

EXHIBIT 11

2024 Annual Water Quality Monitoring Report

Elk River Landfill (SW-74)

|||||

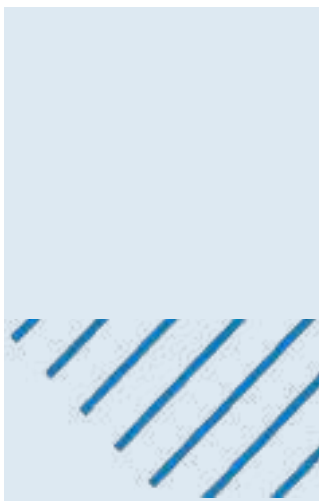
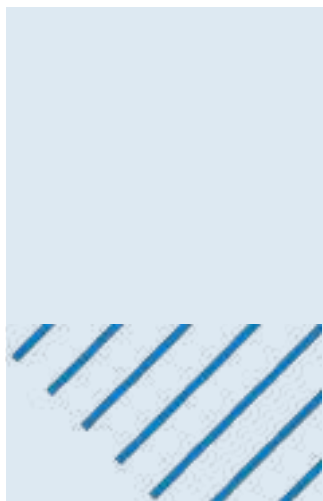
Prepared for
Elk River Landfill, Inc.

Prepared by
Barr Engineering Co.

March 2025

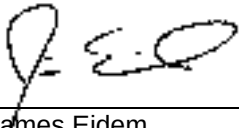
4300 MarketPointe Drive, Suite 200
Minneapolis, MN 55435
952.832.2600

barr.com



Certification

I certify under penalty of law that the hydrogeologic portions of this document and all attachments were prepared under my direction or supervision under a system designed to assure that qualified personnel gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. Furthermore, I certify that I am knowledgeable in the field of hydrogeology.

A handwritten signature in black ink, appearing to read "J. Eidem", written over a horizontal line.

James Eidem
PG #: 44064

February 28, 2025
Date



2024 Annual Water Quality Monitoring Report

March 2024



Contents

1	Introduction	1
1.1	Hydrogeologic Conceptual Model	1
1.2	Monitoring System Description	2
1.2.1	Groundwater Network	2
1.2.2	Residential Wells.....	3
1.2.3	Reporting Limits	4
1.2.4	Lysimeters	4
1.2.5	Leachate	4
2	Results	5
2.1	Groundwater.....	5
2.1.1	Flow.....	5
2.1.2	Quality	6
2.2	Active Gas Collection System Evaluation	11
2.3	Lysimeters	11
2.4	Leachate.....	12
3	2025 Environmental Monitoring	13
4	Conclusions and Recommendations	14
5	References.....	15

Tables

Table 1	2024 Groundwater Monitoring Summary
Table 2	Well Information Index
Table 3	Groundwater Elevations
Table 4	Groundwater Data Compared to Surface Water-Based Intervention Limits
Table 5	Groundwater Data Compared to Groundwater-Based Intervention Limits
Table 6	Groundwater Concentrations Exceeding Surface Water-Based Intervention Limits
Table 7	Groundwater Concentrations Exceeding Groundwater-Based Intervention Limits
Table 8	Baseline Groundwater Data
Table 9	Residential Well Data
Table 10	Lysimeter Purge Volumes
Table 11	Lysimeter Data
Table 12	Quarterly Leachate Data
Table 13	2025 Groundwater Monitoring Plan

Figures

Figure 1	Site Location
Figure 2	Site Map
Figure 3	Fall 2024 Residential Water Supply Wells
Figure 4	Groundwater Elevations – Lower Outwash, October 14, 2024
Figure 5	Groundwater Elevations – Upper Outwash, October 14, 2024
Figure 6	Approximate Organics Extent

Appendices

Appendix A	Previous Groundwater Quality Data and Flow Interpretation
Appendix B	Hydrographs
Appendix C	Inorganic Leachate Indicator Trends
Appendix D	Parameter Concentration Trends
Appendix E	Monitored Natural Attenuation Evaluation

1 Introduction

On behalf of Elk River Landfill, Inc., Barr Engineering Co. (Barr) has prepared this report to present the results of the 2024 environmental monitoring activities at the Elk River Landfill (ERL). The ERL is located on the border of the City of Elk River and Livonia Township in Section 3 of Township 33N and Section 34 of Township 34N, Range 26W, of Sherburne County, Minnesota (Figure 1). The ERL is authorized for operation as a solid waste disposal facility with permit/licenses issued by the Minnesota Pollution Control Agency (MPCA), Sherburne County (County), and the City of Elk River (City).

This report is submitted to address the annual environmental monitoring requirements as specified in Minnesota State Rule 7035.2815, Subpart 14 (Q), and the facility-specific permits. Quarterly monitoring data were submitted to the MPCA, County, and City in the 2024 spring, summer, and fall quarterly monitoring reports (Barr, 2024a; 2024b; and 2025a).

This section of the report provides a description of the hydrogeologic conceptual model and an overview of the environmental monitoring system at the ERL. Section 2.0 includes a discussion of the 2024 environmental monitoring results. Section 3.0 provides an overview of the planned 2025 environmental monitoring network. Conclusions and recommendations regarding future environmental monitoring are included in Section 4.0.

1.1 Hydrogeologic Conceptual Model

Detailed hydrogeologic studies have been completed at the ERL (Geomatrix, 1998 and 1999), the North Development Area (NDA), the South Development Area (SDA), and in/near Rice Lake/Tibbits Brook (RL/TB). The investigations involved geologic logging of boreholes, installation of monitoring wells, and collection of hydrogeologic data. The initial hydrogeologic investigation report for the NDA was submitted as part of the facility permitting process (Geomatrix, 2003). The NDA is permitted and partially developed for the disposal of construction and demolition (C&D) waste and approved industrial waste. An additional hydrogeologic investigation report for the revised NDA was submitted in 2023 (Barr, 2023). A revised hydrogeologic investigation report for the SDA was submitted in 2005 (Geomatrix, 2005a). The investigation of groundwater flow and water quality west of the landfill in the vicinity of RL/TB began in 2003 and was completed in 2018 (Geomatrix, 2004a; 2005b; and 2007; Barr, 2016 and 2018). The findings from these investigations were incorporated into site-wide hydrogeologic evaluation reports (Barr, 2015a; 2016; and 2018) and are presented in the hydrogeologic conceptual model below.

The geology at the ERL includes 100 to 200 feet of glacial deposits overlying Paleozoic bedrock. The predominant glacial deposits include two outwash units, referred to as the upper and lower outwash, and sandy-silt textured till that is the result of ice advances from the northeast (i.e., Cromwell and older Pre-Wisconsinan tills). The upper outwash consists primarily of fine-to-medium sand and varies in thickness from 130 feet (the bottom 10 to 40 feet of which is saturated) on the east side of the Site to less than 10 feet on the west side of the Site, where present, before merging into RL/TB. The lower outwash is the uppermost, laterally extensive hydrogeologic unit beneath the Site. This unit is continuous beneath the facility and to the west, beneath and beyond RL/TB, at an approximate elevation of 860 feet MSL (Barr, 2016 and 2018). The lower outwash is recognizable in the field by the heaving sand conditions at the top of the unit and similarities in texture, composition, and stratigraphic position to those observed at the ERL. The grain size of the lower outwash generally coarsens downward from fine-to-medium sand at the top of the unit to medium-to-coarse sand with some gravel at the base of the unit. The till separating the outwash units is present approximately 80 feet below the ground surface (bgs) east of the Site and is present at/near the ground surface to the west, largely due to ground surface elevation changes.

Extensive drilling programs conducted in the NDA and SDA (Geomatrix, 2003 and 2005a; Barr, 2023) detailed the distribution and geometries of till deposits that impede groundwater flow through the upper outwash deposit. Beneath the facility, the till is inferred to be discontinuous near the southern margin of the Pre-Subtitle D area (Barr, 2015b). The Eau Claire Formation, a regional confining unit, is the uppermost continuous bedrock unit at the Site. The Eau Claire Formation forms a local bedrock high in the southwestern portion of the Site and, in places, is capped by clayey, pre-Wisconsinan till and/or a thin mantle of fine sandstone/siltstone from the basal Wonewoc Formation (Barr, 2015a). The Mount Simon Sandstone is the uppermost bedrock aquifer in the area and is underlain by crystalline Pre-Cambrian bedrock.

The lower outwash unit constitutes the uppermost permeable, laterally continuous groundwater flow pathway at the Site and has been the subject of recent water quality investigations and corrective action evaluations. The groundwater flow direction in the lower outwash unit is east to west in the central portion of the Site and transitions to the southwest in the southern portion of the Site. Groundwater at the base of the lower outwash flows to the west-southwest beneath RL/TB and is likely somewhat constrained near the Site by the local bedrock high. Vertical hydraulic gradients are downward between the upper and lower outwash units in the east, central, and southern portions of the Site, indicating the potential for downward flow/recharge in these areas. Upward vertical gradients are present between the lower outwash and RL/TB west of the facility. Based on the magnitude of the upward gradient, the potential for groundwater discharge from the lower outwash through the till to RL/TB exists.

Investigation of groundwater flow and water quality west and southwest of the Site was conducted in 2016 and 2018. The investigations showed that the lower outwash is continuous beneath the RL/TB and that low concentrations of vinyl chloride and other organics are limited to the base of the lower outwash at locations west-southwest of the ERL (Barr, 2018). The ERL completed the delineation of the organics in groundwater, established the groundwater monitoring network west of RL/TB, evaluated groundwater attenuation and corrective actions (Barr, 2019; 2020a; and 2020b), and prepared and began initiating corrective action implementation activities in 2022 (Barr, 2021). The ERL completed an initial corrective action evaluation report (Barr, 2024c) and proposed supplemental groundwater investigation to confirm the previous findings and supplement the groundwater monitoring network west of the facility (Barr, 2024d). The supplemental groundwater investigation was completed in February 2025, and preliminary results were reported to the MPCA (Barr, 2025b).

1.2 Monitoring System Description

The ERL established the current monitoring program in accordance with the requirements of Minnesota State Rules 7035.2815, subpart 14 and Solid Waste Permit SW-74. The MPCA reissued Permit SW-74 in July 2015 (MPCA, 2015). The 2024 monitoring events were based on Permit SW-74 as reflected in the Sampling and Analysis Plan (SAP; Barr, 2024e).

As described in the following subsections, the 2024 environmental monitoring system included groundwater, residential well, leak detection lysimeter, and leachate monitoring points. Monitoring well and lysimeter locations are illustrated on Figure 2. The sampled residential wells are shown on Figure 3.

1.2.1 Groundwater Network

The 2024 groundwater monitoring network included 60 monitoring wells and piezometers (Figure 2). The monitoring network targets the permeable outwash upgradient and downgradient of the ERL to provide early detection of potential releases and/or to provide ongoing monitoring of corrective actions. Monitoring

wells identified with an “OWA” suffix are screened at/near the water table in the upper outwash. Most wells identified with a “C” suffix are screened at the top or middle of the lower outwash, which is confined by till. Most wells identified with an “L” are constructed at the bottom of the lower outwash deposit, just above the bedrock. Monitoring wells P-29D and P-311D are screened in the uppermost bedrock aquifer (i.e., Mount Simon Sandstone) for vertical groundwater compliance monitoring purposes (Barr, 2022). Table 1 identifies the hydrostratigraphic unit in which each well is completed, and well construction details are provided in Table 2.

The following modifications were made to the groundwater monitoring system in 2024:

- Groundwater samples were collected from selected wells and analyzed for natural attenuation monitoring parameters per the Groundwater Corrective Action Report - Initial Performance Review (Barr, 2024c).
- Cis-1,2-dichloroethene was added to the low-level organics reporting list for the natural attenuation monitoring program.
- Monitoring wells P-341L and P-342L were sampled for baseline monitoring parameters for the third time during the spring monitoring event. Both of these monitoring wells were incorporated into the routine sampling program starting in the summer monitoring event, and data are compared to groundwater-based Intervention Limits (ILs).
- Monitoring wells P-29D, P-303C, P-334L, and P-341L were resampled for organics during the summer monitoring event due to laboratory error. Inorganic data were inadvertently omitted from the resampling event.
- A crack in the packer in well P-29D was observed during an inspection in 2024. A new packer will be installed in well P-29D in 2025.
- Water levels were not recorded for wells P-311D (due to wellhead configuration) and wells P-327L, P-333L, and P-342L (due to lack of access by the landowners).

Other minor modifications to the routine monitoring program were detailed in the 2024 quarterly reports (Barr, 2024a; 2024b; and 2025a).

1.2.2 Residential Wells

Fourteen water supply wells, including domestic wells, the ERL Shop well, and one community water supply well (Ridges Development) located near the ERL, were sampled during the fall monitoring event per Permit SW-74. The locations of the residential wells are shown on Figure 3. Modifications to the 2024 residential well monitoring program include:

- Upgradient samples from 22915 Hwy 169 NW and 11661 225th Avenue, which are collected every three years, were collected in 2024 per Permit SW-74.
- Samples were not collected from residential wells at 13175 221st Ave NW and 22248 Elk Lake Rd because access was not approved by the landowner.
- A sample was collected from one residential well not included in Permit SW-74 (12091 221st Ave NW) during the fall monitoring event.

1.2.3 Reporting Limits

As indicated in the quarterly reports, groundwater analyses were conducted by Pace Analytical National Center for Testing and Innovation of Mount Juliet, Tennessee (Pace National). The laboratory reporting limits (RLs) for the groundwater samples collected in 2024 were equal to or lower than the Intervention Limits (ILs) listed in Permit SW-74 with the exception of three compounds (1,2,3-trichloropropane, 1,2-dibromo-3-chloropropane, and 1,2-dibromoethane) which have ILs that are not achievable with current technologies (MPCA, 2016).

1.2.4 Lysimeters

The lysimeters installed beneath leachate sumps in municipal solid waste (MSW) disposal cells are monitored per the SAP and Permit SW-74. The lysimeters are purged during each monitoring event and, with the exception of LYS-6N, if more than 15 gallons of liquid are purged, a sample is collected, and the lysimeters are purged dry (as feasible). Lysimeter LYS-6N, which was constructed below the northern portion of Cell 6 prior to the MPCA's promulgation of landfill design standards and the promulgation of Subtitle D of the Resource Conservation and Recovery Act (RCRA) and Minnesota Rule, is the subject of an ongoing automated pumping program. Liquid collected in LYS-6N is discharged to the leachate collection system by an automated pump installed at the base of the lysimeter. The LYS-6N pump, transducer, and flow meter were replaced in July 2023.

- Lysimeters LYS-6S and LYS-10 were not monitored due to accumulated sediment (as reported previously). Lysimeters 6S and 10 were camera'd on September 9, 2022, and December 3, 2022, as part of the implementation of a lysimeter action plan to evaluate downhole conditions (ERL, 2022). A technical memorandum documenting the lysimeter action plan implementation will be submitted under separate cover.
- The first quarter lysimeter sampling event was not conducted due to a scheduling oversight. The spring event results are consistent with past results.
- Lysimeter LYS-6N was sampled at the request of the City of Elk River.

1.2.5 Leachate

Leachate samples were collected on a quarterly basis for parameters that were developed based on Permit SW-74 and Metropolitan Council Environmental Services (MCES) requirements for off-site disposal. Additional leachate sampling was conducted for off-site disposal at the City of Elk River Wastewater Treatment Plant.

2 Results

This section presents an evaluation of 2024 groundwater, lysimeter, and leachate data. Historical groundwater quality data are contained in the following reports:

- Groundwater quality data collected between 1985 and 1994 are included in the 1994 Annual Water Quality Report (Camp Dresser & McKee, Inc., 1995).
- Groundwater data from 1998 through 2011 are included in the 2012 Annual Water Quality Monitoring Report (Barr, 2013).
- Groundwater data from 2012 through 2022 are included in the 2023 Annual Water Quality Monitoring Report (Barr, 2024f).

The 2023 groundwater data and groundwater contour maps are included in Appendix A for reference.

2.1 Groundwater

Groundwater data collection efforts at the ERL include triannual water quality monitoring events referred to as the spring, summer, and fall quarterly monitoring events. Data quality assurance reviews were conducted and summarized in the respective quarterly monitoring reports (Barr, 2024a; 2024b; and 2025a). The 2024 groundwater monitoring data are discussed below.

2.1.1 Flow

Static water levels were measured in the sampled monitoring wells during each monitoring event, and a site-wide water level measurement event was conducted on October 14, 2024. Table 3 includes the annual groundwater elevation data collected at the ERL over the last 10 years. Hydrographs showing groundwater elevations in the monitoring wells since 2015 are included in Appendix B.

2.1.1.1 Lower Outwash

The groundwater flow evaluation focuses on the lower outwash unit as it is the uppermost, permeable, and laterally continuous hydrogeologic unit at the Site and the focus of groundwater corrective actions. Groundwater elevation contours based on hydraulic head in monitoring wells completed at the base of the lower outwash unit for the October 2024 event are shown on Figure 4. The predominant groundwater flow direction in the lower outwash unit is to the west beneath the Pre-Subtitle D portion of the Site and west-southwest beneath RL/TB. The contours west of the facility are consistent with past groundwater investigation results (Barr, 2018; Appendix A).

The horizontal hydraulic gradient in the lower outwash across the ERL and RL/TB is approximately 0.001 feet/foot (ft/ft). Using an average hydraulic gradient of 0.001, an estimated hydraulic conductivity of 1.5×10^{-2} cm/sec, and an effective porosity of 0.27, the estimated average linear groundwater velocity in the lower outwash is 60 feet per year. The groundwater velocity at the lower outwash unit (where organics mass transport predominantly occurs west of ERL) is estimated to be between 60 and 112 feet per year, based on aquifer parameter estimates (Barr, 2020a) and the observed extent of organics downgradient of the landfill.

Using the fall event hydraulic head data, vertical gradients between wells nested in the lower outwash along the west side of the ERL vary from approximately 0.032 ft/ft downward at the P-311C/P-311L nest to 0.006 ft/ft upward at the P-301C/P-301L nest. The vertical gradient between the lower outwash and the

Mt. Simon Aquifer is approximately 0.02 ft/ft downward, which is an order of magnitude lower than the upward gradient that has been estimated between the lower outwash and to RL/TB at wells P-325L and P-326L (Barr, 2015a).

The hydraulic head in wells P-325L and P-326L is about 10 feet above the surface of RL/TB (Geomatrix, 2005b and 2007; Barr, 2015a) and is measured/estimated with pressure gauges at the wellheads¹. The estimated groundwater elevations in wells P-325L and P-326L in RL/TB, west of the ERL, are included in Table 3 but were not considered in the groundwater flow contours on Figure 4 due to the measurement accuracy limitations and because additional wells located around RL/TB provide sufficient data to evaluate groundwater flow.

2.1.1.2 Upper Outwash

Groundwater flow in the upper outwash is constrained by till along the western edge of the NDA and north of well 315-OWA (Figure 5) (Geomatrix, 2003 and 2005a; Barr, 2015a and 2015b). Groundwater flow in the NDA is to the south-southwest. Elevated groundwater elevations in wells 301-OWA and 302-OWA are likely the result of recharge from the nearby sedimentation pond (located east of the access road) and the presence of a thick till deposit in that area. The upper outwash is interpreted to extend through the thick till but is thin or absent in the areas of local till highs (see gray stipple areas on Figure 5). Groundwater is interpreted to discharge to RL/TB in the vicinity of wells P-303C/P-310C/P-311C, which is consistent with prior interpretations (Appendix A). The area around well P-310C is susceptible to short-term groundwater mounding from standing water. Farther south, near Cell 20, groundwater north of well 336-OWA flows to the northwest and discharges to RL/TB, and groundwater south of well 336-OWA flows to the west/southwest.

2.1.2 Quality

The 2024 groundwater monitoring schedule and parameters were based on the requirements in Permit SW-74 and subsequent modifications in annual reports, SAP updates, and work plans. The compliance monitoring wells completed in the lower outwash and located downgradient of the MSW portion of the ERL are generally sampled for organics during the spring, summer, and fall monitoring events, plus inorganic and general chemistry parameters during the summer monitoring event. The compliance monitoring wells completed in the upper outwash were sampled during the summer monitoring event for organics, inorganics, and general chemistry parameters. The compliance wells located around the C&D debris disposal area were sampled for inorganics and general chemistry parameters during the spring and fall events, plus organics during the spring event. Water quality results from quarterly events are used to confirm the results from the prior monitoring event(s).

The evaluation of groundwater data includes comparing the organic and inorganic compound concentrations to water quality criteria and assessing inorganic leachate indicator trends. Consistent with Permit SW-74, monitoring wells screened in the upper outwash are compared to surface water-based ILs included in Permit SW-74 in Table 4. Data from monitoring wells screened in the lower outwash or bedrock are compared to groundwater-based ILs and the Minnesota Department of Health (MDH) Human Health-Based Water Guidance Table (which include Health Risk Limits (HRLs), EPA Maximum Contaminant Levels [MCLs], Health-Based Values [HBVs], and Risk Assessment Advice [RAAs]) in Table 5.

¹ The ground elevation in RL/TB is approximately 939 feet MSL. Groundwater elevations in wells P-325L and P-326L were originally measured with 11-foot standpipes after installation and pressure gauges were installed to estimate hydraulic head annually.

Inorganic and organic data are discussed on a site-wide basis in the following subsections. The discussion focuses on groundwater quality data collected from network wells located at or beyond the compliance boundary. Only confirmed detections are considered in the evaluation. Confirmed detections are defined as comparable detections for at least two consecutive sampling events that are not attributed to sampling, handling, or laboratory contamination.

2.1.2.1 Inorganics

The following discussion focuses on leachate indicator parameter trends and comparison of inorganic parameter concentrations to ILs and promulgated MDH Human Health Advisory Values (in applicable wells) at points of compliance.

Leachate Indicator Parameter Trends

ERL leachate indicator parameters were selected using a procedure based on ASTM D7045, Standard Guide for Optimization of Groundwater Monitoring Parameters for RCRA Waste Disposal Facilities (Geomatrix, 2002a and 2004b). The indicator parameters include chloride, sodium, potassium, iron, zinc, ammonia, total dissolved solids (TDS), and chromium. Plots showing leachate indicator parameter concentrations from the monitoring wells at the Site are in Appendix C². Observations regarding specific leachate indicator parameter trends from compliance wells are presented below:

- Upgradient monitoring wells include upper outwash wells P-22L, 22-OWA, 312-OWA, 337-OWA, P-337L, and 401-OWA. Chloride concentrations are elevated above natural background concentrations³ in upgradient monitoring wells P-22L, 22-OWA, 312-OWA, and 401-OWA. The elevated chloride concentrations in these wells are attributed to upgradient groundwater conditions (along Highway 169, described later in this report) and are unrelated to the landfill.
- The P-29C area is located west of the unlined portion (pre-Subtitle D) of the landfill and includes lower outwash wells P-301C, P-301L, P-302C, and P-29C, and nested wells P-320C, P-320C2, and P-320L. Chloride concentrations in the lower outwash in this area are elevated above natural background conditions but have been stable over recent years with the exception of significant decreases at wells P-301C (25 milligrams per liter [mg/L] to 2 mg/L) and P-301L (33 mg/L to 2 mg/L). Both wells will be monitored in 2025.
- The P-17C area is located at the southwest corner of the unlined portion (pre-Subtitle D) of the landfill, near the margin of the lined and unlined portions of the landfill and includes four non-compliance wells located within 200 feet of the landfill (P-17C, P-308C, P-309C, and test well P-308L) and monitoring wells P-305C, P-321L, and P-323L. Non-compliance wells P-17C and P-308C are characterized by elevated but decreasing chloride and iron concentrations with stable to decreasing sodium concentrations. Inorganic indicator parameter concentrations from P-308L are an order of magnitude lower than those in P-308C. Chloride, sodium, potassium, and ammonia concentrations increased at P-309C in 2024. The chloride concentration at P-305C is elevated but is about one-fifth of the chloride concentrations at P-309C and has been relatively stable over recent years.

² Chromium not shown on plots due to general absence of detections in groundwater at ERL.

³ An ambient background level of chloride of 10 mg/L has been used in past reports; however, natural chloride concentrations are generally <5 mg/L in groundwater in deep geologic units (and at isolated locations) that are not influenced by anthropogenic inputs (i.e., road salt, septic tank influent, affected surface water bodies, etc.).

- The P-304C area is located southwest of the unlined portion of the landfill and includes wells P-304C, P-313C, P-314C, P-322L, and P-324L. Chloride and sodium concentrations at well P-304C were relatively stable between 2012 and 2019 and have demonstrated slight decreasing trends over recent years. The chloride concentration in groundwater at well P-313C has been stable and decreasing (but elevated) at P-314C in recent years. The chloride concentration in groundwater at wells P-322L and P-324L has increased slightly since 2021, but 2024 concentrations are consistent with 2023 and remain lower than the concentration at P-313C. Wells P-311L and P-315L are located south of the P-304C area. Chloride significantly decreased at well P-311L (from 35 mg/l to 3 mg/L) since 2023.
- Wells P-325L, P-326L, P-334L, P-338L, P-342L, and P694477 are located approximately 1,200 to 4,000 feet west of the facility in the footprint of the vinyl chloride plume. Chloride concentrations are elevated (above natural background) but stable at wells P-325L and P-326L over recent years. Chloride concentrations at well P-325L are nearly twice as high as those at well P-326L. Chloride concentrations at P-334L and P694477 have increased from approximately 5 to 22 mg/L since 2018. Chloride concentration trends at wells P-334L and P694477 are consistent with the interpreted positioning near the leading edge/margin of the organics downgradient from ERL. The chloride concentration at well P-342L (1 mg/L), which is located approximately 1,000 feet downgradient of P-334L, is consistent with background.
- Sentinel wells P-327L, P-328L, P-329L, P-333L, P-335L, and P-340L are located approximately 2,500 to 4,800± feet west of the facility. Chloride concentrations in groundwater at these wells (~ ≤10mg/L) are consistent with ambient background.
- Indicator parameter trends are stable or decreasing in upper outwash wells downgradient of the facility. Chloride concentrations at well P-303C are stable but slightly above natural background concentrations. Well P-303C is located near an area where the upper and lower outwash units merge (Barr, 2015a). The upper outwash wells are more susceptible to shifts in redox conditions from precipitation events or infiltration from stormwater.
- Indicator parameter trends are stable or decreasing in wells 408-OWA and P-403C, which are located downgradient of the NDA. Leachate indicator parameter concentrations in bedrock wells P-29D and P-311D are generally stable.

Comparison to Intervention Limits

Tables 6 and 7 summarize groundwater results above screening criteria for upper and lower and outwash wells, respectively. Inorganic groundwater monitoring results are generally consistent with prior results. Inorganic parameter exceedances are discussed below.

- Chloride concentrations in upgradient wells 22-OWA, 312-OWA, and 401-OWA, which are completed in the upper outwash, were above the surface-water based IL (57.5 mg/L) (Table 6). As documented in previous reports, chloride concentrations in groundwater upgradient of the landfill have been detected at concentrations an order of magnitude greater than typical natural background concentrations (≤10 mg/L) and are attributed to the application and infiltration of deicing agents along Highway 169 (Barr, 2015a). A HRL has not been established for chloride.
- Boron was detected in groundwater above the groundwater-based IL (250 µg/L) in samples from lower outwash wells P-302C, P-304C, P-305C, P-323L, and P-325L (Table 7). A HRL has not been established for boron. Concentrations generally decrease with distance from the landfill.

- Arsenic was detected above the groundwater-based IL (2.5 µg/L) but below the EPA MCL of 10 µg/L in samples from lower outwash wells P-302C, P-304C, P-305C, P-311L, P-313C, P-315L, P-320C, and P-327L (Table 7). A HRL has not been established for arsenic. Arsenic is detected in leachate and is also a naturally occurring element that can become mobile in groundwater under certain geochemical conditions. Arsenic concentrations in groundwater above the MCL are common in glacial aquifers in the midwestern United States (Root et al., 2010; MDH, 2014; Erickson and Barnes, 2005). The source of arsenic in groundwater at concentrations above the IL in wells located along the west side of the ERL has not been determined; however, it may be related to redox conditions mobilizing natural arsenic near the unlined portion of the landfill or under natural conditions in confined outwash units. The extent of arsenic in groundwater at the ERL is limited, as evidenced by concentrations below the IL (or method reporting limits) in samples from the majority of monitoring wells 300+ feet from the landfill footprint. The arsenic concentration at P-327L was slightly above the IL of 2.5 µg/L and below the MCL. Based on the position relative to the landfill and the absence of organic compounds in groundwater at this well, arsenic at P-327L is attributed to natural conditions.
- Chloride concentration trends are shown on plots in Appendix C (and are discussed in the subsection above), and boron and arsenic concentrations trend plots are in Appendix D. Boron and arsenic concentrations have remained largely stable over recent years in groundwater at monitoring wells located at or beyond the compliance boundary.
- Manganese was detected in groundwater at concentrations above the HRL (100 µg/L) in the baseline groundwater sample from well P-342L (Table 7). As described in Section 2.1.2.3 below, the manganese concentration is unrelated to the landfill.

The inorganics detected in groundwater at concentrations above ILs are limited in extent at ERL.

2.1.2.2 Organics

Table 7 summarizes groundwater results above screening criteria for lower outwash wells. Groundwater monitoring results are consistent with prior results. Two organic compounds, vinyl chloride and trichloroethylene (TCE), were detected above their respective HRL in samples from one or more lower outwash monitoring wells located at/beyond the groundwater compliance boundary. The following observations were made from a review of the 2024 point-of-compliance organics groundwater data:

- Vinyl chloride concentrations were above the HRL (0.2 µg/L) in one or more groundwater samples from 14 wells located downgradient of the unlined (pre-Subtitle D) portion of the landfill, and above the IL (0.05 µg/L) but below the HRL in four other wells located downgradient of the unlined (pre-Subtitle D) portion of the landfill (Table 7). The highest vinyl chloride concentration in a 2024 groundwater sample from a well located at/beyond a point of compliance was 1.05 µg/L (P-338L). The extent of vinyl chloride in groundwater above the HRL is shown on Figure 6. Vinyl chloride is the subject of ongoing groundwater corrective action and is evaluated in Appendix E.
- TCE was detected above the HRL (0.4 µg/L) in groundwater at well P-323L and above the IL (0.1 µg/L) but below the HRL in groundwater at wells P-304C and P-326L (Table 7). The highest TCE concentration in a 2024 groundwater sample was 0.927 µg/L (P-323L). All three wells are located downgradient of the unlined (pre-Subtitle D) portion of the landfill and are evaluated in Appendix E.

- 1,2-DCA was detected in groundwater at concentrations above the IL (0.25 µg/L) but below the HRL (1 µg/L) in samples from wells P-302C and P-323L.
- Dichlorofluoromethane (DCFM) was detected in one groundwater at a concentration above the RAA (20 µg/L) from P-334L. A HRL has not been established for DCFM.
- No organics were detected in groundwater samples collected from upper outwash wells (Table 4), sentinel wells P-327L, P-328L, P-329L, P-333L, P-335L, P-340L, and P-341L; bedrock monitoring wells P-29D and P-311D; or monitoring well P-342L which is located approximately 1,000 feet downgradient of well P-334L (Table 5). The non-detect results are consistent with historical results from these wells and indicate that water quality at these locations is not affected by the facility.
- Concentration trends for vinyl chloride, 1,2-DCA, cis-1,2-DCE, TCE (i.e., organics detected above ILs in one or more wells), and DCFM are shown on plots in Appendix D. The 1,2-DCA, cis-1,2-DCE, TCE and DCFM trends are consistent with vinyl chloride trends (and the statistical evaluation presented in Appendix E). The following observations are made based on the trend plots and the monitored natural attenuation summary presented in Appendix E.
 - o Vinyl chloride concentrations at the majority of the wells near the pre-Subtitle D portion of the landfill are decreasing or stable, suggesting either a diminishing source of organics in the groundwater system (as a result of past cover placement and landfill gas extraction) and/or increased attenuation capacity in the lower outwash.
 - o Vinyl chloride concentrations in groundwater in the middle to outer portion of the plume are exhibiting minor increases, which is consistent the anticipated migration of peak vinyl chloride concentrations previously identified at the facility (Barr, 2020b and 2024c)
 - o The organics data are reflective of sequential dechlorination near the landfill while other attenuation processes, including anaerobic and aerobic oxidation and abiotic reactions, as discussed in previous reports (Barr, 2020a, 2020b, 2021, and 2024c) and briefly in Appendix E.
 - o The plume is fully delineated as demonstrated by the non-detections in sentinel wells P-327L, P-328L, P-329L, P-333L, P-335L, P-340L, and P-341L, monitoring well P-342L, and vertical profile borings recently collected adjacent to P-342L (Barr, 2025b).

2.1.2.3 Baseline Monitoring

The final round of baseline groundwater data from monitoring wells P-341L and P-342L are tabulated in Table 8 and are discussed below.

- Manganese was detected in groundwater at concentrations above the HRL (100 µg/L) in the baseline groundwater sample from well P-342L (Table 8). Manganese is a naturally occurring mineral that can be mobilized in groundwater under mildly reducing geochemical conditions. Manganese is not a routine monitoring parameter at the ERL because high natural background manganese concentrations are prevalent in the groundwater in the regional area around the ERL, as evidenced by previous monitoring results from upgradient wells (P-22L, P-337L, and 401-OWA), far-flung side-gradient wells (P-318C, P-327L, 405-OWA, 406-OWA, and 407-OWA),

and far-flung downgradient wells (P-328L, P-329L, P-333L, P-335L, and P-340L) where landfill influences (as determined by lack of detection of organics) have not been detected and/or are not expected based on well locations relative to the landfill and well-established groundwater flow directions (Barr, 2022; 2015a; and 2012; Geomatrix, 2005c). The manganese result from well P-342L is attributed to natural conditions and is unrelated to the landfill.

- No organics were detected in the groundwater samples collected from wells P-341L and P-342L.

2.1.2.4 Residential Well Sampling Results

Residential well sampling results are included in Table 9. Organic compounds were not detected in samples from the residential water supply wells. Chloride was not detected (i.e., <1 mg/L) in the ERL Shop well (unique ID #420558), the Ridges of Rice Lake community water supply well (unique ID #646766), or the wells replaced per the Groundwater Correction Action Work Plan (Barr, 2021).

2.2 Active Gas Collection System Evaluation

Methane was not detected in the gas monitoring probes in 2024. The gas probe monitoring results suggest that the operation of the active gas collection system is preventing landfill gas migration in the vadose zone at the ERL. Past ERL gas collection system enhancements have resulted in groundwater quality improvements in unconfined outwash at 22-OWA (Geomatrix, 2002b) and are credited, along with the placement of final cover, for the reduction of organics concentrations in groundwater inside the compliance boundary in the P-17C area. Twelve additional gas extraction wells were installed at the ERL in 2024.

The influence of the gas collection system on organics concentrations in groundwater in the confined outwash west of the ERL is likely limited to the reduction of organics transfer from gas in the vadose zone beneath the unlined portion of the landfill to groundwater where the outwash is unconfined. Groundwater data suggest that existing impacts downgradient of the facility are likely the result of a combination of leachate and landfill gas (Geomatrix, 1998).

2.3 Lysimeters

Lysimeter purge volumes are summarized in Table 10. The quarterly lysimeter purge volumes were below the nominal Action Leakage Rate (ALR)-based nominal Lysimeter Threshold Values (266 gallons) (LTVs; Geomatrix, 2002a).

Greater than 15 gallons of liquid was purged from lysimeters LYS-11, LYS-13, LYS-17, and LYS-19 during one or more events in 2024, so samples were collected and submitted for laboratory analysis (Table 11). The inorganic signature of the lysimeter samples is inconsistent with leachate (Barr, 2024a; 2024b), and the total organics concentrations are considerably lower in the lysimeter samples than in the concentrations in leachate samples (Table 12). The leachate sample analyses show higher concentrations of multiple organic compounds (e.g., acetone, ethyl ether, tetrahydrofuran, xylenes). Lysimeters differ in function and construction from monitoring wells (e.g., lysimeters are not constructed in a “clean glove” setting), and detections of a few organics at concentrations at relatively low concentrations (compared to leachate) do not indicate a release from the overlying cell.

A total of 469 gallons of liquid was produced by the automated pump in LYS-6N in 2024. The functionality of the automated pump and transducer in LYS-6N was confirmed in February 2024. A sample was also collected from LYS-6N in 2024 at the request of the City, and data are included in Table 11.

2.4 Leachate

Quarterly leachate samples were collected from the aboveground leachate storage tank (Tank #4). Leachate data from Tank #4 are included in this report (Table 12) for completeness purposes.

3 2025 Environmental Monitoring

The 2025 environmental monitoring system will include groundwater, lysimeter, and leachate monitoring in accordance with the facility permits and SAP, as modified by Table 13. Additional monitoring may also be conducted per the recommendations from the ongoing groundwater corrective action activities.

The following bullets summarize the primary changes to the monitoring network and/or anticipated changes in 2025:

- Baseline monitoring at wells P-341L and P-342L was completed in 2024. Both wells will be incorporated into the routine monitoring network (see Table 13 for anticipated future monitoring). Groundwater data from both wells will continue to be compared to groundwater-based criteria. Similar to monitoring well P-333L, well P-342L will not be sampled during fall monitoring events due to landowner access restrictions.
- One new monitoring well, P-342C, was installed as a nested well to P-342L in early 2025 as part of supplemental groundwater corrective action activities (Barr, 2024d). Preliminary results of vertical groundwater profile water quality sample results were reported in February 2025 (Barr, 2025b), and further documentation will be provided later in 2025. Well P-342C will undergo baseline groundwater monitoring during the 2025 spring and summer monitoring events but will not be sampled during the fall monitoring event due to landowner access restrictions.
- Monitoring wells 317-OWA and P-317L, located on property owned by others (i.e., Martin Marietta) south of Cell 20, will be sealed by a licensed well contractor in 2025 if gravel mining operations encroach on the well nest.
- The replacement residential wells at 22130 Quinn St. will be connected and monitored in 2025 if the owner provides access to the property.

4 Conclusions and Recommendations

Based on the 2024 ERL environmental monitoring data, the following conclusions and recommendations are made:

- Groundwater data are generally consistent with previous results. Vinyl chloride is present at low concentrations in groundwater in the lower outwash, west-southwest of the unlined (pre-Subtitle D) portion of the ERL. The vinyl chloride trends are consistent with the anticipated conditions as previously described (Barr, 2020b and 2024c), with decreasing trend near the landfill indicating a either a diminishing source of organics in the groundwater system (as a result of past cover placement and landfill gas extraction) and/or increased attenuation capacity. ERL is continuing to implement the work described in the Groundwater Corrective Action Work Plan (Barr, 2021) to address vinyl chloride and other organics in groundwater. Groundwater corrective action results are discussed in Appendix E.
- Based on 2024 (and previous) monitoring data, groundwater quality at the residential wells and in the Mt. Simon aquifer is not affected by the landfill.
- No contingency actions listed in the Groundwater Corrective Action Work Plan (Barr, 2021) were triggered in 2024.
- Lysimeter purge volumes were below the nominal threshold volumes, and the nature of the purged liquid was inconsistent with leachate.
- The 2025 environmental monitoring system will include groundwater, lysimeter, and leachate monitoring in accordance with the facility permits, as updated by Table 13. Additional monitoring may also be conducted per the recommendations from the ongoing groundwater corrective action activities.

5 References

- Barr, 2025a. Fall 2024 Quarterly Report, Elk River Landfill.
- Barr, 2025b. Email to Laura Pugh (MPCA) RE: ERL (SW-74), Groundwater Corrective Action, Supplemental Work Plan, GW Profile Results and Planned Well Installation. February 13, 2025.
- Barr, 2024a. Spring 2024 Quarterly Report, Elk River Landfill.
- Barr, 2024b. Summer 2024 Quarterly Report, Elk River Landfill.
- Barr, 2024c. Groundwater Corrective Action Report – Initial Performance Evaluation, Elk River Landfill, April.
- Barr, 2024d. Groundwater Corrective Action – Supplemental Groundwater Investigation Work Plan, Elk River Landfill, December.
- Barr, 2024e. Sampling and Analysis Plan, Elk River Landfill, April.
- Barr, 2024f. 2023 Annual Water Quality Monitoring Report, Elk River Landfill.
- Barr, 2023. Phase I and II Hydrogeologic Evaluation Report, Revised North Development Area, Elk River Landfill (SW-74). August 2023.
- Barr, 2022. Sampling and Analysis Plan, Elk River Landfill, April.
- Barr, 2021. Groundwater Corrective Action Work Plan, Elk River Landfill, March.
- Barr, 2020a. Groundwater Natural Attenuation Evaluation Report, Elk River Landfill, February.
- Barr, 2020b. Groundwater Corrective Action Evaluation Report, Elk River Landfill, August.
- Barr, 2019. Groundwater Corrective Action Alternatives Screening Report, Elk River Landfill, July.
- Barr, 2018. Groundwater Investigation and Well Installations Summary Report, Elk River Landfill, June.
- Barr, 2016. Interim Report: 2016 Vertical Groundwater Profiling and Well Installations, Elk River Landfill, August.
- Barr, 2015a. Supplemental Site-Wide Hydrogeologic Evaluation Report, Elk River Landfill, June.
- Barr, 2015b. Work Plan for Additional Groundwater Investigation, Elk River Landfill, April.
- Barr, 2013. 2012 Annual Water Quality Monitoring Report, Elk River Landfill.
- Barr, 2012. Letter to John Elks, MPCA, re: Updated Proposed Groundwater Compliance Monitoring Network, South Development Area, Elk River Landfill, August 15, 2012.
- Camp, Dresser & McKee, Inc., 1995. 1994 Annual Water Quality Report, Elk River Landfill, V1-4.
- Elk River Landfill, Inc., 2022. Elk River Landfill Cells 6S & 10 Lysimeter Action Plan, April 22, 2022.
- Erickson, M.L and Barnes R.J, 2005. Well Characteristics Influencing Arsenic Concentrations in Groundwater. Water Research. Volume 39, pp. 4029-39.
- Geomatrix, 2007. Addendum to the Final Report of Rice Lake/Tibbits Brook Groundwater Discharge Investigation, Elk River Landfill.
- Geomatrix, 2005a. Revised Hydrogeologic Evaluation (Phase I and II) Report, Water Monitoring System Work (Phase III) Report, and Phase IV Water Quality Monitoring Work Plan, South Development Area, Elk River Landfill.
- Geomatrix, 2005b. Final Report of Rice Lake/Tibbits Brook Groundwater Discharge Investigation, ERL.
- Geomatrix, 2005c. 2004 Annual Water Quality Monitoring Report, Elk River Landfill.

Geomatrix, 2004a. Investigation of Groundwater Discharge to Rice Lake/Tibbits Brook, Elk River Landfill, June

Geomatrix, 2004b. Sampling and Analysis Plan, North Development Area, Elk River Landfill.

Geomatrix, 2003. Environmental Survey Report, North Development Area, Elk River Landfill.

Geomatrix, 2002a. Phase IV Water Quality Monitoring Work Plan, Revision #3.1, Elk River Landfill.

Geomatrix, 2002b. 2001 Annual Water Quality Monitoring Report, Elk River Landfill.

Geomatrix, 1999. P-17C Area Follow-up Groundwater Investigation Report, Elk River Landfill.

Geomatrix, 1998. Groundwater Quality Investigation Report.

Minnesota Department of Health (MDH), 2014. Arsenic Occurrence in New Wells, August 2008-July 2013, February 28, 2014.

Minnesota Pollution Control Agency (MPCA), 2016. Laboratory achievable reporting limits, <https://www.pca.state.mn.us/waste/solid-waste-publications>.

MPCA, 2015. Solid Waste Management Facility Permit SW-74, July 23, 2015.

Root, T.L., Gotkowitz, M.B., Bahr, J.M., and Attig, J.W., 2010. Arsenic Geochemistry and Hydrostratigraphy in Midwestern U.S. Glacial Deposits. *Groundwater*, Volume 48, no. 6, pp. 903-12.



Tables

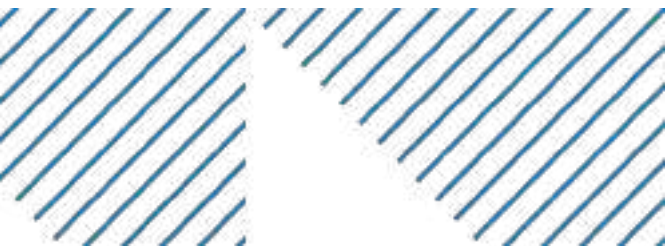


Table 1
2024 Groundwater Monitoring Summary
Elk River Landfill
Elk River, Minnesota

Monitoring Point	Unique Well ID ¹	Annual Sampling Frequency in SAP ²	2024 Sampling and Analysis Summary ³	2024 Well Status	Unit Monitored	Well Screen Placement
<u>Monitoring Wells</u>						
P-17C	496278	1x	VOCs (1), Inorganics (1)	In Network (NC), GWCAM	Till/Lower outwash	S
22-OWA	420729	1x	VOCs (1), Inorganics (1)	In Network	Upper outwash	WT
P-22L	801470	1x	VOCs (1), Inorganics (1)	In Network, GWCAM	Lower outwash (bottom)	S
P-29C	496289	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash (bottom)	S
P-29D	496294	3x	VOCs (3), Inorganics (0) ¹⁰	In Network	Bedrock	S
36-OWA	498324	--	Depth to water	WL only	Upper outwash	WT
301-OWA	598567	1x	VOCs (1), Inorganics (1)	In Network	Upper outwash	WT
P-301C	598562	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash	S
P-301L	767989	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash (bottom)	S
302-OWA	598568	1x	VOCs (1), Inorganics (1)	In Network	Upper outwash	WT
P-302C	598563	3x	VOCs (3), Inorganics (1)	In Network, GWCAM	Lower outwash	S
P-303C	598532	1x	VOCs (2), Inorganics (0) ¹⁰	In Network	Upper outwash	S
P-304C	598565	3x	VOCs (3), Inorganics (1)	In Network, GWCAM	Lower outwash	S
P-305C	598566	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash	S
P-308C	621858	1x	VOCs (1), Inorganics (1)	In Network (NC)	Lower outwash	S
P-308L	836661	1x	VOCs (1), Inorganics (1)	GWCAM (NC)	Lower outwash	S
P-309C	635420	1x	VOCs (1), Inorganics (1)	In Network (NC)	Lower outwash	S
P-310C	646855	1x	VOCs (1), Inorganics (1)	In Network	Upper outwash	S
P-311C	646854	1x	VOCs (1), Inorganics (1)	In Network	Upper outwash	S
P-311L	801471	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash (bottom)	S
P-311D	650145	3x	VOCs (3), Inorganics (1)	In Network	Bedrock	S
312-OWA	646853	1x	VOCs (1), Inorganics (1)	In Network	Upper outwash	WT
P-313C	969668	3x	VOCs (3), Inorganics (1)	In Network, GWCAM	Lower outwash	S
P-314C	969669	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash	S
315-OWA	696663	1x	VOCs (1), Inorganics (1)	In Network	Upper outwash	WT
P-315L	722063	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash	S
317-OWA	696666	--	Depth to water	WL only	Upper outwash	WT
P-317L	722092	--	Depth to water	WL only	Lower outwash	S
P-320C	737638	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash	S
P-320C2	756593	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash	S
P-320L	737637	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash (bottom)	S
P-321L	767990	3x	VOCs (3), Inorganics (1)	In Network, GWCAM	Lower outwash (bottom)	S
P-322L	767991	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash (bottom)	S
P-323L	786203	3x	VOCs (3), Inorganics (1)	In Network, GWCAM	Lower outwash (bottom)	S
P-324L	786202	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash (bottom)	S
P-325L	804281	3x	VOCs (3), Inorganics (1)	In Network, GWCAM	Lower outwash (bottom)	S
P-326L	804282	3x	VOCs (3), Inorganics (1)	In Network, GWCAM	Lower outwash (bottom)	S
P-327L	812996	1x	VOCs (1), Inorganics (1)	In Network, GWCAS	Lower outwash (bottom)	S

Table 1
2024 Groundwater Monitoring Summary
Elk River Landfill
Elk River, Minnesota

Monitoring Point	Unique Well ID ¹	Annual Sampling Frequency in SAP ²	2024 Sampling and Analysis Summary ³	2024 Well Status	Unit Monitored	Well Screen Placement
P-328L	812994	1x	VOCs (1), Inorganics (1)	In Network, GWCAS	Lower outwash (bottom)	S
P-329L	812995	3x	VOCs (3), Inorganics (1)	In Network, GWCAS	Lower outwash (bottom)	S
P-333L	828060	2x	VOCs (2), Inorganics (1)	In Network, GWCAS	Lower outwash (bottom)	S
P-334L	828061	3x	VOCs (3), Inorganics (0) ¹⁰	In Network, GWCAM	Lower outwash (bottom)	S
P-335L	828062	3x	VOCs (3), Inorganics (1)	In Network, GWCAS	Lower outwash (bottom)	S
336-OWA	853108	1x	VOCs (1), Inorganics (1)	In Network	Upper outwash	WT
337-OWA	853109	1x	VOCs (1), Inorganics (1)	In Network	Upper outwash	WT
P-337L	853110	1x	VOCs (1), Inorganics (1)	In Network	Lower outwash (bottom)	S
P-338L	853139	3x	VOCs (3), Inorganics (1)	In Network, GWCAM	Lower outwash (bottom)	S
P-340L	953140	1x	VOCs (1), Inorganics (1)	In Network, GWCAS	Lower outwash (bottom)	S
P-341L ⁴	877298	1x	VOCs (2), Inorganics (1) ¹⁰	Baseline, GWCAS	Lower outwash (bottom)	S
P-342L ⁴	871179	2x	VOCs (2), Inorganics (2)	Baseline, GWCAM	Lower outwash (bottom)	S
401-OWA	683321	1x	VOCs (1), Inorganics (1)	In Network	Upper outwash	WT
402-OWA	683320	--	Depth to water	WL only	Upper outwash	WT
P-403C	683318	2x	VOCs (1), Inorganics (2)	In Network	Upper outwash	S
405-OWA	683316	--	Depth to water	WL only	Upper outwash	WT
406-OWA	683317	--	Depth to water	WL only	Surficial outwash	WT
407-OWA	683315	--	Depth to water	WL only	Surficial outwash	WT
408-OWA	717920	2x	VOCs (1), Inorganics (2)	In Network	Upper outwash	WT
P-694477 ⁵	694477	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash	S
Residential Wells						
22447 Tipton St	813437	1x	VOCs (1), inorganics (1)	per Permit SW-74	--	--
12163 223rd Ave	876409	1x	VOCs (1), inorganics (1)	per Permit SW-74	--	--
12269 223rd St	876410	1x	VOCs (1), inorganics (1)	per Permit SW-74	--	--
12265 223rd Ave ⁶	876411	1x	VOCs (1), inorganics (1)	per Permit SW-74	--	--
12183 223rd Ave	846412	1x	VOCs (1), inorganics (1)	per Permit SW-74	--	--
11661 225th ⁷	ZW00217	1x	VOCs (1), inorganics (1)	per Permit SW-74	--	--
22272 Quinn St	876413	1x	VOCs (1), inorganics (1)	per Permit SW-74	--	--
22130 Quinn St ⁸	638355	1x	VOCs (1), inorganics (1)	per Permit SW-74	--	--
ERL Shop Well	420558	1x	VOCs (1), inorganics (1)	per Permit SW-74	--	--
Ridges Develop.	626766	1x	VOCs (1), inorganics (1)	per Permit SW-74	--	--
22915 Hwy 169	545375	1x	VOCs (1), inorganics (1)	per Permit SW-74	--	--
22205 Elk Lake Rd	625475	--	VOCs (1), inorganics (1)	GWCAWP	--	--
22275 Elk Lake Rd	720300	--	VOCs (1), inorganics (1)	GWCAWP	--	--
12901 221st Ave NW	535970	1x	VOCs (1), inorganics (1)	per Permit SW-74		
13175 221st Ave NW ⁹	1000022317	--	VOCs (0), inorganics (0)	GWCAWP		
22248 Elk Lake Rd ⁹	608116	--	VOCs (0), inorganics (0)	GWCAWP	--	--

Table 2
Well Information Index
Elk River Landfill
Elk River, Minnesota

Well I.D.	MN Unique Number	Year Installed	Altered or Sealed	Approx. Depth ⁽¹⁾	Screen Interval (ft MSL)	Top of Casing Elevation (ft MSL)	Const Material
1 OW		1979	S/1988	44		974.32	St
1 OWR	443420	1988	S/1999	33	943 - 953	976.69	St
2 OW		1979	S/1988	30		969.80	St
4 OW	420714	1983	S/1999	35	951 - 956	986.40	PVC
5 OW	420715	1983	S/1987	44		984.50	PVC
5 OWA	420721	1985	S/1987	35		984.20	PVC
5 OWR	443421	1988	S/1996	36	948 - 958	983.85	St
6 OW	420716	1983	S/1988	64		1016.15	PVC
7 OW	420717	1983	S/1985	50		988.60	PVC
8 OW	420718	1983	S/1985	45		985.60	PVC
9 OW	420719	1983	S/1985	30		978.00	PVC
10 OW	420720	1984	S/1999	60	922 - 932	981.99	PVC
11 OWA	420722	1985	S/1997	58	951 - 961	1008.64	PVC
12 OWA	420723	1985	S/1996	41	958 - 968	998.50	PVC
P 12A	420724	1985	S/1996	61	937 - 947	997.94	PVC
13 OWA	420725	1985	S/1999	20	952 - 962	971.82	PVC
15 OWA	420726	1985	S/2012	32	961 - 971	993.08	PVC
16 OWA	420728	1985	S/1999	14	944 - 954	958.31	PVC
P 16A	420727	1985	S/1999	31	927 - 937	958.01	PVC
17 OWA	420730	1985	S/2001	32	950 - 960	982.43	PVC
P 17C	496278	1991	Altered: '01, '08; resurveyed	66	917 - 922	982.62	St
18 OWA	420731	1985	S/1997	32	951 - 961	982.50	PVC
19 OWA	420732	1985	S/1997	33	946 - 956	978.70	PVC
P 19A	420733	1985	S/1997	57	922 - 927	978.63	PVC
20 OWA	420734	1985	S/1991	57	994 - 1004	1051.46	PVC
21 OWA	420735	1985	S/1999	16	937 - 947	952.47	PVC
22 OWA	420729	1985		91	949 - 959	1039.68	PVC
P 22L	801470	2013		197	846 - 856	1043.45	St
23 OWA	433112	1987	S/2001	49	938 - 948	987.02	St
24 OWA	433159	1987	S/1997	26	949 - 959	975.24	St
25 OWA	420741	1987	S/1997	23	948 - 958	970.53	St
26 OWA	420743	1987	S/2007	20	946 - 956	966.16	St
P 26A	420742	1987	S/2007	27	940 - 945	967.01	St
27 OWA	420745	1987	S/1999	18	941 - 951	959.04	St
P 27A	420744	1987	S/1999	33	927 - 932	960.08	St
28 OWA	420746	1987	S/2001	36	949 - 959	985.04	St
29 OWA	420747	1987	S/1999	18	941 - 951	959.03	St
P 29A	420748	1987	S/1999	33	925 - 930	958.34	St
P 29C	496289	1991		108	849 - 854	957.16	St
P 29D	496294	1991		265	692 - 702	957.35	St
30 OWA	433149	1987	S/1999	23	933 - 943	956.05	St
P 30C	496291	1991	S/1999	74	882 - 887	955.04	St
31 OWA	433150	1987	S/1992	50	949 - 959	999.31	St
32 OWA	433147	1987	S/1998	47	944 - 954	991.29	St
33 OWA	433151	1987	S/1998	52	951 - 961	1003.08	St
34 OWA	443422	1988	S/1989	984		983.74	PVC
35 OWA	443424	1988	S/1993	37	945 - 955	982.88	PVC
P 35B	443423	1988	S/1993	51	932 - 937	983.75	PVC
36 OWA	498324	1991		75	946 - 956	1021.61	St
37 OWA	496290	1991	S/2003	58	949 - 959	1007.44	St
38 OWA	496295	1991	S/2003	40	951 - 961	990.61	St
39 OWA	496283	1991	S/2004	26	960 - 970	985.65	St
40 OWA	496282	1991	S/1999	28	927 - 937	955.07	St
P 40B	496292	1991	S/1999	58	898 - 904	956.27	St
41 OWA	496280	1991	S/1999	36	937 - 947	972.95	St
P 41B	496293	1991	S/2001	60	912 - 917	971.69	St
42 OWA	496296	1991	S/1996	89	954 - 964	1043.24	St

Table 2
Well Information Index
Elk River Landfill
Elk River, Minnesota

Well I.D.	MN Unique Number	Year Installed	Altered or Sealed	Approx. Depth ⁽¹⁾	Screen Interval (ft MSL)	Top of Casing Elevation (ft MSL)	Const Material
43 OWA	496279	1991	S/1999	30	944 - 954	973.41	
P 43B	496277	1991	S/1999	72	902 - 907	973.55	St
P 43C	496281	1991	S/1999	287	686 - 696	973.38	St
101 OWA	433160	1987	S/1997	33	944 - 949	977.43	St
102 OWA	433165	1987	S/1997	30	946 - 951	975.73	St
103 OWA	433161	1987	S/1997	58	950 - 955	1008.26	St
104 OWA	433162	1987	S/1996	28	943 - 948	970.74	St
105 OWA	433163	1987	S/1997	58	945 - 950	1002.32	St
106 OWA	433164	1987	S/1997	83	918 - 923	1000.88	St
108 OWA	433166	1987	S/1996	57	946 - 951	1002.72	St
110 OWA	433167	1987	S/1996	88	951 - 956	1038.84	St
201 OWA	443223	1988	S/1999	26	946 - 956	972.27	St
P 201B	443224	1988	S/1999	46	926 - 931	971.96	St
202 OWA	443219	1988	S/1992	86	946 - 956	1031.62	St
203 OWA	443218	1988	S/1992	103	945 - 955	1047.65	St
204 OWA	443221	1988	S/1995	53	945 - 955	998.26	St
205 OWA	443220	1988	S/1994	87	947 - 957	1033.51	St
206 OWA	443217	1988	S/1997	48	947 - 957	994.01	St
207 OWA	443216	1988	S/1999	104	947 - 957	1050.99	St
208 OWA	443215	1988	S/1997	43	953 - 963	996.86	St
209 OWA	443214	1988	S/2012	57	946 - 956	1002.50	St
210 OWA	443211	1988	S/2007	38	943 - 953	981.19	St
P 210B	443212	1988	S/2012	58	923 - 928	981.25	St
211 OWA	443222	1988	S/1999	36	943 - 953	979.03	St
212 OWA	443213	1988	S/1997	70	945 - 955	1014.64	St
213 OWA	443209	1988	S/2012	47	946 - 956	993.35	St
P 213A	443210	1988	S/2007	67	926 - 931	992.20	St
301 OWA	598567	1997		17	950 - 960	966.54	PVC
P 301C	598562	1997		73	895 - 905	967.50	St
P301L	767989	2009		123	847 - 857	970.11	St
302 OWA	598568	1997		17	953 - 963	970.47	PVC
P 302C	598563	1997		72	898 - 908	970.63	St.
303 OWA	598569	1997	S/2012	17	946 - 956	963.71	PVC
P 303C	598532	1997		53	911 - 921	963.77	St.
P 304C	598565	1997		62	898 - 908	959.89	St.
P 305C	598566	1997		80	884 - 894	963.26	St.
306 OWA	621863	1998	S/2004	40	951 - 961	990.88	St.
307 OWA	621862	1998	S/2003	55	951 - 961	1005.59	St.
P 308C	621858	1998	Altered: 2008; resurveyed	77	903 - 913	979.83	St.
P 308L	836661	2019		130	848 - 863	979.94	St.
P 309C	635420	1999		85	883 - 893	967.71	St.
P 310C	646855	2000		42	933 - 948	975.33	St.
P 311C	646854	2000		33	933 - 943	965.54	St.
P 311L	801471	2013		114	852 - 862	965.76	St.
P 311D	650145	2000		253	711 - 779	963.80	St.
312 OWA	646853	2000		70	946 - 956	1016.20	St.
P 313C	969668	2003	reduced: 2004; resurveyed	68	880 - 895	948.15	St.
P 314C	969669	2003		75	877 - 892	952.02	St.
315 OWA	696663	2003		35	937 - 952	972.41	St.
P 315L	722063	2005		100	872 - 882	972.27	St.
316 OWA	696664	2003	S/2015	107	939 - 954	1046.43	St.
P 316L	722093	2005	S/2015	163	884 - 894	1046.82	St.
317 OWA	696666	2003	to be sealed in 2024	73	937 - 952	1009.73	St.
P 317L	722092	2005	to be sealed in 2024	157	852 - 862	1008.65	St.
P 318C	696665	2003	S/2012	57	936 - 946	993.41	St.
P 318L	722091	2005	S/2012	139	853 - 863	991.06	St.
319 OWA	696667	2003	S/2012	72	943 - 953	1014.59	St.

Table 2
Well Information Index
Elk River Landfill
Elk River, Minnesota

Well I.D.	MN Unique Number	Year Installed	Altered or Sealed	Approx. Depth ⁽¹⁾	Screen Interval (ft MSL)	Top of Casing Elevation (ft MSL)	Const Material
P 320C	737638	2006		63	888 - 898	951.19	St.
P 320C2	756593	2007		90	862 - 872	951.21	St.
P 320L	737637	2006		110	851 - 856	951.37	St.
P 321L	767990	2009		118	855 - 865	972.56	St.
P 322L	767991	2009		87	862 - 872	948.75	St.
P 323L	786203	2011		96	872 - 883	967.20	St.
P 324L	786202	2011		103	857 - 865	960.40	St.
P 325L	804281	2014		82	856 - 866	942.11	St.
P 326L	804282	2014		85	854 - 864	942.62	St.
P 327L	812996	2016		119	833 - 848	952.35	St.
P 328L	812994	2016		112	836 - 851	948.20	St.
P 329L	812995	2016		98	850 - 865	947.99	St.
P 333L	828060	2018		116	828 - 843	943.72	St.
P 334L	828061	2018		143	829 - 844	972.22	St.
P 335L	828062	2018		148	848 - 863	995.98	St.
336-OWA	853108	2020	extended 2022; resurveyed	22	942 - 957	969.45	St.
337-OWA	853109	2020		99	932 - 947	1031.70	St.
P-337L	853110	2020		186	846 - 856	1031.68	St.
P-338L	853139	2021		115	846 - 861	961.13	St.
P-340L	953140	2021		105	841 - 856	946.43	St.
P-341L	877298	2023		143	846 - 861	988.58	St.
P-342L	871179	2023		100	847 - 862	947.27	St.
401 OWA	683321	2002		66	945 - 955	1010.97	St.
402 OWA	683320	2002		79	945 - 960	1023.56	St.
P 403C	683318	2002		60	938 - 948	998.46	St.
404 OWA	683319	2002	S/2006	57	944 - 954	1001.12	St.
405 OWA	683316	2002	extended: 2004; resurveyed	41	947 - 957	987.17	St.
406 OWA	683317	2002		15	939 - 944	953.71	St.
407 OWA	683315	2002		40	934 - 944	973.87	St.
408 OWA	717920	2004		42	947 - 957	986.55	PVC
P-694477	694477	2003	Surveyed 2015	145	842 - 846	987.86	St.
T1	643948	2002	extended: 2008; resurveyed	85	896 - 911	980.85	St.
T2	643949	2002	extended: 2008; resurveyed	88	892 - 907	979.85	St.
T3	643950	2002	extended: 2008; resurveyed	91	889 - 904	980.39	St.
T4	673801	2002	extended: 2008; resurveyed	93	887 - 902	980.47	St.
T5	733223	2006		83	883 - 898	965.11	St.
T6	733222	2006		84	882 - 897	964.77	St.

Notes:

PVC - polyvinyl chloride

St - stainless steel & low carbon steel

S - sealed/date of well sealing

MSL - Mean Sea Level

⁽¹⁾ Approx. depth in feet from top of riser to bottom of screen

Table 3
Groundwater Elevations
Elk River Landfill
Elk River, Minnesota

Well Number	Elevation of Top of Casing	Water Elevation Oct 20, 2014 ¹	Water Elevation Oct 20, 2015	Water Elevation Oct 18, 2016	Water Elevation Oct 16, 2017	Water Elevation Oct 17, 2018 ¹	Water Elevation Oct 22, 2019 ¹	Water Elevation Oct 11, 2020 ¹	Water Elevation Oct 18, 2021	Water Elevation Oct 26, 2022 ¹	Water Elevation Oct 16, 2023 ¹	Water Elevation Apr 15, 2024 ¹	Water Elevation July 23, 2024 ¹	Water Elevation Oct 14, 2024
P-17C	982.62	956.04	954.96	956.15	956.38	955.19	955.84	955.30	953.17	952.74	953.52		955.53	954.10
22-OWA	1039.68	957.96	956.79	957.00	957.56	956.79	958.53	957.90	955.97	955.14	955.68		955.96	956.43
P-22L	1043.45	952.82	951.93	952.56	952.97	952.16	953.96	952.60	949.75	950.12	950.28	951.72	951.33	951.20
P-29C	957.16	951.26	950.35	950.94	951.35	950.70	952.24	950.98	949.21	948.85	948.98	949.58	949.69	949.73
P-29D	957.35	948.55	947.62	948.26	948.76	948.14	949.93	948.54	944.65**	946.03	946.20	946.76	949.38	946.98
36-OWA	1021.61	958.71	957.49	957.78	958.27	957.41	959.33	958.49	956.51	956.03	956.31	1021.61		957.31
301-OWA	966.54	961.77	960.10	962.27	962.38	962.72	962.34	956.50	955.94	956.23	964.43	963.89	957.99	957.46
P-301C	967.50	951.19	950.31	950.85	951.22	950.54	948.96**	950.79	949.16	948.78	948.98	949.48	958.63**	949.55
P-301L	970.11	951.35	950.56	951.07	951.55	950.86	951.79	951.07	949.39	949.06	949.16	949.83	961.79**	949.83
302-OWA	970.47	960.64	961.18	964.20	961.89	965.26	966.90	958.65	959.45	957.88	964.32		962.77	958.32
P-302C	970.63	951.27	950.27	950.81	951.31	950.67	955.20**	950.91	949.14	948.98	948.92	948.63	949.82	949.55
P-303C	963.77	953.24	952.75	953.70	954.14	953.18	955.48	952.61	950.63	950.47	951.52		955.93**	951.46
P-304C	959.89	954.02	953.22	954.72	955.03	953.93	956.38	953.12	951.21	951.04	952.49	954.09	952.39	952.00
P-305C	963.26	951.03	950.16	950.78	951.20	950.58	952.04	950.92	949.03	948.60	948.84	949.33	955.54**	949.77
P-308C	979.83	957.17	952.24	953.04	953.31	952.45	953.58	952.28	950.40	949.96	950.29		947.21**	950.86
P-308L	979.94						952.58	951.26	949.52	949.15	949.25		950.17	949.97
P-309C	967.71	951.17	950.30	950.98	951.36	950.60	952.20	950.89	949.19	948.77	948.97		959.5**	949.66
P-310C	975.33	954.99	955.61	956.25	956.66	955.96	957.06	953.85	950.13	952.51	952.61		955.33	952.23
P-311C	965.54	953.27	953.18	953.48	953.84	952.93	954.83	953.23	950.96	950.77	950.97		952.34	951.62
P-311L	965.76	950.32		950.21	950.76	950.04	951.60	950.64	948.30	948.06	948.22	948.59	948.36	949.01
P-311D	963.80	947.28	NM	947.38	947.82	947.09	947.39	947.32	946.94	944.91	945.00			
312-OWA	1016.20	956.88	955.73	956.17	956.71	955.85	957.74	956.95	954.55	953.92	954.31		949.74	955.19
P-313C	948.15	>948.15	>948.15	>948.15	>948.15	>948.15	>948.15	>948.15	>948.15	>948.15	>948.15	>948.15	>948.15	>948.15
P-314C	952.02	950.51	950.29	950.74	951.05	950.35	951.63	950.80	948.93	948.27	948.53	948.93	949.72	949.11
315-OWA	972.41		953.27	954.07	954.54	953.36	955.64	954.21	951.70	951.51	952.16		952.91	953.21
P-315L	972.27		949.07	949.81	950.25	949.32	951.17	950.05	947.98	947.44	947.58	948.07	948.47	948.47
317-OWA	1009.73		954.31	955.00	956.42	955.37	957.38	956.17	953.62	953.26	954.07		954.68	954.18
P-317L	1008.65		949.54	950.27	950.95	949.92	951.90	950.75	948.57	947.78	947.96		949.26	949.03
P-320C	951.19	950.88	950.32	950.98	>951.19	950.60	>951.19	951.00	949.19	948.84	949.01	949.49	949.77	949.62
P320C2	951.21	950.91	950.32	951.02	951.08	950.70	>951.21	950.92	949.12	948.87	949.02	949.49	949.81	949.64
P-320L	951.37	950.87	950.30	950.90	951.33	950.62	>951.37	950.97	949.16	948.77	949.01	949.70	949.82	949.57
P-321L	972.56	950.99	950.18	950.73	951.19	950.53	951.99	950.86	949.09	948.71	948.87	949.38	949.68	949.52
P-322L	948.75	>948.75	948.75	>948.75	>948.75	>948.75	>948.75	>948.75	947.64	947.85	947.35	947.71	948.15	948.05
P-323L	967.20	950.68	949.88	950.38	950.87	950.22	951.68	950.52	948.59	948.37	948.53	949.06	949.35	949.18
P-324L	960.40	950.33	949.59	950.11	950.64	949.99	951.57	950.21	948.40	948.04	948.15	948.68	949.28	948.92
P-325L	942.11	>942.11	~ 950.31		~ 952.5 **	~ 950.7	~ 952.8**	~ 949.3**	~ 947.8**	~946.9	~ 947.0	>942.11	>942.11	~947.7**
P-326L	942.62	>942.62	~ 950.37		~ 951.9 **	~ 950.3	~ 952.4**	~ 944.5**	~ 947.5**	~947.0	~ 947.0	>942.62	>942.62	~947.5**
P-327L	952.35			950.37 **	948.75	948.28	949.59	948.16	946.86	946.83		947.59	947.65	
P-328L	948.20			946.13	946.40	945.81	947.13	945.76	944.29	944.40	944.52	945.09	944.98	944.73
P-329L	947.99			944.04 **	945.71	945.72	946.87	945.52	944.11	944.27	944.29	944.90	944.79	944.55
P-333L	943.72											>943.72	>943.72	
P-334L	972.22					946.44	947.79	946.27	944.99	944.90	944.95	945.40	945.40	945.42
P-335L	995.98					946.97	948.25	947.11	944.90	945.28	945.39	945.69	945.85	945.93

Table 3
Groundwater Elevations
Elk River Landfill
Elk River, Minnesota

Well Number	Elevation of Top of Casing	Water Elevation Oct 20, 2014 ¹	Water Elevation Oct 20, 2015	Water Elevation Oct 18, 2016	Water Elevation Oct 16, 2017	Water Elevation Oct 17, 2018 ¹	Water Elevation Oct 22, 2019 ¹	Water Elevation Oct 11, 2020 ¹	Water Elevation Oct 18, 2021	Water Elevation Oct 26, 2022 ¹	Water Elevation Oct 16, 2023 ¹	Water Elevation Apr 15, 2024 ¹	Water Elevation July 23, 2024 ¹	Water Elevation Oct 14, 2024
336-OWA	969.45							956.28	953.71	953.27	954.45		954.45	954.16
337-OWA	1031.70							956.36	954.37	953.18	953.66		954.61	954.61
P-337L	1031.68							951.58	949.58	948.86	948.88		944.43**	950.05
P-338L	961.13								945.76	945.63	945.72	946.38	946.29	946.21
P-340L	946.43								944.83	944.83	944.98		945.43	945.10
P-341L	988.58										946.58	946.93	947.43	947.37
P-342L	947.27											945.27	945.07	
401-OWA	1010.97		958.62	959.20	959.70	958.85	960.61	959.44	957.50	957.11	957.77	957.30	958.67	958.53
402-OWA	1023.56	960.13	959.02	959.53	960.06	959.27	960.96	959.94	958.11	957.56	958.25	958.18	959.03	958.92
P-403C	998.46	959.81	958.82	960.06	960.41	959.15	961.50	958.91	956.57	956.14	956.78	957.56	958.24	957.59
405-OWA	987.17	960.04	959.12	959.57	959.86	958.85	960.92	959.10	957.04	956.67	956.57	956.60	958.12	957.74
P-405L	987.97												951.47	951.05
406-OWA	953.71	942.29	941.71	942.49	942.68	942.39	943.16	941.45	940.43	940.26	940.41	941.29	941.33	940.41
407-OWA	973.87	944.93	944.37	945.24	945.30	944.67	945.82	943.65	942.35	942.78	942.77	943.67	944.74	943.28
408-OWA	986.55	958.86	957.92	959.02	959.57	958.30	960.18	957.86	955.87	955.26	955.87	955.77	956.84	956.50
409-OWA	1044.39										965.57	965.62	965.60	965.80
P-410L	994.56										949.47	949.99	950.36	949.99
411-OWA	1007.34									959.84	960.15	959.96	960.88	960.87
412-OWA	1028.56									961.36	961.91	962.44	962.07	962.54
413-OWA	990.97									958.19	959.20	958.72	960.19	960.12
P-694477	987.86			947.59	948.00	947.32	949.60	947.45	945.93	945.65	945.75	946.42	946.31	946.28

Table 2
Groundwater Elevations
Elk River Landfill
Elk River, Minnesota

Water level elevations in feet, Mean Sea Level (MSL)

Blank indicates no water level collected

S: Well has been sealed

BP: Below top of dedicated pump

** : Unusable/rejected measurement based on hydrograph evaluation

>: groundwater elevation is greater than elevation listed; formerly reported as "Flowing"

~: approximate elevation based on pressure gauge reading

¹ indicates reported water levels were measured during a routine monitoring event and not necessarily on the listed day

Table 4
Groundwater Data Compared to Surface Water-Based Intervention Limits
Elk River Landfill
Elk River, Minnesota

Location			22-OWA	301-OWA	302-OWA	P-303C	P-303C	P-310C	P-311C	312-OWA	336-OWA	337-OWA	P-403C	408-OWA
Date			7/26/2024	7/26/2024	7/26/2024	9/19/2024	10/16/2024	7/26/2024	7/25/2024	7/25/2024	7/26/2024	7/25/2024	10/16/2024	10/16/2024
Parameter	Units	Elk River Surface Water Limits Table - SW-74												
Last Updated		09/28/2010												
Exceedance Key		Bold												
Volatile Organic Compounds														
1,1,1,2-Tetrachloroethane	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
1,1,1-Trichloroethane	ug/l	82.25	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
1,1,2,2-Tetrachloroethane	ug/l	3.25	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	--	--
1,1,2-Trichloroethane	ug/l	11.75	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	--	--
1,1-Dichloroethane	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
1,1-Dichloroethylene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
1,1-Dichloropropene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
1,2,3-Trichlorobenzene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
1,2,3-Trichloropropane	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
1,2,4-Trichlorobenzene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
1,2,4-Trimethylbenzene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
1,2-Dibromo-3-chloropropane (DBCP)	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
1,2-Dibromoethane (EDB)	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
1,2-Dichlorobenzene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
1,2-Dichloroethane	ug/l	47.5	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	--	--
1,2-Dichloroethylene, cis	ug/l	132.25	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	--	--
1,2-Dichloroethylene, trans	ug/l	132.25	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
1,2-Dichloropropane	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
1,3,5-Trimethylbenzene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
1,3-Dichlorobenzene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
1,3-Dichloropropane	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
1,3-Dichloropropene, cis	ug/l		< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	--	--
1,3-Dichloropropene, trans	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
1,4-Dichlorobenzene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
2,2-Dichloropropane	ug/l		< 1.00 U C3	< 1.00 U C3	< 1.00 U C3	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U C3	< 1.00 U C3	< 1.00 U C3	< 1.00 U C3	--	--
Acetone	ug/l		< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U J3 J4	< 10.0 U C3 J3	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	--	--
Allyl chloride	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Benzene	ug/l	28.5	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	--	--
Bromobenzene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Bromochloromethane	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Bromodichloromethane	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Bromoform	ug/l	116.5	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Bromomethane	ug/l		< 1.00 U C3	< 1.00 U C3	< 1.00 U C3	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U C3	< 1.00 U C3	< 1.00 U C3	< 1.00 U C3	--	--
Butylbenzene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Butylbenzene, sec	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Butylbenzene, tert	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Carbon tetrachloride	ug/l	1.475	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	--	--
Chlorobenzene	ug/l	5.0	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Chlorodibromomethane	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Chloroethane	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Chloroform	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Chloromethane	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Chlorotoluene, o	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Chlorotoluene, p	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Cumene (isopropyl benzene)	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Cymene p- (toluene isopropyl p-)	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Dibromomethane (methylene bromide)	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Dichlorodifluoromethane (Freon-12)	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U J4	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Dichlorofluoromethane (Freon-21)	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Ethyl benzene	ug/l	17.0	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Ethyl ether	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Hexachlorobutadiene	ug/l		< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	--	--
Methyl ethyl ketone (2-butanone)	ug/l		< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U J3	< 10.0 U C3	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	--	--

Table 4
Groundwater Data Compared to Surface Water-Based Intervention Limits
Elk River Landfill
Elk River, Minnesota

Location			22-OWA	301-OWA	302-OWA	P-303C	P-303C	P-310C	P-311C	312-OWA	336-OWA	337-OWA	P-403C	408-OWA
Date			7/26/2024	7/26/2024	7/26/2024	9/19/2024	10/16/2024	7/26/2024	7/25/2024	7/25/2024	7/26/2024	7/25/2024	10/16/2024	10/16/2024
Parameter	Units	Elk River Surface Water Limits Table - SW-74												
Last Updated		09/28/2010												
Exceedance Key		Bold												
Methyl isobutyl ketone (MIBK)	ug/l		< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U C3	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	--	--
Methyl tertiary butyl ether (MTBE)	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Methylene chloride	ug/l	485.0	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U J3 J4	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Naphthalene	ug/l	20.25	< 1.00 U C3	< 1.00 U C3	< 1.00 U C3	< 1.00 U C3	< 1.00 U	< 1.00 U C3	< 1.00 U C3	< 1.00 U C3	< 1.00 U C3	< 1.00 U C3	--	--
Propylbenzene	ug/l		< 1.00 U C3	< 1.00 U C3	< 1.00 U C3	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U C3	< 1.00 U C3	< 1.00 U C3	< 1.00 U C3	--	--
Styrene	ug/l	5.3	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Tetrachloroethylene	ug/l	2.225	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Tetrahydrofuran	ug/l		< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U C3 J3	< 5.00 U C3	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	--	--
Toluene	ug/l	63.25	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Trichloroethylene (TCE)	ug/l	30.0	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	--	--
Trichlorofluoromethane (Freon-11)	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Trichlorotrifluoroethane (Freon 113)	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	--
Vinyl chloride	ug/l	2.3	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 U J4	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 U	--	--
Xylene, total	ug/l	41.5	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	--	--
General Parameters														
Alkalinity, total, as CaCO3	mg/l		361	325	284	--	--	691	285	245	195	621	323	297
Anions	meq/l		11.9	6.96	5.83	--	--	14.1	6.40	13.0	4.64	13.6	7.37	6.19
Cation-Anion balance	%		4.86	1.83	0.200	--	--	1.00	1.72	3.85	5.52	3.93	1.78	-1.05
Cations	meq/l		13.1	7.22	5.86	--	--	14.4	6.63	14.0	5.18	14.9	7.64	6.06
Chloride	mg/l	57.5	138	2.40	1.15	--	--	4.45	2.63	273	12.7	14.6	2.52	1.19
Nitrogen, ammonia, as N	mg/l		< 0.100 U	< 0.100 U	< 0.100 U	--	--	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U
Solids, total dissolved	mg/l		677	372	303	--	--	704	339	882	283	720	379	298
Sulfate, as SO4	mg/l	136.75	38.3	19.1	5.96	--	--	8.29	30.2	19.4	18.5	36.1	44.3	12.1
Dissolved oxygen, field	mg/l		5.2	0	0	0.4	0	0.8	0	6.6	7.7	0.1	1.6	2.4
pH, field	pH units		7.29	7.18	7.28	8.22	6.94	7.37	7.96	7.42	7.74	6.91	7.05	7.19
Redox (oxidation potential), field	mV		58	22.4	-28.3	-187	-81.7	-132	-146.6	12.8	95	-35.1	100	150
Specific conductance @ 25 deg C, field	umhos/cm		864	441	359	368	884	1232	387	1035	480	838	702	520
Temperature, field	deg C		10.6	11.6	10.7	12.9	10.8	11.3	9.4	12.2	12.4	10.1	9	11.4
Turbidity, field	NTU		5.4	6.4	--	2	4.9	24	14.4	21.7	6	6.9	34	1
Dissolved Metals														
Arsenic	ug/l	13.25	< 2.00 U	< 2.00 U	< 2.00 U	--	--	< 2.00 U	2.99	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U
Boron	ug/l	125.0	< 200 U	< 200 U	< 200 U	--	--	< 200 U	< 200 U	< 200 U	< 200 U	< 200 U	< 200 U	< 200 U
Calcium	mg/l		151 V	92.0	76.9	--	--	196	80.7	142	63.7	184	81.7	75.7
Chromium	ug/l	80.25	5.22	< 4.00 U	< 4.00 U	--	--	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U
Iron	ug/l	311.25	< 100 U	< 100 U	< 100 U	--	--	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U
Magnesium	mg/l		44.3	28.8	22.7	--	--	50.9	28.7	36.2	18.8	60.4	39.3	24.6
Potassium	mg/l		1.95	2.1	1.74	--	--	2.49	1.22	3.51	1.72	1.8	1.36	< 1 U
Sodium	mg/l		43.2	4.55	2.6	--	--	8.56	4.74	89.6	9.49	11.1	6.87	5.44
Zinc	ug/l	41.75	23.2	12.6	12.8	--	--	24.0	< 10.0 U	11.4	26.1	14.0	< 10.0 U	< 10.0 U

B The analyte was detected in the associated laboratory blank sample(s).

C3 The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.

FD Sample Type: Field Duplicate

J3 The associated batch QC was outside the established quality control range for precision.

J4 The associated batch QC was outside the established quality control range for accuracy.

N Sample Type: Normal

U The analyte was analyzed for, but was not detected.

Table 4
Groundwater Data Compared to Surface Water-Based Intervention Limits
Elk River Landfill
Elk River, Minnesota

Location			22-OWA	301-OWA	302-OWA	P-303C	P-303C	P-310C	P-311C	312-OWA	336-OWA	337-OWA	P-403C	408-OWA
Date			7/26/2024	7/26/2024	7/26/2024	9/19/2024	10/16/2024	7/26/2024	7/25/2024	7/25/2024	7/26/2024	7/25/2024	10/16/2024	10/16/2024
Parameter	Units	Elk River Surface Water Limits Table - SW-74												
Last Updated		09/28/2010												
Exceedance Key		Bold												

UB The analyte was detected in one of the associated laboratory, equipment, field or trip blank samples and is considered non-detect at the concentration reported by the laboratory.

V The sample concentration is too high to evaluate accurate spike recoveries.

Table 5
Groundwater Data Compared to Groundwater-Based Intervention Limits
Elk River Landfill
Elk River, Minnesota

Location				P-326L	P-327L	P-327L	P-328L	P-329L	P-329L	P-329L	P-333L	P-333L	P-334L	P-334L	P-334L	P-334L	P-335L	P-335L	P-335L
Date				10/17/2024	4/15/2024	7/25/2024	7/25/2024	4/15/2024	7/25/2024	10/16/2024	4/15/2024	7/25/2024	5/15/2024	7/22/2024	9/19/2024	10/17/2024	4/15/2024	7/25/2024	10/16/2024
Parameter	Units	MDH Human Health-Based Water Guidance Table	Elk River Groundwater Limits Table - SW-74																
Last Updated		01/16/2024	07/23/2015																
Exceedance Key		Bold	<u>Underline</u>																
Volatile Organic Compounds																			
1,1,1,2-Tetrachloroethane	ug/l	70 HRL93	17.5	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,1,1-Trichloroethane	ug/l	5000 HRL18 (1)	2250.0	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,1,2,2-Tetrachloroethane	ug/l	2 HRL94	0.5	< 0.500 U	--	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	--	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
1,1,2-Trichloroethane	ug/l	3 HRL93	0.75	< 0.750 U	--	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	--	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U
1,1-Dichloroethane	ug/l	80 RAA16 (1)	25.0	4.40	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	4.20	--	4.86	3.89	< 1.00 U	< 1.00 U	< 1.00 U
1,1-Dichloroethylene	ug/l	200 HRL23	50.0	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,1-Dichloropropene	ug/l			< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2,3-Trichlorobenzene	ug/l			< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2,3-Trichloropropane	ug/l	0.003 HRL13 (1)	0.00075	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2,4-Trichlorobenzene	ug/l	4 HRL13 (1)	1.0	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2,4-Trimethylbenzene	ug/l	30 HRL23	25.0	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/l		0.05	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U	< 1.00 U C3	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3
1,2-Dibromoethane (EDB)	ug/l	0.03 HRL23 (1)	0.001	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2-Dichlorobenzene	ug/l	600 HRL93	150.0	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2-Dichloroethane	ug/l	1 HRL13 (1)	<u>0.25</u>	< 0.250 U	--	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	--	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U
1,2-Dichloroethylene, cis	ug/l	6 HRL18 (1)	12.5	1.39	--	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	--	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U
1,2-Dichloroethylene, trans	ug/l	9 HRL23 (1)	10.0	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2-Dichloropropane	ug/l	3 HRL23 (1)	1.25	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,3,5-Trimethylbenzene	ug/l	30 HRL23 (1)	25.0	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,3-Dichlorobenzene	ug/l			< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,3-Dichloropropane	ug/l			< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,3-Dichloropropene, cis	ug/l	2 DCP HRL94	0.5	< 0.500 U	--	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	--	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
1,3-Dichloropropene, trans	ug/l	2 DCP HRL94		< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,4-Dichlorobenzene	ug/l	50 HRL23	2.5	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
2,2-Dichloropropane	ug/l			< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U J3	< 1.00 U	< 1.00 U	< 1.00 U J3	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U J3	< 1.00 U
Acetone	ug/l	3000 HRL23 (1)	1000	< 10.0 U J3 J4	--	< 10.0 U C3	< 10.0 U C3	< 10.0 U	< 10.0 U	< 10.0 U C3 J3	< 10.0 U	< 10.0 U	< 10.0 U	--	< 10.0 U J3 J4	< 10.0 U J3 J4	< 10.0 U	< 10.0 U	< 10.0 U C3 J3
Allyl chloride	ug/l	30 HRL94	7.5	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Benzene	ug/l	2 HRL09 (1)	<u>0.5</u>	< 0.500 U	--	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	--	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
Bromobenzene	ug/l			< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Bromochloromethane	ug/l			< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Bromodichloromethane	ug/l	3 HRL23 (1)	1.5	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Bromoform	ug/l	40 HRL93	10.0	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3
Bromomethane	ug/l	10 HRL93	2.5	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U
Butylbenzene	ug/l			< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Butylbenzene, sec	ug/l			< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3 J4	< 1.00 U
Butylbenzene, tert	ug/l			< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Carbon tetrachloride	ug/l	1 HRL13 (1)	0.25	< 0.250 U	--	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	--	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U
Chlorobenzene	ug/l	100 HRL93	25.0	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Chlorodibromomethane	ug/l	10 HRL93	2.5	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Chloroethane	ug/l	ND RAA16		< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U
Chloroform	ug/l	20 HRL18	7.5	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Chloromethane	ug/l			< 1.00 U	--	< 1.00 U J3	< 1.00 U J3	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Chlorotoluene, o	ug/l			< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Chlorotoluene, p	ug/l			< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Cumene (isopropyl benzene)	ug/l	300 HRL93	75.0	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Cymene p- (toluene isopropyl p-)	ug/l			< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Dibromomethane (methylene bromide)	ug/l			< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Dichlorodifluoromethane (Freon-12)	ug/l	500 RAA17 (1)	175.0	< 1.00 U C5	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C5 J4	< 1.00 U	< 1.00 U	7.27	--	12.7	6.90 C5	< 1.00 U	< 1.00 U	< 1.00 U J4
Dichlorofluoromethane (Freon-21)	ug/l	20 RAA17		3.92	--	&lt													

Table 5
Groundwater Data Compared to Groundwater-Based Intervention Limits
Elk River Landfill
Elk River, Minnesota

Location Date				P-326L 10/17/2024	P-327L 4/15/2024	P-327L 7/25/2024	P-328L 7/25/2024	P-329L 4/15/2024	P-329L 7/25/2024	P-329L 10/16/2024	P-333L 4/15/2024	P-333L 7/25/2024	P-334L 5/15/2024	P-334L 7/22/2024	P-334L 9/19/2024	P-334L 10/17/2024	P-335L 4/15/2024	P-335L 7/25/2024	P-335L 10/16/2024
Parameter	Units	MDH Human Health- Based Water Guidance Table	Elk River Groundwater Limits Table - SW-74																
Last Updated		01/16/2024	07/23/2015																
Exceedance Key		Bold	<u>Underline</u>																
Propylbenzene	ug/l			< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Styrene	ug/l		25.0	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Tetrachloroethylene	ug/l	4 HRL23 (1)	1.25	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Tetrahydrofuran	ug/l	600 HRL18		9.67	--	< 5.00 U C3	< 5.00 U C3	< 5.00 U	< 5.00 U	< 5.00 U C3	< 5.00 U	< 5.00 U C5	7.47	--	9.04 C3 J3	7.81	< 5.00 U	< 5.00 U	< 5.00 U C3
Toluene	ug/l	70 HRL23	50.0	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Trichloroethylene (TCE)	ug/l	0.4 HRL15 (1)	<u>0.1</u>	<u>0.120</u>	--	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	--	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U
Trichlorofluoromethane (Freon-11)	ug/l	2000 HRL93	500.0	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Trichlorotrifluoroethane (Freon 113)	ug/l	200000 HRL93	50000.0	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Vinyl chloride	ug/l	0.2 HRL18 (1)	<u>0.05</u>	<u>0.176</u>	--	< 0.0500 U	< 0.0500 U	< 0.0500 U C3	< 0.0500 U	< 0.0500 U J4	< 0.0500 U C3	< 0.0500 U	0.584	--	0.690	0.545	< 0.0500 U C3	< 0.0500 U	< 0.0500 U J4
Xylene, total	ug/l	300 XYL HRL23 (1)	75	< 2.00 U	--	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	--	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U
General Parameters																			
Alkalinity, total, as CaCO3	mg/l			633	208	197	205	210	206	--	205	198	--	308	--	300	202	197	--
Anions	meq/l			--	--	4.36	4.60	--	4.50	--	--	4.39	--	--	--	--	--	4.42	--
Carbon, total organic	mg/l			2.84	--	--	--	--	--	--	--	--	--	< 1.40 UB	--	1.16	--	--	--
Cation-Anion balance	%			--	--	3.23	3.11	--	-1.26	--	--	-0.687	--	--	--	--	--	-1.01	--
Cations	meq/l			--	--	4.51	4.54	--	4.38	--	--	4.33	--	--	--	--	--	4.33	--
Chloride	mg/l			67.0	11.2	10.6 J6	6.09	3.04	3.45	--	3.94	3.43	--	21.6	--	23.6	4.04	4.10	--
Nitrogen, ammonia, as N	mg/l			--	--	0.214	0.225	--	< 0.100 U	--	--	< 0.100 U	--	--	--	--	--	< 0.100 U	--
Nitrogen, nitrate, as N	mg/l	10 HRLMCL		< 1.00 U	--	--	--	--	--	--	--	--	--	< 1.00 U T8	--	< 1.00 U	--	--	--
Solids, total dissolved	mg/l			--	--	224	229	--	224	--	--	228	--	--	--	--	--	229	--
Sulfate, as SO4	mg/l			17.7	5.85	6.28	15.9	13.4	13.8	--	16.5	16.5	--	18.6	--	18.7	15.1	17.6	--
Dissolved oxygen, field	mg/l			0.8	0.2	0.8	0.9	0.5	0.5	0.4	0.4	0.6	1	--	0.8	0.7	1.1	0.8	1.8
pH, field	pH units			7.21	8.37	8.18	7.96	7.98	7.9	7.74	7.94	7.85	7.48	--	7.23	7.27	7.62	8.12	7.87
Redox (oxidation potential), field	mV			-85	-230	-201	-147	-140	-125	-137	-139	-139	-12	--	-86	-36	-138	-135	-114
Specific conductance @ 25 deg C, field	umhos/cm			1373	409	418	436	395	413	392	400	403	613	--	644	630	398	407	408
Temperature, field	deg C			10.3	8	9	9.7	9.2	9.9	9.2	7.9	9.9	10.5	--	10	9.7	11	11.1	11.4
Turbidity, field	NTU			9.3	9.1	1	13	9.5	2	9	2.3	2	3.8	--	5	13	8.1	28	12
Dissolved Metals																			
Arsenic	ug/l		<u>2.5</u>	--	--	<u>3.62</u>	< 2.00 U	--	< 2.00 U	--	--	< 2.00 U	--	--	--	--	--	< 2.00 U	--
Boron	ug/l	500 RAA17	<u>250.0</u>	--	--	< 200 U	< 200 U	--	< 200 U	--	--	< 200 U	--	--	--	--	--	< 200 U	--
Calcium	mg/l			--	58.9 F1	51.5	54.8	59.5 F1	51.1	--	62.6 F1	53.0	--	--	--	--	60.0 F1	52.3	--
Chromium	ug/l	100 CR HRL93	25.0	--	--	< 4.00 U	< 4.00 U	--	< 4.00 U	--	--	< 4.00 U	--	--	--	--	--	< 4.00 U	--
Iron	ug/l			--	--	2320	810	--	1080	--	--	1310	--	--	--	--	--	879	--
Magnesium	mg/l			--	19.1 F1	18.5	18.2	18.1 F1	18	--	19.3 F1	17.7	--	--	--	--	19.6 F1	17.8	--
Potassium	mg/l			--	1.85 F1	1.61	1.42	1.66 F1	1.77	--	1.29 F1	1.3	--	--	--	--	1.34 F1	1.42	--
Sodium	mg/l			--	6.64 F1	6.8	5.8	5.77 F1	6.07	--	3.33 F1	3.51	--	--	--	--	4.07 F1	4.35	--
Zinc	ug/l	2000 HRL94	500.0	--	--	< 10.0 U	< 10.0 U	--	< 10.0 U	--	--	< 10.0 U	--	--	--	--	--	< 10.0 U	--

Table 5
Groundwater Data Compared to Groundwater-Based Intervention Limits
Elk River Landfill
Elk River, Minnesota

Location				P-337L	P-338L	P-338L	P-338L	P-340L	P-341L	P-341L	P-342L	P694477	P694477	P694477
Date				7/25/2024	4/18/2024	7/22/2024	10/17/2024	7/22/2024	7/23/2024	9/19/2024	7/24/2024	4/18/2024	7/26/2024	10/16/2024
Parameter	Units	MDH Human Health-Based Water Guidance Table	Elk River Groundwater Limits Table - SW-74											
Last Updated		01/16/2024	07/23/2015											
Exceedance Key		Bold	<u>Underline</u>											
Volatile Organic Compounds														
1,1,1,2-Tetrachloroethane	ug/l	70 HRL93	17.5	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,1,1-Trichloroethane	ug/l	5000 HRL18 (1)	2250.0	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,1,2,2-Tetrachloroethane	ug/l	2 HRL94	0.5	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	--	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
1,1,2-Trichloroethane	ug/l	3 HRL93	0.75	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	--	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U
1,1-Dichloroethane	ug/l	80 RAA16 (1)	25.0	< 1.00 U	3.77	10.5	10.0	< 1.00 U	--	< 1.00 U	< 1.00 U	9.48	3.51	2.61
1,1-Dichloroethylene	ug/l	200 HRL23	50.0	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,1-Dichloropropene	ug/l			< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2,3-Trichlorobenzene	ug/l			< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2,3-Trichloropropane	ug/l	0.003 HRL13 (1)	0.00075	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2,4-Trichlorobenzene	ug/l	4 HRL13 (1)	1.0	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2,4-Trimethylbenzene	ug/l	30 HRL23	25.0	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/l		0.05	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3
1,2-Dibromoethane (EDB)	ug/l	0.03 HRL23 (1)	0.001	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2-Dichlorobenzene	ug/l	600 HRL93	150.0	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U J4	< 1.00 U	< 1.00 U	< 1.00 U
1,2-Dichloroethane	ug/l	1 HRL13 (1)	<u>0.25</u>	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	--	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U
1,2-Dichloroethylene, cis	ug/l	6 HRL18 (1)	12.5	< 0.100 U	< 0.100 U	0.981	0.918	< 0.100 U	--	< 0.100 U	< 0.100 U	0.860	0.103	< 0.100 U
1,2-Dichloroethylene, trans	ug/l	9 HRL23 (1)	10.0	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2-Dichloropropane	ug/l	3 HRL23 (1)	1.25	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,3,5-Trimethylbenzene	ug/l	30 HRL23 (1)	25.0	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,3-Dichlorobenzene	ug/l			< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,3-Dichloropropane	ug/l			< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U J4	< 1.00 U	< 1.00 U	< 1.00 U
1,3-Dichloropropene, cis	ug/l	2 DCP HRL94	0.5	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	--	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
1,3-Dichloropropene, trans	ug/l	2 DCP HRL94		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,4-Dichlorobenzene	ug/l	50 HRL23	2.5	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
2,2-Dichloropropane	ug/l			< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U J3	< 1.00 U
Acetone	ug/l	3000 HRL23 (1)	1000	< 10.0 U C3	< 10.0 U	< 10.0 U	< 10.0 U J3 J4	< 10.0 U	--	< 10.0 U J3 J4	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U C3 J3
Allyl chloride	ug/l	30 HRL94	7.5	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Benzene	ug/l	2 HRL09 (1)	<u>0.5</u>	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	--	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
Bromobenzene	ug/l			< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Bromochloromethane	ug/l			< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Bromodichloromethane	ug/l	3 HRL23 (1)	1.5	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Bromoform	ug/l	40 HRL93	10.0	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3
Bromomethane	ug/l	10 HRL93	2.5	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U C3	< 1.00 U C3	< 1.00 U	< 1.00 U
Butylbenzene	ug/l			< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Butylbenzene, sec	ug/l			< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3 J4	< 1.00 U
Butylbenzene, tert	ug/l			< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Carbon tetrachloride	ug/l	1 HRL13 (1)	0.25	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	--	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U
Chlorobenzene	ug/l	100 HRL93	25.0	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Chlorodibromomethane	ug/l	10 HRL93	2.5	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Chloroethane	ug/l	ND RAA16		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Chloroform	ug/l	20 HRL18	7.5	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Chloromethane	ug/l			< 1.00 U J3	< 1.00 U	< 1.00 U J3	< 1.00 U	< 1.00 U J3	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Chlorotoluene, o	ug/l			< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Chlorotoluene, p	ug/l			< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Cumene (isopropyl benzene)	ug/l	300 HRL93	75.0	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Cymene p- (toluene isopropyl p-)	ug/l			< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Dibromomethane (methylene bromide)	ug/l			< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Dichlorodifluoromethane (Freon-12)	ug/l	500 RAA17 (1)	175.0	< 1.00 U	7.52	5.21	4.42 C5	< 1.00 U	--	< 1.00 U	< 1.00 U	4.63	2.78	3.00 C5 J4
Dichlorofluoromethane (Freon-21)	ug/l	20 RAA17		< 1.00 U	15.9	15.9	15.1	< 1.00 U	--	< 1.00 U	< 1.00 U J3	13.8	4.98	5.44
Ethane	ug/l			--	--	9.15	1.78	< 1.29 U	< 1.29 U	--	< 1.29 U	--	--	--
Ethyl benzene	ug/l	40 HRL23	12.5	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Ethyl ether	ug/l	200 RAA16 (1)	50.0	< 1.00 U	17.6	30.0	30.3	< 1.00 U	--	< 1.00 U	< 1.00 U J3	30.5	13.5	10.1
Ethylene	ug/l			--	--	< 1.27 U	< 1.20 U	< 1.27 U	< 1.27 U	--	< 1.27 U	--	--	--
Hexachlorobutadiene	ug/l	1 HRL93	0.25	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	--	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U
Methane	ug/l			--	--	2880	2630	24.9	< 0.678 U	--	42.9	--	--	--
Methyl ethyl ketone (2-butanone)	ug/l	4000 HRL94	1000.0	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	--	< 10.0 U J3	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U C3
Methyl isobutyl ketone (MIBK)	ug/l	300 HRL94	75.0	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	--	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U C3
Methyl tertiary butyl ether (MTBE)	ug/l	60 RAA13 (1)	15	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Methylene chloride	ug/l	5 HRLMCL	1.25	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U J3 J4
Naphthalene	ug/l	70 HRL13	17.5	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U J3	< 1.00 U	--	< 1.00 U C3	< 1.00 U J3	< 1.00 U	< 1.00 U C3	< 1.00 U

Table 5
Groundwater Data Compared to Groundwater-Based Intervention Limits
Elk River Landfill
Elk River, Minnesota

Location				P-337L	P-338L	P-338L	P-338L	P-340L	P-341L	P-341L	P-342L	P694477	P694477	P694477
Date				7/25/2024	4/18/2024	7/22/2024	10/17/2024	7/22/2024	7/23/2024	9/19/2024	7/24/2024	4/18/2024	7/26/2024	10/16/2024
Parameter	Units	MDH Human Health-Based Water Guidance Table	Elk River Groundwater Limits Table - SW-74											
Last Updated		01/16/2024	07/23/2015											
Exceedance Key		Bold	<u>Underline</u>											
Propylbenzene	ug/l			< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Styrene	ug/l		25.0	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Tetrachloroethylene	ug/l	4 HRL23 (1)	1.25	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Tetrahydrofuran	ug/l	600 HRL18		< 5.00 U C3	8.38	16.2 B	7.52	< 5.00 U	--	< 5.00 U C3 J3	< 5.00 U	20.8	< 5.00 U	< 5.00 U C3
Toluene	ug/l	70 HRL23	50.0	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Trichloroethylene (TCE)	ug/l	0.4 HRL15 (1)	<u>0.1</u>	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	--	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U
Trichlorofluoromethane (Freon-11)	ug/l	2000 HRL93	500.0	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Trichlorotrifluoroethane (Freon 113)	ug/l	200000 HRL93	50000.0	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Vinyl chloride	ug/l	0.2 HRL18 (1)	<u>0.05</u>	< 0.0500 U	0.442	1.05	0.984	< 0.0500 U	--	< 0.0500 U	< 0.0500 U	0.795	0.489	0.474 J4
Xylene, total	ug/l	300 XYL HRL23 (1)	75	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	--	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U
General Parameters														
Alkalinity, total, as CaCO3	mg/l			193	--	449	448	179	272	--	203	--	436	--
Anions	meq/l			4.98	--	10.6	--	3.98	--	--	4.22	--	9.74	--
Carbon, total organic	mg/l			--	--	2.63	2.21	< 1.00 U	< 1.00 U	--	1.03	--	--	--
Cation-Anion balance	%			1.06	--	1.27	--	6.85	--	--	0.387	--	0.477	--
Cations	meq/l			5.08	--	10.9	--	4.56	--	--	4.25	--	9.69	--
Chloride	mg/l			9.34	--	43.6	45.1	4.72	24.5	--	1.20	--	21.3 J6	--
Nitrogen, ammonia, as N	mg/l			< 0.100 U	--	< 0.100 U	--	< 0.100 U	--	--	< 0.100 U	--	< 0.100 U J3	--
Nitrogen, nitrate, as N	mg/l	10 HRLMCL		--	--	< 1.00 U T8	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	--	--	--
Solids, total dissolved	mg/l			272	--	545	--	207	--	--	210	--	460	--
Sulfate, as SO4	mg/l			41.6	--	18.8	18.0	12.5	23.7	--	9.38	--	20.4 J6	--
Dissolved oxygen, field	mg/l			0	0.5	0.4	0.7	10.7	--	0.5	0.9	0.1	0.1	0.2
pH, field	pH units			7.47	7.63	7.74	7.49	8.45	--	7.55	8.06	7.4	7.72	7.45
Redox (oxidation potential), field	mV			-221.9	-161	-176	-166	72	--	-172	-43	-98	-210	192
Specific conductance @ 25 deg C, field	umhos/cm			316	895	953	910	404	--	685	411	653	822	786
Temperature, field	deg C			10	9.2	10.1	9.6	11.5	--	10.6	12.1	9.7	9.6	9.6
Turbidity, field	NTU			9.4	2	1	0.8	8	--	60.3	19	2.3	1.3	0.8
Dissolved Metals														
Arsenic	ug/l		<u>2.5</u>	< 2.00 U	--	< 2.00 U	--	< 2.00 U	--	--	< 2.00 U	--	< 2.00 U	--
Boron	ug/l	500 RAA17	<u>250.0</u>	< 200 U	--	< 200 U	--	< 200 U	--	--	< 200 U	--	< 200 U	--
Calcium	mg/l			60.8	--	128	--	51.6	--	--	49.7	--	120 V	--
Chromium	ug/l	100 CR HRL93	25.0	< 4.00 U	--	< 4.00 U	--	< 4.00 U	--	--	< 4.00 U	--	< 4.00 U	--
Iron	ug/l			604	--	2360	--	400	--	--	1410	--	1370	--
Magnesium	mg/l			22.4	--	50.1	--	21	--	--	19.1	--	40.8	--
Potassium	mg/l			1.45	--	2.14	--	1.39	--	--	1.36	--	1.97	--
Sodium	mg/l			3.32	--	4.54	--	4.79	--	--	2.58	--	5.3	--
Zinc	ug/l	2000 HRL94	500.0	< 10.0 U	--	< 10.0 U	--	< 10.0 U	--	--	< 10.0 U	--	< 10.0 U	--

Table 6
Groundwater Concentrations Exceeding Surface Water-Based Intervention Limits
Elk River Landfill
Elk River, Minnesota

Location Date			22-OWA 7/26/2024	312-OWA 7/25/2024	401-OWA 4/16/2014
Parameter	Units	Elk River Surface Water Limits Table - SW-74			
Last Updated		09/28/2010			
Exceedance Key		Bold			
General Parameters					
Chloride	mg/l	57.5	138	273	296

Table 7
Groundwater Concentrations Exceeding Groundwater-Based Intervention Limits
Elk River Landfill
Elk River, Minnesota

				Compliance Wells														
Location				P-29C	P-29C	P-29C	P-301C	P-301L	P-302C	P-302C	P-302C	P-304C	P-304C	P-304C	P-305C	P-305C	P-311L	P-313C
Date				4/16/2024	7/24/2024	10/15/2024	4/19/2024	10/16/2024	4/19/2024	7/24/2024	10/17/2024	4/18/2024	7/24/2024	10/17/2024	7/26/2024	10/15/2024	7/25/2024	4/16/2024
Parameter	Units	MDH Human Health-Based Water Guidance Table	Elk River Groundwater Limits Table - SW-74															
Last Updated		01/16/2024	07/23/2015															
Exceedance Key		Bold	<u>Underline</u>															
Volatile Organic Compounds																		
1,2-Dichloroethane	ug/l	1 HRL13 (1)	<u>0.25</u>	--	--	--	--	--	<u>0.392</u>	<u>0.416</u>	<u>0.461</u>	--	--	--	--	--	--	--
Benzene	ug/l	2 HRL09 (1)	<u>0.5</u>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dichlorofluoromethane (Freon-21)	ug/l	20 RAA17		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethylene (TCE)	ug/l	0.4 HRL15 (1)	<u>0.1</u>	--	--	--	--	--	--	--	--	<u>0.161</u>	<u>0.215</u>	<u>0.214</u>	--	--	--	--
Vinyl chloride	ug/l	0.2 HRL18 (1)	<u>0.05</u>	<u>0.412 C3</u>	<u>0.396</u>	<u>0.654 J4</u>	<u>0.109 C3</u>	<u>0.106 J4</u>	<u>0.538 C3</u>	<u>0.680</u>	<u>0.745</u>	--	<u>0.383</u>	<u>0.286</u>	--	<u>0.113 J4</u>	--	<u>0.133 C3</u>
Dissolved Metals																		
Arsenic	ug/l		<u>2.5</u>	--	--	--	--	--	--	<u>9.99</u>	--	--	<u>3.34</u>	--	<u>5.91</u>	--	<u>4.08</u>	--
Boron	ug/l	500 RAA17	<u>250.0</u>	--	--	--	--	--	--	<u>559</u>	--	--	<u>309</u>	--	<u>310</u>	--	--	--
Manganese	ug/l	100 HRL23		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

-- No exceedance/not analyzed.

(1) Value is representative of the lowest exposure duration published in the Minnesota Department of Health Human Health Advisory Table.

C3 The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.

F1 MS and/or MSD Recovery exceeds the control limits

HRL09 Health Risk Limit 2009.

HRL15 Health Risk Limit 2015.

HRL18 Health Risk Limit 2018.

HRL23 Health Risk Limit 2023.

J4 The associated batch QC was outside the established quality control range for accuracy.

RAA16 Risk Assessment Advice 2016.

RAA17 Risk Assessment Advice 2017.

Table 7
Groundwater Concentrations Exceeding Groundwater-Based Intervention Limits
Elk River Landfill
Elk River, Minnesota

				Compliance Wells															
Location				P-313C	P-313C	P-314C	P-314C	P-315L	P-320C	P-320C2	P-320C2	P-320L	P-320L	P-320L	P-321L	P-321L	P-323L	P-323L	P-323L
Date				7/24/2024	10/17/2024	7/24/2024	10/16/2024	7/26/2024	7/24/2024	4/16/2024	10/15/2024	4/16/2024	7/24/2024	10/15/2024	7/23/2024	10/17/2024	4/18/2024	7/23/2024	10/17/2024
Parameter	Units	MDH Human Health- Based Water Guidance Table	Elk River Groundwater Limits Table - SW-74																
Last Updated		01/16/2024	07/23/2015																
Exceedance Key		Bold	Underline																
Volatile Organic Compounds																			
1,2-Dichloroethane	ug/l	1 HRL13 (1)	0.25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.335	0.313
Benzene	ug/l	2 HRL09 (1)	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dichlorofluoromethane (Freon-21)	ug/l	20 RAA17		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethylene (TCE)	ug/l	0.4 HRL15 (1)	0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.927	0.740
Vinyl chloride	ug/l	0.2 HRL18 (1)	0.05	1.30	0.154	0.256	0.115 J4	--	0.392	0.214 C3	0.301 J4	0.228 C3	0.296	0.221 J4	0.285	0.366	0.223	0.222	0.236
Dissolved Metals																			
Arsenic	ug/l		2.5	2.73	--	--	--	2.90	7.23	--	--	--	--	--	--	--	--	--	--
Boron	ug/l	500 RAA17	250.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	319	--
Manganese	ug/l	100 HRL23		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

-- No exceedance/not analyzed.

(1) Value is representative of the lowest exposure duration published in the Minnesota Department of Health Human Health Advisory Table.

C3 The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.

F1 MS and/or MSD Recovery exceeds the control limits

HRL09 Health Risk Limit 2009.

HRL15 Health Risk Limit 2015.

HRL18 Health Risk Limit 2018.

HRL23 Health Risk Limit 2023.

J4 The associated batch QC was outside the established quality control range for accuracy.

RAA16 Risk Assessment Advice 2016.

RAA17 Risk Assessment Advice 2017.

Table 7
Groundwater Concentrations Exceeding Groundwater-Based Intervention Limits
Elk River Landfill
Elk River, Minnesota

				Compliance Wells																Non-Compliance Wells				
Location				P-325L	P-325L	P-325L	P-326L	P-326L	P-326L	P-327L	P-334L	P-334L	P-334L	P-338L	P-338L	P-338L	P-342L	P694477	P694477	P694477	P-17C	P-308C	P-308L	P-309C
Date				4/16/2024	7/23/2024	10/17/2024	4/16/2024	7/23/2024	10/17/2024	7/25/2024	5/15/2024	9/19/2024	10/17/2024	4/18/2024	7/22/2024	10/17/2024	4/15/2024	4/18/2024	7/26/2024	10/16/2024	7/24/2024	7/26/2024	7/24/2024	7/26/2024
Parameter	Units	MDH Human Health-Based Water Guidance Table	Elk River Groundwater Limits Table - SW-74																					
Last Updated		01/16/2024	07/23/2015																					
Exceedance Key		Bold	Underline																					
Volatile Organic Compounds																								
1,2-Dichloroethane	ug/l	1 HRL13 (1)	0.25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Benzene	ug/l	2 HRL09 (1)	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.952	0.935	--	0.862
Dichlorofluoromethane (Freon-21)	ug/l	20 RAA17		--	--	--	--	--	--	--	25.4	--	--	--	--	--	--	--	--	--	--	--	--	
Trichloroethylene (TCE)	ug/l	0.4 HRL15 (1)	0.1	--	--	--	--	0.154	0.120	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Vinyl chloride	ug/l	0.2 HRL18 (1)	0.05	0.533 C3	0.556	0.643	0.156 C3	0.160	0.176	--	0.584	0.690	0.545	0.442	1.05	0.984	--	0.795	0.489	0.474 J4	0.289	--	1.74	0.111
Dissolved Metals																								
Arsenic	ug/l		2.5	--	--	--	--	--	--	3.62	--	--	--	--	--	--	--	--	--	--	22.3	35.0	--	35.2
Boron	ug/l	500 RAA17	250.0	--	251	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4330	3170	--	3150
Manganese	ug/l	100 HRL23		--	--	--	--	--	--	--	--	--	--	--	--	--	114 F1	--	--	--	--	--	--	

-- No exceedance/not analyzed.

(1) Value is representative of the lowest exposure duration published in the Minnesota Department of Health Human Health Advisory Table.

C3 The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.

F1 MS and/or MSD Recovery exceeds the control limits

HRL09 Health Risk Limit 2009.

HRL15 Health Risk Limit 2015.

HRL18 Health Risk Limit 2018.

HRL23 Health Risk Limit 2023.

J4 The associated batch QC was outside the established quality control range for accuracy.

RAA16 Risk Assessment Advice 2016.

RAA17 Risk Assessment Advice 2017.

Table 8
Baseline Groundwater Data
Elk River Landfill
Elk River, Minnesota

Location				P-341L	P-342L
Date				4/15/2024	4/15/2024
Parameter	Units	MDH Human Health-Based Water Guidance Table	Elk River Groundwater Limits Table - SW-74		
Last Updated		01/16/2024	07/23/2015		
Exceedance Key		Bold	No Exceedances		
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	ug/l	70 HRL93	17.5	< 1.00 U	< 1.00 U
1,1,1-Trichloroethane	ug/l	5000 HRL18 (1)	2250.0	< 1.00 U	< 1.00 U
1,1,2,2-Tetrachloroethane	ug/l	2 HRL94	0.5	< 0.500 U	< 0.500 U
1,1,2-Trichloroethane	ug/l	3 HRL93	0.75	< 0.750 U	< 0.750 U
1,1-Dichloroethane	ug/l	80 RAA16 (1)	25.0	< 1.00 U	< 1.00 U
1,1-Dichloroethylene	ug/l	200 HRL23	50.0	< 1.00 U	< 1.00 U
1,1-Dichloropropene	ug/l			< 1.00 U	< 1.00 U
1,2,3-Trichlorobenzene	ug/l			< 1.00 U	< 1.00 U
1,2,3-Trichloropropane	ug/l	0.003 HRL13 (1)	0.00075	< 1.00 U	< 1.00 U
1,2,4-Trichlorobenzene	ug/l	4 HRL13 (1)	1.0	< 1.00 U	< 1.00 U
1,2,4-Trimethylbenzene	ug/l	30 HRL23	25.0	< 1.00 U	< 1.00 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/l		0.05	< 1.00 U	< 1.00 U
1,2-Dibromoethane (EDB)	ug/l	0.03 HRL23 (1)	0.001	< 1.00 U	< 1.00 U
1,2-Dichlorobenzene	ug/l	600 HRL93	150.0	< 1.00 U	< 1.00 U
1,2-Dichloroethane	ug/l	1 HRL13 (1)	0.25	< 0.250 U	< 0.250 U
1,2-Dichloroethylene, cis	ug/l	6 HRL18 (1)	12.5	< 0.100 U	< 0.100 U
1,2-Dichloroethylene, trans	ug/l	9 HRL23 (1)	10.0	< 1.00 U	< 1.00 U
1,2-Dichloropropane	ug/l	3 HRL23 (1)	1.25	< 1.00 U	< 1.00 U
1,3,5-Trimethylbenzene	ug/l	30 HRL23 (1)	25.0	< 1.00 U	< 1.00 U
1,3-Dichlorobenzene	ug/l			< 1.00 U	< 1.00 U
1,3-Dichloropropane	ug/l			< 1.00 U	< 1.00 U
1,3-Dichloropropene, cis	ug/l	2 DCP HRL94	0.5	< 0.500 U	< 0.500 U
1,3-Dichloropropene, trans	ug/l	2 DCP HRL94		< 1.00 U	< 1.00 U
1,4-Dichlorobenzene	ug/l	50 HRL23	2.5	< 1.00 U	< 1.00 U
2,2-Dichloropropane	ug/l			< 1.00 U C3	< 1.00 U C3
Acetone	ug/l	3000 HRL23 (1)	1000	< 10.0 U	< 10.0 U
Allyl chloride	ug/l	30 HRL94	7.5	< 1.00 U	< 1.00 U
Benzene	ug/l	2 HRL09 (1)	0.5	< 0.500 U	< 0.500 U
Bromobenzene	ug/l			< 1.00 U	< 1.00 U
Bromochloromethane	ug/l			< 1.00 U	< 1.00 U
Bromodichloromethane	ug/l	3 HRL23 (1)	1.5	< 1.00 U	< 1.00 U
Bromoform	ug/l	40 HRL93	10.0	< 1.00 U	< 1.00 U
Bromomethane	ug/l	10 HRL93	2.5	< 1.00 U C3	< 1.00 U C3
Butylbenzene	ug/l			< 1.00 U	< 1.00 U
Butylbenzene, sec	ug/l			< 1.00 U	< 1.00 U
Butylbenzene, tert	ug/l			< 1.00 U	< 1.00 U
Carbon tetrachloride	ug/l	1 HRL13 (1)	0.25	< 0.250 U	< 0.250 U
Chlorobenzene	ug/l	100 HRL93	25.0	< 1.00 U	< 1.00 U
Chlorodibromomethane	ug/l	10 HRL93	2.5	< 1.00 U	< 1.00 U
Chloroethane	ug/l	ND RAA16		< 1.00 U C3	< 1.00 U C3
Chloroform	ug/l	20 HRL18	7.5	< 1.00 U	< 1.00 U
Chloromethane	ug/l			< 1.00 U C3	< 1.00 U C3
Chlorotoluene, o	ug/l			< 1.00 U	< 1.00 U
Chlorotoluene, p	ug/l			< 1.00 U	< 1.00 U
Cumene (isopropyl benzene)	ug/l	300 HRL93	75.0	< 1.00 U	< 1.00 U
Cymene p- (toluene isopropyl p-)	ug/l			< 1.00 U	< 1.00 U
Dibromomethane (methylene bromide)	ug/l			< 1.00 U	< 1.00 U
Dichlorodifluoromethane (Freon-12)	ug/l	500 RAA17 (1)	175.0	< 1.00 U	< 1.00 U
Dichlorofluoromethane (Freon-21)	ug/l	20 RAA17		< 1.00 U	< 1.00 U
Ethyl benzene	ug/l	40 HRL23	12.5	< 1.00 U	< 1.00 U
Ethyl ether	ug/l	200 RAA16 (1)	50.0	< 1.00 U	< 1.00 U
Hexachlorobutadiene	ug/l	1 HRL93	0.25	< 0.250 U	< 0.250 U

Table 8
Baseline Groundwater Data
Elk River Landfill
Elk River, Minnesota

				Location Date	P-341L 4/15/2024	P-342L 4/15/2024
Parameter	Units	MDH Human Health- Based Water Guidance Table	Elk River Groundwater Limits Table - SW-74			
Last Updated		01/16/2024	07/23/2015			
Exceedance Key		Bold	No Exceedances			
Methyl ethyl ketone (2-butanone)	ug/l	4000 HRL94	1000.0	< 10.0 U	< 10.0 U	
Methyl isobutyl ketone (MIBK)	ug/l	300 HRL94	75.0	< 5.00 U	< 5.00 U	
Methyl tertiary butyl ether (MTBE)	ug/l	60 RAA13 (1)	15	< 1.00 U	< 1.00 U	
Methylene chloride	ug/l	5 HRLMCL	1.25	< 1.00 U	< 1.00 U	
Naphthalene	ug/l	70 HRL13	17.5	< 1.00 U	< 1.00 U	
Propylbenzene	ug/l			< 1.00 U	< 1.00 U	
Styrene	ug/l		25.0	< 1.00 U	< 1.00 U	
Tetrachloroethylene	ug/l	4 HRL23 (1)	1.25	< 1.00 U	< 1.00 U	
Tetrahydrofuran	ug/l	600 HRL18		< 5.00 U	< 5.00 U	
Toluene	ug/l	70 HRL23	50.0	< 1.00 U	< 1.00 U	
Trichloroethylene (TCE)	ug/l	0.4 HRL15 (1)	0.1	< 0.100 U	< 0.100 U	
Trichlorofluoromethane (Freon-11)	ug/l	2000 HRL93	500.0	< 1.00 U	< 1.00 U	
Trichlorotrifluoroethane (Freon 113)	ug/l	200000 HRL93	50000.0	< 1.00 U	< 1.00 U	
Vinyl chloride	ug/l	0.2 HRL18 (1)	0.05	< 0.0500 U C3	< 0.0500 U C3	
Xylene, total	ug/l	300 XYL HRL23 (1)	75	< 2.00 U	< 2.00 U	
General Parameters						
Alkalinity, total, as CaCO3	mg/l			274	145	
Anions	meq/l			6.56	3.03	
Cations	meq/l			6.23	3.57	
Chloride	mg/l			24.6	1.05	
Nitrogen, ammonia, as N	mg/l			< 0.100 U	< 0.100 U	
Nitrogen, nitrate + nitrite, as N	mg/l			< 0.100 U	< 0.100 U	
Solids, total dissolved	mg/l			339	171	
Solids, total suspended	mg/l			37.8	< 4.00 U	
Sulfate, as SO4	mg/l			18.9	6.72	
Dissolved oxygen, field	mg/l			0.1	0.2	
pH, field	pH units			8.56	7.94	
Redox (oxidation potential), field	mV			-329	-199	
Specific conductance @ 25 deg C, field	umhos/cm			575	368	
Temperature, field	deg C			10.2	7.7	
Turbidity, field	NTU			15.5	4.9	
Dissolved Metals						
Arsenic	ug/l		2.5	< 2.00 U	< 2.00 UF1	
Boron	ug/l	500 RAA17	250.0	< 200 U	< 200 U F1	
Cadmium	ug/l	0.5 HRL15 (1)		< 2.00 U	< 2.00 U F1	
Calcium	mg/l			75.8	44.2 F1	
Chromium	ug/l	100 CR HRL93	25.0	6.46	< 4.00 UF1	
Copper	ug/l			< 10.0 U	< 10.0 U F1	
Iron	ug/l			< 100 U	< 100 U F1	
Lead	ug/l			< 10.0 U	< 10.0 U F1	
Magnesium	mg/l			26.9	14.4 F1 15.3 F1	
Manganese	ug/l	100 HRL23		84.3	114 F1	
Mercury	ug/l			< 0.200 U	< 0.200 U F1	
Potassium	mg/l			3.02	1.20 F1	
Sodium	mg/l			3.58	2.41 F1	
Zinc	ug/l	2000 HRL94	500.0	42.3	17.1 F1	

Table 4
Groundwater Data Compared to Groundwater-Based Intervention Limits
Elk River Landfill
Elk River, Minnesota

Barr Standard Footnotes and Qualifiers

--	Not analyzed/Not available.
B	The analyte was detected in the associated laboratory blank sample(s).
J	Estimated detected value. Either certain QC criteria were not met or the concentration is between the laboratory's detection and quantitation limits.
J+	The result is an estimated quantity and may be biased high.
J-	The result is an estimated quantity and may be biased low.
U	The analyte was analyzed for, but was not detected.
UJ	The analyte was analyzed for, but was not detected. The reported value is approximate and may be inaccurate or imprecise.

Laboratory Qualifiers

B	The same analyte is found in the associated blank.
C3	The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.
C5	The reported concentration is an estimate. The continuing calibration standard associated with this data responded high. Data is likely to show a high bias concerning the result.
F1	MS and/or MSD Recovery exceeds the control limits
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

MDH Human Health-Based Water Guidance Table

(1)	Value is representative of the lowest exposure duration published in the Minnesota Department of Health Human Health Advisory Table.
CR	Value represents the criteria for Chromium, hexavalent.
DCP	Value shown is 1,3-dichloropropene in the MDH criterion, however, the laboratory reports cis and trans isomers individually.
HBV20	Health Based Value 2020.
HBV22	Health Based Value 2022.
HRL09	Health Risk Limit 2009.
HRL13	Health Risk Limit 2013.
HRL15	Health Risk Limit 2015.
HRL18	Health Risk Limit 2018.
HRL23	Health Risk Limit 2023.
HRL93	Health Risk Limit 1993.
HRL94	Health Risk Limit 1994.
HRLMCL	Health Risk Limit; Maximum Contaminant Level.
ND	Not derived due to insufficient information.
RAA13	Risk Assessment Advice 2013.
RAA16	Risk Assessment Advice 2016.
RAA17	Risk Assessment Advice 2017.
XYL	Value shown is for the sum of the mixed o,m and p Xylene isomers.

Table 9
Residential Well Data
Elk River Landfill
Elk River, Minnesota

Location			22130 Quinn St	22915 Hwy 169	ERL Shop Well	Ridges Develop.	22205 Elk Lake Rd	22275 Elk Lake Rd NW	12901 221st Ave NW	22447 Tipton St.	12163 223rd Ave	12265 223rd Ave	12269 223rd St	12183 223rd Ave	22272 Quinn St	11661 225th Ave
Date			10/21/2024	10/21/2024	10/21/2024	10/21/2024	10/22/2024	10/22/2024	10/22/2024	10/21/2024	10/22/2024	10/22/2024	10/22/2024	10/21/2024	10/21/2024	10/21/2024
Unique ID/MPCA Location Unique Identified (LUI)			638355	545375	420558	626766	625475	720300	535970	813437	876409	876411	876410	876412	876413	ZW00217
Parameter	Units	MDH Human Health-Based Water Guidance Table														
Last Updated		01/16/2024														
Exceedance Key		No Exceedance														
Volatile Organic Compounds																
1,1,1,2-Tetrachloroethane	ug/l	70 HRL93	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,1,1-Trichloroethane	ug/l	5000 HRL18 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,1,2,2-Tetrachloroethane	ug/l	2 HRL94	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
1,1,2-Trichloroethane	ug/l	3 HRL93	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U
1,1-Dichloroethane	ug/l	80 RAA16 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,1-Dichloroethylene	ug/l	200 HRL23	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,1-Dichloropropene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2,3-Trichlorobenzene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2,3-Trichloropropane	ug/l	0.003 HRL13 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2,4-Trichlorobenzene	ug/l	4 HRL13 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2,4-Trimethylbenzene	ug/l	30 HRL23	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2-Dibromoethane (EDB)	ug/l	0.03 HRL23 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2-Dichlorobenzene	ug/l	600 HRL93	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2-Dichloroethane	ug/l	1 HRL13 (1)	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U
1,2-Dichloroethylene, cis	ug/l	6 HRL18 (1)	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U
1,2-Dichloroethylene, trans	ug/l	9 HRL23 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2-Dichloropropane	ug/l	3 HRL23 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,3,5-Trimethylbenzene	ug/l	30 HRL23 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,3-Dichlorobenzene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,3-Dichloropropane	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,3-Dichloropropene, cis	ug/l	2 DCP HRL94	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
1,3-Dichloropropene, trans	ug/l	2 DCP HRL94	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,4-Dichlorobenzene	ug/l	50 HRL23	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
2,2-Dichloropropane	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Acetone	ug/l	3000 HRL23 (1)	< 10.0 U J3 J4	< 10.0 U J3 J4	< 10.0 U J3 J4	< 10.0 U J3 J4	< 10.0 UC5J3J4	< 10.0 U J3 J4	< 10.0 U J3 J4	< 10.0 U J3 J4	< 10.0 U J3 J4	< 10.0 U J3 J4	< 10.0 U J3 J4	< 10.0 U J3 J4	< 10.0 U J3 J4	< 10.0 U J3 J4
Allyl chloride	ug/l	30 HRL94	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Benzene	ug/l	2 HRL09 (1)	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
Bromobenzene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Bromochloromethane	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Bromodichloromethane	ug/l	3 HRL23 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Bromoform	ug/l	40 HRL93	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Bromomethane	ug/l	10 HRL93	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Butylbenzene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Butylbenzene, sec	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Butylbenzene, tert	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Carbon tetrachloride	ug/l	1 HRL13 (1)	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U
Chlorobenzene	ug/l	100 HRL93	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Chlorodibromomethane	ug/l	10 HRL93	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Chloroethane	ug/l	ND RAA16	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Chloroform	ug/l	20 HRL18	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Chloromethane	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Chlorotoluene, o	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Chlorotoluene, p	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Cumene (isopropyl benzene)	ug/l	300 HRL93	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Cymene p- (toluene isopropyl p-)	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Dibromomethane (methylene bromide)	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Dichlorodifluoromethane (Freon-12)	ug/l	500 RAA17 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Dichlorofluoromethane (Freon-21)	ug/l	20 RAA17	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Ethyl benzene	ug/l	40 HRL23	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U

Table 9
Residential Well Data
Elk River Landfill
Elk River, Minnesota

Location			22130 Quinn St	22915 Hwy 169	ERL Shop Well	Ridges Develop.	22205 Elk Lake Rd	22275 Elk Lake Rd NW	12901 221st Ave NW	22447 Tipton St.	12163 223rd Ave	12265 223rd Ave	12269 223rd St	12183 223rd Ave	22272 Quinn St	11661 225th Ave
Date			10/21/2024	10/21/2024	10/21/2024	10/21/2024	10/22/2024	10/22/2024	10/22/2024	10/21/2024	10/22/2024	10/22/2024	10/22/2024	10/21/2024	10/21/2024	10/21/2024
Unique ID/MPCA Location Unique Identified (LUI)			638355	545375	420558	626766	625475	720300	535970	813437	876409	876411	876410	876412	876413	ZW00217
Parameter	Units	MDH Human Health-Based Water Guidance Table														
Last Updated		01/16/2024														
Exceedance Key		No Exceedance														
Ethyl ether	ug/l	200 RAA16 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Hexachlorobutadiene	ug/l	1 HRL93	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U
Methyl ethyl ketone (2-butanone)	ug/l	4000 HRL94	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U
Methyl isobutyl ketone (MIBK)	ug/l	300 HRL94	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Methyl tertiary butyl ether (MTBE)	ug/l	60 RAA13 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Methylene chloride	ug/l	5 HRLMCL	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Naphthalene	ug/l	70 HRL13	< 1.00 U J3	< 1.00 U J3	< 1.00 U J3	< 1.00 U J3	< 1.00 U J3	< 1.00 U J3	< 1.00 U J3	< 1.00 U J3	< 1.00 U J3	< 1.00 U J3	< 1.00 U J3	< 1.00 U J3	< 1.00 U J3	< 1.00 U J3
Propylbenzene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Styrene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Tetrachloroethylene	ug/l	4 HRL23 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Tetrahydrofuran	ug/l	600 HRL18	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Toluene	ug/l	70 HRL23	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Trichloroethylene (TCE)	ug/l	0.4 HRL15 (1)	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U
Trichlorofluoromethane (Freon-11)	ug/l	2000 HRL93	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Trichlorotrifluoroethane (Freon 113)	ug/l	200000 HRL93	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Vinyl chloride	ug/l	0.2 HRL18 (1)	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 U
Xylene, total	ug/l	300 XYL HRL23 (1)	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U
General Parameters																
Alkalinity, total, as CaCO3	mg/l		222	216	173	184	154	187	169	175	192	187	182	178	177	178
Chemical Oxygen Demand	mg/l		< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U
Chloride	mg/l		3.9	37.7	< 1 U	< 1 U	16.4	5.13	6.03	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Nitrogen, ammonia, as N	mg/l		< 0.100 U	< 0.100 U	0.153	0.257	0.178	0.391	< 0.100 U	0.243	< 0.100 U	0.187	0.210	< 0.100 U	0.210	0.225
Nitrogen, nitrate + nitrite, as N	mg/l		< 0.100 U	0.130	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U
Solids, total dissolved	mg/l		266	321	181	195	286	242	226	178	218	185	185	201	175	194
Solids, total suspended	mg/l		< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	4.90	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U
Sulfate, as SO4	mg/l		19.2	27.8	< 5.00 U	< 5.00 U	59.6	21.5	28.7 J6	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	6.17
Dissolved oxygen, field	mg/l		0.8	0.8	0.4	2.8	0.9	0.8	0.7	0.3	1.5	0.5	1.6	0.8	0.4	0.7
pH, field	pH units		7.46	7.71	7.6	7.7	7.3	7.56	7.48	7.53	7.55	7.72	7.33	8.3	7.89	7.89
Redox (oxidation potential), field	mV		110	190	-110	-20	-10	-111	-124	-130	-31	-150	-166	-50	-91	-50
Specific conductance @ 25 deg C, field	umhos/cm		4210	565	340	350	457	402	385	325	337	336	337	420	331	344
Temperature, field	deg C		9.9	10.8	11.9	8.8	11	9.7	9.9	10.5	9.9	9.3	10.8	11.9	10.3	9.9
Turbidity, field	NTU		0.5	9	1.0	6.2	1.4	1.7	1.5	1.5	1.1	1.0	1.0	1.0	1.3	1.7
Total Metals																
Calcium	mg/l		61.1	74.1	41.4	45.8	65.4	54.7	49.8	41.6	< 1.00 U	43.4	43.7	< 1.00 U	41.3	38.8
Magnesium	mg/l		20.9	24.0	12.9	13.9	14.8	15.5	15.1	12.5	< 1.00 U	13.2	13.2	< 1.00 U	12.8	15.0
Potassium	mg/l		1.66	1.75	1.49	1.32	1.49	1.89	1.63	1.58	< 1.00 U	1.36	1.40	< 1.00 U	1.35	1.60
Sodium	mg/l		3.92	3.30	6.45	5.83	3.72	5.16	5.90	5.77	86.4	5.37	5.27	88.7	4.87	8.03

Data Footnotes and Qualifiers

Barr Standard Footnotes and Qualifiers

--	Not analyzed/Not available.
U	The analyte was analyzed for, but was not detected.

Laboratory Qualifiers

B	The same analyte is found in the associated blank.
C3	The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
Q	Sample was prepared and/or analyzed past holding time as defined in the method. Concentrations should be considered minimum values.
V	The sample concentration is too high to evaluate accurate spike recoveries.

MDH Human Health-Based Water Guidance Table

(1)	Value is representative of the lowest exposure duration published in the Minnesota Department of Health Human Health Advisory Table.
DCP	Value shown is 1,3-dichloropropene in the MDH criterion, however, the laboratory reports cis and trans isomers individually.
HRL09	Health Risk Limit 2009.
HRL13	Health Risk Limit 2013.
HRL15	Health Risk Limit 2015.
HRL18	Health Risk Limit 2018.
HRL23	Health Risk Limit 2023.
HRL93	Health Risk Limit 1993.
HRL94	Health Risk Limit 1994.
HRLMCL	Health Risk Limit; Maximum Contaminant Level.
ND	Not derived due to insufficient information.
RAA13	Risk Assessment Advice 2013.
RAA16	Risk Assessment Advice 2016.
RAA17	Risk Assessment Advice 2017.
XYL	Value shown is for the sum of the mixed o,m and p Xylene isomers.

Table 10
Lysimeter Purge Volumes
Elk River Landfill
Elk River, Minnesota

Lysimeter ID	Purge Volumes (gallons)			
	Winter Monitoring Event	Spring Monitoring Event	Summer Monitoring Event	Fall Monitoring Event
LYS-6N*	Not measured	247	143	79
LYS-6S	Not measured	--	--	--
LYS-10	Not measured	--	--	--
LYS-11	Not measured	15	15	<5
LYS-12	Not measured	0	0	<5
LYS-13	Not measured	15	<5	<5
LYS-14	Not measured	0	0	<5
LYS-15	Not measured	0	0	<5
LYS-16	Not measured	0	0	<5
LYS-17	Not measured	15	15	7
LYS-18	Not measured	0	0	7
LYS-19	Not measured	15	0	<5
LYS-20	Not measured	0	0	7

Bold indicates sample was collected for laboratory analysis.

-- no purging conducted; lysimeter undergoing evaluation

* LYS-6N is undergoing a continuous pumping program.

Table 11
Lysimeter Data
Elk River Landfill
Elk River, Minnesota

Location		LYS-11	LYS-11	LYS-13	LYS-17	LYS-17	LYS-19	LYS-6N	LYS-6N
Date		4/18/2024	8/02/2024	4/18/2024	4/18/2024	8/02/2024	4/18/2024	8/02/2024	10/22/2024
Parameter	Units								
Volatile Organic Compounds									
1,1,1,2-Tetrachloroethane	ug/l	< 0.100 U	--	< 0.100 U	< 0.100 U	--	< 0.100 U	--	< 0.100 U Q
1,1,1-Trichloroethane	ug/l	< 0.100 U	--	< 0.100 U	< 0.100 U	--	< 0.100 U	--	< 0.100 U Q
1,1,2,2-Tetrachloroethane	ug/l	< 0.100 U	--	< 0.100 U	< 0.100 U	--	< 0.100 U	--	< 0.100 U Q
1,1-Dichloroethane	ug/l	< 0.100 U	--	< 0.100 U	< 0.100 U	--	< 0.100 U	--	< 0.100 U Q
1,1-Dichloroethylene	ug/l	< 0.100 U	--	< 0.100 U	< 0.100 U	--	< 0.100 U	--	< 0.100 U Q
1,1-Dichloropropene	ug/l	< 0.100 U	--	< 0.100 U	< 0.100 U	--	< 0.100 U	--	< 0.100 U Q
1,2,3-Trichlorobenzene	ug/l	< 0.500 U	--	< 0.500 U	< 0.500 U	--	< 0.500 U	--	< 0.500 U Q
1,2,3-Trichloropropane	ug/l	< 0.500 U	--	< 0.500 U	< 0.500 U	--	< 0.500 U	--	< 0.500 U Q
1,2,4-Trichlorobenzene	ug/l	< 0.500 U	--	< 0.500 U	< 0.500 U	--	< 0.500 U	--	< 0.500 U Q
1,2,4-Trimethylbenzene	ug/l	< 0.200 U	--	< 0.200 U	< 0.200 U	--	< 0.200 U	--	< 0.200 U Q
1,2-Dibromo-3-chloropropane (DBCP)	ug/l	< 1.00 U	--	< 1.00 U	< 1.00 U	--	< 1.00 U	--	< 1.00 U Q
1,2-Dibromoethane (EDB)	ug/l	< 0.100 U	--	< 0.100 U	< 0.100 U	--	< 0.100 U	--	< 0.100 U Q
1,2-Dichlorobenzene	ug/l	< 0.200 U	--	< 0.200 U	< 0.200 U	--	< 0.200 U	--	< 0.200 U Q
1,2-Dichloroethane	ug/l	< 0.100 U	--	< 0.100 U	< 0.100 U	--	< 0.100 U	--	< 0.100 U Q
1,2-Dichloroethylene	ug/l	< 0.100 U	--	0.219	< 0.100 U	--	< 0.100 U	--	< 0.100 U Q
1,2-Dichloroethylene, cis	ug/l	< 0.100 U	--	0.219	< 0.100 U	--	< 0.100 U	--	< 0.100 U Q
1,2-Dichloroethylene, trans	ug/l	< 0.200 U	--	< 0.200 U	< 0.200 U	--	< 0.200 U	--	< 0.200 U Q
1,2-Dichloropropane	ug/l	< 0.200 U	--	< 0.200 U	< 0.200 U	--	< 0.200 U	--	< 0.200 U Q
1,3,5-Trimethylbenzene	ug/l	< 0.200 U	--	< 0.200 U	< 0.200 U	--	< 0.200 U	--	< 0.200 U Q
1,3-Dichlorobenzene	ug/l	< 0.200 U	--	< 0.200 U	< 0.200 U	--	< 0.200 U	--	< 0.200 U Q
1,3-Dichloropropane	ug/l	< 0.200 U	--	< 0.200 U	< 0.200 U	--	< 0.200 U	--	< 0.200 U Q
1,3-Dichloropropene	ug/l	< 0.100 U	--	< 0.100 U	< 0.100 U	--	< 0.100 U	--	< 0.100 U Q
1,3-Dichloropropene, cis	ug/l	< 0.100 U	--	< 0.100 U	< 0.100 U	--	< 0.100 U	--	< 0.100 U Q
1,3-Dichloropropene, trans	ug/l	< 0.200 U	--	< 0.200 U	< 0.200 U	--	< 0.200 U	--	< 0.200 U Q
1,4-Dichlorobenzene	ug/l	< 0.200 U	--	< 0.200 U	< 0.200 U	--	< 0.200 U	--	< 0.200 U Q
2,2-Dichloropropane	ug/l	< 0.100 U	--	< 0.100 U	< 0.100 U	--	< 0.100 U	--	< 0.100 U Q
Acetone	ug/l	< 2.00 U	--	< 2.00 U	< 2.00 U	--	4.55 C5	--	3.30 Q
Allyl chloride	ug/l	< 1.00 U	--	< 1.00 U	< 1.00 U	--	< 1.00 U	--	< 1.00 U Q
Benzene	ug/l	< 0.0400 U	--	0.0780	< 0.0400 U	--	< 0.0400 U	--	< 0.0400 U Q
Bromobenzene	ug/l	< 0.500 U	--	< 0.500 U	< 0.500 U	--	< 0.500 U	--	< 0.500 U Q
Bromochloromethane	ug/l	< 0.200 U	--	< 0.200 U	< 0.200 U	--	< 0.200 U	--	< 0.200 U Q
Bromodichloromethane	ug/l	< 0.100 U	--	< 0.100 U	< 0.100 U	--	< 0.100 U	--	< 0.100 U Q
Bromoform	ug/l	< 1.00 U	--	< 1.00 U	< 1.00 U	--	< 1.00 U	--	< 1.00 U Q
Bromomethane	ug/l	< 0.500 U C3	--	< 0.500 U C3	< 0.500 U C3	--	< 0.500 U C3	--	< 0.500 U Q
Butylbenzene	ug/l	< 0.500 U	--	< 0.500 U	< 0.500 U	--	< 0.500 U	--	< 0.500 U C3 Q
Butylbenzene, sec	ug/l	< 0.500 U	--	< 0.500 U	< 0.500 U	--	< 0.500 U	--	< 0.500 U Q
Butylbenzene, tert	ug/l	< 0.200 U	--	< 0.200 U	< 0.200 U	--	< 0.200 U	--	< 0.200 U Q
Carbon tetrachloride	ug/l	< 0.200 U	--	< 0.200 U	< 0.200 U	--	< 0.200 U	--	< 0.200 U Q
Chlorobenzene	ug/l	< 0.100 U	--	< 0.100 U	< 0.100 U	--	< 0.100 U	--	< 0.100 U Q
Chlorodibromomethane	ug/l	< 0.100 U	--	< 0.100 U	< 0.100 U	--	< 0.100 U	--	< 0.100 U Q
Chloroethane	ug/l	< 0.200 U	--	< 0.200 U	< 0.200 U	--	< 0.200 U	--	< 0.200 U Q
Chloroform	ug/l	< 0.100 U	--	< 0.100 U	< 0.100 U	--	< 0.100 U	--	< 0.100 U Q
Chloromethane	ug/l	< 0.500 U	--	< 0.500 U	< 0.500 U	--	< 0.500 U	--	< 0.500 U Q
Chlorotoluene, o	ug/l	< 0.100 U	--	< 0.100 U	< 0.100 U	--	< 0.100 U	--	< 0.100 U Q
Chlorotoluene, p	ug/l	< 0.200 U	--	< 0.200 U	< 0.200 U	--	< 0.200 U	--	< 0.200 U C3 Q
Cumene (isopropyl benzene)	ug/l	< 0.100 U	--	< 0.100 U	< 0.100 U	--	< 0.100 U	--	< 0.100 U Q
Cymene p- (toluene isopropyl p-)	ug/l	< 0.200 U	--	< 0.200 U	< 0.200 U	--	< 0.200 U	--	< 0.200 U Q
Dibromomethane (methylene bromide)	ug/l	< 0.200 U	--	< 0.200 U	< 0.200 U	--	< 0.200 U	--	< 0.200 U Q
Dichlorodifluoromethane (Freon-12)	ug/l	< 0.100 U	--	< 0.100 U	< 0.100 U	--	< 0.100 U	--	< 0.100 U C3 Q
Dichlorofluoromethane (Freon-21)	ug/l	< 0.100 U	--	< 0.100 U	< 0.100 U	--	< 0.100 U	--	< 0.100 U Q
Ethyl benzene	ug/l	< 0.100 U	--	< 0.100 U	< 0.100 U	--	< 0.100 U	--	< 0.100 U Q
Ethyl ether	ug/l	< 0.100 U	--	0.560	< 0.100 U	--	1.10	--	< 0.100 U Q
Hexachlorobutadiene	ug/l	< 1.00 U	--	< 1.00 U	< 1.00 U	--	< 1.00 U	--	< 1.00 U Q
Methyl ethyl ketone (2-butanone)	ug/l	< 4.00 U	--	< 4.00 U	< 4.00 U	--	< 4.00 U	--	< 4.00 U Q
Methyl isobutyl ketone (MIBK)	ug/l	< 1.00 U	--	< 1.00 U	< 1.00 U	--	< 1.00 U	--	< 1.00 U Q
Methyl tertiary butyl ether (MTBE)	ug/l	< 0.0400 U	--	< 0.0400 U	< 0.0400 U	--	0.0430	--	0.0880 Q
Methylene chloride	ug/l	< 1.00 U	--	< 1.00 U	< 1.00 U	--	< 1.00 U	--	< 1.00 U Q
Naphthalene	ug/l	< 0.500 U	--	< 0.500 U	< 0.500 U	--	< 0.500 U	--	< 0.500 U Q
Propylbenzene	ug/l	< 0.200 U	--	< 0.200 U	< 0.200 U	--	< 0.200 U	--	< 0.200 U Q
Styrene	ug/l	< 0.500 U	--	< 0.500 U	< 0.500 U	--	< 0.500 U	--	< 0.500 U Q
Tetrachloroethylene	ug/l	< 0.100 U	--	< 0.100 U	< 0.100 U	--	< 0.100 U	--	< 0.100 U Q
Tetrahydrofuran	ug/l	< 0.500 U	--	26.8	< 0.500 U	--	2.08	--	0.974 C5 Q
Toluene	ug/l	< 0.200 U	--	< 0.200 U	< 0.200 U	--	< 0.200 U	--	< 0.200 U Q
Trichloroethylene (TCE)	ug/l	< 0.0400 U	--	0.0610	< 0.0400 U	--	< 0.0400 U	--	< 0.0400 U Q

Table 11
Lysimeter Data
Elk River Landfill
Elk River, Minnesota

Location		LYS-11	LYS-11	LYS-13	LYS-17	LYS-17	LYS-19	LYS-6N	LYS-6N
Date		4/18/2024	8/02/2024	4/18/2024	4/18/2024	8/02/2024	4/18/2024	8/02/2024	10/22/2024
Parameter	Units								
Trichlorofluoromethane (Freon-11)	ug/l	< 0.100 U	--	< 0.100 U	< 0.100 U	--	< 0.100 U	--	< 0.100 U Q
Vinyl chloride	ug/l	< 0.0500 U	--	< 0.0500 U	< 0.0500 U	--	< 0.0500 U	--	< 0.0500 U J3 Q
Xylene, total	ug/l	< 0.260 U	--	< 0.260 U	< 0.260 U	--	0.342	--	< 0.260 U Q

Table 11
Lysimeter Data
Elk River Landfill
Elk River, Minnesota

Location		LYS-11	LYS-11	LYS-13	LYS-17	LYS-17	LYS-19	LYS-6N	LYS-6N
Date		4/18/2024	8/02/2024	4/18/2024	4/18/2024	8/02/2024	4/18/2024	8/02/2024	10/22/2024
Parameter	Units								
General Parameters									
Alkalinity, bicarbonate, as CaCO ₃	mg/l	622	668	< 20 U	554	609	664	789	--
Chloride	mg/l	79.2	74.1	< 1 U P1	64.6	70.5	749	1590	--
pH	pH units	7.25 T8	7.36 T8	4.09 T8	7.93 T8	7.94 T8	6.88 T8	7.16 T8	--
Solids, total dissolved	mg/l	1760	1800	58.0 B	854 B	736	2560	5690	--
Solids, total suspended	mg/l	128 J3	17.0	< 4.00 U	159	< 4.00 U	11.5	< 4.00 U	--
Specific conductance @ 25 deg C	umhos/cm	2580	2480	89.8	1400	1230	4090	8640	--
Sulfate, as SO ₄	mg/l	517	539	7.7 P1	93.5	13.3	443	533	--
Dissolved oxygen, field	mg/l	--	2.4	--	--	4.1	--	1.3	--
pH, field	pH units	6.8	6.90	5.82	8.33	7.44	6.67	7.07	7.33
Redox (oxidation potential), field	mV	--	228	--	--	186	--	180	--
Specific conductance @ 25 deg C, field	umhos/cm	1847	2599	49	1215	1287	3139	8922	8000
Temperature, field	deg C	12.6	16.9	9.7	19.3	22.4	15.5	19.1	17.5
Turbidity, field	NTU	--	1.5	--	--	38	--	21	--
Dissolved Metals									
Calcium	mg/l	375 F1	361	5.50 F1	163 F1	162	420 F1	444	--
Magnesium	mg/l	132 F1	139	1.15 F1	54.4 F1	58.5	128 F1	152	--
Potassium	mg/l	12.1 F1	12.1	< 1.00 U F1	6.53 F1	6.45	14.4 F1	249	--
Sodium	mg/l	43.9 F1	43.6	< 1.00 U F1	24.6 F1	24.4	281 F1	1050	--

B The same analyte is found in the associated blank

C5 The reported concentration is an estimate. The continuing calibration standard associated with this data responded high. Data is likely to show a high bias concerning the result.

F1 Sample filtration was performed in the laboratory.

H Recommended sample preservation, extraction or analysis holding time was exceeded.

J+ The result is an estimated quantity and may be biased high.

J3 The associated batch QC was outside the established quality control range for precision.

Q Sample was prepared and/or analyzed past holding time as defined in the method. Concentrations should be considered minimum values.

U The analyte was analyzed for, but was not detected.

Table 12
Quarterly Leachate Data
Elk River Landfill
Elk River, Minnesota

Parameter	Location Date	SP-01	SP-01	SP-01	SP-01
		1/08/2024	4/01/2024	7/10/2024	10/03/2024
Parameter	Units				
Volatile Organic Compounds					
1,1,1-Trichloroethane	ug/l	< 1.85 U	< 1.85 U	< 1.85 U	< 1.00 UH
1,1,2,2-Tetrachloroethane	ug/l	< 1.39 U	< 1.39 U	< 1.39 U	< 1.00 UH
1,1,2-Trichloroethane	ug/l	< 1.19 U	< 1.19 U	< 1.19 U	< 1.00 UH
1,1-Dichloroethane	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 UH
1,1-Dichloroethylene	ug/l	< 1.21 U	< 1.21 U	< 1.21 U	< 1.00 UH
1,2,4-Trichlorobenzene	ug/l	< 8.80 U	< 8.80 U	< 8.80 U	< 4.40 UH
1,2-Dichloroethane	ug/l	< 1.30 U	2.45	< 1.30 U	< 1.00 UH
1,2-Dichloroethylene, trans	ug/l	< 2.08 U	< 2.08 U	< 2.08 U	< 1.04 UH
1,2-Dichloropropane	ug/l	< 2.84 U J4	< 2.84 U	< 2.84 U	< 1.42 UH
1,3-Dichloropropene, cis	ug/l	< 1.51 U J4	< 1.51 U	< 1.51 U	< 1.00 UH
1,3-Dichloropropene, trans	ug/l	< 2.28 U	< 2.28 U	< 2.28 U	< 1.14 UH
2-Chloroethyl vinyl ether	ug/l	< 50.0 U C3	< 50.0 U	< 50.0 U	< 50.0 UH
Acetone	ug/l	3270	7410 C3	1410	1520 C5H
Acrolein	ug/l	< 127 U J4	< 127 U	< 20.0 U C3	< 63.5 UH
Acrylonitrile	ug/l	< 7.22 U	< 7.22 U	< 7.22 U	< 5.00 UH
Benzene	ug/l	3.85	3.80	4.55	2.18 H
Bromodichloromethane	ug/l	< 1.45 U	< 1.45 U	< 1.45 U	< 1.00 UH
Bromoform	ug/l	< 2.34 U	< 2.34 U	< 2.34 U	< 1.17 UH
Bromomethane	ug/l	< 3.94 U C3	< 3.94 U C3	< 3.94 U	< 1.97 UH
Carbon tetrachloride	ug/l	< 1.80 U	< 1.80 U	< 1.80 U	< 1.00 UH
Chlorobenzene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 UH
Chlorodibromomethane	ug/l	< 1.22 U	< 1.22 U	< 1.22 U	< 1.00 UH
Chloroethane	ug/l	< 3.40 U	< 3.40 U	< 3.40 U	< 1.70 UH
Chloroform	ug/l	5.00	< 2.06 U	23.7	< 1.03 UH
Chloromethane	ug/l	< 8.70 U	< 8.70 U	< 8.70 U	< 4.35 UH
Ethyl benzene	ug/l	15.7	18.4	7.40	12.1 H
Ethyl ether	ug/l	34.7	62.3	23.7	19.5 H
Hexachlorobutadiene	ug/l	< 2.43 U	< 2.43 U	< 2.43 U C3	< 2.00 UH
Isopropyl alcohol	ug/l	1700	2520 C3	139	< 41.3 UH
Methyl ethyl ketone (2-butanone)	ug/l	3730	6280	961	617 H
Methyl isobutyl ketone (MIBK)	ug/l	51.6	55.5	47.8	18.1 H
Methylene chloride	ug/l	< 13.3 U	< 13.3 U	< 13.3 U	< 6.64 UH
Naphthalene	ug/l	< 9.75 U	< 9.75 U	< 9.75 U	5.53 H
Tetrachloroethylene	ug/l	< 1.79 U	< 1.79 U	< 1.79 U	< 1.00 UH
Tetrahydrofuran	ug/l	1500	2100 C5 J4	1870 C5	1580 H
Toluene	ug/l	296	67.8	27.3	31.9 H
Trichloroethylene (TCE)	ug/l	< 1.17 U	< 1.17 U	< 1.17 U	< 1.00 UH
Vinyl chloride	ug/l	< 2.31 U	< 2.31 U	< 2.31 U	< 1.15 UH
Xylene, m & p	ug/l	25.4	26.2	11.5	21.4 H
Xylene, o	ug/l	10.9	13.8	7.35	12.3 H
Xylene, total	ug/l	36.3	40.0	18.9	33.7 H
Semivolatile Organic Compounds					
1,2,4-Trichlorobenzene	ug/l	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U
1,2-Dichlorobenzene	ug/l	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U
1,2-Diphenylhydrazine	ug/l	< 10.0 U N2	< 10.0 U N2	< 10.0 U N2	< 10.0 U N2
1,3-Dichlorobenzene	ug/l	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U
1,4-Dichlorobenzene	ug/l	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U
2,2'-oxybis (1-chloropropane)	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
2,4,6-Trichlorophenol	ug/l	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U
2,4-Dichlorophenol	ug/l	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U
2,4-Dimethylphenol	ug/l	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U
2,4-Dinitrophenol	ug/l	< 10.0 U	< 16.3 U	< 18.0 U	< 32.5 U
2,4-Dinitrotoluene	ug/l	< 10.0 U	< 10.0 U	< 10.0 U	< 16.5 U
2,6-Dinitrotoluene	ug/l	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U
2-Chloronaphthalene	ug/l	< 5.00 U J4	< 5.00 U J4	< 5.00 U	< 5.00 U
2-Chlorophenol	ug/l	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U
2-Methyl-4,6-dinitrophenol	ug/l	< 10.0 U	< 13.2 U	< 14.6 U	< 26.3 U

Table 12
Quarterly Leachate Data
Elk River Landfill
Elk River, Minnesota

Parameter	Location Date	SP-01	SP-01	SP-01	SP-01
		1/08/2024	4/01/2024	7/10/2024	10/03/2024
Parameter	Units				
2-Nitrophenol	ug/l	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U
3,3'-Dichlorobenzidine	ug/l	< 5000 U	< 5000 U	< 5000 U	< 5000 U
4-Bromophenyl phenyl ether	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
4-Chloro-3-methylphenol	ug/l	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U
4-Chlorophenyl phenyl ether	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
4-Nitrophenol	ug/l	< 15.0 U	< 15.0 U	< 15.0 U	< 20.1 U
Acenaphthene	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Acenaphthylene	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Anthracene	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Benz(a)anthracene	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Benzidine	ug/l	< 80.0 U J4	< 80.0 U	< 80.0 U	< 80.0 U
Benzo(a)pyrene	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Benzo(b)fluoranthene	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Benzo(g,h,i)perylene	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Benzo(k)fluoranthene	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Bis(2-chloroethoxy)methane	ug/l	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U
Bis(2-chloroethyl)ether	ug/l	< 10.0 U	< 10.0 U	< 10.0 U	< 16.2 U
Bis(2-ethylhexyl)phthalate	ug/l	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U
Butyl benzyl phthalate	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Chrysene	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Dibenz(a,h)anthracene	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Diethyl phthalate	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Dimethyl phthalate	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Di-n-butyl phthalate	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Di-n-octyl phthalate	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Fluoranthene	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Fluorene	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Hexachlorobenzene	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Hexachlorobutadiene	ug/l	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U
Hexachlorocyclopentadiene	ug/l	< 10.0 U	< 11.7 U	< 12.9 U	< 23.3 U
Hexachloroethane	ug/l	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U
Indeno(1,2,3-cd)pyrene	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Isophorone	ug/l	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U
Naphthalene	ug/l	3.77	2.01	3.35	< 3.72 U
Nitrobenzene	ug/l	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U
n-Nitrosodimethylamine	ug/l	< 10.0 U	< 10.0 U	< 10.0 U	< 12.6 U
n-Nitrosodi-n-propylamine	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
n-Nitrosodiphenylamine	ug/l	< 10.0 U	< 10.0 U	< 10.0 U	< 11.9 U
Pentachlorophenol	ug/l	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U
Phenanthrene	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Phenol	ug/l	42.8	62.7	< 10.0 U	28.6
Pyrene	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Pesticides					
4,4'-DDD	ug/l	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 UJ-
4,4'-DDE	ug/l	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 UJ-
4,4'-DDT	ug/l	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 UJ-
a-BHC	ug/l	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 UJ-
Aldrin	ug/l	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 UJ-
b-BHC	ug/l	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 UJ-
Chlordane, alpha & gamma	ug/l	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 UJ-
d-BHC	ug/l	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 UJ-
Dieldrin	ug/l	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 UJ-
Endosulfan I	ug/l	0.314 P	0.456 P	< 0.0500 U	0.299 J-
Endosulfan II	ug/l	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 UJ-
Endosulfan sulfate	ug/l	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 UJ-
Endrin	ug/l	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 UJ-
Endrin aldehyde	ug/l	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 UJ4J-
g-BHC (Lindane)	ug/l	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 UJ-

Table 12
Quarterly Leachate Data
Elk River Landfill
Elk River, Minnesota

		Location	SP-01	SP-01	SP-01	SP-01
		Date	1/08/2024	4/01/2024	7/10/2024	10/03/2024
Parameter	Units					
Heptachlor	ug/l		< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 UJ-
Heptachlor epoxide	ug/l		< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 UJ-
Toxaphene	ug/l		< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 UJ-

Table 12
Quarterly Leachate Data
Elk River Landfill
Elk River, Minnesota

Location		SP-01	SP-01	SP-01	SP-01
Date		1/08/2024	4/01/2024	7/10/2024	10/03/2024
Parameter	Units				
Polychlorinated Biphenyls					
Aroclor 1016	ug/l	< 0.200 U	< 0.200 U	< 0.200 U	< 0.200 UJ-
Aroclor 1221	ug/l	< 0.200 U	< 0.200 U	< 0.200 U	< 0.200 UJ-
Aroclor 1232	ug/l	< 0.200 U	< 0.200 U	< 0.200 U	< 0.200 UJ-
Aroclor 1242	ug/l	< 0.200 U	< 0.200 U	< 0.200 U	< 0.200 UJ-
Aroclor 1248	ug/l	< 0.200 U	< 0.200 U	< 0.200 U	< 0.200 UJ-
Aroclor 1254	ug/l	< 0.200 U	< 0.200 U	< 0.200 U	< 0.200 UJ-
Aroclor 1260	ug/l	< 0.240 U	< 0.200 U	< 0.200 U	< 0.200 UJ-
Per- and Polyfluoroalkyl Substances					
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ug/l	< 0.0253 U	< 0.0247 U	< 0.0337 U	< 0.0293 U
1H,1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	ug/l	< 0.0253 U	< 0.0247 UJ	< 0.0337 UJ	< 0.0293 UJL1
1H,1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)	ug/l	< 0.0253 U	< 0.0247 U	< 0.0337 U	< 0.0293 UJL1
1H,1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS)	ug/l	0.196 J	0.167 J	0.254 J	0.272 L1
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol (N-EtFOSE)	ug/l	0.116	0.177 J	< 0.0843 U	0.0930
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	ug/l	0.257	0.376	0.169	0.166
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ug/l	3.07	1.56	1.66	2.14
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ug/l	25.9	21	39.5	44.4
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ug/l	< 0.0316 U L1	< 0.0309 U	0.0901	< 0.0366 UJ
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ug/l	< 0.0253 U	< 0.0247 U	< 0.0337 U	< 0.0293 U
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ug/l	< 0.0253 U	< 0.0247 U	< 0.0337 U	< 0.0293 U
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ug/l	< 0.0253 U	< 0.0247 U	< 0.0337 U	< 0.0293 U
Methylperfluoro-1-octanesulfonamide (N-MEFOSA)	ug/l	< 0.0063 U	0.0074 J	< 0.0084 U	< 0.0073 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ug/l	0.0611	0.0679	0.0469	0.0681
n-Ethylperfluorooctanesulfonamide (N-EtFOSA)	ug/l	< 0.0063 U	< 0.0062 UJ	< 0.0084 U	< 0.0073 U
n-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ug/l	0.137	0.102	0.121	0.156
Nonafluoro-3, 6-dioxaheptanoic acid (NFDHA)	ug/l	< 0.0127 U	< 0.0124 U	< 0.0169 U	< 0.0146 U
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ug/l	< 0.0127 U	< 0.0124 U	< 0.0169 U	< 0.0146 U
Perfluoro-3-methoxypropanoic acid (PFMPA)	ug/l	< 0.0127 U	< 0.0124 U	< 0.0169 U	< 0.0146 UJ
Perfluoro-4-methoxybutanoic acid (PFMBA)	ug/l	< 0.0127 U	< 0.0124 U	< 0.0169 U	< 0.0146 UJ
Perfluorobutanesulfonic acid (PFBS)	ug/l	2.92	1.72	4.85	5.39
Perfluorobutanoic acid (PFBA)	ug/l	1.35 J	1.29	2.02	2.01 JL1
Perfluorodecanesulfonic acid (PFDS)	ug/l	< 0.0063 U	< 0.0062 U	< 0.0084 U	< 0.0073 U
Perfluorodecanoic acid (PFDA)	ug/l	0.0249	0.0208	0.0200	0.0248
Perfluorododecanesulfonic acid (PFDOS)	ug/l	< 0.0063 U	< 0.0062 U	< 0.0084 U	< 0.0073 U
Perfluorododecanoic acid (PFDoA)	ug/l	< 0.0063 U	< 0.0062 UJ	< 0.0084 U	< 0.0073 U L1
Perfluoroheptanesulfonic acid (PFHpS)	ug/l	0.0064	< 0.0062 U	0.0085	0.0137
Perfluoroheptanoic acid (PFHpA)	ug/l	0.588	0.466	0.629	0.63
Perfluorohexanesulfonic acid (PFHxS)	ug/l	0.511	0.428	0.523	0.643
Perfluorohexanoic acid (PFHxA)	ug/l	2.99	3.25	13.9	4.57
Perfluorononanesulfonic acid (PFNS)	ug/l	< 0.0063 U	< 0.0062 U	< 0.0084 U	< 0.0073 U
Perfluorononanoic acid (PFNA)	ug/l	0.0566	0.0402	0.0485	0.0565
Perfluorooctanesulfonamide (PFOSA / FOSA)	ug/l	0.0119	0.0155	0.0090	0.0153
Perfluorooctanesulfonic acid (PFOS)	ug/l	0.175	0.143	0.172	0.201
Perfluorooctanoic acid (PFOA)	ug/l	1.21	0.98	1.51	1.49
Perfluoropentanesulfonic acid (PFPeS)	ug/l	0.0257	0.0142	0.0226	0.0269 L1
Perfluoropentanoic acid (PFPeA)	ug/l	1.83 J	1.84 J	2.01	1.93 JL1
Perfluorotetradecanoic acid (PFTA)	ug/l	< 0.0063 U	< 0.0062 U	< 0.0084 U	< 0.0073 U L1
Perfluorotridecanoic acid (PFTTrDA)	ug/l	< 0.0063 U	< 0.0062 U	< 0.0084 U	< 0.0073 U L1
Perfluoroundecanoic acid (PFUnA)	ug/l	< 0.0063 U	< 0.0062 U	< 0.0084 U	< 0.0073 U
General Parameters					
Alkalinity, total, as CaCO3	mg/l	4790	6650	6520	7590
Chemical Oxygen Demand	mg/l	1660	1820 H	1870	2530 H
Chloride	mg/l	1220	1800	1620	1970
Cyanide	mg/l	0.0127	< 0.0100 U	< 0.0100 U	0.0294 H
Flash point	deg F	> 170 U	> 170 U	> 170 U	> 170 U
pH	pH units	7.46 T8	7.74 T8	7.78 T8	7.89 T8
Solids, total suspended	mg/l	116 J3	118	44.3 J3	112
Sulfate, as SO4	mg/l	151	66.9	198	118

Table 12
Quarterly Leachate Data
Elk River Landfill
Elk River, Minnesota

		Location	SP-01	SP-01	SP-01	SP-01
		Date	1/08/2024	4/01/2024	7/10/2024	10/03/2024
Parameter	Units					
pH, field	pH units		7.69	7.14	7.67	7.74
Specific conductance @ 25 deg C, field	umhos/cm		10600	--	--	--
Temperature, field	deg C		12.0	14.12	24.4	19.4
Total Metals						
Antimony	ug/l		< 20.0 U	< 20.0 U	< 20.0 U	< 20.0 U
Arsenic	ug/l		67.9	70.6	92.2	101
Beryllium	ug/l		< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U
Boron	ug/l		16100	15700	17600	19100
Cadmium	ug/l		< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U
Calcium	mg/l		281	208	257	200
Chromium	ug/l		165	172	249	273
Copper	ug/l		< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U
Lead	ug/l		< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U
Magnesium	mg/l		137	195	157	180
Mercury	ug/l		< 0.200 U	< 0.490 U	< 0.490 U	< 0.490 U
Molybdenum	ug/l		< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U
Nickel	ug/l		144	231	219	248
Potassium	mg/l		320	469	469	556
Selenium	ug/l		< 25.0 U	< 25.0 U	< 25.0 U	< 25.0 U
Silver	ug/l		< 6.00 U	< 6.00 U	< 6.00 U	< 6.00 U
Sodium	mg/l		1030	1550	1510	1750
Thallium	ug/l		< 20.0 U	< 20.0 U	< 20.0 U	< 20.0 U
Zinc	ug/l		182	328	209	243

> Greater than.

C3 The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.

C5 The reported concentration is an estimate. The continuing calibration standard associated with this data responded high. Data is likely to show a high bias concerning the result.

H Recommended sample preservation, extraction or analysis holding time was exceeded.

J Estimated detected value. Either certain QC criteria were not met or the concentration is between the laboratory's detection and quantitation limits.

J- The result is an estimated quantity and may be biased low.

J3 The associated batch QC was outside the established quality control range for precision.

J4 The associated batch QC was outside the established quality control range for accuracy.

L1 Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.

N2 Analyte reported using a calibration and validation based on Azobenzene (CAS 103-33-3). 1,2-Diphenylhydrazine decomposes into Azobenzene during the analysis.

P RPD between the primary and confirmatory analysis exceeded 40%.

P1 RPD value not applicable for sample concentrations less than 5 times the reporting limit.

T8 Sample(s) received past/too close to holding time expiration.

U The analyte was analyzed for, but was not detected.

Table 13
2025 Groundwater Monitoring Plan
Elk River Landfill
Elk River, Minnesota

Monitoring Point	Unique Well ID ¹	Annual Sampling Frequency in SAP ²	Parameters ³ (# planned analyses in 2025)	2025 Well Status	Unit Monitored	Well Screen Placement
<u>Monitoring Wells</u>						
P-17C	496278	1x	VOCs (1), Inorganics (1)	In Network (NC), GWCAM	Till/Lower outwash	S
22-OWA	420729	1x	VOCs (1), Inorganics (1)	In Network	Upper outwash	WT
P-22L	801470	1x	VOCs (1), Inorganics (1)	In Network, GWCAM	Lower outwash (bottom)	S
P-29C	496289	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash (bottom)	S
P-29D	496294	3x	VOCs (3), Inorganics (1)	In Network	Bedrock	S
36-OWA	498324	--	Depth to water	WL only	Upper outwash	WT
301-OWA	598567	1x	VOCs (1), Inorganics (1)	In Network	Upper outwash	WT
P-301C	598562	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash	S
P-301L	767989	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash (bottom)	S
302-OWA	598568	1x	VOCs (1), Inorganics (1)	In Network	Upper outwash	WT
P-302C	598563	3x	VOCs (3), Inorganics (1)	In Network, GWCAM	Lower outwash	S
P-303C	598532	1x	VOCs (1), Inorganics (1)	In Network	Upper outwash	S
P-304C	598565	3x	VOCs (3), Inorganics (1)	In Network, GWCAM	Lower outwash	S
P-305C	598566	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash	S
P-308C	621858	1x	VOCs (1), Inorganics (1)	In Network (NC)	Lower outwash	S
P-308L	836661	--	VOCs (1), Inorganics (1)	GWCAM (NC)	Lower outwash	S
P-309C	635420	1x	VOCs (1), Inorganics (1)	In Network (NC)	Lower outwash	S
P-310C	646855	1x	VOCs (1), Inorganics (1)	In Network	Upper outwash	S
P-311C	646854	1x	VOCs (1), Inorganics (1)	In Network	Upper outwash	S
P-311L	801471	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash (bottom)	S
P-311D	650145	3x	VOCs (3), Inorganics (1)	In Network	Bedrock	S
312-OWA	646853	1x	VOCs (1), Inorganics (1)	In Network	Upper outwash	WT
P-313C	969668	3x	VOCs (3), Inorganics (1)	In Network, GWCAM	Lower outwash	S
P-314C	969669	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash	S
315-OWA	696663	1x	VOCs (1), Inorganics (1)	In Network	Upper outwash	WT
P-315L	722063	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash	S
317-OWA	696666	--	--	To be sealed	Upper outwash	WT
P-317L	722092	--	--	To be sealed	Lower outwash	S
P-320C	737638	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash	S
P-320C2	756593	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash	S
P-320L	737637	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash (bottom)	S
P-321L	767990	3x	VOCs (3), Inorganics (1)	In Network, GWCAM	Lower outwash (bottom)	S
P-322L	767991	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash (bottom)	S
P-323L	786203	3x	VOCs (3), Inorganics (1)	In Network, GWCAM	Lower outwash (bottom)	S
P-324L	786202	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash (bottom)	S
P-325L	804281	3x	VOCs (3), Inorganics (1)	In Network, GWCAM	Lower outwash (bottom)	S
P-326L	804282	3x	VOCs (3), Inorganics (1)	In Network, GWCAM	Lower outwash (bottom)	S

Table 13
2025 Groundwater Monitoring Plan
Elk River Landfill
Elk River, Minnesota

Monitoring Point	Unique Well ID ¹	Annual Sampling Frequency in SAP ²	Parameters ³ (# planned analyses in 2025)	2025 Well Status	Unit Monitored	Well Screen Placement
P-327L	812996	1x	VOCs (1), Inorganics (1)	In Network, GWCAS	Lower outwash (bottom)	S
P-328L	812994	1x	VOCs (1), Inorganics (1)	In Network, GWCAS	Lower outwash (bottom)	S
P-329L	812995	3x	VOCs (3), Inorganics (1)	In Network, GWCAS	Lower outwash (bottom)	S
P-333L	828060	2x	VOCs (2), Inorganics (1)	In Network, GWCAS	Lower outwash (bottom)	S
P-334L	828061	3x	VOCs (3), Inorganics (1)	In Network, GWCAM	Lower outwash (bottom)	S
P-335L	828062	3x	VOCs (3), Inorganics (1)	In Network, GWCAS	Lower outwash (bottom)	S
336-OWA	853108	1x	VOCs (1), Inorganics (1)	In Network	Upper outwash	WT
337-OWA	853109	1x	VOCs (1), Inorganics (1)	In Network	Upper outwash	WT
P-337L	853110	1x	VOCs (1), Inorganics (1)	In Network	Lower outwash (bottom)	S
P-338L	853139	3x	VOCs (3), Inorganics (1)	In Network, GWCAM	Lower outwash (bottom)	S
P-340L	953140	1x	VOCs (1), Inorganics (1)	In Network, GWCAS	Lower outwash (bottom)	S
P-341L	877298	1x ⁵	VOCs (1), Inorganics (1)	GWCAS	Lower outwash (bottom)	S
P-342C ⁴	TBD	2x ⁵	VOCs (2), Inorganics (2)	Baseline, GWCAM	Lower Outwash	S
P-342L	871179	2x ⁵	VOCs (2), Inorganics (1)	GWCAM	Lower outwash (bottom)	S
401-OWA	683321	1x	VOCs (1), Inorganics (1)	In Network	Upper outwash	WT
402-OWA	683320	--	Depth to water	Future Network	Upper outwash	WT
P-403C	683318	2x	VOCs (1), Inorganics (2)	In Network	Upper outwash	S
405-OWA	683316	--	Depth to water	WL only	Upper outwash	WT
406-OWA	683317	--	Depth to water	WL only	Surficial outwash	WT
407-OWA	683315	--	Depth to water	WL only	Surficial outwash	WT
408-OWA	717920	2x	VOCs (1), Inorganics (2)	In Network	Upper outwash	WT
P-694477 ⁶	694477	3x	VOCs (3), Inorganics (1)	In Network	Lower outwash	S
Residential Wells						
22447 Tipton St	813437	1x	VOCs (1), inorganics (1)	per Permit SW-74	--	--
12163 223rd Ave	876409	1x	VOCs (1), inorganics (1)	per Permit SW-74	--	--
12269 223rd St	876410	1x	VOCs (1), inorganics (1)	per Permit SW-74	--	--
12265 223rd Ave ⁷	876411	1x	VOCs (1), inorganics (1)	per Permit SW-74	--	--
12183 223rd Ave	846412	1x	VOCs (1), inorganics (1)	per Permit SW-74	--	--
22272 Quinn St	876413	1x	VOCs (1), inorganics (1)	per Permit SW-74	--	--
22130 Quinn St ⁸	638355	1x	VOCs (1), inorganics (1)	per Permit SW-74	--	--
ERL Shop Well	420558	1x	VOCs (1), inorganics (1)	per Permit SW-74	--	--
Ridges Develop.	626766	1x	VOCs (1), inorganics (1)	per Permit SW-74	--	--
22205 Elk Lake Rd	625475	--	VOCs (1), inorganics (1)	GWCASP	--	--
22275 Elk Lake Rd	720300	--	VOCs (1), inorganics (1)	GWCASP	--	--

Notes and definitions:

- ¹ Minnesota unique well ID or MPCA EQuIS sys_loc_code.
 - ² Sampling frequency listed in Sampling and Analysis Plan (SAP; Barr, 2024); pending update in 2025
 - ³ Per Permit SW-74; addnl monitoring may be conducted per other plans.
 - ⁴ Baseline monitoring to be completed 2025.
 - ⁵ Anticipated future annual sampling frequency in SAP shown.
 - ⁶ Former residential well at 22447 Tipton St. Disconnected from the house in September 2015.
 - ⁷ Listed as 11265 223rd Ave in Permit SW-74. Correct address shown above.
 - ⁸ Replacement well installed but not connected to house in 2023.
- VOCs - Organic compounds; see Table A1 in SAP.
Inorganics - See Table A2 in SAP.

Status Key

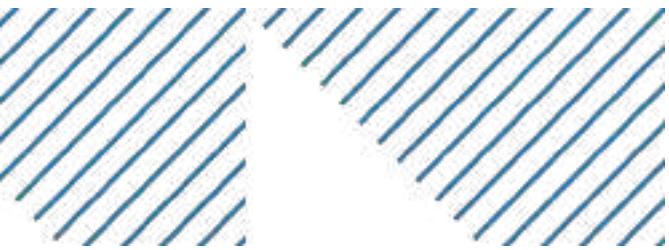
In Network - monitoring well is incorporated into network (and included in SAP)
NC - Non-compliance monitoring well located within 200' of cell boundary
GWCAM - well is monitored to evaluate natural attenuation per GWCAWP (Apr. 2024)
GWCAS - well is monitored for sentinel monitoring purposes per the GWCAWP (Apr. 2024)
per Permit SW-74 - residential well is monitored per Solid Waste Permit SW-74
GWCAWP - residential well is monitored per the GWCAWP (Apr. 2024)
WL only - monitoring well is used for water level monitoring only per SAP and/or Permit SW-74

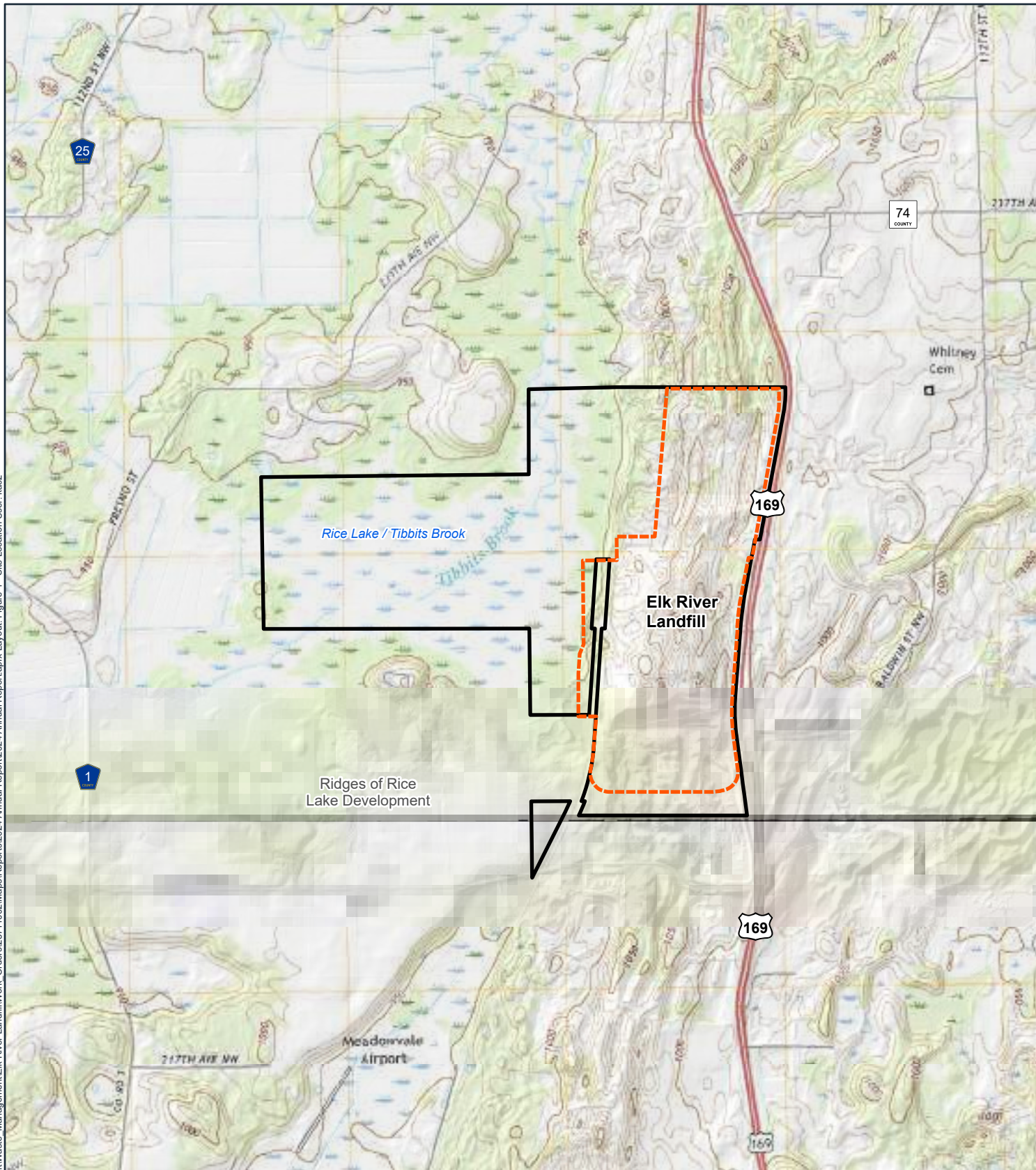
Well Screen Placement Key

WT - Well screen is constructed to intercept the water table
S - Monitoring well is constructed with a submerged screen



Figures





Property Boundary



Groundwater Compliance Boundary

Background Source: USGS 7.5 Minute Quadrangle
Data Source: Barr, Wenck, MNDOT, MNDNR



0 1,000 2,000 3,000



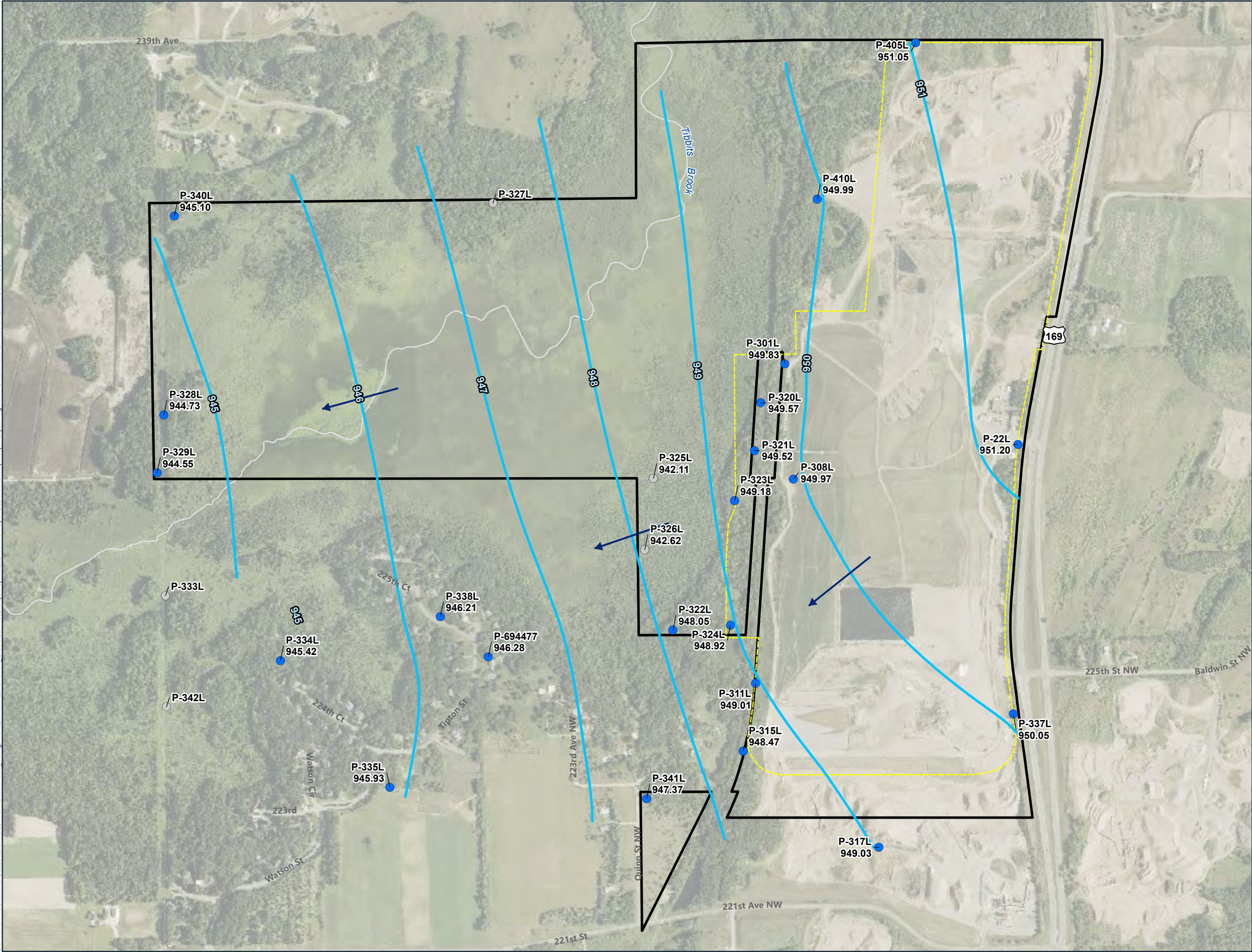
Feet

Site Location
Elk River Landfill
Elk River, MN

FIGURE 1



Barr Footer ArcGISPro 3.4, 2025-02-21 13:23 File: I:\Client\Waste_Management\Elk River Landfill\Work_Orders\23711002\Mapa\Reports\2024 Annual Report\2024 Annual Report.aprx Layout: Figure 4 - Groundwater Elevations - Lower Outwash October 14, 2024 User: kac2



Property Boundary

Groundwater Compliance Boundary

Lower Outwash Monitoring Well

Lower Outwash Monitoring Well (Not Used for Groundwater Contours)

Groundwater Contour (feet MSL)

Flow Line

0

375

750

1,125

Feet

Imagery Source: USDA-FSA NAIP Imagery (2023)

N

Groundwater Elevations - Lower Outwash

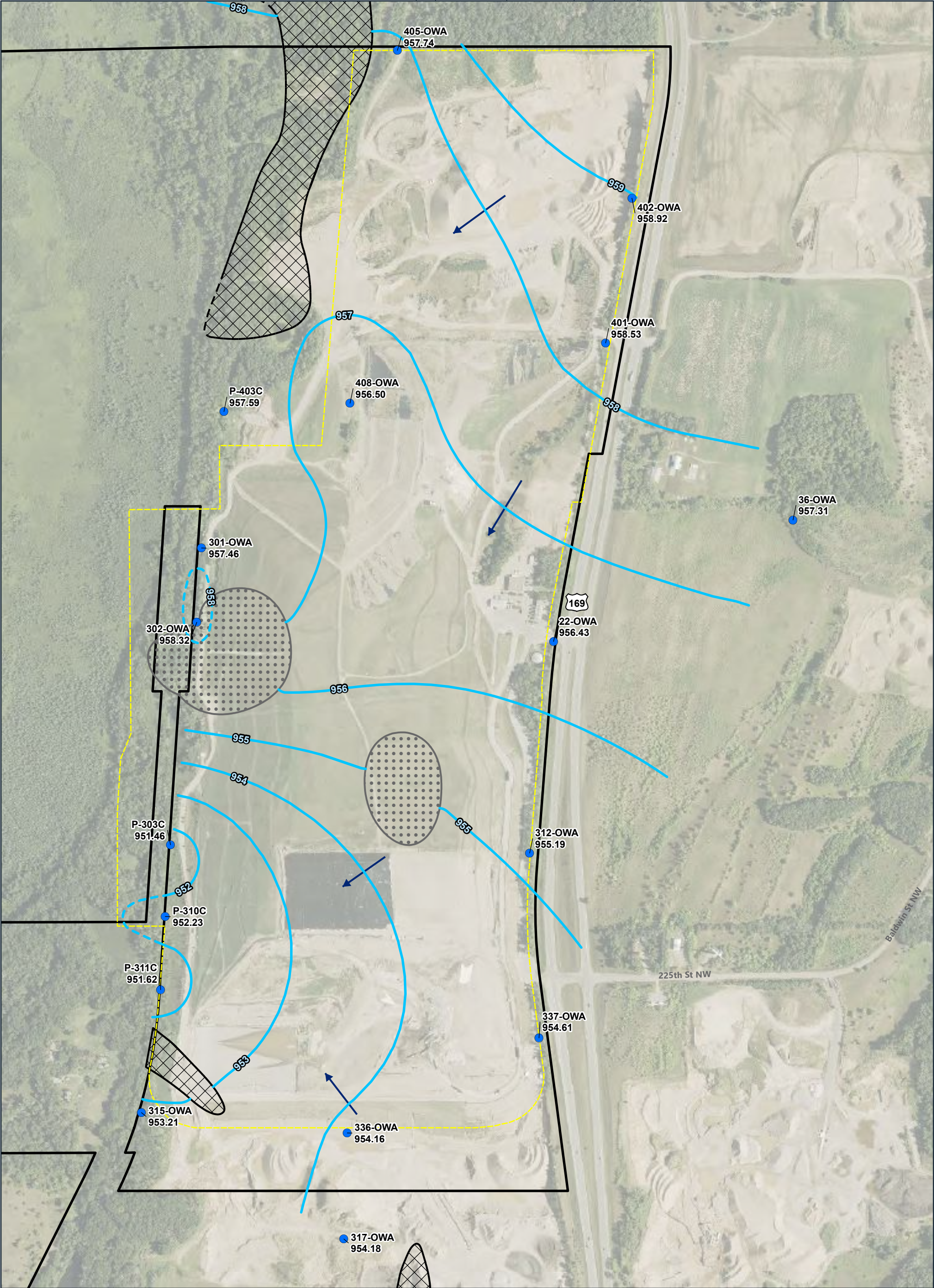
October 14, 2024

Elk River Landfill

Elk River, Minnesota

FIGURE 4

BARR



Property Boundary

Groundwater Compliance Boundary

Upper Outwash Monitoring Well

Groundwater Contour (feet MSL)

Flow Line

Till Ridge Delineation

Saturated Upper Outwash Not Present Due to Local Till High

Imagery Source: USDA-FSA NAIP
Imagery (2023)

0250500750

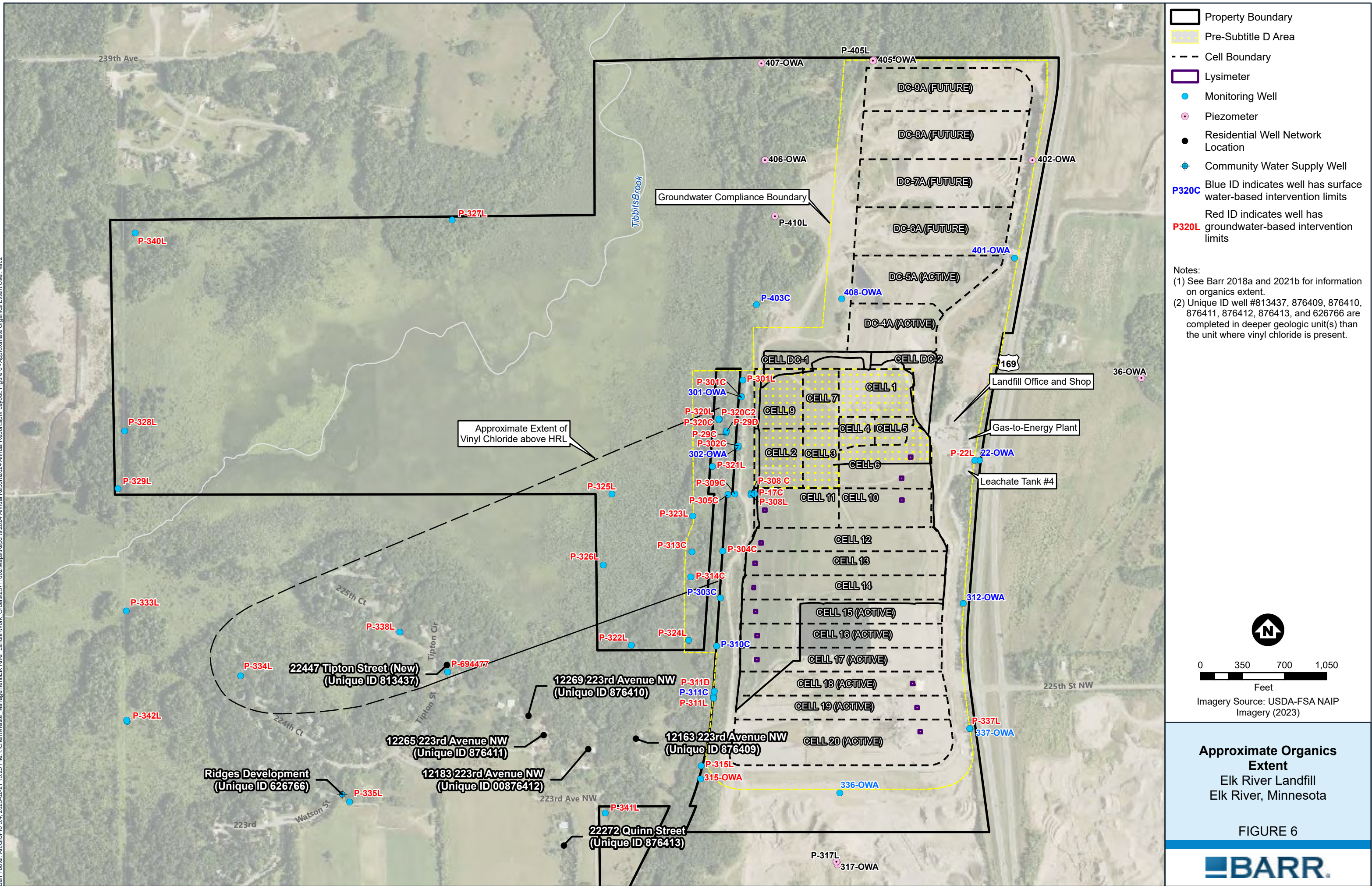
Feet

Groundwater Elevations -
Upper Outwash
October 14, 2024
Elk River Landfill
Elk River, Minnesota

FIGURE 5

BARR

Barr Footer ArcGISPro 3.4, 2025-02-21 13:25 File: I:\Client\Waste Management\Elk River Landfill\Work Orders\237102\Mapa\Reports\2024 Annual Report\aprx Layout: Figure 6 - Approximate Organics Extent User: lac2





Appendices





Appendix A

Previous Groundwater Quality Data and Flow Interpretation

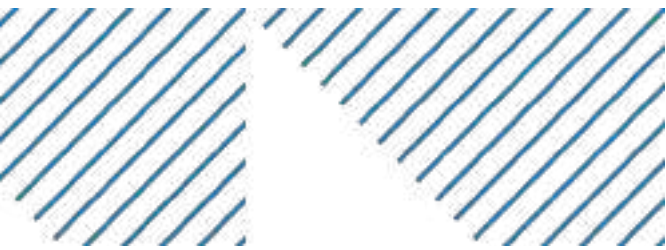


Table A1
2023-2024 Groundwater Data for Lower Outwash/Deep Wells
Elk River Landfill
Elk River, Minnesota

Location		P-17C	P-17C	P-22L	P-22L	P-29C	P-29C	P-29C	P-29C	P-29C	P-29C	P-29D	P-29D	P-29D	P-29D	P-29D	P-29D	P-301C	P-301C	P-301C	P-301C
Date		7/24/2023	7/24/2024	7/24/2023	7/22/2024	4/18/2023	7/18/2023	10/20/2023	4/16/2024	7/24/2024	10/15/2024	4/18/2023	7/18/2023	10/20/2023	4/16/2024	9/20/2024	10/15/2024	4/18/2023	7/19/2023	10/20/2023	4/19/2024
Parameter	Units																				
General Parameters																					
Alkalinity, total, as CaCO3	mg/l	1090	1110	187	177	--	469	--	--	447	--	--	180	--	--	--	--	--	531	--	--
Anions	meq/l	30.2	30.7	5.34	4.94	--	11.9	--	--	11.3	--	--	3.64	--	--	--	--	--	13.7	--	--
Carbon, total organic	mg/l	41.4	44.6	< 1.00 U	< 1.00 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cations	meq/l	28.0	28.5	5.22	4.68	--	12.0	--	--	11.3	--	--	3.38	--	--	--	--	--	13.2	--	--
Cation-Anion balance	%	-3.71	12.5	-1.18	-2.74	--	0.238	--	--	0.00151	--	--	-3.74	--	--	--	--	--	-1.75	--	--
Chemical Oxygen Demand	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	mg/l	297	304	33.5	31.5	--	70.4	--	--	61.9	--	--	< 1.00 U	--	--	--	--	--	25.3	--	--
Dissolved oxygen, field	mg/l	2.4	1	1.1	0.8	0.2	1.5	0.6	0.1	0	0	0.2	0.7	0.2	0.1	0.1	0	0.8	0.6	1	0.3
Iron, ferrous, FE II, field	mg/l	--	3.30 >	--	0.32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese II, field	mg/l	--	0.400	--	0.057	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, ammonia, as N	mg/l	38.6	44.4	< 0.100 U	< 0.100 U	--	< 0.100 U	--	--	< 0.100 U	--	--	< 0.100 U	--	--	--	--	--	< 0.100 U	--	--
Nitrogen, nitrate + nitrite, as N	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, nitrate, as N	mg/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U T8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, nitrite, as N	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total kjeldahl (TKN)	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH, field	pH units	6.51	6.85	7.72	8.62	7.19	6.79	7.22	8.13	7.65	7.17	8.25	7.53	8.27	8.53	7.9	8.19	7.30	7.15	7.21	7.62
Redox (oxidation potential), field	mV	-82	-75	-123	-81	-109	-73	-105	-189	-111.4	116.7	-141	-77	-134	-249	-195	209.4	-85	-58	-65	-158
Solids, total dissolved	mg/l	1610	1550	292 B	278	--	625	--	--	545	--	--	179	--	--	--	--	--	680	--	--
Solids, total suspended	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific conductance @ 25 °C, field	umhos/cm	2350	2611	504	429	1186	1035	998	318	385	841	305	323	316	321	375	301	1185	1153	1195	1137
Sulfate, as SO4	mg/l	< 5.00 U	< 5.00 U	31.2	24.6	--	26.7	--	--	27.8	--	--	< 5.00 U	--	--	--	--	--	115	--	--
Sulfide, as S ²⁻	mg/l	--	0.03	--	0.80 >	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, field	deg C	16.1	15.2	11.4	11.2	11.0	12.1	12	10.1	12	12.9	10.5	12.0	12.1	10.6	12.8	12	10.0	15.3	15.3	10.6
Turbidity, field	NTU	23.7	32	4.8	6.3	19.1	44.5	15.9	4	6.5	6.1	4.5	7.1	2.3	12.5	1	2	5.7	6.5	7.2	17
Dissolved Metals																					
Arsenic	ug/l	21.2	22.3	< 2.00 U	< 2.00 U	--	< 2.00 U	--	--	< 2.00 U	--	--	< 2.00 U	--	--	--	--	--	4.72	--	--
Boron	ug/l	5100	4330	< 200 U	< 200 U	--	< 200 U	--	--	< 200 U	--	--	< 200 U	--	--	--	--	--	< 200 U	--	--
Cadmium	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/l	132	143	50.1	32.6	--	147	--	--	144	--	--	38.5	--	--	--	--	--	148	--	--
Chromium	ug/l	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	--	< 4.00 U	--	--	< 4.00 U	--	--	< 4.00 U	--	--	--	--	--	< 4.00 U	--	--
Copper	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	ug/l	13400	12800	< 100 U	290	--	2660	--	--	1540	--	--	138	--	--	--	--	--	1420	--	--
Lead	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/l	89.2	90.8	30.3	32.6	--	47.1	--	--	44.6	--	--	14.7	--	--	--	--	--	65.8	--	--
Manganese	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/l	28.1	28.9	1.66	4.75	--	3.64	--	--	2.7	--	--	1.36	--	--	--	--	--	2.67	--	--
Sodium	mg/l	296	291	4	5.31	--	12.8	--	--	5.96	--	--	4.74	--	--	--	--	--	8	--	--
Zinc	ug/l	12.1	13.0	< 10.0 U	< 10.0 U	--	< 10.0 U	--	--	< 10.0 U	--	--	< 10.0 U	--	--	--	--	--	< 10.0 U	--	--

Table A1
2023-2024 Groundwater Data for Lower Outwash/Deep Wells
Elk River Landfill
Elk River, Minnesota

Location		P-301C	P-301C	P-301L	P-301L	P-301L	P-301L	P-301L	P-301L	P-302C	P-302C	P-302C	P-302C	P-302C	P-302C	P-304C	P-304C	P-304C	P-304C	P-304C
Date		7/26/2024	10/16/2024	4/18/2023	7/19/2023	10/20/2023	4/19/2024	7/26/2024	10/16/2024	4/24/2023	7/20/2023	10/18/2023	4/19/2024	7/24/2024	10/17/2024	4/24/2023	7/20/2023	10/18/2023	4/18/2024	7/24/2024
Parameter	Units																			
General Parameters																				
Alkalinity, total, as CaCO3	mg/l	341	--	--	326	--	--	339	--	750	748	791	--	845	798	747	688	737	--	667
Anions	meq/l	7.24	--	--	7.74	--	--	7.21	--	--	21.5	--	--	22.0	--	--	15.5	--	--	14.9
Carbon, total organic	mg/l	--	--	--	--	--	--	--	--	22.7	18.4	18.9	--	18.6	16.3	7.56	6.71	8.82	--	8.01
Cations	meq/l	7.27	--	--	7.41	--	--	7.32	--	--	21.5	--	--	22.5	--	--	15.5	--	--	15.2
Cation-Anion balance	%	0.205	--	--	-2.19	--	--	0.744	--	--	0.0620	--	--	1.32	--	--	0.0619	--	--	0.931
Chemical Oxygen Demand	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	mg/l	1.97	--	--	33.0	--	--	2.40	--	269	212 E	208	--	158	164	37.3	32.5	39.9	--	28.9 J6
Dissolved oxygen, field	mg/l	0	0	0.5	0.7	0.8	0.7	0	0	0.1	0.6	0.5	0	0.2	0.2	0.1	0.5	0.5	0.1	0.3
Iron, ferrous, FE II, field	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	2.89	--	--	--	--	--	2.94
Manganese II, field	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	0.237	--	--	--	--	--	0.749
Nitrogen, ammonia, as N	mg/l	< 0.100 U	--	--	< 0.100 U	--	--	< 0.100 U	--	--	< 0.100 U	--	--	< 0.100 U	--	--	< 0.100 U	--	--	< 0.100 U
Nitrogen, nitrate + nitrite, as N	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, nitrate, as N	mg/l	--	--	--	--	--	--	--	--	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U
Nitrogen, nitrite, as N	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total kjeldahl (TKN)	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH, field	pH units	7.19	7.34	7.45	7.25	7.36	7.67	7.21	7.45	7.07	6.87	7.03	7.34	7.27	7.17	6.69	6.49	6.55	6.92	6.94
Redox (oxidation potential), field	mV	19.6	16.33	-79	-67	-70	-126	21.4	107.7	-117	-111	-77	-16.9	-159	-172	-65	-55	-54	-89	-91
Solids, total dissolved	mg/l	365	--	--	400	--	--	366	--	--	1100	--	--	1070	--	--	749	--	--	692
Solids, total suspended	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific conductance @ 25 °C, field	umhos/cm	443	1183	684	699	719	693	442	586	1872	1500	1715	1914	1917	1708	1309	1112	977	1172	1257
Sulfate, as SO4	mg/l	17.7	--	--	14.1	--	--	18.1	--	17.6	26.4	24.6	--	30.4	26.8	40.0	38.4	34.1	--	34.7 J6
Sulfide, as S ²⁻	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	0.02	--	--	--	--	--	0.04
Temperature, field	deg C	11.6	11.1	10.1	10.7	10.7	9.2	11.6	10.3	13.5	13.6	13.2	12.9	13.3	13.6	9.8	10.6	10.6	10.3	10.9
Turbidity, field	NTU	6.3	4.6	1.7	4.0	2.1	--	7.1	1.9	4	17.9	2.5	4	7	3.5	9	13.1	8.3	15	6
Dissolved Metals																				
Arsenic	ug/l	< 2.00 U	--	--	< 2.00 U	--	--	< 2.00 U	--	--	10.5	--	--	9.99	--	--	2.61	--	--	3.34
Boron	ug/l	< 200 U	--	--	< 200 U	--	--	< 200 U	--	--	720	--	--	559	--	--	363	--	--	309
Cadmium	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/l	96.1	--	--	92.4	--	--	96.7	--	--	163	--	--	171	--	--	171 O1 V	--	--	166
Chromium	ug/l	< 4.00 U	--	--	< 4.00 U	--	--	< 4.00 U	--	--	< 4.00 U	--	--	< 4.00 U	--	--	< 4.00 U	--	--	< 4.00 U
Copper	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	ug/l	< 100 U	--	--	232	--	--	< 100 U	--	--	13200	--	--	14800	--	--	6200 O1	--	--	6200
Lead	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/l	27.2	--	--	30.4	--	--	27.4	--	--	116	--	--	131	--	--	62.2	--	--	63.4
Manganese	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/l	1.93	--	--	2.42	--	--	1.97	--	--	5.54	--	--	5.33	--	--	2.31	--	--	2.19
Sodium	mg/l	4.29	--	--	5.23	--	--	4.33	--	--	74	--	--	58.7	--	--	35 O1	--	--	31.2
Zinc	ug/l	< 10.0 U	--	--	< 10.0 U	--	--	< 10.0 U	--	--	< 10.0 U	--	--	< 10.0 U	--	--	< 10.0 U	--	--	< 10.0 U

Table A1

2023-2024 Groundwater Data for Lower Outwash/Deep Wells

Elk River Landfill

Elk River, Minnesota

Location		P-304C	P-305C	P-305C	P-305C	P-305C	P-305C	P-305C	P-308L	P-308L	P-308L	P-309C	P-309C	P-311D	P-311D	P-311D	P-311D	P-311D	P-311D	P-311L	P-311L
Date		10/17/2024	4/18/2023	7/19/2023	10/20/2023	4/18/2024	7/26/2024	10/15/2024	4/24/2023	7/24/2023	7/24/2024	7/19/2023	7/26/2024	4/18/2023	7/19/2023	10/20/2023	5/15/2024	7/25/2024	10/16/2024	4/18/2023	7/19/2023
Parameter	Units																				
General Parameters																					
Alkalinity, total, as CaCO3	mg/l	680	--	353	--	--	318	--	609	592	510	699	1100	--	190	--	--	188	--	--	389
Anions	meq/l	--	--	9.61	--	--	8.49	--	--	13.1	--	22.8	34.7	--	3.85	--	--	3.84	--	--	9.14
Carbon, total organic	mg/l	6.77	--	--	--	--	--	--	3.61 H	3.84	3.84	--	--	--	--	--	--	--	--	--	--
Cations	meq/l	--	--	9.31	--	--	8.82	--	--	13.3	--	22.1	34.8	--	3.61	--	--	3.90	--	--	8.84
Cation-Anion balance	%	--	--	-1.61	--	--	1.89	--	--	0.789	--	-1.57	22.1	--	-3.24	--	--	0.840	--	--	-1.69
Chemical Oxygen Demand	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	mg/l	32.6	--	87.0	--	--	69.3	--	45.6	39.8	42.5	308	450	--	< 1.00 U	--	--	< 1.00 U	--	--	34.9
Dissolved oxygen, field	mg/l	0.2	0.5	0.9	0.5	0.4	0	0	0.1	0.8	--	0.9	0	0.3	1.3	0.7	0.4	4.3	2	0.6	1.0
Iron, ferrous, FE II, field	mg/l	--	--	--	--	--	--	--	--	--	3.30 >	--	--	--	--	--	--	--	--	--	--
Manganese II, field	mg/l	--	--	--	--	--	--	--	--	--	0.290	--	--	--	--	--	--	--	--	--	--
Nitrogen, ammonia, as N	mg/l	--	--	< 0.100 U	--	--	--	< 0.100 U	--	< 0.100 U	--	< 0.100 U	4.06	--	< 0.100 U	--	--	0.135	--	--	< 0.100 U
Nitrogen, nitrate + nitrite, as N	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, nitrate, as N	mg/l	< 1.00 U	--	--	--	--	--	--	< 1.00 U	< 1.00 U	< 1.00 U	--	--	--	--	--	--	--	--	--	--
Nitrogen, nitrite, as N	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total kjeldahl (TKN)	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH, field	pH units	6.8	7.79	7.15	7.48	8.08	8.0201	7.37	6.97	6.97	--	6.66	6.94	7.54	7.62	7.6	7.84	8.12	7.66	7.39	7.48
Redox (oxidation potential), field	mV	-93	-150	-57	-99	-209	-208.8	-174.3	-155	-117	--	-91	-125.7	-92	-27	-80	-105	-110.6	-124	-78	-45
Solids, total dissolved	mg/l	--	--	512	--	--	416	--	--	647 B	--	1240	1900	--	182 J3	--	--	185	--	--	465
Solids, total suspended	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific conductance @ 25 °C, field	umhos/cm	1198	493	845	873	510	521	1120	776	1083	--	2129	2420	335	359	350	368	270	351	777	811
Sulfate, as SO4	mg/l	33.5	--	5.33	--	--	8.26	--	13.6	8.66	< 5.00 U	8.24	8.26	--	< 5.00 U	--	--	< 5.00 U	--	--	18.1
Sulfide, as S ²⁻	mg/l	--	--	--	--	--	--	--	--	--	0.03	--	--	--	--	--	--	--	--	--	--
Temperature, field	deg C	11.2	12.2	13.1	13	12.5	13.8	13.5	14.4	18.6	--	14.2	11.4	9.0	9.3	9	9.9	15.4	9	9.0	9.2
Turbidity, field	NTU	7.2	24.3	4.9	19.9	3	14.1	4.3	19.1	7.5	--	35.3	4.3	0.7	1.5	0.9	1.3	9.6	2	37.7	56.1
Dissolved Metals																					
Arsenic	ug/l	--	--	5.95	--	--	5.91	--	--	< 2.00 U	--	32.6	35.2	--	< 2.00 U	--	--	< 2.00 U	--	--	< 2.00 U
Boron	ug/l	--	--	450	--	--	310	--	--	< 200 U	--	1470	3150	--	< 200 U	--	--	< 200 U	--	--	< 200 U
Cadmium	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/l	--	--	71.0	--	--	64.9	--	--	133	--	176	158	--	45.2	--	--	49.4	--	--	111
Chromium	ug/l	--	--	< 4.00 U	--	--	< 4.00 U	--	--	< 4.00 U	--	< 4.00 U	< 4.00 U	--	< 4.00 U	--	--	< 4.00 U	--	--	< 4.00 U
Copper	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	ug/l	--	--	3520	--	--	2240	--	--	9860	--	16800	12800	--	1260	--	--	1220	--	--	937
Lead	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/l	--	--	51.8	--	--	54	--	--	67.1	--	82.6	107	--	13.1	--	--	14.3	--	--	35.6
Manganese	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/l	--	--	2.47	--	--	2.22	--	--	3.72	--	5.8	9.68	--	1.29	--	--	1.18	--	--	1.86
Sodium	mg/l	--	--	30.2	--	--	22.9	--	--	17.3	--	133	400	--	4.51	--	--	4.4	--	--	6.51
Zinc	ug/l	--	--	< 10.0 U	--	--	< 10.0 U	--	--	< 10.0 U	--	< 10.0 U	< 10.0 U	--	< 10.0 U	--	--	< 10.0 U	--	--	< 10.0 U

Table A1
2023-2024 Groundwater Data for Lower Outwash/Deep Wells
Elk River Landfill
Elk River, Minnesota

Location		P-311L	P-311L	P-311L	P-311L	P-313C	P-313C	P-313C	P-313C	P-313C	P-313C	P-314C	P-314C	P-314C	P-314C	P-314C	P-314C	P-314C	P-315L	P-315L	P-315L
Date		10/20/2023	4/19/2024	7/25/2024	10/16/2024	4/24/2023	7/20/2023	10/17/2023	4/16/2024	7/24/2024	10/17/2024	10/27/2022	4/18/2023	7/18/2023	10/17/2023	4/16/2024	7/24/2024	10/16/2024	4/18/2023	7/18/2023	5/15/2024
Parameter	Units																				
General Parameters																					
Alkalinity, total, as CaCO3	mg/l	--	--	303	--	562	568	547	--	580	540	--	--	707	--	--	699	--	--	193	--
Anions	meq/l	--	--	6.72	--	--	14.0	--	--	14.1	--	--	--	16.3	--	--	16.2	--	--	3.88	--
Carbon, total organic	mg/l	--	--	--	--	3.72	4.13	3.62	--	4.68	3.23	--	--	--	--	--	--	--	--	--	--
Cations	meq/l	--	--	6.81	--	--	14.6	--	--	13.9	--	--	--	15.8	--	--	16.4	--	--	3.68	--
Cation-Anion balance	%	--	--	0.674	--	--	2.10	--	--	-0.691	--	--	--	-1.55	--	--	0.624	--	--	-2.73	--
Chemical Oxygen Demand	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	mg/l	--	--	2.50	--	70.6	79.9	74.0	--	70.2	74.1	--	--	37.5	--	--	31.4	--	--	< 1.00 U	--
Dissolved oxygen, field	mg/l	0.9	0.4	0	0	0.5	0.9	0.6	1.1	0.5	0.5	2.0	0.4	0.9	0.7	0.3	0	0	0.8	1.5	0.8
Iron, ferrous, FE II, field	mg/l	--	--	--	--	--	--	--	--	1.67	--	--	--	--	--	--	--	--	--	--	--
Manganese II, field	mg/l	--	--	--	--	--	--	--	--	0.231	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, ammonia, as N	mg/l	--	--	< 0.100 U	--	--	< 0.100 U	--	--	< 0.100 U	--	--	--	< 0.100 U	--	--	< 0.100 U	--	--	< 0.100 U	--
Nitrogen, nitrate + nitrite, as N	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, nitrate, as N	mg/l	--	--	--	--	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	--	--	--	--	--	--	--	--	--	--
Nitrogen, nitrite, as N	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total kjeldahl (TKN)	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH, field	pH units	7.38	7.47	7.94	7.32	7.06	6.89	6.83	7.23	7.26	7.03	6.82	6.67	6.43	6.64	6.91	6.93	11	7.30	7.05	8.13
Redox (oxidation potential), field	mV	-50	-81	-145.9	-81.8	-93	-12	-47	-87	-25	-55	-52	-78	-41	-42	-66	-89.9	-71.6	-35	-43	-111
Solids, total dissolved	mg/l	--	--	337	--	--	685	--	--	672	--	--	--	840	--	--	786	--	--	200	--
Solids, total suspended	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific conductance @ 25 °C, field	umhos/cm	805	848	382	721	815	1099	1014	1254	946	1135	1352	1340	1363	1319	1301	786	1073	355	449	343
Sulfate, as SO4	mg/l	--	--	29.1	--	25.0	19.7	25.2	--	26.0	24.5	--	--	51.8	--	--	62.3	--	--	< 5.00 U	--
Sulfide, as S ²⁻	mg/l	--	--	--	--	--	--	--	--	0.80 >	--	--	--	--	--	--	--	--	--	--	--
Temperature, field	deg C	9.2	9	9.5	10.4	8.3	13	9.2	8.5	12.2	9.7	9.0	8.4	9.5	9.2	8.1	9.8	9.2	10.0	12.2	12
Turbidity, field	NTU	4.03	49	13.9	32.2	3.4	21.9	8.2	8	5	3.5	17.1	1.1	17.3	1.5	1.3	15.7	1.2	16.3	19.5	6
Dissolved Metals																					
Arsenic	ug/l	--	--	4.08	--	--	< 2.00 U	--	--	2.73	--	--	--	< 2.00 U	--	--	< 2.00 U	--	--	2.63	--
Boron	ug/l	--	--	< 200 U	--	--	< 200 U	--	--	< 200 U	--	--	--	< 200 U	--	--	< 200 U	--	--	< 200 U	--
Cadmium	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/l	--	--	85.2 O1	--	--	175	--	--	160	--	--	--	193	--	--	199	--	--	38.6	--
Chromium	ug/l	--	--	< 4.00 U	--	--	< 4.00 U	--	--	< 4.00 U	--	--	--	< 4.00 U	--	--	< 4.00 U	--	--	< 4.00 U	--
Copper	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	ug/l	--	--	327	--	--	4880	--	--	1820	--	--	--	5930	--	--	4530	--	--	171	--
Lead	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/l	--	--	28.3	--	--	64	--	--	60.1	--	--	--	63.3	--	--	67.7	--	--	12.7	--
Manganese	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/l	--	--	1.17	--	--	2.43	--	--	2.77	--	--	--	2.83	--	--	2.95	--	--	2.14	--
Sodium	mg/l	--	--	4.47	--	--	9.09	--	--	19.3	--	--	--	14.5	--	--	14.7	--	--	14.9	--
Zinc	ug/l	--	--	< 10.0 U	--	--	11.2	--	--	< 10.0 U	--	--	--	< 10.0 U	--	--	< 10.0 U	--	--	< 10.0 U	--

Table A1
2023-2024 Groundwater Data for Lower Outwash/Deep Wells
Elk River Landfill
Elk River, Minnesota

Location		P-315L	P-315L	315-OWA	315-OWA	P-320C	P-320C	P-320C	P-320C	P-320C	P-320C	P-320C2	P-320C2	P-320C2	P-320C2	P-320C2	P-320C2	P-320L	P-320L	P-320L
Date		7/26/2024	10/16/2024	7/18/2023	7/26/2024	4/18/2023	7/18/2023	10/20/2023	4/16/2024	7/24/2024	10/15/2024	4/18/2023	7/18/2023	10/20/2023	4/16/2024	7/24/2024	10/15/2024	4/18/2023	7/18/2023	10/20/2023
Parameter	Units																			
General Parameters																				
Alkalinity, total, as CaCO3	mg/l	189	--	54.8	74.2	--	234	--	--	459	--	--	418	--	--	418	--	--	390	--
Anions	meq/l	3.85	--	1.41	1.79	--	7.09	--	--	12.5	--	--	10.8	--	--	10.8	--	--	9.35	--
Carbon, total organic	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cations	meq/l	3.80	--	1.50	1.81	--	5.29	--	--	12.7	--	--	7.91	--	--	10.9	--	--	8.70	--
Cation-Anion balance	%	-0.731	--	2.95	0.592	--	-14.5	--	--	0.893	--	--	-15.4	--	--	0.146	--	--	-3.63	--
Chemical Oxygen Demand	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	mg/l	2.89 J6 P1	--	3.49	3.17	--	82.4	--	--	78.8	--	--	72.1	--	--	72.5	--	--	42.4	--
Dissolved oxygen, field	mg/l	0.8	0.3	5.9	1.2	0.4	0.9	0.4	1.2	0	0	0.2	0.7	0.8	1.5	0	0	0.3	1.0	0.7
Iron, ferrous, FE II, field	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese II, field	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, ammonia, as N	mg/l	0.141	--	< 0.100 U	< 0.100 U	--	< 0.100 U	--	--	< 0.100 U	--	--	< 0.100 U	--	--	< 0.100 U	--	--	< 0.100 U	--
Nitrogen, nitrate + nitrite, as N	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, nitrate, as N	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, nitrite, as N	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total kjeldahl (TKN)	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH, field	pH units	7.98	8.13	6.45	8.11	7.24	6.93	7.16	7.49	7.65	7.28	7.17	6.98	7.24	7.41	7.76	7.22	7.17	6.62	7.29
Redox (oxidation potential), field	mV	-98	-90	--	112	-121	-49	-103	-119	-190.9	-148.1	-84	-55	-99	-123	-208	-171.2	-65	-30	-66
Solids, total dissolved	mg/l	196	--	104	118	--	383	--	--	635	--	--	585	--	--	538	--	--	479	--
Solids, total suspended	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific conductance @ 25 °C, field	umhos/cm	385	364	190	220	1049	1013	1050	928	785	847	1050	1103	940	975	694	972	828	697	837
Sulfate, as SO4	mg/l	< 5.00 U	--	10.5	10.6	--	< 5.00 U	--	--	52.0	--	--	19.5	--	--	21.5	--	--	16.9	--
Sulfide, as S ²⁻	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, field	deg C	10.1	8.8	10.9	12.2	10.0	14.8	11.4	10.2	11.5	11.7	10.0	14.9	11.8	10.1	12	11.5	10.2	15.5	11.7
Turbidity, field	NTU	15	7.3	101	65	6.1	27.3	4.1	3	4.3	12.3	4.3	63.2	3	1.7	--	2.3	9.2	79.3	6.1
Dissolved Metals																				
Arsenic	ug/l	2.90	--	< 2.00 U	< 2.00 U	--	< 2.00 U	--	--	7.23	--	--	< 2.00 U	--	--	< 2.00 U	--	--	< 2.00 U	--
Boron	ug/l	< 200 U	--	< 200 U	< 200 U	--	< 200 U	--	--	< 200 U	--	--	< 200 U	--	--	< 200 U	--	--	< 200 U	--
Cadmium	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/l	39.8	--	17.5	20.7	--	32.9	--	--	151	--	--	81.2	--	--	126	--	--	107	--
Chromium	ug/l	< 4.00 U	--	< 4.00 U	< 4.00 U	--	< 4.00 U	--	--	< 4.00 U	--	--	< 4.00 U	--	--	< 4.00 U	--	--	< 4.00 U	--
Copper	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	ug/l	128	--	118	408	--	2270	--	--	5290	--	--	4110	--	--	3320	--	--	3710	--
Lead	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/l	13.6	--	4.82	6.25	--	39.1	--	--	55	--	--	40.6	--	--	48	--	--	35.6	--
Manganese	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/l	2.17	--	3.84	3.81	--	2.53	--	--	2.61	--	--	2.42	--	--	3.22	--	--	2.73	--
Sodium	mg/l	14.6	--	2.98	3.57	--	6.5	--	--	8.84	--	--	6.99	--	--	9.64	--	--	4.81	--
Zinc	ug/l	< 10.0 U	--	< 10.0 U	< 10.0 U	--	< 10.0 U	--	--	< 10.0 U	--	--	< 10.0 U	--	--	< 10.0 U	--	--	< 10.0 U	--

Table A1
2023-2024 Groundwater Data for Lower Outwash/Deep Wells
Elk River Landfill
Elk River, Minnesota

Location		P-320L	P-320L	P-320L	P-321L	P-321L	P-321L	P-321L	P-321L	P-321L	P-322L	P-322L	P-322L	P-322L	P-322L	P-322L	P-323L	P-323L	P-323L	P-323L	P-323L
Date		4/16/2024	7/24/2024	10/15/2024	4/24/2023	7/20/2023	10/18/2023	4/18/2024	7/23/2024	10/17/2024	4/18/2023	7/18/2023	10/17/2023	4/16/2024	7/26/2024	10/16/2024	4/24/2023	7/20/2023	10/18/2023	4/18/2024	7/23/2024
Parameter	Units																				
General Parameters																					
Alkalinity, total, as CaCO3	mg/l	--	375	--	420	413	413	--	423	413	--	430	--	--	422	--	730	680	696	--	699
Anions	meq/l	--	9.72	--	--	10.7	--	--	10.8	--	--	9.90	--	--	9.56	--	--	17.4	--	--	18.2
Carbon, total organic	mg/l	--	--	--	2.76 B	2.20	2.32	--	1.68	1.21	--	--	--	--	--	--	6.36	6.19	6.65	--	6.73
Cations	meq/l	--	9.80	--	--	10.6	--	--	10.9	--	--	9.61	--	--	9.86	--	--	17.4	--	--	18.2
Cation-Anion balance	%	--	0.403	--	--	-0.303	--	--	-1.32	--	--	-1.48	--	--	1.56	--	--	0.0482	--	--	0.107
Chemical Oxygen Demand	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	mg/l	--	62.9	--	69.2	63.3	65.1	--	57.9	51.5	--	35.7	--	--	33.0	--	115	118	122	--	133
Dissolved oxygen, field	mg/l	0.1	0	0	0.3	0.9	0.7	0.7	1.1	1	0.4	0.9	0.8	1.5	0.7	0	0.1	0.9	0.6	0	0.3
Iron, ferrous, FE II, field	mg/l	--	--	--	--	--	--	--	0.56	--	--	--	--	--	--	--	--	--	--	--	2.87
Manganese II, field	mg/l	--	--	--	--	--	--	--	0.200	--	--	--	--	--	--	--	--	--	--	--	0.541
Nitrogen, ammonia, as N	mg/l	--	< 0.100 U	--	--	< 0.100 U	--	--	< 0.100 U	--	--	< 0.100 U	--	--	< 0.100 U	--	--	< 0.100 U	--	--	< 0.100 U
Nitrogen, nitrate + nitrite, as N	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, nitrate, as N	mg/l	--	--	--	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U P1	< 1.00 U	--	--	--	--	--	--	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U
Nitrogen, nitrite, as N	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total kjeldahl (TKN)	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH, field	pH units	7.48	7.73	7.25	7.24	6.99	7.13	7.29	7.45	7.29	7.60	6.95	7.16	7.71	7.95	7.22	6.8	6.59	6.64	6.9	6.99
Redox (oxidation potential), field	mV	-125	162.6	-155.9	-71	-78	-54	-102	-98	-105	-150	-46	-72	-141	-180	-87	-64	-58	-5	-96	-97
Solids, total dissolved	mg/l	--	482	--	--	556	--	--	554	--	--	497	--	--	433	--	--	832	--	--	924
Solids, total suspended	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific conductance @ 25 °C, field	umhos/cm	678	631	760	935	576	759	975	986	919	752	875	993	823	800	719	1163	960	1532	1577	995
Sulfate, as SO4	mg/l	--	21.6	--	31.5	32.6	33.2	--	33.8	32.6	--	14.4	--	--	9.82	--	20.6	22.7	22.5	--	22.5
Sulfide, as S ²⁻	mg/l	--	--	--	--	--	--	--	0.07	--	--	--	--	--	--	--	--	--	--	--	0.11
Temperature, field	deg C	10	12.1	11.8	11.9	12.1	11.9	10.8	11.5	11.8	8.5	9.8	10.5	7.6	11	9	9.8	10.3	10.3	9.9	10.5
Turbidity, field	NTU	0.3	7.3	10.6	3.5	2	2.5	2	1	0.5	19.7	13.5	4	7.9	32	4.7	167	12.6	6.2	15	8.4
Dissolved Metals																					
Arsenic	ug/l	--	< 2.00 U	--	--	< 2.00 U	--	--	< 2.00 U	--	--	< 2.00 U	--	--	< 2.00 U	--	--	< 2.00 U	--	--	< 2.00 U
Boron	ug/l	--	< 200 U	--	--	< 200 U	--	--	< 200 U	--	--	< 200 U	--	--	< 200 U	--	--	286	--	--	319
Cadmium	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/l	--	123	--	--	128	--	--	130 O1 V	--	--	112	--	--	112	--	--	187	--	--	188
Chromium	ug/l	--	< 4.00 U	--	--	< 4.00 U	--	--	< 4.00 U	--	--	< 4.00 U	--	--	< 4.00 U	--	--	< 4.00 U	--	--	< 4.00 U
Copper	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	ug/l	--	1560	--	--	800	--	--	957 O1	--	--	1650	--	--	2070	--	--	2970	--	--	6050
Lead	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/l	--	40.3	--	--	46	--	--	49.6	--	--	44.4	--	--	47.3	--	--	73.1	--	--	78.8
Manganese	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/l	--	2.64	--	--	2.91	--	--	2.79	--	--	2.07	--	--	2.3	--	--	3.77	--	--	4.02
Sodium	mg/l	--	5.13	--	--	8.86	--	--	5.02	--	--	5.19	--	--	6.28	--	--	42	--	--	46.7
Zinc	ug/l	--	< 10.0 U	--	--	< 10.0 U	--	--	< 10.0 U	--	--	< 10.0 U	--	--	< 10.0 U	--	--	< 10.0 U	--	--	< 10.0 U

Table A1
2023-2024 Groundwater Data for Lower Outwash/Deep Wells
Elk River Landfill
Elk River, Minnesota

Location		P-323L	P-324L	P-324L	P-324L	P-324L	P-324L	P-324L	P-325L	P-325L	P-325L	P-325L	P-325L	P-325L	P-326L	P-326L	P-326L	P-326L	P-326L	P-326L	P-327L
Date		10/17/2024	4/18/2023	7/18/2023	10/20/2023	5/15/2024	7/26/2024	10/16/2024	4/24/2023	7/20/2023	10/17/2023	4/16/2024	7/23/2024	10/17/2024	4/24/2023	7/20/2023	10/17/2023	4/16/2024	7/23/2024	10/17/2024	7/19/2023
Parameter	Units																				
General Parameters																					
Alkalinity, total, as CaCO3	mg/l	683	--	290	--	--	334	--	642	624	621	--	620	621	610	623	645	--	688	633	214
Anions	meq/l	--	--	6.76	--	--	7.65	--	--	16.8	--	--	16.6	--	--	14.5	--	--	15.9	--	4.67
Carbon, total organic	mg/l	6.44	--	--	--	--	--	--	9.67	9.51	8.44	--	8.56	8.12	3.21	2.77	2.65	--	3.02	2.84	--
Cations	meq/l	--	--	6.85	--	--	7.58	--	--	16.9	--	--	16.5	--	--	14.3	--	--	15.8	--	4.35
Cation-Anion balance	%	--	--	0.696	--	--	-0.421	--	--	0.425	--	--	-0.342	--	--	-0.527	--	--	-0.408	--	-3.57
Chemical Oxygen Demand	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	mg/l	131	--	34.1	--	--	34.2 J6	--	131	138	117	--	130	122	56.9	58.1	59.0	--	62.4	67.0	10.1
Dissolved oxygen, field	mg/l	0.2	0.2	0.8	0.5	0.3	0.7	0	0.2	1.5	0.8	0.6	0.9	0.7	1.3	2.3	3.3	1.8	1.2	0.8	0.9
Iron, ferrous, FE II, field	mg/l	--	--	--	--	--	--	--	--	--	--	--	1.52	--	--	--	--	--	2.28	--	--
Manganese II, field	mg/l	--	--	--	--	--	--	--	--	--	--	--	0.255	--	--	--	--	--	0.313	--	--
Nitrogen, ammonia, as N	mg/l	--	--	< 0.100 U	--	--	< 0.100 U J5	--	--	< 0.100 U	--	--	< 0.100 U	--	--	< 0.100 U	--	--	< 0.100 U	--	0.378
Nitrogen, nitrate + nitrite, as N	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, nitrate, as N	mg/l	< 1.00 U	--	--	--	--	--	--	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	--
Nitrogen, nitrite, as N	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total kjeldahl (TKN)	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH, field	pH units	6.879	7.62	6.86	7.18	7.89	7.88	7.7	7.73	6.88	7.5	7.38	7.45	7.35	7.17	6.87	7.45	7.29	7.33	7.21	6.9
Redox (oxidation potential), field	mV	-107	-167	-78	-125	-180	-203	-186.4	-73	-35	-24	-85	20	-35	-36	-39	-31	-89	-56	-85	-95
Solids, total dissolved	mg/l	--	--	319	--	--	360	--	--	842	--	--	866	--	--	700 J3	--	--	725	--	217
Solids, total suspended	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific conductance @ 25 °C, field	umhos/cm	1490	645	633	720	622	597	598	1485	1499	1405	1376	1559	1503	1245	1283	1275	1109	1389	1373	350
Sulfate, as SO4	mg/l	18.9	--	< 5.00 U	--	--	< 5.00 U	--	24.6	18.6	25.4	--	26.2	23.9	22.1	17.5	25.3	--	19.0	17.7	5.88
Sulfide, as S²-	mg/l	--	--	--	--	--	--	--	--	--	--	--	< -9999 ND	--	--	--	--	--	< -9999 ND	--	--
Temperature, field	deg C	10.8	8.8	10.3	10.5	9.7	10	9.4	7.7	9.6	8.2	8	11.2	10.5	6.9	15	8.8	7.3	12.1	10.3	9.9
Turbidity, field	NTU	21	53.7	87	21.1	22	15	7.2	4	3.2	3.3	3.5	10	8	6.3	4.1	7	1.5	17	9.3	22.1
Dissolved Metals																					
Arsenic	ug/l	--	--	< 2.00 U	--	--	< 2.00 U	--	--	< 2.00 U	--	--	< 2.00 U	--	--	< 2.00 U	--	--	< 2.00 U	--	3.27
Boron	ug/l	--	--	< 200 U	--	--	< 200 U	--	--	362	--	--	251	--	--	< 200 U	--	--	< 200 U	--	< 200 U
Cadmium	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/l	--	--	49.8	--	--	62.4	--	--	187	--	--	181	--	--	163	--	--	181	--	50.3
Chromium	ug/l	--	--	< 4.00 U	--	--	< 4.00 U	--	--	< 4.00 U	--	--	< 4.00 U	--	--	< 4.00 U	--	--	< 4.00 U	--	< 4.00 U
Copper	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	ug/l	--	--	7690	--	--	5850	--	--	1980	--	--	2140	--	--	9590	--	--	12600	--	2120
Lead	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/l	--	--	44.3	--	--	46	--	--	67.7	--	--	71.4	--	--	59.5	--	--	70.6	--	16.9
Manganese	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/l	--	--	2.47	--	--	2.62	--	--	3.26	--	--	3.14	--	--	2.79	--	--	2.53	--	2.75
Sodium	mg/l	--	--	8.65	--	--	9.28	--	--	42.6	--	--	32.4	--	--	20.1	--	--	9.71	--	6.98
Zinc	ug/l	--	--	< 10.0 U	--	--	< 10.0 U	--	--	< 10.0 U	--	--	< 10.0 U	--	--	< 10.0 U	--	--	< 10.0 U	--	< 10.0 U

Table A1
2023-2024 Groundwater Data for Lower Outwash/Deep Wells
Elk River Landfill
Elk River, Minnesota

Location		P-327L	P-327L	P-328L	P-328L	P-328L	P-329L	P-329L	P-329L	P-329L	P-329L	P-329L	P-333L	P-333L	P-333L	P-333L	P-334L	P-334L	P-334L	P-334L	P-334L
Date		4/15/2024	7/25/2024	7/21/2023	4/15/2024	7/25/2024	4/19/2023	7/21/2023	10/20/2023	4/15/2024	7/25/2024	10/16/2024	5/15/2023	8/10/2023	4/15/2024	7/25/2024	4/24/2023	7/24/2023	10/18/2023	5/15/2024	7/22/2024
Parameter	Units																				
General Parameters																					
Alkalinity, total, as CaCO3	mg/l	208	197	201	215	205	--	198	--	210	206	--	--	201	205	198	285	275	281	--	308
Anions	meq/l	--	4.36	4.55	--	4.60	--	4.32	--	--	4.50	--	--	4.34	--	4.39	--	6.33	--	--	--
Carbon, total organic	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.03 B	1.33 B	1.43	--	< 1.40 UB
Cations	meq/l	--	4.51	4.46	--	4.54	--	4.25	--	--	4.38	--	--	4.91	--	4.33	--	6.11	--	--	--
Cation-Anion balance	%	--	3.23	-1.03	--	3.11	--	-0.925	--	--	-1.26	--	--	6.24	--	-0.687	--	-1.80	--	--	--
Chemical Oxygen Demand	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	mg/l	11.2	10.6 J6	7.05	6.87	6.09	--	2.93	--	3.04	3.45	--	--	2.94	3.94	3.43	16.9	16.7	17.9	--	21.6
Dissolved oxygen, field	mg/l	0.2	0.8	0.9	15.9	0.9	0.3	0.5	0.4	0.5	0.5	0.4	1.2	0.9	0.4	0.6	0.2	0.7	0.3	1	--
Iron, ferrous, FE II, field	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.44
Manganese II, field	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.042
Nitrogen, ammonia, as N	mg/l	--	0.214	0.236	--	0.225	--	< 0.100 U	--	--	< 0.100 U	--	--	0.115 B	--	< 0.100 U	--	< 0.100 U	--	--	--
Nitrogen, nitrate + nitrite, as N	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, nitrate, as N	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U T8
Nitrogen, nitrite, as N	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total kjeldahl (TKN)	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH, field	pH units	8.37	8.18	7.62	8.04	7.96	7.87	7.72	7.65	7.98	7.9	7.74	7.48	7.65	7.94	7.85	7.7	7.35	7.74	7.48	--
Redox (oxidation potential), field	mV	-230	-201	-65	-184	-147	-88	-125	-81	-140	-125	-137	-19	-60	-139	-139	-88	-39	-69	-12	--
Solids, total dissolved	mg/l	--	224	238	--	229	--	223	--	--	224	--	--	227	--	228	--	334 B	--	--	--
Solids, total suspended	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific conductance @ 25 °C, field	umhos/cm	409	418	384	424	436	387	389	393	395	413	392	398	411	400	403	560	454	583	613	--
Sulfate, as SO4	mg/l	5.85	6.28	16.7	15.5	15.9	--	13.9	--	13.4	13.8	--	--	11.6	16.5	16.5	18.5	17.8	19.5	--	18.6
Sulfide, as S ²⁻	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.17
Temperature, field	deg C	8	9	8.9	8.2	9.7	7.8	8.5	8.8	9.2	9.9	9.2	12	11.8	7.9	9.9	8.5	9.1	9	10.5	--
Turbidity, field	NTU	9.1	1	10.1	0.1	13	21.3	12.9	12.1	9.5	2	9	5	27.3	2.3	2	5	20.7	4.1	3.8	--
Dissolved Metals																					
Arsenic	ug/l	--	3.62	< 2.00 U	--	< 2.00 U	--	< 2.00 U	--	--	< 2.00 U	--	--	< 2.00 U	--	< 2.00 U	--	< 2.00 U	--	--	--
Boron	ug/l	--	< 200 U	< 200 U	--	< 200 U	--	< 200 U	--	--	< 200 U	--	--	< 200 U	--	< 200 U	--	< 200 U	--	--	--
Cadmium	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/l	58.9 F1	51.5	53.0	63.9 F1	54.8	--	48.8	--	59.5 F1	51.1	--	--	54.7 O1	62.6 F1	53.0	--	73.9	--	--	--
Chromium	ug/l	--	< 4.00 U	< 4.00 U	--	< 4.00 U	--	< 4.00 U	--	--	< 4.00 U	--	--	6.77	--	< 4.00 U	--	< 4.00 U	--	--	--
Copper	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	ug/l	--	2320	1020	--	810	--	603	--	--	1080	--	--	6570	--	1310	--	258	--	--	--
Lead	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/l	19.1 F1	18.5	18.2	20.6 F1	18.2	--	18.1	--	18.1 F1	18	--	--	21.5	19.3 F1	17.7	--	27.1	--	--	--
Manganese	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/l	1.85 F1	1.61	1.41	1.48 F1	1.42	--	1.78	--	1.66 F1	1.77	--	--	1.32	1.29 F1	1.3	--	1.58	--	--	--
Sodium	mg/l	6.64 F1	6.8	5.59	5.64 F1	5.8	--	5.79	--	5.77 F1	6.07	--	--	3.44	3.33 F1	3.51	--	3.15	--	--	--
Zinc	ug/l	--	< 10.0 U	< 10.0 U	--	< 10.0 U	--	< 10.0 U	--	--	< 10.0 U	--	--	54.3	--	< 10.0 U	--	17.7	--	--	--

