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Doc # 116365

**BRANCH ADDRESS**  
7241 Gaines Street Court  
Davenport, IA 52806  
Phone: 563-332- 8000  
Toll-Free: 800-728-6900  
Fax: 563-332-9465

February 16, 2026

Mr. Pedro Nunez  
Environmental Manager  
Roquette America  
PO Box 6647  
Keokuk, Iowa 52632

Subject: Annual Water Quality Monitoring Report - 2025  
Keokuk Landfill, Keokuk, IA  
IDNR Facility No.: 56-SDP-2-75C

Dear Mr. Nunez:

Seneca Companies submits herewith the Annual Water Quality Monitoring Report for 2025 for the above referenced facility. Enclosed please find two copies of the report. If, after your review, there are no changes to be made, please forward one copy to the Iowa Department of Natural Resources in the enclosed addressed envelope. The envelope is addressed to the following:

Iowa Department of Natural Resources  
Solid Waste and Contaminated Sites Section  
6200 Park Ave. Ste 200  
Des Moines, IA 50321

If you have any questions or concerns about the report, please contact me at (563) 332-8000.

Sincerely,  
Seneca Companies, Inc.

*Todd Felderman*

Todd Felderman  
Sr. Project Manager

Cc: Brian L. Rath, P.E., Iowa Department of Natural Resources

Enclosure

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MAR 02 2026

**Other Branch Locations**

Des Moines, IA Corporate Office ♦ Denver, CO ♦ Oreana, IL ♦ Baldwin, MS ♦ Grandview, MO ♦ Sioux City, IA

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*Keokuk Landfill*

*2025 Annual Water Quality Report  
MSWLF Unit Name  
Permit #56-SDP-02-75C*

*Roquette America  
Keokuk Iowa*

*02/01/2026*

*Prepared by:  
Seneca Companies Inc.  
7241 Gaines Street Ct.  
Davenport, Iowa 52806*

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**MAR 02 2026**

Certification

Prepared by: Todd Felderman Date: 02/01/26

Typed: Iowa Certified Groundwater Professional

Certification page (PE or ground water scientist signature) **113.10(1)"d"**

For the purposes of this rule, a "qualified groundwater scientist" means a scientist or an engineer who has received a baccalaureate or postgraduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields demonstrated by state registration, professional certifications, or completion of accredited university programs that enable that individual to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and corrective action.

**Semi-Annual Landfill Inspection Report  
Keokuk Landfill  
Keokuk, Iowa  
February 01, 2026**

**Groundwater Professional of Iowa Certification**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Certified Groundwater Professional

Name: Todd Felderman  
Firm: Seneca Companies  
Address: 7241 Gaines St Ct  
Davenport, IA 52806  
Phone: (563) 332-8000  
Iowa Registration Number: 2044  
License Expiration Date: 12/31/2027

Signature: Todd Felderman

Date: 02/01/2026

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**Annual Water Quality Monitoring Report  
2025  
Keokuk Landfill  
Keokuk, Iowa  
IDNR Permit #56-SDP-02-75C**

**1.0 Overview**

The Iowa Department of Natural Resources (IDNR) issued an operations permit (#56 SDP-2-75C) for the Keokuk Landfill on May 29, 1975. There are two known generators of materials placed in the landfill, they are: Lear Corporation Automotive Systems, who is the successor of United Technologies Automotive Systems, who is the successor of Sheller-Globe Corporation; and Roquette America, Inc. (Roquette) who is the successor of the Hubinger Company. The landfill was operated by Keokuk Land Fill, Inc. and/or Keokuk Contractors, Inc. on land owned by Charles and Gale Peters.

Disposal of materials was completed in a trench and fill configuration over a large portion of the site. Based on available historic aerial photographs of the landfill, trenches were excavated sequentially across the site from south to north with an arc shaped trench wrapped across the east end of some of the straight trenches in the southern portion. A fill area is indicated in a gap between two distinct trench areas in the northern portion of the site. The types of materials disposed of at the site include sponge rubber and polyurethane foam, ABS and PVC plastics, weather-stripping sealant, mold release wax, spent zinc stearate, waste carbon black and minimal amounts of wood and paper by Sheller-Globe and spent activated carbon by Hubinger. Coal ash or cinders from Hubinger were given to Keokuk Landfill who used, stored, and disposed of these materials at the site.

The landfill received materials until 1987, at which time the fill areas were covered with compacted soil. Over time, the soil cover used to close the site settled, allowing ponding and infiltration of storm water. Additionally, erosion gullies formed on the side slopes of the landfill and two leachate seeps were observed. A Post Closure Hydrologic Monitoring System Plan was prepared by others dated November 5, 1996. The IDNR issued a Site Closure and Post-Closure Authorization dated June 10, 1999. The IDNR issued an Administrative Order, No. 2001-SW-06, which requires Roquette and Keokuk Landfill Inc. and Keokuk Contractors, Inc. to be responsible for post-closure care for a minimum period of five years and a maximum of thirty years. Specifically, Roquette is responsible for providing semi-annual site inspections and annual water quality monitoring.

The Semi-Annual Landfill Inspection Report is incorporated into this report as Appendix D.

## **2.0 Site Location**

The Keokuk Landfill is located approximately ¼ to ½ mile north of the intersection where US Highway 61 and US Highway 136 meet: specifically, in the southeast quarter of the southwest quarter of Section 27, Township 65 N, Range 5 W of Lee County, IA. The entrance to the site is a field lane on the west side of U.S. Highway 61. For a map of the location of the site, please refer to Appendix 1.

## **3.0 Site Geology**

The limestones and dolomites of the Mississippian Osage Series comprise bedrock beneath the site. Groundwater vulnerability is classified as moderate drift confinement, indicating that from 100 to 300 feet of glacial drift overlie bedrock aquifers. Soils at the site are mapped as the Clinton silt loam soil series. This soil is characterized by silt loams and silty clay loams that are moderately well drained. Surface water flow in the immediate landfill area is generally to the west toward an unnamed tributary of the Des Moines River which empties into the Mississippi River nearby. The general groundwater flow direction at the site is to the west/southwest.

## **4.0 Monitoring System**

There are five monitoring wells, an upgradient well (MW-1R which was co-located with MW-1 as a replacement after bentonite intrusion and failure to recharge at a normal rate indicated MW-1 was failing) and four downgradient wells (MW-2 through MW-5), which comprise the groundwater sampling network. Additionally, three piezometers (P-1 through P-3) were installed within the waste disposal area to monitor potential leachate elevations. Typically, two surface water samples (SW-1 and SW-2) are retrieved from an intermittent unnamed tributary located immediately west of the landfill site. For locations of the monitoring wells, piezometers, and surface water sampling points, see the Site Plan Map in Appendix 1.

Seneca sampled MW2 and MW4 on December 3, 2025; and analyzed the groundwater samples for total metals arsenic analysis. The additional sampling was conducted to evaluate the presence of arsenic above the maximum contaminant level (MCL) of 0.01 milligrams per liter (mg/L).

