

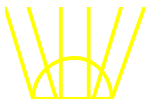
COWLITZ COUNTY TENNANT WAY LANDFILL

GROUNDWATER AND SURFACE WATER
MONITORING

FOURTH QUARTER AND ANNUAL REPORT FOR 2023

Prepared for
Cowlitz County Solid Waste
December 30, 2023

prepared by



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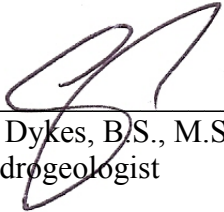
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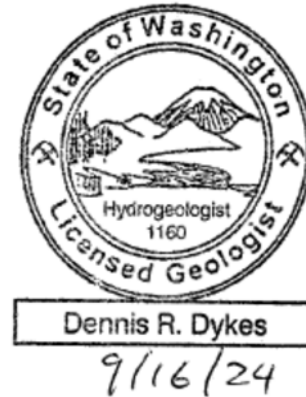
Cation-Anion Balance Calculation Table
Piper Trilinear Diagrams
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The material and data in this report were prepared by or under the supervision and direction of the undersigned.

**Cowlitz County Tennant Way Landfill, Groundwater and Surface Water Monitoring,
Fourth Quarter and Annual Report for 2023**

Bright Fields Groundwater, Inc.


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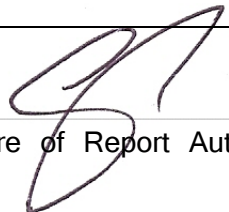


CHECKLIST FOR GROUNDWATER REPORTING **Municipal Solid Waste Landfills** **WAC 173-351-415**

Include a signed, completed copy of this checklist with each quarterly and annual report.

Quarterly groundwater reports shall be submitted to the jurisdictional health department and Ecology within 60 days of receipt of analytical data. Annual groundwater reports shall be submitted to the jurisdictional health department and Ecology by April 1 of each year.

1 st _____ 2 nd _____ 3 rd _____ 4 th <u>X</u> YEAR <u>2023</u>	Reference (section, subsection)	Included in this report	Location – page # or appendix #
Quarterly Groundwater Reports: 173-351-415 (2) plus the referenced section			
Statistical calculations and summaries			
Descriptive statistics	420, (1)	X	
Statistical tests	420, (2)	X	
Notification of statistical increase (if applicable)	420, (4)	☐	
Notification of concentrations above Chapter 173-200 WAC criteria (if any)	430, (4)	X	
Static water level readings	415, (2)	X	
Potentiometric surface elevation maps depicting flow direction	415, (2)	X	
Flow rate – calculated	415, (2)	X	
Cation-anion balances	430, (5a)	X	
Explanation of greater than 5% (or 10%) difference if needed	430, (5a)	X	
Trilinear diagrams	430, (5b)	X	
Leachate analyses (if sampled and tested)	415, (2)	X	
Data entered into EIM database (date entered: Dec 29, 2023)	415, (3)	X	
Complete copy of the lab report with chain of custody record.		X	
Annual Groundwater Reports: 173-351-415 (1)			
YEAR <u>2023</u>			
Summary of statistical results and trends	415, (1)	X	
Summary of groundwater flow rate and direction for the year	415, (1)	X	
Copy of all potentiometric maps for the year	415, (1)	X	
Summary geochemical evaluation	415, (1)	X	
For Quarterly and Annual Reports			
Stamped by a licensed professional	RCW 18.220	X	



 Signature of Report Author

12/30/2023

 Date

Tennant Way Landfill

1 INTRODUCTION

This is the combined fourth quarter and annual 2023 report for the groundwater, surface water and leachate monitoring program at the Cowlitz County Tennant Way Landfill (CCTWL). The landfill is located at 85 Tennant Way, Longview, Washington (Figure 1). Monitoring was completed in January (first quarter), April (second quarter), July (third quarter), and October (fourth quarter) of 2023. The first, second, and third quarter monitoring results were previously reported.

This report is submitted in compliance with the Minimum Functional Standards for Solid Waste Handling (MFS) and Criteria for Municipal Solid Waste Landfills (CMSWL). The MFS are defined in the Washington Administrative Code (WAC) Chapter 173-304 and the CMSWL are defined in WAC 173-351. This report is submitted to the Cowlitz County Environmental Health Unit (EHU) which is the jurisdictional health authority as defined in the applicable WACs. The Department of Ecology (Ecology) advises the EHU. The groundwater monitoring requirements are specified in WAC 173-304-490 for the MFS and Chapter 173-351-430 for the CMSWL. Revisions to these regulations became effective December 8, 2012. These revisions were integrated in the monitoring program in 2013 with a few additional modifications agreed to with the EHU and Ecology. The monitoring plan was also revised prior to the second quarter 2013 sampling event as specified in the revised WAC.

The landfill is divided into two sites and is being monitored as the following three separate areas (Figure 2):

- Site A (closed under the MFS)
- Cells 1 and 2 of Site B (closed under the CMSWL)
- Cell 3 of Site B (closed in 2014 under the CMSWL)

Site A was closed and monitored prior to 1995 under the MFS. Site B has been monitored under the CMSWL since November 1994 following installation of monitoring wells. Both sites are currently monitored using specifications of the CMSWL although the sites are regulated by the different rules. This is because the overlap of the monitoring well networks requires satisfaction of CMSWL requirements at all but one well and applying the CMSWL to both sites simplifies the monitoring program.

Site A was closed prior to 1995 through installation of a cover. Closure is considered remediation of probable impacts to groundwater quality that resulted from the landfill design that did not include a liner or planned separation from groundwater. Cells 1 and 2 of Site B

were closed in 2000 by installation of a cover. Cell 3 of Site B was closed through installation of a cover in the summer of 2014. The CCTWL entered post closure care on July 1, 2017 following finalization of all closure requirements.

In 2010, The EHU and Ecology identified apparent statistically significant increases in arsenic and a few VOCs at certain monitoring wells at the landfill which they believed justified implementing an Assessment Monitoring Program (AMP). An AMP was completed in 2012 and did not result in changes to the detection monitoring program.

The EHU and Ecology also requested that the CCTWL attempt to achieve lower detection limits for analytes with water quality criteria, particularly VOCs. Beginning with the second quarter 2011 sampling event, the CCTWL requested that the laboratory provide the lowest detection limits reasonably possible. The contracted laboratory has since this event provided Minimum Detection Limits (MDLs) as well as Minimum Reporting Limits (MRLs) for VOCs, most metals, and several inorganic parameters included in the quarterly monitoring program. The MDLs are typically substantially lower than the MRLs reported by the laboratory. The concentration of a constituent detected between the MRL and MDL is an estimated concentration. The MDLs for most constituents included in the quarterly monitoring program that have a water quality criterion are now low enough to determine whether the constituent is present in a sample above a respective criterion. Subsequently the contracted laboratory further improved the analysis of metals lowering the MRLs and MDLs for metals.

A revised Sampling and Analysis Plan (SAP) was finalized in 2013 (Bright Fields Groundwater, Inc., March 2013). The SAP was revised to address the requirements of the revised regulations and has been applied to the monitoring program since then.

Water levels were measured in shallow and deep monitoring wells and piezometers located in each landfill area. The monitoring points are screened in the upper (shallow) and lower (deep) parts of an alluvial sand and silt aquifer (see EMCON, 1995b). The water level data were plotted, the hydraulic gradient estimated, and the horizontal linear groundwater velocity estimated as described in Section 2.

Groundwater samples were collected from 12 shallow monitoring wells completed in the alluvial sand and silt aquifer during each quarterly sampling round of 2023. The groundwater analytical results are described in Section 3. Four of the monitoring wells are located around the Site A area. Three of these wells are also used to monitor upgradient conditions for the Cells 1 and 2 of Site B area. An additional 3 wells are downgradient of this area. Five wells are used to monitor the Cell 3 area of Site B.

Two surface water and three leachate samples were collected during each quarterly event. The surface water and leachate analytical results are described in Section 4.

Water level measurements and elevations are included in Appendix A, with the quarterly groundwater level contour plots and a summary table of hydraulic parameters. Fourth quarter trilinear diagrams, trend plots for selected groundwater quality parameters, the groundwater

quality data, and statistical calculations are included in Appendix B. The surface water and leachate quality data are included in Appendix C. Technical memoranda describing the fourth quarter sampling procedures and analytical data validation are included in Appendix E. The fourth quarter laboratory analytical data report is included with the data validation memorandum.

2 GROUNDWATER LEVELS AND FLOW DIRECTIONS

Most of the landfill site is underlain by an alluvial sand and silt aquifer that is divided into “shallow” and “deep” parts (EMCON, 1995). This uppermost aquifer at the site is associated with a local flow system that is recharged on the northern side of the site and generally flows south to southwest across the site to discharge to the Cowlitz River. Horizontal flow predominates over most of the site. The shallow part of the sand aquifer is generally more transmissive than the deep part.

The level of the Cowlitz River near the site is influenced by tides. Tidal influences were studied and shown to affect groundwater levels in both the shallow and deep parts of the aquifer on the southern side of the site (EMCON, 1995). River tides as well as high river levels may at times cause short term reversals of flow under the southern boundary of the site or support elevated groundwater levels. Beginning in the spring of 1995, water levels have been measured as close to low tide as practical to provide conservative representations (i.e., highest gradient in the average flow direction during a tidal cycle) of overall groundwater conditions. It should however be kept in mind that this evaluation does not consider or adjust the data for the transmission of the tidal wave through the aquifer.

2.1 Groundwater Levels

Revisions to WAC173-351 that were adopted in December 2012 specify that elevations be reported relative to the NAVD88 datum. Adjusted elevations for the groundwater level measuring points were provided by the Cowlitz County Public Works surveyor and are used in the data tables and this report.

Groundwater level measurements and elevations are included in Appendix A. A hydrograph of the measurements and groundwater level contour maps for the year are also included in Appendix A.

2.1.1 Fourth Quarter

Water levels were measured on October 31, 2023, beginning at approximately low tide in the Cowlitz River. Water level contour plots representing fourth quarter conditions for the shallow and deep zones are provided in Appendix A.

Water levels were generally slightly higher than the average of the historic record of fourth quarter data across the north of Site A and Cell 3 areas and about average under Cells 1 and 2. It was above average at the MW-2 and about average at MW-11B. Fourth quarter water levels are typically the

lowest water levels measured during a year and this was the case in 2023 across the site. Water levels were measured within the typical range of fourth quarter data at all wells.

2.1.2 Annual Summary

Groundwater levels were measured during each sampling round in the shallow and deep parts of the uppermost aquifer as specified in the SAP. Resulting water level contour maps were included in each quarterly report and copies are included in Appendix A.

In 2023 the annual fluctuation range of groundwater levels were typical for the site although the water levels in January, April and July were below average and the October levels were slightly lower than average (as described above), except at MW-2 each quarter and MW-11 in the first quarter where groundwater levels were significantly above average at each measurement. This reflects the 2023 river level at the time of measurement was low and the precipitation pattern which included above average winter precipitation through April and below average precipitation from May through October. The summer was again very dry although fall rain began in a more typical manner in September. Water levels at MW-2 were above average each quarter. This continues the trend of the last several years where the annual peak levels are somewhat higher than average and the low levels substantially higher than average at this well cluster.

The groundwater levels reflected the interplay of the aquifer character, aquifer recharge and the river level on groundwater flow. Recharge occurring north and east of the landfill in areas where the aquifer has a somewhat lower hydraulic conductivity causes typically higher groundwater levels in these areas. The southern more sandy area of the aquifer receives recharge through the drainage ditch between Site A and Site B and the drainage south of Site B. This recharge enhances flow from the north and east. Flow is also affected by seasonal and tidal influences from the Columbia and Cowlitz Rivers. The slough located a short distance west and south of the site is the effective base level but rises and falls both seasonally as well as over short periods.

2.2 Hydraulic Gradients

2.2.1 Fourth Quarter

The horizontal hydraulic gradient for each landfill area in the fourth quarter was estimated from the contour plots that were generated using the water level data. The gradients were as follows:

Shallow Aquifer Zone

• Site A	0.0031
• Cells 1 and 2 (Site B)	0.00077
• Cell 3 (Site B)	0.00095

Deep Aquifer Zone

- Site A 0.0033
- Cells 1 and 2 (Site B) 0.0006
- Cell 3 (Site B) 0.00089

These values are above the average typically measured in the Site A area. The gradients in the Cells 1 and 2 area were below average and the Cell 3 area were about average for this time of year. This is likely the result of the lower than average river levels combined with the differential distribution of recharge where the finer grained northern area of the aquifer distributes recharge more slowly than the sandy southern areas. The unusually dry summer is likely to have cause a significant soil moisture deficit which delayed significant recharge to most areas.

2.2.2 Annual Summary

Hydraulic gradients measured in 2023 are summarized on a table included in Appendix A. The gradients were within the following ranges:

Shallow Aquifer Zone

- Site A 0.0031 to 0.0048
- Cells 1 and 2 (Site B) 0.0007 to 0.00141
- Cell 3 (Site B) 0.00045 to 0.00166

Deep Aquifer Zone

- Site A 0.0033 to 0.0042
- Cells 1 and 2 (Site B) 0.0006 to 0.00152
- Cell 3 (Site B) 0.00053 to 0.00138

These values are generally within the typical range of values previously measured at the landfill.

2.3 Groundwater Flow

2.3.1 Fourth Quarter

On October 31, 2023, groundwater flow at the site was estimated as follows:

Upper Aquifer Zone

- Site A south at 5.4 feet per day
- Cells 1 and 2 (Site B) south at 1.3 feet per day
- Cell 3 (Site B) southwest at 1.6 feet per day

Lower Aquifer Zone

- Site A south at 2.2 feet per day
- Cells 1 and 2 (Site B) south at 0.4 feet per day
- Cell 3 (Site B) southwest at 0.6 feet per day

These values are above the fourth quarter average for the both zones in the Site A area, below average in the Cells 1 and 2 and near the average in the Cell 3.

2.3.2 Annual Summary

Groundwater flow was observed to be generally to the south or southwest across the site during 2023. The flow direction was typical of site conditions in each quarter. Flow when measured each quarter was to the south on the western side of the site (Site A and Cells 1 and 2 areas) and to the southwest on the eastern (Cell 3) side of the site. This flow discharges groundwater to the slough south of the site.

A mound, typically evident in the shallow zone in the first and second quarter in the area around the MW-11 well cluster, was substantial in these quarters of 2023. Slight mounding was evident in the shallow zone in third quarter and in the deep zone in the first quarter. This mounding likely results from infiltration of storm water flow in the area. The mound appears to seasonally direct groundwater flow to the west in the west central part of the site. It also diverts flow to the southeast under the north part of Cell 2 before flow turns to the south.

The average linear groundwater velocities estimated for 2023 were within the following ranges:

Upper Aquifer Zone

- Site A 5.4 to 8.3 feet per day
- Cells 1 and 2 (Site B) 1.2 to 2.4 feet per day
- Cell 3 (Site B) 1.6 to 2.9 feet per day

Lower Aquifer Zone

- Site A 2.2 to 3.1 feet per day
- Cells 1 and 2 (Site B) 0.4 to 1.0 feet per day
- Cell 3 (Site B) 0.4 to 1.0 feet per day

These values are within the typical range of values previously measured at the landfill. Flow rates under the Site A area were generally slightly to somewhat above average and also in the first half of the year in the Cell 3 area. Flow rates were near average to slightly below average under Cells 1 and 2. In the second half of the year under Cell 3 area, flow rates were somewhat below average in the deep zone quarter.

The distribution of flow rates appears to be defined by the distribution of aquifer characteristics and the river level as this affects the infiltration of precipitation and distribution of the groundwater recharge. The finer grained nature of the aquifer over the northern part of the site tends to retain higher water levels while the sandier southern parts drains somewhat faster depending on the river level. The area around the MW-5 well cluster can have surface water into the spring which supports ground water levels although this occurs less as vegetation has built up in the surrounding area.

3 GROUNDWATER QUALITY

Groundwater samples were collected and analyzed during each of the 2023 quarterly sampling rounds from 12 monitoring wells completed in the shallow zone of the aquifer. Monitoring wells in each of the three landfill areas were sampled. Monitoring was completed using methods consistent with the SAP (Bright Fields Groundwater, Inc., March 21, 2013). The SAP was most recently revised in 2013 to address regulatory changes adopted in December 2012.

Additionally, the CCTWL requests that the laboratory report MDLs in addition to the MRLs. This is done to show at a lower level the presence or absence of parameters. The contracted laboratory also improved the application of an analytical methods for metals in 2013. These changes are described below. The reporting of MDLs and the improved metals analyses result in an increase in the number of metals reported as detected. These metals would typically not have been reported previously and the apparent increase in the number of detected metals does not represent a change in the chemistry of metals in groundwater at the site. The values for parameters reported above the MDLs and below the MRLs can only be considered as estimates that show the presence or absence of the constituent. These values are therefore qualified as estimates in the data tables.

Cowlitz County changed laboratories for one year from ALS Environmental Laboratories to BSK Associates beginning with the third quarter of 2017. ALS had been used for analyses for more than 20 years. Some detection limits were not consistent between the laboratories. However, the number of inconsistencies is relatively small and the completeness and usefulness of the data are not significantly affected. Cowlitz County changed back to ALS before the third quarter 2018.

The groundwater samples collected for the quarterly detection monitoring program were analyzed for:

- Chapter 173-351 WAC Appendix I parameters
- Chapter 173-351 WAC Appendix II parameters
- Field parameters (pH, specific conductance, temperature, dissolved oxygen, oxidation reduction potential, turbidity, static water level)
- Geochemical Indicator Parameters (Alkalinity as CaCO₃, Bicarbonate, SO₄, Cl, and dissolved Fe, Mn, Ca, Mg, K, and Na)
- Leachate Indicators (NH₃-N, TOC, TDS)

The samples were analyzed by ALS Environmental Laboratories (formerly known as CAS) located in Kelso, Washington. ALS is accredited by Washington Ecology for each type of analysis performed as stated and referenced in the laboratory report in Appendix D.

Metals were analyzed in 2023 using EPA Methods 200.7 and 200.8. Before 2013 CAS/ALS used Method 7010 for As, Pb, Se, and Tl and Method 200.7 for all other metals. Method 7010 was used because of matrix interference with these metals. In 2013 the lab improved application of Method 200.8 achieving substantially lower MDLs and MRLs as well as eliminating the matrix interference. Most metals are now analyzed using Method 200.8 and the six geochemistry metals are analyzed using Method 200.7. The laboratory that analyzed samples from several quarters in 2017 and 2018 (BSK) also used EPA Methods 200.7 and 200.8 and generally achieved similar results.

The six geochemical metals were analyzed as dissolved by agreement with the EHU and Ecology as described in the SAP although WAC 173-351 only specifies iron and manganese be analyzed as dissolved. The samples were filtered in the field.

The water quality data summary tables, statistical calculations, trend plots for selected parameters, and trilinear diagrams of the useable data are included in Appendix B. The sampling procedures and data validation memoranda for the October event are included in Appendix D. The memoranda for the first, second, and third sampling rounds are included in the respective quarterly reports.

The groundwater chemistry data for the shallow aquifer zone under the three landfill areas were evaluated to determine whether downgradient groundwater quality differs from upgradient groundwater quality. This was accomplished using the prediction limit method, comparison of site data with promulgated maximum contaminant levels (MCL), statistical analysis of the data, and geochemical evaluation of the data. The prediction limit evaluations are discussed in Section 3.1. Detections of analyte concentrations above the MCLs are discussed in Section 3.2. Statistical analyses of the quarterly groundwater data are discussed in Section 3.3. Geochemical evaluation of the analytical results is discussed in Section 3.4.

Monitoring well MW-5B represents background for the Site A area. Monitoring wells MW-3B, MW-7B, and MW-11B are the downgradient wells for Site A and upgradient wells for the Cells 1 and 2 of Site B area. Monitoring wells MW-8B, MW-9B and MW-10B are the downgradient wells for Cells 1 and 2 of Site B area. Monitoring well MW-16B represents the upgradient well for Cell 3 of the Site B area. Monitoring wells MW-12B, MW-13, MW-14B, and MW-15 are the downgradient wells for Cell 3 of the Site B area. These wells were also monitored 22 times from April 1995 to July 1999 prior to Cell 3 receiving waste and the resulting data represent background conditions at each well site and are therefore in the background data set for each of these wells.

3.1 Prediction Limit Determination and Data Evaluation

A non-parametric prediction limit method was selected as the statistical procedure used to evaluate the groundwater quality results. The non-parametric prediction limit relies on the assumption that the data for each constituent at the background locations is distributed the same as at the downgradient locations (i.e., represents the natural variability of groundwater conditions). In this procedure, the highest concentration of each parameter in a background data set is selected as the prediction limit for that parameter. Downgradient data are compared point by point to the prediction limit and are therefore adequate for use with the statistical method. The potential for false positives or negatives is reduced by evaluating trends in the data to determine if a data point is representative

(i.e., within the normal range of values or part of a trend) and by reevaluating background to make sure the prediction level is valid based on the updated data set. If a data point is determined to not be representative (i.e., an outlier), it is not used in the evaluation. The prediction limit data evaluation procedures and statistical calculations were completed for the groundwater quality data.

Inorganic parameters and metals were evaluated. VOCs were not evaluated because they were detected infrequently and do not appear to define a pattern as described below. The following constituents were evaluated:

- Total Metals (Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Ni, Se, Ag, Tl, V and Zn)
- Nitrate
- Geochemical indicators (Alkalinity as CaCO₃, Bicarbonate, SO₄, Cl, and dissolved Fe, Mn, Ca, Mg, K, and Na)
- Leachate indicators (NH₃-N, TOC, TDS)

Prediction limits for each constituent were determined from the background data sets for each area. This was completed for each of the three landfill areas. The prediction limit was determined by selecting the maximum concentration in the reduced background data set for each landfill area and parameter.

Some data points were apparent outliers and not representative of background conditions. An outlier for a particular background data set was considered a data point greater than the statistical mean of the data set by at least two standard deviations. Data points marginal to this criterion or generated during recent sampling events are generally included in the data set until sufficient data is available to demonstrate that these data points are truly outliers.

3.1.1 Site A Data Evaluation

4th Quarter 2023

The water quality prediction limits for the shallow aquifer zone at Site A were exceeded during the 4th quarter for 7 of the 29 parameters evaluated (Table 1). This includes 9 of the 87 concentrations of these parameters measured in the 3 downgradient wells combined. This is similar to the fourth quarter of last year. The detected concentrations exceeding a prediction limit were distributed among the three downgradient monitoring wells with one at MW-3B, four at MW-7B and four at MW-11B. The highest concentrations detected for the parameters evaluated were also distributed among the downgradient monitoring wells.

TOC and copper were above the prediction limit at MW-7B and -11B. No parameter exceeded a prediction limit at all three downgradient wells. Arsenic was above the prediction limit at MW-3B. Potassium and nitrate were also above the prediction limit at MW-7B and cobalt and nickel were also above at MW-11B. This is similar to the fourth quarter 2022 although more parameters at MW-7B.

No volatile organic compound was detected in samples from wells in the Site A area in the fourth quarter.

Annual Summary

The water quality prediction limits for the shallow aquifer zone at Site A were exceeded for 8 of the 29 parameters evaluated (Table 1). 27 of the 348 concentrations of these parameters measured during 2023 in the 3 downgradient wells combined exceeded a prediction limit. This is similar to the previous several years and a significant decrease in the number of concentrations above a prediction limit from prior years. Prediction limits exceedances will be reevaluated each quarter.

7 of the detected concentrations exceeding a prediction limit were at monitoring well MW-3B and represented 3 of the 29 parameters evaluated. This was less than the number of detected concentrations that exceeded a prediction limit at MW-7B (10 for 4 parameters) and less than at MW-11B (16 for 6 parameters). This is somewhat more than the last year. The highest concentrations detected for the parameters evaluated were distributed among the three downgradient wells. No parameter exceeded the prediction limit at all three downgradient wells at some time during the year. Three parameters (copper, cobalt and TOC) were detected at two wells, although not the same two wells.

These results indicate that groundwater quality under Site A has followed a generally stable trend over the previous several years except at MW-3B where concentrations of several metals and other inorganic parameters have fluctuated. MW-3B has historically had the most impacted groundwater although this has shifted toward MW-11B over the last several years albeit at lower concentrations.

One volatile organic compound was detected once in a downgradient sample in the Site A area in 2023. 1,2 dichlorobenzene was detected in the third quarter sample from MW-7B below the MRL. It was also detected at the background well at the MRL in the same quarter. Two other VOCs were also detected in the background well only this quarter. The limited and irregular occurrence of these compounds is not consistent with a site source and indicate introduction in the laboratory or field that was not identified by quality assurance procedures, although one (acetone) has in the past been detected in trip and method blanks at concentrations below the MRL.

3.1.2 Cells 1 and 2 of Site B Data Evaluation

4th Quarter 2023

Water quality prediction limits for the Cells 1 and 2 of Site B area were not exceeded for any of the 29 analytes evaluated (Table 1). None of the 87 concentrations of the parameters measured in the 3 downgradient wells combined were above a prediction limit. The lack of parameter concentrations in the shallow aquifer zone exceeding prediction limits indicate no impacts to groundwater quality from the Cells 1 and 2 of Site B area.

No volatile organic compound was detected in samples collected in this area in the fourth quarter.

Annual Summary

The water quality prediction limits for the Cells 1 and 2 of Site B area were exceeded during 2023 for 1 of the 29 analytes evaluated (Table 1). This included 2 of the 348 concentrations of these

parameters evaluated in the three downgradient wells combined. Nitrate was the only parameter detected above the prediction limit and only at MW-8B in 2023. Nitrate was detected in the first and second quarters. Nitrate has followed a seasonal cycle of rising in the wet season and falling in the dry for more than 20 years. Some years this cycle was subdued.

No VOCs, were detected during 2023 in downgradient samples collected from this area.

No impacts to groundwater quality from the Cells 1 and 2 of Site B area are suggested by the data.

3.1.3 Cell 3 of Site B Data Evaluation

4th Quarter 2023

The water quality prediction limits for the Cell 3 of Site B area were exceeded for 3 of the 29 parameters evaluated (Table 1). This includes 4 of the 116 concentrations of these parameters measured in the four downgradient wells combined. Arsenic, potassium and sodium were detected above the prediction limit at MW-12B and potassium was also detected at MW-15. The limited nature of the detected compounds and concentrations above prediction limits indicates no impacts to groundwater quality from the Cell 3 of Site B area.

The volatile organic compounds chlorobenzene (0.44 ug/l), 1,2 dichlorobenzene (0.25T ug/l), and 1,4 dichlorobenzene (0.26T ug/l) were detected in the sample from the upgradient well MW-16B. These compounds were detected at concentrations slightly lower than in previous quarters. Because this is a background well and there is no obvious onsite source upgradient of this well, the source of these compounds does not appear to be at the site. A plot of these data is included in Appendix B.

One other VOC, Acetone below the MRL, was detected in the ground water sample from MW-15 downgradient of this area. Acetone has occasionally been detected at concentrations well below the MRL in samples collected downgradient of this area.

Annual Summary

The water quality prediction limits for the shallow aquifer zone in the Cell 3 of Site B area were exceeded for 4 of the 29 parameters evaluated (Table 1). This includes 15 of the 464 concentrations of these parameters measured during 2023 in the four downgradient wells combined. Arsenic, sodium and potassium at MW-12B were detected above a prediction limit during all four quarters and manganese was detected at this well in the second quarter. Arsenic was also detected at MW-14 in the third quarter and potassium at MW-15 in the fourth quarter. Landfill impacts to groundwater quality are not suggested by the data because the concentrations above prediction limits are limited to a few parameters detected in isolation from other parameters. Concentrations of each of these parameters appear to follow a cyclic trend in 2023.

Six volatile organic compounds were detected in samples from this area in 2023. Chlorobenzene, 1,4-dichlorobenzene, and 1,2-dichlorobenzene were detected at low concentrations in the upgradient well MW-16B each quarter. There is no apparent onsite source for these compounds. Concentrations of 1,4-dichlorobenzene and 1,2-dichlorobenzene peaked in late 2008 and have since

declined to relatively stable levels below the MRL (0.5 ug/l) which is a small fraction of the respective MCLs. Chlorobenzene concentrations, which also declined after 2008, rose in 2012 to higher levels than the previous peak but declined in 2013 and 2014 to levels well under 2 ug/l. Chlorobenzene concentrations in 2023 were below 0.5 ug/l which is less than one hundredth of the MCL (100ug/l). A plot of these data is included in Appendix B.

Acetone, chloroethane and methylene chloride were detected at most downgradient wells in the third quarter 2023 samples at concentrations below the MRL. The irregular nature the detection of these compounds, which are often detected in quality control samples, suggest introduction in the lab or during sampling rather than a site source.

Cis-1,2-dichloroethene was not detected in samples from MW-13 during 2022 or 2023. This compound was detected at this well most quarters between the third quarter 2016 and the third quarter 2021 at estimated concentrations below the MRL.

3.2 Detections Above Maximum Contaminant Levels (MCLs)

4th Quarter 2021

Two Washington Maximum Contaminant Level (MCLs) (Table 1 of WAC 173-351) and the same federal MCLs were exceeded for in the fourth quarter (Table 2). Arsenic was detected in twelve monitoring wells at concentrations above the Washington MCL (0.05 µg/L). However, only one of these concentrations (MW-10B at 15.0 ug/l) was above the federal MCL of 10 µg/L. Three of the other detected concentrations were less than 1 ug/l. These concentrations are comparable to historically detected concentrations except at MW-10B where concentrations increased to the current level in mid-2018 although concentrations have fluctuated significantly since.

Nitrate, which was detected in monitoring well MW-7B (12.9 mg/L) above the MCLs. This chemical has followed a seasonal cycle at this well and MW-8B, and will be reevaluated during each quarterly sampling event.

Annual Summary

Two Washington MCLs (Table 1 of WAC 173-351) were exceeded during 2023 (Table 2). Arsenic was detected a total of 48 times during 2023 at concentrations above the Washington MCL (0.05 µg/L). Three of these concentrations were above the Federal MCL, two at MW-10B and one at MW-3B.

Ecology determined in 2010 that the arsenic concentrations at MW-12B had experienced a statistically significant increase. Ecology and the EHU requested that the landfill provide an explanation of the presence of arsenic in groundwater. CCTWL provided an explanation of the presence and character of the arsenic detected in groundwater at the landfill in a letter report from Bright Fields Groundwater dated December 21, 2010.

Nitrate, which was not detected above the MCL of 10 mg/L in 2022, was detected above the MCL in the first and fourth quarters 2023 at different locations. Nitrate concentrations at wells MW-7B and -

8B have followed a seasonal cycle associated with runoff from the cover on the Cells 1 and 2 of Site B area. Concentrations above the MCL have typically been detected in the first or fourth quarter samples for the last several years. The results for 2023 suggest that the nitrogen cycle for the landfill cover in this area continues to release soluble nitrate. Last years' dry conditions before the fourth quarter sampling precluded transport of nitrate from the cover to groundwater and the more typical beginning of the wet season in 2023 appears to have transported nitrate to groundwater at MW-7B by late October. The higher nitrate concentration detected in the first quarter 2023 in the MW-8B sample appears to show transport during the first months of the wet season 2022/23 which began in late October. Concentrations were however significantly lower than peak concentrations measured in 2020 and 2021.

3.3 Statistical Analysis

Groundwater quality data were evaluated using statistical procedures specified in Chapter 173-351-420 WAC. Statistics calculated for each parameter at each well are as follows:

- mean
- sample standard deviation
- variance
- coefficient of variation
- standard error

A statistical summary of each data set for each well are presented in the water quality data tables in Appendix B. Statistics were calculated using the available data for each inorganic parameter at each well excluding identified outliers. Statistics were not calculated for VOCs because of the lack of compound detections.

3.4 Geochemical Evaluation

Geochemical evaluation of the 2023 analytical data included calculations of cation-anion balances and preparation of trilinear diagrams. The cation-anion balance calculations for the fourth quarter data and the trilinear diagrams are provided in Appendix B.

4th Quarter 2023

The cation-anion balance calculations for the data from each monitoring well in the Site A and Site B areas are within the 5 to 10 percent criteria defined in Chapter 173-351-430 WAC at 10 of the 12 monitoring wells. Variability commonly occurs at the landfill because of fluctuations in solute concentrations, primarily bicarbonate and particularly near storm water outfalls. The more typical onset of the wet season in September and October 2023 appears to have caused significant fluctuations at MW-7B and -8B and cation-anion imbalances, albeit only slightly above the criterion at MW-8B.

Trilinear diagrams were prepared for each shallow monitoring well (Appendix B). The data points generally appear to plot in relatively the same general area on each respective diagram creating

clusters of the data that define the chemical character of the water at each well. The plotted locations for the fourth quarter data generally fall within the cluster of historic data points. Most of the fourth quarter data points are on the lower left part of respective data clusters indicating a lower sulfate to bicarbonate ratio. Exceptions are MW-9B, -12B, -13 and -14B which have tight or relatively circular clusters. The data clusters for most of the remaining wells are distributed up the diagram indicating that the variability appears to be caused by fluctuations in the strong bicarbonate character of the groundwater. This may be caused by the proximity of the wells to storm water drains that discharge to unlined ditches where the storm water can infiltrate relatively quickly to groundwater near the wells. Also most of these wells are located downgradient of the unlined Site A fill and the historical trend toward the lower left of the diagrams may indicate the effectiveness of the closure of the site.

The plotted fourth quarter data point for the MW-14B is somewhat above and to the right of the tight data cluster. This resulted from an unusually high chloride concentration which will be evaluated as an outlier if not confirmed by subsequent data.

Annual Summary

The cation-anion balance calculations for the data from each monitoring well in the Site A and Site B areas are within the 5 to 10 percent criteria defined in Chapter 173-351-430 WAC for 42 of the 48 calculations. All but one of the calculations above the WAC criteria resulted from relatively higher cation concentrations. The balances above the criteria were at MW-7B and -8B during the first, second and fourth quarters. The fourth quarter typically shows the most imbalance which is likely related to infiltration of precipitation at the beginning of the wet season a conclusion support by the lack of imbalance in the fourth quarter 2022 and high imbalances in the first quarter 2023 which appear to have been caused by the unusually late beginning of the wet season in 2022.

Balance calculations at individual wells showed varying fluctuations and trends in 2023. As in the past MW-7B, and -8B showed the most fluctuation which is likely related to their locations near outfalls for storm water from the cover of the Cells 1 and 2 of Site B area. Groundwater quality in these areas appears to be influenced by infiltration in the unlined ditches.

The bicarbonate character of the water, which results from solution of carbonate in the soil, typically can cause substantial fluctuations in the total equivalents of anions. The rainfall pattern likely caused fluctuations in the bicarbonate chemistry of the groundwater as the rate of infiltration through the soil varied substantially. This, combined with the fact that there were only slight changes in the indicators of leachate contamination of groundwater (see Section 3.1.1 and Table 1) indicate that the cation-anion imbalances do not likely represent a landfill caused change in groundwater quality.

Trilinear diagrams were prepared for each shallow monitoring well using data generated during 2023 and previous years (Appendix B). Several data sets were not used because they included outlier data points. The groundwater at the site generally plots in the left part of the diagram indicating a calcium/magnesium bicarbonate water. Some variability is apparent resulting primarily from variations in the bicarbonate and sulfate concentration ratio. The bicarbonate/sulfate variations tend to spread the plot points linearly up diagrams. This variability is apparent in both background and downgradient data in the Site A and Cells 1 and 2 areas. Data for wells downgradient of the Cell 3 area tend to form tight clusters with little spread.

The data points generated in 2023 generally plotted within the cluster of data points or within the range of the points available for each well although many data points plotted on the lower left of the cluster. This results from higher bicarbonate to sulfate ratios than was typical in the past.

The data will plot in the upper part of the data cluster when the sulfate concentration is high relative to the bicarbonate concentration. However this has occurred less over the last several years with only concentrations at MW-7B, -8B and -11B occasionally pulling the data point up the cluster. In 2023 only the data for MW-8B plotted slightly up the data cluster in the first and second quarters. The calcium and magnesium concentrations relative to the sodium and potassium concentrations showed less relative variability at the site reducing the spread of data points across diagrams.

Exception to this are the MW-3B and -5B plots where the calcium and magnesium concentrations vary relative to sodium and potassium shifting the data across the plots. Since about 2011 the data for these wells have generally plotted on or to the left of the data cluster forming a denser area within the cluster at MW-3B and a bulge to the left at MW-5B. However in 2021 and 2022 the data points for MW-3B shifted to the bottom or slightly below the cluster and in 2023 toward the center right of the main cluster. This was caused by generally higher relative sodium, potassium and magnesium and lower calcium concentrations.

The wells located downgradient of the closed and unlined Site A area, including those downgradient of the Cells 1 and 2 area, show the greatest variability in the data and therefore the widest clusters of data points on the diagrams. This variability is declining as water quality improves and the older higher concentration data become outliers and are dropped from the plots. At MW-7B sulfate concentrations typically follow a cycle with higher concentrations in the fourth quarter and lower concentrations the rest of the year with the lowest concentrations in the second or third quarter. Bicarbonate follows a counter trend with the highest concentration in the third quarter and the lowest in the first quarter. The bicarbonate trend is also apparent in the MW-8B data. These trends are likely caused by the proximity of the wells to storm water drains that discharge to unlined ditches where the storm water can infiltrate relatively quickly to groundwater near the wells.

3.5 Groundwater Quality Trends

Groundwater quality trend plots were generated for eleven indicator parameters (total dissolved solids, chloride, bicarbonate, ammonia, sulfate, total organic carbon, and dissolved iron, manganese, calcium, magnesium and sodium). The trend plots are included in Appendix B.

The detection of several metals since early 2011 are the result of lower detection and reporting limits and do not indicate a change in metals in groundwater. Although most vanadium detections are at concentrations below the previous MRL, the detection of vanadium appears to be more complicated than a simple lowering of reporting limits. This metal has been detected in all wells beginning with the second quarter 2011 including the background wells. Vanadium has also been detected in surface water and the L-1 leachate beginning at the same time although it has been detected in L-2 and L-3 samples for many years. The detection of vanadium is also coincident with the change in sampling method to low flow using submersible pumps. The presence of vanadium may therefore be related to some aspect of the sampling method, the

redevelopment of the wells, introduced at the laboratory or naturally occurring. Vanadium is present in volcanic rock and soil and is used primarily as a metal additive or glass coating.

3.5.1 Site A Area Groundwater Quality Trends

Groundwater quality data for the Site A area (wells MW-3B, MW-5B, MW-7B, and MW-11B) generally display variable trends in 2023 with parameters at specific wells showing typical variability. Most parameters at most wells show stable or declining trends over time with a few exceptions.

Although concentrations in 2023 in downgradient wells were generally below the long term average and below a rise noted from 2011 to 2014, there was significant variability with several parameters showing somewhat higher concentrations than recent years. At some locations concentrations of several parameters follow an annual cycle rising in the wet season and falling in the dry season or a counter cycle (falling in the wet season). Ammonia appears highly variable although high detection limits may obscure trends in low level concentrations.

It is notable that concentrations at the background well, MW-5B, have shown rising and falling trends and that concentrations are generally higher than or similar to downgradient wells. Exceptions are TOC, ammonia, copper and arsenic which are at higher concentrations in some downgradient wells. Background TDS, bicarbonate, manganese, calcium, and magnesium, which showed a rising trend for several years while sodium showed a falling trend, have been relatively stable for the last several years albeit with significantly greater seasonal fluctuations in concentrations. This follows a trend toward a calcium carbonate water which may result from an increase in vegetation around the well. The groundwater level is high in this area and may be more susceptible to changes in ground cover. Concentrations of most parameters are significantly higher in this well than in the downgradient wells.

At MW-3B, prior to 2010 all parameters at this well showed significant declining trends. Beginning in 2010/11 iron, manganese and magnesium concentrations showed more variability with a general increasing trend. In 2012 and 2013 these metals as well as calcium, bicarbonate, TDS and TOC showed substantial variability that were at generally higher concentrations although a clear trend was not apparent. From 2014 through 2016 concentrations of these parameters declined to levels typical before 2010. Concentrations of these parameters during the last several years, although remaining generally at the lower levels, have shown more variability. This is likely related to the episodic nature of precipitation during the year and will be evaluated in coming years for longer trends. Chloride, TDS, ammonia, arsenic, magnesium, manganese, and sodium concentrations at this well in 2021 and 2022 showed more variability than in the recent past, including some significantly higher concentrations, but this was subdued in 2023.

TOC and copper at MW-7B and -11B are typically at concentrations above background and follow a seasonal trend with peak concentrations typically in the fourth quarter samples after the beginning of the wet season. Concentrations in the fourth quarter of 2021 at these wells were relatively high but low in 2023. Concentrations of nitrate at MW-7B and -8B also follow a similar seasonal trend. Fourth quarter nitrate concentrations at these wells were high 2021, the

highest in the record, but not in the fourth quarter 2022 and 2023. The lower concentrations measured in the each quarter of this year were similar to other years.

3.5.2 Cells 1 and 2 of Site B Area Groundwater Quality Trends

Groundwater quality data for the Cells 1 and 2 of Site B area (wells MW-3B, MW-7B, MW-8B, MW-9B, MW-10B, and MW-11B) generally display trends that vary with the parameter at specific wells. The concentration levels and trends of various parameters appear to define generally stable or improving groundwater quality in this landfill area with a few exceptions. Most concentrations are similar to background conditions as shown by the prediction limit evaluation.

The concentrations of most parameters at most wells were relatively stable in 2017 and 2018 but showed more variability from 2019 through 2023. At MW-9B concentration trends were generally falling with concentrations generally higher than at other downgradient and background wells. At MW-10B several parameters, including TDS, bicarbonate, manganese, and calcium, show a rising trend in 2019 that stabilized and typically fell in 2020 to 2023 albeit with significant variability including rising or falling trends in 2023. Iron continued to be detected throughout the area at the very low levels typical since the second half of 2017. Arsenic at MW-10B spiked up in the fourth quarter of 2018 and remained at elevated concentrations through 2023 except for January of 2020, 2021 and 2022 and April 2023 when it was around a half of a milligram per liter.

Concentrations of most of the ten parameters evaluated for trends at MW-9B are higher than concentrations at the other wells including the background wells. This has been the condition at this well for over 20 years. An explanation for this difference at this well is not apparent. From the fourth quarter of 2018 through 2023 concentrations of many of these parameters have shown decreasing trends at MW-9B and slight increasing trends at MW-10B. This may be related to changes in the direction and rate of ground water flow caused by the apparent wet season mounding of ground water in the area around MW-11B.

At MW-7B and -8B an annual cycle of nitrate concentrations that began in 2001 was measured in 2023 with the high concentration typically measured in the fourth quarter of the previous year shifted to the first quarter 2023. This appears to have been the result of the late beginning of the wet season. The fourth quarter 2023 concentrations at MW-7B followed the more typical pattern. In this cycle nitrate concentrations typically peak in the first quarter and decline during the rest of the year. This cycle appears to be related to mobilization of nitrate in the soil of the cover on the Cells 1 and 2 area which are transported to groundwater with infiltrating storm water. The low concentrations in the other quarters of 2023 were similar to the previous years. Copper and to a lesser extent TOC appeared to follow a similar cyclic trend at these wells although the pattern has become less consistent the last few years. Copper at MW-11B rose to levels similar to MW-7B and -8B around 2015 but follow less clearly seasonal fluctuations.

These cycling trends appear to be coincident with the installation of the cover on this area of the landfill and subsequently the cover on Cell 3. Copper is known to be present in runoff from landfill covers of similar composition to the cover of this area. Runoff from Cells 1 and 2 and Cell 3 is discharged to a sand ditch near and upgradient of both MW-7B and -8B. The quality of

the infiltrating surface water does not appear to violate groundwater standards where monitored based on the available data.

3.5.3 Cell 3 of Site B Area Groundwater Quality Trends

Groundwater quality data for the Cell 3 of Site B area (wells MW-12B, MW-13, MW-14B, MW-15, and MW-16B) generally display variable trends in recent years. At MW-16B, the background well, concentrations of most of the evaluated parameters showed clear falling or stable trends in 2022 and 2023 and potassium and ammonia show rising trends. At MW-12B concentrations of most parameters appear to parallel those of MW-16B albeit at lower, similar and higher concentrations. Exceptions are manganese which showed a rise and potassium and ammonia which were stable or falling at MW-12B. Chloride, arsenic, manganese, potassium and sodium at MW-12B trend above the background concentrations while the other parameters are similar or below. Concentrations at wells MW-13, -14B and -15 typically follow the trends at the background well and at concentrations typically lower than the background concentrations. Exceptions are sulfate at MW-15 which is at higher concentrations and TOC at MW-13 and -14B which is also higher than at the background well, although the close to background the last few years. The concentrations of sulfate at MW-15, which have been above background since 2013, appear to follow a seasonal cycle with higher concentrations in the wet season and an overall downward trend since 2019 albeit with significant variability. Manganese also shows cyclic variability at this well although with higher concentrations in the dry season. The higher seasonal manganese concentrations are above and the lower concentrations below background. Sodium and magnesium at MW-15 have typically been the lowest in this area although declining concentrations of magnesium at MW-13 and MW-14B are now similar to those at MW-15.

The concentration of iron declined to one tenth the previous trend from the second to third quarter 2017. This was coincident with a change of laboratory. However, the concentrations have remained low since the change back to the long term laboratory.

The concentration levels and trends do not appear to define an overall deterioration or improvement in groundwater quality that would indicate impacts from this landfill area.

4 SURFACE WATER AND LEACHATE QUALITY

Two surface water and three leachate samples were collected and analyzed during each sampling round in 2023. The samples were collected and analyzed as described in the recently revised SAP (Bright Fields Groundwater, Inc., 2013). Summary tables of the analytical results for surface water and leachate samples are included in Appendix C. Sample collection procedures were documented for the fourth quarter sampling event in a memorandum included in Appendix D.

4.1 Surface Water

Surface water samples were collected in the log pond lock (S-2 located west of the site) and at the stormwater discharge culvert (RD-1) located on the north side of the site (Figure 2).

The samples were analyzed for nitrate, total metals and field parameters. Surface water quality appears to meet primary and secondary MCLs where promulgated for the parameters tested when evaluated as allowed by the available data. The results are also consistent with past results although concentrations of some metals were slightly elevated in the runoff discharge sample. The elevated metals likely resulted from sampling lower than typical flow conditions which may have included more stirred up sediment than is typical. The samples were analyzed for total metals and therefore not filtered.

4.2 Leachate

Leachate samples were collected at three locations of the landfill's leachate collection system. The leachate sampling location for Site A is in the northwestern corner of the landfill (L-1 sampling location). The L-1 sump receives water from the Site A perimeter underdrain as well as gas condensate from the nearby gas collection header. The gas condensate is likely to be a significant although variable source of VOCs.

The leachate sampling location for Cells 1 and 2 of Site B is near the south central boundary of the landfill (L-2 sampling location). L-2 is a pumping station that receives leachate from the Cells 1 and 2 collection system and the leachate from the Cell 3 collection system. The leachate sampling location for Cell 3 of Site B, which was added to the sampling program in October 1999, is a sump in the northern part of the area near the entrance to the landfill (L-3 sampling location). The three sampling locations are shown on Figure 2.

Liner was installed and Cell 3 was filled in stages before a cover was installed in 2014 and the entire cell closed. Leachate from most of Cell 3 is directed to the L-3 sampling location before being pumped to the L-2 pumping station. Leachate from a part of Cell 3 is collected in a leachate drain

which flows to the L-2 sampling location. Each sampling location represents leachate discharged from the respective landfill area except as noted for L-2 (Figure 2).

4.2.1 Fourth Quarter

Concentrations of bicarbonate, TDS, chloride, ammonia, TOC, barium, calcium, potassium, and sodium were generally higher in leachate samples than in groundwater samples.

Concentrations of most metals at L-1 were slightly to somewhat higher than recent fourth quarter concentrations except copper, lead, nickel, sodium, and other inorganic parameters were lower except nitrate which was higher. Most parameters were within the range of variability.

Concentrations at L-2 and L-3 of most parameters appear to be generally declining with seasonal variability. Most notable are sodium and potassium which are the highest concentration parameters. A few parameters show increasing trends (calcium, magnesium and manganese) and substantial variability (TOC, sulfate, ammonia, nitrate and several metals). Concentrations since closure appear to typically follow a cycle with the highest concentration at the end of the dry season, typical in the third or fourth quarter data. These variations are likely the result of changes within the landfill since closure.

Three volatile organic compounds were detected in the fourth quarter leachate sample from L-1, which is similar to the last several years and fewer than in the past. The concentrations were below the MRL except 1,4-Dichlorobenzene which was slightly above the MRL. Five other VOCs were inconsistently detected in different quarters of 2023.

No volatile organic compounds were detected in the sample from L-2. This is the same as last year in the fourth quarter which was the first time no compounds were detected. The laboratory diluted the sample because of foaming which resulted in MRLs increased five times. One compound was detected in the first and second quarters of 2023.

No volatile organic compound was detected in the sample from L-3. This is one less than last year and the same as the year before which was the first time no VOCs were detected at this location. This sample was diluted five times before analysis. This continues an apparent trend to fewer detectable compounds.

VOC sampling procedures for L-2 and L-3 were modified to use unpreserved sample containers. This reduced or eliminated foaming of the sample.

Leachate is discharged to a sanitary sewer.

4.2.2 Annual Summary

In general, inorganic parameter concentrations showed typical variability in leachate during 2023. Typically concentrations have been lowest in January and rise through the year. Concentrations of bicarbonate/alkalinity, TDS, chloride, ammonia, TOC, barium, calcium, potassium, and sodium as well as most trace metals were generally higher in leachate samples than in groundwater samples.

Concentrations at L-1 appeared to be generally within the range detected during recent years although somewhat most metals were somewhat higher and other inorganics lower in the fourth quarter (except nitrate mentioned above). Concentrations of most parameters appear to be generally lower than in the past. This suggests that the impacts to groundwater from Site A are generally declining. Concentrations at L-2 and L-3 also showed variability within the range detected during recent years. The falling trends of recent years for most parameters appear to have stabilized or continued in 2023 with seasonal variability. The rising trends noted for nitrate, sulfate and TDS/conductivity appear to have roughly stabilized although nitrate, sulfate, ammonia and TOC show substantial variability.

Volatile organic compounds in leachate were generally at lower concentrations and fewer have been detected in recent years. Fewer detections appears to be a trend over several years. Dilution in the laboratory before analysis has at times raised the detection limits and may have reduce detections. A change in sample preservation to eliminate acid preservation for the L-2 and L-3 samples has reduced or eliminated foaming although dilution was performed for some samples in 2023 in the lab because of color and particulates.

Concentrations of most parameters at L-2 and L-3 generally follow an annual cycle that begins with a substantial drop in the first quarter from the previous year fourth quarter. This is likely to be related to dilution caused by the increase in humidity and incident precipitation in the rainy season followed by an increase in concentrations of analytes during the drier summer and fall. Installation of the Cell 3 cover in 2014 has mitigated the effects of precipitation which may have change the concentrations of the various parameters at L-2 and L-3 in the past.

5 DISCUSSION

In January, April, July, and October 2023, the Cowlitz County Tennant Way Landfill successfully completed the quarterly sampling events for the calendar year. The landfill is monitored as three areas: Site A, Cells 1 and 2 of Site B, and Cell 3 of Site B. Site A was closed prior to 1995. Cells 1 and 2 of Site B were closed through installation of a cover during 2000. Cell 3 of Site B was closed in 2014 through installation of a cover. The CCTWL entered post closure care on July 1, 2017 following finalization of all closure requirements.

Groundwater flow was determined to be generally to the south or southwest across the landfill. The linear groundwater velocity was estimated for the shallow and deep aquifer zones at low river tide. The groundwater flow rate in the shallow zone was estimated to range from 1.2 to 8.3 feet per day. The groundwater flow rate in the deep zone was estimated to range from 0.4 to 3.1 feet per day. The rates estimated during 2023 are within the range of previous estimates. The estimates for most measurements this year were slightly to significantly above average with a few near average and most in the Cells 1 and 2 area below average. The flow patterns and rates reflect variations in precipitation, river levels and aquifer properties. The aquifer is generally finer grained under the northern part of the site which slows the distribution of recharging water. The aquifer under the southern part of the site is sandier and more influenced by river tides which affect gradients and flow. Storm water is also routed from the cell covers to unlined ditches and pipes that convey this water to the outfall from the site. However, the sandy soil allows significant infiltration from these ditches which affects groundwater levels and flow. The rates calculated in 2023 are not likely to represent the actual instantaneous or average flow rate. This is because of the variations in the hydraulic gradient and aquifer material across the site and the influences of the seasonal fluctuations and the tides in the Cowlitz River on flow.

Groundwater quality data from Site A and both Site B areas were evaluated in this report. Impacts to groundwater quality by Site A are suggested by the data and no impacts by Site B are suggested. These historic impacts from Site A were remediated through closure of the site. Trends in the analytical data generally suggest stable or improving groundwater quality in this area. Site A was remediated by closure with a cap that reduced infiltration through the fill. However, this area does not include a liner and higher groundwater levels may occasionally saturate soils affected by the fill that typically are unsaturated.

The Site B area cells do not appear to have affected groundwater quality. Some elevated concentrations can be attributed to infiltration of runoff from the landfill covers and previous upgradient impacts from Site A. Some parameters have risen or been variable at MW-10B located on the west side of Cell 2 most notably arsenic. This is likely the result of changes in the

groundwater flow pattern caused by wet season mounding of groundwater in the MW-11 vicinity. Several parameters at MW-12B were above the prediction limit and have shown rising trends. However concentrations appear to have recently stabilized and most have begun to fall. Some other parameters at this well are less than and follow similar trends to the background concentrations for the Cell 3 area.

The concentrations of several parameters have shown cyclic annual trends. This is most notable at MW-7B and -8B where nitrate concentrations rise in the wet season and fall in the dry season. In 2023 nitrate concentrations were highest early in the year at both MW-7B and -8B rather than in the fourth quarter of the previous year which is typical. This resulted from the late arrival of the wet season in 2022 which was delayed until late October after the sampling event. Nitrate in the fourth quarter 2023 sample was high although not as high as a few years ago. Copper and TOC concentrations have also followed this seasonal cycle in the past showed less consistent variability this year. The elevated concentrations at MW-7B and -8B appear to be related to the infiltration of runoff from the cover on Cells 1 and 2 and Cell 3. Both monitoring wells are located near stormwater outfalls where runoff from part of the Cells 1 and 2 or Cell 3 cover is directed to an unlined drainage ditch and pipes that run around the landfill. The discharge from this ditch, where monitored, has not violated surface water quality standards based on the available data, except occasionally temperature during the summer.

The Washington Administrative Code chapters concerning landfills were revised with an effective date of December 8, 2012. As specified in the revised WAC the SAP was revised prior to the second quarter sampling of 2013 and guided sampling in 2023. Additional changes have affected the analytical program. With agreement from the EHU and Ecology the six geochemical metals are analyzed as dissolved after field filtering. The WAC specifies dissolved analysis only for iron and manganese although the purpose of filtering is applicable to the other geochemical metals making the results more comparable. Another change is that the CCTWL has adopted a metals analytical method that the contracted analytical laboratory improved to substantially reduce the MRLs and MDLs as well as effectively eliminate the matrix interference that affected analysis of several metals in the past. Additionally, acid preservation of the leachate samples from L-2 and L-3 caused foaming of the samples necessitating dilution of the VOC samples in the laboratory before analysis thereby raising detection and reporting limits for VOCs. Acid preservations was discontinued in 2018 and foaming has been reduced or eliminated improving analyses and reporting limits.

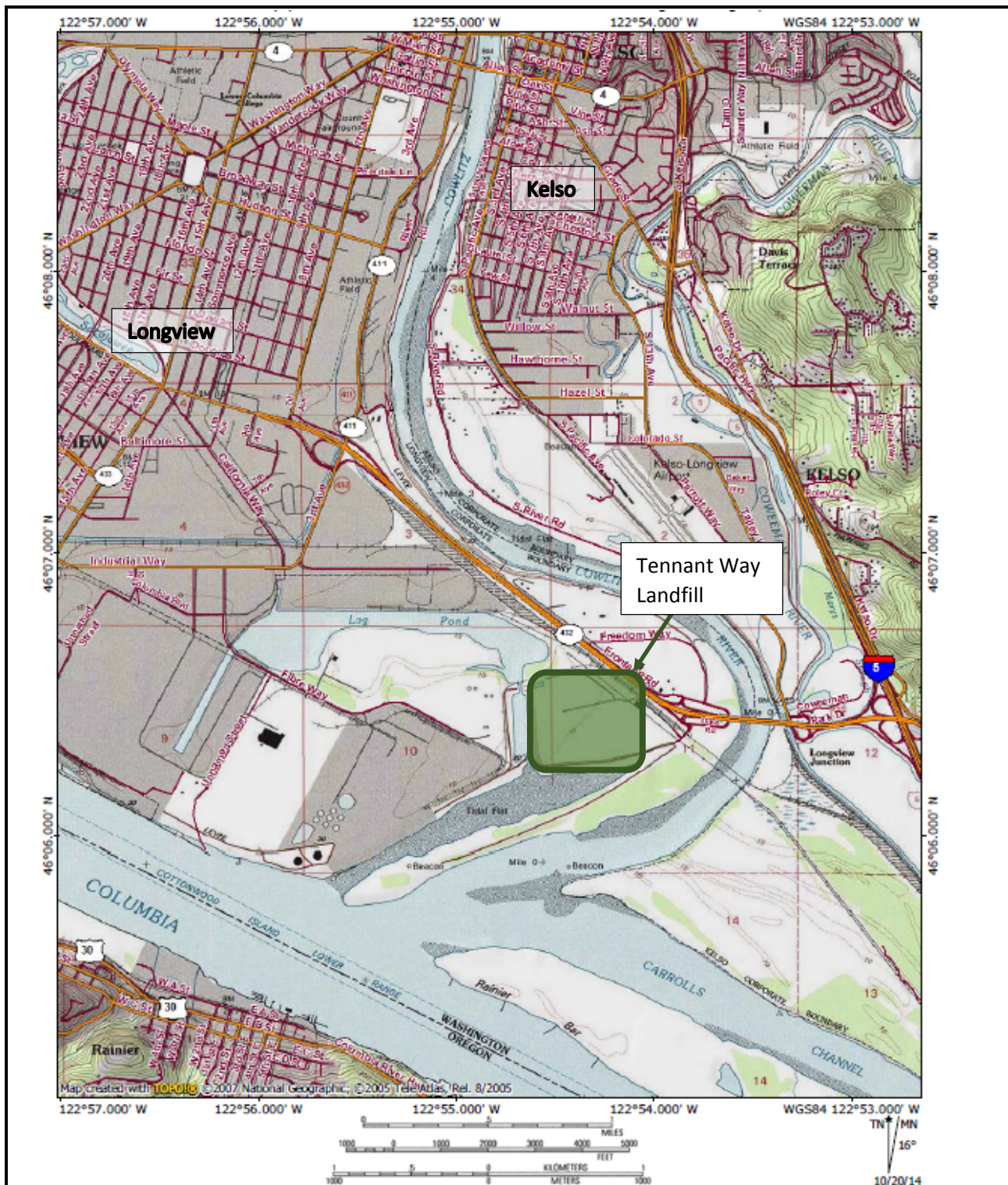
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LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.



Based Map: USGS through National Geographic

Bright Fields Groundwater, Inc.

Figure 1
Cowlitz County Tennant Way Landfill
Longview, Washington
Site Location Map

EXPLANATION

- Groundwater Monitoring Well
- Piezometer
- Surface Water Monitoring Site
- Leachate Monitoring Site



North

MW-5A
MW-5B

MW-2A
MW-2B

RD-1

L-1

S-2

Site A
(Closed 1992)

Log Pond Lock

Main Gate

Cell 3
(Closed in 2014)

Site B

Cell 1
(Closed 2000)

Cell 2
(Closed 2000)

MW-7A
MW-7B

MW-11A
MW-11B

MW-3B
MW-3A

MW-1A
MW-1B

MW-15

MW-14A
MW-14B

MW-13

MW-12A
MW-12B

L-2

MW-8A
MW-8B

MW-9A
MW-9B

Cowlitz River

Slough



Scale in Feet

Figure 2
Cowlitz County Tenant Way Landfill
Longview, Washington
Site Plan

Table 1
Cowlitz County Tennant Way Landfill
Parameters Exceeding Prediction Limit in 2023

Parameter Units	Antimony ug/l	Arsenic ug/l	Barium ug/l	Beryllium ug/l	Cadmium ug/l	Chromium ug/l	Cobalt ug/l	Copper ug/l	Lead ug/l	Nickel ug/l	Selenium ug/l	Silver ug/l
Site A												
Prediction Limit	1.0 U	1.5	88	0.5 U	0.5 U	2.8	2.8	4.7	2 U	7.2	3 U	2 U
MW-3B												
1st Quarter		10.0					3					
2nd Quarter		8.6										
3rd Quarter		8.5										
4th Quarter		8.0										
MW-7B												
1st Quarter								26 J				
2nd Quarter								18				
3rd Quarter								15				
4th Quarter								33				
MW-11B												
1st Quarter								15 J				
2nd Quarter								29				
3rd Quarter							6	42		9		
4th Quarter							9	30		11		

Prediction limits are the maximum values detected in the designated background wells for each area.

Metals concentrations are total except geochemical metals are dissolved.

U = Less than the method reporting limit shown.

J = Data qualifier assigned. The associated value is an estimate.

T = Detected below reporting limit. Value is an estimate.

Table 1
Cowlitz County Tennant Way Landfill
Parameters Exceeding Prediction Limit in 2023

Parameter Units	Thallium ug/l	Vanadium ug/l	Zinc ug/l	Geochemical Metals (Dissolved)					
				Calcium ug/l	Iron ug/l	Magnesium ug/l	Manganese ug/l	Potassium ug/l	Sodium ug/l
Site A									
Prediction Limit	5 U	11	46	64,200	8,890	32,600	1,630	2,580	32,300
MW-3B									
1st Quarter									
2nd Quarter									
3rd Quarter									
4th Quarter									
MW-7B									
1st Quarter									
2nd Quarter								2,740	
3rd Quarter								7,100	
4th Quarter								4,620	
MW-11B									
1st Quarter									
2nd Quarter									
3rd Quarter									
4th Quarter									

Prediction limits are the maximum values detected in the designated background wells for each area.

Metals concentrations are total except geochemical metals are dissolved.

U = Less than the method reporting limit shown.

J = Data qualifier assigned. The associated value is an estimate.

T = Detected below reporting limit. Value is an estimate.

Table 1
Cowlitz County Tennant Way Landfill
Parameters Exceeding Prediction Limit in 2023

Parameter Units	Bicarbonate mg/l	Alkalinity (as CaCO3) mg/l	Chloride mg/l	Ammonia mg/l	Nitrate mg/l	Sulfate mg/l	TOC mg/l	TDS mg/l
Site A								
Prediction Limit	397	326	4.1	1.0	2.27	34.1	6.8	419
MW-3B								
1st Quarter			5.5					
2nd Quarter			5.4					
3rd Quarter								
4th Quarter								
MW-7B								
1st Quarter					4.8			
2nd Quarter								
3rd Quarter								
4th Quarter					12.9		12.6	
MW-11B								
1st Quarter								
2nd Quarter								
3rd Quarter							8.3	
4th Quarter							11.9	

Prediction limits are the maximum values detected in the designated background wells for each area.

U = Less than the method reporting limit shown.

J = Data qualifier assigned. The associated value is an estimate.

T = Detected below reporting limit. Value is an estimate.

Table 1
Cowlitz County Tennant Way Landfill
Parameters Exceeding Prediction Limit in 2023

Parameter Units	Antimony ug/l	Arsenic ug/l	Barium ug/l	Beryllium ug/l	Cadmium ug/l	Chromium ug/l	Cobalt ug/l	Copper ug/l	Lead ug/l	Nickel ug/l	Selenium ug/l	Silver ug/l
Cells 1 and 2 of Site B												
Prediction Limit	1 U	16.3	49	0.5	1.4	10.7	22.3	99.9	4.8 T	27	5 L	2 L
MW-8B												
1st Quarter												
2nd Quarter												
3rd Quarter												
4th Quarter												
MW-9B												
1st Quarter												
2nd Quarter												
3rd Quarter												
4th Quarter												
MW-10B												
1st Quarter												
2nd Quarter												
3rd Quarter												
4th Quarter												

Note:

Prediction limits are the maximum values detected in the designated background wells for each area.

Metals concentrations are total except geochemical metals are dissolved.

U = Less than the method reporting limit shown.

J = Data qualifier assigned. The associated value is an estimate.

T = Detected below reporting limit. Value is an estimate.

Table 1
Cowlitz County Tennant Way Landfill
Parameters Exceeding Prediction Limit in 2023

Parameter Units	Thallium ug/l	Vanadium ug/l	Zinc ug/l	Geochemical Metals (Dissolved)					
				Calcium ug/l	Iron ug/l	Magnesium ug/l	Manganese ug/l	Potassium ug/l	Sodium ug/l
Cells 1 and 2 of Site B									
Prediction Limit	10 U	42.8	10.0	68,400	104,000	45,400	4,620	10,400	24,000
MW-8B									
1st Quarter									
2nd Quarter									
3rd Quarter									
4th Quarter									
MW-9B									
1st Quarter									
2nd Quarter									
3rd Quarter									
4th Quarter									
MW-10B									
1st Quarter									
2nd Quarter									
3rd Quarter									
4th Quarter									

Note: Prediction limits are the maximum values detected in the designated background wells for each area.
Metals concentrations are total except geochemical metals are dissolved.
U = Less than the method reporting limit shown.
J = Data qualifier assigned. The associated value is an estimate.
T = Detected below reporting limit. Value is an estimate.

Table 1
Cowlitz County Tennant Way Landfill
Parameters Exceeding Prediction Limit in 2023

Parameter Units	Bicarbonate mg/l	Alkalinity (as CaCO3) mg/l	Chloride mg/l	Ammonia mg/l	Nitrate mg/l	Sulfate mg/l	TOC mg/l	TDS mg/l
Cells 1 and 2 of Site B								
Prediction Limit	219	180	35	2.7	3.47	17.5	25.5	309
MW-8B								
1st Quarter					11.1			
2nd Quarter					7.4			
3rd Quarter								
4th Quarter								
MW-9B								
1st Quarter								
2nd Quarter								
3rd Quarter								
4th Quarter								
MW-10B								
1st Quarter								
2nd Quarter								
3rd Quarter								
4th Quarter								

Note:

Prediction limits are the maximum values detected in the designated background wells for each area.

U = Less than the method reporting limit shown.

J = Data qualifier assigned. The associated value is an estimate.

T = Detected below reporting limit. Value is an estimate.

Table 1
Cowlitz County Tennant Way Landfill
Parameters Exceeding Prediction Limit in 2023

Parameter Units	Antimony ug/l	Arsenic ug/l	Barium ug/l	Beryllium ug/l	Cadmium ug/l	Chromium ug/l	Cobalt ug/l	Copper ug/l	Lead ug/l	Nickel ug/l	Selenium ug/l	Silver ug/l
Cell 3 of Site B												
MW-12B												
Prediction Limit	50 U	6.0	51	5 U	6	5 U	10 U	11	2 U	20 U	5 U	10 U
1st Quarter		8.1										
2nd Quarter		7.1										
3rd Quarter		7.5										
4th Quarter		7.9										
MW-13												
Prediction Limit	50 U	6.0	51	5 U	6	5 U	10 U	11	2 U	20 U	5 U	10 U
1st Quarter												
2nd Quarter												
3rd Quarter												
4th Quarter												
MW-14B												
Prediction Limit	50 U	8.0	55	5 U	6	7	10 U	13	2 U	20 U	5 U	10 U
1st Quarter												
2nd Quarter												
3rd Quarter		9.6										
4th Quarter												
MW-15												
Prediction Limit	50 U	6.0	51	5 U	6	5 L	10 U	11	2 U	20 U	5 U	10 U
1st Quarter												
2nd Quarter												
3rd Quarter												
4th Quarter												

Note: Prediction limits are the maximum values detected in the background data set for each well (includes MW-16B data).
Metals concentrations are total except geochemical metals are dissolved.
U = Less than the method reporting limit shown.
J = Data qualifier assigned. The associated value is an estimate.
T = Detected below reporting limit. Value is an estimate.

Table 1
Cowlitz County Tennant Way Landfill
Parameters Exceeding Prediction Limit in 2023

Parameter Units	Thallium ug/l	Vanadium ug/l	Zinc ug/l	Geochemical Metals (Dissolved)					
				Calcium ug/l	Iron ug/l	Magnesium ug/l	Manganese ug/l	Potassium ug/l	Sodium ug/l
Cell 3 of Site B									
MW-12B									
Prediction Limit	5 U	28	31	89,000	51,600	44,400	7,090	3,800	26,000
1st Quarter								4,520	28,100
2nd Quarter							7,190	4,350	26,900
3rd Quarter								4,280	26,400
4th Quarter								4,610	27,400
MW-13									
Prediction Limit	5 U	28	31	89,000	55,100	44,400	8,280	3,800	26,000
1st Quarter									
2nd Quarter									
3rd Quarter									
4th Quarter									
MW-14B									
Prediction Limit	5 U	28	31	89,000 L	62,500	44,400	7,450	3,800	26,000
1st Quarter									
2nd Quarter									
3rd Quarter									
4th Quarter									
MW-15									
Prediction Limit	5 U	28	31	89,000	51,600	44,400	15,200	3,800	26,000
1st Quarter									
2nd Quarter									
3rd Quarter									
4th Quarter								3,870	

Note: Prediction limits are the maximum values detected in the background data set for each well (includes MW-16B data).
Metals concentrations are total except geochemical metals are dissolved.
U = Less than the method reporting limit shown.
J = Data qualifier assigned. The associated value is an estimate.
T = Detected below reporting limit. Value is an estimate.

Table 1
Cowlitz County Tennant Way Landfill
Parameters Exceeding Prediction Limit in 2023

Parameter Units	Bicarbonate mg/l	Alkalinity (as CaCO3) mg/l	Chloride mg/l	Ammonia mg/l	Nitrate mg/l	Sulfate mg/l	TOC mg/l	TDS mg/l
Cell 3 of Site B								
MW-12B								
Prediction Limit	578	474	29.0	3.2	0.60	38.0	18.5	592
1st Quarter								
2nd Quarter								
3rd Quarter								
4th Quarter								
MW-13								
Prediction Limit	578	474	29.0	3.2	0.60	38.0	27.8	592
1st Quarter								
2nd Quarter								
3rd Quarter								
4th Quarter								
MW-14B								
Prediction Limit	578	474	29.0	3.2	0.60	38.0	25.0	592
1st Quarter								
2nd Quarter								
3rd Quarter								
4th Quarter								
MW-15								
Prediction Limit	578	474	29.0	3.2	0.90	38.0	16.0	592
1st Quarter								
2nd Quarter								
3rd Quarter								
4th Quarter								

Note: Prediction limits are the maximum values detected in the background data set for each well (includes MW-16B data).
U = Less than the method reporting limit shown.
J = Data qualifier assigned. The associated value is an estimate.
T = Detected below reporting limit. Value is an estimate.

Table 2
Cowlitz County Tennant Way Landfill
Concentrations Above Standards
in 2022/23

Location	Quarter	Parameter	Standards (ug/l)		Reporting Limit (ug/l)	Parameter Concentration (ug/l)
			Washington	Federal		
MW-3B	4th	Arsenic	0.05	10	0.5	10.2
MW-5B	4th	Arsenic	0.05	10	0.5	T
MW-7B	4th	Arsenic	0.05	10	0.5	0.8
MW-8B	4th	Arsenic	0.05	10	0.5	1.2
MW-9B	4th	Arsenic	0.05	10	0.5	2.9
MW-10B	4th	Arsenic	0.05	10	0.5	17.2
MW-11B	4th	Arsenic	0.05	10	0.5	1.0
MW-12B	4th	Arsenic	0.05	10	0.5	7.0
MW-13	4th	Arsenic	0.05	10	0.5	3.4
MW-14B	4th	Arsenic	0.05	10	0.5	6.8
MW-15B	4th	Arsenic	0.05	10	0.5	2.5
MW-16B	4th	Arsenic	0.05	10	0.5	1.0
MW-3B	1st	Arsenic	0.05	10	0.5	10.0
MW-5B	1st	Arsenic	0.05	10	0.5	T
MW-7B	1st	Arsenic	0.05	10	0.5	T
MW-8B	1st	Arsenic	0.05	10	0.5	1.0
MW-9B	1st	Arsenic	0.05	10	0.5	2.5
MW-10B	1st	Arsenic	0.05	10	0.5	T
MW-11B	1st	Arsenic	0.05	10	0.5	T
MW-12B	1st	Arsenic	0.05	10	0.5	8.1
MW-13	1st	Arsenic	0.05	10	0.5	1.5
MW-14B	1st	Arsenic	0.05	10	0.5	5.1
MW-15B	1st	Arsenic	0.05	10	0.5	2.9
MW-16B	1st	Arsenic	0.05	10	0.5	1.1
MW-8B	1st	Nitrate	10 mg/l	10 mg/l		11.1 mg/l
MW-3B	2nd	Arsenic	0.05	10	0.5	8.6
MW-5B	2nd	Arsenic	0.05	10	0.5	T
MW-7B	2nd	Arsenic	0.05	10	0.5	T
MW-8B	2nd	Arsenic	0.05	10	0.5	1.3
MW-9B	2nd	Arsenic	0.05	10	0.5	2.2
MW-10B	2nd	Arsenic	0.05	10	0.5	9.8
MW-11B	2nd	Arsenic	0.05	10	0.5	T
MW-12B	2nd	Arsenic	0.05	10	0.5	7.1
MW-13	2nd	Arsenic	0.05	10	0.5	1.8
MW-14B	2nd	Arsenic	0.05	10	0.5	7.8
MW-15B	2nd	Arsenic	0.05	10	0.5	3.1
MW-16B	2nd	Arsenic	0.05	10	0.5	1.2
MW-3B	3rd	Arsenic	0.05	10	0.5	8.5
MW-5B	3rd	Arsenic	0.05	10	0.5	T
MW-7B	3rd	Arsenic	0.05	10	0.5	0.5
MW-8B	3rd	Arsenic	0.05	10	0.5	1.1
MW-9B	3rd	Arsenic	0.05	10	0.5	2.5
MW-10B	3rd	Arsenic	0.05	10	0.5	13.2
MW-11B	3rd	Arsenic	0.05	10	0.5	0.4
MW-12B	3rd	Arsenic	0.05	10	0.5	7.5
MW-13	3rd	Arsenic	0.05	10	0.5	2.4
MW-14B	3rd	Arsenic	0.05	10	0.5	9.6
MW-15B	3rd	Arsenic	0.05	10	0.5	2.8
MW-16B	3rd	Arsenic	0.05	10	0.5	1.1
MW-3B	4th	Arsenic	0.05	10	0.5	8.0
MW-5B	4th	Arsenic	0.05	10	0.5	T
MW-7B	4th	Arsenic	0.05	10	0.5	0.6
MW-8B	4th	Arsenic	0.05	10	0.5	1.3
MW-9B	4th	Arsenic	0.05	10	0.5	1.9
MW-10B	4th	Arsenic	0.05	10	0.5	15.0
MW-11B	4th	Arsenic	0.05	10	0.5	0.9
MW-12B	4th	Arsenic	0.05	10	0.5	7.9
MW-13	4th	Arsenic	0.05	10	0.5	1.9
MW-14B	4th	Arsenic	0.05	10	0.5	4.4
MW-15B	4th	Arsenic	0.05	10	0.5	4.0
MW-16B	4th	Arsenic	0.05	10	0.5	1.2
MW-7B	4th	Nitrate	10 mg/l	10 mg/l	0.1	12.9 mg/l

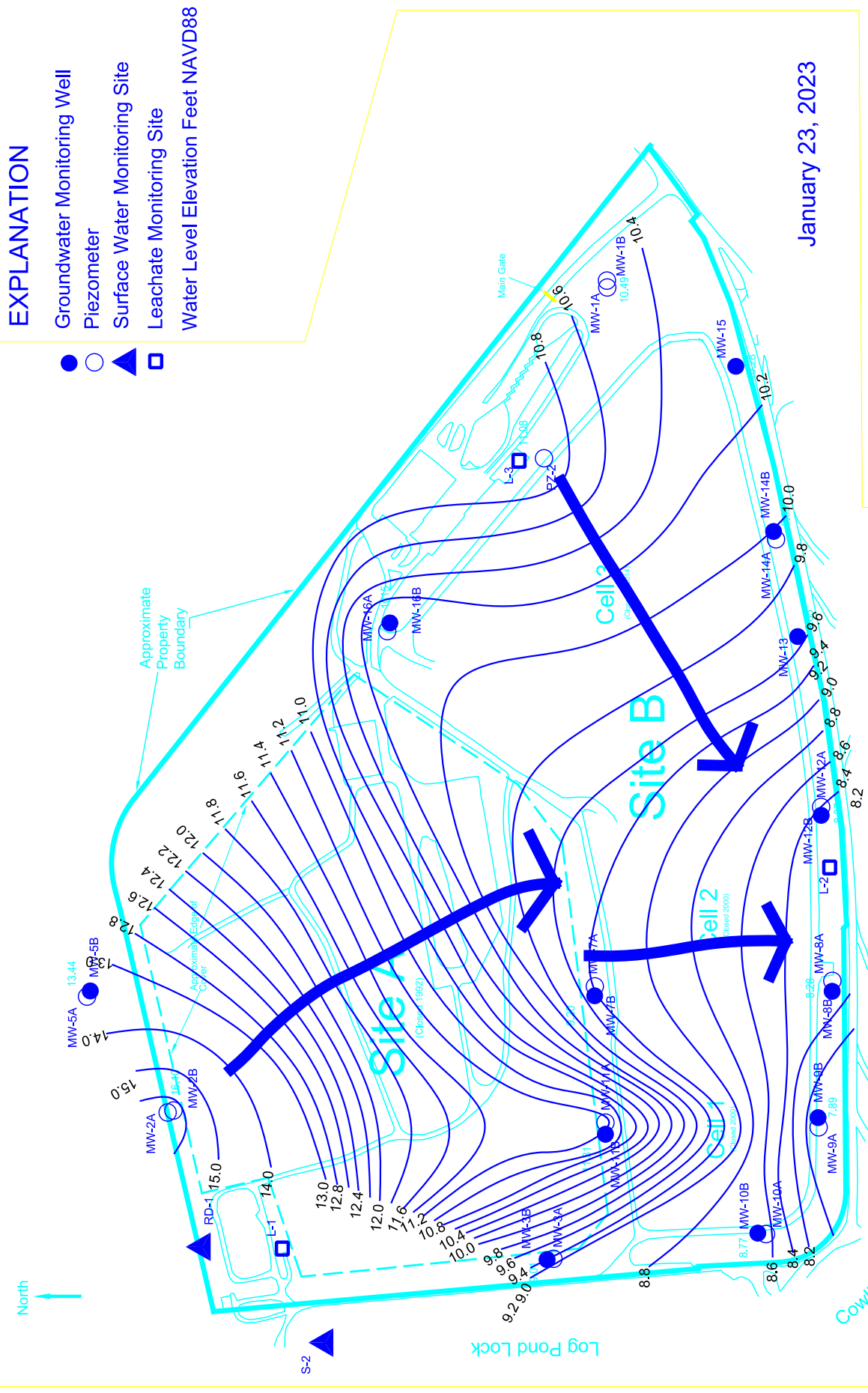
Notes: T = detected above criterion and below reporting limit. Concentration is an estimate.
J = estimated concentration. Detection limit for arsenic varies but typically is 0.1 ug/l.
Washington standard is the Groundwater criteria in WAC173-200. Federal standard is the MCL for drinking water.

APPENDIX A

WATER LEVEL DATA AND 2023 CONTOUR PLOTS

EXPLANATION

- Groundwater Monitoring Well
- Piezometer
- Surface Water Monitoring Site
- Leachate Monitoring Site
- Water Level Elevation Feet NAVD88

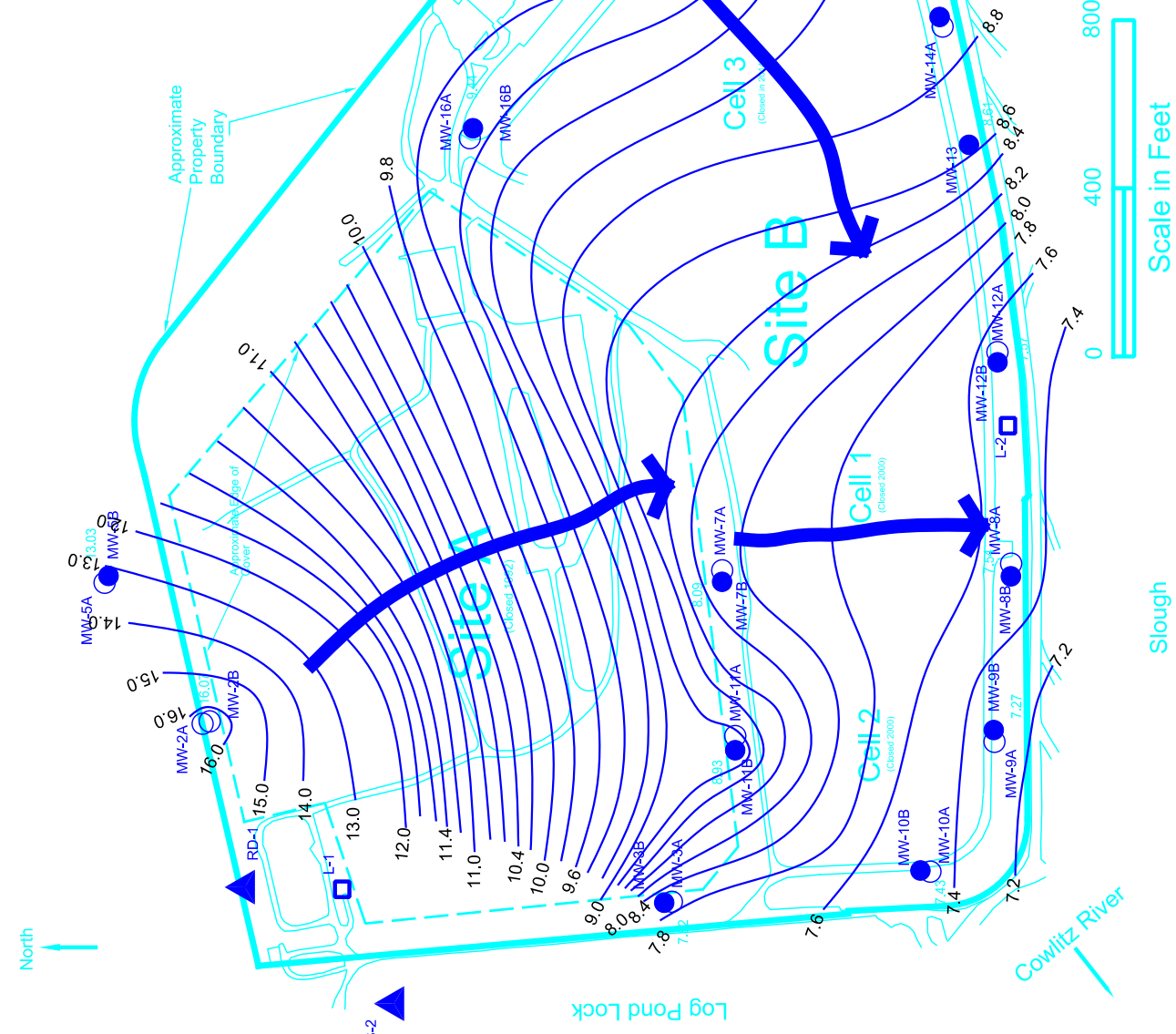


Scale in Feet

Shallow Water Level Map
Cowlitz County Tennant Way Landfill
Longview, Washington

EXPLANATION

- Groundwater Monitoring Well
- Piezometer
- Surface Water Monitoring Site
- Leachate Monitoring Site
- Water Level Elevation Feet NAVD88

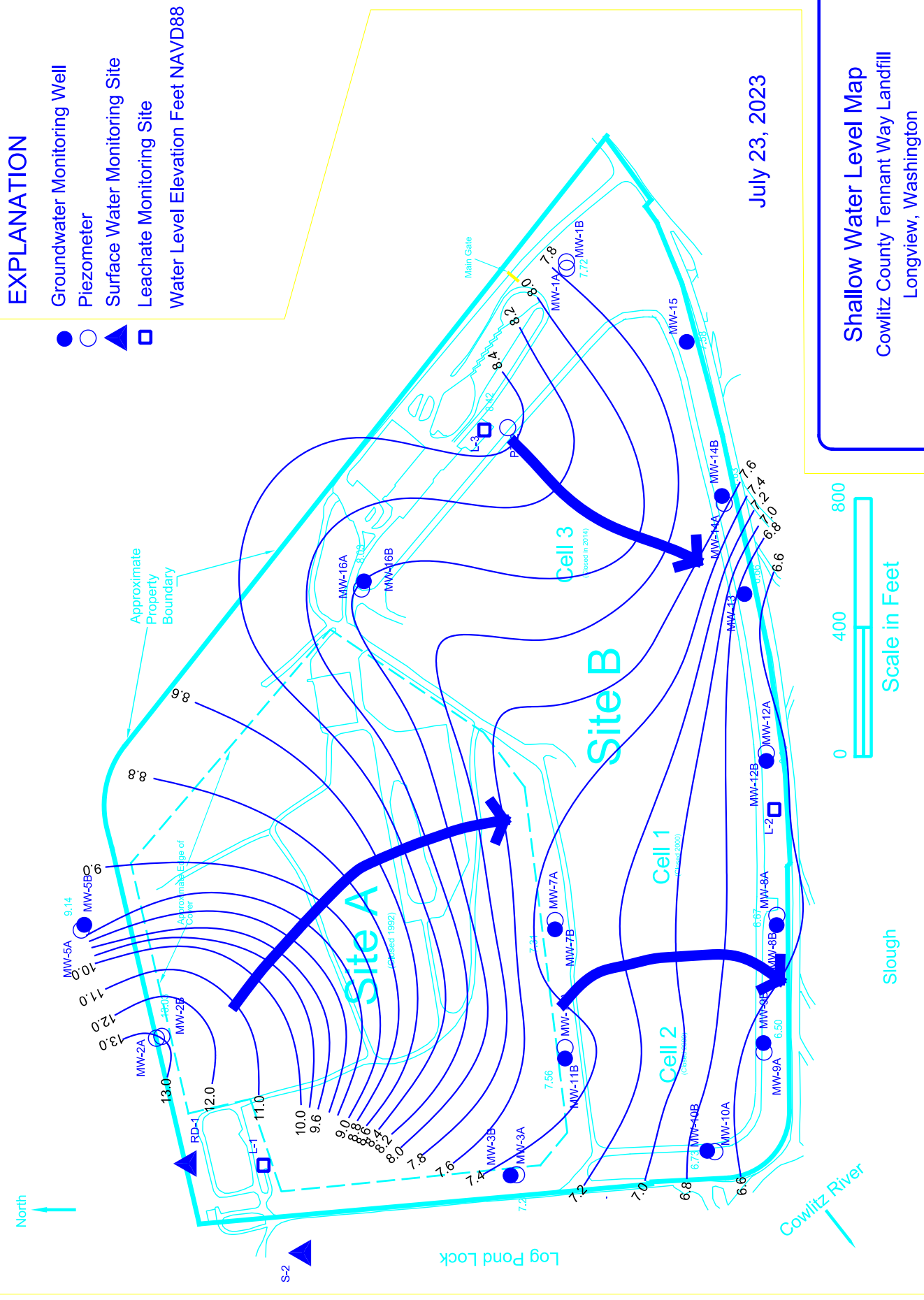


April 4, 2023

Shallow Water Level Map
Cowlitz County Tennant Way Landfill
Longview, Washington

EXPLANATION

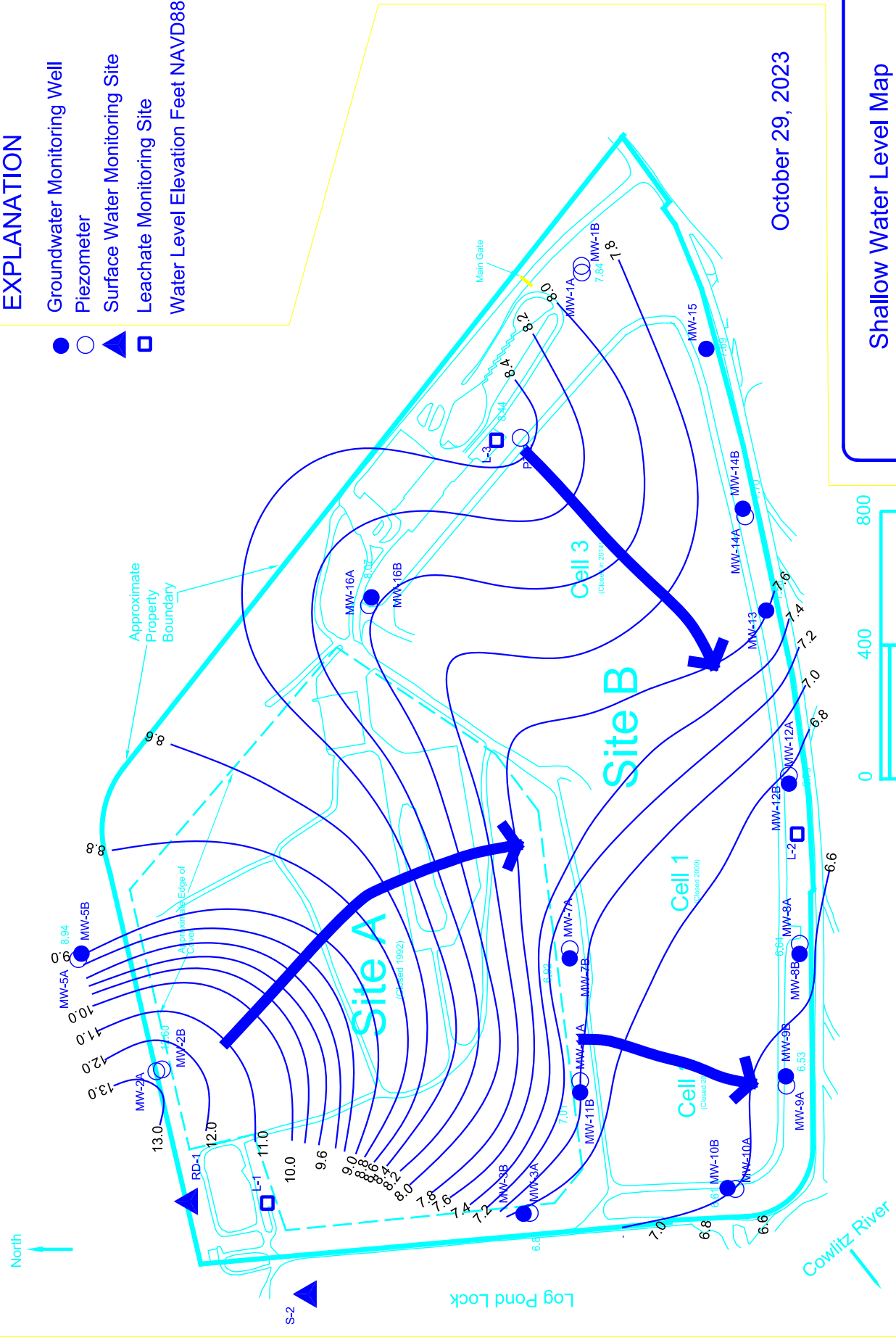
- Groundwater Monitoring Well
- Piezometer
- Surface Water Monitoring Site
- Leachate Monitoring Site
- Water Level Elevation Feet NAVD88



Shallow Water Level Map
Cowlitz County Tennant Way Landfill
Longview, Washington

EXPLANATION

- Groundwater Monitoring Well
- Piezometer
- Surface Water Monitoring Site
- Leachate Monitoring Site
- Water Level Elevation Feet NAVD88



Scale in Feet

Slough

Cowitz River

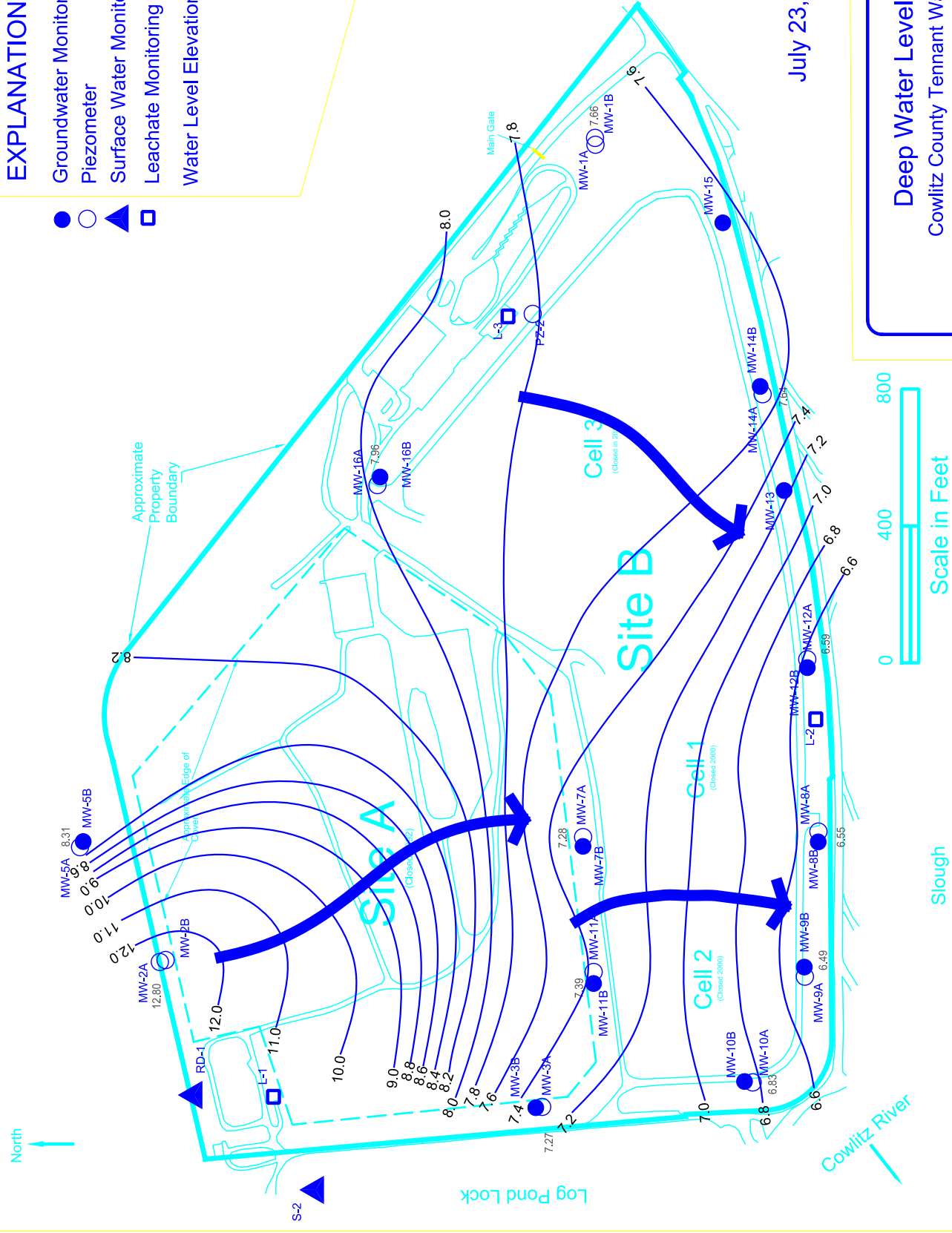
Shallow Water Level Map
Cowlitz County Tennant Way Landfill
Longview, Washington

October 29, 2023

Water Level Elevation Feet NAVD88



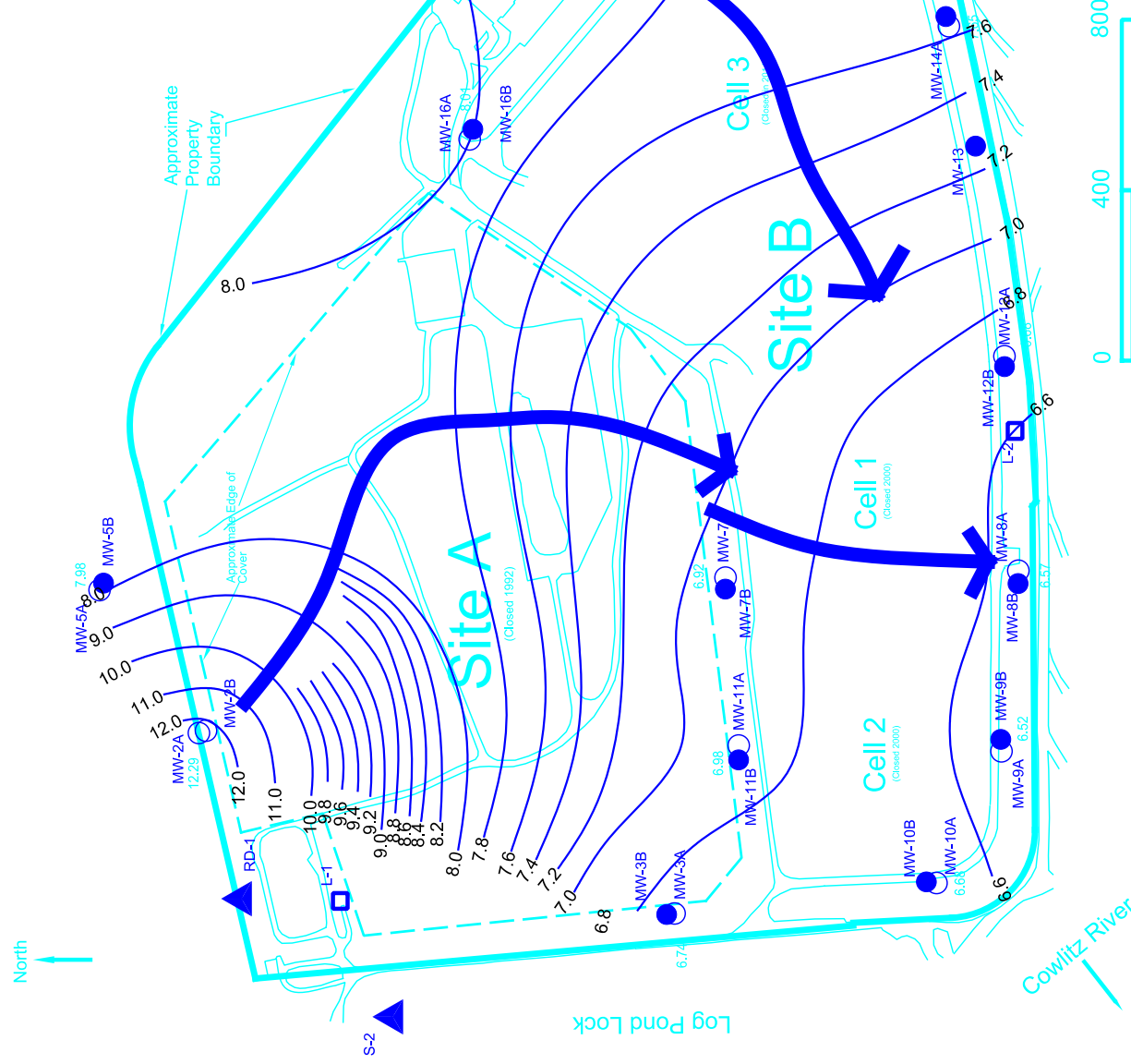
Slough



EXPLANATION

- Groundwater Monitoring Well
- Piezometer
- Surface Water Monitoring Site
- Leachate Monitoring Site

Water Level Elevation Feet NAVD88



Deep Water Level Map
Cowlitz County Tennant Way Landfill
Longview, Washington

Cowlitz County Tennant Way Landfill

Linear Groundwater Velocity Calculations

Date	Hydraulic Conductivity K (feet/minute)	Porosity n	Hydraulic Gradient I (feet/feet)	Linear Groundwater Velocity (feet/minute)	Linear Groundwater Velocity (feet/day)	Apparent Groundwater Flow Direction
Site A						
Upper Portion of Alluvial Sand Aquifer						
7/8/2019	0.3	0.25	0.0036	0.00437	6.3	south
10/28/2019	0.3	0.25	0.0049	0.00587	8.5	south
1/21/2020	0.3	0.25	0.0037	0.00449	6.5	south
4/13/2020	0.3	0.25	0.0053	0.00639	9.2	south
7/12/2020	0.3	0.25	0.0043	0.00511	7.4	south
10/15/2020	0.3	0.25	0.0036	0.00432	6.2	south
1/18/2021	0.3	0.25	0.0029	0.00352	5.1	south
4/11/2021	0.3	0.25	0.0048	0.00573	8.3	south
7/12/2021	0.3	0.25	0.0036	0.00432	6.2	south
10/26/2021	0.3	0.25	0.0040	0.00480	6.9	south
1/18/2022	0.3	0.25	0.0034	0.00405	5.8	south
4/6/2022	0.3	0.25	0.0046	0.00549	7.9	south
7/17/2022	0.3	0.25	0.0032	0.00384	5.5	south
10/9/2022	0.3	0.25	0.0034	0.00412	5.9	south
1/23/2023	0.3	0.25	0.0031	0.00372	5.4	south
4/4/2023	0.3	0.25	0.0048	0.00577	8.3	south
7/23/2023	0.3	0.25	0.0032	0.00389	5.6	south
10/31/2023	0.3	0.25	0.0031	0.00377	5.4	south
Lower Portion of Alluvial Sand Aquifer						
7/8/2019	0.12	0.25	0.0035	0.00170	2.4	south
10/28/2019	0.12	0.25	0.0049	0.00233	3.4	south
1/21/2020	0.12	0.25	0.0048	0.00232	3.3	south
4/13/2020	0.12	0.25	0.0050	0.00242	3.5	south
7/12/2020	0.12	0.25	0.0037	0.00179	2.6	south
10/15/2020	0.12	0.25	0.0045	0.00214	3.1	south
1/18/2021	0.12	0.25	0.0027	0.00131	1.9	south
4/11/2021	0.12	0.25	0.0044	0.00212	3.1	south
7/12/2021	0.12	0.25	0.0045	0.00218	3.1	south
10/26/2021	0.12	0.25	0.0038	0.00184	2.7	south
1/18/2022	0.12	0.25	0.0036	0.00172	2.5	south
4/6/2022	0.12	0.25	0.0049	0.00234	3.4	south
7/17/2022	0.12	0.25	0.0027	0.00130	1.9	south
10/9/2022	0.12	0.25	0.0030	0.00144	2.1	south
1/23/2023	0.12	0.25	0.0042	0.00199	2.9	south
4/4/2023	0.12	0.25	0.0042	0.00203	2.9	south
7/23/2023	0.12	0.25	0.0045	0.00214	3.1	south
10/31/2023	0.12	0.25	0.0033	0.00156	2.2	south

Cowlitz County Tennant Way Landfill

Linear Groundwater Velocity Calculations

Date	Hydraulic Conductivity K (feet/minute)	Porosity n	Hydraulic Gradient I (feet/feet)	Linear Groundwater Velocity (feet/minute)	Linear Groundwater Velocity (feet/day)	Apparent Groundwater Flow Direction
Cells 1 and 2 of Site B						
Upper Portion of Alluvial Sand Aquifer						
7/8/2019	0.3	0.25	0.00120	0.00144	2.1	south
10/28/2019	0.3	0.25	0.00108	0.00129	1.9	south
1/21/2020	0.3	0.25	0.00192	0.00231	3.3	south
4/13/2020	0.3	0.25	0.00112	0.00134	1.9	south
7/12/2020	0.3	0.25	0.00119	0.00142	2.1	south
10/15/2020	0.3	0.25	0.00074	0.00088	1.3	south
1/18/2021	0.3	0.25	0.00389	0.00467	6.7	south
4/11/2021	0.3	0.25	0.00172	0.00207	3.0	south
7/12/2021	0.3	0.25	0.00093	0.00112	1.6	south
10/26/2021	0.3	0.25	0.00077	0.00093	1.3	west
1/18/2022	0.3	0.25	0.00299	0.00359	5.2	south
4/6/2022	0.3	0.25	0.00173	0.00208	3.0	south
7/17/2022	0.3	0.25	0.00160	0.00192	2.8	south
10/9/2022	0.3	0.25	0.00089	0.00107	1.5	south
1/23/2023	0.3	0.25	0.00141	0.00169	2.4	south
4/4/2023	0.3	0.25	0.00070	0.00083	1.2	south
7/23/2023	0.3	0.25	0.00109	0.00131	1.9	south
10/31/2023	0.3	0.25	0.00077	0.00092	1.3	south
Lower Portion of Alluvial Sand Aquifer						
7/8/2019	0.12	0.25	0.00114	0.00055	0.8	south
10/28/2019	0.12	0.25	0.00079	0.00038	0.5	south
1/21/2020	0.12	0.25	0.00121	0.00058	0.8	south
4/13/2020	0.12	0.25	0.00137	0.00066	0.9	south
7/12/2020	0.12	0.25	0.00137	0.00066	0.9	south
10/15/2020	0.12	0.25	0.00075	0.00036	0.5	south
1/18/2021	0.12	0.25	0.00176	0.00085	1.2	south
4/11/2021	0.12	0.25	0.00164	0.00079	1.1	south
7/12/2021	0.12	0.25	0.00111	0.00053	0.8	south
10/26/2021	0.12	0.25	0.00039	0.00019	0.3	west
1/18/2022	0.12	0.25	0.00159	0.00076	1.1	south
4/6/2022	0.12	0.25	0.00175	0.00084	1.2	south
7/17/2022	0.12	0.25	0.00133	0.00064	0.9	south
10/9/2022	0.12	0.25	0.00086	0.00041	0.6	south
1/23/2023	0.12	0.25	0.00152	0.00073	1.0	south
4/4/2023	0.12	0.25	0.00115	0.00055	0.8	south
7/23/2023	0.12	0.25	0.00096	0.00046	0.7	south
10/31/2023	0.12	0.25	0.00060	0.00029	0.4	south

Cowlitz County Tennant Way Landfill

Linear Groundwater Velocity Calculations

Date	Hydraulic Conductivity K (feet/minute)	Porosity n	Hydraulic Gradient I (feet/feet)	Linear Groundwater Velocity (feet/minute)	Linear Groundwater Velocity (feet/day)	Apparent Groundwater Flow Direction
Cell 3 of Site B						
Upper Portion of Alluvial Sand Aquifer						
7/8/2019	0.3	0.25	0.00133	0.0016	2.3	southwest
10/28/2019	0.3	0.25	0.00140	0.0017	2.4	west-southwest
1/21/2020	0.3	0.25	0.00195	0.0023	3.4	west-southwest
4/13/2020	0.3	0.25	0.00152	0.0018	2.6	west-southwest
7/12/2020	0.3	0.25	0.00125	0.0015	2.2	southwest
10/15/2020	0.3	0.25	0.00099	0.0012	1.7	southwest
1/18/2021	0.3	0.25	0.00166	0.0020	2.9	southwest
4/11/2021	0.3	0.25	0.00154	0.0018	2.7	southwest
7/12/2021	0.3	0.25	0.00111	0.0013	1.9	southwest
10/26/2021	0.3	0.25	0.00078	0.0009	1.4	west
1/18/2022	0.3	0.25	0.00151	0.0018	2.6	southwest
4/6/2022	0.3	0.25	0.00260	0.0031	4.5	west-southwest
7/17/2022	0.3	0.25	0.00120	0.0014	2.1	southwest
10/9/2022	0.3	0.25	0.00108	0.0013	1.9	southwest
1/23/2023	0.3	0.25	0.00166	0.0020	2.9	southwest
4/4/2023	0.3	0.25	0.00143	0.0017	2.5	southwest
7/23/2023	0.3	0.25	0.00116	0.0014	2.0	southwest
10/31/2023	0.3	0.25	0.00095	0.0011	1.6	southwest
Lower Portion of Alluvial Sand Aquifer						
7/8/2019	0.12	0.25	0.00067	0.00032	0.5	southwest
10/28/2019	0.12	0.25	0.00136	0.00065	0.9	southwest
1/21/2020	0.12	0.25	0.00174	0.00084	1.2	southwest
4/13/2020	0.12	0.25	0.00136	0.00065	0.9	southwest
7/12/2020	0.12	0.25	0.00135	0.00065	0.9	southwest
10/15/2020	0.12	0.25	0.00089	0.00043	0.6	southwest
1/18/2021	0.12	0.25	0.00166	0.00079	1.1	southwest
4/11/2021	0.12	0.25	0.00150	0.00072	1.0	southwest
7/12/2021	0.12	0.25	0.00092	0.00044	0.6	southwest
10/26/2021	0.12	0.25	0.00075	0.00036	0.5	west
1/18/2022	0.12	0.25	0.00122	0.00059	0.8	southwest
4/6/2022	0.12	0.25	0.00138	0.00066	1.0	southwest
7/17/2022	0.12	0.25	0.00092	0.00044	0.6	southwest
10/9/2022	0.12	0.25	0.00084	0.00040	0.6	southwest
1/23/2023	0.12	0.25	0.00138	0.00066	1.0	southwest
4/4/2023	0.12	0.25	0.00136	0.00065	0.9	southwest
7/23/2023	0.12	0.25	0.00053	0.00025	0.4	southwest
10/31/2023	0.12	0.25	0.00089	0.00043	0.6	southwest

Notes:

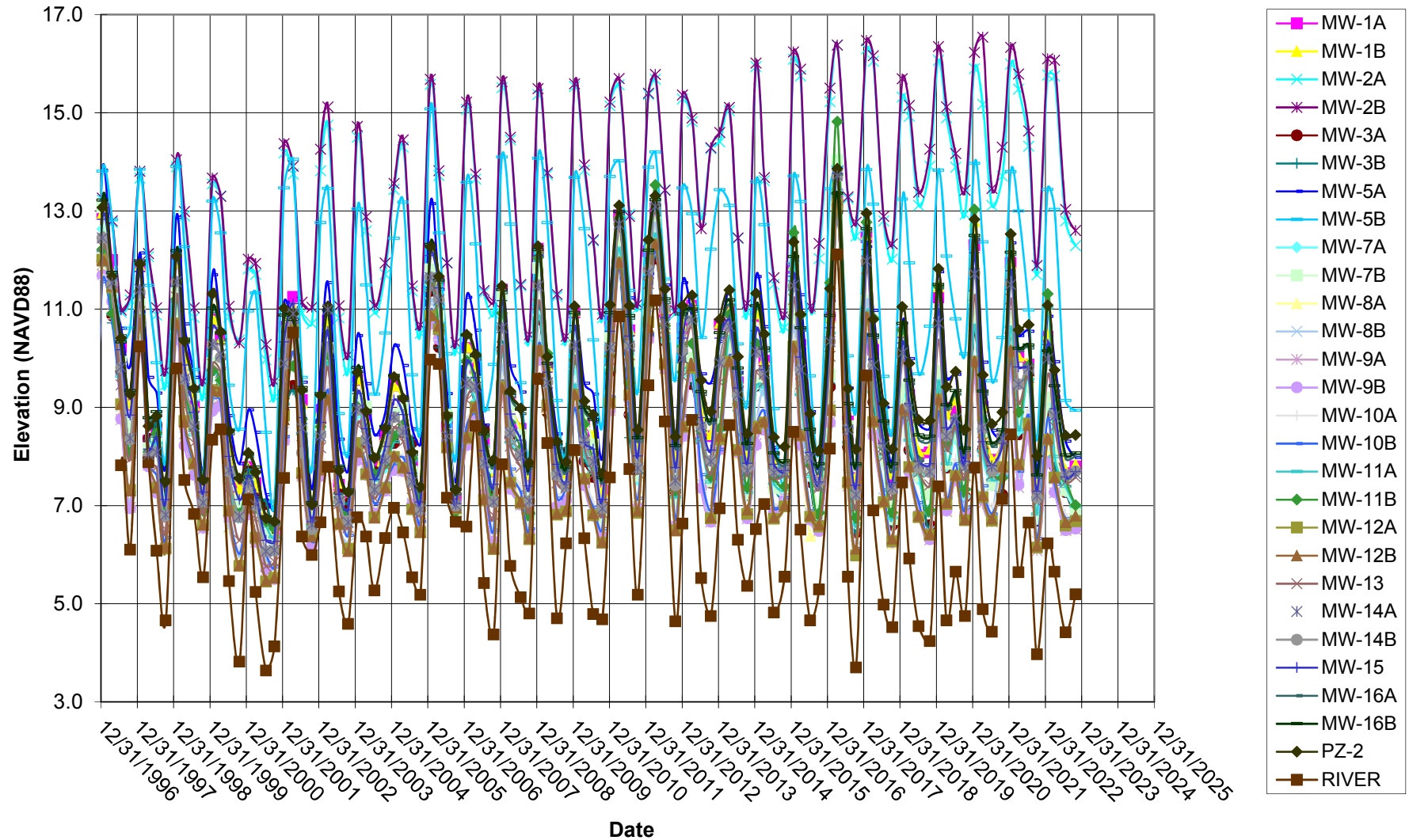
Hydraulic conductivity and porosity taken from EMCON, 1995.

Hydraulic gradient estimated using contour plots.

Linear groundwater velocity calculated as KI/n.

Apparent groundwater flow direction estimated as downgradient direction on the contour plots.

Cowlitz County Tennant Way Landfill Groundwater Levels Hydrograph



Cowlitz County Tennant Way Landfill
Groundwater Level Monitoring Data
Depth to Water Measurements
(feet below reference point)

Date Measured	MW-1A	MW-1B	MW-2A	MW-2B	MW-3A	MW-3B	MW-5A	MW-5B	MW-7A	MW-7B
7/13/2015	18.29	18.15	11.62	11.54	11.94	11.91	7.30	6.55	21.55	21.34
10/27/2015	18.44	18.32	12.49	12.29	12.12	12.14	7.74	7.94	21.68	21.36
1/26/2016	14.32	14.14	7.03	6.94	8.39	8.29	3.51	1.81	18.00	17.67
4/4/2016	15.89	15.70	7.37	7.29	9.98	9.92	4.19	2.33	19.64	19.31
7/11/2016	17.93	17.78	12.11	12.12	11.83	11.79	6.57	5.88	21.31	21.09
10/9/2016	18.62	18.49	11.09	10.84	12.62	12.55	7.66	7.38	22.11	21.87
1/26/2017	15.33	15.20	7.89	7.68	9.89	9.81	4.31	2.07	19.34	19.03
4/10/2017	12.83	12.61	6.74	6.80	6.32	6.28	1.57	1.61	15.51	14.65
7/26/2017	17.45	17.31	9.87	9.89	11.12	11.12	6.09	5.47	20.65	20.07
10/16/2017	18.60	18.46	10.63	10.41	12.86	12.81	7.33	6.57	22.29	22.04
1/29/2018	13.70	13.51	6.82	6.71	8.75	8.64	3.21	1.68	17.86	17.52
4/6/2018	15.99	15.62	7.07	7.02	10.20	10.18	4.51	2.38	19.56	19.13
7/19/2018	17.80	17.56	10.32	10.29	11.33	11.26	6.48	5.89	21.03	20.78
10/15/2018	18.58	18.39	11.10	10.85	12.71	12.69	7.55	7.00	22.20	21.97
1/23/2019	15.64	15.48	7.80	7.49	10.44	10.41	4.76	2.28	19.70	19.30
4/4/2019	16.91	16.73	8.19	8.03	11.18	11.21	5.49	3.58	20.56	20.20
7/8/2019	18.13	17.94	10.01	9.80	11.71	11.68	6.82	5.84	21.38	21.10
10/28/2019	18.08	17.89	9.21	8.92	12.71	12.73	6.89	4.87	21.98	21.47
1/21/2020	14.92	14.58	7.05	6.83	10.01	9.94	3.72	1.69	19.26	18.95
4/13/2020	17.17	17.18	8.22	8.06	11.54	11.50	5.90	3.44	21.11	20.84
7/12/2020	17.23	16.89	9.23	9.01	10.72	10.68	5.81	4.72	20.55	20.24
10/15/2020	18.11	17.98	10.19	9.76	12.13	12.10	7.46	5.43	21.72	21.11
1/18/2021	13.86	13.25	7.22	6.95	8.74	8.65	3.06	1.55	18.18	17.46
4/11/2021	17.15	17.01	7.95	6.64	11.17	11.09	5.56	3.15	20.89	20.18
7/12/2021	18.23	18.11	10.01	9.72	11.88	11.85	6.95	5.98	21.50	21.27
10/26/2021	17.81	17.70	9.41	8.88	12.09	12.07	7.09	5.10	21.32	20.89
1/18/2022	14.22	14.10	7.13	6.85	8.80	8.75	3.13	1.72	18.24	17.87
4/6/2022	16.13	16.00	7.64	7.39	10.86	10.83	5.02	2.52	20.39	19.98
7/17/2022	16.29	16.14	8.80	8.55	9.68	9.62	4.93	4.54	19.51	19.18
10/9/2022	18.80	18.67	11.42	11.29	12.62	12.58	7.74	7.15	22.19	21.96
1/23/2023	15.72	15.55	7.35	7.08	10.40	10.29	4.63	2.08	19.84	19.49
4/4/2023	17.03	16.86	7.37	7.11	11.51	11.48	5.55	2.49	20.91	20.60
7/23/2023	18.50	18.32	10.32	10.15	12.04	12.02	7.17	6.38	21.63	21.38
10/31/2023	18.36	18.20	10.83	10.58	12.57	12.49	7.50	6.58	21.99	21.77

NOTES: NM = Not Measured

Cowlitz County Tennant Way Landfill
Groundwater Level Monitoring Data
Depth to Water Measurements
(feet below reference point)

Date Measured	MW-8A	MW-8B	MW-9A	MW-9B	MW-10A	MW-10B	MW-11A	MW-11B	MW-12A	MW-12B
7/13/2015	30.11	29.69	31.65	31.14	35.49	36.46	18.51	18.40	28.40	28.21
10/27/2015	29.82	29.40	31.31	30.87	35.31	36.24	18.62	18.60	28.15	27.96
1/26/2016	26.84	25.92	28.39	27.96	32.14	33.12	14.02	13.43	24.89	24.74
4/4/2016	28.65	28.22	30.25	29.76	33.88	34.87	16.69	15.11	26.71	26.53
7/11/2016	30.51	29.73	31.73	31.28	35.53	36.51	18.36	18.17	28.36	28.17
10/9/2016	30.41	29.97	31.92	31.52	35.91	36.85	19.09	19.14	28.56	28.36
1/26/2017	28.14	27.55	29.71	29.31	33.52	34.50	15.44	14.45	26.19	26.02
4/10/2017	23.70	23.21	25.29	24.89	29.41	30.33	12.60	11.17	21.99	21.74
7/26/2017	29.45	28.94	31.02	30.52	34.75	35.74	17.66	17.50	27.66	27.47
10/16/2017	30.84	30.39	32.43	31.98	36.32	37.28	19.33	19.24	29.15	28.85
1/29/2018	26.33	25.41	27.93	27.51	32.01	32.96	15.03	13.22	24.30	24.13
4/6/2018	28.35	27.90	29.96	29.57	33.79	34.78	16.64	15.17	26.43	26.24
7/19/2018	29.86	29.41	31.39	30.91	35.10	36.08	17.96	17.81	28.06	27.88
10/15/2018	30.66	30.25	32.18	31.75	36.10	37.08	19.20	19.13	28.86	28.65
1/23/2019	28.05	27.58	29.68	29.22	33.65	34.58	15.78	15.41	26.19	26.00
4/4/2019	29.26	28.77	30.80	30.32	34.65	35.63	17.62	17.08	27.35	27.16
7/8/2019	30.08	29.63	31.64	31.18	35.40	36.34	18.32	18.08	28.37	28.18
10/28/2019	30.52	30.09	32.12	31.69	36.08	37.01	19.10	19.08	28.73	28.55
1/21/2020	28.02	27.39	29.65	29.49	33.54	34.49	16.42	14.53	25.97	25.81
4/13/2020	29.97	29.51	31.54	31.10	35.27	36.25	18.10	17.72	28.10	27.91
7/12/2020	29.40	28.96	30.91	30.49	34.58	35.55	17.42	17.26	27.53	27.35
10/15/2020	30.15	29.51	31.65	31.16	35.54	36.45	18.62	18.66	28.43	28.25
1/18/2021	27.22	26.55	28.83	28.35	32.53	33.44	15.28	12.96	25.20	25.03
4/11/2021	29.81	29.35	31.38	30.89	35.05	36.00	17.84	17.25	27.96	27.76
7/12/2021	30.20	29.76	31.75	31.31	35.56	36.57	18.43	18.32	28.44	28.24
10/26/2021	29.03	28.08	30.71	30.30	34.92	35.82	18.34	18.43	27.35	27.17
1/18/2022	27.04	26.54	28.71	28.24	32.46	33.41	15.32	13.46	25.00	24.81
4/6/2022	29.40	28.96	31.05	30.58	34.71	35.70	17.41	17.09	27.30	27.13
7/17/2022	28.46	28.07	30.09	29.57	33.58	34.57	16.38	16.14	26.46	26.33
10/9/2022	30.71	30.29	32.34	31.83	36.15	37.08	19.12	18.81	28.99	28.79
1/23/2023	28.87	28.29	30.52	30.11	34.18	34.63	14.92	14.68	26.79	26.60
4/4/2023	29.55	29.03	31.16	30.73	35.01	35.97	17.95	17.06	27.56	27.40
7/23/2023	30.34	29.90	31.93	31.50	35.69	36.67	18.56	18.43	28.54	28.31
10/31/2023	30.32	29.93	31.90	31.47	35.84	36.79	18.97	18.98	28.45	28.18

NOTES: NM = Not Measured

Cowlitz County Tennant Way Landfill
Groundwater Level Monitoring Data
Depth to Water Measurements
(feet below reference point)

Date Measured	MW-13	MW-14A	MW-14B	MW-15	MW-16A	MW-16B	PZ-2	RIVER start	RIVER end
7/13/2015	30.03	27.91	27.34	26.44	17.82	17.63	31.31	26.75	26.26
10/27/2015	29.94	27.90	27.31	26.57	18.02	17.79	31.50	26.02	26.43
1/26/2016	26.40	24.10	23.58	22.61	13.85	13.63	27.33	23.07	22.96
4/4/2016	28.12	25.81	25.27	24.26	15.29	15.08	28.80	25.06	24.66
7/11/2016	29.89	27.61	27.07	26.20	17.37	17.15	30.83	26.91	26.61
10/9/2016	30.24	28.18	27.56	26.80	18.12	17.85	31.58	26.28	26.18
1/26/2017	27.56	25.24	24.70	23.66	14.60	14.83	28.28	23.41	23.82
4/10/2017	23.84	21.86	21.34	20.52	12.11	12.34	25.84	19.46	19.35
7/26/2017	29.22	27.04	26.48	25.68	16.84	16.62	30.32	26.02	26.10
10/16/2017	30.62	28.36	27.82	26.87	18.05	17.85	31.55	27.87	27.71
1/29/2018	25.78	23.60	23.06	22.07	13.28	13.06	26.75	21.92	20.90
4/6/2018	27.93	25.72	25.19	24.30	15.44	15.23	28.91	24.67	24.33
7/19/2018	29.60	27.37	26.79	26.02	17.19	16.98	30.62	26.59	26.37
10/15/2018	30.40	28.21	27.70	26.82	18.11	17.85	31.55	27.05	27.02
1/23/2019	27.66	25.47	24.93	23.97	15.21	14.99	28.65	24.10	23.40
4/4/2019	28.82	26.60	26.01	25.21	16.38	16.15	29.80	25.65	25.49
7/8/2019	29.92	27.72	27.27	26.38	17.52	17.26	30.96	27.03	26.88
10/28/2019	30.18	27.89	27.36	26.43	17.53	17.29	30.97	27.33	26.72
1/21/2020	27.23	24.86	24.35	23.28	14.43	14.20	27.88	24.18	23.27
4/13/2020	29.45	27.17	26.62	25.70	16.88	16.65	30.28	26.91	26.49
7/12/2020	29.01	26.81	26.28	25.50	16.59	16.36	29.97	25.92	26.08
10/15/2020	29.99	27.81	27.21	26.38	17.74	17.53	31.15	26.82	25.59
1/18/2021	26.32	23.86	23.31	22.13	13.44	13.20	26.87	23.80	23.76
4/11/2021	29.31	26.98	26.48	25.98	16.59	16.37	30.04	26.68	26.49
7/12/2021	29.97	27.78	27.34	26.47	17.66	17.43	31.04	27.14	26.41
10/26/2021	29.15	27.22	26.63	26.02	17.38	17.16	30.80	24.44	23.95
1/18/2022	26.39	24.08	23.52	22.50	13.75	13.54	27.17	23.12	22.48
4/6/2022	28.50	26.11	25.57	24.46	15.71	15.50	29.12	25.93	25.65
7/17/2022	27.99	25.78	25.28	24.48	15.65	15.43	29.02	24.92	24.86
10/9/2022	30.53	28.38	27.88	26.99	18.29	18.08	31.69	27.60	26.71
1/23/2023	27.95	25.59	25.05	24.00	15.72	15.55	28.62	25.34	24.59
4/4/2023	28.99	26.76	26.17	25.31	16.53	16.26	29.94	25.92	25.92
7/23/2023	30.11	27.94	27.41	26.70	17.90	17.67	31.28	27.15	26.73
10/31/2023	30.02	27.93	27.34	26.59	17.85	17.63	31.26	26.38	26.04

NOTES: NM = Not Measured

Cowlitz County Tennant Way Landfill
Groundwater Level Monitoring Data
Groundwater Level Elevations
(feet NAVD88)

Date Measured	Ref. Point Elev.	MW-1A 26.16	MW-1B 26.04	MW-2A 23.12	MW-2B 23.18	MW-3A 19.31	MW-3B 19.30	MW-5A 15.48	MW-5B 15.52	MW-7A 28.91	MW-7B 28.69
7/13/2015		7.87	7.89	11.50	11.64	7.37	7.39	8.18	8.97	7.36	7.35
10/27/2015		7.72	7.72	10.63	10.89	7.19	7.16	7.74	7.58	7.23	7.33
1/26/2016		11.84	11.90	16.09	16.24	10.92	11.01	11.97	13.71	10.91	11.02
4/4/2016		10.27	10.34	15.75	15.89	9.33	9.38	11.29	13.19	9.27	9.38
7/11/2016		8.23	8.26	11.01	11.06	7.48	7.51	8.91	9.64	7.60	7.60
10/9/2016		7.54	7.55	12.03	12.34	6.69	6.75	7.82	8.14	6.80	6.82
1/26/2017		10.83	10.84	15.23	15.50	9.42	9.49	11.17	13.45	9.57	9.66
4/10/2017		13.33	13.43	16.38	16.38	12.99	13.02	13.91	13.91	13.40	14.04
7/26/2017		8.71	8.73	13.25	13.29	8.19	8.18	9.39	10.05	8.26	8.62
10/16/2017		7.56	7.58	12.49	12.77	6.45	6.49	8.15	8.95	6.62	6.65
1/29/2018		12.46	12.53	16.30	16.47	10.56	10.66	12.27	13.84	11.05	11.17
4/6/2018		10.17	10.42	16.05	16.16	9.11	9.12	10.97	13.14	9.35	9.56
7/19/2018		8.36	8.48	12.80	12.89	7.98	8.04	9.00	9.63	7.88	7.91
10/15/2018		7.58	7.65	12.02	12.33	6.60	6.61	7.93	8.52	6.71	6.72
1/23/2019		10.52	10.56	15.32	15.69	8.87	8.89	10.72	13.24	9.21	9.39
4/4/2019		9.25	9.31	14.93	15.15	8.13	8.09	9.99	11.94	8.35	8.49
7/8/2019		8.03	8.10	13.11	13.38	7.60	7.62	8.66	9.68	7.53	7.59
10/28/2019		8.08	8.15	13.91	14.26	6.60	6.57	8.59	10.65	6.93	7.22
1/21/2020		11.24	11.46	16.07	16.35	9.30	9.36	11.76	13.83	9.65	9.74
4/13/2020		8.99	8.86	14.90	15.12	7.77	7.80	9.58	12.08	7.80	7.85
7/12/2020		8.93	9.15	13.89	14.17	8.59	8.62	9.67	10.80	8.36	8.45
10/15/2020		8.05	8.06	12.93	13.42	7.18	7.20	8.02	10.09	7.19	7.58
1/18/2021		12.30	12.79	15.90	16.23	10.57	10.65	12.42	13.97	10.73	11.23
4/11/2021		9.01	9.03	15.17	16.54	8.14	8.21	9.92	12.37	8.02	8.51
7/12/2021		7.93	7.93	13.11	13.46	7.43	7.45	8.53	9.54	7.41	7.42
10/26/2021		8.35	8.34	13.71	14.30	7.22	7.23	8.39	10.42	7.59	7.80
1/18/2022		11.94	11.94	15.99	16.33	10.51	10.55	12.35	13.80	10.67	10.82
4/6/2022		10.03	10.04	15.48	15.79	8.45	8.47	10.46	13.00	8.52	8.71
7/17/2022		9.87	9.90	14.32	14.63	9.63	9.68	10.55	10.98	9.40	9.51
10/9/2022		7.36	7.37	11.70	11.89	6.69	6.72	7.74	8.37	6.72	6.73
1/23/2023		10.44	10.49	15.77	16.10	8.91	9.01	10.85	13.44	9.07	9.20
4/4/2023		9.13	9.18	15.75	16.07	7.80	7.82	9.93	13.03	8.00	8.09
7/23/2023		7.66	7.72	12.80	13.03	7.27	7.28	8.31	9.14	7.28	7.31
10/31/2023		7.80	7.84	12.29	12.60	6.74	6.81	7.98	8.94	6.92	6.92

NOTES: NM = Not Measured

Cowlitz County Tennant Way Landfill
Groundwater Level Monitoring Data
Groundwater Level Elevations
(feet NAVD88)

Date Measured	Ref. Point Elev.	MW-8A 36.89	MW-8B 36.57	MW-9A 38.42	MW-9B 38.00	MW-10A 42.52	MW-10B 43.40	MW-11A 25.95	MW-11B 25.99	MW-12A 35.13	MW-12B 34.97
7/13/2015		6.78	6.88	6.77	6.86	7.03	6.94	7.44	7.59	6.73	6.76
10/27/2015		7.07	7.17	7.11	7.13	7.21	7.16	7.33	7.39	6.98	7.01
1/26/2016		10.05	10.65	10.03	10.04	10.38	10.28	11.93	12.56	10.24	10.23
4/4/2016		8.24	8.35	8.17	8.24	8.64	8.53	9.26	10.88	8.42	8.44
7/11/2016		6.38	6.84	6.69	6.72	6.99	6.89	7.59	7.82	6.77	6.80
10/9/2016		6.48	6.60	6.50	6.48	6.61	6.55	6.86	6.85	6.57	6.61
1/26/2017		8.75	9.02	8.71	8.69	9.00	8.90	10.51	11.54	8.94	8.95
4/10/2017		13.19	13.36	13.13	13.11	13.11	13.07	13.35	14.82	13.14	13.23
7/26/2017		7.44	7.63	7.40	7.48	7.77	7.66	8.29	8.49	7.47	7.50
10/16/2017		6.05	6.18	5.99	6.02	6.20	6.12	6.62	6.75	5.98	6.12
1/29/2018		10.56	11.16	10.49	10.49	10.51	10.44	10.92	12.77	10.83	10.84
4/6/2018		8.54	8.67	8.46	8.43	8.73	8.62	9.31	10.82	8.70	8.73
7/19/2018		7.03	7.16	7.03	7.09	7.42	7.32	7.99	8.18	7.07	7.09
10/15/2018		6.23	6.32	6.24	6.25	6.42	6.32	6.75	6.86	6.27	6.32
1/23/2019		8.84	8.99	8.74	8.78	8.87	8.82	10.17	10.58	8.94	8.97
4/4/2019		7.63	7.80	7.62	7.68	7.87	7.77	8.33	8.91	7.78	7.81
7/8/2019		6.81	6.94	6.78	6.82	7.12	7.06	7.63	7.91	6.76	6.79
10/28/2019		6.37	6.48	6.30	6.31	6.44	6.39	6.85	6.91	6.40	6.42
1/21/2020		8.87	9.18	8.77	8.51	8.98	8.91	9.53	11.46	9.16	9.16
4/13/2020		6.92	7.06	6.88	6.90	7.25	7.15	7.85	8.27	7.03	7.06
7/12/2020		7.49	7.61	7.51	7.51	7.94	7.85	8.53	8.73	7.60	7.62
10/15/2020		6.74	7.06	6.77	6.84	6.98	6.95	7.33	7.33	6.70	6.72
1/18/2021		9.67	10.02	9.59	9.65	9.99	9.96	10.67	13.03	9.93	9.94
4/11/2021		7.08	7.22	7.04	7.11	7.47	7.40	8.11	8.74	7.17	7.21
7/12/2021		6.69	6.81	6.67	6.69	6.96	6.83	7.52	7.67	6.69	6.73
10/26/2021		7.86	8.49	7.71	7.70	7.60	7.58	7.61	7.56	7.78	7.80
1/18/2022		9.85	10.03	9.71	9.76	10.06	9.99	10.63	12.53	10.13	10.16
4/6/2022		7.49	7.61	7.37	7.42	7.81	7.70	8.54	8.90	7.83	7.84
7/17/2022		8.43	8.50	8.33	8.43	8.94	8.83	9.57	9.85	8.67	8.64
10/9/2022		6.18	6.28	6.08	6.17	6.37	6.32	6.83	7.18	6.14	6.18
1/23/2023		8.02	8.28	7.90	7.89	8.34	8.77	11.03	11.31	8.34	8.37
4/4/2023		7.34	7.54	7.26	7.27	7.51	7.43	8.00	8.93	7.57	7.57
7/23/2023		6.55	6.67	6.49	6.50	6.83	6.73	7.39	7.56	6.59	6.66
10/31/2023		6.57	6.64	6.52	6.53	6.68	6.61	6.98	7.01	6.68	6.79

NOTES: NM = Not Measured

Cowlitz County Tennant Way Landfill
Groundwater Level Monitoring Data
Groundwater Level Elevations
(feet NAVD88)

Date Measured	Ref. Point Elev.	MW-13 37.60	MW-14A 35.58	MW-14B 35.04	MW-15 34.28	MW-16A 25.86	MW-16B 25.70	PZ-2 39.70	RIVER 31.57	RIVER 31.57
7/13/2015		7.57	7.67	7.70	7.84	8.04	8.07	8.39	4.82	5.31
10/27/2015		7.66	7.68	7.73	7.71	7.84	7.91	8.20	5.55	5.14
1/26/2016		11.20	11.48	11.46	11.67	12.01	12.07	12.37	8.50	8.61
4/4/2016		9.48	9.77	9.77	10.02	10.57	10.62	10.90	6.51	6.91
7/11/2016		7.71	7.97	7.97	8.08	8.49	8.55	8.87	4.66	4.96
10/9/2016		7.36	7.40	7.48	7.48	7.74	7.85	8.12	5.29	5.39
1/26/2017		10.04	10.34	10.34	10.62	11.26	10.87	11.42	8.16	7.75
4/10/2017		13.76	13.72	13.70	13.76	13.75	13.36	13.86	12.11	12.22
7/26/2017		8.38	8.54	8.56	8.60	9.02	9.08	9.38	5.55	5.47
10/16/2017		6.98	7.22	7.22	7.41	7.81	7.85	8.15	3.70	3.86
1/29/2018		11.82	11.98	11.98	12.21	12.58	12.64	12.95	9.65	10.67
4/6/2018		9.67	9.86	9.85	9.98	10.42	10.47	10.79	6.90	7.24
7/19/2018		8.00	8.21	8.25	8.26	8.67	8.72	9.08	4.98	5.20
10/15/2018		7.20	7.37	7.34	7.46	7.75	7.85	8.15	4.52	4.55
1/23/2019		9.94	10.11	10.11	10.31	10.65	10.71	11.05	7.47	8.17
4/4/2019		8.78	8.98	9.03	9.07	9.48	9.55	9.90	5.92	6.08
7/8/2019		7.68	7.86	7.77	7.90	8.34	8.44	8.74	4.54	4.69
10/28/2019		7.42	7.69	7.68	7.85	8.33	8.41	8.73	4.24	4.85
1/21/2020		10.37	10.72	10.69	11.00	11.43	11.50	11.82	7.39	8.30
4/13/2020		8.15	8.41	8.42	8.58	8.98	9.05	9.42	4.66	5.08
7/12/2020		8.59	8.77	8.76	8.78	9.27	9.34	9.73	5.65	5.49
10/15/2020		7.61	7.77	7.83	7.90	8.12	8.17	8.55	4.75	5.98
1/18/2021		11.28	11.72	11.73	12.15	12.42	12.50	12.83	7.77	7.81
4/11/2021		8.29	8.60	8.56	8.30	9.27	9.33	9.66	4.89	5.08
7/12/2021		7.63	7.80	7.70	7.81	8.20	8.27	8.66	4.43	5.16
10/26/2021		8.45	8.36	8.41	8.26	8.48	8.54	8.90	7.13	7.62
1/18/2022		11.21	11.50	11.52	11.78	12.11	12.16	12.53	8.45	9.09
4/6/2022		9.10	9.47	9.47	9.82	10.15	10.20	10.58	5.64	5.92
7/17/2022		9.61	9.80	9.76	9.80	10.21	10.27	10.68	6.65	6.71
10/9/2022		7.07	7.20	7.16	7.29	7.57	7.62	8.01	3.97	4.86
1/23/2023		9.65	9.99	9.99	10.28	10.14	10.15	11.08	6.23	6.98
4/4/2023		8.61	8.82	8.87	8.97	9.33	9.44	9.76	5.65	5.65
7/23/2023		7.49	7.64	7.63	7.58	7.96	8.03	8.42	4.42	4.84
10/31/2023		7.58	7.65	7.70	7.69	8.01	8.07	8.44	5.19	5.53

NOTES: NM = Not Measured

APPENDIX B

**2023 QUARTER TRILINEAR DIAGRAMS, TREND PLOTS,
GROUNDWATER QUALITY DATA, AND STATISTICAL
CALCULATIONS**

Cowlitz County Tennant Way Landfill
Cation-Anion Balance Calculations
January 2023

Well	Ion	Equivalent Weight	Concentration (mg/L)	Equivalents per million Cations	Equivalents per million Anions	Difference (meq/L)	Difference (%)
MW-3B	Calcium	20.04	15.5	0.77			
	Magnesium	12.16	6.4	0.53			
	Potassium	39.10	0.6	0.02			
	Sodium	22.99	6.9	0.30			
	Iron	55.85	0.1	0.00			
	Bicarbonate	61.02	98.5		1.61		
	Chloride	35.45	5.5		0.16		
	Sulfate	48.03	1.4		0.03		
Total				1.62	1.80	-0.18	-5.24
MW-5B	Calcium	20.04	46.5	2.32			
	Magnesium	12.16	22.3	1.83			
	Potassium	39.10	0.9	0.02			
	Sodium	22.99	18.4	0.80			
	Iron	55.85	0.0	0.00			
	Bicarbonate	61.02	279.2		4.58		
	Chloride	35.45	2.6		0.07		
	Sulfate	48.03	15.0		0.31		
Total				4.98	4.96	0.02	0.17
MW-7B	Calcium	20.04	13.3	0.66			
	Magnesium	12.16	3.7	0.31			
	Potassium	39.10	1.8	0.05			
	Sodium	22.99	3.0	0.13			
	Iron	55.85	0.0	0.00			
	Bicarbonate	61.02	41.5		0.68		
	Chloride	35.45	1.8		0.05		
	Sulfate	48.03	2.7		0.06		
Total				1.15	0.79	0.36	18.73
MW-8B	Calcium	20.04	21.1	1.05			
	Magnesium	12.16	5.3	0.43			
	Potassium	39.10	1.2	0.03			
	Sodium	22.99	3.5	0.15			
	Iron	55.85	0.0	0.00			
	Bicarbonate	61.02	31.9		0.52		
	Chloride	35.45	1.4		0.04		
	Sulfate	48.03	6.4		0.13		
Total				1.67	0.70	0.97	41.12