Table A1
2023-2024 Groundwater Data for Lower Outwash/Deep Wells
Elk River Landfill
Elk River, Minnesota

Location		P-334L	P-334L	P-335L	P-335L	P-335L	P-335L	P-335L	P-335L	P-337L	P-337L	P-338L	P-338L	P-338L
Date		9/19/2024	10/17/2024	4/19/2023	7/21/2023	10/20/2023	4/15/2024	7/25/2024	10/16/2024	7/20/2023	7/25/2024	4/24/2023	7/24/2023	10/18/2023
Parameter	Units													
Volatile Organic Compounds														
1,1,1,2-Tetrachloroethane	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,1,1-Trichloroethane	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,1,2,2-Tetrachloroethane	ug/l	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U Q	< 0.500 U	< 0.500 U C3	< 0.500 U	< 0.500 U
1,1,2-Trichloroethane	ug/l	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U Q	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U
1,1-Dichloroethane	ug/l	4.86	3.89	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	8.00	9.67	7.90
1,1-Dichloroethylene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,1-Dichloropropene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2,3-Trichlorobenzene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U
1,2,3-Trichloropropane	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2,4-Trichlorobenzene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U
1,2,4-Trimethylbenzene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U Q	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U
1,2-Dibromoethane (EDB)	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2-Dichlorobenzene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2-Dichloroethane	ug/l	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U Q	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U
1,2-Dichloroethylene, cis	ug/l	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U Q	< 0.100 U	0.465	0.706	0.784
1,2-Dichloroethylene, trans	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2-Dichloropropane	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,3,5-Trimethylbenzene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,3-Dichlorobenzene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,3-Dichloropropane	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,3-Dichloropropene, cis	ug/l	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U Q	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
1,3-Dichloropropene, trans	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,4-Dichlorobenzene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
2,2-Dichloropropane	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U J3	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Acetone	ug/l	< 10.0 U J3 J4	< 10.0 U J3 J4	< 10.0 U	< 10.0 U J3	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U C3 J3	10.9 C5 Q	< 10.0 U C3	< 10.0 U	< 10.0 U	< 10.0 U
Allyl chloride	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Benzene	ug/l	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U Q	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
Bromobenzene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Bromochloromethane	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Bromodichloromethane	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Bromoform	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Bromomethane	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U
Butylbenzene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U
Butylbenzene, sec	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3 J4	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Butylbenzene, tert	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Carbon tetrachloride	ug/l	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U Q	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U
Chlorobenzene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Chlorodibromomethane	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Chloroethane	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Chloroform	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Chloromethane	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U J3	< 1.00 U	< 1.00 U	< 1.00 U
Chlorotoluene, o	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Chlorotoluene, p	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Cumene (isopropyl benzene)	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Cymene p- (toluene isopropyl p-)	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U
Dibromomethane (methylene bromide)	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Dichlorodifluoromethane (Freon-12)	ug/l	12.7	6.90 C5	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U J4	< 1.00 U Q	< 1.00 U	2.79	4.03	4.07 C3
Dichlorofluoromethane (Freon-21)	ug/l	25.4	16.7	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	12.2	14.9	15.0
Ethane	ug/l	--	< 1.20 U	--	--	--	--	--	--	--	--	0.92 HJ	0.58 J	< 45.0 U
Ethyl benzene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Ethyl ether	ug/l	20.5	17.9	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	22.3	29.5	23.4
Ethylene	ug/l	--	< 1.20 U	--	--	--	--	--	--	--	--	< 0.24 UH	< 0.24 U	< 39.6 U
Hexachlorobutadiene	ug/l	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U J3	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U Q	< 0.250 U	< 0.250 U C3	< 0.250 U	< 0.250 U
Methane	ug/l	--	2020	--	--	--	--	--	--	--	--	1300 H	1400	1720 1b
Methyl ethyl ketone (2-butanone)	ug/l	< 10.0 U J3	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U C3	< 10.0 U Q	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U C3
Methyl isobutyl ketone (MIBK)	ug/l	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U C3	< 5.00 U Q	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Methyl tertiary butyl ether (MTBE)	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Methylene chloride	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U J3 J4	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Naphthalene	ug/l	< 1.00 U C3	< 1.00 U J3	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U
Propylbenzene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U Q	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Styrene	ug/l	< 1.00 U	<											

Table A1
2023-2024 Groundwater Data for Lower Outwash/Deep Wells
Elk River Landfill
Elk River, Minnesota

Location		P-334L	P-334L	P-335L	P-335L	P-335L	P-335L	P-335L	P-335L	P-337L	P-337L	P-338L	P-338L	P-338L
Date		9/19/2024	10/17/2024	4/19/2023	7/21/2023	10/20/2023	4/15/2024	7/25/2024	10/16/2024	7/20/2023	7/25/2024	4/24/2023	7/24/2023	10/18/2023
Parameter	Units													
General Parameters														
Alkalinity, total, as CaCO3	mg/l	--	300	--	187	--	202	197	--	198	193	436	428	455
Anions	meq/l	--	--	--	4.15	--	--	4.42	--	4.99	4.98	--	9.97	--
Carbon, total organic	mg/l	--	1.16	--	--	--	--	--	--	--	--	2.32	2.72	2.91
Cations	meq/l	--	--	--	4.04	--	--	4.33	--	4.84	5.08	--	9.92	--
Cation-Anion balance	%	--	--	--	-1.30	--	--	-1.01	--	-1.54	1.06	--	-0.281	--
Chemical Oxygen Demand	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	mg/l	--	23.6	--	3.67	--	4.04	4.10	--	9.16	9.34	37.6	37.9	41.2
Dissolved oxygen, field	mg/l	0.8	0.7	0.3	1.7	1.2	1.1	0.8	1.8	0.5	0	0.2	0.7	0.6
Iron, ferrous, FE II, field	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese II, field	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, ammonia, as N	mg/l	--	--	--	< 0.100 U	--	--	< 0.100 U	--	< 0.100 U	< 0.100 U	--	< 0.100 U	--
Nitrogen, nitrate + nitrite, as N	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, nitrate, as N	mg/l	--	< 1.00 U	--	--	--	--	--	--	--	--	< 1.00 U	< 1.00 U	< 1.00 U
Nitrogen, nitrite, as N	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total kjeldahl (TKN)	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--
pH, field	pH units	7.23	7.27	6.90	6.93	7.03	7.62	8.12	7.87	7.55	7.47	7.56	7.25	7.52
Redox (oxidation potential), field	mV	-86	-36	-67	-66	-62	-138	-135	-114	-47	-221.9	-98	-87	-77
Solids, total dissolved	mg/l	--	--	--	222	--	--	229	--	278	272	--	505 B	--
Solids, total suspended	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific conductance @ 25 °C, field	umhos/cm	644	630	382	385	339	398	407	408	346	316	755	808	880
Sulfate, as SO4	mg/l	--	18.7	--	14.6	--	15.1	17.6	--	37.0	41.6	16.9	16.9	18.1
Sulfide, as S ²⁻	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, field	deg C	10	9.7	9.9	10.5	10.6	11	11.1	11.4	10.1	10	8.8	10.0	9.7
Turbidity, field	NTU	5	13	9.9	12.1	8.5	8.1	28	12	67	9.4	4.1	7.9	3.3
Dissolved Metals														
Arsenic	ug/l	--	--	--	< 2.00 U	--	--	< 2.00 U	--	< 2.00 U	< 2.00 U	--	< 2.00 U	--
Boron	ug/l	--	--	--	< 200 U	--	--	< 200 U	--	< 200 U	< 200 U	--	< 200 U	--
Cadmium	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/l	--	--	--	47.9	--	60.0 F1	52.3	--	56.7	60.8	--	117	--
Chromium	ug/l	--	--	--	< 4.00 U	--	--	< 4.00 U	--	< 4.00 U	< 4.00 U	--	< 4.00 U	--
Copper	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	ug/l	--	--	--	404	--	--	879	--	457	604	--	1630	--
Lead	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/l	--	--	--	17.3	--	19.6 F1	17.8	--	22.2	22.4	--	46.3	--
Manganese	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/l	--	--	--	1.3	--	1.34 F1	1.42	--	1.36	1.45	--	1.87	--
Sodium	mg/l	--	--	--	3.99	--	4.07 F1	4.35	--	3.08	3.32	--	4.15	--
Zinc	ug/l	--	--	--	< 10.0 U	--	--	< 10.0 U	--	< 10.0 U	< 10.0 U	--	< 10.0 U	--

Table A1
2023-2024 Groundwater Data for Lower Outwash/Deep Wells
Elk River Landfill
Elk River, Minnesota

Location		P-338L	P-338L	P-338L	P-340L	P-340L	P-341L	P-341L	P-341L	P-341L	P-341L	P-342L	P-342L	P-342L	P-342L	P694477	P694477	P694477	P694477	P694477	P694477
Date		4/18/2024	7/22/2024	10/17/2024	8/10/2023	7/22/2024	8/10/2023	10/17/2023	4/15/2024	7/23/2024	9/19/2024	5/15/2023	8/10/2023	4/15/2024	7/24/2024	4/21/2023	7/21/2023	10/20/2023	4/18/2024	7/26/2024	10/16/2024
Parameter	Units																				
General Parameters																					
Alkalinity, total, as CaCO3	mg/l	--	474 449	448	193	196 179	266	274 274	274	272	--	188	187	129 145	203 198	--	372	--	--	436	--
Anions	meq/l	--	10.6	--	4.21	3.98	6.33	6.77	6.56	--	--	4.02	4.01	3.03	4.22	--	8.29	--	--	9.74	--
Carbon, total organic	mg/l	--	2.63	2.21	--	< 1.00 U	2.15 B	< 1.00 U	--	< 1.00 U	--	--	1.19 B	--	1.03	--	--	--	--	--	--
Cations	meq/l	--	10.9	--	4.45	4.56	7.19	6.53	6.23	--	--	3.90	4.16	3.57	4.25	--	8.14	--	--	9.69	--
Cation-Anion balance	%	--	1.27	--	2.77	6.85	6.40	-1.86	--	--	--	-1.41	1.88	--	0.387	--	-0.920	--	--	0.477	--
Chemical Oxygen Demand	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	mg/l	--	43.8 43.6	45.1	3.85	49.4 4.72	22.2	27.4 27.6	24.6	24.5	--	1.04	1.04	1.17 1.05	1.20 1.38	--	17.6	--	--	21.3 J6	--
Dissolved oxygen, field	mg/l	0.5	0.4	0.7	0.7	10.7	1.7	0.8	0.1	--	0.5	0.7	0.8	0.2	0.9	0.1	0.3	0.2	0.1	0.1	0.2
Iron, ferrous, FE II, field	mg/l	--	1870	--	--	1050	--	--	--	2490	--	--	--	--	770	--	--	--	--	--	--
Manganese II, field	mg/l	--	252	--	--	175	--	--	--	368	--	--	--	--	64	--	--	--	--	--	--
Nitrogen, ammonia, as N	mg/l	--	< 0.100 U	--	0.143 B	< 0.100 U	0.102	< 0.100 U	< 0.100 U	--	--	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	--	< 0.100 U	--	--	< 0.100 U J3	--
Nitrogen, nitrate + nitrite, as N	mg/l	--	--	--	--	--	0.679	< 0.100 U	< 0.100 U	--	--	< 0.100 U	< 0.100 U	< 0.100 U	--	--	--	--	--	--	--
Nitrogen, nitrate, as N	mg/l	--	< 1.00 U T8	< 1.00 U	--	< 1.00 U	0.272	< 1.00 U	--	< 1.00 U	--	--	< 0.100 U	--	< 1.00 U	--	--	--	--	--	--
Nitrogen, nitrite, as N	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total kjeldahl (TKN)	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH, field	pH units	7.63	7.74	7.49	7.80	8.45	6.23	7.16	8.56	--	7.55	7.52	7.70	7.94	8.06	7.16	7.17	7.35	7.4	7.72	7.45
Redox (oxidation potential), field	mV	-161	-176	-166	-43	72	-45	-72	-329	--	-172	-45	-59	-199	-43	-155	-194	-163	-98	-210	192
Solids, total dissolved	mg/l	--	545	--	229	207	365	339 B	339	--	--	209	206	171	210	--	433	--	--	460	--
Solids, total suspended	mg/l	--	--	--	--	--	125	22.5	37.8	--	--	63.3	60.4	< 4.00 U	--	--	--	--	--	--	--
Specific conductance @ 25 °C, field	umhos/cm	895	953	910	400	404	621	626	575	--	685	413	390	368	411	720	743	690	653	822	786
Sulfate, as SO4	mg/l	--	18.0 18.8	18.0	12.0	35.2 12.5	18.4	24.6 24.7	18.9	23.7	--	10.7	11.5 J6	5.78 6.72	9.38 10.3	--	17.3	--	--	20.4 J6	--
Sulfide, as S ²⁻	mg/l	--	0.19	--	--	0.10	--	--	--	0.08	--	--	--	--	0.54	--	--	--	--	--	--
Temperature, field	deg C	9.2	10.1	9.6	11.9	11.5	12.2	11.4	10.2	--	10.6	12.0	12.0	7.7	12.1	9.9	4.0	10.2	9.7	9.6	9.6
Turbidity, field	NTU	2	1	0.8	12.3	8	43.1	207	15.5	--	60.3	50.0	27.2	4.9	19	0.8	3.0	1.9	2.3	1.3	0.8
Dissolved Metals																					
Arsenic	ug/l	--	< 2.00 U	--	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	--	--	< 2.00 U	< 2.00 U	< 2.00 UF1	< 2.00 U	--	< 2.00 U	--	--	< 2.00 U	--
Boron	ug/l	--	< 200 U	--	< 200 U	< 200 U	< 200 U	< 200 U	< 200 U	--	--	< 200 U	< 200 U	< 200 U F1	< 200 U	--	< 200 U	--	--	< 200 U	--
Cadmium	ug/l	--	--	--	--	--	< 2.00 U	< 2.00 U	< 2.00 U	--	--	< 2.00 U	< 2.00 U	< 2.00 U F1	--	--	--	--	--	--	--
Calcium	mg/l	--	128	--	51.8	51.6	86.1	78.7	75.8	--	--	45.4 O1	47.0	41.8 F1 44.2 F1	49.7	--	97.6	--	--	120 V	--
Chromium	ug/l	--	< 4.00 U	--	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	6.46	--	--	< 4.00 U	4.84	< 4.00 UF1	< 4.00 U	--	< 4.00 U	--	--	< 4.00 U	--
Copper	ug/l	--	--	--	--	--	< 10.0 U	< 10.0 U	< 10.0 U	--	--	< 10.0 U	< 10.0 U	< 10.0 U F1	--	--	--	--	--	--	--
Iron	ug/l	--	2360	--	395	400	438	< 100 U	< 100 U	--	--	< 100 U	< 100 U	< 100 U F1	1410	--	2170	--	--	1370	--
Lead	ug/l	--	--	--	--	--	< 10.0 U	< 10.0 U	< 10.0 U	--	--	< 10.0 U	< 10.0 U	< 10.0 U F1	--	--	--	--	--	--	--
Magnesium	mg/l	--	50.1	--	19.5	21	31.5	29.4	26.9	--	--	17.8	19.9	14.4 F1 15.3 F1	19.1	--	35.9	--	--	40.8	--
Manganese	ug/l	--	--	--	--	--	768	240	84.3	--	--	193 O1	170	114 F1	--	--	--	--	--	--	--
Mercury	ug/l	--	--	--	--	--	< 0.200 U	< 0.200 U	< 0.200 U	--	--	< 0.200 U	0.348	< 0.200 U F1	--	--	--	--	--	--	--
Potassium	mg/l	--	2.14	--	1.31	1.39	3.16	2.60 B	3.02	--	--	1.56	1.77	1.03 F1 1.20 F1	1.36	--	1.64	--	--	1.97	--
Sodium	mg/l	--	4.54	--	4.69	4.79	4.11	3.87	3.58	--	--	2.87	3.05	2.01 F1 2.41 F1	2.58	--	4.42	--	--	5.3	--
Zinc	ug/l	--	< 10.0 U	--	16.9	< 10.0 U	46.6	< 10.0 U	42.3	--	--	< 10.0 U	43.8	17.1 F1	< 10.0 U	--	< 10.0 U	--	--	< 10.0 U	--

Table A2
2023-2024 Groundwater Data for Upper Outwash/Shallow Wells
Elk River Landfill
Elk River, Minnesota

	Location	22-OWA	22-OWA	301-OWA	301-OWA	302-OWA	302-OWA	P-303C	P-303C	P-303C		P-310C	P-310C	P-311C	P-311C	312-OWA	312-OWA	336-OWA	336-OWA	337-OWA	337-OWA	
		Date									10/16/2024											
		Sample Type	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N
Parameter	Units																					
Volatile Organic Compounds																						
1,1,1,2-Tetrachloroethane	ug/l	< 1.00 U	< 1.00 U	< 1.00 U J3	< 1.00 U	< 1.00 U J3	< 1.00 U	< 1.00 U J3	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U J3	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U J3	< 1.00 U	< 1.00 U J3	< 1.00 U	
1,1,1-Trichloroethane	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,1,2,2-Tetrachloroethane	ug/l	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	
1,1,2-Trichloroethane	ug/l	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	
1,1-Dichloroethane	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,1-Dichloroethylene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,1-Dichloropropene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,2,3-Trichlorobenzene	ug/l	< 1.00 U J4	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,2,3-Trichloropropane	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,2,4-Trichlorobenzene	ug/l	< 1.00 U J4	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,2,4-Trimethylbenzene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,2-Dibromo-3-chloropropane (DBCP)	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U C3	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,2-Dibromoethane (EDB)	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,2-Dichlorobenzene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,2-Dichloroethane	ug/l	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	
1,2-Dichloroethylene, cis	ug/l	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	
1,2-Dichloroethylene, trans	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,2-Dichloropropane	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,3,5-Trimethylbenzene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,3-Dichlorobenzene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,3-Dichloropropane	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,3-Dichloropropene, cis	ug/l	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	
1,3-Dichloropropene, trans	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,4-Dichlorobenzene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
2,2-Dichloropropane	ug/l	< 1.00 U	< 1.00 U C3	< 1.00 U J3	< 1.00 U C3	< 1.00 U J3	< 1.00 U C3	< 1.00 U J3	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U J3	< 1.00 U C3	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U C3	< 1.00 U J3	< 1.00 U C3	< 1.00 U J3	< 1.00 U C3	
Acetone	ug/l	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U C5	< 10.0 U	< 10.0 U	< 10.0 U J3 J4	< 10.0 U C3 J3	< 10.0 U C3 J3	< 10.0 U	< 10.0 U	< 10.0 U C5	< 10.0 U	< 10.0 U C5	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U	
Allyl chloride	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Benzene	ug/l	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	
Bromobenzene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Bromochloromethane	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Bromodichloromethane	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Bromoform	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U C3	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Bromomethane	ug/l	< 1.00 U	< 1.00 U C3	< 1.00 U J3	< 1.00 U C3	< 1.00 U J3	< 1.00 U C3	< 1.00 U J3	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U J3	< 1.00 U C3	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U C3	< 1.00 U J3	< 1.00 U C3	< 1.00 U J3	< 1.00 U C3	
Butylbenzene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Butylbenzene, sec	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Butylbenzene, tert	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Carbon tetrachloride	ug/l	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	
Chlorobenzene	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Chlorodibromomethane	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Chloroethane	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Chloroform	ug/l	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U											

Table A2
2023-2024 Groundwater Data for Upper Outwash/Shallow Wells
Elk River Landfill
Elk River, Minnesota

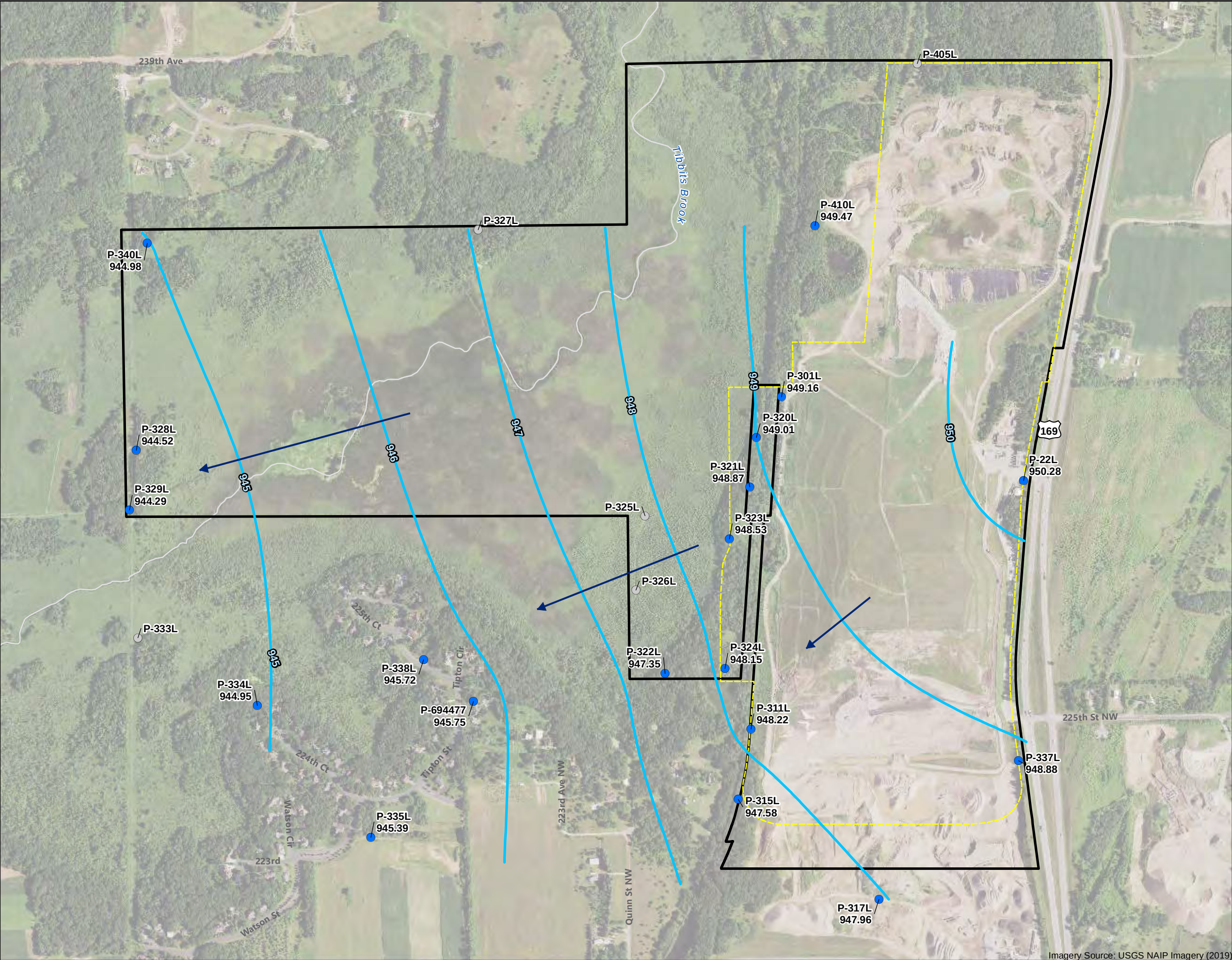
Location Date Sample Type	22-OWA	22-OWA	301-OWA	301-OWA	302-OWA	302-OWA	P-303C	P-303C	P-303C		P-310C	P-310C	P-311C	P-311C	312-OWA	312-OWA	336-OWA	336-OWA	337-OWA	337-OWA	
	7/18/2023	7/26/2024	7/19/2023	7/26/2024	7/19/2023	7/26/2024	7/19/2023	9/19/2024	10/16/2024		7/19/2023	7/26/2024	7/19/2023	7/25/2024	7/19/2023	7/25/2024	7/18/2023	7/26/2024	7/18/2023	7/25/2024	
	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Parameter	Units																				
General Parameters																					
Alkalinity, total, as CaCO3	mg/l	314	361	405	325	317	284	485	--	--	--	636	691	322	285	269	245	173	195	641	621
Anions	meq/l	10.2	11.9	8.95	6.96	6.70	5.83	11.1	--	--	--	13.2	14.1	7.11	6.40	11.3	13.0	3.75	4.64	13.9	13.6
Carbon, total organic	mg/l																				
Cation-Anion balance	%	0.643	4.86	-1.40	1.83	-3.48	0.200	-0.428	--	--	--	-2.19	1.00	-1.89	1.72	34.7	3.85	0.108	5.52	0.879	3.93
Cations	meq/l	10.4	13.1	8.70	7.22	6.25	5.86	11.0	--	--	--	12.7	14.4	6.84	6.63	11.1	14.0	3.76	5.18	14.2	14.9
Chloride	mg/l	118	138	2.63	2.40	1.90	1.15	12.2	--	--	--	4.35	4.45	2.57	2.63	194	273	3.96	12.7	11.5	14.6
Dissolved oxygen, field	mg/l	9.7	5.2	1.1	0	1.7	0	3.2	0.4	0	--	0.5	0.8	5.5	0	5.8	6.6	5.8	7.7	7.0	0.1
Ion Balance	%																				
Iron, ferrous, FE II, field	mg/l																				
Manganese II, field	mg/l																				
Nitrogen, ammonia, as N	mg/l	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	--	--	--	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	
Nitrogen, nitrate, as N	mg/l																				
Nitrogen, nitrite, as N	mg/l																				
Nitrogen, nitrate + nitrite, as N	mg/l																				
Nitrogen, total kjeldahl (TKN)	mg/l																				
pH, field	pH units	6.48	7.29	6.86	7.18	6.66	7.28	7.25	8.22	6.94	--	6.90	7.37	7.07	7.96	7.00	7.42	8.03	7.74	6.70	6.91
Redox (oxidation potential), field	mV	138.9	58	-28.8	22.4	-26.2	-28.3	-177.6	-187	-81.7	--	-184.4	-132	-156.9	-146.6	158.0	12.8	40.9	95	54.8	-35.1
Solids, total dissolved	mg/l	571	677	438	372	313	303	453	--	--	--	588	704	344	339	616	882	189	283	672	720
Solids, total suspended	mg/l																				
Specific conductance @ 25 °C, field	umhos/cm	995	864	673	441	507	359	783	368	884	--	973	1232	533	387	1095	1035	306	480	927	838
Sulfate, as SO4	mg/l	30.6	38.3	37.9	19.1	14.8	5.96	51.8	--	--	--	19.4	8.29	29.2	30.2	19.7	19.4	8.51	18.5	39.2	36.1
Sulfide, as S ²⁻	mg/l																				
Temperature, field	deg C	10.8	10.6	11.4	11.6	12.1	10.7	11.5	12.9	10.8	--	10.8	11.3	9.6	9.4	13.9	12.2	11.9	12.4	12.4	10.1
Turbidity, field	NTU	3.9	5.4	1.6	6.4	4.95	--	23.3	2	4.9	--	28.5	24	103.0	14.4	174.0	21.7	--	6	145.0	6.9
Dissolved Metals																					
Arsenic	ug/l	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	--	--	--	< 2.00 U	< 2.00 U	3.16	2.99	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U
Boron	ug/l	< 200 U	< 200 U	< 200 U	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	< 200 U	< 200 U	< 200 U	< 200 U	< 200 U	< 200 U	< 200 U	< 200 U	< 200 U	< 200 U
Cadmium	ug/l																				
Calcium	mg/l	123	151 V	109	92.0	75.8	76.9	127 O1 V	--	--	--	169	196	82.8	80.7	105	142	42.8	63.7	179	184
Chromium	ug/l	< 4.00 U	5.22	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	--	--	--	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U
Copper	ug/l																				
Iron	ug/l	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U	--	--	--	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U	
Lead	ug/l																				
Magnesium	mg/l	38.1	44.3	35.2	28.8	26.9	22.7	50.2	--	--	--	46.3	50.9	30	28.7	29.2	36.2	14	18.8	58.7	60.4
Manganese	ug/l																				
Mercury	ug/l																				
Potassium	mg/l	2.13	1.95	3.37	2.1	2.04	1.74	1.45	--	--	--	2.4	2.49	1.31	1.22	3.25	3.51	1.47	1.72	1.82	1.8
Sodium	mg/l	24.2	43.2	6.3	4.55	4.6	2.6	12.2 O1	--	--	--	8.27	8.56	4.78	4.74	77.6	89.6	10.1	9.49	9.39	11.1
Zinc	ug/l	26.2	23.2	10.3	12.6	14.0	12.8	16.2	--	--	--	10.4	24.0	10.8	< 10.0 U	16.6	11.4	12.2	26.1	13.8	14.0

Table A2
2023-2024 Groundwater Data for Upper Outwash/Shallow Wells
Elk River Landfill
Elk River, Minnesota

Parameter	Location	401-OWA	P-403C	P-403C	P-403C	408-OWA	408-OWA	408-OWA
	Date	4/20/2023	4/20/2023	10/23/2023	10/16/2024	4/20/2023	10/23/2023	10/16/2024
	Sample Type	N	N	N	N	N	N	N
Units								
Volatile Organic Compounds								
1,1,1,2-Tetrachloroethane	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
1,1,1-Trichloroethane	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
1,1,2,2-Tetrachloroethane	ug/l	< 0.500 U	< 0.500 U	--	--	< 0.500 U	--	--
1,1,2-Trichloroethane	ug/l	< 0.750 U	< 0.750 U	--	--	< 0.750 U	--	--
1,1-Dichloroethane	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
1,1-Dichloroethylene	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
1,1-Dichloropropene	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
1,2,3-Trichlorobenzene	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
1,2,3-Trichloropropane	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
1,2,4-Trichlorobenzene	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
1,2,4-Trimethylbenzene	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
1,2-Dibromo-3-chloropropane (DBCP)	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
1,2-Dibromoethane (EDB)	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
1,2-Dichlorobenzene	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
1,2-Dichloroethane	ug/l	< 0.250 U	< 0.250 U	--	--	< 0.250 U	--	--
1,2-Dichloroethylene, cis	ug/l	< 0.100 U	< 0.100 U	--	--	< 0.100 U	--	--
1,2-Dichloroethylene, trans	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
1,2-Dichloropropane	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
1,3,5-Trimethylbenzene	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
1,3-Dichlorobenzene	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
1,3-Dichloropropane	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
1,3-Dichloropropene, cis	ug/l	< 0.500 U	< 0.500 U	--	--	< 0.500 U	--	--
1,3-Dichloropropene, trans	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
1,4-Dichlorobenzene	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
2,2-Dichloropropane	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Acetone	ug/l	< 10.0 U	< 10.0 U	--	--	< 10.0 U	--	--
Allyl chloride	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Benzene	ug/l	< 0.500 U	< 0.500 U	--	--	< 0.500 U	--	--
Bromobenzene	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Bromochloromethane	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Bromodichloromethane	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Bromoform	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Bromomethane	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Butylbenzene	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Butylbenzene, sec	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Butylbenzene, tert	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Carbon tetrachloride	ug/l	< 0.250 U	< 0.250 U	--	--	< 0.250 U	--	--
Chlorobenzene	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Chlorodibromomethane	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Chloroethane	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Chloroform	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Chloromethane	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Chlorotoluene, o	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Chlorotoluene, p	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Cumene (isopropyl benzene)	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Cymene p- (toluene isopropyl p-)	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Dibromomethane (methylene bromide)	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Dichlorodifluoromethane (Freon-12)	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Dichlorofluoromethane (Freon-21)	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Ethane	ug/l	--	--	--	--	--	--	--
Ethyl benzene	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Ethyl ether	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Ethylene	ug/l	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/l	< 0.250 U	< 0.250 U	--	--	< 0.250 U	--	--
Methane	ug/l	--	--	--	--	--	--	--
Methyl ethyl ketone (2-butanone)	ug/l	< 10.0 U	< 10.0 U	--	--	< 10.0 U	--	--
Methyl isobutyl ketone (MIBK)	ug/l	< 5.00 U	< 5.00 U	--	--	< 5.00 U	--	--
Methyl tertiary butyl ether (MTBE)	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Methylene chloride	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Naphthalene	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Propylbenzene	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Styrene	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Tetrachloroethylene	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Tetrahydrofuran	ug/l	< 5.00 U	< 5.00 U	--	--	< 5.00 U	--	--
Toluene	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Trichloroethylene (TCE)	ug/l	< 0.100 U	< 0.100 U	--	--	< 0.100 U	--	--
Trichlorofluoromethane (Freon-11)	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Trichlorotrifluoroethane (Freon 113)	ug/l	< 1.00 U	< 1.00 U	--	--	< 1.00 U	--	--
Vinyl chloride	ug/l	< 0.0500 U	< 0.0500 U	--	--	< 0.0500 U	--	--
Xylene, total	ug/l	< 2.00 U	< 2.00 U	--	--	< 2.00 U	--	--

Table A2
2023-2024 Groundwater Data for Upper Outwash/Shallow Wells
Elk River Landfill
Elk River, Minnesota

Parameter	Location	401-OWA	P-403C	P-403C	P-403C	408-OWA	408-OWA	408-OWA
	Date	4/20/2023	4/20/2023	10/23/2023	10/16/2024	4/20/2023	10/23/2023	10/16/2024
	Sample Type	N	N	N	N	N	N	N
	Units							
General Parameters								
Alkalinity, total, as CaCO3	mg/l	359	254	374	323	246	278	297
Anions	meq/l	15.6	5.66	8.91	7.37	5.20	5.92	6.19
Carbon, total organic	mg/l							
Cation-Anion balance	%	--	--	-10.5	1.78	--	14.9	-1.05
Cations	meq/l	16.2	5.34	7.22	7.64	5.37	7.98	6.06
Chloride	mg/l	299	1.25 B	3.78	2.52	2.66	1.29	1.19
Dissolved oxygen, field	mg/l	9	1.7	1.5	1.6	8	6.2	2.4
Ion Balance	%							
Iron, ferrous, FE II, field	mg/l							
Manganese II, field	mg/l							
Nitrogen, ammonia, as N	mg/l	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U
Nitrogen, nitrate, as N	mg/l							
Nitrogen, nitrite, as N	mg/l							
Nitrogen, nitrate + nitrite, as N	mg/l							
Nitrogen, total kjeldahl (TKN)	mg/l							
pH, field	pH units	6.86	7.15	7.25	7.05	7.14	7.38	7.19
Redox (oxidation potential), field	mV	24.8	31	19	100	66.7	25	150
Solids, total dissolved	mg/l	932	270	421	379	282	281	298
Solids, total suspended	mg/l							
Specific conductance @ 25 °C, field	umhos/cm	1560	442	746	702	475	518	520
Sulfate, as SO4	mg/l	10.4	27.7	63.7	44.3	13.8	15.8	12.1
Sulfide, as S ²⁻	mg/l							
Temperature, field	deg C	9.7	7.7	8.8	9	10.7	10.9	11.4
Turbidity, field	NTU	24.6	90.6	77.7	34	0.6	1.5	1
Dissolved Metals								
Arsenic	ug/l	< 1.00 U	< 1.00 U	< 2.00 U	< 2.00 U	< 1.00 U	< 2.00 U	< 2.00 U
Boron	ug/l	< 100 U	< 100 U	< 200 U	< 200 U	< 100 U	< 200 U	< 200 U
Cadmium	ug/l							
Calcium	mg/l	145	50.5	96.5	81.7	65.3	73.1	75.7
Chromium	ug/l	8.96	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U	< 4.00 U
Copper	ug/l							
Iron	ug/l	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U
Lead	ug/l							
Magnesium	mg/l	40.9	29.1	24.6	39.3	22.6	49.3	24.6
Manganese	ug/l							
Mercury	ug/l							
Potassium	mg/l	3.33	3.45	1.58	1.36	< 1 U	1.05	< 1 U
Sodium	mg/l	127	7.89	7.79	6.87	5.26	5.83	5.44
Zinc	ug/l	< 10.0 U	< 10.0 U	16.1	< 10.0 U	< 10.0 U	15.4	< 10.0 U



- Property Boundary
- Groundwater Compliance Boundary
- Lower Outwash Monitoring Well
- Lower Outwash Monitoring Well (Not Used for Groundwater Contours)
- Groundwater Contour (feet MSL)
- Flow Line

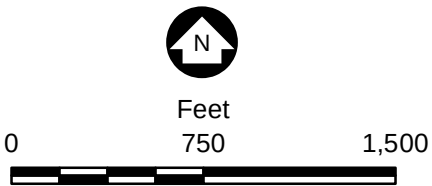
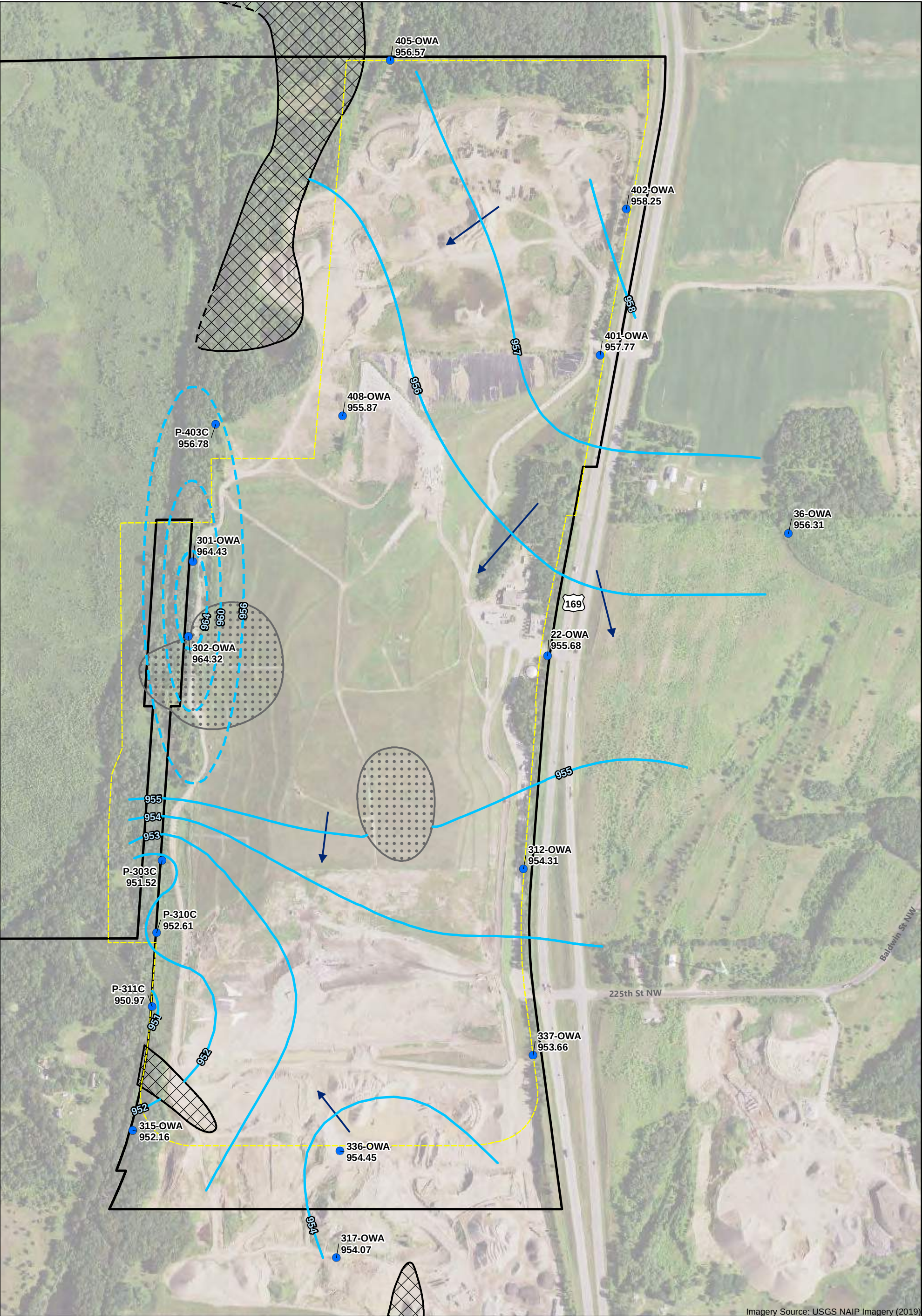


Figure 4
GROUNDWATER ELEVATIONS -
LOWER OUTWASH
October 16, 2023
Elk River Landfill
Elk River, Minnesota