Per the monitoring system protocol, Seneca Companies Inc. (SCI) measured water levels and sampled MW-1R through MW-5 and attempted to sample two monitoring points from the intermittent tributary on December 3, 2025. However, monitoring points SW-1 (up-gradient) and SW-2 (down-gradient) did not have flowing water at that time. Therefore, no sampling or flow rate determination was performed at either of the stream monitoring points. Piezometers P-1, P-2, and P-3 were measured for depth to leachate. See Appendix A for the completed field sampling forms. See Table 12 and 12A for a Summary Tabulation of Historical Site Water Levels and Elevations for all Monitoring Points and graphs of leachate trends in piezometer P1, P2 and P3 and figure 2 for a Groundwater Level Contour Map.

### 5.0 Parameters of Testing

The parameters which were tested are listed in 567 IAC 103.2(4) “d”, “e”, & “f”, plus chlorobenzene, chloromethane, ethylbenzene, methylene chloride, toluene, vinyl chloride, total xylenes, and biological oxygen demand – 5 day (BOD<sub>5</sub>) and are listed below for reference:

#### List “d”

1. Arsenic
2. Barium
3. Cadmium
4. Chromium
5. Lead
6. Magnesium
7. Mercury
8. Zinc
9. Copper
10. Benzene
11. Carbon tetrachloride
12. 1,2-Dichloroethane
13. Trichloroethylene
14. 1,1,1-Trichloroethane
15. 1,1-Dichloroethylene
16. Paradichlorobenzene

#### List “e”

1. Chloride
2. Specific Conductance (field measurement)
3. pH (field measurement)
4. Ammonia nitrogen
5. Iron, dissolved\*
6. Chemical Oxygen Demand
7. Temperature (field measurement)

#### List “f”

1. Total Organic Halides
2. Phenol

The parameters regarding the COC for test of total metals.

The laboratory test reports and chain of custody documentation for December 3, 2025, sampling events are included as Appendix B.

## **6.0 Statistical Analyses of Parameters**

Sampling of the monitoring points was originally conducted in January of 1996 and in March, June, and October of 1997. These four sampling events comprised the original baseline sampling from which the mean and standard deviation for each parameter were derived. Based on IDNR's comment letter of March 30, 2015, this report applies revised control limits based on the available historical sample values from MW1/MW1R including the 2025 results presented in this report. The mean and the standard deviation from the mean were determined for each parameter using standard statistical methods using the one half the laboratory detection limit as a proxy value for results reported as a "non-detection". For each parameter in each monitoring well, a control limit was established that equals the "value of the mean plus two times the standard deviation" as determined by results from upgradient monitoring well MW1/MW-1R. The analytical results for each parameter detected in 2025 were then compared to its respective control limit. A table of statistical evaluation and control limits for 2025 parameters along with its maximum contaminant level as applicable is included in Appendix 6. A summary tabulation of historical data by sampling events for each monitoring point for all parameters to date is included in Table 9. Graphs for those parameters at concentrations greater than the control limit concentration, for each monitoring point, are included in Table 6.

The parameters that plotted above their respective control limits are listed below:

MW-2: Benzene, Chloride, COD, TOH, Chlorobenzene, BOD, Ammonia as N

MW-3: Chloride, COD, Ammonia as N, TOH, BOD

MW-4: BOD, Chloride, COD, Ammonia as N, TOH, Arsenic, Benzene

MW-5: Chloride, COD, BOD, Ammonia

## **7.0 Summary of Effects of Facility on Groundwater and Surface Water Quality**

1. Elevated concentrations relative to the background concentrations computed from samples collected from MW1/MW-1R of several analytical parameters were detected in each of the downgradient wells, but these results were generally similar to historical results. Elevated parameters above controlling limits in downgradient wells that also increased in concentration from 2020 are:

MW2: Benzene, Chloride, COD, Chlorobenzene, Barium

MW3: Chloride, COD,

MW4: BOD, Chloride, COD, Ammonia, Arsenic, Benzene

MW5: Chloride, COD

2. Arsenic detected in MW-4 was slightly above the Maximum Contaminant Level (MCL), but arsenic levels remained within the historic range for MW-4.
3. Groundwater or surface water seeps were not observed during the semi-annual landfill inspection conducted on December 3, 2025.

### **7.1 Assessment of Arsenic in Groundwater**

Historically, arsenic has been detected in the groundwater of MW-2 since 2007 and MW-4 since 1996, see below. The values have intermittently been above the MCL but there has not been a clear historical trend. The highest value noted to date was during the 2012 sampling event in MW-4, with a concentration of 0.0619 mg/L. The MCL is 0.01 mg/L. Data from 2025 indicated a concentration in MW-2 below the MCL, control limit and well historical average. The arsenic concentration in MW-4 rebounded to a level above the MCL and control limit, but still within the historical range.

<b>Year</b>	<b>MW-2 (mg/L)</b>	<b>MW-4 (mg/L)</b>	<b>MCL (mg/L)</b>
1996	0.0021	<b>0.011</b>	0.01
1997 (March)	<0.005	<b>0.012</b>	0.01
1997 (June)	<0.005	<b>0.013</b>	0.01
1997 (October)	<0.01	<b>0.014</b>	0.01
1998	No Data	No Data	0.01
2003	<0.01	<b>0.011</b>	0.01
2004	<0.001	<b>0.0188</b>	0.01
2005	0.00102	<b>0.0184</b>	0.01
2006	<0.001	<b>0.0174</b>	0.01
2007	0.00139	0.00892	0.01
2008	0.00261	<b>0.0106</b>	0.01
2009	0.00286	0.00674	0.01
2010	No Data	<b>0.0167</b>	0.01
2011	<b>0.0101</b>	0.00934	0.01
2012	0.00305	<b>0.0619</b>	0.01
2013 (July)	0.00268	<b>0.0105</b>	0.01
2013 (Dec.)	0.00444	<b>0.0191</b>	0.01
2014 (June)	0.00254	<b>0.0346</b>	0.01

2014 (Nov.)	0.00377	<b>0.0152</b>	0.01
2015(May)	0.00398	<b>0.0164</b>	0.01
2015(Oct.)	0.00498	<b>0.0208</b>	0.01
2016(May)	0.00326	<b>0.0377</b>	0.01
2016(Oct.)	0.00553	<b>0.0426</b>	0.01
2017(April)	0.00288	<b>0.0349</b>	0.01
2017(Nov)	0.00791	<b>0.0272</b>	0.01
2018(April)	0.00384	0.00849	0.01
2018(October)	<0.002	0.00606	0.01
2019(May)	<0.00200	<b>0.0273</b>	0.01
2019(October)	<0.002	<b>0.0227</b>	0.01
2020(April)	<0.002	<b>0.0108</b>	0.01
2020(November)	0.00235	<b>0.0181</b>	0.01
Total Metals Arsenic sampling started 2021			
2021 (April)	<0.00200	0.00347	0.01
2021 (Oct.)	<0.00200	<b>0.0135</b>	0.01
2022 (April)	<0.00200	<b>0.0143</b>	0.01
2022 (Oct.)	<0.00200	<b>0.0231</b>	0.01
2023 (April)	0.00206	<b>0.0145</b>	0.01
2023 (Nov)	0.00252	<b>0.0105</b>	0.01
2024 (July)	0.00326	<b>0.0150</b>	0.01
2024 (Oct.)	<0.00200	<b>0.0208</b>	0.01
2025 (Dec)	0.00484	<b>0.0156</b>	0.01

**Bolded:** Value at or above the MCL.

### **8.0 Leachate Head Evaluation**

Leachate elevations measured during the 2025 sampling event indicated continued elevations that were similar to the levels in 2024. Elevations of the piezometers were re-surveyed in 2020 (see Table 4) For purposes of trend evaluation historic well elevations have been used, but the surface elevations indicated that some settling (0.43 to 0.86 feet) of the landfill surface had occurred. Some additional landfill cap was added to the area possibly identified of potential water infiltration location that may have developed as a result of settling in the vicinity of P1 and P2.