Cowlitz County Tennant Way Landfill
Cation-Anion Balance Calculations
January 2023

Well	Ion	Equivalent Weight	Concentration (mg/L)	Equivalents per million Cations	Equivalents per million Anions	Difference (meq/L)	Difference (%)
MW-9B	Calcium	20.04	36.1	1.80			
	Magnesium	12.16	10.6	0.87			
	Potassium	39.10	3.2	0.08			
	Sodium	22.99	11.3	0.49			
	Iron	55.85	0.8	0.01			
	Bicarbonate	61.02	204.8		3.36		
	Chloride	35.45	2.4		0.07		
	Sulfate	48.03	0.40		0.01		
	Total			3.26	3.43	-0.17	-2.56
MW-10B	Calcium	20.04	33.4	1.67			
	Magnesium	12.16	10.6	0.87			
	Potassium	39.10	2.0	0.05			
	Sodium	22.99	7.2	0.31			
	Iron	55.85	0.1	0.00			
	Bicarbonate	61.02	151.2		2.48		
	Chloride	35.45	2.2		0.06		
	Sulfate	48.03	5.3		0.11		
	Total			2.91	2.65	0.26	4.62
MW-11B	Calcium	20.04	17.2	0.86			
	Magnesium	12.16	5.8	0.48			
	Potassium	39.10	2.0	0.05			
	Sodium	22.99	4.9	0.21			
	Iron	55.85	0.0	0.00			
	Bicarbonate	61.02	74.7		1.22		
	Chloride	35.45	4.0		0.11		
	Sulfate	48.03	9.8		0.20		
	Total			1.60	1.54	0.06	1.85
MW-12B	Calcium	20.04	76.9	3.84			
	Magnesium	12.16	26.3	2.16			
	Potassium	39.10	4.5	0.12			
	Sodium	22.99	28.1	1.22			
	Iron	55.85	1.2	0.02			
	Bicarbonate	61.02	427.9		7.01		
	Chloride	35.45	16.9		0.48		
	Sulfate	48.03	0.40		0.01		
	Total			7.36	7.50	-0.14	-0.93

Cowlitz County Tennant Way Landfill
Cation-Anion Balance Calculations
January 2023

Well	Ion	Equivalent Weight	Concentration (mg/L)	Equivalents per million Cations	Equivalents per million Anions	Difference (meq/L)	Difference (%)
MW-13	Calcium	20.04	49.0	2.45			
	Magnesium	12.16	16.9	1.39			
	Potassium	39.10	2.5	0.06			
	Sodium	22.99	12.2	0.53			
	Iron	55.85	1.3	0.02			
	Bicarbonate	61.02	274.3		4.50		
	Chloride	35.45	2.4		0.07		
	Sulfate	48.03	0.4		0.01		
	Total			4.45	4.57	-0.12	-1.29
MW-14B	Calcium	20.04	37.4	1.87			
	Magnesium	12.16	12.1	1.00			
	Potassium	39.10	1.5	0.04			
	Sodium	22.99	14.6	0.64			
	Iron	55.85	4.2	0.07			
	Bicarbonate	61.02	217.0		3.56		
	Chloride	35.45	5.1		0.14		
	Sulfate	48.03	0.11		0.00		
	Total			3.61	3.70	-0.09	-1.29
MW-15	Calcium	20.04	56.5	2.82			
	Magnesium	12.16	11.0	0.90			
	Potassium	39.10	2.9	0.07			
	Sodium	22.99	8.4	0.37			
	Iron	55.85	4.3	0.08			
	Bicarbonate	61.02	243.8		4.00		
	Chloride	35.45	2.9		0.08		
	Sulfate	48.03	9.7		0.20		
	Total			4.24	4.28	-0.04	-0.48
MW-16B	Calcium	20.04	77.4	3.86			
	Magnesium	12.16	35.8	2.94			
	Potassium	39.10	3.6	0.09			
	Sodium	22.99	21.5	0.94			
	Iron	55.85	8.4	0.15			
	Bicarbonate	61.02	480.4		7.87		
	Chloride	35.45	7.2		0.20		
	Sulfate	48.03	3.3		0.07		
	Total			7.98	8.14	-0.16	-0.99

mg/L = milligrams per litre (parts per million)

meq/L = milliequivalents per litre

Cowlitz County Tennant Way Landfill
Cation-Anion Balance Calculations
April 2023

Well	Ion	Equivalent Weight	Concentration (mg/L)	Equivalents per million Cations	Equivalents per million Anions	Difference (meq/L)	Difference (%)
MW-3B	Calcium	20.04	13.3	0.66			
	Magnesium	12.16	6.2	0.51			
	Potassium	39.10	0.5	0.01			
	Sodium	22.99	6.3	0.27			
	Iron	55.85	0.2	0.00			
	Bicarbonate	61.02	79.1		1.30		
	Chloride	35.45	5.4		0.15		
	Sulfate	48.03	2.6		0.05		
Total				1.46	1.50	-0.04	-1.27
MW-5B	Calcium	20.04	48.2	2.41			
	Magnesium	12.16	24.0	1.97			
	Potassium	39.10	0.8	0.02			
	Sodium	22.99	19.9	0.87			
	Iron	55.85	0.0	0.00			
	Bicarbonate	61.02	299.9		4.92		
	Chloride	35.45	2.6		0.07		
	Sulfate	48.03	16.2		0.34		
Total				5.27	5.33	-0.06	-0.58
MW-7B	Calcium	20.04	14.2	0.71			
	Magnesium	12.16	4.2	0.34			
	Potassium	39.10	2.7	0.07			
	Sodium	22.99	3.3	0.14			
	Iron	55.85	0.0	0.00			
	Bicarbonate	61.02	95.1		1.56		
	Chloride	35.45	1.4		0.04		
	Sulfate	48.03	17.3		0.36		
Total				1.27	1.96	-0.69	-21.43
MW-8B	Calcium	20.04	18.9	0.94			
	Magnesium	12.16	4.9	0.40			
	Potassium	39.10	1.1	0.03			
	Sodium	22.99	2.8	0.12			
	Iron	55.85	0.0	0.00			
	Bicarbonate	61.02	38.4		0.63		
	Chloride	35.45	1.7		0.05		
	Sulfate	48.03	6.2		0.13		
Total				1.50	0.80	0.69	30.02

Cowlitz County Tennant Way Landfill
Cation-Anion Balance Calculations
April 2023

Well	Ion	Equivalent Weight	Concentration (mg/L)	Equivalents per million Cations	Equivalents per million Anions	Difference (meq/L)	Difference (%)
MW-9B	Calcium	20.04	32.8	1.64			
	Magnesium	12.16	9.6	0.79			
	Potassium	39.10	3.2	0.08			
	Sodium	22.99	10.5	0.46			
	Iron	55.85	0.4	0.01			
	Bicarbonate	61.02	181.7		2.98		
	Chloride	35.45	2.3		0.06		
	Sulfate	48.03	0.71		0.01		
	Total			2.97	3.06	-0.08	-1.39
MW-10B	Calcium	20.04	29.8	1.49			
	Magnesium	12.16	7.5	0.61			
	Potassium	39.10	2.0	0.05			
	Sodium	22.99	5.9	0.25			
	Iron	55.85	8.8	0.16			
	Bicarbonate	61.02	146.3		2.40		
	Chloride	35.45	1.2		0.03		
	Sulfate	48.03	15.4		0.32		
	Total			2.56	2.75	-0.19	-3.52
MW-11B	Calcium	20.04	15.3	0.76			
	Magnesium	12.16	5.2	0.43			
	Potassium	39.10	1.8	0.05			
	Sodium	22.99	4.4	0.19			
	Iron	55.85	0.0	0.00			
	Bicarbonate	61.02	62.9		1.03		
	Chloride	35.45	2.5		0.07		
	Sulfate	48.03	7.6		0.16		
	Total			1.43	1.26	0.17	6.41
MW-12B	Calcium	20.04	74.8	3.73			
	Magnesium	12.16	25.5	2.10			
	Potassium	39.10	4.4	0.11			
	Sodium	22.99	26.9	1.17			
	Iron	55.85	0.0	0.00			
	Bicarbonate	61.02	420.6		6.89		
	Chloride	35.45	15.7		0.44		
	Sulfate	48.03	0.15		0.00		
	Total			7.11	7.34	-0.23	-1.58

Cowlitz County Tennant Way Landfill
Cation-Anion Balance Calculations
April 2023

Well	Ion	Equivalent Weight	Concentration (mg/L)	Equivalents per million Cations	Equivalents per million Anions	Difference (meq/L)	Difference (%)
MW-13	Calcium	20.04	49.6	2.48			
	Magnesium	12.16	16.3	1.34			
	Potassium	39.10	2.6	0.07			
	Sodium	22.99	13.2	0.57			
	Iron	55.85	0.8	0.01			
	Bicarbonate	61.02	278.0		4.56		
	Chloride	35.45	2.2		0.06		
	Sulfate	48.03	0.2		0.00		
	Total			4.47	4.62	-0.15	-1.65
MW-14B	Calcium	20.04	49.3	2.46			
	Magnesium	12.16	16.5	1.36			
	Potassium	39.10	1.7	0.04			
	Sodium	22.99	16.6	0.72			
	Iron	55.85	3.4	0.06			
	Bicarbonate	61.02	284.1		4.66		
	Chloride	35.45	6.0		0.17		
	Sulfate	48.03	0.14		0.00		
	Total			4.64	4.83	-0.18	-1.94
MW-15	Calcium	20.04	56.5	2.82			
	Magnesium	12.16	11.0	0.90			
	Potassium	39.10	3.2	0.08			
	Sodium	22.99	8.9	0.39			
	Iron	55.85	2.9	0.05			
	Bicarbonate	61.02	243.8		4.00		
	Chloride	35.45	2.8		0.08		
	Sulfate	48.03	7.5		0.16		
	Total			4.24	4.23	0.01	0.15
MW-16B	Calcium	20.04	77.0	3.84			
	Magnesium	12.16	36.1	2.97			
	Potassium	39.10	3.6	0.09			
	Sodium	22.99	21.6	0.94			
	Iron	55.85	4.5	0.08			
	Bicarbonate	61.02	484.0		7.93		
	Chloride	35.45	7.2		0.20		
	Sulfate	48.03	2.8		0.06		
	Total			7.92	8.19	-0.27	-1.67

mg/L = milligrams per litre (parts per million)

meq/L = milliequivalents per litre

Cowlitz County Tennant Way Landfill
Cation-Anion Balance Calculations
July 2023

Well	Ion	Equivalent Weight	Concentration (mg/L)	Equivalents per million Cations	Equivalents per million Anions	Difference (meq/L)	Difference (%)
MW-3B	Calcium	20.04	8.7	0.43			
	Magnesium	12.16	4.4	0.37			
	Potassium	39.10	0.5	0.01			
	Sodium	22.99	5.0	0.22			
	Iron	55.85	2.7	0.05			
	Bicarbonate	61.02	56.9		0.93		
	Chloride	35.45	3.5		0.10		
	Sulfate	48.03	1.8		0.04		
	Total			1.07	1.07	0.01	0.24
MW-5B	Calcium	20.04	46.3	2.31			
	Magnesium	12.16	23.2	1.91			
	Potassium	39.10	0.9	0.02			
	Sodium	22.99	19.7	0.86			
	Iron	55.85	0.0	0.00			
	Bicarbonate	61.02	302.4		4.96		
	Chloride	35.45	2.6		0.07		
	Sulfate	48.03	14.1		0.29		
	Total			5.10	5.32	-0.22	-2.14
MW-7B	Calcium	20.04	48.3	2.41			
	Magnesium	12.16	14.8	1.22			
	Potassium	39.10	7.1	0.18			
	Sodium	22.99	11.4	0.50			
	Iron	55.85	0.0	0.00			
	Bicarbonate	61.02	246.3		4.04		
	Chloride	35.45	2.5		0.07		
	Sulfate	48.03	2.4		0.05		
	Total			4.30	4.16	0.15	1.77
MW-8B	Calcium	20.04	33.5	1.67			
	Magnesium	12.16	9.0	0.74			
	Potassium	39.10	1.6	0.04			
	Sodium	22.99	4.9	0.21			
	Iron	55.85	0.0	0.00			
	Bicarbonate	61.02	128.0		2.10		
	Chloride	35.45	1.8		0.05		
	Sulfate	48.03	4.8		0.10		
	Total			2.67	2.25	0.42	8.55

Cowlitz County Tennant Way Landfill
Cation-Anion Balance Calculations
July 2023

Well	Ion	Equivalent Weight	Concentration (mg/L)	Equivalents per million Cations	Equivalents per million Anions	Difference (meq/L)	Difference (%)
MW-9B	Calcium	20.04	36.0	1.80			
	Magnesium	12.16	10.4	0.86			
	Potassium	39.10	3.3	0.08			
	Sodium	22.99	11.3	0.49			
	Iron	55.85	0.2	0.00			
	Bicarbonate	61.02	206.0		3.38		
	Chloride	35.45	2.6		0.07		
	Sulfate	48.03	0.40		0.01		
Total				3.23	3.46	-0.23	-3.40
MW-10B	Calcium	20.04	29.6	1.48			
	Magnesium	12.16	8.6	0.71			
	Potassium	39.10	2.1	0.05			
	Sodium	22.99	6.7	0.29			
	Iron	55.85	4.2	0.07			
	Bicarbonate	61.02	153.6		2.52		
	Chloride	35.45	2.1		0.06		
	Sulfate	48.03	11.5		0.24		
Total				2.61	2.82	-0.21	-3.91
MW-11B	Calcium	20.04	14.7	0.73			
	Magnesium	12.16	4.9	0.40			
	Potassium	39.10	1.9	0.05			
	Sodium	22.99	4.9	0.21			
	Iron	55.85	0.4	0.01			
	Bicarbonate	61.02	74.4		1.22		
	Chloride	35.45	2.6		0.07		
	Sulfate	48.03	2.8		0.06		
Total				1.41	1.35	0.06	2.09
MW-12B	Calcium	20.04	68.3	3.41			
	Magnesium	12.16	23.6	1.94			
	Potassium	39.10	4.3	0.11			
	Sodium	22.99	26.4	1.15			
	Iron	55.85	0.0	0.00			
	Bicarbonate	61.02	393.8		6.45		
	Chloride	35.45	15.2		0.43		
	Sulfate	48.03	0.40		0.01		
Total				6.61	6.89	-0.28	-2.10

Cowlitz County Tennant Way Landfill
Cation-Anion Balance Calculations
July 2023

Well	Ion	Equivalent Weight	Concentration (mg/L)	Equivalents per million Cations	Equivalents per million Anions	Difference (meq/L)	Difference (%)
MW-13	Calcium	20.04	42.1	2.10			
	Magnesium	12.16	13.9	1.14			
	Potassium	39.10	2.6	0.07			
	Sodium	22.99	12.8	0.56			
	Iron	55.85	1.6	0.03			
	Bicarbonate	61.02	246.3		4.04		
	Chloride	35.45	2.1		0.06		
	Sulfate	48.03	0.4		0.01		
	Total			3.89	4.10	-0.21	-2.62
MW-14B	Calcium	20.04	43.5	2.17			
	Magnesium	12.16	15.2	1.25			
	Potassium	39.10	1.9	0.05			
	Sodium	22.99	17.7	0.77			
	Iron	55.85	3.8	0.07			
	Bicarbonate	61.02	268.2		4.40		
	Chloride	35.45	5.5		0.15		
	Sulfate	48.03	0.40		0.01		
	Total			4.31	4.56	-0.25	-2.84
MW-15	Calcium	20.04	56.3	2.81			
	Magnesium	12.16	13.1	1.08			
	Potassium	39.10	2.9	0.07			
	Sodium	22.99	10.4	0.45			
	Iron	55.85	4.2	0.08			
	Bicarbonate	61.02	273.1		4.48		
	Chloride	35.45	4.0		0.11		
	Sulfate	48.03	4.5		0.09		
	Total			4.49	4.68	-0.19	-2.12
MW-16B	Calcium	20.04	76.6	3.82			
	Magnesium	12.16	36.2	2.98			
	Potassium	39.10	3.6	0.09			
	Sodium	22.99	21.7	0.94			
	Iron	55.85	2.9	0.05			
	Bicarbonate	61.02	484.0		7.93		
	Chloride	35.45	7.2		0.20		
	Sulfate	48.03	2.7		0.06		
	Total			7.89	8.19	-0.30	-1.88

mg/L = milligrams per litre (parts per million)

meq/L = milliequivalents per litre

Cowlitz County Tennant Way Landfill
Cation-Anion Balance Calculations
October 2023

Well	Ion	Equivalent Weight	Concentration (mg/L)	Equivalents per million Cations	Equivalents per million Anions	Difference (meq/L)	Difference (%)
MW-3B	Calcium	20.04	9.6	0.48			
	Magnesium	12.16	4.8	0.40			
	Potassium	39.10	0.5	0.01			
	Sodium	22.99	5.5	0.24			
	Iron	55.85	1.1	0.02			
	Bicarbonate	61.02	64.1		1.05		
	Chloride	35.45	3.6		0.10		
	Sulfate	48.03	0.8		0.02		
Total				1.15	1.17	-0.02	-0.97
MW-5B	Calcium	20.04	59.7	2.98			
	Magnesium	12.16	32.2	2.65			
	Potassium	39.10	1.1	0.03			
	Sodium	22.99	23.2	1.01			
	Iron	55.85	0.0	0.00			
	Bicarbonate	61.02	378.0		6.19		
	Chloride	35.45	3.2		0.09		
	Sulfate	48.03	15.0		0.31		
Total				6.66	6.60	0.07	0.51
MW-7B	Calcium	20.04	32.0	1.60			
	Magnesium	12.16	10.3	0.85			
	Potassium	39.10	4.6	0.12			
	Sodium	22.99	6.8	0.29			
	Iron	55.85	0.0	0.00			
	Bicarbonate	61.02	90.3		1.48		
	Chloride	35.45	2.0		0.06		
	Sulfate	48.03	9.5		0.20		
Total				2.86	1.74	1.12	24.44
MW-8B	Calcium	20.04	48.1	2.40			
	Magnesium	12.16	14.2	1.17			
	Potassium	39.10	2.0	0.05			
	Sodium	22.99	6.8	0.30			
	Iron	55.85	0.0	0.00			
	Bicarbonate	61.02	204.8		3.36		
	Chloride	35.45	2.0		0.06		
	Sulfate	48.03	2.6		0.05		
Total				3.92	3.47	0.45	6.07

Cowlitz County Tennant Way Landfill
Cation-Anion Balance Calculations
October 2023

Well	Ion	Equivalent Weight	Concentration (mg/L)	Equivalents per million Cations	Equivalents per million Anions	Difference (meq/L)	Difference (%)
MW-9B	Calcium	20.04	30.3	1.51			
	Magnesium	12.16	9.6	0.79			
	Potassium	39.10	3.3	0.08			
	Sodium	22.99	10.2	0.44			
	Iron	55.85	0.5	0.01			
	Bicarbonate	61.02	169.5		2.78		
	Chloride	35.45	2.4		0.07		
	Sulfate	48.03	0.40		0.01		
	Total			2.83	2.85	-0.02	-0.32
MW-10B	Calcium	20.04	28.9	1.44			
	Magnesium	12.16	9.0	0.74			
	Potassium	39.10	2.1	0.05			
	Sodium	22.99	6.8	0.29			
	Iron	55.85	0.0	0.00			
	Bicarbonate	61.02	147.5		2.42		
	Chloride	35.45	2.9		0.08		
	Sulfate	48.03	7.0		0.15		
	Total			2.53	2.64	-0.12	-2.30
MW-11B	Calcium	20.04	18.0	0.90			
	Magnesium	12.16	6.0	0.49			
	Potassium	39.10	2.2	0.06			
	Sodium	22.99	5.6	0.24			
	Iron	55.85	1.0	0.02			
	Bicarbonate	61.02	91.7		1.50		
	Chloride	35.45	2.8		0.08		
	Sulfate	48.03	1.3		0.03		
	Total			1.71	1.61	0.10	3.01
MW-12B	Calcium	20.04	68.5	3.42			
	Magnesium	12.16	26.8	2.20			
	Potassium	39.10	4.6	0.12			
	Sodium	22.99	27.4	1.19			
	Iron	55.85	0.0	0.00			
	Bicarbonate	61.02	407.2		6.67		
	Chloride	35.45	13.9		0.39		
	Sulfate	48.03	0.12		0.00		
	Total			6.93	7.07	-0.14	-0.97

Cowlitz County Tennant Way Landfill
Cation-Anion Balance Calculations
October 2023

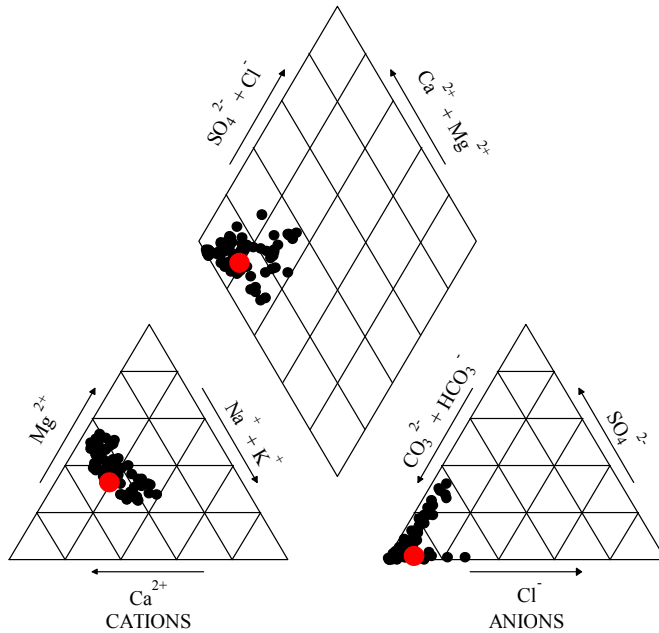
Well	Ion	Equivalent Weight	Concentration (mg/L)	Equivalents per million Cations	Equivalents per million Anions	Difference (meq/L)	Difference (%)
MW-13	Calcium	20.04	43.1	2.15			
	Magnesium	12.16	16.4	1.35			
	Potassium	39.10	2.9	0.07			
	Sodium	22.99	14.9	0.65			
	Iron	55.85	1.2	0.02			
	Bicarbonate	61.02	258.5		4.24		
	Chloride	35.45	2.2		0.06		
	Sulfate	48.03	0.4		0.01		
	Total			4.24	4.31	-0.06	-0.74
MW-14B	Calcium	20.04	34.7	1.73			
	Magnesium	12.16	12.6	1.04			
	Potassium	39.10	1.5	0.04			
	Sodium	22.99	14.4	0.63			
	Iron	55.85	4.5	0.08			
	Bicarbonate	61.02	184.1		3.02		
	Chloride	35.45	17.5		0.49		
	Sulfate	48.03	0.40		0.01		
	Total			3.51	3.52	-0.01	-0.09
MW-15	Calcium	20.04	71.9	3.59			
	Magnesium	12.16	15.1	1.24			
	Potassium	39.10	3.9	0.10			
	Sodium	22.99	11.0	0.48			
	Iron	55.85	0.2	0.00			
	Bicarbonate	61.02	326.7		5.35		
	Chloride	35.45	6.1		0.17		
	Sulfate	48.03	2.8		0.06		
	Total			5.41	5.59	-0.18	-1.59
MW-16B	Calcium	20.04	76.0	3.79			
	Magnesium	12.16	38.7	3.18			
	Potassium	39.10	3.8	0.10			
	Sodium	22.99	22.3	0.97			
	Iron	55.85	0.0	0.00			
	Bicarbonate	61.02	485.2		7.95		
	Chloride	35.45	6.8		0.19		
	Sulfate	48.03	1.9		0.04		
	Total			8.04	8.18	-0.14	-0.88

mg/L = milligrams per litre (parts per million)

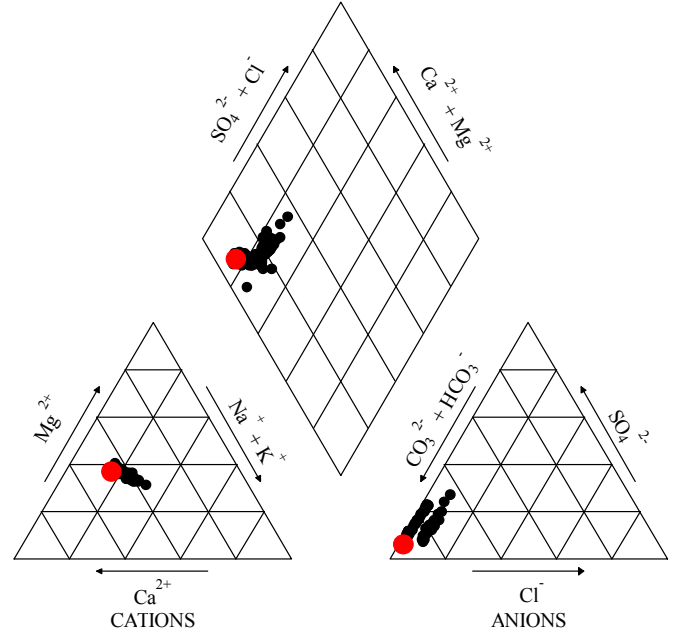
meq/L = milliequivalents per litre

Cowlitz County Tennant Way Landfill
Piper Trilinear Diagrams
January 2023 Data Point is Larger

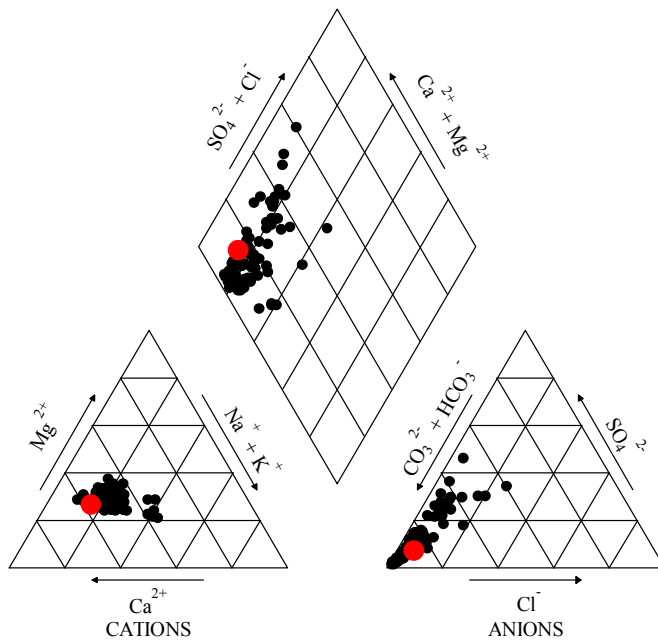
MW-3B



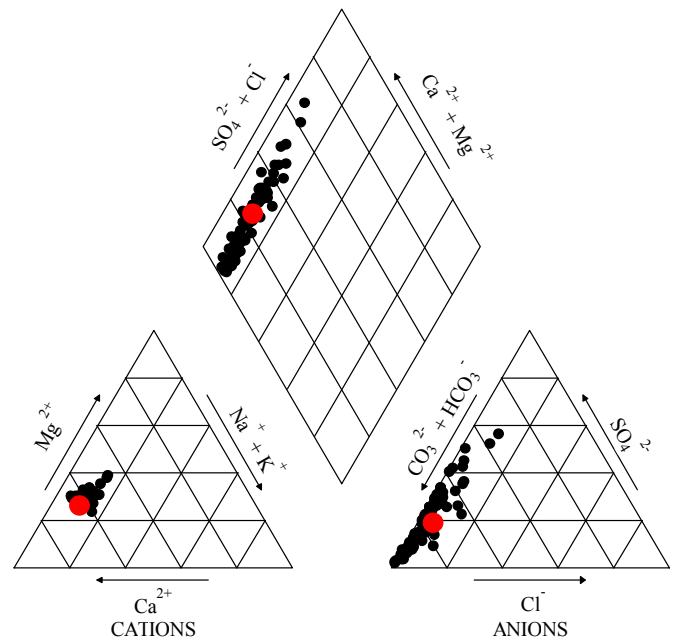
MW-5B



MW-7B

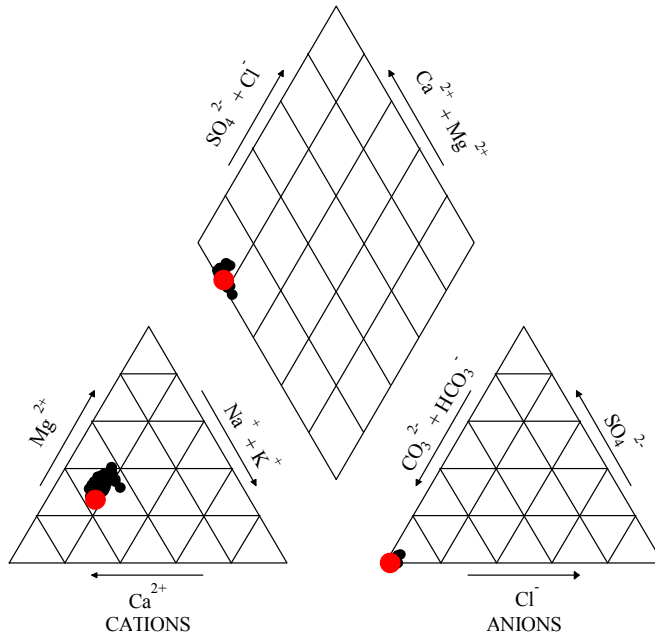


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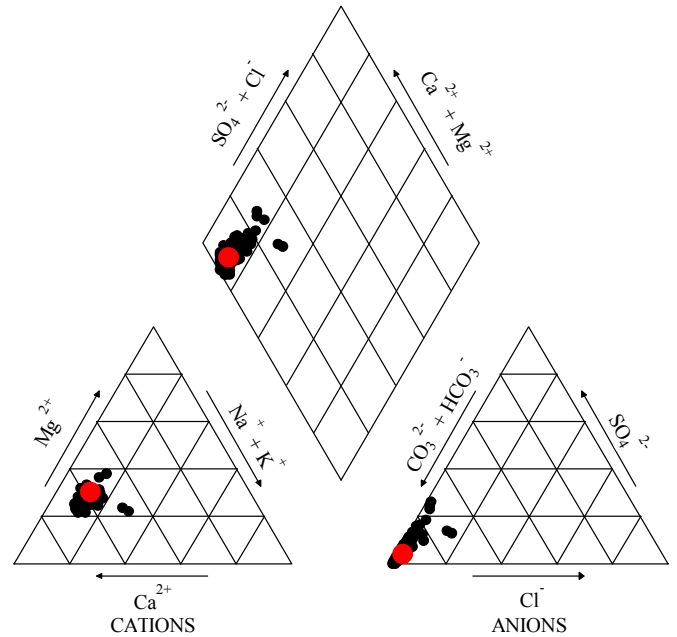


Cowlitz County Tennant Way Landfill
Piper Trilinear Diagrams
January 2023 Data Point is Larger

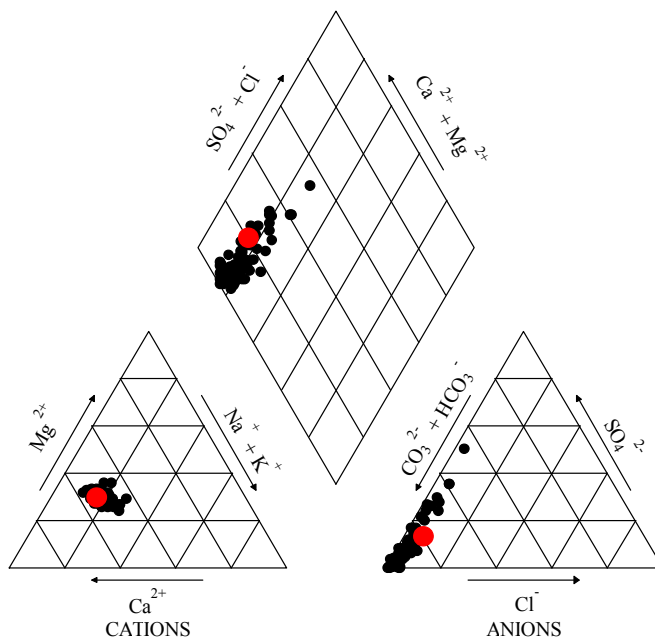
MW-9B



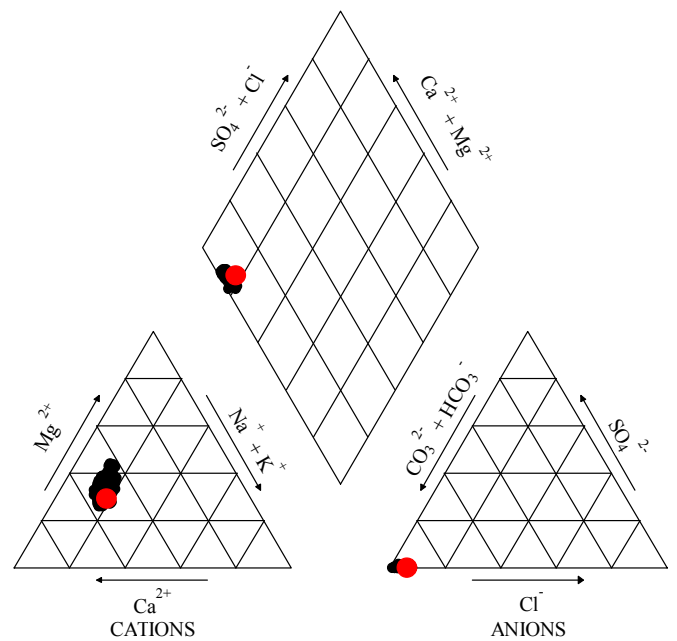
MW-10B



MW-11B

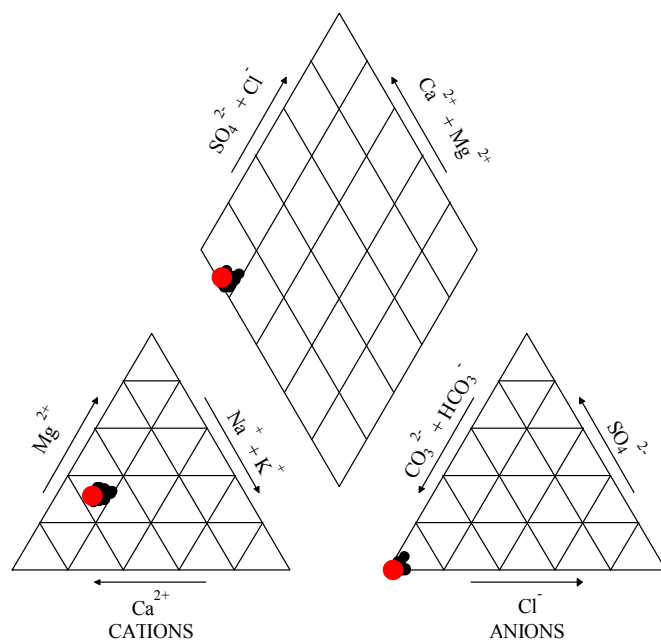


MW-12B

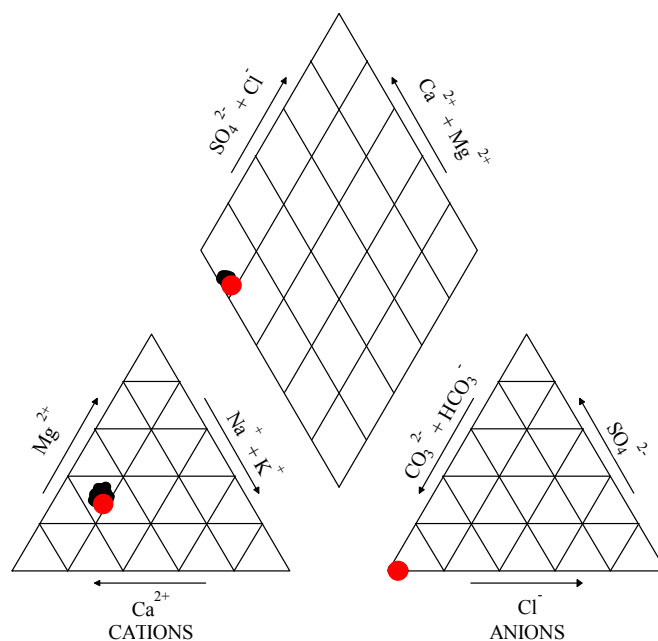


Cowlitz County Tennant Way Landfill
Piper Trilinear Diagrams
January 2023 Data Point is Larger

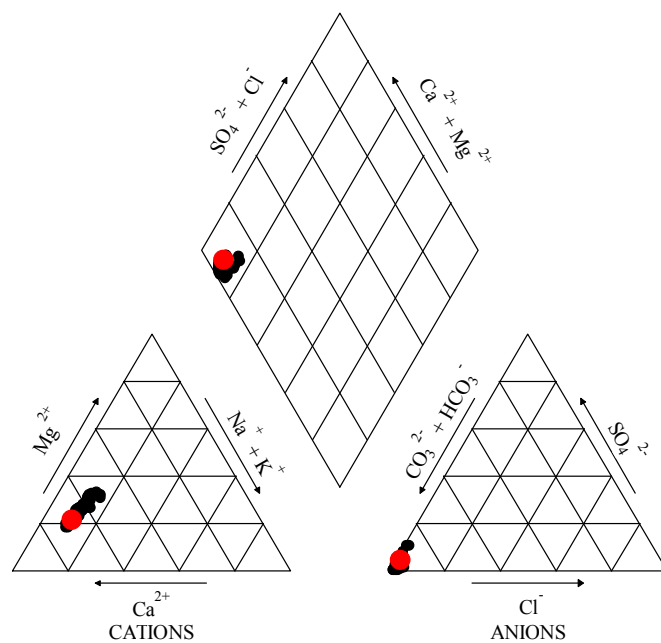
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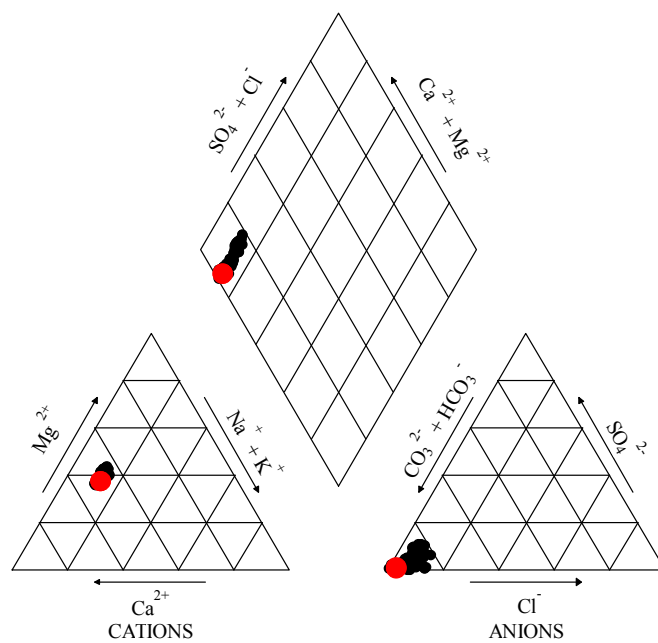
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MW-15

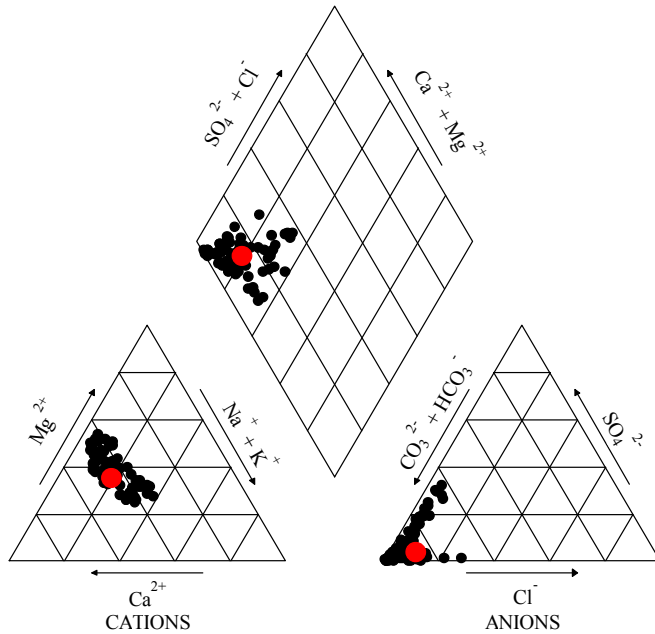


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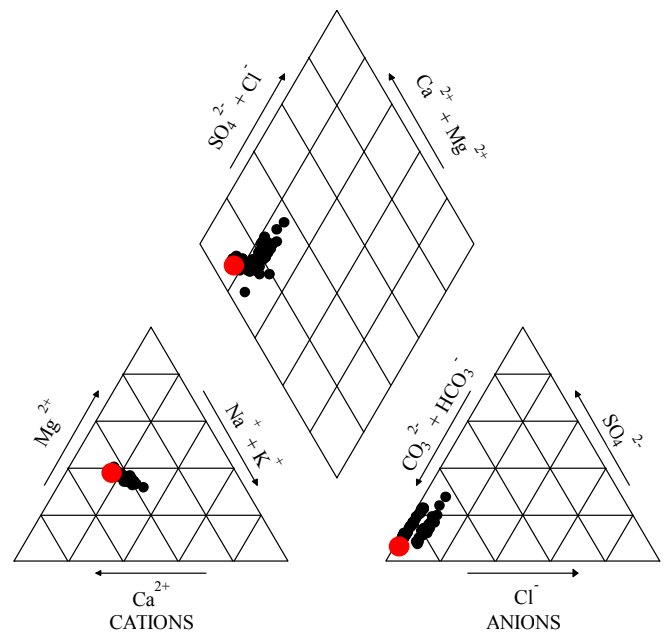


Cowlitz County Tennant Way Landfill
Piper Trilinear Diagrams
April 2023 Data Point is Larger

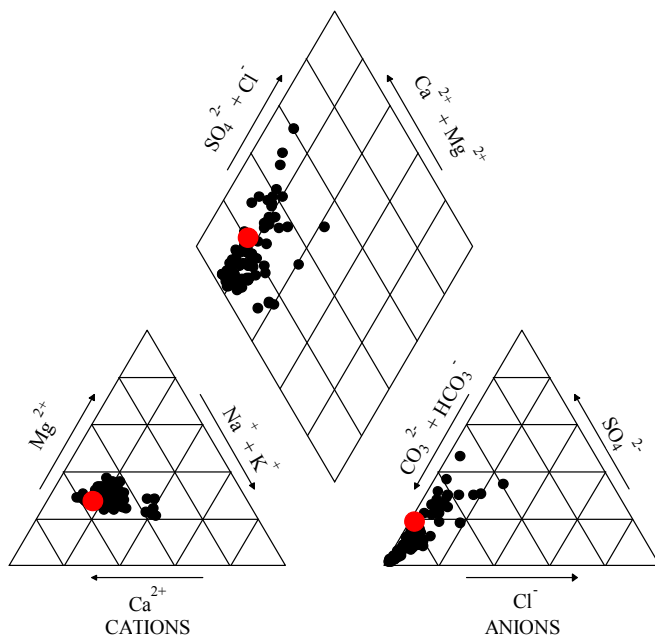
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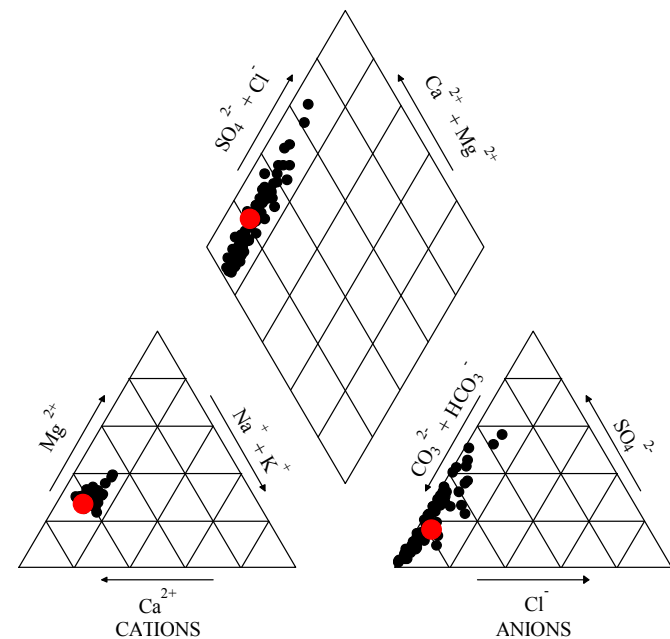
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MW-7B

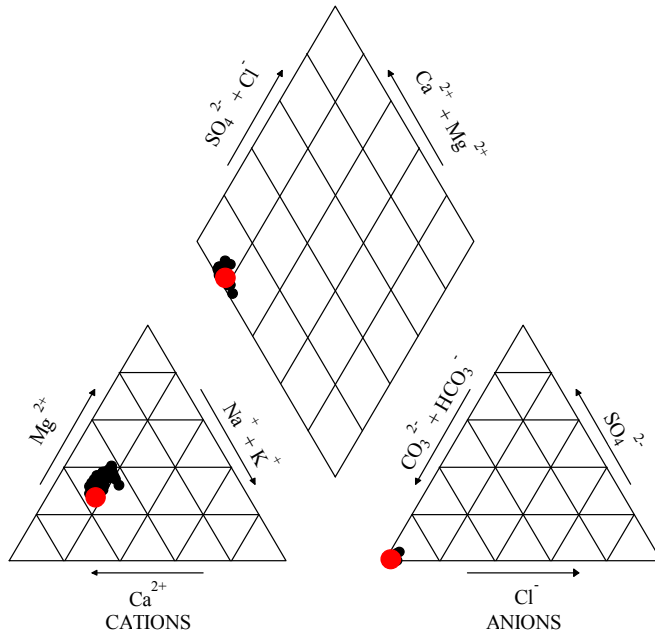


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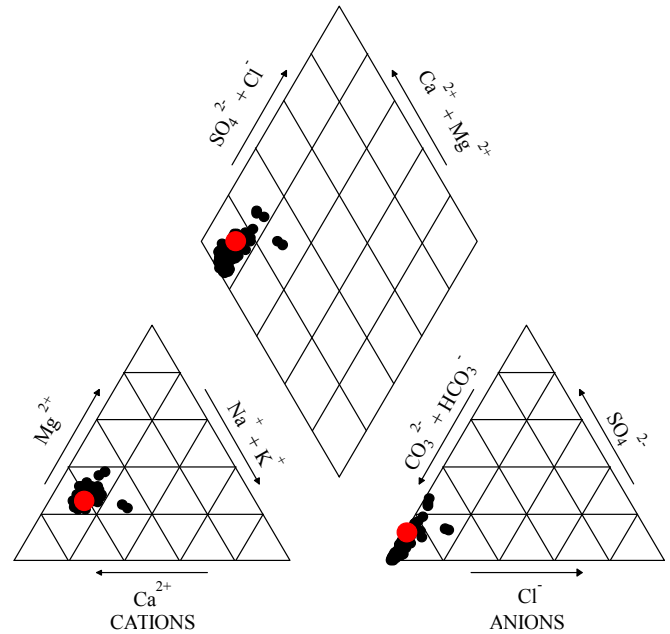


Cowlitz County Tennant Way Landfill
Piper Trilinear Diagrams
April 2023 Data Point is Larger

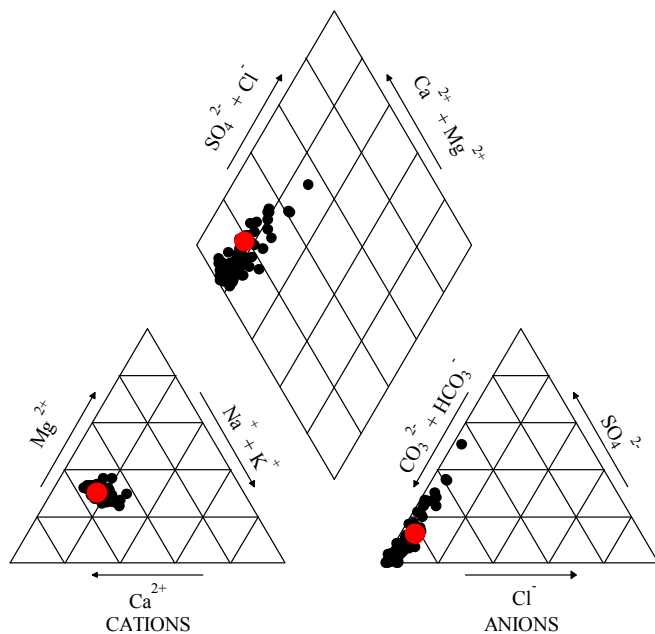
MW-9B



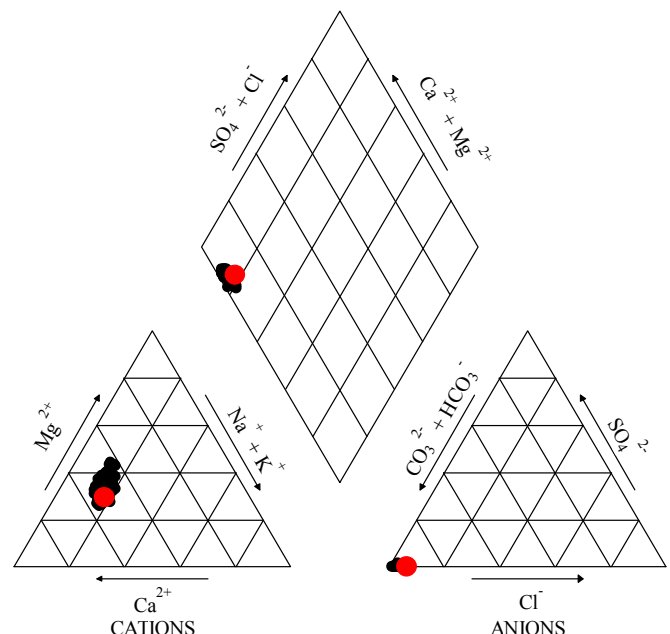
MW-10B



MW-11B

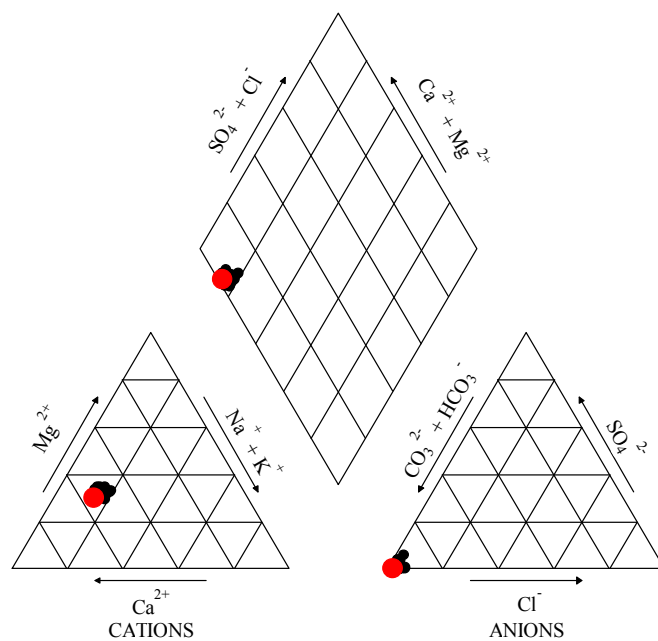


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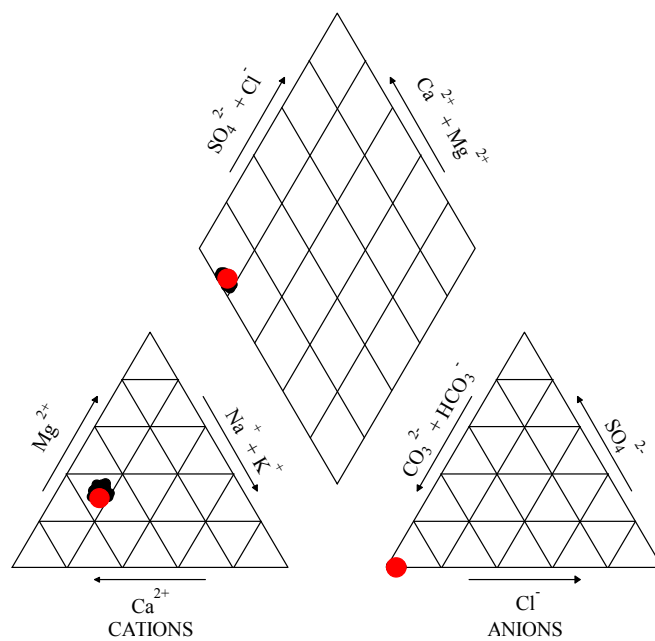


Cowlitz County Tennant Way Landfill
Piper Trilinear Diagrams
April 2023 Data Point is Larger

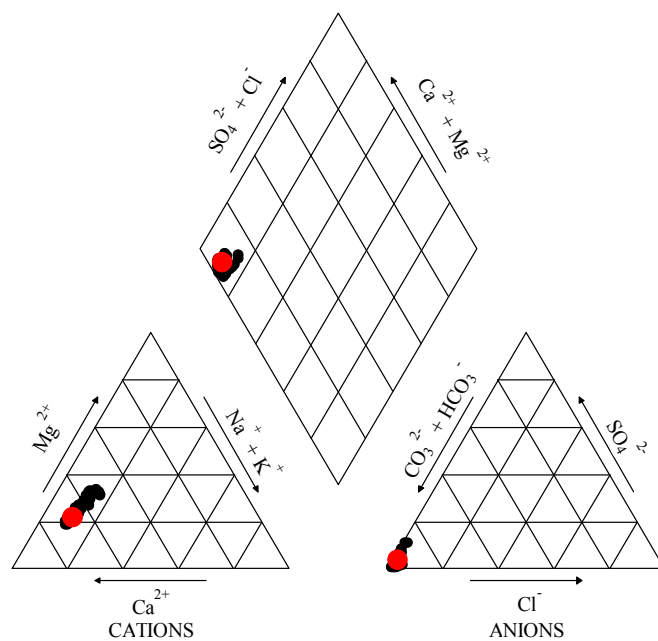
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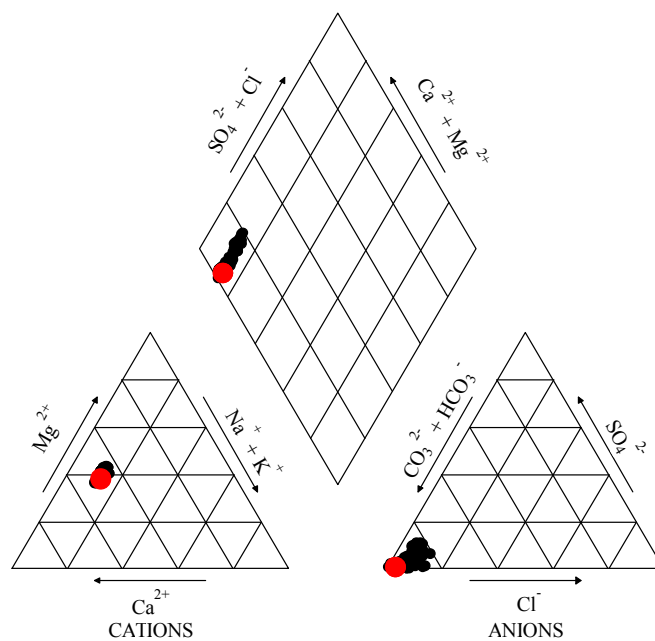
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MW-15

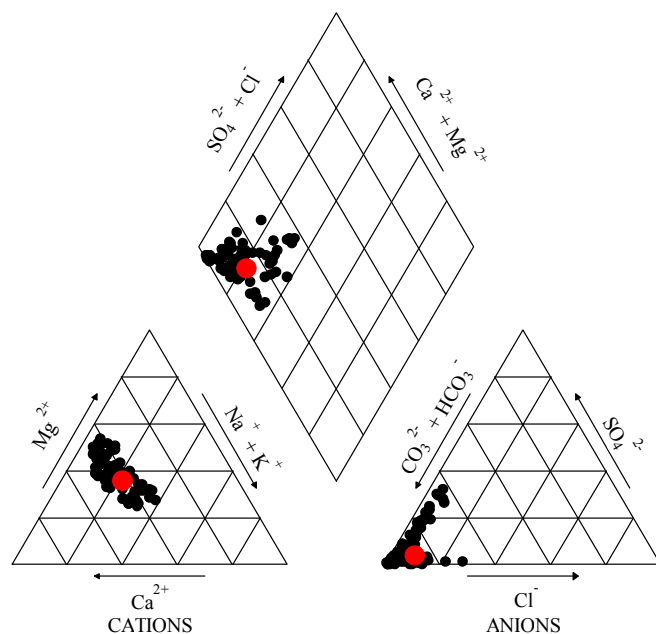


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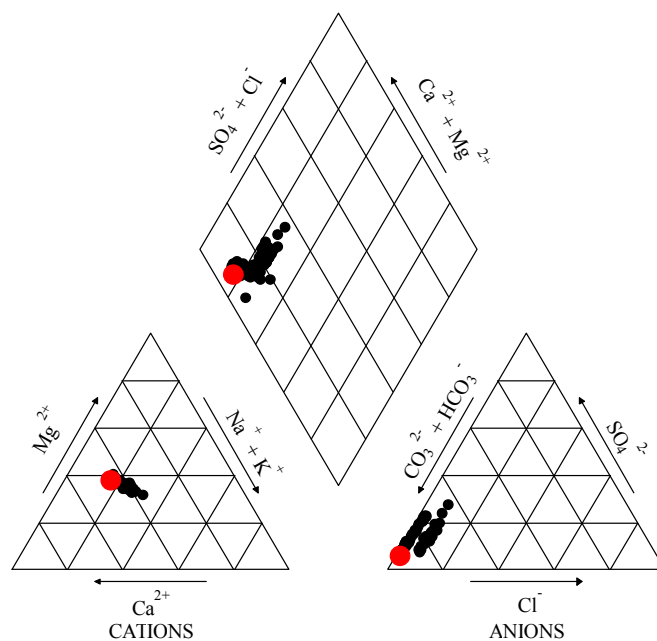


Cowlitz County Tennant Way Landfill
Piper Trilinear Diagrams
July 2023 Data Point is Larger

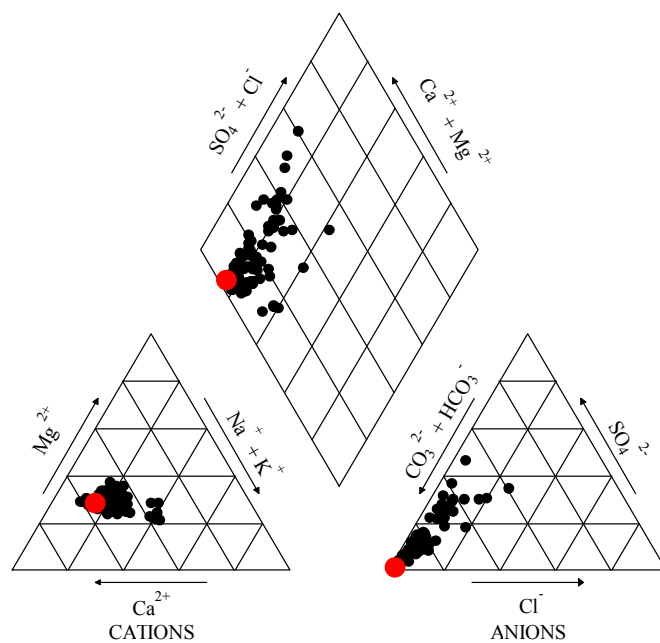
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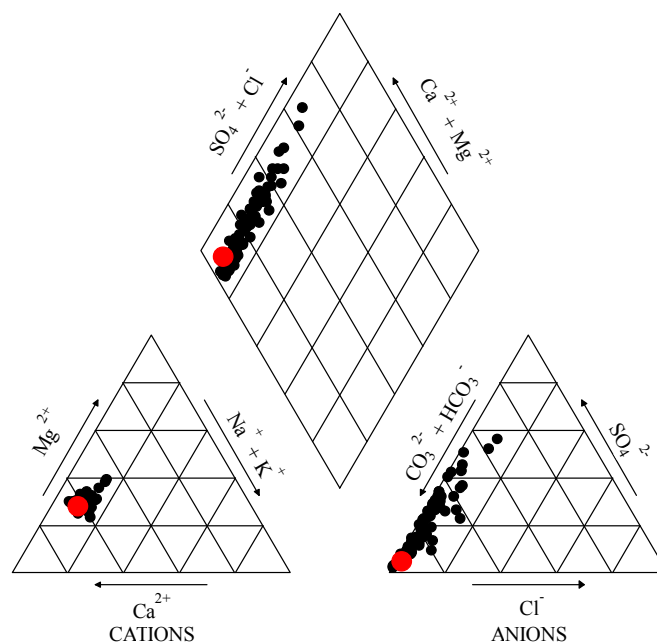
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MW-7B

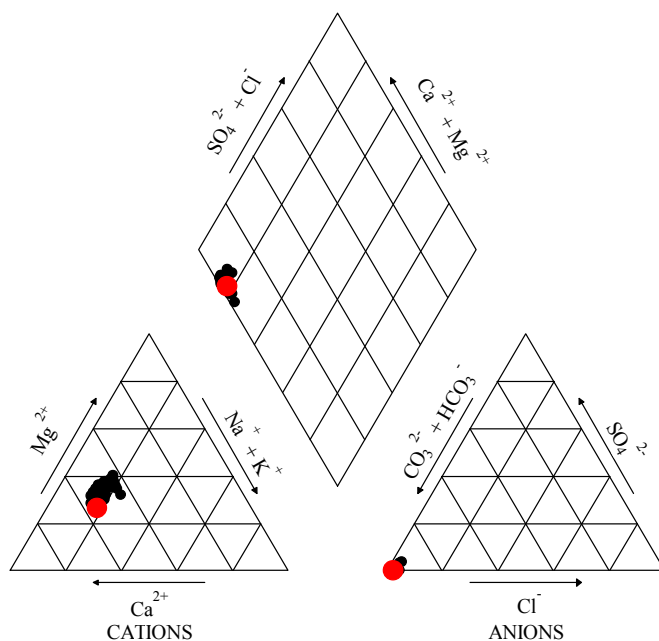


MW-8B

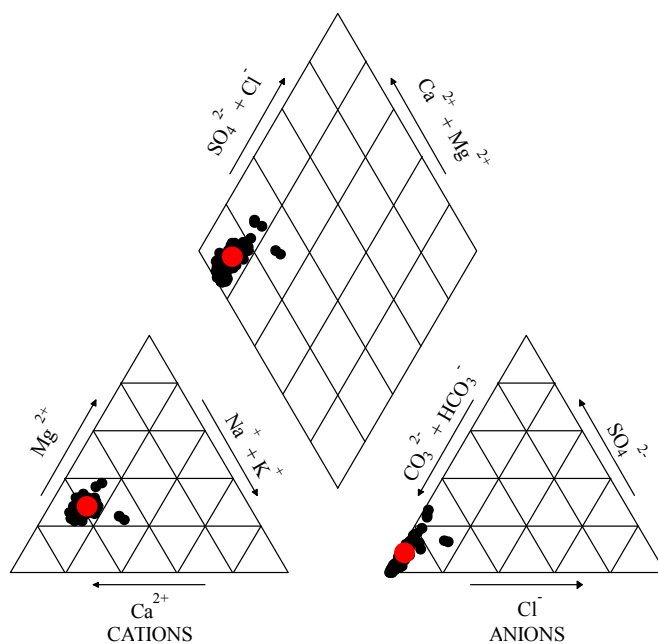


Cowlitz County Tennant Way Landfill
Piper Trilinear Diagrams
July 2023 Data Point is Larger

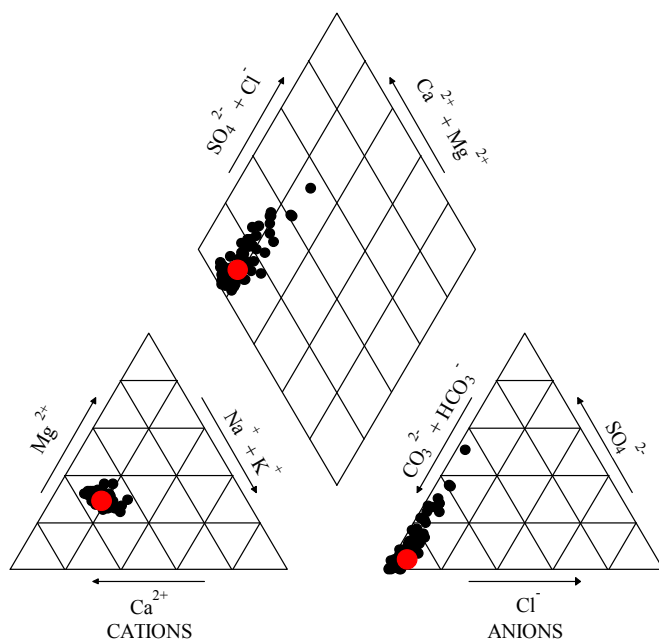
MW-9B



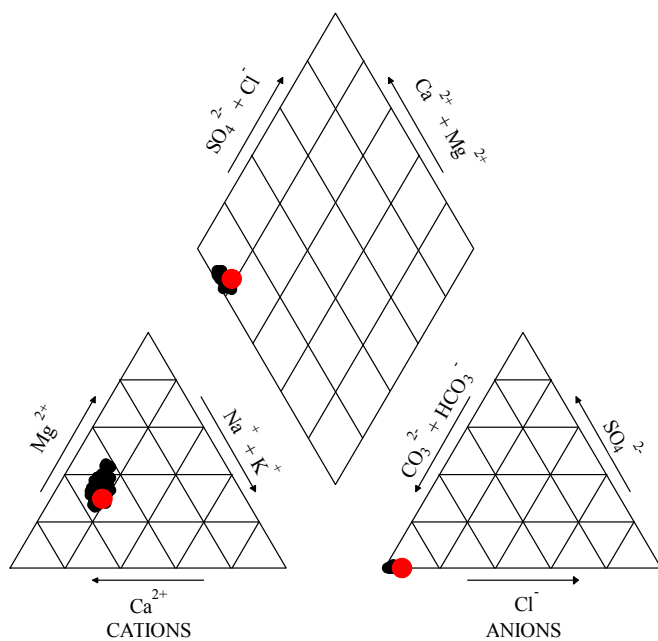
MW-10B



MW-11B

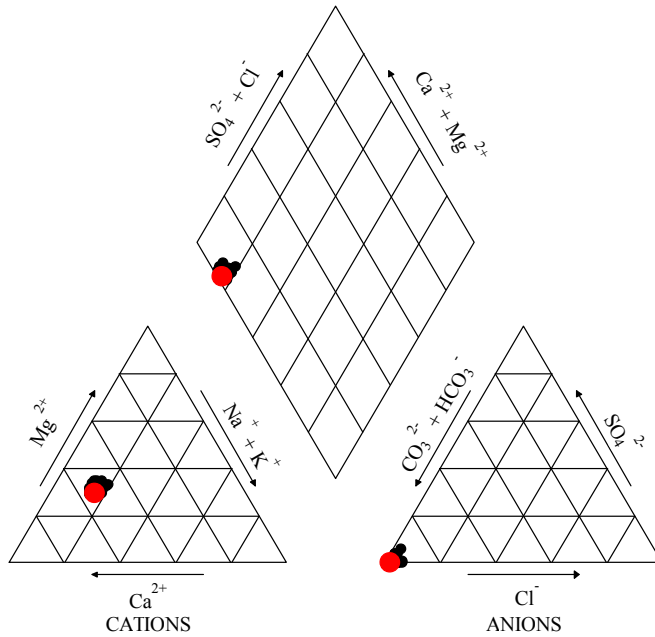


MW-12B

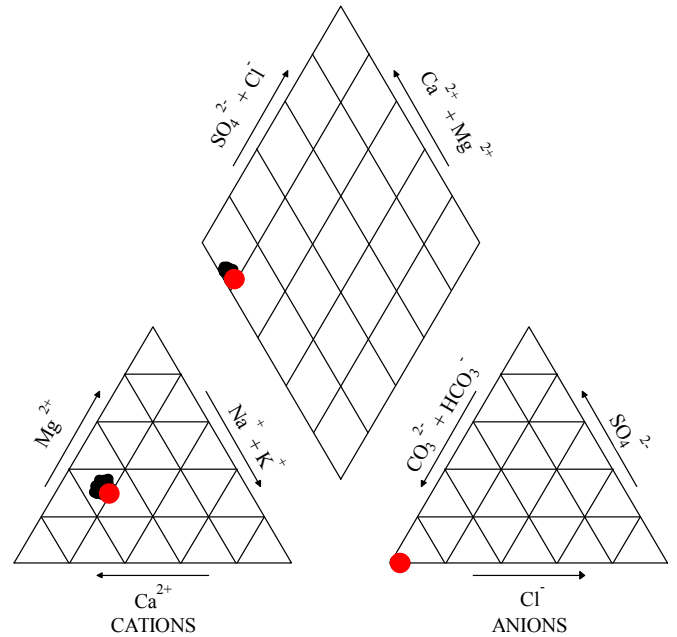


Cowlitz County Tennant Way Landfill
Piper Trilinear Diagrams
July 2023 Data Point is Larger

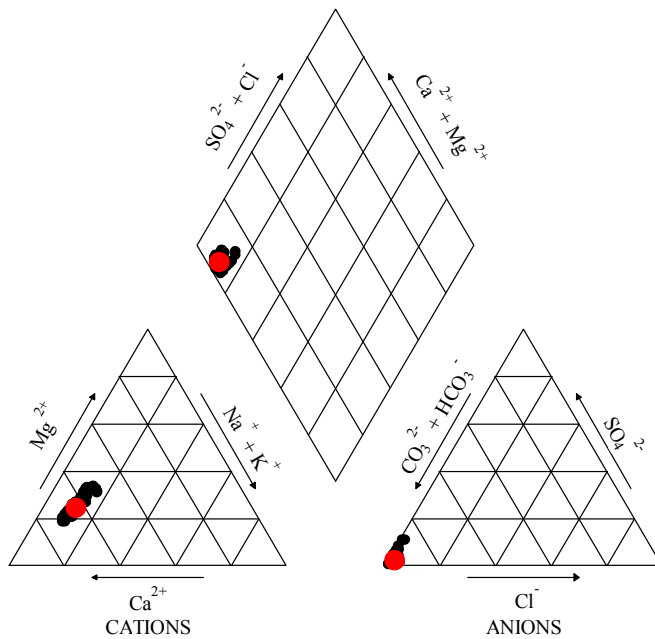
MW-13



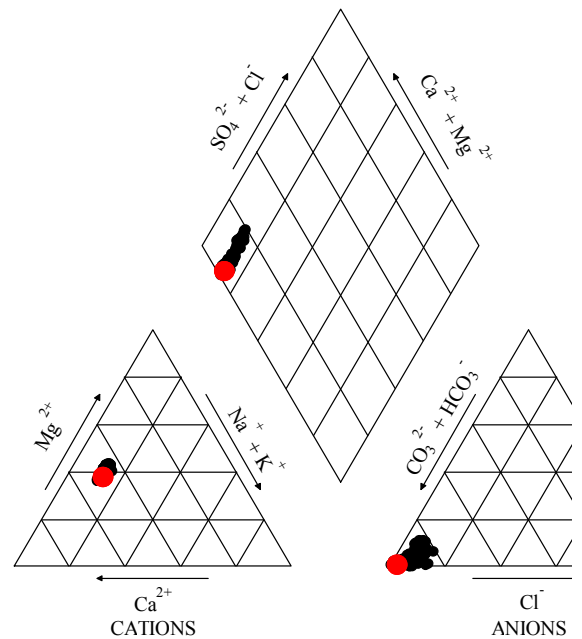
MW-14B



MW-15

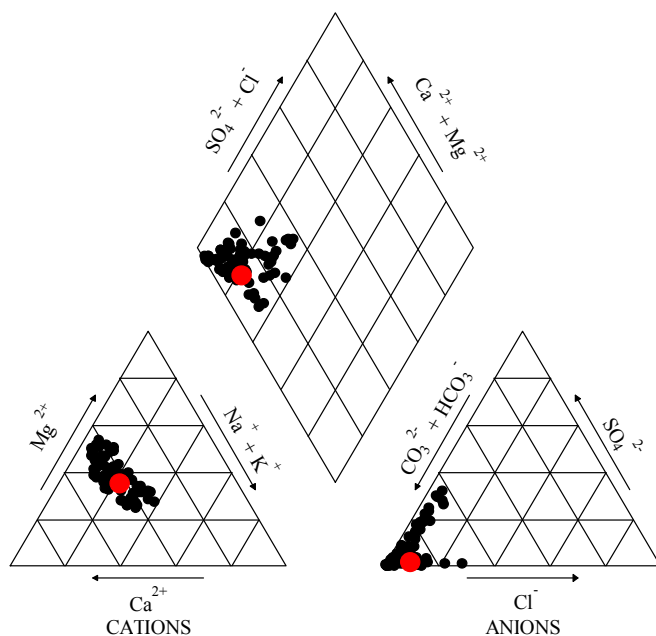


MW-16B

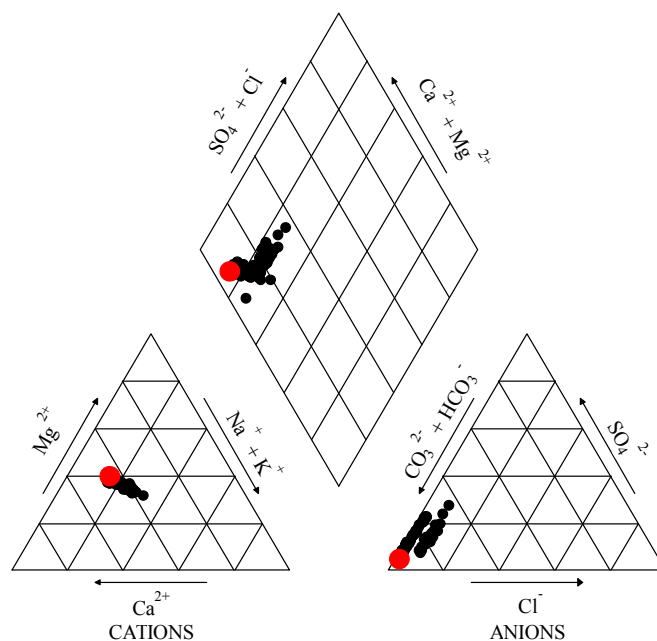


Cowlitz County Tennant Way Landfill
Piper Trilinear Diagrams
October 2023 Data Point is Larger

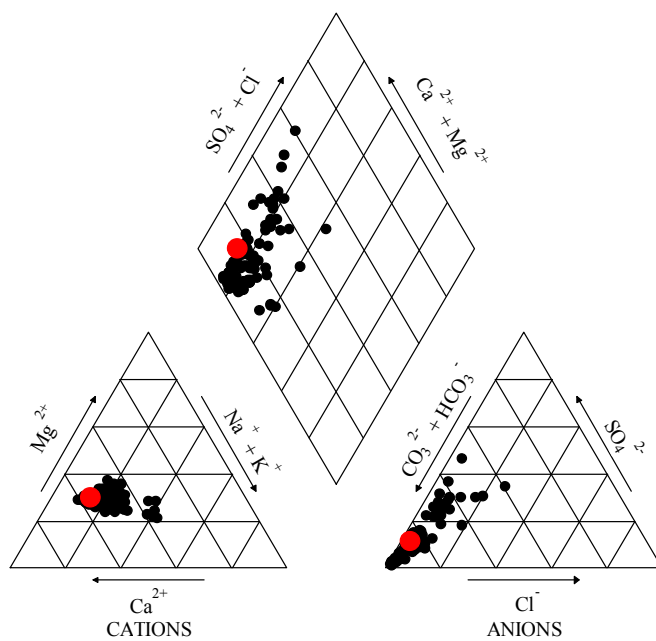
MW-3B



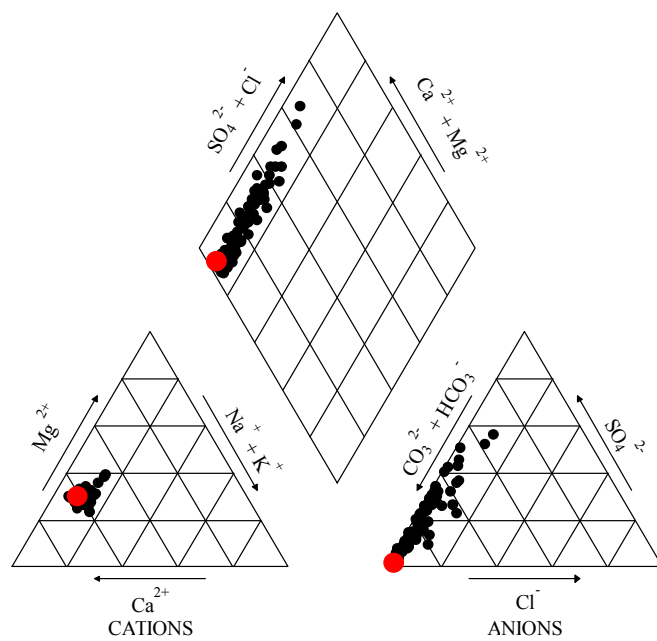
MW-5B



MW-7B

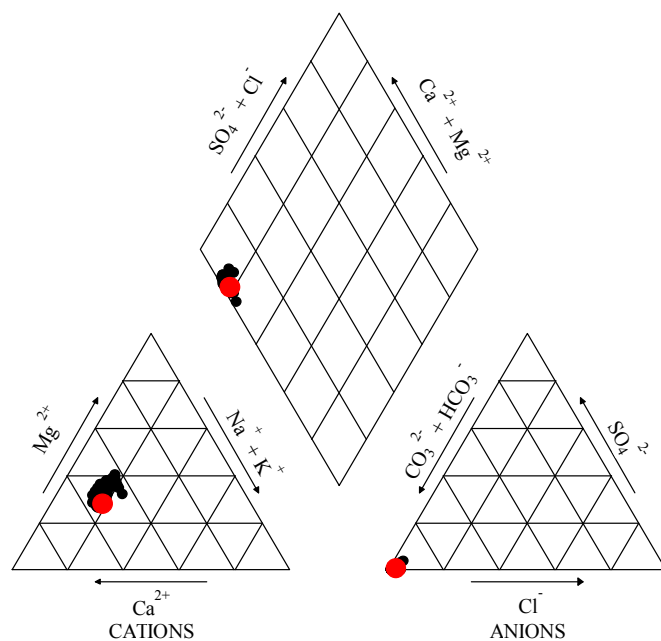


MW-8B

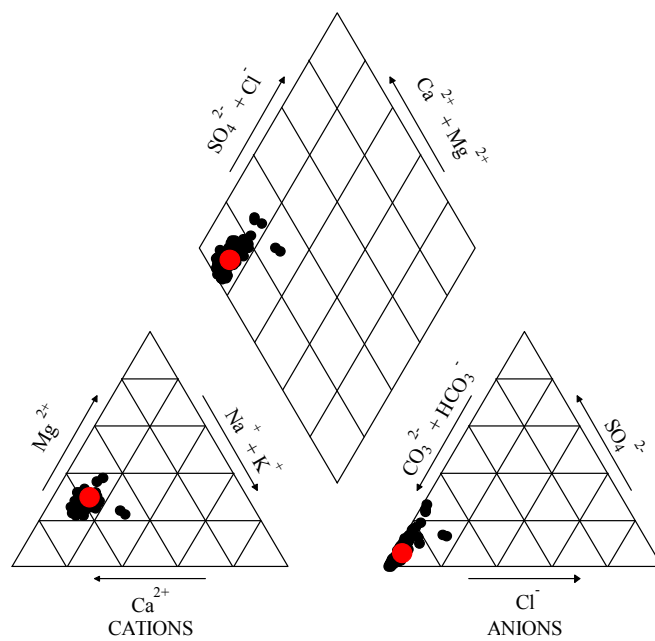


Cowlitz County Tennant Way Landfill
Piper Trilinear Diagrams
October 2023 Data Point is Larger

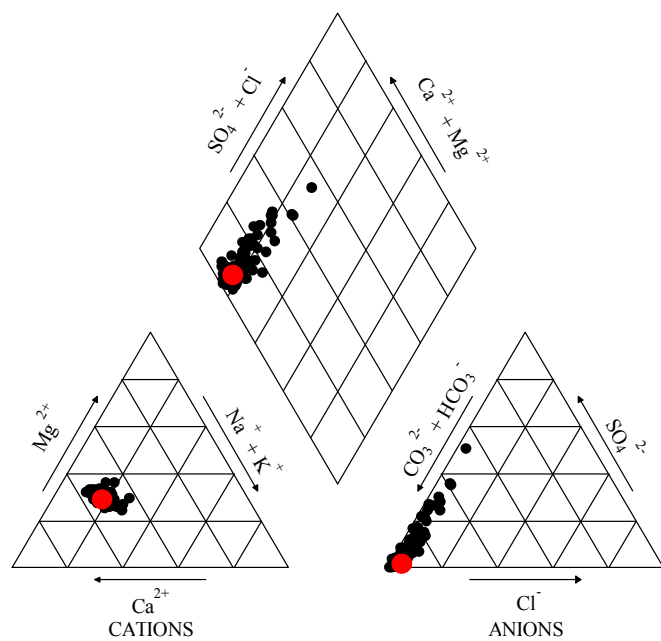
MW-9B



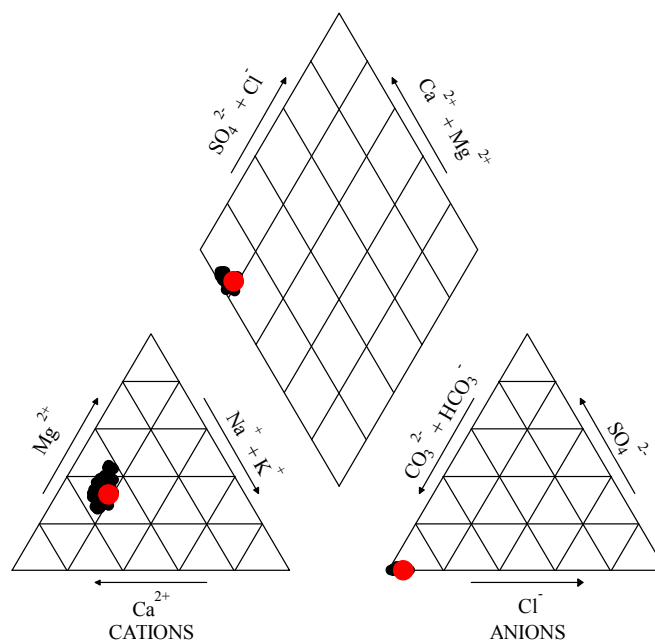
MW-10B



MW-11B

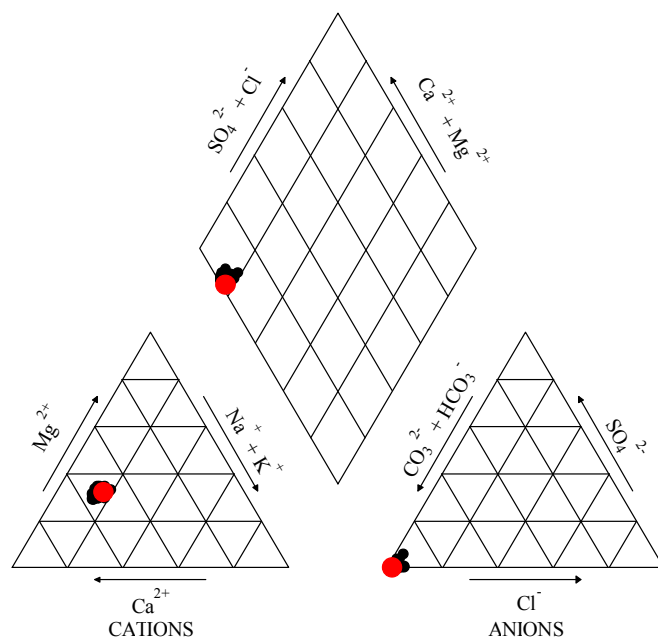


MW-12B

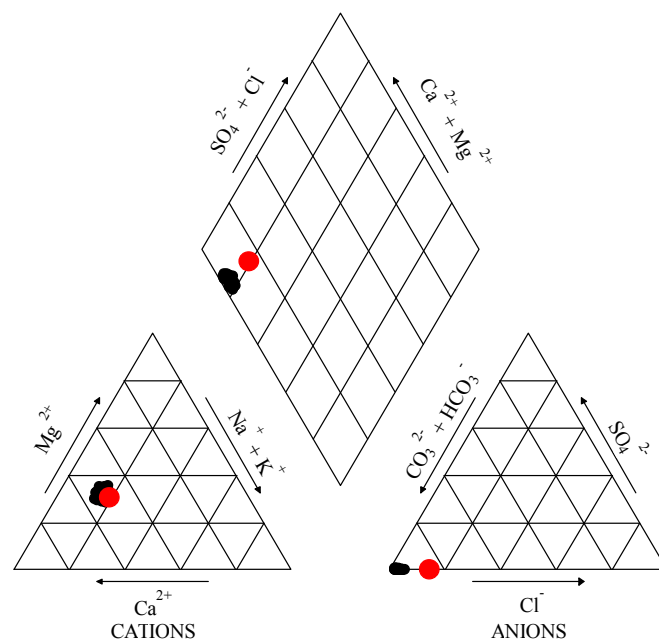


Cowlitz County Tennant Way Landfill
Piper Trilinear Diagrams
October 2023 Data Point is Larger

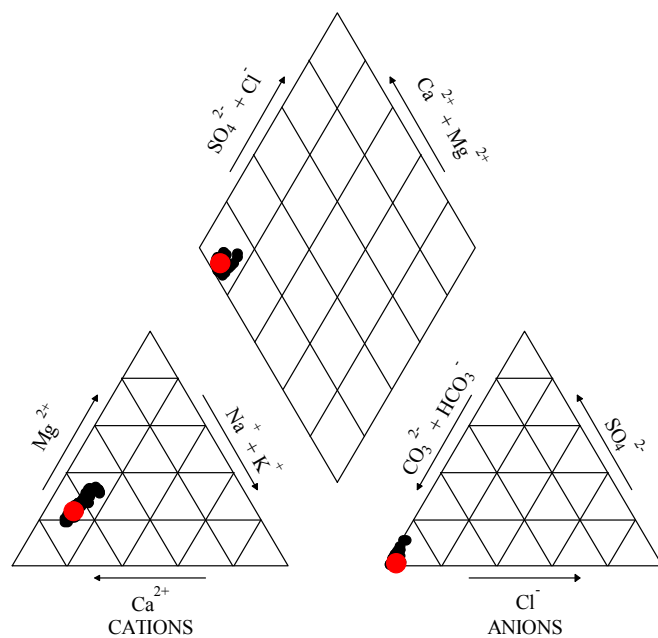
MW-13



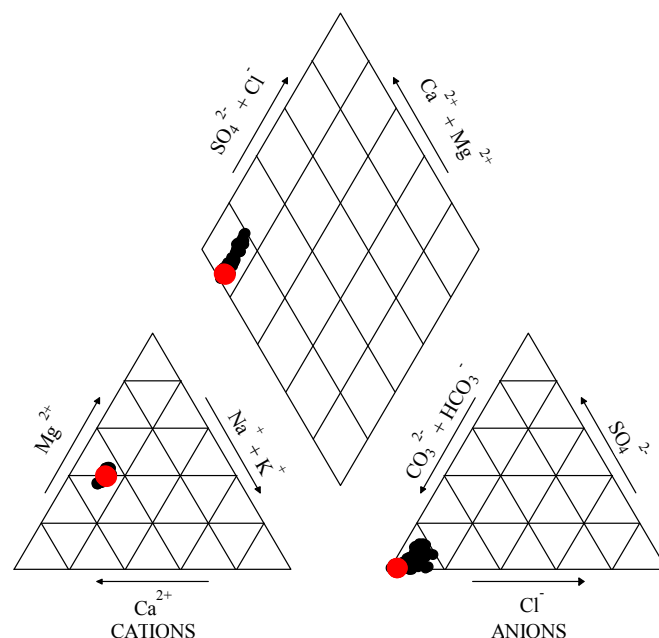
MW-14B



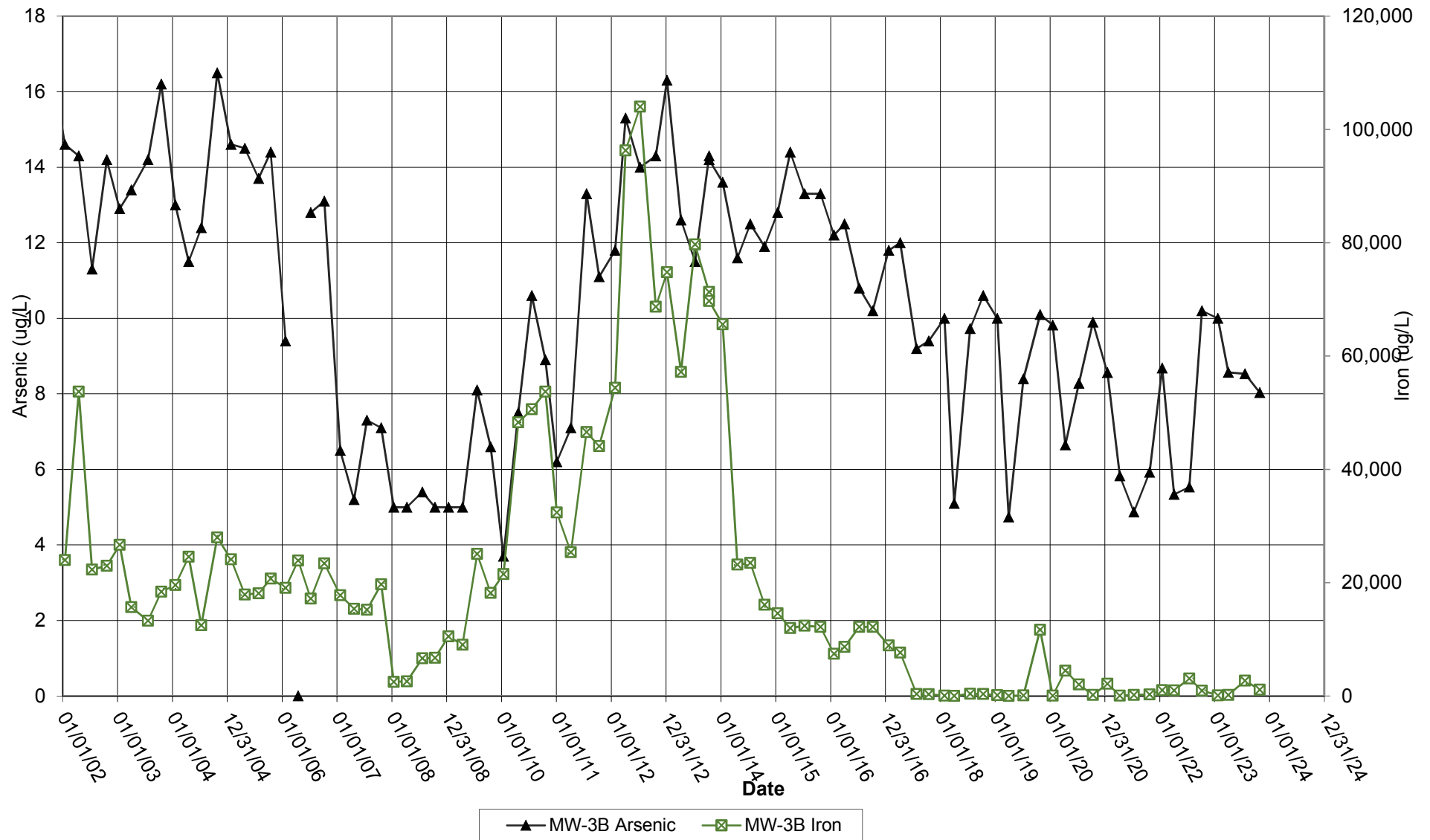
MW-15



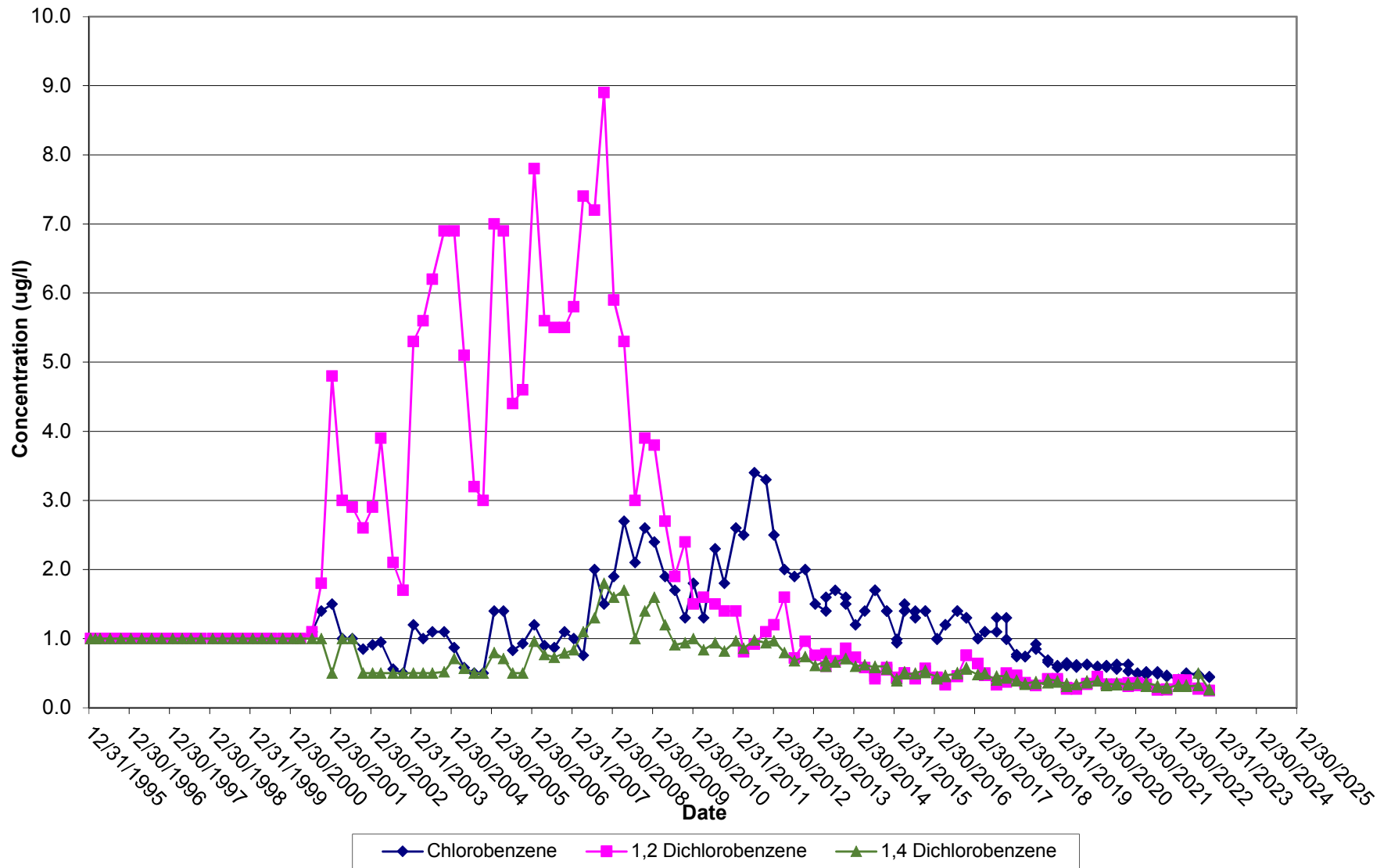
MW-16B



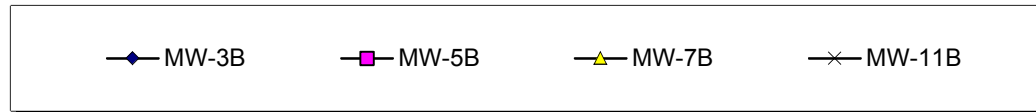
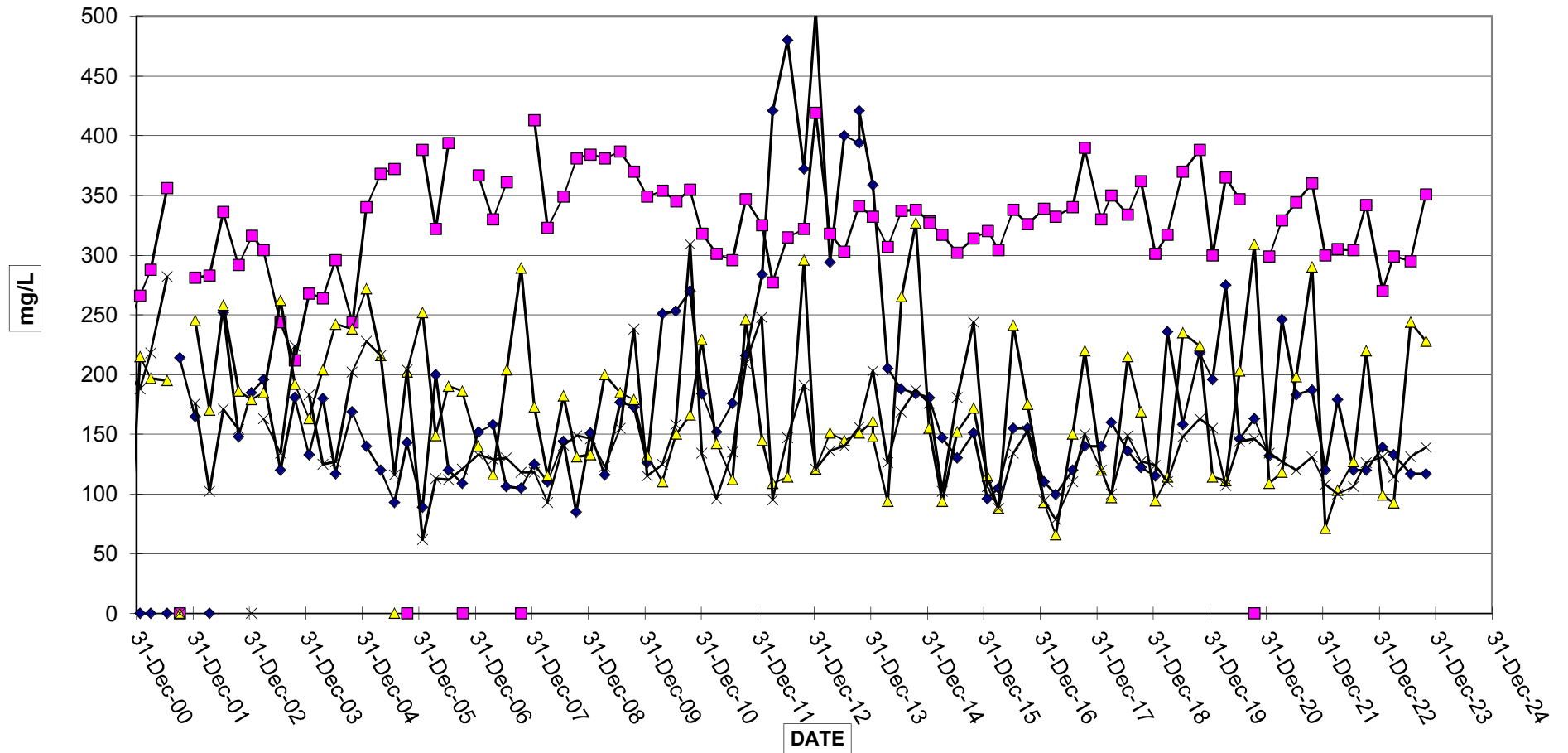
**Cowlitz County Tennant Way Landfill
MW-3B Arsenic and Iron**



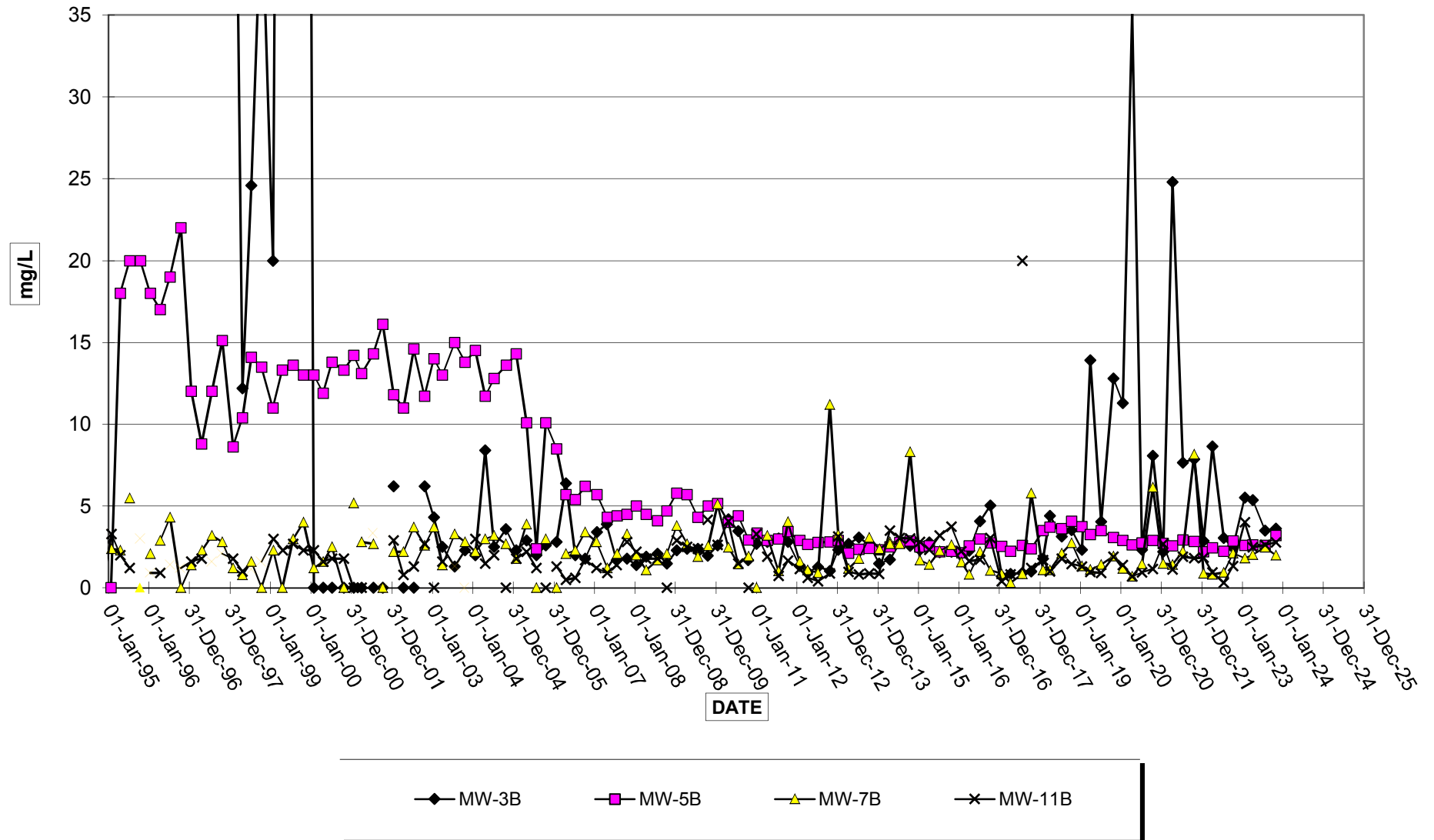
Cowlitz County Tennant Way Landfill
MW-16B
Volatile Organic Compounds



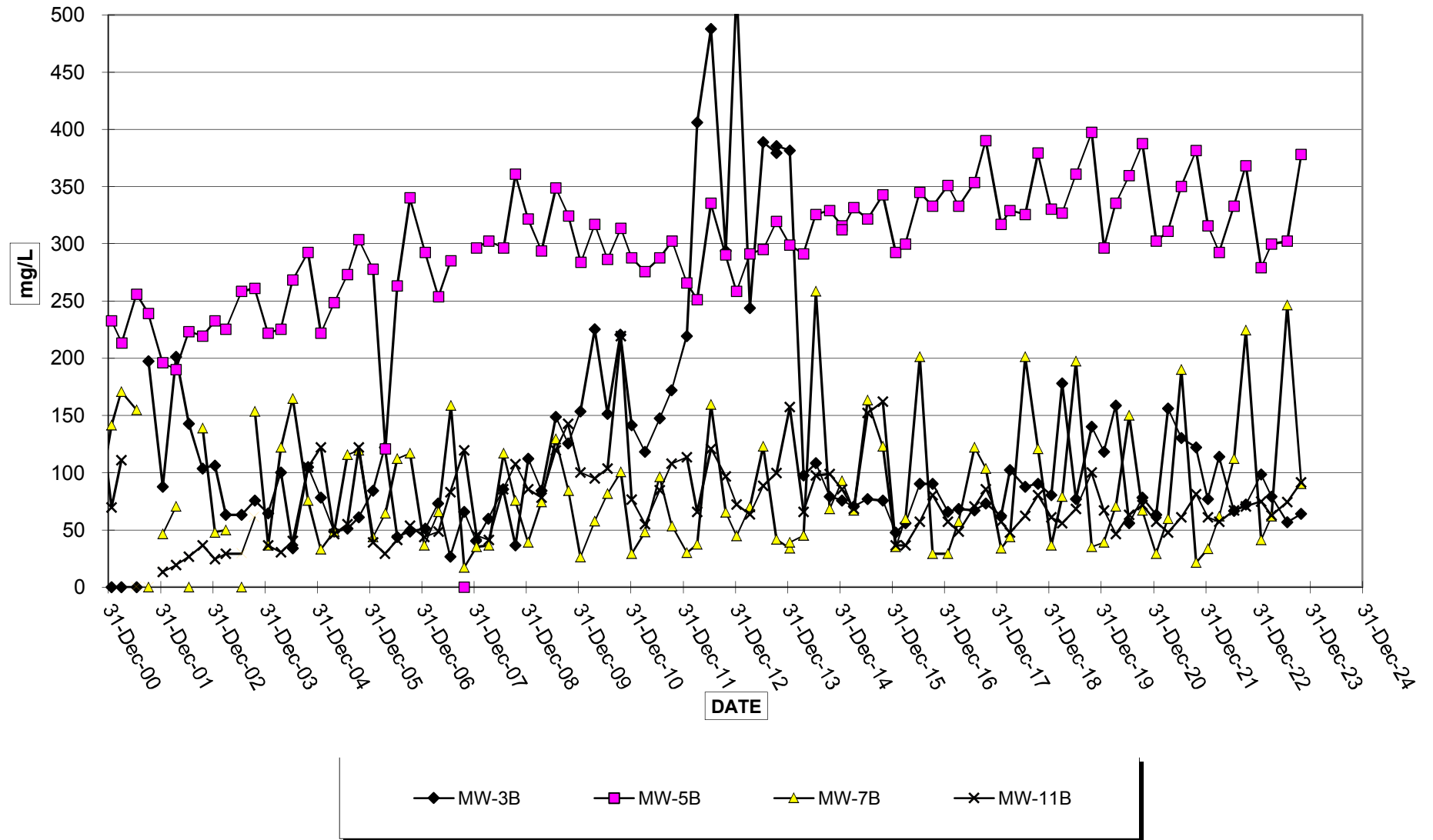
**Cowlitz County Tennant Way Landfill
Site A Shallow Wells
TDS**



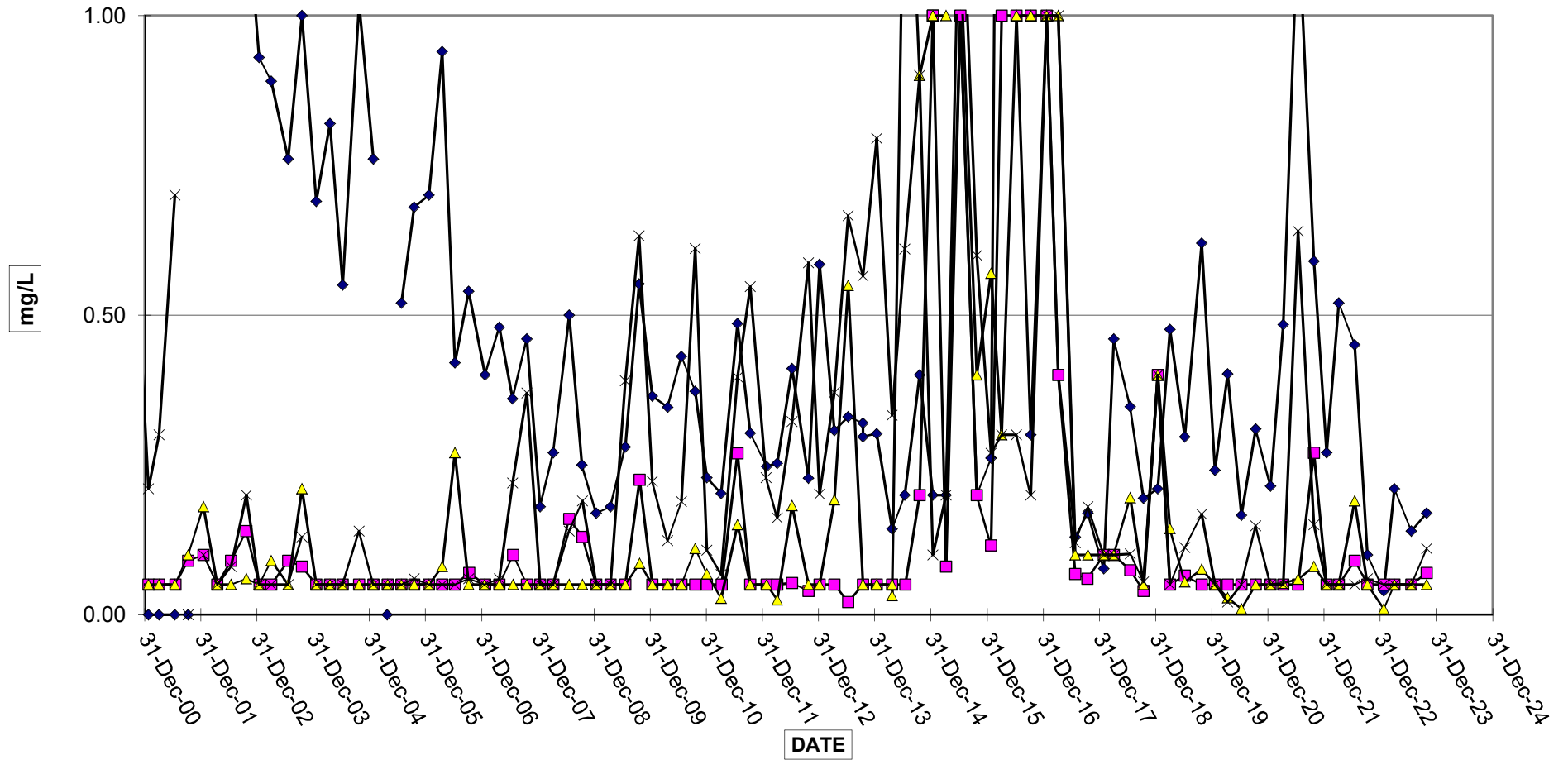
Cowlitz County Tennant Way Landfill
Site A Shallow Wells
Chloride



Cowlitz County Tennant Way Landfill
Site A Shallow Wells
Bicarbonate

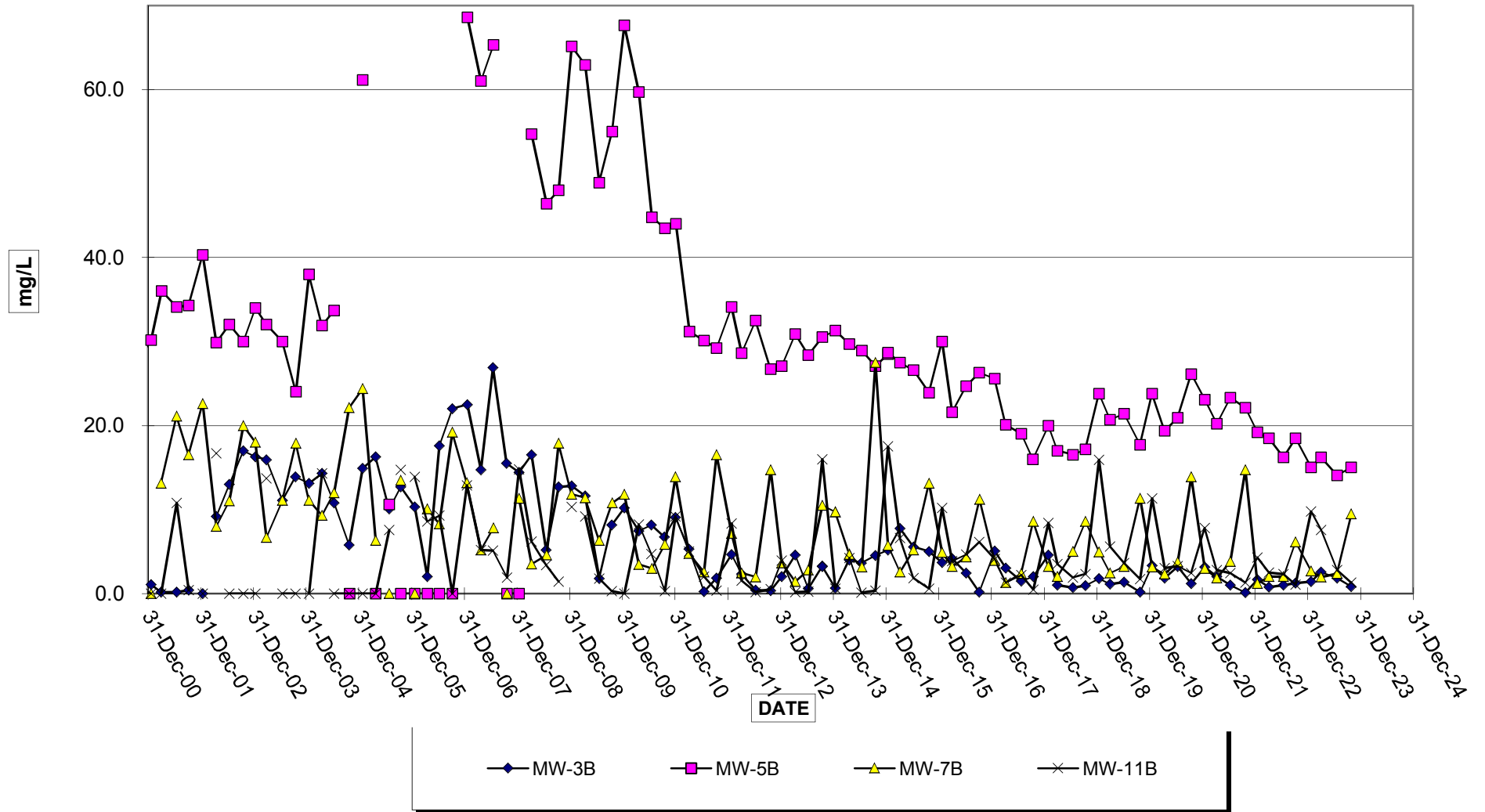


Cowlitz County Tennant Way Landfill
Site A Shallow Wells
Ammonia

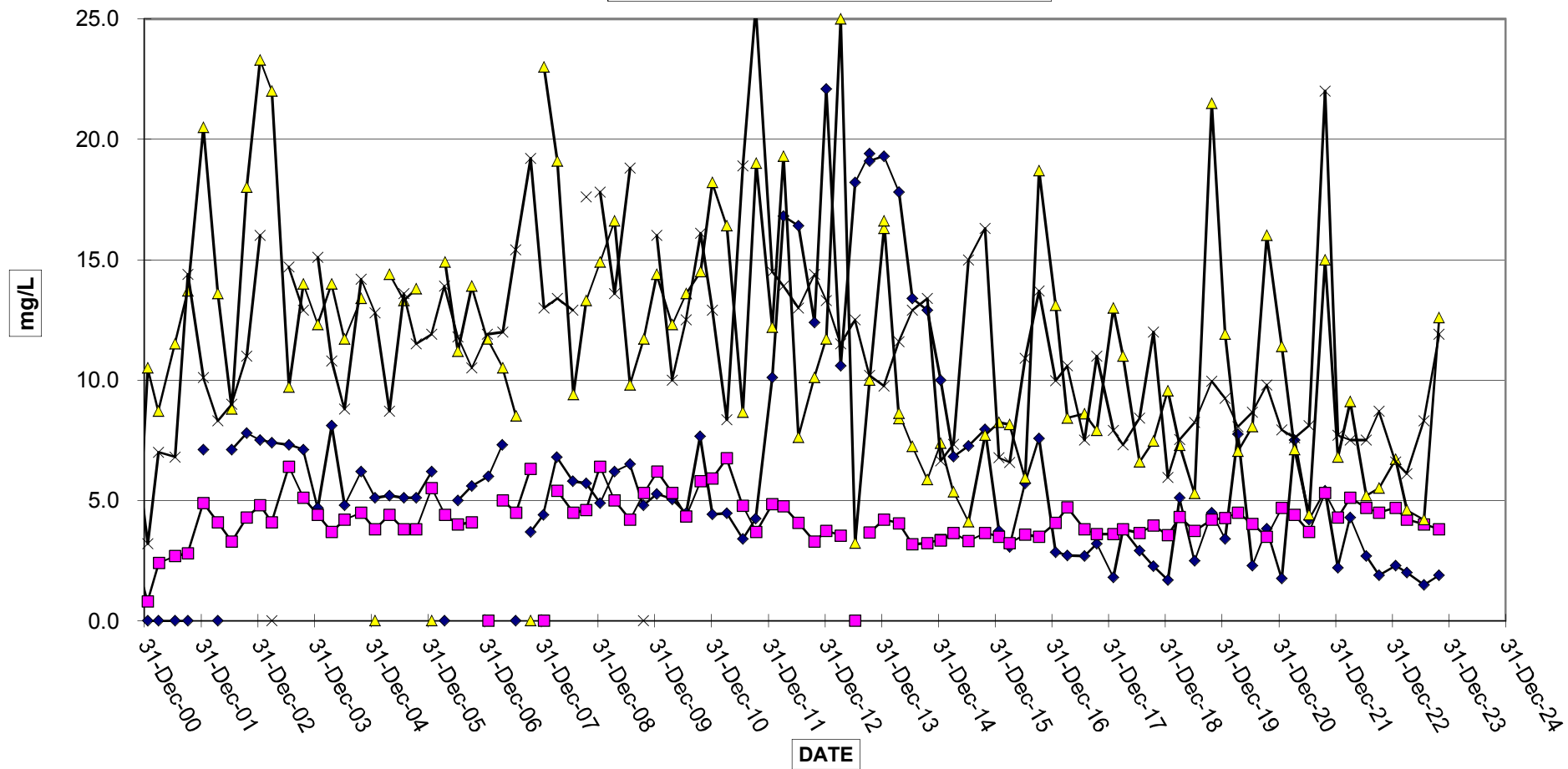


—◆— MW-3B —■— MW-5B —▲— MW-7B —×— MW-11B

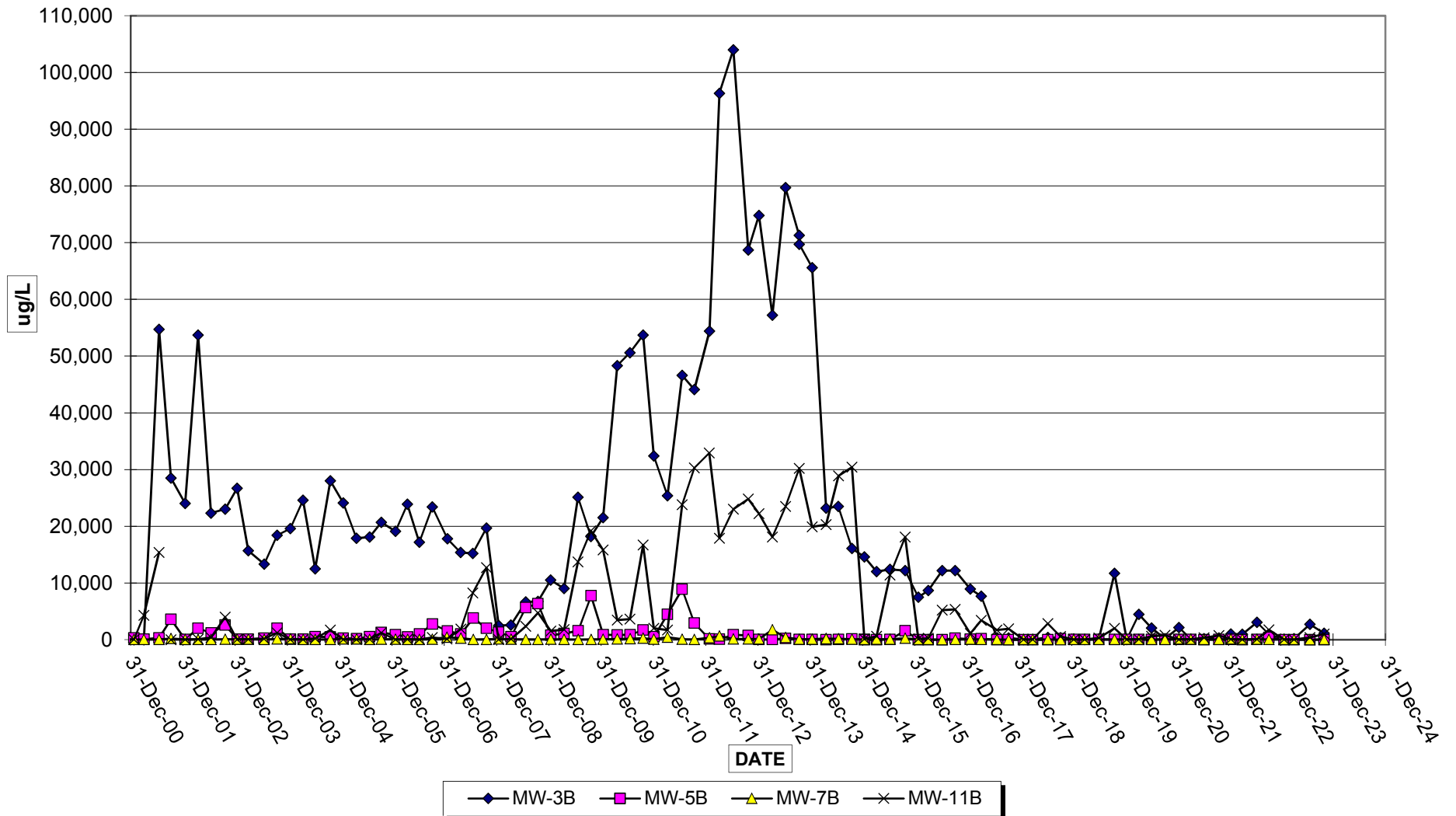
Cowlitz County Tennant Way Landfill
Site A Shallow Wells
Sulfate



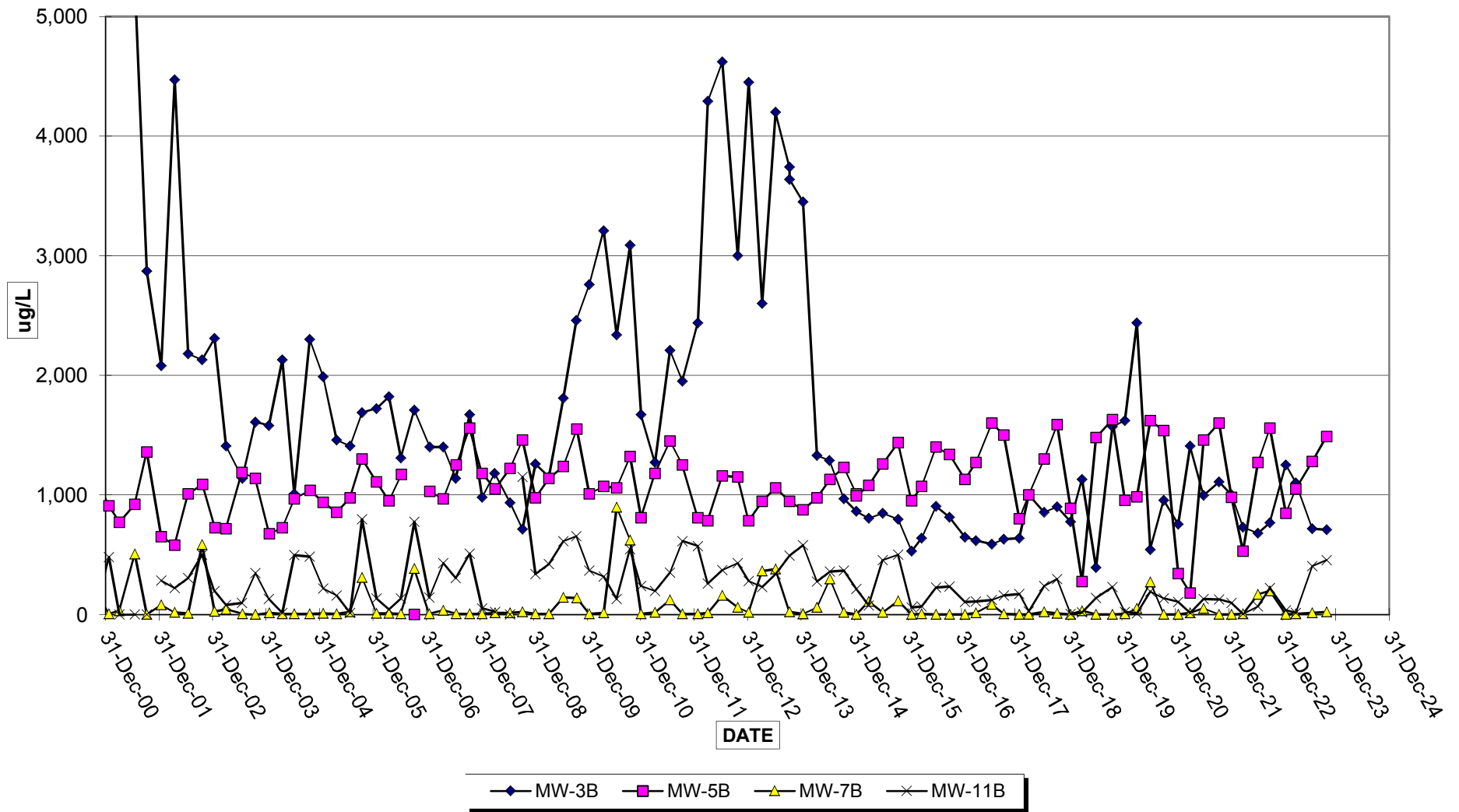
**Cowlitz County Tennant Way Landfill
Site A Shallow Wells
TOC**



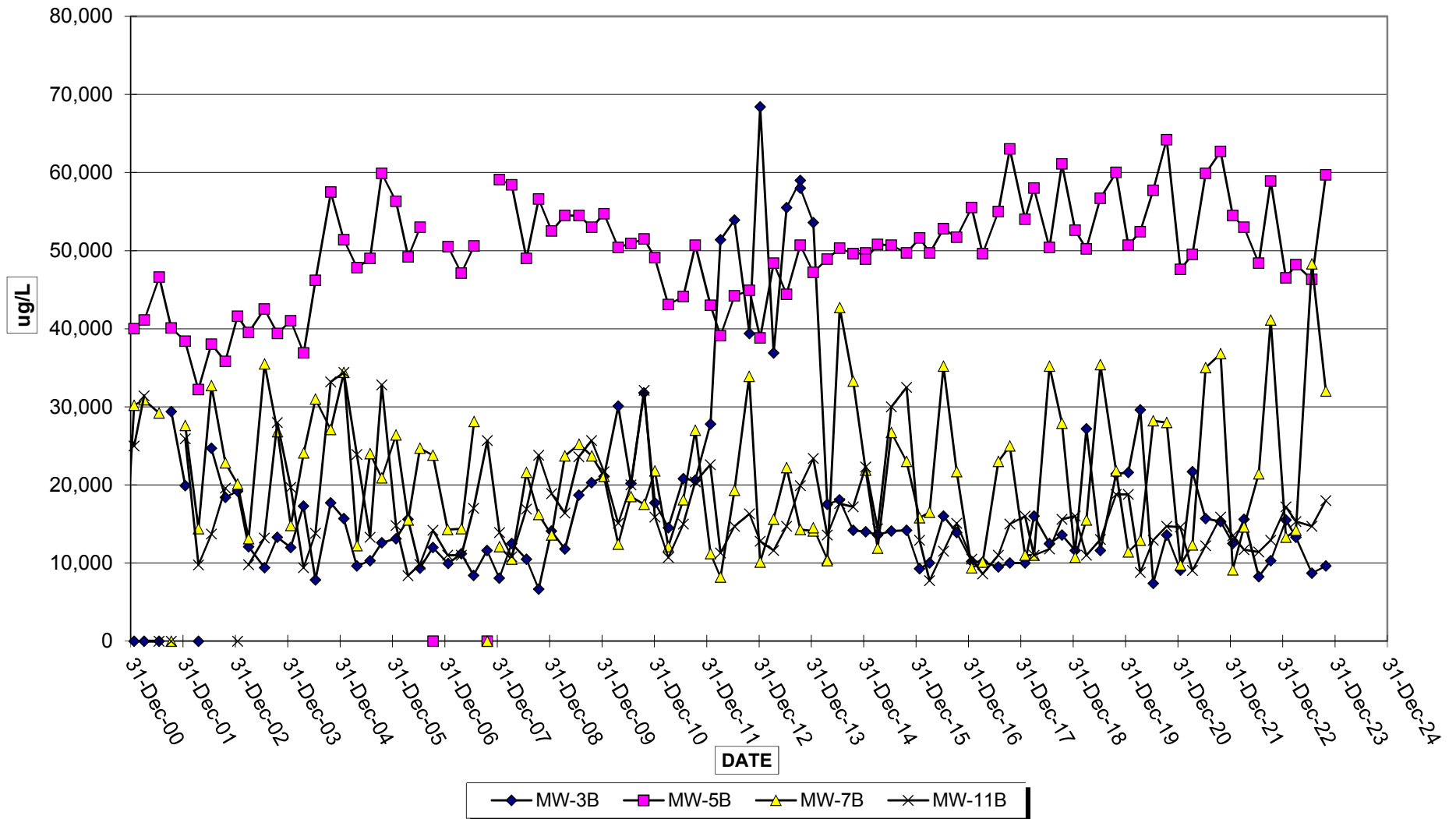
**Cowlitz County Tennant Way Landfill
Site A Shallow Wells
Dissolved Iron
(Total 4/11 to 1/13)**



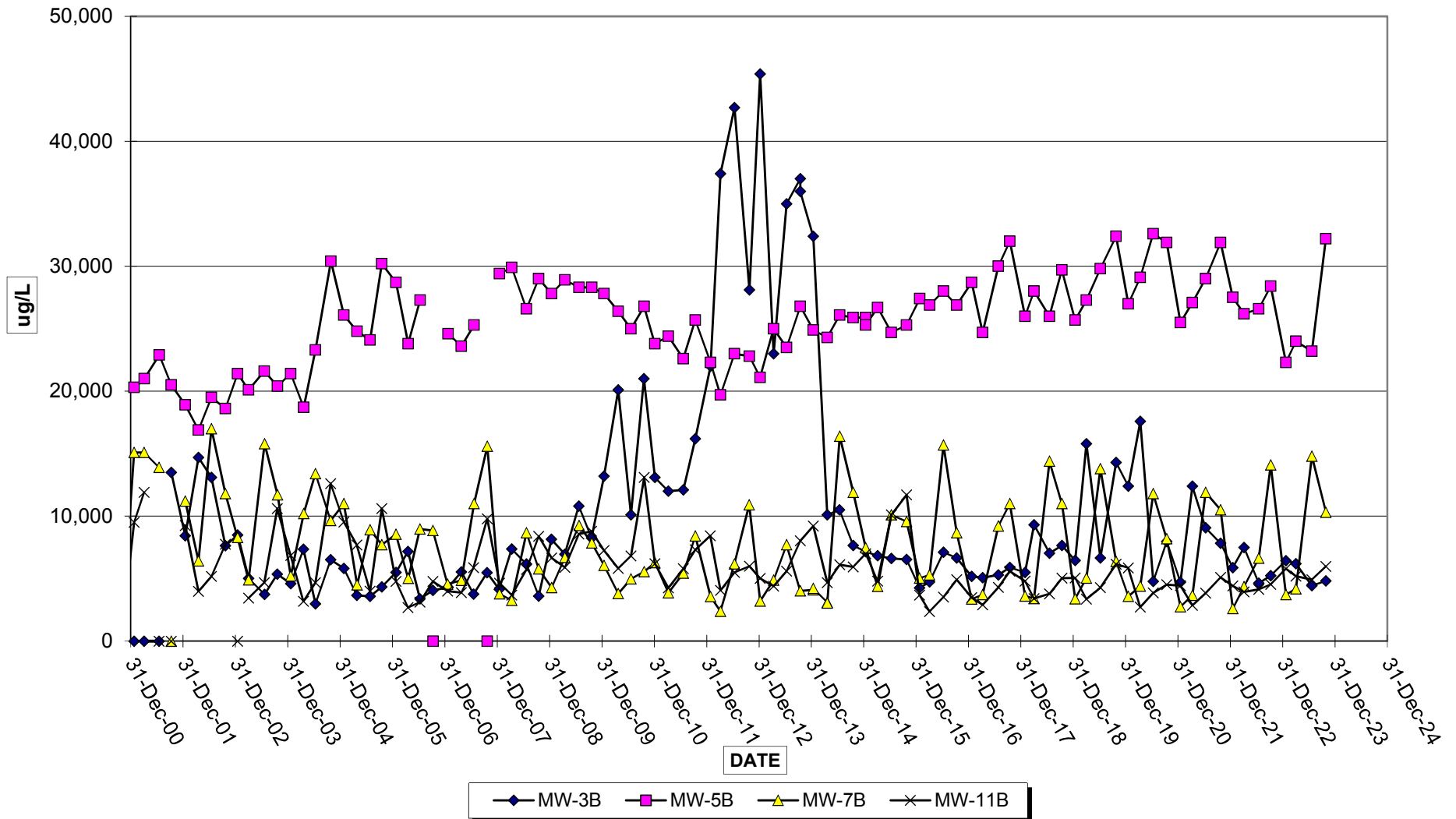
**Cowlitz County Tennant Way Landfill
Site A Shallow Wells
Dissolved Manganese
(Total 4/11 to 1/13)**



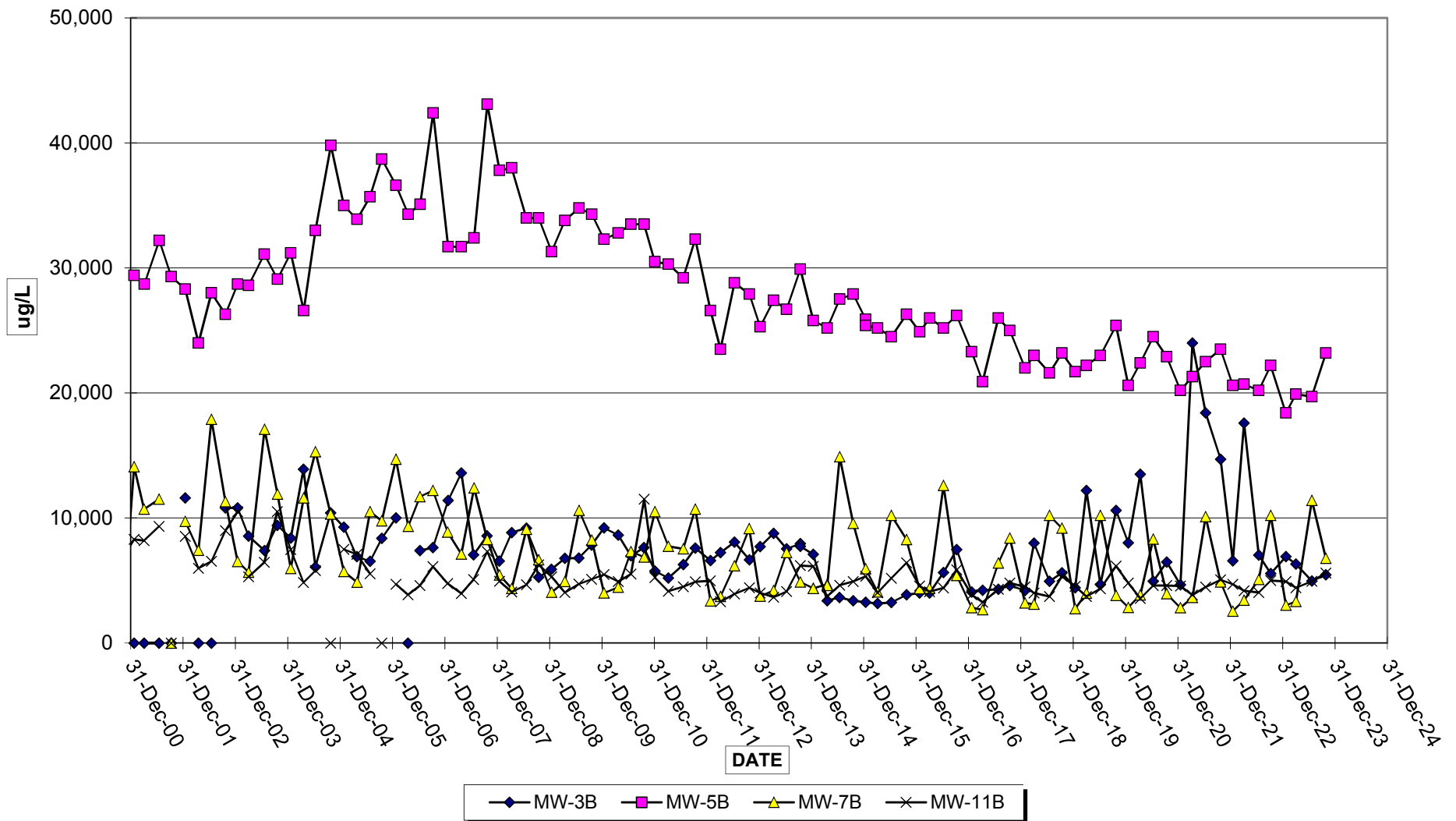
**Cowlitz County Tennant Way Landfill
Site A Shallow Wells
Dissolved Calcium
(Total 4/11 to 1/13)**