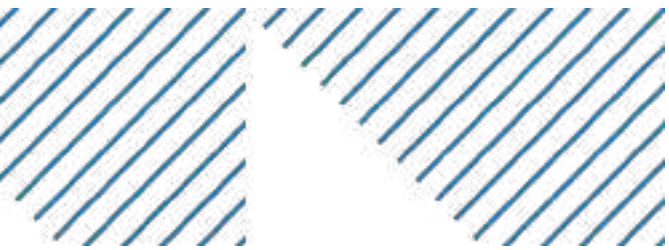






Appendix B

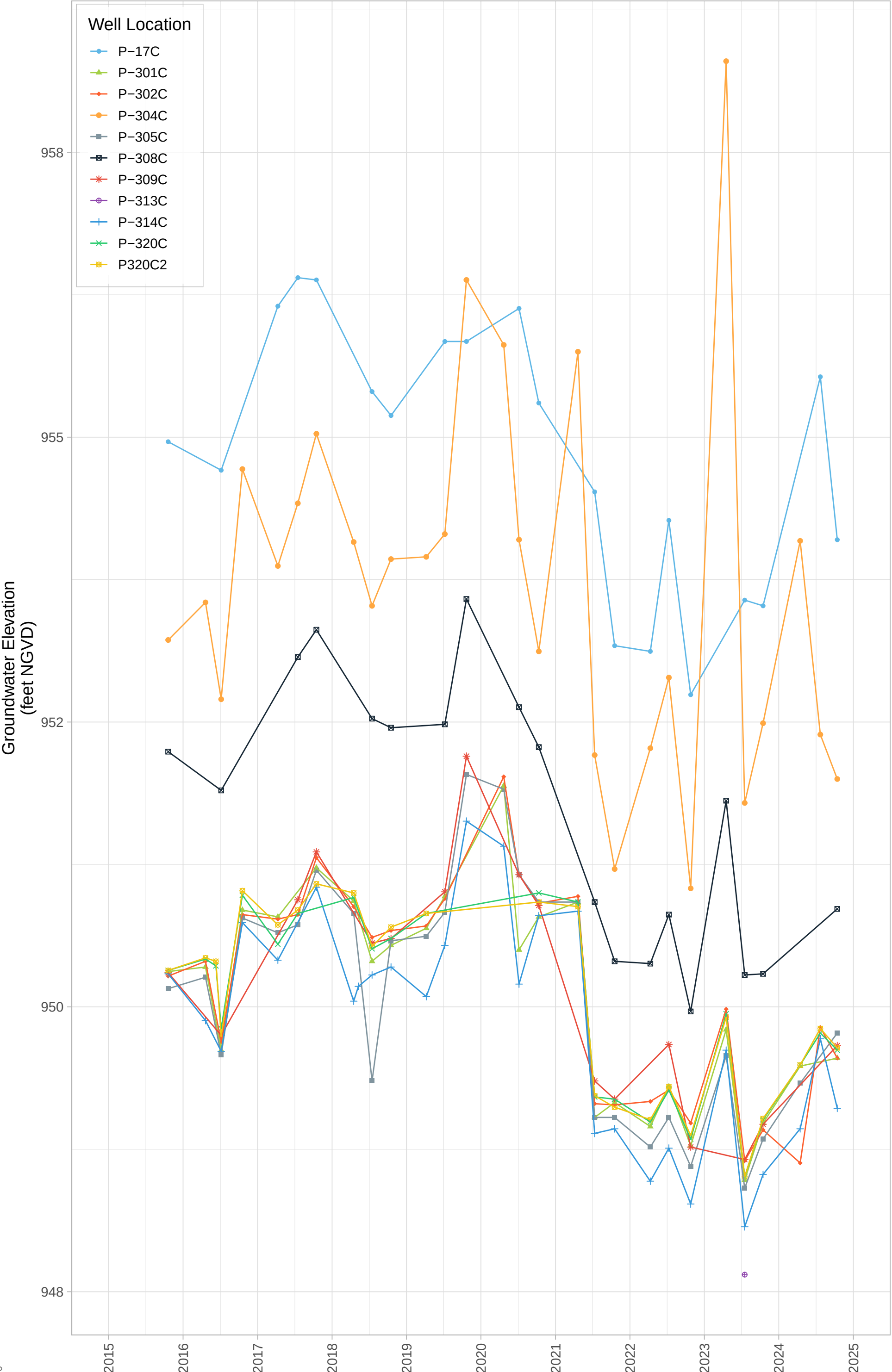
Hydrographs



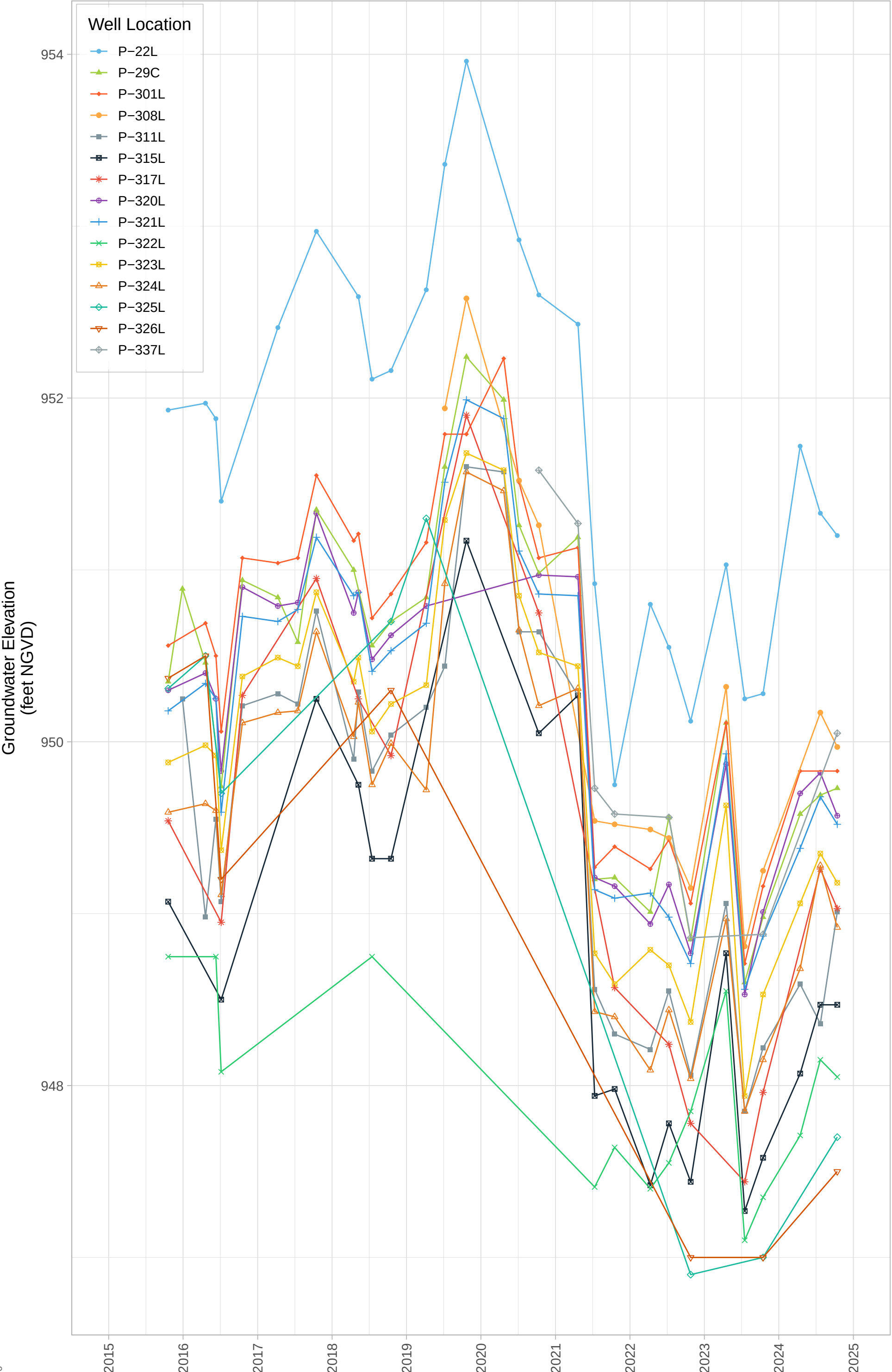
Upper OW



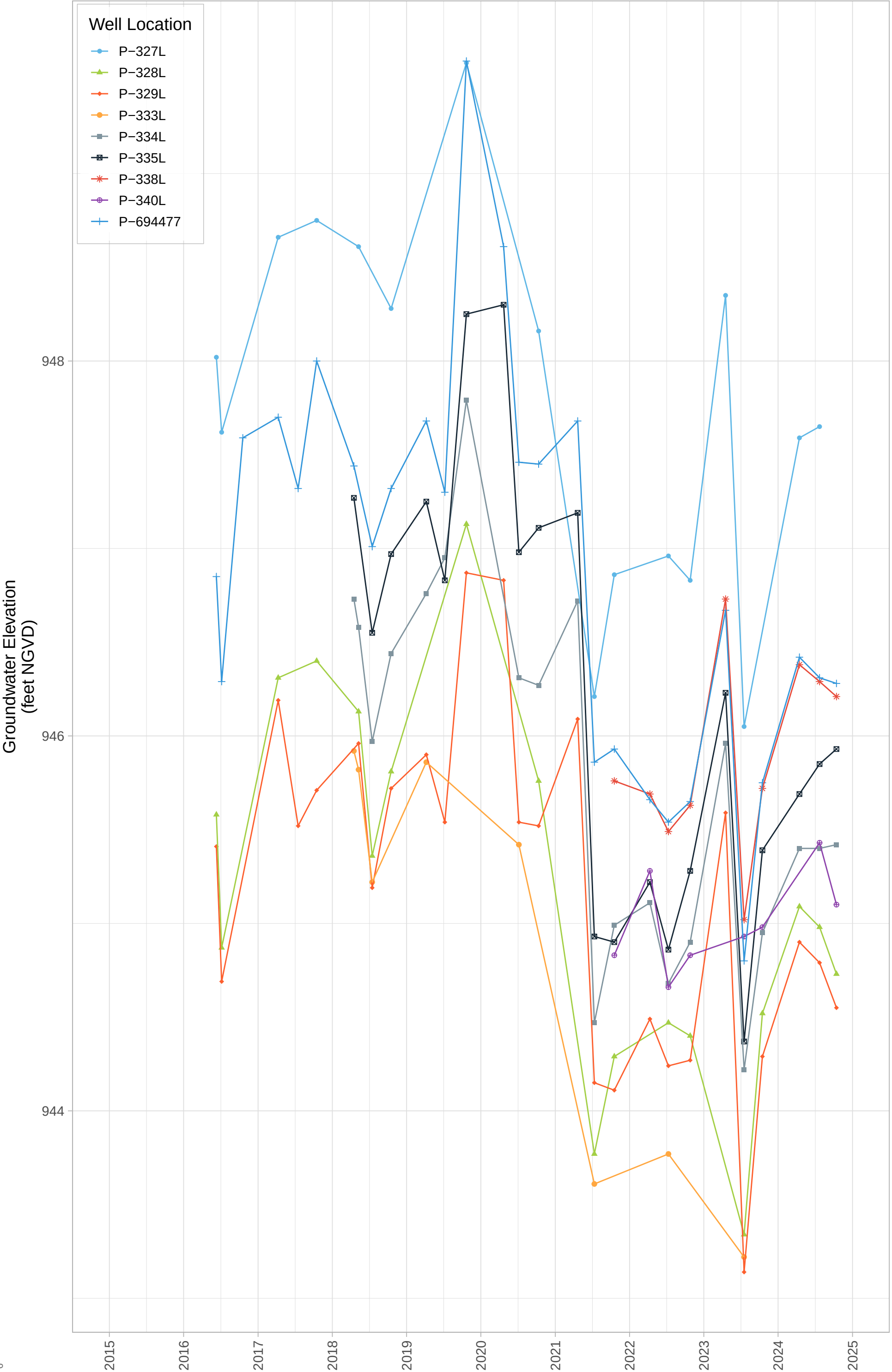
Lower OW



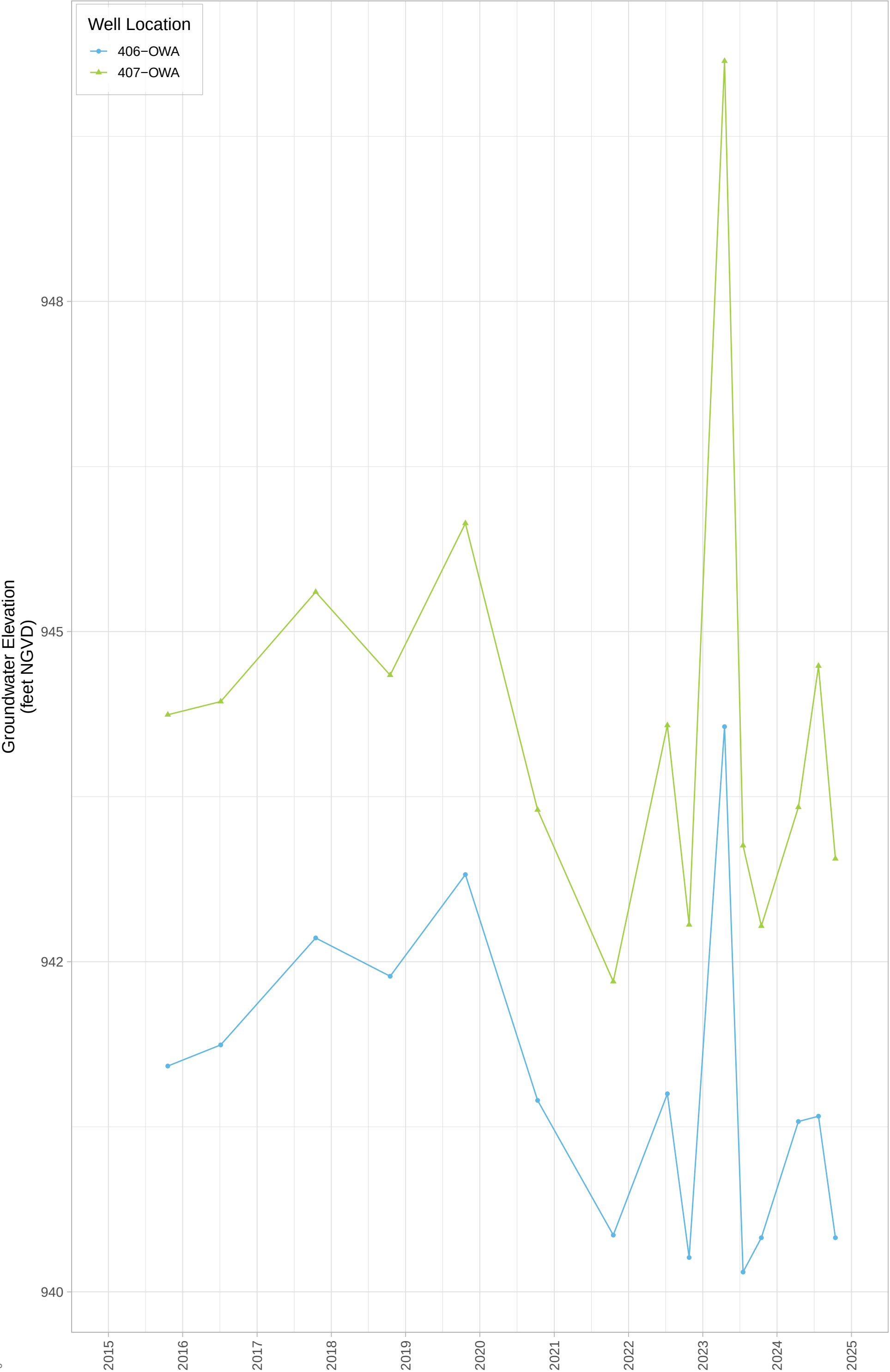
Lower Outwash, L-Series



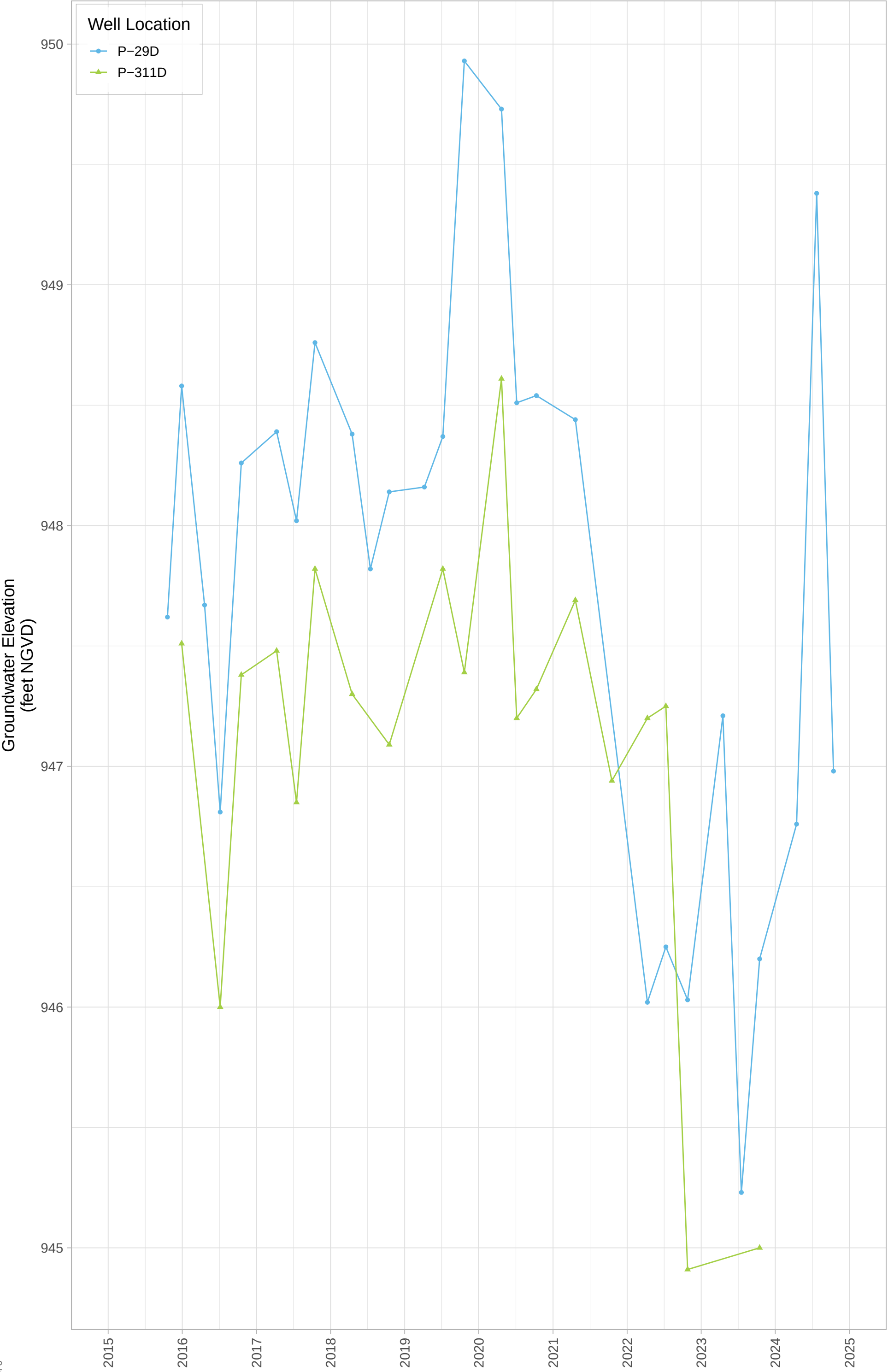
Distall Wells



Surficial Outwash



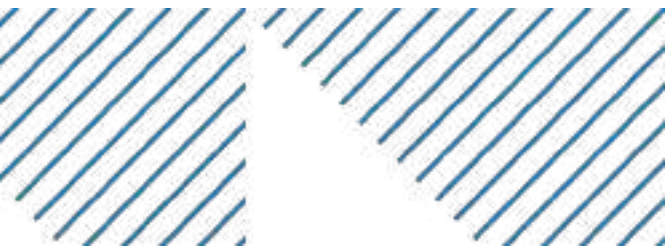
Bedrock Wells



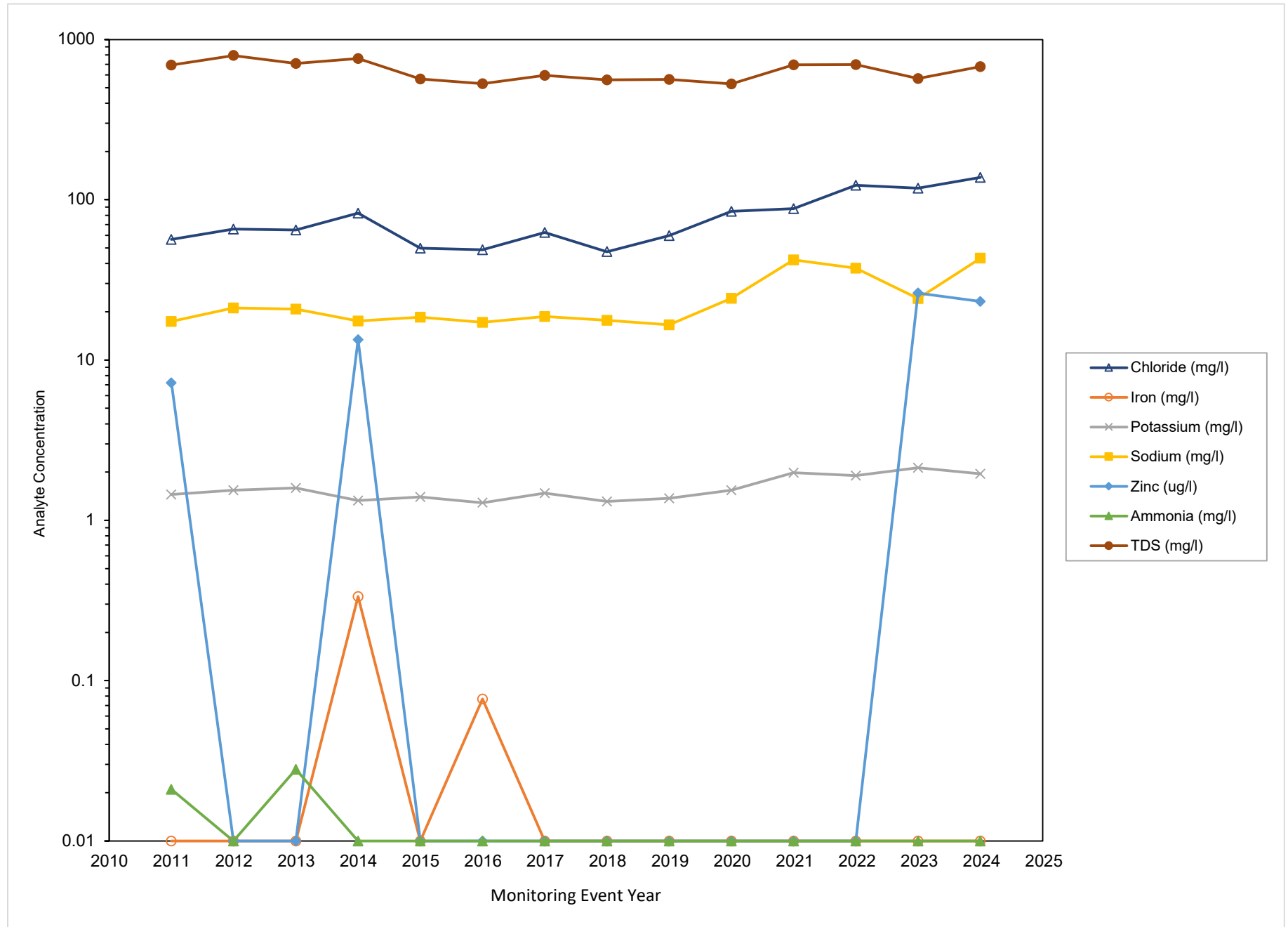


Appendix C

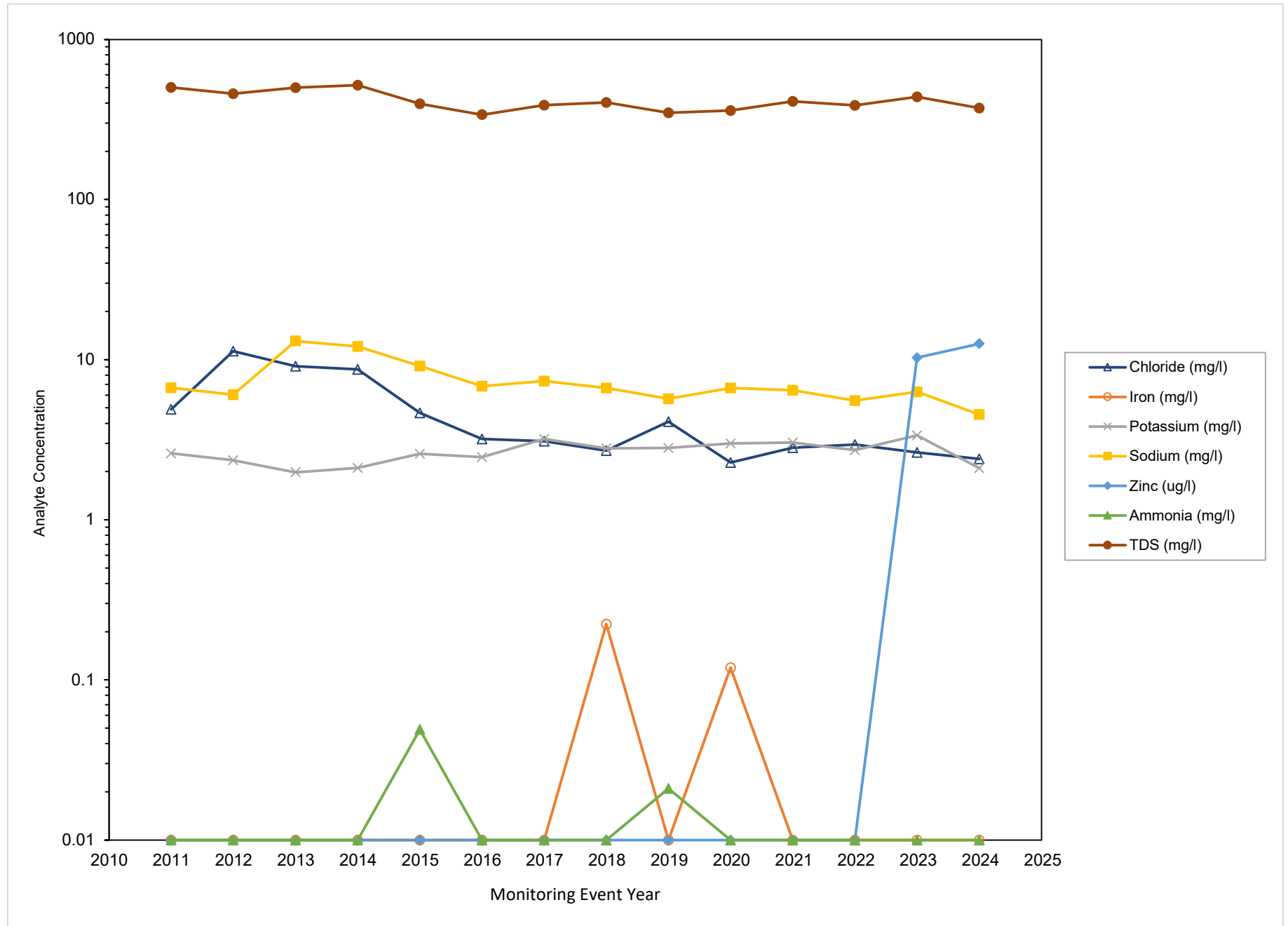
Inorganic Leachate Indicator Trends



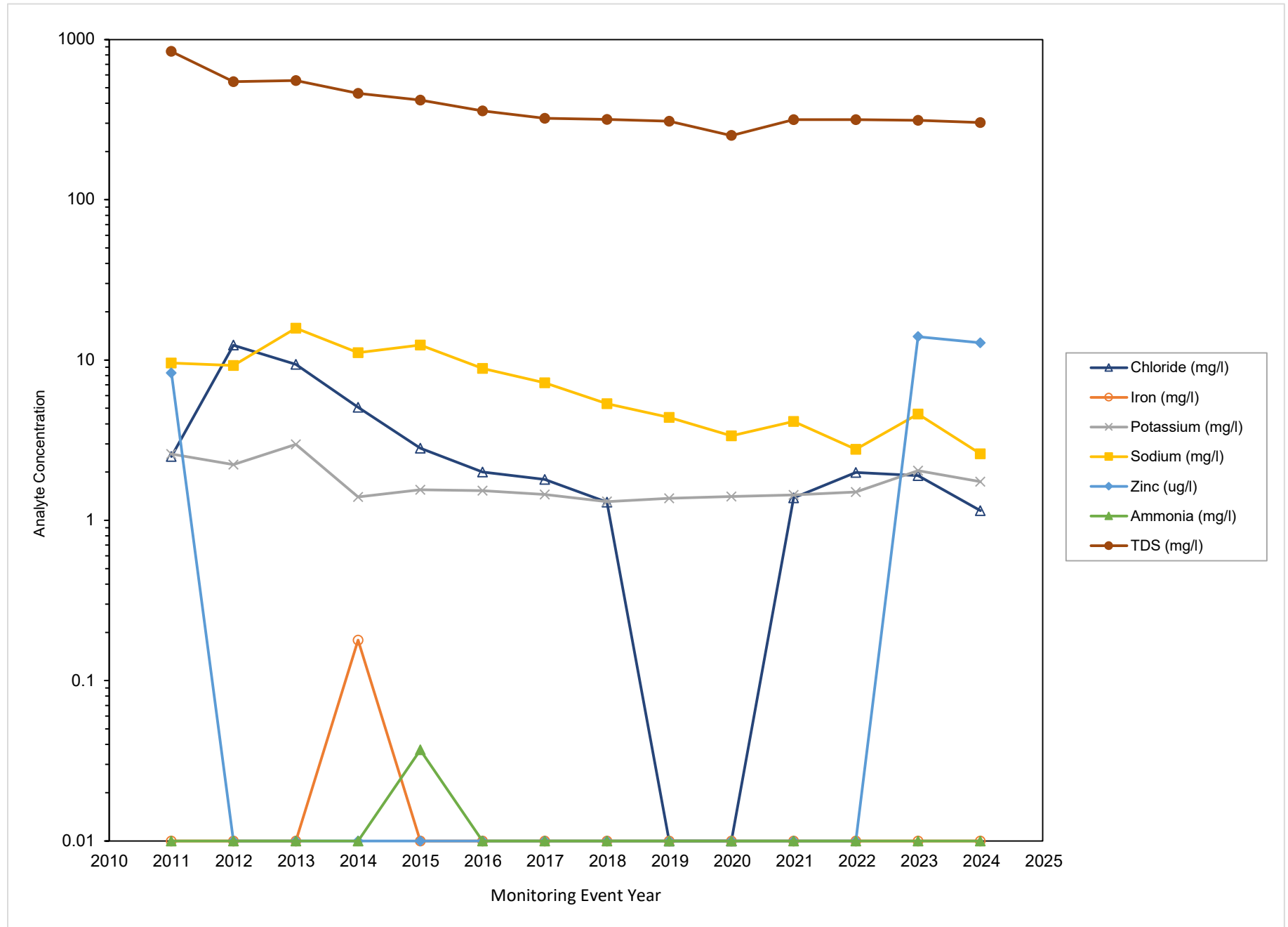
22-OWA Leachate Indicator Trends



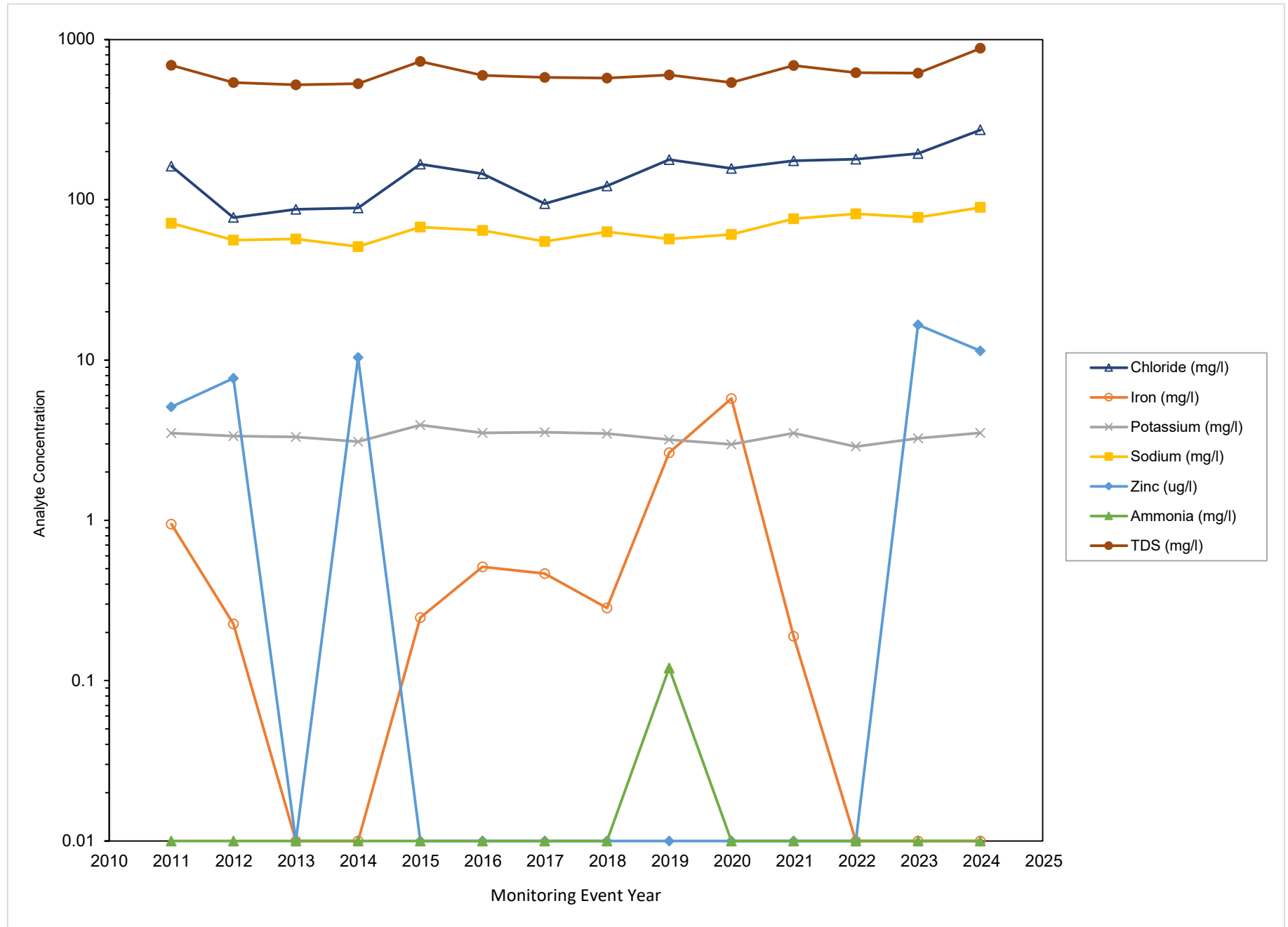
301-OWA Leachate Indicator Trends



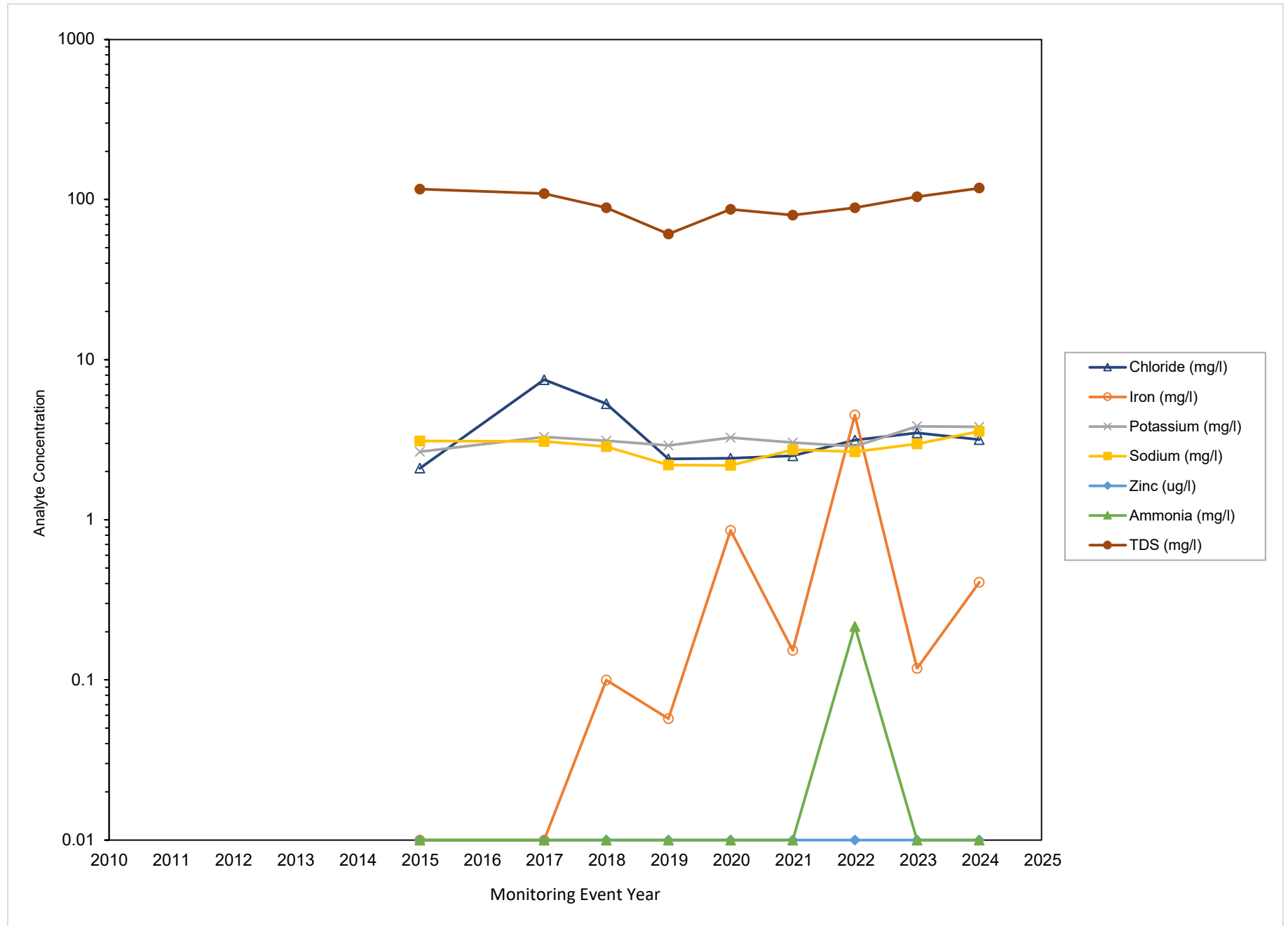
302-OWA Leachate Indicator Trends



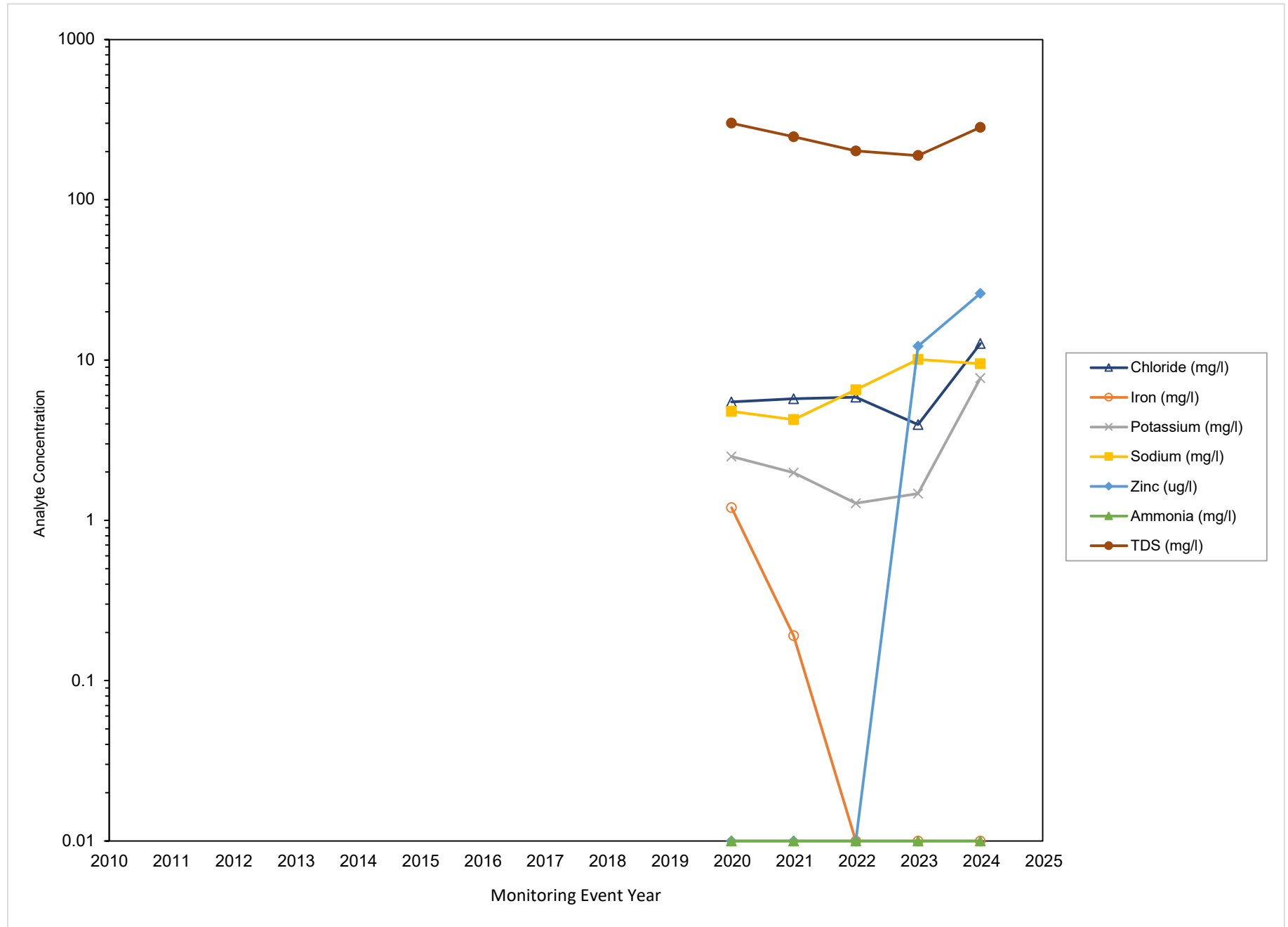
312-OWA Leachate Indicator Trends



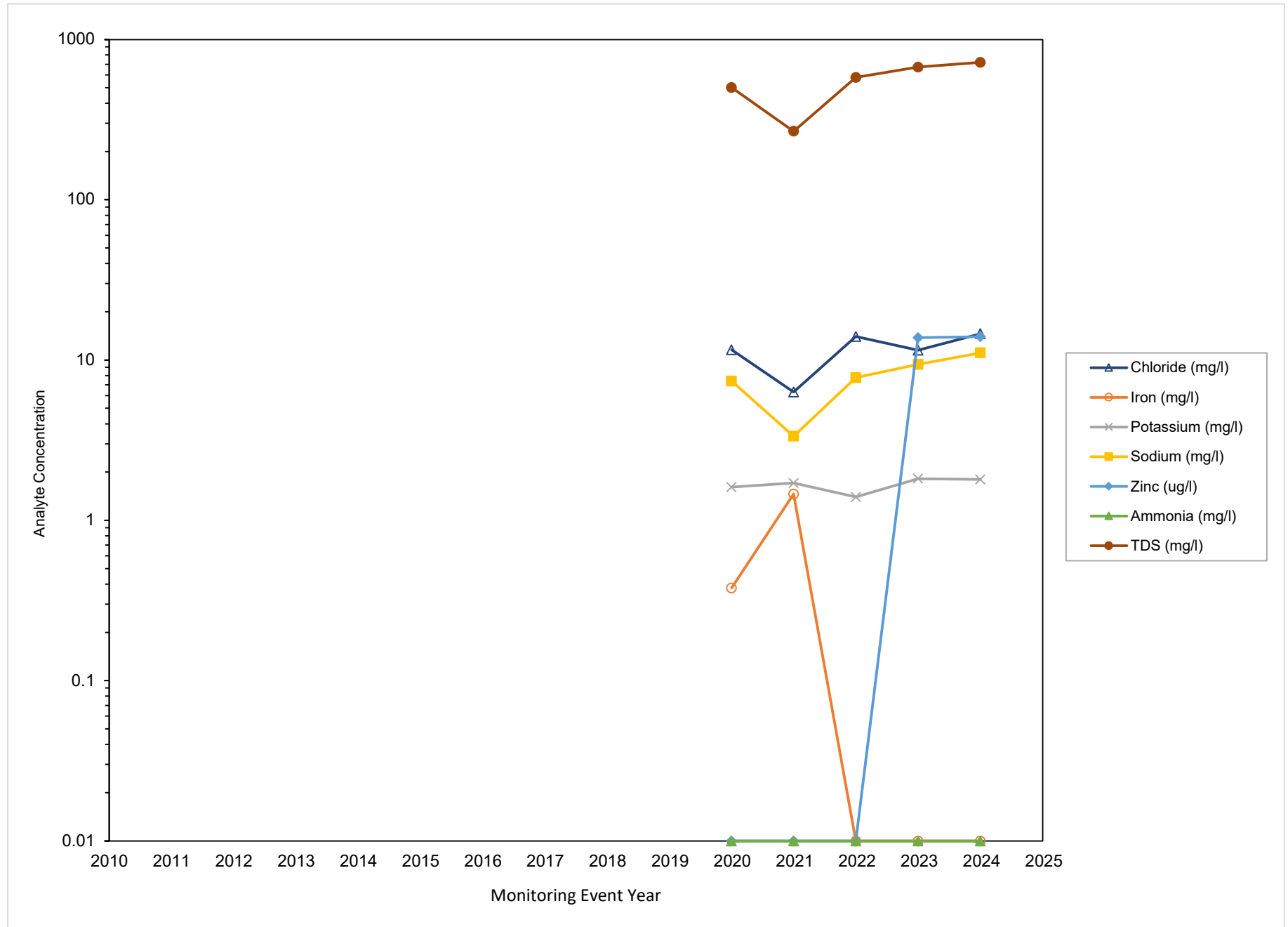
315-OWA Leachate Indicator Trends



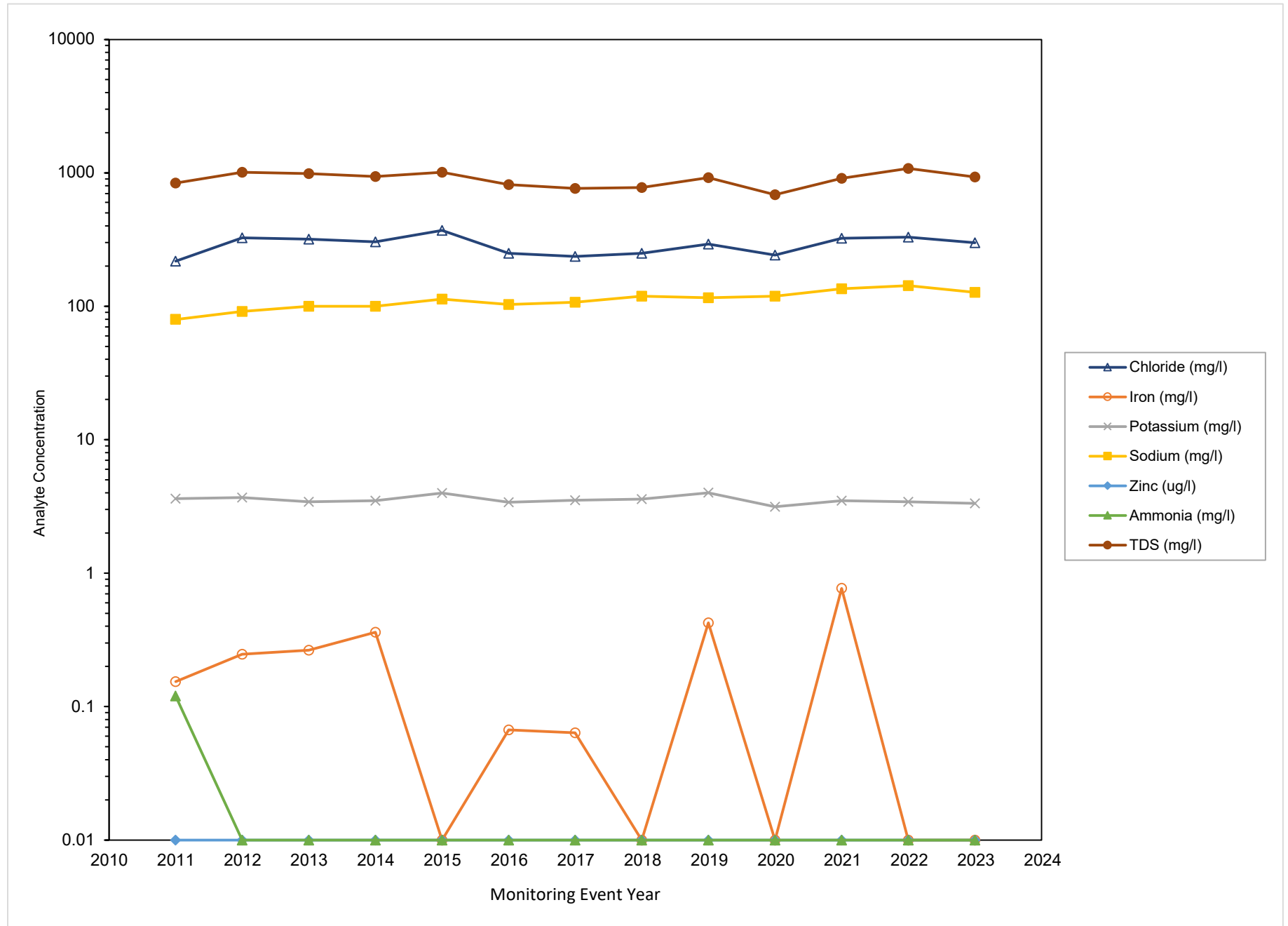
336-OWA Leachate Indicator Trends



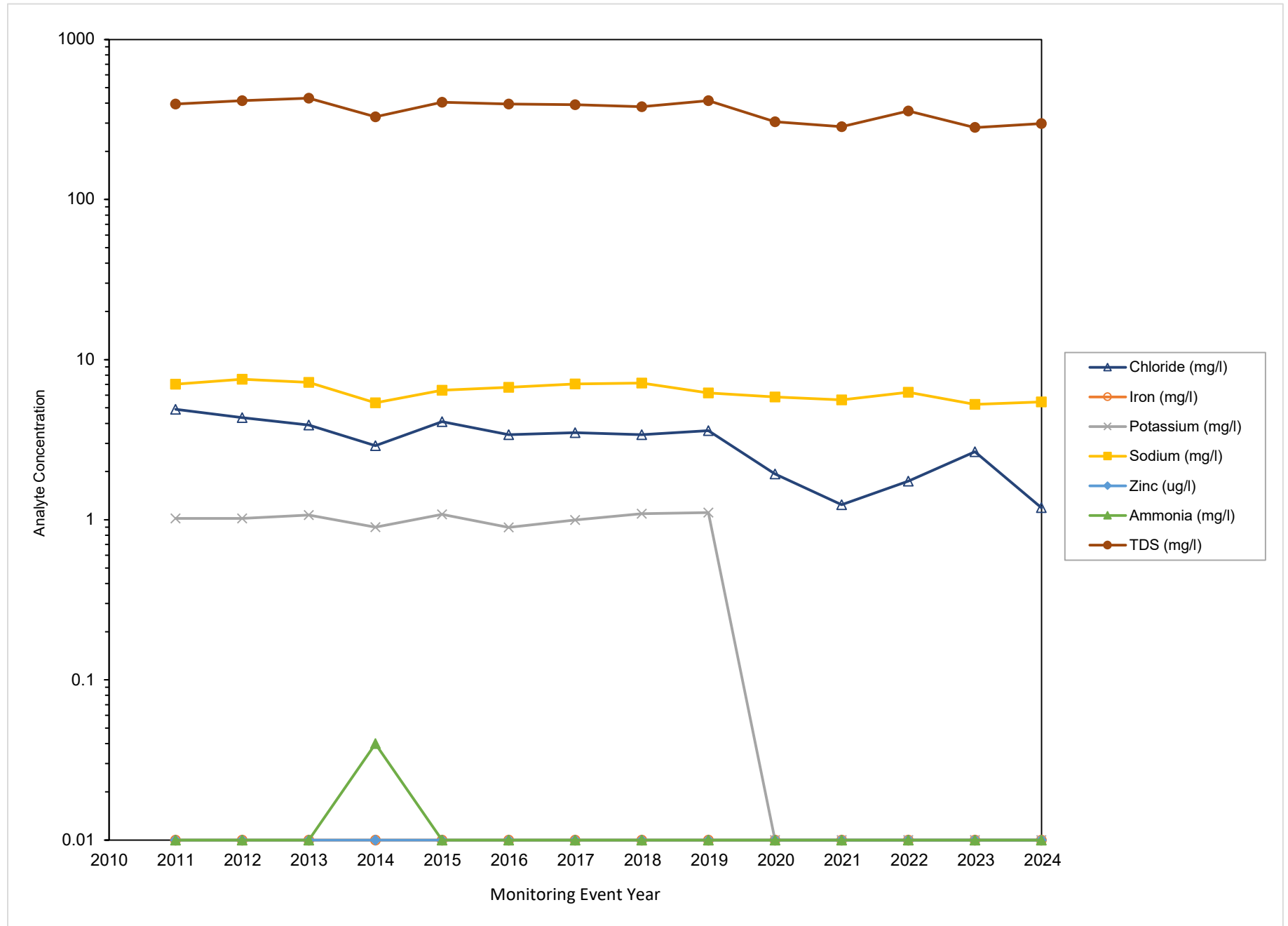
337-OWA Leachate Indicator Trends



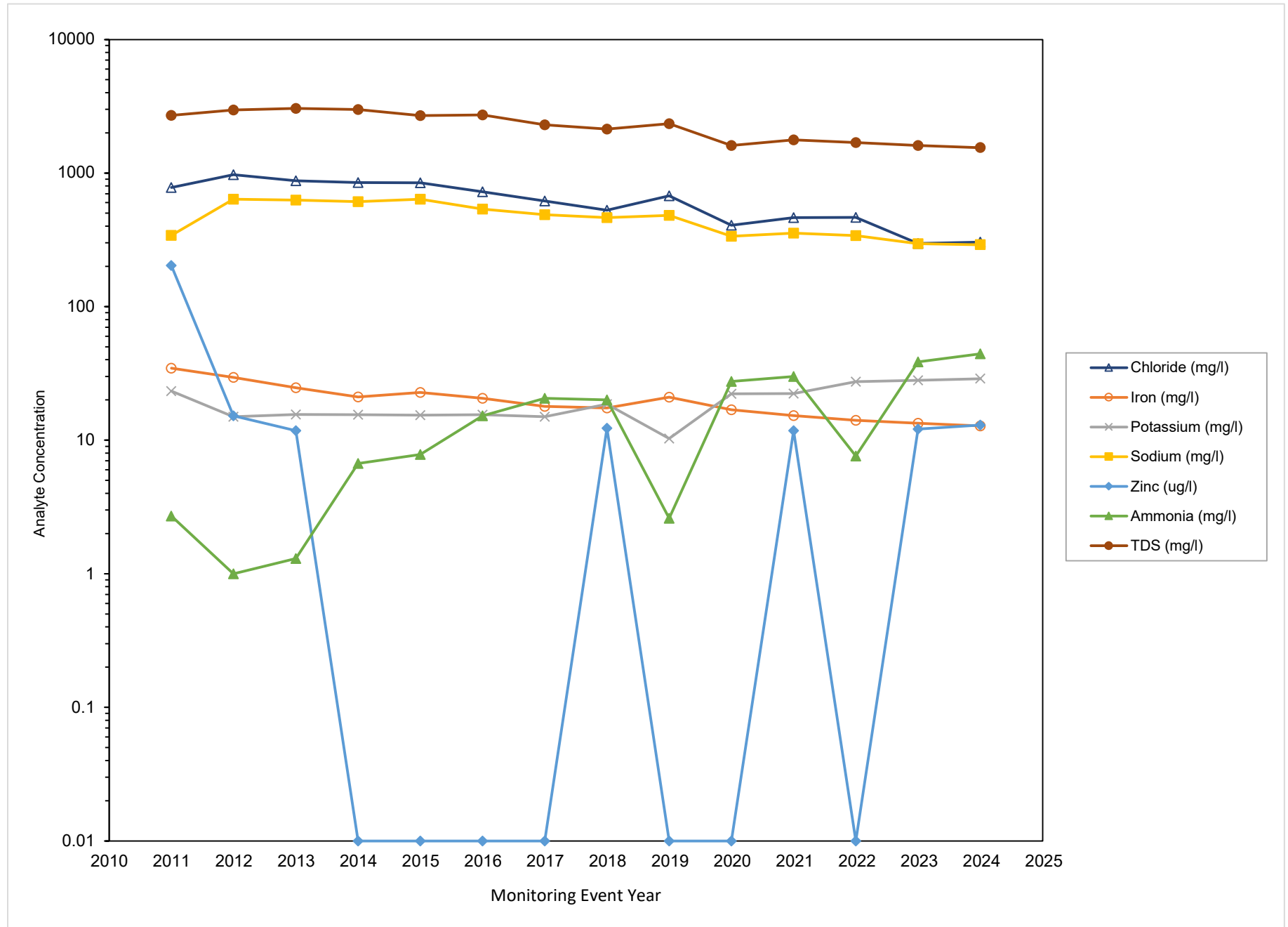
401-OWA Leachate Indicator Trends



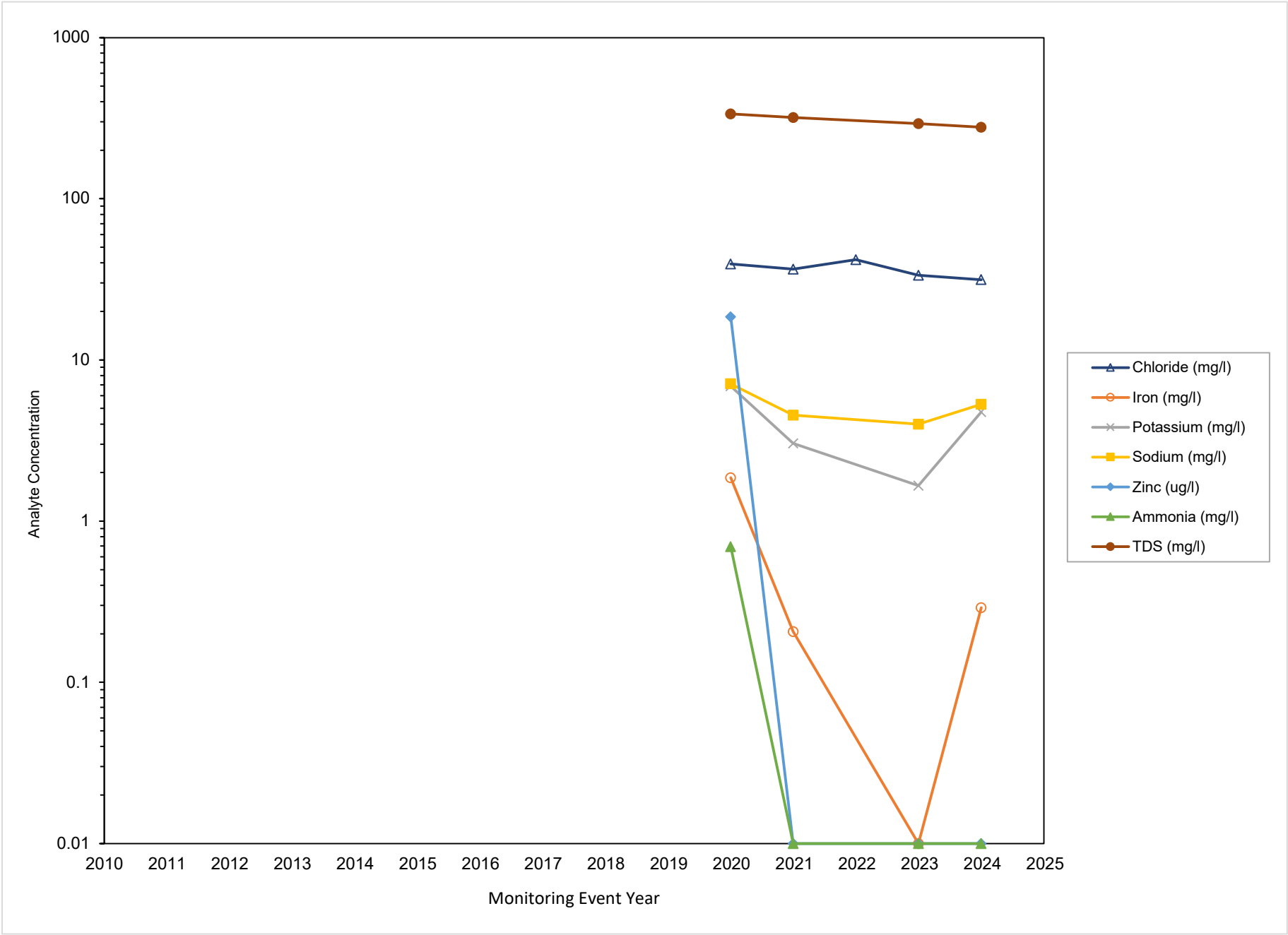
408-OWA Leachate Indicator Trends



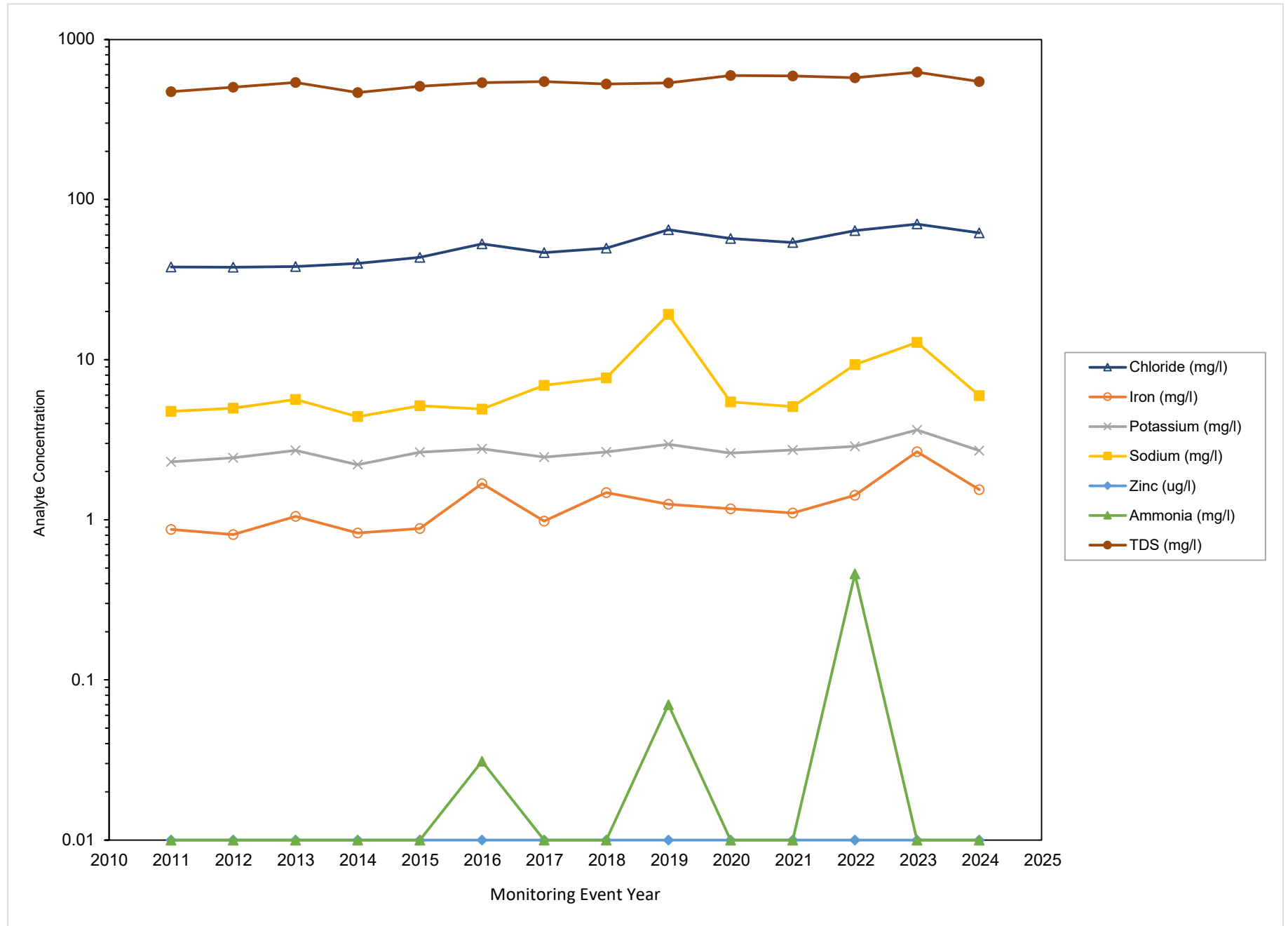
P-17C Leachate Indicator Trends



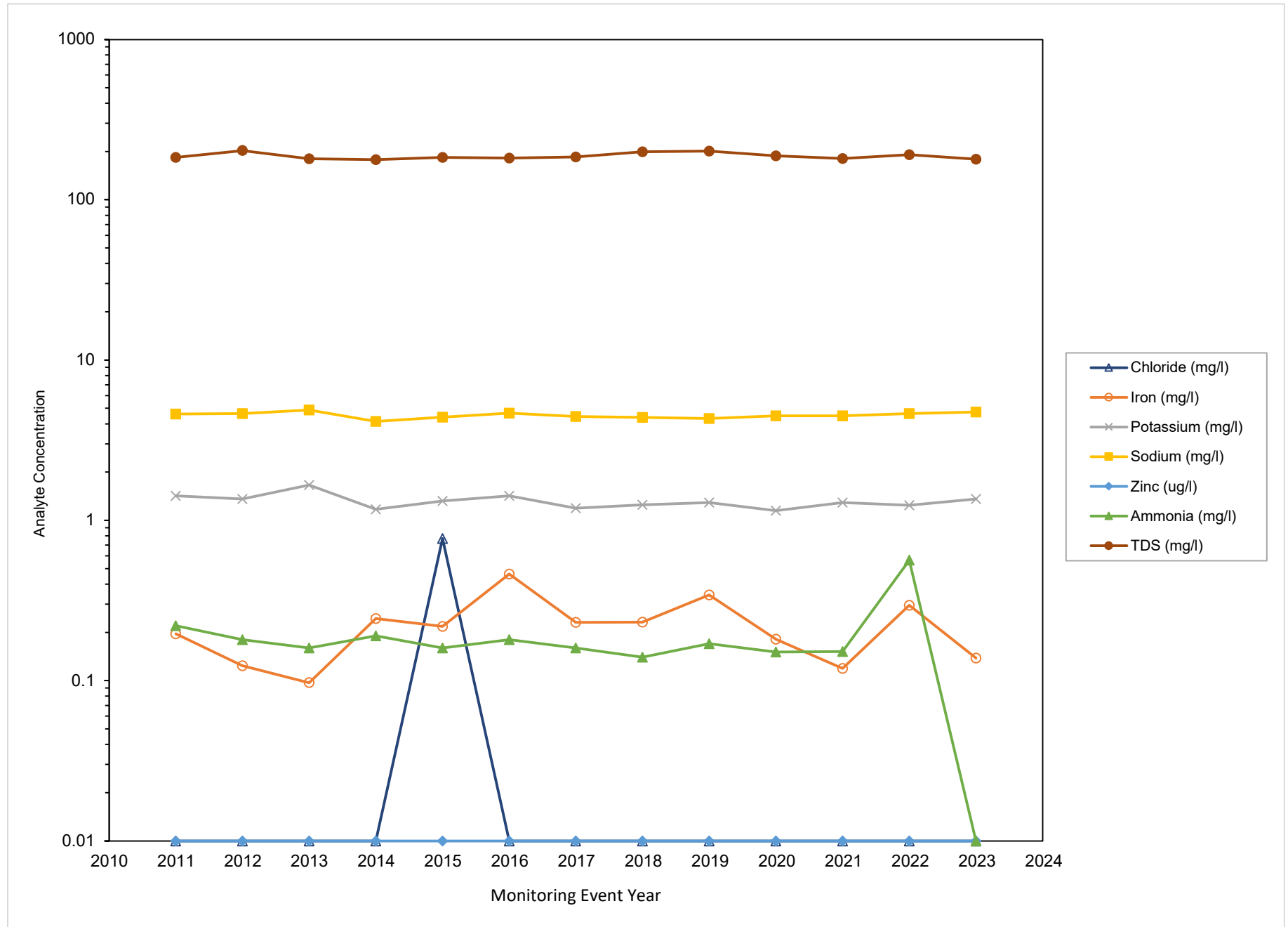
P-22L Leachate Indicator Trends



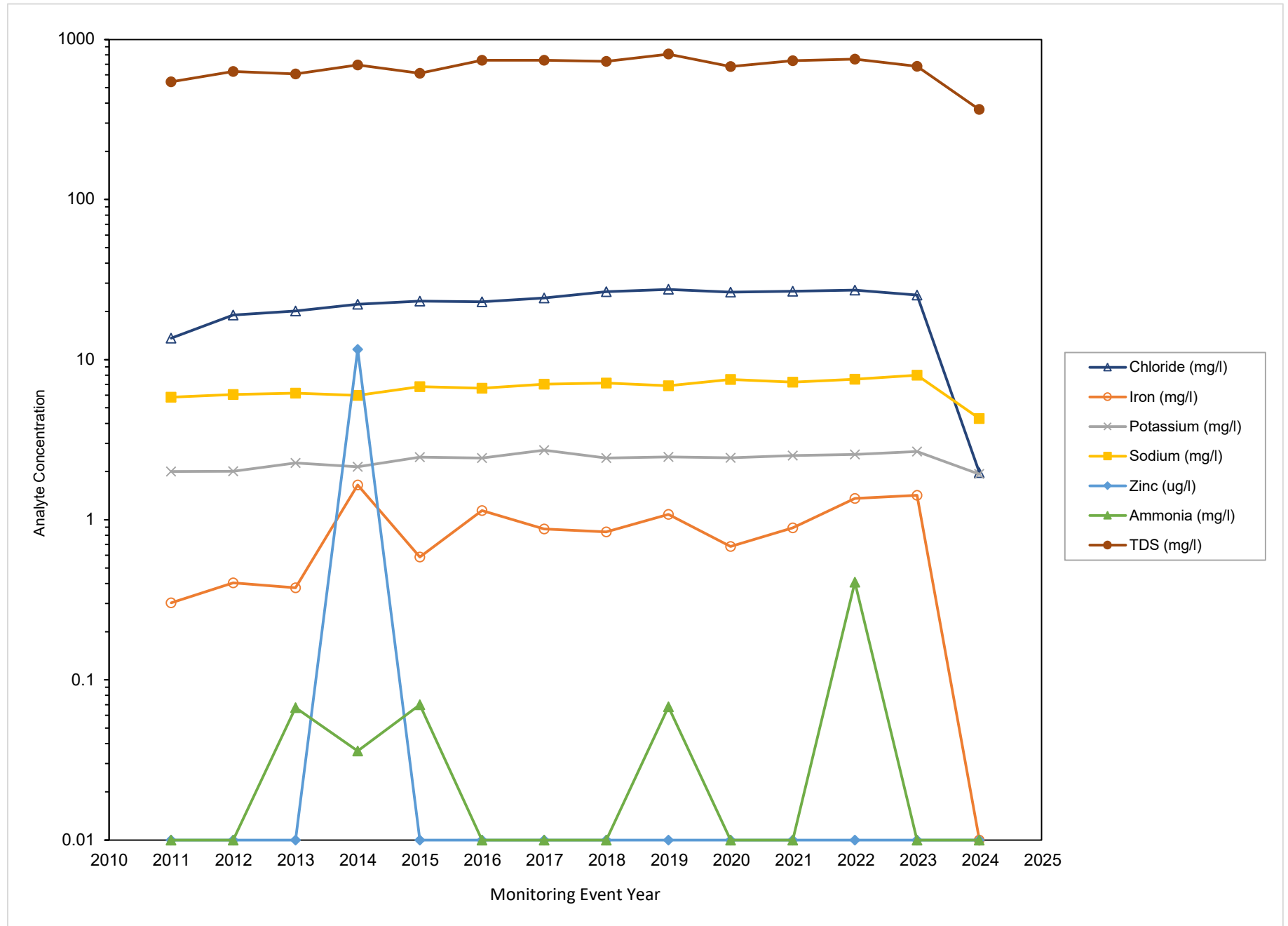
P-29C Leachate Indicator Trends



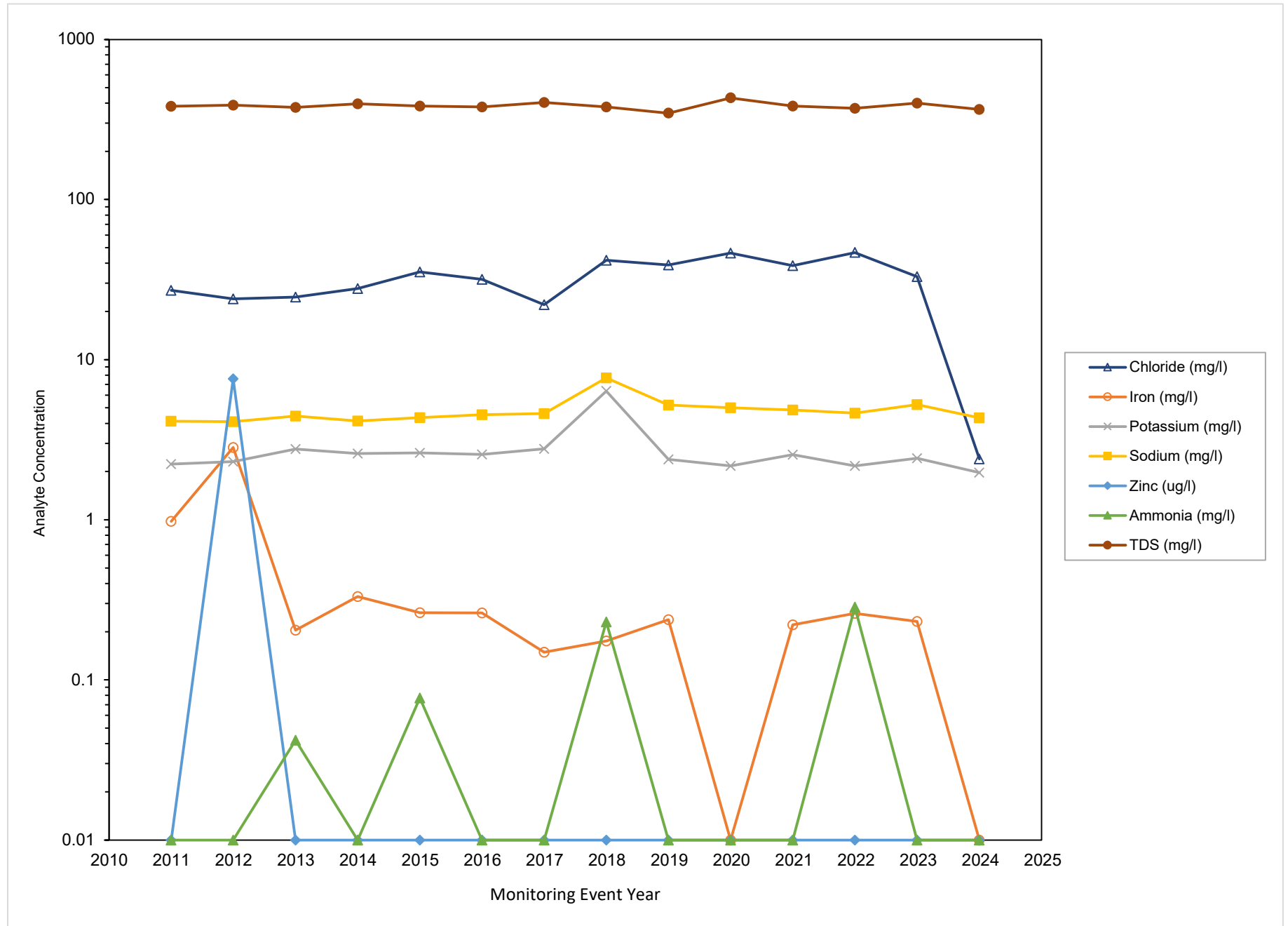
P-29D Leachate Indicator Trends



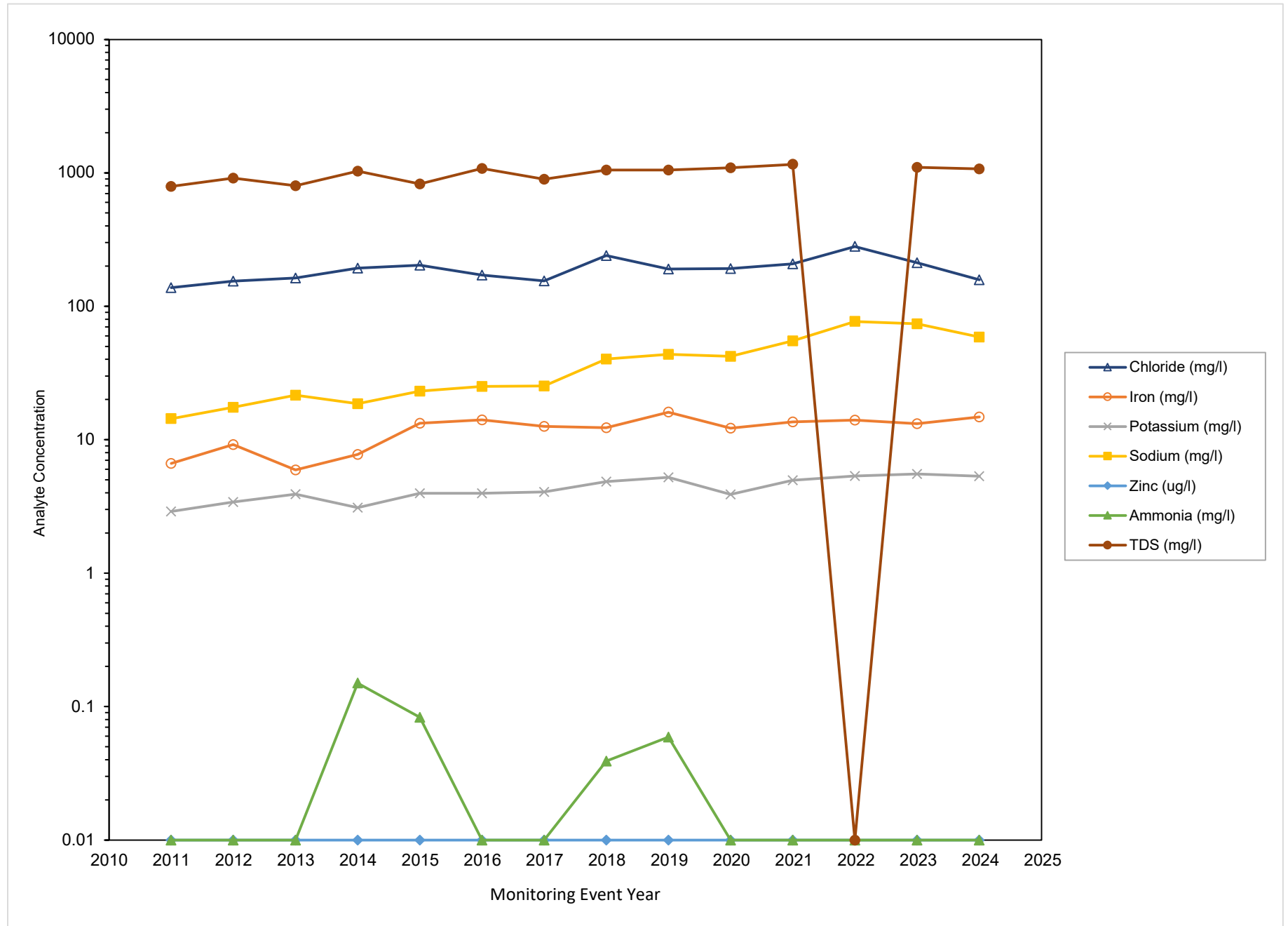
P-301C Leachate Indicator Trends



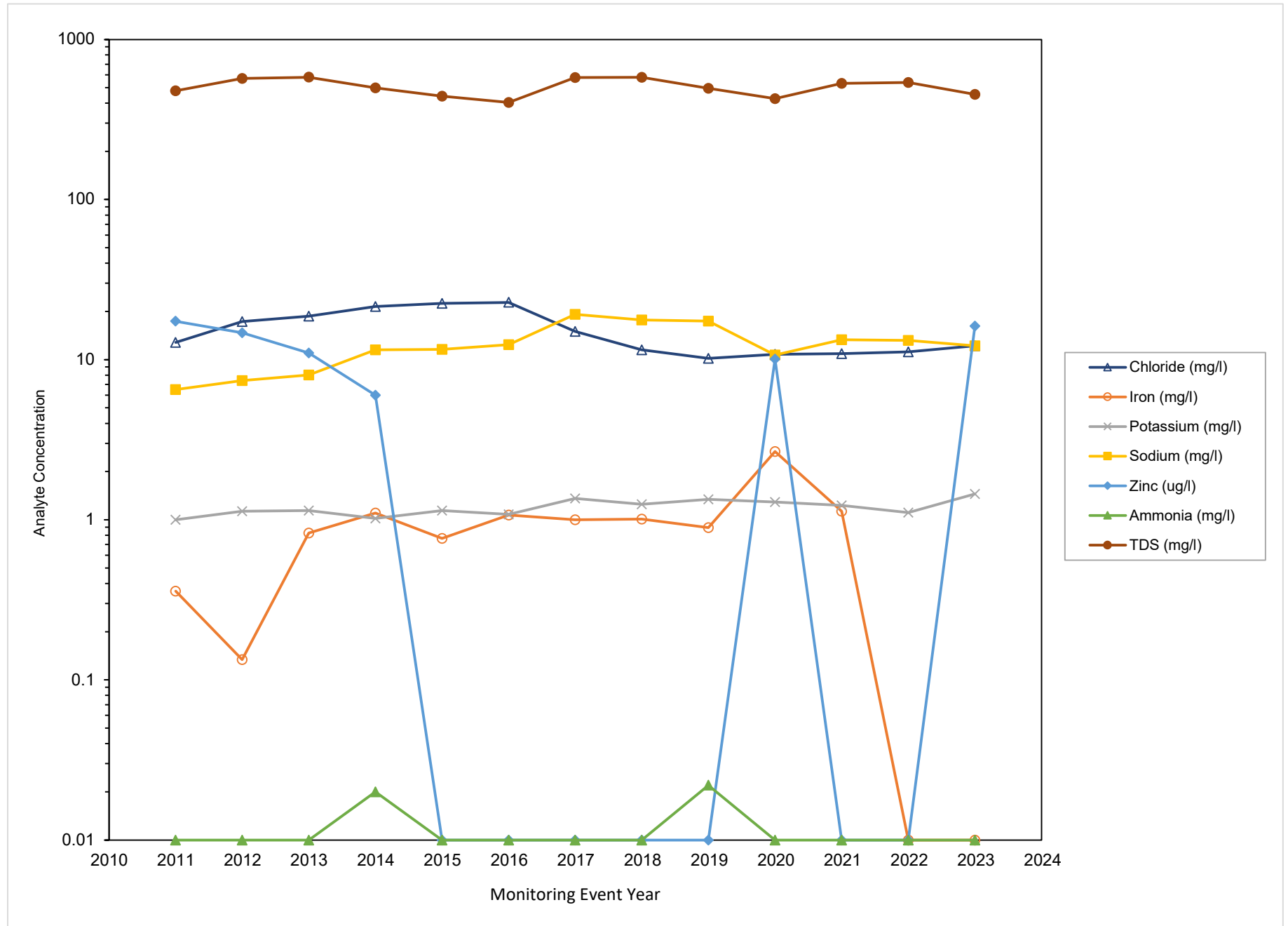
P-301L Leachate Indicator Trends



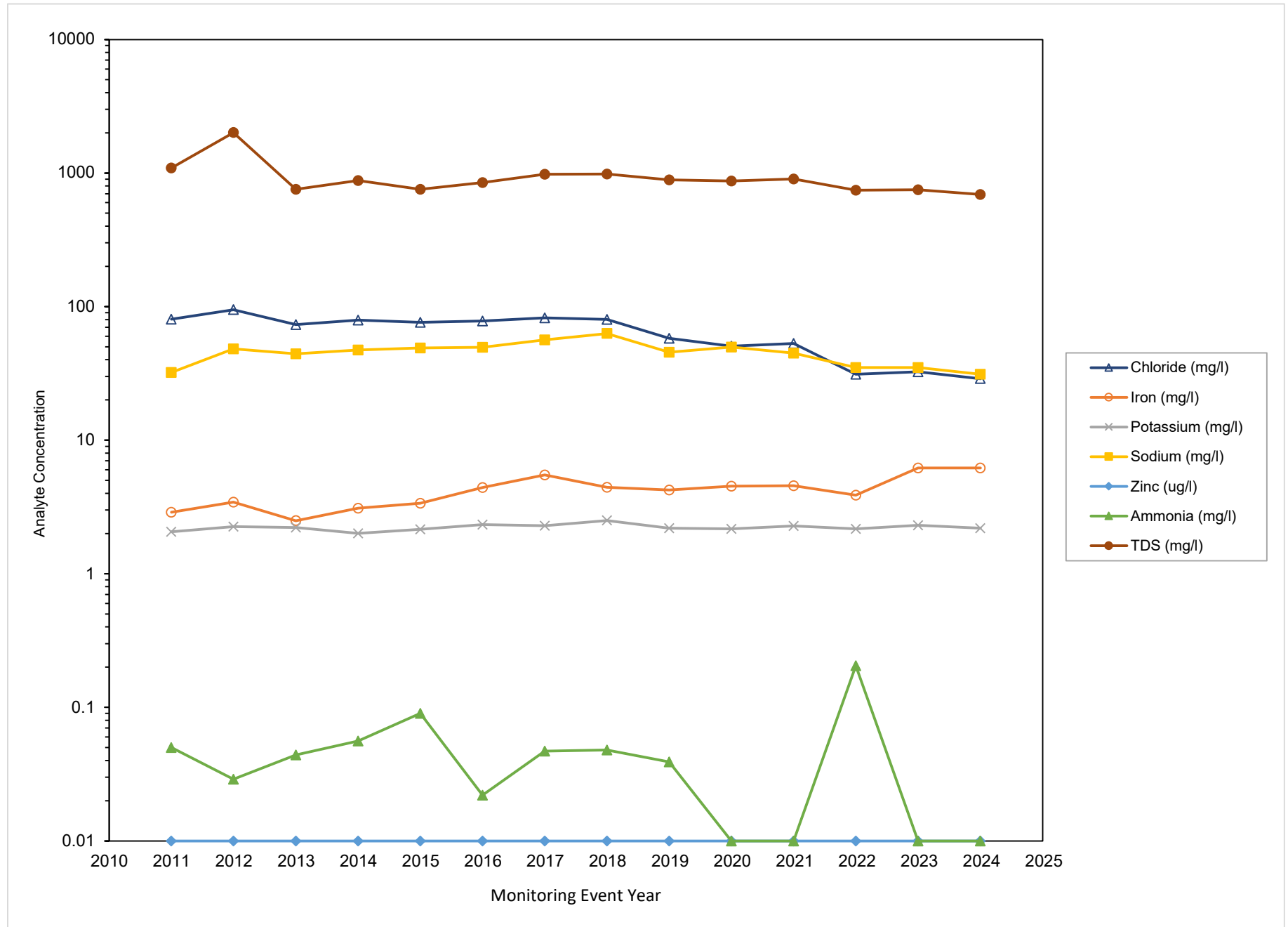
P-302C Leachate Indicator Trends



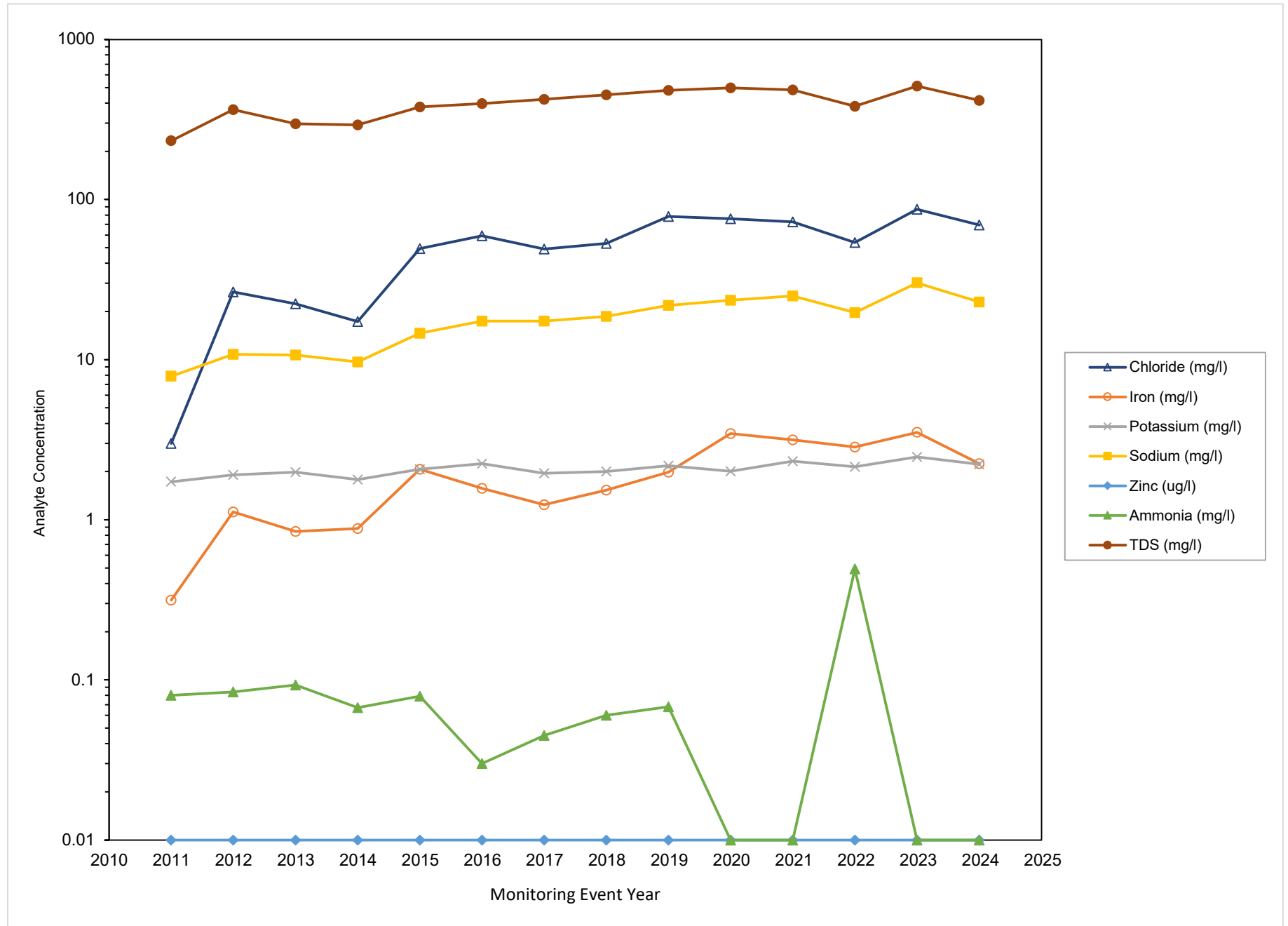
P-303C Leachate Indicator Trends



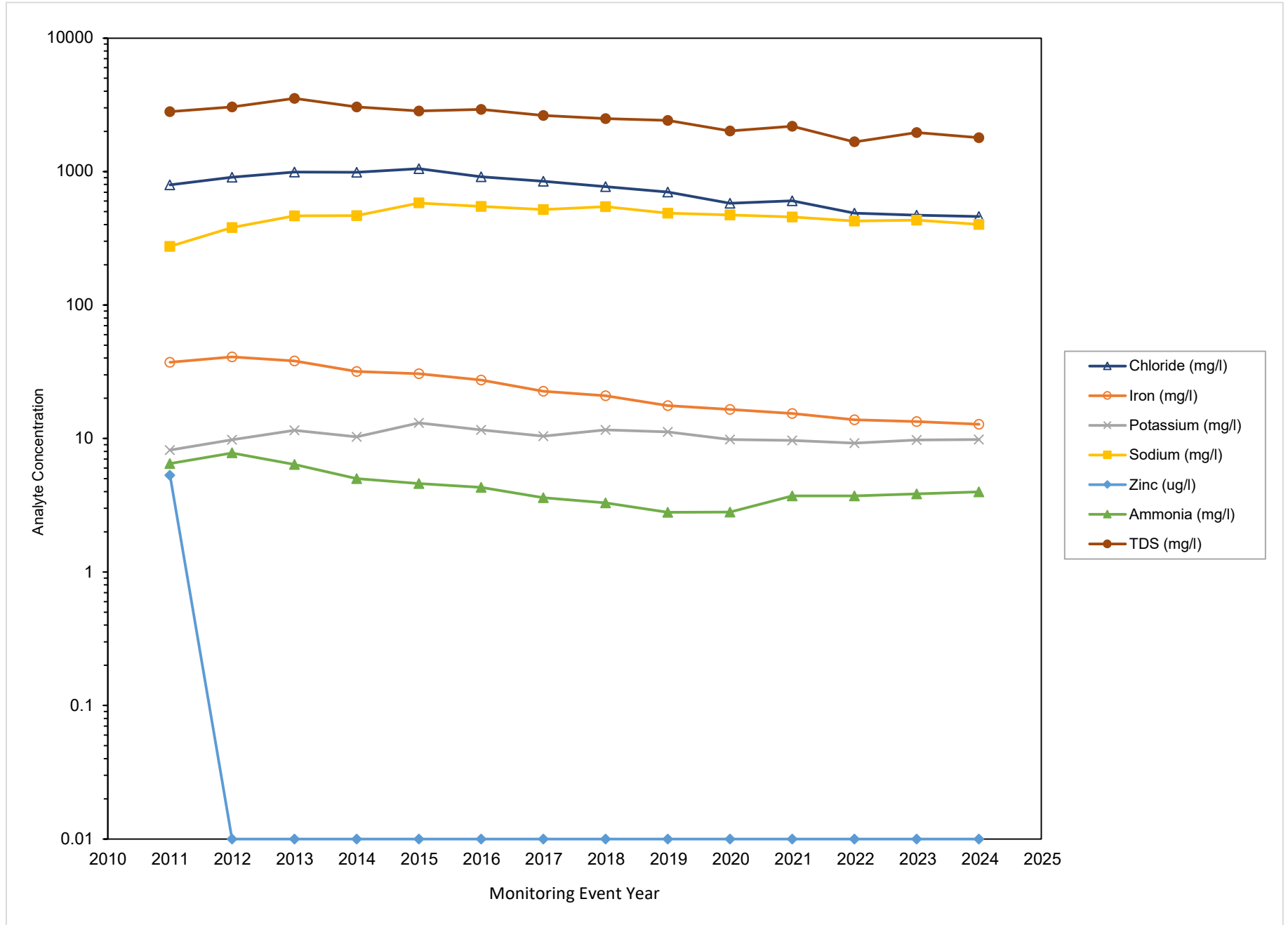
P-304C Leachate Indicator Trends



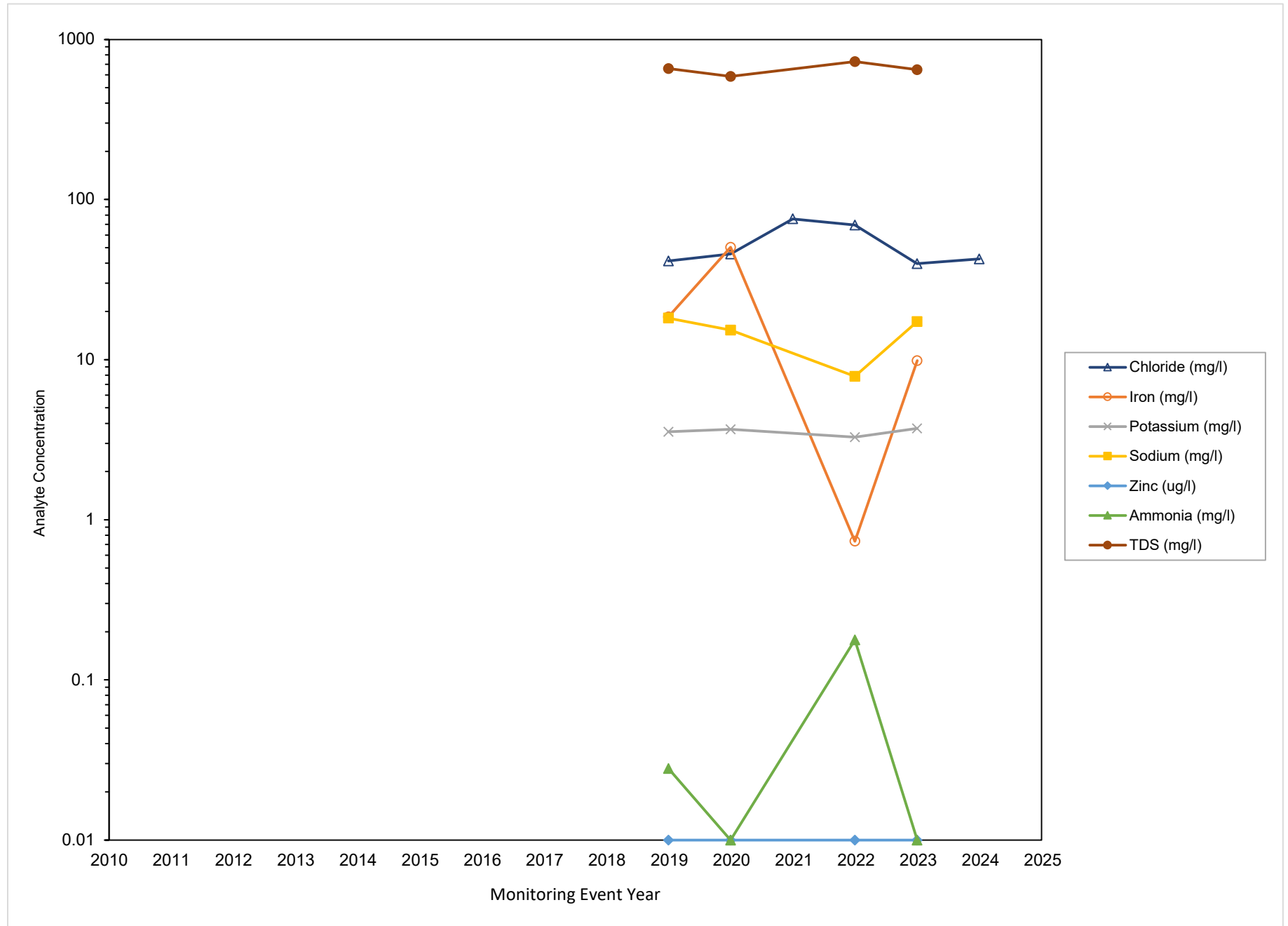
P-305C Leachate Indicator Trends



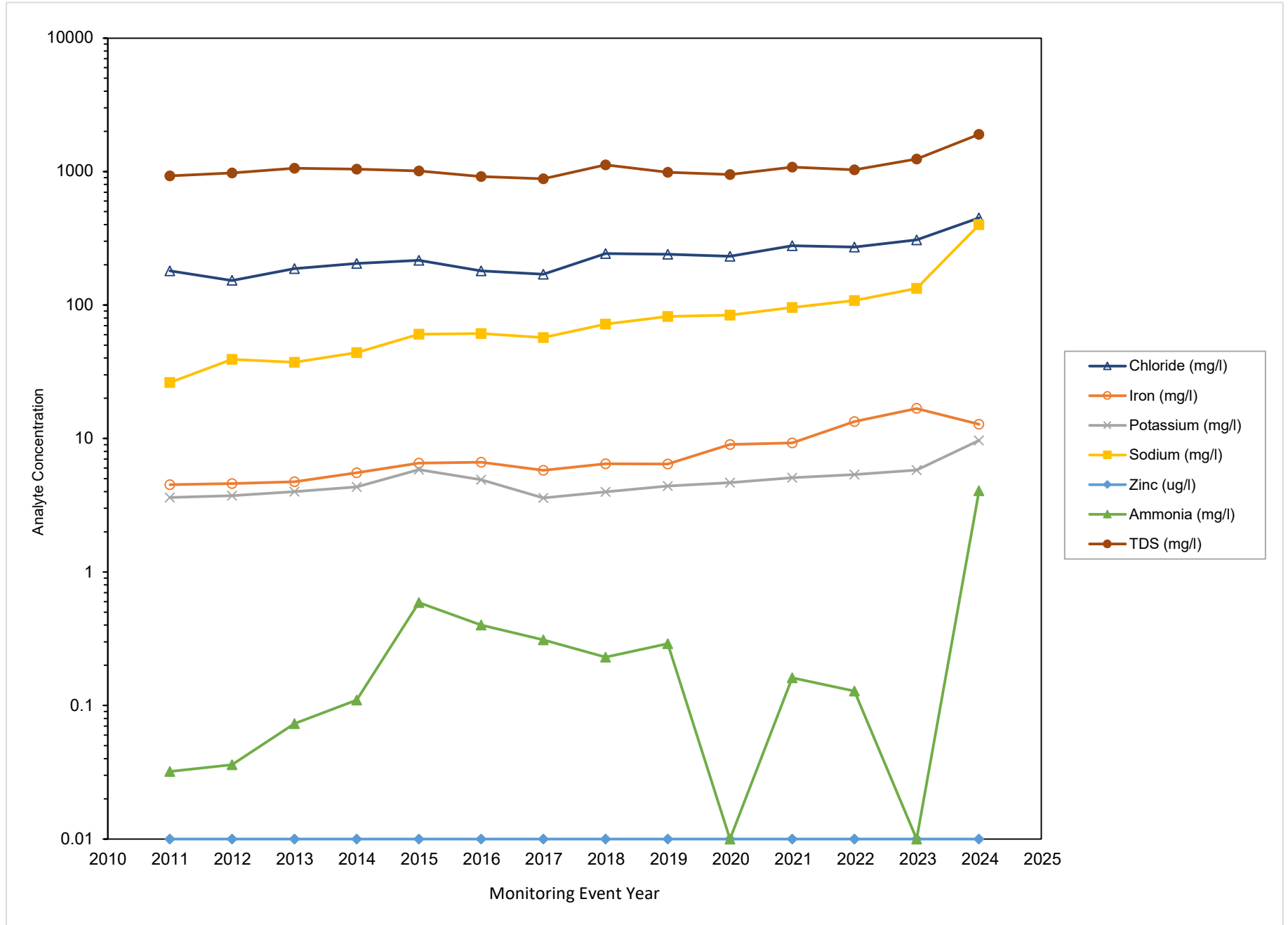
P-308C Leachate Indicator Trends



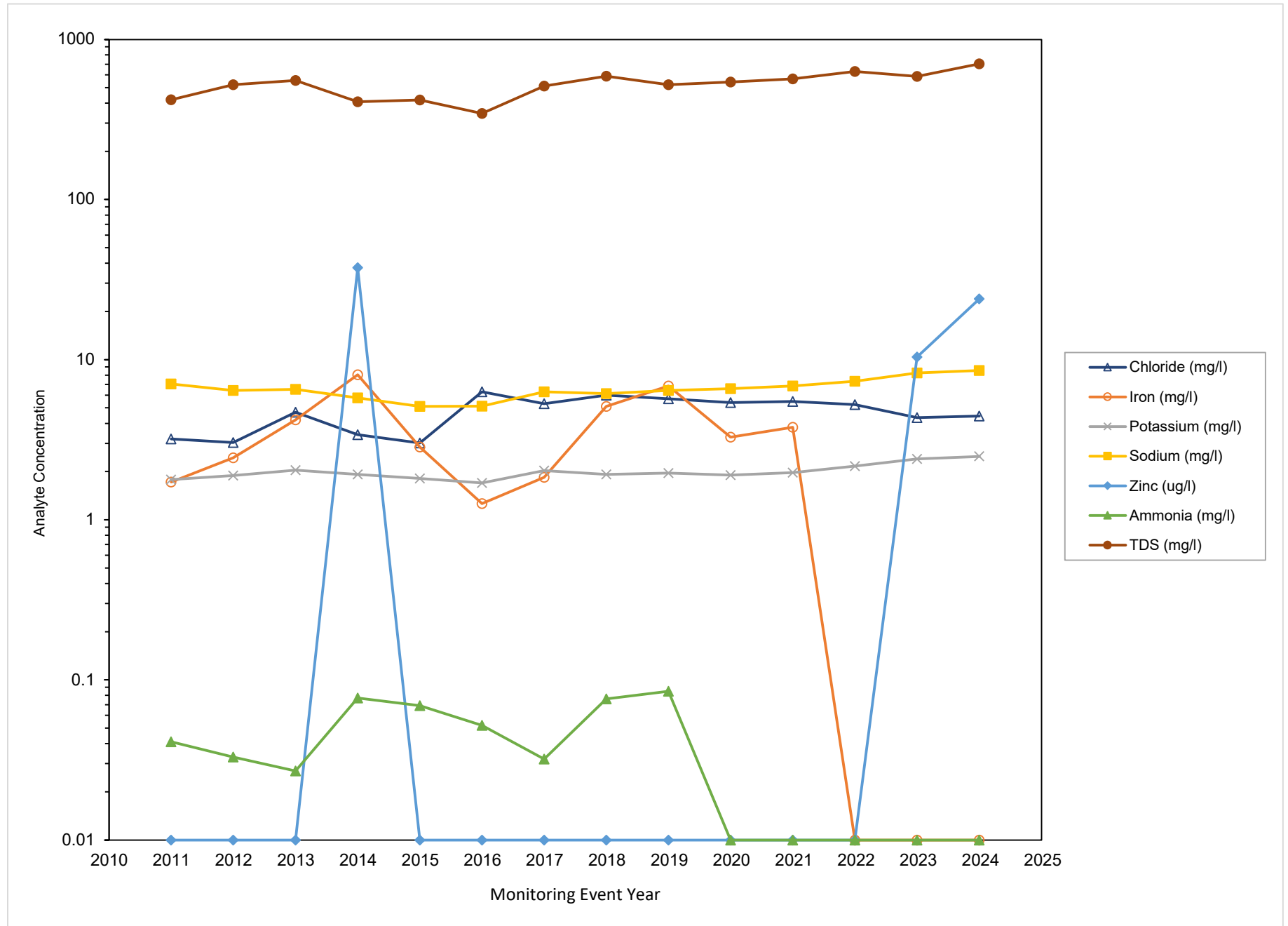
P-308L Leachate Indicator Trends



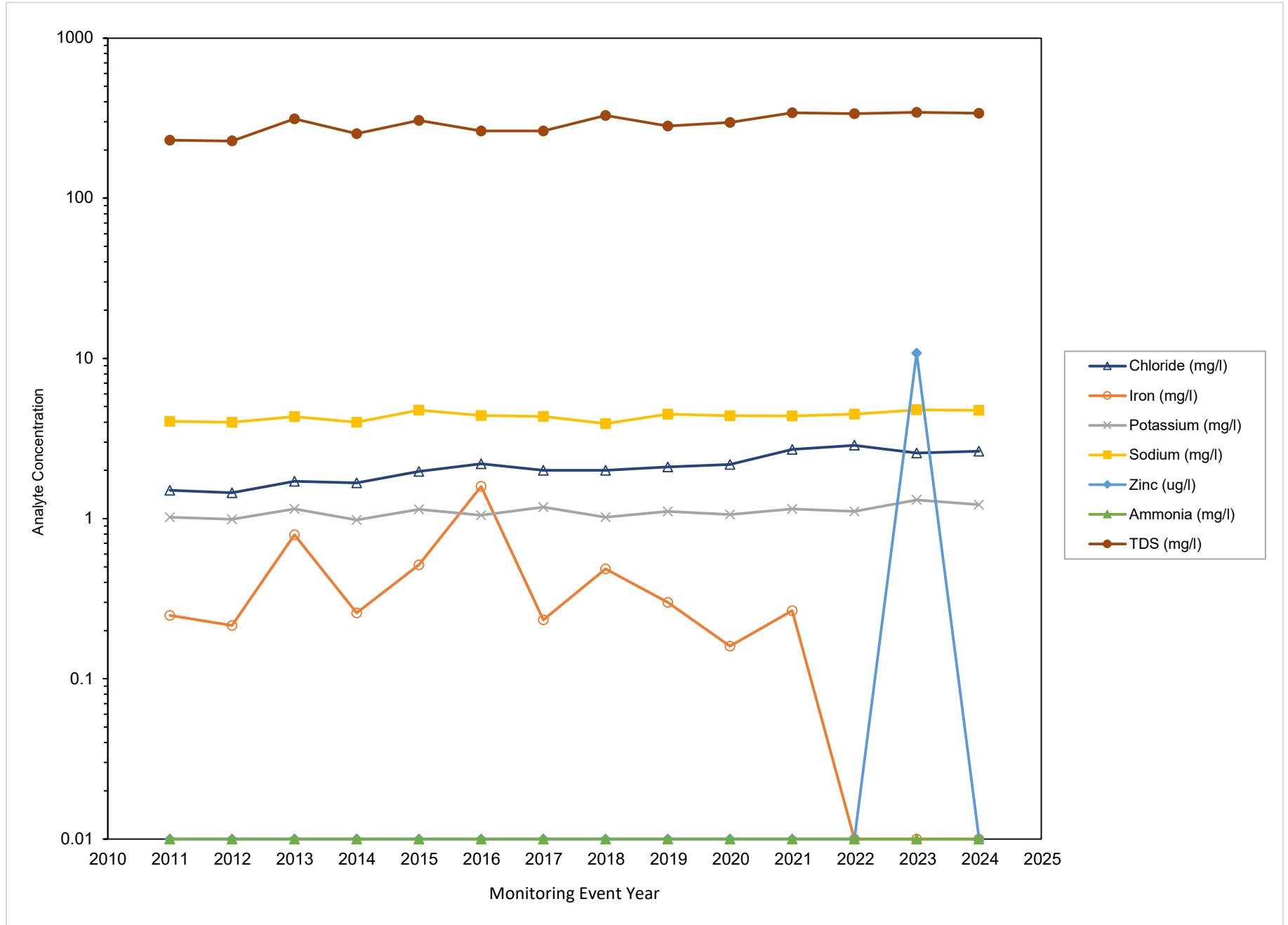
P-309C Leachate Indicator Trends



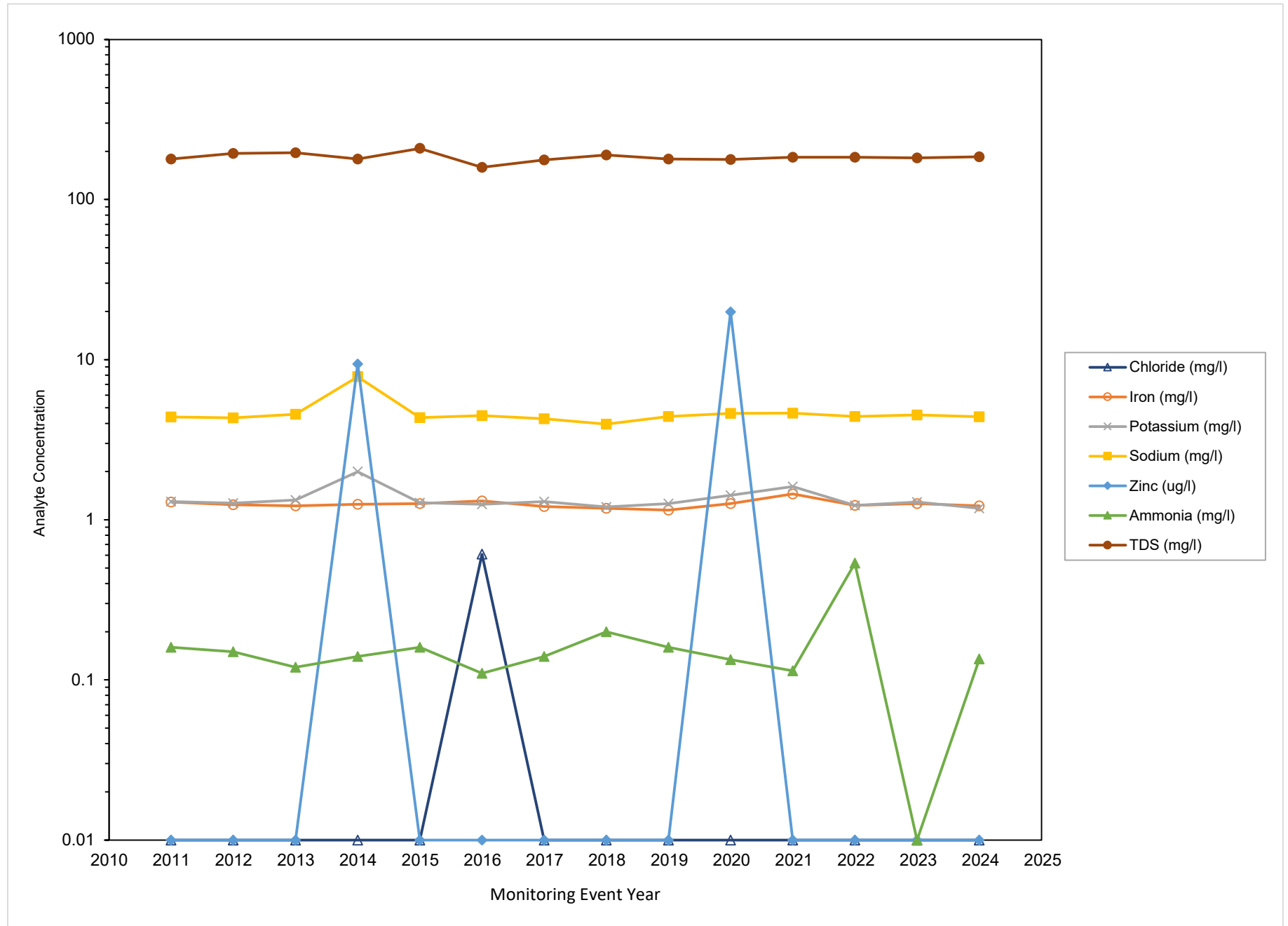
P-310C Leachate Indicator Trends



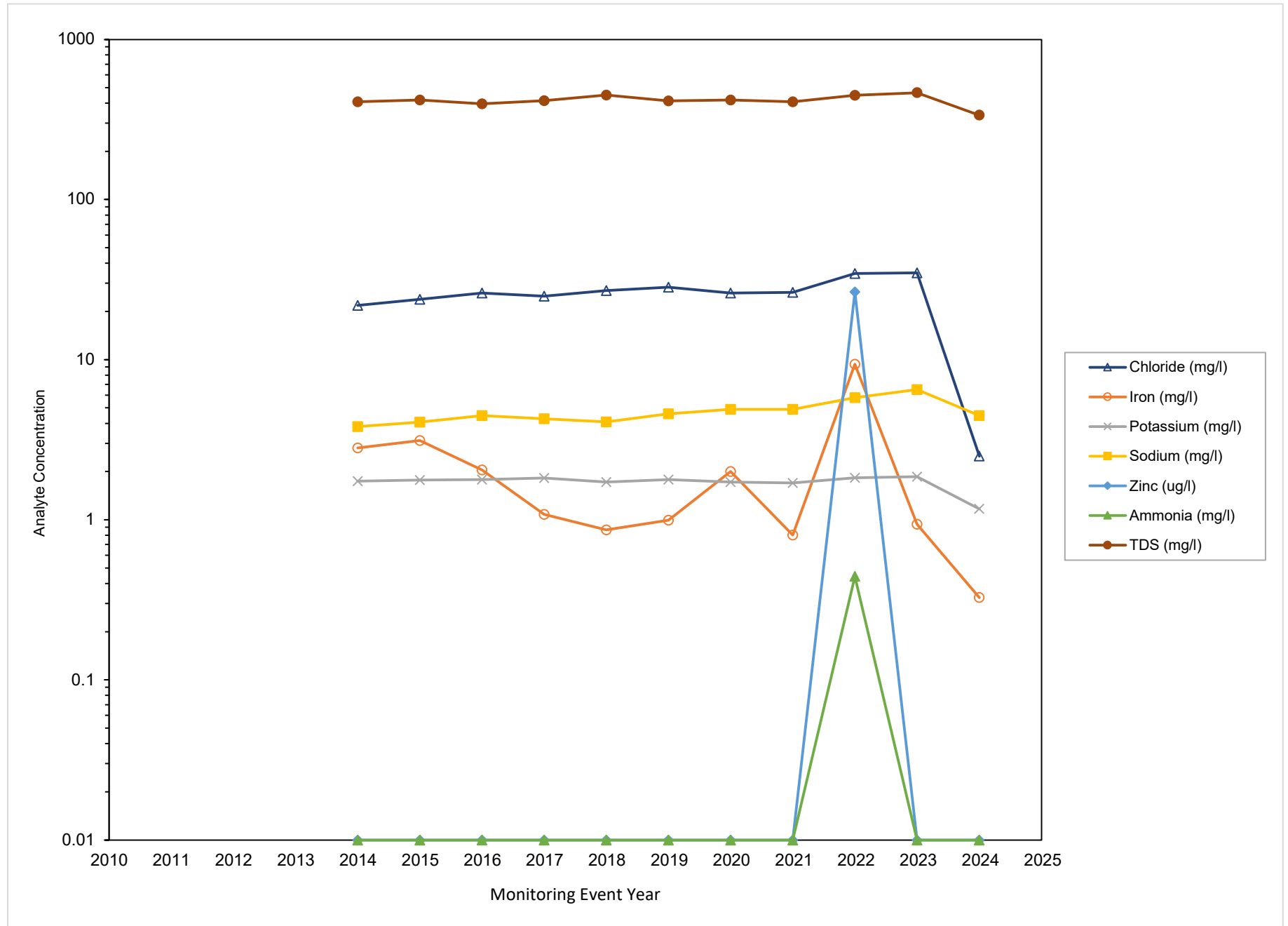
P-311C Leachate Indicator Trends



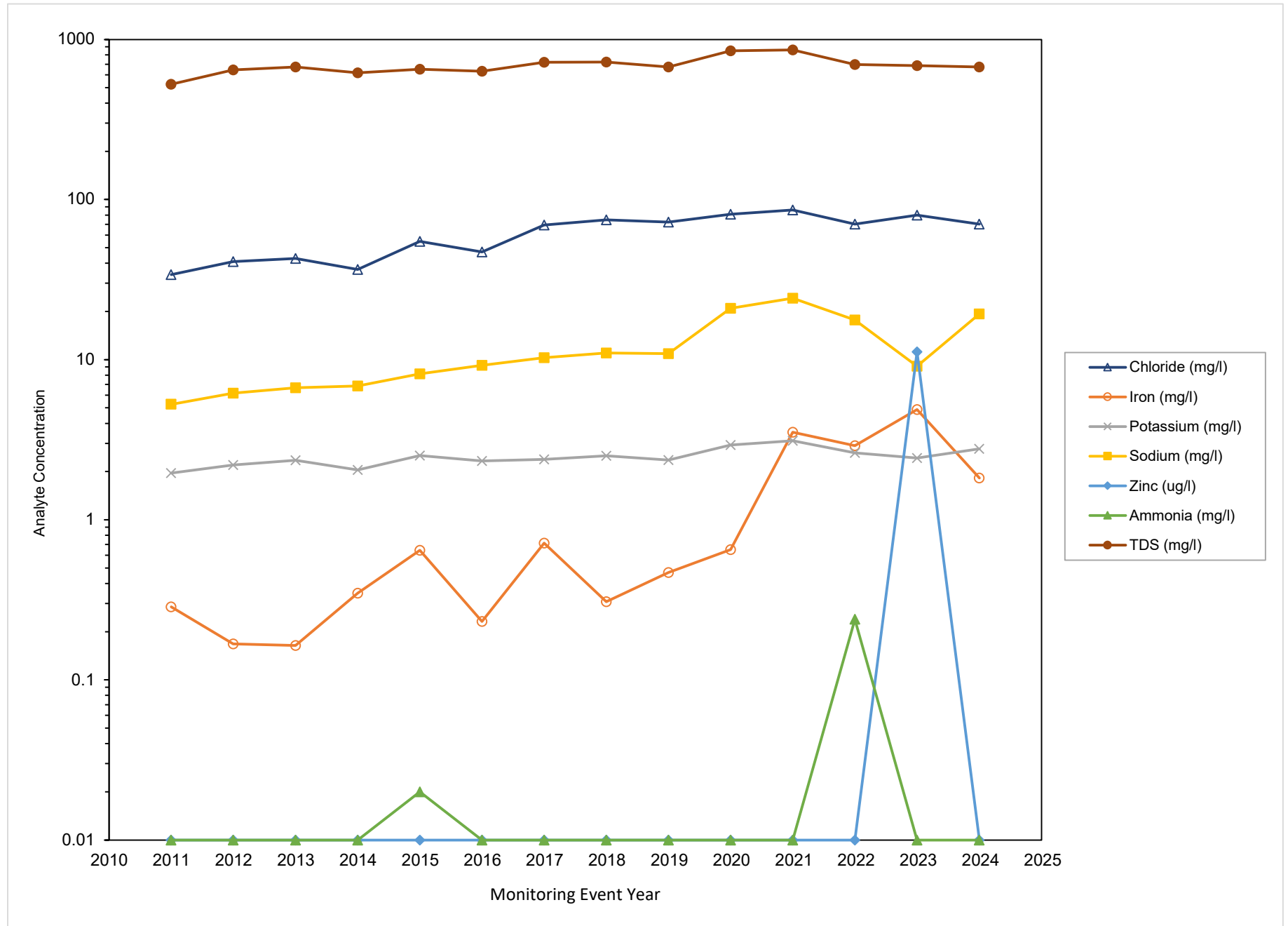
P-311D Leachate Indicator Trends



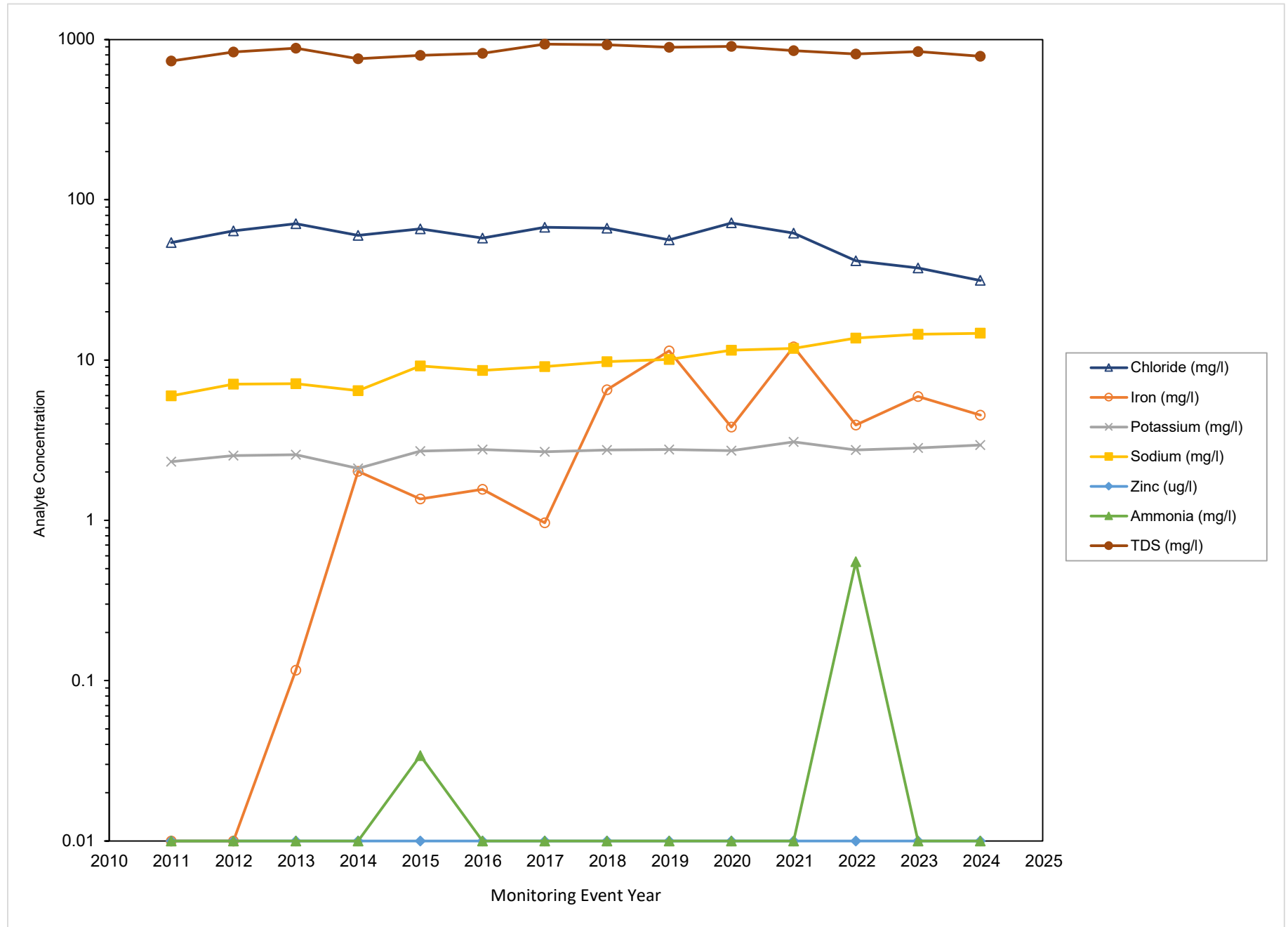
P-311L Leachate Indicator Trends



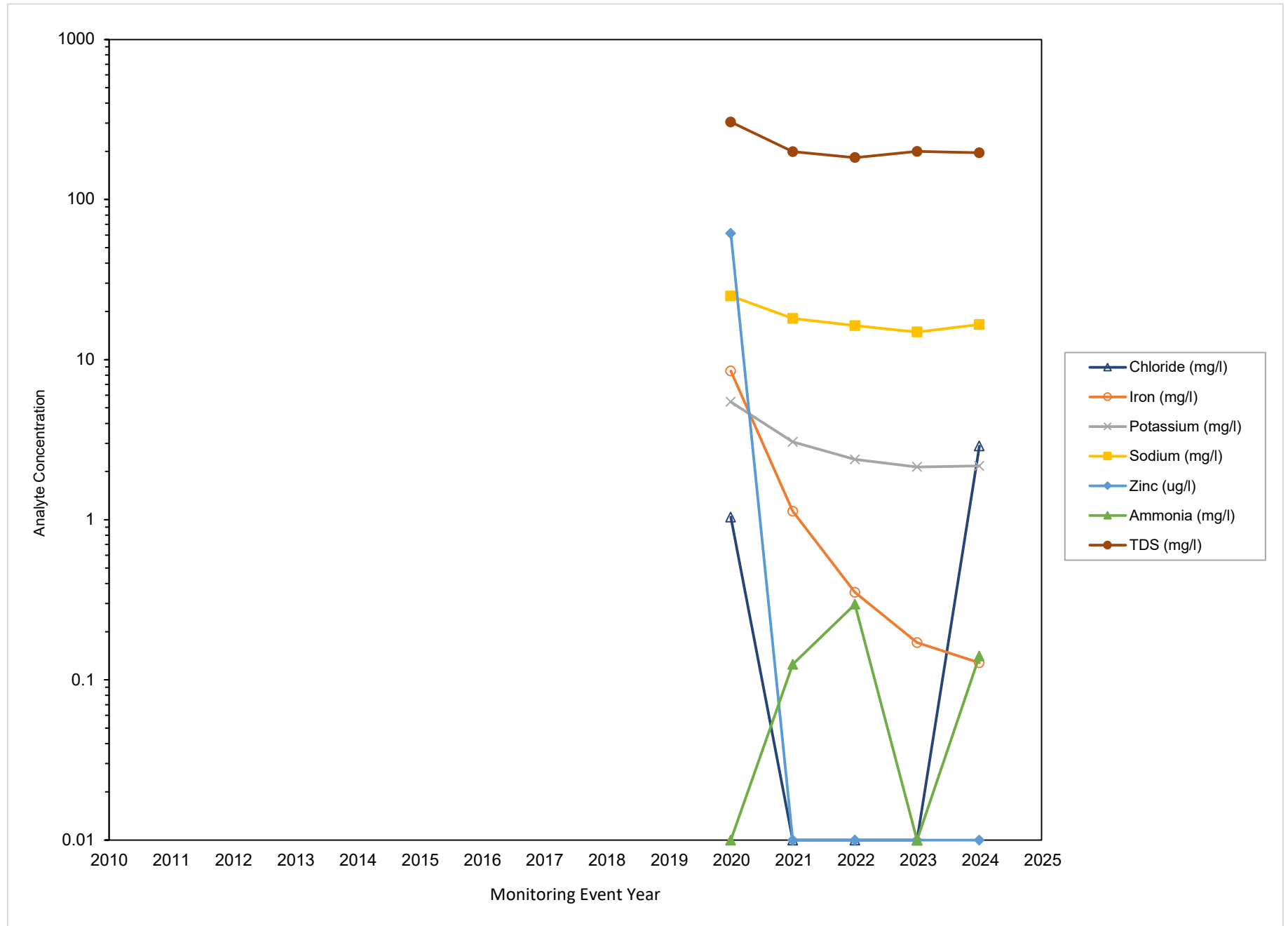
P-313C Leachate Indicator Trends



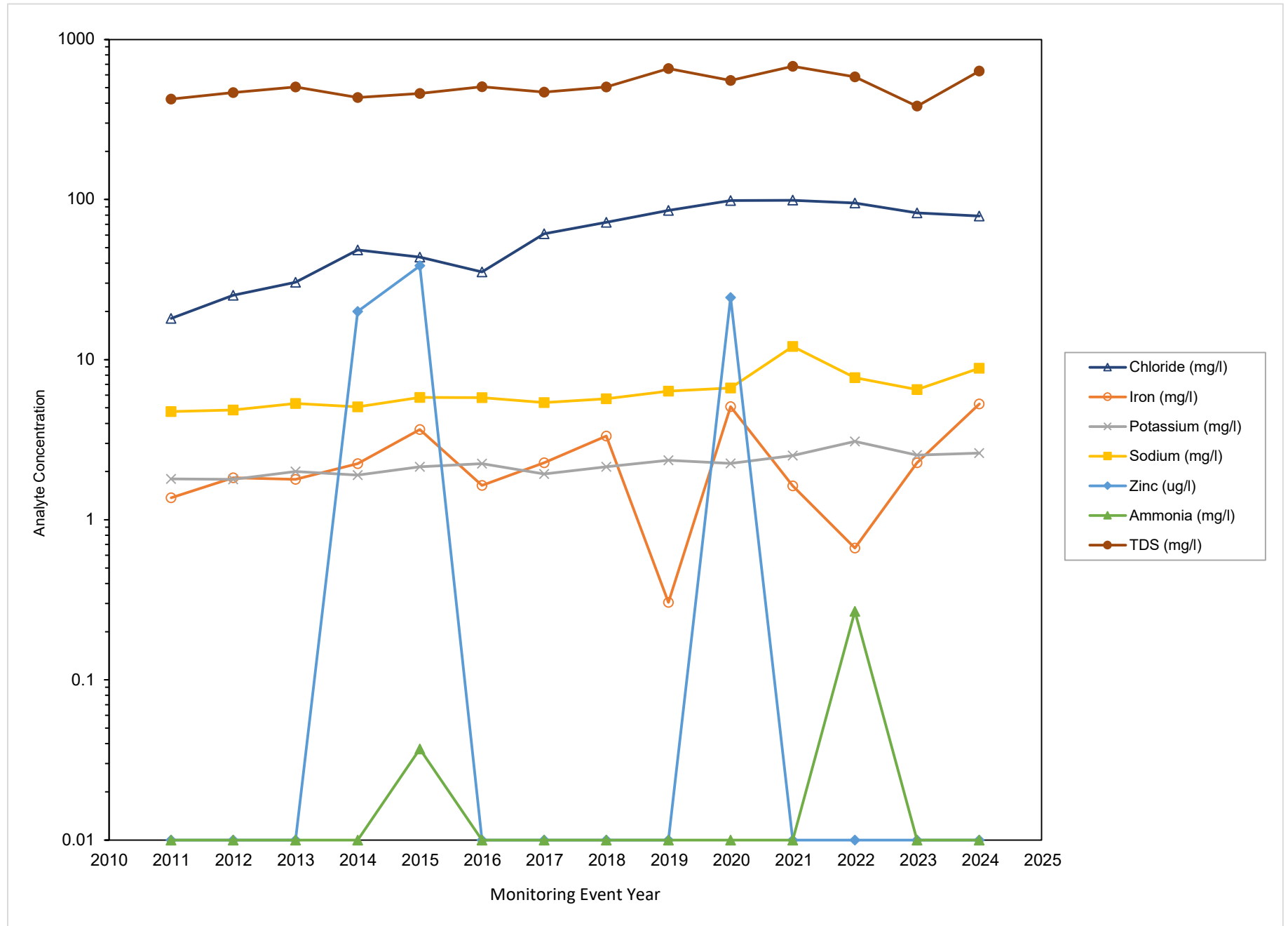
P-314C Leachate Indicator Trends



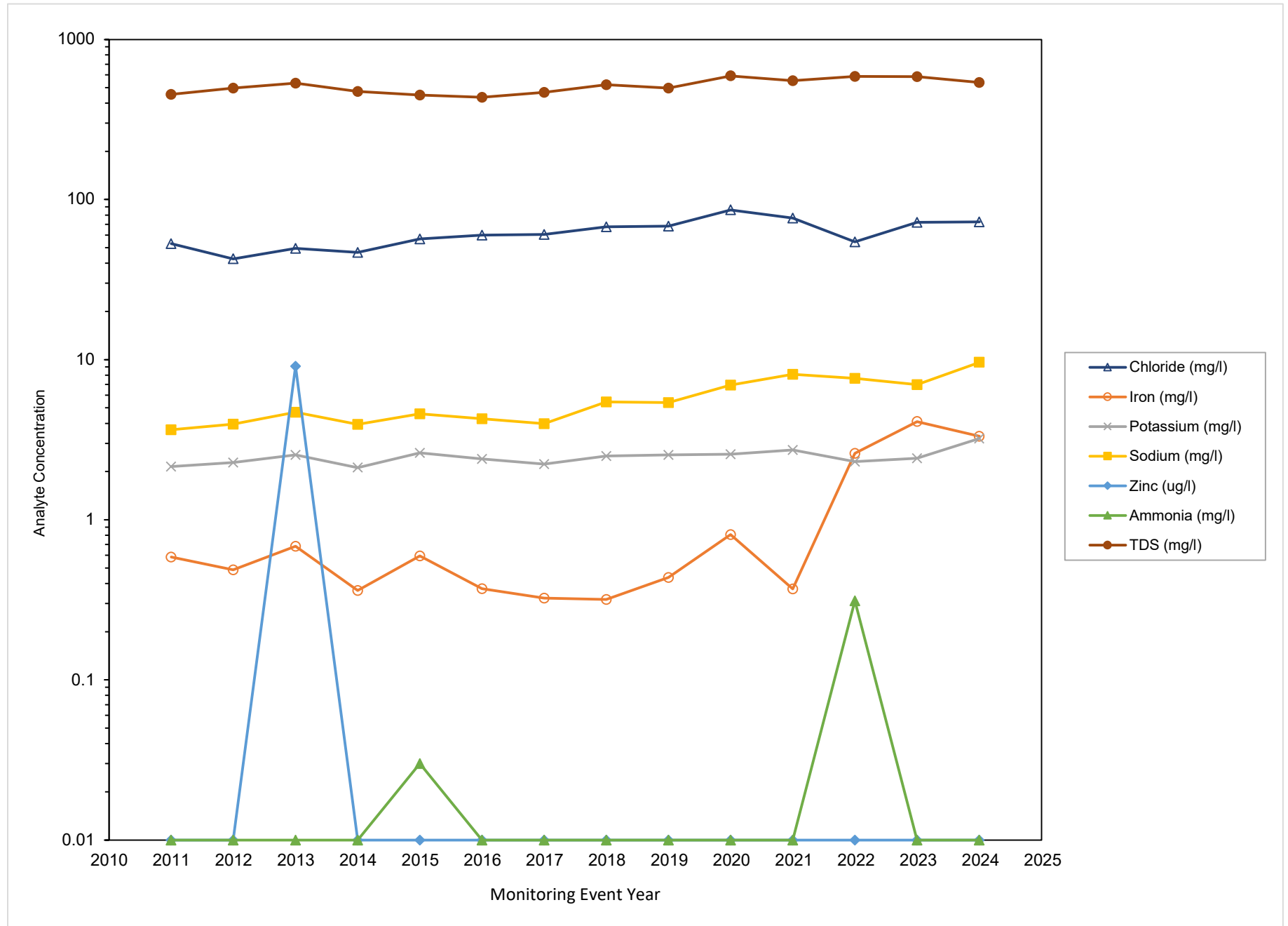
P-315L Leachate Indicator Trends



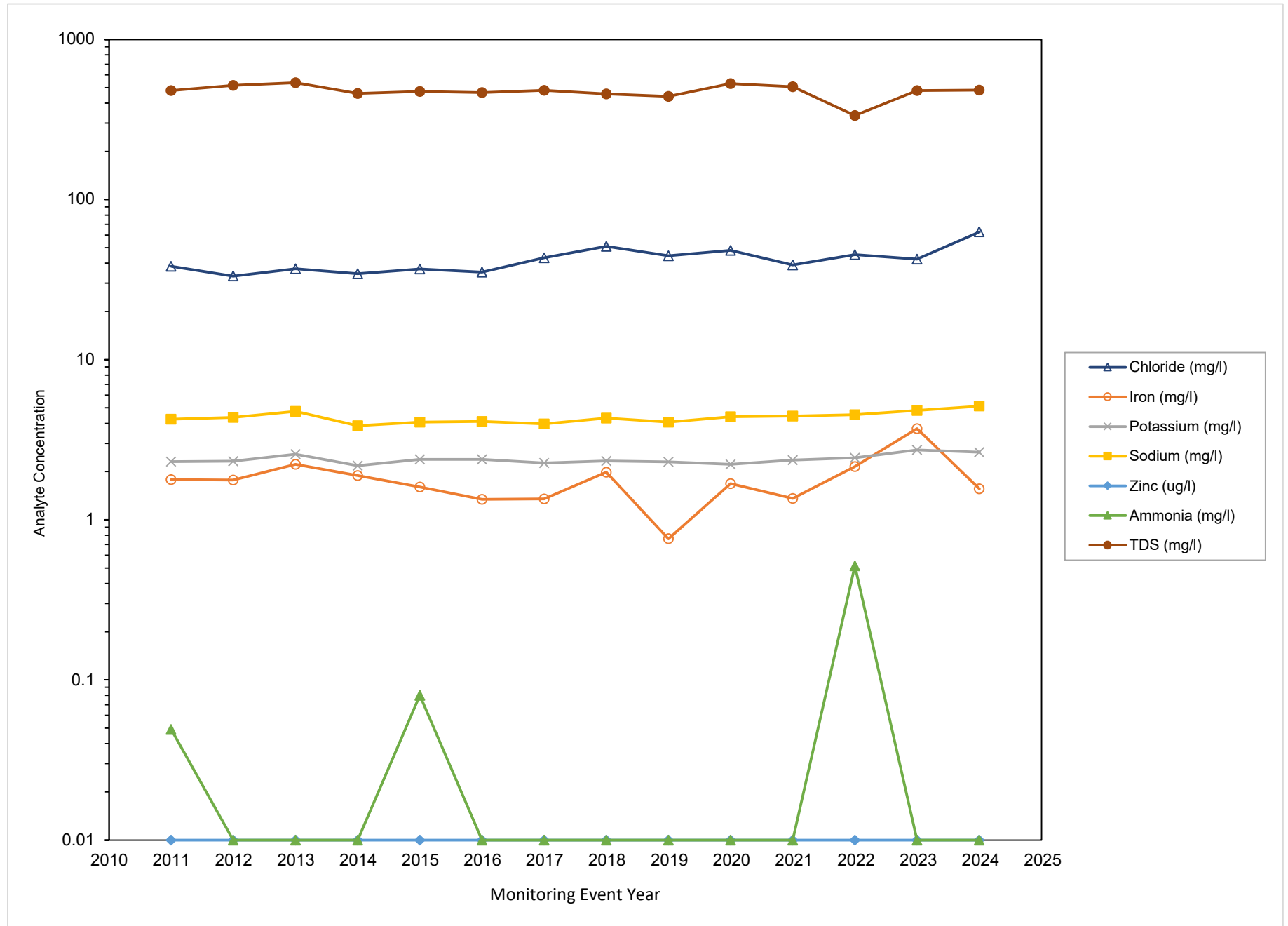
P-320C Leachate Indicator Trends



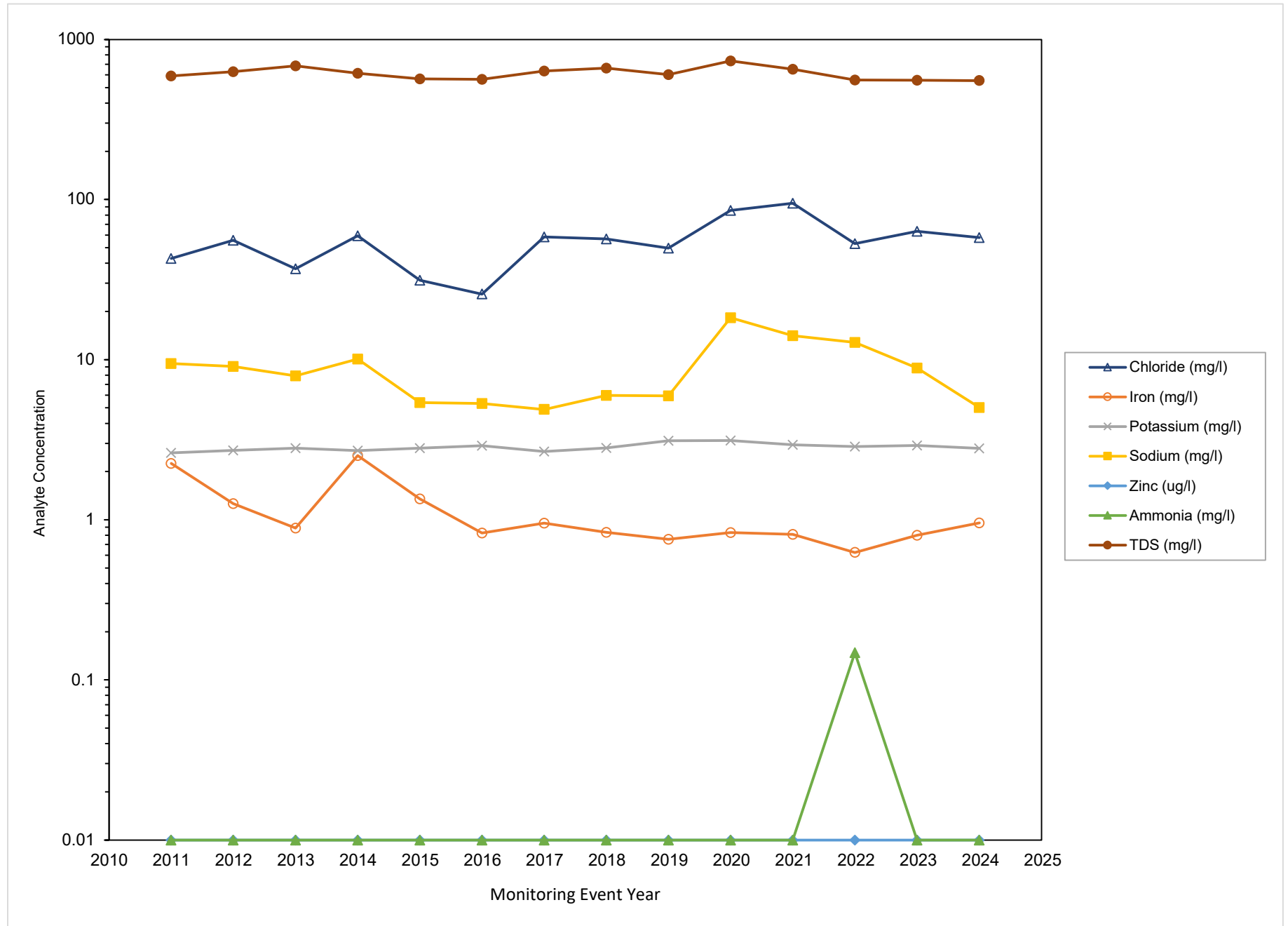
P-320C2 Leachate Indicator Trends



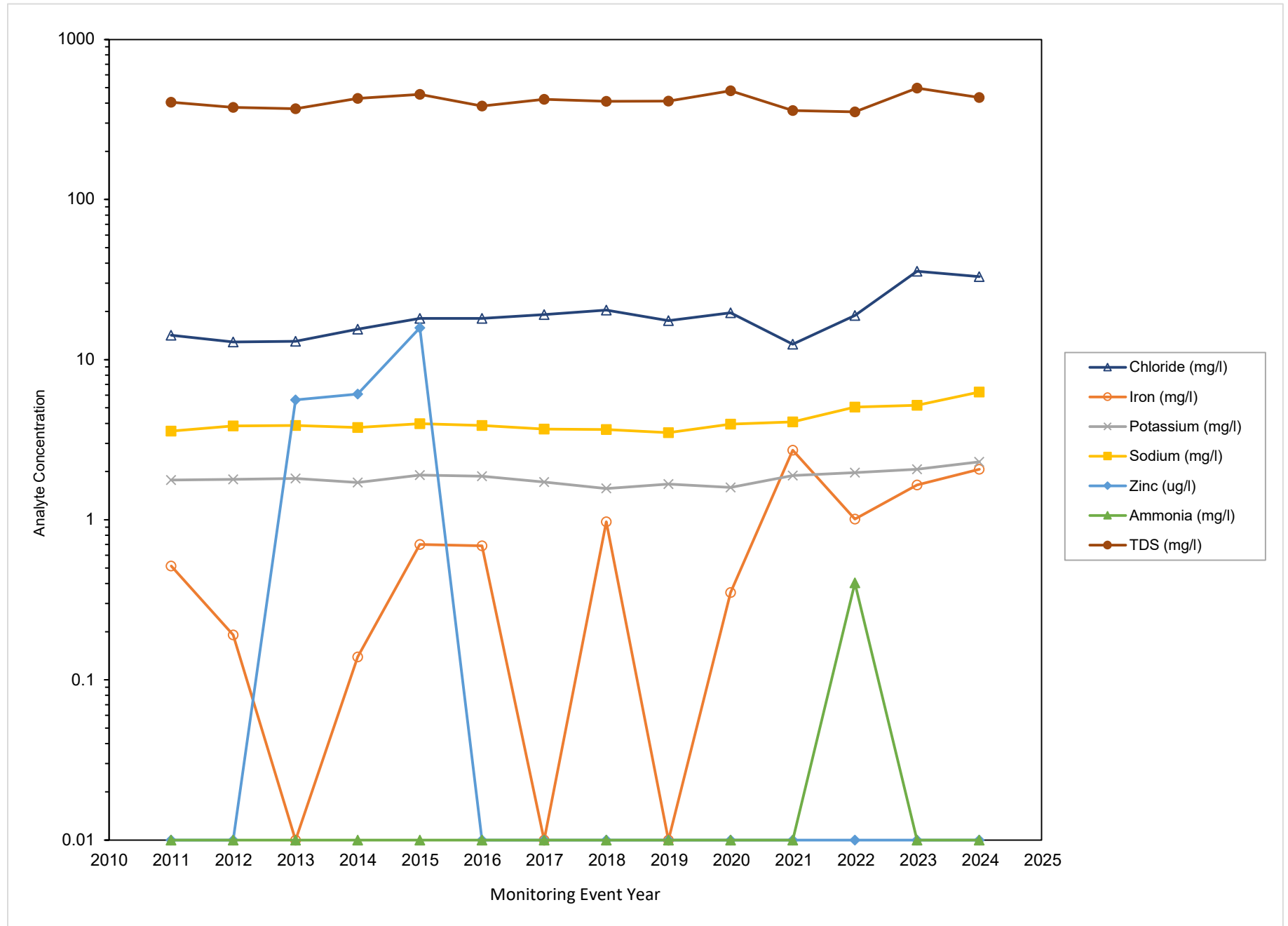
P-320L Leachate Indicator Trends



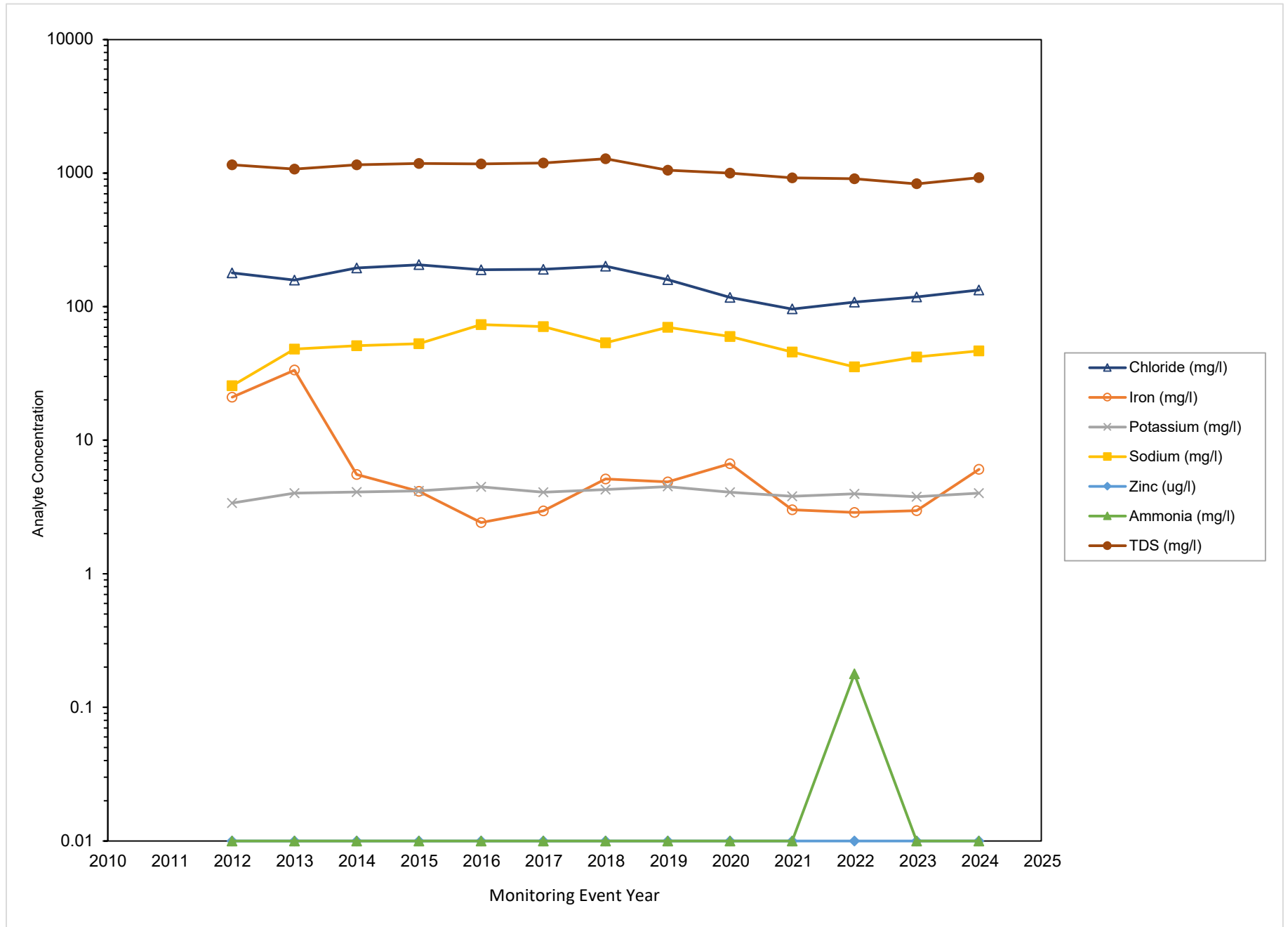
P-321L Leachate Indicator Trends



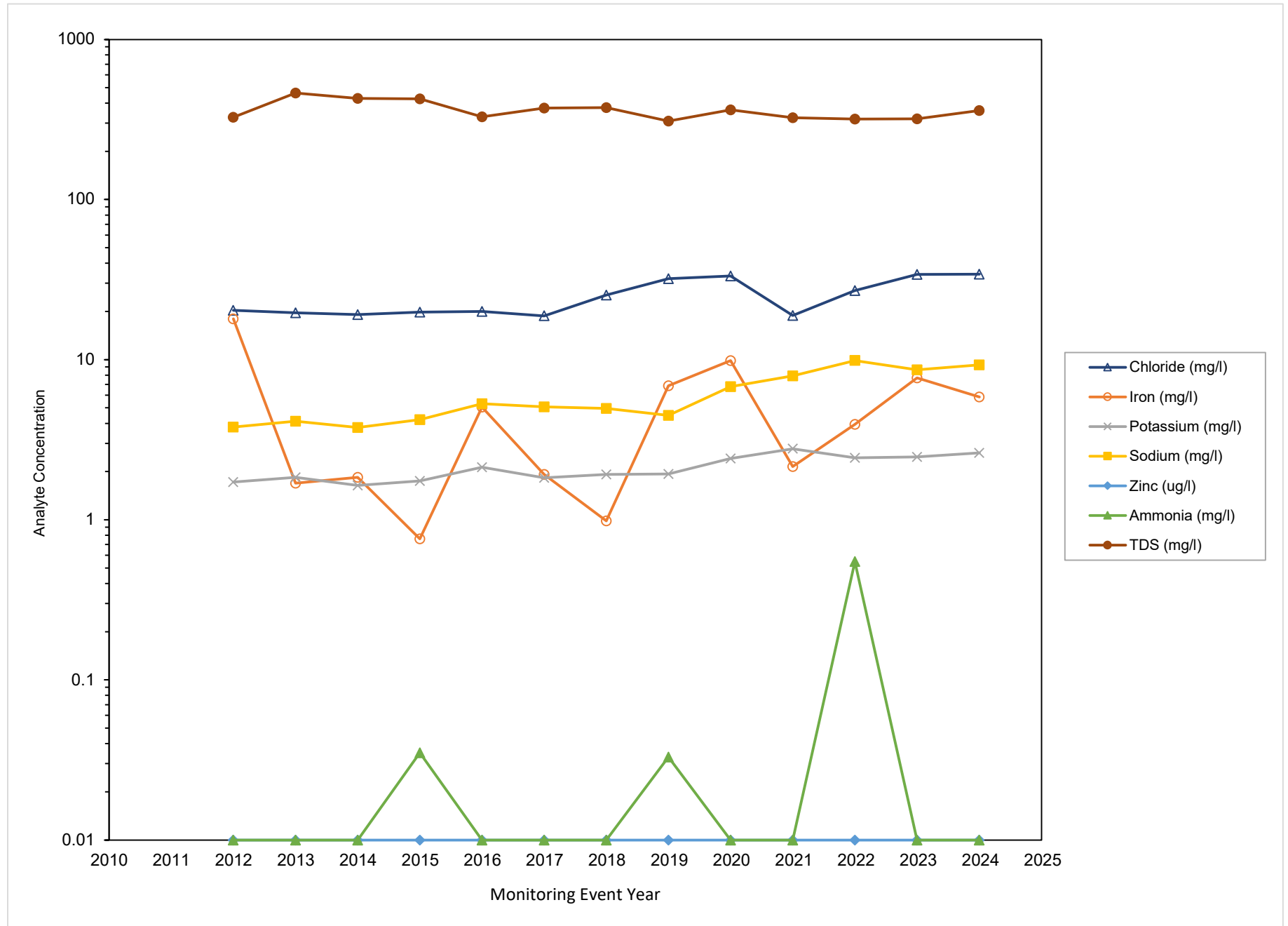
P-322L Leachate Indicator Trends



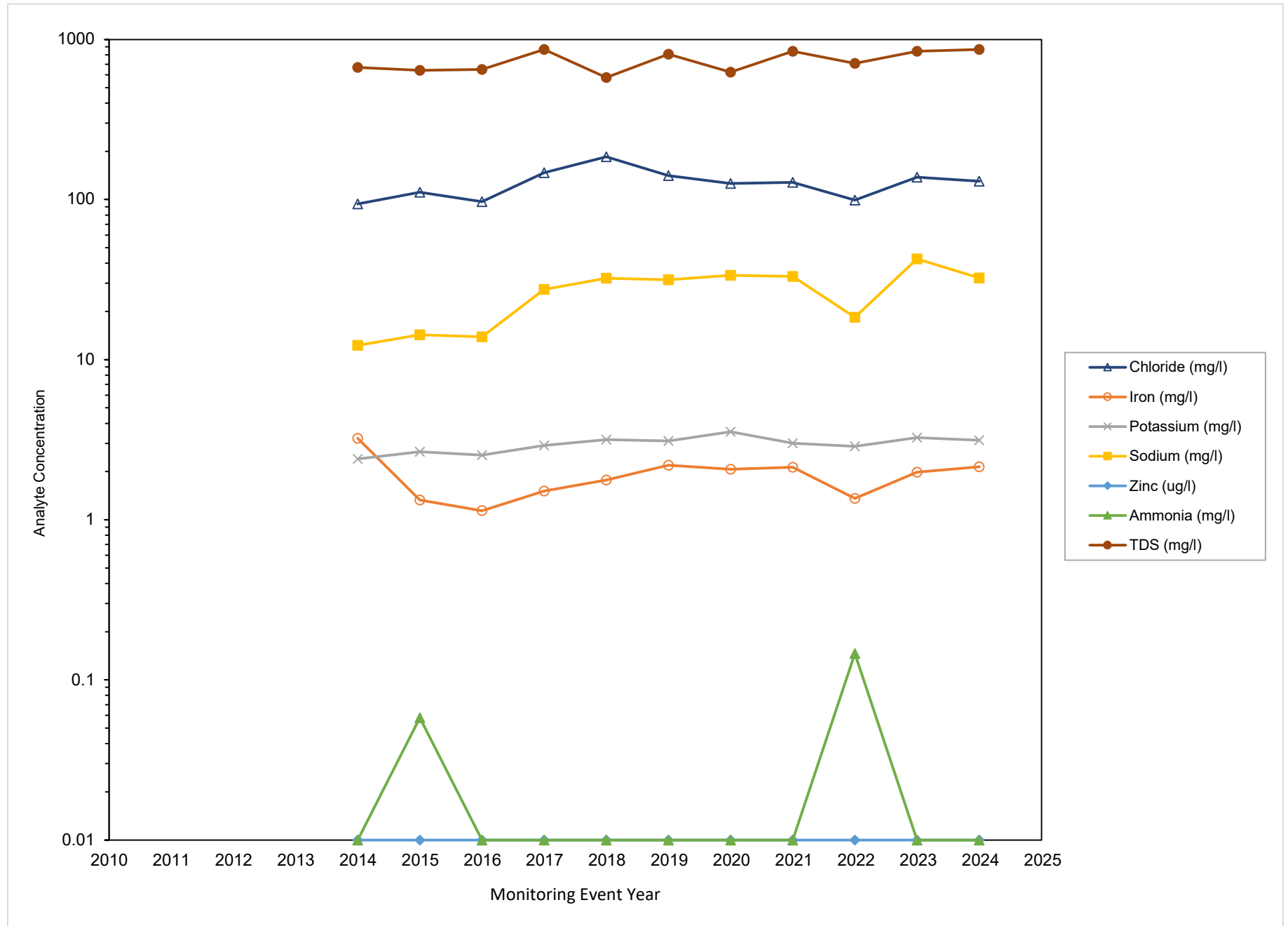
P-323L Leachate Indicator Trends



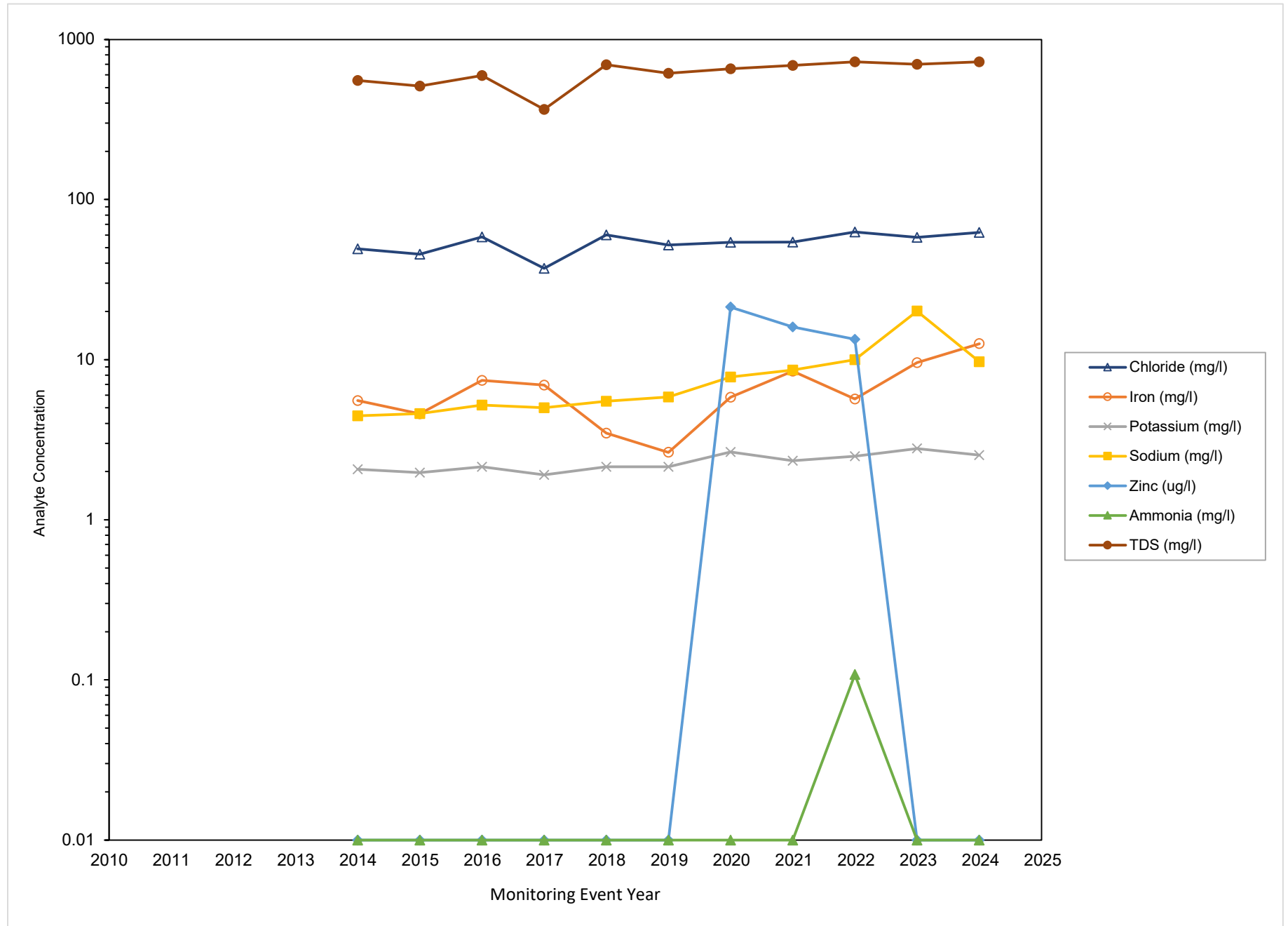
P-324L Leachate Indicator Trends



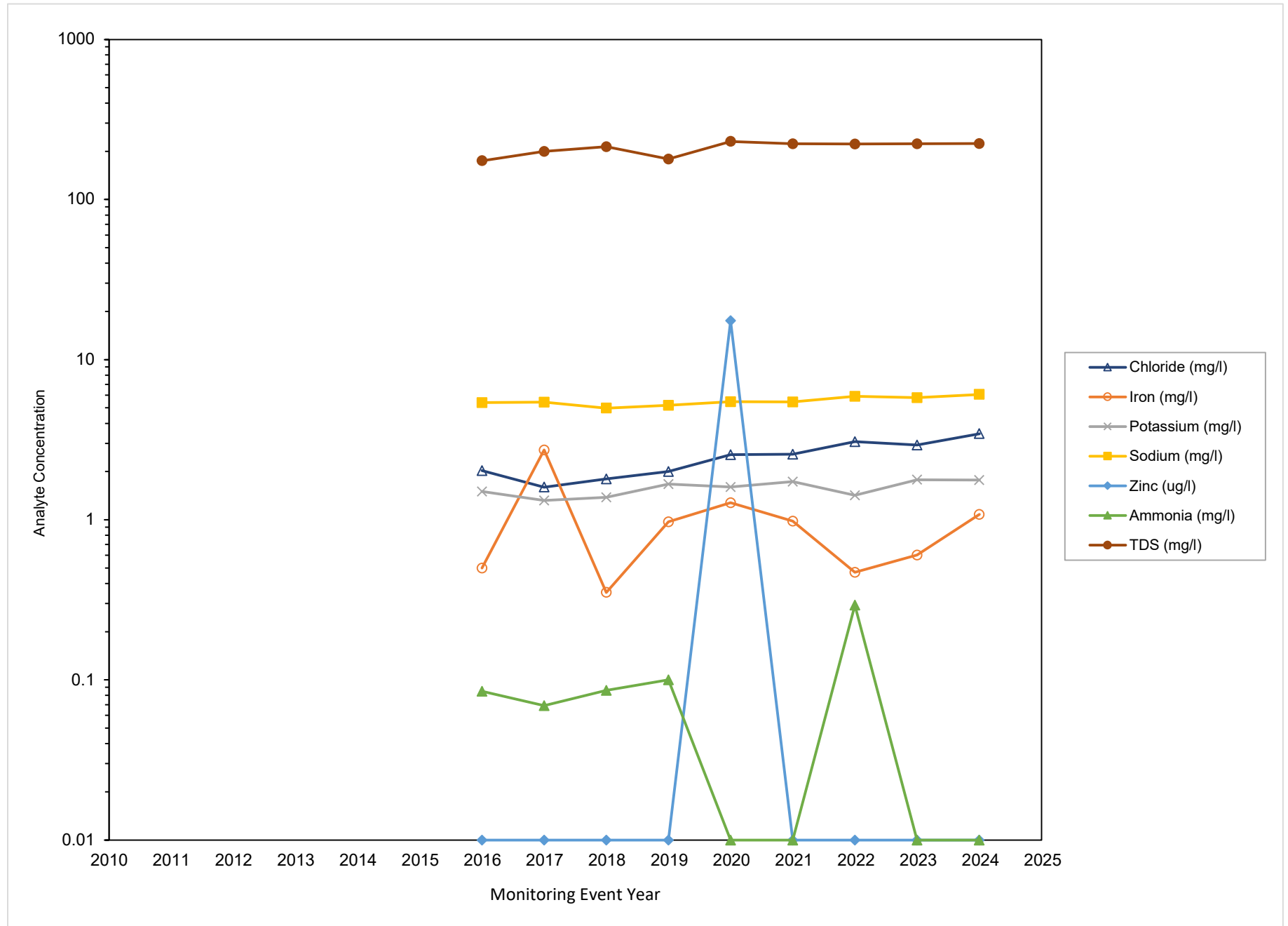
P-325L Leachate Indicator Trends



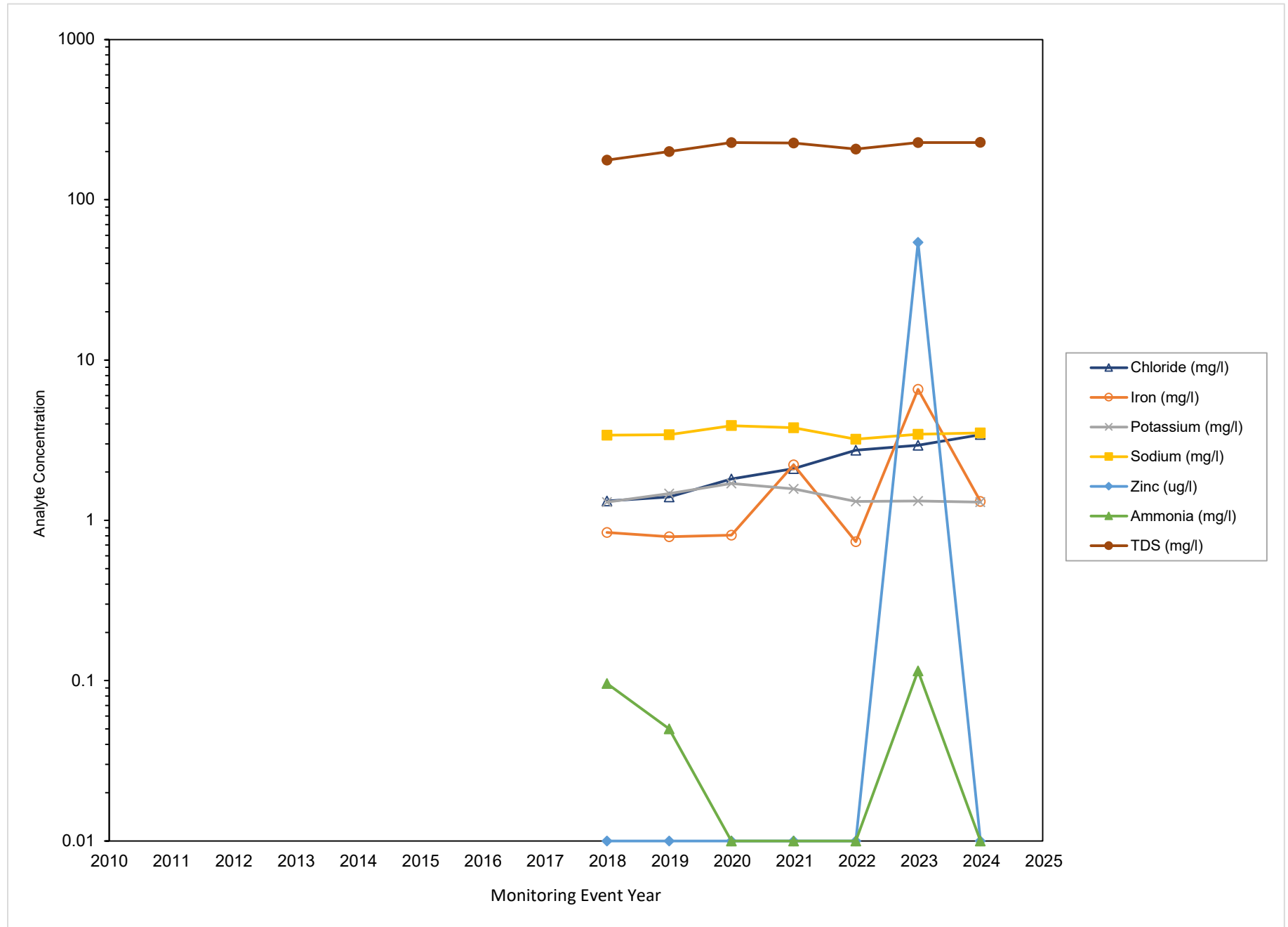
P-326L Leachate Indicator Trends



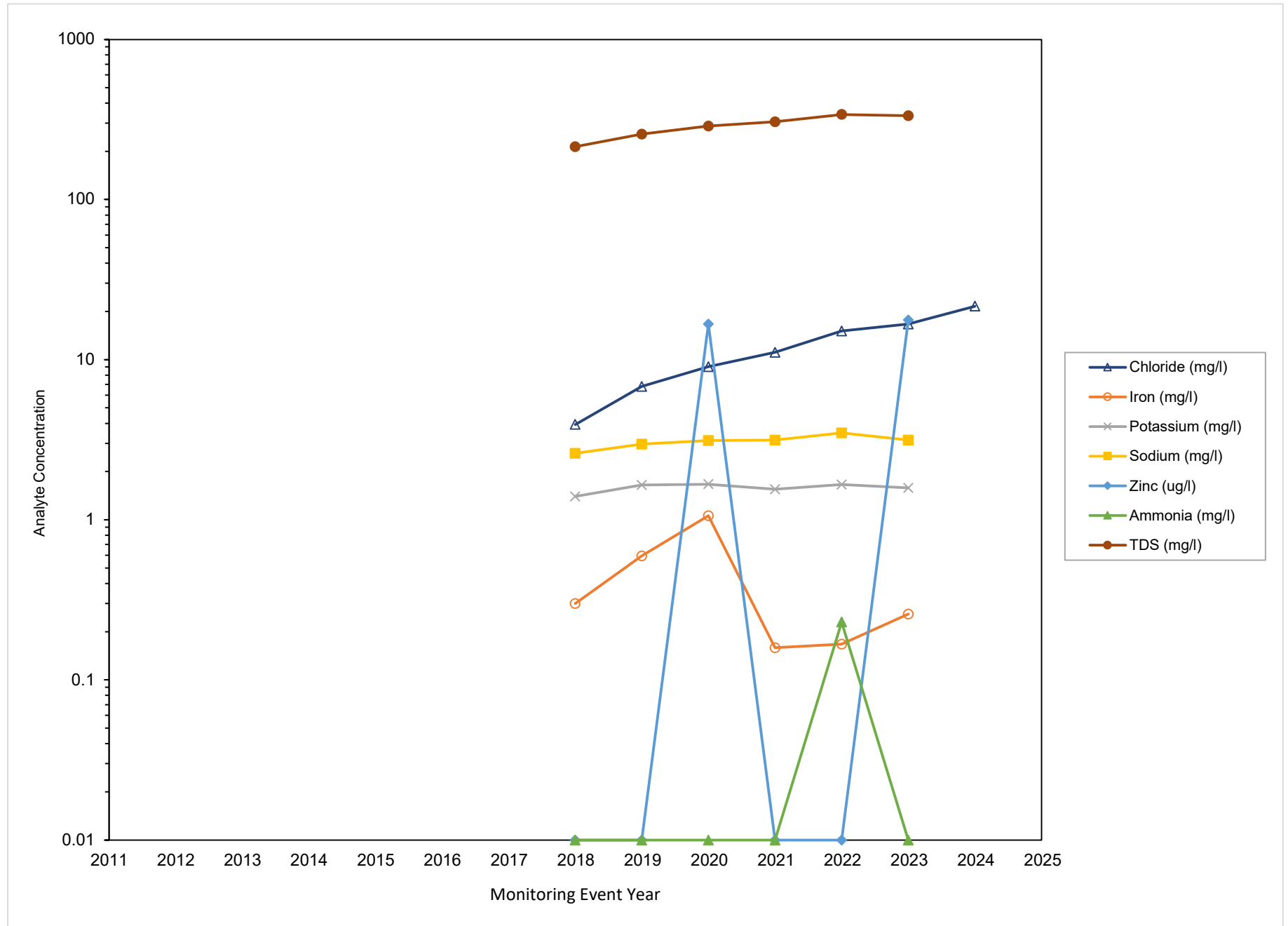
P-329L Leachate Indicator Trends



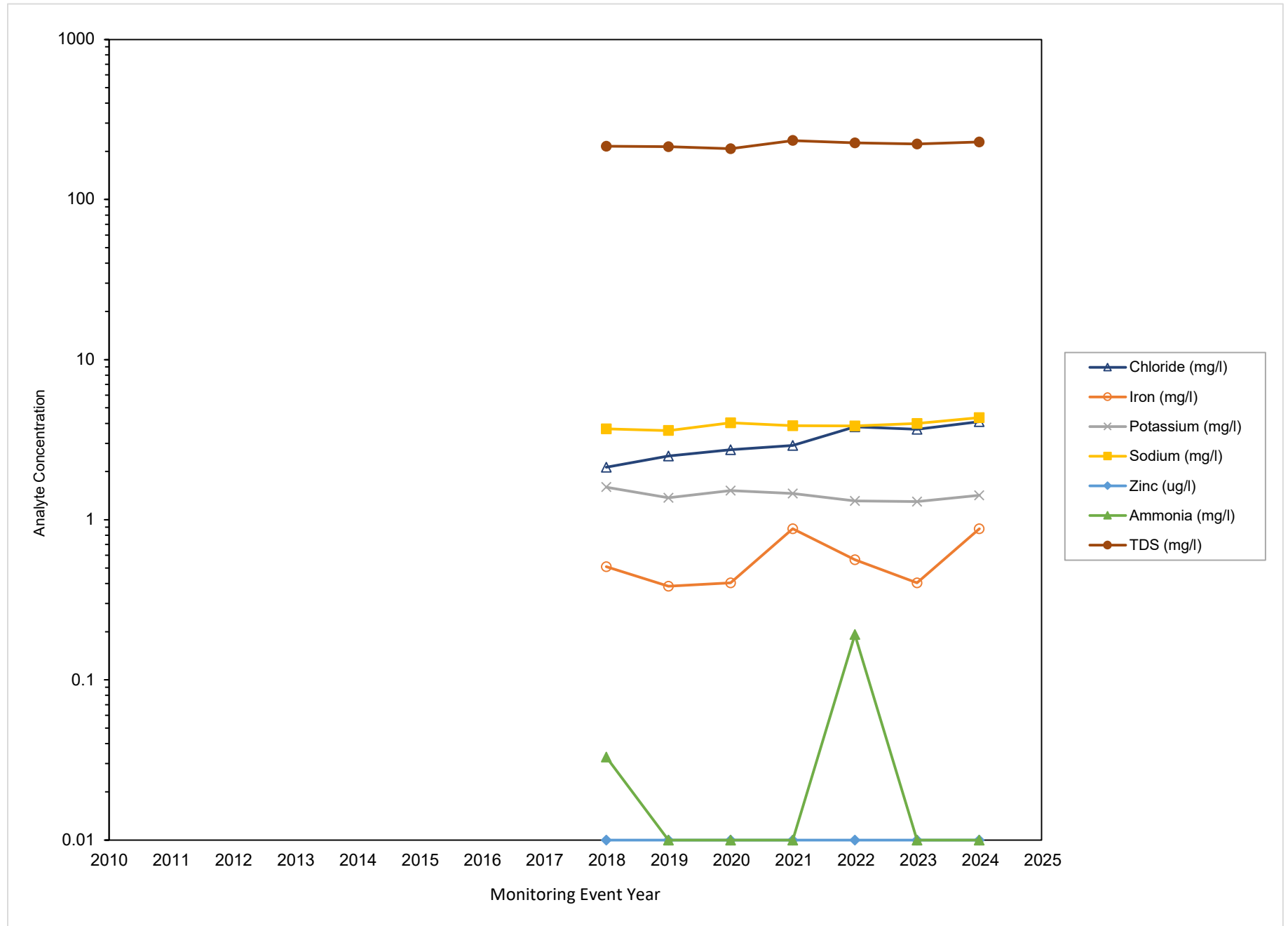
P-333L Leachate Indicator Trends



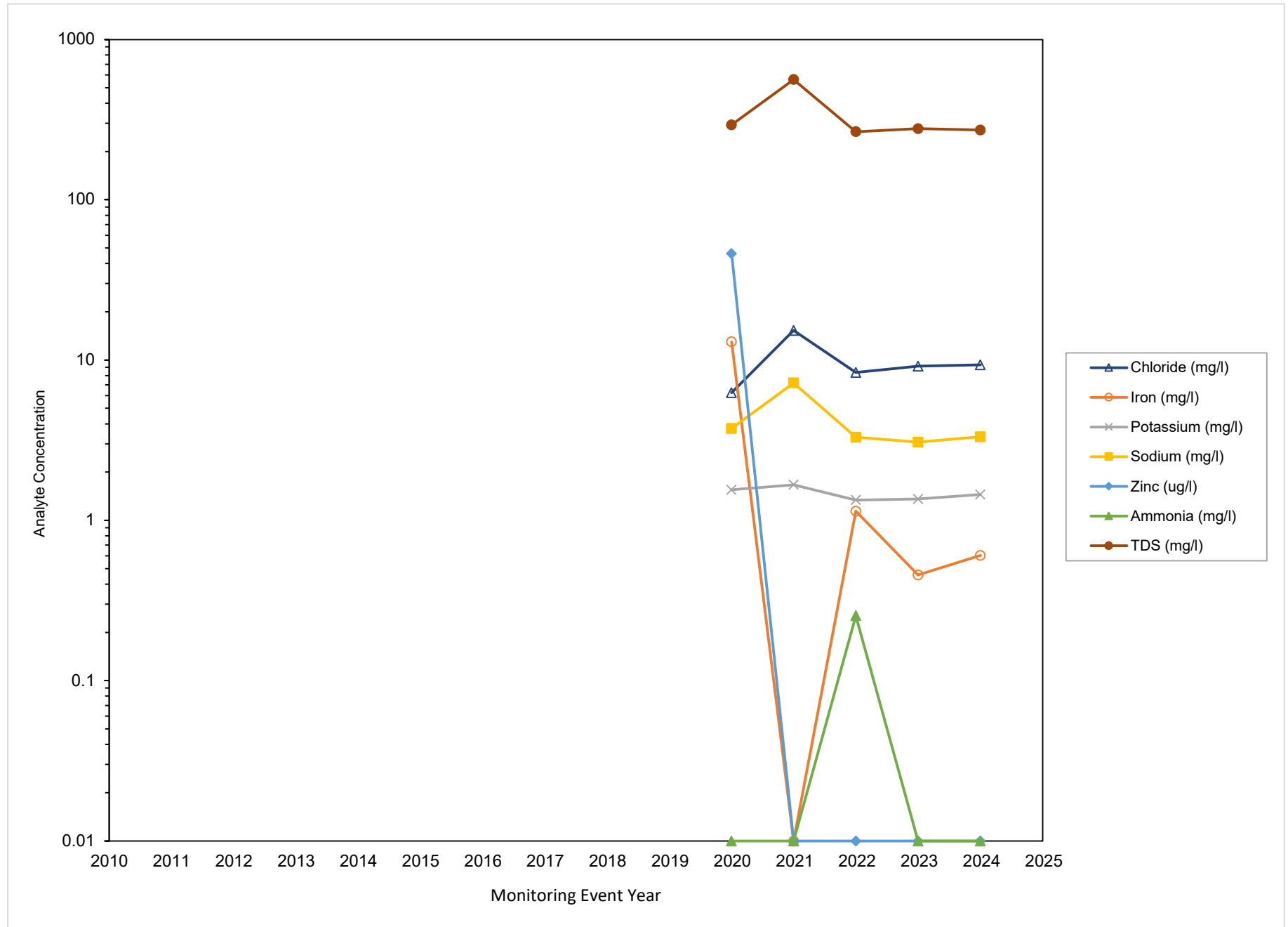
P-334L Leachate Indicator Trends



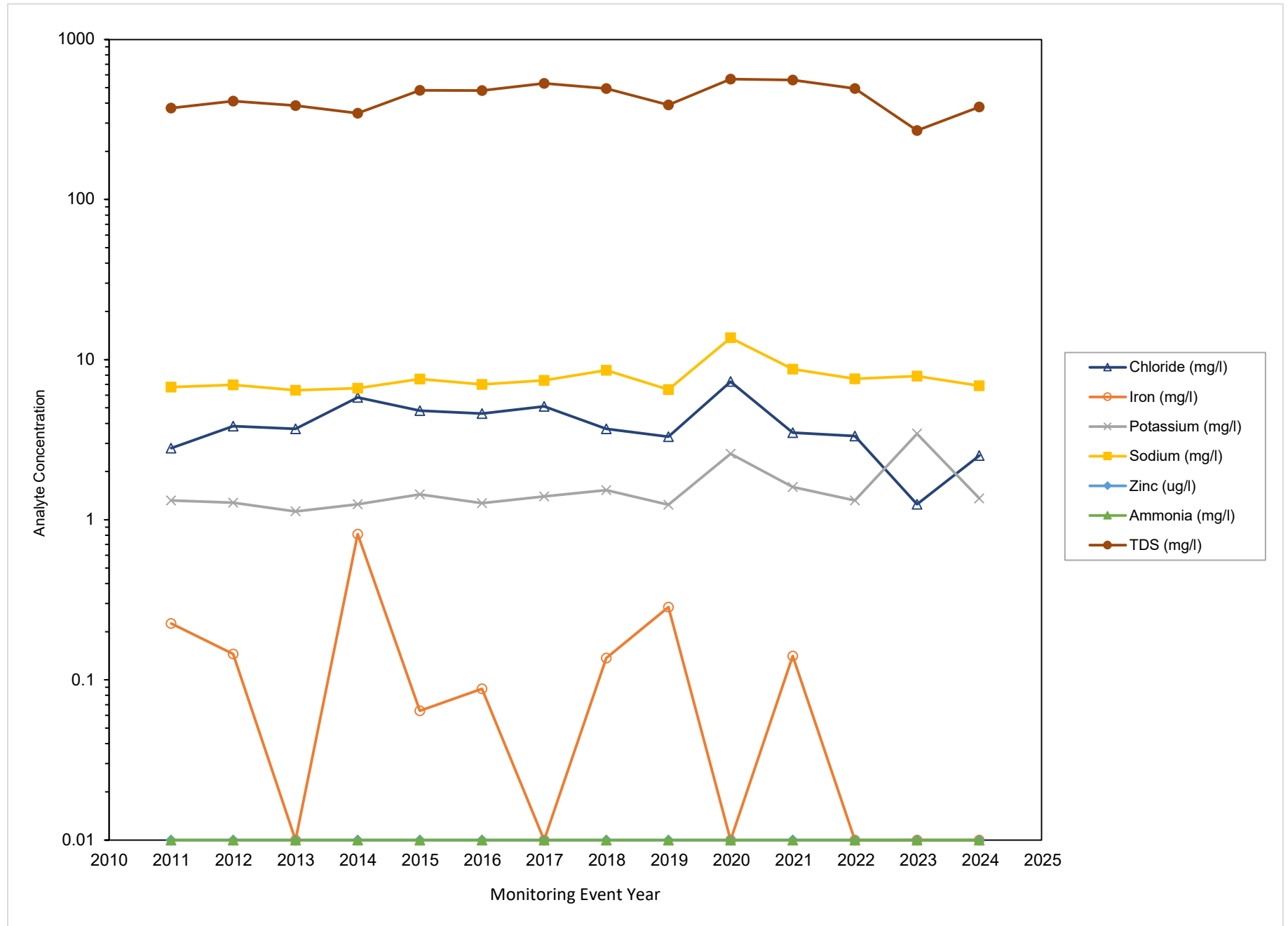
P-335L Leachate Indicator Trends



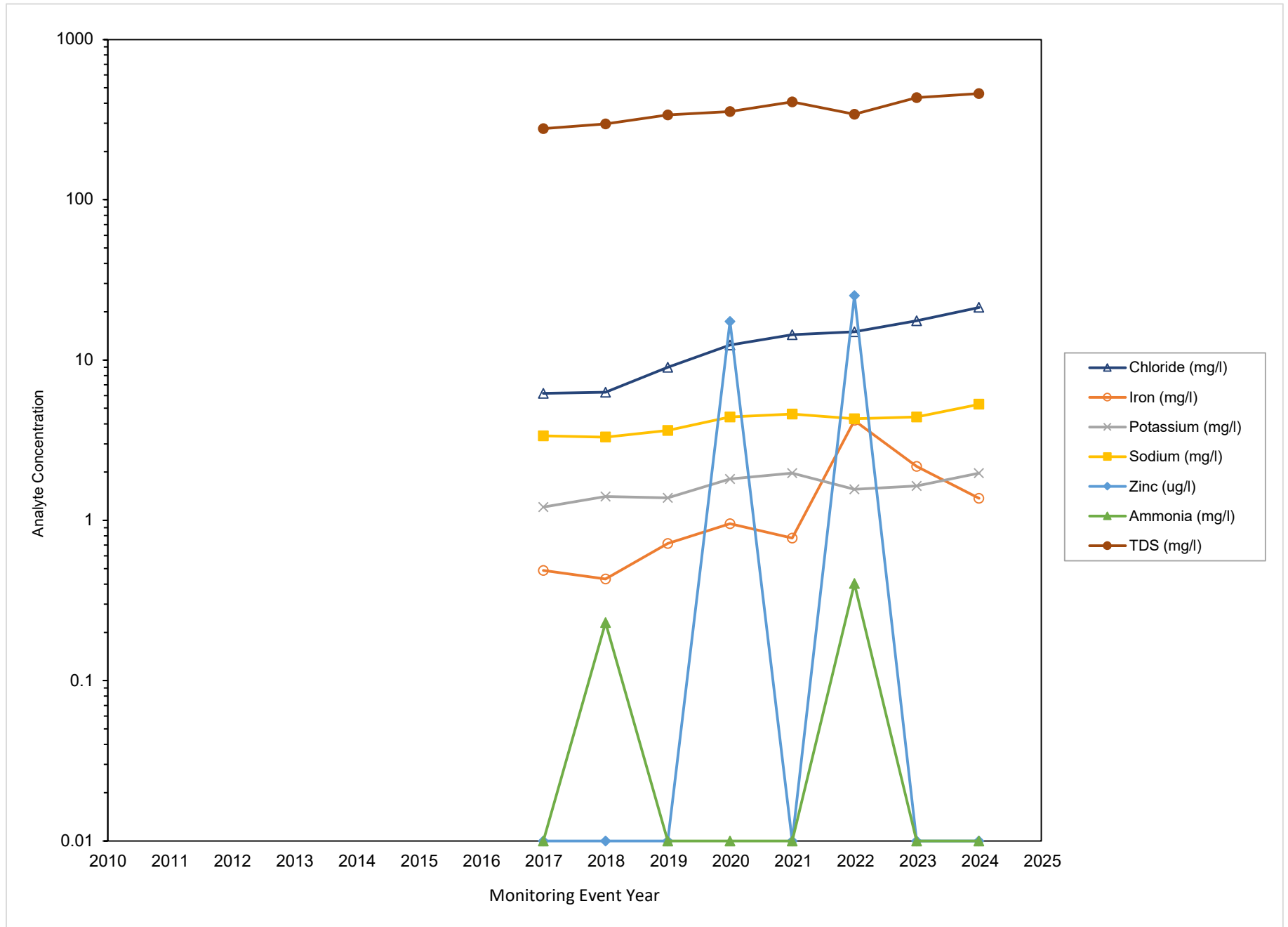
P-337L Leachate Indicator Trends



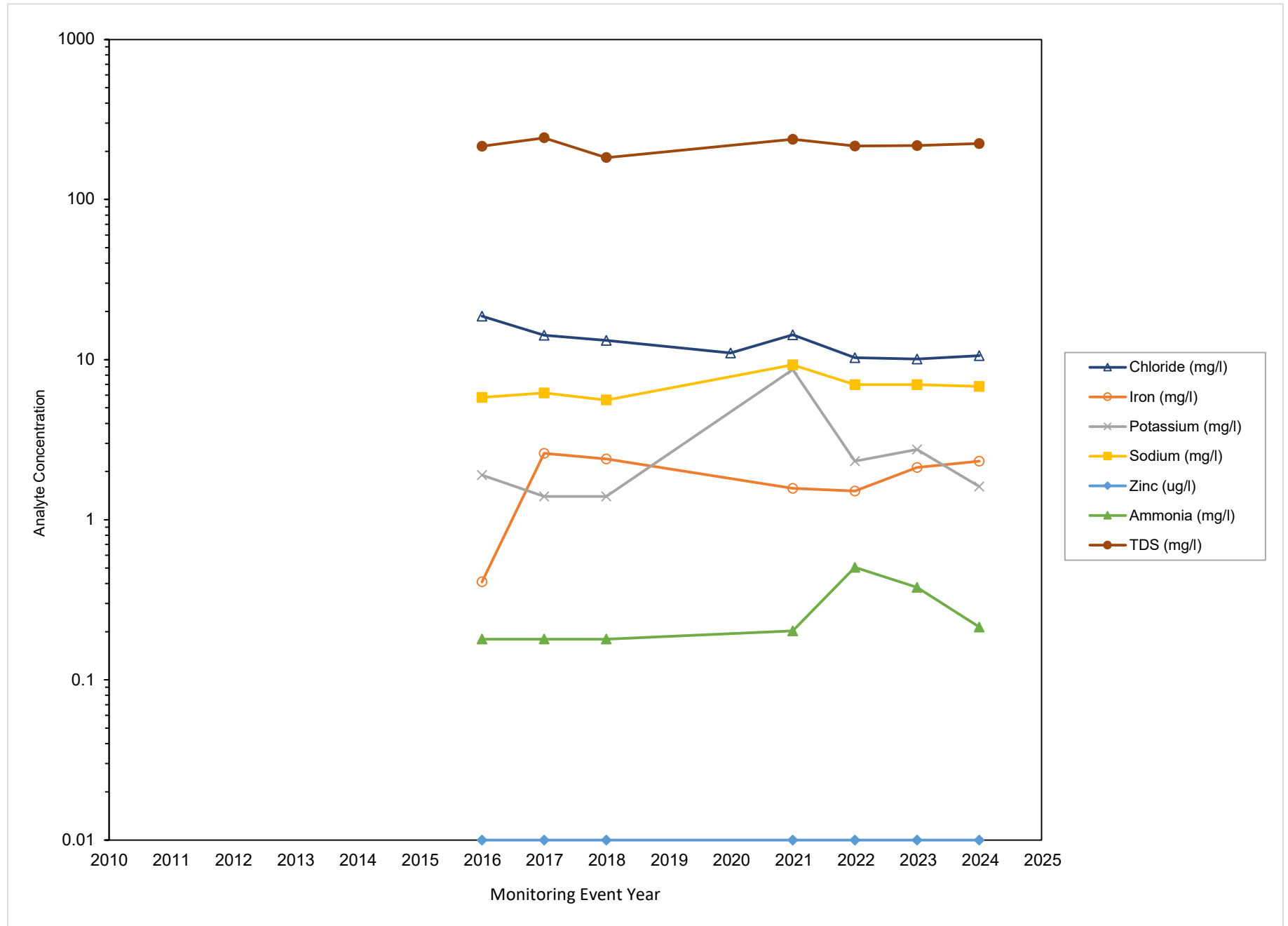
P-403C Leachate Indicator Trends



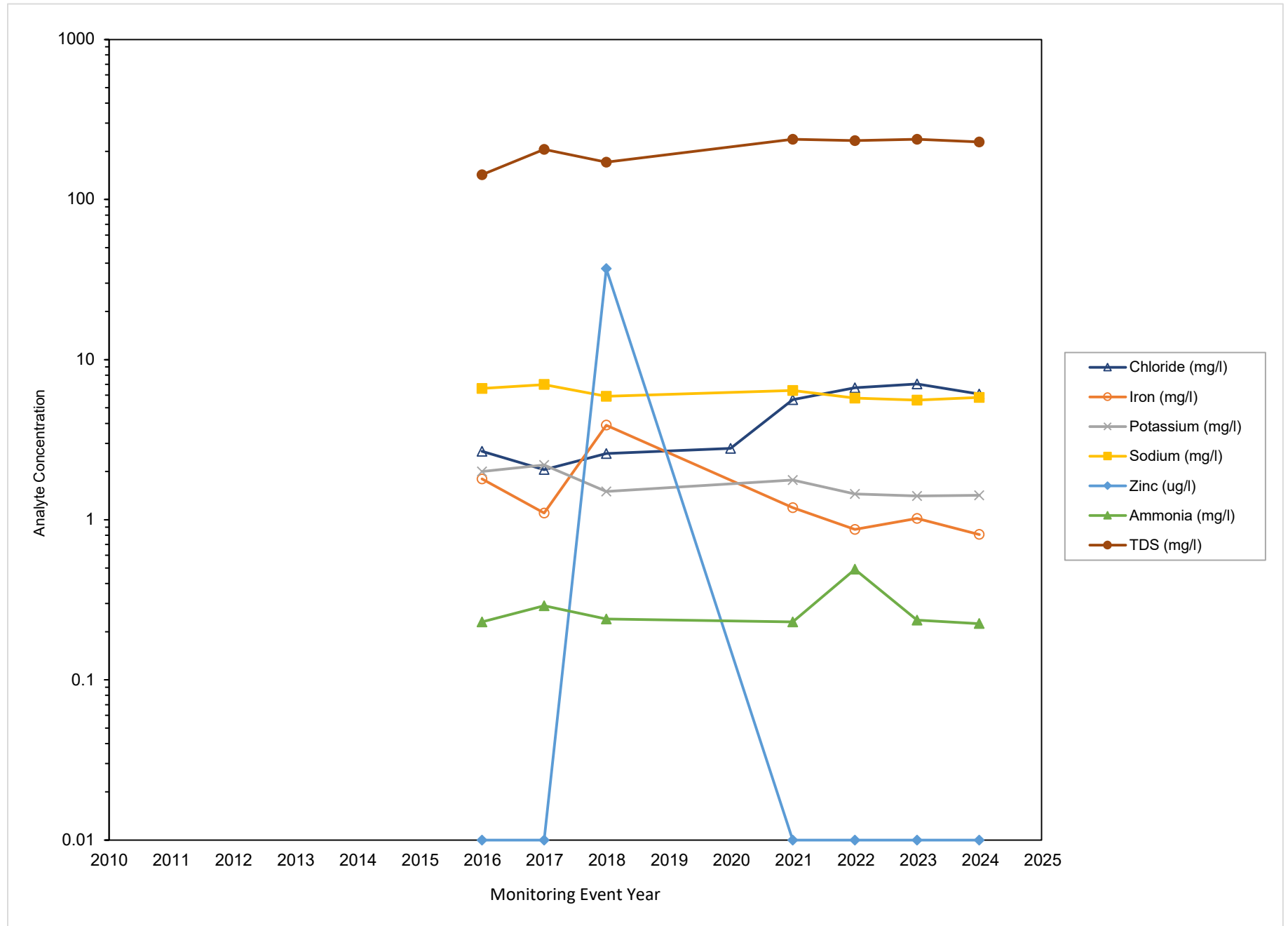
P694477 Leachate Indicator Trends



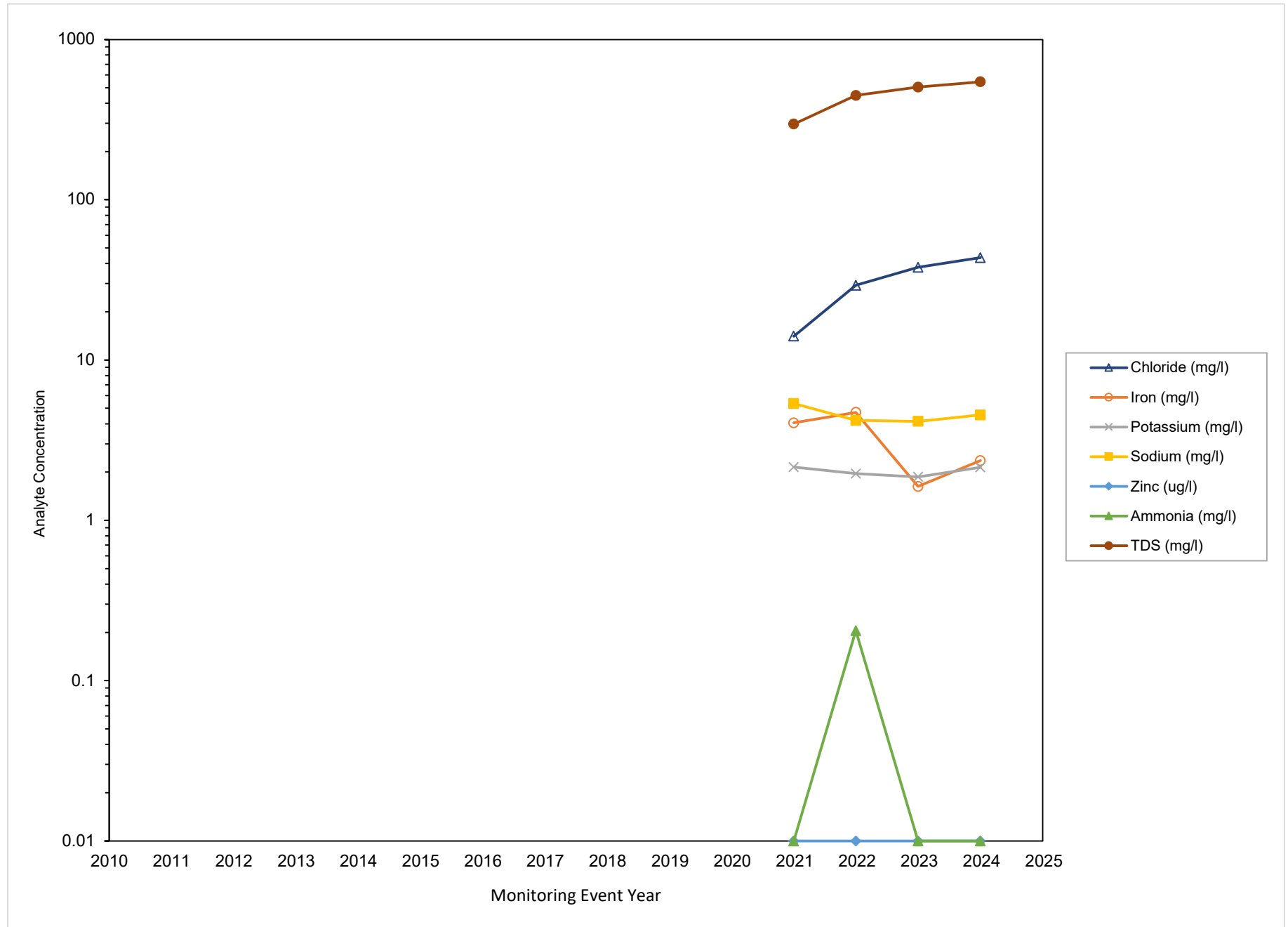
P-327L Leachate Indicator Trends



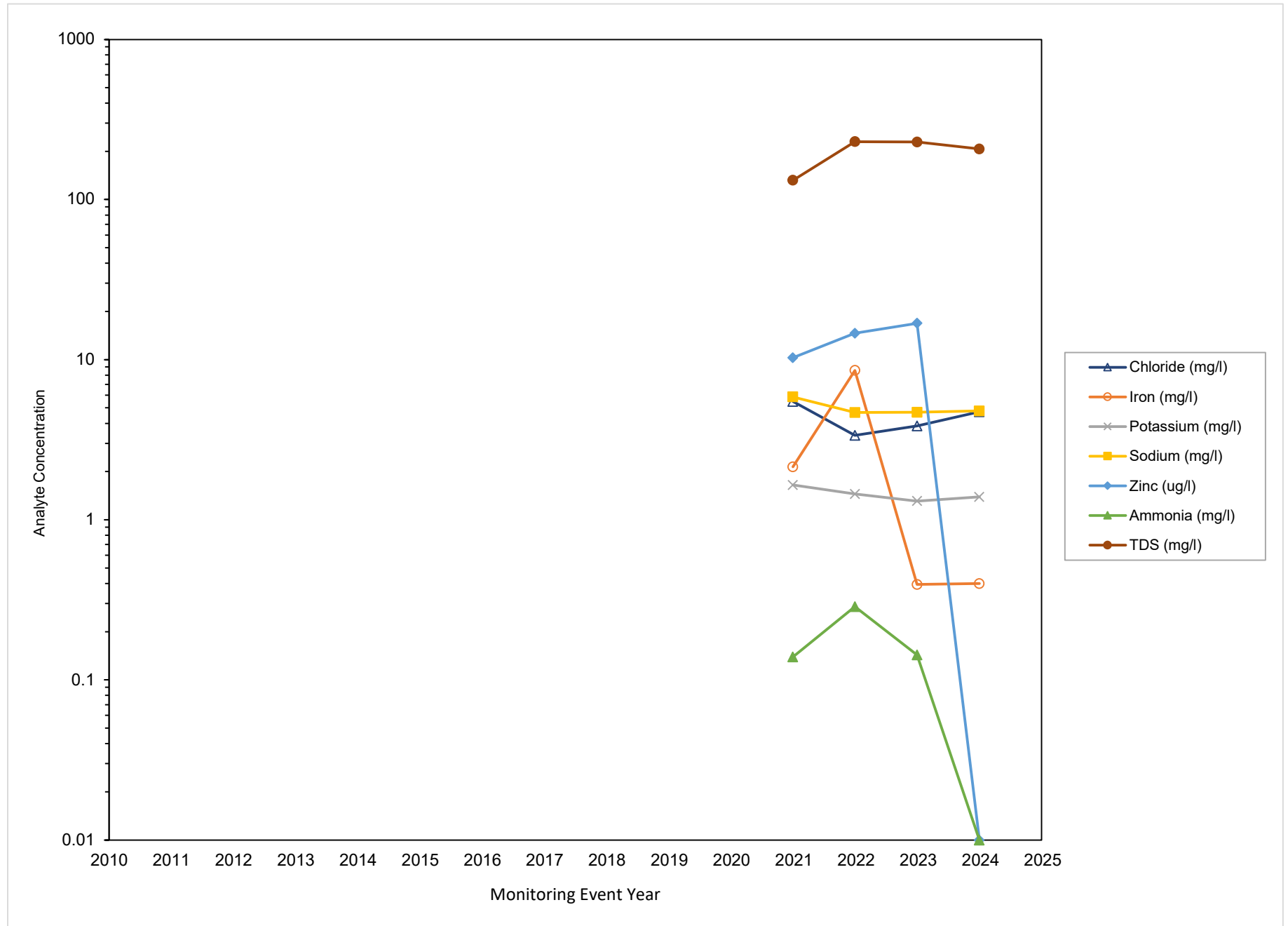
P-328L Leachate Indicator Trends



P-338L Leachate Indicator Trends



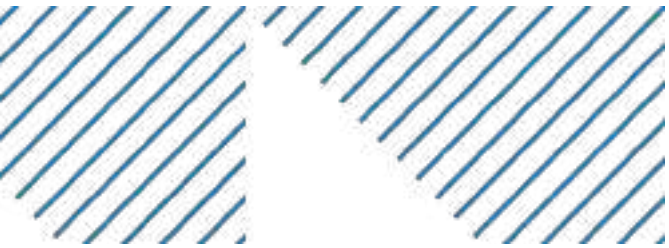
P-340L Leachate Indicator Trends



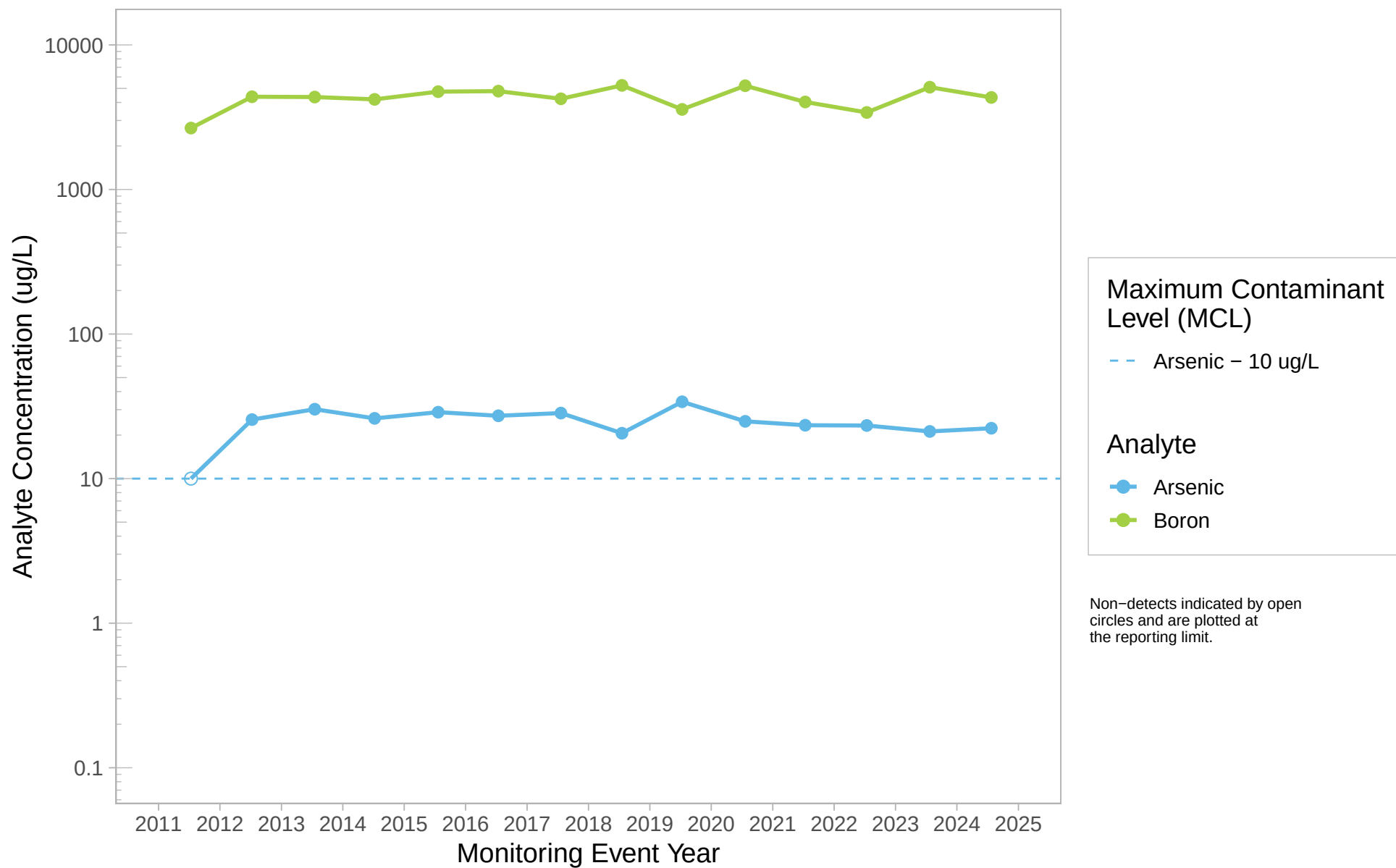


Appendix D

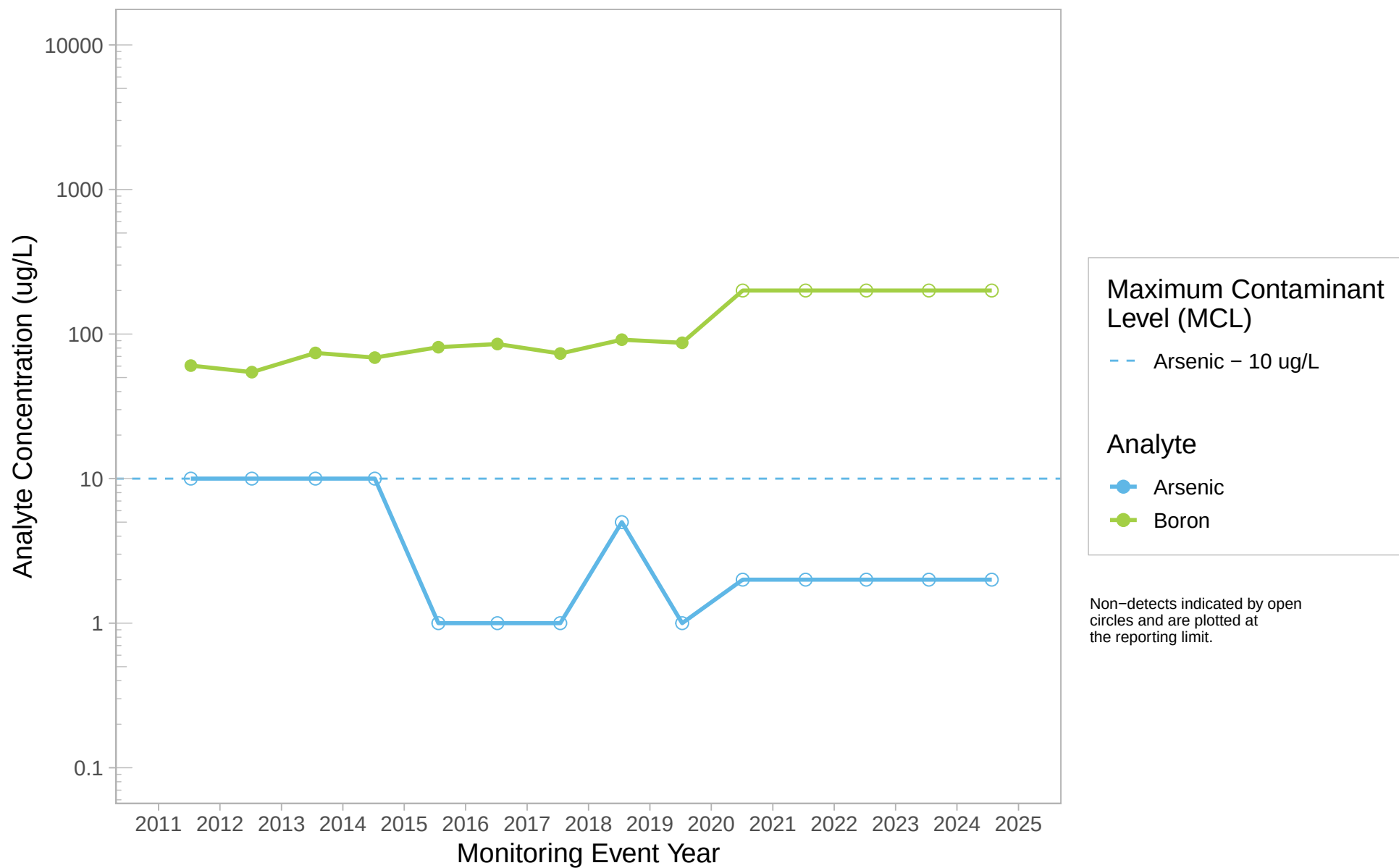
Parameter Concentration Trends



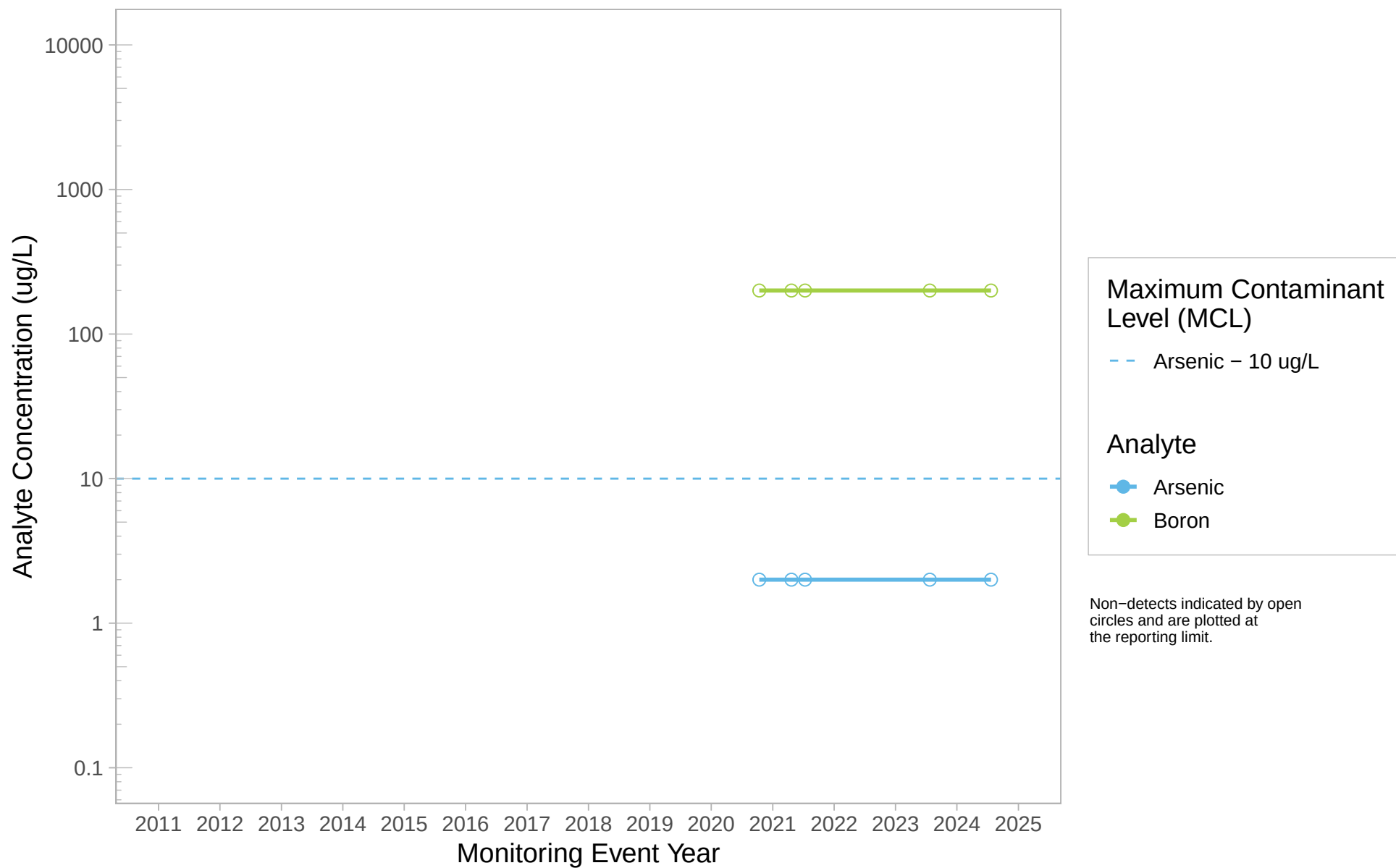
P-17C



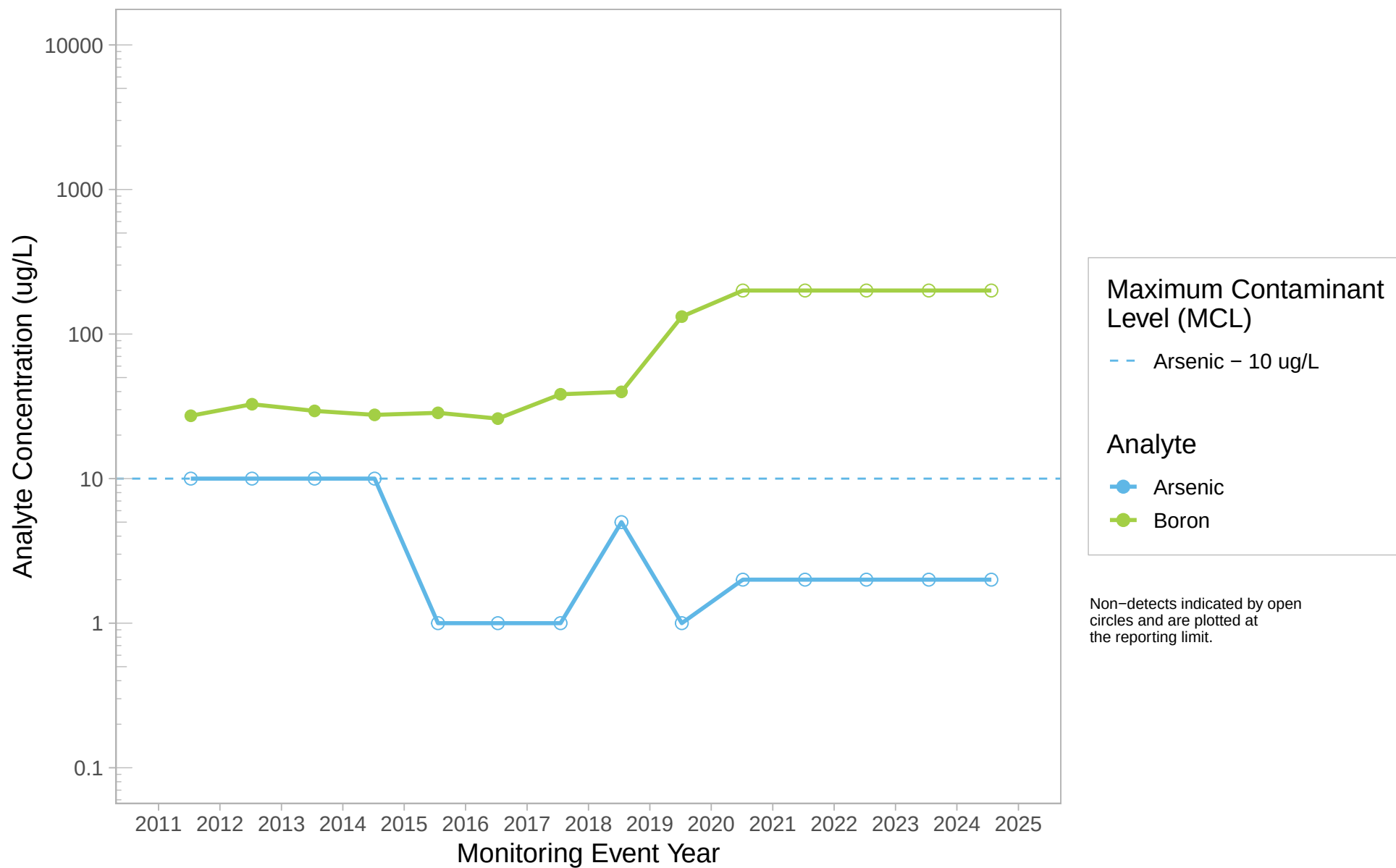
22-OWA



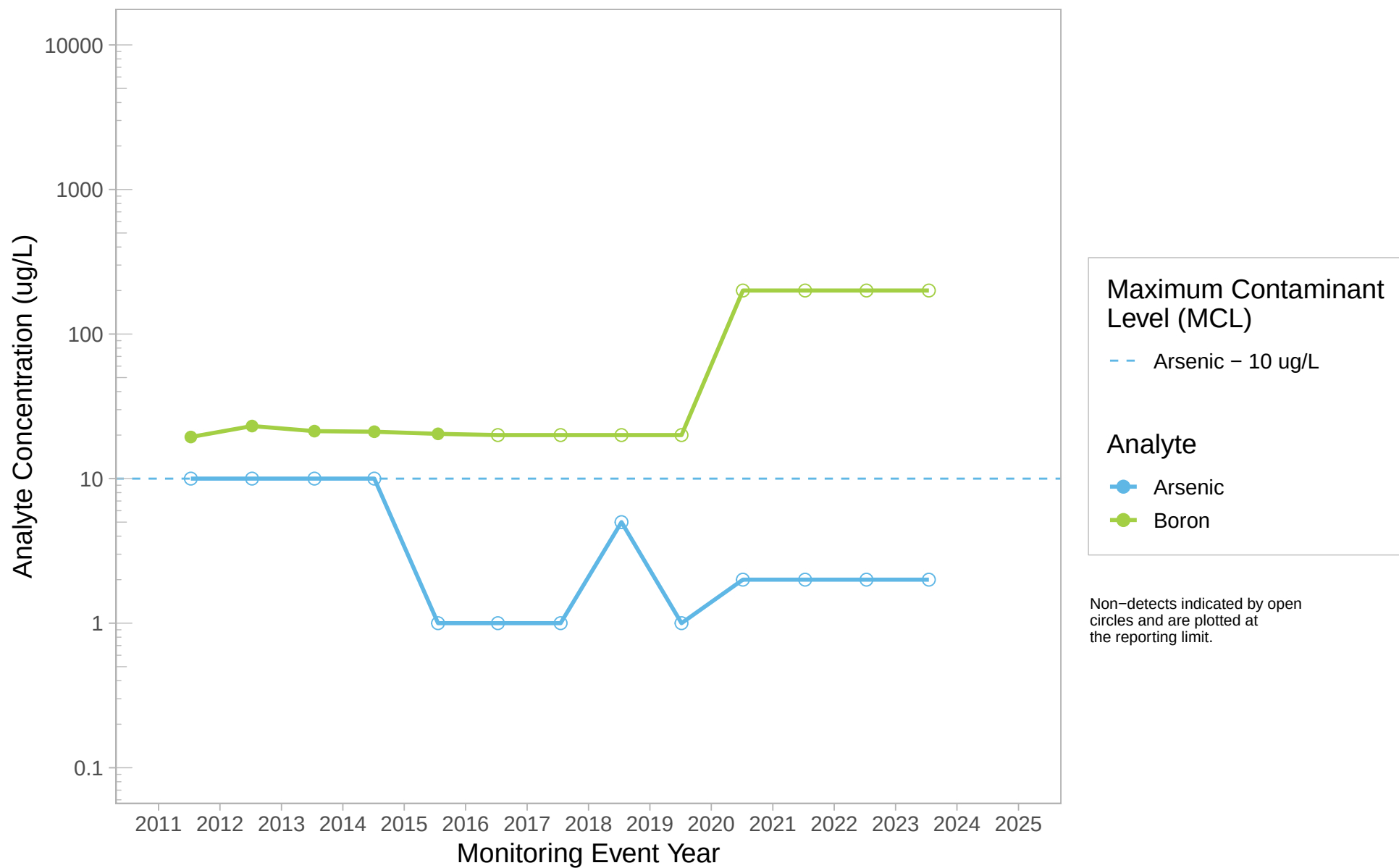
P-22L



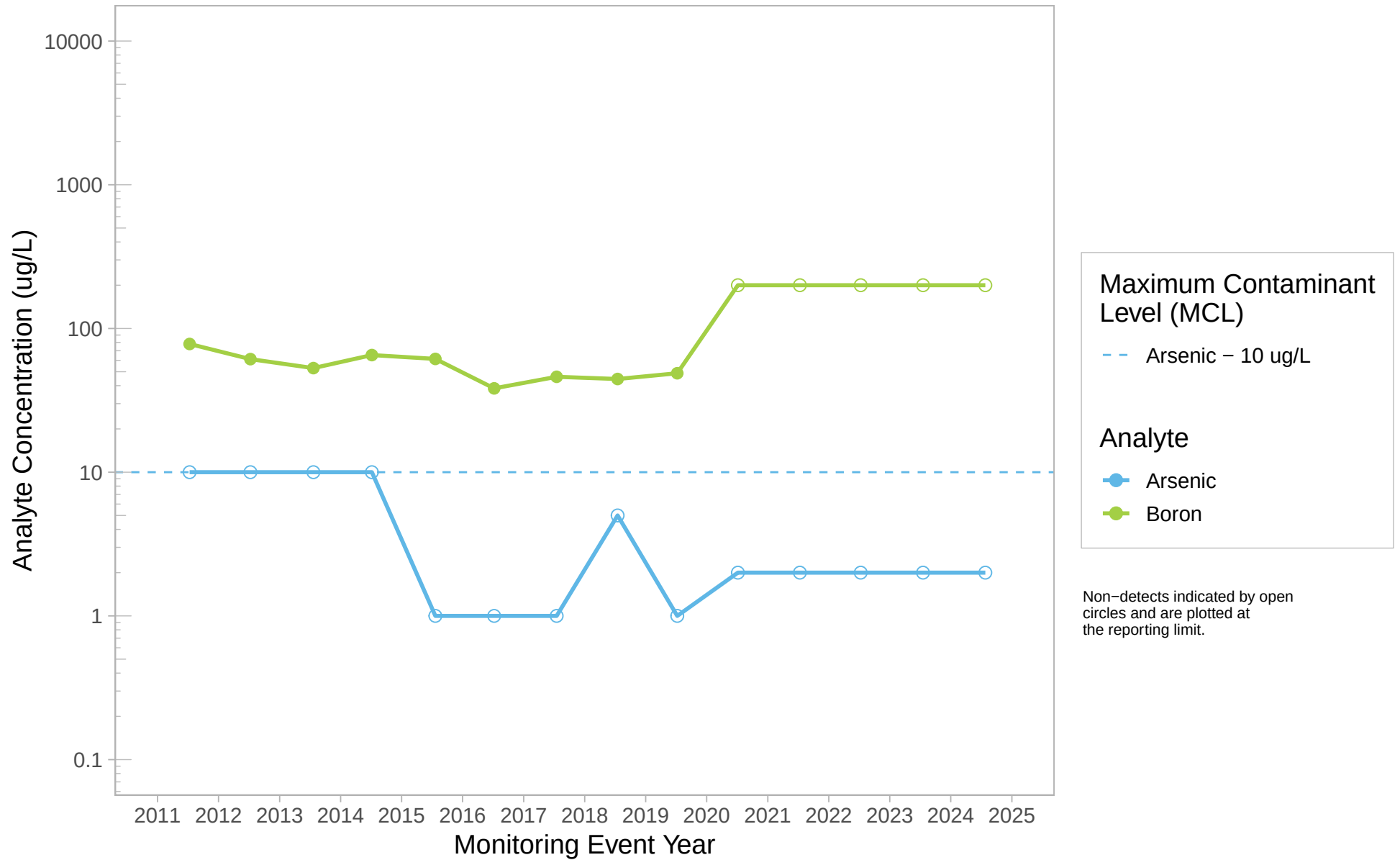
P-29C



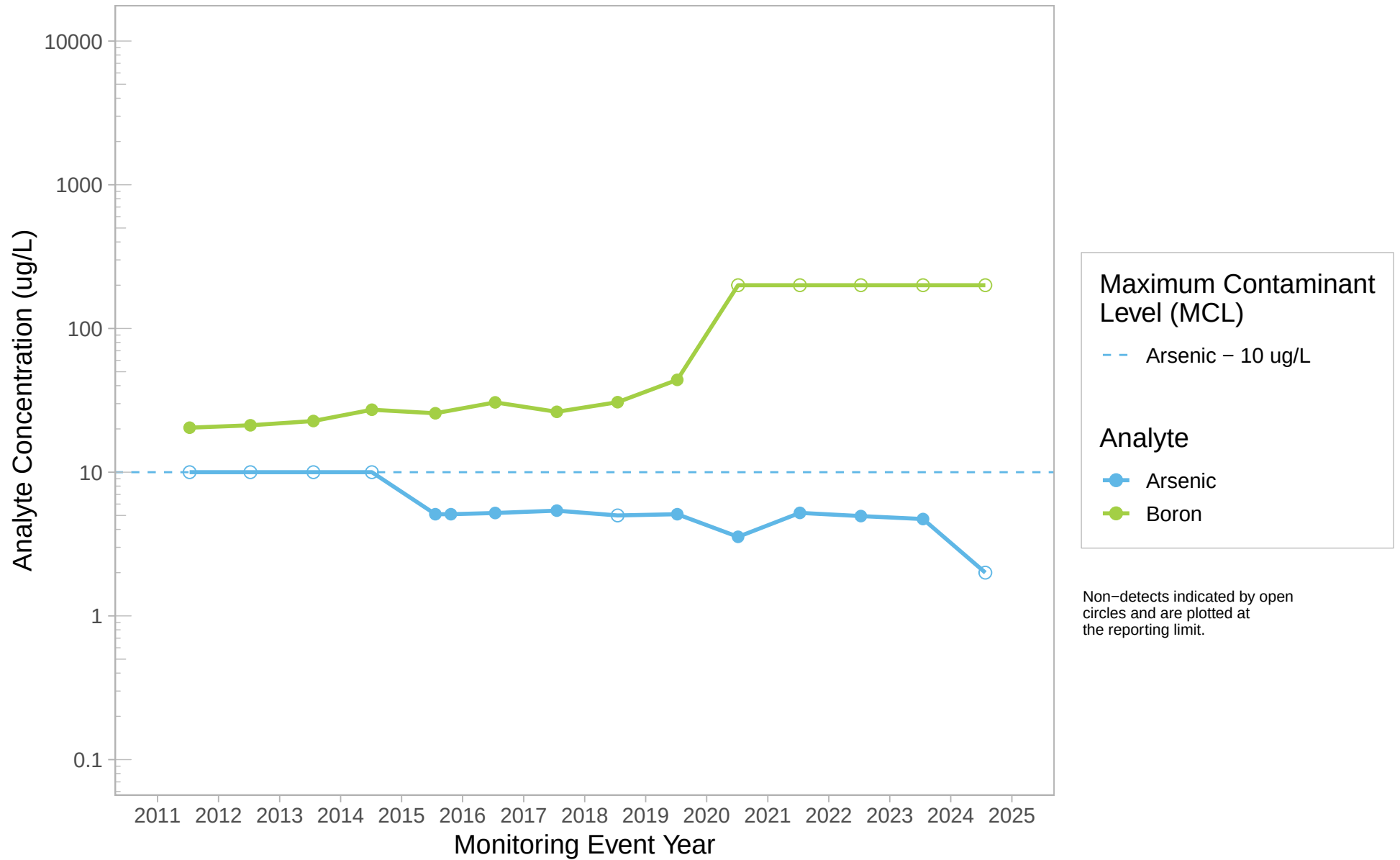
P-29D



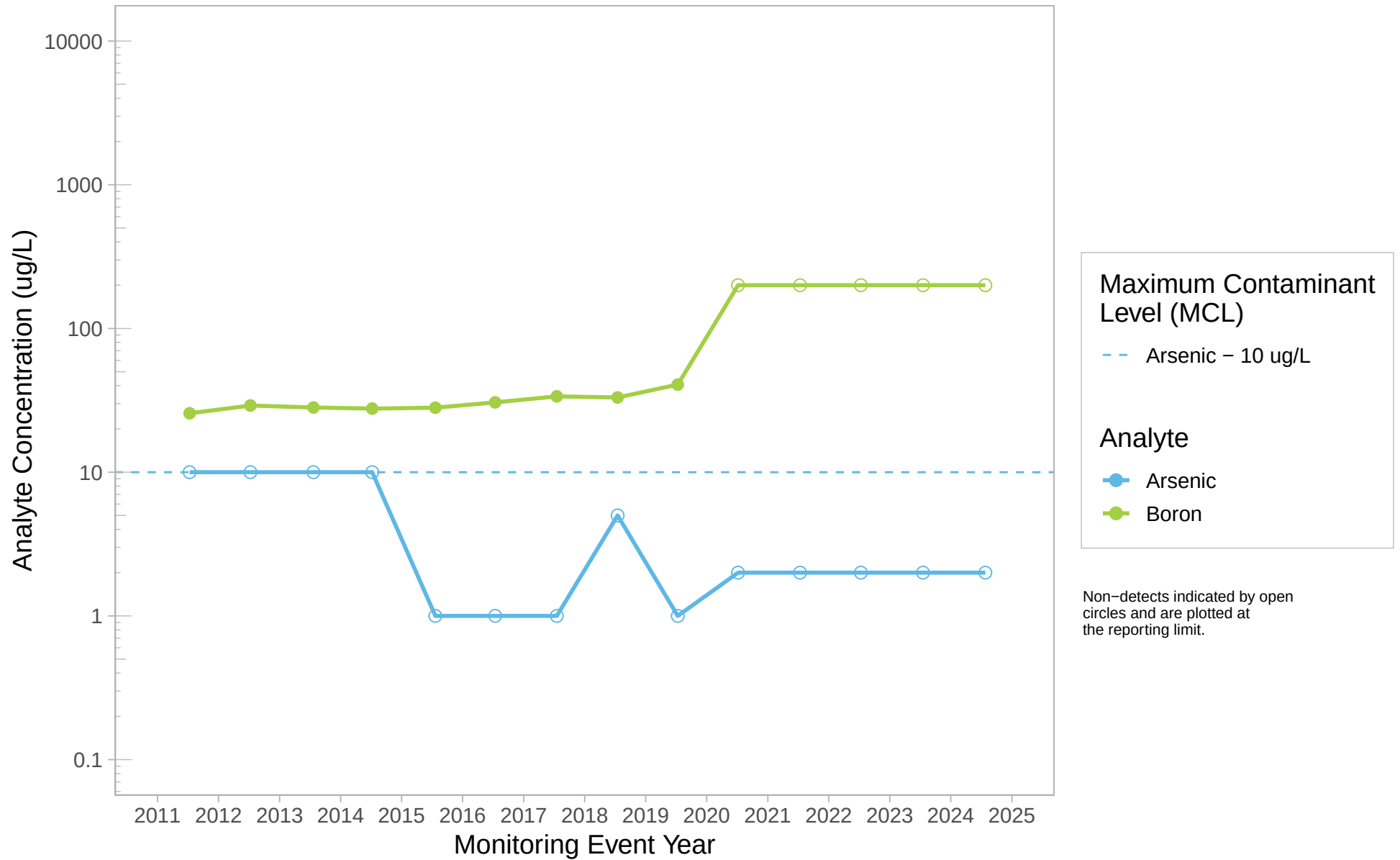
301-OWA



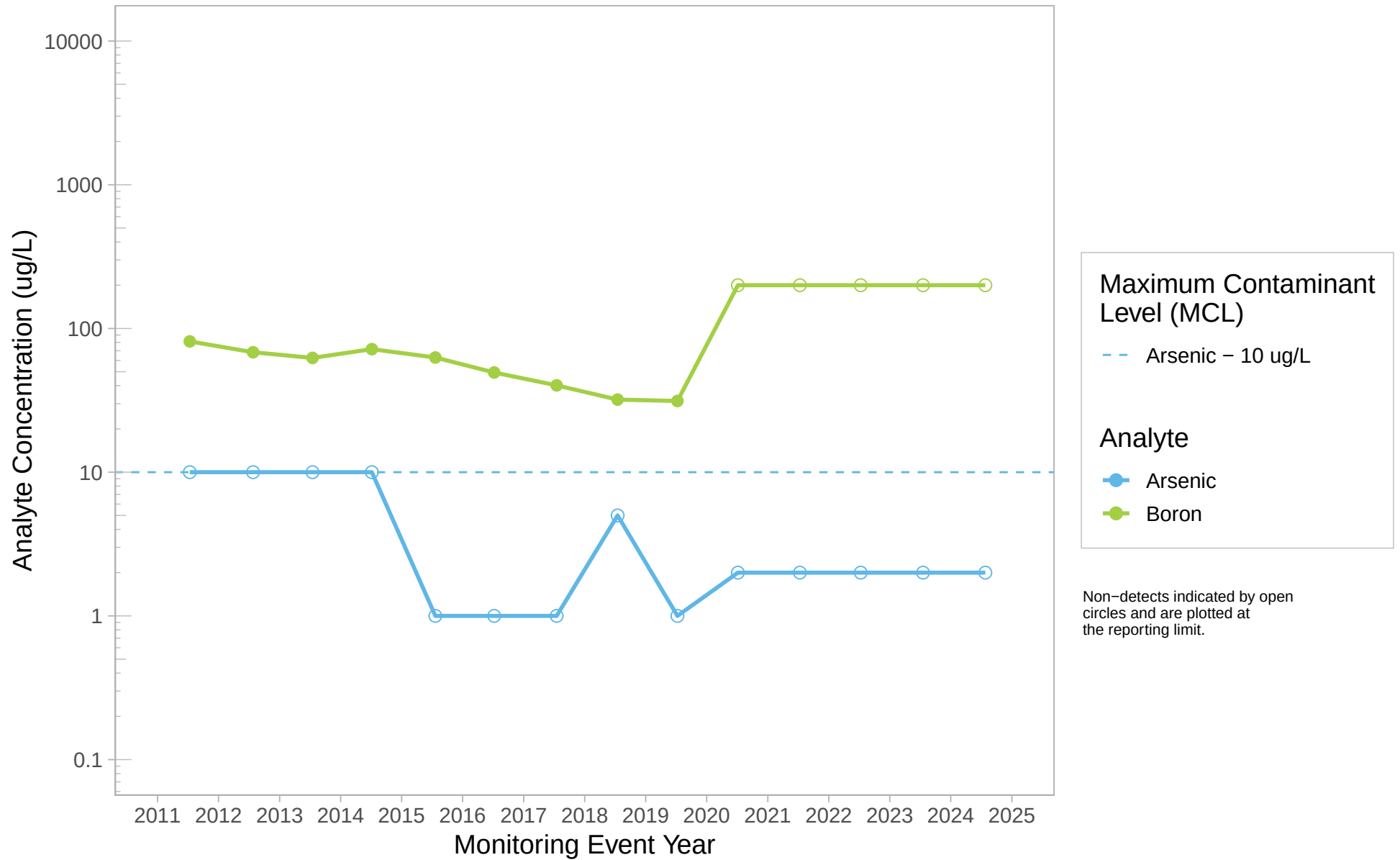
P-301C



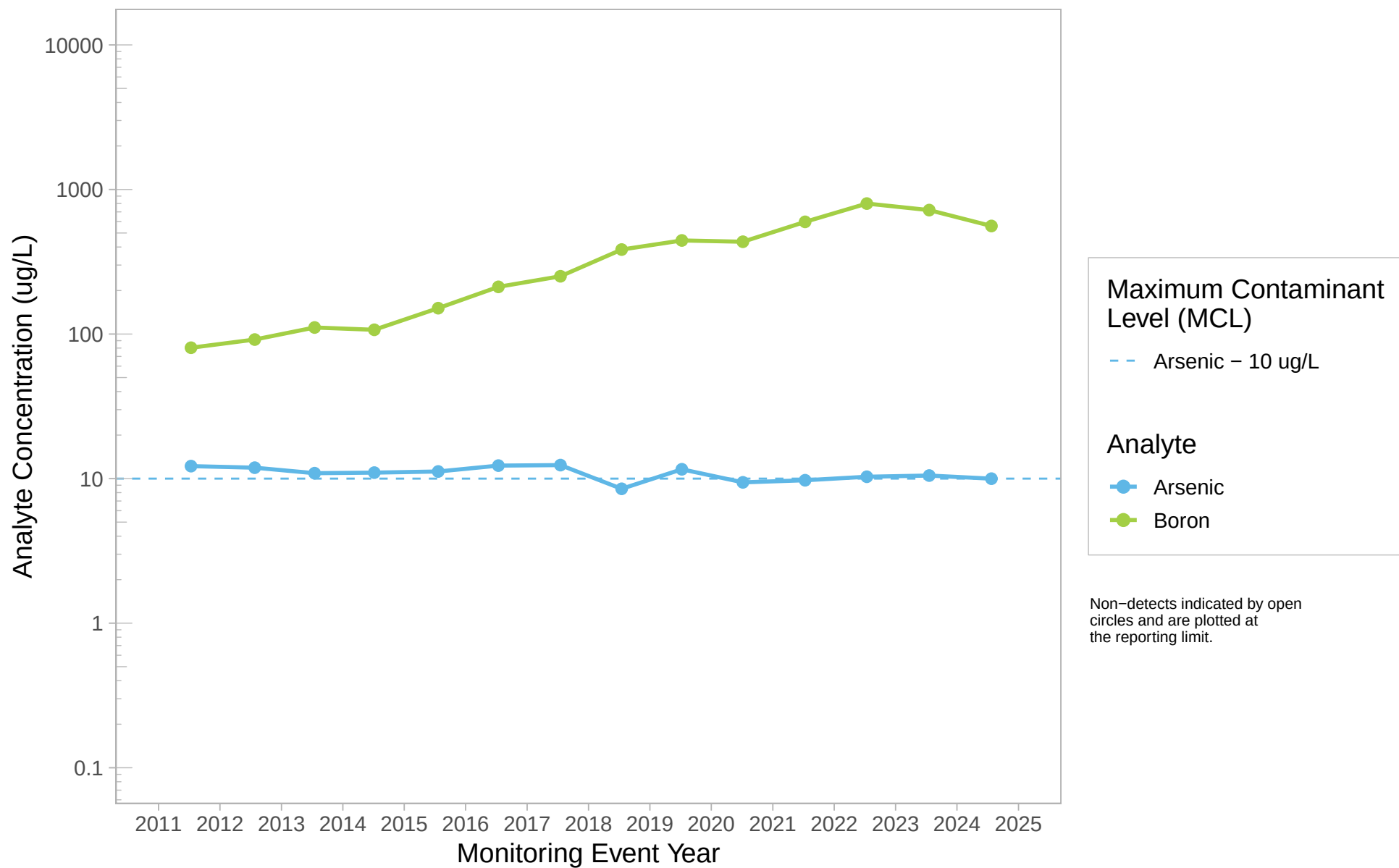
P-301L



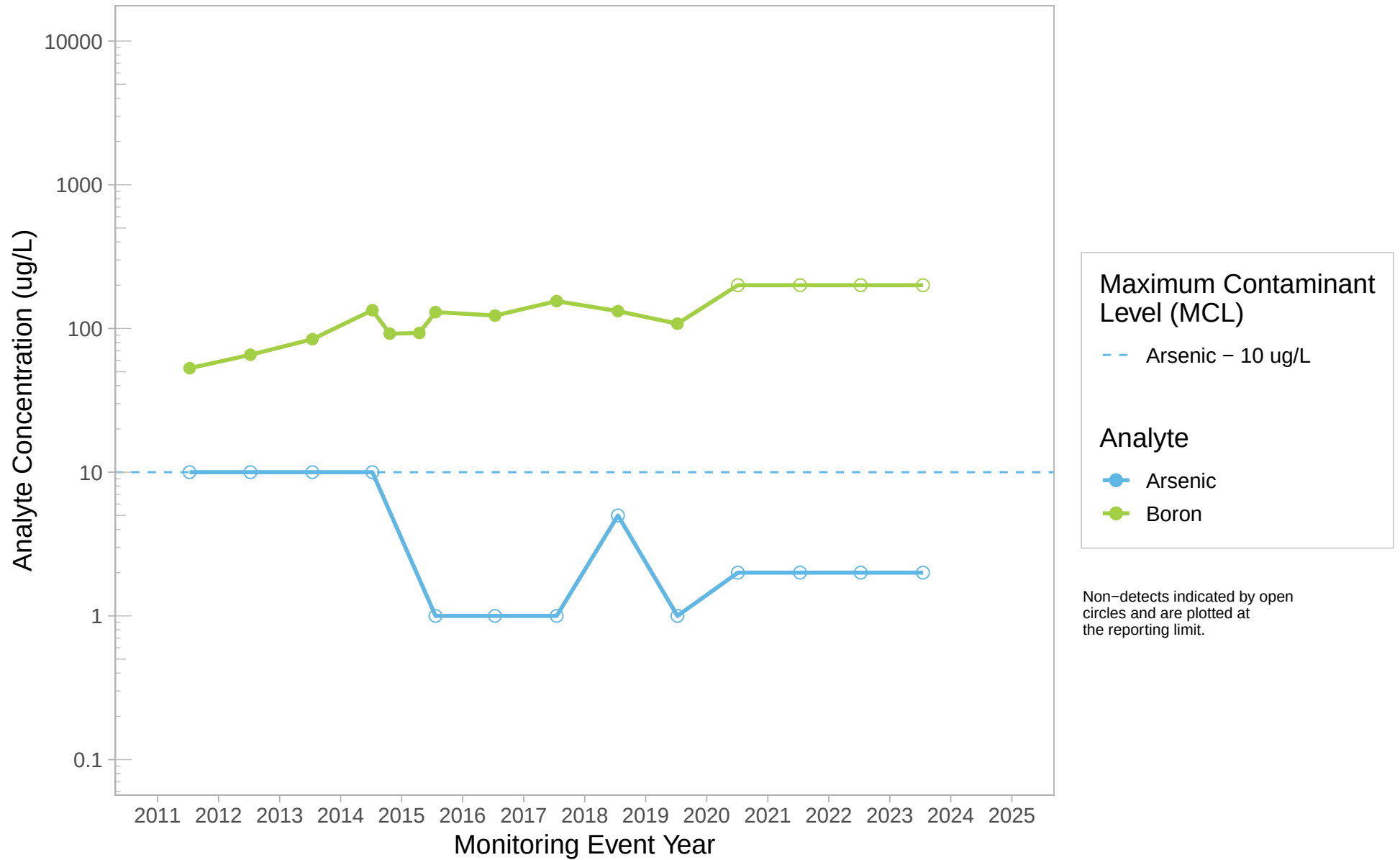
302-OWA



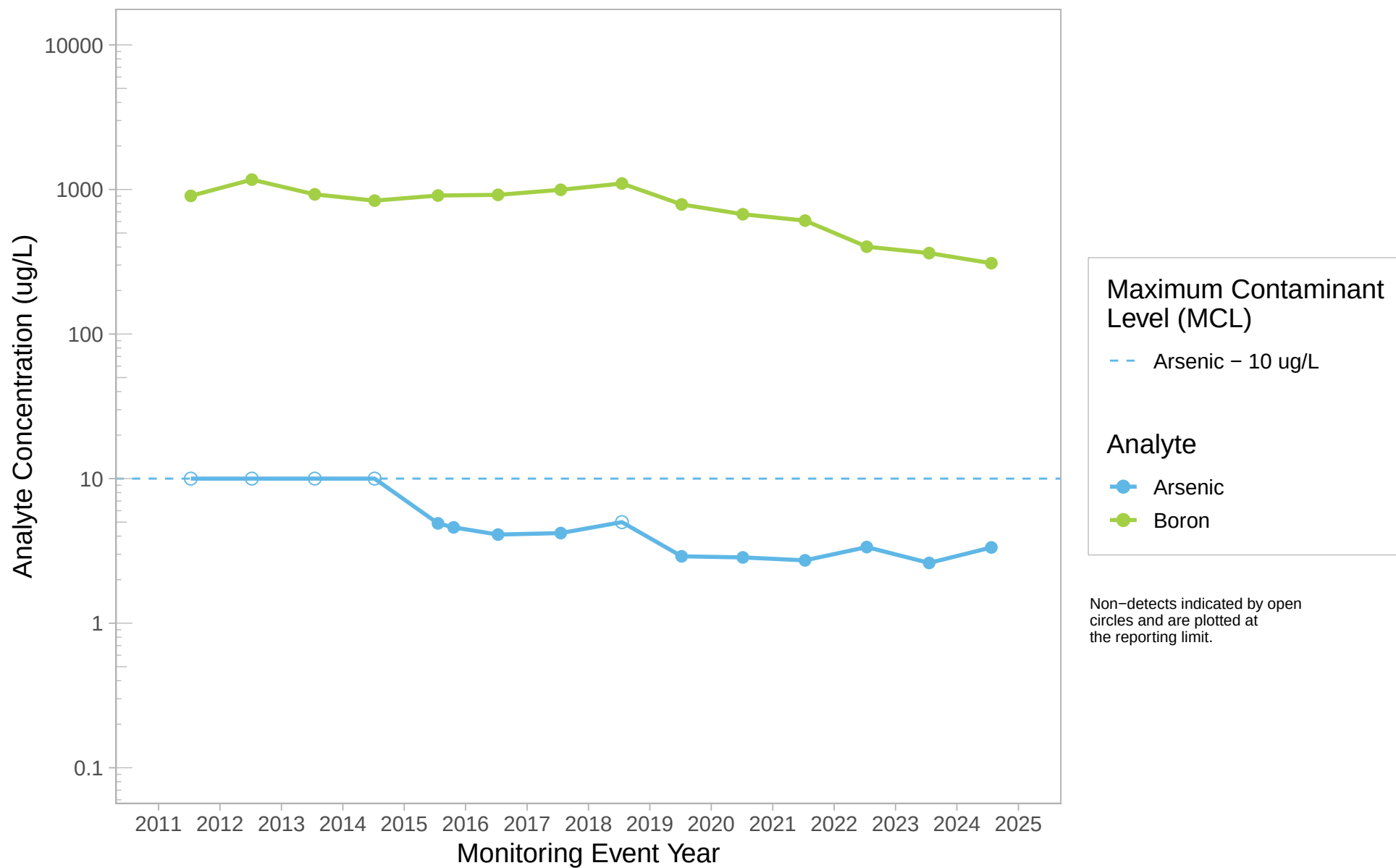
P-302C



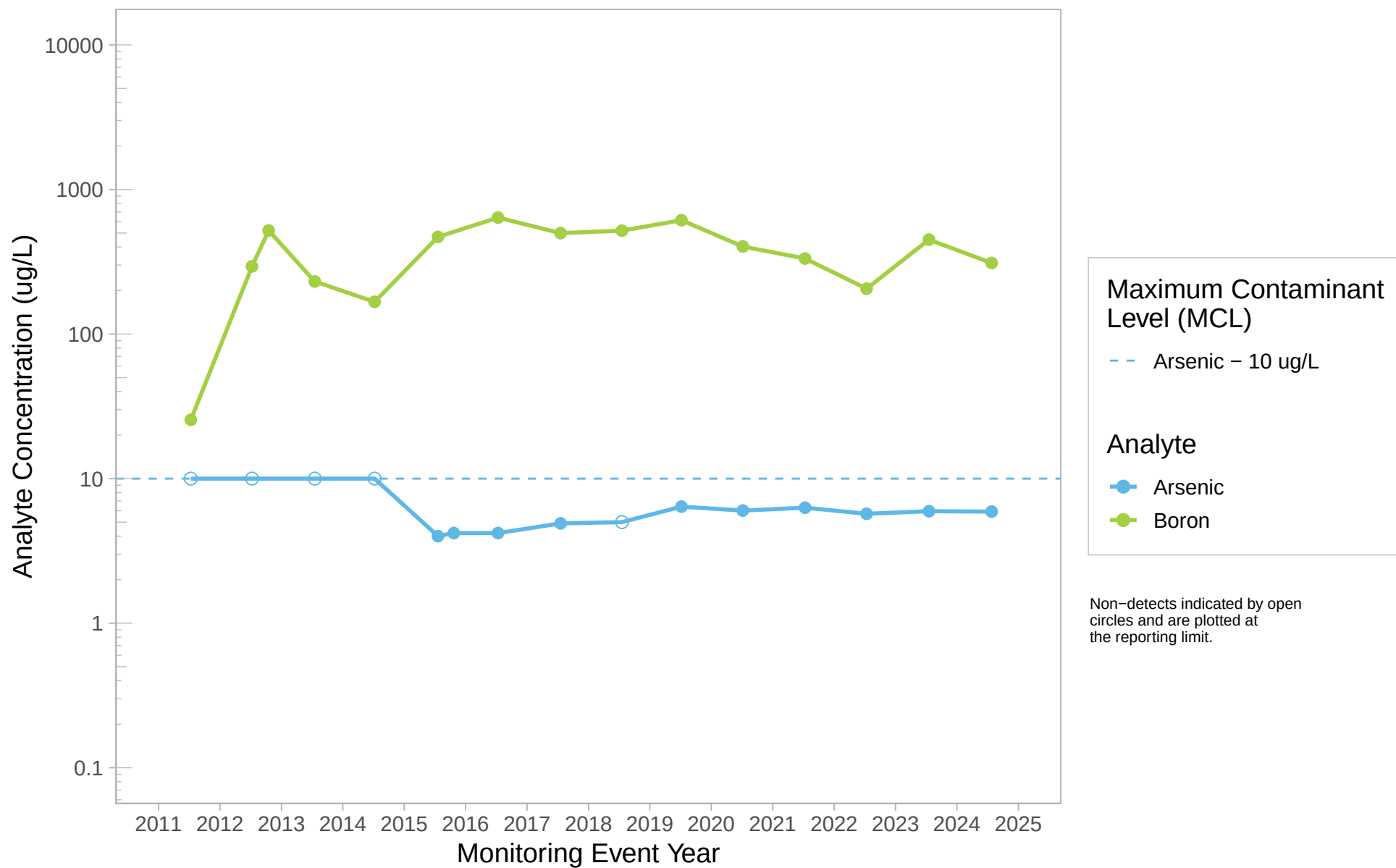
P-303C



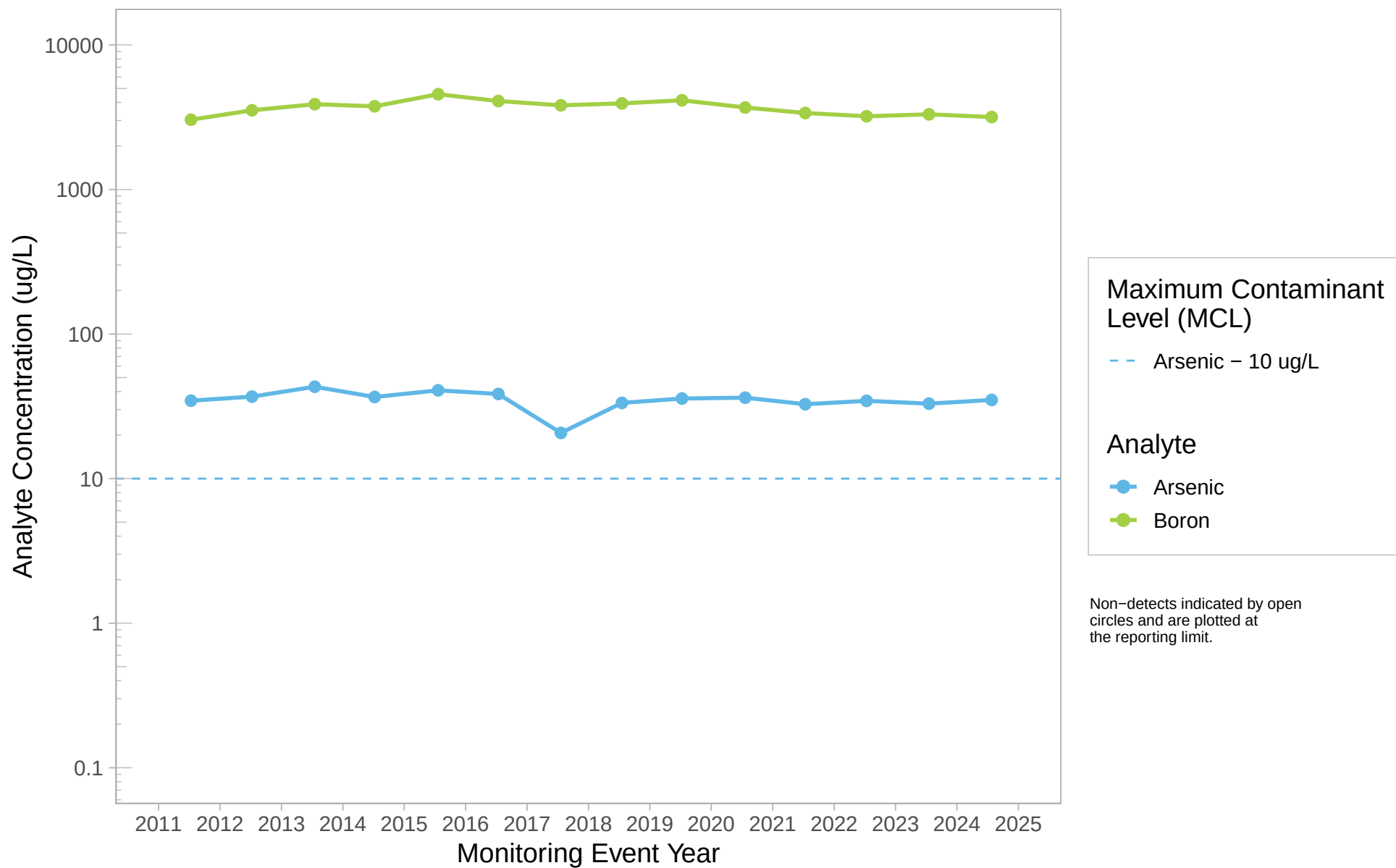
P-304C



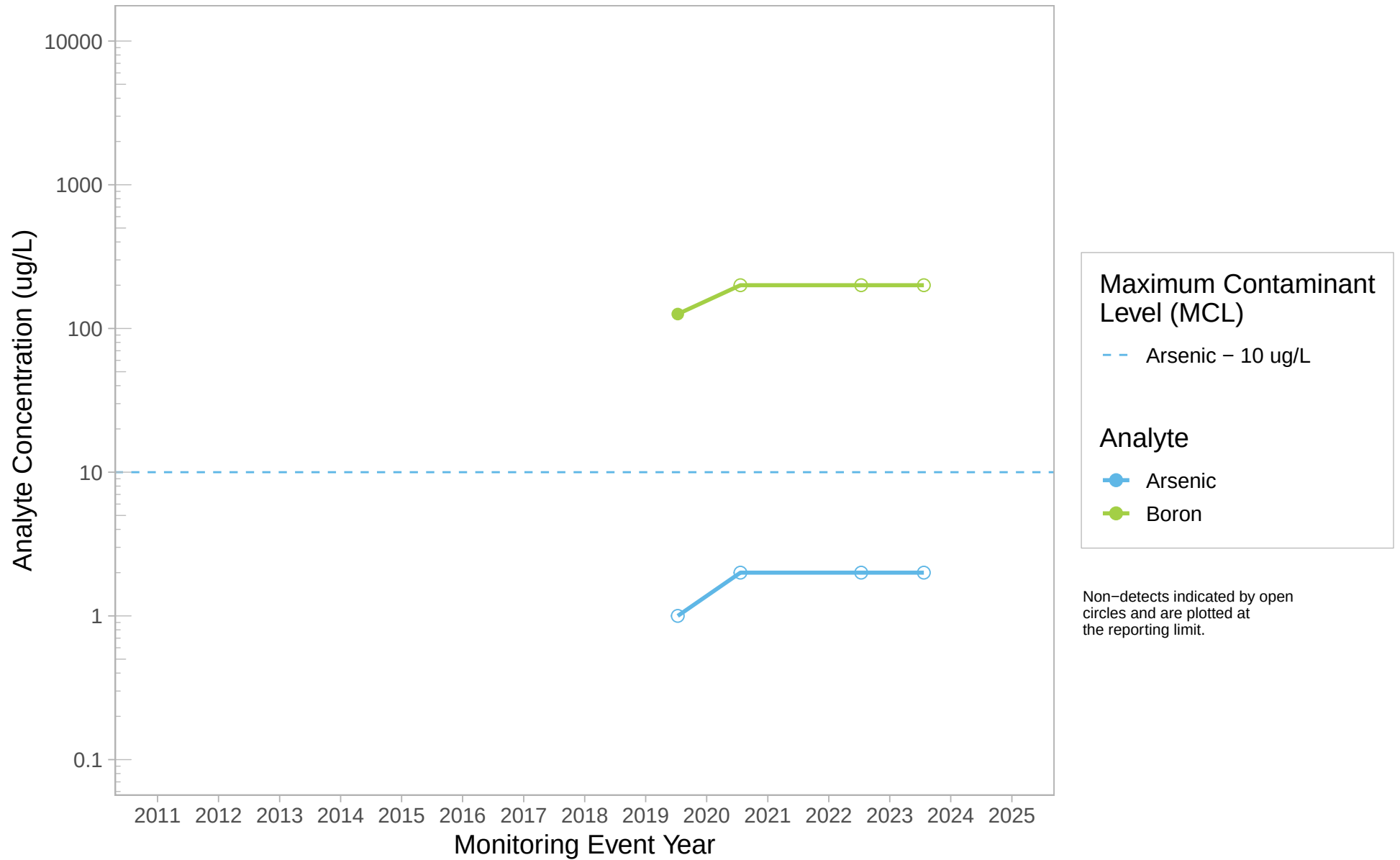
P-305C



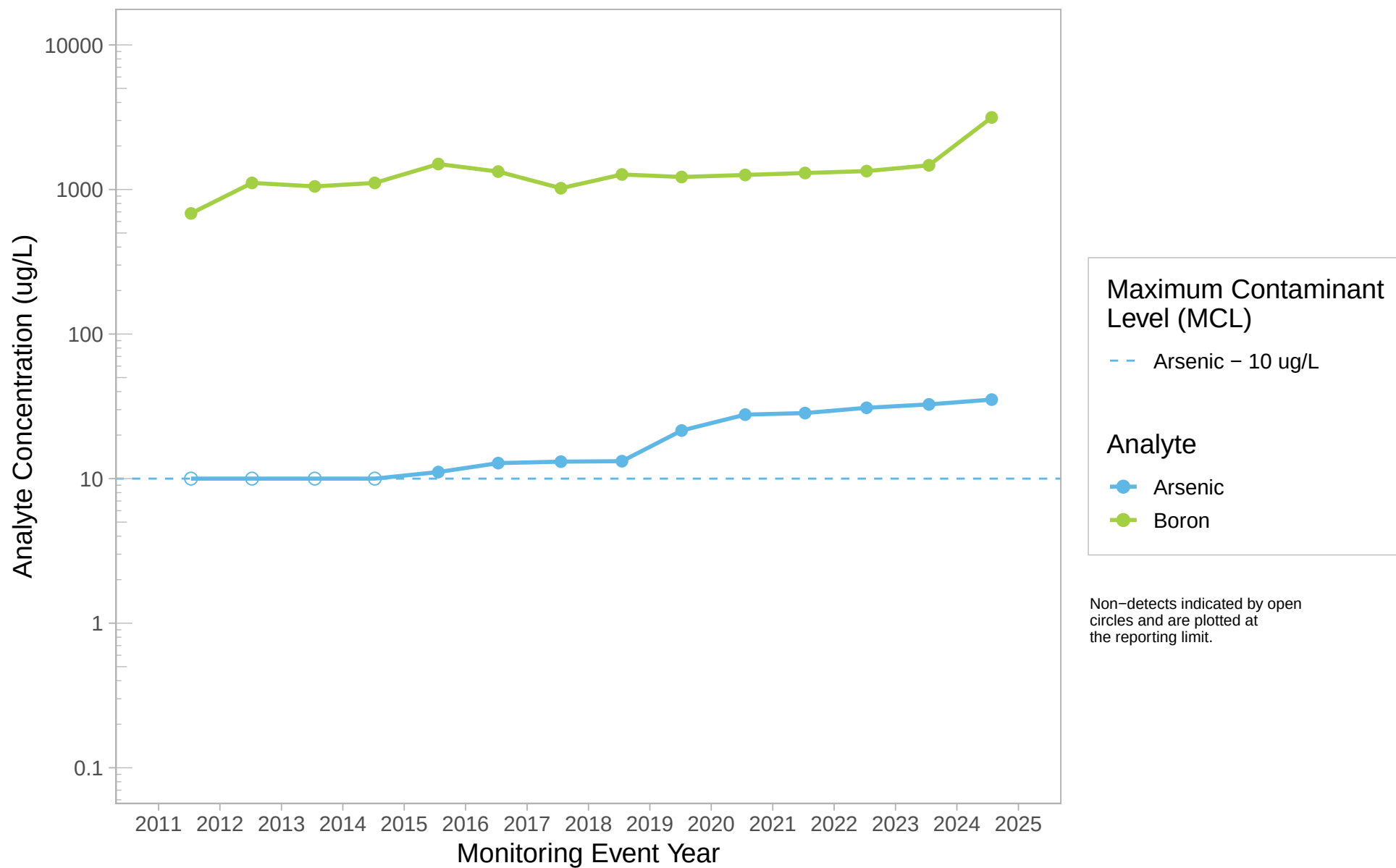
P-308C



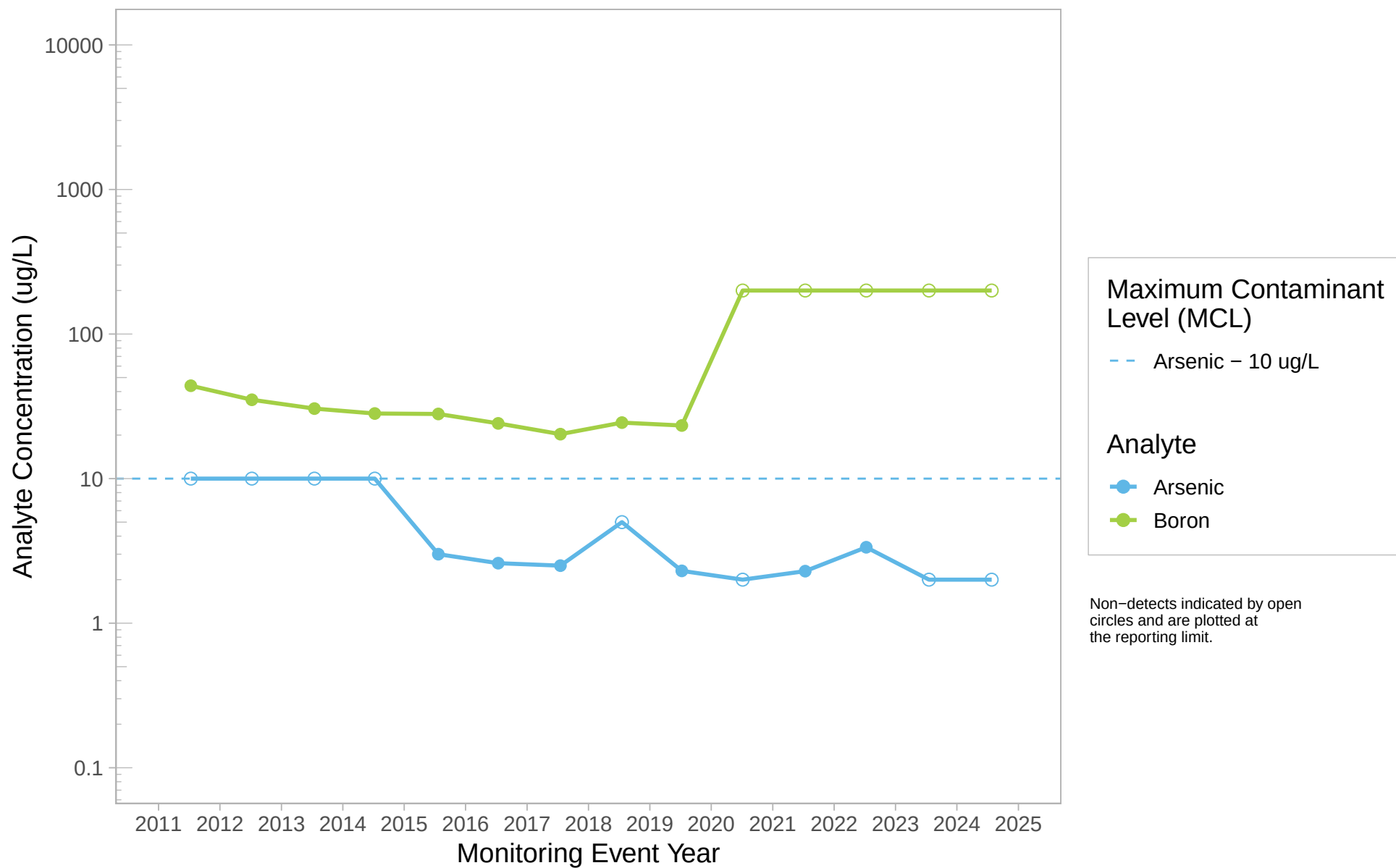
P-308L



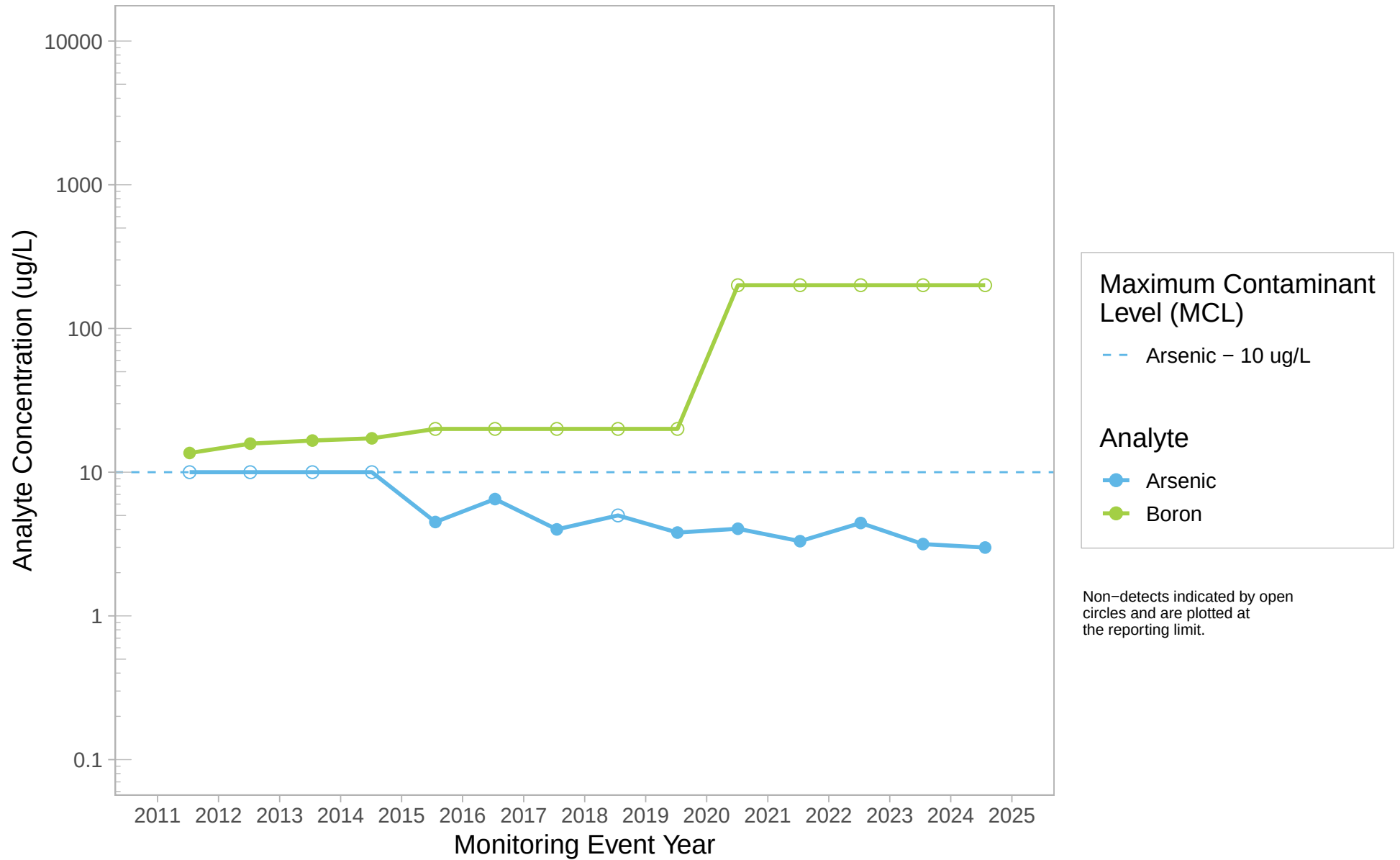
P-309C



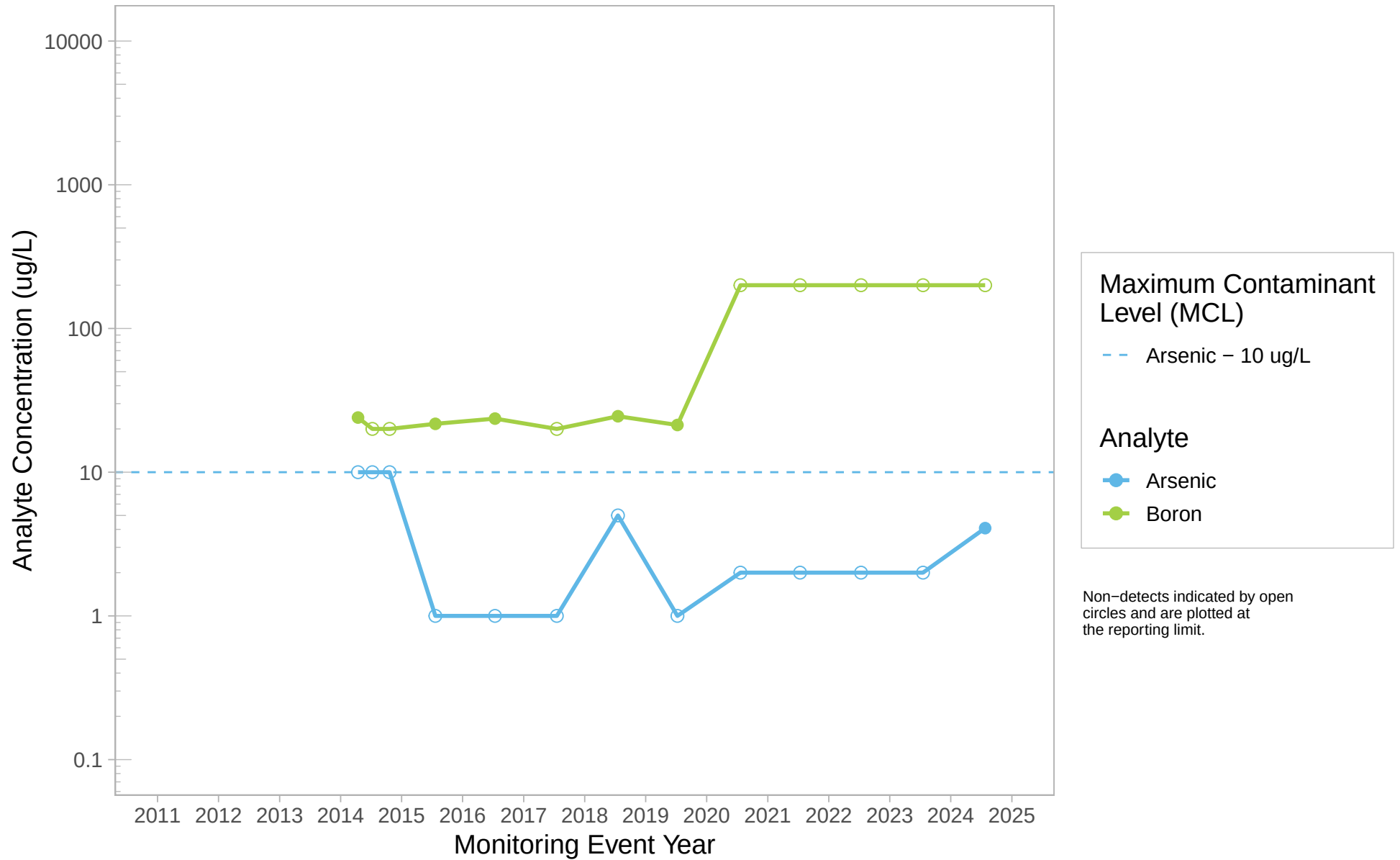
P-310C



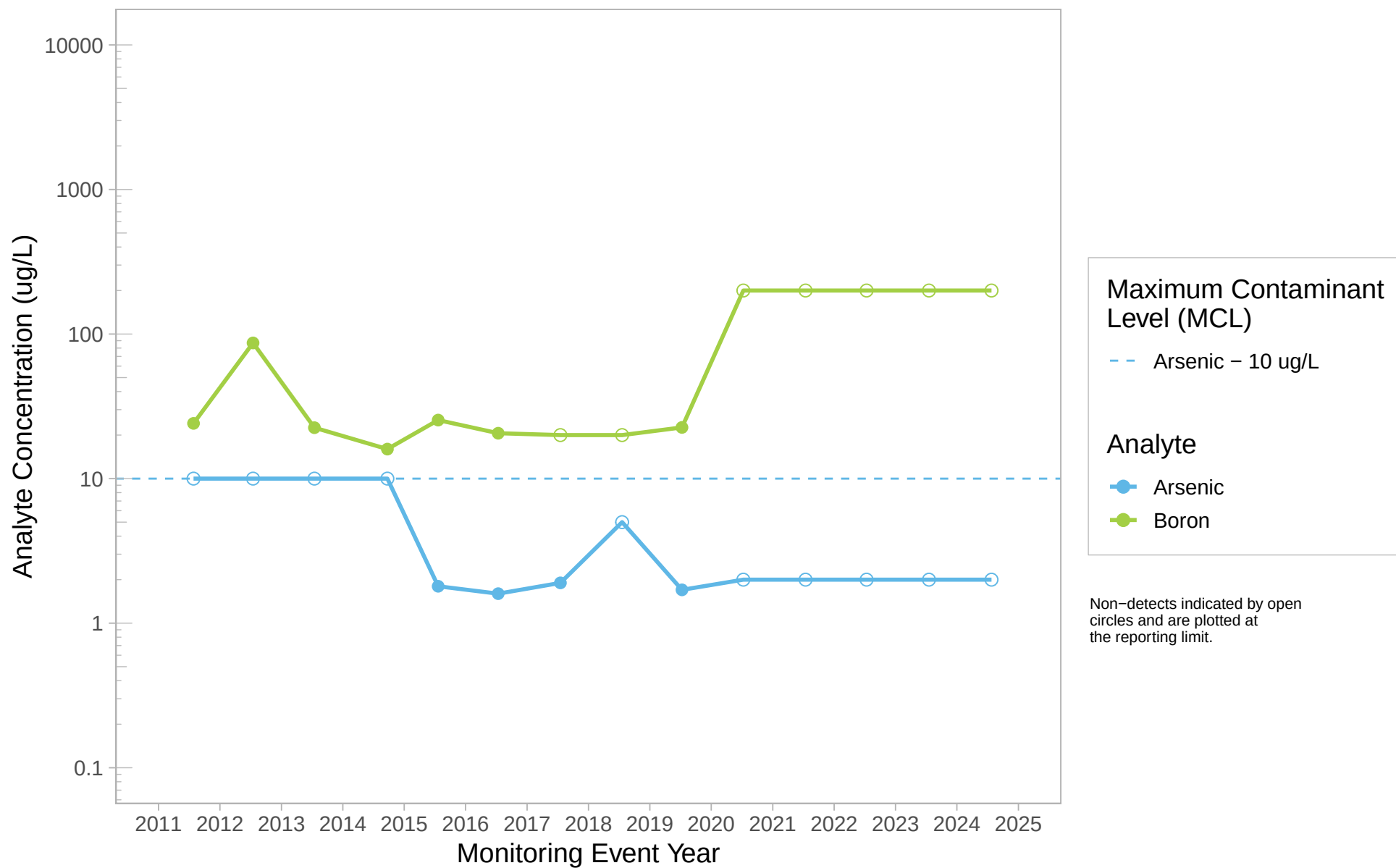
P-311C



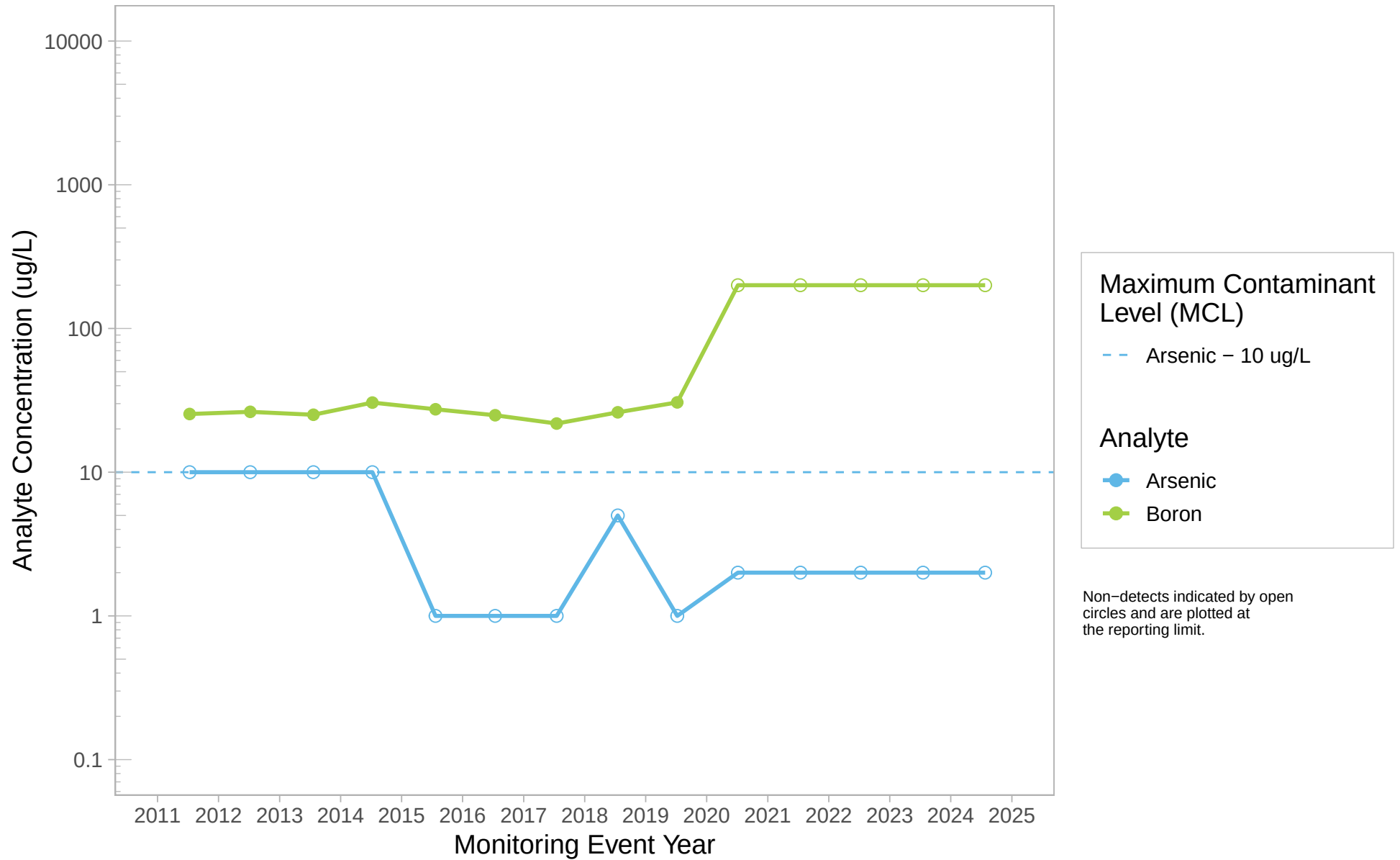
P-311L



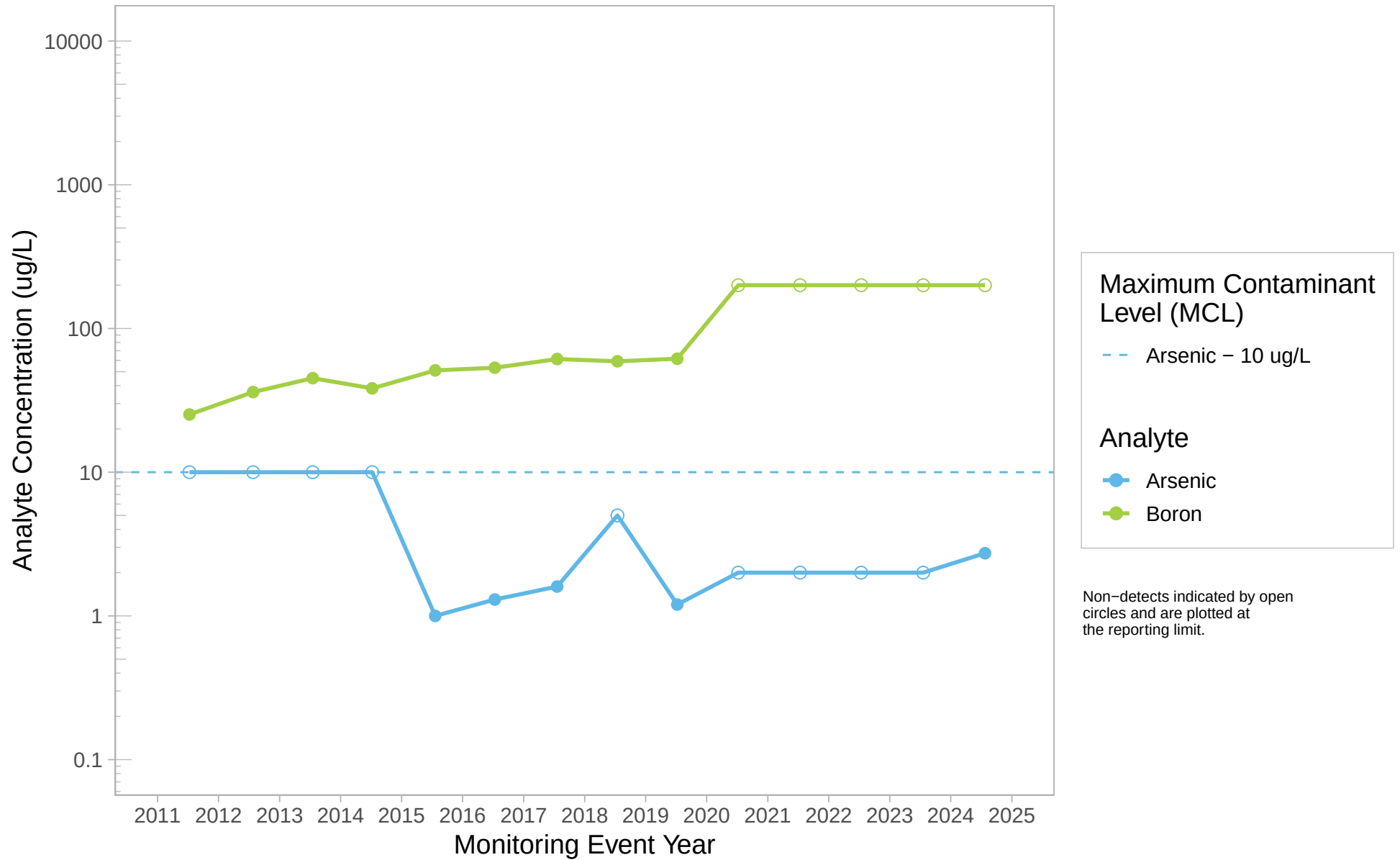
P-311D



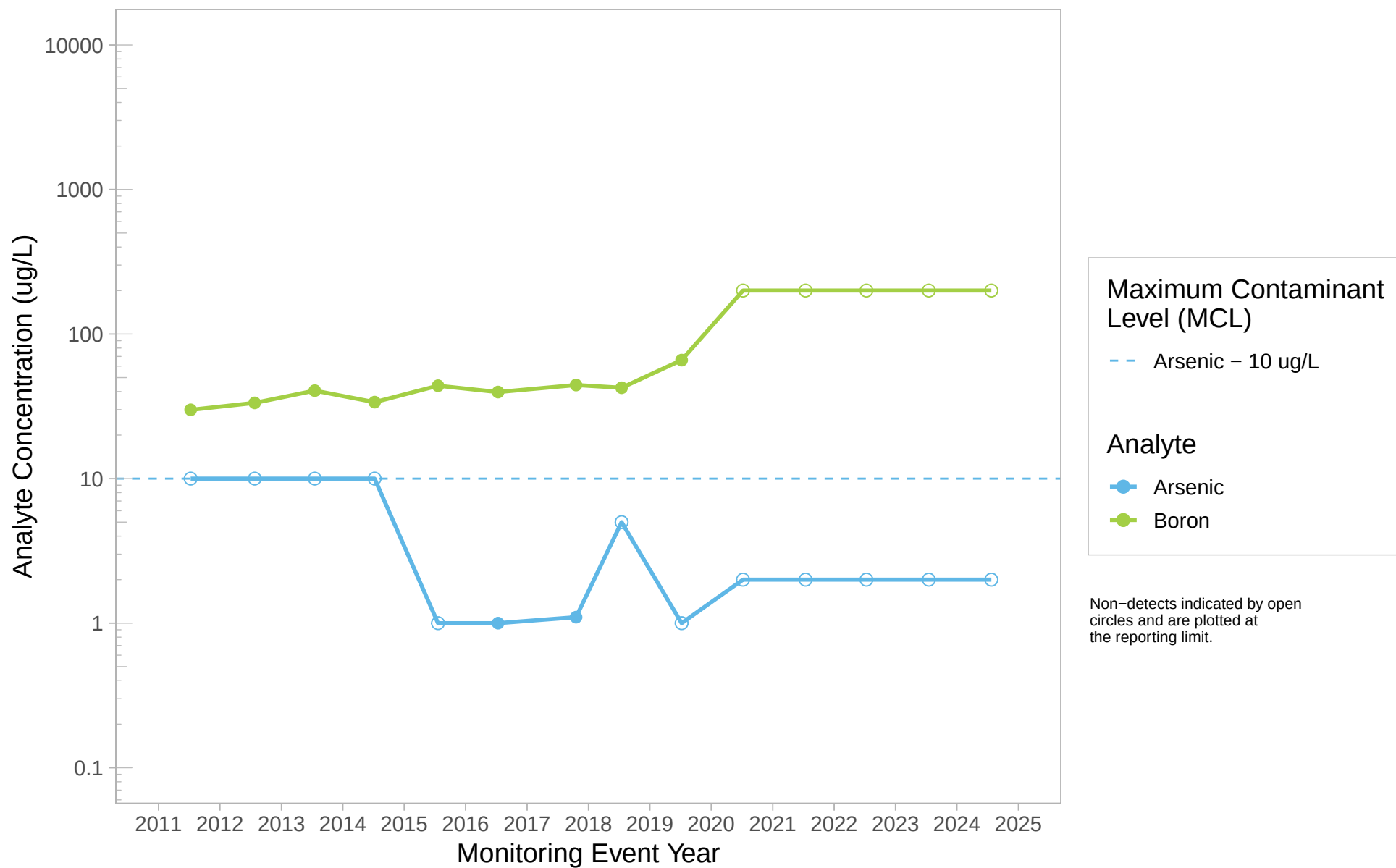
312-OWA



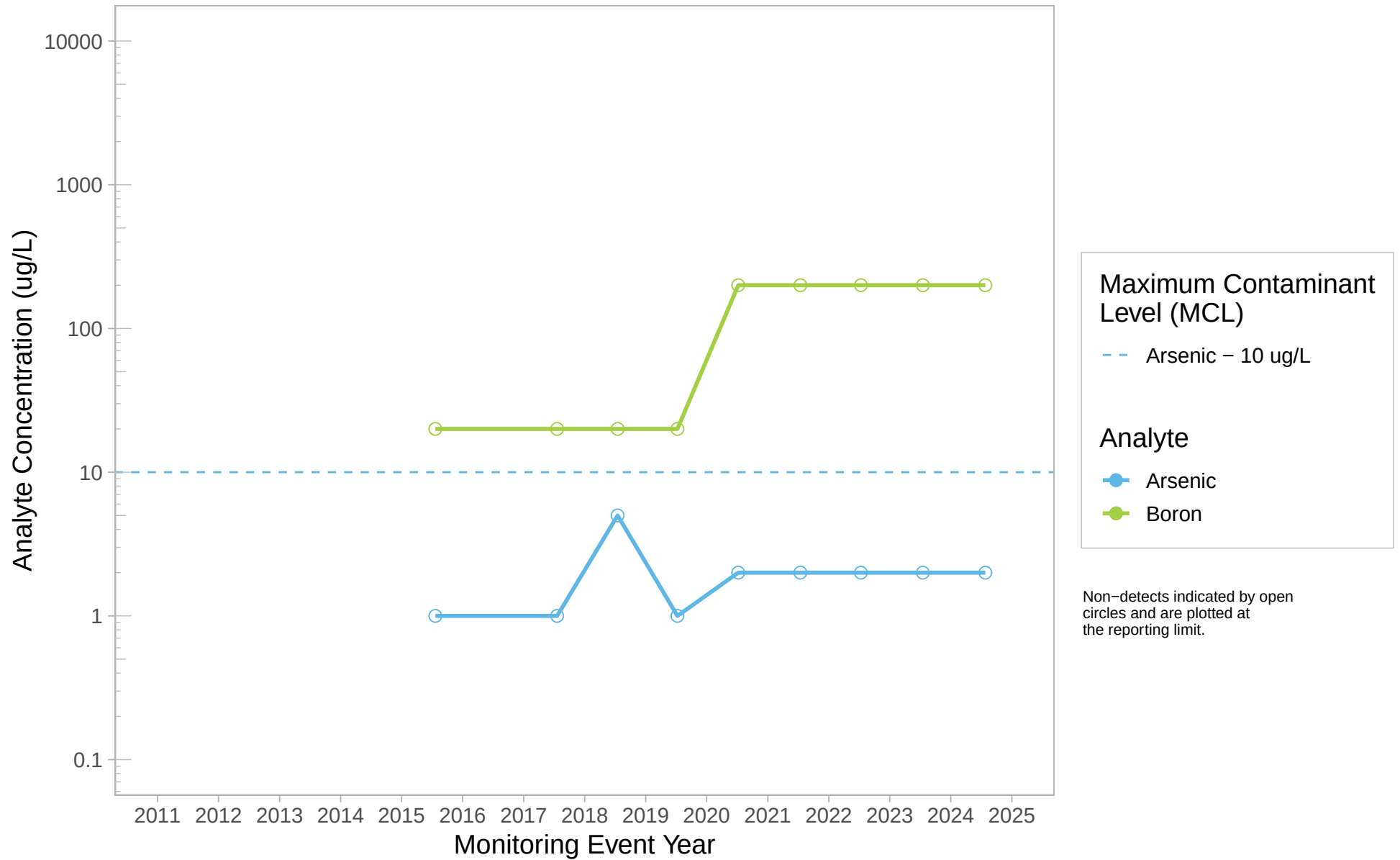
P-313C



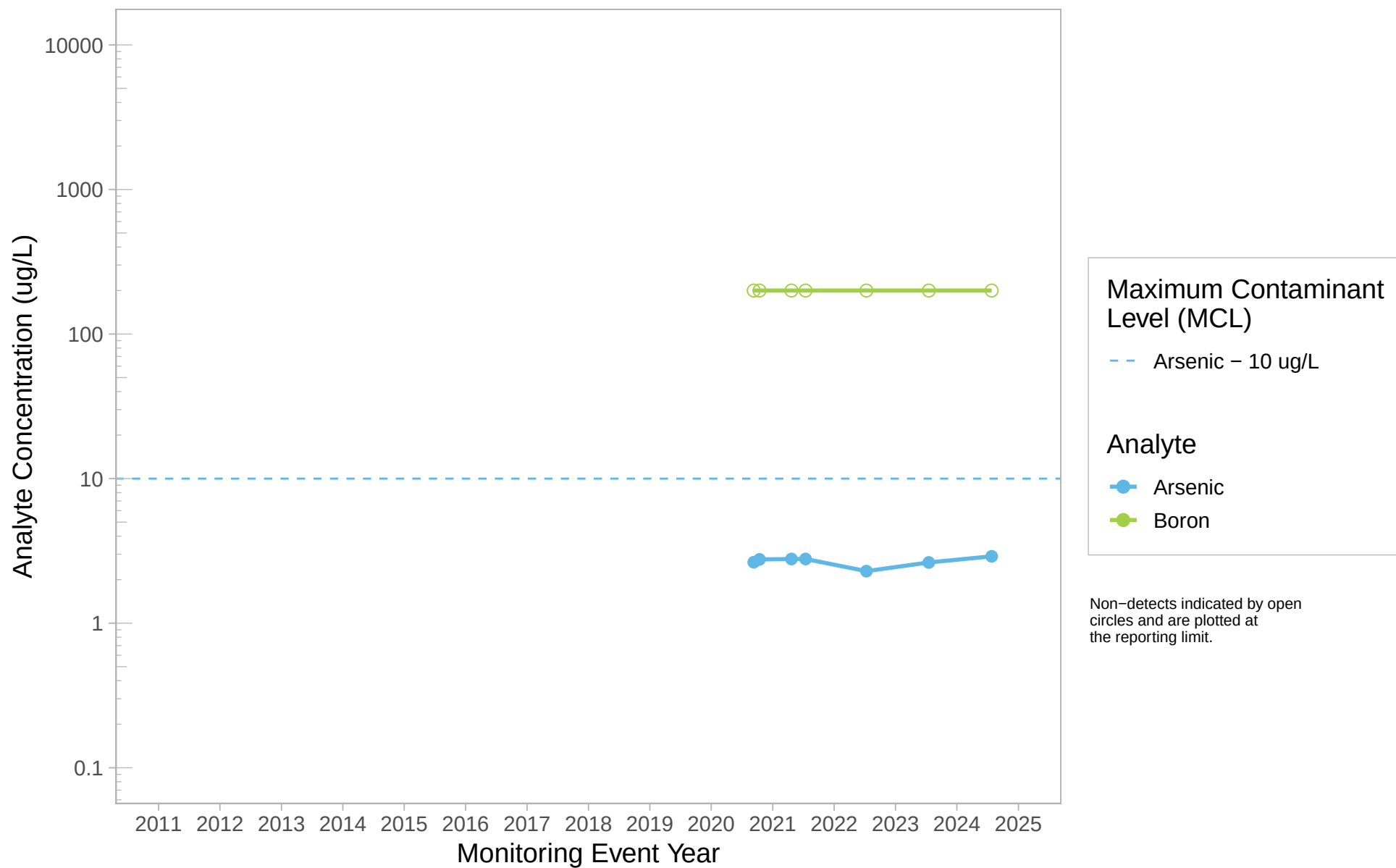
P-314C



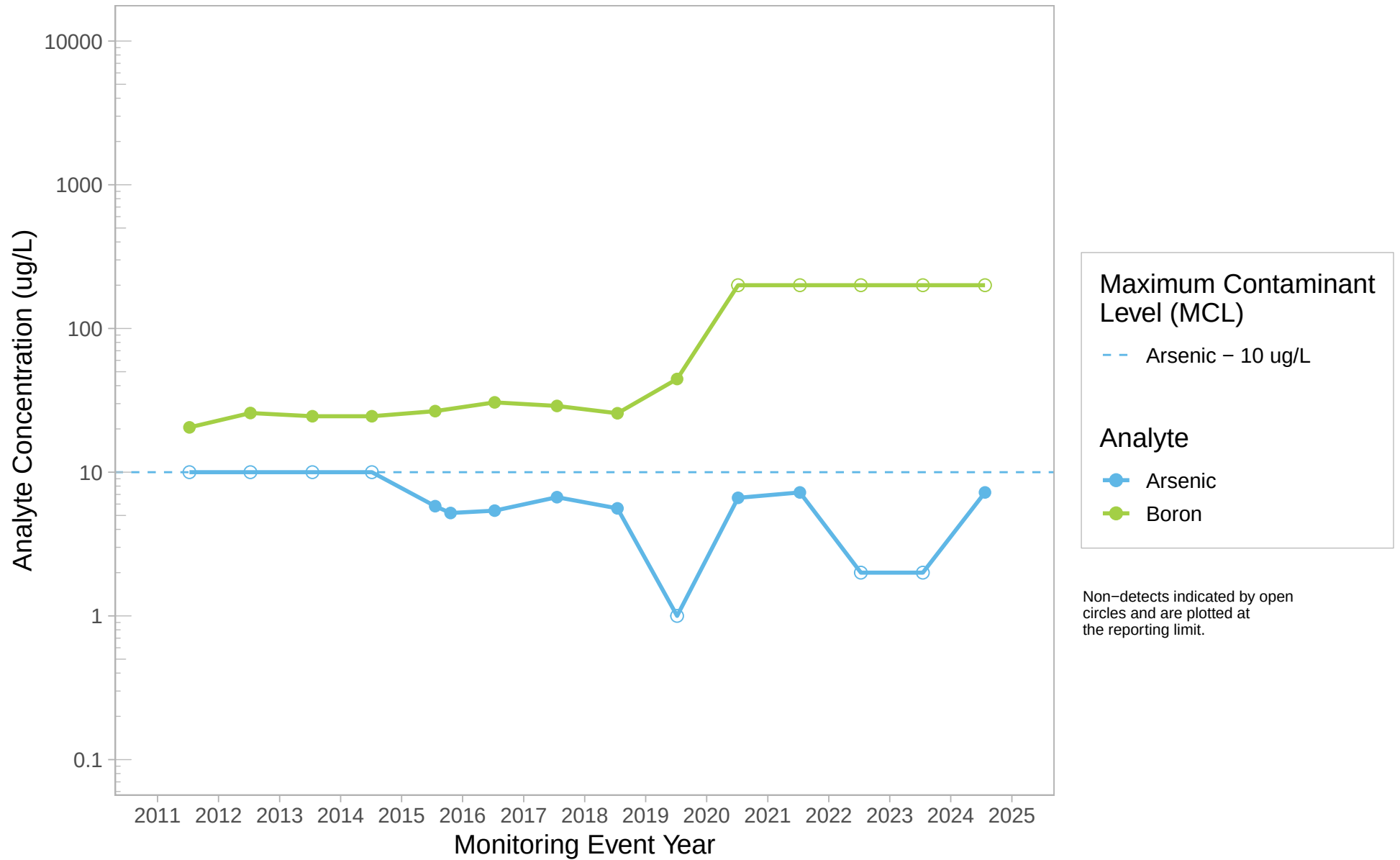
315-OWA



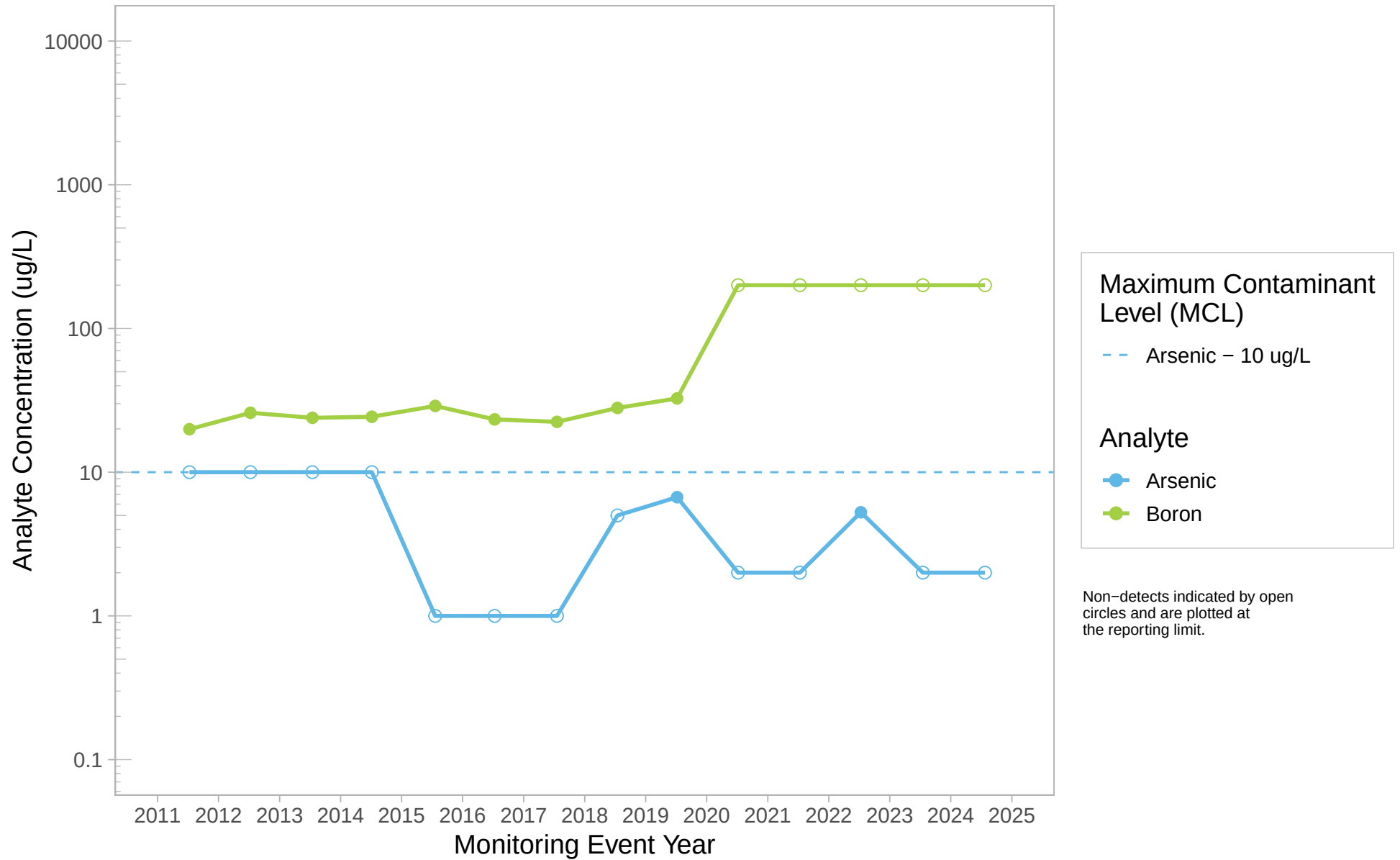
P-315L



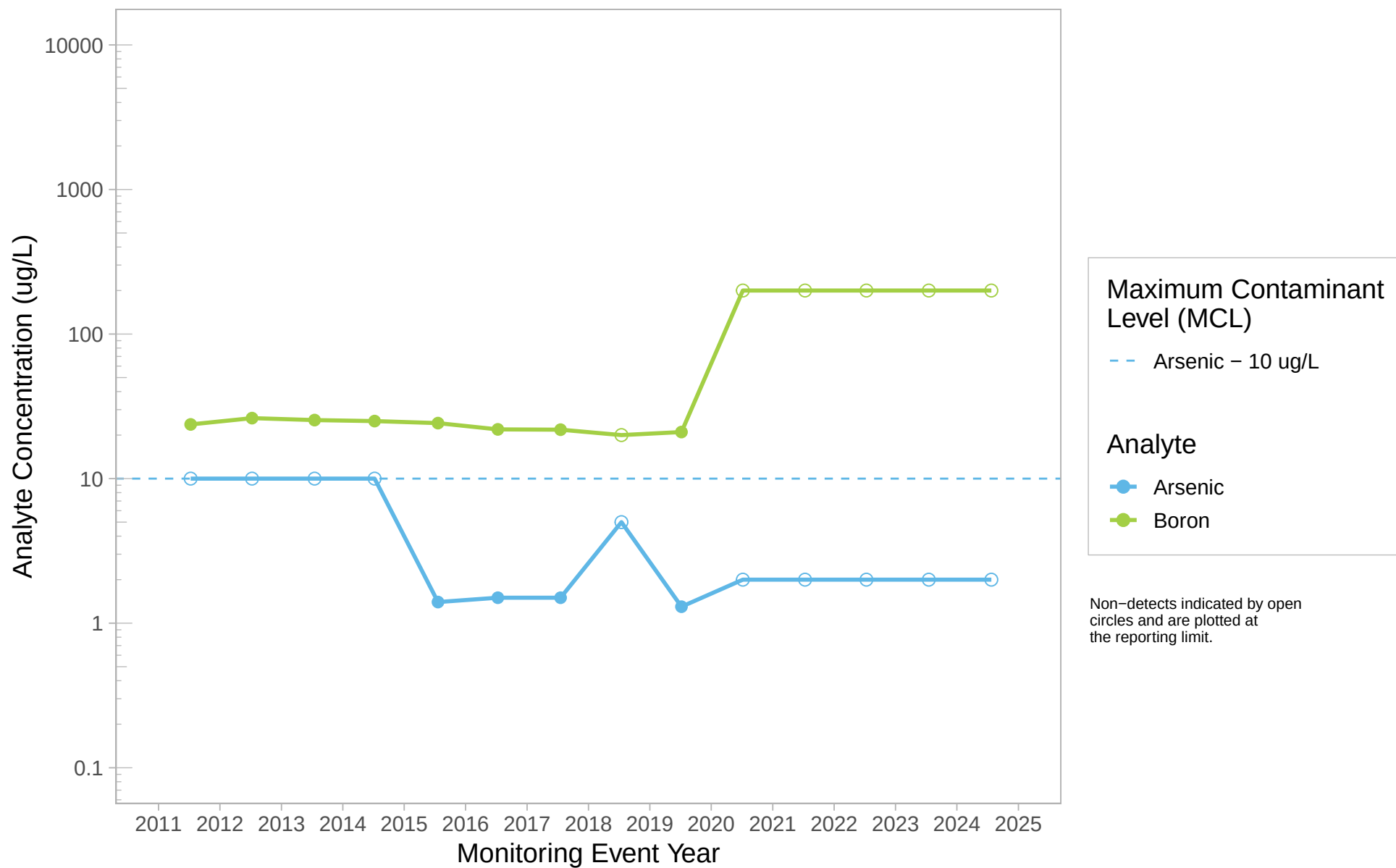
P-320C



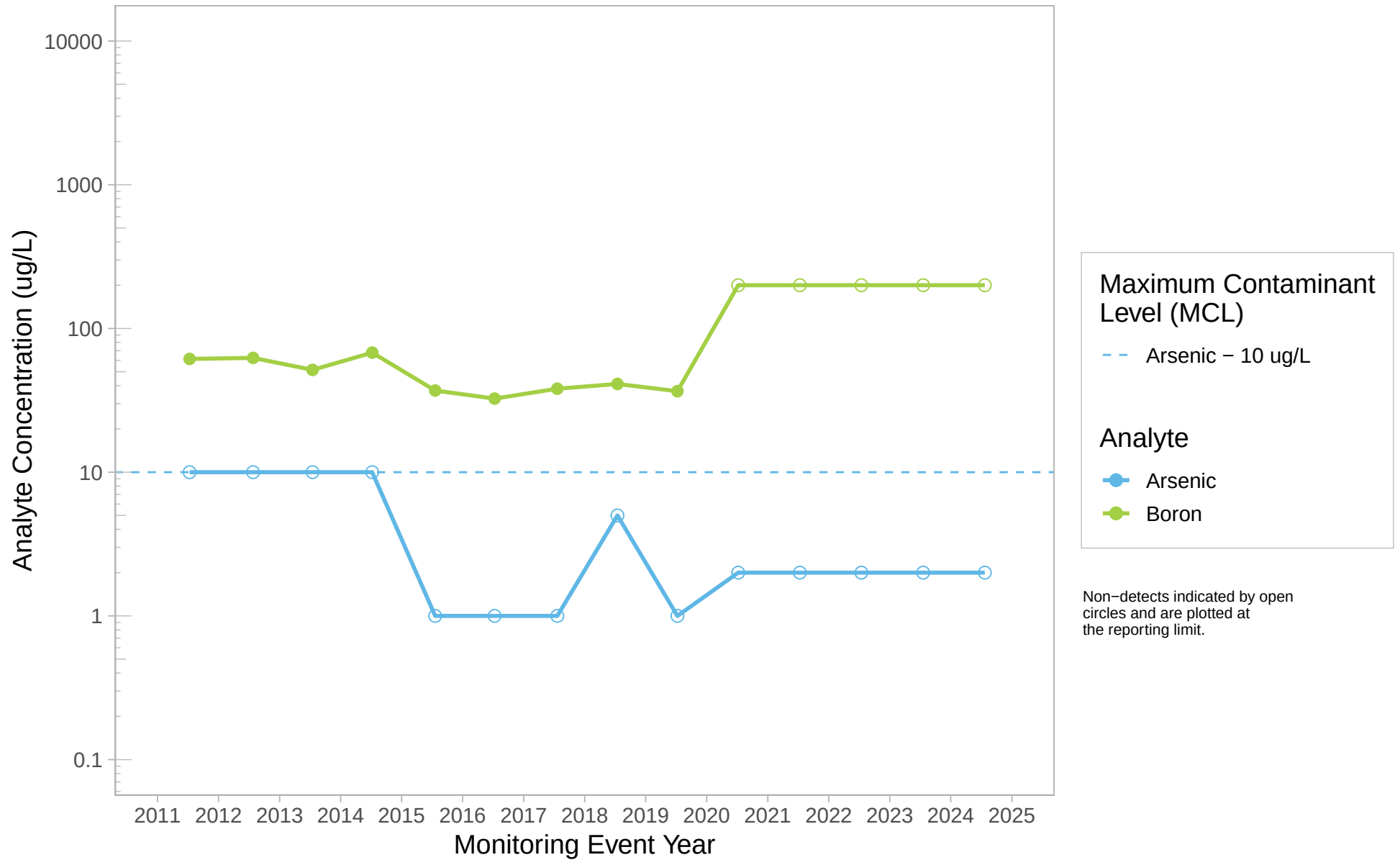
P-320C2



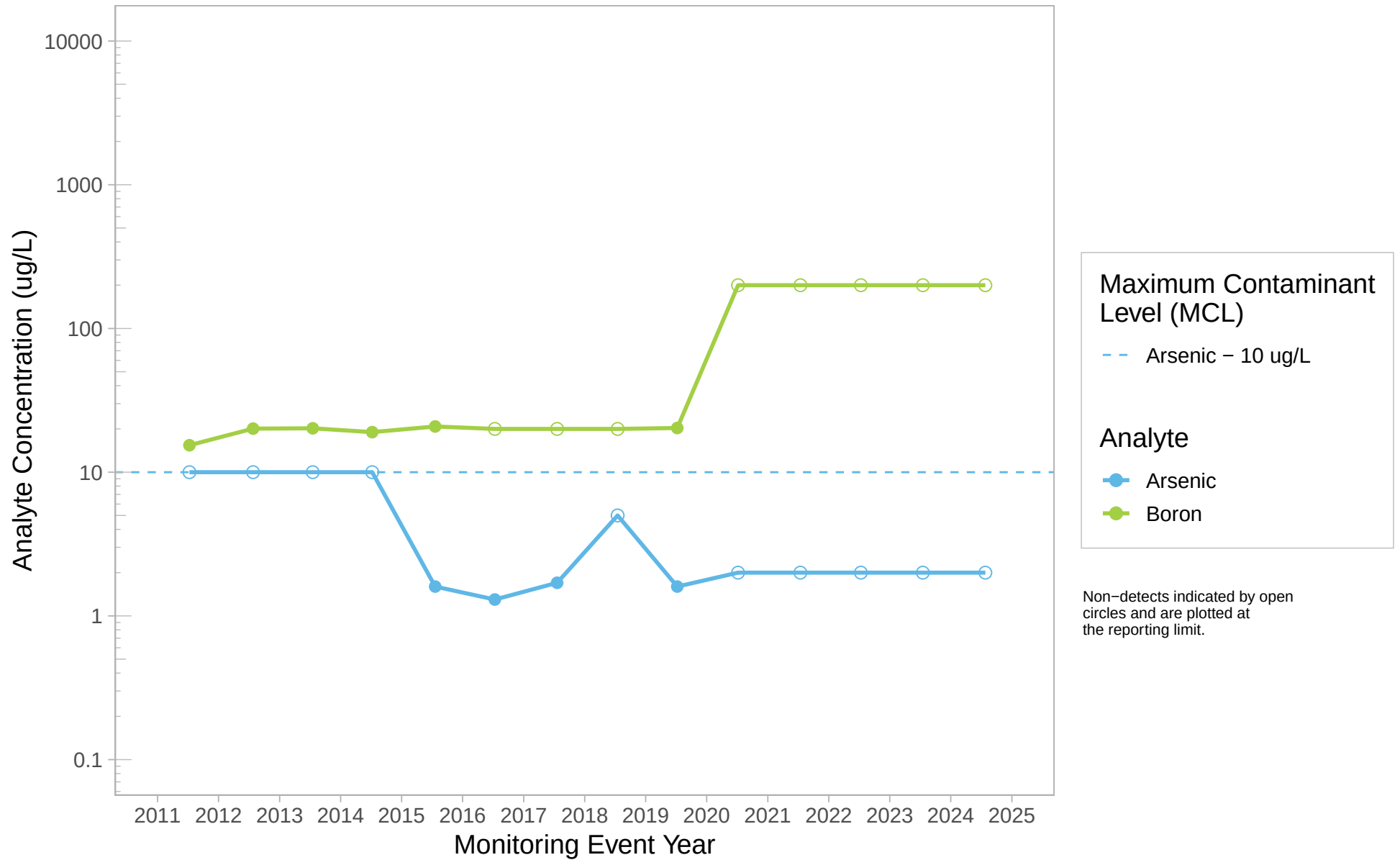
P-320L



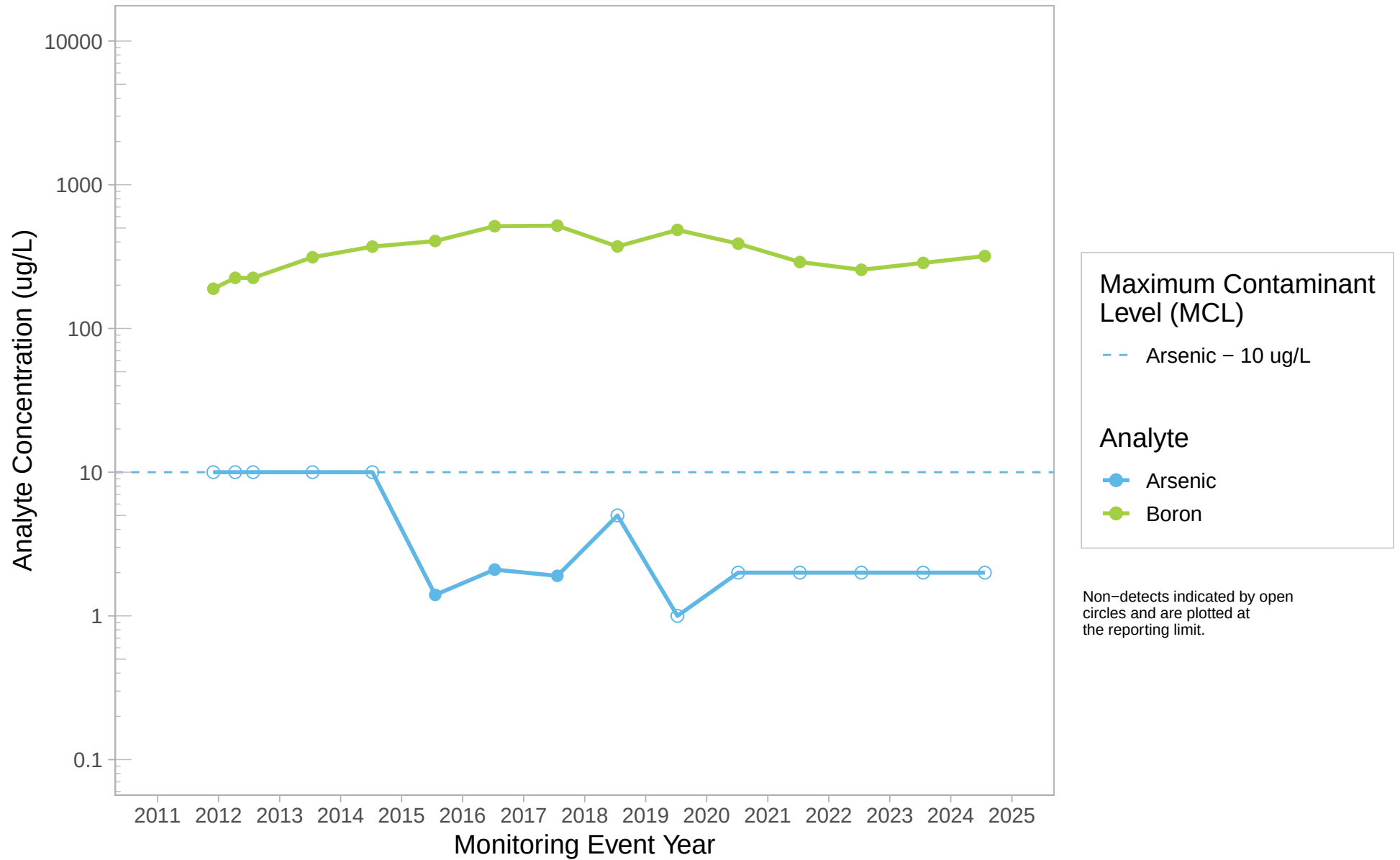
P-321L



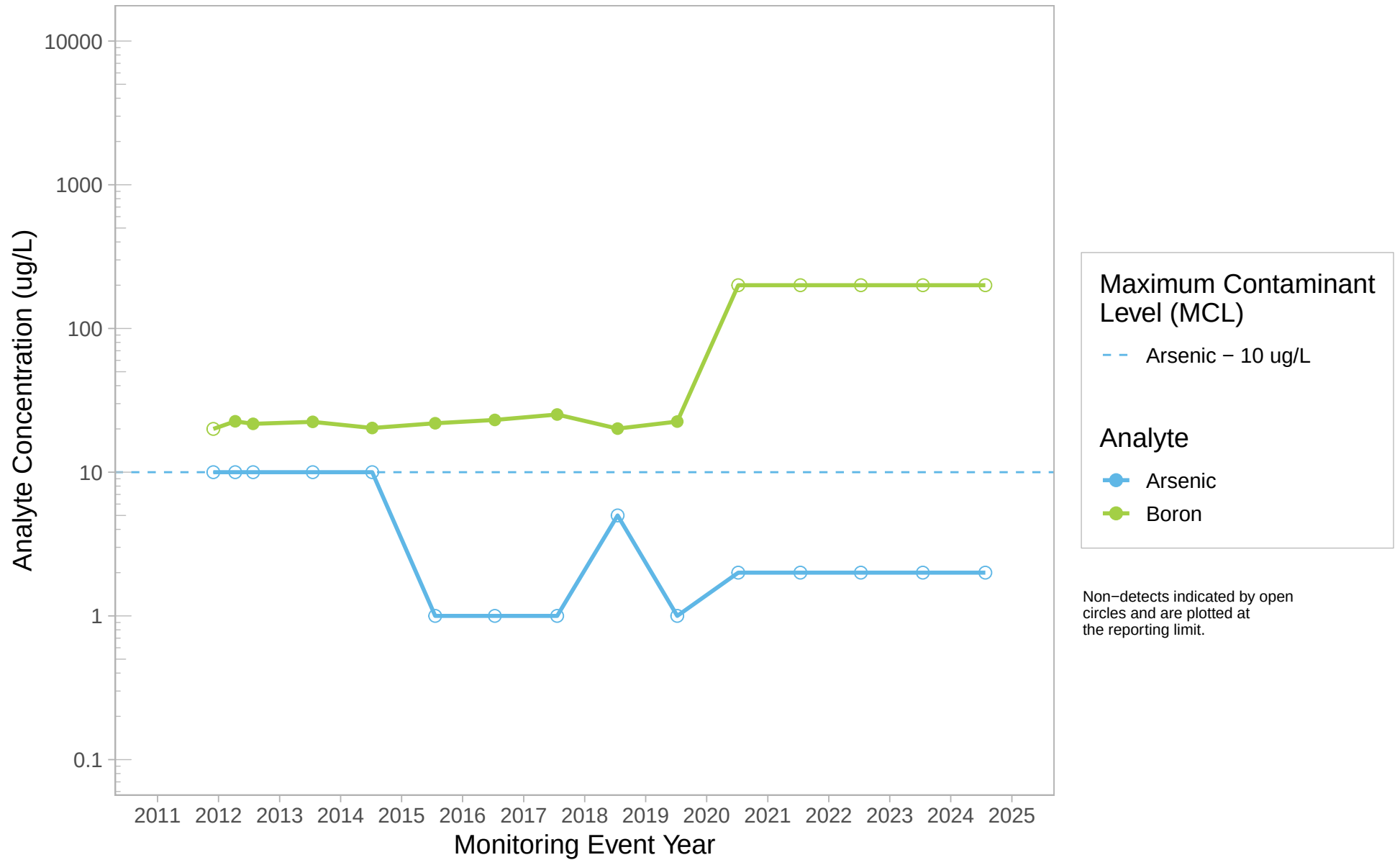
P-322L



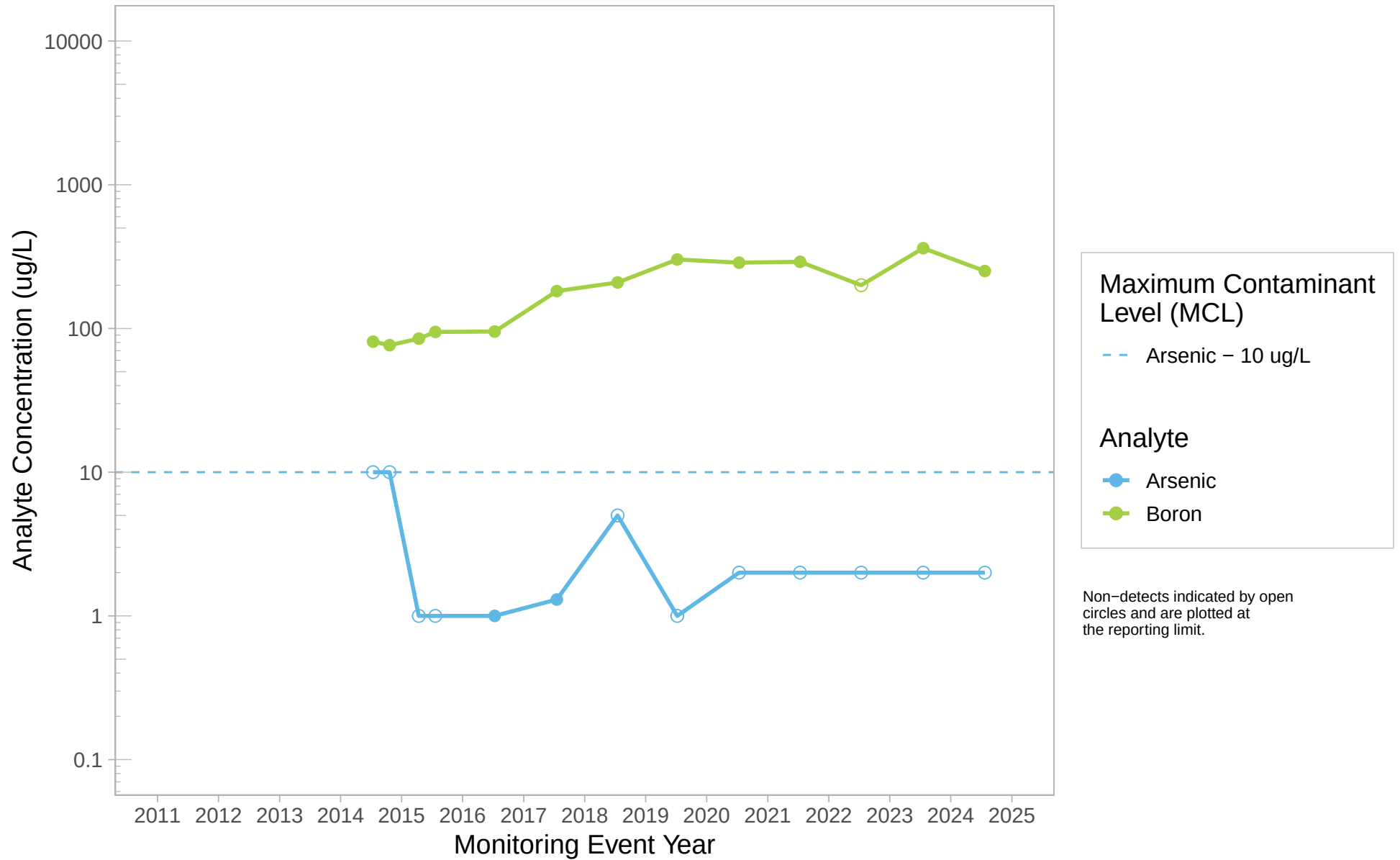
P-323L



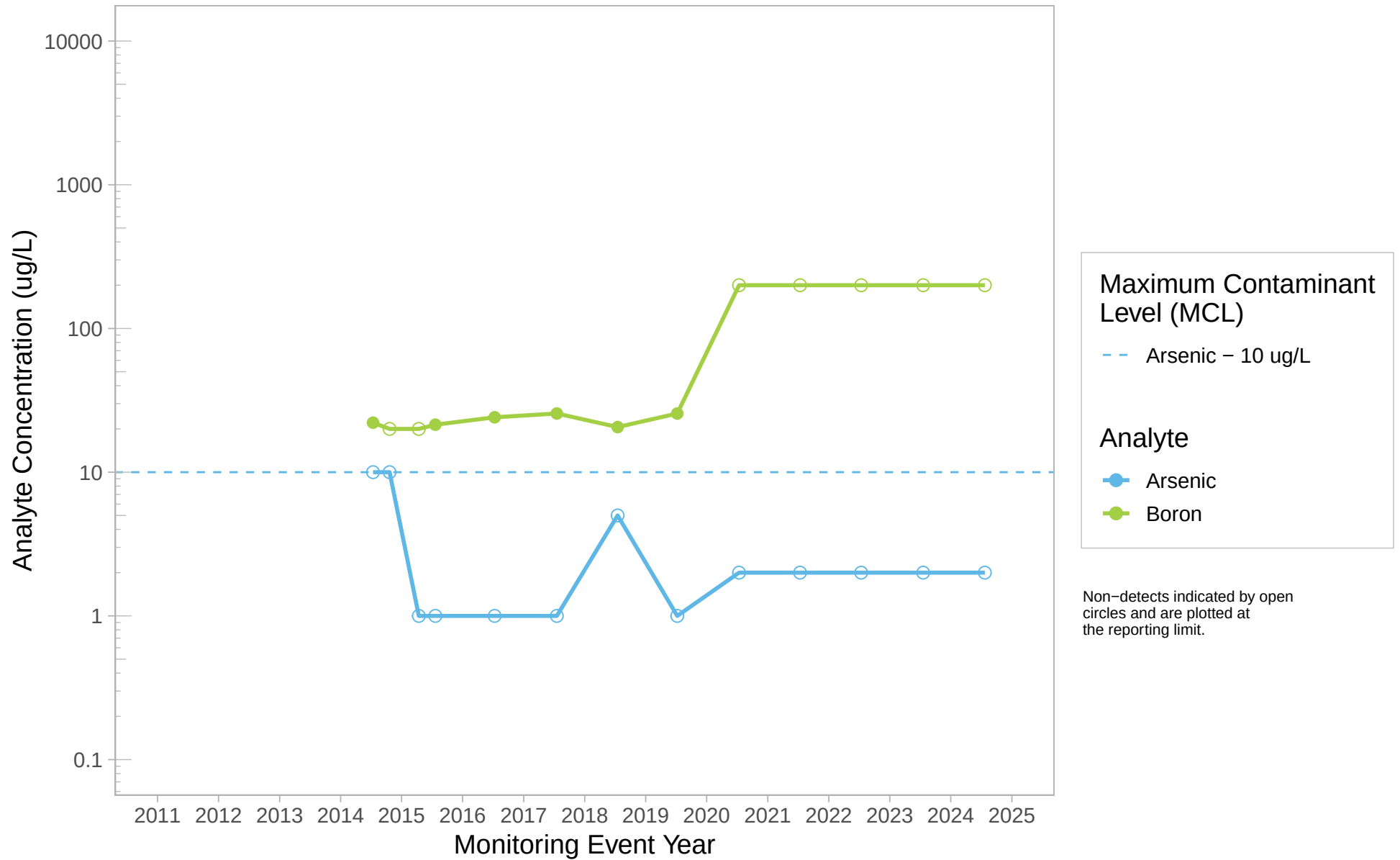
P-324L



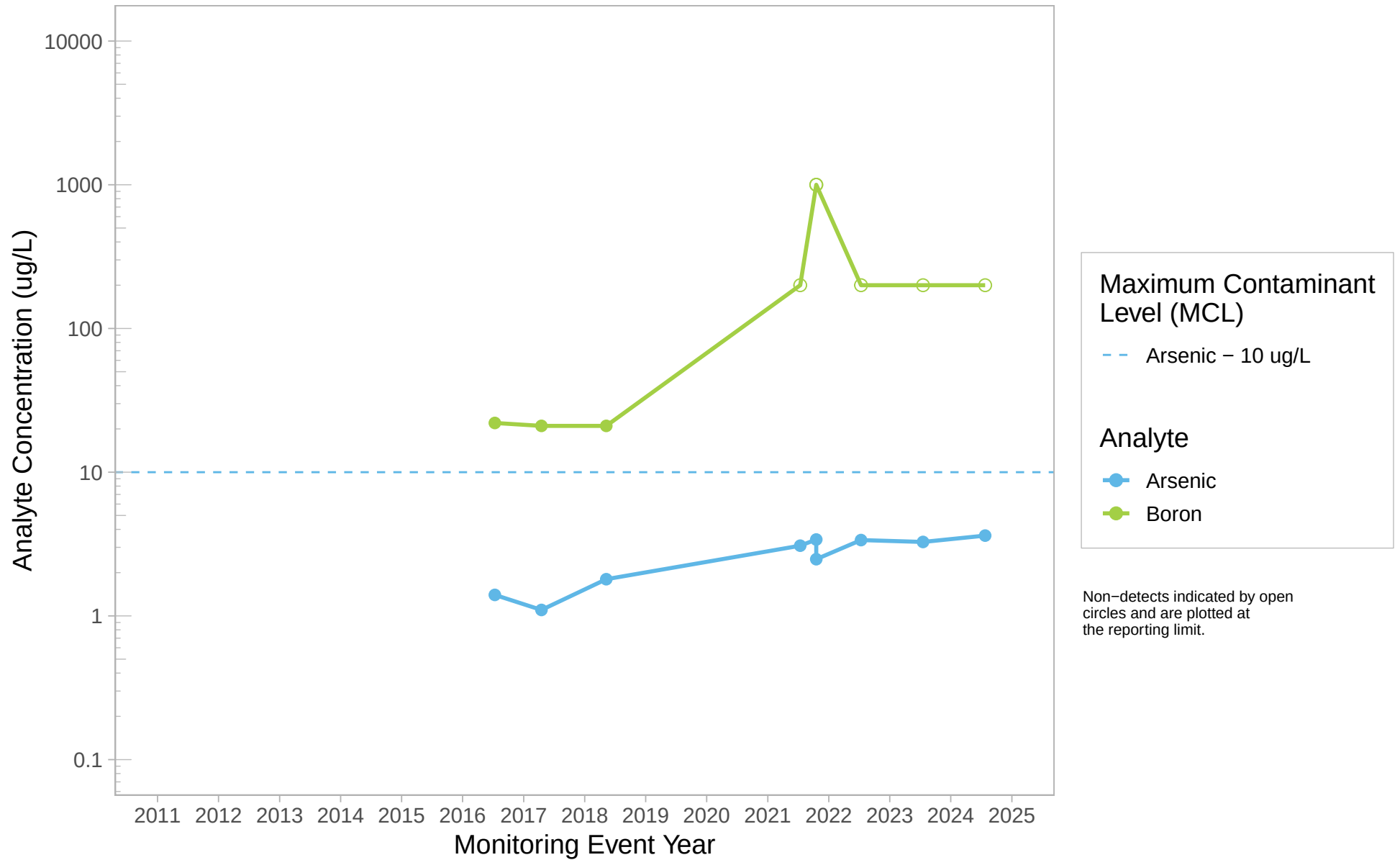
P-325L



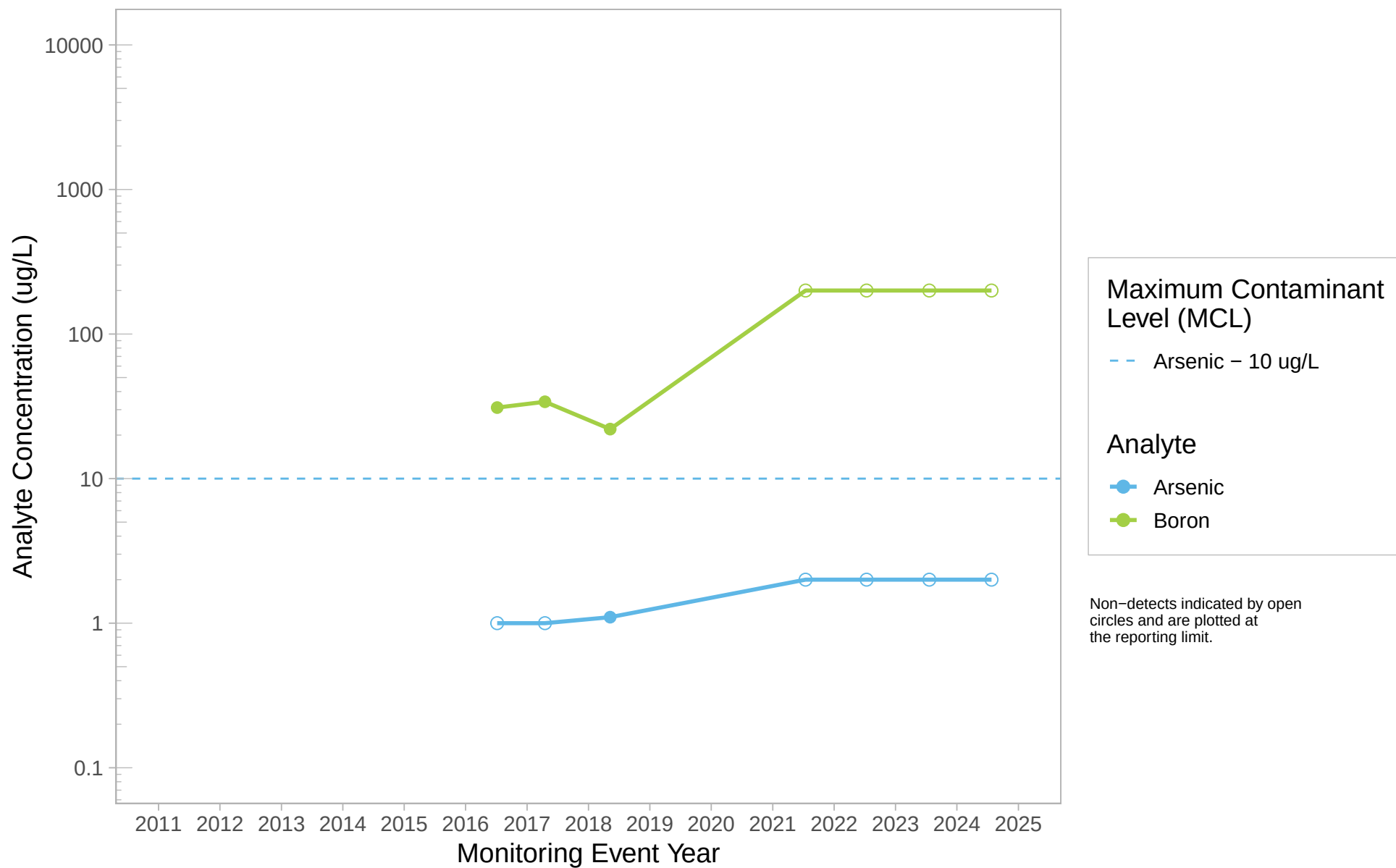
P-326L



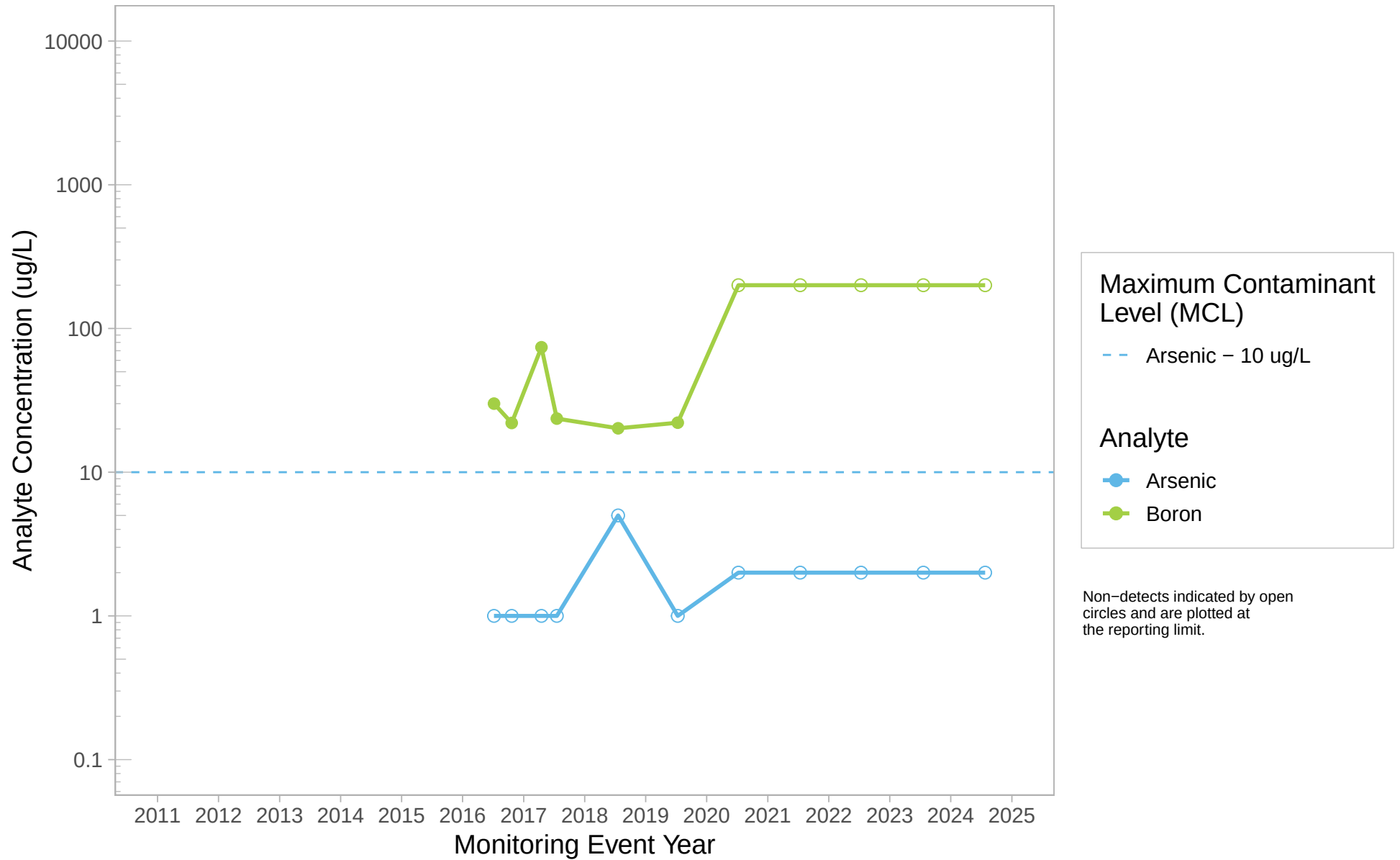
P-327L



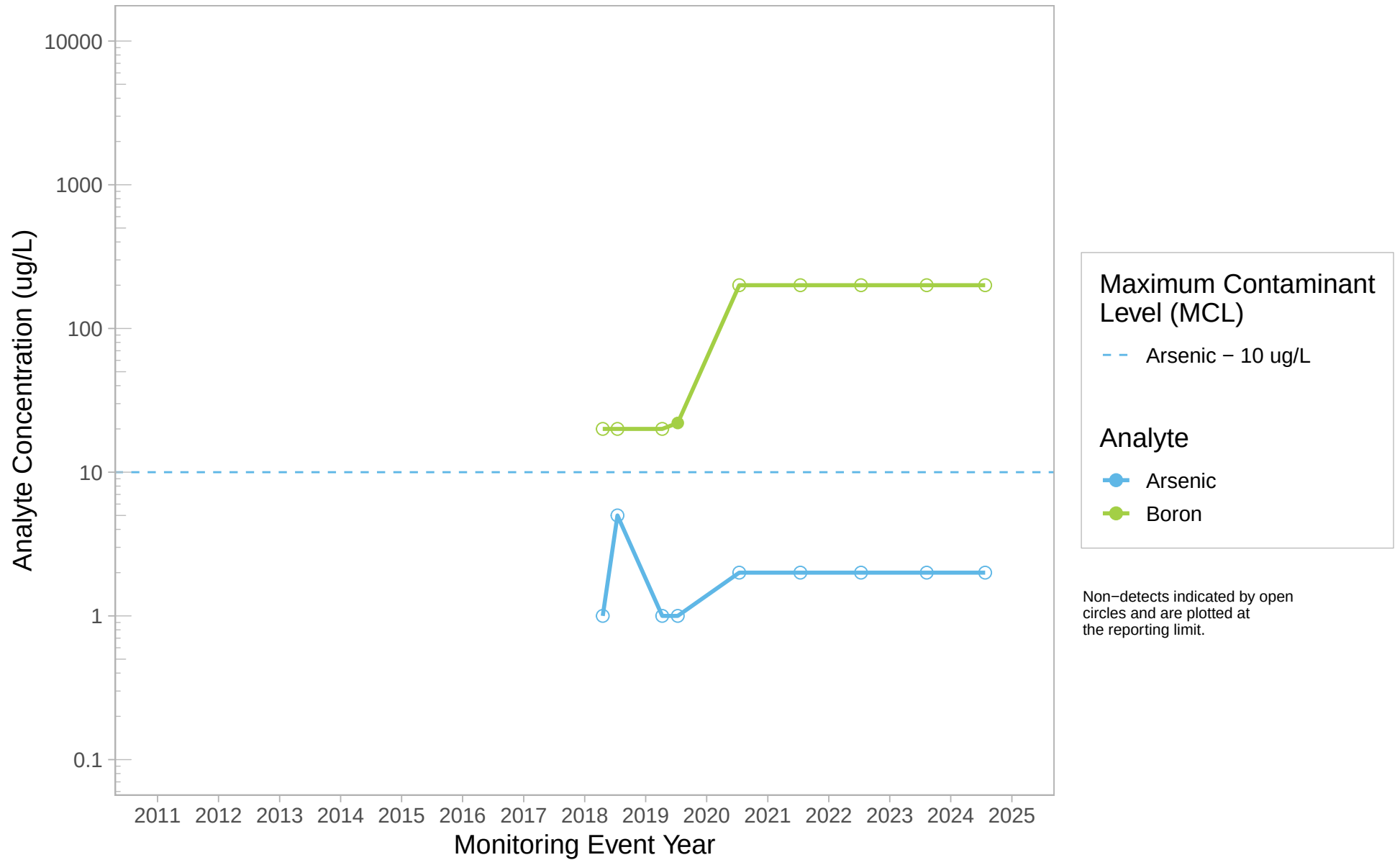
P-328L



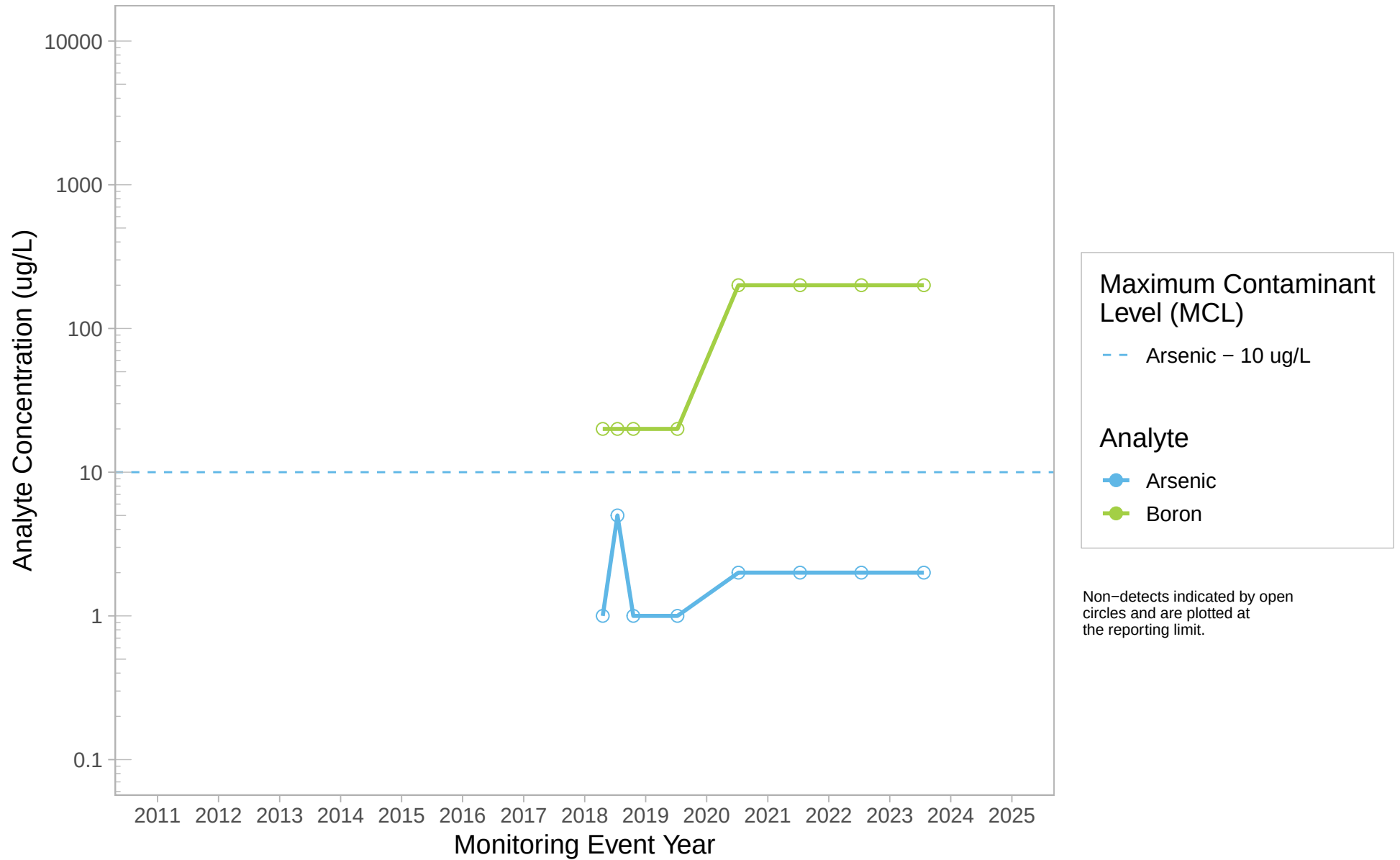
P-329L



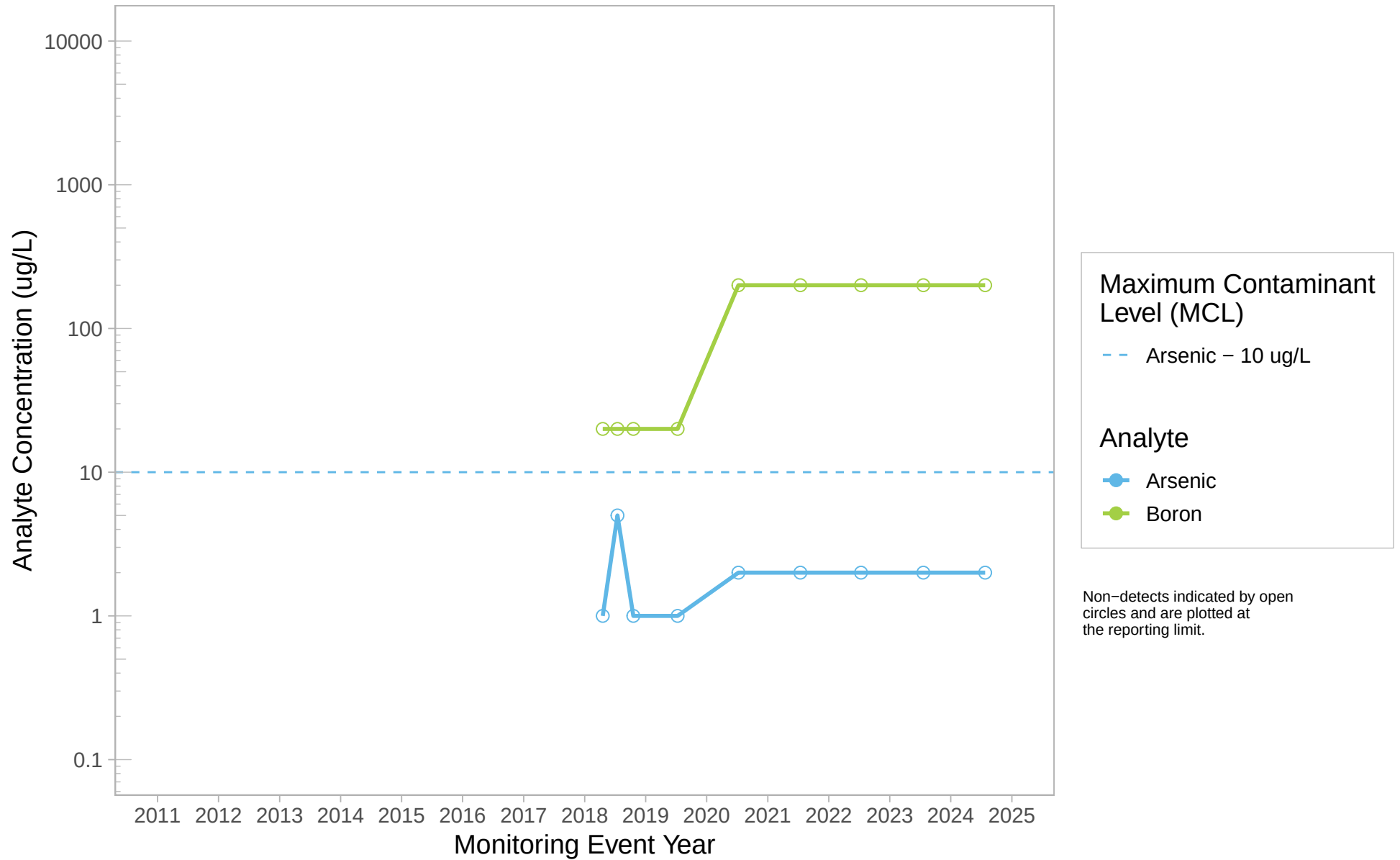
P-333L



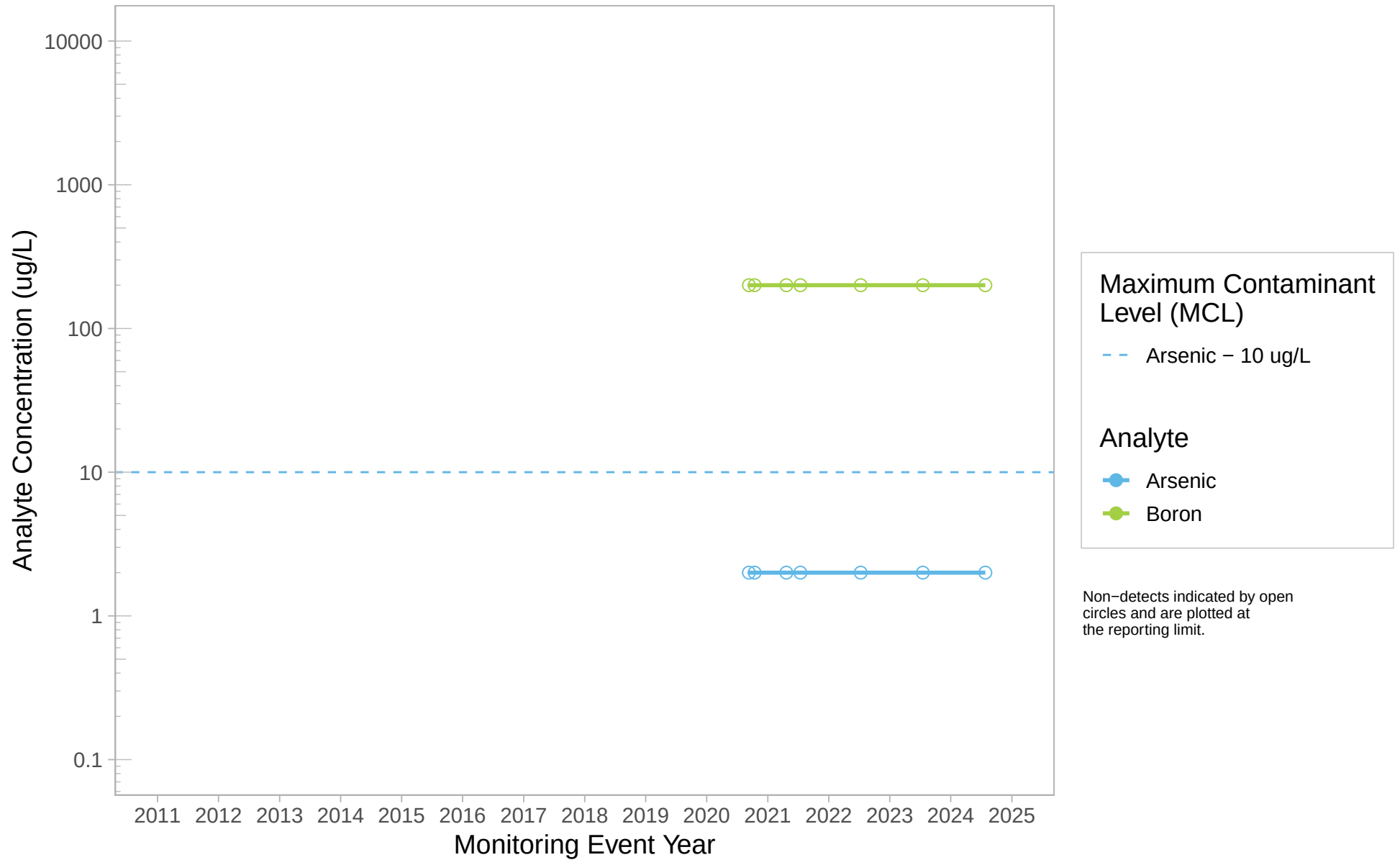
P-334L



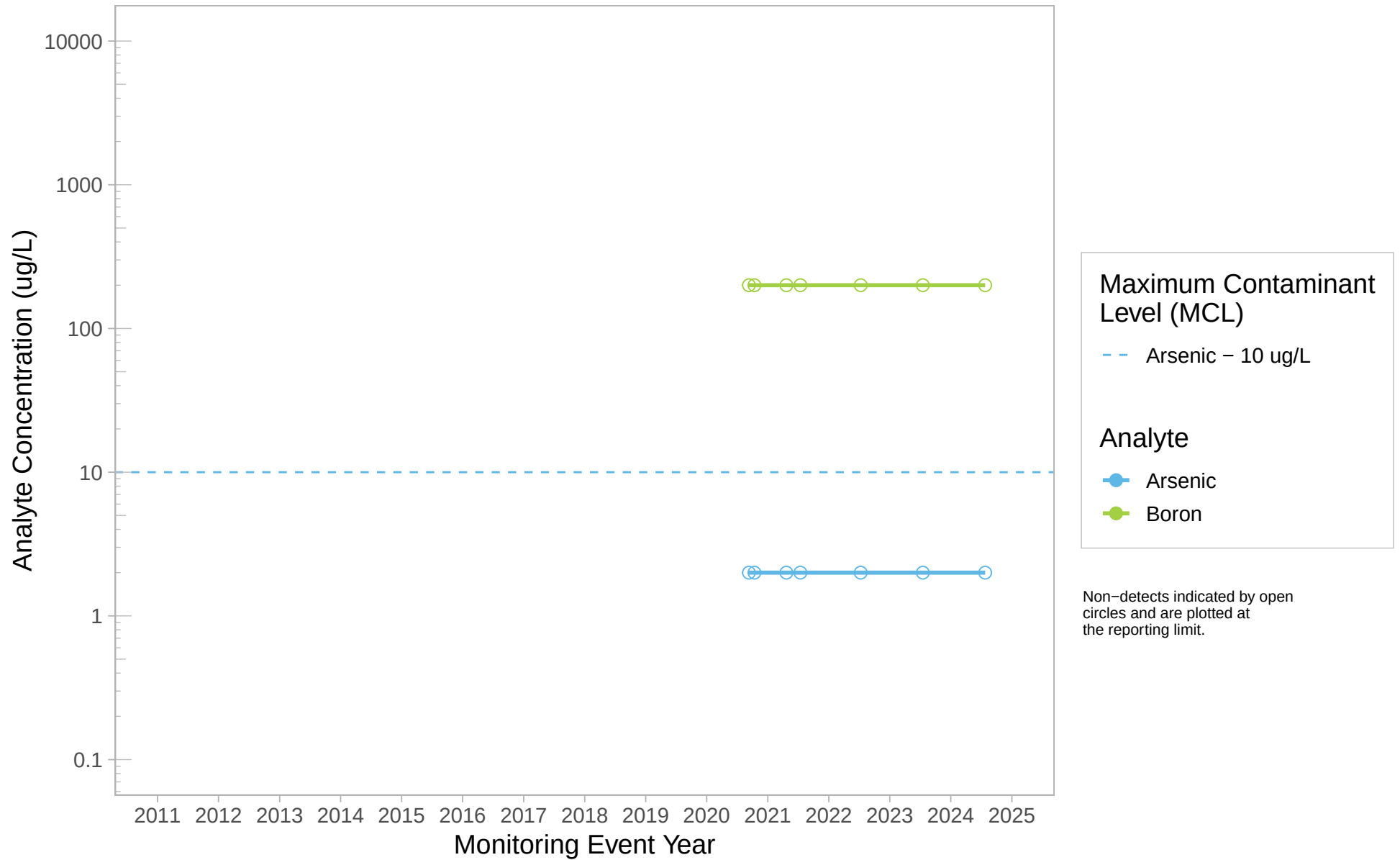
P-335L



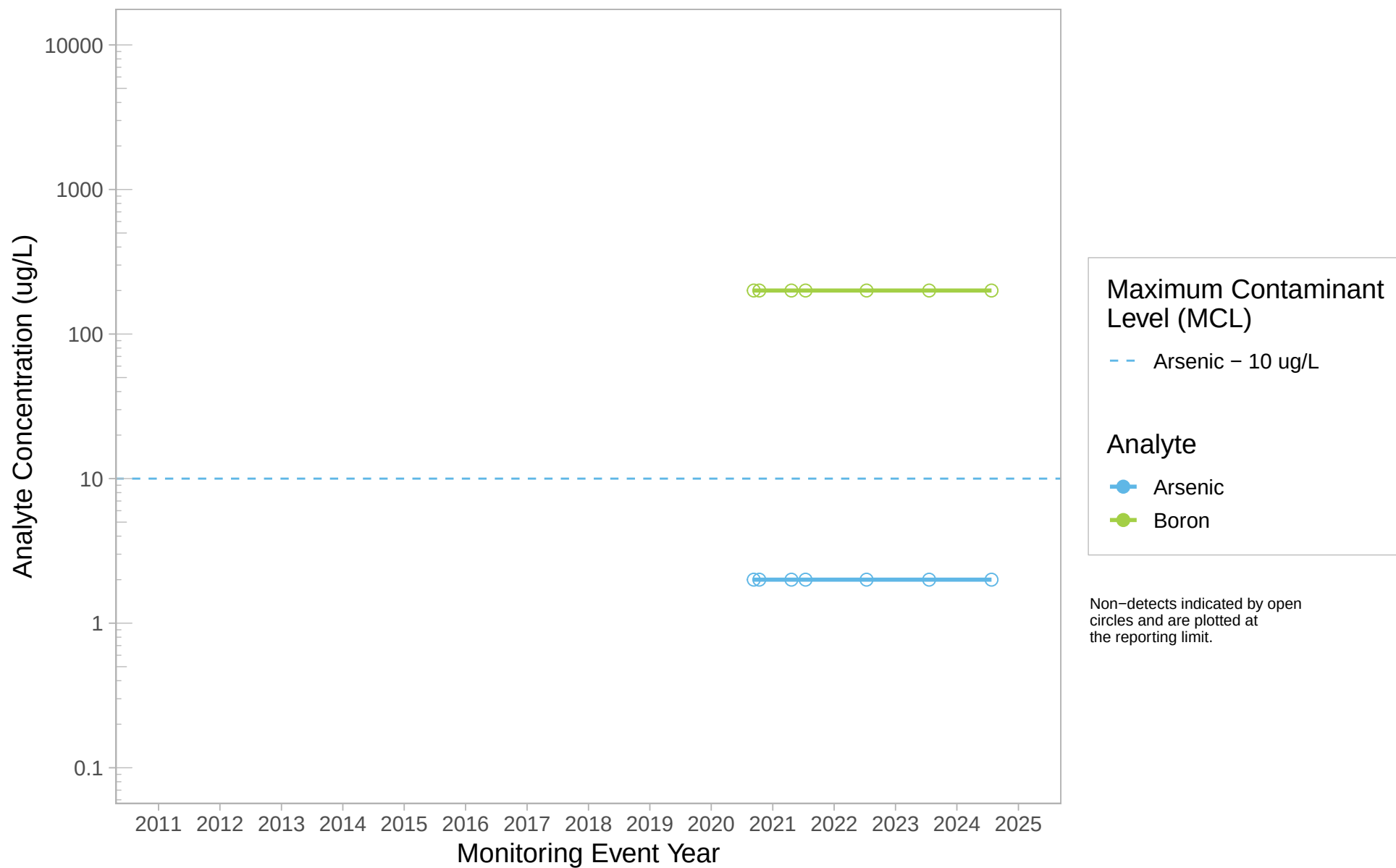
336-OWA



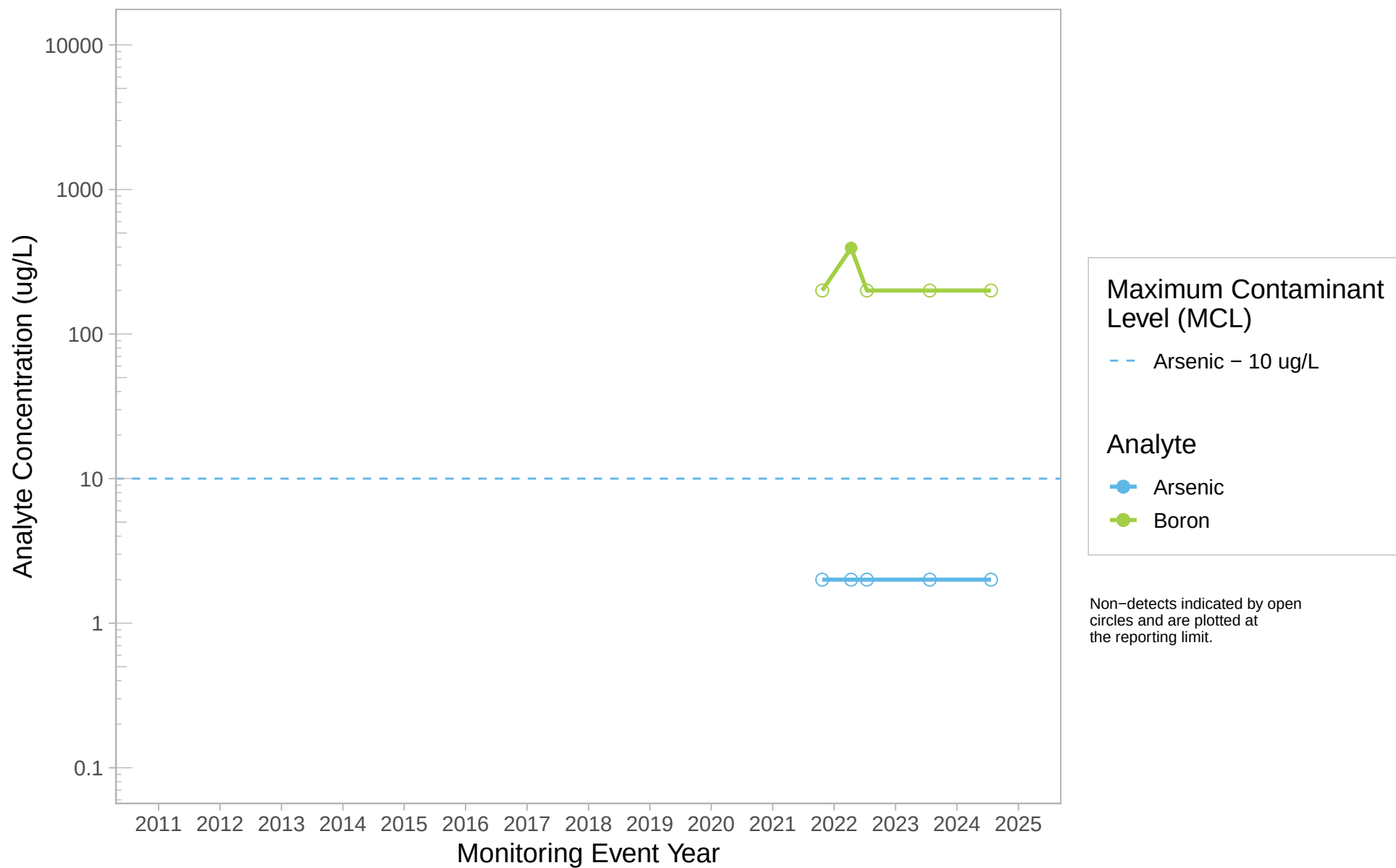
337-OWA



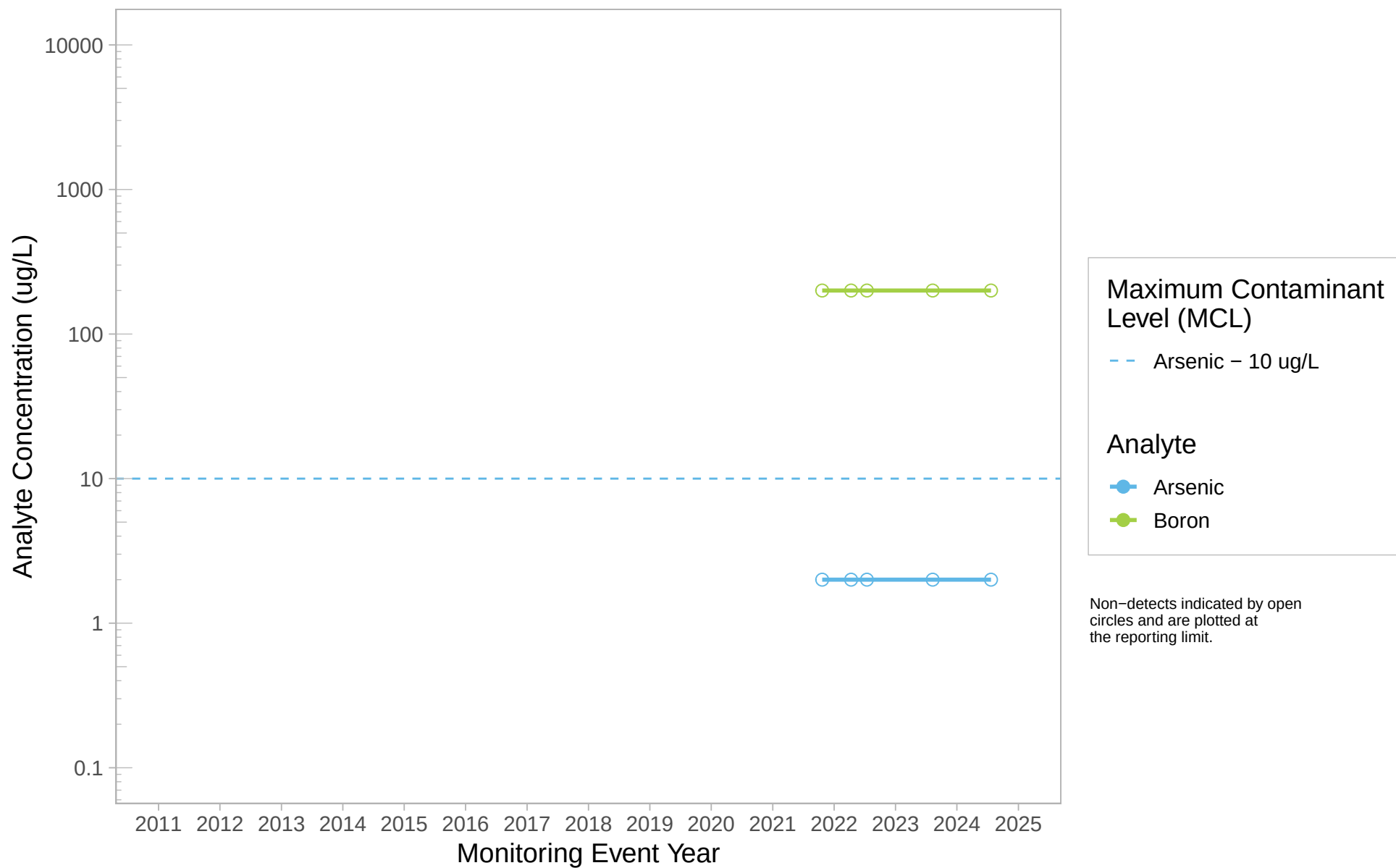
P-337L



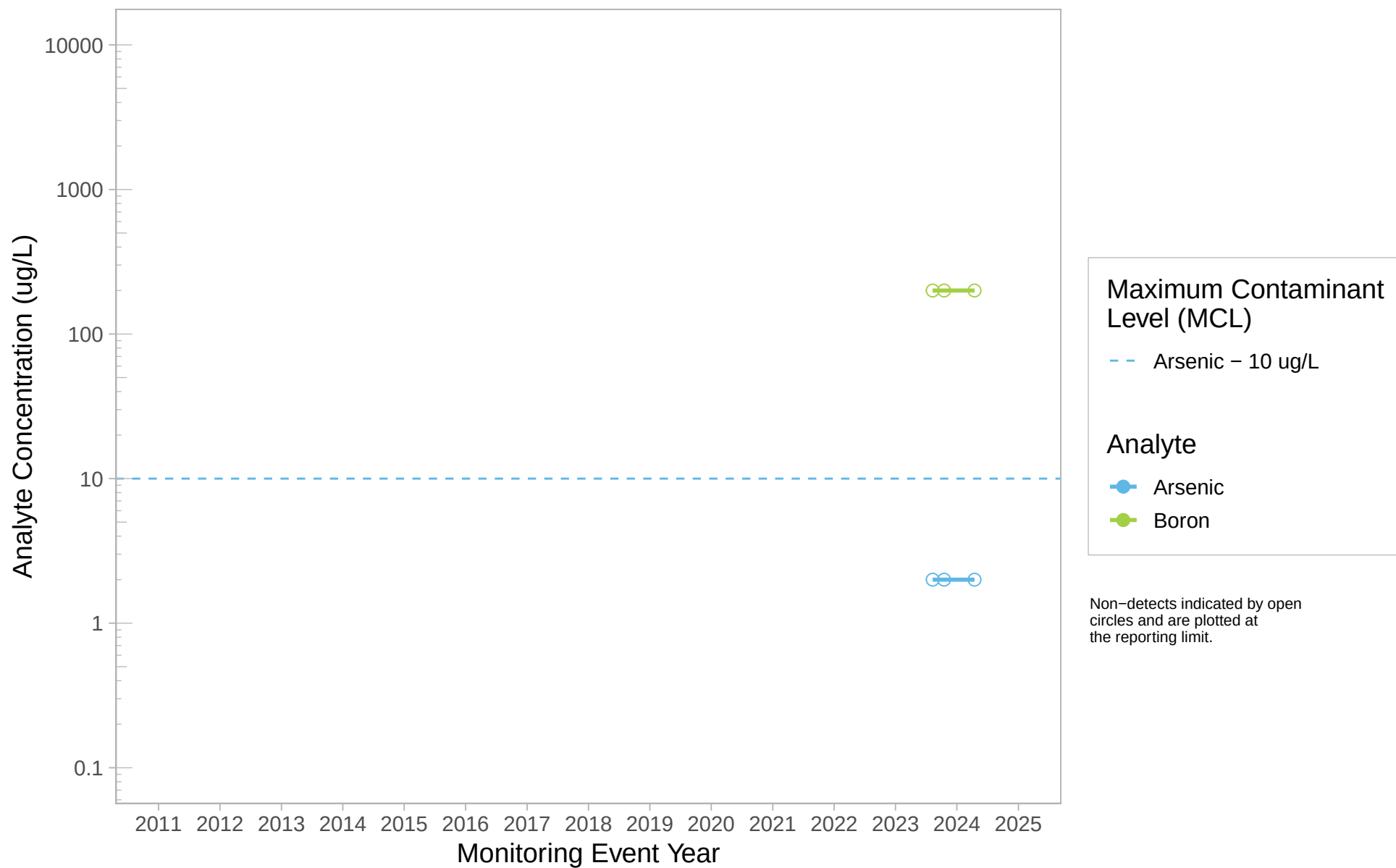
P-338L



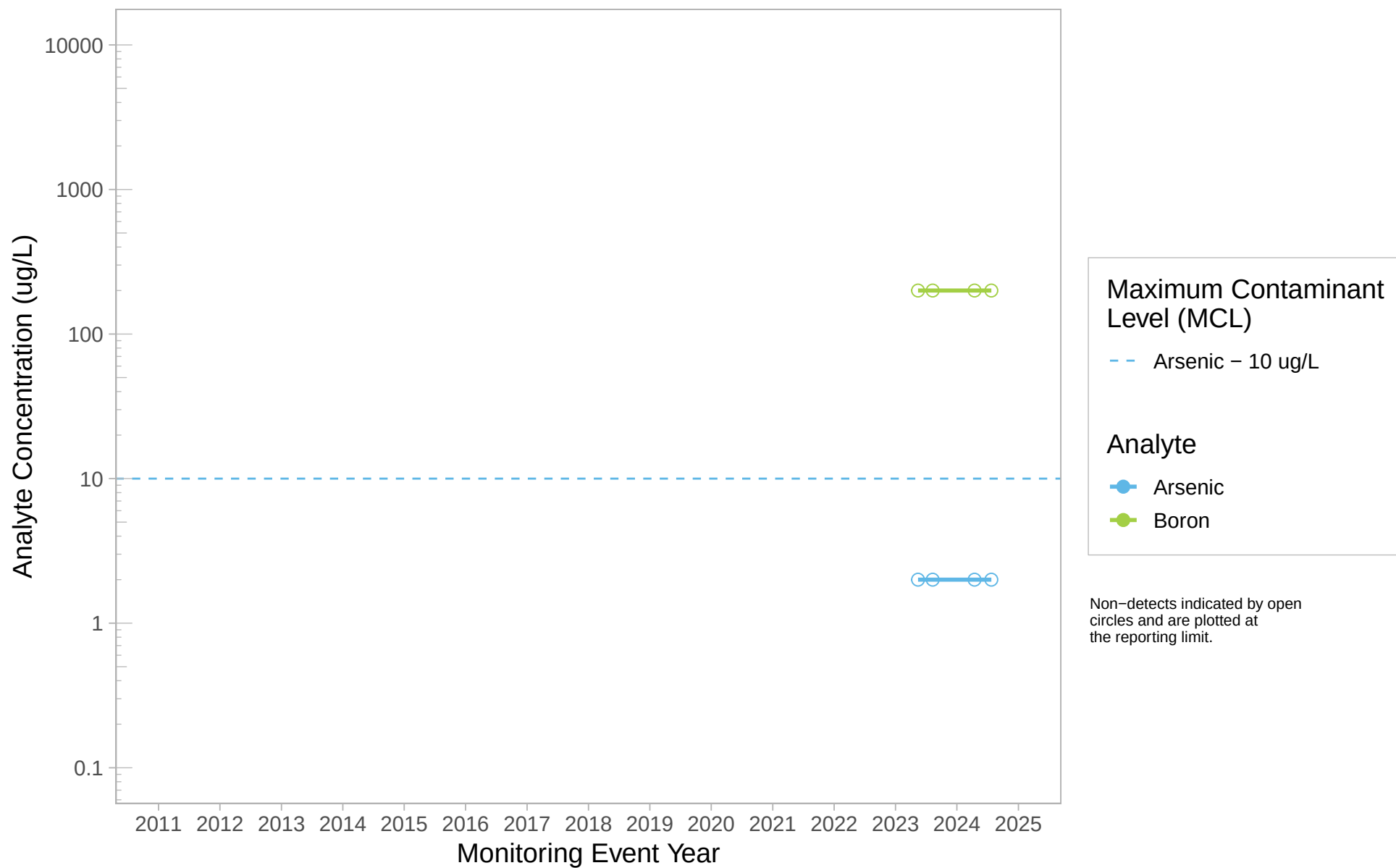
P-340L



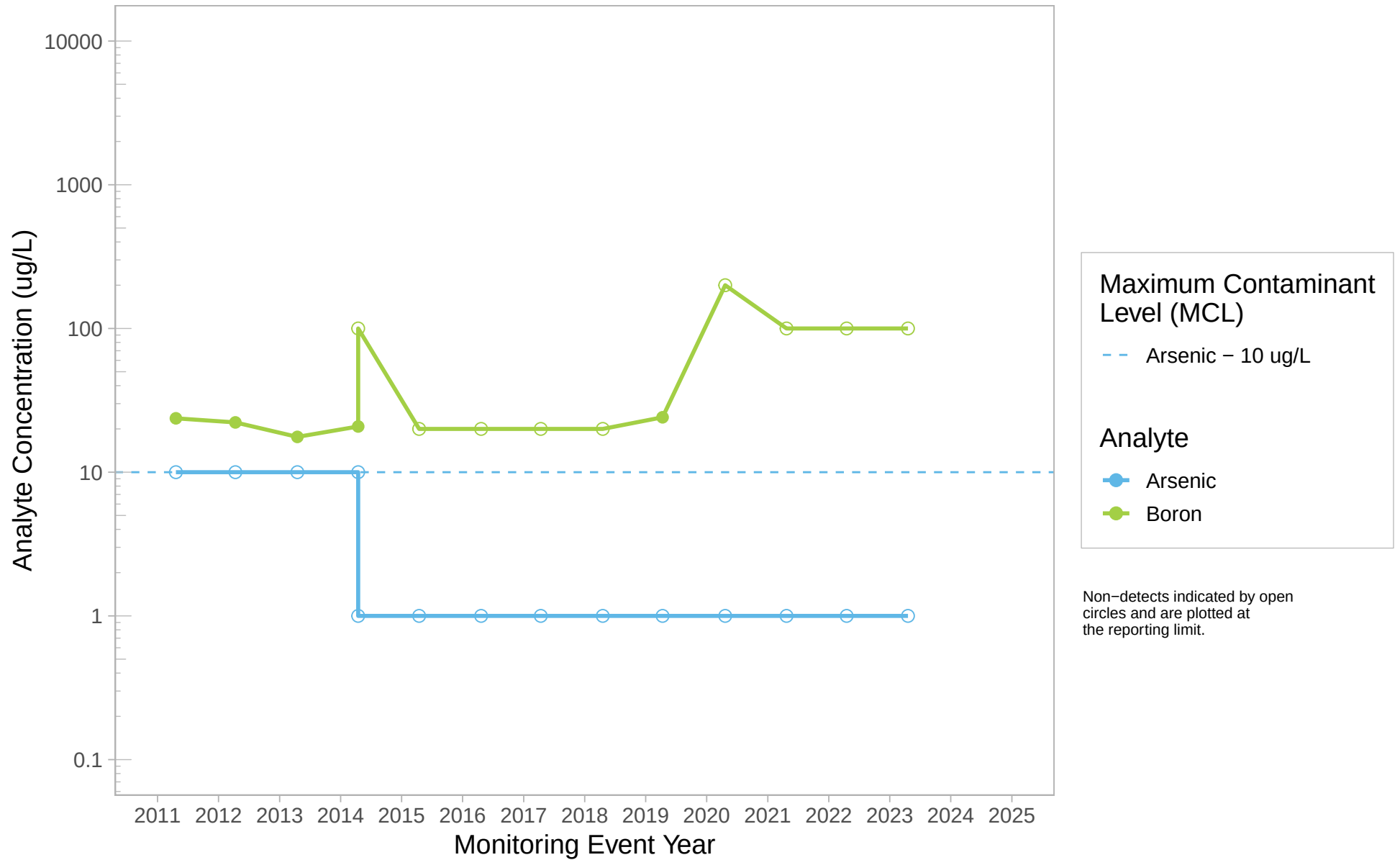
P-341L



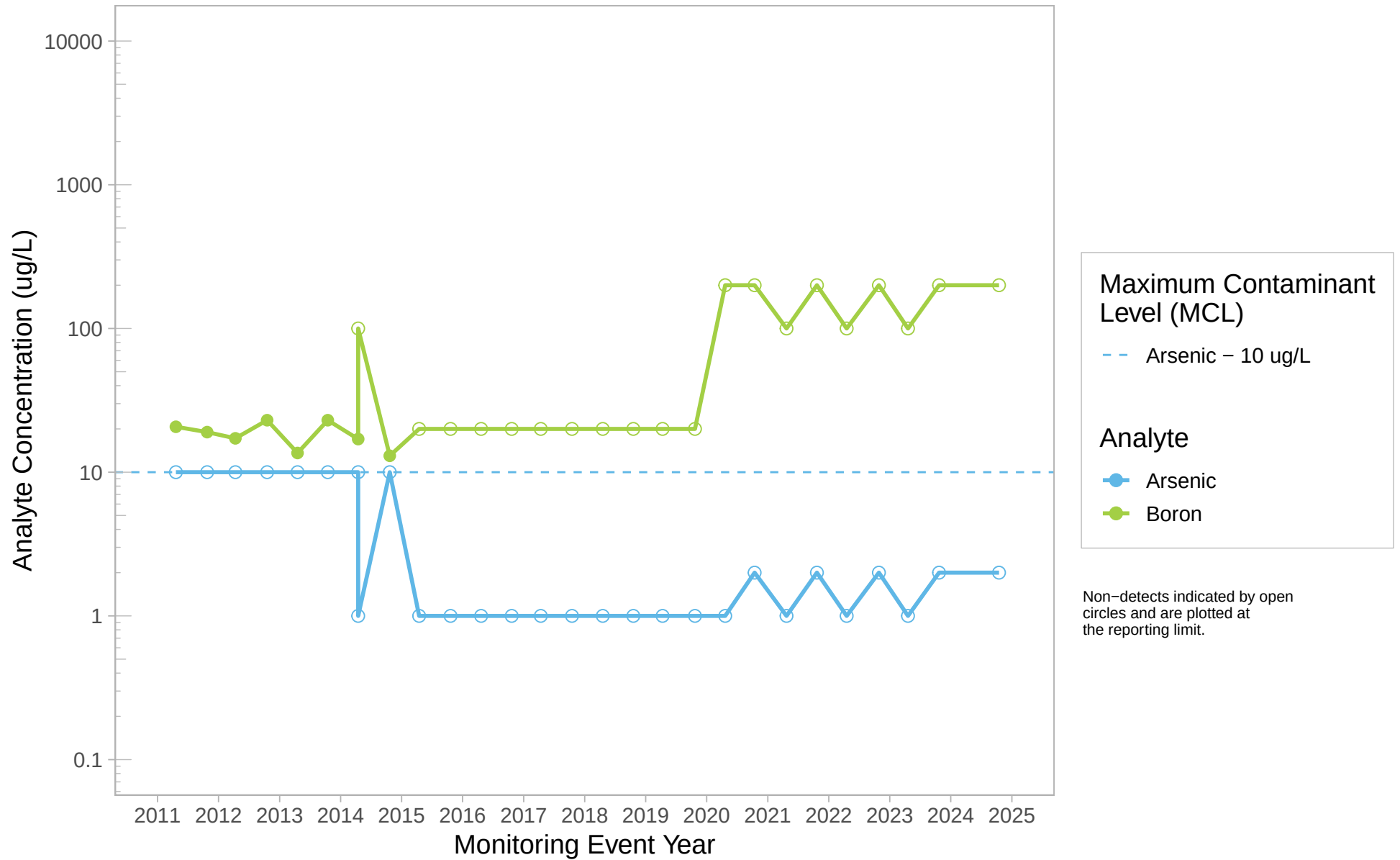
P-342L



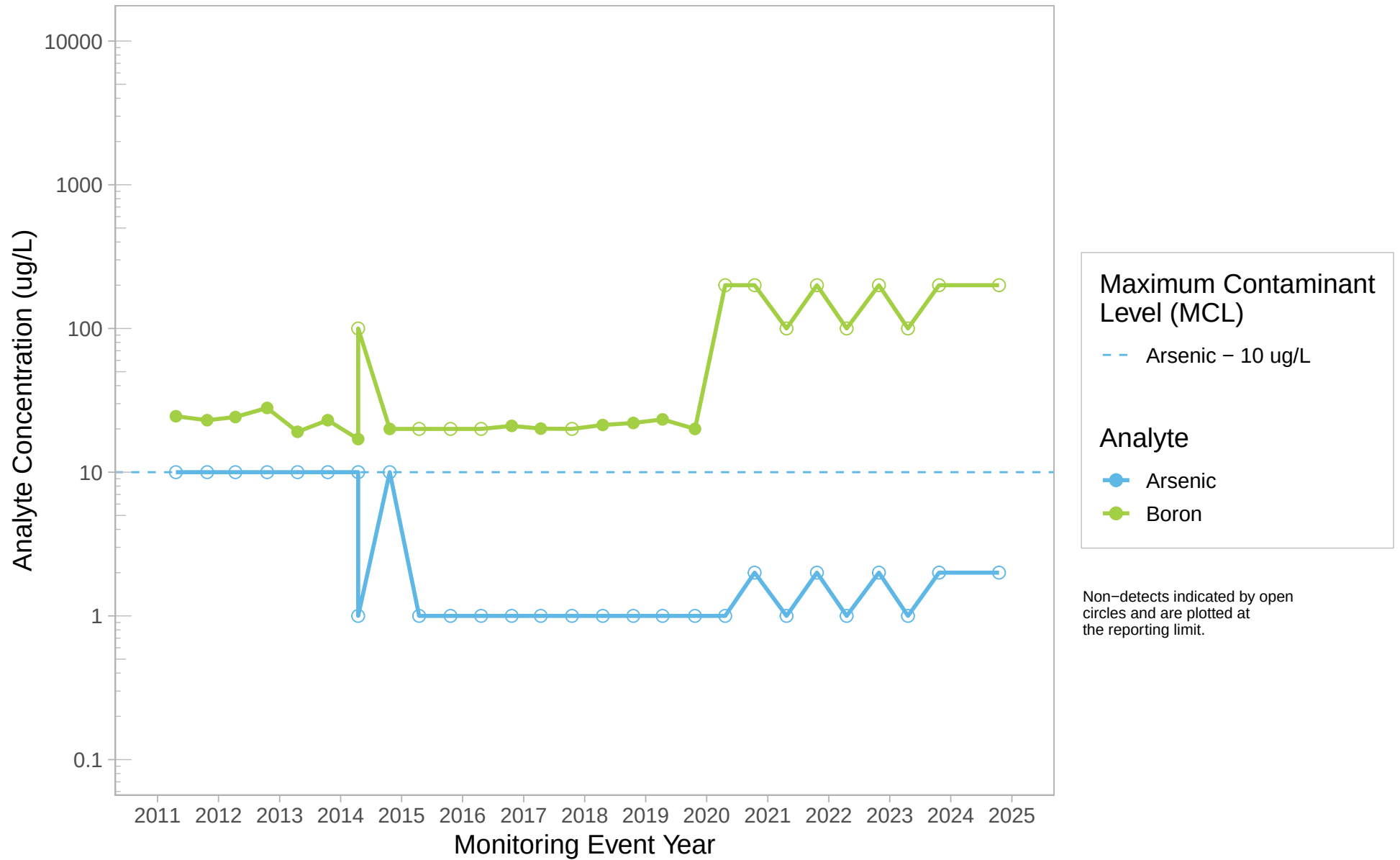
401-OWA



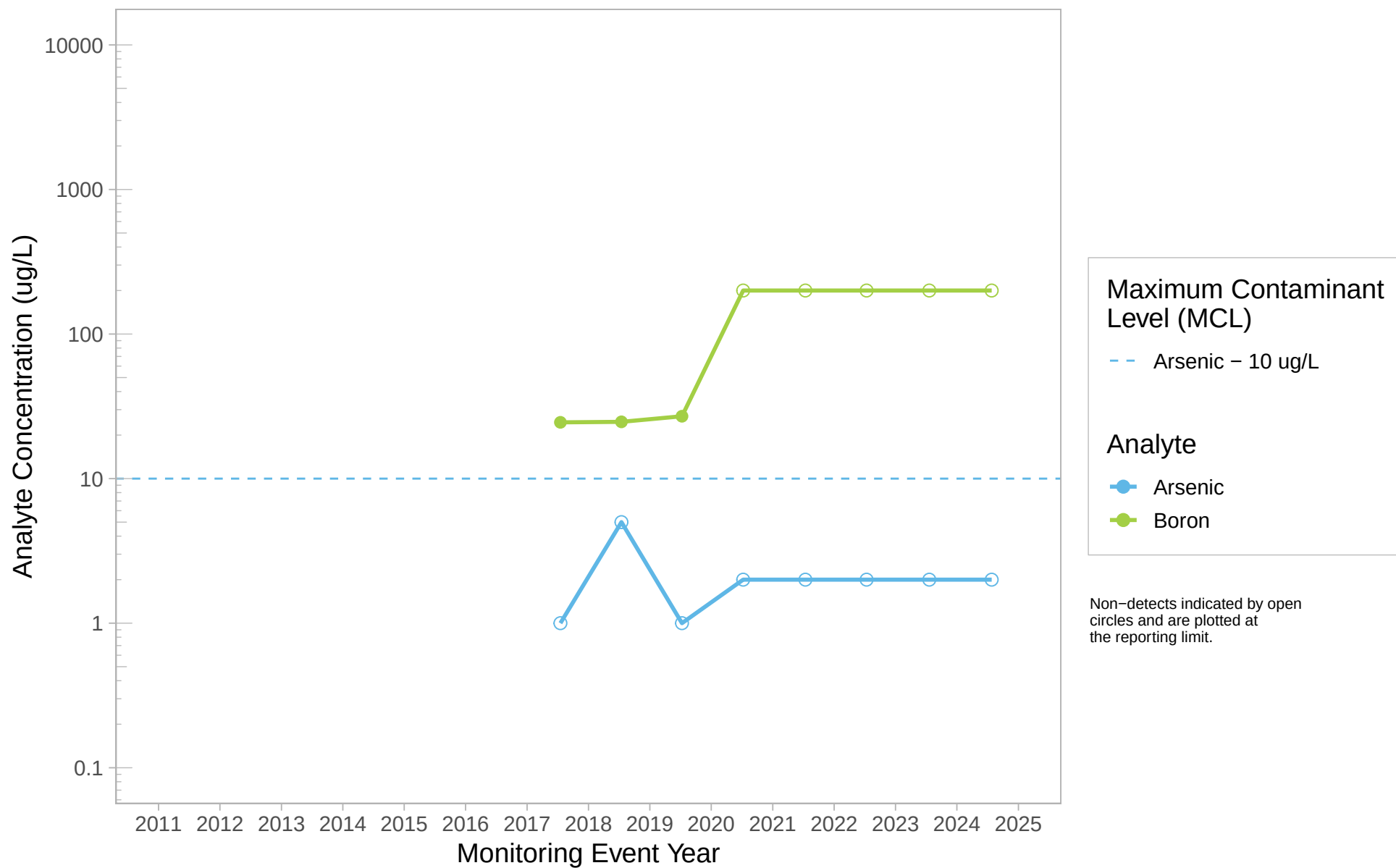
P-403C



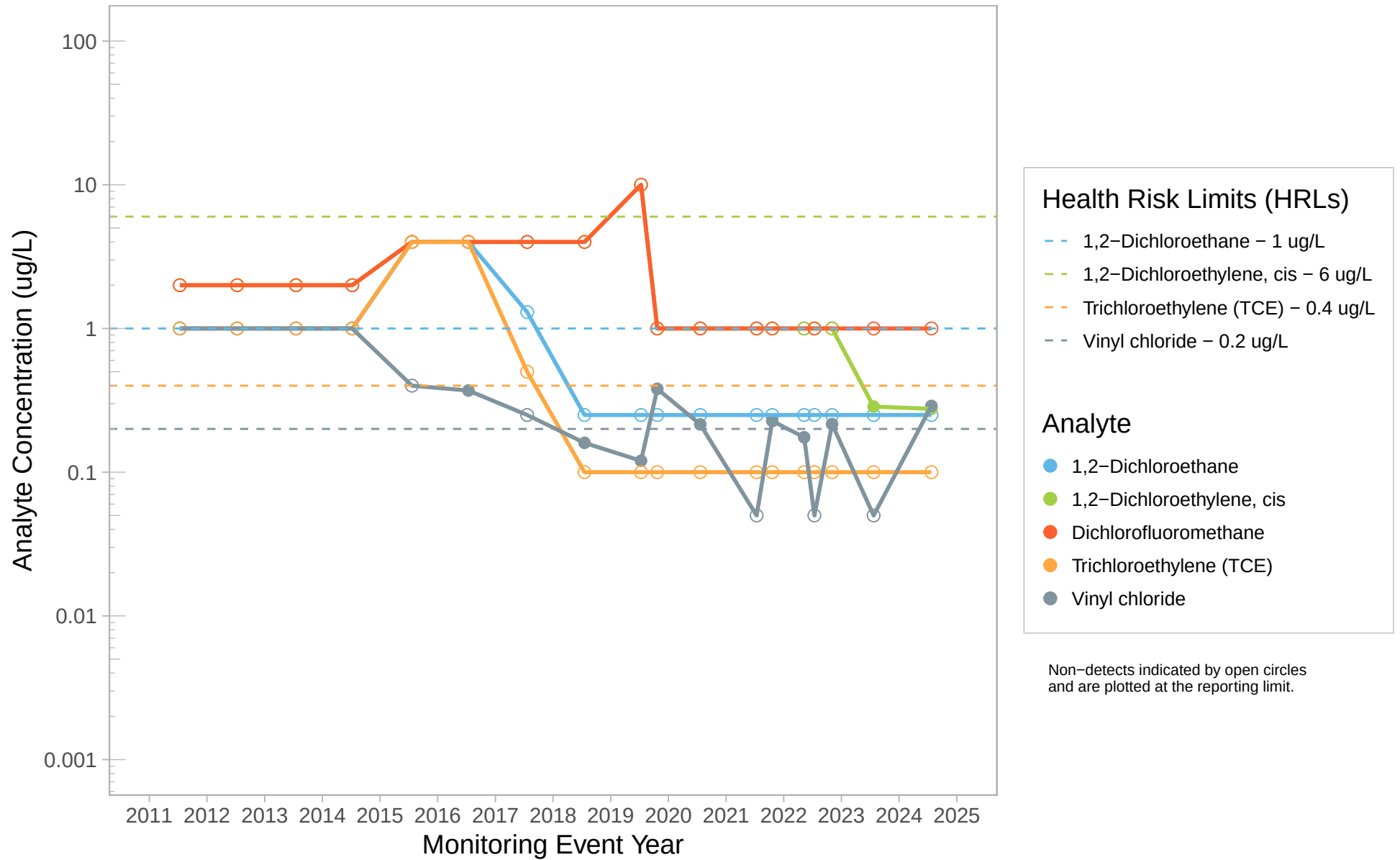
408-OWA



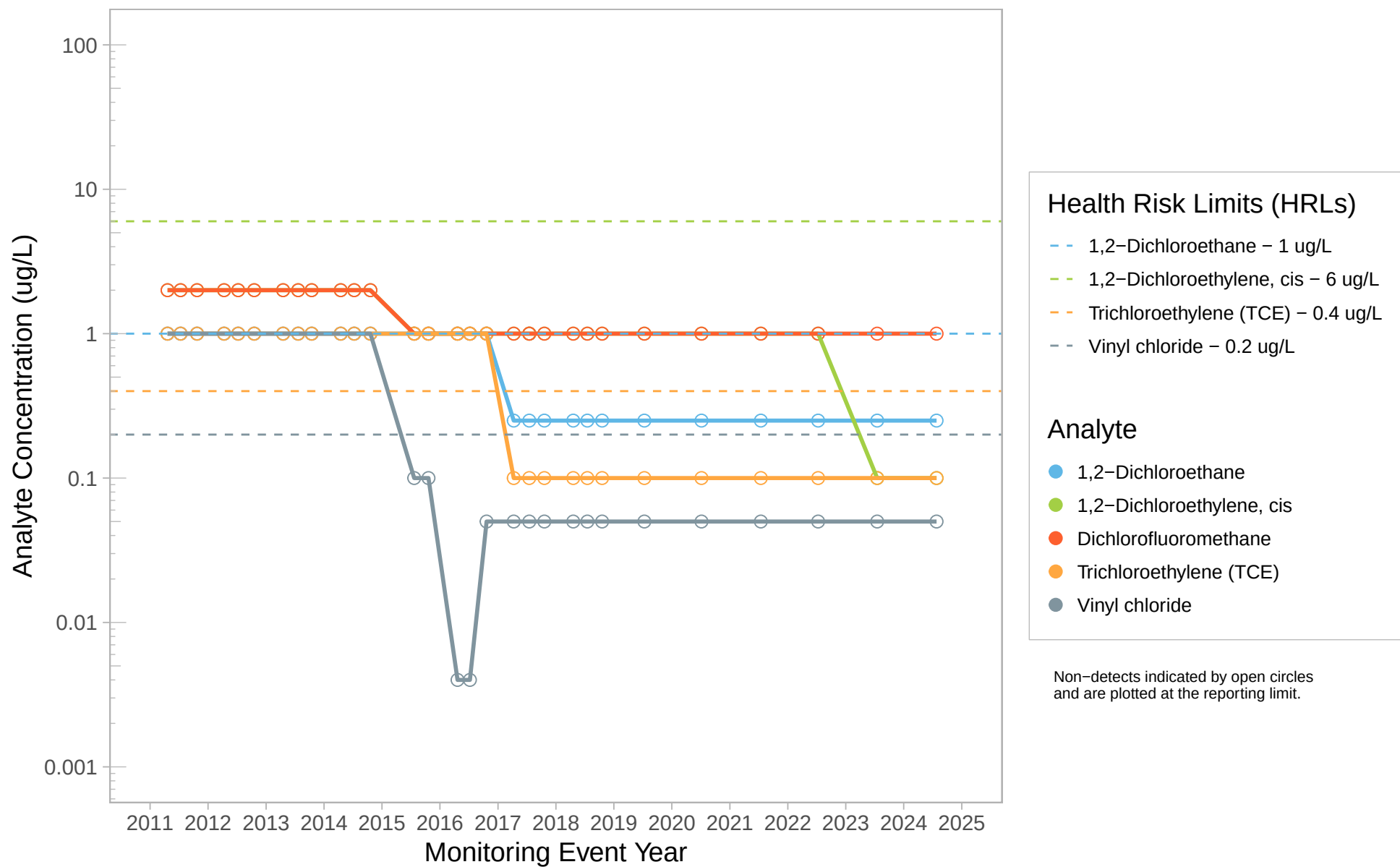
P694477



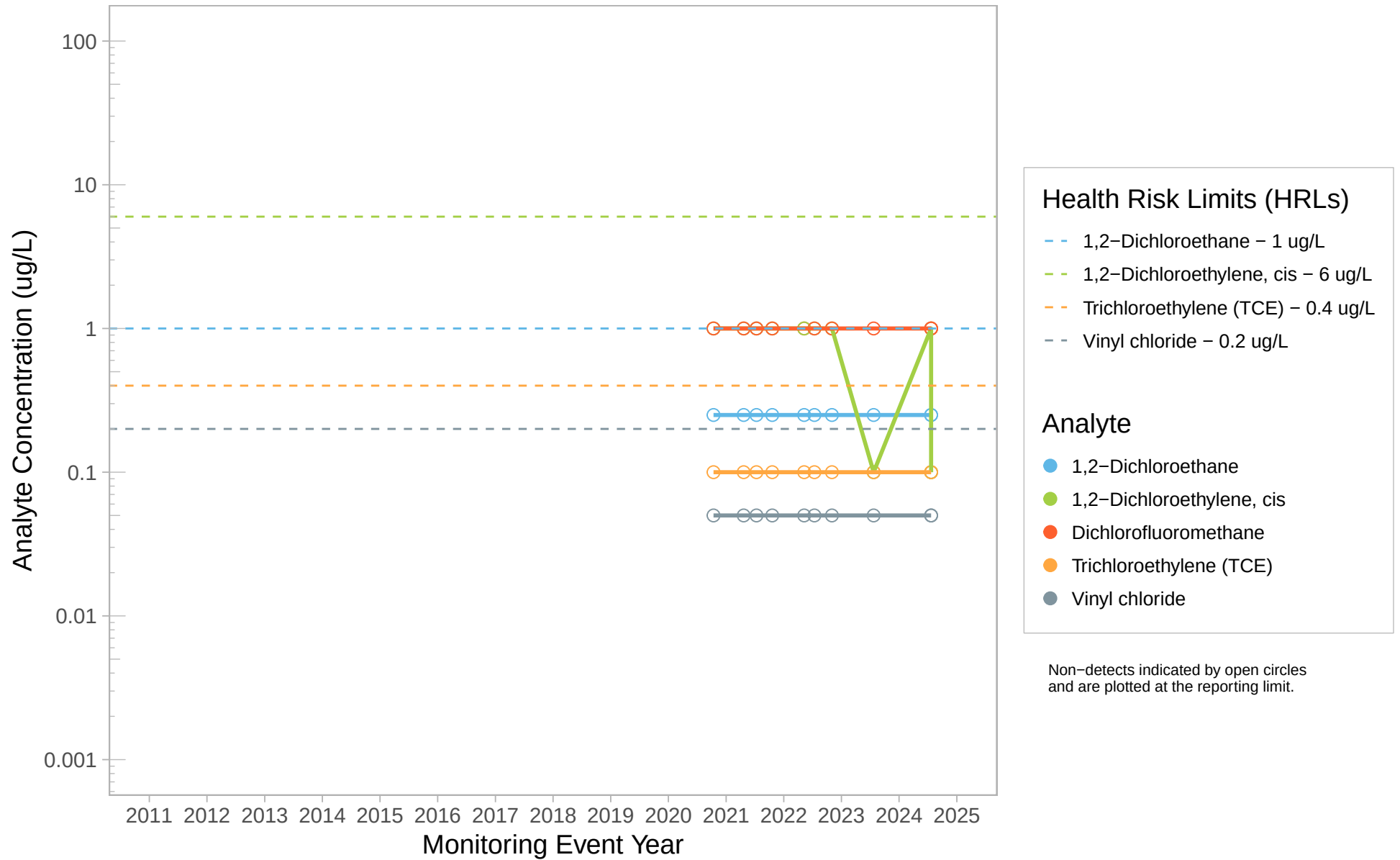
P-17C



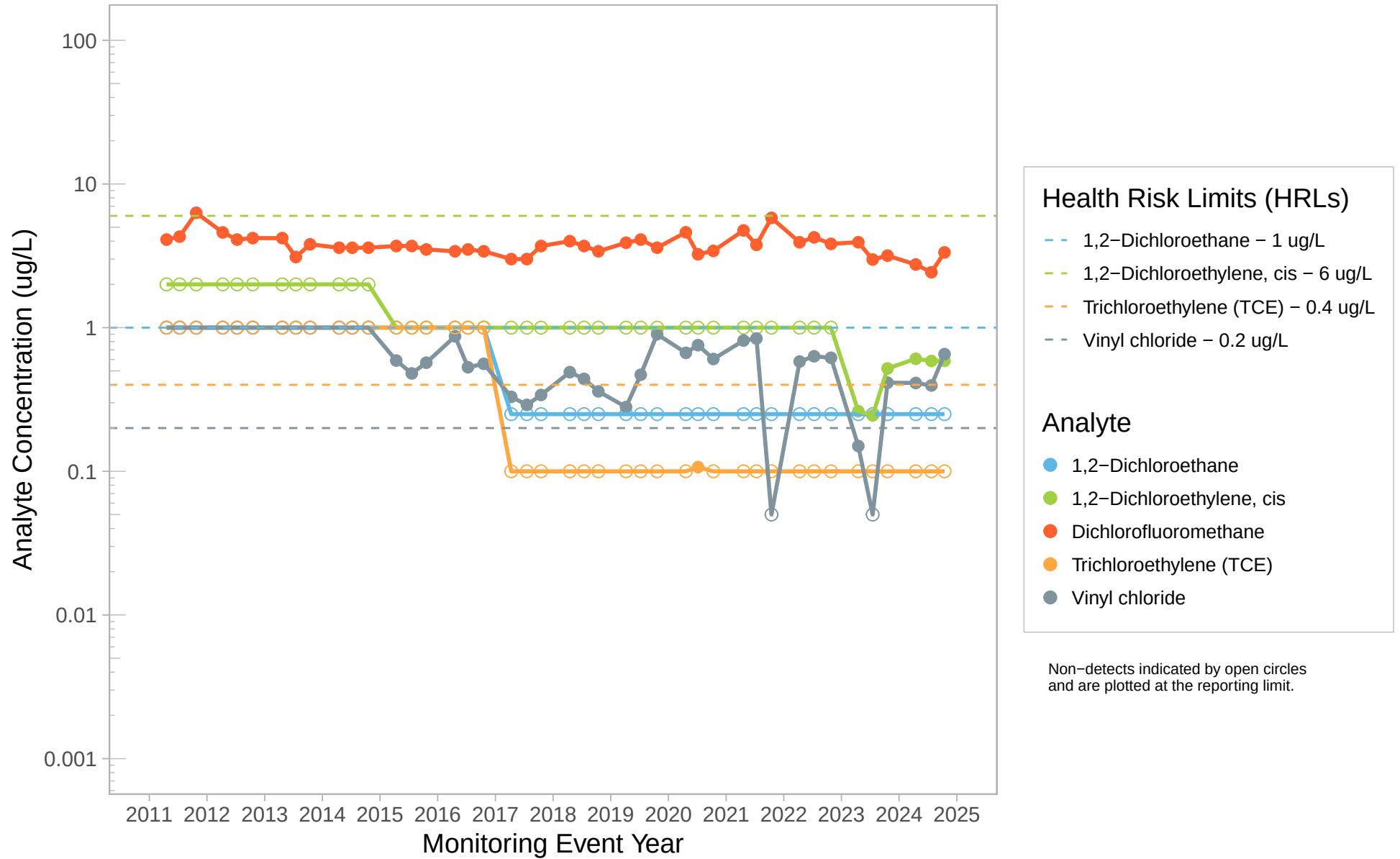
22-OWA



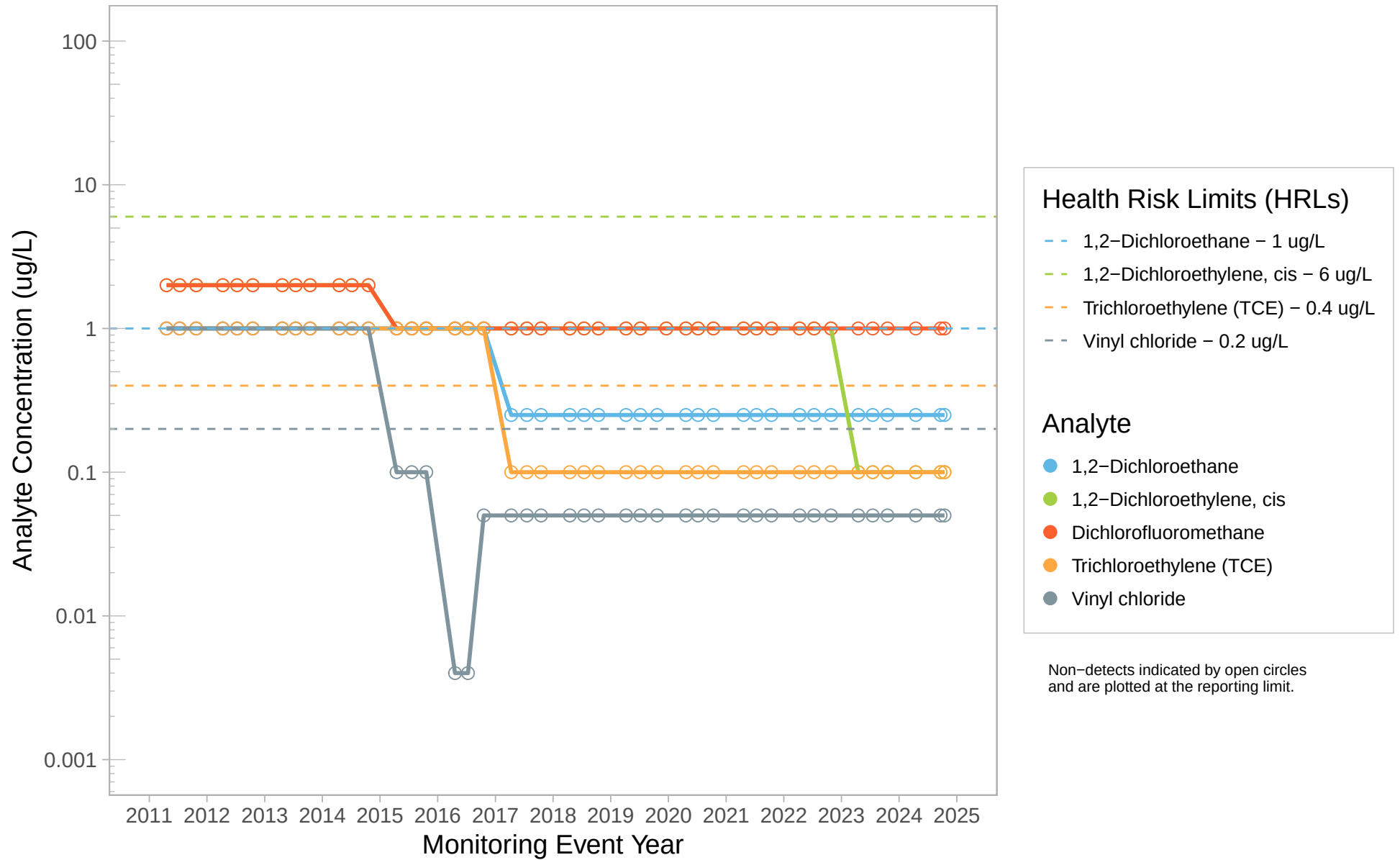
P-22L



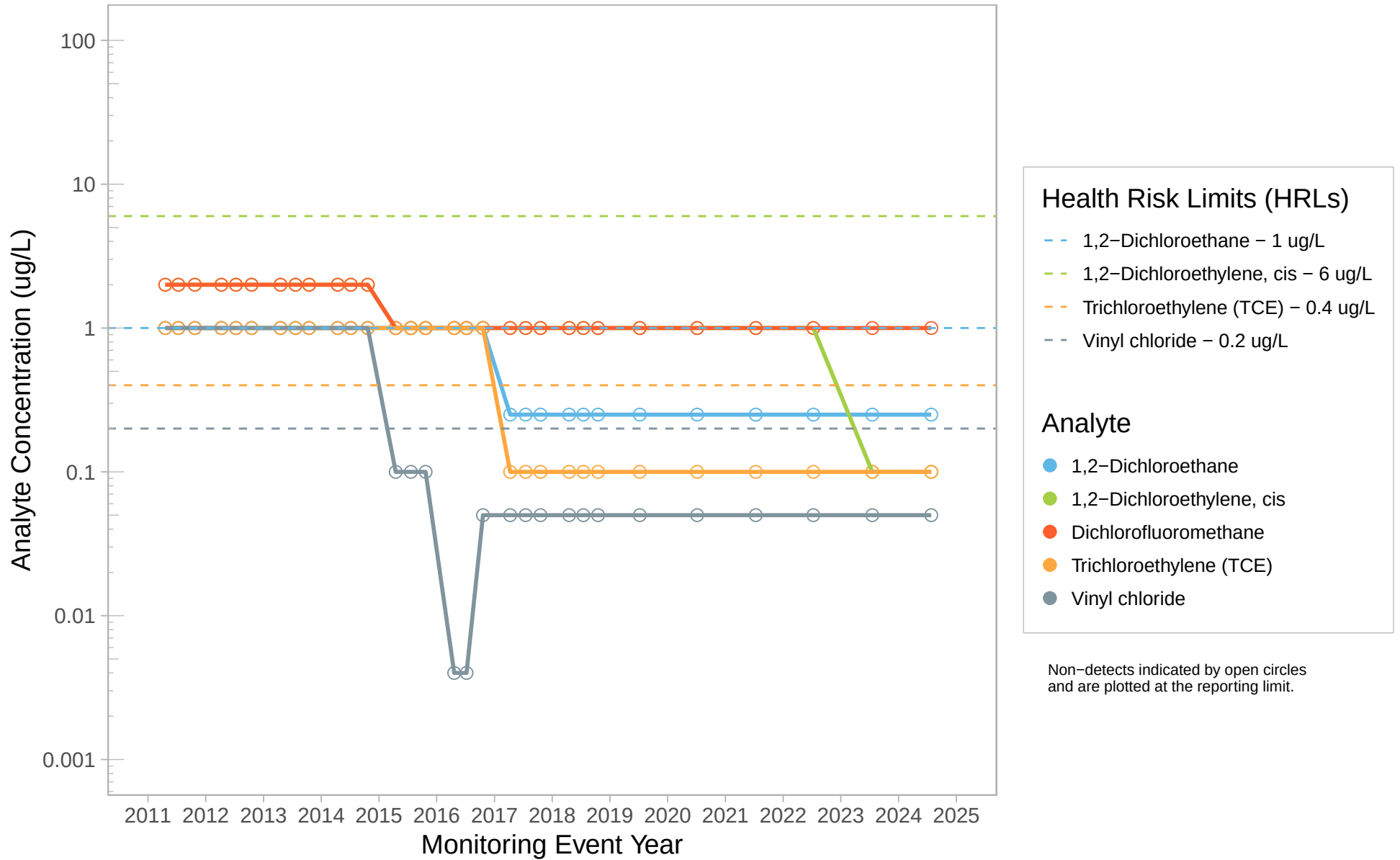
P-29C



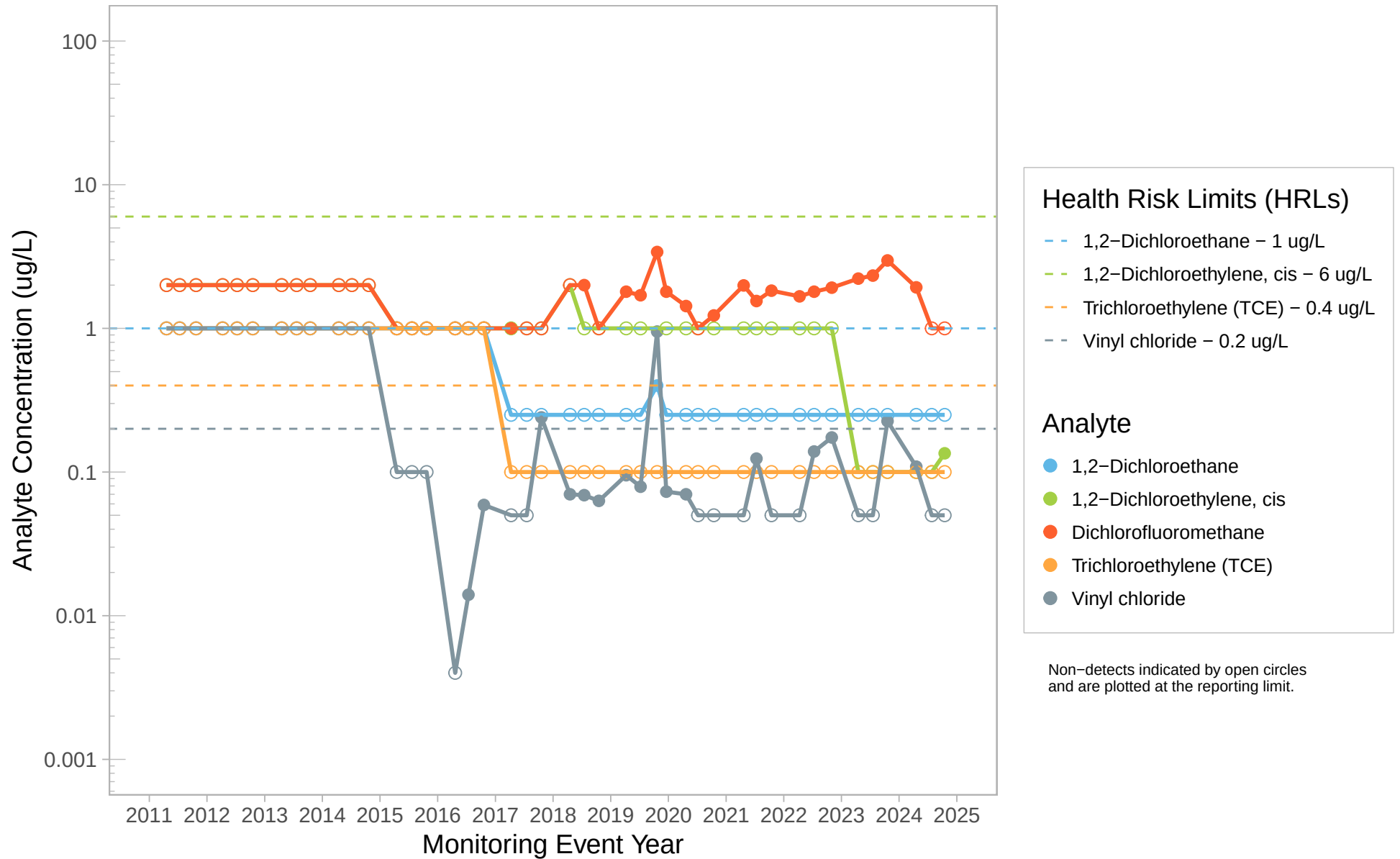
P-29D



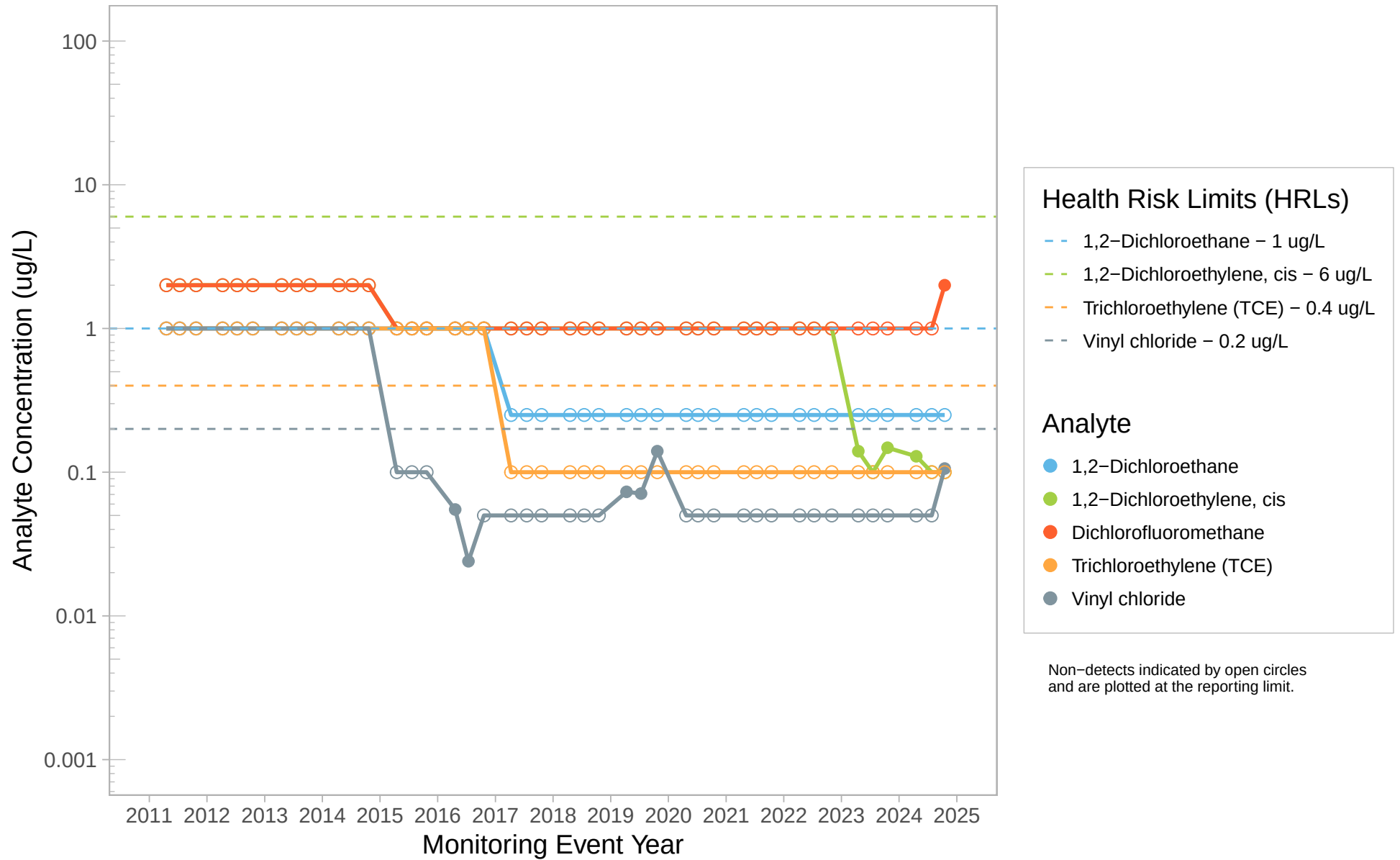
301-OWA



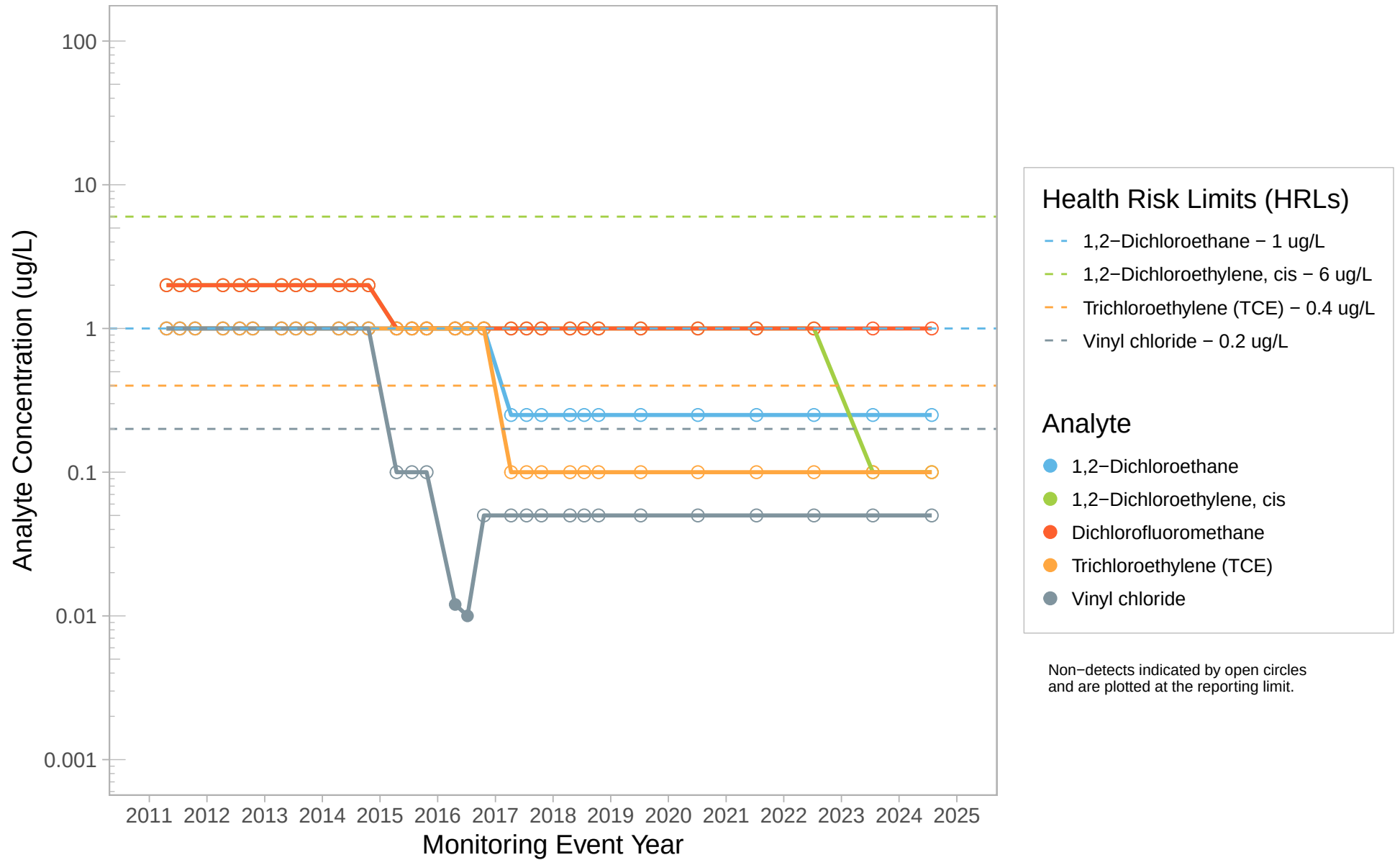
P-301C



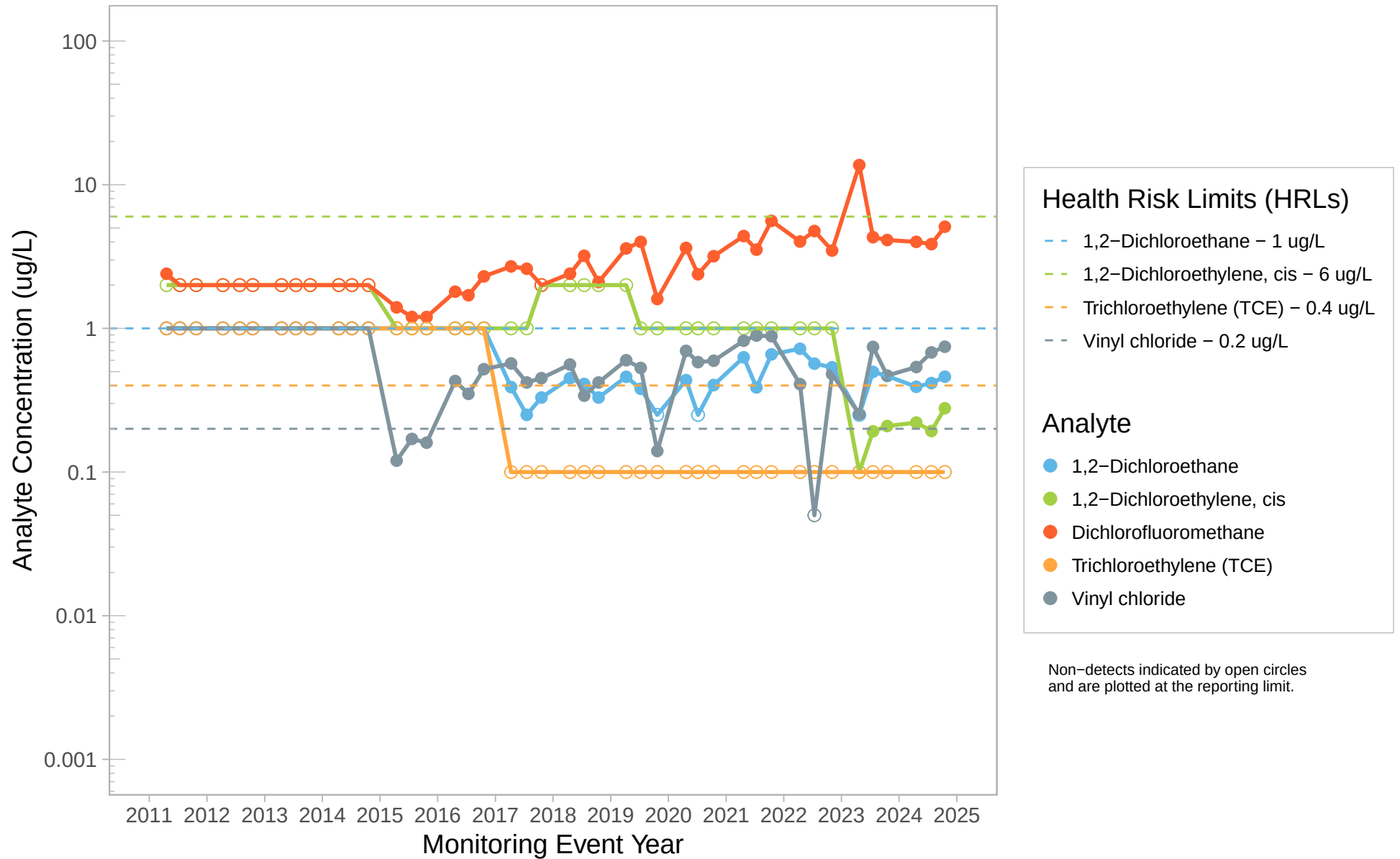
P-301L



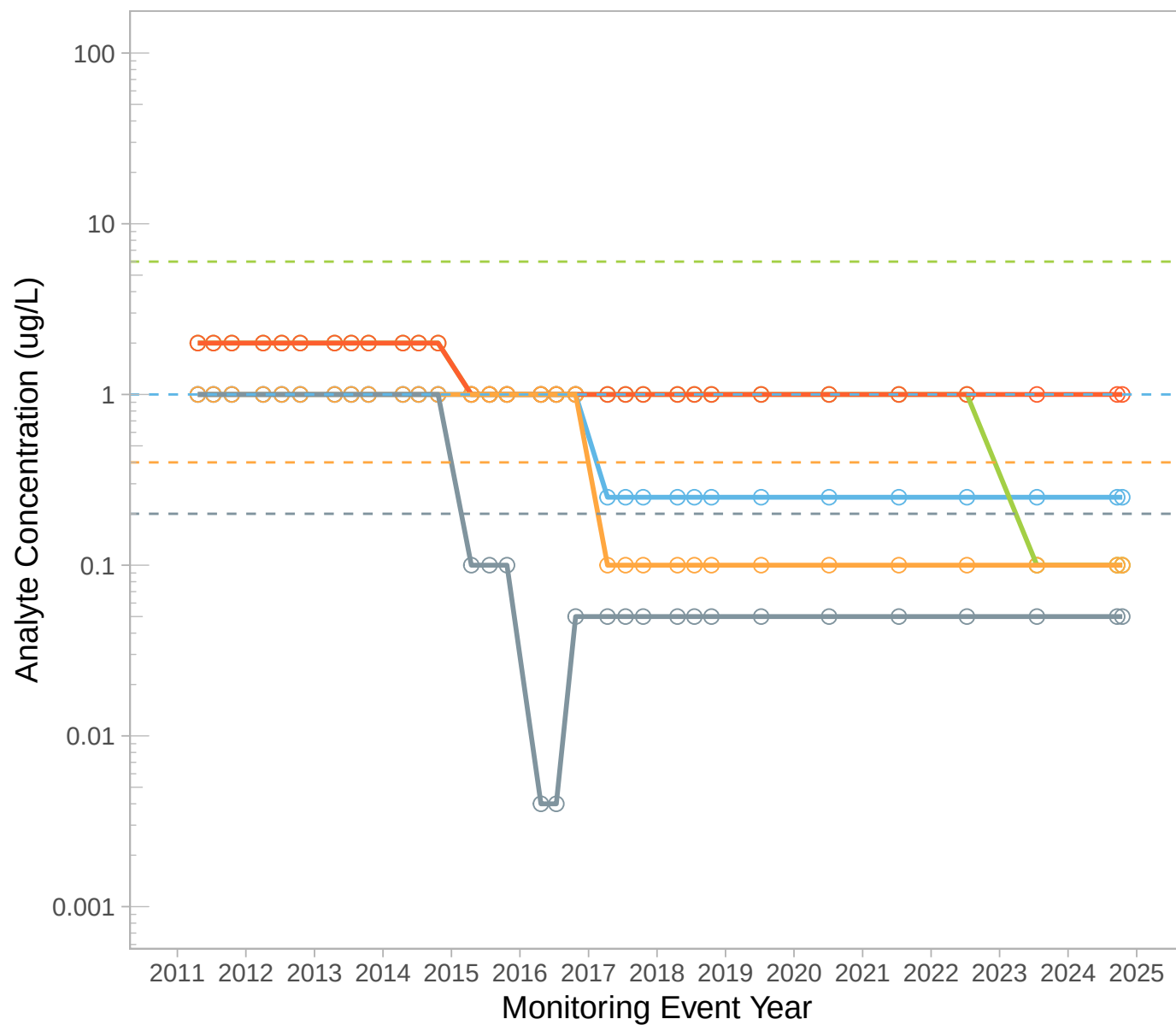
302-OWA



P-302C



P-303C



Health Risk Limits (HRLs)

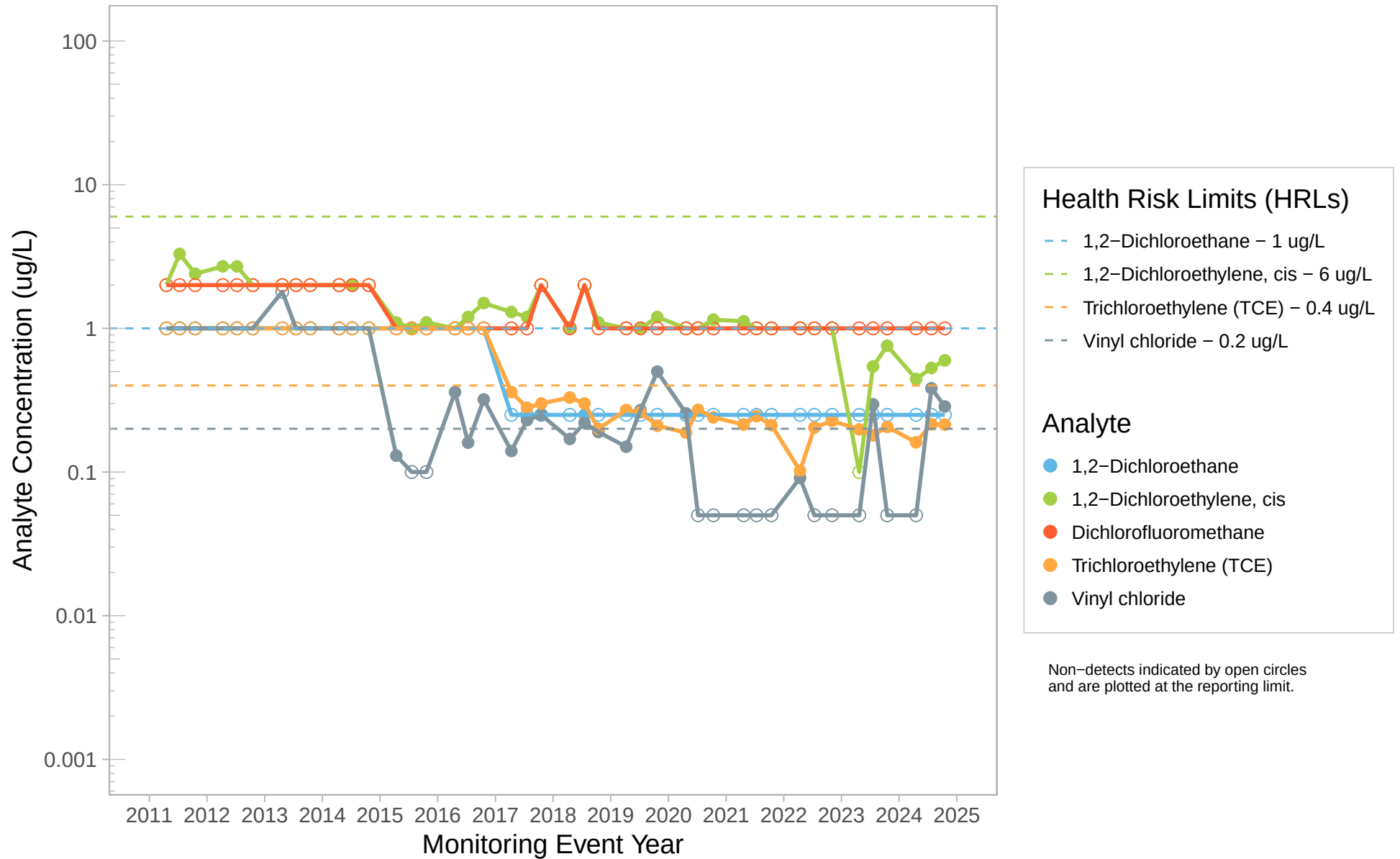
- 1,2-Dichloroethane – 1 ug/L
- 1,2-Dichloroethylene, cis – 6 ug/L
- Trichloroethylene (TCE) – 0.4 ug/L
- Vinyl chloride – 0.2 ug/L

Analyte

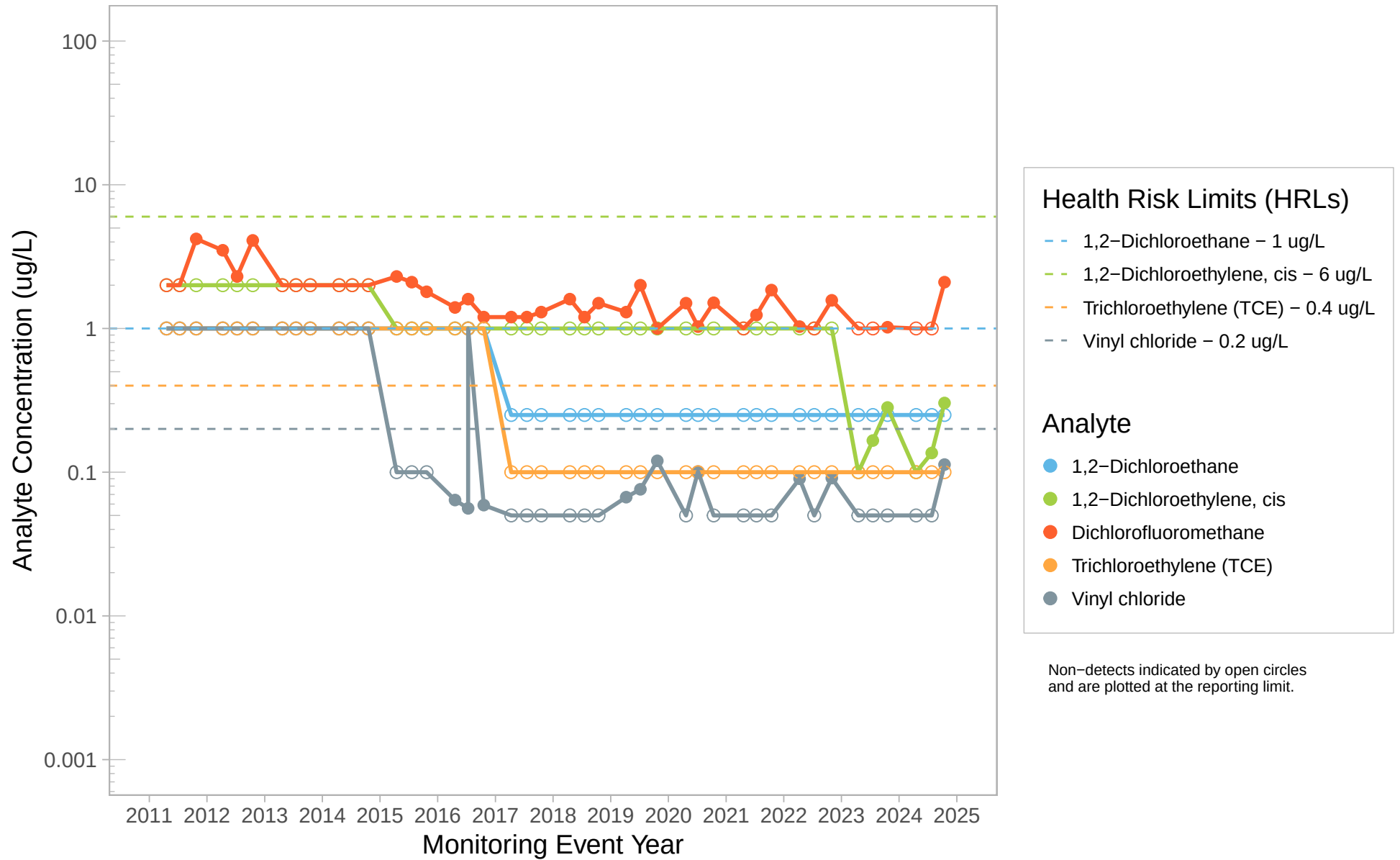
- 1,2-Dichloroethane
- 1,2-Dichloroethylene, cis
- Dichlorofluoromethane
- Trichloroethylene (TCE)
- Vinyl chloride

Non-detects indicated by open circles and are plotted at the reporting limit.