## **9.0 Conclusions and Recommendations**

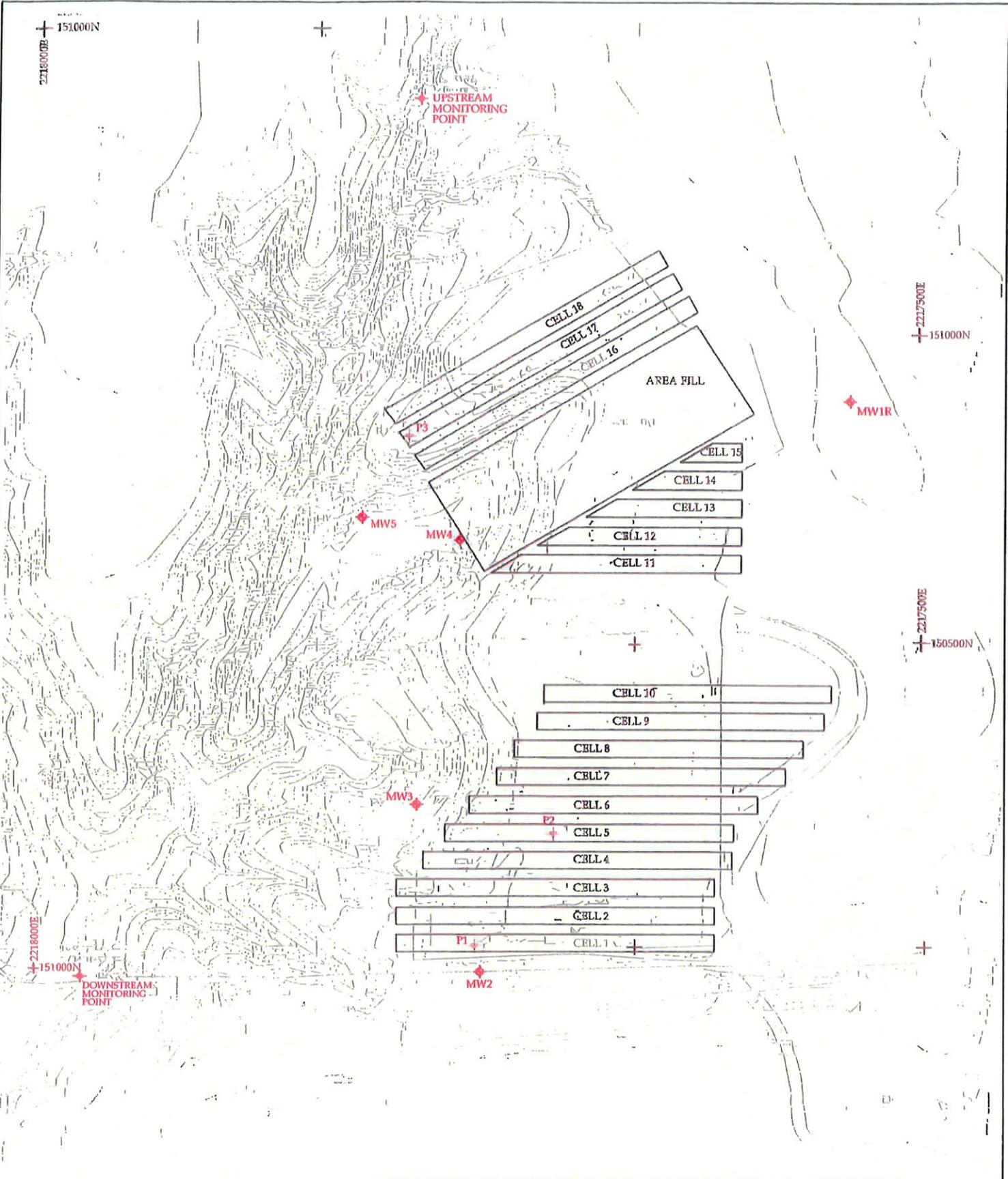
The measured concentrations of some analytes in the four downgradient wells, MW-2 through MW-5, were above the results from the upgradient well, MW1/MW1R. The parameters were generally consistent and not above historical values. GSI Mankendall statistical graphs were produced for arsenic at MW2 and MW4. Since 2003 monitoring, arsenic is stable to not exhibiting a trend. Seneca also produced GSI Mankendall graphs for two chemicals of concern above target levels which have been detected in monitoring wells MW1, MW2, MW3, MW4 and MW5; Chloride and COD. These trends are mostly stable to decreasing.

Seneca Companies recommend monitoring wells 2 and 4 to be sampled in six-month intervals to confirm the decline in arsenic concentrations below the MCL at these locations of historical exceedance. The spring sampling event would be analyzed for arsenic only, and the fall sampling event would continue as previously.

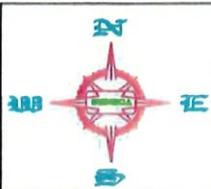
Down gradient monitoring wells do not indicate significant changes in subsurface conditions. Leachate mounding stayed within historical levels at piezometers P1 and P2. The 2019 resurvey of the well/piezometer locations indicated that surface elevations had fallen between 0.43 and 0.86 feet, raising the possibility that differential settling may have formed low spots in the landfill cap that impede efficient drainage. No obvious cracks or signs of pooling were observed. Further inspection of the landfill cap in the vicinity of P1 and P2 will once again be conducted in the spring following a significant precipitation event to identify potential water infiltration and pooling locations. Corrective action will be determined if infiltration pathways are identified.

Overall, the required sampling parameters continue to either remain stable or continue to decline. The site should be able to be closed after next years' 30-year post closure care protocol barring any elevated contamination increase or additional guidance from the DNR.