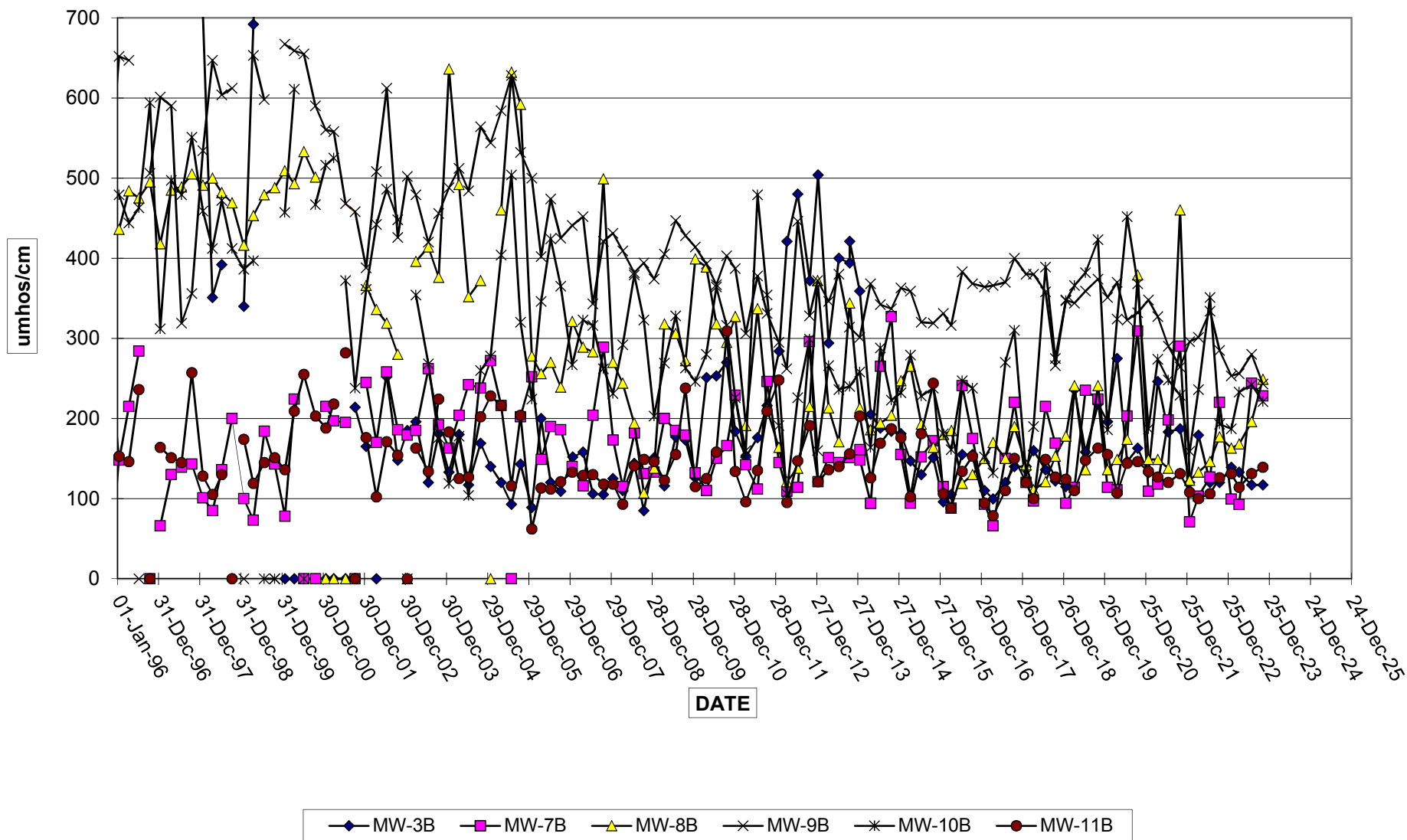
**Cowlitz County Tennant Way Landfill
Site A Shallow Wells
Dissolved Magnesium
(Total 4/11 to 1/13)**



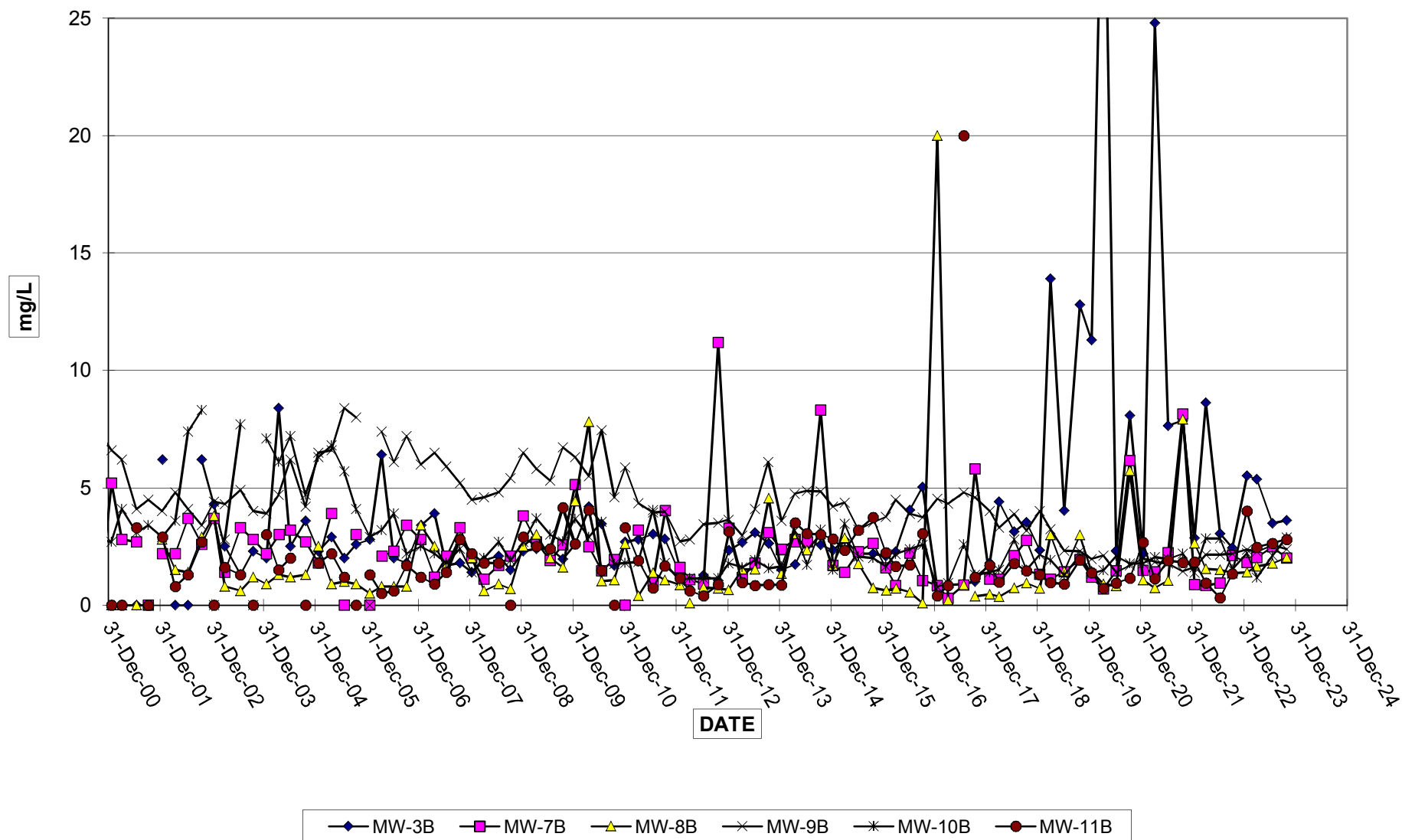
**Cowlitz County Tennant Way Landfill
Site A Shallow Wells
Dissolved Sodium
(Total 4/11 to 1/13)**



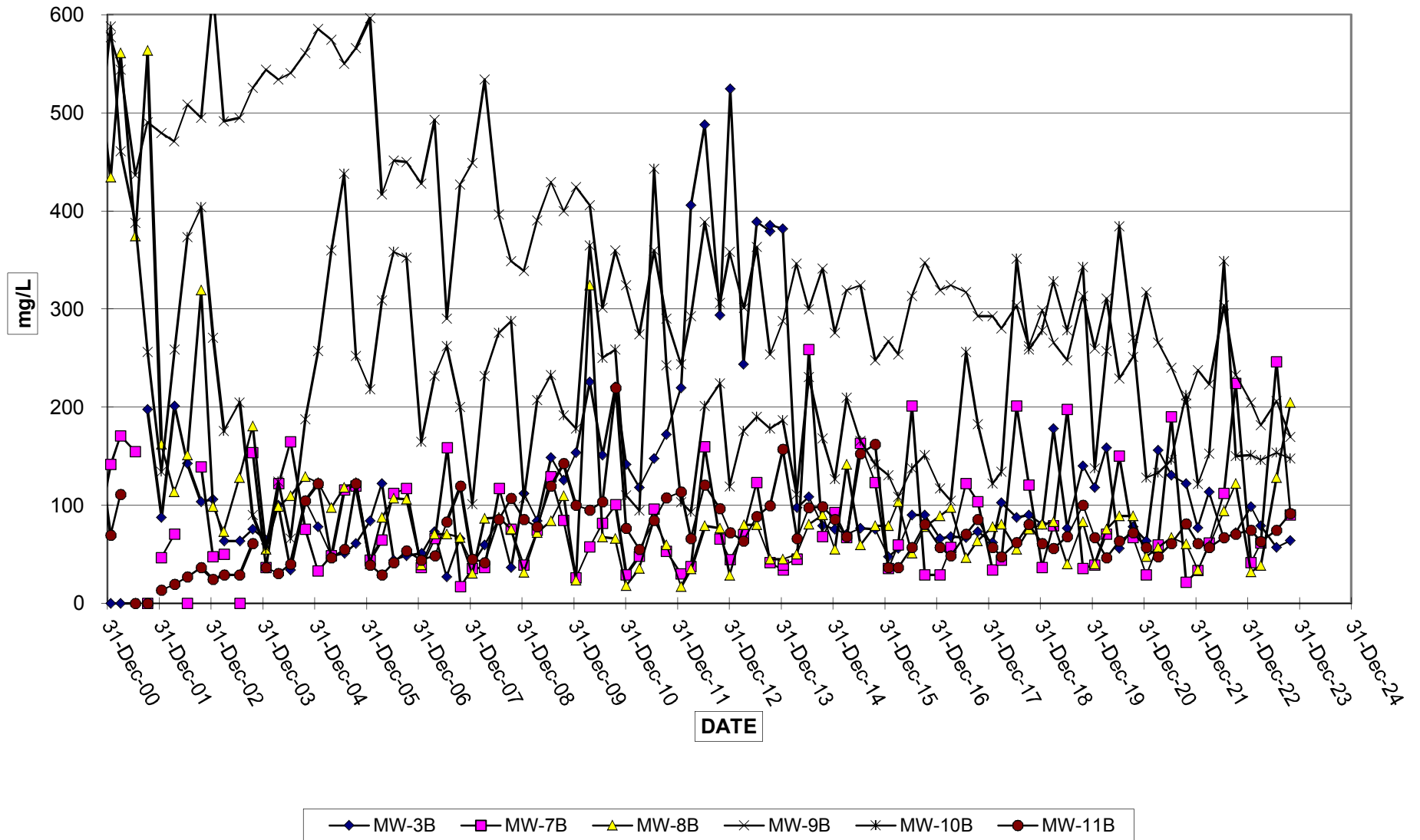
**Cowlitz County Tennant Way Landfill
Site B Cells 1 and 2 Shallow Wells
Total Dissolved Solids**



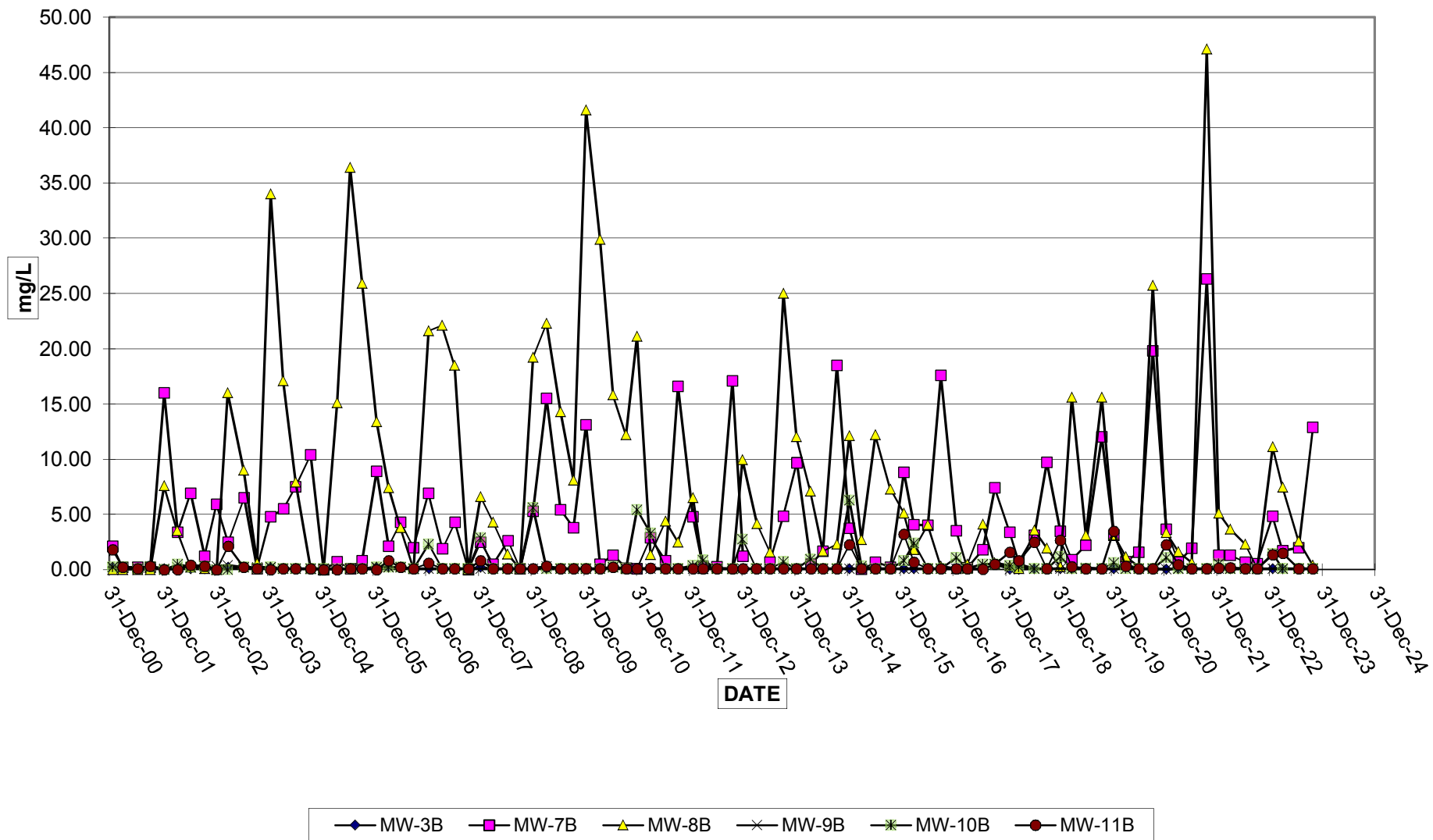
**Cowlitz County Tennant Way Landfill
Site B Cells 1 and 2 Shallow Wells
Chloride**



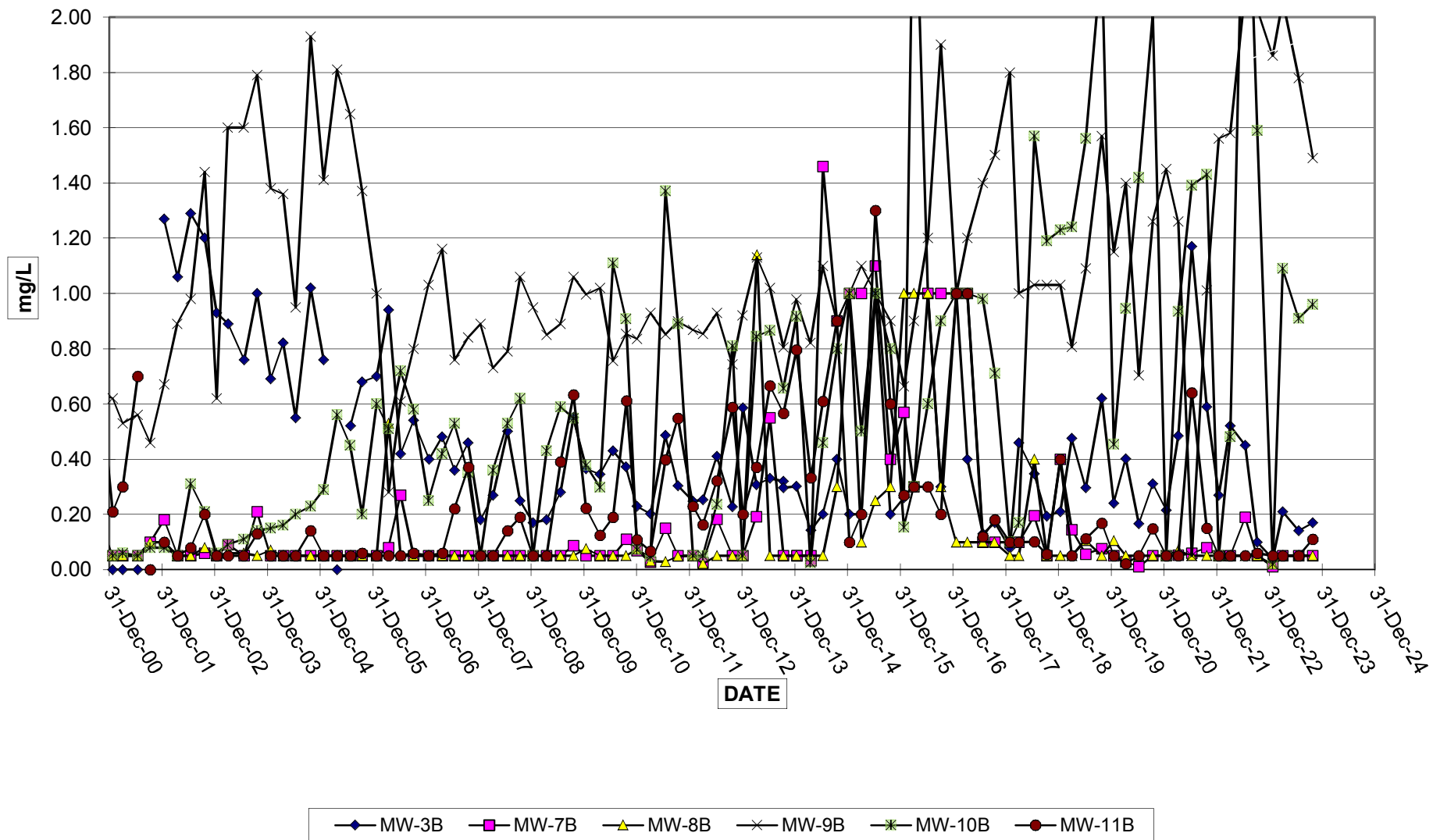
**Cowlitz County Tennant Way Landfill
Site B Cells 1 and 2 Shallow Wells
Bicarbonate**



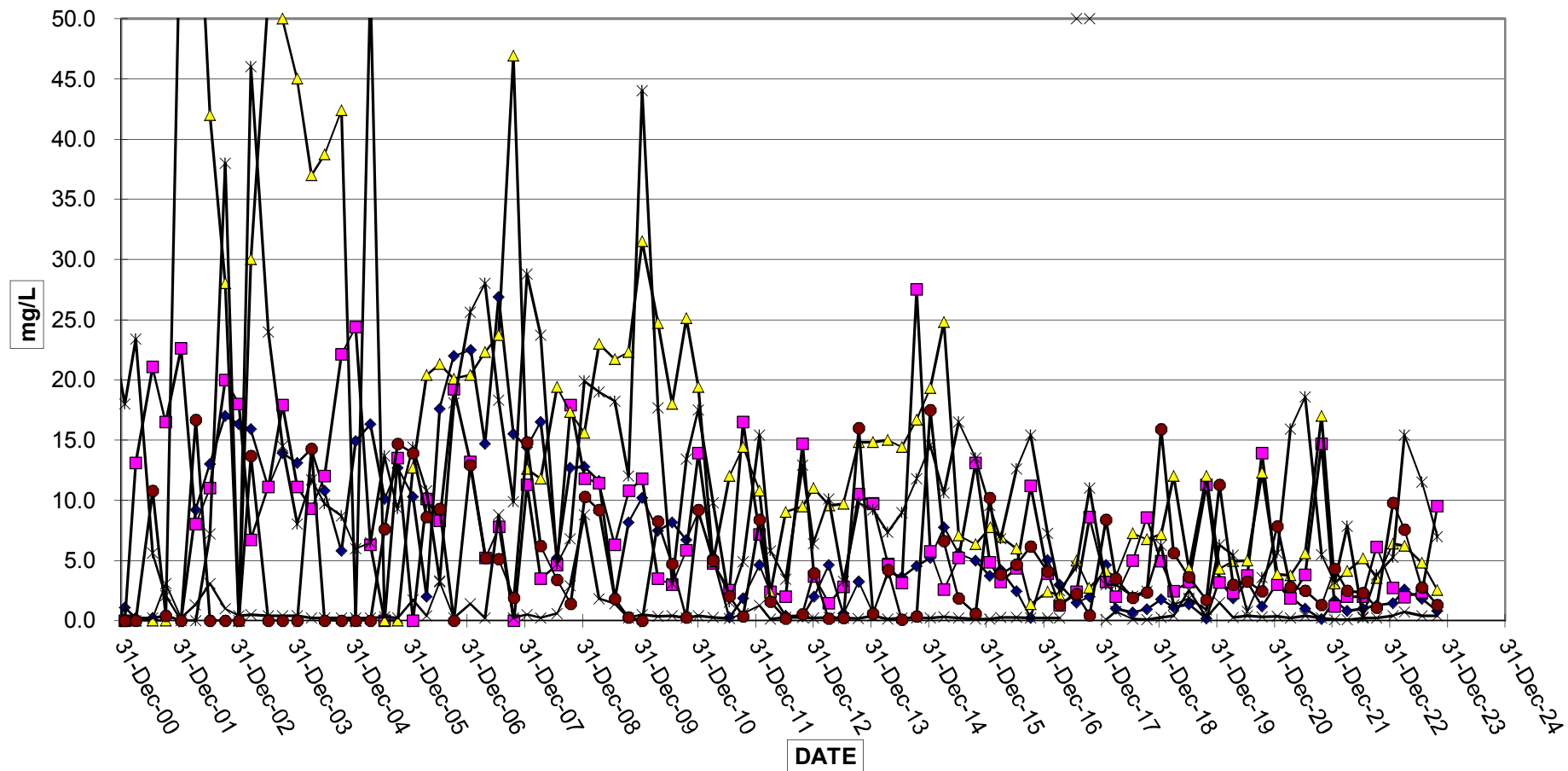
**Cowlitz County Tennant Way Landfill
Site B Cells 1 and 2 Shallow Wells
Nitrate**



**Cowlitz County Tennant Way Landfill
Site B Cells 1 and 2 Shallow Wells
Ammonia**

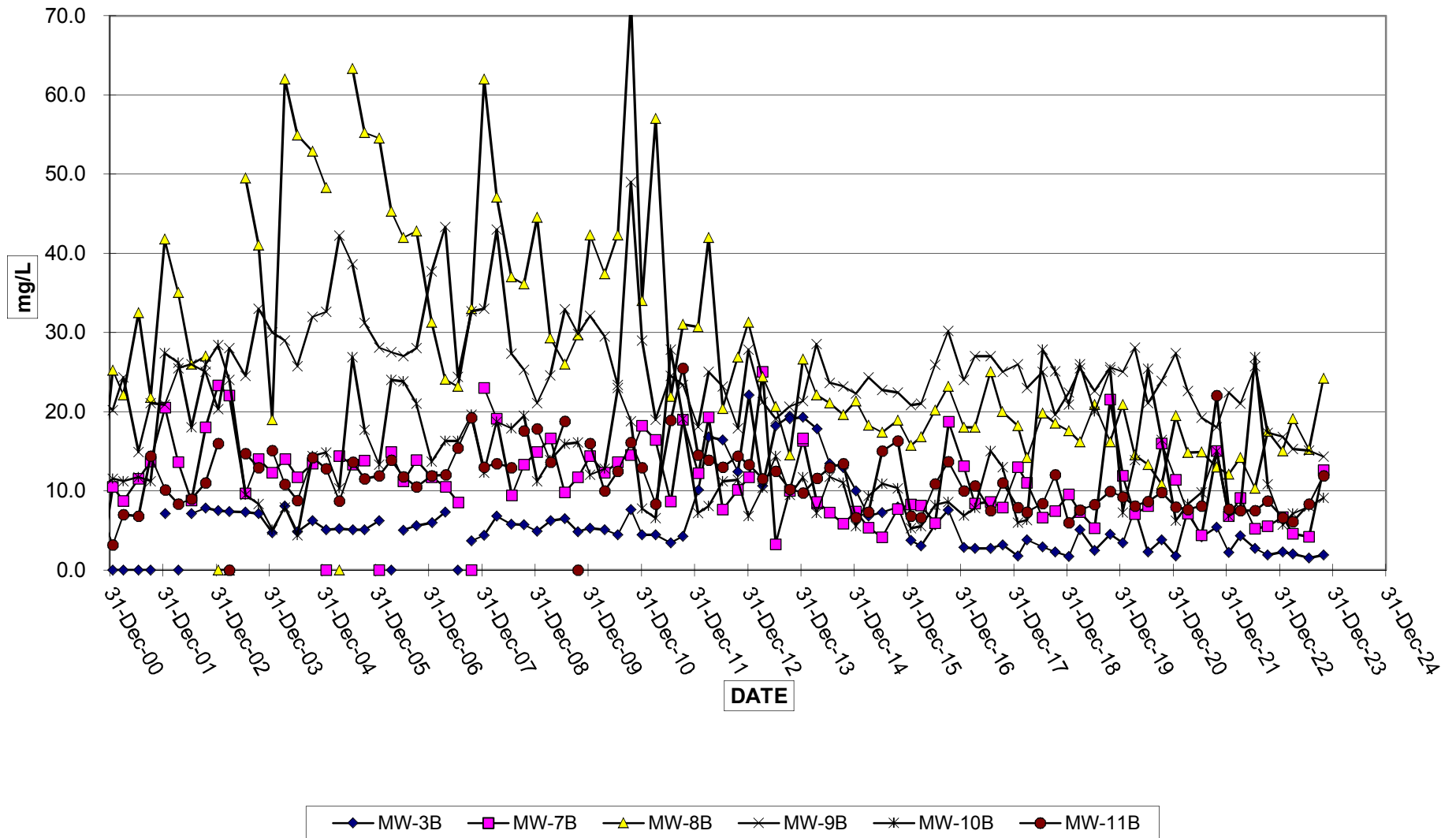


**Cowlitz County Tennant Way Landfill
Site B Cells 1 and 2 Shallow Wells
Sulfate**

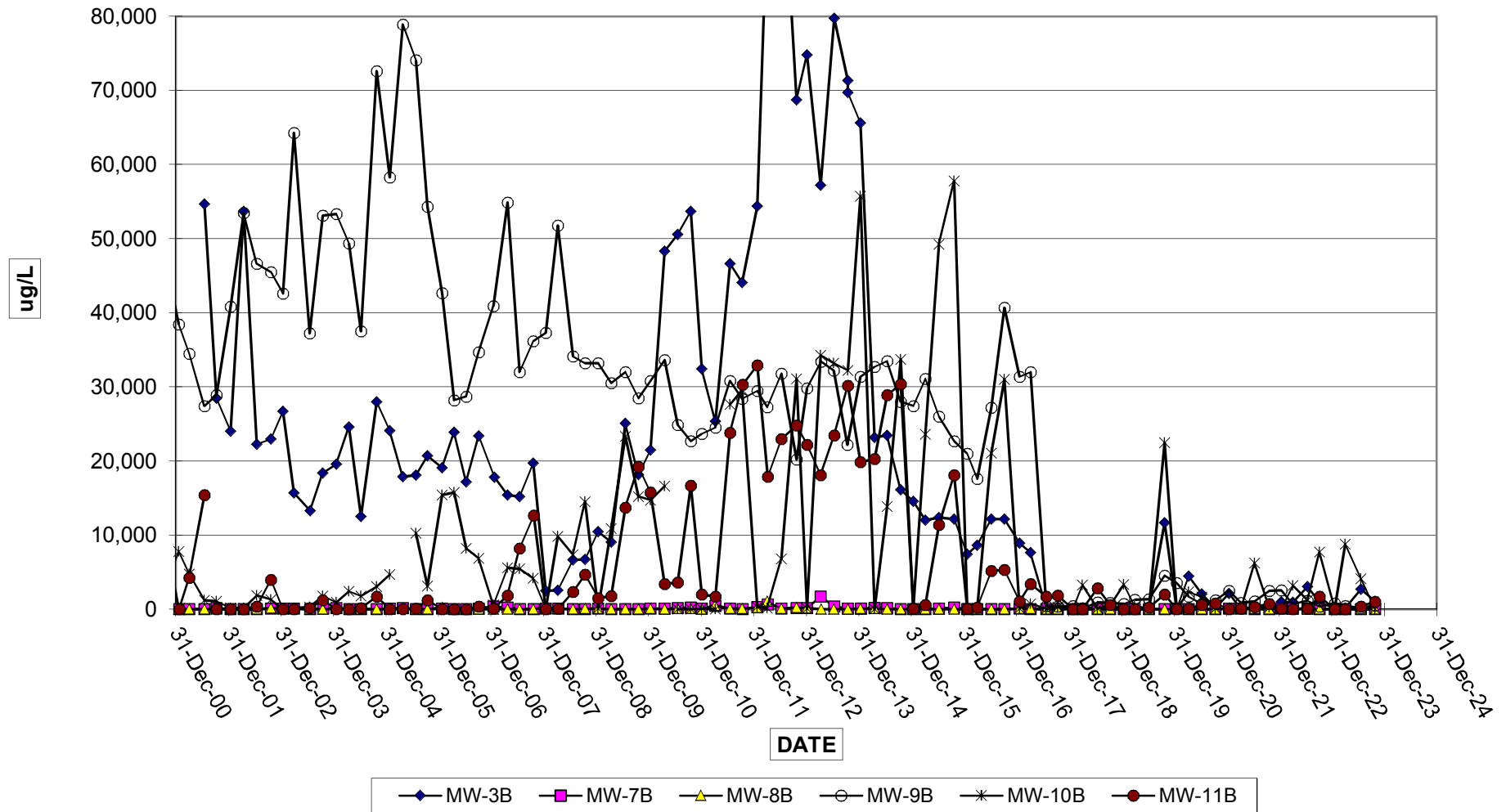


—◆— MW-3B —■— MW-7B —▲— MW-8B —×— MW-9B —*— MW-10B —●— MW-11B

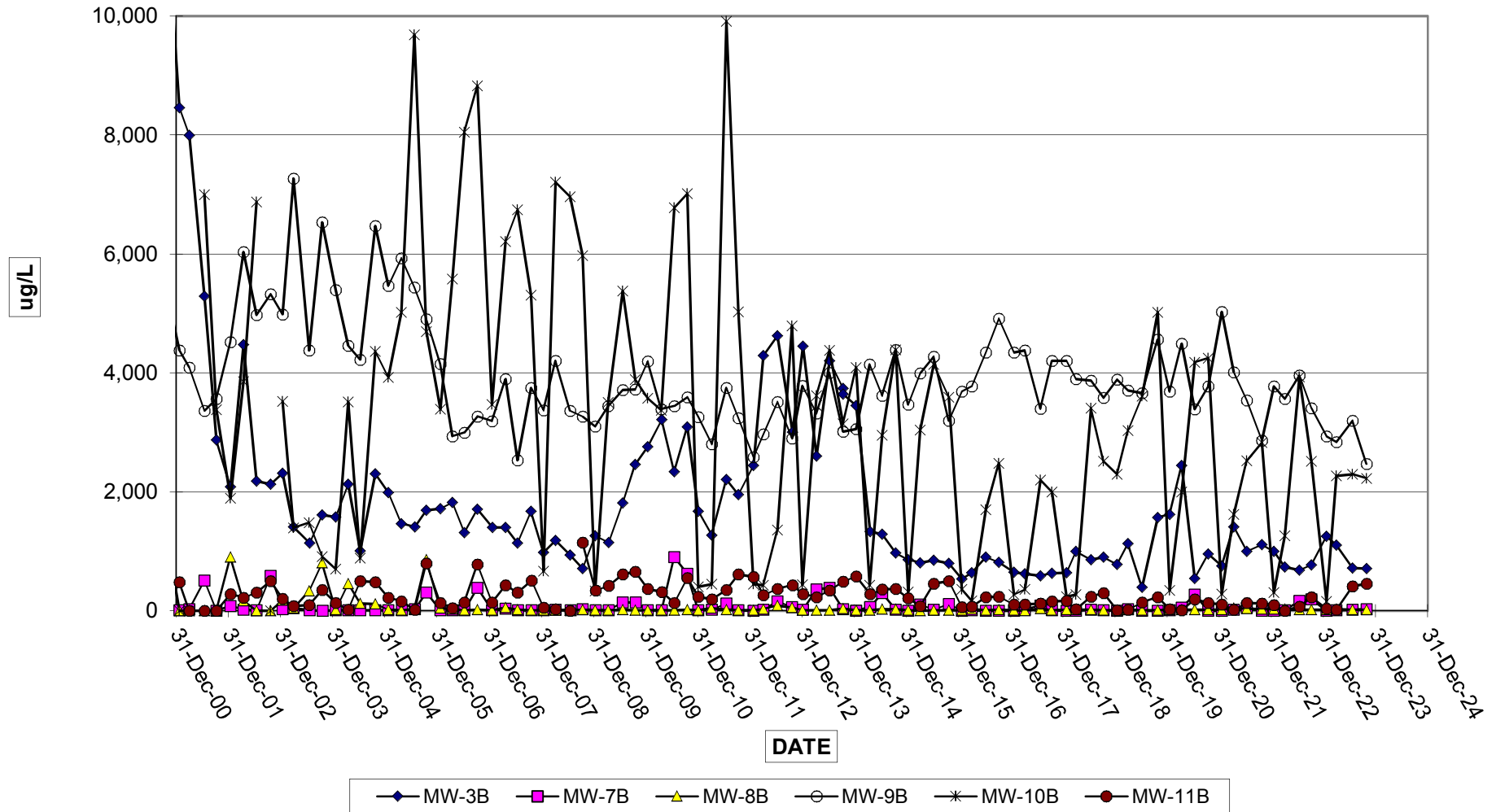
**Cowlitz County Tennant Way Landfill
Site B Cells 1 and 2 Shallow Wells
TOC**



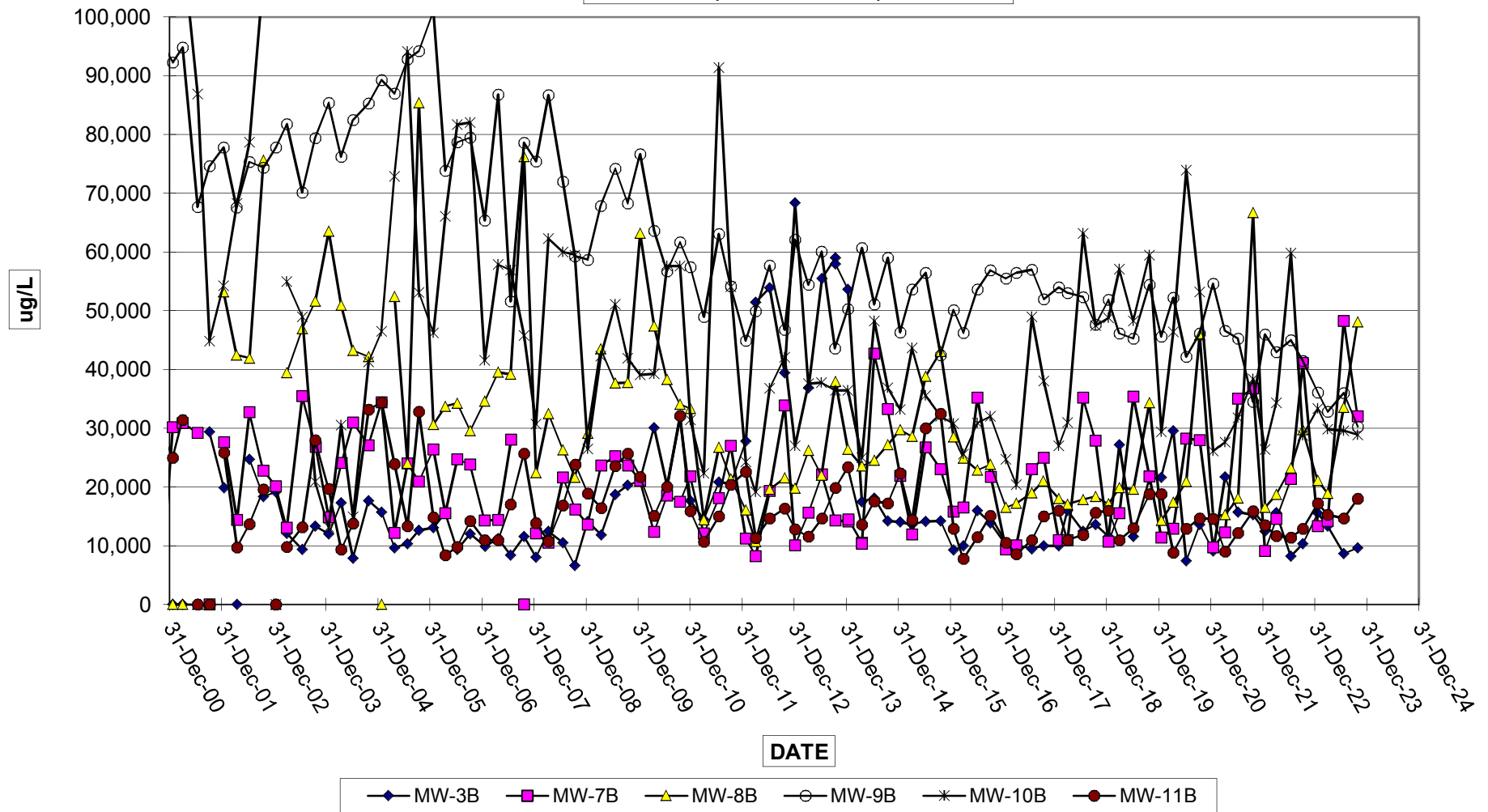
**Cowlitz County Tennant Way Landfill
Site B Cells 1 and 2 Shallow Wells
Dissolved Iron
(Total 4/11 to 1/13)**



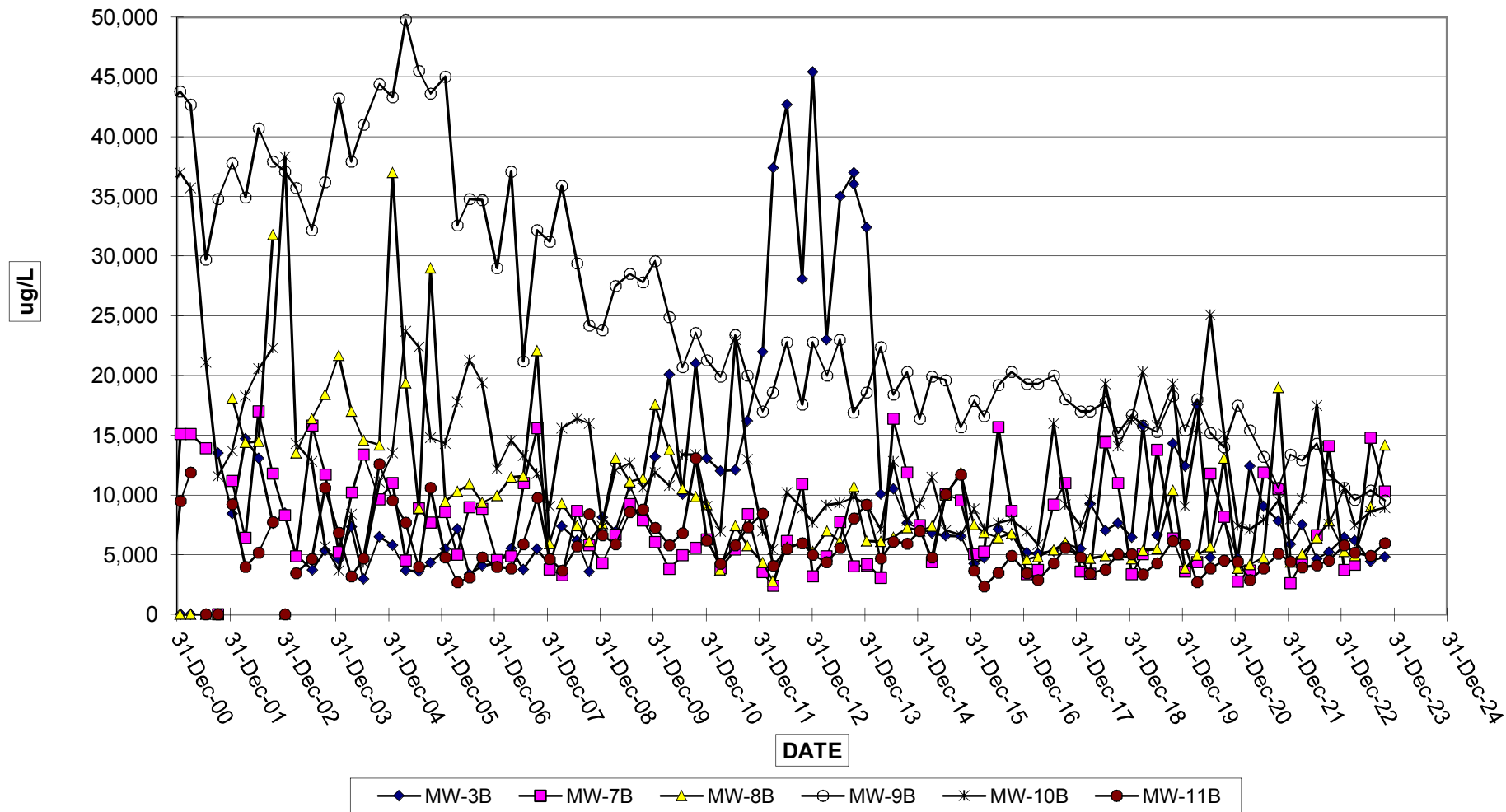
**Cowlitz County Tennant Way Landfill
Site B Cells 1 and 2 Shallow Wells
Dissolved Manganese
(Total 4/11 to 1/13)**



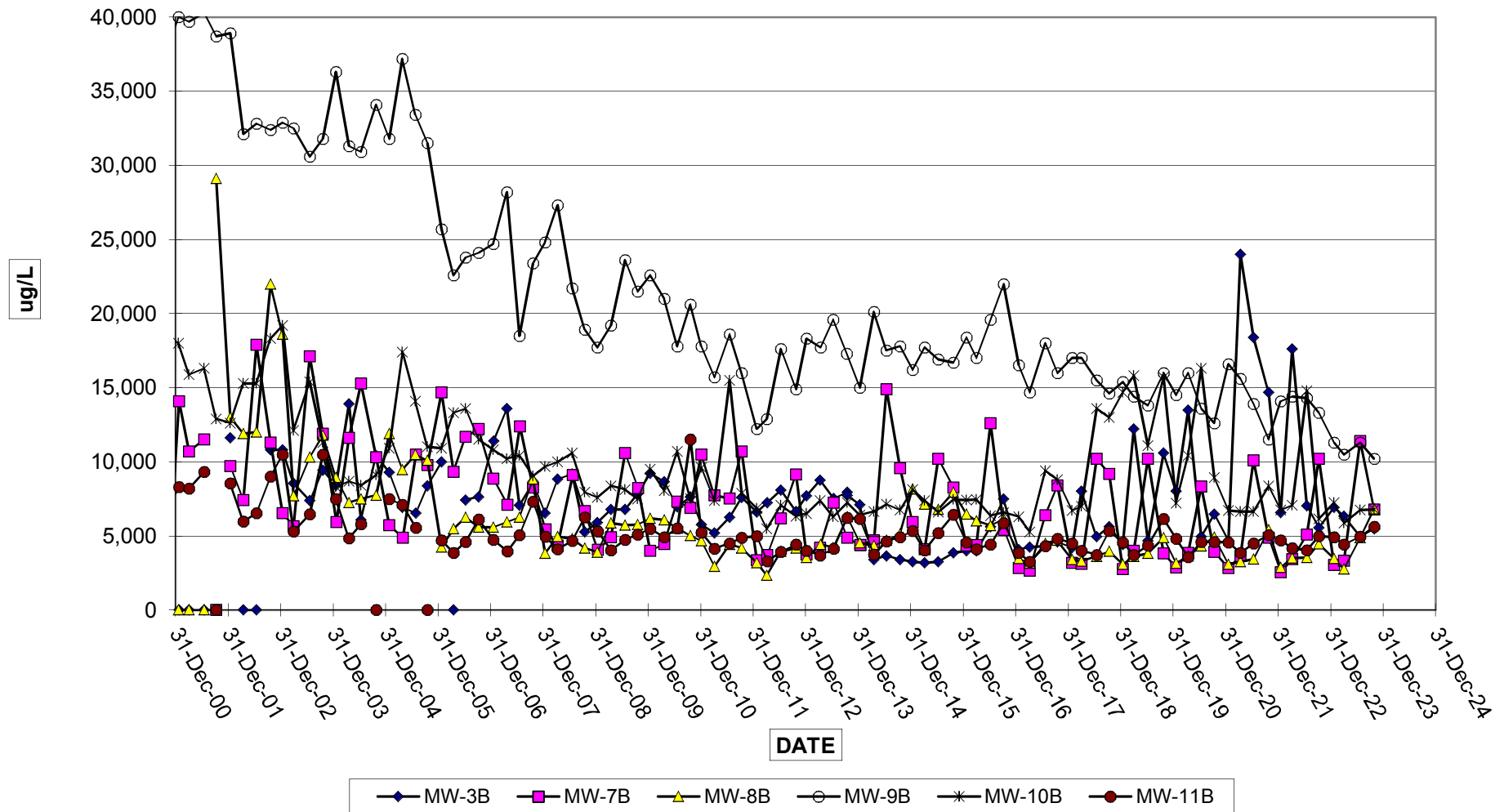
**Cowlitz County Tennant Way Landfill
Site B Cells 1 and 2 Shallow Wells
Dissolved Calcium
(Total 4/11 to 1/13)**



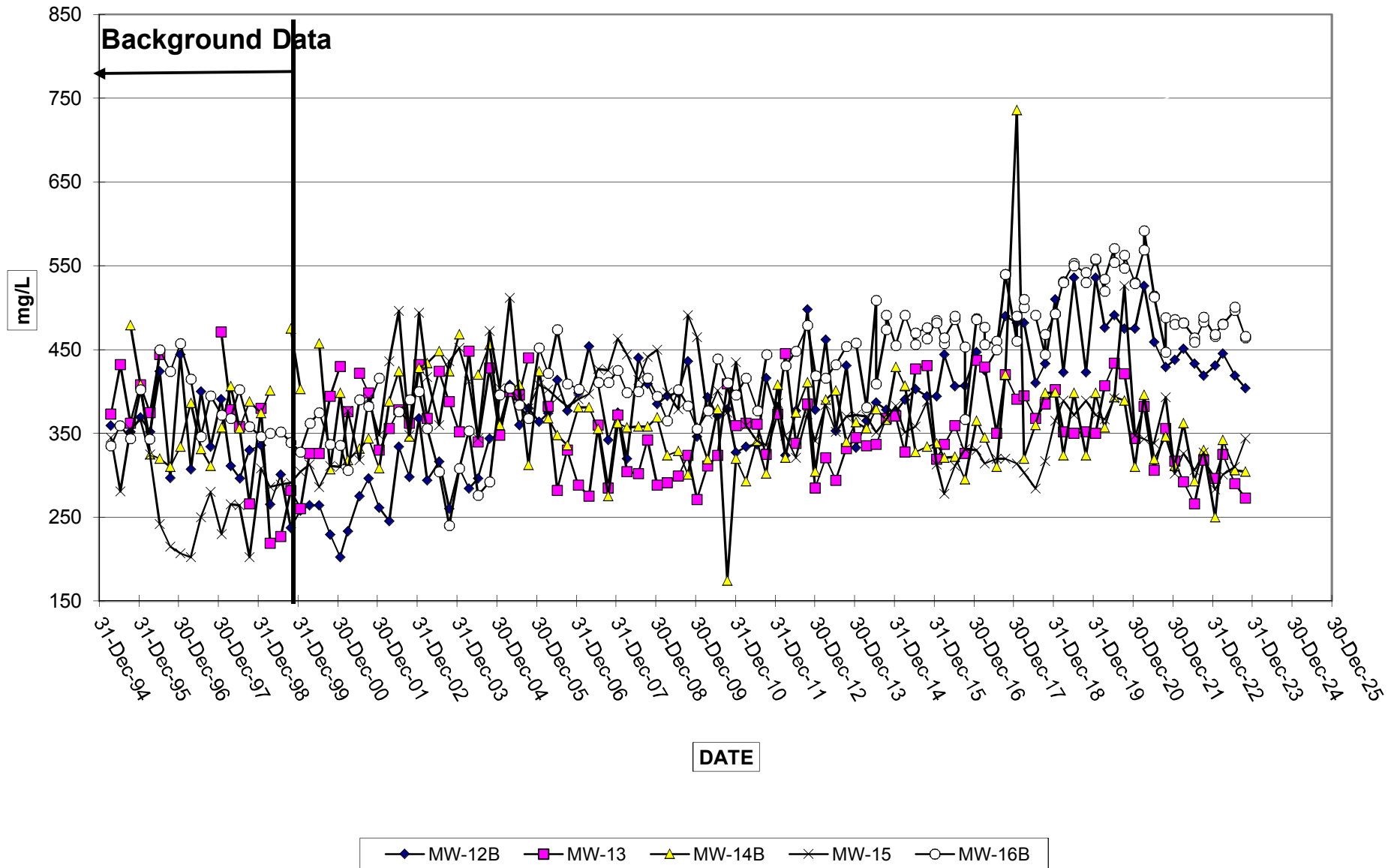
**Cowlitz County Tennant Way Landfill
Site B Cells 1 and 2 Shallow Wells
Dissolved Magnesium
(Total 4/11 to 1/13)**



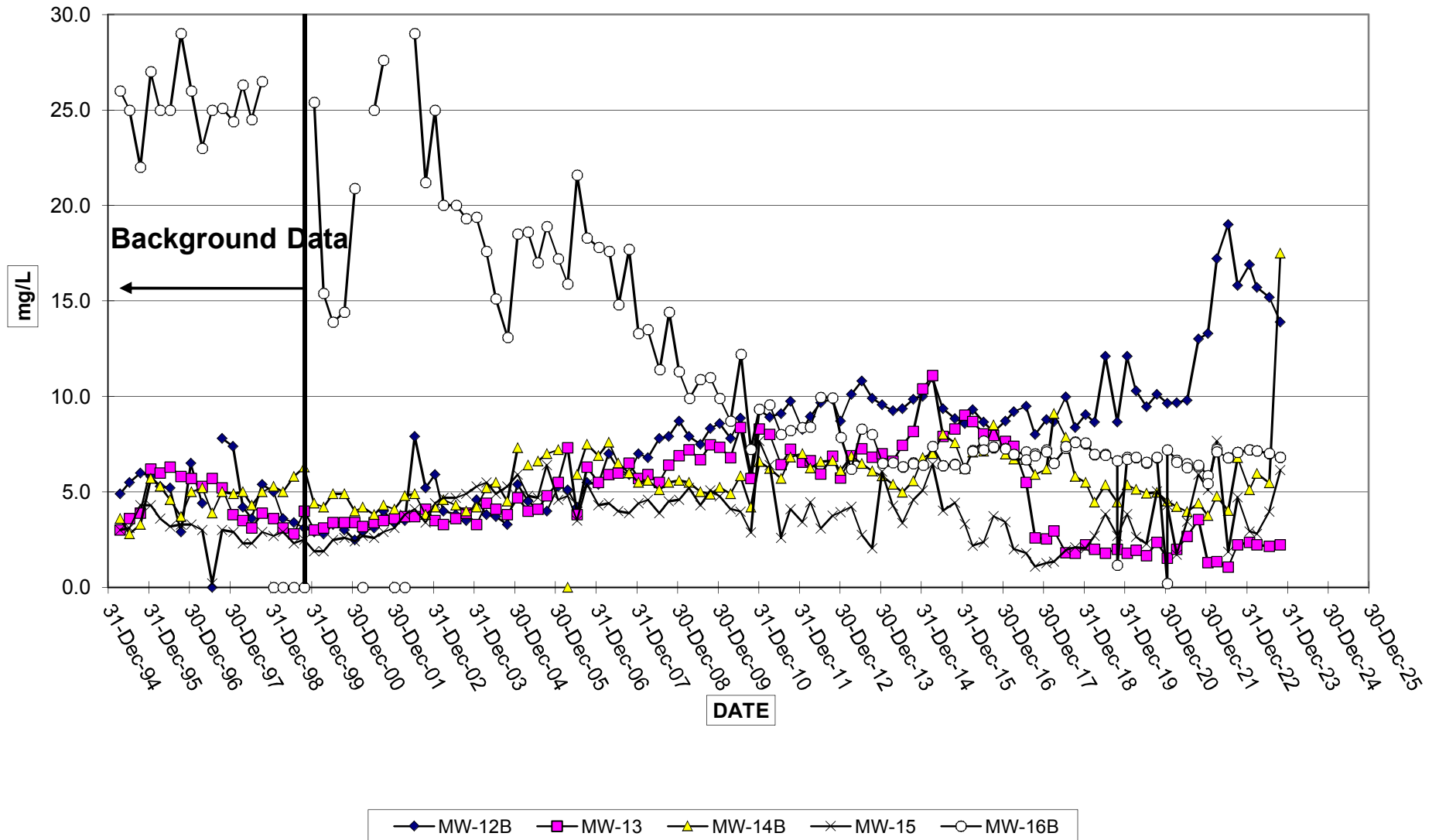
**Cowlitz County Tennant Way Landfill
Site B Cells 1 and 2 Shallow Wells
Dissolved Sodium
(Total 4/11 to 1/13)**



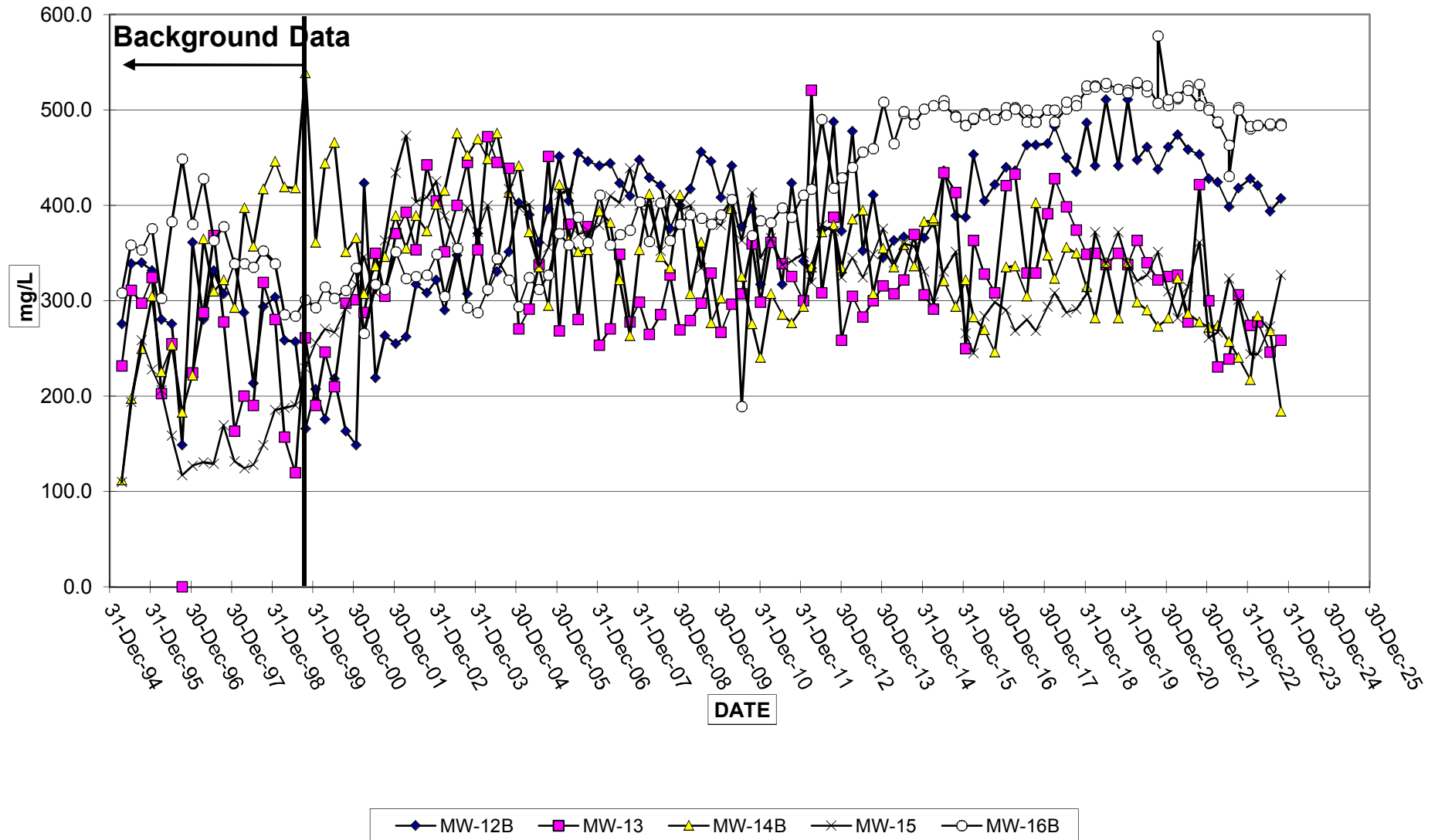
Cowlitz County Tennant Way Landfill
Site B Cell 3 Shallow Wells
TDS



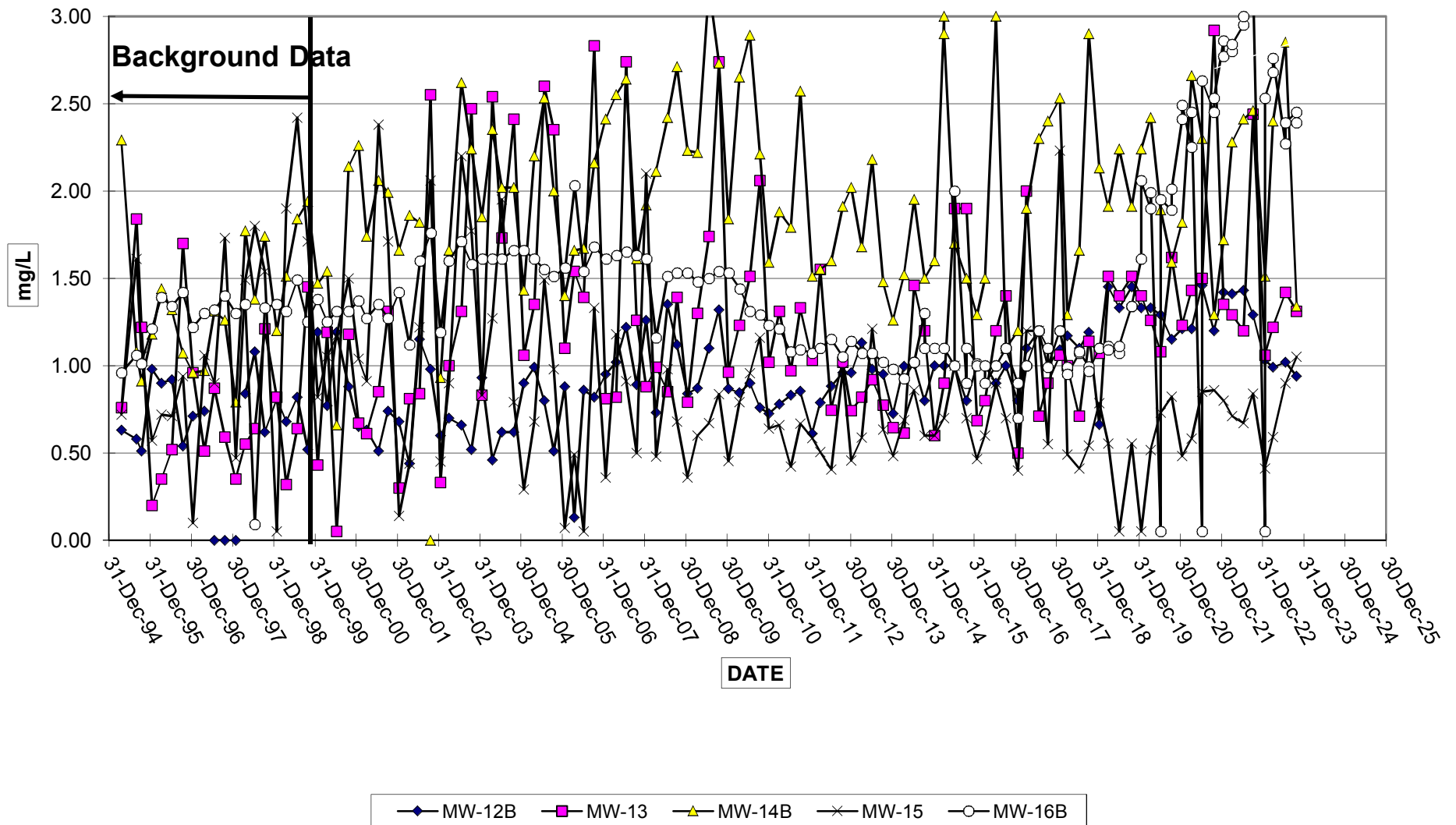
**Cowlitz County Tennant Way Landfill
Site B Cell 3 Shallow Wells
Chloride**



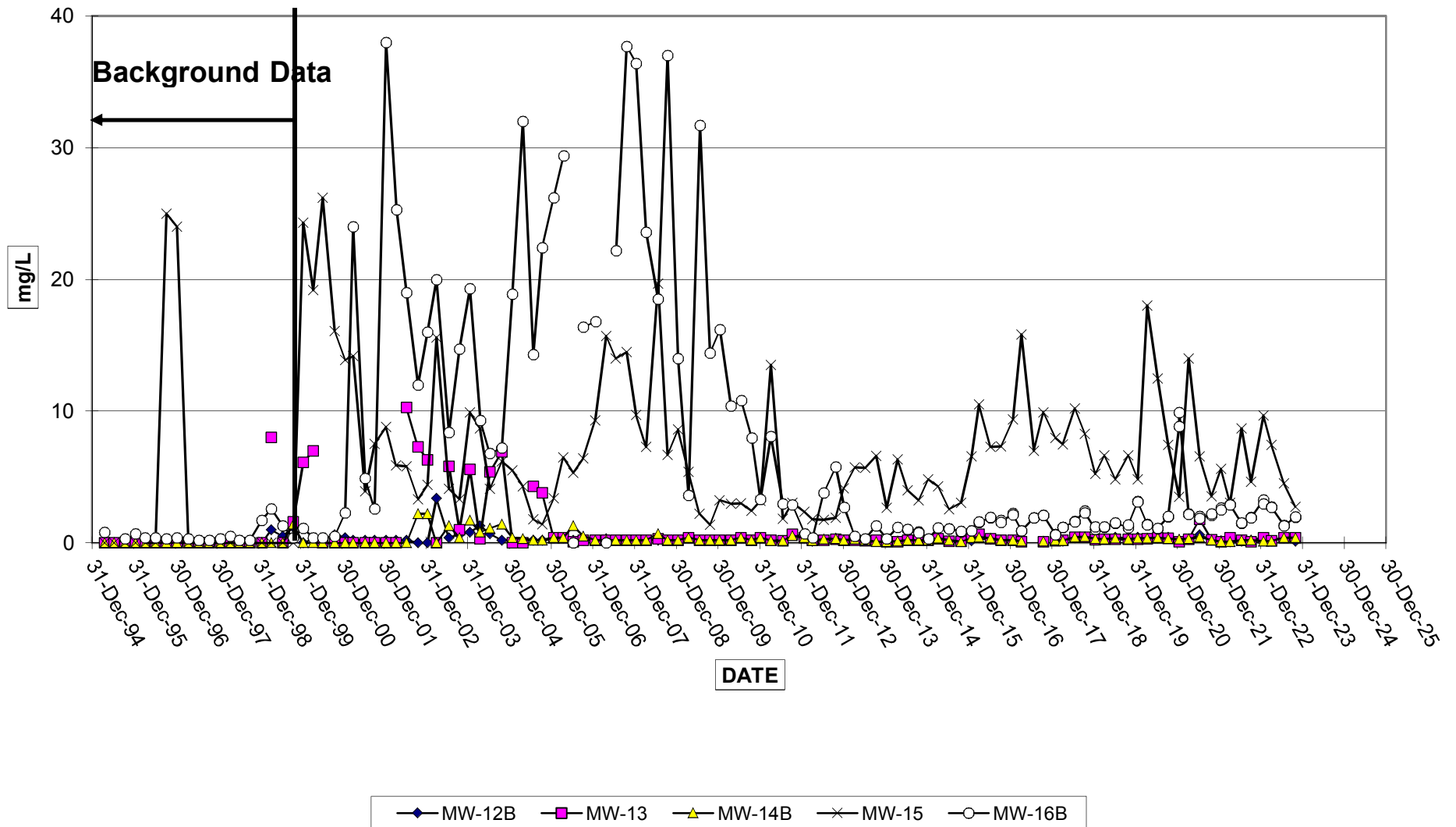
Cowlitz County Tennant Way Landfill
Site B Cell 3 Shallow Wells
Bicarbonate



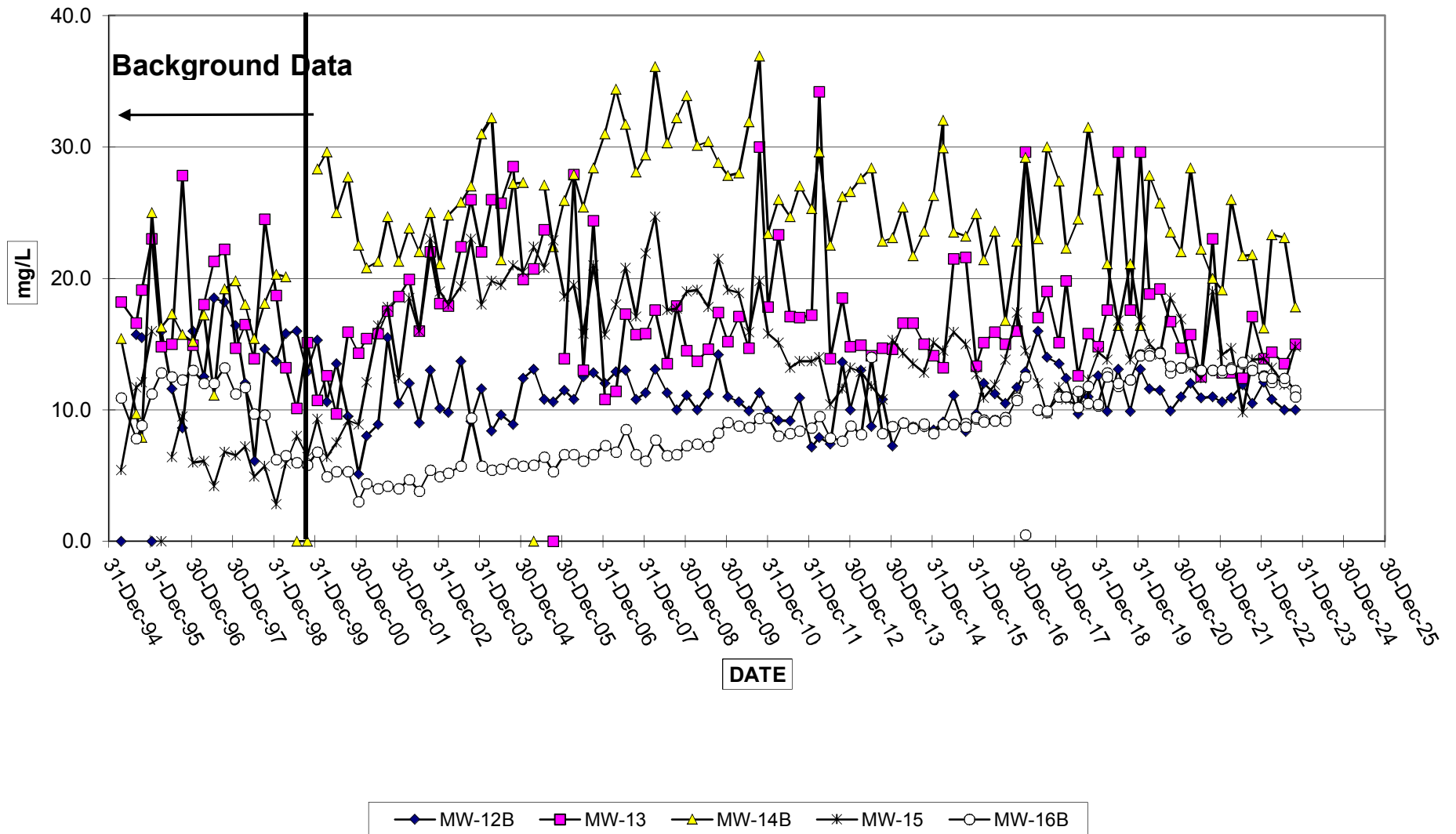
**Cowlitz County Tennant Way Landfill
Site B Cell 3 Shallow Wells
Ammonia**



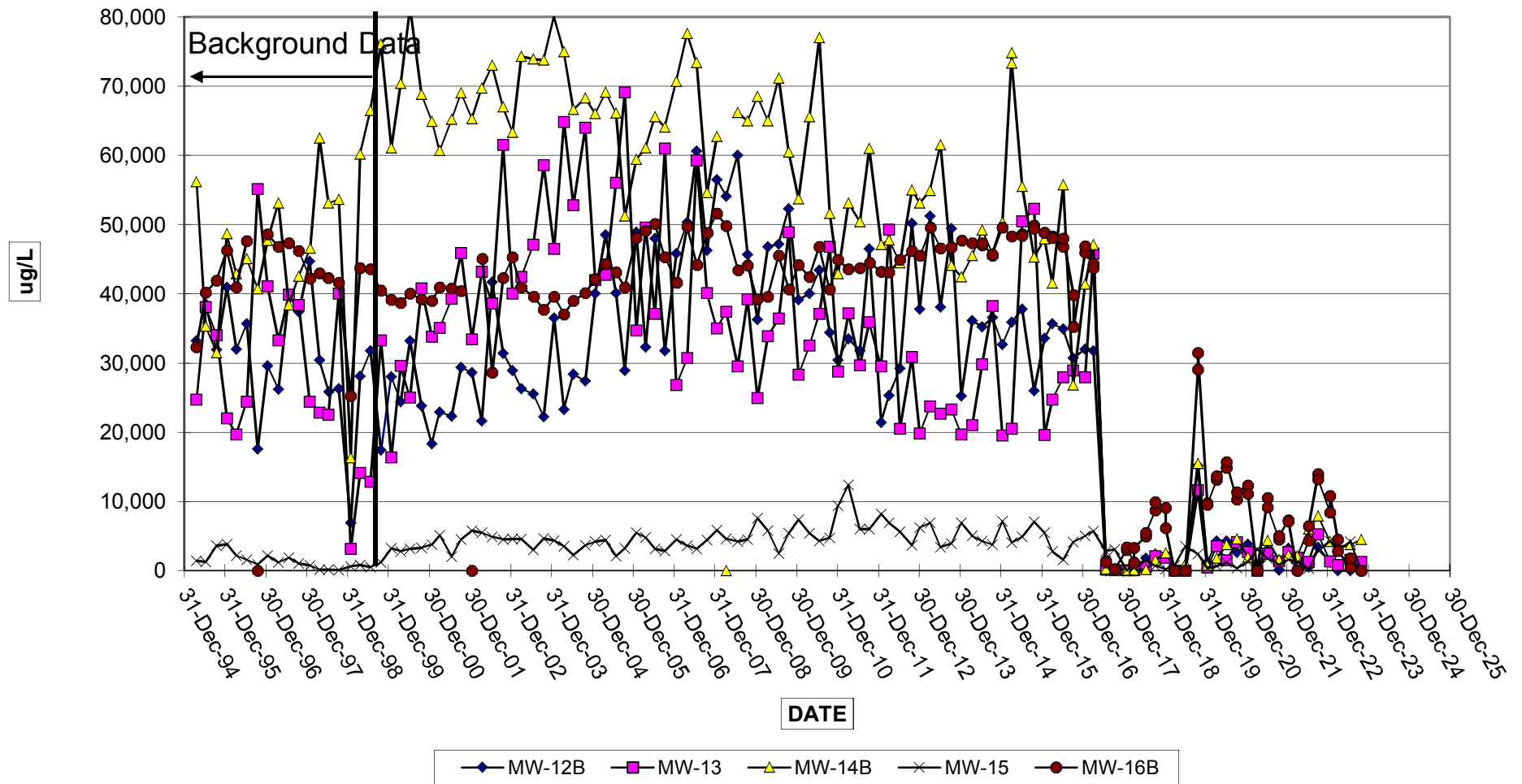
Cowlitz County Tennant Way Landfill
Site B Cell 3 Shallow Wells
Sulfate



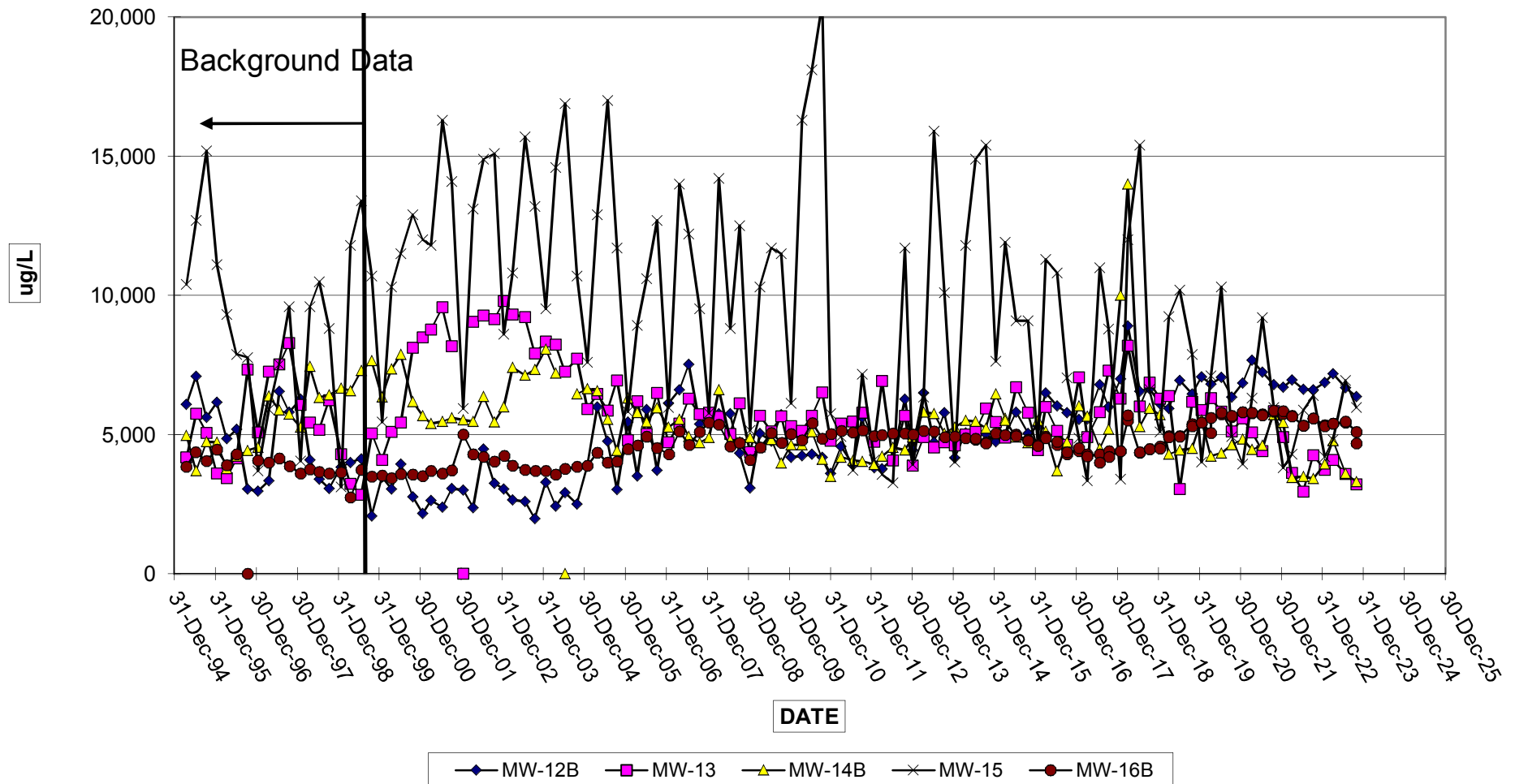
**Cowlitz County Tennant Way Landfill
Site B Cell 3 Shallow Wells
TOC**



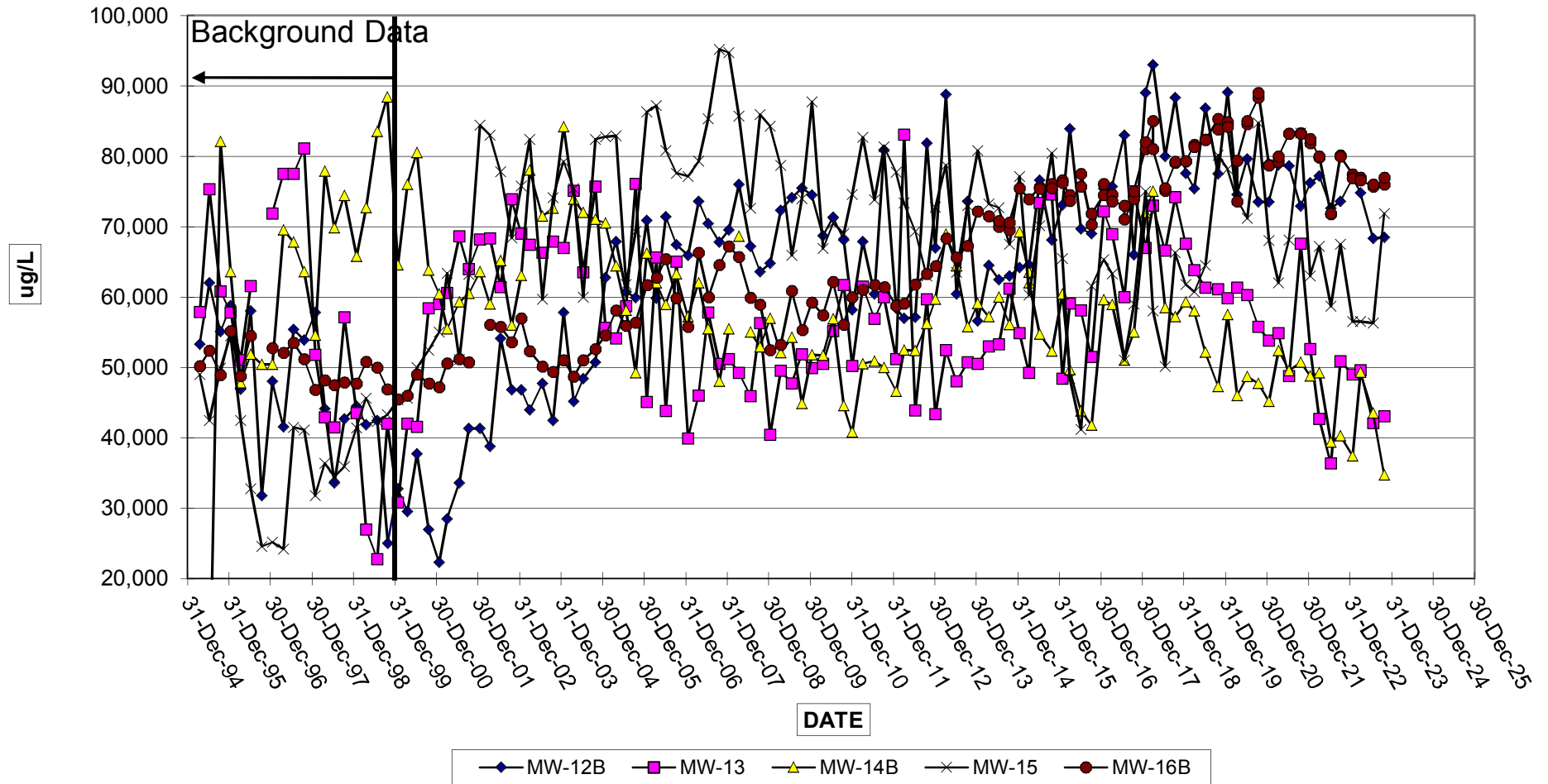
**Cowlitz County Tennant Way Landfill
Site B Cell 3 Shallow Wells
Dissolved Iron
(Total 4/11 to 1/13)**



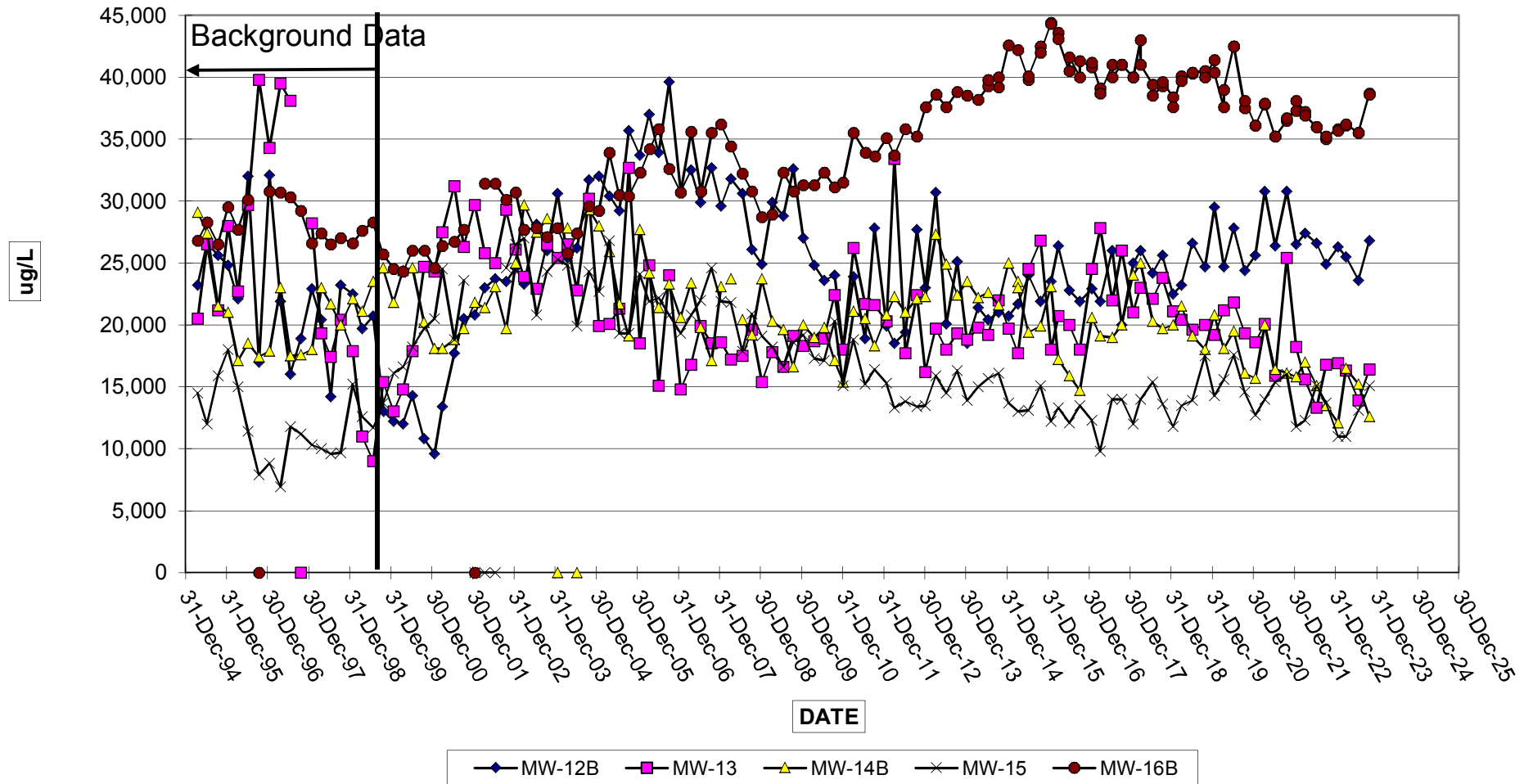
**Cowlitz County Tennant Way Landfill
Site B Cell 3 Shallow Wells
Dissolved Manganese
(Total 4/11 to 1/13)**



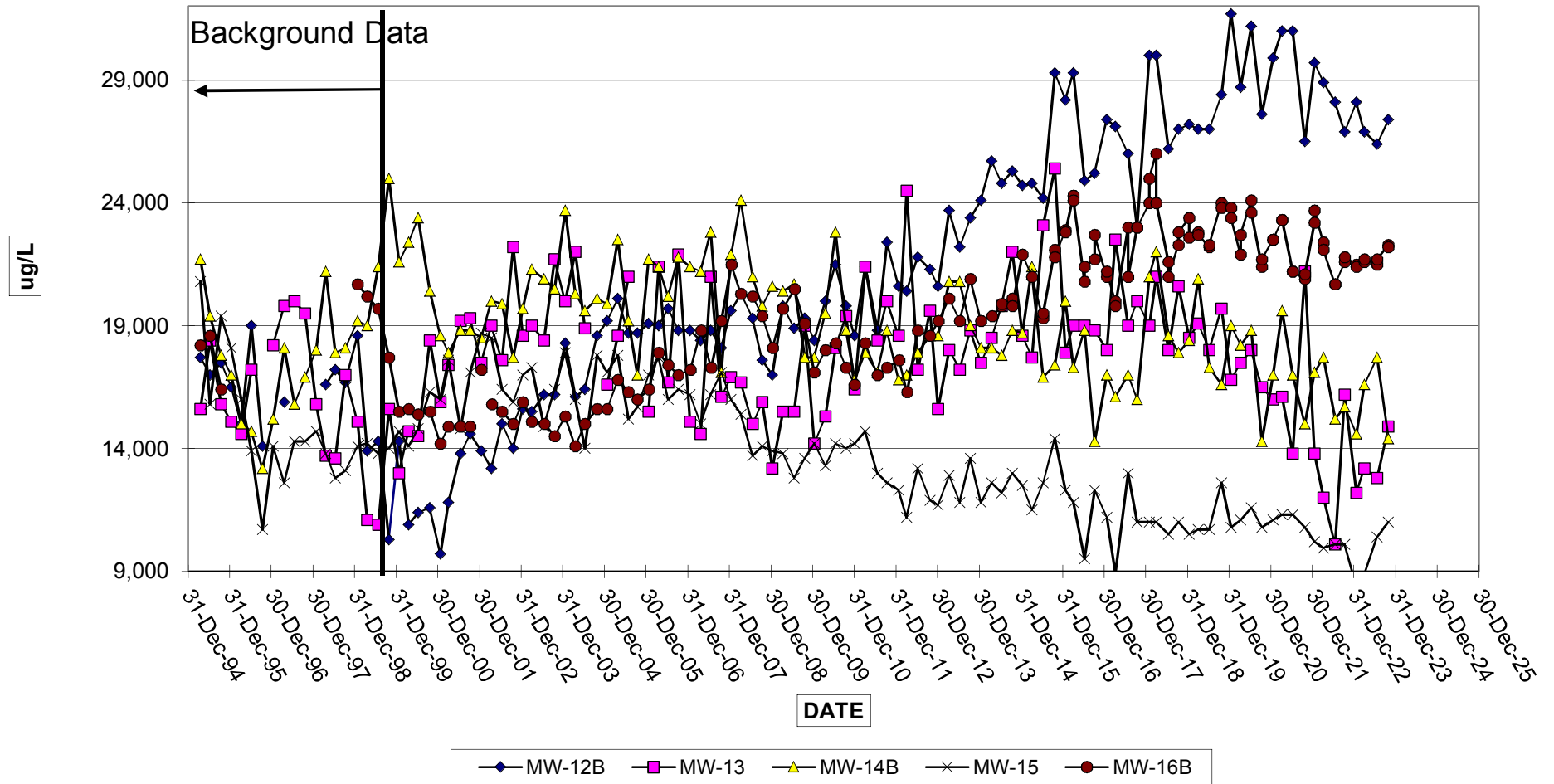
**Cowlitz County Tennant Way Landfill
Site B Cell 3 Shallow Wells
Dissolved Calcium
(Total 4/11 to 1/13)**



**Cowlitz County Tennant Way Landfill
Site B Cell 3 Shallow Wells
Dissolved Magnesium
(Total 4/11 to 1/13)**



**Cowlitz County Tennant Way Landfill
Site B Cell 3 Shallow Wells
Dissolved Sodium
(Total 4/11 to 1/13)**



Cowlitz County Tennant Way Landfill

Inorganic Groundwater Quality Data and Statistics

Location	Date	mg/L									Field Measurements					
		Bicarbonate	Alkalinity (as CaCO3)	Chloride	Ammonia	Nitrate	Sulfate	TOC	Total Suspended Solids	Total Dissolved Solids	pH	Specific Conduct.	Temp.	Turbidity	Dissolved Oxygen	Eh
		MCL>		250 (2ndary)		10.0	250 (2ndary)			500 (2ndary)		(umhos/cm)	(C)	(NTU)	(mg/l)	(mV)
MW-3B	07/12/12	488	400	1.3	0.41	0.1 U	0.4 T	16.4		480	6.4	610	12.8	0.6	3.4	
	10/25/12	294	241	1.0	0.23	0.1 U	0.3	12.4		372	6.4	314	13.2	0.4	5.2	
	01/07/13	524	430	2.3	0.59	0.1 U	2.0	22.1	55	504	6.5	856	13.5	0.8	5.2	-142
	04/11/13	244	200	2.7	0.31	0.1 U	4.6	10.6	35	294	6.5	510	11.9	0.6	0.0	-121
	07/12/13	389	319	3.1	0.33	0.1 U	0.6	18.2	114	400	6.3	750	12.2	0.5	0.0	-100
	10/15/13	379	311	2.6	0.32	0.1 U	3.3	19.4	119	394	6.4	727	13.9	1.5	0.11	-105
	10/15/13	385	316	2.6	0.30	0.1 U	3.2	19.1	105	421						
	01/13/14	382	313	1.5	0.30	0.1 U	0.6	19.3	98	359	6.5	682	12.5	0.6	0.0	-94
	04/21/14	98	80	1.7	0.14	0.1 U	4.0	17.8	5 U	205	6.4	221	10.7	1.4	0.0	-64
	07/15/14	109	89	2.8	0.20	0.1 U	3.6	13.4	29	188	6.0	223	12.5	3.7	0.0	-43
	10/19/14	79	65	2.6	0.40 T	0.1 U	4.5	12.9	5 U	184	6.4	179	12.7	1.9	0.0	-62
	01/13/15	76	62	2.3	0.20 T	0.1 U	5.2	10.0	7	181	6.4	164	11.3	1.4	0.0	-32
	04/08/15	71	58	2.8	0.20 T	0.1 U	7.7	6.8	5 U	147	6.5	159	10.6	5.9	0.0	12
	07/12/15	77	63	2.2	1.0 UB1	0.1 U	5.6	7.3	5 U	130	6.4	157	12.3	0.9	0.0	-21
	10/26/15	76	62	2.2	0.20 T	0.1 U	5.0	8.0	5 U	151	6.9	168	12.1	1.0	0.0	5
	01/25/16	48	39	2.1	0.26 JT	0.1 U	3.7	3.7	5 U	96	6.3	113	9.6	0.7	0.68	26
	04/03/16	56	46	2.3	2.70	0.1 U	4.2	3.1	5 U	105	7.0	125	10.6	4.1	0.08	-2
	07/10/16	90	74	4.1	1.0 U	0.1 U	2.4	5.7	32	155	6.9	189	11.4	2.8	0.99	4
	10/09/16	90	74	5.0	0.30 T	0.1 U	0.2 U	7.6	5 U	155	6.8	181	12.2	0.9	0.0	11
	01/23/17	66	54	0.7	1.0 U	0.1 U	5.0	2.9	9	110	6.5	135	10.5	3.8	0.0	24
	04/09/17	68	56	0.9	0.40 T	0.1 U	3.0	2.7	7	100	7.0	131	10.0	6.8	0.0	-2
	07/27/17	67	55	0.9 T	0.13	0.05 T	1.5 T	2.7	5 U	120	7.0	129	11.7	5.9	0.45	0
	10/16/17	73	60	1.0 T, B	0.17	0.5 U	2.0 T	3.2	6	140	7.2	139	12.7	6.0	0.0	-7
	01/29/18	62	51	1.8 JT	0.08 T	0.03 T	4.6 T	1.8	5	140	6.6	137	10.8	7.3	0.0	15
	04/03/18	102	84	4.4 T	0.46	0.03 T	1.0 T	3.8	5 T	160	7.1	208	10.9	2.2	0.0	-14
	07/19/18	88	72	3.1	0.35	0.1 U	0.7	2.9	29	136 J	6.1	173	12.6	11.1	0.0	3
	10/14/18	90	74	3.5	0.19	0.1 U	0.9	2.3	24	122	6.5	178	13.4	4.7	0.0	-16
	01/15/19	80	66	2.3	0.21	0.1	1.8 U	1.7	20	115	6.2	150	12.5	0.6	0.0	1
	04/02/19	178	146	13.9	0.48	0.1 U	1.1	5.1	29	236	6.5	367	12.0	0.7	0.0	-12
	07/09/19	77	63	4.0	0.30	0.1 U	1.4	2.5	17	158	6.6	160	12.5	1.4	0.0	-14
	10/27/19	140	115	12.8	0.62	0.1 U	0.2 T	4.5	34	218	6.3	297	13.6	1.3	0.0	7
	01/20/20	118	97	11.3	0.24 J	0.1 U	3.3	3.4	12	196	6.3	267	11.8	2.4	0.0	4
	04/13/20	158	130	35.2	0.40	0.5	1.9	7.8	31	275	6.2	380	12.3	0.3	0.0	8
	07/12/20	56	46	2.3	0.17 J	0.1 U	3.2	2.3	5 U	146	6.6	117	12.9	1.4	0.0	-14
	10/14/20	78	64	8.1	0.31	0.03 T	1.2	3.8	16	163	6.4	170	13.7	0.8	0.0	1
	01/18/21	63	52	2.2 J	0.22	0.05 U	3.2	1.8	10	132	6.4	126	11.8	0.5	0.0	-3
	04/11/21	156	128	24.8	0.48	0.10 U	2.0	7.5	25	246	6.2	315	11.3	4.9	0.0	10
	07/13/21	130	107	7.6	1.17 J	0.10 U	1.0	4.2	20	183	6.2	218	12.2	5.3	0.0	6
	10/25/21	122	100	7.9	0.59	0.10 U	0.1 T	5.4	7 J	187	6.5	229	13.0	1.3	0.0	5
	01/17/22	77	63	2.9 J	0.27	0.10 U	1.7 J	2.2	5 U	120	6.5	148	11.6	5.3	0.0	5
	04/06/22	114	93	8.6	0.52	0.10 U	0.8	4.3	5 U	179	6.6	220	11.8	10.0	0.0	4
	07/17/22	66	55	3.0	0.45	0.10 U	1.0	2.7	5 U	120	6.7	130	12.6	9.8	0.0	-2
	10/09/22	72	59	2.4	0.10	0.10 U	1.3	1.9	7	120	7.0	139	14.4	11.9	0.0	-22
	01/23/23	99	81	5.5	0.04 JT	0.10 U	1.4	2.3	29	139	6.5	199	12.0	15.7	0.0	10
	04/03/23	79	65	5.4	0.21	0.10 U	2.6	2.0	18	133	6.5	162	11.6	4.2	0.0	5
	07/23/23	57	47	3.5	0.14	0.10 U	1.8	1.5	5 U	117	6.7	118	12.7	2.6	0.0	-1
	10/29/23	64	53	3.6	0.17	0.10 U	0.8	1.9	5 U	117	6.6	120	13.6	0.6	0.1	2
count		90	90	87	89	158	135	86		89						
max		524.3	430	35.2	2.7	0.6	26.9	22.1		504						
min		26.8	22	0.7	0.04	0.01 U	0.08	1.5		85						
non-detects		0	0	0	2	130	17	0		0						
average		125.6	103.0	4.0	0.5	0.2	4.6	6.6		182.7						
sample stdev		101.2	83.0	4.8	0.4	0.1	5.7	4.6		89.1						
variance		10,248	6,894	23	0	0	33	22		7,933						
coeff. of variation		1.2	1.2	0.8	1.2	1.4	0.8	1.4		2.1						
standard error		10.7	8.8	0.5	0.0	0.0	0.5	0.5		9.4						

Cowlitz County Tennant Way Landfill
Inorganic Groundwater Quality Data and Statistics

Location	Date	mg/L									Field Measurements					
		Bicarbonate	Alkalinity (as CaCO3)	Chloride	Ammonia	Nitrate	Sulfate	TOC	Total Suspended Solids	Total Dissolved Solids	pH	Specific Conduct.	Temp.	Turbidity	Dissolved Oxygen	Eh
		MCL>		250 (2ndary)		10.0	250 (2ndary)			500 (2ndary)		(umhos/cm)	(C)	(NTU)	(mg/l)	(mV)
MW-5B	07/12/12	335	275	2.8	0.05	0.1 U	32.5	4.1		315	6.3	400	11.7	1.9	3.8	
	10/25/12	290	238	2.8	0.04	0.1 U	26.7	3.3		322	6.1	209	13.0	1.7	3.4	
	01/07/13	258	212	2.9	0.05 U	0.1 U	27.1	3.7	5 U	419	6.6	387	10.7	0.8	3.4	94
	04/11/13	291	239	2.1	0.05 U	0.1 U	30.9	3.5	5 U	318	6.5	462	9.7	0.6	0.0	93
	07/12/13	295	242	2.4	0.021 T	0.1 U	28.4	8.4*	5 U	303	6.4	479	11.6	0.9	0.0	56
	10/15/13	319	262	2.4	0.05 UB1	0.9	30.5	3.7	5 U	341	6.5	516	13.8	1.4	0.28	117
	01/14/14	299	245	2.3	0.05 U	2.2	31.3	4.2	5 U	332	6.5	471	10.5	0.7	0.0	163
	04/21/14	291	239	2.5	0.05 U	0.4	29.7	4.0	5 U	307	6.5	400	9.9	2.0	0.0	14
	07/16/14	326	267	2.8	0.05 U	0.1 U	28.9	3.2	5 U	337	6.1	495	13.1	1.1	0.0	81
	10/19/14	329	270	2.9	0.20 T	0.1 U	27.1	3.2	5 U	338	6.3	527	14.9	1.7	0.0	-47
	01/14/15	316	259	2.5	1.0 U	0.3	28.5	3.4	5 U	328	6.5	497	11.0	0.8	0.0	64
	01/14/15	312	256	2.5	1.0 U	0.3	28.7	3.3	5 U	327						
	04/08/15	332	272	2.6	0.08 T	0.1 T	27.5	3.6	5 U	317	6.4	420	10.8	1.2	0.0	76
	07/12/15	322	264	2.2	1.0 UB1	0.1 U	26.6	3.3	5 U	302	6.2	497	13.5	1.5	0.0	1
	10/26/15	343	281	2.3	0.20 T	0.1 U	23.9	3.6	9	314	6.4	508	16.3	5.0	0.0	10
	01/26/16	293	240	2.1	0.12 J	2.0	30.0	3.5	5 U	320	6.5	420	11.2	2.1	1.5	24
	04/04/16	300	246	2.6	1.0 U	0.9	21.6	3.2	5 U	304	6.5	420	11.2	2.1	1.5	24
	07/10/16	345	283	3.0	1.0 U	0.1 U	24.7	3.6	5 U	338	6.5	527	13.2	0.8	1.9	24
	10/09/16	333	273	2.8	1.0 U	0.1 U	26.3	3.5	7	326	6.5	470	15.1	2.7	0.58	24
	01/23/17	351	288	2.6	1.0 U	0.1 U	25.6	4.1	5 U	339	6.4	437	10.4	1.7	0.0	28
	04/09/17	333	273	2.3	0.40 T	0.1 U	20.1	4.7	5 U	332	6.6	516	10.3	1.3	0.0	18
	07/27/17	354	290	2.6 T	0.07 T	0.5 U	19.0 T	3.8	5	340	6.4	523	13.8	1.9	0.0	28
	10/15/17	390	320	2.4 T	0.06 T	0.5 U	16.0 T	3.6	5 T	390	6.4	523	13.8	1.9	0.33	28
	01/29/18	317	260	3.5 JT	0.10 U	0.04 T	20.0 T	3.6	5	330	6.6	518	11.6	1.2	0.0	16
	04/03/18	329	270	3.7 T	0.10 U	0.5 U	17.0 T	3.8	5 T	350	7.0	365	10.2	2.1	0.0	-8
	07/19/18	326	267	3.6	0.07	0.1 U	16.5	3.6	8	334 J	6.2	499	13.5	0.8	0.0	2
	10/14/18	379	311	4.1	0.04 T	0.1 U	17.2	4.0	9	362	6.1	493	13.8	0.7	0.0	4
	01/15/19	330	271	3.7	0.40 U	1.1	23.8	3.6	5 U	301	6.0	520	10.9	1.7	0.46	12
	04/02/19	327	268	3.3	0.05 U	0.1	20.7	4.3	5 U	317	6.3	365	10.5	1.9	0.0	4
	07/09/19	361	296	3.5	0.07	0.1 U	21.4	3.7	5 U	370	6.5	450	13.2	1.9	0.0	-14
	10/27/19	397	326	3.1	0.05 UB1	0.2	17.7	4.2	5 U	388	6.2	588	14.3	1.6	0.0	7
	01/20/20	296	243	2.9	0.05 U	2.3	23.8	4.3	5 U	300	6.6	455	10.6	2.0	0.0	-15
	04/13/20	335	275	2.6	0.05 U	1.2	19.4	4.5	5 U	365	6.3	518	10.2	1.7	0.0	4
	07/12/20	360	295	2.8	0.05 U	0.1 U	20.9	4.0	5 U	347	6.3	536	13.0	0.9	0.0	2
	10/14/20	388	318	2.9	0.05 UB1	0.1 U	26.1 J	3.5	5 U	1640*	6.3	504	14.5	0.7	0.11	4
	01/18/21	302	248	2.7 J	0.05 B1	0.1	23.1 J	4.7	5 U	299	6.2	420	11.7	2.6	0.0	8
	04/11/21	311	255	2.6	0.05 B1	0.1 U	20.2 J	4.4	5 U	329	6.7	447	10.4	0.9	0.03	-18
	07/13/21	350	287	2.9	0.05 B1	0.1 U	23.3 J	3.7	5 U	344	6.4	470	12.9	1.0	0.11	-3
	10/25/21	382	313	2.8	0.27	0.1 J	22.1 J	5.3	5 UJ	360	6.4	490	14.2	1.3	1.2	10
	01/17/22	316	259	2.2 J	0.05 B1	0.1 UJ	19.2 J	4.3	5 U	300	7.1	409	10.4	1.3	0.0	-27
	04/06/22	293	240	2.4	0.05 B1	0.1 U	18.5 J	5.1	5 U	305	6.7	389	10.6	1.6	0.0	-7
	07/17/22	333	273	2.2	0.09	0.1 U	16.2 J	4.7	5 U	304	6.8	465	13.0	1.3	0.0	-8
	10/09/22	368	302	2.9	0.05 U	0.1 U	18.5 J	4.5	5 U	342	6.7	530	14.1	0.8	0.05	-3
	01/23/23	279	229	2.6	0.05 UJ	0.1 U	15.0 J	4.7	5 U	270	7.2	314	10.8	1.6	0.0	-31
	04/03/23	300	246	2.6	0.05 B1	0.1 U	16.2 J	4.2	5 U	299	7.1	442	9.7	1.9	0.0	-26
	07/23/23	302	248	2.6	0.05	0.1 U	14.1 J	4.0	5 U	295	6.5	394	12.8	1.5	0.0	8
	10/29/23	378	310	3.2	0.07	0.1 U	15.0 J	3.8	5 U	351	7.1	392	13.5	1.3	0.20	-26
count		117	117	124	127	123	126	130		113						
max		397	326	22.0	1.00	2.3	68.6	6.8		419						
min		121	99	2.1	0.021 T	0.04 T	0.7	0.8		204						
non-detects		0	0	0	69	95	0	0		0						
average		278.5	228.5	7.8	0.13	0.25	28.4	3.9		314.4						
sample stdev		59.9	49.1	5.8	0.22	0.36	13.4	1.1		45.3						
variance		3585.8	2412.3	33.5	0.0	0.1	178.7	1.1		2053.3						
coeff. of variation		4.7	4.7	1.3	0.6	0.7	2.1	3.7		6.9						
standard error		5.5	4.5	0.5	0.0	0.0	1.2	0.1		4.3						

Cowlitz County Tennant Way Landfill
Inorganic Groundwater Quality Data and Statistics

Location	Date	mg/L									Field Measurements					
		Bicarbonate	Alkalinity (as CaCO ₃)	Chloride	Ammonia	Nitrate	Sulfate	TOC	Total Suspended Solids	Total Dissolved Solids	pH	Specific Conduct.	Temp.	Turbidity	Dissolved Oxygen	Eh
		MCL>		250 (2ndary)		10.0	250 (2ndary)			500 (2ndary)		(umhos/cm)	(C)	(NTU)	(mg/l)	(mV)
MW-7B	01/07/13	45	37	3.3	0.05 U	1.2	3.7	11.7	5 U	121	6.2	94	9.5	1.7	3.8	106
	04/11/13	70	57	1.2	0.19		1.5	25.0	5 U	151	5.8	128	10.7	9.1	0.0	74
	07/12/13	123	101	1.8	0.55	0.7	2.8	3.2	5 U	145	5.9	199	13.6	1.7	0.0	125
	10/15/13	42	34	3.1	0.05 UB1	4.9	10.5	10.0	5 U	151	5.8	138	15.4	2.7	0.07	84
	01/14/14	34	28	2.4	0.05 U	9.7	9.7	16.3	6	161	6.0	149	9.9	7.8	7.6	231
	01/14/14	39	32	2.4	0.05 U	9.7	9.7	16.6	5.5	148						
	04/21/14	45	37	2.8	0.05 U	0.5	4.7	8.4	7	94	5.8	101	11.0	5.5	0.0	10
	04/21/14	45	37	2.7	0.032 T	0.5	4.6	8.6	5	94						
	07/16/14	258	212	2.7	1.46	1.7	3.1	7.2	5 U	265	6.1	411	13.3	4.3	0.0	-25
	10/19/14	68	56	8.3	0.90 T	18.5	27.5	5.9	5 U	327	6.2	366	14.2	3.8	4.3	-51
	01/13/15	93	76	1.7	1.0 U	3.8	5.8	7.4	5 U	155	5.9	184	9.8	2.2	0.99	23
	04/08/15	67	55	1.4	1.0 UB1	0.03 T	2.6	5.4	6	94	5.8	108	11.5	4.4	0.0	73
	07/12/15	163	134	2.3	1.10 J	0.69	5.2	4.1	5 U	152	5.9	271	13.8	1.8	1.6	21
	10/26/15	123	101	2.6	0.40 T	0.22	13.1	7.7	5 U	172	6.0	232	13.6	3.3	0.0	33
	01/25/16	35	29	1.6	0.57 J	8.79	4.9	8.2	5 U	115	6.4	140	11.8	0.4	0.86	30
	04/03/16	60	49	0.8	0.30 T	4.08	3.2	8.2	5 U	88	6.4	140	11.8	0.4	0.9	30
	07/10/16	201	165	2.2	1.0 U	4.04	4.4	5.9	6	241	6.7	358	12.8	3.3	6.5	16
	10/10/16	29	24	1.1	1.0 U	17.6	11.2	18.7	5 U	175	6.3	243	14.9	1.6	7.8	36
	01/23/17	29	24	0.8	1.0 U	3.5	3.9	13.1	5 U	93	5.9	94	7.5	1.7	5.7	58
	04/09/17	57	47	0.3	1.0 U	0.2	1.3	8.4	5 U	66	6.3	93	10.6	0.9	0.0	37
	07/27/17	122	100	0.9 T	0.1 U	1.8	2.4 T	8.6	5 U	150	6.4	185	13.1	3.6	0.86	31
	10/16/17	104	85	5.8 T	0.1 U	7.4	8.6 T	7.9	5 T	220	6.3	274	13.5	1.6	0.13	43
	01/29/18	34	28	1.1 JT	0.1 U	3.4	3.2 T	13.0	5	120	6.6	88	10.2	1.0	3.9	13
	04/03/18	44	36	1.1 T	0.1 U	0.7	2.0 T	11.0	5 U	97 T	6.7	91	9.7	1.3	3.2	21
	07/19/18	201	165	2.1	0.20	3.1	5.0	6.6	6	215 J	6.1	349	12.9	3.1	0.0	7
	10/14/18	121	99	2.8	0.1 U	9.7	8.6	7.5 J	5	169	6.3	293	13.5	2.1	0.95	-6
	01/15/19	37	30	1.3	0.4 U	3.5	5.0	9.5	5 U	94	5.7	103	10.6	2.9	2.3	26
	04/02/19	79	65	1.1	0.14	0.9	2.5	7.3	5 U	114	6.1	135	9.2	1.1	2.3	14
	07/09/19	198	162	1.4	0.06	2.2	3.2	5.3	5 U	235	6.3	320	12.0	4.9	2.4	2
	10/27/19	35	29	1.9	0.08	12.0	11.3	21.5	5 U	224	5.9	188	15.6	1.2	5.0	23
	01/20/20	39	32	1.2	0.1 U	3.1	3.2	11.9	5 U	114	6.0	99	10.2	2.8	5.3	20
	04/13/20	71	58	0.7	0.03 T	0.7	2.3	7.0	10	111	6.0	121	11.2	9.1	1.5	20
	07/12/20	150	123	1.5	0.01 JT	1.6	3.7	8.1	6	203	6.2	256	12.0	6.9	2.2	9
	10/14/20	67	55	6.2	0.05 U	19.8 J	13.9	16.0	5	309	5.7	256	16.8	0.8	7.5	35
	01/18/21	29	24	1.5 J	0.05 B1	3.7	3.0	11.4	5 U	109	5.8	88	10.3	1.6	5.4	28
	04/11/21	60	49	1.4	0.05	0.7	1.9	7.1	5 U	118	5.9	102	9.9	2.0	1.3	23
	07/13/21	190	156	2.2	0.06 J	2.0	3.8	4.4	9	198	6.2	302	12.4	10.3	5.1	11
	10/25/21	21	18	8.2	0.08	26.3 J	14.7	15.0	5 UJ	290	6.0	325	14.8	0.2	7.5	37
	01/17/22	34	28	0.9 J	0.05 B1	1.3 J	1.2 J	6.8	5 U	71	6.1	72	8.9	1.8	6.4	26
	04/06/22	62	51	0.8	0.05 U	1.3	2.0	9.1	5 U	103	6.3	114	10.3	1.9	3.2	19
	07/17/22	112	92	1.0	0.19	0.7	2.0	5.2	6	127	6.1	174	12.6	6.5	0.0	29
	10/09/22	224	184	2.1	0.05 U	0.6	6.1	5.5	10	220	6.6	345	14.0	10.5	0.98	3
	01/23/23	41	34	1.8	0.01 JT	4.8	2.7	6.7	5 U	99	6.1	111	9.7	1.3	3.8	30
	04/03/23	62	51	2.0	0.05 B1	1.7	2.0	4.6	5 U	93	6.2	114	8.8	1.0	3.8	30
	07/23/23	246	202	2.5	0.05 B1	2.0	2.4	4.2	6	244	6.4	374	13.0	1.8	2.9	23
	10/29/23	90	74	2.0	0.05 B1	12.9	9.5	12.6	9	228	6.2	262	13.2	8.1	6.6	24
count		110	110	113	111	125	112	123		114	125	127	127			
max		258	212	11.2	1.46	26.3	27.5	25.0		327	7.9	1,695	17.8			
min		10	8	0.3	0.010 T	0.0 U	0.4	1.0		66	5.3	16	6.3			
non-detects		1	1	1	59	24	0	0		0						
average		82.7	67.9	2.5	0.18	3.5	8.5	10.3		169.0	6.2	264.4	11.7			
sample stdev		54.4	44.6	1.6	0.28	5.0	6.1	5.1		61.1	0.4	274.9	2.1			
variance		2956.8	1989.1	2.7	0.08	24.6	37.1	26.0		3729.6						
coeff. of variation		1.5	1.5	1.6	0.64	0.7	1.4	2.0		2.8						
standard error		5.2	4.3	0.2	0.03	0.4	0.6	0.5		5.7						

Cowlitz County Tennant Way Landfill

Inorganic Groundwater Quality Data and Statistics

Location	Date	mg/L									Field Measurements					
		Bicarbonate	Alkalinity (as CaCO3)	Chloride	Ammonia	Nitrate	Sulfate	TOC	Total Suspended Solids	Total Dissolved Solids	pH	Specific Conduct.	Temp.	Turbidity	Dissolved Oxygen	Eh
		MCL>		250 (2ndary)		10.0	250 (2ndary)			500 (2ndary)		(umhos/cm)	(C)	(NTU)	(mg/l)	(mV)
MW-8B	01/26/12	17	14	0.9	0.05 U	6.5	11	30.7		164	5.9	110	12.6	3.3	5.8	115
	04/05/12	35	29	0.1	0.02 T	0.1	2.3	42.0		121	6.4	50	11.7	14.2	3.3	
	07/11/12	79	65	0.8	0.05 U	0.1	9.0	20.4		138	6.0	120	14.7	1.3	3.2	
	10/24/12	77 J	63 J	0.7	0.05 U	0.1 U	9.5	26.9		215	5.8	86	14.5	2.2	3.3	
	01/04/13	29	24	0.7	0.05 U	9.9	11	31.3	5 U	372	6.2	159	13.0	2.7	4.0	135
	04/12/13	80	66	1.5	1.14	4.2	10	24.4	5 U	213	6.0	194	13.2	6.3	0.0	169
	07/11/13	80	66	1.5	0.05 U	1.6	10	20.6	5 U	171	6.0	169	15.1	4.4	0.0	73
	10/15/13	45	37	4.6	0.05 UB1	25.0	15	14.5	5 U	344	5.8	329	15.0	3.6	0.02	72
	01/13/14	45	37	1.3	0.05 U	12.0	15	26.6	5 U	213	5.8	220	15.3	8.6	2.2	167
	04/18/14	50	41	3.0	0.05 U	7.1	15	22.1	6	186	5.9	190	14.2	10.2	0.0	12
	07/15/14	80	66	2.3	0.05 U	1.7	14	21.1	5 U	194	5.5	183	14.9	3.9	0.0	18
	10/19/14	90	74	3.0	0.30 T	2.3	17	19.6	5 U	204	5.9	202	15.3	5.4	1.3	-19
	01/13/15	55	45	1.7	1.0 U	12.1	19	21.3	5 U	247	6.0	248	13.6	4.5	0.77	23
	04/08/15	141	116	2.9	0.10 T	2.7	25	18.3	8	265	6.0	330	15.3	3.9	0.0	51
	07/12/15	60	49	1.8	0.25 J	12.2	7.1	17.4	17	193	6.6	204	12.9	9.0	1.2	23
	10/26/15	79	65	0.7	0.30 T	7.3	6.4	18.9	6	164	6.6	204	12.9	9.0	1.2	23
	01/26/16	79	65	0.6	1.0 U	5.1	7.8	15.7	6	180	6.5	182	13.9	4.6	5.1	26
	04/04/16	104	85	0.7	1.0 U	1.8	6.9	16.8	9	185	6.5	186	14.6	14.5	0.21	27
	07/10/16	51	42	0.5	1.0 U	4.1	6.0	20.2	5 U	119	6.7	132	13.0	6.7	3.3	14
	10/09/16	78	64	0.1 T	0.30 T	0.3	1.4	23.2	12	130	6.9	125	11.5	21.6	2.3	6
	01/23/17	89	73	20 UB1	0.10 U	0.09 T	2.4 T	18.0	5 U	150	6.3	140	12.8	4.7	1.6	37
	04/09/17	98	80	0.2 T	0.10 U	0.5 UB1	2.1 T	18.0	5 T	170	6.2	149	13.6	2.5	0.0	46
	07/27/17	46	38	0.9 T	0.10 U	4.1	5.0 T	25.0	9	150	6.6	136	11.9	8.7	1.9	13
	10/15/17	63	52	0.4 T	0.10 U	0.6	2.7 T	20.0	7	190	6.9	121	11.8	23.7	2.9	-2
	01/29/18	78	64	0.5	0.05 U	0.3	4.1	18.2	11	142 J	5.8	140	12.9	7.0	3.6	21
	04/03/18	80	66	0.4	0.05 U	0.1 T	3.7	14.2	11	111	6.1	137	13.6	9.0	0.85	8
	07/19/18	55	45	0.7	0.40 U	3.6	7.2	19.8	5 U	121	5.7	138	13.4	7.3	3.3	27
	10/14/18	76	62	1.0	0.05 U	2.0	6.8	18.5	9	153	6.3	152	13.2	9.7	1.5	4
	01/15/19	80	66	0.7	0.05 UB1	0.3	7.2	17.6	6	178	6.1	147	13.6	5.8	13.6	12
	04/02/19	83	68	3.0	0.05 UB1	15.6	12.0	16.2	7	241	5.9	286	14.2	4.5	3.5	23
	07/09/19	40	33	1.4	0.11 J	3.1	4.3	20.9	13	136	6.2	109	12.6	18.3	4.3	8
	10/27/19	83	68	3.0	0.05 B1	15.6	12.0	16.2	7	241	6.2	109	12.6	18.3	4.3	8
	01/20/20	40	33	1.4	0.11 J	3.1	4.3	20.9	13	136	6.2	109	12.6	18.3	4.3	8
	04/13/20	76	62	0.9	0.05	1.2	4.9	14.5	8 U	149	6.0	138	12.9	6.9	2.7	17
	07/12/20	89	73	0.8	0.05 U	0.3	5.0	13.3	8	174	6.0	152	13.6	9.6	0.70	20
	10/14/20	89	73	5.7	0.05 UB1	25.7 J	12.3	10.8	20	379	5.9	379	14.2	14.5	5.6	25
	01/18/21	48	39	1.1 J	0.05 B1	3.3	3.8	19.5	11	149	6.1	117	12.3	16.4	3.4	12
	04/11/21	57	47	0.7	0.07	1.6	3.8	14.8	17	149	6.1	114	12.5	20.3	2.6	14
	07/13/21	67	55	1.0	0.05 B1	0.6	5.6	14.9	13	138	6.1	121	13.6	20.7	2.1	13
	10/25/21	61	50	7.9	0.05 B1	47.1 J	17.0	13.0	16 J	460	6.2	551	13.0	16.4	5.2	24
	01/17/22	34	28	2.6 J	0.05 B1	5.1 J	3.1 J	12.1	15	123	6.5	127	11.9	18.9	5.4	6
	04/06/22	59	49	1.5	0.05 U	3.7	4.1	14.2	11	133	6.7	136	12.0	22.2	4.7	0
	07/17/22	94	77	1.5	0.05 B1	2.3	5.2	10.3	9	146	6.3	177	12.9	13.2	3.1	20
	10/09/22	122	100	1.4	0.05	0.1 T	3.5	17.5	14	177	6.4	191	15.3	14.1	0.33	14
	01/23/23	32	26	1.4	0.02 JT	11.1	6.4	15.0	14	163	6.4	167	13.0	23.5	3.5	11
	04/03/23	38	32	1.7	0.05 B1	7.4	6.2	19.1	25	168	6.5	141	12.4	32.4	4.1	9
	07/23/23	128	105	1.8	0.05 B1	2.6	4.8	15.2	8	196	6.2	214	14.0	11.4	0.54	25
	10/29/23	205	168	2.0	0.05 B1	0.4	2.6	24.2	5 U	249	6.4	297	13.4	5.8	0.58	12
count		117	117	122	125	118	119	122		110						
max		573.0	470	20.0	1.14	47.1	67	72.0		636						
min		17.1	14	0.1	0.02 T	0.1 U	1	0.5 U		107						
non-detects		0	0	3	79	29	0	1		0						
average		178.6	146.4	3.1	0.11	6.4	22.4	22.5		302.0						
sample stdev		174.8	143.3	2.8	0.20	9.6	18.5	15.9		140.7						
variance		30545.2	20548.6	7.9	0.0	91	342.3	252		19788.9						
coeff. of variation		1.0	1.0	1.1	0.6	0.7	1.2	1.4		2.1						
standard error		16.2	13.3	0.3	0.0	0.9	1.7	1.4		13.4						

Cowlitz County Tennant Way Landfill
Inorganic Groundwater Quality Data and Statistics

Location Date		mg/L									Field Measurements					
		Bicarbonate	Alkalinity (as CaCO3)	Chloride	Ammonia	Nitrate	Sulfate	TOC	Total Suspended Solids	Total Dissolved Solids	pH	Specific Conduct.	Temp.	Turbidity	Dissolved Oxygen	Eh
		MCL>		250 (2ndary)		10.0	250 (2ndary)			500 (2ndary)		(umhos/cm)	(C)	(NTU)	(mg/l)	(mV)
MW-9B	01/26/12	244	200	2.7	0.87	0.1 U	1.3	18.1		295	6.5	370	19.1	1.7	3.9	-119
	04/05/12	293	240	2.8	0.85	0.1 U	0.1 T	25.0		262	7.1	400	18.4	0.8	2.6	
	07/11/12	389	319	3.4	0.93	0.1 U	0.3 T	23.2		446	6.6	440	20.4	2.9	3.1	
	10/24/12	306 J	251 J	3.5	0.74	0.1 U	0.3	17.9		328	6.3	192	20.4	1.5	2.8	
	01/04/13	358	294	3.6	0.92	0.1 U	0.2 U	27.8	5 U	372	6.6	588	18.5	3.8	3.2	-119
	04/12/13	301	247	3.0	1.13	0.1 U	0.3	21.2	56	346	6.6	520	19.0	3.0	0.0	-124
	07/11/13	363	298	4.1	1.02	0.1 U	0.2	19.1	78	380	6.4	582	20.4	2.6	0.0	-125
	10/14/13	254	208	6.1	0.81	0.1 U	0.2 T	20.6	18	314	6.6	444	20.5	3.0	0.21	-113
	01/13/14	288	236	3.6	0.98	0.1 U	0.4	21.3	70	301	6.5	5	19.6	2.7	0.0	-96
	04/18/14	346	284	4.7	0.82	0.1 U	0.1 T	28.5	39	368	6.3	613	19.2	3.9	0.0	-93
	07/15/14	300	246	4.9	1.10	0.1 U	0.2 U	23.6	71	342	6.3	539	20.4	6.5	0.0	-92
	10/19/14	341	280	4.9	0.90 T	0.1 U	0.2 U	23.2	46	337	6.3	576	20.3	10.2	0.0	-66
	01/13/15	276	226	4.2	1.00	0.1 U	0.2 U	22.3	16	363	6.5	481	19.2	4.2	0.0	-51
	04/08/15	319	262	4.4	1.10	0.1 U	0.3	24.3	37	359	6.4	536	18.9	5.5	0.0	-23
	07/12/15	324	266	3.2	1.0 UB1	0.1 U	0.2	22.7	48	320	6.3	527	20.4	2.0	0.0	-12
	10/26/15	248	203	3.5	0.90 T	0.1 U	0.1 T	22.4	5	319	6.4	445	20.0	4.9	0.0	18
	01/25/16	267	219	3.8	0.66 JT	0.1 U	0.1 T	20.8	8	331	6.4	466	19.5	1.0	0.62	-1
	04/03/16	254	208	4.5	0.90 T	0.1 U	0.3	21.0	7	316	6.6	454	20.5	1.1	1.5	24
	07/10/16	313	257	3.9	1.20	0.1 U	0.3	25.9	68	383	6.6	562	20.3	1.0	NM	23
	10/09/16	347	285	3.7	1.90	0.1 U	0.2 T	30.2	102	368	6.6	634	19.5	5.2	0.0	23
	01/23/17	319	262	4.5	1.00	0.1 U	0.2 U	24.0	64	364	6.6	562	19.3	6.9	0.4	21
	04/09/17	324	266	4.3	1.20	0.1 U	0.2 U	27.0	75	366	6.5	573	17.6	2.6	0.13	25
	07/27/17	317	260	4.8 T	1.40	0.5 U	50 UB1	27.0	31	370	6.7	538	18.4	2.0	2.0	18
	10/16/17	293	240	4.6 T	1.50	0.5 U	50 U	25.0	46	400	6.8	513	18.5	3.2	0.99	16
	01/29/18	293	240	4.0 T	1.80	0.03 T	0.08 T	26.0	58	380	6.6	545	17.9	235.0	0.0	15
	04/03/18	280	230	3.3 T	1.00	0.5 U	0.78 T	23.0	5 T	380	6.7	516	18.0	3.9	0.0	8
	07/19/18	304	249	3.9	1.03	0.1 U	0.12 T	25.0	55	358 J	6.2	537	18.1	1.0	0.0	2
	10/14/18	262	215	3.2	1.03	0.1 U	0.10 T	19.6	49	266	6.5	474	18.9	1.8	0.0	-15
	01/15/19	299	245	4.0	1.03	0.1 U	0.27	22.4	29	348	6.0	524	17.4	1.2	0.0	14
	04/02/19	266	218	3.2	0.81	0.1 U	0.42	25.5	24	344	6.5	460	18.0	0.8	0.0	-9
	07/09/19	248	203	2.3	1.09	0.2	2.54	22.6	20	359	6.6	443	18.0	1.5	0.0	-13
	10/27/19	313	257	2.3	1.57	0.1 U	0.26 T	25.6	66	374	6.3	531	18.0	2.9	0.0	1
	01/20/20	260	213	2.0	1.15 J	0.1 U	1.51	25.0	11	351	6.3	455	17.0	3.7	0.0	4
	04/13/20	311	255	2.1	1.40	0.1 U	0.26 T	28.1	75	370	6.3	539	18.3	2.8	0.0	4
	07/12/20	229	188	1.4	0.70 J	0.1 U	0.40 U	21.1	28	323	6.3	382	18.3	5.9	0.00	6
	10/14/20	251	206	1.7	1.26	0.1 U	0.31 T	23.9	19	332	6.2	420	18.5	4.4	0.04	9
	01/18/21	317	260	2.0 J	1.45	0.1 U	0.36 T	27.4	67	348	6.2	524	17.2	6.0	0.00	10
	04/11/21	266	218	1.8	1.26	0.1 U	0.23 T	22.6	37	327	6.2	440	18.4	9.6	0.12	12
	07/13/21	240	197	1.8	0.05 B1	0.1 U	0.40 B1	19.2	33	290	6.2	399	18.8	6.5	0.17	10
	10/25/21	204	167	1.4	1.01	0.1 U	0.20 T	18.0	5 UJ	264	6.5	317	17.3	3.5	0.02	10
	01/17/22	238	195	1.6 J	1.56	0.1 U	0.07 JT	22.4	5 U	296	6.3	402	17.1	1.1	0.02	19
	04/06/22	223	183	2.2	1.58	0.1 U	0.08 T	21.0	42	301	6.6	397	18.0	3.9	0.02	2
	07/17/22	304	249	2.2	2.10	0.1 U	0.20 U	25.7	28	334	6.4	445	17.3	6.6	0.0	15
	10/09/22	233	191	2.2	2.03	0.1 U	0.20 U	17.3	10	285	6.6	380	18.8	9.2	0.10	0
	01/23/23	205	168	2.4	1.86 J	0.1 U	0.40 U	16.8	5 U	253	6.3	334	17.2	7.6	0.0	18
	04/03/23	182	149	2.3	2.06	0.1 U	0.71	15.3	5 U	256	6.3	304	17.3	13.8	0.0	19
	07/23/23	206	169	2.6	1.78	0.1 U	0.40 U	15.1	5 U	280	6.4	337	18.6	12.3	0.0	15
	10/29/23	169	139	2.4	1.49	0.1 U	0.40 U	14.3	5 U	243	6.3	277	17.5	6.1	0.22	17
count		117	117	98	116	116	90	115		114						
max		627.9	515	8.4	2.10	0.5	50	49.0		667						
min		169.5	139	1.4	0.05	0.0 U	0.1 T	12.6		243						
non-detects		0	0	1	1	101	31	0		0						
average		393.7	322.9	4.4	1.01	0.1	1.8	24.5		422.6						
sample stdev		121.5	99.6	1.7	0.41	0.1	7.4	6.4		110.2						
variance		14753.0	9924.7	2.8	0.17	0.0	55.3	41.6		12139.0						
coeff. of variation		3.2	3.2	2.6	2.5	1.8	0.2	3.8		3.8						
standard error		11.2	9.2	0.2	0.0	0.0	0.8	0.6		10.3						

Cowlitz County Tennant Way Landfill
Inorganic Groundwater Quality Data and Statistics

Location Date		mg/L									Field Measurements					
		Bicarbonate	Alkalinity (as CaCO3)	Chloride	Ammonia	Nitrate	Sulfate	TOC	Total Suspended Solids	Total Dissolved Solids	pH	Specific Conduct.	Temp.	Turbidity	Dissolved Oxygen	Eh
		MCL>		250 (2ndary)		10.0	250 (2ndary)			500 (2ndary)		(umhos/cm)	(C)	(NTU)	(mg/l)	(mV)
MW-10B	01/26/12	103	85	1.0	0.05 U	0.4	15.4	7.2		191	5.9	170	13.0	1.8	4.3	77
	04/05/12	93	76	1.2	0.05	0.8	5.8	8.1		106	6.5	140	12.4	2.1	2.7	
	07/11/12	201	165	1.1	0.24	0.1 U	3.5	11.2		226	6.3	240	15.8	1.1	3.3	
	10/24/12	224 J	184 J	1.1	0.81	0.1 U	12.9	11.4		299	6.1	163	12.8	0.9	3.1	
	01/04/13	119	98	1.8	0.05 U	2.8	6.4	6.8	5 U	160	6.3	220	12.3	1.6	3.5	89
	04/11/13	176	144	1.6	0.85	0.1 U	10.1	10.4	6	266	6.2	377	13.0	1.0	0.0	-76
	07/11/13	190	156	1.9	0.87	0.1 U	3.2	14.4	68	236	6.2	385	14.4	0.8	0.0	-74
	10/15/13	178	146	1.6	0.66	0.7	9.8	9.5	62	240	6.3	380	13.7	1.7	0.0	-49
	01/13/14	187	153	1.7	0.92	0.1 U	9.2	11.7	82	258	6.5	451	13.0	2.5	0.0	-89
	04/18/14	111	91	3.2	0.03 T	1.0	7.3	7.2	5 U	164	6.1	209	13.2	4.4	0.0	-21
	07/15/14	230	189	1.7	0.46	0.1 U	9.0	11.8	5 U	288	5.7	402	15.0	4.7	0.0	-23
	10/19/14	168	138	3.2	0.80 T	0.1 U	11.8	11.0	5 U	223	6.2	387	13.7	3.2	0.0	-51
	01/13/15	127	104	1.5	1.0 U	6.3	14.6	5.5	5 U	232	5.9	278	13.2	7.5	0.0	-9
	04/08/15	210	172	3.5	0.50 T	0.3	10.6	9.4	6	279	6.0	358	14.0	0.9	0.0	20
	07/12/15	166	136	2.1	1.0 UB1	0.1 U	16.5	10.9	34	228	6.1	397	14.2	1.0	0.0	-8
	10/26/15	141	116	2.0	0.80 T	0.1 U	13.5	10.3	112	238	6.1	412	14.3	5.5	0.0	44
	01/25/16	130	107	1.7	0.15 J	0.8	9.6	5.3	5 U	181	6.0	239	13.7	3.9	0.6	32
	04/03/16	109	89	2.2	0.30 T	2.4	6.8	5.5	5 U	161	6.2	208	15.2	3.6	1.3	41
	07/10/16	138	113	2.4	0.60 T	0.1 U	12.6	8.2	27	247	6.4	313	15.6	1.0	2.1	33
	10/09/16	151	124	2.6	0.90 T	0.1 U	15.4	8.6	35	238	6.4	368	14.2	4.6	0.0	32
	01/23/17	117	96	0.8	1.0 U	1.1	7.3	6.9	5 U	152	6.3	192	14.5	2.0	0.0	35
	04/09/17	105	86	1.0	1.0 U	0.10 T	2.5	7.9	5 U	132	6.2	162	13.2	5.6	0.0	41
	07/27/17	256	210	2.6 T	1.0	0.5 U	4.5 T	15.0	90	270	6.5	534	14.5	2.9	1.7	27
	10/16/17	183	150	1.3 T	0.7	0.5 UB1	11.0 T	13.0	5 T	310	6.6	387	14.4	5.8	0.5	23
	01/29/18	122	100	1.4 JT	0.1 U	0.38 T	3.0 T	6.0	5	130	6.5	214	14.2	4.3	0.0	20
	04/03/18	134	110	1.5 T	0.2	0.22 T	3.0 T	6.3	5 U	190	6.7	248	14.6	2.2	0.0	12
	07/19/18	351	288	2.8	1.6	0.1 U	2.0	27.8	164	389 J	6.5	727	16.1	1.4	0.0	-16
	10/14/18	258	212	1.5	1.2	0.1 U	2.4	25.1	101	275	6.3	582	15.7	7.5	0.0	-9
	01/15/19	278	228	2.2	1.2	1.2	6.3	20.9	115	347	5.9	611	14.6	1.0	0.0	18
	04/02/19	328	269	1.9	1.2	0.1 U	1.3	26.0	106	366	6.3	652	15.3	1.4	0.0	5
	07/09/19	278	228	1.3	1.6	0.1 U	1.9	20.0	82	382	6.5	598	16.1	1.2	0.0	-9
	10/27/19	343	281	2.1	2.2	0.1 U	0.9	25.3	136	423	6.4	690	15.9	2.2	0.0	-4
	01/20/20	138	113	1.3	0.5 J	0.7	6.3	7.2	5 U	186	6.0	221	14.0	5.4	0.0	21
	04/13/20	257	211	1.5	0.9	0.1 U	5.4	13.9	42	324	6.1	459	15.6	1.4	0.0	13
	07/12/20	384	315	2.1	1.4 J	0.1 U	0.8	25.4	81	452	6.2	681	16.5	3.8	0.0	10
	10/14/20	271	222	1.8	2.0	0.1 U	3.6	16.4	115	368	6.3	548	15.9	16.2	0.05	5
	01/18/21	128	105	1.8 J	0.1 B1	1.1	5.6	6.2	11	187	5.8	208	14.5	10.8	0.0	29
	04/11/21	133	109	2.0	0.9	0.1 U	15.9	8.3	26	274	6.0	335	15.0	1.9	0.07	17
	07/13/21	146	120	2.0	1.4 J	0.1 U	18.6	9.8	95	248	6.1	401	15.8	5.4	0.08	13
	10/25/21	212	174	2.2	1.4	0.1 U	5.5	15.0	140 J	229	6.4	494	14.5	0.8	0.0	15
	01/17/22	122	100	1.4 J	0.1 B1	0.6 J	3.2 J	6.8	5 U	159	6.2	201	13.9	4.7	0.05	24
	04/06/22	152	125	2.8	0.5	0.1 U	7.9	7.7	5 U	236	6.3	299	14.9	1.6	0.0	19
	07/17/22	349	286	2.8	2.9	0.1 U	0.3	26.9	118	351	6.4	646	15.7	1.9	0.0	12
	10/09/22	150	123	1.5	1.6	0.1 U	3.8	10.8	144	193	6.8	400	15.9	4.4	0.0	-11
	01/23/23	151	124	2.2	0.0 JT	1.4	5.3	5.7	5 U	187	6.2	249	14.0	2.4	0.0	24
	04/03/23	146	120	1.2	1.1	0.1 U	15.4	7.1	54	233	6.4	374	13.9	0.9	0.0	15
	07/23/23	154	126	2.1	0.9	0.1 U	11.5	8.0	119	242	6.4	425	16.2	4.9	0.0	13
	10/29/23	148	121	2.9	1.0	0.1 U	7.0	9.1	91	221	6.5	420	14.8	2.1	0.17	11
count		115	115	109	116	113	104	115		113						
max		590.1	484	8.3	2.90	6.3	46	28.4		611						
min		56.1	46	0.8	0.02 T	0.1 U	0	4.2		104						
non-detects		0	0	1	26	82	0	0		0						
average		245.7	201.5	3.1	0.5	0.5	14.2	13.2		311.3						
sample stdev		122.5	100.5	1.9	0.5	1.0	11.4	6.5		115.8						
variance		15012.2	10099.1	3.6	0.3	1.1	131.0	42.4		13405.4						
coeff. of variation		2.0	2.0	1.6	0.9	0.5	1.2	2.0		2.7						
standard error		11.4	9.4	0.2	0.0	0.1	1.1	0.6		10.9						

