-5	0.251	36	63	No	18	0	0.02
		B-10	-0.01294	-28	-68	No	19	0	0.02
		B-12	-0.01577	-34	-53	No	16	0	0.02
Trichloroethene	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	0	68	No	19	100	0.02
		B-12	0	0	53	No	16	100	0.02
Trichlorofluoromethane (CFC-11)	ug/L	B-1	0	0	68	No	19	100	0.02
		B-2	0	-14	-68	No	19	57.89	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	0	68	No	19	100	0.02
		B-12	0	0	53	No	16	100	0.02
Vanadium, dissolved	mg/L	B-1	0	-16	-68	No	19	0	0.02
		B-2	0	-48	-68	No	19	0	0.02
		B-3	-0.0000899	-22	-68	No	19	21.05	0.02
		B-4	-0.0003802	-31	-68	No	19	21.05	0.02
		B-5	-0.0004335	-29	-63	No	18	27.78	0.02
		B-10	0	-12	-68	No	19	21.05	0.02
		B-12	0.00008094	36	53	No	16	37.5	0.02
Vinyl chloride	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	-10	-68	No	19	31.58	0.02
		B-4	-0.001615	-58	-68	No	19	10.53	0.02
		B-5	0.001343	3	63	No	18	0	0.02
		B-10	0	0	68	No	19	100	0.02
		B-12	0	-6	-53	No	16	81.25	0.02
Zinc, dissolved	mg/L	**B-1**	**-0.000307**	**-72**	**-68**	**Yes**	**19**	**52.63**	**0.02**
		B-2	**-0.0003818**	**-84**	**-68**	**Yes**	**19**	**52.63**	**0.02**
		B-3	-0.0002852	-64	-68	No	19	52.63	0.02
		B-4	-0.00007623	-39	-68	No	19	42.11	0.02
		B-5	-0.0002717	-59	-63	No	18	55.56	0.02
		B-10	-0.0002624	-65	-68	No	19	47.37	0.02
		B-12	-0.0002859	-48	-53	No	16	62.5	0.02

APPENDIX F:
Landfill Gas Monitoring Data – 2016

Table G-1. Perimeter Landfill Gas Measurements, 2016
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	3/24/2016	3.3	1.8	14.8	0.30	30.07	Off
			9/16/2016	**29.7**	17.4	0.4	29.76	NM	Off
			1/26/2017	**19.3**	7.7	1.8	30.53	0.69	On
GDW-1	Intermediate	58-60	3/24/2016	NM	NM	NM	NM	NM	NM
			NA	NM	NM	NM	NM	NM	Off
			1/26/2017	NM	NM	NM	NM	NM	On
GDW-1	Deep	82-84	3/24/2016	0.0	0.0	18.7	-0.12	30.07	Off
			9/16/2016	0.5	2.7	16.0	29.75	NM	Off
			1/26/2017	0.0	0.1	19.7	30.29	NM	On
GDW-2	Shallow	14.5-15.5	3/24/2016	0.0	2.4	16.6	0.19	29.99	Off
			9/15/2016	0.0	2.7	16.6	29.72	NM	Off
			1/26/2017	0.0	2.4	19.3	30.58	0.90	On
GDW-2	Intermediate	27-28	3/24/2016	0.0	4.4	12.2	0.08	29.99	Off
			9/15/2016	0.0	5.0	12.1	29.72	NM	Off
			1/26/2017	0.0	5.0	14.2	30.58	-1.76	On
GDW-2	Deep	44-45	3/24/2016	0.0	7.3	8.9	0.06	29.99	Off
			9/15/2016	0.0	9.2	9.2	29.72	NM	Off
			1/26/2017	0.0	8.7	9.9	30.58	-5.04	On
GDW-5	Shallow	9-10	3/24/2016	NM	NM	NM	NM	NM	NM
			9/15/2016	NM	NM	NM	NM	NM	Off
			1/26/2017	0.0	1.2	20.1	30.62	0.87	On
GDW-5	Intermediate	19-20	3/24/2016	NM	NM	NM	NM	NM	NM
			9/15/2016	NM	NM	NM	NM	NM	Off
			1/26/2017	NM	NM	NM	NM	NM	On
GDW-5	Deep	29-30	3/24/2016	NM	NM	NM	NM	NM	NM
			NM	NM	NM	NM	NM	NM	Off
			1/26/2017	0.0	0.5	20.9	30.62	0.89	On