**Appendix 1**  
**Site Location Map**  
**Site Map**



- ◆ MONITORING WELL
- ◆ SURFACE WATER MONITORING POINT
- ◆ LEACHATE WELL

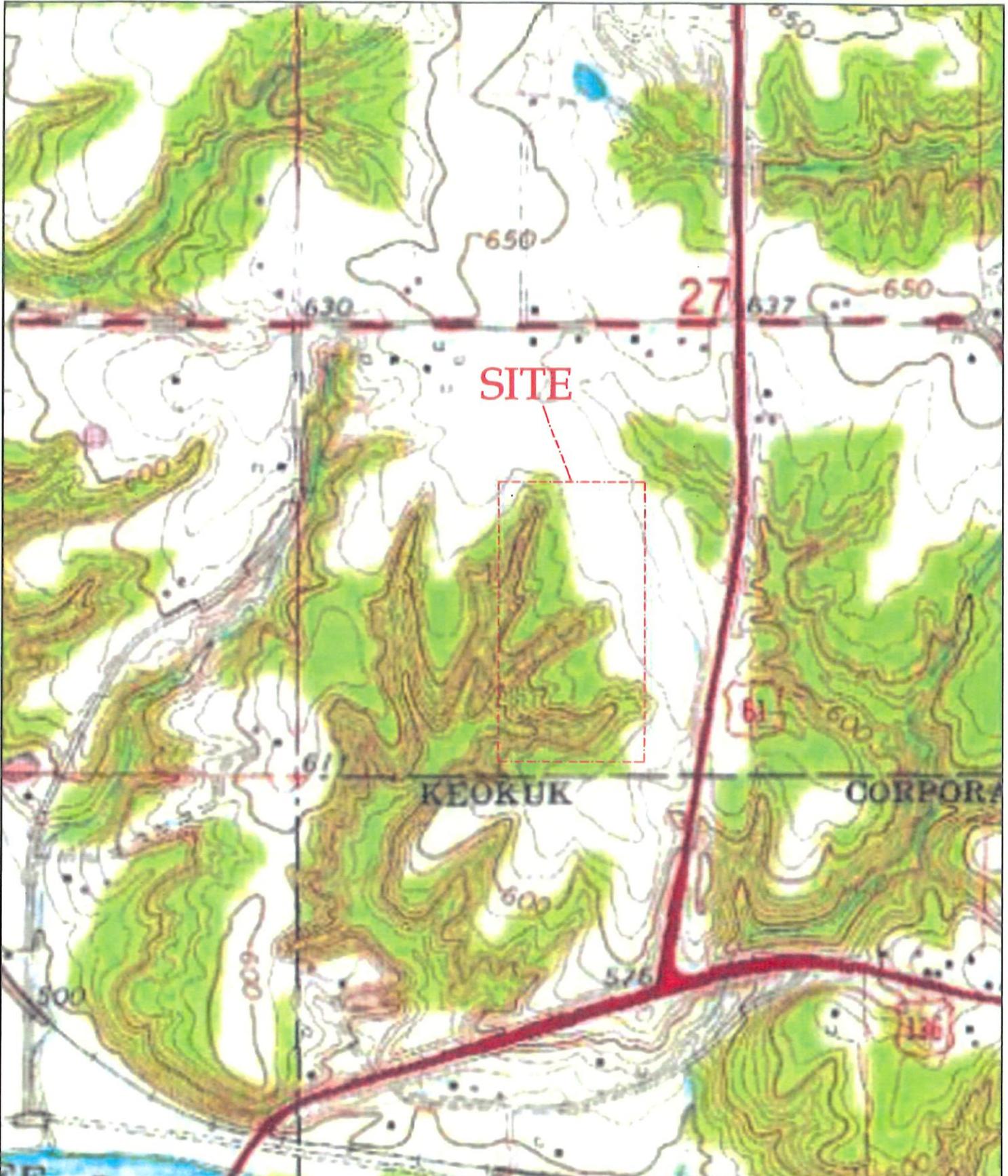


FILE NAME:  
ROSE BROTHERS  
PROJECT NO:  
6247600  
SITE: ROSE BROTHER'S LANDFILL  
ROQUETTE AMERICA  
KEOKUK, IOWA  
SITE PLAN MAP

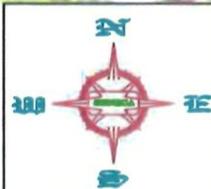


**Seneca**  
Companies  
Environmental Services

REVISED:	11/24/03
DATE:	11/04/03
REVIEWED BY:	SK
DRAWN BY:	RLH
JUST #:	N/A
SCALE:	1" = 200'