Cowlitz County Tennant Way Landfill

Inorganic Groundwater Quality Data and Statistics

Location Date		mg/L								Field Measurements						
		Bicarbonate	Alkalinity (as CaCO3)	Chloride	Ammonia	Nitrate	Sulfate	TOC	Total Suspended Solids	Total Dissolved Solids	pH	Specific Conduct.	Temp.	Turbidity	Dissolved Oxygen	Eh
		MCL>		250 (2ndary)		10.0	250 (2ndary)			500 (2ndary)		(umhos/cm)	(C)	(NTU)	(mg/l)	(mV)
MW-11B	01/26/12	113	93	1.2	0.23	0.1 U	8.4	14.5		248	6.2	230	13.0	5.7	4.4	-91
	04/06/12	66	54	0.6	0.16	0.1 U	1.6	13.9		95	6.8	130	11.7	7.4	5.2	
	07/12/12	121	99	0.4 T	0.32	0.1 U	0.2 T	13.0		147	6.3	170	13.7	2.9	3.0	
	10/25/12	97	79	0.9	0.59	0.1 U	0.6	14.4		191	6.2	113	14.7	5.4	4.7	
	01/07/13	72	59	3.1	0.20	0.1 U	4.0	13.3	21	121	6.4	183	13.0	7.3	3.6	-120
	04/11/13	64	52	1.0	0.37	0.1 U	0.2	11.5	7	136	6.6	151	13.0	5.1	0.0	-117
	07/12/13	89	73	0.8	0.67	0.1 U	0.2	12.5	31	140	6.2	207	13.8	5.9	0.0	-72
	10/15/13	100	82	0.9	0.57	0.1 U	16.0	10.2	65	156	6.1	272	14.3	6.6	0.0	-54
	01/13/14	157	129	0.9	0.80	0.1 U	0.6	9.8	7	203	6.1	273	14.6	3.9	0.0	-24
	04/21/14	66	54	3.5	0.33	0.1 U	4.2	11.6	22	126	6.3	181	13.4	19.0	0.0	-42
	07/15/14	98	80	3.1	0.61	0.1 U	0.1 T	12.9	49	169	6.0	244	15.1	32.2	0.0	-50
	10/19/14	99	81	3.0	0.90 T	0.1 U	0.3	13.4	18	187	6.3	255	15.6	7.1	0.0	-69
	01/13/15	85	70	2.8	0.10 T	2.3	17.5	6.6	5 U	176	5.7	184	13.6	4.2	0.0	11
	04/08/15	68	56	2.3	0.20 T	0.10 T	6.6	7.3	6	102	5.8	126	14.0	10.3	0.0	59
	07/12/15	152	125	3.2	1.30 J	0.1 U	1.9	15.0	26	181	6.0	274	15.0	6.8	0.0	4
	10/26/15	162	133	3.7	0.60 T	0.1 U	0.6	16.3	5 U	244	6.1	309	15.5	2.7	0.0	23
	01/25/16	37	30	2.2	0.27 J	3.2	10.2	6.8	5 U	106	5.6	119	12.4	4.9	1.0	57
	04/03/16	37	30	1.7	0.30 T	0.7	3.9	6.6	5 U	88	5.9	80	14.0	17.8	0.85	58
	07/10/16	57	47	1.7	0.30 T	0.1 U	4.7	10.9	19	134	6.0	124	15.5	13.5	1.7	52
	10/09/16	80	66	3.1	0.20 T	0.1 U	6.2	13.7	22	153	6.0	159	15.3	12.8	0.0	57
	01/23/17	57	47	0.4	1.0 U	0.1 U	4.1	10.0	7	94	6.0	103	13.5	16.1	0.25	54
	04/09/17	49	40	0.8	1.0 U	0.1 U	1.3	10.6	12	79	6.0	93	12.3	17.9	0.0	50
	07/27/17	71	58	20 B1	0.1	0.0 T	2.2 T	7.5	12	110	6.3	120	14.3	5.1	0.88	40
	10/16/17	85	70	1.2 T, B	0.2	0.5 U	0.5 T	11.0	25	150	6.4	140	15.4	24.8	0.0	35
	01/29/18	57	47	1.7 JT	0.1 U	1.6	8.4 T	7.9	5	120	6.0	139	12.9	5.3	0.0	45
	04/03/18	48	39	1.0 T	0.1 U	0.8	3.5 T	7.3	5 T	100	6.4	100	12.7	9.3	0.0	28
	07/19/18	62	51	1.8	0.1	2.5 R	1.9	8.4	12	149 J	5.9	119	15.8	6.2	0.0	19
	10/14/18	80	66	1.5	0.1	0.1 U	2.3	12.0	10	127	5.9	133	16.6	8.9	0.0	20
	01/15/19	61	50	1.3	0.4 U	2.7	15.9	6.0	5 U	124	5.2	152	14.2	2.0	1.1	59
	04/02/19	56	46	1.0	0.1 U	0.3	5.6	7.5	5 U	110	5.5	103	14.5	4.4	0.92	49
	07/09/19	68	56	0.9	0.1	0.1 U	3.6	8.2	5 U	148	5.9	115	15.2	4.5	0.0	28
	10/27/19	100	82	1.9	0.2	0.1 U	1.7	9.9	5 U	163	5.8	165	15.7	5.6	1.2	33
	01/20/20	67	55	1.4	0.1 U	3.5	11.3	9.2	5 U	155	5.5	157	13.1	3.6	0.27	48
	04/13/20	46	38	0.7	0.0 T	0.3	3.0	8.1	5 U	107	5.5	85	14.6	5.3	0.31	45
	07/12/20	63	52	0.9	0.1 U	0.1 U	3.3	8.7	5 U	144	5.4	108	14.8	5.2	0.0	49
	10/14/20	72	59	1.2	0.15	0.1 U	2.4	9.8	5 U	146	5.5	124	15.5	6.7	0.05	48
	01/18/21	57	47	2.7 J	0.05 B1	2.2	7.8	7.9	5 U	134	5.4	134	13.0	2.9	0.0	52
	04/11/21	48	39	1.1	0.05 B1	0.4	2.8	7.6	5 U	127	5.5	84	14.0	5.8	1.2	47
	07/13/21	61	50	1.9	0.64 J	0.1 U	2.5	8.1	5 U	120	5.4	101	15.1	8.1	0.13	50
	10/25/21	81	67	1.8	0.15	0.1 U	1.3	22.0	5 UJ	131	5.8	136	14.9	5.8	0.0	46
	01/17/22	61	50	1.8 J	0.05 B1	0.1 J	4.3 J	7.7	5 U	108	6.0	117	13.1	2.5	0.0	37
	04/06/22	57	47	1.0	0.05 U	0.2	2.5	7.5	5 U	100	6.0	101	14.7	3.0	0.58	35
	07/17/22	67	55	0.3	0.05 B1	0.1 T	2.3	7.5	7	106	5.8	109	14.7	7.2	0.09	48
	10/09/22	70	58	1.3	0.06	0.1 U	1.1	8.7	6	126	6.1	122	16.9	7.1	0.47	31
	01/23/23	75	61	4.0	0.05 UJ	1.3	9.8	6.6	5 U	131	5.8	158	13.4	4.2	0.08	45
	04/03/23	63	52	2.5	0.05 B1	1.5	7.6	6.1	7	114	5.8	131	13.5	5.4	0.28	46
	07/23/23	74	61	2.6	0.05 B1	0.1 U	2.8	8.3	6	131	5.8	124	15.3	9.3	0.00	45
	10/29/23	92	75	2.8	0.11	0.1 U	1.3	11.9	15	139	5.9	150	15.3	5.5	0.17	43
count		110.0	110	107	104	109	96	111		111						
max		219.5	180	20.0	1.3	3.5	17.5	25.5		309						
min		13.4	11	0.3	0.02	0.0 U	0.1 T	3.2		62						
non-detects		0	0	1	29	76	3	0		0						
average		79.2	65.0	2.0	0.25	0.4	5.1	10.8		150.7						
sample stdev		39.7	32.6	2.0	0.3	0.7	4.9	4.1		45.4						
variance		1575.4	1059.8	3.9	0.1	0.5	24.0	16.5		2059.0						
coeff. of variation		2.0	2.0	1.0	1.0	0.6	1.0	2.7		3.3						
standard error		3.8	3.1	0.2	0.0	0.1	0.5	0.4		4.3						

Cowlitz County Tennant Way Landfill
Inorganic Groundwater Quality Data and Statistics

Location	Date	mg/L									Field Measurements					
		Bicarbonate	Alkalinity (as CaCO3)	Chloride	Ammonia	Nitrate	Sulfate	TOC	Total Suspended Solids	Total Dissolved Solids	pH	Specific Conduct.	Temp.	Turbidity	Dissolved Oxygen	Eh
		MCL>		250 (2ndary)		10.0	250 (2ndary)			500 (2ndary)		(umhos/cm)	(C)	(NTU)	(mg/l)	(mV)
MW-12B	01/26/12	341	280	8.3	0.61	0.1 U	0.4 U	7.2		372	6.4	470	18.1	1.9	4.4	-88
	04/05/12	334	274	9.0	0.79	0.1 U	0.1 T	7.9		324	7.0	450	18.5	1.9	2.7	
	07/11/12	374	307	9.7	0.88	0.1 U	0.3 T	7.4		377	6.5	460	20.0	1.1	3.2	
	10/24/12	488 J	400 J	9.9	0.96	0.1 U	0.3	13.6		498	6.5	260	19.3	1.1	2.9	
	01/04/13	373	306	8.7	0.96	0.1 U	0.2 U	10.0	52	378	6.6	661	18.7	0.8	3.2	-122
	04/09/13	478	392	10.1	1.13	0.1 U	0.3	13.0	66	462	6.6	822	18.9	1.2	0.00	-139
	07/11/13	352	289	10.8	0.98	0.1 U	0.2 T	8.7	78	353	6.4	619	19.9	1.2	0.00	-123
	10/14/13	411	337	9.9	0.95	0.1 U	0.2 U	10.8	85	431	6.4	744	19.5	2.6	0.43	-122
	01/13/14	345	283	9.6	0.73	0.1 U	0.1 T	7.2	51	333	6.5	576	19.3	1.2	0.00	-81
	04/18/14	363	298	9.3	1.00	0.1 U	0.1 T	9.0	69	365	6.2	668	19.3	1.7	0.00	-92
	07/15/14	367	301	9.4	1.01	0.1 U	0.2 U	8.7	65	387	6.3	642	19.6	1.3	0.00	-90
	10/19/14	367	301	9.9	0.80 T	0.1 U	0.2 U	8.7	50	378	6.3	649	19.2	2.5	0.00	-45
	01/13/15	366	300	10.0	1.00 T	0.1 U	0.2 U	8.5	33	376	6.5	620	18.6	1.4	0.00	-32
	04/08/15	382	313	11.0	1.00	0.1 U	0.3	9.1	73	390	6.4	634	19.8	1.5	0.00	-37
	07/12/15	436	358	9.4	1.0 UBI	0.1 U	0.1 T	11.1	64	403	6.3	694	20.4	2.1	0.03	1
	10/26/15	389	319	8.8	0.80 T	0.1 U	0.1 T	8.3	58	394	6.4	664	19.2	3.0	0.16	43
	01/25/16	388	318	8.6	1.00 J	0.1 U	0.2 T	9.7	53	394	6.5	692	19.0	1.5	1.3	5
	04/03/16	454	372	9.3	1.00 T	0.1 U	0.4	12.0	80	444	6.5	770	20.6	1.0	2.6	26
	07/10/16	405	332	8.7	0.90 T	0.1 U	0.3	11.2	80	406	6.6	719	19.8	1.2	2.4	24
	10/09/16	422	346	8.1	1.00	0.1 U	0.2 U	10.5	75	407	6.6	721	19.5	1.8	0.14	23
	01/23/17	440	361	8.7	0.80 T	0.1 U	0.2 U	11.7	65	447	6.5	716	19.4	1.0	0.91	25
	04/09/17	436	358	9.2	1.10	0.1 U	0.2 U	12.9	49	425	6.6	723	18.8	3.8	0.27	23
	07/27/17	463	380	9.5 T	1.20	0.5 U	50.0 UBI	16.0	87	450	6.6	758	20.4	1.9	0.53	23
	10/15/17	463	380	8.0 T	1.00	0.03 T	0.1 T	14.0	59	490	6.8	828	19.6	1.1	0.00	5
	01/29/18	465	381	8.8	1.09	0.1 U	0.3	13.5	87	482	6.3	812	19.8	1.2	0.00	-3
	04/03/18	483	396	8.7	1.17	0.5	0.1 T	12.4	69	482	6.2	812	19.6	1.4	0.00	1
	07/19/18	450	369	10.0	1.10	0.4	0.4	9.7	76	410	6.0	788	18.9	1.3	0.00	14
	10/14/18	435	357	8.4	1.19	0.1 U	0.4	11.0	64	433	6.2	751	19.8	1.2	0.02	11
	01/15/19	486	399	9.1	0.66	0.1 U	0.3 T	12.6	57	510	6.4	793	19.9	0.8	0.00	-6
	04/02/19	441	362	8.7	1.45	0.1 U	0.3 T	9.9	60	423	6.2	731	19.4	1.5	0.00	7
	07/09/19	511	419	12.1	1.33 J	0.1 U	0.4	13.1	47	536	6.2	824	19.1	2.9	0.00	7
	10/27/19	441	362	8.7	1.45	0.1 U	0.3 T	9.9	60	423	6.2	731	19.4	1.5	0.00	7
	01/20/20	511	419	12.1	1.33	0.1 U	0.4	13.1	47	536	6.1	714	19.7	1.2	0.08	14
	04/13/20	447	367	10.3	1.33	0.1 U	0.3 T	11.6	53	476	6.2	743	19.9	0.6	0.00	12
	07/12/20	461	378	9.5	1.29 J	0.1 U	0.4 U	11.5	59	491	6.2	769	19.8	1.0	0.17	12
	10/14/20	438	359	10.1	1.15	0.1 U	0.4	9.9	57	475	6.1	714	19.7	1.2	0.08	14
	01/18/21	461	378	9.7 J	1.21	0.1 U	0.1 T	11.0	62	475	6.1	743	19.4	1.1	0.12	16
	04/11/21	474	389	9.7	1.21	0.1 U	0.3 T	12.0	57	526	6.1	743	20.1	1.8	0.43	15
	07/13/21	458	376	9.8	1.46 J	0.1 U	0.6	10.9	68	459	6.1	724	20.2	1.7	0.44	17
	10/25/21	454	372	13.0	1.20	0.1 UJ	0.2 T	11.0	58 J	429	6.3	751	19.3	1.1	0.18	19
	01/17/22	428	351	13.3 J	1.42	0.1 U	0.2 JT	10.6	51	438	6.4	732	19.3	1.2	0.22	12
	04/06/22	424	348	17.2	1.41	0.1 U	0.1 T	10.9	56	451	6.5	718	19.9	1.1	0.12	8
	07/17/22	399	327	19.0	1.43	0.1 U	0.1 T	11.9	65	433	6.3	743	19.8	2.4	0.04	19
	10/09/22	418	343	15.8	1.29	0.1 U	0.2 U	10.5	73	419	6.6	713	20.3	1.2	0.17	5
	01/23/23	428	351	16.9	1.03 J	0.1 U	0.4 U	12.1	60	431	6.3	736	19.3	0.9	0.12	19
	04/03/23	421	345	15.7	0.99	0.1 U	0.2 T	10.8	53	445	6.3	711	19.8	0.6	0.06	18
	07/23/23	394	323	15.2	1.02	0.1 U	0.4 U	10.0	68	419	6.3	666	20.3	1.3	0.00	19
	10/29/23	407	334	13.9	0.94	0.1 U	0.1 T	10.0	57	404	6.4	660	19.2	0.7	0.28	16
count		115	115	114	112	118	96	113		114						
max		510.9	419	19.0	1.46	0.5	50	18.5		536						
min		148.7	122	2.5	0.13	0.0 U	0.1 T	5.1		202						
non-detects		0	0	1	0	105	42	0		0						
average		372.5	305.5	7.6	0.9	0.1	0.9	11.4		378.2						
sample stdev		83.1	68.2	3.4	0.3	0.1	5.1	2.4		71.8						
variance		6907.3	4646.7	11.8	0.1	0.0	25.8	6.0		5155.6						
coeff. of variation		4.5	4.5	2.2	3.5	1.9	0.2	4.7		5.3						
standard error		7.8	6.4	0.3	0.0	0.0	0.5	0.2		6.7						

Cowlitz County Tennant Way Landfill

Inorganic Groundwater Quality Data and Statistics

Location	Date	mg/L									Field Measurements					
		Bicarbonate	Alkalinity (as CaCO3)	Chloride	Ammonia	Nitrate	Sulfate	TOC	Total Suspended Solids	Total Dissolved Solids	pH	Specific Conduct.	Temp.	Turbidity	Dissolved Oxygen	Eh
		MCL>		250 (2ndary)		10.0	250 (2ndary)			500 (2ndary)		(umhos/cm)	(C)	(NTU)	(mg/l)	(mV)
MW-13	01/26/12	300	246	6.6	1.03	0.1 U	0.4 U	17.2		373	6.5	450	17.1	1.2	4.1	-100
	04/05/12	521	427	6.6	1.55	0.1 U	0.2 T	34.2		445	6.8	650	17.5	0.7	2.8	
	07/11/12	308	253	5.9	0.74	0.1 U	0.2 T	13.9		338	6.4	380	18.2	1.9	3.2	
	10/24/12	388 J	318 J	6.9	1.02	0.1 U	0.3	18.5		385	6.3	217	17.8	1.0	2.9	
	01/04/13	258	212	5.7	0.74	0.1 U	0.2 U	14.8	14	285	6.6	398	16.8	0.8	3.2	-123
	04/09/13	305	250	6.9	0.82	0.1 U	0.2 T	14.9	32	321	6.6	482	17.4	0.9	0.0	-119
	07/11/13	283	232	7.3	0.92	0.1 U	0.2 T	14.1	56	294	6.4	494	18.2	0.9	0.0	-118
	10/14/13	300	246	6.8	0.77	0.1 U	0.2 U	14.7	47	332	6.4	517	18.0	0.9	0.29	-86
	01/13/14	316	259	7.0	0.64	0.1 U	0.1 T	14.6	14	345	6.5	514	18.2	1.6	0.0	-74
	04/18/14	307	252	6.6	0.61	0.1 U	0.1 T	16.6	9	335	6.4	542	18.3	1.7	0.0	-79
	07/15/14	322	264	7.4	1.46	0.1 U	0.2 U	16.6	74	337	6.3	569	18.3	3.1	0.0	-88
	10/19/14	369	303	8.2	1.20	0.1 U	0.2 U	15.0	48	368	6.4	652	17.8	1.9	0.0	-54
	01/13/15	306	251	10.4	0.60 T	0.1 U	0.2 U	14.1	18	371	6.4	513	17.5	1.5	0.0	-12
	04/08/15	291	239	11.1	0.90 T	0.1 U	0.3	13.2	55	328	6.4	634	19.8	1.5	0.0	-37
	07/12/15	434	356	7.9	1.90 J	0.1 U	0.1 T	21.5	76	427	6.2	715	18.8	2.5	0.10	38
	10/26/15	413	339	8.3	1.90	0.1 U	0.1 T	21.6	128	431	6.4	742	18.3	2.7	0.27	61
	01/25/16	250	205	9.0	0.69 J	0.1 U	0.5	13.3	12	319	6.3	465	17.5	1.1	0.66	17
	04/03/16	363	298	8.7	0.80 T	0.1 U	0.7	15.1	53	337	6.5	559	18.7	1.1	2.3	28
	07/10/16	328	269	8.0	1.20	0.1 U	0.3	15.9	73	359	6.5	593	19.2	1.6	2.3	26
	10/09/16	308	253	8.0	1.40	0.1 U	0.2 U	15.0	77	326	6.5	564	18.5	2.5	0.17	25
	01/23/17	421	345	7.6	0.50 T	0.1 U	0.2 U	16.0	52	437	6.5	675	17.9	1.3	0.75	27
	04/09/17	433	355	7.4	2.00	0.1 U	0.1 T	29.6	78	429	6.5	753	17.4	3.3	0.56	26
	07/27/17	329	270	5.5 T	0.71 T	0.5 U	50.0 UB1	17.0	46	350	6.6	558	18.8	1.9	0.42	23
	10/15/17	329	270	2.6 T	0.90	0.5 U	0.1 T	19.0	31	420	6.7	671	17.0	4.2	0.0	11
	01/29/18	391	321	2.5	1.06	0.04 T	0.2 T	15.1	76	391 J	6.4	674	17.5	1.3	0.0	-12
	04/03/18	428	351	3.0	1.00	0.48	0.2 U	19.8	63	395	6.1	705	17.3	2.2	0.0	5
	07/19/18	399	327	1.8	0.71	0.42	0.4	12.6	58	368	5.9	651	16.6	1.8	1.2	16
	10/14/18	374	307	1.8	1.14	0.1 U	0.4	15.8	63	385	6.1	638	17.0	2.0	0.0	13
	01/15/19	349	286	2.2	1.07	0.1 U	0.3 T	14.8	49	402	6.3	6	17.4	6.1	0.0	2
	04/02/19	350	287	2.0	1.51	0.1 U	0.3 T	17.6	72	352	6.2	592	17.1	2.5	0.0	7
	07/09/19	338	277	1.8	1.40 J	0.1 U	0.3 T	29.6	38	350	6.2	558	16.6	1.7	0.0	8
	10/27/19	350	287	2.0	1.51	0.1 U	0.3 T	17.6	72	352	6.2	592	17.1	2.5	0.0	7
	01/20/20	338	277	1.8	1.40	0.1 U	0.3 T	29.6	38	350	6.1	580	17.6	1.9	0.0	13
	04/13/20	363	298	2.0	1.26	0.1 U	0.3 T	18.8	56	407	6.1	611	17.4	1.3	0.0	14
	07/12/20	340	279	1.7	1.08 J	0.1 U	0.4 U	19.2	58	434	6.1	585	17.4	1.1	0.12	13
	10/14/20	322	264	2.4	1.62	0.1 U	0.4 T	16.7	76	421	6.1	580	17.6	1.9	0.04	13
	01/18/21	326	267	1.5 J	1.23	0.1 U	0.1 T	14.7	70	344	6.1	555	16.8	2.0	0.04	17
	04/11/21	327	268	2.0	1.43	0.1 U	0.3 T	15.7	66	382	6.1	564	17.3	2.7	0.12	14
	07/13/21	278	228	2.7	1.50 J	0.1 U	1.8	12.5	70	306	6.1	496	18.1	4.8	0.14	15
	10/25/21	422	346	3.5	2.92	0.0 JT	0.2 T	23.0	120 J	356	6.3	737	17.2	3.4	0.11	20
	01/17/22	300	246	1.3 J	1.35	0.1 U	0.1 JT	12.8	54	317	6.5	528	16.8	1.3	0.10	11
	04/06/22	230	189	1.4	1.29	0.1 U	0.4 U	12.8	57	292	6.6	437	17.4	3.1	0.02	4
	07/17/22	239	196	1.1	1.20	0.1 U	0.2 U	12.4	57	266	6.3	403	17.6	1.7	0.02	17
	10/09/22	306	251	2.2	2.44	0.1 U	0.1 T	17.1	113	318	6.3	573	17.4	2.0	0.08	17
	01/23/23	274	225	2.4	1.06 J	0.1 U	0.4 U	13.9	65	296	6.3	503	16.7	2.1	0.00	20
	04/03/23	278	228	2.2	1.22	0.1 U	0.2 T	14.4	80	325	6.3	515	17.0	1.7	0.00	17
	07/23/23	246	202	2.1	1.42	0.1 U	0.4 U	13.5	83	290	6.3	474	18.0	1.5	0.00	18
	10/29/23	258	212	2.2	1.31	0.1 U	0.4 T	15.0	85	273	6.4	479	17.3	1.5	0.23	15
count		114	114	115	115	117	87	114		109						
max		520.6	427	11.1	2.9	0.5	50	34.2		471						
min		119.5	98	1.1	0.05 U	0.0 U	0.1 T	9.7		219						
non-detects		0	0	1	1	106	32	0		0						
average		318.0	260.8	4.8	1.2	0.1	1.7	17.6		354.2						
sample stdev		69.8	57.2	2.2	0.6	0.1	5.7	4.8		52.9						
variance		4871.6	3277.3	5.0	0.4	0.0	32.3	23.0		2802.0						
coeff. of variation		4.6	4.6	2.2	2.0	1.8	0.3	3.7		6.7						
standard error		6.5	5.4	0.2	0.1	0.0	0.6	0.4		5.1						

Cowlitz County Tennant Way Landfill

Inorganic Groundwater Quality Data and Statistics

Location	Date	mg/L									Field Measurements					
		Bicarbonate	Alkalinity (as CaCO3)	Chloride	Ammonia	Nitrate	Sulfate	TOC	Total Suspended Solids	Total Dissolved Solids	pH	Specific Conduct.	Temp.	Turbidity	Dissolved Oxygen	Eh
		MCL>		250 (2ndary)		10.0	250 (2ndary)			500 (2ndary)		(umhos/cm)	(C)	(NTU)	(mg/l)	(mV)
MW-14B	01/26/12	294	241	7.0	1.51	0.1 U	0.4 U	25.3		408	6.5	480	16.3	1.5	3.7	-126
	04/05/12	335	275	6.2	1.55	0.1 U	0.2 T	29.6		321	6.8	520	16.8	0.9	2.6	
	07/11/12	372	305	6.6	1.60	0.1 U	0.3 T	22.5		375	6.4	470	17.0	1.2	3.2	
	10/24/12	379 J	311 J	6.6	1.91	0.1 U	0.3	26.2		411	6.4	278	17.5	1.2	2.9	
	01/04/13	334	274	6.1	2.02	0.1 U	0.2 U	26.6	81	304	6.6	643	16.1	1.0	3.3	-144
	04/09/13	385	316	6.9	1.68	0.1 U	0.3	27.6	74	390	6.6	696	17.0	0.8	0.0	-137
	07/11/13	395	324	6.5	2.18	0.1 U	0.2 T	28.4	148	401	6.4	734	17.9	1.0	0.0	-137
	10/14/13	307	252	6.1	1.48	0.1 U	0.1 T	22.8	110	340	6.5	600	17.7	1.9	0.40	-119
	01/13/14	355	291	5.8	1.26	0.1 U	0.1 T	23.1	84	363	6.5	608	17.3	1.0	0.02	-100
	04/18/14	335	275	5.4	1.52	0.1 U	0.1 T	25.4	100	356	6.4	637	17.3	1.6	0.0	-109
	07/15/14	358	294	5.0	1.95	0.1 U	0.2 U	21.7	105	379	6.3	625	17.6	3.5	0.0	-89
	10/19/14	337	276	5.6	1.50	0.1 U	0.2 U	23.6	67	366	6.4	622	17.4	2.3	0.0	-13
	01/13/15	383	314	6.8	1.60	0.1 U	0.2 U	26.3	55	429	6.5	676	16.5	8.2	0.0	9
	04/08/15	384	315	7.1	3.00	0.1 U	0.3	32.0	180	406	6.4	741	16.9	5.6	0.0	-55
	04/08/15	386	317	7.0	2.90	0.1 U	0.4	29.9	180	407						
	07/12/15	321	263	8.0	1.70 J	0.1 U	0.2 T	23.5	78	328	6.3	593	17.2	1.5	0.0	74
	10/26/15	294	241	7.6	1.50	0.1 U	0.1 T	23.2	93	334	6.2	539	16.5	0.7	0.89	84
	01/25/16	322	264	6.2	1.29 J	0.1 U	0.4	24.9	92	338	6.2	621	16.6	3.3	0.80	17
	04/03/16	283	232	7.1	1.50	0.1 U	0.4	21.4	103	321	6.5	550	16.9	3.1	2.1	25
	07/10/16	269	221	7.1	3.00	0.1 U	0.4	23.6	79	322	6.6	598	16.6	1.9	2.0	20
	10/09/16	246	202	8.5	1.10	0.1 U	0.2 U	16.8	72	295	6.7	464	16.7	3.3	0.0	17
	01/23/17	335	275	7.0	1.20	0.1 U	0.2 U	22.8	94	365	6.5	612	15.8	3.7	0.40	23
	04/09/17	337	276	6.7	1.90	0.1 U	0.1 T	29.2	100	345	6.6	632	15.1	1.8	2.7	20
	07/27/17	305	250	6.7 T	2.30	0.5 U	50.0 UB1	23.0	110	310	6.6	569	17.3	2.0	0.44	19
	10/15/17	402	330	5.9 T	2.40	0.03 T	0.1 T	30.0	120	420	6.8	770	15.0	9.0	0.0	2
	01/29/18	347	285	6.2	2.53	5.0 R	0.2	27.4	87	736 J	6.2	690	15.8	2.0	0.0	2
	04/03/18	323	265	9.1	1.29	0.1 U	0.2 T	22.3	96	320	6.2	605	14.9	0.9	0.48	-1
	07/19/18	356	292	7.9	1.66	0.4	0.4	24.5	112	360	6.0	673	14.7	2.2	0.0	13
	10/14/18	350	287	5.8	2.90	0.1 U	0.5	31.5	143	398	6.4	669	15.1	3.4	0.0	-1
	01/15/19	315	258	5.5	2.13	0.1 U	0.3 T	26.7	105	399	6.5	634	15.2	1.7	0.0	-10
	04/02/19	282	231	4.5	1.91	0.1 U	0.3 T	21.1	101	324	6.4	541	15.0	1.9	0.0	-1
	07/09/19	340	279	5.4	2.24 J	0.1 U	0.4 T	16.4	88	398	6.3	634	14.7	3.3	0.0	3
	10/27/19	282	231	4.5	1.91	0.1 U	0.3 T	21.1	101	324	6.4	541	15.0	1.9	0.0	-1
	01/20/20	340	279	5.4	2.24	0.1 U	0.4 T	16.4	88	398	6.3	519	15.1	1.1	0.0	5
	04/13/20	299	245	5.1	2.42	0.1 U	0.4 T	27.8	120	357	6.2	300	15.1	2.2	0.0	9
	07/12/20	290	238	4.9	1.89 J	0.1 U	0.4 U	25.7	98	393	6.3	565	15.1	1.4	0.0	5
	10/14/20	273	224	5.0	1.59	0.1 U	0.3 T	23.5	93	389	6.3	519	15.1	1.1	0.0	5
	01/18/21	282	231	4.5 J	1.82	0.1 U	0.3 T	22.0	104	310	6.2	521	14.6	1.4	0.0	10
	04/11/21	323	265	4.2	2.66	0.1 U	0.3 T	28.4	87	396	6.2	597	14.7	2.2	0.13	10
	07/13/21	287	235	4.0	2.30 J	0.1 T	0.4	22.2	103	319	6.2	535	15.3	2.7	0.07	7
	10/25/21	278	228	4.4	1.29	0.1 UJ	0.2 T	20.0	81 J	346	6.4	507	15.0	3.3	0.0	12
	01/17/22	272	223	3.8 J	1.72	0.1 U	0.1 JT	19.1	82	311	6.6	507	14.4	3.6	0.0	2
	04/06/22	274	225	4.8	2.28	0.1 U	0.1 T	26.0	122	362	6.7	534	15.4	13.2	0.0	-1
	07/17/22	257	211	4.0	2.41	0.1 U	0.2 U	21.7	110	293	6.3	501	15.8	2.3	0.0	16
	10/09/22	240	197	6.8	2.46	0.1 U	0.2 U	21.8	18	330	6.4	478	15.9	2.1	0.02	12
	01/23/23	217	178	5.1	1.51 J	0.1 U	0.1 T	16.2	74	250	6.4	398	14.8	4.4	0.0	14
	04/03/23	284	233	6.0	2.40	0.1 U	0.1 T	23.3	104	342	6.4	549	14.8	2.4	0.0	13
	07/23/23	268	220	5.5	2.85	0.1 U	0.4 U	23.1	15	306	6.4	534	15.8	2.0	0.0	16
	10/29/23	184	151	17.5	1.34	0.1 U	0.4 U	17.8	6	304	6.5	401	14.8	0.7	0.15	9
	count	141	116	115	115	119	86	113		111						
	max	538.9	442	17.5	3.2	5.0	50.0	36.9		736						
	min	112.2	92	2.8	0.66	0.0 U	0.1 T	7.9		174						
	non-detects	0	0	1	0	104	32	0		0						
	average	336.1	275.7	5.6	1.89	0.2	1.0	24.3		363.6						
	sample stdev	69.9	57.3	1.6	0.54	0.5	5.4	5.4		61.1						
	variance	4882.2	3284.4	2.7	0.29	0.2	28.8	28.9		3733.3						
	coeff. of variation	4.8	4.8	3.4	3.48	0.4	0.2	4.5		6.0						
	standard error	5.9	5.3	0.2	0.05	0.0	0.6	0.5		5.8						

Cowlitz County Tennant Way Landfill
Inorganic Groundwater Quality Data and Statistics

Location	Date	mg/L									Field Measurements					
		Bicarbonate	Alkalinity (as CaCO3)	Chloride	Ammonia	Nitrate	Sulfate	TOC	Total Suspended Solids	Total Dissolved Solids	pH	Specific Conduct.	Temp.	Turbidity	Dissolved Oxygen	Eh
		MCL>		250 (2ndary)		10.0	250 (2ndary)			500 (2ndary)		(umhos/cm)	(C)	(NTU)	(mg/l)	(mV)
MW-15	01/26/12	350	287	3.4	0.59	0.1 U	2.4	13.7		386	6.5	470	13.5	1.4	3.3	-55
	04/05/12	319	262	4.5	0.51	0.1 U	1.8	14.0		347	6.6	440	13.5	0.6	2.3	
	07/11/12	379	311	3.1	0.40	0.1 U	1.8 J	10.4		321	6.0	410	14.4	0.8	3.3	
	10/24/12	373 J	306 J	3.8	0.97	0.1 U	1.9	11.6		373	5.7	233	14.3	1.8	3.0	
	01/04/13	324	266	3.9	0.46	0.1 U	4.1	13.2	5 U	341	6.6	503	12.9	0.6		-85
	04/09/13	345	283	4.2	0.59	0.1 U	5.7	12.9	5 U	384	6.5	533	13.3	0.4	0.50	-84
	07/11/13	324	266	2.7	1.21	0.2	5.7	11.8	5 U	352	6.4	493	14.0	0.6	0.0	-43
	10/14/13	349	286	2.1	0.63	0.1 U	6.6	10.8	5 U	370	6.5	516	13.7	1.5	0.29	-25
	01/13/14	376	308	6.1	0.48	0.1 U	2.7	15.3	5 U	372	6.5	479	13.1	0.5	0.0	-17
	04/18/14	340	279	4.3	0.69	0.1 U	6.3	14.3	5 U	370	6.5	536	13.1	1.1	0.0	-49
	07/15/14	360	295	3.4	0.86	0.1 U	4.0	13.5	5 U	351	6.1	449	13.9	0.6	0.0	28
	10/19/14	357	293	4.6	0.60 T	0.1 U	3.3	12.8	5 U	367	6.5	465	13.2	0.9	0.0	64
	01/13/15	330	271	5.1	0.60 T	0.1 U	4.8	15.1	5 U	383	6.4	461	12.9	0.4	0.0	58
	04/08/15	299	245	6.5	0.70 T	0.1 U	4.3	14.5	5 U	351	6.5	459	13.3	0.4	0.0	-56
	07/12/15	330	271	4.0	1.0 UBI	0.1 U	2.6	15.9	5 U	358	6.4	472	14.3	0.7	0.0	111
	10/26/15	351	288	4.4	0.70 T	0.1 U	3.0	15.0	8	388	6.4	538	13.4	0.1	0.10	99
	01/25/16	266	218	3.3	0.47 J	0.1 U	6.6	12.7	5 U	313	6.2	437	13.0	0.8	0.22	47
	04/03/16	245	201	2.2	0.60 T	0.1 U	10.5	10.9	5 U	278	6.6	403	13.9	0.4	1.8	23
	07/10/16	284	233	2.4	0.90 T	0.1 U	7.3	11.9	5 U	311	6.5	448	14.1	0.6	1.7	24
	10/09/16	299	245	3.7	0.70 T	0.1 U	7.3	13.8	5 U	331	6.6	481	14.2	0.7	0.0	20
	01/23/17	290	238	3.4	0.40 T	0.1 U	9.4	17.4	5 U	330	6.7	457	13.2	0.6	0.0	17
	04/09/17	268	220	2.0	1.20	0.1 U	15.8	14.5	13	314	6.8	447	13.4	0.7	0.0	13
	07/27/17	280	230	1.8 T	1.20	0.5 U	7.0 T	12.0	5 U	320	6.2	440	15.3	1.4	0.58	40
	10/15/17	268	220	1.1 T	0.55	0.5 U	9.9 T	9.7	5 U	320	6.8	454	13.2	0.5	0.0	5
	01/29/18	294	241	1.3	2.23	0.1 U	8.0	11.7	5 U	314	6.1	458	14.1	0.4	0.0	7
	04/03/18	308	253	1.4	0.49	0.1 U	7.5	10.8	8	303	6.2	425	13.2	0.3	0.0	3
	07/19/18	288	236	1.9	0.41	0.1 U	10.2	10.3	5 U	284	6.0	456	12.7	0.3	1.3	13
	10/14/18	291	239	2.1	0.54	0.1 U	8.3	12.3	5 U	317	6.4	443	13.6	0.4	0.0	-2
	01/15/19	307	252	2.0	0.79	0.1 U	5.3	14.4	5 U	365	6.5	435	13.8	0.4	0.0	-10
	04/02/19	372	305	2.7	0.55	0.1 U	6.7	13.8	11	389	6.3	563	13.1	0.8	0.69	2
	07/09/19	339	278	3.8	0.05 U	0.1 U	4.8	16.8	11	372	6.4	513	13.1	1.2	0.0	0
	10/27/19	372	305	2.7	0.55	0.1 U	6.7	13.8	11	389	6.3	563	13.1	0.8	0.7	2
	01/20/20	339	278	3.8	0.05 U	0.1 U	4.8	16.8	11	372	6.3	539	13.7	0.4	0.1	4
	04/13/20	321	263	2.6	0.52	0.1 U	18.0	15.0	6	367	6.2	511	13.5	0.2	0.0	10
	07/12/20	327	268	2.3	0.73 J	0.1 U	12.5	14.2	5 U	392	6.3	511	13.8	0.2	0.22	8
	10/14/20	351	288	5.0	0.82	0.1 U	7.4	18.5	18	526	6.3	539	13.7	0.4	0.14	4
	01/18/21	310	254	4.3 J	0.48	0.1 U	3.5	16.9	5 U	347	6.1	461	13.2	0.5	0.0	12
	04/11/21	282	231	1.7	0.58	0.1 U	14.0	13.2	5 U	343	6.2	414	13.5	0.7	0.03	9
	07/13/21	315	258	3.5	0.85 J	0.1 T	6.6	12.4	5 U	338	6.2	457	14.1	0.6	0.02	7
	10/25/21	361	296	5.9	0.86	0.1 UJ	3.5	19.0	5 UJ	393	6.4	560	13.9	0.9	0.0	15
	01/17/22	261	214	5.1 J	0.80	0.1 UJ	5.6 J	14.2	5 U	302	6.5	413	13.2	0.7	0.0	8
	04/06/22	267	219	7.7	0.71	0.1 U	3.0	14.7	5 U	326	6.6	421	13.1	0.7	0.0	1
	07/17/22	323	265	1.9	0.67	0.1 U	8.7	9.8	5 U	306	6.3	443	14.1	1.0	0.0	18
	10/09/22	301	247	4.7	0.84	0.1 U	4.7	13.8	5 U	327	6.5	463	14.0	0.4	0.0	8
	01/23/23	244	200	2.9	0.41 J	0.1 U	9.7	13.9	5 U	283	6.6	381	13.1	0.4	0.0	3
	04/03/23	244	200	2.8	0.59	0.1 U	7.5	13.2	5 U	301	6.5	386	13.2	0.4	0.0	6
	07/23/23	273	224	4.0	0.90	0.1 U	4.5	11.9	5 U	310	6.4	402	14.5	0.7	0.0	15
	10/29/23	327	268	6.1	1.05	0.1 U	2.8	14.8	5 U	344	6.5	486	13.2	0.3	0.12	4
count		115	115	115	115	116	98	114		115						
max		473.1	388	7.7	2.4	1.0	26	24.7		526						
min		109.7	90	0.2 U	0.05 U	0.1 U	1.4	2.8		202						
non-detects		0	0	2	4	92	0	0		0						
average		315.0	258.4	3.7	0.9	0.2	7.6	14.3		356.1						
sample stdev		83.3	68.3	1.4	0.5	0.1	5.6	4.8		65.4						
variance		6934.0	4664.7	1.9	0.3	0.0	31.0	23.1		4275.3						
coeff. of variation		3.8	3.8	2.7	1.7	1.2	1.4	3.0		5.4						
standard error		7.8	6.4	0.1	0.0	0.0	0.6	0.5		6.1						

Cowlitz County Tennant Way Landfill

Inorganic Groundwater Quality Data and Statistics

Location	Date	mg/L									Field Measurements					
		Bicarbonate	Alkalinity (as CaCO3)	Chloride	Ammonia	Nitrate	Sulfate	TOC	Total Suspended Solids	Total Dissolved Solids	pH	Specific Conduct.	Temp.	Turbidity	Dissolved Oxygen	Eh
		MCL>		250 (2ndary)		10.0	250 (2ndary)			500 (2ndary)		(umhos/cm)	(C)	(NTU)	(mg/l)	(mV)
MW-16B	07/19/18	501	411	7.3	1.07	0.1 U	1.6	11.4	95	1000* J	6.1	855	14.4	4.2	0.0	5
	07/19/18	508	417	7.4	1.08	0.1 U	1.6	10.2	89	491 J						
	10/14/18	510	418	7.6	0.99	0.60	2.5	11.8 J	94	444	6.2	843	14.6	10.6	0.0	-1
	10/14/18	505	414	7.6	0.97	0.57	2.3	10.5	82	468						
	01/15/19	522	428	7.5	1.10	0.40	1.0	10.3	63	493	5.9	871	13.4	3.5	0.0	16
	01/15/19	525	431	7.6	1.10	0.48	1.2	10.4	59	493						
	04/02/19	525	431	7.0	1.11	0.1 U	1.2	12.8	60	531	6.3	884	14.0	4.5	0.0	2
	04/02/19	524	430	7.0	1.09	0.1 U	1.2	12.5	63	530						
	07/09/19	524	430	7.0	1.07	0.1 U	1.5	11.8	73	553	6.4	861	14.5	7.5	0.0	-2
	07/09/19	528	433	6.9	1.11	0.1 U	1.5	12.0	74	550						
	10/27/19	522	428	6.6	1.34	0.1 U	1.1	12.3	77	542	6.2	849	14.2	5.8	0.0	6
	10/27/19	522	428	1.2	1.34	0.1 U	1.4	12.3	79	530						
	01/20/20	521	427	6.8	1.61 J	0.1 U	3.2	14.2	49	557	6.1	845	13.2	6.9	0.0	12
	01/20/20	518	425	6.7	2.06 J	0.1 U	3.1	14.1	59	558						
	04/13/20	528	433	6.8	1.90	0.1 U	1.4	14.3	75	520	6.2	829	14.5	5.3	0.0	10
	04/13/20	529	434	6.8	1.99	0.1 U	1.4	14.1	53	534						
	07/12/20	519	426	6.5	0.05 U	0.1 U	1.1	14.4	63	571	6.2	834	14.5	6.6	0.0	10
	07/12/20	525	431	6.6	1.95 J	0.1 U	1.1	14.3	77	554						
	10/14/20	507	416	6.8	1.89	0.1 U	2.0	12.8	102	547	6.1	833	14.3	8.4	0.03	13
	10/14/20	578	474	6.8	2.01	0.1 U	2.0	13.3	99	563						
	01/18/21	505	414	0.2 U	2.41	0.1 U	8.9	13.2	88	530	6.1	809	13.2	5.8	0.03	14
	01/18/21	511	419	7.2 J	2.49	0.1 U	9.9	13.2	80	529						
	04/11/21	512	420	6.7	2.25	0.1 U	2.2	13.5	64	569	6.1	791	14.1	4.3	0.07	17
	04/11/21	513	421	6.6	2.45	0.1 U	2.2	13.6	61	592						
	07/13/21	525	431	6.5	0.05 B1	0.1 U	2.0	13.0	91	514	6.1	806	15.1	8.0	0.95	16
	07/13/21	521	427	6.3	2.63 J	0.1 T	1.9	13.0	93	513						
	10/25/21	505	414	6.3	2.45	0.1 U	2.1	13.0	123 J	447	6.3	843	13.5	4.9	0.0	19
	10/25/21	527	432	6.4	2.53	0.1 U	2.2	13.0	100 J	488						
	01/17/22	502	412	5.9 J	2.86	0.0 JT	2.7 J	12.8	64	486	6.2	798	13.2	5.6	0.0	23
	01/17/22	500	410	5.5 J	2.77	0.1 U	2.5 J	13.0	66	480						
	04/06/22	486	399	7.2	2.80	0.1 U	2.9	13.2	97	482	6.5	812	14.2	5.7	0.0	6
	04/06/22	488	400	7.1	2.84	0.1 U	2.9	13.1	90	482						
	07/17/22	463	380	6.8	2.95	0.1 U	1.5	13.5	66	464	6.3	795	14.5	7.8	0.0	17
	07/17/22	430	353	6.8	3.00	0.1 U	1.5	13.6	65	459						
	10/09/22	502	412	7.1	3.07	0.1 U	2.0	13.3	99	483	6.5	818	14.5	6.4	0.07	8
	10/09/22	500	410	7.1	3.20	0.1 U	1.9	13.0	104	489						
	01/23/23	480	394	7.2	0.05 UJ	0.1 U	3.3	12.6	108	466	6.3	800	13.5	17.7	0.0	19
	01/23/23	483	396	7.2	2.53 J	0.1 U	3.0	12.5	87	468						
	04/03/23	484	397	7.2	2.68	0.1 U	2.8	12.1	69	481	6.3	799	14.2	6.4	0.4	21
	04/03/23	484	397	7.2	2.76	0.1 U	2.7	12.4	60	480						
	07/23/23	484	397	7.0	2.27	0.1 U	1.3	12.1	116	497	6.6	749	15.4	7.9	0.0	2
	07/23/23	485	398	7.0	2.39	0.1 U	1.3	12.4	104	501						
	10/29/23	485	398	6.8	2.45	0.1 U	1.9	11.5	73	464	6.3	776	14.3	5.1	0.2	17
	10/29/23	484	397	6.8	2.39	0.1 U	2.0	11.0	74	466						
count		151	151	144	151	154	148	151		148						
max		577.9	474	29	3.20	0.6	38.0	14.4		592						
min		189.0	155	0.2	0.05	0.0 U	0.2 U	0.5		145						
non-detects		0	0	1	2	130	4	0		0						
average		429.5	352.3	11.7	1.5	0.1	5.9	9.5		437.6						
sample stdev		82.3	67.5	7.0	0.6	0.1	8.9	3.0		73.5						
variance		6778.4	4560.0	49.5	0.4	0.0	79.9	8.9		5406.0						
coeff. of variation		5.2	5.2	1.7	2.5	1.4	0.7	3.2		6.0						
standard error		6.7	5.5	0.6	0.0	0.0	0.7	0.2		6.0						

U = Not detected. Method Reporting Limit shown.

T = Detected below reporting limit. Value is an estimate.

UB1 = Detected in blank below MRL. MRL shown.

* = outlier data point, not used in statistical calculations.

J = The associated value is a qualified estimate.

HCO3 calculated from Alkalinity (as CaCO3) divided by 0.8202 as described in USGS WSP 2254a (Hem, 1985).

Cowlitz County Tennant Way Landfill
Metals Groundwater Quality Data and Statistics (ug/l)

Site	Date	MCL>	Antimony 6	Arsenic 0.05	Barium 1000	Beryllium 4	Cadmium 5	Chromium 50 (total)	Cobalt	Copper 1000 (2ndary)	Lead 15	Nickel 100	Selenium 10
MW-3B	01/27/12	Total	10 U	11.8	29	0.2 U	0.5 U	2 U	14	2 U	2 U	2 U	5 U
	04/06/12	Total	3 T	15.3	46	0.2 U	0.5 U	2 U	22	2 U	2 U	2.7	4 U
	07/12/12	Total	10 U	14.0	49	0.2 U	0.5 U	0.7 T	20	1 T	2 U	1.0 T	5 U
	10/25/12	Total	10 U	14.3	34	0.4	0.5 U	0.9 T	15	2 U	2 U	9.0	5 U
	01/07/13	Total	10 U	16.3	48	0.2 U	1.4	2 U	21	2 U	2 U	2 U	5 U
Total Below													
	04/11/13	T/Dis	0.031 T	12.6	34	0.012 T	0.02 U	0.42	16	0.23	2 U	4.6	5 U
	07/12/13	T/Dis	0.05 U	11.5	41	0.017 T	0.007 T	0.85	20	0.70	0.005 T	6.1	1 U
	10/15/13	T/Dis	0.028 T	14.3	42	0.023	0.02 U	0.68	21	0.49	0.015 T	6.3	1 U
	10/15/13	T/Dis	0.022 T	14.2	43	0.022	0.02 U	0.70	21	0.50	0.02 U	6.4	0.40 T
	01/13/14	T/Dis	0.033 T	13.6	37	0.021	0.005 T	0.80	18	0.55	0.006 T	5.2 J	0.40 T
	04/21/14	T/Dis	0.064	11.6	10	0.039	0.018 T	0.99	4.0	0.55	0.008 T	2.4	0.40 T
	07/15/14	T/Dis	0.040 T	12.5	11	0.028	0.014 T	1.00	4.5	0.38	0.018 T	2.1	0.50 T
	10/19/14	T/Dis	0.019 T	11.9	9	0.023	0.008 T	0.91 J	3.6 J	0.40 J	0.008 JT	2.0	1 U
	01/13/15	T/Dis	0.029 T	12.8	8	0.020 T	0.009 T	0.79 J	3.4	0.40	0.010 T	1.6	0.30 T
	04/08/15	T/Dis	0.012 T	14.4	8	0.017 T	0.02 U	0.67	3.6	0.35 J	0.006 T	1.4	1 U
	07/12/15	T/Dis	0.015 T	13.3	8	0.017 T	0.02 U	0.68	3.2	0.11	0.003 T	1.2	1 U
	10/26/15	T/Dis	0.015 T	13.3	9	0.021	0.010 T	0.60	3.1 J	0.29	0.019 JT	1.3	1 U
	01/25/16	T/Dis	0.012 T	12.2	5	0.008 T	0.02 U	0.38	2.1	0.39	0.008 T	0.7	1 U
	04/03/16	T/Dis	0.10 U	12.5	6	0.032	0.015 T	0.33	2.2	0.40	0.018 T	0.6	1 U
	07/10/16	T/Dis	0.025 T	10.8	11	0.012 T	0.02 U	0.43	3.4	0.22	0.011 T	1.0	1 U
	10/09/16	T/Dis	0.05 U	10.2	12	0.013 T	0.011 JT	0.60	2.4	0.38	0.020 B1	0.8	1 U
	01/23/17	T/Dis	0.011 T	11.8	7	0.020 U	0.02 U	0.24	2.1	0.44	0.021	0.6	1 U
	04/09/17	T/Dis	0.011 T	12.0	8	0.008 T	0.02 U	0.25 J	2.3	0.26	0.01 B1	0.6	1 U
	07/27/17	T/Dis	0.50 U	9.2	8	0.50 U	0.25 U	0.29 T	1.7	0.43 T	0.10 U	0.6 T	0.32 T
	10/16/17	T/Dis	0.50 U	9.4	9	0.50 U	0.25 U	0.31 T, B	1.8 B	0.66 B	0.10 B1	0.8 T	1 B1
	01/29/18	T/Dis	1.0 U	10.0	6.6	0.50 U	0.25 U	0.25 T	1.9	0.58	0.10 U	0.73	0.30 T
	04/03/18	T/Dis	1.0 U	5.1	12	0.50 U	0.25 T	0.6	2.9	0.73	0.10 U	1.3	1 U
	07/19/18	T/Dis	0.03 T	9.7	13.2	0.01 T	0.006 T	0.34	2.12	0.50 J	0.02 T	0.97	1 U
	10/14/18	T/Dis	0.32	10.6	14.5	0.02	0.117 J	0.34	1.87	0.46 J	0.40 J	0.71 J	1 U
	01/15/19	T/Dis	0.05 U	10.0	7.84	0.01 T	0.02 U	0.18 T	1.64	0.44	0.02 B1	0.38	1 U
	04/02/19	T/Dis	0.05 U	4.7	23.9	0.01 T	0.02 U	0.27	3.41	0.13	0.02 U	1.07	1 U
	07/09/19	T/Dis	0.05 U	8.4	9.74	0.02 U	0.02 U	0.36	1.07	0.25	0.01 T	0.43	1 U
	10/27/19	T/Dis	0.05 U	10.1	30.5	0.01 T	0.02 U	0.43	1.39	0.44	0.02	0.82	1 U
	01/20/20	T/Dis	0.05 U	9.8	19	0.02 U	0.02 U	0.22	2.48	0.22	0.01 T	0.82	1 U
	04/13/20	T/Dis	0.05 U	6.7	27.3	0.01 T	0.02 U	0.32	3.59	0.17	0.01 JT	1.8	1 U
	07/12/20	T/Dis	0.05 U	8.3	7.00	0.01 T	0.02 U	0.25	0.308	0.23	0.02 J	0.18 T	1 U
	10/14/20	T/Dis	0.05 U	9.9	21.3	0.01 T	0.02 U	0.55 J	0.806	0.58	0.03	0.85	1 U
	01/18/21	T/Dis	0.05 U	8.6	6.39	0.02 U	0.02 U	0.46	1.06	0.24 J	0.02 B1	0.27	1 U
	04/11/21	T/Dis	0.05 U	5.8	24.2	0.01 T	0.02 U	0.45	3.24	0.28 J	0.01 T	2.32	1 U
	07/13/21	T/Dis	0.05 U	4.9 J	15.2	0.02 U	0.02 U	1.23 J	1.58	0.23 J	0.01 T	20.4 J	1 U
	10/25/21	T/Dis	0.05 U	5.9	15.6	0.01 T	0.02 U	1.92	1.18	0.34	0.02 T	1.6	1 U
	01/17/22	T/Dis	0.05 U	8.7	9.4	0.02 U	0.02 U	3.19	2.25	0.58	0.02 T	0.9	1 U
	04/06/22	T/Dis	0.02 U	5.3	15.0	0.01 T	0.008 U	0.68	2.04	0.24	0.01 JT	2.66	0.2 U
	07/17/22	T/Dis	0.05 U	5.5	8.0	0.01 T	0.02 U	0.7	0.927	0.3	0.01 T	1.77	1 U
	10/09/22	T/Dis	0.05 U	10.2	9.6	0.02 U	0.02 U	2.75	0.988	0.39	0.02 T	0.77	1 U
	01/23/23	T/Dis	0.05 U	10.0	13.2	0.01 T	0.02 U	0.31	3.45	0.09 JT	0.01 T	1.04	1 U
	04/03/23	T/Dis	0.05 U	8.6	10.4	0.01 T	0.02 U	0.57	2.52	0.27	0.01 T	0.66	1 U
	07/23/23	T/Dis	0.05 U	8.5	7.6	0.02 U	0.02 U	0.59 J	1.04	0.19	0.01 T	0.38	1 U
	10/29/23	T/Dis	0.05 U	8.0	8.1	0.01 T	0.02 U	1.37 J	0.836	0.32	0.02 JT	0.61	1 U
	count		116	137	90	116	140	139	106	129	137	115	115
	max		10 U	23	50	5 U	10	10	22	12	4.8 J	20 U	5 U
	min		0.011 T	4	5	0.006 T	0.005 T	0.2	0.3	0.09	0.003 T	0.2 T	0.2 T
	non-detects		98	28	0	82	124	88	39	92	89	68	106
	average		28.3	11.0	21.0	2.8	2.9	3.8	8.5	6.2	2.1	11.9	3.7
	sample stdev		24.3	5.0	12.9	2.5	2.3	2.8	5.6	4.6	2.3	9.2	2.5
	variance		592.0	24.8	165.7	6.0	5.4	7.7	31.3	21.6	5.1	84.0	6.5
	coeff. of variation		1.2	2.2	1.6	1.1	1.2	1.4	1.5	1.3	0.9	1.3	1.5
	standard error		2.3	0.4	1.4	0.2	0.2	0.2	0.5	0.4	0.2	0.9	0.2

Cowlitz County Tennant Way Landfill
Metals Groundwater Quality Data and Statistics (ug/l)

Site	Date	Silver 50	Thallium 2	Vanadium	Zinc 5000 (2ndary)	Geochemical Metals					
						Calcium	Iron 300 (2ndary)	Magnesium	Manganese 50 (2ndary)	Potassium	Sodium
MW-3B	01/27/12	2 U	5 U	5.5	2 U	27,800	54,400	22,000	2,440	742	6,590
	04/06/12	0.9 T	1.4 T	8.6	1.3 T	51,400	96,300	37,400	4,290	806	7,240
	07/12/12	2 U	0.7 T	9.2	2 U	53,900	104,000	42,700	4,620	950	8,070
	10/25/12	2 U	5 U	8.8	2 U	39,400	68,700	28,100	3,000	740	6,650
	01/07/13	2 U	3.2 T	13.9	1.4 T	68,400	74,800	45,400	4,450	869	7,710
		Total Below				Dissolved Below					
	04/11/13	0.02 U	0.800 T	3.5	0.76	36,900	57,200	23,000	2,600	905	8,770
	07/12/13	0.006 T	0.003 T	6.0	0.74	55,500	79,700	35,000	4,200	996	7,540
	10/15/13	0.02 U	0.02 U	7.3	0.70	59,000	71,300	37,000	3,740	1,080	7,950
	10/15/13	0.02 U	0.02 U	7.3	0.70	58,000	69,700	36,000	3,640	1,000	7,730
	01/13/14	0.02 U	0.02 U	7.5	0.60	53,600	65,600	32,400	3,450	951	7,100
	04/21/14	0.02 UB1	0.02 U	11.1	0.30 T	17,500	23,200	10,100	1,330	442	3,390
	07/15/14	0.02 U	0.02 U	9.4	0.53	18,100	23,500	10,500	1,290	528	3,650
	10/19/14	0.02 U	0.02 U	8.2 J	0.50 J	14,200	16,100	7,650	969	446	3,380
	01/13/15	0.02 U	0.02 U	5.5	0.5 U	14,000	14,600	7,150	862	413	3,270
	04/08/15	0.02 U	0.02 U	5.3	0.22 T	13,600	12,000	6,830	804	430	3,170
	07/12/15	0.02 U	0.02 U	5.1	0.80	14,100	12,400	6,610	846	390	3,250
	10/26/15	0.02 U	0.02 U	4.7	1.4 J	14,200	12,200	6,530	798	380	3,860
	01/25/16	0.02 U	0.02 U	3.2	0.49 JT	9,290	7,470	4,260	530	410	4,000
	04/03/16	0.02 U	0.02 U	2.5	1.2	10,000	8,670	4,740	638	430	4,000
	07/10/16	0.02 U	0.02 U	2.9	0.77	16,000	12,200	7,120	905	600	5,630
	10/09/16	0.02 U	0.02 U	4.5	0.5 B1	13,900	12,200	6,650	814	680	7,480
	01/23/17	0.02 U	0.003 T	1.4	0.30 T	10,200	8,940	5,170	645	400	4,080
	04/09/17	0.02 U	0.02 U	1.1	0.30	10,100	7,680	5,080	619	330	4,230
	07/27/17	0.25 U	1.00 U	1.7	1.0 U	9,500	350	5,300	590	460 T	4,300
	10/16/17	0.25 U	1.00 U	1.9	1.0 U	10,000	320	5,900	630	520 T	4,600
	01/29/18	0.20 U	0.36 U	1.2	1.0 U	10,000	57	5,500	640	1,000 U	4,200
	04/03/18	0.20 U	0.36 U	2.2	1.0 U	16,000	23	9,300	1,000	600 T	8,000
	07/19/18	0.02 U	0.02 U	2.3	0.60 T	12,500	401	7,030	855	690	4,930
	10/14/18	0.03	0.105	2.0	3.60 J	13,600	348	7,650	902	530	5,610
	01/15/19	0.02 U	0.02 U	1.4	2.00 U	11,600	145	6,460	778	500	4,420
	04/02/19	0.02 U	0.02 U	1.6	2.00 U	27,200	21 U	15,800	1,130	860	12,200
	07/09/19	0.02 U	0.02 U	1.6	2.00 U	11,600	122	6,650	391	450	4,670
	10/27/19	0.02 U	0.02 U	2.6	2.00 U	21,400	11,700	14,300	1,570	910	10,600
	01/20/20	0.02 U	0.02 U	1.3	2.00 U	21,600	51	12,400	1,620	720	8,020
	04/13/20	0.02 U	0.02 U	1.9	2.00 U	29,600	4,480	17,600	2,440	620	13,500
	07/12/20	0.02 U	0.02 U	1.8	2.00 U	7,390	2,050	4,770	543	450	4,930
	10/14/20	0.02 U	0.02 U	3.0	0.50 T	13,600	181	7,970	956	430	6,470
	01/18/21	0.02 U	0.02 U	0.8	2.00 U	9,090	2,150	4,710	755	450	4,650
	04/11/21	0.02 U	0.02 U	2.3	2.00 U	21,700	64	12,400	1,410	970	24,000
	07/13/21	0.02 U	0.02 U	2.0 J	1.30 JT	15,700	189	9,070	995	1,020	18,400
	10/25/21	0.02 U	0.02 U	2.5	2.00 U	15,300	287 J	7,840	1,110	760	14,700
	01/17/22	0.02 U	0.02 U	1.2	2.00 U	12,500	1,020	5,880	999	560	6,570
	04/06/22	0.01 U	0.009 U	1.9	0.50 U	15,600	971	7,500	731	930	17,600
	07/17/22	0.02 U	0.02 U	1.5	2.00 U	8,250	3,080 J	4,640	679	680	7,030
	10/09/22	0.02 U	0.02 U	1.0	0.50 T	10,300	942	5,230	769	470	5,550
	01/23/23	0.02 U	0.02 U	0.9	3.10 J	15,500	87	6,440	1,250	590	6,910
	04/03/23	0.02 U	0.01 T	0.9	2.00 U	13,300	168 J	6,190	1,100	520	6,320
	07/23/23	0.02 U	0.02 U	0.8	2.00 U	8,690	2,710 J	4,440	718	470	4,950
	10/29/23	0.02 U	0.02 U	0.9	2.00 U	9,630	1,120	4,820	710	520	5,460
	count	116	116	115	136	89	120	90	134	90	86
	max	10	20 U	17	39	68,400	104,000	45,400	21,900	2,000	24,000
	min	0.006 T	0.003 T	0.8	0.2 T	6,660	21	2,980	391	330	3,170
	non-detects	111	108	56	78	0	1	0	0	29	0
	average	5.7	3.5	7.5	9.2	18,768	24,524	10,717	5,145	1,088	7,626
	sample stdev	4.9	3.3	4.0	8.2	13,084	22,148	9,367	5,878	654	3,536
	variance	23.6	10.7	15.7	66.8	171,196,048	490,541,350	87,732,175	34,548,210	428,348	12,500,559
	coeff. of variation	1.2	1.1	1.9	1.1	1	1	1	1	2	2
	standard error	0.5	0.3	0.4	0.7	1,387	2,022	987	508	69	381

Cowlitz County Tennant Way Landfill
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Site	Date	MCL>	Antimony 6	Arsenic 0.05	Barium 1000	Beryllium 4	Cadmium 5	Chromium 50 (total)	Cobalt	Copper 1000 (2ndary)	Lead 15	Nickel 100	Selenium 10
MW-5B	01/27/12	Total	10 U	5 U	43	0.2 U	0.5 U	2 U	1 U	2.4	2 U	3.1	5 U
	04/06/12	Total	2.3 T	1.5 T	39	0.1 T	0.5 U	0.7 T	1 U	2.5	2 U	1.3 T	4 U
	07/12/12	Total	10 U	5 U	45	0.2 U	0.5 U	2 U	1.3	1.7 T	2 U	1.7 T	5 U
	10/25/12	Total	10 U	5 U	38	0.2 U	0.5 U	0.6 T	1 U	2.1	2 U	7.2	0.5 T
	01/07/13	Total	10 U	5 U	37	0.2 U	0.5 U	2 U	1 U	0.9 T	2 U	1.1 T	5 U
Total Below													
	04/11/13	T/Dis	0.064	1.5 T	46	0.006 T	0.085	0.08 T	1.23	1.3	2 U	2.9	5 U
	07/12/13	T/Dis	0.05 U	0.26 T	40	0.005 T	0.030	0.35	1.21	1.0	0.02	3.7	1 U
	10/15/13	T/Dis	0.031 T	0.30 T	49	0.02 U	0.139	0.05 T	0.576	1.9	0.007 T	3.4	1 U
	01/14/14	T/Dis	0.032 T	0.30 T	44	0.008 T	0.108	0.15 T	0.836	2.3	0.013 T	3.6 J	1 U
	04/21/14	T/Dis	0.054	0.40 T	43	0.009 T	0.125	0.05 T	0.974	2.2	0.02	3.1	0.30 T
	07/16/14	T/Dis	0.040 T	0.41 T	43	0.009 T	0.092	0.13 T	1.430	1.1	0.02 T	3.0	1 U
	10/19/14	T/Dis	0.023 T	0.50 T	46	0.010 T	0.035	0.17 JT	1.210 J	1.0 J	0.04 J	4.0	0.30 T
	01/14/15	T/Dis	0.041 T	0.40 T	43	0.02 U	0.114	0.54 J	0.621	1.8	0.01 T	3.1	3 U
	01/14/15	T/Dis	0.053	0.40 T	43	0.006 T	0.104	0.40 J	0.626	1.8	0.01 T	3.1	3 U
	04/08/15	T/Dis	0.031 T	0.38 T	46	0.02 U	0.127	0.14 T	0.897	2.0 J	0.02 T	3.2	1 U
	07/12/15	T/Dis	0.039 T	0.38 T	46	0.02 U	0.083	0.08 T	1.590	1.0	0.02	3.0	1 U
	10/26/15	T/Dis	0.048 T	0.41 T	54	0.011 T	0.021	0.27	2.010 J	1.4	0.09 J	3.0	1 U
	01/26/16	T/Dis	0.045 T	0.43 T	48	0.02 U	0.175	0.08 T	0.372	3.0	0.02	3.1	1 U
	04/04/16	T/Dis	0.021 T	0.40 T	47	0.008 T	0.165	0.09 T	0.730	3.0	0.06	3.4	1 U
	07/10/16	T/Dis	0.116	0.42 T	55	0.02 U	0.194	0.07 T	2.350	2.2	0.02 T	3.6	1 U
	10/09/16	T/Dis	0.035 T	0.39 T	51	0.012 T	0.031	0.28	2.560	1.2	0.08	3.3	1 U
	01/23/17	T/Dis	0.030 T	0.46 T	46	0.020 U	0.037	0.20 U	0.965	1.2	0.02 B1	3.4	0.40 T
	04/09/17	T/Dis	0.034 T	0.44 T	47	0.007 T	0.034	0.16 JT	1.470	1.4	0.02	4.0	1 U
	07/27/17	T/Dis	0.50 U	0.79	48	0.50 U	0.030 T	0.24 T	1.800	1.3	0.04 T	4.2	0.35 T
	10/15/17	T/Dis	0.50 U	0.81	49	0.50 U	0.25 B1	0.50 B1	1.500 B	1.4 B	0.10 B1	4.5	1 B1
	01/29/18	T/Dis	1.0 U	0.55	42	0.50 U	0.047 T	0.5 U	1.2	1.6	0.10 U	4.1	1 U
	04/03/18	T/Dis	1.0 U	0.59	43	0.50 U	0.25 B1	0.5 U	1.2	1.6	0.04 T	4.4	1 U
	07/19/18	T/Dis	0.04 T	0.52	45	0.01 T	0.022	0.04 T	1.44	0.67 J	0.03	2.55	1 U
	10/14/18	T/Dis	0.05 U	0.46 T	47	0.02 U	0.009 JT	0.06 T	1.3	0.56 J	0.04 J	2.52 J	1 U
	01/15/19	T/Dis	0.06	0.43 T	47	0.01 T	0.137 J	0.2 U	0.492	2.08	0.03 J	2.99	1 U
	04/02/19	T/Dis	0.04 T	0.42 T	46	0.02 U	0.149	0.12 T	0.937	2.13	0.02	2.62	1 U
	07/09/19	T/Dis	0.07	0.43 T	50	0.02 U	0.096	0.09 T	2.54	1.24	0.04	3.03	1 U
	10/27/19	T/Dis	0.06	0.46 T	60	0.01 T	0.179	0.12 T	1.86	1.58	0.04	4.07	1 U
	01/20/20	T/Dis	0.05 T	0.45 T	46	0.01 T	0.119	0.14 T	0.679	3.14	0.02 T	3.37	1 U
	04/13/20	T/Dis	0.06	0.5	47	0.01 T	0.138	0.11 T	1.25	2.53	0.04 J	3.48	1 U
	07/12/20	T/Dis	0.07	0.36 T	54	0.01 T	0.122	0.11 T	1.44	1.72	0.02 T	3.03	1 U
	10/14/20	T/Dis	0.05	0.41 T	59	0.01 T	0.072	0.18 T	2.29	1.14	0.02	3.89	1 U
	01/18/21	T/Dis	0.06	0.38 T	40	0.01 T	0.114	0.29	1.02	2.64 J	0.03	2.94	1 U
	04/11/21	T/Dis	0.06	0.41 T	46	0.01 T	0.049	0.08 T	2.81	1.23 J	0.03	3.01	1 U
	07/13/21	T/Dis	0.03 T	0.45 JT	46	0.02 U	0.028	0.07 JT	1.86	0.83 J	0.03	3.5 J	1 U
	10/25/21	T/Dis	0.04 T	0.46 T	49	0.01 T	0.052	0.12 T	1.25	1.85	0.02	3.67	1 U
	01/17/22	T/Dis	0.03 T	0.40 T	39	0.01 T	0.025	0.08 T	0.948	1.03	0.02 T	2.93	1 U
	04/06/22	T/Dis	0.04 T	0.48 T	42	0.01 T	0.035 J	0.18 T	1.17	1.32	0.03 J	3.08	0.2 U
	07/17/22	T/Dis	0.03 T	0.41 T	39	0.01 T	0.015 T	0.29	1.19	0.66	0.03	2.92	1 U
	10/09/22	T/Dis	0.03 T	0.46 T	43	0.02 U	0.032 J	0.22	1.37	0.67	0.05 J	3.11	1 U
	01/23/23	T/Dis	0.03 T	0.44 T	32	0.01 T	0.016 T	0.1 T	0.938	1.42 J	0.02	2.91	1 U
	04/03/23	T/Dis	0.04 T	0.43 T	37	0.01 T	0.021	0.21	1.17	1.03	0.02 T	2.76	1 U
	07/23/23	T/Dis	0.03 T	0.39 T	38	0.01 T	0.011 T	0.39 J	1.27	0.53	0.02	2.97	1 U
	10/29/23	T/Dis	0.04 T	0.46 T	45	0.01 T	0.014 T	0.23 J	0.99	0.63	0.01 JT	2.63	1 U
	count		118	113	116	118	118	117	118	118	118	118	117
	max		10 U	5 U	88	0.5 U	0.5 U	2.8	2.8	4.7	2 U	7.2	5 U
	min		0.021	0.3 T	5.0	0.005 T	0.009	0.04 T	0.372	0.5 T	0.007 T	0.9 T	0.2 T
	non-detects		79	71	1	89	74	75	70	67	75	68	110
	average		28.6	3.1	52.3	2.8	2.6	3.0	6.2	6.3	1.4	12.6	3.7
	sample stdev		24.3	2.2	13.5	2.5	2.3	2.3	4.3	4.2	1.5	8.4	2.5
	variance		590.2	4.9	181.4	6.0	5.4	5.4	18.9	17.6	2.3	70.9	6.3
	coeff. of variation		1.2	1.4	3.9	1.2	1.1	1.3	1.4	1.5	1.0	1.5	1.5
	standard error		2.2	0.2	1.3	0.2	0.2	0.2	0.4	0.4	0.1	0.8	0.2

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Site	Date	Silver 50	Thallium 2	Vanadium	Zinc 5000 (2ndary)	Geochemical Metals						
						Calcium	Iron 300 (2ndary)	Magnesium	Manganese 50 (2ndary)	Potassium	Sodium	
MW-5B	01/27/12	2 U	5 U	7.6	1.1 T	43,000	106	22,300	809	869	26,600	
	04/06/12	2 U	5 U	5.5	3.5	39,100	101	19,700	785	714	23,500	
	07/12/12	2 U	5 U	2.8	1.4 T	44,200	888	23,000	1,160	916	28,800	
	10/25/12	2 U	5 U	3.2	1.3 T	44,900	726	22,800	1,150	920	27,900	
	01/07/13	2 U	5 UB1	4.6	1.1 T	38,800	53	21,100	783	694	25,300	
		Total Below					Dissolved Below					
	04/11/13	0.02 U	2.5 U	2.6	0.99	48,400	39	25,000	945	898	27,400	
	07/12/13	0.02 U	0.007 T	1.3	1.1	44,400	225	23,500	1,060	869	26,700	
	10/15/13	0.02 U	0.02 U	6.1	1.0	50,700	21	26,800	945	1,060	29,900	
	01/14/14	0.02 U	0.02 U	4.2	0.90	47,200	20 U	24,900	877	1,010	25,800	
	04/21/14	0.02 UB1	0.005 T	3.4	0.80	48,900	8 T	24,300	978	879	25,200	
	07/16/14	0.02 U	0.009 T	1.9	0.95	50,300	23	26,100	1,130	951	27,500	
	10/19/14	0.02 U	0.02 U	1.3 J	1.2 J	49,600	119	25,900	1,230	979	27,900	
	01/14/15	0.02 U	0.008 T	3.7	0.80	49,700	20 U	25,900	1,010	803	25,900	
	01/14/15	0.02 U	0.008 T	3.7	0.90	48,900	6 T	25,300	994	800	25,400	
	04/08/15	0.02 U	0.006 T	3.8	1.0	50,800	10	26,700	1,080	870	25,200	
	07/12/15	0.02 U	0.004 T	1.6	0.88	50,700	31	24,700	1,260	740	24,500	
	10/26/15	0.02 U	0.02 U	1.2	2.9 J	49,700	1,550	25,300	1,440	870	26,300	
	01/26/16	0.02 U	0.02 U	5.1	1.3 J	51,600	13 T	27,400	950	880	24,900	
	04/04/16	0.007 T	0.02 U	4.7	3.1	49,700	13	26,900	1,070	850	26,000	
	07/10/16	0.02 U	0.008 T	3.8	1.2	52,800	6 T	28,000	1,400	980	25,200	
	10/09/16	0.006 T	0.010 T	1.8	1.2	51,700	251	26,900	1,340	2,580	26,200	
	01/23/17	0.009 T	0.013 T	1.0	0.90 T	55,500	58	28,700	1,130	810	23,300	
	04/09/17	0.009 T	0.009 T	1.3	1.1 T	49,600	166	24,700	1,270	730	20,900	
	07/27/17	0.25 U	1.0 U	1.4	1.2	55,000	9 T	30,000	1,600	1,000	26,000	
	10/15/17	0.25 U	1.0 U	1.1	1.0 T	63,000	8 T	32,000	1,500	1,200	25,000	
	01/29/18	0.20 U	0.097 T	1.6	0.94 T	54,000	7 T	26,000	800	850 T	22,000	
	04/03/18	0.20 U	0.36 U	1.5	0.80 T	58,000	7 T	28,000	1,000	780 T	23,000	
	07/19/18	0.017 T	0.022	1.1	2.0 B1	50,400	10	26,000	1,300	940	21,600	
	10/14/18	0.02 U	0.02 U	0.9	2.9 J	61,100	172	29,700	1,590	1,060	23,200	
	01/15/19	0.013 T	0.041 J	6.3	0.6 T	52,600	21 U	25,700	887	1,080	21,700	
	04/02/19	0.02 U	0.043	4.3	0.9 T	50,200	21 U	27,300	275	790	22,200	
	07/09/19	0.02 U	0.026	2.4	1.0 T	56,700	21 U	29,800	1,480	900	23,000	
	10/27/19	0.02 U	0.061	7.0	1.0 T	60,000	21 U	32,400	1,630	980	25,400	
	01/20/20	0.02 U	0.026	4.7	0.8 T	50,700	14 T	27,000	956	820	20,600	
	04/13/20	0.02 U	0.018 T	4.5	1.1 T	52,400	28	29,100	985	760	22,400	
	07/12/20	0.02 U	0.012 T	2.4	0.5 T	57,700	21 U	32,600	1,620	890	24,500	
	10/14/20	0.02 U	0.016 T	1.7	0.8 T	64,200	21 U	31,900	1,540	880	22,900	
	01/18/21	0.02 U	0.017 T	3.6	2.0 B1	47,600	21 U	25,500	344	790	20,200	
	04/11/21	0.01 T	0.019 T	2.0	0.7 T	49,500	21 U	27,100	181	850	21,300	
	07/13/21	0.02 U	0.012 T	1.4 J	0.6 JT	59,900	11 T	29,000	1,460	950	22,500	
	10/25/21	0.02 U	0.024	1.7	0.9 T	62,700	21 U	31,900	1,600	980	23,500	
	01/17/22	0.02 U	0.016 T	1.3	0.8 T	54,500	28	27,500	980	850	20,600	
	04/06/22	0.01 U	0.015 T	2.3	0.5 T	53,000	8 U	26,200	530	930	20,700	
	07/17/22	0.02 U	0.016 T	1.5	0.6 T	48,400	14 JT	26,600	1,270	980	20,200	
	10/09/22	0.02 U	0.084 J	1.5	0.7 T	58,900	395	28,400	1,560	980	22,200	
	01/23/23	0.02 U	0.009 T	1.9	7.4 J	46,500	13 T	22,300	846	910	18,400	
	04/03/23	0.02 U	0.019 T	1.5	0.7 T	48,200	10 JT	24,000	1,050	830	19,900	
	07/23/23	0.02 U	0.019 T	1.6	0.7 T	46,300	9 JT	23,200	1,280	930	19,700	
	10/29/23	0.02 U	0.02 U	1.2	2.0 U	59,700	9	32,200	1,490	1,060	23,200	
	count	118	117	115	130	116	130	116	128	117	118	
	max	2 U	5 U	11	56	64,200	8,890	32,600	1,630	2,580	43,100	
	min	0.01 U	0.004 T	0.9	0.50	23,700	6 U	12,100	181	694	18,400	
	non-detects	110	85	63	50	0	14	0	0	52	0	
	average	5.7	3.6	6.9	9.8	46,647	1,257	23,954	1,040	1,443.0	27,956	
	sample stdev	4.8	3.2	3.7	10.6	8,762	1,871	4,582	299	565.3	5,114	
	variance	23.4	10.2	14.0	111.9	76,778,684	3,498,976	20,999,199	89,415	319,516.0	26,148,298	
	coeff. of variation	1.2	1.1	1.9	0.9	5	1	5	3	3	5	
	standard error	0.4	0.3	0.3	0.9	814	164	425	26	52	471	

Cowlitz County Tennant Way Landfill
Metals Groundwater Quality Data and Statistics (ug/l)

Site	Date	MCL>	Antimony 6	Arsenic 0.05	Barium 1000	Beryllium 4	Cadmium 5	Chromium 50 (total)	Cobalt	Copper 1000 (2ndary)	Lead 15	Nickel 100	Selenium 10
MW-7B	01/27/12	Total	10 U	1.0 T	14	0.2 U	0.5 U	2 U	1 U	50	2 U	2.3	5 U
	04/06/12	Total	4.4 T	2.3 T	11	0.2 U	0.5 U	1.0 T	1 U	76	2 U	5.1	4 U
	07/12/12	Total	10 U	5 U	19	0.2 U	0.5 U	0.8 T	1.9	33	2 U	2.7 T	5 U
	10/24/12	Total	10 U	5 U	42	0.2 U	0.3 T	0.7 T	1.7	27	2 U	6.4	1.7 T
	01/07/13	Total	10 U	1.0 T	10	0.2 U	0.5 U	2 U	1 U	47	2 U	3.4	0.9 T
Total Below													
	04/11/13	T/Dis	0.364	1.5 T	22	0.052	0.081	1.06	7.51	100	2 U	13	5 U
	07/12/13	T/Dis	0.140	0.8	24	0.020	0.057	0.63	3.89	34	0.039	8.1	1 U
	10/15/13	T/Dis	0.258	0.5 T	18	0.014 T	0.055	0.32	0.429	36	0.018 T	6.0	1 U
	01/14/14	T/Dis	0.300	0.6	17	0.030	0.031	0.57	0.621	50	0.102	6.7 J	1 U
	01/14/14	T/Dis	0.300	0.6	18	0.032	0.029	0.60	0.706	50	0.118	6.7 J	1 U
	04/21/14	T/Dis	0.253	0.7	11	0.022	0.049	0.29	0.580	30	0.075	4.5	1 U
	04/21/14	T/Dis	0.230	0.7	11	0.020	0.045	0.34	0.566	30	0.071	4.5	1 U
	07/16/14	T/Dis	0.180	0.7	36	0.013 T	0.065	0.25	2.350	27	0.031	6.8	1 U
	10/19/14	T/Dis	0.143	0.5	39	0.008 T	0.021	0.25 J	0.542 J	20 J	0.033 J	3.1	1 U
	01/13/15	T/Dis	0.233	0.6	15	0.008 T	0.030	0.44 J	0.255	29	0.013 T	4.3	3 U
	04/08/15	T/Dis	0.180	0.6	13	0.015 T	0.045	0.23	0.853	22 J	0.041	3.3	1 U
	07/12/15	T/Dis	0.084	0.5 T	25	0.009 T	0.019 T	0.30	0.387	13	0.015 T	2.3	1 U
	10/26/15	T/Dis	0.193	0.8	23	0.013 T	0.034	0.39	1.160 J	27	0.041 J	4.0	1 U
	01/25/16	T/Dis	0.269	0.5	12	0.02 U	0.028	0.19 T	0.132	34	0.020 U	4.2	1 U
	04/03/16	T/Dis	0.370	0.6	11	0.009 T	0.036	0.17 T	0.125	35	0.007 T	4.0	1 U
	07/10/16	T/Dis	0.146	0.6	26	0.02 U	0.016 T	0.33	0.543	22	0.036	3.5	1 U
	10/10/16	T/Dis	0.293	0.6	21	0.012 T	0.035	0.24	0.206	55	0.020 B1	5.4	1 U
	01/23/17	T/Dis	0.298	0.6	6.9	0.009 T	0.027	0.31	0.167	52	0.022	5.0	0.50 T
	04/09/17	T/Dis	0.257	0.5	7.3	0.011 T	0.036	0.34 J	0.157	35	0.020	3.8	1 U
	07/27/17	T/Dis	0.50 U	0.7	18	0.50 U	0.039 T	0.40 T	1.700	30	0.062 T	5.5	0.47 T
	10/16/17	T/Dis	0.50 U	0.6	20	0.50 U	0.25 B1	0.50 B1	0.480 B	23	0.10 B1	3.4	1 B1
	01/29/18	T/Dis	0.33 T	0.5	7.4	0.50 U	0.25 U	0.37 T	0.16 T	48	0.10 U	4.8	0.50 T
	04/03/18	T/Dis	0.37 T	0.6	7.2	0.50 U	0.25 B1	0.32 T	0.15 T	44	0.05 T	4.3	1 U
	07/19/18	T/Dis	0.16	0.6	27	0.01 T	0.026	0.20 T	0.624	23.4 J	0.03	4.15	1 U
	10/14/18	T/Dis	0.20	0.5	20	0.01 T	0.017 JT	0.33	0.559	25.5 J	0.08 J	3.13 J	1 U
	01/15/19	T/Dis	0.30	0.7	8.7	0.02 T	0.024 J	0.29	0.16	42.6	0.04 J	3.57	1 U
	04/02/19	T/Dis	0.22	0.6	11	0.01 T	0.028	0.27	0.146	28.4	0.02	3.38	1 U
	07/09/19	T/Dis	0.15	0.5	25	0.01 T	0.036	0.29	0.696	18.3	0.05	2.61	1 U
	10/27/19	T/Dis	0.40	0.8	17	0.01 T	0.036	0.36	0.222	58.6	0.02 T	5.25	0.4 T
	01/20/20	T/Dis	0.34	0.8	9.0	0.02 T	0.033	0.33	0.297	51.0	0.03	4.5	0.3 T
	04/13/20	T/Dis	0.22	0.7	13	0.02	0.042	0.38	1.59	30.4	0.12 J	3.51	1 U
	07/12/20	T/Dis	0.23	0.7	26	0.02 T	0.065	0.39	1.7	28.7	0.09 J	3.82	1 U
	10/14/20	T/Dis	0.35	0.6	27	0.01 T	0.041	0.26 J	0.178	42.9	0.02 U	4.33	0.3 T
	01/18/21	T/Dis	0.34	0.7	7.3	0.01 T	0.027	0.36	0.176	50.4 J	0.03	4.27	0.3 T
	04/11/21	T/Dis	0.29	0.6	8.4	0.01 T	0.028	0.24	0.154	32.4 J	0.02	3.57	1 U
	07/13/21	T/Dis	0.17	0.6 J	21.6	0.01 T	0.057	0.26 J	1.32	16.6 J	0.08	2.52 J	1 U
	10/25/21	T/Dis	0.32	0.5 T	29.0	0.01 T	0.049	0.22	0.154	33.8	0.02 U	3.66	1 U
	01/17/22	T/Dis	0.31	0.6	6.1	0.01 T	0.02 T	0.29	0.12	39.1	0.02	3.52	1 U
	04/06/22	T/Dis	0.27	0.5	9.7	0.01 T	0.02 JT	0.37	0.116	36.5	0.02 J	3.5	0.2 T
	07/17/22	T/Dis	0.20	0.6	18.0	0.02 T	0.098	0.33	0.912	22.7	0.07	3.5	1 U
	10/09/22	T/Dis	0.22	0.8	25.8	0.01 T	0.027 J	0.40	1.17	19.1	0.07 J	2.71	1 U
	01/23/23	T/Dis	0.20	0.4 T	9.5	0.01 T	0.022	0.13 T	0.2	26.3 J	0.01 T	2.65	1 U
	04/03/23	T/Dis	0.11	0.4 T	9.0	0.01 T	0.013 T	0.28	0.138	17.8	0.01 T	1.95	1 U
	07/23/23	T/Dis	0.17	0.5	26.0	0.02 T	0.046	0.35 J	0.822	14.9	0.08	2.43	1 U
	10/29/23	T/Dis	0.21	0.6	22.6	0.02	0.043	0.74 J	1.15	33.3	0.08 J	3.7	0.2 T
	count		119	115	114	119	119	119	119	118	117	119	118
	max		50 U	10 U	73	5 U	10 U	5 U	31	100	4 U	29	10 U
	min		0.08	0.4 T	5 U	0.006 T	0.013	0.13 T	0.116 T	10 U	0.006 T	2 U	0.2 T
	non-detects		75	67	1	80	74	70	65	16	79	64	105
	average		28.5	3.2	27.2	2.8	2.6	3.0	6.3	36.6	1.3	13.1	3.7
	sample stdev		24.2	2.3	17.5	2.5	2.4	2.3	5.4	21.0	1.0	8.2	2.5
	variance		588.0	5.2	306.0	6.0	5.5	5.5	28.8	442.6	1.0	67.7	6.4
	coeff. of variation		1.2	1.4	1.6	1.1	1.1	1.3	1.2	1.7	1.3	1.6	1.4
	standard error		2.2	0.2	1.6	0.2	0.2	0.2	0.5	1.9	0.1	0.8	0.2

Cowlitz County Tennant Way Landfill
Metals Groundwater Quality Data and Statistics (ug/l)

Site	Date	Silver 50	Thallium 2	Vanadium	Zinc 5000 (2ndary)	Geochemical Metals					
						Calcium	Iron 300 (2ndary)	Magnesium	Manganese 50 (2ndary)	Potassium	Sodium
MW-7B	01/27/12	2 U	5 U	3.4	1.6 T	11,200	336	3,560	4.0	2,880	3,360
	04/06/12	2 U	5 U	5.3	2.2	8,200	669	2,390	14	2,120	3,720
	07/12/12	2 U	5 U	3.4	1.2 T	19,300	112	6,170	160	3,620	6,180
	10/24/12	2 U	5 U	3.4	1.9 T	33,900	140	10,900	59	6,790	9,150
	01/07/13	2 U	5 UB1	3.3	1.2 T	10,100	140	3,200	18	2,030	3,740
		Total Below				Dissolved Below					
	04/11/13	0.103	2.5 U	5.2	3.9	15,600	1,740	4,870	363	2,620	4,200
	07/12/13	0.051	0.036	5.8	1.9	22,200	395	7,720	381	4,680	7,240
	10/15/13	0.009 T	0.045	2.2	2.2	14,300	75	4,030	24	3,010	4,880
	01/14/14	0.037	0.032	3.6	2.0	14,100	83	4,100	3.6	2,910	4,390
	01/14/14	0.041	0.033	3.8	2.1	14,500	83	4,230	3.9	2,790	4,370
	04/21/14	0.032	0.043	2.8	1.6	10,500	201	3,100	58	1,840	4,690
	04/21/14	0.034	0.043	2.7	1.9	10,300	171	3,050	58	1,760	4,600
	07/16/14	0.015 T	0.058	2.7	1.4	42,700	164	16,400	296	8,350	14,900
	10/19/14	0.009 T	0.017 T	2.0 J	1.1 J	33,300	61	11,900	19	10,400	9,570
	01/13/15	0.02 U	0.030	2.4	1.0	21,900	32	7,480	1.1	2,360	5,930
	04/08/15	0.015 T	0.029	2.6	1.6	11,900	63	4,380	108	2,010	4,090
	07/12/15	0.011 T	0.005 T	2.1	0.74	26,700	78	10,100	18	9,390	10,200
	10/26/15	0.015 T	0.032	2.8	1.8 J	23,000	243	9,560	112	8,250	8,270
	01/25/16	0.02 U	0.026	2.4	1.4 J	15,800	40	5,030	1.6	1,750	4,350
	04/03/16	0.02 U	0.018 T	3.1	2.9	16,500	37	5,290	4.1	1,700	4,390
	07/10/16	0.012 T	0.014 T	2.8	1.1	35,200	13 T	15,700	0.4 T	6,630	12,600
	10/10/16	0.061	0.062	3.4	1.4	21,700	53	8,670	1.1	4,410	5,390
	01/23/17	0.010 T	0.060	2.6	1.0 T	9,380	97	3,360	2.5	1,340	2,820
	04/09/17	0.020 T	0.029	2.3	2.0 T	10,100	45	3,720	14.3	1,210	2,660
	07/27/17	0.250 U	1.0 U	3.5	1.3	23,000	40	9,200	85.0	2,600	6,400
	10/16/17	0.250 U	1.0 U	2.5	1.1	25,000	12	11,000	4.3	6,400	8,400
	01/29/18	0.20 U	0.36 U	2.5	1.3	11,000	53	3,600	1.1	1,500	3,200
	04/03/18	0.20 U	0.36 U	2.7	1.1	11,000	52	3,400	2.3	1,300	3,100
	07/19/18	0.014 T	0.035	3.0	2.0 B1	35,200	30	14,400	20.7	6,210	10,200
	10/14/18	0.011 T	0.01 JT	2.9	5.5 J	27,900	10 T	11,000	8.6	6,310	9,180
	01/15/19	0.012 T	0.036 J	3.6	1.1 T	10,700	35	3,380	1.2	1,550	2,750
	04/02/19	0.02 U	0.061	2.7	1.2 T	15,500	54	5,040	30.1	2,580	3,980
	07/09/19	0.02 U	0.022	3.0	1.3 T	35,400	21 U	13,800	1.8	7,570	10,200
	10/27/19	0.02 U	0.058	5.6	1.7 T	21,800	52	6,380	1.6	2,400	3,810
	01/20/20	0.02 U	0.051	3.3	1.3 T	11,400	76	3,580	4.7	1,620	2,850
	04/13/20	0.024	0.036	4.0	1.6 T	12,900	57	4,410	50.8	2,900	3,840
	07/12/20	0.014 T	0.04	3.8	0.9 T	28,200	37	11,800	270	7,510	8,320
	10/14/20	0.02 U	0.048	2.9	2.1	28,000	16 T	8,190	3	3,470	3,940
	01/18/21	0.01 T	0.051	3.2	2.0 B1	9,750	115	2,740	2	1,240	2,820
	04/11/21	0.01 T	0.03	2.9	1.5 T	12,300	79	3,670	14	1,720	3,650
	07/13/21	0.02 U	0.019 T	3.1 J	1.7 JT	35,000	21 U	11,900	51	7,570	10,100
	10/25/21	0.02 U	0.037	2.8	2.6	36,800	29 J	10,500	1	3,640	4,880
	01/17/22	0.02 U	0.039	3.0	1.4 T	9,130	110	2,610	2	1,180	2,540
	04/06/22	0.01 T	0.036	2.5	1.3 T	14,600	74	4,370	4	2,540	3,420
	07/17/22	0.02	0.051	3.2	2.5	21,400	71 J	6,640	166	3,480	5,080
	10/09/22	0.02 T	0.015 JT	3.5	1.6 T	41,100	39	14,100	195	9,050	10,200
	01/23/23	0.02 U	0.028	2.1	4.6 J	13,300	17 T	3,730	3	1,840	3,030
	04/03/23	0.02 U	0.032	1.7	1.1 T	14,200	19 JT	4,180	5	2,740	3,330
	07/23/23	0.01 T	0.024	2.9	2.4	48,300	10 JT	14,800	14	7,100	11,400
	10/29/23	0.01 T	0.021	4.1	2.0	32,000	23	10,300	24	4,620	6,780
	count	119	117	115	122	113	130	116	119	114	113
	max	10 U	10 U	13	27	48,300	52,200	17,000	997	10,400	19,300
	min	0.009	0.005	1.7	0.7 T	3,560	10	1,250	0	1,180	2,540
	non-detects	91	78	60	40	0	6	0	11	7	0
	average	5.7	3.4	6.9	8.4	20,171	2,362	7,649	143	4,337.3	7,970
	sample stdev	4.8	2.8	3.5	7.2	9,420	7,699	4,206	248	2,582.7	4,108
	variance	23.5	7.9	12.3	51.4	88,743,729	59,267,395	17,689,538	61,358	6,670,145.6	16,876,340
	coeff. of variation	1.2	1.2	2.0	1.2	2	0	2	1	2	2
	standard error	0.4	0.3	0.3	0.6	886	675	391	23	242	386

Cowlitz County Tennant Way Landfill
Metals Groundwater Quality Data and Statistics (ug/l)

Site	Date	MCL>	Antimony 6	Arsenic 0.05	Barium 1000	Beryllium 4	Cadmium 5	Chromium 50 (total)	Cobalt	Copper 1000 (2ndary)	Lead 15	Nickel 100	Selenium 10
MW-8B	01/26/12	Total	4.3 T	1.6 T	5.9	0.2 U	0.5 U	0.8 T	1 U	104	2 U	7.9	2.2 T
	04/05/12	Total	10 U	4.0 T	7.9	0.1 T	0.5 U	1.7 T	1 U	143	2 U	13	4 U
	07/11/12	Total	10 U	1.2 T	5.4	0.2 U	0.5 U	0.9 T	1 U	81	2 U	13 T	5 U
	10/24/12	Total	10 U	1.9 T	7.0	0.2 U	0.5 U	1.0 T	1 U	96	0.8 T	19	2.0 T
	01/04/13	Total	10 U	2.1 T	6.4	0.2 U	0.5 U	2 U	1 U	106	2 U	18	2.1 T
Total Below													
	04/12/13	T/Dis	0.495	1.6 T	8.7	0.039	0.034	0.71	0.440	77	2 U	8.9	5 U
	07/11/13	T/Dis	0.370	1.0	6.6	0.030	0.025	0.83	0.394	66	0.058	7.6	0.40 T
	10/15/13	T/Dis	0.294	0.8	12.3	0.018 T	0.026	0.38	0.321	40	0.057	4.6	1.0 U
	01/13/14	T/Dis	0.568	1.2	10.4	0.043	0.036	0.82	0.446	71	0.126	6.8 J	0.40 T
	04/18/14	T/Dis	0.417	1.2	8.3	0.042	0.037	0.59	0.422	68	0.130	8.0	0.60 T
	07/15/14	T/Dis	0.450	1.1	6.9	0.038	0.038	0.49	0.358	64	0.034	8.1	0.70 T
	10/19/14	T/Dis	0.370	1.1	8.1	0.030	0.026	0.69 J	0.436 J	64 J	0.083 J	8.0	0.70 T
	01/13/15	T/Dis	0.406	1.1	9.5	0.023	0.030	0.54 J	0.368	61	0.054	7.5	0.50 T
	04/07/15	T/Dis	0.385	1.3	8.9	0.026	0.020 T	0.44	0.374	55 J	0.088	6.4	0.50 T
	07/12/15	T/Dis	0.349	1.2	11.0	0.022	0.026	0.52	0.383	52	0.030	7.1	0.40 T
	10/26/15	T/Dis	0.354	1.2	13.7	0.026	0.029	0.61	0.429 J	52	0.055 J	7.2	0.50 T
	01/25/16	T/Dis	0.453	1.9	10.6	0.036	0.027	0.79	0.584	61	0.257	5.8	1.0 U
	04/03/16	T/Dis	0.432	1.7	7.7	0.024	0.032	0.52	0.407	63	0.091	5.6	0.50 T
	07/10/16	T/Dis	0.401	1.4	8.0	0.021	0.017 T	0.55	0.391	57	0.110	5.6	0.50 T
	10/09/16	T/Dis	0.337	1.4	7.9	0.025	0.034	0.62	0.432	59	0.105	6.6	0.50 T
	01/23/17	T/Dis	0.415	1.6	5.2	0.034	0.013 T	0.63	0.316	70	0.097	5.6	0.50 T
	04/09/17	T/Dis	0.592	1.9	6.6	0.032	0.026	0.91 J	0.488	90	0.214	6.6	0.30 T
	07/27/17	T/Dis	0.50 U	1.4	5.4	0.50 U	0.25 U	0.49 T	0.36 T	59	0.10 U	6.8	0.70 T
	10/15/17	T/Dis	0.50 U	1.4	6.0	0.50 U	0.25 B1	0.53 B	0.32 T, B	57	0.10 B	6.9	1.0 B1
	01/29/18	T/Dis	0.430 T	1.5	5.8	0.50 U	0.25 U	0.84	0.38 T	73	0.15	5.8	0.72 T
	04/03/18	T/Dis	0.470 T	1.4	5.2	0.50 U	0.25 B1	0.72	0.33 T	70	0.12	5.6	0.47 T
	07/19/18	T/Dis	0.429	1.3	7.1	0.03	0.024	0.69	0.42	61 J	0.19	5.4	0.50 T
	10/14/18	T/Dis	0.372	1.4	6.9	0.03	0.034 J	0.71	0.42	65 J	0.21 J	6.1 J	0.50 T
	01/15/19	T/Dis	0.439	1.4	6.2	0.03	0.02 B1	0.63	0.346	74	0.12 J	5.8	0.40 T
	04/02/19	T/Dis	0.370	1.2	6.9	0.03	0.016 T	0.55	0.321	53	0.12	4.7	0.40 T
	07/09/19	T/Dis	0.335	1.2	6.3	0.02	0.015 T	0.60	0.31	59	0.09	5.1	0.50 T
	10/27/19	T/Dis	0.290	0.9	10.4	0.02 T	0.026	0.42	0.256	40	0.08	3.8	0.40 T
	01/20/20	T/Dis	0.482	1.6	8.0	0.05	0.029	0.89	0.471	78	0.29	6.8	0.50 T
	04/13/20	T/Dis	0.349	1.2	6.8	0.03	0.017 T	0.60	0.388	48	0.16 J	4.5	0.50 T
	07/12/20	T/Dis	0.334	1.2	8.0	0.03	0.022	0.58	0.387	42	0.18 J	4.3	0.40 T
	10/14/20	T/Dis	0.330	0.9	16.4	0.03	0.02	0.64 J	0.511	31	0.27	3.6	0.30 T
	01/18/21	T/Dis	0.506	1.6	7.9	0.05	0.022	0.97	0.494	79 J	0.28	6.9	0.50 T
	04/11/21	T/Dis	0.439	1.4	8.5	0.04	0.023	0.93	0.599	58 J	0.33	5.5	0.50 T
	07/13/21	T/Dis	0.412	1.2 J	8.1	0.04	0.019 T	0.81 J	0.472	59 J	0.28	5.9 J	0.50 T
	10/25/21	T/Dis	0.323	0.9	20.4	0.03	0.036	0.64	0.463	30	0.25	3.5	0.20 T
	01/17/22	T/Dis	0.423	1.3	8.9	0.05	0.022	0.90	0.543	59	0.34	5.4	0.30 T
	04/06/22	T/Dis	0.413	1.2	8.6	0.04	0.016 JT	1.00	0.503	52	0.30 J	4.8	0.40 T
	07/17/22	T/Dis	0.341	1.1	8.5	0.03	0.016 T	0.87	0.362	38	0.19	3.9	0.50 T
	10/09/22	T/Dis	0.305	1.2	9.7	0.03	0.023 J	1.07	0.486	61	0.20 J	6.6	0.50 T
	01/23/23	T/Dis	0.389	1.0	8.7	0.04	0.023	0.56	0.395	53 J	0.19	4.7	0.30 T
	04/03/23	T/Dis	0.548	1.3	10.4	0.06	0.022	1.32	0.704	66	0.45	6.0	0.30 T
	07/23/23	T/Dis	0.348	1.1	10.2	0.04	0.019 T	1.00 J	0.443	51	0.20	5.9	0.40 T
	10/29/23	T/Dis	0.378	1.3	10.6	0.03	0.038	1.21 J	0.38	67	0.04 J	8.4	0.60 T
	count		117	113	111	117	116	116	117	117	114	117	116
	max		58	7	67	5 U	5 U	5 U	15	205	4 U	30	10 U
	min		0.290	0.8 T	5.2	0.016 T	0.013	0.38	0.256	10 U	0.030	3.5	0.2 T
	non-detects		74	65	0	77	76	69	64	28	74	60	72
	average		29.1	3.4	21.5	2.9	2.6	3.2	6.0	60.7	1.3	14.6	3.5
	sample stdev		24.2	1.8	18.0	2.4	2.3	2.1	4.9	42.0	1.0	7.0	2.7
	variance		584.5	3.4	323.5	6.0	5.1	4.4	23.8	1,763.1	0.9	48.8	7.2
	coeff. of variation		1.2	1.8	1.2	1.2	1.1	1.5	1.2	1.4	1.4	2.1	1.3
	standard error		2.2	0.2	1.7	0.2	0.2	0.2	0.5	3.9	0.1	0.6	0.2

Cowlitz County Tennant Way Landfill
Metals Groundwater Quality Data and Statistics (ug/l)

Site	Date	Silver 50	Thallium 2	Vanadium	Zinc 5000 (2ndary)	Geochemical Metals						
						Calcium	Iron 300 (2ndary)	Magnesium	Manganese 50 (2ndary)	Potassium	Sodium	
MW-8B	01/26/12	0.9 T	5 U	4.1	0.8 T	16,100	228	4,330	10	1,020	3,200	
	04/05/12	2 U	0.8 T	7.0	3.3	10,700	1,100	2,810	24	745	2,330	
	07/11/12	2 U	1.0 T	3.0	2 U	19,600	116	5,620	91	1,050	3,950	
	10/24/12	2 U	5 U	4.2	1.4 T	21,500	252	5,960	54	1,120	4,160	
	01/04/13	2 U	5 UB1	4.3	1.1 T	19,800	177	5,260	10	1,170	3,540	
		Total Below					Dissolved Below					
	04/12/13	0.013 T	2.5 U	4.0	1.3	26,200	61	6,990	7	1,380	4,430	
	07/11/13	0.009 T	0.020	3.5	0.88	22,000	63	6,120	8	1,180	4,220	
	10/15/13	0.02 U	0.020	2.4	1.0	37,900	46	10,700	37	1,870	6,290	
	01/13/14	0.017 T	0.028	4.2	1.2	26,400	77	6,160	12	1,610	4,520	
	04/18/14	0.02 UB1	0.030	3.4	1.3	23,600	85	6,090	6.9	1,260	4,350	
	07/15/14	0.007 T	0.021	3.2	0.78	24,500	62	6,440	28	1,290	4,710	
	10/19/14	0.010 T	0.014 T	3.6 J	1.0 J	27,200	50	7,240	25	1,350	5,110	
	01/13/15	0.009 T	0.038	2.8	0.80	29,700	54	6,990	13	1,870	8,160	
	04/07/15	0.010 T	0.026	3.5	0.84	28,600	38	7,380	3.9	1,750	7,140	
	07/12/15	0.018 T	0.016 T	3.5	0.71	38,800	28	9,970	4.8	1,650	6,770	
	10/26/15	0.02 U	0.016 T	3.6	1.4 J	43,100	34	11,900	7.2	1,930	7,940	
	01/25/16	0.021	0.045	5.3	1.9 J	28,500	60	7,530	4.5	1,420	6,470	
	04/03/16	0.010 T	0.031	4.4	1.5	24,900	45	6,870	27	1,330	6,000	
	07/10/16	0.012 T	0.028	4.3	0.96	22,900	40	6,420	7.2	1,310	5,700	
	10/09/16	0.008 T	0.026	4.4	1.3	23,800	36	6,750	14	1,520	6,130	
	01/23/17	0.017 T	0.051	4.6	1.4 T	16,500	90	4,590	4.1	900	3,450	
	04/09/17	0.026	0.080	5.6	1.4 T	17,200	85	4,830	2.4	910	3,160	
	07/27/17	0.250 U	1.0 U	4.0	1.0 U	19,000	48	5,400	37	1,100	4,500	
	10/15/17	0.250 U	1.0 U	3.8	0.83 T	21,000	33	6,000	12	1,200	4,700	
	01/29/18	0.20 U	0.36 U	5.0	1.2	18,000	73	4,800	13	1,000	3,400	
	04/03/18	0.20 U	0.36 U	4.6	0.87 T	17,000	53	4,700	14	890 T	3,300	
	07/19/18	0.012 T	0.03	4.6	2.0 B1	17,800	51	4,930	14	1,030	3,590	
	10/14/18	0.018 T	0.037 J	4.5	2.7 J	18,400	40	5,020	11	1,150	3,960	
	01/15/19	0.011 T	0.055 J	4.6	0.9 T	17,100	27	4,670	9	1,000	3,070	
	04/02/19	0.010 T	0.036	3.8	1.4 T	19,900	37	5,350	15	1,020	3,590	
	07/09/19	0.020 U	0.027	4.3	0.9 T	19,600	39	5,480	8	1,110	3,810	
	10/27/19	0.020 U	0.051	3.1	0.8 T	34,300	34	10,400	9	1,570	4,870	
	01/20/20	0.035	0.073	5.5	1.9 T	14,300	161	3,860	16	1,210	3,160	
	04/13/20	0.012 T	0.031	3.7	1.1 T	17,400	54	4,950	15	960	3,650	
	07/12/20	0.011 T	0.026	4.0	0.7 T	20,900	28	5,660	16	1,170	4,320	
	10/14/20	0.022	0.031	3.8	2.2	45,900	8 U	13,100	17	1,690	4,920	
	01/18/21	0.045	0.054	5.6	2.1	14,900	184	3,880	20	1,060	3,070	
	04/11/21	0.028	0.043	5.1	2.0	15,300	117	4,170	46	1,030	3,260	
	07/13/21	0.014 T	0.028	5.1 J	1.6 JT	18,100	77	4,770	38	1,000	3,440	
	10/25/21	0.019 T	0.03	3.5	2.1	66,700	14 JT	19,000	28	2,280	5,410	
	01/17/22	0.031	0.048	5.5	1.8 T	16,500	81	4,400	29	1,030	2,870	
	04/06/22	0.020	0.035	4.8	1.6 T	18,700	45	5,050	23	1,120	3,490	
	07/17/22	0.012 T	0.028	3.9	1.7 T	23,200	27 J	6,420	14	1,250	3,520	
	10/09/22	0.023	0.023 J	4.3	1.8 T	29,700	38	7,850	13	1,420	4,450	
	01/23/23	0.020 U	0.037	4.0	5.4 J	21,100	32	5,260	21	1,220	3,470	
	04/03/23	0.024	0.07	5.5	3.9	18,900	39 J	4,900	28	1,120	2,760	
	07/23/23	0.013 T	0.027	4.1	1.3 T	33,500	25 J	9,040	20	1,590	4,880	
	10/29/23	0.020 U	0.016 T	4.7	1.2 T	48,100	30	14,200	17	1,990	6,800	
	count	117	115	116	127	111	127	100	119	108	113	
	max	10 U	10 U	28	48	94,600	9,380	39,000	1,500	3,290	30,300	
	min	0.007 T	0.01 T	2.4	0.7 T	10,700	8	2,810	2 U	745	2,330	
	non-detects	83	76	61	47	0	7	0	10	22	0	
	average	5.8	3.4	7.7	10.2	42,169.4	1,387.5	12,829.2	291.2	1,738.8	10,497.8	
	sample stdev	4.8	2.8	3.6	10.3	24,181.7	2,447.4	9,971.8	424.4	583.3	9,211.7	
	variance	23.4	7.9	12.7	105.7	584,754.871	5,989,612	99,436,054	180,078	340,278	84,855,269	
	coeff. of variation	1.2	1.2	2	1.0	2	1	1	1	3	1	
	standard error	0.4	0.3	0.3	0.9	2,295	217	997	39	56	867	

Cowlitz County Tennant Way Landfill
Metals Groundwater Quality Data and Statistics (ug/l)

Site	Date	MCL>	Antimony 6	Arsenic 0.05	Barium 1000	Beryllium 4	Cadmium 5	Chromium 50 (total)	Cobalt	Copper 1000 (2ndary)	Lead 15	Nickel 100	Selenium 10
MW-9B	01/26/12	Total	10 U	9.4	15	0.2 U	0.5 U	1.5 T	0.5 T	2 U	2 U	2 U	5 U
	04/05/12	Total	5.4 T	12.3	17	0.2 U	0.5 U	1.4 T	0.9 T	2 U	2 U	2 U	4 U
	07/11/12	Total	10 U	9.3	21	0.2 U	0.5 U	1.3 T	0.6 T	1.1 T	2 U	20 U	5 U
	10/24/12	Total	10 U	7.0	16	0.2 U	0.5 U	1.8 T	1 U	2 U	0.8 T	8.2	5 U
	01/04/13	Total	10 U	10	23	0.2 U	0.5 U	2 U	1 U	2 U	2 U	14	5 U
Total Below													
	04/12/13	T/Dis	0.05	11.1	20	0.029	0.02 U	1.2	2.4	0.13	2 U	3.1	5 U
	07/11/13	T/Dis	0.05 U	9.8	22	0.032	0.004 T	1.8	2.2	0.41 J	0.008 T	3.5	1 U
	10/14/13	T/Dis	0.011 T	6.6	16	0.024	0.02 U	1.0	1.3	0.16	0.02 U	2.2	0.40 T
	01/13/14	T/Dis	0.039 T	9.7	17	0.026	0.02 U	1.3	1.9	0.21	0.02 U	3.3 J	1 U
	04/18/14	T/Dis	0.05 UB1	7.7	21	0.035	0.02 U	1.2	1.8	0.29	0.006 T	3.0	0.40 T
	07/15/14	T/Dis	0.030 T	11.5	18	0.033	0.012 T	1.1	1.9	0.14	0.009 T	2.7	0.40 T
	10/19/14	T/Dis	0.018 T	8.0	22	0.031	0.02 U	1.2 J	1.8 J	0.21 J	0.020 U	3.1	0.30 T
	01/13/15	T/Dis	0.032 T	7.2	18	0.030	0.02 U	1.4 J	1.5	0.23	0.005 T	2.5	0.30 T
	04/07/15	T/Dis	0.019 T	8.9	20	0.032	0.02 U	1.3	1.8	0.13 J	0.004 T	2.6	1 U
	07/12/15	T/Dis	0.027 T	7.6	22	0.035	0.008 T	1.1	1.5	0.13	0.007 T	2.3	1 U
	10/26/15	T/Dis	0.036 T	8.4	19	0.037	0.02 U	1.4	1.4 J	0.19	0.019 JT	2.6	1 U
	01/25/16	T/Dis	0.034 T	5.2	19	0.031	0.02 U	1.0	1.3	0.11	0.003 T	2.2	1 U
	04/03/16	T/Dis	0.10 U	4.1	18	0.033	0.006 T	1.2	1.2	0.17	0.014 T	2.3	1 U
	07/10/16	T/Dis	0.033 T	7.3	24	0.040	0.02 U	1.4	1.9	0.08 T	0.004 T	2.7	1 U
	10/09/16	T/Dis	0.05 U	11.6	27	0.036	0.02 U	1.5	2.3	0.10 T	0.02 B1	3.3	1 U
	01/23/17	T/Dis	0.03 T	7.1	21	0.035	0.02 U	0.9	1.8	0.28	0.02 B1	2.8	1 U
	04/09/17	T/Dis	0.05	7.2	19	0.027	0.02 U	1.0 J	1.8	0.81	0.02 B1	3.7	1 U
	07/27/17	T/Dis	0.50 U	8.0	19	0.50 U	0.25 U	1.6	1.6	0.64	0.10 U	4.2	0.47 T
	10/16/17	T/Dis	0.50 U	8.5	20	0.50 U	0.25 U	1.4 B	1.5 B	0.85 B	0.10 U	3.8	1 B1
	01/29/18	T/Dis	1.0 U	8.5	18	0.50 U	0.25 U	1.2	1.6	0.53	0.10 U	3.5	0.47 T
	04/03/18	T/Dis	1.0 U	6.1	19	0.50 U	0.25 T	1.2	1.3	0.70	0.10 U	3.1	1 U
	07/19/18	T/Dis	0.02 T	6.3	20	0.032	0.02 U	1.4	1.6	0.14 J	0.02 U	2.5	0.20 T
	10/14/18	T/Dis	0.05 U	5.3	17	0.029	0.02 U	0.9	1.2	0.09 JT	0.01 B1	2.0 J	1 U
	01/15/19	T/Dis	0.02 T	5.5	19	0.033	0.008 U	1.1	1.4	0.15	0.02 U	2.2	1 U
	04/02/19	T/Dis	0.05 U	4.3	15	0.032	0.02 U	1.0	1.2	0.08 T	0.02 U	2.1	0.20 T
	07/09/19	T/Dis	0.05 U	4.6	16	0.028	0.02 U	0.9	1.2	0.09 T	0.02 U	1.7	1 U
	10/27/19	T/Dis	0.02 T	7.2	20	0.036	0.02 U	1.6	1.6	0.16	0.01 T	2.7	0.20 T
	01/20/20	T/Dis	0.02 T	6.1	17	0.032	0.02 U	1.0	1.3	0.1	0.01 T	2.1	0.20 T
	04/13/20	T/Dis	0.05 U	7.7	20	0.041	0.02 U	1.2	1.7	0.12	0.02 U	2.7	0.20 T
	07/12/20	T/Dis	0.02 T	4.3	15	0.032	0.02 U	1.0	0.9	0.11	0.01 T	2.3	1 U
	10/14/20	T/Dis	0.03 T	4.8	18	0.037	0.02 U	1.0 J	1.2	0.1	0.01 T	1.9	0.20 T
	01/18/21	T/Dis	0.04 T	6.6	22	0.041	0.02 U	1.2	1.5	0.11 J	0.02 B1	2.5	0.30 T
	04/11/21	T/Dis	0.03 T	4.0	20	0.034	0.02 U	1.0	1.1	0.18 JT	0.01 T	1.8	1 U
	07/13/21	T/Dis	0.03 T	4.2 J	17	0.028	0.02 U	0.8 J	1.0	0.15 J	0.02 U	1.8 J	1 U
	10/25/21	T/Dis	0.03 T	2.9	13	0.030	0.024	0.8	0.7	0.18	0.03	1.6	1 U
	01/17/22	T/Dis	0.03 T	3.0	18	0.038	0.02 U	1.0	1.1	0.24	0.01 T	2.0	1 U
	04/06/22	T/Dis	0.03 T	3.5	17	0.030	0.008 U	1.1	1.0	0.16	0.02 JT	2.0	1 U
	07/17/22	T/Dis	0.03 T	4.1	20	0.040	0.02 U	1.1	1.2	0.11	0.01 T	2.2	0.20 T
	10/09/22	T/Dis	0.05 U	2.9	17	0.028	0.02 U	0.8	0.8	0.13	0.02 U	1.6	1 U
	01/23/23	T/Dis	0.03 T	2.5	17	0.033	0.02 U	0.7	0.7	0.09 JT	0.02 U	2.0	1 U
	04/03/23	T/Dis	0.06	2.2	16	0.037	0.02 U	0.9	0.6	0.17	0.01 T	1.3	1 U
	07/23/23	T/Dis	0.04 T	2.5	18	0.030	0.02 U	0.8 J	0.7	0.08 T	0.02 U	1.3	1 U
	10/29/23	T/Dis	0.05 U	1.9	14	0.028	0.02 U	0.9 J	0.5	0.14	0.02 U	1.2	1 U
	count		117	113	117	117	116	116	117	117	115	117	116
	max		50 U	19	72	5 U	6	5 U	15	18	4 U	20 U	10 U
	min		0.011 T	2 U	13	0.024	0.004 T	0.7	0.5 T	0.08	0.003 T	1 U	0.2 T
	non-detects		86	38	0	78	109	69	64	71	91	71	100
	average		28.9	7.2	33.1	2.9	2.6	3.3	6.3	5.9	1.3	12.6	3.8
	sample stdev		24.2	3.3	17.6	2.4	2.3	1.9	4.4	4.9	1.0	8.7	2.6
	variance		587.0	11.0	308.3	6.0	5.2	3.6	19.3	23.7	1.0	74.9	7.0
	coeff. of variation		1.2	2.2	1.9	1.2	1.1	2	1.4	1.2	1.3	1.5	1.4
	standard error		2.2	0.3	1.6	0.2	0.2	0.2	0.4	0.5	0.1	0.8	0.2

Cowlitz County Tennant Way Landfill
Metals Groundwater Quality Data and Statistics (ug/l)

Site	Date	Silver 50	Thallium 2	Vanadium	Zinc 5000 (2ndary)	Geochemical Metals						
						Calcium	Iron 300 (2ndary)	Magnesium	Manganese 50 (2ndary)	Potassium	Sodium	
MW-9B	01/26/12	2 U	5 U	8.7	1.2 T	44,900	29,500	17,000	2,580	1,900	12,200	
	04/05/12	2 U	1.0 U	11	2 U	49,900	27,300	18,600	2,970	1,900	12,900	
	07/11/12	2 U	5 U	11	2 U	57,700	31,800	22,800	3,510	2,330	17,600	
	10/24/12	2 U	5 U	10	2 U	46,800	20,200	17,600	2,900	2,060	14,900	
	01/04/13	2 U	5 UB1	12	2 U	62,100	29,800	22,800	3,780	2,320	18,300	
		Total Below					Dissolved Below					
	04/12/13	0.02 U	2.5 U	10.0	0.5 U	54,400	33,400	20,000	3,320	2,270	17,700	
	07/11/13	0.006 T	0.003 T	9.6	0.50	60,100	32,200	23,000	4,000	2,320	19,600	
	10/14/13	0.02 U	0.02 U	6.5	0.40 T	43,600	22,200	16,900	3,010	2,250	17,300	
	01/13/14	0.02 U	0.02 U	7.8	0.30 T	50,300	31,400	18,600	3,060	2,070	15,000	
	04/18/14	0.02 U	0.02 U	7.7	0.40 T	60,700	32,700	22,400	4,140	2,350	20,100	
	07/15/14	0.02 U	0.02 U	8.6	0.5 B1	51,100	33,500	18,400	3,620	2,210	17,500	
	10/19/14	0.02 U	0.02 U	7.4 J	0.40 JT	59,000	28,000	20,300	4,390	2,290	17,800	
	01/13/15	0.02 U	0.02 U	6.8	0.30 T	46,300	27,400	16,400	3,470	2,090	16,200	
	04/07/15	0.02 U	0.02 U	9.1	0.28 T	53,600	31,100	19,900	3,990	2,310	17,700	
	07/12/15	0.02 U	0.02 U	7.9	0.39 T	56,500	26,000	19,600	4,270	2,100	16,900	
	10/26/15	0.02 U	0.02 U	8.7	1.2 J	42,400	22,700	15,700	3,200	1,940	16,700	
	01/25/16	0.02 U	0.02 U	6.9	0.23 JT	50,100	21,000	17,900	3,690	2,320	18,400	
	04/03/16	0.02 U	0.02 U	6.6	2.1	46,200	17,600	16,600	3,770	2,280	17,000	
	07/10/16	0.02 U	0.02 U	9.0	0.42 T	53,600	27,200	19,200	4,340	2,590	19,600	
	10/09/16	0.02 U	0.02 U	10.4	0.5 B1	56,900	40,700	20,300	4,910	2,980	22,000	
	01/23/17	0.004 T	0.003 T	6.5	0.6 T	55,500	31,400	19,300	4,340	2,260	16,500	
	04/09/17	0.02 U	0.006 T	6.0	0.4 T	56,500	32,000	19,300	4,380	1,720	14,700	
	07/27/17	0.25 U	1.00 U	10.0	1.0 U	57,000	450 T	20,000	3,400	2,000	18,000	
	10/16/17	0.25 U	1.00 U	8.4	1.0 U	52,000	410	18,000	4,200	2,200	16,000	
	01/29/18	0.20 U	0.36 U	8.3	1.0 U	54,000	470	17,000	4,200	2,200	17,000	
	04/03/18	0.20 U	0.36 U	7.5	1.0 U	53,000	150	17,000	3,900	2,000	17,000	
	07/19/18	0.02 U	0.02 U	8.0	2.0 B1	52,300	934	17,800	3,870	2,040	15,500	
	10/14/18	0.02 U	0.02 U	6.0	0.7 JT	47,600	903	15,200	3,580	2,030	14,600	
	01/15/19	0.01 U	0.02 U	7.0	2.0 U	51,900	745	16,700	3,890	2,060	15,400	
	04/02/19	0.02 U	0.013 T	6.3	0.6 T	46,100	1,320	15,800	3,700	1,880	14,400	
	07/09/19	0.02 U	0.02 U	6.6	2.0 U	45,300	1,350	15,300	3,660	1,950	13,800	
	10/27/19	0.02 U	0.02 U	8.2	2.0 U	54,400	4,550	18,300	4,560	2,350	16,000	
	01/20/20	0.02 U	0.02 U	7.2	2.0 U	45,600	3,550	15,400	3,690	2,050	14,500	
	04/13/20	0.02 U	0.02 U	7.8	2.0 U	52,200	1,720	18,000	4,490	2,080	16,000	
	07/12/20	0.02 U	0.02 U	6.5	2.0 U	42,200	725	15,200	3,390	1,880	13,600	
	10/14/20	0.02 U	0.02 U	6.6	2.0 U	46,100	1,250	14,000	3,770	2,040	12,600	
	01/18/21	0.02 U	0.02 U	8.0	2.0 U	54,600	2,480	17,500	5,030	2,460	16,600	
	04/11/21	0.02 U	0.02 U	6.2	0.8 T	46,600	848	15,400	4,010	2,550	15,600	
	07/13/21	0.02 U	0.02 U	5.6 J	2.0 U	45,300	1,120	13,200	3,540	2,260	13,900	
	10/25/21	0.02 U	0.02 U	6.1	1.6 T	34,500	2,470 J	10,600	2,860	2,320	11,500	
	01/17/22	0.02 U	0.02 U	6.9	2.0 U	46,000	2,580	13,400	3,770	2,710	14,100	
	04/06/22	0.01 U	0.009 U	6.0	0.5 U	43,000	642	12,900	3,560	2,760	14,400	
	07/17/22	0.02 U	0.02 U	7.2	2.0 U	45,000	1,180 J	14,300	3,960	3,060	14,300	
	10/09/22	0.02 U	0.02 U	5.2	2.0 U	41,500	383	11,700	3,410	2,970	13,300	
	01/23/23	0.02 U	0.02 U	5.4	2.5 J	36,100	815	10,600	2,930	3,170	11,300	
	04/03/23	0.02 U	0.014 T	5.2	0.7 T	32,800	424 J	9,610	2,840	3,170	10,500	
	07/23/23	0.02 U	0.02 U	5.3	2.0 U	36,000	201 J	10,400	3,200	3,250	11,300	
	10/29/23	0.02 U	0.02 U	4.9	2.0 U	30,300	517	9,550	2,470	3,310	10,200	
	count	117	109	116	117	117	117	117	110	116	117	
	max	10 U	5 U	28	43	110,000	78,900	49,800	7,570	3,810	40,500	
	min	0.004 T	0.003 T	4.9	0.2 T	30,300	150	9,550	2,470	1,720	10,200	
	non-detects	115	111	47	61	0	0	0	0	7	0	
	average	5.8	3.0	9.6	9.8	66,877.8	33,759.7	27,938.1	4,252.9	2,589.0	22,541.9	
	sample stdev	4.8	2.4	3.0	9.8	19,951.9	22,846.3	11,598.7	1,164.4	520.8	8,220.6	
	variance	23.3	5.8	8.7	95.5	398,080,019	521,952,210	134,529,195	1,355,907	271,242	67,579,007	
	coeff. of variation	1.2	1.3	3.2	1.0	3	1	2	4	5	3	
	standard error	0.4	0.2	0.3	0.9	1,845	2,112	1,072	111	48	760	

Cowlitz County Tennant Way Landfill
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Site	Date	MCL>	Antimony 6	Arsenic 0.05	Barium 1000	Beryllium 4	Cadmium 5	Chromium 50 (total)	Cobalt	Copper 1000 (2ndary)	Lead 15	Nickel 100	Selenium 10
MW-10B	01/26/12	Total	10 U	5 U	12	0.2 U	0.5 U	2 U	1 U	22	2 U	4.7	5 U
	04/05/12	Total	4.2 T	1.9 T	9.3	0.2 U	0.5 U	0.8 T	0.6 T	13	2 U	5.1	4 U
	07/11/12	Total	10 U	1.4 T	20	0.2 U	0.5 U	0.9 T	3.3	4.0 T	2 U	8.2 T	5 U
	10/24/12	Total	10 U	3.9 T	22	0.2 U	0.5 U	1.5 T	5.9	2.5	2 U	9.8	5 U
	01/04/13	Total	10 U	5 U	10	0.2 U	0.5 U	2 U	1 U	11	2 U	14.6	2.4 T
Total Below													
	04/11/13	T/Dis	0.059	2.1 T	22	0.022	0.019 T	0.60	6.8	2.4	2 U	7.5	5 U
	07/11/13	T/Dis	0.040 T	2.4	20	0.023	0.010 T	1.07	5.6	1.7	0.020	4.7	1 U
	10/15/13	T/Dis	0.036 T	6.4	20	0.014 T	0.005 T	0.40	6.9	3.2	0.012 T	4.2	1 U
	01/13/14	T/Dis	0.051	9.0	19	0.015 T	0.012 T	0.65	6.4	2.4	0.118	2.7 J	1 U
	04/18/14	T/Dis	0.074	0.40 T	9.5	0.019 T	0.021	0.48	0.85	9.9	0.030	9.6	1 U
	07/15/14	T/Dis	0.070	1.0	19	0.022	0.107	0.52	5.4	4.0	0.033	13.5	1 U
	10/19/14	T/Dis	0.051	2.3	19	0.020	0.020 T	0.63 J	6.1 J	1.9 J	0.018 JT	5.8	1 U
	01/13/15	T/Dis	0.090	0.40 T	13	0.011 T	0.039	0.45 J	0.38	9.9	0.024	6.5	3 U
	04/07/15	T/Dis	0.053	0.35 T	20	0.013 T	0.056	0.45	6.8	5.5	0.002 T	8.7	1 U
	07/12/15	T/Dis	0.058	2.5	20	0.023	0.037	0.68	9.6	1.3	0.006 T	3.3	1 U
	10/26/15	T/Dis	0.058	5.2	20	0.018 T	0.009 T	0.52	10 J	1.1	0.027 J	2.5	1 U
	01/25/16	T/Dis	0.082	0.31 T	12	0.012 T	0.026	0.21	0.58	15.0	0.020	6.1	1 U
	04/03/16	T/Dis	0.054	0.30 T	10	0.012 T	0.030	0.22	0.28	14.2	0.030	6.6	1 U
	07/10/16	T/Dis	0.052	0.7	15	0.020	0.024	0.50	5.0	3.3	0.009 T	7.0	1 U
	10/09/16	T/Dis	0.023 T	1.1	16	0.016 T	0.013 JT	0.50	6.4	2.2	0.020 B1	5.1	1 U
	01/23/17	T/Dis	0.071	0.22 T	8.7	0.013 T	0.020	0.15 T	0.63	11.3	0.020 B1	7.7	1 U
	04/09/17	T/Dis	0.072	0.41 T	8.0	0.020 T	0.019 T	0.37 J	0.89	8.6	0.047	9.0	1 U
	07/27/17	T/Dis	0.50 U	5.0	21	0.50 U	0.25 U	0.81	6.3	1.8	0.10 U	7.8	0.54 T
	10/16/17	T/Dis	0.50 U	4.8	18	0.50 U	0.25 B1	0.8 B	4.4 B	1.8 B	0.10 B1	4.3	1 B1
	01/29/18	T/Dis	1.0 U	0.54	8.5	0.50 U	0.25 U	0.28 T	0.61 T	13	0.10 U	8.2	1 U
	04/03/18	T/Dis	1.0 U	1.6	10	0.50 U	0.25 B1	0.31 T	0.79 T	9.5	0.10 U	9.8	1 U
	07/19/18	T/Dis	0.066	32	31	0.03	0.010 T	1.4	8.3	1.7 J	0.02 U	7.9	0.40 T
	10/14/18	T/Dis	0.061	27	26	0.03	0.008 JT	1.2	5.7	1.4 J	0.03 J	3.1 J	0.30 T
	01/15/19	T/Dis	0.095	24	28	0.03	0.02 B1	0.9	6.2	5.0	0.02 B1	5.5	0.30 T
	04/02/19	T/Dis	0.075	22	28	0.03	0.027	1.0	6.5	2.4	0.01 T	6.9	0.40 T
	07/09/19	T/Dis	0.052	23	30	0.03	0.02 U	1.0	6.3	1.0	0.01 T	3.1	0.20 T
	10/27/19	T/Dis	0.055	28	40	0.03	0.02 U	1.3	7.1	1.1	0.03	2.5	0.30 T
	01/20/20	T/Dis	0.096	0.52	12	0.02 T	0.023	0.3	0.7	17.2	0.11	6.1	1 U
	04/13/20	T/Dis	0.034 T	10	18	0.02 T	0.02 U	0.6	3.3	1.6	0.02 JT	5.3	1 U
	07/12/20	T/Dis	0.061	21	37	0.03	0.02 U	1.2	5.1	1.9	0.06 J	3.7	0.30 T
	10/14/20	T/Dis	0.052	18	32	0.04	0.02 U	1.2 J	3.1	4.2	0.19	1.7	0.30 T
	01/18/21	T/Dis	0.074	0.38 T	11	0.02 T	0.02 T	0.4	0.8	11.9 J	0.14	6.1	1 U
	04/11/21	T/Dis	0.041 T	10	13	0.01 T	0.02 T	0.5	4.3	1.4 J	0.02 T	4.5	1 U
	07/13/21	T/Dis	0.037 T	14 J	16	0.02 T	0.02 U	0.9 J	4.8	1.3 J	0.02	2.6 J	1 U
	10/25/21	T/Dis	0.021 T	19	19	0.03	0.02 U	1.0	3.2	0.7	0.02 T	2.0	0.20 T
	01/17/22	T/Dis	0.081	0.44 T	9	0.02 T	0.02 T	0.3	0.9	10.7	0.02 T	8.4	1 U
	04/06/22	T/Dis	0.038 T	4.1	13	0.01 T	0.01 JT	0.6	2.3	1.4	0.01 JT	5.9	0 U
	07/17/22	T/Dis	0.052	21	30	0.04	0.02 U	1.4	4.7	1.2	0.02 T	4.5	0 T
	10/09/22	T/Dis	0.036 T	17	16	0.02 T	0.02 U	1.4	3.5	1.6	0.02 J	1.5	1 U
	01/23/23	T/Dis	0.053	0.49 T	11	0.01 T	0.01 T	0.2 T	0.6	7.5 J	0.01 T	7.4	1 U
	04/03/23	T/Dis	0.042 T	9.82	14	0.02 T	0.01 U	0.6	5.3	0.5	0.01 T	3.5	1 U
	07/23/23	T/Dis	0.036 T	13.20	13	0.02 T	0.02 U	0.6 J	5.5	0.6	0.01 T	3.1	1 U
	10/29/23	T/Dis	0.050 U	15.00	15	0.02 T	0.02 U	0.9 J	4.4	0.4	0.02 U	2.1	1 U
	count		117	113	117	117	116	116	117	117	115	117	108
	max		50 U	32	70	5 U	5 U	5 U	15.2	31	4 U	20 U	5 U
	min		0.021 T	0.2 T	8.0	0.011	0.005 T	0.2	0.3 T	0.4	0.002 T	1.5 T	0.2 U
	non-detects		78	60	0	78	88	70	65	56	80	67	103
	average		28.9	6.7	27.7	2.9	2.6	3.2	7.6	8.7	1.3	13.8	3.3
	sample stdev		24.2	6.2	15.6	2.4	2.3	2.1	3.6	5.2	1.0	7.4	2.0
	variance		587.2	39.0	243.9	6.0	5.1	4.4	12.8	27.0	1.0	54.1	4.2
	coeff. of variation		1.2	1.1	1.8	1.2	1.1	1.5	2.1	1.7	1.3	1.9	1.6
	standard error		2.2	0.6	1.4	0.2	0.2	0.2	0.3	0.5	0.1	0.7	0.2

Cowlitz County Tennant Way Landfill
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Site	Date	Silver 50	Thallium 2	Vanadium	Zinc 5000 (2ndary)	Geochemical Metals						
						Calcium	Iron 300 (2ndary)	Magnesium	Manganese 50 (2ndary)	Potassium	Sodium	
MW-10B	01/26/12	2 U	5 U	1.5 T	0.9 T	24,300	326	7,000	447	1,820	6,850	
	04/05/12	2 U	5 U	3.1	1.6 T	19,200	182	5,460	428	1,410	5,480	
	07/11/12	2 U	5 U	5.5	1.1 T	36,800	6,830	10,200	1,360	2,130	7,070	
	10/24/12	2 U	5 U	13	2 U	42,100	31,100	8,900	4,790	2,460	6,330	
	01/04/13	2 U	5 U	3.7	2 U	27,000	115	7,680	437	1,620	6,510	
		Total Below					Dissolved Below					
	04/11/13	0.02 U	0.600 T	5.2	2.1	37,600	34,300	9,150	3,620	2,760	7,390	
	07/11/13	0.004 T	0.02 U	6.2	1.0	37,800	33,200	9,320	4,380	2,490	6,300	
	10/15/13	0.02 U	0.02 U	4.6	1.3	36,400	32,200	9,830	3,140	2,430	7,250	
	01/13/14	0.004 T	0.02 U	5.7	0.90	36,400	55,700	9,200	4,090	2,340	6,380	
	04/18/14	0.02 U	0.005 T	2.8	0.70	25,000	57	7,130	432	1,580	6,650	
	07/15/14	0.02 U	0.015 T	3.9	2.8	48,300	13,900	12,800	2,950	2,530	7,130	
	10/19/14	0.02 U	0.02 U	4.9 J	1.7 J	36,900	33,700	7,890	4,390	2,410	6,730	
	01/13/15	0.02 U	0.011 T	1.3	0.90	33,200	70	9,290	316	2,080	8,120	
	04/07/15	0.02 U	0.006 T	2.2	2.7	43,700	23,600	11,500	3,040	2,720	7,390	
	07/12/15	0.02 U	0.02 U	4.4	2.2	35,600	49,200	7,040	4,140	1,920	6,610	
	10/26/15	0.02 U	0.02 U	3.9	2.3 J	32,000	57,800	6,630	3,590	1,880	7,450	
	01/25/16	0.02 U	0.02 U	2.1	3.2 J	30,800	75	8,860	355	1,880	7,420	
	04/03/16	0.006 T	0.02 U	1.8	2.5	25,600	62	7,160	164	1,890	7,460	
	07/10/16	0.02 U	0.02 U	3.2	2.1	30,900	21,100	7,670	1,700	2,500	6,360	
	10/09/16	0.02 U	0.02 U	3.2	1.4	32,000	31,000	7,920	2,480	2,620	6,570	
	01/23/17	0.004 T	0.007 T	1.5	0.90 T	24,700	73	6,960	273	1,570	6,280	
	04/09/17	0.004 T	0.007 T	2.4	0.70 T	20,400	741	5,850	355	1,290	5,260	
	07/27/17	0.25 U	1.0 U	8.9	1.2	49,000	52	16,000	2,200	2,700	9,400	
	10/16/17	0.25 U	1.0 U	7.1	0.98 T	38,000	300	9,200	2,000	2,600	8,800	
	01/29/18	0.20 U	0.36 U	2.5	0.74 T	27,000	82	7,400	240	1,500	6,700	
	04/03/18	0.20 U	0.36 U	3.0	1 U	31,000	3,300	9,600	270	1,700	7,000	
	07/19/18	0.02 U	0.02 U	21	2 B1	63,200	77	19,300	3,410	3,430	13,600	
	10/14/18	0.02 U	0.02 U	19	1 JT	47,500	552	14,100	2,510	3,210	13,000	
	01/15/19	0.02 U	0.02 U	16	2 T	48,800	3,320	16,300	2,290	3,100	14,700	
	04/02/19	0.02 U	0.013 T	14	2	57,100	385	20,300	3,030	3,520	15,800	
	07/09/19	0.02 U	0.02 U	13	1 T	48,300	91	15,800	3,610	2,980	11,100	
	10/27/19	0.02 U	0.02 U	15	1 T	59,500	22,500	19,300	5,020	3,570	15,700	
	01/20/20	0.01 T	0.02 U	3.1	1 T	29,400	97	9,070	338	2,100	7,190	
	04/13/20	0.02 U	0.02 U	7.3	1 T	46,400	2,390	15,600	2,000	2,590	10,400	
	07/12/20	0.02 U	0.02 U	14	1 T	73,900	1,640	25,100	4,180	4,000	16,300	
	10/14/20	0.01 T	0.02 U	13	1 T	53,200	92	15,100	4,250	3,130	8,950	
	01/18/21	0.01 T	0.009 T	2.4	2 T	26,100	28	7,440	284	1,850	6,720	
	04/11/21	0.02 U	0.02 U	4.5	2	27,600	19 T	7,130	1,620	2,400	6,630	
	07/13/21	0.02 U	0.02 U	6.8 J	1 JT	31,800	6,250	7,910	2,520	2,190	6,630	
	10/25/21	0.02 U	0.02 U	10	1 T	38,400	230 J	9,560	2,830	2,620	8,380	
	01/17/22	0.02 U	0.02 U	3.1	1 T	26,400	59	8,010	304	1,840	6,750	
	04/06/22	0.01 U	0.009 U	3.9	1 T	34,300	3,190	9,700	1,260	2,270	7,060	
	07/17/22	0.02 U	0.02 U	15	1 T	59,800	1,220 J	17,500	3,930	3,740	14,800	
10/09/22	0.02 U	0.02 U	9.2	1 T	28,800	7,710	7,560	2,510	2,090	6,160		
01/23/23	0.02 U	0.02 U	2.7	5 J	33,400	149	10,600	153	1,970	7,240		
04/03/23	0.02 U	0.012 T	4.1	2 T	29,800	8,790 J	7,460	2,270	2,030	5,850		
07/23/23	0.02 U	0.02 U	6.1	1 T	29,600	4,160 J	8,610	2,290	2,060	6,730		
10/29/23	0.02 U	0.02 U	6.1	1 T	28,900	21 U	8,950	2,220	2,070	6,770		
	count	117	109	115	117	113	114	111	114	115	103	
	max	10 U	5 U	62	41	116,000	57,800	38,300	9,910	4,150	22,400	
	min	0.004 T	0.005 T	1.3 T	0.5	13,200	19	3,680	153	1,290	5,260	
	non-detects	109	107	47	38	0	2	0	0	18	0	
	average	5.8	3.1	9.5	9.6	52,411	7,402	14,864	3,038	2,497	10,758	
	sample stdev	4.8	2.4	6.8	9.5	24,727	11,774	8,327	2,335	621	4,445	
	variance	23.3	5.8	46.4	90.2	611,424,172	138,622,893	69,345,649	5,450,804	385,355	19,754,394	
	coeff. of variation	1.2	1.3	1.4	1.0	2	1	2	1	4	2	
	standard error	0.4	0.2	0.6	0.9	2,326	1,103	790	219	58	438	

Cowlitz County Tennant Way Landfill
Metals Groundwater Quality Data and Statistics (ug/l)