Table G-1. Perimeter Landfill Gas Measurements, 2016
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	3/24/2016	0.0	4.8	14.1	0.12	30.00	Off
			9/13/2016	0.0	4.7	13.0	29.95	NM	Off
			1/26/2017	0.0	4.7	17.0	30.59	0.89	On
GP-6	Deep	34-74	3/24/2016	0.0	0.4	18.1	6.30	30.00	Off
			9/13/2016	0.0	1.8	15.6	29.95	NM	Off
			1/26/2017	0.0	0.1	21.3	30.59	0.90	On
GP-7	Shallow	7-17	3/24/2016	0.0	14.6	1.4	0.65	30.14	Off
			9/13/2016	0.0	0.0	18.1	29.99	NM	Off
			1/26/2017	0.0	14.0	8.3	30.58	0.36	On
GP-7	Deep	26-49	3/24/2016	0.0	0.0	17.8	0.03	30.13	Off
			9/13/2016	0.0	0.0	17.9	29.98	NM	Off
			1/26/2017	0.0	3.1	18.2	30.59	0.81	On
B-6	Shallow	39-40	3/24/2016	0.0	0.9	18.2	0.60	29.58	Off
			9/12/2016	0.0	0.4	17.9	30.00	NM	Off
			1/26/2017	0.0	0.6	20.7	30.48	0.00	On
B-6	Intermediate	94-95	3/24/2016	0.0	2.3	16.5	0.42	29.58	Off
			9/12/2016	0.0	0.9	17.4	30.00	NM	Off
			1/26/2017	0.0	1.0	20.1	30.48	-7.76	On
B-6	Deep	134-135	3/24/2016	0.0	2.5	16.3	0.80	29.57	Off
			9/12/2016	0.0	0.1	18.0	30.00	NM	Off
			1/26/2017	0.0	0.1	21.0	30.48	NM	On
B-7	Shallow	14-15	3/24/2016	0.0	0.0	18.8	0.25	30.01	Off
			9/15/2016	0.0	11.1	7.0	30.10	NM	Off
			1/26/2017	NM	NM	NM	NM	NM	On
B-7	Deep	50-51	3/24/2016	0.0	0.0	18.7	0.70	30.01	Off
			9/15/2016	0.0	0.0	17.5	30.10	NM	Off
			1/26/2017	NM	NM	NM	NM	NM	On

Table G-1. Perimeter Landfill Gas Measurements, 2016
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	3/24/2016	0.0	0.0	18.0	0.37	30.00	Off
			9/12/2016	0.0	0.0	18.3	30.05	NM	Off
			1/26/2017	0.0	0.1	21.0	30.58	0.89	On
B-9	Deep	49-50	3/24/2016	0.0	0.3	18.0	0.33	30.00	Off
			9/12/2016	0.0	3.9	15.1	30.06	NM	Off
			1/26/2017	0.0	5.4	15.7	30.50	0.79	On
B-11	Shallow	66-67	3/24/2016	0.0	0.0	18.7	0.27	29.57	Off
			9/15/2016	0.0	0.0	18.0	30.01	NM	Off
			1/26/2017	NM	NM	NM	NM	NM	On
B-11	Deep	86-87	3/24/2016	NM	NM	NM	NM	NM	Off
			9/15/2016	0.0	0.0	18.2	30.01	NM	Off
			1/26/2017	NM	NM	NM	NM	NM	On
B-13	Shallow	38-40	3/24/2016	0.0	0.0	18.7	0.06	30.08	Off
			9/15/2016	0.0	0.0	18.3	30.09	NM	Off
			1/26/2017	0.0	0.0	21.2	30.55	-1.19	On
B-13	Deep	73-74	3/24/2016	0.0	3.4	14.2	0.29	30.08	Off
			9/15/2016	0.0	0.0	18.2	30.09	NM	Off
			1/26/2017	0.0	2.6	17.8	30.55	-56.42	On

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.**

APPENDIX G:
Inspection Forms – 2016

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-1		Date:	03/21/16
Well Depth (ft):	197	Screen Length (ft):	10	Well Diameter (in):	2	
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing	
Depth To Water (ft):	161.13C			Casing Type:	PVC	
Sample ID:	2691	Duplicate ID:		Sampling Personnel:		
Sample Time:	1100	Duplicate Sample Time:				

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
1010	1	11.17	0.873	8.03	7.81	6.7	630
1014	2	11.10		6.76	7.93	6.7	609
1018	3	10.98	0.835	4.43	7.53	9.1	408
1022	4.5	10.79	0.423	1.53	7.46	6.3	262
1026	6	10.72	0.342	0.89	7.40	6.3	241
1030	7	10.71	0.467	0.65	7.25	5.5	221
1034	9	10.69	0.584	0.55	7.18	5.4	178
1038	10	10.70	0.747	0.49	7.14	4.7	157
1042	12	10.72	0.789	0.45	7.13	5.1	142
1046	13	10.75	0.814	0.44	7.13	4.2	135
1050	15	10.816	0.826	0.42	7.13	—	132

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-2		Date:	03/22/16
Well Depth (ft):	77	Screen Length (ft):	10	Well Diameter (in)	2	
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing	
Depth To Water (ft):	56.56C			Casing Type:	PVC	
Sample ID:	2692	Duplicate ID:		Sampling Personnel:		
Sample Time:	1300	Duplicate Sample Time:				

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
1223	1	10.65	0.370	6.60	7.02	—	444
1227	3	11.02	0.343	3.75	6.68	—	436
1231	5	11.13	0.347	4.11	6.67	—	437
1235	7	11.00	0.346	4.20	6.68	—	441
1239	9	10.97	0.342	4.22	6.67	—	446
1243	11	11.00	0.344	4.19	6.69	—	459

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-3		Date:	03/24/16	
Well Depth (ft):	37	Screen Length (ft):	10	Well Diameter (in):	2		
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing		
Depth To Water (ft):	16.80C			Casing Type:	PVC		
Sample ID:	2630	Duplicate ID:	2634	Sampling Personnel:			
Sample Time:	1200	Duplicate Sample Time:	1210				