- ◆ MONITORING WELL
- ◆ SURFACE WATER MONITORING POINT
- ▽ LEACHATE WELL



FILE NAME:  
ROSE BROTHERS

PROJECT NO:  
6247600

SITE: ROSE BROTHER'S LANDFILL  
ROQUETTE AMERICA  
KEOKUK, IOWA  
TOPOGRAPHIC SITE MAP



REVISED:  
11/24/03

DATE:  
11/04/03

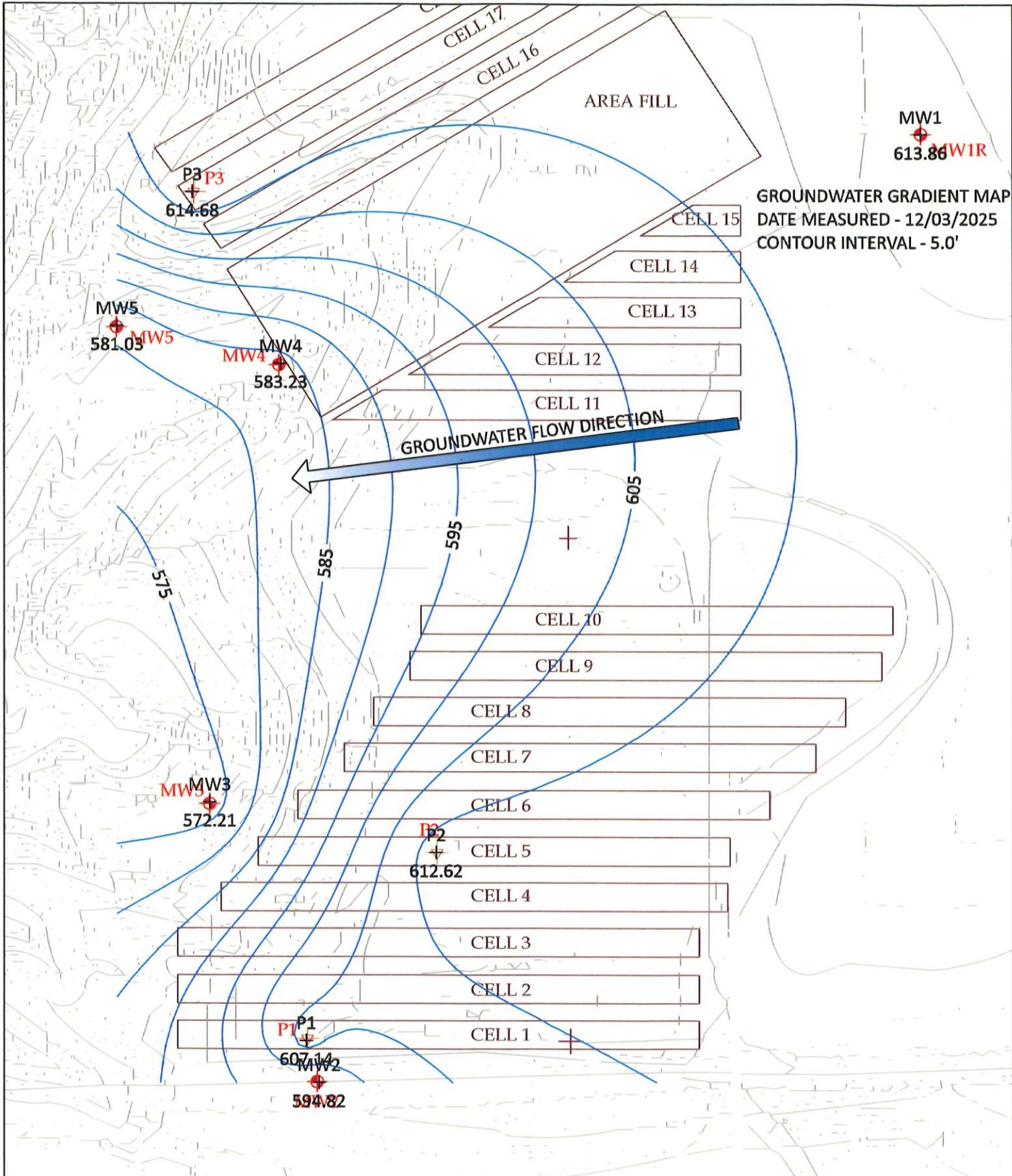
REVIEWED BY:  
SK

DRAWN BY:  
RLH

LUST #:  
N/A

SCALE:  
1" = 200'

**Figure 2**  
**Water Table contour Map**



**GROUNDWATER GRADIENT MAP**  
 DATE MEASURED - 12/03/2025  
 CONTOUR INTERVAL - 5.0'

- ◆ MONITORING WELL
- ◆ SURFACE WATER MONITORING POINT
- ⊥ LEACHATE WELL

	FILE NAME: ROSE BROTHERS		REVISED: 11/24/03
	PROJECT NO: 6247600		DATE: 11/04/03
SITE: ROSE BROTHER'S LANDFILL ROQUETTE AMERICA KEOKUK, IOWA GW FLOW MAP		LUST #: N/A	REVIEWED BY: SK
		SCALE: 1" = 30'	DRAWN BY: RLH

**Table 1 – Monitoring Program Summary**



**Table 2 – Monitoring Program Implementation Schedule**

**Table 2**  
**Monitoring Program Implementation Schedule**  
**2025 Annual Water Quality Report**  
**Rose Brothers Landfill**  
**Permit No. 56-SDP-02-75C**

Monitoring Well	Recent Sampling Dates and Constituents	Upcoming Sampling Dates and Constituents		Full Appendix II Sample Dates	
		May, 2026	October, 2026	Previously Collected	Next Event
MW-1			Appendix I	12/3/2025	November, 2026
MW-2	See Table 2A	Appendix I	Appendix I	12/3/2025	May & November, 2026
MW-3			Appendix I	12/3/2025	November, 2026
MW-4		Appendix I	Appendix I	12/3/2025	May & November, 2026
MW-5			Appendix I	12/3/2025	November, 2026

**Table 3 – Monitoring Well Maintenance Performance Reevaluation Schedule**

The image shows a large, faint grid pattern, likely representing a table or schedule. The grid is composed of many small, light-colored squares arranged in a regular pattern. The overall appearance is that of a very faded or low-contrast document page. The grid is centered on the page and occupies most of the vertical space below the title.

**Table 3**  
**Monitoring Well Maintenance and Performance Reevaluation Schedule**  
**2025 Annual Water Quality Report**  
**Rose Brothers Landfill**  
**Permit No. 56-SDP-02-75C**

Compliance with:	Monitoring Calendar Years									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
567 IAC 113.10(2)"f"(1) high and low water levels (add required frequency)	X	X	X	X	X	X	X	X	X	P
567 IAC 113.10(2)"f"(2) changes in the hydrologic setting and flow paths	X	X	X	X	X	X	X	X	X	P
567 IAC 113.10(2)"f"(3) well depths	X	X	X	X	X	X	X	X	X	P
567 IAC 113.10(2)"f"(4) well recharge rates and chemistry	X	X	X	X	X	X	X	X	X	P
Waste separation from ground water 113.6(2)"l"	X	X	X	X	X	X	X	X	X	P

X = Completed  
P = Planned  
N/A = Not Applicable

**Table 4A – Historic Water Level Summary**

**Groundwater Level Measurements  
Keokuk, Iowa Landfill**

Well I.D.	TOC Elevations (Ft, NGVD)	Groundwater Elevation (Ft, NGVD) 12/20/1995	Groundwater Elevation (Ft, NGVD) 1/10/1996	Groundwater Elevation (Ft, NGVD) 3/20/1997	Groundwater Elevation (Ft, NGVD) 6/23/1997	Groundwater Elevation (Ft, NGVD) 10/14/1997	Groundwater Elevation (Ft, NGVD) 11/11/2003	Elevation of Groundwater (Feet, NGVD) 10/26/04
MW-1	640.99	620.96	620.74	628.03	628.39	622.01	601.76	621.41
MW-2	620.29	596.6	596.62	596.39	597.27	597.01	595.65	595.59
MW-3	589.91	569.26	572.67	574.45	574.99	572.27	570.93	570.22
MW-4	591.05	582.97	584.00	584.70	585.52	583.25	584.75	584.16
MW-5	593.50	not measured	not measured	584.75	585.03	583.16	584.15	584.25
P1	620.46						605.6	605.86
P2	621.06						610.13	609.73
P3	624.13							614.88

Well I.D.	TOC Elevations (Feet, NGVD)	Elevation of Groundwater (Feet, NGVD) 11/2/05	Elevation of Groundwater (Feet, NGVD) 10/31 & 11/1/06	Elevation of Groundwater (Feet, NGVD) 3/21/07	Elevation of Groundwater (Feet, NGVD) 10/23/07	Elevation of Groundwater (Feet, NGVD) 10/21/08	Groundwater Elevation (Ft, NGVD) 10/7/09	Groundwater Elevation (Ft, NGVD) 10/27/10
MW-1	640.99	620.47	619.18		618.96	619.62	620.68	622.85
MW-2	620.29	595.74	595.27		595.88	596.21	597.58	599.00
MW-3	589.91	568.13	567.55		568.99	571.76	572.85	572.10
MW-4	591.05	583.26	581.19		581.24	584.14	573.90	584.34
MW-5	593.50	582.59	581.65	583.8*	581.85	584.01	584.40	583.59
P1	620.46	606.08	605.49		605.53	605.73	605.71	605.96
P2	621.06	609.45	609.01		609.55	609.76	606.31	609.73
P3	624.13		613.83		614.26	605.90	618.12	606.64