Site	Date	MCL>	Antimony 6	Arsenic 0.05	Barium 1000	Beryllium 4	Cadmium 5	Chromium 50 (total)	Cobalt	Copper 1000 (2ndary)	Lead 15	Nickel 100	Selenium 10
MW-11B	01/26/12	Total	10 U	4.7 T	12	0.2 U	0.5 U	1.5 T	7.7	4.0	2 U	3	5 U
	04/06/12	Total	10 U	6.1	6.8	0.2 U	0.5 U	1.7 T	4.6	3.0	2 U	3	4 U
	07/12/12	Total	10 U	4.1 T	8.2	0.2 U	0.5 U	1.6 T	3.9	2.8	2 U	0.8 T	5 U
	10/25/12	Total	10 U	3.3 T	12	0.1 T	0.5 U	9.4	1.0 U	5.4	2 U	9	5 U
	01/07/13	Total	10 U	4.1 T	7.3	0.2 U	0.5 U	2 U	4.3	2.3	2 U	4	5 U
Total Below													
	04/11/13	T/Dis	0.089	3.2 T	5.9	0.040	0.02 U	1.1	1.4	3.0	2 U	2.5	5 U
	07/12/13	T/Dis	0.050 T	2.5	7.8	0.042	0.010 T	1.5	0.6	3.3	0.129	2.0	1 U
	10/15/13	T/Dis	0.044 T	2.7	11.5	0.032	0.02 U	1.0	2.8	2.9	0.086	4.2	1 U
	01/13/14	T/Dis	0.066	1.6	14.6	0.033	0.014 T	0.8	1.0	3.4	0.057	3.7 J	1 U
	04/21/14	T/Dis	0.085	3.2	6.3	0.030	0.02 U	1.1	1.7	1.0	0.013 T	2.7	1 U
	07/16/14	T/Dis	0.070	4.3	8.3	0.040	0.02 U	1.2	0.5	0.9	0.020	1.6	1 U
	10/19/14	T/Dis	0.041 T	3.8	9.4	0.035	0.005 T	1.6 J	0.6 J	1.3 J	0.034 J	1.6	1 U
	01/13/15	T/Dis	0.377	0.9	11.9	0.025	0.043	0.7 J	3.6	11.5	0.024	14.9	0.20 T
	04/08/15	T/Dis	0.104	2.5	7.9	0.027	0.020	1.0	2.9	15.4 J	0.038	10.1	1 U
	07/12/15	T/Dis	0.083	13.8	13.3	0.041	0.014 T	1.4	4.4	3.5	0.051	9.4	1 U
	10/26/15	T/Dis	0.124	12.6	15.0	0.055	0.020 T	2.4	1.5 J	2.7	0.092 J	5.1	1 U
	01/25/16	T/Dis	0.195	0.5	10.0	0.028	0.059	0.4	1.5	56.2	0.067	6.4	1 U
	04/03/16	T/Dis	0.189	0.7	9.3	0.047	0.058	0.6	2.1	55.3	0.288	5.4	1 U
	07/10/16	T/Dis	0.192	3.3	12.6	0.060	0.029	1.1	7.5	37.8	0.460	13.5	1 U
	10/09/16	T/Dis	0.301	5.7	13.7	0.055	0.048	10.7	10.0	17.1	0.296	27.3	1 U
	01/23/17	T/Dis	0.123	1.2	6.4	0.047	0.012 T	1.3	2.9	8.4	0.074	7.4	1 U
	04/09/17	T/Dis	0.100	1.2	5.9	0.029	0.022	0.8 J	2.8	6.7	0.130	6.8	1 U
	07/27/17	T/Dis	0.50 U	1.0	7.9	0.50 U	0.25 U	1.1	1.1	6.6	0.140	4.1	0.39 T
	10/16/17	T/Dis	0.50 U	3.9	10.0	0.50 U	0.25 B1	1.4 T, B	0.6 T, B	11.0 B	0.10 B1	4.0	1 B1
	01/29/18	T/Dis	1.0 U	0.39	8.5	0.50 U	0.070 T	0.56	1.8	52.0	0.074 T	6.1	0.34 T
	04/03/18	T/Dis	1.0 U	0.36	6.4	0.50 U	0.25 B1	0.99	0.53 T	47.0	0.085 T	5	1 U
	07/19/18	T/Dis	0.117	2.0	8.3	0.035	0.020 T	1.3	7.7	18.3 J	0.186	7.0	0.20 T
	10/14/18	T/Dis	0.417	2.4	11.0	0.040	0.055 J	1.2	8.6	18.9 J	0.315 J	11.5 J	0.20 T
	01/15/19	T/Dis	0.159	0.3 T	10.8	0.027	0.065 J	0.7	0.7	45.6	0.059 J	5.9	1 U
	04/02/19	T/Dis	0.210	0.4 T	7.5	0.028	0.036	0.6	1.2	48.5	0.117	4.7	1 U
	07/09/19	T/Dis	0.135	0.8	8.6	0.031	0.075	0.9	4.6	47	0.129	7.8	1 U
	10/27/19	T/Dis	0.254	2.2	13.0	0.028	0.071	1.8	9.0	27.3	0.169	14.7	1 U
	01/20/20	T/Dis	0.207	0.4 T	11.7	0.028	0.050	0.6	0.7	51.8	0.051	6.7	1 U
	04/13/20	T/Dis	0.169	0.4 T	7.1	0.029	0.034	0.6	0.8	51.8	0.110 J	4.7	1 U
	07/12/20	T/Dis	0.202	0.6	11.2	0.045	0.072	0.9	9.6	53	0.152 J	6.6	1 U
	10/14/20	T/Dis	0.197	1.1	10.0	0.047	0.021	1.0 J	6.1	37.5	0.195	8.6	0.20 T
	01/18/21	T/Dis	0.173	0.3 T	8.6	0.028	0.054	0.4	2.7	39.9 J	0.065	5.7	1 U
	04/11/21	T/Dis	0.152	0.4 T	7.1	0.029	0.028	0.6	0.5	46.4 J	0.104	4.7	1 U
	07/13/21	T/Dis	0.154	0.6 J	10.8	0.047	0.033	0.8 J	3.7	51.9 J	0.226	7.0 J	1 U
	10/25/21	T/Dis	0.143	0.9	8.7	0.043	0.027	1.0	4.7	35.1	0.119	9.4	0.20 T
	01/17/22	T/Dis	0.163	0.3 T	7.4	0.025	0.040	0.4	2.9	31.4	0.030	5.7	1 U
	04/06/22	T/Dis	0.083	0.3 T	6.2	0.023	0.024 J	0.6	0.5	34.9	0.037 J	5.5	0.20 U
	07/17/22	T/Dis	0.074	0.5 T	6.5	0.031	0.011 T	1.0	2.3	16	0.045	5.9	1 U
	10/09/22	T/Dis	0.125	1.0	8.6	0.037	0.014 JT	1.3	5.9	27.3	0.138 J	6.8	0.20 T
	01/23/23	T/Dis	0.138	0.3 T	7.7	0.022	0.027	0.3	0.8	15.3 J	0.019 T	6.6	1 U
	04/03/23	T/Dis	0.127	0.3 T	7.3	0.020 T	0.024	0.8	0.8	29.3	0.085	6.0	1 U
	07/23/23	T/Dis	0.124	0.4 T	8.7	0.039	0.049	0.8 J	6.3	41.6	0.098	8.7	1 U
	10/29/23	T/Dis	0.124	0.9	10.5	0.045	0.027	1.5 J	8.7	29.5	0.146 J	11.1	1 U
	count		117	114	115	117	117	116	116	117	115	117	109
	max		50 U	17	72	5 U	10 U	10.7	38	61	4 U	29	5 U
	min		0.041 T	0.3	5.3	0.020	0.005 T	0.3	0.5	0.9	0.013 T	0.8 T	0 U
	non-detects		78	51	0	76	79	67	45	37	74	61	106
	average		29.0	4.2	21.6	2.9	2.7	3.5	8.5	21.0	1.3	14.4	3.3
	sample stdev		24.1	2.9	19.7	2.4	2.3	2.1	6.4	16.7	1.0	7.4	2.0
	variance		583.2	8.6	389.2	6.0	5.5	4.6	40.6	279.1	1.0	54.4	4.1
	coeff. of variation		1.2	1.5	1.1	1.2	1.1	1.6	1.3	1.3	1.4	2.0	1.6
	standard error		2.2	0.3	1.8	0.2	0.2	0.2	0.6	1.5	0.1	0.7	0.2

Cowlitz County Tennant Way Landfill
Metals Groundwater Quality Data and Statistics (ug/l)

Site	Date	Silver 50	Thallium 2	Vanadium	Zinc 5000 (2ndary)	Geochemical Metals						
						Calcium	Iron 300 (2ndary)	Magnesium	Manganese 50 (2ndary)	Potassium	Sodium	
MW-11B	01/26/12	2 U	5 U	20	2 U	22,600	32,900	8,430	573	2,280	4,980	
	04/06/12	2 U	1.2 T	18	0.7 T	11,300	17,900	4,060	261	1,460	3,300	
	07/12/12	2 U	5 U	17	2 U	14,700	23,000	5,490	370	1,920	3,920	
	10/25/12	2 U	5 U	19	2 U	16,300	24,800	5,990	429	2,110	4,420	
	01/07/13	2 U	5 U	19	0.8 T	12,800	22,200	5,010	279	1,650	4,010	
		Total Below					Dissolved Below					
	04/11/13	0.026	2.5 U	20	1.1	11,600	18,100	4,410	229	1,580	3,670	
	07/12/13	0.030	0.005 T	19	1.6	14,700	23,500	5,600	340	1,830	4,120	
	10/15/13	0.009 T	0.02 U	14	1.0	19,900	30,200	8,040	491	2,130	6,200	
	01/13/14	0.014 T	0.02 U	10	1.7	23,400	19,900	9,200	579	2,700	6,130	
	04/21/14	0.02 UB1	0.02 U	11	0.30 T	13,600	20,300	4,680	278	1,710	3,750	
	07/16/14	0.02 U	0.02 U	18	0.50 B1	17,600	28,900	6,120	358	2,070	4,620	
	10/19/14	0.008 T	0.02 U	20 J	0.50 JT	17,200	30,400	5,940	368	2,170	4,920	
	01/13/15	0.008 T	0.018 T	9	1.3	22,300	124	7,000	213	2,540	5,330	
	04/08/15	0.019 T	0.010 T	11	3.1	14,400	603	4,800	77	1,950	4,020	
	07/12/15	0.022	0.02 U	27	2.3	30,000	11,400	10,100	455	2,410	5,180	
	10/26/15	0.012 T	0.02 U	34	2.7 J	32,500	18,100	11,700	501	2,770	6,420	
	01/25/16	0.017 T	0.025	6	2.3 J	12,900	106	3,690	60	1,950	4,560	
	04/03/16	0.038	0.022	6	3.8	7,740	242	2,360	70	1,650	4,110	
	07/10/16	0.182	0.018 T	14	2.9	11,500	5,220	3,520	225	1,940	4,410	
	10/09/16	0.081	0.017 T	16	2.6	15,100	5,350	4,910	233	2,530	5,860	
	01/23/17	0.015 T	0.008 T	11	1.3 T	10,500	1,090	3,480	105	1,670	3,870	
	04/09/17	0.018 T	0.015 T	11	1.4 T	8,600	3,420	2,910	108	1,390	3,260	
	07/27/17	0.250 U	1.0 U	13	1.0 U	11,000	1,700	4,300	120	2,000	4,300	
	10/16/17	0.250 U	1.0 U	15	1.3	15,000	1,900	5,600	160	2,200	4,800	
	01/29/18	0.20 U	0.36 U	5.9	1.3	16,000	21	4,800	170	2,100	4,500	
	04/03/18	0.20 U	0.36 U	5.4	1.2	11,000	35	3,400	26	1,500	4,000	
	07/19/18	0.048	0.010 T	11	2.0 B1	11,800	2,830	3,790	239	1,750	3,720	
	10/14/18	0.075	0.018 JT	12	6.8 J	15,600	573	5,030	296	2,340	5,340	
	01/15/19	0.013 T	0.020 B1	4.3	1.6 T	16,000	28	5,060	6	2,080	4,550	
	04/02/19	0.022	0.025	4.3	2.2	11,000	15 T	3,370	16	1,690	3,730	
	07/09/19	0.097	0.049	5.6	1.4 T	13,000	279	4,280	140	2,030	4,340	
	10/27/19	0.032	0.048	11	1.3 T	18,800	2,000	6,160	230	2,550	6,160	
	01/20/20	0.020 T	0.020 T	4.9	1.6 T	18,800	35	5,850	22	2,440	4,790	
	04/13/20	0.021	0.019 T	4.0	1.1 T	8,810	92	2,720	10	1,590	3,570	
	07/12/20	0.177	0.040	4.3	1.1 T	12,900	593	3,870	192	1,950	4,590	
	10/14/20	0.068	0.022	4.4	1.4 T	14,700	776	4,520	133	1,980	4,590	
	01/18/21	0.029	0.029	4.0	2.0 B1	14,600	37	4,450	104	2,050	4,570	
	04/11/21	0.020	0.015 T	3.6	1.2 T	9,040	74	2,870	15	1,670	3,850	
	07/13/21	0.128	0.026	3.8 J	1.4 JT	12,200	325	3,840	129	1,860	4,490	
	10/25/21	0.035	0.016 T	5.2	1.2 T	15,900	752 J	5,100	126	2,130	5,060	
	01/17/22	0.025	0.017 T	2.7	1.2 T	13,500	83	4,430	99	2,070	4,690	
	04/06/22	0.009 U	0.016 T	2.7	0.8 T	11,700	38	3,940	4	1,950	4,180	
	07/17/22	0.016 T	0.009 T	11	1.1 T	11,400	86 J	4,140	69	1,930	4,040	
10/09/22	0.049	0.014 JT	12	2.1	12,900	1,740	4,540	223	2,010	4,990		
01/23/23	0.020 U	0.016 T	6.3	2.9 J	17,200	26	5,790	36	2,020	4,910		
04/03/23	0.024	0.022	5.4	1.3 T	15,300	17 JT	5,200	13	1,820	4,430		
07/23/23	0.058	0.027	4.9	1.7 T	14,700	382 J	4,920	407	1,920	4,930		
10/29/23	0.050	0.009 T	9.0	2.3	18,000	1,020	5,980	456	2,230	5,600		
	count	117	109	116	115	110	107	112	95	107	111	
	max	10 U	5 U	43	74	34,400	35,300	13,100	1,200	3,210	11,500	
	min	0.008 T	0.005 T	2.7	0.3 T	7,740	15 U	2,360	4	1,390	3,260	
	non-detects	81	85	61	36	0	5	0	0	24	0	
	average	5.8	3.0	11.0	14.4	17,523.9	7,941.8	6,155.5	317.6	2,120	5,688.8	
	sample stdev	4.8	2.4	5.7	17.5	6,649.1	10,850.0	2,488.7	281.6	348	1,871.3	
	variance	23.3	5.8	33.0	305.5	44,210,835	117,721,780.2	6,193,570.9	79,295.2	121,117	3,501,830	
	coeff. of variation	1.2	1.3	1.9	0.8	3	1	2	1	6	3	
	standard error	0.4	0.2	0.5	1.6	634	1,049	235	29	34	178	

Cowlitz County Tennant Way Landfill
Metals Groundwater Quality Data and Statistics (ug/l)

Site	Date	MCL>	Antimony 6	Arsenic 0.05	Barium 1000	Beryllium 4	Cadmium 5	Chromium 50 (total)	Cobalt	Copper 1000 (2ndary)	Lead 15	Nickel 100	Selenium 10
MW-12B	01/26/12	Total	10 U	3.2 T	25	0.2 U	0.5 U	2 U	1 U	2 U	2 U	2 U	2.1 T
	04/05/12	Total	10 U	6.0	23	0.2 U	0.5 U	0.6 T	1 U	2 U	2 U	2 U	4 U
	07/11/12	Total	10 U	7.8	24	0.2 U	0.5 U	0.6 T	1 U	2 U	2 U	20 U	5 U
	10/24/12	Total	10 U	15.1	33	0.2 T	0.5 U	2	1 U	2 U	2 U	8	5 U
	01/04/13	Total	10 U	8.7	26	0.2 U	0.5 U	2 U	1 U	2 U	2 U	2 U	5 U
Total Below													
	04/09/13	T/Dis	0.013 T	17.3	33	0.016 T	0.02 U	0.6	0.5	0.1	2 U	0.9	5 U
	07/11/13	T/Dis	0.05 U	10.3	24	0.014 T	0.006 T	0.9	0.4	0.4 J	0.024	1.6	1 U
	10/14/13	T/Dis	0.05 U	13.3	29	0.014 T	0.02 U	0.5	0.5	0.2	0.032	1.2	0.40 T
	01/13/14	T/Dis	0.05 U	5.3	24	0.014 T	0.02 U	0.5	0.3	0.3	0.062	1.1 J	1 U
	04/18/14	T/Dis	0.05 UB1	10.1	28	0.019 T	0.02 U	0.6	0.4	0.3	0.023	1.3	1 U
	07/15/14	T/Dis	0.020 T	10.6	25	0.017 T	0.02 U	0.4	0.3	0.1 T	0.025	0.7	1 U
	10/19/14	T/Dis	0.05 U	9.5	27	0.016 T	0.02 U	0.5 J	0.4 J	0.3 J	0.035 J	1.4	1 U
	01/13/15	T/Dis	0.017 T	9.2	26	0.014 T	0.02 U	1.0 J	0.3	0.2	0.024	1.1	3 U
	04/08/15	T/Dis	0.05 U	11.3	28	0.015 T	0.02 U	0.5	0.3	0.1 J	0.021	0.8	1 U
	07/12/15	T/Dis	0.013 T	12.7	32	0.018 T	0.013 T	0.6	0.4	0.1	0.030	1.0	1 U
	10/26/15	T/Dis	0.017 T	5.6	35	0.018 T	0.016 T	0.4	0.3 J	0.2	0.032 J	0.8	1 U
	01/25/16	T/Dis	0.015 T	10.7	34	0.016 T	0.02 U	0.5	0.4	0.2	0.027	1.0	1 U
	04/03/16	T/Dis	0.10 U	10.9	36	0.016 T	0.005 T	0.6	0.4	0.2	0.032	0.9	1 U
	07/10/16	T/Dis	0.018 T	13.4	32	0.018 T	0.02 U	0.5	0.4	0.1	0.017 T	1.0	1 U
	10/09/16	T/Dis	0.05 U	7.2	30	0.014 T	0.02 U	0.4	0.3	0.1 T	0.021	0.8	1 U
	01/23/17	T/Dis	0.011 T	8.6	34	0.017 T	0.02 U	0.4	0.4	0.3	0.020 B1	1.4	1 U
	04/09/17	T/Dis	0.021 T	9.1	34	0.018 T	0.02 U	0.5 J	0.5	0.3	0.032	1.7	0.30 T
	07/27/17	T/Dis	0.50 U	15.0	33	0.50 U	0.25 U	0.7	0.6 T	0.7	0.10 U	3.1	0.46 T
	10/15/17	T/Dis	0.50 U	10.0	31	0.50 U	0.25 U	0.5 B	0.5 T, B	1.0 B	0.10 B1	2.9	1 B1
	01/29/18	T/Dis	1.0 U	15.0	37	0.5 U	0.25 U	0.7	0.5 T	0.8	0.1 U	2.9	0.45 T
	04/03/18	T/Dis	1.0 U	11.0	39	0.5 U	0.25 T	0.6	0.5 T	0.9	0.1 U	3	1 U
	07/19/18	T/Dis	0.05 U	10.8	38	0.017 T	0.02 U	0.4	0.5	0.2 J	0.029	0.9	1 U
	10/14/18	T/Dis	0.05 U	8.9	38	0.017 T	0.02 U	0.4	0.5	0.3 J	0.053 J	0.9 J	1 U
	01/15/19	T/Dis	0.05 U	10.7	37	0.02 T	0.02 U	0.4	0.4	0.2	0.042 J	0.9	1 U
	04/02/19	T/Dis	0.05 U	9.6	35	0.017 T	0.02 U	0.5	0.4	0.7	0.024	0.8	1 U
	07/09/19	T/Dis	0.05 U	10.9	40	0.015 T	0.02 U	0.5	0.4	0.1 T	0.009 T	1.0	1 U
	10/27/19	T/Dis	0.05 U	9.2	36	0.011 T	0.02 U	0.5	0.4	0.2	0.024	0.8	1 U
	01/20/20	T/Dis	0.05 U	9.8	44	0.018 T	0.02 U	0.5	0.5	0.2	0.027	1.1	1 U
	04/13/20	T/Dis	0.05 U	8.3	36	0.014 T	0.02 U	0.4	0.4	0.2	0.009 JT	0.8	1 U
	07/12/20	T/Dis	0.05 U	8.8	40	0.017 T	0.02 U	0.5	0.4	0.1 T	0.021 J	0.7	0.2 T
	10/14/20	T/Dis	0.05 U	5.3	38	0.019 T	0.02 U	0.4 J	0.4	0.1	0.031	0.8	1 U
	01/18/21	T/Dis	0.05 U	7.8	37	0.017 T	0.02 U	0.4	0.5	0.1 J	0.02 B1	0.8	1 U
	04/11/21	T/Dis	0.05 U	7.1	38	0.019 T	0.02 U	0.4	0.5	0.2 J	0.024	0.9	1 U
	07/13/21	T/Dis	0.05 U	8.6 J	35	0.019 T	0.02 U	0.4 J	0.4	0.1 JT	0.011 T	0.8 J	1 U
	10/25/21	T/Dis	0.05 U	3.4	35	0.016 T	0.02 U	0.4	0.4	0.1	0.022	0.7	1 U
	01/17/22	T/Dis	0.05 U	8.8	37	0.023	0.02 U	0.4	0.6	0.3	0.025	0.8	1 U
	04/06/22	T/Dis	0.02 U	7.9	35	0.018 T	0.008 U	0.4	0.5	0.1	0.01 JT	0.8	0.2 U
	07/17/22	T/Dis	0.05 U	8.8	35	0.019 T	0.02 U	0.5	0.6	0.1 T	0.012 T	0.8	1 U
	10/09/22	T/Dis	0.05 U	7.0	30	0.013 T	0.02 U	1.6	0.5	0.1	0.015 JT	1.2	1 U
	01/23/23	T/Dis	0.05 U	8.1	34	0.02 T	0.02 U	0.4	0.7	0.1 JT	0.011 T	0.9	1 U
	04/03/23	T/Dis	0.05 U	7.1	32	0.015 T	0.02 U	0.5	0.6	0.1 T	0.011 T	0.8	1 U
	07/23/23	T/Dis	0.05 U	7.5	30	0.016 T	0.02 U	0.4 J	0.5	0.1 T	0.008 T	0.6	1 U
	10/29/23	T/Dis	0.05 U	7.9	32	0.018 T	0.02 U	0.4 J	0.5	0.1 T	0.02 U	0.6	1 U
	count		119	115	116	119	118	118	119	119	117	119	110
	max		50 U	17	44	5 U	6	5 U	10 U	12	4 U	20 U	5 U
	min		0.011 T	3.2 T	8.0	0.011 T	0.005 T	0.4	0.3	0.1	0.008	0.6	0.2 T
	non-detects		109	44	0	78	112	72	75	73	80	75	111
	average		29.3	7.9	29.8	2.9	2.6	3.1	5.9	5.9	1.3	12.2	3.4
	sample stdev		24.1	3.1	7.9	2.4	2.3	2.2	4.7	4.8	1.0	9.3	2.0
	variance		582.7	9.4	62.2	6.0	5.1	4.7	22.1	22.6	1.0	85.8	4.0
	coeff. of variation		1.2	2.6	3.8	1.2	1.2	1.4	1.3	1.3	1.3	1.3	1.7
	standard error		2.2	0.3	0.7	0.2	0.2	0.2	0.4	0.4	0.1	0.8	0.2

Cowlitz County Tennant Way Landfill
Metals Groundwater Quality Data and Statistics (ug/l)

Site	Date	Silver 50	Thallium 2	Vanadium	Zinc 5000 (2ndary)	Geochemical Metals					
						Calcium	Iron 300 (2ndary)	Magnesium	Manganese 50 (2ndary)	Potassium	Sodium
MW-12B	01/26/12	2 U	5 U	5.7	0.7 T	58,400	21,400	19,900	3,820	3,790	20,600
	04/05/12	0.9 T	5 U	5.0	2 U	57,000	25,300	18,500	3,780	3,380	20,400
	07/11/12	2 U	1 T	6.3	2 U	57,100	29,200	19,400	4,140	3,530	21,800
	10/24/12	2 U	5 U	15	2 U	81,900	50,200	27,700	6,270	3,510	21,300
	01/04/13	2 U	5 UB1	7.1	2 U	67,000	37,800	23,000	4,440	3,370	20,600
		Total Below				Dissolved Below					
	04/09/13	0.02 U	0.700 T	4.8	0.5 U	88,800	51,200	30,700	6,500	3,690	23,700
	07/11/13	0.006 T	0.003 T	3.5	0.46 T	60,400	38,100	20,100	4,730	3,520	22,200
	10/14/13	0.005 T	0.02 U	3.6	0.70	73,600	49,400	25,100	5,780	3,680	23,400
	01/13/14	0.02 U	0.02 U	2.6	0.50 T	56,600	25,200	18,500	4,160	3,940	24,100
	04/18/14	0.02 U	0.02 U	2.8	0.30 T	64,500	36,100	21,400	5,060	4,040	25,700
	07/15/14	0.02 U	0.02 U	3.3	0.5 B1	62,500	35,200	20,400	4,950	3,800	24,800
	10/19/14	0.02 U	0.02 U	3.3 J	0.50 JT	63,000	36,600	21,000	5,030	3,850	25,300
	01/13/15	0.02 U	0.02 U	2.9	0.30 T	64,200	32,700	20,700	4,740	3,940	24,700
	04/08/15	0.02 U	0.02 U	3.6	0.30 T	64,600	35,900	21,700	4,990	4,040	24,800
	07/12/15	0.02 U	0.02 U	4.5	0.47 T	76,600	37,800	24,000	5,800	3,500	24,200
	10/26/15	0.02 U	0.004 T	2.9	2.13 J	68,100	26,000	21,900	5,040	4,400	29,300
	01/25/16	0.02 U	0.02 U	3.8	1.04 J	73,100	33,600	23,500	5,310	4,500	28,200
	04/03/16	0.02 U	0.02 U	4.2	1.30	83,900	35,700	26,400	6,490	4,510	29,300
	07/10/16	0.02 U	0.02 U	4.6	0.36 T	69,700	34,900	22,800	6,030	3,730	24,900
	10/09/16	0.02 U	0.02 U	2.4	0.5 B1	69,000	30,700	21,900	5,780	3,920	25,200
	01/23/17	0.006 T	0.02 U	3.2	0.40 T	75,400	32,000	22,900	5,550	4,310	27,400
	04/09/17	0.02 U	0.004 T	2.8	1.3 T	75,700	31,800	21,900	5,570	4,120	27,100
	07/27/17	0.25 U	1.00 U	6.0	1.0 U	83,000	26	26,000	6,800	4,000	26,000
	10/15/17	0.25 U	1.00 U	4.2	1.0 U	66,000	33	20,000	6,000	3,400	23,000
	01/29/18	0.2 U	0.36 U	4.7	1 U	89,000	21 T	25,000	7,000	4,500	30,000
	04/03/18	0.2 U	0.36 U	4.4	1 U	93,000	21	26,000	8,900	4,600	30,000
	07/19/18	0.02 U	0.02 U	0.2	2 B1	80,000	1,760	24,200	6,560	4,280	26,200
	10/14/18	0.02 U	0.02 U	3.4	7.2 J	88,300	2,410	25,600	6,640	4,360	27,000
	01/15/19	0.02 U	0.02 U	3.4	2 U	77,600	2,210	22,500	6,110	4,460	27,200
	04/02/19	0.02 U	0.016 T	3.4	0.8 T	75,400	10 T	23,200	5,940	4,560	27,000
	07/09/19	0.02 U	0.02 U	3.8	2 U	86,800	15 T	26,600	6,950	4,850	27,000
	10/27/19	0.02 U	0.018 T	3.1	2 U	77,500	15,200	24,700	6,470	4,770	28,400
	01/20/20	0.02 U	0.02 U	3.5	2 U	89,100	1,160	29,500	7,080	5,740	31,700
	04/13/20	0.02 U	0.02 U	3.0	0.5 T	74,600	4,280	24,700	6,810	4,700	28,700
	07/12/20	0.02 U	0.02 U	3.3	2 U	79,600	4,300	27,800	7,060	5,100	31,200
	10/14/20	0.02 U	0.02 U	2.9	0.8 T	73,500	2,620	24,400	6,340	4,470	27,600
	01/18/21	0.02 U	0.02 U	3.1	2 U	73,500	3,820	25,600	6,850	4,550	29,900
	04/11/21	0.02 U	0.02 U	3.3	0.5 T	78,800	21 U	30,800	7,680	5,020	31,000
	07/13/21	0.02 U	0.02 U	3.2 J	2 U	78,600	2,910	26,400	7,240	4,460	31,000
	10/25/21	0.02 U	0.02 U	2.7	2 U	72,900	92 J	30,800	6,790	4,530	26,500
	01/17/22	0.02 U	0.02 U	3.2	0.9 T	76,200	3,230	26,500	6,710	4,880	29,700
	04/06/22	0.009 U	0.009 U	3.1	0.5 U	77,200	8 U	27,400	6,970	4,920	28,900
	07/17/22	0.02 U	0.02 U	3.2	2 U	72,600	528 J	26,600	6,630	4,860	28,100
	10/09/22	0.02 U	0.02 U	3.0	0.6 T	73,600	3,380	24,900	6,610	4,300	26,900
	01/23/23	0.02 U	0.02 U	3.4	4.1 J	76,900	1,200	26,300	6,870	4,520	28,100
	04/03/23	0.02 U	0.017 T	3.0	0.8 T	74,800	14 JT	25,500	7,190	4,350	26,900
	07/23/23	0.02 U	0.02 U	2.9	2 U	68,300	20 JT	23,600	6,690	4,280	26,400
	10/29/23	0.02 U	0.02 U	2.8	2 U	68,500	21 U	26,800	6,370	4,610	27,400
	count	119	111	118	119	115	115	115	115	113	111
	max	10 U	5 U	32	34	93,000	60,600	39,600	8,900	5,740	31,700
	min	0.005 T	0.003 T	0.2	0.30 T	22,300	8	9,590	1,980	1,320	9,700
	non-detects	114	109	66	61	0	3	0	0	30	0
	average	5.8	3.0	7.8	8.7	62,274.8	27,425.0	24,510.3	4,987.0	3,091.1	21,065.8
	sample stdev	4.8	2.4	4.3	7.9	15,963.8	16,584.8	5,552.5	1,094.1	1,094.1	5,558.4
	variance	23.4	5.8	18.7	62.8	254,843,481	275,053,935	30,830,051	2,446,951	1,196,982.8	30,896,272
	coeff. of variation	1.2	1.3	1.8	1.1	4	2	4	3	3	4
	standard error	0.4	0.2	0.4	0.7	1,489	1,547	518	146	103	528

Cowlitz County Tennant Way Landfill
Metals Groundwater Quality Data and Statistics (ug/l)

Site	Date	MCL>	Antimony 6	Arsenic 0.05	Barium 1000	Beryllium 4	Cadmium 5	Chromium 50 (total)	Cobalt	Copper 1000 (2ndary)	Lead 15	Nickel 100	Selenium 10
MW-13	01/26/12	Total	10 U	3.6 T	28	0.2 U	0.5 U	0.9 T	1 U	2 U	2 U	2 U	5 U
	04/05/12	Total	10 U	4.2 T	46	0.2 U	0.5 U	0.8 T	1 U	2 U	2 U	2 U	4 U
	07/11/12	Total	10 U	5 U	22	0.2 U	0.5 U	0.6 T	1 U	2 U	2 U	20 U	5 U
	10/24/12	Total	10 U	2 T	32	0.1 T	0.5 U	1.7 T	1 U	2 U	2 U	6.5	5 U
	01/04/13	Total	10 U	1.2 T	22	0.2 U	0.5 U	2 U	1 U	2 U	2 U	11	1.5 T
Total Below													
	04/09/13	T/Dis	0.012 T	2.2 T	25	0.019 T	0.02 U	0.6	0.38	0.06 T	2 U	0.48	5 U
	07/11/13	T/Dis	0.05 U	1.3	23	0.020	0.004 T	0.8	0.43	0.43 J	0.015 T	1.05	1 U
	10/14/13	T/Dis	0.05 U	0.7	26	0.022	0.02 U	0.6	0.41	0.15	0.018 T	0.97	1 U
	01/13/14	T/Dis	0.014 T	1.0	23	0.027	0.02 U	0.7	0.49	0.32	0.028	1.0 J	1 U
	04/18/14	T/Dis	0.05 UB1	1.1	24	0.025	0.02 U	0.7	0.52	0.35	0.017 T	0.99	1 U
	07/15/14	T/Dis	0.020 T	3.4	26	0.030	0.02 U	0.8	0.50	0.23	0.027	0.50	1 U
	10/19/14	T/Dis	0.017 T	3.3	33	0.024	0.02 U	0.7 J	0.60 J	0.19 J	0.010 JT	0.98	0.30 T
	01/13/15	T/Dis	0.023 T	0.8	23	0.022	0.02 U	1.0 J	0.36	0.22	0.013 T	0.75	3 U
	04/08/15	T/Dis	0.05 U	2.0	23	0.021	0.02 U	0.6	0.40	0.27 J	0.032	0.50	1 U
	07/12/15	T/Dis	0.026 T	4.5	43	0.039	0.012 T	0.9	0.75	0.23	0.022	0.58	1 U
	10/26/15	T/Dis	0.025 T	4.8	45	0.040	0.02 U	1.0	0.89 J	0.28	0.038 J	0.52	1 U
	01/25/16	T/Dis	0.016 T	1.0	23	0.023	0.02 U	0.7	0.28	0.09 T	0.012 T	0.53	1 U
	04/03/16	T/Dis	0.10 U	0.9	29	0.025	0.02 U	0.7	0.34	0.11	0.012 T	0.50	1 U
	07/10/16	T/Dis	0.017 T	1.7	31	0.029	0.02 U	0.8	0.36	0.10 T	0.012 T	0.42	1 U
	10/09/16	T/Dis	0.05 U	1.8	29	0.028	0.008 JT	0.7	0.31	0.14	0.02 B1	0.42	1 U
	01/23/17	T/Dis	0.012 T	0.8	33	0.026	0.02 U	0.5	0.36	0.28	0.02 B1	0.90	0.40 T
	04/09/17	T/Dis	0.025 T	3.1	39	0.038	0.02 U	1.0 J	0.69	0.42	0.02 B1	1.3	1 U
	07/27/17	T/Dis	0.50 U	2.0	25	0.50 U	0.25 U	0.8	0.35 T	0.55	0.10 U	1.9	0.44 T
	10/15/17	T/Dis	0.50 U	2.2	33	0.50 U	0.25 U	0.6 B	0.37 T, B	0.74 B	0.10 U	2.5	1 B1
	01/29/18	T/Dis	1.0 U	1.6	27	0.50 U	0.25 U	0.6	0.31 T	0.68	0.10 U	1.8	1 U
	04/03/18	T/Dis	1.0 U	2.1	33	0.50 U	0.25 U	0.8	0.41 T	0.87	0.10 U	2.0	1 U
	07/19/18	T/Dis	0.05 U	1.4	34	0.022	0.02 U	0.5	0.36	0.18 J	0.007 T	0.38	1 U
	10/14/18	T/Dis	0.05 U	1.0	35	0.025	0.02 U	0.6	0.37	0.25 J	0.032 J	0.38 J	1 U
	01/15/19	T/Dis	0.05 U	1.0	31	0.022	0.02 U	0.5	0.27	0.25	0.033 J	0.35	1 U
	04/02/19	T/Dis	0.05 U	2.2	31	0.027	0.02 U	0.5	0.37	0.32	0.067	0.35	1 U
	07/09/19	T/Dis	0.05 U	1.7	30	0.021	0.02 U	0.5	0.27	0.19	0.021	0.32	1 U
	10/27/19	T/Dis	0.05 U	1.3	32	0.022	0.02 U	0.6	0.30	0.12	0.022	0.28	1 U
	01/20/20	T/Dis	0.05 U	0.9	29	0.023	0.02 U	0.5	0.22	0.12	0.009 T	0.33	1 U
	04/13/20	T/Dis	0.05 U	1.0	32	0.033	0.02 U	0.7	0.33	0.19	0.017 JT	0.27	1 U
	07/12/20	T/Dis	0.05 U	0.9	32	0.032	0.02 U	0.7	0.32	0.14	0.037 J	0.16 T	1 U
	10/14/20	T/Dis	0.05 U	1.9	35	0.031	0.02 U	0.6 J	0.38	0.17	0.023	0.38	1 U
	01/18/21	T/Dis	0.05 U	1.0	30	0.025	0.02 U	0.6	0.28	0.16 J	0.020 B1	0.30	1 U
	04/11/21	T/Dis	0.05 U	1.6	32	0.027	0.02 U	0.6	0.33	0.47 J	0.021	0.29	1 U
	07/13/21	T/Dis	0.05 U	1.8 J	26	0.020 T	0.02 U	0.5 J	0.25	0.27 J	0.023	0.33 J	1 U
	10/25/21	T/Dis	0.05 U	3.7	41	0.035	0.02 U	0.9	0.68	0.15	0.043	0.45	0.2 T
	01/17/22	T/Dis	0.05 U	1.1	29	0.025	0.02 U	0.5	0.22	0.23	0.015 T	0.27	1 U
	04/06/22	T/Dis	0.02 U	1.3	23	0.024	0.008 U	0.6	0.20	0.25	0.024 J	0.29	0.2 U
	07/17/22	T/Dis	0.05 U	1.5	19	0.022	0.02 U	1.0	0.21	0.26	0.027	0.54	1 U
	10/09/22	T/Dis	0.05 U	3.4	29	0.024	0.02 U	0.8	0.44	0.12	0.022 J	0.30	1 U
	01/23/23	T/Dis	0.05 U	1.5	25	0.029	0.02 U	0.5	0.27	0.14 J	0.014 T	0.29	1 U
	04/03/23	T/Dis	0.02 T	1.8	27	0.031	0.02 U	0.9	0.32	0.28	0.034	0.35	1 U
	07/23/23	T/Dis	0.05 U	2.4	24	0.026	0.02 U	0.7 J	0.28	0.11	0.014 T	0.28	1 U
	10/29/23	T/Dis	0.05 U	1.9	26	0.031	0.02 U	0.8 J	0.27	0.2	0.020 U	0.32	0.2 T
	count		119	114	119	119	118	118	119	119	117	119	117
	max		50 U	5.7	61	5 U	5	5 U	10 U	10 U	4 U	20 U	10 U
	min		0.012 T	0.7	9.0	0.019 T	0.004 T	0.5	0.20	0.06 T	0.007 T	0.16	0.2 U
	non-detects		106	68	0	78	114	71	74	76	81	74	111
	average		29.3	3.7	32.8	2.9	2.6	3.2	5.9	5.9	1.3	12.1	3.8
	sample stdev		24.1	1.7	10.2	2.4	2.2	2.1	4.7	4.7	1.0	9.4	2.5
	variance		582.8	2.8	104.3	6.0	5.0	4.4	22.5	22.3	1.0	89.0	6.2
	coeff. of variation		1.2	2.2	3.2	1.2	1.2	1.5	1.2	1.3	1.3	1.3	1.5
	standard error		2.2	0.2	0.9	0.2	0.2	0.2	0.4	0.4	0.1	0.9	0.2

Cowlitz County Tennant Way Landfill
Metals Groundwater Quality Data and Statistics (ug/l)

Site	Date	Silver 50	Thallium 2	Vanadium	Zinc 5000 (2ndary)	Geochemical Metals						
						Calcium	Iron 300 (2ndary)	Magnesium	Manganese 50 (2ndary)	Potassium	Sodium	
MW-13	01/26/12	2 U	5 U	6.9	0.9 T	51,200	29,500	20,300	4,740	2,980	18,600	
	04/05/12	2 U	5 U	11	0.9 T	83,100	49,300	33,400	6,920	3,410	24,500	
	07/11/12	2 U	5 U	6.9	2 U	43,900	20,500	17,700	4,080	2,660	17,200	
	10/24/12	2 U	5 U	13	2 U	59,700	30,900	22,400	5,680	3,280	19,600	
	01/04/13	2 U	5 UB1	7.2	2 U	43,400	19,800	16,200	3,880	2,580	15,600	
		Total Below					Dissolved Below					
	04/09/13	0.02 U	0.80 T	3.8	0.5 U	52,500	23,700	19,700	4,920	2,920	18,000	
	07/11/13	0.009 T	0.004 T	3.5	0.46 T	48,000	22,700	18,000	4,530	2,690	17,200	
	10/14/13	0.02 U	0.006 T	3.5	0.60	50,700	23,300	19,300	4,720	3,090	18,800	
	01/13/14	0.02 U	0.02 U	3.5	0.50 T	50,500	19,700	18,800	4,620	2,830	17,500	
	04/18/14	0.02 U	0.02 U	3.3	0.30 T	53,000	21,000	19,800	5,000	2,680	18,500	
	07/15/14	0.02 U	0.02 U	4.5	0.58	53,300	29,800	19,200	5,110	2,730	19,800	
	10/19/14	0.004 T	0.02 U	3.4 J	0.40 JT	61,200	38,200	22,000	5,940	2,970	22,000	
	01/13/15	0.02 U	0.02 U	3.1	0.30 T	54,900	19,500	19,700	5,450	2,630	18,600	
	04/08/15	0.02 U	0.02 U	3.8	0.83	49,200	20,500	17,700	4,890	2,600	17,700	
	07/12/15	0.010 T	0.02 U	5.9	0.84	73,400	50,500	24,500	6,710	2,950	23,100	
	10/26/15	0.02 U	0.02 U	5.3	0.95 J	74,600	52,300	26,800	5,780	3,170	25,400	
	01/25/16	0.006 T	0.02 U	3.8	1.2 J	48,400	19,600	18,000	4,450	2,630	17,900	
	04/03/16	0.007 T	0.02 U	4.0	0.94	59,100	24,700	20,700	6,000	2,770	19,000	
	07/10/16	0.008 T	0.02 U	4.8	0.25 T	58,100	27,900	20,000	5,140	2,810	19,000	
	10/09/16	0.02 U	0.02 U	4.3	0.5 B1	51,500	28,900	18,000	4,640	2,930	18,800	
	01/23/17	0.007 T	0.002 T	3.3	0.50 T	72,200	27,900	24,500	7,050	2,660	18,000	
	04/09/17	0.003 T	0.002 T	4.2	0.50 T	68,900	45,800	27,800	4,920	2,610	22,500	
	07/27/17	0.25 U	1.00 U	4.9	1.0 U	60,000	140	22,000	5,800	2,600	19,000	
	10/15/17	0.25 U	1.00 U	4.2	1.0 U	75,000	37	26,000	7,300	2,900	20,000	
	01/29/18	0.20 U	0.36 U	3.9	1.0 U	67,000	75	21,000	6,300	2,700	19,000	
	04/03/18	0.20 U	0.36 U	5.1	1.0 U	73,000	62	23,000	8,200	2,800	21,000	
	07/19/18	0.02 U	0.02 U	4.0	2.0 B1	66,600	486	22,100	6,020	2,760	18,000	
	10/14/18	0.02 U	0.02 U	4.2	1.4 JT	74,200	2,110	23,800	6,870	2,990	20,600	
	01/15/19	0.02 U	0.029 J	3.5	2.0 U	67,600	1,830	21,100	6,290	2,660	18,500	
	04/02/19	0.02 U	0.019 T	3.9	0.7 T	63,800	12 T	20,400	6,390	2,700	19,100	
	07/09/19	0.02 U	0.02 U	3.7	0.7 T	61,300	21 U	19,600	3,040	2,800	18,000	
	10/27/19	0.02 U	0.026	4.4	2.0 U	61,100	11,600	20,000	6,180	3,250	19,700	
	01/20/20	0.02 U	0.02 U	3.8	2.0 U	59,800	446	19,200	5,890	2,750	16,800	
	04/13/20	0.02 U	0.02 U	4.4	2.0 U	61,300	3,510	21,200	6,310	2,970	17,500	
	07/12/20	0.02 U	0.02 U	4.7	2.0 U	60,300	1,510	21,800	5,820	3,120	18,000	
	10/14/20	0.02 T	0.02 U	4.1	2.0 U	55,800	4,110	19,300	5,120	3,130	16,500	
	01/18/21	0.02 U	0.02 U	3.7	2.0 U	53,800	2,680	18,600	5,580	2,840	16,000	
	04/11/21	0.02 U	0.02 U	3.8	2.0 U	54,900	21 U	20,100	5,080	3,110	16,100	
	07/13/21	0.02 U	0.02 U	3.1 J	2.0 U	48,800	2,470	15,900	4,410	2,680	13,800	
	10/25/21	0.02 U	0.02 U	4.6	2.0 U	67,600	1,310 J	25,400	5,840	3,290	21,200	
	01/17/22	0.02 U	0.02 U	3.3	2.0 U	52,600	2,690	18,200	4,920	2,960	13,800	
	04/06/22	0.01 U	0.009 U	3.6	0.5 U	42,700	1,860	15,600	3,630	2,830	12,000	
	07/17/22	0.02 U	0.02 U	3.5	0.6 T	36,400	1,270 J	13,300	2,950	2,180	10,100	
	10/09/22	0.02 U	0.041 J	4.3	2.0 U	50,900	5,260	16,800	4,260	2,920	16,200	
	01/23/23	0.02 U	0.02 U	3.7	4.3 J	49,000	1,330	16,900	3,740	2,540	12,200	
	04/03/23	0.02 U	0.019 T	4.0	1.0 T	49,600	835 J	16,300	4,100	2,620	13,200	
	07/23/23	0.02 U	0.02 U	3.6	2.0 U	42,100	1,560 J	13,900	3,580	2,590	12,800	
	10/29/23	0.02 U	0.02 U	4.0	2.0 U	43,100	1,230	16,400	3,220	2,900	14,900	
	count	119	111	118	116	114	115	114	114	113	112	
	max	10 U	5 U	33	32	83,100	69,100	39,800	9,800	3,410	25,400	
	min	0.003 T	0.0 T	3.1	0.3 T	22,800	12	8,990	2,840	1,690	10,100	
	non-detects	109	107	66	62	0	2	0	0	28	0	
	average	5.9	3.1	8.2	8.6	57,061.4	27,892.0	21,571.0	5,811.0	2,538	17,544.6	
	sample stdev	4.8	2.4	4.5	8.0	11,705.5	18,226.5	5,515.3	1,576.9	425	2,868.2	
	variance	23.3	5.8	20.0	64.0	137,018,320	332,205,945	30,418,460	2,486,630	180,358	8,226,458	
	coeff. of variation	1.2	1.3	1.8	1.1	5	2	4	4	6	6	
	standard error	0.4	0.2	0.4	0.7	1,096	1,700	517	148	40	271	

Cowlitz County Tennant Way Landfill
Metals Groundwater Quality Data and Statistics (ug/l)

Site	Date	MCL>	Antimony 6	Arsenic 0.05	Barium 1000	Beryllium 4	Cadmium 5	Chromium 50 (total)	Cobalt	Copper 1000 (2ndary)	Lead 15	Nickel 100	Selenium 10
MW-14B	01/26/12	Total	10 U	6.5	24	0.2 U	0.5 U	1.9 T	1 U	2 U	0.6 T	2 U	5 U
	04/05/12	Total	4.5 T	9.6	26	0.2 U	0.5 U	0.8 T	1 U	2 U	2 U	2 U	4 U
	07/11/12	Total	10 U	7.7	25	0.2 U	0.5 U	1.9 T	1 U	2 U	2 U	20 U	5 U
	10/24/12	Total	10 U	8.5	28	0.39	0.5 U	2.6	1 U	2 U	2 U	6	5 U
	01/04/13	Total	10 U	9.3	30	0.2 T	0.5 U	2 U	1 U	2 U	2 U	11	2.6 T
Total Below													
	04/09/13	T/Dis	0.018 T	7.4	29	0.045	0.02 U	1.6	0.57	0.09 T	2 U	0.8	5 U
	07/11/13	T/Dis	0.060	8.3	32	0.036	0.005 T	2.2	0.64	0.38 J	0.012 T	1.5	1 U
	10/14/13	T/Dis	0.006 T	5.9	25	0.037	0.009 T	1.3	0.49	0.27	0.025	1.3	1 U
	01/13/14	T/Dis	0.014 T	4.8	25	0.040	0.02 U	1.3	0.54	0.30	0.012 T	1.2 J	1 U
	04/18/14	T/Dis	0.05 UB1	6.8	27	0.041	0.006 T	1.3	0.55	0.30	0.009 T	1.1	0.40 T
	07/15/14	T/Dis	0.040 T	6.8	27	0.031	0.02 U	1.2	0.49	0.14	0.007 T	0.6	0.40 T
	10/19/14	T/Dis	0.020 T	6.4	27	0.040	0.02 U	1.5 J	0.58 J	0.22 J	0.008 JT	1.1	0.40 T
	01/13/15	T/Dis	0.051	6.2	27	0.039	0.006 T	2.0 J	0.57	0.26	0.012 T	1.1	0.30 T
	04/08/15	T/Dis	0.017 T	12.7	37	0.039	0.02 U	1.8	0.72	0.15 J	0.005 T	0.7	1 U
	04/08/15	T/Dis	0.016 T	12.7	37	0.043	0.02 U	1.8	0.77	0.12 J	0.004 T	0.7	0.50 T
	07/12/15	T/Dis	0.043 T	7.6	28	0.038	0.015 T	1.7	0.51	0.17	0.022	0.6	1 U
	10/26/15	T/Dis	0.020 T	5.9	27	0.044	0.027	1.4	0.46 J	0.54	0.025 J	0.7	1 U
	01/25/16	T/Dis	0.043 T	6.8	28	0.045	0.02 U	1.5	0.57	0.21	0.027	0.8	1 U
	04/03/16	T/Dis	0.10 U	6.4	26	0.038	0.011 T	1.2	0.43	0.21	0.030	0.7	1 U
	07/10/16	T/Dis	0.027 T	10.7	30	0.040	0.02 U	1.6	0.48	0.13	0.012 T	0.8	1 U
	10/09/16	T/Dis	0.05 U	3.1	17	0.032	0.009 JT	1.3	0.34	0.25	0.035	0.9	1 U
	01/23/17	T/Dis	0.023 T	5.9	25	0.046	0.020 U	1.2	0.50	0.33	0.020	1.0	1 U
	04/09/17	T/Dis	0.035 T	8.3	27	0.041	0.009 T	1.3 J	0.58	0.30	0.020	1.3	1 U
	07/27/17	T/Dis	0.50 U	8.0	24	0.50 U	0.25 U	1.5	0.45 T	0.57	0.10 U	2.0	0.45 T
	10/15/17	T/Dis	0.50 U	6.4	23	0.50 U	0.25 U	1.7 B	0.45 T, B	0.76 B	0.10 U	2.2	1 B1
	01/29/18	T/Dis	1.0 U	8.6	30	0.50 U	0.25 U	1.7	0.6 T	0.68	0.10 U	2.2	1 U
	04/03/18	T/Dis	1.0 U	10	35	0.50 U	0.25 B1	1.8	0.64 T	0.78	0.10 U	2.3	0.32 T
	07/19/18	T/Dis	0.029 T	8.7	30	0.036	0.008 T	1.5	0.59	0.21 J	0.014 T	0.66	0.30 T
	10/14/18	T/Dis	0.041 T	6.0	24.7	0.037	0.015 JT	1.55	0.46	0.23 J	0.044 J	0.79 J	1.00 U
	01/15/19	T/Dis	0.026 T	6.5	27.6	0.043	0.02 B1	1.43	0.59	0.22	0.031 J	0.76	0.30 T
	04/02/19	T/Dis	0.05 U	10.1	33.5	0.040	0.02 U	1.81	0.70	0.2	0.020 T	1.03	0.30 T
	07/09/19	T/Dis	0.05 U	7.7	28.4	0.033	0.02 U	1.29	0.50	0.14	0.016 T	0.67	0.20 T
	10/27/19	T/Dis	0.05 U	5.2	23.4	0.032	0.02 U	1.23	0.42	0.15	0.021	0.56	1 U
	01/20/20	T/Dis	0.05 U	7.0	29.4	0.042	0.02 U	1.48	0.57	0.29	0.020	0.69	0.30 T
	04/13/20	T/Dis	0.05 U	6.9	25.8	0.038	0.02 U	1.47	0.53	0.16	0.010 JT	0.61	0.20 T
	07/12/20	T/Dis	0.05 U	6.5	26	0.039	0.02 U	1.3	0.56	0.19	0.020 J	0.53	0.20 T
	10/14/20	T/Dis	0.03 T	5.1	23	0.039	0.02 U	4.59 J	0.47	0.19	0.019 T	0.67	0.20 T
	01/18/21	T/Dis	0.05 U	6.0	22.7	0.036	0.02 U	1.21	0.45	0.17 J	0.021	0.62	0.20 T
	04/11/21	T/Dis	0.02 T	8.1	28.7	0.040	0.02 U	1.48	0.67	0.17 JT	0.017 T	0.67	0.30 T
	07/13/21	T/Dis	0.03 T	6.5 J	23.5	0.033	0.02 U	1.25 J	0.46	0.25 J	0.025	0.6 J	0.20 T
	10/25/21	T/Dis	0.05 U	3.9	20.4	0.033	0.02 U	1.21	0.44	0.8	0.019 T	0.66	1 U
	01/17/22	T/Dis	0.05 U	5.9	23.1	0.040	0.009 T	1.39	0.45	0.21	0.036	0.84	0.20 T
	04/06/22	T/Dis	0.02 U	7.5	26.4	0.044	0.008 U	2.19	0.54	0.26	0.030 J	1.23	0.20 T
	07/17/22	T/Dis	0.05 U	7.7	22.2	0.039	0.02 U	1.28	0.41	0.17	0.017 T	0.56	1 U
	10/09/22	T/Dis	0.05 U	6.8	19.6	0.032	0.011 JT	2.52	0.43	0.24	0.047 J	1.21	0.20 T
	01/23/23	T/Dis	0.02 T	5.1	18.5	0.035	0.02 U	0.86	0.28	0.07 JT	0.013 T	0.53	1 U
	04/03/23	T/Dis	0.02 T	7.8	24.9	0.041	0.02 U	1.87	0.53	0.16	0.026	0.77	1 U
	07/23/23	T/Dis	0.03 T	9.6	26.4	0.038	0.02 U	1.65 J	0.48	0.19	0.020 T	0.69	0 T
	10/29/23	T/Dis	0.05 U	4.4	16.8	0.044	0.02 U	1.48 J	0.28	0.15	0.020 U	0.52	0 T
	count		120	116	119	120	119	119	120	120	118	120	110
	max		50 U	13	59	5 U	5 U	7	10 U	17	4 U	20 U	5 U
	min		0.006 T	3.1	12	0.031	0.005 T	0.8 T	0.3	0.07 T	0.004 T	0.5	0.2 T
	non-detects		94	28	0	77	104	69	74	72	81	74	95
	average		29.0	6.8	33.2	2.9	2.6	3.5	5.9	6.0	1.3	12.1	3.3
	sample stdev		24.2	2.0	11.0	2.4	2.2	1.7	4.7	4.8	1.0	9.3	2.2
	variance		587.1	3.9	122.0	6.0	5.0	3.1	22.0	23.5	1.0	86.9	4.6
	coeff. of variation		1.2	3.4	3.0	1.2	1.1	2.0	1.3	1.2	1.3	1.3	1.5
	standard error		2.2	0.2	1.0	0.2	0.2	0.2	0.4	0.4	0.1	0.9	0.2

Cowlitz County Tennant Way Landfill
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Site	Date	Silver 50	Thallium 2	Vanadium	Zinc 5000 (2ndary)	Geochemical Metals						
						Calcium	Iron 300 (2ndary)	Magnesium	Manganese 50 (2ndary)	Potassium	Sodium	
MW-14B	01/26/12	2 U	5 U	9.2	2 U	46,600	47,100	20,800	3,920	2,070	16,800	
	04/05/12	1.3 T	5 U	11	2 U	52,500	47,800	22,300	4,220	1,920	17,000	
	07/11/12	2 U	0.7 T	11	2 U	52,400	44,500	21,000	4,530	1,880	17,900	
	10/24/12	2 U	5 U	14	2 U	56,200	55,000	22,100	4,450	2,030	18,600	
	01/04/13	2 U	5.2	11	2 U	59,700	53,100	22,300	4,910	1,980	18,600	
		Total Below					Dissolved Below					
	04/09/13	0.02 U	1.1 T	8.0	0.5 U	68,900	54,900	27,300	5,810	2,200	20,800	
	07/11/13	0.014 T	0.005 T	7.9	0.61	64,400	61,500	24,900	5,760	2,140	20,800	
	10/14/13	0.020 U	0.005 T	6.6	0.40 T	55,800	44,100	22,400	5,040	2,090	19,000	
	01/13/14	0.02 U	0.02 U	6.4	0.40 T	59,100	42,400	23,500	5,260	2,050	18,100	
	04/18/14	0.02 U	0.02 U	6.1	0.30 T	57,200	45,500	22,200	5,500	1,920	18,100	
	07/15/14	0.020 U	0.005 T	6.2	0.5 B1	60,000	49,200	22,600	5,470	1,930	17,800	
	10/19/14	0.005 T	0.02 U	7.5 J	0.40 JT	56,100	45,800	21,600	5,220	1,940	18,800	
	01/13/15	0.004 T	0.02 U	6.6	0.40 T	69,200	50,300	25,000	6,470	1,940	18,700	
	04/08/15	0.02 U	0.02 U	9.5	0.30 T	63,500	74,800	23,500	5,580	2,170	21,400	
	04/08/15	0.02 U	0.02 U	9.7	0.26 T	62,000	73,300	23,000	5,500	2,200	21,100	
	07/12/15	0.009 T	0.02 U	8.0	0.40 T	54,700	55,500	19,400	4,920	1,710	16,900	
	10/26/15	0.02 U	0.02 U	7.1	1.7 J	52,300	45,300	19,900	4,710	1,760	17,400	
	01/25/16	0.005 T	0.02 U	8.2	1.1 J	60,400	47,900	23,100	5,500	1,970	20,000	
	04/03/16	0.02 U	0.02 U	6.9	2.1	49,700	41,500	17,200	5,110	1,760	17,300	
	07/10/16	0.02 U	0.02 U	8.2	0.36 T	43,800	55,700	15,900	3,700	1,860	18,800	
	10/09/16	0.02 U	0.02 U	5.6	0.5 B1	41,800	26,800	14,700	4,720	1,620	14,300	
	01/23/17	0.011 T	0.004 T	5.9	0.6 T	59,600	41,400	20,600	6,040	1,700	17,000	
	04/09/17	0.005 T	0.013 T	6.2	1.7 T	58,900	47,100	19,100	5,660	1,700	16,100	
	07/27/17	0.25 U	1.00 U	8.8	1.0 U	51,000	180	19,000	4,500	1,800	17,000	
	10/15/17	0.25 U	1.00 U	8.5	1.0 U	55,000	310	20,000	5,200	1,700	16,000	
	01/29/18	0.20 U	0.36 U	9.1	1.0 U	72,000	65	24,000	10,000	2,000	21,000	
	04/03/18	0.20 U	0.36 U	9.1	1.0 U	75,000	60	25,000	14,000	1,900	22,000	
	07/19/18	0.02 U	0.013 T	7.8	2.0 B1	58,500	104	20,300	5,290	1,710	18,600	
	10/14/18	0.02 U	0.021 J	7.4	1.8 JT	57,200	1,500	19,700	5,930	1,630	17,900	
	01/15/19	0.02 U	0.049 J	7.7	2.0 U	59,300	2,580	20,000	5,710	1,780	18,400	
	04/02/19	0.02 U	0.024	8.2	2.0 U	58,000	193	21,500	4,300	2,010	20,900	
	07/09/19	0.02 U	0.019 T	7.1	2.0 U	52,200	1,020	19,100	4,440	1,930	17,300	
10/27/19	0.02 U	0.038	6.3	2.0 U	47,300	15,500	18,000	4,500	1,700	16,600		
01/20/20	0.02 U	0.018 T	7.5	2.0 U	57,500	709	20,800	5,520	1,840	19,000		
04/13/20	0.02 U	0.009 T	7.2	2.0 U	46,000	1,800	18,100	4,230	1,710	18,200		
07/12/20	0.02 U	0.02 U	7.4	2.0 U	48,700	3,730	19,500	4,330	1,740	18,800		
10/14/20	0.02 U	0.02 U	7.1	0.6 T	47,700	4,600	16,100	4,640	1,500	14,300		
01/18/21	0.02 U	0.02 U	6.5	0.8 T	45,200	1,960	15,700	4,840	1,640	17,000		
04/11/21	0.02 U	0.01 T	8.1	2.0 U	52,400	82	20,000	4,460	1,980	19,600		
07/13/21	0.02 U	0.02 U	7.0 J	1.0 JT	49,500	4,330	16,400	4,610	1,570	17,000		
10/25/21	0.02 U	0.02 U	5.8	2.0 U	50,700	1,580 J	16,100	5,720	1,430	15,000		
01/17/22	0.02 U	0.012 T	6.6	1.1 T	48,800	2,210	15,800	5,440	1,600	17,100		
04/06/22	0.01 T	0.012 T	8.1	0.6 T	49,200	2,070	17,000	3,450	1,800	17,700		
07/17/22	0.02 U	0.009 T	6.7	2.0 U	39,400	6,020 J	15,100	3,490	1,660	15,200		
10/09/22	0.02 U	0.086 J	7.1	0.8 T	40,300	7,870	13,500	3,420	1,540	15,700		
01/23/23	0.02 U	0.02 U	5.5	2.3 J	37,400	4,160	12,100	3,950	1,470	14,600		
04/03/23	0.02 U	0.014 T	7.3	0.9 T	49,300	3,370 J	16,500	4,780	1,670	16,600		
07/23/23	0.02 U	0.01 T	7.7	0.5 T	43,500	3,770 J	15,200	3,600	1,880	17,700		
10/29/23	0.02 U	0.02 U	6.1	0.5 T	34,700	4,530	12,600	3,300	1,470	14,400		
	count	120	112	119	113	114	115	114	115	111	116	
	max	10 U	5 U	30	29	88,400	81,400	29,700	14,000	3,300	25,000	
	min	0.004 T	0.004 T	5.5	0.3 T	34,700	60	12,100	3,300	1,430	13,200	
	non-detects	111	95	61	57	0	0	0	0	7	0	
	average	5.8	3.0	9.5	8.0	58,493.9	45,450.5	20,816.7	5,403.7	2,184	18,839.7	
	sample stdev	4.8	2.4	3.1	7.3	10,756.2	25,795.8	3,668.9	1,405.3	436	2,327.7	
	variance	23.4	5.8	9.9	53.3	115,696,688	665,421,559	13,460,693	1,974,730	189,710	5,418,414	
	coeff. of variation	1.2	1.2	3.0	1.1	5	2	6	4	5	8	
	standard error	0.4	0.2	0.3	0.7	1,007	2,405	344	131	41	216	

Cowlitz County Tennant Way Landfill
Metals Groundwater Quality Data and Statistics (ug/l)

Site	Date	MCL>	Antimony 6	Arsenic 0.05	Barium 1000	Beryllium 4	Cadmium 5	Chromium 50 (total)	Cobalt	Copper 1000 (2ndary)	Lead 15	Nickel 100	Selenium 10
MW-15	01/26/12	Total	10 U	3.1 T	22	0.2 U	0.5 U	2 U	1 U	0.8 T	2 U	2 U	5 U
	04/05/12	Total	4.3 T	4.6 T	19	0.2 U	0.5 U	2.0	1 U	2 U	2 U	2 U	4 U
	07/11/12	Total	10 U	2.0 T	20	0.2 U	0.5 U	0.7 T	0.4 T	1.6 T	2 U	20 U	5 U
	10/24/12	Total	10 U	2.2 T	19	0.2 U	0.5 U	2.1	0.7 T	3.7	2 U	7.8	5 U
	01/04/13	Total	10 U	2.5 T	21	0.2 U	0.5 U	2 U	1 U	2 U	2 U	11	5 U
Total Below													
	04/09/13	T/Dis	0.028 T	3.9 T	21	0.019 T	0.030	0.7	0.8	1.2	2 U	1.8	5 U
	07/11/13	T/Dis	0.05 U	1.2	17	0.020	0.074	0.8	1.3	5.7	0.006 T	3.1	0.30 T
	10/14/13	T/Dis	0.036	1.5	19	0.017 T	0.040	0.5	1.3	2.0	0.011 T	2.4	0.30 T
	01/13/14	T/Dis	0.048 T	3.3	21	0.025	0.022	0.7	0.7	1.2	0.02 U	2.1 J	1 U
	04/18/14	T/Dis	0.05 UB1	2.3	20	0.018 T	0.051	0.7	1.2	1.8	0.02 U	2.4	0.30 T
	07/15/14	T/Dis	0.040 T	1.9	17	0.027	0.062	0.6	1.1	5.8	0.003 T	2.5	1 U
	10/19/14	T/Dis	0.051	2.1	19	0.022	0.058	0.7 J	1.3 J	2.5 J	0.007 JT	2.9	1 U
	01/13/15	T/Dis	0.042 T	3.0	20	0.018 T	0.022	1.5 J	0.6	1.2	0.029	1.8	0.30 T
	04/08/15	T/Dis	0.020 T	2.9	16	0.022	0.045	0.8	1.0	3.3 J	0.02 U	2.2	1 U
	07/12/15	T/Dis	0.045 T	2.9	20	0.027	0.048	0.9	1.0	3.7	0.02 U	2.2	1 U
	10/26/15	T/Dis	0.029 T	2.7	26	0.036	0.042	1.0	1.0 J	1.4	0.02 J	2.0	1 U
	01/25/16	T/Dis	0.050 T	2.9	18	0.025	0.013 T	0.8	0.6	0.8	0.02 U	1.3	1 U
	04/03/16	T/Dis	0.10 U	2.0	15	0.022	0.039	0.6	1.4	1.8	0.02 T	1.9	1 U
	07/10/16	T/Dis	0.038 T	1.7	17	0.026	0.067	0.7	2.0	3.1	0.01 T	2.5	1 U
	10/09/16	T/Dis	0.02 T	2.0	19	0.023	0.044	0.8	1.1	1.9	0.02 B1	1.6	1 U
	01/23/17	T/Dis	0.043 T	2.8	18	0.028	0.024	0.7	0.7	1.6	0.02 B1	1.9	1 U
	04/09/17	T/Dis	0.041 T	2.6	18	0.020	0.018 T	0.8 J	0.7	1.2	0.02 B1	2.0	1 U
	07/27/17	T/Dis	0.50 U	2.1	17	0.50 U	0.038 T	0.9	2.7	2.5	0.10 U	3.5	0.55 T
	10/15/17	T/Dis	0.50 U	2.1	15	0.50 U	0.25 B1	0.9 B	1.8 B	1.8 B	0.10 B1	3.3	1 B1
	01/29/18	T/Dis	1.0 U	2.7	17	0.50 U	0.25 U	0.6	0.57 T	1.4	0.10 U	2.7	1 U
	04/03/18	T/Dis	1.0 U	2.1	15	0.50 U	0.25 B1	0.5	1.6	2.0	0.10 U	2.9	1 U
	07/19/18	T/Dis	0.043 T	1.4	16	0.021	0.078	0.5	2.6	2.6 J	0.01 T	2.1	0.20 T
	10/14/18	T/Dis	0.022 T	2.1	16.8	0.021	0.042 J	0.4	1.2	1.4 J	0.05 J	1.3 J	1 U
	01/15/19	T/Dis	0.025 T	2.0	16.2	0.021	0.028 J	0.4	0.8	1.3	0.02 B1	1.2	1 U
	04/02/19	T/Dis	0.027 T	2.3	15.8	0.023	0.063	0.5	1.3	1.3	0.05	1.4	1 U
	07/09/19	T/Dis	0.043 T	2.6	16.7	0.024	0.042	0.6	1.4	1.6	0.02	1.5	1 U
	10/27/19	T/Dis	0.031 T	2.3	22.6	0.021	0.04	0.6	1.4	1.6	0.02	1.6	1 U
	01/20/20	T/Dis	0.034 T	4.0	23.1	0.023	0.018 T	0.7	0.8	1.1	0.02 U	1.2	1 U
	04/13/20	T/Dis	0.026 T	2.3	19.4	0.023	0.025	0.6	1.3	1.3	0.02 J	1.3	1 U
	07/12/20	T/Dis	0.036 T	1.8	20.3	0.026	0.026	0.6	1.7	1.0	0.01 T	1.2	1 U
	10/14/20	T/Dis	0.043 T	3.7	26.5	0.032	0.019 T	0.8 J	0.9	1.3	0.01 T	1.2	1 U
	01/18/21	T/Dis	0.027 T	3.6	21.0	0.028	0.021	1.0	0.7	1.4 J	0.02 B1	1.4	1 U
	04/11/21	T/Dis	0.039 T	2.2	16.9	0.025	0.029	0.7	1.3	2.3 J	0.01 T	1.5	1 U
	07/13/21	T/Dis	0.044 T	2.3 J	17.4	0.027	0.043	0.6 J	1.8	1.6 J	0.02	1.6 J	1 U
	10/25/21	T/Dis	0.032 T	3.2	25.8	0.037	0.053	1.0	1.0	3.0	0.15	1.6	1 U
	01/17/22	T/Dis	0.033 T	3.9	20.5	0.031	0.025	0.7	0.6	2.2	0.01 T	1.3	1 U
	04/06/22	T/Dis	0.032 T	3.9	20.0	0.028	0.02 JT	0.9	0.7	1.7	0.01 JT	1.1	1 U
	07/17/22	T/Dis	0.025 T	2.1	16.3	0.019 T	0.02	0.6	1.9	1.4	0.01 T	1.4	1 U
	10/09/22	T/Dis	0.027 T	2.5	17.2	0.024	0.027 J	0.8	1.4	1.5	0.03 J	1.4	1 U
	01/23/23	T/Dis	0.032 T	2.9	16.8	0.031	0.016 T	0.7	0.8	1.6 J	0.02 U	1.2	1 U
	04/03/23	T/Dis	0.039 T	3.1	17.2	0.029	0.029	0.9	1.0	2.2	0.01 T	1.4	1 U
	07/23/23	T/Dis	0.043 T	2.8	16.4	0.028	0.022	0.7 J	1.9	1.7	0.01 T	1.5	1 U
	10/29/23	T/Dis	0.031 T	4.0	22.9	0.034	0.024	1.3	1.3	1.5	0.02 U	1.4	1 U
	count		119	114	119	119	118	118	119	119	117	119	110
	max		50 U	5 U	52	5 U	5 U	8.9	10 U	24	4 U	20 U	5 U
	min		0.02 T	1.2	6	0.02 T	0.01	0.4	0.4 T	0.8 T	0.003 T	0.7 T	0.2 T
	non-detects		81	68	0	79	77	69	71	55	88	73	111
	average		29.2	3.9	24.5	2.9	2.6	3.3	6.2	6.9	1.3	12.5	3.4
	sample stdev		24.2	1.3	11.5	2.4	2.2	2.1	4.4	4.6	1.0	8.9	2.0
	variance		585.0	1.7	132.6	6.0	5.0	4.5	19.3	21.5	1.0	79.5	4.0
	coeff. of variation		1.2	3.1	2.1	1.2	1.2	2	1.4	1.5	1.3	1.4	1.7
	standard error		2.2	0.1	1.1	0.2	0.2	0.2	0.4	0.4	0.1	0.8	0.2

Cowlitz County Tennant Way Landfill
Metals Groundwater Quality Data and Statistics (ug/l)

Site	Date	Silver 50	Thallium 2	Vanadium	Zinc 5000 (2ndary)	Geochemical Metals						
						Calcium	Iron 300 (2ndary)	Magnesium	Manganese 50 (2ndary)	Potassium	Sodium	
MW-15	01/26/12	2 U	5 U	6.3	2 U	77,700	8,180	15,300	4,090	2,650	12,300	
	04/05/12	2 U	5 U	7.4	2 U	73,400	6,930	13,300	3,560	2,270	11,200	
	07/11/12	2 U	5 U	7.1	2 U	69,300	5,610	13,800	3,270	2,610	13,200	
	10/24/12	2 U	5 U	21	0.70 T	63,000	3,690	13,400	11,700	2,500	11,900	
	01/04/13	2 U	5 UB1	7.1	2 U	72,800	6,200	13,500	3,930	2,380	11,700	
		Total Below					Dissolved Below					
	04/09/13	0.02 U	2.5 U	4.6	0.56 J	78,700	6,910	15,900	6,350	2,730	12,900	
	07/11/13	0.006 T	0.022	3.1	0.55	63,500	3,400	14,500	15,900	2,400	11,800	
	10/14/13	0.02 U	0.015 T	3.2	0.50	73,000	3,920	16,300	10,100	2,950	13,600	
	01/13/14	0.02 U	0.02 U	4.9	0.40 T	80,800	6,930	13,900	4,020	2,740	11,800	
	04/18/14	0.02 U	0.013 T	3.7	0.90	73,200	5,020	15,000	11,800	2,740	12,600	
	07/15/14	0.02 U	0.014 T	3.9	0.5 B1	72,700	4,250	15,700	14,900	2,190	12,200	
	10/19/14	0.02 U	0.012 T	3.9 J	0.80 J	67,500	3,750	16,100	15,400	2,420	13,000	
	01/13/15	0.02 U	0.006 T	4.9	0.50 T	77,100	7,120	13,700	7,630	2,750	12,500	
	04/08/15	0.02 U	0.011 T	5.3	0.36 T	60,300	4,080	13,000	11,900	2,210	11,500	
	07/12/15	0.02 U	0.008 T	6.1	0.36 T	70,100	4,880	13,100	9,100	2,240	12,600	
	10/26/15	0.02 U	0.006 T	5.9	1.5 J	80,400	7,050	15,100	9,100	2,830	14,400	
	01/25/16	0.02 U	0.02 U	5.5	0.88 J	65,500	5,500	12,200	4,650	2,550	12,300	
	04/03/16	0.02 U	0.02 U	4.3	1.6	48,400	2,740	13,300	11,300	2,090	11,800	
	07/10/16	0.02 U	0.020 T	4.5	0.81	41,200	1,550	12,100	10,800	1,800	9,520	
	10/09/16	0.02 U	0.011 T	5.5	0.73	61,600	4,100	13,500	7,040	2,800	12,300	
	01/23/17	0.01 T	0.008 T	5.1	1.0 T	65,300	5,050	12,300	4,870	2,370	11,200	
	04/09/17	0.01 T	0.006 T	3.7	0.50 T	63,300	5,700	9,820	3,350	2,330	8,910	
	07/27/17	0.25 U	1.0 U	5.4	0.73 T	51,000	2,800	14,000	11,000	2,800	13,000	
	10/15/17	0.25 U	1.0 U	5.0	0.72 T	59,000	3,100	14,000	8,800	2,300	11,000	
	01/29/18	0.20 U	0.36 U	3.8	1.0 U	75,000	84	12,000	3,400	2,600	11,000	
	04/03/18	0.20 U	0.36 U	3.3	0.73 T	58,000	370	14,000	12,000	2,200	11,000	
	07/19/18	0.02 U	0.038	3.7	2.0 B1	50,100	1,500	15,400	15,400	2,300	10,500	
	10/14/18	0.02 U	0.031 J	3.2	1.5 JT	66,300	663	13,600	6,630	2,670	11,000	
	01/15/19	0.01 T	0.033 J	3.7	2.0 U	61,800	197	11,800	5,100	2,410	10,500	
	04/02/19	0.02 U	0.089	3.6	0.8 T	60,700	715	13,500	9,240	2,080	10,700	
	07/09/19	0.02 U	0.046	4.6	0.9 T	64,500	3,530	13,900	10,200	2,100	10,700	
	10/27/19	0.02 U	0.048	3.7	0.6 T	80,100	2,420	17,500	7,870	3,090	12,600	
	01/20/20	0.02 U	0.012 T	4.9	2.0 U	78,200	347	14,300	4,010	3,050	10,800	
	04/13/20	0.02 U	0.025	4.4	2.0 U	73,800	664	15,600	7,120	2,280	11,100	
	07/12/20	0.02 U	0.012 T	4.4	2.0 U	71,200	1,220	17,600	10,300	2,470	11,600	
	10/14/20	0.02 U	0.009 T	6.2	0.6 T	84,700	348	14,600	4,940	3,140	10,800	
	01/18/21	0.02 U	0.013 T	5.8	0.5 T	68,000	1,280	12,700	3,940	3,000	11,100	
	04/11/21	0.02 U	0.016 T	4.8	0.8 T	62,000	3,180	14,000	6,310	2,580	11,300	
	07/13/21	0.02 U	0.04	4.8 J	2.0 U	68,100	1,720	15,400	9,210	2,480	11,300	
	10/25/21	0.02 U	0.021	6.3	1.5 T	83,300	891 J	16,000	5,970	3,580	10,800	
	01/17/22	0.02 U	0.014 T	5.6	2.0 U	63,000	1,560	11,800	3,820	3,420	10,200	
	04/06/22	0.02 U	0.015 T	5.7	0.5 U	67,200	1,240	12,300	4,290	3,440	9,950	
	07/17/22	0.02 U	0.023	3.1	0.8 T	58,700	306 J	15,100	5,890	2,670	10,100	
	10/09/22	0.02 U	0.065 J	5.0	0.7 T	67,500	2,950	13,700	6,400	2,680	10,100	
	01/23/23	0.02 U	0.014 T	5.9	7.6 J	56,500	4,280	11,000	4,210	2,870	8,400	
	04/03/23	0.02 U	0.021	5.7	1.1 T	56,500	2,870 J	11,000	4,810	3,200	8,860	
	07/23/23	0.02 U	0.019 T	5.3	0.6 T	56,300	4,190 J	13,100	6,950	2,880	10,400	
	10/29/23	0.02 U	0.02 U	5.4	0.6 T	71,900	170	15,100	5,980	3,870	11,000	
										14		
count		119	111	118	118	115	115	112	115	111	115	
max		10 U	5 U	39	36	95,200	12,400	27,000	20,500	3,870	20,800	
min		0.005 T	0.006 T	3.1	0.4 T	24,200	83	6,910	3,120	1,800 U	8,400	
non-detects		115	84	67	47	0	1	0	0	15	0	
average		5.9	3.1	8.5	9.6	65,164.3	3,486.8	16,318.7	9,361.0	2,484	13,675.1	
sample stdev		4.8	2.4	4.4	9.4	16,132.1	2,250.3	4,517.9	4,014.2	394	2,563.4	
variance		23.2	5.7	19.2	88.9	260,243,367	5,063,640	20,411,441	16,113,746	155,399	6,570,908	
coeff. of variation		1.2	1.3	1.9	1.0	4	2	4	2	6	5	
standard error		0.4	0.2	0.4	0.9	1,504	210	427	374	37	239	

Cowlitz County Tennant Way Landfill
Metals Groundwater Quality Data and Statistics (ug/l)

Site	Date	MCL>	Antimony 6	Arsenic 0.05	Barium 1000	Beryllium 4	Cadmium 5	Chromium 50 (total)	Cobalt	Copper 1000 (2ndary)	Lead 15	Nickel 100	Selenium 10
Total Below													
MW-16B	04/03/18	T/Dis	1.0 U	2.4	28	0.50 U	0.25 T	0.3 T	0.6 T	0.9	0.10 U	2.3	1 U
	04/03/18	T/Dis	1.0 U	2.2	28	0.50 U	0.25 T	0.3 T	0.6 T	0.8	0.10 U	2.4	1 U
	07/19/18	T/Dis	0.1 U	0.87	29	0.012 T	0.02 U	0.2	0.5	0.3 J	0.02	0.47	1 U
	07/19/18	T/Dis	0.1 U	0.84	29	0.015 T	0.02 U	0.2	0.5	0.3 J	0.01 T	0.46	1 U
	10/14/18	T/Dis	0.1 U	0.81	29	0.017 T	0.022 J	0.3	0.5	1.0 J	0.20 J	0.8 J	1 U
	10/14/18	T/Dis	0.05	0.82	29	0.015	0.02	0.3	0.5	0.07	0.07	0.57	1
	01/15/19	T/Dis	0.1 U	0.99	29	0.020	0.02 U	0.2	0.5	0.3	0.03 J	0.38	1 U
	01/15/19	T/Dis	0.1 U	0.92	29	0.019 T	0.02 U	0.2	0.5	0.3	0.03 J	0.41	1 U
	04/02/19	T/Dis	0.1 U	0.84	30	0.017 T	0.02 U	0.7	0.5	0.3	0.04	0.5	1 U
	04/02/19	T/Dis	0.1 U	0.94	29	0.017 T	0.02 U	0.5	0.5	0.3	0.03	0.44	1 U
	07/09/19	T/Dis	0.02 T	0.87	31	0.019 T	0.02 U	0.5	0.5	0.4	0.05	0.56	1 U
	07/09/19	T/Dis	0.1 U	0.88	31	0.020 T	0.02 U	0.5	0.6	0.4	0.05	0.54	1 U
	10/27/19	T/Dis	0.1 U	0.99	31	0.014 T	0.02 U	0.4	0.6	0.3	0.05	0.49	1 U
	10/27/19	T/Dis	0.1 U	1.01	31	0.017 T	0.02 U	0.4	0.6	0.3	0.05	0.45	1 U
	01/20/20	T/Dis	0.03 T	1.12	34	0.024	0.02 U	0.4	0.7	0.4	0.05	0.5	1 U
	01/20/20	T/Dis	0.02 T	1.09	33	0.022	0.02 U	0.3	0.7	0.3	0.03	0.44	1 U
	04/13/20	T/Dis	0.05 U	1.01	33	0.020 T	0.02 U	0.3	0.6	0.3	0.06 J	0.44	1 U
	04/13/20	T/Dis	0.05 U	0.99	33	0.018 T	0.02 U	0.3	0.7	0.3	0.03 J	0.45	1 U
	07/12/20	T/Dis	0.02 T	0.89	36	0.023	0.02 U	0.4	0.7	0.4	0.06 J	0.31	1 U
	07/12/20	T/Dis	0.05 U	0.90	37	0.022	0.02 U	0.4	0.7	0.3	0.05 J	0.31	1 U
	10/14/20	T/Dis	0.04 T	0.99	38	0.020	0.02 U	0.4 J	0.6	0.3	0.05	0.47	1 U
	10/14/20	T/Dis	0.02 T	0.99	38	0.022	0.02 U	1.0 J	0.7	0.3	0.05	0.48	1 U
	01/18/21	T/Dis	0.05 U	1.14	34	0.022	0.02 U	0.4	0.7	0.4 J	0.05	0.51	1 U
	01/18/21	T/Dis	0.05 U	1.11	35	0.026	0.02 U	0.5	0.8	0.5 J	0.08	0.62	1 U
	04/11/21	T/Dis	0.03 T	1.04	38	0.020	0.02 U	0.4	0.7	0.4 J	0.04	0.47	1 U
	04/11/21	T/Dis	0.05 U	1.08	36	0.020 T	0.02 U	0.4	0.7	0.3 J	0.04	0.47	1 U
	07/13/21	T/Dis	0.02 T	0.5 JT	29	0.020	0.02 U	0.2 JT	0.5	0.1 J	0.03	0.33 J	1 U
	07/13/21	T/Dis	0.05 U	1.01 J	36	0.016 T	0.02 U	0.3 J	0.6	0.4 J	0.06	0.48 J	1 U
	10/25/21	T/Dis	0.05 U	1.01	34	0.022	0.02 U	0.3	0.7	0.2	0.04	0.49	1 U
	10/25/21	T/Dis	0.02 T	1.03	36	0.021	0.008 T	0.4	0.7	0.2	0.03	0.49	1 U
	01/17/22	T/Dis	0.05 U	1.19	37	0.022	0.02 U	0.3	0.7	0.3	0.03	0.51	1 U
	01/17/22	T/Dis	0.05 U	1.10	37	0.023	0.02 U	0.4	0.7	0.3	0.03	0.53	1 U
	04/06/22	T/Dis	0.03 T	1.10	36	0.021	0.008 U	0.4	0.6	0.3	0.04 J	0.5	0.2 U
	04/06/22	T/Dis	0.02 T	1.09	36	0.021	0.008 U	0.4	0.6	0.4	0.05 J	0.5	0.2 U
	07/17/22	T/Dis	0.05 U	1.09	35	0.024	0.02 U	0.5	0.6	0.5	0.07	0.6	1 U
	07/17/22	T/Dis	0.05 U	1.12	35	0.025	0.02 U	0.5	0.7	0.5	0.07	0.59	1 U
	10/09/22	T/Dis	0.05 U	1.03	34	0.015 T	0.02 U	0.5	0.6	0.4	0.04 J	0.54	1 U
	10/09/22	T/Dis	0.05 U	1.10	34	0.014 T	0.02 U	0.5	0.6	0.3	0.04 J	0.53	1 U
	01/23/23	T/Dis	0.02 T	1.09	36	0.033	0.02 U	0.4	0.6	0.2 J	0.05	0.58	1 U
	01/23/23	T/Dis	0.05 U	1.11	36	0.029	0.02 U	0.3	0.6	0.3 J	0.06	0.59	1 U
	04/03/23	T/Dis	0.04 T	1.16	36	0.035	0.02 U	0.5	0.6	0.3	0.05	0.51	1 U
	04/03/23	T/Dis	0.04 T	1.20	35	0.027	0.02 U	0.4	0.6	0.3	0.05	0.49	1 U
	07/23/23	T/Dis	0.02 T	1.11	36	0.023	0.02 U	1.1 J	0.6	0.2	0.04	0.59	1 U
	07/23/23	T/Dis	0.05 U	1.07	36	0.023	0.02 U	0.7 J	0.6	0.3	0.04	0.66	1 U
	10/29/23	T/Dis	0.02 T	1.18	37	0.026	0.02 U	0.6 J	0.6	0.2	0.04 J	0.55	1 U
	10/29/23	T/Dis	0.02 T	1.17	37	0.025	0.02 U	0.3 J	0.6	0.2	0.02 J	0.44	1 U
count			155	150	150	155	154	154	155	155	151	155	147
max			50 U	6	51	5 U	6	5 U	10 U	11	2 U	20 U	5 U
min			0.01 T	0.3 T	14	0.01 T	0.01 U	0.1 T	0.3	0.1 J	0.01 T	0.3	0.2 T
non-detects			120	71	0	80	140	74	75	71	82	75	144
average			22.5	2.8	32.8	2.2	2.0	2.5	4.7	4.7	1.0	9.4	2.8
sample stdev			24.5	2.0	7.0	2.5	2.2	2.2	4.7	4.7	1.0	9.5	2.0
variance			600.1	3.9	49.2	6.0	5.0	5.0	21.9	22.3	1.0	90.8	4.1
coeff. of variation			0.9	1.4	4.7	0.9	0.9	1.1	1.0	1.0	1.0	1.0	1.4
standard error			2.0	0.2	0.6	0.2	0.2	0.2	0.4	0.4	0.1	0.8	0.2

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J = The associated value is a qualified estimate.

B1 = blank corrected to MRL

MCL = WAC173-200 groundwater quality criteria or drinking water criteria. 2ndary is secondary standard.

Metals: dissolved prior to April 2011, total April 2011 to Jan 2013, geochemical metals dissolved after Jan 2013.

**Cowlitz County Tennant Way Landfill
Metals Groundwater Quality Data and Statistics (ug/l)**

Site	Date	Silver 50	Thallium 2	Vanadium	Zinc 5000 (2ndary)	Geochemical Metals					
						Calcium	Iron 300 (2ndary)	Magnesium	Manganese 50 (2ndary)	Potassium	Sodium
MW-16B	Total Below					Dissolved Below					
	04/03/18	0.20 U	0.36 U	1.2	1.0 U	85,000	1,200	43,000	5,500	2,400	26,000
	04/03/18	0.20 U	0.36 U	1.2	1.0 U	81,000	3,300	41,000	5,700	2,300	24,000
	07/19/18	0.02 U	0.02 U	1.3	2.0 B1	75,100	4,930	39,400	4,360	2,220	21,600
	07/19/18	0.02 U	0.02 U	1.3	2.0 B1	75,500	5,480	38,500	4,380	2,130	21,000
	10/14/18	0.02 U	0.02 U	1.4	4.3 J	79,100	8,730	39,300	4,480	2,340	22,300
	10/14/18	0.02	0.02	1.2	1.6	79,200	9,930	39,600	4,480	2,370	22,800
	01/15/19	0.02 U	0.02 U	1.3	2.0 U	79,300	9,070	38,400	4,580	2,500	23,400
	01/15/19	0.02 U	0.02 U	1.2	2.0 U	79,300	6,180	37,600	4,500	2,440	22,600
	04/02/19	0.02 U	0.018 T	1.4	0.7 T	81,600	11 T	40,100	4,950	2,400	22,800
	04/02/19	0.02 U	0.02 U	1.4	0.6 T	81,300	21 U	39,700	4,920	2,410	22,700
	07/09/19	0.02 U	0.02 U	1.5	1.3 T	82,400	21 U	40,300	4,950	2,430	22,200
	07/09/19	0.02 U	0.02 U	1.5	0.6 T	82,300	13 T	40,400	4,930	2,470	22,300
	10/27/19	0.02 U	0.038	1.5	0.9 T	85,300	29,100 U	40,500	5,380	2,680	24,000
	10/27/19	0.02 U	0.027	1.4	0.6 T	83,800	31,500	40,000	5,300	2,690	23,800
	01/20/20	0.02 U	0.02 U	1.7	0.5 T	84,900	9,790	41,400	5,430	2,960	23,800
	01/20/20	0.02 U	0.02 U	1.4	2.0 U	84,200	9,530	40,400	5,440	2,870	23,400
	04/13/20	0.02 U	0.02 U	1.5	2.0 U	73,600	13,100	37,600	5,060	2,680	21,900
	04/13/20	0.02 U	0.02 U	1.4	0.5 T	79,400	13,700	39,000	5,610	2,700	22,700
	07/12/20	0.02 U	0.02 U	1.6	2.0 U	84,600	14,900	42,500	5,740	2,940	24,100
	07/12/20	0.02 U	0.02 U	1.7	2.0 U	85,000	15,700	42,500	5,780	3,040	23,600
	10/14/20	0.02 U	0.02 U	1.6	0.6 T	88,300	10,300	37,500	5,640	2,780	21,400
	10/14/20	0.02 U	0.02 U	1.6	1.0 T	89,000	11,300	38,100	5,680	2,880	21,700
	01/18/21	0.02 U	0.02 U	1.6	2.0 B1	78,800	12,300	36,100	5,800	3,060	22,500
	01/18/21	0.02 U	0.02 U	1.8	2.0 B1	78,700	11,100	36,100	5,810	3,060	22,500
	04/11/21	0.02 U	0.02 U	1.6	0.7 T	79,200	21 U	37,800	5,770	3,340	23,300
	04/11/21	0.02 U	0.02 U	1.5	0.8 T	80,000	21 U	37,900	5,790	3,320	23,300
	07/13/21	0.02 U	0.02 U	0.49 J	2.0 U	83,200	10,500	35,200	5,730	3,010	21,200
	07/13/21	0.02 U	0.02 U	1.6 J	2.3 J	83,200	9,150	35,200	5,700	3,020	21,200
	10/25/21	0.02 U	0.011 T	1.3	2.0 U	83,300	4,530 J	36,500	5,820	3,420	20,900
	10/25/21	0.02 U	0.02 U	1.2	0.5 T	83,200	5,040 J	36,700	5,860	3,440	21,100
	01/17/22	0.02 U	0.02 U	1.5	0.5 T	81,900	7,290	37,300	5,750	3,610	23,200
	01/17/22	0.02 U	0.02 U	1.6	0.5 T	82,500	7,140	38,100	5,840	3,730	23,700
	04/06/22	0.01 U	0.009 U	1.5	0.5 U	79,800	8 U	37,200	5,670	3,730	22,400
	04/06/22	0.01 U	0.009 U	1.5	0.5 U	80,000	8 U	36,900	5,660	3,640	22,100
	07/17/22	0.02 U	0.02 U	1.8	0.8 T	71,800	4,340 J	36,000	5,320	3,500	20,700
	07/17/22	0.02 U	0.02 U	1.9	0.8 T	71,900	6,460 J	36,000	5,330	3,500	20,700
	10/09/22	0.02 U	0.02 U	1.4	0.6 T	80,100	14,000	35,000	5,590	3,400	21,600
	10/09/22	0.02 U	0.02 U	1.5	0.7 T	80,000	13,200	35,200	5,580	3,430	21,800
	01/23/23	0.02 U	0.02 U	1.8	2.2 J	77,400	8,410	35,800	5,340	3,580	21,500
	01/23/23	0.02 U	0.02 U	1.9	3.2 J	76,900	10,800	35,700	5,300	3,600	21,400
	04/03/23	0.02 U	0.016 T	1.6	0.9 T	77,000	4,470 J	36,100	5,390	3,600	21,600
	04/03/23	0.02 U	0.014 T	1.5	0.7 T	76,600	2,860 J	36,200	5,400	3,640	21,700
	07/23/23	0.02 U	0.02 U	1.5	2.0 U	75,700	477 J	35,500	5,440	3,610	21,500
	07/23/23	0.02 U	0.02 U	1.6	0.7 T	76,000	1,780 J	35,500	5,470	3,600	21,700
	10/29/23	0.02 U	0.02 U	1.5	0.5 T	76,000	21 U	38,700	5,090	3,800	22,300
10/29/23	0.02 U	0.02 U	1.5	0.6 T	77,000	21 U	38,600	4,680	3,800	22,200	
	count	155	147	154	152	149	149	149	150	145	139
	max	10 U	5 U	28	31	89,000	51,600	44,400	5,860	3,800	26,000
	min	0.01 U	0.00 U	0.5	0.3 T	45,500	8	24,300	2,750	2,000 L	14,100
	non-detects	147	142	68	62	0	9	0	0	15	0
	average	4.5	2.4	5.7	6.6	66,917.4	30,883.4	34,934.2	4,690.9	2,552.6	19,909.4
	sample stdev	4.9	2.5	5.0	7.3	12,442.7	18,537.1	5,314.9	686.6	490.0	2,884.5
	variance	23.9	6.0	24.8	53.6	154,820,639	343,623,141	28,248,618	471,391	240,143	8,320,419
	coeff. of variation	0.9	1.0	1.2	0.9	5	2	7	7	5	7
	standard error	0.4	0.2	0.4	0.6	1,019	1,519	435	56	41	245

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MCL = WAC173-200 groundwater quality criteria or drinking water criteria. 2ndary is secondary standard.

Metals: dissolved prior to April 2011, total April 2011 to Jan 2013, geochemical metals dissolved after Jan 2013.

Cowlitz County Tennant Way Landfill
Groundwater Quality Data
Volatile Organic Compounds ug/l (ppb)

Sample Location	Date Sampled	Chloro-methane	Vinyl chloride	Bromo-methane	Chloro-ethane	Trichloro-fluoro-methane	Acetone	1,1-Di-chloro-ethene	Carbon Disulfide	Methylene Chloride	trans-1,2-Di-chloro-ethene	1,1-Di-chloro-ethane	2-Butanone	cis-1,2-Di-chloro-ethene
MW-3B	01/23/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/09/17	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/27/17	0.5 UB1	0.5 U	1 U	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 UB1	0.5 U	20 U	0.5 U
	10/16/17	0.5 UB1	0.5 U	1 U	0.5 U	0.5 U	20 UB1	0.5 U	50 U	0.5 U	0.5 UB1	0.5 U	20 U	0.5 U
	01/29/18	0.5 U	0.5 U	1 U	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/03/18	0.5 U	0.5 U	1 U	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/19/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/14/18	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/15/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/09/19	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/27/19	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/20/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/12/20	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/18/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/11/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3.7 T	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/12/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/25/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/06/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5.2 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/09/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/29/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
MW-5B	01/23/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/09/17	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/27/17	0.5 UB1	0.5 U	1 U	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 UB1	0.5 U	20 U	0.5 U
	10/16/17	0.5 UB1	0.5 U	1 UB1	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 UB1	0.5 U	20 U	0.5 U
	01/29/18	0.5 U	0.5 U	1 U	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/03/18	0.5 U	0.5 U	1 U	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/19/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/14/18	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	21 B	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/15/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/09/19	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/27/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/20/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3.9 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/12/20	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/18/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/11/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/12/21	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/25/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	8.9 T	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/06/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3.9 T	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/09/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/23/23	0.5 U	0.5 U	0.5 U	0.5	0.5 U	5.9 JT	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/29/23	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U

Cowlitz County Tennant Way Landfill
Groundwater Quality Data
Volatile Organic Compounds ug/l (ppb)

Sample Location	Date Sampled	Chloroform	Bromo-chloro-methane	1,1,1-Tri-chloro-ethane	Carbon Tetra-chloride	1,2-Di-chloro-ethane	Benzene	Tri-chloro-ethene	1,2-Di-chloro-propane	Bromo-dichloro-methane	Dibromo-methane	2-Hexanone	cis-1,3-Dichloro-propene	Toluene	trans-1,3-Dichloro-propene
MW-3B	01/23/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/09/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	07/27/17	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/16/17	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/29/18	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/03/18	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/19/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/14/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.1 T	0.5 U
	01/15/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	07/09/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	10/27/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	1.1	0.5 U
	01/20/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/12/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.1 T	0.5 U
	01/18/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/11/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/12/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/25/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/06/22	4.0 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.1 T	0.5 U
	07/17/22	4.0 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/09/22	4.0 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/23/23	4.0 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/03/23	4.0 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/23/23	4.0 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/29/23	4.0 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
MW-5B	01/23/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/09/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	07/27/17	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/16/17	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/29/18	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/03/18	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/19/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/14/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.7	0.5 U
	01/15/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	07/09/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	10/27/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	01/20/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/12/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.1 T	0.5 U
	01/18/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/11/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/12/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/25/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.2 T	0.5 U
	04/06/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/09/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/29/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U

Cowlitz County Tennant Way Landfill
Groundwater Quality Data
Volatile Organic Compounds ug/l (ppb)

[illegible]

Cowlitz County Tennant Way Landfill
Groundwater Quality Data
Volatile Organic Compounds ug/l (ppb)

Sample Location	Date Sampled	1,2-Di- chloro- benzene	1,2-Di- bromo-3- chloro- propane	trans+cis- Acrylo- nitrile	1,4-Di- chloro- 2-butene	Iodo- methane	Vinyl Acetate
MW-3B	01/23/17	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/09/17	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/27/17	0.5 U	5 U			50 U	
	10/16/17	0.5 U	5 U			50 U	
	01/29/18	0.5 U	5 U	2 U		50 U	
	04/03/18	0.5 U	5 U			50 U	
	07/19/18	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/14/18	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/15/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/02/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/09/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/27/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/20/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/13/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/12/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/14/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/18/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/11/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/12/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/25/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/17/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/06/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/17/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/09/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/23/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/03/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/23/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/29/23	0.5 U	2 U	5 U	10 U	5 U	5 U
MW-5B	01/23/17	0.5 U	2 U	5 U	10 U	5 B1	5 U
	04/09/17	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/27/17	0.5 U	5 U			50 U	
	10/16/17	0.5 U	5 U			50 U	
	01/29/18	0.5 U	5 U	2 U		50 U	
	04/03/18	0.5 U	5 U			50 U	
	07/19/18	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/14/18	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/15/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/02/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/09/19	0.5 U	2 U	5 U	10 U	5 UB1	5 U
	10/27/19	0.5 U	2 U	5 U	10 U	5 UB1	5 U
	01/20/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/13/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/12/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/14/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/18/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/11/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/12/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/25/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/17/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/06/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/17/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/09/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/23/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/03/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/23/23	0.5	2 U	5 U	10 U	5 U	5 U
	10/29/23	0.5 U	2 U	5 U	10 U	5 U	5 U

Cowlitz County Tennant Way Landfill
Groundwater Quality Data
Volatile Organic Compounds ug/l (ppb)

Sample Location	Date Sampled	Chloro- methane	Vinyl chloride	Bromo- methane	Chloro- ethane	Trichloro- fluoro- methane	Acetone	1,1-Di- chloro- ethene	Carbon Disulfide	Methylene Chloride	trans- 1,2-Di- chloro- ethene	1,1-Di- chloro- ethane	2-Butanone	cis- 1,2-Di- chloro- ethene
MW-7B	01/23/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/09/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/27/17	0.5 UB1	0.5 U	1 U	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 UB1	0.5 U	20 U	0.5 U
	10/16/17	0.5 UB1	0.5 U	1 U	0.5 U	0.5 U	20 UB1	0.5 U	50 U	0.5 U	0.5 UB1	0.5 U	20 U	0.5 U
	01/29/18	0.5 U	0.5 U	1 U	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/03/18	0.5 U	0.5 U	1 U	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/19/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/14/18	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/15/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/09/19	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	10/27/19	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	01/20/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/12/20	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	01/18/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/11/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/12/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	10/25/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	01/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/06/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	10/09/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	01/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	10/29/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
MW-8B	01/23/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/09/17	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/27/17	0.5 UB1	0.5 U	1 U	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/16/17	0.5 UB1	0.5 U	1 U	0.5 U	0.5 U	20 UB1	0.5 U	50 U	0.5 U	0.5 UB1	0.5 U	20 U	0.5 U
	01/29/18	0.5 U	0.5 U	1 U	0.5 U	0.5 U	20 UB1	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/03/18	0.5 U	0.5 U	1 U	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/19/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4.1 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/14/18	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/15/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/09/19	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	10/27/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	01/20/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/12/20	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	01/18/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/11/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3.6 T	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/12/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	10/25/21	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	01/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3.4 T	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/06/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5.6 T	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	10/09/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	01/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	10/29/23	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U

Cowlitz County Tennant Way Landfill
Groundwater Quality Data
Volatile Organic Compounds ug/l (ppb)

Sample	Date		Bromo-	1,1,1-Tri-	Carbon	1,2-Di-		Tri-	1,2-Di-	Bromo-	Dibromo-		cis-1,3-		trans-1,3-
Location	Sampled	Chloroform	chloro- methane	chloro- ethane	Tetra- chloride	chloro- ethane	Benzene	chloro- ethene	chloro- propane	dichloro- methane	methane	2-Hexanone	Dichloro- propene	Toluene	Dichloro- propene
MW-7B	01/23/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/09/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	07/27/17	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/16/17	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/29/18	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/03/18	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/19/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/14/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.1 T	0.5 U
	01/15/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	07/09/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	10/27/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	01/20/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/12/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.3 T	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.1 T	0.5 U
	01/18/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/11/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/12/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/25/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
01/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
04/06/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.1 T	0.5 U	
07/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.3 T	0.5 U	
10/09/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
01/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
07/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
10/29/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
MW-8B	01/23/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/09/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	07/27/17	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/16/17	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/29/18	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/03/18	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/19/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.1 T	0.5 U
	10/14/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.1 T	0.5 U
	01/15/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	07/09/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	10/27/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	01/20/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/12/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.1 T	0.5 U
	01/18/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/11/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/12/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/25/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
01/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
04/06/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.1 T	0.5 U	
07/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
10/09/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
01/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
07/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
10/29/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	

Cowlitz County Tennant Way Landfill
Groundwater Quality Data
Volatile Organic Compounds ug/l (ppb)

								1,1,1,2-				1,1,2,2-			
Sample	Date	1,1,2-Tri-		Tetra-	Dibromo-	1,2-Di-		Tetra-	Ethyl-	Total		Bromo-	Tetra-	1,2,3-	1,4-Di-
Location	Sampled	chloro-ethane	4-Methyl-2-pentanone	chloro-ethene	chloro-methane	bromo-ethane	Chloro-benzene	chloro-ethane	benzene	Xylenes	Styrene	form	chloro-ethane	Trichloro-propane	chloro-benzene
MW-7B	01/23/17	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/09/17	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/27/17	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	10/16/17	0.5 U	20 U	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	01/29/18	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	04/03/18	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	07/19/18	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/14/18	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/15/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/02/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/09/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/27/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/20/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/13/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/12/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/14/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/18/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/11/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/12/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/25/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-8B	01/23/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/06/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/17/22	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	10/09/22	0.5 U	20 U	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	01/23/23	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	04/03/23	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	07/23/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/29/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/23/17	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/09/17	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/27/17	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	10/16/17	0.5 U	20 U	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	01/29/18	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	04/03/18	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	07/19/18	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/14/18	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/15/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/02/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/09/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/27/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
01/20/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
04/13/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
07/12/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
10/14/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
01/18/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
04/11/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
07/12/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
10/25/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
01/17/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
04/06/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
07/17/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
10/09/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
01/23/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
04/03/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
07/23/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
10/29/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Cowlitz County Tennant Way Landfill
Groundwater Quality Data
Volatile Organic Compounds ug/l (ppb)

Sample Location	Date Sampled	1,2-Di- chloro- benzene	1,2-Di- bromo-3- chloro- propane	Acrylo- nitrile	trans+cis- 1,4-Di- chloro- 2-butene	Iodo- methane	Vinyl Acetate
MW-7B	01/23/17	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/09/17	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/27/17	0.5 U	5 U			50 U	
	10/16/17	0.5 U	5 U			50 U	
	01/29/18	0.5 U	5 U	2 U		50 U	
	04/03/18	0.5 U	5 U			50 U	
	07/19/18	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/14/18	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/15/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/02/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/09/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/27/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/20/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/13/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/12/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/14/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/18/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/11/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/12/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/25/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/17/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/06/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/17/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/09/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/23/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/03/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/23/23	0.1 T	2 U	5 U	10 U	5 U	5 U
	10/29/23	0.5 U	2 U	5 U	10 U	5 U	5 U
MW-8B	01/23/17	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/09/17	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/27/17	0.5 U	5 U			50 U	
	10/16/17	0.5 U	5 U			50 U	
	01/29/18	0.5 U	5 U	2 U		50 U	
	04/03/18	0.5 U	5 U			50 U	
	07/19/18	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/14/18	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/15/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/02/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/09/19	0.5 U	2 U	5 U	10 U	5 UB1	5 U
	10/27/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/20/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/13/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/12/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/14/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/18/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/11/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/12/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/25/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/17/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/06/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/17/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/09/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/23/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/03/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/23/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/29/23	0.5 U	2 U	5 U	10 U	5 U	5 U

Cowlitz County Tennant Way Landfill
Groundwater Quality Data
Volatile Organic Compounds ug/l (ppb)

Sample Location	Date Sampled	Chloro- methane	Vinyl chloride	Bromo- methane	Chloro- ethane	Trichloro- fluoro- methane	Acetone	1,1-Di- chloro- ethene	Carbon Disulfide	Methylene Chloride	trans- 1,2-Di- chloro- ethene	1,1-Di- chloro- ethane	2-Butanone	cis- 1,2-Di- chloro- ethene
MW-9B	01/23/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/09/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/27/17	0.5 UB1	0.5 U	1 U	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/16/17	0.5 UB1	0.5 U	1 UB1	0.5 U	0.5 U	20 UB1	0.5 U	50 U	0.5 U	0.5 UB1	0.5 U	20 U	0.5 U
	01/29/18	0.5 U	0.5 U	1 U	0.5 U	0.5 U	20 UB1	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/03/18	0.5 U	0.5 U	1 U	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/19/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4.8 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/14/18	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/15/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4.4 T	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/09/19	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	10/27/19	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	01/20/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/12/20	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	01/18/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/11/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	8.8 T	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/12/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	10/25/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	01/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4.0 T	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/06/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	6.2 T	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	10/09/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	01/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	10/29/23	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
MW-10B	01/23/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/09/17	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/27/17	0.5 U	0.5 U	1 U	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/16/17	0.5 UB1	0.5 U	1 U	0.5 U	0.5 U	20 UB1	0.5 U	50 U	0.5 U	0.5 UB1	0.5 U	20 U	0.5 U
	01/29/18	0.5 U	0.5 U	1 U	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/03/18	0.5 U	0.5 U	1 U	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/19/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5.0 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/14/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/15/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/09/19	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	10/27/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	01/20/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/12/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	01/18/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/11/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/12/21	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	10/25/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	01/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/06/22	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	7.5 T	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	10/09/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	01/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	10/29/23	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U

Cowlitz County Tennant Way Landfill
Groundwater Quality Data
Volatile Organic Compounds ug/l (ppb)

Sample	Date		Bromo-	1,1,1-Tri-	Carbon	1,2-Di-		Tri-	1,2-Di-	Bromo-	Dibromo-		cis-1,3-		trans-1,3-
Location	Sampled	Chloroform	chloro- methane	chloro- ethane	Tetra- chloride	chloro- ethane	Benzene	chloro- ethene	chloro- propane	dichloro- methane	methane	2-Hexanone	Dichloro- propene	Toluene	Dichloro- propene
MW-9B	01/23/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/09/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	07/27/17	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/16/17	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/29/18	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/03/18	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/19/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/14/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.1 T	0.5 U
	01/15/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	07/09/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	10/27/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	01/20/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/12/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.1 T	0.5 U
	01/18/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/11/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/12/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/25/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
01/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
04/06/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.1 T	0.5 U	
07/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
10/09/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
01/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
07/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
10/29/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
MW-10B	01/23/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/09/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	07/27/17	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/16/17	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/29/18	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/03/18	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/19/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/14/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.2 T	0.5 U
	01/15/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	07/09/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	10/27/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	01/20/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/12/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.1 T	0.5 U
	01/18/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/11/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/12/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/25/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
01/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
04/06/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.1 T	0.5 U	
07/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
10/09/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
01/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
07/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	
10/29/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	

Cowlitz County Tennant Way Landfill
Groundwater Quality Data
Volatile Organic Compounds ug/l (ppb)

								1,1,1,2-				1,1,2,2-			
Sample	Date	1,1,2-Tri-		Tetra-	Dibromo-	1,2-Di-		Tetra-	Ethyl-	Total		Bromo-	Tetra-	1,2,3-	1,4-Di-
Location	Sampled	chloro-ethane	4-Methyl-2-pentanone	chloro-ethene	chloro-methane	bromo-ethane	Chloro-benzene	chloro-ethane	benzene	Xylenes	Styrene	form	chloro-ethane	Trichloro-propane	chloro-benzene
MW-9B	01/23/17	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/09/17	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/27/17	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	10/16/17	0.5 U	20 U	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	01/29/18	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	04/03/18	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	07/19/18	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/14/18	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/15/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/02/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/09/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/27/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/20/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/13/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/12/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/14/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/18/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/11/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/12/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/25/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-10B	01/23/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/06/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/17/22	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	10/16/17	0.5 U	20 U	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	01/29/18	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	04/03/18	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	07/19/18	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/14/18	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/15/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/02/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/09/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/27/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/20/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/13/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/12/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/14/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/18/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/11/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/12/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/25/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
04/06/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
07/17/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
10/09/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
01/23/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
04/03/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
07/23/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
10/29/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	

Cowlitz County Tennant Way Landfill
Groundwater Quality Data
Volatile Organic Compounds ug/l (ppb)

Sample Location	Date Sampled	1,2-Di- chloro- benzene	1,2-Di- bromo-3- chloro- propane	Acrylo- nitrile	trans+cis- 1,4-Di- chloro- 2-butene	Iodo- methane	Vinyl Acetate
MW-9B	01/23/17	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/09/17	0.5 U	2 U	5 U	10 U	4 T	5 U
	07/27/17	0.5 U	5 U			50 U	
	10/16/17	0.5 U	5 U			50 U	
	01/29/18	0.5 U	5 U	2 U		50 U	
	04/03/18	0.5 U	5 U			50 U	
	07/19/18	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/14/18	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/15/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/02/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/09/19	0.5 U	2 U	5 U	10 U	5 UB1	5 U
	10/27/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/20/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/13/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/12/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/14/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/18/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/11/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/12/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/25/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/17/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/06/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/17/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/09/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/23/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/03/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/23/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/29/23	0.5 U	2 U	5 U	10 U	5 U	5 U
MW-10B	01/23/17	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/09/17	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/27/17	0.5 U	5 U			50 U	
	10/16/17	0.5 U	5 U			50 U	
	01/29/18	0.5 U	5 U	2 U		50 U	
	04/03/18	0.5 U	5 U			50 U	
	07/19/18	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/14/18	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/15/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/02/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/09/19	0.5 U	2 U	5 U	10 U	5 UB1	5 U
	10/27/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/20/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/13/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/12/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/14/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/18/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/11/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/12/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/25/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/17/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/06/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/17/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/09/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/23/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/03/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/23/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/29/23	0.5 U	2 U	5 U	10 U	5 U	5 U

Cowlitz County Tennant Way Landfill
Groundwater Quality Data
Volatile Organic Compounds ug/l (ppb)

Sample Location	Date Sampled	Chloro-methane	Vinyl chloride	Bromo-methane	Chloro-ethane	Trichloro-fluoro-methane	Acetone	1,1-Di-chloro-ethene	Carbon Disulfide	Methylene Chloride	trans-1,2-Di-chloro-ethene	1,1-Di-chloro-ethane	2-Butanone	cis-1,2-Di-chloro-ethene
MW-11B	01/23/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/09/17	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/27/17	0.5 UB1	0.5 U	1 U	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/16/17	0.5 UB1	0.5 U	1 U	0.5 U	0.5 U	20 UB1	0.5 U	50 U	0.5 U	0.5 UB1	0.5 U	20 U	0.5 U
	01/29/18	0.5 U	0.5 U	1 U	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/03/18	0.5 U	0.5 U	1 U	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/19/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4.6 T	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/14/18	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	28 B	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/15/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/09/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/27/19	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/20/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/12/20	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/18/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/11/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/12/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/25/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/06/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/09/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/29/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
MW-12B	01/23/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	04/09/17	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	4.7 T	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/27/17	0.5 UB1	0.5 U	1 U	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/16/17	0.5 UB1	0.5 U	1 UB1	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 UB1	0.5 U	20 U	0.5 U
	01/29/18	0.5 U	0.5 U	1 UB1	0.5 U	0.5 U	20 UB1	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/03/18	0.5 U	0.5 U	1 UB1	0.5 U	0.5 U	20 U	0.5 UB1	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/19/18	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	10 T	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/14/18	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/15/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/09/19	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/27/19	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/20/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/12/20	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/18/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/11/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3.8 T	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/12/21	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/25/21	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5.9 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/06/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4.5 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/09/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/23/23	0.5 U	0.5 U	0.5 U	0.5 T	0.5 U	5.1 JT	0.5 U	0.5 U	0.3 T	0.5 U	0.5 U	20 U	0.5 U
	10/29/23	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U

Cowlitz County Tennant Way Landfill
Groundwater Quality Data
Volatile Organic Compounds ug/l (ppb)

[illegible]

Cowlitz County Tennant Way Landfill
Groundwater Quality Data
Volatile Organic Compounds ug/l (ppb)

		1,1,1,2-Tetrachloroethane										1,1,2,2-Tetrachloroethane			
Sample Location	Date Sampled	1,1,2-Tri-chloro-ethane	4-Methyl-2-pentanone	Tetra-chloro-ethene	Dibromo-chloro-methane	1,2-Di-bromo-ethane	Chloro-benzene	Tetra-chloro-ethane	Ethyl-benzene	Total Xylenes	Styrene	Bromo-form	Tetra-chloro-ethane	1,2,3-Trichloro-propane	1,4-Di-chloro-benzene
MW-11B	01/23/17	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/09/17	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/27/17	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	10/16/17	0.5 U	20 U	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	01/29/18	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	04/03/18	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	07/19/18	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/14/18	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/15/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/02/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/09/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/27/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/20/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/13/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/12/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/14/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/18/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/11/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/12/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/25/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/17/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/06/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/17/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/09/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/23/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/03/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
07/23/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
10/29/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
MW-12B	01/23/17	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/09/17	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/27/17	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	10/16/17	0.5 U	20 U	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	01/29/18	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	04/03/18	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	07/19/18	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/14/18	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/15/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/02/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/09/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/27/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/20/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/13/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/12/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/14/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/18/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/11/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/12/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/25/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/17/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/06/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/17/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/09/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/23/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/03/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
07/23/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
10/29/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	

Cowlitz County Tennant Way Landfill
Groundwater Quality Data
Volatile Organic Compounds ug/l (ppb)

Sample Location	Date Sampled	1,2-Di- chloro- benzene	1,2-Di- bromo-3- chloro- propane	Acrylo- nitrile	trans+cis- 1,4-Di- chloro- 2-butene	Iodo- methane	Vinyl Acetate
MW-11B	01/23/17	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/09/17	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/27/17	0.5 U	5 U			50 U	
	10/16/17	0.5 U	5 U			50 U	
	01/29/18	0.5 U	5 U	2 U		50 U	
	04/03/18	0.5 U	5 U			50 U	
	07/19/18	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/14/18	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/15/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/02/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/09/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/27/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/20/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/13/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/12/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/14/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/18/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/11/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/12/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/25/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/17/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/06/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/17/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/09/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/23/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/03/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/23/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/29/23	0.5 U	2 U	5 U	10 U	5 U	5 U
MW-12B	01/23/17	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/09/17	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/27/17	0.5 U	5 U			50 U	
	10/16/17	0.5 U	5 U			50 U	
	01/29/18	0.5 U	5 U	2 U		50 U	
	04/03/18	0.5 U	5 U			50 U	
	07/19/18	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/14/18	0.5 U	2 U	5 U	10 U	5 UB1	5 U
	01/15/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/02/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/09/19	0.5 U	2 U	5 U	10 U	5 UB1	5 U
	10/27/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/20/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/13/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/12/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/14/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/18/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/11/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/12/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/25/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/17/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/06/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/17/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/09/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/23/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/03/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/23/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/29/23	0.5 U	2 U	5 U	10 U	5 U	5 U

Cowlitz County Tennant Way Landfill
Groundwater Quality Data
Volatile Organic Compounds ug/l (ppb)

Sample Location	Date Sampled	Chloro-methane	Vinyl chloride	Bromo-methane	Chloro-ethane	Trichloro-fluoro-methane	Acetone	1,1-Di-chloro-ethene	Carbon Disulfide	Methylene Chloride	trans-1,2-Di-chloro-ethene	1,1-Di-chloro-ethane	2-Butanone	cis-1,2-Di-chloro-ethene
MW-13	01/23/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4.4 T	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.2 T
	04/09/17	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	4.7 T	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/27/17	0.5 UB1	0.5 U	1 U	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.1 T
	10/16/17	0.5 UB1	0.5 U	1 U	0.5 U	0.5 U	20 UB1	0.5 U	50 U	0.5 U	0.5 UB1	0.5 U	20 U	0.4 T
	01/29/18	0.5 U	0.5 U	1 U	0.5 U	0.5 U	20 UB1	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/03/18	0.5 U	0.2 T	1 U	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.2 T
	07/19/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.2 T
	10/14/18	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.2 T
	01/15/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.1 T
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/09/19	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.2 T
	10/27/19	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 UB1	0.5 U	0.5 U	20 U	0.1 T
	01/20/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.1 T
	04/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.1 T
	07/12/20	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/18/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.1 T
	04/11/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4.4 T	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.1 T
	07/12/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.1 T
	10/25/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5.6 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/06/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	7.7 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/09/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/23/23	0.5 U	0.5 U	0.5 U	0.3 T	0.5 U	5.6 JT	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/29/23	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
MW-14B	04/09/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4.8 T	0.5 U	0.5 UB1	2 U	0.5 U	0.5 U	20 U	0.5 U
	07/27/17	0.5 UB1	0.5 U	1 U	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/16/17	0.5 UB1	0.5 U	1 UB1	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 UB1	0.5 U	20 U	0.5 U
	01/29/18	0.5 U	0.5 U	1 U	0.5 U	0.5 U	20 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/03/18	0.5 U	0.5 U	1 U	0.5 U	0.5 U	20 U	0.5 UB1	50 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/19/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/14/18	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/15/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/09/19	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/27/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/20/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/12/20	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/18/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/11/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4.2 T	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/12/21	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.1 T	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/25/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3.4 T	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/06/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4.8 T	0.5 U	0.1 T	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/09/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3.5 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5.9 JT	0.5 U	0.5 U	0.3 T	0.5 U	0.5 U	20 U	0.5 U
	10/29/23	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U

Cowlitz County Tennant Way Landfill
Groundwater Quality Data
Volatile Organic Compounds ug/l (ppb)

Sample Location	Date Sampled	Chloroform	Bromo-chloro-methane	1,1,1-Tri-chloro-ethane	Carbon Tetra-chloride	1,2-Di-chloro-ethane	Benzene	Tri-chloro-ethene	1,2-Di-chloro-propane	Bromo-dichloro-methane	Dibromo-methane	2-Hexanone	cis-1,3-Dichloro-propene	Toluene	trans-1,3-Dichloro-propene
MW-13	01/23/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/09/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	07/27/17	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/16/17	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.2 T	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/29/18	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/03/18	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/19/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/14/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.1 T	0.5 U
	01/15/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	07/09/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	10/27/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	01/20/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/12/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/18/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/11/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/12/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/25/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/06/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.3 T	0.5 U
	07/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/09/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/29/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
MW-14B	04/09/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	07/27/17	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/16/17	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/29/18	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/03/18	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/19/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/14/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.2 T	0.5 U
	01/15/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	07/09/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	10/27/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	01/20/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/12/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/18/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/11/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/12/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/25/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.2 T	0.5 U
	04/06/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/09/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/29/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U

Cowlitz County Tennant Way Landfill
Groundwater Quality Data
Volatile Organic Compounds ug/l (ppb)

Sample Location	Date Sampled	1,1,1,2,2-Pentachloroethane										1,1,2,2-Tetrachloroethane		1,2,3-Trichloropropane	1,4-Dichlorobenzene
		1,1,2-Tri-chloro-ethane	4-Methyl-2-pentanone	Tetra-chloro-ethene	Dibromo-chloro-methane	1,2-Di-bromo-ethane	Chloro-benzene	Tetra-chloro-ethane	Ethyl-benzene	Total Xylenes	Styrene	Bromo-form	Tetra-chloro-ethane		
MW-13	01/23/17	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/09/17	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/27/17	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	10/16/17	0.5 U	20 U	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	01/29/18	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	04/03/18	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	07/19/18	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/14/18	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/15/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/02/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/09/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/27/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/20/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/13/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/12/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/14/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/18/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/11/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/12/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/25/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
01/17/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
04/06/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
07/17/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
10/09/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
01/23/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
04/03/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
07/23/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
10/29/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
MW-14B	04/09/17	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/27/17	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	10/16/17	0.5 U	20 U	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	01/29/18	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	04/03/18	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U
	07/19/18	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/14/18	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/15/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/02/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/09/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/27/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/20/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/13/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/12/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/14/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/18/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/11/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/12/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/25/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/17/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
04/06/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
07/17/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
10/09/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
01/23/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
04/03/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
07/23/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
10/29/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	

Cowlitz County Tennant Way Landfill
Groundwater Quality Data
Volatile Organic Compounds ug/l (ppb)

Sample Location	Date Sampled	1,2-Di- chloro- benzene	1,2-Di- bromo-3- chloro- propane	Acrylo- nitrile	trans+cis- 1,4-Di- chloro- 2-butene	Iodo- methane	Vinyl Acetate
MW-13	01/23/17	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/09/17	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/27/17	0.5 U	5 U			50 U	
	10/16/17	0.5 U	5 U			50 U	
	01/29/18	0.5 U	5 U	2 U		50 U	
	04/03/18	0.5 U	5 U			50 U	
	07/19/18	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/14/18	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/15/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/02/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/09/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/27/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/20/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/13/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/12/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/14/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/18/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/11/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/12/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/25/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/17/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/06/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/17/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/09/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/23/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/03/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/23/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/29/23	0.5 U	2 U	5 U	10 U	5 U	5 U
MW-14B	04/09/17	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/27/17	0.5 U	5 U			50 U	
	10/16/17	0.5 U	5 U			50 U	
	01/29/18	0.5 U	5 U	2 U		50 U	
	04/03/18	0.5 U	5 U			50 U	
	07/19/18	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/14/18	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/15/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/02/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/09/19	0.5 U	2 U	5 U	10 U	5 UB1	5 U
	10/27/19	0.5 U	2 U	5 U	10 U	5 UB1	5 U
	01/20/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/13/20	0.5 U	2 U	5 U	10 U	5 UB1	5 U
	07/12/20	0.5 U	2 U	5 U	10 U	5 UB1	5 U
	10/14/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/18/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/11/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/12/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/25/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/17/22	0.5 U	2 U	5 U	10 U	5 UB1	5 U
	04/06/22	0.5 U	2 U	5 U	10 U	5 UB1	5 U
	07/17/22	0.5 U	2 U	5 U	10 U	5 UB1	5 U
	10/09/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/23/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/03/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/23/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/29/23	0.5 U	2 U	5 U	10 U	5 U	5 U

Cowlitz County Tennant Way Landfill
Groundwater Quality Data
Volatile Organic Compounds ug/l (ppb)

Sample Location	Date Sampled	Chloro- methane	Vinyl chloride	Bromo- methane	Chloro- ethane	Trichloro- fluoro- methane	Acetone	1,1-Di- chloro- ethene	Carbon Disulfide	Methylene Chloride	trans- 1,2-Di- chloro- ethene	1,1-Di- chloro- ethane	2-Butanone	cis- 1,2-Di- chloro- ethene
MW-15	01/15/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/09/19	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/27/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/20/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3.9 T	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/13/20	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/12/20	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/18/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/11/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5.9 T	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/12/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/25/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	8.9 T	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/06/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	6.7 T	0.5 U	0.1 T	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/17/22	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/09/22	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4.0 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/23/23	0.5 U	0.5 U	0.5 U	0.3 T	0.5 U	5.3 T	0.5 U	0.5 U	0.3 T	0.5 U	0.5 U	20 U	0.5 U
	10/29/23	0.5 UB1	0.5 U	0.5 U	0.3 T	0.5 U	3.3 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
MW-16B	01/20/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/20/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/13/20	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/12/20	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/12/20	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/18/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/18/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/11/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/11/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/12/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/12/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/25/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/25/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/06/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/06/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/09/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/09/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	01/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	07/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/29/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U
	10/29/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U

U = Not detected. Method Reporting Limit shown.

T = Detected below reporting limit. Value is an estimate.

J = The associated value is qualified as an estimate.

UB1 = Detected in blank below MRL. MRL shown.

.B = Detected in blank below MRL. Result may be affected

Cowlitz County Tennant Way Landfill
Groundwater Quality Data
Volatile Organic Compounds ug/l (ppb)

Sample Location	Date Sampled	Chloroform	Bromo-chloro-methane	1,1,1-Tri-chloro-ethane	Carbon Tetra-chloride	1,2-Di-chloro-ethane	Benzene	Tri-chloro-ethene	1,2-Di-chloro-propane	Bromo-dichloro-methane	Dibromo-methane	2-Hexanone	cis-1,3-Dichloro-propene	Toluene	trans-1,3-Dichloro-propene
MW-15	01/15/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	07/09/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	10/27/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	01/20/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/12/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/18/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/11/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/12/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/25/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.1 T	0.5 U
	04/06/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.1 T	0.5 U
	07/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/09/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/29/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
MW-16B	01/20/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	01/20/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	04/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	07/12/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 UB1	0.5 U
	07/12/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/18/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/18/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/11/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/11/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/12/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/12/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/25/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/25/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/06/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/06/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.1 T	0.5 U
	07/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/17/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/09/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/09/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	01/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	07/23/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/29/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U
	10/29/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U

U = Not detected. Method Reporting Limit shown.
T = Detected below reporting limit. Value is an estimate.

J = The associated value is qualified as an estimate.
UB1 = Detected in blank below MRL. MRL shown.

B = Detected in blank below MRL. Result may be affected.

Cowlitz County Tennant Way Landfill
Groundwater Quality Data
Volatile Organic Compounds ug/l (ppb)

Sample Location	Date Sampled	1,1,2-Tri-chloro-ethane	4-Methyl-2-pentanone	Tetra-chloro-ethene	Dibromo-chloro-methane	1,2-Di-bromo-ethane	Chloro-benzene	1,1,1,2-Tetra-chloro-ethane	Ethyl-benzene	Total Xylenes	Styrene	Bromo-form	1,1,2-Tetra-chloro-ethane	1,2,3-Trichloro-propane	1,4-Di-chloro-benzene
MW-15	01/15/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/02/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/09/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/27/19	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/20/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/13/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/12/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/14/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/18/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/11/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/12/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/25/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/17/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/06/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/17/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/09/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/23/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/03/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/23/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/29/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-16B	01/20/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 T
	01/20/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 T
	04/13/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 T
	04/13/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 T
	07/12/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 T
	07/12/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 T
	10/14/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 T
	10/14/20	0.5 U	20 U	0.5 U	0.5 U	2 U	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 T
	01/18/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 T
	01/18/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 T
	04/11/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 T
	04/11/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 T
	07/12/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 T
	07/12/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 T
	10/25/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 T
	10/25/21	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 T
	01/17/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 T
	01/17/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 T
	04/06/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 T
	04/06/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 T
	07/17/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 T
	07/17/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 T
	10/09/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 T
	10/09/22	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 T
	01/23/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.4 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 T
	01/23/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.4 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 T
	04/03/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.4 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 T
	04/03/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 T
	07/23/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 T
	07/23/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/29/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.4 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 T
	10/29/23	0.5 U	20 U	0.5 U	0.5 U	2 U	0.5 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 T

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Cowlitz County Tennant Way Landfill
Groundwater Quality Data
Volatile Organic Compounds ug/l (ppb)

Sample Location	Date Sampled	1,2-Di- chloro- benzene	1,2-Di- bromo-3- chloro- propane	Acrylo- nitrile	trans+cis- 1,4-Di- chloro- 2-butene	Iodo- methane	Vinyl Acetate
MW-15	01/15/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/02/19	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/09/19	0.5 U	2 U	5 U	10 U	5 UB1	5 U
	10/27/19	0.5 U	2 U	5 U	10 U	5 UB1	5 U
	01/20/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/13/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/12/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/14/20	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/18/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/11/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/12/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/25/21	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/17/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/06/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/17/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	10/09/22	0.5 U	2 U	5 U	10 U	5 U	5 U
	01/23/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	04/03/23	0.5 U	2 U	5 U	10 U	5 U	5 U
	07/23/23	0.1 T	2 U	5 U	10 U	5 U	5 U
	10/29/23	0.5 U	2 U	5 U	10 U	5 U	5 U
MW-16B	01/20/20	0.4 T	2 U	5 U	10 U	5 U	5 U
	01/20/20	0.4 T	2 U	5 U	10 U	5 U	5 U
	04/13/20	0.3 T	2 U	5 U	10 U	5 U	5 U
	04/13/20	0.3 T	2 U	5 U	10 U	5 U	5 U
	07/12/20	0.3 T	2 U	5 U	10 U	5 U	5 U
	07/12/20	0.3 T	2 U	5 U	10 U	5 U	5 U
	10/14/20	0.3 T	2 U	5 U	10 U	5 U	5 U
	10/14/20	0.4 T	2 U	5 U	10 U	5 U	5 U
	01/18/21	0.4 T	2 U	5 U	10 U	5 U	5 U
	01/18/21	0.5 T	2 U	5 U	10 U	5 U	5 U
	04/11/21	0.3 T	2 U	5 U	10 U	5 U	5 U
	04/11/21	0.3 T	2 U	5 U	10 U	5 U	5 U
	07/12/21	0.3 T	2 U	5 U	10 U	5 U	5 U
	07/12/21	0.3 T	2 U	5 U	10 U	5 U	5 U
	10/25/21	0.3 T	2 U	5 U	10 U	5 U	5 U
	10/25/21	0.4 T	2 U	5 U	10 U	5 U	5 U
	01/17/22	0.4 T	2 U	5 U	10 U	5 U	5 U
	01/17/22	0.3 T	2 U	5 U	10 U	5 U	5 U
	04/06/22	0.3 T	2 U	5 U	10 U	5 U	5 U
	04/06/22	0.3 T	2 U	5 U	10 U	5 U	5 U
	07/17/22	0.3 T	2 U	5 U	10 U	5 U	5 U
	07/17/22	0.3 T	2 U	5 U	10 U	5 U	5 U
	10/09/22	0.3 T	2 U	5 U	10 U	5 U	5 U
	10/09/22	0.3 T	2 U	5 U	10 U	5 U	5 U
	01/23/23	0.4 T	2 U	5 U	10 U	5 U	5 U
	01/23/23	0.4 T	2 U	5 U	10 U	5 U	5 U
	04/03/23	0.4 T	2 U	5 U	10 U	5 U	5 U
	04/03/23	0.3 T	2 U	5 U	10 U	5 U	5 U
	07/23/23	0.3 T	2 U	5 U	10 U	5 U	5 U
	07/23/23	0.3 T	2 U	5 U	10 U	5 U	5 U
	10/29/23	0.3 T	2 U	5 U	10 U	5 U	5 U
	10/29/23	0.3 T	2 U	5 U	10 U	5 U	5 U

U = Not detected. MRL shown.
T = Est. value detected below MRL.

J = The associated value is qualified as an estimate.
UB1 = Detected in blank below MRL. MRL shown.

B = Detected in blank below MRL. Result may be affected.