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low molecular alcohols, EDB, isopropanol, 1,4 dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Acetone, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	50 ml amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
1119	2	13.67	0.439	0.70	6.78	—	254
1123	6	13.74	0.423	0.31	6.81	—	137
1127	10	13.68	0.424	0.17	6.84	—	117
1131	11	13.33	0.423	0.21	6.84	—	108
1135	13	13.26	0.426	0.10	6.84	—	101
1139	15	13.51	0.421	0.13	6.85	—	88
1143	17	13.77	0.420	0.09	6.86	—	94
1147	19	13.73	0.421	0.08	6.86	—	92
1151	21	13.79	0.421	0.07	6.86	—	90

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-4		Date:	03/22/16
Well Depth (ft):	107.5	Screen Length (ft):	10	Well Diameter (in):	2	
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing	
Depth To Water (ft):	69.20C			Casing Type:	PVC	
Sample ID:	2695	Duplicate ID:		Sampling Personnel:		
Sample Time:	1100	Duplicate Sample Time:				

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U	Turbidity NTU	Redox mv
956	1	10.23	1.358	2.67	6.72	1.9	403
1000	5	10.18	1.267	1.31	6.86	6.8	190
1004	7	10.17	1.299	0.96	6.87	5.9	160
1008	9	10.18	1.297	0.76	6.89	6.0	150
1012	11	10.19	1.320	0.62	6.90	—	146
1016	14	10.17	1.315	0.50	6.90	—	144
1020	17	10.17	1.330	0.40	6.89	—	138
1024	19	10.16	1.334	0.36	6.90	—	137
1028	21	10.16	1.329	0.32	6.91	—	130
1032	23	10.16	1.333	0.28	6.93	—	135
1036	25	10.16	1.322	0.24	7.10	—	136
1040	27	10.16	1.332	0.22	7.01	—	135
1044	29	10.15	1.340	0.19	6.93	—	131
1048	31	10.14	1.341	0.18	6.99	—	124
1052	33	10.14	1.332	0.17	6.99	—	134

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-5		Date:	03/24/16	
Well Depth (ft):	36	Screen Length (ft):	10	Well Diameter (in):	2		
Sampling Device:	~~Dedicated Hand Pump~~ electric pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing		
Depth To Water (ft):	16.50			Casing Type:	PVC		
Sample ID:	2696	Duplicate ID:		Sampling Personnel:			
Sample Time:	1500	Duplicate Sample Time:					

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
1423	1	11.05	0.895	4.18	6.76	—	364
1427	3	11.10	0.856	1.18	6.60	—	164
1431	5	11.14	0.853	1.06	6.61	—	138
1435	6	11.14	0.867	0.95	6.63	—	133
1439	9	11.15	0.870	0.70	6.64	—	128
1443	11	11.15	0.868	0.61	6.65	—	122
1447	13	11.17	0.873	0.57	6.66	—	122
1451	15	11.16	0.879	0.61	6.68	—	124

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-6		Date:	03/21/16
Well Depth (ft):	162	Screen Length (ft):	10	Well Diameter (in):	2	
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing	
Depth To Water (ft):	154.68 C			Casing Type:	PVC	
Sample ID:	2697	Duplicate ID:		Sampling Personnel:		
Sample Time:	1200	Duplicate Sample Time:				

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
1127	1	11.23	0.390	9.50	7.90	—	362
1131	5	11.54	0.536	8.19	7.23	—	411
1135	8	10.56	0.505	7.87	7.16	—	435
1139	10	10.49	0.504	7.82	7.15		445
1143	12	10.48	0.511	7.74	7.15	—	455

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-7		Date	03/22/16	
Well Depth (ft):	58	Screen Length (ft):	10	Well Diameter (in)	2		
Sampling Device:		Tubing Type:	Polyethylene	Measuring Point	North, Top of PVC Casing		
Depth To Water (ft):	57.88C			Casing Type:	PVC		
Sample ID:	2698	Duplicate ID:		Sampling Personnel:			
Sample Time:	1330	Duplicate Sample Time:					

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
		FB0316B Equipment Blank					

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-8		Date:	03/24/16
Well Depth (ft):	11	Screen Length (ft):	5	Well Diameter (in):	2	
Sampling Device:	Peristaltic Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing	
Depth To Water (ft):	11.01 c			Casing Type:	PVC	
Sample ID:	2699	Duplicate ID:		Sampling Personnel:		
Sample Time:	1300	Duplicate Sample Time:				

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cl, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
1055	1	11.03	0.722	5.60	6.69	—	569
1059	3	10.84	0.721	5.85	6.63	—	560
1103	5	10.97	0.710	5.88	6.61	—	562
1107	6.5	10.07	0.705	~~6.15~~	6.69	—	556
		pumped dry					

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-9		Date:	03/22/16	
Well Depth (ft):	79	Screen Length (ft):	10	Well Diameter (in)	2		
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing		
Depth To Water (ft):	69.77C			Casing Type:	PVC		
Sample ID:	2700	Duplicate ID:		Sampling Personnel:			
Sample Time:	1140	Duplicate Sample Time:					

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U	Turbidity NTU	Redox mv
~~1109~~ 1120	2	10.22	0.237	~~4.84~~	6.96	—	298
1124	5.5	10.21	0.234	3.61	6.84	—	340
1128	9	10.19	0.234	3.59	6.82	—	360
1132	11	10.22	0.237	3.59	6.81	—	384
1136	13	10.20	0.239	3.60	6.81	—	396