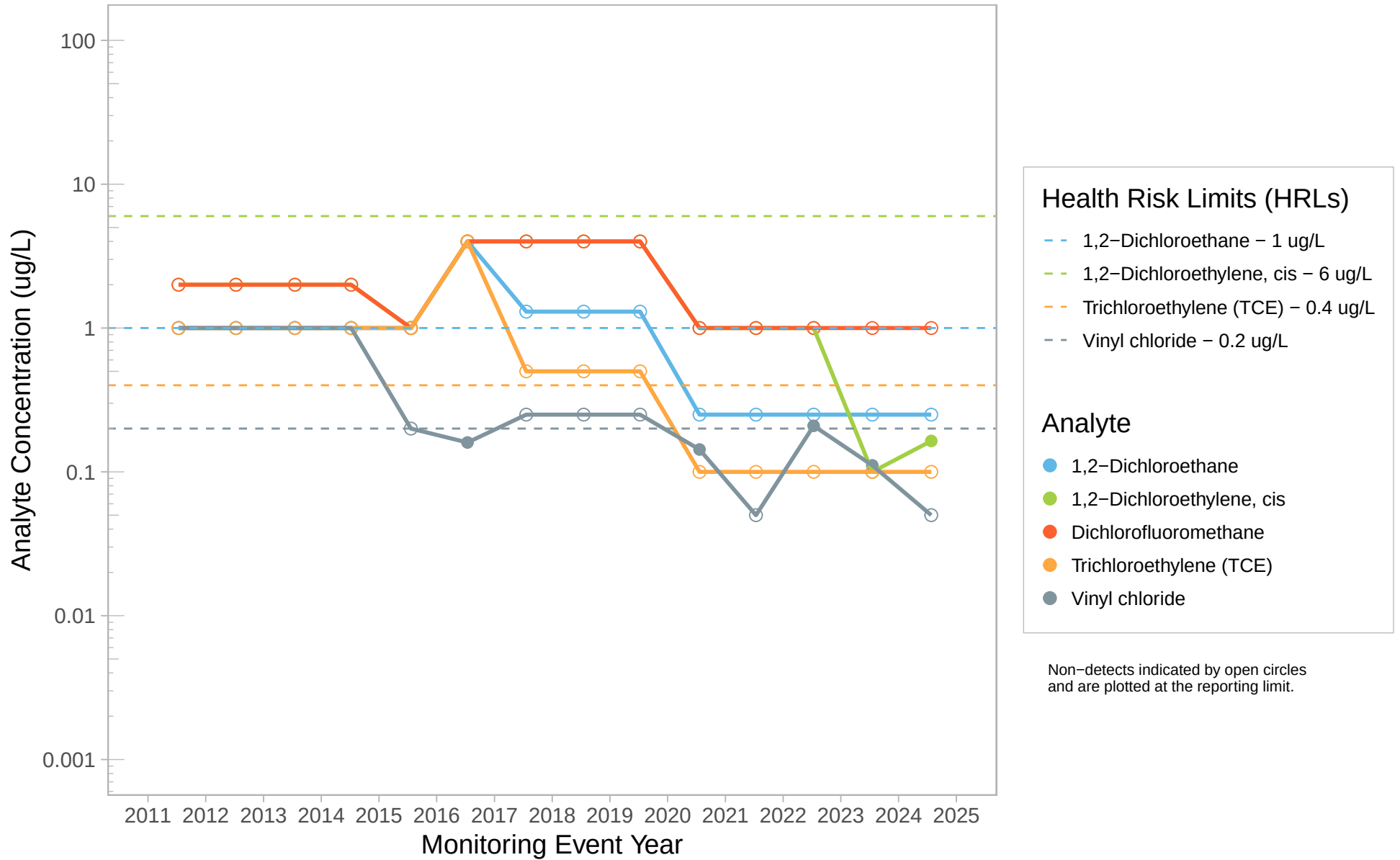
P-304C



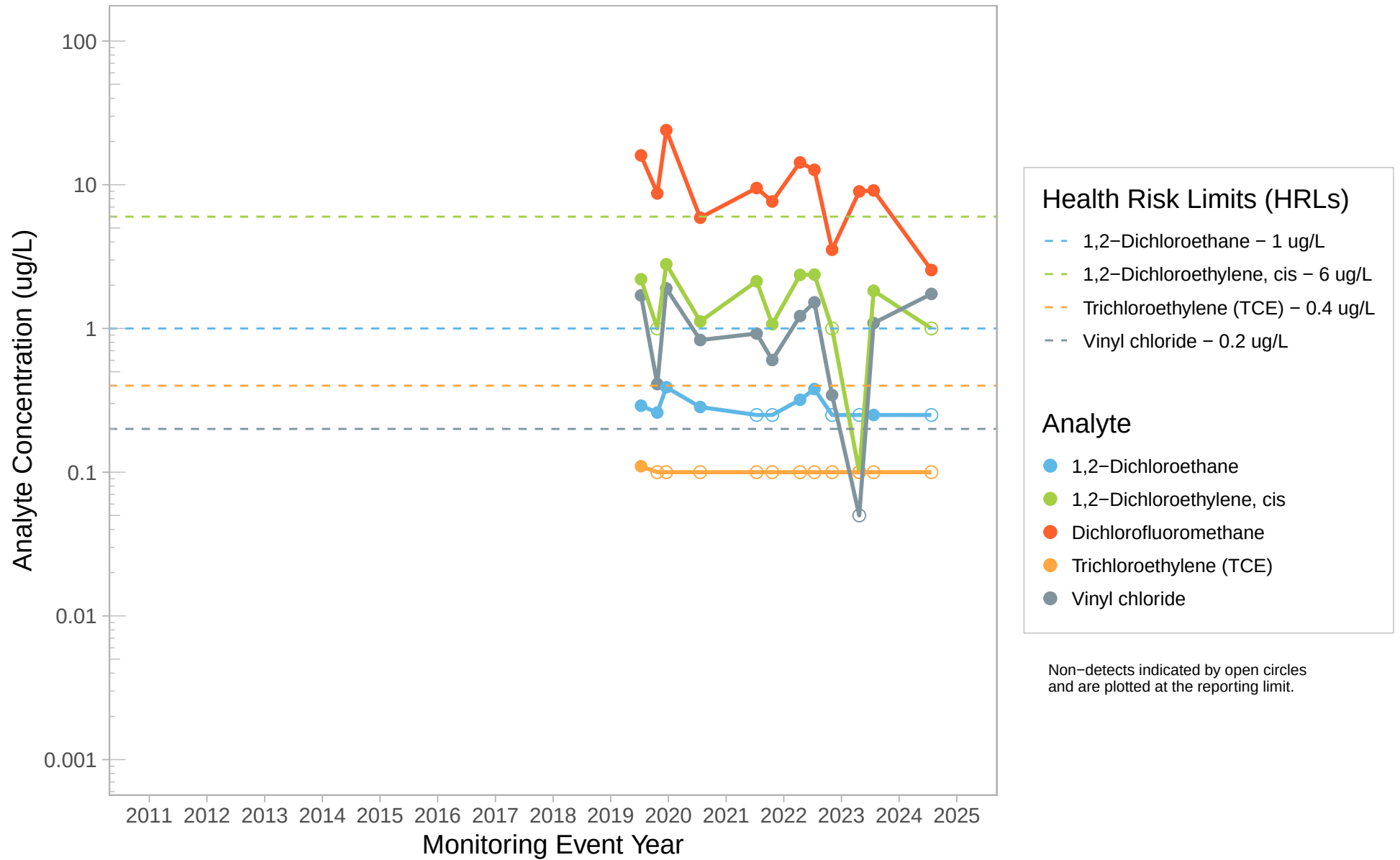
P-305C



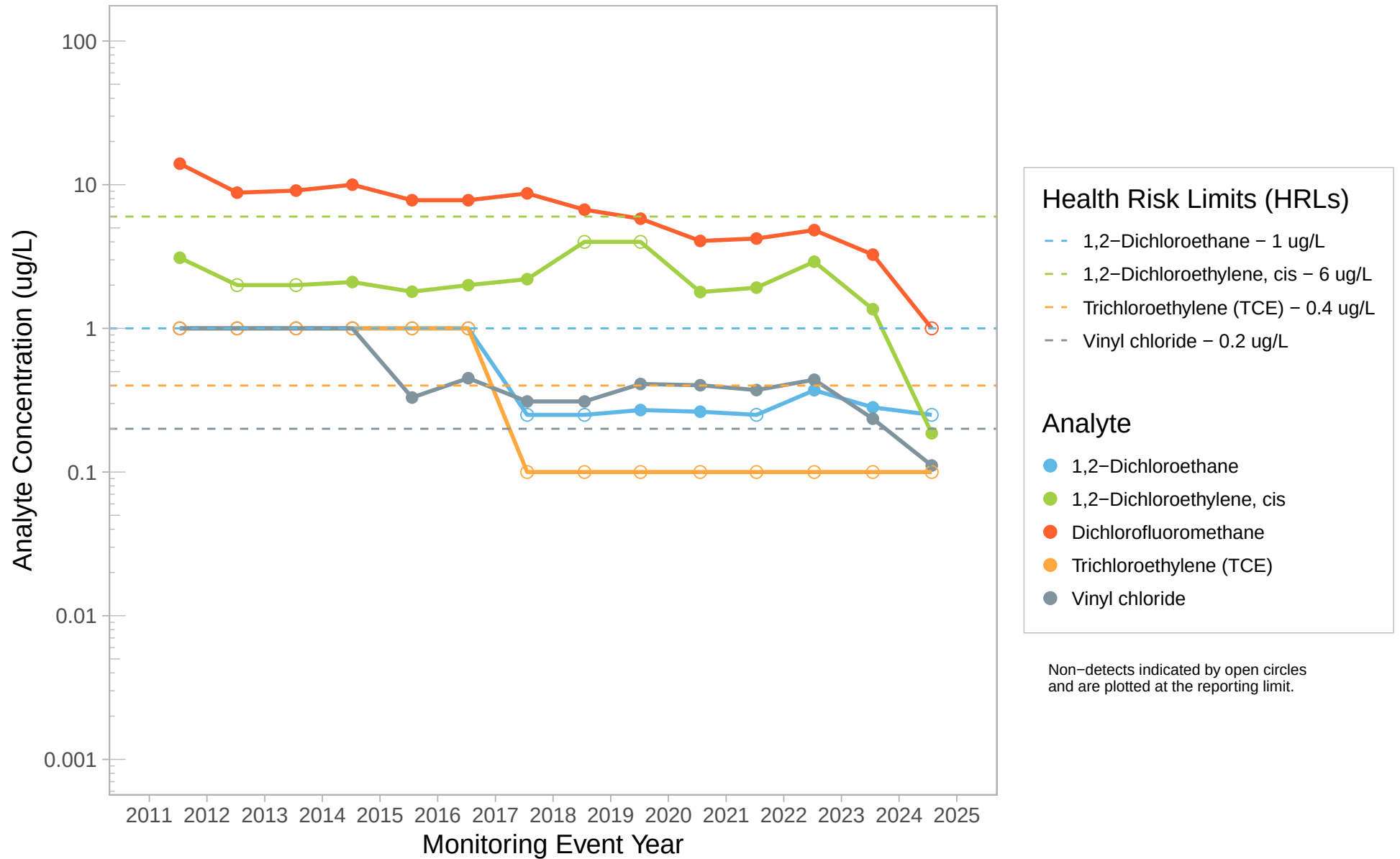
P-308C



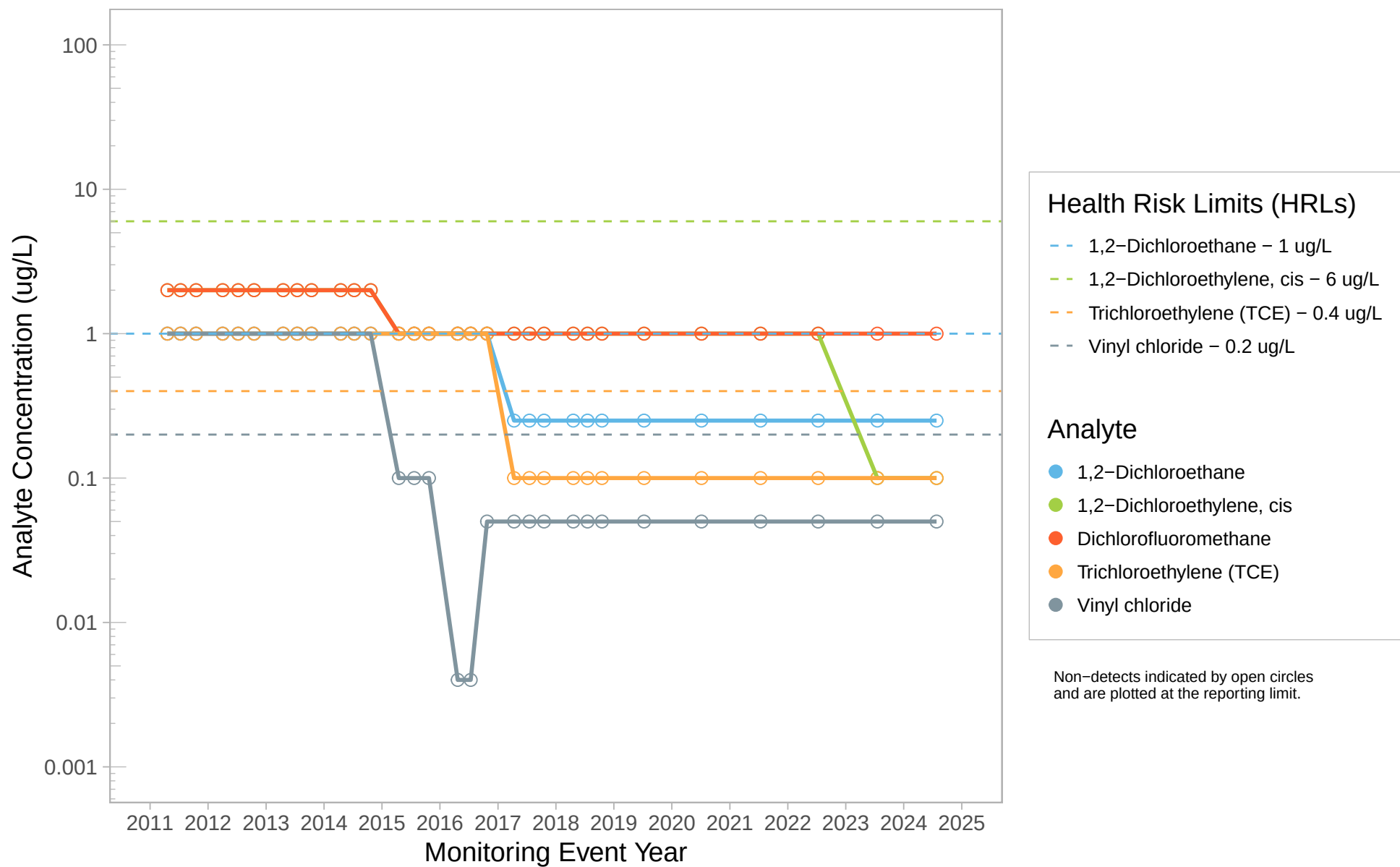
P-308L



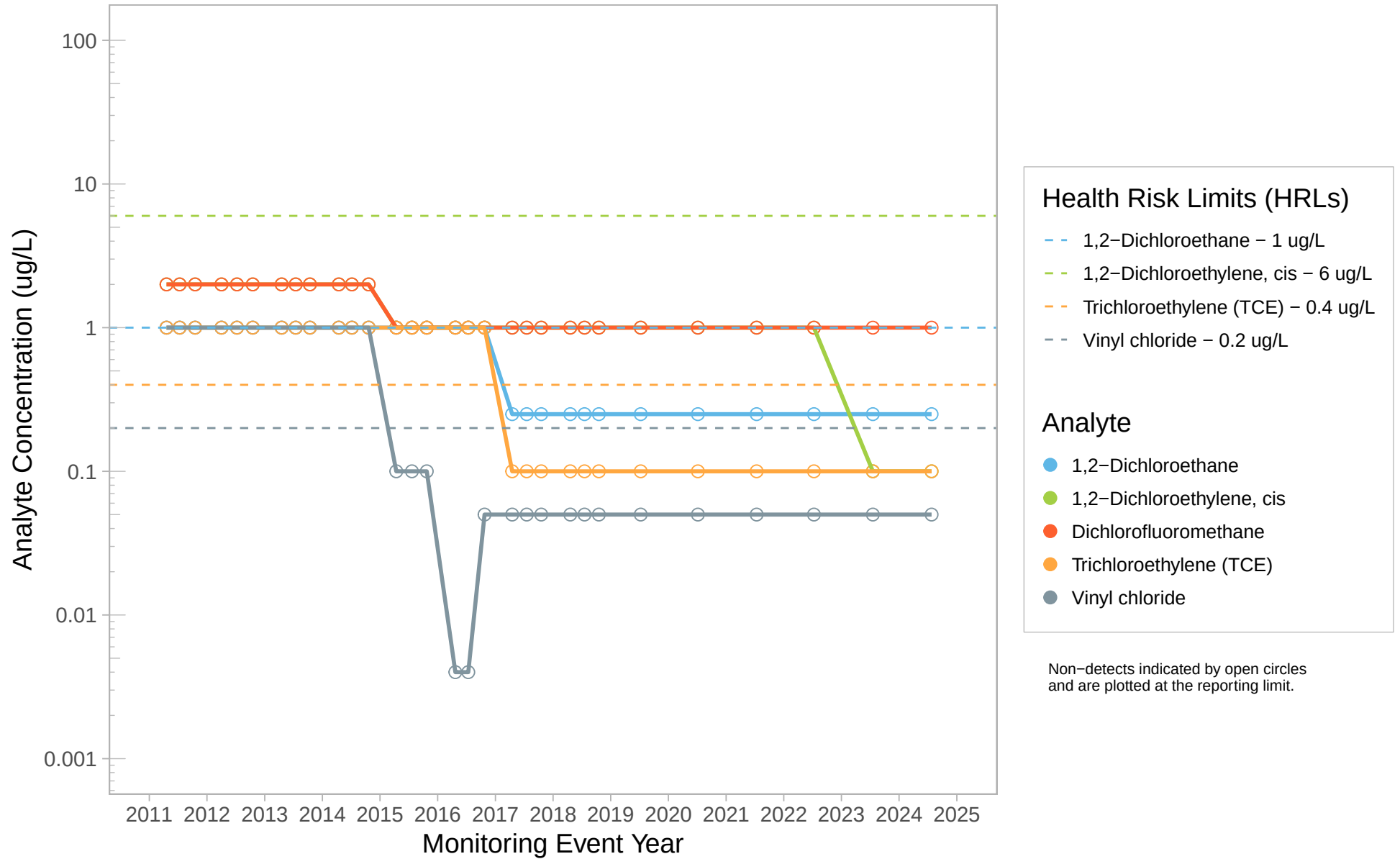
P-309C



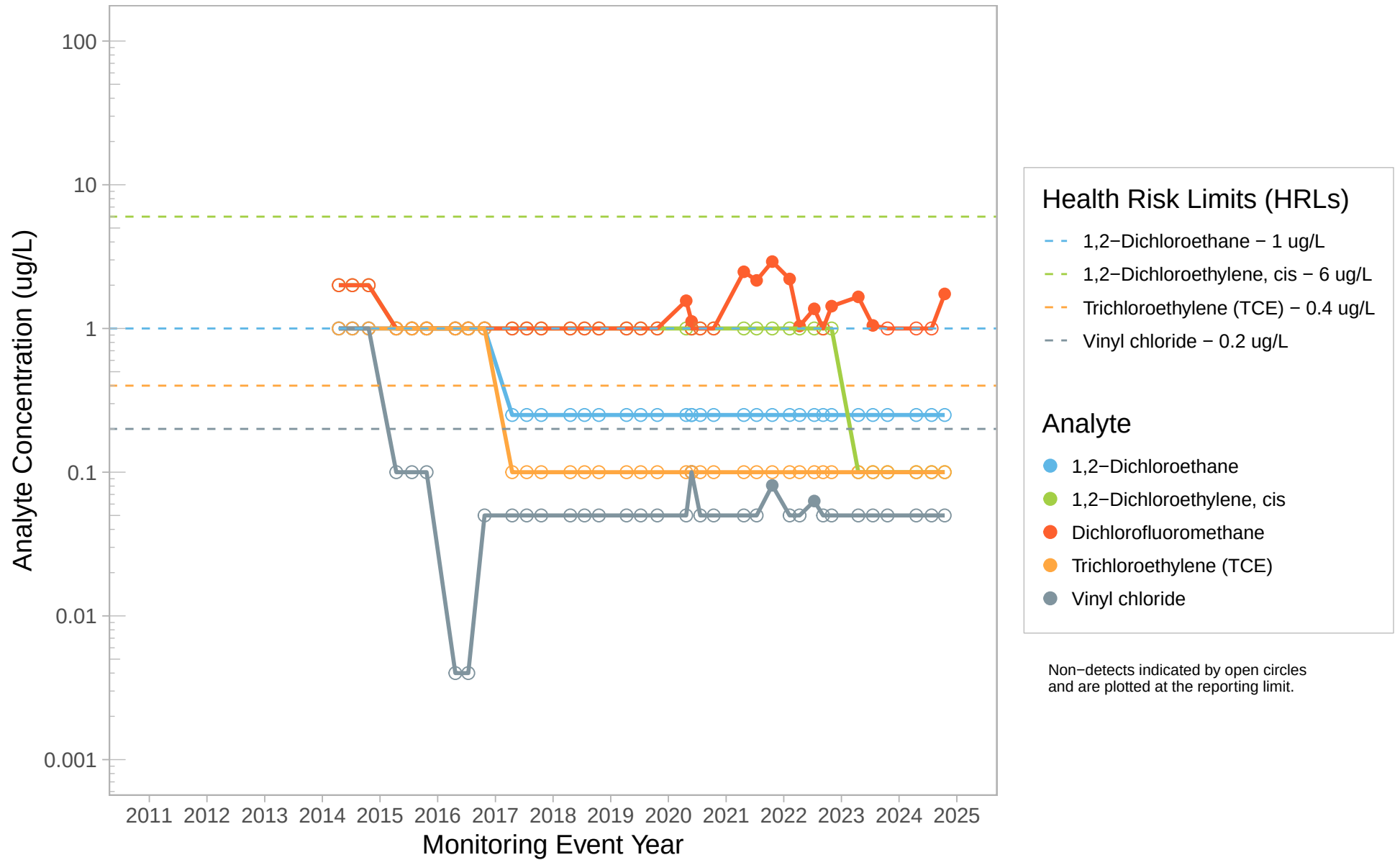
P-310C



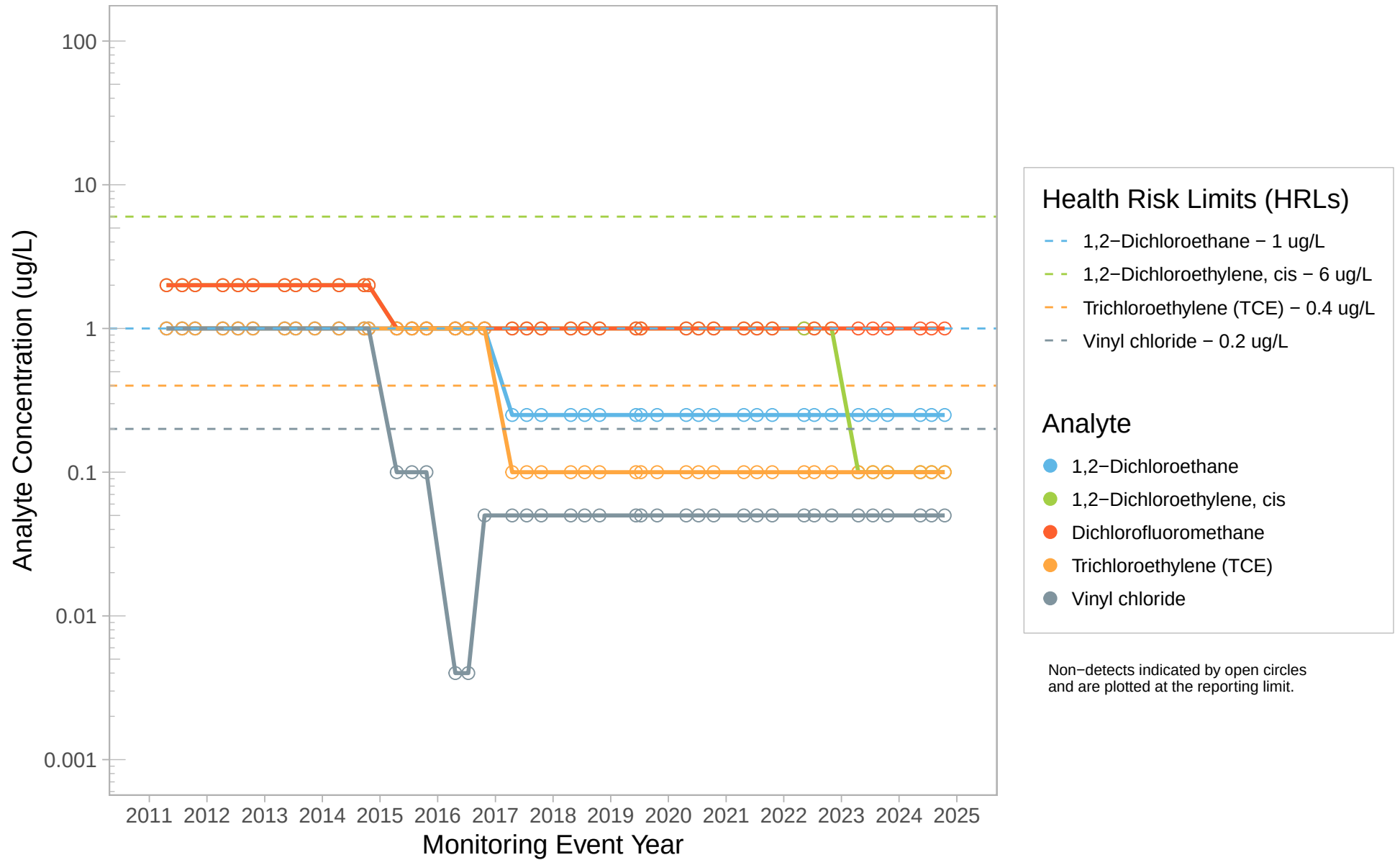
P-311C



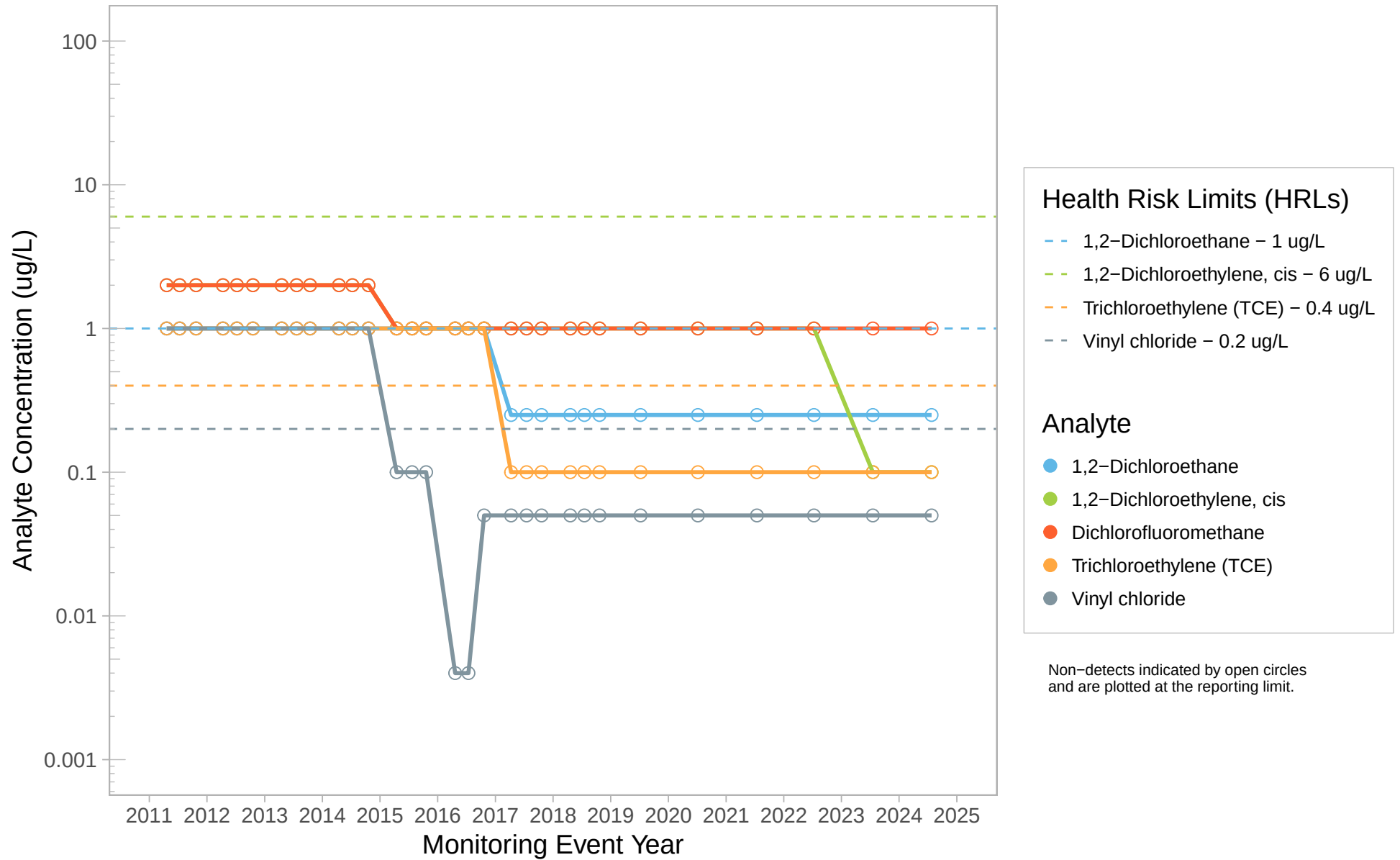
P-311L



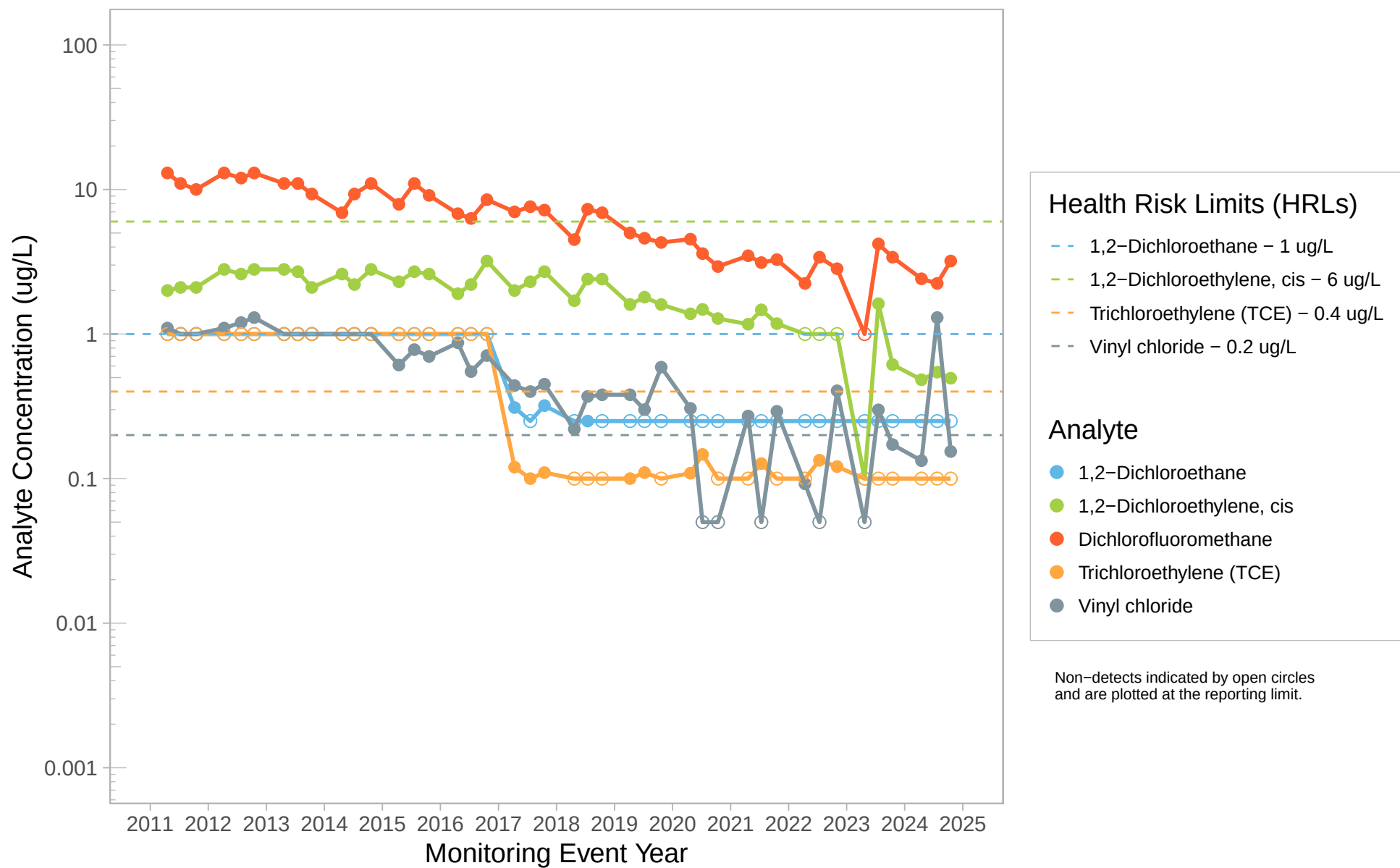
P-311D



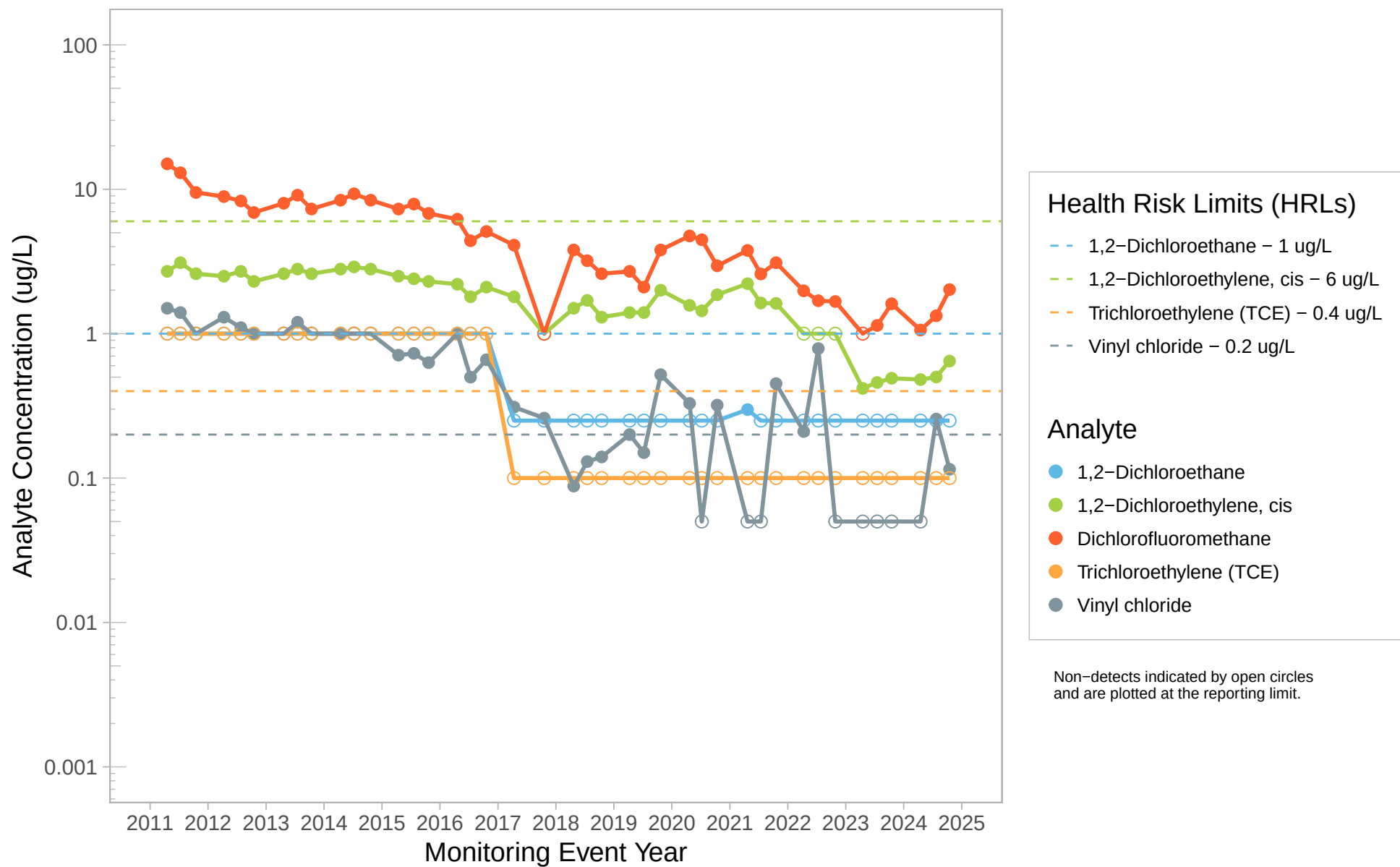
312-OWA



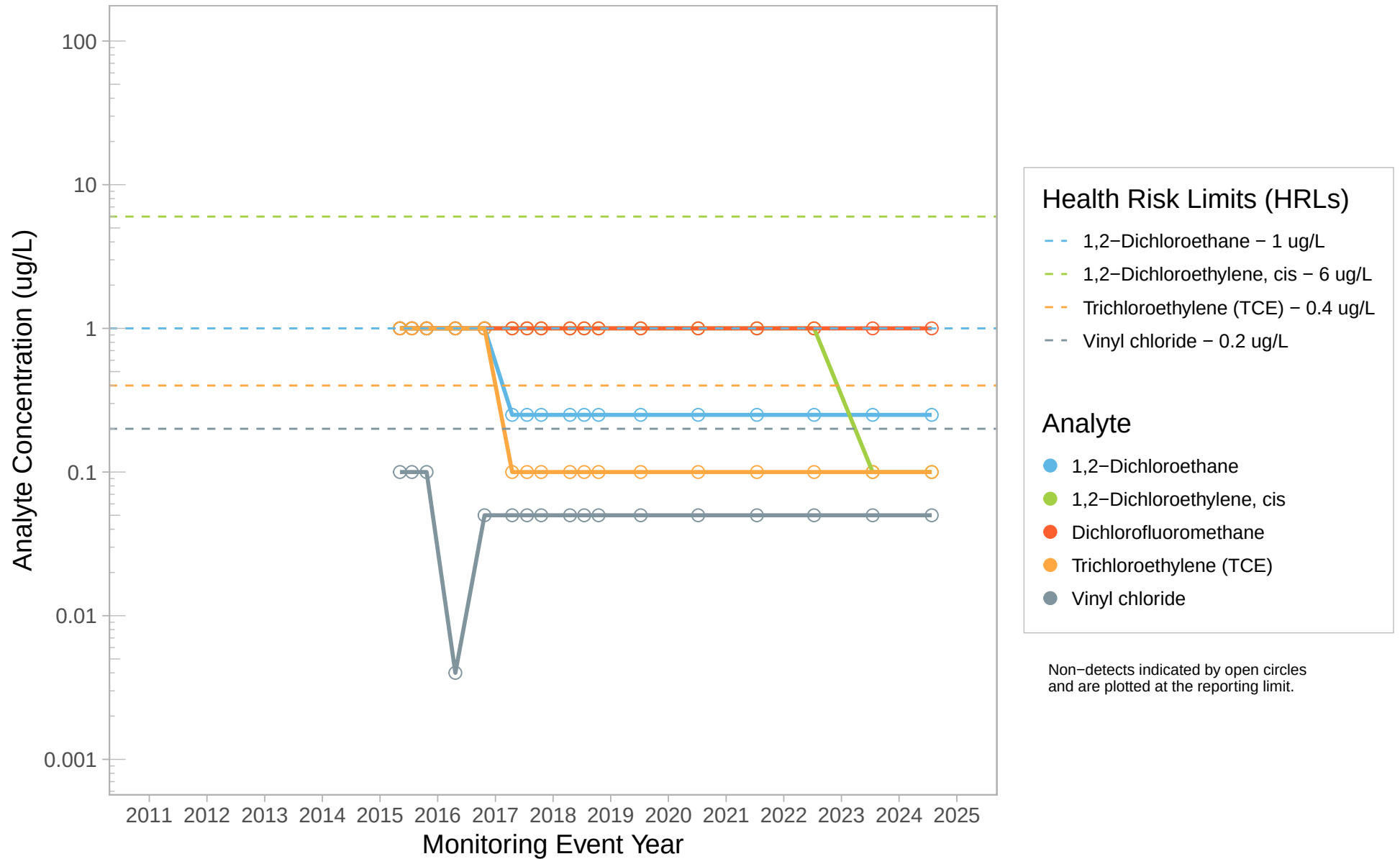
P-313C



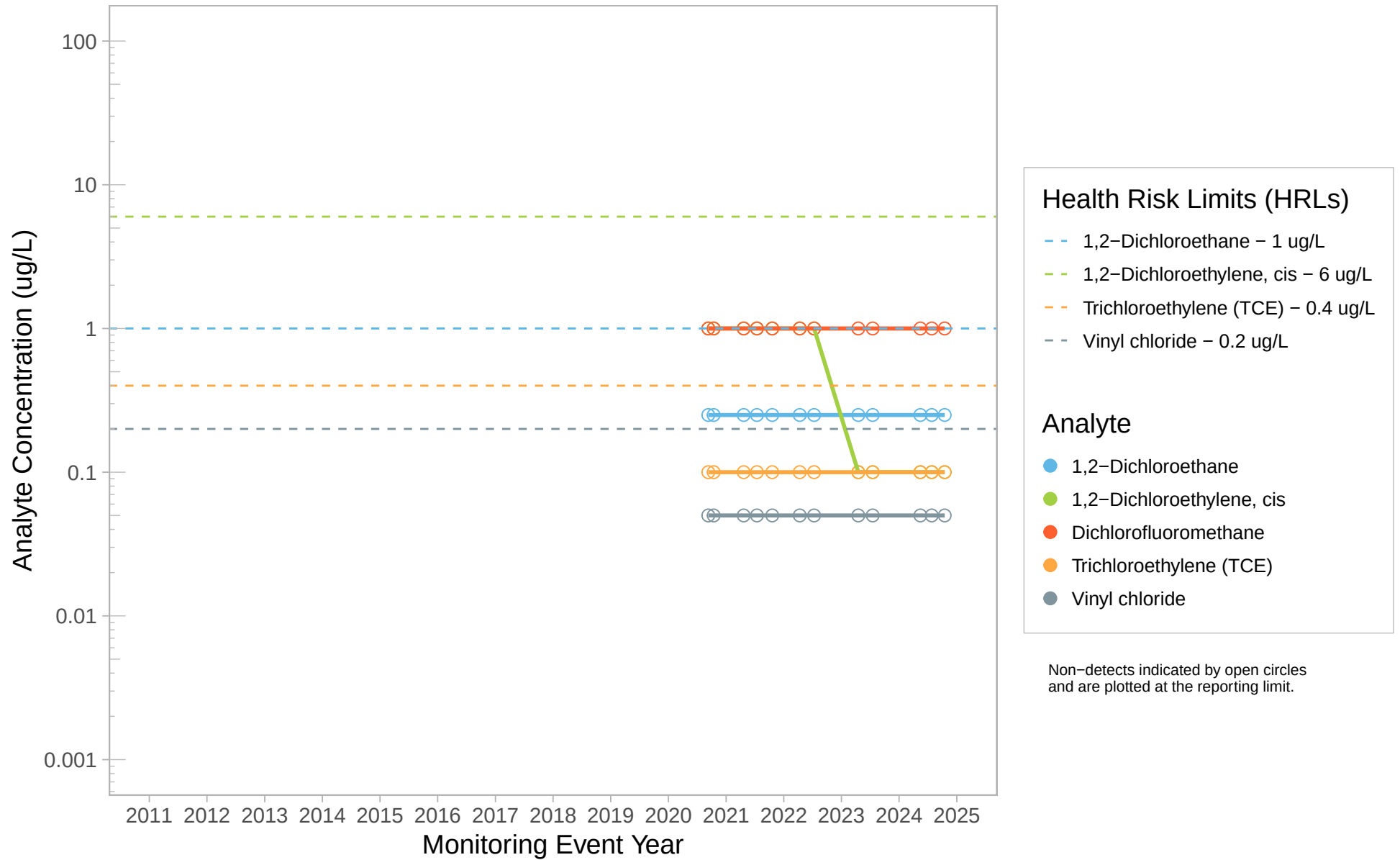
P-314C



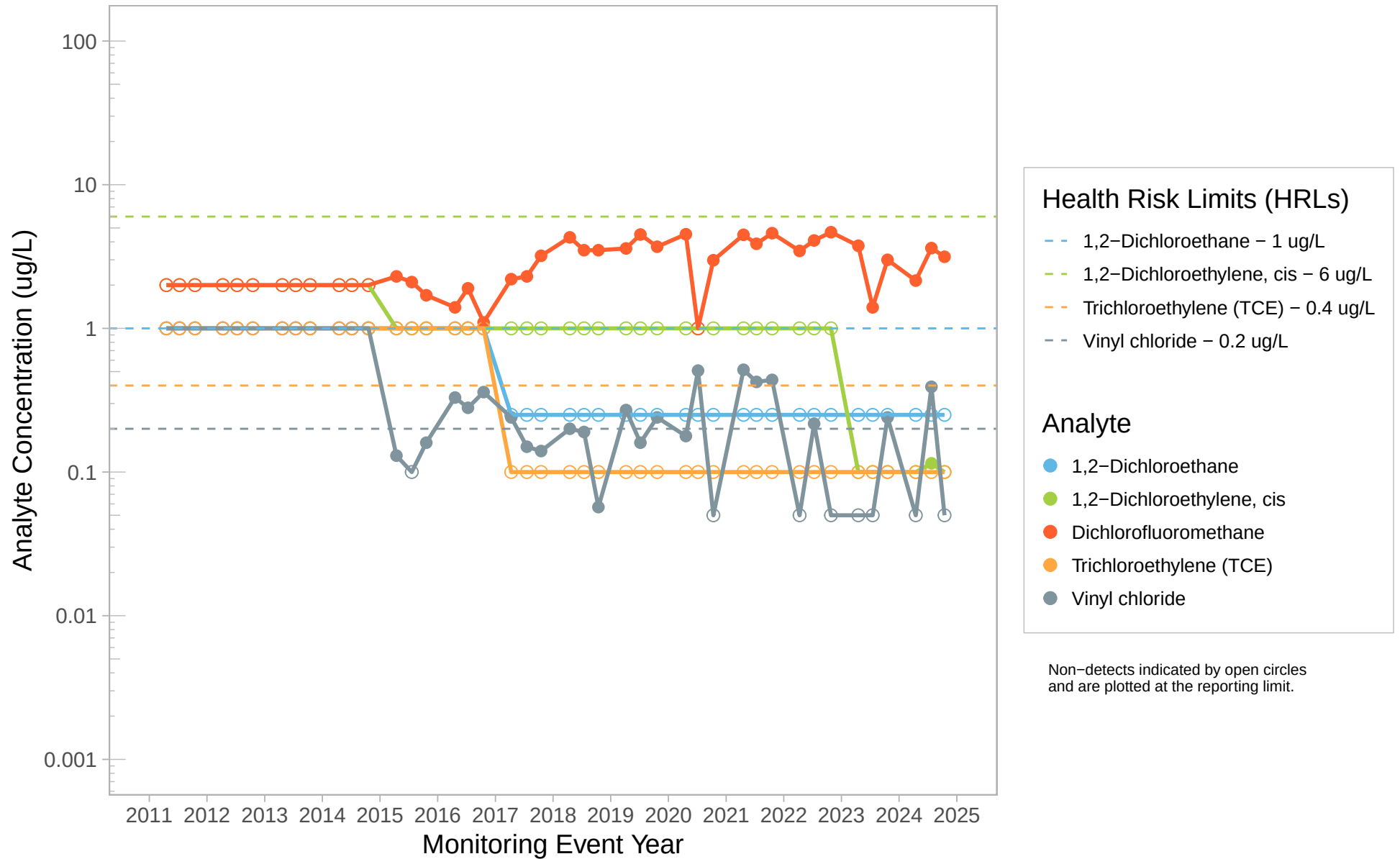
315-OWA



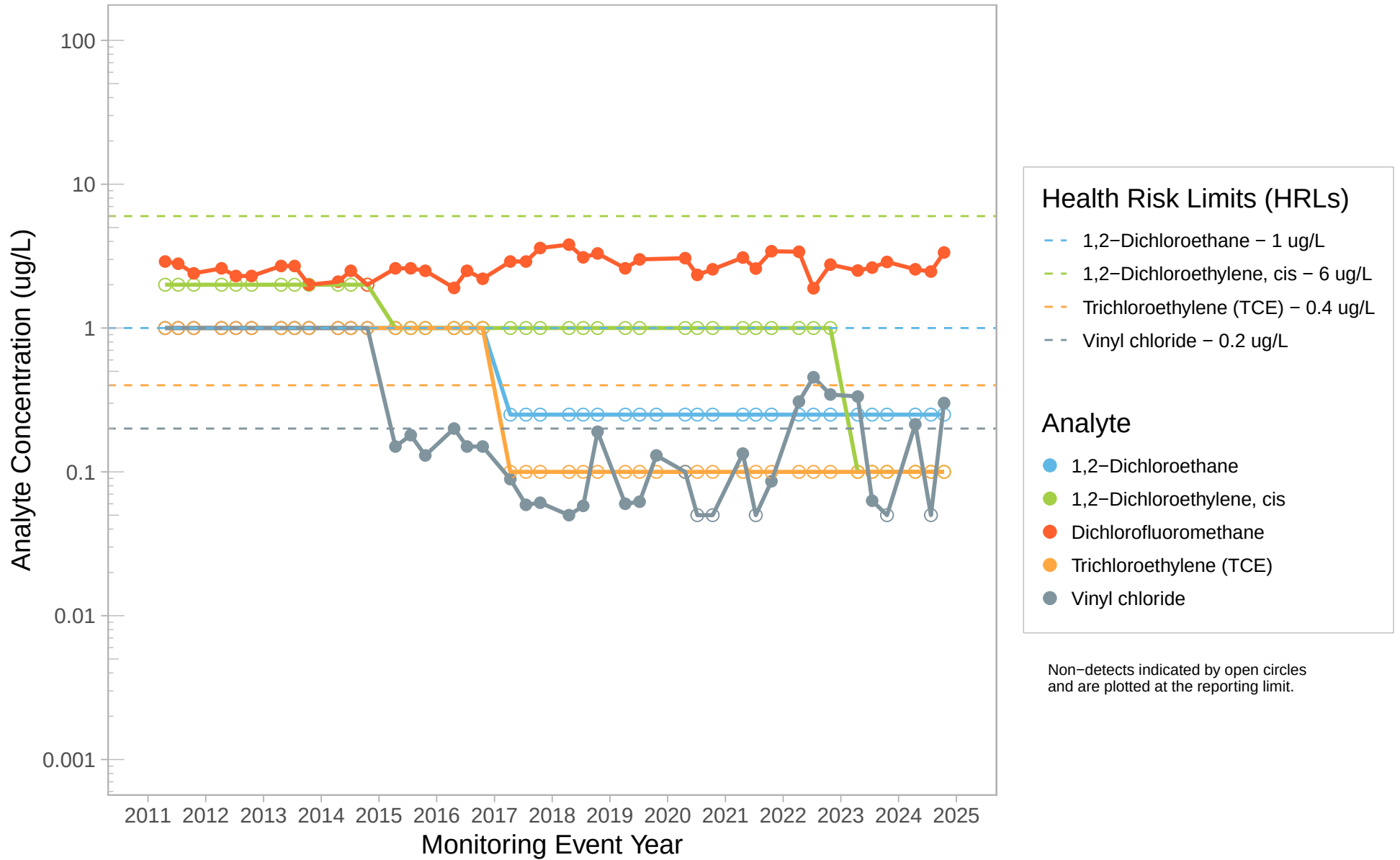
P-315L



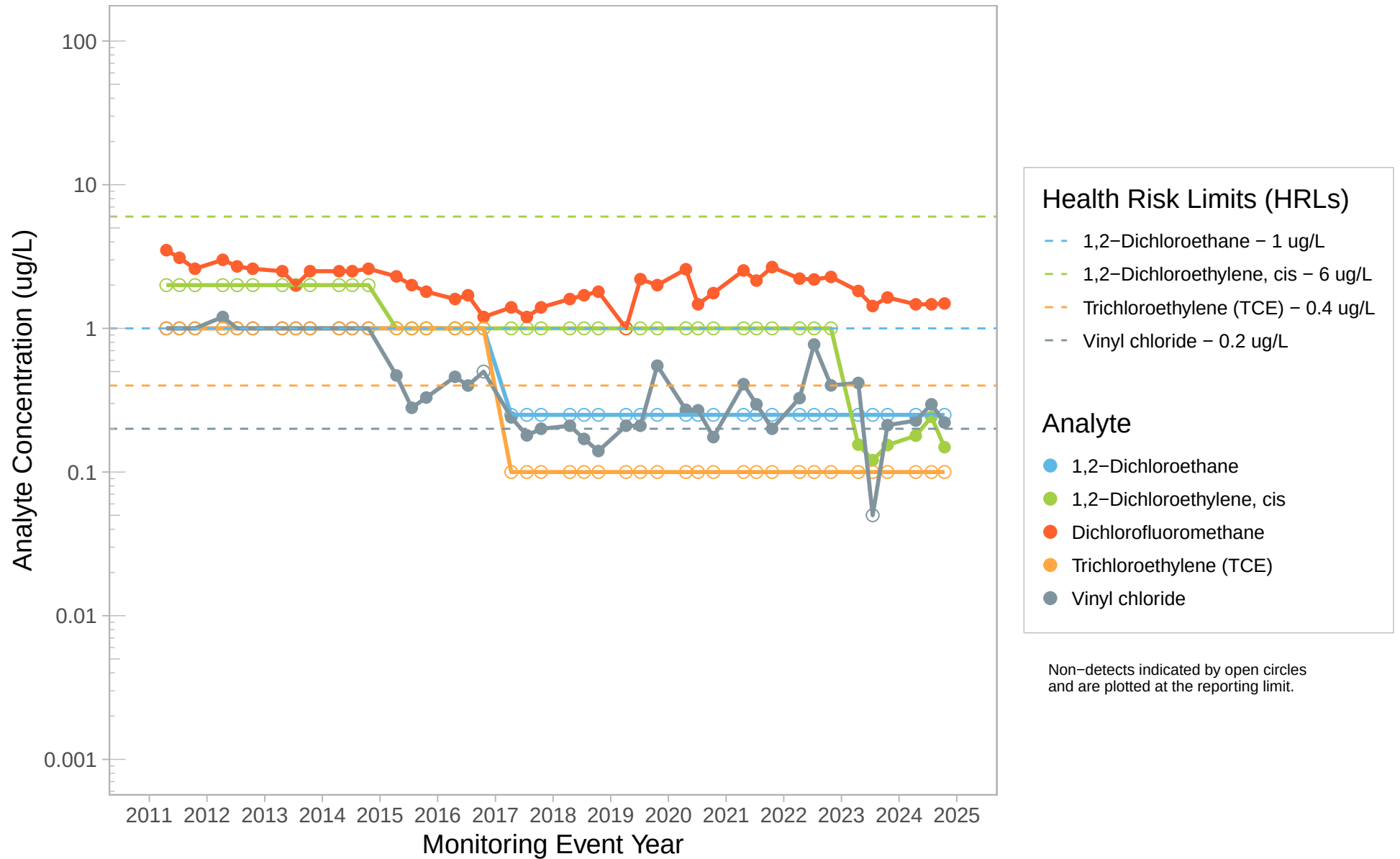
P-320C



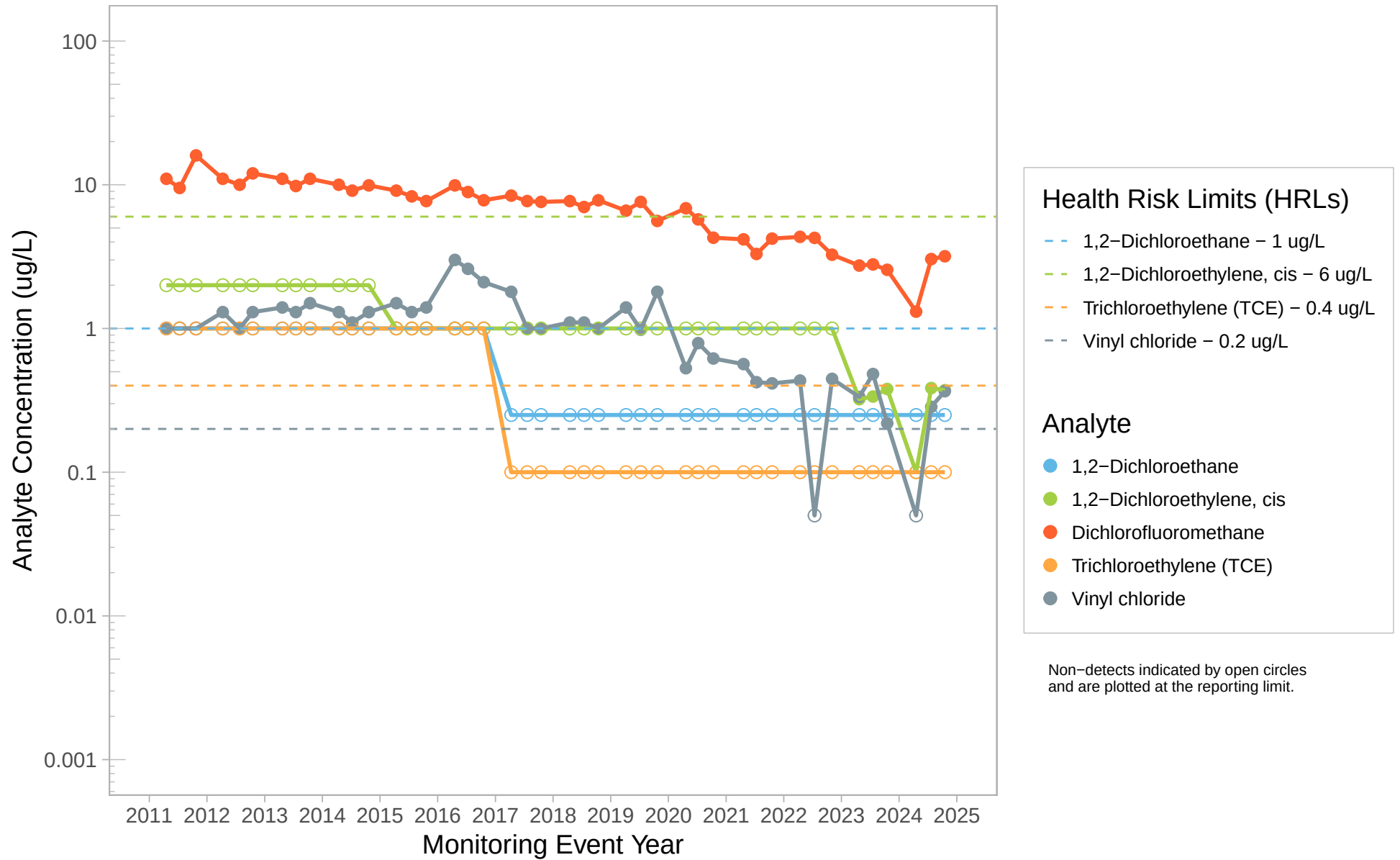
P-320C2



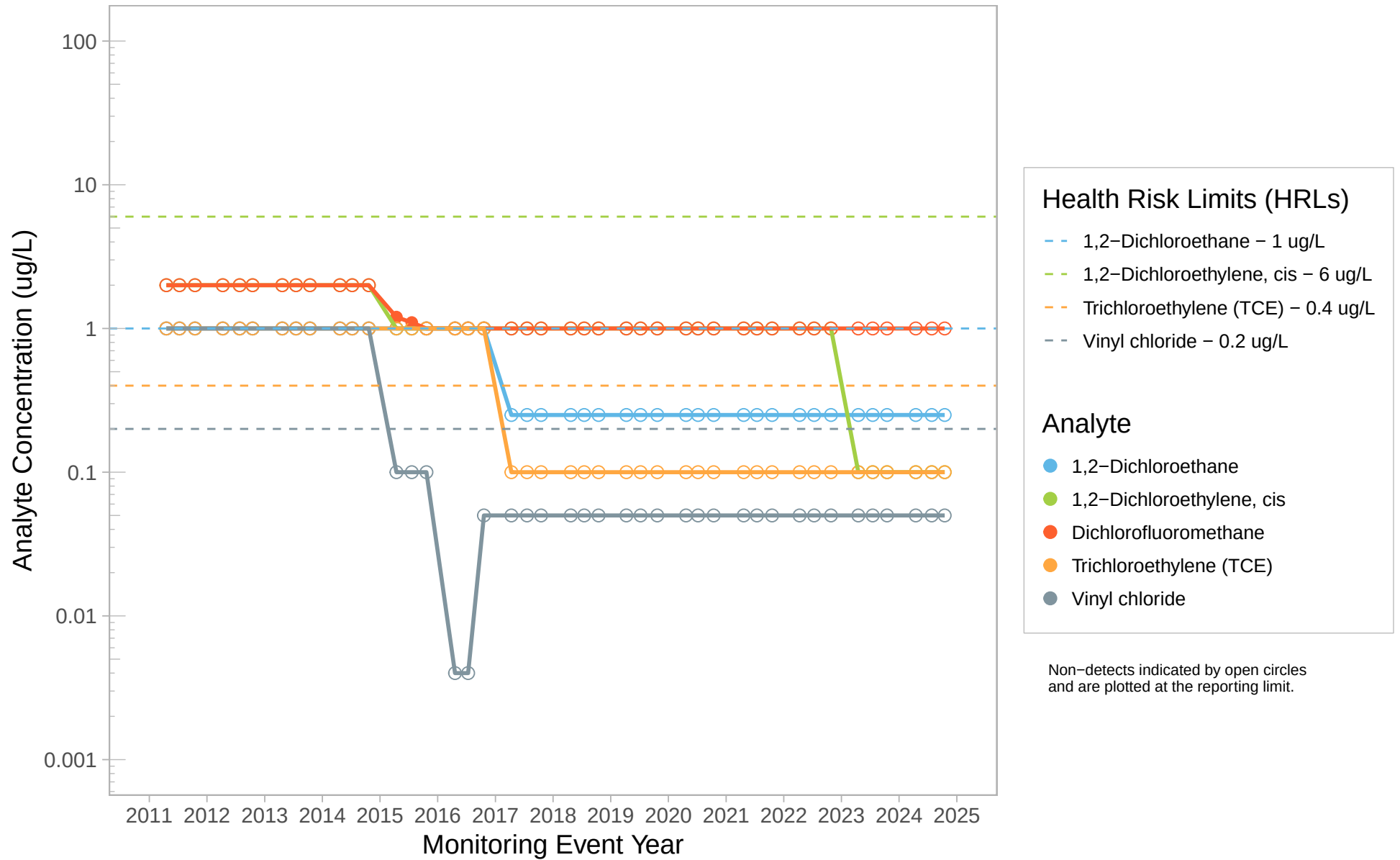
P-320L



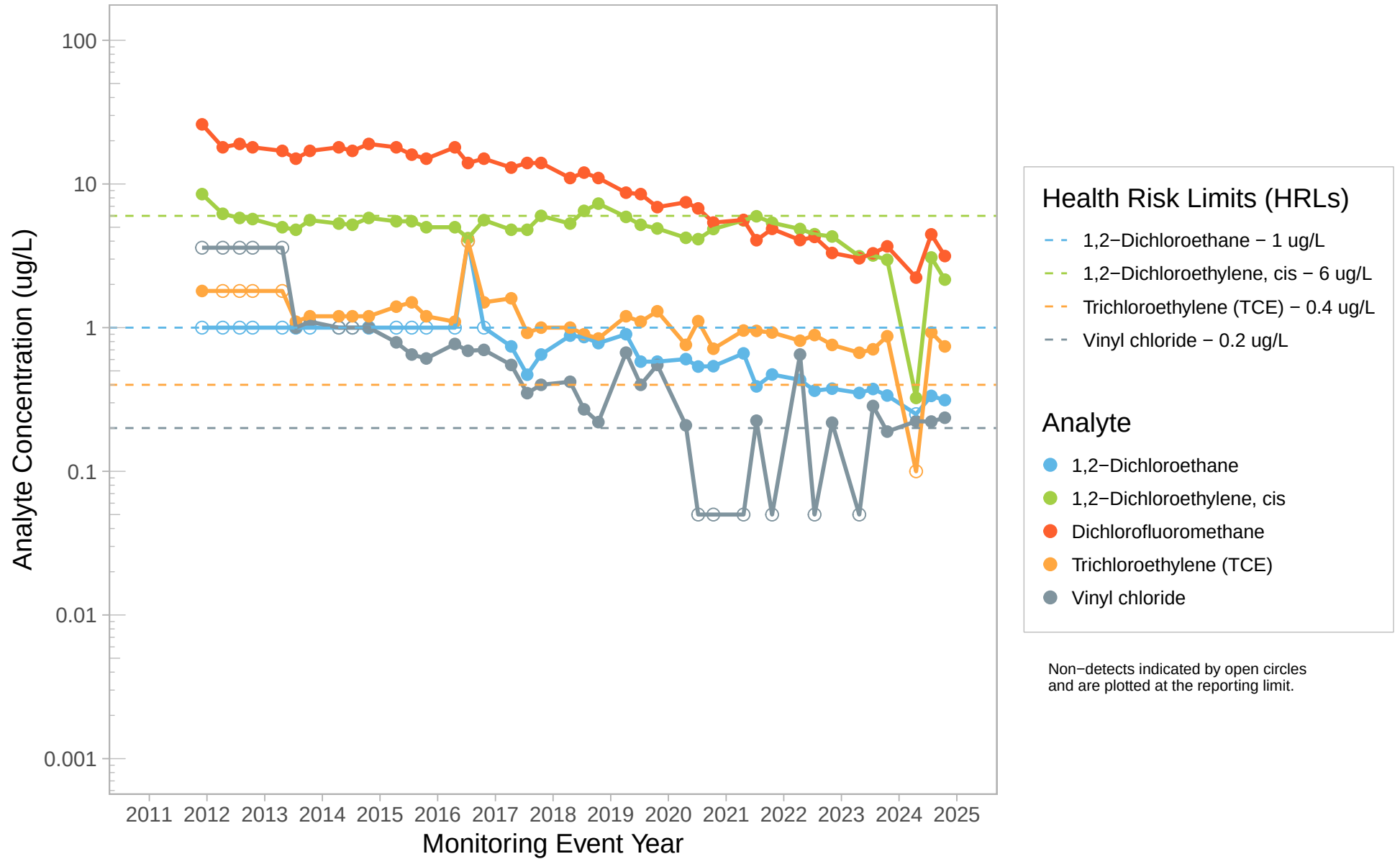
P-321L



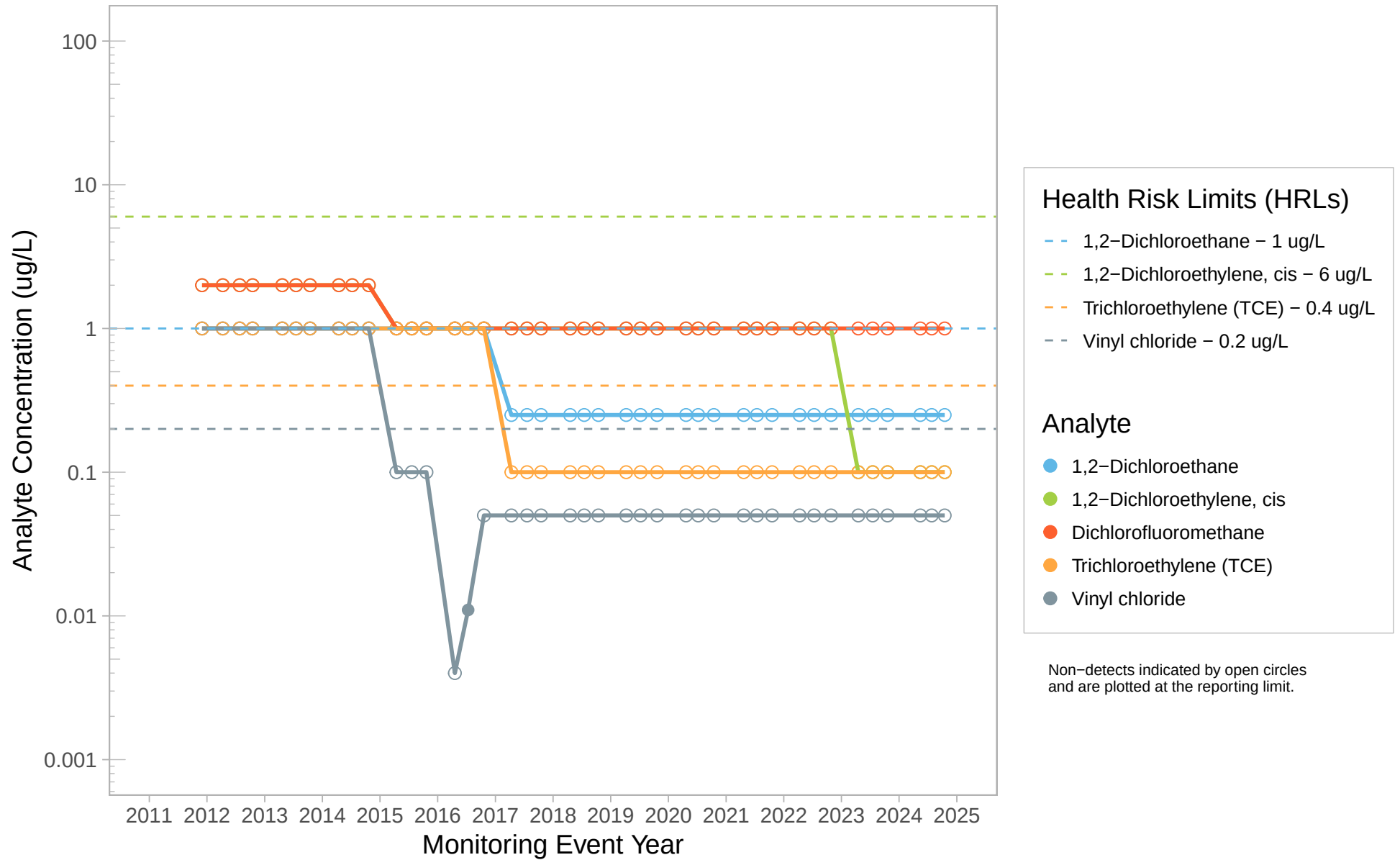
P-322L



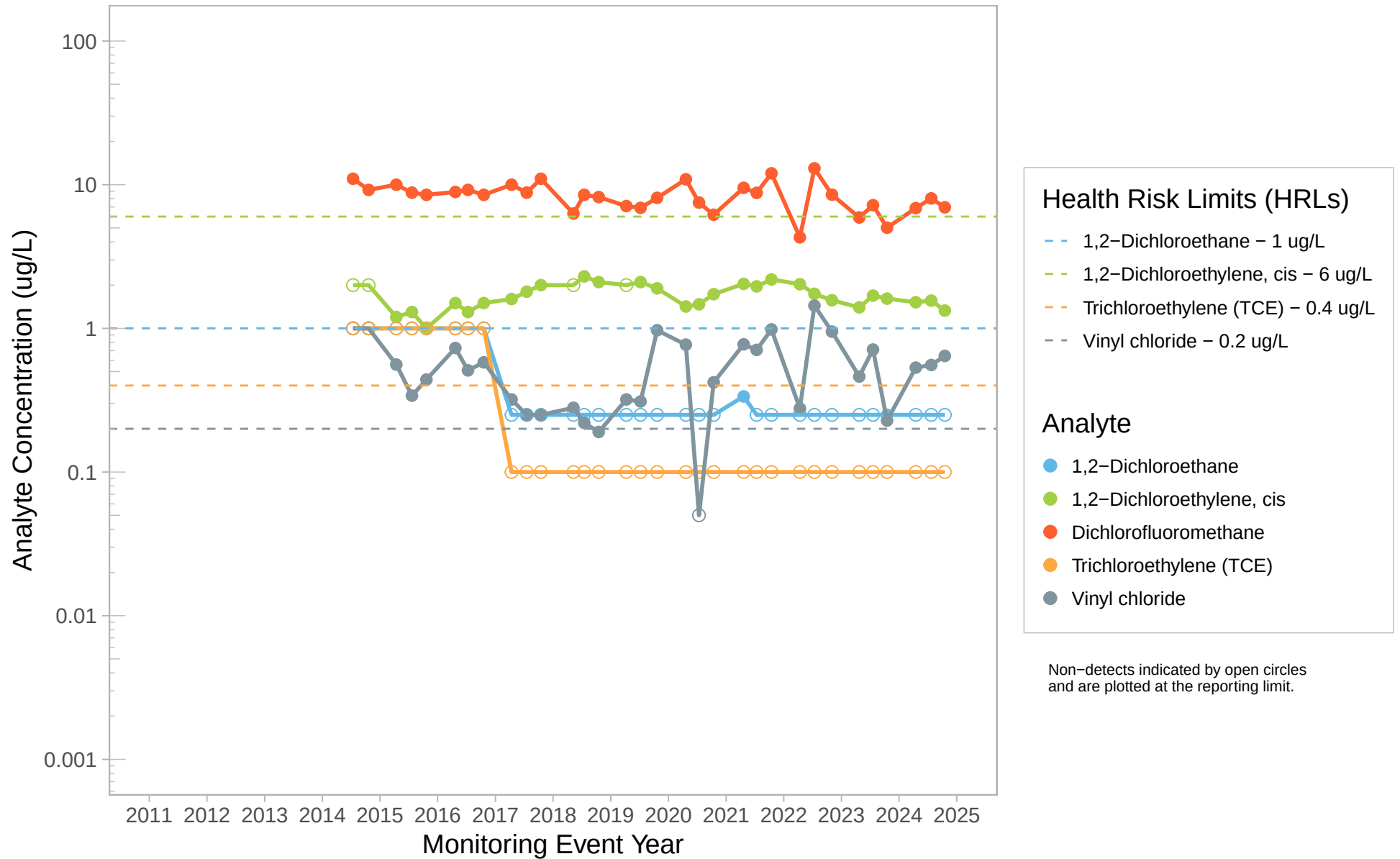
P-323L



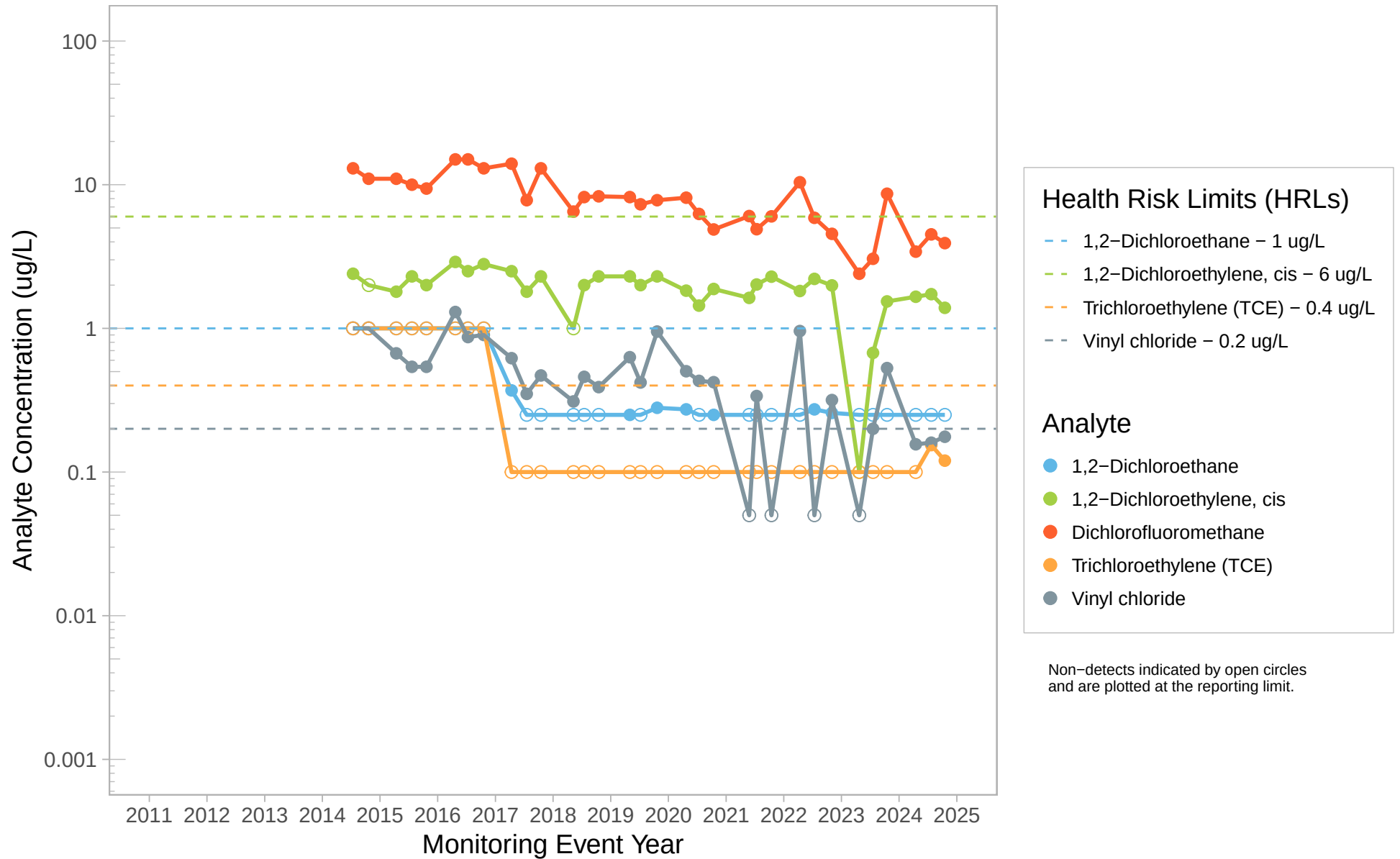
P-324L



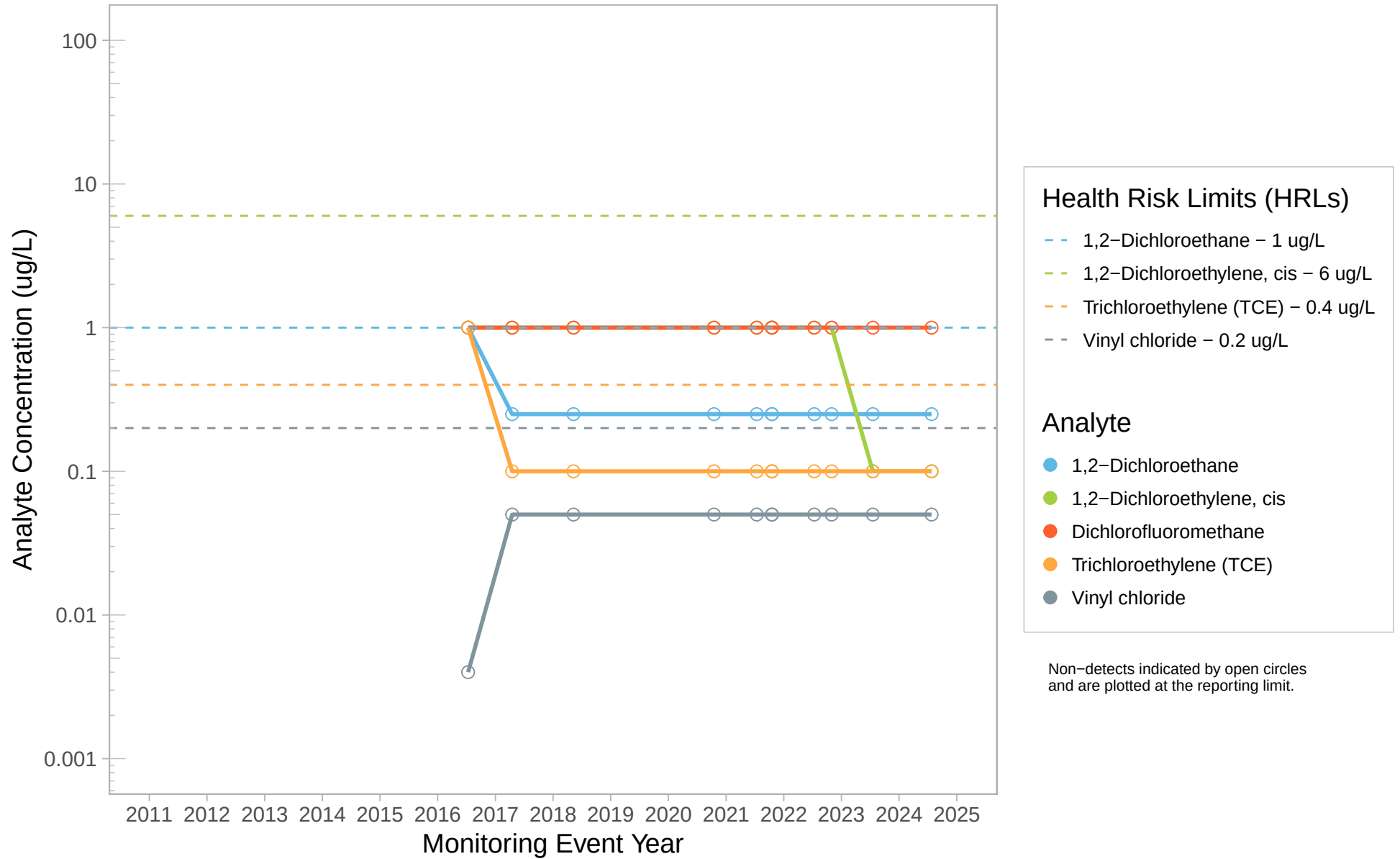
P-325L



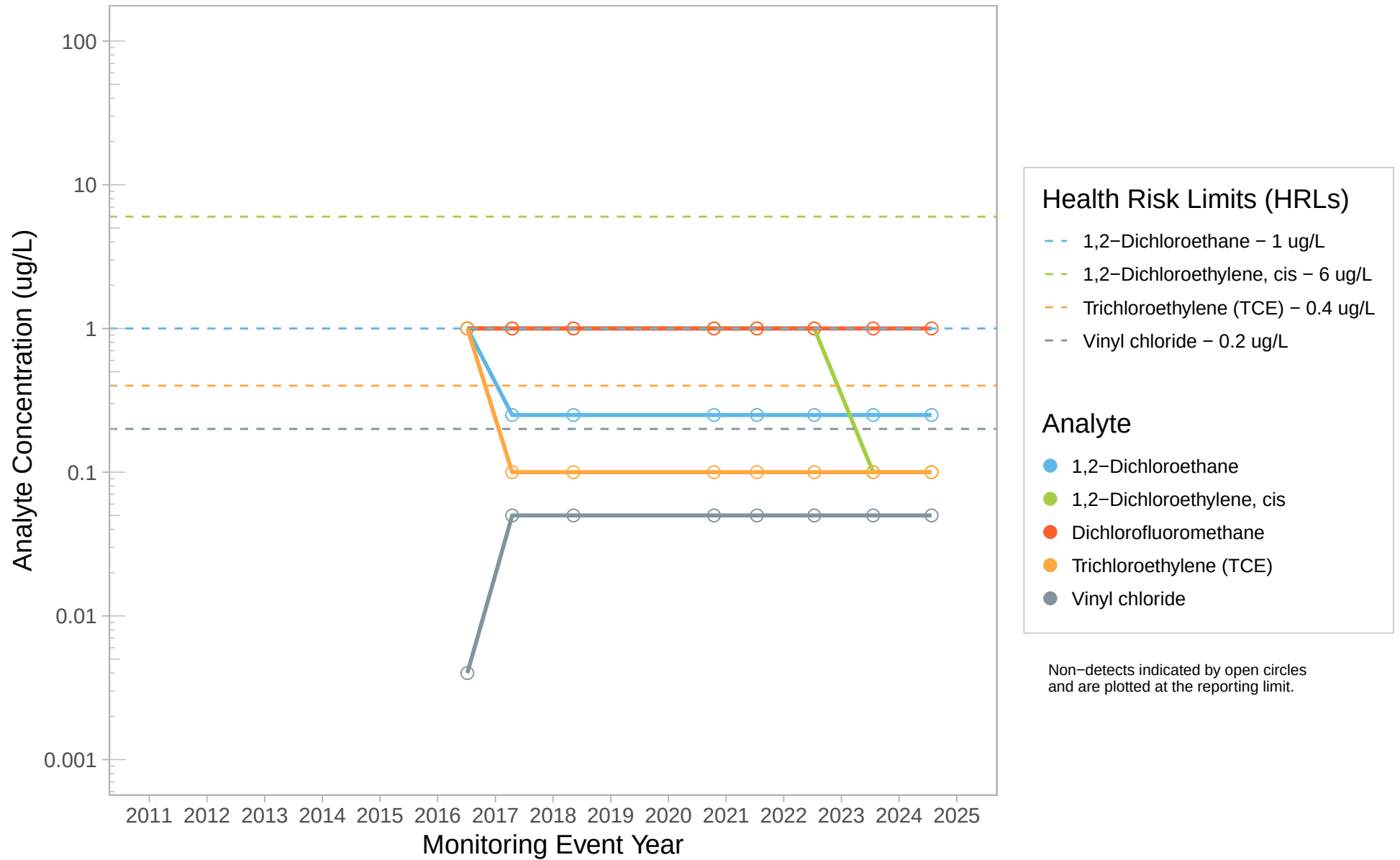
P-326L



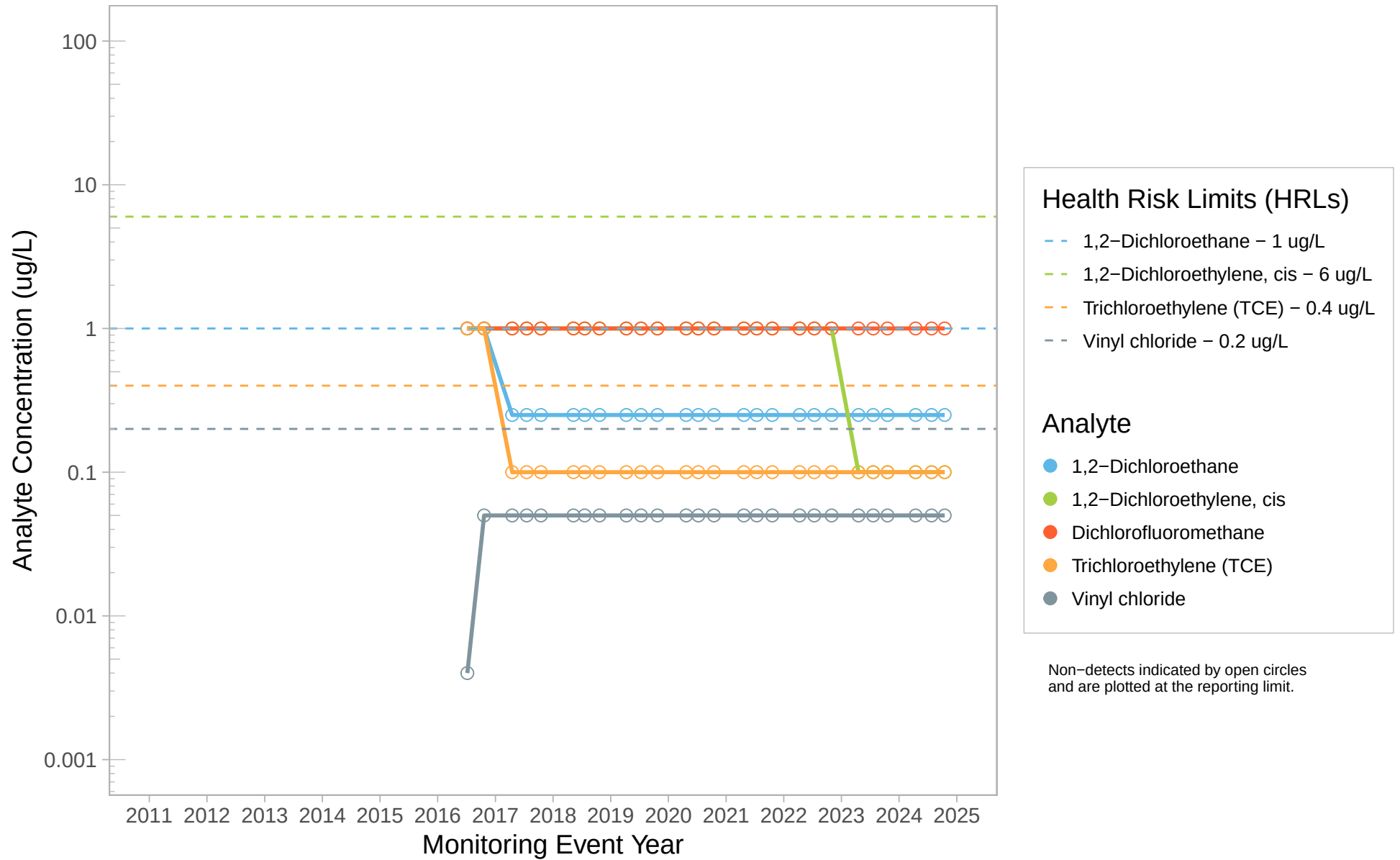
P-327L



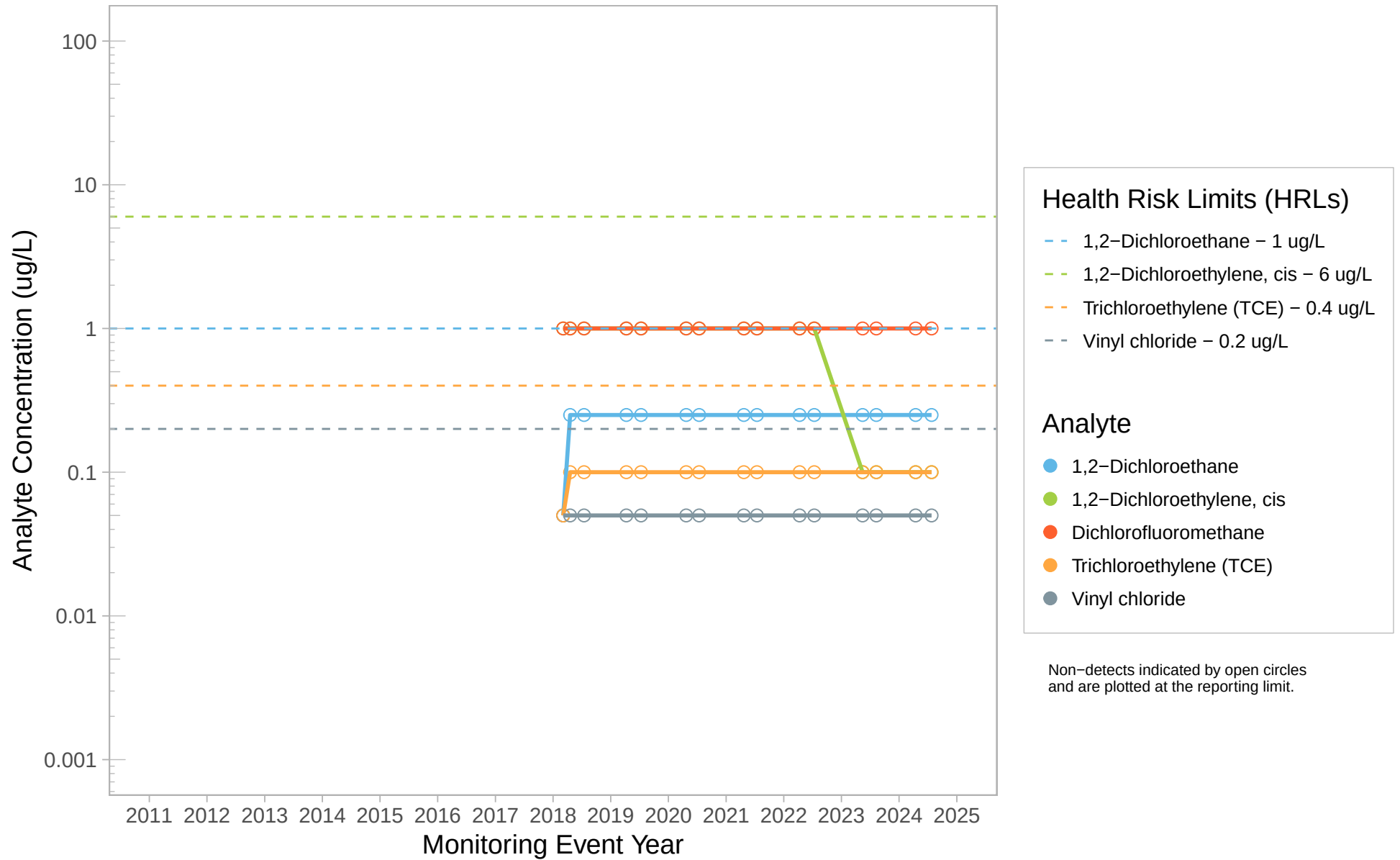
P-328L



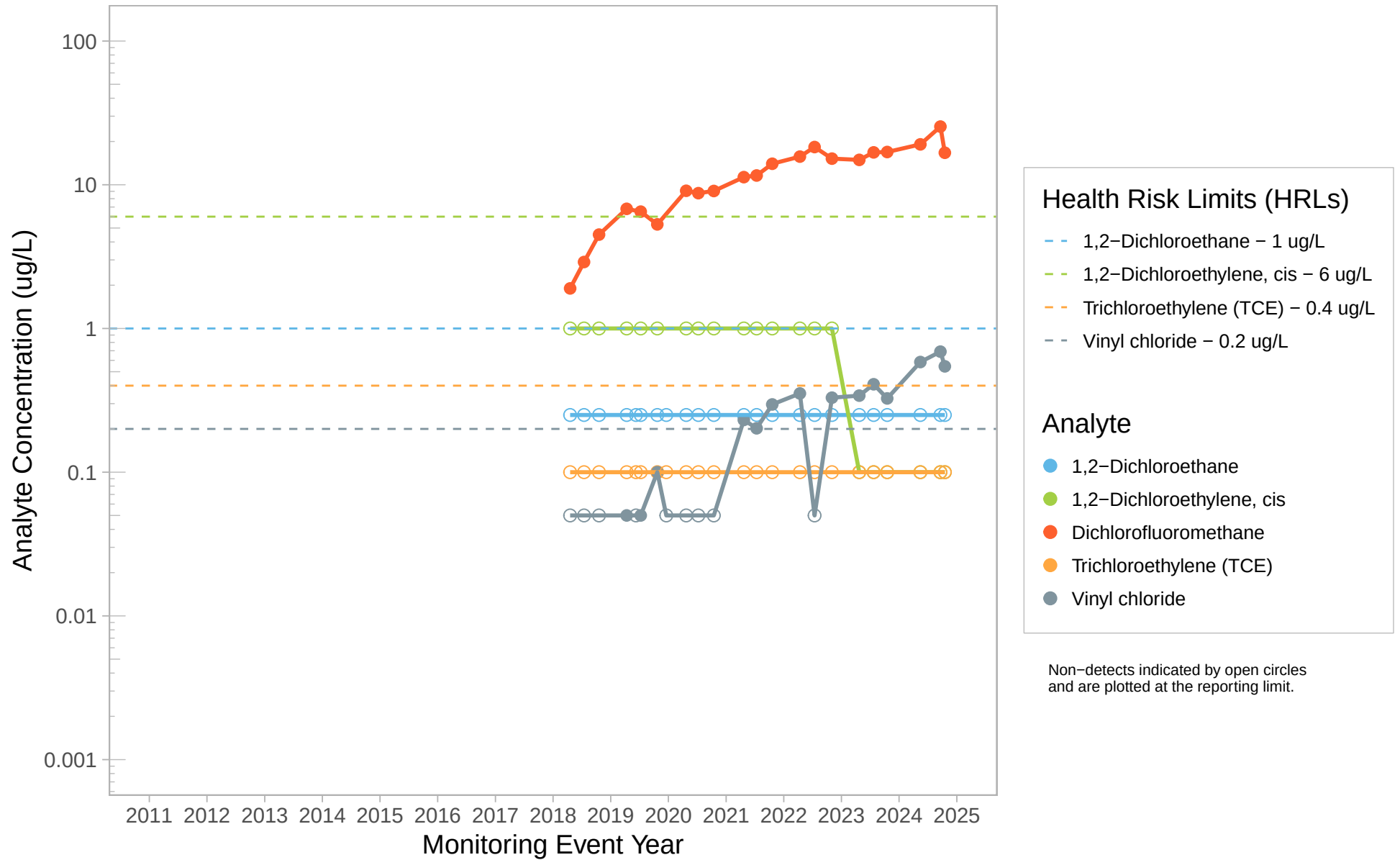
P-329L



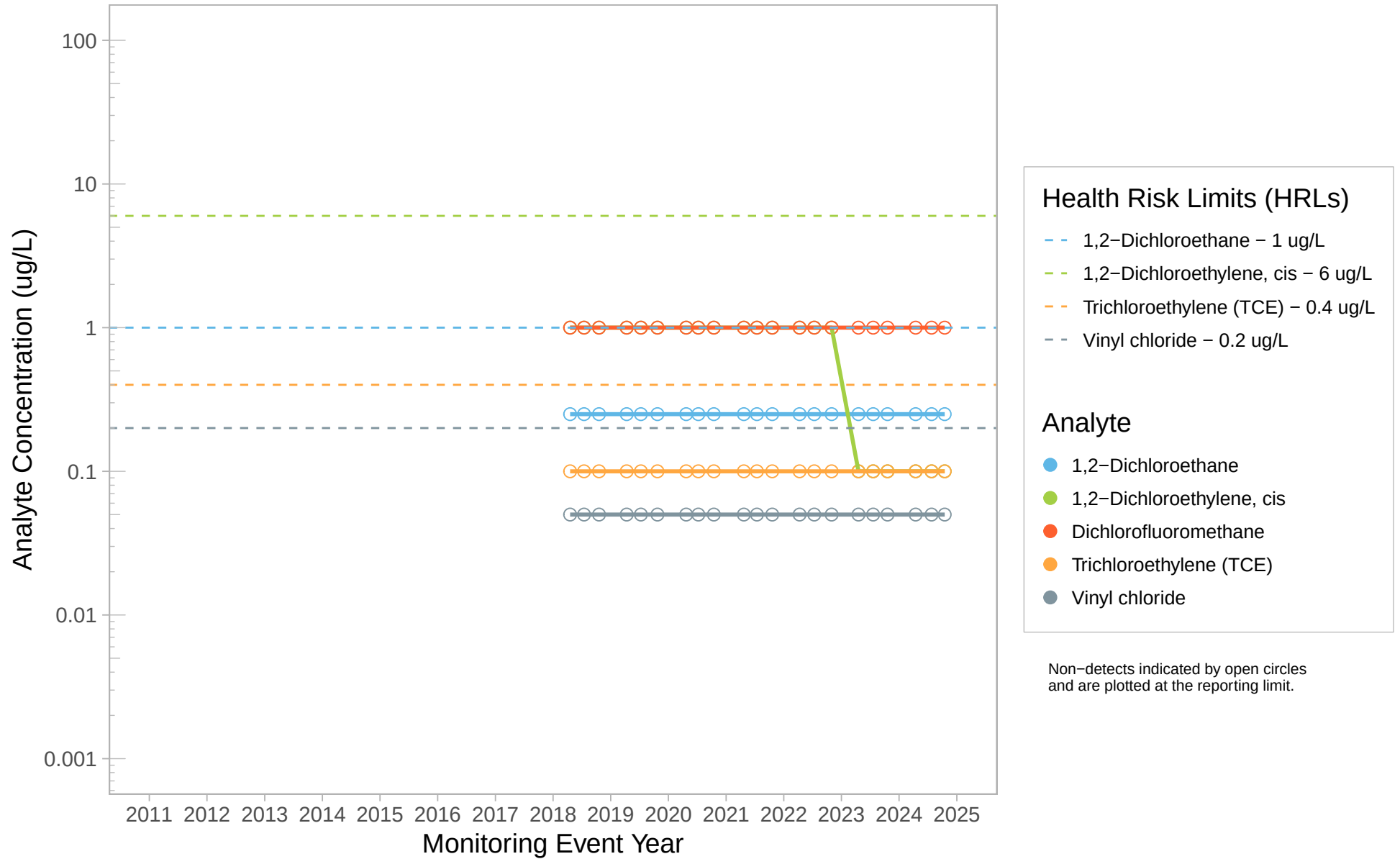
P-333L



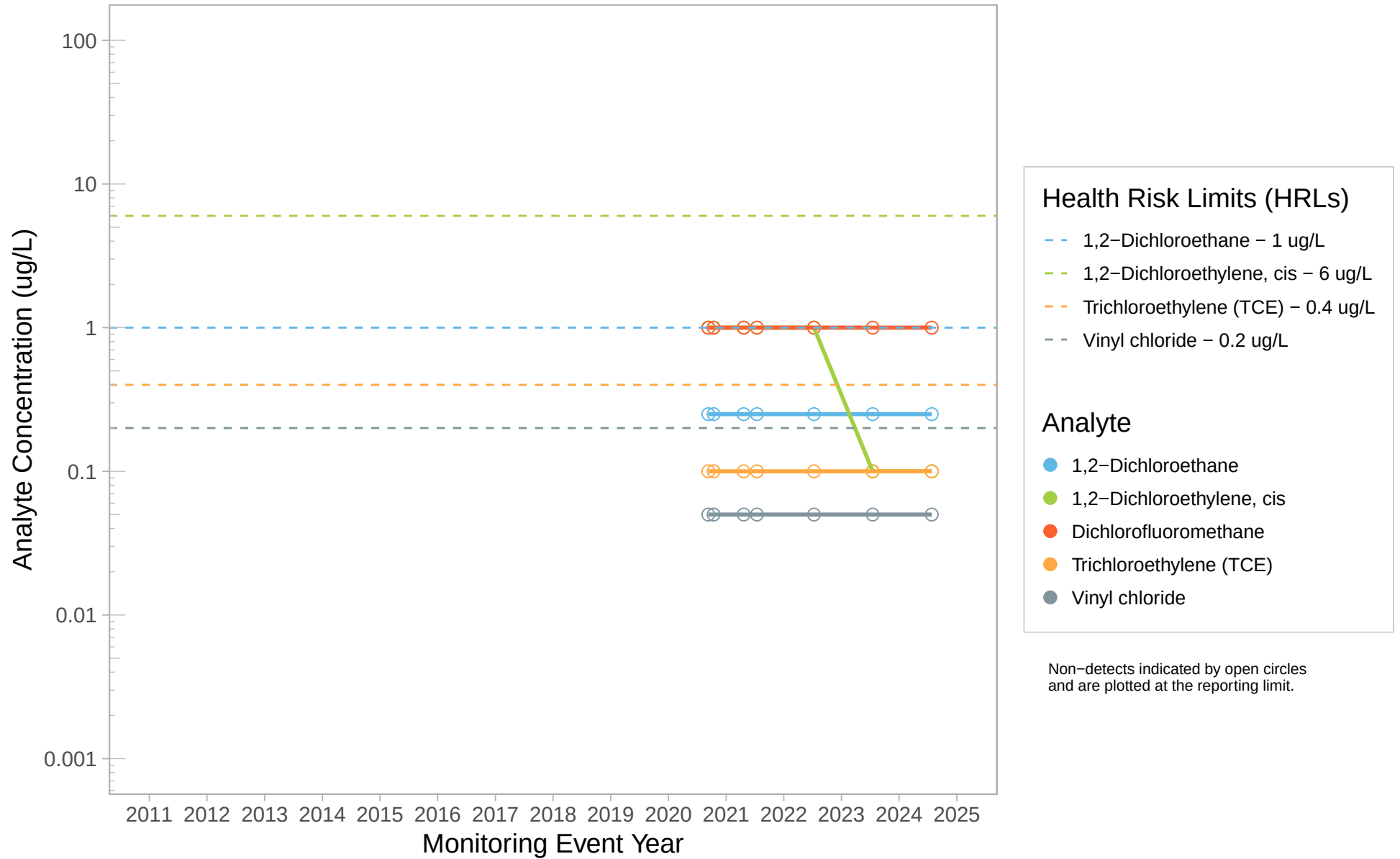
P-334L



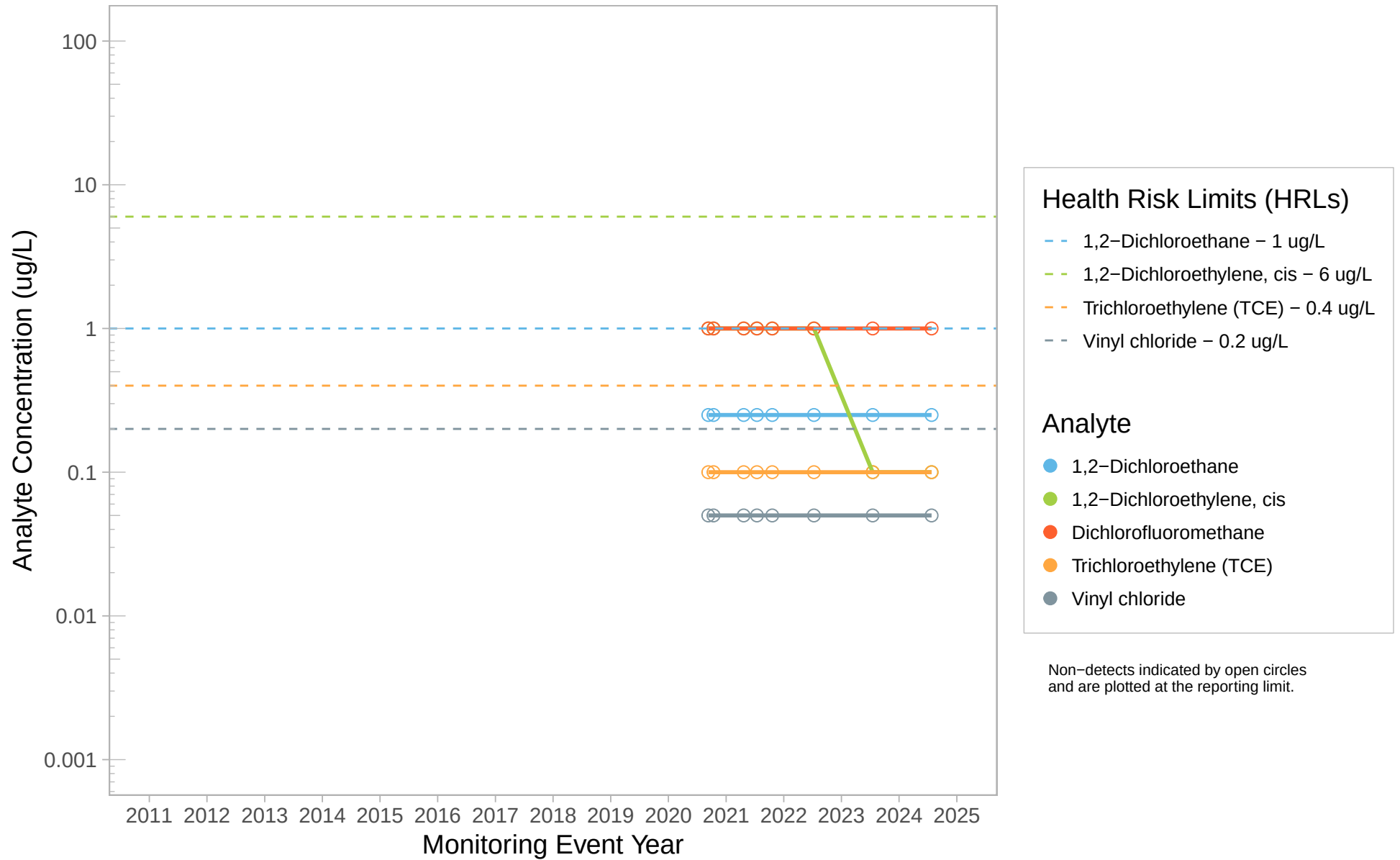
P-335L



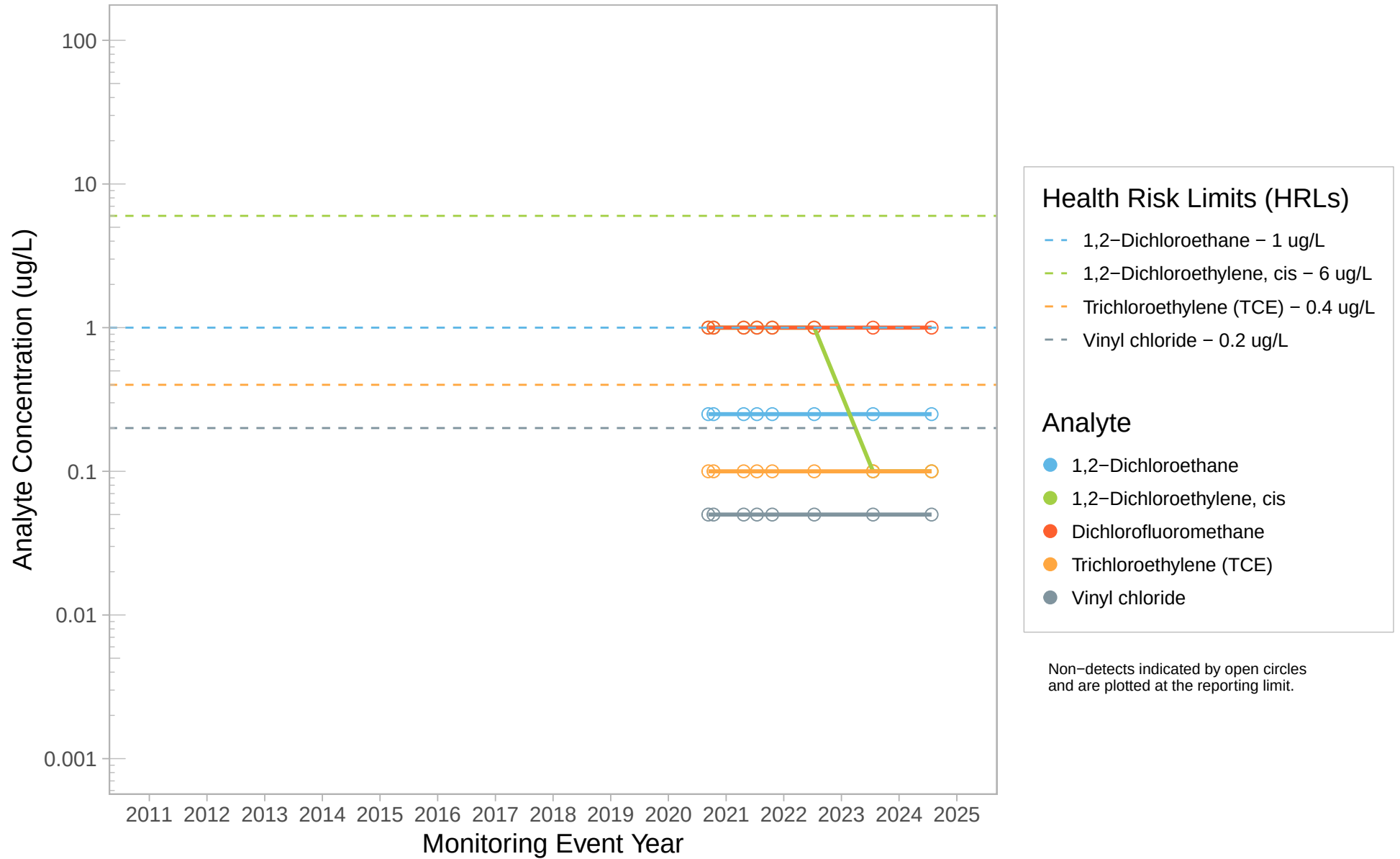
336-OWA



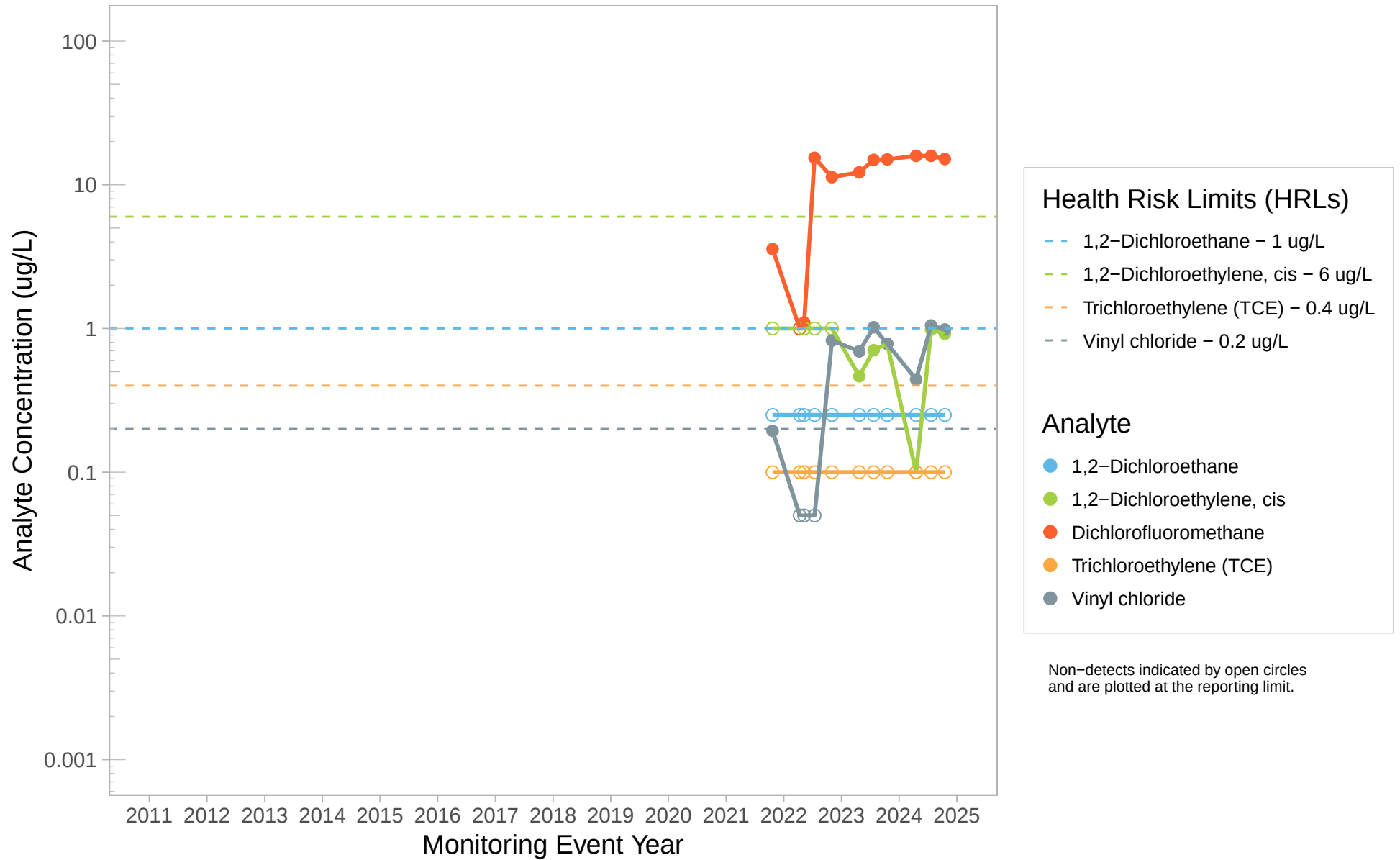
337-OWA



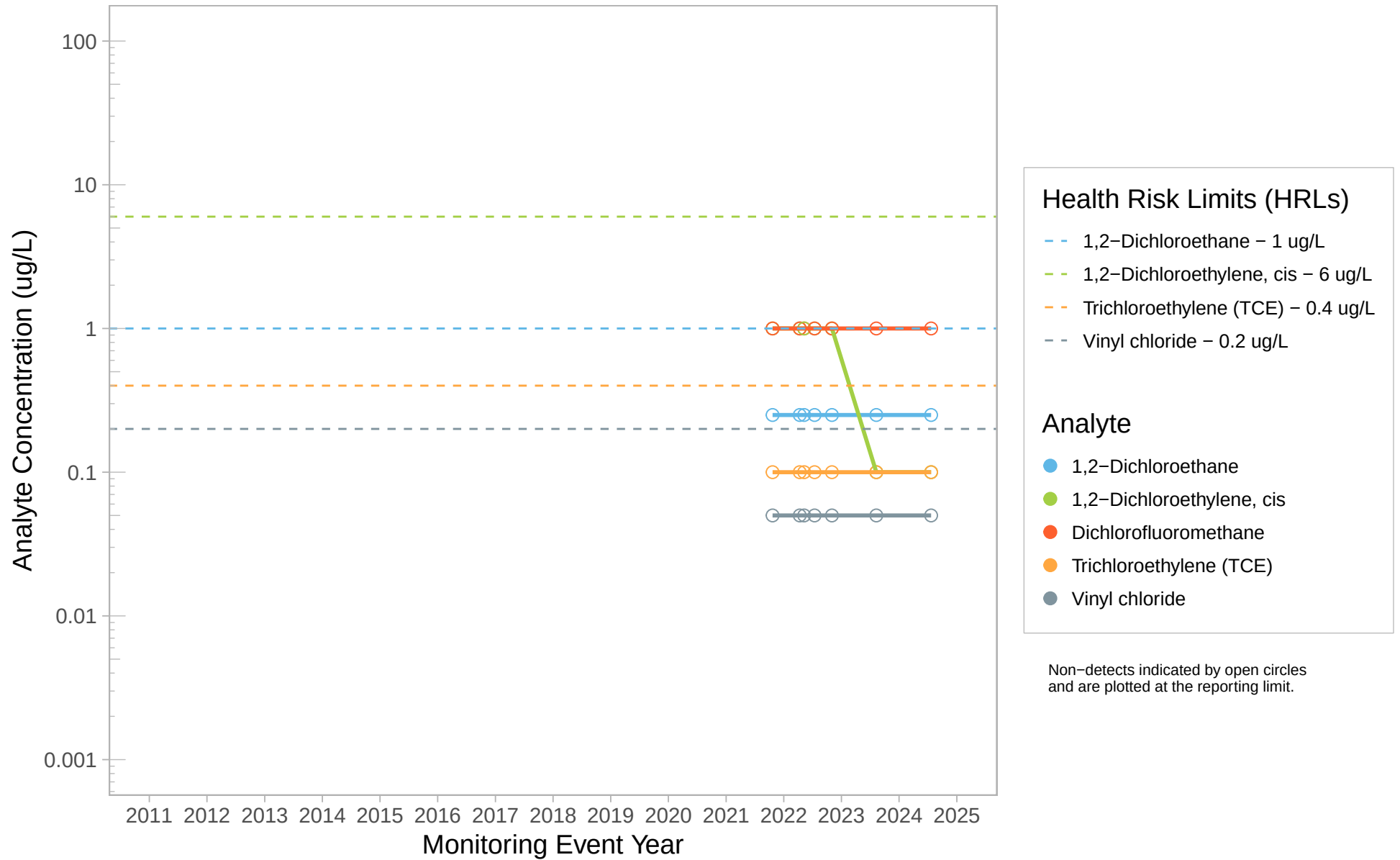
P-337L



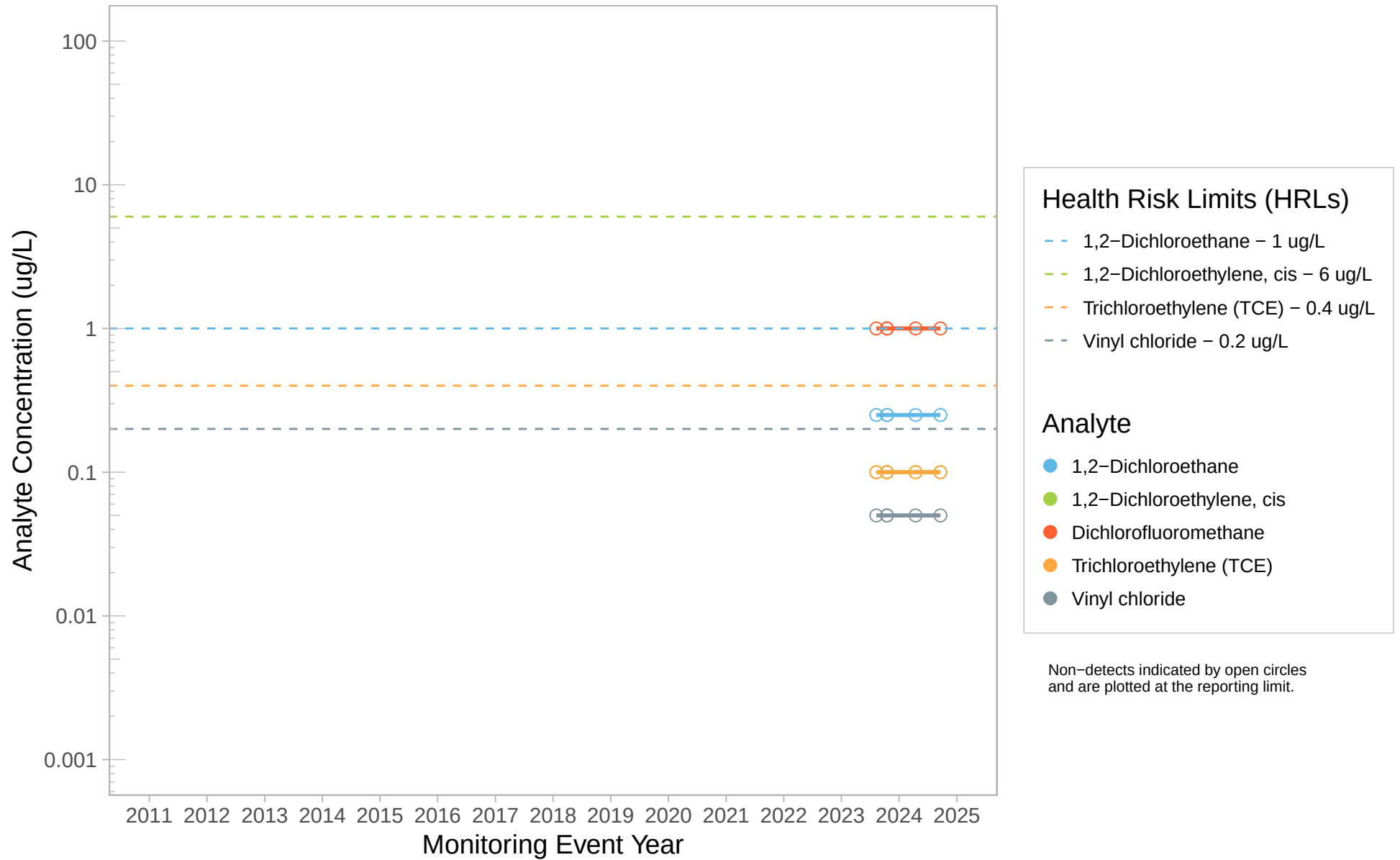
P-338L



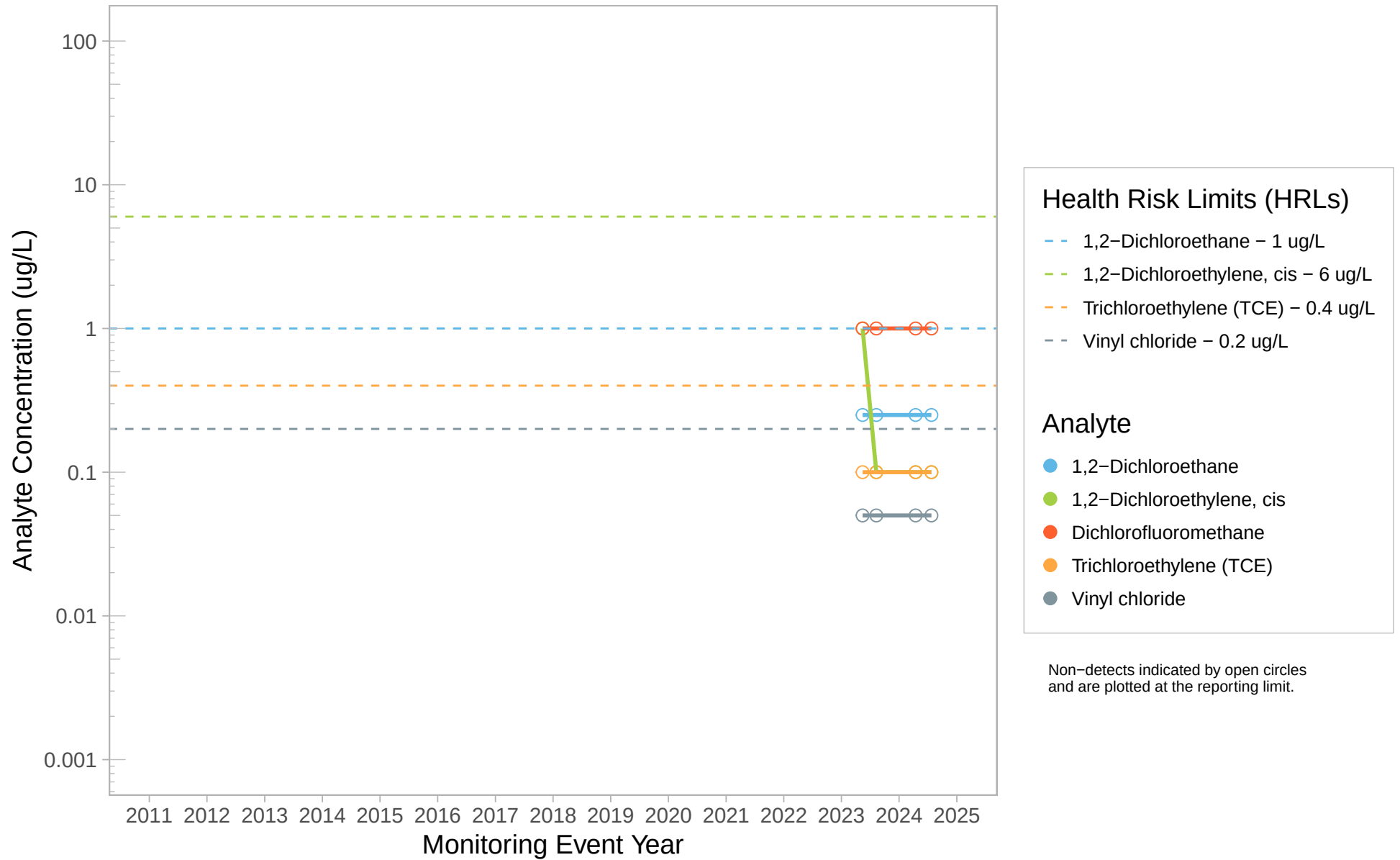
P-340L



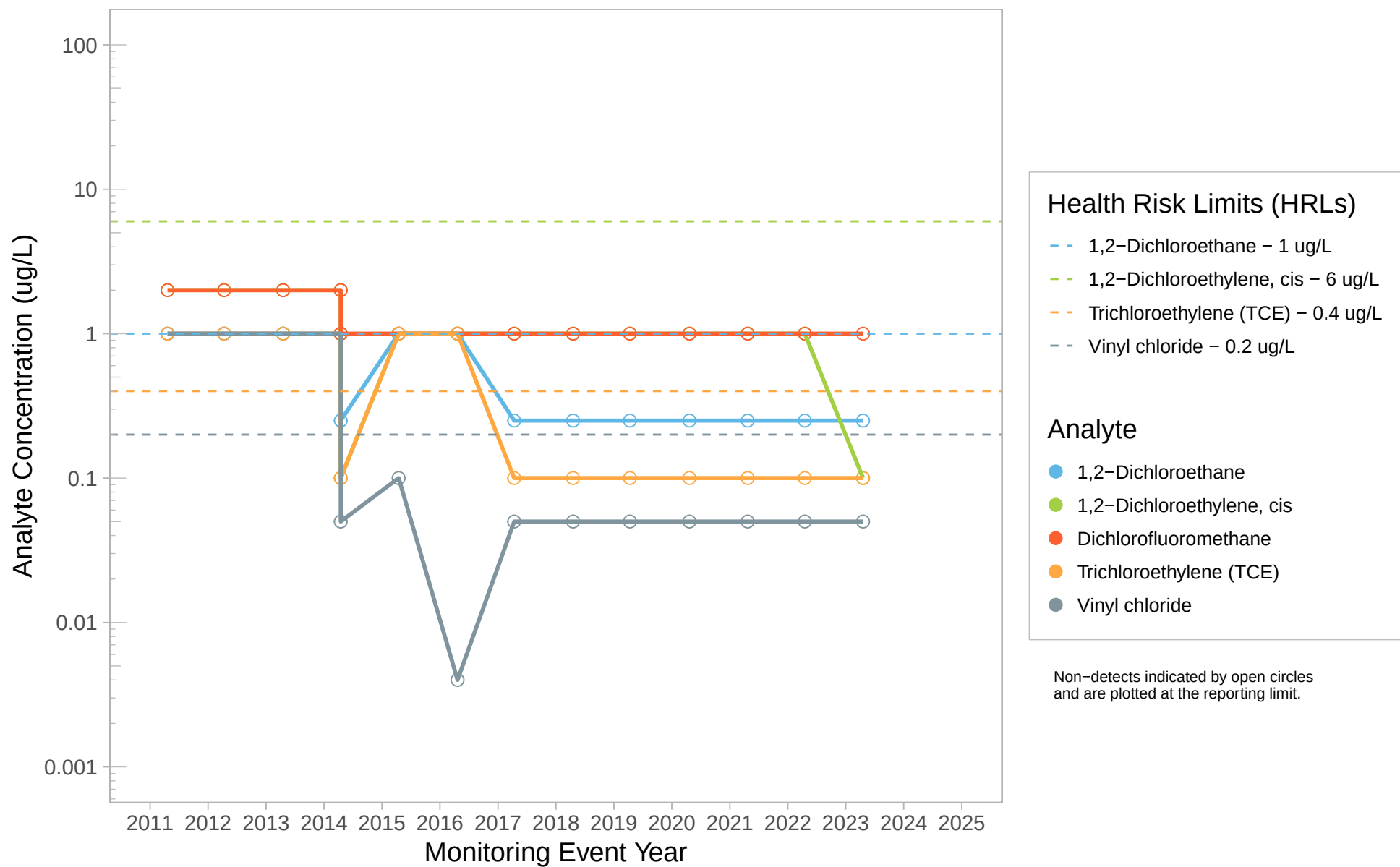
P-341L



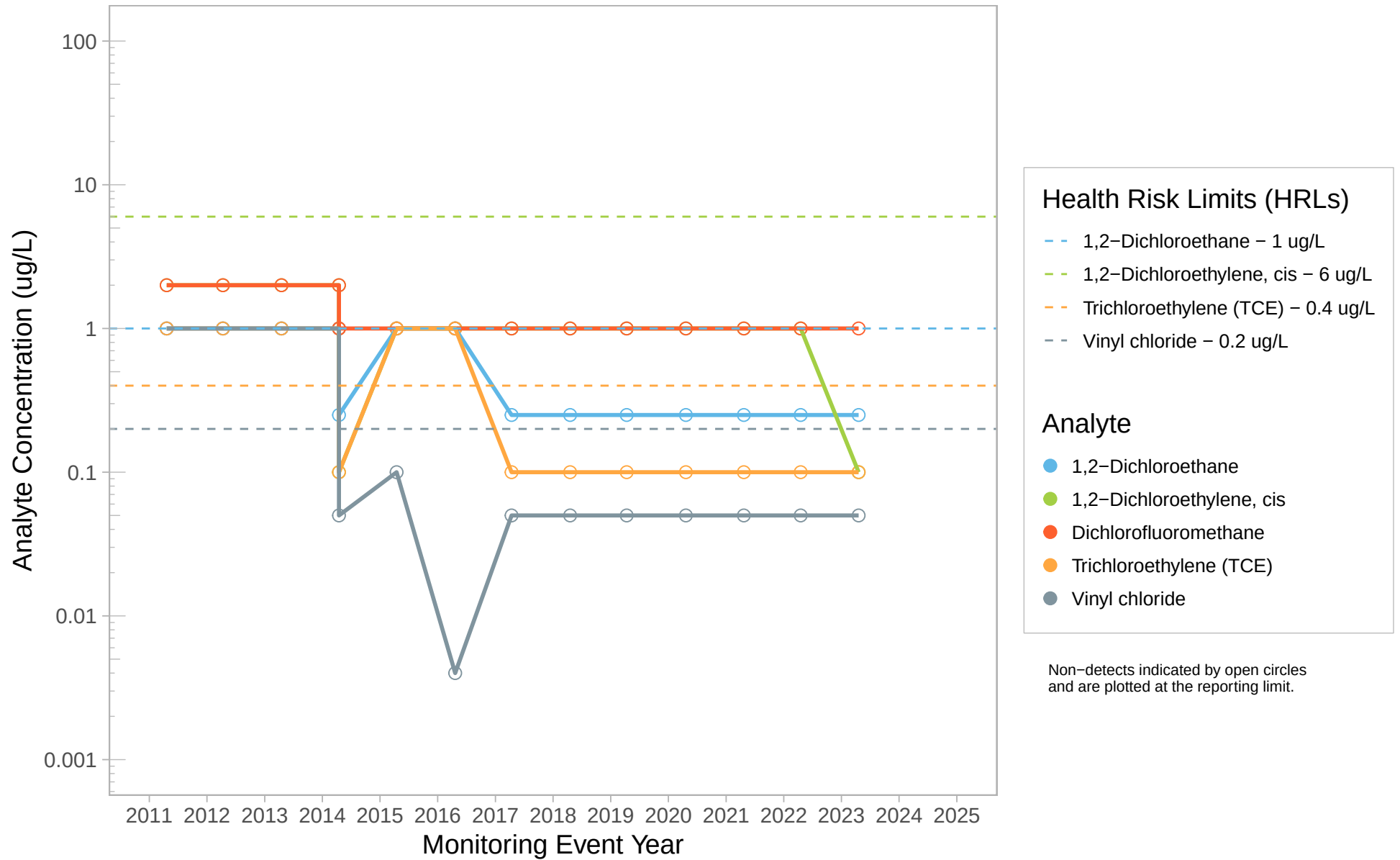
P-342L



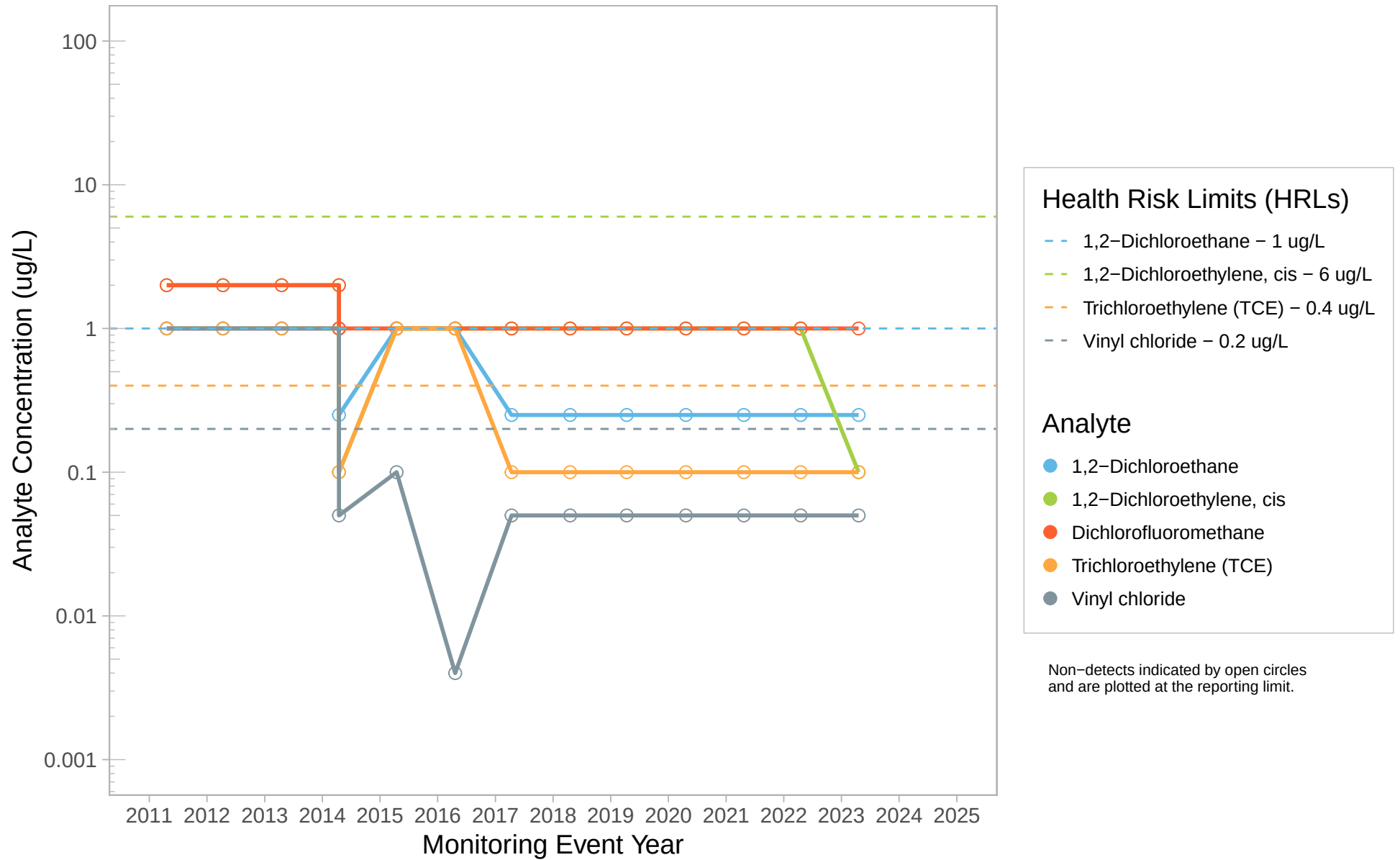
P-403C



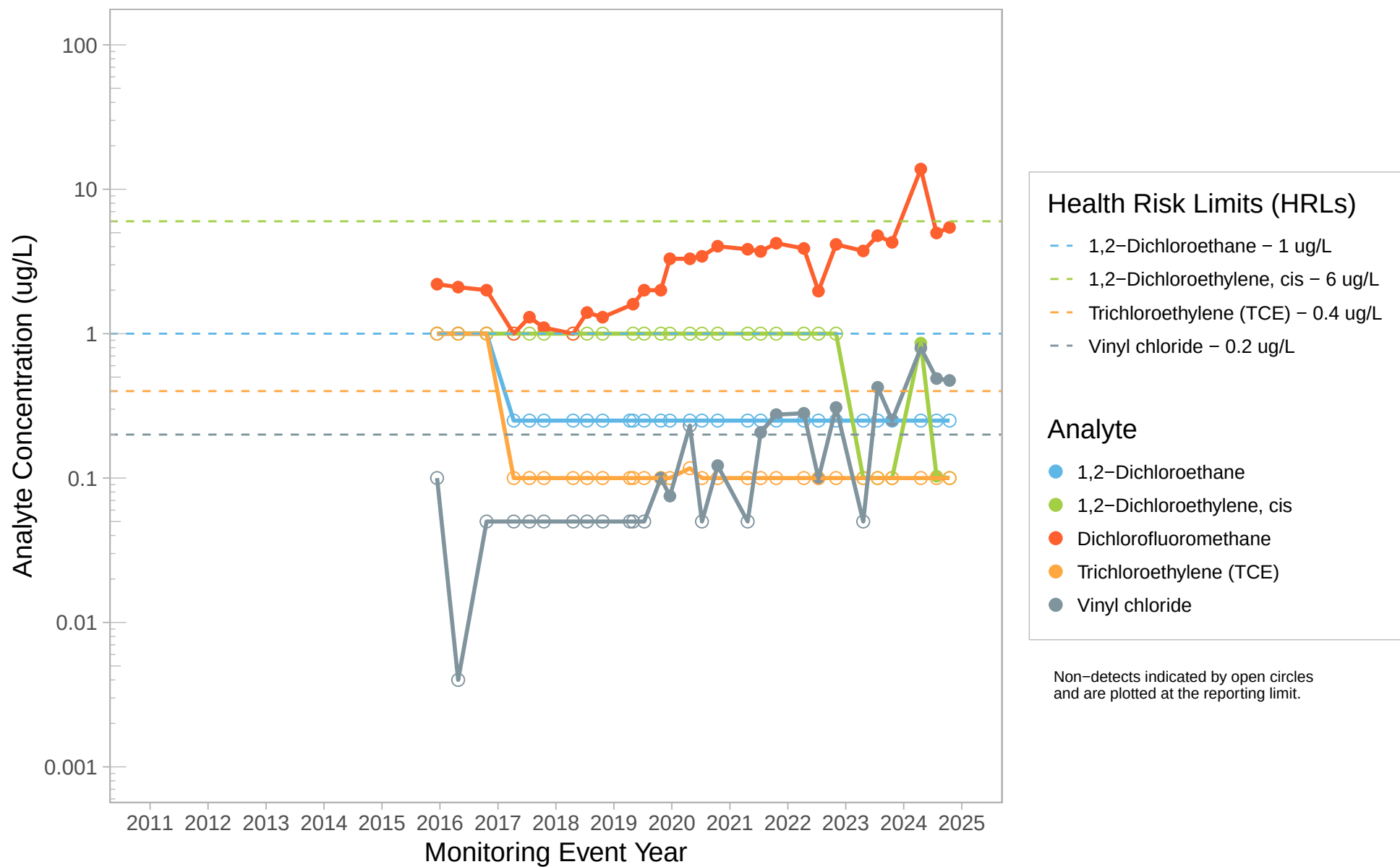
401-OWA



408-OWA



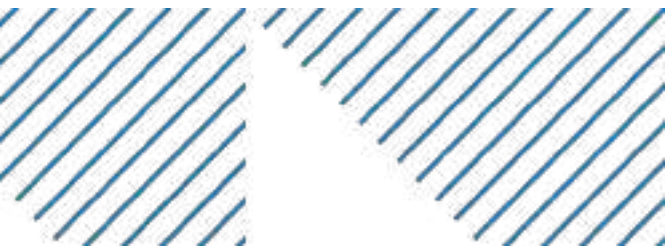
P694477





Appendix E

Monitored Natural Attenuation Evaluation



2024 Monitored Natural Attenuation Data Summary

The natural attenuation monitoring program is designed to collect the data needed to complete the assessment of relevant trends in key constituents as well as ascertain if the performance of monitored natural attenuation (MNA) is a suitable corrective action approach for chlorinated organics at ERL. Initial MNA performance monitoring began in 2021 per the Groundwater Corrective Action Work Plan (CAWP; Barr, 2021), and the Initial Performance Evaluation report was completed in 2024 per the CAWP (Barr, 2024). The 5-Year performance evaluation will be completed in the first quarter of 2027 (Q1 2027) to assess the corrective action protectiveness to human health and the environment (see Section 5.3 of the CAWP for additional details).

The following sections provide an overview of 2024 MNA monitoring activities, well network updates, a comparison of relevant groundwater quality results to the contingency action plan presented in the CAWP, an evaluation of vinyl chloride trends, an assessment of geochemical conditions, and updates to the MNA monitoring plan for 2025.

MNA Monitoring Activities

The 2024 through 2026 natural attenuation monitoring schedule and parameters are shown in Table 1 and Table 2, respectively. The 2024 natural attenuation monitoring was conducted in accordance with Table 1.

Monitoring Network Updates

ERL completed a vertical groundwater profiling boring (B2-342) and installed one additional monitoring well (P-342C) in February 2025 per the recommendations in the Initial Performance Evaluation report (Barr, 2024). The groundwater profiling data and well installation plan were provided to MPCA, Sherburne County, and the City of Elk River on February 13, 2025. No organics (including vinyl chloride) were detected in the vertical groundwater profiling samples. A report summarizing the investigation, initial well monitoring results, and baseline and future monitoring plans for well P-342C will be submitted later in 2025.

Contingency Summary

The groundwater corrective action contingency plan is summarized in Table 3. Scenarios that would trigger contingency actions include:

- Organic compound detection attributable to ERL in a water supply well sample; and
- Confirmed organic compound detection attributable to ERL in a sentinel well sample.

The 2024 water quality monitoring data collected from the MNA well network and sentinel wells is included in Table 4. Groundwater quality monitoring results did not trigger contingency actions in 2024.

Vinyl Chloride Extent and Concentration Trends

Plots of vinyl chloride concentrations are included on Figure 2 and shown spatially at ERL on Figure 3. A summary of the statistical evaluation of vinyl chloride concentration trends is provided in Table 5. The following observations are provided:

- The extent of the vinyl chloride plume downgradient of the landfill is delineated by the existing monitoring well network based on the 2024 (and previous) water quality monitoring results. Vinyl chloride (and other organics) have not been detected in samples collected from monitoring well

2024 Monitored Natural Attenuation Data Summary

P-342L (or in groundwater profile samples collected there in early 2025 as mentioned above), or monitoring wells to the north (i.e., P-333L, P-329L, P-328L, P-340L, and P-327L), or monitoring wells to the south (i.e., P-335L, P-341L,).

- Vinyl chloride concentrations continue to decrease or have no trend (stable) below/near the Health Risk Limit [HRL] of 2 micrograms per liter [$\mu\text{g/L}$] in groundwater in the central and southern portions of the plume along the western edge of the landfill (Table 5; Figures 3 and 4). Vinyl chloride concentrations in groundwater at the nearest monitoring well located downgradient of the southern two-thirds of the plume (P-326L) are decreasing.
- In the northern third of the plume, along the western edge of the Pre-Subtitle D (unlined) portion of the landfill, vinyl chloride concentrations are increasing in groundwater at one well (P-302C) and stable at nearby wells P-29C and P-320C/320C2/320L. Vinyl chloride concentrations in groundwater downgradient of well P-302C are decreasing at P-321L and stable at P-325L (Table 5; Figures 3 and 4). Vinyl chloride concentrations are stable and below the HRL at well P-301C immediately north of this area.
- Vinyl chloride concentrations in groundwater at well P-321L, located upgradient of well P-325L, peaked around 2016 and have since decreased (Figure 2). The peak vinyl chloride concentration in groundwater occurred at well P-325L in 2022 and may be related to downgradient migration of peak concentrations in groundwater previously observed at P-321L.
- Vinyl chloride concentrations at monitoring wells P-334L, P-338L, and P694477, which are located closer to the middle and distal edge of the plume (Figure 3), have been increasing since approximately 2020 (Table 5; Figures 3 and 4). Based on historic organics concentration data at ERL and estimated groundwater flow velocities, it appears that the remnants of the slug of elevated organics concentrations observed at P-17C in 1994 may be reaching the distal portion of the plume. The slug of elevated organics was estimated to reach P-334L between approximately 2024 and 2033 (Barr, 2024). Water quality at monitoring well P-342L and recently installed well P-342C will continue to be monitored, and the data will be used to evaluate the extent of the vinyl chloride plume. The observed vinyl chloride concentration trends (i.e., increasing at wells P-334L/P-338L/P694477 and stable to decreasing at most wells located closer to the landfill) are consistent with the anticipated migration of peak vinyl chloride concentrations to the west and may be followed by decreasing concentrations in the future.
- Because vinyl chloride is a daughter product of cis-1,2-dichloroethylene (cDCE) dechlorination, the concentration and extent of vinyl chloride in groundwater can be directly related to where cDCE degrades to vinyl chloride along the flowpath. For example, 1 $\mu\text{g/L}$ of cDCE will degrade to an equivalent micromolar mass of vinyl chloride with a concentration of 0.6 $\mu\text{g/L}$ (the concentration is lower because the molecular weight of vinyl chloride is lower than cDCE); therefore, the low concentrations of cDCE that are observed in groundwater can degrade to vinyl chloride concentrations well above the reporting limit (0.05 $\mu\text{g/L}$). To further explore the relationship of cDCE to vinyl chloride downgradient of ERL, a low-level analysis of cDCE was

2024 Monitored Natural Attenuation Data Summary

implemented for 2023-2024 to achieve a lower reporting limit (the reporting limit reduced from 1.0 µg/L to 0.1 µg/L). The low-level analysis results in 2023 and 2024 show that cDCE is present in groundwater at P-338L and absent at P-334L, where vinyl chloride concentrations currently demonstrate an increasing trend. As a result, it appears that the degradation of cDCE to vinyl chloride in the P-338L area is contributing to the vinyl chloride concentrations in the groundwater system, thereby extending the vinyl chloride plume downgradient (i.e., to well P-334L).

- The estimated mass flux of vinyl chloride in groundwater flowing from the western edge of the landfill was 0.017 pounds per year (lb/yr) in 2023, which is 82% less than the estimated mass flux in April 2010 (0.11 lb/yr) (Barr, 2024). The estimated overall mass of vinyl chloride in groundwater downgradient of the landfill is approximately one pound (Barr, 2020a).

Other Organics

Plots of vinyl chloride precursor compounds (e.g., trichloroethene (TCE), cDCE, etc.) concentrations are included on Figure 4, and plots of ethyl ether concentrations are included in Attachment A. The following observations are provided:

- Concentrations of vinyl chloride precursor compounds are generally consistent with previous years (Barr, 2020b).
- Ethyl ether concentration trends (Attachment A) are similar to vinyl chloride trends. Ethyl ether concentrations remain below the Intervention Limit (50 µg/L) at each well it is detected. A HRL has not been developed for ethyl ether.

Geochemical Conditions

Geochemical data (terminal electron acceptors, general indicator parameters) collected in 2024 were generally consistent with previous years.

This data shows that conditions are suitable for reductive dechlorination near the western edge of ERL, particularly in and downgradient of the P-17C Area (Barr, 2020b and 2024). The decrease in concentrations of chlorinated compounds over time in this area and the sparsity of vinyl chloride precursors in groundwater support this finding. The dominant reducing environment in the groundwater system downgradient of the landfill appears to be iron/manganese reduction (which is favorable for reductive dechlorination). It is also important to note that previous magnetic susceptibility testing demonstrated that abiotic pathways are also supporting the degradation of cDCE and VC.

Future Work

MNA monitoring will be conducted in 2025 (Table 1). Per the CAWP (Barr, 2021), a 5-Year performance evaluation will be conducted in the first quarter of 2027 (Q1 2027) to assess the corrective action protectiveness to human health and the environment. A report summarizing the vertical groundwater profiling results, well installation work, and initial groundwater monitoring results will be submitted within 60 days of receipt of the initial monitoring well sampling results from well P-342C.

2024 Monitored Natural Attenuation Data Summary

References

- Barr, 2025. 2024 Annual Water Quality Report, Elk River Landfill, March.
- Barr, 2024. Groundwater Corrective Action Report – Initial Performance Evaluation, Elk River Landfill. April.
- Barr, 2021. Groundwater Corrective Action Work Plan, Elk River Landfill, March.
- Barr, 2020a. Groundwater Corrective Action Evaluation Report, Elk River Landfill, August.
- Barr, 2020b. Groundwater Natural Attenuation Evaluation Report, Elk River Landfill, February.
- USEPA, 2013. Introduction to In Situ Bioremediation of Groundwater. United States Environmental Protection Agency, Office of Solid Waste and Emergency Response, EPA 542-R-13-018, December.

Attachments

- Table 1 Natural Attenuation Monitoring Plan
- Table 2 Natural Attenuation Monitoring Parameters
- Table 3 Groundwater Corrective Action Contingency Plan Summary
- Table 4 2024 Natural Attenuation Monitoring Results
- Table 5 Mann-Kendall Trend Review for Vinyl Chloride
- Figure 1 Natural Attenuation Monitoring
- Figure 2 Vinyl Chloride Trends (2011-2024)
- Figure 3 Vinyl Chloride Trend Summary
- Figure 4 Vinyl Chloride, Potential Precursor Compound (TCE, DCE), and Total Molar Chlorinated Ethene Trends (2011-2024)
- Attachment A Ethyl Ether Concentration Charts

Tables

Table 1
Natural Attenuation Monitoring Plan
Elk River Landfill
Elk River, Minnesota

Relative Position to Source / Plume		Well ID	Natural Attenuation Monitoring Schedule								
			2024			2025			2026		
			Spring ¹	Summer ^{1,2}	Fall ¹	Spring ¹	Summer ^{1,2}	Fall ^{1,2}	Spring ¹	Summer ^{1,2}	Fall ¹
Within Plume	Near Source (Landfill Edge)	P-302C	X	X	X	X	X	X	X	X	X
		P-17C		X			X			X	
		P-308L		X			X			X	
		P-304C	X	X	X	X	X	X	X	X	X
	Downgradient (Compliance Boundary)	P-321L	X	X	X	X	X	X	X	X	X
		P-323L	X	X	X	X	X	X	X	X	X
		P-313C	X	X	X	X	X	X	X	X	X
	Mid-Plume (Property Boundary)	P-325L	X	X	X	X	X	X	X	X	X
		P-326L	X	X	X	X	X	X	X	X	X
		P-338L	X	X	X	X	X	X	X	X	X
	Distal Plume	P-334L	X	X ³	X	X	X	X	X	X	X
Outside Plume	Downgradient	P-342L	X	X		X	X		X	X	
	Sentinel	P-339L*				X	X	X	X	X	X
	Upgradient	P-22L		X			X			X	
	Sidegradient	P-340L		X			X			X	
		P-341L	X	X ³	X		X			X	

Notes:

* To be installed if landowner grant permission.

¹ Samples will be analyzed for List 1 parameters shown on Table 2.

² Samples will be analyzed for List 2 parameters shown on Table 2.

³ List 1 data were rejected due to laboratory error (Barr, 2025).

The anticipated schedule is subject to change. The monitoring plan will be reviewed annually as part of Annual Water Quality Monitoring Reports.

Table 2
Natural Attenuation Monitoring Parameters
Elk River Landfill

Parameter List	Analyte Group	Parameters	Analytical Method
List 1	Organics	Vinyl Chloride (and additional organic compounds included on the EPA Method list)	EPA Method 8260D
	Field Parameters	Conductivity	Field Water Quality Meter Measurement
		Dissolved Oxygen	
		Temperature	
		Oxidation-Reduction Potential	
		pH	
List 2	Natural Attenuation Indicator Parameters	Sulfate	EPA Method 300.0
		Nitrate	EPA Method 300.0
		Chloride	EPA Method 300.0
		Total organic carbon	EPA Method 9060A
		Alkalinity	EPA Method 310.2
		Reduced Iron [Fe (II)]	Field Test Kit Measurement
		Reduced Manganese [Mn (II)]	
		Sulfide	
		Dissolved Oxygen	
		Methane/Ethane/Ethene	AM20 GAX

Table 3
Groundwater Corrective Action Contingency Plan Summary
Elk River Landfill

Scenario	Description	Applicable Wells	Actions	Approximate Timing
1 Organics detection in a water supply well sample	A detection of an organic compound ¹ in a sample from a downgradient water supply well will trigger data review and follow-up sampling ² (to confirm/verify the initial result) and action to protect the health of the well users.	Downgradient monitored water supply wells.	Review the data to assess quality control/quality assurance results (including field and laboratory control sample) and potential of alternate sources ³ .	As soon as feasible (but within two weeks of receiving sample results).
			Notify the owner/resident and MPCA (and others) and coordinate/collect/analyze a confirmation sample.	Within 48 hours of identifying the organics detection. Confirmation sample analysis will be expedited if possible.
			If the detected concentration is above Minnesota drinking water criteria, provide bottled water to the resident until the detection is resolved through confirmation sampling/analysis or addressed by further action.	Within 48 hours of identifying the organics detection.
			If confirmed ⁴ , address the detected organic to prevent exposure to groundwater users ⁵ .	As soon as feasible (after confirmation).
			Evaluate the need for additional or alternate correction action.	To be determined.
2 Organics detection at sentinel well	A first-time detection of an organic compound ^{1,4} at a concentration greater than the IL will trigger rapid notification (i.e., within 48 hours of identification) and resampling unless obvious sampling or laboratory QA/QC issues are evident.	Sentinel monitoring wells: P-327L, P-328L, P-329L, P-333L, P-335L, P-339L (contingent on final location), P-340L, and P-341L .	Notify the MPCA (and others) and coordinate/collect/analyze a verification sample.	Notify within 48 hours of identifying the organics detection above the IL. Verification resample will be conducted as soon as feasible.
			Review the evaluation criteria for nearby water supply wells in context of the detection (see Table 4) and determine if additional water supply well actions are appropriate.	Annual Water Quality Monitoring Report (or separate submittal).
			Review monitoring results from the following three triannual events and determine if additional investigation and/or well installation activities are appropriate.	Subsequent Annual Water Quality Monitoring Report.
			If appropriate, prepare plans for additional investigation activities and/or evaluate the need for additional or alternate corrective action.	To be determined.

Notes:

¹ Attributed to the landfill.

² Sampling and additional actions require permission of the well owner.

³ Common sources of low level organics not attributed to the landfill include sample cross contamination (during sample collection, transport, or analysis), well disinfection byproducts (e.g., from well disinfection), water pumping/transmission/storage system components, separate sources.

⁴ A confirmed detection is defined as comparable detections for at least two consecutive sampling events that are not attributed to sampling, handling, or laboratory cross contamination.

⁵ May include installation of a point of entry water treatment system, installation of a replacement water supply well, providing a long-term water delivery, or other options/combined approach.

Table 4
2024 Natural Attenuation Monitoring Results
Elk River Landfill
Elk River, Minnesota

Location Date Sampling Event Type			GWCAM															
			P-17C 7/24/2024 N	P-22L 7/22/2024 N	P-302C 4/19/2024 N	P-302C 7/24/2024 N	P-302C 10/17/2024 N	P-304C 4/18/2024 N	P-304C 7/24/2024 N	P-304C 10/17/2024 N	P-308L 7/24/2024 N	P-313C 4/16/2024 N	P-313C 7/24/2024 N	P-313C 10/17/2024 N	P-321L 4/18/2024 N	P-321L 7/23/2024 N	P-321L 10/17/2024 N	P-323L 4/18/2024 N
Parameter	Units	MDH Human Health- Based Water Guidance Table																
Last Updated		01/16/2024																
Exceedance Key		Bold																
Volatile Organic Compounds																		
1,1,1,2-Tetrachloroethane	ug/l	70 HRL93	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,1,1-Trichloroethane	ug/l	5000 HRL18 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,1,2,2-Tetrachloroethane	ug/l	2 HRL94	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	
1,1,2-Trichloroethane	ug/l	3 HRL93	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	
1,1-Dichloroethane	ug/l	80 RAA16 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	2.60	2.63	2.63	2.85	1.46	2.57	2.88	
1,1-Dichloroethylene	ug/l	200 HRL23	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,1-Dichloropropene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,2,3-Trichlorobenzene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,2,3-Trichloropropane	ug/l	0.003 HRL13 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,2,4-Trichlorobenzene	ug/l	4 HRL13 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,2,4-Trimethylbenzene	ug/l	30 HRL23	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,2-Dibromo-3-chloropropane (DBCP)	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,2-Dibromoethane (EDB)	ug/l	0.03 HRL23 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,2-Dichlorobenzene	ug/l	600 HRL93	< 1.00 U J4	< 1.00 U	< 1.00 U	< 1.00 U J4	< 1.00 U	< 1.00 U	< 1.00 U J4	< 1.00 U	< 1.00 U J4	< 1.00 U	< 1.00 U J4	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,2-Dichloroethane	ug/l	1 HRL13 (1)	< 0.250 U	< 0.250 U	0.392	0.416	0.461	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	
1,2-Dichloroethylene, cis	ug/l	6 HRL18 (1)	0.276	< 0.100 U	0.221	0.193	0.278	0.444	0.530	0.599	< 1.00 U	0.483	0.545	0.495	< 0.100 U	0.385	0.372	
1,2-Dichloroethylene, trans	ug/l	9 HRL23 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,2-Dichloropropane	ug/l	3 HRL23 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,3,5-Trimethylbenzene	ug/l	30 HRL23 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,3-Dichlorobenzene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,3-Dichloropropane	ug/l		< 1.00 U J4	< 1.00 U	< 1.00 U	< 1.00 U J4	< 1.00 U	< 1.00 U	< 1.00 U J4	< 1.00 U	< 1.00 U J4	< 1.00 U	< 1.00 U J4	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,3-Dichloropropene, cis	ug/l	2 DCP HRL94	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	
1,3-Dichloropropene, trans	ug/l	2 DCP HRL94	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
1,4-Dichlorobenzene	ug/l	50 HRL23	2.06	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
2,2-Dichloropropane	ug/l		< 1.00 U C3	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U C3	< 1.00 U C3	< 1.00 U C3	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Acetone	ug/l	3000 HRL23 (1)	< 10.0 U	< 1.00 U	< 10.0 U	< 10.0 U	< 10.0 U J4	< 10.0 U	< 10.0 U	< 10.0 U J4	< 10.0 U	< 10.0 U	< 10.0 U J4	< 10.0 U	< 10.0 U	< 10.0 U	< 10.0 U J4	
Allyl chloride	ug/l	30 HRL94	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U J4	< 1.00 U	< 1.00 U	< 1.00 U J4	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U J4	< 1.00 U	< 1.00 U	< 1.00 U J4	
Benzene	ug/l	2 HRL09 (1)	0.952	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	
Bromobenzene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Bromochloromethane	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Bromodichloromethane	ug/l	3 HRL23 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Bromoform	ug/l	40 HRL93	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U	
Bromomethane	ug/l	10 HRL93	< 1.00 U C3	< 1.00 U	< 1.00 UC3J3J4	< 1.00 U C3	< 1.00 U	< 1.00 UC3J3J4	< 1.00 U C3	< 1.00 U	< 1.00 U C3	< 1.00 U C3	< 1.00 U C3	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U C3	
Butylbenzene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Butylbenzene, sec	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Butylbenzene, tert	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Carbon tetrachloride	ug/l	1 HRL13 (1)	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	
Chlorobenzene	ug/l	100 HRL93	3.15	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Chlorodibromomethane	ug/l	10 HRL93	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Chloroethane	ug/l	ND RAA16	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	4.91 C3	< 1.00 U C3	< 1.00 U	< 1.00 U	< 1.00 U J4	< 1.00 U	< 1.00 U	
Chloroform	ug/l	20 HRL18	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Chloromethane	ug/l		< 1.00 U	< 1.00 U	< 1.00 U J3	< 1.00 U	< 1.00 U J3	< 1.00 U J3	< 1.00 U	< 1.00 U J3	< 1.00 U	< 1.00 U C3	< 1.00 U	< 1.00 U J3	< 1.00 U	< 1.00 U J3	< 1.00 U	
Chlorotoluene, o	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Chlorotoluene, p	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Cumene (isopropyl benzene)	ug/l	300 HRL93	1.50	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Cymene p- (toluene isopropyl p-)	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Dibromomethane (methylene bromide)	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Dichlorodifluoromethane (Freon-12)	ug/l	500 RAA17 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	1.52	< 1.00 U	< 1.00 U	< 1.00 U C5	< 1.00 U	< 1.00 U C5	< 1.00 U C5	
Dichlorofluoromethane (Freon-21)	ug/l	20 RAA17	< 1.00 U J3	< 1.00 U	4.00	3.86 J3	5.10	< 1.00 U	< 1.00 U J3	< 1.00 U	2.55 J3	2.41	2.24 J3	3.20	1.31	3.04 C5	3.18	
Ethyl benzene	ug/l	40 HRL23	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	
Ethyl ether	ug/l	200 RAA16 (1)	18.9 J3	< 1.00 U	28.2	23.4 J3	33.2	8.54	4.52 J3									

Table 4
2024 Natural Attenuation Monitoring Results
Elk River Landfill
Elk River, Minnesota

Location Date Sampling Event Type			GWCAM															
			P-17C	P-22L	P-302C	P-302C	P-302C	P-304C	P-304C	P-304C	P-308L	P-313C	P-313C	P-313C	P-321L	P-321L	P-321L	P-323L
			7/24/2024	7/22/2024	4/19/2024	7/24/2024	10/17/2024	4/18/2024	7/24/2024	10/17/2024	7/24/2024	4/16/2024	7/24/2024	10/17/2024	4/18/2024	7/23/2024	10/17/2024	4/18/2024
			N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Tetrachloroethylene	ug/l	4 HRL23 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Tetrahydrofuran	ug/l	600 HRL18	5.45	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	16.1	15.7	15.5	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
Toluene	ug/l	70 HRL23	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Trichloroethylene (TCE)	ug/l	0.4 HRL15 (1)	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	0.161	0.215	0.214	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U
Trichlorofluoromethane (Freon-11)	ug/l	2000 HRL93	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Trichlorotrifluoroethane (Freon 113)	ug/l	200000 HRL93	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Vinyl chloride	ug/l	0.2 HRL18 (1)	0.289	< 0.0500 U	0.538 C3	0.680	0.745	< 0.0500 U C3	0.383	0.286	1.74	0.133 C3	1.30	0.154	< 0.0500 U	0.285	0.366	0.223
Xylene, total	ug/l	300 XYL HRL23 (1)	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U
General Parameters																		
Alkalinity, total, as CaCO3	mg/l		1110	177	--	845	798	--	667	680	510	--	580	540	--	423	413	--
Anions	meq/l		30.7	4.94	--	22.0	--	--	14.9	--	--	--	14.1	--	--	10.8	--	--
Carbon, total organic	mg/l		44.6	< 1.00 U	--	18.6	16.3	--	8.01	6.77	3.84	--	4.68	3.23	--	1.68	1.21	--
Cations	meq/l		28.5	4.68	--	22.5	--	--	15.2	--	--	--	13.9	--	--	10.9	--	--
Chloride	mg/l		304	31.5	--	158	164	--	28.9 J6	32.6	42.5	--	70.2	74.1	--	57.9	51.5	--
Dissolved oxygen, field YSI	mg/l		1	0.8	0	0.2	0.2	0.1	0.3	0.2	--	1.1	0.5	0.5	0.7	1.1	1	0
Dissolved oxygen, field test kit	mg/l		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethane	mg/l		< 0.00129 U	< 0.00129 U	--	< 0.00129 U	0.00166	--	< 0.00129 U	< 0.00120 U	< 0.00129 U	--	< 0.00129 U	< 0.00120 U	--	0.00339	< 0.00120 U	--
Ethylene	mg/l		< 0.00127 U	< 0.00127 U	--	< 0.00127 U	< 0.00120 U	--	< 0.00127 U	< 0.00120 U	< 0.00127 U	--	< 0.00127 U	< 0.00120 U	--	< 0.00127 U	< 0.00120 U	--
Ion Balance	%		12.5	-2.74	--	1.32	--	--	0.931	--	--	--	-0.691	--	--	-1.32	--	--
Iron, ferrous, FE II, field	mg/l		> 3.30	0.32	--	2.89	--	--	2.94	--	> 3.30	--	1.67	--	--	0.56	--	--
Manganese II, field	mg/l		0.400	0.057	--	0.237	--	--	0.749	--	0.290	--	0.231	--	--	0.200	--	--
Methane	mg/l		1.39	0.0684	--	43.5	31.3	--	0.124	0.0941	3.61	--	0.773	0.558	--	0.298	0.329	--
Nitrogen, ammonia, as N	mg/l		44.4	< 0.100 U	--	< 0.100 U	--	--	< 0.100 U	--	--	--	< 0.100 U	--	--	< 0.100 U	--	--
Nitrogen, nitrate + nitrite, as N	mg/l		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, nitrate, as N	mg/l	10000 HRLMCL	< 1.00 U	< 1.00 U T8	--	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	--	< 1.00 U P1	< 1.00 U	--
pH, field	pH units		6.85	8.62	7.34	7.27	7.17	6.92	6.94	6.8	--	7.23	7.26	7.03	7.29	7.45	7.29	6.9
Redox (oxidation potential), field	mV		-75	-81	-16.9	-159	-172	-89	-91	-93	--	-87	-25	-55	-102	-98	-105	-96
Solids, total dissolved	mg/l		1550	278	--	1070	--	--	692	--	--	--	672	--	--	554	--	--
Solids, total suspended	mg/l		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific conductance @ 25 °C, field	umhos/cm		2611	429	1914	1917	1708	1172	1257	1198	--	1254	946	1135	975	986	919	1577
Sulfate, as SO4	mg/l		< 5.00 U	24.6	--	30.4	26.8	--	34.7 J6	33.5	< 5.00 U	--	26.0	24.5	--	33.8	32.6	--
Sulfide, as S ²⁻ , field	mg/l		0.03	> 0.80	--	0.02	--	--	0.04	--	0.03	--	> 0.80	--	--	0.07	--	--
Temperature, field	deg C		15.2	11.2	12.9	13.3	13.6	10.3	10.9	11.2	--	8.5	12.2	9.7	10.8	11.5	11.8	9.9
Turbidity, field	NTU		32	6.3	4	7	3.5	15	6	7.2	--	8	5	3.5	2	1	0.5	15
Dissolved Metals																		
Arsenic	ug/l		22.3	< 2.00 U	--	9.99	--	--	3.34	--	--	--	2.73	--	--	< 2.00 U	--	--
Boron	ug/l	500 RAA17	4330	< 200 U	--	559	--	--	309	--	--	--	< 200 U	--	--	< 200 U	--	--
Cadmium	ug/l	0.5 HRL15 (1)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/l		143	32.6	--	171	--	--	166	--	--	--	160	--	--	130 O1 V	--	--
Chromium	ug/l	100 CR HRL93	< 4.00 U	< 4.00 U	--	< 4.00 U	--	--	< 4.00 U	--	--	--	< 4.00 U	--	--	< 4.00 U	--	--
Copper	ug/l		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	ug/l		12800	290	--	14800	--	--	6200	--	--	--	1820	--	--	957 O1	--	--
Lead	ug/l		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/l		90.8	32.6	--	131	--	--	63.4	--	--	--	60.1	--	--	49.6	--	--
Manganese	ug/l	100 HRL23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	ug/l		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/l		28.9	4.75	--	5.33	--	--	2.19	--	--	--	2.77	--	--	2.79	--	--
Sodium	mg/l		291	5.31	--	58.7	--	--	31.2	--	--	--	19.3	--	--	5.02	--	--
Zinc	ug/l	2000 HRL94	13.0	< 10.0 U	--	< 10.0 U	--	--	< 10.0 U	--	--	--	< 10.0 U	--	--	< 10.0 U	--	--

Notes
GWCAM - Groundwater Corrective Action Monitoring Well

Table 4
2024 Natural Attenuation Monitoring Results
Elk River Landfill
Elk River, Minnesota

Location Date Sampling Event Type			GWCAM															
			P-323L	P-323L	P-325L	P-325L	P-325L	P-326L	P-326L	P-326L	P-334L	P-334L	P-334L	P-334L	P-338L	P-338L	P-338L	P-342L
			7/23/2024	10/17/2024	4/16/2024	7/23/2024	10/17/2024	4/16/2024	7/23/2024	10/17/2024	5/15/2024	7/22/2024	9/19/2024	10/17/2024	4/18/2024	7/22/2024	10/17/2024	4/15/2024
			N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units	MDH Human Health- Based Water Guidance Table																
Last Updated		01/16/2024																
Exceedance Key		Bold																
Volatile Organic Compounds																		
1,1,1,2-Tetrachloroethane	ug/l	70 HRL93	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,1,1-Trichloroethane	ug/l	5000 HRL18 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,1,2,2-Tetrachloroethane	ug/l	2 HRL94	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	--	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
1,1,2-Trichloroethane	ug/l	3 HRL93	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	--	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U	< 0.750 U
1,1-Dichloroethane	ug/l	80 RAA16 (1)	8.04	6.18	6.21	7.09	6.47	4.13	4.91	4.40	4.20	--	4.86	3.89	3.77	10.5	10.0	< 1.00 U
1,1-Dichloroethylene	ug/l	200 HRL23	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,1-Dichloropropene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2,3-Trichlorobenzene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2,3-Trichloropropane	ug/l	0.003 HRL13 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2,4-Trichlorobenzene	ug/l	4 HRL13 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2,4-Trimethylbenzene	ug/l	30 HRL23	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2-Dibromoethane (EDB)	ug/l	0.03 HRL23 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2-Dichlorobenzene	ug/l	600 HRL93	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2-Dichloroethane	ug/l	1 HRL13 (1)	0.335	0.313	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	--	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U	< 0.250 U
1,2-Dichloroethylene, cis	ug/l	6 HRL18 (1)	3.08	2.16	1.52	1.56	1.33	1.66	1.73	1.39	< 0.100 U	--	< 0.100 U	< 0.100 U	< 0.100 U	0.981	0.918	< 0.100 U
1,2-Dichloroethylene, trans	ug/l	9 HRL23 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,2-Dichloropropane	ug/l	3 HRL23 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,3,5-Trimethylbenzene	ug/l	30 HRL23 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,3-Dichlorobenzene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,3-Dichloropropane	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,3-Dichloropropene, cis	ug/l	2 DCP HRL94	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	--	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
1,3-Dichloropropene, trans	ug/l	2 DCP HRL94	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
1,4-Dichlorobenzene	ug/l	50 HRL23	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
2,2-Dichloropropane	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U C3
Acetone	ug/l	3000 HRL23 (1)	< 10.0 U	< 10.0 UC5J3J4	< 10.0 U	< 10.0 U	< 10.0 U J3 J4	< 10.0 U	< 10.0 U	< 10.0 U J3 J4	< 10.0 U	--	< 10.0 U J3 J4	< 10.0 U J3 J4	< 10.0 U	< 10.0 U	< 10.0 U J3 J4	< 10.0 U
Allyl chloride	ug/l	30 HRL94	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Benzene	ug/l	2 HRL09 (1)	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	--	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
Bromobenzene	ug/l		< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	

Table 4
2024 Natural Attenuation Monitoring Results
Elk River Landfill
Elk River, Minnesota

Location Date Sampling Event Type			GWCAM															
			P-323L	P-323L	P-325L	P-325L	P-325L	P-326L	P-326L	P-326L	P-334L	P-334L	P-334L	P-334L	P-338L	P-338L	P-338L	P-342L
			7/23/2024	10/17/2024	4/16/2024	7/23/2024	10/17/2024	4/16/2024	7/23/2024	10/17/2024	5/15/2024	7/22/2024	9/19/2024	10/17/2024	4/18/2024	7/22/2024	10/17/2024	4/15/2024
			N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Tetrachloroethylene	ug/l	4 HRL23 (1)	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Tetrahydrofuran	ug/l	600 HRL18	12.3 B	8.63	< 5.00 U	< 5.00 U	< 5.00 U	9.62	10.7 B	9.67	7.47	--	9.04 C3 J3	7.81	8.38	16.2 B	7.52	< 5.00 U
Toluene	ug/l	70 HRL23	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Trichloroethylene (TCE)	ug/l	0.4 HRL15 (1)	0.927	0.740	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	0.154	0.120	< 0.100 U	--	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U
Trichlorofluoromethane (Freon-11)	ug/l	2000 HRL93	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Trichlorotrifluoroethane (Freon 113)	ug/l	200000 HRL93	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
Vinyl chloride	ug/l	0.2 HRL18 (1)	0.222	0.236	0.533 C3	0.556	0.643	0.156 C3	0.160	0.176	0.584	--	0.690	0.545	0.442	1.05	0.984	< 0.0500 U C3
Xylene, total	ug/l	300 XYL HRL23 (1)	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	--	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U
General Parameters																		
Alkalinity, total, as CaCO3	mg/l		699	683	--	620	621	--	688	633	--	308	--	300	--	449	448	145
Anions	meq/l		18.2	--	--	16.6	--	--	15.9	--	--	--	--	--	--	10.6	--	3.03
Carbon, total organic	mg/l		6.73	6.44	--	8.56	8.12	--	3.02	2.84	--	< 1.40 UB	--	1.16	--	2.63	2.21	--
Cations	meq/l		18.2	--	--	16.5	--	--	15.8	--	--	--	--	--	--	10.9	--	3.57
Chloride	mg/l		133	131	--	130	122	--	62.4	67.0	--	21.6	--	23.6	--	43.6	45.1	1.05
Dissolved oxygen, field YSI	mg/l		0.3	0.2	0.6	0.9	0.7	1.8	1.2	0.8	1	--	0.8	0.7	0.5	0.4	0.7	0.2
Dissolved oxygen, field test kit	mg/l		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethane	mg/l		< 0.00129 U	0.00124	--	< 0.00129 U	0.00138	--	< 0.00129 U	< 0.00120 U	--	< 0.00129 U	--	< 0.00120 U	--	0.00915	0.00178	--
Ethylene	mg/l		< 0.00127 U	< 0.00120 U	--	< 0.00127 U	< 0.00120 U	--	< 0.00127 U	< 0.00120 U	--	< 0.00127 U	--	< 0.00120 U	--	< 0.00127 U	< 0.00120 U	--
Ion Balance	%		0.107	--	--	-0.342	--	--	-0.408	--	--	--	--	--	--	1.27	--	--
Iron, ferrous, FE II, field	mg/l		2.87	--	--	1.52	--	--	2.28	--	--	1.44	--	--	--	1.87	--	--
Manganese II, field	mg/l		0.541	--	--	0.255	--	--	0.313	--	--	0.042	--	--	--	0.252	--	--
Methane	mg/l		0.106	0.0912	--	1.06	0.952	--	0.328	0.299	--	2.11	--	2.02	--	2.88	2.63	--
Nitrogen, ammonia, as N	mg/l		< 0.100 U	--	--	< 0.100 U	--	--	< 0.100 U	--	--	--	--	--	--	< 0.100 U	--	< 0.100 U
Nitrogen, nitrate + nitrite, as N	mg/l		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.100 U
Nitrogen, nitrate, as N	mg/l	10000 HRLMCL	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	--	< 1.00 U	< 1.00 U	--	< 1.00 U T8	--	< 1.00 U	--	< 1.00 U T8	< 1.00 U	--
pH, field	pH units		6.99	6.879	7.38	7.45	7.35	7.29	7.33	7.21	7.48	--	7.23	7.27	7.63	7.74	7.49	7.94
Redox (oxidation potential), field	mV		-97	-107	-85	20	-35	-89	-56	-85	-12	--	-86	-36	-161	-176	-166	-199
Solids, total dissolved	mg/l		924	--	--	866	--	--	725	--	--	--	--	--	--	545	--	171
Solids, total suspended	mg/l		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 4.00 U
Specific conductance @ 25 °C, field	umhos/cm		995	1490	1376	1559	1503	1109	1389	1373	613	--	644	630	895	953	910	368
Sulfate, as SO4	mg/l		22.5	18.9	--	26.2	23.9	--	19.0	17.7	--	18.6	--	18.7	--	18.8	18.0	6.72
Sulfide, as S ²⁻ , field	mg/l		0.11	--	--	ND	--	--	ND	--	--	0.17	--	--	--	0.19	--	--
Temperature, field	deg C		10.5	10.8	8	11.2	10.5	7.3	12.1	10.3	10.5	--	10	9.7	9.2	10.1	9.6	7.7
Turbidity, field	NTU		8.4	21	3.5	10	8	1.5	17	9.3	3.8	--	5	13	2	1	0.8	4.9
Dissolved Metals																		
Arsenic	ug/l		< 2.00 U	--	--	< 2.00 U	--	--	< 2.00 U	--	--	--	--	--	--	< 2.00 U	--	< 2.00 UF1
Boron	ug/l	500 RAA17	319	--	--	251	--	--	< 200 U	--	--	--	--	--	--	< 200 U	--	< 200 U F1
Cadmium	ug/l	0.5 HRL15 (1)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 2.00 U F1
Calcium	mg/l		188	--	--	181	--	--	181	--	--	--	--	--	--	128	--	44.2 F1
Chromium	ug/l	100 CR HRL93	< 4.00 U	--	--	< 4.00 U	--	--	< 4.00 U	--	--	--	--	--	--	< 4.00 U	--	< 4.00 UF1
Copper	ug/l		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 10.0 U F1
Iron	ug/l		6050	--	--	2140	--	--	12600	--	--	--	--	--	--	2360	--	< 100 U F1
Lead	ug/l		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 10.0 U F1
Magnesium	mg/l		78.8	--	--	71.4	--	--	70.6	--	--	--	--	--	--	50.1	--	15.3 F1
Manganese	ug/l	100 HRL23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	114 F1
Mercury	ug/l		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.200 U F1
Potassium	mg/l		4.02	--	--	3.14	--	--	2.53	--	--	--	--	--	--	2.14	--	1.20 F1
Sodium	mg/l		46.7	--	--	32.4	--	--	9.71	--	--	--	--	--	--	4.54	--	2.41 F1
Zinc	ug/l	2000 HRL94	< 10.0 U	--	--	< 10.0 U	--	--	< 10.0 U	--	--	--	--	--	--	< 10.0 U	--	17.1 F1

Notes
GWCAM - Groundwater Corrective Action Monitoring Well

Table 4
2024 Natural Attenuation Monitoring Results
Elk River Landfill
Elk River, Minnesota

[illegible]

Table 4
2024 Natural Attenuation Monitoring Results
Elk River Landfill
Elk River, Minnesota

Location Date Sampling Event Type			GWCAM	Sentinel Wells														
			P-342L	P-327L	P-327L	P-328L	P-328L	P-329L	P-329L	P-329L	P-333L	P-333L	P-335L	P-335L	P-335L	P-340L	P-341L	P-341L
			7/24/2024	4/15/2024	7/25/2024	4/15/2024	7/25/2024	4/15/2024	7/25/2024	10/16/2024	4/15/2024	7/25/2024	4/15/2024	7/25/2024	10/16/2024	7/22/2024	4/15/2024	7/23/2024
			N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Tetrachloroethylene	ug/l	4 HRL23 (1)	< 1.00 U	--	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--
Tetrahydrofuran	ug/l	600 HRL18	< 5.00 U	--	< 5.00 U C3	--	< 5.00 U C3	< 5.00 U	< 5.00 U	< 5.00 U C3	< 5.00 U	< 5.00 U C5	< 5.00 U	< 5.00 U	< 5.00 U C3	< 5.00 U	< 5.00 U	--
Toluene	ug/l	70 HRL23	< 1.00 U	--	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--
Trichloroethylene (TCE)	ug/l	0.4 HRL15 (1)	< 0.100 U	--	< 0.100 U	--	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	--
Trichlorofluoromethane (Freon-11)	ug/l	2000 HRL93	< 1.00 U	--	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--
Trichlorotrifluoroethane (Freon 113)	ug/l	200000 HRL93	< 1.00 U	--	< 1.00 U	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--
Vinyl chloride	ug/l	0.2 HRL18 (1)	< 0.0500 U	--	< 0.0500 U	--	< 0.0500 U	< 0.0500 U C3	< 0.0500 U	< 0.0500 U J4	< 0.0500 U C3	< 0.0500 U	< 0.0500 U C3	< 0.0500 U	< 0.0500 U J4	< 0.0500 U	< 0.0500 U C3	--
Xylene, total	ug/l	300 XYL HRL23 (1)	< 2.00 U	--	< 2.00 U	--	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	< 2.00 U	--
General Parameters																		
Alkalinity, total, as CaCO3	mg/l		198	208	197	215	205	210	206	--	205	198	202	197	--	179	274	272
Anions	meq/l		4.22	--	4.36	--	4.60	--	4.50	--	--	4.39	--	4.42	--	3.98	6.56	--
Carbon, total organic	mg/l		1.03	--	--	--	--	--	--	--	--	--	--	--	--	< 1.00 U	--	< 1.00 U
Cations	meq/l		4.25	--	4.51	--	4.54	--	4.38	--	--	4.33	--	4.33	--	4.56	6.23	--
Chloride	mg/l		1.38	11.2	10.6 J6	6.87	6.09	3.04	3.45	--	3.94	3.43	4.04	4.10	--	4.72	24.6	24.5
Dissolved oxygen, field YSI	mg/l		0.9	0.2	0.8	15.9	0.9	0.5	0.5	0.4	0.4	0.6	1.1	0.8	1.8	10.7	0.1	--
Dissolved oxygen, field test kit	mg/l		--													--	--	--
Ethane	mg/l		< 0.00129 U	--	--	--	--	--	--	--	--	--	--	--	--	< 0.00129 U	--	< 0.00129 U
Ethylene	mg/l		< 0.00127 U	--	--	--	--	--	--	--	--	--	--	--	--	< 0.00127 U	--	< 0.00127 U
Ion Balance	%		0.387	--	3.23	--	3.11	--	-1.26	--	--	-0.687	--	-1.01	--	6.85	--	--
Iron, ferrous, FE II, field	mg/l		0.77	--	--	--	--	--	--	--	--	--	--	--	--	1.05	--	2.49
Manganese II, field	mg/l		0.064	--	--	--	--	--	--	--	--	--	--	--	--	0.175	--	0.368
Methane	mg/l		0.0429	--	--	--	--	--	--	--	--	--	--	--	--	0.0249	--	< 0.000678 U
Nitrogen, ammonia, as N	mg/l		< 0.100 U	--	0.214	--	0.225	--	< 0.100 U	--	--	< 0.100 U	--	< 0.100 U	--	< 0.100 U	< 0.100 U	--
Nitrogen, nitrate + nitrite, as N	mg/l		--	--	--	--	--	--	--	--	--	--	--	--	--	< 1.00 U	< 0.100 U	--
Nitrogen, nitrate, as N	mg/l	10000 HRLMCL	< 1.00 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1.00 U
pH, field	pH units		8.06	8.37	8.18	8.04	7.96	7.98	7.9	7.74	7.94	7.85	7.62	8.12	7.87	8.45	8.56	--
Redox (oxidation potential), field	mV		-43	-230	-201	-184	-147	-140	-125	-137	-139	-139	-138	-135	-114	72	-329	--
Solids, total dissolved	mg/l		210	--	224	--	229	--	224	--	--	228	--	229	--	207	339	--
Solids, total suspended	mg/l		--	--	--	--	--	--	--	--	--	--	--	--	--	--	37.8	--
Specific conductance @ 25 °C, field	umhos/cm		411	409	418	424	436	395	413	392	400	403	398	407	408	404	575	--
Sulfate, as SO4	mg/l		10.3	5.85	6.28	15.5	15.9	13.4	13.8	--	16.5	16.5	15.1	17.6	--	12.5	18.9	23.7
Sulfide, as S ²⁻ , field	mg/l		0.54	--	--	--	--	--	--	--	--	--	--	--	--	0.10	--	0.08
Temperature, field	deg C		12.1	8	9	8.2	9.7	9.2	9.9	9.2	7.9	9.9	11	11.1	11.4	11.5	10.2	--
Turbidity, field	NTU		19	9.1	1	0.1	13	9.5	2	9	2.3	2	8.1	28	12	8	15.5	--
Dissolved Metals																		
Arsenic	ug/l		< 2.00 U	--	3.62	--	< 2.00 U	--	< 2.00 U	--	--	< 2.00 U	--	< 2.00 U	--	< 2.00 U	< 2.00 U	--
Boron	ug/l	500 RAA17	< 200 U	--	< 200 U	--	< 200 U	--	< 200 U	--	--	< 200 U	--	< 200 U	--	< 200 U	< 200 U	--
Cadmium	ug/l	0.5 HRL15 (1)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 2.00 U	--
Calcium	mg/l		49.7	58.9 F1	51.5	63.9 F1	54.8	59.5 F1	51.1	--	62.6 F1	53.0	60.0 F1	52.3	--	51.6	75.8	--
Chromium	ug/l	100 CR HRL93	< 4.00 U	--	< 4.00 U	--	< 4.00 U	--	< 4.00 U	--	--	< 4.00 U	--	< 4.00 U	--	< 4.00 U	6.46	--
Copper	ug/l		--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 10.0 U	--
Iron	ug/l		1410	--	2320	--	810	--	1080	--	--	1310	--	879	--	400	< 100 U	--
Lead	ug/l		--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 10.0 U	--
Magnesium	mg/l		19.1	19.1 F1	18.5	20.6 F1	18.2	18.1 F1	18	--	19.3 F1	17.7	19.6 F1	17.8	--	21	26.9	--
Manganese	ug/l	100 HRL23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	84.3	--
Mercury	ug/l		--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.200 U	--
Potassium	mg/l		1.36	1.85 F1	1.61	1.48 F1	1.42	1.66 F1	1.77	--	1.29 F1	1.3	1.34 F1	1.42	--	1.39	3.02	--
Sodium	mg/l		2.58	6.64 F1	6.8	5.64 F1	5.8	5.77 F1	6.07	--	3.33 F1	3.51	4.07 F1	4.35	--	4.79	3.58	--
Zinc	ug/l	2000 HRL94	< 10.0 U	--	< 10.0 U	--	< 10.0 U	--	< 10.0 U	--	--	< 10.0 U	--	< 10.0 U	--	< 10.0 U	42.3	--

Notes
GWCAM - Groundwater Corrective Action Monitoring Well

Table 4
2024 Natural Attenuation Monitoring Results
Elk River Landfill
Elk River, Minnesota

Location Date Sampling Event Type			Sentinel Wells
			P-341L 9/19/2024 N
Parameter	Units	MDH Human Health- Based Water Guidance Table	
Last Updated		01/16/2024	
Exceedance Key		Bold	
Volatile Organic Compounds			
1,1,1,2-Tetrachloroethane	ug/l	70 HRL93	< 1.00 U
1,1,1-Trichloroethane	ug/l	5000 HRL18 (1)	< 1.00 U
1,1,2,2-Tetrachloroethane	ug/l	2 HRL94	< 0.500 U
1,1,2-Trichloroethane	ug/l	3 HRL93	< 0.750 U
1,1-Dichloroethane	ug/l	80 RAA16 (1)	< 1.00 U
1,1-Dichloroethylene	ug/l	200 HRL23	< 1.00 U
1,1-Dichloropropene	ug/l		< 1.00 U
1,2,3-Trichlorobenzene	ug/l		< 1.00 U
1,2,3-Trichloropropane	ug/l	0.003 HRL13 (1)	< 1.00 U
1,2,4-Trichlorobenzene	ug/l	4 HRL13 (1)	< 1.00 U
1,2,4-Trimethylbenzene	ug/l	30 HRL23	< 1.00 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/l		< 1.00 U
1,2-Dibromoethane (EDB)	ug/l	0.03 HRL23 (1)	< 1.00 U
1,2-Dichlorobenzene	ug/l	600 HRL93	< 1.00 U
1,2-Dichloroethane	ug/l	1 HRL13 (1)	< 0.250 U
1,2-Dichloroethylene, cis	ug/l	6 HRL18 (1)	< 0.100 U
1,2-Dichloroethylene, trans	ug/l	9 HRL23 (1)	< 1.00 U
1,2-Dichloropropane	ug/l	3 HRL23 (1)	< 1.00 U
1,3,5-Trimethylbenzene	ug/l	30 HRL23 (1)	< 1.00 U
1,3-Dichlorobenzene	ug/l		< 1.00 U
1,3-Dichloropropane	ug/l		< 1.00 U
1,3-Dichloropropene, cis	ug/l	2 DCP HRL94	< 0.500 U
1,3-Dichloropropene, trans	ug/l	2 DCP HRL94	< 1.00 U
1,4-Dichlorobenzene	ug/l	50 HRL23	< 1.00 U
2,2-Dichloropropane	ug/l		< 1.00 U
Acetone	ug/l	3000 HRL23 (1)	< 10.0 U J3 J4
Allyl chloride	ug/l	30 HRL94	< 1.00 U
Benzene	ug/l	2 HRL09 (1)	< 0.500 U
Bromobenzene	ug/l		< 1.00 U
Bromochloromethane	ug/l		< 1.00 U
Bromodichloromethane	ug/l	3 HRL23 (1)	< 1.00 U
Bromoform	ug/l	40 HRL93	< 1.00 U
Bromomethane	ug/l	10 HRL93	< 1.00 U
Butylbenzene	ug/l		< 1.00 U
Butylbenzene, sec	ug/l		< 1.00 U
Butylbenzene, tert	ug/l		< 1.00 U
Carbon tetrachloride	ug/l	1 HRL13 (1)	< 0.250 U
Chlorobenzene	ug/l	100 HRL93	< 1.00 U
Chlorodibromomethane	ug/l	10 HRL93	< 1.00 U
Chloroethane	ug/l	ND RAA16	< 1.00 U
Chloroform	ug/l	20 HRL18	< 1.00 U
Chloromethane	ug/l		< 1.00 U
Chlorotoluene, o	ug/l		< 1.00 U
Chlorotoluene, p	ug/l		< 1.00 U
Cumene (isopropyl benzene)	ug/l	300 HRL93	< 1.00 U
Cymene p- (toluene isopropyl p-)	ug/l		< 1.00 U
Dibromomethane (methylene bromide)	ug/l		< 1.00 U
Dichlorodifluoromethane (Freon-12)	ug/l	500 RAA17 (1)	< 1.00 U
Dichlorofluoromethane (Freon-21)	ug/l	20 RAA17	< 1.00 U
Ethyl benzene	ug/l	40 HRL23	< 1.00 U
Ethyl ether	ug/l	200 RAA16 (1)	< 1.00 U
Hexachlorobutadiene	ug/l	1 HRL93	< 0.250 U
Methyl ethyl ketone (2-butanone)	ug/l	4000 HRL94	< 10.0 U J3
Methyl isobutyl ketone (MIBK)	ug/l	300 HRL94	< 5.00 U
Methyl tertiary butyl ether (MTBE)	ug/l	60 RAA13 (1)	< 1.00 U
Methylene chloride	ug/l	5 HRLMCL	< 1.00 U
Naphthalene	ug/l	70 HRL13	< 1.00 U C3
Propylbenzene	ug/l		< 1.00 U
Styrene	ug/l		< 1.00 U

Table 4
2024 Natural Attenuation Monitoring Results
Elk River Landfill
Elk River, Minnesota

			Sentinel Wells
		Location Date	P-341L 9/19/2024
		Sampling Event Type	N
Tetrachloroethylene	ug/l	4 HRL23 (1)	< 1.00 U
Tetrahydrofuran	ug/l	600 HRL18	< 5.00 U C3 J3
Toluene	ug/l	70 HRL23	< 1.00 U
Trichloroethylene (TCE)	ug/l	0.4 HRL15 (1)	< 0.100 U
Trichlorofluoromethane (Freon-11)	ug/l	2000 HRL93	< 1.00 U
Trichlorotrifluoroethane (Freon 113)	ug/l	200000 HRL93	< 1.00 U
Vinyl chloride	ug/l	0.2 HRL18 (1)	< 0.0500 U
Xylene, total	ug/l	300 XYL HRL23 (1)	< 2.00 U
General Parameters			
Alkalinity, total, as CaCO3	mg/l		--
Anions	meq/l		--
Carbon, total organic	mg/l		--
Cations	meq/l		--
Chloride	mg/l		--
Dissolved oxygen, field YSI	mg/l		0.5
Dissolved oxygen, field test kit	mg/l		--
Ethane	mg/l		--
Ethylene	mg/l		--
Ion Balance	%		--
Iron, ferrous, FE II, field	mg/l		--
Manganese II, field	mg/l		--
Methane	mg/l		--
Nitrogen, ammonia, as N	mg/l		--
Nitrogen, nitrate + nitrite, as N	mg/l		--
Nitrogen, nitrate, as N	mg/l	10000 HRLMCL	--
pH, field	pH units		7.55
Redox (oxidation potential), field	mV		-172
Solids, total dissolved	mg/l		--
Solids, total suspended	mg/l		--
Specific conductance @ 25 °C, field	umhos/cm		685
Sulfate, as SO4	mg/l		--
Sulfide, as S ²⁻ , field	mg/l		--
Temperature, field	deg C		10.6
Turbidity, field	NTU		60.3
Dissolved Metals			
Arsenic	ug/l		--
Boron	ug/l	500 RAA17	--
Cadmium	ug/l	0.5 HRL15 (1)	--
Calcium	mg/l		--
Chromium	ug/l	100 CR HRL93	--
Copper	ug/l		--
Iron	ug/l		--
Lead	ug/l		--
Magnesium	mg/l		--
Manganese	ug/l	100 HRL23	--
Mercury	ug/l		--
Potassium	mg/l		--
Sodium	mg/l		--
Zinc	ug/l	2000 HRL94	--

Notes
GWCAM - Groundwater Corrective Action Monitoring Well

Data Footnotes and Qualifiers

Barr Standard Footnotes and Qualifiers

U	The analyte was analyzed for, but was not detected.
H	Recommended sample preservation, extraction or analysis holding time was exceeded.

Laboratory Qualifiers

B	The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Data is likely to show a low bias concerning the result.
C3	The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.
C4	The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Data is likely to show a low bias concerning the result.
C5	The reported concentration is an estimate. The continuing calibration standard associated with this data responded high. Data is likely to show a high bias concerning the result.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
P1	P1 RPD value not applicable for sample concentrations less than 5 times the reporting limit.
Q	Sample was prepared and/or analyzed past holding time as defined in the method. Concentrations should be considered minimum values.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

MDH Human Health-Based Water Guidance Table

(1)	Value is representative of the lowest exposure duration published in the Minnesota Department of Health Human Health Advisory Table.
CR	Value represents the criteria for Chromium, hexavalent.
DCP	Value shown is 1,3-dichloropropene in the MDH criterion, however, the laboratory reports cis and trans isomers individually.
HRL09	Health Risk Limit 2009
HRL13	Health Risk Limit 2013
HRL15	Health Risk Limit 2015
HRL18	Health Risk Limit 2018
HRL23	Health Risk Limit 2023
HRL93	Health Risk Limit 1993
HRL94	Health Risk Limit 1994
MCL	Maximum Contaminant Level.
ND	Not derived due to insufficient information.
RAA13	Risk Assessment Advice 2013.
RAA16	Risk Assessment Advice 2016.
RAA17	Risk Assessment Advice 2017.
XYL	Value shown is for the sum of the mixed o,m and p Xylene isomers.

Table 5 - Mann-Kendall Trend Review for Vinyl Chloride
Elk River Landfill

Location	total sample count	total count NDs	count used for trend ⁽¹⁾	NDs used in trend	Mean (ppb) ⁽²⁾	Std Deviation (ppb) ⁽²⁾	CV	MK Test Value (S) ⁽³⁾	p-value ⁽⁴⁾	Trend Statement	Note
P-17C	19	9	13	3	0.194	0.106	55%	-6	0.379	No statistical evidence according to the MK test of an increasing or decreasing trend at 95% confidence level	Trend period 2016-2024, 7/21/2017 ND excluded to retain as much information as possible
P-29C	42	14	30	2	0.505	0.217	43%	-24	0.341	No statistical evidence according to the MK test of an increasing or decreasing trend at 95% confidence level	Trend period 2015-2024
P-301C	43	27	28	12	0.114	0.169	148%	16	0.377	No statistical evidence according to the MK test of an increasing or decreasing trend at 95% confidence level	Trend period 2016-2024
P-302C	43	13	31	1	0.487	0.217	45%	153	0.00488	Statistically significant evidence of an increasing trend at 95% confidence level.	Trend period 2015-2024
P-304C	43	25	28	11	0.172	0.125	73%	-95	0.02740	Statistically significant evidence of a decreasing trend at 95% confidence level level.	Trend period 2016-2024
P-308L	13	1	13	1	0.984	0.596	61%	-11	0.271	No statistical evidence according to the MK test of an increasing or decreasing trend at 95% confidence level	Trend period 2019-2024
P-309C	14	4	10	0	0.337	0.104	31%	-12	0.162	No statistical evidence according to the MK test of an increasing or decreasing trend at 95% confidence level	Trend period 2015-2024
P-313C	42	5	42	5	0.574	0.393	68%	-560	0	Statistically significant evidence of a decreasing trend at 95% confidence level level.	Trend period 2015-2024
P-314C	29	8	29	8	0.393	0.336	85%	-174	0.0005	Statistically significant evidence of a decreasing trend at 95% confidence level level.	Trend period 2015-2024
P-314C-historical	12	5	6	5	0.25	0.559	224%	-5	0.121	No statistical evidence according to the MK test of an increasing or decreasing trend at 95% confidence level	Trend period 2011-2014
P-320C	42	19	29	7	0.213	0.142	67%	-59	0.136	No statistical evidence according to the MK test of an increasing or decreasing trend at 95% confidence level	Trend period 2015-2024
P-320C2	42	18	30	6	0.142	0.107	75%	-6	0.464	No statistical evidence according to the MK test of an increasing or decreasing trend at 95% confidence level	Trend period 2015-2024
P-320L	42	12	29	1	0.352	0.225	64%	-38	0.244	No statistical evidence according to the MK test of an increasing or decreasing trend at 95% confidence level	Trend period 2015-2024
P-321L	43	4	40	2	1.016	0.646	64%	-472	0.000000	Statistically significant evidence of a decreasing trend at 95% confidence level level.	Trend period 2012-2024
P-323L	41	13	31	6	0.41	0.3	73%	-192	0.0005510	Statistically significant evidence of a decreasing trend at 95% confidence level level.	Trend period 2015-2024
P-325L	32	3	30	1	0.599	0.315	53%	31	0.296	No statistical evidence according to the MK test of an increasing or decreasing trend at 95% confidence level	Trend period 2015-2024
P-326L	30	4	30	4	0.46	0.303	66%	-196	0.00025	Statistically significant evidence of a decreasing trend at 95% confidence level level.	Trend period 2015-2024
P-334L	22	8	12	1	0.363	0.168	46%	40	0.003740	Statistically significant evidence of an increasing trend at 95% confidence level.	Trend period 2019-2024
P-338L	11	3	11	3	0.558	0.393	70%	28	0.018600	Statistically significant evidence of an increasing trend at 95% confidence level.	Trend period 2021-2024
P694477	25	12	16	3	0.253	0.202	80%	65	0.0019	Statistically significant evidence of an increasing trend at 95% confidence level.	Trend period 2019-2024
11661 225th Ave	1	1								Not enough data above reporting limits to complete trend analysis	
12163 223rd Ave New	3	3								Not enough data above reporting limits to complete trend analysis	
12265 223rd Ave New	3	3								Not enough data above reporting limits to complete trend analysis	
12269 223rd St New	3	3								Not enough data above reporting limits to complete trend analysis	
12275 239th Ave	1	1								Not enough data above reporting limits to complete trend analysis	
12901 221st Ave NW	1	1								Not enough data above reporting limits to complete trend analysis	
22130 Quinn St	3	3								Not enough data above reporting limits to complete trend analysis	
22205 Elk Lake Rd	3	3								Not enough data above reporting limits to complete trend analysis	
22272 Quinn St	4	4								Not enough data above reporting limits to complete trend analysis	
22275 ELK LAKE RD NW	2	2								Not enough data above reporting limits to complete trend analysis	
22447 Tipton St. New	3	3								Not enough data above reporting limits to complete trend analysis	
22915 Hwy 169	1	1								Not enough data above reporting limits to complete trend analysis	
22-OWA	2	2								Not enough data above reporting limits to complete trend analysis	
301-OWA	2	2								Not enough data above reporting limits to complete trend analysis	
312-OWA	2	2								Not enough data above reporting limits to complete trend analysis	

Table 5 - Mann-Kendall Trend Review for Vinyl Chloride
Elk River Landfill

Location	total sample count	total count NDs	count used for trend ⁽¹⁾	NDs used in trend	Mean (ppb) ⁽²⁾	Std Deviation (ppb) ⁽²⁾	CV	MK Test Value (S) ⁽³⁾	p-value ⁽⁴⁾	Trend Statement	Note
315-OWA	2	2								Not enough data above reporting limits to complete trend analysis	
336-OWA	2	2								Not enough data above reporting limits to complete trend analysis	
337-OWA	2	2								Not enough data above reporting limits to complete trend analysis	
401-OWA	1	1								Not enough data above reporting limits to complete trend analysis	
408-OWA	1	1								Not enough data above reporting limits to complete trend analysis	
B342	1	1								Not enough data above reporting limits to complete trend analysis	
ERL Shop Well	3	3								Not enough data above reporting limits to complete trend analysis	
LYS-11	5	5								Not enough data above reporting limits to complete trend analysis	
LYS-13	2	2								Not enough data above reporting limits to complete trend analysis	
LYS-14	1	1								Not enough data above reporting limits to complete trend analysis	
LYS-17	6	6								Not enough data above reporting limits to complete trend analysis	
LYS-6N	2	2								Not enough data above reporting limits to complete trend analysis	
P-22L	2	1								Not enough data above reporting limits to complete trend analysis	
P-29D	6	6								Not enough data above reporting limits to complete trend analysis	
P-301L	42	36								Not enough data above reporting limits to complete trend analysis	
P-303C	3	3								Not enough data above reporting limits to complete trend analysis	
P-305C	41	31								Not enough data above reporting limits to complete trend analysis	
P-308C	14	10								Not enough data above reporting limits to complete trend analysis	
P-310C	2	2								Not enough data above reporting limits to complete trend analysis	
P-311C	2	2								Not enough data above reporting limits to complete trend analysis	
P-311D	6	6								Not enough data above reporting limits to complete trend analysis	
P-311L	6	6								Not enough data above reporting limits to complete trend analysis	
P-315L	5	5								Not enough data above reporting limits to complete trend analysis	
P-322L	6	6								Not enough data above reporting limits to complete trend analysis	
P-324L	6	6								Not enough data above reporting limits to complete trend analysis	
LYS-19	5	5								Not enough data above reporting limits to complete trend analysis	
P-340L	7	7								Not enough data above reporting limits to complete trend analysis	
P-341L	4	1								Not enough data above reporting limits to complete trend analysis	
P-342L	4	4								Not enough data above reporting limits to complete trend analysis	
302-OWA	2	2								Not enough data above reporting limits to complete trend analysis	

General Notes:

- (1) For purposes of this trend analysis, all samples reported as non-detections were given the value of the reporting limit or detection limit unless otherwise noted. Mann-Kendall (MK) trend analyses were only considered if datasets had at least eight data points greater than or equal to the associated reporting or detection limit. To the extent possible, all data were used for trend analyses. Prior to completing the analyses, data were screened on a case-by-case basis to identify usable data within the time series and to remove ambiguities within the dataset (primarily as it relates to datasets with multiple detection limits). The following rules were used to screen data in a consistent manner:
- (a) Time series with samples that have multiple detection limits were replaced with the highest detection limit value. Detections below the highest detection limit were replaced with the detection limit value. As long as the number of detections remains above eight, a trend analysis was run.
 - (b) To handle cases when analytical techniques improved over time and detection limits became lower, the period with the high detection limit(s) was excluded from the trend analysis, including both detections and non-detections. This removed ambiguity in the dataset caused by the prior non-detections.
 - (c) Under most circumstances, non-detections were not selectively exlcuded within a data series. However, there are instances where this is an appropriate practice in order to maintain the maximum amount of information. For example, singular non-detections at relatively high limits were excluded if there were at least 5 usable data points before and after a non-detection in question. This avoided the situation where the majority of a dataset would have been replaced by the highest non-detection value.
- (2) Mean and standard deviations are reported for the data included in the trend analysis, not for the complete dataset. For data sets that included non-detects mean and standard deviation calculated using the Kaplan-Meier method.
- (3) The direction of the trend (increasing or decreasing) is inferred based on the value of the Mann-Kendall (MK) test value, S. An S value that is greater than zero suggests an upward trend and an S value less than zero suggests a downward trend. Values that are close to zero suggest no net upward or downward trend. Statements concerning the statistical signifance of the trend are inferred based on the associated p-value.
- (4) Trends with p-values that are less than or equal to 0.05 are considered statistically significant trends at the 95% confidence level. Trends with P-values greater than 0.05 and less than or equal to 0.1 are considered possible trends, but are not statistically significant. Trends with p-values greater than 0.1 do not have enough evidence to indicate an increasing or decreasing trend.

Figures

Figure 2
Vinyl Chloride Trends (2011-2024)

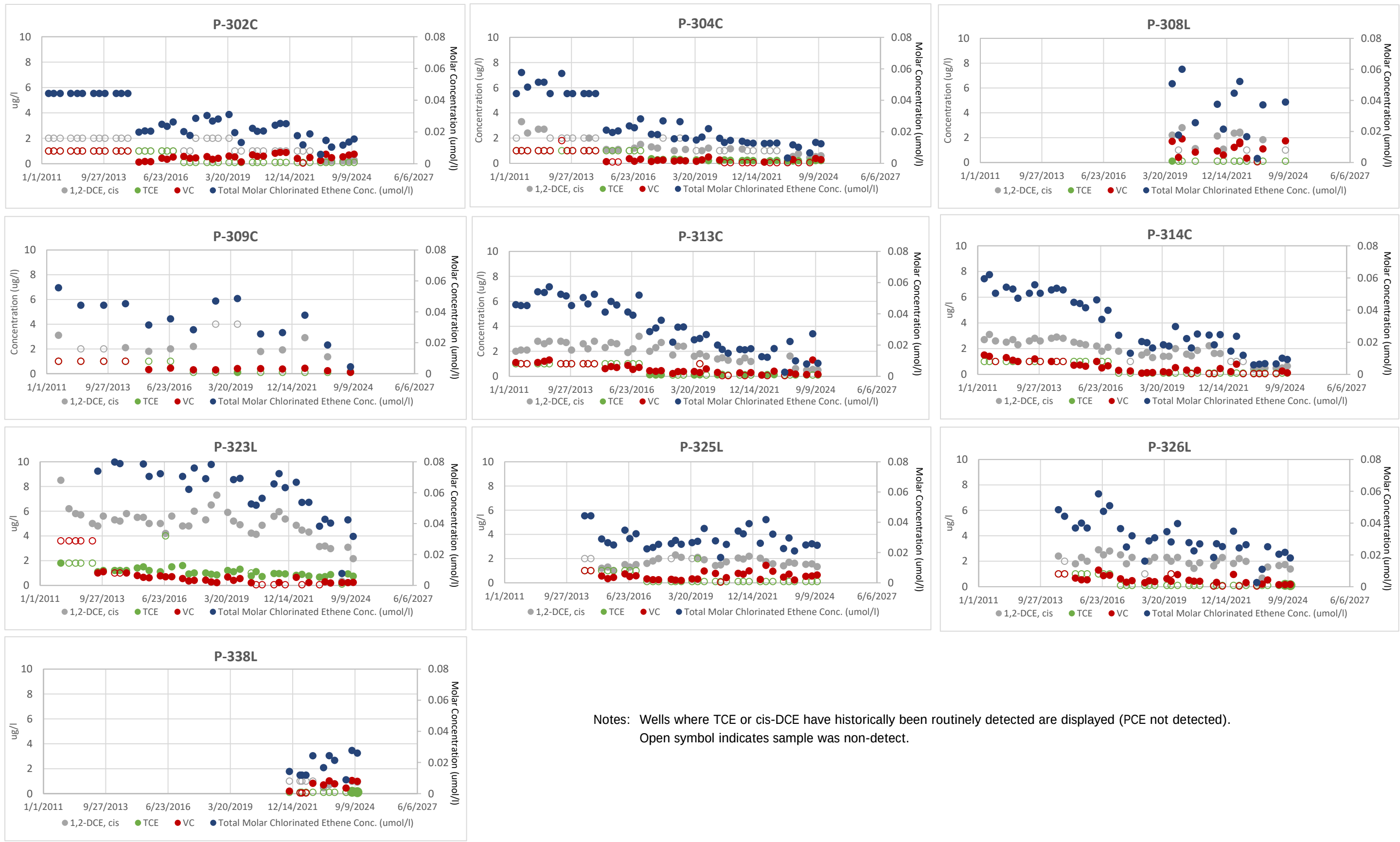


Figure 2
Vinyl Chloride Trends (2011-2024)



Note: Only locations where vinyl chloride has been detected in recent years are displayed.

Figure 4
Vinyl Chloride, Potential Precursor Compound (TCE, DCE), and Total Molar Chlorinated Ethene Trends (2011-2024)

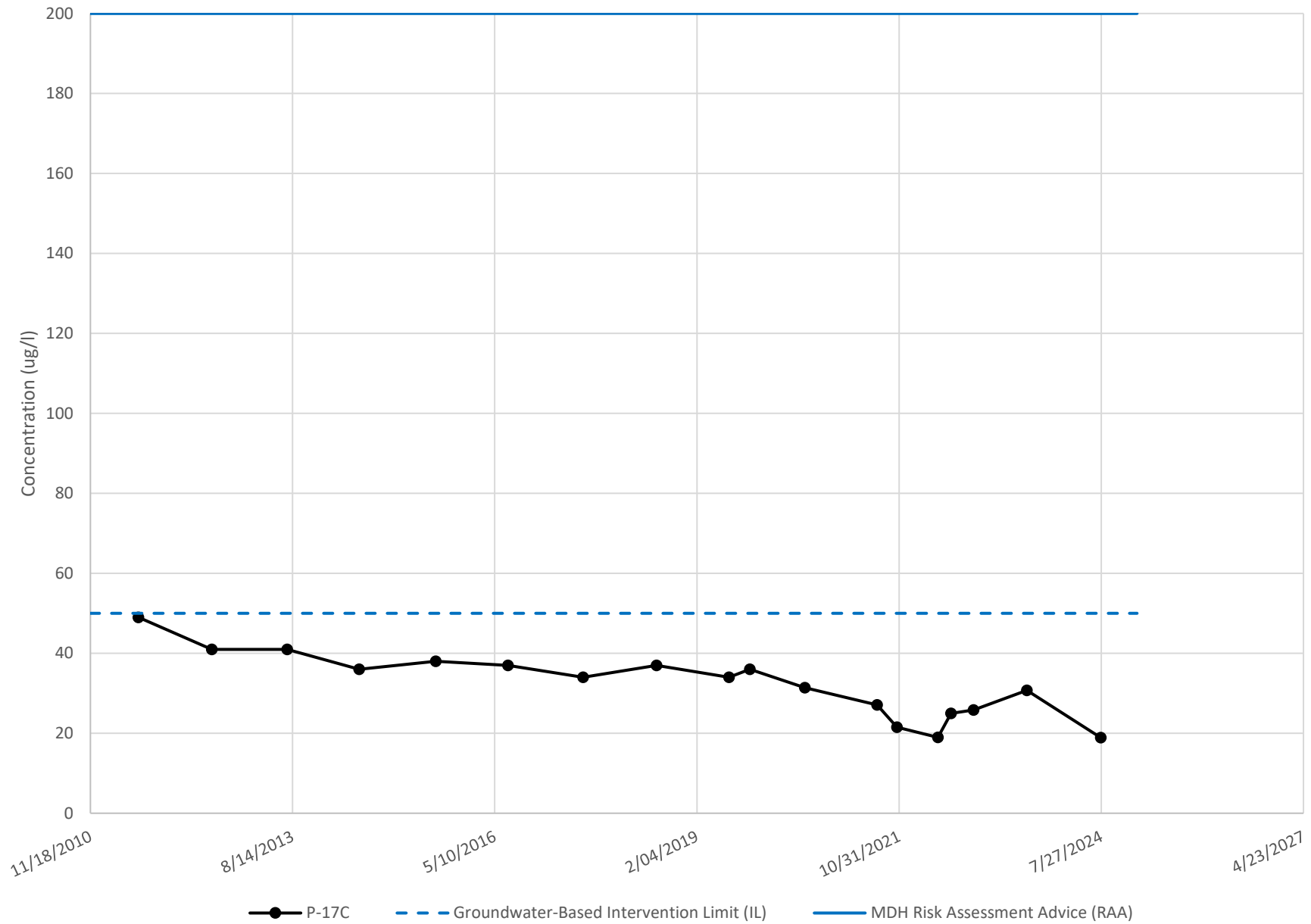


Notes: Wells where TCE or cis-DCE have historically been routinely detected are displayed (PCE not detected).
Open symbol indicates sample was non-detect.