NGVD=National Geodetic Vertical Datum of 1929

\*Confirmation Sample

## Groundwater Level Measurements Keokuk, Iowa Landfill

Well I.D.	TOC Elevations (Feet, NGVD)	Groundwater Elevation (Ft, NGVD)						
MW-1/1R	641.17	Dry @ 30'	620.30	619.94	619.34	622.40	622.67	621.32
MW-2	620.29	597.19	596.54	596.35	595.99	596.71	596.94	595.79
MW-3	589.91	570.65	570.65	570.72	572.35	570.78	571.05	570.20
MW-4	590.90***	583.10	582.93	582.78	584.37	583.31	584.12	583.20
MW-5	593.50	582.21	581.95	581.93	584.42	582.07	583.15	581.55
P1	620.46	604.89	605.28	605.33	605.42	605.51	604.65	605.00
P2	621.06	609.44	609.40	609.54	609.33	609.56	609.53	612.53
P3	624.13	616.11	617.92	615.01	615.75	618.63	Dry at 617.20	

NGVD=National Geodetic Vertical Datum of 1929

\*\* Elevation of new well, installed in Sept. 21, 2011

\*\*\*New elevation after removing 0.15' off the casing

Well I.D.	TOC Elevations (Feet, NGVD)*	TOC Elevations (Feet, NGVD)**	Groundwater Elevation (Ft, NGVD)						
MW-1/1R	641.17	636.46	622.77	619.98	623.69	623.69	617.26	618.70	
MW-2	620.29	620.98	596.24	598.16	599.97	599.97	597.38	596.17	
MW-3	589.91	590.62	571.93	572.28	571.95	571.95	571.54	571.49	
MW-4	590.9	591.47	584.88	585.22	584.65	584.65	584.70	584.87	
MW-5	593.50	593.15	583.68	584.53	584.88	584.88	582.15	582.72	
P1	620.46	623.39	605.78	608.53	605.65	605.65	608.04	608.09	
P2	621.06	624.68	613.03	613.32	612.76	612.76	613.54	613.27	
P3	624.13	622.94	615.57	614.91	616.10	616.10	615.76	616.10	

NGVD=National Geodetic Vertical Datum of 1929

\*Historic Survey Elevations

\*\* 2019 Resurvey Elevations

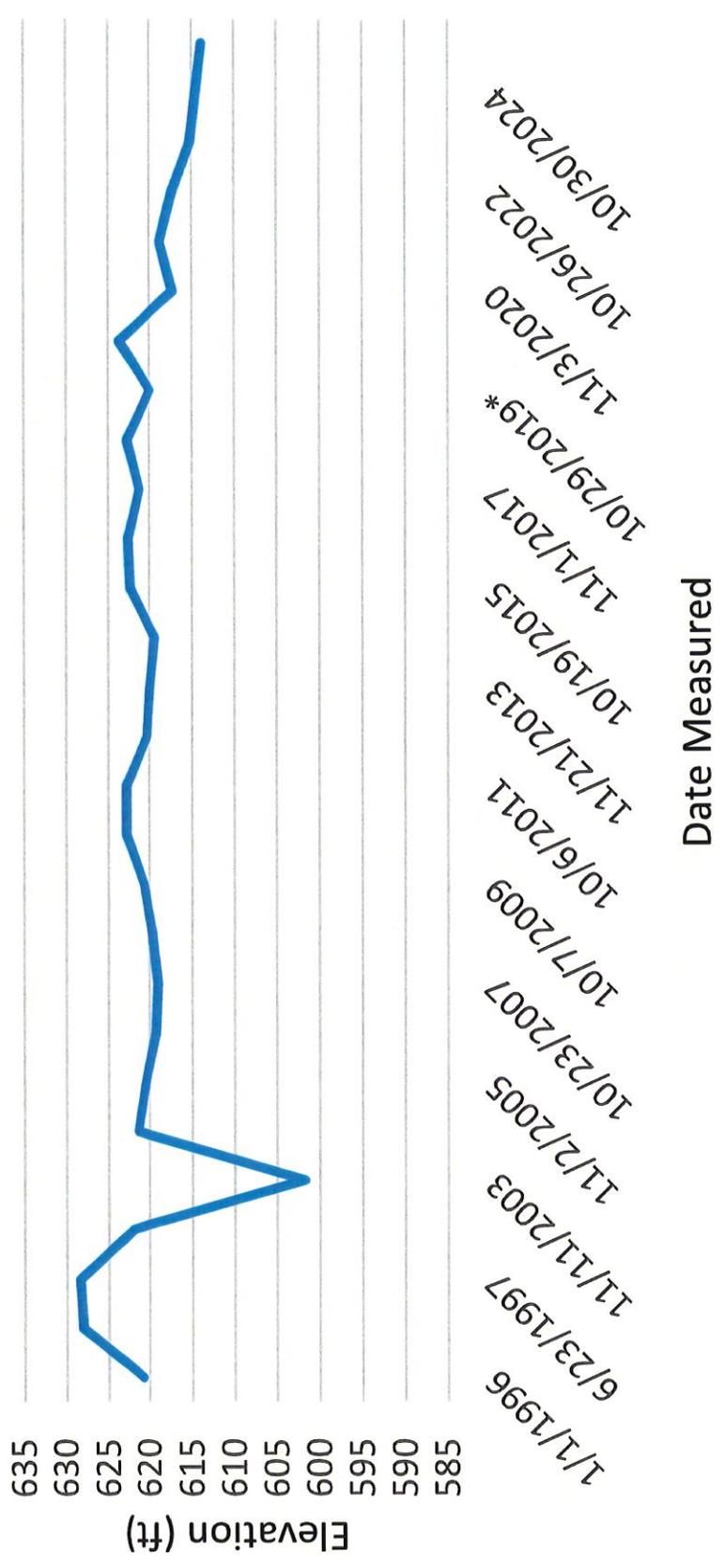
**Groundwater Level Measurements  
Keokuk, Iowa Landfill**

Well I.D.	TOC Elevations (Feet, NGVD)**	Groundwater Elevation (Ft, NGVD) 10/26/22	Groundwater Elevation (Ft, NGVD) 11/07/23	Groundwater Elevation (Ft, NGVD) 10/30/24	Groundwater Elevation (Ft, NGVD) 12/03/25
MW-1/1R	636.46	617.27	615.22	614.54	613.86
MW-2	620.98	596.95	596.22	595.60	594.82
MW-3	590.62	572.98	572.41	571.87	572.21
MW-4	591.47	584.38	583.92	582.52	583.23
MW-5	593.15	581.87	579.11	580.96	581.03
P1	623.39	608.10	607.75	607.42	607.14
P2	624.68	613.17	613.45	612.97	612.62
P3	622.94	615.26	614.99	614.84	614.68