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-10		Date:	03/21/16
Well Depth (ft):	151	Screen Length (ft):	10	Well Diameter (in):	2	
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing	
Depth To Water (ft):	114.05C			Casing Type:	PVC	
Sample ID:	2701	Duplicate ID:		Sampling Personnel:		
Sample Time:	1300	Duplicate Sample Time:				

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
1220	1	10.63	0.466	8.51	7.85	—	450
1224	3	10.54	0.464	2.83	7.50	—	288
1228	4	10.49	0.455	1.01	7.37	—	120
1232	6	10.59	0.459	0.64	7.31	—	103
1236	8	10.65	0.462	0.56	7.29	—	99
1240	10	10.66	0.459	0.54	7.28	—	98
1244	12	10.71	0.466	0.53	7.26	—	98
1248	13	10.65	0.468	0.52	7.21	—	98

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-11		Date:	03/21/16	
Well Depth (ft):	114	Screen Length (ft):	10	Well Diameter (in):	2		
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing		
Depth To Water (ft):	112.25C			Casing Type:	PVC		
Sample ID:	2702	Duplicate ID:		Sampling Personnel:			
Sample Time:	1400	Duplicate Sample Time:					

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	60 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
1321	0.5	10.68	0.374	15.29	8.05	—	327
1325	1	10.38	0.416	7.85	7.43	—	366
1329	1.5	10.32	0.383	8.18	7.26	—	383
1333	3	10.29	0.372	8.36	7.20	—	402
1337	4	10.31	0.369	8.45	7.19	—	412
1341	5	10.29	0.371	8.42	7.17	—	420

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-1		Date:	09/12/16	
Well Depth (ft):	197	Screen Length (ft):	10	Well Diameter (in)	2		
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing		
Depth To Water (ft):	161.91 btoc			Casing Type:	PVC		
Sample ID:	2716	Duplicate ID:		Sampling Personnel:	JR, MG		
Sample Time:	1050	Duplicate Sample Time:					

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
1001	~7 L	12.38	0.810	8.26	7.25	-	568
1005	3	11.62	0.822	4.78	7.34	-	86
1009	5	11.66	0.552	1.59	7.42	-	75
1014	7.5	11.32	0.471	0.76	7.34	-	93
1019	9.5	11.28	0.701	0.57	7.19	-	91
1024	11.0	11.85	0.804	0.65	7.10	-	86
1029	13.0	11.32	0.850	0.58	7.17	-	85
1034	15.0	11.94	0.869	0.93	7.15	-	85
1039	17.0	12.53	0.859	0.76	7.15	-	87
1044	19.0	11.57	0.882	0.71	7.32	-	83

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	~~P-6~~ 15-2		Date:	09/13/16	
Well Depth (ft):	162	Screen Length (ft):	10	Well Diameter (in)	2		
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing		
Depth To Water (ft):	57.61'			Casing Type:	PVC		
Sample ID:	~~2722~~ 2717	Duplicate ID:		Sampling Personnel:			
Sample Time:	1330	Duplicate Sample Time:					

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
1245	1	11.99	0.346	8.86	7.49	–	228
1249	3	11.64	0.346	6.38	7.14	–	194
1253	5	11.54	0.350	6.29	7.02	–	201
1257	7	11.51	0.342	6.49	6.97	–	215
1301	9	11.50	0.328	6.40	6.96	–	212
1305	11	11.44	0.348	6.36	6.96	–	212
1309	13	11.47	0.349	6.37	6.96	–	215
1313	15	11.48	0.345	6.26	7.04	–	216

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-3		Date:	09/13/16	
Well Depth (ft):	37	Screen Length (ft):	10	Well Diameter (in)	2		
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing		
Depth To Water (ft):	17.52' c			Casing Type:	PVC		
Sample ID:	2718	Duplicate ID:	2719	Sampling Personnel:			
Sample Time:	1010	Duplicate Sample Time:	1015				

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	60 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
0928	1	13.83	0.254	0.60	7.50	-	54
0932	3	13.84	0.243	0.23	7.50	-	49
0936	5	13.83	0.245	0.20	7.47	-	46
0940	7	13.84	0.235	0.17	7.49	-	41
0944	9	13.91	0.230	0.17	7.50	-	37
0948	11	13.42	0.231	0.18	7.51	-	36
0952	13	13.91	0.230	0.17	7.50	-	35
0956	15	13.92	0.229	0.17	7.51	-	35

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-4		Date:	09/12/16	
Well Depth (ft):	107.5	Screen Length (ft):	10	Well Diameter (In)	2		
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing		
Depth To Water (ft):	70.65'			Casing Type	PVC		
Sample ID:	2720	Duplicate ID:		Sampling Personnel:			
Sample Time:	1250	Duplicate Sample Time:					

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
1222	1	11.20	1.314	3.78	7.11	–	123
1226	3	10.78	1.237	0.81	7.03	–	100
1230	5	10.72	1.279	0.73	6.98	–	99
1234	7	10.66	1.292	0.66	6.96	–	99
1238	9	10.66	1.310	0.56	6.95	–	98
1242	11	10.66	1.321	0.46	6.94	–	97