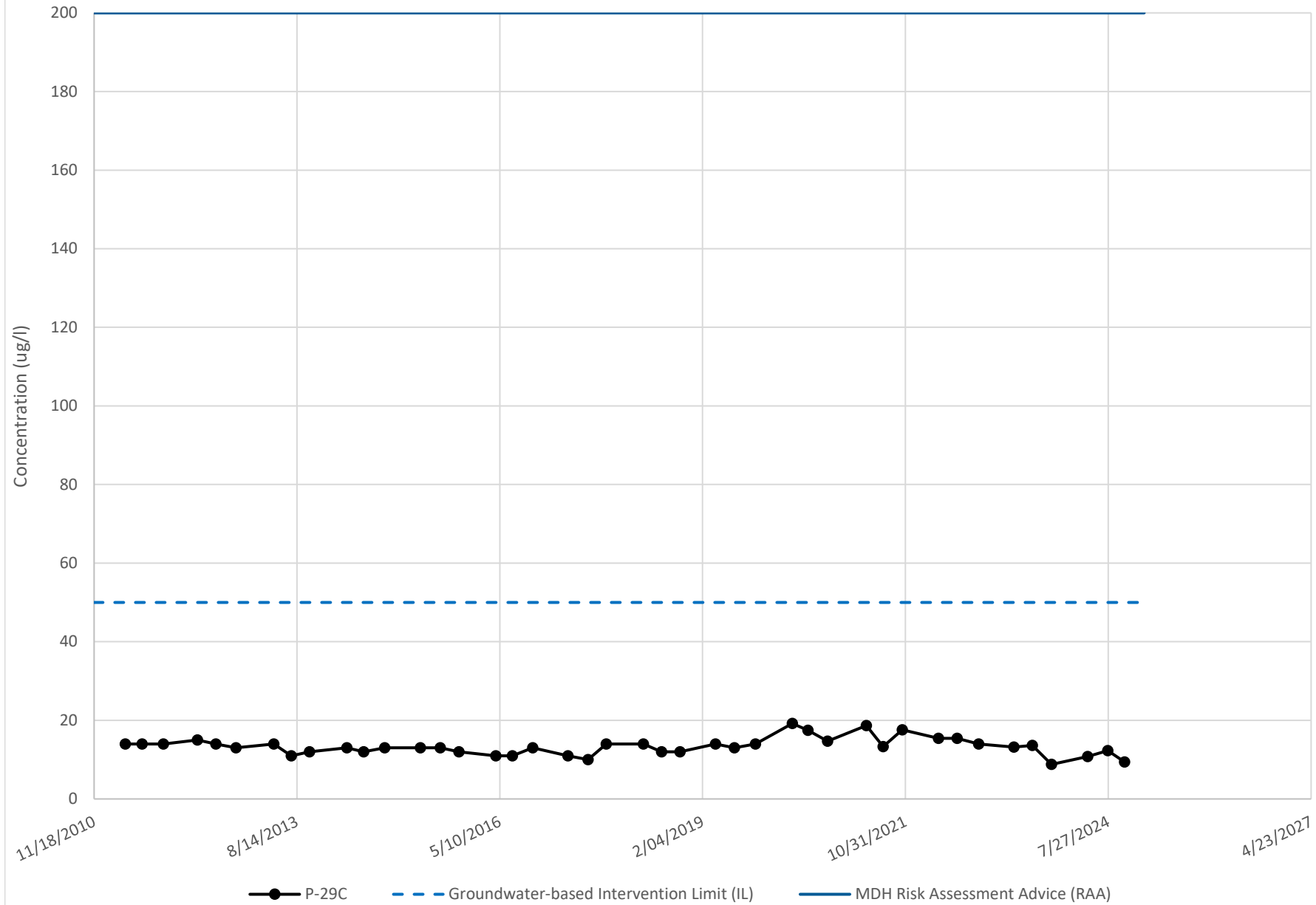
Attachment A

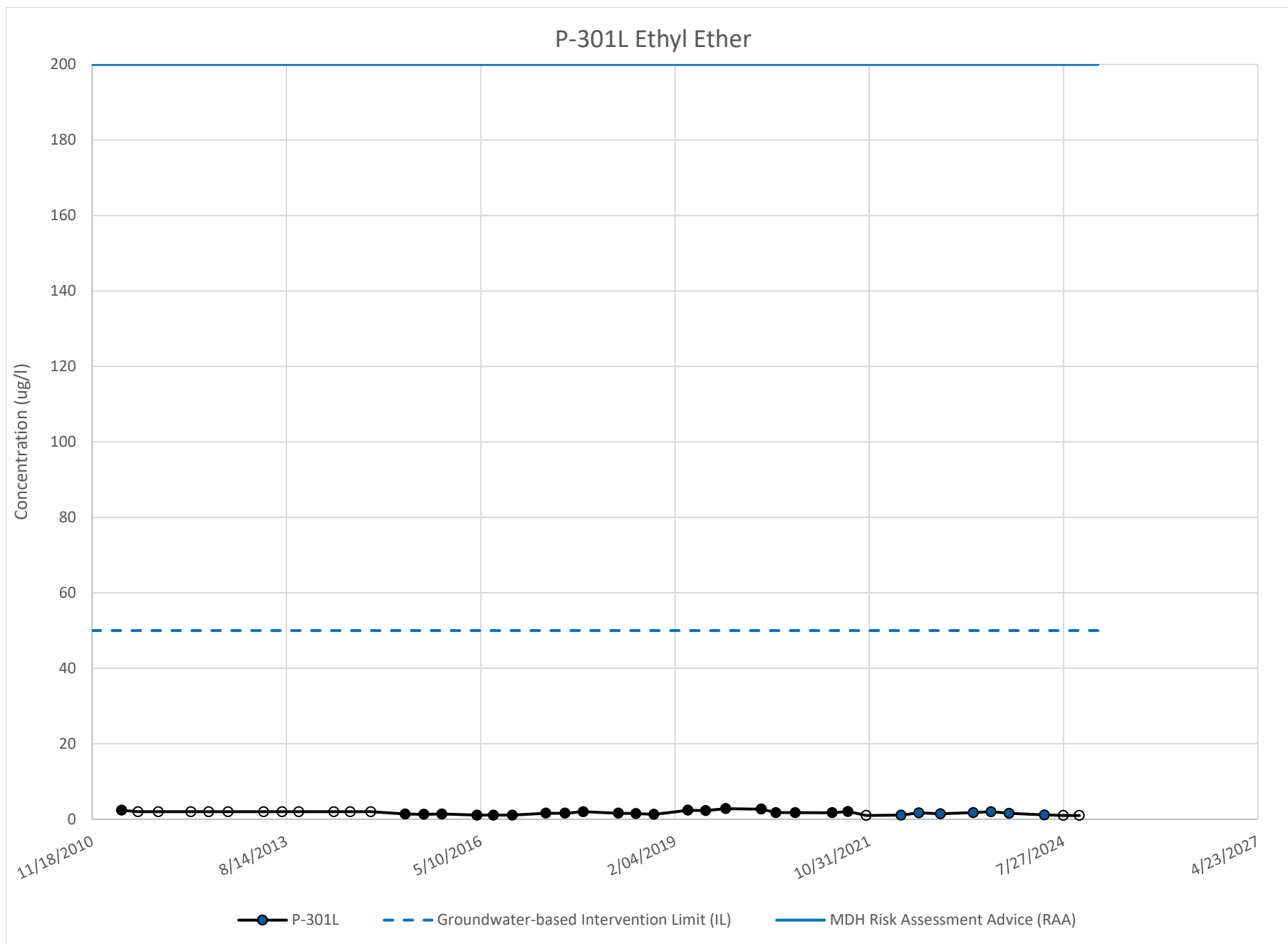
Ethyl Ether Concentration Charts

P-17C Ethyl Ether

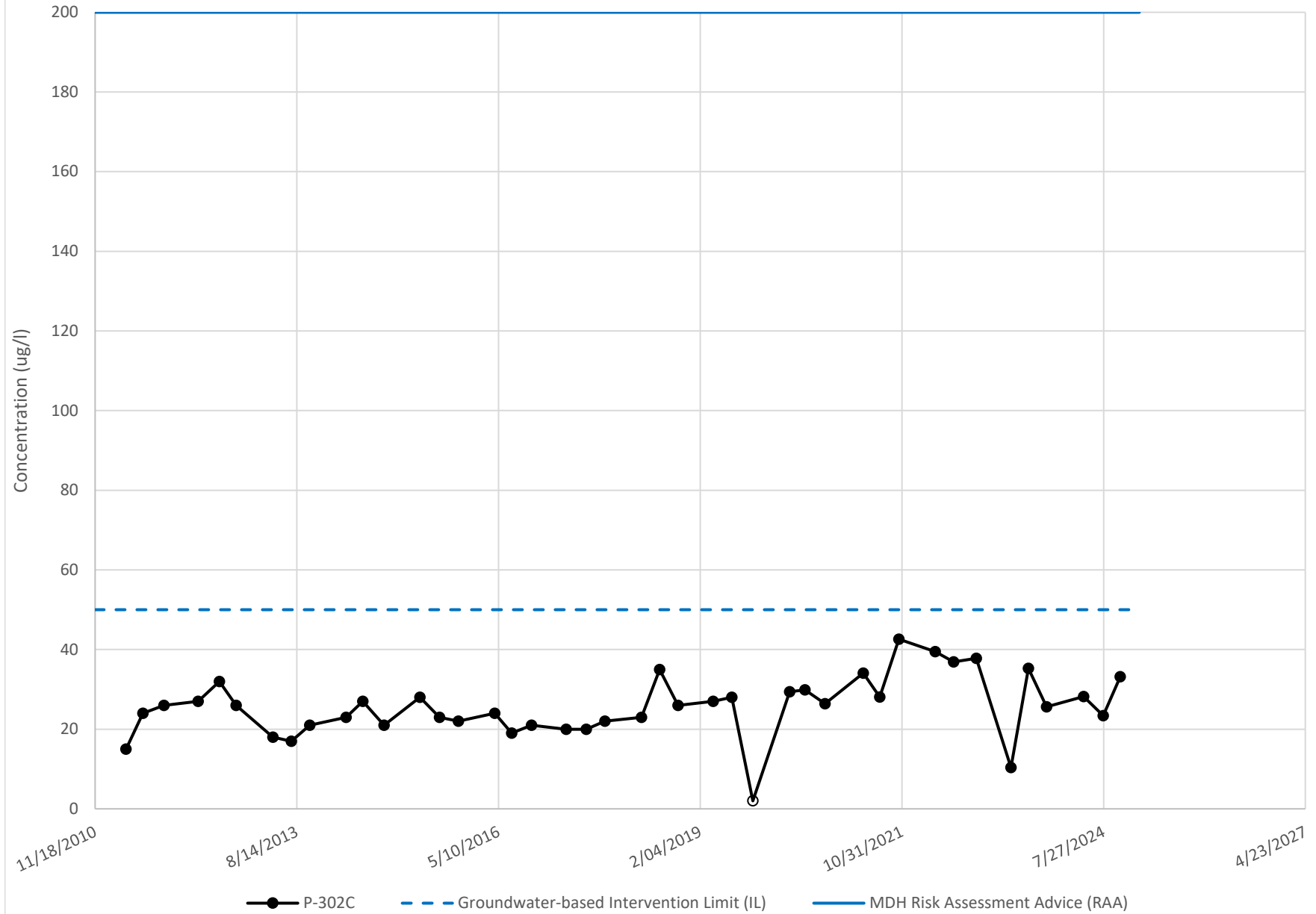


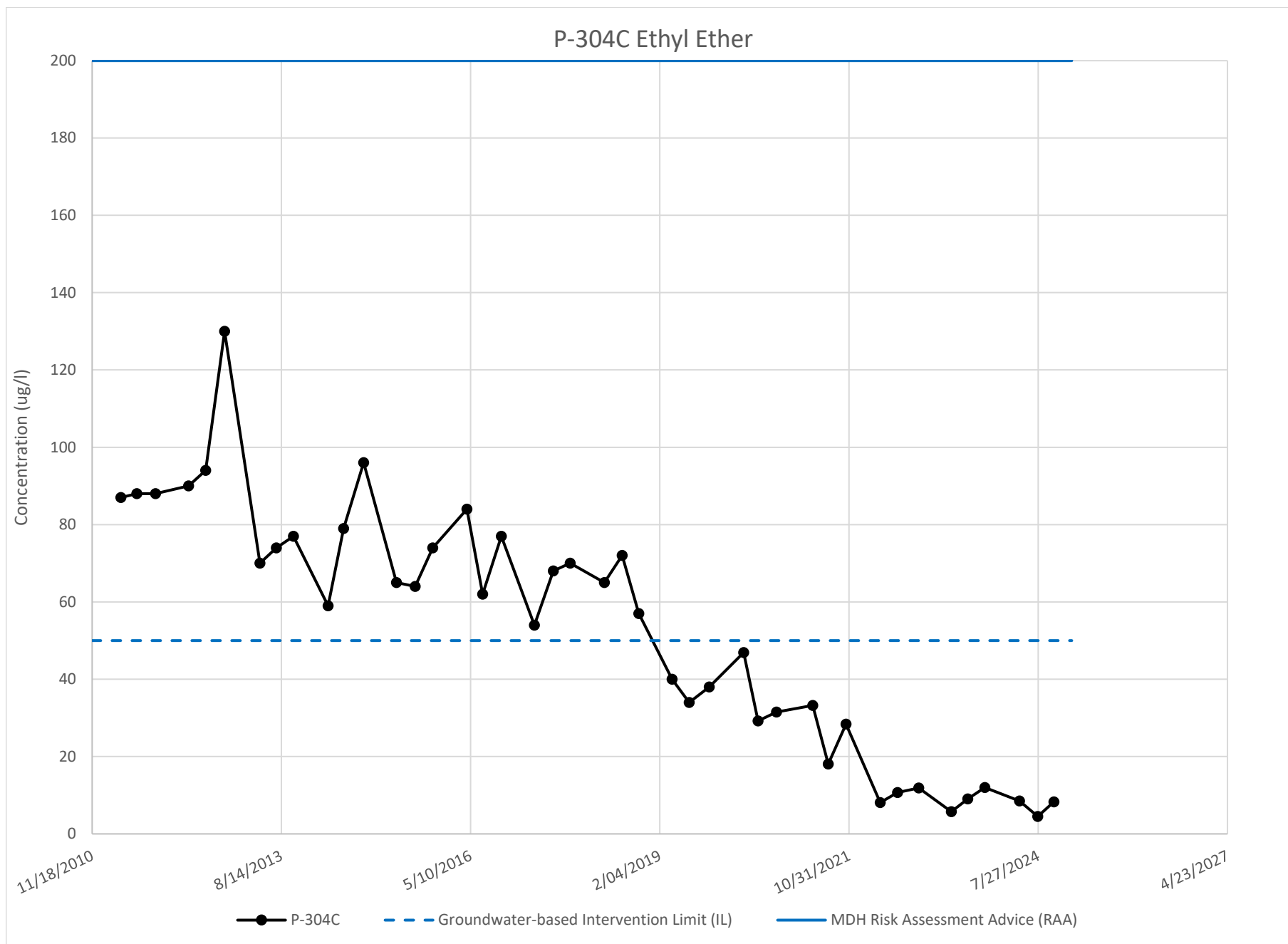
P-29C Ethyl Ether

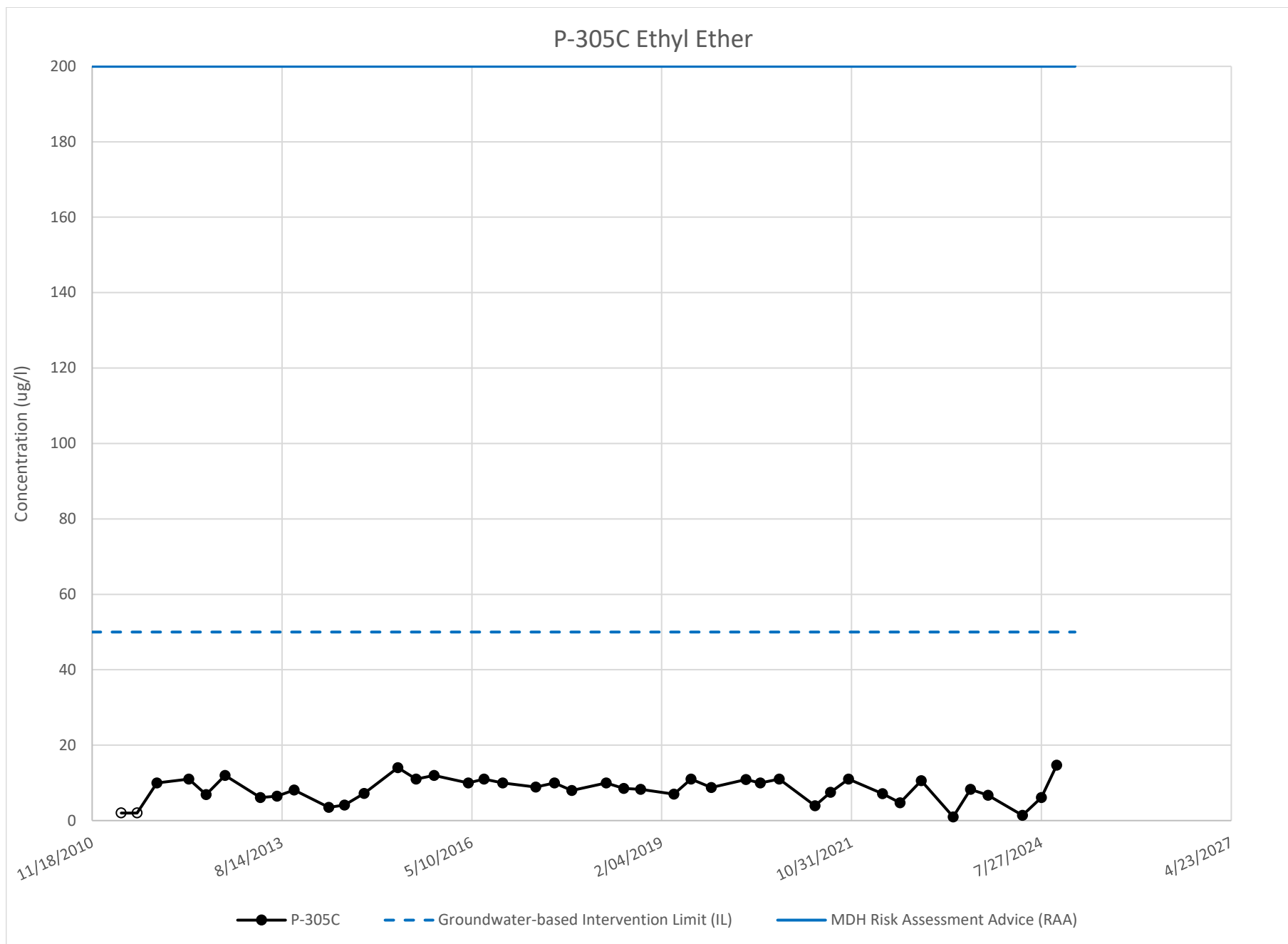


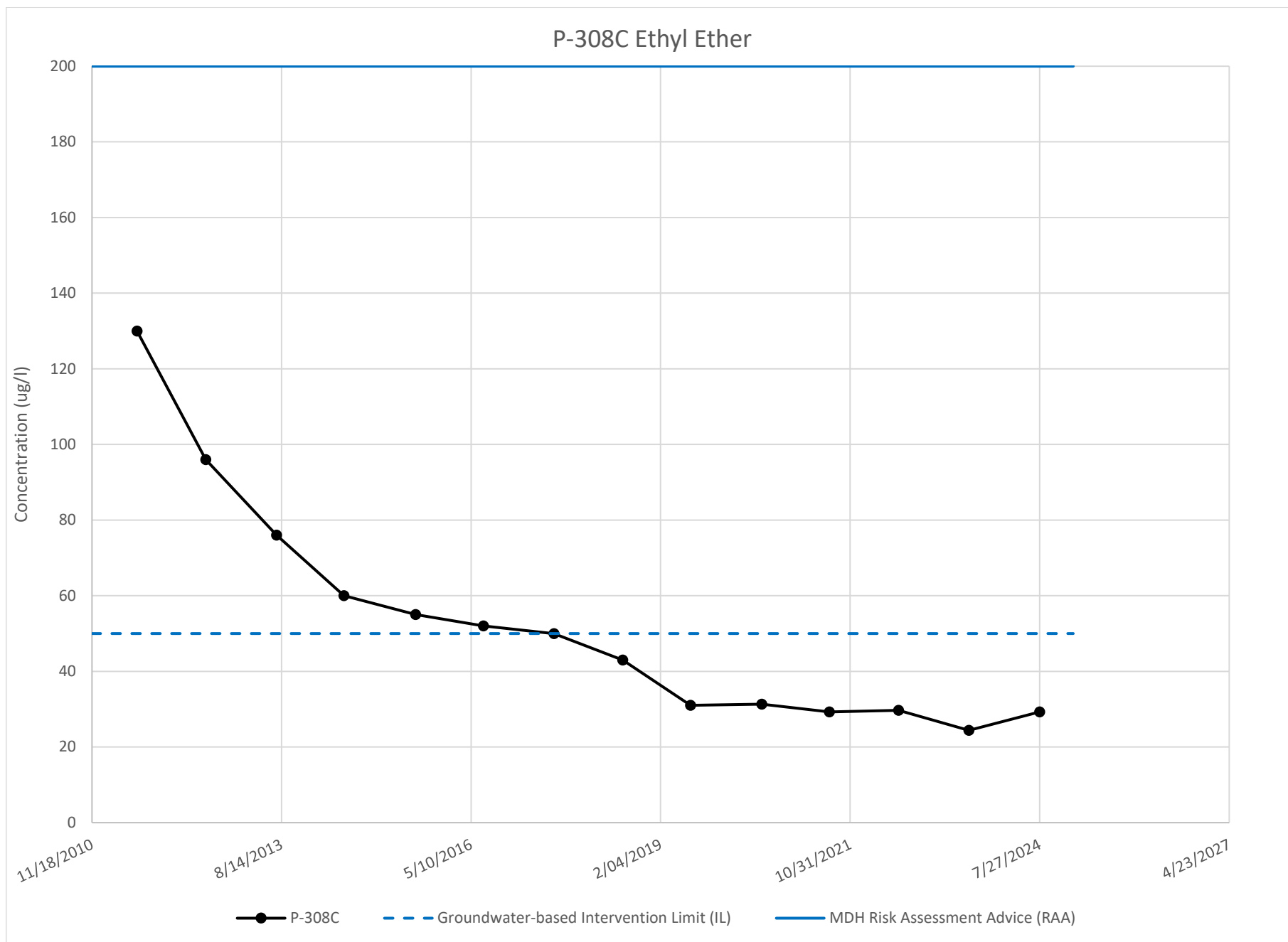


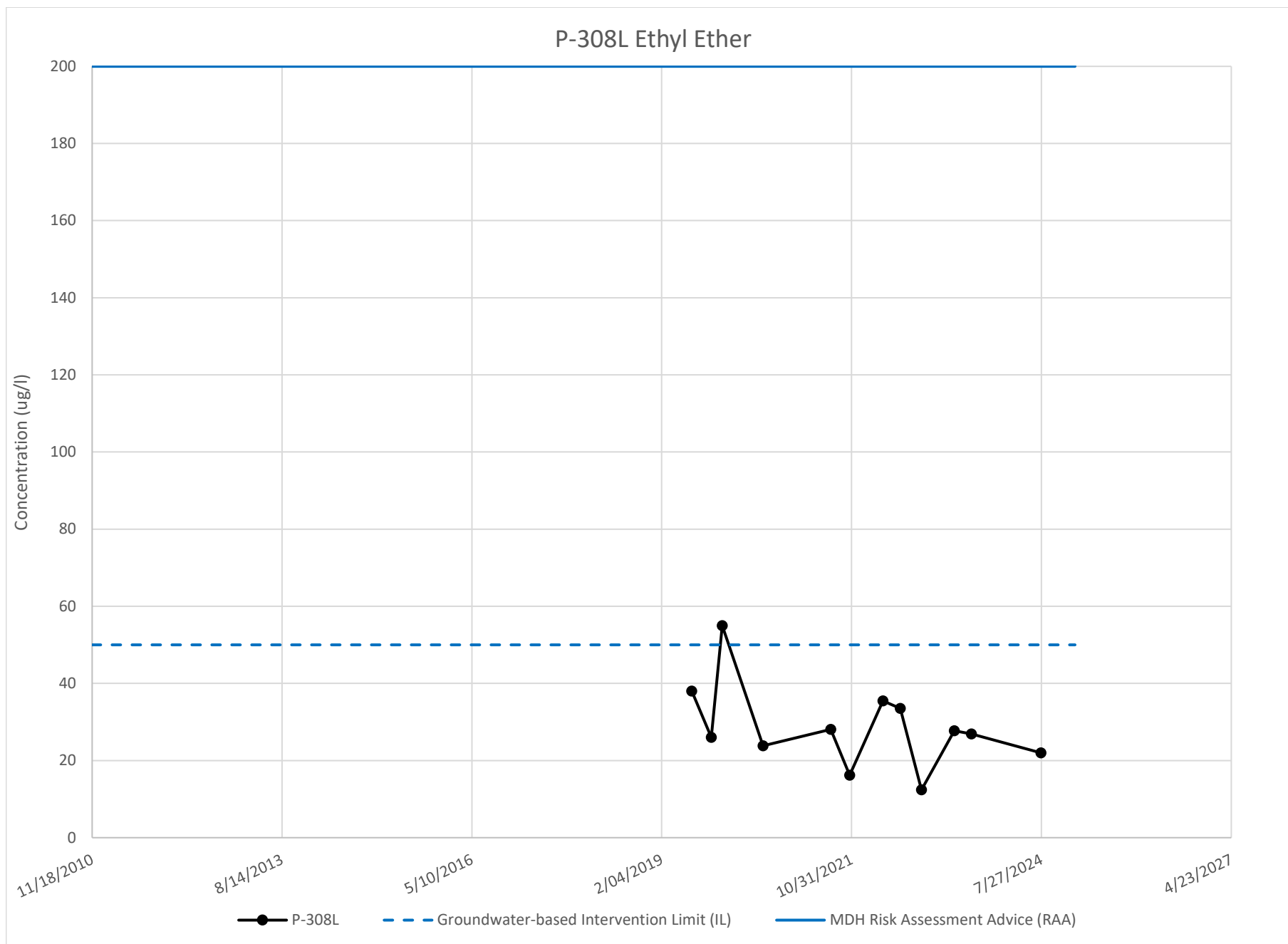
P-302C Ethyl Ether

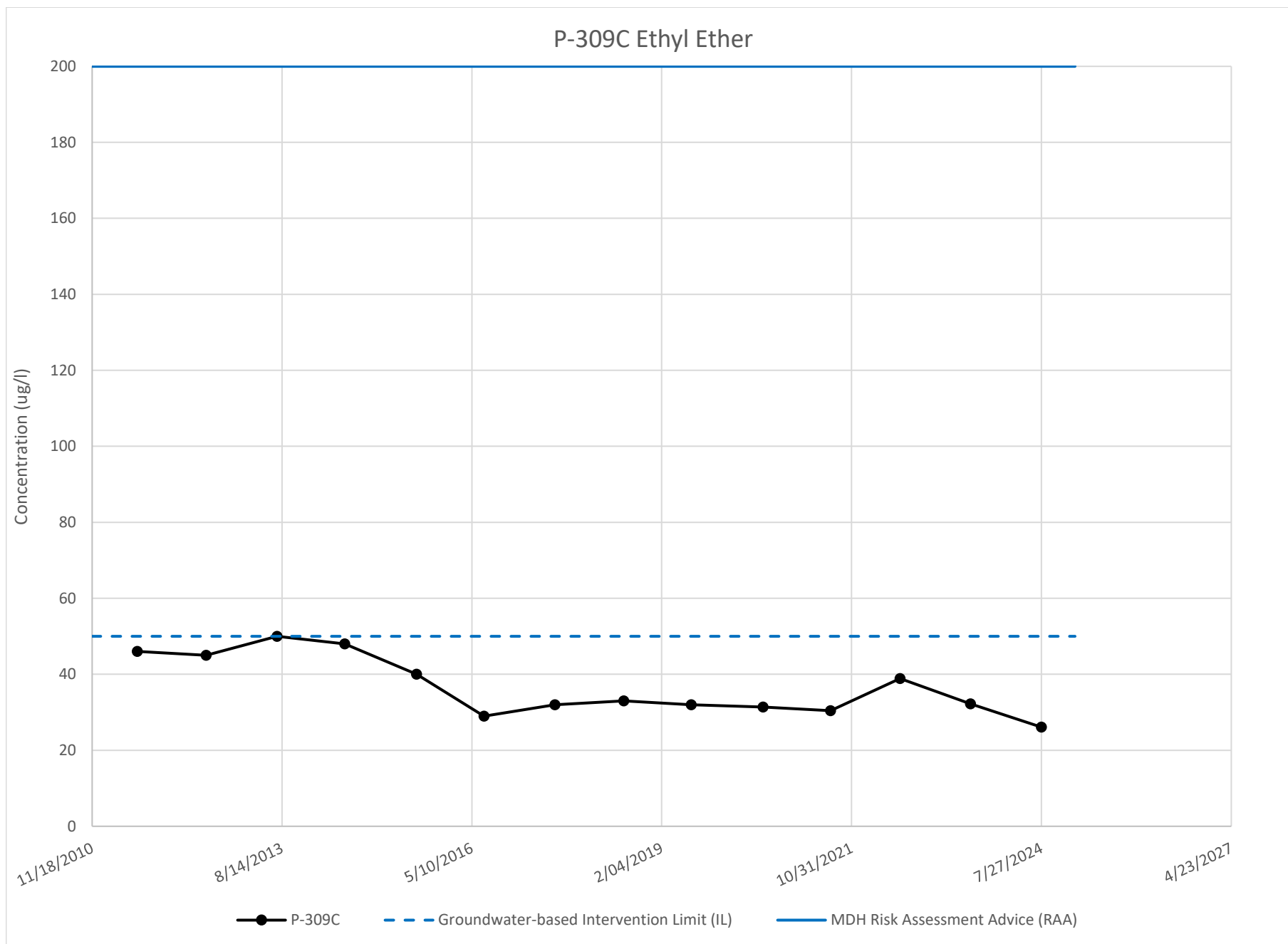


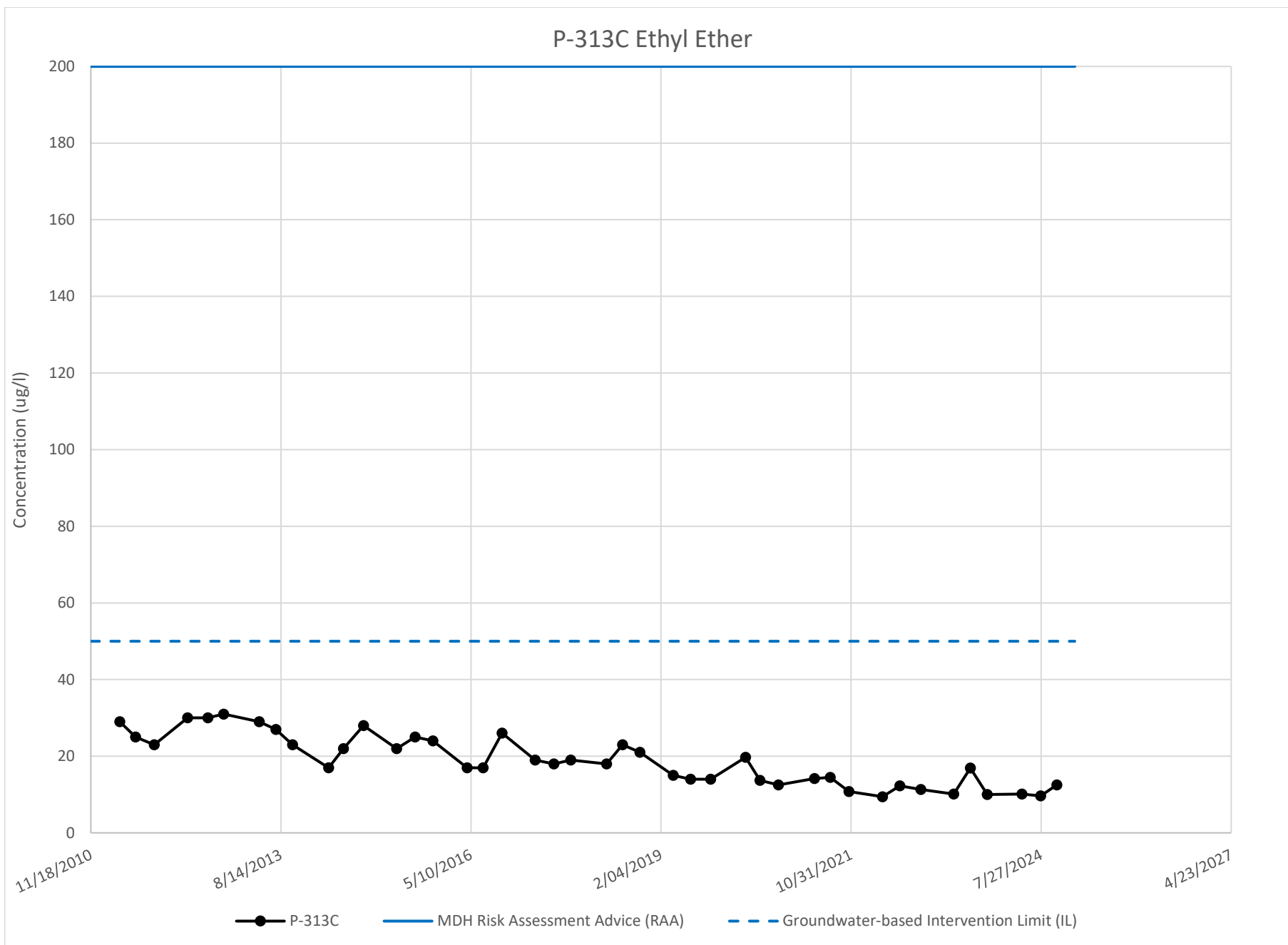


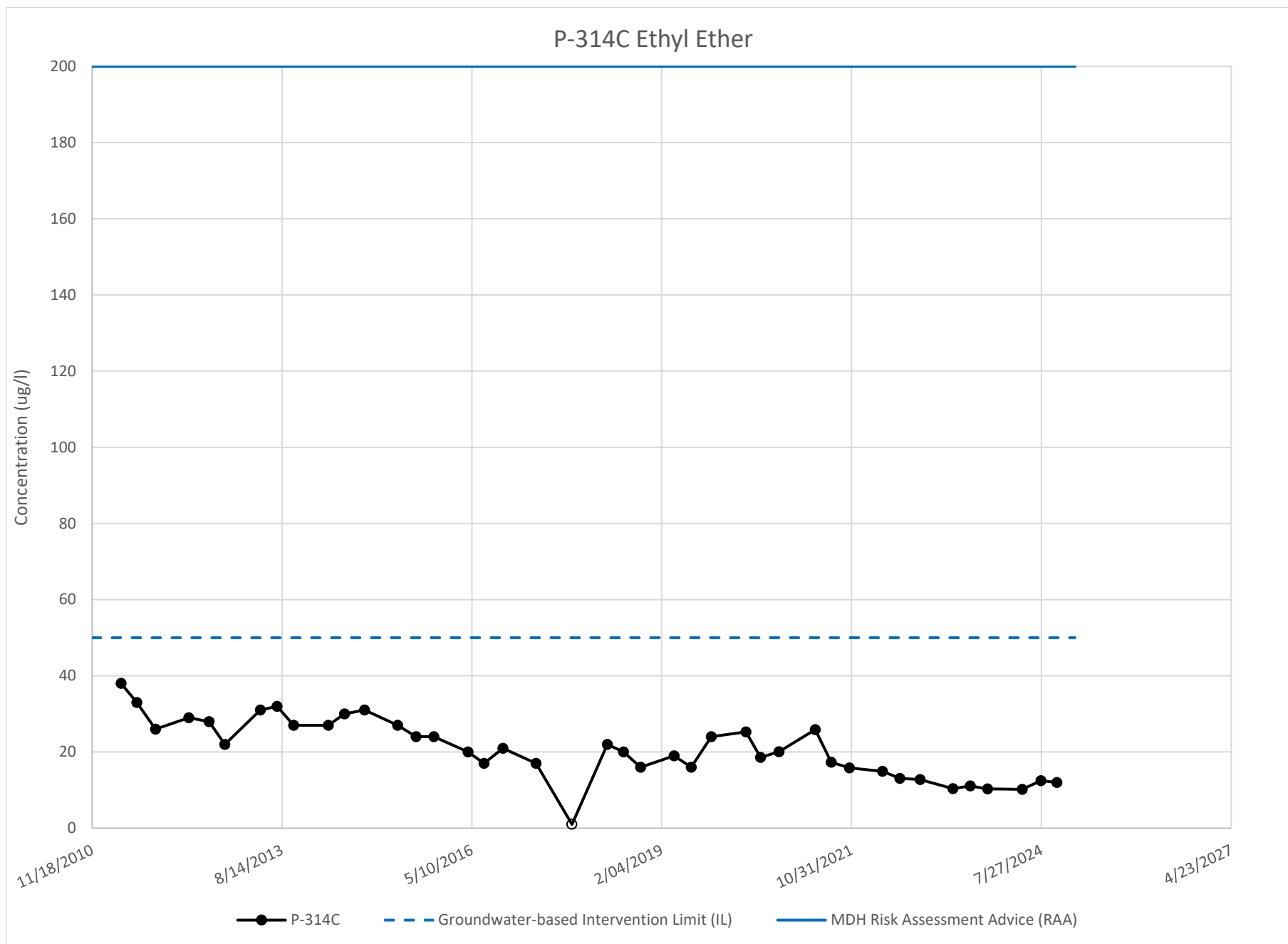


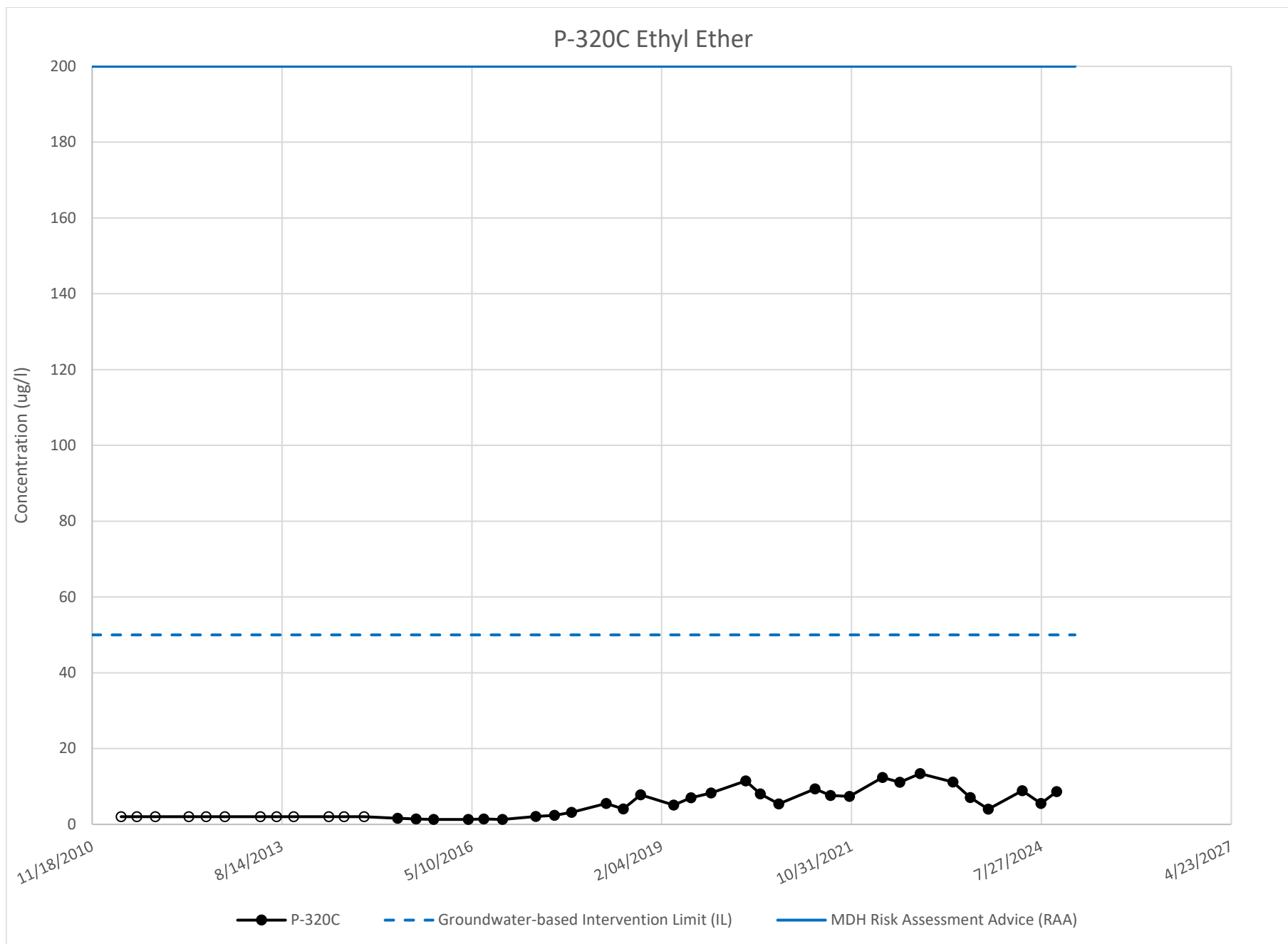


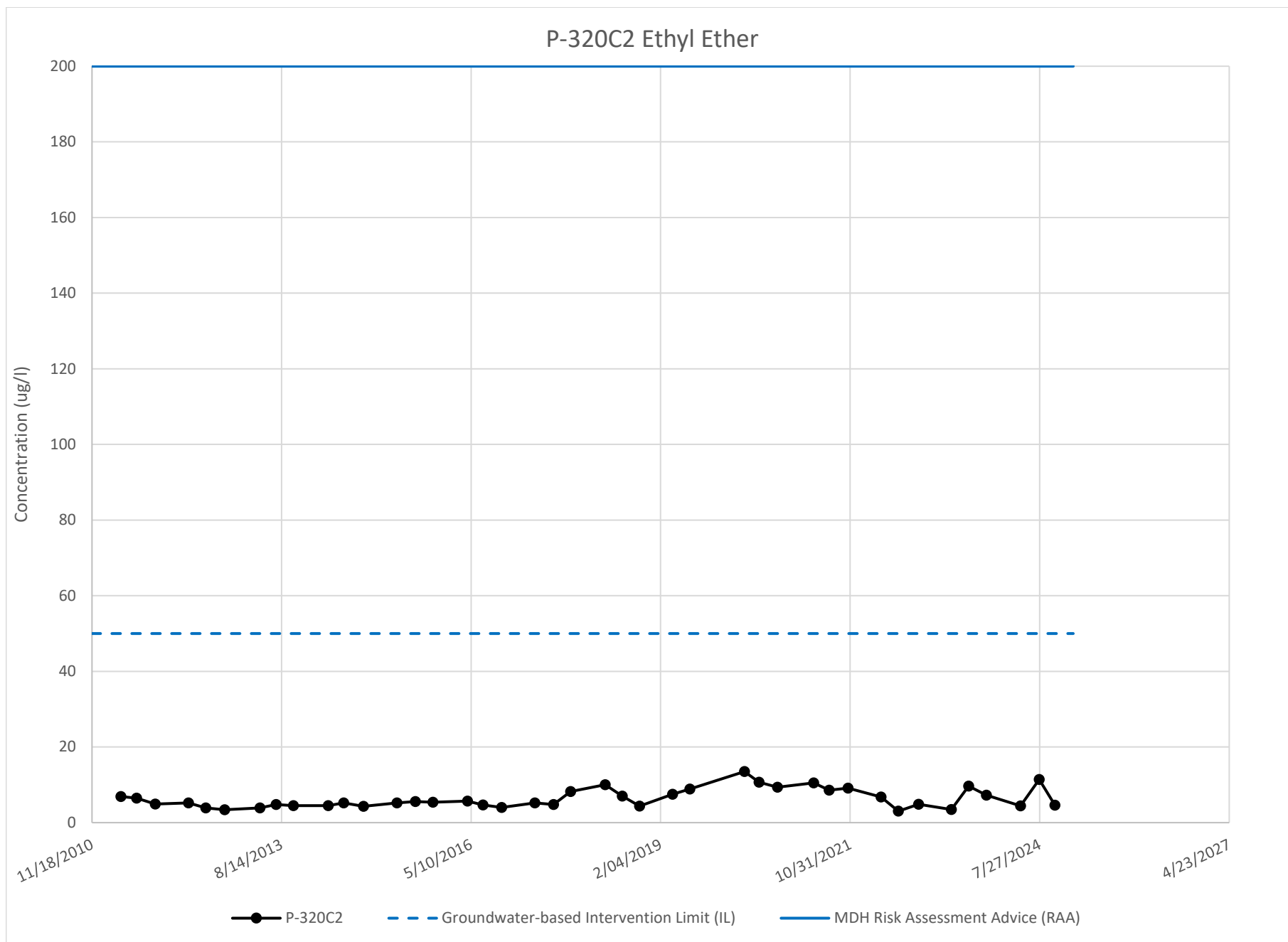


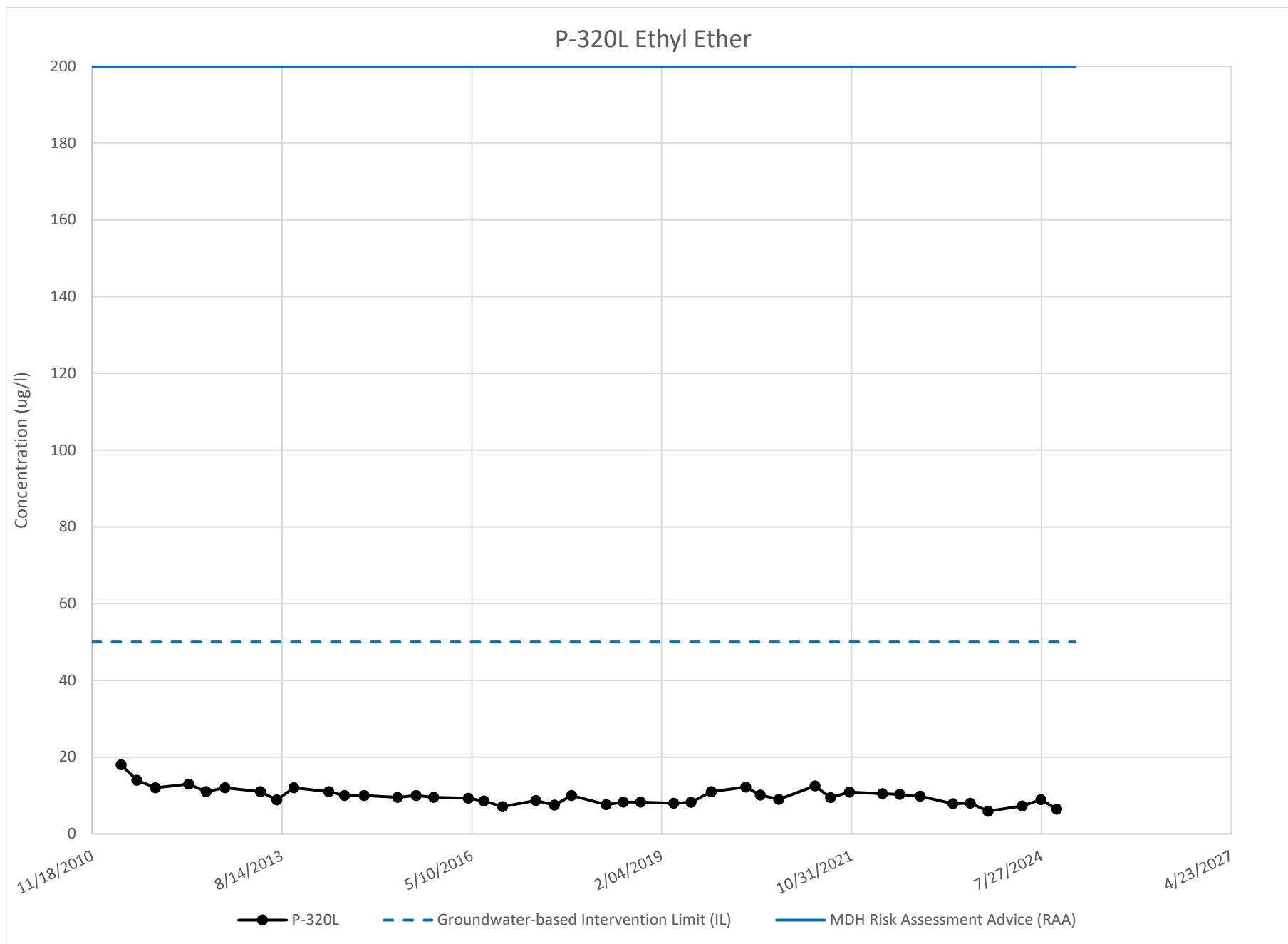




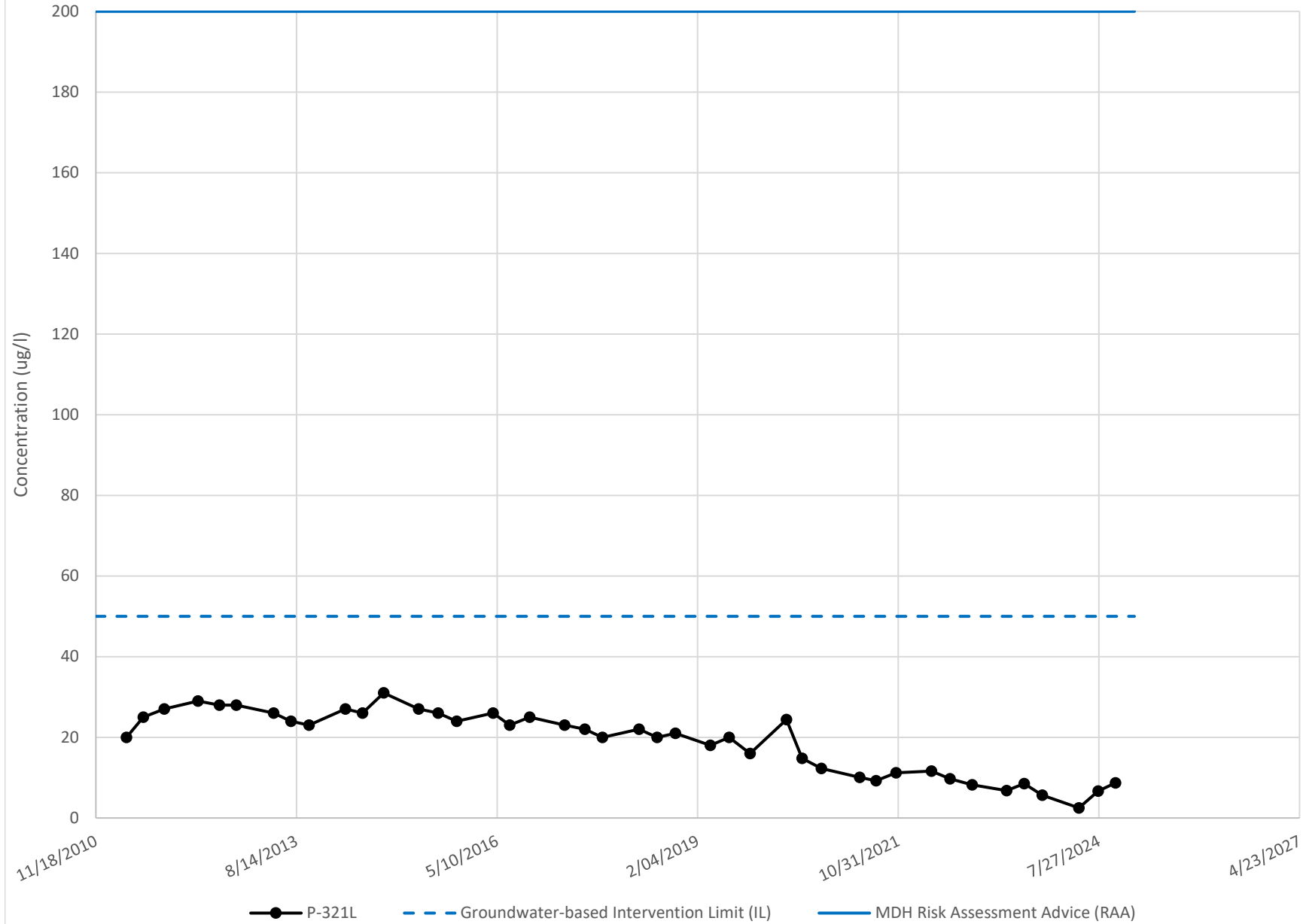


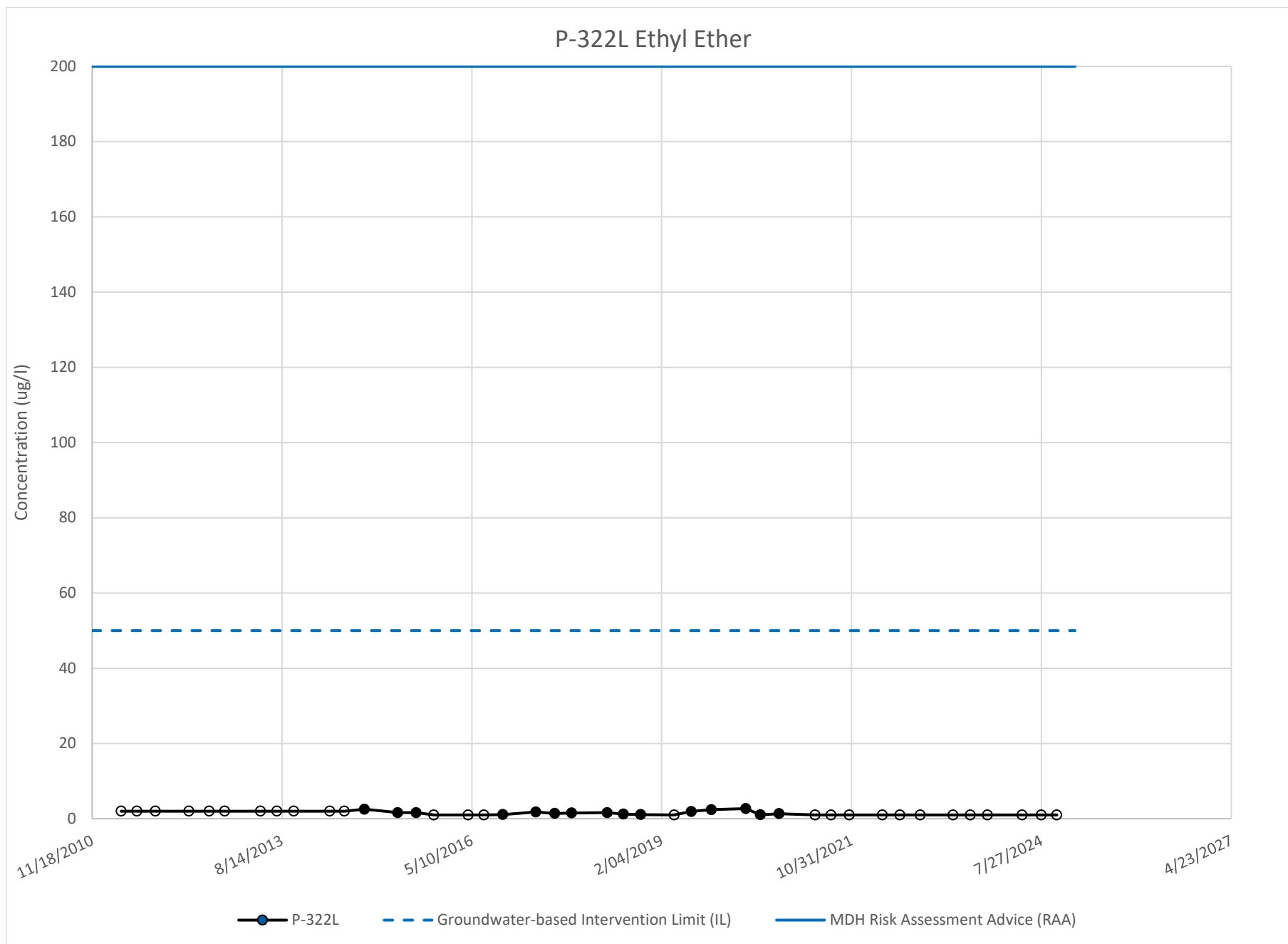


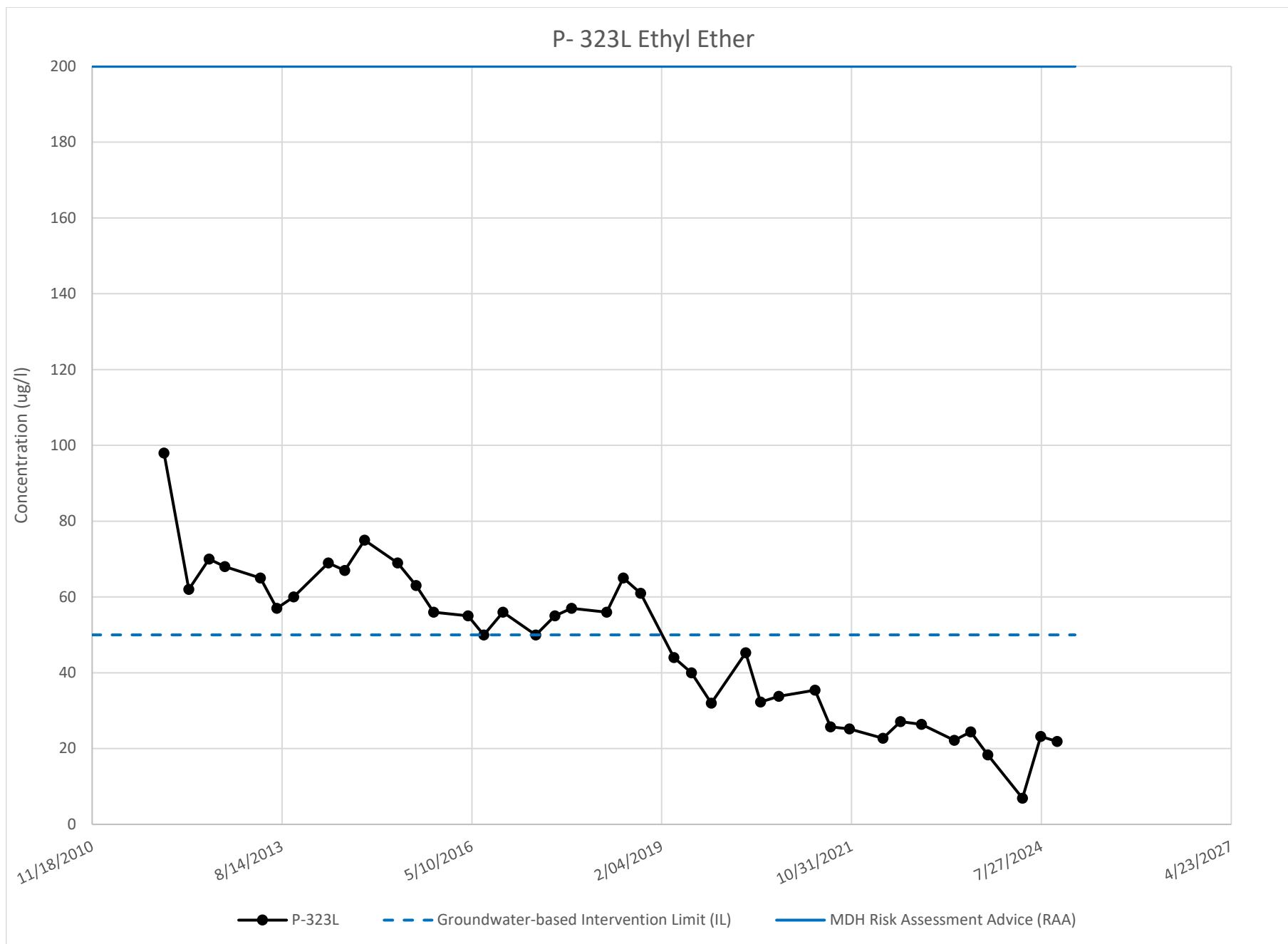


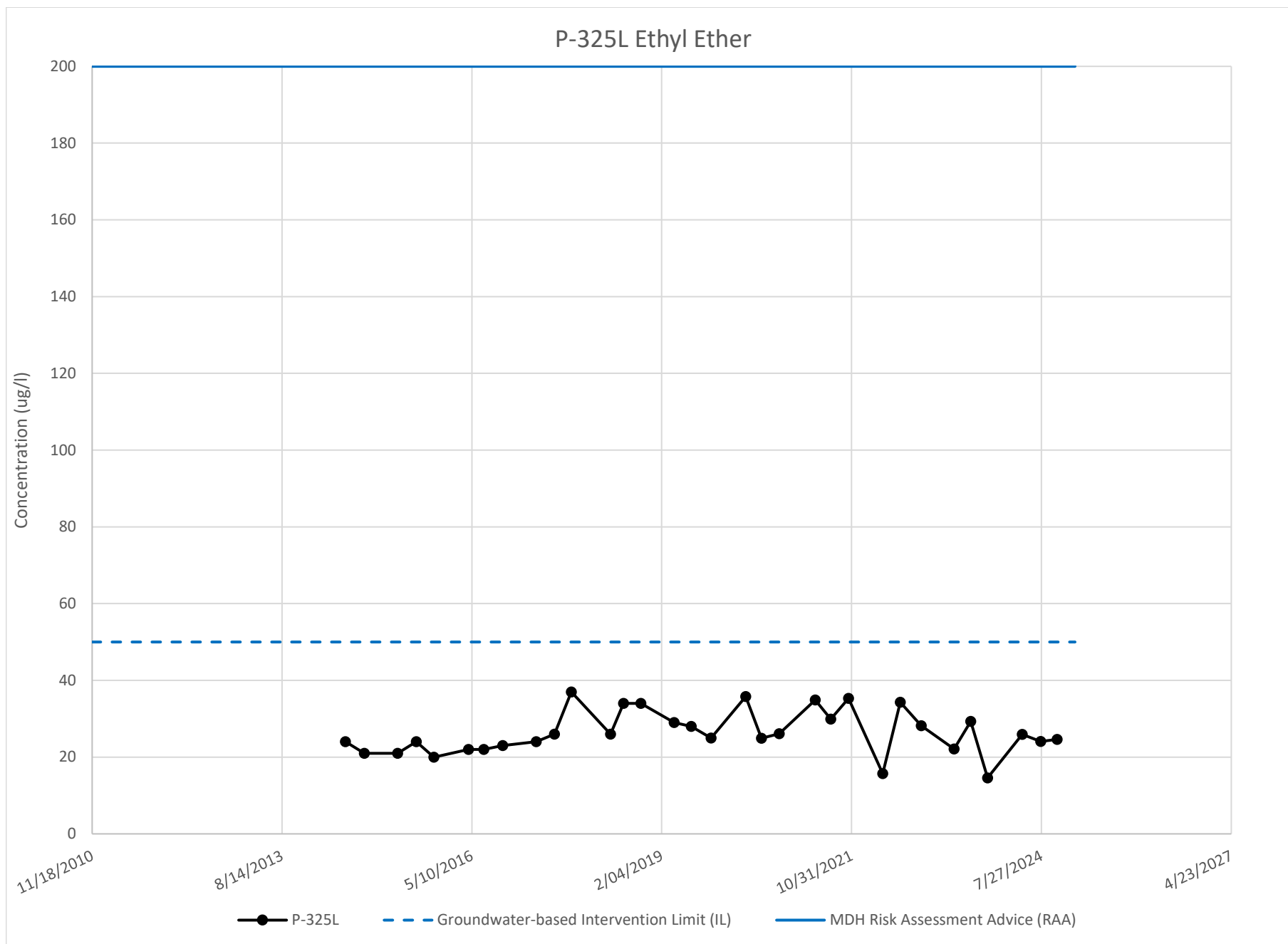


P-321L Ethyl Ether

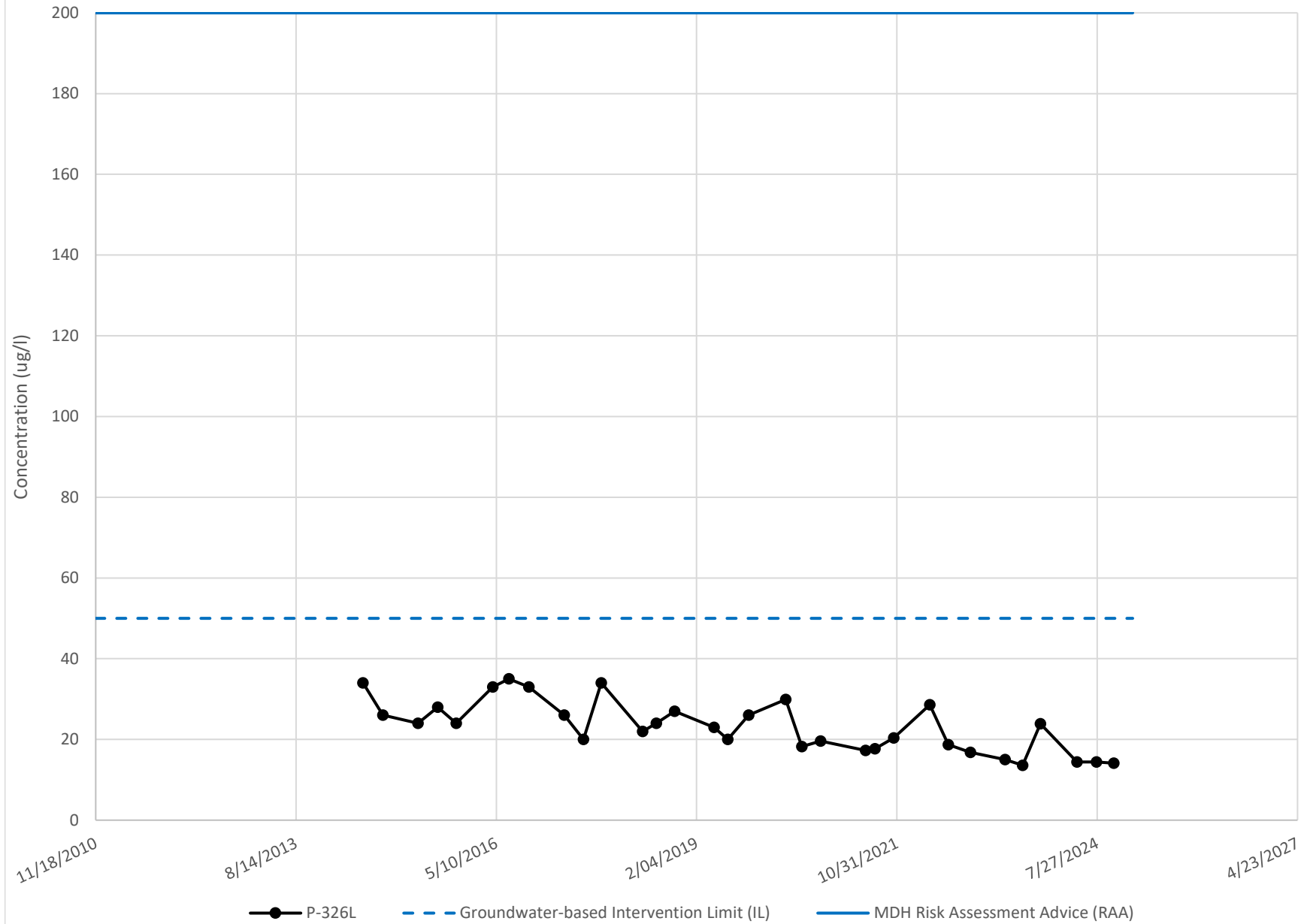


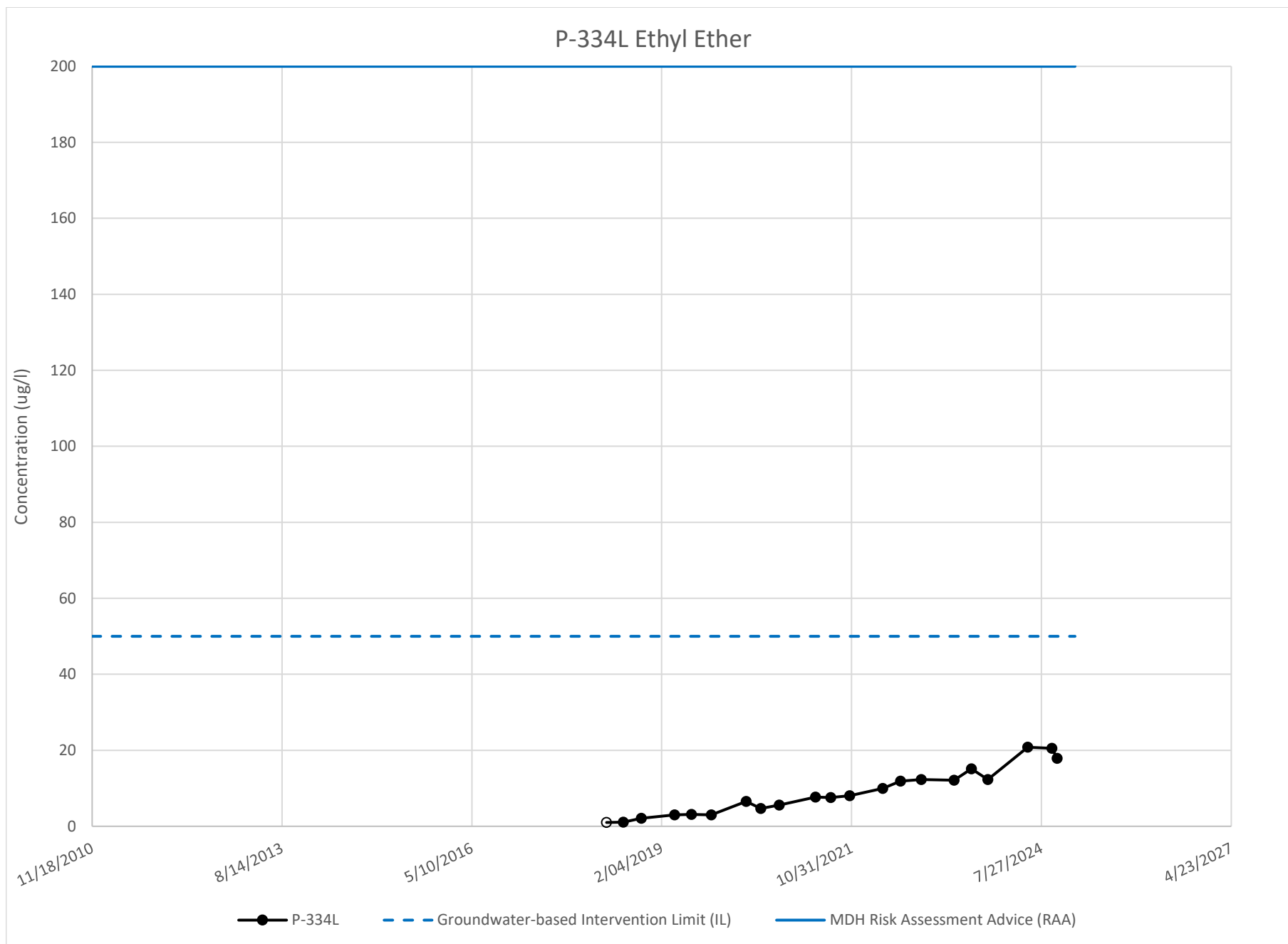




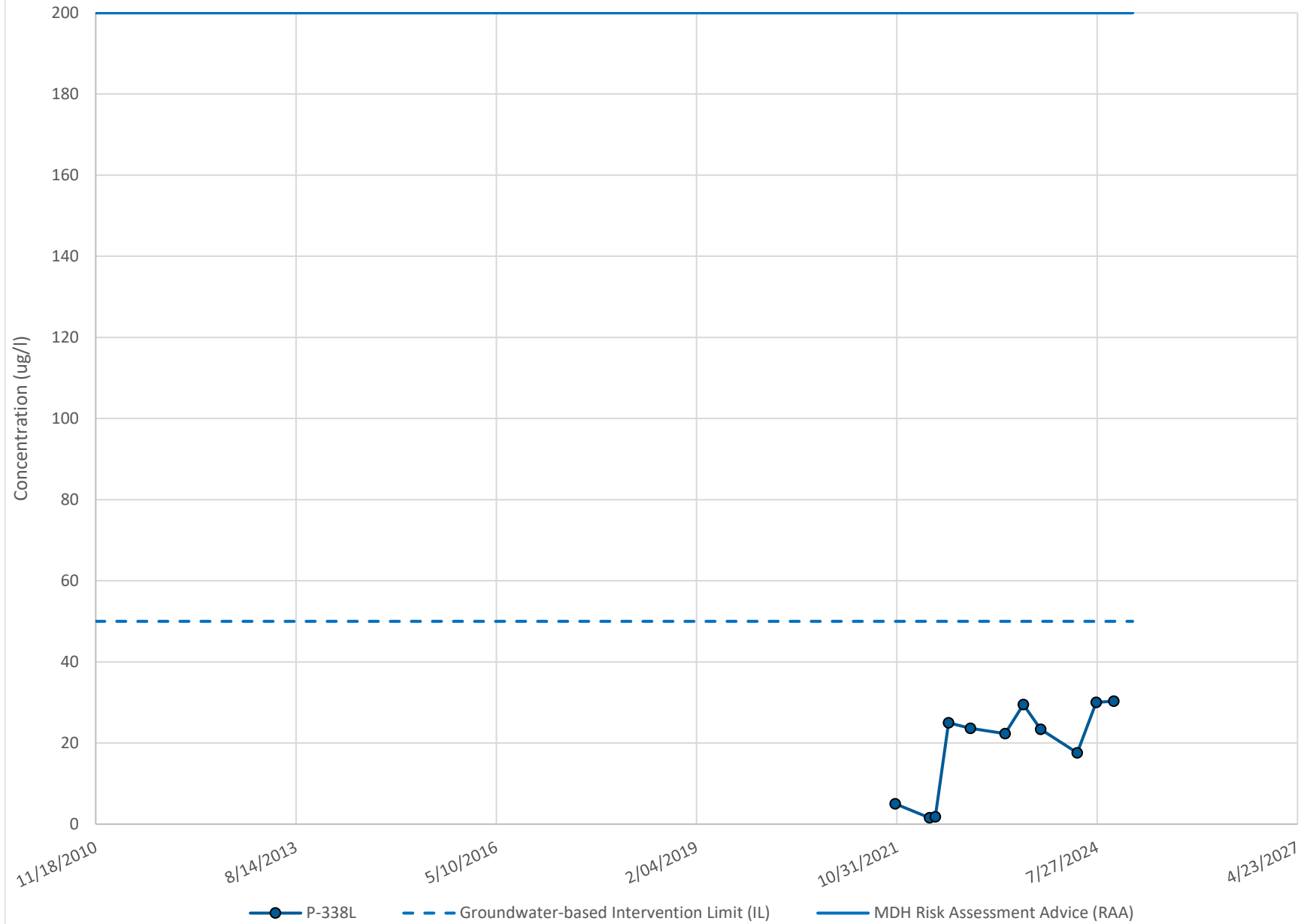


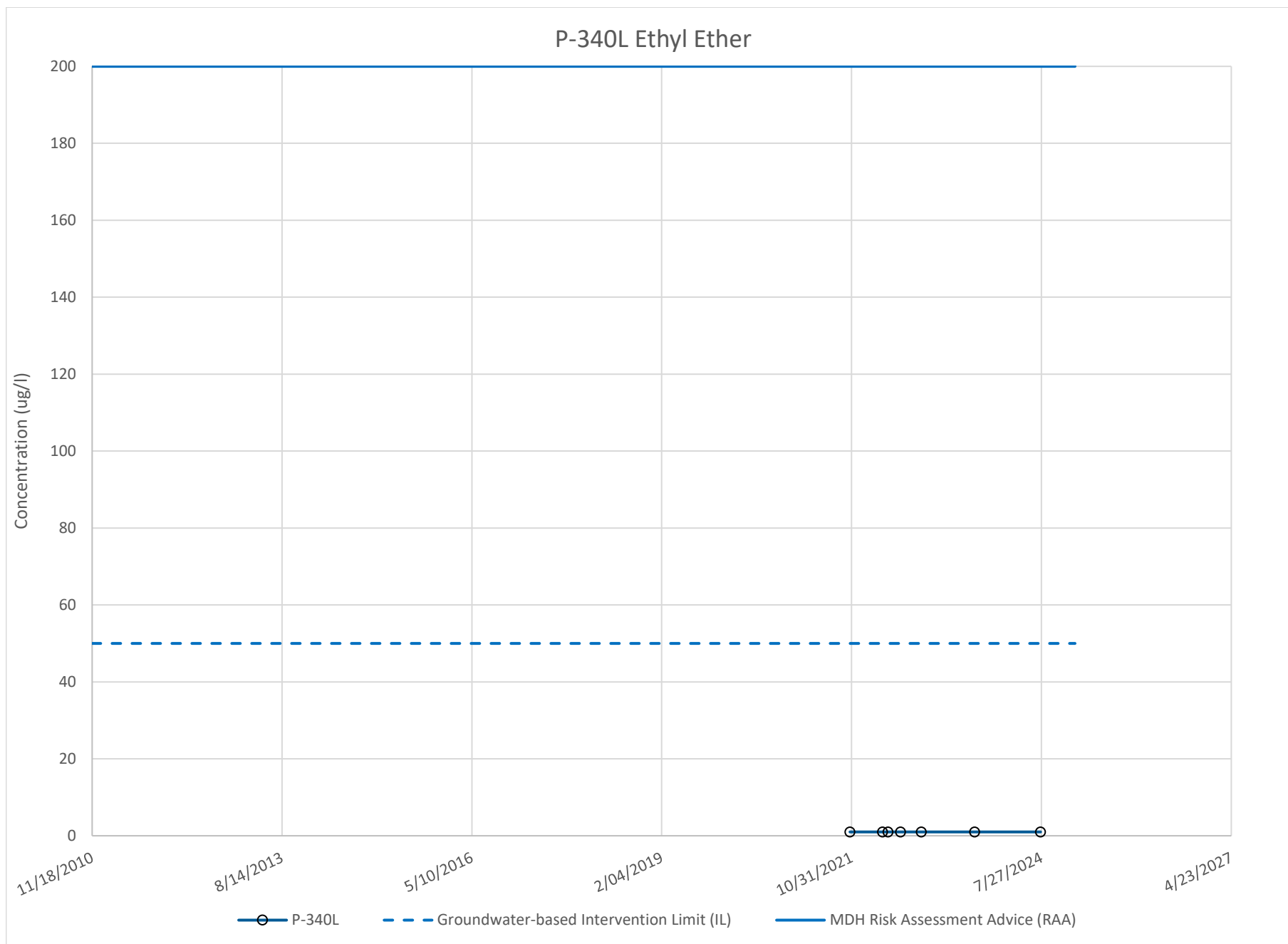
P-326L Ethyl Ether

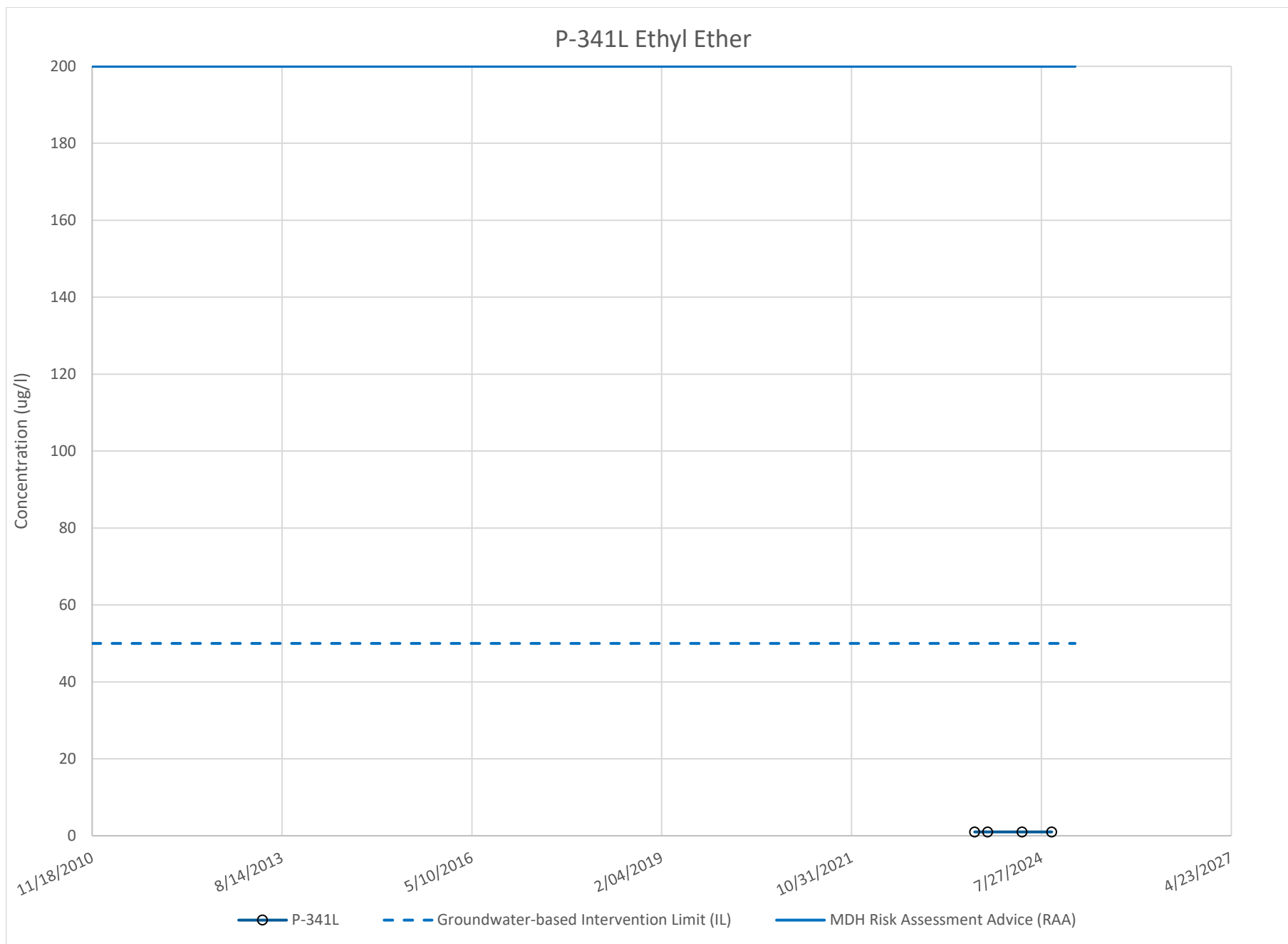


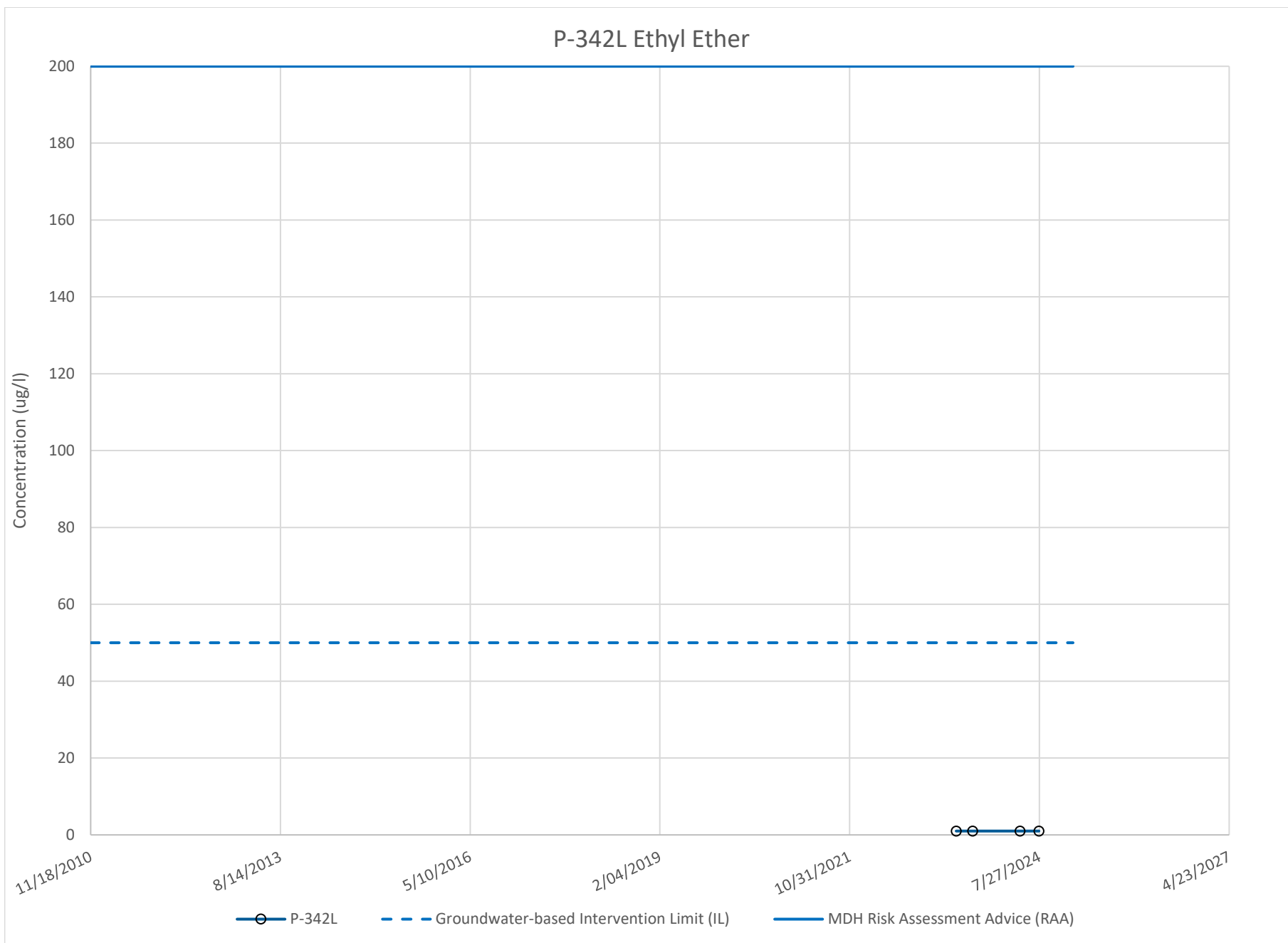


P-338L Ethyl Ether









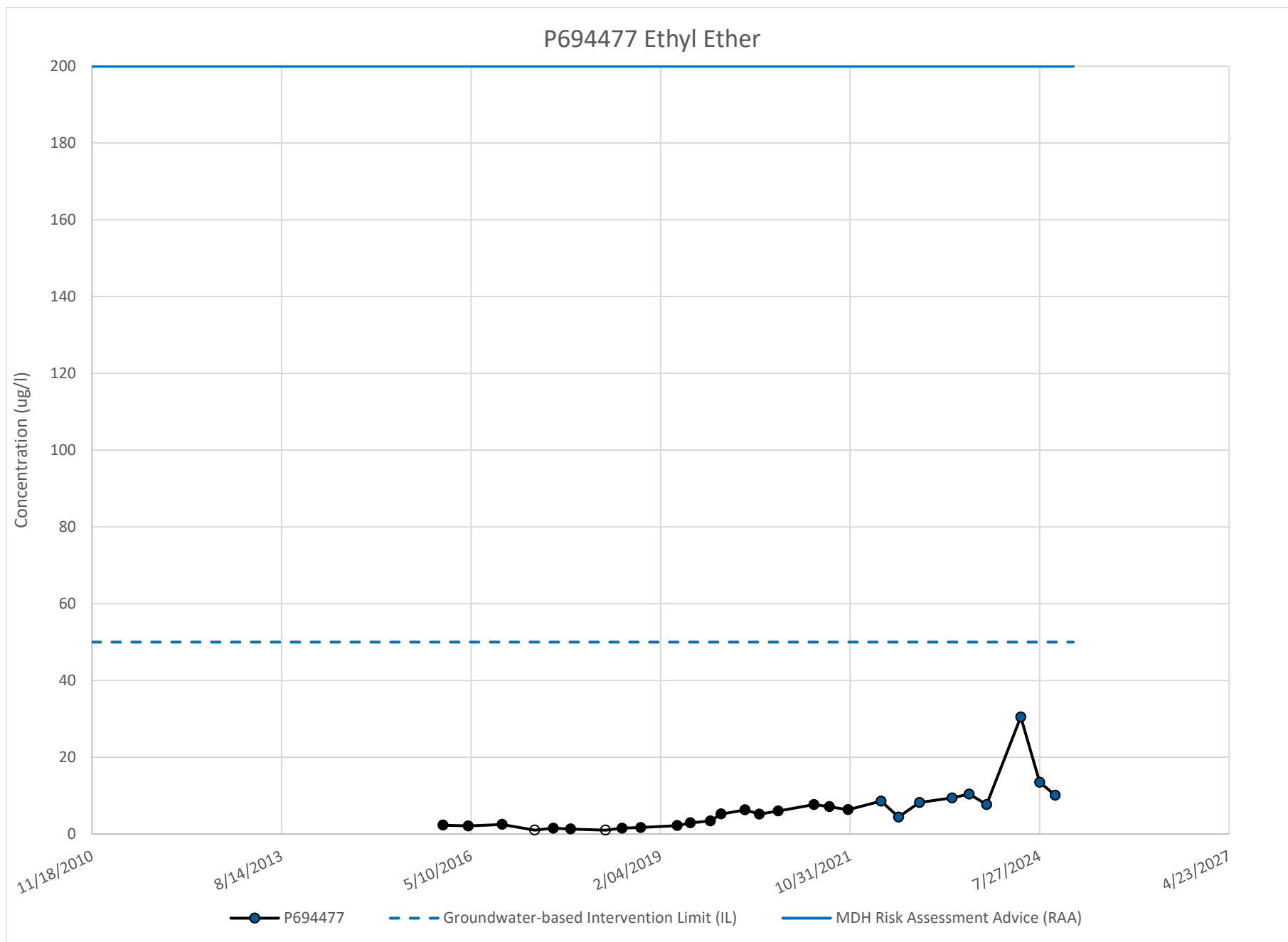


EXHIBIT 12

June 30, 2025

Ms. Laura Pugh
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota, 55155-4194

Re: 2025 Spring Quarterly Report, Elk River Landfill

Dear Ms. Pugh:

On behalf of Elk River Landfill, Inc., enclosed please find the 2025 spring quarterly monitoring results for Elk River Landfill (ERL). The monitoring event was conducted April 14 through April 17, 2025, with field services provided by Alliance Technical Services (Alliance) of Circle Pines, Minnesota. Laboratory analyses were conducted by Pace Analytical National Center for Testing and Innovation in Mount Juliet, Tennessee (Pace National). The compliance monitoring locations, analytical parameters, sample collection methods, and data reporting were based on the Solid Waste Facility Operating Permit SW-74 dated July 23, 2015.

Tables summarizing the monitoring network, groundwater elevations, lysimeter purge volumes, and groundwater results are attached. Copies of the sample collection report and analytical reports are included in Appendices A and B, respectively. Electronic data deliverable packages consistent with the requirements of the Solid Waste Program Electronic Laboratory Data Submittal Manual have been submitted to the Minnesota Pollution Control Agency (MPCA) by the laboratories.

SITE MONITORING SYSTEM DESCRIPTION

The ERL is located on the border of the City of Elk River and Livonia Township, Sherburne County, Minnesota and is within Sections 3 and 4 of Township 33 North and Sections 33 and 34 of Township 33 North, Range 26 West (Figure 1). The network for the 2024 spring monitoring event included 32 monitoring wells located at or beyond the compliance boundary and 11 leak detection lysimeters. Table 1 lists the monitoring points in the monitoring network for this event. Locations of the monitoring points and leak detection lysimeters are shown on Figure 2.

Data collection efforts were conducted by Alliance. Alliance's Spring 2025 EMS Report on Groundwater Sample Collection at the Elk River Landfill Facility is included in Appendix A.

DATA COLLECTION

Prior to purging and sampling the monitoring wells, water levels were recorded to the nearest hundredth of a foot (Table 2). Groundwater parameters including pH, specific conductance, temperature, Eh, and dissolved oxygen were monitored to determine stabilization during well purging. The groundwater samples were analyzed for the parameters listed in the SAP and included low-level reporting for 1,1,2,2-tetrachloroethane; 1,1,2-trichloroethane; 1,2-dichloroethane; cis-1,3-dichloropropene; benzene; carbon

tetrachloride; hexachlorobutadiene; trichloroethylene; and vinyl chloride. The low-level analyses were performed using USEPA Method 8260D.

Modifications to the routine sampling program included the following:

- Monitoring well P-342C was installed in February 2025 as part of continued groundwater corrective action investigation, and was sampled for baseline monitoring parameters. The groundwater sample from this well was inadvertently analyzed for additional MNA parameters, including total organic carbon (TOC), ethane, ethene, and methane. This was the first baseline sampling event for this well. Organics were not detected in the sample from well P-342C. The baseline data are considered in and appended to this report (and will be included in the 2025 Annual Water Quality Monitoring Report).
- Lysimeters LYS-6S and LYS-10 were not monitored due to accumulated sediment (as reported previously). The second stage of the LYS-6S and LYS-10 Lysimeter Action Plan (dated April 22, 2022) has been implemented and the results will be provided under separate cover.
- Sherburne County collected split samples for organics analysis from the following monitoring wells: P-29C, P-301C, P-304C, P-302C, P-313C, P-320C2, P-320L, P-321L, P-323L, P-325L, P-326L, P-334C, P-338C, P-342L, and P-694477. The County's data was reviewed and considered consistent with ERL's analytical results.¹
- Sherburne County sampled wells P-334L, P-338L, and P-496677 for PFAS. ERL collected split groundwater samples with the County for PFAS analysis. The PFAS data will be reported under separate cover.
- The well casing and ground surface elevations were surveyed at the new monitoring well P-342C (and the adjacent P-342L because of suspected casing movement in the wetland) on June 16, 2025. The top-of-casing elevation for the new well and the revised elevation for P-342L are used to calculate groundwater elevations in this report (and future reports).

QUALITY ASSURANCE AND QUALITY CONTROL

Quality assurance and quality control (QA/QC) procedures implemented for the monitoring event included standard field and laboratory protocol for groundwater sample collection, labeling, preservation, chain-of-custody documentation, and sample check-in at the laboratory. Summaries of QA/QC findings are detailed case narrative sections of each analytical report. Pertinent findings are discussed below:

- Reporting limits for the following compounds exceeded groundwater-based Intervention Limits (ILs) in the Permit: 1,2,3-trichloropropane, 1,2-dibromo-3-chloropropane, and 1,2-dibromoethane. The ILs for these compounds are not achievable with current technology.

¹ ERL contacted Sherburne County in June 2025, to inform staff of inconsistencies with the County's sample identification number inconsistencies and a suspected switch of the County's samples from wells P-320L and P-320C2.

- One or more method blank samples had alkalinity, total, as CaCO_3 , sulfate, as SO_4 , chloride, nitrogen, nitrate + nitrite, as N, total organic carbon, toluene, chloroform, bromomethane, methylene chloride, 1,4-dichlorobenzene, 1,3-dichlorobenzene, 1,2-dichlorobenzene, chromium, and zinc detected between the method detection limit and the reporting limit. The laboratory did not qualify the associated sample results because the sample concentrations were either non-detect or were much higher than the method blank sample concentrations.
- The continuing calibration verification (CCV) was outside of the method specified limits for one or more organic compounds in eight USEPA Method 8260D batches. The associated organics results were qualified "C3 and C5" (estimated) by the laboratory.
- The laboratory control spike (LCS) and/or laboratory control spike duplicate (LCSD) sample percent recoveries and/or relative percent differences (RPDs) did not meet the established laboratory acceptance limits for one or more compounds in eight USEPA Method 8260D batches. The results were qualified "J3 or J4" (estimated) by the laboratory.
- The USEPA Method 8260D ethyl ether result associated with P-302C in report L1848860 was above the calibration range. The associated result was qualified "E" by the laboratory.
- The USEPA Method 6010D serial dilution test and/or subsequent post-spike criteria test did not pass for LYS-11 in report L1836539. The associated results were qualified "O1" (estimated due to matrix interference) by the laboratory.

EVALUATION OF ANALYTICAL RESULTS

Groundwater

The spring monitoring event included sampling and analysis of organic compounds from compliance monitoring wells completed in the lower outwash around the MSW portion of the landfill and organic and inorganic compounds from three compliance wells located around the C&D disposal cells in the North Development Area. Groundwater analytical results from compliance monitoring wells are compared to ILs included in Permit SW-74 and Health Risk Limits (HRLs) as appropriate below.

Table 3 provides a summary of results above the ILs and/or HRLs from wells with groundwater-based criteria. Vinyl chloride was detected above the HRL (0.2 micrograms per liter or $\mu\text{g/l}$) in samples from wells P-29C, P-302C, P-320C, P-320L, P-321L, P-323L, P-325L, P-338L, and P694477, and above the IL (0.05 $\mu\text{g/l}$) but below the HRL, at well P-314C, P-320C2, and P-326L. Trichloroethylene (TCE) was detected above the HRL (0.4 $\mu\text{g/l}$) in the sample from well P-323L, and above the IL (0.1 $\mu\text{g/l}$) but below the HRL at wells P-304C and P-313C. 1,2-dichloroethane was detected above the IL (0.25 $\mu\text{g/l}$) but below the HRL (1 $\mu\text{g/l}$) in samples from wells P-302C and P-323L. Dichlorofluoromethane (DCFM) was detected above the Risk Assessment Advice (RAA; 20 $\mu\text{g/l}$) in the sample from well P-334L, and above the IL but below the RAA at wells P-302C, P-323L, P-325L, P-338L, and P694477. cis-1,2-dichloroethylene was detected below the HRL but above the IL in samples from wells P-323L and P-325L. A HRL has not been established for DCFM. ERL is implementing groundwater corrective actions per the Groundwater Corrective Action Work Plan (Barr, 2021) and the Groundwater Corrective Action Report – Initial Performance Evaluation (Barr, 2024) to

address the organics in groundwater. Organics trends will be evaluated in the 2025 Annual Water Quality Monitoring Report.

Manganese was detected in the baseline groundwater sample collected from well P-342C at a concentration of 124 mg/l above the HRL (100 mg/l; Table 3). Manganese is a naturally occurring mineral that can be mobilized in groundwater under mildly reducing geochemical conditions. Manganese is not a routine monitoring parameter at the ERL because natural background manganese concentrations have been detected above the HRL upgradient and side gradient of the facility. Baseline groundwater quality data will be evaluated in the 2025 Annual Water Quality Monitoring Report.

Table 4 provides a summary of results above the ILs and/or HRLs from wells with surface-water based criteria. Chloride was detected above the IL (57.5 mg/l) in the sample from well 401-OWA. Chloride concentrations in groundwater upgradient of the landfill have been detected an order of magnitude greater than typical natural background concentrations (≤ 5 mg/L) and are attributed to the application and infiltration of deicing agents along Highway 169 (Barr, 2015a). A HRL has not been established for chloride.

No organics were detected in bedrock monitoring wells P-29D and P-311D or in sentinel wells P-329L, P-333L, or P-335L.

Lysimeters

Table 5 provides a summary of lysimeter purge volumes. The purge volumes from each lysimeter were below 15 gallons (and the lysimeter threshold volumes in the SAP) so no samples were collected during the spring monitoring event.

Lysimeter LYS-6N, which was constructed below the northern portion of Cell 6 prior to the MPCA's promulgation of landfill design standards and the promulgation of Subtitle D of the Resource Conservation and Recovery Act (RCRA) and Minnesota Rule, is the subject of an ongoing automated pumping program. Liquid collected in LYS-6N is discharged to the leachate collection system by an automated pump installed at the base of the lysimeter. The LYS-6N totalizer registered 266 gallons purged by the automated pump between October 2024 and May 2025.

CONCLUSIONS/RECOMMENDATIONS

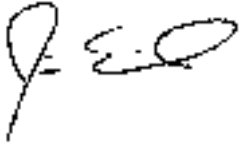
Monitoring was completed in accordance with the Permit with the exceptions noted in this report. Based on the data collected during the 2025 spring monitoring event, the following conclusions are drawn:

- Vinyl chloride was above the HRL in samples from nine downgradient monitoring wells, TCE was above the HRL in one downgradient monitoring well, and manganese was above the HRL in one groundwater well. ERL is implementing groundwater corrective actions (Barr, 2021 and 2024) to address the organics in groundwater.
- Lysimeter purge volumes were below the nominal threshold volumes.

Additional discussion of the spring monitoring data and recommendations for future monitoring at the ERL will be provided in the 2025 Annual Water Quality Monitoring Report.

If you have any questions, please contact me at 952-832-2763.

Sincerely,



Jim Eidem, P.G.
Barr Engineering Co.
Senior Hydrogeologist

CC: Ralph Collins, Elk River Landfill, Inc.
 Erin Bulson, Elk River Landfill, Inc.
 Jerome Doede, Sherburne County
 Joe Hale, City of Elk River
 Terry Johnson, Elk River Landfill, Inc.
 Matt Ledvina, Gestalt Engineering
 Dave Lucas, Sherburne County
 Brad Peschong, Houston Engineering
 June Volkers, Sherburne County
 solidwastereports.pca@state.mn.us

Tables

Table 1
Groundwater Monitoring Network Summary
Elk River Landfill
Elk River, Minnesota

Monitoring Point	Unique Well ID Number	Intervention Limit	Relative Location to Landfill	Comment
P-29C	496289	GW	Downgradient of MSW	
P-29D	496294	GW	Downgradient of MSW	
P-301C	598562	GW	Downgradient of MSW	
P-301L	767989	GW	Downgradient of MSW	
P-302C	598563	GW	Downgradient of MSW	GWCAM
P-304C	598565	GW	Downgradient of MSW	GWCAM
P-305C	598566	GW	Downgradient of MSW	
P-311L	801471	GW	Downgradient of MSW	
P-311D	650145	GW	Downgradient of MSW	
P-313C	969668	GW	Downgradient of MSW	GWCAM
P-314C	969669	GW	Downgradient of MSW	
P-315L	722063	GW	Downgradient of SDA	
P-320C	737638	GW	Downgradient of MSW	
P-320C2	756593	GW	Downgradient of MSW	
P-320L	737637	GW	Downgradient of MSW	
P-321L	767990	GW	Downgradient of MSW	GWCAM
P-322L	767991	GW	Downgradient of MSW	
P-323L	786203	GW	Downgradient of MSW	GWCAM
P-324L	786202	GW	Downgradient of MSW	
P-325L	804281	GW	Downgradient of MSW	GWCAM
P-326L	804282	GW	Downgradient of MSW	GWCAM
P-329L	812995	GW	West of MSW	GWCAS
P-333L	828060	GW	West of MSW	GWCAS
P-334L	828061	GW	West of MSW	GWCAM
P-335L	828062	GW	West of MSW	GWCAS
P-338L	853139	GW	West of MSW	GWCAM
P-342C	890164	GW*	West of MSW	Baseline monitoring
P-342L	871179	GW	West of MSW	GWCAM
401-OWA	683321	SW	Upgradient of NDA	
P-403C	683318	SW	Downgradient of NDA	
408-OWA	717920	SW	Downgradient of NDA	
P-694477	694477	GW	Southwest of MSW	

Notes:

- MSW - Municipal Solid Waste
- NDA - North Development Area
- SDA - South Development Area
- NC - Non-compliance well
- GWCAM - monitored to evaluate natural attenuation per the Groundwater Corrective Action Work Plan (March, 2021)
- GWCAS - monitored for sentinel monitoring purposes per the Groundwater Corrective Action Work Plan (March, 2021)
- GW - Groundwater-based Intervention Limits
- SW - Surface Water-based Intervention Limits

*Anticipated

Table 2
Groundwater Elevations
Elk River Landfill
Elk River, Minnesota

Well Number	Elevation of Top of Casing	Water Elevation Oct 18, 2010	Water Elevation Oct 17, 2011	Water Elevation Oct 16, 2012	Water Elevation Oct 14, 2013	Water Elevation Oct 20, 2014 ¹	Water Elevation Oct 20, 2015	Water Elevation Oct 18, 2016	Water Elevation Oct 16, 2017	Water Elevation Oct 17, 2018 ¹	Water Elevation Oct 22, 2019 ¹	Water Elevation Oct 11, 2020 ¹
P-17C	982.62	951.73	955.19	953.34	953.05	956.04	954.96	956.15	956.38	955.19	955.84	955.30
22-OWA	1039.68	954.80	957.52	956.56	955.61	957.96	956.79	957.00	957.56	956.79	958.53	957.90
P-22L	1043.45					952.82	951.93	952.56	952.97	952.16	953.96	952.60
P-29C	957.16	949.00	950.46	949.40	948.91	951.26	950.35	950.94	951.35	950.70	952.24	950.98
P-29D	957.35	946.42	947.85	946.73	946.33	948.55	947.62	948.26	948.76	948.14	949.93	948.54
36-OWA	1021.61	955.48	958.46	957.15	956.20	958.71	957.49	957.78	958.27	957.41	959.33	958.49
301-OWA	966.54	959.72	958.31	956.70	961.07	961.77	960.10	962.27	962.38	962.72	962.34	956.50
P-301C	967.50	949.01	950.43	949.27	948.71	951.19	950.31	950.85	951.22	950.54	948.96**	950.79
P-301L	970.11	949.24	950.67	949.57	949.47	951.35	950.56	951.07	951.55	950.86	951.79	951.07
302-OWA	970.47	959.34	958.25	955.79	959.70	960.64	961.18	964.20	961.89	965.26	966.90	958.65
P-302C	970.63	948.90	950.39	949.33	948.81	951.27	950.27	950.81	951.31	950.67	955.20**	950.91
P-303C	963.77	950.44	951.94	950.66	950.28	953.24	952.75	953.70	954.14	953.18	955.48	952.61
P-304C	959.89	951.31	952.55	951.00	950.96	954.02	953.22	954.72	955.03	953.93	956.38	953.12
P-305C	963.26	948.72	950.29	949.24	948.69	951.03	950.16	950.78	951.20	950.58	952.04	950.92
P-308C	979.83	950.37	952.49	951.37	950.81	957.17	952.24	953.04	953.31	952.45	953.58	952.28
P-308L	979.94										952.58	951.26
P-309C	967.71	948.86	950.38	949.35	948.89	951.17	950.30	950.98	951.36	950.60	952.20	950.89
P-310C	975.33	954.56	954.14	951.65	953.10	954.99	955.61	956.25	956.66	955.96	957.06	953.85
P-311C	965.54	949.77	951.89	951.43	950.40	953.27	953.18	953.48	953.84	952.93	954.83	953.23
P-311L	965.76					950.32		950.21	950.76	950.04	951.60	950.64
P-311D	963.80	945.24	946.80	945.47	944.85	947.28	NM	947.38	947.82	947.09	947.39	947.32
312-OWA	1016.20	953.70	956.51	955.38	954.38	956.88	955.73	956.17	956.71	955.85	957.74	956.95
P-313C	948.15	>948.15	>948.15	>948.15	>948.15	>948.15	>948.15	>948.15	>948.15	>948.15	>948.15	>948.15
P-314C	952.02	948.21	949.87	948.76	948.30	950.51	950.29	950.74	951.05	950.35	951.63	950.80
315-OWA	972.41	950.72	954.38	952.53	951.46		953.27	954.07	954.54	953.36	955.64	954.21
P-315L	972.27	947.32	949.34	948.05	947.40		949.07	949.81	950.25	949.32	951.17	950.05
317-OWA	1009.73	951.66	954.21	953.61	952.05		954.31	955.00	956.42	955.37	957.38	956.17
P-317L	1008.65	947.79	949.93	948.65	947.93		949.54	950.27	950.95	949.92	951.90	950.75
P-320C	951.19	948.89	950.30	949.35	948.86	950.88	950.32	950.98	>951.19	950.60	>951.19	951.00
P320C2	951.21	948.90	950.34	949.37	948.99	950.91	950.32	951.02	951.08	950.70	>951.21	950.92
P-320L	951.37	948.87	950.38	949.36	948.82	950.87	950.30	950.90	951.33	950.62	>951.37	950.97
P-321L	972.56	948.76	950.35	949.24	948.73	950.99	950.18	950.73	951.19	950.53	951.99	950.86
P-322L	948.75	947.64	>948.75	947.69	947.12	>948.75	948.75	>948.75	>948.75	>948.75	>948.75	>948.75
P-323L	967.20		949.90	948.83	948.48	950.68	949.88	950.38	950.87	950.22	951.68	950.52
P-324L	960.40		949.70	948.68	948.05	950.33	949.59	950.11	950.64	949.99	951.57	950.21
P-325L	942.11					>942.11	~ 950.31		~ 952.5 **	~ 950.7	~ 952.8**	~ 949.3**
P-326L	942.62					>942.62	~ 950.37		~ 951.9 **	~ 950.3	~ 952.4**	~ 944.5**

Table 2
Groundwater Elevations
Elk River Landfill
Elk River, Minnesota

Well Number	Elevation of Top of Casing	Water Elevation Oct 18, 2010	Water Elevation Oct 17, 2011	Water Elevation Oct 16, 2012	Water Elevation Oct 14, 2013	Water Elevation Oct 20, 2014 ¹	Water Elevation Oct 20, 2015	Water Elevation Oct 18, 2016	Water Elevation Oct 16, 2017	Water Elevation Oct 17, 2018 ¹	Water Elevation Oct 22, 2019 ¹	Water Elevation Oct 11, 2020 ¹
P-327L	952.35							950.37 **	948.75	948.28	949.59	948.16
P-328L	948.20							946.13	946.40	945.81	947.13	945.76
P-329L	947.99							944.04 **	945.71	945.72	946.87	945.52
P-333L	943.72											
P-334L	972.22									946.44	947.79	946.27
P-335L	995.98									946.97	948.25	947.11
336-OWA	969.45											956.28
337-OWA	1031.70											956.36
P-337L	1031.68											951.58
P-338L	961.13											
P-340L	946.43											
P-341L	988.58											
P-342C	946.66											
P-342L	947.16											
401-OWA	1010.97	957.02	959.20	958.05	957.33		958.62	959.20	959.70	958.85	960.61	959.44
402-OWA	1023.56	957.93	959.61	958.51	957.81	960.13	959.02	959.53	960.06	959.27	960.96	959.94
P-403C	998.46	957.24	959.30	957.22	956.59	959.81	958.82	960.06	960.41	959.15	961.50	958.91
405-OWA	987.17	956.94	958.80	957.45	957.31	960.04	959.12	959.57	959.86	958.85	960.92	959.10
406-OWA	953.71	941.77	942.30	940.22	940.60	942.29	941.71	942.49	942.68	942.39	943.16	941.45
407-OWA	973.87	944.20	944.88	942.57	937.87	944.93	944.37	945.24	945.30	944.67	945.82	943.65
408-OWA	986.55	956.14	957.32	955.91	956.31	958.86	957.92	959.02	959.57	958.30	960.18	957.86
409-OWA	1044.39											
P-410L	994.56											
411-OWA	1007.34											
412-OWA	1028.56											
413-OWA	990.97											
P-694477	987.86							947.59	948.00	947.32	949.60	947.45

Table 2
Groundwater Elevations
Elk River Landfill
Elk River, Minnesota

Well Number	Elevation of Top of Casing	Water Elevation Oct 18, 2021	Water Elevation Oct 26, 2022 ¹	Water Elevation Apr 18, 2023 ¹	Water Elevation July 18, 2023 ¹	Water Elevation Oct 16, 2023 ¹	Water Elevation Apr 15, 2024 ¹	Water Elevation Apr 16, 2025 ¹
P-17C	982.62	953.17	952.74		953.57	953.52		
22-OWA	1039.68	955.97	955.14	954.53	955.93	955.68		955.80
P-22L	1043.45	949.75	950.12	951.03	950.25	950.28	951.72	951.20
P-29C	957.16	949.21	948.85	950.11	948.60	948.98	949.58	949.62
P-29D	957.35	944.65**	946.03	947.21	945.23	946.20	946.76	946.70
36-OWA	1021.61	956.51	956.03			956.31	1021.61	
301-OWA	966.54	955.94	956.23	964.25	957.53	964.43	963.89	959.70
P-301C	967.50	949.16	948.78	949.80	948.48	948.98	949.48	949.58
P-301L	970.11	949.39	949.06	950.11	948.71	949.16	949.83	968.81**
302-OWA	970.47	959.45	957.88	966.76	957.55	964.32		959.91
P-302C	970.63	949.14	948.98	949.98	948.65	948.92	948.63	949.53
P-303C	963.77	950.63	950.47	956.57	950.61	951.52		
P-304C	959.89	951.21	951.04	958.30	951.79	952.49	954.09	953.01
P-305C	963.26	949.03	948.60	949.57	948.41	948.84	949.33	949.40
P-308C	979.83	950.40	949.96	951.81	950.28	950.29		
P-308L	979.94	949.52	949.15	950.32	948.81	949.25		
P-309C	967.71	949.19	948.77		948.66	948.97		
P-310C	975.33	950.13	952.51		952.81	952.61		
P-311C	965.54	950.96	950.77		952.10	950.97		
P-311L	965.76	948.30	948.06	949.06	947.85	948.22	948.59	948.83
P-311D	963.80	946.94	944.91			945.00		
312-OWA	1016.20	954.55	953.92	953.80	954.79	954.31		
P-313C	948.15	>948.15	>948.15	>948.15	947.65	>948.15	>948.15	>948.15
P-314C	952.02	948.93	948.27	949.62	948.07	948.53	948.93	949.37
315-OWA	972.41	951.70	951.51	951.57	953.22	952.16		
P-315L	972.27	947.98	947.44	948.77	947.27	947.58	948.07	948.24
317-OWA	1009.73	953.62	953.26		953.26	954.07		
P-317L	1008.65	948.57	947.78		947.44	947.96		
P-320C	951.19	949.19	948.84	949.94	948.51	949.01	949.49	949.59
P320C2	951.21	949.12	948.87	949.91	948.51	949.02	949.49	949.62
P-320L	951.37	949.16	948.77	949.87	948.53	949.01	949.70	949.57
P-321L	972.56	949.09	948.71	949.93	948.56	948.87	949.38	949.46
P-322L	948.75	947.64	947.85	948.55	947.10	947.35	947.71	948.13
P-323L	967.20	948.59	948.37	949.63	947.94	948.53	949.06	949.13
P-324L	960.40	948.40	948.04	948.97	947.85	948.15	948.68	948.99
P-325L	942.11	~ 947.8**	~946.9	>942.11	>942.11	~ 947.0	>942.11	
P-326L	942.62	~ 947.5**	~947.0	>942.62	>942.62	~ 947.0	>942.62	

Table 2
Groundwater Elevations
Elk River Landfill
Elk River, Minnesota

Well Number	Elevation of Top of Casing	Water Elevation Oct 18, 2021	Water Elevation Oct 26, 2022 ¹	Water Elevation Apr 18, 2023 ¹	Water Elevation July 18, 2023 ¹	Water Elevation Oct 16, 2023 ¹	Water Elevation Apr 15, 2024 ¹	Water Elevation Apr 16, 2025 ¹
P-327L	952.35	946.86	946.83	948.35	946.05		947.59	
P-328L	948.20	944.29	944.40		943.34	944.52	945.09	
P-329L	947.99	944.11	944.27	945.59	943.14	944.29	944.90	945.07
P-333L	943.72			>943.72	943.22		>943.72	>943.72
P-334L	972.22	944.99	944.90	945.96	944.22	944.95	945.40	945.55
P-335L	995.98	944.90	945.28	946.23	944.37	945.39	945.69	946.23
336-OWA	969.45	953.71	953.27		953.56	954.45		
337-OWA	1031.70	954.37	953.18		953.89	953.66		
P-337L	1031.68	949.58	948.86			948.88		
P-338L	961.13	945.76	945.63	946.73	945.02	945.72	946.38	946.30
P-340L	946.43	944.83	944.83	>946.43	944.93	944.98		
P-341L	988.58				946.18	946.58	946.93	
P-342C	946.66							944.46
P-342L	947.16			945.42	945.27		945.27	945.01
401-OWA	1010.97	957.50	957.11	957.23	958.06	957.77	957.30	957.65
402-OWA	1023.56	958.11	957.56	957.74	958.22	958.25	958.18	958.31
P-403C	998.46	956.57	956.14	957.60	957.47	956.78	957.56	956.52
405-OWA	987.17	957.04	956.67	957.89	956.88	956.57	956.60	957.22
406-OWA	953.71	940.43	940.26	944.28	940.15	940.41	941.29	917.00
407-OWA	973.87	942.35	942.78	949.32	943.38	942.77	943.67	943.32
408-OWA	986.55	955.87	955.26	957.22	955.49	955.87	955.77	956.13
409-OWA	1044.39						965.62	965.69
P-410L	994.56						949.99	950.30
411-OWA	1007.34						959.96	960.76
412-OWA	1028.56						962.44	962.51
413-OWA	990.97						958.72	959.39
P-694477	987.86	945.93	945.65	946.67	944.80	945.75	946.42	946.36

Table 2
Groundwater Elevations
Elk River Landfill
Elk River, Minnesota

Water level elevations in feet, Mean Sea Level (MSL)

Blank indicates no water level collected

S: Well has been sealed

BP: Below top of dedicated pump

** : Unusable/rejected measurement based on hydrograph evaluation

>: groundwater elevation is greater than elevation listed; formerly reported as "Flowing"

~: approximate elevation based on pressure gauge reading

[†] indicates reported water levels were measured during a routine monitoring event and not necessarily on the listed day

Table 3
Groundwater Detections Exceeding Groundwater-based Intervention Limits
Elk River Landfill
Elk River, Minnesota

Location				P-29C	P-302C	P-304C	P-313C	P-314C	P-320C	P-320C2	P-320L	P-321L	P-323L	P-325L
Date				4/16/2025	4/16/2025	4/17/2025	4/17/2025	4/17/2025	4/15/2025	4/15/2025	4/15/2025	4/15/2025	4/15/2025	4/15/2025
Parameter	Units	MDH Human Health-Based Water Guidance Table	Elk River Groundwater Limits Table - SW-74											
Last Updated		04/24/2025	07/23/2015											
Exceedance Key		Bold	<u>Underline</u>											
Volatile Organic Compounds														
1,2-Dichloroethane	ug/l	1 HRL13 (1)	<u>0.25</u>	--	<u>0.615</u>	--	--	--	--	--	--	--	<u>0.288</u>	--
1,2-Dichloroethylene, cis	ug/l	6 HRL18 (1)	<u>1.5</u>	--	--	--	--	--	--	--	--	--	<u>2.13</u>	<u>1.59</u>
Dichlorofluoromethane (Freon-21)	ug/l	20 RAA17	<u>5</u>	--	<u>5.08</u>	--	--	--	--	--	--	--	3.37	<u>8.52</u>
Trichloroethylene (TCE)	ug/l	0.4 HRL15 (1)	<u>0.1</u>	--	--	<u>0.106</u>	<u>0.106</u>	--	--	--	--	--	<u>0.758</u>	--
Vinyl chloride	ug/l	0.2 HRL18 (1)	<u>0.05</u>	<u>0.647 C5</u>	<u>0.513 J3</u>	--	--	<u>0.158 C5</u>	<u>0.389 C5</u>	<u>0.0836</u>	<u>0.357 C5</u>	<u>0.414</u>	<u>0.244</u>	<u>0.707</u>
Dissolved Metals														
Manganese	ug/l	100 HRL23		--	--	--	--	--	--	--	--	--	--	--

(1) Value is representative of the lowest exposure duration published in the Minnesota Department of Health Human Health Advisory Table.

RAA17 Risk Assessment Advice 2017.

HRL15 Health Risk Limit 2015.

HRL18 Health Risk Limit 2018.

HRL23 Health Risk Limit 2023.

C5 The reported concentration is an estimate. The continuing calibration standard associated with this data responded high. Data is likely to show a high bias concerning the result.

J3 The associated batch QC was outside the established quality control range for precision.

Table 3
Groundwater Detections Exceeding Groundwater-based Intervention Limits
Elk River Landfill
Elk River, Minnesota

Location				P-326L	P-334L	P-338L	P-342C	P694477
Date				4/15/2025	4/16/2025	4/16/2025	4/18/2025	4/16/2025
Parameter	Units	MDH Human Health- Based Water Guidance Table	Elk River Groundwater Limits Table - SW-74					
Last Updated		04/24/2025	07/23/2015					
Exceedance Key		Bold	<u>Underline</u>					
Volatile Organic Compounds								
1,2-Dichloroethane	ug/l	1 HRL13 (1)	<u>0.25</u>	--	--	--	--	--
1,2-Dichloroethylene, cis	ug/l	6 HRL18 (1)	<u>1.5</u>	--	--	--	--	--
Dichlorofluoromethane (Freon-21)	ug/l	20 RAA17	<u>5</u>	--	21.9	<u>14.5</u>	--	<u>6.31 C5</u>
Trichloroethylene (TCE)	ug/l	0.4 HRL15 (1)	<u>0.1</u>	0.100	--	--	--	--
Vinyl chloride	ug/l	0.2 HRL18 (1)	<u>0.05</u>	<u>0.0920</u>	--	0.683 J3	--	<u>0.580 C5</u>
Dissolved Metals								
Manganese	ug/l	100 HRL23		--	--	--	124	--

(1) Value is representative of the lowest exposure duration published in the Minnesota Department of Health Human Health Advisory Table.

RAA17 Risk Assessment Advice 2017.

HRL15 Health Risk Limit 2015.

HRL18 Health Risk Limit 2018.

HRL23 Health Risk Limit 2023.

C5 The reported concentration is an estimate. The continuing calibration standard associated with this data responded high. Data is likely to show a high bias concerning the result.

J3 The associated batch QC was outside the established quality control range for precision.

Table 4
Groundwater Data Compared to Surface Water-Based Intervention Limits
Elk River Landfill
Elk River, Minnesota

Location Date			401-OWA 4/17/2025
Parameter	Units	Elk River Surface Water Limits Table - SW-74	
Last Updated		09/28/2010	
Exceedance Key		Bold	
General Parameters			
Chloride	mg/l	57.5	381

Table 5
Summary of Lysimeter Purging Information
Elk River Landfill
Elk River, Minnesota

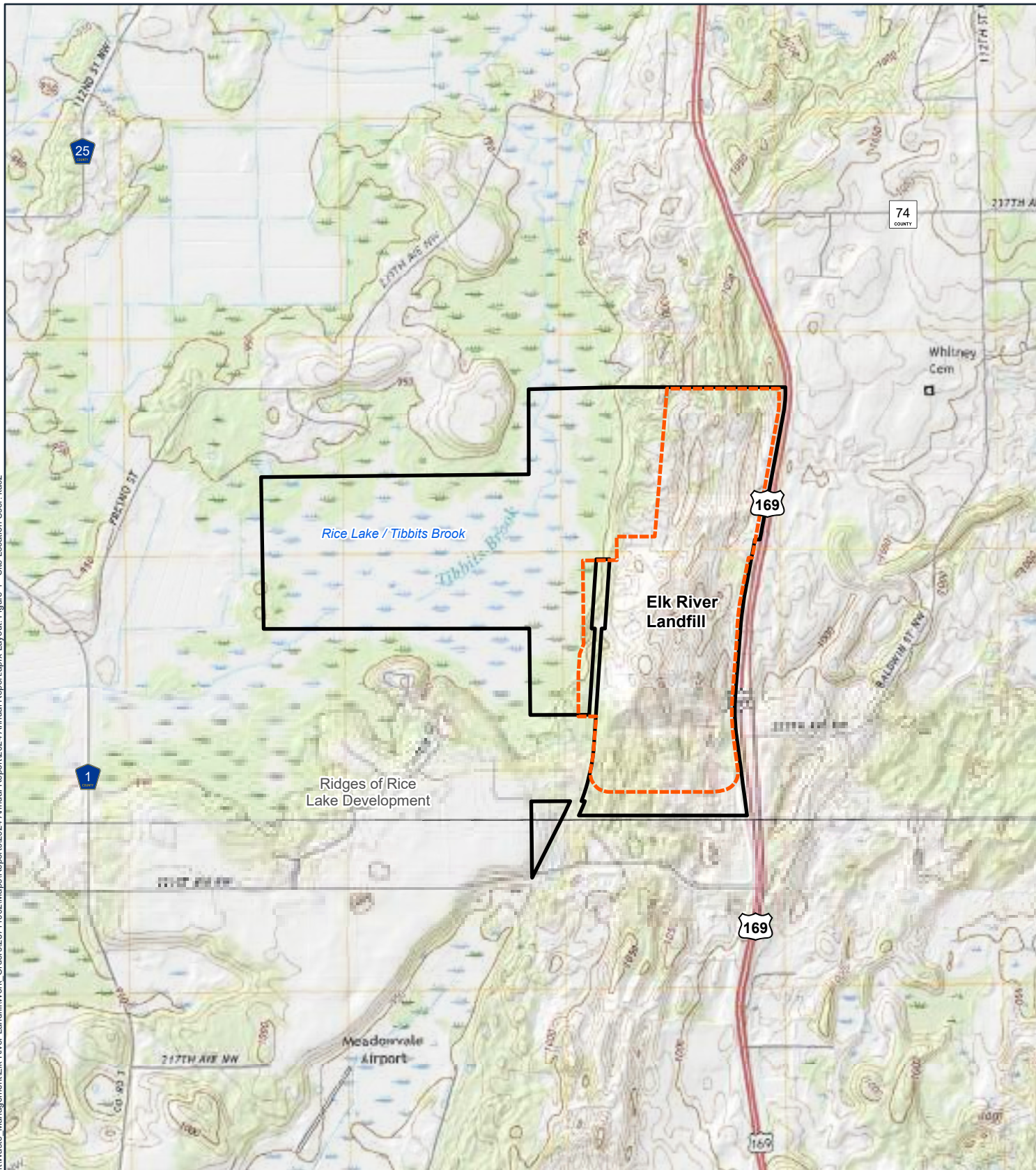
Lysimeter Identification Number	Total Approximate Liquid Volume Removed Since Previous Monitoring Event (gallons)	Nominal Lysimeter Threshold Volume (LTV) (gallons)	Purge Volume Greater than LTV?	Sample Collected
LYS-6N*	266	--	--	No
LYS-6S	--	266	--	--
LYS-10	--	266	--	--
LYS-11	10	266	No	No
LYS-12	0	266	No	No
LYS-13	<5	266	No	No
LYS-14	<5	266	No	No
LYS-15	0	266	No	No
LYS-16	0	266	No	No
LYS-17	<5	266	No	No
LYS-18	0	266	No	No
LYS-19	<5	266	No	No
LYS-20	<5	266	No	No

LYS-6N Totalizer Reading Summary	
Date	Totalizer Reading (gallons)
10/21/2024	371299
5/19/2025	371565

Notes:

* LYS-6N is undergoing a continuous pumping program.

Figures



Property Boundary



Groundwater Compliance Boundary

Background Source: USGS 7.5 Minute Quadrangle
Data Source: Barr, Wenck, MNDOT, MNDNR



0 1,000 2,000 3,000



Feet

Site Location
Elk River Landfill
Elk River, MN

FIGURE 1



Appendices

Appendix A

Field Report



4500 Ball Road Northeast
Circle Pines, Minnesota 55014-1819

TEL: (763) 786-6020
FAX: (763) 786-7854

**SPRING 2025 EMS REPORT
ON GROUND WATER SAMPLE COLLECTION
AT THE ELK RIVER LANDFILL FACILITY**

Submitted to:

Elk River Landfill
WASTE MANAGEMENT, INC.
22460 Highway 189 Northwest
Elk River, Minnesota 55330

Prepared by:

A handwritten signature in black ink that reads "Robin R. Worlie". The signature is written in a cursive, flowing style. Below the signature is a horizontal line.

Robin R. Worlie
Field and Lab Services Administrator

Report Number F25-7366
June 3, 2024
/mrw

TABLE OF CONTENTS

Section 1	Introduction.....	1
Section 2	Summary	4
Table 1	Results of Field Parameters	5
Table 2	Visual Observations.....	7
Table 3	Static Water Levels.....	8
Table 4	Lysimeter Purge Volumes.....	9
Table 5	Meteorological Data.....	10

APPENDICES

- A - Field Data Sheets
- B - Field Notes
- C - Chain of Custody

1 INTRODUCTION

ALLIANCE TECHNICAL GROUP submits this quarterly Environmental Monitoring System (EMS) report on ground and surface water sample collection at the Elk River Landfill Facility.

Thirty-two (32) ground water monitoring wells (Figure 1) were sampled during the April 15 – 18, 2025, groundwater sampling event at the Elk River Landfill Facility. These monitoring sites were identified as P-29C, P-29D, P-301C, P-301L, P-302C, P-304C, P-305C, P-311D, P-311L, P-313C, P-314C, P-315L, P-320C, P-320C2, P-320L, P-321L, P-322L, P-323L, P-324L, P-325L, P-326L, P-329L, P-333L, P-334L, P-335L, P-338L, P-342C, P-342L, P-694477, 401-OWA, P-403C, and 408-OWA.

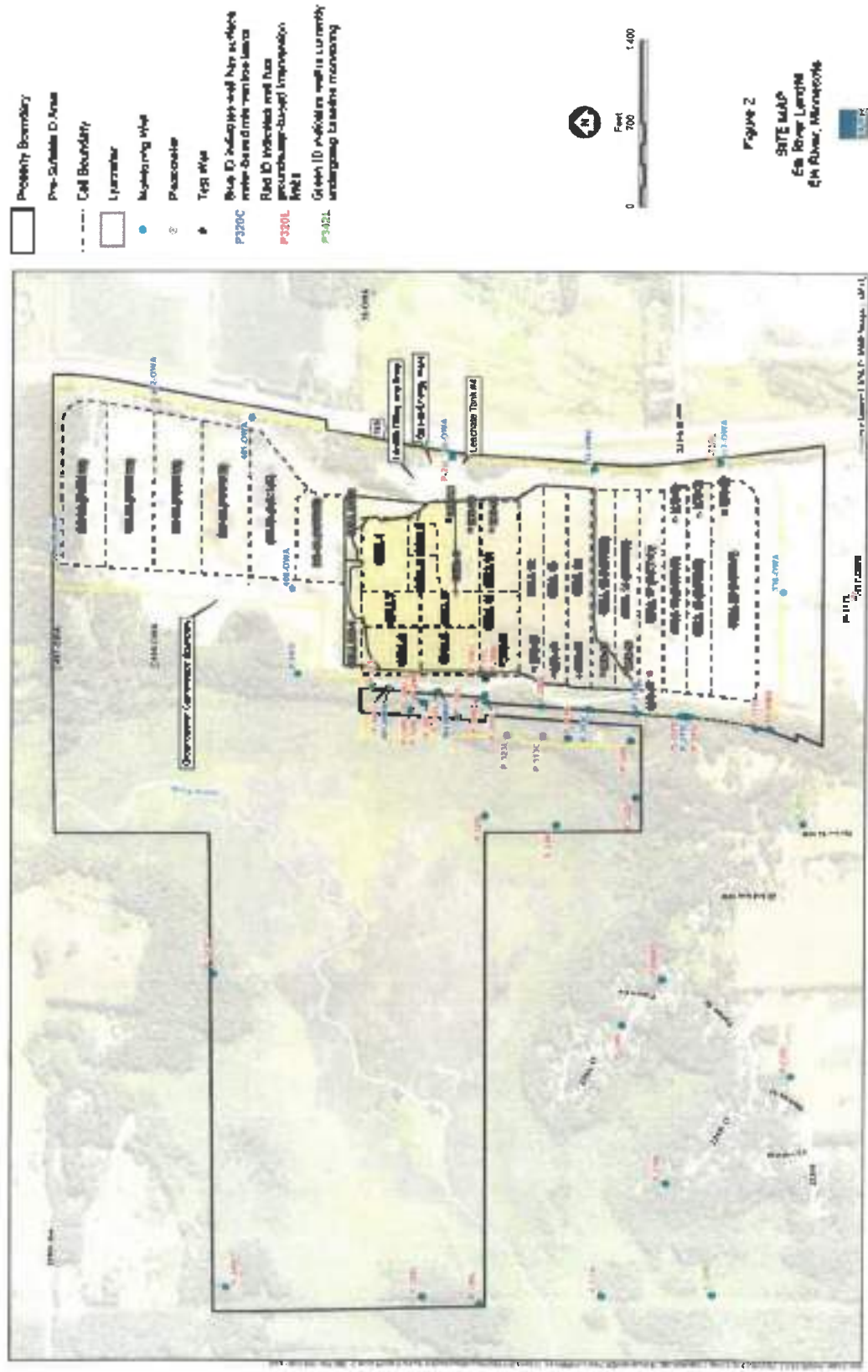
On May 19, 2025, six (6) lysimeters were purged (Lys-11, Lys-13, Lys-14, Lys-19 and Lys-20) and all yielded very little or no liquid so were therefore not sampled. The totalizer reading at lysimeter 6N was recorded and lysimeters 6S and 10 have no pumps in them.

The sampling was performed by Mike Hamer and Kenneth Smith of Alliance Technical Group in accordance with the Elk River Landfill Sampling and Analysis Plan (January 2021). This sampling guide was prepared by Jim Eidem of Barr Engineering and Waste Management, Inc.

The order of well stabilization/recovery or sample collection was as follows:

1. P-325L
2. P-326L
3. P-323L
4. P-321L
5. P-320L
6. P-320C2
7. P-320C
8. P-29D
9. P-694477
10. P-338L
11. P-334L
12. P-29C
13. P-305C
14. P-301C
15. P-311L
16. P-302C
17. P-311D
18. P-315L
19. P-313C
20. 401-OWA
21. P-304C
22. 408-OWA
23. P-342L
24. P-329L
25. P-322L
26. P-314C
27. P-324L
28. P-301L
29. P-335L
30. P-403C
31. P-342C
32. P-333L

Figure 1. Elk River Landfill Site Map.



2 SUMMARY

The groundwater monitoring wells at the Elk River Landfill were found locked and identified with a well number on the well riser. All samples were collected in a manner acknowledged to be acceptable to the MPCA.

Table 1. Results of Field Parameters

Well #	pH	Conductivity ¹ (µmhos/cm)	Temperature (°C)	Turbidity (ntu)	Dissolved Oxygen (mg/L)	ORP (mv)
P-325L	6.74	1460	8.0	0.3	0.0	-122
P-326L	6.76	1275	7.6	1.0	0.2	-135
P-328L	6.76	1656	9.7	7.0	0.1	-120
P-321L	7.13	832	11.8	2.1	0.0	-106
P-320L	7.12	668	10.8	NR	0.1	-124
P-320C2	7.26	1023	10.8	5.2	0.0	-130
P-320C	7.13	1146	10.7	1.0	0.0	-154
P-28D	7.65	325	11.4	26	0.0	-198
P-694477	7.31	834	9.7	0.2	0.0	-203
P-339L	7.34	937	9.2	0.2	0.0	-174
P-334L	7.43	638	9.1	23	0.1	-132
P-29C	7.15	933	11.5	21	0.0	-118
P-305C	7.55	672	13.1	48.6	0.1	NR
P-301C	7.30	1368	11.1	6.0	0.0	-152
P-311L	7.60	638	9.4	34.4	0.1	-101.6
P-302C	7.12	1803	13.3	25.1	0.0	-186
P-311D	7.68	255	10.7	2.5	NR	NR
P-315L	7.06	236	8.7	2.0	0.1	-200.4
P-313C	6.96	1315	9.0	5.0	0.0	-117
401-OWA	7.15	1355	10.3	24.6	0.2	52.0
P-304C	6.89	1133	10.6	28.0	0.0	-124
408-OWA	7.78	384	11.3	1.7	0.2	53.8
P-342L	7.88	383	7.9	0.5	0.0	-179
P-329L	7.61	267	7.8	15.7	0.1	-166.5
P-322L	7.38	865	8.2	3.4	0.0	-104
P-314C	8.79	1337	8.7	0.5	0.0	-108
P-324L	7.32	559	9.7	39	10.0	-197
P-301H	6.65	531	10.7	17.2	0.4	-118.1

¹ Temperature compensated to 25°C.

NR = Not recorded

Table 1. Results of Field Parameters (Continued)

Well #	pH	Conductivity ¹ (µmhos/cm)	Temperature (°C)	Turbidity (ntu)	Dissolved Oxygen (mg/L)	ORP (mv)
P-335L	7.19	412	12.3	10.2	0.0	-101
P-403C	7.57	543	9.3	51.0	0.3	-41.2
P-342C	7.50	300	7.5	7.3	0.0	-191
P-333L	7.45	405	8.0	1.0	0.0	-152

¹ Temperature compensated to 25°C

NR – Not Recorded.

Table 2. Visual Observations.

Well #	Odor	Color
P-325L	None	None
P-326L	None	None
P-323L	None	None
P-321L	None	None
P-320L	None	None
P-320C2	None	None
P-320C	None	None
P-29D	None	None
P-694477	None	None
P-338L	None	None
P-334L	None	None
P-29C	None	None
P-305C	None	None
P-301C	None	None
P-311L	None	None
P-302C	None	None
P-311D	None	None
P-315L	Not Recorded	Not Recorded
P-313C	None	None
401-QWA	None	None
P-304C	None	None
406-QWA	None	None
P-342L	None	None
P-329L	Not Recorded	Not Recorded
P-322L	None	None
P-314C	None	None
P-324L	None	None
P-301L	Not Recorded	Not Recorded
P-335L	None	None
P-403C	Not Recorded	Not Recorded
P-342C	None	None
P-333L	None	None

Table 3. Static Water Levels

Well Number	Date	TOD Elevation (ft)	Spring 2025 SWL's (ft)	Spring 2028 Elevation (ft)
22-QWA	4/17/2025	1039.68	67.82	955.80
P-22L	4/17/2025	1043.45	92.25	951.20
P-28C	4/16/2025	957.18	7.54	949.62
P-29D	4/14/2025	957.35	12.65	948.70
301-QWA	4/17/2025	986.54	6.84	959.70
P-301C	4/16/2025	997.53	17.92	949.58
P-301L	4/17/2025	970.11	1.30	968.81
302-QWA	4/17/2025	970.47	10.56	959.91
P-302C	4/16/2025	970.63	21.18	949.53
P-304C	4/17/2025	959.89	6.88	953.01
P-305C	4/16/2025	903.26	13.86	949.40
P-311D	4/16/2025	953.80	N/A	Final Totalizer 2427250
P-311L	4/16/2025	966.76	16.93	948.83
P-313C	4/17/2025	948.18	Flowing	Flowing
P-314C	4/17/2025	962.02	2.65	949.37
P-315L	4/16/2025	972.27	24.03	948.07
P-320C	4/15/2025	951.19	1.60	949.69
P-320C2	4/15/2025	951.21	1.59	949.82
P-320L	4/15/2025	951.37	1.80	949.57
P-321L	4/15/2025	972.58	23.10	949.48
P-322L	4/17/2025	948.75	6.62	948.13
P-323L	4/15/2025	987.20	18.07	949.13
P-324L	4/17/2025	950.40	11.41	948.98
P-329L	4/17/2025	947.38	2.92	945.07
P-333L	4/18/2025	943.72	1.50	942.72
P-334L	4/16/2025	972.22	28.67	945.55
P-335L	4/17/2025	925.98	49.75	946.23
P-338L	4/16/2025	981.13	14.83	948.30
P-342C	4/18/2025	TBD	2.20	TBD
P-342L	4/17/2025	947.27	2.15	945.12
401-QWA	4/17/2025	1010.97	53.32	957.65
402-QWA	4/17/2025	1023.56	65.25	958.31
P-403C	4/17/2025	983.48	41.84	906.62
P-405L	4/17/2025	987.97	36.71	951.25
405-QWA	4/17/2025	987.17	29.95	957.22
406-QWA	4/17/2025	953.71	12.71	941.00
407-QWA	4/17/2025	873.87	30.36	943.32
408-QWA	4/17/2025	888.55	30.42	936.13
409-QWA	4/17/2025	1044.38	78.70	965.69
P-634477	4/16/2025	987.88	4.50	983.36
P-410I	4/17/2025	994.56	44.26	950.30
411-QWA	4/17/2025	1007.34	46.58	950.75
412-QWA	4/17/2025	1028.56	65.05	982.51
413-QWA	4/17/2025	980.87	31.58	958.38

Table 4. Lysimeter Purge Volumes.

Lysimeter	Date Recorded	Totalizer and/or Purge Volume	Sampled Yes or No
Lys-6N	5/19/2025	371565	No
Lys-11	5/19/2025	~ 10 gal	No
Lys-12	5/19/2025	0 gal	No
Lys-13	5/19/2025	< 5 gal	No
Lys-14	5/19/2025	< 5 gal	No
Lys-15	5/19/2025	0 gal	No
Lys-16	5/19/2025	0 gal	No
Lys-17	5/19/2025	< 5 gal	No
Lys-18	5/19/2025	No Pump	No
Lys-19	5/19/2025	< 5 gal	No
Lys-20	5/19/2025	< 5 gal	No

Table 5. Meteorological Data.

Weather Conditions:	4/15/2025
Precipitation:	None
Wind Speed:	10 - 25 mph
Wind Direction:	NW - NNW
Temperature, Low:	33°F
High:	52°F
Weather Conditions:	4/16/2025
Precipitation:	None
Wind Speed:	5 - 20 mph
Wind Direction:	East - East Southeast
Temperature, Low:	30°F
High:	60°F
Weather Conditions:	4/17/2025
Precipitation:	Rain
Wind Speed:	5 - 25 mph
Wind Direction:	Variable
Temperature, Low:	47°F
High:	73°F
Weather Conditions:	4/18/2025
Precipitation:	None
Wind Speed:	10 - 25 mph
Wind Direction:	North - North Northwest
Temperature, Low:	38°F
High:	57°F
Weather Conditions:	5/19/2025
Precipitation:	None
Wind Speed:	10 - 20 mph
Wind Direction:	East - East Northeast
Temperature, Low:	36°F
High:	56°F

Table 6 Natural Attenuation Parameters

Monitoring Well	Date Sampled	Sulfur (mg/L)	Ferrous Iron (mg/L)
P-325L	4/15/2025	0.03	1.76
P-326L	4/15/2025	0.03	> 3.30
P-323L	4/15/2025	> 0.80	2.17
P-321L	4/15/2025	0.28	0.79
P-338L	4/16/2025	0.11	1.38
P-334L	4/16/2025	0.16	0.98
P-302C	4/16/2025	BDL	1.54
P-313C	4/17/2025	> 0.80	0.61
P-304C	4/17/2025	0.05	0.90
P-342L	4/17/2025	0.06	0.43

APPENDIX A

Field Data Sheets

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State forms. The Field Form is submitted along with the Chain of Custody Form that accompany the sample analyses (i.e., with the cover that is returned to the laboratory).

Labels: ☐ Only Labels

111

WELL VOLs
PLUGGED

[illegible]

Filter Type:

A-In-line Disposable	C-Vacuum
B-Pressure	X-Other:

Sample Tube Type:

A-Teflon	C-PVC	X-Other:
B-Stainless Steel	D-Polypropylene	

Well Elevation (at T.O.)		11.15	Depth to Water (D.W.) (from T.O.)		0.00	Groundwater Elevation (5-ft. dist. from T.O.)		10.95	
Total Well Depth (from T.O.)		12.00	Suck Up (from ground elevation)		0.05	Casing ID	10.00	Casing Material	

NOTE: This Report was prepared using data from the 1990 Census. The data were obtained from the Census Bureau's 1990 Census of the United States, which was conducted by the Census Bureau. The data were obtained from the Census Bureau's 1990 Census of the United States, which was conducted by the Census Bureau.

[illegible][illegible]

Small intestine: Bile juice and pancreatic juice are secreted into the small intestine. The small intestine is the site of most of the digestion of food. The small intestine is divided into three parts: the duodenum, the jejunum, and the ileum. The duodenum is the first part of the small intestine and is the site of the digestion of food by bile juice and pancreatic juice. The jejunum is the middle part of the small intestine and is the site of the digestion of food by bile juice and pancreatic juice. The ileum is the last part of the small intestine and is the site of the digestion of food by bile juice and pancreatic juice.

[illegible]

Initial Field Readings are required (i.e. record field measurements, final installed readings, passive sample readings before sampling, etc. All field parameters required by State Permit/Sur.

Sample Appearance: _____ Color: light Turbidity: 1.0 Other: _____
 Weather Conditions (required daily, or as conditions change): Direction/Speed: _____ Outlook: _____ Precipitation: Y or N
 Specific Comments (including pump/well volume calculations if required): _____

STUDENT COMMENTS

I certify that sampling procedures were in accordance with applicable FDA, State, and NM protocols (if more than one sampler, all should sign).

$$-\frac{1}{2} \frac{d}{dt} \left(\frac{1}{\rho} \right) = \frac{1}{2} \frac{d}{dt} \left(\frac{1}{\rho} \right)$$

Name Mike Jones

Signature

17 - 1

DISTRIBUTION: WHITE OR GINAL. Starts with Same. YELLOW. Intermediate Class

CLIENT COPY

Labeling Use Only Label

CLIENT COPY

WMM
WHEELER MCMILLAN

आदि
मनः

This form is to be completed, in addition to any State Form. The Field Report is submitted along with the form of Inventory Form that accompany the sample collection (i.e. with the collection that is returned to the laboratory).

Lithography Time Only 1 Job ID

111

W.F.J. VAN
BUREN

Mely. Fur Purrs: A Somering rooiber "Water Hole Canyon" and "Well Hole Canyon" w/ Water Hole in Jurvetson Cst and Tanager Fm Cst; Yell. Shale. Mely. bones, my and field obs. below.

Tube Type	B-Stainless Steel	D-Polypropylene

Casing ID	Casing Material

Note: Total Wet Weight Stick Up Cauchy 1st. cr. crs. covered 100 to 150 lbs. from historical data, and is reported by the Forest Wall Division (FWD) and Simsbury Fire Department as covered.

Standardization Data Fields are Omitted if a complete standardization readings for parameters required by W.M. Sur or Stage. These fields can be supplied where part (d) field measurements are required by interpretation. If a data logger or other electronic device is used fill in null readings below and submit complete data summary for file. If you do not wish to submit any parameter chemical for

Final Hole Drillings are required (i.e. ground field measurements, final geophysical readings, passive & active readings before completion for all fields per line) reviewed by Superintendant

Sample Appearance: _____ Odor: Nu Color: Nu Other: _____
 Weather Conditions (required daily, or as conditions change): _____
 Direction/Speed: _____ Outlook: _____ Precipitation: Y or N
 Specific Comments (including pH/temp/DO volume calculations if required): _____

I certify that sampling procedures were in accordance with applicable EPA, State, and WQM protocols of state that use samples, all should sign

11

DISSEMINATION: WHITKOMB/JENAL - Source's Source, 1 FEB 80 - Reported as CLEW

CLIENT COPY

DATE			
NO.			

Sample | 0.3 | 0.5 | 1.0

This form is to be completed in addition to any State Form. The field Form is identified along with the LAAS of Comedy Form last necessary the sample maintains the with the order has occurred in the Bahamas.

[Landscape Line Control Job PM](#)

PURGE INFO	PURGE DATE (MM/DD/YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (Decimals)	WATER VOL IN CASING (Gallons)	ACTUAL VOL. PURGED (Gallons)	WELL VOL. PURGED
	04/15/25	13:48	111.1			0

Note: Five American Songbirds replace "Water Bird or Cuckoo" and "Three Little Ravens" in "Three Little Ravens Call and Singing Birds" in "Birds' Songs." *Hark! Hark!*, second edition, before

PURGE/SAMPLE EQUIPMENT	Purge and Sampling Equipment: ☐ Dedicated, ☒ or ☐ ☐ or ☐		Filter Device: ☐ or ☒ ☐ or ☐ ☐ or ☐ ☐ (include selection)	
	Purging Device: ☐	A- Submersible Pump B- Portable Pump	D- Railer E- Piston Pump	A- In-line Disposable B- Pressure
	Sampling Device: ☐	C- ULD Bladder Pump	F- Digger/Bottle	C- Vacuum X- Other
	A- Other			A- Teflon B- Stainless Steel C- PVC D- Polypropylene X- Other

DATA	Well Elevation (m TWC)	5.31	3.1	(ft)	Depth to Water (m TWC) (from TWC)	1.5	1.1	m	Groundwater Elevation (m datum, from TWC)	1.1	2.2	3.1	4.2	5.3	6.4	7.5	8.6	9.7	10.8	11.9	13.0	14.1	15.2	16.3	17.4	18.5	19.6	20.7	21.8	22.9	24.0	25.1	26.2	27.3	28.4	29.5	30.6	31.7	32.8	33.9	35.0	36.1	37.2	38.3	39.4	40.5	41.6	42.7	43.8	44.9	46.0	47.1	48.2	49.3	50.4	51.5	52.6	53.7	54.8	55.9	57.0	58.1	59.2	60.3	61.4	62.5	63.6	64.7	65.8	66.9	68.0	69.1	70.2	71.3	72.4	73.5	74.6	75.7	76.8	77.9	79.0	80.1	81.2	82.3	83.4	84.5	85.6	86.7	87.8	88.9	90.0	91.1	92.2	93.3	94.4	95.5	96.6	97.7	98.8	99.9	100.0	101.1	102.2	103.3	104.4	105.5	106.6	107.7	108.8	109.9	110.0	111.1	112.2	113.3	114.4	115.5	116.6	117.7	118.8	119.9	120.0	121.1	122.2	123.3	124.4	125.5	126.6	127.7	128.8	129.9	130.0	131.1	132.2	133.3	134.4	135.5	136.6	137.7	138.8	139.9	140.0	141.1	142.2	143.3	144.4	145.5	146.6	147.7	148.8	149.9	150.0	151.1	152.2	153.3	154.4	155.5	156.6	157.7	158.8	159.9	160.0	161.1	162.2	163.3	164.4	165.5	166.6	167.7	168.8	169.9	170.0	171.1	172.2	173.3	174.4	175.5	176.6	177.7	178.8	179.9	180.0	181.1	182.2	183.3	184.4	185.5	186.6	187.7	188.8	189.9	190.0	191.1	192.2	193.3	194.4	195.5	196.6	197.7	198.8	199.9	200.0	201.1	202.2	203.3	204.4	205.5	206.6	207.7	208.8	209.9	210.0	211.1	212.2	213.3	214.4	215.5	216.6	217.7	218.8	219.9	220.0	221.1	222.2	223.3	224.4	225.5	226.6	227.7	228.8	229.9	230.0	231.1	232.2	233.3	234.4	235.5	236.6	237.7	238.8	239.9	240.0	241.1	242.2	243.3	244.4	245.5	246.6	247.7	248.8	249.9	250.0	251.1	252.2	253.3	254.4	255.5	256.6	257.7	258.8	259.9	260.0	261.1	262.2	263.3	264.4	265.5	266.6	267.7	268.8	269.9	270.0	271.1	272.2	273.3	274.4	275.5	276.6	277.7	278.8	279.9	280.0	281.1	282.2	283.3	284.4	285.5	286.6	287.7	288.8	289.9	290.0	291.1	292.2	293.3	294.4	295.5	296.6	297.7	298.8	299.9	300.0	301.1	302.2	303.3	304.4	305.5	306.6	307.7	308.8	309.9	310.0	311.1	312.2	313.3	314.4	315.5	316.6	317.7	318.8	319.9	320.0	321.1	322.2	323.3	324.4	325.5	326.6	327.7	328.8	329.9	330.0	331.1	332.2	333.3	334.4	335.5	336.6	337.7	338.8	339.9	340.0	341.1	342.2	343.3	344.4	345.5	346.6	347.7	348.8	349.9	350.0	351.1	352.2	353.3	354.4	355.5	356.6	357.7	358.8	359.9	360.0	361.1	362.2	363.3	364.4	365.5	366.6	367.7	368.8	369.9	370.0	371.1	372.2	373.3	374.4	375.5	376.6	377.7	378.8	379.

Total Well Depth (from TDC)	Stick Up (from ground elevation)	Casing ID	Casing Material
(ft)	(ft)	in.	

Note: First Name, Surname, DOB, & Citizenship are the only required fields on the form. All other fields are optional, except for the Signature, RES, E-signature, DTW, and Union Interest. Please see the instructions on the back of the form.

[illegible]

සංස්කෘත: මහා විද්‍යාලයේ පාඨශාලාව

Public Form 101-2018-01-01

Stabilization Data (Stable and Unstable): For complete stabilization readings for parameters required by the WAF, Site, or State. These fields are to be used when: (a) field measurements are required by State/tribal law. (b) Data is required under the National Contingency Plan and laboratory data is not available. (c) Data is required by the WAF, Site, or State. If more field data are needed, are unique, or are in

SAMPLE DATE (ddmmyy)	pH (val)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP (°C)	TURBIDITY (ntu)	DO (mg/L/ppm)	HORP (µV)	Other: Volts
							-

Final Field Measurements are required for record field measurements from stable conditions positive sample readings before sampling for all sites between 1992 and 1994 by State Personnel.

Sample Appearance: _____ Color: Nil Color: Nil Other: _____
 Weather Conditions (required daily, in as conditions change): Direction/Speed: _____ Outlook: _____ Precipitation: Y or N
 Specific Comments (including down/sulf volume calculations if recorded): _____

FIELD COMMENTS	

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sample, all should sign):

Date _____

Name Mike Hansen

2254-

Composante

DISTRIBUTION: WHITE/ORIGINAL - Storeys with Simply, YELLOW - Matchwood to Clare

CLIENT COPY

This Wildlife Management Field Information Form is required. This form is to be completed, in addition to any State Form 4. The Field Form is submitted along with the Chain of Custody Form that accompany the sample containers. It will be used to determine if the sample is to be analyzed.

Library Use Only

John. For Penny Savings, replace "Have Fun in China" and "West Side Parent" w/ "Have Fun in Taiwan, Have Fun and Enjoyed Life, Got High Demand. Have a chance, would fold down, have

Sample Tube Type:	1	3	4
	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel

Note: Total Well Depth, Shot Exp. Capacity etc. are optional and can be from hardware lists which are used by the user. Well diameter, DTH, and Circumference Dimensions may be current.

Suggested usage for J crabs: read right on
your Personalized, Illustrated

Small Business Data Field: #BX 0010101 (for complete details see instructions for all programs supplied by WBI, NCE, or SAGE). These fields can be used where four (4) field measurement are required by Small Business. No other letters or other electronic symbols used and no final numbers below and please measure data separately in June if more than one are needed, also include date on file.

Final Field Readings are required for every field site on waterway. For all scheduled readings, major stream readings before sweeping for all field parameters required by State Permit Title

Specific C₄ photosynthesis (including mesophyll volume calculations) (1 point)

I certify that sampling procedures were in accordance with applicable EPA, State, and WQM protocols (if more than one sampler, all should sign):

۱۰۰

DISTRIBUTION: WHITE (ORIGINAL), Sign with Sample, YELLOW, Returned to Client

CLIENT COPY

Site No.:

 Sample Point:

4	2	4	6		

 Sample ID:

This Waria Media member Field Informing Form is provided. The form is to be supplied to, and filled in by, State Farms. The Field Form is submitted along with the Chain of Custody Form for sampling. Be sure to complete the form with the information in answer to the following:

Latent Heat Capacity: 112

PURGE INFO	PURGE DATE (MMDDYY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL. IN CASING (Gallons)	ACTUAL VOL. PURGED (Gallons)	WELL VOL. PURGED
	09/18/85	14:56				

Note: For Brown Suspensions against "Water Pail or Canopy" and "Water Pail or Pergola" we found Pail in Turkeydike Cell and Tarping Pole Cell for Pergola. Blank changes toward Self-Defence.

PURGESAMPLE EQUIPMENT	Purging and Sampling Equipment ... Dedicated		<u>50</u> <u>1</u> <u>1</u>	Filter Devices: Y ☐ or ☒ <u>245</u> <u>μ</u> or <u> </u> <u>μ</u> (circle or fill in)
	Purging Device:	☒ A- Submersible Pump ☐ D- Peristaltic Pump	D- Under C- Upland Pump	Filter Type: <u> </u> A- In-line Disposable B- Pressure C- Vacuum X- Other
	Sampling Device:	☐ C- QED Bleeder Pump ☐ F- Dipper/Bottle		
	X- Other:			Sample Tube Type: <u> </u> A- Teflon D- Stainless Steel C- PVC X- Other D- Polycarbonate

BELL DATA	Well Elevation (at TOC)	95735 (ft)	Depth to Water (D/W) (from TOC)	065 (ft)	Groundwater Elevation (at depth from TOC)	94670 (ft)
	Total Well Depth (from TOC)		Stick Up (from ground elevation)		Casing ID	Casing Material

NOTE: Total 10 ml blood. Steel tips, 1 cm long, 1/16 in. diam. are inserted and can be fixed horizontally into a support. With 10 min after 100% and 100% growth, the 100% growth will be 100%.

[illegible][illegible]

Final Field Results are entered in the field measurements, final standard readings, percent sample readings before sampling for all depth parameters required by State Permit.

Sample Appearance: _____ Odor: Mild Color: Red Other: _____
 Weather Conditions (required daily, or as conditions change): _____ Direction/Speed: _____ Outlook: _____
 Precipitation: Y or N _____

Specific Comments (including purged volume calculations if required):

FIELD COMMENTS

I certify that sampling procedures were in accordance with applicable EPA, State, and WMA protocols (if more than one sampler, all should sign)

Date: 11/11/11
 Name: [Signature]
 Signature: [Signature]
 Chemistry: [Signature]

DISTRIBUTION: WHITE/ORIGINAL - Spills with Sample, YELLOW - Recharge to Com

CLIENT COPY

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State forms. The Field Form is submitted along with the Chain of Custody forms that accompany the sample containers (i.e. with the cooler that is returned to the Wholesaler).

Laboratory Use Only (Lab ID)

1

WELL YOU
REHARD

[illegible]

A-Jelkor	C-EPG	X-Wier.
B-Standbau Stc	D-Polypropylene	

L. G. Thompson,
Mathematical[illegible]

DTW: 10.1

111

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

11

111

11

Scandian

1999

Stratification Data Fields are Optional for complete stratification readings for parameters required for K₁₀, j₁₀, or S₁₀. These fields can be used where flow (M) fixed measurements are required by local authorities. If flow logging is not a requirement, please do not fill in flow readings before and select electronic data separately as flow. If more fully defined are included, use separate short or long

தலைப்பு:

1	2

Please bold headings and underline (i.e. not bold) subheadings. Most citations, headings, page and figure numbers, tables and figures, as well as names are required to have a bold or underline. Please do not use italics.

Other:

Precipitation, Y on N

Special Comments (including peroxide volume calculations if required):

I certify the sampling procedures were in accordance with applicable EPA, State, and WQA protocols (if more than one sampler, all should sign).

INSTRUMENTATION: ANTHROPOLOGICAL - X-ray with Sample VIB.1334 - Estimated by CHS

CLIENT COPY

5019
Yr.:

This form is to be completed in addition to any State forms. The Third Form is submitted along with the Union of Friendly Farms that accompany the sample partnership form with the creator that is returned to the laborer.

Libraries | Law | Only | Tech | IP

WELL VOL
BURDEN

Use: For PATENT Sampling, against "Water Vid in Casing", and "Well" Job Pumping, as Water Vid in Casing, for Lead and Logging from Casing Pumped. Mark: 1/2 inch, 1/4 inch, 1/8 inch, 1/16 inch, 1/32 inch, 1/64 inch, 1/128 inch, 1/256 inch, 1/512 inch, 1/1024 inch, 1/2048 inch, 1/4096 inch, 1/8192 inch, 1/16384 inch, 1/32768 inch, 1/65536 inch, 1/131072 inch, 1/262144 inch, 1/524288 inch, 1/1048576 inch, 1/2097152 inch, 1/4194304 inch, 1/8388608 inch, 1/16777216 inch, 1/33554432 inch, 1/67108864 inch, 1/134217728 inch, 1/268435456 inch, 1/536870912 inch, 1/1073741824 inch, 1/2147483648 inch, 1/4294967296 inch, 1/8589934592 inch, 1/17179869184 inch, 1/34359738368 inch, 1/68719476736 inch, 1/137438953472 inch, 1/274877906944 inch, 1/549755813888 inch, 1/1099511627776 inch, 1/2199023255552 inch, 1/4398046511104 inch, 1/8796093022208 inch, 1/17592186044416 inch, 1/35184372088832 inch, 1/70368744177664 inch, 1/140737488355328 inch, 1/281474976710656 inch, 1/562949953421312 inch, 1/1125899906842624 inch, 1/2251799813685248 inch, 1/4503599627370496 inch, 1/9007199254740992 inch, 1/18014398509481984 inch, 1/36028797018963968 inch, 1/72057594037927936 inch, 1/144115188075855872 inch, 1/288230376151711744 inch, 1/576460752303423488 inch, 1/1152921504606846976 inch, 1/2305843009213693952 inch, 1/4611686018427387904 inch, 1/9223372036854775808 inch, 1/18446744073709551616 inch, 1/36893488147419103232 inch, 1/73786976294838206464 inch, 1/147573952589676412928 inch, 1/295147905179352825856 inch, 1/590295810358705651712 inch, 1/1180591620717411303424 inch, 1/2361183241434822606848 inch, 1/4722366482869645213696 inch, 1/9444732965739290427392 inch, 1/18889465931478580854784 inch, 1/37778931862957161709568 inch, 1/75557863725914323419136 inch, 1/151115727451828646838272 inch, 1/302231454903657293676544 inch, 1/604462909807314587353088 inch, 1/1208925819614629174706176 inch, 1/2417851639229258349412352 inch, 1/4835703278458516698824704 inch, 1/9671406556917033397649408 inch, 1/19342813113834066795298816 inch, 1/38685626227668133590597632 inch, 1/77371252455336267181195264 inch, 1/154742504910672534362390528 inch, 1/309485009821345068724781056 inch, 1/618970019642690137449562112 inch, 1/1237940039285380274899124224 inch, 1/2475880078570760549798248448 inch, 1/4951760157141521099596496896 inch, 1/9903520314283042199192993792 inch, 1/19807040628566084398385987584 inch, 1/39614081257132168796771975168 inch, 1/79228162514264337593543950336 inch, 1/158456325028528675187087900672 inch, 1/316912650057057350374175801344 inch, 1/633825300114114700748351602688 inch, 1/1267650600228229401496703205376 inch, 1/2535301200456458802993406410752 inch, 1/5070602400912917605986812821504 inch, 1/10141204801825835211973625643008 inch, 1/20282409603651670423947251286016 inch, 1/40564819207303340847894502572032 inch, 1/81129638414606681695789005144064 inch, 1/162259276829213363391578010288128 inch, 1/324518553658426726783156020576256 inch, 1/649037107316853453566312041152512 inch, 1/1298074214633706907132624082305024 inch, 1/2596148429267413814265248164610048 inch, 1/5192296858534827628530496329220096 inch, 1/10384593717069655257060992658440192 inch, 1/20769187434139310514121985316880384 inch, 1/41538374868278621028243970633760768 inch, 1/83076749736557242056487941267521536 inch, 1/166153499473114484112975882535043072 inch, 1/332306998946228968225951765070086144 inch, 1/664613997892457936451903530140172288 inch, 1/1329227995784915872903807060280344576 inch, 1/2658455991569831745807614120560689152 inch, 1/5316911983139663491615228241121378304 inch, 1/10633823966279326983230456482242756608 inch, 1/21267647932558653966460912964485513216 inch, 1/42535295865117307932921825928971026432 inch, 1/85070591730234615865843651857942052864 inch, 1/170141183460469231731687303715884105728 inch, 1/340282366920938463463374607431768211456 inch, 1/680564733841876926926749214863536422912 inch, 1/1361129467683753853853498429727072845824 inch, 1/2722258935367507707706996859454145691648 inch, 1/5444517870735015415413993718908291383296 inch, 1/10889035741470030830827987437816582766592 inch, 1/21778071482940061661655974875633165533184 inch, 1/43556142965880123323311949751266331066368 inch, 1/87112285931760246646623899502532662132736 inch, 1/174224571863520493293247799005065324265472 inch, 1/348449143727040986586495598010130648530944 inch, 1/696898287454081973172991196020261297061888 inch, 1/1393796574908163946345982392040522594123776 inch, 1/2787593149816327892691964784081045188247552 inch, 1/5575186299632655785383929568162090376495104 inch, 1/11150372599265311570767859136324180752990208 inch, 1/22300745198530623141535718272648361505980416 inch, 1/44601490397061246283071436545296723011960832 inch, 1/89202980794122492566142873090593446023921664 inch, 1/178405961588244

Sales

• **Unit 1**

Caring
Mentoring

Now, from the last part, that the ending of an argument is not a logical consequence of its premises, we can conclude that the following is a fallacy: $H \rightarrow G$ therefore H and G are both true. Similarly, we can conclude that the following is a fallacy: $H \rightarrow G$ therefore H and G are both false.

DT

11

100

1

1

1

1

1

1

1

suggested range 10-20,000 readings, or
more often, 5,000 readings or more;

2. 4. 2.

92

[illegible]

FLORIP - Other:
(mk) Lulu

1 1 1 1 1

1

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

10

[illegible]

$\frac{0.007}{0.008} = \frac{P}{1}$

[illegible]

Final Field Numbers are required in a second field measurement. Only completed readings, missing sample numbers below, submitted by all field personnel involved in the measurement.

Other

Preparation: Y 02/1/12

Specific Comments (including numerical values) calculations of regulated:

All cerambycid sampling procedures were in accordance with applicable EPA, State, and WdI protocols (if more than one sample). (L. Gould 2012)

Date _____

Name _____

Solution

Summary

TESTIMONIAL WHITE: YOUNG MAN - 5'10" - 160 lbs. SCOTCH: YOUNG MAN - 6'0" - 180 lbs.

CLIENT COPY

* *Photography Use Only* ☐

Note: For better sampling, reply = "Water Not in Charge" and "With Fish Charge" + "Water Cut or Low Flow Cuts and Reduction in Fish Life Program". Most changes recorded based on fish.

WELL DATA	Well Elevation (at TOC)	12.25 (ft)	Depth to Water (DTW) (from TOC)	17.25 (ft)	Groundwater Elevation (at datum, from TOC)	7.90 (ft)
	Total Well Depth (from TOC)		Stick Up (From ground elevation)		Casing ID (in)	Casing Material

Note: From this depth, stick up, and ID etc. are optional and can be from historical data unless required by the form. Well Elevation, DTW, and Groundwater Elevation must be current.

Suggested Aug 1 for course completion

144- F-74598 requires the

Submitted Data Fields are 0 and 1 for comparison calculations (readings for parameters) required by Mill. Sec. 11. State These fields can be used where field (1) field no. 4000000000 is required.

Final Field Readings are required (i.e. record both maximum and final pH/DO readings, with or sample readings before sampling for all field parameters) reported to your Permit Officer.

Verify that sampling procedures were in accordance with applicable EPA, State, and WQIA protocols (if more than one sampler, all should sign):

Date _____ Name _____ Signature _____ Company _____

DISTRIBUTION: WHITENEGEL, 1 Sample with Sample, YELLOW, 1 Sample and 1.000

CLIENT COPY

Site No: Sample Point: 1 3 0 2 6

This Where-Used Field Information Form is Required
This form is to be completed, in addition to any State Form. The Field Form is submitted along with the Trace of Funds form that accompany the wage: components (i.e. with the cooler that is returned to the Wholesaler.)

Lithography Use Only 4b (1)

PURGE INFO	PURGE DATE (MM/DD/Y)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (Last run)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOL PURGED
	04/06/25	13:55	:			

Note: For Positive Sampling, replace "Under Hair in Casing" and "Ditch Hair in Road" with "Hair in Tire Tread" and "Hair in Casing" and "Hair in Road".

PURCHASE SAMPLE EQUIPMENT	Purging and Sampling Equipment: ☒ Dedicated ☐ or ☐ [N]		Filter Device: ☐ V ☒ or ☐ [N] ☐ 10 µm ☐ or ☐ [N] ☐ 5 µm ☐ or ☐ [N] ☐ 1 µm ☐ or ☐ [N] ☐ 0.45 µm ☐ or ☐ [N] ☐ 0.2 µm ☐ or ☐ [N] ☐ 0.1 µm ☐ or ☐ [N] ☐ 0.05 µm ☐ or ☐ [N] ☐ 0.01 µm ☐ or ☐ [N] ☐ 0.005 µm ☐ or ☐ [N] ☐ 0.001 µm ☐ or ☐ [N] ☐ 0.0005 µm ☐ or ☐ [N] ☐ 0.0001 µm ☐ or ☐ [N] ☐ 0.00005 µm ☐ or ☐ [N] ☐ 0.00001 µm ☐ or ☐ [N] ☐ 0.000005 µm ☐ or ☐ [N] ☐ 0.000001 µm ☐ or ☐ [N] ☐ 0.0000005 µm ☐ or ☐ [N] ☐ 0.0000001 µm ☐ or ☐ [N] ☐ 0.00000005 µm ☐ or ☐ [N] ☐ 0.00000001 µm ☐ or ☐ [N] ☐ 0.000000005 µm ☐ or ☐ [N] ☐ 0.000000001 µm ☐ or ☐ [N] ☐ 0.0000000005 µm ☐ or ☐ [N] ☐ 0.0000000001 µm ☐ or ☐ [N] ☐ 0.00000000005 µm ☐ or ☐ [N] ☐ 0.00000000001 µm ☐ or ☐ [N] ☐ 0.000000000005 µm ☐ or ☐ [N] ☐ 0.000000000001 µm ☐ or ☐ [N] ☐ 0.0000000000005 µm ☐ or ☐ [N] ☐ 0.0000000000001 µm ☐ or ☐ [N] ☐ 0.00000000000005 µm ☐ or ☐ [N] ☐ 0.00000000000001 µm ☐ or ☐ [N] ☐ 0.000000000000005 µm ☐ or ☐ [N] ☐ 0.000000000000001 µm ☐ or ☐ [N] ☐ 0.0000000000000005 µm ☐ or ☐ [N] ☐ 0.0000000000000001 µm ☐ or ☐ [N] ☐ 0.00000000000000005 µm ☐ or ☐ [N] ☐ 0.00000000000000001 µm ☐ or ☐ [N] ☐ 0.000000000000000005 µm ☐ or ☐ [N] ☐ 0.000000000000000001 µm ☐ or ☐ [N] ☐ 0.0000000000000000005 µm ☐ or ☐ [N] ☐ 0.0000000000000000001 µm ☐ or ☐ [N] ☐ 0.00000000000000000005 µm ☐ or ☐ [N] ☐ 0.00000000000000000001 µm ☐ or ☐ [N] ☐ 0.000000000000000000005 µm ☐ or ☐ [N] ☐ 0.000000000000000000001 µm ☐ or ☐ [N] ☐ 0.0000000000000000000005 µm ☐ or ☐ [N] ☐ 0.0000000000000000000001 µm ☐ or ☐ [N] ☐ 0.00000000000000000000005 µm ☐ or ☐ [N] ☐ 0.00000000000000000000001 µm ☐ or ☐ [N] ☐ 0.000000000000000000000005 µm ☐ or ☐ [N] ☐ 0.000000000000000000000001 µm ☐ or ☐ [N] ☐ 0.0000000000000000000000005 µm ☐ or ☐ [N] ☐ 0.0000000000000000000000001 µm ☐ or ☐ [N] ☐ 0.00000000000000000000000005 µm ☐ or ☐ [N] ☐ 0.00000000000000000000000001 µm ☐ or ☐ [N] ☐ 0.000000000000000000000000005 µm ☐ or ☐ [N] ☐ 0.000000000000000000000000001 µm ☐ or ☐ [N] ☐ 0.0000000000000000000000000005 µm ☐ or ☐ [N] ☐ 0.0000000000000000000000000001 µm ☐ or ☐ [N] ☐ 0.00000000000000000000000000005 µm ☐ or ☐ [N] ☐ 0.00000000000000000000000000001 µm ☐ or ☐ [N] ☐ 0.000000000000000000000000000005 µm ☐ or ☐ [N] ☐ 0.000000000000000000000000000001 µm ☐ or ☐ [N] ☐ 0.0000000000000000000000000000005 µm ☐ or ☐ [N] ☐ 0.0000000000000000000000000000001 µm ☐ or ☐ [N] ☐ 0.00000000000000000000000000000005 µm ☐ or ☐ [N] ☐ 0.00000000000000000000000000000001 µm ☐ or ☐ [N] ☐ 0.000000000000000000000000000000005 µm ☐ or ☐ [N] ☐ 0.000000000000000000000000000000001 µm ☐ or ☐ [N] ☐ 0.0000000000000000000000000000000005 µm ☐ or ☐ [N] ☐ 0.0000000000000000000000000000000001 µm ☐ or ☐ [N] ☐ 0.00000000000000000000000000000000005 µm ☐ or ☐ [N] ☐ 0.00000000000000000000000000000000001 µm ☐ or ☐ [N] ☐ 0.000000000000000000000000000000000005 µm ☐ or ☐ [N] ☐ 0.000000000000000000000000000000000001 µm ☐ or ☐ [N] ☐ 0.0000000000000000000000000000000000005 µm ☐ or ☐ [N] ☐ 0.0000000000000000000000000000000000001 µm ☐ or ☐ [N] ☐ 0.00000000000000000000000000000000000005 µm ☐ or ☐ [N] ☐ 0.00000000000000000000000000000000000001 µm ☐ or ☐ [N] ☐ 0.000000000000000000000000000000000000005 µm ☐ or ☐ [N] ☐ 0.000000000000000000000000000000000000001 µm ☐ or ☐ [N] ☐ 0.0000000000000000000000000000000000000005 µm ☐ or ☐ [N] ☐ 0.0000000000000000000000000000000000000001 µm ☐ or ☐ [N] ☐ 0.00000000000000000000000000000000000000005 µm ☐ or ☐ [N] ☐ 0.000000000000000	

WELL DATA	Well Elevation (at TOC)	576.5 (feet)	Depth to Water (DTW) (from TOC)	211.0 (ft)	Groundwater Elevation (see datum, from TOC)	349.5 (feet)
	Total Well Depth (from TOC)		Static Up (from ground elevation)		Casing ID	Casing Material

Note: Total Well Depth, Static Up, Casing ID, and casing material are to be from historical data, unless required by local permit. Well elevation, DTW, and groundwater elevation must be current.

[illegible]

Suggested range for J values: loadings in non-parallelism measurement

+ .10	+ .20	-	-	+ .30	+ .40	+ .50	Stable

Small/large Theta fields are critical: for a complete picture regarding the parameters required by RAN, SWA, or Study. These fields can be used where flow (4) and requirements are required by specific methods. If flow is given in other dimensions, it will still find residues before and within dimensions and segments in flow. It means further use as needed, use segments there or in.

[illegible]

Small Field Handoffs are required if a required field measurement is not captured during the previous sample readings before sampling for all field parameters required by State Regulations.

Sample Appearance: _____	Date: <u>Nov</u>	Color: <u>Red</u>	Other: _____
Weather Conditions (required daily, in seconds change):	Direction: _____	Speed: _____	Precipitation: <u>Y</u> or <u>N</u>

Specific Comments (including paragraph/line numbers if required):

FIELD COMMENTS

I certify that sampling procedures were in accordance with applicable EPA, State, and WWM protocols (if more than one sampler, all should sign).

Date _____
Name _____
Signature _____
Comments _____

INSTRUMENTATION: WHITEENGINEER - Scan & width Sample, TELCO - Reflected by 4' level

CLIENT COPY

Tip: When Making a merge, Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the other "Company Forms" that accompany the sample containers for use with the analyzer that is required for the laboratory.

L'abbonamento è per l'intera annata e comprende la consegna di 12 numeri.

Note: For Positive Sampling results "Wine Fold 1 (Control)" and "Wine Fold 2 (Control)" and "Wine Fold 3 (Control)" are all marked "Not changed" or "Not detected".

Sample Tube Type:

Note: Total Wet Depth, Fork Lip, Tummy (d. etc.) are optional and can be from anterior (dorsal) or posterior (ventral) views. Length measured to Snout-Mouth. Head Circumference (HC), and Girth (girth) are all optional. For all optional measurements, the measurement should be taken at the widest point.

STABILIZATION DATA (Continued)

Suggested tags for LaTeX marking on
new paragraphs: `\begin{document}`

[illegible]

Final Field Reading is calculated as: (total field measurements - first stabilized reading - previous sample readings before sampling for all field parameters) ÷ number of Stabilized Samples

Sample Appearance: _____ Date: NOV 6 Coln: NOV 6 Other: _____

Weather Conditions: Improved early, no sea conditions changed. Direction: Speed: 3.0. Outlook: Precipitation: Y or N

Specific Comments (including page(s) and volume calculations if required):

FIELD COMMENTS

I certify that sampling procedures were in accordance with applicable EPA, State, and WQS protocols (if more than one sample, all shall sign):

<u>11/10/79</u>	<u>Sunday School</u>	<u>12-</u>	<u>A. J. Miller</u>
Date	Name	Number	Covered

DISTRIBUTION: WHITEBARK (Na) - Starts with Fungible, YELLOW - Returned to CUC

CLIENT COPY

Laboratory: Lab 1: Intro to Lab 10

Note. For Positive Sampling, replace "Water Yet to Carry" and "Wild Yet Perched" with "How far in Flying Time Left to Turn Point" and "How far in Flying Time Left to Turn Point". More changes: pages 3-5, 6-8.

Sample Tube Type

Note: Total Well Depth 1664 Lbs. Capacity of rts. are indicated and are by from bottom of date: unclear required by inspection. Well Direction 177W, and (Liquor) 70°F, getting out of range.

Συντάκτης: Γεώργιος Α. Παπαδόπουλος
Εκδόσεις: 2008

Subdivision Name Florida Bay National *1/2* complete maintenance activity, for improvements required by 1996 SDG, in Silver. These fields are on land where prior (4) bird nesting areas are required by Silver Creek, Inc. If a Data Logger is used this more formal is used. All the fields readings below and above Silver Creek are: prior study by Silver Creek. The fields above are needed, not serious all types of the

Fig. 1. The dependence of the rate of the reaction of the formation of the product on the concentration of the reactants. The reaction is carried out in the presence of a catalyst. The reaction is carried out in the presence of a catalyst. The reaction is carried out in the presence of a catalyst.

Specific Comments (including purge cell volume calculations, if required):

Identify two sampling procedures were in accordance with applicable EPA, State, and local requirements of monitoring one sample, all should have

Type

History

5. 4.12.1974

4-5709-76

INSTRUMENTATION WHITEHOUSE ORIGINAL Spent with Sample, VEIL JAW. Revisited in Clinic

CLIENT COPY

This Waiver Must Accompany Child Information Form A, Required
This form is to be completed, in addition to the Sale Form A and 7 (if) Forms, submitted along with the Turn of Custody Form that accompany the property, circumstances (i.e., with the creditor that is assigned to the property).

Experimental & Applied Acoustics 10 (1989) 1-10

WILLIAMS

FIFTY

Note: For Purpose Summary tables "Have (old) none" and "Was (old) none"; "Have (old) in fabric (new) old and (new) (old) new" and "Have (old) in fabric (new) old and (new) (old) new" are listed as being

См. также
Материалы

[illegible]

יטו
ח:

...

1	2

11

1. 100%

Knowledgeable Data Fields are Required for complete registration in, and for processing required by, the State of Utah. These fields can be used where the field number entries are required by the State of Utah. If a field number is other than those listed in the field number entries below and above, please use the field number field above the number, and indicate that the field number is other than those listed in the field number entries below and above.

1) **Header:**
 1 nlla

[Final Field Release](#) is provided. We record final measurements, final structural readings, passive acoustic readings before sampling; for all birds pass over or stopped by Swiss Permit Holders.

One-

Termination: Y or N

Specific Comments (including pump/well volume calculations, if required):

add sign: *[Signature]*

I certify that sampling procedures were in accordance with applicable EPA, State, and WQA protocols (if more than one sampler, all should sign).

Conclusions

DISTRIBUTION: WHITE-ORIGINAL - Ship with Seagull. YELLOW - Returned to Client

CLIENT COPY

WMA
THE NATIONAL ASSOCIATION OF MUSIC AND ARTS

Labware Use Class ab 112

WELL VOL:
BUDGET:[illegible]

NOTE: Total Audit Charge: Start-Up Charge is for one session and can be done virtually. In: wife required by the Partner. It is the author, LITB and LITB are not responsible for any loss of data.

DTA
CBI

4.111

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

1

1

1

1

1

Suggested range for 1 course level preparation
and Florida State 1-credit students

Stabilization Data Fields are Optional for complete stabilization tracks for parameters required by WSM, SWE, or SCS. These fields are not used when Row (4) field measurements are required for Superintendence. If a data logger is used, it must record and report minimum flow continuously. If more fields than are needed are used, the number must be reported in the field.

Unit:

Fast Field Readouts are available (i.e. room/fault measurement) from standard voltage panels / single channels before installing the AC field; no need for removal of circuit breakers.

Specific Comments (including pump/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WQM protocols (if more than one sampler, all should sign):

1892

Грехови

THISTRUBITION. WHITE ON GIGAL - Glass with Same. YELLOW - Redwood on Black

CLIENT COPY

APPENDIX B

Field Notes

ERL - Spring GW

MRH

4/15/05 0700-0800 Prep

0800-1900 J. J. Smith / Pol Daniel Harkes BOR

S

FE

P325 0.03

1.76

P324 0.03

23.30

P323 0.80

2.17

P321 0.28

0.74

P320 L

J. J. Smith / Scherburne Co. on it

P320 C2

J. J. Smith + Daniel off site

P320 C

P290

~~P320 L~~

ERL-Spring 2025

4/1/25 0630-0700 P-3

0700 - 1830 T.V. / P-5

KMS, MITT David HOFF

Sample	PLANT	FLOR	GRD	PFAS
P338L		PFAS		
P334L		PFAS	Drip	

	S	Fe ⁺⁺
P338L	0.11	1.38
P334L	0.16	0.98
P302C	BDL	1.54

P29C
P301C
P302C

KM S-1

P305C
P311L
P311D
P315L

ERL - Spring 2025

4/17/25 0600-0700 Rep

0700-1730 Dining car. & Post

Daniel Heikes FOR onsite

	S	Fe ⁺⁺
P313C	20.80	0.61
P304C	0.05	0.40
P342L	0.06	0.43

Daniel Heikes offsite

P322L

P314C

P324L

P335C

KMS sampled

401 OWA

408 OWA

P 329L

P 301L

P 403C

ERL - Spring 2025

4/10/25 0800 - 0900 Price delivery
0900 - 0930 Prep
0930 - 1400 Dining / lunch with KAS

Pump installed in P342C

Sailed

P342C

P333L

ERL

5/19/25 10:45 ERL

5 hr prep

900 - 1400 ONSITE/Drilling
Gallons Purged

17 45 ~ 2

16 0

15 0

14 45 ~ 1

13 45 ~ 1

12 0

was 5/19/25

~~11 45 ~ 10~~ sample

18 NO PUMP

19 45 ~ 3

20 45 ~ 2

6N - 371565 Totalizer reading

APPENDIX C

Chain of Custody

[illegible]

[illegible]

Company Name/Address		Billing Information		Analysis / Contactor / Representative		Chain of Custody		Page	
Elk River Landfill 4300 Market@n1 Drive Suite 200 Minneapolis, MN 55435		Accounts Payable / mkostre@wm.com P.O. Box 4745 Portland, OR 97208-4745		Flow Co. C. PAT CT CT		Page <u>1</u> of <u>1</u>		Page <u>1</u> of <u>1</u>	
Report to: Jim Eldem 952-832-2853		Client Project # WMELKRIVANN-00011		Flow Co. C. PAT CT CT		Page <u>1</u> of <u>1</u>		Page <u>1</u> of <u>1</u>	
Project Description: Quarterly Routine GW-GW STD uels		Site/Facility ID # PAN02		Flow Co. C. PAT CT CT		Page <u>1</u> of <u>1</u>		Page <u>1</u> of <u>1</u>	
Regulatory Program(s): 0002, 0004, 0005, 0006, 0007, 0008, 0009, 0010, 0011, 0012, 0013, 0014, 0015, 0016, 0017, 0018, 0019, 0020, 0021, 0022, 0023, 0024, 0025, 0026, 0027, 0028, 0029, 0030, 0031, 0032, 0033, 0034, 0035, 0036, 0037, 0038, 0039, 0040, 0041, 0042, 0043, 0044, 0045, 0046, 0047, 0048, 0049, 0050, 0051, 0052, 0053, 0054, 0055, 0056, 0057, 0058, 0059, 0060, 0061, 0062, 0063, 0064, 0065, 0066, 0067, 0068, 0069, 0070, 0071, 0072, 0073, 0074, 0075, 0076, 0077, 0078, 0079, 0080, 0081, 0082, 0083, 0084, 0085, 0086, 0087, 0088, 0089, 0090, 0091, 0092, 0093, 0094, 0095, 0096, 0097, 0098, 0099, 0100, 0101, 0102, 0103, 0104, 0105, 0106, 0107, 0108, 0109, 0110, 0111, 0112, 0113, 0114, 0115, 0116, 0117, 0118, 0119, 0120, 0121, 0122, 0123, 0124, 0125, 0126, 0127, 0128, 0129, 0130, 0131, 0132, 0133, 0134, 0135, 0136, 0137, 0138, 0139, 0140, 0141, 0142, 0143, 0144, 0145, 0146, 0147, 0148, 0149, 0150, 0151, 0152, 0153, 0154, 0155, 0156, 0157, 0158, 0159, 0160, 0161, 0162, 0163, 0164, 0165, 0166, 0167, 0168, 0169, 0170, 0171, 0172, 0173, 0174, 0175, 0176, 0177, 0178, 0179, 0180, 0181, 0182, 0183, 0184, 0185, 0186, 0187, 0188, 0189, 0190, 0191, 0192, 0193, 0194, 0195, 0196, 0197, 0198, 0199, 0200, 0201, 0202, 0203, 0204, 0205, 0206, 0207, 0208, 0209, 0210, 0211, 0212, 0213, 0214, 0215, 0216, 0217, 0218, 0219, 0220, 0221, 0222, 0223, 0224, 0225, 0226, 0227, 0228, 0229, 0230, 0231, 0232, 0233, 0234, 0235, 0236, 0237, 0238, 0239, 0240, 0241, 0242, 0243, 0244, 0245, 0246, 0247, 0248, 0249, 0250, 0251, 0252, 0253, 0254, 0255, 0256, 0257, 0258, 0259, 0260, 0261, 0262, 0263, 0264, 0265, 0266, 0267, 0268, 0269, 0270, 0271, 0272, 0273, 0274, 0275, 0276, 0277, 0278, 0279, 0280, 0281, 0282, 0283, 0284, 0285, 0286, 0287, 0288, 0289, 0290, 0291, 0292, 0293, 0294, 0295, 0296, 0297, 0298, 0299, 0300, 0301, 0302, 0303, 0304, 0305, 0306, 0307, 0308, 0309, 0310, 0311, 0312, 0313, 0314, 0315, 0316, 0317, 0318, 0319, 0320, 0321, 0322, 0323, 0324, 0325, 0326, 0327, 0328, 0329, 0330, 0331, 0332, 0333, 0334, 0335, 0336, 0337, 0338, 0339, 0340, 0341, 0342, 0343, 0344, 0345, 0346, 0347, 0348, 0349, 0350, 0351, 0352, 0353, 0354, 0355, 0356, 0357, 0358, 0359, 0360, 0361, 0362, 0363, 0364, 0365, 0366, 0367, 0368, 0369, 0370, 0371, 0372, 0373, 0374, 0375, 0376, 0377, 0378, 0379, 0380, 0381, 0382, 0383, 0384, 0385, 0386, 0387, 0388, 0389, 0390, 0391, 0392, 0393, 0394, 0395, 0396, 0397, 0398, 0399, 0400, 0401, 0402, 0403, 0404, 0405, 0406, 0407, 0408, 0409, 0410, 0411, 0412, 0413, 0414, 0415, 0416, 0417, 0418, 0419, 0420, 0421, 0422, 0423, 0424, 0425, 0426, 0427, 0428, 0429, 0430, 0431, 0432, 0433, 0434, 0435, 0436, 0437, 0438, 0439, 0440, 0441, 0442, 0443, 0444, 0445, 0446, 0447, 0448, 0449, 0450, 0451, 0452, 0453, 0454, 0455, 0456, 0457, 0458, 0459, 0460, 0461, 0462, 0463, 0464, 0465, 0466, 0467, 0468, 0469, 0470, 0471, 0472, 0473, 0474, 0475, 0476, 0477, 0478, 0479, 0480, 0481, 0482, 0483, 0484, 0485, 0486, 0487, 0488, 0489, 0490, 0491, 0492, 0493, 0494, 0495, 0496, 0497, 0498, 0499, 0500, 0501, 0502, 0503, 0504, 0505, 0506, 0507, 0508, 0509, 0510, 0511, 0512, 0513, 0514, 0515, 0516, 0517, 0518, 0519, 0520, 0521, 0522, 0523, 0524, 0525, 0526, 0527, 0528, 0529, 0530, 0531, 0532, 0533, 0534, 0535, 0536, 0537, 0538, 0539, 0540, 0541, 0542, 0543, 0544, 0545, 0546, 0547, 0548, 0549, 0550, 0551, 0552, 0553, 0554, 0555, 0556, 0557, 0558, 0559, 0560, 0561, 0562, 0563, 0564, 0565, 0566, 0567, 0568, 0569, 0570,									

Appendix B

Laboratory Reports



January 29, 2025

Anna Schneider
Barr Engineering
4300 MarketPointe Dr
Suite 200
Minneapolis, MN 55435

RE: Project: Elk River PFC Quarterly
Pace Project No.: 10720955

Dear Anna Schneider:

Enclosed are the analytical results for sample(s) received by the laboratory on January 14, 2025. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Minneapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Piper Gibbs
piper.gibbs@pacelabs.com
(612)607-6456
Project Manager

Enclosures

cc: Jim Eidem, Barr Engineering
Michelle Kostrzewski, Waste Management National
Services
Margaret Treanor, Barr Engineering
Al West, Barr Engineering



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



CERTIFICATIONS

Project: Elk River PFC Quarterly

Pace Project No.: 10720955

Pace Analytical Services, LLC - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

DoD Certification via A2LA #: 2926.01

EPA Region 8 Tribal Water Systems+Wyoming DW
Certification #: via MN 027-053-137

Florida Certification #: E87605

Georgia Certification #: 959

GMP+ Certification #: GMP050884

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

ISO/IEC 17025 Certification via A2LA #: 2926.01

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: AI-03086

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064

Maryland Certification #: 322

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Approval: via MN 027-053-137

Minnesota Petrofund Registration #: 1240

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081

New Jersey Certification #: MN002

New York Certification #: 11647

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification (A2LA) #: R-036

North Dakota Certification (MN) #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification (1700) #: CL101

Oklahoma Certification #: 9507

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification #: MN00064

South Carolina Certification #: 74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Vermont Certification #: VT-027053137

Virginia Certification #: 460163

Washington Certification #: C486

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification via A2LA #: 2926.01

USDA Permit #: P330-19-00208

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



SAMPLE SUMMARY

Project: Elk River PFC Quarterly

Pace Project No.: 10720955

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10720955001	SP-01 Leachate	Water	01/13/25 13:30	01/14/25 08:45

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



SAMPLE ANALYTE COUNT

Project: Elk River PFC Quarterly

Pace Project No.: 10720955

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10720955001	SP-01 Leachate	EPA 1633 DRAFT	MJL	64	PASI-M

PASI-M = Pace Analytical Services - Minneapolis

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



PROJECT NARRATIVE

Project: Elk River PFC Quarterly

Pace Project No.: 10720955

Method: EPA 1633 DRAFT

Description: EPA 1633 DRAFT Landfill Leach

Client: Waste Management National Services, Inc.

Date: January 29, 2025

General Information:

1 sample was analyzed for EPA 1633 DRAFT by Pace Analytical Services Minneapolis. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 1633 DRAFT with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

QC Batch: 989130

S0: Surrogate recovery outside laboratory control limits.

- SP-01 Leachate (Lab ID: 10720955001)
 - 13C2-PFTA (S)
 - 13C24:2FTS (S)
 - 13C4-PFBA (S)
 - 13C5-PFPeA (S)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



ANALYTICAL RESULTS

Project: Elk River PFC Quarterly

Pace Project No.: 10720955

Sample: SP-01 Leachate		Lab ID: 10720955001		Collected: 01/13/25 13:30		Received: 01/14/25 08:45		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
EPA 1633 DRAFT Landfill Leach		Analytical Method: EPA 1633 DRAFT Preparation Method: EPA 1633 DRAFT Pace Analytical Services - Minneapolis							
11CI-PF3OUdS	ND	ng/L	30.1	1	01/23/25 13:49	01/24/25 15:46	763051-92-9		
3:3 FTCA	ND	ng/L	37.6	1	01/23/25 13:49	01/24/25 15:46	356-02-5		
4:2 FTS	ND	ng/L	30.1	1	01/23/25 13:49	01/24/25 15:46	757124-72-4		
5:3 FTCA	57500	ng/L	188	1	01/23/25 13:49	01/24/25 15:46	914637-49-3		
6:2 FTS	321	ng/L	30.1	1	01/23/25 13:49	01/24/25 15:46	27619-97-2		
7:3 FTCA	4610	ng/L	188	1	01/23/25 13:49	01/24/25 15:46	812-70-4		
8:2 FTS	ND	ng/L	30.1	1	01/23/25 13:49	01/24/25 15:46	39108-34-4		
9CI-PF3ONS	ND	ng/L	30.1	1	01/23/25 13:49	01/24/25 15:46	756426-58-1		
ADONA	ND	ng/L	30.1	1	01/23/25 13:49	01/24/25 15:46	919005-14-4		
HFPO-DA	ND	ng/L	30.1	1	01/23/25 13:49	01/24/25 15:46	13252-13-6		
NEtFOSAA	59.4	ng/L	7.5	1	01/23/25 13:49	01/24/25 15:46	2991-50-6		
NEtFOSA	ND	ng/L	7.5	1	01/23/25 13:49	01/24/25 15:46	4151-50-2		
NEtFOSE	157	ng/L	75.3	1	01/23/25 13:49	01/24/25 15:46	1691-99-2		
NFDHA	ND	ng/L	15.1	1	01/23/25 13:49	01/24/25 15:46	151772-58-6		
NMeFOSAA	157	ng/L	7.5	1	01/23/25 13:49	01/24/25 15:46	2355-31-9		
NMeFOSA	ND	ng/L	7.5	1	01/23/25 13:49	01/24/25 15:46	31506-32-8		
NMeFOSE	359	ng/L	75.3	1	01/23/25 13:49	01/24/25 15:46	24448-09-7		
PFBS	6660	ng/L	7.5	1	01/23/25 13:49	01/24/25 15:46	375-73-5		
PFDA	47.5	ng/L	7.5	1	01/23/25 13:49	01/24/25 15:46	335-76-2		
PFHxA	4900	ng/L	7.5	1	01/23/25 13:49	01/24/25 15:46	307-24-4		
PFBA	1900	ng/L	30.1	1	01/23/25 13:49	01/24/25 15:46	375-22-4		
PFDS	ND	ng/L	7.5	1	01/23/25 13:49	01/24/25 15:46	335-77-3		
PFDoS	ND	ng/L	7.5	1	01/23/25 13:49	01/24/25 15:46	79780-39-5		
PFEESA	ND	ng/L	15.1	1	01/23/25 13:49	01/24/25 15:46	113507-82-7		
PFHpS	ND	ng/L	7.5	1	01/23/25 13:49	01/24/25 15:46	375-92-8		
PFMBA	ND	ng/L	15.1	1	01/23/25 13:49	01/24/25 15:46	863090-89-5		
PFMPA	ND	ng/L	15.1	1	01/23/25 13:49	01/24/25 15:46	377-73-1		
PFNS	ND	ng/L	7.5	1	01/23/25 13:49	01/24/25 15:46	68259-12-1		
PFOSA	17.5	ng/L	7.5	1	01/23/25 13:49	01/24/25 15:46	754-91-6		
PFPeA	1660	ng/L	15.1	1	01/23/25 13:49	01/24/25 15:46	2706-90-3		
PFPeS	22.6	ng/L	7.5	1	01/23/25 13:49	01/24/25 15:46	2706-91-4		
PFDoA	ND	ng/L	7.5	1	01/23/25 13:49	01/24/25 15:46	307-55-1		
PFHpA	550	ng/L	7.5	1	01/23/25 13:49	01/24/25 15:46	375-85-9		
PFHxS	595	ng/L	7.5	1	01/23/25 13:49	01/24/25 15:46	355-46-4		
PFNA	58.2	ng/L	7.5	1	01/23/25 13:49	01/24/25 15:46	375-95-1		
PFOS	191	ng/L	7.5	1	01/23/25 13:49	01/24/25 15:46	1763-23-1		
PFOA	1550	ng/L	7.5	1	01/23/25 13:49	01/24/25 15:46	335-67-1		
PFTeDA	ND	ng/L	7.5	1	01/23/25 13:49	01/24/25 15:46	376-06-7		
PFTTrDA	ND	ng/L	7.5	1	01/23/25 13:49	01/24/25 15:46	72629-94-8		
PFUnA	ND	ng/L	7.5	1	01/23/25 13:49	01/24/25 15:46	2058-94-8		
Surrogates									
13C2-PFDoA (S)	37	%.	35-130	1	01/23/25 13:49	01/24/25 15:46			
13C3HFPO-DA (S)	53	%.	40-130	1	01/23/25 13:49	01/24/25 15:46			
13C3-PFBS (S)	67	%.	40-130	1	01/23/25 13:49	01/24/25 15:46			
13C3-PFHxS (S)	96	%.	40-130	1	01/23/25 13:49	01/24/25 15:46			
13C4-PFBA (S)	3	%.	5-130	1	01/23/25 13:49	01/24/25 15:46	S0		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



ANALYTICAL RESULTS

Project: Elk River PFC Quarterly

Pace Project No.: 10720955

Sample: SP-01 Leachate		Lab ID: 10720955001		Collected: 01/13/25 13:30		Received: 01/14/25 08:45		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
EPA 1633 DRAFT Landfill Leach		Analytical Method: EPA 1633 DRAFT Preparation Method: EPA 1633 DRAFT Pace Analytical Services - Minneapolis							
Surrogates									
13C4-PFHpA (S)	106	%.	40-130	1	01/23/25 13:49	01/24/25 15:46			
13C5-PFHxA (S)	47	%.	40-130	1	01/23/25 13:49	01/24/25 15:46			
13C5-PFPeA (S)	10	%.	40-130	1	01/23/25 13:49	01/24/25 15:46			S0
13C6-PFDA (S)	79	%.	40-130	1	01/23/25 13:49	01/24/25 15:46			
13C8-PFOA (S)	104	%.	40-130	1	01/23/25 13:49	01/24/25 15:46			
13C8-PFOS (S)	87	%.	40-130	1	01/23/25 13:49	01/24/25 15:46			
13C8-PFOSA (S)	87	%.	40-130	1	01/23/25 13:49	01/24/25 15:46			
13C9-PFNA (S)	90	%.	40-130	1	01/23/25 13:49	01/24/25 15:46			
d3-MeFOSAA (S)	75	%.	35-130	1	01/23/25 13:49	01/24/25 15:46			
d3-NMeFOSA (S)	50	%.	40-130	1	01/23/25 13:49	01/24/25 15:46			
d5-EtFOSAA (S)	82	%.	30-130	1	01/23/25 13:49	01/24/25 15:46			
d5-NEtFOSA (S)	46	%.	35-130	1	01/23/25 13:49	01/24/25 15:46			
d7-NMeFOSE (S)	50	%.	20-130	1	01/23/25 13:49	01/24/25 15:46			
d9-NEtFOSE (S)	42	%.	20-130	1	01/23/25 13:49	01/24/25 15:46			
13C2-PFTA (S)	16	%.	25-130	1	01/23/25 13:49	01/24/25 15:46			S0
13C7-PFUDa (S)	58	%.	40-130	1	01/23/25 13:49	01/24/25 15:46			
13C24:2FTS (S)	6	%.	40-220	1	01/23/25 13:49	01/24/25 15:46			S0
13C26:2FTS (S)	88	%.	40-170	1	01/23/25 13:49	01/24/25 15:46			
13C28:2FTS (S)	116	%.	40-145	1	01/23/25 13:49	01/24/25 15:46			

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



QUALITY CONTROL DATA

Project: Elk River PFC Quarterly
Pace Project No.: 10720955

QC Batch:	989130	Analysis Method:	EPA 1633 DRAFT
QC Batch Method:	EPA 1633 DRAFT	Analysis Description:	EPA 1633 DRAFT Landfill Leach
		Laboratory:	Pace Analytical Services - Minneapolis

Associated Lab Samples: 10720955001

METHOD BLANK: 5164704 Matrix: Water

Associated Lab Samples: 10720955001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
11CI-PF3OUdS	ng/L	ND	26.4	01/24/25 12:47	
3:3 FTCA	ng/L	ND	33.0	01/24/25 12:47	
4:2 FTS	ng/L	ND	26.4	01/24/25 12:47	
5:3 FTCA	ng/L	ND	165	01/24/25 12:47	
6:2 FTS	ng/L	ND	26.4	01/24/25 12:47	
7:3 FTCA	ng/L	ND	165	01/24/25 12:47	
8:2 FTS	ng/L	ND	26.4	01/24/25 12:47	
9CI-PF3ONS	ng/L	ND	26.4	01/24/25 12:47	
ADONA	ng/L	ND	26.4	01/24/25 12:47	
HFPO-DA	ng/L	ND	26.4	01/24/25 12:47	
NEtFOSA	ng/L	ND	6.6	01/24/25 12:47	
NEtFOSAA	ng/L	ND	6.6	01/24/25 12:47	
NEtFOSE	ng/L	ND	66.0	01/24/25 12:47	
NFDHA	ng/L	ND	13.2	01/24/25 12:47	
NMeFOSA	ng/L	ND	6.6	01/24/25 12:47	
NMeFOSAA	ng/L	ND	6.6	01/24/25 12:47	
NMeFOSE	ng/L	ND	66.0	01/24/25 12:47	
PFBA	ng/L	ND	26.4	01/24/25 12:47	
PFBS	ng/L	ND	6.6	01/24/25 12:47	
PFDA	ng/L	ND	6.6	01/24/25 12:47	
PFDoA	ng/L	ND	6.6	01/24/25 12:47	
PFDoS	ng/L	ND	6.6	01/24/25 12:47	
PFDS	ng/L	ND	6.6	01/24/25 12:47	
PFEESA	ng/L	ND	13.2	01/24/25 12:47	
PFHpA	ng/L	ND	6.6	01/24/25 12:47	
PFHpS	ng/L	ND	6.6	01/24/25 12:47	
PFHxA	ng/L	ND	6.6	01/24/25 12:47	
PFHxS	ng/L	ND	6.6	01/24/25 12:47	
PFMBA	ng/L	ND	13.2	01/24/25 12:47	
PFMPA	ng/L	ND	13.2	01/24/25 12:47	
PFNA	ng/L	ND	6.6	01/24/25 12:47	
PFNS	ng/L	ND	6.6	01/24/25 12:47	
PFOA	ng/L	ND	6.6	01/24/25 12:47	
PFOS	ng/L	ND	6.6	01/24/25 12:47	
PFOSA	ng/L	ND	6.6	01/24/25 12:47	
PFPeA	ng/L	ND	13.2	01/24/25 12:47	
PFPeS	ng/L	ND	6.6	01/24/25 12:47	
PFTeDA	ng/L	ND	6.6	01/24/25 12:47	
PFTrDA	ng/L	ND	6.6	01/24/25 12:47	
PFUnA	ng/L	ND	6.6	01/24/25 12:47	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



QUALITY CONTROL DATA

Project: Elk River PFC Quarterly
Pace Project No.: 10720955

METHOD BLANK: 5164704

Matrix: Water

Associated Lab Samples: 10720955001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
13C2-PFD0A (S)	%.	78	35-130	01/24/25 12:47	
13C2-PFTA (S)	%.	70	25-130	01/24/25 12:47	
13C24:2FTS (S)	%.	54	40-220	01/24/25 12:47	
13C26:2FTS (S)	%.	61	40-170	01/24/25 12:47	
13C28:2FTS (S)	%.	66	40-145	01/24/25 12:47	
13C3-PFBS (S)	%.	97	40-130	01/24/25 12:47	
13C3-PFHxS (S)	%.	100	40-130	01/24/25 12:47	
13C3HFPO-DA (S)	%.	96	40-130	01/24/25 12:47	
13C4-PFBA (S)	%.	92	5-130	01/24/25 12:47	
13C4-PFHpA (S)	%.	90	40-130	01/24/25 12:47	
13C5-PFHxA (S)	%.	94	40-130	01/24/25 12:47	
13C5-PFPeA (S)	%.	93	40-130	01/24/25 12:47	
13C6-PFDA (S)	%.	86	40-130	01/24/25 12:47	
13C7-PFUDa (S)	%.	79	40-130	01/24/25 12:47	
13C8-PFOA (S)	%.	94	40-130	01/24/25 12:47	
13C8-PFOS (S)	%.	92	40-130	01/24/25 12:47	
13C8-PFOSA (S)	%.	72	40-130	01/24/25 12:47	
13C9-PFNA (S)	%.	94	40-130	01/24/25 12:47	
d3-MeFOSAA (S)	%.	80	35-130	01/24/25 12:47	
d3-NMeFOSA (S)	%.	68	40-130	01/24/25 12:47	
d5-EtFOSAA (S)	%.	77	30-130	01/24/25 12:47	
d5-NEtFOSA (S)	%.	68	35-130	01/24/25 12:47	
d7-NMeFOSE (S)	%.	76	20-130	01/24/25 12:47	
d9-NEtFOSE (S)	%.	74	20-130	01/24/25 12:47	

LABORATORY CONTROL SAMPLE & LCSD: 5164705

5164706

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
11CI-PF3OUdS	ng/L	388	246	291	63	75	55-160	17	30	
3:3 FTCA	ng/L	514	444	436	86	85	65-130	2	30	
4:2 FTS	ng/L	386	353	311	91	81	70-145	12	30	
5:3 FTCA	ng/L	2570	2090	2100	81	82	70-135	0	30	
6:2 FTS	ng/L	391	364	338	93	87	65-155	7	30	
7:3 FTCA	ng/L	2570	2050	2040	80	80	50-145	1	30	
8:2 FTS	ng/L	396	390	361	98	92	60-150	8	30	
9CI-PF3ONS	ng/L	386	299	324	78	84	70-155	8	30	
ADONA	ng/L	388	342	330	88	85	65-145	4	30	
HFPO-DA	ng/L	411	351	344	85	84	70-140	2	30	
NEtFOSA	ng/L	103	93.4	82.5	91	81	65-145	12	30	
NEtFOSAA	ng/L	103	86.8	79.2	84	78	70-145	9	30	
NEtFOSE	ng/L	1030	937	838	91	82	70-135	11	30	
NFDHA	ng/L	206	175	172	85	84	50-150	2	30	
NMeFOSA	ng/L	103	94.9	87.6	92	86	60-150	8	30	
NMeFOSAA	ng/L	103	97.7	78.7	95	77	50-140	22	30	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



QUALITY CONTROL DATA

Project: Elk River PFC Quarterly

Pace Project No.: 10720955

LABORATORY CONTROL SAMPLE & LCSD: 5164705

5164706

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
NMeFOSE	ng/L	1030	946	849	92	83	70-145	11	30	
PFBA	ng/L	411	369	329	90	81	70-140	11	30	
PFBS	ng/L	91.3	80.4	72.7	88	80	60-145	10	30	
PFDA	ng/L	103	91.6	82.5	89	81	70-140	10	30	
PFDaA	ng/L	103	92.6	84.4	90	83	70-140	9	30	
PFDoS	ng/L	99.7	67.9	71.7	68	72	50-145	5	30	
PFDS	ng/L	99.2	71.7	75.0	72	76	60-145	4	30	
PFEESA	ng/L	183	151	148	82	81	70-140	2	30	
PFHpA	ng/L	103	92.0	83.5	90	82	70-150	10	30	
PFHpS	ng/L	97.9	93.1	79.0	95	81	70-150	16	30	
PFHxA	ng/L	103	91.7	82.8	89	81	70-145	10	30	
PFHxS	ng/L	94.1	80.7	72.6	86	78	65-145	11	30	
PFMBA	ng/L	206	192	176	93	86	60-150	8	30	
PFMPA	ng/L	206	196	178	95	87	55-140	10	30	
PFNA	ng/L	103	90.1	83.2	88	81	70-150	8	30	
PFNS	ng/L	99	78.7	80.5	79	82	65-145	2	30	
PFOA	ng/L	103	90.7	79.3	88	78	70-150	13	30	
PFOS	ng/L	95.4	84.7	72.8	89	77	55-150	15	30	
PFOSA	ng/L	103	90.8	81.2	88	79	70-145	11	30	
PFPeA	ng/L	206	183	163	89	80	65-135	11	30	
PFPeS	ng/L	96.7	85.4	76.6	88	80	65-140	11	30	
PFTeDA	ng/L	103	92.2	81.7	90	80	60-140	12	30	
PFTrDA	ng/L	103	93.4	79.3	91	78	65-140	16	30	
PFUnA	ng/L	103	90.8	87.3	88	85	70-145	4	30	
13C2-PFDoA (S)	%				75	88	35-130			
13C2-PFTA (S)	%				75	80	25-130			
13C24:2FTS (S)	%				50	52	40-220			
13C26:2FTS (S)	%				61	61	40-170			
13C28:2FTS (S)	%				64	64	40-145			
13C3-PFBS (S)	%				99	102	40-130			
13C3-PFHxS (S)	%				100	103	40-130			
13C3HFPO-DA (S)	%				100	102	40-130			
13C4-PFBA (S)	%				95	98	5-130			
13C4-PFHpA (S)	%				95	98	40-130			
13C5-PFHxA (S)	%				99	99	40-130			
13C5-PFPeA (S)	%				97	101	40-130			
13C6-PFDA (S)	%				93	97	40-130			
13C7-PFUdA (S)	%				82	90	40-130			
13C8-PFOA (S)	%				96	98	40-130			
13C8-PFOS (S)	%				90	98	40-130			
13C8-PFOSA (S)	%				76	82	40-130			
13C9-PFNA (S)	%				94	102	40-130			
d3-MeFOSAA (S)	%				76	89	35-130			
d3-NMeFOSA (S)	%				74	74	40-130			
d5-EtFOSAA (S)	%				71	80	30-130			
d5-NEtFOSA (S)	%				75	77	35-130			
d7-NMeFOSE (S)	%				79	83	20-130			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



QUALITY CONTROL DATA

Project: Elk River PFC Quarterly

Pace Project No.: 10720955

LABORATORY CONTROL SAMPLE & LCSD: 5164705

5164706

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
d9-NEtFOSE (S)	%.				79	81	20-130			

LABORATORY CONTROL SAMPLE: 5164707

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
11Cl-PF3OUdS	ng/L	32	26.1J	82	55-160	
3:3 FTCA	ng/L	42.3	37.6	89	65-130	
4:2 FTS	ng/L	31.8	28.3	89	70-145	
5:3 FTCA	ng/L	212	179	84	70-135	
6:2 FTS	ng/L	32.2	29.5	92	65-155	
7:3 FTCA	ng/L	212	164J	77	50-145	
8:2 FTS	ng/L	32.6	28.1	86	60-150	
9Cl-PF3ONS	ng/L	31.8	28.0	88	70-155	
ADONA	ng/L	32	30.3	95	65-145	
HFPO-DA	ng/L	33.9	34.2	101	70-140	
NEtFOSA	ng/L	8.5	7.6	90	65-145	
NEtFOSAA	ng/L	8.5	6.7J	79	70-145	
NEtFOSE	ng/L	84.7	77.5	92	70-135	
NFDHA	ng/L	16.9	14.1	83	50-150	
NMeFOSA	ng/L	8.5	7.6	90	60-150	
NMeFOSAA	ng/L	8.5	7.4	87	50-140	
NMeFOSE	ng/L	84.7	73.8	87	70-145	
PFBA	ng/L	33.9	31.7	94	70-140	
PFBS	ng/L	7.5	6.3J	84	60-145	
PFDA	ng/L	8.5	7.3	86	70-140	
PFDoA	ng/L	8.5	7.1	83	70-140	
PFDoS	ng/L	8.2	6.4J	78	50-145	
PFDS	ng/L	8.2	6.8	83	60-145	
PFEESA	ng/L	15.1	12.6J	84	70-140	
PFHpA	ng/L	8.5	7.4	88	70-150	
PFHpS	ng/L	8.1	7.4	91	70-150	
PFHxA	ng/L	8.5	7.7	91	70-145	
PFHxS	ng/L	7.7	7.3	94	65-145	
PFMBA	ng/L	16.9	15.4	91	60-150	
PFMPA	ng/L	16.9	15.6	92	55-140	
PFNA	ng/L	8.5	6.8	81	70-150	
PFNS	ng/L	8.1	7.2	88	65-145	
PFOA	ng/L	8.5	7.6	90	70-150	
PFOS	ng/L	7.9	7.4	94	55-150	
PFOSA	ng/L	8.5	7.4	87	70-145	
PFPeA	ng/L	16.9	15.2	90	65-135	
PFPeS	ng/L	8	7.1	90	65-140	
PFTeDA	ng/L	8.5	6.7J	79	60-140	
PFTrDA	ng/L	8.5	7.2	85	65-140	
PFUnA	ng/L	8.5	7.4	87	70-145	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

**QUALITY CONTROL DATA**

Project: Elk River PFC Quarterly

Pace Project No.: 10720955

LABORATORY CONTROL SAMPLE: 5164707

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
13C2-PFDoA (S)	%.			83	35-130	
13C2-PFTA (S)	%.			75	25-130	
13C24:2FTS (S)	%.			51	40-220	
13C26:2FTS (S)	%.			63	40-170	
13C28:2FTS (S)	%.			65	40-145	
13C3-PFBS (S)	%.			103	40-130	
13C3-PFHxS (S)	%.			101	40-130	
13C3HFPO-DA (S)	%.			92	40-130	
13C4-PFBA (S)	%.			91	5-130	
13C4-PFHpA (S)	%.			89	40-130	
13C5-PFHxA (S)	%.			90	40-130	
13C5-PFPeA (S)	%.			93	40-130	
13C6-PFDA (S)	%.			93	40-130	
13C7-PFUdA (S)	%.			87	40-130	
13C8-PFOA (S)	%.			96	40-130	
13C8-PFOS (S)	%.			91	40-130	
13C8-PFOSA (S)	%.			78	40-130	
13C9-PFNA (S)	%.			90	40-130	
d3-MeFOSAA (S)	%.			80	35-130	
d3-NMeFOSA (S)	%.			70	40-130	
d5-EtFOSAA (S)	%.			78	30-130	
d5-NEtFOSA (S)	%.			73	35-130	
d7-NMeFOSE (S)	%.			79	20-130	
d9-NEtFOSE (S)	%.			78	20-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



QUALIFIERS

Project: Elk River PFC Quarterly
Pace Project No.: 10720955

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

S0 Surrogate recovery outside laboratory control limits.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Elk River PFC Quarterly

Pace Project No.: 10720955

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10720955001	SP-01 Leachate	EPA 1633 DRAFT	989130	EPA 1633 DRAFT	989595

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

Page 16 of 16



June 04, 2025

Anna Schneider
Barr Engineering
4300 MarketPointe Dr
Suite 200
Minneapolis, MN 55435

RE: Project: Elk River PFC Quarterly-Revised Report
Pace Project No.: 10729533

Dear Anna Schneider:

Enclosed are the analytical results for sample(s) received by the laboratory on April 01, 2025. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Minneapolis

This report was revised June 4, 2025, to include surrogate data associated with dilutions.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kirsten Hogberg for
Piper Gibbs
piper.gibbs@pacelabs.com
(612)607-6456
Project Manager

Enclosures

cc: Jim Eidem, Barr Engineering
Michelle Kostrzewski, Waste Management National
Services
Margaret Treanor, Barr Engineering
Al West, Barr Engineering



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



CERTIFICATIONS

Project: Elk River PFC Quarterly-Revised Report

Pace Project No.: 10729533

Pace Analytical Services, LLC - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

DoD Certification via A2LA #: 2926.01

EPA Region 8 Tribal Water Systems+Wyoming DW
Certification #: via MN 027-053-137

Florida Certification #: E87605

Georgia Certification #: 959

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

ISO/IEC 17025 Certification via A2LA #: 2926.01

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: AI-03086

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064

Maryland Certification #: 322

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Approval: via MN 027-053-137

Minnesota Petrofund Registration #: 1240

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081

New Jersey Certification #: MN002

New York Certification #: 11647

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification via A2LA #: R-036

North Dakota Certification via MN #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification (1700) #: CL101

Oklahoma Certification #: 9507

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification #: MN00064

South Carolina Certification #: 74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Vermont Certification #: VT-027053137

Virginia Certification #: 460163

Washington Certification #: C486

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification via A2LA #: 2926.01

USDA Permit #: P330-19-00208

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



SAMPLE SUMMARY

Project: Elk River PFC Quarterly-Revised Report

Pace Project No.: 10729533

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10729533001	SP-01	Water	04/01/25 13:20	04/01/25 15:09

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



SAMPLE ANALYTE COUNT

Project: Elk River PFC Quarterly-Revised Report

Pace Project No.: 10729533

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10729533001	SP-01	EPA 1633	MJL	65	PASI-M

PASI-M = Pace Analytical Services - Minneapolis

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



PROJECT NARRATIVE

Project: Elk River PFC Quarterly-Revised Report

Pace Project No.: 10729533

Method: EPA 1633

Description: EPA 1633 Landfill Leachate

Client: Waste Management National Services, Inc.

Date: June 04, 2025

General Information:

1 sample was analyzed for EPA 1633 by Pace Analytical Services Minneapolis. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 1633 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

QC Batch: 1002017

S0: Surrogate recovery outside laboratory control limits.

- SP-01 (Lab ID: 10729533001)
 - 13C24:2FTS (S)
 - 13C26:2FTS (S)
 - 13C28:2FTS (S)
- SRM (Lab ID: 5225629)
 - d3-MeFOSAA (S)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



ANALYTICAL RESULTS

Project: Elk River PFC Quarterly-Revised Report

Pace Project No.: 10729533

Sample: SP-01		Lab ID: 10729533001		Collected: 04/01/25 13:20		Received: 04/01/25 15:09		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
EPA 1633 Landfill Leachate		Analytical Method: EPA 1633 Preparation Method: EPA 1633							
		Pace Analytical Services - Minneapolis							
11CI-PF3OUdS	ND	ng/L	62.3	1	04/22/25 09:36	04/24/25 12:57	763051-92-9		
3:3 FTCA	305	ng/L	77.8	1	04/22/25 09:36	04/24/25 12:57	356-02-5		
4:2 FTS	ND	ng/L	62.3	1	04/22/25 09:36	04/24/25 12:57	757124-72-4		
5:3 FTCA	48200	ng/L	389	1	04/22/25 09:36	04/24/25 12:57	914637-49-3		
6:2 FTS	294	ng/L	62.3	1	04/22/25 09:36	04/24/25 12:57	27619-97-2		
7:3 FTCA	1560	ng/L	389	1	04/22/25 09:36	04/24/25 12:57	812-70-4		
8:2 FTS	ND	ng/L	62.3	1	04/22/25 09:36	04/24/25 12:57	39108-34-4		
9CI-PF3ONS	ND	ng/L	62.3	1	04/22/25 09:36	04/24/25 12:57	756426-58-1		
ADONA	ND	ng/L	62.3	1	04/22/25 09:36	04/24/25 12:57	919005-14-4		
HFPO-DA	ND	ng/L	62.3	1	04/22/25 09:36	04/24/25 12:57	13252-13-6		
NEtFOSAA	77.4	ng/L	15.6	1	04/22/25 09:36	04/24/25 12:57	2991-50-6		
NEtFOSA	ND	ng/L	15.6	1	04/22/25 09:36	04/24/25 12:57	4151-50-2		
NEtFOSE	201	ng/L	156	1	04/22/25 09:36	04/24/25 12:57	1691-99-2		
NFDHA	ND	ng/L	31.1	1	04/22/25 09:36	04/24/25 12:57	151772-58-6		
NMeFOSAA	169	ng/L	15.6	1	04/22/25 09:36	04/24/25 12:57	2355-31-9		
NMeFOSA	ND	ng/L	15.6	1	04/22/25 09:36	04/24/25 12:57	31506-32-8		
NMeFOSE	334	ng/L	156	1	04/22/25 09:36	04/24/25 12:57	24448-09-7		
PFBS	7540	ng/L	156	10	04/22/25 09:36	04/23/25 17:59	375-73-5		
PFDA	26.8	ng/L	15.6	1	04/22/25 09:36	04/24/25 12:57	335-76-2		
PFHxA	4300	ng/L	156	10	04/22/25 09:36	04/23/25 17:59	307-24-4		
PFBA	13300	ng/L	623	10	04/22/25 09:36	04/23/25 17:59	375-22-4		
PFDS	ND	ng/L	15.6	1	04/22/25 09:36	04/24/25 12:57	335-77-3		
PFDoS	ND	ng/L	15.6	1	04/22/25 09:36	04/24/25 12:57	79780-39-5		
PFEESA	ND	ng/L	31.1	1	04/22/25 09:36	04/24/25 12:57	113507-82-7		
PFHpS	ND	ng/L	15.6	1	04/22/25 09:36	04/24/25 12:57	375-92-8		
PFMBA	ND	ng/L	31.1	1	04/22/25 09:36	04/24/25 12:57	863090-89-5		
PFMPA	227	ng/L	31.1	1	04/22/25 09:36	04/24/25 12:57	377-73-1		
PFNS	ND	ng/L	15.6	1	04/22/25 09:36	04/24/25 12:57	68259-12-1		
PFOSA	17.6	ng/L	15.6	1	04/22/25 09:36	04/24/25 12:57	754-91-6		
PFPeA	1570	ng/L	31.1	1	04/22/25 09:36	04/24/25 12:57	2706-90-3		
PFPeS	32.7	ng/L	15.6	1	04/22/25 09:36	04/24/25 12:57	2706-91-4		
PFDoA	ND	ng/L	15.6	1	04/22/25 09:36	04/24/25 12:57	307-55-1		
PFHpA	535	ng/L	15.6	1	04/22/25 09:36	04/24/25 12:57	375-85-9		
PFHxS	626	ng/L	15.6	1	04/22/25 09:36	04/24/25 12:57	355-46-4		
PFNA	67.2	ng/L	15.6	1	04/22/25 09:36	04/24/25 12:57	375-95-1		
PFOS	198	ng/L	15.6	1	04/22/25 09:36	04/24/25 12:57	1763-23-1		
PFOA	1930	ng/L	15.6	1	04/22/25 09:36	04/24/25 12:57	335-67-1		
PFTeDA	ND	ng/L	15.6	1	04/22/25 09:36	04/24/25 12:57	376-06-7		
PFTTrDA	ND	ng/L	15.6	1	04/22/25 09:36	04/24/25 12:57	72629-94-8		
PFUnA	ND	ng/L	15.6	1	04/22/25 09:36	04/24/25 12:57	2058-94-8		
Surrogates									
13C2-PFDoA (S)	47	%.	10-130	1	04/22/25 09:36	04/24/25 12:57			
13C3HFPO-DA (S)	80	%.	40-130	1	04/22/25 09:36	04/24/25 12:57			
13C3-PFBS (S)	79	%.	40-135	10	04/22/25 09:36	04/23/25 17:59			
13C3-PFBS (S)	88	%.	40-135	1	04/22/25 09:36	04/24/25 12:57			
13C3-PFHxS (S)	85	%.	40-130	1	04/22/25 09:36	04/24/25 12:57			

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



ANALYTICAL RESULTS

Project: Elk River PFC Quarterly-Revised Report

Pace Project No.: 10729533

Sample: SP-01		Lab ID: 10729533001		Collected: 04/01/25 13:20		Received: 04/01/25 15:09		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
EPA 1633 Landfill Leachate		Analytical Method: EPA 1633 Preparation Method: EPA 1633 Pace Analytical Services - Minneapolis							
Surrogates									
13C4-PFBA (S)	13	%.	5-130	1	04/22/25 09:36	04/24/25 12:57			
13C4-PFBA (S)	8	%.	5-130	10	04/22/25 09:36	04/23/25 17:59			
13C4-PFHpA (S)	97	%.	40-130	1	04/22/25 09:36	04/24/25 12:57			
13C5-PFHxA (S)	88	%.	40-130	10	04/22/25 09:36	04/23/25 17:59			
13C5-PFHxA (S)	89	%.	40-130	1	04/22/25 09:36	04/24/25 12:57			
13C5-PFPeA (S)	70	%.	40-130	1	04/22/25 09:36	04/24/25 12:57			
13C6-PFDA (S)	81	%.	40-130	1	04/22/25 09:36	04/24/25 12:57			
13C8-PFOA (S)	93	%.	40-130	1	04/22/25 09:36	04/24/25 12:57			
13C8-PFOS (S)	80	%.	40-130	1	04/22/25 09:36	04/24/25 12:57			
13C8-PFOSA (S)	74	%.	40-130	1	04/22/25 09:36	04/24/25 12:57			
13C9-PFNA (S)	91	%.	40-130	1	04/22/25 09:36	04/24/25 12:57			
d3-MeFOSAA (S)	97	%.	40-170	1	04/22/25 09:36	04/24/25 12:57			
d3-NMeFOSA (S)	53	%.	10-130	1	04/22/25 09:36	04/24/25 12:57			
d5-EtFOSAA (S)	107	%.	25-135	1	04/22/25 09:36	04/24/25 12:57			
d5-NEtFOSA (S)	48	%.	10-130	1	04/22/25 09:36	04/24/25 12:57			
d7-NMeFOSE (S)	47	%.	10-130	1	04/22/25 09:36	04/24/25 12:57			
d9-NEtFOSE (S)	43	%.	10-130	1	04/22/25 09:36	04/24/25 12:57			
13C2-PFTA (S)	29	%.	10-130	1	04/22/25 09:36	04/24/25 12:57			
13C7-PFUDa (S)	65	%.	30-130	1	04/22/25 09:36	04/24/25 12:57			
13C24:2FTS (S)	292	%.	40-200	1	04/22/25 09:36	04/24/25 12:57		S0	
13C26:2FTS (S)	339	%.	40-200	1	04/22/25 09:36	04/24/25 12:57		S0	
13C28:2FTS (S)	303	%.	40-300	1	04/22/25 09:36	04/24/25 12:57		S0	
13C3-PFPrA (S)	5	%.	5-130	1	04/22/25 09:36	04/24/25 12:57			

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



QUALITY CONTROL DATA

Project: Elk River PFC Quarterly-Revised Report

Pace Project No.: 10729533

QC Batch: 1002017

Analysis Method: EPA 1633

QC Batch Method: EPA 1633

Analysis Description: EPA 1633 Landfill Leachate

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10729533001

METHOD BLANK: 5225627

Matrix: Water

Associated Lab Samples: 10729533001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
11CI-PF3OUdS	ng/L	ND	32.0	04/22/25 16:04	
3:3 FTCA	ng/L	ND	40.0	04/22/25 16:04	
4:2 FTS	ng/L	ND	32.0	04/22/25 16:04	
5:3 FTCA	ng/L	ND	200	04/22/25 16:04	
6:2 FTS	ng/L	ND	32.0	04/22/25 16:04	
7:3 FTCA	ng/L	ND	200	04/22/25 16:04	
8:2 FTS	ng/L	ND	32.0	04/22/25 16:04	
9CI-PF3ONS	ng/L	ND	32.0	04/22/25 16:04	
ADONA	ng/L	ND	32.0	04/22/25 16:04	
HFPO-DA	ng/L	ND	32.0	04/22/25 16:04	
NETFOSA	ng/L	ND	8.0	04/22/25 16:04	
NETFOSAA	ng/L	ND	8.0	04/22/25 16:04	
NETFOSE	ng/L	ND	80.0	04/22/25 16:04	
NFDHA	ng/L	ND	16.0	04/22/25 16:04	
NMeFOSA	ng/L	ND	8.0	04/22/25 16:04	
NMeFOSAA	ng/L	ND	8.0	04/22/25 16:04	
NMeFOSE	ng/L	ND	80.0	04/22/25 16:04	
PFBA	ng/L	ND	32.0	04/22/25 16:04	
PFBS	ng/L	ND	8.0	04/22/25 16:04	
PFDA	ng/L	ND	8.0	04/22/25 16:04	
PFDaA	ng/L	ND	8.0	04/22/25 16:04	
PFDoS	ng/L	ND	8.0	04/22/25 16:04	
PFDS	ng/L	ND	8.0	04/22/25 16:04	
PFEESA	ng/L	ND	16.0	04/22/25 16:04	
PFHpA	ng/L	ND	8.0	04/22/25 16:04	
PFHpS	ng/L	ND	8.0	04/22/25 16:04	
PFHxA	ng/L	ND	8.0	04/22/25 16:04	
PFHxS	ng/L	ND	8.0	04/22/25 16:04	
PFMBA	ng/L	ND	16.0	04/22/25 16:04	
PFMPA	ng/L	ND	16.0	04/22/25 16:04	
PFNA	ng/L	ND	8.0	04/22/25 16:04	
PFNS	ng/L	ND	8.0	04/22/25 16:04	
PFOA	ng/L	ND	8.0	04/22/25 16:04	
PFOS	ng/L	ND	8.0	04/22/25 16:04	
PFOSA	ng/L	ND	8.0	04/22/25 16:04	
PFPeA	ng/L	ND	16.0	04/22/25 16:04	
PFPeS	ng/L	ND	8.0	04/22/25 16:04	
PFTeDA	ng/L	ND	8.0	04/22/25 16:04	
PFTrDA	ng/L	ND	8.0	04/22/25 16:04	
PFUnA	ng/L	ND	8.0	04/22/25 16:04	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



QUALITY CONTROL DATA

Project: Elk River PFC Quarterly-Revised Report

Pace Project No.: 10729533

METHOD BLANK: 5225627

Matrix: Water

Associated Lab Samples: 10729533001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
13C2-PFDoA (S)	%.	72	10-130	04/22/25 16:04	
13C2-PFTA (S)	%.	65	10-130	04/22/25 16:04	
13C24:2FTS (S)	%.	84	40-200	04/22/25 16:04	
13C26:2FTS (S)	%.	72	40-200	04/22/25 16:04	
13C28:2FTS (S)	%.	71	40-300	04/22/25 16:04	
13C3-PFBS (S)	%.	80	40-135	04/22/25 16:04	
13C3-PFHxS (S)	%.	80	40-130	04/22/25 16:04	
13C3-PFPrA (S)	%.	80	5-130	04/22/25 16:04	
13C3HFPO-DA (S)	%.	75	40-130	04/22/25 16:04	
13C4-PFBA (S)	%.	79	5-130	04/22/25 16:04	
13C4-PFHpA (S)	%.	74	40-130	04/22/25 16:04	
13C5-PFHxA (S)	%.	79	40-130	04/22/25 16:04	
13C5-PFPeA (S)	%.	79	40-130	04/22/25 16:04	
13C6-PFDA (S)	%.	77	40-130	04/22/25 16:04	
13C7-PFUdA (S)	%.	81	30-130	04/22/25 16:04	
13C8-PFOA (S)	%.	82	40-130	04/22/25 16:04	
13C8-PFOS (S)	%.	78	40-130	04/22/25 16:04	
13C8-PFOSA (S)	%.	68	40-130	04/22/25 16:04	
13C9-PFNA (S)	%.	77	40-130	04/22/25 16:04	
d3-MeFOSAA (S)	%.	64	40-170	04/22/25 16:04	
d3-NMeFOSA (S)	%.	58	10-130	04/22/25 16:04	
d5-EtFOSAA (S)	%.	60	25-135	04/22/25 16:04	
d5-NEtFOSA (S)	%.	57	10-130	04/22/25 16:04	
d7-NMeFOSE (S)	%.	66	10-130	04/22/25 16:04	
d9-NEtFOSE (S)	%.	66	10-130	04/22/25 16:04	

LABORATORY CONTROL SAMPLE: 5225628

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
11CI-PF3OUdS	ng/L	376	338	90	55-160	
3:3 FTCA	ng/L	496	443	89	65-130	
4:2 FTS	ng/L	376	370	98	70-145	
5:3 FTCA	ng/L	2480	2460	99	70-135	
6:2 FTS	ng/L	384	381	99	65-155	
7:3 FTCA	ng/L	2480	2490	101	50-145	
8:2 FTS	ng/L	384	404	105	60-150	
9CI-PF3ONS	ng/L	376	368	98	70-155	
ADONA	ng/L	376	416	111	65-145	
HFPO-DA	ng/L	400	407	102	70-140	
NEtFOSA	ng/L	96	102	107	65-145	
NEtFOSAA	ng/L	96	99.7	104	70-145	
NEtFOSE	ng/L	960	1020	106	70-135	
NFDHA	ng/L	200	182	91	50-150	
NMeFOSA	ng/L	96	100	104	60-150	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



QUALITY CONTROL DATA

Project: Elk River PFC Quarterly-Revised Report

Pace Project No.: 10729533

LABORATORY CONTROL SAMPLE: 5225628

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
NMeFOSAA	ng/L	96	98.4	103	50-140	
NMeFOSE	ng/L	960	1020	106	70-145	
PFBA	ng/L	400	397	99	70-140	
PFBS	ng/L	88	90.2	103	60-145	
PFDA	ng/L	96	97.6	102	70-140	
PFDaA	ng/L	96	98.8	103	70-140	
PFDoS	ng/L	96	78.9	82	50-145	
PFDS	ng/L	96	91.7	96	60-145	
PFEESA	ng/L	176	182	103	70-140	
PFHpA	ng/L	96	94.9	99	70-150	
PFHpS	ng/L	96	89.5	93	70-150	
PFHxA	ng/L	96	96.4	100	70-145	
PFHxS	ng/L	88	85.7	97	65-145	
PFMBA	ng/L	200	208	104	60-150	
PFMPA	ng/L	200	214	107	55-140	
PFNA	ng/L	96	97.5	102	70-150	
PFNS	ng/L	96	85.8	89	65-145	
PFOA	ng/L	96	92.4	96	70-150	
PFOS	ng/L	96	81.2	85	55-150	
PFOSA	ng/L	96	99.3	103	70-145	
PFPeA	ng/L	200	196	98	65-135	
PFPeS	ng/L	96	94.6	99	65-140	
PFTeDA	ng/L	96	102	106	60-140	
PFTrDA	ng/L	96	96.6	101	65-140	
PFUnA	ng/L	96	102	106	70-145	
13C2-PFDaA (S)	%			84	10-130	
13C2-PFTA (S)	%			75	10-130	
13C24:2FTS (S)	%			92	40-200	
13C26:2FTS (S)	%			85	40-200	
13C28:2FTS (S)	%			79	40-300	
13C3-PFBS (S)	%			87	40-135	
13C3-PFHxS (S)	%			86	40-130	
13C3-PFPrA (S)	%			90	5-130	
13C3HFPO-DA (S)	%			83	40-130	
13C4-PFBA (S)	%			89	5-130	
13C4-PFHpA (S)	%			82	40-130	
13C5-PFHxA (S)	%			89	40-130	
13C5-PFPeA (S)	%			88	40-130	
13C6-PFDA (S)	%			90	40-130	
13C7-PFUdA (S)	%			90	30-130	
13C8-PFOA (S)	%			100	40-130	
13C8-PFOS (S)	%			93	40-130	
13C8-PFOSA (S)	%			77	40-130	
13C9-PFNA (S)	%			91	40-130	
d3-MeFOSAA (S)	%			79	40-170	
d3-NMeFOSA (S)	%			65	10-130	
d5-EtFOSAA (S)	%			75	25-135	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



QUALITY CONTROL DATA

Project: Elk River PFC Quarterly-Revised Report

Pace Project No.: 10729533

LABORATORY CONTROL SAMPLE: 5225628

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
d5-NEtFOSA (S)	%.			66	10-130	
d7-NMeFOSE (S)	%.			76	10-130	
d9-NEtFOSE (S)	%.			74	10-130	

LABORATORY CONTROL SAMPLE: 5225629

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
11CI-PF3OUdS	ng/L	60.2	51.4	86	55-160	
3:3 FTCA	ng/L	79.4	67.9	86	65-130	
4:2 FTS	ng/L	60.2	49.7	83	70-145	
5:3 FTCA	ng/L	397	344	87	70-135	
6:2 FTS	ng/L	61.4	52.4	85	65-155	
7:3 FTCA	ng/L	397	349	88	50-145	
8:2 FTS	ng/L	61.4	54.9	89	60-150	
9CI-PF3ONS	ng/L	60.2	55.5	92	70-155	
ADONA	ng/L	60.2	60.4	100	65-145	
HFPO-DA	ng/L	64	58.4	91	70-140	
NEtFOSA	ng/L	15.4	14.1	92	65-145	
NEtFOSAA	ng/L	15.4	14.7	96	70-145	
NEtFOSE	ng/L	154	142	92	70-135	
NFDHA	ng/L	32	25.3	79	50-150	
NMeFOSA	ng/L	15.4	15.1	99	60-150	
NMeFOSAA	ng/L	15.4	12.5	81	50-140	
NMeFOSE	ng/L	154	148	96	70-145	
PFBA	ng/L	64	57.3	89	70-140	
PFBS	ng/L	14.1	12.7	90	60-145	
PFDA	ng/L	15.4	13.6	88	70-140	
PFDoA	ng/L	15.4	14.7	96	70-140	
PFDoS	ng/L	15.4	13.9	90	50-145	
PFDS	ng/L	15.4	13.1	85	60-145	
PFEESA	ng/L	28.2	25.0	89	70-140	
PFHpA	ng/L	15.4	14.7	95	70-150	
PFHpS	ng/L	15.4	13.5	88	70-150	
PFHxA	ng/L	15.4	14.2	93	70-145	
PFHxS	ng/L	14.1	13.9	99	65-145	
PFMBA	ng/L	32	29.3	92	60-150	
PFMPA	ng/L	32	30.6	96	55-140	
PFNA	ng/L	15.4	13.6	88	70-150	
PFNS	ng/L	15.4	12.2	79	65-145	
PFOA	ng/L	15.4	14.3	93	70-150	
PFOS	ng/L	15.4	13.4	87	55-150	
PFOSA	ng/L	15.4	14.2	92	70-145	
PFPeA	ng/L	32	28.7	90	65-135	
PFPeS	ng/L	15.4	14.4	94	65-140	
PFTeDA	ng/L	15.4	15.1	98	60-140	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

**QUALITY CONTROL DATA**

Project: Elk River PFC Quarterly-Revised Report

Pace Project No.: 10729533

LABORATORY CONTROL SAMPLE: 5225629

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PFTrDA	ng/L	15.4	14.9	97	65-140	
PFUnA	ng/L	15.4	13.7	89	70-145	
13C2-PFDoA (S)	%.			44	10-130	
13C2-PFTA (S)	%.			42	10-130	
13C24:2FTS (S)	%.			53	40-200	
13C26:2FTS (S)	%.			41	40-200	
13C28:2FTS (S)	%.			44	40-300	
13C3-PFBS (S)	%.			52	40-135	
13C3-PFHxS (S)	%.			49	40-130	
13C3-PFPrA (S)	%.			55	5-130	
13C3HFPO-DA (S)	%.			49	40-130	
13C4-PFBA (S)	%.			57	5-130	
13C4-PFHpA (S)	%.			44	40-130	
13C5-PFHxA (S)	%.			50	40-130	
13C5-PFPeA (S)	%.			50	40-130	
13C6-PFDA (S)	%.			46	40-130	
13C7-PFUdA (S)	%.			50	30-130	
13C8-PFOA (S)	%.			55	40-130	
13C8-PFOS (S)	%.			48	40-130	
13C8-PFOSA (S)	%.			40	40-130	
13C9-PFNA (S)	%.			47	40-130	
d3-MeFOSAA (S)	%.			38	40-170	S0
d3-NMeFOSA (S)	%.			32	10-130	
d5-EtFOSAA (S)	%.			35	25-135	
d5-NEtFOSA (S)	%.			33	10-130	
d7-NMeFOSE (S)	%.			41	10-130	
d9-NEtFOSE (S)	%.			41	10-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSISThis report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



QUALIFIERS

Project: Elk River PFC Quarterly-Revised Report

Pace Project No.: 10729533

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

S0 Surrogate recovery outside laboratory control limits.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Elk River PFC Quarterly-Revised Report

Pace Project No.: 10729533

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10729533001	SP-01	EPA 1633	1002017	EPA 1633	1002863

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ENV-FRM-MIN4-0150 v19 Sample Condition Upon Receipt

Person Examining & Date: 4/25/15

PROJECT #:

WO#: **10729533**

PM: PG

Due Date: 05/14/25

CLIENT: WM National

Client Name: Waste Management

Custody Seal Present: ☒ YES ☐ NO

Seals Intact: ☒ YES ☐ NO

Tracking Number:

☐ See Exceptions form ENV-FRM-MIN4-0142.

Courier:

☒ Client

☐ Commercial

☐ FedEx

☐ Private Courier/Field

☐ Speedee

☐ UPS

☐ USPS

Packing Material:

☐ Bubble Bags

☐ Bubble Wrap

☒ None

☐ Other:

Biological Tissue Preserved:

☐ YES

☒ NO

Thermometer:

☐ T1 (0461)

☐ T2 (0431)

☐ T3 (0459)

☐ T4 (0402)

Type of Ice: ☐ Blue

☐ Dry

☒ Wet

☐ Melted

☐ None

☐ T5 (0187)

☐ T6 (0386)

☐ T7 (0377)

☐ T8 (0775)

☒ T9 (0128)

☐ 01339252 (0710)

Temp Blank:

☒ YES

☐ NO

NOTE: Temp should be $\pm 5^{\circ}\text{C}$, but above freezing

Read Temp w/Temp Blank:

1.8 $^{\circ}\text{C}$

Correction Factor:

+1.1

Corrected Temp w/Temp Blank:

2.9 $^{\circ}\text{C}$

Did Samples Originate in West Virginia: ☐ YES ☒ NO (list temps on exception)

Were All Container Temps Taken: ☐ YES ☒ NO (N/A)

Average Corrected Temp (No Temp Blank Only):

☐ See Exceptions form ENV-FRM-MIN4-0142.

☐ 1 Container

USDA Regulated Soil: ☒ No (Water Samples/Other (describe):

Did Samples originate from one of the following states (check maps): ☐ YES ☒ NO

Are samples from a foreign source (international, including Hawaii

Circle State: AL, AR, AZ, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, VA

and Puerto Rico): ☐ YES ☒ NO

NOTE: If YES to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCAR/COC paperwork.

LOCATION (check one):	☐ DULUTH	☒ MINNEAPOLIS	☐ VIRGINIA	YES	NO	N/A	COMMENT(S)
Chain of Custody Present and Filled Out? (i.e., Analysis/ID/Data/Time)	☒	☐	☐	☒	☐	☐	1.
Chain of Custody Relinquished?	☒	☐	☐	☒	☐	☐	2.
Sampler Name and/or Signature on COC?	☒	☐	☐	☒	☐	☐	3.
Samples Arrived within Hold Time?	☒	☐	☐	☒	☐	☐	4.
If Fecal: ☐ <8 hrs ☐ >8 hr but <24 hr ☐ >24 hr	☒	☐	☐	☒	☐	☐	5. ☐ BOD / COD ☐ fecal coliform ☐ Hex Chrom ☐ HPC ☐ Nitrate ☐ Nitrite ☐ Ortho Phos ☐ Total coliform/E col ☐ Turbidity ☐ Other:
Short Hold Time Analysis (<72 hr)?	☐	☒	☐	☒	☐	☐	6. ☐ Same Day ☐ 1 Day ☐ 2 Day ☐ 3 Day ☐ 5 Day Due Date:
Rush Turn Around Time Requested?	☐	☒	☐	☒	☐	☐	7.
Sufficient Sample Volume? (if NO, list approximate volume in section 7.)	☒	☐	☐	☒	☐	☐	8. <u>3x NT2U</u>
Correct Containers Used?	☒	☐	☐	☒	☐	☐	9.
Containers intact?	☒	☐	☐	☒	☐	☐	10.
Field Filtered Volume Received for Dissolved Tests?	☐	☐	☒	☒	☐	☐	11. Is sediment visible in the dissolved container: ☐ YES ☒ NO
ID/Data/Time Match? (if NO, fill out section 21.)	☒	☐	☐	☒	☐	☐	12. ☐ See Exceptions form ENV-FRM-MIN4-0142
Matrix: ☐ G1 ☐ Soil ☒ Water ☐ Other	☒	☐	☐	☒	☐	☐	
All containers needing acid/base preservation have been checked?	☐	☐	☒	☒	☐	☐	
Sample #:	☐ HNO3	☐ H2SO4	☐ NaOH	☐ Zinc Acetate	☐	☐	
pH Paper Lot #:	☐ Residual Chlorine	☐ 0-6 RHF	☐ 0-6 Strip	☐ 0-14 Strip	☐	☐	
Preserved containers in compliance with EPA recommendations? (HNO3, H2SO4, < 2 pH, NaOH > 9 Sulfide, NaOH > 10 Cyanide)	☐	☐	☒	☐	☐	☐	☐ See Exceptions form ENV-FRM-MIN4-0142
EXCEPTIONS (water only): VOA, Coliform, TDC/DDC, OH & Grease, Phenols, BPO/SOL5, Dioxins, and PFAS	☐	☒	☐	☐	☐	☐	
Extra labels present on SOL VOA or WIDRO containers? (sol only)	☐	☐	☒	☐	☐	☐	13.
Headspace in Methyl Mercury Containers?	☐	☐	☒	☐	☐	☐	14.
Headspace in VOA Vials (greater than 6mm)?	☐	☐	☒	☐	☐	☐	☐ See Exceptions form ENV-FRM-MIN4-0140
Trip Blanks Present?	☐	☐	☒	☐	☐	☐	15.
Trip Blank Custody Seals Present?	☐	☐	☒	☐	☐	☐	Place Trip Blank Lot # (if purchased):

CLIENT NOTIFICATION / RESOLUTION:

Labeled By: MS

Time: 3

Person Contacted & Date/Time:

PM Review & Date:

4/25 Piper J Gibbs

NOTE: When there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEQ Compliance Office.



ANALYTICAL REPORT

January 29, 2025

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Elk River Landfill

Sample Delivery Group: L1816567
Samples Received: 01/14/2025
Project Number: 500
Description: Elk River QTRLY Leachate(1,4,7,10)
Site: MN02
Report To: Jim Eidem
4300 MarketPoint Drive Suite 200
Minneapolis, MN 55435

Entire Report Reviewed By:

T. Alan Harvill
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	7
SP-01_Leachate L1816567-01	7
Qc: Quality Control Summary	12
Gravimetric Analysis by Method 2540 D-2011	12
Wet Chemistry by Method 2320 B-2011	13
Wet Chemistry by Method 300.0	14
Wet Chemistry by Method 335.4	15
Wet Chemistry by Method 410.4	16
Wet Chemistry by Method 4500H+ B-2011	17
Wet Chemistry by Method D93/1010A	18
Mercury by Method 245.1	19
Metals (ICP) by Method 200.7	20
Volatile Organic Compounds (GC/MS) by Method 8260D	22
Pesticides (GC) by Method EPA 608.3	27
Polychlorinated Biphenyls (GC) by Method EPA-608.3	29
Semi Volatile Organic Compounds (GC/MS) by Method 625.1	31
Gl: Glossary of Terms	37
Al: Accreditations & Locations	39
Sc: Sample Chain of Custody	40



SAMPLE SUMMARY

SP-01_Leachate L1816567-01 WW

Collected by
Mike H.