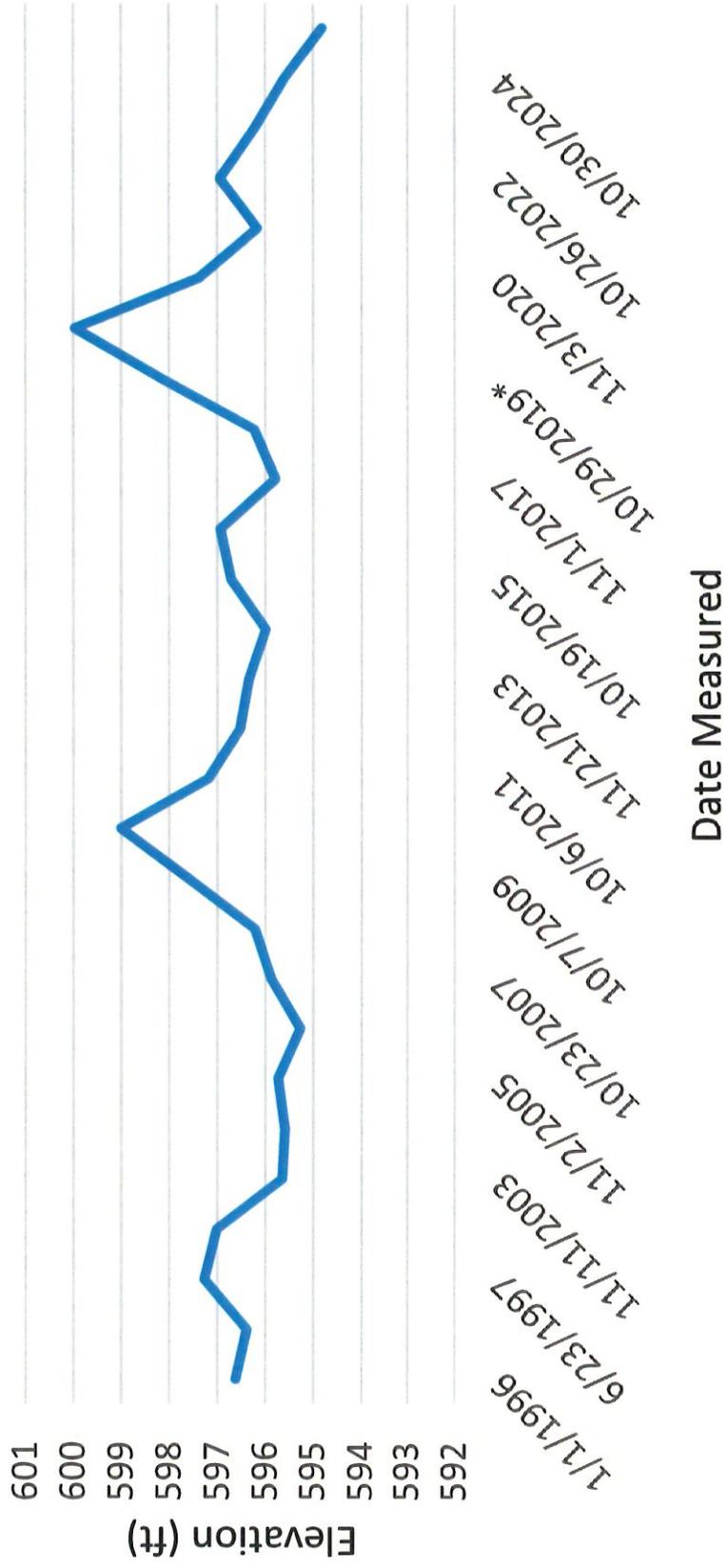
NGVD=National Geodetic Vertical Datum of 1929