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-5		Date:	09/13/16	
Well Depth (ft):	36	Screen Length (ft):	10	Well Diameter (in)	2		
Sampling Device:	Dedicated Hand Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing		
Depth To Water (ft):	17.39'			Casing Type:	PVC		
Sample ID:	2721	Duplicate ID:		Sampling Personnel:			
Sample Time:	1145	Duplicate Sample Time:					

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
1100	1	11.53	0.701	2.00	6.94	–	77
1104	3	11.43	0.760	0.27	7.05	–	75
1108	5	11.43	0.813	0.16	7.13	–	67
1112	7	11.42	0.814	0.15	7.13	–	65
1116	9	11.42	0.816	0.13	7.12	–	64
1120	11	11.42	0.817	0.12	7.12	–	63
1124	13	11.44	0.815	0.12	7.13	–	62
1128	15	11.43	0.813	0.10	7.13	–	62
1132	17	11.43	0.813	0.11	7.13	–	62

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	~~PZ~~ B-6		Date:	09/12/16
Well Depth (ft):	77	Screen Length (ft):	10	Well Diameter (in)	2	
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing	
Depth To Water (ft):	156.70' btoc			Casing Type:	PVC	
Sample ID:	~~2711~~ 2722	Duplicate ID:		Sampling Personnel:	MG, JR	
Sample Time:	1145	Duplicate Sample Time:				

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
1118	<1	13.40	0.539	9.14	7.62	–	285
1122	1	12.18	0.520	8.13	7.39	–	299
1126	3	11.44	0.534	7.68	7.12	–	304
1130	5	11.80	0.514	7.66	6.97	–	314
1134	7	11.83	0.515	7.63	6.97	–	316
1139	9	11.52	0.373	7.60	6.95	–	322

Groundwater Sampling Log

Skagit County Public Works Department

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Site:	Inman	Well Identifier:	~~D7~~		Date:	09/15/16
Well Depth (ft):	58	Screen Length (ft):	10	Well Diameter (in):	2	
Sampling Device:		Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing	
Depth To Water (ft):				Casing Type:	PVC	
Sample ID:	2723	Duplicate ID:		Sampling Personnel:		
Sample Time:		Duplicate Sample Time:				

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	60 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature ° C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv

EQUIPMENT BLANK

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-8		Date:	09/13/16
Well Depth (ft):	11	Screen Length (ft):	5	Well Diameter (in):	2	
Sampling Device:	Peristaltic Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing	
Depth To Water (ft):	12.50'			Casing Type:	PVC	
Sample ID:	2724	Duplicate ID:		Sampling Personnel:		
Sample Time:	1030	Duplicate Sample Time:				

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
0914	<1	14.97	0.960	1.15	6.74	-	78
1030	- begin filling containers -						
No other water quality parameters collected due to slow recharg at mw.							

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-9		Date:	09/12/16	
Well Depth (ft):	79	Screen Length (ft):	10	Well Diameter (in):	2		
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing		
Depth To Water (ft):	71.31' BTOC			Casing Type:	PVC		
Sample ID:	2725	Duplicate ID:		Sampling Personnel:	MG, JR		
Sample Time:	1345	Duplicate Sample Time:					

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cl, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	60 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U	Turbidity NTU	Redox mv
1310	1	11.18	0.238	3.77	7.24	-	238
1314	3	10.71	0.225	4.45	6.82	-	290
1318	5	10.71	0.226	5.05	6.76	-	302
1322	7	10.67	0.225	5.14	6.70	-	317
1326	9	10.67	0.228	5.21	6.68	-	323
1330	11	10.68	0.228	5.21	6.67	-	328

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-10		Date:	09/15/16	
Well Depth (ft):	151	Screen Length (ft):	10	Well Diameter (in):	2		
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing		
Depth To Water (ft):	114.59'			Casing Type:	PVC		
Sample ID:	2726	Duplicate ID:		Sampling Personnel:			
Sample Time:	1150	Duplicate Sample Time:					

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	60 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
1102	1	10.84	0.461	1.62	7.58	-	71
1106	3	10.65	0.463	0.73	7.59	-	64
1110	5	10.60	0.434	0.69	7.56	-	65
1114	7	10.59	0.443	0.61	7.54	-	65
1118	9	10.60	0.448	0.63	7.52	-	67
1122	11	11.88	0.444	0.67	7.47	-	69
1126	13	11.01	0.449	0.81	7.49	-	70
1130	15	10.68	0.450	0.71	7.50	-	71
1134	17	10.57	0.451	0.60	7.50	-	71
1138	19	10.59	0.453	0.56	7.51	-	71

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-11		Date:	09/15/16	
Well Depth (ft):	114	Screen Length (ft):	10	Well Diameter (in):	2		
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing		
Depth To Water (ft):	112.66' btoc			Casing Type:	PVC		
Sample ID:	2727	Duplicate ID:	N/A	Sampling Personnel:	MG, JR		
Sample Time:	1300	Duplicate Sample Time:	N/A				

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Be, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
1215	~0.5	13.17	0.322	8.37	7.65	-	253
1219	0.75	11.78	0.314	8.27	7.37	-	277
1223	1	11.65	0.299	8.48	7.27	-	291
1227	1.5	11.58	0.300	8.55	7.23	-	296
1231	2.0	11.61	0.301	8.52	7.21	-	299
1235	2.5	11.52	0.300	8.51	7.19	-	307
1239	3.0	11.61	0.301	8.47	7.17	-	311
1243	3.5	11.60	0.298	8.51	7.17	-	312
1247	4.0	11.55	0.301	8.50	7.16	-	316
1251	4.5	11.55	0.302	8.49	7.16	-	318