Collected date/time
01/13/25 13:30

Received date/time
01/14/25 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 D-2011	WG2432967	1	01/14/25 12:49	01/14/25 14:34	MMF	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2433209	1	01/14/25 19:14	01/14/25 19:14	KRB	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2433526	10	01/15/25 21:06	01/15/25 21:06	DLH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2433526	50	01/15/25 21:22	01/15/25 21:22	DLH	Mt. Juliet, TN
Wet Chemistry by Method 335.4	WG2433539	2	01/19/25 07:59	01/19/25 22:00	AEC	Mt. Juliet, TN
Wet Chemistry by Method 410.4	WG2433076	25	01/14/25 16:48	01/14/25 20:49	JEG	Mt. Juliet, TN
Wet Chemistry by Method 4500H+ B-2011	WG2432906	1	01/14/25 22:34	01/14/25 22:34	BRT	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG2432760	1	01/14/25 12:00	01/14/25 12:00	JAS	Mt. Juliet, TN
Mercury by Method 245.1	WG2435006	10	01/21/25 14:17	01/21/25 22:53	AKB	Mt. Juliet, TN
Metals (ICP) by Method 200.7	WG2437479	1	01/22/25 08:56	01/22/25 16:35	MAP	Mt. Juliet, TN
Metals (ICP) by Method 200.7	WG2437479	5	01/22/25 08:56	01/22/25 18:42	MAP	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2435218	25	01/17/25 14:18	01/17/25 14:18	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2435323	100	01/18/25 15:52	01/18/25 15:52	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2436369	100	01/21/25 16:15	01/21/25 16:15	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2436480	100	01/21/25 13:56	01/21/25 13:56	JHH	Mt. Juliet, TN
Pesticides (GC) by Method EPA 608.3	WG2433414	1	01/15/25 04:33	01/15/25 13:54	LTB	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method EPA-608.3	WG2434422	2	01/15/25 04:33	01/16/25 16:09	NWH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 625.1	WG2432984	5	01/14/25 15:04	01/23/25 13:00	ALM	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 625.1	WG2432984	5	01/14/25 15:04	01/24/25 23:56	MBE	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

ACCOUNT:

Elk River Landfill

PROJECT:

500

SDG:

L1816567

DATE/TIME:

01/29/25 08:45

PAGE:

3 of 41

CASE NARRATIVE

Unless qualified or notated within the narrative below, all sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



T. Alan Harvill
Project Manager

Project Comments

The requested project specific reporting limits may be less than laboratory standard quantitation limits (PQL) but will be greater than or equal to the laboratory method detection limits (MDL). It is noted that results reported below lab standard quantitation limits (PQLs) may result in false positive/false negative values that may require additional laboratory quality assurance review, if requested. Routine laboratory procedures do not initiate a data review process for detections below the laboratory's PQL unless requested by the client.

The requested project specific reporting limits may be less than laboratory standard quantitation limits (PQL) but will be greater than or equal to the laboratory method detection limits (MDL). It is noted that results reported below lab standard quantitation limits (PQLs) may result in false positive/false negative values that may require additional laboratory quality assurance review, if requested. Routine laboratory procedures do not initiate a data review process for detections below the laboratory's PQL unless requested by the client.

Bis(Chloro-methyl)Ether not identified as a TIC.

2,Propanol, 2-Chloroethyl vinyl ether, Acrolein will be reporting outside of seven day hold time. Sample aliquot was unpreserved due to 2-Chloroethyl vinyl ether being a target compound. HCL preservative destroys this compound, making collection in unpreserved container necessary. Initial in hold run was analyzed at 25x, however the matrix of the sample interfered with the internal standards resulting in unreportable data. The sample was analyzed again at 100x due to the matrix, however the hold time expired prior to this dilution being able to be run.

Sample Delivery Group (SDG) Narrative

Sample was prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

Batch	Method	Lab Sample ID
WG2436369	8260D	L1816567-01

The laboratory analysis was performed from an unpreserved, insufficiently or inadequately preserved sample.

Batch	Method	Lab Sample ID
WG2435006	245.1	L1816567-01
WG2435359	335.4	L1816567-01

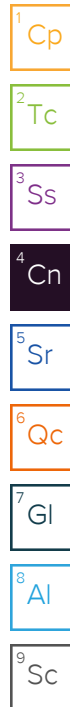
The following samples were prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

Batch	Method	Lab Sample ID
WG2432906	4500H+ B-2011	L1816567-01

Gravimetric Analysis by Method 2540 D-2011

RPD value not applicable for sample concentrations less than 5 times the reporting limit.

Batch	Lab Sample ID	Analytes
WG2432967	(DUP) R4167139-3	Suspended Solids



CASE NARRATIVE

Wet Chemistry by Method 300.0

The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).

Batch	Lab Sample ID	Analytes
WG2433526	(MS) R4167421-4	Chloride and Sulfate
WG2433526	(MSD) R4167421-5	Chloride and Sulfate

The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Batch	Lab Sample ID	Analytes
WG2433526	(MS) R4167421-4, (MSD) R4167421-5	Chloride

The sample concentration is too high to evaluate accurate spike recoveries.

Batch	Lab Sample ID	Analytes
WG2433526	(MS) R4167421-4, (MSD) R4167421-5	Sulfate

Wet Chemistry by Method 335.4

RPD value not applicable for sample concentrations less than 5 times the reporting limit.

Batch	Lab Sample ID	Analytes
WG2435359	(DUP) R4168305-5	Cyanide

The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Batch	Lab Sample ID	Analytes
WG2435359	(MS) R4168305-3, (MSD) R4168305-4	Cyanide

The associated batch QC was outside the established quality control range for precision.

Batch	Lab Sample ID	Analytes
WG2435359	(MSD) R4168305-4	Cyanide

Metals (ICP) by Method 200.7

The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).

Batch	Lab Sample ID	Analytes
WG2437479	(MS) R4169491-6	Sodium
WG2437479	(MSD) R4169491-7	Sodium

The sample concentration is too high to evaluate accurate spike recoveries.

Batch	Lab Sample ID	Analytes
WG2437479	(MS) R4169491-6, (MSD) R4169491-7	Sodium

Volatile Organic Compounds (GC/MS) by Method 8260D

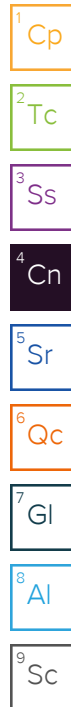
The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.

Batch	Lab Sample ID	Analytes
WG2435218	L1816567-01	Bromomethane

Pesticides (GC) by Method EPA 608.3

RPD between the primary and confirmatory analysis exceeded 40%

Batch	Lab Sample ID	Analytes
WG2433414	(MS) R4167713-1	15 analytes
WG2433414	(MSD) R4167713-2	13 analytes



CASE NARRATIVE

Pesticides (GC) by Method EPA 608.3

Surrogate recovery limits have been exceeded; values are outside lower control limits.

Batch	Analyte	Lab Sample ID
WG2433414	Decachlorobiphenyl	(MS) R4167713-1, (MSD) R4167713-2, L1816567-01
WG2433414	Tetrachloro-m-xylene	(MSD) R4167713-2

The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Batch	Lab Sample ID	Analytes
WG2433414	(MS) R4167713-1, (MSD) R4167713-2	4,4-DDD, 4,4-DDE, 4,4-DDT, Aldrin, Endosulfan I, Endrin, Endrin aldehyde, Heptachlor and Heptachlor epoxide

The associated batch QC was outside the established quality control range for precision.

Batch	Lab Sample ID	Analytes
WG2433414	(MSD) R4167713-2	4,4-DDE

Polychlorinated Biphenyls (GC) by Method EPA-608.3

Surrogate recovery limits have been exceeded; values are outside lower control limits.

Batch	Analyte	Lab Sample ID
WG2434422	Decachlorobiphenyl	(MSD) R4167707-4, L1816567-01
WG2434422	Tetrachloro-m-xylene	L1816567-01

The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Batch	Lab Sample ID	Analytes
WG2434422	(MS) R4167707-3, (MSD) R4167707-4	PCB 1016 and PCB 1260

Semi Volatile Organic Compounds (GC/MS) by Method 625.1

Analyte reported using a calibration and validation based on Azobenzene (CAS 103-33-3). 1,2-Diphenylhydrazine decomposes into Azobenzene during the analysis.

Batch	Analyte	Lab Sample ID
WG2432984	1,2-Diphenylhydrazine	(BLANK) R4167892-2, (LCS) R4167892-1, (MS) R4167892-3, (MSD) R4167892-4, L1816567-01

Surrogate recovery cannot be used for control limit evaluation due to dilution.

Batch	Analyte	Lab Sample ID
WG2432984	2,4,6-Tribromophenol	(MS) R4167892-3, (MSD) R4167892-4
WG2432984	2-Fluorobiphenyl	(MS) R4167892-3, (MSD) R4167892-4
WG2432984	2-Fluorophenol	(MS) R4167892-3, (MSD) R4167892-4
WG2432984	Nitrobenzene-d5	(MS) R4167892-3, (MSD) R4167892-4
WG2432984	Phenol-d5	(MS) R4167892-3, (MSD) R4167892-4
WG2432984	p-Terphenyl-d14	(MS) R4167892-3, (MSD) R4167892-4

Surrogate recovery limits have been exceeded; values are outside lower control limits.

Batch	Analyte	Lab Sample ID
WG2432984	p-Terphenyl-d14	L1816567-01

The sample matrix interfered with the ability to make any accurate determination; spike value is high.

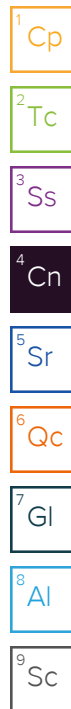
Batch	Lab Sample ID	Analytes
WG2432984	(MS) R4167892-3, (MSD) R4167892-4	2,4-Dinitrophenol

The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Batch	Lab Sample ID	Analytes
WG2432984	(MS) R4167892-3, (MSD) R4167892-4	2-Chloronaphthalene, Benzidine, Hexachlorocyclopentadiene and n-Nitrosodiphenylamine

The associated batch QC was outside the established quality control range for precision.

Batch	Lab Sample ID	Analytes
WG2432984	(MSD) R4167892-4	Hexachlorocyclopentadiene



Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
pH (On Site)	8	su
Temperature (on-site)	16.3	Deg. C

Gravimetric Analysis by Method 2540 D-2011

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l			
Suspended Solids	32.7		4.00	1	01/14/2025 14:34	WG2432967

Wet Chemistry by Method 2320 B-2011

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l			
Alkalinity	9120		20.0	1	01/14/2025 19:14	WG2433209

Sample Narrative:

L1816567-01 WG2433209: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l			
Chloride	2850		2.60	50	01/15/2025 21:22	WG2433526
Sulfate	30.4		5.00	10	01/15/2025 21:06	WG2433526

Sample Narrative:

L1816567-01 WG2433526: Dilution due to matrix impact on instrumentation at lower dilution

Wet Chemistry by Method 335.4

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l			
Cyanide	ND		0.0100	2	01/19/2025 22:00	WG2435359

Wet Chemistry by Method 410.4

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l			
COD	3920		75.0	25	01/14/2025 20:49	WG2433076

Wet Chemistry by Method 4500H+ B-2011

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	SU				
pH	7.90	T8	1	01/14/2025 22:34	WG2432906

Sample Narrative:

L1816567-01 WG2432906: 7.9 at 19.4C

Wet Chemistry by Method D93/1010A

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	deg F				
Flashpoint	DNF at 170		1	01/14/2025 12:00	WG2432760

Mercury by Method 245.1

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l			
Mercury	ND		0.000490	10	01/21/2025 22:53	WG2435006

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Metals (ICP) by Method 200.7

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Silver	ND		0.00600	1	01/22/2025 16:35	WG2437479
Arsenic	0.142		0.0100	1	01/22/2025 16:35	WG2437479
Beryllium	ND		0.00200	1	01/22/2025 16:35	WG2437479
Boron	20.0		0.200	1	01/22/2025 16:35	WG2437479
Calcium	144		1.00	1	01/22/2025 16:35	WG2437479
Cadmium	ND		0.00200	1	01/22/2025 16:35	WG2437479
Chromium	0.413		0.0100	1	01/22/2025 16:35	WG2437479
Copper	ND		0.0100	1	01/22/2025 16:35	WG2437479
Potassium	798		1.00	5	01/22/2025 18:42	WG2437479
Magnesium	166		1.00	1	01/22/2025 16:35	WG2437479
Molybdenum	0.0128		0.0100	1	01/22/2025 16:35	WG2437479
Sodium	2460		1.00	5	01/22/2025 18:42	WG2437479
Nickel	0.325		0.0100	1	01/22/2025 16:35	WG2437479
Lead	ND		0.0100	1	01/22/2025 16:35	WG2437479
Antimony	0.0217		0.0200	1	01/22/2025 16:35	WG2437479
Selenium	ND		0.0250	1	01/22/2025 16:35	WG2437479
Thallium	ND		0.0200	1	01/22/2025 16:35	WG2437479
Zinc	0.510		0.0500	1	01/22/2025 16:35	WG2437479

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		0.00100	25	01/17/2025 14:18	WG2435218
2-Propanol	3.80	Q	0.165	100	01/21/2025 16:15	WG2436369
1,1,2,2-Tetrachloroethane	ND		0.00100	25	01/17/2025 14:18	WG2435218
2-Chloroethyl vinyl ether	ND	Q	0.0575	100	01/21/2025 16:15	WG2436369
1,1,2-Trichloroethane	ND		0.00100	25	01/17/2025 14:18	WG2435218
Acrolein	ND	Q	0.254	100	01/21/2025 16:15	WG2436369
1,1-Dichloroethane	ND		0.00100	25	01/17/2025 14:18	WG2435218
1,1-Dichloroethene	ND		0.00100	25	01/17/2025 14:18	WG2435218
1,2,4-Trichlorobenzene	ND		0.00440	25	01/17/2025 14:18	WG2435218
1,2-Dichloroethane	ND		0.00100	25	01/17/2025 14:18	WG2435218
1,2-Dichloropropane	ND		0.00142	25	01/17/2025 14:18	WG2435218
2-Butanone (MEK)	3.64		0.0635	25	01/17/2025 14:18	WG2435218
4-Methyl-2-pentanone (MIBK)	0.0473		0.00500	25	01/17/2025 14:18	WG2435218
Acetone	4.32		0.146	100	01/18/2025 15:52	WG2435323
Acrylonitrile	ND		0.00500	25	01/17/2025 14:18	WG2435218
Benzene	0.00145		0.00100	25	01/17/2025 14:18	WG2435218
Bromodichloromethane	ND		0.00100	25	01/17/2025 14:18	WG2435218
Bromoform	ND		0.00117	25	01/17/2025 14:18	WG2435218
Bromomethane	ND	C3	0.00197	25	01/17/2025 14:18	WG2435218
Carbon tetrachloride	ND		0.00100	25	01/17/2025 14:18	WG2435218
Chlorobenzene	ND		0.00100	25	01/17/2025 14:18	WG2435218
Chloroethane	ND		0.00170	25	01/17/2025 14:18	WG2435218
Chloroform	ND		0.00103	25	01/17/2025 14:18	WG2435218
Chloromethane	ND		0.00435	25	01/17/2025 14:18	WG2435218
Dibromochloromethane	ND		0.00100	25	01/17/2025 14:18	WG2435218
Ethyl ether	0.0228		0.00100	25	01/17/2025 14:18	WG2435218
Ethylbenzene	0.0212		0.00295	100	01/18/2025 15:52	WG2435323
Hexachloro-1,3-butadiene	ND		0.00200	25	01/17/2025 14:18	WG2435218
Methylene Chloride	ND		0.00664	25	01/17/2025 14:18	WG2435218
Naphthalene	0.0345		0.0195	100	01/18/2025 15:52	WG2435323
Tetrachloroethene	ND		0.00100	25	01/17/2025 14:18	WG2435218
Tetrahydrofuran	1.72		0.00500	25	01/17/2025 14:18	WG2435218
Toluene	0.0199		0.00130	25	01/17/2025 14:18	WG2435218
Total Xylene	0.0552		0.00352	100	01/18/2025 15:52	WG2435323

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Trichloroethene	ND		0.00100	25	01/17/2025 14:18	WG2435218
Vinyl chloride	ND		0.00462	100	01/21/2025 13:56	WG2436480
cis-1,3-Dichloropropene	ND		0.00100	25	01/17/2025 14:18	WG2435218
m&p-Xylene	0.0395		0.00760	100	01/18/2025 15:52	WG2435323
o-Xylene	0.0157		0.00352	100	01/18/2025 15:52	WG2435323
trans-1,2-Dichloroethene	ND		0.00104	25	01/17/2025 14:18	WG2435218
trans-1,3-Dichloropropene	ND		0.00114	25	01/17/2025 14:18	WG2435218
(S) 4-Bromofluorobenzene	100			67.0-138	01/17/2025 14:18	WG2435218
(S) 4-Bromofluorobenzene	106			67.0-138	01/18/2025 15:52	WG2435323
(S) 4-Bromofluorobenzene	95.8			67.0-138	01/21/2025 13:56	WG2436480
(S) Toluene-d8	97.8			75.0-131	01/17/2025 14:18	WG2435218
(S) Toluene-d8	97.6			75.0-131	01/18/2025 15:52	WG2435323
(S) Toluene-d8	104			75.0-131	01/21/2025 13:56	WG2436480
(S) 1,2-Dichloroethane-d4	90.2			70.0-130	01/17/2025 14:18	WG2435218
(S) 1,2-Dichloroethane-d4	90.8			70.0-130	01/18/2025 15:52	WG2435323
(S) 1,2-Dichloroethane-d4	101			70.0-130	01/21/2025 13:56	WG2436480
(S) 1,2-Dichloroethane-d4	90.4			70.0-130	01/21/2025 16:15	WG2436369
(S) 4-Bromofluorobenzene	105			77.0-126	01/21/2025 16:15	WG2436369
(S) Toluene-d8	103			80.0-120	01/21/2025 16:15	WG2436369

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Pesticides (GC) by Method EPA 608.3

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
4,4-DDD	ND		0.0000500	1	01/15/2025 13:54	WG2433414
4,4-DDE	ND		0.0000500	1	01/15/2025 13:54	WG2433414
4,4-DDT	ND		0.0000500	1	01/15/2025 13:54	WG2433414
Aldrin	ND		0.0000500	1	01/15/2025 13:54	WG2433414
Alpha BHC	ND		0.0000500	1	01/15/2025 13:54	WG2433414
Beta BHC	ND		0.0000500	1	01/15/2025 13:54	WG2433414
Chlordane	ND		0.000500	1	01/15/2025 13:54	WG2433414
Delta BHC	ND		0.0000500	1	01/15/2025 13:54	WG2433414
Dieldrin	ND		0.0000500	1	01/15/2025 13:54	WG2433414
Endosulfan I	ND		0.0000500	1	01/15/2025 13:54	WG2433414
Endosulfan II	ND		0.0000500	1	01/15/2025 13:54	WG2433414
Endosulfan sulfate	ND		0.0000500	1	01/15/2025 13:54	WG2433414
Endrin	ND		0.0000500	1	01/15/2025 13:54	WG2433414
Endrin aldehyde	ND		0.0000500	1	01/15/2025 13:54	WG2433414
Gamma BHC	ND		0.0000500	1	01/15/2025 13:54	WG2433414
Heptachlor	ND		0.0000500	1	01/15/2025 13:54	WG2433414
Heptachlor epoxide	ND		0.0000500	1	01/15/2025 13:54	WG2433414
Toxaphene	ND		0.000500	1	01/15/2025 13:54	WG2433414
(S) Tetrachloro-m-xylene	24.2			10.0-135	01/15/2025 13:54	WG2433414
(S) Decachlorobiphenyl	2.90	J2		10.0-144	01/15/2025 13:54	WG2433414

Sample Narrative:

L1816567-01 WG2433414: Sample produced emulsion during Extraction process, low surr/spike recoveries due to matrix.

Polychlorinated Biphenyls (GC) by Method EPA-608.3

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
PCB 1016	ND		0.000200	2	01/16/2025 16:09	WG2434422
PCB 1221	ND		0.000200	2	01/16/2025 16:09	WG2434422
PCB 1232	ND		0.000200	2	01/16/2025 16:09	WG2434422
PCB 1242	ND		0.000200	2	01/16/2025 16:09	WG2434422
PCB 1248	ND		0.000200	2	01/16/2025 16:09	WG2434422

Polychlorinated Biphenyls (GC) by Method EPA-608.3

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
PCB 1254	ND		0.000200	2	01/16/2025 16:09	WG2434422
PCB 1260	ND		0.000240	2	01/16/2025 16:09	WG2434422
(S) Tetrachloro-m-xylene	9.65	J2		10.0-135	01/16/2025 16:09	WG2434422
(S) Decachlorobiphenyl	1.91	J2		10.0-144	01/16/2025 16:09	WG2434422

Sample Narrative:

L1816567-01 WG2434422: Dilution due to sulfur cleanup.

Semi Volatile Organic Compounds (GC/MS) by Method 625.1

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
1,2,4-Trichlorobenzene	ND		0.0100	5	01/23/2025 13:00	WG2432984
1,2-Dichlorobenzene	ND		0.0100	5	01/23/2025 13:00	WG2432984
1,2-Diphenylhydrazine	ND	N2	0.0100	5	01/23/2025 13:00	WG2432984
1,3-Dichlorobenzene	ND		0.0100	5	01/23/2025 13:00	WG2432984
1,4-Dichlorobenzene	ND		0.0100	5	01/23/2025 13:00	WG2432984
2,2-Oxybis(1-Chloropropane)	ND		0.00500	5	01/23/2025 13:00	WG2432984
2,4,6-Trichlorophenol	ND		0.0100	5	01/23/2025 13:00	WG2432984
2,4-Dichlorophenol	ND		0.0100	5	01/23/2025 13:00	WG2432984
2,4-Dimethylphenol	ND		0.0100	5	01/23/2025 13:00	WG2432984
2,4-Dinitrophenol	ND		0.0163	5	01/23/2025 13:00	WG2432984
2,4-Dinitrotoluene	ND		0.0100	5	01/23/2025 13:00	WG2432984
2,6-Dinitrotoluene	ND		0.0100	5	01/23/2025 13:00	WG2432984
2-Chloronaphthalene	ND		0.00500	5	01/23/2025 13:00	WG2432984
2-Chlorophenol	ND		0.0100	5	01/23/2025 13:00	WG2432984
2-Nitrophenol	ND		0.0100	5	01/23/2025 13:00	WG2432984
3,3-Dichlorobenzidine	ND		5.00	5	01/23/2025 13:00	WG2432984
4,6-Dinitro-2-methylphenol	ND		0.0132	5	01/23/2025 13:00	WG2432984
4-Bromophenyl-phenylether	ND		0.00500	5	01/23/2025 13:00	WG2432984
4-Chloro-3-methylphenol	ND		0.0100	5	01/23/2025 13:00	WG2432984
4-Chlorophenyl-phenylether	ND		0.00500	5	01/23/2025 13:00	WG2432984
4-Nitrophenol	ND		0.0150	5	01/23/2025 13:00	WG2432984
Acenaphthene	ND		0.00500	5	01/23/2025 13:00	WG2432984
Acenaphthylene	ND		0.00500	5	01/23/2025 13:00	WG2432984
Anthracene	ND		0.00500	5	01/23/2025 13:00	WG2432984
Benzidine	ND		0.0800	5	01/23/2025 13:00	WG2432984
Benzo(A)Anthracene	ND		0.00500	5	01/23/2025 13:00	WG2432984
Benzo(a)pyrene	ND		0.00500	5	01/23/2025 13:00	WG2432984
Benzo(b)fluoranthene	ND		0.00500	5	01/23/2025 13:00	WG2432984
Benzo(g,h,i)perylene	ND		0.00500	5	01/23/2025 13:00	WG2432984
Benzo(k)fluoranthene	ND		0.00500	5	01/23/2025 13:00	WG2432984
Benzylbutyl phthalate	ND		0.00500	5	01/23/2025 13:00	WG2432984
Bis(2-Ethylhexyl)phthalate	ND		0.0100	5	01/23/2025 13:00	WG2432984
Bis(2-chlorethoxy)methane	ND		0.0100	5	01/23/2025 13:00	WG2432984
Bis(2-chloroethyl)ether	ND		0.0100	5	01/23/2025 13:00	WG2432984
Chrysene	ND		0.00500	5	01/23/2025 13:00	WG2432984
Di-n-butyl phthalate	ND		0.00500	5	01/23/2025 13:00	WG2432984
Di-n-octyl phthalate	ND		0.00500	5	01/23/2025 13:00	WG2432984
Dibenz(a,h)anthracene	ND		0.00500	5	01/23/2025 13:00	WG2432984
Diethyl phthalate	ND		0.00500	5	01/23/2025 13:00	WG2432984
Dimethyl phthalate	ND		0.00500	5	01/23/2025 13:00	WG2432984
Fluoranthene	ND		0.00500	5	01/23/2025 13:00	WG2432984
Fluorene	ND		0.00500	5	01/23/2025 13:00	WG2432984
Hexachloro-1,3-butadiene	ND		0.0100	5	01/23/2025 13:00	WG2432984
Hexachlorobenzene	ND		0.00500	5	01/23/2025 13:00	WG2432984
Hexachlorocyclopentadiene	ND		0.0117	5	01/23/2025 13:00	WG2432984

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

Semi Volatile Organic Compounds (GC/MS) by Method 625.1

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Hexachloroethane	ND		0.0100	5	01/23/2025 13:00	WG2432984
Indeno(1,2,3-cd)pyrene	ND		0.00500	5	01/23/2025 13:00	WG2432984
Isophorone	ND		0.0100	5	01/23/2025 13:00	WG2432984
Naphthalene	0.00446		0.00186	5	01/23/2025 13:00	WG2432984
Nitrobenzene	ND		0.0100	5	01/23/2025 13:00	WG2432984
Pentachlorophenol	ND		0.0100	5	01/23/2025 13:00	WG2432984
Phenanthrene	ND		0.00500	5	01/23/2025 13:00	WG2432984
Phenol	0.139		0.0100	5	01/24/2025 23:56	WG2432984
Pyrene	ND		0.00500	5	01/23/2025 13:00	WG2432984
n-Nitrosodi-n-propylamine	ND		0.00500	5	01/23/2025 13:00	WG2432984
n-Nitrosodimethylamine	ND		0.0100	5	01/23/2025 13:00	WG2432984
n-Nitrosodiphenylamine	ND		0.0100	5	01/23/2025 13:00	WG2432984
(S) Phenol-d5	61.2			8.00-424	01/23/2025 13:00	WG2432984
(S) Phenol-d5	43.1			8.00-424	01/24/2025 23:56	WG2432984
(S) Nitrobenzene-d5	62.9			15.0-314	01/24/2025 23:56	WG2432984
(S) Nitrobenzene-d5	88.7			15.0-314	01/23/2025 13:00	WG2432984
(S) 2,4,6-Tribromophenol	71.4			10.0-153	01/23/2025 13:00	WG2432984
(S) 2,4,6-Tribromophenol	77.0			10.0-153	01/24/2025 23:56	WG2432984
(S) p-Terphenyl-d14	13.5	J2		29.0-141	01/23/2025 13:00	WG2432984
(S) p-Terphenyl-d14	12.4	J2		29.0-141	01/24/2025 23:56	WG2432984
(S) 2-Fluorophenol	43.1			10.0-120	01/24/2025 23:56	WG2432984
(S) 2-Fluorophenol	78.6			10.0-120	01/23/2025 13:00	WG2432984
(S) 2-Fluorobiphenyl	52.8			22.0-127	01/23/2025 13:00	WG2432984
(S) 2-Fluorobiphenyl	48.7			22.0-127	01/24/2025 23:56	WG2432984

Sample Narrative:

L1816567-01 WG2432984: Dilution and surrogate failure due to matrix interference.

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4167139-1 01/14/25 14:34

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Suspended Solids	ND		0.350	2.50

L1816520-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1816520-01 01/14/25 14:34 • (DUP) R4167139-3 01/14/25 14:34

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	183	220	1	18.4	P1	10

L1816531-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1816531-01 01/14/25 14:34 • (DUP) R4167139-4 01/14/25 14:34

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	71.6	67.4	1	6.06		10

Laboratory Control Sample (LCS)

(LCS) R4167139-2 01/14/25 14:34

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Suspended Solids	773	718	92.9	85.0-115	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4166935-2 01/14/25 18:04

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Alkalinity	ND		2.71	20.0

Sample Narrative:
BLANK: Endpoint pH 4.5

L1816221-16 Original Sample (OS) • Duplicate (DUP)

(OS) L1816221-16 01/14/25 18:41 • (DUP) R4166935-3 01/14/25 18:47

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Alkalinity	8190	8150	1	0.421		20

Sample Narrative:
OS: Endpoint pH 4.5 Headspace
DUP: Endpoint pH 4.5 Headspace

L1816577-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1816577-01 01/14/25 20:04 • (DUP) R4166935-4 01/14/25 20:10

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Alkalinity	869	874	1	0.639		20

Sample Narrative:
OS: Endpoint pH 4.5 Headspace
DUP: Endpoint pH 4.5 Headspace

Laboratory Control Sample (LCS)

(LCS) R4166935-1 01/14/25 17:57

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Alkalinity	100	101	101	90.0-110	

Sample Narrative:
LCS: Endpoint pH 4.5

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4167421-1 01/15/25 20:10

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Chloride	ND		0.0519	1.00
Sulfate	ND		0.0774	5.00

L1816926-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1816926-01 01/16/25 01:54 • (DUP) R4167421-6 01/16/25 02:11

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Chloride	10.1	10.1	1	0.0218		15
Sulfate	9.60	9.40	1	2.12		15

Laboratory Control Sample (LCS)

(LCS) R4167421-2 01/15/25 20:27

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Chloride	40.0	39.8	99.4	90.0-110	
Sulfate	40.0	39.9	99.8	90.0-110	

L1816911-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1816911-02 01/16/25 00:46 • (MS) R4167421-4 01/16/25 01:20 • (MSD) R4167421-5 01/16/25 01:37

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Chloride	40.0	137	149	149	30.6	30.6	1	90.0-110	E J6	E J6	0.00536	15
Sulfate	40.0	2200	1790	1790	0.000	0.000	1	90.0-110	E V	E V	0.101	15

L1816926-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1816926-01 01/16/25 01:54 • (MS) R4167421-7 01/16/25 02:28

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Chloride	40.0	10.1	48.5	96.1	1	90.0-110	
Sulfate	40.0	9.60	47.9	95.6	1	90.0-110	

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R4168305-1 01/19/25 21:40

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Cyanide	ND		0.00180	0.00500

L1816701-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1816701-01 01/19/25 22:03 • (DUP) R4168305-5 01/19/25 22:04

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Cyanide	ND	ND	1	200	P1	20

Laboratory Control Sample (LCS)

(LCS) R4168305-2 01/19/25 21:41

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Cyanide	0.100	0.101	101	87.1-120	

L1816484-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1816484-01 01/19/25 21:50 • (MS) R4168305-3 01/19/25 21:51 • (MSD) R4168305-4 01/19/25 21:53

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Cyanide	0.100	ND	ND	0.0566	3.42	54.4	1	90.0-110	J6	J3 J6	164	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4166931-1 01/14/25 20:43

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
COD	ND		3.00	10.0

L1816492-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1816492-07 01/14/25 20:46 • (DUP) R4166931-5 01/14/25 20:46

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
COD	ND	ND	1	0.000		20

L1816492-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1816492-08 01/14/25 20:47 • (DUP) R4166931-6 01/14/25 20:47

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
COD	44.5	43.4	1	2.36		20

Laboratory Control Sample (LCS)

(LCS) R4166931-2 01/14/25 20:44

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
COD	500	516	103	90.0-110	

L1816492-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1816492-05 01/14/25 20:46 • (MS) R4166931-3 01/14/25 20:46 • (MSD) R4166931-4 01/14/25 20:46

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
COD	500	16.8	520	522	101	101	1	90.0-110			0.376	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1816606-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1816606-01 01/14/25 22:34 • (DUP) R4166957-2 01/14/25 22:34

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	7.93	7.94	1	0.126		1

Sample Narrative:

OS: 7.93 at 19.5C

DUP: 7.94 at 19.7C

Laboratory Control Sample (LCS)

(LCS) R4166957-1 01/14/25 22:34

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	9.99	99.9	99.0-101	

Sample Narrative:

LCS: 9.99 at 18.7C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1816273-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1816273-01 01/14/25 12:00 • (DUP) R4166758-3 01/14/25 12:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	deg F	deg F		%		%
Flashpoint	DNF at 170	DNF at 170	1	0.000		10

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4166758-1 01/14/25 12:00 • (LCSD) R4166758-2 01/14/25 12:00

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	deg F	deg F	deg F	%	%	%			%	%
Flashpoint	126	128	122	102	97.1	96.0-104			4.79	10

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R4169096-1 01/21/25 22:30

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Mercury	ND		0.0000490	0.000200

Laboratory Control Sample (LCS)

(LCS) R4169096-2 01/21/25 22:33

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Mercury	0.00300	0.00290	96.5	85.0-115	

L1817213-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1817213-04 01/21/25 22:35 • (MS) R4169096-4 01/21/25 22:40 • (MSD) R4169096-5 01/21/25 22:43

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Mercury	0.00300	ND	0.00303	0.00295	101	98.3	1	70.0-130			2.59	20

L1817571-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1817571-02 01/21/25 22:46 • (MS) R4169096-6 01/21/25 22:48 • (MSD) R4169096-7 01/21/25 22:51

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Mercury	0.00300	0.000358	0.00277	0.00294	80.4	86.2	1	70.0-130			6.07	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4169491-3 01/22/25 16:25

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Silver	ND		0.00270	0.00500
Arsenic	ND		0.00640	0.0100
Beryllium	ND		0.000700	0.00200
Boron	ND		0.0159	0.200
Calcium	ND		0.100	1.00
Cadmium	ND		0.000700	0.00200
Chromium	0.00213	U	0.00180	0.0100
Copper	ND		0.00700	0.0100
Potassium	ND		0.107	1.00
Magnesium	ND		0.0168	1.00
Molybdenum	ND		0.00170	0.00500
Sodium	ND		0.0939	1.00
Nickel	ND	U	0.00580	0.0100
Lead	ND		0.00200	0.00500
Antimony	ND		0.00770	0.0100
Selenium	ND		0.00760	0.0100
Thallium	ND		0.00670	0.0100
Zinc	0.0112	U	0.00340	0.0500

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R4169491-4 01/22/25 16:26

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Silver	0.200	0.204	102	85.0-115	
Arsenic	1.00	0.971	97.1	85.0-115	
Beryllium	1.00	1.00	100	85.0-115	
Boron	1.00	0.950	95.0	85.0-115	
Calcium	10.0	10.0	100	85.0-115	
Cadmium	1.00	0.989	98.9	85.0-115	
Chromium	1.00	1.01	101	85.0-115	
Copper	1.00	1.01	101	85.0-115	
Potassium	10.0	10.1	101	85.0-115	
Magnesium	10.0	9.71	97.1	85.0-115	
Molybdenum	1.00	1.00	100	85.0-115	
Sodium	10.0	10.4	104	85.0-115	
Nickel	1.00	0.949	94.9	85.0-115	
Lead	1.00	0.972	97.2	85.0-115	
Antimony	1.00	0.998	99.8	85.0-115	

Laboratory Control Sample (LCS)

(LCS) R4169491-4 01/22/25 16:26

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Selenium	1.00	0.952	95.2	85.0-115	
Thallium	1.00	1.01	101	85.0-115	
Zinc	1.00	1.02	102	85.0-115	

L1819018-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1819018-02 01/22/25 16:28 • (MS) R4169491-6 01/22/25 16:31 • (MSD) R4169491-7 01/22/25 16:33

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Silver	0.200	ND	0.220	0.217	110	109	1	70.0-130			1.13	20
Arsenic	1.00	ND	1.07	1.05	107	105	1	70.0-130			1.14	20
Beryllium	1.00	ND	1.03	1.03	103	103	1	70.0-130			0.282	20
Boron	1.00	ND	1.14	1.15	98.6	99.6	1	70.0-130			0.830	20
Calcium	10.0	26.7	36.9	37.4	102	108	1	70.0-130			1.56	20
Cadmium	1.00	ND	1.05	1.04	105	104	1	70.0-130			0.570	20
Chromium	1.00	ND	1.04	1.03	104	102	1	70.0-130			1.02	20
Copper	1.00	ND	1.03	1.02	103	102	1	70.0-130			0.612	20
Potassium	10.0	17.3	29.2	29.4	119	121	1	70.0-130			0.492	20
Magnesium	10.0	4.75	13.7	13.9	89.7	91.6	1	70.0-130			1.33	20
Molybdenum	1.00	0.351	1.41	1.39	106	104	1	70.0-130			0.936	20
Sodium	10.0	2340	2400	2420	621	813	1	70.0-130	<u>E V</u>	<u>E V</u>	0.794	20
Nickel	1.00	0.0216	1.04	1.03	102	101	1	70.0-130			0.939	20
Lead	1.00	ND	0.992	0.982	99.2	98.2	1	70.0-130			1.01	20
Antimony	1.00	ND	1.06	1.04	106	104	1	70.0-130			1.19	20
Selenium	1.00	ND	1.09	1.08	109	108	1	70.0-130			1.02	20
Thallium	1.00	ND	0.983	0.969	98.3	96.9	1	70.0-130			1.47	20
Zinc	1.00	ND	0.993	0.985	98.9	98.0	1	70.0-130			0.813	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4167891-3 01/17/25 10:45

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
1,1,1-Trichloroethane	ND		0.0000369	0.000100
1,1,2,2-Tetrachloroethane	ND		0.0000278	0.000100
1,1,2-Trichloroethane	ND		0.0000239	0.000100
1,1-Dichloroethane	ND		0.0000196	0.000100
1,1-Dichloroethene	ND		0.0000242	0.000100
1,2,4-Trichlorobenzene	ND		0.000176	0.000500
1,2-Dichloroethane	ND		0.0000260	0.000100
1,2-Dichloropropane	ND		0.0000568	0.000200
2-Butanone (MEK)	ND		0.00254	0.00400
4-Methyl-2-pentanone (MIBK)	ND		0.0000912	0.00100
Acrylonitrile	ND		0.000144	0.000500
Benzene	ND		0.0000187	0.0000400
Bromodichloromethane	ND		0.0000290	0.000100
Bromoform	ND		0.0000468	0.00100
Bromomethane	ND		0.0000788	0.000500
Carbon tetrachloride	ND		0.0000359	0.000200
Chlorobenzene	ND		0.00000840	0.000100
Chloroethane	ND		0.0000680	0.000200
Chloroform	ND		0.0000412	0.000100
Chloromethane	ND		0.000174	0.000500
Dibromochloromethane	ND		0.0000245	0.000100
Ethyl ether	ND		0.0000356	0.000100
Hexachloro-1,3-butadiene	ND		0.0000485	0.00100
Methylene Chloride	ND		0.000266	0.00100
Tetrachloroethene	ND		0.0000358	0.000100
Tetrahydrofuran	ND		0.000141	0.000500
Toluene	ND		0.0000520	0.000200
Trichloroethene	ND		0.0000234	0.0000400
cis-1,3-Dichloropropene	ND		0.0000303	0.000100
trans-1,2-Dichloroethene	ND		0.0000416	0.000200
trans-1,3-Dichloropropene	ND		0.0000456	0.000200
(S) 4-Bromofluorobenzene	95.0			67.0-138
(S) Toluene-d8	102			75.0-131
(S) 1,2-Dichloroethane-d4	91.1			70.0-130

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4167891-1 01/17/25 09:26 • (LCSD) R4167891-2 01/17/25 09:46

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
1,1,1-Trichloroethane	0.00500	0.00524	0.00513	105	103	69.0-126			2.12	20
1,1,2,2-Tetrachloroethane	0.00500	0.00484	0.00458	96.8	91.6	68.0-128			5.52	20
1,1,2-Trichloroethane	0.00500	0.00543	0.00521	109	104	78.0-123			4.14	20
1,1-Dichloroethane	0.00500	0.00502	0.00494	100	98.8	70.0-127			1.61	20
1,1-Dichloroethene	0.00500	0.00506	0.00495	101	99.0	65.0-131			2.20	20
1,2,4-Trichlorobenzene	0.00500	0.00399	0.00403	79.8	80.6	62.0-137			0.998	20
1,2-Dichloroethane	0.00500	0.00511	0.00507	102	101	65.0-131			0.786	20
1,2-Dichloropropane	0.00500	0.00530	0.00487	106	97.4	74.0-125			8.46	20
2-Butanone (MEK)	0.0250	0.0233	0.0212	93.2	84.8	30.0-160			9.44	24
4-Methyl-2-pentanone (MIBK)	0.0250	0.0241	0.0227	96.4	90.8	56.0-143			5.98	20
Acrylonitrile	0.0250	0.0204	0.0198	81.6	79.2	45.0-153			2.99	22
Benzene	0.00500	0.00514	0.00497	103	99.4	70.0-123			3.36	20
Bromodichloromethane	0.00500	0.00508	0.00505	102	101	73.0-121			0.592	20
Bromoform	0.00500	0.00439	0.00440	87.8	88.0	64.0-132			0.228	20
Bromomethane	0.00500	0.00361	0.00371	72.2	74.2	56.0-147			2.73	20
Carbon tetrachloride	0.00500	0.00535	0.00524	107	105	66.0-128			2.08	20
Chlorobenzene	0.00500	0.00525	0.00511	105	102	76.0-128			2.70	20
Chloroethane	0.00500	0.00421	0.00423	84.2	84.6	61.0-134			0.474	20
Chloroform	0.00500	0.00472	0.00475	94.4	95.0	72.0-123			0.634	20
Chloromethane	0.00500	0.00547	0.00533	109	107	51.0-138			2.59	20
Dibromochloromethane	0.00500	0.00526	0.00522	105	104	74.0-127			0.763	20
Ethyl ether	0.00500	0.00484	0.00504	96.8	101	64.0-137			4.05	20
Hexachloro-1,3-butadiene	0.00500	0.00430	0.00439	86.0	87.8	57.0-150			2.07	20
Methylene Chloride	0.00500	0.00412	0.00412	82.4	82.4	68.0-123			0.000	20
Tetrachloroethene	0.00500	0.00583	0.00547	117	109	70.0-136			6.37	20
Tetrahydrofuran	0.00500	0.00468	0.00379	93.6	75.8	37.0-146	U	U	21.0	24
Toluene	0.00500	0.00558	0.00526	112	105	75.0-121			5.90	20
Trichloroethene	0.00500	0.00594	0.00562	119	112	76.0-126			5.54	20
cis-1,3-Dichloropropene	0.00500	0.00546	0.00521	109	104	76.0-127			4.69	20
trans-1,2-Dichloroethene	0.00500	0.00480	0.00475	96.0	95.0	71.0-125			1.05	20
trans-1,3-Dichloropropene	0.00500	0.00566	0.00537	113	107	73.0-127			5.26	20
(S) 4-Bromofluorobenzene				96.9	101	67.0-138				
(S) Toluene-d8				101	100	75.0-131				
(S) 1,2-Dichloroethane-d4				94.9	96.1	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4168482-3 01/18/25 12:26

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Acetone	ND		0.00146	0.00200
Ethylbenzene	ND		0.0000295	0.000100
Naphthalene	ND		0.000195	0.000500
Total Xylene	ND		0.0000352	0.000260
m&p-Xylene	ND		0.0000760	0.000160
o-Xylene	ND		0.0000352	0.000100
(S) 4-Bromofluorobenzene	103			67.0-138
(S) Toluene-d8	97.1			75.0-131
(S) 1,2-Dichloroethane-d4	90.4			70.0-130

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4168482-1 01/18/25 11:08 • (LCSD) R4168482-2 01/18/25 11:27

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	0.0250	0.0233	0.0215	93.2	86.0	10.0-160			8.04	31
Ethylbenzene	0.00500	0.00473	0.00493	94.6	98.6	74.0-126			4.14	20
Naphthalene	0.00500	0.00429	0.00429	85.8	85.8	59.0-130			0.000	20
Total Xylene	0.0150	0.0138	0.0141	92.0	94.0	72.0-127			2.15	20
m&p-Xylene	0.0100	0.00920	0.00940	92.0	94.0	76.0-126			2.15	20
o-Xylene	0.00500	0.00464	0.00467	92.8	93.4	79.0-124			0.644	20
(S) 4-Bromofluorobenzene				101	98.7	67.0-138				
(S) Toluene-d8				95.1	98.7	75.0-131				
(S) 1,2-Dichloroethane-d4				95.8	93.6	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4168993-4 01/21/25 11:08

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
2-Propanol	ND		0.00165	0.00500
2-Chloroethyl vinyl ether	ND		0.000575	0.0500
Acrolein	ND		0.00254	0.0500
(S) 1,2-Dichloroethane-d4	92.0			70.0-130
(S) 4-Bromofluorobenzene	105			77.0-126
(S) Toluene-d8	105			80.0-120

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4168993-1 01/21/25 09:19 • (LCSD) R4168993-2 01/21/25 09:40

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
2-Chloroethyl vinyl ether	0.0250	0.0212	0.0214	84.8	85.6	51.0-160	J	J	0.939	20
Acrolein	0.0250	0.0235	0.0234	94.0	93.6	10.0-160	J	J	0.426	26
(S) 1,2-Dichloroethane-d4				93.1	92.6	70.0-130				
(S) 4-Bromofluorobenzene				98.1	96.6	77.0-126				
(S) Toluene-d8				96.5	96.9	80.0-120				

Laboratory Control Sample (LCS)

(LCS) R4168993-3 01/21/25 10:02

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
2-Propanol	0.0500	0.0521	104	10.0-160	
(S) 1,2-Dichloroethane-d4			85.1	70.0-130	
(S) 4-Bromofluorobenzene			104	77.0-126	
(S) Toluene-d8			101	80.0-120	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4168897-3 01/21/25 11:58

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Vinyl chloride	ND		0.0000462	0.0000500
(S) 4-Bromofluorobenzene	95.3			67.0-138
(S) Toluene-d8	103			75.0-131
(S) 1,2-Dichloroethane-d4	99.6			70.0-130

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4168897-1 01/21/25 10:37 • (LCSD) R4168897-2 01/21/25 10:57

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Vinyl chloride	0.00500	0.00489	0.00436	97.8	87.2	63.0-134			11.5	20
(S) 4-Bromofluorobenzene				96.6	93.8	67.0-138				
(S) Toluene-d8				102	100	75.0-131				
(S) 1,2-Dichloroethane-d4				101	104	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4167197-1 01/15/25 11:59

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
4,4-DDD	ND		0.0000170	0.0000500
4,4-DDE	ND		0.0000164	0.0000500
4,4-DDT	ND		0.0000177	0.0000500
Aldrin	ND		0.00000813	0.0000500
Alpha BHC	ND		0.0000166	0.0000500
Beta BHC	ND		0.0000184	0.0000500
Chlordane	ND		0.0000977	0.000500
Delta BHC	ND		0.0000197	0.0000500
Dieldrin	ND		0.00000751	0.0000500
Endosulfan I	ND		0.0000179	0.0000500
Endosulfan II	ND		0.0000176	0.0000500
Endosulfan sulfate	ND		0.0000196	0.0000500
Endrin	ND		0.0000189	0.0000500
Endrin aldehyde	ND		0.0000142	0.0000500
Gamma BHC	ND		0.0000176	0.0000500
Heptachlor	ND		0.0000108	0.0000500
Heptachlor epoxide	ND		0.0000175	0.0000500
Toxaphene	ND		0.000168	0.000500
(S) Tetrachloro-m-xylene	98.4			10.0-135
(S) Decachlorobiphenyl	63.2			10.0-144

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R4167197-5 01/15/25 12:09

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
4,4-DDD	0.00100	0.00107	107	31.0-141	
4,4-DDE	0.00100	0.00103	103	30.0-145	
4,4-DDT	0.00100	0.00102	102	25.0-160	
Aldrin	0.00100	0.000997	99.7	42.0-140	
Alpha BHC	0.00100	0.00105	105	37.0-140	
Beta BHC	0.00100	0.00106	106	17.0-147	
Delta BHC	0.00100	0.000981	98.1	19.0-140	
Dieldrin	0.00100	0.00108	108	36.0-146	
Endosulfan I	0.00100	0.00108	108	45.0-153	
Endosulfan II	0.00100	0.00110	110	1.00-202	
Endosulfan sulfate	0.00100	0.00108	108	26.0-144	
Endrin	0.00100	0.00109	109	30.0-147	
Endrin aldehyde	0.00100	0.00103	103	56.0-128	

Laboratory Control Sample (LCS)

(LCS) R4167197-5 01/15/25 12:09

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Gamma BHC	0.00100	0.00106	106	32.0-140	
Heptachlor	0.00100	0.00101	101	34.0-140	
Heptachlor epoxide	0.00100	0.00106	106	37.0-142	
(S) Tetrachloro-m-xylene			91.7	10.0-135	
(S) Decachlorobiphenyl			59.3	10.0-144	

L1816680-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1816680-01 01/16/25 16:20 • (MS) R4167713-1 01/16/25 16:31 • (MSD) R4167713-2 01/16/25 16:41

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
4,4-DDD	0.00100	ND	0.000150	0.000106	15.0	10.6	1	31.0-141	J6 P	J6 P	34.4	39
4,4-DDE	0.00100	ND	0.000116	0.0000649	11.6	6.49	1	30.0-145	J6 P	J3 J6 P	56.5	35
4,4-DDT	0.00100	ND	0.000113	0.0000816	11.3	8.16	1	25.0-160	J6 P	J6 P	32.3	42
Aldrin	0.00100	ND	0.000119	0.0000864	11.9	8.64	1	42.0-140	J6 P	J6 P	31.7	35
Alpha BHC	0.00100	ND	0.000539	0.000527	53.9	52.7	1	37.0-140	P	P	2.25	36
Beta BHC	0.00100	ND	0.000486	0.000490	48.6	49.0	1	17.0-147	P	P	0.820	44
Delta BHC	0.00100	ND	0.000537	0.000544	53.7	54.4	1	19.0-140	P	P	1.30	52
Dieldrin	0.00100	ND	0.000568	0.000560	56.8	56.0	1	36.0-146	P	P	1.42	49
Endosulfan I	0.00100	ND	0.000459	0.000423	45.9	42.3	1	45.0-153	P	J6	8.16	28
Endosulfan II	0.00100	ND	0.000288	0.000238	28.8	23.8	1	1.00-202	P	P	19.0	53
Endosulfan sulfate	0.00100	ND	0.000362	0.000319	36.2	31.9	1	26.0-144			12.6	38
Endrin	0.00100	ND	0.000295	0.000250	29.5	25.0	1	30.0-147	J6 P	J6 P	16.5	48
Endrin aldehyde	0.00100	ND	0.0000979	0.0000986	9.79	9.86	1	56.0-128	J6 P	J6	0.712	20
Gamma BHC	0.00100	ND	0.000547	0.000492	54.7	49.2	1	32.0-140	P	P	10.6	39
Heptachlor	0.00100	ND	0.000182	0.000132	18.2	13.2	1	34.0-140	J6 P	J6 P	31.8	43
Heptachlor epoxide	0.00100	ND	0.000230	0.000186	23.0	18.6	1	37.0-142	J6 P	J6 P	21.2	26
(S) Tetrachloro-m-xylene					14.6	9.94		10.0-135		J2		
(S) Decachlorobiphenyl					5.96	3.55		10.0-144	J2	J2		

Sample Narrative:

OS: Surrogate failure due to matrix interference



Method Blank (MB)

(MB) R4167707-1 01/16/25 14:44

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
PCB 1016	ND		0.000200	0.000400
PCB 1221	ND		0.000146	0.000400
PCB 1232	ND		0.0000840	0.000400
PCB 1242	ND		0.0000940	0.000400
PCB 1248	ND		0.000172	0.000400
PCB 1254	ND		0.0000940	0.000400
PCB 1260	ND		0.000240	0.000400
(S) Tetrachloro-m-xylene	81.0			10.0-135
(S) Decachlorobiphenyl	56.3			10.0-144

Sample Narrative:

BLANK: Dilution due to sulfur cleanup.

Laboratory Control Sample (LCS)

(LCS) R4167707-2 01/16/25 14:55

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
PCB 1016	0.00250	0.00253	101	50.0-140	
PCB 1260	0.00250	0.00206	82.4	8.00-140	
(S) Tetrachloro-m-xylene			74.6	10.0-135	
(S) Decachlorobiphenyl			45.4	10.0-144	

Sample Narrative:

LCS: Dilution due to sulfur cleanup.

L1816680-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1816680-01 01/16/25 15:37 • (MS) R4167707-3 01/16/25 15:48 • (MSD) R4167707-4 01/16/25 15:59

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
PCB 1016	0.00250	ND	0.000902	0.000642	36.1	25.7	2	50.0-140	J6	J6	33.7	36
PCB 1260	0.00250	ND	0.000419	0.000286	0.000	0.000	2	8.00-140	J6	J6	0.000	38
(S) Tetrachloro-m-xylene					22.4	17.8		10.0-135				
(S) Decachlorobiphenyl					10.6	7.56		10.0-144		J2		

Sample Narrative:

OS: Dilution due to sulfur cleanup.

MS: Dilution due to sulfur cleanup.

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1816680-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1816680-01 01/16/25 15:37 • (MS) R4167707-3 01/16/25 15:48 • (MSD) R4167707-4 01/16/25 15:59

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %

MSD: Dilution due to sulfur cleanup.

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4167892-2 01/17/25 10:22

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
1,2,4-Trichlorobenzene	ND		0.000355	0.0100
1,2-Dichlorobenzene	ND		0.0000713	0.0100
1,2-Diphenylhydrazine	ND	N2	0.000318	0.0100
1,3-Dichlorobenzene	ND		0.000132	0.0100
1,4-Dichlorobenzene	ND		0.0000942	0.0100
2,2-Oxybis(1-Chloropropane)	ND		0.000445	0.0100
2,4,6-Trichlorophenol	ND		0.000297	0.0100
2,4-Dichlorophenol	ND		0.000284	0.0100
2,4-Dimethylphenol	ND		0.000624	0.0100
2,4-Dinitrophenol	ND		0.00325	0.0100
2,4-Dinitrotoluene	ND		0.00165	0.0100
2,6-Dinitrotoluene	ND		0.000279	0.0100
2-Chloronaphthalene	ND		0.000330	0.00100
2-Chlorophenol	ND		0.000283	0.0100
2-Nitrophenol	ND		0.000320	0.0100
3,3-Dichlorobenzidine	ND		0.00202	0.0100
4,6-Dinitro-2-methylphenol	ND		0.00263	0.0100
4-Bromophenyl-phenylether	ND		0.000335	0.0100
4-Chloro-3-methylphenol	ND		0.000263	0.0100
4-Chlorophenyl-phenylether	ND		0.000303	0.0100
4-Nitrophenol	ND		0.00201	0.0100
Acenaphthene	ND		0.000316	0.00100
Acenaphthylene	ND		0.000309	0.00100
Anthracene	ND		0.000291	0.00100
Benzidine	ND		0.00432	0.0100
Benzo(A)Anthracene	ND		0.0000975	0.00100
Benzo(a)pyrene	ND		0.000340	0.00100
Benzo(b)fluoranthene	ND		0.0000896	0.00100
Benzo(g,h,i)perylene	ND		0.000161	0.00100
Benzo(k)fluoranthene	ND		0.000355	0.00100
Benzylbutyl phthalate	ND		0.000275	0.00300
Bis(2-Ethylhexyl)phthalate	ND		0.000709	0.00300
Bis(2-chlorethoxy)methane	ND		0.000329	0.0100
Bis(2-chloroethyl)ether	ND		0.00162	0.0100
Chrysene	ND		0.000332	0.00100
Di-n-butyl phthalate	ND		0.000266	0.00300
Di-n-octyl phthalate	ND		0.000278	0.00300
Dibenz(a,h)anthracene	ND		0.000279	0.00100
Diethyl phthalate	ND		0.000282	0.00300
Dimethyl phthalate	ND		0.000283	0.00300

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R4167892-2 01/17/25 10:22

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Fluoranthene	ND		0.000310	0.00100
Fluorene	ND		0.000323	0.00100
Hexachloro-1,3-butadiene	ND		0.000329	0.0100
Hexachlorobenzene	ND		0.000341	0.00100
Hexachlorocyclopentadiene	ND		0.00233	0.0100
Hexachloroethane	ND		0.000365	0.0100
Indeno(1,2,3-cd)pyrene	ND		0.000279	0.00100
Isophorone	ND		0.000272	0.0100
Naphthalene	ND		0.000372	0.00100
Nitrobenzene	ND		0.000367	0.0100
Pentachlorophenol	ND		0.000313	0.0100
Phenanthrene	ND		0.000366	0.00100
Phenol	ND		0.000334	0.0100
Pyrene	ND		0.000330	0.00100
n-Nitrosodi-n-propylamine	ND		0.000403	0.0100
n-Nitrosodimethylamine	ND		0.00126	0.0100
n-Nitrosodiphenylamine	ND		0.00119	0.0100
(S) Phenol-d5	21.8			8.00-424
(S) Nitrobenzene-d5	56.5			15.0-314
(S) 2,4,6-Tribromophenol	42.8			10.0-153
(S) p-Terphenyl-d14	68.6			29.0-141
(S) 2-Fluorophenol	33.2			10.0-120
(S) 2-Fluorobiphenyl	61.1			22.0-127

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R4167892-1 01/17/25 10:01

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
1,2,4-Trichlorobenzene	0.0500	0.0298	59.6	44.0-142	
1,2-Dichlorobenzene	0.0500	0.0333	66.6	27.0-120	
1,2-Diphenylhydrazine	0.0500	0.0363	72.6	37.0-125	N2
1,3-Dichlorobenzene	0.0500	0.0326	65.2	26.0-120	
1,4-Dichlorobenzene	0.0500	0.0324	64.8	26.0-120	
2,2-Oxybis(1-Chloropropane)	0.0500	0.0331	66.2	36.0-166	
2,4,6-Trichlorophenol	0.0500	0.0344	68.8	37.0-144	
2,4-Dichlorophenol	0.0500	0.0305	61.0	39.0-135	
2,4-Dimethylphenol	0.0500	0.0207	41.4	32.0-120	
2,4-Dinitrophenol	0.0500	0.0296	59.2	1.00-191	

Laboratory Control Sample (LCS)

(LCS) R4167892-1 01/17/25 10:01

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
2,4-Dinitrotoluene	0.0500	0.0372	74.4	39.0-139	
2,6-Dinitrotoluene	0.0500	0.0380	76.0	50.0-158	
2-Chloronaphthalene	0.0500	0.0356	71.2	60.0-120	
2-Chlorophenol	0.0500	0.0271	54.2	23.0-134	
2-Nitrophenol	0.0500	0.0333	66.6	29.0-182	
3,3-Dichlorobenzidine	0.100	0.0667	66.7	1.00-262	
4,6-Dinitro-2-methylphenol	0.0500	0.0345	69.0	1.00-181	
4-Bromophenyl-phenylether	0.0500	0.0379	75.8	53.0-127	
4-Chloro-3-methylphenol	0.0500	0.0285	57.0	22.0-147	
4-Chlorophenyl-phenylether	0.0500	0.0353	70.6	25.0-158	
4-Nitrophenol	0.0500	0.0148	29.6	1.00-132	
Acenaphthene	0.0500	0.0357	71.4	47.0-145	
Acenaphthylene	0.0500	0.0344	68.8	33.0-145	
Anthracene	0.0500	0.0372	74.4	27.0-133	
Benzidine	0.100	0.00979	9.79	1.00-120	U
Benzo(A)Anthracene	0.0500	0.0396	79.2	33.0-143	
Benzo(a)pyrene	0.0500	0.0403	80.6	17.0-163	
Benzo(b)fluoranthene	0.0500	0.0414	82.8	24.0-159	
Benzo(g,h,i)perylene	0.0500	0.0378	75.6	1.00-219	
Benzo(k)fluoranthene	0.0500	0.0410	82.0	11.0-162	
Benzylbutyl phthalate	0.0500	0.0387	77.4	1.00-152	
Bis(2-Ethylhexyl)phthalate	0.0500	0.0365	73.0	8.00-158	
Bis(2-chlorethoxy)methane	0.0500	0.0314	62.8	1.00-219	
Bis(2-chloroethyl)ether	0.0500	0.0335	67.0	33.0-185	
Chrysene	0.0500	0.0386	77.2	17.0-168	
Di-n-butyl phthalate	0.0500	0.0420	84.0	1.00-120	
Di-n-octyl phthalate	0.0500	0.0391	78.2	4.00-146	
Dibenz(a,h)anthracene	0.0500	0.0406	81.2	1.00-227	
Diethyl phthalate	0.0500	0.0369	73.8	1.00-120	
Dimethyl phthalate	0.0500	0.0365	73.0	1.00-120	
Fluoranthene	0.0500	0.0410	82.0	26.0-137	
Fluorene	0.0500	0.0355	71.0	59.0-121	
Hexachloro-1,3-butadiene	0.0500	0.0286	57.2	24.0-120	
Hexachlorobenzene	0.0500	0.0350	70.0	1.00-152	
Hexachlorocyclopentadiene	0.0500	0.0131	26.2	10.0-120	
Hexachloroethane	0.0500	0.0306	61.2	40.0-120	
Indeno(1,2,3-cd)pyrene	0.0500	0.0408	81.6	1.00-171	
Isophorone	0.0500	0.0297	59.4	21.0-196	
Naphthalene	0.0500	0.0303	60.6	21.0-133	
Nitrobenzene	0.0500	0.0320	64.0	35.0-180	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R4167892-1 01/17/25 10:01

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Pentachlorophenol	0.0500	0.0157	31.4	14.0-176	
Phenanthrene	0.0500	0.0368	73.6	54.0-120	
Phenol	0.0500	0.0148	29.6	5.00-120	
Pyrene	0.0500	0.0410	82.0	52.0-120	
n-Nitrosodi-n-propylamine	0.0500	0.0320	64.0	1.00-230	
n-Nitrosodimethylamine	0.0500	0.0215	43.0	10.0-120	
n-Nitrosodiphenylamine	0.0500	0.0378	75.6	44.0-120	
(S) Phenol-d5			27.0	8.00-424	
(S) Nitrobenzene-d5			57.2	15.0-314	
(S) 2,4,6-Tribromophenol			66.5	10.0-153	
(S) p-Terphenyl-d14			75.1	29.0-141	
(S) 2-Fluorophenol			39.0	10.0-120	
(S) 2-Fluorobiphenyl			66.1	22.0-127	

L1816145-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1816145-06 01/17/25 19:02 • (MS) R4167892-3 01/17/25 19:24 • (MSD) R4167892-4 01/17/25 19:46

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1,2,4-Trichlorobenzene	0.0500	ND	0.0318	0.0281	63.6	56.2	20	44.0-142			12.4	50
1,2-Dichlorobenzene	0.0500	ND	0.0306	0.0264	61.2	52.8	20	14.0-125			14.7	24
1,2-Diphenylhydrazine	0.0500	ND	0.0321	0.0312	64.2	62.4	20	18.0-156	N2	N2	2.84	34
1,3-Dichlorobenzene	0.0500	ND	0.0295	0.0268	59.0	53.6	20	12.0-123			9.59	22
1,4-Dichlorobenzene	0.0500	ND	0.0281	0.0268	56.2	53.6	20	12.0-125			4.74	23
2,2-Oxybis(1-Chloropropane)	0.0500	ND	0.0308	0.0250	61.6	50.0	20	36.0-166			20.8	76
2,4,6-Trichlorophenol	0.0500	ND	0.0345	0.0299	69.0	59.8	20	37.0-144			14.3	58
2,4-Dichlorophenol	0.0500	ND	0.0332	0.0302	66.4	60.4	20	39.0-135			9.46	50
2,4-Dimethylphenol	0.0500	ND	0.0328	0.0301	65.6	60.2	20	32.0-120			8.59	58
2,4-Dinitrophenol	0.0500	ND	0.161	0.157	322	314	20	1.00-191	J5	J5	2.52	132
2,4-Dinitrotoluene	0.0500	ND	ND	ND	60.0	53.2	20	39.0-139			12.0	42
2,6-Dinitrotoluene	0.0500	ND	0.0318	0.0305	63.6	61.0	20	50.0-158			4.17	48
2-Chloronaphthalene	0.0500	ND	0.0314	0.0289	62.8	57.8	20	60.0-120		J6	8.29	24
2-Chlorophenol	0.0500	ND	0.0272	0.0245	54.4	49.0	20	23.0-134			10.4	61
2-Nitrophenol	0.0500	ND	0.0327	0.0317	65.4	63.4	20	29.0-182			3.11	55
3,3-Dichlorobenzidine	0.100	ND	ND	ND	9.20	12.6	20	1.00-262			31.2	108
4,6-Dinitro-2-methylphenol	0.0500	ND	0.0691	0.0671	138	134	20	1.00-181			2.94	203
4-Bromophenyl-phenylether	0.0500	ND	0.0342	0.0300	68.4	60.0	20	53.0-127			13.1	43
4-Chloro-3-methylphenol	0.0500	ND	0.0393	0.0337	78.6	67.4	20	22.0-147			15.3	73
4-Chlorophenyl-phenylether	0.0500	ND	0.0311	0.0278	62.2	55.6	20	25.0-158			11.2	61

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1816145-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1816145-06 01/17/25 19:02 • (MS) R4167892-3 01/17/25 19:24 • (MSD) R4167892-4 01/17/25 19:46

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
4-Nitrophenol	0.0500	ND	ND	ND	37.0	42.0	20	1.00-132			12.7	131
Acenaphthene	0.0500	ND	0.0321	0.0293	64.2	58.6	20	47.0-145			9.12	48
Acenaphthylene	0.0500	ND	0.0435	0.0277	87.0	55.4	20	33.0-145			44.4	74
Anthracene	0.0500	ND	0.0337	0.0287	67.4	57.4	20	27.0-133			16.0	66
Benzidine	0.100	ND	ND	ND	0.000	0.000	20	1.00-120	J6	J6	0.000	40
Benzo(A)Anthracene	0.0500	ND	0.0314	0.0278	62.8	55.6	20	33.0-143			12.2	53
Benzo(a)pyrene	0.0500	ND	0.0264	0.0226	52.8	45.2	20	17.0-163			15.5	72
Benzo(b)fluoranthene	0.0500	ND	0.0287	0.0263	57.4	52.6	20	24.0-159			8.73	71
Benzo(g,h,i)perylene	0.0500	ND	0.0281	0.0265	56.2	53.0	20	1.00-219			5.86	97
Benzo(k)fluoranthene	0.0500	ND	0.0284	0.0237	56.8	47.4	20	11.0-162			18.0	63
Benzylbutyl phthalate	0.0500	ND	0.0602	0.0565	120	113	20	1.00-152			6.34	60
Bis(2-Ethylhexyl)phthalate	0.0500	ND	0.0554	0.0524	111	105	20	8.00-158			5.57	82
Bis(2-chlorethoxy)methane	0.0500	ND	0.0411	0.0360	82.2	72.0	20	33.0-184			13.2	54
Bis(2-chloroethyl)ether	0.0500	ND	ND	ND	63.4	53.2	20	12.0-158			17.5	108
Chrysene	0.0500	ND	0.0313	0.0280	62.6	56.0	20	17.0-168			11.1	87
Di-n-butyl phthalate	0.0500	ND	0.0363	0.0310	72.6	62.0	20	1.00-120			15.8	47
Di-n-octyl phthalate	0.0500	ND	0.0590	0.0551	118	110	20	4.00-146			6.84	69
Dibenz(a,h)anthracene	0.0500	ND	0.0293	0.0258	58.6	51.6	20	1.00-227			12.7	126
Diethyl phthalate	0.0500	ND	0.0374	0.0322	74.8	64.4	20	1.00-120			14.9	100
Dimethyl phthalate	0.0500	ND	0.0350	0.0315	70.0	63.0	20	1.00-120			10.5	183
Fluoranthene	0.0500	ND	0.0345	0.0299	69.0	59.8	20	26.0-137			14.3	66
Fluorene	0.0500	ND	0.0344	0.0300	68.8	60.0	20	59.0-121			13.7	38
Hexachloro-1,3-butadiene	0.0500	ND	0.0292	0.0258	58.4	51.6	20	24.0-120			12.4	62
Hexachlorobenzene	0.0500	ND	0.0324	0.0283	64.8	56.6	20	1.00-152			13.5	55
Hexachlorocyclopentadiene	0.0500	ND	ND	ND	15.7	9.48	20	10.0-146		J3 J6	49.3	34
Hexachloroethane	0.0500	ND	0.0280	0.0260	56.0	52.0	20	40.0-120			7.41	52
Indeno(1,2,3-cd)pyrene	0.0500	ND	0.0318	0.0272	63.6	54.4	20	1.00-171			15.6	99
Isophorone	0.0500	ND	0.0319	0.0280	63.8	56.0	20	21.0-196			13.0	93
Naphthalene	0.0500	ND	0.0379	0.0317	61.9	49.5	20	21.0-133			17.8	65
Nitrobenzene	0.0500	ND	0.0320	0.0270	64.0	54.0	20	35.0-180			16.9	62
Pentachlorophenol	0.0500	ND	0.0427	0.0403	85.4	80.6	20	14.0-176			5.78	86
Phenanthrene	0.0500	ND	0.0352	0.0302	70.4	60.4	20	54.0-120			15.3	39
Phenol	0.0500	0.130	0.164	0.142	68.0	24.0	20	5.00-120			14.4	64
Pyrene	0.0500	ND	0.0347	0.0293	69.4	58.6	20	52.0-120			16.9	49
n-Nitrosodi-n-propylamine	0.0500	ND	0.0318	0.0255	63.6	51.0	20	1.00-230			22.0	87
n-Nitrosodimethylamine	0.0500	ND	0.0434	0.0420	86.8	84.0	20	10.0-120			3.28	40
n-Nitrosodiphenylamine	0.0500	ND	0.0348	0.0319	0.000	0.000	20	16.0-160	J6	J6	0.000	28
(S) Phenol-d5					46.8	50.5		8.00-424	J7	J7		
(S) Nitrobenzene-d5					97.5	49.1		15.0-314	J7	J7		
(S) 2,4,6-Tribromophenol					48.1	56.5		10.0-153	J7	J7		

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1816145-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1816145-06 01/17/25 19:02 • (MS) R4167892-3 01/17/25 19:24 • (MSD) R4167892-4 01/17/25 19:46

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
(S) p-Terphenyl-d14					68.1	56.3		29.0-141	J7	J7		
(S) 2-Fluorophenol					39.5	34.8		10.0-120	J7	J7		
(S) 2-Fluorobiphenyl					60.4	52.4		22.0-127	J7	J7		

Sample Narrative:
OS: Dilution due to matrix.

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

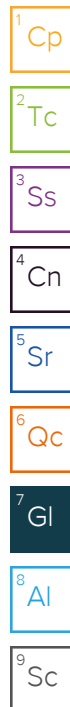
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
C3	The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
N2	Analyte reported using a calibration and validation based on Azobenzene (CAS 103-33-3). 1,2-Diphenylhydrazine decomposes into Azobenzene during the analysis.
P	RPD between the primary and confirmatory analysis exceeded 40%.



GLOSSARY OF TERMS

Qualifier	Description
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
Q	Sample was prepared and/or analyzed past holding time as defined in the method. Concentrations should be considered minimum values.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

ACCREDITATIONS & LOCATIONS

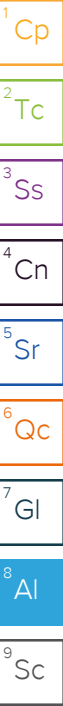
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Company Name/Address:

Elk River Landfill

4300 MarketPoint Drive Suite 200
Minneapolis, MN 55435

Billing Information:

Accounts Payable /
mkostrze@wm.com
P.O. Box 4745
Portland, OR 97208-4745Pres
Chk

Analysis / Container / Preservation

Chain of Custody Page 1 of 1



PEOPLE APPROVED SERVICES

MT JULIET, TN

12000 Jackson Rd. Mount Juliet, TN 37122
Submitting a Sample in this chain of custody
constitutes acknowledgment and acceptance of the
Pace Terms and Conditions found at:
<http://www.paceindustries.com/public/chain-of-custody-terms.pdf>

SDG # 481667
K168

Account: WMELKRIVMN

Template: T170179

Prelogin: P1120369

PM 364 - T. Alan Harvill

PB: LA 12/13/24

Shipped Via: FedEx Ground

Remarks | Sample # (Lab only)

Report to:
Jim EidemEmail To:
aschneider@barr.com; datamgt@barr.com; jeideProject Description:
Elk River QTRLY Leachate[L4,7,10]City/State
Collected:Please Circle:
PT MT CT ET

Phone: 952-832-2893

Client Project #
500Lab Project #
WMELKRIVMN-00003Collected by (print):
Mike HarvillSite/Facility ID #
MN02

P.O. #

Collected by (signature):


Rush? (Lab MUST Be Notified)

___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Fast Only)
___ Two Day ___ 10 Day (Fast Only)
___ Three Day

Date Results Needed

Immediately

Packed on Ice N ___ Y ✓No.
of
Cntrs

Sample ID

Comp/Grab

Matrix *

Depth

Date

Time

SP-01 Leachate

GW

1/13/25

155e

16

608.3 100ml Amb NoPres

625.1 100ml Amb NaTio

Alk, Cl, SO4, pH 500mlHDPE-NoPres

CN 250mlHDPEAmb-NaOH

COD 250mlHDPE-H2SO4

FLASH 250mlAmb NoPres

Metals 250mlHDPE-HNO3

TSS 1L-HDPE NoPres

V8260LLAPGNP 40mlAmb-HCl

V8260ULLC 40mlAmb HCl

-01

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
___ UPS ___ FedEx ___ Courier

Tracking #

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Trip Blank Received: Yes NoTLA9 15 0930

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: °C Bottles Received: 15

If preservation required by login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: 1-14-25 Time: 0930

Hold:

Condition:
NCF / OK

Sample Receipt Checklist

DOC Seal Present/Intact: X Y N
DOC Signed/Authenticated: X Y N
Bottles arrive Intact: X Y N
Correct bottles used: X Y N
Sufficient volume sent: X Y N
If Applicable
VOA Seals Headspace: X Y N
Preservation Correct/checked: X Y N
RAD Screen <0.5 mS/hr: X Y N

FIELD INFORMATION FORM

Surface Water, Stormwater and Leachate



Site Name: Elk River Catchment

Sample I.D.: ST 01 Leachate

Laboratory Use Only / Lab I.D.:

LF016567

Sampling Method & Equipment

Purge and Sample Equipment:

Sampling Method: ☒ D - Direct ☐ I - Indirect ☐ V - Visual
Sampling Equipment: ☒ S - Sample Bottle ☐ D - Dipper ☐ T - Transfer Vessel ☐ O - Other

Sample Type: ☒ G Grab / Composite (circle one)

Field Measurements

Sample Date MM/DD/YYYY	Sample Time 24 Hr. Clock	pH (std. Units)	CONDUCTIVITY (umhos/cm @ 25°C)	Temp °C	TURBIDITY (NTUs)	DO mg/L - ppm	eH/ORP (std. Units)
<u>01/13/2025</u>	<u>1330</u>	<u>8.00</u>		<u>16.3</u>			

Record final stabilized field readings.

Field Observations

Sample Appearance: Odor: Strong Color: Dark Gray Other: _____
Sheen Present ☒ or ☒ Foam Present ☒ or ☒ Floating Solids: ☒ or ☒

Weather Conditions: (required daily, or as conditions change):

Direction/Speed: _____ Precipitation: ☒ or ☒

Specific Comments: _____

Date

Name

Signature

Company



ANALYTICAL REPORT

February 12, 2025

Elk River Landfill

Sample Delivery Group: L1824935
Samples Received: 02/08/2025
Project Number: 500
Description: Elk River- Monthly Leachate
Site: MN02
Report To: Jim Eidem
4300 MarketPoint Drive Suite 200
Minneapolis, MN 55435

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Entire Report Reviewed By:

T. Alan Harvill
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

TABLE OF CONTENTS

Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	² Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	³ Ss
SP-01_Leachate L1824935-01	5	
Qc: Quality Control Summary	6	⁴ Cn
Gravimetric Analysis by Method 2540 D-2011	6	⁵ Sr
Wet Chemistry by Method 410.4	7	
Wet Chemistry by Method 4500H+ B-2011	8	⁶ Qc
Gl: Glossary of Terms	9	⁷ Gl
Al: Accreditations & Locations	10	⁸ Al
Sc: Sample Chain of Custody	11	⁹ Sc

SAMPLE SUMMARY

SP-01_Leachate L1824935-01 WW

Collected by
Mike Hamer

Collected date/time
02/07/25 11:00

Received date/time
02/08/25 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 D-2011	WG2449705	1	02/11/25 12:53	02/11/25 14:19	MMF	Mt. Juliet, TN
Wet Chemistry by Method 410.4	WG2449073	10	02/11/25 14:10	02/11/25 20:43	ARV	Mt. Juliet, TN
Wet Chemistry by Method 4500H+ B-2011	WG2448989	1	02/10/25 13:26	02/10/25 13:26	BJM	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

CASE NARRATIVE

Unless qualified or notated within the narrative below, all sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



T. Alan Harvill
Project Manager



Project Comments

The requested project specific reporting limits may be less than laboratory standard quantitation limits (PQL) but will be greater than or equal to the laboratory method detection limits (MDL). It is noted that results reported below lab standard quantitation limits (PQLs) may result in false positive/false negative values that may require additional laboratory quality assurance review, if requested. Routine laboratory procedures do not initiate a data review process for detections below the laboratory's PQL unless requested by the client.

Sample Delivery Group (SDG) Narrative

The laboratory analysis was performed from an unpreserved, insufficiently or inadequately preserved sample.

Batch	Method	Lab Sample ID
WG2449073	410.4	L1824935-01

The following samples were prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

Batch	Method	Lab Sample ID
WG2448989	4500H+ B-2011	L1824935-01

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
pH (On Site)	8.55	su
Temperature (on-site)	16	Deg C

1
Cp

2
Tc

3
Ss

Gravimetric Analysis by Method 2540 D-2011

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l			
Suspended Solids	94.8		4.00	1	02/11/2025 14:19	WG2449705

4
Cn

5
Sr

Wet Chemistry by Method 410.4

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l			
COD	3640		30.0	10	02/11/2025 20:43	WG2449073

6
Qc

7
Gl

Wet Chemistry by Method 4500H+ B-2011

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	SU				
pH	7.83	T8	1	02/10/2025 13:26	WG2448989

8
Al

9
Sc

Sample Narrative:

L1824935-01 WG2448989: 7.83 at 19.7C

Method Blank (MB)

(MB) R4176013-1 02/11/25 14:19

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Suspended Solids	ND		0.350	2.50

L1824629-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1824629-01 02/11/25 14:19 • (DUP) R4176013-3 02/11/25 14:19

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	86.7	87.1	1	0.506		10

Laboratory Control Sample (LCS)

(LCS) R4176013-2 02/11/25 14:19

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Suspended Solids	773	850	110	85.0-115	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4175604-1 02/11/25 20:40

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
COD	ND		3.00	10.0

L1824666-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1824666-01 02/11/25 20:41 • (DUP) R4175604-5 02/11/25 20:41

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
COD	6540	6540	10	0.0229		20

L1824935-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1824935-01 02/11/25 20:43 • (DUP) R4175604-6 02/11/25 20:43

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
COD	3640	3760	10	3.24		20

Laboratory Control Sample (LCS)

(LCS) R4175604-2 02/11/25 20:40

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
COD	500	504	101	90.0-110	

L1824664-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1824664-01 02/11/25 20:41 • (MS) R4175604-3 02/11/25 20:41 • (MSD) R4175604-4 02/11/25 20:41

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
COD	500	401	930	920	106	104	1	90.0-110			1.07	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1824560-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1824560-01 02/10/25 13:26 • (DUP) R4175002-2 02/10/25 13:26

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.38	7.36	1	0.271		1

Sample Narrative:

OS: 7.38 at 20.3C

DUP: 7.36 at 20.4C

Laboratory Control Sample (LCS)

(LCS) R4175002-1 02/10/25 13:26

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10 at 20.5C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

T8	Sample(s) received past/too close to holding time expiration.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

ACCREDITATIONS & LOCATIONS

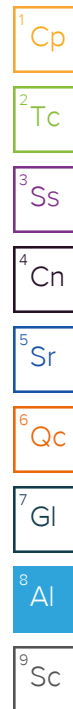
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Surface Water, Stormwater and Leachate



L18 24935

Site Name: Elk River Landfill

Sample I.D. | SP-01 | Lenchuk

Purge and Sample Equipment:

Sampling Method: D D - Direct Sampling Equipment: S D - Dipper S - Sample Bottle
I - Indirect T - Transfer Vessel O - Other
V - Visual

Sample Type: ☒ G ☐ Grab ☐ Composite (circle one)

Sample Date MM/DD/YYYY	Sample Time 24 Hr. Clock	pH (std. Units)	CONDUCTIVITY (umhos/cm @ 25°C)	Temp °C	TURBIDITY (NTUs)	DO mg/L - ppm	eH/ORP (std. Units)

02/07/2025	1100	8.55	16.0					

Record final stabilized field readings.

Sample Appearance: Odor: *OK Good* Color: *Medium* Other:

Odor: DK Good Color: Medium Lt Other:

Sheen Present: Y or N Foam Present: Y or N Floating Solids: Y or N

Weather Conditions: (required daily, or as conditions change):

Direction/Speed: _____ Precipitation: Y or N

[illegible]

217 125 Mike Hane with Allen

Date	Name	Signature	Company



ANALYTICAL REPORT

March 11, 2025

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Elk River Landfill

Sample Delivery Group: L1833771
Samples Received: 03/07/2025
Project Number: 500
Description: Elk River- Monthly Leachate
Site: MN02
Report To: Jim Eidem
4300 MarketPoint Drive Suite 200
Minneapolis, MN 55435

Entire Report Reviewed By:

T. Alan Harvill
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

TABLE OF CONTENTS

Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	² Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	³ Ss
SP-01_Leachate L1833771-01	5	
Qc: Quality Control Summary	6	⁴ Cn
Gravimetric Analysis by Method 2540 D-2011	6	⁵ Sr
Wet Chemistry by Method 410.4	7	
Wet Chemistry by Method 4500H+ B-2011	8	⁶ Qc
Gl: Glossary of Terms	9	⁷ Gl
Al: Accreditations & Locations	10	⁸ Al
Sc: Sample Chain of Custody	11	⁹ Sc

SAMPLE SUMMARY

SP-01_Leachate L1833771-01 WW

Collected by
Kenneth Smith

Collected date/time
03/06/25 12:00

Received date/time
03/07/25 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 D-2011	WG2465249	1	03/08/25 18:19	03/09/25 21:44	BDC	Mt. Juliet, TN
Wet Chemistry by Method 410.4	WG2465179	5	03/08/25 15:00	03/08/25 18:50	JEG	Mt. Juliet, TN
Wet Chemistry by Method 4500H+ B-2011	WG2465885	1	03/10/25 12:30	03/10/25 12:30	BJM	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

CASE NARRATIVE

Unless qualified or notated within the narrative below, all sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



T. Alan Harvill
Project Manager



Project Comments

The requested project specific reporting limits may be less than laboratory standard quantitation limits (PQL) but will be greater than or equal to the laboratory method detection limits (MDL). It is noted that results reported below lab standard quantitation limits (PQLs) may result in false positive/false negative values that may require additional laboratory quality assurance review, if requested. Routine laboratory procedures do not initiate a data review process for detections below the laboratory's PQL unless requested by the client.

Sample Delivery Group (SDG) Narrative

The following samples were prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

Batch	Method	Lab Sample ID
WG2465885	4500H+ B-2011	L1833771-01

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
pH (On Site)	7.43	su
Temperature (on-site)	15.61	Deg C

1
Cp

2
Tc

3
Ss

Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Suspended Solids	138		4.00	1	03/09/2025 21:44	WG2465249

4
Cn

5
Sr

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
COD	4060		15.0	5	03/08/2025 18:50	WG2465179

6
Qc

7
Gl

Wet Chemistry by Method 4500H+ B-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SU				
pH	7.92	T8	1	03/10/2025 12:30	WG2465885

8
Al

9
Sc

Sample Narrative:

L1833771-01 WG2465885: 7.92 at 19.1C

Method Blank (MB)

(MB) R4184532-1 03/09/25 21:44

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Suspended Solids	ND		0.350	2.50

L1833701-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1833701-03 03/09/25 21:44 • (DUP) R4184532-3 03/09/25 21:44

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	277	280	1	1.08		10

L1833723-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1833723-01 03/09/25 21:44 • (DUP) R4184532-4 03/09/25 21:44

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	248	256	1	3.17		10

Laboratory Control Sample (LCS)

(LCS) R4184532-2 03/09/25 21:44

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Suspended Solids	773	774	100	85.0-115	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4184154-1 03/08/25 18:48

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
COD	ND		3.00	10.0

L1833736-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1833736-01 03/08/25 18:50 • (DUP) R4184154-5 03/08/25 18:50

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
COD	3720	3630	5	2.50		20

L1833771-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1833771-01 03/08/25 18:50 • (DUP) R4184154-6 03/08/25 18:51

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
COD	4060	4120	5	1.45		20

Laboratory Control Sample (LCS)

(LCS) R4184154-2 03/08/25 18:48

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
COD	500	506	101	90.0-110	

L1833566-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1833566-01 03/08/25 18:48 • (MS) R4184154-3 03/08/25 18:49 • (MSD) R4184154-4 03/08/25 18:49

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
COD	500	60.7	539	540	95.6	95.9	1	90.0-110			0.269	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1833103-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1833103-01 03/10/25 12:30 • (DUP) R4184534-2 03/10/25 12:30

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	>13	>13	1	0.000		1

Sample Narrative:
OS: 13.34 at 25C
DUP: 13.34 at 25.4C

L1834160-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1834160-01 03/10/25 12:30 • (DUP) R4184534-3 03/10/25 12:30

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.89	7.91	1	0.253		1

Sample Narrative:
OS: 7.89 at 20.2C
DUP: 7.91 at 20.4C

Laboratory Control Sample (LCS)

(LCS) R4184534-1 03/10/25 12:30

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:
LCS: 10.02 at 19.9C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

T8	Sample(s) received past/too close to holding time expiration.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

ACCREDITATIONS & LOCATIONS

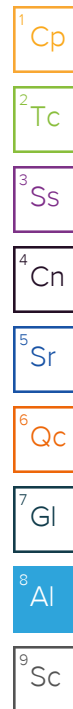
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



FIELD INFORMATION FORM
Surface Water, Stormwater and Leachate



Site Name:

ERL

Sample I.D.:

SP-01

Laboratory Use Only / Lab I.D.:

L1833771

Sampling Method & Equipment

Purge and Sample Equipment:

Sampling Method:

☒ D

D - Direct

I - Indirect

V - Visual

Sampling Equipment:

☒ D

D - Dipper

T - Transfer Vessel

S - Sample Bottle

O - Other

Nozzle

Sample Type:

☐

☒ Grab

Composite

(circle one)

Field Measurements

Sample Date
MM/DD/YYYY

Sample Time
24 Hr. Clock

pH
(std. Units)

CONDUCTIVITY
(umhos/cm @ 25°C)

Temp
°C

TURBIDITY
(NTUs)

DO
mg/L - ppm

eH/ORP
(std. Units)

03/06/2025

1200

7.93

2726

15.61

Record final stabilized field readings.

Field Observations

Sample Appearance:

Odor:

Moderate

Color:

Black

Other:

Sheen Present

☐ Y or ☒ N

Foam Present

☐ Y or ☒ N

Floating Solids:

☐ Y or ☒ N

Weather Conditions: (required daily, or as conditions change):

Direction/Speed:

9mph E

Precipitation:

☐ Y or ☒ N

Specific Comments:

3.6
Date

Name

Kenneth Smith

Signature

[Signature]

Company

Alliance



ANALYTICAL REPORT

March 21, 2025

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Elk River Landfill

Sample Delivery Group: L1836539
Samples Received: 03/14/2025
Project Number: 200
Description: Quarterly Lysimeters (2,4,7,10)
Site: MN02
Report To: Jim Eidem
4300 MarketPoint Drive Suite 200
Minneapolis, MN 55435

Entire Report Reviewed By:

T. Alan Harvill
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	6
LYS-11 L1836539-01	6
LYS-17 L1836539-02	8
Qc: Quality Control Summary	10
Gravimetric Analysis by Method 2540 C-2011	10
Gravimetric Analysis by Method 2540 D-2011	11
Wet Chemistry by Method 2320 B-2011	12
Wet Chemistry by Method 300.0	13
Metals (ICP) by Method 6010D	15
Volatile Organic Compounds (GC/MS) by Method 8260D	16
Gl: Glossary of Terms	20
Al: Accreditations & Locations	21
Sc: Sample Chain of Custody	22



SAMPLE SUMMARY

LYS-11 L1836539-01 GW

Collected by
Mike H.

Collected date/time
03/13/25 10:40

Received date/time
03/14/25 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2470029	1	03/16/25 10:45	03/17/25 13:01	MMF	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 D-2011	WG2470045	1	03/16/25 11:44	03/17/25 18:28	BDC	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2470353	1	03/17/25 12:03	03/17/25 12:03	BJM	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2469652	20	03/20/25 14:55	03/20/25 14:55	DLH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2469652	5	03/20/25 14:41	03/20/25 14:41	DLH	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2471374	1	03/19/25 00:04	03/19/25 16:09	MAP	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2472093	1	03/19/25 14:26	03/19/25 14:26	ACG	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

LYS-17 L1836539-02 GW

Collected by
Mike H.

Collected date/time
03/13/25 10:30

Received date/time
03/14/25 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2470029	1	03/16/25 10:45	03/17/25 13:01	MMF	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 D-2011	WG2470045	1	03/16/25 11:44	03/17/25 18:28	BDC	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2470353	1	03/17/25 10:49	03/17/25 10:49	BJM	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2469652	1	03/20/25 15:08	03/20/25 15:08	DLH	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2471374	1	03/19/25 00:04	03/19/25 15:55	MAP	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2472093	1	03/19/25 14:45	03/19/25 14:45	ACG	Mt. Juliet, TN

⁶Qc

⁷Gl

⁸Al

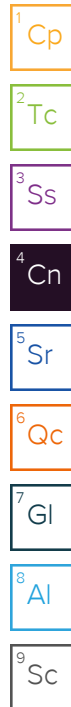
⁹Sc

CASE NARRATIVE

Unless qualified or notated within the narrative below, all sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



T. Alan Harvill
Project Manager



Project Comments

The requested project specific reporting limits may be less than laboratory standard quantitation limits (PQL) but will be greater than or equal to the laboratory method detection limits (MDL). It is noted that results reported below lab standard quantitation limits (PQLs) may result in false positive/false negative values that may require additional laboratory quality assurance review, if requested. Routine laboratory procedures do not initiate a data review process for detections below the laboratory's PQL unless requested by the client.

Wet Chemistry by Method 300.0

The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Batch	Lab Sample ID	Analytes
WG2469652	(MS) R4189244-6, (MSD) R4189244-7	Chloride

Metals (ICP) by Method 6010D

Analysis was filtered in the laboratory.

Batch	Method	Lab Sample ID
WG2471374	6010D	L1836539-01, 02

The sample concentration is too high to evaluate accurate spike recoveries.

Batch	Lab Sample ID	Analytes
WG2471374	(MS) R4188516-4, (MSD) R4188516-5, L1836539-01	Calcium,Dissolved and Magnesium,Dissolved

The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

Batch	Lab Sample ID	Analytes
WG2471374	L1836539-01	Calcium,Dissolved, Magnesium,Dissolved, Potassium,Dissolved and Sodium,Dissolved

Volatile Organic Compounds (GC/MS) by Method 8260D

The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.

Batch	Lab Sample ID	Analytes
WG2472093	L1836539-01	1,1,2,2-Tetrachloroethane, 1,2,3-Trichloropropane, 1,4-Dichlorobenzene, 4-Chlorotoluene, Acetone, Naphthalene, n-Propylbenzene and Tetrahydrofuran
WG2472093	L1836539-02	1,1,2,2-Tetrachloroethane, 1,2,3-Trichloropropane, 1,4-Dichlorobenzene, 4-Chlorotoluene, Acetone, Naphthalene, n-Propylbenzene and Tetrahydrofuran

CASE NARRATIVE

Volatile Organic Compounds (GC/MS) by Method 8260D

The associated batch QC was below the established quality control range for accuracy.

Batch	Lab Sample ID	Analytes
WG2472093	(LCS) R4188314-1, L1836539-01, 02	1,4-Dichlorobenzene

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	1820		10.0	1	03/17/2025 13:01	WG2470029

Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	144		4.00	1	03/17/2025 18:28	WG2470045

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Alkalinity,Bicarbonate	660000		20000	1	03/17/2025 12:03	WG2470353

Sample Narrative:

L1836539-01 WG2470353: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	80800		1000	5	03/20/2025 14:41	WG2469652
Sulfate	554000		5000	20	03/20/2025 14:55	WG2469652

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Calcium,Dissolved	360	O1 V	1.00	1	03/19/2025 16:09	WG2471374
Potassium,Dissolved	12.5	O1	1.00	1	03/19/2025 16:09	WG2471374
Magnesium,Dissolved	140	O1 V	1.00	1	03/19/2025 16:09	WG2471374
Sodium,Dissolved	44.8	O1	1.00	1	03/19/2025 16:09	WG2471374

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
1,1,1,2-Tetrachloroethane	ND		0.000100	1	03/19/2025 14:26	WG2472093
1,1,1-Trichloroethane	ND		0.000100	1	03/19/2025 14:26	WG2472093
1,1,2,2-Tetrachloroethane	ND	C3	0.000100	1	03/19/2025 14:26	WG2472093
1,1-Dichloroethane	ND		0.000100	1	03/19/2025 14:26	WG2472093
1,1-Dichloroethene	ND		0.000100	1	03/19/2025 14:26	WG2472093
1,1-Dichloropropene	ND		0.000100	1	03/19/2025 14:26	WG2472093
1,2,3-Trichlorobenzene	ND		0.000500	1	03/19/2025 14:26	WG2472093
1,2,3-Trichloropropane	ND	C3	0.000500	1	03/19/2025 14:26	WG2472093
1,2,4-Trichlorobenzene	ND		0.000500	1	03/19/2025 14:26	WG2472093
1,2,4-Trimethylbenzene	ND		0.000200	1	03/19/2025 14:26	WG2472093
1,2-Dibromo-3-Chloropropane	ND		0.00100	1	03/19/2025 14:26	WG2472093
1,2-Dibromoethane	ND		0.000100	1	03/19/2025 14:26	WG2472093
1,2-Dichlorobenzene	ND		0.000200	1	03/19/2025 14:26	WG2472093
1,2-Dichloroethane	ND		0.000100	1	03/19/2025 14:26	WG2472093
1,2-Dichloropropane	ND		0.000200	1	03/19/2025 14:26	WG2472093
1,3,5-Trimethylbenzene	ND		0.000200	1	03/19/2025 14:26	WG2472093
1,3-Dichlorobenzene	ND		0.000200	1	03/19/2025 14:26	WG2472093
1,3-Dichloropropane	ND		0.000200	1	03/19/2025 14:26	WG2472093
1,4-Dichlorobenzene	ND	C3 J4	0.000200	1	03/19/2025 14:26	WG2472093
2,2-Dichloropropane	ND		0.000100	1	03/19/2025 14:26	WG2472093
2-Butanone (MEK)	ND		0.00400	1	03/19/2025 14:26	WG2472093

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
2-Chlorotoluene	ND		0.000100	1	03/19/2025 14:26	WG2472093
4-Chlorotoluene	ND	C3	0.000200	1	03/19/2025 14:26	WG2472093
4-Methyl-2-pentanone (MIBK)	ND		0.00100	1	03/19/2025 14:26	WG2472093
Acetone	ND	C3	0.00200	1	03/19/2025 14:26	WG2472093
Allyl chloride	ND		0.00100	1	03/19/2025 14:26	WG2472093
Benzene	0.0000770		0.0000400	1	03/19/2025 14:26	WG2472093
Bromobenzene	ND		0.000500	1	03/19/2025 14:26	WG2472093
Bromochloromethane	ND		0.000200	1	03/19/2025 14:26	WG2472093
Bromodichloromethane	ND		0.000100	1	03/19/2025 14:26	WG2472093
Bromoform	ND		0.00100	1	03/19/2025 14:26	WG2472093
Bromomethane	ND		0.000500	1	03/19/2025 14:26	WG2472093
Carbon tetrachloride	ND		0.000200	1	03/19/2025 14:26	WG2472093
Chlorobenzene	ND		0.000100	1	03/19/2025 14:26	WG2472093
Chlorodibromomethane	ND		0.000100	1	03/19/2025 14:26	WG2472093
Chloroethane	ND		0.000200	1	03/19/2025 14:26	WG2472093
Chloroform	ND		0.000100	1	03/19/2025 14:26	WG2472093
Chloromethane	ND		0.000500	1	03/19/2025 14:26	WG2472093
Dibromomethane	ND		0.000200	1	03/19/2025 14:26	WG2472093
Dichlorodifluoromethane	ND		0.000100	1	03/19/2025 14:26	WG2472093
Dichlorofluoromethane	ND		0.000100	1	03/19/2025 14:26	WG2472093
Ethyl ether	0.000778		0.000100	1	03/19/2025 14:26	WG2472093
Ethylbenzene	ND		0.000100	1	03/19/2025 14:26	WG2472093
Hexachloro-1,3-butadiene	ND		0.00100	1	03/19/2025 14:26	WG2472093
Isopropylbenzene	ND		0.000100	1	03/19/2025 14:26	WG2472093
Methyl tert-butyl ether	ND		0.0000400	1	03/19/2025 14:26	WG2472093
Methylene Chloride	ND		0.00100	1	03/19/2025 14:26	WG2472093
Naphthalene	ND	C3	0.000500	1	03/19/2025 14:26	WG2472093
Styrene	ND		0.000500	1	03/19/2025 14:26	WG2472093
Tetrachloroethene	ND		0.000100	1	03/19/2025 14:26	WG2472093
Tetrahydrofuran	0.0287	C3	0.000500	1	03/19/2025 14:26	WG2472093
Toluene	ND		0.000200	1	03/19/2025 14:26	WG2472093
Total 1,2-Dichloroethene	0.000272		0.000100	1	03/19/2025 14:26	WG2472093
Total 1,3-Dichloropropene	ND		0.000100	1	03/19/2025 14:26	WG2472093
Trichloroethene	0.0000690		0.0000400	1	03/19/2025 14:26	WG2472093
Trichlorofluoromethane	ND		0.000100	1	03/19/2025 14:26	WG2472093
Vinyl chloride	ND		0.0000500	1	03/19/2025 14:26	WG2472093
Xylenes, Total	ND		0.000260	1	03/19/2025 14:26	WG2472093
cis-1,2-Dichloroethene	0.000272		0.000100	1	03/19/2025 14:26	WG2472093
cis-1,3-Dichloropropene	ND		0.000100	1	03/19/2025 14:26	WG2472093
n-Butylbenzene	ND		0.000500	1	03/19/2025 14:26	WG2472093
n-Propylbenzene	ND	C3	0.000200	1	03/19/2025 14:26	WG2472093
p-Isopropyltoluene	ND		0.000200	1	03/19/2025 14:26	WG2472093
sec-Butylbenzene	ND		0.000500	1	03/19/2025 14:26	WG2472093
tert-Butylbenzene	ND		0.000200	1	03/19/2025 14:26	WG2472093
trans-1,2-Dichloroethene	ND		0.000200	1	03/19/2025 14:26	WG2472093
trans-1,3-Dichloropropene	ND		0.000200	1	03/19/2025 14:26	WG2472093
(S) 1,2-Dichloroethane-d4	94.4			70.0-130	03/19/2025 14:26	WG2472093
(S) Toluene-d8	96.4			75.0-131	03/19/2025 14:26	WG2472093
(S) 4-Bromofluorobenzene	107			67.0-138	03/19/2025 14:26	WG2472093

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	672		10.0	1	03/17/2025 13:01	WG2470029

Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	143		4.00	1	03/17/2025 18:28	WG2470045

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Alkalinity,Bicarbonate	487000		20000	1	03/17/2025 10:49	WG2470353

Sample Narrative:

L1836539-02 WG2470353: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	75000		1000	1	03/20/2025 15:08	WG2469652
Sulfate	28700		5000	1	03/20/2025 15:08	WG2469652

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Calcium,Dissolved	118		1.00	1	03/19/2025 15:55	WG2471374
Potassium,Dissolved	6.88		1.00	1	03/19/2025 15:55	WG2471374
Magnesium,Dissolved	56.7		1.00	1	03/19/2025 15:55	WG2471374
Sodium,Dissolved	25.0		1.00	1	03/19/2025 15:55	WG2471374

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
1,1,1,2-Tetrachloroethane	ND		0.000100	1	03/19/2025 14:45	WG2472093
1,1,1-Trichloroethane	ND		0.000100	1	03/19/2025 14:45	WG2472093
1,1,2,2-Tetrachloroethane	ND	C3	0.000100	1	03/19/2025 14:45	WG2472093
1,1-Dichloroethane	ND		0.000100	1	03/19/2025 14:45	WG2472093
1,1-Dichloroethene	ND		0.000100	1	03/19/2025 14:45	WG2472093
1,1-Dichloropropene	ND		0.000100	1	03/19/2025 14:45	WG2472093
1,2,3-Trichlorobenzene	ND		0.000500	1	03/19/2025 14:45	WG2472093
1,2,3-Trichloropropane	ND	C3	0.000500	1	03/19/2025 14:45	WG2472093
1,2,4-Trichlorobenzene	ND		0.000500	1	03/19/2025 14:45	WG2472093
1,2,4-Trimethylbenzene	ND		0.000200	1	03/19/2025 14:45	WG2472093
1,2-Dibromo-3-Chloropropane	ND		0.00100	1	03/19/2025 14:45	WG2472093
1,2-Dibromoethane	ND		0.000100	1	03/19/2025 14:45	WG2472093
1,2-Dichlorobenzene	ND		0.000200	1	03/19/2025 14:45	WG2472093
1,2-Dichloroethane	ND		0.000100	1	03/19/2025 14:45	WG2472093
1,2-Dichloropropane	ND		0.000200	1	03/19/2025 14:45	WG2472093
1,3,5-Trimethylbenzene	ND		0.000200	1	03/19/2025 14:45	WG2472093
1,3-Dichlorobenzene	ND		0.000200	1	03/19/2025 14:45	WG2472093
1,3-Dichloropropane	ND		0.000200	1	03/19/2025 14:45	WG2472093
1,4-Dichlorobenzene	ND	C3 J4	0.000200	1	03/19/2025 14:45	WG2472093
2,2-Dichloropropane	ND		0.000100	1	03/19/2025 14:45	WG2472093
2-Butanone (MEK)	ND		0.00400	1	03/19/2025 14:45	WG2472093



Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
2-Chlorotoluene	ND		0.000100	1	03/19/2025 14:45	WG2472093
4-Chlorotoluene	ND	C3	0.000200	1	03/19/2025 14:45	WG2472093
4-Methyl-2-pentanone (MIBK)	ND		0.00100	1	03/19/2025 14:45	WG2472093
Acetone	0.00444	C3	0.00200	1	03/19/2025 14:45	WG2472093
Allyl chloride	ND		0.00100	1	03/19/2025 14:45	WG2472093
Benzene	ND		0.0000400	1	03/19/2025 14:45	WG2472093
Bromobenzene	ND		0.000500	1	03/19/2025 14:45	WG2472093
Bromochloromethane	ND		0.000200	1	03/19/2025 14:45	WG2472093
Bromodichloromethane	ND		0.000100	1	03/19/2025 14:45	WG2472093
Bromoform	ND		0.00100	1	03/19/2025 14:45	WG2472093
Bromomethane	ND		0.000500	1	03/19/2025 14:45	WG2472093
Carbon tetrachloride	ND		0.000200	1	03/19/2025 14:45	WG2472093
Chlorobenzene	ND		0.000100	1	03/19/2025 14:45	WG2472093
Chlorodibromomethane	ND		0.000100	1	03/19/2025 14:45	WG2472093
Chloroethane	ND		0.000200	1	03/19/2025 14:45	WG2472093
Chloroform	ND		0.000100	1	03/19/2025 14:45	WG2472093
Chloromethane	ND		0.000500	1	03/19/2025 14:45	WG2472093
Dibromomethane	ND		0.000200	1	03/19/2025 14:45	WG2472093
Dichlorodifluoromethane	ND		0.000100	1	03/19/2025 14:45	WG2472093
Dichlorofluoromethane	ND		0.000100	1	03/19/2025 14:45	WG2472093
Ethyl ether	0.000474		0.000100	1	03/19/2025 14:45	WG2472093
Ethylbenzene	ND		0.000100	1	03/19/2025 14:45	WG2472093
Hexachloro-1,3-butadiene	ND		0.00100	1	03/19/2025 14:45	WG2472093
Isopropylbenzene	ND		0.000100	1	03/19/2025 14:45	WG2472093
Methyl tert-butyl ether	ND		0.0000400	1	03/19/2025 14:45	WG2472093
Methylene Chloride	ND		0.00100	1	03/19/2025 14:45	WG2472093
Naphthalene	ND	C3	0.000500	1	03/19/2025 14:45	WG2472093
Styrene	ND		0.000500	1	03/19/2025 14:45	WG2472093
Tetrachloroethene	ND		0.000100	1	03/19/2025 14:45	WG2472093
Tetrahydrofuran	0.00117	C3	0.000500	1	03/19/2025 14:45	WG2472093
Toluene	ND		0.000200	1	03/19/2025 14:45	WG2472093
Total 1,2-Dichloroethene	ND		0.000100	1	03/19/2025 14:45	WG2472093
Total 1,3-Dichloropropene	ND		0.000100	1	03/19/2025 14:45	WG2472093
Trichloroethene	ND		0.0000400	1	03/19/2025 14:45	WG2472093
Trichlorofluoromethane	ND		0.000100	1	03/19/2025 14:45	WG2472093
Vinyl chloride	ND		0.0000500	1	03/19/2025 14:45	WG2472093
Xylenes, Total	ND		0.000260	1	03/19/2025 14:45	WG2472093
cis-1,2-Dichloroethene	ND		0.000100	1	03/19/2025 14:45	WG2472093
cis-1,3-Dichloropropene	ND		0.000100	1	03/19/2025 14:45	WG2472093
n-Butylbenzene	ND		0.000500	1	03/19/2025 14:45	WG2472093
n-Propylbenzene	ND	C3	0.000200	1	03/19/2025 14:45	WG2472093
p-Isopropyltoluene	ND		0.000200	1	03/19/2025 14:45	WG2472093
sec-Butylbenzene	ND		0.000500	1	03/19/2025 14:45	WG2472093
tert-Butylbenzene	ND		0.000200	1	03/19/2025 14:45	WG2472093
trans-1,2-Dichloroethene	ND		0.000200	1	03/19/2025 14:45	WG2472093
trans-1,3-Dichloropropene	ND		0.000200	1	03/19/2025 14:45	WG2472093
(S) 1,2-Dichloroethane-d4	101			70.0-130	03/19/2025 14:45	WG2472093
(S) Toluene-d8	95.6			75.0-131	03/19/2025 14:45	WG2472093
(S) 4-Bromofluorobenzene	110			67.0-138	03/19/2025 14:45	WG2472093

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

Method Blank (MB)

(MB) R4188469-1 03/17/25 13:01

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Dissolved Solids	ND		2.82	10.0

L1836366-13 Original Sample (OS) • Duplicate (DUP)

(OS) L1836366-13 03/17/25 13:01 • (DUP) R4188469-3 03/17/25 13:01

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	264	269	1	1.88		10

L1836645-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1836645-12 03/17/25 13:01 • (DUP) R4188469-4 03/17/25 13:01

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	832	820	1	1.45		10

Laboratory Control Sample (LCS)

(LCS) R4188469-2 03/17/25 13:01

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Dissolved Solids	8800	8720	99.1	90.0-110	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4187631-1 03/17/25 18:28

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Suspended Solids	ND		0.350	2.50

L1836393-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1836393-02 03/17/25 18:28 • (DUP) R4187631-3 03/17/25 18:28

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	145	142	1	2.32		10

L1836539-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1836539-01 03/17/25 18:28 • (DUP) R4187631-4 03/17/25 18:28

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	144	135	1	6.03		10

Laboratory Control Sample (LCS)

(LCS) R4187631-2 03/17/25 18:28

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Suspended Solids	773	790	102	85.0-115	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4187363-2 03/17/25 09:03

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	ug/l		ug/l	ug/l
Alkalinity,Bicarbonate	ND		2710	20000

Sample Narrative:
BLANK: Endpoint pH 4.5

L1836130-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1836130-01 03/17/25 09:31 • (DUP) R4187363-3 03/17/25 09:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	ug/l	ug/l		%		%
Alkalinity,Bicarbonate	425000	423000	1	0.519		20

Sample Narrative:
OS: Endpoint pH 4.5 Headspace
DUP: Endpoint pH 4.5

L1836539-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1836539-01 03/17/25 12:03 • (DUP) R4187363-4 03/17/25 12:08

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	ug/l	ug/l		%		%
Alkalinity,Bicarbonate	660000	656000	1	0.548		20

Sample Narrative:
OS: Endpoint pH 4.5 Headspace
DUP: Endpoint pH 4.5

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4189244-1 03/20/25 11:41

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	ug/l		ug/l	ug/l
Chloride	111		51.9	1000
Sulfate	182		77.4	5000

L1836532-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1836532-01 03/20/25 12:36 • (DUP) R4189244-3 03/20/25 12:53

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	ug/l	ug/l		%		%
Chloride	5960	6300	1	5.41		15
Sulfate	7910	7890	1	0.268		15

L1836774-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1836774-08 03/20/25 16:43 • (DUP) R4189244-5 03/20/25 16:56

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	ug/l	ug/l		%		%
Chloride	33500	33500	1	0.0203		15
Sulfate	ND	ND	1	5.70		15

Laboratory Control Sample (LCS)

(LCS) R4189244-2 03/20/25 11:54

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	ug/l	ug/l	%	%	
Chloride	40000	38400	95.9	90.0-110	
Sulfate	40000	38700	96.6	90.0-110	

L1836532-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1836532-01 03/20/25 12:36 • (MS) R4189244-4 03/20/25 13:07

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	ug/l	ug/l	ug/l	%		%	
Chloride	40000	5960	44700	96.8	1	90.0-110	
Sulfate	40000	7910	46700	97.0	1	90.0-110	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1836774-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1836774-08 03/20/25 16:43 • (MS) R4189244-6 03/20/25 17:10 • (MSD) R4189244-7 03/20/25 17:23

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Chloride	40000	33500	67300	66200	84.4	81.8	1	90.0-110	J6	J6	1.61	15
Sulfate	40000	ND	41500	40900	101	99.9	1	90.0-110			1.57	15

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4188516-1 03/19/25 16:03

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Calcium,Dissolved	ND		0.0463	1.00
Potassium,Dissolved	0.202		0.102	1.00
Magnesium,Dissolved	ND		0.0111	1.00
Sodium,Dissolved	0.463	J	0.0985	1.00

Laboratory Control Sample (LCS)

(LCS) R4188516-2 03/19/25 16:06

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Calcium,Dissolved	10.0	10.4	104	80.0-120	
Potassium,Dissolved	10.0	10.1	101	80.0-120	
Magnesium,Dissolved	10.0	10.5	105	80.0-120	
Sodium,Dissolved	10.0	10.5	105	80.0-120	

L1836539-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1836539-01 03/19/25 16:09 • (MS) R4188516-4 03/19/25 17:27 • (MSD) R4188516-5 03/19/25 17:30

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium,Dissolved	10.0	360	365	363	54.3	30.8	1	75.0-125	V	V	0.647	20
Potassium,Dissolved	10.0	12.5	22.6	22.5	101	99.8	1	75.0-125			0.464	20
Magnesium,Dissolved	10.0	140	146	146	57.9	62.0	1	75.0-125	V	V	0.279	20
Sodium,Dissolved	10.0	44.8	55.1	54.3	102	94.5	1	75.0-125			1.43	20

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R4188314-3 03/19/25 10:56

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
1,1,1,2-Tetrachloroethane	ND		0.0000379	0.000100
1,1,1-Trichloroethane	ND		0.0000369	0.000100
1,1,2,2-Tetrachloroethane	ND		0.0000278	0.000100
1,1-Dichloroethane	ND		0.0000196	0.000100
1,1-Dichloroethene	ND		0.0000242	0.000100
1,1-Dichloropropene	ND		0.0000324	0.000100
1,2,3-Trichlorobenzene	ND		0.000293	0.000500
1,2,3-Trichloropropane	ND		0.0000648	0.000500
1,2,4-Trichlorobenzene	ND		0.000176	0.000500
1,2,4-Trimethylbenzene	ND		0.0000632	0.000200
1,2-Dibromo-3-Chloropropane	ND		0.000156	0.00100
1,2-Dibromoethane	ND		0.0000259	0.000100
1,2-Dichlorobenzene	ND		0.0000170	0.000200
1,2-Dichloroethane	ND		0.0000260	0.000100
1,2-Dichloropropane	ND		0.0000568	0.000200
1,3,5-Trimethylbenzene	ND		0.0000800	0.000200
1,3-Dichlorobenzene	ND		0.0000240	0.000200
1,3-Dichloropropane	ND		0.0000200	0.000200
1,4-Dichlorobenzene	ND		0.0000280	0.000200
2,2-Dichloropropane	ND		0.0000552	0.000100
2-Butanone (MEK)	ND		0.00254	0.00400
2-Chlorotoluene	ND		0.0000346	0.000100
4-Chlorotoluene	ND		0.0000180	0.000200
4-Methyl-2-pentanone (MIBK)	ND		0.0000912	0.00100
Acetone	ND		0.00146	0.00200
Allyl chloride	ND		0.000160	0.00100
Benzene	ND		0.0000187	0.0000400
Bromobenzene	ND		0.0000360	0.000500
Bromochloromethane	ND		0.0000226	0.000200
Bromodichloromethane	ND		0.0000290	0.000100
Bromoform	ND		0.0000468	0.00100
Bromomethane	ND		0.0000788	0.000500
Carbon tetrachloride	ND		0.0000359	0.000200
Chlorobenzene	ND		0.00000840	0.000100
Chlorodibromomethane	ND		0.0000245	0.000100
Chloroethane	ND		0.0000680	0.000200
Chloroform	0.0000420	U	0.0000412	0.000100
Chloromethane	ND		0.000174	0.000500
Dibromomethane	ND		0.0000300	0.000200
Dichlorodifluoromethane	ND		0.0000644	0.000200

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4188314-3 03/19/25 10:56

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dichlorofluoromethane	ND		0.0000490	0.000100
Ethyl ether	ND		0.0000356	0.000100
Ethylbenzene	ND		0.0000295	0.000100
Hexachloro-1,3-butadiene	ND		0.0000485	0.00100
Isopropylbenzene	ND		0.0000170	0.000100
Methyl tert-butyl ether	ND		0.0000140	0.0000400
Methylene Chloride	ND		0.000266	0.00100
Naphthalene	ND		0.000195	0.000500
Styrene	ND		0.00000916	0.000500
Tetrachloroethene	ND		0.0000358	0.000100
Tetrahydrofuran	ND		0.000141	0.000500
Toluene	ND		0.0000520	0.000200
Total 1,2-Dichloroethene	ND		0.0000848	0.000100
Total 1,3-Dichloropropene	ND		0.0000271	0.000100
Trichloroethene	ND		0.0000234	0.0000400
Trichlorofluoromethane	ND		0.0000331	0.000100
Vinyl chloride	ND		0.0000462	0.0000500
Xylenes, Total	ND		0.0000352	0.000260
cis-1,2-Dichloroethene	ND		0.0000294	0.000100
cis-1,3-Dichloropropene	ND		0.0000303	0.000100
n-Butylbenzene	ND		0.000210	0.000500
n-Propylbenzene	ND		0.0000380	0.000200
p-Isopropyltoluene	ND		0.000102	0.000200
sec-Butylbenzene	ND		0.000115	0.000500
tert-Butylbenzene	ND		0.0000780	0.000200
trans-1,2-Dichloroethene	ND		0.0000416	0.000200
trans-1,3-Dichloropropene	ND		0.0000456	0.000200
(S) 1,2-Dichloroethane-d4	95.9			70.0-130
(S) Toluene-d8	95.1			75.0-131
(S) 4-Bromofluorobenzene	109			67.0-138

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4188314-1 03/19/25 09:20 • (LCSD) R4188314-2 03/19/25 09:39

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
1,1,1,2-Tetrachloroethane	0.00500	0.00537	0.00544	107	109	74.0-129			1.30	20
1,1,1-Trichloroethane	0.00500	0.00528	0.00551	106	110	69.0-126			4.26	20
1,1,2,2-Tetrachloroethane	0.00500	0.00388	0.00390	77.6	78.0	68.0-128			0.514	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4188314-1 03/19/25 09:20 • (LCSD) R4188314-2 03/19/25 09:39

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
1,1-Dichloroethane	0.00500	0.00461	0.00466	92.2	93.2	70.0-127			1.08	20
1,1-Dichloroethene	0.00500	0.00448	0.00463	89.6	92.6	65.0-131			3.29	20
1,1-Dichloropropene	0.00500	0.00432	0.00429	86.4	85.8	73.0-125			0.697	20
1,2,3-Trichlorobenzene	0.00500	0.00436	0.00426	87.2	85.2	59.0-139			2.32	20
1,2,3-Trichloropropane	0.00500	0.00380	0.00396	76.0	79.2	67.0-129			4.12	20
1,2,4-Trichlorobenzene	0.00500	0.00440	0.00439	88.0	87.8	62.0-137			0.228	20
1,2,4-Trimethylbenzene	0.00500	0.00414	0.00432	82.8	86.4	70.0-126			4.26	20
1,2-Dibromo-3-Chloropropane	0.00500	0.00440	0.00466	88.0	93.2	59.0-130			5.74	20
1,2-Dibromoethane	0.00500	0.00453	0.00450	90.6	90.0	74.0-128			0.664	20
1,2-Dichlorobenzene	0.00500	0.00411	0.00417	82.2	83.4	76.0-124			1.45	20
1,2-Dichloroethane	0.00500	0.00402	0.00416	80.4	83.2	65.0-131			3.42	20
1,2-Dichloropropane	0.00500	0.00475	0.00479	95.0	95.8	74.0-125			0.839	20
1,3,5-Trimethylbenzene	0.00500	0.00407	0.00407	81.4	81.4	73.0-127			0.000	20
1,3-Dichlorobenzene	0.00500	0.00417	0.00421	83.4	84.2	76.0-125			0.955	20
1,3-Dichloropropane	0.00500	0.00410	0.00429	82.0	85.8	80.0-125			4.53	20
1,4-Dichlorobenzene	0.00500	0.00378	0.00394	75.6	78.8	77.0-121	J4		4.15	20
2,2-Dichloropropane	0.00500	0.00563	0.00576	113	115	59.0-135			2.28	20
2-Butanone (MEK)	0.0250	0.0208	0.0226	83.2	90.4	30.0-160			8.29	24
2-Chlorotoluene	0.00500	0.00405	0.00407	81.0	81.4	75.0-124			0.493	20
4-Chlorotoluene	0.00500	0.00376	0.00391	75.2	78.2	75.0-124			3.91	20
4-Methyl-2-pentanone (MIBK)	0.0250	0.0215	0.0223	86.0	89.2	56.0-143			3.65	20
Acetone	0.0250	0.0119	0.0136	47.6	54.4	10.0-160			13.3	31
Allyl chloride	0.0250	0.0247	0.0261	98.8	104	70.0-131			5.51	20
Benzene	0.00500	0.00444	0.00444	88.8	88.8	70.0-123			0.000	20
Bromobenzene	0.00500	0.00402	0.00426	80.4	85.2	73.0-121			5.80	20
Bromochloromethane	0.00500	0.00485	0.00509	97.0	102	77.0-128			4.83	20
Bromodichloromethane	0.00500	0.00527	0.00550	105	110	73.0-121			4.27	20
Bromoform	0.00500	0.00512	0.00539	102	108	64.0-132			5.14	20
Bromomethane	0.00500	0.00438	0.00433	87.6	86.6	56.0-147			1.15	20
Carbon tetrachloride	0.00500	0.00571	0.00577	114	115	66.0-128			1.05	20
Chlorobenzene	0.00500	0.00429	0.00444	85.8	88.8	76.0-128			3.44	20
Chlorodibromomethane	0.00500	0.00451	0.00468	90.2	93.6	74.0-127			3.70	20
Chloroethane	0.00500	0.00431	0.00422	86.2	84.4	61.0-134			2.11	20
Chloroform	0.00500	0.00453	0.00461	90.6	92.2	72.0-123			1.75	20
Chloromethane	0.00500	0.00407	0.00406	81.4	81.2	51.0-138			0.246	20
Dibromomethane	0.00500	0.00439	0.00464	87.8	92.8	75.0-122			5.54	20
Dichlorodifluoromethane	0.00500	0.00570	0.00575	114	115	43.0-156			0.873	20
Dichlorofluoromethane	0.00500	0.00412	0.00412	82.4	82.4	65.0-137			0.000	20
Ethyl ether	0.00500	0.00401	0.00448	80.2	89.6	64.0-137			11.1	20
Ethylbenzene	0.00500	0.00446	0.00470	89.2	94.0	74.0-126			5.24	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4188314-1 03/19/25 09:20 • (LCSD) R4188314-2 03/19/25 09:39

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Hexachloro-1,3-butadiene	0.00500	0.00456	0.00486	91.2	97.2	57.0-150			6.37	20
Isopropylbenzene	0.00500	0.00538	0.00530	108	106	72.0-127			1.50	20
Methyl tert-butyl ether	0.00500	0.00496	0.00560	99.2	112	66.0-132			12.1	20
Methylene Chloride	0.00500	0.00465	0.00455	93.0	91.0	68.0-123			2.17	20
Naphthalene	0.00500	0.00394	0.00380	78.8	76.0	59.0-130			3.62	20
Styrene	0.00500	0.00461	0.00469	92.2	93.8	72.0-127			1.72	20
Tetrachloroethene	0.00500	0.00474	0.00474	94.8	94.8	70.0-136			0.000	20
Tetrahydrofuran	0.00500	0.00313	0.00315	62.6	63.0	37.0-146			0.637	24
Toluene	0.00500	0.00420	0.00426	84.0	85.2	75.0-121			1.42	20
Total 1,2-Dichloroethene	0.0100	0.00972	0.0103	97.2	103	70.0-130			5.79	20
Total 1,3-Dichloropropene	0.0100	0.00931	0.00966	93.1	96.6	73.0-127			3.69	20
Trichloroethene	0.00500	0.00497	0.00490	99.4	98.0	76.0-126			1.42	20
Trichlorofluoromethane	0.00500	0.00469	0.00479	93.8	95.8	61.0-142			2.11	20
Vinyl chloride	0.00500	0.00431	0.00425	86.2	85.0	63.0-134			1.40	20
Xylenes, Total	0.0150	0.0133	0.0134	88.7	89.3	72.0-127			0.749	20
cis-1,2-Dichloroethene	0.00500	0.00465	0.00492	93.0	98.4	73.0-125			5.64	20
cis-1,3-Dichloropropene	0.00500	0.00482	0.00503	96.4	101	76.0-127			4.26	20
n-Butylbenzene	0.00500	0.00418	0.00431	83.6	86.2	68.0-135			3.06	20
n-Propylbenzene	0.00500	0.00396	0.00393	79.2	78.6	74.0-126			0.760	20
p-Isopropyltoluene	0.00500	0.00460	0.00478	92.0	95.6	72.0-133			3.84	20
sec-Butylbenzene	0.00500	0.00412	0.00416	82.4	83.2	74.0-130			0.966	20
tert-Butylbenzene	0.00500	0.00398	0.00395	79.6	79.0	75.0-127			0.757	20
trans-1,2-Dichloroethene	0.00500	0.00507	0.00542	101	108	71.0-125			6.67	20
trans-1,3-Dichloropropene	0.00500	0.00449	0.00463	89.8	92.6	73.0-127			3.07	20
(S) 1,2-Dichloroethane-d4				96.6	97.2	70.0-130				
(S) Toluene-d8				96.3	96.8	75.0-131				
(S) 4-Bromofluorobenzene				107	107	67.0-138				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

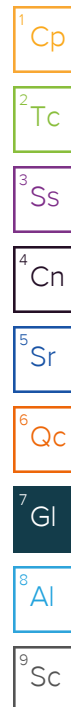
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
C3	The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J4	The associated batch QC was outside the established quality control range for accuracy.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
V	The sample concentration is too high to evaluate accurate spike recoveries.



ACCREDITATIONS & LOCATIONS

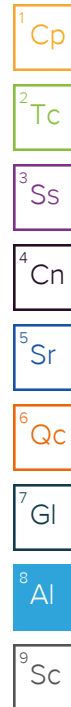
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Elk River Landfill

4300 MarketPoint Drive Suite 200
Minneapolis, MN 55435Accounts Payable /
mkostrze@wm.com
P.O. Box 4745
Portland, OR 97208-4745Pres
OnkReport to:
Jim Eidem 952-832-2893Email To:
aschneider@barr.com; datamgt@barr.com; jsideProject Description:
Quarterly Lysimeters (2,4,7,10)City/State
Collected:Please Circle:
PT MT CT LT

Regulatory Program(DOB, RCRA, DW, etc.):

Client Project #
200Lab Project #
WMELKRIVMN-00010

Collected by (print):

Site/Facility ID #
MN02

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)

☐ Same Day ☐ Five Day
☐ Next Day ☐ 5 Day (Rad Only)
☐ Two Day ☐ 10 Day (Rad Only)
☐ Three Day ☐ STD TAT

Quote #

Date Results Needed

No
ofImmediately
Packed on Ice: N ☐ Y ☒

Sample ID

Comp/Grab

Matrix *

Depth

Date

Time

Cntrs

LYS-01

GW

LYS-11

GW

LYS-12

GW

LYS-13

GW

LYS-14

GW

LYS-15

GW

LYS-16

GW

LYS-17

GW

LYS-18

GW

LYS-19

GW

* Matrix:

SS - Soil AIR - Air F - Filter
 GW - Groundwater B - Bioassay
 WW - Waste Water
 DW - Drinking Water
 OT - Other

Remarks:

Samples returned via:
☐ UPS ☒ FedEx ☐ Courier

Tracking # 4439 2441 7447

pH _____ Temp _____

Flow _____ Other _____

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Trip Blank Received: ☒ No: ☒ Meet

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: °C Bottles Received: 14

if preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: 5/14/25 Time: 0900

Hold:

Condition:

NCF / OK



MT JULIET, TN

5000 Lysimeters for Mount Juliet, TN, 2023
 Submitting a sample in this state of custody
 constitutes acknowledgment and acceptance of the
 Pace Terms and Conditions found at:
 https://info.pacewater.com/submit/ps-standards-terms.pdf

SDG #

J080

Accession: WMELKRIVMN

Template: T165536

Prelogin: P1137351

PM: 364 - T. Alan Harvill

PB: 03/07/25

Shipped Via FedEx Standard

Remarks:

Sample # (only)

Sample Receipt Checklist

COC Seal Present/Intact: ☒ N
 COC Signed/Rechecked: ☒ N
 Bottles arrive intact: ☒ N
 Correct bottles used: ☒ N
 Sufficient volume sent: ☒ N
 if applicable
 VOA held headspace: ☒ N
 Preservation Correct/Checked: ☒ N
 RAD Screen <0.5 m/hr: ☒ N

FIELD INFORMATION FORM

Surface Water, Stormwater and Leachate



Laboratory Use Only / Lab I.D.:

L1836539

Site Name: Elk River Landfill

Sample I.D. LYS-11

Sampling Method & Equipment

Purge and Sample Equipment:

Sampling Method: ☒ D D - Direct ☐ I Indirect ☐ V Visual
Sampling Equipment: ☒ O D - Dipper ☐ S - Sample Bottle
T - Transfer Vessel ☐ O - Other Dedicated Bladder Pump

Sample Type: ☒ G Grab / Composite (circle one)

Field Measurements

Sample Date MM/DD/YYYY	Sample Time 24 Hr. Clock	pH (std. Units)	CONDUCTIVITY (umhos/cm @ 25°C)	Temp °C	TURBIDITY (NTUs)	DO mg/L - ppm	eH/ORP (std. Units)
03/13/2025	1040	6.52	2251	13.1			

Record final stabilized field readings.

Field Observations

Sample Appearance: Odor: None Color: None Other:

Sheen Present ☒ Y or ☒ N Foam Present: ☒ Y or ☒ N Floating Solids: ☒ Y or ☒ N

Weather Conditions: (required daily, or as conditions change):

Direction/Speed: Precipitation: ☒ Y or ☒ N

Specific Comments:

3.13.25

Nike Han

Allen

FIELD INFORMATION FORM

Surface Water, Stormwater and Leachate



Site Name:

Elk River Landfill

Sample I.D.:

lys-17

Laboratory Use Only / Lab I.D.:

11836539

Sampling Method & Equipment

Purge and Sample Equipment:

Sampling Method:



D - Direct

I - Indirect

V - Visual

Sampling Equipment:



D - Dipper

T - Transfer Vessel

S - Sample Bottle

O - Other

Air lock pump

Sample Type:



Grab / Composite

(circle one)

Field Measurements

Sample Date
MM/DD/YYYY

Sample Time
24 Hr. Clock

pH
(std. Units)

CONDUCTIVITY
(umhos/cm @ 25°C)

Temp
°C

TURBIDITY
(NTUs)

DO
mg/L - ppm

ORP
(std. Units)

03-13-25

1030

7.79

1062

18.7

Record final stabilized field readings.

Field Observations

Sample Appearance:

Odor: Mild

Color: Tan/Green

Other: _____

Sheen Present



or



Foam Present



or



Floating Solids



or



Weather Conditions: (required daily, or as conditions change):

Direction/Speed:

W @ 5mph

Precipitation:



or



Specific Comments:

Pumped ~15 gallons pre sample

3-13-25

Date

Kenneth Smith

Name

[Signature]

Signature

Alliance

Company



ANALYTICAL REPORT

May 12, 2025

Revised Report

Elk River Landfill

Sample Delivery Group: L1842913
Samples Received: 04/02/2025
Project Number: 500
Description: Elk River QTRLY Leachate(1,4,7,10)
Site: MN02
Report To: Jim Eidem
4300 MarketPoint Drive Suite 200
Minneapolis, MN 55435

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Entire Report Reviewed By:

T. Alan Harvill
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	7
SP-01_Leachate L1842913-01	7
Qc: Quality Control Summary	12
Gravimetric Analysis by Method 2540 D-2011	12
Wet Chemistry by Method 2320 B-2011	13
Wet Chemistry by Method 300.0	14
Wet Chemistry by Method 335.4	16
Wet Chemistry by Method 410.4	17
Wet Chemistry by Method 4500H+ B-2011	18
Wet Chemistry by Method D93/1010A	19
Mercury by Method 245.1	20
Metals (ICP) by Method 200.7	21
Volatile Organic Compounds (GC/MS) by Method 8260D	24
Pesticides (GC) by Method EPA 608.3	30
Polychlorinated Biphenyls (GC) by Method EPA-608.3	32
Semi Volatile Organic Compounds (GC/MS) by Method 625.1	33
Gl: Glossary of Terms	40
Al: Accreditations & Locations	42
Sc: Sample Chain of Custody	43

¹ Cp
² Tc
³ Ss
⁴ Cn
⁵ Sr
⁶ Qc
⁷ Gl
⁸ Al
⁹ Sc

SAMPLE SUMMARY

SP-01_Leachate L1842913-01

Collected by
Kenneth Smith

Collected date/time
04/01/25 13:20

Received date/time
04/02/25 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 D-2011	WG2482974	1	04/03/25 23:28	04/06/25 15:01	AMG	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2482824	1	04/03/25 16:51	04/03/25 16:51	ARD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2482043	5	04/04/25 06:27	04/04/25 06:27	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2482043	50	04/04/25 06:41	04/04/25 06:41	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 335.4	WG2485966	1	04/09/25 10:10	04/09/25 19:09	AEC	Mt. Juliet, TN
Wet Chemistry by Method 410.4	WG2482470	25	04/03/25 12:17	04/03/25 16:07	JAS	Mt. Juliet, TN
Wet Chemistry by Method 4500H+ B-2011	WG2482289	1	04/03/25 11:45	04/03/25 11:45	BJM	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG2482653	1	04/03/25 16:00	04/03/25 16:00	DLS	Mt. Juliet, TN
Mercury by Method 245.1	WG2484815	10	04/08/25 13:37	04/08/25 20:08	NDL	Mt. Juliet, TN
Metals (ICP) by Method 200.7	WG2484529	5	04/08/25 17:23	04/09/25 03:12	BAG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2487619	10	04/14/25 22:49	04/14/25 22:49	WHS	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2487790	10	04/10/25 23:40	04/10/25 23:40	KST	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2488192	10	04/11/25 18:08	04/11/25 18:08	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2490588	100	04/14/25 23:49	04/14/25 23:49	WHS	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2490955	50	04/15/25 17:25	04/15/25 17:25	KST	Mt. Juliet, TN
Pesticides (GC) by Method EPA 608.3	WG2484099	1.01	04/07/25 08:28	04/07/25 21:55	LTB	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method EPA-608.3	WG2484099	1.01	04/07/25 08:28	04/08/25 16:22	LTB	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 625.1	WG2482495	1.03	04/05/25 04:25	04/12/25 18:07	ADF	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 625.1	WG2490619	1.09	04/15/25 18:35	04/18/25 06:15	JCH	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

CASE NARRATIVE

Unless qualified or notated within the narrative below, all sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



T. Alan Harvill
Project Manager

Report Revision History

Level II Report - Version 1: 04/24/25 08:30

Project Comments

The requested project specific reporting limits may be less than laboratory standard quantitation limits (PQL) but will be greater than or equal to the laboratory method detection limits (MDL). It is noted that results reported below lab standard quantitation limits (PQLs) may result in false positive/false negative values that may require additional laboratory quality assurance review, if requested. Routine laboratory procedures do not initiate a data review process for detections below the laboratory's PQL unless requested by the client.

The requested project specific reporting limits may be less than laboratory standard quantitation limits (PQL) but will be greater than or equal to the laboratory method detection limits (MDL). It is noted that results reported below lab standard quantitation limits (PQLs) may result in false positive/false negative values that may require additional laboratory quality assurance review, if requested. Routine laboratory procedures do not initiate a data review process for detections below the laboratory's PQL unless requested by the client.

Revised to include onsite data.

Sample Comments

L1842913-01 L1842913-01 -2-Propanol, 2-Chloroethylvinyl Ether, and Acrolein initially run within seven-day method hold time. The initial run had failing internal standards and surrogates due to a bad purge which was the result of the foamy matrix of this sample.

Sample Delivery Group (SDG) Narrative

pH outside of method requirement.

Batch	Method	Lab Sample ID
WG2487790	8260D	L1842913-01
WG2488192	8260D	L1842913-01
WG2490955	8260D	L1842913-01

Sample was prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

Batch	Method	Lab Sample ID
WG2487619	8260D	L1842913-01
WG2490588	8260D	L1842913-01
WG2490619	625.1	L1842913-01



CASE NARRATIVE

The laboratory analysis was performed from an unpreserved, insufficiently or inadequately preserved sample.

Batch	Method	Lab Sample ID
WG2484529	200.7	L1842913-01
WG2484815	245.1	L1842913-01

The following samples were prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

Batch	Method	Lab Sample ID
WG2482289	4500H+ B-2011	L1842913-01

Analyzed from headspace vial.

Batch	Method	Lab Sample ID
WG2490955	8260D	L1842913-01

Gravimetric Analysis by Method 2540 D-2011

RPD value not applicable for sample concentrations less than 5 times the reporting limit.

Batch	Lab Sample ID	Analytes
WG2482974	(DUP) R4195878-3	Suspended Solids

Wet Chemistry by Method 335.4

The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Batch	Lab Sample ID	Analytes
WG2485966	(MS) R4197388-5, (MSD) R4197388-6	Cyanide

The associated batch QC was outside the established quality control range for precision.

Batch	Lab Sample ID	Analytes
WG2485966	(MSD) R4197388-6	Cyanide

Metals (ICP) by Method 200.7

The sample concentration is too high to evaluate accurate spike recoveries.

Batch	Lab Sample ID	Analytes
WG2484529	(MS) R4196935-6, (MSD) R4196935-7	Sodium

Volatile Organic Compounds (GC/MS) by Method 8260D

The reported concentration is an estimate. The continuing calibration standard associated with this data responded high. Data is likely to show a high bias concerning the result.

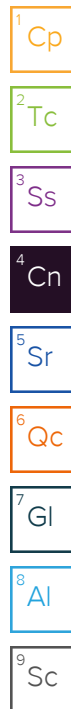
Batch	Lab Sample ID	Analytes
WG2487790	L1842913-01	2-Butanone (MEK)

The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.

Batch	Lab Sample ID	Analytes
WG2487790	L1842913-01	4-Methyl-2-pentanone (MIBK), Acetone, Acrylonitrile, Chloromethane and Hexachloro-1,3-butadiene

The associated batch QC was above the established quality control range for accuracy.

Batch	Lab Sample ID	Analytes
WG2487619	(LCS) R4199482-1, (LCSD) R4199482-2, L1842913-01	Acrolein
WG2487790	(LCS) R4198196-1, L1842913-01	1,1,2-Trichloroethane, Bromomethane and Carbon tetrachloride



CASE NARRATIVE

Pesticides (GC) by Method EPA 608.3

RPD between the primary and confirmatory analysis exceeded 40%

Batch	Lab Sample ID	Analytes
WG2484099	L1842913-01	Endosulfan I

Surrogate recovery limits have been exceeded; values are outside lower control limits.

Batch	Analyte	Lab Sample ID
WG2484099	Decachlorobiphenyl	L1842913-01
WG2484099	Tetrachloro-m-xylene	L1842913-01

Polychlorinated Biphenyls (GC) by Method EPA-608.3

Surrogate recovery limits have been exceeded; values are outside lower control limits.

Batch	Analyte	Lab Sample ID
WG2484099	Decachlorobiphenyl	L1842913-01

Semi Volatile Organic Compounds (GC/MS) by Method 625.1

Analyte reported using a calibration and validation based on Azobenzene (CAS 103-33-3). 1,2-Diphenylhydrazine decomposes into Azobenzene during the analysis.

Batch	Analyte	Lab Sample ID
WG2482495	1,2-Diphenylhydrazine	(BLANK) R4198313-3, (LCS) R4198313-1, (MS) R4199396-1, (MSD) R4199396-2, L1842913-01

Surrogate recovery limits have been exceeded; values are outside lower control limits.

Batch	Analyte	Lab Sample ID
WG2490619	p-Terphenyl-d14	L1842913-01

The associated batch QC was below the established quality control range for accuracy.

Batch	Lab Sample ID	Analytes
WG2482495	(LCS) R4198313-1, L1842913-01	1,2,4-Trichlorobenzene, 2-Chloronaphthalene, Fluorene and Hexachloroethane

The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Batch	Lab Sample ID	Analytes
WG2482495	(MS) R4199396-1, (MSD) R4199396-2	11 analytes



Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
pH (On Site)	8.27	su
Temperature (on-site)	14.19	Deg. C

Gravimetric Analysis by Method 2540 D-2011

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l			
Suspended Solids	93.1		4.00	1	04/06/2025 15:01	WG2482974

Wet Chemistry by Method 2320 B-2011

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l			
Alkalinity	8470		20.0	1	04/03/2025 16:51	WG2482824

Sample Narrative:

L1842913-01 WG2482824: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l			
Chloride	2800		2.60	50	04/04/2025 06:41	WG2482043
Sulfate	35.0		5.00	5	04/04/2025 06:27	WG2482043

Wet Chemistry by Method 335.4

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l			
Cyanide	ND		0.0100	1	04/09/2025 19:09	WG2485966

Wet Chemistry by Method 410.4

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l			
COD	3180		75.0	25	04/03/2025 16:07	WG2482470

Wet Chemistry by Method 4500H+ B-2011

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	SU				
pH	7.85	T8	1	04/03/2025 11:45	WG2482289

Sample Narrative:

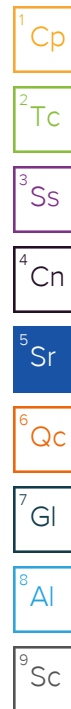
L1842913-01 WG2482289: 7.85 at 20.4C

Wet Chemistry by Method D93/1010A

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	deg F				
Flashpoint	DNF at 170		1	04/03/2025 16:00	WG2482653

Mercury by Method 245.1

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l			
Mercury	0.000753		0.000490	10	04/08/2025 20:08	WG2484815



Metals (ICP) by Method 200.7

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Silver	ND		0.0135	5	04/09/2025 03:12	WG2484529
Arsenic	0.0938		0.0320	5	04/09/2025 03:12	WG2484529
Beryllium	ND		0.00350	5	04/09/2025 03:12	WG2484529
Boron	19.4		0.200	5	04/09/2025 03:12	WG2484529
Calcium	143		1.00	5	04/09/2025 03:12	WG2484529
Cadmium	ND		0.00350	5	04/09/2025 03:12	WG2484529
Chromium	0.341		0.0100	5	04/09/2025 03:12	WG2484529
Copper	ND		0.0350	5	04/09/2025 03:12	WG2484529
Potassium	774		1.00	5	04/09/2025 03:12	WG2484529
Magnesium	173		1.00	5	04/09/2025 03:12	WG2484529
Molybdenum	0.0110		0.0100	5	04/09/2025 03:12	WG2484529
Sodium	2420		1.00	5	04/09/2025 03:12	WG2484529
Nickel	0.298		0.0290	5	04/09/2025 03:12	WG2484529
Lead	ND		0.0100	5	04/09/2025 03:12	WG2484529
Antimony	ND		0.0385	5	04/09/2025 03:12	WG2484529
Selenium	ND		0.0380	5	04/09/2025 03:12	WG2484529
Thallium	ND		0.0335	5	04/09/2025 03:12	WG2484529
Zinc	0.204		0.0500	5	04/09/2025 03:12	WG2484529

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		0.00100	10	04/10/2025 23:40	WG2487790
2-Propanol	1.05	Q	0.165	100	04/14/2025 23:49	WG2490588
1,1,2,2-Tetrachloroethane	ND		0.00100	10	04/10/2025 23:40	WG2487790
2-Chloroethyl vinyl ether	ND	Q	0.0500	10	04/14/2025 22:49	WG2487619
1,1,2-Trichloroethane	ND	J4	0.00100	10	04/10/2025 23:40	WG2487790
Acrolein	ND	J4 Q	0.0254	10	04/14/2025 22:49	WG2487619
1,1-Dichloroethane	ND		0.00100	10	04/10/2025 23:40	WG2487790
1,1-Dichloroethene	ND		0.00100	10	04/10/2025 23:40	WG2487790
1,2,4-Trichlorobenzene	ND		0.00176	10	04/10/2025 23:40	WG2487790
1,2-Dichloroethane	ND		0.00100	10	04/10/2025 23:40	WG2487790
1,2-Dichloropropane	ND		0.00100	10	04/10/2025 23:40	WG2487790
2-Butanone (MEK)	1.46	C5	0.0254	10	04/10/2025 23:40	WG2487790
4-Methyl-2-pentanone (MIBK)	0.0246	C3	0.00500	10	04/10/2025 23:40	WG2487790
Acetone	2.02	C3	0.0146	10	04/10/2025 23:40	WG2487790
Acrylonitrile	ND	C3	0.00500	10	04/10/2025 23:40	WG2487790
Benzene	0.00287		0.00100	10	04/10/2025 23:40	WG2487790
Bromodichloromethane	ND		0.00100	10	04/10/2025 23:40	WG2487790
Bromoform	ND		0.00100	10	04/10/2025 23:40	WG2487790
Bromomethane	ND	J4	0.00100	10	04/10/2025 23:40	WG2487790
Carbon tetrachloride	ND	J4	0.00100	10	04/10/2025 23:40	WG2487790
Chlorobenzene	ND		0.00100	10	04/10/2025 23:40	WG2487790
Chloroethane	ND		0.00100	10	04/11/2025 18:08	WG2488192
Chloroform	ND		0.00100	10	04/10/2025 23:40	WG2487790
Chloromethane	ND	C3	0.00174	10	04/10/2025 23:40	WG2487790
Dibromochloromethane	ND		0.00100	10	04/10/2025 23:40	WG2487790
Ethyl ether	0.0154		0.00100	10	04/10/2025 23:40	WG2487790
Ethylbenzene	0.0115		0.00100	10	04/10/2025 23:40	WG2487790
Hexachloro-1,3-butadiene	ND	C3	0.00200	10	04/10/2025 23:40	WG2487790
Methylene Chloride	ND		0.00266	10	04/10/2025 23:40	WG2487790
Naphthalene	0.00589		0.00195	10	04/10/2025 23:40	WG2487790
Tetrachloroethene	ND		0.00100	10	04/10/2025 23:40	WG2487790
Tetrahydrofuran	2.15		0.00704	50	04/15/2025 17:25	WG2490955
Toluene	0.0366		0.00100	10	04/10/2025 23:40	WG2487790
Total Xylene	0.0296		0.00200	10	04/10/2025 23:40	WG2487790

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Trichloroethene	ND		0.00100	10	04/10/2025 23:40	WG2487790
Vinyl chloride	ND		0.00100	10	04/10/2025 23:40	WG2487790
cis-1,3-Dichloropropene	ND		0.00100	10	04/10/2025 23:40	WG2487790
m&p-Xylene	0.0196		0.00200	10	04/10/2025 23:40	WG2487790
o-Xylene	0.0100		0.00100	10	04/10/2025 23:40	WG2487790
trans-1,2-Dichloroethene	ND		0.00100	10	04/10/2025 23:40	WG2487790
trans-1,3-Dichloropropene	ND		0.00100	10	04/10/2025 23:40	WG2487790
(S) 4-Bromofluorobenzene	97.2			67.0-138	04/10/2025 23:40	WG2487790
(S) 4-Bromofluorobenzene	102			67.0-138	04/11/2025 18:08	WG2488192
(S) 4-Bromofluorobenzene	101			67.0-138	04/15/2025 17:25	WG2490955
(S) Toluene-d8	109			75.0-131	04/10/2025 23:40	WG2487790
(S) Toluene-d8	103			75.0-131	04/11/2025 18:08	WG2488192
(S) Toluene-d8	98.6			75.0-131	04/15/2025 17:25	WG2490955
(S) 1,2-Dichloroethane-d4	98.8			70.0-130	04/10/2025 23:40	WG2487790
(S) 1,2-Dichloroethane-d4	101			70.0-130	04/11/2025 18:08	WG2488192
(S) 1,2-Dichloroethane-d4	99.9			70.0-130	04/15/2025 17:25	WG2490955
(S) 1,2-Dichloroethane-d4	92.9			70.0-130	04/14/2025 22:49	WG2487619
(S) 1,2-Dichloroethane-d4	92.4			70.0-130	04/14/2025 23:49	WG2490588
(S) 4-Bromofluorobenzene	95.7			77.0-126	04/14/2025 22:49	WG2487619
(S) 4-Bromofluorobenzene	95.4			77.0-126	04/14/2025 23:49	WG2490588
(S) Toluene-d8	118			80.0-120	04/14/2025 22:49	WG2487619
(S) Toluene-d8	115			80.0-120	04/14/2025 23:49	WG2490588

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Pesticides (GC) by Method EPA 608.3

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
4,4-DDD	ND		0.0000500	1.01	04/07/2025 21:55	WG2484099
4,4-DDE	ND		0.0000500	1.01	04/07/2025 21:55	WG2484099
4,4-DDT	ND		0.0000500	1.01	04/07/2025 21:55	WG2484099
Aldrin	ND		0.0000500	1.01	04/07/2025 21:55	WG2484099
Alpha BHC	ND		0.0000500	1.01	04/07/2025 21:55	WG2484099
Beta BHC	ND		0.0000500	1.01	04/07/2025 21:55	WG2484099
Chlordane	ND		0.000500	1.01	04/07/2025 21:55	WG2484099
Delta BHC	ND		0.0000500	1.01	04/07/2025 21:55	WG2484099
Dieldrin	ND		0.0000500	1.01	04/07/2025 21:55	WG2484099
Endosulfan I	0.000383	P	0.0000500	1.01	04/07/2025 21:55	WG2484099
Endosulfan II	ND		0.0000500	1.01	04/07/2025 21:55	WG2484099
Endosulfan sulfate	ND		0.0000500	1.01	04/07/2025 21:55	WG2484099
Endrin	ND		0.0000500	1.01	04/07/2025 21:55	WG2484099
Endrin aldehyde	ND		0.0000500	1.01	04/07/2025 21:55	WG2484099
Gamma BHC	ND		0.0000500	1.01	04/07/2025 21:55	WG2484099
Heptachlor	ND		0.0000500	1.01	04/07/2025 21:55	WG2484099
Heptachlor epoxide	ND		0.0000500	1.01	04/07/2025 21:55	WG2484099
Toxaphene	ND		0.000500	1.01	04/07/2025 21:55	WG2484099
(S) Tetrachloro-m-xylene	2.13	J2		10.0-135	04/07/2025 21:55	WG2484099
(S) Decachlorobiphenyl	2.08	J2		10.0-144	04/07/2025 21:55	WG2484099

Sample Narrative:

L1842913-01 WG2484099: Duplicate Analysis performed due to surrogate failure. Results confirm; reporting in hold data

Polychlorinated Biphenyls (GC) by Method EPA-608.3

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
PCB 1016	ND		0.000200	1.01	04/08/2025 16:22	WG2484099
PCB 1221	ND		0.000200	1.01	04/08/2025 16:22	WG2484099
PCB 1232	ND		0.000200	1.01	04/08/2025 16:22	WG2484099
PCB 1242	ND		0.000200	1.01	04/08/2025 16:22	WG2484099
PCB 1248	ND		0.000200	1.01	04/08/2025 16:22	WG2484099
PCB 1254	ND		0.000200	1.01	04/08/2025 16:22	WG2484099
PCB 1260	ND		0.000200	1.01	04/08/2025 16:22	WG2484099
(S) Tetrachloro-m-xylene	26.8			10.0-135	04/08/2025 16:22	WG2484099
(S) Decachlorobiphenyl	1.85	J2		10.0-144	04/08/2025 16:22	WG2484099

Sample Narrative:

L1842913-01 WG2484099: Duplicate Analysis performed due to surrogate failure. Results confirm; reporting in hold data

Semi Volatile Organic Compounds (GC/MS) by Method 625.1

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
1,2,4-Trichlorobenzene	ND	J4	0.0100	1.03	04/12/2025 18:07	WG2482495
1,2-Dichlorobenzene	ND		0.0100	1.03	04/12/2025 18:07	WG2482495
1,2-Diphenylhydrazine	ND	N2	0.0100	1.03	04/12/2025 18:07	WG2482495
1,3-Dichlorobenzene	ND		0.0100	1.03	04/12/2025 18:07	WG2482495
1,4-Dichlorobenzene	ND		0.0100	1.03	04/12/2025 18:07	WG2482495
2,2-Oxybis(1-Chloropropane)	ND		0.00500	1.03	04/12/2025 18:07	WG2482495
2,4,6-Trichlorophenol	ND		0.0100	1.03	04/12/2025 18:07	WG2482495
2,4-Dichlorophenol	ND		0.0100	1.03	04/12/2025 18:07	WG2482495
2,4-Dimethylphenol	ND		0.0100	1.03	04/12/2025 18:07	WG2482495
2,4-Dinitrophenol	ND		0.0100	1.03	04/12/2025 18:07	WG2482495
2,4-Dinitrotoluene	ND		0.0100	1.03	04/12/2025 18:07	WG2482495
2,6-Dinitrotoluene	ND		0.0100	1.03	04/12/2025 18:07	WG2482495
2-Chloronaphthalene	ND	J4	0.00500	1.03	04/12/2025 18:07	WG2482495
2-Chlorophenol	ND		0.0100	1.03	04/12/2025 18:07	WG2482495
2-Nitrophenol	ND		0.0100	1.03	04/12/2025 18:07	WG2482495
3,3-Dichlorobenzidine	ND		5.00	1.03	04/12/2025 18:07	WG2482495
4,6-Dinitro-2-methylphenol	ND		0.0100	1.03	04/12/2025 18:07	WG2482495
4-Bromophenyl-phenylether	ND		0.00500	1.03	04/12/2025 18:07	WG2482495
4-Chloro-3-methylphenol	ND		0.0100	1.03	04/12/2025 18:07	WG2482495
4-Chlorophenyl-phenylether	ND		0.00500	1.03	04/12/2025 18:07	WG2482495
4-Nitrophenol	ND		0.0150	1.03	04/12/2025 18:07	WG2482495
Acenaphthene	ND		0.00500	1.03	04/12/2025 18:07	WG2482495
Acenaphthylene	ND		0.00500	1.03	04/12/2025 18:07	WG2482495
Anthracene	ND		0.00500	1.03	04/12/2025 18:07	WG2482495
Benzidine	ND		0.0800	1.03	04/12/2025 18:07	WG2482495
Benzo(A)Anthracene	ND		0.00500	1.03	04/12/2025 18:07	WG2482495
Benzo(a)pyrene	ND		0.00500	1.03	04/12/2025 18:07	WG2482495
Benzo(b)fluoranthene	ND		0.00500	1.03	04/12/2025 18:07	WG2482495
Benzo(g,h,i)perylene	ND		0.00500	1.03	04/12/2025 18:07	WG2482495
Benzo(k)fluoranthene	ND		0.00500	1.03	04/12/2025 18:07	WG2482495
Benzylbutyl phthalate	ND		0.00500	1.03	04/12/2025 18:07	WG2482495
Bis(2-Ethylhexyl)phthalate	ND		0.0100	1.03	04/12/2025 18:07	WG2482495
Bis(2-chlorethoxy)methane	ND		0.0100	1.03	04/12/2025 18:07	WG2482495
Bis(2-chloroethyl)ether	ND		0.0100	1.03	04/12/2025 18:07	WG2482495
Chrysene	ND		0.00500	1.03	04/12/2025 18:07	WG2482495
Di-n-butyl phthalate	ND		0.00500	1.03	04/12/2025 18:07	WG2482495
Di-n-octyl phthalate	ND		0.00500	1.03	04/12/2025 18:07	WG2482495
Dibenz(a,h)anthracene	ND		0.00500	1.03	04/12/2025 18:07	WG2482495
Diethyl phthalate	ND		0.00500	1.03	04/12/2025 18:07	WG2482495
Dimethyl phthalate	ND		0.00500	1.03	04/12/2025 18:07	WG2482495

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Semi Volatile Organic Compounds (GC/MS) by Method 625.1

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Fluoranthene	ND		0.00500	1.03	04/12/2025 18:07	WG2482495
Fluorene	ND	J4	0.00500	1.03	04/12/2025 18:07	WG2482495
Hexachloro-1,3-butadiene	ND		0.0100	1.03	04/12/2025 18:07	WG2482495
Hexachlorobenzene	ND		0.00500	1.03	04/12/2025 18:07	WG2482495
Hexachlorocyclopentadiene	ND		0.0100	1.03	04/12/2025 18:07	WG2482495
Hexachloroethane	ND	J4	0.0100	1.03	04/12/2025 18:07	WG2482495
Indeno(1,2,3-cd)pyrene	ND		0.00500	1.03	04/12/2025 18:07	WG2482495
Isophorone	ND		0.0100	1.03	04/12/2025 18:07	WG2482495
Naphthalene	ND		0.00100	1.03	04/12/2025 18:07	WG2482495
Nitrobenzene	ND		0.0100	1.03	04/12/2025 18:07	WG2482495
Pentachlorophenol	ND		0.0100	1.03	04/12/2025 18:07	WG2482495
Phenanthrene	ND		0.00500	1.03	04/12/2025 18:07	WG2482495
Phenol	ND		0.0100	1.03	04/12/2025 18:07	WG2482495
Phenol	0.220	Q	0.0100	1.09	04/18/2025 06:15	WG2490619
Pyrene	ND		0.00500	1.03	04/12/2025 18:07	WG2482495
n-Nitrosodi-n-propylamine	ND		0.00500	1.03	04/12/2025 18:07	WG2482495
n-Nitrosodimethylamine	ND		0.0100	1.03	04/12/2025 18:07	WG2482495
n-Nitrosodiphenylamine	ND		0.0100	1.03	04/12/2025 18:07	WG2482495
(S) Phenol-d5	23.1			8.00-424	04/12/2025 18:07	WG2482495
(S) Phenol-d5	48.8			8.00-424	04/18/2025 06:15	WG2490619
(S) Nitrobenzene-d5	59.5			15.0-314	04/12/2025 18:07	WG2482495
(S) Nitrobenzene-d5	70.1			15.0-314	04/18/2025 06:15	WG2490619
(S) 2,4,6-Tribromophenol	45.7			10.0-153	04/12/2025 18:07	WG2482495
(S) 2,4,6-Tribromophenol	76.5			10.0-153	04/18/2025 06:15	WG2490619
(S) p-Terphenyl-d14	51.9			29.0-141	04/12/2025 18:07	WG2482495
(S) p-Terphenyl-d14	21.4	J2		29.0-141	04/18/2025 06:15	WG2490619
(S) 2-Fluorophenol	32.6			10.0-120	04/12/2025 18:07	WG2482495
(S) 2-Fluorophenol	34.8			10.0-120	04/18/2025 06:15	WG2490619
(S) 2-Fluorobiphenyl	47.7			22.0-127	04/12/2025 18:07	WG2482495
(S) 2-Fluorobiphenyl	39.8			22.0-127	04/18/2025 06:15	WG2490619

Sample Narrative:

L1842913-01 WG2482495, WG2490619: Duplicate Analysis performed due to QC failure. Results don't confirm; both analyses reported.

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4195878-1 04/06/25 15:01

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Suspended Solids	ND		0.350	2.50

L1842900-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1842900-01 04/06/25 15:01 • (DUP) R4195878-3 04/06/25 15:01

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	95.6	85.6	1	11.0	P1	10

L1842934-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1842934-02 04/06/25 15:01 • (DUP) R4195878-4 04/06/25 15:01

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	52.4	52.0	1	0.766		10

Laboratory Control Sample (LCS)

(LCS) R4195878-2 04/06/25 15:01

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Suspended Solids	773	776	100	85.0-115	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4196344-2 04/03/25 16:22

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Alkalinity	ND		2.71	20.0

Sample Narrative:
BLANK: Endpoint pH 4.5

L1843195-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1843195-08 04/03/25 16:29 • (DUP) R4196344-3 04/03/25 16:37

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Alkalinity	250	249	1	0.358		20

Sample Narrative:
OS: Endpoint pH 4.5 Headspace
DUP: Endpoint pH 4.5

L1843195-13 Original Sample (OS) • Duplicate (DUP)

(OS) L1843195-13 04/03/25 21:03 • (DUP) R4196344-4 04/03/25 21:08

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Alkalinity	417	428	1	2.64		20

Sample Narrative:
OS: Endpoint pH 4.5 Headspace
DUP: Endpoint pH 4.5

Laboratory Control Sample (LCS)

(LCS) R4196344-1 04/03/25 16:15

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Alkalinity	100	92.6	92.6	90.0-110	

Sample Narrative:
LCS: Endpoint pH 4.5

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4195175-1 04/04/25 00:53

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Chloride	0.524		0.0519	1.00
Sulfate	0.514		0.0774	5.00

L1841529-13 Original Sample (OS) • Duplicate (DUP)

(OS) L1841529-13 04/04/25 01:19 • (DUP) R4195175-3 04/04/25 01:32

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Chloride	11.5	11.5	1	0.480		15
Sulfate	9.75	9.44	1	3.24		15

L1842699-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1842699-08 04/04/25 03:33 • (DUP) R4195175-5 04/04/25 03:46

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Chloride	9.13	8.96	1	1.79		15
Sulfate	20.7	20.8	1	0.471		15

Laboratory Control Sample (LCS)

(LCS) R4195175-2 04/04/25 01:06

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Chloride	40.0	41.7	104	90.0-110	
Sulfate	40.0	42.2	106	90.0-110	

L1841529-13 Original Sample (OS) • Matrix Spike (MS)

(OS) L1841529-13 04/04/25 01:19 • (MS) R4195175-4 04/04/25 01:46

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Chloride	40.0	11.5	51.1	99.0	1	90.0-110	
Sulfate	40.0	9.75	50.7	102	1	90.0-110	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1842699-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1842699-08 04/04/25 03:33 • (MS) R4195175-6 04/04/25 04:00 • (MSD) R4195175-7 04/04/25 04:13

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Chloride	40.0	9.13	48.7	47.7	98.9	96.6	1	90.0-110			1.98	15
Sulfate	40.0	20.7	58.5	57.2	94.5	91.2	1	90.0-110			2.26	15

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4197388-1 04/09/25 18:42

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Cyanide	ND		0.00180	0.00500

L1842709-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1842709-02 04/09/25 18:53 • (DUP) R4197388-4 04/09/25 18:55

	Original Result	DUP Result	Dilution	DUP RPD	DUP RPD Limits
Analyte	mg/l	mg/l		%	%
Cyanide	ND	ND	1	0.000	20

Laboratory Control Sample (LCS)

(LCS) R4197388-2 04/09/25 18:43

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Cyanide	0.100	0.0880	88.0	87.1-120	

L1843921-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1843921-01 04/09/25 19:21 • (MS) R4197388-5 04/09/25 19:22 • (MSD) R4197388-6 04/09/25 19:24

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Cyanide	0.100	ND	0.0881	0.0701	88.1	70.1	1	90.0-110	J6	J3 J6	22.8	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4194858-1 04/03/25 16:01

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
COD	ND		3.00	10.0

L1842709-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1842709-04 04/03/25 16:05 • (DUP) R4194858-5 04/03/25 16:05

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
COD	15.0	15.0	1	0.220		20

L1842913-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1842913-01 04/03/25 16:07 • (DUP) R4194858-6 04/03/25 16:07

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
COD	3180	3420	25	7.35		20

Laboratory Control Sample (LCS)

(LCS) R4194858-2 04/03/25 16:01

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
COD	500	495	99.0	90.0-110	

L1842678-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1842678-01 04/03/25 16:02 • (MS) R4194858-3 04/03/25 16:02 • (MSD) R4194858-4 04/03/25 16:02

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
COD	500	ND	484	492	96.7	98.3	1	90.0-110			1.65	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1840370-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1840370-01 04/03/25 11:45 • (DUP) R4194677-2 04/03/25 11:45

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	1.75	1.75	1	0.000		1

Sample Narrative:
OS: 1.75 at 20.5C
DUP: 1.75 at 20.7C

L1842926-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1842926-01 04/03/25 11:45 • (DUP) R4194677-3 04/03/25 11:45

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	SU	su		%		%
pH	7.88	7.89	1	0.127		1

Sample Narrative:
OS: 7.88 at 20.4C
DUP: 7.89 at 20.4C

Laboratory Control Sample (LCS)

(LCS) R4194677-1 04/03/25 11:45

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:
LCS: 10.01 at 20.8C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1843260-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1843260-01 04/03/25 16:00 • (DUP) R4194916-3 04/03/25 16:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	deg F	deg F		%		%
Flashpoint	107	107	1	0.280		10

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4194916-1 04/03/25 16:00 • (LCSD) R4194916-2 04/03/25 16:00

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	deg F	deg F	deg F	%	%	%			%	%
Flashpoint	126	127	126	101	100	96.5-103			0.790	10

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4196838-1 04/08/25 19:36

	MB Result	<u>MB Qualifier</u>	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Mercury	0.0000568		0.0000490	0.000200

Laboratory Control Sample (LCS)

(LCS) R4196838-2 04/08/25 19:44

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	mg/l	mg/l	%	%	
Mercury	0.00300	0.00281	93.8	85.0-115	

L1844128-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1844128-06 04/08/25 19:47 • (MS) R4196838-4 04/08/25 19:52 • (MSD) R4196838-5 04/08/25 19:55

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Mercury	0.00300	ND	0.00300	0.00299	100	99.6	1	70.0-130			0.559	20

L1844290-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1844290-01 04/08/25 19:58 • (MS) R4196838-6 04/08/25 20:00 • (MSD) R4196838-7 04/08/25 20:03

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Mercury	0.00300	ND	0.00275	0.00276	91.7	92.2	1	70.0-130			0.479	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4196935-1 04/09/25 02:20

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Silver	ND		0.00270	0.00500
Arsenic	ND		0.00640	0.0100
Beryllium	ND		0.000700	0.00200
Boron	ND		0.0159	0.200
Calcium	ND		0.100	1.00
Cadmium	ND		0.000700	0.00200
Chromium	ND	⌵	0.00180	0.0100
Copper	ND		0.00700	0.0100
Potassium	0.134	⌵	0.107	1.00
Magnesium	ND		0.0168	1.00
Molybdenum	ND		0.00170	0.00500
Sodium	0.320	⌵	0.0939	1.00
Nickel	ND		0.00580	0.0100
Lead	ND		0.00200	0.00500
Antimony	ND		0.00770	0.0100
Selenium	ND		0.00760	0.0100
Thallium	ND		0.00670	0.0100
Zinc	ND		0.00340	0.0500

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R4196935-2 04/09/25 02:22

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Silver	0.200	0.191	95.6	85.0-115	
Arsenic	1.00	1.03	103	85.0-115	
Beryllium	1.00	1.04	104	85.0-115	
Boron	1.00	0.991	99.1	85.0-115	
Calcium	10.0	9.89	98.9	85.0-115	
Cadmium	1.00	1.03	103	85.0-115	
Chromium	1.00	1.05	105	85.0-115	
Copper	1.00	1.03	103	85.0-115	
Potassium	10.0	10.1	101	85.0-115	
Magnesium	10.0	9.79	97.9	85.0-115	
Molybdenum	1.00	1.04	104	85.0-115	
Sodium	10.0	10.5	105	85.0-115	
Nickel	1.00	0.980	98.0	85.0-115	
Lead	1.00	1.00	100	85.0-115	
Antimony	1.00	1.01	101	85.0-115	

Laboratory Control Sample (LCS)

(LCS) R4196935-2 04/09/25 02:22

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Selenium	1.00	1.02	102	85.0-115	
Thallium	1.00	1.04	104	85.0-115	
Zinc	1.00	1.04	104	85.0-115	

L1842041-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1842041-01 04/09/25 02:24 • (MS) R4196935-4 04/09/25 02:28 • (MSD) R4196935-5 04/09/25 02:30

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Silver	0.200	ND	0.191	0.194	94.7	96.3	1	70.0-130			1.68	20
Arsenic	1.00	ND	1.04	1.06	104	106	1	70.0-130			1.41	20
Beryllium	1.00	ND	1.05	1.06	105	106	1	70.0-130			1.54	20
Boron	1.00	0.212	1.20	1.22	98.8	101	1	70.0-130			1.64	20
Calcium	10.0	14.5	24.3	23.9	98.0	93.3	1	70.0-130			1.94	20
Cadmium	1.00	ND	1.03	1.03	103	103	1	70.0-130			0.525	20
Chromium	1.00	ND	1.04	1.05	104	105	1	70.0-130			0.668	20
Copper	1.00	ND	1.04	1.05	103	104	1	70.0-130			0.887	20
Potassium	10.0	10.3	20.6	20.4	103	101	1	70.0-130			0.862	20
Magnesium	10.0	4.06	13.9	13.9	98.8	97.9	1	70.0-130			0.663	20
Molybdenum	1.00	ND	1.03	1.04	103	104	1	70.0-130			1.21	20
Sodium	10.0	47.1	57.7	56.8	106	96.5	1	70.0-130			1.63	20
Nickel	1.00	ND	1.00	1.01	100	101	1	70.0-130			0.684	20
Lead	1.00	ND	1.02	1.03	102	103	1	70.0-130			0.930	20
Antimony	1.00	ND	1.01	1.01	101	101	1	70.0-130			0.268	20
Selenium	1.00	ND	1.02	1.03	102	103	1	70.0-130			1.04	20
Thallium	1.00	ND	1.04	1.05	104	105	1	70.0-130			1.31	20
Zinc	1.00	ND	1.07	1.07	104	104	1	70.0-130			0.571	20

L1842834-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1842834-03 04/09/25 02:32 • (MS) R4196935-6 04/09/25 02:34 • (MSD) R4196935-7 04/09/25 02:35

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Silver	0.200	ND	0.196	0.196	98.1	97.8	1	70.0-130			0.329	20
Arsenic	1.00	ND	1.08	1.08	108	108	1	70.0-130			0.592	20
Beryllium	1.00	ND	1.06	1.05	106	105	1	70.0-130			1.12	20
Boron	1.00	ND	1.15	1.14	100	99.6	1	70.0-130			0.758	20
Calcium	10.0	38.2	47.1	46.9	88.5	86.9	1	70.0-130			0.339	20
Cadmium	1.00	ND	1.05	1.04	105	104	1	70.0-130			0.645	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1842834-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1842834-03 04/09/25 02:32 • (MS) R4196935-6 04/09/25 02:34 • (MSD) R4196935-7 04/09/25 02:35

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chromium	1.00	ND	1.06	1.05	106	105	1	70.0-130			0.928	20
Copper	1.00	ND	1.06	1.05	106	105	1	70.0-130			0.924	20
Potassium	10.0	12.7	23.0	22.7	102	99.6	1	70.0-130			1.11	20
Magnesium	10.0	8.08	17.7	17.7	96.4	95.9	1	70.0-130			0.320	20
Molybdenum	1.00	ND	1.05	1.05	105	105	1	70.0-130			0.375	20
Sodium	10.0	268	274	270	57.7	22.6	1	70.0-130	V	V	1.29	20
Nickel	1.00	ND	1.03	1.02	103	102	1	70.0-130			0.669	20
Lead	1.00	ND	1.03	1.03	103	103	1	70.0-130			0.394	20
Antimony	1.00	ND	1.03	1.03	103	103	1	70.0-130			0.269	20
Selenium	1.00	ND	1.07	1.07	107	107	1	70.0-130			0.479	20
Thallium	1.00	ND	1.04	1.03	104	103	1	70.0-130			0.234	20
Zinc	1.00	0.292	1.34	1.33	105	104	1	70.0-130			0.699	20

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R4199482-4 04/14/25 21:57

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
2-Chloroethyl vinyl ether	ND		0.000575	0.0500
Acrolein	ND		0.00254	0.0500
(S) 1,2-Dichloroethane-d4	93.7			70.0-130
(S) 4-Bromofluorobenzene	93.6			77.0-126
(S) Toluene-d8	116			80.0-120

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4199482-1 04/14/25 20:17 • (LCSD) R4199482-2 04/14/25 20:37

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
2-Chloroethyl vinyl ether	0.0250	0.0199	0.0179	79.6	71.6	51.0-160	J	J	10.6	20
Acrolein	0.0250	0.0530	0.0448	212	179	10.0-160	J4	J J4	16.8	26
(S) 1,2-Dichloroethane-d4				96.7	95.6	70.0-130				
(S) 4-Bromofluorobenzene				92.7	93.4	77.0-126				
(S) Toluene-d8				114	115	80.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4198196-3 04/10/25 20:35

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
1,1,1-Trichloroethane	ND		0.0000369	0.000100
1,1,2,2-Tetrachloroethane	ND		0.0000278	0.000100
1,1,2-Trichloroethane	ND		0.0000239	0.000100
1,1-Dichloroethane	ND		0.0000196	0.000100
1,1-Dichloroethene	ND		0.0000242	0.000100
1,2,4-Trichlorobenzene	ND		0.000176	0.000500
1,2-Dichloroethane	ND		0.0000260	0.000100
1,2-Dichloropropane	ND		0.0000568	0.000200
2-Butanone (MEK)	ND		0.00254	0.00400
4-Methyl-2-pentanone (MIBK)	ND		0.0000912	0.00100
Acetone	ND		0.00146	0.00200
Acrylonitrile	ND		0.000144	0.000500
Benzene	ND		0.0000187	0.0000400
Bromodichloromethane	ND		0.0000290	0.000100
Bromoform	ND		0.0000468	0.00100
Bromomethane	ND		0.0000788	0.000500
Carbon tetrachloride	ND		0.0000359	0.000200
Chlorobenzene	ND		0.00000840	0.000100
Chloroform	0.0000660	U	0.0000412	0.000100
Chloromethane	ND		0.000174	0.000500
Dibromochloromethane	ND		0.0000245	0.000100
Ethyl ether	ND		0.0000356	0.000100
Ethylbenzene	ND		0.0000295	0.000100
Hexachloro-1,3-butadiene	ND		0.0000485	0.00100
Methylene Chloride	ND		0.000266	0.00100
Naphthalene	ND		0.000195	0.000500
Tetrachloroethene	ND		0.0000358	0.000100
Toluene	ND		0.0000520	0.000200
Total Xylene	ND		0.0000352	0.000260
Trichloroethene	ND		0.0000234	0.0000400
Vinyl chloride	ND		0.0000462	0.0000500
cis-1,3-Dichloropropene	ND		0.0000303	0.000100
m&p-Xylene	ND		0.0000760	0.000160
o-Xylene	ND		0.0000352	0.000100
trans-1,2-Dichloroethene	ND		0.0000416	0.000200
trans-1,3-Dichloropropene	ND		0.0000456	0.000200
(S) 4-Bromofluorobenzene	98.2			67.0-138
(S) Toluene-d8	110			75.0-131
(S) 1,2-Dichloroethane-d4	96.3			70.0-130

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4198196-1 04/10/25 18:23 • (LCSD) R4198196-2 04/10/25 19:57

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
1,1,1-Trichloroethane	0.00500	0.00618	0.00552	124	110	69.0-126			11.3	20
1,1,2,2-Tetrachloroethane	0.00500	0.00511	0.00522	102	104	68.0-128			2.13	20
1,1,2-Trichloroethane	0.00500	0.00619	0.00577	124	115	78.0-123	J4		7.02	20
1,1-Dichloroethane	0.00500	0.00456	0.00416	91.2	83.2	70.0-127			9.17	20
1,1-Dichloroethene	0.00500	0.00487	0.00444	97.4	88.8	65.0-131			9.24	20
1,2,4-Trichlorobenzene	0.00500	0.00443	0.00409	88.6	81.8	62.0-137			7.98	20
1,2-Dichloroethane	0.00500	0.00513	0.00500	103	100	65.0-131			2.57	20
1,2-Dichloropropane	0.00500	0.00477	0.00421	95.4	84.2	74.0-125			12.5	20
2-Butanone (MEK)	0.0250	0.0304	0.0289	122	116	30.0-160			5.06	24
4-Methyl-2-pentanone (MIBK)	0.0250	0.0194	0.0180	77.6	72.0	56.0-143			7.49	20
Acetone	0.0250	0.0166	0.0157	66.4	62.8	10.0-160			5.57	31
Acrylonitrile	0.0250	0.0180	0.0166	72.0	66.4	45.0-153			8.09	22
Benzene	0.00500	0.00532	0.00483	106	96.6	70.0-123			9.66	20
Bromodichloromethane	0.00500	0.00582	0.00541	116	108	73.0-121			7.30	20
Bromoform	0.00500	0.00538	0.00527	108	105	64.0-132			2.07	20
Bromomethane	0.00500	0.00750	0.00701	150	140	56.0-147	J4		6.75	20
Carbon tetrachloride	0.00500	0.00648	0.00585	130	117	66.0-128	J4		10.2	20
Chlorobenzene	0.00500	0.00564	0.00506	113	101	76.0-128			10.8	20
Chloroform	0.00500	0.00526	0.00479	105	95.8	72.0-123			9.35	20
Chloromethane	0.00500	0.00339	0.00333	67.8	66.6	51.0-138			1.79	20
Dibromochloromethane	0.00500	0.00617	0.00594	123	119	74.0-127			3.80	20
Ethyl ether	0.00500	0.00437	0.00400	87.4	80.0	64.0-137			8.84	20
Ethylbenzene	0.00500	0.00553	0.00509	111	102	74.0-126			8.29	20
Hexachloro-1,3-butadiene	0.00500	0.00385	0.00408	77.0	81.6	57.0-150			5.80	20
Methylene Chloride	0.00500	0.00505	0.00463	101	92.6	68.0-123			8.68	20
Naphthalene	0.00500	0.00492	0.00471	98.4	94.2	59.0-130			4.36	20
Tetrachloroethene	0.00500	0.00665	0.00605	133	121	70.0-136			9.45	20
Toluene	0.00500	0.00570	0.00533	114	107	75.0-121			6.71	20
Total Xylene	0.0150	0.0163	0.0143	109	95.3	72.0-127			13.1	20
Trichloroethene	0.00500	0.00623	0.00570	125	114	76.0-126			8.89	20
Vinyl chloride	0.00500	0.00514	0.00451	103	90.2	63.0-134			13.1	20
cis-1,3-Dichloropropene	0.00500	0.00551	0.00529	110	106	76.0-127			4.07	20
m&p-Xylene	0.0100	0.0111	0.00981	111	98.1	76.0-126			12.3	20
o-Xylene	0.00500	0.00520	0.00451	104	90.2	79.0-124			14.2	20
trans-1,2-Dichloroethene	0.00500	0.00531	0.00498	106	99.6	71.0-125			6.41	20
trans-1,3-Dichloropropene	0.00500	0.00602	0.00571	120	114	73.0-127			5.29	20
(S) 4-Bromofluorobenzene				97.2	95.9	67.0-138				
(S) Toluene-d8				107	107	75.0-131				
(S) 1,2-Dichloroethane-d4				96.8	96.4	70.0-130				

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4198627-3 04/11/25 15:03

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Chloroethane	ND		0.0000680	0.000200
(S) 4-Bromofluorobenzene	101			67.0-138
(S) Toluene-d8	103			75.0-131
(S) 1,2-Dichloroethane-d4	102			70.0-130

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4198627-1 04/11/25 13:46 • (LCSD) R4198627-2 04/11/25 14:05

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chloroethane	0.00500	0.00429	0.00439	85.8	87.8	61.0-134			2.30	20
(S) 4-Bromofluorobenzene				103	102	67.0-138				
(S) Toluene-d8				103	102	75.0-131				
(S) 1,2-Dichloroethane-d4				101	102	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4199510-4 04/14/25 21:57

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
2-Propanol	ND		0.00165	0.00500
(S) 1,2-Dichloroethane-d4	93.7			70.0-130
(S) 4-Bromofluorobenzene	93.6			77.0-126
(S) Toluene-d8	116			80.0-120

Laboratory Control Sample (LCS)

(LCS) R4199510-3 04/14/25 20:57

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
2-Propanol	0.0500	0.0437	87.4	10.0-160	
(S) 1,2-Dichloroethane-d4			103	70.0-130	
(S) 4-Bromofluorobenzene			91.8	77.0-126	
(S) Toluene-d8			116	80.0-120	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4200241-3 04/15/25 10:05

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Tetrahydrofuran	ND		0.000141	0.000500
(S) 4-Bromofluorobenzene	103			67.0-138
(S) Toluene-d8	100			75.0-131
(S) 1,2-Dichloroethane-d4	89.9			70.0-130

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4200241-1 04/15/25 08:29 • (LCSD) R4200241-2 04/15/25 08:48

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Tetrahydrofuran	0.00500	0.00480	0.00536	96.0	107	37.0-146			11.0	24
(S) 4-Bromofluorobenzene				104	104	67.0-138				
(S) Toluene-d8				100	101	75.0-131				
(S) 1,2-Dichloroethane-d4				100	98.4	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4196625-1 04/07/25 18:20

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
4,4-DDD	ND		0.0000170	0.0000500
4,4-DDE	ND		0.0000164	0.0000500
4,4-DDT	ND		0.0000177	0.0000500
Aldrin	ND		0.00000813	0.0000500
Alpha BHC	ND		0.0000166	0.0000500
Beta BHC	ND		0.0000184	0.0000500
Chlordane	ND		0.0000977	0.000500
Delta BHC	ND		0.0000197	0.0000500
Dieldrin	ND		0.00000751	0.0000500
Endosulfan I	ND		0.0000179	0.0000500
Endosulfan II	ND		0.0000176	0.0000500
Endosulfan sulfate	ND		0.0000196	0.0000500
Endrin	ND		0.0000189	0.0000500
Endrin aldehyde	ND		0.0000142	0.0000500
Gamma BHC	ND		0.0000176	0.0000500
Heptachlor	ND		0.0000108	0.0000500
Heptachlor epoxide	ND		0.0000175	0.0000500
Toxaphene	ND		0.000168	0.000500
(S) Tetrachloro-m-xylene	84.3			10.0-135
(S) Decachlorobiphenyl	10.1			10.0-144

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R4196625-5 04/07/25 18:30

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
4,4-DDD	0.00100	0.000644	64.4	31.0-141	
4,4-DDE	0.00100	0.000626	62.6	30.0-145	
4,4-DDT	0.00100	0.000660	66.0	25.0-160	
Aldrin	0.00100	0.000600	60.0	42.0-140	
Alpha BHC	0.00100	0.000588	58.8	37.0-140	
Beta BHC	0.00100	0.000594	59.4	17.0-147	
Delta BHC	0.00100	0.000574	57.4	19.0-140	
Dieldrin	0.00100	0.000644	64.4	36.0-146	
Endosulfan I	0.00100	0.000614	61.4	45.0-153	
Endosulfan II	0.00100	0.000633	63.3	1.00-202	
Endosulfan sulfate	0.00100	0.000595	59.5	26.0-144	
Endrin	0.00100	0.000653	65.3	30.0-147	
Endrin aldehyde	0.00100	0.000596	59.6	56.0-128	

Laboratory Control Sample (LCS)

(LCS) R4196625-5 04/07/25 18:30

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Gamma BHC	0.00100	0.000602	60.2	32.0-140	
Heptachlor	0.00100	0.000607	60.7	34.0-140	
Heptachlor epoxide	0.00100	0.000611	61.1	37.0-142	
(S) Tetrachloro-m-xylene			53.8	10.0-135	
(S) Decachlorobiphenyl			48.4	10.0-144	

L1843693-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1843693-01 04/07/25 19:08 • (MS) R4196625-6 04/07/25 19:17 • (MSD) R4196625-7 04/07/25 19:26

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
4,4-DDD	0.00100	ND	0.00101	0.00102	101	102	1	31.0-141			0.985	39
4,4-DDE	0.00100	ND	0.000966	0.000978	96.6	97.8	1	30.0-145			1.23	35
4,4-DDT	0.00100	ND	0.00101	0.00101	101	101	1	25.0-160			0.000	42
Aldrin	0.00100	ND	0.000983	0.000987	98.3	98.7	1	42.0-140			0.406	35
Alpha BHC	0.00100	ND	0.00101	0.00100	101	100	1	37.0-140			0.995	36
Beta BHC	0.00100	ND	0.00101	0.000977	101	97.7	1	17.0-147			3.32	44
Delta BHC	0.00100	ND	0.000980	0.000962	98.0	96.2	1	19.0-140			1.85	52
Dieldrin	0.00100	ND	0.00105	0.00104	105	104	1	36.0-146			0.957	49
Endosulfan I	0.00100	ND	0.000986	0.000990	98.6	99.0	1	45.0-153			0.405	28
Endosulfan II	0.00100	ND	0.00101	0.00101	101	101	1	1.00-202			0.000	53
Endosulfan sulfate	0.00100	ND	0.000952	0.000968	95.2	96.8	1	26.0-144			1.67	38
Endrin	0.00100	ND	0.00106	0.00106	106	106	1	30.0-147			0.000	48
Endrin aldehyde	0.00100	ND	0.000951	0.000949	95.1	94.9	1	56.0-128			0.211	20
Gamma BHC	0.00100	ND	0.00103	0.00101	103	101	1	32.0-140			1.96	39
Heptachlor	0.00100	ND	0.00102	0.00101	102	101	1	34.0-140			0.985	43
Heptachlor epoxide	0.00100	ND	0.000994	0.000987	99.4	98.7	1	37.0-142			0.707	26
(S) Tetrachloro-m-xylene					93.1	88.3		10.0-135				
(S) Decachlorobiphenyl					80.3	72.3		10.0-144				

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4196625-1 04/07/25 18:20

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
PCB 1016	ND		0.000100	0.000200
PCB 1221	ND		0.0000730	0.000200
PCB 1232	ND		0.0000420	0.000200
PCB 1242	ND		0.0000470	0.000200
PCB 1248	ND		0.0000860	0.000200
PCB 1254	ND		0.0000470	0.000200
PCB 1260	ND		0.000120	0.000200
(S) Tetrachloro-m-xylene	83.9			10.0-135
(S) Decachlorobiphenyl	10.0			10.0-144

Laboratory Control Sample (LCS)

(LCS) R4196625-2 04/07/25 18:39

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
PCB 1016	0.00250	0.00216	86.4	50.0-140	
PCB 1260	0.00250	0.00219	87.6	8.00-140	
(S) Tetrachloro-m-xylene			85.9	10.0-135	
(S) Decachlorobiphenyl			63.6	10.0-144	

L1843693-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1843693-01 04/07/25 19:08 • (MS) R4196625-3 04/07/25 19:36 • (MSD) R4196625-4 04/07/25 19:45

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
PCB 1016	0.00250	ND	0.00209	0.00155	83.6	62.0	1	50.0-140			29.7	36
PCB 1260	0.00250	ND	0.00205	0.00196	82.0	78.4	1	8.00-140			4.49	38
(S) Tetrachloro-m-xylene					90.0	82.2		10.0-135				
(S) Decachlorobiphenyl					70.7	60.9		10.0-144				

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4198313-3 04/10/25 18:34

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
1,2,4-Trichlorobenzene	ND		0.000355	0.0100
1,2-Dichlorobenzene	ND		0.0000713	0.0100
1,2-Diphenylhydrazine	ND	N2	0.000318	0.0100
1,3-Dichlorobenzene	ND		0.000132	0.0100
1,4-Dichlorobenzene	ND		0.0000942	0.0100
2,2-Oxybis(1-Chloropropane)	ND		0.000445	0.0100
2,4,6-Trichlorophenol	ND		0.000297	0.0100
2,4-Dichlorophenol	ND		0.000284	0.0100
2,4-Dimethylphenol	ND		0.000624	0.0100
2,4-Dinitrophenol	ND		0.00325	0.0100
2,4-Dinitrotoluene	ND		0.00165	0.0100
2,6-Dinitrotoluene	ND		0.000279	0.0100
2-Chloronaphthalene	ND		0.000330	0.00100
2-Chlorophenol	ND		0.000283	0.0100
2-Nitrophenol	ND		0.000320	0.0100
3,3-Dichlorobenzidine	ND		0.00202	0.0100
4,6-Dinitro-2-methylphenol	ND		0.00263	0.0100
4-Bromophenyl-phenylether	ND		0.000335	0.0100
4-Chloro-3-methylphenol	ND		0.000263	0.0100
4-Chlorophenyl-phenylether	ND		0.000303	0.0100
4-Nitrophenol	ND		0.00201	0.0100
Acenaphthene	ND		0.000316	0.00100
Acenaphthylene	ND		0.000309	0.00100
Anthracene	ND		0.000291	0.00100
Benzidine	ND		0.00432	0.0100
Benzo(A)Anthracene	ND		0.0000975	0.00100
Benzo(a)pyrene	ND		0.000340	0.00100
Benzo(b)fluoranthene	ND		0.0000896	0.00100
Benzo(g,h,i)perylene	ND		0.000161	0.00100
Benzo(k)fluoranthene	ND		0.000355	0.00100
Benzylbutyl phthalate	ND		0.000275	0.00300
Bis(2-Ethylhexyl)phthalate	ND		0.000709	0.00300
Bis(2-chlorethoxy)methane	ND		0.000329	0.0100
Bis(2-chloroethyl)ether	ND		0.00162	0.0100
Chrysene	ND		0.000332	0.00100
Di-n-butyl phthalate	ND		0.000266	0.00300
Di-n-octyl phthalate	0.000302		0.000278	0.00300
Dibenz(a,h)anthracene	ND		0.000279	0.00100
Diethyl phthalate	ND		0.000282	0.00300
Dimethyl phthalate	ND		0.000283	0.00300

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4198313-3 04/10/25 18:34

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Fluoranthene	ND		0.000310	0.00100
Fluorene	ND		0.000323	0.00100
Hexachloro-1,3-butadiene	ND		0.000329	0.0100
Hexachlorobenzene	ND		0.000341	0.00100
Hexachlorocyclopentadiene	ND		0.00233	0.0100
Hexachloroethane	ND		0.000365	0.0100
Indeno(1,2,3-cd)pyrene	ND		0.000279	0.00100
Isophorone	ND		0.000272	0.0100
Naphthalene	ND		0.000372	0.00100
Nitrobenzene	ND		0.000367	0.0100
Pentachlorophenol	ND		0.000313	0.0100
Phenanthrene	ND		0.000366	0.00100
Phenol	ND		0.000334	0.0100
Pyrene	ND		0.000330	0.00100
n-Nitrosodi-n-propylamine	ND		0.000403	0.0100
n-Nitrosodimethylamine	ND		0.00126	0.0100
n-Nitrosodiphenylamine	ND		0.00119	0.0100
(S) Phenol-d5	26.5			8.00-424
(S) Nitrobenzene-d5	57.3			15.0-314
(S) 2,4,6-Tribromophenol	52.0			10.0-153
(S) p-Terphenyl-d14	67.0			29.0-141
(S) 2-Fluorophenol	37.0			10.0-120
(S) 2-Fluorobiphenyl	62.3			22.0-127

Laboratory Control Sample (LCS)

(LCS) R4198313-1 04/10/25 17:51

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
1,2,4-Trichlorobenzene	0.0500	0.0214	42.8	44.0-142	J4
1,2-Dichlorobenzene	0.0500	0.0189	37.8	27.0-120	
1,2-Diphenylhydrazine	0.0500	0.0266	53.2	37.0-125	N2
1,3-Dichlorobenzene	0.0500	0.0189	37.8	26.0-120	
1,4-Dichlorobenzene	0.0500	0.0192	38.4	26.0-120	
2,2-Oxybis(1-Chloropropane)	0.0500	0.0206	41.2	36.0-166	
2,4,6-Trichlorophenol	0.0500	0.0290	58.0	37.0-144	
2,4-Dichlorophenol	0.0500	0.0233	46.6	39.0-135	
2,4-Dimethylphenol	0.0500	0.0180	36.0	32.0-120	
2,4-Dinitrophenol	0.0500	0.0269	53.8	1.00-191	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R4198313-1 04/10/25 17:51

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
2,4-Dinitrotoluene	0.0500	0.0316	63.2	39.0-139	
2,6-Dinitrotoluene	0.0500	0.0299	59.8	50.0-158	
2-Chloronaphthalene	0.0500	0.0242	48.4	60.0-120	J4
2-Chlorophenol	0.0500	0.0177	35.4	23.0-134	
2-Nitrophenol	0.0500	0.0236	47.2	29.0-182	
3,3-Dichlorobenzidine	0.100	0.0625	62.5	1.00-262	
4,6-Dinitro-2-methylphenol	0.0500	0.0353	70.6	1.00-181	
4-Bromophenyl-phenylether	0.0500	0.0314	62.8	53.0-127	
4-Chloro-3-methylphenol	0.0500	0.0254	50.8	22.0-147	
4-Chlorophenyl-phenylether	0.0500	0.0294	58.8	25.0-158	
4-Nitrophenol	0.0500	0.0117	23.4	1.00-132	
Acenaphthene	0.0500	0.0265	53.0	47.0-145	
Acenaphthylene	0.0500	0.0280	56.0	33.0-145	
Anthracene	0.0500	0.0270	54.0	27.0-133	
Benzidine	0.100	0.00802	8.02	1.00-120	J
Benzo(A)Anthracene	0.0500	0.0310	62.0	33.0-143	
Benzo(a)pyrene	0.0500	0.0284	56.8	17.0-163	
Benzo(b)fluoranthene	0.0500	0.0286	57.2	24.0-159	
Benzo(g,h,i)perylene	0.0500	0.0317	63.4	1.00-219	
Benzo(k)fluoranthene	0.0500	0.0290	58.0	11.0-162	
Benzylbutyl phthalate	0.0500	0.0280	56.0	1.00-152	
Bis(2-Ethylhexyl)phthalate	0.0500	0.0262	52.4	8.00-158	
Bis(2-chlorethoxy)methane	0.0500	0.0208	41.6	1.00-219	
Bis(2-chloroethyl)ether	0.0500	0.0190	38.0	33.0-185	
Chrysene	0.0500	0.0288	57.6	17.0-168	
Di-n-butyl phthalate	0.0500	0.0296	59.2	1.00-120	
Di-n-octyl phthalate	0.0500	0.0276	55.2	4.00-146	
Dibenz(a,h)anthracene	0.0500	0.0332	66.4	1.00-227	
Diethyl phthalate	0.0500	0.0291	58.2	1.00-120	
Dimethyl phthalate	0.0500	0.0302	60.4	1.00-120	
Fluoranthene	0.0500	0.0327	65.4	26.0-137	
Fluorene	0.0500	0.0271	54.2	59.0-121	J4
Hexachloro-1,3-butadiene	0.0500	0.0203	40.6	24.0-120	
Hexachlorobenzene	0.0500	0.0298	59.6	1.00-152	
Hexachlorocyclopentadiene	0.0500	0.0158	31.6	10.0-120	
Hexachloroethane	0.0500	0.0185	37.0	40.0-120	J4
Indeno(1,2,3-cd)pyrene	0.0500	0.0321	64.2	1.00-171	
Isophorone	0.0500	0.0226	45.2	21.0-196	
Naphthalene	0.0500	0.0202	40.4	21.0-133	
Nitrobenzene	0.0500	0.0203	40.6	35.0-180	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R4198313-1 04/10/25 17:51

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Pentachlorophenol	0.0500	0.0169	33.8	14.0-176	
Phenanthrene	0.0500	0.0278	55.6	54.0-120	
Phenol	0.0500	0.0101	20.2	5.00-120	
Pyrene	0.0500	0.0274	54.8	52.0-120	
n-Nitrosodi-n-propylamine	0.0500	0.0224	44.8	1.00-230	
n-Nitrosodimethylamine	0.0500	0.0188	37.6	10.0-120	
n-Nitrosodiphenylamine	0.0500	0.0277	55.4	44.0-120	
(S) Phenol-d5			21.3	8.00-424	
(S) Nitrobenzene-d5			41.9	15.0-314	
(S) 2,4,6-Tribromophenol			62.5	10.0-153	
(S) p-Terphenyl-d14			59.6	29.0-141	
(S) 2-Fluorophenol			30.5	10.0-120	
(S) 2-Fluorobiphenyl			58.0	22.0-127	

L1843004-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1843004-01 04/12/25 18:50 • (MS) R4199396-1 04/12/25 19:12 • (MSD) R4199396-2 04/12/25 19:33

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
1,2,4-Trichlorobenzene	0.0500	ND	0.0172	0.0169	34.4	33.8	1	44.0-142	J6	J6	1.76	50
1,2-Dichlorobenzene	0.0500	ND	0.0126	0.0132	25.2	26.4	1	14.0-125			4.65	24
1,2-Diphenylhydrazine	0.0500	ND	0.0236	0.0207	47.2	41.4	1	18.0-156	N2	N2	13.1	34
1,3-Dichlorobenzene	0.0500	ND	0.0122	0.0131	24.4	26.2	1	12.0-123			7.11	22
1,4-Dichlorobenzene	0.0500	ND	0.0123	0.0133	24.6	26.6	1	12.0-125			7.81	23
2,2-Oxybis(1-Chloropropane)	0.0500	ND	0.0118	0.0125	23.6	25.0	1	36.0-166	J6	J6	5.76	76
2,4,6-Trichlorophenol	0.0500	ND	0.0291	0.0245	58.2	49.0	1	37.0-144			17.2	58
2,4-Dichlorophenol	0.0500	ND	0.0238	0.0220	47.6	44.0	1	39.0-135			7.86	50
2,4-Dimethylphenol	0.0500	ND	0.0220	0.0210	44.0	42.0	1	32.0-120			4.65	58
2,4-Dinitrophenol	0.0500	ND	0.0242	0.0196	48.4	39.2	1	1.00-191			21.0	132
2,4-Dinitrotoluene	0.0500	ND	0.0283	0.0233	56.6	46.6	1	39.0-139			19.4	42
2,6-Dinitrotoluene	0.0500	ND	0.0275	0.0234	55.0	46.8	1	50.0-158		J6	16.1	48
2-Chloronaphthalene	0.0500	ND	0.0198	0.0188	39.6	37.6	1	60.0-120	J6	J6	5.18	24
2-Chlorophenol	0.0500	ND	0.0124	0.0129	24.8	25.8	1	23.0-134			3.95	61
2-Nitrophenol	0.0500	ND	0.0197	0.0186	39.4	37.2	1	29.0-182			5.74	55
3,3-Dichlorobenzidine	0.100	ND	ND	ND	51.3	44.7	1	1.00-262			13.8	108
4,6-Dinitro-2-methylphenol	0.0500	ND	0.0260	0.0224	52.0	44.8	1	1.00-181			14.9	203
4-Bromophenyl-phenylether	0.0500	ND	0.0244	0.0199	48.8	39.8	1	53.0-127	J6	J6	20.3	43
4-Chloro-3-methylphenol	0.0500	ND	0.0249	0.0217	49.8	43.4	1	22.0-147			13.7	73
4-Chlorophenyl-phenylether	0.0500	ND	0.0248	0.0220	49.6	44.0	1	25.0-158			12.0	61

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

L1843004-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1843004-01 04/12/25 18:50 • (MS) R4199396-1 04/12/25 19:12 • (MSD) R4199396-2 04/12/25 19:33

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
4-Nitrophenol	0.0500	ND	ND	ND	20.0	16.9	1	1.00-132			17.0	131
Acenaphthene	0.0500	ND	0.0207	0.0189	41.4	37.8	1	47.0-145	J6	J6	9.09	48
Acenaphthylene	0.0500	ND	0.0237	0.0208	47.4	41.6	1	33.0-145			13.0	74
Anthracene	0.0500	ND	0.0230	0.0199	46.0	39.8	1	27.0-133			14.5	66
Benzidine	0.100	ND	ND	ND	8.64	8.95	1	1.00-120			3.52	40
Benzo(A)Anthracene	0.0500	ND	0.0236	0.0199	47.2	39.8	1	33.0-143			17.0	53
Benzo(a)pyrene	0.0500	ND	0.0218	0.0187	43.6	37.4	1	17.0-163			15.3	72
Benzo(b)fluoranthene	0.0500	ND	0.0214	0.0180	42.8	36.0	1	24.0-159			17.3	71
Benzo(g,h,i)perylene	0.0500	ND	0.0263	0.0225	52.6	45.0	1	1.00-219			15.6	97
Benzo(k)fluoranthene	0.0500	ND	0.0199	0.0172	39.8	34.4	1	11.0-162			14.6	63
Benzylbutyl phthalate	0.0500	ND	0.0243	0.0205	48.6	41.0	1	1.00-152			17.0	60
Bis(2-Ethylhexyl)phthalate	0.0500	ND	0.0200	0.0158	40.0	31.6	1	8.00-158			23.5	82
Bis(2-chlorethoxy)methane	0.0500	ND	0.0202	0.0189	40.4	37.8	1	33.0-184			6.65	54
Bis(2-chloroethyl)ether	0.0500	ND	0.0146	0.0150	29.2	30.0	1	12.0-158			2.70	108
Chrysene	0.0500	ND	0.0209	0.0170	41.8	34.0	1	17.0-168			20.6	87
Di-n-butyl phthalate	0.0500	ND	0.0278	0.0222	55.6	44.4	1	1.00-120			22.4	47
Di-n-octyl phthalate	0.0500	ND	0.0211	0.0165	42.2	33.0	1	4.00-146			24.5	69
Dibenz(a,h)anthracene	0.0500	ND	0.0277	0.0237	55.4	47.4	1	1.00-227			15.6	126
Diethyl phthalate	0.0500	ND	0.0282	0.0235	56.4	47.0	1	1.00-120			18.2	100
Dimethyl phthalate	0.0500	ND	0.0279	0.0232	55.8	46.4	1	1.00-120			18.4	183
Fluoranthene	0.0500	ND	0.0323	0.0269	64.6	53.8	1	26.0-137			18.2	66
Fluorene	0.0500	ND	0.0237	0.0201	47.4	40.2	1	59.0-121	J6	J6	16.4	38
Hexachloro-1,3-butadiene	0.0500	ND	0.0146	0.0151	29.2	30.2	1	24.0-120			3.37	62
Hexachlorobenzene	0.0500	ND	0.0222	0.0182	44.4	36.4	1	1.00-152			19.8	55
Hexachlorocyclopentadiene	0.0500	ND	ND	ND	8.02	6.80	1	10.0-146	J6	J6	16.5	34
Hexachloroethane	0.0500	ND	0.0116	0.0127	23.2	25.4	1	40.0-120	J6	J6	9.05	52
Indeno(1,2,3-cd)pyrene	0.0500	ND	0.0278	0.0238	55.6	47.6	1	1.00-171			15.5	99
Isophorone	0.0500	ND	0.0207	0.0201	41.4	40.2	1	21.0-196			2.94	93
Naphthalene	0.0500	ND	0.0158	0.0160	31.6	32.0	1	21.0-133			1.26	65
Nitrobenzene	0.0500	ND	0.0217	0.0206	43.4	41.2	1	35.0-180			5.20	62
Pentachlorophenol	0.0500	ND	0.0207	0.0173	41.4	34.6	1	14.0-176			17.9	86
Phenanthrene	0.0500	ND	0.0227	0.0193	45.4	38.6	1	54.0-120	J6	J6	16.2	39
Phenol	0.0500	ND	ND	ND	18.4	17.7	1	5.00-120			4.21	64
Pyrene	0.0500	ND	0.0238	0.0198	47.6	39.6	1	52.0-120	J6	J6	18.3	49
n-Nitrosodi-n-propylamine	0.0500	ND	0.0191	0.0198	38.2	39.6	1	1.00-230			3.60	87
n-Nitrosodimethylamine	0.0500	ND	0.0152	0.0170	30.4	34.0	1	10.0-120			11.2	40
n-Nitrosodiphenylamine	0.0500	ND	0.0255	0.0206	51.0	41.2	1	16.0-160			21.3	28
(S) Phenol-d5					19.6	16.9		8.00-424				
(S) Nitrobenzene-d5					51.7	48.2		15.0-314				
(S) 2,4,6-Tribromophenol					48.5	40.7		10.0-153				

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1843004-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1843004-01 04/12/25 18:50 • (MS) R4199396-1 04/12/25 19:12 • (MSD) R4199396-2 04/12/25 19:33

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
(S) p-Terphenyl-d14					48.1	37.8		29.0-141				
(S) 2-Fluorophenol					20.8	20.3		10.0-120				
(S) 2-Fluorobiphenyl					44.7	41.6		22.0-127				

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4201321-3 04/17/25 01:33

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Phenol	ND		0.000334	0.0100
(S) Phenol-d5	24.0			8.00-424
(S) Nitrobenzene-d5	96.6			15.0-314
(S) 2,4,6-Tribromophenol	73.5			10.0-153
(S) p-Terphenyl-d14	72.2			29.0-141
(S) 2-Fluorophenol	34.7			10.0-120
(S) 2-Fluorobiphenyl	70.0			22.0-127

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4201321-1 04/17/25 00:51 • (LCSD) R4201321-2 04/17/25 01:12

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Phenol	0.0500	0.0137	0.0135	27.4	27.0	5.00-120			1.47	64
(S) Phenol-d5				26.0	27.0	8.00-424				
(S) Nitrobenzene-d5				96.1	97.8	15.0-314				
(S) 2,4,6-Tribromophenol				94.0	86.5	10.0-153				
(S) p-Terphenyl-d14				79.7	77.5	29.0-141				
(S) 2-Fluorophenol				36.2	40.3	10.0-120				
(S) 2-Fluorobiphenyl				82.4	78.8	22.0-127				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

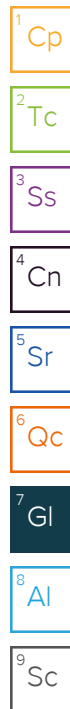
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
C3	The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.
C5	The reported concentration is an estimate. The continuing calibration standard associated with this data responded high. Data is likely to show a high bias concerning the result.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
N2	Analyte reported using a calibration and validation based on Azobenzene (CAS 103-33-3). 1,2-Diphenylhydrazine decomposes into Azobenzene during the analysis.
P	RPD between the primary and confirmatory analysis exceeded 40%.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.



GLOSSARY OF TERMS

Qualifier	Description
Q	Sample was prepared and/or analyzed past holding time as defined in the method. Concentrations should be considered minimum values.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

ACCREDITATIONS & LOCATIONS

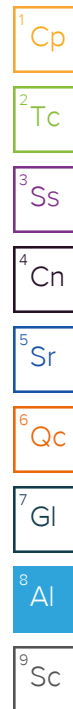
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



[illegible]



ANALYTICAL REPORT

April 23, 2025

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Elk River Landfill

Sample Delivery Group: L1848209
Samples Received: 04/16/2025
Project Number: 200
Description: MNA Parameters
Site: MN02
Report To: Jim Eidem
4300 MarketPoint Drive Suite 200
Minneapolis, MN 55435

Entire Report Reviewed By:

T. Alan Harvill
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	6
TB L1848209-01	6
P-321L L1848209-02	8
P-323L L1848209-03	11
P-325L L1848209-04	14
P-326L L1848209-05	17
Qc: Quality Control Summary	20
Wet Chemistry by Method 2320 B-2011	20
Wet Chemistry by Method 300.0	21
Wet Chemistry by Method 353.2	23
Wet Chemistry by Method 9060A	24
Volatile Organic Compounds (GC) by Method 3810/RSK175	25
Volatile Organic Compounds (GC/MS) by Method 8260D	27
Gl: Glossary of Terms	33
Al: Accreditations & Locations	34
Sc: Sample Chain of Custody	35



SAMPLE SUMMARY

TB L1848209-01 GW

			Collected by Mike Hamer	Collected date/time 04/15/25 00:00	Received date/time 04/16/25 09:00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2493546	1	04/17/25 22:39	04/17/25 22:39	JAH	Mt. Juliet, TN

P-321L L1848209-02 GW

			Collected by Mike Hamer	Collected date/time 04/15/25 12:45	Received date/time 04/16/25 09:00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2495877	1	04/21/25 11:22	04/21/25 11:22	BJM	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2491881	1	04/16/25 22:40	04/16/25 22:40	DLH	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG2495741	1	04/22/25 16:36	04/22/25 16:36	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9060A	WG2492884	1	04/17/25 14:33	04/17/25 14:33	AF	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 3810/RSK175	WG2492340	1	04/16/25 22:52	04/16/25 22:52	KHM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2493546	1	04/18/25 00:34	04/18/25 00:34	JAH	Mt. Juliet, TN

P-323L L1848209-03 GW

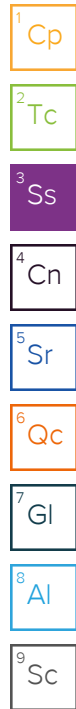
			Collected by Mike Hamer	Collected date/time 04/15/25 12:05	Received date/time 04/16/25 09:00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2495877	1	04/21/25 11:36	04/21/25 11:36	BJM	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2491881	1	04/16/25 22:53	04/16/25 22:53	DLH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2491881	5	04/17/25 00:31	04/17/25 00:31	DLH	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG2495741	1	04/22/25 16:38	04/22/25 16:38	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9060A	WG2492884	1	04/17/25 14:54	04/17/25 14:54	AF	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 3810/RSK175	WG2492340	1	04/16/25 22:58	04/16/25 22:58	KHM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2493546	1	04/18/25 00:53	04/18/25 00:53	JAH	Mt. Juliet, TN

P-325L L1848209-04 GW

			Collected by Mike Hamer	Collected date/time 04/15/25 10:15	Received date/time 04/16/25 09:00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2495877	1	04/21/25 11:40	04/21/25 11:40	BJM	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2491881	1	04/16/25 23:07	04/16/25 23:07	DLH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2491881	5	04/17/25 00:44	04/17/25 00:44	DLH	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG2495741	1	04/22/25 16:40	04/22/25 16:40	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9060A	WG2492884	1	04/17/25 15:15	04/17/25 15:15	AF	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 3810/RSK175	WG2492340	1	04/16/25 23:09	04/16/25 23:09	KHM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2493546	1	04/18/25 01:12	04/18/25 01:12	JAH	Mt. Juliet, TN

P-326L L1848209-05 GW

			Collected by Mike Hamer	Collected date/time 04/15/25 10:50	Received date/time 04/16/25 09:00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2495877	1	04/21/25 11:43	04/21/25 11:43	BJM	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2491881	1	04/16/25 23:24	04/16/25 23:24	DLH	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG2495741	1	04/22/25 16:42	04/22/25 16:42	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9060A	WG2492884	1	04/17/25 15:35	04/17/25 15:35	AF	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 3810/RSK175	WG2492340	1	04/16/25 23:16	04/16/25 23:16	KHM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2493546	1	04/18/25 01:31	04/18/25 01:31	JAH	Mt. Juliet, TN

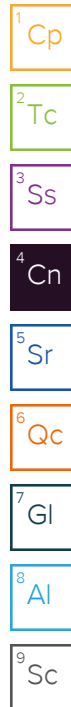


CASE NARRATIVE

Unless qualified or notated within the narrative below, all sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



T. Alan Harvill
Project Manager



Project Comments

The requested project specific reporting limits may be less than laboratory standard quantitation limits (PQL) but will be greater than or equal to the laboratory method detection limits (MDL). It is noted that results reported below lab standard quantitation limits (PQLs) may result in false positive/false negative values that may require additional laboratory quality assurance review, if requested. Routine laboratory procedures do not initiate a data review process for detections below the laboratory's PQL unless requested by the client.

Wet Chemistry by Method 300.0

The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).

Batch	Lab Sample ID	Analytes
WG2491881	(MS) R4201140-4	Nitrate
WG2491881	(MSD) R4201140-5	Nitrate

The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Batch	Lab Sample ID	Analytes
WG2491881	(MS) R4201140-4, (MSD) R4201140-5	Chloride, Nitrate and Sulfate

Wet Chemistry by Method 9060A

RPD value not applicable for sample concentrations less than 5 times the reporting limit.

Batch	Lab Sample ID	Analytes
WG2492884	(DUP) R4201318-8	TOC

Volatile Organic Compounds (GC/MS) by Method 8260D

The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.

Batch	Lab Sample ID	Analytes
WG2493546	L1848209-01	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, 2,2-Dichloropropane, 2-Butanone (MEK), Acetone, Bromoform, Chloroethane, Naphthalene and Tetrahydrofuran
WG2493546	L1848209-02	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, 2,2-Dichloropropane, 2-Butanone (MEK), Acetone, Bromoform, Chloroethane, Naphthalene and Tetrahydrofuran
WG2493546	L1848209-03	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, 2,2-Dichloropropane, 2-Butanone (MEK), Acetone, Bromoform, Chloroethane, Naphthalene and Tetrahydrofuran
WG2493546	L1848209-04	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, 2,2-Dichloropropane, 2-Butanone (MEK), Acetone, Bromoform, Chloroethane, Naphthalene and Tetrahydrofuran

CASE NARRATIVE

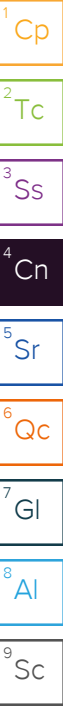
Volatile Organic Compounds (GC/MS) by Method 8260D

The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.

Batch	Lab Sample ID	Analytes
WG2493546	L1848209-05	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, 2,2-Dichloropropane, 2-Butanone (MEK), Acetone, Bromoform, Chloroethane, Naphthalene and Tetrahydrofuran

The associated batch QC was outside the established quality control range for precision.