APPENDIX C

SURFACE WATER AND LEACHATE QUALITY DATA

**Cowlitz County Tennant Way Landfill
Surface Water and Leachate Quality Data**

Inorganics

Location	Date	mg/L									Field Measurements			
		Alkalinity as CaCO3	Bicarbonate	Chloride	Ammonia	Nitrate	Sulfate	TOC	Total Dissolved Solids	Total Suspended Solids	pH	Specific Conduct. (umhos/cm)	Temp. (C)	Dissolved Oxygen (mg/l)
S-2	01/05/11					0.19					7.1	110	3.5	
	04/09/11					0.17					6.6	130	10.9	7.7
	07/21/11					0.55					6.9	170	20.7	
	10/14/11					0.90					6.9	190	15.2	
	01/27/12					0.71					6.4	110	5.6	
	04/06/12					1.27					7.8	108	12.2	
	07/12/12					0.1 U					7.1	160	24.3	
	10/25/12					0.1 U					7.1	105	13.4	
	01/07/13					0.22					5.3	165	5.1	
	04/12/13					0.08 T					7.4	179	13.0	
	07/12/13					0.1 U					8.9	165	22.1	
	10/16/13					0.06 T					7.0	195	12.4	
	01/14/14					0.24					7.1	169	6.8	
	04/21/14					0.18					6.8	174	15.5	
	07/16/14					0.1 U					7.9	182	27.0	
	10/20/14					0.31					6.8	175	16.6	
	01/14/15					0.26					6.6	151	5.9	
	04/08/15					0.17					6.0	180	15.0	
	07/13/15					0.1 U					8.8	156	22.9	
	10/27/15					0.07 T					7.1	175	13.4	
	01/26/16					0.23					6.3	161	7.2	
	04/04/16					0.1 U					7.2	165	15.2	
	07/11/16					0.1 U					7.4	181	20.3	
	10/10/16					0.1 U					7.6	175	15.5	
	01/23/17					0.17					8.4	164	4.0	
	04/09/17					0.08 T					7.0	125	13.0	
	07/27/17					1.30					8.3	162	25.5	
	10/16/17					0.5 UB1					8.0	168	18.3	
	01/29/18					0.29 T					7.4	160	8.1	
	04/03/18					0.5 U					7.5	176	12.4	
	07/20/18					0.1 U					7.8	200	23.8	
	10/15/18					0.07 T					6.9	206	17.2	
	01/15/19					0.09 T					6.6	128	6.9	
	04/02/19					0.06 T					7.2	180	16.4	
	07/09/19					0.55					9.6	197	25.2	
	10/27/19					0.1 U					6.6	196	13.4	
	01/20/20					0.27					6.9	172	7.6	
	04/14/20					0.1 U					7.1	191	13.3	
	07/13/20					0.1 U					8.6	212	15.1	
	10/14/20					0.1 U					6.8	194	19.3	
	01/19/21					0.31					7.0	156	7.6	
	04/12/21					0.07 T					6.6	184	11.7	
	07/13/21					0.1 U					6.8	169	21.7	
	10/26/21					0.1					6.8	181	12.6	
	01/18/22					0.24 J					6.7	165	7.2	
	04/07/22					0.1 U					7.1	176	14.2	
	07/17/22					0.1 U					7.8	146	24.4	
	10/10/22					0.06 T					7.7	205	18.7	
	01/24/23					0.31					6.4	153	6.4	
	04/03/23					0.1 U					6.6	176	11.2	
	07/24/23					0.28					7.0	175	23.2	
	10/29/23					0.24					6.5	189	14.0	

**Cowlitz County Tennant Way Landfill
Surface Water and Leachate Quality Data**

Inorganics

Location	Date	mg/L									Field Measurements			
		Alkalinity as CaCO ₃	Bicarbonate	Chloride	Ammonia	Nitrate	Sulfate	TOC	Total Dissolved Solids	Total Suspended Solids	pH	Specific Conduct. (umhos/cm)	Temp. (C)	Dissolved Oxygen (mg/l)
Runoff Discharge	01/05/11					11.1					6.9	340	4.9	
	04/09/11					5.3					6.1	480	9.0	5.4
	07/21/11					0.70					7.1	560	16.4	
	10/14/11					2.3					7.0	440	14.2	
	01/27/12					10.3					6.8	380	6.1	
	04/06/12					2.1					7.7	144	11.1	
	07/12/12					0.84 J					6.6	560	17.6	
	10/25/12					7.4					7.1	255	12.7	
	01/07/13					6.3					7.0	267	7.1	
	04/12/13					2.7					7.4	412	10.4	
	07/12/13					1.3					7.3	718	15.2	
	10/16/13					4.6					7.2	449	11.9	
	01/14/14					10.5					7.0	357	7.7	
	04/21/14					2.2					6.9	470	12.1	
	07/16/14					3.2					7.3	715	17.2	
	10/20/14					2.5					6.9	599	14.5	
	01/14/15					12.8					6.7	380	6.8	
	04/08/15					4.2					6.2	365	11.5	
	07/13/15					1.4					7.7	555	16.3	
	10/27/15					0.55					6.7	296	11.4	
	01/26/16					3.8					6.3	423	8.2	
	04/04/16					1.0					7.1	321	11.8	
	07/11/16					0.24					7.2	436	16.6	
	10/10/16					2.9					7.4	283	14.8	
	01/23/17					4.5					8.1	231	4.5	
	04/09/17					5.4					6.9	318	12.3	
	07/27/17					0.13 T					7.1	442	18.7	
	10/16/17					1.1					7.7	353	13.7	
	01/29/18					4.8					7.3	291	9.0	
	04/03/18					2.8					7.6	235	9.0	
	07/20/18					0.06 T					6.5	438	15.9	
	10/15/18					0.89					6.8	455	12.7	
	01/15/19					5.6					6.5	245	7.0	
	04/02/19					2.2					6.9	259	10.4	
	07/09/19					0.34					7.0	416	18.1	
	10/27/19					5.7					6.7	271	12.8	
	01/20/20					8.3					6.9	247	7.5	
	04/14/20					1.5					6.8	230	9.6	
	07/13/20					0.20					7.1	357	16.4	
	10/14/20					3.7					6.8	245	16.4	
	01/19/21					6.9					7.1	228	7.1	
	04/12/21					2.2					6.8	210	9.3	
	07/13/21					0.17					6.7	337	17.8	
	10/26/21					9.8 J					6.9	250	12.9	
	01/18/22					5.9 J					6.8	229	7.7	
	04/07/22					2.9					7.4	202	11.0	
	07/17/22					0.14					7.3	314	18.9	
	10/10/22					0.10 T					7.6	331	14.1	
	01/24/23					5.6					6.7	235	8.2	
	04/03/23					4.4					6.8	269	9.7	
	07/24/23					0.04 T					7.1	325	16.6	
	10/29/23					4.0					6.7	296	11.7	

Cowlitz County Tennant Way Landfill
Surface Water and Leachate Quality Data
Inorganics

Location	Date	mg/L									Field Measurements		
		Alkalinity as CaCO3	Bicarbonate	Chloride	Ammonia	Nitrate	Sulfate	TOC	Total Dissolved Solids	Total Suspended Solids	pH	Specific Conduct. (umhos/cm)	Dissolved Oxygen (mg/l)
L-1	01/05/11	352	429	22	12.7	3.4	13	26	413		6.5	800	10.8
	04/09/11	365	445	21	13.3	0.5	6.4	28	404		6.2	830	11.4
	07/21/11	511	623	46	18.1	0.3	11	24	628		6.5	1,010	14.8
	10/14/11	164	200	14	12.8	0.1 U	63	13 J	251		6.4	440	15.5
	01/27/12	381	465	20	12.4	3.1	6.6	22	479		6.5	800	11.2
	04/06/12	379	462	24	15.4	0.4	6.3	30	426		6.0	730	13.6
	07/12/12	502	612	35	16.0	0.1 U	3.1	29	500		6.2	770	13.6
	10/25/12	251	306	99	11.6	9.5	69	22	596		6.9	917	13.6
	01/07/13	336	410	23	12.0	1.4	13	22	402	74	6.5	970	12.0
	04/12/13	397	484	20	15.7	0.1 T	3.5	21	453	80.5	6.7	1,130	12.5
	07/12/13	463	564	32	16.8	0.1 U	1.9	26	518	144	6.7	1,055	15.5
	10/16/13	422	515	21	14.3	0.9	4.9	23	468	103	6.7	1,060	13.5
	01/14/14	348	424	13	10.8	4.6	7.0	20	400	83	6.8	920	12.5
	04/21/14	371	452	21	16.2	0.1	4.9	26	412	72	6.7	920	14.1
	07/16/14	379	462	19	12.0	0.0	6.7	25	407	99	7.6	800	15.0
	10/20/14	1,220	1,487	251	61.0	0.7	40	73	1,460	200	5.9	3,086	15.2
	01/14/15	314	383	16	14.1	5.6	16	16	410	26	6.5	722	10.8
	04/08/15	403	491	19	16.6	0.3	5.2	19	412	90	6.5	861	14.0
	07/13/15	253	308	17	15.0	0.2 T	139	19	455	24	6.3	900	18.5
	10/27/15	242	295	55	22.0	1.7	25	23	341	10	6.6	801	13.6
	01/26/16	193	235	6.2	5.6	1.0	14	12	260	10	6.5	460	10.2
	04/04/16	364	444	18	13.0	0.4 T	3.6	18	393	76	6.6	829	12.5
	07/11/16	291	355	14	10.5	0.3	17	18	354	70	6.6	636	15.7
	10/10/16	64	78	1.9	0.3 T	2.7	10	5.7	130	7.0	7.3	173	15.8
	01/23/17	311	379	12	10.1	0.7	8.7	15	353	60	6.7	698	10.4
	04/09/17	178	217	4.7	5.5	2.1	4.6	12	234	10	7.7	420	12.0
	07/27/17	390	475	22	9.4	0.2 T	11 T	22	440	91	6.4	827	16.7
	10/16/17	100	122	3.3 T	2.2	7.4	17 T	8.5	240	11	7.0	326	13.7
	01/29/18	190	232	7.2 T	8.7	2.2	16 T	11	260	19	7.8	505	11.1
	04/03/18	340	415	17 T	15.0	0.7	2.1 T	17	380	60	7.1	804	12.4
	07/20/18	332	405	15	11.9	0.3	15	14	381 J	71	6.1	729	16.4
	10/15/18	367	447	16	10.1	1.4	5.2	14 J	368	77	6.4	757	15.1
	01/15/19	190	232	6.0	4.2	8.4	18	8.9	281	5 U	6.0	486	11.8
	04/02/19	367	447	16	12.9	2.4	3.7	18	411	73	6.3	833	13.7
	07/09/19	329	401	13	10.2	1.1	6.7	19	379	135	6.9	792	16.9
	10/27/19	158	193	5.2	4.6	13.6	9.6	8.8	292	51	6.3	461	15.4
	01/21/20	311	379	15	12.4	9.7	14.3	17	445	31	6.6	778	12.2
	04/14/20	341	416	14	13.4	1.0	2.3	19	395	61	6.3	739	13.4
	07/13/20	351	428	16	13.2 J	0.9	2.2	21	429	99	6.5	718	15.7
	10/14/20	49	60	2.2	0.6	18.7 J	13.5	5.1	285	5 U	6.8	289	17.8
	01/19/21	326	397	15	13.9	5.7	13.7	15	432	54	6.4	759	11.6
	04/12/21	305	372	12	11.0	1.9	2.3	16	415	56	6.2	671	13.9
	07/13/21	250	305	12	14.8	0.6	5.6	16	361	91	6.2	755	15.9
	10/26/21	164	200	5.1	4.2	11.6	7.2	9.6	305	56 J	6.6	490	15.2
	01/18/22	321	391	15.6 J	13.9	10.6 J	8.0 J	17	445	51	6.2	822	10.7
	04/07/22	211	257	8.5		4.1	3.0	13	339	40	6.7	572	14.5
	07/17/22	324	395	14.0	11.9	0.7	2.9	18	377	74	7.0	752	14.7
	10/10/22	395	482	70.2	34.5	1.3	62.2	21	509	62	6.8	1002	16.8
	01/24/23	288	351	10.4	10.5	3.5	5.2	13	339	47	6.4	664	11.8
	04/03/23	248	302	8.2	9.0	3.1	2.7	12	306	45	6.4	566	11.5
	07/24/23	333	406	12.2	10.9	1.5	5.2	16	364	117	6.7	674	16.3
	10/29/23	232	283	8.1	6.0	7.7	6.0	10	308	80	6.5	568	15.1

Cowlitz County Tennant Way Landfill
Surface Water and Leachate Quality Data
Inorganics

Location	Date	mg/L								Total Suspended Solids	Field Measurements		
		Alkalinity as CaCO3	Bicarbonate	Chloride	Ammonia	Nitrate	Sulfate	TOC	Total Dissolved Solids		pH	Specific Conduct. (umhos/cm)	Dissolved Oxygen (mg/l)
L-2	01/05/11	2,450	2,987	591	270	1 U	61	238	2,860		7.1	5,840	19.8
	04/09/11	2,710	3,304	569	280	1 U	28	182	2,990		7.2	5,700	20.7
	07/21/11	4,230	5,157	1,220	461	0.6 T	82	290	5,360		7.4	7,060	24.0
	10/14/11	4,320	5,267	1,260	512	3.1 J	155 T	326	5,490		7.5	5,730	23.6
	01/27/12	2,120	2,585	398	228	1 U	80	146	2,550		7.0	3,110	19.7
	04/06/12	2,010	2,451	362	225	1.6	53	286	2,340		5.8	2,870	20.9
	07/12/12	3,870	4,718	1,100	493	0.3 T	73	305	4,950		7.2	4,710	24.3
	10/25/12	2,810	3,426	860	417	9.3	511	220	4,170		7.5	3,740	24.2
	01/07/13	2,240	2,731	458	218	3.3 J	112	237	2,720	138	7.1	5,240	19.3
	04/12/13	2,770	3,377	564	310	1 U	23	225	3,210	25	7.1	6,780	19.3
	07/12/13	4,090	4,987	1,010	526	0.6 T	62	309	4,810	41	5.2	10,260	22.6
	10/16/13	2,980	3,633	650	350	0.4 T	102	219	3,580	36	7.3	7,570	23.5
	01/14/14	190	232	352	206	3.6	115	114	2,190	23	7.2	4,580	20.6
	04/21/14	2,460	2,999	536	294	1.0	58	208	2,980	20	7.2	6,260	21.4
	07/16/14	4,100	4,999	1,040	529	5.5	99	293	5,190	29	7.3	10,180	24.6
	10/20/14	4,770	5,816	1,360	360	1.0 T	122	396	6,280	19	6.9	11,700	22.2
	01/14/15	4,710	5,743	1,340	620	6.9	134	362	5,680	12	7.4	11,340	17.1
	04/08/15	5,070	6,181	1,430	560	10.2	136	410	6,240	9.0	7.5	12,170	19.5
	07/13/15	5,220	6,364	1,180	380	8.0 T	147	490	6,460	22	7.5	12,940	21.4
	10/27/15	5,100	6,218	1,600	540	3.7	200	420	6,600	20	7.7	13,200	19.5
	01/26/16	3,190	3,889	910	321	19.3	373	277	2,190	25	8.0	9,650	15.4
	04/04/16	4,430	5,401	1,260	400	18.6	461	370	5,940	13	7.9	11,720	16.6
	07/11/16	4,550	5,547	1,500	580	22.0	547	412	6,900	32	8.0	12,980	19.1
	10/10/16	4,440	5,413	1,530	720	34.4	644	408	6,540	17	8.0	12,170	19.6
	01/23/17	3,750	4,572	1,340	370	13.2	458	350	5,920	9.5	8.0	10,540	14.3
	04/09/17	3,410	4,158	1,120	340	31.9	474	299	5,480	17	7.3	10,400	15.2
	07/27/17	3,600	4,389	9,700	580	63.0	1,000	410	7,000	7.0	7.8	12,020	20.0
	10/16/17	4,100	4,999	1,700	760	32.0	470	380	7,300	12	8.0	12,280	19.4
	01/29/18	2,300	2,804	990	350	81.0	470	220	4,900	11	8.1	8,410	14.5
	04/03/18	3,400	4,145	1,200	460	49.0	440	210	5,600	8.0	8.0	9,290	14.6
	07/20/18	3,770	4,596	1,430	556	1.8	677	253	6,780	20	7.6	11,650	18.0
	10/15/18	3,620	4,414	1,580	436	68.4	747	187	6,680	16	7.6	11,580	17.5
	01/15/19	2,510	3,060	1,080	270	89.9	596	176	4,940	11	7.7	8,320	14.6
	04/02/19	3,030	3,694	1,360	352	102	600	238	5,700	14	7.6	10,490	16.0
	07/09/19	3,680	4,487	1,500	406	94.2	820	252	7,030	20	7.5	12,530	18.2
	10/27/19	2,940	3,584	1,280	345	138	800	246	6,590	14	7.6	11,360	17.9
	01/21/20	1,950	2,377	805	199	97.2	580	153	4,130	10	7.5	7,530	14.1
	04/14/20	2,930	3,572	1,180	491	75.4	652	227	5,450	25	7.7	10,230	15.0
	07/13/20	3,380	4,121	1,440	463 J	38.6	715	275	6,860	29	7.6	12,280	17.3
	10/14/20	2,800	3,414	1,400	360	153	1,130	240	7,220	24	7.5	12,150	17.8
	01/19/21	1,860	2,268	746	39.3	77.0	1,560	57	3,820	19	7.5	7,270	13.3
	04/12/21	2,390	2,914	942	311	76.4	635	190	4,780	23	7.6	9,030	14.7
	07/13/21	2,900	3,536	1,290	382	82.8	694	216	5,760	28	7.6	10,510	17.3
	10/26/21	2,270	2,768	1,210	197	193	937	270	6,380	19 J	7.4	9,410	17.1
	01/18/22	No sample- sump empty											
	04/07/22	1,900	2,317	954	194	13.4	40	155	3,680	15	7.1	6,940	16.9
	07/17/22	2,410	2,938	1,000	196	14.4	676	201	5,070	42	7.3	8,120	23.1
	10/10/22	2,590	3,158	1,460	329	50.4	1,350	234	6,910	32	7.6	10,290	18.8
	01/24/23	1,680	2,048	707	121	1.3	517	125	3,640	11	7.4	5,870	13.0
	04/03/23	1,760	2,146	824	189	87	575	141		19	7.8	6,880	13.1
	07/24/23	2,320	2,829	1,180	171	106	831	171	5,770	13	7.6	8,920	17.3
	10/29/23	2,500	3,048	1,130	288	111	780	193	5,910	19	7.6	9,070	17.1

Cowlitz County Tennant Way Landfill
Surface Water and Leachate Quality Data
Inorganics

Location	Date	mg/L									Field Measurements		
		Alkalinity as CaCO3	Bicarbonate	Chloride	Ammonia	Nitrate	Sulfate	TOC	Total Dissolved Solids	Total Suspended Solids	pH	Specific Conduct. (umhos/cm)	Dissolved Oxygen (mg/l)
L-3	01/27/12	No Sample - pump control failure, sump empty.											
	04/06/12	2,360	2,877	345	2	1 U	69	366	2,780		6.3	2,890	18.2
	07/12/12	4,120	5,023	1,040	512	1 U	27	277	4,850		7.3	4,330	24.5
	10/25/12	2,690	3,280	707	382	15	355	190	3,380		7.7	3,980	22.2
	01/07/13	2,090	2,548	380	197	11	134	340	2,610	476	7.3	2,740	17.2
	04/12/13	2,910	3,548	597	324	1 U	16	252	2,330	69	7.1	6,850	19.2
	07/12/13	4,390	5,352	958	557	1 U	13	306	5,080	79	7.7	10,520	24.2
	10/16/13	2,980	3,633	619	340	0.1 T	57	4	3,400	68	7.2	7,410	22.3
	01/14/14	33	40	318	211	0.5 TJ	77	109	2,100	28	7.1	4,400	17.0
	04/21/14	2,420	2,950	443	292	1 U	15	193	2,690	37	7.1	5,920	19.5
	07/16/14	4,370	5,328	934	497	0.8 T	23	289	4,450	22	7.4	10,350	24.8
	10/20/14	4,450	5,426	1,130	370	1 U	44	318	5,160	21	7.2	10,510	22.2
	01/14/15	4,990	6,084	1,350	620	0.1 U	26	396	6,160	14	6.3	11,430	19.6
	04/08/15	5,260	6,413	1,360	580	0.1 U	25	374	6,160	5.5	7.4	12,150	21.3
	07/13/15	5,450	6,645	1,340	410	1.0	25	480	6,380	11	7.5	12,740	24.0
	10/27/15	5,480	6,681	1,500	440	1 UBI	44	390	6,370	7.5	7.7	12,690	20.4
	01/26/16	653	796	187	58	14	49	61	1,080	5 U	7.7	2,900	15.3
	04/04/16	2,970	3,621	893	150	13	248	116	4,080	12	7.7	8,140	19.1
	07/11/16	4,940	6,023	1,550	560	1.9	374	399	6,890	12	7.7	13,090	22.7
	10/10/16	4,350	5,304	1,490	620	48	584	349	6,360	11	7.8	11,860	22.4
	01/23/17	3,770	4,596	1,300	430	33	465	310	6,000	12	7.5	10,520	15.1
	04/09/17	4,300	5,243	1,300	430	17	356	391	6,170	5.5	7.3	11,160	18.5
	07/27/17	3,800	4,633	9,800	560	110	930	390	6,700	5 U	8.0	12,360	21.5
	10/16/17	4,800	5,852	1,600	880	31	340	390	7,200	14	8.0	12,380	20.1
	01/29/18	2,800	3,414	1,000	410	71	350	200	5,200	12	8.0	9,050	18.3
	04/03/18	3,700	4,511	1,200	530	57	460	290	6,200	5.0 T	7.8	10,550	15.6
	07/20/18	3,930	4,792	1,690	642	2.0	529	274	7,160	23	7.5	7,760	21.0
	10/15/18	3,640	4,438	1,700	461	105	607	266 J	7,320	18	8.0	12,030	19.4
	01/15/19	2,880	3,511	1,190	480	97	506	271	5,490	102	7.9	9,060	16.7
	04/02/19	3,700	4,511	1,580	825	90	540	308	6,520	20	7.9	12,120	17.5
	07/09/19	3,860	4,706	1,620	454	109	710	285	7,570	22	7.8	13,300	20.8
	10/27/19	3,540	4,316	1,450	405	101	650	298	6,830	25	6.2	12,320	18.2
	01/21/20	3,160	3,853	1,110	407	52	357	229	5,150	13	7.8	9,730	14.9
	04/14/20	3,970	4,840	1,440	585	29	671	322	6,130	41	7.9	12,230	15.4
	07/13/20	4,090	4,987	1,620	571	42	677	353	7,240	61	7.7	13,240	17.4
	10/14/20	2,380	2,902	1,520	274	145	1,220	221	7,310	29	7.5	11,660	20.0
	01/19/21	1,130	1,378	448	51	25	422	51	2,390	10	7.5	4,260	13.3
	04/12/21	2,230	2,719	879	286	31	732	184	4,690	22	7.5	8,230	14.9
	07/13/21	2,470	3,011	1,260	317	87	678	196	5,540	15	7.4	9,570	19.3
	10/26/21	2,330	2,841	981	263	34	662	210	4,920	27 J	7.5	7,900	15.7
	01/18/22	394	480	162	65	10	303	33	923	5 U	7.1	1,460	12.3
	04/07/22	2,110	2,573	928	241	1 U	161	330	4,030	516	7.6	6,980	15.4
	07/17/22	2,220	2,707	946	242	1.9	780	177	4,780	10	7.6	7,610	16.5
	10/10/22	2,450	2,987	1,500	238	0.4	1,470	210	6,990	13	7.3	10,040	24.8
	01/24/23	2,040	2,487	706	138	0.1	398	138	3,400	19	7.4	5,980	11.4
	04/03/23	2,600	3,170	853	284	19	506	176		15	7.4	7,630	11.2
	07/24/23	2,720	3,316	1,060	191	14	692	173	5,050	11	7.6	8,360	18.3
	10/29/23	3,100	3,780	1,070	325	0.9 T	600	220	5,410	45	7.5	8,740	14.4

Note: U = Not detected. Method Reporting Limit shown. J = The associated value is an estimate. * = outlier data point, not used in statistical calculations.
T = Detected below reporting limit. Value is an estimate. HCO3 calculated from Alkalinity (as CaCO3) divided by 0.8202 as described in USGS WSP 2254a (Hem, 1985).
UBI = blank corrected to MRL.

Cowlitz County Tennant Way Landfill
Surface Water and Leachate Quality Data
Total Metals
ug/l (ppb)

Site	Date		Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese
S-2	01/05/11	Total	50 U	5 U	22	5 U	10 U	13,400	5 U	10 U	10 U	2,690	2	4,730	232
	04/09/11	Total	10 U	10 U	18	0.2 U	1 U		2 U	0.4 T	2.5	1,560	10 U		301
	07/21/11	Total	10 U	1.4 T	20	0.2 U	1 U		2 U	0.4 T	0.9 T	1,800	2 U		398
	10/14/11	Total	10 U	1.3	25	0.2 U	1 U		2 U	1 U	1.0	1,410	2 U		179
	01/27/12	Total	10 U	5 U	14	0.2 U	1 U		2 U	1 U	2 U	1,110	2 U		207
	04/06/12	Total	10 U	2 U	14	0.2 U	1 U		0.6 T	1 U	2 U	1,060	2 U		333
	07/12/12	Total	10 U	5 U	16	0.2 U	1 U		2 U	1 U	2 U	478	2 U		75
	10/25/12	Total	10 U	5 U	29	0.2 U	1 U		1.4 T	1 U	2 U	1,910	2 U		341
	01/07/13	Total	10 U	5 U	26	0.2 U	1 U		2 U	1 U	2.20	2,380	2 U		414
	04/12/13	Total	0.061	5 U	25	0.006 T	0.008 T		0.36	0.604	1.80	2,100	2 U		359
	07/12/13	Total	0.050	0.70	13	0.02 U	0.005 T		0.23	0.258	1.10	509	0.086		111
	10/16/13	Total	0.076	0.90	24	0.006 T	0.02 U		0.15 T	0.299	1.13		0.148		318
	01/14/14	Total	0.038 T	0.40 T	15	0.02 U	0.02 U		0.23	0.247	1.13	1,220	0.135		170
	04/21/14	Total	0.074	0.60	17	0.02 U	0.006 T		0.33	0.342	1.38		0.137		
	07/16/14	Total	0.090	1.07	12	0.008 T	0.009 T		0.20	0.239	1.19	1,420	0.169		77
	10/20/14	Total	0.040 T	0.70	22	0.02 U	0.020 U		0.10	0.110 J	0.56 J	510	0.039 J		106
	01/14/15	Total	0.079	0.40 T	14	0.02 U	0.005 T		0.25 J		0.155		0.149		
	04/08/15	Total	0.043 T	0.54	14	0.02 U	0.008 T		0.16 T	0.194	1.07	1,200	0.048		260
	07/13/15	Total	0.061	1.39	17	0.01 U	0.020 U		0.06 T	0.100	0.57 J		0.023		
	10/27/15	Total	0.058	0.76	22	0.02 U	0.014 T		0.09 T	0.089 J	0.68	954	0.067 J		223
	01/26/16	Total	0.115	0.46 T	16	0.02 U	0.020 U		0.22	0.212	3.14		0.153		
	04/04/16	Total	0.037 T	0.46 T	11	0.02 U	0.122		0.15 T	0.171	1.90	826	0.228		213
	07/11/16	Total	0.051	1.09	25	0.02 U	0.006 T		0.10 T	0.205	0.52	1,670	0.072		281
	10/10/16	Total	0.026 T	1.00	22	0.02 U	0.005 JT		0.04 T	0.094	0.36	810	0.024		229
	01/23/17	Total	0.052	0.56	17	0.02 U	0.016 T		0.17 T	0.227	2.02	1,400	0.118		228
	04/09/17	Total	0.058	0.44 T	10	0.01 T	0.010 T		0.26 J	0.210	2.59	621	0.078		63
	07/27/17	Total	0.5 U	0.77	10	0.50 U	0.25 U		0.5 U	0.200 T	1.10	760	0.140		130
	10/16/17	Total	0.5 U	0.67	20	0.50 U	0.25 UB1		0.5 U	1.0 UB1	0.79 B	1,000	0.120 B		150
	01/29/18	Total	1 U	0.35	11	0.50 U	0.25 U		0.5 U	0.160 T	1.40	1,200	0.048 T		160
	04/03/18	Total	1 U	0.51	10	0.50 U	0.250 T		0.20 T	0.390 T	1.40	2,200	0.078 T		370
	07/20/18	Total	0.062	0.73	19	0.02 U	0.007 T		0.2 U	0.139	1.00 J	722	0.076		145
	10/15/18	Total	0.036 T	0.77	29	0.02 U	0.011 T		0.05 T	0.100	0.64		0.079		
	01/15/19	Total	0.040 T	0.29 T	13	0.02 U	0.020 U		0.06 T	0.261	1.25	948	0.084 J		158
	04/02/19	Total	0.035 T	0.46 T	13	0.01 T	0.020 U		0.36	0.516	1.81	2,180	0.267		368
	07/09/19	Total	0.035 T	0.70	12	0.02 U	0.020 U		0.09 T	0.094	0.34	900	0.021		40
	10/27/19	Total	0.033 T	0.49 T	21	0.02 U	0.011 T		0.11 T	0.131	0.51	1,440	0.060		229
	01/20/20	Total	0.042 T	0.41 T	18	0.01 T	0.020 U		0.18 T	0.389	1.62	1,790	0.129		248
	04/14/20	Total	0.041 T	0.36 T	14	0.02 U	0.020 U		0.11 T	0.138	1.03	836	0.023 J		191
	07/13/20	Total	0.035 T	0.42 T	11	0.02 U	0.009 T		0.20 U	0.092	0.65	264	0.018 T		34
	10/14/20	Total	0.038 T	0.54	24	0.02 U	0.020 U		0.06 T	0.095	0.39	1,090	0.047		52
	01/19/21	Total	0.032 T	0.38 T	16	0.02 U	0.020 U		0.11 T	0.131	0.95 J	1,480	0.046		215
	04/12/21	Total	0.034 T	0.65	47	0.02 U	0.020 U		0.13 T	0.322	0.91 J	2,120	0.082		239
	07/13/21	Total	0.059	0.79 J	22	0.01 T	0.020 U		0.15 JT	0.140	0.93 J	698	0.122		59
	10/26/21	Total	0.036 T	0.57	23	0.02 U	0.020 U		0.13 T	0.162	0.73	1,660 J	0.066		179
	01/18/22	Total	0.052	0.38 T	16	0.02 U	0.020 U		0.14 T	0.231	1.54	1,630	0.091		193
	04/07/22	Total	0.034 T	0.39 T	14	0.02 U	0.020 U		0.19 T	0.204	1.13	1,270	0.076		248
	07/18/22	Total	0.026 T	0.52	9	0.02 U	0.020 U		0.25	0.094	0.64	446 J	0.064		24
	10/10/22	Total	0.056	0.78	30	0.02 U	0.037 J		0.11 T	0.086	0.69	2,510	0.045 J		182
	01/24/23	Total	0.030 T	0.37 T	16	0.01 T	0.020 U		1.44	0.177	1.60 J	1,770	0.059		193
	04/03/23	Total	0.074	0.36 T	15	0.02 U	0.020 U		0.24	0.184	1.17	1,400 J	0.115		232
	07/24/23	Total	0.053	0.66	21	0.02 U	0.020 U		0.22 J	0.089	0.65	598 J	0.032		76
	10/29/23	Total	0.056	0.84	28	0.02 T	0.020		0.11 J	0.076	0.56	3,990	0.043 J		161

**Cowlitz County Tennant Way Landfill
Surface Water and Leachate Quality Data**

Total Metals

ug/l (ppb)

Site	Date		Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
S-2	01/05/11	Total	5 U	5,330	5 U	10 U	7,750	5 U	10 U	10 U
	04/09/11	Total	2 U		20 U	2 U		10 U	1.4 T	3.7
	07/21/11	Total	2 U		10 U	2 U		5 U	3.3	3.1
	10/14/11	Total	2 U		1.6	2 U		5 U	1.0	0.7
	01/27/12	Total	2 U		5 U	2 U		5 U	1.1 T	1.1 T
	04/06/12	Total	2 U		4 U	1 U		1 U	1.1 T	1.7 T
	07/12/12	Total	20 U		5 U	2 U		5 U	2.0 U	1.2 T
	10/25/12	Total	2.6		1.0 T	2 U		5 U	2.4	2.6
	01/07/13	Total	2 U		5 U	2 U		5 U	1.5 T	5.9
	04/12/13	Total	1.0		0.4 T	0.02 U		2.5 U	1.5	3.0
	07/12/13	Total	0.9		1 U	0.02 U		0.02 U	1.9	1.1
	10/16/13	Total	0.9		1 U	0.02 U		0.02 U	1.1	1.9
	01/14/14	Total	0.8 J		1 U	0.02 U		0.02 U	1.1	1.5
	04/21/14	Total	0.9		1 U	0.005 T		0.02 U	0.8	2.9
	07/16/14	Total	0.9		1 U	0.02 U		0.02 U	2.2	4.5
	10/20/14	Total	0.6		1 U	0.02 U		0.02 U	0.6 J	0.6 J
	01/14/15	Total	0.7		3 U	0.02 U		0.02 U	0.8	1.9
	04/08/15	Total	0.7		1 U	0.02 U		0.02 U	0.7	0.8
	07/13/15	Total	0.4		1 U	0.02 U		0.02 U	1.6	0.5
	10/27/15	Total	0.4		1 U	0.02 U		0.02 U	0.8	2.7 J
	01/26/16	Total	1.0		1 U	0.02 U		0.02 U	1.0	4.5 J
	04/04/16	Total	0.9		1 U	0.006 T		0.02 U	0.4	7.2
	07/11/16	Total	0.7		1 U	0.02 U		0.02 U	0.9	2.3
	10/10/16	Total	0.4		1 U	0.03 U		0.02 U	0.5	0.5 UBI
	01/23/17	Total	0.9		1 U	0.003 T		0.003 T	0.7	3.4
	04/09/17	Total	0.8		1 U	0.003 T		0.005 T	0.8	1.2 T
	07/27/17	Total	1.0 T		0.3 T	0.25 U		1 U	1.0 T	3.9
	10/16/17	Total	1.0		1 UBI	0.25 U		1 U	0.4 T	1.5 U
	01/29/18	Total	0.9		1 U	0.2 U		0.36 U	0.5 T	1.1
	04/03/18	Total	1.2		1 U	0.2 U		0.36 U	0.7 T	1.5
	07/20/18	Total	0.6		1 U	0.02 U		0.02 U	0.8	2.5
	10/15/18	Total	0.4		1 U	0.02 U		0.02 U	0.5	2.3
	01/15/19	Total	0.5		1 U	0.02 U		0.02 U	0.9	1.0 T
	04/02/19	Total	0.9		1 U	0.02 U		0.01 T	1.9	3.0
	07/09/19	Total	0.4		1 U	0.02 U		0.02 U	0.5	1.0 T
	10/27/19	Total	0.3		1 U	0.02 U		0.02	0.5	1.1 T
	01/20/20	Total	0.8		1 U	0.02 U		0.02 U	1.2	1.4 T
	04/14/20	Total	0.6		1 U	0.02 U		0.02 U	0.4	0.8 T
	07/13/20	Total	0.3		1 U	0.02 U		0.02 U	0.4	2.0 U
	10/14/20	Total	0.4		1 U	0.02 U		0.02 U	0.5	1.4 T
	01/19/21	Total	0.4		1 U	0.02 U		0.02 U	0.5	2.0 B1
	04/12/21	Total	0.7		1 U	0.02 U		0.02 U	0.7	1.6 T
	07/13/21	Total	0.6 J		1 U	0.02 U		0.02 U	0.8 J	1.9 JT
	10/26/21	Total	0.5		1 U	0.02 U		0.02 U	0.6	1.9 T
	01/18/22	Total	0.6		1 U	0.02 U		0.02 U	0.8	2.1
	04/07/22	Total	0.6		1 U	0.02 U		0.02 U	0.7	2.6
	07/18/22	Total	0.4		1 U	0.02 U		0.02 U	0.7	0.6 T
	10/10/22	Total	0.9		1 U	0.02 U		0.02 U	0.5	1.6 T
	01/24/23	Total	0.6		1 U	0.02 U		0.02 U	0.7	2.4 J
	04/03/23	Total	0.7		1 U	0.02 U		0.01 T	0.5	1.5 T
	07/24/23	Total	0.5		1 U	0.02 U		0.02 U	0.4	2.1
	10/29/23	Total	0.4		1 U	0.02 T		0.02 U	0.8	1.2

Cowlitz County Tennant Way Landfill
Surface Water and Leachate Quality Data
Total Metals
ug/l (ppb)

Site	Date		Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese
Runoff Discharge	01/05/11	Total	50 U	5 U	29	5 U	10 U	40,800	5 U	10 U	43.0	871	3.1	12400	218
	04/09/11	Total	10 U	10 U	30	0.2 U	1 U		2 U	2.6	78.0	1,320	10 U		525
	07/21/11	Total	10 U	5.0 T	54	0.2 U	1 U		1.0 T	6.4	20.7	9,910	2.4		4,490
	10/14/11	Total	10 U	4.6	48	0.2 U	1 U		1.3	2.6	26.0	7,610	3.2		1,390
	01/27/12	Total	10 U	1.3 T	37	0.2 U	1 U		1.3 T	1.4	62.7	1,530	1.1 T		382
	04/06/12	Total	2.1 T	2.6 T	21	0.2 U	1 U		1.9 T	0.9 T	22.9	1,170	2 U		375
	07/12/12	Total	10 U	3.7 T	47	0.2 U	1 U		1.0 T	6.0	10.7	6,040	2 U		5,380
	10/25/12	Total	10 U	2.4 T	40	0.2 U	1 U		1.1 T	1.1	31.6	3,930	2 U		549
	01/07/13	Total	10 U	1.3 T	31	0.2 U	1 U		0.8 T	1.1	42.3	1,620	2 U		480
	04/12/13	Total	0.44	2.7 T	53	0.033	0.12		2.3	3.79	65.2	4,920	2.40		1,520
	07/12/13	Total	0.22	2.3	44	0.013 T	0.07		1.2	5.10	8.19	3,380	0.90		4,090
	10/16/13	Total	0.38	1.5	34	0.008 T	0.05		0.56	1.85	36.7		0.63		985
	01/14/14	Total	0.33	1.0	26	0.020 T	0.03		0.52	1.00	36.0	994	0.38		341 J
	04/21/14	Total	0.34	1.4	30	0.017 T	0.07		0.53	1.97	40.0		0.55		
	07/16/14	Total	0.27	2.1	38	0.015 T	0.05		0.66	4.80	9.35	4,160	0.68		4,520
	10/20/14	Total	0.28	1.8	30	0.009 T	0.02 T		0.61 J	1.80 J	17.3 J	2,900	0.54 J		814
	01/14/15	Total	0.38	1.1	28	0.011 T	0.05		0.56 J	0.904	40.9		0.41		
	04/08/15	Total	0.39	1.6	32	0.019 T	0.10		0.92	2.05	48.1 J	2,380	2.95		511
	07/13/15	Total	0.23	2.1	26	0.014 T	0.05		0.61	2.59	6.96		0.46		
	10/27/15	Total	0.24	2.3	30	0.013 T	0.07		0.51	1.48 J	10.4	4,610	0.98 J		1,080
	01/26/16	Total	0.53	1.2	24	0.008 T	0.07		0.42	0.645	41.7		0.35		
	04/04/16	Total	0.35	2.1	30	0.019 T	0.21		0.62	2.04	38.4	2,840	1.82		1,470
	07/11/16	Total	0.22	2.1	37	0.011 T	0.05		0.54	3.63	9.30	3,940	0.49		4,580
	10/10/16	Total	0.37	1.9	27	0.019 T	0.06		0.66	1.13	31.7	4,050	1.03		450
	01/23/17	Total	0.29	1.4	20	0.015 T	0.04		0.34	0.742	30.7	1,630	0.29		437
	04/09/17	Total	0.15	0.6	26	0.010 T	0.02		0.46	1.03	15.0	889	0.15		232
	07/27/17	Total	0.5 U	3.6	68	0.5 U	0.03 T		0.68	6.00	4.6	7,300	0.59		8,400
	10/16/17	Total	0.5 U	2.1	40	0.5 U	0.25 UB1		0.50 UB1	1.60 B	11.0	5,400	0.66 B		1,400
	01/29/18	Total	0.38 T	1.0	19	0.5 U	0.03 T		0.51	0.710 T	29.0	830	0.29		250
	04/03/18	Total	0.32 T	1.3	19	0.5 U	0.25 UB1		0.42 T	0.99 T	30.0	1,500	0.53		420
	07/20/18	Total	0.13	4.7	107	0.011 T	0.02		0.38	4.65	3.44 J	11,900	0.28		5,280
	10/15/18	Total	0.09	1.7	64	0.006 T	0.03		0.25	1.61	3.34		0.28		
	01/15/19	Total	0.36	1.0	21	0.012 T	0.04 J		0.29	0.63	36.0	1,350	0.29 J		207
	04/02/19	Total	0.30	0.7	22	0.008 T	0.05		0.34	0.78	29.6	1,210	0.22		325
	07/09/19	Total	0.16	1.3	30	0.020 U	0.03		0.46	1.77	8.6	2,530	0.28		1,530
	10/27/19	Total	0.26	0.8	19	0.020 U	0.02 T		0.28	0.47	22.7	1,170	0.25		222
	01/20/20	Total	0.40	1.2	24	0.017 T	0.03		0.53	0.65	29.7	1,460	0.84		252
	04/14/20	Total	0.30	1.2	17	0.005 T	0.02		0.30	0.63	28.2	1,540	0.19 J		366
	07/13/20	Total	0.15	1.0	27	0.009 T	0.03		0.32	1.55	11.9	2,360	0.25 J		1,270
	10/14/20	Total	0.35	1.7	30	0.014 T	0.06		0.71	0.87	23.5	2,810	1.34		346
	01/19/21	Total	0.39	0.9	16	0.009 T	0.03		0.36	0.41	29.3 J	674	0.34		110
	04/12/21	Total	0.29	0.9	17	0.009 T	0.03		0.34	0.79	28.5 J	1,400	0.40		252
	07/13/21	Total	0.25	1.4 J	25	0.006 T	0.03		0.34 J	1.43	12.1 J	2,380	0.59		949
	10/26/21	Total	0.40	1.4	28	0.017 T	0.07		0.50	0.83	29.1	2,120 J	1.75		410
	01/18/22	Total	0.37	0.9	15	0.010 T	0.04		0.30	0.49	30.0	630	0.30		118
	04/07/22	Total	0.33	1.0	14	0.009 T	0.03		0.40	0.74	31.3	1,080	0.36		201
	07/18/22	Total	0.25	1.3	25	0.012 T	0.05		1.68	1.52	17.0	2,340 J	0.95		830
	10/10/22	Total	0.23	5.2	54	0.029	0.09 J		1.08	2.69	12.3	11,700	2.81 J		2,650
	01/24/23	Total	0.31	0.8	21	0.009 T	0.04		0.27	0.56	28.2 J	526	0.27		108
	04/03/23	Total	0.27	0.9	17	0.016 T	0.03		0.55	0.70	29.5	798 J	0.48		132
	07/24/23	Total	0.21	2.7	38	0.008 T	0.05		0.40 J	5.65	4.7	3,210 J	0.37		5,780
	10/29/23	Total	0.22	0.8	22	0.009 T	0.03		0.33 J	0.41	15.3	1,460	0.60 J		140

**Cowlitz County Tennant Way Landfill
Surface Water and Leachate Quality Data**

Total Metals

ug/l (ppb)

Site	Date		Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
Runoff Discharge	01/05/11	Total	5 U	13,700	5 U	10 U	7,890	5 U	10 U	22
	04/09/11	Total	4.9		20 U	0.7 T		10 U	4.8	22
	07/21/11	Total	15.1		10 U	2 U		5 U	30	23
	10/14/11	Total	6.7		1.3	2 U		5 U	13	16
	01/27/12	Total	7.5		5 U	2 U		5 U	5.5	20
	04/06/12	Total	5.0		4 U	2 U		1.4 T	3.6	8
	07/12/12	Total	13.5 T		5 U	2 U		5 U	7.9	9
	10/25/12	Total	11.3		5 U	2 U		5 U	4.1	8
	01/07/13	Total	5.8		5 U	2 U		5 UB1	4.2	15
	04/12/13	Total	13.3		1.1 T	0.186		2.5 U	6.1	30
	07/12/13	Total	11.7		1 U	0.024		0.025	3.9	10
	10/16/13	Total	7.4		0.6 T	0.159		0.028	3.2	11
	01/14/14	Total	5.1 J		1.0 U	0.061		0.018 T	2.9	10
	04/21/14	Total	9.9		0.4 T	0.096		0.034	3.2	16
	07/16/14	Total	10.2 T		0.5 T	0.015		0.035	3.6	10
	10/20/14	Total	6.7		0.4 T	0.024		0.014 T	3.0 J	6 J
	01/14/15	Total	5.3		0.3 T	0.041		0.024	2.6	12
	04/08/15	Total	8.8		1 U	0.067		0.030	3.7	20
	07/13/15	Total	7.9		1 U	0.012 T		0.014 T	2.4	6
	10/27/15	Total	3.6		1 U	0.012 T		0.009 T	3.3	13 J
	01/26/16	Total	4.9		1 U	0.053		0.017 T	3.1	16 J
	04/04/16	Total	7.3		1 U	0.079		0.019 T	3.0	20
	07/11/16	Total	8.6		1 U	0.012 T		0.033	2.8	9
	10/10/16	Total	4.3		1 U	0.069 T		0.021	4.3	12
	01/23/17	Total	4.1		1 U	0.029		0.022	2.3	9
	04/09/17	Total	4.4		1 U	0.011 T		0.016 T	0.8	5
	07/27/17	Total	7.7		1 T	0.25 U		1 U	4.0	6
	10/16/17	Total	4.5		1 UB1	0.25 U		1 U	3.0 UB1	7 U
	01/29/18	Total	4.3		1 U	0.2 U		0.36 U	2.8	8
	04/03/18	Total	4.8		1 U	0.2 U		0.36 U	2.7	8
	07/20/18	Total	3.8		0.3 T	0.02 U		0.01 T	3.1	3
	10/15/18	Total	2.1		1 U	0.02 U		0.02 T	1.4	7
	01/15/19	Total	3.8		1 U	0.027		0.02 J	2.7	11
	04/02/19	Total	4.3		1 U	0.022		0.03 J	2.1	9
	07/09/19	Total	4.6		1 U	0.02 U		0.02 J	1.7	5
	10/27/19	Total	2.7		1 U	0.011 T		0.01 T	2.1	5
	01/20/20	Total	3.3		1 U	0.040		0.02 T	3.3	12
	04/14/20	Total	4.2		1 U	0.020 T		0.02 T	2.1	6
	07/13/20	Total	5.4		0.2 T	0.010 T		0.02	1.5	6
	10/14/20	Total	3.2		1 U	0.041		0.02	4.0	13
	01/19/21	Total	3.0		6.9	1.000 U		0.03	0.02 T	3
	04/12/21	Total	4.2		1 U	0.035		0.02 T	2.5	8
	07/13/21	Total	5.9 J		0.2 T	0.020 U		0.02 T	2.4 J	7 J
	10/26/21	Total	3.2		1 U	0.048		0.02	4.1	15
	01/18/22	Total	3.1		1 U	0.035		0.02	3.0	15
	04/07/22	Total	3.7		1 U	0.038		0.02	2.9	8
	07/18/22	Total	6.5		1 U	0.015 T		0.02	2.4	9
	10/10/22	Total	4.8		1 U	0.046		0.03 J	6.3	15
	01/24/23	Total	4.1		1 U	0.021		0.03	2.7	11 J
	04/03/23	Total	4.0		1 U	0.035		0.04	2.8	8 J
	07/24/23	Total	5.4		1 U	0.009 T		0.03	1.7	5
	10/29/23	Total	2.4		1 U	0.013 T		0.02 U	2.1	6

Cowlitz County Tennant Way Landfill
Surface Water and Leachate Quality Data
Total Metals
ug/l (ppb)

Site	Date		Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese
L-1	01/05/11	Total	50 U	7.2	150	5 U	10 U	78,300	5 U	10 U	10	36,500	2 U	21,200	2,150
	04/09/11	Total	10 U	8.5 T	143	0.2 U	0.8	72,800	2 U	1.4	10	36,300	10 U	22,400	2,210
	07/21/11	Total	10 U	13	195	0.2 B	0.5 U	101,000	0.8 T	2.7	10	52,000	2 U	32,800	3,740
	10/14/11	Total	3.8 T	12	118	0.2 U	0.5 U	46,200	3.6	11.3	20	23,400	9.1	12,000	1,100
	01/27/12	Total	10 U	6.1	156	0.2 U	0.5 U	75,800	0.6 T	1.3	6.20	39,100	0.7 T	22,100	2,310
	04/06/12	Total	2.5 T	7.9	139	0.2 U	0.5 U	72,300	0.9 T	1.0	5.40	38,700	2 U	20,600	2,340
	07/12/12	Total	10 U	11	184	0.2 U	0.5 U	89,400	1.4 T	0.6 T	3.30	51,100	2 U	28,900	3,530
	10/25/12	Total	10 U	2.8 T	108	0.2 U	0.5 U	66,000	2.9	4.9	16.80	8,820	0.7 T	21,400	1,550
	01/07/13	Total	10 U	5.3	137	0.2 U	0.6	68,200	1.3 T	1.40	5.80	35,000	2 U	20,400	2,220
	04/12/13	Total	1.19	8.6	182	0.017 T	0.017 T	81,600	1.2	1.83	4.50	48,100	2 U	23,100	2,610
	07/12/13	Total	0.98	10.0	186	0.025	0.027	86,000	2.1	2.62	4.38	57,300	0.970	27,200	3,480
	10/16/13	Total	0.13	7.0	173	0.012 T	0.011 T	84,100	1.1	1.63	5.26	46,600	0.410	23,800	2,900
	01/14/14	Total	0.16	4.6	138	0.017 T	0.028	70,400	1.0	1.33	7.82	34,300	0.236	20,600	1,990
	04/21/14	Total	0.76	6.8	149	0.016 T	0.011 T	76,700	0.92	1.45	5.34	43,600	0.306	21,600	2,520
	07/16/14	Total	1.48	5.2	159	0.014 T	0.023	73,500	1.2	1.74	7.69	40,400	0.359	20,400	2,000
	10/20/14	Total	8.74	25.6	345	0.071	0.067	109,000	19.1 J	6.73 J	8.73 J	60,000	1.50 J	42,900	2,810
	01/14/15	Total	0.18	1.5	114	0.016 T	0.026	70,500	2.1	2.25	15.4	19,300	0.513	17,100	1,120
	04/08/15	Total	0.29	4.2	178	0.017 T	0.028	77,100	1.4	2.41	10.1	49,200	0.378	19,300	1,770
	07/13/15	Total	7.90	6.2	121	0.020 U	0.018 T	76,000	0.59	1.39	6.83	10,900	0.028	20,300	1,640
	10/27/15	Total	1.23	2.7	72	0.034	0.024	26,400	6.2	2.25 J	22.2	3,700	0.316 J	9,860	276
	01/26/16	Total	0.61	1.5	69	0.013 T	0.063	47,200	0.64	4.77	20.8	8,850	0.245	11,900	1,400
	04/04/16	Total	0.40	4.2	169	0.023	0.030	73,800	1.1	2.34	6.89	36,600	0.425	19,100	1,800
	07/11/16	Total	0.97	2.1	174	0.009 T	0.017 T	64,600	0.84	1.18	8.49	30,800	0.190	14,700	1,090
	10/10/16	Total	0.45	0.9	29	0.051	0.030	16,300	1.0	0.57	20.7	3,800	0.319	4,930	144
	01/23/17	Total	0.13	2.3	123	0.015 T	0.011 T	66,300	1.0	2.60	5.2	27,900	0.582	15,300	1,300
	04/09/17	Total	0.18	0.8	56	0.008 T	0.056	42,600	0.7	1.92	14.9	7,890	0.584	9,700	781
	07/27/17	Total	1.40	5.9	190	0.5 U	0.25 U	81,000	1.1	1.10	3.8	38,000	0.140	19,000	1,900
	10/16/17	Total	1.70	3.4	55	0.5 U	0.25 UB1	35,000	0.5 UB1	0.37 T, B	14.0	7,300	0.110 B	9,000	200
	01/29/18	Total	0.92 T	2.9	73	0.5 U	0.026 T	54,000	0.8	2.10	9.6	12,000	0.480	11,000	750
	04/03/18	Total	1.00 U	6.7	150	0.5 U	0.250 T	67,000	1.0	1.10	3.6	42,000	0.270	17,000	2,300
	07/20/18	Total	1.50	3.0	193	0.02 U	0.02 U	71,900	0.8	0.75	2.5 J	32,300	0.096	16,100	1,330
	10/15/18	Total	0.24 T	2.1 T	197	0.20 U	0.20 U	78,200	0.8 T	0.73	2.6 J	37,600	0.370 J	18,900	1,860
	01/15/19	Total	0.60	1.4	64	0.01 T	0.07 J	51,000	0.5	2.59	19.5	1,370	0.103 J	13,900	947
	04/02/19	Total	0.24	3.9	176	0.01 T	0.02 U	76,000	1.0	0.65	4.4	37,800	0.127	18,700	1,590
	07/09/19	Total	0.90	4.6	277	0.01 T	0.01 T	75,500	1.3	0.76	5.0	58,500	0.324	16,600	1,340
	10/27/19	Total	0.25	1.1	138	0.02 U	0.02 U	49,500	0.6	0.27	8.6	23,400	0.136	12,400	508
	01/21/20	Total	0.18	4.6	171	0.01 T	0.02 T	75,500	1.0	0.93	5.2	35,700	0.416	19,600	1,560
	04/14/20	Total	0.29	4.9	163	0.02 T	0.02 U	70,800	1.0	0.77	4.1	40,000	0.209 J	18,200	1,870
	07/13/20	Total	0.60	4.0	225	0.01 T	0.02 T	75,700	1.2	0.76	2.8	48,900	0.201 J	19,400	1,810
	10/14/20	Total	0.50	1.3	41	0.01 T	0.01 T	28,400	0.2	0.14	15.3	1,250	0.112	8,500	28
	01/19/21	Total	0.13	3.3	151	0.01 T	0.02 T	72,600	0.9	2.02	6.0 J	27,800	0.401	17,600	1,390
	04/12/21	Total	0.14	3.3	153	0.01 T	0.02 U	64,600	1.0	0.61	6.6 J	35,100	0.187	16,000	1,490
	07/13/21	Total	0.68	3.0 J	232	0.02 U	0.02 U	78,700	1.0 J	0.65	1.9 J	49,900	0.227	16,100	1,550
	10/26/21	Total	0.25 U	2.5 U	148	0.10 U	0.10 U	50,700	0.6 T	0.32	8.6	28,500 J	0.180	11,600	619
	01/18/22	Total	0.14	5.6	160	0.02 T	0.03	79,000	0.9	1.15	5.4	33,800	0.293	20,400	1,710
	04/07/22	Total	0.16	2.7	121	0.01 T	0.01 T	59,800	0.9	0.47	7.6	29,400	0.278	13,800	1,220
	07/18/22	Total	0.30	5.4	157	0.01 T	0.02 U	67,100	1.1	0.70	2.9	44,100 J	0.216	18,000	1,920
	10/10/22	Total	1.83	6.6	161	0.02 U	0.02 U	75,800	1.7	1.52	6.1	28,800	0.081 J	13,300	991
	01/24/23	Total	0.13	3.0	137	0.01 T	0.01 T	67,600	0.9	0.64	5.0 J	31,600	0.217	14,800	1,260
	04/03/23	Total	0.15	2.1	120	0.01 T	0.02 U		0.9	0.48	5.6	30,800 J	0.394		1,100
	07/24/23	Total	0.32	4.0	209	0.01 T	0.02 U	74,500	1.2 J	0.64	3.2	55,500 J	0.234	16,400	1,570
	10/29/23	Total	0.11	0.7	197	0.01 T	0.02 U	61,300	0.8 J	0.36	4.5	39,200	0.165 J	13,900	905

**Cowlitz County Tennant Way Landfill
Surface Water and Leachate Quality Data**

Total Metals

ug/l (ppb)

Site	Date		Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
L-1	01/05/11	Total	5 U	20,200	5 U	10 U	31,100	5 U	10 U	12
	04/09/11	Total	2 U	21,200	20 U	2 U	34,500	10 U	7.50	5.6
	07/21/11	Total	3.3	28,500	10 U	2 U	59,300	5 U	23.8	7.0
	10/14/11	Total	7.0	15,000	1.2	2 U	19,200	5 U	17.9	40
	01/27/12	Total	2 U	20,900	5 U	2 U	30,600	5 U	4.00	5.8
	04/06/12	Total	0.7 T	19,800	4 U	2 U	33,100	0.9 T	4.50	6.3
	07/12/12	Total	20 U	25,900	5 U	2 U	48,500	5 U	7.40	3.2
	10/25/12	Total	14	25,900	0.4 T	2 U	87,700	5 U	4.40	11.4
	01/07/13	Total	1.1 T	17,100	5 U	2 U	29,200	5 UB1	5.90	5.9
	04/12/13	Total	2.5	23,500	0.6 T	0.02 U	33,800	2.5 U	2.52	4.0
	07/12/13	Total	4.4	24,600	1 U	0.015 T	43,900	0.006 T	4.25	10.3
	10/16/13	Total	2.9	23,400	0.8 T	0.02 U	35,000	0.02 U	1.99	8.6
	01/14/14	Total	2.7 J	22,700	1 U	0.009 T	24,400	0.02 U	2.05	6.3
	04/21/14	Total	2.8	22,200	0.3 T	0.02 UB1	31,900	0.02 U	2.06	3.9
	07/16/14	Total	3.9	28,300	0.4 T	0.02 U	28,500	0.007 T	2.73	4.0
	10/20/14	Total	24.0	129,000	1.7 T	0.030 T	299,000	0.04 U	15.5 J	17.6 J
	01/14/15	Total	3.8	19,100	0.2 T	0.008 T	21,600	0.012 T	1.40	10.5
	04/08/15	Total	3.0	22,700	1 U	0.007 T	29,100	0.004 T	2.44	4.0
	07/13/15	Total	9.0	24,400	1 U	0.02 U	28,900	0.02 U	0.57	4.8
	10/27/15	Total	10.2	39,500	1 U	0.038	72,200	0.005 T	6.34	8.6 J
	01/26/16	Total	4.8	15,400	1 U	0.016 T	13,000	0.011 T	1.90	10.9 J
	04/04/16	Total	2.8	21,400	1 U	0.011 T	32,600	0.02 U	2.03	5.2
	07/11/16	Total	3.2	23,600	1 U	0.009 T	20,000	0.006 T	1.22	5.0
	10/10/16	Total	4.9	10,900	1 U	0.076	4,080	0.013 T	3.68	11.3
	01/23/17	Total	2.8	16,100	1 T	0.008 T	20,900	0.007 T	1.29	5.8
	04/09/17	Total	3.9	10,600	1 U	0.011 T	9,170	0.020	1.26	9.9
	07/27/17	Total	4.5	22,000	1 T	0.25 U	30,000	1 U	1.90	3.0
	10/16/17	Total	6.1	14,000	1 UB1	0.25 U	7,000	1 U	1.30 B	4.7
	01/29/18	Total	3.8	13,000	1 U	0.2 U	12,000	0.36 U	1.50	7.4
	04/03/18	Total	3.3	16,000	1 U	0.2 U	27,000	0.36 U	1.80	2.0
	07/20/18	Total	4.3	21,300	1 U	0.02 U	22,600	0.02 U	0.70	2.6
	10/15/18	Total	14.3 J	23,300	10 U	0.20 U	25,200	0.20 U	0.50 T	45.0 J
	01/15/19	Total	3.9	13,800	1 U	0.015 T	10,400	0.03 J,B	1.20	6.2
	04/02/19	Total	1.7	19,400	1 U	0.02 U	26,700	0.01 T	1.51	1.9 T
	07/09/19	Total	3.5	21,700	1 U	0.02 U	22,100	0.02 U	1.69	11.5 T
	10/27/19	Total	5.2	18,700	1 U	0.02 U	10,700	0.02 U	1.05	3.5 T
	01/21/20	Total	3.2	17,900	1 U	0.02 U	24,800	0.02 U	1.36	16.5
	04/14/20	Total	1.7	18,100	1 U	0.02 U	25,500	0.02 U	2.01	2.1
	07/13/20	Total	1.7	20,000	0.6 T	0.02 U	27,100	0.02 U	1.65	1.8 T
	10/14/20	Total	2.6	12,400	0.2 T	0.01 T	3,930	0.01 T	1.66	7.3
	01/19/21	Total	2.8	16,700	1 U	0.02 U	24,600	0.02 U	1.23	10.7
	04/12/21	Total	1.9	16,800	1 U	0.02 U	21,900	0.02 U	1.53	3.9
	07/13/21	Total	2.2 J	18,800	1 U	0.02 U	21,100	0.02 U	0.92 J	2.8 J
	10/26/21	Total	2.3	14,400	5 U	0.10 U	8,780	0.10 U	1.20	7.0 T
	01/18/22	Total	2.6	17,600	1 U	0.02 U	28,600	0.02 U	1.61	10.4
	04/07/22	Total	1.8	13,800	1 U	0.02 U	15,800	0.02 U	1.61	3.4
	07/18/22	Total	1.7	16,200	1 U	0.02 U	23,300	0.02 U	1.85	3.2
	10/10/22	Total	10.2	23,100	1 U	0.02 U	47,800	0.02 U	1.39	3.3
	01/24/23	Total	1.9	13,900	1 U	0.02 U	18,700	0.02 U	1.39	3.9 J
	04/03/23	Total	1.7		1 U	0.02 U		0.01 T	1.32	3.4 U
	07/24/23	Total	2.4	16,300	1 U	0.02 U	21,500	0.02 U	1.32	6.0
	10/29/23	Total	3.4	16,100	1 U	0.02 U	14,100	0.02 U	0.96	6.9

Cowlitz County Tennant Way Landfill
Surface Water and Leachate Quality Data
Total Metals
ug/l (ppb)

Site	Date		Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese
L-2	01/05/11	Total	50 U	47	545	5 U	10 U	168,000	37	13	27	10,300	25.5	73,200	1,650
	04/09/11	Total	10 U	25	466	0.2 U	0.4 T	155,000	45	8.8	5.1	11,200	10 U	77,300	1,700
	07/21/11	Total	3.20 T	39	787	0.2 U	0.5 U	150,000	102	17.7	4.8	9,390	2.70	105,000	1,100
	10/14/11	Total	20 U	85	908	0.4 U	1 U	149,000	108	20.6	9.6 J	9,690	4.40 J	106,000	1,000
	01/27/12	Total	10 U	15	417	0.2 U	1 U	131,000	36	9.1	13.5	11,300	2.50	50,200	1,590
	04/06/12	Total	7.20 T	25	346	0.2	1 U	149,000	37	9.2	19.6	12,100	7.50	52,700	2,020
	07/12/12	Total	2.00 T	32	696	0.2 U	1 U	132,000	93	16.8	3.8	8,690	2 U	91,400	1,090
	10/25/12	Total	4.00 T	24	500	0.2 U	1 U	160,000	60	15.3	19.1	8,170	8.40	77,200	1,050
	01/07/13	Total	3.90 T	22	408	0.2 U	1 U	167,000	44	13.1	33.2	12,200	18.8	62,300	1,520
	04/12/13	Total	2.93	19	548	0.06	0.09	151,000	58	14.2	10.4	7,670	1.50 T	63,000	1,690
	07/12/13	Total	2.70	43	703	0.07 T	0.13	129,000	95	20.6	4.5	12,200	1.31	81,000	1,180
	10/16/13	Total	2.36	30	582	0.07	0.10	122,000	52	14.2	6.7	9,220	1.16	62,100	1,100
	01/14/14	Total	1.83	16	321	0.03	0.12	113,000	28	9.3	17.5	6,730	1.88	44,700	1,090
	04/21/14	Total	1.96	25	425	0.04	0.11	100,000	45	11.9	9.7	10,300	1.53	57,600	1,230
	07/16/14	Total	2.57	38	655	0.13	0.12	139,000	87	19.4	4.0	10,400	1.57	81,900	1,080
	10/20/14	Total	4.86	71	830	0.17	0.16	148,000	98 J	22.6 J	4.2 J	10,300	1.59 J	91,500	1,160
	01/14/15	Total	2.70	40	880	0.09	0.14	166,000	94	20.4	3.1	9,880	1.21	91,700	1,140
	04/08/15	Total	2.30	41	1,040	0.10	0.11	150,000	120	28.5	2.9	8,960	1.25	100,000	1,030
	07/13/15	Total	4.22	45	1,110	0.08 T	0.11	157,000	160	30.6	3.6	7,310	1.34	108,000	1,040
	10/27/15	Total	6.36	56	1,170	0.07 T	0.18	150,000	151	32.8 J	5.3	7,010	1.31 J	104,000	1,040
	01/26/16	Total	4.01	36	596	0.06 T	0.21	163,000	93	26.5	9.4	5,050	1.15	96,500	1,480
	04/04/16	Total	4.37	39	695	0.05 T	0.27	144,000	112	35.5	10.7	5,120	0.92	93,800	1,500
	07/11/16	Total	5.37	50	821	0.06 T	0.22	160,000	139	42.3	8.8	6,240	1.13	108,000	1,560
	10/10/16	Total	4.72	46	725	0.08 T	0.26	152,000	112	35.6	16.6	5,060	1.27	107,000	1,270
	01/23/17	Total	4.27	46	630	0.11 T	0.42	137,000	96	34.5	14	5,330	1.21	99,600	1,380
	04/09/17	Total	2.53	31	534	0.05 T	0.29	157,000	70	28.4	8.6	4,200	0.68	87,400	1,670
	07/27/17	Total	4.50 T	45	690	5 U	0.57 T	160,000	91	37.0	41	5,100	0.99 T	98,000	1,900
	10/16/17	Total	4.10	48	550	1 U	0.42 B	160,000	77	31.0	31	4,600	0.99 B	110,000	1,600
	01/29/18	Total	0.72 T	6.2	84	0.5 U	0.08 T	170,000	12	5.8	5.3	610	0.13	84,000	310
	04/03/18	Total	3.00	32	550	1 U	0.58 B	190,000	52	29.0	22	3,400	0.63	95,000	1,800
	07/20/18	Total	7.07	40	637	0.07 T	0.67	185,000	83	35.5	11 J	3,410	0.58	116,000	1,840
	10/15/18	Total	6.21	36	601	0.10 T	0.71 J	202,000	78	38.3	13 J	3,250	1.06 J	124,000	2,370
	01/15/19	Total	3.04	25	444	0.10	0.51 J	182,000	52	30.9	12	2,110	0.42 J	90,900	1,920
	04/02/19	Total	4.41	30	502	0.13	0.74	210,000	56	36.6	14	2,490	0.44	109,000	2,340
	07/09/19	Total	5.75	40	716	0.07	0.44	223,000	80	34.5	12	3,080	0.63	124,000	1,920
	10/27/19	Total	6.06	40	599	0.04	0.37	243,000	72	32.0	15	1,930	0.54	120,000	2,140
	01/21/20	Total	2.89	24	375	0.15	0.48	168,000	42	25.3	13	1,640	0.33	84,500	1,870
	04/14/20	Total	4.25	33	487	0.12	0.49	196,000	56	33.3	12	3,680	0.52 J	80,100	2,090
	07/13/20	Total	5.97	40	616	0.05	0.52	185,000	67	40.1	21	4,750	0.84 J	110,000	2,090
	10/14/20	Total	7.28	41	756	0.04 T	0.69	302,000	67	43.4	26	2,230	0.50	140,000	2,800
	01/19/21	Total	2.41	20	336	0.08	0.44	168,000	33	28.8	18 J	1,980	0.28	74,200	1,920
	04/12/21	Total	2.26	26	435	0.07	0.52	197,000	43	35.6	16 J	3,350	0.35	88,200	2,360
	07/13/21	Total	4.39	30 J	460	0.05	0.60	217,000	57 J	40.7	22 J	2,290	0.28	103,000	2,500
	10/26/21	Total	3.19	25	474	0.03 T	0.45	316,000	41	31.1	21	1,980 J	0.28	142,000	2,580
	01/18/22	No sample- Sump empty													
	04/07/22	Total	1.94	26	262	0.02	0.42	168,000	31	33.6	28	4,410	0.56	73,300	2,060
	07/18/22	Total	2.97	30	423	0.08	0.59	215,000	32	36.3	28	12,000 J	1.90	108,000	4,760
	10/10/22	Total	4.57	22	435	0.04	0.42 J	297,000	42	34.1	20	7,000	0.82 J	134,000	4,540
	01/24/23	Total	1.50	12	220	0.03	0.20	166,000	22	16.4	14 J	2,520	0.25	70,500	2,400
	04/03/23	Total	3.24	15	277	0.03	0.29		30	24.0	21	3,830 J	0.25		2,140
	07/24/23	Total	2.54	15	333	0.03	0.30	233,000	36 J	30.5	20	3,130 J	0.24	117,000	3,580
	10/29/23	Total	1.59	17	438	0.03	0.31	247,000	37 J	25.5	11	4,610	0.27 J	132,000	2,800

**Cowlitz County Tennant Way Landfill
Surface Water and Leachate Quality Data**

Total Metals

ug/l (ppb)

Site	Date		Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
L-2	01/05/11	Total	42	283,000	5 U	10 U	612,000	5 U	36	91
	04/09/11	Total	21	295,000	5.5 T	2 U	573,000	10 U	31	29
	07/21/11	Total	69	512,000	10 U	2 U	1,200,000	5 U	65	35
	10/14/11	Total	81	584,000	20 U	4 U	1,260,000	10 U	68	40
	01/27/12	Total	31	226,000	5 U	2 U	438,000	5 U	25	31
	04/06/12	Total	31	204,000	4 U	2 U	425,000	5 U	25	114
	07/12/12	Total	67	491,000	5 U	2 U	1,090,000	5 U	55	28
	10/25/12	Total	71	391,000	0.5 T	2 U	843,000	5 U	38	60
	01/07/13	Total	47	244,000	5 U	2 U	494,000	5 UB1	36	113
	04/12/13	Total	54	331,000	1.6 T	0.051	671,000	2.5 U	46	40
	07/12/13	Total	79	472,000	5.4	0.274	1,080,000	0.012 T	72	25
	10/16/13	Total	52	353,000	2 U	0.112	787,000	0.02 U	41	20
	01/14/14	Total	37 J	257,000	2 U	0.123	463,000	0.009 T	23	36
	04/21/14	Total	43	300,000	2.2	0.130	700,000	0.04 U	31	24
	07/16/14	Total	78	485,000	3.4 T	0.1 U	1,150,000	0.1 U	75	57
	10/20/14	Total	92	613,000	5.4	0.126	1,440,000	0.1 U	85 J	28 J
	01/14/15	Total	74	545,000	6 U	0.165	1,290,000	0.1 U	77	18
	04/08/15	Total	106	610,000	4.1 T	0.05 T	1,380,000	0.1 U	103	21
	07/13/15	Total	114	711,000	2.7 T	0.05 T	1,710,000	0.1 U	122	20
	10/27/15	Total	121	762,000	3.4 T	0.11	1,690,000	0.1 U	116	26 J
	01/26/16	Total	97	556,000	5.8	0.08 T	1,370,000	0.1 U	85	37 J
	04/04/16	Total	128	538,000	3.5 T	0.07 T	1,380,000	0.01 U	104	44
	07/11/16	Total	146	670,000	3.6 T	0.12	1,660,000	0.1 U	133	47
	10/10/16	Total	131	693,000	5.1	0.06 T	1,680,000	0.1 U	120	93
	01/23/17	Total	130	629,000	18.0	0.18 T	1,460,000	0.03 T	86	58
	04/09/17	Total	102	478,000	1.8 T	0.18 T	1,180,000	0.01 T	68	44
	07/27/17	Total	140	620,000	4.3 T	2.5 U	1,600,000	10 U	98	96
	10/16/17	Total	120	640,000	1.4 T, B	0.91	1,700,000	2 U	93	44
	01/29/18	Total	21	420,000	1 U	0.072 T	1,100,000	0.4 U	12	11
	04/03/18	Total	94	460,000	0.8 B	0.47	1,200,000	0.7 U	57	59
	07/20/18	Total	144	583,000	5 U	0.1 U	1,570,000	0.1 U	86	67
	10/15/18	Total	154 J	564,000	10 U	0.2 U	1,630,000	0.2 U	80	114 J
	01/15/19	Total	103	433,000	4 U	0.1 U	1,140,000	0.1 B1	55	72
	04/02/19	Total	125	459,000	4 U	0.1 U	1,270,000	0.10	64	111
	07/09/19	Total	135	583,000	0.9 T	0.018 T	1,620,000	0.03	92	63
	10/27/19	Total	133	577,000	0.9 T	0.014 T	1,560,000	0.02	80	53
	01/21/20	Total	87	366,000	0.6 T	0.012 T	920,000	0.04	49	81
	04/14/20	Total	116	414,000	0.7 T	0.019 T	1,120,000	0.06	70	83
	07/13/20	Total	145	569,000	10 U	0.064	1,470,000	0.04	92	62
	10/14/20	Total	164	573,000	3.1 T	0.070 T	1,520,000	0.1 U	83	48
	01/19/21	Total	93	310,000	0.6 T	0.038	874,000	0.05	43	53
	04/12/21	Total	121	406,000	0.6 T	0.041	1,190,000	0.06	64	59
	07/13/21	Total	150 J	475,000	0.8 T	0.036	1,390,000	0.06	73 J	42 J
	10/26/21	Total	123	441,000	5 U	0.100 U	1,200,000	0.10 U	54	32
	01/18/22	No sam								
	04/07/22	Total	116	346,000	0.6 T	0.077	912,000	0.04	46	19
	07/18/22	Total	142	401,000	0.8 T	0.091	1,110,000	0.06	56	32
	10/10/22	Total	164	476,000	1.0 T	0.080	1,560,000	0.04 J	59	30
	01/24/23	Total	67	266,000	0.8 T	0.023	740,000	0.02 T	37	24 J
	04/03/23	Total	98		0.6 T	0.025		0.02	37	27
	07/24/23	Total	123	411,000	0.8 T	0.014 T	1,290,000	0.03	47	34
	10/29/23	Total	109	455,000	0.8 T	0.030	1,340,000	0.02 U	49	26

Cowlitz County Tennant Way Landfill
Surface Water and Leachate Quality Data
Total Metals
ug/l (ppb)

Site	Date		Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese
L-3	01/27/12	Total	No Sample - pump control failure, sump empty.												
	04/06/12	Total	6.6 T	28	497	0.2 U	0.5 U	208,000	35.2	8	15	17,700	8.7	75,400	2,190
	07/12/12	Total	20 U	28	904	0.4 U	1 U	136,000	72.8	14	4 U	13,700	2 U	102,000	1,030
	10/25/12	Total	10 U	21	461	0.11 T	0.5 U	175,000	43.2	13	22	9,230	6.4	81,800	1,210
	01/07/13	Total	3.1 T	29	491	0.2 U	1.4	200,000	46.0	23	100	28,400	63	69,000	1,870
	04/12/13	Total	1.56	17	778	0.06	0.09	162,000	47.8	16	10	16,300	2.70	69,800	1,820
	07/12/13	Total	1.80	41	852	0.05 T	0.13	120,000	87.4	20	4	14,600	1.75	92,600	997
	10/16/13	Total	1.37	26	713	0.06	0.12	125,000	43.5	14	10	15,300	1.65	67,800	966
	01/14/14	Total	1.47	17	357	0.03	0.15	140,000	24.9	10	24	8,480	2.09	51,700	1,380
	04/21/14	Total	1.24	23	480	0.06 T	0.12	100,000	41.1	13	15	14,100	1.93	58,800	1,240
	07/16/14	Total	1.35	34	739	0.13	0.11	123,000	74.7	18	2.0	11,100	0.88	91,000	908
	10/20/14	Total	1.47	40	1,030	0.16	0.14	137,000	81.3 J	21 J	2.9 J	14,100	1.26 J	93,500	1,050
	01/14/15	Total	1.32	36	1,100	0.09	0.13	142,000	80.9	20	2.0	10,600	0.88	94,700	1,000
	04/08/15	Total	1.62	40	1,070	0.10 T	0.08 T	126,000	109	27	2.1	8,220	1.08	105,000	899
	07/13/15	Total	2.26	39	1,220	0.06 T	0.14	126,000	127	27	2.3 J	8,120	1.02	107,000	883
	10/27/15	Total	3.04	40	1,220	0.04 T	0.1 U	121,000	120	29 J	5.0	6,950	0.96 J	101,000	779
	01/26/16	Total	1.14	6.3	126	0.01 T	0.06	35,000	10.0	3.6	30	686	0.14	15,300	142
	04/04/16	Total	2.81	35	838	0.05 T	0.20	101,000	93.8	25	13	5,340	0.77	89,700	693
	07/11/16	Total	4.07	49	1,150	0.06 T	0.23	128,000	129	34	8.8	6,780	1.00	109,000	811
	10/10/16	Total	2.96	43	951	0.10 T	0.20	149,000	91.6	33	16	6,780	3.20	116,000	974
	01/23/17	Total	1.65	38	750	0.2 U	0.22	131,000	78.0	27	13	5,010	0.87	105,000	1,270
	04/09/17	Total	2.23	37	793	0.06 T	0.21	125,000	88.9	27	11	5,390	0.93	90,700	1,200
	07/27/17	Total	6.40	47	690	5 U	0.33 T	140,000	98.0	29	33	3,500	0.88 T	110,000	1,000
	10/16/17	Total	5.10	47	660	1 U	0.29 B	120,000	76.0	25	29	2,800	1.00 B	110,000	860
	01/29/18	Total	0.94 T	7.1	90	0.5 U	0.04 T	140,000	14.0	4	6	430	0.12	80,000	150
	04/03/18	Total	3.90	40	730	1 U	0.22 T	150,000	54.0	21	24	4,700	0.74	92,000	1,300
	07/20/18	Total	6.38	50	648	0.04 T	0.18	146,000	89.3	33	13 J	2,700	0.78	111,000	838
	10/15/18	Total	7.85 J	47	595	0.20	0.23 U	140,000 J	82.6	31	17	2,450 J	1.17	116,000 J	642
	01/15/19	Total	4.80	35	419	0.04 T	0.17 J	158,000	57.7	23	15	2,100	0.64 J	88,500	554
	04/02/19	Total	10.20	67	509	0.06 T	0.28	174,000	68.1	29	16	2,360	1.16	106,000	707
	07/09/19	Total	6.93	57	695	0.05	0.20	206,000	72.7	31	14	3,240	0.91	120,000	757
	10/27/19	Total	7.60	59	571	0.04	0.26	182,000	76.0	33	16	2,160	0.77	104,000	498
	01/21/20	Total	3.65	42	553	0.05	0.15	119,000	56.6	21	12	2,610	0.67	78,100	458
	04/14/20	Total	6.36	65	557	0.05	0.22	166,000	69.7	29	12	8,810	3.55 J	87,300	1,520
	07/13/20	Total	7.51	65	735	0.05	0.51	157,000	74.0	52	35	6,340	1.72 J	105,000	1,210
	10/14/20	Total	6.20	48	654	0.03 T	0.81	348,000	46.5	79	55	4,090	0.62	139,000	2,580
	01/19/21	Total	1.33	8	100	0.02	0.12	60,100	9.3	11	23 J	1,230	0.34	23,500	568
	04/12/21	Total	2.57	29	324	0.03	0.27	211,000	37.3	35	23 J	7,500	0.53	88,000	2,460
	07/13/21	Total	3.51	34 J	432	0.03	0.63	254,000	42.5 J	51	38 J	5,550	0.34	95,400	2,570
	10/26/21	Total	3.21	30	406	0.03 T	0.55	221,000	34.9	42	28	6,600 J	0.47	88,200	2,650
	01/18/22	Total	1.28	6	68	0.03	0.10	39,500	6.0	8	21	1,950	0.35	14,600	495
	04/07/22	Total	3.53	26	547	0.03	0.22	151,000	37.4	27	15	4,450	1.14	76,800	1,820
	07/18/22	Total	1.68	24	296	0.02 T	0.30	210,000	27.2	35	23	4,130 J	0.37	93,100	2,570
	10/10/22	Total	1.70	18	341	0.01 T	0.16 J	346,000	25.5	35	16	5,530	0.41 J	143,000	2,580
	01/24/23	Total	1.06	22	446	0.03	0.11	139,000	25.6	18	12 J	12,400	0.31	57,200	2,980
	04/03/23	Total	1.83	22	467	0.03	0.24	29.4	29.4	28	14	11,300 J	0.32	3,660	3,660
	07/24/23	Total	1.62	15	344	0.02 T	0.22	223,000	30.3 J	34	19	4,990 J	0.25	96,500	3,990
	10/29/23	Total	0.90	27	489	0.03	0.20	228,000	35.9 J	28	3	14,000	0.29 J	114,000	4,230

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UB1 = blank corrected to MRL.

**Cowlitz County Tennant Way Landfill
Surface Water and Leachate Quality Data**

Total Metals

ug/l (ppb)

Site	Date		Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
L-3	01/27/12	Total								
	04/06/12	Total	34	231,000	4 U	2 U	473,000	5 U	29	162
	07/12/12	Total	62	476,000	5 U	4 U	1,070,000	5 U	52	20
	10/25/12	Total	64	354,000	5 U	2 U	741,000	5 U	35	230
	01/07/13	Total	59	217,000	5 U	2 U	416,000	6.5	64	264
	04/12/13	Total	57	310,000	1.7 T	0.051	634,000	2.5 U	45	62
	07/12/13	Total	77	487,000	6.6	0.270	1,110,000	0.1 U	72	19
	10/16/13	Total	52	337,000	2 U	0.134	771,000	0.009 T	39	27
	01/14/14	Total	38 J	238,000	2 U	0.128	439,000	0.027	20	46
	04/21/14	Total	48	300,000	3.8 T	0.188	600,000	0.1 U	33	31
	07/16/14	Total	72	493,000	3.1 T	0.1 U	1,130,000	0.1 U	70	15
	10/20/14	Total	86	541,000	4.4 T	0.118	1,270,000	0.1 U	75 J	20 J
	01/14/15	Total	74	528,000	6.0 U	0.166	1,270,000	0.01 U	73	13
	04/08/15	Total	105	639,000	2 U	0.060 T	1,420,000	0.01 U	104	17
	07/13/15	Total	104	686,000	2.3 T	0.050 T	1,650,000	0.01 U	103	17
	10/27/15	Total	115	729,000	3.4 T	0.090 T	1,580,000	0.10 U	103	25 J
	01/26/16	Total	17	92,900	0.8 T	0.013 T	199,000	0.02 U	14	14 J
	04/04/16	Total	107	548,000	3.0 T	0.060 T	1,370,000	0.01 U	86	30
	07/11/16	Total	140	678,000	3.2 T	0.110	1,620,000	0.1 U	119	38
	10/10/16	Total	136	689,000	5.4	0.080 T	1,630,000	0.02 T	108	61
	01/23/17	Total	117	615,000	17	0.150 T	1,420,000	0.03 T	84	48
	04/09/17	Total	116	562,000	4.2 T	0.230 T	1,340,000	0.02 T	81	46
	07/27/17	Total	140	710,000	3.6 T	2.5 U	1,700,000	10 U	100	59
	10/16/17	Total	110	700,000	2.0 UB1	0.840	1,700,000	2 U	87	31
	01/29/18	Total	20	500,000	1 U	0.083 T	1,200,000	0.36 U	14	8
	04/03/18	Total	94	540,000	0.8 T	0.610	1,300,000	0.72 U	63	29
	07/20/18	Total	154	676,000	10 U	0.1 U	1,660,000	0.1 U	100	39
	10/15/18	Total	157	667,000 J	10	0.2 U	1,760,000 U	0.20	84 U	144
	01/15/19	Total	115	544,000	4 U	0.1 U	1,270,000	0.1 U	66	36
	04/02/19	Total	145	615,000	1 T	0.1 U	1,570,000	0.07 T	83	49
	07/09/19	Total	148	667,000	1 T	0.017 T	1,700,000	0.01 T	96	39
	10/27/19	Total	156	617,000	1	0.021	1,610,000	0.01 T	96	46
	01/21/20	Total	99	471,000	1 T	0.021	1,200,000	0.02 U	76	31
	04/14/20	Total	130	565,000	1 T	0.028	1,460,000	0.01 T	89	45
	07/13/20	Total	182	629,000	10 U	0.080	1,630,000	0.05	110	43
	10/14/20	Total	217	502,000	4 T	0.080 T	1,450,000	0.10	81	27
	01/19/21	Total	38	107,000	0.3 T	0.034	287,000	0.03	17	12
	04/12/21	Total	124	394,000	0.6 T	0.047	1,030,000	0.04	62	16
	07/13/21	Total	172 J	424,000	0.9 T	0.036	1,260,000	0.07	67 J	22 J
	10/26/21	Total	141	417,000	5.0 U	0.050 T	1,020,000	0.10 U	53	36
	01/18/22	Total	26	79,300	0.3 T	0.059	200,000	0.02 T	14	25
	04/07/22	Total	126	375,000	0.5 T	0.028	1,020,000	0.02 T	50	19
	07/18/22	Total	119	383,000	0.7 T	0.052	1,020,000	0.02	42	16
	10/10/22	Total	182	451,000	0.8 T	0.050	1,590,000	0.04 J	31	7
	01/24/23	Total	75	256,000	0.9 T	0.030	723,000	0.02 T	50	15 J
	04/03/23	Total	106		0.5 T	0.028		0.02	46	18
	07/24/23	Total	129	365,000	0.6 T	0.019 T	1,150,000	0.04	45	18
	10/29/23	Total	116	447,000	0.5 T	0.043	1,280,000	0.02 U	48	11

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Cowlitz County Tennant Way Landfill
Leachate Quality Data
Volatile Organic Compounds
ug/l (ppb)

Sample Location	Date Sampled	1,1,1,2-Tetra-	1,1,1-Tri-	1,1,2,2-Tetra-	1,1,2-Tri-	1,1-Di-	1,1-Di-	1,2,3- Trichloro-	1,2-Di- bromo-3-	1,2-Di-	1,2-Di-	1,2-Di-	1,4-Di-	2-Hexanone	Acetone
		chloro-ethane	chloro-ethane	chloro-ethane	chloro-ethane	chloro-ethane	chloro-ethene	propane	propane	chloro-benzene	chloro-ethane	chloro-propane	chloro-benzene		
L-1	07/21/11	0.5 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	2 U	0.1 T	0.5 U	0.5 U	1.9	20 U	33
	10/14/11	0.5 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	2 U	0.1 T	0.5 U	0.5 U	1.7	20 U	50
	01/27/12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.2 T	0.5 U	0.5 U	1.8	20 U	3.5 T
	04/06/12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.2 T	0.5 U	0.5 U	1.7	20 U	20 U
	07/12/12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.1 T	0.5 U	0.5 U	1.4	20 U	9.6 T
	10/25/12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.4	20 U	10 T
	01/07/13	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.1 T	0.5 U	0.5 U	1.5	20 U	20 U
	04/12/13	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.2 T	0.5 U	0.5 U	1.9	20 U	6.2 T
	07/12/13	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.1 T	0.5 U	0.5 U	1.4	20 U	12 T
	10/16/13	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.1 T	0.5 U	0.5 U	1.5	20 U	7.3 T
	01/14/14	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.1	20 U	3.5 T
	04/21/14	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.2 T	0.5 U	0.5 U	1.6	20 U	5.2 T
	07/16/14	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.0	20 U	10 T
	10/20/14	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2 U	0.5 U	5 U	5 U	2.3 JT	20 U	94 JT
	01/14/15	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.5	20 U	20 U
	04/08/15	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.1 T	0.5 U	0.5 U	1.8	20 U	17 T
	07/13/15	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.1 T	0.5 U	1.7	20 U	20 UJ
	10/27/15	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.3 T	20 U	20 U
	01/26/16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.6 T	20 U	20 UB1
	04/04/16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.2 T	0.5 U	0.5 U	1.7	20 U	4.3 T
	07/11/16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.0	20 U	11 T
	10/10/16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	20 U
	01/23/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.1 T	0.5 U	0.5 U	1.8	20 U	20 U
	04/09/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.7	20 U	20 U
	07/27/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.1 T	0.5 U	0.5 U	1.6	20 U	20 U
	10/16/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 UB1	20 U	20 UB1
	01/29/18		0.5 U	0.5 U	0.5 U	0.5 U	0.5 B1			0.1 T	0.5 U	0.5 U	1.2	20 U	20 UB1
	04/03/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.1 T	0.5 U	0.5 U	1.6	20 U	1.5 T
	07/20/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.1	20 U	9.8 T
	10/15/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.7	20 U	20 UB1
	01/15/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.6	20 U	20 UB1
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.1 T	0.5 U	0.5 U	1.4	20 U	5.0 T
	07/09/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.9	20 U	20 UB1
	10/27/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.4 T	20 U	20 UB1
	01/21/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.7	20 U	20 U
	04/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.2 T	0.5 U	0.5 U	1.3	20 U	20 UB1
	07/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.1 T	0.5 U	0.5 U	1.2	20 U	20 UB1
	10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	20 UB1
	01/19/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.2 T	0.5 U	0.5 U	1.8	20 U	20 U
	04/12/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.2 T	0.5 U	0.5 U	1.4	20 U	3.3 T
	07/13/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.2 T	0.5 U	0.5 U	1.3	20 U	20 UB1
	10/26/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5	20 U	20 UB1
	01/18/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.1 T	0.5 U	0.5 U	1.5	20 U	20 U
	04/07/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.2	20 U	6.1 T
	07/18/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.1 T	0.5 U	0.5 U	1.3 T	20 U	20 UB1
	10/10/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.3 T	0.5 U	0.5 U	0.3 T	20 U	8.9 T
	01/24/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.4 T	0.5 U	0.5 U	0.3 T	20 U	20 U
	04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.3	20 U	20 U
	07/24/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.3	20 U	5.3 JT
	10/29/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.7	20 U	20 U

Cowlitz County Tennant Way Landfill
Leachate Quality Data
Volatile Organic Compounds
ug/l (ppb)

							Trichloro-		Dichloro-						cis-	
Sample	Date		Bromo-			Carbon		fluoro-	difluoro-		Dibromo-					
Location	Sampled	Benzene	chloro-	Bromo-	Bromo-	Carbon	Tetra-	methane	methane	Chloro-	chloro-	Chloro-		Chloro-		
			methane	form	methane	Disulfide	chloride	(CFC-11)	(CFC-12)	benzene	methane	ethane	Chloroform	methane	ethene	
L-1	07/21/11	0.2 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 T	1.6	0.5 U	1.3	0.5 U	0.5 U	0.5 U	
	10/14/11	0.2 T	0.5 U	0.5 U	0.5 U	0.07 T	0.5 U	0.5 U	0.5 U	1.2	0.5 U	0.6	0.5 U	0.5 U	0.5 U	
	01/27/12	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.6	0.5 U	0.2 T	0.5 U	0.5 U	0.5 U	
	04/06/12	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.7	0.5 U	0.5 T	0.5 U	0.5 U	0.5 U	
	07/12/12	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.3	0.5 U	0.5 T	0.5 U	0.5 U	0.5 U	
	10/25/12	0.1 T	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	0.5 U	0.5	0.5 U	0.3 T	0.5 U	0.1 T	0.5 U	
	01/07/13	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
	04/12/13	0.2 T	0.5 U	0.5 U	0.5 U	0.07 T	0.5 U	0.5 U	0.5 U	1.6	0.5 U	0.2 T	0.5 U	0.5 U	0.5 U	
	07/12/13	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.3	0.5 U	0.6	0.5 U	0.5 U	0.5 U	
	10/16/13	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.5	0.5 U	0.2 T	0.5 U	0.5 U	0.5 U	
	01/14/14	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.0	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
	04/21/14	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
	07/16/14	0.1 T	0.5 U	0.5 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 T	0.5 U	0.5 U	0.5 U	
	10/20/14	1.1 JT	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
	01/14/15	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.0	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
	04/08/15	0.1 T	0.5 U	0.5 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	1.4	0.5 U	0.2 T	0.5 U	0.5 U	0.5 U	
	07/13/15	1.0	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 T	0.5 U	0.5 U	0.5 U	0.5 U	0.4 T	
	10/27/15	0.1 T	0.5 U	0.5 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
	01/26/16	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/04/16	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/11/16	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.8	0.5 U	0.2 T	0.5 U	0.5 U	0.5 U
	10/10/16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/23/17	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/09/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/27/17	0.5 U	5 U	0.5 U	1 U	50 U	0.5 U	0.5 U	0.5 U	1 U	1.5	0.5 U	0.2 T	0.5 U	0.5 UB1	0.5 U
	10/16/17	0.5 U	5 U	0.5 U	1 U	50 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UB1	0.5 U
	01/29/18	0.5 U		0.5 U	1.0 U	50 U	0.5 U	0.5 U	0.5 U	1 U	0.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/03/18	0.5 U	5 U	0.5 U	1 U	50 U	0.5 U	0.5 U	0.5 U	1 U	1.5	0.5 U	0.2 T	0.5 U	0.5 U	0.5 U
	07/20/18	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.0	0.5 U	0.2 T	0.5 U	0.5 U	0.5 U
	10/15/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.7	0.5 U	0.7 T	0.5 U	0.5 UB1	0.5 U
	01/15/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 T	0.5 U	0.7 T	0.5 U	0.5 U	0.5 U
	04/02/19	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/09/19	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.8	0.5 U	0.2 T	0.5 U	0.5 UB1	0.5 U
	10/27/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 T	0.5 U	0.3 T	0.5 U	0.5 UB1	0.5 U
	01/21/20	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
04/14/20	0.1 T	0.5 U	0.5 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	1.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
07/13/20	0.1 T	0.5 U	0.5 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	1.1	0.5 U	0.3 T	0.5 U	0.5 UB1	0.5 U	
10/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
01/19/21	0.1 T	0.5 U	0.5 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	1.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
04/12/21	0.1 T	0.5 U	0.5 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	1.4	0.5 U	0.3 T	0.5 U	0.5 U	0.5 U	
07/13/21	0.1 T	0.5 U	0.5 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	1.4	0.5 U	0.5 T	0.5 U	0.5 U	0.5 U	
10/26/21	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5	0.5 U	0.3 T	0.5 U	0.5 U	0.5 U	
01/18/22	0.1 T	0.5 U	0.5 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.3 T	0.5 U	0.3 T	0.5 U	0.5 U	0.5 U	
04/07/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
07/18/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	1.3	0.5 U	0.2 T	0.5 U	0.5 U	0.5 U	
10/10/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.4 T	0.5 U	0.3 T	0.5 U	0.5 U	0.5 U	
01/24/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
07/24/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.3	0.5 U	0.3 T	0.5 U	0.5 U	0.5 U	
10/29/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.6	0.5 U	0.4 T	0.5 U	0.5 U	0.5 U	

Cowlitz County Tennant Way Landfill
Leachate Quality Data
Volatile Organic Compounds
ug/l (ppb)

Sample	Date	cis-1,3-Dichloro-propene	Dibromo-methane	Bromo-dichloro-methane	Ethyl-benzene	1,2-Di-bromo-ethane (EDB)	2-Butanone (MEK)	Iodo-methane	4-Methyl-2-pentanone (MIBK)	Methylene Chloride	Styrene	Tetra-chloro-ethene	Toluene	Total Xylenes	trans-1,2-Di-chloro-ethene
L-1	07/21/11	0.5 U	0.5 U	0.5 U	0.2 T	2 U	34	5 U	20 U	2 U	0.5 U	0.5 U	0.4 T	0.8 T	0.5 U
	10/14/11	0.5 U	0.5 U	0.5 U	0.3 T	2 U	51	5 U	20 U	2 U	0.5 U	0.5 U	0.4 T	1.2 T	0.5 U
	01/27/12	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.1 T	0.3 T	0.5 U
	04/06/12	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.1 T	0.2 T	0.5 U
	07/12/12	0.5 U	0.5 U	0.5 U	0.1 T	2 U	6.8 T	5 U	20 U	2 U	0.5 U	0.5 U	0.3 T	0.7 T	0.5 U
	10/25/12	0.5 U	0.5 U	0.5 U	0.5 U	2 U	2.1 T	5 U	20 U	2 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U
	01/07/13	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U
	04/12/13	0.5 U	0.5 U	0.5 U	0.1 T	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.2 T	0.5 T	0.5 U
	07/12/13	0.5 U	0.5 U	0.5 U	0.1 T	2 U	5.9 T	5 U	20 U	2 U	0.5 U	0.5 U	0.3 T	0.6 T	0.5 U
	10/16/13	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.1 T	0.2 T	0.5 U
	01/14/14	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U
	04/21/14	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.1 T	0.3 T	0.5 U
	07/16/14	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.4 T	0.9 T	0.5 U
	10/20/14	5 U	5 U	5 U	4.2 JT	20 U	200 U	5 U	200 U	8.3 JT	5 U	5 U	4.2 JT	12	5 U
	01/14/15	0.5 U	0.5 U	0.5 U	0.1 T	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.1 T	0.4 T	0.5 U
	04/08/15	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.1 T	0.2 T	0.5 U
	07/13/15	0.5 U	0.5 U	0.5 U	4.3	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	2.2	11	0.5 U
	10/27/15	0.5 U	0.5 U	0.5 U	0.2 T	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.2 T	0.6 T	0.5 U
	01/26/16	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U
	04/04/16	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.2 T	0.3 T	0.5 U
	07/11/16	0.5 U	0.5 U	0.5 U	0.2 T	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.2 T	0.5 T	0.5 U
	10/10/16	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/23/17	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.1 T	0.3 T	0.5 U
	04/09/17	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 B1	0.1 T	0.5 U
	07/27/17	0.5 U	0.5 U	0.5 U	0.3 T	0.5 U	20 U	50 U	20 U	0.5 U	5 U	0.5 U	0.5 U	0.9	0.5 B1
	10/16/17	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	20 U	50 U	20 U	0.5 U	5 U	0.5 B1	0.5 U	0.2 T	0.5 B1
	01/29/18	0.5 U		0.5 U	0.18 T		20 U		20 U	0.5 U	0.5 U	0.5 U	0.2 T	0.3 T	0.5 U
	04/03/18	0.5 U	0.5 U	0.5 U	0.3 T	0.5 U	20 U	1 T	20 U	0.5 U	5 U	0.5 U	0.5 U	0.5	0.5 B1
	07/20/18	0.5 U	0.5 U	0.5 U	0.3 T	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.3 T	0.7 T	0.5 U
	10/15/18	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.1 T	0.1 T	0.5 U
	01/15/19	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.1 T	0.1 T	0.5 U
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 B1	0.2 T	0.5 U
	07/09/19	0.5 U	0.5 U	0.5 U	0.1 T	2 U	2.8 T	5 U	20 U	2 U	0.5 U	0.5 U	0.5 B1	0.5 T	0.5 U
	10/27/19	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 B1	0.5 T	0.5 U
	01/21/20	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.1 T	1.2 T	0.5 U
	04/14/20	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.1 T	0.2 T	0.5 U
	07/13/20	0.5 U	0.5 U	0.5 U	0.1 T	2 U	3.7 T	5 UB1	20 U	2 U	0.5 U	0.5 U	0.1 T	0.3 T	0.5 U
	10/14/20	0.5 U	0.5 U	0.5 U	0.1 T	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U
	01/19/21	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U
	04/12/21	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 U	0.2 T	0.5 U
	07/13/21	0.5 U	0.5 U	0.5 U	0.2 T	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.2 T	0.6 T	0.5 U
	10/26/21	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/18/22	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U
	04/07/22	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U
	07/18/22	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U
	10/10/22	0.5 U	0.5 U	0.5 U	0.2 T	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.1 T	0.8 T	0.5 U
	01/24/23	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.1 T	0.1 T	0.5 U
	07/24/23	0.5 U	0.5 U	0.5 U	0.2 T	2 U	20 U	5 U	3.7 T	1.1	0.5 U	0.5 U	0.1 T	0.9 T	0.5 U
	10/29/23	0.5 U	0.5 U	0.5 U	0.2 T	2 U	20 U	5 U	3.7 T	1.1	0.5 U	0.5 U	0.1 T	0.9 T	0.5 U

Cowlitz County Tennant Way Landfill
Leachate Quality Data
Volatile Organic Compounds
ug/l (ppb)

Sample Location	Date Sampled	trans-1,3-	Tri-	Vinyl chloride	Acrylo- nitrile	trans+cis- 1,4-Di-	Vinyl Acetate
		Dichloro- propene	chloro- ethene			chloro- 2-butene	
L-1	07/21/11	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	10/14/11	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	01/27/12	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	04/06/12	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	07/12/12	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	10/25/12	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	01/07/13	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	04/12/13	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	07/12/13	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	10/16/13	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	01/14/14	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	04/21/14	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	07/16/14	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	10/20/14	5 U	5 U	5 U	5 U	10 U	5 U
	01/14/15	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	04/08/15	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	07/13/15	0.5 U	0.5 U	0.1 T	5 U	10 U	5 U
	10/27/15	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	01/26/16	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	04/04/16	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	07/11/16	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	10/10/16	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	01/23/17	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	04/09/17	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	07/27/17	0.5 U	0.5 U	0.5 U			
	10/16/17	0.5 U	0.5 U	0.5 U			
	01/29/18	0.5 U	0.5 U	0.5 U	2 U		
	04/03/18	0.5 U	0.5 U	0.5 U			
	07/20/18	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	10/15/18	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	01/15/19	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	04/02/19	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	07/09/19	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	10/27/19	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	01/21/20	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	04/14/20	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	07/13/20	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	10/14/20	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	01/19/21	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	04/12/21	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	07/13/21	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	10/26/21	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	01/18/22	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	04/07/22	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	07/18/22	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	10/10/22	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	01/24/23	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	04/03/23	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	07/24/23	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	10/29/23	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U

Cowlitz County Tennant Way Landfill
Leachate Quality Data
Volatile Organic Compounds
ug/l (ppb)

Sample Location	Date Sampled	1,1,1,2-Tetra-	1,1,1-Tri-	1,1,2,2-Tetra-	1,1,2-Tri-	1,1-Di-	1,1-Di-	1,2,3-Trichloro-	1,2-Di-bromo-3-	1,2-Di-	1,2-Di-	1,2-Di-	1,4-Di-	2-Hexanone	Acetone
		chloro-ethane	chloro-ethane	chloro-ethane	chloro-ethane	chloro-ethane	chloro-ethene	propane	propane	chloro-benzene	chloro-ethane	chloro-propane	chloro-benzene		
L-2	07/21/11	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	7.1	100 U	54 T
	10/14/11	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	5.9	100 U	40 T
	01/27/12	0.5 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	2 U	0.3 T	0.7	0.3 T	8.8	20 U	140
	04/06/12	0.5 U	0.5 U	0.5 U	0.5 U	0.3 T	0.5 U	0.5 U	2 U	0.2 T	0.5	0.5 U	6.1	18 T	280
	07/12/12	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	7.2	100 U	27 JT
	10/25/12	0.5 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	2 U	0.1 T	0.4 T	0.2 T	6.5	20 U	21
	01/07/13	0.5 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	2 U	0.2 T	0.4 T	0.2 T	8.0	20 U	200
	04/12/13	0.5 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	2 U	0.1 T	0.3 T	0.2 T	4.9	20 U	140
	07/12/13	0.5 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	2 U	0.2 T	0.3 T	0.2 T	7.9	20 U	18 T
	10/16/13	0.5 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	2 U	0.1 T	0.1 T	0.1 T	5.0	20 U	47
	01/14/14	0.5 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	2 U	0.2 T	0.5 U	0.1 T	5.3	20 U	18 T
	04/21/14	0.5 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	2 U	0.1 T	0.2 T	0.2 T	5.8	20 U	38
	07/16/14	0.5 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	2 U	0.1 T	0.5 U	0.1 T	6.3	20 U	18 T
	10/20/14	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U	5 U	5 U	5 U	8.1	200 U	97 JT
	01/14/15	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	5.5	100 U	100 U
	04/08/15	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	4.6	100 U	26 JT
	07/13/15	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	4.5	20 U	20 UJ
	10/27/15	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	3.2	100 U	100 U
	01/26/16	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	1.1 JT	100 U	100 UB1
	04/04/16	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	1.4 JT	100 U	26 JT
	07/11/16	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	1.2 JT	100 U	100 U
	10/10/16	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U	5 U	5 U	5 U	5 U	200 U	200 U
	01/23/17	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	1.4 JT	100 U	100 U
	04/09/17	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	4.6 JT	100 U	42 JT
	07/27/17	0.5 U	5 U	5 U	5 U	5 U	5 U	50 U	50 U	5 U	5 U	5 U	5 U	50 U	50 U
	10/16/17	0.5 U	5 U	5 U	5 U	5 U	5 U	50 U	50 U	5 U	5 U	5 U	1.4 JT, B	50 U	31 JT, B
	01/29/18		0.5 U	0.5 U	0.5 U	0.1 T	0.5 B1			0.5 U	0.5 U	0.5 U	1.0	20 U	20 B1
	04/03/18	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U	2.5 U	1.1 JT	25 U	25 U
	07/20/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.6	20 U	20 U
	10/15/18	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U	2.5 U	1.9 JT	25 U	25 U
	01/15/19	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U	2.5 U	1.2 JT	25 U	17 JT, B
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.7	20 U	20 U
	07/09/19	0.5 U	0.5 U	0.5 U	0.3 T	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.5	20 U	20 U
	10/27/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.2	20 U	20 U
	01/21/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.2	20 U	20 U
	04/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.0	20 U	20 U
	07/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.3	20 U	20 U
	10/14/20	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U
	01/19/21	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U
	04/12/21	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U	2.5 U	1.4 JT	25 U	25 U
	07/13/21	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U	2.5 U	1.3 T	25 U	25 U
	10/26/21	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U
	01/18/22	No leachate in sump													
	04/07/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.0	20 U	20 U
	07/18/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	2.5 U	20 U	20 U
	10/10/22	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U
	01/24/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.9	20 U	20 U
	04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.6	20 U	20 U
	07/24/23	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U
	10/29/23	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U

Cowlitz County Tennant Way Landfill
Leachate Quality Data
Volatile Organic Compounds
ug/l (ppb)

Sample Location	Date Sampled	Benzene	Bromo-	Bromo-	Bromo-	Carbon	Carbon	Trichloro-	Dichloro-	Chloro-	Dibromo-	Chloro-	Chloroform	Chloro-	cis-
			chloro- methane	Bromo- form	methane	Disulfide	Tetra- chloride	methane (CFC-11)	methane (CFC-12)		methane	ethane		methane	chloro- ethene
L-2	07/21/11	1.8 T	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	0.55 JT	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	10/14/11	1.3 T	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	01/27/12	4.3	0.5 U	0.5 U	0.5 U	0.2 T	0.5 U	0.5 U	0.2 T	1.3	0.5 U	0.5 U	0.5 U	0.1 T	1.9
	04/06/12	4.9	0.5 U	0.5 U	0.5 U	0.2 T	0.5 U	0.5 U	0.3 T	1.1	0.5 U	0.5 U	0.5 U	0.1 T	1.4 U
	07/12/12	2.4 JT	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	10/25/12	1.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 T	0.4 T	0.5 U	0.5 U	0.5 U	0.5 U	1.7
	01/07/13	3.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 T	0.89 T	0.5 U	0.5 U	0.5 U	0.5 U	1.5
	04/12/13	2.9	0.5 U	0.5 U	0.5 U	0.6 T	0.5 U	0.5 U	0.5 U	0.67	0.5 U	0.5 U	0.5 U	0.5 U	1.0
	07/12/13	1.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.72	0.5 U	0.5 U	0.5 U	0.5 U	1.3
	10/16/13	1.9	0.5 U	0.5 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	0.73	0.5 U	0.5 U	0.5 U	0.5 U	0.6
	01/14/14	1.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.6	0.5 U	0.5 U	0.5 U	0.09 T	0.4 T
	04/21/14	1.9	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	0.3 T	0.9	0.5 U	0.5 U	0.5 U	0.11 T	0.5 T
	07/16/14	1.1	0.5 U	0.5 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	0.6	0.5 U	0.5 U	0.5 U	0.5 U	1.1
	10/20/14	3.3 JT	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1.6 JT
	01/14/15	1.9 JT	2.5 U	2.5 U	2.5 U	2.5 UB1	2.5 U	2.5 U	2.5 U	0.8 JT	2.5 U	2.5 U	2.5 U	2.5 U	1.5 JT
	04/08/15	1.3 JT	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	0.65 JT	2.5 U	2.5 U	2.5 U	2.5 U	1.0 JT
	07/13/15	0.9	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	0.5 U	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.6
	10/27/15	0.9 JT	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	0.7 JT
	01/26/16	0.4 JT	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	04/04/16	0.5 JT	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	0.45 T	2.5 U
	07/11/16	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	10/10/16	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UB1	5 U	5 U
	01/23/17	0.5 JT	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	04/09/17	3.0	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	0.55 JT	2.5 U	2.5 U	2.5 U	2.5 U	1.2 JT
	07/27/17	5 U	50 U	5 U	10 U	50 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U
	10/16/17	5 U	50 U	5 U	10 U	50 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 B1	5 U
	01/29/18	0.4 T		0.5 U	1.0 U	50 U	0.5 U	0.5 U	1 U	0.3 T	0.5 U	0.5 U	0.5 U	0.5 U	4.9
	04/03/18	0.8 JT	25 U	2.5 U	5 U	50 U	2.5 U	2.5 U	5 U	2.5 U	0.7 T	2.5 U	2.5 UB1	2.5 U	2.5 U
	07/20/18	0.4 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/15/18	0.5 JT	25 U	2.5 U	5 U	50 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	01/15/19	2.5 U	25 U	2.5 U	5 U	50 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	04/02/19	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.2 T
	07/09/19	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4	0.5 U	0.5 U	0.5 U	0.5 B1	0.1 T
	10/27/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/21/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/14/20	2.5 U	25 U	2.5 U	5 U	50 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	01/19/21	2.5 U	25 U	2.5 U	5 U	50 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	04/12/21	0.6 T	25 U	2.5 U	5 U	50 UB1	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	07/13/21	0.7 T	25 U	2.5 U	5 U	50 UB1	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	10/26/21	2.5 U	25 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	01/18/22														
	04/07/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/18/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/10/22	2.5 U	25 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	01/24/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/24/23	2.5 U	25 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	10/29/23	2.5 U	25 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U

Cowlitz County Tennant Way Landfill
Leachate Quality Data
Volatile Organic Compounds
ug/l (ppb)

		1,2-Di-												trans-		
		cis-1,3-		Bromo-		bromo-		4-Methyl-2-				Tetra-				
Sample	Date	Dichloro-	Dibromo-	dichloro-	Ethyl-	ethane	2-Butanone	Iodo-	pentanone	Methylene		chloro-		Total	chloro-	
Location	Sampled	propene	methane	methane	benzene	(EDB)	(MEK)	methane	(MIBK)	Chloride	Styrene	ethene	Toluene	Xylenes	ethene	
L-2	07/21/11	2.5 U	2.5 U	2.5 U	11	10 U	44 T	25 U	100 U	0.5 T	0.85 JT	2.5 U	14	47	2.5 U	
	10/14/11	2.5 U	2.5 U	2.5 U	9.4	10 U	25 T	25 U	100 U	1.7 T	0.55 JT	2.5 U	12	40	2.5 U	
	01/27/12	0.5 U	0.5 U	0.5 U	24	2 U	170	5 U	6.3 T	2 U	0.5 U	0.1 T	18	72	0.5 U	
	04/06/12	0.5 U	0.5 U	0.5 U	24	2 U	500	0.2 T	11 T	2 U	0.5 U	0.5 U	20	65	0.2 T	
	07/12/12	2.5 U	2.5 U	2.5 U	12	10 U	18 JT	25 U	100 U	1.4 JT	2.5 U	2.5 U	14	48	2.5 U	
	10/25/12	0.5 U	0.5 U	0.5 U	7.9	2 U	20 U	5 U	20 U	2 U	0.5 U	0.2 T	8.7	40	0.5 U	
	01/07/13	0.5 U	0.5 U	0.5 U	17	2 U	260	5 U	5.8 T	2 U	0.8	0.2 T	17	56	0.5 U	
	04/12/13	0.5 U	0.5 U	0.5 U	11	2 U	210	5 U	7.2 T	0.1 T	0.4 T	0.1 T	9.0	21	0.5 U	
	07/12/13	0.5 U	0.5 U	0.5 U	10	2 U	15 T	5 U	20 U	0.2 T	0.6	0.1 T	11	43	0.5 U	
	10/16/13	0.5 U	0.5 U	0.5 U	6.4	2 U	34 U	5 U	20 U	2 U	0.3 T	0.4 T	6.5	25	0.5 U	
	01/14/14	0.5 U	0.5 U	0.5 U	1.4	2 U	11 T	5 U	3.3 T	2 U	0.1 T	0.5 U	3.1	16	0.5 U	
	04/21/14	0.5 U	0.5 U	0.5 U	5.2	2 U	23	5 B1	20 U	2 U	0.3 T	0.5 U	5.8	20	0.5 U	
	07/16/14	0.5 U	0.5 U	0.5 U	4.0	2 U	4.8 T	5 U	20 U	2 U	0.4 T	0.1 T	5.0	32	0.5 U	
	10/20/14	5 U	5 U	5 U	14	20 U	40 JT	50 U	200 U	8.3 JT	0.9 JT	5 U	15	46	5 U	
	01/14/15	2.5 U	2.5 U	2.5 U	7.3	10 U	100 U	25 U	100 U	10 B1	0.55 JT	2.5 U	9.2	32	2.5 U	
	04/08/15	2.5 U	2.5 U	2.5 U	3.6	10 U	9.8 JT	25 U	100 U	10 B1	2.5 U	2.5 U	3.5	14	2.5 U	
	07/13/15	0.5 U	0.5 U	0.5 U	4	2 U	20 U	5 U	20 U	2 U	0.2 JT	0.5 U	3.3	16	0.5 U	
	10/27/15	2.5 U	2.5 U	2.5 U	2.8	10 U	100 U	25 U	100 U	10 B1	2.5 U	2.5 U	2.1 JT	11	2.5 U	
	01/26/16	2.5 U	2.5 U	2.5 U	0.6 JT	10 U	13 JT	25 U	100 U	10 B1	2.5 U	2.5 U	0.9 JT	2.1 JT	2.5 U	
	04/04/16	2.5 U	2.5 U	2.5 U	2.5 U	10 U	100 U	25 U	100 U	10 B1	2.5 U	2.5 U	0.7 JT	4.0 JT	2.5 U	
	07/11/16	2.5 U	2.5 U	2.5 U	0.6 JT	10 U	100 U	25 U	100 U	10 B1	2.5 U	2.5 U	0.9 JT	1.8 JT	2.5 U	
	10/10/16	5 U	5 U	5 U	5 U	20 U	200 U	50 U	200 U	20 B1	5 U	5 U	5 U	5 U	5 U	
	01/23/17	2.5 U	2.5 U	2.5 U	0.4 JT	10 U	100 U	25 U	100 U	10 B1	2.5 U	2.5 U	0.3 JT	1.9 JT	2.5 U	
	04/09/17	2.5 U	2.5 U	2.5 U	8.0	10 U	100 U	25 U	100 U	10 B1	0.4 JT	2.5 U	12	25	2.5 U	
	07/27/17	5 U	5 U	5 U	5 U	5 U	50 U	50 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U	
	10/16/17	5 U	5 U	5 U	5 U	5 U	50 U	50 U	50 U	5 U	5 U	5 B1	5 U	5 U	5 B1	
	01/29/18	0.5 U		0.5 U	0.3 T		20 U		20 U	0.5 U	0.5 U	0.5 U	0.2 T	1.3	0.5 U	
	04/03/18	2.5 U	2.5 U	0.6 T	2.5 U	2.5 U	25 U	25 U	1.9 T	25 U	2.5 U	25 U	2.5 U	2.5 U	2.7	2.5 U
	07/20/18	0.5 U	0.5 U	0.5 U	0.1 T	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.4 T	2.8	0.5 U	
	10/15/18	2.5 U	2.5 U	2.5 U	0.3 JT	2.5 U	25 U	25 U	25 U	25 U	2.5 B1	25 U	2.5 U	0.4 JT	2.6	2.5 U
	01/15/19	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	25 U	2.5 U	25 U	2.5 U	2.5 U	1.3 JT	2.5 U
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	8.7 T	5 U	20 U	2 U	0.5 U	0.5 U	0.5 B1	2.3	0.5 U
07/09/19	0.5 U	0.5 U	0.5 U	0.2 T	2 U	25 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 B1	1.9	0.5 U		
10/27/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	25 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 B1	0.8	0.5 U	
01/21/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	25 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 U	1.4	0.5 U	
04/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	25 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 U	0.6	0.5 U	
07/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	25 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 U	0.8	0.5 U	
10/14/20	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	25 U	2.5 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U	
01/19/21	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	25 U	2.5 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U	
04/12/21	2.5 U	2.5 U	2.5 U	2.5 U	0.6 T	2.5 U	25 U	25 U	25 U	2.5 U	25 U	2.5 U	0.4 T	1.6 JT	2.5 U	
07/13/21	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	25 U	2.5 U	25 U	2.5 U	0.3 T	1.2 T	2.5 U	
10/26/21	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	25 U	2.5 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U	
01/18/22																
04/07/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	25 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 U	0.6	0.5 U	
07/18/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	25 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	
10/10/22	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	25 U	2.5 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U	
01/24/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	25 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	
04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	25 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	
07/24/23	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	25 U	2.5 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U	
10/29/23	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	25 U	2.5 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U	

Cowlitz County Tennant Way Landfill
Leachate Quality Data
Volatile Organic Compounds
ug/l (ppb)

Sample Location	Date Sampled	trans-1,3-	Tri-	Vinyl chloride	Acrylo- nitrile	trans+cis- 1,4-Di-	Vinyl Acetate
		Dichloro- propene	chloro- ethene			chloro- 2-butene	
L-2	07/21/11	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	10/14/11	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	01/27/12	0.5 U	1.0	0.6	5 U	10 U	5 U
	04/06/12	0.5 U	0.1 T	0.9	5 U	10 U	5 U
	07/12/12	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	10/25/12	0.5 U	0.2 T	0.2 T	5 U	10 U	5 U
	01/07/13	0.5 U	0.2 T	0.4 T	5 U	10 U	5 U
	04/12/13	0.5 U	0.1 T	0.5 T	5 U	10 U	5 U
	07/12/13	0.5 U	0.2 T	0.2 T	5 U	10 U	5 U
	10/16/13	0.5 U	0.4 T	0.3 T	5 U	10 U	5 U
	01/14/14	0.5 U	0.5 U	0.2 T	5 U	10 U	5 U
	04/21/14	0.5 U	0.5 U	0.1 T	5 U	10 U	5 U
	07/16/14	0.5 U	0.1 T	0.1 T	5 U	10 U	5 U
	10/20/14	5 U	5 U	5 U	50 U	100 U	50 U
	01/14/15	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	04/08/15	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	07/13/15	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	10/27/15	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	01/26/16	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	04/04/16	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	07/11/16	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	10/10/16	5 U	5 U	5 U	50 U	100 U	50 U
	01/23/17	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	04/09/17	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	07/27/17	5 U	5 U	5 U			
	10/16/17	5 U	5 U	5 U			
	01/29/18	0.5 U	0.5 U	0.5 U	2 U		
	04/03/18	2.5 U	2.5 U	2.5 U		50 U	25 U
	07/20/18	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	10/15/18	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	01/15/19	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	04/02/19	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	07/09/19	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	10/27/19	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	01/21/20	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	04/14/20	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	07/13/20	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	10/14/20	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	01/19/21	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	04/12/21	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	07/13/21	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	10/26/21	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	01/18/22						
	04/07/22	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	07/18/22	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	10/10/22	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	01/24/23	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	04/03/23	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	07/24/23	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	10/29/23	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U

Cowlitz County Tennant Way Landfill
Leachate Quality Data
Volatile Organic Compounds
ug/l (ppb)

Sample Location	Date Sampled	1,1,1,2-Tetra-	1,1,1,2-Tetra-	1,1,2,2-Tetra-	1,1,2,2-Tetra-	1,1-Di-	1,1-Di-	1,2,3- bromo-3-	1,2-Di-	1,2-Di-	1,2-Di-	1,2-Di-	1,4-Di-	2-Hexanone	Acetone
		chloro-ethane	chloro-ethane	chloro-ethane	chloro-ethane	chloro-ethane	chloro-ethene	Trichloro-propane	chloro-benzene	chloro-ethane	chloro-propane	chloro-benzene	chloro-benzene		
L-3	07/12/12	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	4.1	100 U	22 T
	10/25/12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.2 T	0.5 U	2.5	20 U	30
	01/07/13	0.5 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	2 U	0.5 U	0.1 T	0.1 T	4.2	6 T	370
	04/12/13	0.5 U	0.5 U	0.5 U	0.5 U	0.2 T	0.5 U	0.5 U	2 U	0.2 T	0.3 T	0.2 T	4.6	11 T	210
	07/12/13	0.5 U	0.5 U	0.5 U	0.5 U	0.2 T	0.5 U	0.5 U	2 U	0.2 T	0.3 T	0.1 T	6.3	20 U	31
	10/16/13	0.5 U	0.5 U	0.5 U	0.5 U	0.2 T	0.5 U	0.5 U	2 U	0.2 T	0.2 T	0.2 T	4.4	20 U	99
	01/14/14	0.5 U	0.5 U	0.5 U	0.5 U	0.2 T	0.5 U	0.5 U	2 U	0.2 T	0.2 T	0.2 T	4.5	20 U	39
	04/21/14	0.5 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	2 U	0.2 T	0.2 T	0.2 T	5.4	20 U	53
	07/16/14	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.2 T	0.2 T	0.5 U	5.0	20 U	25
	10/20/14	5 U	5 U	5 U	5 U	5.0 U	5 U	5 U	20 U	5 U	5 U	5 U	6.2	200 U	57 JT
	01/14/15	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	5.0	100 U	100 U
	04/08/15	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	2.9	100 U	25 JT
	07/13/15	0.5 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	2 U	0.5 U	0.1 T	0.5 U	2.5	20 U	20 UJ
	10/27/15	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	1.5 JT	100 U	24 JT
	01/26/16	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	0.3 JT	100 U	21 JT
	04/04/16	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	1.5 JT	100 U	100 U
	07/11/16	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	2.6 JT	100 U	18 JT
	10/10/16	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U	5 U	5 U	5 U	2.2 JT	200 U	200 U
	01/23/17	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	2.6 JT	100 U	18 JT
	04/09/17	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	5.4	100 U	21 JT
	07/27/17	5 U	5 U	5 U	5 U	5 U	5 U	50 U	50 U	5 U	5 U	5 U	5 U	50 U	50 U
	10/16/17	5 U	5 U	5 U	5 U	5 U	5 U	50 U	50 U	5 U	5 U	5 U	2.1 JT, B	50 U	16 JT, B
	01/29/18		0.5 U	0.5 U	0.5 U	0.1 T	0.5 B1			0.5 U	0.5 U	0.5 U	1.8	20 U	20 B1
	04/03/18	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U	2.5 U	1.7 JT	25 U	25 U
	07/20/18	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.2	20 U	7.6 T
	10/15/18	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U	2.5 U	1.3 T	25 U	25 U
	01/15/19	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U	2.5 U	1.1 JT	25 U	26 JT, B
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.1 T	0.5 U	0.5 U	1.6	20 U	20 UB1
	07/09/19	0.5 U	0.5 U	0.5 U	0.2 T	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.4	20 U	20 U
	10/27/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.4	20 U	20 U
	01/21/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.5	20 U	20 U
	04/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.4	20 U	20 U
	07/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.6	20 U	20 U
	10/14/20	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	100 U
	01/19/21	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	100 U
	04/12/21	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U	2.5 U	1.2 JT	25 U	100 U
	07/13/21	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U	2.5 U	1.4 T	25 U	100 U
	10/26/21	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	100 U
	01/18/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	20 U
	04/07/22	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	100 U
	07/18/22	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	100 U
	10/10/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.1	20 U	20 U
	01/24/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	2.1	20 U	20 U
	04/03/23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5	20 U	20 U
	07/24/23	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	100 U
	10/29/23	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	100 U

Note: U = not detected, MRL shown.

T = Detected below reporting limit. Value is an estimate.

B = detected in blank, reported concentration may be affected.

JT = Detected below elevated reporting limit, value is estimate.

UB1 = Detected in blank and sample below MRL shown.

Cowlitz County Tennant Way Landfill
Leachate Quality Data
Volatile Organic Compounds
ug/l (ppb)

		Trichloro- Dichloro- cis-														
		Bromo- Carbon fluoro- difluoro- Dibromo- 1,2-Di-														
Sample	Date	chloro- Bromo- Bromo- Carbon Tetra- methane methane Chloro- chloro- Chloro- Chloro- Chloro- Chloro- Chloro-														
Location	Sampled	Benzene	methane	form	methane	Disulfide	chloride	(CFC-11)	(CFC-12)	benzene	methane	ethane	Chloroform	methane	ethene	
L-3	07/12/12	1.5 T	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	0.7 T	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	
	10/25/12	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.33 T	0.5 U	0.5 U	0.5 U	0.2 T	0.3 T	
	01/07/13	2.0	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.73	0.5 U	0.5 U	0.5 U	0.1 T	0.3 T	
	04/12/13	3.3	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	0.5 U	0.9	0.5 U	0.5 U	0.5 U	0.5 U	0.7	
	07/12/13	2.0	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.0	0.5 U	0.18 T	0.5 U	0.5 U	1.0	
	10/16/13	2.8	0.5 U	0.5 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	1.0	0.5 U	0.5 U	0.5 U	0.1 T	0.4 T	
	01/14/14	3.4	0.5 U	0.5 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.21 T	1.1	0.5 U	0.5 U	0.5 U	0.5 U	0.3 T	
	04/21/14	3.1	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	0.16 T	1.3	0.5 U	0.16 T	0.5 U	0.1 T	0.4 T	
	07/16/14	1.7	0.5 U	0.5 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	0.9	0.5 U	0.23 T	0.5 U	0.5 U	0.6	
	10/20/14	2.6 JT	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1.5 JT	5 U	5 U	5 U	5 UJ	1.3 JT	
	01/14/15	2.6	2.5 U	2.5 U	2.5 U	2.5 UB1	2.5 U	2.5 U	2.5 U	1.4 JT	2.5 U	2.5 U	2.5 U	2.5 U	1.3 JT	
	04/08/15	1.6 JT	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	0.9 JT	2.5 U	2.5 U	2.5 U	2.5 U	0.6 JT	
	07/13/15	1.4	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	0.5 U	1.4	0.5 U	0.46 T	0.5 U	0.5 U	0.4 T	
	10/27/15	0.9 JT	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	1.0 JT	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	
	01/26/16	0.2 JT	2.5 U	2.5 U	0.2 JT	2.5 UB1	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	0.5 U	2.5 U	0.3 JT	2.5 UB1	
	04/04/16	0.5 JT	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	0.5 U	2.5 U	2.5 U	2.5 UB1	
	07/11/16	0.8 JT	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	0.5 U	2.5 U	2.5 U	2.5 U	
	10/10/16	0.7 JT	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UB1	5 U	5 U	
	01/23/17	0.8 JT	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	0.5 U	2.5 U	2.5 U	2.5 U	
	04/09/17	3.8	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	0.75 JT	2.5 U	0.5 U	2.5 UB1	2.5 U	1.8 JT
	07/27/17	5 U	50 U	5 U	10 U	50 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U
	10/16/17	1.6 T	50 U	5 U	10 U	50 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U
	01/29/18	0.7		0.5 U	1.0 U	50 U	0.5 U	0.5 U	0.5 U	0.3 T	0.3 T	0.5 U	0.19 T	0.5 U	0.5 U	0.5 U
	04/03/18	0.8 T	25 U	2.5 U	5 U	50 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	0.9 JT	2.5 U	0.8 JT	2.5 U	2.5 U
	07/20/18	0.4 T	0.5 U	0.5 U	0.5 U	0.5 UB1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/15/18	0.4 T	25 U	2.5 U	5 U	50 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	01/15/19	2.5 U	25 U	2.5 U	5 U	50 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	04/02/19	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 T	0.5 U	0.5 U	0.5 U	0.1 T	0.2 T
	07/09/19	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 T	0.5 U	0.5 U	0.5 U	0.5 U	0.2 T
	10/27/19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/21/20	0.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/14/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	07/13/20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	10/14/20	2.5 U	25 U	2.5 U	5 U	50 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	01/19/21	2.5 U	25 U	2.5 U	5 U	50 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	04/12/21	0.5 JT	25 U	2.5 U	5 U	50 UB1	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	07/13/21	0.6 T	25 U	2.5 U	5 U	50 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	10/26/21	2.5 U	25 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	01/18/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/07/22	2.5 U	25 U	2.5 U	5 U	3.7	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
07/18/22	2.5 U	25 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	
10/10/22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
01/24/23	0.7 T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
04/03/23	0.9	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
07/24/23	2.5 U	25 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	
10/29/23	2.5 U	25 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	

Note: U = not detected, MRL shown.

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UB1 = Detected in blank and sample below MRL shown.

Cowlitz County Tennant Way Landfill
Leachate Quality Data
Volatile Organic Compounds
ug/l (ppb)

		1,2-Di-												trans-	
		cis-1,3-		Bromo-		bromo-		4-Methyl-2-		Tetra-					
Sample	Date	Dichloro-	Dibromo-	dichloro-	Ethyl-	ethane	2-Butanone	Iodo-	pentanone	Methylene		chloro-		Total	
Location	Sampled	propene	methane	methane	benzene	(EDB)	(MEK)	methane	(MIBK)	Chloride	Styrene	ethene	Toluene	Xylenes	chloro-
L-3	07/12/12	2.5 U	2.5 U	2.5 U	3.8	10 U	10 JT	25 U	100 U	1.4 JT	2.5 U	2.5 U	1.9 T	17	2.5 U
	10/25/12	0.5 U	0.5 U	0.5 U	1.1	2 U	20 T	5 U	3 T	2 U	0.5 U	0.5 U	1.0	5.2	0.5 U
	01/07/13	0.5 U	0.5 U	0.5 U	2.1	2 U	510	5 U	20 U	2 U	0.09 T	0.5 U	1.7	12	0.5 U
	04/12/13	0.5 U	0.5 U	0.5 U	11	2 U	310	5 U	6.9 T	0.2 T	0.5 U	0.5 U	3.9	24	0.1 T
	07/12/13	0.5 U	0.5 U	0.5 U	8.7	2 U	38	5 U	20 U	0.3 T	0.32 T	0.5 U	3.5	29	0.5 U
	10/16/13	0.5 U	0.5 U	0.5 U	9.0	2 U	70 U	5 U	20 U	2 U	0.14 T	0.22 T	2.3	21	0.5 U
	01/14/14	0.5 U	0.5 U	0.5 U	5.5	2 U	17 T	5 U	20 U	2 U	0.1 T	0.5 U	1.6	18	0.5 U
	04/21/14	0.5 U	0.5 U	0.5 U	4.4	2 U	30	5 B1	20 U	2 U	0.11 T	0.5 U	2.3	13	0.5 U
	07/16/14	0.5 U	0.5 U	0.5 U	2.4	2 U	20 U	5 U	20 U	2 U	0.15 T	0.5 U	1.2	13	0.5 U
	10/20/14	5 U	5 U	5 U	8.9	20 U	200 U	50 U	200 U	8.2 JT	5 U	5 U	4.0 JT	24	5 U
	01/14/15	2.5 U	2.5 U	2.5 U	9.1	10 U	100 U	25 U	100 U	2.5 B1	0.5 JT	2.5 U	7.7	27	2.5 U
	04/08/15	2.5 U	2.5 U	2.5 U	2.4 JT	10 U	11 JT	25 U	100 U	2.5 B1	2.5 U	2.5 U	2.6	10	2.5 U
	07/13/15	0.5 U	0.5 U	0.5 U	2.8	2 U	20 U	5 U	20 U	2 U	0.15 T	0.5 U	2.0	10	0.5 U
	10/27/15	2.5 U	2.5 U	2.5 U	1.3 JT	10 U	100 U	25 U	100 U	10 B1	2.5 U	2.5 U	0.9 JT	5.7 JT	2.5 U
	01/26/16	2.5 U	2.5 U	2.5 U	0.4 JT	10 U	2.7 JT	0.2 JT	100 U	10 U	2.5 U	2.5 U	0.3 JT	1.1 JT	2.5 U
	04/04/16	2.5 U	2.5 U	2.5 U	1.0 JT	10 U	100 U	25 U	100 U	10 B1	2.5 U	2.5 U	1.6 JT	3.2 JT	2.5 U
	07/11/16	2.5 U	2.5 U	2.5 U	1.4 JT	10 U	100 U	25 U	100 U	10 B1	2.5 U	2.5 U	0.7 JT	5.7 JT	2.5 U
	10/10/16	5 U	5 U	5 U	1.0 JT	20 U	200 U	50 U	200 U	20 B1	5 U	5 U	5 U	3.7 JT	5 U
	01/23/17	2.5 U	2.5 U	2.5 U	1.4 JT	10 U	100 U	25 U	100 U	10 B1	2.5 U	2.5 U	0.7 JT	5.7 JT	2.5 U
	04/09/17	2.5 U	2.5 U	2.5 U	9.5	10 U	13 JT	25 U	100 U	10 B1	0.65 JT	2.5 U	7.8	28	2.5 U
	07/27/17	5 U	5 U	5 U	5 U	5 U	50 U	50 U	50 U	5 U	5 U	5 U	5 U	4.1 JT	5 U
	10/16/17	5 U	5 U	5 U	2.3 JT	5 U	50 U	50 U	50 U	5 U	5 U	5 B1	5 U	7.3	5 B1
	01/29/18	0.5 U		0.5 U	1.1		20 U		1 T	0.5 U	0.5 U	0.5 U	0.9	5.5	0.5 U
	04/03/18	2.5 U	2.5 U	0.8 JT	1.9 JT	2.5 U	25 U	2 JT	25 U	2.5 U	25 U	2.5 U	0.8 JT	6.9	2.5 U
	07/20/18	0.5 U	0.5 U	0.5 U	0.7 T	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.3 T	3.6	0.5 U
	10/15/18	2.5 U	2.5 U	2.5 U	0.3 JT	2.5 U	25 U	25 U	25 U	2.5 B1	25 U	2.5 U	2.5 U	2.5 JT	2.5 U
	01/15/19	2.5 U	2.5 U	2.5 U	0.4 JT	2.5 U	11 JT	25 U	25 U	2.5 B1	25 U	2.5 U	0.6 JT	3.3 JT	2.5 U
	04/02/19	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 B1	5.9	0.5 U
	07/09/19	0.5 U	0.5 U	0.5 U	0.6	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.6	4.2	0.5 U
	10/27/19	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 U	2.7	0.5 U
	01/21/20	0.5 U	0.5 U	0.5 U	1.1	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 U	5.8	0.5 U
	04/14/20	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 U	2.8	0.5 U
	07/13/20	0.5 U	0.5 U	0.5 U	0.8	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 U	3.4	0.5 U
	10/14/20	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	100 U	25 U	25 U	2.5 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U
	01/19/21	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	100 U	25 U	25 U	2.5 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U
	04/12/21	2.5 U	2.5 U	2.5 U	0.4 JT	2.5 U	100 U	25 U	25 U	2.5 U	25 U	2.5 U	0.4 T	2.0 JT	2.5 U
	07/13/21	2.5 U	2.5 U	2.5 U	0.5 T	2.5 U	100 U	25 U	25 U	2.5 U	25 U	2.5 U	2.5 U	1.7 T	2.5 U
	10/26/21	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	100 U	25 U	25 U	2.5 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U
	01/18/22	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	04/07/22	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	430 U	25 U	25 U	2.5 U	25 U	2.5 U	15	3.2	2.5 U
	07/18/22	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	100 U	25 U	25 U	2.5 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U
	10/10/22	0.5 U	0.5 U	0.5 U	0.5 U	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	01/24/23	0.5 U	0.5 U	0.5 U	1.1	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.5 U	1.9	0.5 U
	04/03/23	0.5 U	0.5 U	0.5 U	1.2	2 U	20 U	5 U	20 U	2 U	0.5 U	0.5 U	0.6	2.8	0.5 U
	07/24/23	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	100 U	25 U	25 U	2.5 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U
	10/29/23	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	100 U	25 U	25 U	2.5 U	25 U	2.5 U	2.5 U	2.5 U	2.5 U

Note: U = not detected, MRL shown.

T = Detected below reporting limit. Value is an estimate.

JT = Detected below elevated reporting limit, value is estimate.

B = detected in bland, reported concentration may be affected.

B1 = Detected in blank and sample below MRL shown.

Cowlitz County Tennant Way Landfill
Leachate Quality Data
Volatile Organic Compounds
ug/l (ppb)

Sample Location	Date Sampled	trans-1,3-	Tri-	trans+cis-			
		Dichloro- propene	chloro- ethene	Vinyl chloride	Acrylo- nitrile	1,4-Di- chloro- 2-butene	Vinyl Acetate
L-3	07/12/12	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	10/25/12	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	01/07/13	0.5 U	0.5 U	0.3 T	5 U	10 U	5 U
	04/12/13	0.5 U	0.5 U	1.3	5 U	10 U	5 U
	07/12/13	0.5 U	0.5 U	0.4 T	5 U	10 U	5 U
	10/16/13	0.5 U	0.5 U	0.6	5 U	10 U	5 U
	01/14/14	0.5 U	0.1 T	0.7	5 U	10 U	5 U
	04/21/14	0.5 U	0.5 U	0.2 T	5 U	10 U	5 U
	07/16/14	0.5 U	0.5 U	0.2 T	5 U	10 U	5 U
	10/20/14	5 U	5 U	5 U	50 U	100 U	50 U
	01/14/15	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	04/08/15	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	07/13/15	0.5 U	0.5 U	0.1 T	5 U	10 U	5 U
	10/27/15	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	01/26/16	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	04/04/16	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	07/11/16	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	10/10/16	5 U	5 U	5 U	50 U	100 U	50 U
	01/23/17	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	04/09/17	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	07/27/17	5 U	5 U	5 U			
	10/16/17	5 U	5 U	5 U			
	01/29/18	0.5 U	0.5 U	0.3 T	2 U		
	04/03/18	2.5 U	2.5 U	2.5 U		50 U	25 U
	07/20/18	0.5 U	0.5 U	0.5 U	5 U	10 U	0.1 T
	10/15/18	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	01/15/19	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	04/02/19	0.5 U	0.5 U	0.1 T	5 U	10 U	5 U
	07/09/19	0.5 U	0.5 U	0.1 T	5 U	10 U	5 U
	10/27/19	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	01/21/20	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	04/14/20	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	07/13/20	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	10/14/20	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	01/19/21	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	04/12/21	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	07/13/21	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	10/26/21	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	01/18/22	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	04/07/22	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	07/18/22	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	10/10/22	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	01/24/23	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	04/03/23	0.5 U	0.5 U	0.5 U	5 U	10 U	5 U
	07/24/23	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U
	10/29/23	2.5 U	2.5 U	2.5 U	25 U	50 U	25 U

Note: U = not detected, MRL shown.

T = Detected below reporting limit. Value is an estimate.

B = d

JT = Detected below elevated reporting limit, value is estimate.

UB1 :

APPENDIX D

FOURTH QUARTER TECHNICAL MEMORANDA WITH ANALYTICAL DATA PACKAGE

MEMORANDUM

November 2, 2023

TO: Cowlitz County Tennant Way Landfill Project File

FROM: Dennis R. Dykes, Bright Fields Groundwater, Inc.

SUBJECT: 4th Quarter 2023 Field Sampling Procedures

The 4th quarter 2023 monitoring event at the Cowlitz County Tennant Way Landfill was completed on October 29 and 31, 2023. Twelve monitoring wells, two surface water sites, and three leachate sites were sampled. One duplicate sample was also prepared. The sample locations, sample identifiers, and purging parameters are summarized on the attached table. The sampling and sample handling procedures used were consistent with those described in the Sampling and Analysis Plan as revised in March 2013.

The monitoring wells were purged and sampled using SS Sample Champ pumps dedicated to each well. The depth to water in each well was measured immediately before purging. At each well, the pump was started and the flow adjusted to approximately 350 to 630 ml per minute and the depth to water checked to determine the approximate drawdown. Drawdown at three wells (MW-5B, -8B and -11B) is known to exceed three tenths of a foot so a low flow rate was set at these wells to minimize drawdown. After a stable flow rate was established, typically within a few minutes, the water was observed for turbidity. The wells were pumped for 10 to 14 minutes before initiating the measurement of field parameters (temperature, pH, specific conductance, dissolved oxygen, redox potential, and turbidity). Field parameters were measured and recorded at approximately three or four minute intervals until they had stabilized within SAP criteria. Flow rate, depth to water and the pump setting were checked and recorded occasionally during purging. Purge water was disposed to vegetated ground away from surface water at each well. The final flow rate and depth to water were measured and recorded after sample collection just before the pump was turned off. Drawdown appeared to be essentially stable at each well before initiation of sample collection.

The flow could not be stabilized at a low enough rate to keep drawdown less than 0.3 feet at three wells. A stable drawdown of 0.48 feet was achieved at MW-5B, 1.29 feet at MW-8B and 0.93 feet at MW-11B.

Water levels, which occasionally rise at several wells during sampling because of a rising tide, rose slightly at two wells (MW-9B and -10B) during purging and sampling. Water levels at seven other wells fell 0.18 feet or less. The flow rate during purging at several wells was greater than 500 ml/min. However, the drawdown was small and stable so the flow was not adjusted so that stability was maintained during purging and sampling.

Sample bottles were filled directly from the flow through cell so that the flow rate would not be affected by bypassing the flow through cell. The portion of each sample for dissolved metals analysis was collected in an unpreserved bottle for filtering at the lab.

A duplicate sample was collected at MW-16B by alternately filling sample bottles at this well. The bottle labels were marked with the project site, a blind sample number and the date and time. The time was marked as one half hour different which is similar to the sample time between wells.

Two surface water and three leachate sites specified in the SAP were sampled. The surface water samples were collected by submerging the bottles under the water surface at the designated locations. Sample site S-2 is located near the north end of the site. The sample at the runoff discharge site was from flowing water near the inlet to the culvert that conducts runoff from the site under the railroad. The leachate samples were collected using a disposable bailer dipped into the designated sumps. The portions of the surface water and leachate samples for metals analyses were not filtered.

The sample bottles were placed in coolers immediately after collection. Samples were delivered to ALS in Kelso, Washington on October 30th under chain of custody documentation. A copy of the chain of custody documents is attached.

The depth to water was measured in 26 monitoring wells and a piezometer on October 30, 2023. The measurements were made in a continuous round that began at approximately the forecast low tide in the Cowlitz River. River level rose 0.34 feet during the measurement round. Wells closest to the river were measured first. The hydrology field sheet is attached.

Landfill gas monitoring was added to the monitoring events in 2018. Gas was measured at four gas probes and three onsite structures using a RKI GX 2012 meter on October 30th. The results are reported separately to the solid waste manager.

Dedicated or disposable sampling equipment was used therefore decontamination was not necessary. The well probe and field meters were rinsed with distilled water after use. The field meters were calibrated before use.

Attachments: Sampling Summary
Hydrology Field Sheet
Field Sampling Data Sheets
Chain of Custody Documents

**Cowlitz County Tennant Way Landfill
Sampling Summary for
4th Quarter 2023**

Sample Location	Sample Identifier	Depth to Water		Total Draw-down	Approx. Flow Rate	Approx. Total Liters Removed *	Field Measurements Intervals **
		Initial (feet)	Final (feet)	(feet)	(milliliters/minute)		
MW-3B	W9-1029	12.54	12.58	0.04	585	13.5	3
MW-5B	W1-1029	6.82	7.30	0.48	350	10.7	4
MW-7B	W11-1029	21.71	21.89	0.18	600	13.8	3
MW-8B	W6-1029	30.19	31.48	1.29	450	20.25	8
MW-9B	W7-1029	31.81	31.75	-0.06	630	15.75	4
MW-10B	W8-1029	36.95	36.91	-0.04	615	14.1	3
MW-11B	W10-1029	19.02	19.95	0.93	420	10.5	3
MW-12B	W5-1029	28.56	28.64	0.08	450	10.3	3
MW-13	W4-1029	30.15	30.21	0.06	525	12.1	3
MW-14B	W3-1029	27.41	27.44	0.03	525	12.1	3
MW-15	W2-1029	26.59	26.60	0.01	525	12.1	3
MW-16B	W12-1029	17.64	17.72	0.08	540	17.3	4
L-1	W16-1029	---	---	---	---	---	---
L-2	W17-1029	---	---	---	---	---	---
L-3	W18-1029	---	---	---	---	---	---
RD-1	W15-1029	---	---	---	---	---	---
S-2	W14-1029	---	---	---	---	---	---
MW-16B Duplicate	W13-1029	---	---	---	---	---	---
Notes: * total volume includes purged and sampled water. ** field measurements interval is typically three or four minutes of pumping. *** unable to accurately measure --- not applicable.							

Field Sampling Data

Project Location:	Cowlitz County Tennant Way Landfill	Sample Location:	M20-3B
Sampling Event:	4th Qtr 2023	Sample Field Identifier:	W9-1029
Sampler:	Dennis R. Dykes	Start Date/Time:	10/24/23 1335
		Weather:	Sunny Mild Calm

Well Pumping Data

Depth to Water	Prepumping	Measurement	Date	Time	Method
		12.54	10/29	1340	Well Probe
	Final pumping	12.58	"	1406	
Pumping Time	Rate	Voltage	DTW	Liters Pumped	Rate (ml/min)
1	200 / 20s	12.9	12.58		
23	195 / "	9.1	12.58	135	585

Flow through cells apparatus volume = approx. 120ml.

Field Water Quality Measurements

Pumping Time	pH	Specific Conductance (uS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Eh (mV)
10	6.59	121	13.5	1.29	0.13	3
13	6.59	120	13.6	0.87	0.11	3
16	6.59	120	13.6	0.56	0.11	2

Sampling

Date/Time	Containers (number/volume/type/preservative)	Depth Taken (ft)	Field Filtration	Sampling Method
10/24 1330	1 1000ml poly none	16.7	no	Low Flow
" "	1 250ml poly none	"	no	Submersible
" "	1 250ml poly HNO3	"	no	Pump
" "	1 250ml poly H2SO4	"	no	"
" "	3 40ml glass HCl	"	no	"
" "	1 40ml amber glass H2SO4	"	no	"

Equipment Decontamination: None, dedicated equip used. Well probe rinsed with distilled.
 Sample Appearance: Clear Sample Handling: Cooler, deliver to lab

Comments: Slight sulfur odor

Field Sampling Data

Project Location: Cowlitz County Tennant Way Landfill	Sample Location: W-5E
Sampling Event: 4th Qtr 2023	Sample Field Identifier: 04-1029
Sampler: Dennis R. Dykes	Start Date/Time: 10/29/23 835
	Weather: 66 61 64 35

Well Pumping Data

Depth to Water	Prepumping	Measurement	Date	Time	Method
		Final pumping			
		6.62	10/29	8:45	Well Probe
		7.30	"	9:20	
	Pumping Time	Rate	Voltage	DTW	Liters Pumped Rate (ml/min)
	7	120/120	120	7.12	
	11	120/120	120.5	7.14	216 240
	34	175/130	"	7.30	8.1 350
					10.7

Flow through cells apparatus volume = approx. 120ml.

Field Water Quality Measurements

Pumping Time	pH	Specific Conductance (uS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Eh (mV)
14	7.67	390	12.6	1.37	0.27	-59
18	7.42	391	13.2	1.39	0.22	-45
22	7.23	392	13.3	1.32	0.20	-35
26	7.09	392	13.5	1.30	0.20	-26
33	6.94					

Sampling

Date/Time	Containers (number/volume/type/preservative)				Depth Taken (ft)	Field Filtration	Sampling Method
10/29 8:30	1	1000ml	poly	none	12.5	no	Low Flow
" "	1	250ml	poly	none	"	no	Submersible
" "	1	250ml	poly	HNO3	"	no	Pump
" "	1	250ml	poly	H2SO4	"	no	"
" "	3	40ml	glass	HCl	"	no	"
" "	1	40ml	amber glass	H2SO4	"	no	"

Equipment Decontamination: None, dedicated equip used. Well probe rinsed with distilled.