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-12		Date:	09/15/16	
Well Depth (ft):	123	Screen Length (ft):	5	Well Diameter (in):	2		
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing		
Depth To Water (ft):	97.63'			Casing Type:	PVC		
Sample ID:	2728	Duplicate ID:	N/A	Sampling Personnel:	MB, OR		
Sample Time:	1010	Duplicate Sample Time:	N/A				

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
0917	1	12.22	0.291	3.80	6.99	-	91
09281	3	12.04	0.287	1.86	7.34	-	72
09273	5	12.00	0.295	0.67	7.43	-	68
09327	7	12.00	0.296	6.60	7.43	-	67
09381	9	11.49	0.297	0.57	7.46	-	66
0935	11	12.01	0.301	0.53	7.48	-	66
0939	13	12.01	0.299	0.47	7.47	-	66
0943	15	12.03	0.299	0.40	7.51	-	65
0947	17	12.04	0.302	0.36	7.54	-	65

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-13		Date:	09/ /16	
Well Depth (ft):	94	Screen Length (ft):	10	Well Diameter (in):	2		
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing		
Depth To Water (ft):				Casing Type:	PVC		
Sample ID:	2729	Duplicate ID:		Sampling Personnel:			
Sample Time:		Duplicate Sample Time:					

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv

NOT SAMPLED

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-1		Date:	12/12/16
Well Depth (ft):	197	Screen Length (ft):	10	Well Diameter (in)	2	
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing	
Depth To Water (ft):	161.94'			Casing Type:	PVC	
Sample ID:	~~IN-2716~~ IN-2741	Duplicate ID:		Sampling Personnel:		
Sample Time:	1200	Duplicate Sample Time:				

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved As, Cd, Fe, Hg, Mn, Pb, Zn	500 mL poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Cl, SO_4, NO_3, NO_2	500 mL poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	60 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
1112	1	11.00	0.852	2.79	7.65	4.3	664
1115	3	10.65	0.607	2.86	7.56	6.2	381
1118	5	10.57	0.339	1.61	7.64	11.4	250
1121	7	10.45	0.388	1.11	7.54	6.0	260
1124	9	10.48	0.1535	0.91	7.45	2.5	282
1127	11	10.49	0.607	0.75	7.37	2.1	267
1130	13	10.44	0.696	1.60	7.35	2.1	239
1133	15	10.44	0.690	1.71	7.43	1.7	224
1135	17	10.47	0.685	1.18	7.43	2.0	220
1138	19	10.48	0.682	2.05	7.43	2.1	217
1141	21	10.58	0.647	0.82	7.40	1.0	200

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-2		Date:	12/12/16	
Well Depth (ft):	77	Screen Length (ft):	10	Well Diameter (in):	2		
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing		
Depth To Water (ft):	57.40 AR 2742			Casing Type:	PVC		
Sample ID:	2742	Duplicate ID:		Sampling Personnel:			
Sample Time:	1445	Duplicate Sample Time:					

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Be, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
1355	1	10.75	0.430	4.64	7.19	2.9	317
1358	3	10.59	0.420	5.87	7.04	2.0	331
1401	5	10.60	0.422	5.47	7.04	2.6	336
1404	7	10.61	0.421	5.26	6.95	0.0	354
1407	9	10.61	0.417	5.20	6.91	0.0	358
1410	11	10.65	0.391	5.22	6.91	0.2	351
1413	13	10.59	0.416	5.13	6.91	1.1	344
1416	15	10.67	0.415	5.16	6.91	0.0	341
1419	17	10.68	0.415	5.18	6.90	0.0	341
1422	19	10.70	0.415	5.00	6.90	0.0	341
1425	21	10.71	0.413	5.01	6.88	0.0	341
1428	23	10.73	0.415	5.04	6.88	0.0	341

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-3		Date:	12/13/16
Well Depth (ft):	37	Screen Length (ft):	10	Well Diameter (in)	2	
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing	
Depth To Water (ft):	17.35			Casing Type:	PVC	
Sample ID:	2718 2743	Duplicate ID:	2719 2744	Sampling Personnel:		
Sample Time:	1100	Duplicate Sample Time:	1130			

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
1011	1	13.48	0.440	0.22	7.12	3.0	122
1014	3	13.49	0.456	0.17	7.13	0.5	117
1017	5	13.50	0.464	0.14	7.11	0.4	112
1020	7	13.46	0.461	0.12	7.12	0.0	107
1023	9	13.45	0.460	0.11	7.15	0.2	106
1026	11	13.45	0.461	0.11	7.16	0.0	105
1029	13	13.51	0.459	0.10	7.15	0.0	103
1032	15	13.49	0.457	0.10	7.14	0.0	103
1035	17	13.49	0.453	0.10	7.17	0.0	103
1038	19	13.49	0.453	0.11	7.17	0.0	103
1041	21	13.49	0.453	0.12	7.18	0.0	103