Batch	Lab Sample ID	Analytes
WG2493546	(MSD) R4202903-5	1,1,2-Trichloro-1,2,2-trifluoroethane, Chloromethane, Dichlorodifluoromethane and Dichlorofluoromethane



Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/17/2025 22:39	WG2493546
1,1,1-Trichloroethane	ND		1.00	1	04/17/2025 22:39	WG2493546
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/17/2025 22:39	WG2493546
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/17/2025 22:39	WG2493546
1,1,2-Trichloroethane	ND		0.750	1	04/17/2025 22:39	WG2493546
1,1-Dichloroethane	ND		1.00	1	04/17/2025 22:39	WG2493546
1,1-Dichloroethene	ND		1.00	1	04/17/2025 22:39	WG2493546
1,1-Dichloropropene	ND		1.00	1	04/17/2025 22:39	WG2493546
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/17/2025 22:39	WG2493546
1,2,3-Trichloropropane	ND		1.00	1	04/17/2025 22:39	WG2493546
1,2,4-Trichlorobenzene	ND		1.00	1	04/17/2025 22:39	WG2493546
1,2,4-Trimethylbenzene	ND		1.00	1	04/17/2025 22:39	WG2493546
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/17/2025 22:39	WG2493546
1,2-Dibromoethane	ND		1.00	1	04/17/2025 22:39	WG2493546
1,2-Dichlorobenzene	ND		1.00	1	04/17/2025 22:39	WG2493546
1,2-Dichloroethane	ND		0.250	1	04/17/2025 22:39	WG2493546
1,2-Dichloropropane	ND		1.00	1	04/17/2025 22:39	WG2493546
1,3,5-Trimethylbenzene	ND		1.00	1	04/17/2025 22:39	WG2493546
1,3-Dichlorobenzene	ND		1.00	1	04/17/2025 22:39	WG2493546
1,3-Dichloropropane	ND		1.00	1	04/17/2025 22:39	WG2493546
1,4-Dichlorobenzene	ND		1.00	1	04/17/2025 22:39	WG2493546
2,2-Dichloropropane	ND	C3	1.00	1	04/17/2025 22:39	WG2493546
2-Butanone (MEK)	ND	C3	10.0	1	04/17/2025 22:39	WG2493546
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/17/2025 22:39	WG2493546
Acetone	ND	C3	10.0	1	04/17/2025 22:39	WG2493546
Allyl chloride	ND		1.00	1	04/17/2025 22:39	WG2493546
Benzene	ND		0.500	1	04/17/2025 22:39	WG2493546
Bromobenzene	ND		1.00	1	04/17/2025 22:39	WG2493546
Bromochloromethane	ND		1.00	1	04/17/2025 22:39	WG2493546
Bromodichloromethane	ND		1.00	1	04/17/2025 22:39	WG2493546
Bromoform	ND	C3	1.00	1	04/17/2025 22:39	WG2493546
Bromomethane	ND		1.00	1	04/17/2025 22:39	WG2493546
Carbon tetrachloride	ND		0.250	1	04/17/2025 22:39	WG2493546
Chlorobenzene	ND		1.00	1	04/17/2025 22:39	WG2493546
Chloroethane	ND	C3	1.00	1	04/17/2025 22:39	WG2493546
Chloroform	ND		1.00	1	04/17/2025 22:39	WG2493546
Chloromethane	ND		1.00	1	04/17/2025 22:39	WG2493546
Dibromochloromethane	ND		1.00	1	04/17/2025 22:39	WG2493546
Dibromomethane	ND		1.00	1	04/17/2025 22:39	WG2493546
Dichlorodifluoromethane	ND		1.00	1	04/17/2025 22:39	WG2493546
Dichlorofluoromethane	ND		1.00	1	04/17/2025 22:39	WG2493546
Ethyl ether	ND		1.00	1	04/17/2025 22:39	WG2493546
Ethylbenzene	ND		1.00	1	04/17/2025 22:39	WG2493546
Hexachloro-1,3-butadiene	ND		0.250	1	04/17/2025 22:39	WG2493546
Isopropylbenzene	ND		1.00	1	04/17/2025 22:39	WG2493546
Methyl tert-butyl ether	ND		1.00	1	04/17/2025 22:39	WG2493546
Methylene Chloride	ND		1.00	1	04/17/2025 22:39	WG2493546
Naphthalene	ND	C3	1.00	1	04/17/2025 22:39	WG2493546
Styrene	ND		1.00	1	04/17/2025 22:39	WG2493546
Tetrachloroethene	ND		1.00	1	04/17/2025 22:39	WG2493546
Tetrahydrofuran	ND	C3	5.00	1	04/17/2025 22:39	WG2493546
Toluene	ND		1.00	1	04/17/2025 22:39	WG2493546
Trichloroethene	ND		0.100	1	04/17/2025 22:39	WG2493546
Trichlorofluoromethane	ND		1.00	1	04/17/2025 22:39	WG2493546
Vinyl chloride	ND		0.0500	1	04/17/2025 22:39	WG2493546

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Xylenes, Total	ND		2.00	1	04/17/2025 22:39	WG2493546
cis-1,2-Dichloroethene	ND		0.100	1	04/17/2025 22:39	WG2493546
cis-1,3-Dichloropropene	ND		0.500	1	04/17/2025 22:39	WG2493546
n-Butylbenzene	ND		1.00	1	04/17/2025 22:39	WG2493546
n-Propylbenzene	ND		1.00	1	04/17/2025 22:39	WG2493546
o-Chlorotoluene	ND		1.00	1	04/17/2025 22:39	WG2493546
p-Chlorotoluene	ND		1.00	1	04/17/2025 22:39	WG2493546
p-Isopropyltoluene	ND		1.00	1	04/17/2025 22:39	WG2493546
sec-Butylbenzene	ND		1.00	1	04/17/2025 22:39	WG2493546
tert-Butylbenzene	ND		1.00	1	04/17/2025 22:39	WG2493546
trans-1,2-Dichloroethene	ND		1.00	1	04/17/2025 22:39	WG2493546
trans-1,3-Dichloropropene	ND		1.00	1	04/17/2025 22:39	WG2493546
(S) 1,2-Dichloroethane-d4	96.1			70.0-130	04/17/2025 22:39	WG2493546
(S) Toluene-d8	105			75.0-131	04/17/2025 22:39	WG2493546
(S) 4-Bromofluorobenzene	99.0			67.0-138	04/17/2025 22:39	WG2493546

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
pH (On Site)	7.13	su
Specific Conductance (on site)	932	umhos/cm
Temperature (on-site)	11.6	Deg. C
Turbidity (on-site)	2.1	NTU
Dissolved Oxygen (on-site)	0	mg/l
eH/ORP (On Site)	-106	mV

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Alkalinity	414		20.0	1	04/21/2025 11:22	WG2495877

Sample Narrative:

L1848209-02 WG2495877: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Chloride	43.7		1.00	1	04/16/2025 22:40	WG2491881
Nitrate	ND		1.00	1	04/16/2025 22:40	WG2491881
Sulfate	29.8		5.00	1	04/16/2025 22:40	WG2491881

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Nitrate-Nitrite	ND		0.100	1	04/22/2025 16:36	WG2495741

Wet Chemistry by Method 9060A

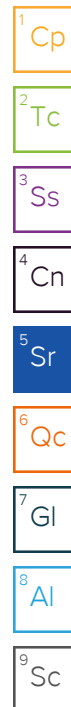
Analyte	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
TOC	1.25		1.00	1	04/17/2025 14:33	WG2492884

Volatile Organic Compounds (GC) by Method 3810/RSK175

Analyte	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Ethane	ND		0.00120	1	04/16/2025 22:52	WG2492340
Ethene	ND		0.00120	1	04/16/2025 22:52	WG2492340
Methane	0.277		0.000678	1	04/16/2025 22:52	WG2492340

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/18/2025 00:34	WG2493546
1,1,1-Trichloroethane	ND		1.00	1	04/18/2025 00:34	WG2493546
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/18/2025 00:34	WG2493546
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/18/2025 00:34	WG2493546
1,1,2-Trichloroethane	ND		0.750	1	04/18/2025 00:34	WG2493546
1,1-Dichloroethane	2.74		1.00	1	04/18/2025 00:34	WG2493546
1,1-Dichloroethene	ND		1.00	1	04/18/2025 00:34	WG2493546
1,1-Dichloropropene	ND		1.00	1	04/18/2025 00:34	WG2493546
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/18/2025 00:34	WG2493546
1,2,3-Trichloropropane	ND		1.00	1	04/18/2025 00:34	WG2493546



Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,2,4-Trichlorobenzene	ND		1.00	1	04/18/2025 00:34	WG2493546
1,2,4-Trimethylbenzene	ND		1.00	1	04/18/2025 00:34	WG2493546
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/18/2025 00:34	WG2493546
1,2-Dibromoethane	ND		1.00	1	04/18/2025 00:34	WG2493546
1,2-Dichlorobenzene	ND		1.00	1	04/18/2025 00:34	WG2493546
1,2-Dichloroethane	ND		0.250	1	04/18/2025 00:34	WG2493546
1,2-Dichloropropane	ND		1.00	1	04/18/2025 00:34	WG2493546
1,3,5-Trimethylbenzene	ND		1.00	1	04/18/2025 00:34	WG2493546
1,3-Dichlorobenzene	ND		1.00	1	04/18/2025 00:34	WG2493546
1,3-Dichloropropane	ND		1.00	1	04/18/2025 00:34	WG2493546
1,4-Dichlorobenzene	ND		1.00	1	04/18/2025 00:34	WG2493546
2,2-Dichloropropane	ND	C3	1.00	1	04/18/2025 00:34	WG2493546
2-Butanone (MEK)	ND	C3	10.0	1	04/18/2025 00:34	WG2493546
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/18/2025 00:34	WG2493546
Acetone	ND	C3	10.0	1	04/18/2025 00:34	WG2493546
Allyl chloride	ND		1.00	1	04/18/2025 00:34	WG2493546
Benzene	ND		0.500	1	04/18/2025 00:34	WG2493546
Bromobenzene	ND		1.00	1	04/18/2025 00:34	WG2493546
Bromochloromethane	ND		1.00	1	04/18/2025 00:34	WG2493546
Bromodichloromethane	ND		1.00	1	04/18/2025 00:34	WG2493546
Bromoform	ND	C3	1.00	1	04/18/2025 00:34	WG2493546
Bromomethane	ND		1.00	1	04/18/2025 00:34	WG2493546
Carbon tetrachloride	ND		0.250	1	04/18/2025 00:34	WG2493546
Chlorobenzene	ND		1.00	1	04/18/2025 00:34	WG2493546
Chloroethane	ND	C3	1.00	1	04/18/2025 00:34	WG2493546
Chloroform	ND		1.00	1	04/18/2025 00:34	WG2493546
Chloromethane	ND		1.00	1	04/18/2025 00:34	WG2493546
Dibromochloromethane	ND		1.00	1	04/18/2025 00:34	WG2493546
Dibromomethane	ND		1.00	1	04/18/2025 00:34	WG2493546
Dichlorodifluoromethane	ND		1.00	1	04/18/2025 00:34	WG2493546
Dichlorofluoromethane	3.25		1.00	1	04/18/2025 00:34	WG2493546
Ethyl ether	7.20		1.00	1	04/18/2025 00:34	WG2493546
Ethylbenzene	ND		1.00	1	04/18/2025 00:34	WG2493546
Hexachloro-1,3-butadiene	ND		0.250	1	04/18/2025 00:34	WG2493546
Isopropylbenzene	ND		1.00	1	04/18/2025 00:34	WG2493546
Methyl tert-butyl ether	ND		1.00	1	04/18/2025 00:34	WG2493546
Methylene Chloride	ND		1.00	1	04/18/2025 00:34	WG2493546
Naphthalene	ND	C3	1.00	1	04/18/2025 00:34	WG2493546
Styrene	ND		1.00	1	04/18/2025 00:34	WG2493546
Tetrachloroethene	ND		1.00	1	04/18/2025 00:34	WG2493546
Tetrahydrofuran	ND	C3	5.00	1	04/18/2025 00:34	WG2493546
Toluene	ND		1.00	1	04/18/2025 00:34	WG2493546
Trichloroethene	ND		0.100	1	04/18/2025 00:34	WG2493546
Trichlorofluoromethane	ND		1.00	1	04/18/2025 00:34	WG2493546
Vinyl chloride	0.414		0.0500	1	04/18/2025 00:34	WG2493546
Xylenes, Total	ND		2.00	1	04/18/2025 00:34	WG2493546
cis-1,2-Dichloroethene	0.335		0.100	1	04/18/2025 00:34	WG2493546
cis-1,3-Dichloropropene	ND		0.500	1	04/18/2025 00:34	WG2493546
n-Butylbenzene	ND		1.00	1	04/18/2025 00:34	WG2493546
n-Propylbenzene	ND		1.00	1	04/18/2025 00:34	WG2493546
o-Chlorotoluene	ND		1.00	1	04/18/2025 00:34	WG2493546
p-Chlorotoluene	ND		1.00	1	04/18/2025 00:34	WG2493546
p-Isopropyltoluene	ND		1.00	1	04/18/2025 00:34	WG2493546
sec-Butylbenzene	ND		1.00	1	04/18/2025 00:34	WG2493546
tert-Butylbenzene	ND		1.00	1	04/18/2025 00:34	WG2493546
trans-1,2-Dichloroethene	ND		1.00	1	04/18/2025 00:34	WG2493546

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
trans-1,3-Dichloropropene	ND		1.00	1	04/18/2025 00:34	WG2493546
(S) 1,2-Dichloroethane-d4	97.3			70.0-130	04/18/2025 00:34	WG2493546
(S) Toluene-d8	104			75.0-131	04/18/2025 00:34	WG2493546
(S) 4-Bromofluorobenzene	95.2			67.0-138	04/18/2025 00:34	WG2493546

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
pH (On Site)	6.76	su
Specific Conductance (on site)	1656	umhos/cm
Temperature (on-site)	9.7	Deg. C
Turbidity (on-site)	70	NTU
Dissolved Oxygen (on-site)	0.1	mg/l
eH/ORP (On Site)	-120	mV

Wet Chemistry by Method 2320 B-2011

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Alkalinity	689		20.0	1	04/21/2025 11:36	WG2495877

Sample Narrative:

L1848209-03 WG2495877: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Chloride	135		1.00	5	04/17/2025 00:31	WG2491881
Nitrate	ND		1.00	1	04/16/2025 22:53	WG2491881
Sulfate	20.5		5.00	1	04/16/2025 22:53	WG2491881

Wet Chemistry by Method 353.2

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Nitrate-Nitrite	ND		0.100	1	04/22/2025 16:38	WG2495741

Wet Chemistry by Method 9060A

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
TOC	6.79		1.00	1	04/17/2025 14:54	WG2492884

Volatile Organic Compounds (GC) by Method 3810/RSK175

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Ethane	0.00137		0.00120	1	04/16/2025 22:58	WG2492340
Ethene	ND		0.00120	1	04/16/2025 22:58	WG2492340
Methane	0.115		0.000678	1	04/16/2025 22:58	WG2492340

Volatile Organic Compounds (GC/MS) by Method 8260D

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/18/2025 00:53	WG2493546
1,1,1-Trichloroethane	ND		1.00	1	04/18/2025 00:53	WG2493546
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/18/2025 00:53	WG2493546
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/18/2025 00:53	WG2493546
1,1,2-Trichloroethane	ND		0.750	1	04/18/2025 00:53	WG2493546
1,1-Dichloroethane	5.76		1.00	1	04/18/2025 00:53	WG2493546
1,1-Dichloroethene	ND		1.00	1	04/18/2025 00:53	WG2493546
1,1-Dichloropropene	ND		1.00	1	04/18/2025 00:53	WG2493546
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/18/2025 00:53	WG2493546
1,2,3-Trichloropropane	ND		1.00	1	04/18/2025 00:53	WG2493546

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,2,4-Trichlorobenzene	ND		1.00	1	04/18/2025 00:53	WG2493546
1,2,4-Trimethylbenzene	ND		1.00	1	04/18/2025 00:53	WG2493546
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/18/2025 00:53	WG2493546
1,2-Dibromoethane	ND		1.00	1	04/18/2025 00:53	WG2493546
1,2-Dichlorobenzene	ND		1.00	1	04/18/2025 00:53	WG2493546
1,2-Dichloroethane	0.288		0.250	1	04/18/2025 00:53	WG2493546
1,2-Dichloropropane	ND		1.00	1	04/18/2025 00:53	WG2493546
1,3,5-Trimethylbenzene	ND		1.00	1	04/18/2025 00:53	WG2493546
1,3-Dichlorobenzene	ND		1.00	1	04/18/2025 00:53	WG2493546
1,3-Dichloropropane	ND		1.00	1	04/18/2025 00:53	WG2493546
1,4-Dichlorobenzene	ND		1.00	1	04/18/2025 00:53	WG2493546
2,2-Dichloropropane	ND	C3	1.00	1	04/18/2025 00:53	WG2493546
2-Butanone (MEK)	ND	C3	10.0	1	04/18/2025 00:53	WG2493546
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/18/2025 00:53	WG2493546
Acetone	ND	C3	10.0	1	04/18/2025 00:53	WG2493546
Allyl chloride	ND		1.00	1	04/18/2025 00:53	WG2493546
Benzene	ND		0.500	1	04/18/2025 00:53	WG2493546
Bromobenzene	ND		1.00	1	04/18/2025 00:53	WG2493546
Bromochloromethane	ND		1.00	1	04/18/2025 00:53	WG2493546
Bromodichloromethane	ND		1.00	1	04/18/2025 00:53	WG2493546
Bromoform	ND	C3	1.00	1	04/18/2025 00:53	WG2493546
Bromomethane	ND		1.00	1	04/18/2025 00:53	WG2493546
Carbon tetrachloride	ND		0.250	1	04/18/2025 00:53	WG2493546
Chlorobenzene	ND		1.00	1	04/18/2025 00:53	WG2493546
Chloroethane	ND	C3	1.00	1	04/18/2025 00:53	WG2493546
Chloroform	ND		1.00	1	04/18/2025 00:53	WG2493546
Chloromethane	ND		1.00	1	04/18/2025 00:53	WG2493546
Dibromochloromethane	ND		1.00	1	04/18/2025 00:53	WG2493546
Dibromomethane	ND		1.00	1	04/18/2025 00:53	WG2493546
Dichlorodifluoromethane	ND		1.00	1	04/18/2025 00:53	WG2493546
Dichlorofluoromethane	3.37		1.00	1	04/18/2025 00:53	WG2493546
Ethyl ether	19.7		1.00	1	04/18/2025 00:53	WG2493546
Ethylbenzene	ND		1.00	1	04/18/2025 00:53	WG2493546
Hexachloro-1,3-butadiene	ND		0.250	1	04/18/2025 00:53	WG2493546
Isopropylbenzene	ND		1.00	1	04/18/2025 00:53	WG2493546
Methyl tert-butyl ether	ND		1.00	1	04/18/2025 00:53	WG2493546
Methylene Chloride	ND		1.00	1	04/18/2025 00:53	WG2493546
Naphthalene	ND	C3	1.00	1	04/18/2025 00:53	WG2493546
Styrene	ND		1.00	1	04/18/2025 00:53	WG2493546
Tetrachloroethene	ND		1.00	1	04/18/2025 00:53	WG2493546
Tetrahydrofuran	11.3	C3	5.00	1	04/18/2025 00:53	WG2493546
Toluene	ND		1.00	1	04/18/2025 00:53	WG2493546
Trichloroethene	0.758		0.100	1	04/18/2025 00:53	WG2493546
Trichlorofluoromethane	ND		1.00	1	04/18/2025 00:53	WG2493546
Vinyl chloride	0.244		0.0500	1	04/18/2025 00:53	WG2493546
Xylenes, Total	ND		2.00	1	04/18/2025 00:53	WG2493546
cis-1,2-Dichloroethene	2.13		0.100	1	04/18/2025 00:53	WG2493546
cis-1,3-Dichloropropene	ND		0.500	1	04/18/2025 00:53	WG2493546
n-Butylbenzene	ND		1.00	1	04/18/2025 00:53	WG2493546
n-Propylbenzene	ND		1.00	1	04/18/2025 00:53	WG2493546
o-Chlorotoluene	ND		1.00	1	04/18/2025 00:53	WG2493546
p-Chlorotoluene	ND		1.00	1	04/18/2025 00:53	WG2493546
p-Isopropyltoluene	ND		1.00	1	04/18/2025 00:53	WG2493546
sec-Butylbenzene	ND		1.00	1	04/18/2025 00:53	WG2493546
tert-Butylbenzene	ND		1.00	1	04/18/2025 00:53	WG2493546
trans-1,2-Dichloroethene	ND		1.00	1	04/18/2025 00:53	WG2493546

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
trans-1,3-Dichloropropene	ND		1.00	1	04/18/2025 00:53	WG2493546
(S) 1,2-Dichloroethane-d4	94.1			70.0-130	04/18/2025 00:53	WG2493546
(S) Toluene-d8	103			75.0-131	04/18/2025 00:53	WG2493546
(S) 4-Bromofluorobenzene	92.3			67.0-138	04/18/2025 00:53	WG2493546

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
pH (On Site)	6.74	su
Specific Conductance (on site)	1450	umhos/cm
Temperature (on-site)	8	Deg. C
Turbidity (on-site)	0.3	NTU
Dissolved Oxygen (on-site)	0	mg/l
eH/ORP (On Site)	-122	mV

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Alkalinity	619		20.0	1	04/21/2025 11:40	WG2495877

Sample Narrative:

L1848209-04 WG2495877: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Chloride	103		1.00	5	04/17/2025 00:44	WG2491881
Nitrate	ND		1.00	1	04/16/2025 23:07	WG2491881
Sulfate	24.9		5.00	1	04/16/2025 23:07	WG2491881

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Nitrate-Nitrite	ND		0.100	1	04/22/2025 16:40	WG2495741

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
TOC	8.17		1.00	1	04/17/2025 15:15	WG2492884

Volatile Organic Compounds (GC) by Method 3810/RSK175

Analyte	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Ethane	ND		0.00120	1	04/16/2025 23:09	WG2492340
Ethene	ND		0.00120	1	04/16/2025 23:09	WG2492340
Methane	0.932		0.000678	1	04/16/2025 23:09	WG2492340

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/18/2025 01:12	WG2493546
1,1,1-Trichloroethane	ND		1.00	1	04/18/2025 01:12	WG2493546
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/18/2025 01:12	WG2493546
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/18/2025 01:12	WG2493546
1,1,2-Trichloroethane	ND		0.750	1	04/18/2025 01:12	WG2493546
1,1-Dichloroethane	6.93		1.00	1	04/18/2025 01:12	WG2493546
1,1-Dichloroethene	ND		1.00	1	04/18/2025 01:12	WG2493546
1,1-Dichloropropene	ND		1.00	1	04/18/2025 01:12	WG2493546
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/18/2025 01:12	WG2493546
1,2,3-Trichloropropane	ND		1.00	1	04/18/2025 01:12	WG2493546

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,2,4-Trichlorobenzene	ND		1.00	1	04/18/2025 01:12	WG2493546
1,2,4-Trimethylbenzene	ND		1.00	1	04/18/2025 01:12	WG2493546
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/18/2025 01:12	WG2493546
1,2-Dibromoethane	ND		1.00	1	04/18/2025 01:12	WG2493546
1,2-Dichlorobenzene	ND		1.00	1	04/18/2025 01:12	WG2493546
1,2-Dichloroethane	ND		0.250	1	04/18/2025 01:12	WG2493546
1,2-Dichloropropane	ND		1.00	1	04/18/2025 01:12	WG2493546
1,3,5-Trimethylbenzene	ND		1.00	1	04/18/2025 01:12	WG2493546
1,3-Dichlorobenzene	ND		1.00	1	04/18/2025 01:12	WG2493546
1,3-Dichloropropane	ND		1.00	1	04/18/2025 01:12	WG2493546
1,4-Dichlorobenzene	ND		1.00	1	04/18/2025 01:12	WG2493546
2,2-Dichloropropane	ND	C3	1.00	1	04/18/2025 01:12	WG2493546
2-Butanone (MEK)	ND	C3	10.0	1	04/18/2025 01:12	WG2493546
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/18/2025 01:12	WG2493546
Acetone	ND	C3	10.0	1	04/18/2025 01:12	WG2493546
Allyl chloride	ND		1.00	1	04/18/2025 01:12	WG2493546
Benzene	ND		0.500	1	04/18/2025 01:12	WG2493546
Bromobenzene	ND		1.00	1	04/18/2025 01:12	WG2493546
Bromochloromethane	ND		1.00	1	04/18/2025 01:12	WG2493546
Bromodichloromethane	ND		1.00	1	04/18/2025 01:12	WG2493546
Bromoform	ND	C3	1.00	1	04/18/2025 01:12	WG2493546
Bromomethane	ND		1.00	1	04/18/2025 01:12	WG2493546
Carbon tetrachloride	ND		0.250	1	04/18/2025 01:12	WG2493546
Chlorobenzene	ND		1.00	1	04/18/2025 01:12	WG2493546
Chloroethane	ND	C3	1.00	1	04/18/2025 01:12	WG2493546
Chloroform	ND		1.00	1	04/18/2025 01:12	WG2493546
Chloromethane	ND		1.00	1	04/18/2025 01:12	WG2493546
Dibromochloromethane	ND		1.00	1	04/18/2025 01:12	WG2493546
Dibromomethane	ND		1.00	1	04/18/2025 01:12	WG2493546
Dichlorodifluoromethane	1.02		1.00	1	04/18/2025 01:12	WG2493546
Dichlorofluoromethane	8.52		1.00	1	04/18/2025 01:12	WG2493546
Ethyl ether	24.1		1.00	1	04/18/2025 01:12	WG2493546
Ethylbenzene	ND		1.00	1	04/18/2025 01:12	WG2493546
Hexachloro-1,3-butadiene	ND		0.250	1	04/18/2025 01:12	WG2493546
Isopropylbenzene	ND		1.00	1	04/18/2025 01:12	WG2493546
Methyl tert-butyl ether	ND		1.00	1	04/18/2025 01:12	WG2493546
Methylene Chloride	ND		1.00	1	04/18/2025 01:12	WG2493546
Naphthalene	ND	C3	1.00	1	04/18/2025 01:12	WG2493546
Styrene	ND		1.00	1	04/18/2025 01:12	WG2493546
Tetrachloroethene	ND		1.00	1	04/18/2025 01:12	WG2493546
Tetrahydrofuran	ND	C3	5.00	1	04/18/2025 01:12	WG2493546
Toluene	ND		1.00	1	04/18/2025 01:12	WG2493546
Trichloroethene	ND		0.100	1	04/18/2025 01:12	WG2493546
Trichlorofluoromethane	ND		1.00	1	04/18/2025 01:12	WG2493546
Vinyl chloride	0.707		0.0500	1	04/18/2025 01:12	WG2493546
Xylenes, Total	ND		2.00	1	04/18/2025 01:12	WG2493546
cis-1,2-Dichloroethene	1.59		0.100	1	04/18/2025 01:12	WG2493546
cis-1,3-Dichloropropene	ND		0.500	1	04/18/2025 01:12	WG2493546
n-Butylbenzene	ND		1.00	1	04/18/2025 01:12	WG2493546
n-Propylbenzene	ND		1.00	1	04/18/2025 01:12	WG2493546
o-Chlorotoluene	ND		1.00	1	04/18/2025 01:12	WG2493546
p-Chlorotoluene	ND		1.00	1	04/18/2025 01:12	WG2493546
p-Isopropyltoluene	ND		1.00	1	04/18/2025 01:12	WG2493546
sec-Butylbenzene	ND		1.00	1	04/18/2025 01:12	WG2493546
tert-Butylbenzene	ND		1.00	1	04/18/2025 01:12	WG2493546
trans-1,2-Dichloroethene	ND		1.00	1	04/18/2025 01:12	WG2493546

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
trans-1,3-Dichloropropene	ND		1.00	1	04/18/2025 01:12	WG2493546
(S) 1,2-Dichloroethane-d4	93.9			70.0-130	04/18/2025 01:12	WG2493546
(S) Toluene-d8	105			75.0-131	04/18/2025 01:12	WG2493546
(S) 4-Bromofluorobenzene	95.8			67.0-138	04/18/2025 01:12	WG2493546

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
pH (On Site)	6.76	su
Specific Conductance (on site)	1275	umhos/cm
Temperature (on-site)	7.6	Deg. C
Turbidity (on-site)	1	NTU
Dissolved Oxygen (on-site)	0.2	mg/l
eH/ORP (On Site)	-136	mV

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 2320 B-2011

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Alkalinity	653		20.0	1	04/21/2025 11:43	WG2495877

Sample Narrative:

L1848209-05 WG2495877: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Chloride	61.5		1.00	1	04/16/2025 23:24	WG2491881
Nitrate	ND		1.00	1	04/16/2025 23:24	WG2491881
Sulfate	19.0		5.00	1	04/16/2025 23:24	WG2491881

Wet Chemistry by Method 353.2

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Nitrate-Nitrite	ND		0.100	1	04/22/2025 16:42	WG2495741

Wet Chemistry by Method 9060A

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
TOC	2.83		1.00	1	04/17/2025 15:35	WG2492884

Volatile Organic Compounds (GC) by Method 3810/RSK175

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Ethane	ND		0.00120	1	04/16/2025 23:16	WG2492340
Ethene	ND		0.00120	1	04/16/2025 23:16	WG2492340
Methane	0.237		0.000678	1	04/16/2025 23:16	WG2492340

Volatile Organic Compounds (GC/MS) by Method 8260D

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/18/2025 01:31	WG2493546
1,1,1-Trichloroethane	ND		1.00	1	04/18/2025 01:31	WG2493546
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/18/2025 01:31	WG2493546
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/18/2025 01:31	WG2493546
1,1,2-Trichloroethane	ND		0.750	1	04/18/2025 01:31	WG2493546
1,1-Dichloroethane	3.83		1.00	1	04/18/2025 01:31	WG2493546
1,1-Dichloroethene	ND		1.00	1	04/18/2025 01:31	WG2493546
1,1-Dichloropropene	ND		1.00	1	04/18/2025 01:31	WG2493546
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/18/2025 01:31	WG2493546
1,2,3-Trichloropropane	ND		1.00	1	04/18/2025 01:31	WG2493546

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,2,4-Trichlorobenzene	ND		1.00	1	04/18/2025 01:31	WG2493546
1,2,4-Trimethylbenzene	ND		1.00	1	04/18/2025 01:31	WG2493546
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/18/2025 01:31	WG2493546
1,2-Dibromoethane	ND		1.00	1	04/18/2025 01:31	WG2493546
1,2-Dichlorobenzene	ND		1.00	1	04/18/2025 01:31	WG2493546
1,2-Dichloroethane	ND		0.250	1	04/18/2025 01:31	WG2493546
1,2-Dichloropropane	ND		1.00	1	04/18/2025 01:31	WG2493546
1,3,5-Trimethylbenzene	ND		1.00	1	04/18/2025 01:31	WG2493546
1,3-Dichlorobenzene	ND		1.00	1	04/18/2025 01:31	WG2493546
1,3-Dichloropropane	ND		1.00	1	04/18/2025 01:31	WG2493546
1,4-Dichlorobenzene	ND		1.00	1	04/18/2025 01:31	WG2493546
2,2-Dichloropropane	ND	C3	1.00	1	04/18/2025 01:31	WG2493546
2-Butanone (MEK)	ND	C3	10.0	1	04/18/2025 01:31	WG2493546
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/18/2025 01:31	WG2493546
Acetone	ND	C3	10.0	1	04/18/2025 01:31	WG2493546
Allyl chloride	ND		1.00	1	04/18/2025 01:31	WG2493546
Benzene	ND		0.500	1	04/18/2025 01:31	WG2493546
Bromobenzene	ND		1.00	1	04/18/2025 01:31	WG2493546
Bromochloromethane	ND		1.00	1	04/18/2025 01:31	WG2493546
Bromodichloromethane	ND		1.00	1	04/18/2025 01:31	WG2493546
Bromoform	ND	C3	1.00	1	04/18/2025 01:31	WG2493546
Bromomethane	ND		1.00	1	04/18/2025 01:31	WG2493546
Carbon tetrachloride	ND		0.250	1	04/18/2025 01:31	WG2493546
Chlorobenzene	ND		1.00	1	04/18/2025 01:31	WG2493546
Chloroethane	ND	C3	1.00	1	04/18/2025 01:31	WG2493546
Chloroform	ND		1.00	1	04/18/2025 01:31	WG2493546
Chloromethane	ND		1.00	1	04/18/2025 01:31	WG2493546
Dibromochloromethane	ND		1.00	1	04/18/2025 01:31	WG2493546
Dibromomethane	ND		1.00	1	04/18/2025 01:31	WG2493546
Dichlorodifluoromethane	ND		1.00	1	04/18/2025 01:31	WG2493546
Dichlorofluoromethane	3.68		1.00	1	04/18/2025 01:31	WG2493546
Ethyl ether	12.3		1.00	1	04/18/2025 01:31	WG2493546
Ethylbenzene	ND		1.00	1	04/18/2025 01:31	WG2493546
Hexachloro-1,3-butadiene	ND		0.250	1	04/18/2025 01:31	WG2493546
Isopropylbenzene	ND		1.00	1	04/18/2025 01:31	WG2493546
Methyl tert-butyl ether	ND		1.00	1	04/18/2025 01:31	WG2493546
Methylene Chloride	ND		1.00	1	04/18/2025 01:31	WG2493546
Naphthalene	ND	C3	1.00	1	04/18/2025 01:31	WG2493546
Styrene	ND		1.00	1	04/18/2025 01:31	WG2493546
Tetrachloroethene	ND		1.00	1	04/18/2025 01:31	WG2493546
Tetrahydrofuran	9.26	C3	5.00	1	04/18/2025 01:31	WG2493546
Toluene	ND		1.00	1	04/18/2025 01:31	WG2493546
Trichloroethene	0.100		0.100	1	04/18/2025 01:31	WG2493546
Trichlorofluoromethane	ND		1.00	1	04/18/2025 01:31	WG2493546
Vinyl chloride	0.0920		0.0500	1	04/18/2025 01:31	WG2493546
Xylenes, Total	ND		2.00	1	04/18/2025 01:31	WG2493546
cis-1,2-Dichloroethene	1.42		0.100	1	04/18/2025 01:31	WG2493546
cis-1,3-Dichloropropene	ND		0.500	1	04/18/2025 01:31	WG2493546
n-Butylbenzene	ND		1.00	1	04/18/2025 01:31	WG2493546
n-Propylbenzene	ND		1.00	1	04/18/2025 01:31	WG2493546
o-Chlorotoluene	ND		1.00	1	04/18/2025 01:31	WG2493546
p-Chlorotoluene	ND		1.00	1	04/18/2025 01:31	WG2493546
p-Isopropyltoluene	ND		1.00	1	04/18/2025 01:31	WG2493546
sec-Butylbenzene	ND		1.00	1	04/18/2025 01:31	WG2493546
tert-Butylbenzene	ND		1.00	1	04/18/2025 01:31	WG2493546
trans-1,2-Dichloroethene	ND		1.00	1	04/18/2025 01:31	WG2493546

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
trans-1,3-Dichloropropene	ND		1.00	1	04/18/2025 01:31	WG2493546
(S) 1,2-Dichloroethane-d4	93.1			70.0-130	04/18/2025 01:31	WG2493546
(S) Toluene-d8	104			75.0-131	04/18/2025 01:31	WG2493546
(S) 4-Bromofluorobenzene	94.4			67.0-138	04/18/2025 01:31	WG2493546

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4202839-2 04/21/25 10:30

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Alkalinity	ND		2.71	20.0

Sample Narrative:
BLANK: Endpoint pH 4.5

L1848758-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1848758-01 04/21/25 10:55 • (DUP) R4202839-3 04/21/25 10:59

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Alkalinity	241	243	1	1.13		20

Sample Narrative:
OS: Endpoint pH 4.5 Headspace
DUP: Endpoint pH 4.5

L1848768-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1848768-06 04/21/25 12:23 • (DUP) R4202839-4 04/21/25 12:27

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Alkalinity	203	203	1	0.163		20

Sample Narrative:
OS: Endpoint pH 4.5 Headspace
DUP: Endpoint pH 4.5

Laboratory Control Sample (LCS)

(LCS) R4202839-1 04/21/25 10:26

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Alkalinity	100	97.4	97.4	90.0-110	

Sample Narrative:
LCS: Endpoint pH 4.5

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4201140-1 04/16/25 18:39

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Chloride	ND		0.0519	1.00
Nitrate	ND		0.0227	0.100
Sulfate	0.103		0.0774	5.00

L1848157-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1848157-01 04/16/25 19:05 • (DUP) R4201140-3 04/17/25 01:24

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	36.2	35.8	1	1.11		15
Nitrate	4.27	4.20	1	1.55		15
Sulfate	21.0	20.9	1	0.579		15

L1848157-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1848157-02 04/16/25 19:19 • (DUP) R4201140-6 04/17/25 02:04

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	8.03	8.09	1	0.697		15
Nitrate	ND	ND	1	1.80		15
Sulfate	6.68	6.68	1	0.00150		15

Laboratory Control Sample (LCS)

(LCS) R4201140-2 04/16/25 18:52

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40.0	38.3	95.8	90.0-110	
Nitrate	8.00	8.41	105	90.0-110	
Sulfate	40.0	42.5	106	90.0-110	

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

L1848157-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1848157-01 04/16/25 19:05 • (MS) R4201140-4 04/17/25 01:38 • (MSD) R4201140-5 04/17/25 01:51

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	40.0	36.2	64.8	65.5	71.5	73.3	1	90.0-110	J6	J6	1.09	15
Nitrate	8.00	4.27	11.3	11.5	88.3	90.4	1	90.0-110	E J6	E	1.44	15
Sulfate	40.0	21.0	54.6	57.5	84.0	91.1	1	90.0-110	J6		5.07	15

L1848157-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1848157-02 04/16/25 19:19 • (MS) R4201140-7 04/17/25 02:18

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	40.0	8.03	44.1	90.2	1	90.0-110	
Nitrate	8.00	ND	8.90	101	1	90.0-110	
Sulfate	40.0	6.68	46.9	101	1	90.0-110	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4203521-1 04/22/25 16:00

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Nitrate-Nitrite	ND		0.0197	0.100

Laboratory Control Sample (LCS)

(LCS) R4203521-2 04/22/25 16:03

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Nitrate-Nitrite	2.50	2.63	105	90.0-110	

L1848129-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1848129-06 04/22/25 16:07 • (MS) R4203521-3 04/22/25 16:10 • (MSD) R4203521-4 04/22/25 16:12

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Nitrate-Nitrite	2.50	ND	2.75	2.77	107	108	1	90.0-110			0.690	20

L1848129-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1848129-07 04/22/25 16:14 • (MS) R4203521-5 04/22/25 16:17 • (MSD) R4203521-6 04/22/25 16:19

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Nitrate-Nitrite	2.50	ND	2.78	2.80	108	109	1	90.0-110			0.825	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4201318-2 04/17/25 11:00

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
TOC	0.187		0.102	1.00

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

L1848207-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1848207-05 04/17/25 13:01 • (DUP) R4201318-5 04/17/25 13:18

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
TOC	ND	ND	1	6.28		20

L1848259-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1848259-04 04/17/25 18:01 • (DUP) R4201318-8 04/17/25 18:18

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
TOC	ND	ND	1	200	P1	20

Laboratory Control Sample (LCS)

(LCS) R4201318-1 04/17/25 10:37

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
TOC	25.0	25.7	103	85.0-115	

L1848207-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1848207-04 04/17/25 11:59 • (MS) R4201318-3 04/17/25 12:21 • (MSD) R4201318-4 04/17/25 12:44

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
TOC	25.0	ND	25.6	25.4	103	102	1	85.0-115			0.783	20

L1848259-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1848259-02 04/17/25 16:55 • (MS) R4201318-6 04/17/25 17:17 • (MSD) R4201318-7 04/17/25 17:39

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
TOC	25.0	ND	25.7	25.8	101	101	1	85.0-115			0.194	20

Method Blank (MB)

(MB) R4200785-2 04/16/25 18:50

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Ethane	ND		0.000296	0.00129
Ethene	ND		0.000422	0.00127
Methane	ND		0.000287	0.000678

L1848173-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1848173-01 04/16/25 20:05 • (DUP) R4200785-3 04/16/25 22:16

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ethane	ND	ND	1	0.000		20
Ethene	ND	ND	1	0.000		20
Methane	ND	ND	1	0.000		20

L1848247-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1848247-01 04/16/25 23:32 • (DUP) R4200785-4 04/17/25 00:10

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ethane	ND	ND	1	0.000		20
Ethene	ND	ND	1	0.000		20
Methane	ND	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4200785-1 04/16/25 18:39 • (LCSD) R4200785-7 04/17/25 00:31

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethane	0.129	0.123	0.122	95.3	94.6	85.0-115			0.816	20
Ethene	0.127	0.125	0.123	98.4	96.9	85.0-115			1.61	20
Methane	0.0678	0.0664	0.0641	97.9	94.5	85.0-115			3.52	20

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

L1848247-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1848247-01 04/16/25 23:32 • (MS) R4200785-5 04/17/25 00:14 • (MSD) R4200785-6 04/17/25 00:23

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Ethane	0.129	ND	0.131	0.129	102	100	1	85.0-115			1.54	20
Ethene	0.127	ND	0.130	0.129	102	102	1	85.0-115			0.772	20
Methane	0.0678	ND	0.0684	0.0673	101	99.3	1	85.0-115			1.62	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4202903-3 04/17/25 21:16

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
1,1,1,2-Tetrachloroethane	ND		0.0379	0.100
1,1,1-Trichloroethane	ND		0.0369	0.100
1,1,2,2-Tetrachloroethane	ND		0.0278	0.100
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0302	0.100
1,1,2-Trichloroethane	ND		0.0239	0.100
1,1-Dichloroethane	ND		0.0196	0.100
1,1-Dichloroethene	ND		0.0242	0.100
1,1-Dichloropropene	ND		0.0324	0.100
1,2,3-Trichlorobenzene	ND	U	0.293	0.500
1,2,3-Trichloropropane	ND		0.0648	0.500
1,2,4-Trichlorobenzene	ND		0.176	0.500
1,2,4-Trimethylbenzene	ND		0.0632	0.200
1,2-Dibromo-3-Chloropropane	ND		0.156	1.00
1,2-Dibromoethane	ND		0.0259	0.100
1,2-Dichlorobenzene	0.0280		0.0170	0.200
1,2-Dichloroethane	ND		0.0260	0.100
1,2-Dichloropropane	ND		0.0568	0.200
1,3,5-Trimethylbenzene	ND		0.0800	0.200
1,3-Dichlorobenzene	0.0250		0.0240	0.200
1,3-Dichloropropane	ND		0.0200	0.200
1,4-Dichlorobenzene	0.0350		0.0280	0.200
2,2-Dichloropropane	ND		0.0552	0.100
2-Butanone (MEK)	ND		2.54	4.00
4-Methyl-2-pentanone (MIBK)	ND		0.0912	1.00
Acetone	ND		1.46	2.00
Allyl chloride	ND		0.160	1.00
Benzene	ND		0.0187	0.0400
Bromobenzene	ND		0.0360	0.500
Bromochloromethane	ND		0.0226	0.200
Bromodichloromethane	ND		0.0290	0.100
Bromoform	ND		0.0468	0.500
Bromomethane	ND		0.0788	0.500
Carbon tetrachloride	ND		0.0359	0.200
Chlorobenzene	ND		0.00840	0.100
Chloroethane	ND		0.0680	0.200
Chloroform	ND		0.0412	0.100
Chloromethane	ND		0.174	0.500
Dibromochloromethane	ND		0.0245	0.100
Dibromomethane	ND		0.0300	0.200

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4202903-3 04/17/25 21:16

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dichlorodifluoromethane	ND		0.0644	0.200
Dichlorofluoromethane	ND		0.0490	0.100
Ethyl ether	ND		0.0356	0.100
Ethylbenzene	ND		0.0295	0.100
Hexachloro-1,3-butadiene	ND		0.0485	0.250
Isopropylbenzene	ND		0.0170	0.100
Methyl tert-butyl ether	ND		0.0140	0.0400
Methylene Chloride	ND		0.266	1.00
Naphthalene	ND		0.195	0.500
Styrene	ND		0.00916	0.500
Tetrachloroethene	ND		0.0358	0.100
Tetrahydrofuran	ND		0.141	0.500
Toluene	ND		0.0520	0.200
Trichloroethene	ND		0.0234	0.0400
Trichlorofluoromethane	ND		0.0331	0.100
Vinyl chloride	ND		0.0462	0.0500
Xylenes, Total	ND		0.0352	0.260
cis-1,2-Dichloroethene	ND		0.0294	0.100
cis-1,3-Dichloropropene	ND		0.0303	0.100
n-Butylbenzene	ND		0.210	0.500
n-Propylbenzene	ND		0.0380	0.200
o-Chlorotoluene	ND		0.0346	0.100
p-Chlorotoluene	ND		0.0180	0.200
p-Isopropyltoluene	ND		0.102	0.200
sec-Butylbenzene	ND		0.115	0.500
tert-Butylbenzene	ND		0.0780	0.200
trans-1,2-Dichloroethene	ND		0.0416	0.200
trans-1,3-Dichloropropene	ND		0.0456	0.200
(S) 1,2-Dichloroethane-d4	91.6			70.0-130
(S) Toluene-d8	105			75.0-131
(S) 4-Bromofluorobenzene	95.7			67.0-138

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4202903-1 04/17/25 19:41 • (LCSD) R4202903-2 04/17/25 20:00

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
1,1,1,2-Tetrachloroethane	5.00	4.59	4.40	91.8	88.0	74.0-129			4.23	20
1,1,1-Trichloroethane	5.00	4.63	4.75	92.6	95.0	69.0-126			2.56	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4202903-1 04/17/25 19:41 • (LCSD) R4202903-2 04/17/25 20:00

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
1,1,2,2-Tetrachloroethane	5.00	4.49	4.32	89.8	86.4	68.0-128			3.86	20
1,1,2-Trichloro-1,2,2-trifluoroethane	5.00	4.72	4.78	94.4	95.6	61.0-139			1.26	20
1,1,2-Trichloroethane	5.00	4.67	4.49	93.4	89.8	78.0-123			3.93	20
1,1-Dichloroethane	5.00	4.70	4.60	94.0	92.0	70.0-127			2.15	20
1,1-Dichloroethene	5.00	4.54	4.48	90.8	89.6	65.0-131			1.33	20
1,1-Dichloropropene	5.00	4.67	4.65	93.4	93.0	73.0-125			0.429	20
1,2,3-Trichlorobenzene	5.00	3.86	3.88	77.2	77.6	59.0-139			0.517	20
1,2,3-Trichloropropane	5.00	5.09	4.87	102	97.4	67.0-129			4.42	20
1,2,4-Trichlorobenzene	5.00	4.73	4.69	94.6	93.8	62.0-137			0.849	20
1,2,4-Trimethylbenzene	5.00	4.80	4.60	96.0	92.0	70.0-126			4.26	20
1,2-Dibromo-3-Chloropropane	5.00	3.50	3.40	70.0	68.0	59.0-130			2.90	20
1,2-Dibromoethane	5.00	5.01	4.68	100	93.6	74.0-128			6.81	20
1,2-Dichlorobenzene	5.00	5.02	4.92	100	98.4	76.0-124			2.01	20
1,2-Dichloroethane	5.00	4.11	3.90	82.2	78.0	65.0-131			5.24	20
1,2-Dichloropropane	5.00	4.47	4.37	89.4	87.4	74.0-125			2.26	20
1,3,5-Trimethylbenzene	5.00	4.61	4.55	92.2	91.0	73.0-127			1.31	20
1,3-Dichlorobenzene	5.00	5.03	4.90	101	98.0	76.0-125			2.62	20
1,3-Dichloropropane	5.00	4.99	4.53	99.8	90.6	80.0-125			9.66	20
1,4-Dichlorobenzene	5.00	5.13	5.11	103	102	77.0-121			0.391	20
2,2-Dichloropropane	5.00	3.97	3.98	79.4	79.6	59.0-135			0.252	20
2-Butanone (MEK)	25.0	17.4	18.3	69.6	73.2	30.0-160			5.04	24
4-Methyl-2-pentanone (MIBK)	25.0	22.8	22.1	91.2	88.4	56.0-143			3.12	20
Acetone	25.0	11.2	12.1	44.8	48.4	10.0-160			7.73	31
Allyl chloride	25.0	22.6	22.0	90.4	88.0	70.0-131			2.69	20
Benzene	5.00	4.28	4.32	85.6	86.4	70.0-123			0.930	20
Bromobenzene	5.00	5.24	5.04	105	101	73.0-121			3.89	20
Bromochloromethane	5.00	4.56	4.52	91.2	90.4	77.0-128			0.881	20
Bromodichloromethane	5.00	4.15	4.22	83.0	84.4	73.0-121			1.67	20
Bromoform	5.00	3.93	3.64	78.6	72.8	64.0-132			7.66	20
Bromomethane	5.00	4.66	4.57	93.2	91.4	56.0-147			1.95	20
Carbon tetrachloride	5.00	4.58	4.67	91.6	93.4	66.0-128			1.95	20
Chlorobenzene	5.00	4.83	4.67	96.6	93.4	76.0-128			3.37	20
Chloroethane	5.00	3.98	4.47	79.6	89.4	61.0-134			11.6	20
Chloroform	5.00	4.58	4.67	91.6	93.4	72.0-123			1.95	20
Chloromethane	5.00	4.37	4.33	87.4	86.6	51.0-138			0.920	20
Dibromochloromethane	5.00	4.37	4.13	87.4	82.6	74.0-127			5.65	20
Dibromomethane	5.00	4.32	4.17	86.4	83.4	75.0-122			3.53	20
Dichlorodifluoromethane	5.00	4.44	4.53	88.8	90.6	43.0-156			2.01	20
Dichlorofluoromethane	5.00	4.69	5.12	93.8	102	65.0-137			8.77	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4202903-1 04/17/25 19:41 • (LCSD) R4202903-2 04/17/25 20:00

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Ethyl ether	5.00	5.05	5.18	101	104	64.0-137			2.54	20
Ethylbenzene	5.00	4.96	4.97	99.2	99.4	74.0-126			0.201	20
Hexachloro-1,3-butadiene	5.00	5.46	5.20	109	104	57.0-150			4.88	20
Isopropylbenzene	5.00	4.76	4.68	95.2	93.6	72.0-127			1.69	20
Methyl tert-butyl ether	5.00	4.23	4.13	84.6	82.6	66.0-132			2.39	20
Methylene Chloride	5.00	5.14	4.92	103	98.4	68.0-123			4.37	20
Naphthalene	5.00	3.17	3.30	63.4	66.0	59.0-130			4.02	20
Styrene	5.00	4.70	4.62	94.0	92.4	72.0-127			1.72	20
Tetrachloroethene	5.00	4.80	4.99	96.0	99.8	70.0-136			3.88	20
Tetrahydrofuran	5.00	2.68	2.96	53.6	59.2	37.0-146			9.93	24
Toluene	5.00	4.66	4.56	93.2	91.2	75.0-121			2.17	20
Trichloroethene	5.00	4.85	4.79	97.0	95.8	76.0-126			1.24	20
Trichlorofluoromethane	5.00	4.84	4.87	96.8	97.4	61.0-142			0.618	20
Vinyl chloride	5.00	4.58	4.68	91.6	93.6	63.0-134			2.16	20
Xylenes, Total	15.0	15.3	14.7	102	98.0	72.0-127			4.00	20
cis-1,2-Dichloroethene	5.00	4.31	4.34	86.2	86.8	73.0-125			0.694	20
cis-1,3-Dichloropropene	5.00	4.15	4.25	83.0	85.0	76.0-127			2.38	20
n-Butylbenzene	5.00	4.71	4.51	94.2	90.2	68.0-135			4.34	20
n-Propylbenzene	5.00	4.81	4.68	96.2	93.6	74.0-126			2.74	20
o-Chlorotoluene	5.00	5.32	5.15	106	103	75.0-124			3.25	20
p-Chlorotoluene	5.00	4.74	4.70	94.8	94.0	75.0-124			0.847	20
p-Isopropyltoluene	5.00	5.00	4.84	100	96.8	72.0-133			3.25	20
sec-Butylbenzene	5.00	4.93	4.82	98.6	96.4	74.0-130			2.26	20
tert-Butylbenzene	5.00	4.80	4.66	96.0	93.2	75.0-127			2.96	20
trans-1,2-Dichloroethene	5.00	4.38	4.40	87.6	88.0	71.0-125			0.456	20
trans-1,3-Dichloropropene	5.00	4.56	4.53	91.2	90.6	73.0-127			0.660	20
(S) 1,2-Dichloroethane-d4				95.6	93.6	70.0-130				
(S) Toluene-d8				105	105	75.0-131				
(S) 4-Bromofluorobenzene				95.8	94.5	67.0-138				

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

L1846594-22 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1846594-22 04/17/25 22:58 • (MS) R4202903-4 04/18/25 05:01 • (MSD) R4202903-5 04/18/25 05:20

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
1,1,1,2-Tetrachloroethane	5.00	ND	4.98	4.37	99.6	87.4	1	10.0-149			13.0	39
1,1,1-Trichloroethane	5.00	ND	5.63	4.81	113	96.2	1	10.0-144			15.7	35
1,1,2,2-Tetrachloroethane	5.00	ND	5.59	4.89	112	97.8	1	10.0-160			13.4	35
1,1,2-Trichloro-1,2,2-trifluoroethane	5.00	ND	7.26	5.01	145	100	1	10.0-160	J3		36.7	36

L1846594-22 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1846594-22 04/17/25 22:58 • (MS) R4202903-4 04/18/25 05:01 • (MSD) R4202903-5 04/18/25 05:20

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1,1,2-Trichloroethane	5.00	ND	5.38	4.87	108	97.4	1	10.0-160			9.95	35
1,1-Dichloroethane	5.00	ND	5.66	4.67	113	93.4	1	10.0-147			19.2	37
1,1-Dichloroethene	5.00	ND	6.00	4.84	120	96.8	1	10.0-155			21.4	37
1,1-Dichloropropene	5.00	ND	5.54	4.54	111	90.8	1	10.0-153			19.8	35
1,2,3-Trichlorobenzene	5.00	ND	4.35	4.37	87.0	87.4	1	10.0-160			0.459	40
1,2,3-Trichloropropane	5.00	ND	5.78	5.21	116	104	1	10.0-156			10.4	35
1,2,4-Trichlorobenzene	5.00	ND	5.24	4.75	105	95.0	1	10.0-160			9.81	40
1,2,4-Trimethylbenzene	5.00	ND	5.27	4.81	105	96.2	1	10.0-160			9.13	36
1,2-Dibromo-3-Chloropropane	5.00	ND	4.12	3.92	82.4	78.4	1	10.0-151			4.98	39
1,2-Dibromoethane	5.00	ND	5.71	5.07	114	101	1	10.0-148			11.9	34
1,2-Dichlorobenzene	5.00	ND	5.94	5.20	119	104	1	10.0-155			13.3	37
1,2-Dichloroethane	5.00	ND	5.97	4.50	119	90.0	1	10.0-148			28.1	35
1,2-Dichloropropane	5.00	ND	6.42	4.51	128	90.2	1	10.0-148			34.9	37
1,3,5-Trimethylbenzene	5.00	ND	5.02	4.46	100	89.2	1	10.0-160			11.8	38
1,3-Dichlorobenzene	5.00	ND	5.89	5.17	118	103	1	10.0-153			13.0	38
1,3-Dichloropropane	5.00	ND	5.54	5.01	111	100	1	10.0-154			10.0	35
1,4-Dichlorobenzene	5.00	ND	6.01	5.29	120	106	1	10.0-151			12.7	38
2,2-Dichloropropane	5.00	ND	5.02	4.08	100	81.6	1	10.0-138			20.7	36
2-Butanone (MEK)	25.0	ND	22.8	19.2	91.2	76.8	1	10.0-160			17.1	40
4-Methyl-2-pentanone (MIBK)	25.0	ND	27.8	25.2	111	101	1	10.0-160			9.81	35
Acetone	25.0	ND	14.4	10.9	57.6	43.6	1	10.0-160			27.7	40
Allyl chloride	25.0	ND	25.4	22.2	102	88.8	1	10.0-160			13.4	30
Benzene	5.00	ND	5.20	4.58	104	91.6	1	10.0-149			12.7	37
Bromobenzene	5.00	ND	6.14	5.38	123	108	1	10.0-156			13.2	38
Bromochloromethane	5.00	ND	5.98	4.76	120	95.2	1	10.0-155			22.7	33
Bromodichloromethane	5.00	ND	6.16	4.47	123	89.4	1	10.0-143			31.8	37
Bromoform	5.00	ND	4.41	4.20	88.2	84.0	1	10.0-146			4.88	36
Bromomethane	5.00	ND	7.08	4.93	142	98.6	1	10.0-149			35.8	38
Carbon tetrachloride	5.00	ND	5.30	4.37	106	87.4	1	10.0-145			19.2	37
Chlorobenzene	5.00	ND	5.73	5.04	115	101	1	10.0-152			12.8	39
Chloroethane	5.00	ND	6.98	4.72	140	94.4	1	10.0-146			38.6	40
Chloroform	5.00	ND	5.88	4.79	118	95.8	1	10.0-146			20.4	37
Chloromethane	5.00	ND	6.81	4.65	136	93.0	1	10.0-159		U3	37.7	37
Dibromochloromethane	5.00	ND	4.89	4.41	97.8	88.2	1	10.0-146			10.3	37
Dibromomethane	5.00	ND	6.63	4.69	133	93.8	1	10.0-147			34.3	35
Dichlorodifluoromethane	5.00	ND	7.29	4.87	146	97.4	1	10.0-160		U3	39.8	35
Dichlorofluoromethane	5.00	ND	7.95	5.41	159	108	1	10.0-160		U3	38.0	34
Ethyl ether	5.00	ND	5.36	4.34	107	86.8	1	10.0-160			21.0	31
Ethylbenzene	5.00	ND	5.71	4.90	114	98.0	1	10.0-160			15.3	38
Hexachloro-1,3-butadiene	5.00	ND	6.09	5.50	122	110	1	10.0-160			10.2	40

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1846594-22 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1846594-22 04/17/25 22:58 • (MS) R4202903-4 04/18/25 05:01 • (MSD) R4202903-5 04/18/25 05:20

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Isopropylbenzene	5.00	ND	5.15	4.56	103	91.2	1	10.0-155			12.2	38
Methyl tert-butyl ether	5.00	ND	5.25	4.04	105	80.8	1	11.0-147			26.0	35
Methylene Chloride	5.00	ND	5.55	4.42	111	88.4	1	10.0-141			22.7	37
Naphthalene	5.00	ND	3.58	3.66	71.6	73.2	1	10.0-160			2.21	36
Styrene	5.00	ND	5.56	4.86	111	97.2	1	10.0-160			13.4	40
Tetrachloroethene	5.00	ND	6.03	5.10	121	102	1	10.0-156			16.7	39
Tetrahydrofuran	5.00	ND	ND	ND	99.2	84.8	1	10.0-158			15.7	33
Toluene	5.00	ND	5.34	4.66	107	93.2	1	10.0-156			13.6	38
Trichloroethene	5.00	ND	5.22	4.42	104	88.4	1	10.0-156			16.6	38
Trichlorofluoromethane	5.00	ND	7.31	5.46	146	109	1	10.0-160			29.0	40
Vinyl chloride	5.00	ND	7.49	5.25	150	105	1	10.0-160			35.2	37
Xylenes, Total	15.0	ND	17.6	15.0	117	100	1	10.0-160			16.0	38
cis-1,2-Dichloroethene	5.00	ND	5.48	4.46	110	89.2	1	10.0-149			20.5	37
cis-1,3-Dichloropropene	5.00	ND	5.71	4.49	114	89.8	1	10.0-151			23.9	37
n-Butylbenzene	5.00	ND	5.31	4.59	106	91.8	1	10.0-160			14.5	40
n-Propylbenzene	5.00	ND	4.98	4.40	99.6	88.0	1	10.0-158			12.4	38
o-Chlorotoluene	5.00	ND	6.18	5.42	124	108	1	10.0-159			13.1	38
p-Chlorotoluene	5.00	ND	5.62	4.78	112	95.6	1	10.0-155			16.2	39
p-Isopropyltoluene	5.00	ND	5.47	4.70	109	94.0	1	10.0-160			15.1	40
sec-Butylbenzene	5.00	ND	5.33	4.77	107	95.4	1	10.0-159			11.1	39
tert-Butylbenzene	5.00	ND	5.32	4.54	106	90.8	1	10.0-156			15.8	39
trans-1,2-Dichloroethene	5.00	ND	5.38	4.46	108	89.2	1	10.0-150			18.7	37
trans-1,3-Dichloropropene	5.00	ND	5.09	4.71	102	94.2	1	10.0-148			7.76	37
(S) 1,2-Dichloroethane-d4					112	97.8		70.0-130				
(S) Toluene-d8					102	103		75.0-131				
(S) 4-Bromofluorobenzene					94.9	94.3		67.0-138				

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

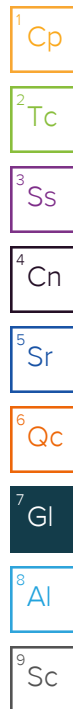
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
C3	The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.



ACCREDITATIONS & LOCATIONS

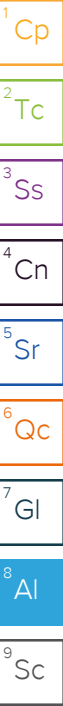
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

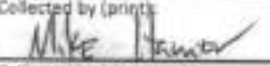
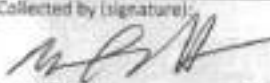
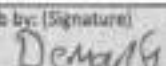
Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Company Name/Address: Elk River Landfill 4300 MarketPoint Drive Suite 200 Minneapolis, MN 55435				Billing Information: Accounts Payable / mkostrze@wm.com P.O. Box 4745 Portland, OR 97208-4745				Pres Chk 23		Analysis / Container / Preservation NO2,SO4,CL,Alk 125mlHDPE-H2SO4 NO2NO3 HOLD 250mlHDPE-H2SO4 RSK175LL 40mlAmb-HCl TOC 250mlAmb-HCl V8260ULLC 40mlAmb-HCl V8260ULLC 40mlAmb-HCl-Bik						Chain of Custody Page <u> </u> of <u> </u>	
Report to: Jim Eidem 952-832-2893				Email To: aschneider@barr.com;detamgt@barr.com;jeide				 MT JULIET, TN 12000 Jackson Rd Mount Juliet, TN 37122 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacescience.com/submit-conditions-sample.pdf									
Project Description: MNA Parameters		City/State Collected:		Please Circle: PT MT CT ET													
Regulatory Program(DOD,RCRA,DW,etc):		Client Project # 200		Lab Project # WMELKRIVMN-00023													
Collected by (print): 		Site/Facility ID # MN02		P.O. #													
Collected by (signature): 		Rush? (Lab MUST Be Notified!) ☐ Same Day ☐ Five Day ☐ Next Day ☐ 5 Day (Rad Only) ☐ Two Day ☐ 30 Day (Rad Only) ☐ Three Day ☐ STD TAT		Quote # Date Results Needed		No. of Cntrs											
Immediately Packed on ice: N Y		Sample ID		Comp/Grab		Matrix *		Depth		Date		Time					
Tb				GW													
~~P-322C~~				GW													
~~P-304C~~				GW													
~~P-312C~~				GW													
P-321L		G		GW													
P-323L		G		GW													
P-325L		G		GW													
P-326L		G		GW													
~~P-334C~~				GW													
~~P-310C~~				GW													
* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - Waste/Water DW - Drinking Water OT - Other				Remarks:				pH <u> </u> Temp <u> </u> Flow <u> </u> Other <u> </u>				Sample Receipt Checklist COC Seal Present/Intact: <u> </u> ☒ Y COC Signed/Accurate: <u> </u> ☒ Y Bottles arrive intact: <u> </u> ☒ Y Correct bottles used: <u> </u> ☒ Y Sufficient volume sent: <u> </u> ☒ Y If Applicable VOL Into HeadSpace: <u> </u> ☒ Y Preservation Correct/Checked: <u> </u> ☒ Y RAD Screen <0.5 mR/hr: <u> </u> ☒ Y					
Samples returned via: UPS FedEx Courier				Tracking # 449359344904				Relinquished by: (Signature) 				Date: 4/15/25 Time: 1730					
Relinquished by: (Signature) 				Date: 4/15/25 Time: 1730				Received by: (Signature) 				Trip Blank Received: Yes No ☒ ☐					
Relinquished by: (Signature) 				Date: 4/15/25 Time: 1730				Received by: (Signature) 				Temp: 7.19°C Bottles Received: 36					
Relinquished by: (Signature) 				Date: 4/15/25 Time: 0900				Received for lab by: (Signature) 				Date: 4.16.25 Time: 0900					
												Hold:					
												Condition: NCF / OK					

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only: Lab ID
L1948209

Note: For Parasite Sampling, replace "Water Vial in Cage" and "Well Vial Purged" w/ Water Vial in Tubing/Flux Cell and Tubing/Flux Cell Vial Purged. Mark changes; record field data below.

WELL DATA	Well Elevation (at TOC)	967.20 (ft)	Depth to Water (DTW) (from TOC)	18.07 (ft)	Groundwater Elevation (site datum, from TOC)	949.13 (ft)
	Total Well Depth (from TOC)		Stick Up (from ground elevation)		Casing ID (in)	Casing Material

Notes: This is a NEW Well. Stick Up is the vertical distance from the ground surface to the top of the casing. Well Elevation, DTW, and Groundwater Elevation used for contour.

[illegible]

Stabilization Data Fields are Optional *If a complete stabilization readings for parameters required by WQA, State, or State. These fields can be used where four (4) field measurements are required by State/Person/State. If Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

[illegible]

Final Field Readings are required (i.e. record field measurements, final stabilized readings, positive sample readings before sampling for all field parameters required by State Permit SW-0000000000).

Sample Appearance: _____ Odor: Ny Color: Ny Other: _____
Weather Conditions (required daily, or as conditions change): _____ Direction/Speed: _____ Outlook: _____ Precipitation: Y or N
Specific Comments (including purge/well volume calculations if required): _____

FIELD COMMENTS	

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign)

4 / 15 / 25

Name Mike Brown

Signature _____

ALL
Company

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client

ORIGINAL COPY

18437.09

1111

Note: For Passive Sampling, replace "Water Not in Contact" and "Well Not Pumped" in "Water Not in Taking Flow Cell and Taking Flow Cell Not Pumped." Mark changes, record field data below.

Note: Total Well Depth, Steel Casing, etc. are optional and can be from historical data. Values required by State Permit. Well Elevation, LITW, and Groundwater Elevation must be current.

 PSPICE	 PSPICE	 PSPICE	 PSPICE	 PSPICE	 PSPICE	 PSPICE	 PSPICE

7.5	SAMPLE DATE	pH	CONDUCTANCE	TEMP.	TURBIDITY	DO	#HVRP	Other: _____

Final Field Readings are required. (i.e. record field measurements; final stabilized readings; positive sample readings before sampling for all field parameters required by State Permit Site)

Sample description	Obs.	M_{bol}	Color	$L/L_{\odot}$	Other

Weather Conditions (inquiries daily, or as conditions change): _____ Direction/Speed: _____ Outlook: _____ Precipitation:

Specific Comments (including purge/well volume calculations if required): _____

[illegible]

[illegible]

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

1	1	1	1

4/15/25 Mike Hume [Signature] Alice

Date _____ Name _____ Signature _____ Computer _____

DISTRIBUTION: WHITE-ORIGINAL - Stays with Sample, YELLOW - Returned to Client

[illegible]

ORIGINAL COPY

ORIGINAL COPY

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Form that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

LE48209

Note: For Passive Sampling, replace "Water Val in Casing" and "Well Valve Purged" w/ "Water Val in Drilling Flow Cell and Drilling Flow Cell Valve Purged". Mark changes, record field data below.

WELL DATA	Well Elevation (at TOC)		Depth to Water (DTW) (from TOC)		Groundwater Elevation (site datum, from TOC)	
	(ft)	(m)	(ft)	(m)	(ft)	(m)
Total Well Depth (from TOC)			Stick Up (from ground elevation)		Casing ID	Casing Material

Notes: 1. Ground Well Head - Stick Up - Casing ID and Casing Material are for information only. Do not include in data collection. 2. Well Elevation, DTW, and Groundwater Elevation must be reported.

	Sample Time (2400 Hr Clock)	Rate Unit LPM	pH (std)	Conductance (SC/EC) (microhm/cm @ 25 °C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eHORP (mV)	DTW (ft)
	10:35	2.1	6.89	1224	7.1		0.8		
	10:40		6.83	1250	7.4		0.7		
	10:45		6.80	1268	7.5		0.3		
	10:50		6.76	1275	7.6	1.0	0.2	-13.6	
	:								
	:								
	:								
	:								
	:								
	:								
	:								
Suggested range for 7 copper readings in 1 hour:		+/- 0.2	+/- .02	+/- .0%			+/- .0%	+/- .25 mV	Stabilize

Stabilization Data Fields are Optional (i.e. complete stabilization readings for parameters required by W-M, Site, or State). These fields can be used where four (4) field measurements are required by State Permit (D). If a Data Logger or other electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or file.

SAMPLE DATE (MM DD YY)		pH (std)	CONDUCTANCE ($\mu\text{mhos/cm}$ @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: _____ Units

Field Readings are required. i.e. record field measurements, final stabilized readings, massive sample readings before sampling for all field parameters required by State Permit/Doc.

TABLE 1. *Mean concentrations of selected metals in the water and sediment samples collected from the study area*

Sample Appearance: _____ Odor: Van Color: Van Other: _____

Weather Conditions (required daily, or as conditions change): Direction/Speed _____ Outlook: _____ Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required): _____

NAME _____

[illegible]

NOTE.—If you are completing this form as part of a study or research project, please indicate the name of the study and the sponsor's name(s) in the space below.

I certify that sampling procedures were in accordance with applicable EPA State, and/or Federal procedures or methods approved by the EPA.

1	11/11	11/11	11/11	11/11

41 D 25 Date: Name: Signature: Company:

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client

ORIGINAL COPY

ORIGINAL COPY



ANALYTICAL REPORT

May 07, 2025

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Elk River Landfill

Sample Delivery Group: L1848860
Samples Received: 04/17/2025
Project Number: 200
Description: MNA Parameters
Site: MN02
Report To: Jim Eidem
4300 MarketPoint Drive Suite 200
Minneapolis, MN 55435

Entire Report Reviewed By:

T. Alan Harvill
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	6
TB L1848860-01	6
P-302C L1848860-02	8
P-334L L1848860-03	11
P-338L L1848860-04	14
Qc: Quality Control Summary	17
Wet Chemistry by Method 2320 B-2011	17
Wet Chemistry by Method 300.0	18
Wet Chemistry by Method 353.2	20
Wet Chemistry by Method 9060A	22
Volatile Organic Compounds (GC) by Method 3810/RSK175	23
Volatile Organic Compounds (GC/MS) by Method 8260D	26
Gl: Glossary of Terms	31
Al: Accreditations & Locations	32
Sc: Sample Chain of Custody	33

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

SAMPLE SUMMARY

TB L1848860-01 GW

Collected by
Mike Hamer

Collected date/time
04/16/25 00:00

Received date/time
04/17/25 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2498825	1	04/24/25 14:49	04/24/25 14:49	KST	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2499929	1	04/26/25 09:34	04/26/25 09:34	AV	Mt. Juliet, TN

P-302C L1848860-02 GW

Collected by
Mike Hamer

Collected date/time
04/16/25 14:15

Received date/time
04/17/25 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2495882	1	04/21/25 11:09	04/21/25 11:09	BJM	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2493080	1	04/18/25 00:11	04/18/25 00:11	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2493080	1	04/22/25 02:15	04/22/25 02:15	DLH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2493080	5	04/18/25 02:52	04/18/25 02:52	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG2495742	1	04/27/25 00:53	04/27/25 00:53	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9060A	WG2493859	1	04/18/25 14:28	04/18/25 14:28	KAM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 3810/RSK175	WG2495726	1	04/22/25 10:30	04/22/25 10:30	CCM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 3810/RSK175	WG2497196	10	04/22/25 15:15	04/22/25 15:15	CCM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2498825	1	04/24/25 15:51	04/24/25 15:51	GLN	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2499929	1	04/26/25 09:54	04/26/25 09:54	AV	Mt. Juliet, TN

P-334L L1848860-03 GW

Collected by
Mike Hamer

Collected date/time
04/16/25 11:15

Received date/time
04/17/25 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2495882	1	04/21/25 11:16	04/21/25 11:16	BJM	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2493080	1	04/18/25 00:24	04/18/25 00:24	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2493080	1	04/22/25 02:28	04/22/25 02:28	DLH	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG2495771	1	04/21/25 03:14	04/21/25 03:14	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9060A	WG2493859	1	04/18/25 15:31	04/18/25 15:31	KAM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 3810/RSK175	WG2495726	1	04/22/25 10:36	04/22/25 10:36	CCM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2498825	1	04/24/25 16:38	04/24/25 16:38	KST	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2499929	1	04/26/25 10:14	04/26/25 10:14	AV	Mt. Juliet, TN

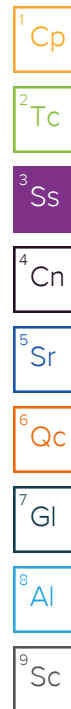
P-338L L1848860-04 GW

Collected by
Mike Hamer

Collected date/time
04/16/25 10:30

Received date/time
04/17/25 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2495882	1	04/21/25 11:24	04/21/25 11:24	BJM	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2493080	1	04/18/25 00:38	04/18/25 00:38	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2493080	1	04/22/25 02:41	04/22/25 02:41	DLH	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG2495771	1	04/21/25 03:21	04/21/25 03:21	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9060A	WG2493859	1	04/18/25 16:12	04/18/25 16:12	KAM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 3810/RSK175	WG2495726	1	04/22/25 10:45	04/22/25 10:45	CCM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2498825	1	04/24/25 16:59	04/24/25 16:59	KST	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2499929	1	04/26/25 10:34	04/26/25 10:34	AV	Mt. Juliet, TN

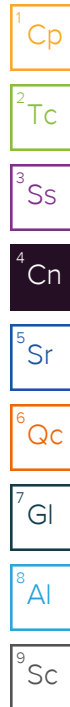


CASE NARRATIVE

Unless qualified or notated within the narrative below, all sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



T. Alan Harvill
Project Manager



Project Comments

The requested project specific reporting limits may be less than laboratory standard quantitation limits (PQL) but will be greater than or equal to the laboratory method detection limits (MDL). It is noted that results reported below lab standard quantitation limits (PQLs) may result in false positive/false negative values that may require additional laboratory quality assurance review, if requested. Routine laboratory procedures do not initiate a data review process for detections below the laboratory's PQL unless requested by the client.

Sample Delivery Group (SDG) Narrative

Analyzed from headspace vial.

Batch	Method	Lab Sample ID
WG2499929	8260D	L1848860-01

Wet Chemistry by Method 300.0

The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).

Batch	Lab Sample ID	Analytes
WG2493080	(MS) R4201978-6	Nitrate and Sulfate
WG2493080	(MSD) R4201978-7	Nitrate and Sulfate

RPD value not applicable for sample concentrations less than 5 times the reporting limit.

Batch	Lab Sample ID	Analytes
WG2493080	(DUP) R4201978-3	Sulfate

The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Batch	Lab Sample ID	Analytes
WG2493080	(MS) R4201978-4, (MS) R4201978-6, (MSD) R4201978-7	Sulfate

Volatile Organic Compounds (GC/MS) by Method 8260D

CASE NARRATIVE

Volatile Organic Compounds (GC/MS) by Method 8260D

The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.

Batch	Lab Sample ID	Analytes
WG2498825	L1848860-01	1,1,2,2-Tetrachloroethane, 2,2-Dichloropropane, 2-Butanone (MEK) and Chloromethane
WG2498825	L1848860-02	1,1,2,2-Tetrachloroethane, 2,2-Dichloropropane, 2-Butanone (MEK) and Chloromethane
WG2498825	L1848860-03	1,1,2,2-Tetrachloroethane, 2,2-Dichloropropane, 2-Butanone (MEK) and Chloromethane
WG2498825	L1848860-04	1,1,2,2-Tetrachloroethane, 2,2-Dichloropropane, 2-Butanone (MEK) and Chloromethane
WG2499929	L1848860-01	Tetrahydrofuran
WG2499929	L1848860-02	Tetrahydrofuran
WG2499929	L1848860-03	Tetrahydrofuran
WG2499929	L1848860-04	Tetrahydrofuran

The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).

Batch	Lab Sample ID	Analytes
WG2498825	L1848860-02	Ethyl ether

The associated batch QC was below the established quality control range for accuracy.

Batch	Lab Sample ID	Analytes
WG2498825	(LCS) R4205005-1, L1848860-01, 02, 03, 04	2,2-Dichloropropane

The associated batch QC was outside the established quality control range for precision.

Batch	Lab Sample ID	Analytes
WG2498825	(LCSD) R4205005-2, L1848860-01, 02, 03, 04	1,1-Dichloroethene, 2,2-Dichloropropane, Bromomethane, Chloroethane, Chloromethane, Dichlorodifluoromethane, Isopropylbenzene, Trichloroethene and Vinyl chloride

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/24/2025 14:49	WG2498825
1,1,1-Trichloroethane	ND		1.00	1	04/24/2025 14:49	WG2498825
1,1,2,2-Tetrachloroethane	ND	C3	0.500	1	04/24/2025 14:49	WG2498825
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/24/2025 14:49	WG2498825
1,1,2-Trichloroethane	ND		0.750	1	04/24/2025 14:49	WG2498825
1,1-Dichloroethane	ND		1.00	1	04/24/2025 14:49	WG2498825
1,1-Dichloroethene	ND	J3	1.00	1	04/24/2025 14:49	WG2498825
1,1-Dichloropropene	ND		1.00	1	04/24/2025 14:49	WG2498825
1,2,3-Trichlorobenzene	ND		1.00	1	04/24/2025 14:49	WG2498825
1,2,3-Trichloropropane	ND		1.00	1	04/24/2025 14:49	WG2498825
1,2,4-Trichlorobenzene	ND		1.00	1	04/24/2025 14:49	WG2498825
1,2,4-Trimethylbenzene	ND		1.00	1	04/24/2025 14:49	WG2498825
1,2-Dibromo-3-Chloropropane	ND		1.00	1	04/24/2025 14:49	WG2498825
1,2-Dibromoethane	ND		1.00	1	04/24/2025 14:49	WG2498825
1,2-Dichlorobenzene	ND		1.00	1	04/24/2025 14:49	WG2498825
1,2-Dichloroethane	ND		0.250	1	04/24/2025 14:49	WG2498825
1,2-Dichloropropane	ND		1.00	1	04/24/2025 14:49	WG2498825
1,3,5-Trimethylbenzene	ND		1.00	1	04/24/2025 14:49	WG2498825
1,3-Dichlorobenzene	ND		1.00	1	04/24/2025 14:49	WG2498825
1,3-Dichloropropane	ND		1.00	1	04/24/2025 14:49	WG2498825
1,4-Dichlorobenzene	ND		1.00	1	04/24/2025 14:49	WG2498825
2,2-Dichloropropane	ND	C3 J3 J4	1.00	1	04/24/2025 14:49	WG2498825
2-Butanone (MEK)	ND	C3	10.0	1	04/24/2025 14:49	WG2498825
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/24/2025 14:49	WG2498825
Acetone	ND		10.0	1	04/24/2025 14:49	WG2498825
Allyl chloride	ND		1.00	1	04/24/2025 14:49	WG2498825
Benzene	ND		0.500	1	04/24/2025 14:49	WG2498825
Bromobenzene	ND		1.00	1	04/24/2025 14:49	WG2498825
Bromochloromethane	ND		1.00	1	04/24/2025 14:49	WG2498825
Bromodichloromethane	ND		1.00	1	04/24/2025 14:49	WG2498825
Bromoform	ND		1.00	1	04/24/2025 14:49	WG2498825
Bromomethane	ND	J3	1.00	1	04/24/2025 14:49	WG2498825
Carbon tetrachloride	ND		0.250	1	04/24/2025 14:49	WG2498825
Chlorobenzene	ND		1.00	1	04/24/2025 14:49	WG2498825
Chloroethane	ND	J3	1.00	1	04/24/2025 14:49	WG2498825
Chloroform	ND		1.00	1	04/24/2025 14:49	WG2498825
Chloromethane	ND	C3 J3	1.00	1	04/24/2025 14:49	WG2498825
Dibromochloromethane	ND		1.00	1	04/24/2025 14:49	WG2498825
Dibromomethane	ND		1.00	1	04/24/2025 14:49	WG2498825
Dichlorodifluoromethane	ND	J3	1.00	1	04/24/2025 14:49	WG2498825
Dichlorofluoromethane	ND		1.00	1	04/24/2025 14:49	WG2498825
Ethyl ether	ND		1.00	1	04/24/2025 14:49	WG2498825
Ethylbenzene	ND		1.00	1	04/24/2025 14:49	WG2498825
Hexachloro-1,3-butadiene	ND		0.250	1	04/24/2025 14:49	WG2498825
Isopropylbenzene	ND	J3	1.00	1	04/24/2025 14:49	WG2498825
Methyl tert-butyl ether	ND		1.00	1	04/24/2025 14:49	WG2498825
Methylene Chloride	ND		1.00	1	04/24/2025 14:49	WG2498825
Naphthalene	ND		1.00	1	04/24/2025 14:49	WG2498825
Styrene	ND		1.00	1	04/24/2025 14:49	WG2498825
Tetrachloroethene	ND		1.00	1	04/24/2025 14:49	WG2498825
Tetrahydrofuran	ND	C3	5.00	1	04/26/2025 09:34	WG2499929
Toluene	ND		1.00	1	04/24/2025 14:49	WG2498825
Trichloroethene	ND	J3	0.100	1	04/24/2025 14:49	WG2498825
Trichlorofluoromethane	ND		1.00	1	04/24/2025 14:49	WG2498825
Vinyl chloride	ND	J3	0.0500	1	04/24/2025 14:49	WG2498825

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Xylenes, Total	ND		2.00	1	04/24/2025 14:49	WG2498825
cis-1,2-Dichloroethene	ND		0.100	1	04/24/2025 14:49	WG2498825
cis-1,3-Dichloropropene	ND		0.500	1	04/24/2025 14:49	WG2498825
n-Butylbenzene	ND		1.00	1	04/24/2025 14:49	WG2498825
n-Propylbenzene	ND		1.00	1	04/24/2025 14:49	WG2498825
o-Chlorotoluene	ND		1.00	1	04/24/2025 14:49	WG2498825
p-Chlorotoluene	ND		1.00	1	04/24/2025 14:49	WG2498825
p-Isopropyltoluene	ND		1.00	1	04/24/2025 14:49	WG2498825
sec-Butylbenzene	ND		1.00	1	04/24/2025 14:49	WG2498825
tert-Butylbenzene	ND		1.00	1	04/24/2025 14:49	WG2498825
trans-1,2-Dichloroethene	ND		1.00	1	04/24/2025 14:49	WG2498825
trans-1,3-Dichloropropene	ND		1.00	1	04/24/2025 14:49	WG2498825
(S) 1,2-Dichloroethane-d4	107			70.0-130	04/24/2025 14:49	WG2498825
(S) 1,2-Dichloroethane-d4	84.5			70.0-130	04/26/2025 09:34	WG2499929
(S) Toluene-d8	99.7			75.0-131	04/24/2025 14:49	WG2498825
(S) Toluene-d8	112			75.0-131	04/26/2025 09:34	WG2499929
(S) 4-Bromofluorobenzene	99.6			67.0-138	04/24/2025 14:49	WG2498825
(S) 4-Bromofluorobenzene	96.8			67.0-138	04/26/2025 09:34	WG2499929

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
pH (On Site)	7.12	su
Specific Conductance (on site)	1.893	mmhos/cm
Temperature (on-site)	13.3	Deg. C
Turbidity (on-site)	25.1	NTU
Dissolved Oxygen (on-site)	0	mg/l
eH/ORP (On Site)	-186	mV

Wet Chemistry by Method 2320 B-2011

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Alkalinity	757		20.0	1	04/21/2025 11:09	WG2495882

Sample Narrative:

L1848860-02 WG2495882: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Chloride	176		1.00	5	04/18/2025 02:52	WG2493080
Nitrate	ND		1.00	1	04/18/2025 00:11	WG2493080
Sulfate	25.3		5.00	1	04/22/2025 02:15	WG2493080

Wet Chemistry by Method 353.2

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Nitrate-Nitrite	ND		0.100	1	04/27/2025 00:53	WG2495742

Wet Chemistry by Method 9060A

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
TOC	17.0		1.00	1	04/18/2025 14:28	WG2493859

Volatile Organic Compounds (GC) by Method 3810/RSK175

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Ethane	ND		0.00120	1	04/22/2025 10:30	WG2495726
Ethene	ND		0.00120	1	04/22/2025 10:30	WG2495726
Methane	32.3		0.00287	10	04/22/2025 15:15	WG2497196

Volatile Organic Compounds (GC/MS) by Method 8260D

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/24/2025 15:51	WG2498825
1,1,1-Trichloroethane	ND		1.00	1	04/24/2025 15:51	WG2498825
1,1,2,2-Tetrachloroethane	ND	C3	0.500	1	04/24/2025 15:51	WG2498825
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/24/2025 15:51	WG2498825
1,1,2-Trichloroethane	ND		0.750	1	04/24/2025 15:51	WG2498825
1,1-Dichloroethane	ND		1.00	1	04/24/2025 15:51	WG2498825
1,1-Dichloroethene	ND	J3	1.00	1	04/24/2025 15:51	WG2498825
1,1-Dichloropropene	ND		1.00	1	04/24/2025 15:51	WG2498825
1,2,3-Trichlorobenzene	ND		1.00	1	04/24/2025 15:51	WG2498825
1,2,3-Trichloropropane	ND		1.00	1	04/24/2025 15:51	WG2498825

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,2,4-Trichlorobenzene	ND		1.00	1	04/24/2025 15:51	WG2498825
1,2,4-Trimethylbenzene	ND		1.00	1	04/24/2025 15:51	WG2498825
1,2-Dibromo-3-Chloropropane	ND		1.00	1	04/24/2025 15:51	WG2498825
1,2-Dibromoethane	ND		1.00	1	04/24/2025 15:51	WG2498825
1,2-Dichlorobenzene	ND		1.00	1	04/24/2025 15:51	WG2498825
1,2-Dichloroethane	0.615		0.250	1	04/24/2025 15:51	WG2498825
1,2-Dichloropropane	ND		1.00	1	04/24/2025 15:51	WG2498825
1,3,5-Trimethylbenzene	ND		1.00	1	04/24/2025 15:51	WG2498825
1,3-Dichlorobenzene	ND		1.00	1	04/24/2025 15:51	WG2498825
1,3-Dichloropropane	ND		1.00	1	04/24/2025 15:51	WG2498825
1,4-Dichlorobenzene	ND		1.00	1	04/24/2025 15:51	WG2498825
2,2-Dichloropropane	ND	C3 J3 J4	1.00	1	04/24/2025 15:51	WG2498825
2-Butanone (MEK)	ND	C3	10.0	1	04/24/2025 15:51	WG2498825
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/24/2025 15:51	WG2498825
Acetone	ND		10.0	1	04/24/2025 15:51	WG2498825
Allyl chloride	ND		1.00	1	04/24/2025 15:51	WG2498825
Benzene	ND		0.500	1	04/24/2025 15:51	WG2498825
Bromobenzene	ND		1.00	1	04/24/2025 15:51	WG2498825
Bromochloromethane	ND		1.00	1	04/24/2025 15:51	WG2498825
Bromodichloromethane	ND		1.00	1	04/24/2025 15:51	WG2498825
Bromoform	ND		1.00	1	04/24/2025 15:51	WG2498825
Bromomethane	ND	J3	1.00	1	04/24/2025 15:51	WG2498825
Carbon tetrachloride	ND		0.250	1	04/24/2025 15:51	WG2498825
Chlorobenzene	ND		1.00	1	04/24/2025 15:51	WG2498825
Chloroethane	ND	J3	1.00	1	04/24/2025 15:51	WG2498825
Chloroform	ND		1.00	1	04/24/2025 15:51	WG2498825
Chloromethane	ND	C3 J3	1.00	1	04/24/2025 15:51	WG2498825
Dibromochloromethane	ND		1.00	1	04/24/2025 15:51	WG2498825
Dibromomethane	ND		1.00	1	04/24/2025 15:51	WG2498825
Dichlorodifluoromethane	ND	J3	1.00	1	04/24/2025 15:51	WG2498825
Dichlorofluoromethane	5.08		1.00	1	04/24/2025 15:51	WG2498825
Ethyl ether	30.0	E	1.00	1	04/24/2025 15:51	WG2498825
Ethylbenzene	ND		1.00	1	04/24/2025 15:51	WG2498825
Hexachloro-1,3-butadiene	ND		0.250	1	04/24/2025 15:51	WG2498825
Isopropylbenzene	ND	J3	1.00	1	04/24/2025 15:51	WG2498825
Methyl tert-butyl ether	ND		1.00	1	04/24/2025 15:51	WG2498825
Methylene Chloride	ND		1.00	1	04/24/2025 15:51	WG2498825
Naphthalene	ND		1.00	1	04/24/2025 15:51	WG2498825
Styrene	ND		1.00	1	04/24/2025 15:51	WG2498825
Tetrachloroethene	ND		1.00	1	04/24/2025 15:51	WG2498825
Tetrahydrofuran	ND	C3	5.00	1	04/26/2025 09:54	WG2499929
Toluene	ND		1.00	1	04/24/2025 15:51	WG2498825
Trichloroethene	ND	J3	0.100	1	04/24/2025 15:51	WG2498825
Trichlorofluoromethane	ND		1.00	1	04/24/2025 15:51	WG2498825
Vinyl chloride	0.513	J3	0.0500	1	04/24/2025 15:51	WG2498825
Xylenes, Total	ND		2.00	1	04/24/2025 15:51	WG2498825
cis-1,2-Dichloroethene	ND		0.100	1	04/24/2025 15:51	WG2498825
cis-1,3-Dichloropropene	ND		0.500	1	04/24/2025 15:51	WG2498825
n-Butylbenzene	ND		1.00	1	04/24/2025 15:51	WG2498825
n-Propylbenzene	ND		1.00	1	04/24/2025 15:51	WG2498825
o-Chlorotoluene	ND		1.00	1	04/24/2025 15:51	WG2498825
p-Chlorotoluene	ND		1.00	1	04/24/2025 15:51	WG2498825
p-Isopropyltoluene	ND		1.00	1	04/24/2025 15:51	WG2498825
sec-Butylbenzene	ND		1.00	1	04/24/2025 15:51	WG2498825
tert-Butylbenzene	ND		1.00	1	04/24/2025 15:51	WG2498825
trans-1,2-Dichloroethene	ND		1.00	1	04/24/2025 15:51	WG2498825

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
trans-1,3-Dichloropropene	ND		1.00	1	04/24/2025 15:51	WG2498825
(S) 1,2-Dichloroethane-d4	113			70.0-130	04/24/2025 15:51	WG2498825
(S) 1,2-Dichloroethane-d4	84.2			70.0-130	04/26/2025 09:54	WG2499929
(S) Toluene-d8	101			75.0-131	04/24/2025 15:51	WG2498825
(S) Toluene-d8	112			75.0-131	04/26/2025 09:54	WG2499929
(S) 4-Bromofluorobenzene	99.4			67.0-138	04/24/2025 15:51	WG2498825
(S) 4-Bromofluorobenzene	96.9			67.0-138	04/26/2025 09:54	WG2499929

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
pH (On Site)	7.43	su
Specific Conductance (on site)	0.638	mmhos/cm
Temperature (on-site)	9.1	Deg. C
Turbidity (on-site)	23	NTU
Dissolved Oxygen (on-site)	0.1	mg/l
eH/ORP (On Site)	-132	mV

Wet Chemistry by Method 2320 B-2011

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Alkalinity	249		20.0	1	04/21/2025 11:16	WG2495882

Sample Narrative:

L1848860-03 WG2495882: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Chloride	21.1		1.00	1	04/18/2025 00:24	WG2493080
Nitrate	ND		1.00	1	04/18/2025 00:24	WG2493080
Sulfate	16.9		5.00	1	04/22/2025 02:28	WG2493080

Wet Chemistry by Method 353.2

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Nitrate-Nitrite	ND		0.100	1	04/21/2025 03:14	WG2495771

Wet Chemistry by Method 9060A

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
TOC	1.20		1.00	1	04/18/2025 15:31	WG2493859

Volatile Organic Compounds (GC) by Method 3810/RSK175

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Ethane	ND		0.00120	1	04/22/2025 10:36	WG2495726
Ethene	ND		0.00120	1	04/22/2025 10:36	WG2495726
Methane	1.82		0.000678	1	04/22/2025 10:36	WG2495726

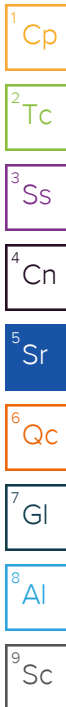
Volatile Organic Compounds (GC/MS) by Method 8260D

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/24/2025 16:38	WG2498825
1,1,1-Trichloroethane	ND		1.00	1	04/24/2025 16:38	WG2498825
1,1,2,2-Tetrachloroethane	ND	C3	0.500	1	04/24/2025 16:38	WG2498825
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/24/2025 16:38	WG2498825
1,1,2-Trichloroethane	ND		0.750	1	04/24/2025 16:38	WG2498825
1,1-Dichloroethane	4.59		1.00	1	04/24/2025 16:38	WG2498825
1,1-Dichloroethene	ND	J3	1.00	1	04/24/2025 16:38	WG2498825
1,1-Dichloropropene	ND		1.00	1	04/24/2025 16:38	WG2498825
1,2,3-Trichlorobenzene	ND		1.00	1	04/24/2025 16:38	WG2498825
1,2,3-Trichloropropane	ND		1.00	1	04/24/2025 16:38	WG2498825

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,2,4-Trichlorobenzene	ND		1.00	1	04/24/2025 16:38	WG2498825
1,2,4-Trimethylbenzene	ND		1.00	1	04/24/2025 16:38	WG2498825
1,2-Dibromo-3-Chloropropane	ND		1.00	1	04/24/2025 16:38	WG2498825
1,2-Dibromoethane	ND		1.00	1	04/24/2025 16:38	WG2498825
1,2-Dichlorobenzene	ND		1.00	1	04/24/2025 16:38	WG2498825
1,2-Dichloroethane	ND		0.250	1	04/24/2025 16:38	WG2498825
1,2-Dichloropropane	ND		1.00	1	04/24/2025 16:38	WG2498825
1,3,5-Trimethylbenzene	ND		1.00	1	04/24/2025 16:38	WG2498825
1,3-Dichlorobenzene	ND		1.00	1	04/24/2025 16:38	WG2498825
1,3-Dichloropropane	ND		1.00	1	04/24/2025 16:38	WG2498825
1,4-Dichlorobenzene	ND		1.00	1	04/24/2025 16:38	WG2498825
2,2-Dichloropropane	ND	C3 J3 J4	1.00	1	04/24/2025 16:38	WG2498825
2-Butanone (MEK)	ND	C3	10.0	1	04/24/2025 16:38	WG2498825
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/24/2025 16:38	WG2498825
Acetone	ND		10.0	1	04/24/2025 16:38	WG2498825
Allyl chloride	ND		1.00	1	04/24/2025 16:38	WG2498825
Benzene	ND		0.500	1	04/24/2025 16:38	WG2498825
Bromobenzene	ND		1.00	1	04/24/2025 16:38	WG2498825
Bromochloromethane	ND		1.00	1	04/24/2025 16:38	WG2498825
Bromodichloromethane	ND		1.00	1	04/24/2025 16:38	WG2498825
Bromoform	ND		1.00	1	04/24/2025 16:38	WG2498825
Bromomethane	ND	J3	1.00	1	04/24/2025 16:38	WG2498825
Carbon tetrachloride	ND		0.250	1	04/24/2025 16:38	WG2498825
Chlorobenzene	ND		1.00	1	04/24/2025 16:38	WG2498825
Chloroethane	ND	J3	1.00	1	04/24/2025 16:38	WG2498825
Chloroform	ND		1.00	1	04/24/2025 16:38	WG2498825
Chloromethane	ND	C3 J3	1.00	1	04/24/2025 16:38	WG2498825
Dibromochloromethane	ND		1.00	1	04/24/2025 16:38	WG2498825
Dibromomethane	ND		1.00	1	04/24/2025 16:38	WG2498825
Dichlorodifluoromethane	9.26	J3	1.00	1	04/24/2025 16:38	WG2498825
Dichlorofluoromethane	21.9		1.00	1	04/24/2025 16:38	WG2498825
Ethyl ether	20.5		1.00	1	04/24/2025 16:38	WG2498825
Ethylbenzene	ND		1.00	1	04/24/2025 16:38	WG2498825
Hexachloro-1,3-butadiene	ND		0.250	1	04/24/2025 16:38	WG2498825
Isopropylbenzene	ND	J3	1.00	1	04/24/2025 16:38	WG2498825
Methyl tert-butyl ether	1.11		1.00	1	04/24/2025 16:38	WG2498825
Methylene Chloride	ND		1.00	1	04/24/2025 16:38	WG2498825
Naphthalene	ND		1.00	1	04/24/2025 16:38	WG2498825
Styrene	ND		1.00	1	04/24/2025 16:38	WG2498825
Tetrachloroethene	ND		1.00	1	04/24/2025 16:38	WG2498825
Tetrahydrofuran	6.23	C3	5.00	1	04/26/2025 10:14	WG2499929
Toluene	ND		1.00	1	04/24/2025 16:38	WG2498825
Trichloroethene	ND	J3	0.100	1	04/24/2025 16:38	WG2498825
Trichlorofluoromethane	ND		1.00	1	04/24/2025 16:38	WG2498825
Vinyl chloride	ND	J3	0.0500	1	04/24/2025 16:38	WG2498825
Xylenes, Total	ND		2.00	1	04/24/2025 16:38	WG2498825
cis-1,2-Dichloroethene	ND		0.100	1	04/24/2025 16:38	WG2498825
cis-1,3-Dichloropropene	ND		0.500	1	04/24/2025 16:38	WG2498825
n-Butylbenzene	ND		1.00	1	04/24/2025 16:38	WG2498825
n-Propylbenzene	ND		1.00	1	04/24/2025 16:38	WG2498825
o-Chlorotoluene	ND		1.00	1	04/24/2025 16:38	WG2498825
p-Chlorotoluene	ND		1.00	1	04/24/2025 16:38	WG2498825
p-Isopropyltoluene	ND		1.00	1	04/24/2025 16:38	WG2498825
sec-Butylbenzene	ND		1.00	1	04/24/2025 16:38	WG2498825
tert-Butylbenzene	ND		1.00	1	04/24/2025 16:38	WG2498825
trans-1,2-Dichloroethene	ND		1.00	1	04/24/2025 16:38	WG2498825



Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
trans-1,3-Dichloropropene	ND		1.00	1	04/24/2025 16:38	WG2498825
(S) 1,2-Dichloroethane-d4	126			70.0-130	04/24/2025 16:38	WG2498825
(S) 1,2-Dichloroethane-d4	83.9			70.0-130	04/26/2025 10:14	WG2499929
(S) Toluene-d8	96.9			75.0-131	04/24/2025 16:38	WG2498825
(S) Toluene-d8	112			75.0-131	04/26/2025 10:14	WG2499929
(S) 4-Bromofluorobenzene	97.0			67.0-138	04/24/2025 16:38	WG2498825
(S) 4-Bromofluorobenzene	95.7			67.0-138	04/26/2025 10:14	WG2499929

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
pH (On Site)	7.34	su
Specific Conductance (on site)	0.937	mmhos/cm
Temperature (on-site)	9.2	Deg. C
Turbidity (on-site)	0.2	NTU
Dissolved Oxygen (on-site)	0	mg/l
eH/ORP (On Site)	-174	mV

Wet Chemistry by Method 2320 B-2011

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Alkalinity	415		20.0	1	04/21/2025 11:24	WG2495882

Sample Narrative:

L1848860-04 WG2495882: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Chloride	45.0		1.00	1	04/18/2025 00:38	WG2493080
Nitrate	ND		1.00	1	04/18/2025 00:38	WG2493080
Sulfate	18.0		5.00	1	04/22/2025 02:41	WG2493080

Wet Chemistry by Method 353.2

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Nitrate-Nitrite	ND		0.100	1	04/21/2025 03:21	WG2495771

Wet Chemistry by Method 9060A

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
TOC	2.11		1.00	1	04/18/2025 16:12	WG2493859

Volatile Organic Compounds (GC) by Method 3810/RSK175

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Ethane	ND		0.00120	1	04/22/2025 10:45	WG2495726
Ethene	ND		0.00120	1	04/22/2025 10:45	WG2495726
Methane	2.41		0.000678	1	04/22/2025 10:45	WG2495726

Volatile Organic Compounds (GC/MS) by Method 8260D

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/24/2025 16:59	WG2498825
1,1,1-Trichloroethane	ND		1.00	1	04/24/2025 16:59	WG2498825
1,1,2,2-Tetrachloroethane	ND	C3	0.500	1	04/24/2025 16:59	WG2498825
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/24/2025 16:59	WG2498825
1,1,2-Trichloroethane	ND		0.750	1	04/24/2025 16:59	WG2498825
1,1-Dichloroethane	8.70		1.00	1	04/24/2025 16:59	WG2498825
1,1-Dichloroethene	ND	J3	1.00	1	04/24/2025 16:59	WG2498825
1,1-Dichloropropene	ND		1.00	1	04/24/2025 16:59	WG2498825
1,2,3-Trichlorobenzene	ND		1.00	1	04/24/2025 16:59	WG2498825
1,2,3-Trichloropropane	ND		1.00	1	04/24/2025 16:59	WG2498825

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,2,4-Trichlorobenzene	ND		1.00	1	04/24/2025 16:59	WG2498825
1,2,4-Trimethylbenzene	ND		1.00	1	04/24/2025 16:59	WG2498825
1,2-Dibromo-3-Chloropropane	ND		1.00	1	04/24/2025 16:59	WG2498825
1,2-Dibromoethane	ND		1.00	1	04/24/2025 16:59	WG2498825
1,2-Dichlorobenzene	ND		1.00	1	04/24/2025 16:59	WG2498825
1,2-Dichloroethane	ND		0.250	1	04/24/2025 16:59	WG2498825
1,2-Dichloropropane	ND		1.00	1	04/24/2025 16:59	WG2498825
1,3,5-Trimethylbenzene	ND		1.00	1	04/24/2025 16:59	WG2498825
1,3-Dichlorobenzene	ND		1.00	1	04/24/2025 16:59	WG2498825
1,3-Dichloropropane	ND		1.00	1	04/24/2025 16:59	WG2498825
1,4-Dichlorobenzene	ND		1.00	1	04/24/2025 16:59	WG2498825
2,2-Dichloropropane	ND	C3 J3 J4	1.00	1	04/24/2025 16:59	WG2498825
2-Butanone (MEK)	ND	C3	10.0	1	04/24/2025 16:59	WG2498825
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/24/2025 16:59	WG2498825
Acetone	ND		10.0	1	04/24/2025 16:59	WG2498825
Allyl chloride	ND		1.00	1	04/24/2025 16:59	WG2498825
Benzene	ND		0.500	1	04/24/2025 16:59	WG2498825
Bromobenzene	ND		1.00	1	04/24/2025 16:59	WG2498825
Bromochloromethane	ND		1.00	1	04/24/2025 16:59	WG2498825
Bromodichloromethane	ND		1.00	1	04/24/2025 16:59	WG2498825
Bromoform	ND		1.00	1	04/24/2025 16:59	WG2498825
Bromomethane	ND	J3	1.00	1	04/24/2025 16:59	WG2498825
Carbon tetrachloride	ND		0.250	1	04/24/2025 16:59	WG2498825
Chlorobenzene	ND		1.00	1	04/24/2025 16:59	WG2498825
Chloroethane	ND	J3	1.00	1	04/24/2025 16:59	WG2498825
Chloroform	ND		1.00	1	04/24/2025 16:59	WG2498825
Chloromethane	ND	C3 J3	1.00	1	04/24/2025 16:59	WG2498825
Dibromochloromethane	ND		1.00	1	04/24/2025 16:59	WG2498825
Dibromomethane	ND		1.00	1	04/24/2025 16:59	WG2498825
Dichlorodifluoromethane	3.87	J3	1.00	1	04/24/2025 16:59	WG2498825
Dichlorofluoromethane	14.5		1.00	1	04/24/2025 16:59	WG2498825
Ethyl ether	24.8		1.00	1	04/24/2025 16:59	WG2498825
Ethylbenzene	ND		1.00	1	04/24/2025 16:59	WG2498825
Hexachloro-1,3-butadiene	ND		0.250	1	04/24/2025 16:59	WG2498825
Isopropylbenzene	ND	J3	1.00	1	04/24/2025 16:59	WG2498825
Methyl tert-butyl ether	ND		1.00	1	04/24/2025 16:59	WG2498825
Methylene Chloride	ND		1.00	1	04/24/2025 16:59	WG2498825
Naphthalene	ND		1.00	1	04/24/2025 16:59	WG2498825
Styrene	ND		1.00	1	04/24/2025 16:59	WG2498825
Tetrachloroethene	ND		1.00	1	04/24/2025 16:59	WG2498825
Tetrahydrofuran	ND	C3	5.00	1	04/26/2025 10:34	WG2499929
Toluene	ND		1.00	1	04/24/2025 16:59	WG2498825
Trichloroethene	ND	J3	0.100	1	04/24/2025 16:59	WG2498825
Trichlorofluoromethane	ND		1.00	1	04/24/2025 16:59	WG2498825
Vinyl chloride	0.683	J3	0.0500	1	04/24/2025 16:59	WG2498825
Xylenes, Total	ND		2.00	1	04/24/2025 16:59	WG2498825
cis-1,2-Dichloroethene	1.00		0.100	1	04/24/2025 16:59	WG2498825
cis-1,3-Dichloropropene	ND		0.500	1	04/24/2025 16:59	WG2498825
n-Butylbenzene	ND		1.00	1	04/24/2025 16:59	WG2498825
n-Propylbenzene	ND		1.00	1	04/24/2025 16:59	WG2498825
o-Chlorotoluene	ND		1.00	1	04/24/2025 16:59	WG2498825
p-Chlorotoluene	ND		1.00	1	04/24/2025 16:59	WG2498825
p-Isopropyltoluene	ND		1.00	1	04/24/2025 16:59	WG2498825
sec-Butylbenzene	ND		1.00	1	04/24/2025 16:59	WG2498825
tert-Butylbenzene	ND		1.00	1	04/24/2025 16:59	WG2498825
trans-1,2-Dichloroethene	ND		1.00	1	04/24/2025 16:59	WG2498825

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
trans-1,3-Dichloropropene	ND		1.00	1	04/24/2025 16:59	WG2498825
(S) 1,2-Dichloroethane-d4	125			70.0-130	04/24/2025 16:59	WG2498825
(S) 1,2-Dichloroethane-d4	82.4			70.0-130	04/26/2025 10:34	WG2499929
(S) Toluene-d8	100			75.0-131	04/24/2025 16:59	WG2498825
(S) Toluene-d8	112			75.0-131	04/26/2025 10:34	WG2499929
(S) 4-Bromofluorobenzene	97.2			67.0-138	04/24/2025 16:59	WG2498825
(S) 4-Bromofluorobenzene	95.2			67.0-138	04/26/2025 10:34	WG2499929

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4202835-2 04/21/25 10:39

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Alkalinity	ND		2.71	20.0

Sample Narrative:
BLANK: Endpoint pH 4.5

L1848930-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1848930-05 04/21/25 10:55 • (DUP) R4202835-3 04/21/25 11:03

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Alkalinity	288	288	1	0.207		20

Sample Narrative:
OS: Endpoint pH 4.5 Headspace
DUP: Endpoint pH 4.5

L1850150-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1850150-03 04/21/25 14:11 • (DUP) R4202835-4 04/21/25 14:20

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Alkalinity	353	352	1	0.297		20

Sample Narrative:
OS: Endpoint pH 4.5 Headspace
DUP: Endpoint pH 4.5

Laboratory Control Sample (LCS)

(LCS) R4202835-1 04/21/25 10:32

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Alkalinity	100	98.8	98.8	90.0-110	

Sample Narrative:
LCS: Endpoint pH 4.5

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4201978-1 04/17/25 20:20

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Chloride	0.231		0.0519	1.00
Nitrate	ND		0.0227	0.100
Sulfate	0.301		0.0774	5.00

L1848845-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1848845-02 04/17/25 20:45 • (DUP) R4201978-3 04/18/25 03:32

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Chloride	4.25	4.31	1	1.50		15
Nitrate	ND	ND	1	0.000		15
Sulfate	11.3	5.86	1	63.7	P1	15

L1848854-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1848854-01 04/17/25 22:34 • (DUP) R4201978-5 04/18/25 03:59

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Chloride	15.4	15.4	1	0.0234		15
Nitrate	3.02	3.01	1	0.359		15
Sulfate	92.8	92.3	1	0.556		15

Laboratory Control Sample (LCS)

(LCS) R4201978-2 04/17/25 20:32

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Chloride	40.0	38.3	95.8	90.0-110	
Nitrate	8.00	7.56	94.5	90.0-110	
Sulfate	40.0	37.9	94.7	90.0-110	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1848845-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1848845-02 04/17/25 20:45 • (MS) R4201978-4 04/18/25 03:46

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	40.0	4.25	42.5	95.7	1	90.0-110	
Nitrate	8.00	ND	7.53	94.1	1	90.0-110	
Sulfate	40.0	11.3	42.8	78.8	1	90.0-110	J6

L1848854-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1848854-01 04/17/25 22:34 • (MS) R4201978-6 04/18/25 04:13 • (MSD) R4201978-7 04/18/25 04:26

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	40.0	15.4	55.1	53.9	99.3	96.2	1	90.0-110			2.29	15
Nitrate	8.00	3.02	11.1	10.8	101	97.5	1	90.0-110	E	E	2.34	15
Sulfate	40.0	92.8	118	118	62.1	63.1	1	90.0-110	E J6	E J6	0.341	15

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4205831-1 04/27/25 00:14

	MB Result	<u>MB Qualifier</u>	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Nitrate-Nitrite	ND		0.0197	0.100

Laboratory Control Sample (LCS)

(LCS) R4205831-2 04/27/25 00:15

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	mg/l	mg/l	%	%	
Nitrate-Nitrite	2.50	2.52	101	90.0-110	

L1848713-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1848713-03 04/27/25 00:24 • (MS) R4205831-3 04/27/25 00:29 • (MSD) R4205831-4 04/27/25 00:30

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Nitrate-Nitrite	2.50	ND	2.60	2.58	102	101	1	90.0-110			0.772	20

L1848713-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1848713-04 04/27/25 00:32 • (MS) R4205831-5 04/27/25 00:33 • (MSD) R4205831-6 04/27/25 00:34

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Nitrate-Nitrite	2.50	ND	2.43	2.50	94.6	97.4	1	90.0-110			2.84	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4202706-1 04/21/25 03:09

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Nitrate-Nitrite	0.0200		0.0197	0.100

Laboratory Control Sample (LCS)

(LCS) R4202706-2 04/21/25 03:12

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Nitrate-Nitrite	2.50	2.55	102	90.0-110	

L1848860-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1848860-03 04/21/25 03:14 • (MS) R4202706-3 04/21/25 03:16 • (MSD) R4202706-4 04/21/25 03:19

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Nitrate-Nitrite	2.50	ND	2.60	2.53	104	101	1	90.0-110			2.73	20

L1848860-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1848860-04 04/21/25 03:21 • (MS) R4202706-5 04/21/25 03:23 • (MSD) R4202706-6 04/21/25 03:26

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Nitrate-Nitrite	2.50	ND	2.61	2.66	105	107	1	90.0-110			1.86	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4201911-2 04/18/25 09:06

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
TOC	ND		0.102	1.00

L1848844-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1848844-03 04/18/25 11:25 • (DUP) R4201911-5 04/18/25 11:46

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
TOC	8.32	8.34	1	0.240		20

L1848860-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1848860-03 04/18/25 15:31 • (DUP) R4201911-6 04/18/25 15:51

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
TOC	1.20	1.27	1	5.66		20

Laboratory Control Sample (LCS)

(LCS) R4201911-1 04/18/25 08:48

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
TOC	25.0	24.5	98.0	85.0-115	

L1848844-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1848844-02 04/18/25 10:14 • (MS) R4201911-3 04/18/25 10:39 • (MSD) R4201911-4 04/18/25 11:04

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
TOC	25.0	1.54	25.3	25.6	95.2	96.1	1	85.0-115			0.825	20

L1848948-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1848948-03 04/18/25 17:27 • (MS) R4201911-7 04/18/25 17:54 • (MSD) R4201911-8 04/18/25 18:21

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
TOC	25.0	6.83	29.4	29.7	90.2	91.6	1	85.0-115			1.15	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4203276-2 04/22/25 09:12

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Ethane	ND		0.000296	0.00129
Ethene	ND		0.000422	0.00127
Methane	ND		0.000287	0.000678

L1848854-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1848854-03 04/22/25 10:22 • (DUP) R4203276-3 04/22/25 11:50

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ethane	ND	ND	1	0.000		20
Ethene	ND	ND	1	0.000		20
Methane	ND	ND	1	0.000		20

L1849211-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1849211-01 04/22/25 12:30 • (DUP) R4203276-4 04/22/25 13:47

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ethane	ND	ND	1	0.000		20
Ethene	ND	ND	1	0.000		20
Methane	ND	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4203276-1 04/22/25 09:04 • (LCSD) R4203276-7 04/22/25 14:38

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethane	0.129	0.122	0.121	94.6	93.8	85.0-115			0.823	20
Ethene	0.127	0.123	0.122	96.9	96.1	85.0-115			0.816	20
Methane	0.0678	0.0654	0.0659	96.5	97.2	85.0-115			0.762	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1849211-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1849211-03 04/22/25 12:43 • (MS) R4203276-5 04/22/25 13:51 • (MSD) R4203276-6 04/22/25 14:01

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Ethane	0.129	ND	0.134	0.133	104	103	1	85.0-115			0.749	20
Ethene	0.127	0.00865	0.140	0.139	103	103	1	85.0-115			0.717	20
Methane	0.0678	0.0376	0.105	0.105	99.4	99.4	1	85.0-115			0.000	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4203333-2 04/22/25 15:10

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Methane	ND		0.000287	0.000678

L1848860-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1848860-02 04/22/25 15:15 • (DUP) R4203333-3 04/22/25 15:29

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Methane	32.3	32.6	10	0.924		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4203333-1 04/22/25 15:05 • (LCSD) R4203333-4 04/22/25 15:34

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Methane	0.0678	0.0676	0.0704	99.7	104	85.0-115			4.06	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4205005-3 04/24/25 10:29

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
1,1,1,2-Tetrachloroethane	ND		0.0379	0.100
1,1,1-Trichloroethane	ND		0.0369	0.100
1,1,2,2-Tetrachloroethane	ND		0.0278	0.100
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0302	0.100
1,1,2-Trichloroethane	ND		0.0239	0.100
1,1-Dichloroethane	ND		0.0196	0.100
1,1-Dichloroethene	ND		0.0242	0.100
1,1-Dichloropropene	ND		0.0324	0.100
1,2,3-Trichlorobenzene	ND		0.293	0.500
1,2,3-Trichloropropane	ND		0.0648	0.500
1,2,4-Trichlorobenzene	ND		0.176	0.500
1,2,4-Trimethylbenzene	ND		0.0632	0.200
1,2-Dibromo-3-Chloropropane	ND		0.156	1.00
1,2-Dibromoethane	ND		0.0259	0.100
1,2-Dichlorobenzene	ND		0.0170	0.200
1,2-Dichloroethane	ND		0.0260	0.100
1,2-Dichloropropane	ND		0.0568	0.200
1,3,5-Trimethylbenzene	ND		0.0800	0.200
1,3-Dichlorobenzene	ND		0.0240	0.200
1,3-Dichloropropane	ND		0.0200	0.200
1,4-Dichlorobenzene	ND		0.0280	0.200
2,2-Dichloropropane	ND		0.0552	0.100
2-Butanone (MEK)	ND		2.54	4.00
4-Methyl-2-pentanone (MIBK)	ND		0.0912	1.00
Acetone	ND		1.46	2.00
Allyl chloride	ND		0.160	1.00
Benzene	ND		0.0187	0.0400
Bromobenzene	ND		0.0360	0.500
Bromochloromethane	ND		0.0226	0.200
Bromodichloromethane	ND		0.0290	0.100
Bromoform	ND		0.0468	0.500
Bromomethane	ND		0.0788	0.500
Carbon tetrachloride	ND		0.0359	0.200
Chlorobenzene	ND		0.00840	0.100
Chloroethane	ND		0.0680	0.200
Chloroform	ND		0.0412	0.100
Chloromethane	ND		0.174	0.500
Dibromochloromethane	ND		0.0245	0.100
Dibromomethane	ND		0.0300	0.200

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4205005-3 04/24/25 10:29

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dichlorodifluoromethane	ND		0.0644	0.200
Dichlorofluoromethane	ND		0.0490	0.100
Ethyl ether	ND		0.0356	0.100
Ethylbenzene	ND		0.0295	0.100
Hexachloro-1,3-butadiene	ND		0.0485	0.250
Isopropylbenzene	ND		0.0170	0.100
Methyl tert-butyl ether	ND		0.0140	0.0400
Methylene Chloride	ND		0.266	1.00
Naphthalene	ND		0.195	0.500
Styrene	ND		0.00916	0.500
Tetrachloroethene	ND		0.0358	0.100
Toluene	ND		0.0520	0.200
Trichloroethene	ND		0.0234	0.0400
Trichlorofluoromethane	ND		0.0331	0.100
Vinyl chloride	ND		0.0462	0.0500
Xylenes, Total	ND		0.0352	0.260
cis-1,2-Dichloroethene	ND		0.0294	0.100
cis-1,3-Dichloropropene	ND		0.0303	0.100
n-Butylbenzene	ND		0.210	0.500
n-Propylbenzene	ND		0.0380	0.200
o-Chlorotoluene	ND		0.0346	0.100
p-Chlorotoluene	ND		0.0180	0.200
p-Isopropyltoluene	ND		0.102	0.200
sec-Butylbenzene	ND		0.115	0.500
tert-Butylbenzene	ND		0.0780	0.200
trans-1,2-Dichloroethene	ND		0.0416	0.200
trans-1,3-Dichloropropene	ND		0.0456	0.200
(S) 1,2-Dichloroethane-d4	94.6			70.0-130
(S) Toluene-d8	104			75.0-131
(S) 4-Bromofluorobenzene	98.4			67.0-138

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4205005-1 04/24/25 09:06 • (LCSD) R4205005-2 04/24/25 09:27

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
1,1,1,2-Tetrachloroethane	5.00	4.96	4.61	99.2	92.2	74.0-129			7.31	20
1,1,1-Trichloroethane	5.00	4.77	4.26	95.4	85.2	69.0-126			11.3	20
1,1,2,2-Tetrachloroethane	5.00	3.49	3.99	69.8	79.8	68.0-128			13.4	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4205005-1 04/24/25 09:06 • (LCSD) R4205005-2 04/24/25 09:27

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
1,1,2-Trichloro-1,2,2-trifluoroethane	5.00	5.45	4.56	109	91.2	61.0-139			17.8	20
1,1,2-Trichloroethane	5.00	5.56	4.96	111	99.2	78.0-123			11.4	20
1,1-Dichloroethane	5.00	4.81	4.35	96.2	87.0	70.0-127			10.0	20
1,1-Dichloroethene	5.00	4.69	3.78	93.8	75.6	65.0-131		J3	21.5	20
1,1-Dichloropropene	5.00	5.59	5.27	112	105	73.0-125			5.89	20
1,2,3-Trichlorobenzene	5.00	5.22	4.89	104	97.8	59.0-139			6.53	20
1,2,3-Trichloropropane	5.00	5.26	5.01	105	100	67.0-129			4.87	20
1,2,4-Trichlorobenzene	5.00	5.55	5.00	111	100	62.0-137			10.4	20
1,2,4-Trimethylbenzene	5.00	5.96	5.28	119	106	70.0-126			12.1	20
1,2-Dibromo-3-Chloropropane	5.00	4.51	3.79	90.2	75.8	59.0-130			17.3	20
1,2-Dibromoethane	5.00	5.46	4.89	109	97.8	74.0-128			11.0	20
1,2-Dichlorobenzene	5.00	5.43	4.85	109	97.0	76.0-124			11.3	20
1,2-Dichloroethane	5.00	4.59	4.01	91.8	80.2	65.0-131			13.5	20
1,2-Dichloropropane	5.00	5.19	4.44	104	88.8	74.0-125			15.6	20
1,3,5-Trimethylbenzene	5.00	5.62	5.08	112	102	73.0-127			10.1	20
1,3-Dichlorobenzene	5.00	5.83	5.17	117	103	76.0-125			12.0	20
1,3-Dichloropropane	5.00	5.64	4.83	113	96.6	80.0-125			15.5	20
1,4-Dichlorobenzene	5.00	5.36	4.93	107	98.6	77.0-121			8.36	20
2,2-Dichloropropane	5.00	2.77	4.18	55.4	83.6	59.0-135	J4	J3	40.6	20
2-Butanone (MEK)	25.0	17.7	16.5	70.8	66.0	30.0-160			7.02	24
4-Methyl-2-pentanone (MIBK)	25.0	21.6	18.2	86.4	72.8	56.0-143			17.1	20
Acetone	25.0	23.9	21.9	95.6	87.6	10.0-160			8.73	31
Allyl chloride	25.0	25.3	24.6	101	98.4	70.0-131			2.81	20
Benzene	5.00	5.56	4.99	111	99.8	70.0-123			10.8	20
Bromobenzene	5.00	5.95	4.99	119	99.8	73.0-121			17.6	20
Bromochloromethane	5.00	5.60	4.97	112	99.4	77.0-128			11.9	20
Bromodichloromethane	5.00	4.87	4.29	97.4	85.8	73.0-121			12.7	20
Bromoform	5.00	4.85	4.26	97.0	85.2	64.0-132			13.0	20
Bromomethane	5.00	4.66	3.54	93.2	70.8	56.0-147		J3	27.3	20
Carbon tetrachloride	5.00	4.70	4.24	94.0	84.8	66.0-128			10.3	20
Chlorobenzene	5.00	5.61	4.76	112	95.2	76.0-128			16.4	20
Chloroethane	5.00	4.61	3.70	92.2	74.0	61.0-134		J3	21.9	20
Chloroform	5.00	6.03	5.05	121	101	72.0-123			17.7	20
Chloromethane	5.00	3.67	2.95	73.4	59.0	51.0-138		J3	21.8	20
Dibromochloromethane	5.00	4.84	4.34	96.8	86.8	74.0-127			10.9	20
Dibromomethane	5.00	5.24	5.02	105	100	75.0-122			4.29	20
Dichlorodifluoromethane	5.00	5.42	3.93	108	78.6	43.0-156		J3	31.9	20
Dichlorofluoromethane	5.00	4.83	3.97	96.6	79.4	65.0-137			19.5	20
Ethyl ether	5.00	4.69	4.01	93.8	80.2	64.0-137			15.6	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4205005-1 04/24/25 09:06 • (LCSD) R4205005-2 04/24/25 09:27

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Ethylbenzene	5.00	5.44	4.79	109	95.8	74.0-126			12.7	20
Hexachloro-1,3-butadiene	5.00	5.77	5.18	115	104	57.0-150			10.8	20
Isopropylbenzene	5.00	5.67	4.41	113	88.2	72.0-127		J3	25.0	20
Methyl tert-butyl ether	5.00	5.35	4.83	107	96.6	66.0-132			10.2	20
Methylene Chloride	5.00	5.79	4.98	116	99.6	68.0-123			15.0	20
Naphthalene	5.00	4.53	4.12	90.6	82.4	59.0-130			9.48	20
Styrene	5.00	5.78	5.02	116	100	72.0-127			14.1	20
Tetrachloroethene	5.00	5.51	4.99	110	99.8	70.0-136			9.90	20
Toluene	5.00	5.73	4.93	115	98.6	75.0-121			15.0	20
Trichloroethene	5.00	6.26	4.77	125	95.4	76.0-126		J3	27.0	20
Trichlorofluoromethane	5.00	4.69	3.95	93.8	79.0	61.0-142			17.1	20
Vinyl chloride	5.00	4.71	3.55	94.2	71.0	63.0-134		J3	28.1	20
Xylenes, Total	15.0	17.6	15.3	117	102	72.0-127			14.0	20
cis-1,2-Dichloroethene	5.00	5.33	4.71	107	94.2	73.0-125			12.4	20
cis-1,3-Dichloropropene	5.00	5.06	4.84	101	96.8	76.0-127			4.44	20
n-Butylbenzene	5.00	5.93	5.47	119	109	68.0-135			8.07	20
n-Propylbenzene	5.00	5.91	5.27	118	105	74.0-126			11.4	20
o-Chlorotoluene	5.00	5.12	4.89	102	97.8	75.0-124			4.60	20
p-Chlorotoluene	5.00	5.97	5.33	119	107	75.0-124			11.3	20
p-Isopropyltoluene	5.00	5.77	5.10	115	102	72.0-133			12.3	20
sec-Butylbenzene	5.00	6.14	5.35	123	107	74.0-130			13.8	20
tert-Butylbenzene	5.00	5.77	5.06	115	101	75.0-127			13.1	20
trans-1,2-Dichloroethene	5.00	5.09	4.36	102	87.2	71.0-125			15.4	20
trans-1,3-Dichloropropene	5.00	5.16	4.98	103	99.6	73.0-127			3.55	20
(S) 1,2-Dichloroethane-d4				89.8	88.0	70.0-130				
(S) Toluene-d8				103	100	75.0-131				
(S) 4-Bromofluorobenzene				97.2	96.8	67.0-138				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4209757-3 04/26/25 08:53

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Tetrahydrofuran	ND		0.141	0.500
(S) 1,2-Dichloroethane-d4	81.9			70.0-130
(S) Toluene-d8	112			75.0-131
(S) 4-Bromofluorobenzene	94.3			67.0-138

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4209757-1 04/26/25 07:33 • (LCSD) R4209757-2 04/26/25 07:53

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Tetrahydrofuran	5.00	3.09	2.58	61.8	51.6	37.0-146			18.0	24
(S) 1,2-Dichloroethane-d4				86.0	85.2	70.0-130				
(S) Toluene-d8				110	111	75.0-131				
(S) 4-Bromofluorobenzene				95.7	96.3	67.0-138				

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

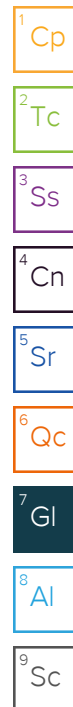
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
C3	The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.



ACCREDITATIONS & LOCATIONS

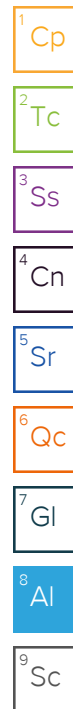
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Company Name/Address: Elk River Landfill 4300 MarketPoint Drive Suite 200 Minneapolis, MN 55435				Billing Information: Accounts Payable / mkostrze@wm.com P.O. Box 4745 Portland, OR 97208-4745				Pres Chk		Analysis / Container / Preservation										Chain of Custody Page <u>1</u> of <u>1</u>			
Report to: Jim Eidem 952-832-2893				Email To: aschneider@barr.com; datamgt@barr.com; jeide																 MT JULIET, TN 12005 Jackson Rd Mount Juliet, TN 37122 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: www.paceintl.com/html/pace-standards-june04.pdf			
Project Description: MNA Parameters				City/State Collected:				Please Circle: PT MT CT ET		NO2, SO4, Cl, Alk 125mlHDPE-H2SO4 NO2NO3 HOLD 250mlHDPE-H2SO4 RSK175LL 40mlAmb-HCl TOC 250mlAmb-HCl V8260ULLC 40mlAmb-HCl V8260ULLC 40mlAmb-HCl-Bik										SOG # <u>U348860</u> A029			
Regulatory Program (DOD, RCRA, DW, etc):				Client Project # 200				Lab Project # WMELKRIVMN-00023														Acctnum: WMELKRIVMN Template T261646	
Collected by (print): 				Site/Facility ID # MN02				P.O. #														Prelogin: P1144758 PH: 364 - T. Alan Harvill PB: <u>4/11/25 BK</u>	
Collected by (signature): 				Rush? (Lab MUST Be Notified) ☐ Same Day ☐ Five Day ☐ Next Day ☐ 5 Day (Rad Only) ☐ Two Day ☐ 10 Day (Rad Only) ☐ Three Day ☐ STD TAT				Quote #														Shipped Via: FedEX Priority	
Immediately Packed on Ice N ☐ Y ☒				Date Results Needed				No. of Cntrs														Remarks: ☐ Sample # (Lab only)	
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time																		
TS		GW				1																	
P-302C	G	GW		4/16/25	1415	9	X	X	X	X	X						-01						
P-304C		GW				9	X	X	X	X	X						-02						
P-313C		GW				9	X	X	X	X	X												
P-331L		GW				9	X	X	X	X	X												
P-329L		GW				9	X	X	X	X	X												
P-325L		GW				9	X	X	X	X	X												
P-325L		GW				9	X	X	X	X	X												
P-334L	G	GW		4/16/25	1115	9	X	X	X	X	X						-03						
P-338L	G	GW		4/16/25	1030	9	X	X	X	X	X						-04						
* Matrix: SS - Soil AIR - Air F - Fiber GW - Groundwater B - Bioassay WW - Waste Water DW - Drinking Water OT - Other				Remarks:				pH _____ Temp _____ Flow _____ Other _____				Sample Receipt Checklist COC Seal Present/Intact: ☒ N COC Signed/Associate: ☒ N Bottles active intact: ☒ N Correct bottles used: ☒ N Sufficient volume sent: ☒ N If Applicable VOA Laro Seal/Sealant: ☒ N Preservation Correct/Checked: ☒ N RAD Screen <0.5 mB/hr: ☒ N											
Samples returned via: UPS ☐ FedEx ☐ Courier				Tracking # <u>443924521461</u>				Trip Blank Received: ☒ Yes / ☐ No TSA				Bottles Received: <u>27</u>				PH - 106040911 ENC - 3227A333							
Relinquished by: (Signature) 				Date: 4/16/25		Time: 1730		Received by: (Signature) FedEx				Date: 4/17/25				Time: 0900		Hold:		Condition: NCF / OK			
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Date:				Time:		Hold:		Condition:			
Relinquished by: (Signature)				Date:		Time:		Received for lab by: (Signature) Deryn				Date: 4/17/25				Time: 0900		Hold:		Condition: NCF / OK			

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID: **L18455100**

Note: For Passive Sampling, replace "Water Td in Casing" and "Well Td in Perpet" w/ "Water Td in Tubing Flow Cell" and "Tubing Flow Cell Td in Perpet". Mark changes, record field data, below.

WELL DATA	Well Elevation (at TOC)	97063 (ft)	Depth to Water (DTW) (from TOC)	2110 (ft)	Groundwater Elevation (site datum, from TOC)	94953 (ft)
	Total Well Depth (from TOC)		Stick Up (from ground elevation)		Casing ID	Casing Material

Well Elevation, DTW, and Groundwater Elevation must be current.

Stabilization Data Fields are Optional (i.e., temporary stabilization readings for parameters required by W.M. X-ray, or State). These fields can be used where four (4) field measurements are required by State Permit/State. If a Data Logger or other Electronic format is used, fill in field readings below and submit electronic data separately to SW. If more fields above are needed, see separate sheet or fill in additional copies of this form.

Final Field Readings are required. I.e. record field measurements, final infiltrated readings, positive sample readings before sampling for all field parameters required by State Permit/SLR.

[illegible]

_____, certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign).

4/16/25
Name: Mike Han
Signature: [Signature]
Company: All in

DISTRIBUTION: WHITE-ORIGINAL - Stays with Sample, YELLOW - Returned to Client

ORIGINAL COPY

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only (Lab ID)
LK48800

Note: For Passive Sampling, replace "Water Val Is Closing" and "Well Val Purged" w/ Water Val Is Taking Flow Cell and Taking Flow Cell Val Purged. Make changes, record field data, below.

Sample Tube Type

[illegible]

Suggested range for 3 years: findings on most Forest State measurements.

Stabilization Data Fields are Optional (i.e. complete stabilization readings for parameters required by WSI Site, or State). These fields can be waived where four (4) field measurements are required by State/Demo Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are provided, use appropriate sheet or sheets.

Final Field Readings are required: *Final* = second field measurements; *Final* = initial readings; *Positive* = sample readings before sampling for all field parameters required by State Permit/DIS.

Sample Appearance: _____ Odor: None Color: None Other: _____
 Weather Conditions (required daily, or as conditions change): _____ Direction/Speed: _____ Outlook: _____ Precipitation: Y or N
 Specific Comments (including purge/well volume calculations if required): _____

FIELD COMMENTS

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

4.11.25
Date

Mike Lister
Name


Signature

All
Company

Copyright © 2011. Returned to Client

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client

ORIGINAL COPY



ANALYTICAL REPORT

May 13, 2025

Revised Report

Elk River Landfill

Sample Delivery Group: L1849382
Samples Received: 04/18/2025
Project Number: 200
Description: MNA Parameters
Site: MN02
Report To: Jim Eidem
4300 MarketPoint Drive Suite 200
Minneapolis, MN 55435

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Entire Report Reviewed By:

T. Alan Harvill
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	6
TB L1849382-01	6
P-342L L1849382-02	8
P-304C L1849382-03	11
P-313C L1849382-04	14
Qc: Quality Control Summary	17
Wet Chemistry by Method 2320 B-2011	17
Wet Chemistry by Method 300.0	18
Wet Chemistry by Method 353.2	20
Wet Chemistry by Method 9060A	22
Volatile Organic Compounds (GC) by Method 3810/RSK175	23
Volatile Organic Compounds (GC/MS) by Method 8260D	25
Gl: Glossary of Terms	30
Al: Accreditations & Locations	31
Sc: Sample Chain of Custody	32

¹ Cp
² Tc
³ Ss
⁴ Cn
⁵ Sr
⁶ Qc
⁷ Gl
⁸ Al
⁹ Sc

SAMPLE SUMMARY

TB L1849382-01

Collected by
Collected date/time
Received date/time

04/17/25 00:00 04/18/25 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2498839	1	04/26/25 01:12	04/26/25 01:12	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2501712	1	04/30/25 05:41	04/30/25 05:41	ADM	Mt. Juliet, TN

P-342L L1849382-02

Collected by
Collected date/time
Received date/time

04/17/25 10:50 04/18/25 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2498394	1	04/23/25 16:55	04/23/25 16:55	BJM	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2493967	1	04/19/25 01:26	04/19/25 01:26	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG2495771	1	04/21/25 04:31	04/21/25 04:31	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9060A	WG2495896	1	04/21/25 21:26	04/21/25 21:26	ASH	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 3810/RSK175	WG2497381	1	04/23/25 18:22	04/23/25 18:22	KHM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2498839	1	04/26/25 05:33	04/26/25 05:33	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2501712	1	04/30/25 06:21	04/30/25 06:21	ADM	Mt. Juliet, TN

P-304C L1849382-03

Collected by
Collected date/time
Received date/time

04/17/25 09:30 04/18/25 08:45

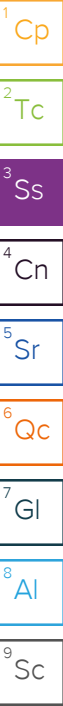
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2498394	1	04/23/25 17:01	04/23/25 17:01	BJM	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2493967	1	04/19/25 01:39	04/19/25 01:39	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG2495773	1	04/21/25 04:50	04/21/25 04:50	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9060A	WG2495896	1	04/21/25 21:46	04/21/25 21:46	ASH	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 3810/RSK175	WG2497381	1	04/23/25 19:43	04/23/25 19:43	KHM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2498839	1	04/26/25 05:53	04/26/25 05:53	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2501712	1	04/30/25 06:41	04/30/25 06:41	ADM	Mt. Juliet, TN

P-313C L1849382-04

Collected by
Collected date/time
Received date/time

04/17/25 08:40 04/18/25 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2498394	1	04/23/25 17:08	04/23/25 17:08	BJM	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2493967	1	04/19/25 01:52	04/19/25 01:52	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG2495773	1	04/21/25 04:57	04/21/25 04:57	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9060A	WG2495896	2	04/21/25 22:05	04/21/25 22:05	ASH	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 3810/RSK175	WG2497381	1	04/23/25 19:47	04/23/25 19:47	KHM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2498839	1	04/26/25 06:13	04/26/25 06:13	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2501712	1	04/30/25 07:01	04/30/25 07:01	ADM	Mt. Juliet, TN



CASE NARRATIVE

Unless qualified or notated within the narrative below, all sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



T. Alan Harvill
Project Manager

Report Revision History

Level II Report - Version 1: 05/01/25 15:51

Project Comments

The requested project specific reporting limits may be less than laboratory standard quantitation limits (PQL) but will be greater than or equal to the laboratory method detection limits (MDL). It is noted that results reported below lab standard quantitation limits (PQLs) may result in false positive/false negative values that may require additional laboratory quality assurance review, if requested. Routine laboratory procedures do not initiate a data review process for detections below the laboratory's PQL unless requested by the client.

The requested project specific reporting limits may be less than laboratory standard quantitation limits (PQL) but will be greater than or equal to the laboratory method detection limits (MDL). It is noted that results reported below lab standard quantitation limits (PQLs) may result in false positive/false negative values that may require additional laboratory quality assurance review, if requested. Routine laboratory procedures do not initiate a data review process for detections below the laboratory's PQL unless requested by the client.

revised to include Field data.

Sample Delivery Group (SDG) Narrative

Analyzed from headspace vial.

Batch	Method	Lab Sample ID
WG2501712	8260D	L1849382-01

Wet Chemistry by Method 300.0

The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).

Batch	Lab Sample ID	Analytes
WG2493967	(MS) R4201985-4	Chloride
WG2493967	(MSD) R4201985-5	Chloride
WG2493967	(MS) R4201985-7	Chloride

The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Batch	Lab Sample ID	Analytes
WG2493967	(MS) R4201985-4, (MSD) R4201985-5	Chloride and Sulfate

The sample concentration is too high to evaluate accurate spike recoveries.

Batch	Lab Sample ID	Analytes
WG2493967	(MS) R4201985-7	Chloride



CASE NARRATIVE

Wet Chemistry by Method 9060A

RPD value not applicable for sample concentrations less than 5 times the reporting limit.

Batch	Lab Sample ID	Analytes
WG2495896	(DUP) R4202983-5	TOC

Volatile Organic Compounds (GC/MS) by Method 8260D

The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.

Batch	Lab Sample ID	Analytes
WG2498839	L1849382-01	1,1-Dichloroethene, 1,2-Dichloroethane, 2-Butanone (MEK), Bromomethane, Chloromethane, Dichlorodifluoromethane, Ethyl ether and Tetrahydrofuran
WG2498839	L1849382-02	1,1-Dichloroethene, 1,2-Dichloroethane, 2-Butanone (MEK), Bromomethane, Chloromethane, Dichlorodifluoromethane, Ethyl ether and Tetrahydrofuran
WG2498839	L1849382-03	1,1-Dichloroethene, 1,2-Dichloroethane, 2-Butanone (MEK), Bromomethane, Chloromethane, Dichlorodifluoromethane, Ethyl ether and Tetrahydrofuran
WG2498839	L1849382-04	1,1-Dichloroethene, 1,2-Dichloroethane, 2-Butanone (MEK), Bromomethane, Chloromethane, Dichlorodifluoromethane, Ethyl ether and Tetrahydrofuran

The associated batch QC was outside the established quality control range for precision.

Batch	Lab Sample ID	Analytes
WG2498839	(LCSD) R4206160-2, L1849382-01, 02, 03, 04	Bromomethane

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/26/2025 01:12	WG2498839
1,1,1-Trichloroethane	ND		1.00	1	04/26/2025 01:12	WG2498839
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/26/2025 01:12	WG2498839
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/26/2025 01:12	WG2498839
1,1,2-Trichloroethane	ND		0.750	1	04/26/2025 01:12	WG2498839
1,1-Dichloroethane	ND		1.00	1	04/26/2025 01:12	WG2498839
1,1-Dichloroethene	ND	C3	1.00	1	04/26/2025 01:12	WG2498839
1,1-Dichloropropene	ND		1.00	1	04/26/2025 01:12	WG2498839
1,2,3-Trichlorobenzene	ND		1.00	1	04/26/2025 01:12	WG2498839
1,2,3-Trichloropropane	ND		1.00	1	04/26/2025 01:12	WG2498839
1,2,4-Trichlorobenzene	ND		1.00	1	04/26/2025 01:12	WG2498839
1,2,4-Trimethylbenzene	ND		1.00	1	04/26/2025 01:12	WG2498839
1,2-Dibromo-3-Chloropropane	ND		1.00	1	04/26/2025 01:12	WG2498839
1,2-Dibromoethane	ND		1.00	1	04/26/2025 01:12	WG2498839
1,2-Dichlorobenzene	ND		1.00	1	04/26/2025 01:12	WG2498839
1,2-Dichloroethane	ND	C3	0.250	1	04/26/2025 01:12	WG2498839
1,2-Dichloropropane	ND		1.00	1	04/26/2025 01:12	WG2498839
1,3,5-Trimethylbenzene	ND		1.00	1	04/26/2025 01:12	WG2498839
1,3-Dichlorobenzene	ND		1.00	1	04/26/2025 01:12	WG2498839
1,3-Dichloropropane	ND		1.00	1	04/26/2025 01:12	WG2498839
1,4-Dichlorobenzene	ND		1.00	1	04/26/2025 01:12	WG2498839
2,2-Dichloropropane	ND		1.00	1	04/26/2025 01:12	WG2498839
2-Butanone (MEK)	ND	C3	10.0	1	04/26/2025 01:12	WG2498839
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/26/2025 01:12	WG2498839
Acetone	ND		10.0	1	04/30/2025 05:41	WG2501712
Allyl chloride	ND		1.00	1	04/26/2025 01:12	WG2498839
Benzene	ND		0.500	1	04/26/2025 01:12	WG2498839
Bromobenzene	ND		1.00	1	04/26/2025 01:12	WG2498839
Bromochloromethane	ND		1.00	1	04/26/2025 01:12	WG2498839
Bromodichloromethane	ND		1.00	1	04/26/2025 01:12	WG2498839
Bromoform	ND		1.00	1	04/26/2025 01:12	WG2498839
Bromomethane	ND	C3 J3	1.00	1	04/26/2025 01:12	WG2498839
Carbon tetrachloride	ND		0.250	1	04/26/2025 01:12	WG2498839
Chlorobenzene	ND		1.00	1	04/26/2025 01:12	WG2498839
Chloroethane	ND		1.00	1	04/26/2025 01:12	WG2498839
Chloroform	ND		1.00	1	04/26/2025 01:12	WG2498839
Chloromethane	ND	C3	1.00	1	04/26/2025 01:12	WG2498839
Dibromochloromethane	ND		1.00	1	04/26/2025 01:12	WG2498839
Dibromomethane	ND		1.00	1	04/26/2025 01:12	WG2498839
Dichlorodifluoromethane	ND	C3	1.00	1	04/26/2025 01:12	WG2498839
Dichlorofluoromethane	ND		1.00	1	04/26/2025 01:12	WG2498839
Ethyl ether	ND	C3	1.00	1	04/26/2025 01:12	WG2498839
Ethylbenzene	ND		1.00	1	04/26/2025 01:12	WG2498839
Hexachloro-1,3-butadiene	ND		0.250	1	04/26/2025 01:12	WG2498839
Isopropylbenzene	ND		1.00	1	04/26/2025 01:12	WG2498839
Methyl tert-butyl ether	ND		1.00	1	04/26/2025 01:12	WG2498839
Methylene Chloride	ND		1.00	1	04/26/2025 01:12	WG2498839
Naphthalene	ND		1.00	1	04/26/2025 01:12	WG2498839
Styrene	ND		1.00	1	04/26/2025 01:12	WG2498839
Tetrachloroethene	ND		1.00	1	04/26/2025 01:12	WG2498839
Tetrahydrofuran	ND	C3	5.00	1	04/26/2025 01:12	WG2498839
Toluene	ND		1.00	1	04/26/2025 01:12	WG2498839
Trichloroethene	ND		0.100	1	04/26/2025 01:12	WG2498839
Trichlorofluoromethane	ND		1.00	1	04/26/2025 01:12	WG2498839
Vinyl chloride	ND		0.0500	1	04/30/2025 05:41	WG2501712

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Xylenes, Total	ND		2.00	1	04/26/2025 01:12	WG2498839
cis-1,2-Dichloroethene	ND		0.100	1	04/26/2025 01:12	WG2498839
cis-1,3-Dichloropropene	ND		0.500	1	04/26/2025 01:12	WG2498839
n-Butylbenzene	ND		1.00	1	04/26/2025 01:12	WG2498839
n-Propylbenzene	ND		1.00	1	04/26/2025 01:12	WG2498839
o-Chlorotoluene	ND		1.00	1	04/26/2025 01:12	WG2498839
p-Chlorotoluene	ND		1.00	1	04/26/2025 01:12	WG2498839
p-Isopropyltoluene	ND		1.00	1	04/26/2025 01:12	WG2498839
sec-Butylbenzene	ND		1.00	1	04/26/2025 01:12	WG2498839
tert-Butylbenzene	ND		1.00	1	04/26/2025 01:12	WG2498839
trans-1,2-Dichloroethene	ND		1.00	1	04/26/2025 01:12	WG2498839
trans-1,3-Dichloropropene	ND		1.00	1	04/26/2025 01:12	WG2498839
(S) 1,2-Dichloroethane-d4	83.8			70.0-130	04/26/2025 01:12	WG2498839
(S) 1,2-Dichloroethane-d4	95.7			70.0-130	04/30/2025 05:41	WG2501712
(S) Toluene-d8	113			75.0-131	04/26/2025 01:12	WG2498839
(S) Toluene-d8	119			75.0-131	04/30/2025 05:41	WG2501712
(S) 4-Bromofluorobenzene	96.8			67.0-138	04/26/2025 01:12	WG2498839
(S) 4-Bromofluorobenzene	94.9			67.0-138	04/30/2025 05:41	WG2501712

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
pH (On Site)	7.68	su
Specific Conductance (on site)	383	umhos/cm
Temperature (on-site)	7.9	Deg. C
Turbidity (on-site)	0.5	NTU
Dissolved Oxygen (on-site)	0	mg/l
eH/ORP (On Site)	-179	mV

Wet Chemistry by Method 2320 B-2011

	Result	Qualifier	RL	Dilution	Analysis	Batch
Analyte	mg/l		mg/l		date / time	
Alkalinity	186		20.0	1	04/23/2025 16:55	WG2498394

Sample Narrative:

L1849382-02 WG2498394: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

	Result	Qualifier	RL	Dilution	Analysis	Batch
Analyte	mg/l		mg/l		date / time	
Chloride	1.70		1.00	1	04/19/2025 01:26	WG2493967
Nitrate	ND		1.00	1	04/19/2025 01:26	WG2493967
Sulfate	12.3		5.00	1	04/19/2025 01:26	WG2493967

Wet Chemistry by Method 353.2

	Result	Qualifier	RL	Dilution	Analysis	Batch
Analyte	mg/l		mg/l		date / time	
Nitrate-Nitrite	ND		0.100	1	04/21/2025 04:31	WG2495771

Wet Chemistry by Method 9060A

	Result	Qualifier	RL	Dilution	Analysis	Batch
Analyte	mg/l		mg/l		date / time	
TOC	1.20		1.00	1	04/21/2025 21:26	WG2495896

Volatile Organic Compounds (GC) by Method 3810/RSK175

	Result	Qualifier	RL	Dilution	Analysis	Batch
Analyte	mg/l		mg/l		date / time	
Ethane	ND		0.00120	1	04/23/2025 18:22	WG2497381
Ethene	ND		0.00120	1	04/23/2025 18:22	WG2497381
Methane	0.0409		0.000678	1	04/23/2025 18:22	WG2497381

Volatile Organic Compounds (GC/MS) by Method 8260D

	Result	Qualifier	RL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/26/2025 05:33	WG2498839
1,1,1-Trichloroethane	ND		1.00	1	04/26/2025 05:33	WG2498839
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/26/2025 05:33	WG2498839
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/26/2025 05:33	WG2498839
1,1,2-Trichloroethane	ND		0.750	1	04/26/2025 05:33	WG2498839
1,1-Dichloroethane	ND		1.00	1	04/26/2025 05:33	WG2498839
1,1-Dichloroethene	ND	C3	1.00	1	04/26/2025 05:33	WG2498839
1,1-Dichloropropene	ND		1.00	1	04/26/2025 05:33	WG2498839
1,2,3-Trichlorobenzene	ND		1.00	1	04/26/2025 05:33	WG2498839
1,2,3-Trichloropropane	ND		1.00	1	04/26/2025 05:33	WG2498839

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

P-342L

SAMPLE RESULTS - 02

Collected date/time: 04/17/25 10:50

L1849382

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,2,4-Trichlorobenzene	ND		1.00	1	04/26/2025 05:33	WG2498839
1,2,4-Trimethylbenzene	ND		1.00	1	04/26/2025 05:33	WG2498839
1,2-Dibromo-3-Chloropropane	ND		1.00	1	04/26/2025 05:33	WG2498839
1,2-Dibromoethane	ND		1.00	1	04/26/2025 05:33	WG2498839
1,2-Dichlorobenzene	ND		1.00	1	04/26/2025 05:33	WG2498839
1,2-Dichloroethane	ND	C3	0.250	1	04/26/2025 05:33	WG2498839
1,2-Dichloropropane	ND		1.00	1	04/26/2025 05:33	WG2498839
1,3,5-Trimethylbenzene	ND		1.00	1	04/26/2025 05:33	WG2498839
1,3-Dichlorobenzene	ND		1.00	1	04/26/2025 05:33	WG2498839
1,3-Dichloropropane	ND		1.00	1	04/26/2025 05:33	WG2498839
1,4-Dichlorobenzene	ND		1.00	1	04/26/2025 05:33	WG2498839
2,2-Dichloropropane	ND		1.00	1	04/26/2025 05:33	WG2498839
2-Butanone (MEK)	ND	C3	10.0	1	04/26/2025 05:33	WG2498839
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/26/2025 05:33	WG2498839
Acetone	ND		10.0	1	04/30/2025 06:21	WG2501712
Allyl chloride	ND		1.00	1	04/26/2025 05:33	WG2498839
Benzene	ND		0.500	1	04/26/2025 05:33	WG2498839
Bromobenzene	ND		1.00	1	04/26/2025 05:33	WG2498839
Bromochloromethane	ND		1.00	1	04/26/2025 05:33	WG2498839
Bromodichloromethane	ND		1.00	1	04/26/2025 05:33	WG2498839
Bromoform	ND		1.00	1	04/26/2025 05:33	WG2498839
Bromomethane	ND	C3 J3	1.00	1	04/26/2025 05:33	WG2498839
Carbon tetrachloride	ND		0.250	1	04/26/2025 05:33	WG2498839
Chlorobenzene	ND		1.00	1	04/26/2025 05:33	WG2498839
Chloroethane	ND		1.00	1	04/26/2025 05:33	WG2498839
Chloroform	ND		1.00	1	04/26/2025 05:33	WG2498839
Chloromethane	ND	C3	1.00	1	04/26/2025 05:33	WG2498839
Dibromochloromethane	ND		1.00	1	04/26/2025 05:33	WG2498839
Dibromomethane	ND		1.00	1	04/26/2025 05:33	WG2498839
Dichlorodifluoromethane	ND	C3	1.00	1	04/26/2025 05:33	WG2498839
Dichlorofluoromethane	ND		1.00	1	04/26/2025 05:33	WG2498839
Ethyl ether	ND	C3	1.00	1	04/26/2025 05:33	WG2498839
Ethylbenzene	ND		1.00	1	04/26/2025 05:33	WG2498839
Hexachloro-1,3-butadiene	ND		0.250	1	04/26/2025 05:33	WG2498839
Isopropylbenzene	ND		1.00	1	04/26/2025 05:33	WG2498839
Methyl tert-butyl ether	ND		1.00	1	04/26/2025 05:33	WG2498839
Methylene Chloride	ND		1.00	1	04/26/2025 05:33	WG2498839
Naphthalene	ND		1.00	1	04/26/2025 05:33	WG2498839
Styrene	ND		1.00	1	04/26/2025 05:33	WG2498839
Tetrachloroethene	ND		1.00	1	04/26/2025 05:33	WG2498839
Tetrahydrofuran	ND	C3	5.00	1	04/26/2025 05:33	WG2498839
Toluene	ND		1.00	1	04/26/2025 05:33	WG2498839
Trichloroethene	ND		0.100	1	04/26/2025 05:33	WG2498839
Trichlorofluoromethane	ND		1.00	1	04/26/2025 05:33	WG2498839
Vinyl chloride	ND		0.0500	1	04/30/2025 06:21	WG2501712
Xylenes, Total	ND		2.00	1	04/26/2025 05:33	WG2498839
cis-1,2-Dichloroethene	ND		0.100	1	04/26/2025 05:33	WG2498839
cis-1,3-Dichloropropene	ND		0.500	1	04/26/2025 05:33	WG2498839
n-Butylbenzene	ND		1.00	1	04/26/2025 05:33	WG2498839
n-Propylbenzene	ND		1.00	1	04/26/2025 05:33	WG2498839
o-Chlorotoluene	ND		1.00	1	04/26/2025 05:33	WG2498839
p-Chlorotoluene	ND		1.00	1	04/26/2025 05:33	WG2498839
p-Isopropyltoluene	ND		1.00	1	04/26/2025 05:33	WG2498839
sec-Butylbenzene	ND		1.00	1	04/26/2025 05:33	WG2498839
tert-Butylbenzene	ND		1.00	1	04/26/2025 05:33	WG2498839
trans-1,2-Dichloroethene	ND		1.00	1	04/26/2025 05:33	WG2498839

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Elk River Landfill

PROJECT:

200

SDG:

L1849382

DATE/TIME:

05/13/25 09:06

PAGE:

9 of 35

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
trans-1,3-Dichloropropene	ND		1.00	1	04/26/2025 05:33	WG2498839
(S) 1,2-Dichloroethane-d4	83.1			70.0-130	04/26/2025 05:33	WG2498839
(S) 1,2-Dichloroethane-d4	96.7			70.0-130	04/30/2025 06:21	WG2501712
(S) Toluene-d8	110			75.0-131	04/26/2025 05:33	WG2498839
(S) Toluene-d8	116			75.0-131	04/30/2025 06:21	WG2501712
(S) 4-Bromofluorobenzene	95.8			67.0-138	04/26/2025 05:33	WG2498839
(S) 4-Bromofluorobenzene	87.2			67.0-138	04/30/2025 06:21	WG2501712

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
pH (On Site)	6.89	su
Specific Conductance (on site)	1133	umhos/cm
Temperature (on-site)	10.6	Deg. C
Turbidity (on-site)	26	NTU
Dissolved Oxygen (on-site)	0	mg/l
eH/ORP (On Site)	-124	mV

Wet Chemistry by Method 2320 B-2011

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Alkalinity	556		20.0	1	04/23/2025 17:01	WG2498394

Sample Narrative:

L1849382-03 WG2498394: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Chloride	26.6		1.00	1	04/19/2025 01:39	WG2493967
Nitrate	ND		1.00	1	04/19/2025 01:39	WG2493967
Sulfate	29.5		5.00	1	04/19/2025 01:39	WG2493967

Wet Chemistry by Method 353.2

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Nitrate-Nitrite	ND		0.100	1	04/21/2025 04:50	WG2495773

Wet Chemistry by Method 9060A

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
TOC	6.11		1.00	1	04/21/2025 21:46	WG2495896

Volatile Organic Compounds (GC) by Method 3810/RSK175

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Ethane	ND		0.00120	1	04/23/2025 19:43	WG2497381
Ethene	ND		0.00120	1	04/23/2025 19:43	WG2497381
Methane	0.0871		0.000678	1	04/23/2025 19:43	WG2497381

Volatile Organic Compounds (GC/MS) by Method 8260D

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/26/2025 05:53	WG2498839
1,1,1-Trichloroethane	ND		1.00	1	04/26/2025 05:53	WG2498839
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/26/2025 05:53	WG2498839
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/26/2025 05:53	WG2498839
1,1,2-Trichloroethane	ND		0.750	1	04/26/2025 05:53	WG2498839
1,1-Dichloroethane	ND		1.00	1	04/26/2025 05:53	WG2498839
1,1-Dichloroethene	ND	C3	1.00	1	04/26/2025 05:53	WG2498839
1,1-Dichloropropene	ND		1.00	1	04/26/2025 05:53	WG2498839
1,2,3-Trichlorobenzene	ND		1.00	1	04/26/2025 05:53	WG2498839
1,2,3-Trichloropropane	ND		1.00	1	04/26/2025 05:53	WG2498839

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,2,4-Trichlorobenzene	ND		1.00	1	04/26/2025 05:53	WG2498839
1,2,4-Trimethylbenzene	ND		1.00	1	04/26/2025 05:53	WG2498839
1,2-Dibromo-3-Chloropropane	ND		1.00	1	04/26/2025 05:53	WG2498839
1,2-Dibromoethane	ND		1.00	1	04/26/2025 05:53	WG2498839
1,2-Dichlorobenzene	ND		1.00	1	04/26/2025 05:53	WG2498839
1,2-Dichloroethane	ND	C3	0.250	1	04/26/2025 05:53	WG2498839
1,2-Dichloropropane	ND		1.00	1	04/26/2025 05:53	WG2498839
1,3,5-Trimethylbenzene	ND		1.00	1	04/26/2025 05:53	WG2498839
1,3-Dichlorobenzene	ND		1.00	1	04/26/2025 05:53	WG2498839
1,3-Dichloropropane	ND		1.00	1	04/26/2025 05:53	WG2498839
1,4-Dichlorobenzene	ND		1.00	1	04/26/2025 05:53	WG2498839
2,2-Dichloropropane	ND		1.00	1	04/26/2025 05:53	WG2498839
2-Butanone (MEK)	ND	C3	10.0	1	04/26/2025 05:53	WG2498839
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/26/2025 05:53	WG2498839
Acetone	ND		10.0	1	04/30/2025 06:41	WG2501712
Allyl chloride	ND		1.00	1	04/26/2025 05:53	WG2498839
Benzene	ND		0.500	1	04/26/2025 05:53	WG2498839
Bromobenzene	ND		1.00	1	04/26/2025 05:53	WG2498839
Bromochloromethane	ND		1.00	1	04/26/2025 05:53	WG2498839
Bromodichloromethane	ND		1.00	1	04/26/2025 05:53	WG2498839
Bromoform	ND		1.00	1	04/26/2025 05:53	WG2498839
Bromomethane	ND	C3 J3	1.00	1	04/26/2025 05:53	WG2498839
Carbon tetrachloride	ND		0.250	1	04/26/2025 05:53	WG2498839
Chlorobenzene	ND		1.00	1	04/26/2025 05:53	WG2498839
Chloroethane	ND		1.00	1	04/26/2025 05:53	WG2498839
Chloroform	ND		1.00	1	04/26/2025 05:53	WG2498839
Chloromethane	ND	C3	1.00	1	04/26/2025 05:53	WG2498839
Dibromochloromethane	ND		1.00	1	04/26/2025 05:53	WG2498839
Dibromomethane	ND		1.00	1	04/26/2025 05:53	WG2498839
Dichlorodifluoromethane	ND	C3	1.00	1	04/26/2025 05:53	WG2498839
Dichlorofluoromethane	ND		1.00	1	04/26/2025 05:53	WG2498839
Ethyl ether	4.86	C3	1.00	1	04/26/2025 05:53	WG2498839
Ethylbenzene	ND		1.00	1	04/26/2025 05:53	WG2498839
Hexachloro-1,3-butadiene	ND		0.250	1	04/26/2025 05:53	WG2498839
Isopropylbenzene	ND		1.00	1	04/26/2025 05:53	WG2498839
Methyl tert-butyl ether	ND		1.00	1	04/26/2025 05:53	WG2498839
Methylene Chloride	ND		1.00	1	04/26/2025 05:53	WG2498839
Naphthalene	ND		1.00	1	04/26/2025 05:53	WG2498839
Styrene	ND		1.00	1	04/26/2025 05:53	WG2498839
Tetrachloroethene	ND		1.00	1	04/26/2025 05:53	WG2498839
Tetrahydrofuran	ND	C3	5.00	1	04/26/2025 05:53	WG2498839
Toluene	ND		1.00	1	04/26/2025 05:53	WG2498839
Trichloroethene	0.106		0.100	1	04/26/2025 05:53	WG2498839
Trichlorofluoromethane	ND		1.00	1	04/26/2025 05:53	WG2498839
Vinyl chloride	ND		0.0500	1	04/30/2025 06:41	WG2501712
Xylenes, Total	ND		2.00	1	04/26/2025 05:53	WG2498839
cis-1,2-Dichloroethene	0.286		0.100	1	04/26/2025 05:53	WG2498839
cis-1,3-Dichloropropene	ND		0.500	1	04/26/2025 05:53	WG2498839
n-Butylbenzene	ND		1.00	1	04/26/2025 05:53	WG2498839
n-Propylbenzene	ND		1.00	1	04/26/2025 05:53	WG2498839
o-Chlorotoluene	ND		1.00	1	04/26/2025 05:53	WG2498839
p-Chlorotoluene	ND		1.00	1	04/26/2025 05:53	WG2498839
p-Isopropyltoluene	ND		1.00	1	04/26/2025 05:53	WG2498839
sec-Butylbenzene	ND		1.00	1	04/26/2025 05:53	WG2498839
tert-Butylbenzene	ND		1.00	1	04/26/2025 05:53	WG2498839
trans-1,2-Dichloroethene	ND		1.00	1	04/26/2025 05:53	WG2498839

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
trans-1,3-Dichloropropene	ND		1.00	1	04/26/2025 05:53	WG2498839
(S) 1,2-Dichloroethane-d4	83.4			70.0-130	04/26/2025 05:53	WG2498839
(S) 1,2-Dichloroethane-d4	95.3			70.0-130	04/30/2025 06:41	WG2501712
(S) Toluene-d8	111			75.0-131	04/26/2025 05:53	WG2498839
(S) Toluene-d8	119			75.0-131	04/30/2025 06:41	WG2501712
(S) 4-Bromofluorobenzene	96.0			67.0-138	04/26/2025 05:53	WG2498839
(S) 4-Bromofluorobenzene	89.3			67.0-138	04/30/2025 06:41	WG2501712

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
pH (On Site)	6.95	su
Specific Conductance (on site)	1315	umhos/cm
Temperature (on-site)	9	Deg. C
Turbidity (on-site)	5	NTU
Dissolved Oxygen (on-site)	0	mg/l
eH/ORP (On Site)	-117	mV

Wet Chemistry by Method 2320 B-2011

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Alkalinity	544		20.0	1	04/23/2025 17:08	WG2498394

Sample Narrative:

L1849382-04 WG2498394: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Chloride	82.8		1.00	1	04/19/2025 01:52	WG2493967
Nitrate	ND		1.00	1	04/19/2025 01:52	WG2493967
Sulfate	19.5		5.00	1	04/19/2025 01:52	WG2493967

Wet Chemistry by Method 353.2

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Nitrate-Nitrite	ND		0.100	1	04/21/2025 04:57	WG2495773

Wet Chemistry by Method 9060A

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
TOC	4.47		1.00	2	04/21/2025 22:05	WG2495896

Volatile Organic Compounds (GC) by Method 3810/RSK175

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
Ethane	ND		0.00120	1	04/23/2025 19:47	WG2497381
Ethene	ND		0.00120	1	04/23/2025 19:47	WG2497381
Methane	0.374		0.000678	1	04/23/2025 19:47	WG2497381

Volatile Organic Compounds (GC/MS) by Method 8260D

	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
Analyte						
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/26/2025 06:13	WG2498839
1,1,1-Trichloroethane	ND		1.00	1	04/26/2025 06:13	WG2498839
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/26/2025 06:13	WG2498839
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/26/2025 06:13	WG2498839
1,1,2-Trichloroethane	ND		0.750	1	04/26/2025 06:13	WG2498839
1,1-Dichloroethane	2.62		1.00	1	04/26/2025 06:13	WG2498839
1,1-Dichloroethene	ND	C3	1.00	1	04/26/2025 06:13	WG2498839
1,1-Dichloropropene	ND		1.00	1	04/26/2025 06:13	WG2498839
1,2,3-Trichlorobenzene	ND		1.00	1	04/26/2025 06:13	WG2498839
1,2,3-Trichloropropane	ND		1.00	1	04/26/2025 06:13	WG2498839

1	Cp
2	Tc
3	Ss
4	Cn
5	Sr
6	Qc
7	Gl
8	Al
9	Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,2,4-Trichlorobenzene	ND		1.00	1	04/26/2025 06:13	WG2498839
1,2,4-Trimethylbenzene	ND		1.00	1	04/26/2025 06:13	WG2498839
1,2-Dibromo-3-Chloropropane	ND		1.00	1	04/26/2025 06:13	WG2498839
1,2-Dibromoethane	ND		1.00	1	04/26/2025 06:13	WG2498839
1,2-Dichlorobenzene	ND		1.00	1	04/26/2025 06:13	WG2498839
1,2-Dichloroethane	ND	C3	0.250	1	04/26/2025 06:13	WG2498839
1,2-Dichloropropane	ND		1.00	1	04/26/2025 06:13	WG2498839
1,3,5-Trimethylbenzene	ND		1.00	1	04/26/2025 06:13	WG2498839
1,3-Dichlorobenzene	ND		1.00	1	04/26/2025 06:13	WG2498839
1,3-Dichloropropane	ND		1.00	1	04/26/2025 06:13	WG2498839
1,4-Dichlorobenzene	ND		1.00	1	04/26/2025 06:13	WG2498839
2,2-Dichloropropane	ND		1.00	1	04/26/2025 06:13	WG2498839
2-Butanone (MEK)	ND	C3	10.0	1	04/26/2025 06:13	WG2498839
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/26/2025 06:13	WG2498839
Acetone	ND		10.0	1	04/30/2025 07:01	WG2501712
Allyl chloride	ND		1.00	1	04/26/2025 06:13	WG2498839
Benzene	ND		0.500	1	04/26/2025 06:13	WG2498839
Bromobenzene	ND		1.00	1	04/26/2025 06:13	WG2498839
Bromochloromethane	ND		1.00	1	04/26/2025 06:13	WG2498839
Bromodichloromethane	ND		1.00	1	04/26/2025 06:13	WG2498839
Bromoform	ND		1.00	1	04/26/2025 06:13	WG2498839
Bromomethane	ND	C3 J3	1.00	1	04/26/2025 06:13	WG2498839
Carbon tetrachloride	ND		0.250	1	04/26/2025 06:13	WG2498839
Chlorobenzene	ND		1.00	1	04/26/2025 06:13	WG2498839
Chloroethane	ND		1.00	1	04/26/2025 06:13	WG2498839
Chloroform	ND		1.00	1	04/26/2025 06:13	WG2498839
Chloromethane	ND	C3	1.00	1	04/26/2025 06:13	WG2498839
Dibromochloromethane	ND		1.00	1	04/26/2025 06:13	WG2498839
Dibromomethane	ND		1.00	1	04/26/2025 06:13	WG2498839
Dichlorodifluoromethane	ND	C3	1.00	1	04/26/2025 06:13	WG2498839
Dichlorofluoromethane	2.70		1.00	1	04/26/2025 06:13	WG2498839
Ethyl ether	10.2	C3	1.00	1	04/26/2025 06:13	WG2498839
Ethylbenzene	ND		1.00	1	04/26/2025 06:13	WG2498839
Hexachloro-1,3-butadiene	ND		0.250	1	04/26/2025 06:13	WG2498839
Isopropylbenzene	ND		1.00	1	04/26/2025 06:13	WG2498839
Methyl tert-butyl ether	ND		1.00	1	04/26/2025 06:13	WG2498839
Methylene Chloride	ND		1.00	1	04/26/2025 06:13	WG2498839
Naphthalene	ND		1.00	1	04/26/2025 06:13	WG2498839
Styrene	ND		1.00	1	04/26/2025 06:13	WG2498839
Tetrachloroethene	ND		1.00	1	04/26/2025 06:13	WG2498839
Tetrahydrofuran	ND	C3	5.00	1	04/26/2025 06:13	WG2498839
Toluene	ND		1.00	1	04/26/2025 06:13	WG2498839
Trichloroethene	0.106		0.100	1	04/26/2025 06:13	WG2498839
Trichlorofluoromethane	ND		1.00	1	04/26/2025 06:13	WG2498839
Vinyl chloride	ND		0.0500	1	04/30/2025 07:01	WG2501712
Xylenes, Total	ND		2.00	1	04/26/2025 06:13	WG2498839
cis-1,2-Dichloroethene	0.400		0.100	1	04/26/2025 06:13	WG2498839
cis-1,3-Dichloropropene	ND		0.500	1	04/26/2025 06:13	WG2498839
n-Butylbenzene	ND		1.00	1	04/26/2025 06:13	WG2498839
n-Propylbenzene	ND		1.00	1	04/26/2025 06:13	WG2498839
o-Chlorotoluene	ND		1.00	1	04/26/2025 06:13	WG2498839
p-Chlorotoluene	ND		1.00	1	04/26/2025 06:13	WG2498839
p-Isopropyltoluene	ND		1.00	1	04/26/2025 06:13	WG2498839
sec-Butylbenzene	ND		1.00	1	04/26/2025 06:13	WG2498839
tert-Butylbenzene	ND		1.00	1	04/26/2025 06:13	WG2498839
trans-1,2-Dichloroethene	ND		1.00	1	04/26/2025 06:13	WG2498839

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
trans-1,3-Dichloropropene	ND		1.00	1	04/26/2025 06:13	WG2498839
(S) 1,2-Dichloroethane-d4	85.2			70.0-130	04/26/2025 06:13	WG2498839
(S) 1,2-Dichloroethane-d4	96.4			70.0-130	04/30/2025 07:01	WG2501712
(S) Toluene-d8	111			75.0-131	04/26/2025 06:13	WG2498839
(S) Toluene-d8	124			75.0-131	04/30/2025 07:01	WG2501712
(S) 4-Bromofluorobenzene	96.3			67.0-138	04/26/2025 06:13	WG2498839
(S) 4-Bromofluorobenzene	90.4			67.0-138	04/30/2025 07:01	WG2501712

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4204185-2 04/23/25 16:34

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Alkalinity	ND		2.71	20.0

Sample Narrative:
BLANK: Endpoint pH 4.5

L1850830-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1850830-01 04/23/25 16:43 • (DUP) R4204185-3 04/23/25 16:49

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Alkalinity	471	473	1	0.244		20

Sample Narrative:
OS: Endpoint pH 4.5 Headspace
DUP: Endpoint pH 4.5

L1850867-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1850867-09 04/23/25 18:58 • (DUP) R4204185-4 04/23/25 19:03

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Alkalinity	238	249	1	4.40		20

Sample Narrative:
OS: Endpoint pH 4.5 Headspace
DUP: Endpoint pH 4.5

Laboratory Control Sample (LCS)

(LCS) R4204185-1 04/23/25 16:27

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Alkalinity	100	99.0	99.0	90.0-110	

Sample Narrative:
LCS: Endpoint pH 4.5

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4201985-1 04/18/25 18:36

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Chloride	0.0523		0.0519	1.00
Nitrate	ND		0.0227	0.100
Sulfate	0.0778		0.0774	5.00

L1849327-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1849327-06 04/18/25 20:44 • (DUP) R4201985-3 04/18/25 20:57

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	ND	ND	1	7.58		15
Sulfate	18.8	18.5	1	1.40		15

L1849327-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1849327-08 04/18/25 22:26 • (DUP) R4201985-6 04/18/25 22:39

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	ND	ND	1	0.000		15
Sulfate	ND	ND	1	9.16		15

Laboratory Control Sample (LCS)

(LCS) R4201985-2 04/18/25 18:49

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Chloride	40.0	39.9	99.8	90.0-110	
Nitrate	8.00	7.84	98.1	90.0-110	
Sulfate	40.0	40.3	101	90.0-110	

L1849327-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1849327-06 04/18/25 20:44 • (MS) R4201985-4 04/18/25 21:10 • (MSD) R4201985-5 04/18/25 21:22

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Chloride	40.0	120	130	128	24.4	20.1	1	90.0-110	E J6	E J6	1.33	15
Nitrate	8.00	ND	7.83	7.74	93.3	92.1	1	90.0-110			1.18	15
Sulfate	40.0	18.8	53.4	52.8	86.6	85.0	1	90.0-110	J6	J6	1.20	15

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1849327-08 Original Sample (OS) • Matrix Spike (MS)

(OS) L1849327-08 04/18/25 22:26 • (MS) R4201985-7 04/18/25 22:52

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Chloride	40.0	841	674	0.000	1	90.0-110	<u>EV</u>
Nitrate	8.00	ND	7.48	93.5	1	90.0-110	
Sulfate	40.0	ND	39.3	94.7	1	90.0-110	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4202706-1 04/21/25 03:09

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Nitrate-Nitrite	0.0200		0.0197	0.100

Laboratory Control Sample (LCS)

(LCS) R4202706-2 04/21/25 03:12

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Nitrate-Nitrite	2.50	2.55	102	90.0-110	

L1848860-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1848860-03 04/21/25 03:14 • (MS) R4202706-3 04/21/25 03:16 • (MSD) R4202706-4 04/21/25 03:19

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Nitrate-Nitrite	2.50	ND	2.60	2.53	104	101	1	90.0-110			2.73	20

L1848860-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1848860-04 04/21/25 03:21 • (MS) R4202706-5 04/21/25 03:23 • (MSD) R4202706-6 04/21/25 03:26

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Nitrate-Nitrite	2.50	ND	2.61	2.66	105	107	1	90.0-110			1.86	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4202703-1 04/21/25 04:45

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Nitrate-Nitrite	0.0230		0.0197	0.100

Laboratory Control Sample (LCS)

(LCS) R4202703-2 04/21/25 04:47

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Nitrate-Nitrite	2.50	2.56	102	90.0-110	

L1849382-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1849382-03 04/21/25 04:50 • (MS) R4202703-3 04/21/25 04:52 • (MSD) R4202703-4 04/21/25 04:54

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Nitrate-Nitrite	2.50	ND	2.67	2.62	107	105	1	90.0-110			1.66	20

L1849382-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1849382-04 04/21/25 04:57 • (MS) R4202703-5 04/21/25 04:59 • (MSD) R4202703-6 04/21/25 05:01

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Nitrate-Nitrite	2.50	ND	2.67	2.67	105	105	1	90.0-110			0.0374	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4202983-2 04/21/25 11:53

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
TOC	0.141		0.102	1.00

L1849363-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1849363-02 04/21/25 15:54 • (DUP) R4202983-5 04/21/25 16:13

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
TOC	ND	ND	1	30.3	P1	20

L1849367-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1849367-01 04/21/25 20:35 • (DUP) R4202983-8 04/21/25 20:52

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
TOC	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R4202983-1 04/21/25 11:36

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
TOC	25.0	25.7	103	85.0-115	

L1849366-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1849366-03 04/21/25 19:35 • (MS) R4202983-6 04/21/25 19:56 • (MSD) R4202983-7 04/21/25 20:18

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
TOC	25.0	2.75	28.6	28.6	103	103	1	85.0-115			0.140	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4204211-2 04/23/25 17:09

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Ethane	ND		0.000296	0.00129
Ethene	ND		0.000422	0.00127
Methane	ND		0.000287	0.000678

L1849314-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1849314-03 04/23/25 17:16 • (DUP) R4204211-3 04/23/25 18:13

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ethane	ND	ND	1	0.000		20
Ethene	ND	ND	1	0.000		20
Methane	ND	ND	1	0.000		20

L1849420-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1849420-04 04/23/25 21:23 • (DUP) R4204211-4 04/23/25 23:10

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ethane	ND	ND	1	0.000		20
Ethene	ND	ND	1	0.000		20
Methane	ND	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4204211-1 04/23/25 17:05 • (LCSD) R4204211-9 04/24/25 00:10

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethane	0.129	0.121	0.119	93.8	92.2	85.0-115			1.67	20
Ethene	0.127	0.121	0.120	95.3	94.5	85.0-115			0.830	20
Methane	0.0678	0.0713	0.0708	105	104	85.0-115			0.704	20

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

L1849322-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1849322-01 04/23/25 17:23 • (MS) R4204211-5 04/23/25 23:22 • (MSD) R4204211-6 04/23/25 23:38

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Ethane	0.129	ND	0.125	0.123	96.9	95.3	1	85.0-115			1.61	20
Ethene	0.127	ND	0.124	0.122	97.6	96.1	1	85.0-115			1.63	20
Methane	0.0678	0.0202	0.0885	0.0866	101	97.9	1	85.0-115			2.17	20

L1849346-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1849346-12 04/23/25 18:01 • (MS) R4204211-7 04/23/25 23:47 • (MSD) R4204211-8 04/24/25 00:05

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Ethane	0.129	ND	0.126	0.125	97.7	96.9	1	85.0-115			0.797	20
Ethene	0.127	ND	0.125	0.123	98.4	96.9	1	85.0-115			1.61	20
Methane	0.0678	ND	0.0754	0.0748	111	110	1	85.0-115			0.799	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4206160-3 04/26/25 00:12

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
1,1,1,2-Tetrachloroethane	ND		0.0379	0.100
1,1,1-Trichloroethane	ND		0.0369	0.100
1,1,2,2-Tetrachloroethane	ND		0.0278	0.100
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0302	0.100
1,1,2-Trichloroethane	ND		0.0239	0.100
1,1-Dichloroethane	ND		0.0196	0.100
1,1-Dichloroethene	ND		0.0242	0.100
1,1-Dichloropropene	ND		0.0324	0.100
1,2,3-Trichlorobenzene	ND		0.293	0.500
1,2,3-Trichloropropane	ND		0.0648	0.500
1,2,4-Trichlorobenzene	ND		0.176	0.500
1,2,4-Trimethylbenzene	ND		0.0632	0.200
1,2-Dibromo-3-Chloropropane	ND		0.156	1.00
1,2-Dibromoethane	ND		0.0259	0.100
1,2-Dichlorobenzene	ND		0.0170	0.200
1,2-Dichloroethane	ND		0.0260	0.100
1,2-Dichloropropane	ND		0.0568	0.200
1,3,5-Trimethylbenzene	ND		0.0800	0.200
1,3-Dichlorobenzene	ND		0.0240	0.200
1,3-Dichloropropane	ND		0.0200	0.200
1,4-Dichlorobenzene	ND		0.0280	0.200
2,2-Dichloropropane	ND		0.0552	0.100
2-Butanone (MEK)	ND		2.54	4.00
4-Methyl-2-pentanone (MIBK)	ND		0.0912	1.00
Allyl chloride	ND		0.160	1.00
Benzene	ND		0.0187	0.0400
Bromobenzene	ND		0.0360	0.500
Bromochloromethane	ND		0.0226	0.200
Bromodichloromethane	ND		0.0290	0.100
Bromoform	ND		0.0468	0.500
Bromomethane	ND		0.0788	0.500
Carbon tetrachloride	ND		0.0359	0.200
Chlorobenzene	ND		0.00840	0.100
Chloroethane	ND		0.0680	0.200
Chloroform	ND		0.0412	0.100
Chloromethane	ND		0.174	0.500
Dibromochloromethane	ND		0.0245	0.100
Dibromomethane	ND		0.0300	0.200
Dichlorodifluoromethane	ND		0.0644	0.200

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4206160-3 04/26/25 00:12

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dichlorofluoromethane	ND		0.0490	0.100
Ethyl ether	ND		0.0356	0.100
Ethylbenzene	ND		0.0295	0.100
Hexachloro-1,3-butadiene	ND		0.0485	0.250
Isopropylbenzene	ND		0.0170	0.100
Methyl tert-butyl ether	ND		0.0140	0.0400
Methylene Chloride	ND		0.266	1.00
Naphthalene	ND		0.195	0.500
Styrene	ND		0.00916	0.500
Tetrachloroethene	ND		0.0358	0.100
Tetrahydrofuran	ND		0.141	0.500
Toluene	ND		0.0520	0.200
Trichloroethene	ND		0.0234	0.0400
Trichlorofluoromethane	ND		0.0331	0.100
Xylenes, Total	ND		0.0352	0.260
cis-1,2-Dichloroethene	ND		0.0294	0.100
cis-1,3-Dichloropropene	ND		0.0303	0.100
n-Butylbenzene	ND		0.210	0.500
n-Propylbenzene	ND		0.0380	0.200
o-Chlorotoluene	ND		0.0346	0.100
p-Chlorotoluene	ND		0.0180	0.200
p-Isopropyltoluene	ND		0.102	0.200
sec-Butylbenzene	ND		0.115	0.500
tert-Butylbenzene	ND		0.0780	0.200
trans-1,2-Dichloroethene	ND		0.0416	0.200
trans-1,3-Dichloropropene	ND		0.0456	0.200
(S) 1,2-Dichloroethane-d4	84.0			70.0-130
(S) Toluene-d8	111			75.0-131
(S) 4-Bromofluorobenzene	97.2			67.0-138

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4206160-1 04/25/25 22:32 • (LCSD) R4206160-2 04/25/25 22:52

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
1,1,1,2-Tetrachloroethane	5.00	4.99	5.10	99.8	102	74.0-129			2.18	20
1,1,1-Trichloroethane	5.00	4.14	4.17	82.8	83.4	69.0-126			0.722	20
1,1,2,2-Tetrachloroethane	5.00	4.60	4.65	92.0	93.0	68.0-128			1.08	20
1,1,2-Trichloro-1,2,2-trifluoroethane	5.00	4.46	4.55	89.2	91.0	61.0-139			2.00	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4206160-1 04/25/25 22:32 • (LCSD) R4206160-2 04/25/25 22:52

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
1,1,2-Trichloroethane	5.00	5.35	5.35	107	107	78.0-123			0.000	20
1,1-Dichloroethane	5.00	4.04	3.99	80.8	79.8	70.0-127			1.25	20
1,1-Dichloroethene	5.00	3.95	3.81	79.0	76.2	65.0-131			3.61	20
1,1-Dichloropropene	5.00	4.53	4.48	90.6	89.6	73.0-125			1.11	20
1,2,3-Trichlorobenzene	5.00	5.00	5.15	100	103	59.0-139			2.96	20
1,2,3-Trichloropropane	5.00	5.35	5.29	107	106	67.0-129			1.13	20
1,2,4-Trichlorobenzene	5.00	5.15	5.26	103	105	62.0-137			2.11	20
1,2,4-Trimethylbenzene	5.00	5.41	5.37	108	107	70.0-126			0.742	20
1,2-Dibromo-3-Chloropropane	5.00	4.22	4.26	84.4	85.2	59.0-130			0.943	20
1,2-Dibromoethane	5.00	5.26	5.34	105	107	74.0-128			1.51	20
1,2-Dichlorobenzene	5.00	5.51	5.39	110	108	76.0-124			2.20	20
1,2-Dichloroethane	5.00	3.64	3.73	72.8	74.6	65.0-131			2.44	20
1,2-Dichloropropane	5.00	4.01	4.01	80.2	80.2	74.0-125			0.000	20
1,3,5-Trimethylbenzene	5.00	5.24	5.24	105	105	73.0-127			0.000	20
1,3-Dichlorobenzene	5.00	5.73	5.81	115	116	76.0-125			1.39	20
1,3-Dichloropropane	5.00	5.24	5.30	105	106	80.0-125			1.14	20
1,4-Dichlorobenzene	5.00	5.65	5.64	113	113	77.0-121			0.177	20
2,2-Dichloropropane	5.00	4.00	4.05	80.0	81.0	59.0-135			1.24	20
2-Butanone (MEK)	25.0	15.8	15.7	63.2	62.8	30.0-160			0.635	24
4-Methyl-2-pentanone (MIBK)	25.0	21.0	21.3	84.0	85.2	56.0-143			1.42	20
Allyl chloride	25.0	23.3	23.3	93.2	93.2	70.0-131			0.000	20
Benzene	5.00	4.60	4.55	92.0	91.0	70.0-123			1.09	20
Bromobenzene	5.00	5.45	5.43	109	109	73.0-121			0.368	20
Bromochloromethane	5.00	5.40	5.38	108	108	77.0-128			0.371	20
Bromodichloromethane	5.00	4.07	4.20	81.4	84.0	73.0-121			3.14	20
Bromoform	5.00	4.28	4.54	85.6	90.8	64.0-132			5.90	20
Bromomethane	5.00	2.92	3.80	58.4	76.0	56.0-147		J3	26.2	20
Carbon tetrachloride	5.00	4.33	4.39	86.6	87.8	66.0-128			1.38	20
Chlorobenzene	5.00	5.66	5.63	113	113	76.0-128			0.531	20
Chloroethane	5.00	4.04	4.14	80.8	82.8	61.0-134			2.44	20
Chloroform	5.00	4.13	4.17	82.6	83.4	72.0-123			0.964	20
Chloromethane	5.00	2.83	2.81	56.6	56.2	51.0-138			0.709	20
Dibromochloromethane	5.00	4.94	5.19	98.8	104	74.0-127			4.94	20
Dibromomethane	5.00	4.27	4.39	85.4	87.8	75.0-122			2.77	20
Dichlorodifluoromethane	5.00	3.48	3.47	69.6	69.4	43.0-156			0.288	20
Dichlorofluoromethane	5.00	4.07	4.30	81.4	86.0	65.0-137			5.50	20
Ethyl ether	5.00	3.85	3.79	77.0	75.8	64.0-137			1.57	20
Ethylbenzene	5.00	5.66	5.76	113	115	74.0-126			1.75	20
Hexachloro-1,3-butadiene	5.00	4.06	4.18	81.2	83.6	57.0-150			2.91	20
Isopropylbenzene	5.00	5.68	5.64	114	113	72.0-127			0.707	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4206160-1 04/25/25 22:32 • (LCSD) R4206160-2 04/25/25 22:52

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Methyl tert-butyl ether	5.00	4.58	4.62	91.6	92.4	66.0-132			0.870	20
Methylene Chloride	5.00	4.37	4.41	87.4	88.2	68.0-123			0.911	20
Naphthalene	5.00	5.31	5.44	106	109	59.0-130			2.42	20
Styrene	5.00	5.39	5.51	108	110	72.0-127			2.20	20
Tetrachloroethene	5.00	5.77	5.68	115	114	70.0-136			1.57	20
Tetrahydrofuran	5.00	2.98	2.99	59.6	59.8	37.0-146			0.335	24
Toluene	5.00	5.68	5.72	114	114	75.0-121			0.702	20
Trichloroethene	5.00	5.03	4.88	101	97.6	76.0-126			3.03	20
Trichlorofluoromethane	5.00	4.02	3.93	80.4	78.6	61.0-142			2.26	20
Xylenes, Total	15.0	16.2	16.1	108	107	72.0-127			0.619	20
cis-1,2-Dichloroethene	5.00	4.69	4.76	93.8	95.2	73.0-125			1.48	20
cis-1,3-Dichloropropene	5.00	4.38	4.47	87.6	89.4	76.0-127			2.03	20
n-Butylbenzene	5.00	5.05	4.96	101	99.2	68.0-135			1.80	20
n-Propylbenzene	5.00	5.50	5.56	110	111	74.0-126			1.08	20
o-Chlorotoluene	5.00	5.57	5.31	111	106	75.0-124			4.78	20
p-Chlorotoluene	5.00	5.19	5.29	104	106	75.0-124			1.91	20
p-Isopropyltoluene	5.00	5.45	5.40	109	108	72.0-133			0.922	20
sec-Butylbenzene	5.00	5.33	5.26	107	105	74.0-130			1.32	20
tert-Butylbenzene	5.00	5.64	5.50	113	110	75.0-127			2.51	20
trans-1,2-Dichloroethene	5.00	4.43	4.54	88.6	90.8	71.0-125			2.45	20
trans-1,3-Dichloropropene	5.00	4.79	4.92	95.8	98.4	73.0-127			2.68	20
(S) 1,2-Dichloroethane-d4				84.1	85.7	70.0-130				
(S) Toluene-d8				110	111	75.0-131				
(S) 4-Bromofluorobenzene				96.6	96.6	67.0-138				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4207364-3 04/29/25 22:07

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Acetone	ND		1.46	2.00
Vinyl chloride	ND		0.0462	0.0500
(S) 1,2-Dichloroethane-d4	94.0			70.0-130
(S) Toluene-d8	117			75.0-131
(S) 4-Bromofluorobenzene	90.4			67.0-138

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4207364-1 04/29/25 20:49 • (LCSD) R4207364-2 04/29/25 21:08

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	25.0	24.5	23.7	98.0	94.8	10.0-160			3.32	31
Vinyl chloride	5.00	4.45	4.50	89.0	90.0	63.0-134			1.12	20
(S) 1,2-Dichloroethane-d4				92.9	95.2	70.0-130				
(S) Toluene-d8				115	117	75.0-131				
(S) 4-Bromofluorobenzene				90.2	89.6	67.0-138				

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

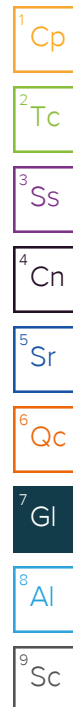
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
C3	The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
V	The sample concentration is too high to evaluate accurate spike recoveries.



ACCREDITATIONS & LOCATIONS

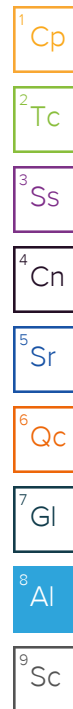
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Company Name/Address: Elk River Landfill 4300 MarketPoint Drive Suite 200 Minneapolis, MN 55435				Billing Information: Accounts Payable / mkostrze@wm.com P.O. Box 4745 Portland, OR 97208-4745				Pres Chk		Analysis / Container / Preservation NO2, SO4, CL, Alk 125mlHDPE-NoPres NO2NO3 HOLD 250mlHDPE-H2SO4 RSK 175LL 40mlAmb-HCl TOC 250mlAmb-HCl V8260ULLC 40mlAmb-HCl V8260ULLC 40mlAmb-HCl-BJK 12 12						Chain of Custody Page <u>1</u> of <u>1</u>  MT JULIET, TN 1305 Jackson Rd. Mount Juliet, TN 37122 Submitting a sample is the first of a series of steps that require acknowledgment and acceptance of the Pace Terms and Conditions found at: https://www.pacelabs.com/submit-sample-standards-terms.pdf SCG # 1162 Acctnum: WMELKRIVMN Template: T261646 Prelogn: P1144758 PM: 364 - T. Alan Harvill PA: 4/11/25 BK Shipped Via: FedEx Priority	
Report to: Jim Eidem 952-832-2893				Email To: aschneider@barr.com; datamgt@barr.com; jeide													
Project Description: MNA Parameters		City/State: Collected:		Please Circle: PT MT CT ET													
Regulatory Program(DOD, RCRA, DW, etc):		Client Project # 200		Lab Project # WMELKRIVMN-00023													
Collected by (print): <i>M. E. Harvill</i>		Site/Facility ID # MN02		P.O. #													
Collected by (signature): 		Rush? (Lab MUST Be Notified) ☐ Same Day ☐ Five Day ☐ Next Day ☐ 5 Day (Rad Only) ☐ Two Day ☐ 10 Day (Rad Only) ☐ Three Day ☐ STD TAT		Quote #													
Immediately Packed on Ice N ☐ Y ☐		Date Results Needed		No. of Ctries													
Sample ID		Comp/Grab	Matrix *	Depth	Date	Time	Ctries										
TS			GW				1										
~~P-302C~~ P 342L			GW		4/17/25	1650	9	X	X	X	X	X					
P-304C			GW		↓	0930	9	X	X	X	X	X					
P-313C			GW		↓	0840	9	X	X	X	X	X					
~~P-324C~~			GW				9	X	X	X	X	X					
~~P-325C~~			GW				9	X	X	X	X	X					
~~P-326C~~			GW				9	X	X	X	X	X					
~~P-327C~~			GW				9	X	X	X	X	X					
~~P-328C~~			GW				9	X	X	X	X	X					
~~P-329C~~			GW				9	X	X	X	X	X					
~~P-330C~~			GW				9	X	X	X	X	X					
~~P-331C~~			GW				9	X	X	X	X	X					
~~P-332C~~			GW				9	X	X	X	X	X					
~~P-333C~~			GW				9	X	X	X	X	X					
~~P-334C~~			GW				9	X	X	X	X	X					
~~P-335C~~			GW				9	X	X	X	X	X					
~~P-336C~~			GW				9	X	X	X	X	X					
~~P-337C~~			GW				9	X	X	X	X	X					
~~P-338C~~			GW				9	X	X	X	X	X					
~~P-339C~~			GW				9	X	X	X	X	X					
~~P-340C~~			GW				9	X	X	X	X	X					
~~P-341C~~			GW				9	X	X	X	X	X					
~~P-342C~~			GW				9	X	X	X	X	X					
~~P-343C~~			GW				9	X	X	X	X	X					
~~P-344C~~			GW				9	X	X	X	X	X					
~~P-345C~~			GW				9	X	X	X	X	X					
~~P-346C~~			GW				9	X	X	X	X	X					
~~P-347C~~			GW				9	X	X	X	X	X					
~~P-348C~~			GW				9	X	X	X	X	X					
~~P-349C~~			GW				9	X	X	X	X	X					
~~P-350C~~			GW				9	X	X	X	X	X					
~~P-351C~~			GW				9	X	X	X	X	X					
~~P-352C~~			GW				9	X	X	X	X	X					
~~P-353C~~			GW				9	X	X	X	X	X					
~~P-354C~~			GW				9	X	X	X	X	X					
~~P-355C~~			GW				9	X	X	X	X	X					
~~P-356C~~			GW				9	X	X	X	X	X					
~~P-357C~~			GW				9	X	X	X	X	X					
~~P-358C~~			GW				9	X	X	X	X	X					
~~P-359C~~			GW				9	X	X	X	X	X					
~~P-360C~~			GW				9	X	X	X	X	X					
~~P-361C~~			GW				9	X	X	X	X	X					
~~P-362C~~			GW				9	X	X	X	X	X					
~~P-363C~~			GW				9	X	X	X	X	X					
~~P-364C~~			GW				9	X	X	X	X	X					
~~P-365C~~			GW				9	X	X	X	X	X					
~~P-366C~~			GW				9	X	X	X	X	X					
~~P-367C~~			GW				9	X	X	X	X	X					
~~P-368C~~			GW				9	X	X	X	X	X					
~~P-369C~~			GW				9	X	X	X	X	X					
~~P-370C~~			GW				9	X	X	X	X	X					
~~P-371C~~			GW				9	X	X	X	X	X					
~~P-372C~~			GW				9	X	X	X	X	X					
~~P-373C~~			GW				9	X	X	X	X	X					
~~P-374C~~			GW				9	X	X	X	X	X					
~~P-375C~~			GW				9	X	X	X	X	X					
~~P-376C~~			GW				9	X	X	X	X	X					
~~P-377C~~			GW				9	X	X	X	X	X					
~~P-378C~~			GW				9	X	X	X	X	X					
~~P-379C~~			GW				9	X	X	X	X	X					
~~P-380C~~			GW				9	X	X	X	X	X					
~~P-381C~~			GW				9	X	X	X	X	X					
~~P-382C~~			GW				9	X	X	X	X	X					
~~P-383C~~			GW				9	X	X	X	X	X					
~~P-384C~~			GW				9	X	X	X	X	X					
~~P-385C~~			GW				9	X	X	X	X	X					
~~P-386C~~			GW				9	X	X	X	X	X					
~~P-387C~~			GW				9	X	X	X	X	X					
~~P-388C~~			GW				9	X	X	X	X	X					
~~P-389C~~			GW				9	X	X	X	X	X					
~~P-390C~~			GW				9	X	X								

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e., with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:
L1849387

Note: For Passive Sampling, replace "Water Val in Casing" and "Well Valve Packed" w/ "Water Val in Tubing/Flow Cell and Tubing/Flow Cell Valve Packed". Mark changes, in red field data, below.

Purging Device	☐ A- Submersible Pump ☐ B-Peristaltic Pump ☐ C-QED Bladder Pump ☐ X-Other	D-Bailer E-Piston Pump F-Dipper/Bottle	Filter Type:	☐ A-In-line Disposable ☐ B-Pressure ☐ C-Vacuum ☐ X-Other
Sampling Device	☐ A-Teflon ☐ B-Stainless Steel ☐ C-PVC ☐ D-Polypropylene ☐ X-Other	Sample Tube Type		

Well Elevation (at TOC)	959.89 (ft.)	Depth to Water (DTW) (from TOC)	68.8 (ft.)	Groundwater Elevation (site datum, from TOC)	953.01 (ft.)
Total Well Depth (from TOC)	(ft.)	Stick Up (from ground elevation)	(ft.)	Casing ID	(in)
				Casing Material	

STABILIZATION DATA (Optional)

Suggested range for 1 minute readings on
each Percent State measurement:

Stabilization Data Fields are Optional: (i.e., complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. No Data Logger or other Electronic format is used. All in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.

Final Field Readings are required. i.e. revised field measurements, final stabilized readings, inactive sample readings before sampling for all field parameters required by State Permit 516.

Weather Conditions (required daily, or as conditions change):	Direction/Speed:	Outlook:	Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

4, 7, 25

Mike Hwa

[Signature]
Signature

All
Company

DISTRIBUTION: WHITE/ORIGINAL - Starts with Sample, YELLOW - Returned to Client

ORIGINAL COPY



ANALYTICAL REPORT

May 21, 2025

Revised Report

Elk River Landfill

Sample Delivery Group: L1849779
Samples Received: 04/18/2025
Project Number: 200
Description: NDA Spring Sampling (4)
Site: MN02
Report To: Jim Eidem
4300 MarketPoint Drive Suite 200
Minneapolis, MN 55435

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Entire Report Reviewed By:

T. Alan Harvill
Project Manager

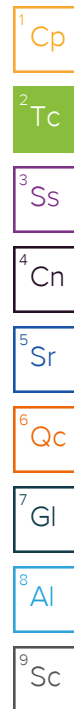
Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	6
408-OWA L1849779-01	6
P-403C L1849779-02	9
TB L1849779-03	12
401-OWA L1849779-04	14
Qc: Quality Control Summary	17
Gravimetric Analysis by Method 2540 C-2011	17
Wet Chemistry by Method 2320 B-2011	18
Wet Chemistry by Method 300.0	20
Wet Chemistry by Method 350.1	22
Metals (ICP) by Method 6010D	23
Metals (ICPMS) by Method 6020	24
Volatile Organic Compounds (GC/MS) by Method 8260D	25
Gl: Glossary of Terms	34
Al: Accreditations & Locations	35
Sc: Sample Chain of Custody	36



SAMPLE SUMMARY

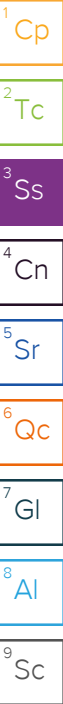
408-OWA L1849779-01

Collected by
Kenneth Smith

Collected date/time
04/17/25 09:30

Received date/time
04/18/25 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2495683	1	04/24/25 04:34	04/24/25 04:34	DLH	Mt. Juliet, TN
Calculated Results	WG2499696	1	04/29/25 12:08	04/29/25 12:08	RLS	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 C-2011	WG2496059	1	04/22/25 07:19	04/23/25 09:20	BDC	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2495683	1	04/20/25 17:31	04/20/25 17:31	BJM	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2494623	1	04/24/25 04:34	04/24/25 04:34	DLH	Mt. Juliet, TN
Wet Chemistry by Method 350.1	WG2495675	1	04/20/25 19:26	04/20/25 19:26	RTW	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2499696	1	04/29/25 00:21	04/29/25 12:08	RLS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2496296	1	04/24/25 22:18	04/25/25 02:31	UNP	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2498839	1	04/26/25 06:33	04/26/25 06:33	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2501712	1	04/30/25 07:21	04/30/25 07:21	ADM	Mt. Juliet, TN



P-403C L1849779-02

Collected by
Kenneth Smith

Collected date/time
04/17/25 15:20

Received date/time
04/18/25 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2495683	1	04/24/25 04:48	04/24/25 04:48	DLH	Mt. Juliet, TN
Calculated Results	WG2499696	1	04/29/25 12:09	04/29/25 12:09	RLS	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 C-2011	WG2496059	1	04/22/25 07:19	04/23/25 09:20	BDC	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2495683	1	04/20/25 17:34	04/20/25 17:34	BJM	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2494623	1	04/24/25 04:48	04/24/25 04:48	DLH	Mt. Juliet, TN
Wet Chemistry by Method 350.1	WG2495675	1	04/20/25 19:28	04/20/25 19:28	RTW	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2499696	1	04/29/25 00:21	04/29/25 12:09	RLS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2496296	1	04/24/25 22:18	04/25/25 02:34	UNP	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2498839	1	04/26/25 06:53	04/26/25 06:53	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2501712	1	04/30/25 07:41	04/30/25 07:41	ADM	Mt. Juliet, TN

TB L1849779-03

Collected by
Kenneth Smith

Collected date/time
04/17/25 08:55

Received date/time
04/18/25 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2498839	1	04/26/25 01:32	04/26/25 01:32	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2501712	1	04/30/25 06:01	04/30/25 06:01	ADM	Mt. Juliet, TN

401-OWA L1849779-04

Collected by
Kenneth Smith

Collected date/time
04/17/25 08:55

Received date/time
04/18/25 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2495709	1	04/24/25 05:14	04/24/25 05:14	DLH	Mt. Juliet, TN
Calculated Results	WG2499696	1	04/29/25 12:11	04/29/25 12:11	RLS	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 C-2011	WG2496059	1	04/22/25 07:19	04/23/25 09:20	BDC	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2495709	1	04/20/25 19:13	04/20/25 19:13	BJM	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2494623	1	04/24/25 05:01	04/24/25 05:01	DLH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2494623	5	04/24/25 05:14	04/24/25 05:14	DLH	Mt. Juliet, TN
Wet Chemistry by Method 350.1	WG2495675	1	04/20/25 19:29	04/20/25 19:29	RTW	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2499696	1	04/29/25 00:21	04/29/25 12:11	RLS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2496296	1	04/24/25 22:18	04/25/25 02:38	UNP	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2502487	1	04/29/25 12:26	04/29/25 12:26	JAH	Mt. Juliet, TN

CASE NARRATIVE

Unless qualified or notated within the narrative below, all sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



T. Alan Harvill
Project Manager

Report Revision History

Level II Report - Version 1: 05/05/25 13:45

Project Comments

The requested project specific reporting limits may be less than laboratory standard quantitation limits (PQL) but will be greater than or equal to the laboratory method detection limits (MDL). It is noted that results reported below lab standard quantitation limits (PQLs) may result in false positive/false negative values that may require additional laboratory quality assurance review, if requested. Routine laboratory procedures do not initiate a data review process for detections below the laboratory's PQL unless requested by the client.

The requested project specific reporting limits may be less than laboratory standard quantitation limits (PQL) but will be greater than or equal to the laboratory method detection limits (MDL). It is noted that results reported below lab standard quantitation limits (PQLs) may result in false positive/false negative values that may require additional laboratory quality assurance review, if requested. Routine laboratory procedures do not initiate a data review process for detections below the laboratory's PQL unless requested by the client.

Revised to correct Total Anions

Wet Chemistry by Method 300.0

The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).

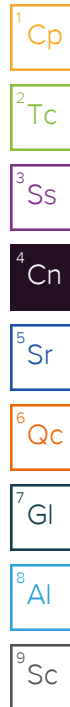
Batch	Lab Sample ID	Analytes
WG2494623	(MS) R4204453-4	Chloride
WG2494623	(MSD) R4204453-5	Chloride
WG2494623	(MS) R4204453-7	Chloride

The sample concentration is too high to evaluate accurate spike recoveries.

Batch	Lab Sample ID	Analytes
WG2494623	(MS) R4204453-4, (MS) R4204453-7, (MSD) R4204453-5	Chloride

The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Batch	Lab Sample ID	Analytes
WG2494623	(MS) R4204453-4, (MS) R4204453-7, (MSD) R4204453-5	Sulfate



CASE NARRATIVE

Metals (ICP) by Method 6010D

Analysis was filtered in the laboratory.

Batch	Method	Lab Sample ID
WG2499696	6010D	L1849779-01, 02, 04

Metals (ICPMS) by Method 6020

Analysis was filtered in the laboratory.

Batch	Method	Lab Sample ID
WG2496296	6020	L1849779-01, 02, 04

The sample concentration is too high to evaluate accurate spike recoveries.

Batch	Lab Sample ID	Analytes
WG2496296	(MS) R4204833-4	Magnesium,Dissolved

Volatile Organic Compounds (GC/MS) by Method 8260D

The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.

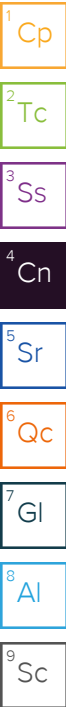
Batch	Lab Sample ID	Analytes
WG2498839	L1849779-01	1,1-Dichloroethene, 1,2-Dichloroethane, 2-Butanone (MEK), Bromomethane, Chloromethane, Dichlorodifluoromethane, Ethyl ether and Tetrahydrofuran
WG2498839	L1849779-02	1,1-Dichloroethene, 1,2-Dichloroethane, 2-Butanone (MEK), Bromomethane, Chloromethane, Dichlorodifluoromethane, Ethyl ether and Tetrahydrofuran
WG2498839	L1849779-03	1,1-Dichloroethene, 1,2-Dichloroethane, 2-Butanone (MEK), Bromomethane, Chloromethane, Dichlorodifluoromethane, Ethyl ether and Tetrahydrofuran
WG2502487	L1849779-04	Bromoform and Vinyl chloride

The associated batch QC was above the established quality control range for accuracy.

Batch	Lab Sample ID	Analytes
WG2502487	(LCS) R4207602-1, (LCSD) R4207602-2, L1849779-04	2-Butanone (MEK) and Acetone

The associated batch QC was outside the established quality control range for precision.

Batch	Lab Sample ID	Analytes
WG2498839	(LCSD) R4206160-2, L1849779-01, 02, 03	Bromomethane



Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
Depth to water (DTW) (FROM TOC)	30.42	ft
pH (On Site)	7.78	su
Specific Conductance (on site)	384	umhos/cm
Temperature (on-site)	11.3	Deg. C
Turbidity (on-site)	1.7	NTU
Dissolved Oxygen (on-site)	0.2	mg/l
eH/ORP (On Site)	53.8	mV

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Calculated Results

Analyte	Result meq/l	Qualifier	RL meq/l	Dilution	Analysis date / time	Batch
Total Anions (calculated)	5.88		0.00146	1	04/24/2025 04:34	WG2495683
Total Cations (calculated)	5.94		0.000505	1	04/29/2025 12:08	WG2499696

Calculated Results

Analyte	Result %	Qualifier	RL %	Dilution	Analysis date / time	Batch
Percent Difference (calculated)	0.432		0.000	1	04/29/2025 12:08	WG2499696

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	302		10.0	1	04/23/2025 09:20	WG2496059

Wet Chemistry by Method 2320 B-2011

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Alkalinity	280		20.0	1	04/20/2025 17:31	WG2495683

Sample Narrative:

L1849779-01 WG2495683: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Chloride	1.17		1.00	1	04/24/2025 04:34	WG2494623
Sulfate	12.6		5.00	1	04/24/2025 04:34	WG2494623

Wet Chemistry by Method 350.1

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	ND		0.100	1	04/20/2025 19:26	WG2495675

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Calcium,Dissolved	73.0		1.00	1	04/29/2025 12:08	WG2499696

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron,Dissolved	ND		100	1	04/29/2025 12:08	WG2499696
Iron,Dissolved	ND		100	1	04/29/2025 12:08	WG2499696
Potassium,Dissolved	ND		1000	1	04/29/2025 12:08	WG2499696
Sodium,Dissolved	6300		1000	1	04/29/2025 12:08	WG2499696

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chromium,Dissolved	ND		4.00	1	04/25/2025 02:31	WG2496296
Magnesium,Dissolved	24200		200	1	04/25/2025 02:31	WG2496296
Zinc,Dissolved	ND		10.0	1	04/25/2025 02:31	WG2496296
Arsenic,Dissolved	ND		1.00	1	04/25/2025 02:31	WG2496296

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/26/2025 06:33	WG2498839
1,1,1-Trichloroethane	ND		1.00	1	04/26/2025 06:33	WG2498839
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/26/2025 06:33	WG2498839
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/26/2025 06:33	WG2498839
1,1,2-Trichloroethane	ND		0.750	1	04/26/2025 06:33	WG2498839
1,1-Dichloroethane	ND		1.00	1	04/26/2025 06:33	WG2498839
1,1-Dichloroethene	ND	C3	1.00	1	04/26/2025 06:33	WG2498839
1,1-Dichloropropene	ND		1.00	1	04/26/2025 06:33	WG2498839
1,2,3-Trichlorobenzene	ND		1.00	1	04/26/2025 06:33	WG2498839
1,2,3-Trichloropropane	ND		1.00	1	04/26/2025 06:33	WG2498839
1,2,4-Trichlorobenzene	ND		1.00	1	04/26/2025 06:33	WG2498839
1,2,4-Trimethylbenzene	ND		1.00	1	04/26/2025 06:33	WG2498839
1,2-Dibromo-3-Chloropropane	ND		1.00	1	04/26/2025 06:33	WG2498839
1,2-Dibromoethane	ND		1.00	1	04/26/2025 06:33	WG2498839
1,2-Dichlorobenzene	ND		1.00	1	04/26/2025 06:33	WG2498839
1,2-Dichloroethane	ND	C3	0.250	1	04/26/2025 06:33	WG2498839
1,2-Dichloropropane	ND		1.00	1	04/26/2025 06:33	WG2498839
1,3,5-Trimethylbenzene	ND		1.00	1	04/26/2025 06:33	WG2498839
1,3-Dichlorobenzene	ND		1.00	1	04/26/2025 06:33	WG2498839
1,3-Dichloropropane	ND		1.00	1	04/26/2025 06:33	WG2498839
1,4-Dichlorobenzene	ND		1.00	1	04/26/2025 06:33	WG2498839
2,2-Dichloropropane	ND		1.00	1	04/26/2025 06:33	WG2498839
2-Butanone (MEK)	ND	C3	10.0	1	04/26/2025 06:33	WG2498839
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/26/2025 06:33	WG2498839
Acetone	ND		10.0	1	04/30/2025 07:21	WG2501712
Allyl chloride	ND		1.00	1	04/26/2025 06:33	WG2498839
Benzene	ND		0.500	1	04/26/2025 06:33	WG2498839
Bromobenzene	ND		1.00	1	04/26/2025 06:33	WG2498839
Bromochloromethane	ND		1.00	1	04/26/2025 06:33	WG2498839
Bromodichloromethane	ND		1.00	1	04/26/2025 06:33	WG2498839
Bromoform	ND		1.00	1	04/26/2025 06:33	WG2498839
Bromomethane	ND	C3 J3	1.00	1	04/26/2025 06:33	WG2498839
Carbon tetrachloride	ND		0.250	1	04/26/2025 06:33	WG2498839
Chlorobenzene	ND		1.00	1	04/26/2025 06:33	WG2498839
Chloroethane	ND		1.00	1	04/26/2025 06:33	WG2498839
Chloroform	ND		1.00	1	04/26/2025 06:33	WG2498839
Chloromethane	ND	C3	1.00	1	04/26/2025 06:33	WG2498839
Dibromochloromethane	ND		1.00	1	04/26/2025 06:33	WG2498839
Dibromomethane	ND		1.00	1	04/26/2025 06:33	WG2498839
Dichlorodifluoromethane	ND	C3	1.00	1	04/26/2025 06:33	WG2498839



Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Dichlorofluoromethane	ND		1.00	1	04/26/2025 06:33	WG2498839
Ethyl ether	ND	C3	1.00	1	04/26/2025 06:33	WG2498839
Ethylbenzene	ND		1.00	1	04/26/2025 06:33	WG2498839
Hexachloro-1,3-butadiene	ND		0.250	1	04/26/2025 06:33	WG2498839
Isopropylbenzene	ND		1.00	1	04/26/2025 06:33	WG2498839
Methyl tert-butyl ether	ND		1.00	1	04/26/2025 06:33	WG2498839
Methylene Chloride	ND		1.00	1	04/26/2025 06:33	WG2498839
Naphthalene	ND		1.00	1	04/26/2025 06:33	WG2498839
Styrene	ND		1.00	1	04/26/2025 06:33	WG2498839
Tetrachloroethene	ND		1.00	1	04/26/2025 06:33	WG2498839
Tetrahydrofuran	ND	C3	5.00	1	04/26/2025 06:33	WG2498839
Toluene	ND		1.00	1	04/26/2025 06:33	WG2498839
Trichloroethene	ND		0.100	1	04/26/2025 06:33	WG2498839
Trichlorofluoromethane	ND		1.00	1	04/26/2025 06:33	WG2498839
Vinyl chloride	ND		0.0500	1	04/30/2025 07:21	WG2501712
Xylenes, Total	ND		2.00	1	04/26/2025 06:33	WG2498839
cis-1,2-Dichloroethene	ND		0.100	1	04/26/2025 06:33	WG2498839
cis-1,3-Dichloropropene	ND		0.500	1	04/26/2025 06:33	WG2498839
n-Butylbenzene	ND		1.00	1	04/26/2025 06:33	WG2498839
n-Propylbenzene	ND		1.00	1	04/26/2025 06:33	WG2498839
o-Chlorotoluene	ND		1.00	1	04/26/2025 06:33	WG2498839
p-Chlorotoluene	ND		1.00	1	04/26/2025 06:33	WG2498839
p-Isopropyltoluene	ND		1.00	1	04/26/2025 06:33	WG2498839
sec-Butylbenzene	ND		1.00	1	04/26/2025 06:33	WG2498839
tert-Butylbenzene	ND		1.00	1	04/26/2025 06:33	WG2498839
trans-1,2-Dichloroethene	ND		1.00	1	04/26/2025 06:33	WG2498839
trans-1,3-Dichloropropene	ND		1.00	1	04/26/2025 06:33	WG2498839
(S) 4-Bromofluorobenzene	96.6			67.0-138	04/26/2025 06:33	WG2498839
(S) 4-Bromofluorobenzene	90.8			67.0-138	04/30/2025 07:21	WG2501712
(S) Toluene-d8	111			75.0-131	04/26/2025 06:33	WG2498839
(S) Toluene-d8	115			75.0-131	04/30/2025 07:21	WG2501712
(S) 1,2-Dichloroethane-d4	86.0			70.0-130	04/26/2025 06:33	WG2498839
(S) 1,2-Dichloroethane-d4	98.9			70.0-130	04/30/2025 07:21	WG2501712

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
Depth to water (DTW) (FROM TOC)	41.94	ft
pH (On Site)	7.57	su
Specific Conductance (on site)	543	umhos/cm
Temperature (on-site)	9.3	Deg. C
Turbidity (on-site)	51	NTU
Dissolved Oxygen (on-site)	0.3	mg/l
eH/ORP (On Site)	-41.2	mV

Calculated Results

Analyte	Result meq/l	Qualifier	RL meq/l	Dilution	Analysis date / time	Batch
Total Anions (calculated)	8.62		0.00146	1	04/24/2025 04:48	WG2495683
Total Cations (calculated)	8.67		0.000505	1	04/29/2025 12:09	WG2499696

Calculated Results

Analyte	Result %	Qualifier	RL %	Dilution	Analysis date / time	Batch
Percent Difference (calculated)	0.268		0.000	1	04/29/2025 12:09	WG2499696

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	447		10.0	1	04/23/2025 09:20	WG2496059

Wet Chemistry by Method 2320 B-2011

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Alkalinity	370		20.0	1	04/20/2025 17:34	WG2495683

Sample Narrative:

L1849779-02 WG2495683: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Chloride	2.58		1.00	1	04/24/2025 04:48	WG2494623
Sulfate	55.1		5.00	1	04/24/2025 04:48	WG2494623

Wet Chemistry by Method 350.1

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	ND		0.100	1	04/20/2025 19:28	WG2495675

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Calcium,Dissolved	92.6		1.00	1	04/29/2025 12:09	WG2499696

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron,Dissolved	ND		100	1	04/29/2025 12:09	WG2499696
Iron,Dissolved	ND		100	1	04/29/2025 12:09	WG2499696
Potassium,Dissolved	1350		1000	1	04/29/2025 12:09	WG2499696
Sodium,Dissolved	8650		1000	1	04/29/2025 12:09	WG2499696

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chromium,Dissolved	ND		4.00	1	04/25/2025 02:34	WG2496296
Magnesium,Dissolved	44200		200	1	04/25/2025 02:34	WG2496296
Zinc,Dissolved	ND		10.0	1	04/25/2025 02:34	WG2496296
Arsenic,Dissolved	ND		1.00	1	04/25/2025 02:34	WG2496296

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/26/2025 06:53	WG2498839
1,1,1-Trichloroethane	ND		1.00	1	04/26/2025 06:53	WG2498839
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/26/2025 06:53	WG2498839
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/26/2025 06:53	WG2498839
1,1,2-Trichloroethane	ND		0.750	1	04/26/2025 06:53	WG2498839
1,1-Dichloroethane	ND		1.00	1	04/26/2025 06:53	WG2498839
1,1-Dichloroethene	ND	C3	1.00	1	04/26/2025 06:53	WG2498839
1,1-Dichloropropene	ND		1.00	1	04/26/2025 06:53	WG2498839
1,2,3-Trichlorobenzene	ND		1.00	1	04/26/2025 06:53	WG2498839
1,2,3-Trichloropropane	ND		1.00	1	04/26/2025 06:53	WG2498839
1,2,4-Trichlorobenzene	ND		1.00	1	04/26/2025 06:53	WG2498839
1,2,4-Trimethylbenzene	ND		1.00	1	04/26/2025 06:53	WG2498839
1,2-Dibromo-3-Chloropropane	ND		1.00	1	04/26/2025 06:53	WG2498839
1,2-Dibromoethane	ND		1.00	1	04/26/2025 06:53	WG2498839
1,2-Dichlorobenzene	ND		1.00	1	04/26/2025 06:53	WG2498839
1,2-Dichloroethane	ND	C3	0.250	1	04/26/2025 06:53	WG2498839
1,2-Dichloropropane	ND		1.00	1	04/26/2025 06:53	WG2498839
1,3,5-Trimethylbenzene	ND		1.00	1	04/26/2025 06:53	WG2498839
1,3-Dichlorobenzene	ND		1.00	1	04/26/2025 06:53	WG2498839
1,3-Dichloropropane	ND		1.00	1	04/26/2025 06:53	WG2498839
1,4-Dichlorobenzene	ND		1.00	1	04/26/2025 06:53	WG2498839
2,2-Dichloropropane	ND		1.00	1	04/26/2025 06:53	WG2498839
2-Butanone (MEK)	ND	C3	10.0	1	04/26/2025 06:53	WG2498839
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/26/2025 06:53	WG2498839
Acetone	ND		10.0	1	04/30/2025 07:41	WG2501712
Allyl chloride	ND		1.00	1	04/26/2025 06:53	WG2498839
Benzene	ND		0.500	1	04/26/2025 06:53	WG2498839
Bromobenzene	ND		1.00	1	04/26/2025 06:53	WG2498839
Bromochloromethane	ND		1.00	1	04/26/2025 06:53	WG2498839
Bromodichloromethane	ND		1.00	1	04/26/2025 06:53	WG2498839
Bromoform	ND		1.00	1	04/26/2025 06:53	WG2498839
Bromomethane	ND	C3 J3	1.00	1	04/26/2025 06:53	WG2498839
Carbon tetrachloride	ND		0.250	1	04/26/2025 06:53	WG2498839
Chlorobenzene	ND		1.00	1	04/26/2025 06:53	WG2498839
Chloroethane	ND		1.00	1	04/26/2025 06:53	WG2498839
Chloroform	ND		1.00	1	04/26/2025 06:53	WG2498839
Chloromethane	ND	C3	1.00	1	04/26/2025 06:53	WG2498839
Dibromochloromethane	ND		1.00	1	04/26/2025 06:53	WG2498839
Dibromomethane	ND		1.00	1	04/26/2025 06:53	WG2498839
Dichlorodifluoromethane	ND	C3	1.00	1	04/26/2025 06:53	WG2498839

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Dichlorofluoromethane	ND		1.00	1	04/26/2025 06:53	WG2498839
Ethyl ether	ND	C3	1.00	1	04/26/2025 06:53	WG2498839
Ethylbenzene	ND		1.00	1	04/26/2025 06:53	WG2498839
Hexachloro-1,3-butadiene	ND		0.250	1	04/26/2025 06:53	WG2498839
Isopropylbenzene	ND		1.00	1	04/26/2025 06:53	WG2498839
Methyl tert-butyl ether	ND		1.00	1	04/26/2025 06:53	WG2498839
Methylene Chloride	ND		1.00	1	04/26/2025 06:53	WG2498839
Naphthalene	ND		1.00	1	04/26/2025 06:53	WG2498839
Styrene	ND		1.00	1	04/26/2025 06:53	WG2498839
Tetrachloroethene	ND		1.00	1	04/26/2025 06:53	WG2498839
Tetrahydrofuran	ND	C3	5.00	1	04/26/2025 06:53	WG2498839
Toluene	ND		1.00	1	04/26/2025 06:53	WG2498839
Trichloroethene	ND		0.100	1	04/26/2025 06:53	WG2498839
Trichlorofluoromethane	ND		1.00	1	04/26/2025 06:53	WG2498839
Vinyl chloride	ND		0.0500	1	04/30/2025 07:41	WG2501712
Xylenes, Total	ND		2.00	1	04/26/2025 06:53	WG2498839
cis-1,2-Dichloroethene	ND		0.100	1	04/26/2025 06:53	WG2498839
cis-1,3-Dichloropropene	ND		0.500	1	04/26/2025 06:53	WG2498839
n-Butylbenzene	ND		1.00	1	04/26/2025 06:53	WG2498839
n-Propylbenzene	ND		1.00	1	04/26/2025 06:53	WG2498839
o-Chlorotoluene	ND		1.00	1	04/26/2025 06:53	WG2498839
p-Chlorotoluene	ND		1.00	1	04/26/2025 06:53	WG2498839
p-Isopropyltoluene	ND		1.00	1	04/26/2025 06:53	WG2498839
sec-Butylbenzene	ND		1.00	1	04/26/2025 06:53	WG2498839
tert-Butylbenzene	ND		1.00	1	04/26/2025 06:53	WG2498839
trans-1,2-Dichloroethene	ND		1.00	1	04/26/2025 06:53	WG2498839
trans-1,3-Dichloropropene	ND		1.00	1	04/26/2025 06:53	WG2498839
(S) 4-Bromofluorobenzene	95.9			67.0-138	04/26/2025 06:53	WG2498839
(S) 4-Bromofluorobenzene	88.6			67.0-138	04/30/2025 07:41	WG2501712
(S) Toluene-d8	111			75.0-131	04/26/2025 06:53	WG2498839
(S) Toluene-d8	110			75.0-131	04/30/2025 07:41	WG2501712
(S) 1,2-Dichloroethane-d4	83.4			70.0-130	04/26/2025 06:53	WG2498839
(S) 1,2-Dichloroethane-d4	96.2			70.0-130	04/30/2025 07:41	WG2501712

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/26/2025 01:32	WG2498839
1,1,1-Trichloroethane	ND		1.00	1	04/26/2025 01:32	WG2498839
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/26/2025 01:32	WG2498839
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/26/2025 01:32	WG2498839
1,1,2-Trichloroethane	ND		0.750	1	04/26/2025 01:32	WG2498839
1,1-Dichloroethane	ND		1.00	1	04/26/2025 01:32	WG2498839
1,1-Dichloroethene	ND	C3	1.00	1	04/26/2025 01:32	WG2498839
1,1-Dichloropropene	ND		1.00	1	04/26/2025 01:32	WG2498839
1,2,3-Trichlorobenzene	ND		1.00	1	04/26/2025 01:32	WG2498839
1,2,3-Trichloropropane	ND		1.00	1	04/26/2025 01:32	WG2498839
1,2,4-Trichlorobenzene	ND		1.00	1	04/26/2025 01:32	WG2498839
1,2,4-Trimethylbenzene	ND		1.00	1	04/26/2025 01:32	WG2498839
1,2-Dibromo-3-Chloropropane	ND		1.00	1	04/26/2025 01:32	WG2498839
1,2-Dibromoethane	ND		1.00	1	04/26/2025 01:32	WG2498839
1,2-Dichlorobenzene	ND		1.00	1	04/26/2025 01:32	WG2498839
1,2-Dichloroethane	ND	C3	0.250	1	04/26/2025 01:32	WG2498839
1,2-Dichloropropane	ND		1.00	1	04/26/2025 01:32	WG2498839
1,3,5-Trimethylbenzene	ND		1.00	1	04/26/2025 01:32	WG2498839
1,3-Dichlorobenzene	ND		1.00	1	04/26/2025 01:32	WG2498839
1,3-Dichloropropane	ND		1.00	1	04/26/2025 01:32	WG2498839
1,4-Dichlorobenzene	ND		1.00	1	04/26/2025 01:32	WG2498839
2,2-Dichloropropane	ND		1.00	1	04/26/2025 01:32	WG2498839
2-Butanone (MEK)	ND	C3	10.0	1	04/26/2025 01:32	WG2498839
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/26/2025 01:32	WG2498839
Acetone	ND		10.0	1	04/30/2025 06:01	WG2501712
Allyl chloride	ND		1.00	1	04/26/2025 01:32	WG2498839
Benzene	ND		0.500	1	04/26/2025 01:32	WG2498839
Bromobenzene	ND		1.00	1	04/26/2025 01:32	WG2498839
Bromochloromethane	ND		1.00	1	04/26/2025 01:32	WG2498839
Bromodichloromethane	ND		1.00	1	04/26/2025 01:32	WG2498839
Bromoform	ND		1.00	1	04/26/2025 01:32	WG2498839
Bromomethane	ND	C3 J3	1.00	1	04/26/2025 01:32	WG2498839
Carbon tetrachloride	ND		0.250	1	04/26/2025 01:32	WG2498839
Chlorobenzene	ND		1.00	1	04/26/2025 01:32	WG2498839
Chloroethane	ND		1.00	1	04/26/2025 01:32	WG2498839
Chloroform	ND		1.00	1	04/26/2025 01:32	WG2498839
Chloromethane	ND	C3	1.00	1	04/26/2025 01:32	WG2498839
Dibromochloromethane	ND		1.00	1	04/26/2025 01:32	WG2498839
Dibromomethane	ND		1.00	1	04/26/2025 01:32	WG2498839
Dichlorodifluoromethane	ND	C3	1.00	1	04/26/2025 01:32	WG2498839
Dichlorofluoromethane	ND		1.00	1	04/26/2025 01:32	WG2498839
Ethyl ether	ND	C3	1.00	1	04/26/2025 01:32	WG2498839
Ethylbenzene	ND		1.00	1	04/26/2025 01:32	WG2498839
Hexachloro-1,3-butadiene	ND		0.250	1	04/26/2025 01:32	WG2498839
Isopropylbenzene	ND		1.00	1	04/26/2025 01:32	WG2498839
Methyl tert-butyl ether	ND		1.00	1	04/26/2025 01:32	WG2498839
Methylene Chloride	ND		1.00	1	04/26/2025 01:32	WG2498839
Naphthalene	ND		1.00	1	04/26/2025 01:32	WG2498839
Styrene	ND		1.00	1	04/26/2025 01:32	WG2498839
Tetrachloroethene	ND		1.00	1	04/26/2025 01:32	WG2498839
Tetrahydrofuran	ND	C3	5.00	1	04/26/2025 01:32	WG2498839
Toluene	ND		1.00	1	04/26/2025 01:32	WG2498839
Trichloroethene	ND		0.100	1	04/26/2025 01:32	WG2498839
Trichlorofluoromethane	ND		1.00	1	04/26/2025 01:32	WG2498839
Vinyl chloride	ND		0.0500	1	04/30/2025 06:01	WG2501712

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Xylenes, Total	ND		2.00	1	04/26/2025 01:32	WG2498839
cis-1,2-Dichloroethene	ND		0.100	1	04/26/2025 01:32	WG2498839
cis-1,3-Dichloropropene	ND		0.500	1	04/26/2025 01:32	WG2498839
n-Butylbenzene	ND		1.00	1	04/26/2025 01:32	WG2498839
n-Propylbenzene	ND		1.00	1	04/26/2025 01:32	WG2498839
o-Chlorotoluene	ND		1.00	1	04/26/2025 01:32	WG2498839
p-Chlorotoluene	ND		1.00	1	04/26/2025 01:32	WG2498839
p-Isopropyltoluene	ND		1.00	1	04/26/2025 01:32	WG2498839
sec-Butylbenzene	ND		1.00	1	04/26/2025 01:32	WG2498839
tert-Butylbenzene	ND		1.00	1	04/26/2025 01:32	WG2498839
trans-1,2-Dichloroethene	ND		1.00	1	04/26/2025 01:32	WG2498839
trans-1,3-Dichloropropene	ND		1.00	1	04/26/2025 01:32	WG2498839
(S) 4-Bromofluorobenzene	96.5			67.0-138	04/26/2025 01:32	WG2498839
(S) 4-Bromofluorobenzene	89.4			67.0-138	04/30/2025 06:01	WG2501712
(S) Toluene-d8	111			75.0-131	04/26/2025 01:32	WG2498839
(S) Toluene-d8	113			75.0-131	04/30/2025 06:01	WG2501712
(S) 1,2-Dichloroethane-d4	82.7			70.0-130	04/26/2025 01:32	WG2498839
(S) 1,2-Dichloroethane-d4	98.6			70.0-130	04/30/2025 06:01	WG2501712

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
Depth to water (DTW) (FROM TOC)	53.32	ft
pH (On Site)	7.65	su
Specific Conductance (on site)	1355	umhos/cm
Temperature (on-site)	10.3	Deg. C
Turbidity (on-site)	24.6	NTU
Dissolved Oxygen (on-site)	0.2	mg/l
eH/ORP (On Site)	52	mV

Calculated Results

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	meq/l		meq/l		date / time	
Total Anions (calculated)	17.5		0.00732	1	04/24/2025 05:14	WG2495709
Total Cations (calculated)	19.1		0.000505	1	04/29/2025 12:11	WG2499696

Calculated Results

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	%		%		date / time	
Percent Difference (calculated)	46.5		0.000	1	04/29/2025 12:11	WG2499696

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	1250		10.0	1	04/23/2025 09:20	WG2496059

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	337		20.0	1	04/20/2025 19:13	WG2495709

Sample Narrative:

L1849779-04 WG2495709: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	381		1.00	5	04/24/2025 05:14	WG2494623
Sulfate	12.8		5.00	1	04/24/2025 05:01	WG2494623

Wet Chemistry by Method 350.1

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Ammonia Nitrogen	ND		0.100	1	04/20/2025 19:29	WG2495675

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Calcium,Dissolved	176		1.00	1	04/29/2025 12:11	WG2499696

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

401-OWA

Collected date/time: 04/17/25 08:55

SAMPLE RESULTS - 04

L1849779

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron,Dissolved	ND		100	1	04/29/2025 12:11	WG2499696
Iron,Dissolved	ND		100	1	04/29/2025 12:11	WG2499696
Potassium,Dissolved	3820		1000	1	04/29/2025 12:11	WG2499696
Sodium,Dissolved	143000		1000	1	04/29/2025 12:11	WG2499696

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chromium,Dissolved	ND		4.00	1	04/25/2025 02:38	WG2496296
Magnesium,Dissolved	48900		200	1	04/25/2025 02:38	WG2496296
Zinc,Dissolved	ND		10.0	1	04/25/2025 02:38	WG2496296
Arsenic,Dissolved	ND		1.00	1	04/25/2025 02:38	WG2496296

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/29/2025 12:26	WG2502487
1,1,1-Trichloroethane	ND		1.00	1	04/29/2025 12:26	WG2502487
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/29/2025 12:26	WG2502487
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/29/2025 12:26	WG2502487
1,1,2-Trichloroethane	ND		0.750	1	04/29/2025 12:26	WG2502487
1,1-Dichloroethane	ND		1.00	1	04/29/2025 12:26	WG2502487
1,1-Dichloroethene	ND		1.00	1	04/29/2025 12:26	WG2502487
1,1-Dichloropropene	ND		1.00	1	04/29/2025 12:26	WG2502487
1,2,3-Trichlorobenzene	ND		1.00	1	04/29/2025 12:26	WG2502487
1,2,3-Trichloropropane	ND		1.00	1	04/29/2025 12:26	WG2502487
1,2,4-Trichlorobenzene	ND		1.00	1	04/29/2025 12:26	WG2502487
1,2,4-Trimethylbenzene	ND		1.00	1	04/29/2025 12:26	WG2502487
1,2-Dibromo-3-Chloropropane	ND		1.00	1	04/29/2025 12:26	WG2502487
1,2-Dibromoethane	ND		1.00	1	04/29/2025 12:26	WG2502487
1,2-Dichlorobenzene	ND		1.00	1	04/29/2025 12:26	WG2502487
1,2-Dichloroethane	ND		0.250	1	04/29/2025 12:26	WG2502487
1,2-Dichloropropane	ND		1.00	1	04/29/2025 12:26	WG2502487
1,3,5-Trimethylbenzene	ND		1.00	1	04/29/2025 12:26	WG2502487
1,3-Dichlorobenzene	ND		1.00	1	04/29/2025 12:26	WG2502487
1,3-Dichloropropane	ND		1.00	1	04/29/2025 12:26	WG2502487
1,4-Dichlorobenzene	ND		1.00	1	04/29/2025 12:26	WG2502487
2,2-Dichloropropane	ND		1.00	1	04/29/2025 12:26	WG2502487
2-Butanone (MEK)	ND	J4	10.0	1	04/29/2025 12:26	WG2502487
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/29/2025 12:26	WG2502487
Acetone	ND	J4	10.0	1	04/29/2025 12:26	WG2502487
Allyl chloride	ND		1.00	1	04/29/2025 12:26	WG2502487
Benzene	ND		0.500	1	04/29/2025 12:26	WG2502487
Bromobenzene	ND		1.00	1	04/29/2025 12:26	WG2502487
Bromochloromethane	ND		1.00	1	04/29/2025 12:26	WG2502487
Bromodichloromethane	ND		1.00	1	04/29/2025 12:26	WG2502487
Bromoform	ND	C3	1.00	1	04/29/2025 12:26	WG2502487
Bromomethane	ND		1.00	1	04/29/2025 12:26	WG2502487
Carbon tetrachloride	ND		0.250	1	04/29/2025 12:26	WG2502487
Chlorobenzene	ND		1.00	1	04/29/2025 12:26	WG2502487
Chloroethane	ND		1.00	1	04/29/2025 12:26	WG2502487
Chloroform	ND		1.00	1	04/29/2025 12:26	WG2502487
Chloromethane	ND		1.00	1	04/29/2025 12:26	WG2502487
Dibromochloromethane	ND		1.00	1	04/29/2025 12:26	WG2502487
Dibromomethane	ND		1.00	1	04/29/2025 12:26	WG2502487
Dichlorodifluoromethane	ND		1.00	1	04/29/2025 12:26	WG2502487

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Dichlorofluoromethane	ND		1.00	1	04/29/2025 12:26	WG2502487
Ethyl ether	ND		1.00	1	04/29/2025 12:26	WG2502487
Ethylbenzene	ND		1.00	1	04/29/2025 12:26	WG2502487
Hexachloro-1,3-butadiene	ND		0.250	1	04/29/2025 12:26	WG2502487
Isopropylbenzene	ND		1.00	1	04/29/2025 12:26	WG2502487
Methyl tert-butyl ether	ND		1.00	1	04/29/2025 12:26	WG2502487
Methylene Chloride	ND		1.00	1	04/29/2025 12:26	WG2502487
Naphthalene	ND		1.00	1	04/29/2025 12:26	WG2502487
Styrene	ND		1.00	1	04/29/2025 12:26	WG2502487
Tetrachloroethene	ND		1.00	1	04/29/2025 12:26	WG2502487
Tetrahydrofuran	ND		5.00	1	04/29/2025 12:26	WG2502487
Toluene	ND		1.00	1	04/29/2025 12:26	WG2502487
Trichloroethene	ND		0.100	1	04/29/2025 12:26	WG2502487
Trichlorofluoromethane	ND		1.00	1	04/29/2025 12:26	WG2502487
Vinyl chloride	ND	C3	0.0500	1	04/29/2025 12:26	WG2502487
Xylenes, Total	ND		2.00	1	04/29/2025 12:26	WG2502487
cis-1,2-Dichloroethene	ND		0.100	1	04/29/2025 12:26	WG2502487
cis-1,3-Dichloropropene	ND		0.500	1	04/29/2025 12:26	WG2502487
n-Butylbenzene	ND		1.00	1	04/29/2025 12:26	WG2502487
n-Propylbenzene	ND		1.00	1	04/29/2025 12:26	WG2502487
o-Chlorotoluene	ND		1.00	1	04/29/2025 12:26	WG2502487
p-Chlorotoluene	ND		1.00	1	04/29/2025 12:26	WG2502487
p-Isopropyltoluene	ND		1.00	1	04/29/2025 12:26	WG2502487
sec-Butylbenzene	ND		1.00	1	04/29/2025 12:26	WG2502487
tert-Butylbenzene	ND		1.00	1	04/29/2025 12:26	WG2502487
trans-1,2-Dichloroethene	ND		1.00	1	04/29/2025 12:26	WG2502487
trans-1,3-Dichloropropene	ND		1.00	1	04/29/2025 12:26	WG2502487
(S) 4-Bromofluorobenzene	89.4			67.0-138	04/29/2025 12:26	WG2502487
(S) Toluene-d8	101			75.0-131	04/29/2025 12:26	WG2502487
(S) 1,2-Dichloroethane-d4	110			70.0-130	04/29/2025 12:26	WG2502487

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

Method Blank (MB)

(MB) R4205088-1 04/23/25 09:20

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Dissolved Solids	ND		2.82	10.0

L1849671-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1849671-04 04/23/25 09:20 • (DUP) R4205088-3 04/23/25 09:20

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	781	775	1	0.856		10

L1849796-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1849796-04 04/23/25 09:20 • (DUP) R4205088-4 04/23/25 09:20

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	13700	14100	1	2.59		10

Laboratory Control Sample (LCS)

(LCS) R4205088-2 04/23/25 09:20

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Dissolved Solids	8800	8600	97.7	90.0-110	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4202355-2 04/20/25 16:39

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Alkalinity	3.43		2.71	20.0

Sample Narrative:
BLANK: Endpoint pH 4.5

L1849306-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1849306-01 04/20/25 16:45 • (DUP) R4202355-3 04/20/25 16:50

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Alkalinity	288	289	1	0.142		20

Sample Narrative:
OS: Endpoint pH 4.5 Headspace
DUP: Endpoint pH 4.5

L1849972-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1849972-08 04/20/25 18:10 • (DUP) R4202355-4 04/20/25 18:13

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Alkalinity	188	192	1	1.88		20

Sample Narrative:
OS: Endpoint pH 4.5 Headspace
DUP: Endpoint pH 4.5

Laboratory Control Sample (LCS)

(LCS) R4202355-1 04/20/25 16:28

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Alkalinity	100	101	101	90.0-110	

Sample Narrative:
LCS: Endpoint pH 4.5

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4202486-2 04/20/25 18:22

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Alkalinity	ND		2.71	20.0

Sample Narrative:

BLANK: Endpoint pH 4.5

L1848930-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1848930-01 04/20/25 18:29 • (DUP) R4202486-3 04/20/25 18:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Alkalinity	299	296	1	0.766		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

L1849823-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1849823-08 04/20/25 20:50 • (DUP) R4202486-4 04/20/25 20:56

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Alkalinity	414	417	1	0.627		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

Laboratory Control Sample (LCS)

(LCS) R4202486-1 04/20/25 18:10

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Alkalinity	100	97.3	97.3	90.0-110	

Sample Narrative:

LCS: Endpoint pH 4.5



Method Blank (MB)

(MB) R4204453-1 04/23/25 20:18

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Chloride	ND		0.0519	1.00
Sulfate	ND		0.0774	5.00

L1849614-14 Original Sample (OS) • Duplicate (DUP)

(OS) L1849614-14 04/23/25 20:45 • (DUP) R4204453-3 04/23/25 20:58

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Sulfate	33.5	33.4	1	0.294		15

L1849614-15 Original Sample (OS) • Duplicate (DUP)

(OS) L1849614-15 04/23/25 21:38 • (DUP) R4204453-6 04/23/25 21:52

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Sulfate	36.0	36.3	1	0.812		15

Laboratory Control Sample (LCS)

(LCS) R4204453-2 04/23/25 20:31

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Chloride	40.0	40.3	101	90.0-110	
Sulfate	40.0	40.5	101	90.0-110	

L1849614-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1849614-14 04/23/25 20:45 • (MS) R4204453-4 04/23/25 21:12 • (MSD) R4204453-5 04/23/25 21:25

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Chloride	40.0	335	309	305	0.000	0.000	1	90.0-110	E V	E V	1.43	15
Sulfate	40.0	33.5	65.5	64.5	80.0	77.5	1	90.0-110	J6	J6	1.53	15

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1849614-15 Original Sample (OS) • Matrix Spike (MS)

(OS) L1849614-15 04/23/25 21:38 • (MS) R4204453-7 04/23/25 22:05

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Chloride	40.0	410	358	0.000	1	90.0-110	<u>EV</u>
Sulfate	40.0	36.0	66.5	76.3	1	90.0-110	<u>J6</u>

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4202436-1 04/20/25 18:44

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Ammonia Nitrogen	ND		0.0317	0.100

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

L1848861-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1848861-02 04/20/25 18:50 • (DUP) R4202436-3 04/20/25 18:52

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Ammonia Nitrogen	ND	ND	1	0.000		10

L1848866-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1848866-01 04/20/25 18:56 • (DUP) R4202436-6 04/20/25 18:58

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Ammonia Nitrogen	0.158	0.158	1	0.000		10

Laboratory Control Sample (LCS)

(LCS) R4202436-2 04/20/25 18:46

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Ammonia Nitrogen	7.50	7.39	98.5	90.0-110	

L1848861-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1848861-02 04/20/25 18:50 • (MS) R4202436-4 04/20/25 18:53 • (MSD) R4202436-5 04/20/25 18:55

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Ammonia Nitrogen	5.00	ND	5.08	5.02	102	100	1	90.0-110			1.27	10

L1848866-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1848866-01 04/20/25 18:56 • (MS) R4202436-7 04/20/25 19:04 • (MSD) R4202436-8 04/20/25 19:05

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Ammonia Nitrogen	5.00	0.158	5.25	5.38	102	104	1	90.0-110			2.54	10

Method Blank (MB)

(MB) R4207049-1 04/29/25 11:38

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Boron,Dissolved	ND		12.6	100
Calcium,Dissolved	ND		0.0463	1.00
Iron,Dissolved	ND		14.1	100
Potassium,Dissolved	ND		102	1000
Sodium,Dissolved	ND		98.5	1000

Laboratory Control Sample (LCS)

(LCS) R4207049-2 04/29/25 11:40

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Boron,Dissolved	1000	943	94.3	80.0-120	
Calcium,Dissolved	10.0	9.46	94.6	80.0-120	
Iron,Dissolved	10000	9660	96.6	80.0-120	
Potassium,Dissolved	10000	9610	96.1	80.0-120	
Sodium,Dissolved	10000	10000	100	80.0-120	

L1849608-18 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1849608-18 04/29/25 11:42 • (MS) R4207049-4 04/29/25 11:45 • (MSD) R4207049-5 04/29/25 11:47

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Boron,Dissolved	1000	ND	996	1010	95.4	96.4	1	75.0-125			0.976	20
Calcium,Dissolved	10.0	94.9	103	102	76.3	75.4	1	75.0-125			0.0939	20
Iron,Dissolved	10000	ND	9590	9640	95.9	96.4	1	75.0-125			0.504	20
Potassium,Dissolved	10000	9750	19400	19600	96.9	98.1	1	75.0-125			0.650	20
Sodium,Dissolved	10000	48500	57000	57500	84.6	89.6	1	75.0-125			0.871	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R4204833-1 04/25/25 01:35

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Chromium,Dissolved	ND		0.540	2.00
Magnesium,Dissolved	ND		100	100
Zinc,Dissolved	0.424		0.256	1.00
Arsenic,Dissolved	ND		0.250	1.00

Laboratory Control Sample (LCS)

(LCS) R4204833-2 04/25/25 01:38

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chromium,Dissolved	50.0	50.3	101	80.0-120	
Magnesium,Dissolved	5000	4900	98.0	80.0-120	
Zinc,Dissolved	50.0	47.5	94.9	80.0-120	
Arsenic,Dissolved	50.0	49.2	98.4	80.0-120	

L1849540-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1849540-01 04/25/25 01:41 • (MS) R4204833-4 04/25/25 01:48 • (MSD) R4204833-5 04/25/25 01:51

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chromium,Dissolved	50.0	ND	45.5	47.9	91.0	95.8	1	75.0-125			5.11	20
Magnesium,Dissolved	5000	186000	180000	192000	0.000	117	1	75.0-125	V		6.07	20
Zinc,Dissolved	50.0	ND	43.7	45.2	87.4	90.4	1	75.0-125			3.30	20
Arsenic,Dissolved	50.0	1.59	46.9	48.2	90.5	93.2	1	75.0-125			2.84	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4206160-3 04/26/25 00:12

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
1,1,1,2-Tetrachloroethane	ND		0.0379	0.100
1,1,1-Trichloroethane	ND		0.0369	0.100
1,1,2,2-Tetrachloroethane	ND		0.0278	0.100
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0302	0.100
1,1,2-Trichloroethane	ND		0.0239	0.100
1,1-Dichloroethane	ND		0.0196	0.100
1,1-Dichloroethene	ND		0.0242	0.100
1,1-Dichloropropene	ND		0.0324	0.100
1,2,3-Trichlorobenzene	ND		0.293	0.500
1,2,3-Trichloropropane	ND		0.0648	0.500
1,2,4-Trichlorobenzene	ND		0.176	0.500
1,2,4-Trimethylbenzene	ND		0.0632	0.200
1,2-Dibromo-3-Chloropropane	ND		0.156	1.00
1,2-Dibromoethane	ND		0.0259	0.100
1,2-Dichlorobenzene	ND		0.0170	0.200
1,2-Dichloroethane	ND		0.0260	0.100
1,2-Dichloropropane	ND		0.0568	0.200
1,3,5-Trimethylbenzene	ND		0.0800	0.200
1,3-Dichlorobenzene	ND		0.0240	0.200
1,3-Dichloropropane	ND		0.0200	0.200
1,4-Dichlorobenzene	ND		0.0280	0.200
2,2-Dichloropropane	ND		0.0552	0.100
2-Butanone (MEK)	ND		2.54	4.00
4-Methyl-2-pentanone (MIBK)	ND		0.0912	1.00
Allyl chloride	ND		0.160	1.00
Benzene	ND		0.0187	0.0400
Bromobenzene	ND		0.0360	0.500
Bromochloromethane	ND		0.0226	0.200
Bromodichloromethane	ND		0.0290	0.100
Bromoform	ND		0.0468	1.00
Bromomethane	ND		0.0788	0.500
Carbon tetrachloride	ND		0.0359	0.200
Chlorobenzene	ND		0.00840	0.100
Chloroethane	ND		0.0680	0.200
Chloroform	ND		0.0412	0.100
Chloromethane	ND		0.174	0.500
Dibromochloromethane	ND		0.0245	0.100
Dibromomethane	ND		0.0300	0.200
Dichlorodifluoromethane	ND		0.0644	0.200

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4206160-3 04/26/25 00:12

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dichlorofluoromethane	ND		0.0490	0.100
Ethyl ether	ND		0.0356	0.100
Ethylbenzene	ND		0.0295	0.100
Hexachloro-1,3-butadiene	ND		0.0485	0.250
Isopropylbenzene	ND		0.0170	0.100
Methyl tert-butyl ether	ND		0.0140	0.0400
Methylene Chloride	ND		0.266	1.00
Naphthalene	ND		0.195	0.500
Styrene	ND		0.00916	0.500
Tetrachloroethene	ND		0.0358	0.100
Tetrahydrofuran	ND		0.141	0.500
Toluene	ND		0.0520	0.200
Trichloroethene	ND		0.0234	0.0400
Trichlorofluoromethane	ND		0.0331	0.100
Xylenes, Total	ND		0.0352	0.260
cis-1,2-Dichloroethene	ND		0.0294	0.100
cis-1,3-Dichloropropene	ND		0.0303	0.100
n-Butylbenzene	ND		0.210	0.500
n-Propylbenzene	ND		0.0380	0.200
o-Chlorotoluene	ND		0.0346	0.100
p-Chlorotoluene	ND		0.0180	0.200
p-Isopropyltoluene	ND		0.102	0.200
sec-Butylbenzene	ND		0.115	0.500
tert-Butylbenzene	ND		0.0780	0.200
trans-1,2-Dichloroethene	ND		0.0416	0.200
trans-1,3-Dichloropropene	ND		0.0456	0.200
(S) 4-Bromofluorobenzene	97.2			67.0-138
(S) Toluene-d8	111			75.0-131
(S) 1,2-Dichloroethane-d4	84.0			70.0-130

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4206160-1 04/25/25 22:32 • (LCSD) R4206160-2 04/25/25 22:52

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
1,1,1,2-Tetrachloroethane	5.00	4.99	5.10	99.8	102	74.0-129			2.18	20
1,1,1-Trichloroethane	5.00	4.14	4.17	82.8	83.4	69.0-126			0.722	20
1,1,2,2-Tetrachloroethane	5.00	4.60	4.65	92.0	93.0	68.0-128			1.08	20
1,1,2-Trichloro-1,2,2-trifluoroethane	5.00	4.46	4.55	89.2	91.0	61.0-139			2.00	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4206160-1 04/25/25 22:32 • (LCSD) R4206160-2 04/25/25 22:52

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
1,1,2-Trichloroethane	5.00	5.35	5.35	107	107	78.0-123			0.000	20
1,1-Dichloroethane	5.00	4.04	3.99	80.8	79.8	70.0-127			1.25	20
1,1-Dichloroethene	5.00	3.95	3.81	79.0	76.2	65.0-131			3.61	20
1,1-Dichloropropene	5.00	4.53	4.48	90.6	89.6	73.0-125			1.11	20
1,2,3-Trichlorobenzene	5.00	5.00	5.15	100	103	59.0-139			2.96	20
1,2,3-Trichloropropane	5.00	5.35	5.29	107	106	67.0-129			1.13	20
1,2,4-Trichlorobenzene	5.00	5.15	5.26	103	105	62.0-137			2.11	20
1,2,4-Trimethylbenzene	5.00	5.41	5.37	108	107	70.0-126			0.742	20
1,2-Dibromo-3-Chloropropane	5.00	4.22	4.26	84.4	85.2	59.0-130			0.943	20
1,2-Dibromoethane	5.00	5.26	5.34	105	107	74.0-128			1.51	20
1,2-Dichlorobenzene	5.00	5.51	5.39	110	108	76.0-124			2.20	20
1,2-Dichloroethane	5.00	3.64	3.73	72.8	74.6	65.0-131			2.44	20
1,2-Dichloropropane	5.00	4.01	4.01	80.2	80.2	74.0-125			0.000	20
1,3,5-Trimethylbenzene	5.00	5.24	5.24	105	105	73.0-127			0.000	20
1,3-Dichlorobenzene	5.00	5.73	5.81	115	116	76.0-125			1.39	20
1,3-Dichloropropane	5.00	5.24	5.30	105	106	80.0-125			1.14	20
1,4-Dichlorobenzene	5.00	5.65	5.64	113	113	77.0-121			0.177	20
2,2-Dichloropropane	5.00	4.00	4.05	80.0	81.0	59.0-135			1.24	20
2-Butanone (MEK)	25.0	15.8	15.7	63.2	62.8	30.0-160			0.635	24
4-Methyl-2-pentanone (MIBK)	25.0	21.0	21.3	84.0	85.2	56.0-143			1.42	20
Allyl chloride	25.0	23.3	23.3	93.2	93.2	70.0-131			0.000	20
Benzene	5.00	4.60	4.55	92.0	91.0	70.0-123			1.09	20
Bromobenzene	5.00	5.45	5.43	109	109	73.0-121			0.368	20
Bromochloromethane	5.00	5.40	5.38	108	108	77.0-128			0.371	20
Bromodichloromethane	5.00	4.07	4.20	81.4	84.0	73.0-121			3.14	20
Bromoform	5.00	4.28	4.54	85.6	90.8	64.0-132			5.90	20
Bromomethane	5.00	2.92	3.80	58.4	76.0	56.0-147		J3	26.2	20
Carbon tetrachloride	5.00	4.33	4.39	86.6	87.8	66.0-128			1.38	20
Chlorobenzene	5.00	5.66	5.63	113	113	76.0-128			0.531	20
Chloroethane	5.00	4.04	4.14	80.8	82.8	61.0-134			2.44	20
Chloroform	5.00	4.13	4.17	82.6	83.4	72.0-123			0.964	20
Chloromethane	5.00	2.83	2.81	56.6	56.2	51.0-138			0.709	20
Dibromochloromethane	5.00	4.94	5.19	98.8	104	74.0-127			4.94	20
Dibromomethane	5.00	4.27	4.39	85.4	87.8	75.0-122			2.77	20
Dichlorodifluoromethane	5.00	3.48	3.47	69.6	69.4	43.0-156			0.288	20
Dichlorofluoromethane	5.00	4.07	4.30	81.4	86.0	65.0-137			5.50	20
Ethyl ether	5.00	3.85	3.79	77.0	75.8	64.0-137			1.57	20
Ethylbenzene	5.00	5.66	5.76	113	115	74.0-126			1.75	20
Hexachloro-1,3-butadiene	5.00	4.06	4.18	81.2	83.6	57.0-150			2.91	20
Isopropylbenzene	5.00	5.68	5.64	114	113	72.0-127			0.707	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4206160-1 04/25/25 22:32 • (LCSD) R4206160-2 04/25/25 22:52

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Methyl tert-butyl ether	5.00	4.58	4.62	91.6	92.4	66.0-132			0.870	20
Methylene Chloride	5.00	4.37	4.41	87.4	88.2	68.0-123			0.911	20
Naphthalene	5.00	5.31	5.44	106	109	59.0-130			2.42	20
Styrene	5.00	5.39	5.51	108	110	72.0-127			2.20	20
Tetrachloroethene	5.00	5.77	5.68	115	114	70.0-136			1.57	20
Tetrahydrofuran	5.00	2.98	2.99	59.6	59.8	37.0-146			0.335	24
Toluene	5.00	5.68	5.72	114	114	75.0-121			0.702	20
Trichloroethene	5.00	5.03	4.88	101	97.6	76.0-126			3.03	20
Trichlorofluoromethane	5.00	4.02	3.93	80.4	78.6	61.0-142			2.26	20
Xylenes, Total	15.0	16.2	16.1	108	107	72.0-127			0.619	20
cis-1,2-Dichloroethene	5.00	4.69	4.76	93.8	95.2	73.0-125			1.48	20
cis-1,3-Dichloropropene	5.00	4.38	4.47	87.6	89.4	76.0-127			2.03	20
n-Butylbenzene	5.00	5.05	4.96	101	99.2	68.0-135			1.80	20
n-Propylbenzene	5.00	5.50	5.56	110	111	74.0-126			1.08	20
o-Chlorotoluene	5.00	5.57	5.31	111	106	75.0-124			4.78	20
p-Chlorotoluene	5.00	5.19	5.29	104	106	75.0-124			1.91	20
p-Isopropyltoluene	5.00	5.45	5.40	109	108	72.0-133			0.922	20
sec-Butylbenzene	5.00	5.33	5.26	107	105	74.0-130			1.32	20
tert-Butylbenzene	5.00	5.64	5.50	113	110	75.0-127			2.51	20
trans-1,2-Dichloroethene	5.00	4.43	4.54	88.6	90.8	71.0-125			2.45	20
trans-1,3-Dichloropropene	5.00	4.79	4.92	95.8	98.4	73.0-127			2.68	20
(S) 4-Bromofluorobenzene				96.6	96.6	67.0-138				
(S) Toluene-d8				110	111	75.0-131				
(S) 1,2-Dichloroethane-d4				84.1	85.7	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4207364-3 04/29/25 22:07

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Acetone	ND		1.46	2.00
Vinyl chloride	ND		0.0462	0.0500
(S) 4-Bromofluorobenzene	90.4			67.0-138
(S) Toluene-d8	117			75.0-131
(S) 1,2-Dichloroethane-d4	94.0			70.0-130

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4207364-1 04/29/25 20:49 • (LCSD) R4207364-2 04/29/25 21:08

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	25.0	24.5	23.7	98.0	94.8	10.0-160			3.32	31
Vinyl chloride	5.00	4.45	4.50	89.0	90.0	63.0-134			1.12	20
(S) 4-Bromofluorobenzene				90.2	89.6	67.0-138				
(S) Toluene-d8				115	117	75.0-131				
(S) 1,2-Dichloroethane-d4				92.9	95.2	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4207602-3 04/29/25 10:27

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
1,1,1,2-Tetrachloroethane	ND		0.0379	0.100
1,1,1-Trichloroethane	ND		0.0369	0.100
1,1,2,2-Tetrachloroethane	ND		0.0278	0.100
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0302	0.100
1,1,2-Trichloroethane	ND		0.0239	0.100
1,1-Dichloroethane	ND		0.0196	0.100
1,1-Dichloroethene	ND		0.0242	0.100
1,1-Dichloropropene	ND		0.0324	0.100
1,2,3-Trichlorobenzene	ND		0.293	0.500
1,2,3-Trichloropropane	ND		0.0648	0.500
1,2,4-Trichlorobenzene	ND		0.176	0.500
1,2,4-Trimethylbenzene	ND		0.0632	0.200
1,2-Dibromo-3-Chloropropane	ND		0.156	1.00
1,2-Dibromoethane	ND		0.0259	0.100
1,2-Dichlorobenzene	ND		0.0170	0.200
1,2-Dichloroethane	ND		0.0260	0.100
1,2-Dichloropropane	ND		0.0568	0.200
1,3,5-Trimethylbenzene	ND		0.0800	0.200
1,3-Dichlorobenzene	ND		0.0240	0.200
1,3-Dichloropropane	ND		0.0200	0.200
1,4-Dichlorobenzene	ND		0.0280	0.200
2,2-Dichloropropane	ND		0.0552	0.100
2-Butanone (MEK)	ND		2.54	4.00
4-Methyl-2-pentanone (MIBK)	ND		0.0912	1.00
Acetone	ND		1.46	2.00
Allyl chloride	ND		0.160	1.00
Benzene	ND		0.0187	0.0400
Bromobenzene	ND		0.0360	0.500
Bromochloromethane	ND		0.0226	0.200
Bromodichloromethane	ND		0.0290	0.100
Bromoform	ND		0.0468	1.00
Bromomethane	ND		0.0788	0.500
Carbon tetrachloride	ND		0.0359	0.200
Chlorobenzene	ND		0.00840	0.100
Chloroethane	ND		0.0680	0.200
Chloroform	ND		0.0412	0.100
Chloromethane	ND		0.174	0.500
Dibromochloromethane	ND		0.0245	0.100
Dibromomethane	ND		0.0300	0.200

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4207602-3 04/29/25 10:27

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dichlorodifluoromethane	ND		0.0644	0.200
Dichlorofluoromethane	ND		0.0490	0.100
Ethyl ether	ND		0.0356	0.100
Ethylbenzene	ND		0.0295	0.100
Hexachloro-1,3-butadiene	ND		0.0485	0.250
Isopropylbenzene	ND		0.0170	0.100
Methyl tert-butyl ether	ND		0.0140	0.0400
Methylene Chloride	ND		0.266	1.00
Naphthalene	ND		0.195	0.500
Styrene	ND		0.00916	0.500
Tetrachloroethene	ND		0.0358	0.100
Tetrahydrofuran	ND		0.141	0.500
Toluene	ND		0.0520	0.200
Trichloroethene	ND		0.0234	0.0400
Trichlorofluoromethane	ND		0.0331	0.100
Vinyl chloride	ND		0.0462	0.0500
Xylenes, Total	ND		0.0352	0.260
cis-1,2-Dichloroethene	ND		0.0294	0.100
cis-1,3-Dichloropropene	ND		0.0303	0.100
n-Butylbenzene	ND		0.210	0.500
n-Propylbenzene	ND		0.0380	0.200
o-Chlorotoluene	ND		0.0346	0.100
p-Chlorotoluene	ND		0.0180	0.200
p-Isopropyltoluene	ND		0.102	0.200
sec-Butylbenzene	ND		0.115	0.500
tert-Butylbenzene	ND		0.0780	0.200
trans-1,2-Dichloroethene	ND		0.0416	0.200
trans-1,3-Dichloropropene	ND		0.0456	0.200
(S) 4-Bromofluorobenzene	94.1			67.0-138
(S) Toluene-d8	101			75.0-131
(S) 1,2-Dichloroethane-d4	112			70.0-130

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4207602-1 04/29/25 09:11 • (LCSD) R4207602-2 04/29/25 09:30

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
1,1,1,2-Tetrachloroethane	5.00	4.01	3.99	80.2	79.8	74.0-129			0.500	20
1,1,1-Trichloroethane	5.00	4.86	4.86	97.2	97.2	69.0-126			0.000	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4207602-1 04/29/25 09:11 • (LCSD) R4207602-2 04/29/25 09:30

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
1,1,2,2-Tetrachloroethane	5.00	5.16	5.42	103	108	68.0-128			4.91	20
1,1,2-Trichloro-1,2,2-trifluoroethane	5.00	4.88	4.46	97.6	89.2	61.0-139			8.99	20
1,1,2-Trichloroethane	5.00	4.33	4.49	86.6	89.8	78.0-123			3.63	20
1,1-Dichloroethane	5.00	4.76	4.69	95.2	93.8	70.0-127			1.48	20
1,1-Dichloroethene	5.00	4.61	4.54	92.2	90.8	65.0-131			1.53	20
1,1-Dichloropropene	5.00	4.37	4.35	87.4	87.0	73.0-125			0.459	20
1,2,3-Trichlorobenzene	5.00	4.48	4.46	89.6	89.2	59.0-139			0.447	20
1,2,3-Trichloropropane	5.00	5.32	5.33	106	107	67.0-129			0.188	20
1,2,4-Trichlorobenzene	5.00	4.39	4.14	87.8	82.8	62.0-137			5.86	20
1,2,4-Trimethylbenzene	5.00	4.43	4.62	88.6	92.4	70.0-126			4.20	20
1,2-Dibromo-3-Chloropropane	5.00	4.95	4.76	99.0	95.2	59.0-130			3.91	20
1,2-Dibromoethane	5.00	4.24	4.24	84.8	84.8	74.0-128			0.000	20
1,2-Dichlorobenzene	5.00	4.32	4.36	86.4	87.2	76.0-124			0.922	20
1,2-Dichloroethane	5.00	5.04	4.81	101	96.2	65.0-131			4.67	20
1,2-Dichloropropane	5.00	4.89	5.12	97.8	102	74.0-125			4.60	20
1,3,5-Trimethylbenzene	5.00	4.46	4.65	89.2	93.0	73.0-127			4.17	20
1,3-Dichlorobenzene	5.00	4.38	4.59	87.6	91.8	76.0-125			4.68	20
1,3-Dichloropropane	5.00	4.46	4.60	89.2	92.0	80.0-125			3.09	20
1,4-Dichlorobenzene	5.00	4.06	4.27	81.2	85.4	77.0-121			5.04	20
2,2-Dichloropropane	5.00	5.01	4.57	100	91.4	59.0-135			9.19	20
2-Butanone (MEK)	25.0	38.3	40.5	153	162	30.0-160		J4	5.58	24
4-Methyl-2-pentanone (MIBK)	25.0	29.5	28.7	118	115	56.0-143			2.75	20
Acetone	25.0	41.1	43.4	164	174	10.0-160	J4	J4	5.44	31
Allyl chloride	25.0	20.9	20.7	83.6	82.8	70.0-131			0.962	20
Benzene	5.00	4.06	4.08	81.2	81.6	70.0-123			0.491	20
Bromobenzene	5.00	4.21	4.82	84.2	96.4	73.0-121			13.5	20
Bromochloromethane	5.00	4.64	4.47	92.8	89.4	77.0-128			3.73	20
Bromodichloromethane	5.00	4.51	4.60	90.2	92.0	73.0-121			1.98	20
Bromoform	5.00	3.77	3.55	75.4	71.0	64.0-132			6.01	20
Bromomethane	5.00	4.16	3.73	83.2	74.6	56.0-147			10.9	20
Carbon tetrachloride	5.00	4.84	4.77	96.8	95.4	66.0-128			1.46	20
Chlorobenzene	5.00	4.02	4.12	80.4	82.4	76.0-128			2.46	20
Chloroethane	5.00	4.22	4.07	84.4	81.4	61.0-134			3.62	20
Chloroform	5.00	4.66	4.62	93.2	92.4	72.0-123			0.862	20
Chloromethane	5.00	4.22	4.01	84.4	80.2	51.0-138			5.10	20
Dibromochloromethane	5.00	4.10	4.21	82.0	84.2	74.0-127			2.65	20
Dibromomethane	5.00	4.57	4.47	91.4	89.4	75.0-122			2.21	20
Dichlorodifluoromethane	5.00	4.35	4.17	87.0	83.4	43.0-156			4.23	20
Dichlorofluoromethane	5.00	4.81	4.69	96.2	93.8	65.0-137			2.53	20

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4207602-1 04/29/25 09:11 • (LCSD) R4207602-2 04/29/25 09:30

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Ethyl ether	5.00	4.90	4.75	98.0	95.0	64.0-137			3.11	20
Ethylbenzene	5.00	4.02	4.13	80.4	82.6	74.0-126			2.70	20
Hexachloro-1,3-butadiene	5.00	4.09	3.67	81.8	73.4	57.0-150			10.8	20
Isopropylbenzene	5.00	4.15	3.94	83.0	78.8	72.0-127			5.19	20
Methyl tert-butyl ether	5.00	4.76	4.53	95.2	90.6	66.0-132			4.95	20
Methylene Chloride	5.00	4.27	4.04	85.4	80.8	68.0-123			5.54	20
Naphthalene	5.00	4.62	4.47	92.4	89.4	59.0-130			3.30	20
Styrene	5.00	4.11	4.02	82.2	80.4	72.0-127			2.21	20
Tetrachloroethene	5.00	4.04	4.15	80.8	83.0	70.0-136			2.69	20
Tetrahydrofuran	5.00	4.66	5.33	93.2	107	37.0-146			13.4	24
Toluene	5.00	4.05	4.24	81.0	84.8	75.0-121			4.58	20
Trichloroethene	5.00	4.24	4.23	84.8	84.6	76.0-126			0.236	20
Trichlorofluoromethane	5.00	4.78	4.47	95.6	89.4	61.0-142			6.70	20
Vinyl chloride	5.00	3.79	3.75	75.8	75.0	63.0-134			1.06	20
Xylenes, Total	15.0	12.0	12.1	80.0	80.7	72.0-127			0.830	20
cis-1,2-Dichloroethene	5.00	4.22	4.09	84.4	81.8	73.0-125			3.13	20
cis-1,3-Dichloropropene	5.00	4.53	4.60	90.6	92.0	76.0-127			1.53	20
n-Butylbenzene	5.00	4.24	4.38	84.8	87.6	68.0-135			3.25	20
n-Propylbenzene	5.00	4.44	4.93	88.8	98.6	74.0-126			10.5	20
o-Chlorotoluene	5.00	4.31	4.72	86.2	94.4	75.0-124			9.08	20
p-Chlorotoluene	5.00	4.09	4.49	81.8	89.8	75.0-124			9.32	20
p-Isopropyltoluene	5.00	4.57	4.58	91.4	91.6	72.0-133			0.219	20
sec-Butylbenzene	5.00	4.50	4.69	90.0	93.8	74.0-130			4.13	20
tert-Butylbenzene	5.00	4.61	5.01	92.2	100	75.0-127			8.32	20
trans-1,2-Dichloroethene	5.00	4.14	4.06	82.8	81.2	71.0-125			1.95	20
trans-1,3-Dichloropropene	5.00	4.47	4.56	89.4	91.2	73.0-127			1.99	20
(S) 4-Bromofluorobenzene				95.4	88.6	67.0-138				
(S) Toluene-d8				97.2	100	75.0-131				
(S) 1,2-Dichloroethane-d4				116	109	70.0-130				

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

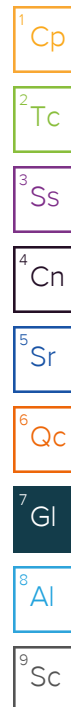
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
C3	The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
V	The sample concentration is too high to evaluate accurate spike recoveries.