Sample Appearance: **clear** Sample Handling: Cooler, deliver to lab

Comments:

Field Sampling Data

Project Location:	Cowlitz County Tennant Way Landfill	Sample Location:	MW-7B
Sampling Event:	4th Qtr 2023	Sample Field Identifier:	W11-1029
Sampler:	Dennis R. Dykes	Start Date/Time:	10/29/23 1445
		Weather:	Sunny Mild Calm

Well Pumping Data

Depth to Water	Prepumping	Measurement	Date	Time	Method
		21.71	10/29	1446	Well Probe
	Final pumping	21.89	"	1512	
Pumping Time	Rate	Voltage	DTW	Liters Pumped	Rate (ml/min)
1	205/205		21.81		
23	200/11	10.6	21.89	13.8	100

Flow through cells apparatus volume = approx. 120ml.

Field Water Quality Measurements

Pumping Time	pH	Specific Conductance (uS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Eh (mV)
10	6.16	263	13.1	13.8	6.67	25
13	6.19	262	13.1	10.2	6.65	24
16	6.20	262	13.2	8.11	6.63	24

Sampling

Date/Time	Containers (number/volume/type/preservative)	Depth Taken (ft)	Field Filtration	Sampling Method
10/29 1500	1 1000ml poly none	24.4	no	Low Flow
" "	1 250ml poly none	"	no	Submersible
" "	1 250ml poly HNO3	"	no	Pump
" "	1 250ml poly H2SO4	"	no	"
" "	3 40ml glass HCl	"	no	"
" "	1 40ml amber glass H2SO4	"	no	"

Equipment Decontamination: None, dedicated equip used. Well probe rinsed with distilled.
 Sample Appearance: Clear Sample Handling: Cooler, deliver to lab

Comments: Initial page write slightly faded

Field Sampling Data

Project Location: Cowlitz County Tennant Way Landfill

Sample Location: MW-8B

Sampling Event: 4th Qtr 2023

Sample Field Identifier: W6-1029

Sampler: Dennis R. Dykes

Start Date/Time: 10/24/23

Weather: C/20, 60/64/m

Well Pumping Data

Depth to Water	Prepumping	Measurement	Date	Time	Method	
		Final pumping	"	"	Well Probe	
		30.19	10/29	1137		
		31.48	"	1224		
	Pumping Time	Rate	Voltage	DTW	Liters Pumped	Rate (ml/min)
	3	20/30s	17.9	30.73		
	21	~~22/30s~~	~~17.9~~	31.35		
	45	225/30s	12.9	21.48	20.25	450

Flow through cells apparatus volume = approx. 120ml.

Field Water Quality Measurements

Pumping Time	pH	Specific Conductance (uS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Eh (mV)
10	6.71	207	13.2	85.9	4.44	-9
14	6.61	214	13.3	41.2	3.75	1
18	6.54	218	13.2	23.8	3.03	5
22	6.49	242	13.1	21.9	2.37	7
26	6.46	256	13.2	17.7	1.79	10
30	6.44	276	13.2	12.8	1.20	11
34	6.43	289	13.3	10.0	0.81	11
38	6.42	297	13.4	5.76	0.58	12

Sampling

Date/Time	Containers (number/volume/type/preservative)				Depth Taken (ft)	Field Filtration	Sampling Method
10/24 1130	1	1000ml	poly	none	32.58	no	Low Flow
" "	1	250ml	poly	none	"	no	Submersible
" "	1	250ml	poly	HNO3	"	no	Pump
" "	1	250ml	poly	H2SO4	"	no	"
" "	3	40ml	glass	HCl	"	no	"
" "	1	40ml	amber glass	H2SO4	"	no	"

Equipment Decontamination: None, dedicated equip used. Well probe rinsed with distilled.

Sample Appearance: clear

Sample Handling: Cooler, deliver to lab

Comments: Initial purge water turbid

Field Sampling Data

Project Location: Cowlitz County Tennant Way Landfill	Sample Location: MW 413
Sampling Event: 4th Qtr 2023	Sample Field Identifier: 107-1029
Sampler: Dennis R. Dykes	Start Date/Time: 10/29/23 1230
	Weather: Sunny Cool & Clear

Well Pumping Data

Depth to Water	Prepumping	Measurement	Date	Time	Method
		31.81	10/29	1230	Well Probe
	Final pumping	31.75	"	1257	
Pumping Time	Rate	Voltage	DTW	Liters Pumped	Rate (ml/min)
4	175/205	17.2	31.80		
25	210/ "	16.8	31.75	1575	630

Flow through cells apparatus volume = approx. 120ml.

Field Water Quality Measurements

Pumping Time	pH	Specific Conductance (uS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Eh (mV)
10	6.27	267	17.6	36.0	0.26	20
13	6.29	272	17.6	17.9	0.26	19
16	6.31	276	17.5	9.5	0.25	18
19	6.33	277	17.5	6.07	0.22	17

Sampling

Date/Time	Containers (number/volume/type/preservative)	Depth Taken (ft)	Field Filtration	Sampling Method
10/29/23	1 1000ml poly none	34.8	no	Low Flow
" "	1 250ml poly none	"	no	Submersible
" "	1 250ml poly HNO3	"	no	Pump
" "	1 250ml poly H2SO4	"	no	"
" "	3 40ml glass HCl	"	no	"
" "	1 40ml amber glass H2SO4	"	no	"

Equipment Decontamination: None, dedicated equip used. Well probe rinsed with distilled.
 Sample Appearance: (clear) Sample Handling: Cooler, deliver to lab

Comments: Initial pump & water tubing

Field Sampling Data

Project Location: **Cowlitz County Tennant Way Landfill**
 Sampling Event: **4th Qtr 2023**
 Sampler: **Dennis R. Dykes**

Sample Location: **MW-108**
 Sample Field Identifier: **W8-1029**
 Start Date/Time: **10/29/23 1300**
 Weather: **Sunny Cool**

Well Pumping Data

Depth to Water	Prepumping	Measurement	Date	Time	Method
	Final pumping	36.95	10/29	1304	Well Probe
		36.91	"	1328	
Pumping Time	Rate	Voltage	DTW	Liters Pumped	Rate (ml/min)
1	210/205	17.9	36.97		
23	205/205	13.8	36.91	14.1	615

Flow through cells apparatus volume = approx. 120ml.

Field Water Quality Measurements

Pumping Time	pH	Specific Conductance (uS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Eh (mV)
10	6.44	416	14.7	8.30	0.19	11
13	6.44	417	14.8	3.41	0.17	11
16	6.45	420	14.8	2.09	0.17	11

Sampling

Date/Time	Containers (number/volume/type/preservative)	Depth Taken (ft)	Field Filtration	Sampling Method
10/29/23	1 1000ml poly none	~40.7	no	Low Flow
" "	1 250ml poly none	"	no	Submersible
" "	1 250ml poly HNO3	"	no	Pump
" "	1 250ml poly H2SO4	"	no	"
" "	3 40ml glass HCl	"	no	"
" "	1 40ml amber glass H2SO4	"	no	"

Equipment Decontamination: **None, dedicated equip used. Well probe rinsed with distilled.**
 Sample Appearance: **Clear** Sample Handling: **Cooler, deliver to lab**

Comments: **Pump lowered ~1 ft → WL below top of set depth**

Field Sampling Data

Project Location:	Cowlitz County Tennant Way Landfill	Sample Location:	MW-11B
Sampling Event:	4th Qtr 2023	Sample Field Identifier:	W10-1029
Sampler:	Dennis R. Dykes	Start Date/Time:	10/29/23 1410
		Weather:	Sunny Mild Calm

Well Pumping Data

Depth to Water	Prepumping	Measurement	Date	Time	Method
		19.02	10/29	1442	Well Probe
	Final pumping	19.95	"	1440	
Pumping Time	Rate	Voltage	DTW	Liters Pumped	Rate (ml/min)
1	190/30s	10.6	19.34		
25	210/11	9.6	19.95	10.5	420

Flow through cells apparatus volume = approx. 120ml.

Field Water Quality Measurements

Pumping Time	pH	Specific Conductance (uS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Eh (mV)
10	8.93	149	15.3	5.30	0.17	38
13	8.90	149	15.3	5.29	0.17	41
16	8.86	150	15.3	5.53	0.17	43

Sampling

Date/Time	Containers (number/volume/type/preservative)				Depth Taken (ft)	Field Filtration	Sampling Method
10/29 1400	1	1000ml	poly	none	21.5	no	Low Flow
" "	1	250ml	poly	none	"	no	Submersible
" "	1	250ml	poly	HNO3	"	no	Pump
" "	1	250ml	poly	H2SO4	"	no	"
" "	3	40ml	glass	HCl	"	no	"
" "	1	40ml	amber glass	H2SO4	"	no	"

Equipment Decontamination: None, dedicated equip used. Well probe rinsed with distilled.

Sample Appearance: Clear

Sample Handling: Cooler, deliver to lab

Comments:

Field Sampling Data

Project Location:	Cowlitz County Tennant Way Landfill	Sample Location:	MW-12B
Sampling Event:	4th Qtr 2023	Sample Field Identifier:	W5-1029
Sampler:	Dennis R. Dykes	Start Date/Time:	10/29/23
		Weather:	Sunny 61d 61m

Well Pumping Data

Depth to Water	Prepumping	Measurement	Date	Time	Method
		28.56	10/29	1106	Well Probe
	Final pumping	28.64	"	1130	
Pumping Time	Rate	Voltage	DTW	Liters Pumped	Rate (ml/min)
1	150/203	16.0	28.56		
23	150/203	"	28.64	10.35	450

Flow through cells apparatus volume = approx. 120ml.

Field Water Quality Measurements

Pumping Time	pH	Specific Conductance (uS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Eh (mV)
10	6.34	659	19.1	1.89	0.34	17
13	6.35	657	19.2	0.99	0.28	16
16	6.36	660	19.2	0.66	0.28	16

Sampling

Date/Time	Containers (number/volume/type/preservative)	Depth Taken (ft)	Field Filtration	Sampling Method
10/29 1100	1 1000ml poly none	35.3	no	Low Flow
" "	1 250ml poly none	"	no	Submersible
" "	1 250ml poly HNO3	"	no	Pump
" "	1 250ml poly H2SO4	"	no	"
" "	3 40ml glass HCl	"	no	"
" "	1 40ml amber glass H2SO4	"	no	"

Equipment Decontamination: None, dedicated equip used. Well probe rinsed with distilled.

Sample Appearance: C/201

Sample Handling: Cooler, deliver to lab

Comments:

Field Sampling Data

Project Location: Cowlitz County Tennant Way Landfill

Sample Location: MW-13

Sampling Event: 4th Qtr 2023

Sample Field Identifier: 44-1029

Sampler: Dennis R. Dykes

Start Date/Time: 10/27/23

Weather: Sunny Cold Clear

Well Pumping Data

		Measurement	Date	Time	Method
Depth to Water	Prepumping	30.15	10/27	1033	Well Probe
	Final pumping	30.21	"	1059	
	Pumping Time	Rate	Voltage	DTW	Liters Pumped Rate (ml/min)
	1	180/205	15.9	30.17	
	23	175/205	16.8	30.29	12.1 525

Flow through cells apparatus volume = approx. 120ml.

Field Water Quality Measurements

Pumping Time	pH	Specific Conductance (uS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Eh (mV)
10	6.37	481	17.3	5.52	6.25	15
13	6.37	481	17.0	2.95	0.22	15
16	6.36	479	17.3	1.45	0.23	15

Sampling

Date/Time	Containers (number/volume/type/preservative)				Depth Taken (ft)	Field Filtration	Sampling Method
10/27/23	1	1000ml	poly	none	30.1	no	Low Flow
" "	1	250ml	poly	none	"	no	Submersible
" "	1	250ml	poly	HNO3	"	no	Pump
" "	1	250ml	poly	H2SO4	"	no	"
" "	3	40ml	glass	HCl	"	no	"
" "	1	40ml	amber glass	H2SO4	"	no	"

Equipment Decontamination:

None, dedicated equip used. Well probe rinsed with distilled.

Sample Appearance: Clear

Sample Handling: Cooler, deliver to lab

Comments:

Field Sampling Data

Project Location:	Cowlitz County Tennant Way Landfill	Sample Location:	MW-146
Sampling Event:	4th Qtr 2023	Sample Field Identifier:	223-1029
Sampler:	Dennis R. Dykes	Start Date/Time:	10/29/23 1000
		Weather:	Clear, Cold (91m 32°)

Well Pumping Data

		Measurement	Date	Time	Method
Depth to	Prepumping	27.41	10/29	1004	Well Probe
Water	Final pumping	27.44	"	1029	
	Pumping Time	Rate	Voltage	DTW	Liters Pumped Rate (ml/min)
	1	175/205	14.0	27.44	
	23	" "	"	27.44	12.1 525

Flow through cells apparatus volume = approx. 120ml.

Field Water Quality Measurements

Pumping Time	pH	Specific Conductance (uS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Eh (mV)
10	6.46	396	15.1	1.36	0.20	8
13	6.47	398	14.8	0.92	0.15	9
16	6.47	401	14.8	0.72	0.15	9

Sampling

Date/Time	Containers (number/volume/type/preservative)	Depth Taken (ft)	Field Filtration	Sampling Method
10/29 1000	1 1000ml poly none	32.1	no	Low Flow
" "	1 250ml poly none	"	no	Submersible
" "	1 250ml poly HNO3	"	no	Pump
" "	1 250ml poly H2SO4	"	no	"
" "	3 40ml glass HCl	"	no	"
" "	1 40ml amber glass H2SO4	"	no	"

Equipment Decontamination: None, dedicated equip used. Well probe rinsed with distilled.
 Sample Appearance: Clear Sample Handling: Cooler, deliver to lab

Comments:

Field Sampling Data

Weather: Clear, Cold, Calm 32°

Well Pumping Data

		<u>Measurement</u>	<u>Date</u>	<u>Time</u>	<u>Method</u>	
Depth to	Prepumping	26.59	10/24	930	Well Probe	
Water	Final pumping	26.60	"	1000		
	Pumping Time	Rate	Voltage	DTW	Liters Pumped	Rate (ml/min)
	1	175/20 s	14.5	26.60		
	23	" "	11	26.60	12.1	525
Flow through cells apparatus volume = approx. 120ml.						

Field Water Quality Measurements

[illegible]

Sampling

Date/Time	Containers (number/volume/type/preservative)	Depth Taken (ft)	Field Filtration	Sampling Method
10/29/93	1 1000ml poly none	31.2	no	Low Flow
" "	1 250ml poly none	"	no	Submersible
" "	1 250ml poly HNO3	"	no	Pump
" "	1 250ml poly H2SO4	"	no	"
" "	3 40ml glass HCl	"	no	"
" "	1 40ml amber glass H2SO4	"	no	"

Sample Handling: Cooler, deliver to lab

Comments:

Field Sampling Data

Project Location: Cowlitz County Tennant Way Landfill	Sample Location: MW-16B
Sampling Event: 4th Qtr 2023	Sample Field Identifier: W12-1029
Sampler: Dennis R. Dykes	Start Date/Time: 10/29/23 1523
	Weather: Sunny 17.1° Calm

Well Pumping Data

		Measurement	Date	Time	Method
Depth to	Prepumping	17.64	10/29	1523	Well Probe
Water	Final pumping	17.72	"	1557	
	Pumping Time	Rate	Voltage	DTW	Liters Pumped
	1	210/205	10.1	17.74	
	32	140/205		17.72	17.3
					540

Flow through cells apparatus volume = approx. 120ml.

Field Water Quality Measurements

Pumping Time	pH	Specific Conductance (uS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Eh (mV)
10	6.27	772	14.2	24.5	0.18	20
13	6.30	776	14.3	13.2	0.18	18
16	6.32	778	14.3	5.60	0.16	18
19	6.33	776	14.3	5.12	0.16	17

Sampling

Date/Time	Containers (number/volume/type/preservative)				Depth Taken (ft)	Field Filtration	Sampling Method
10/29 1530	1	1000ml	poly	none	32.3	no	Low Flow
" "	1	250ml	poly	none	"	no	Submersible
" "	1	250ml	poly	HNO3	"	no	Pump
" "	1	250ml	poly	H2SO4	"	no	"
" "	3	40ml	glass	HCl	"	no	"
" "	1	40ml	amber glass	H2SO4	"	no	"

Equipment Decontamination: None, dedicated equip used. Well probe rinsed with distilled.

Sample Appearance: *clear* Sample Handling: Cooler, deliver to lab

Comments: *Bottles filled alternating w/ MW-16B Dye*

Field Sampling Data

Project Location: **Cowlitz County Tennant Way Landfill** Sample Location: *MW-16B Dup/16B*
 Sampling Event: **4th Qtr 2023** Sample Field Identifier: *22-16B-1029*
 Sampler: **Dennis R. Dykes** Start Date/Time: *10/29/23 1520*
 Weather: *Sunny Mild Calm*

Well Pumping Data

Measurement		Date	Time	Method
Depth to Water	Prepumping Final pumping			Well Probe
Pumping Time	Rate	Voltage	DTW	Liters Pumped Rate (ml/min)
<i>See MW-16B</i>				

Flow through cells apparatus volume = approx. 120ml.

Field Water Quality Measurements

Pumping Time	pH	Specific Conductance (uS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Eh (mV)
<i>See MW-16B</i>						

Sampling

Date/Time	Containers (number/volume/type/preservative)				Depth Taken (ft)	Field Filtration	Sampling Method
<i>10/29 1600</i>	1	1000ml	poly	none	<i>32.3</i>	no	Low Flow
" "	1	250ml	poly	none	"	no	Submersible
" "	1	250ml	poly	HNO3	"	no	Pump
" "	1	250ml	poly	H2SO4	"	no	"
" "	3	40ml	glass	HCl	"	no	"
" "	1	40ml	amber glass	H2SO4	"	no	"

Equipment Decontamination: **None, dedicated equip used. Well probe rinsed with distilled.**
 Sample Appearance: *Clear* Sample Handling: **Cooler, deliver to lab**

Comments: *Bottle filled alternating w/ MW-16B*

Field Sampling Data

Project Location: **Cowlitz County Tennant Way Landfill** Sample Location: **S-2**
 Sampling Event: **4th Qtr 2023** Sample Field Identifier: **W14-1029**
 Sampler: **Dennis R. Dykes** Start Date/Time: **10/29/23 1615**
 Weather: **Sunny Mild Calm**

Well Pumping Data

Depth to Water:	Prepumping Final pumping	Measurement Pumping Time	Rate	Voltage	Date DTW	Time Liters Pumped	Method Well Probe Rate

Not Applicable

Flow through cells apparatus volume = approx. 120ml.

Field Water Quality Measurements

	pH	Specific Conductance (uS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Eh (mV)
	6.53	189	14.0			

Sampling

Date/Time	Containers (number/volume/type/preservative)	Depth Taken (ft)	Field Filtration	Sampling Method
10/29/23	1 1000ml poly none	Surface	no	Dipped
" "	1 250ml poly HNO3	"	no	"

Equipment Decontamination: **None, field equipment rinsed with distilled.**
 Sample Appearance: **Slightly milky-greyish** Sample Handling: **Cooler, deliver to lab**
 Comments:

Field Sampling Data

Project Location:	Cowlitz County Tennant Way Landfill	Sample Location:	RD -1
Sampling Event:	4th Qtr 2023	Sample Field Identifier:	WIS-1029
Sampler:	Dennis R. Dykes	Start Date/Time:	10/29/23
		Weather:	Sunny mild calm

Well Pumping Data

		<u>Measurement</u>	<u>Date</u>	<u>Time</u>	<u>Method</u>
Depth to Water:	Prepumping				Well Probe
	Final pumping				
	Pumping Time	Rate	Voltage	DTW	Liters Pumped
					Rate

Not Applicable

Flow through cells apparatus volume = approx. 120ml.

Field Water Quality Measurements

	pH	Specific Conductance (uS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Eh (mV)
	6.72	296	11.7			

Sampling

Date/Time	Containers (number/volume/type/preservative)	Depth Taken (ft)	Field Filtration	Sampling Method
10/29 1630	1 1000ml poly none	Surface	no	Dipped
" "	1 250ml poly HNO3	"	no	"

Equipment Decontamination: None, field equipment rinsed with distilled.

Sample Appearance: Clear Sample Handling: Cooler, deliver to lab

Comments:

Field Sampling Data

Project Location:	Cowlitz County Tennant Way Landfill	Sample Location:	L-1
Sampling Event:	4th Qtr 2023	Sample Field Identifier:	W16-K29
Sampler:	Dennis R. Dykes	Start Date/Time:	10/29/23 1640
		Weather:	Sunny Mild Calm

Well Pumping Data

	Measurement	Date	Time	Method
Depth to Water:	Prepumping			Well Probe
	Final pumping			
	Pumping Time	Rate	Voltage	DTW Liters Pumped Rate
Not Applicable				
Flow through cells apparatus volume = approx. 120ml.				

Field Water Quality Measurements

	pH	Specific Conductance (uS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Eh (mV)
	6.92	568	15.1			

Sampling

Date/Time	Containers (number/volume/type/preservative)	Depth Taken (ft)	Field Filtration	Sampling Method
10/29/23	1 1000ml poly none	Sump	No	Disposable
	1 250ml poly HNO3	"	"	Bailer
	1 250ml poly H2SO4	"	"	"
	3 40ml glass ~~none~~ HCl	"	"	"
	1 40ml glass H2SO4	"	"	"

Equipment Decontamination: None, disposable bailer used. Field equip rinsed with distilled.

Sample Appearance: light reddish, milky Sample Handling: Cooler, deliver to lab

Comments:

Field Sampling Data

Project Location:	Cowlitz County Tennant Way Landfill	Sample Location:	L-2
Sampling Event:	4th Qtr 2023	Sample Field Identifier:	W17-1029
Sampler:	Dennis R. Dykes	Start Date/Time:	10/29/23 1705
		Weather:	Sunny 17.1°C

Well Pumping Data

Depth to Water:	Prepumping Final pumping	Measurement Pumping Time	Rate	Voltage	Date DTW	Time Liters Pumped	Method Rate
Not Applicable							
Flow through cells apparatus volume = approx. 120ml.							

Field Water Quality Measurements

	pH	Specific Conductance (uS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Eh (mV)
	7.59	9070	17.1			

Sampling

Date/Time	Containers (number/volume/type/preservative)	Depth Taken (ft)	Field Filtration	Sampling Method
10/29 1705	1 1000ml poly none	Sump	No	Disposable
	1 250ml poly HNO3	"	"	Bailer
	1 250ml poly H2SO4	"	"	"
	3 40ml glass none	"	"	"
	1 40ml glass H2SO4	"	"	"

Equipment Decontamination: None, disposable bailer used. Field equip rinsed with distilled.

Sample Appearance: Reddish Brown slt Sample Handling: Cooler, deliver to lab

Comments:

Field Sampling Data

Project Location: **Cowlitz County Tennant Way Landfill** Sample Location: **C-3**
 Sampling Event: **4th Qtr 2023** Sample Field Identifier: **418-1029**
 Sampler: **Dennis R. Dykes** Start Date/Time: **10/29/23 1725**
 Weather: **Sunny Mild Rain**

Well Pumping Data

Depth to Water:	Prepumping Final pumping	Measurement Pumping Time	Rate	Voltage	Date DTW	Time Liters Pumped	Method Rate

Not Applicable

Flow through cells apparatus volume = approx. 120ml.

Field Water Quality Measurements

	pH	Specific Conductance (uS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Eh (mV)
	7.49	4740	14.4			

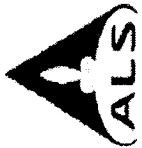
Sampling

Date/Time	Containers (number/volume/type/preservative)				Depth Taken (ft)	Field Filtration	Sampling Method
10/29 1730	1	1000ml	poly	none	Sump	No	Disposable
	1	250ml	poly	HNO3	"	"	Bailer
	1	250ml	poly	H2SO4	"	"	"
	3	40ml	glass	none	"	"	"
	1	40ml	glass	H2SO4	"	"	"

Equipment Decontamination: **None, disposable bailer used. Field equip rinsed with distilled.**

Sample Appearance: **Brown stain slightly cloudy** Sample Handling: **Cooler, deliver to lab**

Comments:



CHAIN OF CUSTODY
133897

002

SR#

COC Set 1 of 2

COC#

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 536-1066

Page 1 of 1

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Project Name: Southwest Trench Way Landfill Detection Monitoring
Project Manager: Donk Dykes
Company: BFGW Inc
Address: City, State

Phone # 360 263 6307 email ddykes@bfgw.net
Sampler Signature: [Signature] Sampler Printed Name: Donk Dykes

CLIENT SAMPLE ID	LABID	SAMPLING Date Time State	Matrix	NUMBER OF CONTAINERS	48H	7D	14D	28D	180D	999D	Remarks
1. W1-1029		10/29/23 8:30 AM WA	W	8							
2. W2-1029		9:30									
3. W3-1029		10:00									
4. W4-1029		10:30									
5. W5-1029		11:00									
6. W6-1029		11:30									
7. W7-1029		12:30									
8. W8-1029		1:00									
9. W9-1029		1:30									
10. W10-1029		1:40									

Report Requirements

I. Routine Report: Method Blank, Surrogate, as required

☒ II. Report Dup., MS, MSD as required

☐ III. CLP Like Summary (no raw data)

☐ IV. Data Validation Report

☐ V. EDD

Invoice Information

P.O.# Conlitz Co
Bill To: Public Works

Turnaround Requirements

Requested Report Date
— 24 hr
— 5 Day
☒ Standard

Circle which metals are to be analyzed

Total Metals: Al ☒ As ☒ Sb ☒ Ba ☒ Be ☒ B ☒ Ca ☒ Cd ☒ Co ☒ Cr ☒ Cu ☒ Fe ☒ Pb ☒ Mg ☒ Mn ☒ Mo ☒ Ni ☒ K ☒ Ag ☒ Na ☒ Se ☒ Sr ☒ Ti ☒ Sn ☒ V ☒ Zn ☒ Hg

Dissolved Metals: Al ☒ As ☒ Sb ☒ Ba ☒ Be ☒ B ☒ Ca ☒ Cd ☒ Co ☒ Cr ☒ Cu ☒ Fe ☒ Pb ☒ Mg ☒ Mn ☒ Mo ☒ Ni ☒ K ☒ Ag ☒ Na ☒ Se ☒ Sr ☒ Ti ☒ Sn ☒ V ☒ Zn ☒ Hg

Special Instructions/Comments: *Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other (Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: <u>[Signature]</u>	Signature: <u>[Signature]</u>	Signature: <u>[Signature]</u>	Signature: <u>[Signature]</u>	Signature: <u>[Signature]</u>	Signature: <u>[Signature]</u>
Printed Name: <u>Donk Dykes</u>	Printed Name: <u>[Name]</u>	Printed Name: <u>[Name]</u>	Printed Name: <u>[Name]</u>	Printed Name: <u>[Name]</u>	Printed Name: <u>[Name]</u>
Firm: <u>BFGW</u>	Firm: <u>[Firm]</u>	Firm: <u>[Firm]</u>	Firm: <u>[Firm]</u>	Firm: <u>[Firm]</u>	Firm: <u>[Firm]</u>
Date/Time: <u>10/29/23 4:50</u>	Date/Time: <u>[Date/Time]</u>	Date/Time: <u>[Date/Time]</u>	Date/Time: <u>[Date/Time]</u>	Date/Time: <u>[Date/Time]</u>	Date/Time: <u>[Date/Time]</u>

Cowlitz County Tennant Way Landfill

Quarterly Detection Monitoring Data Validation

Fourth Quarter 2023

This memorandum presents a summary of the validation review completed for the INORGANIC analytical data generated for the identified project using the identified analytical method, laboratory, and guidance.

1. General Information

Project: **Cowlitz County Tennant Way Landfill Quarterly Detection Monitoring Program**
Laboratory: ALS Environmental Kelso
Lab Package Identifiers: ALS Project Number K2312320
Date(s) Sampled: October 29, 2023
Data Reviewer: Dennis R. Dykes, Bright Fields Groundwater, Inc.
Date Reviewed: December 14, 2023
See attached table for sample numbers, laboratory-assigned identifiers, and sample dates.
Laboratory report which includes QC and Chain of Custody documentation is attached

2. Validation Review Guidance

Sampling and Analysis Plan, Cowlitz County (Bright Fields Groundwater, 2013)
National Functional Guidelines for Inorganic Data Review (USEPA, 1994)
Criteria for Municipal Solid Waste Landfills (Chapter 173-351 WAC)

3. Overall Assessment of Data

The data are judged to be acceptable for use in the quarterly monitoring program.
J qualifier assigned for Pb and Cr detections because of poor field replicate results.
T data qualifier assigned to detections below the MRL, concentrations estimated.
B1 data qualifier assigned to ammonia detections below the MRL because of method blank detections.

Precision: Analytical precision acceptable; field duplication not evaluated
Accuracy: Spike, surrogate, and method blank results acceptable except as noted.
Representativeness: Sampling completeness confirms representativeness as specified in SAP.
Completeness: All locations sampled, results valid with above qualifiers, if assigned.
Comparability: Sampling and analyses performed per the SAP and method requirements.
Results should be comparable with previous similar sample results.

4. Data Validation Summary

Holding Times: NO3 1-2 days, Cl 1-15 days, SO4 1-15 days.
Ammonia 3 days, alkalinity 11 days, TOC 17 days
Metals: diss 11 days to extr, anal 22 days; total 11 to ext 18 and 22 days to anal
TDS, TSS 3-4 days to analysis

Blanks: Method - Non-detect except ammonia (.030T), Alk (0.7T), chloride (.02T 10/31)
Total metals: None detected
Dissolved metals: Ca (5T) and Mg (3.0T)

Duplicates: Lab: Ok except dissolved metals and TOC not reported.
Total Metals ok except Sb and Cd but conc below MRL, not valid.
Field: Acceptable except Pb and Cr >40RPD.

Cowlitz County Tennant Way Landfill

Quarterly Detection Monitoring Data Validation

Fourth Quarter 2023

This memorandum presents a summary of the validation review completed for the VOLATILE ORGANIC COMPOUND data generated for the identified project using the specified analytical method, laboratory, and guidance.

1. General Information

Project: **Cowlitz County Tennant Way Landfill Quarterly Detection Monitoring Program**

Laboratory: ALS Environmental Kelso

Lab Package Identifiers: ALS Project Number K2312320

Date(s) Sampled: October 29, 2023

Data Reviewer: Dennis R. Dykes, Bright Fields Groundwater, Inc.

Date Reviewed: December 14, 2023

See attached table for sample numbers, laboratory-assigned identifiers, and sample dates.

Laboratory report which includes QC data and Chain of Custody documentation is attached.

2. Validation Review Guidance

Sampling and Analysis Plan, Cowlitz County (Bright Fields Groundwater, 2012)
National Functional Guidelines for Organic Data Review (USEPA, 1994)
Criteria for Municipal Solid Waste Landfills (Chapter 173-351 WAC)

3. Overall Assessment of Data

The data are judged to be acceptable for use in the quarterly monitoring program.

T data qualifier assigned estimated concentrations detected below MRL.

B1 qualifier assigned and MRL reported for Chloromethane <MRL because of trip blank detection.

Precision: Analytical precision acceptable; field duplication not evaluated
Accuracy: Spike, surrogate, and method blank results acceptable except as noted.
Representativeness: Sampling completeness confirms representativeness as specified in SAP.
Completeness: All locations sampled, greater than specified percentage of results valid.
Comparability: Sampling and analyses performed per the SAP and method requirements.
Results should be comparable with previous similar sample results.

Holding Times: Analyzed 2 and 5 days, unpreserved and preserved.

Blanks: Method - Methylene Chloride (.3T) (preserved sample 10/31 and 11/03)

W17 and 18: ND (unpreserved sample 1C)

Trip- Preserved: Chloromethane (.24T), Meth Chlor (.13T). Unpreserved ND

Duplicates: Field Dup- Three compounds with valid result duplicated ok, all <MRL.

Detection limits: Acceptable, W17 and 18 diluted 5x.

Surrogate Recovery: OK

Matrix Spike/Matrix Spike Duplicates:

Not reported

LCS/dupLCS: OK both preserved and unpreserved.

Initial Calibration Exceptions: None reported in case narrative.

Continuing Calibration Verification Exceptions:

Several analytes outside criteria reported in case narrative each analysis date.

Acceptable by other criteria.

Cowlitz County Tennant Way Landfill
Quarterly Detection Monitoring Data Validation
Fourth Quarter 2023

Sample Identifier Summary

Sample Location	Field Identifier	Laboratory Identifier	Date	Sample Type
MW-3B	W9- 1029	K2312320 -009	10/29/2023	Groundwater
MW-5B	W1- 1029	K2312320 -001	10/29/2023	Groundwater
MW-7B	W11- 1029	K2312320 -011	10/29/2023	Groundwater
MW-8B	W6- 1029	K2312320 -006	10/29/2023	Groundwater
MW-9B	W7- 1029	K2312320 -007	10/29/2023	Groundwater
MW-10B	W8- 1029	K2312320 -008	10/29/2023	Groundwater
MW-11B	W10- 1029	K2312320 -010	10/29/2023	Groundwater
MW-12B	W5- 1029	K2312320 -005	10/29/2023	Groundwater
MW-13	W4- 1029	K2312320 -004	10/29/2023	Groundwater
MW-14B	W3- 1029	K2312320 -003	10/29/2023	Groundwater
MW-15	W2- 1029	K2312320 -002	10/29/2023	Groundwater
MW-16B	W12- 1029	K2312320 -012	10/29/2023	Groundwater
L-1	W16- 1029	K2312320 -016	10/29/2023	Leachate
L-2	W17- 1029	K2312320 -017	10/29/2023	Leachate
L-3	W18- 1029	K2312320 -018	10/29/2023	Leachate
RD-1	W14- 1029	K2312320 -014	10/29/2023	Surface Water
S-2	W15- 1029	K2312320 -015	10/29/2023	Surface Water
MW-16B Dup	W13- 1029	K2312320 -013	10/29/2023	Groundwater
Trip Blank	---	K2312320 -019	---	Lab Blank



November 21, 2023

Service Request No:K2312320

Dan Bales
Cowlitz County Public Works
1600 13th Avenue South
Kelso, WA 98626

Laboratory Results for: Cowlitz Co.Tennant Way Landfill Detection Monitori

Dear Dan,

Enclosed are the results of the sample(s) submitted to our laboratory October 30, 2023
For your reference, these analyses have been assigned our service request number **K2312320**.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3377. You may also contact me via email at Sydney.Wolf@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Sydney A. Wolf
Project Manager

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626
PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp.
dba ALS Environmental



Narrative Documents

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Cowlitz County Public Works
Project: Cowlitz Co. Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320
Date Received: 10/30/2023

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

Nineteen water samples were received for analysis at ALS Environmental on 10/30/2023. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Metals:

No significant anomalies were noted with this analysis.

General Chemistry:

No significant anomalies were noted with this analysis.

Volatiles by GC/MS:

Method 8260C, 10/31/2023: Bromomethane, 1,2-Dibromo-3-chloropropane, and Iodomethane were flagged as outside the control criterion for Continuing Calibration Verification (CCV). In accordance with the EPA Method, 80% or more of the CCV analytes must pass within 20% of the true value. The ALS SOP allows for 40% difference for the remaining analytes. The CCV met these criteria. The quality of the sample data was not significantly affected. No further corrective action was required.

Method 8260C, 10/31/2023: Samples W17-1029 and W18-1029 required dilution due to sample color. The detection limits are elevated for these samples.

Method 8260C, 11/02/2023: Bromomethane and 1,2-Dibromo-3-chloropropane were flagged as outside the control criterion for Continuing Calibration Verification (CCV). In accordance with the EPA Method, 80% or more of the CCV analytes must pass within 20% of the true value. The ALS SOP allows for 40% difference for the remaining analytes. The CCV met these criteria. The quality of the sample data was not significantly affected. No further corrective action was required.

Method 8260C, 11/03/2023: Carbon Tetrachloride and 1,2-Dibromo-3-chloropropane were flagged as outside the control criterion for Continuing Calibration Verification (CCV). In accordance with the EPA Method, 80% or more of the CCV analytes must pass within 20% of the true value. The ALS SOP allows for 40% difference for the remaining analytes. The CCV met these criteria. The quality of the sample data was not significantly affected. No further corrective action was required.

Approved by



Date

11/21/2023

SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting levels. For a full listing of sample results, continue to the Sample Results section of this Report.

CLIENT ID: W12-1029			Lab ID: K2312320-012			

Analyte	Results	Flag	MDL	MRL	Units	Method
1,2-Dichlorobenzene	0.25	J	0.12	0.50	ug/L	8260C
1,4-Dichlorobenzene	0.26	J	0.12	0.50	ug/L	8260C
Alkalinity as CaCO ₃ , Total	397		0.6	2.0	mg/L	SM 2320 B
Ammonia as Nitrogen	2.39		0.009	0.050	mg/L	SM 4500-NH ₃ E
Antimony	0.020	J	0.020	0.050	ug/L	200.8
Arsenic	1.18		0.09	0.50	ug/L	200.8
Barium	37.1		0.020	0.050	ug/L	200.8
Beryllium	0.026		0.005	0.020	ug/L	200.8
Calcium, Dissolved	76000		3	21	ug/L	200.7
Carbon, Total Organic (TOC)	11.0		0.5	2.5	mg/L	SM 5310 B
Chloride	6.81		0.010	0.20	mg/L	300.0
Chlorobenzene	0.44	J	0.11	0.50	ug/L	8260C
Chromium	0.59		0.03	0.20	ug/L	200.8
Cobalt	0.554		0.009	0.020	ug/L	200.8
Copper	0.20		0.05	0.10	ug/L	200.8
Lead	0.044		0.006	0.020	ug/L	200.8
Magnesium, Dissolved	38700		0.4	5.3	ug/L	200.7
Manganese, Dissolved	5090		0.2	1.1	ug/L	200.7
Nickel	0.55		0.04	0.20	ug/L	200.8
Potassium, Dissolved	3800		60	210	ug/L	200.7
Sodium, Dissolved	22300		30	210	ug/L	200.7
Solids, Total Dissolved	466			10	mg/L	SM 2540 C
Solids, Total Suspended (TSS)	73.5			5.0	mg/L	SM 2540 D
Sulfate	1.98		0.12	0.40	mg/L	300.0
Vanadium	1.46		0.04	0.20	ug/L	200.8
Zinc	0.5	J	0.5	2.0	ug/L	200.8

CLIENT ID: W13-1029			Lab ID: K2312320-013			

Analyte	Results	Flag	MDL	MRL	Units	Method
1,2-Dichlorobenzene	0.25	J	0.12	0.50	ug/L	8260C
1,4-Dichlorobenzene	0.27	J	0.12	0.50	ug/L	8260C
Alkalinity as CaCO ₃ , Total	398		0.6	2.0	mg/L	SM 2320 B
Ammonia as Nitrogen	2.45		0.009	0.050	mg/L	SM 4500-NH ₃ E
Antimony	0.024	J	0.020	0.050	ug/L	200.8
Arsenic	1.17		0.09	0.50	ug/L	200.8
Barium	36.7		0.020	0.050	ug/L	200.8
Beryllium	0.025		0.005	0.020	ug/L	200.8
Calcium, Dissolved	77000		3	21	ug/L	200.7
Carbon, Total Organic (TOC)	11.5		0.5	2.5	mg/L	SM 5310 B
Chloride	6.81		0.010	0.20	mg/L	300.0
Chlorobenzene	0.45	J	0.11	0.50	ug/L	8260C

SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting levels. For a full listing of sample results, continue to the Sample Results section of this Report.

CLIENT ID: W13-1029			Lab ID: K2312320-013			

Analyte	Results	Flag	MDL	MRL	Units	Method
Chromium	0.31		0.03	0.20	ug/L	200.8
Cobalt	0.550		0.009	0.020	ug/L	200.8
Copper	0.21		0.05	0.10	ug/L	200.8
Lead	0.020		0.006	0.020	ug/L	200.8
Magnesium, Dissolved	38600		0.4	5.3	ug/L	200.7
Manganese, Dissolved	4680		0.2	1.1	ug/L	200.7
Nickel	0.44		0.04	0.20	ug/L	200.8
Potassium, Dissolved	3800		60	210	ug/L	200.7
Sodium, Dissolved	22200		30	210	ug/L	200.7
Solids, Total Dissolved	464			10	mg/L	SM 2540 C
Solids, Total Suspended (TSS)	73.0			5.0	mg/L	SM 2540 D
Sulfate	1.94		0.12	0.40	mg/L	300.0
Vanadium	1.53		0.04	0.20	ug/L	200.8
Zinc	0.6	J	0.5	2.0	ug/L	200.8

CLIENT ID: W16-1029			Lab ID: K2312320-016			

Analyte	Results	Flag	MDL	MRL	Units	Method
1,4-Dichlorobenzene	0.65		0.12	0.50	ug/L	8260C
Alkalinity as CaCO3, Total	232		0.6	2.0	mg/L	SM 2320 B
Ammonia as Nitrogen	5.95		0.009	0.050	mg/L	SM 4500-NH3 E
Antimony	0.112		0.020	0.050	ug/L	200.8
Arsenic	0.70		0.09	0.50	ug/L	200.8
Barium	197		0.020	0.050	ug/L	200.8
Beryllium	0.008	J	0.005	0.020	ug/L	200.8
Calcium	61300		3	21	ug/L	200.7
Carbon, Total Organic (TOC)	9.90		0.10	0.50	mg/L	SM 5310 B
Chloride	8.08		0.010	0.20	mg/L	300.0
Chlorobenzene	0.59		0.11	0.50	ug/L	8260C
Chloroethane	0.35	J	0.16	0.50	ug/L	8260C
Chromium	0.76		0.03	0.20	ug/L	200.8
Cobalt	0.356		0.009	0.020	ug/L	200.8
Copper	4.53		0.05	0.10	ug/L	200.8
Iron	39200		8	21	ug/L	200.7
Lead	0.165		0.006	0.020	ug/L	200.8
Magnesium	13900		0.4	5.3	ug/L	200.7
Manganese	905		0.2	1.1	ug/L	200.7
Nickel	3.37		0.04	0.20	ug/L	200.8
Nitrate as Nitrogen	7.70		0.03	0.10	mg/L	300.0
Potassium	16100		60	210	ug/L	200.7
Sodium	14100		30	210	ug/L	200.7
Solids, Total Dissolved	308			10	mg/L	SM 2540 C

SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting levels. For a full listing of sample results, continue to the Sample Results section of this Report.

CLIENT ID: W16-1029	Lab ID: K2312320-016

Analyte	Results	Flag	MDL	MRL	Units	Method
Solids, Total Suspended (TSS)	80.0			5.0	mg/L	SM 2540 D
Sulfate	5.99		0.12	0.40	mg/L	300.0
Vanadium	0.96		0.04	0.20	ug/L	200.8
Zinc	6.9		0.5	2.0	ug/L	200.8

CLIENT ID: W2-1029	Lab ID: K2312320-002

Analyte	Results	Flag	MDL	MRL	Units	Method
Acetone	3.3	J	3.3	20	ug/L	8260C
Alkalinity as CaCO3, Total	268		0.6	2.0	mg/L	SM 2320 B
Ammonia as Nitrogen	1.05		0.009	0.050	mg/L	SM 4500-NH3 E
Antimony	0.031	J	0.020	0.050	ug/L	200.8
Arsenic	3.95		0.09	0.50	ug/L	200.8
Barium	22.9		0.020	0.050	ug/L	200.8
Beryllium	0.034		0.005	0.020	ug/L	200.8
Cadmium	0.024		0.008	0.020	ug/L	200.8
Calcium, Dissolved	71900		3	21	ug/L	200.7
Carbon, Total Organic (TOC)	14.8		0.10	0.50	mg/L	SM 5310 B
Chloride	6.14		0.010	0.20	mg/L	300.0
Chloromethane	0.15	J	0.068	0.50	ug/L	8260C
Chromium	1.29		0.03	0.20	ug/L	200.8
Cobalt	1.28		0.009	0.020	ug/L	200.8
Copper	1.48		0.05	0.10	ug/L	200.8
Iron, Dissolved	170		8	21	ug/L	200.7
Magnesium, Dissolved	15100		0.4	5.3	ug/L	200.7
Manganese, Dissolved	5980		0.2	1.1	ug/L	200.7
Nickel	1.42		0.04	0.20	ug/L	200.8
Potassium, Dissolved	3870		60	210	ug/L	200.7
Sodium, Dissolved	11000		30	210	ug/L	200.7
Solids, Total Dissolved	344			10	mg/L	SM 2540 C
Sulfate	2.75		0.12	0.40	mg/L	300.0
Vanadium	5.39		0.04	0.20	ug/L	200.8
Zinc	0.6	J	0.5	2.0	ug/L	200.8

CLIENT ID: W1-1029	Lab ID: K2312320-001

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity as CaCO3, Total	310		0.6	2.0	mg/L	SM 2320 B
Ammonia as Nitrogen	0.070		0.009	0.050	mg/L	SM 4500-NH3 E
Antimony	0.042	J	0.020	0.050	ug/L	200.8
Arsenic	0.46	J	0.09	0.50	ug/L	200.8
Barium	44.5		0.020	0.050	ug/L	200.8
Beryllium	0.008	J	0.005	0.020	ug/L	200.8

SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting levels. For a full listing of sample results, continue to the Sample Results section of this Report.

CLIENT ID: W1-1029			Lab ID: K2312320-001			

Analyte	Results	Flag	MDL	MRL	Units	Method
Cadmium	0.014	J	0.008	0.020	ug/L	200.8
Calcium, Dissolved	59700		3	21	ug/L	200.7
Carbon, Total Organic (TOC)	3.80		0.10	0.50	mg/L	SM 5310 B
Chloride	3.19		0.010	0.20	mg/L	300.0
Chloromethane	0.25	J	0.068	0.50	ug/L	8260C
Chromium	0.23		0.03	0.20	ug/L	200.8
Cobalt	0.990		0.009	0.020	ug/L	200.8
Copper	0.63		0.05	0.10	ug/L	200.8
Iron, Dissolved	9	J	8	21	ug/L	200.7
Lead	0.009	J	0.006	0.020	ug/L	200.8
Magnesium, Dissolved	32200		0.4	5.3	ug/L	200.7
Manganese, Dissolved	1490		0.2	1.1	ug/L	200.7
Nickel	2.63		0.04	0.20	ug/L	200.8
Potassium, Dissolved	1060		60	210	ug/L	200.7
Sodium, Dissolved	23200		30	210	ug/L	200.7
Solids, Total Dissolved	351			10	mg/L	SM 2540 C
Sulfate	15.0		0.12	0.40	mg/L	300.0
Vanadium	1.16		0.04	0.20	ug/L	200.8

CLIENT ID: W3-1029			Lab ID: K2312320-003			

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity as CaCO ₃ , Total	151		0.6	2.0	mg/L	SM 2320 B
Ammonia as Nitrogen	1.34		0.009	0.050	mg/L	SM 4500-NH ₃ E
Arsenic	4.40		0.09	0.50	ug/L	200.8
Barium	16.8		0.020	0.050	ug/L	200.8
Beryllium	0.044		0.005	0.020	ug/L	200.8
Calcium, Dissolved	34700		3	21	ug/L	200.7
Carbon, Total Organic (TOC)	17.8		0.10	0.50	mg/L	SM 5310 B
Chloride	17.5		0.010	0.20	mg/L	300.0
Chloromethane	0.18	J	0.068	0.50	ug/L	8260C
Chromium	1.48		0.03	0.20	ug/L	200.8
Cobalt	0.278		0.009	0.020	ug/L	200.8
Copper	0.15		0.05	0.10	ug/L	200.8
Iron, Dissolved	4530		8	21	ug/L	200.7
Magnesium, Dissolved	12600		0.4	5.3	ug/L	200.7
Manganese, Dissolved	3300		0.2	1.1	ug/L	200.7
Nickel	0.52		0.04	0.20	ug/L	200.8
Potassium, Dissolved	1470		60	210	ug/L	200.7
Selenium	0.2	J	0.2	1.0	ug/L	200.8
Sodium, Dissolved	14400		30	210	ug/L	200.7
Solids, Total Dissolved	304			10	mg/L	SM 2540 C

SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting levels. For a full listing of sample results, continue to the Sample Results section of this Report.

CLIENT ID: W3-1029	Lab ID: K2312320-003

Analyte	Results	Flag	MDL	MRL	Units	Method
Solids, Total Suspended (TSS)	6.0			5.0	mg/L	SM 2540 D
Vanadium	6.06		0.04	0.20	ug/L	200.8
Zinc	0.5	J	0.5	2.0	ug/L	200.8

CLIENT ID: W4-1029	Lab ID: K2312320-004

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity as CaCO3, Total	212		0.6	2.0	mg/L	SM 2320 B
Ammonia as Nitrogen	1.31		0.009	0.050	mg/L	SM 4500-NH3 E
Arsenic	1.92		0.09	0.50	ug/L	200.8
Barium	25.7		0.020	0.050	ug/L	200.8
Beryllium	0.031		0.005	0.020	ug/L	200.8
Calcium, Dissolved	43100		3	21	ug/L	200.7
Carbon, Total Organic (TOC)	15.0		0.10	0.50	mg/L	SM 5310 B
Chloride	2.22		0.010	0.20	mg/L	300.0
Chloromethane	0.18	J	0.068	0.50	ug/L	8260C
Chromium	0.79		0.03	0.20	ug/L	200.8
Cobalt	0.268		0.009	0.020	ug/L	200.8
Copper	0.20		0.05	0.10	ug/L	200.8
Iron, Dissolved	1230		8	21	ug/L	200.7
Magnesium, Dissolved	16400		0.4	5.3	ug/L	200.7
Manganese, Dissolved	3220		0.2	1.1	ug/L	200.7
Nickel	0.32		0.04	0.20	ug/L	200.8
Potassium, Dissolved	2900		60	210	ug/L	200.7
Selenium	0.2	J	0.2	1.0	ug/L	200.8
Sodium, Dissolved	14900		30	210	ug/L	200.7
Solids, Total Dissolved	273			10	mg/L	SM 2540 C
Solids, Total Suspended (TSS)	85.0			5.0	mg/L	SM 2540 D
Vanadium	4.02		0.04	0.20	ug/L	200.8

CLIENT ID: W5-1029	Lab ID: K2312320-005

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity as CaCO3, Total	334		0.6	2.0	mg/L	SM 2320 B
Ammonia as Nitrogen	0.940		0.009	0.050	mg/L	SM 4500-NH3 E
Arsenic	7.86		0.09	0.50	ug/L	200.8
Barium	31.9		0.020	0.050	ug/L	200.8
Beryllium	0.018	J	0.005	0.020	ug/L	200.8
Calcium, Dissolved	68500		3	21	ug/L	200.7
Carbon, Total Organic (TOC)	10.0		0.10	0.50	mg/L	SM 5310 B
Chloride	13.9		0.010	0.20	mg/L	300.0
Chloromethane	0.19	J	0.068	0.50	ug/L	8260C
Chromium	0.44		0.03	0.20	ug/L	200.8

SAMPLE DETECTION SUMMARY

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CLIENT ID: W5-1029			Lab ID: K2312320-005			

Analyte	Results	Flag	MDL	MRL	Units	Method
Cobalt	0.506		0.009	0.020	ug/L	200.8
Copper	0.08	J	0.05	0.10	ug/L	200.8
Magnesium, Dissolved	26800		0.4	5.3	ug/L	200.7
Manganese, Dissolved	6370		0.2	1.1	ug/L	200.7
Nickel	0.64		0.04	0.20	ug/L	200.8
Potassium, Dissolved	4610		60	210	ug/L	200.7
Sodium, Dissolved	27400		30	210	ug/L	200.7
Solids, Total Dissolved	404			10	mg/L	SM 2540 C
Solids, Total Suspended (TSS)	57.0			5.0	mg/L	SM 2540 D
Sulfate	0.12	J	0.12	0.40	mg/L	300.0
Vanadium	2.83		0.04	0.20	ug/L	200.8

CLIENT ID: W6-1029			Lab ID: K2312320-006			

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity as CaCO ₃ , Total	168		0.6	2.0	mg/L	SM 2320 B
Ammonia as Nitrogen	0.010	J	0.009	0.050	mg/L	SM 4500-NH ₃ E
Antimony	0.378		0.020	0.050	ug/L	200.8
Arsenic	1.28		0.09	0.50	ug/L	200.8
Barium	10.6		0.020	0.050	ug/L	200.8
Beryllium	0.033		0.005	0.020	ug/L	200.8
Cadmium	0.038		0.008	0.020	ug/L	200.8
Calcium, Dissolved	48100		3	21	ug/L	200.7
Carbon, Total Organic (TOC)	24.2		0.10	0.50	mg/L	SM 5310 B
Chloride	2.02		0.010	0.20	mg/L	300.0
Chloromethane	0.19	J	0.068	0.50	ug/L	8260C
Chromium	1.21		0.03	0.20	ug/L	200.8
Cobalt	0.380		0.009	0.020	ug/L	200.8
Copper	66.6		0.05	0.10	ug/L	200.8
Iron, Dissolved	30		8	21	ug/L	200.7
Lead	0.035		0.006	0.020	ug/L	200.8
Magnesium, Dissolved	14200		0.4	5.3	ug/L	200.7
Manganese, Dissolved	16.8		0.2	1.1	ug/L	200.7
Nickel	8.44		0.04	0.20	ug/L	200.8
Nitrate as Nitrogen	0.39		0.03	0.10	mg/L	300.0
Potassium, Dissolved	1990		60	210	ug/L	200.7
Selenium	0.6	J	0.2	1.0	ug/L	200.8
Sodium, Dissolved	6800		30	210	ug/L	200.7
Solids, Total Dissolved	249			10	mg/L	SM 2540 C
Sulfate	2.55		0.12	0.40	mg/L	300.0
Thallium	0.016	J	0.009	0.020	ug/L	200.8
Vanadium	4.69		0.04	0.20	ug/L	200.8

SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting levels. For a full listing of sample results, continue to the Sample Results section of this Report.

CLIENT ID: W6-1029	Lab ID: K2312320-006

Analyte	Results	Flag	MDL	MRL	Units	Method
Zinc	1.2	J	0.5	2.0	ug/L	200.8

CLIENT ID: W7-1029	Lab ID: K2312320-007

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity as CaCO ₃ , Total	139		0.6	2.0	mg/L	SM 2320 B
Ammonia as Nitrogen	1.49		0.009	0.050	mg/L	SM 4500-NH ₃ E
Arsenic	1.90		0.09	0.50	ug/L	200.8
Barium	13.5		0.020	0.050	ug/L	200.8
Beryllium	0.028		0.005	0.020	ug/L	200.8
Calcium, Dissolved	30300		3	21	ug/L	200.7
Carbon, Total Organic (TOC)	14.3		0.10	0.50	mg/L	SM 5310 B
Chloride	2.39		0.010	0.20	mg/L	300.0
Chloromethane	0.17	J	0.068	0.50	ug/L	8260C
Chromium	0.91		0.03	0.20	ug/L	200.8
Cobalt	0.490		0.009	0.020	ug/L	200.8
Copper	0.14		0.05	0.10	ug/L	200.8
Iron, Dissolved	517		8	21	ug/L	200.7
Magnesium, Dissolved	9550		0.4	5.3	ug/L	200.7
Manganese, Dissolved	2470		0.2	1.1	ug/L	200.7
Nickel	1.23		0.04	0.20	ug/L	200.8
Potassium, Dissolved	3310		60	210	ug/L	200.7
Sodium, Dissolved	10200		30	210	ug/L	200.7
Solids, Total Dissolved	243			10	mg/L	SM 2540 C
Vanadium	4.90		0.04	0.20	ug/L	200.8

CLIENT ID: W8-1029	Lab ID: K2312320-008

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity as CaCO ₃ , Total	121		0.6	2.0	mg/L	SM 2320 B
Ammonia as Nitrogen	0.960		0.009	0.050	mg/L	SM 4500-NH ₃ E
Arsenic	15.0		0.09	0.50	ug/L	200.8
Barium	14.8		0.020	0.050	ug/L	200.8
Beryllium	0.018	J	0.005	0.020	ug/L	200.8
Calcium, Dissolved	28900		3	21	ug/L	200.7
Carbon, Total Organic (TOC)	9.10		0.10	0.50	mg/L	SM 5310 B
Chloride	2.88		0.010	0.20	mg/L	300.0
Chloromethane	0.13	J	0.068	0.50	ug/L	8260C
Chromium	0.90		0.03	0.20	ug/L	200.8
Cobalt	4.39		0.009	0.020	ug/L	200.8
Copper	0.37		0.05	0.10	ug/L	200.8
Magnesium, Dissolved	8950		0.4	5.3	ug/L	200.7
Manganese, Dissolved	2220		0.2	1.1	ug/L	200.7

SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting levels. For a full listing of sample results, continue to the Sample Results section of this Report.

CLIENT ID: W8-1029	Lab ID: K2312320-008

Analyte	Results	Flag	MDL	MRL	Units	Method
Nickel	2.07		0.04	0.20	ug/L	200.8
Potassium, Dissolved	2070		60	210	ug/L	200.7
Sodium, Dissolved	6770		30	210	ug/L	200.7
Solids, Total Dissolved	221			10	mg/L	SM 2540 C
Solids, Total Suspended (TSS)	90.5			5.0	mg/L	SM 2540 D
Sulfate	7.00		0.12	0.40	mg/L	300.0
Vanadium	6.13		0.04	0.20	ug/L	200.8
Zinc	0.8	J	0.5	2.0	ug/L	200.8

CLIENT ID: W9-1029	Lab ID: K2312320-009

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity as CaCO3, Total	52.6		0.6	2.0	mg/L	SM 2320 B
Ammonia as Nitrogen	0.170		0.009	0.050	mg/L	SM 4500-NH3 E
Arsenic	8.03		0.09	0.50	ug/L	200.8
Barium	8.13		0.020	0.050	ug/L	200.8
Beryllium	0.009	J	0.005	0.020	ug/L	200.8
Calcium, Dissolved	9630		3	21	ug/L	200.7
Carbon, Total Organic (TOC)	1.90		0.10	0.50	mg/L	SM 5310 B
Chloride	3.62		0.010	0.20	mg/L	300.0
Chromium	1.37		0.03	0.20	ug/L	200.8
Cobalt	0.836		0.009	0.020	ug/L	200.8
Copper	0.32		0.05	0.10	ug/L	200.8
Iron, Dissolved	1120		8	21	ug/L	200.7
Lead	0.020	J	0.006	0.020	ug/L	200.8
Magnesium, Dissolved	4820		0.4	5.3	ug/L	200.7
Manganese, Dissolved	710		0.2	1.1	ug/L	200.7
Nickel	0.61		0.04	0.20	ug/L	200.8
Potassium, Dissolved	520		60	210	ug/L	200.7
Sodium, Dissolved	5460		30	210	ug/L	200.7
Solids, Total Dissolved	117			10	mg/L	SM 2540 C
Sulfate	0.82		0.12	0.40	mg/L	300.0
Vanadium	0.90		0.04	0.20	ug/L	200.8

CLIENT ID: W10-1029	Lab ID: K2312320-010

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity as CaCO3, Total	75.2		0.6	2.0	mg/L	SM 2320 B
Ammonia as Nitrogen	0.110		0.009	0.050	mg/L	SM 4500-NH3 E
Antimony	0.124		0.020	0.050	ug/L	200.8
Arsenic	0.94		0.09	0.50	ug/L	200.8
Barium	10.5		0.020	0.050	ug/L	200.8
Beryllium	0.045		0.005	0.020	ug/L	200.8

SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting levels. For a full listing of sample results, continue to the Sample Results section of this Report.

CLIENT ID: W10-1029		Lab ID: K2312320-010				

Analyte	Results	Flag	MDL	MRL	Units	Method
Cadmium	0.027		0.008	0.020	ug/L	200.8
Calcium, Dissolved	18000		3	21	ug/L	200.7
Carbon, Total Organic (TOC)	11.9		0.10	0.50	mg/L	SM 5310 B
Chloride	2.79		0.010	0.20	mg/L	300.0
Chromium	1.46		0.03	0.20	ug/L	200.8
Cobalt	8.73		0.009	0.020	ug/L	200.8
Copper	29.5		0.05	0.10	ug/L	200.8
Iron, Dissolved	1020		8	21	ug/L	200.7
Lead	0.146		0.006	0.020	ug/L	200.8
Magnesium, Dissolved	5980		0.4	5.3	ug/L	200.7
Manganese, Dissolved	456		0.2	1.1	ug/L	200.7
Nickel	11.1		0.04	0.20	ug/L	200.8
Potassium, Dissolved	2230		60	210	ug/L	200.7
Silver	0.050		0.009	0.020	ug/L	200.8
Sodium, Dissolved	5600		30	210	ug/L	200.7
Solids, Total Dissolved	139			10	mg/L	SM 2540 C
Solids, Total Suspended (TSS)	14.5			5.0	mg/L	SM 2540 D
Sulfate	1.33		0.12	0.40	mg/L	300.0
Thallium	0.009	J	0.009	0.020	ug/L	200.8
Vanadium	9.03		0.04	0.20	ug/L	200.8
Zinc	2.3		0.5	2.0	ug/L	200.8

CLIENT ID: W11-1029		Lab ID: K2312320-011				

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity as CaCO3, Total	74.1		0.6	2.0	mg/L	SM 2320 B
Ammonia as Nitrogen	0.030	J	0.009	0.050	mg/L	SM 4500-NH3 E
Antimony	0.211		0.020	0.050	ug/L	200.8
Arsenic	0.55		0.09	0.50	ug/L	200.8
Barium	22.6		0.020	0.050	ug/L	200.8
Beryllium	0.021		0.005	0.020	ug/L	200.8
Cadmium	0.043		0.008	0.020	ug/L	200.8
Calcium, Dissolved	32000		3	21	ug/L	200.7
Carbon, Total Organic (TOC)	12.6		0.10	0.50	mg/L	SM 5310 B
Chloride	2.01		0.010	0.20	mg/L	300.0
Chromium	0.74		0.03	0.20	ug/L	200.8
Cobalt	1.15		0.009	0.020	ug/L	200.8
Copper	33.3		0.05	0.10	ug/L	200.8
Iron, Dissolved	23		8	21	ug/L	200.7
Lead	0.077		0.006	0.020	ug/L	200.8
Magnesium, Dissolved	10300		0.4	5.3	ug/L	200.7
Manganese, Dissolved	23.7		0.2	1.1	ug/L	200.7

SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting levels. For a full listing of sample results, continue to the Sample Results section of this Report.

CLIENT ID: W11-1029			Lab ID: K2312320-011			

Analyte	Results	Flag	MDL	MRL	Units	Method
Nickel	3.70		0.04	0.20	ug/L	200.8
Nitrate as Nitrogen	12.9		0.13	0.50	mg/L	300.0
Potassium, Dissolved	4620		60	210	ug/L	200.7
Selenium	0.2	J	0.2	1.0	ug/L	200.8
Silver	0.014	J	0.009	0.020	ug/L	200.8
Sodium, Dissolved	6780		30	210	ug/L	200.7
Solids, Total Dissolved	228			10	mg/L	SM 2540 C
Solids, Total Suspended (TSS)	9.0			5.0	mg/L	SM 2540 D
Sulfate	9.50		0.12	0.40	mg/L	300.0
Thallium	0.021		0.009	0.020	ug/L	200.8
Vanadium	4.07		0.04	0.20	ug/L	200.8
Zinc	2.0		0.5	2.0	ug/L	200.8

CLIENT ID: W17-1029			Lab ID: K2312320-017			

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity as CaCO3, Total	2500		0.6	2.0	mg/L	SM 2320 B
Ammonia as Nitrogen	288		0.05	0.25	mg/L	SM 4500-NH3 E
Antimony	1.59		0.020	0.050	ug/L	200.8
Arsenic	17.4		0.09	0.50	ug/L	200.8
Barium	438		0.020	0.050	ug/L	200.8
Beryllium	0.031		0.005	0.020	ug/L	200.8
Cadmium	0.312		0.008	0.020	ug/L	200.8
Calcium	247000		30	210	ug/L	200.7
Carbon, Total Organic (TOC)	193		1.0	5.0	mg/L	SM 5310 B
Chloride	1130		3	50	mg/L	300.0
Chromium	36.7		0.03	0.20	ug/L	200.8
Cobalt	25.5		0.009	0.020	ug/L	200.8
Copper	11.2		0.05	0.10	ug/L	200.8
Iron	4610		80	210	ug/L	200.7
Lead	0.268		0.006	0.020	ug/L	200.8
Magnesium	132000		4	53	ug/L	200.7
Manganese	2800		2	11	ug/L	200.7
Nickel	109		0.04	0.20	ug/L	200.8
Nitrate as Nitrogen	111		0.7	2.5	mg/L	300.0
Potassium	455000		600	2100	ug/L	200.7
Selenium	0.8	J	0.2	1.0	ug/L	200.8
Silver	0.030		0.009	0.020	ug/L	200.8
Sodium	1340000		300	2100	ug/L	200.7
Solids, Total Dissolved	5910			100	mg/L	SM 2540 C
Solids, Total Suspended (TSS)	19.0			5.0	mg/L	SM 2540 D
Sulfate	780		30	100	mg/L	300.0

SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting levels. For a full listing of sample results, continue to the Sample Results section of this Report.

CLIENT ID: W17-1029	Lab ID: K2312320-017

Analyte	Results	Flag	MDL	MRL	Units	Method
Vanadium	48.7		0.04	0.20	ug/L	200.8
Zinc	25.7		0.5	2.0	ug/L	200.8

CLIENT ID: W18-1029	Lab ID: K2312320-018

Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity as CaCO ₃ , Total	3100		0.6	2.0	mg/L	SM 2320 B
Ammonia as Nitrogen	325		0.05	0.25	mg/L	SM 4500-NH ₃ E
Antimony	0.901		0.020	0.050	ug/L	200.8
Arsenic	26.6		0.09	0.50	ug/L	200.8
Barium	489		0.020	0.050	ug/L	200.8
Beryllium	0.026		0.005	0.020	ug/L	200.8
Cadmium	0.204		0.008	0.020	ug/L	200.8
Calcium	228000		30	210	ug/L	200.7
Carbon, Total Organic (TOC)	220		1.0	5.0	mg/L	SM 5310 B
Chloride	1070		3	50	mg/L	300.0
Chromium	35.9		0.03	0.20	ug/L	200.8
Cobalt	27.8		0.009	0.020	ug/L	200.8
Copper	3.24		0.05	0.10	ug/L	200.8
Iron	14000		80	210	ug/L	200.7
Lead	0.288		0.006	0.020	ug/L	200.8
Magnesium	114000		4	53	ug/L	200.7
Manganese	4230		2	11	ug/L	200.7
Nickel	116		0.04	0.20	ug/L	200.8
Nitrate as Nitrogen	0.9	J	0.7	2.5	mg/L	300.0
Potassium	447000		600	2100	ug/L	200.7
Selenium	0.5	J	0.2	1.0	ug/L	200.8
Silver	0.043		0.009	0.020	ug/L	200.8
Sodium	1280000		300	2100	ug/L	200.7
Solids, Total Dissolved	5410			100	mg/L	SM 2540 C
Solids, Total Suspended (TSS)	45.0			5.0	mg/L	SM 2540 D
Sulfate	600		30	100	mg/L	300.0
Vanadium	48.4		0.04	0.20	ug/L	200.8
Zinc	10.9		0.5	2.0	ug/L	200.8

CLIENT ID: W14-1029	Lab ID: K2312320-014

Analyte	Results	Flag	MDL	MRL	Units	Method
Antimony	0.056		0.020	0.050	ug/L	200.8
Arsenic	0.84		0.09	0.50	ug/L	200.8
Barium	27.5		0.020	0.050	ug/L	200.8
Chromium	0.11	J	0.03	0.20	ug/L	200.8
Cobalt	0.076		0.009	0.020	ug/L	200.8

SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting levels. For a full listing of sample results, continue to the Sample Results section of this Report.

CLIENT ID: W14-1029	Lab ID: K2312320-014

Analyte	Results	Flag	MDL	MRL	Units	Method
Copper	0.56		0.05	0.10	ug/L	200.8
Iron	3990		8	21	ug/L	200.7
Lead	0.043		0.006	0.020	ug/L	200.8
Manganese	161		0.2	1.1	ug/L	200.7
Nickel	0.40		0.04	0.20	ug/L	200.8
Nitrate as Nitrogen	0.24		0.03	0.10	mg/L	300.0
Vanadium	0.78		0.04	0.20	ug/L	200.8
Zinc	1.2	J	0.5	2.0	ug/L	200.8

CLIENT ID: W15-1029	Lab ID: K2312320-015

Analyte	Results	Flag	MDL	MRL	Units	Method
Antimony	0.215		0.020	0.050	ug/L	200.8
Arsenic	0.82		0.09	0.50	ug/L	200.8
Barium	22.4		0.020	0.050	ug/L	200.8
Beryllium	0.009	J	0.005	0.020	ug/L	200.8
Cadmium	0.025		0.008	0.020	ug/L	200.8
Chromium	0.33		0.03	0.20	ug/L	200.8
Cobalt	0.409		0.009	0.020	ug/L	200.8
Copper	15.3		0.05	0.10	ug/L	200.8
Iron	1460		8	21	ug/L	200.7
Lead	0.595		0.006	0.020	ug/L	200.8
Manganese	140		0.2	1.1	ug/L	200.7
Nickel	2.41		0.04	0.20	ug/L	200.8
Nitrate as Nitrogen	7.02		0.03	0.10	mg/L	300.0
Silver	0.013	J	0.009	0.020	ug/L	200.8
Vanadium	2.08		0.04	0.20	ug/L	200.8
Zinc	5.8		0.5	2.0	ug/L	200.8

CLIENT ID: Trip Blank	Lab ID: K2312320-019

Analyte	Results	Flag	MDL	MRL	Units	Method
Chloromethane	0.24	J	0.068	0.50	ug/L	8260C
Methylene Chloride	0.13	J	0.10	2.0	ug/L	8260C



Sample Receipt Information

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori

Service Request:K2312320

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
K2312320-001	W1-1029	10/29/2023	0830
K2312320-002	W2-1029	10/29/2023	0930
K2312320-003	W3-1029	10/29/2023	1000
K2312320-004	W4-1029	10/29/2023	1030
K2312320-005	W5-1029	10/29/2023	1100
K2312320-006	W6-1029	10/29/2023	1130
K2312320-007	W7-1029	10/29/2023	1230
K2312320-008	W8-1029	10/29/2023	1300
K2312320-009	W9-1029	10/29/2023	1330
K2312320-010	W10-1029	10/29/2023	1400
K2312320-011	W11-1029	10/29/2023	1500
K2312320-012	W12-1029	10/29/2023	1530
K2312320-013	W13-1029	10/29/2023	1600
K2312320-014	W14-1029	10/29/2023	1615
K2312320-015	W15-1029	10/29/2023	1630
K2312320-016	W16-1029	10/29/2023	1630
K2312320-017	W17-1029	10/29/2023	1700
K2312320-018	W18-1029	10/29/2023	1730
K2312320-019	Trip Blank	10/29/2023	



133897

CHAIN OF CUSTODY

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SR# 12312320

COC Set 1 of 2

COC#

Page 1 of 1

Project Name Cowlitz Co Tement Way Landfill Detection Monitoring		Project Number		NUMBER OF CONTAINERS	48H	7D	14D	28D	180D	999D						Remarks					
Project Manager Dennis Dykes		Company BFGW Inc			300.0 / NO3	3260C / VOC Unp	SM 2540 C / TDS	SM 2540 D / TSS	3260C / VOC FP	SM 2320 B / Alkalinity Titr	300.0 / Chloride	300.0 / SO4	SM 4500-NH3 E / Ammonia	200.7 / Metals D	200.8 / Metals T		Filter Met / Filter Met	1	2	3	4
Phone #	3602636307	email		ddykes@bfgw.net																	
Sampler Signature		Sampler Printed Name																			
8/1		Dennis Dykes																			
CLIENT SAMPLE ID	LABID	SAMPLING Date Time State	Matrix																		
1. W1-1029		10/29/23 8:30 W	W	8																	
2. W2-1029		930																			
3. W3-1029		1000																			
4. W4-1029		1030																			
5. W5-1029		1100																			
6. W6-1029		1130																			
7. W7-1029		1230																			
8. W8-1029		1300																			
9. W9-1029		1330																			
10. W10-1029		1400																			

Report Requirements		Invoice Information		Special Instructions/Comments:	
☐ I. Routine Report: Method Blank, Surrogate, as required		P.O.# Cowlitz Co		Circle which metals are to be analyzed	
☒ II. Report Dup., MS, MSD as required		Bill To: Public Works		Total Metals: Al ☒ As ☒ Sb ☒ Ba ☒ Be ☒ B ☒ Ca ☒ Cd ☒ Co ☒ Cr ☒ Cu ☒ Fe ☒ Pb ☒ Mg ☒ Mn ☒ Mo ☒ Ni ☒ K ☒ Ag ☒ Na ☒ Se ☒ Sr ☒ Ti ☒ Sn ☒ V ☒ Zn ☒ Hg	
☐ III. CLP Like Summary (no raw data)		Turnaround Requirements		Dissolved Metals: Al ☒ As ☒ Sb ☒ Ba ☒ Be ☒ B ☒ Ca ☒ Cd ☒ Co ☒ Cr ☒ Cu ☒ Fe ☒ Pb ☒ Mg ☒ Mn ☒ Mo ☒ Ni ☒ K ☒ Ag ☒ Na ☒ Se ☒ Sr ☒ Ti ☒ Sn ☒ V ☒ Zn ☒ Hg	
☐ IV. Data Validation Report		☐ 24 hr. ☐ 48 hr.		*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other (Circle One)	
☒ V. EDD		☒ Standard			
Requested Report Date					
Relinquished By:		Received By:		Relinquished By:	
Signature		Signature		Signature	
Printed Name		Printed Name		Printed Name	
Firm		Firm		Firm	
Date/Time		Date/Time		Date/Time	



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SR# 62312320COC Set 2 of 2

COC#

Page 1 of 1

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Project Name: <u>Cowitz Co. Temperature / Landfill Detection Mon</u>		Project Number: <u>1111</u>		48H		7D		14D		28D		180D		999D		Remarks
Project Manager: <u>Dennis Dykes</u>		Company: <u>BAGW</u>		300.0 / NO3		3260C / VOC Unp		SM 2540 C / TDS		SM 2540 D / TSS		3260C / VOC FP		SM 2320 B / Alkalinity Tit		
Address, City, State:		Phone: <u>3602636307</u>		email: <u>ddykes@bagn.com</u>		300.0 / Chloride		300.0 / SO4		SM 4500-NH3 E / Ammonia		200.7 / Metals D		200.8 / Metals T		
Sampler Signature: <u>[Signature]</u>		Sampler Printed Name: <u>Dennis Dykes</u>		NUMBER OF CONTAINERS		300.0 / NO3		3260C / VOC Unp		SM 2540 C / TDS		SM 2540 D / TSS		3260C / VOC FP		
CLIENT SAMPLE ID	LABID	SAMPLING Date Time State	Matrix													
1. <u>W11-1029</u>		<u>10/29 1500 WA</u>	<u>W</u>	<u>8</u>	<u>x</u>		<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	
2. <u>W12-1029</u>		<u>1530</u>		<u>8</u>	<u>x</u>		<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	
3. <u>W13-1029</u>		<u>1600</u>		<u>8</u>	<u>x</u>		<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	
4. <u>W14-1029</u>		<u>1615</u>		<u>2</u>	<u>x</u>											
5. <u>W15-1029</u>		<u>1630</u>		<u>2</u>	<u>x</u>											
6. <u>W16-1029</u>		<u>1630</u>		<u>7</u>	<u>x</u>		<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	
7. <u>W17-1029</u>		<u>1700</u>		<u>7</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	
8. <u>W18-1029</u>		<u>1730</u>		<u>7</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	
9.																
10.																

Report Requirements

I. Routine Report: Method Blank, Surrogate, as required

☒ II. Report Dup., MS, MSD as required

III. CLP Like Summary (no raw data)

IV. Data Validation Report

V. EDD

Invoice Information

P.O.# Cowitz CoBill To: Pub Cks

Turnaround Requirements

24 hr. 48 hr.

5 Day

☒ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al ☒ As ☒ Sb ☒ Ba ☒ Be ☒ B ☒ Ca ☒ Cd ☒ Co ☒ Cr ☒ Cu ☒ Fe ☒ Pb ☒ Mg ☒ Mn ☒ Mo ☒ Ni ☒ K ☒ Ag ☒ Na ☒ Se ☒ Sr ☒ Ti ☒ Sn ☒ V ☒ Zn ☒ HgDissolved Metals: Al ☒ As ☒ Sb ☒ Ba ☒ Be ☒ B ☒ Ca ☒ Cd ☒ Co ☒ Cr ☒ Cu ☒ Fe ☒ Pb ☒ Mg ☒ Mn ☒ Mo ☒ Ni ☒ K ☒ Ag ☒ Na ☒ Se ☒ Sr ☒ Ti ☒ Sn ☒ V ☒ Zn ☒ Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other (Circle One)

+ add Fe + Mn
++ add Ca Fe Mn K Na

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: <u>[Signature]</u>	Signature: <u>[Signature]</u>	Signature:	Signature:	Signature:	Signature:
Printed Name: <u>BAGW</u>	Printed Name: <u>Valyn Mitolo</u>	Printed Name:	Printed Name:	Printed Name:	Printed Name:
Firm: <u>10/30/23 850</u>	Firm: <u>ALS</u>	Firm:	Firm:	Firm:	Firm:
Date/Time:	Date/Time: <u>10/30/23 0850</u>	Date/Time:	Date/Time:	Date/Time:	Date/Time:

PM SW

Cooler Receipt and Preservation Form

Client BFGW Service Request K23 12320
 Received: 10/30/23 Opened: 10/30/23 By: VMM Unloaded: 10/30/23 By: VMM

1. Samples were received via? USPS Fed Ex UPS DHL PDX Courier Hand Delivered
 2. Samples were received in: (circle) Cooler Box Envelope Other NA
 3. Were custody seals on coolers? NA Y N If yes, how many and where? _____
 If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
10.3	11.5	IR06	1 of 3	X			
10.1	8.4	↓	2 of 3	X			
7.1	9.4	↓	3 of 3	X			

4. Was a Temperature Blank present in cooler? NA Y N If yes, note the temperature in the appropriate column above:

If no, take the temperature of a representative sample bottle contained within the cooler; note in the column "Sample Temp":

5. Were samples received within the method specified temperature ranges? NA Y N

If no, were they received on ice and same day as collected? If not, note the cooler # above and notify the PM. NA Y N

If applicable, tissue samples were received: Frozen Partially Thawed Thawed

6. Packing material: Inserts Baggies Bubble Wrap Gel Packs Wet Ice Dry Ice Sleeves _____

7. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
 8. Were samples received in good condition (unbroken) NA Y N
 9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA Y N
 10. Did all sample labels and tags agree with custody papers? NA Y N
 11. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
 12. Were the pH-preserved bottles (see SMO GEN SOP) received at the appropriate pH? Indicate in the table below NA Y N
 13. Were VOA vials received without headspace? Indicate in the table below. NA Y N
 14. Was C12/Res negative? NA Y N
 15. Were samples received within the method specified time limit? If not, note the error below and notify the PM NA Y N
 16. Were 100ml sterile microbiology bottles filled exactly to the 100ml mark? NA Y N Underfilled Overfilled

Sample ID on Bottle	Sample ID on COC	Identified by:

SHORT HOLD

Sample ID	Bottle Count Bottle Type	Head- space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time
W17-1029	250ML			X	1HNO3	.5M	HEI-66-G	VMM	0920
W18-1029	↓			X	↓	↓	↓	↓	↓

Notes, Discrepancies, Resolutions: Received 4 temp blanks not on COC



Cooler Receipt and Preservation Form

Client _____ Service Request **K23 12320**

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head- space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Votes, Discrepancies & Resolutions: Samples W11-1029, W12-1029, W13-1029, W16-1029, W17-1029,
and W18-1029 all have a bottle for TOC and test is not on COC

Samples W17-1029 and W18-1029 list VOC Unp and VOC FP on COC, only
received unpressured bottles.



Miscellaneous Forms

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated value.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.
- H The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

- # The control limit criteria is not applicable.
- J The result is an estimated value.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.
- Q See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimated value.
- J The result is an estimated value.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjllabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdwlabservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/analyte is offered by that state.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori/

Service Request: K2312320

Sample Name: W1-1029
Lab Code: K2312320-001
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method	Extracted/Digested By	Analyzed By
200.7	MSOLADEY	AMCKORNEY
200.8	MSOLADEY	JCHAN
300.0		NFOTH
8260C		GROETTGER
SM 2320 B		DBRADBURY
SM 2540 C		AWILSON
SM 2540 D		AWILSON
SM 4500-NH3 E		ACHEATLEY
SM 5310 B		MSPECHT

Sample Name: W2-1029
Lab Code: K2312320-002
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method	Extracted/Digested By	Analyzed By
200.7	MSOLADEY	AMCKORNEY
200.8	MSOLADEY	JCHAN
300.0		NFOTH
8260C		GROETTGER
SM 2320 B		DBRADBURY
SM 2540 C		AWILSON
SM 2540 D		AWILSON
SM 4500-NH3 E		ACHEATLEY
SM 5310 B		MSPECHT

Sample Name: W3-1029
Lab Code: K2312320-003
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method	Extracted/Digested By	Analyzed By
200.7	MSOLADEY	AMCKORNEY
200.8	MSOLADEY	JCHAN

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori/

Service Request: K2312320

Sample Name: W3-1029
Lab Code: K2312320-003
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method	Extracted/Digested By	Analyzed By
300.0		NFOTH
8260C		GROETTGER
SM 2320 B		DBRADBURY
SM 2540 C		AWILSON
SM 2540 D		AWILSON
SM 4500-NH3 E		ACHEATLEY
SM 5310 B		MSPECHT

Sample Name: W4-1029
Lab Code: K2312320-004
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method	Extracted/Digested By	Analyzed By
200.7	MSOLADEY	AMCKORNEY
200.8	MSOLADEY	JCHAN
300.0		NFOTH
8260C		GROETTGER
SM 2320 B		DBRADBURY
SM 2540 C		AWILSON
SM 2540 D		AWILSON
SM 4500-NH3 E		ACHEATLEY
SM 5310 B		MSPECHT

Sample Name: W5-1029
Lab Code: K2312320-005
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method	Extracted/Digested By	Analyzed By
200.7	MSOLADEY	AMCKORNEY
200.8	MSOLADEY	JCHAN
300.0		NFOTH
8260C		GROETTGER

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori/

Service Request: K2312320

Sample Name: W5-1029
Lab Code: K2312320-005
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method	Extracted/Digested By	Analyzed By
SM 2320 B		DBRADBURY
SM 2540 C		AWILSON
SM 2540 D		AWILSON
SM 4500-NH3 E		ACHEATLEY
SM 5310 B		MSPECHT

Sample Name: W6-1029
Lab Code: K2312320-006
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method	Extracted/Digested By	Analyzed By
200.7	MSOLADEY	AMCKORNEY
200.8	MSOLADEY	JCHAN
300.0		NFOTH
8260C		GROETTGER
SM 2320 B		DBRADBURY
SM 2540 C		AWILSON
SM 2540 D		AWILSON
SM 4500-NH3 E		ACHEATLEY
SM 5310 B		MSPECHT

Sample Name: W7-1029
Lab Code: K2312320-007
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method	Extracted/Digested By	Analyzed By
200.7	MSOLADEY	AMCKORNEY
200.8	MSOLADEY	JCHAN
300.0		NFOTH
8260C		GROETTGER
SM 2320 B		DBRADBURY
SM 2540 C		AWILSON

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori/

Service Request: K2312320

Sample Name: W7-1029
Lab Code: K2312320-007
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method
SM 2540 D
SM 4500-NH3 E
SM 5310 B

Extracted/Digested By

Analyzed By
AWILSON
ACHEATLEY
MSPECHT

Sample Name: W8-1029
Lab Code: K2312320-008
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method
200.7
200.8
300.0
8260C
SM 2320 B
SM 2540 C
SM 2540 D
SM 4500-NH3 E
SM 5310 B

Extracted/Digested By
MSOLADEY
MSOLADEY

Analyzed By
AMCKORNEY
JCHAN
NFOTH
GROETTGER
DBRADBURY
AWILSON
AWILSON
ACHEATLEY
MSPECHT

Sample Name: W9-1029
Lab Code: K2312320-009
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method
200.7
200.8
300.0
8260C
SM 2320 B
SM 2540 C
SM 2540 D
SM 4500-NH3 E

Extracted/Digested By
MSOLADEY
MSOLADEY

Analyzed By
AMCKORNEY
JCHAN
NFOTH
GROETTGER
DBRADBURY
AWILSON
AWILSON
ACHEATLEY

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori/

Service Request: K2312320

Sample Name: W9-1029
Lab Code: K2312320-009
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method
SM 5310 B

Extracted/Digested By

Analyzed By
MSPECHT

Sample Name: W10-1029
Lab Code: K2312320-010
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method
200.7
200.8
300.0
8260C
SM 2320 B
SM 2540 C
SM 2540 D
SM 4500-NH3 E
SM 5310 B

Extracted/Digested By
MSOLADEY
MSOLADEY

Analyzed By
AMCKORNEY
JCHAN
NFOTH
GROETTGER
DBRADBURY
AWILSON
AWILSON
ACHEATLEY
MSPECHT

Sample Name: W11-1029
Lab Code: K2312320-011
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method
200.7
200.8
300.0
8260C
SM 2320 B
SM 2540 C
SM 2540 D
SM 4500-NH3 E
SM 5310 B

Extracted/Digested By
MSOLADEY
MSOLADEY

Analyzed By
AMCKORNEY
JCHAN
NFOTH
GROETTGER
DBRADBURY
AWILSON
AWILSON
ACHEATLEY
MSPECHT

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori/

Service Request: K2312320

Sample Name: W11-1029
Lab Code: K2312320-011.R01
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method
300.0

Extracted/Digested By

Analyzed By
NFOTH

Sample Name: W12-1029
Lab Code: K2312320-012
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method
200.7
200.8
300.0
8260C
SM 2320 B
SM 2540 C
SM 2540 D
SM 4500-NH3 E
SM 5310 B

Extracted/Digested By
MSOLADEY
MSOLADEY

Analyzed By
AMCKORNEY
JCHAN
NFOTH
GROETTGER
DBRADBURY
AWILSON
AWILSON
ACHEATLEY
MSPECHT

Sample Name: W13-1029
Lab Code: K2312320-013
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method
200.7
200.8
300.0
8260C
SM 2320 B
SM 2540 C
SM 2540 D
SM 4500-NH3 E
SM 5310 B

Extracted/Digested By
MSOLADEY
MSOLADEY

Analyzed By
AMCKORNEY
JCHAN
NFOTH
GROETTGER
DBRADBURY
AWILSON
AWILSON
ACHEATLEY
MSPECHT

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori/

Service Request: K2312320

Sample Name: W14-1029
Lab Code: K2312320-014
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method

200.7
200.8
300.0

Extracted/Digested By

MSOLADEY
MSOLADEY

Analyzed By

AMCKORNEY
JCHAN
NFOTH

Sample Name: W15-1029
Lab Code: K2312320-015
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method

200.7
200.8
300.0

Extracted/Digested By

MSOLADEY
MSOLADEY

Analyzed By

AMCKORNEY
JCHAN
NFOTH

Sample Name: W16-1029
Lab Code: K2312320-016
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method

200.7
200.8
300.0
8260C
SM 2320 B
SM 2540 C
SM 2540 D
SM 4500-NH3 E
SM 5310 B

Extracted/Digested By

MSOLADEY
MSOLADEY

Analyzed By

AMCKORNEY
JCHAN
NFOTH
GROETTGER
DBRADBURY
AWILSON
AWILSON
ACHEATLEY
MSPECHT

ALS Group USA, Corp.
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Analyst Summary report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori/

Service Request: K2312320

Sample Name: W17-1029
Lab Code: K2312320-017
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method	Extracted/Digested By	Analyzed By
200.7	MSOLADEY	AMCKORNEY
200.8	MSOLADEY	JCHAN
300.0		NFOTH
8260C		GROETTGER
SM 2320 B		DBRADBURY
SM 2540 C		AWILSON
SM 2540 D		AWILSON
SM 4500-NH3 E		ACHEATLEY
SM 5310 B		MSPECHT

Sample Name: W17-1029
Lab Code: K2312320-017.R01
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method	Extracted/Digested By	Analyzed By
300.0		NFOTH

Sample Name: W18-1029
Lab Code: K2312320-018
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method	Extracted/Digested By	Analyzed By
200.7	MSOLADEY	AMCKORNEY
200.8	MSOLADEY	JCHAN
300.0		NFOTH
8260C		GROETTGER
SM 2320 B		DBRADBURY
SM 2540 C		AWILSON
SM 2540 D		AWILSON
SM 4500-NH3 E		ACHEATLEY
SM 5310 B		MSPECHT

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori/

Service Request: K2312320

Sample Name: W18-1029
Lab Code: K2312320-018.R01
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method
300.0

Extracted/Digested By

Analyzed By
NFOTH

Sample Name: Trip Blank
Lab Code: K2312320-019
Sample Matrix: Water

Date Collected: 10/29/23
Date Received: 10/30/23

Analysis Method
8260C
8260C

Extracted/Digested By

Analyzed By
EWANOUS
GROETTGER



Sample Results

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com



Volatile Organic Compounds by GC/MS

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W1-1029
Lab Code: K2312320-001

Service Request: K2312320
Date Collected: 10/29/23 08:30
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Acetone	ND U	20	3.3	1	11/03/23 16:05	
Acrylonitrile	ND U	5.0	0.53	1	11/03/23 16:05	
Benzene	ND U	0.50	0.062	1	11/03/23 16:05	
Bromochloromethane	ND U	0.50	0.16	1	11/03/23 16:05	
Bromodichloromethane	ND U	0.50	0.091	1	11/03/23 16:05	
Bromoform	ND U	0.50	0.16	1	11/03/23 16:05	
Bromomethane	ND U	0.50	0.16	1	11/03/23 16:05	
2-Butanone (MEK)	ND U	20	1.9	1	11/03/23 16:05	
Carbon Disulfide	ND U	0.50	0.069	1	11/03/23 16:05	
Carbon Tetrachloride	ND U	0.50	0.096	1	11/03/23 16:05	*
Chlorobenzene	ND U	0.50	0.11	1	11/03/23 16:05	
Chloroethane	ND U	0.50	0.16	1	11/03/23 16:05	
Chloroform	ND U	0.50	0.072	1	11/03/23 16:05	
Chloromethane	0.25 J	0.50	0.068	1	11/03/23 16:05	
1,2-Dibromo-3-chloropropane	ND U	2.0	0.22	1	11/03/23 16:05	*
Dibromochloromethane	ND U	0.50	0.14	1	11/03/23 16:05	
1,2-Dibromoethane (EDB)	ND U	2.0	0.10	1	11/03/23 16:05	
Dibromomethane	ND U	0.50	0.15	1	11/03/23 16:05	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	11/03/23 16:05	
1,2-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 16:05	
1,4-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 16:05	
1,1-Dichloroethane	ND U	0.50	0.077	1	11/03/23 16:05	
1,2-Dichloroethane (EDC)	ND U	0.50	0.080	1	11/03/23 16:05	
1,1-Dichloroethene	ND U	0.50	0.080	1	11/03/23 16:05	
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	11/03/23 16:05	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	11/03/23 16:05	
1,2-Dichloropropane	ND U	0.50	0.095	1	11/03/23 16:05	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	11/03/23 16:05	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	11/03/23 16:05	
Ethylbenzene	ND U	0.50	0.050	1	11/03/23 16:05	
2-Hexanone	ND U	20	2.7	1	11/03/23 16:05	
Iodomethane	ND U	5.0	0.12	1	11/03/23 16:05	
4-Methyl-2-pentanone (MIBK)	ND U	20	2.6	1	11/03/23 16:05	
Methylene Chloride	ND U	2.0	0.10	1	11/03/23 16:05	
Styrene	ND U	0.50	0.089	1	11/03/23 16:05	
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	11/03/23 16:05	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	11/03/23 16:05	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	11/03/23 16:05	
Toluene	ND U	0.50	0.054	1	11/03/23 16:05	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	11/03/23 16:05	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	11/03/23 16:05	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W1-1029
Lab Code: K2312320-001

Service Request: K2312320
Date Collected: 10/29/23 08:30
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Trichloroethene (TCE)	ND U	0.50	0.10	1	11/03/23 16:05	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	11/03/23 16:05	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	11/03/23 16:05	
Vinyl Acetate	ND U	5.0	0.43	1	11/03/23 16:05	
Vinyl Chloride	ND U	0.50	0.075	1	11/03/23 16:05	
o-Xylene	ND U	0.50	0.074	1	11/03/23 16:05	
m,p-Xylenes	ND U	0.50	0.11	1	11/03/23 16:05	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	92	68 - 117	11/03/23 16:05	
Dibromofluoromethane	109	73 - 122	11/03/23 16:05	
Toluene-d8	100	65 - 144	11/03/23 16:05	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W2-1029
Lab Code: K2312320-002

Service Request: K2312320
Date Collected: 10/29/23 09:30
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Acetone	3.3 J	20	3.3	1	11/03/23 16:29	
Acrylonitrile	ND U	5.0	0.53	1	11/03/23 16:29	
Benzene	ND U	0.50	0.062	1	11/03/23 16:29	
Bromochloromethane	ND U	0.50	0.16	1	11/03/23 16:29	
Bromodichloromethane	ND U	0.50	0.091	1	11/03/23 16:29	
Bromoform	ND U	0.50	0.16	1	11/03/23 16:29	
Bromomethane	ND U	0.50	0.16	1	11/03/23 16:29	
2-Butanone (MEK)	ND U	20	1.9	1	11/03/23 16:29	
Carbon Disulfide	ND U	0.50	0.069	1	11/03/23 16:29	
Carbon Tetrachloride	ND U	0.50	0.096	1	11/03/23 16:29	*
Chlorobenzene	ND U	0.50	0.11	1	11/03/23 16:29	
Chloroethane	ND U	0.50	0.16	1	11/03/23 16:29	
Chloroform	ND U	0.50	0.072	1	11/03/23 16:29	
Chloromethane	0.15 J	0.50	0.068	1	11/03/23 16:29	
1,2-Dibromo-3-chloropropane	ND U	2.0	0.22	1	11/03/23 16:29	*
Dibromochloromethane	ND U	0.50	0.14	1	11/03/23 16:29	
1,2-Dibromoethane (EDB)	ND U	2.0	0.10	1	11/03/23 16:29	
Dibromomethane	ND U	0.50	0.15	1	11/03/23 16:29	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	11/03/23 16:29	
1,2-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 16:29	
1,4-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 16:29	
1,1-Dichloroethane	ND U	0.50	0.077	1	11/03/23 16:29	
1,2-Dichloroethane (EDC)	ND U	0.50	0.080	1	11/03/23 16:29	
1,1-Dichloroethene	ND U	0.50	0.080	1	11/03/23 16:29	
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	11/03/23 16:29	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	11/03/23 16:29	
1,2-Dichloropropane	ND U	0.50	0.095	1	11/03/23 16:29	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	11/03/23 16:29	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	11/03/23 16:29	
Ethylbenzene	ND U	0.50	0.050	1	11/03/23 16:29	
2-Hexanone	ND U	20	2.7	1	11/03/23 16:29	
Iodomethane	ND U	5.0	0.12	1	11/03/23 16:29	
4-Methyl-2-pentanone (MIBK)	ND U	20	2.6	1	11/03/23 16:29	
Methylene Chloride	ND U	2.0	0.10	1	11/03/23 16:29	
Styrene	ND U	0.50	0.089	1	11/03/23 16:29	
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	11/03/23 16:29	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	11/03/23 16:29	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	11/03/23 16:29	
Toluene	ND U	0.50	0.054	1	11/03/23 16:29	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	11/03/23 16:29	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	11/03/23 16:29	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W2-1029
Lab Code: K2312320-002

Service Request: K2312320
Date Collected: 10/29/23 09:30
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Trichloroethene (TCE)	ND U	0.50	0.10	1	11/03/23 16:29	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	11/03/23 16:29	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	11/03/23 16:29	
Vinyl Acetate	ND U	5.0	0.43	1	11/03/23 16:29	
Vinyl Chloride	ND U	0.50	0.075	1	11/03/23 16:29	
o-Xylene	ND U	0.50	0.074	1	11/03/23 16:29	
m,p-Xylenes	ND U	0.50	0.11	1	11/03/23 16:29	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	94	68 - 117	11/03/23 16:29	
Dibromofluoromethane	109	73 - 122	11/03/23 16:29	
Toluene-d8	101	65 - 144	11/03/23 16:29	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W3-1029
Lab Code: K2312320-003

Service Request: K2312320
Date Collected: 10/29/23 10:00
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Acetone	ND U	20	3.3	1	11/03/23 16:53	
Acrylonitrile	ND U	5.0	0.53	1	11/03/23 16:53	
Benzene	ND U	0.50	0.062	1	11/03/23 16:53	
Bromochloromethane	ND U	0.50	0.16	1	11/03/23 16:53	
Bromodichloromethane	ND U	0.50	0.091	1	11/03/23 16:53	
Bromoform	ND U	0.50	0.16	1	11/03/23 16:53	
Bromomethane	ND U	0.50	0.16	1	11/03/23 16:53	
2-Butanone (MEK)	ND U	20	1.9	1	11/03/23 16:53	
Carbon Disulfide	ND U	0.50	0.069	1	11/03/23 16:53	
Carbon Tetrachloride	ND U	0.50	0.096	1	11/03/23 16:53	*
Chlorobenzene	ND U	0.50	0.11	1	11/03/23 16:53	
Chloroethane	ND U	0.50	0.16	1	11/03/23 16:53	
Chloroform	ND U	0.50	0.072	1	11/03/23 16:53	
Chloromethane	0.18 J	0.50	0.068	1	11/03/23 16:53	
1,2-Dibromo-3-chloropropane	ND U	2.0	0.22	1	11/03/23 16:53	*
Dibromochloromethane	ND U	0.50	0.14	1	11/03/23 16:53	
1,2-Dibromoethane (EDB)	ND U	2.0	0.10	1	11/03/23 16:53	
Dibromomethane	ND U	0.50	0.15	1	11/03/23 16:53	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	11/03/23 16:53	
1,2-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 16:53	
1,4-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 16:53	
1,1-Dichloroethane	ND U	0.50	0.077	1	11/03/23 16:53	
1,2-Dichloroethane (EDC)	ND U	0.50	0.080	1	11/03/23 16:53	
1,1-Dichloroethene	ND U	0.50	0.080	1	11/03/23 16:53	
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	11/03/23 16:53	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	11/03/23 16:53	
1,2-Dichloropropane	ND U	0.50	0.095	1	11/03/23 16:53	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	11/03/23 16:53	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	11/03/23 16:53	
Ethylbenzene	ND U	0.50	0.050	1	11/03/23 16:53	
2-Hexanone	ND U	20	2.7	1	11/03/23 16:53	
Iodomethane	ND U	5.0	0.12	1	11/03/23 16:53	
4-Methyl-2-pentanone (MIBK)	ND U	20	2.6	1	11/03/23 16:53	
Methylene Chloride	ND U	2.0	0.10	1	11/03/23 16:53	
Styrene	ND U	0.50	0.089	1	11/03/23 16:53	
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	11/03/23 16:53	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	11/03/23 16:53	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	11/03/23 16:53	
Toluene	ND U	0.50	0.054	1	11/03/23 16:53	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	11/03/23 16:53	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	11/03/23 16:53	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W3-1029
Lab Code: K2312320-003

Service Request: K2312320
Date Collected: 10/29/23 10:00
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Trichloroethene (TCE)	ND U	0.50	0.10	1	11/03/23 16:53	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	11/03/23 16:53	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	11/03/23 16:53	
Vinyl Acetate	ND U	5.0	0.43	1	11/03/23 16:53	
Vinyl Chloride	ND U	0.50	0.075	1	11/03/23 16:53	
o-Xylene	ND U	0.50	0.074	1	11/03/23 16:53	
m,p-Xylenes	ND U	0.50	0.11	1	11/03/23 16:53	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	92	68 - 117	11/03/23 16:53	
Dibromofluoromethane	109	73 - 122	11/03/23 16:53	
Toluene-d8	101	65 - 144	11/03/23 16:53	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W4-1029
Lab Code: K2312320-004

Service Request: K2312320
Date Collected: 10/29/23 10:30
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Acetone	ND U	20	3.3	1	11/03/23 17:18	
Acrylonitrile	ND U	5.0	0.53	1	11/03/23 17:18	
Benzene	ND U	0.50	0.062	1	11/03/23 17:18	
Bromochloromethane	ND U	0.50	0.16	1	11/03/23 17:18	
Bromodichloromethane	ND U	0.50	0.091	1	11/03/23 17:18	
Bromoform	ND U	0.50	0.16	1	11/03/23 17:18	
Bromomethane	ND U	0.50	0.16	1	11/03/23 17:18	
2-Butanone (MEK)	ND U	20	1.9	1	11/03/23 17:18	
Carbon Disulfide	ND U	0.50	0.069	1	11/03/23 17:18	
Carbon Tetrachloride	ND U	0.50	0.096	1	11/03/23 17:18	*
Chlorobenzene	ND U	0.50	0.11	1	11/03/23 17:18	
Chloroethane	ND U	0.50	0.16	1	11/03/23 17:18	
Chloroform	ND U	0.50	0.072	1	11/03/23 17:18	
Chloromethane	0.18 J	0.50	0.068	1	11/03/23 17:18	
1,2-Dibromo-3-chloropropane	ND U	2.0	0.22	1	11/03/23 17:18	*
Dibromochloromethane	ND U	0.50	0.14	1	11/03/23 17:18	
1,2-Dibromoethane (EDB)	ND U	2.0	0.10	1	11/03/23 17:18	
Dibromomethane	ND U	0.50	0.15	1	11/03/23 17:18	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	11/03/23 17:18	
1,2-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 17:18	
1,4-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 17:18	
1,1-Dichloroethane	ND U	0.50	0.077	1	11/03/23 17:18	
1,2-Dichloroethane (EDC)	ND U	0.50	0.080	1	11/03/23 17:18	
1,1-Dichloroethene	ND U	0.50	0.080	1	11/03/23 17:18	
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	11/03/23 17:18	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	11/03/23 17:18	
1,2-Dichloropropane	ND U	0.50	0.095	1	11/03/23 17:18	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	11/03/23 17:18	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	11/03/23 17:18	
Ethylbenzene	ND U	0.50	0.050	1	11/03/23 17:18	
2-Hexanone	ND U	20	2.7	1	11/03/23 17:18	
Iodomethane	ND U	5.0	0.12	1	11/03/23 17:18	
4-Methyl-2-pentanone (MIBK)	ND U	20	2.6	1	11/03/23 17:18	
Methylene Chloride	ND U	2.0	0.10	1	11/03/23 17:18	
Styrene	ND U	0.50	0.089	1	11/03/23 17:18	
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	11/03/23 17:18	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	11/03/23 17:18	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	11/03/23 17:18	
Toluene	ND U	0.50	0.054	1	11/03/23 17:18	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	11/03/23 17:18	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	11/03/23 17:18	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W4-1029
Lab Code: K2312320-004

Service Request: K2312320
Date Collected: 10/29/23 10:30
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Trichloroethene (TCE)	ND U	0.50	0.10	1	11/03/23 17:18	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	11/03/23 17:18	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	11/03/23 17:18	
Vinyl Acetate	ND U	5.0	0.43	1	11/03/23 17:18	
Vinyl Chloride	ND U	0.50	0.075	1	11/03/23 17:18	
o-Xylene	ND U	0.50	0.074	1	11/03/23 17:18	
m,p-Xylenes	ND U	0.50	0.11	1	11/03/23 17:18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	92	68 - 117	11/03/23 17:18	
Dibromofluoromethane	108	73 - 122	11/03/23 17:18	
Toluene-d8	98	65 - 144	11/03/23 17:18	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W5-1029
Lab Code: K2312320-005

Service Request: K2312320
Date Collected: 10/29/23 11:00
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Acetone	ND U	20	3.3	1	11/03/23 17:42	
Acrylonitrile	ND U	5.0	0.53	1	11/03/23 17:42	
Benzene	ND U	0.50	0.062	1	11/03/23 17:42	
Bromochloromethane	ND U	0.50	0.16	1	11/03/23 17:42	
Bromodichloromethane	ND U	0.50	0.091	1	11/03/23 17:42	
Bromoform	ND U	0.50	0.16	1	11/03/23 17:42	
Bromomethane	ND U	0.50	0.16	1	11/03/23 17:42	
2-Butanone (MEK)	ND U	20	1.9	1	11/03/23 17:42	
Carbon Disulfide	ND U	0.50	0.069	1	11/03/23 17:42	
Carbon Tetrachloride	ND U	0.50	0.096	1	11/03/23 17:42	*
Chlorobenzene	ND U	0.50	0.11	1	11/03/23 17:42	
Chloroethane	ND U	0.50	0.16	1	11/03/23 17:42	
Chloroform	ND U	0.50	0.072	1	11/03/23 17:42	
Chloromethane	0.19 J	0.50	0.068	1	11/03/23 17:42	
1,2-Dibromo-3-chloropropane	ND U	2.0	0.22	1	11/03/23 17:42	*
Dibromochloromethane	ND U	0.50	0.14	1	11/03/23 17:42	
1,2-Dibromoethane (EDB)	ND U	2.0	0.10	1	11/03/23 17:42	
Dibromomethane	ND U	0.50	0.15	1	11/03/23 17:42	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	11/03/23 17:42	
1,2-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 17:42	
1,4-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 17:42	
1,1-Dichloroethane	ND U	0.50	0.077	1	11/03/23 17:42	
1,2-Dichloroethane (EDC)	ND U	0.50	0.080	1	11/03/23 17:42	
1,1-Dichloroethene	ND U	0.50	0.080	1	11/03/23 17:42	
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	11/03/23 17:42	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	11/03/23 17:42	
1,2-Dichloropropane	ND U	0.50	0.095	1	11/03/23 17:42	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	11/03/23 17:42	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	11/03/23 17:42	
Ethylbenzene	ND U	0.50	0.050	1	11/03/23 17:42	
2-Hexanone	ND U	20	2.7	1	11/03/23 17:42	
Iodomethane	ND U	5.0	0.12	1	11/03/23 17:42	
4-Methyl-2-pentanone (MIBK)	ND U	20	2.6	1	11/03/23 17:42	
Methylene Chloride	ND U	2.0	0.10	1	11/03/23 17:42	
Styrene	ND U	0.50	0.089	1	11/03/23 17:42	
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	11/03/23 17:42	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	11/03/23 17:42	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	11/03/23 17:42	
Toluene	ND U	0.50	0.054	1	11/03/23 17:42	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	11/03/23 17:42	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	11/03/23 17:42	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W5-1029
Lab Code: K2312320-005

Service Request: K2312320
Date Collected: 10/29/23 11:00
Date Received: 10/30/23 08:50

Units: ug/L

Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Trichloroethene (TCE)	ND U	0.50	0.10	1	11/03/23 17:42	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	11/03/23 17:42	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	11/03/23 17:42	
Vinyl Acetate	ND U	5.0	0.43	1	11/03/23 17:42	
Vinyl Chloride	ND U	0.50	0.075	1	11/03/23 17:42	
o-Xylene	ND U	0.50	0.074	1	11/03/23 17:42	
m,p-Xylenes	ND U	0.50	0.11	1	11/03/23 17:42	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	68 - 117	11/03/23 17:42	
Dibromofluoromethane	108	73 - 122	11/03/23 17:42	
Toluene-d8	99	65 - 144	11/03/23 17:42	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W6-1029
Lab Code: K2312320-006

Service Request: K2312320
Date Collected: 10/29/23 11:30
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Acetone	ND U	20	3.3	1	11/03/23 18:06	
Acrylonitrile	ND U	5.0	0.53	1	11/03/23 18:06	
Benzene	ND U	0.50	0.062	1	11/03/23 18:06	
Bromochloromethane	ND U	0.50	0.16	1	11/03/23 18:06	
Bromodichloromethane	ND U	0.50	0.091	1	11/03/23 18:06	
Bromoform	ND U	0.50	0.16	1	11/03/23 18:06	
Bromomethane	ND U	0.50	0.16	1	11/03/23 18:06	
2-Butanone (MEK)	ND U	20	1.9	1	11/03/23 18:06	
Carbon Disulfide	ND U	0.50	0.069	1	11/03/23 18:06	
Carbon Tetrachloride	ND U	0.50	0.096	1	11/03/23 18:06	*
Chlorobenzene	ND U	0.50	0.11	1	11/03/23 18:06	
Chloroethane	ND U	0.50	0.16	1	11/03/23 18:06	
Chloroform	ND U	0.50	0.072	1	11/03/23 18:06	
Chloromethane	0.19 J	0.50	0.068	1	11/03/23 18:06	
1,2-Dibromo-3-chloropropane	ND U	2.0	0.22	1	11/03/23 18:06	*
Dibromochloromethane	ND U	0.50	0.14	1	11/03/23 18:06	
1,2-Dibromoethane (EDB)	ND U	2.0	0.10	1	11/03/23 18:06	
Dibromomethane	ND U	0.50	0.15	1	11/03/23 18:06	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	11/03/23 18:06	
1,2-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 18:06	
1,4-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 18:06	
1,1-Dichloroethane	ND U	0.50	0.077	1	11/03/23 18:06	
1,2-Dichloroethane (EDC)	ND U	0.50	0.080	1	11/03/23 18:06	
1,1-Dichloroethene	ND U	0.50	0.080	1	11/03/23 18:06	
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	11/03/23 18:06	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	11/03/23 18:06	
1,2-Dichloropropane	ND U	0.50	0.095	1	11/03/23 18:06	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	11/03/23 18:06	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	11/03/23 18:06	
Ethylbenzene	ND U	0.50	0.050	1	11/03/23 18:06	
2-Hexanone	ND U	20	2.7	1	11/03/23 18:06	
Iodomethane	ND U	5.0	0.12	1	11/03/23 18:06	
4-Methyl-2-pentanone (MIBK)	ND U	20	2.6	1	11/03/23 18:06	
Methylene Chloride	ND U	2.0	0.10	1	11/03/23 18:06	
Styrene	ND U	0.50	0.089	1	11/03/23 18:06	
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	11/03/23 18:06	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	11/03/23 18:06	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	11/03/23 18:06	
Toluene	ND U	0.50	0.054	1	11/03/23 18:06	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	11/03/23 18:06	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	11/03/23 18:06	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W6-1029
Lab Code: K2312320-006

Service Request: K2312320
Date Collected: 10/29/23 11:30
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Trichloroethene (TCE)	ND U	0.50	0.10	1	11/03/23 18:06	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	11/03/23 18:06	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	11/03/23 18:06	
Vinyl Acetate	ND U	5.0	0.43	1	11/03/23 18:06	
Vinyl Chloride	ND U	0.50	0.075	1	11/03/23 18:06	
o-Xylene	ND U	0.50	0.074	1	11/03/23 18:06	
m,p-Xylenes	ND U	0.50	0.11	1	11/03/23 18:06	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	68 - 117	11/03/23 18:06	
Dibromofluoromethane	106	73 - 122	11/03/23 18:06	
Toluene-d8	99	65 - 144	11/03/23 18:06	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W7-1029
Lab Code: K2312320-007

Service Request: K2312320
Date Collected: 10/29/23 12:30
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Acetone	ND U	20	3.3	1	11/03/23 18:31	
Acrylonitrile	ND U	5.0	0.53	1	11/03/23 18:31	
Benzene	ND U	0.50	0.062	1	11/03/23 18:31	
Bromochloromethane	ND U	0.50	0.16	1	11/03/23 18:31	
Bromodichloromethane	ND U	0.50	0.091	1	11/03/23 18:31	
Bromoform	ND U	0.50	0.16	1	11/03/23 18:31	
Bromomethane	ND U	0.50	0.16	1	11/03/23 18:31	
2-Butanone (MEK)	ND U	20	1.9	1	11/03/23 18:31	
Carbon Disulfide	ND U	0.50	0.069	1	11/03/23 18:31	
Carbon Tetrachloride	ND U	0.50	0.096	1	11/03/23 18:31	*
Chlorobenzene	ND U	0.50	0.11	1	11/03/23 18:31	
Chloroethane	ND U	0.50	0.16	1	11/03/23 18:31	
Chloroform	ND U	0.50	0.072	1	11/03/23 18:31	
Chloromethane	0.17 J	0.50	0.068	1	11/03/23 18:31	
1,2-Dibromo-3-chloropropane	ND U	2.0	0.22	1	11/03/23 18:31	*
Dibromochloromethane	ND U	0.50	0.14	1	11/03/23 18:31	
1,2-Dibromoethane (EDB)	ND U	2.0	0.10	1	11/03/23 18:31	
Dibromomethane	ND U	0.50	0.15	1	11/03/23 18:31	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	11/03/23 18:31	
1,2-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 18:31	
1,4-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 18:31	
1,1-Dichloroethane	ND U	0.50	0.077	1	11/03/23 18:31	
1,2-Dichloroethane (EDC)	ND U	0.50	0.080	1	11/03/23 18:31	
1,1-Dichloroethene	ND U	0.50	0.080	1	11/03/23 18:31	
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	11/03/23 18:31	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	11/03/23 18:31	
1,2-Dichloropropane	ND U	0.50	0.095	1	11/03/23 18:31	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	11/03/23 18:31	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	11/03/23 18:31	
Ethylbenzene	ND U	0.50	0.050	1	11/03/23 18:31	
2-Hexanone	ND U	20	2.7	1	11/03/23 18:31	
Iodomethane	ND U	5.0	0.12	1	11/03/23 18:31	
4-Methyl-2-pentanone (MIBK)	ND U	20	2.6	1	11/03/23 18:31	
Methylene Chloride	ND U	2.0	0.10	1	11/03/23 18:31	
Styrene	ND U	0.50	0.089	1	11/03/23 18:31	
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	11/03/23 18:31	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	11/03/23 18:31	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	11/03/23 18:31	
Toluene	ND U	0.50	0.054	1	11/03/23 18:31	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	11/03/23 18:31	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	11/03/23 18:31	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W7-1029
Lab Code: K2312320-007

Service Request: K2312320
Date Collected: 10/29/23 12:30
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Trichloroethene (TCE)	ND U	0.50	0.10	1	11/03/23 18:31	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	11/03/23 18:31	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	11/03/23 18:31	
Vinyl Acetate	ND U	5.0	0.43	1	11/03/23 18:31	
Vinyl Chloride	ND U	0.50	0.075	1	11/03/23 18:31	
o-Xylene	ND U	0.50	0.074	1	11/03/23 18:31	
m,p-Xylenes	ND U	0.50	0.11	1	11/03/23 18:31	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	68 - 117	11/03/23 18:31	
Dibromofluoromethane	108	73 - 122	11/03/23 18:31	
Toluene-d8	100	65 - 144	11/03/23 18:31	

ALS Group USA, Corp.
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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W8-1029
Lab Code: K2312320-008

Service Request: K2312320
Date Collected: 10/29/23 13:00
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Acetone	ND U	20	3.3	1	11/03/23 18:55	
Acrylonitrile	ND U	5.0	0.53	1	11/03/23 18:55	
Benzene	ND U	0.50	0.062	1	11/03/23 18:55	
Bromochloromethane	ND U	0.50	0.16	1	11/03/23 18:55	
Bromodichloromethane	ND U	0.50	0.091	1	11/03/23 18:55	
Bromoform	ND U	0.50	0.16	1	11/03/23 18:55	
Bromomethane	ND U	0.50	0.16	1	11/03/23 18:55	
2-Butanone (MEK)	ND U	20	1.9	1	11/03/23 18:55	
Carbon Disulfide	ND U	0.50	0.069	1	11/03/23 18:55	
Carbon Tetrachloride	ND U	0.50	0.096	1	11/03/23 18:55	*
Chlorobenzene	ND U	0.50	0.11	1	11/03/23 18:55	
Chloroethane	ND U	0.50	0.16	1	11/03/23 18:55	
Chloroform	ND U	0.50	0.072	1	11/03/23 18:55	
Chloromethane	0.13 J	0.50	0.068	1	11/03/23 18:55	
1,2-Dibromo-3-chloropropane	ND U	2.0	0.22	1	11/03/23 18:55	*
Dibromochloromethane	ND U	0.50	0.14	1	11/03/23 18:55	
1,2-Dibromoethane (EDB)	ND U	2.0	0.10	1	11/03/23 18:55	
Dibromomethane	ND U	0.50	0.15	1	11/03/23 18:55	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	11/03/23 18:55	
1,2-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 18:55	
1,4-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 18:55	
1,1-Dichloroethane	ND U	0.50	0.077	1	11/03/23 18:55	
1,2-Dichloroethane (EDC)	ND U	0.50	0.080	1	11/03/23 18:55	
1,1-Dichloroethene	ND U	0.50	0.080	1	11/03/23 18:55	
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	11/03/23 18:55	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	11/03/23 18:55	
1,2-Dichloropropane	ND U	0.50	0.095	1	11/03/23 18:55	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	11/03/23 18:55	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	11/03/23 18:55	
Ethylbenzene	ND U	0.50	0.050	1	11/03/23 18:55	
2-Hexanone	ND U	20	2.7	1	11/03/23 18:55	
Iodomethane	ND U	5.0	0.12	1	11/03/23 18:55	
4-Methyl-2-pentanone (MIBK)	ND U	20	2.6	1	11/03/23 18:55	
Methylene Chloride	ND U	2.0	0.10	1	11/03/23 18:55	
Styrene	ND U	0.50	0.089	1	11/03/23 18:55	
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	11/03/23 18:55	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	11/03/23 18:55	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	11/03/23 18:55	
Toluene	ND U	0.50	0.054	1	11/03/23 18:55	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	11/03/23 18:55	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	11/03/23 18:55	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W8-1029
Lab Code: K2312320-008

Service Request: K2312320
Date Collected: 10/29/23 13:00
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Trichloroethene (TCE)	ND U	0.50	0.10	1	11/03/23 18:55	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	11/03/23 18:55	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	11/03/23 18:55	
Vinyl Acetate	ND U	5.0	0.43	1	11/03/23 18:55	
Vinyl Chloride	ND U	0.50	0.075	1	11/03/23 18:55	
o-Xylene	ND U	0.50	0.074	1	11/03/23 18:55	
m,p-Xylenes	ND U	0.50	0.11	1	11/03/23 18:55	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	68 - 117	11/03/23 18:55	
Dibromofluoromethane	108	73 - 122	11/03/23 18:55	
Toluene-d8	99	65 - 144	11/03/23 18:55	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W9-1029
Lab Code: K2312320-009

Service Request: K2312320
Date Collected: 10/29/23 13:30
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Acetone	ND U	20	3.3	1	11/03/23 19:20	
Acrylonitrile	ND U	5.0	0.53	1	11/03/23 19:20	
Benzene	ND U	0.50	0.062	1	11/03/23 19:20	
Bromochloromethane	ND U	0.50	0.16	1	11/03/23 19:20	
Bromodichloromethane	ND U	0.50	0.091	1	11/03/23 19:20	
Bromoform	ND U	0.50	0.16	1	11/03/23 19:20	
Bromomethane	ND U	0.50	0.16	1	11/03/23 19:20	
2-Butanone (MEK)	ND U	20	1.9	1	11/03/23 19:20	
Carbon Disulfide	ND U	0.50	0.069	1	11/03/23 19:20	
Carbon Tetrachloride	ND U	0.50	0.096	1	11/03/23 19:20	*
Chlorobenzene	ND U	0.50	0.11	1	11/03/23 19:20	
Chloroethane	ND U	0.50	0.16	1	11/03/23 19:20	
Chloroform	ND U	0.50	0.072	1	11/03/23 19:20	
Chloromethane	ND U	0.50	0.068	1	11/03/23 19:20	
1,2-Dibromo-3-chloropropane	ND U	2.0	0.22	1	11/03/23 19:20	*
Dibromochloromethane	ND U	0.50	0.14	1	11/03/23 19:20	
1,2-Dibromoethane (EDB)	ND U	2.0	0.10	1	11/03/23 19:20	
Dibromomethane	ND U	0.50	0.15	1	11/03/23 19:20	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	11/03/23 19:20	
1,2-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 19:20	
1,4-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 19:20	
1,1-Dichloroethane	ND U	0.50	0.077	1	11/03/23 19:20	
1,2-Dichloroethane (EDC)	ND U	0.50	0.080	1	11/03/23 19:20	
1,1-Dichloroethene	ND U	0.50	0.080	1	11/03/23 19:20	
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	11/03/23 19:20	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	11/03/23 19:20	
1,2-Dichloropropane	ND U	0.50	0.095	1	11/03/23 19:20	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	11/03/23 19:20	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	11/03/23 19:20	
Ethylbenzene	ND U	0.50	0.050	1	11/03/23 19:20	
2-Hexanone	ND U	20	2.7	1	11/03/23 19:20	
Iodomethane	ND U	5.0	0.12	1	11/03/23 19:20	
4-Methyl-2-pentanone (MIBK)	ND U	20	2.6	1	11/03/23 19:20	
Methylene Chloride	ND U	2.0	0.10	1	11/03/23 19:20	
Styrene	ND U	0.50	0.089	1	11/03/23 19:20	
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	11/03/23 19:20	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	11/03/23 19:20	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	11/03/23 19:20	
Toluene	ND U	0.50	0.054	1	11/03/23 19:20	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	11/03/23 19:20	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	11/03/23 19:20	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W9-1029
Lab Code: K2312320-009

Service Request: K2312320
Date Collected: 10/29/23 13:30
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Trichloroethene (TCE)	ND U	0.50	0.10	1	11/03/23 19:20	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	11/03/23 19:20	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	11/03/23 19:20	
Vinyl Acetate	ND U	5.0	0.43	1	11/03/23 19:20	
Vinyl Chloride	ND U	0.50	0.075	1	11/03/23 19:20	
o-Xylene	ND U	0.50	0.074	1	11/03/23 19:20	
m,p-Xylenes	ND U	0.50	0.11	1	11/03/23 19:20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	68 - 117	11/03/23 19:20	
Dibromofluoromethane	110	73 - 122	11/03/23 19:20	
Toluene-d8	99	65 - 144	11/03/23 19:20	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W10-1029
Lab Code: K2312320-010

Service Request: K2312320
Date Collected: 10/29/23 14:00
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Acetone	ND U	20	3.3	1	11/03/23 19:44	
Acrylonitrile	ND U	5.0	0.53	1	11/03/23 19:44	
Benzene	ND U	0.50	0.062	1	11/03/23 19:44	
Bromochloromethane	ND U	0.50	0.16	1	11/03/23 19:44	
Bromodichloromethane	ND U	0.50	0.091	1	11/03/23 19:44	
Bromoform	ND U	0.50	0.16	1	11/03/23 19:44	
Bromomethane	ND U	0.50	0.16	1	11/03/23 19:44	
2-Butanone (MEK)	ND U	20	1.9	1	11/03/23 19:44	
Carbon Disulfide	ND U	0.50	0.069	1	11/03/23 19:44	
Carbon Tetrachloride	ND U	0.50	0.096	1	11/03/23 19:44	*
Chlorobenzene	ND U	0.50	0.11	1	11/03/23 19:44	
Chloroethane	ND U	0.50	0.16	1	11/03/23 19:44	
Chloroform	ND U	0.50	0.072	1	11/03/23 19:44	
Chloromethane	ND U	0.50	0.068	1	11/03/23 19:44	
1,2-Dibromo-3-chloropropane	ND U	2.0	0.22	1	11/03/23 19:44	*
Dibromochloromethane	ND U	0.50	0.14	1	11/03/23 19:44	
1,2-Dibromoethane (EDB)	ND U	2.0	0.10	1	11/03/23 19:44	
Dibromomethane	ND U	0.50	0.15	1	11/03/23 19:44	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	11/03/23 19:44	
1,2-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 19:44	
1,4-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 19:44	
1,1-Dichloroethane	ND U	0.50	0.077	1	11/03/23 19:44	
1,2-Dichloroethane (EDC)	ND U	0.50	0.080	1	11/03/23 19:44	
1,1-Dichloroethene	ND U	0.50	0.080	1	11/03/23 19:44	
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	11/03/23 19:44	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	11/03/23 19:44	
1,2-Dichloropropane	ND U	0.50	0.095	1	11/03/23 19:44	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	11/03/23 19:44	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	11/03/23 19:44	
Ethylbenzene	ND U	0.50	0.050	1	11/03/23 19:44	
2-Hexanone	ND U	20	2.7	1	11/03/23 19:44	
Iodomethane	ND U	5.0	0.12	1	11/03/23 19:44	
4-Methyl-2-pentanone (MIBK)	ND U	20	2.6	1	11/03/23 19:44	
Methylene Chloride	ND U	2.0	0.10	1	11/03/23 19:44	
Styrene	ND U	0.50	0.089	1	11/03/23 19:44	
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	11/03/23 19:44	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	11/03/23 19:44	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	11/03/23 19:44	
Toluene	ND U	0.50	0.054	1	11/03/23 19:44	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	11/03/23 19:44	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	11/03/23 19:44	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W10-1029
Lab Code: K2312320-010

Service Request: K2312320
Date Collected: 10/29/23 14:00
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Trichloroethene (TCE)	ND U	0.50	0.10	1	11/03/23 19:44	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	11/03/23 19:44	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	11/03/23 19:44	
Vinyl Acetate	ND U	5.0	0.43	1	11/03/23 19:44	
Vinyl Chloride	ND U	0.50	0.075	1	11/03/23 19:44	
o-Xylene	ND U	0.50	0.074	1	11/03/23 19:44	
m,p-Xylenes	ND U	0.50	0.11	1	11/03/23 19:44	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	68 - 117	11/03/23 19:44	
Dibromofluoromethane	110	73 - 122	11/03/23 19:44	
Toluene-d8	100	65 - 144	11/03/23 19:44	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W11-1029
Lab Code: K2312320-011

Service Request: K2312320
Date Collected: 10/29/23 15:00
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Acetone	ND U	20	3.3	1	11/03/23 20:08	
Acrylonitrile	ND U	5.0	0.53	1	11/03/23 20:08	
Benzene	ND U	0.50	0.062	1	11/03/23 20:08	
Bromochloromethane	ND U	0.50	0.16	1	11/03/23 20:08	
Bromodichloromethane	ND U	0.50	0.091	1	11/03/23 20:08	
Bromoform	ND U	0.50	0.16	1	11/03/23 20:08	
Bromomethane	ND U	0.50	0.16	1	11/03/23 20:08	
2-Butanone (MEK)	ND U	20	1.9	1	11/03/23 20:08	
Carbon Disulfide	ND U	0.50	0.069	1	11/03/23 20:08	
Carbon Tetrachloride	ND U	0.50	0.096	1	11/03/23 20:08	*
Chlorobenzene	ND U	0.50	0.11	1	11/03/23 20:08	
Chloroethane	ND U	0.50	0.16	1	11/03/23 20:08	
Chloroform	ND U	0.50	0.072	1	11/03/23 20:08	
Chloromethane	ND U	0.50	0.068	1	11/03/23 20:08	
1,2-Dibromo-3-chloropropane	ND U	2.0	0.22	1	11/03/23 20:08	*
Dibromochloromethane	ND U	0.50	0.14	1	11/03/23 20:08	
1,2-Dibromoethane (EDB)	ND U	2.0	0.10	1	11/03/23 20:08	
Dibromomethane	ND U	0.50	0.15	1	11/03/23 20:08	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	11/03/23 20:08	
1,2-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 20:08	
1,4-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 20:08	
1,1-Dichloroethane	ND U	0.50	0.077	1	11/03/23 20:08	
1,2-Dichloroethane (EDC)	ND U	0.50	0.080	1	11/03/23 20:08	
1,1-Dichloroethene	ND U	0.50	0.080	1	11/03/23 20:08	
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	11/03/23 20:08	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	11/03/23 20:08	
1,2-Dichloropropane	ND U	0.50	0.095	1	11/03/23 20:08	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	11/03/23 20:08	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	11/03/23 20:08	
Ethylbenzene	ND U	0.50	0.050	1	11/03/23 20:08	
2-Hexanone	ND U	20	2.7	1	11/03/23 20:08	
Iodomethane	ND U	5.0	0.12	1	11/03/23 20:08	
4-Methyl-2-pentanone (MIBK)	ND U	20	2.6	1	11/03/23 20:08	
Methylene Chloride	ND U	2.0	0.10	1	11/03/23 20:08	
Styrene	ND U	0.50	0.089	1	11/03/23 20:08	
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	11/03/23 20:08	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	11/03/23 20:08	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	11/03/23 20:08	
Toluene	ND U	0.50	0.054	1	11/03/23 20:08	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	11/03/23 20:08	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	11/03/23 20:08	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W11-1029
Lab Code: K2312320-011

Service Request: K2312320
Date Collected: 10/29/23 15:00
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Trichloroethene (TCE)	ND U	0.50	0.10	1	11/03/23 20:08	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	11/03/23 20:08	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	11/03/23 20:08	
Vinyl Acetate	ND U	5.0	0.43	1	11/03/23 20:08	
Vinyl Chloride	ND U	0.50	0.075	1	11/03/23 20:08	
o-Xylene	ND U	0.50	0.074	1	11/03/23 20:08	
m,p-Xylenes	ND U	0.50	0.11	1	11/03/23 20:08	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	68 - 117	11/03/23 20:08	
Dibromofluoromethane	110	73 - 122	11/03/23 20:08	
Toluene-d8	99	65 - 144	11/03/23 20:08	

ALS Group USA, Corp.
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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W12-1029
Lab Code: K2312320-012

Service Request: K2312320
Date Collected: 10/29/23 15:30
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Acetone	ND U	20	3.3	1	11/03/23 20:33	
Acrylonitrile	ND U	5.0	0.53	1	11/03/23 20:33	
Benzene	ND U	0.50	0.062	1	11/03/23 20:33	
Bromochloromethane	ND U	0.50	0.16	1	11/03/23 20:33	
Bromodichloromethane	ND U	0.50	0.091	1	11/03/23 20:33	
Bromoform	ND U	0.50	0.16	1	11/03/23 20:33	
Bromomethane	ND U	0.50	0.16	1	11/03/23 20:33	
2-Butanone (MEK)	ND U	20	1.9	1	11/03/23 20:33	
Carbon Disulfide	ND U	0.50	0.069	1	11/03/23 20:33	
Carbon Tetrachloride	ND U	0.50	0.096	1	11/03/23 20:33	*
Chlorobenzene	0.44 J	0.50	0.11	1	11/03/23 20:33	
Chloroethane	ND U	0.50	0.16	1	11/03/23 20:33	
Chloroform	ND U	0.50	0.072	1	11/03/23 20:33	
Chloromethane	ND U	0.50	0.068	1	11/03/23 20:33	
1,2-Dibromo-3-chloropropane	ND U	2.0	0.22	1	11/03/23 20:33	*
Dibromochloromethane	ND U	0.50	0.14	1	11/03/23 20:33	
1,2-Dibromoethane (EDB)	ND U	2.0	0.10	1	11/03/23 20:33	
Dibromomethane	ND U	0.50	0.15	1	11/03/23 20:33	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	11/03/23 20:33	
1,2-Dichlorobenzene	0.25 J	0.50	0.12	1	11/03/23 20:33	
1,4-Dichlorobenzene	0.26 J	0.50	0.12	1	11/03/23 20:33	
1,1-Dichloroethane	ND U	0.50	0.077	1	11/03/23 20:33	
1,2-Dichloroethane (EDC)	ND U	0.50	0.080	1	11/03/23 20:33	
1,1-Dichloroethene	ND U	0.50	0.080	1	11/03/23 20:33	
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	11/03/23 20:33	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	11/03/23 20:33	
1,2-Dichloropropane	ND U	0.50	0.095	1	11/03/23 20:33	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	11/03/23 20:33	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	11/03/23 20:33	
Ethylbenzene	ND U	0.50	0.050	1	11/03/23 20:33	
2-Hexanone	ND U	20	2.7	1	11/03/23 20:33	
Iodomethane	ND U	5.0	0.12	1	11/03/23 20:33	
4-Methyl-2-pentanone (MIBK)	ND U	20	2.6	1	11/03/23 20:33	
Methylene Chloride	ND U	2.0	0.10	1	11/03/23 20:33	
Styrene	ND U	0.50	0.089	1	11/03/23 20:33	
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	11/03/23 20:33	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	11/03/23 20:33	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	11/03/23 20:33	
Toluene	ND U	0.50	0.054	1	11/03/23 20:33	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	11/03/23 20:33	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	11/03/23 20:33	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W12-1029
Lab Code: K2312320-012

Service Request: K2312320
Date Collected: 10/29/23 15:30
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Trichloroethene (TCE)	ND U	0.50	0.10	1	11/03/23 20:33	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	11/03/23 20:33	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	11/03/23 20:33	
Vinyl Acetate	ND U	5.0	0.43	1	11/03/23 20:33	
Vinyl Chloride	ND U	0.50	0.075	1	11/03/23 20:33	
o-Xylene	ND U	0.50	0.074	1	11/03/23 20:33	
m,p-Xylenes	ND U	0.50	0.11	1	11/03/23 20:33	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	68 - 117	11/03/23 20:33	
Dibromofluoromethane	111	73 - 122	11/03/23 20:33	
Toluene-d8	101	65 - 144	11/03/23 20:33	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W13-1029
Lab Code: K2312320-013

Service Request: K2312320
Date Collected: 10/29/23 16:00
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Acetone	ND U	20	3.3	1	11/03/23 20:57	
Acrylonitrile	ND U	5.0	0.53	1	11/03/23 20:57	
Benzene	ND U	0.50	0.062	1	11/03/23 20:57	
Bromochloromethane	ND U	0.50	0.16	1	11/03/23 20:57	
Bromodichloromethane	ND U	0.50	0.091	1	11/03/23 20:57	
Bromoform	ND U	0.50	0.16	1	11/03/23 20:57	
Bromomethane	ND U	0.50	0.16	1	11/03/23 20:57	
2-Butanone (MEK)	ND U	20	1.9	1	11/03/23 20:57	
Carbon Disulfide	ND U	0.50	0.069	1	11/03/23 20:57	
Carbon Tetrachloride	ND U	0.50	0.096	1	11/03/23 20:57	*
Chlorobenzene	0.45 J	0.50	0.11	1	11/03/23 20:57	
Chloroethane	ND U	0.50	0.16	1	11/03/23 20:57	
Chloroform	ND U	0.50	0.072	1	11/03/23 20:57	
Chloromethane	ND U	0.50	0.068	1	11/03/23 20:57	
1,2-Dibromo-3-chloropropane	ND U	2.0	0.22	1	11/03/23 20:57	*
Dibromochloromethane	ND U	0.50	0.14	1	11/03/23 20:57	
1,2-Dibromoethane (EDB)	ND U	2.0	0.10	1	11/03/23 20:57	
Dibromomethane	ND U	0.50	0.15	1	11/03/23 20:57	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	11/03/23 20:57	
1,2-Dichlorobenzene	0.25 J	0.50	0.12	1	11/03/23 20:57	
1,4-Dichlorobenzene	0.27 J	0.50	0.12	1	11/03/23 20:57	
1,1-Dichloroethane	ND U	0.50	0.077	1	11/03/23 20:57	
1,2-Dichloroethane (EDC)	ND U	0.50	0.080	1	11/03/23 20:57	
1,1-Dichloroethene	ND U	0.50	0.080	1	11/03/23 20:57	
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	11/03/23 20:57	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	11/03/23 20:57	
1,2-Dichloropropane	ND U	0.50	0.095	1	11/03/23 20:57	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	11/03/23 20:57	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	11/03/23 20:57	
Ethylbenzene	ND U	0.50	0.050	1	11/03/23 20:57	
2-Hexanone	ND U	20	2.7	1	11/03/23 20:57	
Iodomethane	ND U	5.0	0.12	1	11/03/23 20:57	
4-Methyl-2-pentanone (MIBK)	ND U	20	2.6	1	11/03/23 20:57	
Methylene Chloride	ND U	2.0	0.10	1	11/03/23 20:57	
Styrene	ND U	0.50	0.089	1	11/03/23 20:57	
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	11/03/23 20:57	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	11/03/23 20:57	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	11/03/23 20:57	
Toluene	ND U	0.50	0.054	1	11/03/23 20:57	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	11/03/23 20:57	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	11/03/23 20:57	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W13-1029
Lab Code: K2312320-013

Service Request: K2312320
Date Collected: 10/29/23 16:00
Date Received: 10/30/23 08:50

Units: ug/L

Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Trichloroethene (TCE)	ND U	0.50	0.10	1	11/03/23 20:57	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	11/03/23 20:57	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	11/03/23 20:57	
Vinyl Acetate	ND U	5.0	0.43	1	11/03/23 20:57	
Vinyl Chloride	ND U	0.50	0.075	1	11/03/23 20:57	
o-Xylene	ND U	0.50	0.074	1	11/03/23 20:57	
m,p-Xylenes	ND U	0.50	0.11	1	11/03/23 20:57	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	68 - 117	11/03/23 20:57	
Dibromofluoromethane	108	73 - 122	11/03/23 20:57	
Toluene-d8	99	65 - 144	11/03/23 20:57	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W16-1029
Lab Code: K2312320-016

Service Request: K2312320
Date Collected: 10/29/23 16:30
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Acetone	ND U	20	3.3	1	11/03/23 21:21	
Acrylonitrile	ND U	5.0	0.53	1	11/03/23 21:21	
Benzene	ND U	0.50	0.062	1	11/03/23 21:21	
Bromochloromethane	ND U	0.50	0.16	1	11/03/23 21:21	
Bromodichloromethane	ND U	0.50	0.091	1	11/03/23 21:21	
Bromoform	ND U	0.50	0.16	1	11/03/23 21:21	
Bromomethane	ND U	0.50	0.16	1	11/03/23 21:21	
2-Butanone (MEK)	ND U	20	1.9	1	11/03/23 21:21	
Carbon Disulfide	ND U	0.50	0.069	1	11/03/23 21:21	
Carbon Tetrachloride	ND U	0.50	0.096	1	11/03/23 21:21	*
Chlorobenzene	0.59	0.50	0.11	1	11/03/23 21:21	
Chloroethane	0.35 J	0.50	0.16	1	11/03/23 21:21	
Chloroform	ND U	0.50	0.072	1	11/03/23 21:21	
Chloromethane	ND U	0.50	0.068	1	11/03/23 21:21	
1,2-Dibromo-3-chloropropane	ND U	2.0	0.22	1	11/03/23 21:21	*
Dibromochloromethane	ND U	0.50	0.14	1	11/03/23 21:21	
1,2-Dibromoethane (EDB)	ND U	2.0	0.10	1	11/03/23 21:21	
Dibromomethane	ND U	0.50	0.15	1	11/03/23 21:21	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	11/03/23 21:21	
1,2-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 21:21	
1,4-Dichlorobenzene	0.65	0.50	0.12	1	11/03/23 21:21	
1,1-Dichloroethane	ND U	0.50	0.077	1	11/03/23 21:21	
1,2-Dichloroethane (EDC)	ND U	0.50	0.080	1	11/03/23 21:21	
1,1-Dichloroethene	ND U	0.50	0.080	1	11/03/23 21:21	
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	11/03/23 21:21	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	11/03/23 21:21	
1,2-Dichloropropane	ND U	0.50	0.095	1	11/03/23 21:21	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	11/03/23 21:21	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	11/03/23 21:21	
Ethylbenzene	ND U	0.50	0.050	1	11/03/23 21:21	
2-Hexanone	ND U	20	2.7	1	11/03/23 21:21	
Iodomethane	ND U	5.0	0.12	1	11/03/23 21:21	
4-Methyl-2-pentanone (MIBK)	ND U	20	2.6	1	11/03/23 21:21	
Methylene Chloride	ND U	2.0	0.10	1	11/03/23 21:21	
Styrene	ND U	0.50	0.089	1	11/03/23 21:21	
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	11/03/23 21:21	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	11/03/23 21:21	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	11/03/23 21:21	
Toluene	ND U	0.50	0.054	1	11/03/23 21:21	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	11/03/23 21:21	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	11/03/23 21:21	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W16-1029
Lab Code: K2312320-016