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-4		Date:	12/14/16	
Well Depth (ft):	107.5	Screen Length (ft):	10	Well Diameter (in)	2		
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing		
Depth To Water (ft):	89.52'			Casing Type:	PVC		
Sample ID:	1720 1745	Duplicate ID:	N/A	Sampling Personnel:	JR		
Sample Time:	1100	Duplicate Sample Time:	N/A				

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U	Turbidity NTU	Redox mv
1008	1	9.97	1.220	0.54	7.12	35.9	170
1011	4	9.80	1.261	0.35	7.13	2.3	155
1014	7	9.79	1.279	0.32	7.14	2.2	153
1017	10	9.79	1.295	0.24	7.15	21.4	148
1020	13	9.81	1.298	0.24	7.16	21.1	146
1023	16	9.78	1.284	0.22	7.16	13.3	145
1026	19	9.85	1.302	0.21	7.15	14.5	143
1029	22	9.76	1.303	0.21	7.15	13.6	141
1032	25	9.80	1.288	0.19	7.16	9.3	141
1035	28	9.83	1.290	0.18	7.17	7.7	139
1038	31	9.78	(1.293) ~~1.287~~	0.18	7.17	7.5	139
1041	34	9.78	1.288	0.18	7.17	7.4	140

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-5		Date:	12/13/16	
Well Depth (ft):	36	Screen Length (ft):	10	Well Diameter (in)	2		
Sampling Device:	Dedicated Hand Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing		
Depth To Water (ft):	15.47			Casing Type:	PVC		
Sample ID:	12/21 2746	Duplicate ID:		Sampling Personnel:			
Sample Time:	1230	Duplicate Sample Time:					

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_2, NO_3	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
1137	1	11.15	0.827	0.21	6.86	6.0	157
1140	3	11.04	0.824	0.19	6.92	1.7	134
1143	5	11.01	0.880	0.15	6.92	0.0	124
1146	7	11.16	0.869	0.12	6.94	0.0	121
1149	9	11.16	0.890	0.12	6.95	0.0	117
1152	11	11.19	0.880	0.11	6.97	0.0	116
1155	13	11.21	0.827	0.10	6.98	0.0	112
1158	15	11.18	0.896	0.11	7.01	0.0	112
1201	17	11.15	0.899	0.10	7.01	0.0	109
1204	19	11.15	0.899	0.10	7.01	0.0	108

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-6		Date:	12/12/16	
Well Depth (ft):	162	Screen Length (ft):	10	Well Diameter (in):	2		
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing		
Depth To Water (ft):	155.78'			Casing Type:	PVC		
Sample ID:	~~2722~~ 2747	Duplicate ID:		Sampling Personnel:			
Sample Time:	1313	Duplicate Sample Time:					

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U	Turbidity NTU	Redox mv
1236	1	10.95	0.457	9.16	7.91	6.2	406
1239	4	10.49	6.432	7.18	7.60	3.6	421
1242	7	10.23	0.422	6.64	7.47	2.7	424
1245	10	10.02	0.416	5.76	7.73	2.8	430
1248	13	10.43	0.413	6.42	7.49	5.3	437
1251	16	10.24	0.404	5.42	7.41	4.4	442
1254	19	10.18	0.347	5.41	7.39	6.8	444
1257	22	10.15	0.398	5.12	7.42	4.1	445
1300	25	10.02	0.396	5.75	7.40	4.0	447
1303	28	10.00	0.401	5.89	7.40	4.1	448
1306	31	9.89	0.400	5.73	7.40	4.4	448

1047 - Change N02 tank

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-7		Date:	12/14/16	
Well Depth (ft):	58	Screen Length (ft):	10	Well Diameter (in):	2		
Sampling Device:		Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing		
Depth To Water (ft):	NM			Casing Type:	PVC		
Sample ID:	2723 1748	Duplicate ID:		Sampling Personnel:			
Sample Time:	NT	Duplicate Sample Time:					

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv

Pump holden for [equipment blank]. No sample collected from this well due to lack of groundwater.

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-8		Date:	12/13/16	
Well Depth (ft):	11	Screen Length (ft):	5	Well Diameter (in)	2		
Sampling Device:	Peristaltic Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing		
Depth To Water (ft):	11.47 @ 2749			Casing Type:	PVC		
Sample ID:	2724	Duplicate ID:		Sampling Personnel:			
Sample Time:	1145	Duplicate Sample Time:					

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
0953	0.25	11.80	0.805	2.29	6.87	10.9	194
0955	0.75	12.23	0.701	1.05	7.07	12.9	117
0957	1.25	12.96	0.701	2.05	7.08	5.5	127
0959	2.0	12.97	0.700	2.94	7.06	8.8	144
1001	2.75	12.98	0.702	3.00	7.04	12.6	152

* Slow recharging well = purged, recharge, sample

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-9		Date:	12/14/16	
Well Depth (ft):	79	Screen Length (ft):	10	Well Diameter (in):	2		
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing		
Depth To Water (ft):	70.31'			Casing Type:	PVC		
Sample ID:	~~2725~~ 7750	Duplicate ID:	N/A	Sampling Personnel:	JR		
Sample Time:	1200	Duplicate Sample Time:	N/A				