ACCREDITATIONS & LOCATIONS

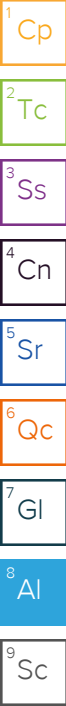
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only (Do Not Write)
LI849779

Note: For Patient Sampling, replace "Water Fish in Casing" and "Well Fish Perched" w/ "Water Fish in Taking Flow Cell" and "Taking Flow Cell Fish Perched". Mark changes, insert/add date. Initials

Sample Tube Type

Note: Road Wall Point On 4 1/2" Center 3d cut and vertical and curve from horizontal data, unless required by the Plans. Wall Elevation, D.W. and Groundwater Elevation must be shown.

Suggested range for 5-oxoproline readings in urine: Percent Daily excretion:

Stabilization Data Fields are Optional *It is complete stabilization read-out for parameters required by WM Site or State. These fields can be used where floor (4) load measurements are required. A New Design Site, New Design Location or other Electronic Format is used. Fill in final readings below and submit electronic data elements to Site. If more fields above are needed, use separate sheet of form.*

Final Field Readings are required (i.e. record field measurements, final implied readings, passive sample readings before sampling for all field parameters required by State Permit No.

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS					

I certify that sampling procedures were in accordance with applicable EPA, state, and WM protocols (if more than one sampler, all should sign)

4/17/25 Kenneth Smith

✓

Aslihan

Figure 1

References

ACKNOWLEDGMENTS

Company

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client

ORIGINAL COPY

2 Laboratory Study Only (Lab ID)
L1849779

Note: For Pinyin Learning, replace "Warm Fish in Caring" and "Wild Fish Perpet" as Warm Fish in Taking Fish Call and Taking Fish Call Fish Perpet. Mark changes, record Gold dots, below.

Sample Tube Type:

Note. Total Well Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by the Permit. Well Direction, DTM, and Groundwater Elevation must be current.

Suggested range for 3 corner readings on new Pirelli P Zero tires (mm):

Stabilization Data Fields are Optional (i.e. complete stabilization readings for parameters required by WML Site, or State). These fields can be used where first 14 field measurements are required by State Permit No. If a Data Logger or other electronic format is used, fill in field readings below and submit electronic data separately to NCEM. If more fields above are needed, see comments about use of additional fields.

Final Field Readings are required (i.e. record field measurements, final analytical readings, positive sample readings before sampling for all field parameters required by State Permit No.

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign)

DISTRIBUTION: WHITE/ORIGINAL - Slays with Sample, YELLOW - Returned to Client

ORIGINAL COPY



ANALYTICAL REPORT

May 14, 2025

Revised Report

Elk River Landfill

Sample Delivery Group: L1850102
Samples Received: 04/19/2025
Project Number: 200
Description: MNA Parameters
Site: MN02
Report To: Jim Eidem
4300 MarketPoint Drive Suite 200
Minneapolis, MN 55435

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Entire Report Reviewed By:

T. Alan Harvill
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	6
P-342C L1850102-01	6
Qc: Quality Control Summary	9
Gravimetric Analysis by Method 2540 C-2011	9
Gravimetric Analysis by Method 2540 D-2020	10
Wet Chemistry by Method 2320 B-2011	11
Wet Chemistry by Method 300.0	12
Wet Chemistry by Method 350.1	14
Wet Chemistry by Method 353.2	15
Wet Chemistry by Method 9060A	16
Mercury by Method 7470A	17
Metals (ICP) by Method 6010D	18
Metals (ICPMS) by Method 6020B	19
Volatile Organic Compounds (GC) by Method 3810/RSK175	20
Volatile Organic Compounds (GC/MS) by Method 8260D	21
Gl: Glossary of Terms	25
Al: Accreditations & Locations	26
Sc: Sample Chain of Custody	27

¹ Cp
² Tc
³ Ss
⁴ Cn
⁵ Sr
⁶ Qc
⁷ Gl
⁸ Al
⁹ Sc

SAMPLE SUMMARY

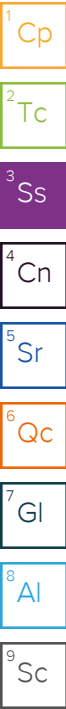
P-342C L1850102-01

Collected by
Mike H.

Collected date/time
04/18/25 11:00

Received date/time
04/19/25 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2495882	1	04/28/25 22:16	04/28/25 22:16	RTW	Mt. Juliet, TN
Calculated Results	WG2499701	1	05/01/25 11:52	05/01/25 11:52	JPD	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 C-2011	WG2498628	1	04/24/25 08:56	04/24/25 10:04	JAC	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 D-2020	WG2496890	1	04/22/25 11:34	04/22/25 17:30	MMF	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2495882	1	04/21/25 12:02	04/21/25 12:02	BJM	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2495099	1	04/24/25 07:36	04/24/25 07:36	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 350.1	WG2496375	1	04/21/25 17:38	04/21/25 17:38	RTW	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG2496476	1	04/28/25 22:16	04/28/25 22:16	RTW	Mt. Juliet, TN
Wet Chemistry by Method 9060A	WG2502806	1	04/29/25 18:20	04/29/25 18:20	AF	Mt. Juliet, TN
Mercury by Method 7470A	WG2495366	1	04/23/25 14:30	04/25/25 12:49	LAS	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2499701	1	04/30/25 09:06	04/30/25 17:30	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2499715	1	04/30/25 04:59	05/01/25 11:52	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 3810/RSK175	WG2502936	1	04/30/25 09:14	04/30/25 09:14	CCM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2502097	1	04/29/25 00:50	04/29/25 00:50	JAH	Mt. Juliet, TN



CASE NARRATIVE

Unless qualified or notated within the narrative below, all sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



T. Alan Harvill
Project Manager

Report Revision History

Level II Report - Version 1: 05/02/25 08:34
Level II Report - Version 2: 05/13/25 12:46

Project Comments

The requested project specific reporting limits may be less than laboratory standard quantitation limits (PQL) but will be greater than or equal to the laboratory method detection limits (MDL). It is noted that results reported below lab standard quantitation limits (PQLs) may result in false positive/false negative values that may require additional laboratory quality assurance review, if requested. Routine laboratory procedures do not initiate a data review process for detections below the laboratory's PQL unless requested by the client.

The requested project specific reporting limits may be less than laboratory standard quantitation limits (PQL) but will be greater than or equal to the laboratory method detection limits (MDL). It is noted that results reported below lab standard quantitation limits (PQLs) may result in false positive/false negative values that may require additional laboratory quality assurance review, if requested. Routine laboratory procedures do not initiate a data review process for detections below the laboratory's PQL unless requested by the client.

Revised report to change ID to P-342C per Barr Engineering

Gravimetric Analysis by Method 2540 D-2020

RPD value not applicable for sample concentrations less than 5 times the reporting limit.

Batch	Lab Sample ID	Analytes
WG2496890	(DUP) R4203897-5	Suspended Solids

Wet Chemistry by Method 300.0

The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).

Batch	Lab Sample ID	Analytes
WG2495099	(MS) R4204495-4	Chloride

The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Batch	Lab Sample ID	Analytes
WG2495099	(MS) R4204495-4, (MS) R4204495-6, (MSD) R4204495-7	Chloride and Sulfate



CASE NARRATIVE

Wet Chemistry by Method 353.2

The sample matrix interfered with the ability to make any accurate determination; spike value is high.

Batch	Lab Sample ID	Analytes
WG2496476	(MSD) R4206643-6	Nitrate-Nitrite

Mercury by Method 7470A

Analysis was filtered in the laboratory.

Batch	Method	Lab Sample ID
WG2495366	7470A	L1850102-01

Metals (ICP) by Method 6010D

Analysis was filtered in the laboratory.

Batch	Method	Lab Sample ID
WG2499701	6010D	L1850102-01

Metals (ICPMS) by Method 6020B

Analysis was filtered in the laboratory.

Batch	Method	Lab Sample ID
WG2499715	6020B	L1850102-01

The sample concentration is too high to evaluate accurate spike recoveries.

Batch	Lab Sample ID	Analytes
WG2499715	(MS) R4208233-4, (MSD) R4208233-5	Magnesium,Dissolved

Volatile Organic Compounds (GC/MS) by Method 8260D

The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.

Batch	Lab Sample ID	Analytes
WG2502097	L1850102-01	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, Hexachloro-1,3-butadiene and Naphthalene

The associated batch QC was above the established quality control range for accuracy.

Batch	Lab Sample ID	Analytes
WG2502097	(LCS) R4207086-1, L1850102-01	Bromomethane and Chloroethane



Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
pH (On Site)	7.5	su
Specific Conductance (on site)	300	umhos/cm
Temperature (on-site)	7.5	Deg. C
Dissolved Oxygen (on-site)	7.3	mg/l
Turbidity (on-site)	0	NTU
eH/ORP (On Site)	-191	mV

Calculated Results

Analyte	Result meq/l	Qualifier	RL meq/l	Dilution	Analysis date / time	Batch
Total Anions (calculated)	3.82		0.000318	1	04/28/2025 22:16	WG2495882
Total Cations (calculated)	4.11		0.0000368	1	05/01/2025 11:52	WG2499701

Calculated Results

Analyte	Result %	Qualifier	RL %	Dilution	Analysis date / time	Batch
Percent Difference (calculated)	3.64		0.000	1	05/01/2025 11:52	WG2499701

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	227		10.0	1	04/24/2025 10:04	WG2498628

Gravimetric Analysis by Method 2540 D-2020

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Suspended Solids	ND		4.00	1	04/22/2025 17:30	WG2496890

Wet Chemistry by Method 2320 B-2011

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Alkalinity	181		20.0	1	04/21/2025 12:02	WG2495882

Sample Narrative:

L1850102-01 WG2495882: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Chloride	ND		1.00	1	04/24/2025 07:36	WG2495099
Sulfate	8.56		5.00	1	04/24/2025 07:36	WG2495099

Wet Chemistry by Method 350.1

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	ND		0.100	1	04/21/2025 17:38	WG2496375

Wet Chemistry by Method 353.2

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Nitrate-Nitrite	ND		0.100	1	04/28/2025 22:16	WG2496476

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

P-342C

Collected date/time: 04/18/25 11:00

SAMPLE RESULTS - 01

L1850102

Wet Chemistry by Method 9060A

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
TOC	1.01		1.00	1	04/29/2025 18:20	WG2502806

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Mercury,Dissolved	ND		0.000200	1	04/25/2025 12:49	WG2495366

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Boron,Dissolved	ND		0.200	1	04/30/2025 17:30	WG2499701
Cadmium,Dissolved	ND		0.00200	1	04/30/2025 17:30	WG2499701
Calcium,Dissolved	49.8		1.00	1	04/30/2025 17:30	WG2499701
Copper,Dissolved	ND		0.0100	1	04/30/2025 17:30	WG2499701
Iron,Dissolved	ND		0.100	1	04/30/2025 17:30	WG2499701
Lead,Dissolved	ND		0.0100	1	04/30/2025 17:30	WG2499701
Manganese,Dissolved	0.124		0.0100	1	04/30/2025 17:30	WG2499701
Potassium,Dissolved	1.42		1.00	1	04/30/2025 17:30	WG2499701
Sodium,Dissolved	4.35		1.00	1	04/30/2025 17:30	WG2499701

Metals (ICPMS) by Method 6020B

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Arsenic,Dissolved	ND		2.00	1	05/01/2025 11:52	WG2499715
Chromium,Dissolved	ND		4.00	1	05/01/2025 11:52	WG2499715
Magnesium,Dissolved	17000		200	1	05/01/2025 11:52	WG2499715
Zinc,Dissolved	ND		10.0	1	05/01/2025 11:52	WG2499715

Volatile Organic Compounds (GC) by Method 3810/RSK175

Analyte	Result mg/l	Qualifier	RL mg/l	Dilution	Analysis date / time	Batch
Ethane	ND		0.00120	1	04/30/2025 09:14	WG2502936
Ethene	ND		0.00120	1	04/30/2025 09:14	WG2502936
Methane	ND		0.000678	1	04/30/2025 09:14	WG2502936

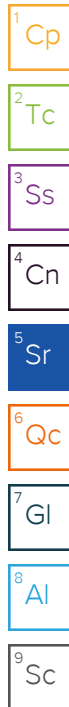
Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/29/2025 00:50	WG2502097
1,1,1-Trichloroethane	ND		1.00	1	04/29/2025 00:50	WG2502097
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/29/2025 00:50	WG2502097
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/29/2025 00:50	WG2502097
1,1,2-Trichloroethane	ND		0.750	1	04/29/2025 00:50	WG2502097
1,1-Dichloroethane	ND		1.00	1	04/29/2025 00:50	WG2502097
1,1-Dichloroethene	ND		1.00	1	04/29/2025 00:50	WG2502097
1,1-Dichloropropene	ND		1.00	1	04/29/2025 00:50	WG2502097
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/29/2025 00:50	WG2502097
1,2,3-Trichloropropane	ND		1.00	1	04/29/2025 00:50	WG2502097
1,2,4-Trichlorobenzene	ND		1.00	1	04/29/2025 00:50	WG2502097
1,2,4-Trimethylbenzene	ND		1.00	1	04/29/2025 00:50	WG2502097
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/29/2025 00:50	WG2502097
1,2-Dibromoethane	ND		1.00	1	04/29/2025 00:50	WG2502097
1,2-Dichlorobenzene	ND		1.00	1	04/29/2025 00:50	WG2502097

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,2-Dichloroethane	ND		0.250	1	04/29/2025 00:50	WG2502097
1,2-Dichloropropane	ND		1.00	1	04/29/2025 00:50	WG2502097
1,3,5-Trimethylbenzene	ND		1.00	1	04/29/2025 00:50	WG2502097
1,3-Dichlorobenzene	ND		1.00	1	04/29/2025 00:50	WG2502097
1,3-Dichloropropane	ND		1.00	1	04/29/2025 00:50	WG2502097
1,4-Dichlorobenzene	ND		1.00	1	04/29/2025 00:50	WG2502097
2,2-Dichloropropane	ND		1.00	1	04/29/2025 00:50	WG2502097
2-Butanone (MEK)	ND		10.0	1	04/29/2025 00:50	WG2502097
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/29/2025 00:50	WG2502097
Acetone	ND		10.0	1	04/29/2025 00:50	WG2502097
Allyl chloride	ND		1.00	1	04/29/2025 00:50	WG2502097
Benzene	ND		0.500	1	04/29/2025 00:50	WG2502097
Bromobenzene	ND		1.00	1	04/29/2025 00:50	WG2502097
Bromochloromethane	ND		1.00	1	04/29/2025 00:50	WG2502097
Bromodichloromethane	ND		1.00	1	04/29/2025 00:50	WG2502097
Bromoform	ND		1.00	1	04/29/2025 00:50	WG2502097
Bromomethane	ND	J4	1.00	1	04/29/2025 00:50	WG2502097
Carbon tetrachloride	ND		0.250	1	04/29/2025 00:50	WG2502097
Chlorobenzene	ND		1.00	1	04/29/2025 00:50	WG2502097
Chloroethane	ND	J4	1.00	1	04/29/2025 00:50	WG2502097
Chloroform	ND		1.00	1	04/29/2025 00:50	WG2502097
Chloromethane	ND		1.00	1	04/29/2025 00:50	WG2502097
Dibromochloromethane	ND		1.00	1	04/29/2025 00:50	WG2502097
Dibromomethane	ND		1.00	1	04/29/2025 00:50	WG2502097
Dichlorodifluoromethane	ND		1.00	1	04/29/2025 00:50	WG2502097
Dichlorofluoromethane	ND		1.00	1	04/29/2025 00:50	WG2502097
Ethyl ether	ND		1.00	1	04/29/2025 00:50	WG2502097
Ethylbenzene	ND		1.00	1	04/29/2025 00:50	WG2502097
Hexachloro-1,3-butadiene	ND	C3	0.250	1	04/29/2025 00:50	WG2502097
Isopropylbenzene	ND		1.00	1	04/29/2025 00:50	WG2502097
Methyl tert-butyl ether	ND		1.00	1	04/29/2025 00:50	WG2502097
Methylene Chloride	ND		1.00	1	04/29/2025 00:50	WG2502097
Naphthalene	ND	C3	1.00	1	04/29/2025 00:50	WG2502097
Styrene	ND		1.00	1	04/29/2025 00:50	WG2502097
Tetrachloroethene	ND		1.00	1	04/29/2025 00:50	WG2502097
Tetrahydrofuran	ND		5.00	1	04/29/2025 00:50	WG2502097
Toluene	ND		1.00	1	04/29/2025 00:50	WG2502097
Trichloroethene	ND		0.100	1	04/29/2025 00:50	WG2502097
Trichlorofluoromethane	ND		1.00	1	04/29/2025 00:50	WG2502097
Vinyl chloride	ND		0.0500	1	04/29/2025 00:50	WG2502097
Xylenes, Total	ND		2.00	1	04/29/2025 00:50	WG2502097
cis-1,2-Dichloroethene	ND		0.100	1	04/29/2025 00:50	WG2502097
cis-1,3-Dichloropropene	ND		0.500	1	04/29/2025 00:50	WG2502097
n-Butylbenzene	ND		1.00	1	04/29/2025 00:50	WG2502097
n-Propylbenzene	ND		1.00	1	04/29/2025 00:50	WG2502097
o-Chlorotoluene	ND		1.00	1	04/29/2025 00:50	WG2502097
p-Chlorotoluene	ND		1.00	1	04/29/2025 00:50	WG2502097
p-Isopropyltoluene	ND		1.00	1	04/29/2025 00:50	WG2502097
sec-Butylbenzene	ND		1.00	1	04/29/2025 00:50	WG2502097
tert-Butylbenzene	ND		1.00	1	04/29/2025 00:50	WG2502097
trans-1,2-Dichloroethene	ND		1.00	1	04/29/2025 00:50	WG2502097
trans-1,3-Dichloropropene	ND		1.00	1	04/29/2025 00:50	WG2502097
(S) 1,2-Dichloroethane-d4	121			70.0-130	04/29/2025 00:50	WG2502097
(S) Toluene-d8	97.2			75.0-131	04/29/2025 00:50	WG2502097
(S) 4-Bromofluorobenzene	90.7			67.0-138	04/29/2025 00:50	WG2502097



Method Blank (MB)

(MB) R4205362-1 04/24/25 10:04

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Dissolved Solids	ND		2.82	10.0

L1847744-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1847744-01 04/24/25 10:04 • (DUP) R4205362-3 04/24/25 10:04

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	28200	29100	1	3.07		10

Sample Narrative:

OS: Re-analyzed out of hold for lab dup. Reporting both data sets.

Laboratory Control Sample (LCS)

(LCS) R4205362-2 04/24/25 10:04

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Dissolved Solids	8800	8660	98.4	90.0-110	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4203897-1 04/22/25 17:30

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Suspended Solids	ND		0.350	2.50

L1850260-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1850260-02 04/22/25 17:30 • (DUP) R4203897-4 04/22/25 17:30

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	25.2	27.1	1	7.42		10

L1850343-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1850343-01 04/22/25 17:30 • (DUP) R4203897-5 04/22/25 17:30

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	527	640	1	19.4	P1	10

Laboratory Control Sample (LCS)

(LCS) R4203897-2 04/22/25 17:30

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Suspended Solids	773	848	110	85.0-115	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4202835-2 04/21/25 10:39

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Alkalinity	ND		2.71	20.0

Sample Narrative:
BLANK: Endpoint pH 4.5

L1848930-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1848930-05 04/21/25 10:55 • (DUP) R4202835-3 04/21/25 11:03

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Alkalinity	288	288	1	0.207		20

Sample Narrative:
OS: Endpoint pH 4.5 Headspace
DUP: Endpoint pH 4.5

L1850150-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1850150-03 04/21/25 14:11 • (DUP) R4202835-4 04/21/25 14:20

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Alkalinity	353	352	1	0.297		20

Sample Narrative:
OS: Endpoint pH 4.5 Headspace
DUP: Endpoint pH 4.5

Laboratory Control Sample (LCS)

(LCS) R4202835-1 04/21/25 10:32

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Alkalinity	100	98.8	98.8	90.0-110	

Sample Narrative:
LCS: Endpoint pH 4.5

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4204495-1 04/24/25 01:00

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Chloride	ND		0.0519	1.00
Sulfate	ND		0.0774	5.00

L1850033-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1850033-01 04/24/25 04:33 • (DUP) R4204495-3 04/24/25 04:52

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Sulfate	68.7	67.8	1	1.33		15

L1850114-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1850114-02 04/24/25 08:12 • (DUP) R4204495-5 04/24/25 08:31

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Chloride	49.6	49.4	1	0.448		15
Sulfate	18.7	18.4	1	1.62		15

Laboratory Control Sample (LCS)

(LCS) R4204495-2 04/24/25 01:16

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Chloride	40.0	38.8	97.1	90.0-110	
Sulfate	40.0	39.5	98.7	90.0-110	

L1850033-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1850033-01 04/24/25 04:33 • (MS) R4204495-4 04/24/25 05:10

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Chloride	40.0	117	130	32.5	1	90.0-110	E J6
Sulfate	40.0	68.7	92.4	59.3	1	90.0-110	J6

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1850114-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1850114-02 04/24/25 08:12 • (MS) R4204495-6 04/24/25 08:49 • (MSD) R4204495-7 04/24/25 09:07

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	40.0	49.6	77.7	76.4	70.1	66.9	1	90.0-110	J6	J6	1.64	15
Sulfate	40.0	18.7	54.1	53.1	88.5	85.9	1	90.0-110	J6	J6	1.93	15

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4202870-1 04/21/25 17:24

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Ammonia Nitrogen	ND		0.0317	0.100

L1849978-17 Original Sample (OS) • Duplicate (DUP)

(OS) L1849978-17 04/21/25 17:29 • (DUP) R4202870-3 04/21/25 17:30

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Ammonia Nitrogen	ND	ND	1	0.000		10

Laboratory Control Sample (LCS)

(LCS) R4202870-2 04/21/25 17:26

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Ammonia Nitrogen	7.50	7.50	99.9	90.0-110	

L1849978-17 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1849978-17 04/21/25 17:29 • (MS) R4202870-4 04/21/25 17:32 • (MSD) R4202870-5 04/21/25 17:33

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Ammonia Nitrogen	5.00	ND	5.04	5.20	101	104	1	90.0-110			3.24	10

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4206643-1 04/28/25 21:40

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Nitrate-Nitrite	ND		0.0197	0.100

Laboratory Control Sample (LCS)

(LCS) R4206643-2 04/28/25 21:42

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Nitrate-Nitrite	2.50	2.56	102	90.0-110	

L1849978-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1849978-04 04/28/25 21:44 • (MS) R4206643-3 04/28/25 21:45 • (MSD) R4206643-4 04/28/25 21:47

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Nitrate-Nitrite	2.50	ND	2.59	2.60	104	104	1	90.0-110			0.385	20

L1849978-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1849978-05 04/28/25 21:48 • (MS) R4206643-5 04/28/25 21:49 • (MSD) R4206643-6 04/28/25 21:50

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Nitrate-Nitrite	2.50	0.152	2.78	2.94	105	112	1	90.0-110		J5	5.59	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4207253-2 04/29/25 18:08

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
TOC	ND		0.102	1.00

L1852817-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1852817-02 04/29/25 19:26 • (DUP) R4207253-5 04/29/25 19:42

	Original Result	DUP Result	Dilution	DUP RPD	DUP RPD Limits
Analyte	mg/l	mg/l		%	%
TOC	16.6	16.5	1	0.604	20

Laboratory Control Sample (LCS)

(LCS) R4207253-1 04/29/25 17:55

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
TOC	25.0	24.7	98.7	80.0-120	

L1852817-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1852817-01 04/29/25 18:36 • (MS) R4207253-3 04/29/25 18:53 • (MSD) R4207253-4 04/29/25 19:10

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
TOC	25.0	15.8	41.4	41.4	103	103	1	75.0-125			0.000	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4205042-1 04/25/25 12:44

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Mercury,Dissolved	ND		0.0000490	0.000200

Laboratory Control Sample (LCS)

(LCS) R4205042-2 04/25/25 12:46

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Mercury,Dissolved	0.00300	0.00296	98.7	80.0-120	

L1850102-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1850102-01 04/25/25 12:49 • (MS) R4205042-4 04/25/25 12:54 • (MSD) R4205042-5 04/25/25 13:04

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Mercury,Dissolved	0.00300	ND	0.00315	0.00285	105	95.0	1	75.0-125			9.89	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4208018-1 04/30/25 16:44

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Boron,Dissolved	ND		0.0126	0.200
Calcium,Dissolved	ND		0.0463	1.00
Cadmium,Dissolved	ND		0.000700	0.00200
Copper,Dissolved	ND		0.00530	0.0100
Iron,Dissolved	ND		0.0141	0.100
Potassium,Dissolved	ND		0.102	1.00
Manganese,Dissolved	ND		0.00120	0.0100
Sodium,Dissolved	ND		0.0985	1.00
Lead,Dissolved	ND		0.00190	0.00500

Laboratory Control Sample (LCS)

(LCS) R4208018-2 04/30/25 16:46

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Boron,Dissolved	1.00	1.02	102	80.0-120	
Calcium,Dissolved	10.0	10.6	106	80.0-120	
Cadmium,Dissolved	1.00	1.01	101	80.0-120	
Copper,Dissolved	1.00	1.08	108	80.0-120	
Iron,Dissolved	10.0	10.6	106	80.0-120	
Potassium,Dissolved	10.0	10.1	101	80.0-120	
Manganese,Dissolved	1.00	1.09	109	80.0-120	
Sodium,Dissolved	10.0	11.4	114	80.0-120	
Lead,Dissolved	1.00	0.998	99.8	80.0-120	

L1850059-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1850059-12 04/30/25 16:48 • (MS) R4208018-4 04/30/25 16:52 • (MSD) R4208018-5 04/30/25 16:53

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Boron,Dissolved	1.00	ND	1.06	1.05	99.4	98.2	1	75.0-125			1.08	20
Calcium,Dissolved	10.0	ND	11.3	11.1	103	102	1	75.0-125			1.48	20
Cadmium,Dissolved	1.00	ND	0.985	0.978	98.3	97.7	1	75.0-125			0.656	20
Copper,Dissolved	1.00	ND	1.05	1.04	105	104	1	75.0-125			1.13	20
Iron,Dissolved	10.0	ND	10.4	10.2	103	102	1	75.0-125			1.37	20
Potassium,Dissolved	10.0	4.07	14.0	13.9	99.5	98.0	1	75.0-125			1.06	20
Manganese,Dissolved	1.00	1.52	2.51	2.51	98.5	99.1	1	75.0-125			0.212	20
Sodium,Dissolved	10.0	4.11	13.3	13.1	91.6	90.3	1	75.0-125			0.930	20
Lead,Dissolved	1.00	ND	0.998	0.994	99.8	99.4	1	75.0-125			0.366	20



Method Blank (MB)

(MB) R4208233-1 05/01/25 11:32

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Arsenic,Dissolved	ND		0.250	2.00
Chromium,Dissolved	0.633		0.540	2.00
Magnesium,Dissolved	ND		100	1000
Zinc,Dissolved	ND		2.56	25.0

Laboratory Control Sample (LCS)

(LCS) R4208233-2 05/01/25 11:36

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic,Dissolved	50.0	51.1	102	80.0-120	
Chromium,Dissolved	50.0	52.1	104	80.0-120	
Magnesium,Dissolved	5000	5040	101	80.0-120	
Zinc,Dissolved	50.0	52.5	105	80.0-120	

L1850511-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1850511-01 05/01/25 11:39 • (MS) R4208233-4 05/01/25 11:45 • (MSD) R4208233-5 05/01/25 11:48

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic,Dissolved	50.0	ND	52.6	53.4	101	103	1	75.0-125			1.51	20
Chromium,Dissolved	50.0	ND	50.8	50.8	102	102	1	75.0-125			0.103	20
Magnesium,Dissolved	5000	176000	177000	177000	30.9	19.9	1	75.0-125	V	V	0.311	20
Zinc,Dissolved	50.0	ND	51.3	50.8	103	102	1	75.0-125			0.806	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4207533-2 04/30/25 09:08

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Ethane	ND		0.000296	0.00129
Ethene	ND		0.000422	0.00127
Methane	ND		0.000287	0.000678

L1852474-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1852474-06 04/30/25 10:33 • (DUP) R4207533-3 04/30/25 10:55

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Ethane	ND	ND	1	0.000		20
Ethene	ND	ND	1	0.000		20
Methane	ND	ND	1	0.000		20

L1852572-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1852572-04 04/30/25 11:27 • (DUP) R4207533-4 04/30/25 11:50

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Ethane	ND	ND	1	0.000		20
Ethene	ND	ND	1	0.000		20
Methane	ND	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4207533-1 04/30/25 08:57 • (LCSD) R4207533-5 04/30/25 11:53

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Ethane	0.129	0.131	0.130	102	101	85.0-115			0.766	20
Ethene	0.127	0.131	0.129	103	102	85.0-115			1.54	20
Methane	0.0678	0.0685	0.0671	101	99.0	85.0-115			2.06	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4207086-2 04/28/25 23:16

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
1,1,1,2-Tetrachloroethane	ND		0.0379	0.100
1,1,1-Trichloroethane	ND		0.0369	0.100
1,1,2,2-Tetrachloroethane	ND		0.0278	0.100
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0302	0.100
1,1,2-Trichloroethane	ND		0.0239	0.100
1,1-Dichloroethane	ND		0.0196	0.100
1,1-Dichloroethene	ND		0.0242	0.100
1,1-Dichloropropene	ND		0.0324	0.100
1,2,3-Trichlorobenzene	ND	U	0.293	0.500
1,2,3-Trichloropropane	ND		0.0648	0.500
1,2,4-Trichlorobenzene	ND		0.176	0.500
1,2,4-Trimethylbenzene	ND		0.0632	0.200
1,2-Dibromo-3-Chloropropane	ND		0.156	1.00
1,2-Dibromoethane	ND		0.0259	0.100
1,2-Dichlorobenzene	ND		0.0170	0.200
1,2-Dichloroethane	ND		0.0260	0.100
1,2-Dichloropropane	ND		0.0568	0.200
1,3,5-Trimethylbenzene	ND		0.0800	0.200
1,3-Dichlorobenzene	ND		0.0240	0.200
1,3-Dichloropropane	ND		0.0200	0.200
1,4-Dichlorobenzene	ND		0.0280	0.200
2,2-Dichloropropane	ND		0.0552	0.100
2-Butanone (MEK)	ND		2.54	4.00
4-Methyl-2-pentanone (MIBK)	ND		0.0912	1.00
Acetone	ND		1.46	2.00
Allyl chloride	ND		0.160	1.00
Benzene	ND		0.0187	0.0400
Bromobenzene	ND		0.0360	0.500
Bromochloromethane	ND		0.0226	0.200
Bromodichloromethane	ND		0.0290	0.100
Bromoform	ND		0.0468	0.500
Bromomethane	0.238	U	0.0788	0.500
Carbon tetrachloride	ND		0.0359	0.200
Chlorobenzene	ND		0.00840	0.100
Chloroethane	ND		0.0680	0.200
Chloroform	0.0583	U	0.0412	0.100
Chloromethane	ND		0.174	0.500
Dibromochloromethane	ND		0.0245	0.100
Dibromomethane	ND		0.0300	0.200

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4207086-2 04/28/25 23:16

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dichlorodifluoromethane	ND		0.0644	0.200
Dichlorofluoromethane	ND		0.0490	0.100
Ethyl ether	ND		0.0356	0.100
Ethylbenzene	ND		0.0295	0.100
Hexachloro-1,3-butadiene	ND		0.0485	0.250
Isopropylbenzene	ND		0.0170	0.100
Methyl tert-butyl ether	ND		0.0140	0.0400
Methylene Chloride	0.282	U	0.266	1.00
Naphthalene	ND		0.195	0.500
Styrene	ND		0.00916	0.500
Tetrachloroethene	ND		0.0358	0.100
Tetrahydrofuran	ND		0.141	0.500
Toluene	0.108	U	0.0520	0.200
Trichloroethene	ND		0.0234	0.0400
Trichlorofluoromethane	ND		0.0331	0.100
Vinyl chloride	ND		0.0462	0.0500
Xylenes, Total	ND		0.0352	0.260
cis-1,2-Dichloroethene	ND		0.0294	0.100
cis-1,3-Dichloropropene	ND		0.0303	0.100
n-Butylbenzene	ND		0.210	0.500
n-Propylbenzene	ND		0.0380	0.200
o-Chlorotoluene	ND		0.0346	0.100
p-Chlorotoluene	ND		0.0180	0.200
p-Isopropyltoluene	ND		0.102	0.200
sec-Butylbenzene	ND		0.115	0.500
tert-Butylbenzene	ND		0.0780	0.200
trans-1,2-Dichloroethene	ND		0.0416	0.200
trans-1,3-Dichloropropene	ND		0.0456	0.200
(S) 1,2-Dichloroethane-d4	114			70.0-130
(S) Toluene-d8	98.5			75.0-131
(S) 4-Bromofluorobenzene	97.8			67.0-138

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R4207086-1 04/28/25 21:57

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
1,1,1,2-Tetrachloroethane	5.00	4.68	93.6	74.0-129	
1,1,1-Trichloroethane	5.00	5.24	105	69.0-126	

Laboratory Control Sample (LCS)

(LCS) R4207086-1 04/28/25 21:57

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
1,1,2,2-Tetrachloroethane	5.00	4.61	92.2	68.0-128	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.00	5.00	100	61.0-139	
1,1,2-Trichloroethane	5.00	4.61	92.2	78.0-123	
1,1-Dichloroethane	5.00	5.19	104	70.0-127	
1,1-Dichloroethene	5.00	4.62	92.4	65.0-131	
1,1-Dichloropropene	5.00	4.83	96.6	73.0-125	
1,2,3-Trichlorobenzene	5.00	4.03	80.6	59.0-139	
1,2,3-Trichloropropane	5.00	5.07	101	67.0-129	
1,2,4-Trichlorobenzene	5.00	4.25	85.0	62.0-137	
1,2,4-Trimethylbenzene	5.00	4.82	96.4	70.0-126	
1,2-Dibromo-3-Chloropropane	5.00	3.78	75.6	59.0-130	
1,2-Dibromoethane	5.00	4.57	91.4	74.0-128	
1,2-Dichlorobenzene	5.00	4.91	98.2	76.0-124	
1,2-Dichloroethane	5.00	5.62	112	65.0-131	
1,2-Dichloropropane	5.00	5.01	100	74.0-125	
1,3,5-Trimethylbenzene	5.00	4.81	96.2	73.0-127	
1,3-Dichlorobenzene	5.00	4.99	99.8	76.0-125	
1,3-Dichloropropane	5.00	4.97	99.4	80.0-125	
1,4-Dichlorobenzene	5.00	4.97	99.4	77.0-121	
2,2-Dichloropropane	5.00	4.92	98.4	59.0-135	
2-Butanone (MEK)	25.0	29.6	118	30.0-160	
4-Methyl-2-pentanone (MIBK)	25.0	26.7	107	56.0-143	
Acetone	25.0	35.0	140	10.0-160	
Allyl chloride	25.0	25.2	101	70.0-131	
Benzene	5.00	4.83	96.6	70.0-123	
Bromobenzene	5.00	4.97	99.4	73.0-121	
Bromochloromethane	5.00	5.33	107	77.0-128	
Bromodichloromethane	5.00	5.19	104	73.0-121	
Bromoform	5.00	4.34	86.8	64.0-132	
Bromomethane	5.00	8.09	162	56.0-147	J4
Carbon tetrachloride	5.00	4.83	96.6	66.0-128	
Chlorobenzene	5.00	4.98	99.6	76.0-128	
Chloroethane	5.00	6.99	140	61.0-134	J4
Chloroform	5.00	5.32	106	72.0-123	
Chloromethane	5.00	5.13	103	51.0-138	
Dibromochloromethane	5.00	4.65	93.0	74.0-127	
Dibromomethane	5.00	5.35	107	75.0-122	
Dichlorodifluoromethane	5.00	6.63	133	43.0-156	
Dichlorofluoromethane	5.00	6.17	123	65.0-137	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R4207086-1 04/28/25 21:57

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Ethyl ether	5.00	4.89	97.8	64.0-137	
Ethylbenzene	5.00	4.59	91.8	74.0-126	
Hexachloro-1,3-butadiene	5.00	3.53	70.6	57.0-150	
Isopropylbenzene	5.00	4.68	93.6	72.0-127	
Methyl tert-butyl ether	5.00	5.30	106	66.0-132	
Methylene Chloride	5.00	5.11	102	68.0-123	
Naphthalene	5.00	4.06	81.2	59.0-130	
Styrene	5.00	4.51	90.2	72.0-127	
Tetrachloroethene	5.00	4.56	91.2	70.0-136	
Tetrahydrofuran	5.00	5.08	102	37.0-146	
Toluene	5.00	4.71	94.2	75.0-121	
Trichloroethene	5.00	4.88	97.6	76.0-126	
Trichlorofluoromethane	5.00	5.91	118	61.0-142	
Vinyl chloride	5.00	6.52	130	63.0-134	
Xylenes, Total	15.0	13.7	91.3	72.0-127	
cis-1,2-Dichloroethene	5.00	4.61	92.2	73.0-125	
cis-1,3-Dichloropropene	5.00	4.80	96.0	76.0-127	
n-Butylbenzene	5.00	4.84	96.8	68.0-135	
n-Propylbenzene	5.00	5.00	100	74.0-126	
o-Chlorotoluene	5.00	5.16	103	75.0-124	
p-Chlorotoluene	5.00	5.01	100	75.0-124	
p-Isopropyltoluene	5.00	4.62	92.4	72.0-133	
sec-Butylbenzene	5.00	4.74	94.8	74.0-130	
tert-Butylbenzene	5.00	4.65	93.0	75.0-127	
trans-1,2-Dichloroethene	5.00	4.73	94.6	71.0-125	
trans-1,3-Dichloropropene	5.00	4.91	98.2	73.0-127	
(S) 1,2-Dichloroethane-d4			122	70.0-130	
(S) Toluene-d8			98.3	75.0-131	
(S) 4-Bromofluorobenzene			94.9	67.0-138	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

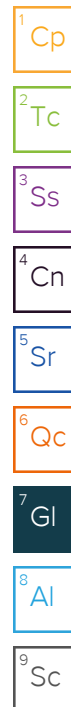
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
C3	The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
V	The sample concentration is too high to evaluate accurate spike recoveries.



ACCREDITATIONS & LOCATIONS

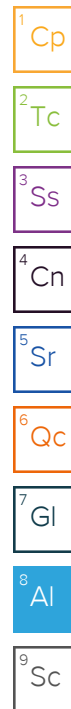
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Company Name/Address:

Elk River Landfill

4300 MarketPoint Drive Suite 200
Minneapolis, MN 55435

Billing Information:

Accounts Payable /
mkostrze@wm.com
P.O. Box 4745
Portland, OR 97208-4745Pres
Chk

Analysis / Containers / Preservation

Chain of Custody Page 1 of 1

Report to:

Jim Eidem 952-832-2893

Email To:

aschneider@barr.com; datamgt@barr.com; jeide

Project Description:

Baseline Parameters

City/State

Collected:

Please Circle:
PT MT CT ET

Regulatory Program(DOD, RCRA, D/W, etc)

Client Project #

300

Lab Project #

WMELKRIVMN-00022

Collected by (print):

Mike Huns

Site/Facility ID #

MN02

P.O. #

Collected by (signature):

[Signature]

Rush? (Lab MUST be Notified)

Same Day Five Day

Next Day 5 Day (Rad Only)

Two Day 10 Day (Rad Only)

Three Day STD TAT

Date Results Needed

No.
of
Cntrs

Immediately

Packed on Ice: N ☐ Y ☒ V

Sample ID

Comp/Grab

Matrix *

Depth

Date

Time

F-342L

TB

GW

GW

GW

4/8/25

1100

8

8

1

AIR, CI, SO4 125mlHDPE-NoPres

Metals-Diss 1L-HDPE NoPres

NH3,NO2,NO3 250mlHDPE-H2SO4

TSS 1L-HDPE NoPres

Total Cations 250mlHDPE-HNO3

V8260ULLC 40mlAmb-HCl

V8260ULLC 40mlAmb-HCl-BK

Remarks Sample # (for only)

* Matrix:

SS - Soil AIR - Air F - Filter

GW - Groundwater B - Bioassay

WW - Waste/Water

DW - Drinking Water

OT - Other

Remarks:

pH Temp

Flow Other

Samples returned via

UPS FedEx Courier

Tracking #

731532092226

Relinquished by: (Signature)

[Signature]

Date:

4/8/25

Time:

1500

Received by: (Signature)

FedEx

Trip Blank Received: Yes/No

HCL/Moist

TBR

Relinquished by: (Signature)

[Signature]

Date:

[Blank]

Time:

[Blank]

Received by: (Signature)

[Blank]

Temp: °C

9644-10 8

Date

4/19/25

Time

0845

If preservation required by Login: Date/Time

[Blank]

Hold:

[Blank]

Condition

NCF / OK

Sample Receipt Checklist

COC Seal Present/Intact: ☒ NCOC Signed/Accurate: ☒ NBottles arrive intact: ☒ NCorrect bottles used: ☒ NSufficient volume sent: ☒ N

If Applicable

VDA Zero Readpack: ☒ Y NPreservation Correct/Checked: ☒ Y NRAD screen <0.5 mS/hr: ☒ Y N

Site No.:

 Sample Point:

P	3	4	2	C

Sample ID

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e., with the order that is returned to the laboratory).

Labret: L1850102

PURGE INFO	04/18/25	10:40					
	PURGE DATE (MM/DD/YY)	PURGE TIME (7:00 Hr Clock)	ELAPSED HRS (No. hrs)	WATER VOL IN CASING (gallons)	ACTUAL VOL PURGED (gallons)	WELL VOL PURGED	

Note: For Forming Operations, replace "Water Fill as Casing" and "Mud Fill as Perpetual" as Water Fill as Tubing-Flow Cell and Tubing-Flow Cell Fish Perpetual. Minor changes, second field data, below.

PURGE/SAMPLE EQUIPMENT	Purging and Sampling Equipment: Dedicated ☒ or ☐ N		Filter Device: ☒ Y or ☐ N ☒ Glass or ☐ Plastic (inches or mill in)	
	Purging Device: ☒ C	A-Submersible Pump B-Peristaltic Pump	D-Bailer E-Piston Pump	A-In-line Disposable B-Pressure
	Sampling Device: ☒ C	C-QED Bladder Pump	F-Dipper/Bottle	C-Vacuum X-Other
	X-Other:			A-Teflon B-Stainless Steel C-PVC D-Polypropylene X-Other:
			Filter Type: ☒ A	Sample Tube Type:

WELL DATA	Well Elevation (at TOC)		(ft/m)	Depth to Water (DTW) (from TOC)	2.20	(ft)	Groundwater Elevation (site datum, from TOC)		(ft/m)
	Total Well Depth (from TOC)		(ft)	Stick Up (from ground elevation)		(ft)	Casing ID		(in)
							Casing Material		

Notes: *Based on USGS Standard Well Log Form, but not for use with the USGS National Water Research Institute. *DTW and Groundwater Elevation must be entered.

Note: Total Word Count: Sixty-Five. Content of all are original and not for publication of this journal. Copyright © 2015. All Rights Reserved. JTW and Grammarly Editor may be correct.

STABILIZATION DATA (Optional)	Sample Time (2400 10 Clock)	Rate/Unit LPM	pH (std)	Conductance (SC/EC) (microhm/cm @ 25 °C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	±HORP (mV)	DTW (ft)
	10:45	0.4	7.42	327	7.6		02		
	10:50		7.47	304	7.6		00		
	10:55		7.50	300	7.6		00		
	11:00		7.50	300	7.5	7.3	00	191	
	:								
	:								
	:								
	:								
	:								
	:								
	:								

Suggested range for 1 column readings:
 Rate/Unit: 0.2 - 10.0
 pH: 6.2 - 8.2
 Conductance (SC/EC): 0 - 300
 Temp.: 0 - 30
 D.O.: 0 - 10
 ±HORP: 0 - 20 mV
 DTW: Surface

Suggested usage for Vennman: *integrate* or *integrated* structures etc.

Substitution Data Fields are Optional (i.e., complete substitution readings for parameters required by WM, AOC, or EAC). These fields can be used where four (4) field measurements are required by State Permit. If a Data Logger or other Electronic format is used, fill in field readings below and submit electronic data separately to SW. If more fields above are needed, use separate sheet or form.

[illegible]

Field Field Readings are required. (i.e. record field measurements, flow, installed readings, passive sample readings before sampling for all field parameters required by State Permit No. _____)

Sample Appearance: _____	Odor: <u>None</u>	Color: <u>None</u>	Other: _____
Weather Conditions (required daily, or as conditions change):	Duration/Speed: _____	Outlook: _____	Precipitation: <u>Y</u> or <u>N</u>
Specific Comments (including purge/well volume calculations if required):			

FIELD COMMENTS			

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign)

4. 18.25

M. K. Ho

[Signature]

Company

DISTRIBUTION: WHITE/ORIGINAL - Strays with Sample, YELLOW - Returned to Client

ORIGINAL COPY

4/19 - NCF-L1850102 WMELKRIVMN

R5

Time estimate: oh

Time spent: oh

Members

AH Alan Harvill



Paul Minnich

Due on 28 April 2025 5:00 PM for target Done

- ☒ Login Clarification needed
- ☐ Chain of custody is incomplete
- ☐ Custody seal not intact
- ☐ Please specify Metals requested
- ☐ Please specify TCLP requested
- ☐ Received additional samples not listed on COC
- ☐ Sample IDs on containers do not match IDs on COC
- ☐ Client did not "X" analysis
- ☐ Chain of Custody is missing
- ☐ If no COC: Received by: _____
- ☐ If no COC: Date/Time: _____
- ☐ If no COC: Temp./Cont.Rec./pH: _____
- ☐ If no COC: Carrier: _____
- ☐ If no COC: Tracking #: _____
- ☐ Client informed by call
- ☒ Client informed by Email
- ☐ Client informed by Voicemail
- ☒ Date/Time: 4/21/25 9:25
- ☒ PM initials: TAH
- ☒ Client Contact: Jim Eidem / Anna Schneider

Comments

Andy Vann

21 April 2025 8:43 AM

We did not receive the tripblank.

Alan Harvill

21 April 2025 9:25 AM

client notified by email.

Matthew Shacklock

21 April 2025 10:16 AM

Done



ANALYTICAL REPORT

May 21, 2025

Revised Report

Elk River Landfill

Sample Delivery Group: L1850104
Samples Received: 04/19/2025
Project Number: 200
Description: Quarterly Routine GW-GW STD wells
Site: MN02
Report To: Jim Eidem
4300 MarketPoint Drive Suite 200
Minneapolis, MN 55435

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Entire Report Reviewed By:

T. Alan Harvill
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	6
Sr: Sample Results	8
TB L1850104-01	8
P-694477 L1850104-02	10
P-335L L1850104-03	12
P-329L L1850104-04	14
P-324L L1850104-05	16
P-322L L1850104-06	18
P-320L L1850104-07	20
P-320C2 L1850104-08	22
P-320C L1850104-09	24
P-314C L1850104-10	26
P-311L L1850104-11	28
P-311D L1850104-12	30
P-305C L1850104-13	32
P-333L L1850104-14	34
P-301L L1850104-15	36
P-301C L1850104-16	38
P-29D L1850104-17	40
P-29C L1850104-18	42
P-315L L1850104-19	44
Qc: Quality Control Summary	46
Volatile Organic Compounds (GC/MS) by Method 8260D	46
Gl: Glossary of Terms	50
Al: Accreditations & Locations	51
Sc: Sample Chain of Custody	52

¹ Cp
² Tc
³ Ss
⁴ Cn
⁵ Sr
⁶ Qc
⁷ Gl
⁸ Al
⁹ Sc

SAMPLE SUMMARY

TB L1850104-01

				Collected by	Collected date/time	Received date/time
					04/15/25 00:00	04/19/25 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2502097	1	04/29/25 00:31	04/29/25 00:31	JAH	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

P-694477 L1850104-02

				Collected by	Collected date/time	Received date/time
					04/16/25 09:30	04/19/25 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2502097	1	04/29/25 01:10	04/29/25 01:10	JAH	Mt. Juliet, TN

P-335L L1850104-03

				Collected by	Collected date/time	Received date/time
					04/17/25 14:45	04/19/25 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2502097	1	04/29/25 01:30	04/29/25 01:30	JAH	Mt. Juliet, TN

P-329L L1850104-04

				Collected by	Collected date/time	Received date/time
					04/17/25 11:30	04/19/25 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2502097	1	04/29/25 01:50	04/29/25 01:50	JAH	Mt. Juliet, TN

P-324L L1850104-05

				Collected by	Collected date/time	Received date/time
					04/17/25 14:05	04/19/25 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2502097	1	04/29/25 02:10	04/29/25 02:10	JAH	Mt. Juliet, TN

P-322L L1850104-06

				Collected by	Collected date/time	Received date/time
					04/17/25 13:10	04/19/25 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2502097	1	04/29/25 02:29	04/29/25 02:29	JAH	Mt. Juliet, TN

P-320L L1850104-07

				Collected by	Collected date/time	Received date/time
					04/15/25 13:35	04/19/25 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2502097	1	04/29/25 02:49	04/29/25 02:49	JAH	Mt. Juliet, TN

P-320C2 L1850104-08

				Collected by	Collected date/time	Received date/time
					04/15/25 14:05	04/19/25 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2502097	1	04/29/25 03:09	04/29/25 03:09	JAH	Mt. Juliet, TN

SAMPLE SUMMARY

P-320C L1850104-09

				Collected by	Collected date/time	Received date/time
					04/15/25 14:35	04/19/25 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2502097	1	04/29/25 03:29	04/29/25 03:29	JAH	Mt. Juliet, TN

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

P-314C L1850104-10

				Collected by	Collected date/time	Received date/time
					04/17/25 13:35	04/19/25 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2502097	1	04/29/25 03:48	04/29/25 03:48	JAH	Mt. Juliet, TN

P-311L L1850104-11

				Collected by	Collected date/time	Received date/time
					04/16/25 14:13	04/19/25 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2502097	1	04/29/25 04:08	04/29/25 04:08	JAH	Mt. Juliet, TN

P-311D L1850104-12

				Collected by	Collected date/time	Received date/time
					04/16/25 14:18	04/19/25 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2502097	1	04/29/25 04:28	04/29/25 04:28	JAH	Mt. Juliet, TN

P-305C L1850104-13

				Collected by	Collected date/time	Received date/time
					04/16/25 13:20	04/19/25 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2502097	1	04/29/25 04:48	04/29/25 04:48	JAH	Mt. Juliet, TN

P-333L L1850104-14

				Collected by	Collected date/time	Received date/time
					04/18/25 11:30	04/19/25 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2502097	1	04/29/25 05:08	04/29/25 05:08	JAH	Mt. Juliet, TN

P-301L L1850104-15

				Collected by	Collected date/time	Received date/time
					04/17/25 14:20	04/19/25 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2502097	1	04/29/25 05:27	04/29/25 05:27	JAH	Mt. Juliet, TN

P-301C L1850104-16

				Collected by	Collected date/time	Received date/time
					04/16/25 13:40	04/19/25 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2502097	1	04/29/25 05:47	04/29/25 05:47	JAH	Mt. Juliet, TN

SAMPLE SUMMARY

P-29D L1850104-17

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2502097	1	04/29/25 06:07	04/29/25 06:07	JAH	Mt. Juliet, TN

Collected by

Collected date/time

Received date/time

04/15/25 15:10

04/19/25 08:45

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

P-29C L1850104-18

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2502097	1	04/29/25 06:27	04/29/25 06:27	JAH	Mt. Juliet, TN

Collected by

Collected date/time

Received date/time

04/16/25 12:55

04/19/25 08:45

P-315L L1850104-19

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2502097	1	04/29/25 06:47	04/29/25 06:47	JAH	Mt. Juliet, TN

Collected by

Collected date/time

Received date/time

04/16/25 14:55

04/19/25 08:45

CASE NARRATIVE

Unless qualified or notated within the narrative below, all sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

T. Alan Harvill
Project Manager

Report Revision History

Level II Report - Version 1: 05/02/25 08:25

Project Comments

The requested project specific reporting limits may be less than laboratory standard quantitation limits (PQL) but will be greater than or equal to the laboratory method detection limits (MDL). It is noted that results reported below lab standard quantitation limits (PQLs) may result in false positive/false negative values that may require additional laboratory quality assurance review, if requested. Routine laboratory procedures do not initiate a data review process for detections below the laboratory's PQL unless requested by the client.

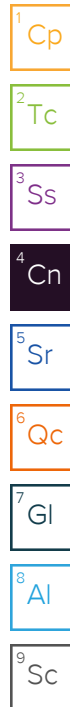
The requested project specific reporting limits may be less than laboratory standard quantitation limits (PQL) but will be greater than or equal to the laboratory method detection limits (MDL). It is noted that results reported below lab standard quantitation limits (PQLs) may result in false positive/false negative values that may require additional laboratory quality assurance review, if requested. Routine laboratory procedures do not initiate a data review process for detections below the laboratory's PQL unless requested by the client.

Revised to correct onsite data.

Volatile Organic Compounds (GC/MS) by Method 8260D

The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.

Batch	Lab Sample ID	Analytes
WG2502097	L1850104-01	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, Hexachloro-1,3-butadiene and Naphthalene
WG2502097	L1850104-02	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, Hexachloro-1,3-butadiene and Naphthalene
WG2502097	L1850104-03	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, Hexachloro-1,3-butadiene and Naphthalene
WG2502097	L1850104-04	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, Hexachloro-1,3-butadiene and Naphthalene
WG2502097	L1850104-05	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, Hexachloro-1,3-butadiene and Naphthalene
WG2502097	L1850104-06	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, Hexachloro-1,3-butadiene and Naphthalene
WG2502097	L1850104-07	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, Hexachloro-1,3-butadiene and Naphthalene
WG2502097	L1850104-08	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, Hexachloro-1,3-butadiene and Naphthalene
WG2502097	L1850104-09	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, Hexachloro-1,3-butadiene and Naphthalene
WG2502097	L1850104-10	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, Hexachloro-1,3-butadiene and Naphthalene
WG2502097	L1850104-11	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, Hexachloro-1,3-butadiene and Naphthalene



CASE NARRATIVE

Volatile Organic Compounds (GC/MS) by Method 8260D

The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.

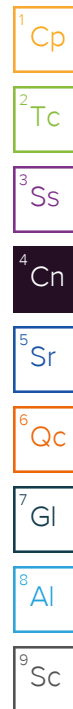
Batch	Lab Sample ID	Analytes
WG2502097	L1850104-12	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, Hexachloro-1,3-butadiene and Naphthalene
WG2502097	L1850104-13	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, Hexachloro-1,3-butadiene and Naphthalene
WG2502097	L1850104-14	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, Hexachloro-1,3-butadiene and Naphthalene
WG2502097	L1850104-15	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, Hexachloro-1,3-butadiene and Naphthalene
WG2502097	L1850104-16	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, Hexachloro-1,3-butadiene and Naphthalene
WG2502097	L1850104-17	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, Hexachloro-1,3-butadiene and Naphthalene
WG2502097	L1850104-18	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, Hexachloro-1,3-butadiene and Naphthalene
WG2502097	L1850104-19	1,2,3-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane, Hexachloro-1,3-butadiene and Naphthalene

The reported concentration is an estimate. The continuing calibration standard associated with this data responded high. Data is likely to show a high bias concerning the result.

Batch	Lab Sample ID	Analytes
WG2502097	L1850104-02	Chloroethane, Dichlorodifluoromethane, Dichlorofluoromethane and Vinyl chloride
WG2502097	L1850104-04	Dichlorodifluoromethane
WG2502097	L1850104-05	Dichlorofluoromethane
WG2502097	L1850104-06	Dichlorodifluoromethane
WG2502097	L1850104-07	Dichlorodifluoromethane, Dichlorofluoromethane and Vinyl chloride
WG2502097	L1850104-08	Dichlorofluoromethane
WG2502097	L1850104-09	Dichlorodifluoromethane, Dichlorofluoromethane and Vinyl chloride
WG2502097	L1850104-10	Dichlorofluoromethane and Vinyl chloride
WG2502097	L1850104-11	Dichlorodifluoromethane, Dichlorofluoromethane and Trichlorofluoromethane
WG2502097	L1850104-13	Dichlorofluoromethane
WG2502097	L1850104-14	Dichlorofluoromethane
WG2502097	L1850104-15	Dichlorodifluoromethane and Dichlorofluoromethane
WG2502097	L1850104-16	Dichlorodifluoromethane and Dichlorofluoromethane
WG2502097	L1850104-18	Dichlorodifluoromethane, Dichlorofluoromethane and Vinyl chloride

The associated batch QC was above the established quality control range for accuracy.

Batch	Lab Sample ID	Analytes
WG2502097	(LCS) R4207086-1, L1850104-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19	Bromomethane and Chloroethane



Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/29/2025 00:31	WG2502097
1,1,1-Trichloroethane	ND		1.00	1	04/29/2025 00:31	WG2502097
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/29/2025 00:31	WG2502097
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/29/2025 00:31	WG2502097
1,1,2-Trichloroethane	ND		0.750	1	04/29/2025 00:31	WG2502097
1,1-Dichloroethane	ND		1.00	1	04/29/2025 00:31	WG2502097
1,1-Dichloroethene	ND		1.00	1	04/29/2025 00:31	WG2502097
1,1-Dichloropropene	ND		1.00	1	04/29/2025 00:31	WG2502097
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/29/2025 00:31	WG2502097
1,2,3-Trichloropropane	ND		1.00	1	04/29/2025 00:31	WG2502097
1,2,4-Trichlorobenzene	ND		1.00	1	04/29/2025 00:31	WG2502097
1,2,4-Trimethylbenzene	ND		1.00	1	04/29/2025 00:31	WG2502097
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/29/2025 00:31	WG2502097
1,2-Dibromoethane	ND		1.00	1	04/29/2025 00:31	WG2502097
1,2-Dichlorobenzene	ND		1.00	1	04/29/2025 00:31	WG2502097
1,2-Dichloroethane	ND		0.250	1	04/29/2025 00:31	WG2502097
1,2-Dichloropropane	ND		1.00	1	04/29/2025 00:31	WG2502097
1,3,5-Trimethylbenzene	ND		1.00	1	04/29/2025 00:31	WG2502097
1,3-Dichlorobenzene	ND		1.00	1	04/29/2025 00:31	WG2502097
1,3-Dichloropropane	ND		1.00	1	04/29/2025 00:31	WG2502097
1,4-Dichlorobenzene	ND		1.00	1	04/29/2025 00:31	WG2502097
2,2-Dichloropropane	ND		1.00	1	04/29/2025 00:31	WG2502097
2-Butanone (MEK)	ND		10.0	1	04/29/2025 00:31	WG2502097
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/29/2025 00:31	WG2502097
Acetone	ND		10.0	1	04/29/2025 00:31	WG2502097
Allyl chloride	ND		1.00	1	04/29/2025 00:31	WG2502097
Benzene	ND		0.500	1	04/29/2025 00:31	WG2502097
Bromobenzene	ND		1.00	1	04/29/2025 00:31	WG2502097
Bromochloromethane	ND		1.00	1	04/29/2025 00:31	WG2502097
Bromodichloromethane	ND		1.00	1	04/29/2025 00:31	WG2502097
Bromoform	ND		1.00	1	04/29/2025 00:31	WG2502097
Bromomethane	ND	J4	1.00	1	04/29/2025 00:31	WG2502097
Carbon tetrachloride	ND		0.250	1	04/29/2025 00:31	WG2502097
Chlorobenzene	ND		1.00	1	04/29/2025 00:31	WG2502097
Chloroethane	ND	J4	1.00	1	04/29/2025 00:31	WG2502097
Chloroform	ND		1.00	1	04/29/2025 00:31	WG2502097
Chloromethane	ND		1.00	1	04/29/2025 00:31	WG2502097
Dibromochloromethane	ND		1.00	1	04/29/2025 00:31	WG2502097
Dibromomethane	ND		1.00	1	04/29/2025 00:31	WG2502097
Dichlorodifluoromethane	ND		1.00	1	04/29/2025 00:31	WG2502097
Dichlorofluoromethane	ND		1.00	1	04/29/2025 00:31	WG2502097
Ethyl ether	ND		1.00	1	04/29/2025 00:31	WG2502097
Ethylbenzene	ND		1.00	1	04/29/2025 00:31	WG2502097
Hexachloro-1,3-butadiene	ND	C3	0.250	1	04/29/2025 00:31	WG2502097
Isopropylbenzene	ND		1.00	1	04/29/2025 00:31	WG2502097
Methyl tert-butyl ether	ND		1.00	1	04/29/2025 00:31	WG2502097
Methylene Chloride	ND		1.00	1	04/29/2025 00:31	WG2502097
Naphthalene	ND	C3	1.00	1	04/29/2025 00:31	WG2502097
Styrene	ND		1.00	1	04/29/2025 00:31	WG2502097
Tetrachloroethene	ND		1.00	1	04/29/2025 00:31	WG2502097
Tetrahydrofuran	ND		5.00	1	04/29/2025 00:31	WG2502097
Toluene	ND		1.00	1	04/29/2025 00:31	WG2502097
Trichloroethene	ND		0.100	1	04/29/2025 00:31	WG2502097
Trichlorofluoromethane	ND		1.00	1	04/29/2025 00:31	WG2502097
Vinyl chloride	ND		0.0500	1	04/29/2025 00:31	WG2502097

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Xylenes, Total	ND		2.00	1	04/29/2025 00:31	WG2502097
cis-1,2-Dichloroethene	ND		0.100	1	04/29/2025 00:31	WG2502097
cis-1,3-Dichloropropene	ND		0.500	1	04/29/2025 00:31	WG2502097
n-Butylbenzene	ND		1.00	1	04/29/2025 00:31	WG2502097
n-Propylbenzene	ND		1.00	1	04/29/2025 00:31	WG2502097
o-Chlorotoluene	ND		1.00	1	04/29/2025 00:31	WG2502097
p-Chlorotoluene	ND		1.00	1	04/29/2025 00:31	WG2502097
p-Isopropyltoluene	ND		1.00	1	04/29/2025 00:31	WG2502097
sec-Butylbenzene	ND		1.00	1	04/29/2025 00:31	WG2502097
tert-Butylbenzene	ND		1.00	1	04/29/2025 00:31	WG2502097
trans-1,2-Dichloroethene	ND		1.00	1	04/29/2025 00:31	WG2502097
trans-1,3-Dichloropropene	ND		1.00	1	04/29/2025 00:31	WG2502097
(S) 1,2-Dichloroethane-d4	123			70.0-130	04/29/2025 00:31	WG2502097
(S) Toluene-d8	97.6			75.0-131	04/29/2025 00:31	WG2502097
(S) 4-Bromofluorobenzene	92.8			67.0-138	04/29/2025 00:31	WG2502097

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
Groundwater Elevation	987.86	ftmsl
pH (On Site)	7.31	su
Specific Conductance (on site)	834	umhos/cm
Temperature (on-site)	9.7	Deg. C
Turbidity (on-site)	0.2	NTU
Dissolved Oxygen (on-site)	0	mg/l
eH/ORP (On Site)	-203	mV

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/29/2025 01:10	WG2502097
1,1,1-Trichloroethane	ND		1.00	1	04/29/2025 01:10	WG2502097
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/29/2025 01:10	WG2502097
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/29/2025 01:10	WG2502097
1,1,2-Trichloroethane	ND		0.750	1	04/29/2025 01:10	WG2502097
1,1-Dichloroethane	3.08		1.00	1	04/29/2025 01:10	WG2502097
1,1-Dichloroethene	ND		1.00	1	04/29/2025 01:10	WG2502097
1,1-Dichloropropene	ND		1.00	1	04/29/2025 01:10	WG2502097
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/29/2025 01:10	WG2502097
1,2,3-Trichloropropane	ND		1.00	1	04/29/2025 01:10	WG2502097
1,2,4-Trichlorobenzene	ND		1.00	1	04/29/2025 01:10	WG2502097
1,2,4-Trimethylbenzene	ND		1.00	1	04/29/2025 01:10	WG2502097
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/29/2025 01:10	WG2502097
1,2-Dibromoethane	ND		1.00	1	04/29/2025 01:10	WG2502097
1,2-Dichlorobenzene	ND		1.00	1	04/29/2025 01:10	WG2502097
1,2-Dichloroethane	ND		0.250	1	04/29/2025 01:10	WG2502097
1,2-Dichloropropane	ND		1.00	1	04/29/2025 01:10	WG2502097
1,3,5-Trimethylbenzene	ND		1.00	1	04/29/2025 01:10	WG2502097
1,3-Dichlorobenzene	ND		1.00	1	04/29/2025 01:10	WG2502097
1,3-Dichloropropane	ND		1.00	1	04/29/2025 01:10	WG2502097
1,4-Dichlorobenzene	ND		1.00	1	04/29/2025 01:10	WG2502097
2,2-Dichloropropane	ND		1.00	1	04/29/2025 01:10	WG2502097
2-Butanone (MEK)	ND		10.0	1	04/29/2025 01:10	WG2502097
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/29/2025 01:10	WG2502097
Acetone	ND		10.0	1	04/29/2025 01:10	WG2502097
Allyl chloride	ND		1.00	1	04/29/2025 01:10	WG2502097
Benzene	ND		0.500	1	04/29/2025 01:10	WG2502097
Bromobenzene	ND		1.00	1	04/29/2025 01:10	WG2502097
Bromochloromethane	ND		1.00	1	04/29/2025 01:10	WG2502097
Bromodichloromethane	ND		1.00	1	04/29/2025 01:10	WG2502097
Bromoform	ND		1.00	1	04/29/2025 01:10	WG2502097
Bromomethane	ND	J4	1.00	1	04/29/2025 01:10	WG2502097
Carbon tetrachloride	ND		0.250	1	04/29/2025 01:10	WG2502097
Chlorobenzene	ND		1.00	1	04/29/2025 01:10	WG2502097
Chloroethane	ND	C5 J4	1.00	1	04/29/2025 01:10	WG2502097
Chloroform	ND		1.00	1	04/29/2025 01:10	WG2502097
Chloromethane	ND		1.00	1	04/29/2025 01:10	WG2502097
Dibromochloromethane	ND		1.00	1	04/29/2025 01:10	WG2502097
Dibromomethane	ND		1.00	1	04/29/2025 01:10	WG2502097
Dichlorodifluoromethane	3.13	C5	1.00	1	04/29/2025 01:10	WG2502097
Dichlorofluoromethane	6.31	C5	1.00	1	04/29/2025 01:10	WG2502097
Ethyl ether	10.4		1.00	1	04/29/2025 01:10	WG2502097
Ethylbenzene	ND		1.00	1	04/29/2025 01:10	WG2502097
Hexachloro-1,3-butadiene	ND	C3	0.250	1	04/29/2025 01:10	WG2502097



Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		1.00	1	04/29/2025 01:10	WG2502097
Methyl tert-butyl ether	ND		1.00	1	04/29/2025 01:10	WG2502097
Methylene Chloride	ND		1.00	1	04/29/2025 01:10	WG2502097
Naphthalene	ND	C3	1.00	1	04/29/2025 01:10	WG2502097
Styrene	ND		1.00	1	04/29/2025 01:10	WG2502097
Tetrachloroethene	ND		1.00	1	04/29/2025 01:10	WG2502097
Tetrahydrofuran	ND		5.00	1	04/29/2025 01:10	WG2502097
Toluene	ND		1.00	1	04/29/2025 01:10	WG2502097
Trichloroethene	ND		0.100	1	04/29/2025 01:10	WG2502097
Trichlorofluoromethane	ND		1.00	1	04/29/2025 01:10	WG2502097
Vinyl chloride	0.580	C5	0.0500	1	04/29/2025 01:10	WG2502097
Xylenes, Total	ND		2.00	1	04/29/2025 01:10	WG2502097
cis-1,2-Dichloroethene	0.106		0.100	1	04/29/2025 01:10	WG2502097
cis-1,3-Dichloropropene	ND		0.500	1	04/29/2025 01:10	WG2502097
n-Butylbenzene	ND		1.00	1	04/29/2025 01:10	WG2502097
n-Propylbenzene	ND		1.00	1	04/29/2025 01:10	WG2502097
o-Chlorotoluene	ND		1.00	1	04/29/2025 01:10	WG2502097
p-Chlorotoluene	ND		1.00	1	04/29/2025 01:10	WG2502097
p-Isopropyltoluene	ND		1.00	1	04/29/2025 01:10	WG2502097
sec-Butylbenzene	ND		1.00	1	04/29/2025 01:10	WG2502097
tert-Butylbenzene	ND		1.00	1	04/29/2025 01:10	WG2502097
trans-1,2-Dichloroethene	ND		1.00	1	04/29/2025 01:10	WG2502097
trans-1,3-Dichloropropene	ND		1.00	1	04/29/2025 01:10	WG2502097
(S) 1,2-Dichloroethane-d4	120			70.0-130	04/29/2025 01:10	WG2502097
(S) Toluene-d8	100			75.0-131	04/29/2025 01:10	WG2502097
(S) 4-Bromofluorobenzene	93.1			67.0-138	04/29/2025 01:10	WG2502097

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
Groundwater Elevation	995.98	ftmsl
pH (On Site)	7.19	su
Specific Conductance (on site)	412	umhos/cm
Temperature (on-site)	12.3	Deg. C
Turbidity (on-site)	10.2	NTU
Dissolved Oxygen (on-site)	0	mg/l
eH/ORP (On Site)	-101	mV

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/29/2025 01:30	WG2502097
1,1,1-Trichloroethane	ND		1.00	1	04/29/2025 01:30	WG2502097
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/29/2025 01:30	WG2502097
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/29/2025 01:30	WG2502097
1,1,2-Trichloroethane	ND		0.750	1	04/29/2025 01:30	WG2502097
1,1-Dichloroethane	ND		1.00	1	04/29/2025 01:30	WG2502097
1,1-Dichloroethene	ND		1.00	1	04/29/2025 01:30	WG2502097
1,1-Dichloropropene	ND		1.00	1	04/29/2025 01:30	WG2502097
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/29/2025 01:30	WG2502097
1,2,3-Trichloropropane	ND		1.00	1	04/29/2025 01:30	WG2502097
1,2,4-Trichlorobenzene	ND		1.00	1	04/29/2025 01:30	WG2502097
1,2,4-Trimethylbenzene	ND		1.00	1	04/29/2025 01:30	WG2502097
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/29/2025 01:30	WG2502097
1,2-Dibromoethane	ND		1.00	1	04/29/2025 01:30	WG2502097
1,2-Dichlorobenzene	ND		1.00	1	04/29/2025 01:30	WG2502097
1,2-Dichloroethane	ND		0.250	1	04/29/2025 01:30	WG2502097
1,2-Dichloropropane	ND		1.00	1	04/29/2025 01:30	WG2502097
1,3,5-Trimethylbenzene	ND		1.00	1	04/29/2025 01:30	WG2502097
1,3-Dichlorobenzene	ND		1.00	1	04/29/2025 01:30	WG2502097
1,3-Dichloropropane	ND		1.00	1	04/29/2025 01:30	WG2502097
1,4-Dichlorobenzene	ND		1.00	1	04/29/2025 01:30	WG2502097
2,2-Dichloropropane	ND		1.00	1	04/29/2025 01:30	WG2502097
2-Butanone (MEK)	ND		10.0	1	04/29/2025 01:30	WG2502097
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/29/2025 01:30	WG2502097
Acetone	ND		10.0	1	04/29/2025 01:30	WG2502097
Allyl chloride	ND		1.00	1	04/29/2025 01:30	WG2502097
Benzene	ND		0.500	1	04/29/2025 01:30	WG2502097
Bromobenzene	ND		1.00	1	04/29/2025 01:30	WG2502097
Bromochloromethane	ND		1.00	1	04/29/2025 01:30	WG2502097
Bromodichloromethane	ND		1.00	1	04/29/2025 01:30	WG2502097
Bromoform	ND		1.00	1	04/29/2025 01:30	WG2502097
Bromomethane	ND	J4	1.00	1	04/29/2025 01:30	WG2502097
Carbon tetrachloride	ND		0.250	1	04/29/2025 01:30	WG2502097
Chlorobenzene	ND		1.00	1	04/29/2025 01:30	WG2502097
Chloroethane	ND	J4	1.00	1	04/29/2025 01:30	WG2502097
Chloroform	ND		1.00	1	04/29/2025 01:30	WG2502097
Chloromethane	ND		1.00	1	04/29/2025 01:30	WG2502097
Dibromochloromethane	ND		1.00	1	04/29/2025 01:30	WG2502097
Dibromomethane	ND		1.00	1	04/29/2025 01:30	WG2502097
Dichlorodifluoromethane	ND		1.00	1	04/29/2025 01:30	WG2502097
Dichlorofluoromethane	ND		1.00	1	04/29/2025 01:30	WG2502097
Ethyl ether	ND		1.00	1	04/29/2025 01:30	WG2502097
Ethylbenzene	ND		1.00	1	04/29/2025 01:30	WG2502097
Hexachloro-1,3-butadiene	ND	C3	0.250	1	04/29/2025 01:30	WG2502097

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		1.00	1	04/29/2025 01:30	WG2502097
Methyl tert-butyl ether	ND		1.00	1	04/29/2025 01:30	WG2502097
Methylene Chloride	ND		1.00	1	04/29/2025 01:30	WG2502097
Naphthalene	ND	C3	1.00	1	04/29/2025 01:30	WG2502097
Styrene	ND		1.00	1	04/29/2025 01:30	WG2502097
Tetrachloroethene	ND		1.00	1	04/29/2025 01:30	WG2502097
Tetrahydrofuran	ND		5.00	1	04/29/2025 01:30	WG2502097
Toluene	ND		1.00	1	04/29/2025 01:30	WG2502097
Trichloroethene	ND		0.100	1	04/29/2025 01:30	WG2502097
Trichlorofluoromethane	ND		1.00	1	04/29/2025 01:30	WG2502097
Vinyl chloride	ND		0.0500	1	04/29/2025 01:30	WG2502097
Xylenes, Total	ND		2.00	1	04/29/2025 01:30	WG2502097
cis-1,2-Dichloroethene	ND		0.100	1	04/29/2025 01:30	WG2502097
cis-1,3-Dichloropropene	ND		0.500	1	04/29/2025 01:30	WG2502097
n-Butylbenzene	ND		1.00	1	04/29/2025 01:30	WG2502097
n-Propylbenzene	ND		1.00	1	04/29/2025 01:30	WG2502097
o-Chlorotoluene	ND		1.00	1	04/29/2025 01:30	WG2502097
p-Chlorotoluene	ND		1.00	1	04/29/2025 01:30	WG2502097
p-Isopropyltoluene	ND		1.00	1	04/29/2025 01:30	WG2502097
sec-Butylbenzene	ND		1.00	1	04/29/2025 01:30	WG2502097
tert-Butylbenzene	ND		1.00	1	04/29/2025 01:30	WG2502097
trans-1,2-Dichloroethene	ND		1.00	1	04/29/2025 01:30	WG2502097
trans-1,3-Dichloropropene	ND		1.00	1	04/29/2025 01:30	WG2502097
(S) 1,2-Dichloroethane-d4	123			70.0-130	04/29/2025 01:30	WG2502097
(S) Toluene-d8	98.9			75.0-131	04/29/2025 01:30	WG2502097
(S) 4-Bromofluorobenzene	93.5			67.0-138	04/29/2025 01:30	WG2502097

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
Groundwater Elevation	947.99	ftmsl
pH (On Site)	7.61	su
Specific Conductance (on site)	267	umhos/cm
Temperature (on-site)	7.8	Deg. C
Turbidity (on-site)	15.7	NTU
Dissolved Oxygen (on-site)	0.1	mg/l
eH/ORP (On Site)	-166.5	mV

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/29/2025 01:50	WG2502097
1,1,1-Trichloroethane	ND		1.00	1	04/29/2025 01:50	WG2502097
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/29/2025 01:50	WG2502097
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/29/2025 01:50	WG2502097
1,1,2-Trichloroethane	ND		0.750	1	04/29/2025 01:50	WG2502097
1,1-Dichloroethane	ND		1.00	1	04/29/2025 01:50	WG2502097
1,1-Dichloroethene	ND		1.00	1	04/29/2025 01:50	WG2502097
1,1-Dichloropropene	ND		1.00	1	04/29/2025 01:50	WG2502097
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/29/2025 01:50	WG2502097
1,2,3-Trichloropropane	ND		1.00	1	04/29/2025 01:50	WG2502097
1,2,4-Trichlorobenzene	ND		1.00	1	04/29/2025 01:50	WG2502097
1,2,4-Trimethylbenzene	ND		1.00	1	04/29/2025 01:50	WG2502097
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/29/2025 01:50	WG2502097
1,2-Dibromoethane	ND		1.00	1	04/29/2025 01:50	WG2502097
1,2-Dichlorobenzene	ND		1.00	1	04/29/2025 01:50	WG2502097
1,2-Dichloroethane	ND		0.250	1	04/29/2025 01:50	WG2502097
1,2-Dichloropropane	ND		1.00	1	04/29/2025 01:50	WG2502097
1,3,5-Trimethylbenzene	ND		1.00	1	04/29/2025 01:50	WG2502097
1,3-Dichlorobenzene	ND		1.00	1	04/29/2025 01:50	WG2502097
1,3-Dichloropropane	ND		1.00	1	04/29/2025 01:50	WG2502097
1,4-Dichlorobenzene	ND		1.00	1	04/29/2025 01:50	WG2502097
2,2-Dichloropropane	ND		1.00	1	04/29/2025 01:50	WG2502097
2-Butanone (MEK)	ND		10.0	1	04/29/2025 01:50	WG2502097
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/29/2025 01:50	WG2502097
Acetone	ND		10.0	1	04/29/2025 01:50	WG2502097
Allyl chloride	ND		1.00	1	04/29/2025 01:50	WG2502097
Benzene	ND		0.500	1	04/29/2025 01:50	WG2502097
Bromobenzene	ND		1.00	1	04/29/2025 01:50	WG2502097
Bromochloromethane	ND		1.00	1	04/29/2025 01:50	WG2502097
Bromodichloromethane	ND		1.00	1	04/29/2025 01:50	WG2502097
Bromoform	ND		1.00	1	04/29/2025 01:50	WG2502097
Bromomethane	ND	J4	1.00	1	04/29/2025 01:50	WG2502097
Carbon tetrachloride	ND		0.250	1	04/29/2025 01:50	WG2502097
Chlorobenzene	ND		1.00	1	04/29/2025 01:50	WG2502097
Chloroethane	ND	J4	1.00	1	04/29/2025 01:50	WG2502097
Chloroform	ND		1.00	1	04/29/2025 01:50	WG2502097
Chloromethane	ND		1.00	1	04/29/2025 01:50	WG2502097
Dibromochloromethane	ND		1.00	1	04/29/2025 01:50	WG2502097
Dibromomethane	ND		1.00	1	04/29/2025 01:50	WG2502097
Dichlorodifluoromethane	ND	C5	1.00	1	04/29/2025 01:50	WG2502097
Dichlorofluoromethane	ND		1.00	1	04/29/2025 01:50	WG2502097
Ethyl ether	ND		1.00	1	04/29/2025 01:50	WG2502097
Ethylbenzene	ND		1.00	1	04/29/2025 01:50	WG2502097
Hexachloro-1,3-butadiene	ND	C3	0.250	1	04/29/2025 01:50	WG2502097



Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		1.00	1	04/29/2025 01:50	WG2502097
Methyl tert-butyl ether	ND		1.00	1	04/29/2025 01:50	WG2502097
Methylene Chloride	ND		1.00	1	04/29/2025 01:50	WG2502097
Naphthalene	ND	C3	1.00	1	04/29/2025 01:50	WG2502097
Styrene	ND		1.00	1	04/29/2025 01:50	WG2502097
Tetrachloroethene	ND		1.00	1	04/29/2025 01:50	WG2502097
Tetrahydrofuran	ND		5.00	1	04/29/2025 01:50	WG2502097
Toluene	ND		1.00	1	04/29/2025 01:50	WG2502097
Trichloroethene	ND		0.100	1	04/29/2025 01:50	WG2502097
Trichlorofluoromethane	ND		1.00	1	04/29/2025 01:50	WG2502097
Vinyl chloride	ND		0.0500	1	04/29/2025 01:50	WG2502097
Xylenes, Total	ND		2.00	1	04/29/2025 01:50	WG2502097
cis-1,2-Dichloroethene	ND		0.100	1	04/29/2025 01:50	WG2502097
cis-1,3-Dichloropropene	ND		0.500	1	04/29/2025 01:50	WG2502097
n-Butylbenzene	ND		1.00	1	04/29/2025 01:50	WG2502097
n-Propylbenzene	ND		1.00	1	04/29/2025 01:50	WG2502097
o-Chlorotoluene	ND		1.00	1	04/29/2025 01:50	WG2502097
p-Chlorotoluene	ND		1.00	1	04/29/2025 01:50	WG2502097
p-Isopropyltoluene	ND		1.00	1	04/29/2025 01:50	WG2502097
sec-Butylbenzene	ND		1.00	1	04/29/2025 01:50	WG2502097
tert-Butylbenzene	ND		1.00	1	04/29/2025 01:50	WG2502097
trans-1,2-Dichloroethene	ND		1.00	1	04/29/2025 01:50	WG2502097
trans-1,3-Dichloropropene	ND		1.00	1	04/29/2025 01:50	WG2502097
(S) 1,2-Dichloroethane-d4	121			70.0-130	04/29/2025 01:50	WG2502097
(S) Toluene-d8	99.6			75.0-131	04/29/2025 01:50	WG2502097
(S) 4-Bromofluorobenzene	93.8			67.0-138	04/29/2025 01:50	WG2502097

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
Groundwater Elevation	960.4	ftmsl
pH (On Site)	7.32	su
Specific Conductance (on site)	559	umhos/cm
Temperature (on-site)	9.7	Deg. C
Turbidity (on-site)	39	NTU
Dissolved Oxygen (on-site)	0	mg/l
eH/ORP (On Site)	-197	mV

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/29/2025 02:10	WG2502097
1,1,1-Trichloroethane	ND		1.00	1	04/29/2025 02:10	WG2502097
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/29/2025 02:10	WG2502097
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/29/2025 02:10	WG2502097
1,1,2-Trichloroethane	ND		0.750	1	04/29/2025 02:10	WG2502097
1,1-Dichloroethane	ND		1.00	1	04/29/2025 02:10	WG2502097
1,1-Dichloroethene	ND		1.00	1	04/29/2025 02:10	WG2502097
1,1-Dichloropropene	ND		1.00	1	04/29/2025 02:10	WG2502097
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/29/2025 02:10	WG2502097
1,2,3-Trichloropropane	ND		1.00	1	04/29/2025 02:10	WG2502097
1,2,4-Trichlorobenzene	ND		1.00	1	04/29/2025 02:10	WG2502097
1,2,4-Trimethylbenzene	ND		1.00	1	04/29/2025 02:10	WG2502097
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/29/2025 02:10	WG2502097
1,2-Dibromoethane	ND		1.00	1	04/29/2025 02:10	WG2502097
1,2-Dichlorobenzene	ND		1.00	1	04/29/2025 02:10	WG2502097
1,2-Dichloroethane	ND		0.250	1	04/29/2025 02:10	WG2502097
1,2-Dichloropropane	ND		1.00	1	04/29/2025 02:10	WG2502097
1,3,5-Trimethylbenzene	ND		1.00	1	04/29/2025 02:10	WG2502097
1,3-Dichlorobenzene	ND		1.00	1	04/29/2025 02:10	WG2502097
1,3-Dichloropropane	ND		1.00	1	04/29/2025 02:10	WG2502097
1,4-Dichlorobenzene	ND		1.00	1	04/29/2025 02:10	WG2502097
2,2-Dichloropropane	ND		1.00	1	04/29/2025 02:10	WG2502097
2-Butanone (MEK)	ND		10.0	1	04/29/2025 02:10	WG2502097
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/29/2025 02:10	WG2502097
Acetone	ND		10.0	1	04/29/2025 02:10	WG2502097
Allyl chloride	ND		1.00	1	04/29/2025 02:10	WG2502097
Benzene	ND		0.500	1	04/29/2025 02:10	WG2502097
Bromobenzene	ND		1.00	1	04/29/2025 02:10	WG2502097
Bromochloromethane	ND		1.00	1	04/29/2025 02:10	WG2502097
Bromodichloromethane	ND		1.00	1	04/29/2025 02:10	WG2502097
Bromoform	ND		1.00	1	04/29/2025 02:10	WG2502097
Bromomethane	ND	J4	1.00	1	04/29/2025 02:10	WG2502097
Carbon tetrachloride	ND		0.250	1	04/29/2025 02:10	WG2502097
Chlorobenzene	ND		1.00	1	04/29/2025 02:10	WG2502097
Chloroethane	ND	J4	1.00	1	04/29/2025 02:10	WG2502097
Chloroform	ND		1.00	1	04/29/2025 02:10	WG2502097
Chloromethane	ND		1.00	1	04/29/2025 02:10	WG2502097
Dibromochloromethane	ND		1.00	1	04/29/2025 02:10	WG2502097
Dibromomethane	ND		1.00	1	04/29/2025 02:10	WG2502097
Dichlorodifluoromethane	ND		1.00	1	04/29/2025 02:10	WG2502097
Dichlorofluoromethane	ND	C5	1.00	1	04/29/2025 02:10	WG2502097
Ethyl ether	ND		1.00	1	04/29/2025 02:10	WG2502097
Ethylbenzene	ND		1.00	1	04/29/2025 02:10	WG2502097
Hexachloro-1,3-butadiene	ND	C3	0.250	1	04/29/2025 02:10	WG2502097

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		1.00	1	04/29/2025 02:10	WG2502097
Methyl tert-butyl ether	ND		1.00	1	04/29/2025 02:10	WG2502097
Methylene Chloride	ND		1.00	1	04/29/2025 02:10	WG2502097
Naphthalene	ND	C3	1.00	1	04/29/2025 02:10	WG2502097
Styrene	ND		1.00	1	04/29/2025 02:10	WG2502097
Tetrachloroethene	ND		1.00	1	04/29/2025 02:10	WG2502097
Tetrahydrofuran	ND		5.00	1	04/29/2025 02:10	WG2502097
Toluene	ND		1.00	1	04/29/2025 02:10	WG2502097
Trichloroethene	ND		0.100	1	04/29/2025 02:10	WG2502097
Trichlorofluoromethane	ND		1.00	1	04/29/2025 02:10	WG2502097
Vinyl chloride	ND		0.0500	1	04/29/2025 02:10	WG2502097
Xylenes, Total	ND		2.00	1	04/29/2025 02:10	WG2502097
cis-1,2-Dichloroethene	ND		0.100	1	04/29/2025 02:10	WG2502097
cis-1,3-Dichloropropene	ND		0.500	1	04/29/2025 02:10	WG2502097
n-Butylbenzene	ND		1.00	1	04/29/2025 02:10	WG2502097
n-Propylbenzene	ND		1.00	1	04/29/2025 02:10	WG2502097
o-Chlorotoluene	ND		1.00	1	04/29/2025 02:10	WG2502097
p-Chlorotoluene	ND		1.00	1	04/29/2025 02:10	WG2502097
p-Isopropyltoluene	ND		1.00	1	04/29/2025 02:10	WG2502097
sec-Butylbenzene	ND		1.00	1	04/29/2025 02:10	WG2502097
tert-Butylbenzene	ND		1.00	1	04/29/2025 02:10	WG2502097
trans-1,2-Dichloroethene	ND		1.00	1	04/29/2025 02:10	WG2502097
trans-1,3-Dichloropropene	ND		1.00	1	04/29/2025 02:10	WG2502097
(S) 1,2-Dichloroethane-d4	123			70.0-130	04/29/2025 02:10	WG2502097
(S) Toluene-d8	97.3			75.0-131	04/29/2025 02:10	WG2502097
(S) 4-Bromofluorobenzene	94.5			67.0-138	04/29/2025 02:10	WG2502097

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
Groundwater Elevation	948.75	ftmsl
pH (On Site)	7.38	su
Specific Conductance (on site)	865	umhos/cm
Temperature (on-site)	8.2	Deg. C
Turbidity (on-site)	3.4	NTU
Dissolved Oxygen (on-site)	0	mg/l
eH/ORP (On Site)	-104	mV

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/29/2025 02:29	WG2502097
1,1,1-Trichloroethane	ND		1.00	1	04/29/2025 02:29	WG2502097
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/29/2025 02:29	WG2502097
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/29/2025 02:29	WG2502097
1,1,2-Trichloroethane	ND		0.750	1	04/29/2025 02:29	WG2502097
1,1-Dichloroethane	ND		1.00	1	04/29/2025 02:29	WG2502097
1,1-Dichloroethene	ND		1.00	1	04/29/2025 02:29	WG2502097
1,1-Dichloropropene	ND		1.00	1	04/29/2025 02:29	WG2502097
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/29/2025 02:29	WG2502097
1,2,3-Trichloropropane	ND		1.00	1	04/29/2025 02:29	WG2502097
1,2,4-Trichlorobenzene	ND		1.00	1	04/29/2025 02:29	WG2502097
1,2,4-Trimethylbenzene	ND		1.00	1	04/29/2025 02:29	WG2502097
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/29/2025 02:29	WG2502097
1,2-Dibromoethane	ND		1.00	1	04/29/2025 02:29	WG2502097
1,2-Dichlorobenzene	ND		1.00	1	04/29/2025 02:29	WG2502097
1,2-Dichloroethane	ND		0.250	1	04/29/2025 02:29	WG2502097
1,2-Dichloropropane	ND		1.00	1	04/29/2025 02:29	WG2502097
1,3,5-Trimethylbenzene	ND		1.00	1	04/29/2025 02:29	WG2502097
1,3-Dichlorobenzene	ND		1.00	1	04/29/2025 02:29	WG2502097
1,3-Dichloropropane	ND		1.00	1	04/29/2025 02:29	WG2502097
1,4-Dichlorobenzene	ND		1.00	1	04/29/2025 02:29	WG2502097
2,2-Dichloropropane	ND		1.00	1	04/29/2025 02:29	WG2502097
2-Butanone (MEK)	ND		10.0	1	04/29/2025 02:29	WG2502097
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/29/2025 02:29	WG2502097
Acetone	ND		10.0	1	04/29/2025 02:29	WG2502097
Allyl chloride	ND		1.00	1	04/29/2025 02:29	WG2502097
Benzene	ND		0.500	1	04/29/2025 02:29	WG2502097
Bromobenzene	ND		1.00	1	04/29/2025 02:29	WG2502097
Bromochloromethane	ND		1.00	1	04/29/2025 02:29	WG2502097
Bromodichloromethane	ND		1.00	1	04/29/2025 02:29	WG2502097
Bromoform	ND		1.00	1	04/29/2025 02:29	WG2502097
Bromomethane	ND	J4	1.00	1	04/29/2025 02:29	WG2502097
Carbon tetrachloride	ND		0.250	1	04/29/2025 02:29	WG2502097
Chlorobenzene	ND		1.00	1	04/29/2025 02:29	WG2502097
Chloroethane	ND	J4	1.00	1	04/29/2025 02:29	WG2502097
Chloroform	ND		1.00	1	04/29/2025 02:29	WG2502097
Chloromethane	ND		1.00	1	04/29/2025 02:29	WG2502097
Dibromochloromethane	ND		1.00	1	04/29/2025 02:29	WG2502097
Dibromomethane	ND		1.00	1	04/29/2025 02:29	WG2502097
Dichlorodifluoromethane	ND	C5	1.00	1	04/29/2025 02:29	WG2502097
Dichlorofluoromethane	ND		1.00	1	04/29/2025 02:29	WG2502097
Ethyl ether	ND		1.00	1	04/29/2025 02:29	WG2502097
Ethylbenzene	ND		1.00	1	04/29/2025 02:29	WG2502097
Hexachloro-1,3-butadiene	ND	C3	0.250	1	04/29/2025 02:29	WG2502097



Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		1.00	1	04/29/2025 02:29	WG2502097
Methyl tert-butyl ether	ND		1.00	1	04/29/2025 02:29	WG2502097
Methylene Chloride	ND		1.00	1	04/29/2025 02:29	WG2502097
Naphthalene	ND	C3	1.00	1	04/29/2025 02:29	WG2502097
Styrene	ND		1.00	1	04/29/2025 02:29	WG2502097
Tetrachloroethene	ND		1.00	1	04/29/2025 02:29	WG2502097
Tetrahydrofuran	ND		5.00	1	04/29/2025 02:29	WG2502097
Toluene	ND		1.00	1	04/29/2025 02:29	WG2502097
Trichloroethene	ND		0.100	1	04/29/2025 02:29	WG2502097
Trichlorofluoromethane	ND		1.00	1	04/29/2025 02:29	WG2502097
Vinyl chloride	ND		0.0500	1	04/29/2025 02:29	WG2502097
Xylenes, Total	ND		2.00	1	04/29/2025 02:29	WG2502097
cis-1,2-Dichloroethene	ND		0.100	1	04/29/2025 02:29	WG2502097
cis-1,3-Dichloropropene	ND		0.500	1	04/29/2025 02:29	WG2502097
n-Butylbenzene	ND		1.00	1	04/29/2025 02:29	WG2502097
n-Propylbenzene	ND		1.00	1	04/29/2025 02:29	WG2502097
o-Chlorotoluene	ND		1.00	1	04/29/2025 02:29	WG2502097
p-Chlorotoluene	ND		1.00	1	04/29/2025 02:29	WG2502097
p-Isopropyltoluene	ND		1.00	1	04/29/2025 02:29	WG2502097
sec-Butylbenzene	ND		1.00	1	04/29/2025 02:29	WG2502097
tert-Butylbenzene	ND		1.00	1	04/29/2025 02:29	WG2502097
trans-1,2-Dichloroethene	ND		1.00	1	04/29/2025 02:29	WG2502097
trans-1,3-Dichloropropene	ND		1.00	1	04/29/2025 02:29	WG2502097
(S) 1,2-Dichloroethane-d4	122			70.0-130	04/29/2025 02:29	WG2502097
(S) Toluene-d8	96.1			75.0-131	04/29/2025 02:29	WG2502097
(S) 4-Bromofluorobenzene	90.0			67.0-138	04/29/2025 02:29	WG2502097

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
Groundwater Elevation	951.37	ftmsl
pH (On Site)	7.12	su
Specific Conductance (on site)	868	umhos/cm
Temperature (on-site)	10.6	Deg. C
Turbidity (on-site)	Not Recorded	NTU
Dissolved Oxygen (on-site)	0.1	mg/l
eH/ORP (On Site)	-124	mV

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/29/2025 02:49	WG2502097
1,1,1-Trichloroethane	ND		1.00	1	04/29/2025 02:49	WG2502097
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/29/2025 02:49	WG2502097
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/29/2025 02:49	WG2502097
1,1,2-Trichloroethane	ND		0.750	1	04/29/2025 02:49	WG2502097
1,1-Dichloroethane	1.54		1.00	1	04/29/2025 02:49	WG2502097
1,1-Dichloroethene	ND		1.00	1	04/29/2025 02:49	WG2502097
1,1-Dichloropropene	ND		1.00	1	04/29/2025 02:49	WG2502097
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/29/2025 02:49	WG2502097
1,2,3-Trichloropropane	ND		1.00	1	04/29/2025 02:49	WG2502097
1,2,4-Trichlorobenzene	ND		1.00	1	04/29/2025 02:49	WG2502097
1,2,4-Trimethylbenzene	ND		1.00	1	04/29/2025 02:49	WG2502097
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/29/2025 02:49	WG2502097
1,2-Dibromoethane	ND		1.00	1	04/29/2025 02:49	WG2502097
1,2-Dichlorobenzene	ND		1.00	1	04/29/2025 02:49	WG2502097
1,2-Dichloroethane	ND		0.250	1	04/29/2025 02:49	WG2502097
1,2-Dichloropropane	ND		1.00	1	04/29/2025 02:49	WG2502097
1,3,5-Trimethylbenzene	ND		1.00	1	04/29/2025 02:49	WG2502097
1,3-Dichlorobenzene	ND		1.00	1	04/29/2025 02:49	WG2502097
1,3-Dichloropropane	ND		1.00	1	04/29/2025 02:49	WG2502097
1,4-Dichlorobenzene	ND		1.00	1	04/29/2025 02:49	WG2502097
2,2-Dichloropropane	ND		1.00	1	04/29/2025 02:49	WG2502097
2-Butanone (MEK)	ND		10.0	1	04/29/2025 02:49	WG2502097
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/29/2025 02:49	WG2502097
Acetone	ND		10.0	1	04/29/2025 02:49	WG2502097
Allyl chloride	ND		1.00	1	04/29/2025 02:49	WG2502097
Benzene	ND		0.500	1	04/29/2025 02:49	WG2502097
Bromobenzene	ND		1.00	1	04/29/2025 02:49	WG2502097
Bromochloromethane	ND		1.00	1	04/29/2025 02:49	WG2502097
Bromodichloromethane	ND		1.00	1	04/29/2025 02:49	WG2502097
Bromoform	ND		1.00	1	04/29/2025 02:49	WG2502097
Bromomethane	ND	J4	1.00	1	04/29/2025 02:49	WG2502097
Carbon tetrachloride	ND		0.250	1	04/29/2025 02:49	WG2502097
Chlorobenzene	ND		1.00	1	04/29/2025 02:49	WG2502097
Chloroethane	ND	J4	1.00	1	04/29/2025 02:49	WG2502097
Chloroform	ND		1.00	1	04/29/2025 02:49	WG2502097
Chloromethane	ND		1.00	1	04/29/2025 02:49	WG2502097
Dibromochloromethane	ND		1.00	1	04/29/2025 02:49	WG2502097
Dibromomethane	ND		1.00	1	04/29/2025 02:49	WG2502097
Dichlorodifluoromethane	ND	C5	1.00	1	04/29/2025 02:49	WG2502097
Dichlorofluoromethane	2.18	C5	1.00	1	04/29/2025 02:49	WG2502097
Ethyl ether	6.42		1.00	1	04/29/2025 02:49	WG2502097
Ethylbenzene	ND		1.00	1	04/29/2025 02:49	WG2502097
Hexachloro-1,3-butadiene	ND	C3	0.250	1	04/29/2025 02:49	WG2502097

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		1.00	1	04/29/2025 02:49	WG2502097
Methyl tert-butyl ether	ND		1.00	1	04/29/2025 02:49	WG2502097
Methylene Chloride	ND		1.00	1	04/29/2025 02:49	WG2502097
Naphthalene	ND	C3	1.00	1	04/29/2025 02:49	WG2502097
Styrene	ND		1.00	1	04/29/2025 02:49	WG2502097
Tetrachloroethene	ND		1.00	1	04/29/2025 02:49	WG2502097
Tetrahydrofuran	ND		5.00	1	04/29/2025 02:49	WG2502097
Toluene	ND		1.00	1	04/29/2025 02:49	WG2502097
Trichloroethene	ND		0.100	1	04/29/2025 02:49	WG2502097
Trichlorofluoromethane	ND		1.00	1	04/29/2025 02:49	WG2502097
Vinyl chloride	0.357	C5	0.0500	1	04/29/2025 02:49	WG2502097
Xylenes, Total	ND		2.00	1	04/29/2025 02:49	WG2502097
cis-1,2-Dichloroethene	0.158		0.100	1	04/29/2025 02:49	WG2502097
cis-1,3-Dichloropropene	ND		0.500	1	04/29/2025 02:49	WG2502097
n-Butylbenzene	ND		1.00	1	04/29/2025 02:49	WG2502097
n-Propylbenzene	ND		1.00	1	04/29/2025 02:49	WG2502097
o-Chlorotoluene	ND		1.00	1	04/29/2025 02:49	WG2502097
p-Chlorotoluene	ND		1.00	1	04/29/2025 02:49	WG2502097
p-Isopropyltoluene	ND		1.00	1	04/29/2025 02:49	WG2502097
sec-Butylbenzene	ND		1.00	1	04/29/2025 02:49	WG2502097
tert-Butylbenzene	ND		1.00	1	04/29/2025 02:49	WG2502097
trans-1,2-Dichloroethene	ND		1.00	1	04/29/2025 02:49	WG2502097
trans-1,3-Dichloropropene	ND		1.00	1	04/29/2025 02:49	WG2502097
(S) 1,2-Dichloroethane-d4	122			70.0-130	04/29/2025 02:49	WG2502097
(S) Toluene-d8	95.5			75.0-131	04/29/2025 02:49	WG2502097
(S) 4-Bromofluorobenzene	90.7			67.0-138	04/29/2025 02:49	WG2502097

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
Groundwater Elevation	951.21	ftmsl
pH (On Site)	7.26	su
Specific Conductance (on site)	1023	umhos/cm
Temperature (on-site)	10.8	Deg. C
Turbidity (on-site)	5.2	NTU
Dissolved Oxygen (on-site)	0	mg/l
eH/ORP (On Site)	-130	mV

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/29/2025 03:09	WG2502097
1,1,1-Trichloroethane	ND		1.00	1	04/29/2025 03:09	WG2502097
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/29/2025 03:09	WG2502097
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/29/2025 03:09	WG2502097
1,1,2-Trichloroethane	ND		0.750	1	04/29/2025 03:09	WG2502097
1,1-Dichloroethane	ND		1.00	1	04/29/2025 03:09	WG2502097
1,1-Dichloroethene	ND		1.00	1	04/29/2025 03:09	WG2502097
1,1-Dichloropropene	ND		1.00	1	04/29/2025 03:09	WG2502097
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/29/2025 03:09	WG2502097
1,2,3-Trichloropropane	ND		1.00	1	04/29/2025 03:09	WG2502097
1,2,4-Trichlorobenzene	ND		1.00	1	04/29/2025 03:09	WG2502097
1,2,4-Trimethylbenzene	ND		1.00	1	04/29/2025 03:09	WG2502097
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/29/2025 03:09	WG2502097
1,2-Dibromoethane	ND		1.00	1	04/29/2025 03:09	WG2502097
1,2-Dichlorobenzene	ND		1.00	1	04/29/2025 03:09	WG2502097
1,2-Dichloroethane	ND		0.250	1	04/29/2025 03:09	WG2502097
1,2-Dichloropropane	ND		1.00	1	04/29/2025 03:09	WG2502097
1,3,5-Trimethylbenzene	ND		1.00	1	04/29/2025 03:09	WG2502097
1,3-Dichlorobenzene	ND		1.00	1	04/29/2025 03:09	WG2502097
1,3-Dichloropropane	ND		1.00	1	04/29/2025 03:09	WG2502097
1,4-Dichlorobenzene	ND		1.00	1	04/29/2025 03:09	WG2502097
2,2-Dichloropropane	ND		1.00	1	04/29/2025 03:09	WG2502097
2-Butanone (MEK)	ND		10.0	1	04/29/2025 03:09	WG2502097
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/29/2025 03:09	WG2502097
Acetone	ND		10.0	1	04/29/2025 03:09	WG2502097
Allyl chloride	ND		1.00	1	04/29/2025 03:09	WG2502097
Benzene	ND		0.500	1	04/29/2025 03:09	WG2502097
Bromobenzene	ND		1.00	1	04/29/2025 03:09	WG2502097
Bromochloromethane	ND		1.00	1	04/29/2025 03:09	WG2502097
Bromodichloromethane	ND		1.00	1	04/29/2025 03:09	WG2502097
Bromoform	ND		1.00	1	04/29/2025 03:09	WG2502097
Bromomethane	ND	J4	1.00	1	04/29/2025 03:09	WG2502097
Carbon tetrachloride	ND		0.250	1	04/29/2025 03:09	WG2502097
Chlorobenzene	ND		1.00	1	04/29/2025 03:09	WG2502097
Chloroethane	ND	J4	1.00	1	04/29/2025 03:09	WG2502097
Chloroform	ND		1.00	1	04/29/2025 03:09	WG2502097
Chloromethane	ND		1.00	1	04/29/2025 03:09	WG2502097
Dibromochloromethane	ND		1.00	1	04/29/2025 03:09	WG2502097
Dibromomethane	ND		1.00	1	04/29/2025 03:09	WG2502097
Dichlorodifluoromethane	ND		1.00	1	04/29/2025 03:09	WG2502097
Dichlorofluoromethane	4.28	C5	1.00	1	04/29/2025 03:09	WG2502097
Ethyl ether	8.35		1.00	1	04/29/2025 03:09	WG2502097
Ethylbenzene	ND		1.00	1	04/29/2025 03:09	WG2502097
Hexachloro-1,3-butadiene	ND	C3	0.250	1	04/29/2025 03:09	WG2502097

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		1.00	1	04/29/2025 03:09	WG2502097
Methyl tert-butyl ether	ND		1.00	1	04/29/2025 03:09	WG2502097
Methylene Chloride	ND		1.00	1	04/29/2025 03:09	WG2502097
Naphthalene	ND	C3	1.00	1	04/29/2025 03:09	WG2502097
Styrene	ND		1.00	1	04/29/2025 03:09	WG2502097
Tetrachloroethene	ND		1.00	1	04/29/2025 03:09	WG2502097
Tetrahydrofuran	ND		5.00	1	04/29/2025 03:09	WG2502097
Toluene	ND		1.00	1	04/29/2025 03:09	WG2502097
Trichloroethene	ND		0.100	1	04/29/2025 03:09	WG2502097
Trichlorofluoromethane	ND		1.00	1	04/29/2025 03:09	WG2502097
Vinyl chloride	0.0836		0.0500	1	04/29/2025 03:09	WG2502097
Xylenes, Total	ND		2.00	1	04/29/2025 03:09	WG2502097
cis-1,2-Dichloroethene	ND		0.100	1	04/29/2025 03:09	WG2502097
cis-1,3-Dichloropropene	ND		0.500	1	04/29/2025 03:09	WG2502097
n-Butylbenzene	ND		1.00	1	04/29/2025 03:09	WG2502097
n-Propylbenzene	ND		1.00	1	04/29/2025 03:09	WG2502097
o-Chlorotoluene	ND		1.00	1	04/29/2025 03:09	WG2502097
p-Chlorotoluene	ND		1.00	1	04/29/2025 03:09	WG2502097
p-Isopropyltoluene	ND		1.00	1	04/29/2025 03:09	WG2502097
sec-Butylbenzene	ND		1.00	1	04/29/2025 03:09	WG2502097
tert-Butylbenzene	ND		1.00	1	04/29/2025 03:09	WG2502097
trans-1,2-Dichloroethene	ND		1.00	1	04/29/2025 03:09	WG2502097
trans-1,3-Dichloropropene	ND		1.00	1	04/29/2025 03:09	WG2502097
(S) 1,2-Dichloroethane-d4	123			70.0-130	04/29/2025 03:09	WG2502097
(S) Toluene-d8	98.3			75.0-131	04/29/2025 03:09	WG2502097
(S) 4-Bromofluorobenzene	91.6			67.0-138	04/29/2025 03:09	WG2502097

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
Groundwater Elevation	951.19	ftmsl
pH (On Site)	7.13	su
Specific Conductance (on site)	1146	umhos/cm
Temperature (on-site)	10.7	Deg. C
Turbidity (on-site)	1	NTU
Dissolved Oxygen (on-site)	0	mg/l
eH/ORP (On Site)	-154	mV

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/29/2025 03:29	WG2502097
1,1,1-Trichloroethane	ND		1.00	1	04/29/2025 03:29	WG2502097
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/29/2025 03:29	WG2502097
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/29/2025 03:29	WG2502097
1,1,2-Trichloroethane	ND		0.750	1	04/29/2025 03:29	WG2502097
1,1-Dichloroethane	ND		1.00	1	04/29/2025 03:29	WG2502097
1,1-Dichloroethene	ND		1.00	1	04/29/2025 03:29	WG2502097
1,1-Dichloropropene	ND		1.00	1	04/29/2025 03:29	WG2502097
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/29/2025 03:29	WG2502097
1,2,3-Trichloropropane	ND		1.00	1	04/29/2025 03:29	WG2502097
1,2,4-Trichlorobenzene	ND		1.00	1	04/29/2025 03:29	WG2502097
1,2,4-Trimethylbenzene	ND		1.00	1	04/29/2025 03:29	WG2502097
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/29/2025 03:29	WG2502097
1,2-Dibromoethane	ND		1.00	1	04/29/2025 03:29	WG2502097
1,2-Dichlorobenzene	ND		1.00	1	04/29/2025 03:29	WG2502097
1,2-Dichloroethane	ND		0.250	1	04/29/2025 03:29	WG2502097
1,2-Dichloropropane	ND		1.00	1	04/29/2025 03:29	WG2502097
1,3,5-Trimethylbenzene	ND		1.00	1	04/29/2025 03:29	WG2502097
1,3-Dichlorobenzene	ND		1.00	1	04/29/2025 03:29	WG2502097
1,3-Dichloropropane	ND		1.00	1	04/29/2025 03:29	WG2502097
1,4-Dichlorobenzene	ND		1.00	1	04/29/2025 03:29	WG2502097
2,2-Dichloropropane	ND		1.00	1	04/29/2025 03:29	WG2502097
2-Butanone (MEK)	ND		10.0	1	04/29/2025 03:29	WG2502097
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/29/2025 03:29	WG2502097
Acetone	ND		10.0	1	04/29/2025 03:29	WG2502097
Allyl chloride	ND		1.00	1	04/29/2025 03:29	WG2502097
Benzene	ND		0.500	1	04/29/2025 03:29	WG2502097
Bromobenzene	ND		1.00	1	04/29/2025 03:29	WG2502097
Bromochloromethane	ND		1.00	1	04/29/2025 03:29	WG2502097
Bromodichloromethane	ND		1.00	1	04/29/2025 03:29	WG2502097
Bromoform	ND		1.00	1	04/29/2025 03:29	WG2502097
Bromomethane	ND	J4	1.00	1	04/29/2025 03:29	WG2502097
Carbon tetrachloride	ND		0.250	1	04/29/2025 03:29	WG2502097
Chlorobenzene	ND		1.00	1	04/29/2025 03:29	WG2502097
Chloroethane	ND	J4	1.00	1	04/29/2025 03:29	WG2502097
Chloroform	ND		1.00	1	04/29/2025 03:29	WG2502097
Chloromethane	ND		1.00	1	04/29/2025 03:29	WG2502097
Dibromochloromethane	ND		1.00	1	04/29/2025 03:29	WG2502097
Dibromomethane	ND		1.00	1	04/29/2025 03:29	WG2502097
Dichlorodifluoromethane	1.09	C5	1.00	1	04/29/2025 03:29	WG2502097
Dichlorofluoromethane	4.12	C5	1.00	1	04/29/2025 03:29	WG2502097
Ethyl ether	4.86		1.00	1	04/29/2025 03:29	WG2502097
Ethylbenzene	ND		1.00	1	04/29/2025 03:29	WG2502097
Hexachloro-1,3-butadiene	ND	C3	0.250	1	04/29/2025 03:29	WG2502097

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		1.00	1	04/29/2025 03:29	WG2502097
Methyl tert-butyl ether	ND		1.00	1	04/29/2025 03:29	WG2502097
Methylene Chloride	ND		1.00	1	04/29/2025 03:29	WG2502097
Naphthalene	ND	C3	1.00	1	04/29/2025 03:29	WG2502097
Styrene	ND		1.00	1	04/29/2025 03:29	WG2502097
Tetrachloroethene	ND		1.00	1	04/29/2025 03:29	WG2502097
Tetrahydrofuran	ND		5.00	1	04/29/2025 03:29	WG2502097
Toluene	ND		1.00	1	04/29/2025 03:29	WG2502097
Trichloroethene	ND		0.100	1	04/29/2025 03:29	WG2502097
Trichlorofluoromethane	ND		1.00	1	04/29/2025 03:29	WG2502097
Vinyl chloride	0.389	C5	0.0500	1	04/29/2025 03:29	WG2502097
Xylenes, Total	ND		2.00	1	04/29/2025 03:29	WG2502097
cis-1,2-Dichloroethene	0.129		0.100	1	04/29/2025 03:29	WG2502097
cis-1,3-Dichloropropene	ND		0.500	1	04/29/2025 03:29	WG2502097
n-Butylbenzene	ND		1.00	1	04/29/2025 03:29	WG2502097
n-Propylbenzene	ND		1.00	1	04/29/2025 03:29	WG2502097
o-Chlorotoluene	ND		1.00	1	04/29/2025 03:29	WG2502097
p-Chlorotoluene	ND		1.00	1	04/29/2025 03:29	WG2502097
p-Isopropyltoluene	ND		1.00	1	04/29/2025 03:29	WG2502097
sec-Butylbenzene	ND		1.00	1	04/29/2025 03:29	WG2502097
tert-Butylbenzene	ND		1.00	1	04/29/2025 03:29	WG2502097
trans-1,2-Dichloroethene	ND		1.00	1	04/29/2025 03:29	WG2502097
trans-1,3-Dichloropropene	ND		1.00	1	04/29/2025 03:29	WG2502097
(S) 1,2-Dichloroethane-d4	120			70.0-130	04/29/2025 03:29	WG2502097
(S) Toluene-d8	99.3			75.0-131	04/29/2025 03:29	WG2502097
(S) 4-Bromofluorobenzene	90.9			67.0-138	04/29/2025 03:29	WG2502097

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
Groundwater Elevation	952.02	ftmsl
pH (On Site)	6.79	su
Specific Conductance (on site)	1337	umhos/cm
Temperature (on-site)	8.7	Deg. C
Turbidity (on-site)	0.5	NTU
Dissolved Oxygen (on-site)	0	mg/l
eH/ORP (On Site)	-108	mV

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/29/2025 03:48	WG2502097
1,1,1-Trichloroethane	ND		1.00	1	04/29/2025 03:48	WG2502097
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/29/2025 03:48	WG2502097
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/29/2025 03:48	WG2502097
1,1,2-Trichloroethane	ND		0.750	1	04/29/2025 03:48	WG2502097
1,1-Dichloroethane	2.44		1.00	1	04/29/2025 03:48	WG2502097
1,1-Dichloroethene	ND		1.00	1	04/29/2025 03:48	WG2502097
1,1-Dichloropropene	ND		1.00	1	04/29/2025 03:48	WG2502097
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/29/2025 03:48	WG2502097
1,2,3-Trichloropropane	ND		1.00	1	04/29/2025 03:48	WG2502097
1,2,4-Trichlorobenzene	ND		1.00	1	04/29/2025 03:48	WG2502097
1,2,4-Trimethylbenzene	ND		1.00	1	04/29/2025 03:48	WG2502097
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/29/2025 03:48	WG2502097
1,2-Dibromoethane	ND		1.00	1	04/29/2025 03:48	WG2502097
1,2-Dichlorobenzene	ND		1.00	1	04/29/2025 03:48	WG2502097
1,2-Dichloroethane	ND		0.250	1	04/29/2025 03:48	WG2502097
1,2-Dichloropropane	ND		1.00	1	04/29/2025 03:48	WG2502097
1,3,5-Trimethylbenzene	ND		1.00	1	04/29/2025 03:48	WG2502097
1,3-Dichlorobenzene	ND		1.00	1	04/29/2025 03:48	WG2502097
1,3-Dichloropropane	ND		1.00	1	04/29/2025 03:48	WG2502097
1,4-Dichlorobenzene	ND		1.00	1	04/29/2025 03:48	WG2502097
2,2-Dichloropropane	ND		1.00	1	04/29/2025 03:48	WG2502097
2-Butanone (MEK)	ND		10.0	1	04/29/2025 03:48	WG2502097
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/29/2025 03:48	WG2502097
Acetone	ND		10.0	1	04/29/2025 03:48	WG2502097
Allyl chloride	ND		1.00	1	04/29/2025 03:48	WG2502097
Benzene	ND		0.500	1	04/29/2025 03:48	WG2502097
Bromobenzene	ND		1.00	1	04/29/2025 03:48	WG2502097
Bromochloromethane	ND		1.00	1	04/29/2025 03:48	WG2502097
Bromodichloromethane	ND		1.00	1	04/29/2025 03:48	WG2502097
Bromoform	ND		1.00	1	04/29/2025 03:48	WG2502097
Bromomethane	ND	J4	1.00	1	04/29/2025 03:48	WG2502097
Carbon tetrachloride	ND		0.250	1	04/29/2025 03:48	WG2502097
Chlorobenzene	ND		1.00	1	04/29/2025 03:48	WG2502097
Chloroethane	ND	J4	1.00	1	04/29/2025 03:48	WG2502097
Chloroform	ND		1.00	1	04/29/2025 03:48	WG2502097
Chloromethane	ND		1.00	1	04/29/2025 03:48	WG2502097
Dibromochloromethane	ND		1.00	1	04/29/2025 03:48	WG2502097
Dibromomethane	ND		1.00	1	04/29/2025 03:48	WG2502097
Dichlorodifluoromethane	ND		1.00	1	04/29/2025 03:48	WG2502097
Dichlorofluoromethane	2.03	C5	1.00	1	04/29/2025 03:48	WG2502097
Ethyl ether	10.8		1.00	1	04/29/2025 03:48	WG2502097
Ethylbenzene	ND		1.00	1	04/29/2025 03:48	WG2502097
Hexachloro-1,3-butadiene	ND	C3	0.250	1	04/29/2025 03:48	WG2502097



Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		1.00	1	04/29/2025 03:48	WG2502097
Methyl tert-butyl ether	ND		1.00	1	04/29/2025 03:48	WG2502097
Methylene Chloride	ND		1.00	1	04/29/2025 03:48	WG2502097
Naphthalene	ND	C3	1.00	1	04/29/2025 03:48	WG2502097
Styrene	ND		1.00	1	04/29/2025 03:48	WG2502097
Tetrachloroethene	ND		1.00	1	04/29/2025 03:48	WG2502097
Tetrahydrofuran	ND		5.00	1	04/29/2025 03:48	WG2502097
Toluene	ND		1.00	1	04/29/2025 03:48	WG2502097
Trichloroethene	ND		0.100	1	04/29/2025 03:48	WG2502097
Trichlorofluoromethane	ND		1.00	1	04/29/2025 03:48	WG2502097
Vinyl chloride	0.158	C5	0.0500	1	04/29/2025 03:48	WG2502097
Xylenes, Total	ND		2.00	1	04/29/2025 03:48	WG2502097
cis-1,2-Dichloroethene	0.534		0.100	1	04/29/2025 03:48	WG2502097
cis-1,3-Dichloropropene	ND		0.500	1	04/29/2025 03:48	WG2502097
n-Butylbenzene	ND		1.00	1	04/29/2025 03:48	WG2502097
n-Propylbenzene	ND		1.00	1	04/29/2025 03:48	WG2502097
o-Chlorotoluene	ND		1.00	1	04/29/2025 03:48	WG2502097
p-Chlorotoluene	ND		1.00	1	04/29/2025 03:48	WG2502097
p-Isopropyltoluene	ND		1.00	1	04/29/2025 03:48	WG2502097
sec-Butylbenzene	ND		1.00	1	04/29/2025 03:48	WG2502097
tert-Butylbenzene	ND		1.00	1	04/29/2025 03:48	WG2502097
trans-1,2-Dichloroethene	ND		1.00	1	04/29/2025 03:48	WG2502097
trans-1,3-Dichloropropene	ND		1.00	1	04/29/2025 03:48	WG2502097
(S) 1,2-Dichloroethane-d4	120			70.0-130	04/29/2025 03:48	WG2502097
(S) Toluene-d8	99.1			75.0-131	04/29/2025 03:48	WG2502097
(S) 4-Bromofluorobenzene	90.5			67.0-138	04/29/2025 03:48	WG2502097

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
Groundwater Elevation	965.76	ftmsl
pH (On Site)	7.6	su
Specific Conductance (on site)	638	umhos/cm
Temperature (on-site)	9.4	Deg. C
Turbidity (on-site)	34.4	NTU
Dissolved Oxygen (on-site)	0.1	mg/l
eH/ORP (On Site)	-101.6	mV

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/29/2025 04:08	WG2502097
1,1,1-Trichloroethane	ND		1.00	1	04/29/2025 04:08	WG2502097
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/29/2025 04:08	WG2502097
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/29/2025 04:08	WG2502097
1,1,2-Trichloroethane	ND		0.750	1	04/29/2025 04:08	WG2502097
1,1-Dichloroethane	1.38		1.00	1	04/29/2025 04:08	WG2502097
1,1-Dichloroethene	ND		1.00	1	04/29/2025 04:08	WG2502097
1,1-Dichloropropene	ND		1.00	1	04/29/2025 04:08	WG2502097
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/29/2025 04:08	WG2502097
1,2,3-Trichloropropane	ND		1.00	1	04/29/2025 04:08	WG2502097
1,2,4-Trichlorobenzene	ND		1.00	1	04/29/2025 04:08	WG2502097
1,2,4-Trimethylbenzene	ND		1.00	1	04/29/2025 04:08	WG2502097
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/29/2025 04:08	WG2502097
1,2-Dibromoethane	ND		1.00	1	04/29/2025 04:08	WG2502097
1,2-Dichlorobenzene	ND		1.00	1	04/29/2025 04:08	WG2502097
1,2-Dichloroethane	ND		0.250	1	04/29/2025 04:08	WG2502097
1,2-Dichloropropane	ND		1.00	1	04/29/2025 04:08	WG2502097
1,3,5-Trimethylbenzene	ND		1.00	1	04/29/2025 04:08	WG2502097
1,3-Dichlorobenzene	ND		1.00	1	04/29/2025 04:08	WG2502097
1,3-Dichloropropane	ND		1.00	1	04/29/2025 04:08	WG2502097
1,4-Dichlorobenzene	ND		1.00	1	04/29/2025 04:08	WG2502097
2,2-Dichloropropane	ND		1.00	1	04/29/2025 04:08	WG2502097
2-Butanone (MEK)	ND		10.0	1	04/29/2025 04:08	WG2502097
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/29/2025 04:08	WG2502097
Acetone	ND		10.0	1	04/29/2025 04:08	WG2502097
Allyl chloride	ND		1.00	1	04/29/2025 04:08	WG2502097
Benzene	ND		0.500	1	04/29/2025 04:08	WG2502097
Bromobenzene	ND		1.00	1	04/29/2025 04:08	WG2502097
Bromochloromethane	ND		1.00	1	04/29/2025 04:08	WG2502097
Bromodichloromethane	ND		1.00	1	04/29/2025 04:08	WG2502097
Bromoform	ND		1.00	1	04/29/2025 04:08	WG2502097
Bromomethane	ND	J4	1.00	1	04/29/2025 04:08	WG2502097
Carbon tetrachloride	ND		0.250	1	04/29/2025 04:08	WG2502097
Chlorobenzene	ND		1.00	1	04/29/2025 04:08	WG2502097
Chloroethane	ND	J4	1.00	1	04/29/2025 04:08	WG2502097
Chloroform	ND		1.00	1	04/29/2025 04:08	WG2502097
Chloromethane	ND		1.00	1	04/29/2025 04:08	WG2502097
Dibromochloromethane	ND		1.00	1	04/29/2025 04:08	WG2502097
Dibromomethane	ND		1.00	1	04/29/2025 04:08	WG2502097
Dichlorodifluoromethane	ND	C5	1.00	1	04/29/2025 04:08	WG2502097
Dichlorofluoromethane	1.25	C5	1.00	1	04/29/2025 04:08	WG2502097
Ethyl ether	1.61		1.00	1	04/29/2025 04:08	WG2502097
Ethylbenzene	ND		1.00	1	04/29/2025 04:08	WG2502097
Hexachloro-1,3-butadiene	ND	C3	0.250	1	04/29/2025 04:08	WG2502097



Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		1.00	1	04/29/2025 04:08	WG2502097
Methyl tert-butyl ether	ND		1.00	1	04/29/2025 04:08	WG2502097
Methylene Chloride	ND		1.00	1	04/29/2025 04:08	WG2502097
Naphthalene	ND	C3	1.00	1	04/29/2025 04:08	WG2502097
Styrene	ND		1.00	1	04/29/2025 04:08	WG2502097
Tetrachloroethene	ND		1.00	1	04/29/2025 04:08	WG2502097
Tetrahydrofuran	ND		5.00	1	04/29/2025 04:08	WG2502097
Toluene	ND		1.00	1	04/29/2025 04:08	WG2502097
Trichloroethene	ND		0.100	1	04/29/2025 04:08	WG2502097
Trichlorofluoromethane	ND	C5	1.00	1	04/29/2025 04:08	WG2502097
Vinyl chloride	ND		0.0500	1	04/29/2025 04:08	WG2502097
Xylenes, Total	ND		2.00	1	04/29/2025 04:08	WG2502097
cis-1,2-Dichloroethene	ND		0.100	1	04/29/2025 04:08	WG2502097
cis-1,3-Dichloropropene	ND		0.500	1	04/29/2025 04:08	WG2502097
n-Butylbenzene	ND		1.00	1	04/29/2025 04:08	WG2502097
n-Propylbenzene	ND		1.00	1	04/29/2025 04:08	WG2502097
o-Chlorotoluene	ND		1.00	1	04/29/2025 04:08	WG2502097
p-Chlorotoluene	ND		1.00	1	04/29/2025 04:08	WG2502097
p-Isopropyltoluene	ND		1.00	1	04/29/2025 04:08	WG2502097
sec-Butylbenzene	ND		1.00	1	04/29/2025 04:08	WG2502097
tert-Butylbenzene	ND		1.00	1	04/29/2025 04:08	WG2502097
trans-1,2-Dichloroethene	ND		1.00	1	04/29/2025 04:08	WG2502097
trans-1,3-Dichloropropene	ND		1.00	1	04/29/2025 04:08	WG2502097
(S) 1,2-Dichloroethane-d4	124			70.0-130	04/29/2025 04:08	WG2502097
(S) Toluene-d8	96.7			75.0-131	04/29/2025 04:08	WG2502097
(S) 4-Bromofluorobenzene	93.1			67.0-138	04/29/2025 04:08	WG2502097

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
pH (On Site)	7.68	su
Specific Conductance (on site)	255	umhos/cm
Temperature (on-site)	10.7	Deg. C
Turbidity (on-site)	2.5	NTU
Dissolved Oxygen (on-site)	0.2	mg/l

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/29/2025 04:28	WG2502097
1,1,1-Trichloroethane	ND		1.00	1	04/29/2025 04:28	WG2502097
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/29/2025 04:28	WG2502097
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/29/2025 04:28	WG2502097
1,1,2-Trichloroethane	ND		0.750	1	04/29/2025 04:28	WG2502097
1,1-Dichloroethane	ND		1.00	1	04/29/2025 04:28	WG2502097
1,1-Dichloroethene	ND		1.00	1	04/29/2025 04:28	WG2502097
1,1-Dichloropropene	ND		1.00	1	04/29/2025 04:28	WG2502097
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/29/2025 04:28	WG2502097
1,2,3-Trichloropropane	ND		1.00	1	04/29/2025 04:28	WG2502097
1,2,4-Trichlorobenzene	ND		1.00	1	04/29/2025 04:28	WG2502097
1,2,4-Trimethylbenzene	ND		1.00	1	04/29/2025 04:28	WG2502097
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/29/2025 04:28	WG2502097
1,2-Dibromoethane	ND		1.00	1	04/29/2025 04:28	WG2502097
1,2-Dichlorobenzene	ND		1.00	1	04/29/2025 04:28	WG2502097
1,2-Dichloroethane	ND		0.250	1	04/29/2025 04:28	WG2502097
1,2-Dichloropropane	ND		1.00	1	04/29/2025 04:28	WG2502097
1,3,5-Trimethylbenzene	ND		1.00	1	04/29/2025 04:28	WG2502097
1,3-Dichlorobenzene	ND		1.00	1	04/29/2025 04:28	WG2502097
1,3-Dichloropropane	ND		1.00	1	04/29/2025 04:28	WG2502097
1,4-Dichlorobenzene	ND		1.00	1	04/29/2025 04:28	WG2502097
2,2-Dichloropropane	ND		1.00	1	04/29/2025 04:28	WG2502097
2-Butanone (MEK)	ND		10.0	1	04/29/2025 04:28	WG2502097
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/29/2025 04:28	WG2502097
Acetone	ND		10.0	1	04/29/2025 04:28	WG2502097
Allyl chloride	ND		1.00	1	04/29/2025 04:28	WG2502097
Benzene	ND		0.500	1	04/29/2025 04:28	WG2502097
Bromobenzene	ND		1.00	1	04/29/2025 04:28	WG2502097
Bromochloromethane	ND		1.00	1	04/29/2025 04:28	WG2502097
Bromodichloromethane	ND		1.00	1	04/29/2025 04:28	WG2502097
Bromoform	ND		1.00	1	04/29/2025 04:28	WG2502097
Bromomethane	ND	J4	1.00	1	04/29/2025 04:28	WG2502097
Carbon tetrachloride	ND		0.250	1	04/29/2025 04:28	WG2502097
Chlorobenzene	ND		1.00	1	04/29/2025 04:28	WG2502097
Chloroethane	ND	J4	1.00	1	04/29/2025 04:28	WG2502097
Chloroform	ND		1.00	1	04/29/2025 04:28	WG2502097
Chloromethane	ND		1.00	1	04/29/2025 04:28	WG2502097
Dibromochloromethane	ND		1.00	1	04/29/2025 04:28	WG2502097
Dibromomethane	ND		1.00	1	04/29/2025 04:28	WG2502097
Dichlorodifluoromethane	ND		1.00	1	04/29/2025 04:28	WG2502097
Dichlorofluoromethane	ND		1.00	1	04/29/2025 04:28	WG2502097
Ethyl ether	ND		1.00	1	04/29/2025 04:28	WG2502097
Ethylbenzene	ND		1.00	1	04/29/2025 04:28	WG2502097
Hexachloro-1,3-butadiene	ND	C3	0.250	1	04/29/2025 04:28	WG2502097
Isopropylbenzene	ND		1.00	1	04/29/2025 04:28	WG2502097
Methyl tert-butyl ether	ND		1.00	1	04/29/2025 04:28	WG2502097



Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Methylene Chloride	ND		1.00	1	04/29/2025 04:28	WG2502097
Naphthalene	ND	C3	1.00	1	04/29/2025 04:28	WG2502097
Styrene	ND		1.00	1	04/29/2025 04:28	WG2502097
Tetrachloroethene	ND		1.00	1	04/29/2025 04:28	WG2502097
Tetrahydrofuran	ND		5.00	1	04/29/2025 04:28	WG2502097
Toluene	ND		1.00	1	04/29/2025 04:28	WG2502097
Trichloroethene	ND		0.100	1	04/29/2025 04:28	WG2502097
Trichlorofluoromethane	ND		1.00	1	04/29/2025 04:28	WG2502097
Vinyl chloride	ND		0.0500	1	04/29/2025 04:28	WG2502097
Xylenes, Total	ND		2.00	1	04/29/2025 04:28	WG2502097
cis-1,2-Dichloroethene	ND		0.100	1	04/29/2025 04:28	WG2502097
cis-1,3-Dichloropropene	ND		0.500	1	04/29/2025 04:28	WG2502097
n-Butylbenzene	ND		1.00	1	04/29/2025 04:28	WG2502097
n-Propylbenzene	ND		1.00	1	04/29/2025 04:28	WG2502097
o-Chlorotoluene	ND		1.00	1	04/29/2025 04:28	WG2502097
p-Chlorotoluene	ND		1.00	1	04/29/2025 04:28	WG2502097
p-Isopropyltoluene	ND		1.00	1	04/29/2025 04:28	WG2502097
sec-Butylbenzene	ND		1.00	1	04/29/2025 04:28	WG2502097
tert-Butylbenzene	ND		1.00	1	04/29/2025 04:28	WG2502097
trans-1,2-Dichloroethene	ND		1.00	1	04/29/2025 04:28	WG2502097
trans-1,3-Dichloropropene	ND		1.00	1	04/29/2025 04:28	WG2502097
(S) 1,2-Dichloroethane-d4	124			70.0-130	04/29/2025 04:28	WG2502097
(S) Toluene-d8	96.7			75.0-131	04/29/2025 04:28	WG2502097
(S) 4-Bromofluorobenzene	92.8			67.0-138	04/29/2025 04:28	WG2502097

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
Groundwater Elevation	963.26	ftmsl
pH (On Site)	7.53	su
Specific Conductance (on site)	672	umhos/cm
Temperature (on-site)	13.1	Deg. C
Turbidity (on-site)	48.6	NTU
Dissolved Oxygen (on-site)	0.1	mg/l

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/29/2025 04:48	WG2502097
1,1,1-Trichloroethane	ND		1.00	1	04/29/2025 04:48	WG2502097
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/29/2025 04:48	WG2502097
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/29/2025 04:48	WG2502097
1,1,2-Trichloroethane	ND		0.750	1	04/29/2025 04:48	WG2502097
1,1-Dichloroethane	1.02		1.00	1	04/29/2025 04:48	WG2502097
1,1-Dichloroethene	ND		1.00	1	04/29/2025 04:48	WG2502097
1,1-Dichloropropene	ND		1.00	1	04/29/2025 04:48	WG2502097
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/29/2025 04:48	WG2502097
1,2,3-Trichloropropane	ND		1.00	1	04/29/2025 04:48	WG2502097
1,2,4-Trichlorobenzene	ND		1.00	1	04/29/2025 04:48	WG2502097
1,2,4-Trimethylbenzene	ND		1.00	1	04/29/2025 04:48	WG2502097
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/29/2025 04:48	WG2502097
1,2-Dibromoethane	ND		1.00	1	04/29/2025 04:48	WG2502097
1,2-Dichlorobenzene	ND		1.00	1	04/29/2025 04:48	WG2502097
1,2-Dichloroethane	ND		0.250	1	04/29/2025 04:48	WG2502097
1,2-Dichloropropane	ND		1.00	1	04/29/2025 04:48	WG2502097
1,3,5-Trimethylbenzene	ND		1.00	1	04/29/2025 04:48	WG2502097
1,3-Dichlorobenzene	ND		1.00	1	04/29/2025 04:48	WG2502097
1,3-Dichloropropane	ND		1.00	1	04/29/2025 04:48	WG2502097
1,4-Dichlorobenzene	ND		1.00	1	04/29/2025 04:48	WG2502097
2,2-Dichloropropane	ND		1.00	1	04/29/2025 04:48	WG2502097
2-Butanone (MEK)	ND		10.0	1	04/29/2025 04:48	WG2502097
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/29/2025 04:48	WG2502097
Acetone	ND		10.0	1	04/29/2025 04:48	WG2502097
Allyl chloride	ND		1.00	1	04/29/2025 04:48	WG2502097
Benzene	ND		0.500	1	04/29/2025 04:48	WG2502097
Bromobenzene	ND		1.00	1	04/29/2025 04:48	WG2502097
Bromochloromethane	ND		1.00	1	04/29/2025 04:48	WG2502097
Bromodichloromethane	ND		1.00	1	04/29/2025 04:48	WG2502097
Bromoform	ND		1.00	1	04/29/2025 04:48	WG2502097
Bromomethane	ND	J4	1.00	1	04/29/2025 04:48	WG2502097
Carbon tetrachloride	ND		0.250	1	04/29/2025 04:48	WG2502097
Chlorobenzene	ND		1.00	1	04/29/2025 04:48	WG2502097
Chloroethane	ND	J4	1.00	1	04/29/2025 04:48	WG2502097
Chloroform	ND		1.00	1	04/29/2025 04:48	WG2502097
Chloromethane	ND		1.00	1	04/29/2025 04:48	WG2502097
Dibromochloromethane	ND		1.00	1	04/29/2025 04:48	WG2502097
Dibromomethane	ND		1.00	1	04/29/2025 04:48	WG2502097
Dichlorodifluoromethane	ND		1.00	1	04/29/2025 04:48	WG2502097
Dichlorofluoromethane	1.14	C5	1.00	1	04/29/2025 04:48	WG2502097
Ethyl ether	7.86		1.00	1	04/29/2025 04:48	WG2502097
Ethylbenzene	ND		1.00	1	04/29/2025 04:48	WG2502097
Hexachloro-1,3-butadiene	ND	C3	0.250	1	04/29/2025 04:48	WG2502097
Isopropylbenzene	ND		1.00	1	04/29/2025 04:48	WG2502097

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Methyl tert-butyl ether	ND		1.00	1	04/29/2025 04:48	WG2502097
Methylene Chloride	ND		1.00	1	04/29/2025 04:48	WG2502097
Naphthalene	ND	C3	1.00	1	04/29/2025 04:48	WG2502097
Styrene	ND		1.00	1	04/29/2025 04:48	WG2502097
Tetrachloroethene	ND		1.00	1	04/29/2025 04:48	WG2502097
Tetrahydrofuran	ND		5.00	1	04/29/2025 04:48	WG2502097
Toluene	ND		1.00	1	04/29/2025 04:48	WG2502097
Trichloroethene	ND		0.100	1	04/29/2025 04:48	WG2502097
Trichlorofluoromethane	ND		1.00	1	04/29/2025 04:48	WG2502097
Vinyl chloride	ND		0.0500	1	04/29/2025 04:48	WG2502097
Xylenes, Total	ND		2.00	1	04/29/2025 04:48	WG2502097
cis-1,2-Dichloroethene	0.166		0.100	1	04/29/2025 04:48	WG2502097
cis-1,3-Dichloropropene	ND		0.500	1	04/29/2025 04:48	WG2502097
n-Butylbenzene	ND		1.00	1	04/29/2025 04:48	WG2502097
n-Propylbenzene	ND		1.00	1	04/29/2025 04:48	WG2502097
o-Chlorotoluene	ND		1.00	1	04/29/2025 04:48	WG2502097
p-Chlorotoluene	ND		1.00	1	04/29/2025 04:48	WG2502097
p-Isopropyltoluene	ND		1.00	1	04/29/2025 04:48	WG2502097
sec-Butylbenzene	ND		1.00	1	04/29/2025 04:48	WG2502097
tert-Butylbenzene	ND		1.00	1	04/29/2025 04:48	WG2502097
trans-1,2-Dichloroethene	ND		1.00	1	04/29/2025 04:48	WG2502097
trans-1,3-Dichloropropene	ND		1.00	1	04/29/2025 04:48	WG2502097
(S) 1,2-Dichloroethane-d4	121			70.0-130	04/29/2025 04:48	WG2502097
(S) Toluene-d8	96.4			75.0-131	04/29/2025 04:48	WG2502097
(S) 4-Bromofluorobenzene	89.0			67.0-138	04/29/2025 04:48	WG2502097

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
Groundwater Elevation	943.72	ftmsl
pH (On Site)	7.45	su
Specific Conductance (on site)	405	umhos/cm
Temperature (on-site)	8	Deg. C
Turbidity (on-site)	1	NTU
Dissolved Oxygen (on-site)	0	mg/l
eH/ORP (On Site)	-152	mV

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/29/2025 05:08	WG2502097
1,1,1-Trichloroethane	ND		1.00	1	04/29/2025 05:08	WG2502097
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/29/2025 05:08	WG2502097
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/29/2025 05:08	WG2502097
1,1,2-Trichloroethane	ND		0.750	1	04/29/2025 05:08	WG2502097
1,1-Dichloroethane	ND		1.00	1	04/29/2025 05:08	WG2502097
1,1-Dichloroethene	ND		1.00	1	04/29/2025 05:08	WG2502097
1,1-Dichloropropene	ND		1.00	1	04/29/2025 05:08	WG2502097
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/29/2025 05:08	WG2502097
1,2,3-Trichloropropane	ND		1.00	1	04/29/2025 05:08	WG2502097
1,2,4-Trichlorobenzene	ND		1.00	1	04/29/2025 05:08	WG2502097
1,2,4-Trimethylbenzene	ND		1.00	1	04/29/2025 05:08	WG2502097
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/29/2025 05:08	WG2502097
1,2-Dibromoethane	ND		1.00	1	04/29/2025 05:08	WG2502097
1,2-Dichlorobenzene	ND		1.00	1	04/29/2025 05:08	WG2502097
1,2-Dichloroethane	ND		0.250	1	04/29/2025 05:08	WG2502097
1,2-Dichloropropane	ND		1.00	1	04/29/2025 05:08	WG2502097
1,3,5-Trimethylbenzene	ND		1.00	1	04/29/2025 05:08	WG2502097
1,3-Dichlorobenzene	ND		1.00	1	04/29/2025 05:08	WG2502097
1,3-Dichloropropane	ND		1.00	1	04/29/2025 05:08	WG2502097
1,4-Dichlorobenzene	ND		1.00	1	04/29/2025 05:08	WG2502097
2,2-Dichloropropane	ND		1.00	1	04/29/2025 05:08	WG2502097
2-Butanone (MEK)	ND		10.0	1	04/29/2025 05:08	WG2502097
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/29/2025 05:08	WG2502097
Acetone	ND		10.0	1	04/29/2025 05:08	WG2502097
Allyl chloride	ND		1.00	1	04/29/2025 05:08	WG2502097
Benzene	ND		0.500	1	04/29/2025 05:08	WG2502097
Bromobenzene	ND		1.00	1	04/29/2025 05:08	WG2502097
Bromochloromethane	ND		1.00	1	04/29/2025 05:08	WG2502097
Bromodichloromethane	ND		1.00	1	04/29/2025 05:08	WG2502097
Bromoform	ND		1.00	1	04/29/2025 05:08	WG2502097
Bromomethane	ND	J4	1.00	1	04/29/2025 05:08	WG2502097
Carbon tetrachloride	ND		0.250	1	04/29/2025 05:08	WG2502097
Chlorobenzene	ND		1.00	1	04/29/2025 05:08	WG2502097
Chloroethane	ND	J4	1.00	1	04/29/2025 05:08	WG2502097
Chloroform	ND		1.00	1	04/29/2025 05:08	WG2502097
Chloromethane	ND		1.00	1	04/29/2025 05:08	WG2502097
Dibromochloromethane	ND		1.00	1	04/29/2025 05:08	WG2502097
Dibromomethane	ND		1.00	1	04/29/2025 05:08	WG2502097
Dichlorodifluoromethane	ND		1.00	1	04/29/2025 05:08	WG2502097
Dichlorofluoromethane	ND	C5	1.00	1	04/29/2025 05:08	WG2502097
Ethyl ether	ND		1.00	1	04/29/2025 05:08	WG2502097
Ethylbenzene	ND		1.00	1	04/29/2025 05:08	WG2502097
Hexachloro-1,3-butadiene	ND	C3	0.250	1	04/29/2025 05:08	WG2502097



Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		1.00	1	04/29/2025 05:08	WG2502097
Methyl tert-butyl ether	ND		1.00	1	04/29/2025 05:08	WG2502097
Methylene Chloride	ND		1.00	1	04/29/2025 05:08	WG2502097
Naphthalene	ND	C3	1.00	1	04/29/2025 05:08	WG2502097
Styrene	ND		1.00	1	04/29/2025 05:08	WG2502097
Tetrachloroethene	ND		1.00	1	04/29/2025 05:08	WG2502097
Tetrahydrofuran	ND		5.00	1	04/29/2025 05:08	WG2502097
Toluene	ND		1.00	1	04/29/2025 05:08	WG2502097
Trichloroethene	ND		0.100	1	04/29/2025 05:08	WG2502097
Trichlorofluoromethane	ND		1.00	1	04/29/2025 05:08	WG2502097
Vinyl chloride	ND		0.0500	1	04/29/2025 05:08	WG2502097
Xylenes, Total	ND		2.00	1	04/29/2025 05:08	WG2502097
cis-1,2-Dichloroethene	ND		0.100	1	04/29/2025 05:08	WG2502097
cis-1,3-Dichloropropene	ND		0.500	1	04/29/2025 05:08	WG2502097
n-Butylbenzene	ND		1.00	1	04/29/2025 05:08	WG2502097
n-Propylbenzene	ND		1.00	1	04/29/2025 05:08	WG2502097
o-Chlorotoluene	ND		1.00	1	04/29/2025 05:08	WG2502097
p-Chlorotoluene	ND		1.00	1	04/29/2025 05:08	WG2502097
p-Isopropyltoluene	ND		1.00	1	04/29/2025 05:08	WG2502097
sec-Butylbenzene	ND		1.00	1	04/29/2025 05:08	WG2502097
tert-Butylbenzene	ND		1.00	1	04/29/2025 05:08	WG2502097
trans-1,2-Dichloroethene	ND		1.00	1	04/29/2025 05:08	WG2502097
trans-1,3-Dichloropropene	ND		1.00	1	04/29/2025 05:08	WG2502097
(S) 1,2-Dichloroethane-d4	121			70.0-130	04/29/2025 05:08	WG2502097
(S) Toluene-d8	98.3			75.0-131	04/29/2025 05:08	WG2502097
(S) 4-Bromofluorobenzene	91.5			67.0-138	04/29/2025 05:08	WG2502097

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
Groundwater Elevation	970.11	ftmsl
pH (On Site)	6.65	su
Specific Conductance (on site)	531	umhos/cm
Temperature (on-site)	10.7	Deg. C
Turbidity (on-site)	17.2	NTU
Dissolved Oxygen (on-site)	0.4	mg/l
eH/ORP (On Site)	-118.1	mV

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/29/2025 05:27	WG2502097
1,1,1-Trichloroethane	ND		1.00	1	04/29/2025 05:27	WG2502097
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/29/2025 05:27	WG2502097
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/29/2025 05:27	WG2502097
1,1,2-Trichloroethane	ND		0.750	1	04/29/2025 05:27	WG2502097
1,1-Dichloroethane	ND		1.00	1	04/29/2025 05:27	WG2502097
1,1-Dichloroethene	ND		1.00	1	04/29/2025 05:27	WG2502097
1,1-Dichloropropene	ND		1.00	1	04/29/2025 05:27	WG2502097
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/29/2025 05:27	WG2502097
1,2,3-Trichloropropane	ND		1.00	1	04/29/2025 05:27	WG2502097
1,2,4-Trichlorobenzene	ND		1.00	1	04/29/2025 05:27	WG2502097
1,2,4-Trimethylbenzene	ND		1.00	1	04/29/2025 05:27	WG2502097
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/29/2025 05:27	WG2502097
1,2-Dibromoethane	ND		1.00	1	04/29/2025 05:27	WG2502097
1,2-Dichlorobenzene	ND		1.00	1	04/29/2025 05:27	WG2502097
1,2-Dichloroethane	ND		0.250	1	04/29/2025 05:27	WG2502097
1,2-Dichloropropane	ND		1.00	1	04/29/2025 05:27	WG2502097
1,3,5-Trimethylbenzene	ND		1.00	1	04/29/2025 05:27	WG2502097
1,3-Dichlorobenzene	ND		1.00	1	04/29/2025 05:27	WG2502097
1,3-Dichloropropane	ND		1.00	1	04/29/2025 05:27	WG2502097
1,4-Dichlorobenzene	ND		1.00	1	04/29/2025 05:27	WG2502097
2,2-Dichloropropane	ND		1.00	1	04/29/2025 05:27	WG2502097
2-Butanone (MEK)	ND		10.0	1	04/29/2025 05:27	WG2502097
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/29/2025 05:27	WG2502097
Acetone	ND		10.0	1	04/29/2025 05:27	WG2502097
Allyl chloride	ND		1.00	1	04/29/2025 05:27	WG2502097
Benzene	ND		0.500	1	04/29/2025 05:27	WG2502097
Bromobenzene	ND		1.00	1	04/29/2025 05:27	WG2502097
Bromochloromethane	ND		1.00	1	04/29/2025 05:27	WG2502097
Bromodichloromethane	ND		1.00	1	04/29/2025 05:27	WG2502097
Bromoform	ND		1.00	1	04/29/2025 05:27	WG2502097
Bromomethane	ND	J4	1.00	1	04/29/2025 05:27	WG2502097
Carbon tetrachloride	ND		0.250	1	04/29/2025 05:27	WG2502097
Chlorobenzene	ND		1.00	1	04/29/2025 05:27	WG2502097
Chloroethane	ND	J4	1.00	1	04/29/2025 05:27	WG2502097
Chloroform	ND		1.00	1	04/29/2025 05:27	WG2502097
Chloromethane	ND		1.00	1	04/29/2025 05:27	WG2502097
Dibromochloromethane	ND		1.00	1	04/29/2025 05:27	WG2502097
Dibromomethane	ND		1.00	1	04/29/2025 05:27	WG2502097
Dichlorodifluoromethane	ND	C5	1.00	1	04/29/2025 05:27	WG2502097
Dichlorofluoromethane	ND	C5	1.00	1	04/29/2025 05:27	WG2502097
Ethyl ether	ND		1.00	1	04/29/2025 05:27	WG2502097
Ethylbenzene	ND		1.00	1	04/29/2025 05:27	WG2502097
Hexachloro-1,3-butadiene	ND	C3	0.250	1	04/29/2025 05:27	WG2502097

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		1.00	1	04/29/2025 05:27	WG2502097
Methyl tert-butyl ether	ND		1.00	1	04/29/2025 05:27	WG2502097
Methylene Chloride	ND		1.00	1	04/29/2025 05:27	WG2502097
Naphthalene	ND	C3	1.00	1	04/29/2025 05:27	WG2502097
Styrene	ND		1.00	1	04/29/2025 05:27	WG2502097
Tetrachloroethene	ND		1.00	1	04/29/2025 05:27	WG2502097
Tetrahydrofuran	ND		5.00	1	04/29/2025 05:27	WG2502097
Toluene	ND		1.00	1	04/29/2025 05:27	WG2502097
Trichloroethene	ND		0.100	1	04/29/2025 05:27	WG2502097
Trichlorofluoromethane	ND		1.00	1	04/29/2025 05:27	WG2502097
Vinyl chloride	ND		0.0500	1	04/29/2025 05:27	WG2502097
Xylenes, Total	ND		2.00	1	04/29/2025 05:27	WG2502097
cis-1,2-Dichloroethene	0.137		0.100	1	04/29/2025 05:27	WG2502097
cis-1,3-Dichloropropene	ND		0.500	1	04/29/2025 05:27	WG2502097
n-Butylbenzene	ND		1.00	1	04/29/2025 05:27	WG2502097
n-Propylbenzene	ND		1.00	1	04/29/2025 05:27	WG2502097
o-Chlorotoluene	ND		1.00	1	04/29/2025 05:27	WG2502097
p-Chlorotoluene	ND		1.00	1	04/29/2025 05:27	WG2502097
p-Isopropyltoluene	ND		1.00	1	04/29/2025 05:27	WG2502097
sec-Butylbenzene	ND		1.00	1	04/29/2025 05:27	WG2502097
tert-Butylbenzene	ND		1.00	1	04/29/2025 05:27	WG2502097
trans-1,2-Dichloroethene	ND		1.00	1	04/29/2025 05:27	WG2502097
trans-1,3-Dichloropropene	ND		1.00	1	04/29/2025 05:27	WG2502097
(S) 1,2-Dichloroethane-d4	122			70.0-130	04/29/2025 05:27	WG2502097
(S) Toluene-d8	98.4			75.0-131	04/29/2025 05:27	WG2502097
(S) 4-Bromofluorobenzene	91.3			67.0-138	04/29/2025 05:27	WG2502097

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
Groundwater Elevation	967.5	ftmsl
pH (On Site)	7.3	su
Specific Conductance (on site)	1368	umhos/cm
Temperature (on-site)	11.1	Deg. C
Turbidity (on-site)	6	NTU
Dissolved Oxygen (on-site)	0	mg/l
eH/ORP (On Site)	-152	mV

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/29/2025 05:47	WG2502097
1,1,1-Trichloroethane	ND		1.00	1	04/29/2025 05:47	WG2502097
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/29/2025 05:47	WG2502097
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/29/2025 05:47	WG2502097
1,1,2-Trichloroethane	ND		0.750	1	04/29/2025 05:47	WG2502097
1,1-Dichloroethane	ND		1.00	1	04/29/2025 05:47	WG2502097
1,1-Dichloroethene	ND		1.00	1	04/29/2025 05:47	WG2502097
1,1-Dichloropropene	ND		1.00	1	04/29/2025 05:47	WG2502097
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/29/2025 05:47	WG2502097
1,2,3-Trichloropropane	ND		1.00	1	04/29/2025 05:47	WG2502097
1,2,4-Trichlorobenzene	ND		1.00	1	04/29/2025 05:47	WG2502097
1,2,4-Trimethylbenzene	ND		1.00	1	04/29/2025 05:47	WG2502097
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/29/2025 05:47	WG2502097
1,2-Dibromoethane	ND		1.00	1	04/29/2025 05:47	WG2502097
1,2-Dichlorobenzene	ND		1.00	1	04/29/2025 05:47	WG2502097
1,2-Dichloroethane	ND		0.250	1	04/29/2025 05:47	WG2502097
1,2-Dichloropropane	ND		1.00	1	04/29/2025 05:47	WG2502097
1,3,5-Trimethylbenzene	ND		1.00	1	04/29/2025 05:47	WG2502097
1,3-Dichlorobenzene	ND		1.00	1	04/29/2025 05:47	WG2502097
1,3-Dichloropropane	ND		1.00	1	04/29/2025 05:47	WG2502097
1,4-Dichlorobenzene	ND		1.00	1	04/29/2025 05:47	WG2502097
2,2-Dichloropropane	ND		1.00	1	04/29/2025 05:47	WG2502097
2-Butanone (MEK)	ND		10.0	1	04/29/2025 05:47	WG2502097
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/29/2025 05:47	WG2502097
Acetone	ND		10.0	1	04/29/2025 05:47	WG2502097
Allyl chloride	ND		1.00	1	04/29/2025 05:47	WG2502097
Benzene	ND		0.500	1	04/29/2025 05:47	WG2502097
Bromobenzene	ND		1.00	1	04/29/2025 05:47	WG2502097
Bromochloromethane	ND		1.00	1	04/29/2025 05:47	WG2502097
Bromodichloromethane	ND		1.00	1	04/29/2025 05:47	WG2502097
Bromoform	ND		1.00	1	04/29/2025 05:47	WG2502097
Bromomethane	ND	J4	1.00	1	04/29/2025 05:47	WG2502097
Carbon tetrachloride	ND		0.250	1	04/29/2025 05:47	WG2502097
Chlorobenzene	ND		1.00	1	04/29/2025 05:47	WG2502097
Chloroethane	ND	J4	1.00	1	04/29/2025 05:47	WG2502097
Chloroform	ND		1.00	1	04/29/2025 05:47	WG2502097
Chloromethane	ND		1.00	1	04/29/2025 05:47	WG2502097
Dibromochloromethane	ND		1.00	1	04/29/2025 05:47	WG2502097
Dibromomethane	ND		1.00	1	04/29/2025 05:47	WG2502097
Dichlorodifluoromethane	ND	C5	1.00	1	04/29/2025 05:47	WG2502097
Dichlorofluoromethane	2.24	C5	1.00	1	04/29/2025 05:47	WG2502097
Ethyl ether	ND		1.00	1	04/29/2025 05:47	WG2502097
Ethylbenzene	ND		1.00	1	04/29/2025 05:47	WG2502097
Hexachloro-1,3-butadiene	ND	C3	0.250	1	04/29/2025 05:47	WG2502097



Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		1.00	1	04/29/2025 05:47	WG2502097
Methyl tert-butyl ether	ND		1.00	1	04/29/2025 05:47	WG2502097
Methylene Chloride	ND		1.00	1	04/29/2025 05:47	WG2502097
Naphthalene	ND	C3	1.00	1	04/29/2025 05:47	WG2502097
Styrene	ND		1.00	1	04/29/2025 05:47	WG2502097
Tetrachloroethene	ND		1.00	1	04/29/2025 05:47	WG2502097
Tetrahydrofuran	ND		5.00	1	04/29/2025 05:47	WG2502097
Toluene	ND		1.00	1	04/29/2025 05:47	WG2502097
Trichloroethene	ND		0.100	1	04/29/2025 05:47	WG2502097
Trichlorofluoromethane	ND		1.00	1	04/29/2025 05:47	WG2502097
Vinyl chloride	ND		0.0500	1	04/29/2025 05:47	WG2502097
Xylenes, Total	ND		2.00	1	04/29/2025 05:47	WG2502097
cis-1,2-Dichloroethene	ND		0.100	1	04/29/2025 05:47	WG2502097
cis-1,3-Dichloropropene	ND		0.500	1	04/29/2025 05:47	WG2502097
n-Butylbenzene	ND		1.00	1	04/29/2025 05:47	WG2502097
n-Propylbenzene	ND		1.00	1	04/29/2025 05:47	WG2502097
o-Chlorotoluene	ND		1.00	1	04/29/2025 05:47	WG2502097
p-Chlorotoluene	ND		1.00	1	04/29/2025 05:47	WG2502097
p-Isopropyltoluene	ND		1.00	1	04/29/2025 05:47	WG2502097
sec-Butylbenzene	ND		1.00	1	04/29/2025 05:47	WG2502097
tert-Butylbenzene	ND		1.00	1	04/29/2025 05:47	WG2502097
trans-1,2-Dichloroethene	ND		1.00	1	04/29/2025 05:47	WG2502097
trans-1,3-Dichloropropene	ND		1.00	1	04/29/2025 05:47	WG2502097
(S) 1,2-Dichloroethane-d4	124			70.0-130	04/29/2025 05:47	WG2502097
(S) Toluene-d8	98.2			75.0-131	04/29/2025 05:47	WG2502097
(S) 4-Bromofluorobenzene	92.1			67.0-138	04/29/2025 05:47	WG2502097

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
Groundwater Elevation	957.35	ftmsl
pH (On Site)	7.85	su
Specific Conductance (on site)	325	umhos/cm
Temperature (on-site)	11.4	Deg. C
Turbidity (on-site)	25	NTU
Dissolved Oxygen (on-site)	0	mg/l
eH/ORP (On Site)	-199	mV

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/29/2025 06:07	WG2502097
1,1,1-Trichloroethane	ND		1.00	1	04/29/2025 06:07	WG2502097
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/29/2025 06:07	WG2502097
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/29/2025 06:07	WG2502097
1,1,2-Trichloroethane	ND		0.750	1	04/29/2025 06:07	WG2502097
1,1-Dichloroethane	ND		1.00	1	04/29/2025 06:07	WG2502097
1,1-Dichloroethene	ND		1.00	1	04/29/2025 06:07	WG2502097
1,1-Dichloropropene	ND		1.00	1	04/29/2025 06:07	WG2502097
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/29/2025 06:07	WG2502097
1,2,3-Trichloropropane	ND		1.00	1	04/29/2025 06:07	WG2502097
1,2,4-Trichlorobenzene	ND		1.00	1	04/29/2025 06:07	WG2502097
1,2,4-Trimethylbenzene	ND		1.00	1	04/29/2025 06:07	WG2502097
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/29/2025 06:07	WG2502097
1,2-Dibromoethane	ND		1.00	1	04/29/2025 06:07	WG2502097
1,2-Dichlorobenzene	ND		1.00	1	04/29/2025 06:07	WG2502097
1,2-Dichloroethane	ND		0.250	1	04/29/2025 06:07	WG2502097
1,2-Dichloropropane	ND		1.00	1	04/29/2025 06:07	WG2502097
1,3,5-Trimethylbenzene	ND		1.00	1	04/29/2025 06:07	WG2502097
1,3-Dichlorobenzene	ND		1.00	1	04/29/2025 06:07	WG2502097
1,3-Dichloropropane	ND		1.00	1	04/29/2025 06:07	WG2502097
1,4-Dichlorobenzene	ND		1.00	1	04/29/2025 06:07	WG2502097
2,2-Dichloropropane	ND		1.00	1	04/29/2025 06:07	WG2502097
2-Butanone (MEK)	ND		10.0	1	04/29/2025 06:07	WG2502097
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/29/2025 06:07	WG2502097
Acetone	ND		10.0	1	04/29/2025 06:07	WG2502097
Allyl chloride	ND		1.00	1	04/29/2025 06:07	WG2502097
Benzene	ND		0.500	1	04/29/2025 06:07	WG2502097
Bromobenzene	ND		1.00	1	04/29/2025 06:07	WG2502097
Bromochloromethane	ND		1.00	1	04/29/2025 06:07	WG2502097
Bromodichloromethane	ND		1.00	1	04/29/2025 06:07	WG2502097
Bromoform	ND		1.00	1	04/29/2025 06:07	WG2502097
Bromomethane	ND	J4	1.00	1	04/29/2025 06:07	WG2502097
Carbon tetrachloride	ND		0.250	1	04/29/2025 06:07	WG2502097
Chlorobenzene	ND		1.00	1	04/29/2025 06:07	WG2502097
Chloroethane	ND	J4	1.00	1	04/29/2025 06:07	WG2502097
Chloroform	ND		1.00	1	04/29/2025 06:07	WG2502097
Chloromethane	ND		1.00	1	04/29/2025 06:07	WG2502097
Dibromochloromethane	ND		1.00	1	04/29/2025 06:07	WG2502097
Dibromomethane	ND		1.00	1	04/29/2025 06:07	WG2502097
Dichlorodifluoromethane	ND		1.00	1	04/29/2025 06:07	WG2502097
Dichlorofluoromethane	ND		1.00	1	04/29/2025 06:07	WG2502097
Ethyl ether	ND		1.00	1	04/29/2025 06:07	WG2502097
Ethylbenzene	ND		1.00	1	04/29/2025 06:07	WG2502097
Hexachloro-1,3-butadiene	ND	C3	0.250	1	04/29/2025 06:07	WG2502097



Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		1.00	1	04/29/2025 06:07	WG2502097
Methyl tert-butyl ether	ND		1.00	1	04/29/2025 06:07	WG2502097
Methylene Chloride	ND		1.00	1	04/29/2025 06:07	WG2502097
Naphthalene	ND	C3	1.00	1	04/29/2025 06:07	WG2502097
Styrene	ND		1.00	1	04/29/2025 06:07	WG2502097
Tetrachloroethene	ND		1.00	1	04/29/2025 06:07	WG2502097
Tetrahydrofuran	ND		5.00	1	04/29/2025 06:07	WG2502097
Toluene	ND		1.00	1	04/29/2025 06:07	WG2502097
Trichloroethene	ND		0.100	1	04/29/2025 06:07	WG2502097
Trichlorofluoromethane	ND		1.00	1	04/29/2025 06:07	WG2502097
Vinyl chloride	ND		0.0500	1	04/29/2025 06:07	WG2502097
Xylenes, Total	ND		2.00	1	04/29/2025 06:07	WG2502097
cis-1,2-Dichloroethene	ND		0.100	1	04/29/2025 06:07	WG2502097
cis-1,3-Dichloropropene	ND		0.500	1	04/29/2025 06:07	WG2502097
n-Butylbenzene	ND		1.00	1	04/29/2025 06:07	WG2502097
n-Propylbenzene	ND		1.00	1	04/29/2025 06:07	WG2502097
o-Chlorotoluene	ND		1.00	1	04/29/2025 06:07	WG2502097
p-Chlorotoluene	ND		1.00	1	04/29/2025 06:07	WG2502097
p-Isopropyltoluene	ND		1.00	1	04/29/2025 06:07	WG2502097
sec-Butylbenzene	ND		1.00	1	04/29/2025 06:07	WG2502097
tert-Butylbenzene	ND		1.00	1	04/29/2025 06:07	WG2502097
trans-1,2-Dichloroethene	ND		1.00	1	04/29/2025 06:07	WG2502097
trans-1,3-Dichloropropene	ND		1.00	1	04/29/2025 06:07	WG2502097
(S) 1,2-Dichloroethane-d4	123			70.0-130	04/29/2025 06:07	WG2502097
(S) Toluene-d8	98.6			75.0-131	04/29/2025 06:07	WG2502097
(S) 4-Bromofluorobenzene	92.7			67.0-138	04/29/2025 06:07	WG2502097

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
Groundwater Elevation	957.16	ftmsl
pH (On Site)	7.15	su
Specific Conductance (on site)	933	umhos/cm
Temperature (on-site)	11.5	Deg. C
Turbidity (on-site)	21	NTU
Dissolved Oxygen (on-site)	0	mg/l
eH/ORP (On Site)	-118	mV

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/29/2025 06:27	WG2502097
1,1,1-Trichloroethane	ND		1.00	1	04/29/2025 06:27	WG2502097
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/29/2025 06:27	WG2502097
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/29/2025 06:27	WG2502097
1,1,2-Trichloroethane	ND		0.750	1	04/29/2025 06:27	WG2502097
1,1-Dichloroethane	3.99		1.00	1	04/29/2025 06:27	WG2502097
1,1-Dichloroethene	ND		1.00	1	04/29/2025 06:27	WG2502097
1,1-Dichloropropene	ND		1.00	1	04/29/2025 06:27	WG2502097
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/29/2025 06:27	WG2502097
1,2,3-Trichloropropane	ND		1.00	1	04/29/2025 06:27	WG2502097
1,2,4-Trichlorobenzene	ND		1.00	1	04/29/2025 06:27	WG2502097
1,2,4-Trimethylbenzene	ND		1.00	1	04/29/2025 06:27	WG2502097
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/29/2025 06:27	WG2502097
1,2-Dibromoethane	ND		1.00	1	04/29/2025 06:27	WG2502097
1,2-Dichlorobenzene	ND		1.00	1	04/29/2025 06:27	WG2502097
1,2-Dichloroethane	ND		0.250	1	04/29/2025 06:27	WG2502097
1,2-Dichloropropane	ND		1.00	1	04/29/2025 06:27	WG2502097
1,3,5-Trimethylbenzene	ND		1.00	1	04/29/2025 06:27	WG2502097
1,3-Dichlorobenzene	ND		1.00	1	04/29/2025 06:27	WG2502097
1,3-Dichloropropane	ND		1.00	1	04/29/2025 06:27	WG2502097
1,4-Dichlorobenzene	ND		1.00	1	04/29/2025 06:27	WG2502097
2,2-Dichloropropane	ND		1.00	1	04/29/2025 06:27	WG2502097
2-Butanone (MEK)	ND		10.0	1	04/29/2025 06:27	WG2502097
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/29/2025 06:27	WG2502097
Acetone	ND		10.0	1	04/29/2025 06:27	WG2502097
Allyl chloride	ND		1.00	1	04/29/2025 06:27	WG2502097
Benzene	ND		0.500	1	04/29/2025 06:27	WG2502097
Bromobenzene	ND		1.00	1	04/29/2025 06:27	WG2502097
Bromochloromethane	ND		1.00	1	04/29/2025 06:27	WG2502097
Bromodichloromethane	ND		1.00	1	04/29/2025 06:27	WG2502097
Bromoform	ND		1.00	1	04/29/2025 06:27	WG2502097
Bromomethane	ND	J4	1.00	1	04/29/2025 06:27	WG2502097
Carbon tetrachloride	ND		0.250	1	04/29/2025 06:27	WG2502097
Chlorobenzene	ND		1.00	1	04/29/2025 06:27	WG2502097
Chloroethane	ND	J4	1.00	1	04/29/2025 06:27	WG2502097
Chloroform	ND		1.00	1	04/29/2025 06:27	WG2502097
Chloromethane	ND		1.00	1	04/29/2025 06:27	WG2502097
Dibromochloromethane	ND		1.00	1	04/29/2025 06:27	WG2502097
Dibromomethane	ND		1.00	1	04/29/2025 06:27	WG2502097
Dichlorodifluoromethane	ND	C5	1.00	1	04/29/2025 06:27	WG2502097
Dichlorofluoromethane	3.47	C5	1.00	1	04/29/2025 06:27	WG2502097
Ethyl ether	9.37		1.00	1	04/29/2025 06:27	WG2502097
Ethylbenzene	ND		1.00	1	04/29/2025 06:27	WG2502097
Hexachloro-1,3-butadiene	ND	C3	0.250	1	04/29/2025 06:27	WG2502097

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		1.00	1	04/29/2025 06:27	WG2502097
Methyl tert-butyl ether	ND		1.00	1	04/29/2025 06:27	WG2502097
Methylene Chloride	ND		1.00	1	04/29/2025 06:27	WG2502097
Naphthalene	ND	C3	1.00	1	04/29/2025 06:27	WG2502097
Styrene	ND		1.00	1	04/29/2025 06:27	WG2502097
Tetrachloroethene	ND		1.00	1	04/29/2025 06:27	WG2502097
Tetrahydrofuran	ND		5.00	1	04/29/2025 06:27	WG2502097
Toluene	ND		1.00	1	04/29/2025 06:27	WG2502097
Trichloroethene	ND		0.100	1	04/29/2025 06:27	WG2502097
Trichlorofluoromethane	ND		1.00	1	04/29/2025 06:27	WG2502097
Vinyl chloride	0.647	C5	0.0500	1	04/29/2025 06:27	WG2502097
Xylenes, Total	ND		2.00	1	04/29/2025 06:27	WG2502097
cis-1,2-Dichloroethene	0.654		0.100	1	04/29/2025 06:27	WG2502097
cis-1,3-Dichloropropene	ND		0.500	1	04/29/2025 06:27	WG2502097
n-Butylbenzene	ND		1.00	1	04/29/2025 06:27	WG2502097
n-Propylbenzene	ND		1.00	1	04/29/2025 06:27	WG2502097
o-Chlorotoluene	ND		1.00	1	04/29/2025 06:27	WG2502097
p-Chlorotoluene	ND		1.00	1	04/29/2025 06:27	WG2502097
p-Isopropyltoluene	ND		1.00	1	04/29/2025 06:27	WG2502097
sec-Butylbenzene	ND		1.00	1	04/29/2025 06:27	WG2502097
tert-Butylbenzene	ND		1.00	1	04/29/2025 06:27	WG2502097
trans-1,2-Dichloroethene	ND		1.00	1	04/29/2025 06:27	WG2502097
trans-1,3-Dichloropropene	ND		1.00	1	04/29/2025 06:27	WG2502097
(S) 1,2-Dichloroethane-d4	124			70.0-130	04/29/2025 06:27	WG2502097
(S) Toluene-d8	97.1			75.0-131	04/29/2025 06:27	WG2502097
(S) 4-Bromofluorobenzene	90.1			67.0-138	04/29/2025 06:27	WG2502097

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
Groundwater Elevation	972.27	ftmsl
pH (On Site)	7.05	su
Specific Conductance (on site)	236	umhos/cm
Temperature (on-site)	8.7	Deg. C
Turbidity (on-site)	2	NTU
Dissolved Oxygen (on-site)	0.1	mg/l
eH/ORP (On Site)	-220.4	mV

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
1,1,1,2-Tetrachloroethane	ND		1.00	1	04/29/2025 06:47	WG2502097
1,1,1-Trichloroethane	ND		1.00	1	04/29/2025 06:47	WG2502097
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/29/2025 06:47	WG2502097
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	1	04/29/2025 06:47	WG2502097
1,1,2-Trichloroethane	ND		0.750	1	04/29/2025 06:47	WG2502097
1,1-Dichloroethane	ND		1.00	1	04/29/2025 06:47	WG2502097
1,1-Dichloroethene	ND		1.00	1	04/29/2025 06:47	WG2502097
1,1-Dichloropropene	ND		1.00	1	04/29/2025 06:47	WG2502097
1,2,3-Trichlorobenzene	ND	C3	1.00	1	04/29/2025 06:47	WG2502097
1,2,3-Trichloropropane	ND		1.00	1	04/29/2025 06:47	WG2502097
1,2,4-Trichlorobenzene	ND		1.00	1	04/29/2025 06:47	WG2502097
1,2,4-Trimethylbenzene	ND		1.00	1	04/29/2025 06:47	WG2502097
1,2-Dibromo-3-Chloropropane	ND	C3	1.00	1	04/29/2025 06:47	WG2502097
1,2-Dibromoethane	ND		1.00	1	04/29/2025 06:47	WG2502097
1,2-Dichlorobenzene	ND		1.00	1	04/29/2025 06:47	WG2502097
1,2-Dichloroethane	ND		0.250	1	04/29/2025 06:47	WG2502097
1,2-Dichloropropane	ND		1.00	1	04/29/2025 06:47	WG2502097
1,3,5-Trimethylbenzene	ND		1.00	1	04/29/2025 06:47	WG2502097
1,3-Dichlorobenzene	ND		1.00	1	04/29/2025 06:47	WG2502097
1,3-Dichloropropane	ND		1.00	1	04/29/2025 06:47	WG2502097
1,4-Dichlorobenzene	ND		1.00	1	04/29/2025 06:47	WG2502097
2,2-Dichloropropane	ND		1.00	1	04/29/2025 06:47	WG2502097
2-Butanone (MEK)	ND		10.0	1	04/29/2025 06:47	WG2502097
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/29/2025 06:47	WG2502097
Acetone	ND		10.0	1	04/29/2025 06:47	WG2502097
Allyl chloride	ND		1.00	1	04/29/2025 06:47	WG2502097
Benzene	ND		0.500	1	04/29/2025 06:47	WG2502097
Bromobenzene	ND		1.00	1	04/29/2025 06:47	WG2502097
Bromochloromethane	ND		1.00	1	04/29/2025 06:47	WG2502097
Bromodichloromethane	ND		1.00	1	04/29/2025 06:47	WG2502097
Bromoform	ND		1.00	1	04/29/2025 06:47	WG2502097
Bromomethane	ND	J4	1.00	1	04/29/2025 06:47	WG2502097
Carbon tetrachloride	ND		0.250	1	04/29/2025 06:47	WG2502097
Chlorobenzene	ND		1.00	1	04/29/2025 06:47	WG2502097
Chloroethane	ND	J4	1.00	1	04/29/2025 06:47	WG2502097
Chloroform	ND		1.00	1	04/29/2025 06:47	WG2502097
Chloromethane	ND		1.00	1	04/29/2025 06:47	WG2502097
Dibromochloromethane	ND		1.00	1	04/29/2025 06:47	WG2502097
Dibromomethane	ND		1.00	1	04/29/2025 06:47	WG2502097
Dichlorodifluoromethane	ND		1.00	1	04/29/2025 06:47	WG2502097
Dichlorofluoromethane	ND		1.00	1	04/29/2025 06:47	WG2502097
Ethyl ether	ND		1.00	1	04/29/2025 06:47	WG2502097
Ethylbenzene	ND		1.00	1	04/29/2025 06:47	WG2502097
Hexachloro-1,3-butadiene	ND	C3	0.250	1	04/29/2025 06:47	WG2502097

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RL ug/l	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		1.00	1	04/29/2025 06:47	WG2502097
Methyl tert-butyl ether	ND		1.00	1	04/29/2025 06:47	WG2502097
Methylene Chloride	ND		1.00	1	04/29/2025 06:47	WG2502097
Naphthalene	ND	C3	1.00	1	04/29/2025 06:47	WG2502097
Styrene	ND		1.00	1	04/29/2025 06:47	WG2502097
Tetrachloroethene	ND		1.00	1	04/29/2025 06:47	WG2502097
Tetrahydrofuran	ND		5.00	1	04/29/2025 06:47	WG2502097
Toluene	ND		1.00	1	04/29/2025 06:47	WG2502097
Trichloroethene	ND		0.100	1	04/29/2025 06:47	WG2502097
Trichlorofluoromethane	ND		1.00	1	04/29/2025 06:47	WG2502097
Vinyl chloride	ND		0.0500	1	04/29/2025 06:47	WG2502097
Xylenes, Total	ND		2.00	1	04/29/2025 06:47	WG2502097
cis-1,2-Dichloroethene	ND		0.100	1	04/29/2025 06:47	WG2502097
cis-1,3-Dichloropropene	ND		0.500	1	04/29/2025 06:47	WG2502097
n-Butylbenzene	ND		1.00	1	04/29/2025 06:47	WG2502097
n-Propylbenzene	ND		1.00	1	04/29/2025 06:47	WG2502097
o-Chlorotoluene	ND		1.00	1	04/29/2025 06:47	WG2502097
p-Chlorotoluene	ND		1.00	1	04/29/2025 06:47	WG2502097
p-Isopropyltoluene	ND		1.00	1	04/29/2025 06:47	WG2502097
sec-Butylbenzene	ND		1.00	1	04/29/2025 06:47	WG2502097
tert-Butylbenzene	ND		1.00	1	04/29/2025 06:47	WG2502097
trans-1,2-Dichloroethene	ND		1.00	1	04/29/2025 06:47	WG2502097
trans-1,3-Dichloropropene	ND		1.00	1	04/29/2025 06:47	WG2502097
(S) 1,2-Dichloroethane-d4	120			70.0-130	04/29/2025 06:47	WG2502097
(S) Toluene-d8	96.9			75.0-131	04/29/2025 06:47	WG2502097
(S) 4-Bromofluorobenzene	90.2			67.0-138	04/29/2025 06:47	WG2502097

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

Method Blank (MB)

(MB) R4207086-2 04/28/25 23:16

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
1,1,1,2-Tetrachloroethane	ND		0.0379	0.100
1,1,1-Trichloroethane	ND		0.0369	0.100
1,1,2,2-Tetrachloroethane	ND		0.0278	0.100
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0302	0.100
1,1,2-Trichloroethane	ND		0.0239	0.100
1,1-Dichloroethane	ND		0.0196	0.100
1,1-Dichloroethene	ND		0.0242	0.100
1,1-Dichloropropene	ND		0.0324	0.100
1,2,3-Trichlorobenzene	ND	U	0.293	0.500
1,2,3-Trichloropropane	ND		0.0648	0.500
1,2,4-Trichlorobenzene	ND		0.176	0.500
1,2,4-Trimethylbenzene	ND		0.0632	0.200
1,2-Dibromo-3-Chloropropane	ND		0.156	1.00
1,2-Dibromoethane	ND		0.0259	0.100
1,2-Dichlorobenzene	ND		0.0170	0.200
1,2-Dichloroethane	ND		0.0260	0.100
1,2-Dichloropropane	ND		0.0568	0.200
1,3,5-Trimethylbenzene	ND		0.0800	0.200
1,3-Dichlorobenzene	ND		0.0240	0.200
1,3-Dichloropropane	ND		0.0200	0.200
1,4-Dichlorobenzene	ND		0.0280	0.200
2,2-Dichloropropane	ND		0.0552	0.100
2-Butanone (MEK)	ND		2.54	4.00
4-Methyl-2-pentanone (MIBK)	ND		0.0912	1.00
Acetone	ND		1.46	2.00
Allyl chloride	ND		0.160	1.00
Benzene	ND		0.0187	0.0400
Bromobenzene	ND		0.0360	0.500
Bromochloromethane	ND		0.0226	0.200
Bromodichloromethane	ND		0.0290	0.100
Bromoform	ND		0.0468	1.00
Bromomethane	0.238	U	0.0788	0.500
Carbon tetrachloride	ND		0.0359	0.200
Chlorobenzene	ND		0.00840	0.100
Chloroethane	ND		0.0680	0.200
Chloroform	0.0583	U	0.0412	0.100
Chloromethane	ND		0.174	0.500
Dibromochloromethane	ND		0.0245	0.100
Dibromomethane	ND		0.0300	0.200

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4207086-2 04/28/25 23:16

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dichlorodifluoromethane	ND		0.0644	0.200
Dichlorofluoromethane	ND		0.0490	0.100
Ethyl ether	ND		0.0356	0.100
Ethylbenzene	ND		0.0295	0.100
Hexachloro-1,3-butadiene	ND		0.0485	0.250
Isopropylbenzene	ND		0.0170	0.100
Methyl tert-butyl ether	ND		0.0140	0.0400
Methylene Chloride	0.282	U	0.266	1.00
Naphthalene	ND		0.195	0.500
Styrene	ND		0.00916	0.500
Tetrachloroethene	ND		0.0358	0.100
Tetrahydrofuran	ND		0.141	0.500
Toluene	0.108	U	0.0520	0.200
Trichloroethene	ND		0.0234	0.0400
Trichlorofluoromethane	ND		0.0331	0.100
Vinyl chloride	ND		0.0462	0.100
Xylenes, Total	ND		0.0352	0.260
cis-1,2-Dichloroethene	ND		0.0294	0.100
cis-1,3-Dichloropropene	ND		0.0303	0.100
n-Butylbenzene	ND		0.210	0.500
n-Propylbenzene	ND		0.0380	0.200
o-Chlorotoluene	ND		0.0346	0.100
p-Chlorotoluene	ND		0.0180	0.200
p-Isopropyltoluene	ND		0.102	0.200
sec-Butylbenzene	ND		0.115	0.500
tert-Butylbenzene	ND		0.0780	0.200
trans-1,2-Dichloroethene	ND		0.0416	0.200
trans-1,3-Dichloropropene	ND		0.0456	0.200
(S) 1,2-Dichloroethane-d4	114			70.0-130
(S) Toluene-d8	98.5			75.0-131
(S) 4-Bromofluorobenzene	97.8			67.0-138

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R4207086-1 04/28/25 21:57

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
1,1,1,2-Tetrachloroethane	5.00	4.68	93.6	74.0-129	
1,1,1-Trichloroethane	5.00	5.24	105	69.0-126	

Laboratory Control Sample (LCS)

(LCS) R4207086-1 04/28/25 21:57

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
1,1,2,2-Tetrachloroethane	5.00	4.61	92.2	68.0-128	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.00	5.00	100	61.0-139	
1,1,2-Trichloroethane	5.00	4.61	92.2	78.0-123	
1,1-Dichloroethane	5.00	5.19	104	70.0-127	
1,1-Dichloroethene	5.00	4.62	92.4	65.0-131	
1,1-Dichloropropene	5.00	4.83	96.6	73.0-125	
1,2,3-Trichlorobenzene	5.00	4.03	80.6	59.0-139	
1,2,3-Trichloropropane	5.00	5.07	101	67.0-129	
1,2,4-Trichlorobenzene	5.00	4.25	85.0	62.0-137	
1,2,4-Trimethylbenzene	5.00	4.82	96.4	70.0-126	
1,2-Dibromo-3-Chloropropane	5.00	3.78	75.6	59.0-130	
1,2-Dibromoethane	5.00	4.57	91.4	74.0-128	
1,2-Dichlorobenzene	5.00	4.91	98.2	76.0-124	
1,2-Dichloroethane	5.00	5.62	112	65.0-131	
1,2-Dichloropropane	5.00	5.01	100	74.0-125	
1,3,5-Trimethylbenzene	5.00	4.81	96.2	73.0-127	
1,3-Dichlorobenzene	5.00	4.99	99.8	76.0-125	
1,3-Dichloropropane	5.00	4.97	99.4	80.0-125	
1,4-Dichlorobenzene	5.00	4.97	99.4	77.0-121	
2,2-Dichloropropane	5.00	4.92	98.4	59.0-135	
2-Butanone (MEK)	25.0	29.6	118	30.0-160	
4-Methyl-2-pentanone (MIBK)	25.0	26.7	107	56.0-143	
Acetone	25.0	35.0	140	10.0-160	
Allyl chloride	25.0	25.2	101	70.0-131	
Benzene	5.00	4.83	96.6	70.0-123	
Bromobenzene	5.00	4.97	99.4	73.0-121	
Bromochloromethane	5.00	5.33	107	77.0-128	
Bromodichloromethane	5.00	5.19	104	73.0-121	
Bromoform	5.00	4.34	86.8	64.0-132	
Bromomethane	5.00	8.09	162	56.0-147	J4
Carbon tetrachloride	5.00	4.83	96.6	66.0-128	
Chlorobenzene	5.00	4.98	99.6	76.0-128	
Chloroethane	5.00	6.99	140	61.0-134	J4
Chloroform	5.00	5.32	106	72.0-123	
Chloromethane	5.00	5.13	103	51.0-138	
Dibromochloromethane	5.00	4.65	93.0	74.0-127	
Dibromomethane	5.00	5.35	107	75.0-122	
Dichlorodifluoromethane	5.00	6.63	133	43.0-156	
Dichlorofluoromethane	5.00	6.17	123	65.0-137	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R4207086-1 04/28/25 21:57

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Ethyl ether	5.00	4.89	97.8	64.0-137	
Ethylbenzene	5.00	4.59	91.8	74.0-126	
Hexachloro-1,3-butadiene	5.00	3.53	70.6	57.0-150	
Isopropylbenzene	5.00	4.68	93.6	72.0-127	
Methyl tert-butyl ether	5.00	5.30	106	66.0-132	
Methylene Chloride	5.00	5.11	102	68.0-123	
Naphthalene	5.00	4.06	81.2	59.0-130	
Styrene	5.00	4.51	90.2	72.0-127	
Tetrachloroethene	5.00	4.56	91.2	70.0-136	
Tetrahydrofuran	5.00	5.08	102	37.0-146	
Toluene	5.00	4.71	94.2	75.0-121	
Trichloroethene	5.00	4.88	97.6	76.0-126	
Trichlorofluoromethane	5.00	5.91	118	61.0-142	
Vinyl chloride	5.00	6.52	130	63.0-134	
Xylenes, Total	15.0	13.7	91.3	72.0-127	
cis-1,2-Dichloroethene	5.00	4.61	92.2	73.0-125	
cis-1,3-Dichloropropene	5.00	4.80	96.0	76.0-127	
n-Butylbenzene	5.00	4.84	96.8	68.0-135	
n-Propylbenzene	5.00	5.00	100	74.0-126	
o-Chlorotoluene	5.00	5.16	103	75.0-124	
p-Chlorotoluene	5.00	5.01	100	75.0-124	
p-Isopropyltoluene	5.00	4.62	92.4	72.0-133	
sec-Butylbenzene	5.00	4.74	94.8	74.0-130	
tert-Butylbenzene	5.00	4.65	93.0	75.0-127	
trans-1,2-Dichloroethene	5.00	4.73	94.6	71.0-125	
trans-1,3-Dichloropropene	5.00	4.91	98.2	73.0-127	
(S) 1,2-Dichloroethane-d4			122	70.0-130	
(S) Toluene-d8			98.3	75.0-131	
(S) 4-Bromofluorobenzene			94.9	67.0-138	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

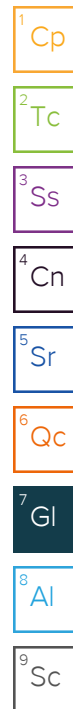
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
C3	The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.
C5	The reported concentration is an estimate. The continuing calibration standard associated with this data responded high. Data is likely to show a high bias concerning the result.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J4	The associated batch QC was outside the established quality control range for accuracy.



ACCREDITATIONS & LOCATIONS

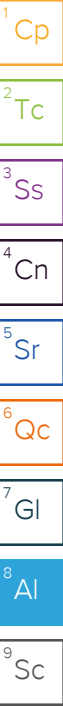
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Company Name/Address: Elk River Landfill 4300 MarketPoint Drive Suite 200 Minneapolis, MN 55435				Billing Information: Accounts Payable / mkostrze@wm.com P.O. Box 4745 Portland, OR 97208-4745				Pres Chk		Analysis / Containers / Preservation										Chain of Custody Page 2 of 2 MT JULIET, TN 13000 Lebanon Rd Mount Juliet, TN 37122 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: http://www.pacelab.com/submit/pace-terms-conditions.pdf							
Report to: Jim Eidem 952-832-2893				Email To: aschneider@barr.com; datamgt@barr.com; jeide																							
Project Description: Quarterly Routine GW-GW STD wells				City/State Collected				Please Circle: PT MT CT ET																			
Regulatory Program (DOD, RCRA, DW, etc.):				Client Project # 200				Lab Project # WMELKRIVMN-00011																			
Collected by (print):				Site/Facility ID # MN02				P.O. #																			
Collected by (signature):				Rush? (Lab MUST Be Notified) ☐ Same Day ☐ Five Day ☐ Next Day ☐ 5 Day (Rad Only) ☐ Two Day ☐ 10 Day (Rad Only) ☐ Three Day ☐ STD TAT				Quote #																			
Immediately Packed on Ice - ☐ N ☐ Y				Date Results Needed				No. of Containers																			
Sample ID				Comp/Grab		Matrix *		Depth		Date		Time		Pres		Chk											
P-311L				GW		4/16/25		1413		3		X		V260ULLC 40mlAmb+HCl		V260ULLC 40mlAmb+HCl-Bk											
P-311D				GW		4/16/25		1418		3		X		V260ULLC 40mlAmb+HCl		V260ULLC 40mlAmb+HCl-Bk											
P-306C				GW		4/16/25		1320		3		X		V260ULLC 40mlAmb+HCl		V260ULLC 40mlAmb+HCl-Bk											
~~P-306C~~ P-333C				GW		4/18/25		1130		3		X		V260ULLC 40mlAmb+HCl		V260ULLC 40mlAmb+HCl-Bk											
P-301L				GW		4/17/25		1420		3		X		V260ULLC 40mlAmb+HCl		V260ULLC 40mlAmb+HCl-Bk											
P-301C				GW		4/16/25		1340		3		X		V260ULLC 40mlAmb+HCl		V260ULLC 40mlAmb+HCl-Bk											
P-250				GW		4/15/25		1510		3		X		V260ULLC 40mlAmb+HCl		V260ULLC 40mlAmb+HCl-Bk											
P-25C				GW		4/16/25		1255		3		X		V260ULLC 40mlAmb+HCl		V260ULLC 40mlAmb+HCl-Bk											
P-319L				GW		4/16/25		1455		3		X		V260ULLC 40mlAmb+HCl		V260ULLC 40mlAmb+HCl-Bk											
* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - Wastewater DW - Drinking Water OT - Other				Remarks:										pH _____ Temp _____ Flow _____ Other _____				Sample Receipt Checklist OOC Seal Present/Intact: ☒ Y ☐ N OOC Signed/Annotated: ☒ Y ☐ N Bottles arrive intact: ☒ Y ☐ N Correct bottles used: ☒ Y ☐ N Sufficient volume sent: ☒ Y ☐ N Vials Zero Headspace: ☒ Y ☐ N Preservation Garment/Chained: ☒ Y ☐ N RAD Screen <0.5 mSv/hr: ☒ Y ☐ N									
Relinquished by: (Signature)				Date: 4/18/25		Time: 1500		Received by: (Signature)				Trip Blank Received: ☒ Yes ☐ No MeqH TSS				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time							
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: _____ °C Bottles received: 54				If preservation required by Logix: Date/Time											
Relinquished by: (Signature)				Date:		Time:																					

Lab/Store Use Only Lab ID: L1850104

Note: For Parasite Sampling replace "Water Fil in Casing" and "Well Fil Plugged" w/ "Water Fil in Tubing Flow Cell" and "Tubing Flow Cell Fil Plugged". Mark changes, record final date. Below

WELL DATA	Well Elevation (at TOC)	99598 (ft)	Depth to Water (DTW) (from TOC)	4975 (ft)	Groundwater Elevation (site datum, from TOC)	94623 (ft)
	Total Well Depth (from TOC)		Stick Up (from ground elevation)		Casing ID (in)	Casing Material

Notes: Total Well Depth: Stick Up: Casing ID: are all measured and are to be drawn to scale. If there is a casing, it should be drawn to scale. If there is no casing, it should be drawn to scale. If there is no casing, it should be drawn to scale.

Sample Time (2400 hr Clock)	Rate (in) LPM	pH (nd)	Conductance (SC/EC) (micro/cm @ 25 °C)	Temp (°C)	Turbidity (ntu)	D.O. (mg/L-ppm)	uHOKP (uV)	DTW (ft)
14:30	0.2	7.17	4107	12.0		0.2		
14:35		7.18	4109	12.2		0.0		
14:40		7.19	4110	12.2		0.0		
14:45		7.19	4112	12.3	1.02	0.0	-10.1	
:								
:								
:								
:								
:								
:								
:								
:								

Suggested range for 3 common readings at one PuraSite measurement:

6.2	3%	-	-	10%	25 uV	Stable

Stabilization Data Fields are Optional (i.e., complete stabilization readings for parameters required by W.M. Site or State). These fields can be used where June 10 field measurements are required by State Permit Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or tape.

[illegible]

Final Field Readings are required. It is record field measurements, final stabilized readings, positive sample readings before sampling for all field parameters required by State Permit No.

Sample Appearance: _____ Color: None Color: None Odor: _____
Weather Conditions (required daily, or as conditions change): _____ Direction/Speed: _____ Outlook: _____ Precipitation: Y or N
Specific Comments (including purge/well volume calculations if required): _____

[illegible]

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign).

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client

ORIGINAL COPY

FIELD INFORMATION FORM



Site Name: ELL
 Site No.: 13296
 Sample Point: 13296
 Sample ID: 13296
 Laboratory: 1950104
 This Waste Management Field Information Form is Required
 This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Form that accompany the sample containers (i.e., with the cooler that is returned to the laboratory).

PURGE INFO
 PURGE DATE: 11/17/25
 PURGE TIME: 11:10
 ELAPSED HRS: 1
 WATER VOL IN CASING: 1
 ACTUAL VOL PURGED: 1
 WELL VOL PURGED: 1
 Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vol Purged" w/ Water Vol in Tiding Flow Cell and Tiding Flow Cell Vol Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT
 Purging and Sampling Equipment: Dedicated ☒ Y ☐ N
 Purging Device: A-Submersible Pump
 Sampling Device: C-QED Bladder Pump
 X-Other:
 Filter Device: Y ☒ N ☐
 Filter Type:
 Sample Tube Type:
 A-In-line Disposable C-Vacuum
 B-Pressure X-Other
 A-Teflon C-PVC X-Other
 B-Stainless Steel D-Polypropylene

WELL DATA
 Well Elevation (at TOC): 9479.9 (ft)
 Depth to Water (DTW) (from TOC): 29.2 (ft)
 Total Well Depth (from TOC): (ft)
 Stick Up (from ground elevation): (ft)
 Casing ID: (in)
 Casing Material:
 Note: Total Well Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by State/Permit/Site. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)
 Sample Time (2400 Hr Clock) Rate/Unit pH Conductance (SC/DC) Temp (°C) Turbidity (ntu) D.O. (mg/L - ppm) eH/ORP (mV) DTW (ft)
11:15 0.4 7.54 266 7.8 0.4
11:20 7.56 266 7.8 0.4
11:25 7.59 267 7.8 0.2
11:30 7.61 267 7.8 15.7 0.1 -1.665
 Suggested range for 3 consecutive readings or more Permitted/State requirements:
 Stabilization Data Fields are Optional (i.e., complete stabilization readings for parameters required by RSM, Site, or State. These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.

FIELD DATA
 SAMPLE DATE (MM/DD/YY) pH (nd) CONDUCTANCE (cmhos/cm @ 25°C) TEMP. (°C) TURBIDITY (ntu) DO (mg/L-ppm) eH/ORP (mV) Others:
 Final Field Readings are required (i.e., record field measurements, final stabilization readings, passive sample readings before sampling for all field parameters required by State/Permit/Site).

Sample Appearance: Color: Other:
 Weather Conditions (required daily, or as conditions change): Direction/Speed: Outlook: Precipitation: Y or N
 Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign).
11/17/25 Kenneth Smith Adrianne
 Date Name Signature Company
 DISTRIBUTION: WHITE-ORIGINAL - Stays with Sample, YELLOW - Returned to Client

ORIGINAL COPY

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e., with the cooler that is returned to the laboratory).

Labovitz The Old Lab 77
L1850104

Note: For Passive Sampling replace "Water Fil in Cany" and "Wall Fish Panel" w/ "Water Fil in Tubing Flow Cell" and "Tubing Flow Cell Fish Panel". Most channels reserved field data below.

Sample Tube Type:	H-Stainless Steel	D-Polypropylene

Note: Total Mail Order Stock (3) Cannot Be less than amount of stock orders received by the Dealer. Mail Order, JUNE, and Greenhouse Elevator must be correct.

Suggested range for 3-atomic readings on some Persian/Urdu constructions

Stabilization Data Fields are Optional (i.e., complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State Permit No. 11-A (Data Loggers or other Electronic Format is used). All of the readings below and submit electronic data separately to the: If more fields above are provided, use resources listed on the

Final Field Readings are required (i.e. record field measurements, final stabilized readings, posttest sample readings before sampling for all field parameters required by State Permit/SLC)

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS	
	kump air lab. leaking, still able to sample

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

4.17.25 M. E. Hoo

Signature _____

Allison

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client

ORIGINAL COPY

Library Use Only (Last 4):
11850104

Sample ID

PURCH DATE

2011年12月15日

E14357D-1095

WATER VOL. IN CASING

ACTUAL VOL. PURGED

WILLIAMS

Also: For Passive Sampling, replace "Water Fil in Casing" and "Well Fil Piped" in Water Fil in Tubing Flow Cell and Tubing Flow Cell Fils Piped. Mark changes, record field data below.

Filter Devices: ☐ Yes ☒ No ☐ Not Applicable ☐ Other _____

Purging Device: ☒ C ☐ A-Submersible Pump ☐ D-Bailer ☐ A-In-line Disposable ☐ C-Vacuum

Sampling Device	☐ D-4 In-line Pump ☐ C-OED Bladder Pump ☐ E-Dipper/Bottle	☐ D-4 In-line Pump ☐ E-Dipper/Bottle	Filter Type: ☐ ☐	425 Results: ☐	200 Results: ☐

Y. Oda	Kazuo Takekoshi	A. Telford	C. PVL	A
	H. Staudenmann		D. Polymers	

Well Elevation (at TOC)	951.37	(ft)

[illegible]

Groundwater Elevation (site datum, from TMC)	94.957

Total Well Depth (from TOC)	Stick Up (from ground elevation)	Casing ID	Casing Material

Note: Tensile Wall Depth, Stick-Up, Curbout Id. etc. are optional and can be done without all data, as long as required by State Plans. Wall Elevation, IDW, and Groundwater Elevation must be shown.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Flow Unit L/min	pH (mV)	Conductance (SC/cm) (µmhos/cm @ 25 °C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	ORP (mV)	DTW (ft)
13:20	04	7.20	874	10.6		02		
13:25		7.17	870	10.7		00		
13:30		7.16	873	10.6		06		
13:35		7.12	868	10.6		01	-124	
:								
:								
:								
:								
:								
:								
:								
Suggested range for 1 minute exchange in this device (Range is dependent on)		± 0.2	± 2%	-	-	± 10%	± 25 mV	Subline

Suggested range for 3 common readings on
this Percent Stress measurement

Stabilization Data Fields are Optional (i.e. complete stabilization readings for parameters required by W.M. Site or State). These fields can be used where four (4) field measurements are required by State/Owner/Site. If a Data Logger or other Electronic Reader is used, fill in the readings below and submit electronically. See Appendix to Site Manual for details. When fields above are needed, see comments about use below.

SAMPLE DATE _____

gall

CONDUCTANCE

TEMP.

TECHNIQUES

DOI

eH/CR

Others:

(SMID YS)	(id)	(nm/cm @ 25°C)	(°C)	(id)	(mg/L-ppm)	(mV)	Units

Final Flight Readings are required (i.e., record field measurements, final stabilized readings, post-fire survey readings before sampling for all field parameters required by State Permit SW-0000000000).

Sample Appearance:

Cider: *N*

Color: *h*

Other

Weather Conditions (required daily, or as conditions change)

Discussion/Spend

Outlook

Precipitation: Y or N

Specific Comments (including page/well volume calculations if requested):

FIELD COMMENTS

I certify that sampling procedures were in accordance with applicable EPA, State, and WMD protocols (if more than one sampler, all should sign):

After the

Al-

DISTRIBUTION: WHITE/ORIGINAL - Store with Sample, YELLOW - Returned to Client

ORIGINAL COPY

FIELD INFORMATION FORM



Site Name: ERL

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is
submitted along with the Chain of Custody Form that accompany the sample
containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only (Lab ID)
L1850104

Site No.:
Sample Point: P320C2
Sample ID:

PURGE INFO
PURGE DATE: 04/15/25 PURGE TIME: 13:45 ELAPSED HRS:
(MM/DD/YY) (2400 Hr Clock) (hr:min)

WATER VOL IN CASING: ACTUAL VOL PURGED: WELL VOL PURGED:
(Gallons) (Gallons) (Gallons)

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vol Purged" with "Water Vol in Tubing/Purge Cell and Tubing/Purge Cell Vol Purged." Mark changes, record field data below.

Purging and Sampling Equipment: Dedicated: ☒ Y or N Filter Device: Y or N 0.45 μ or μ (circle or fill in)
Purging Device: C A-Submersible Pump D-Bailer Filter Type: A-In-line Disposable C-Vacuum
Sampling Device: C B-Peristaltic Pump E-Piston Pump B-Pressure X-Other:
X-Other: Sample Tube Type: A-Teflon C-PVC X-Other:
B-Stainless Steel D-Polypropylene

WELL DATA
Well Elevation (at TOC): 951.21 (ft/m) Depth to Water (DTW): 159 (ft/m) Groundwater Elevation (site datum, from TOC): 947.62 (ft/m)
Total Well Depth (from TOC): (ft) Sock Up (from ground elevation): (ft) Casing ID: (in) Casing Material:
Note: Total Well Depth, Sock Up, Casing ID, etc. are optional and can be from historical data, unless required by State/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)
Sample Time (2400 Hr Clock) Date/Unit pH Conductance (SC/EC) Temp. Turbidity D.O. eH/ORP DTW
(mm/dd/yy) (μmhos/cm @ 25°C) (°C) (ntu) (mg/L - ppm) (mV) (ft)
13:50 0.4 7.30 1024 10.7 02
13:55 7.29 1025 10.8 01
14:00 7.27 1024 10.7 00
14:05 7.26 1023 10.8 5.2 00 -130
Suggested range for 7 sensors, readings in units: pH: 0-14 Conductance: 0-2000 μmhos/cm Temp: 0-60°C Turbidity: 0-1000 ntu D.O.: 0-10% eH/ORP: 0-200 mV DTW: Stable

Stabilization Data Fields are Optional (i.e. complete stabilization readings for parameters required by WM, State, or State. These fields can be used where fine (4) field measurements are required. In State/Permit Sites. If a Data Logger or other electronic format is used, fill in first readings below and submit electronic data separately to Site. If more fields above are needed, see separate sheet or form.

FIELD DATA
SAMPLE DATE: pH: CONDUCTANCE: TEMP: TURBIDITY: DO: eH/ORP: Other:
(MM/DD/YY) (mV) (μmhos/cm @ 25°C) (°C) (ntu) (mg/L - ppm) (mV) Units

Final Field Readings are required (i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit Site).

Sample Appearance: Odor: None Color: None Other:
Weather Conditions (required daily, or as conditions change): Direction/Speed: Outlook: Precipitation: Y or N
Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign)

Date: 4.15.25 Name: Mike Hara Signature: Company: ATI

DISTRIBUTION: WHITE/ORIGINAL - State with Sample, YELLOW - Returned to Client

ORIGINAL COPY

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e., with the cooler that is returned to the laboratory).

Labnummer (Use One) Lab ID

Note: For Parasite Sampling, replace "Water Vol in Casing" and "Well-bore Pressure" to "Water Vol in Tubing/Flow Coll" and "Tubing/Flow Coll Vols Purged." Mark changes, record field data, initiate

WELL DATA	Well Elevation (at TOC)	951.19 (ft)	Depth to Water (DTW) (from TOC)	160 (ft)	Groundwater Elevation (site datum, from TOC)	949.59 (ft)
	Total Well Depth (from TOC)		Stick Up (from ground elevation)		Casing ID	
					Casing Material	

Notes: Total Well Depth, Depth to Water, and Casing ID are optional and can be left blank. If data is provided, it must be accurate. Well Elevation, DTW, and Groundwater Elevation must be correct.

STABILIZATION DATA (Optional)	Sample Time (2400 Hr Clock)	Rate Unit (μm)	pH (nd)	Conductance (SC/EC) ($\mu\text{mhos/cm}$ @ 25 °C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	cH/ORP (mV)	DTW (ft)
	14:20	0.4	7.17	1140	10.6		0.1		
	14:25		7.16	1140	10.6		0.1		
	14:30		7.14	1145	10.6		0.0		
	14:35		7.13	1146	10.7	11.0	0.0	-154	
	:								
	:								
	:								
	:								
	:								
	:								
	:								
Suggested range for 7 control readings on www.FrontierWater.com/parameters :									
		10-20		10-300			10-100%	10-25 mV	Stabilize

Stabilization Data Fields are Optional (i.e., complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State Permit/Title. If a Data Logger or other Electronic format is used, fill in field readings below and submit electronic data separately to NYS. If more fields above are needed, use separate sheet or form.

[illegible]

Final Field Readings are required. (i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State Permit No.

Sample Appearance: _____	Odor: <u>None</u>	Color: <u>Na</u>	Other: _____
Weather Conditions (required daily, or in conditions change): _____	Direction/Speed: _____	Outlook: _____	Precipitation: <u>Y</u> or <u>N</u>
Specific Comments (including purge/well volume calculations if required): _____			

FIELD COMMENTS				

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign)

4 5 25

Mike H

[Signature]

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Clear

ORIGINAL COPY

Laboratory Charge/Tab ID
L1890/04

ORIGINAL COPY

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only (Lab ID): L1856104

Note: For Passive Sampling, replace "Water Fil in Canine" and "Red Fish Packed" w/ "Water Fil in Tubing/Flow Cell and Tubing/Flow Cell Fish Packed." Mark changes, record field data below.

WELL DATA	Well Elevation (at TOC)	965.76 (ft)	Depth to Water (DTW) (from TOC)	16.93 (ft)	Groundwater Elevation (site datum, from TOC)		(ft)
	Total Well Depth (from TOC)		Stick Up (from ground elevation)		Casing ID		Casing Material

Note: Total Well Depth, Stick Up, Casing ID are not required and can be from historical data, unless requested by the Regulator. Well Elevation, DTW, and Groundwater Elevation must be current.

Suppressed range for 1 column: readings on 10.42. Partially obscured measurements.

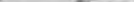
Substitution Data Fields are Optional (i.e., complete substitution readings for parameters required by WM Site or Study. These fields can be used where four (4) field measurements are required by State-Permit No. If a Data Logger or other Electronic format is used, fill in field readings below and submit electronic data separately to Site. If more fields than are needed, use space on sheet to fill in.

Final Field Readings are required (i.e. nested field measurements, final subunit readings, passive sampler readings) before sampling for all field parameters required by State Permit No.

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS			

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

4.16.75 Kenneth Giff  Alden

Cluster

Notes

Schwarz

Compass

DISTRIBUTION: WHITE ORIGINAL - Stays with Sample, YELLOW - Returned to Client

ORIGINAL COPY

7.1850104

Note: For Paints Sampling, replace "Water Vol in Curing" and "Wall Vol Percent" w/ "Water Vol in Tubing Flow Cell" and "Tubing Flow Cell Vol Percent". Mark changes, insert field data below.

Note: Total Well Depth, Stick Up, Casing Id, etc. are optional and can be from historical data, unless required by Site Permit. Well Elevation, DTM, and Groundwater Elevation must be current.

Suggested range for 3 months, readings of
two *Parus* birds, measurements:

Stabilization Data Fields are Optional (i.e., complete stabilization readings for parameters required by R.M. Site or State). These fields can be used where five (5) field measurements are required by State Private Site. If a Data Logger or other Electronic format is used, fill in field readings below and submit electronic data separately to the . If more fields above are needed, use separate sheets or forms.

Final Field Readings are required (i.e. record field measurements, fluid stability readings, positive sample readings before sampling for all field parameters required by State Permit No. _____)

Specific Comments (including pore/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign)

DISTRIBUTION: WHITEHEAD GENAL - Start with Sample, YELLOW - Returned to China

ORIGINAL COPY

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any Site Forms. The Field Form is submitted along with the Chain of Custody Form that accompany the sample containers (i.e. with the truck that is returned to the laboratory).

Laboratory Use Only: Lab ID: L1850104

Note: For Placenta Sampling, replace "Water Fed in Caring" and "Well Fed Pregnant" w/ "Water Fed in Taking-Paw Calf" and "Taking-Paw Calf Well Fed Pregnant". Mark changes, record field data, below.

WELL DATA																	
Well Elevation (at TOC)	4	6	3	2	6	(ft)	Depth to Water (DTW) (from TOC)	1	3	8	6	(ft)	Groundwater Elevation (site datum, from TOC)				(ft)
Total Well Depth (from TOC)						(ft)	Stick Up (from ground elevation)					(ft)	Casing ID		(in)	Casing Material	

Note: Total Well Depth, Stick Up, Casing ID are per approval and can be from different dates, unless approved by the District. Well Elevation, DTW, and Groundwater Elevation must be current.

[illegible]

Suggested range for Y column: readings of more Penna State measurements.

Stabilization Data Fields are Optional If a complete stabilization readings for parameters required by R4, S10, or S15 are not available, the following fields can be used where four (4) field measurements are required separately in S10. If more fields above are needed, use separate sheet or disk.

Final Field Readings are required *i.e.* record field measurements. Once stabilized readings, positive sample readings before sampling for all field parameters required by State Permit Six.

FIELD COMMENTS			

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

11.16.75 Kenneth Smith [Signature] Advertiser
Date Name Signature Company

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client

ORIGINAL COPY

FIELD INFORMATION FORM



Site Name: ERL This Waste Management Field Information Form is Required. This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Form that accompanies the sample container (i.e. with the cooler that is returned to the laboratory).

Site No.: Sample Point: P333L Sample ID

Lab/Owner Use Only (Lab ID): 1850104

PURGE INFO

PURGE DATE: 04/18/25 PURGE TIME: 11:10 ELAPSED HRS: WATER VOL IN CASING: ACTUAL VOL PURGED: WELL VOL PURGED:

(MM/DD/YY) (2400 Hr Clock) (hr:min) (Gallons)

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vol Purged" w/ "Water Vol in Tubing Flow Cell" and "Tubing Flow Cell Vol Purged". Mark changes; record field data, below.

PURGE/SAMPLING EQUIPMENT

Purging and Sampling Equipment: Dedicated: ☒ Y ☐ N ☐ G Filter Device: Y ☒ N ☐ G 0.45 µ or µ (inlet or filter)

Purging Device: ☒ X A-Submersible Pump D-Bladder Filter Type: A-In-line Disposable C-Vacuum

B-Peristaltic Pump E-Piston Pump B-Pressure X-Other:

Sampling Device: ☒ X C-QED Bladder Pump F-Dipper/Bottle A-Teflon C-PVC X-Other:

X-Other: Drop tube Sample Tube Type: B-Stainless Steel D-Polypropylene

WELL DATA

Well Elevation (at TOC): 943.72 (ft) Depth to Water (DTW): 11.00 (ft) Groundwater Elevation (site datum, from TOC): 944.72 (ft)

Total Well Depth (from TOC): (ft) Stick Up (from ground elevation): (ft) Casing ID: (in) Casing Material:

Note: Total Well Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by State/Owner. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp (°C)	Turbidity (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
11:15	7.416	3616	8.0		0.0		
11:20	7.416	407	7.9		0.0		
11:25	7.416	406	7.9		0.0		
11:30	7.45	405	8.0	1.0	0.0	152	

Suggested range for 3 consecutive readings in each Parameter/State requirements: pH: ±0.2 Conductance: ±5% Temp: ±0.5°C Turbidity: ±10% DO: ±0.2 mg/L eH/ORP: ±25 mV Sediment:

Stabilization Data Fields are Optional (i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where five (5) field measurements are required by State/Owner/State. If a Data Logger or other Electronic Format is used, fill in field readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.

FIELD DATA

SAMPLE DATE (MM/DD/YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: <u> </u>

Final Field Readings are required (i.e. record field measurements; final stabilization readings; positive sample readings before sampling for all field parameters required by State/Owner/State).

Sample Appearance: Odor: None Color: None Other:

Weather Conditions (required daily, or as conditions change): Direction Speed: Outlook: Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date: 4/18/25 Name: Mike Signature: Company: Alma

DISTRIBUTION: WHITE-ORIGINAL - Stays with Sample, YELLOW - Returned to Client

ORIGINAL COPY

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Form that accompanies the sample containers (i.e. with the cooler that is marked to the laboratory).

Laboratory Use Only - Lab ID:
L1850104

PURGE INFO	PURGE DATE (MM/DD/YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (Decimal)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOL PURGED
	4 1 7 2 5	1 4 0 0				

Note: The Barcode Supplement numbers "White-Eyed Vireo" and "Wood-Edged Vireo" = *White-Eyed Vireo* and *White-Eyed Vireo* respectively. Mark changes, marked field data follow.

PURGE/SAMPLE EQUIPMENT	Purging and Sampling Equipment: Dedicated ☒ Y or ☐ N		Filter Device: ☐ Y or ☒ N ☐ 0.45 μ or ☐ μ (state or fill in)	
	Purging Device: ☒ C	A-Submersible Pump D-Bailer	☐ A-In-line Disposable	C-Vacuum
	☒ B-Peristaltic Pump	E-Piston Pump	☐ B-Pressure	X-Other _____
	Sampling Device: ☒ C-QED Bladder Pump	F-Dipper Bottle		
X-Other: _____		Sample Tube Type: _____	A-Teflon B-Stainless Steel C-PVC D-Polypropylene X-Other: _____	

WELL DATA	Well Elevation (at TOC)	97011 (ft)	Depth to Water (DTW) (from TOC)	130 (ft)	Groundwater Elevation (site datum, from TOC)	96881 (ft)
	Total Well Depth (from TOC)		Suck Up: (from ground elevation)		Casing ID (in)	Casing Material

Note: Total Well Depth, Suck Up, Casing ID, etc. are optional and can be from measured data, unless measured by Site Program. Well Elevation, DTW, and Groundwater Elevation must be current.

Name: David Walli Dwyer Date: 1/16/2016 Title: Site Assessment and Plan for Pump and Treat System Location: Site 100 Well Elevation: OTW and Groundwater Elevation must be current

STABILIZATION DATA (Optional)	Sample Time (2400 hr Clock)	Rate Unit L/min	pH (nd)	Conductance (SC/EC) (micro/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	dHORP (mV)	DTW (ft)
	14:05	0.4	673	523	10.7		0.4		
	14:10		674	527	10.7		0.4		
	14:15		670	530	10.7		0.4		
	14:20		665	531	10.7	17.2	0.4	-1181	
	:								
	:								
	:								
	:								
	:								
	:								
	:								
	:								
Suggested range for 3 colors: readings at and Beyond Super concentration:		< 0.2		< 3%	-	-	< 10%	> 25 mV	Stable

Suggested range for 5 scores: readings over 1000. *Parus fuscus* *canadensis*.

Standardization Data Fields are Optional: If a complete standardization readings for parameters required by WHO, SPC, or other. These fields can be used where local field measurements are required by State, Federal, or other. If Data Logger or other Electronic format is used, fill in field readings below and submit electronic data separately as SPC. If more fields above are needed, use appropriate sheet or form.

FIELD DATA	SAMPLE DATE	pH	CONDUCTANCE	TEMP.	TURBIDITY	DO	uH/ORP	Other:
	(MM/DD/YY)	(std)	(microhm/cm @ 25°C)	(°C)	(ntu)	(mg/L-ppm)	(mV)	Units

Final field readings are required. If it is not a field environment, final additional readings, aquatic sample readings before samples for all field parameters required by State Permit Site

Final Night Readings are required. If it record field measurements, final stabilized readings, post-trip sample readings before sampling for all field parameters required by State Permit Site

Sample Appearance: _____	Odor: _____	Color: _____	Other: _____
Weather Conditions (required daily, or as conditions change): _____	Direction/Speed: _____	Outlook: _____	Precipitation: <u>Y</u> or <u>N</u>
Specific Comments (including purge/well volume calculations if required): _____			

FIELD COMMENTS			

I certify that sampling procedures were in accordance with applicable EPA, State, and WQS protocols (if more than one sampler, all should sign)

4/17/25	Kenneth Smith		Advance
Date	Name	Signature	Company

DISTRIBUTION: WHITE-ORIGINAL: Stars with Sample. YELLOW: Returned to Class.

ORIGINAL COPY

11850104

ORIGINAL COPY

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any Data Forms. The Field Form is information along with the Chain of Custody Form that accompany the sample container. (i.e. with the cooler that is returned to the laboratory).

Information Use Code/Label ID
61850104

Note: For Disease Susceptibility, examine "White Tail in Culture" and "Wild Fish Prawn" for White Tail in Culture, Flow Cell, and Prawn Culture. Blood changes: normal field data, India.

Filter Device: ☒ Y ☐ N ☐ NA ☐ 0.45 ☐ 10 ☐ 100 ☐ 200 ☐ 300 ☐ 400 ☐ 500 ☐ 600 ☐ 700 ☐ 800 ☐ 900 ☐ 1000 ☐ 1200 ☐ 1500 ☐ 2000 ☐ 3000 ☐ 4000 ☐ 5000 ☐ 6000 ☐ 7000 ☐ 8000 ☐ 9000 ☐ 10000 ☐ 12000 ☐ 15000 ☐ 20000 ☐ 30000 ☐ 40000 ☐ 50000 ☐ 60000 ☐ 70000 ☐ 80000 ☐ 90000 ☐ 100000 ☐ 120000 ☐ 150000 ☐ 200000 ☐ 300000 ☐ 400000 ☐ 500000 ☐ 600000 ☐ 700000 ☐ 800000 ☐ 900000 ☐ 1000000 ☐ 1200000 ☐ 1500000 ☐ 2000000 ☐ 3000000 ☐ 4000000 ☐ 5000000 ☐ 6000000 ☐ 7000000 ☐ 8000000 ☐ 9000000 ☐ 10000000 ☐ 12000000 ☐ 15000000 ☐ 20000000 ☐ 30000000 ☐ 40000000 ☐ 50000000 ☐ 60000000 ☐ 70000000 ☐ 80000000 ☐ 90000000 ☐ 100000000 ☐ 120000000 ☐ 150000000 ☐ 200000000 ☐ 300000000 ☐ 400000000 ☐ 500000000 ☐ 600000000 ☐ 700000000 ☐ 800000000 ☐ 900000000 ☐ 1000000000 ☐ 1200000000 ☐ 1500000000 ☐ 2000000000 ☐ 3000000000 ☐ 4000000000 ☐ 5000000000 ☐ 6000000000 ☐ 7000000000 ☐ 8000000000 ☐ 9000000000 ☐ 10000000000 ☐ 12000000000 ☐ 15000000000 ☐ 20000000000 ☐ 30000000000 ☐ 40000000000 ☐ 50000000000 ☐ 60000000000 ☐ 70000000000 ☐ 80000000000 ☐ 90000000000 ☐ 100000000000 ☐ 120000000000 ☐ 150000000000 ☐ 200000000000 ☐ 300000000000 ☐ 400000000000 ☐ 500000000000 ☐ 600000000000 ☐ 700000000000 ☐ 800000000000 ☐ 900000000000 ☐ 1000000000000 ☐ 1200000000000 ☐ 1500000000000 ☐ 2000000000000 ☐ 3000000000000 ☐ 4000000000000 ☐ 5000000000000 ☐ 6000000000000 ☐ 7000000000000 ☐ 8000000000000 ☐ 9000000000000 ☐ 10000000000000 ☐ 12000000000000 ☐ 15000000000000 ☐ 20000000000000 ☐ 30000000000000 ☐ 40000000000000 ☐ 50000000000000 ☐ 60000000000000 ☐ 70000000000000 ☐ 80000000000000 ☐ 90000000000000 ☐ 100000000000000 ☐ 120000000000000 ☐ 150000000000000 ☐ 200000000000000 ☐ 300000000000000 ☐ 400000000000000 ☐ 500000000000000 ☐ 600000000000000 ☐ 700000000000000 ☐ 800000000000000 ☐ 900000000000000 ☐ 1000000000000000 ☐ 1200000000000000 ☐ 1500000000000000 ☐ 2000000000000000 ☐ 3000000000000000 ☐ 4000000000000000 ☐ 5000000000000000 ☐ 6000000000000000 ☐ 7000000000000000 ☐ 8000000000000000 ☐ 9000000000000000 ☐ 10000000000000000 ☐ 12000000000000000 ☐ 15000000000000000 ☐ 20000000000000000 ☐ 30000000000000000 ☐ 40000000000000000 ☐ 50000000000000000 ☐ 60000000000000000 ☐ 70000000000000000 ☐ 80000000000000000 ☐ 90000000000000000 ☐ 100000000000000000 ☐ 120000000000000000 ☐ 150000000000000000 ☐ 200000000000000000 ☐ 300000000000000000 ☐ 400000000000000000 ☐ 500000000000000000 ☐ 600000000000000000 ☐ 700000000000000000 ☐ 800000000000000000 ☐ 900000000000000000 ☐ 1000000000000000000 ☐ 1200000000000000000 ☐ 1500000000000000000 ☐ 2000000000000000000 ☐ 3000000000000000000 ☐ 4000000000000000000 ☐ 5000000000000000000 ☐ 6000000000000000000 ☐ 7000000000000000000 ☐ 8000000000000000000 ☐ 9000000000000000000 ☐ 10000000000000000000 ☐ 12000000000000000000 ☐ 15000000000000000000 ☐ 20000000000000000000 ☐ 30000000000000000000 ☐ 40000000000000000000 ☐ 50000000000000000000 ☐ 60000000000000000000 ☐ 70000000000000000000 ☐ 80000000000000000000 ☐ 90000000000000000000 ☐ 100000000000000000000 ☐ 120000000000000000000 ☐ 150000000000000000000 ☐ 200000000000000000000 ☐ 300000000000000000000 ☐ 400000000000000000000 ☐ 500000000000000000000 ☐ 600000000000000000000 ☐ 700000000000000000000 ☐ 800000000000000000000 ☐ 900000000000000000000 ☐ 1000000000000000000000 ☐ 1200000000000000000000 ☐ 1500000000000000000000 ☐ 200

[illegible]

Suggested range for 3-minute readings on
new Formet Scale: regular use

Stabilization Data Fields are Optional (i.e., complete stabilization readings for parameters required by WM, SRS, or State). These fields can be used where four (4) field measurements are required by State Permit SRS. If a Data Logger in either electronic format is used, fill in field readings below and submit electronic data separately to SRS. If none fields shown are needed, skip separate sheet or Summary page.

Final field readings are crossed (i.e. second field measurements, final dissolved readings, passive sample readings) before sampling for all field parameters required by DataFormixGo.

Color: *M* ~ Color: *M* ~ Color: *M* ~

I certify that sampling procedures were in accordance with applicable EPA, State, and WQI protocols (if more than one sampler, all should sign)



DISTRIBUTION: WHITE (CHINA) - Korea with Sangju. YELLOW - Returned to China.

ORIGINAL COPY

Laboratory Use Only (Left ID): U850104

Note. First passage swimming routine "Water Flow in Caisson" and "Well Hole Pump" in Water Pit in Submergence Cell and Submergence Cell Hole Pump. Most swimmers entered field alone before

Filter Device: ☐ Y ☐ N ☐ [0.45 ☐ or ☐] ☐ ☐ (p. 6) (circle or fill in)

East European JRM and Greenhouse Emissions must be covered

Suggested range for 3 months' readings or less: Percent Shale non-aqueous

Stabilization Data Fields are Optional (i.e., complete stabilization readings for parameters requested by W.M. Site, or State of New York Site. If a Data Logger or other Electronic Format is used, fill in field numbers below and submit electronic data separately to Site. If many fields above are needed, use summary sheet or fax.)

Final Field Readings are required (i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by Semi-Permeable Site)

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign)

Ehlers

Parent

References

Comments

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client

ORIGINAL COPY



ANALYTICAL REPORT

May 13, 2025

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Elk River Landfill

Sample Delivery Group: L1857297
Samples Received: 05/09/2025
Project Number: 500
Description: Elk River- Monthly Leachate
Site: MN02
Report To: Jim Eidem
4300 MarketPoint Drive Suite 200
Minneapolis, MN 55435

Entire Report Reviewed By:

T. Alan Harvill
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

TABLE OF CONTENTS

Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	² Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	³ Ss
SP-01_Leachate L1857297-01	5	
Qc: Quality Control Summary	6	⁴ Cn
Gravimetric Analysis by Method 2540 D-2011	6	⁵ Sr
Wet Chemistry by Method 410.4	7	
Wet Chemistry by Method 4500H+ B-2011	8	⁶ Qc
Gl: Glossary of Terms	9	⁷ Gl
Al: Accreditations & Locations	10	⁸ Al
Sc: Sample Chain of Custody	11	⁹ Sc

SAMPLE SUMMARY

SP-01_Leachate L1857297-01

Collected by
Kenneth Smith

Collected date/time
05/08/25 09:50

Received date/time
05/09/25 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 D-2011	WG2512963	1	05/12/25 11:43	05/12/25 18:24	AMG	Mt. Juliet, TN
Wet Chemistry by Method 410.4	WG2513499	5	05/13/25 08:07	05/13/25 14:08	DAM	Mt. Juliet, TN
Wet Chemistry by Method 4500H+ B-2011	WG2512219	1	05/10/25 22:30	05/10/25 22:30	KRB	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

CASE NARRATIVE

Unless qualified or notated within the narrative below, all sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



T. Alan Harvill
Project Manager



Project Comments

The requested project specific reporting limits may be less than laboratory standard quantitation limits (PQL) but will be greater than or equal to the laboratory method detection limits (MDL). It is noted that results reported below lab standard quantitation limits (PQLs) may result in false positive/false negative values that may require additional laboratory quality assurance review, if requested. Routine laboratory procedures do not initiate a data review process for detections below the laboratory's PQL unless requested by the client.

Sample Delivery Group (SDG) Narrative

The laboratory analysis was performed from an unpreserved, insufficiently or inadequately preserved sample.

Batch	Method	Lab Sample ID
WG2513499	410.4	L1857297-01

The following samples were prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

Batch	Method	Lab Sample ID
WG2512219	4500H+ B-2011	L1857297-01

Gravimetric Analysis by Method 2540 D-2011

RPD value not applicable for sample concentrations less than 5 times the reporting limit.

Batch	Lab Sample ID	Analytes
WG2512963	(DUP) R4213935-4	Suspended Solids

Additional Information - Results for field analyses are not accredited to ISO 17025

	Result	Units
Analyte		
pH (On Site)	7.72	su
Temperature (on-site)	16.9	Deg C

1
Cp

2
Tc

3
Ss

Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Suspended Solids	29.6		4.00	1	05/12/2025 18:24	WG2512963

4
Cn

5
Sr

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	RL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
COD	3020		15.0	5	05/13/2025 14:08	WG2513499

6
Qc

7
Gl

Wet Chemistry by Method 4500H+ B-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SU				
pH	8.07	T8	1	05/10/2025 22:30	WG2512219

8
Al

9
Sc

Sample Narrative:

L1857297-01 WG2512219: 8.07 at 19.1C

Method Blank (MB)

(MB) R4213935-1 05/12/25 18:24

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Suspended Solids	ND		0.350	2.50

L1856950-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1856950-01 05/12/25 18:24 • (DUP) R4213935-3 05/12/25 18:24

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	153	156	1	1.94		10

L1857016-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1857016-01 05/12/25 18:24 • (DUP) R4213935-4 05/12/25 18:24

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	ND	ND	1	15.4	P1	10

Laboratory Control Sample (LCS)

(LCS) R4213935-2 05/12/25 18:24

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Suspended Solids	773	796	103	85.0-115	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4213986-1 05/13/25 13:54

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
COD	8.59		3.00	10.0

L1857370-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1857370-01 05/13/25 14:10 • (DUP) R4213986-7 05/13/25 14:10

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
COD	6780	6710	10	1.08		20

L1857377-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1857377-01 05/13/25 14:10 • (DUP) R4213986-8 05/13/25 14:11

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
COD	860	854	2	0.693		20

Laboratory Control Sample (LCS)

(LCS) R4213986-2 05/13/25 14:03

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
COD	500	497	99.5	90.0-110	

L1857068-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1857068-03 05/13/25 14:04 • (MS) R4213986-3 05/13/25 14:06 • (MSD) R4213986-4 05/13/25 14:06

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
COD	500	48.6	551	560	100	102	1	90.0-110			1.68	20

L1857068-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1857068-04 05/13/25 14:08 • (MS) R4213986-5 05/13/25 14:08 • (MSD) R4213986-6 05/13/25 14:08

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
COD	500	24.7	539	535	103	102	1	90.0-110			0.786	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1856044-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1856044-01 05/10/25 22:30 • (DUP) R4212884-2 05/10/25 22:30

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.01	7.03	1	0.285		1

Sample Narrative:

OS: 7.01 at 18.4C

DUP: 7.03 at 18.4C

L1857437-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1857437-01 05/10/25 22:30 • (DUP) R4212884-3 05/10/25 22:30

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.14	8.16	1	0.245		1

Sample Narrative:

OS: 8.14 at 19.6C

DUP: 8.16 at 19.3C

Laboratory Control Sample (LCS)

(LCS) R4212884-1 05/10/25 22:30

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10.03 at 19.9C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

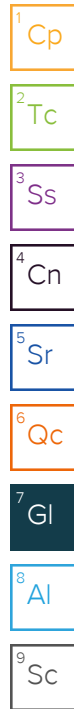
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.



ACCREDITATIONS & LOCATIONS

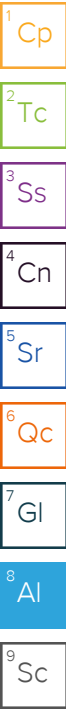
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



FIELD INFORMATION FORM

Surface Water, Stormwater and Leachate



Site Name: ERL

Sample I.D.: SP-01

Laboratory Use Only / Lab I.D.:

L1857297

Sampling Method & Equipment

Purge and Sample Equipment:

Sampling Method: ☒ D - Direct ☐ I - Indirect ☐ V - Visual
 Sampling Equipment: ☒ D - Dipper ☐ T - Transfer Vessel ☐ S - Sample Bottle ☐ O - Other Pump

Sample Type: ☐ Grab / Composite (circle one)

Field Measurements

Sample Date MM/DD/YYYY	Sample Time 24 Hr. Clock	pH (std. Units)	CONDUCTIVITY (umhos/cm @ 25°C)	Temp °C	TURBIDITY (NTUs)	DO mg/L - ppm	eH/ORP (std. Units)
<u>5/8/25</u>	<u>950</u>	<u>7.72</u>	<u>21360</u>	<u>16.9</u>			

Record final stabilized field readings.

Field Observations

Sample Appearance: Odor: yes Color: Green/Black Other: _____
 Sheen Present ☐ Y or ☒ N Foam Present ☒ Y or ☐ N Floating Solids: ☐ Y or ☒ N

Weather Conditions: (required daily, or as conditions change):

Direction/Speed: 5 mph N/NW Precipitation: ☐ Y or ☒ N

Specific Comments: _____

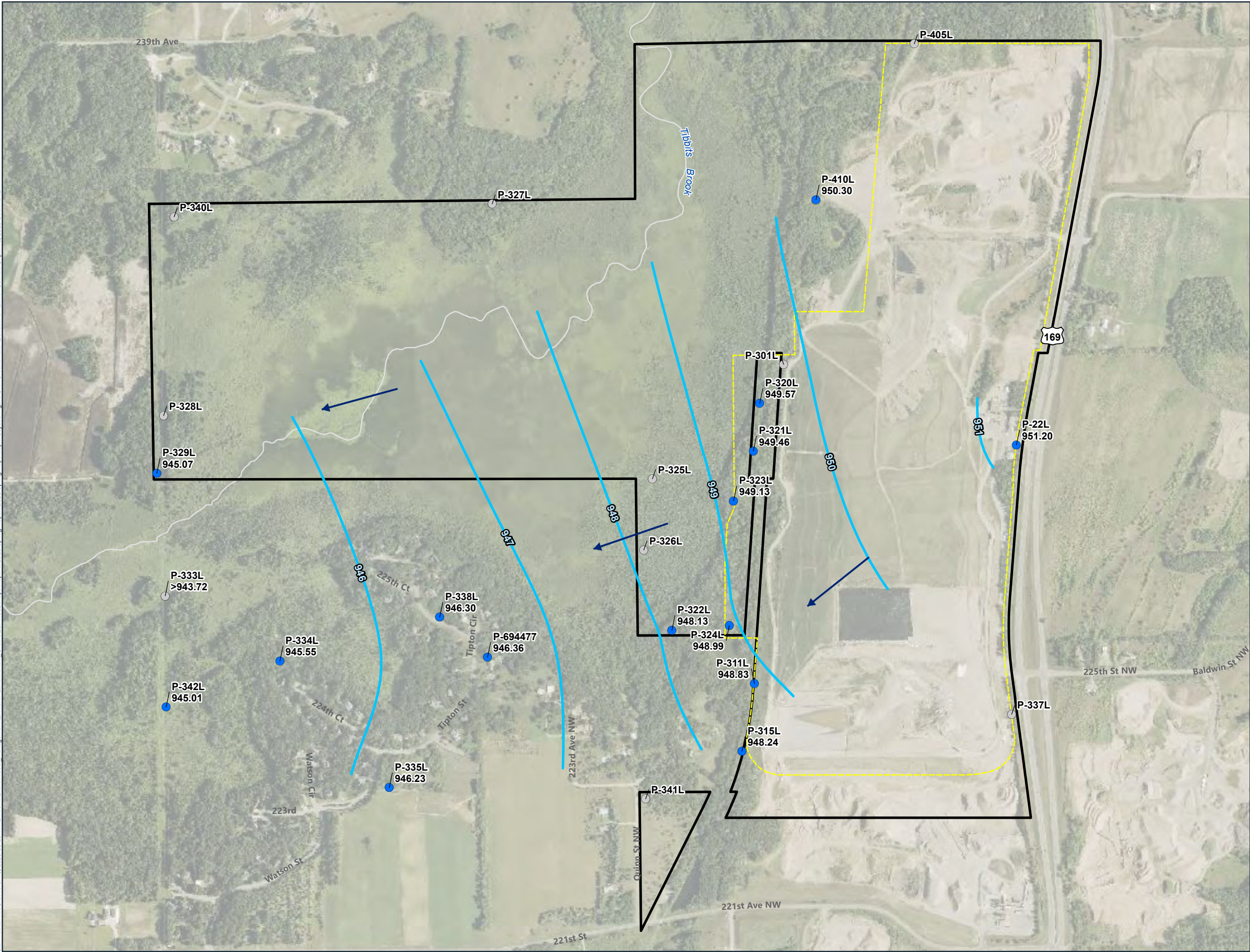
5/8/25 Kenneth Smith [Signature] [Signature]

Date Name Signature Company

Appendix C

Groundwater Elevations

Barr Footer ArcGISPro 3.4.3, 2025-06-25 17:42 File: I:\Client\Waste Management\Elk River Landfill\Work Orders\2371102\Map\Reports\2025 Spring Report\2025 Spring Report.aprx Layout: Figure C-1- Groundwater Elevations - Lower Outwash April 16, 2025 User: kac2



Property Boundary

Groundwater Compliance Boundary

Lower Outwash Monitoring Well

Lower Outwash Monitoring Well (Not Used for Groundwater Contours)

Groundwater Contour (feet MSL)

Flow Line

0 375 750 1,125
Feet

Imagery Source: USDA-FSA NAIP Imagery (2023)

Groundwater Elevations - Lower Outwash
April 16, 2025
Elk River Landfill
Elk River, Minnesota

FIGURE C-1