Service Request: K2312320
Date Collected: 10/29/23 16:30
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Trichloroethene (TCE)	ND U	0.50	0.10	1	11/03/23 21:21	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	11/03/23 21:21	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	11/03/23 21:21	
Vinyl Acetate	ND U	5.0	0.43	1	11/03/23 21:21	
Vinyl Chloride	ND U	0.50	0.075	1	11/03/23 21:21	
o-Xylene	ND U	0.50	0.074	1	11/03/23 21:21	
m,p-Xylenes	ND U	0.50	0.11	1	11/03/23 21:21	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	92	68 - 117	11/03/23 21:21	
Dibromofluoromethane	110	73 - 122	11/03/23 21:21	
Toluene-d8	99	65 - 144	11/03/23 21:21	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320
Date Collected: 10/29/23
Date Received: 10/30/23 08:50

Sample Name: Trip Blank
Lab Code: K2312320-019

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Acetone	ND U	20	3.3	1	10/31/23 17:18	
Acrylonitrile	ND U	5.0	0.53	1	10/31/23 17:18	
Benzene	ND U	0.50	0.062	1	10/31/23 17:18	
Bromochloromethane	ND U	0.50	0.16	1	10/31/23 17:18	
Bromodichloromethane	ND U	0.50	0.091	1	10/31/23 17:18	
Bromoform	ND U	0.50	0.16	1	10/31/23 17:18	
Bromomethane	ND U	0.50	0.16	1	10/31/23 17:18	*
2-Butanone (MEK)	ND U	20	1.9	1	10/31/23 17:18	
Carbon Disulfide	ND U	0.50	0.069	1	10/31/23 17:18	
Carbon Tetrachloride	ND U	0.50	0.096	1	10/31/23 17:18	
Chlorobenzene	ND U	0.50	0.11	1	10/31/23 17:18	
Chloroethane	ND U	0.50	0.16	1	10/31/23 17:18	
Chloroform	ND U	0.50	0.072	1	10/31/23 17:18	
Chloromethane	0.24 J	0.50	0.068	1	10/31/23 17:18	
1,2-Dibromo-3-chloropropane	ND U	2.0	0.22	1	10/31/23 17:18	*
Dibromochloromethane	ND U	0.50	0.14	1	10/31/23 17:18	
1,2-Dibromoethane (EDB)	ND U	2.0	0.10	1	10/31/23 17:18	
Dibromomethane	ND U	0.50	0.15	1	10/31/23 17:18	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	10/31/23 17:18	
1,2-Dichlorobenzene	ND U	0.50	0.12	1	10/31/23 17:18	
1,4-Dichlorobenzene	ND U	0.50	0.12	1	10/31/23 17:18	
1,1-Dichloroethane	ND U	0.50	0.077	1	10/31/23 17:18	
1,2-Dichloroethane (EDC)	ND U	0.50	0.080	1	10/31/23 17:18	
1,1-Dichloroethene	ND U	0.50	0.080	1	10/31/23 17:18	
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	10/31/23 17:18	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	10/31/23 17:18	
1,2-Dichloropropane	ND U	0.50	0.095	1	10/31/23 17:18	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	10/31/23 17:18	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	10/31/23 17:18	
Ethylbenzene	ND U	0.50	0.050	1	10/31/23 17:18	
2-Hexanone	ND U	20	2.7	1	10/31/23 17:18	
Iodomethane	ND U	5.0	0.12	1	10/31/23 17:18	*
4-Methyl-2-pentanone (MIBK)	ND U	20	2.6	1	10/31/23 17:18	
Methylene Chloride	0.13 J	2.0	0.10	1	10/31/23 17:18	
Styrene	ND U	0.50	0.089	1	10/31/23 17:18	
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	10/31/23 17:18	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	10/31/23 17:18	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	10/31/23 17:18	
Toluene	ND U	0.50	0.054	1	10/31/23 17:18	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	10/31/23 17:18	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	10/31/23 17:18	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: Trip Blank
Lab Code: K2312320-019

Service Request: K2312320
Date Collected: 10/29/23
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Trichloroethene (TCE)	ND U	0.50	0.10	1	10/31/23 17:18	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	10/31/23 17:18	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	10/31/23 17:18	
Vinyl Acetate	ND U	5.0	0.43	1	10/31/23 17:18	
Vinyl Chloride	ND U	0.50	0.075	1	10/31/23 17:18	
o-Xylene	ND U	0.50	0.074	1	10/31/23 17:18	
m,p-Xylenes	ND U	0.50	0.11	1	10/31/23 17:18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	92	68 - 117	10/31/23 17:18	
Dibromofluoromethane	106	73 - 122	10/31/23 17:18	
Toluene-d8	99	65 - 144	10/31/23 17:18	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W17-1029
Lab Code: K2312320-017

Service Request: K2312320
Date Collected: 10/29/23 17:00
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Acetone	ND U	100	5	10/31/23 16:29	
Acrylonitrile	ND U	25	5	10/31/23 16:29	
Benzene	ND U	2.5	5	10/31/23 16:29	
Bromochloromethane	ND U	2.5	5	10/31/23 16:29	
Bromodichloromethane	ND U	2.5	5	10/31/23 16:29	
Bromoform	ND U	2.5	5	10/31/23 16:29	
Bromomethane	ND U	2.5	5	10/31/23 16:29	*
2-Butanone (MEK)	ND U	100	5	10/31/23 16:29	
Carbon Disulfide	ND U	2.5	5	10/31/23 16:29	
Carbon Tetrachloride	ND U	2.5	5	10/31/23 16:29	
Chlorobenzene	ND U	2.5	5	10/31/23 16:29	
Chloroethane	ND U	2.5	5	10/31/23 16:29	
Chloroform	ND U	2.5	5	10/31/23 16:29	
Chloromethane	ND U	2.5	5	10/31/23 16:29	
1,2-Dibromo-3-chloropropane	ND U	10	5	10/31/23 16:29	*
Dibromochloromethane	ND U	2.5	5	10/31/23 16:29	
1,2-Dibromoethane (EDB)	ND U	10	5	10/31/23 16:29	
Dibromomethane	ND U	2.5	5	10/31/23 16:29	
trans-1,4-Dichloro-2-butene	ND U	50	5	10/31/23 16:29	
1,2-Dichlorobenzene	ND U	2.5	5	10/31/23 16:29	
1,4-Dichlorobenzene	ND U	2.5	5	10/31/23 16:29	
1,1-Dichloroethane	ND U	2.5	5	10/31/23 16:29	
1,2-Dichloroethane (EDC)	ND U	2.5	5	10/31/23 16:29	
1,1-Dichloroethene	ND U	2.5	5	10/31/23 16:29	
cis-1,2-Dichloroethene	ND U	2.5	5	10/31/23 16:29	
trans-1,2-Dichloroethene	ND U	2.5	5	10/31/23 16:29	
1,2-Dichloropropane	ND U	2.5	5	10/31/23 16:29	
cis-1,3-Dichloropropene	ND U	2.5	5	10/31/23 16:29	
trans-1,3-Dichloropropene	ND U	2.5	5	10/31/23 16:29	
Ethylbenzene	ND U	2.5	5	10/31/23 16:29	
2-Hexanone	ND U	100	5	10/31/23 16:29	
Iodomethane	ND U	25	5	10/31/23 16:29	*
4-Methyl-2-pentanone (MIBK)	ND U	100	5	10/31/23 16:29	
Methylene Chloride	ND U	10	5	10/31/23 16:29	
Styrene	ND U	2.5	5	10/31/23 16:29	
1,1,1,2-Tetrachloroethane	ND U	2.5	5	10/31/23 16:29	
1,1,2,2-Tetrachloroethane	ND U	2.5	5	10/31/23 16:29	
Tetrachloroethene (PCE)	ND U	2.5	5	10/31/23 16:29	
Toluene	ND U	2.5	5	10/31/23 16:29	
1,1,2-Trichloroethane	ND U	2.5	5	10/31/23 16:29	
1,1,1-Trichloroethane (TCA)	ND U	2.5	5	10/31/23 16:29	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W17-1029
Lab Code: K2312320-017

Service Request: K2312320
Date Collected: 10/29/23 17:00
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Trichloroethene (TCE)	ND U	2.5	5	10/31/23 16:29	
Trichlorofluoromethane (CFC 11)	ND U	2.5	5	10/31/23 16:29	
1,2,3-Trichloropropane	ND U	2.5	5	10/31/23 16:29	
Vinyl Acetate	ND U	25	5	10/31/23 16:29	
Vinyl Chloride	ND U	2.5	5	10/31/23 16:29	
o-Xylene	ND U	2.5	5	10/31/23 16:29	
m,p-Xylenes	ND U	2.5	5	10/31/23 16:29	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	94	68 - 117	10/31/23 16:29	
Dibromofluoromethane	107	73 - 122	10/31/23 16:29	
Toluene-d8	99	65 - 144	10/31/23 16:29	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W18-1029
Lab Code: K2312320-018

Service Request: K2312320
Date Collected: 10/29/23 17:30
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Acetone	ND U	100	5	10/31/23 16:53	
Acrylonitrile	ND U	25	5	10/31/23 16:53	
Benzene	ND U	2.5	5	10/31/23 16:53	
Bromochloromethane	ND U	2.5	5	10/31/23 16:53	
Bromodichloromethane	ND U	2.5	5	10/31/23 16:53	
Bromoform	ND U	2.5	5	10/31/23 16:53	
Bromomethane	ND U	2.5	5	10/31/23 16:53	*
2-Butanone (MEK)	ND U	100	5	10/31/23 16:53	
Carbon Disulfide	ND U	2.5	5	10/31/23 16:53	
Carbon Tetrachloride	ND U	2.5	5	10/31/23 16:53	
Chlorobenzene	ND U	2.5	5	10/31/23 16:53	
Chloroethane	ND U	2.5	5	10/31/23 16:53	
Chloroform	ND U	2.5	5	10/31/23 16:53	
Chloromethane	ND U	2.5	5	10/31/23 16:53	
1,2-Dibromo-3-chloropropane	ND U	10	5	10/31/23 16:53	*
Dibromochloromethane	ND U	2.5	5	10/31/23 16:53	
1,2-Dibromoethane (EDB)	ND U	10	5	10/31/23 16:53	
Dibromomethane	ND U	2.5	5	10/31/23 16:53	
trans-1,4-Dichloro-2-butene	ND U	50	5	10/31/23 16:53	
1,2-Dichlorobenzene	ND U	2.5	5	10/31/23 16:53	
1,4-Dichlorobenzene	ND U	2.5	5	10/31/23 16:53	
1,1-Dichloroethane	ND U	2.5	5	10/31/23 16:53	
1,2-Dichloroethane (EDC)	ND U	2.5	5	10/31/23 16:53	
1,1-Dichloroethene	ND U	2.5	5	10/31/23 16:53	
cis-1,2-Dichloroethene	ND U	2.5	5	10/31/23 16:53	
trans-1,2-Dichloroethene	ND U	2.5	5	10/31/23 16:53	
1,2-Dichloropropane	ND U	2.5	5	10/31/23 16:53	
cis-1,3-Dichloropropene	ND U	2.5	5	10/31/23 16:53	
trans-1,3-Dichloropropene	ND U	2.5	5	10/31/23 16:53	
Ethylbenzene	ND U	2.5	5	10/31/23 16:53	
2-Hexanone	ND U	100	5	10/31/23 16:53	
Iodomethane	ND U	25	5	10/31/23 16:53	*
4-Methyl-2-pentanone (MIBK)	ND U	100	5	10/31/23 16:53	
Methylene Chloride	ND U	10	5	10/31/23 16:53	
Styrene	ND U	2.5	5	10/31/23 16:53	
1,1,1,2-Tetrachloroethane	ND U	2.5	5	10/31/23 16:53	
1,1,2,2-Tetrachloroethane	ND U	2.5	5	10/31/23 16:53	
Tetrachloroethene (PCE)	ND U	2.5	5	10/31/23 16:53	
Toluene	ND U	2.5	5	10/31/23 16:53	
1,1,2-Trichloroethane	ND U	2.5	5	10/31/23 16:53	
1,1,1-Trichloroethane (TCA)	ND U	2.5	5	10/31/23 16:53	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W18-1029
Lab Code: K2312320-018

Service Request: K2312320
Date Collected: 10/29/23 17:30
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Trichloroethene (TCE)	ND U	2.5	5	10/31/23 16:53	
Trichlorofluoromethane (CFC 11)	ND U	2.5	5	10/31/23 16:53	
1,2,3-Trichloropropane	ND U	2.5	5	10/31/23 16:53	
Vinyl Acetate	ND U	25	5	10/31/23 16:53	
Vinyl Chloride	ND U	2.5	5	10/31/23 16:53	
o-Xylene	ND U	2.5	5	10/31/23 16:53	
m,p-Xylenes	ND U	2.5	5	10/31/23 16:53	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	92	68 - 117	10/31/23 16:53	
Dibromofluoromethane	104	73 - 122	10/31/23 16:53	
Toluene-d8	98	65 - 144	10/31/23 16:53	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: Trip Blank
Lab Code: K2312320-019

Service Request: K2312320
Date Collected: 10/29/23
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Acetone	ND U	20	1	11/02/23 14:16	
Acrylonitrile	ND U	5.0	1	11/02/23 14:16	
Benzene	ND U	0.50	1	11/02/23 14:16	
Bromochloromethane	ND U	0.50	1	11/02/23 14:16	
Bromodichloromethane	ND U	0.50	1	11/02/23 14:16	
Bromoform	ND U	0.50	1	11/02/23 14:16	
Bromomethane	ND U	0.50	1	11/02/23 14:16	*
2-Butanone (MEK)	ND U	20	1	11/02/23 14:16	
Carbon Disulfide	ND U	0.50	1	11/02/23 14:16	
Carbon Tetrachloride	ND U	0.50	1	11/02/23 14:16	
Chlorobenzene	ND U	0.50	1	11/02/23 14:16	
Chloroethane	ND U	0.50	1	11/02/23 14:16	
Chloroform	ND U	0.50	1	11/02/23 14:16	
Chloromethane	ND U	0.50	1	11/02/23 14:16	
1,2-Dibromo-3-chloropropane	ND U	2.0	1	11/02/23 14:16	*
Dibromochloromethane	ND U	0.50	1	11/02/23 14:16	
1,2-Dibromoethane (EDB)	ND U	2.0	1	11/02/23 14:16	
Dibromomethane	ND U	0.50	1	11/02/23 14:16	
trans-1,4-Dichloro-2-butene	ND U	10	1	11/02/23 14:16	
1,2-Dichlorobenzene	ND U	0.50	1	11/02/23 14:16	
1,4-Dichlorobenzene	ND U	0.50	1	11/02/23 14:16	
1,1-Dichloroethane	ND U	0.50	1	11/02/23 14:16	
1,2-Dichloroethane (EDC)	ND U	0.50	1	11/02/23 14:16	
1,1-Dichloroethene	ND U	0.50	1	11/02/23 14:16	
cis-1,2-Dichloroethene	ND U	0.50	1	11/02/23 14:16	
trans-1,2-Dichloroethene	ND U	0.50	1	11/02/23 14:16	
1,2-Dichloropropane	ND U	0.50	1	11/02/23 14:16	
cis-1,3-Dichloropropene	ND U	0.50	1	11/02/23 14:16	
trans-1,3-Dichloropropene	ND U	0.50	1	11/02/23 14:16	
Ethylbenzene	ND U	0.50	1	11/02/23 14:16	
2-Hexanone	ND U	20	1	11/02/23 14:16	
Iodomethane	ND U	5.0	1	11/02/23 14:16	
4-Methyl-2-pentanone (MIBK)	ND U	20	1	11/02/23 14:16	
Methylene Chloride	ND U	2.0	1	11/02/23 14:16	
Styrene	ND U	0.50	1	11/02/23 14:16	
1,1,1,2-Tetrachloroethane	ND U	0.50	1	11/02/23 14:16	
1,1,2,2-Tetrachloroethane	ND U	0.50	1	11/02/23 14:16	
Tetrachloroethene (PCE)	ND U	0.50	1	11/02/23 14:16	
Toluene	ND U	0.50	1	11/02/23 14:16	
1,1,2-Trichloroethane	ND U	0.50	1	11/02/23 14:16	
1,1,1-Trichloroethane (TCA)	ND U	0.50	1	11/02/23 14:16	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: Trip Blank
Lab Code: K2312320-019

Service Request: K2312320
Date Collected: 10/29/23
Date Received: 10/30/23 08:50

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Trichloroethene (TCE)	ND U	0.50	1	11/02/23 14:16	
Trichlorofluoromethane (CFC 11)	ND U	0.50	1	11/02/23 14:16	
1,2,3-Trichloropropane	ND U	0.50	1	11/02/23 14:16	
Vinyl Acetate	ND U	5.0	1	11/02/23 14:16	
Vinyl Chloride	ND U	0.50	1	11/02/23 14:16	
o-Xylene	ND U	0.50	1	11/02/23 14:16	
m,p-Xylenes	ND U	0.50	1	11/02/23 14:16	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	93	68 - 117	11/02/23 14:16	
Dibromofluoromethane	105	73 - 122	11/02/23 14:16	
Toluene-d8	99	65 - 144	11/02/23 14:16	



Metals

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W1-1029
Lab Code: K2312320-001

Service Request: K2312320
Date Collected: 10/29/23 08:30
Date Received: 10/30/23 08:50

Basis: NA

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Calcium	200.7	59700	ug/L	21	3	1	11/20/23 09:29	11/09/23	
Iron	200.7	9 J	ug/L	21	8	1	11/20/23 09:29	11/09/23	
Magnesium	200.7	32200	ug/L	5.3	0.4	1	11/20/23 09:29	11/09/23	
Manganese	200.7	1490	ug/L	1.1	0.2	1	11/20/23 09:29	11/09/23	
Potassium	200.7	1060	ug/L	210	60	1	11/20/23 09:29	11/09/23	
Sodium	200.7	23200	ug/L	210	30	1	11/20/23 09:29	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: W1-1029
Lab Code: K2312320-001

Service Request: K2312320
Date Collected: 10/29/23 08:30
Date Received: 10/30/23 08:50

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Antimony	200.8	0.042 J	ug/L	0.050	0.020	1	11/16/23 10:55	11/09/23	
Arsenic	200.8	0.46 J	ug/L	0.50	0.09	1	11/16/23 10:55	11/09/23	
Barium	200.8	44.5	ug/L	0.050	0.020	1	11/16/23 10:55	11/09/23	
Beryllium	200.8	0.008 J	ug/L	0.020	0.005	1	11/16/23 10:55	11/09/23	
Cadmium	200.8	0.014 J	ug/L	0.020	0.008	1	11/16/23 10:55	11/09/23	
Chromium	200.8	0.23	ug/L	0.20	0.03	1	11/16/23 10:55	11/09/23	
Cobalt	200.8	0.990	ug/L	0.020	0.009	1	11/16/23 10:55	11/09/23	
Copper	200.8	0.63	ug/L	0.10	0.05	1	11/16/23 10:55	11/09/23	
Lead	200.8	0.009 J	ug/L	0.020	0.006	1	11/16/23 10:55	11/09/23	
Nickel	200.8	2.63	ug/L	0.20	0.04	1	11/16/23 10:55	11/09/23	
Selenium	200.8	ND U	ug/L	1.0	0.2	1	11/16/23 10:55	11/09/23	
Silver	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 10:55	11/09/23	
Thallium	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 10:55	11/09/23	
Vanadium	200.8	1.16	ug/L	0.20	0.04	1	11/16/23 10:55	11/09/23	
Zinc	200.8	ND U	ug/L	2.0	0.5	1	11/16/23 10:55	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W2-1029
Lab Code: K2312320-002

Service Request: K2312320
Date Collected: 10/29/23 09:30
Date Received: 10/30/23 08:50

Basis: NA

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Calcium	200.7	71900	ug/L	21	3	1	11/20/23 09:32	11/09/23	
Iron	200.7	170	ug/L	21	8	1	11/20/23 09:32	11/09/23	
Magnesium	200.7	15100	ug/L	5.3	0.4	1	11/20/23 09:32	11/09/23	
Manganese	200.7	5980	ug/L	1.1	0.2	1	11/20/23 09:32	11/09/23	
Potassium	200.7	3870	ug/L	210	60	1	11/20/23 09:32	11/09/23	
Sodium	200.7	11000	ug/L	210	30	1	11/20/23 09:32	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W2-1029
Lab Code: K2312320-002

Service Request: K2312320
Date Collected: 10/29/23 09:30
Date Received: 10/30/23 08:50

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Antimony	200.8	0.031 J	ug/L	0.050	0.020	1	11/16/23 11:02	11/09/23	
Arsenic	200.8	3.95	ug/L	0.50	0.09	1	11/16/23 11:02	11/09/23	
Barium	200.8	22.9	ug/L	0.050	0.020	1	11/16/23 11:02	11/09/23	
Beryllium	200.8	0.034	ug/L	0.020	0.005	1	11/16/23 11:02	11/09/23	
Cadmium	200.8	0.024	ug/L	0.020	0.008	1	11/16/23 11:02	11/09/23	
Chromium	200.8	1.29	ug/L	0.20	0.03	1	11/16/23 11:02	11/09/23	
Cobalt	200.8	1.28	ug/L	0.020	0.009	1	11/16/23 11:02	11/09/23	
Copper	200.8	1.48	ug/L	0.10	0.05	1	11/16/23 11:02	11/09/23	
Lead	200.8	ND U	ug/L	0.020	0.006	1	11/16/23 11:02	11/09/23	
Nickel	200.8	1.42	ug/L	0.20	0.04	1	11/16/23 11:02	11/09/23	
Selenium	200.8	ND U	ug/L	1.0	0.2	1	11/16/23 11:02	11/09/23	
Silver	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:02	11/09/23	
Thallium	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:02	11/09/23	
Vanadium	200.8	5.39	ug/L	0.20	0.04	1	11/16/23 11:02	11/09/23	
Zinc	200.8	0.6 J	ug/L	2.0	0.5	1	11/16/23 11:02	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W3-1029
Lab Code: K2312320-003

Service Request: K2312320
Date Collected: 10/29/23 10:00
Date Received: 10/30/23 08:50

Basis: NA

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Calcium	200.7	34700	ug/L	21	3	1	11/20/23 09:35	11/09/23	
Iron	200.7	4530	ug/L	21	8	1	11/20/23 09:35	11/09/23	
Magnesium	200.7	12600	ug/L	5.3	0.4	1	11/20/23 09:35	11/09/23	
Manganese	200.7	3300	ug/L	1.1	0.2	1	11/20/23 09:35	11/09/23	
Potassium	200.7	1470	ug/L	210	60	1	11/20/23 09:35	11/09/23	
Sodium	200.7	14400	ug/L	210	30	1	11/20/23 09:35	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W3-1029
Lab Code: K2312320-003

Service Request: K2312320
Date Collected: 10/29/23 10:00
Date Received: 10/30/23 08:50

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Antimony	200.8	ND U	ug/L	0.050	0.020	1	11/16/23 11:08	11/09/23	
Arsenic	200.8	4.40	ug/L	0.50	0.09	1	11/16/23 11:08	11/09/23	
Barium	200.8	16.8	ug/L	0.050	0.020	1	11/16/23 11:08	11/09/23	
Beryllium	200.8	0.044	ug/L	0.020	0.005	1	11/16/23 11:08	11/09/23	
Cadmium	200.8	ND U	ug/L	0.020	0.008	1	11/16/23 11:08	11/09/23	
Chromium	200.8	1.48	ug/L	0.20	0.03	1	11/16/23 11:08	11/09/23	
Cobalt	200.8	0.278	ug/L	0.020	0.009	1	11/16/23 11:08	11/09/23	
Copper	200.8	0.15	ug/L	0.10	0.05	1	11/16/23 11:08	11/09/23	
Lead	200.8	ND U	ug/L	0.020	0.006	1	11/16/23 11:08	11/09/23	
Nickel	200.8	0.52	ug/L	0.20	0.04	1	11/16/23 11:08	11/09/23	
Selenium	200.8	0.2 J	ug/L	1.0	0.2	1	11/16/23 11:08	11/09/23	
Silver	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:08	11/09/23	
Thallium	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:08	11/09/23	
Vanadium	200.8	6.06	ug/L	0.20	0.04	1	11/16/23 11:08	11/09/23	
Zinc	200.8	0.5 J	ug/L	2.0	0.5	1	11/16/23 11:08	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W4-1029
Lab Code: K2312320-004

Service Request: K2312320
Date Collected: 10/29/23 10:30
Date Received: 10/30/23 08:50

Basis: NA

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Calcium	200.7	43100	ug/L	21	3	1	11/20/23 09:37	11/09/23	
Iron	200.7	1230	ug/L	21	8	1	11/20/23 09:37	11/09/23	
Magnesium	200.7	16400	ug/L	5.3	0.4	1	11/20/23 09:37	11/09/23	
Manganese	200.7	3220	ug/L	1.1	0.2	1	11/20/23 09:37	11/09/23	
Potassium	200.7	2900	ug/L	210	60	1	11/20/23 09:37	11/09/23	
Sodium	200.7	14900	ug/L	210	30	1	11/20/23 09:37	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W4-1029
Lab Code: K2312320-004

Service Request: K2312320
Date Collected: 10/29/23 10:30
Date Received: 10/30/23 08:50

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Antimony	200.8	ND U	ug/L	0.050	0.020	1	11/16/23 11:10	11/09/23	
Arsenic	200.8	1.92	ug/L	0.50	0.09	1	11/16/23 11:10	11/09/23	
Barium	200.8	25.7	ug/L	0.050	0.020	1	11/16/23 11:10	11/09/23	
Beryllium	200.8	0.031	ug/L	0.020	0.005	1	11/16/23 11:10	11/09/23	
Cadmium	200.8	ND U	ug/L	0.020	0.008	1	11/16/23 11:10	11/09/23	
Chromium	200.8	0.79	ug/L	0.20	0.03	1	11/16/23 11:10	11/09/23	
Cobalt	200.8	0.268	ug/L	0.020	0.009	1	11/16/23 11:10	11/09/23	
Copper	200.8	0.20	ug/L	0.10	0.05	1	11/16/23 11:10	11/09/23	
Lead	200.8	ND U	ug/L	0.020	0.006	1	11/16/23 11:10	11/09/23	
Nickel	200.8	0.32	ug/L	0.20	0.04	1	11/16/23 11:10	11/09/23	
Selenium	200.8	0.2 J	ug/L	1.0	0.2	1	11/16/23 11:10	11/09/23	
Silver	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:10	11/09/23	
Thallium	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:10	11/09/23	
Vanadium	200.8	4.02	ug/L	0.20	0.04	1	11/16/23 11:10	11/09/23	
Zinc	200.8	ND U	ug/L	2.0	0.5	1	11/16/23 11:10	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W5-1029
Lab Code: K2312320-005

Service Request: K2312320
Date Collected: 10/29/23 11:00
Date Received: 10/30/23 08:50

Basis: NA

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Calcium	200.7	68500	ug/L	21	3	1	11/20/23 09:40	11/09/23	
Iron	200.7	ND U	ug/L	21	8	1	11/20/23 09:40	11/09/23	
Magnesium	200.7	26800	ug/L	5.3	0.4	1	11/20/23 09:40	11/09/23	
Manganese	200.7	6370	ug/L	1.1	0.2	1	11/20/23 09:40	11/09/23	
Potassium	200.7	4610	ug/L	210	60	1	11/20/23 09:40	11/09/23	
Sodium	200.7	27400	ug/L	210	30	1	11/20/23 09:40	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W5-1029
Lab Code: K2312320-005

Service Request: K2312320
Date Collected: 10/29/23 11:00
Date Received: 10/30/23 08:50

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Antimony	200.8	ND U	ug/L	0.050	0.020	1	11/16/23 11:19	11/09/23	
Arsenic	200.8	7.86	ug/L	0.50	0.09	1	11/16/23 11:19	11/09/23	
Barium	200.8	31.9	ug/L	0.050	0.020	1	11/16/23 11:19	11/09/23	
Beryllium	200.8	0.018 J	ug/L	0.020	0.005	1	11/16/23 11:19	11/09/23	
Cadmium	200.8	ND U	ug/L	0.020	0.008	1	11/16/23 11:19	11/09/23	
Chromium	200.8	0.44	ug/L	0.20	0.03	1	11/16/23 11:19	11/09/23	
Cobalt	200.8	0.506	ug/L	0.020	0.009	1	11/16/23 11:19	11/09/23	
Copper	200.8	0.08 J	ug/L	0.10	0.05	1	11/16/23 11:19	11/09/23	
Lead	200.8	ND U	ug/L	0.020	0.006	1	11/16/23 11:19	11/09/23	
Nickel	200.8	0.64	ug/L	0.20	0.04	1	11/16/23 11:19	11/09/23	
Selenium	200.8	ND U	ug/L	1.0	0.2	1	11/16/23 11:19	11/09/23	
Silver	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:19	11/09/23	
Thallium	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:19	11/09/23	
Vanadium	200.8	2.83	ug/L	0.20	0.04	1	11/16/23 11:19	11/09/23	
Zinc	200.8	ND U	ug/L	2.0	0.5	1	11/16/23 11:19	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W6-1029
Lab Code: K2312320-006

Service Request: K2312320
Date Collected: 10/29/23 11:30
Date Received: 10/30/23 08:50

Basis: NA

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Calcium	200.7	48100	ug/L	21	3	1	11/20/23 09:43	11/09/23	
Iron	200.7	30	ug/L	21	8	1	11/20/23 09:43	11/09/23	
Magnesium	200.7	14200	ug/L	5.3	0.4	1	11/20/23 09:43	11/09/23	
Manganese	200.7	16.8	ug/L	1.1	0.2	1	11/20/23 09:43	11/09/23	
Potassium	200.7	1990	ug/L	210	60	1	11/20/23 09:43	11/09/23	
Sodium	200.7	6800	ug/L	210	30	1	11/20/23 09:43	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W6-1029
Lab Code: K2312320-006

Service Request: K2312320
Date Collected: 10/29/23 11:30
Date Received: 10/30/23 08:50

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Antimony	200.8	0.378	ug/L	0.050	0.020	1	11/16/23 11:21	11/09/23	
Arsenic	200.8	1.28	ug/L	0.50	0.09	1	11/16/23 11:21	11/09/23	
Barium	200.8	10.6	ug/L	0.050	0.020	1	11/16/23 11:21	11/09/23	
Beryllium	200.8	0.033	ug/L	0.020	0.005	1	11/16/23 11:21	11/09/23	
Cadmium	200.8	0.038	ug/L	0.020	0.008	1	11/16/23 11:21	11/09/23	
Chromium	200.8	1.21	ug/L	0.20	0.03	1	11/16/23 11:21	11/09/23	
Cobalt	200.8	0.380	ug/L	0.020	0.009	1	11/16/23 11:21	11/09/23	
Copper	200.8	66.6	ug/L	0.10	0.05	1	11/16/23 11:21	11/09/23	
Lead	200.8	0.035	ug/L	0.020	0.006	1	11/16/23 11:21	11/09/23	
Nickel	200.8	8.44	ug/L	0.20	0.04	1	11/16/23 11:21	11/09/23	
Selenium	200.8	0.6 J	ug/L	1.0	0.2	1	11/16/23 11:21	11/09/23	
Silver	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:21	11/09/23	
Thallium	200.8	0.016 J	ug/L	0.020	0.009	1	11/16/23 11:21	11/09/23	
Vanadium	200.8	4.69	ug/L	0.20	0.04	1	11/16/23 11:21	11/09/23	
Zinc	200.8	1.2 J	ug/L	2.0	0.5	1	11/16/23 11:21	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W7-1029
Lab Code: K2312320-007

Service Request: K2312320
Date Collected: 10/29/23 12:30
Date Received: 10/30/23 08:50

Basis: NA

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Calcium	200.7	30300	ug/L	21	3	1	11/20/23 09:46	11/09/23	
Iron	200.7	517	ug/L	21	8	1	11/20/23 09:46	11/09/23	
Magnesium	200.7	9550	ug/L	5.3	0.4	1	11/20/23 09:46	11/09/23	
Manganese	200.7	2470	ug/L	1.1	0.2	1	11/20/23 09:46	11/09/23	
Potassium	200.7	3310	ug/L	210	60	1	11/20/23 09:46	11/09/23	
Sodium	200.7	10200	ug/L	210	30	1	11/20/23 09:46	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W7-1029
Lab Code: K2312320-007

Service Request: K2312320
Date Collected: 10/29/23 12:30
Date Received: 10/30/23 08:50

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Antimony	200.8	ND U	ug/L	0.050	0.020	1	11/16/23 11:23	11/09/23	
Arsenic	200.8	1.90	ug/L	0.50	0.09	1	11/16/23 11:23	11/09/23	
Barium	200.8	13.5	ug/L	0.050	0.020	1	11/16/23 11:23	11/09/23	
Beryllium	200.8	0.028	ug/L	0.020	0.005	1	11/16/23 11:23	11/09/23	
Cadmium	200.8	ND U	ug/L	0.020	0.008	1	11/16/23 11:23	11/09/23	
Chromium	200.8	0.91	ug/L	0.20	0.03	1	11/16/23 11:23	11/09/23	
Cobalt	200.8	0.490	ug/L	0.020	0.009	1	11/16/23 11:23	11/09/23	
Copper	200.8	0.14	ug/L	0.10	0.05	1	11/16/23 11:23	11/09/23	
Lead	200.8	ND U	ug/L	0.020	0.006	1	11/16/23 11:23	11/09/23	
Nickel	200.8	1.23	ug/L	0.20	0.04	1	11/16/23 11:23	11/09/23	
Selenium	200.8	ND U	ug/L	1.0	0.2	1	11/16/23 11:23	11/09/23	
Silver	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:23	11/09/23	
Thallium	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:23	11/09/23	
Vanadium	200.8	4.90	ug/L	0.20	0.04	1	11/16/23 11:23	11/09/23	
Zinc	200.8	ND U	ug/L	2.0	0.5	1	11/16/23 11:23	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W8-1029
Lab Code: K2312320-008

Service Request: K2312320
Date Collected: 10/29/23 13:00
Date Received: 10/30/23 08:50

Basis: NA

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Calcium	200.7	28900	ug/L	21	3	1	11/20/23 09:48	11/09/23	
Iron	200.7	ND U	ug/L	21	8	1	11/20/23 09:48	11/09/23	
Magnesium	200.7	8950	ug/L	5.3	0.4	1	11/20/23 09:48	11/09/23	
Manganese	200.7	2220	ug/L	1.1	0.2	1	11/20/23 09:48	11/09/23	
Potassium	200.7	2070	ug/L	210	60	1	11/20/23 09:48	11/09/23	
Sodium	200.7	6770	ug/L	210	30	1	11/20/23 09:48	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W8-1029
Lab Code: K2312320-008

Service Request: K2312320
Date Collected: 10/29/23 13:00
Date Received: 10/30/23 08:50

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Antimony	200.8	ND U	ug/L	0.050	0.020	1	11/16/23 11:25	11/09/23	
Arsenic	200.8	15.0	ug/L	0.50	0.09	1	11/16/23 11:25	11/09/23	
Barium	200.8	14.8	ug/L	0.050	0.020	1	11/16/23 11:25	11/09/23	
Beryllium	200.8	0.018 J	ug/L	0.020	0.005	1	11/16/23 11:25	11/09/23	
Cadmium	200.8	ND U	ug/L	0.020	0.008	1	11/16/23 11:25	11/09/23	
Chromium	200.8	0.90	ug/L	0.20	0.03	1	11/16/23 11:25	11/09/23	
Cobalt	200.8	4.39	ug/L	0.020	0.009	1	11/16/23 11:25	11/09/23	
Copper	200.8	0.37	ug/L	0.10	0.05	1	11/16/23 11:25	11/09/23	
Lead	200.8	ND U	ug/L	0.020	0.006	1	11/16/23 11:25	11/09/23	
Nickel	200.8	2.07	ug/L	0.20	0.04	1	11/16/23 11:25	11/09/23	
Selenium	200.8	ND U	ug/L	1.0	0.2	1	11/16/23 11:25	11/09/23	
Silver	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:25	11/09/23	
Thallium	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:25	11/09/23	
Vanadium	200.8	6.13	ug/L	0.20	0.04	1	11/16/23 11:25	11/09/23	
Zinc	200.8	0.8 J	ug/L	2.0	0.5	1	11/16/23 11:25	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W9-1029
Lab Code: K2312320-009

Service Request: K2312320
Date Collected: 10/29/23 13:30
Date Received: 10/30/23 08:50

Basis: NA

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Calcium	200.7	9630	ug/L	21	3	1	11/20/23 09:53	11/09/23	
Iron	200.7	1120	ug/L	21	8	1	11/20/23 09:53	11/09/23	
Magnesium	200.7	4820	ug/L	5.3	0.4	1	11/20/23 09:53	11/09/23	
Manganese	200.7	710	ug/L	1.1	0.2	1	11/20/23 09:53	11/09/23	
Potassium	200.7	520	ug/L	210	60	1	11/20/23 09:53	11/09/23	
Sodium	200.7	5460	ug/L	210	30	1	11/20/23 09:53	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W9-1029
Lab Code: K2312320-009

Service Request: K2312320
Date Collected: 10/29/23 13:30
Date Received: 10/30/23 08:50

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Antimony	200.8	ND U	ug/L	0.050	0.020	1	11/16/23 11:27	11/09/23	
Arsenic	200.8	8.03	ug/L	0.50	0.09	1	11/16/23 11:27	11/09/23	
Barium	200.8	8.13	ug/L	0.050	0.020	1	11/16/23 11:27	11/09/23	
Beryllium	200.8	0.009 J	ug/L	0.020	0.005	1	11/16/23 11:27	11/09/23	
Cadmium	200.8	ND U	ug/L	0.020	0.008	1	11/16/23 11:27	11/09/23	
Chromium	200.8	1.37	ug/L	0.20	0.03	1	11/16/23 11:27	11/09/23	
Cobalt	200.8	0.836	ug/L	0.020	0.009	1	11/16/23 11:27	11/09/23	
Copper	200.8	0.32	ug/L	0.10	0.05	1	11/16/23 11:27	11/09/23	
Lead	200.8	0.020 J	ug/L	0.020	0.006	1	11/16/23 11:27	11/09/23	
Nickel	200.8	0.61	ug/L	0.20	0.04	1	11/16/23 11:27	11/09/23	
Selenium	200.8	ND U	ug/L	1.0	0.2	1	11/16/23 11:27	11/09/23	
Silver	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:27	11/09/23	
Thallium	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:27	11/09/23	
Vanadium	200.8	0.90	ug/L	0.20	0.04	1	11/16/23 11:27	11/09/23	
Zinc	200.8	ND U	ug/L	2.0	0.5	1	11/16/23 11:27	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W10-1029
Lab Code: K2312320-010

Service Request: K2312320
Date Collected: 10/29/23 14:00
Date Received: 10/30/23 08:50

Basis: NA

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Calcium	200.7	18000	ug/L	21	3	1	11/20/23 10:04	11/09/23	
Iron	200.7	1020	ug/L	21	8	1	11/20/23 10:04	11/09/23	
Magnesium	200.7	5980	ug/L	5.3	0.4	1	11/20/23 10:04	11/09/23	
Manganese	200.7	456	ug/L	1.1	0.2	1	11/20/23 10:04	11/09/23	
Potassium	200.7	2230	ug/L	210	60	1	11/20/23 10:04	11/09/23	
Sodium	200.7	5600	ug/L	210	30	1	11/20/23 10:04	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W10-1029
Lab Code: K2312320-010

Service Request: K2312320
Date Collected: 10/29/23 14:00
Date Received: 10/30/23 08:50

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Antimony	200.8	0.124	ug/L	0.050	0.020	1	11/16/23 11:30	11/09/23	
Arsenic	200.8	0.94	ug/L	0.50	0.09	1	11/16/23 11:30	11/09/23	
Barium	200.8	10.5	ug/L	0.050	0.020	1	11/16/23 11:30	11/09/23	
Beryllium	200.8	0.045	ug/L	0.020	0.005	1	11/16/23 11:30	11/09/23	
Cadmium	200.8	0.027	ug/L	0.020	0.008	1	11/16/23 11:30	11/09/23	
Chromium	200.8	1.46	ug/L	0.20	0.03	1	11/16/23 11:30	11/09/23	
Cobalt	200.8	8.73	ug/L	0.020	0.009	1	11/16/23 11:30	11/09/23	
Copper	200.8	29.5	ug/L	0.10	0.05	1	11/16/23 11:30	11/09/23	
Lead	200.8	0.146	ug/L	0.020	0.006	1	11/16/23 11:30	11/09/23	
Nickel	200.8	11.1	ug/L	0.20	0.04	1	11/16/23 11:30	11/09/23	
Selenium	200.8	ND U	ug/L	1.0	0.2	1	11/16/23 11:30	11/09/23	
Silver	200.8	0.050	ug/L	0.020	0.009	1	11/16/23 11:30	11/09/23	
Thallium	200.8	0.009 J	ug/L	0.020	0.009	1	11/16/23 11:30	11/09/23	
Vanadium	200.8	9.03	ug/L	0.20	0.04	1	11/16/23 11:30	11/09/23	
Zinc	200.8	2.3	ug/L	2.0	0.5	1	11/16/23 11:30	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W11-1029
Lab Code: K2312320-011

Service Request: K2312320
Date Collected: 10/29/23 15:00
Date Received: 10/30/23 08:50

Basis: NA

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Calcium	200.7	32000	ug/L	21	3	1	11/20/23 10:07	11/09/23	
Iron	200.7	23	ug/L	21	8	1	11/20/23 10:07	11/09/23	
Magnesium	200.7	10300	ug/L	5.3	0.4	1	11/20/23 10:07	11/09/23	
Manganese	200.7	23.7	ug/L	1.1	0.2	1	11/20/23 10:07	11/09/23	
Potassium	200.7	4620	ug/L	210	60	1	11/20/23 10:07	11/09/23	
Sodium	200.7	6780	ug/L	210	30	1	11/20/23 10:07	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W11-1029
Lab Code: K2312320-011

Service Request: K2312320
Date Collected: 10/29/23 15:00
Date Received: 10/30/23 08:50

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Antimony	200.8	0.211	ug/L	0.050	0.020	1	11/16/23 11:32	11/09/23	
Arsenic	200.8	0.55	ug/L	0.50	0.09	1	11/16/23 11:32	11/09/23	
Barium	200.8	22.6	ug/L	0.050	0.020	1	11/16/23 11:32	11/09/23	
Beryllium	200.8	0.021	ug/L	0.020	0.005	1	11/16/23 11:32	11/09/23	
Cadmium	200.8	0.043	ug/L	0.020	0.008	1	11/16/23 11:32	11/09/23	
Chromium	200.8	0.74	ug/L	0.20	0.03	1	11/16/23 11:32	11/09/23	
Cobalt	200.8	1.15	ug/L	0.020	0.009	1	11/16/23 11:32	11/09/23	
Copper	200.8	33.3	ug/L	0.10	0.05	1	11/16/23 11:32	11/09/23	
Lead	200.8	0.077	ug/L	0.020	0.006	1	11/16/23 11:32	11/09/23	
Nickel	200.8	3.70	ug/L	0.20	0.04	1	11/16/23 11:32	11/09/23	
Selenium	200.8	0.2 J	ug/L	1.0	0.2	1	11/16/23 11:32	11/09/23	
Silver	200.8	0.014 J	ug/L	0.020	0.009	1	11/16/23 11:32	11/09/23	
Thallium	200.8	0.021	ug/L	0.020	0.009	1	11/16/23 11:32	11/09/23	
Vanadium	200.8	4.07	ug/L	0.20	0.04	1	11/16/23 11:32	11/09/23	
Zinc	200.8	2.0	ug/L	2.0	0.5	1	11/16/23 11:32	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W12-1029
Lab Code: K2312320-012

Service Request: K2312320
Date Collected: 10/29/23 15:30
Date Received: 10/30/23 08:50

Basis: NA

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Calcium	200.7	76000	ug/L	21	3	1	11/20/23 10:10	11/09/23	
Iron	200.7	ND U	ug/L	21	8	1	11/20/23 10:10	11/09/23	
Magnesium	200.7	38700	ug/L	5.3	0.4	1	11/20/23 10:10	11/09/23	
Manganese	200.7	5090	ug/L	1.1	0.2	1	11/20/23 10:10	11/09/23	
Potassium	200.7	3800	ug/L	210	60	1	11/20/23 10:10	11/09/23	
Sodium	200.7	22300	ug/L	210	30	1	11/20/23 10:10	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W12-1029
Lab Code: K2312320-012

Service Request: K2312320
Date Collected: 10/29/23 15:30
Date Received: 10/30/23 08:50

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Antimony	200.8	0.020 J	ug/L	0.050	0.020	1	11/16/23 11:34	11/09/23	
Arsenic	200.8	1.18	ug/L	0.50	0.09	1	11/16/23 11:34	11/09/23	
Barium	200.8	37.1	ug/L	0.050	0.020	1	11/16/23 11:34	11/09/23	
Beryllium	200.8	0.026	ug/L	0.020	0.005	1	11/16/23 11:34	11/09/23	
Cadmium	200.8	ND U	ug/L	0.020	0.008	1	11/16/23 11:34	11/09/23	
Chromium	200.8	0.59	ug/L	0.20	0.03	1	11/16/23 11:34	11/09/23	
Cobalt	200.8	0.554	ug/L	0.020	0.009	1	11/16/23 11:34	11/09/23	
Copper	200.8	0.20	ug/L	0.10	0.05	1	11/16/23 11:34	11/09/23	
Lead	200.8	0.044	ug/L	0.020	0.006	1	11/16/23 11:34	11/09/23	
Nickel	200.8	0.55	ug/L	0.20	0.04	1	11/16/23 11:34	11/09/23	
Selenium	200.8	ND U	ug/L	1.0	0.2	1	11/16/23 11:34	11/09/23	
Silver	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:34	11/09/23	
Thallium	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:34	11/09/23	
Vanadium	200.8	1.46	ug/L	0.20	0.04	1	11/16/23 11:34	11/09/23	
Zinc	200.8	0.5 J	ug/L	2.0	0.5	1	11/16/23 11:34	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W13-1029
Lab Code: K2312320-013

Service Request: K2312320
Date Collected: 10/29/23 16:00
Date Received: 10/30/23 08:50

Basis: NA

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Calcium	200.7	77000	ug/L	21	3	1	11/20/23 10:13	11/09/23	
Iron	200.7	ND U	ug/L	21	8	1	11/20/23 10:13	11/09/23	
Magnesium	200.7	38600	ug/L	5.3	0.4	1	11/20/23 10:13	11/09/23	
Manganese	200.7	4680	ug/L	1.1	0.2	1	11/20/23 10:13	11/09/23	
Potassium	200.7	3800	ug/L	210	60	1	11/20/23 10:13	11/09/23	
Sodium	200.7	22200	ug/L	210	30	1	11/20/23 10:13	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W13-1029
Lab Code: K2312320-013

Service Request: K2312320
Date Collected: 10/29/23 16:00
Date Received: 10/30/23 08:50

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Antimony	200.8	0.024 J	ug/L	0.050	0.020	1	11/16/23 11:36	11/09/23	
Arsenic	200.8	1.17	ug/L	0.50	0.09	1	11/16/23 11:36	11/09/23	
Barium	200.8	36.7	ug/L	0.050	0.020	1	11/16/23 11:36	11/09/23	
Beryllium	200.8	0.025	ug/L	0.020	0.005	1	11/16/23 11:36	11/09/23	
Cadmium	200.8	ND U	ug/L	0.020	0.008	1	11/16/23 11:36	11/09/23	
Chromium	200.8	0.31	ug/L	0.20	0.03	1	11/16/23 11:36	11/09/23	
Cobalt	200.8	0.550	ug/L	0.020	0.009	1	11/16/23 11:36	11/09/23	
Copper	200.8	0.21	ug/L	0.10	0.05	1	11/16/23 11:36	11/09/23	
Lead	200.8	0.020	ug/L	0.020	0.006	1	11/16/23 11:36	11/09/23	
Nickel	200.8	0.44	ug/L	0.20	0.04	1	11/16/23 11:36	11/09/23	
Selenium	200.8	ND U	ug/L	1.0	0.2	1	11/16/23 11:36	11/09/23	
Silver	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:36	11/09/23	
Thallium	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:36	11/09/23	
Vanadium	200.8	1.53	ug/L	0.20	0.04	1	11/16/23 11:36	11/09/23	
Zinc	200.8	0.6 J	ug/L	2.0	0.5	1	11/16/23 11:36	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W14-1029
Lab Code: K2312320-014

Service Request: K2312320
Date Collected: 10/29/23 16:15
Date Received: 10/30/23 08:50

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Antimony	200.8	0.056	ug/L	0.050	0.020	1	11/16/23 11:38	11/09/23	
Arsenic	200.8	0.84	ug/L	0.50	0.09	1	11/16/23 11:38	11/09/23	
Barium	200.8	27.5	ug/L	0.050	0.020	1	11/16/23 11:38	11/09/23	
Beryllium	200.8	ND U	ug/L	0.020	0.005	1	11/16/23 11:38	11/09/23	
Cadmium	200.8	ND U	ug/L	0.020	0.008	1	11/16/23 11:38	11/09/23	
Chromium	200.8	0.11 J	ug/L	0.20	0.03	1	11/16/23 11:38	11/09/23	
Cobalt	200.8	0.076	ug/L	0.020	0.009	1	11/16/23 11:38	11/09/23	
Copper	200.8	0.56	ug/L	0.10	0.05	1	11/16/23 11:38	11/09/23	
Iron	200.7	3990	ug/L	21	8	1	11/20/23 08:57	11/09/23	
Lead	200.8	0.043	ug/L	0.020	0.006	1	11/16/23 11:38	11/09/23	
Manganese	200.7	161	ug/L	1.1	0.2	1	11/20/23 08:57	11/09/23	
Nickel	200.8	0.40	ug/L	0.20	0.04	1	11/16/23 11:38	11/09/23	
Selenium	200.8	ND U	ug/L	1.0	0.2	1	11/16/23 11:38	11/09/23	
Silver	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:38	11/09/23	
Thallium	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:38	11/09/23	
Vanadium	200.8	0.78	ug/L	0.20	0.04	1	11/16/23 11:38	11/09/23	
Zinc	200.8	1.2 J	ug/L	2.0	0.5	1	11/16/23 11:38	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W15-1029
Lab Code: K2312320-015

Service Request: K2312320
Date Collected: 10/29/23 16:30
Date Received: 10/30/23 08:50

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Antimony	200.8	0.215	ug/L	0.050	0.020	1	11/16/23 11:45	11/09/23	
Arsenic	200.8	0.82	ug/L	0.50	0.09	1	11/16/23 11:45	11/09/23	
Barium	200.8	22.4	ug/L	0.050	0.020	1	11/16/23 11:45	11/09/23	
Beryllium	200.8	0.009 J	ug/L	0.020	0.005	1	11/16/23 11:45	11/09/23	
Cadmium	200.8	0.025	ug/L	0.020	0.008	1	11/16/23 11:45	11/09/23	
Chromium	200.8	0.33	ug/L	0.20	0.03	1	11/16/23 11:45	11/09/23	
Cobalt	200.8	0.409	ug/L	0.020	0.009	1	11/16/23 11:45	11/09/23	
Copper	200.8	15.3	ug/L	0.10	0.05	1	11/16/23 11:45	11/09/23	
Iron	200.7	1460	ug/L	21	8	1	11/20/23 09:05	11/09/23	
Lead	200.8	0.595	ug/L	0.020	0.006	1	11/16/23 11:45	11/09/23	
Manganese	200.7	140	ug/L	1.1	0.2	1	11/20/23 09:05	11/09/23	
Nickel	200.8	2.41	ug/L	0.20	0.04	1	11/16/23 11:45	11/09/23	
Selenium	200.8	ND U	ug/L	1.0	0.2	1	11/16/23 11:45	11/09/23	
Silver	200.8	0.013 J	ug/L	0.020	0.009	1	11/16/23 11:45	11/09/23	
Thallium	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:45	11/09/23	
Vanadium	200.8	2.08	ug/L	0.20	0.04	1	11/16/23 11:45	11/09/23	
Zinc	200.8	5.8	ug/L	2.0	0.5	1	11/16/23 11:45	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W16-1029
Lab Code: K2312320-016

Service Request: K2312320
Date Collected: 10/29/23 16:30
Date Received: 10/30/23 08:50

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Antimony	200.8	0.112	ug/L	0.050	0.020	1	11/16/23 11:47	11/09/23	
Arsenic	200.8	0.70	ug/L	0.50	0.09	1	11/16/23 11:47	11/09/23	
Barium	200.8	197	ug/L	0.050	0.020	1	11/16/23 11:47	11/09/23	
Beryllium	200.8	0.008 J	ug/L	0.020	0.005	1	11/16/23 11:47	11/09/23	
Cadmium	200.8	ND U	ug/L	0.020	0.008	1	11/16/23 11:47	11/09/23	
Calcium	200.7	61300	ug/L	21	3	1	11/20/23 09:13	11/09/23	
Chromium	200.8	0.76	ug/L	0.20	0.03	1	11/16/23 11:47	11/09/23	
Cobalt	200.8	0.356	ug/L	0.020	0.009	1	11/16/23 11:47	11/09/23	
Copper	200.8	4.53	ug/L	0.10	0.05	1	11/16/23 11:47	11/09/23	
Iron	200.7	39200	ug/L	21	8	1	11/20/23 09:13	11/09/23	
Lead	200.8	0.165	ug/L	0.020	0.006	1	11/16/23 11:47	11/09/23	
Magnesium	200.7	13900	ug/L	5.3	0.4	1	11/20/23 09:13	11/09/23	
Manganese	200.7	905	ug/L	1.1	0.2	1	11/20/23 09:13	11/09/23	
Nickel	200.8	3.37	ug/L	0.20	0.04	1	11/16/23 11:47	11/09/23	
Potassium	200.7	16100	ug/L	210	60	1	11/20/23 09:13	11/09/23	
Selenium	200.8	ND U	ug/L	1.0	0.2	1	11/16/23 11:47	11/09/23	
Silver	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:47	11/09/23	
Sodium	200.7	14100	ug/L	210	30	1	11/20/23 09:13	11/09/23	
Thallium	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:47	11/09/23	
Vanadium	200.8	0.96	ug/L	0.20	0.04	1	11/16/23 11:47	11/09/23	
Zinc	200.8	6.9	ug/L	2.0	0.5	1	11/16/23 11:47	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W17-1029
Lab Code: K2312320-017

Service Request: K2312320
Date Collected: 10/29/23 17:00
Date Received: 10/30/23 08:50

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Antimony	200.8	1.59	ug/L	0.050	0.020	1	11/16/23 11:50	11/09/23	
Arsenic	200.8	17.4	ug/L	0.50	0.09	1	11/16/23 11:50	11/09/23	
Barium	200.8	438	ug/L	0.050	0.020	1	11/16/23 11:50	11/09/23	
Beryllium	200.8	0.031	ug/L	0.020	0.005	1	11/16/23 11:50	11/09/23	
Cadmium	200.8	0.312	ug/L	0.020	0.008	1	11/16/23 11:50	11/09/23	
Calcium	200.7	247000	ug/L	210	30	10	11/20/23 09:16	11/09/23	
Chromium	200.8	36.7	ug/L	0.20	0.03	1	11/16/23 11:50	11/09/23	
Cobalt	200.8	25.5	ug/L	0.020	0.009	1	11/16/23 11:50	11/09/23	
Copper	200.8	11.2	ug/L	0.10	0.05	1	11/16/23 11:50	11/09/23	
Iron	200.7	4610	ug/L	210	80	10	11/20/23 09:16	11/09/23	
Lead	200.8	0.268	ug/L	0.020	0.006	1	11/16/23 11:50	11/09/23	
Magnesium	200.7	132000	ug/L	53	4	10	11/20/23 09:16	11/09/23	
Manganese	200.7	2800	ug/L	11	2	10	11/20/23 09:16	11/09/23	
Nickel	200.8	109	ug/L	0.20	0.04	1	11/16/23 11:50	11/09/23	
Potassium	200.7	455000	ug/L	2100	600	10	11/20/23 09:16	11/09/23	
Selenium	200.8	0.8 J	ug/L	1.0	0.2	1	11/16/23 11:50	11/09/23	
Silver	200.8	0.030	ug/L	0.020	0.009	1	11/16/23 11:50	11/09/23	
Sodium	200.7	1340000	ug/L	2100	300	10	11/20/23 09:16	11/09/23	
Thallium	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:50	11/09/23	
Vanadium	200.8	48.7	ug/L	0.20	0.04	1	11/16/23 11:50	11/09/23	
Zinc	200.8	25.7	ug/L	2.0	0.5	1	11/16/23 11:50	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W18-1029
Lab Code: K2312320-018

Service Request: K2312320
Date Collected: 10/29/23 17:30
Date Received: 10/30/23 08:50

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Antimony	200.8	0.901	ug/L	0.050	0.020	1	11/16/23 11:57	11/09/23	
Arsenic	200.8	26.6	ug/L	0.50	0.09	1	11/16/23 11:57	11/09/23	
Barium	200.8	489	ug/L	0.050	0.020	1	11/16/23 11:57	11/09/23	
Beryllium	200.8	0.026	ug/L	0.020	0.005	1	11/16/23 11:57	11/09/23	
Cadmium	200.8	0.204	ug/L	0.020	0.008	1	11/16/23 11:57	11/09/23	
Calcium	200.7	228000	ug/L	210	30	10	11/20/23 09:26	11/09/23	
Chromium	200.8	35.9	ug/L	0.20	0.03	1	11/16/23 11:57	11/09/23	
Cobalt	200.8	27.8	ug/L	0.020	0.009	1	11/16/23 11:57	11/09/23	
Copper	200.8	3.24	ug/L	0.10	0.05	1	11/16/23 11:57	11/09/23	
Iron	200.7	14000	ug/L	210	80	10	11/20/23 09:26	11/09/23	
Lead	200.8	0.288	ug/L	0.020	0.006	1	11/16/23 11:57	11/09/23	
Magnesium	200.7	114000	ug/L	53	4	10	11/20/23 09:26	11/09/23	
Manganese	200.7	4230	ug/L	11	2	10	11/20/23 09:26	11/09/23	
Nickel	200.8	116	ug/L	0.20	0.04	1	11/16/23 11:57	11/09/23	
Potassium	200.7	447000	ug/L	2100	600	10	11/20/23 09:26	11/09/23	
Selenium	200.8	0.5 J	ug/L	1.0	0.2	1	11/16/23 11:57	11/09/23	
Silver	200.8	0.043	ug/L	0.020	0.009	1	11/16/23 11:57	11/09/23	
Sodium	200.7	1280000	ug/L	2100	300	10	11/20/23 09:26	11/09/23	
Thallium	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 11:57	11/09/23	
Vanadium	200.8	48.4	ug/L	0.20	0.04	1	11/16/23 11:57	11/09/23	
Zinc	200.8	10.9	ug/L	2.0	0.5	1	11/16/23 11:57	11/09/23	



General Chemistry

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W1-1029
Lab Code: K2312320-001

Service Request: K2312320
Date Collected: 10/29/23 08:30
Date Received: 10/30/23 08:50

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO3, Total	SM 2320 B	310	mg/L	2.0	0.6	1	11/09/23 16:26	
Ammonia as Nitrogen	SM 4500-NH3 E	0.070	mg/L	0.050	0.009	1	11/01/23 09:15	
Carbon, Total Organic (TOC)	SM 5310 B	3.80	mg/L	0.50	0.10	1	11/15/23 21:53	
Chloride	300.0	3.19	mg/L	0.20	0.010	2	10/30/23 22:25	
Nitrate as Nitrogen	300.0	ND U	mg/L	0.10	0.03	2	10/30/23 22:25	
Solids, Total Suspended (TSS)	SM 2540 D	ND U	mg/L	5.0	-	1	11/01/23 12:00	
Sulfate	300.0	15.0	mg/L	0.40	0.12	2	10/30/23 22:25	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W1-1029
Lab Code: K2312320-001

Service Request: K2312320
Date Collected: 10/29/23 08:30
Date Received: 10/30/23 08:50
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total Dissolved	SM 2540 C	351	mg/L	10	-	1	11/02/23 15:42	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W2-1029
Lab Code: K2312320-002

Service Request: K2312320
Date Collected: 10/29/23 09:30
Date Received: 10/30/23 08:50

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO3, Total	SM 2320 B	268	mg/L	2.0	0.6	1	11/09/23 16:26	
Ammonia as Nitrogen	SM 4500-NH3 E	1.05	mg/L	0.050	0.009	1	11/01/23 09:15	
Carbon, Total Organic (TOC)	SM 5310 B	14.8	mg/L	0.50	0.10	1	11/15/23 21:53	
Chloride	300.0	6.14	mg/L	0.20	0.010	2	10/30/23 23:00	
Nitrate as Nitrogen	300.0	ND U	mg/L	0.10	0.03	2	10/30/23 23:00	
Solids, Total Suspended (TSS)	SM 2540 D	ND U	mg/L	5.0	-	1	11/01/23 12:00	
Sulfate	300.0	2.75	mg/L	0.40	0.12	2	10/30/23 23:00	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W2-1029
Lab Code: K2312320-002

Service Request: K2312320
Date Collected: 10/29/23 09:30
Date Received: 10/30/23 08:50
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total Dissolved	SM 2540 C	344	mg/L	10	-	1	11/02/23 15:42	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W3-1029
Lab Code: K2312320-003

Service Request: K2312320
Date Collected: 10/29/23 10:00
Date Received: 10/30/23 08:50

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO3, Total	SM 2320 B	151	mg/L	2.0	0.6	1	11/09/23 16:26	
Ammonia as Nitrogen	SM 4500-NH3 E	1.34	mg/L	0.050	0.009	1	11/01/23 09:15	
Carbon, Total Organic (TOC)	SM 5310 B	17.8	mg/L	0.50	0.10	1	11/15/23 21:53	
Chloride	300.0	17.5	mg/L	0.20	0.010	2	10/30/23 23:09	
Nitrate as Nitrogen	300.0	ND U	mg/L	0.10	0.03	2	10/30/23 23:09	
Solids, Total Suspended (TSS)	SM 2540 D	6.0	mg/L	5.0	-	1	11/01/23 12:00	
Sulfate	300.0	ND U	mg/L	0.40	0.12	2	10/30/23 23:09	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W3-1029
Lab Code: K2312320-003

Service Request: K2312320
Date Collected: 10/29/23 10:00
Date Received: 10/30/23 08:50
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total Dissolved	SM 2540 C	304	mg/L	10	-	1	11/02/23 15:42	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W4-1029
Lab Code: K2312320-004

Service Request: K2312320
Date Collected: 10/29/23 10:30
Date Received: 10/30/23 08:50

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO3, Total	SM 2320 B	212	mg/L	2.0	0.6	1	11/09/23 16:26	
Ammonia as Nitrogen	SM 4500-NH3 E	1.31	mg/L	0.050	0.009	1	11/01/23 09:15	
Carbon, Total Organic (TOC)	SM 5310 B	15.0	mg/L	0.50	0.10	1	11/15/23 21:53	
Chloride	300.0	2.22	mg/L	0.20	0.010	2	10/30/23 23:17	
Nitrate as Nitrogen	300.0	ND U	mg/L	0.10	0.03	2	10/30/23 23:17	
Solids, Total Suspended (TSS)	SM 2540 D	85.0	mg/L	5.0	-	1	11/01/23 12:00	
Sulfate	300.0	ND U	mg/L	0.40	0.12	2	10/30/23 23:17	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W4-1029
Lab Code: K2312320-004

Service Request: K2312320
Date Collected: 10/29/23 10:30
Date Received: 10/30/23 08:50
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total Dissolved	SM 2540 C	273	mg/L	10	-	1	11/02/23 15:42	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W5-1029
Lab Code: K2312320-005

Service Request: K2312320
Date Collected: 10/29/23 11:00
Date Received: 10/30/23 08:50

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO3, Total	SM 2320 B	334	mg/L	2.0	0.6	1	11/09/23 16:26	
Ammonia as Nitrogen	SM 4500-NH3 E	0.940	mg/L	0.050	0.009	1	11/01/23 09:15	
Carbon, Total Organic (TOC)	SM 5310 B	10.0	mg/L	0.50	0.10	1	11/15/23 21:53	
Chloride	300.0	13.9	mg/L	0.20	0.010	2	10/30/23 23:26	
Nitrate as Nitrogen	300.0	ND U	mg/L	0.10	0.03	2	10/30/23 23:26	
Solids, Total Suspended (TSS)	SM 2540 D	57.0	mg/L	5.0	-	1	11/01/23 12:00	
Sulfate	300.0	0.12 J	mg/L	0.40	0.12	2	10/30/23 23:26	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W5-1029
Lab Code: K2312320-005

Service Request: K2312320
Date Collected: 10/29/23 11:00
Date Received: 10/30/23 08:50
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total Dissolved	SM 2540 C	404	mg/L	10	-	1	11/02/23 15:42	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W6-1029
Lab Code: K2312320-006

Service Request: K2312320
Date Collected: 10/29/23 11:30
Date Received: 10/30/23 08:50

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO3, Total	SM 2320 B	168	mg/L	2.0	0.6	1	11/09/23 16:26	
Ammonia as Nitrogen	SM 4500-NH3 E	0.010 J	mg/L	0.050	0.009	1	11/01/23 09:15	
Carbon, Total Organic (TOC)	SM 5310 B	24.2	mg/L	0.50	0.10	1	11/15/23 21:53	
Chloride	300.0	2.02	mg/L	0.20	0.010	2	10/31/23 00:01	
Nitrate as Nitrogen	300.0	0.39	mg/L	0.10	0.03	2	10/31/23 00:01	
Solids, Total Suspended (TSS)	SM 2540 D	ND U	mg/L	5.0	-	1	11/01/23 12:00	
Sulfate	300.0	2.55	mg/L	0.40	0.12	2	10/31/23 00:01	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W6-1029
Lab Code: K2312320-006

Service Request: K2312320
Date Collected: 10/29/23 11:30
Date Received: 10/30/23 08:50
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total Dissolved	SM 2540 C	249	mg/L	10	-	1	11/02/23 15:42	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W7-1029
Lab Code: K2312320-007

Service Request: K2312320
Date Collected: 10/29/23 12:30
Date Received: 10/30/23 08:50

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO3, Total	SM 2320 B	139	mg/L	2.0	0.6	1	11/09/23 16:26	
Ammonia as Nitrogen	SM 4500-NH3 E	1.49	mg/L	0.050	0.009	1	11/01/23 09:15	
Carbon, Total Organic (TOC)	SM 5310 B	14.3	mg/L	0.50	0.10	1	11/15/23 21:53	
Chloride	300.0	2.39	mg/L	0.20	0.010	2	10/31/23 00:10	
Nitrate as Nitrogen	300.0	ND U	mg/L	0.10	0.03	2	10/31/23 00:10	
Solids, Total Suspended (TSS)	SM 2540 D	ND U	mg/L	5.0	-	1	11/01/23 12:00	
Sulfate	300.0	ND U	mg/L	0.40	0.12	2	10/31/23 00:10	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W7-1029
Lab Code: K2312320-007

Service Request: K2312320
Date Collected: 10/29/23 12:30
Date Received: 10/30/23 08:50
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total Dissolved	SM 2540 C	243	mg/L	10	-	1	11/02/23 15:42	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W8-1029
Lab Code: K2312320-008

Service Request: K2312320
Date Collected: 10/29/23 13:00
Date Received: 10/30/23 08:50

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO3, Total	SM 2320 B	121	mg/L	2.0	0.6	1	11/09/23 16:26	
Ammonia as Nitrogen	SM 4500-NH3 E	0.960	mg/L	0.050	0.009	1	11/01/23 09:15	
Carbon, Total Organic (TOC)	SM 5310 B	9.10	mg/L	0.50	0.10	1	11/15/23 21:53	
Chloride	300.0	2.88	mg/L	0.20	0.010	2	10/31/23 00:18	
Nitrate as Nitrogen	300.0	ND U	mg/L	0.10	0.03	2	10/31/23 00:18	
Solids, Total Suspended (TSS)	SM 2540 D	90.5	mg/L	5.0	-	1	11/01/23 12:00	
Sulfate	300.0	7.00	mg/L	0.40	0.12	2	10/31/23 00:18	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W8-1029
Lab Code: K2312320-008

Service Request: K2312320
Date Collected: 10/29/23 13:00
Date Received: 10/30/23 08:50
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total Dissolved	SM 2540 C	221	mg/L	10	-	1	11/02/23 15:42	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W9-1029
Lab Code: K2312320-009

Service Request: K2312320
Date Collected: 10/29/23 13:30
Date Received: 10/30/23 08:50

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO3, Total	SM 2320 B	52.6	mg/L	2.0	0.6	1	11/09/23 16:26	
Ammonia as Nitrogen	SM 4500-NH3 E	0.170	mg/L	0.050	0.009	1	11/01/23 09:15	
Carbon, Total Organic (TOC)	SM 5310 B	1.90	mg/L	0.50	0.10	1	11/15/23 21:53	
Chloride	300.0	3.62	mg/L	0.20	0.010	2	10/31/23 00:27	
Nitrate as Nitrogen	300.0	ND U	mg/L	0.10	0.03	2	10/31/23 00:27	
Solids, Total Suspended (TSS)	SM 2540 D	ND U	mg/L	5.0	-	1	11/01/23 12:00	
Sulfate	300.0	0.82	mg/L	0.40	0.12	2	10/31/23 00:27	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W9-1029
Lab Code: K2312320-009

Service Request: K2312320
Date Collected: 10/29/23 13:30
Date Received: 10/30/23 08:50
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total Dissolved	SM 2540 C	117	mg/L	10	-	1	11/02/23 15:42	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W10-1029
Lab Code: K2312320-010

Service Request: K2312320
Date Collected: 10/29/23 14:00
Date Received: 10/30/23 08:50

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO3, Total	SM 2320 B	75.2	mg/L	2.0	0.6	1	11/09/23 16:26	
Ammonia as Nitrogen	SM 4500-NH3 E	0.110	mg/L	0.050	0.009	1	11/01/23 09:15	
Carbon, Total Organic (TOC)	SM 5310 B	11.9	mg/L	0.50	0.10	1	11/15/23 21:53	
Chloride	300.0	2.79	mg/L	0.20	0.010	2	10/31/23 00:36	
Nitrate as Nitrogen	300.0	ND U	mg/L	0.10	0.03	2	10/31/23 00:36	
Solids, Total Suspended (TSS)	SM 2540 D	14.5	mg/L	5.0	-	1	11/01/23 12:00	
Sulfate	300.0	1.33	mg/L	0.40	0.12	2	10/31/23 00:36	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W10-1029
Lab Code: K2312320-010

Service Request: K2312320
Date Collected: 10/29/23 14:00
Date Received: 10/30/23 08:50
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total Dissolved	SM 2540 C	139	mg/L	10	-	1	11/02/23 15:42	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W11-1029
Lab Code: K2312320-011

Service Request: K2312320
Date Collected: 10/29/23 15:00
Date Received: 10/30/23 08:50

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO3, Total	SM 2320 B	74.1	mg/L	2.0	0.6	1	11/09/23 16:26	
Ammonia as Nitrogen	SM 4500-NH3 E	0.030 J	mg/L	0.050	0.009	1	11/01/23 09:15	
Carbon, Total Organic (TOC)	SM 5310 B	12.6	mg/L	0.50	0.10	1	11/15/23 21:53	
Chloride	300.0	2.01	mg/L	0.20	0.010	2	10/31/23 00:44	
Nitrate as Nitrogen	300.0	12.9	mg/L	0.50	0.13	10	10/31/23 12:31	
Solids, Total Suspended (TSS)	SM 2540 D	9.0	mg/L	5.0	-	1	11/01/23 12:00	
Sulfate	300.0	9.50	mg/L	0.40	0.12	2	10/31/23 00:44	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W11-1029
Lab Code: K2312320-011

Service Request: K2312320
Date Collected: 10/29/23 15:00
Date Received: 10/30/23 08:50
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total Dissolved	SM 2540 C	228	mg/L	10	-	1	11/02/23 15:42	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W12-1029
Lab Code: K2312320-012

Service Request: K2312320
Date Collected: 10/29/23 15:30
Date Received: 10/30/23 08:50

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO3, Total	SM 2320 B	397	mg/L	2.0	0.6	1	11/09/23 16:26	
Ammonia as Nitrogen	SM 4500-NH3 E	2.39	mg/L	0.050	0.009	1	11/01/23 09:15	
Carbon, Total Organic (TOC)	SM 5310 B	11.0	mg/L	2.5	0.5	5	11/15/23 21:53	
Chloride	300.0	6.81	mg/L	0.20	0.010	2	10/31/23 00:53	
Nitrate as Nitrogen	300.0	ND U	mg/L	0.10	0.03	2	10/31/23 00:53	
Solids, Total Suspended (TSS)	SM 2540 D	73.5	mg/L	5.0	-	1	11/01/23 12:00	
Sulfate	300.0	1.98	mg/L	0.40	0.12	2	10/31/23 00:53	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W12-1029
Lab Code: K2312320-012

Service Request: K2312320
Date Collected: 10/29/23 15:30
Date Received: 10/30/23 08:50
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total Dissolved	SM 2540 C	466	mg/L	10	-	1	11/02/23 15:42	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W13-1029
Lab Code: K2312320-013

Service Request: K2312320
Date Collected: 10/29/23 16:00
Date Received: 10/30/23 08:50

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO3, Total	SM 2320 B	398	mg/L	2.0	0.6	1	11/09/23 16:26	
Ammonia as Nitrogen	SM 4500-NH3 E	2.45	mg/L	0.050	0.009	1	11/01/23 09:15	
Carbon, Total Organic (TOC)	SM 5310 B	11.5	mg/L	2.5	0.5	5	11/15/23 21:53	
Chloride	300.0	6.81	mg/L	0.20	0.010	2	10/31/23 01:02	
Nitrate as Nitrogen	300.0	ND U	mg/L	0.10	0.03	2	10/31/23 01:02	
Solids, Total Suspended (TSS)	SM 2540 D	73.0	mg/L	5.0	-	1	11/01/23 12:00	
Sulfate	300.0	1.94	mg/L	0.40	0.12	2	10/31/23 01:02	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W13-1029
Lab Code: K2312320-013

Service Request: K2312320
Date Collected: 10/29/23 16:00
Date Received: 10/30/23 08:50
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total Dissolved	SM 2540 C	464	mg/L	10	-	1	11/02/23 15:42	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W14-1029
Lab Code: K2312320-014

Service Request: K2312320
Date Collected: 10/29/23 16:15
Date Received: 10/30/23 08:50
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Nitrate as Nitrogen	300.0	0.24	mg/L	0.10	0.03	2	10/31/23 01:10	

ALS Group USA, Corp.
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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W15-1029
Lab Code: K2312320-015

Service Request: K2312320
Date Collected: 10/29/23 16:30
Date Received: 10/30/23 08:50
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Nitrate as Nitrogen	300.0	7.02	mg/L	0.10	0.03	2	10/31/23 02:02	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W16-1029
Lab Code: K2312320-016

Service Request: K2312320
Date Collected: 10/29/23 16:30
Date Received: 10/30/23 08:50

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO3, Total	SM 2320 B	232	mg/L	2.0	0.6	1	11/09/23 16:26	
Ammonia as Nitrogen	SM 4500-NH3 E	5.95	mg/L	0.050	0.009	1	11/01/23 09:15	
Carbon, Total Organic (TOC)	SM 5310 B	9.90	mg/L	0.50	0.10	1	11/15/23 21:53	
Chloride	300.0	8.08	mg/L	0.20	0.010	2	10/31/23 02:11	
Nitrate as Nitrogen	300.0	7.70	mg/L	0.10	0.03	2	10/31/23 02:11	
Solids, Total Suspended (TSS)	SM 2540 D	80.0	mg/L	5.0	-	1	11/01/23 12:00	
Sulfate	300.0	5.99	mg/L	0.40	0.12	2	10/31/23 02:11	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W16-1029
Lab Code: K2312320-016

Service Request: K2312320
Date Collected: 10/29/23 16:30
Date Received: 10/30/23 08:50
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total Dissolved	SM 2540 C	308	mg/L	10	-	1	11/02/23 15:42	

ALS Group USA, Corp.
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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W17-1029
Lab Code: K2312320-017

Service Request: K2312320
Date Collected: 10/29/23 17:00
Date Received: 10/30/23 08:50

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO3, Total	SM 2320 B	2500	mg/L	2.0	0.6	1	11/09/23 19:29	
Ammonia as Nitrogen	SM 4500-NH3 E	288	mg/L	0.25	0.05	5	11/01/23 09:15	
Carbon, Total Organic (TOC)	SM 5310 B	193	mg/L	5.0	1.0	10	11/15/23 21:53	
Chloride	300.0	1130	mg/L	50	3	500	11/13/23 18:06	
Nitrate as Nitrogen	300.0	111	mg/L	2.5	0.7	50	10/31/23 02:20	
Solids, Total Suspended (TSS)	SM 2540 D	19.0	mg/L	5.0	-	1	11/01/23 12:00	
Sulfate	300.0	780	mg/L	100	30	500	11/13/23 18:06	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W17-1029
Lab Code: K2312320-017

Service Request: K2312320
Date Collected: 10/29/23 17:00
Date Received: 10/30/23 08:50
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total Dissolved	SM 2540 C	5910	mg/L	100	-	1	11/02/23 15:42	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W18-1029
Lab Code: K2312320-018

Service Request: K2312320
Date Collected: 10/29/23 17:30
Date Received: 10/30/23 08:50

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO3, Total	SM 2320 B	3100	mg/L	2.0	0.6	1	11/09/23 19:29	
Ammonia as Nitrogen	SM 4500-NH3 E	325	mg/L	0.25	0.05	5	11/01/23 09:15	
Carbon, Total Organic (TOC)	SM 5310 B	220	mg/L	5.0	1.0	10	11/15/23 21:53	
Chloride	300.0	1070	mg/L	50	3	500	11/13/23 18:15	
Nitrate as Nitrogen	300.0	0.9 J	mg/L	2.5	0.7	50	10/31/23 02:29	
Solids, Total Suspended (TSS)	SM 2540 D	45.0	mg/L	5.0	-	1	11/01/23 12:00	
Sulfate	300.0	600	mg/L	100	30	500	11/13/23 18:15	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: W18-1029
Lab Code: K2312320-018

Service Request: K2312320
Date Collected: 10/29/23 17:30
Date Received: 10/30/23 08:50
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total Dissolved	SM 2540 C	5410	mg/L	100	-	1	11/02/23 15:42	



QC Summary Forms

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
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Volatile Organic Compounds by GC/MS

ALS Environmental—Kelso Laboratory
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QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320

SURROGATE RECOVERY SUMMARY
Volatile Organic Compounds by GC/MS

Analysis Method: 8260C

Extraction Method: None

Sample Name	Lab Code	4-Bromofluorobenzene	Dibromofluoromethane	Toluene-d8
		68 - 117	73 - 122	65 - 144
W1-1029	K2312320-001	92	109	100
W2-1029	K2312320-002	94	109	101
W3-1029	K2312320-003	92	109	101
W4-1029	K2312320-004	92	108	98
W5-1029	K2312320-005	91	108	99
W6-1029	K2312320-006	91	106	99
W7-1029	K2312320-007	90	108	100
W8-1029	K2312320-008	91	108	99
W9-1029	K2312320-009	91	110	99
W10-1029	K2312320-010	90	110	100
W11-1029	K2312320-011	90	110	99
W12-1029	K2312320-012	91	111	101
W13-1029	K2312320-013	90	108	99
W16-1029	K2312320-016	92	110	99
Trip Blank	K2312320-019	92	106	99
Lab Control Sample	KQ2319585-02	104	109	106
Duplicate Lab Control Sample	KQ2319585-03	105	107	105
Method Blank	KQ2319585-04	95	103	99
Lab Control Sample	KQ2319824-03	106	108	105
Duplicate Lab Control Sample	KQ2319824-04	104	109	106
Method Blank	KQ2319824-05	93	106	99

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: Method Blank
Lab Code: KQ2319585-04

Service Request: K2312320
Date Collected: NA
Date Received: NA

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Acetone	ND U	20	3.3	1	10/31/23 13:30	
Acrylonitrile	ND U	5.0	0.53	1	10/31/23 13:30	
Benzene	ND U	0.50	0.062	1	10/31/23 13:30	
Bromochloromethane	ND U	0.50	0.16	1	10/31/23 13:30	
Bromodichloromethane	ND U	0.50	0.091	1	10/31/23 13:30	
Bromoform	ND U	0.50	0.16	1	10/31/23 13:30	
Bromomethane	ND U	0.50	0.16	1	10/31/23 13:30	
2-Butanone (MEK)	ND U	20	1.9	1	10/31/23 13:30	
Carbon Disulfide	ND U	0.50	0.069	1	10/31/23 13:30	
Carbon Tetrachloride	ND U	0.50	0.096	1	10/31/23 13:30	
Chlorobenzene	ND U	0.50	0.11	1	10/31/23 13:30	
Chloroethane	ND U	0.50	0.16	1	10/31/23 13:30	
Chloroform	ND U	0.50	0.072	1	10/31/23 13:30	
Chloromethane	ND U	0.50	0.068	1	10/31/23 13:30	
1,2-Dibromo-3-chloropropane	ND U	2.0	0.22	1	10/31/23 13:30	
Dibromochloromethane	ND U	0.50	0.14	1	10/31/23 13:30	
1,2-Dibromoethane (EDB)	ND U	2.0	0.10	1	10/31/23 13:30	
Dibromomethane	ND U	0.50	0.15	1	10/31/23 13:30	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	10/31/23 13:30	
1,2-Dichlorobenzene	ND U	0.50	0.12	1	10/31/23 13:30	
1,4-Dichlorobenzene	ND U	0.50	0.12	1	10/31/23 13:30	
1,1-Dichloroethane	ND U	0.50	0.077	1	10/31/23 13:30	
1,2-Dichloroethane (EDC)	ND U	0.50	0.080	1	10/31/23 13:30	
1,1-Dichloroethene	ND U	0.50	0.080	1	10/31/23 13:30	
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	10/31/23 13:30	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	10/31/23 13:30	
1,2-Dichloropropane	ND U	0.50	0.095	1	10/31/23 13:30	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	10/31/23 13:30	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	10/31/23 13:30	
Ethylbenzene	ND U	0.50	0.050	1	10/31/23 13:30	
2-Hexanone	ND U	20	2.7	1	10/31/23 13:30	
Iodomethane	ND U	5.0	0.12	1	10/31/23 13:30	
4-Methyl-2-pentanone (MIBK)	ND U	20	2.6	1	10/31/23 13:30	
Methylene Chloride	0.26 J	2.0	0.10	1	10/31/23 13:30	
Styrene	ND U	0.50	0.089	1	10/31/23 13:30	
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	10/31/23 13:30	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	10/31/23 13:30	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	10/31/23 13:30	
Toluene	ND U	0.50	0.054	1	10/31/23 13:30	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	10/31/23 13:30	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	10/31/23 13:30	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: Method Blank
Lab Code: KQ2319585-04

Service Request: K2312320
Date Collected: NA
Date Received: NA

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Trichloroethene (TCE)	ND U	0.50	0.10	1	10/31/23 13:30	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	10/31/23 13:30	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	10/31/23 13:30	
Vinyl Acetate	ND U	5.0	0.43	1	10/31/23 13:30	
Vinyl Chloride	ND U	0.50	0.075	1	10/31/23 13:30	
o-Xylene	ND U	0.50	0.074	1	10/31/23 13:30	
m,p-Xylenes	ND U	0.50	0.11	1	10/31/23 13:30	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	95	68 - 117	10/31/23 13:30	
Dibromofluoromethane	103	73 - 122	10/31/23 13:30	
Toluene-d8	99	65 - 144	10/31/23 13:30	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: Method Blank
Lab Code: KQ2319824-05

Service Request: K2312320
Date Collected: NA
Date Received: NA

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Acetone	ND U	20	3.3	1	11/03/23 14:23	
Acrylonitrile	ND U	5.0	0.53	1	11/03/23 14:23	
Benzene	ND U	0.50	0.062	1	11/03/23 14:23	
Bromochloromethane	ND U	0.50	0.16	1	11/03/23 14:23	
Bromodichloromethane	ND U	0.50	0.091	1	11/03/23 14:23	
Bromoform	ND U	0.50	0.16	1	11/03/23 14:23	
Bromomethane	ND U	0.50	0.16	1	11/03/23 14:23	
2-Butanone (MEK)	ND U	20	1.9	1	11/03/23 14:23	
Carbon Disulfide	ND U	0.50	0.069	1	11/03/23 14:23	
Carbon Tetrachloride	ND U	0.50	0.096	1	11/03/23 14:23	
Chlorobenzene	ND U	0.50	0.11	1	11/03/23 14:23	
Chloroethane	ND U	0.50	0.16	1	11/03/23 14:23	
Chloroform	ND U	0.50	0.072	1	11/03/23 14:23	
Chloromethane	ND U	0.50	0.068	1	11/03/23 14:23	
1,2-Dibromo-3-chloropropane	ND U	2.0	0.22	1	11/03/23 14:23	
Dibromochloromethane	ND U	0.50	0.14	1	11/03/23 14:23	
1,2-Dibromoethane (EDB)	ND U	2.0	0.10	1	11/03/23 14:23	
Dibromomethane	ND U	0.50	0.15	1	11/03/23 14:23	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	11/03/23 14:23	
1,2-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 14:23	
1,4-Dichlorobenzene	ND U	0.50	0.12	1	11/03/23 14:23	
1,1-Dichloroethane	ND U	0.50	0.077	1	11/03/23 14:23	
1,2-Dichloroethane (EDC)	ND U	0.50	0.080	1	11/03/23 14:23	
1,1-Dichloroethene	ND U	0.50	0.080	1	11/03/23 14:23	
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	11/03/23 14:23	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	11/03/23 14:23	
1,2-Dichloropropane	ND U	0.50	0.095	1	11/03/23 14:23	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	11/03/23 14:23	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	11/03/23 14:23	
Ethylbenzene	ND U	0.50	0.050	1	11/03/23 14:23	
2-Hexanone	ND U	20	2.7	1	11/03/23 14:23	
Iodomethane	ND U	5.0	0.12	1	11/03/23 14:23	
4-Methyl-2-pentanone (MIBK)	ND U	20	2.6	1	11/03/23 14:23	
Methylene Chloride	0.20 J	2.0	0.10	1	11/03/23 14:23	
Styrene	ND U	0.50	0.089	1	11/03/23 14:23	
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	11/03/23 14:23	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	11/03/23 14:23	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	11/03/23 14:23	
Toluene	ND U	0.50	0.054	1	11/03/23 14:23	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	11/03/23 14:23	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	11/03/23 14:23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: Method Blank
Lab Code: KQ2319824-05

Service Request: K2312320
Date Collected: NA
Date Received: NA

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Trichloroethene (TCE)	ND U	0.50	0.10	1	11/03/23 14:23	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	11/03/23 14:23	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	11/03/23 14:23	
Vinyl Acetate	ND U	5.0	0.43	1	11/03/23 14:23	
Vinyl Chloride	ND U	0.50	0.075	1	11/03/23 14:23	
o-Xylene	ND U	0.50	0.074	1	11/03/23 14:23	
m,p-Xylenes	ND U	0.50	0.11	1	11/03/23 14:23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	93	68 - 117	11/03/23 14:23	
Dibromofluoromethane	106	73 - 122	11/03/23 14:23	
Toluene-d8	99	65 - 144	11/03/23 14:23	

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QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320
Date Analyzed: 10/31/23
Date Extracted: NA

Duplicate Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Units: ug/L
Basis: NA
Analysis Lot: 822418

Lab Control Sample				Duplicate Lab Control Sample					
KQ2319585-02				KQ2319585-03					
Analyte Name	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	9.80	10.0	98	9.52	10.0	95	66-124	3	30
1,1,1-Trichloroethane (TCA)	10.5	10.0	105	10.3	10.0	103	59-136	2	30
1,1,2,2-Tetrachloroethane	8.99	10.0	90	8.90	10.0	89	70-127	1	30
1,1,2-Trichloroethane	9.42	10.0	94	9.43	10.0	94	74-118	<1	30
1,1-Dichloroethane	9.78	10.0	98	9.47	10.0	95	68-132	3	30
1,1-Dichloroethene	9.45	10.0	95	9.17	10.0	92	66-129	3	30
1,2,3-Trichloropropane	9.02	10.0	90	8.90	10.0	89	69-123	1	30
1,2-Dibromo-3-chloropropane	7.46	10.0	75	7.21	10.0	72	55-132	3	30
1,2-Dibromoethane (EDB)	10.1	10.0	101	9.93	10.0	99	74-118	2	30
1,2-Dichlorobenzene	9.01	10.0	90	8.95	10.0	90	72-115	<1	30
1,2-Dichloroethane (EDC)	10.1	10.0	101	9.57	10.0	96	56-142	5	30
1,2-Dichloropropane	9.29	10.0	93	9.07	10.0	91	67-126	2	30
1,4-Dichlorobenzene	8.91	10.0	89	8.67	10.0	87	73-115	3	30
2-Butanone (MEK)	58.6	50.0	117	55.1	50.0	110	71-149	6	30
2-Hexanone	55.9	50.0	112	54.4	50.0	109	59-131	3	30
4-Methyl-2-pentanone (MIBK)	53.9	50.0	108	52.2	50.0	104	64-134	3	30
Acetone	57.9	50.0	116	60.3	50.0	121	68-135	4	30
Acrylonitrile	44.1	40.0	110	43.4	40.0	109	65-129	2	30
Benzene	9.90	10.0	99	9.56	10.0	96	69-124	3	30
Bromochloromethane	10.6	10.0	106	10.2	10.0	102	75-131	3	30
Bromodichloromethane	10.0	10.0	100	9.68	10.0	97	63-129	3	30
Bromoform	9.34	10.0	93	9.20	10.0	92	52-144	2	30
Bromomethane	7.56	10.0	76	7.22	10.0	72	35-113	5	30
Carbon Disulfide	18.9	20.0	94	18.5	20.0	92	46-144	2	30
Carbon Tetrachloride	10.9	10.0	109	10.5	10.0	105	55-140	3	30
Chlorobenzene	9.86	10.0	99	9.54	10.0	95	72-116	3	30
Chloroethane	9.15	10.0	92	8.86	10.0	89	58-134	3	30
Chloroform	10.6	10.0	106	10.2	10.0	102	70-129	4	30
Chloromethane	8.14	10.0	81	7.98	10.0	80	34-130	2	30
cis-1,2-Dichloroethene	9.94	10.0	99	9.52	10.0	95	71-118	4	30
cis-1,3-Dichloropropene	8.25	10.0	83	8.12	10.0	81	62-132	2	30
Dibromochloromethane	8.63	10.0	86	8.65	10.0	87	67-126	<1	30
Dibromomethane	10.4	10.0	104	10.2	10.0	102	69-128	2	30
Ethylbenzene	10.1	10.0	101	9.78	10.0	98	67-121	3	30
Iodomethane	26.6	30.0	89	24.6	30.0	82	51-164	8	30
m,p-Xylenes	20.5	20.0	102	19.8	20.0	99	69-121	3	30
Methylene Chloride	9.15	10.0	92	9.01	10.0	90	71-122	2	30
o-Xylene	9.91	10.0	99	9.78	10.0	98	71-119	1	30
Styrene	10.2	10.0	102	9.89	10.0	99	74-121	3	30
Tetrachloroethene (PCE)	10.2	10.0	102	9.59	10.0	96	62-126	6	30
Toluene	9.92	10.0	99	9.56	10.0	96	69-124	4	30

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320
Date Analyzed: 10/31/23
Date Extracted: NA

Duplicate Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Units: ug/L
Basis: NA
Analysis Lot: 822418

Lab Control Sample
KQ2319585-02

Duplicate Lab Control Sample
KQ2319585-03

Analyte Name	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
trans-1,2-Dichloroethene	10.2	10.0	102	9.61	10.0	96	67-125	6	30
trans-1,3-Dichloropropene	7.92	10.0	79	7.91	10.0	79	59-125	<1	30
trans-1,4-Dichloro-2-butene	24.7	30.0	82	24.6	30.0	82	46-170	<1	30
Trichloroethene (TCE)	9.98	10.0	100	9.67	10.0	97	67-128	3	30
Trichlorofluoromethane (CFC 11)	10.8	10.0	108	10.6	10.0	106	52-141	2	30
Vinyl Acetate	53.3	50.0	107	50.7	50.0	101	44-156	5	30
Vinyl Chloride	9.55	10.0	96	9.38	10.0	94	55-123	2	30

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320
Date Analyzed: 11/03/23
Date Extracted: NA

Duplicate Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Units: ug/L
Basis: NA
Analysis Lot: 822892

Lab Control Sample				Duplicate Lab Control Sample					
KQ2319824-03				KQ2319824-04					
Analyte Name	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	10.2	10.0	102	9.65	10.0	97	66-124	6	30
1,1,1-Trichloroethane (TCA)	10.4	10.0	104	9.78	10.0	98	59-136	6	30
1,1,2,2-Tetrachloroethane	9.25	10.0	93	9.02	10.0	90	70-127	3	30
1,1,2-Trichloroethane	9.77	10.0	98	9.23	10.0	92	74-118	6	30
1,1-Dichloroethane	9.75	10.0	98	9.27	10.0	93	68-132	5	30
1,1-Dichloroethene	9.20	10.0	92	8.71	10.0	87	66-129	5	30
1,2,3-Trichloropropane	9.50	10.0	95	9.26	10.0	93	69-123	3	30
1,2-Dibromo-3-chloropropane	7.70	10.0	77	7.74	10.0	77	55-132	<1	30
1,2-Dibromoethane (EDB)	10.4	10.0	104	9.83	10.0	98	74-118	5	30
1,2-Dichlorobenzene	9.39	10.0	94	9.00	10.0	90	72-115	4	30
1,2-Dichloroethane (EDC)	9.98	10.0	100	9.73	10.0	97	56-142	3	30
1,2-Dichloropropane	9.40	10.0	94	9.06	10.0	91	67-126	4	30
1,4-Dichlorobenzene	9.22	10.0	92	8.97	10.0	90	73-115	3	30
2-Butanone (MEK)	53.8	50.0	108	52.5	50.0	105	71-149	2	30
2-Hexanone	51.1	50.0	102	48.3	50.0	97	59-131	6	30
4-Methyl-2-pentanone (MIBK)	50.0	50.0	100	48.6	50.0	97	64-134	3	30
Acetone	59.1	50.0	118	58.8	50.0	118	68-135	<1	30
Acrylonitrile	41.0	40.0	103	39.9	40.0	100	65-129	3	30
Benzene	9.84	10.0	98	9.36	10.0	94	69-124	5	30
Bromochloromethane	10.6	10.0	106	10.1	10.0	101	75-131	5	30
Bromodichloromethane	10.3	10.0	103	9.75	10.0	98	63-129	5	30
Bromoform	9.71	10.0	97	9.13	10.0	91	52-144	6	30
Bromomethane	7.30	10.0	73	7.61	10.0	76	35-113	4	30
Carbon Disulfide	17.6	20.0	88	16.6	20.0	83	46-144	6	30
Carbon Tetrachloride	10.6	10.0	106	10.1	10.0	101	55-140	5	30
Chlorobenzene	10.2	10.0	102	9.61	10.0	96	72-116	6	30
Chloroethane	9.40	10.0	94	8.89	10.0	89	58-134	6	30
Chloroform	10.7	10.0	107	10.1	10.0	101	70-129	6	30
Chloromethane	8.33	10.0	83	7.86	10.0	79	34-130	6	30
cis-1,2-Dichloroethene	9.76	10.0	98	9.47	10.0	95	71-118	3	30
cis-1,3-Dichloropropene	8.36	10.0	84	8.06	10.0	81	62-132	4	30
Dibromochloromethane	9.09	10.0	91	8.56	10.0	86	67-126	6	30
Dibromomethane	10.7	10.0	107	10.2	10.0	102	69-128	5	30
Ethylbenzene	10.2	10.0	102	9.57	10.0	96	67-121	6	30
Iodomethane	24.2	30.0	81	22.1	30.0	74	51-164	9	30
m,p-Xylenes	20.9	20.0	104	19.5	20.0	97	69-121	7	30
Methylene Chloride	9.19	10.0	92	8.79	10.0	88	71-122	4	30
o-Xylene	10.3	10.0	103	9.56	10.0	96	71-119	7	30
Styrene	10.6	10.0	106	10.0	10.0	100	74-121	6	30
Tetrachloroethene (PCE)	10.1	10.0	101	9.32	10.0	93	62-126	8	30
Toluene	9.97	10.0	100	9.50	10.0	95	69-124	5	30

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320
Date Analyzed: 11/03/23
Date Extracted: NA

Duplicate Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Units: ug/L
Basis: NA
Analysis Lot: 822892

Lab Control Sample
KQ2319824-03

Duplicate Lab Control Sample
KQ2319824-04

Analyte Name	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
trans-1,2-Dichloroethene	9.80	10.0	98	9.25	10.0	93	67-125	6	30
trans-1,3-Dichloropropene	8.09	10.0	81	7.66	10.0	77	59-125	5	30
trans-1,4-Dichloro-2-butene	23.8	30.0	79	22.7	30.0	76	46-170	4	30
Trichloroethene (TCE)	9.87	10.0	99	9.37	10.0	94	67-128	5	30
Trichlorofluoromethane (CFC 11)	10.5	10.0	105	10.0	10.0	100	52-141	5	30
Vinyl Acetate	48.0	50.0	96	45.4	50.0	91	44-156	5	30
Vinyl Chloride	9.46	10.0	95	8.86	10.0	89	55-123	7	30

ALS Group USA, Corp.
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QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320

SURROGATE RECOVERY SUMMARY
Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C

Extraction Method: None

Sample Name	Lab Code	4-Bromofluorobenzene	Dibromofluoromethane	Toluene-d8
		68 - 117	73 - 122	65 - 144
W17-1029	K2312320-017	94	107	99
W18-1029	K2312320-018	92	104	98
Trip Blank	K2312320-019	93	105	99
Lab Control Sample	KQ2319585-02	104	109	106
Duplicate Lab Control Sample	KQ2319585-03	105	107	105
Method Blank	KQ2319585-04	95	103	99
Lab Control Sample	KQ2319626-03	104	107	106
Duplicate Lab Control Sample	KQ2319626-04	103	107	105
Method Blank	KQ2319626-05	93	100	99

ALS Group USA, Corp.
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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: Method Blank
Lab Code: KQ2319585-04

Service Request: K2312320
Date Collected: NA
Date Received: NA

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Acetone	ND U	20	1	10/31/23 13:30	
Acrylonitrile	ND U	5.0	1	10/31/23 13:30	
Benzene	ND U	0.50	1	10/31/23 13:30	
Bromochloromethane	ND U	0.50	1	10/31/23 13:30	
Bromodichloromethane	ND U	0.50	1	10/31/23 13:30	
Bromoform	ND U	0.50	1	10/31/23 13:30	
Bromomethane	ND U	0.50	1	10/31/23 13:30	
2-Butanone (MEK)	ND U	20	1	10/31/23 13:30	
Carbon Disulfide	ND U	0.50	1	10/31/23 13:30	
Carbon Tetrachloride	ND U	0.50	1	10/31/23 13:30	
Chlorobenzene	ND U	0.50	1	10/31/23 13:30	
Chloroethane	ND U	0.50	1	10/31/23 13:30	
Chloroform	ND U	0.50	1	10/31/23 13:30	
Chloromethane	ND U	0.50	1	10/31/23 13:30	
1,2-Dibromo-3-chloropropane	ND U	2.0	1	10/31/23 13:30	
Dibromochloromethane	ND U	0.50	1	10/31/23 13:30	
1,2-Dibromoethane (EDB)	ND U	2.0	1	10/31/23 13:30	
Dibromomethane	ND U	0.50	1	10/31/23 13:30	
trans-1,4-Dichloro-2-butene	ND U	10	1	10/31/23 13:30	
1,2-Dichlorobenzene	ND U	0.50	1	10/31/23 13:30	
1,4-Dichlorobenzene	ND U	0.50	1	10/31/23 13:30	
1,1-Dichloroethane	ND U	0.50	1	10/31/23 13:30	
1,2-Dichloroethane (EDC)	ND U	0.50	1	10/31/23 13:30	
1,1-Dichloroethene	ND U	0.50	1	10/31/23 13:30	
cis-1,2-Dichloroethene	ND U	0.50	1	10/31/23 13:30	
trans-1,2-Dichloroethene	ND U	0.50	1	10/31/23 13:30	
1,2-Dichloropropane	ND U	0.50	1	10/31/23 13:30	
cis-1,3-Dichloropropene	ND U	0.50	1	10/31/23 13:30	
trans-1,3-Dichloropropene	ND U	0.50	1	10/31/23 13:30	
Ethylbenzene	ND U	0.50	1	10/31/23 13:30	
2-Hexanone	ND U	20	1	10/31/23 13:30	
Iodomethane	ND U	5.0	1	10/31/23 13:30	
4-Methyl-2-pentanone (MIBK)	ND U	20	1	10/31/23 13:30	
Methylene Chloride	ND U	2.0	1	10/31/23 13:30	
Styrene	ND U	0.50	1	10/31/23 13:30	
1,1,1,2-Tetrachloroethane	ND U	0.50	1	10/31/23 13:30	
1,1,2,2-Tetrachloroethane	ND U	0.50	1	10/31/23 13:30	
Tetrachloroethene (PCE)	ND U	0.50	1	10/31/23 13:30	
Toluene	ND U	0.50	1	10/31/23 13:30	
1,1,2-Trichloroethane	ND U	0.50	1	10/31/23 13:30	
1,1,1-Trichloroethane (TCA)	ND U	0.50	1	10/31/23 13:30	

ALS Group USA, Corp.
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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: Method Blank
Lab Code: KQ2319585-04

Service Request: K2312320
Date Collected: NA
Date Received: NA

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Trichloroethene (TCE)	ND U	0.50	1	10/31/23 13:30	
Trichlorofluoromethane (CFC 11)	ND U	0.50	1	10/31/23 13:30	
1,2,3-Trichloropropane	ND U	0.50	1	10/31/23 13:30	
Vinyl Acetate	ND U	5.0	1	10/31/23 13:30	
Vinyl Chloride	ND U	0.50	1	10/31/23 13:30	
o-Xylene	ND U	0.50	1	10/31/23 13:30	
m,p-Xylenes	ND U	0.50	1	10/31/23 13:30	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	95	68 - 117	10/31/23 13:30	
Dibromofluoromethane	103	73 - 122	10/31/23 13:30	
Toluene-d8	99	65 - 144	10/31/23 13:30	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: Method Blank
Lab Code: KQ2319626-05

Service Request: K2312320
Date Collected: NA
Date Received: NA

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Acetone	ND U	20	1	11/02/23 12:39	
Acrylonitrile	ND U	5.0	1	11/02/23 12:39	
Benzene	ND U	0.50	1	11/02/23 12:39	
Bromochloromethane	ND U	0.50	1	11/02/23 12:39	
Bromodichloromethane	ND U	0.50	1	11/02/23 12:39	
Bromoform	ND U	0.50	1	11/02/23 12:39	
Bromomethane	ND U	0.50	1	11/02/23 12:39	
2-Butanone (MEK)	ND U	20	1	11/02/23 12:39	
Carbon Disulfide	ND U	0.50	1	11/02/23 12:39	
Carbon Tetrachloride	ND U	0.50	1	11/02/23 12:39	
Chlorobenzene	ND U	0.50	1	11/02/23 12:39	
Chloroethane	ND U	0.50	1	11/02/23 12:39	
Chloroform	ND U	0.50	1	11/02/23 12:39	
Chloromethane	ND U	0.50	1	11/02/23 12:39	
1,2-Dibromo-3-chloropropane	ND U	2.0	1	11/02/23 12:39	
Dibromochloromethane	ND U	0.50	1	11/02/23 12:39	
1,2-Dibromoethane (EDB)	ND U	2.0	1	11/02/23 12:39	
Dibromomethane	ND U	0.50	1	11/02/23 12:39	
trans-1,4-Dichloro-2-butene	ND U	10	1	11/02/23 12:39	
1,2-Dichlorobenzene	ND U	0.50	1	11/02/23 12:39	
1,4-Dichlorobenzene	ND U	0.50	1	11/02/23 12:39	
1,1-Dichloroethane	ND U	0.50	1	11/02/23 12:39	
1,2-Dichloroethane (EDC)	ND U	0.50	1	11/02/23 12:39	
1,1-Dichloroethene	ND U	0.50	1	11/02/23 12:39	
cis-1,2-Dichloroethene	ND U	0.50	1	11/02/23 12:39	
trans-1,2-Dichloroethene	ND U	0.50	1	11/02/23 12:39	
1,2-Dichloropropane	ND U	0.50	1	11/02/23 12:39	
cis-1,3-Dichloropropene	ND U	0.50	1	11/02/23 12:39	
trans-1,3-Dichloropropene	ND U	0.50	1	11/02/23 12:39	
Ethylbenzene	ND U	0.50	1	11/02/23 12:39	
2-Hexanone	ND U	20	1	11/02/23 12:39	
Iodomethane	ND U	5.0	1	11/02/23 12:39	
4-Methyl-2-pentanone (MIBK)	ND U	20	1	11/02/23 12:39	
Methylene Chloride	ND U	2.0	1	11/02/23 12:39	
Styrene	ND U	0.50	1	11/02/23 12:39	
1,1,1,2-Tetrachloroethane	ND U	0.50	1	11/02/23 12:39	
1,1,2,2-Tetrachloroethane	ND U	0.50	1	11/02/23 12:39	
Tetrachloroethene (PCE)	ND U	0.50	1	11/02/23 12:39	
Toluene	ND U	0.50	1	11/02/23 12:39	
1,1,2-Trichloroethane	ND U	0.50	1	11/02/23 12:39	
1,1,1-Trichloroethane (TCA)	ND U	0.50	1	11/02/23 12:39	

ALS Group USA, Corp.
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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Sample Name: Method Blank
Lab Code: KQ2319626-05

Service Request: K2312320
Date Collected: NA
Date Received: NA

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Trichloroethene (TCE)	ND U	0.50	1	11/02/23 12:39	
Trichlorofluoromethane (CFC 11)	ND U	0.50	1	11/02/23 12:39	
1,2,3-Trichloropropane	ND U	0.50	1	11/02/23 12:39	
Vinyl Acetate	ND U	5.0	1	11/02/23 12:39	
Vinyl Chloride	ND U	0.50	1	11/02/23 12:39	
o-Xylene	ND U	0.50	1	11/02/23 12:39	
m,p-Xylenes	ND U	0.50	1	11/02/23 12:39	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	93	68 - 117	11/02/23 12:39	
Dibromofluoromethane	100	73 - 122	11/02/23 12:39	
Toluene-d8	99	65 - 144	11/02/23 12:39	

ALS Group USA, Corp.
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QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320
Date Analyzed: 10/31/23
Date Extracted: NA

Duplicate Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Units: ug/L
Basis: NA
Analysis Lot: 822418

Lab Control Sample				Duplicate Lab Control Sample					
KQ2319585-02				KQ2319585-03					
Analyte Name	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	9.80	10.0	98	9.52	10.0	95	66-124	3	30
1,1,1-Trichloroethane (TCA)	10.5	10.0	105	10.3	10.0	103	59-136	2	30
1,1,2,2-Tetrachloroethane	8.99	10.0	90	8.90	10.0	89	70-127	1	30
1,1,2-Trichloroethane	9.42	10.0	94	9.43	10.0	94	74-118	<1	30
1,1-Dichloroethane	9.78	10.0	98	9.47	10.0	95	68-132	3	30
1,1-Dichloroethene	9.45	10.0	95	9.17	10.0	92	66-129	3	30
1,2,3-Trichloropropane	9.02	10.0	90	8.90	10.0	89	69-123	1	30
1,2-Dibromo-3-chloropropane	7.46	10.0	75	7.21	10.0	72	55-132	3	30
1,2-Dibromoethane (EDB)	10.1	10.0	101	9.93	10.0	99	74-118	2	30
1,2-Dichlorobenzene	9.01	10.0	90	8.95	10.0	90	72-115	<1	30
1,2-Dichloroethane (EDC)	10.1	10.0	101	9.57	10.0	96	56-142	5	30
1,2-Dichloropropane	9.29	10.0	93	9.07	10.0	91	67-126	2	30
1,4-Dichlorobenzene	8.91	10.0	89	8.67	10.0	87	73-115	3	30
2-Butanone (MEK)	58.6	50.0	117	55.1	50.0	110	71-149	6	30
2-Hexanone	55.9	50.0	112	54.4	50.0	109	59-131	3	30
4-Methyl-2-pentanone (MIBK)	53.9	50.0	108	52.2	50.0	104	64-134	3	30
Acetone	57.9	50.0	116	60.3	50.0	121	68-135	4	30
Acrylonitrile	44.1	40.0	110	43.4	40.0	109	65-129	2	30
Benzene	9.90	10.0	99	9.56	10.0	96	69-124	3	30
Bromochloromethane	10.6	10.0	106	10.2	10.0	102	75-131	3	30
Bromodichloromethane	10.0	10.0	100	9.68	10.0	97	63-129	3	30
Bromoform	9.34	10.0	93	9.20	10.0	92	52-144	2	30
Bromomethane	7.56	10.0	76	7.22	10.0	72	35-113	5	30
Carbon Disulfide	18.9	20.0	94	18.5	20.0	92	46-144	2	30
Carbon Tetrachloride	10.9	10.0	109	10.5	10.0	105	55-140	3	30
Chlorobenzene	9.86	10.0	99	9.54	10.0	95	72-116	3	30
Chloroethane	9.15	10.0	92	8.86	10.0	89	58-134	3	30
Chloroform	10.6	10.0	106	10.2	10.0	102	70-129	4	30
Chloromethane	8.14	10.0	81	7.98	10.0	80	34-130	2	30
cis-1,2-Dichloroethene	9.94	10.0	99	9.52	10.0	95	71-118	4	30
cis-1,3-Dichloropropene	8.25	10.0	83	8.12	10.0	81	62-132	2	30
Dibromochloromethane	8.63	10.0	86	8.65	10.0	87	67-126	<1	30
Dibromomethane	10.4	10.0	104	10.2	10.0	102	69-128	2	30
Ethylbenzene	10.1	10.0	101	9.78	10.0	98	67-121	3	30
Iodomethane	26.6	30.0	89	24.6	30.0	82	51-164	8	30
m,p-Xylenes	20.5	20.0	102	19.8	20.0	99	69-121	3	30
Methylene Chloride	9.15	10.0	92	9.01	10.0	90	71-122	2	30
o-Xylene	9.91	10.0	99	9.78	10.0	98	71-119	1	30
Styrene	10.2	10.0	102	9.89	10.0	99	74-121	3	30
Tetrachloroethene (PCE)	10.2	10.0	102	9.59	10.0	96	62-126	6	30
Toluene	9.92	10.0	99	9.56	10.0	96	69-124	4	30

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320
Date Analyzed: 10/31/23
Date Extracted: NA

Duplicate Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Units: ug/L
Basis: NA
Analysis Lot: 822418

Lab Control Sample KQ2319585-02				Duplicate Lab Control Sample KQ2319585-03					
Analyte Name	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
trans-1,2-Dichloroethene	10.2	10.0	102	9.61	10.0	96	67-125	6	30
trans-1,3-Dichloropropene	7.92	10.0	79	7.91	10.0	79	59-125	<1	30
trans-1,4-Dichloro-2-butene	24.7	30.0	82	24.6	30.0	82	46-170	<1	30
Trichloroethene (TCE)	9.98	10.0	100	9.67	10.0	97	67-128	3	30
Trichlorofluoromethane (CFC 11)	10.8	10.0	108	10.6	10.0	106	52-141	2	30
Vinyl Acetate	53.3	50.0	107	50.7	50.0	101	44-156	5	30
Vinyl Chloride	9.55	10.0	96	9.38	10.0	94	55-123	2	30

ALS Group USA, Corp.
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QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320
Date Analyzed: 11/02/23
Date Extracted: NA

Duplicate Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Units: ug/L
Basis: NA
Analysis Lot: 822707

Lab Control Sample KQ2319626-03				Duplicate Lab Control Sample KQ2319626-04					
Analyte Name	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	10.9	10.0	109	10.2	10.0	102	66-124	7	30
1,1,1-Trichloroethane (TCA)	10.4	10.0	104	9.76	10.0	98	59-136	7	30
1,1,2,2-Tetrachloroethane	9.88	10.0	99	9.68	10.0	97	70-127	2	30
1,1,2-Trichloroethane	10.3	10.0	103	9.87	10.0	99	74-118	5	30
1,1-Dichloroethane	10.5	10.0	105	9.78	10.0	98	68-132	7	30
1,1-Dichloroethene	9.27	10.0	93	8.62	10.0	86	66-129	7	30
1,2,3-Trichloropropane	10.2	10.0	102	9.85	10.0	99	69-123	4	30
1,2-Dibromo-3-chloropropane	8.31	10.0	83	7.70	10.0	77	55-132	8	30
1,2-Dibromoethane (EDB)	11.1	10.0	111	10.5	10.0	105	74-118	6	30
1,2-Dichlorobenzene	10.2	10.0	102	9.64	10.0	96	72-115	6	30
1,2-Dichloroethane (EDC)	10.9	10.0	109	10.3	10.0	103	56-142	6	30
1,2-Dichloropropane	10.2	10.0	102	9.62	10.0	96	67-126	6	30
1,4-Dichlorobenzene	10.1	10.0	101	9.52	10.0	95	73-115	6	30
2-Butanone (MEK)	60.2	50.0	120	57.6	50.0	115	71-149	4	30
2-Hexanone	58.3	50.0	117	54.0	50.0	108	59-131	8	30
4-Methyl-2-pentanone (MIBK)	55.5	50.0	111	51.8	50.0	104	64-134	7	30
Acetone	60.6	50.0	121	60.7	50.0	121	68-135	<1	30
Acrylonitrile	45.1	40.0	113	43.3	40.0	108	65-129	4	30
Benzene	10.6	10.0	106	9.86	10.0	99	69-124	7	30
Bromochloromethane	11.6	10.0	116	10.8	10.0	108	75-131	7	30
Bromodichloromethane	11.1	10.0	111	10.3	10.0	103	63-129	7	30
Bromoform	10.3	10.0	103	9.70	10.0	97	52-144	6	30
Bromomethane	8.63	10.0	86	8.11	10.0	81	35-113	6	30
Carbon Disulfide	17.8	20.0	89	16.7	20.0	83	46-144	6	30
Carbon Tetrachloride	10.6	10.0	106	9.69	10.0	97	55-140	9	30
Chlorobenzene	10.9	10.0	109	10.1	10.0	101	72-116	7	30
Chloroethane	9.59	10.0	96	9.03	10.0	90	58-134	6	30
Chloroform	11.3	10.0	113	10.8	10.0	108	70-129	5	30
Chloromethane	8.64	10.0	86	8.21	10.0	82	34-130	5	30
cis-1,2-Dichloroethene	10.6	10.0	106	9.89	10.0	99	71-118	7	30
cis-1,3-Dichloropropene	9.28	10.0	93	8.73	10.0	87	62-132	6	30
Dibromochloromethane	9.63	10.0	96	9.03	10.0	90	67-126	6	30
Dibromomethane	11.3	10.0	113	11.0	10.0	110	69-128	3	30
Ethylbenzene	10.7	10.0	107	9.88	10.0	99	67-121	8	30
Iodomethane	28.1	30.0	94	25.9	30.0	86	51-164	8	30
m,p-Xylenes	21.9	20.0	109	20.2	20.0	101	69-121	8	30
Methylene Chloride	10.1	10.0	101	9.68	10.0	97	71-122	4	30
o-Xylene	11.0	10.0	110	10.2	10.0	102	71-119	7	30
Styrene	10.9	10.0	109	10.2	10.0	102	74-121	6	30
Tetrachloroethene (PCE)	10.2	10.0	102	9.40	10.0	94	62-126	8	30
Toluene	10.6	10.0	106	9.92	10.0	99	69-124	7	30

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QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320
Date Analyzed: 11/02/23
Date Extracted: NA

Duplicate Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Units: ug/L
Basis: NA
Analysis Lot: 822707

Lab Control Sample				Duplicate Lab Control Sample					
KQ2319626-03				KQ2319626-04					
Analyte Name	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
trans-1,2-Dichloroethene	10.5	10.0	105	9.62	10.0	96	67-125	9	30
trans-1,3-Dichloropropene	8.93	10.0	89	8.36	10.0	84	59-125	7	30
trans-1,4-Dichloro-2-butene	27.8	30.0	93	27.5	30.0	92	46-170	1	30
Trichloroethene (TCE)	10.4	10.0	104	9.66	10.0	97	67-128	7	30
Trichlorofluoromethane (CFC 11)	10.2	10.0	102	9.57	10.0	96	52-141	6	30
Vinyl Acetate	55.1	50.0	110	51.0	50.0	102	44-156	8	30
Vinyl Chloride	9.47	10.0	95	8.86	10.0	89	55-123	7	30



Metals

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
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www.alsglobal.com

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: KQ2319249-01

Service Request: K2312320
Date Collected: NA
Date Received: NA
Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Antimony	200.8	ND U	ug/L	0.050	0.020	1	11/16/23 10:50	11/09/23	
Arsenic	200.8	ND U	ug/L	0.50	0.09	1	11/16/23 10:50	11/09/23	
Barium	200.8	ND U	ug/L	0.050	0.020	1	11/16/23 10:50	11/09/23	
Beryllium	200.8	ND U	ug/L	0.020	0.005	1	11/16/23 10:50	11/09/23	
Cadmium	200.8	ND U	ug/L	0.020	0.008	1	11/16/23 10:50	11/09/23	
Chromium	200.8	ND U	ug/L	0.20	0.03	1	11/16/23 10:50	11/09/23	
Cobalt	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 10:50	11/09/23	
Copper	200.8	ND U	ug/L	0.10	0.05	1	11/16/23 10:50	11/09/23	
Lead	200.8	ND U	ug/L	0.020	0.006	1	11/16/23 10:50	11/09/23	
Nickel	200.8	ND U	ug/L	0.20	0.04	1	11/16/23 10:50	11/09/23	
Selenium	200.8	ND U	ug/L	1.0	0.2	1	11/16/23 10:50	11/09/23	
Silver	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 10:50	11/09/23	
Thallium	200.8	ND U	ug/L	0.020	0.009	1	11/16/23 10:50	11/09/23	
Vanadium	200.8	ND U	ug/L	0.20	0.04	1	11/16/23 10:50	11/09/23	
Zinc	200.8	ND U	ug/L	2.0	0.5	1	11/16/23 10:50	11/09/23	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: KQ2319250-01

Service Request: K2312320
Date Collected: NA
Date Received: NA
Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Calcium	200.7	5 J	ug/L	21	3	1	11/20/23 08:52	11/09/23	
Iron	200.7	ND U	ug/L	21	8	1	11/20/23 08:52	11/09/23	
Magnesium	200.7	3.0 J	ug/L	5.3	0.4	1	11/20/23 08:52	11/09/23	
Manganese	200.7	ND U	ug/L	1.1	0.2	1	11/20/23 08:52	11/09/23	
Potassium	200.7	ND U	ug/L	210	60	1	11/20/23 08:52	11/09/23	
Sodium	200.7	ND U	ug/L	210	30	1	11/20/23 08:52	11/09/23	

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QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320
Date Collected: 10/29/23
Date Received: 10/30/23
Date Analyzed: 11/16/23
Date Extracted: 11/9/23

Matrix Spike Summary
Total Metals

Sample Name: W1-1029
Lab Code: K2312320-001
Analysis Method: 200.8
Prep Method: EPA CLP ILM04.0

Units: ug/L
Basis: NA

Matrix Spike
KQ2319249-04

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Antimony	0.042 J	9.44	10.0	94	70-130
Arsenic	0.46 J	47.3	50.0	94	70-130
Barium	44.5	147	100	103	70-130
Beryllium	0.008 J	2.59	2.50	103	70-130
Cadmium	0.014 J	24.2	25.0	97	70-130
Chromium	0.23	10.2	10.0	100	70-130
Cobalt	0.990	24.8	25.0	95	70-130
Copper	0.63	12.7	12.5	96	70-130
Lead	0.009 J	47.0	50.0	94	70-130
Nickel	2.63	26.3	25.0	95	70-130
Selenium	ND U	49.7	50.0	99	70-130
Silver	ND U	12.5	12.5	100	70-130
Thallium	ND U	47.5	50.0	95	70-130
Vanadium	1.16	26.1	25.0	100	70-130
Zinc	ND U	24.2	25.0	97	70-130

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320
Date Collected: 10/29/23
Date Received: 10/30/23
Date Analyzed: 11/16/23
Date Extracted: 11/9/23

Matrix Spike Summary
Total Metals

Sample Name: W2-1029
Lab Code: K2312320-002
Analysis Method: 200.8
Prep Method: EPA CLP ILM04.0

Units: ug/L
Basis: NA

Matrix Spike
KQ2319249-06

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Antimony	0.031 J	9.84	10.0	98	70-130
Arsenic	3.95	51.5	50.0	95	70-130
Barium	22.9	130	100	107	70-130
Beryllium	0.034	2.61	2.50	103	70-130
Cadmium	0.024	24.9	25.0	100	70-130
Chromium	1.29	11.4	10.0	102	70-130
Cobalt	1.28	26.2	25.0	100	70-130
Copper	1.48	13.5	12.5	96	70-130
Lead	ND U	47.7	50.0	95	70-130
Nickel	1.42	26.2	25.0	99	70-130
Selenium	ND U	52.5	50.0	105	70-130
Silver	ND U	12.9	12.5	103	70-130
Thallium	ND U	48.9	50.0	98	70-130
Vanadium	5.39	31.2	25.0	103	70-130
Zinc	0.6 J	25.5	25.0	99	70-130

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Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320
Date Collected: 10/29/23
Date Received: 10/30/23
Date Analyzed: 11/20/23
Date Extracted: 11/9/23

Matrix Spike Summary
Total Metals

Sample Name: W14-1029
Lab Code: K2312320-014
Analysis Method: 200.7
Prep Method: EPA CLP ILM04.0

Units: ug/L
Basis: NA

Matrix Spike
KQ2319250-04

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Calcium	17800	28200	10000	104	70-130
Iron	3990	5050	1000	107	70-130
Magnesium	5970	17800	10000	119	70-130
Manganese	161	651	500	98	70-130
Potassium	7450	18500	10000	111	70-130
Sodium	12000	23000	10000	110	70-130

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QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320
Date Collected: 10/29/23
Date Received: 10/30/23
Date Analyzed: 11/20/23
Date Extracted: 11/9/23

Matrix Spike Summary
Total Metals

Sample Name: W15-1029
Lab Code: K2312320-015
Analysis Method: 200.7
Prep Method: EPA CLP ILM04.0

Units: ug/L
Basis: NA

Matrix Spike
KQ2319250-06

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Calcium	34100	43300	10000	92	70-130
Iron	1460	2460	1000	99	70-130
Magnesium	13400	24200	10000	108	70-130
Manganese	140	616	500	95	70-130
Potassium	11500	22100	10000	107	70-130
Sodium	5990	16700	10000	107	70-130

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Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320

Date Collected: 10/29/23

Date Received: 10/30/23

Date Analyzed: 11/16/23

Replicate Sample Summary

Total Metals

Sample Name: W1-1029
Lab Code: K2312320-001

Units: ug/L

Basis: NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2319249-03	Average	RPD	RPD Limit
					Result			
Antimony	200.8	0.050	0.020	0.042 J	0.027 J	0.035	43 #	20
Arsenic	200.8	0.50	0.09	0.46 J	0.53	0.50	14	20
Barium	200.8	0.050	0.020	44.5	43.7	44.1	2	20
Beryllium	200.8	0.020	0.005	0.008 J	0.009 J	0.009	12	20
Cadmium	200.8	0.020	0.008	0.014 J	0.014 J	0.014	<1	20
Chromium	200.8	0.20	0.03	0.23	0.22	0.23	4	20
Cobalt	200.8	0.020	0.009	0.990	1.01	1.00	2	20
Copper	200.8	0.10	0.05	0.63	0.69	0.66	9	20
Lead	200.8	0.020	0.006	0.009 J	0.009 J	0.009	<1	20
Nickel	200.8	0.20	0.04	2.63	2.67	2.65	2	20
Selenium	200.8	1.0	0.2	ND U	ND U	ND	-	20
Silver	200.8	0.020	0.009	ND U	ND U	ND	-	20
Thallium	200.8	0.020	0.009	ND U	ND U	ND	-	20
Vanadium	200.8	0.20	0.04	1.16	1.08	1.12	7	20
Zinc	200.8	2.0	0.5	ND U	0.5 J	NC	NC	20

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ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Cowlitz County Public Works
Project Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320

Date Collected: 10/29/23

Date Received: 10/30/23

Date Analyzed: 11/16/23

Replicate Sample Summary

Total Metals

Sample Name: W2-1029

Units: ug/L

Lab Code: K2312320-002

Basis: NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2319249-05	Average	RPD	RPD Limit
					Result			
Antimony	200.8	0.050	0.020	0.031 J	0.040 J	0.036	25 #	20
Arsenic	200.8	0.50	0.09	3.95	3.76	3.86	5	20
Barium	200.8	0.050	0.020	22.9	23.2	23.1	1	20
Beryllium	200.8	0.020	0.005	0.034	0.029	0.032	16	20
Cadmium	200.8	0.020	0.008	0.024	0.016 J	0.020	40 #	20
Chromium	200.8	0.20	0.03	1.29	1.19	1.24	8	20
Cobalt	200.8	0.020	0.009	1.28	1.24	1.26	3	20
Copper	200.8	0.10	0.05	1.48	1.58	1.53	7	20
Lead	200.8	0.020	0.006	ND U	ND U	ND	-	20
Nickel	200.8	0.20	0.04	1.42	1.43	1.43	<1	20
Selenium	200.8	1.0	0.2	ND U	ND U	ND	-	20
Silver	200.8	0.020	0.009	ND U	ND U	ND	-	20
Thallium	200.8	0.020	0.009	ND U	ND U	ND	-	20
Vanadium	200.8	0.20	0.04	5.39	5.36	5.38	<1	20
Zinc	200.8	2.0	0.5	0.6 J	0.6 J	0.6	<1	20

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Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.

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QA/QC Report

Client: Cowlitz County Public Works
Project Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320**Date Collected:** 10/29/23**Date Received:** 10/30/23**Date Analyzed:** 11/20/23**Replicate Sample Summary****Total Metals**

Sample Name: W14-1029
Lab Code: K2312320-014

Units: ug/L**Basis:** NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample	Average	RPD	RPD Limit
					KQ2319250-03 Result			
Calcium	200.7	21	3	17800	18100	18000	2	20
Iron	200.7	21	8	3990	4060	4030	2	20
Magnesium	200.7	5.3	0.4	5970	6060	6020	1	20
Manganese	200.7	1.1	0.2	161	163	162	1	20
Potassium	200.7	210	60	7450	7520	7490	<1	20
Sodium	200.7	210	30	12000	12100	12100	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.

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QA/QC Report

Client: Cowlitz County Public Works
Project Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320**Date Collected:** 10/29/23**Date Received:** 10/30/23**Date Analyzed:** 11/20/23**Replicate Sample Summary****Total Metals**

Sample Name: W15-1029
Lab Code: K2312320-015

Units: ug/L**Basis:** NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2319250-05	Average	RPD	RPD Limit
					Result			
Calcium	200.7	21	3	34100	33700	33900	1	20
Iron	200.7	21	8	1460	1450	1460	<1	20
Magnesium	200.7	5.3	0.4	13400	13300	13400	<1	20
Manganese	200.7	1.1	0.2	140	136	138	3	20
Potassium	200.7	210	60	11500	11400	11500	<1	20
Sodium	200.7	210	30	5990	5980	5990	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320
Date Analyzed: 11/16/23

Lab Control Sample Summary
Total Metals

Units:ug/L
Basis:NA

Lab Control Sample
KQ2319249-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Antimony	200.8	9.24	10.0	92	85-115
Arsenic	200.8	47.9	50.0	96	85-115
Barium	200.8	101	100	101	85-115
Beryllium	200.8	2.55	2.50	102	85-115
Cadmium	200.8	24.7	25.0	99	85-115
Chromium	200.8	10.1	10.0	101	85-115
Cobalt	200.8	24.6	25.0	98	85-115
Copper	200.8	12.1	12.5	97	85-115
Lead	200.8	49.4	50.0	99	85-115
Nickel	200.8	24.3	25.0	97	85-115
Selenium	200.8	53.1	50.0	106	85-115
Silver	200.8	12.6	12.5	101	85-115
Thallium	200.8	49.6	50.0	99	85-115
Vanadium	200.8	24.9	25.0	100	85-115
Zinc	200.8	25.3	25.0	101	85-115

ALS Group USA, Corp.
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QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320
Date Analyzed: 11/20/23

Lab Control Sample Summary
Total Metals

Units:ug/L
Basis:NA

Lab Control Sample
KQ2319250-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Calcium	200.7	12700	12500	102	85-115
Iron	200.7	2580	2500	103	85-115
Magnesium	200.7	13600	12500	109	85-115
Manganese	200.7	1210	1250	97	85-115
Potassium	200.7	13500	12500	108	85-115
Sodium	200.7	13300	12500	106	85-115



General Chemistry

ALS Environmental—Kelso Laboratory
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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: K2312320-MB1

Service Request: K2312320
Date Collected: NA
Date Received: NA
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO3, Total	SM 2320 B	ND U	mg/L	2.0	0.6	1	11/09/23 16:26	
Ammonia as Nitrogen	SM 4500-NH3 E	0.030 J	mg/L	0.050	0.009	1	11/01/23 09:15	
Carbon, Total Organic (TOC)	SM 5310 B	ND U	mg/L	0.50	0.10	1	11/15/23 21:53	
Chloride	300.0	ND U	mg/L	0.10	0.005	1	10/30/23 18:13	
Nitrate as Nitrogen	300.0	ND U	mg/L	0.050	0.013	1	10/30/23 18:13	
Solids, Total Suspended (TSS)	SM 2540 D	ND U	mg/L	5.0	-	1	11/01/23 12:00	
Sulfate	300.0	ND U	mg/L	0.20	0.06	1	10/30/23 18:13	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: K2312320-MB1

Service Request: K2312320
Date Collected: NA
Date Received: NA
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total Dissolved	SM 2540 C	ND U	mg/L	10	-	1	11/02/23 15:42	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: K2312320-MB2

Service Request: K2312320
Date Collected: NA
Date Received: NA
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Alkalinity as CaCO3, Total	SM 2320 B	ND U	mg/L	2.0	0.6	1	11/09/23 19:29	
Chloride	300.0	ND U	mg/L	0.10	0.005	1	10/30/23 21:59	
Nitrate as Nitrogen	300.0	ND U	mg/L	0.050	0.013	1	10/30/23 21:59	
Solids, Total Suspended (TSS)	SM 2540 D	ND U	mg/L	5.0	-	1	11/01/23 12:00	
Sulfate	300.0	ND U	mg/L	0.20	0.06	1	10/30/23 21:59	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: K2312320-MB2

Service Request: K2312320
Date Collected: NA
Date Received: NA
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total Dissolved	SM 2540 C	ND U	mg/L	10	-	1	11/02/23 15:42	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: K2312320-MB3

Service Request: K2312320
Date Collected: NA
Date Received: NA
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Chloride	300.0	0.006 J	mg/L	0.10	0.005	1	10/31/23 01:45	
Nitrate as Nitrogen	300.0	ND U	mg/L	0.050	0.013	1	10/31/23 01:45	
Sulfate	300.0	ND U	mg/L	0.20	0.06	1	10/31/23 01:45	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: K2312320-MB4

Service Request: K2312320
Date Collected: NA
Date Received: NA
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Chloride	300.0	0.006 J	mg/L	0.10	0.005	1	10/31/23 05:31	
Nitrate as Nitrogen	300.0	ND U	mg/L	0.050	0.013	1	10/31/23 05:31	
Sulfate	300.0	ND U	mg/L	0.20	0.06	1	10/31/23 05:31	

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dba ALS Environmental

Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: K2312320-MB5

Service Request: K2312320
Date Collected: NA
Date Received: NA
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Chloride	300.0	ND U	mg/L	0.10	0.005	1	11/13/23 17:05	
Nitrate as Nitrogen	300.0	ND U	mg/L	0.050	0.013	1	10/31/23 12:14	
Sulfate	300.0	ND U	mg/L	0.20	0.06	1	11/13/23 17:05	

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Analytical Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: K2312320-MB6

Service Request: K2312320
Date Collected: NA
Date Received: NA
Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Chloride	300.0	ND U	mg/L	0.10	0.005	1	11/13/23 20:52	
Sulfate	300.0	ND U	mg/L	0.20	0.06	1	11/13/23 20:52	

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QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request:K2312320
Date Collected:10/29/23
Date Received:10/30/23
Date Analyzed:10/30/23 - 11/01/23

Duplicate Matrix Spike Summary
General Chemistry Parameters

Sample Name: W1-1029 **Units:**mg/L
Lab Code: K2312320-001 **Basis:**NA

Matrix Spike
K2312320-001MS

Duplicate Matrix Spike
K2312320-001DMS

Analyte Name	Method	Sample Result	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Ammonia as Nitrogen	SM 4500-NH3 E	0.070	10.4	10.0	103	9.62	10.0	96	80-115	7	20
Chloride	300.0	3.19	10.8	8.00	95	10.8	8.00	95	90-110	<1	20
Nitrate as Nitrogen	300.0	ND U	4.00	4.00	100	3.98	4.00	100	90-110	<1	20
Sulfate	300.0	15.0	22.8	8.00	98	22.8	8.00	97	90-110	<1	20

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Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320
Date Collected: 10/29/23
Date Received: 10/30/23
Date Analyzed: 10/31/23
Date Extracted: NA

Duplicate Matrix Spike Summary
Nitrate as Nitrogen

Sample Name: W11-1029
Lab Code: K2312320-011
Analysis Method: 300.0
Prep Method: None

Units: mg/L
Basis: NA

Analyte Name	Sample Result	Matrix Spike				Duplicate Matrix Spike				RPD	RPD Limit
		K2312320-011MS				K2312320-011DMS					
		Result	Spike Amount	% Rec		Result	Spike Amount	% Rec	% Rec Limits		
Nitrate as Nitrogen	12.9	32.5	20.0	98	32.3	20.0	97	90-110	<1	20	

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Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

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QA/QC Report

Client: Cowlitz County Public Works
Project Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320
Date Collected: 10/29/23
Date Received: 10/30/23
Date Analyzed: 10/30/23 - 11/01/23

Replicate Sample Summary
General Chemistry Parameters

Sample Name: W1-1029
Lab Code: K2312320-001

Units: mg/L
Basis: NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample K2312320-001DUP	Average	RPD	RPD Limit
					Result			
Ammonia as Nitrogen	SM 4500-NH3 E	0.050	0.009	0.070	0.070	0.0700	<1	20
Chloride	300.0	0.20	0.010	3.19	3.17	3.18	<1	20
Nitrate as Nitrogen	300.0	0.10	0.03	ND U	ND U	NC	NC	20
Sulfate	300.0	0.40	0.12	15.0	15.0	15.0	<1	20

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QA/QC Report

Client: Cowlitz County Public Works
Project Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320**Date Collected:** 10/29/23**Date Received:** 10/30/23**Date Analyzed:** 11/02/23**Replicate Sample Summary
General Chemistry Parameters****Sample Name:** W5-1029**Units:** mg/L**Lab Code:** K2312320-005**Basis:** NA

					Duplicate Sample K2312320- 005DUP			
Analyte Name	Analysis Method	MRL	MDL	Sample Result	Result	Average	RPD	RPD Limit
Solids, Total Dissolved	SM 2540 C	10	-	404	402	403	<1	5

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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dba ALS Environmental

QA/QC Report

Client: Cowlitz County Public Works
Project Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320**Date Collected:** 10/29/23**Date Received:** 10/30/23**Date Analyzed:** 11/01/23**Replicate Sample Summary
General Chemistry Parameters****Sample Name:** W6-1029**Units:** mg/L**Lab Code:** K2312320-006**Basis:** NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample K2312320- 006DUP	Average	RPD	RPD Limit
					Result			
Solids, Total Suspended (TSS)	SM 2540 D	5.0	-	ND U	ND U	NC	NC	5

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client: Cowlitz County Public Works
Project Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320
Date Collected: 10/29/23
Date Received: 10/30/23
Date Analyzed: 10/31/23 - 11/09/23

Replicate Sample Summary
General Chemistry Parameters

Sample Name: W11-1029 **Units:** mg/L
Lab Code: K2312320-011 **Basis:** NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample K2312320-011DUP	Average	RPD	RPD Limit
					Result			
Nitrate as Nitrogen	300.0	0.50	0.13	12.9	12.4	12.7	4	20
Alkalinity as CaCO3, Total	SM 2320 B	2.0	0.6	74.1	74.3	74.2	<1	20

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Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.

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QA/QC Report

Client: Cowlitz County Public Works
Project Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320**Date Collected:** 10/29/23**Date Received:** 10/30/23**Date Analyzed:** 11/09/23**Replicate Sample Summary
General Chemistry Parameters****Sample Name:** W17-1029**Units:** mg/L**Lab Code:** K2312320-017**Basis:** NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample K2312320-017DUP	Average	RPD	RPD Limit
					Result			
Alkalinity as CaCO3, Total	SM 2320 B	2.0	0.6	2500	2500	2500	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320
Date Analyzed: 10/30/23 - 11/15/23

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
K2312320-LCS1

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Alkalinity as CaCO3, Total	SM 2320 B	154	149	103	85-115
Ammonia as Nitrogen	SM 4500-NH3 E	3.33	3.79	88	85-115
Carbon, Total Organic (TOC)	SM 5310 B	25.4	25.0	102	85-115
Chloride	300.0	4.88	5.00	98	90-110
Nitrate as Nitrogen	300.0	2.51	2.50	100	90-110
Solids, Total Dissolved	SM 2540 C	1380	1430	97	85-115
Solids, Total Suspended (TSS)	SM 2540 D	382	390	98	85-115
Sulfate	300.0	5.02	5.00	100	90-110

ALS Group USA, Corp.

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QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320
Date Analyzed: 10/30/23 - 11/09/23

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L**Basis:**NA**Lab Control Sample**

K2312320-LCS2

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Alkalinity as CaCO ₃ , Total	SM 2320 B	155	149	104	85-115
Chloride	300.0	4.89	5.00	98	90-110
Nitrate as Nitrogen	300.0	2.53	2.50	101	90-110
Sulfate	300.0	5.02	5.00	100	90-110

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320
Date Analyzed: 10/31/23 - 11/09/23

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L**Basis:**NA**Lab Control Sample**

K2312320-LCS3

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Alkalinity as CaCO ₃ , Total	SM 2320 B	155	149	104	85-115
Chloride	300.0	4.84	5.00	97	90-110
Nitrate as Nitrogen	300.0	2.52	2.50	101	90-110
Sulfate	300.0	4.97	5.00	99	90-110

ALS Group USA, Corp.
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QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320
Date Analyzed: 10/31/23 - 11/09/23

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
K2312320-LCS4

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Alkalinity as CaCO3, Total	SM 2320 B	157	149	105	85-115
Chloride	300.0	4.85	5.00	97	90-110
Nitrate as Nitrogen	300.0	2.53	2.50	101	90-110
Sulfate	300.0	4.98	5.00	100	90-110

ALS Group USA, Corp.

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QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320
Date Analyzed: 10/31/23 - 11/13/23

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L**Basis:**NA**Lab Control Sample**

K2312320-LCS5

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Chloride	300.0	4.80	5.00	96	90-110
Nitrate as Nitrogen	300.0	2.51	2.50	100	90-110
Sulfate	300.0	4.94	5.00	99	90-110

ALS Group USA, Corp.

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QA/QC Report

Client: Cowlitz County Public Works
Project: Cowlitz Co.Tennant Way Landfill Detection Monitori
Sample Matrix: Water

Service Request: K2312320**Date Analyzed:** 11/13/23

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L**Basis:**NA**Lab Control Sample**

K2312320-LCS6

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Chloride	300.0	4.83	5.00	97	90-110
Sulfate	300.0	4.98	5.00	100	90-110