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	50 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
1112	1	10.09	0.221	5.23	7.64	4.6	264
1115	4	10.08	0.221	5.16	7.28	1.0	282
1118	7	10.08	0.226	5.28	7.25	2.2	301
1121	10	10.03	0.229	5.33	7.20	0.7	318
1124	13	10.07	0.229	5.31	7.15	1.6	318
1127	16	10.04	0.237	5.34	7.10	0.7	340
1130	19	10.05	0.235	5.37	7.09	2.2	341
1133	22	10.06	0.239	5.29	7.00	0.9	350
1136	25	10.04	0.237	5.32	7.06	0.8	352
1139	28	10.04	0.240	5.30	7.10	0.88	366
1142	31	10.06	0.234	5.42	7.08	0.7	368
1145	34	10.10	0.239	5.40	7.08	0.4	368
1148	37	10.08	0.239	5.41	7.08	0.5	368

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-10		Date:	12/14/16	
Well Depth (ft):	151	Screen Length (ft):	10	Well Diameter (in)	2		
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North. Top of PVC Casing		
Depth To Water (ft):	114.50' @ 1126 / 1151			Casing Type:	PVC		
Sample ID:		Duplicate ID:		Sampling Personnel:	JR		
Sample Time:	1315	Duplicate Sample Time:					

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
1231	1	9.27	0.428	7.40	7.63	22.9	161
1234	4	9.27	0.434	4.76	7.65	32.4	144
1237	7	9.17	0.433	2.56	7.61	42.8	133
1240	10	9.38	0.433	0.89	7.57	38.5	124
1243	13	9.40	0.429	0.86	7.57	36.4	126
1246	16	9.38	0.435	0.74	7.57	36.2	120
1249	19	9.48	0.432	0.61	7.57	36.0	119
1252	22	9.48	0.434	0.51	7.56	35.1	118
1255	25	9.49	0.436	0.47	7.56	35.9	119
1258	28	9.48	0.436	0.48	7.56	30.1	119

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-11		Date:	12/14/16	
Well Depth (ft):	114	Screen Length (ft):	10	Well Diameter (in)	2		
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing		
Depth To Water (ft):	113.42			Casing Type:	PVC		
Sample ID:	~~2727~~ 1752	Duplicate ID:		Sampling Personnel:			
Sample Time:	1430	Duplicate Sample Time:					

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	H_2O	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
1400	0.25	7.91	0.168	14.46	~~7.20~~ 7.14	2.5	290
1405	0.50	8.56	0.372	10.62	~~8.43~~	4.2	310
1410	1.00	8.74	0.515	9.09	7.66	3.21	327
1415	1.25	8.90	0.317	8.26	7.64	2.5	349
1420	1.75	8.91	0.320	7.74	7.60	2.0	353

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-12		Date:	12/13/16
Well Depth (ft):	123	Screen Length (ft):	5	Well Diameter (in)	2	
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing	
Depth To Water (ft):	97.50' NM 1753			Casing Type:	PVC	
Sample ID:	2728	Duplicate ID:		Sampling Personnel:		
Sample Time:	1345	Duplicate Sample Time:				

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Be, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	60 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv
12.48	1	11.43	0.275	1.91	7.51	259	105
12 51	4	11.48	0.296	1.41	7.62	7.4	106
12 54	7	11.46	0.298	0.90	7.60	2.9	109
12 57	10	11.46	0.297	0.76	7.61	2.1	110
1300	13	11.51	0.298	0.65	7.62	0.7	112
1303	16	11.42	0.304	0.55	7.62	0.8	113
1306	19	11.38	0.304	0.51	7.62	0.0	117
1309	22	11.46	0.305	0.43	7.61	0.0	115
1312	25	11.49	0.305	0.40	7.62	0.0	115
1315	28	11.49	0.305	0.40	7.61	0.2	118
1318	31	11.49	0.306	0.40	7.01	0.0	118
1321	34	11.50	0.306	0.39	7.01	0.0	119
1324	37	11.51	0.306	0.39	7.02	0.0	119

Groundwater Sampling Log

Skagit County Public Works Department

Site:	Inman	Well Identifier:	B-13		Date:	12/ /16
Well Depth (ft):	94	Screen Length (ft):	10	Well Diameter (in)	2	
Sampling Device:	Dedicated Bladder Pump	Tubing Type:	Polyethylene	Measuring Point:	North, Top of PVC Casing	
Depth To Water (ft):				Casing Type:	PVC	
Sample ID:	~~2729~~	Duplicate ID:		Sampling Personnel:		
Sample Time:		Duplicate Sample Time:				

Sample Parameters	Parameter	Container	Preservative	Parameter	Container	Preservative
	Dissolved Sb, As, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Se, Vd, Zn	1 L poly	HNO_3	VOCs	2-40 mL VOA	HCl
	Alkalinity, Bicarbonate, TDS, Cl, SO_4, NO_3, NO_2	1 L poly		Low-level vinyl chloride, EDB, acrylonitrile, 1,4-dioxane	2-40 mL VOA	HCl
	Total Mg, K, Ca, Na	250 mL poly	HNO_3	Ammonia, COD	500 mL poly	H_2SO_4
	Total Organic Carbon	80 mL amber VOA vial	HCl			

Time	Volume Pumped (liters or gallons)	Temperature °C	Specific Conductance mS/cm	Dissolved Oxygen mg/L	pH S.U.	Turbidity NTU	Redox mv

MW no longer sampled due to insufficient water column.