\*\* 2019 Resurvey Elevations

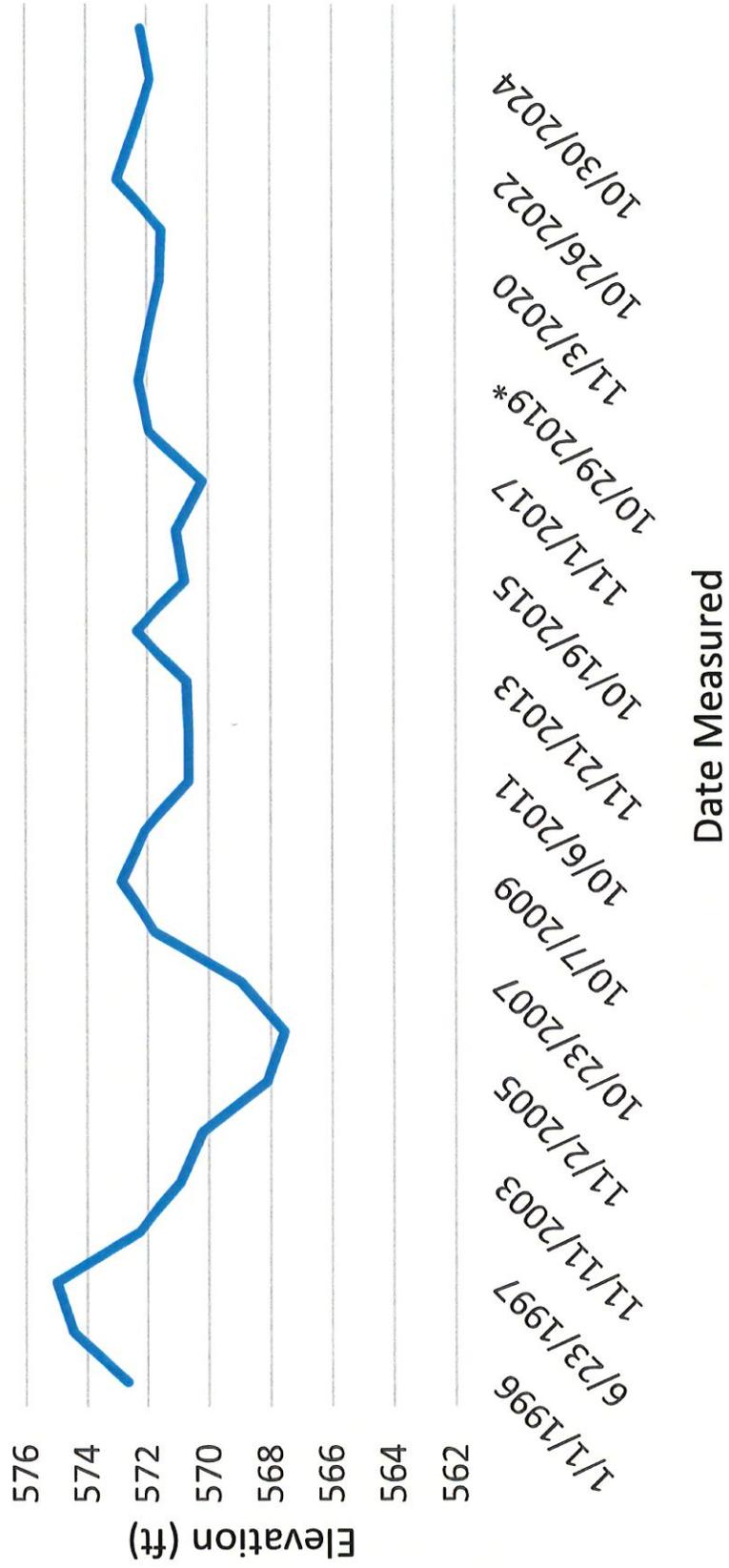
# MW1 Water Levels



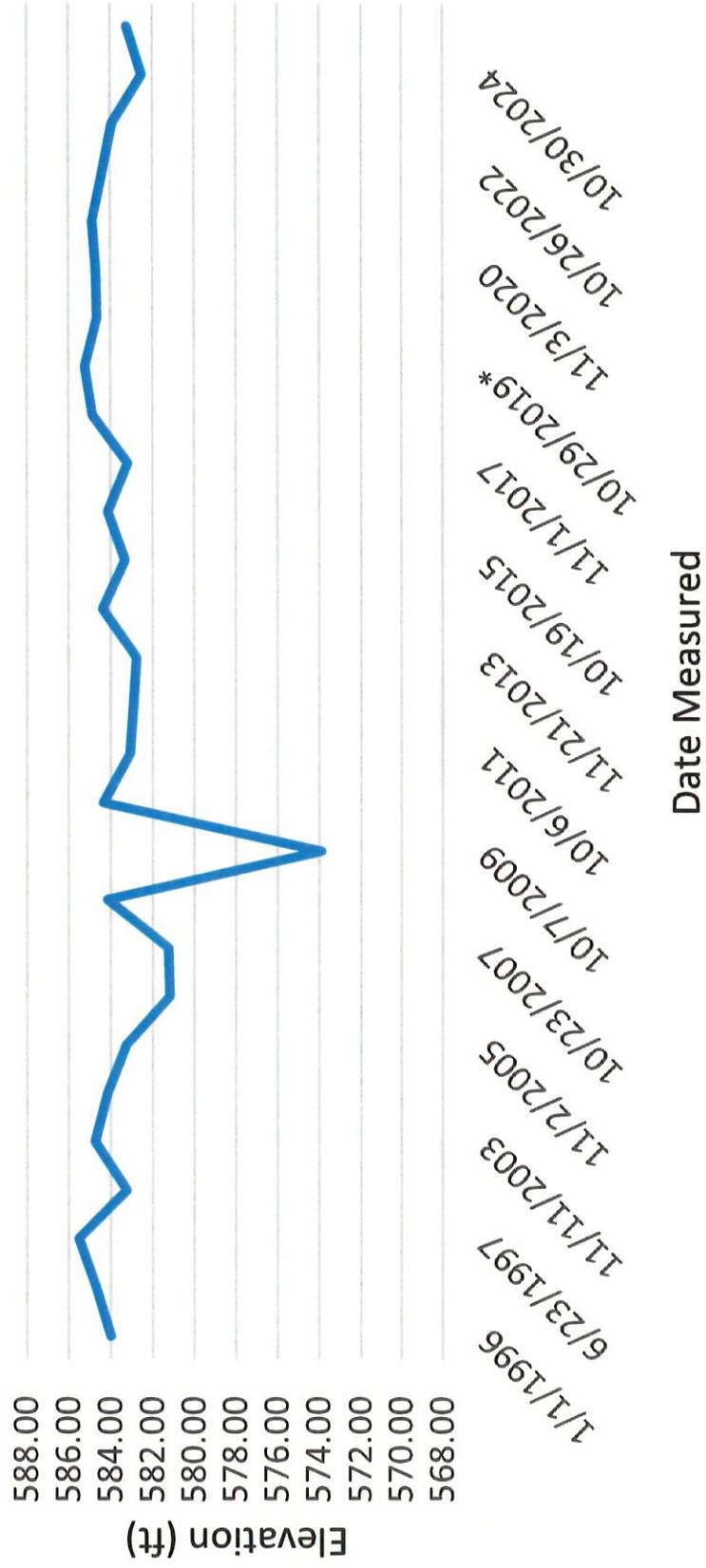
# MW2 Water Levels



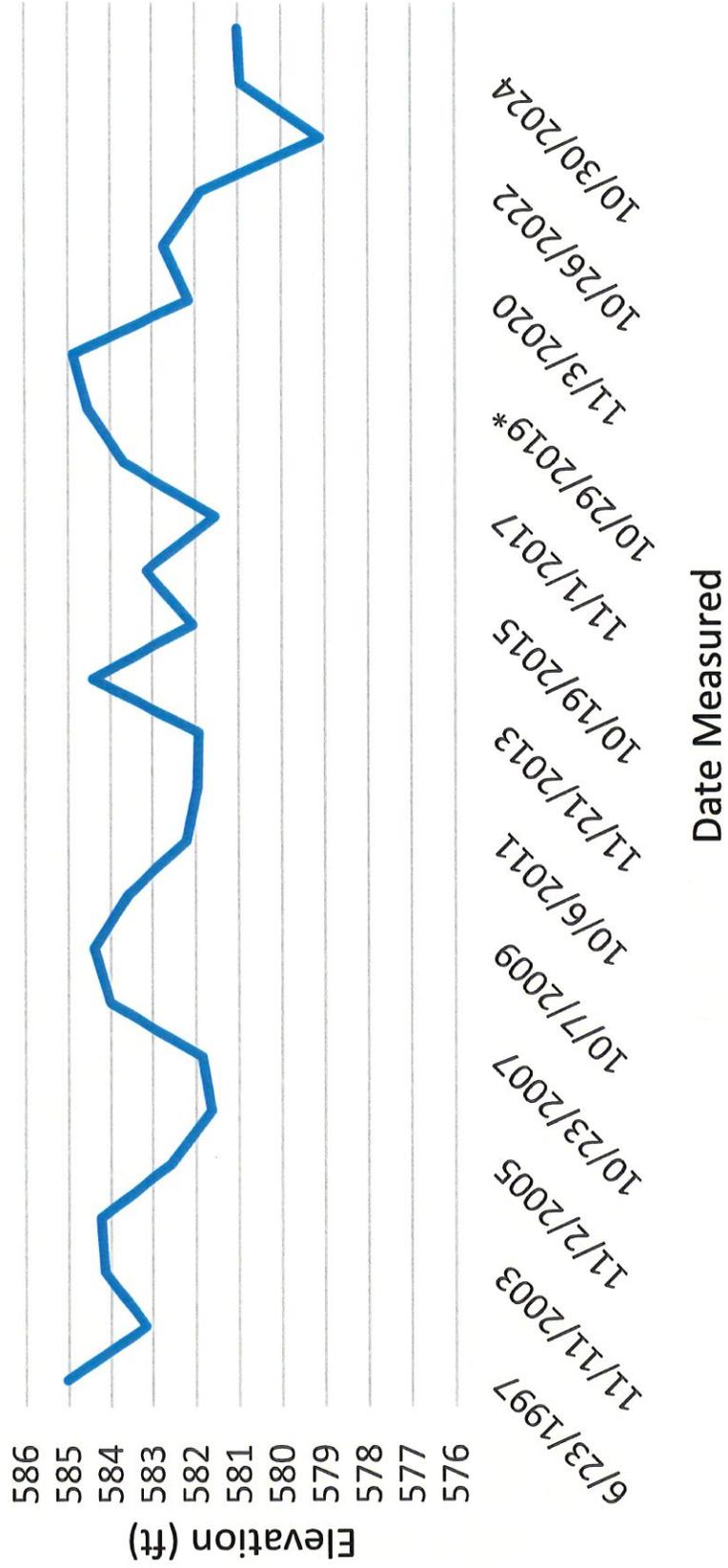
# MW3 Water Levels



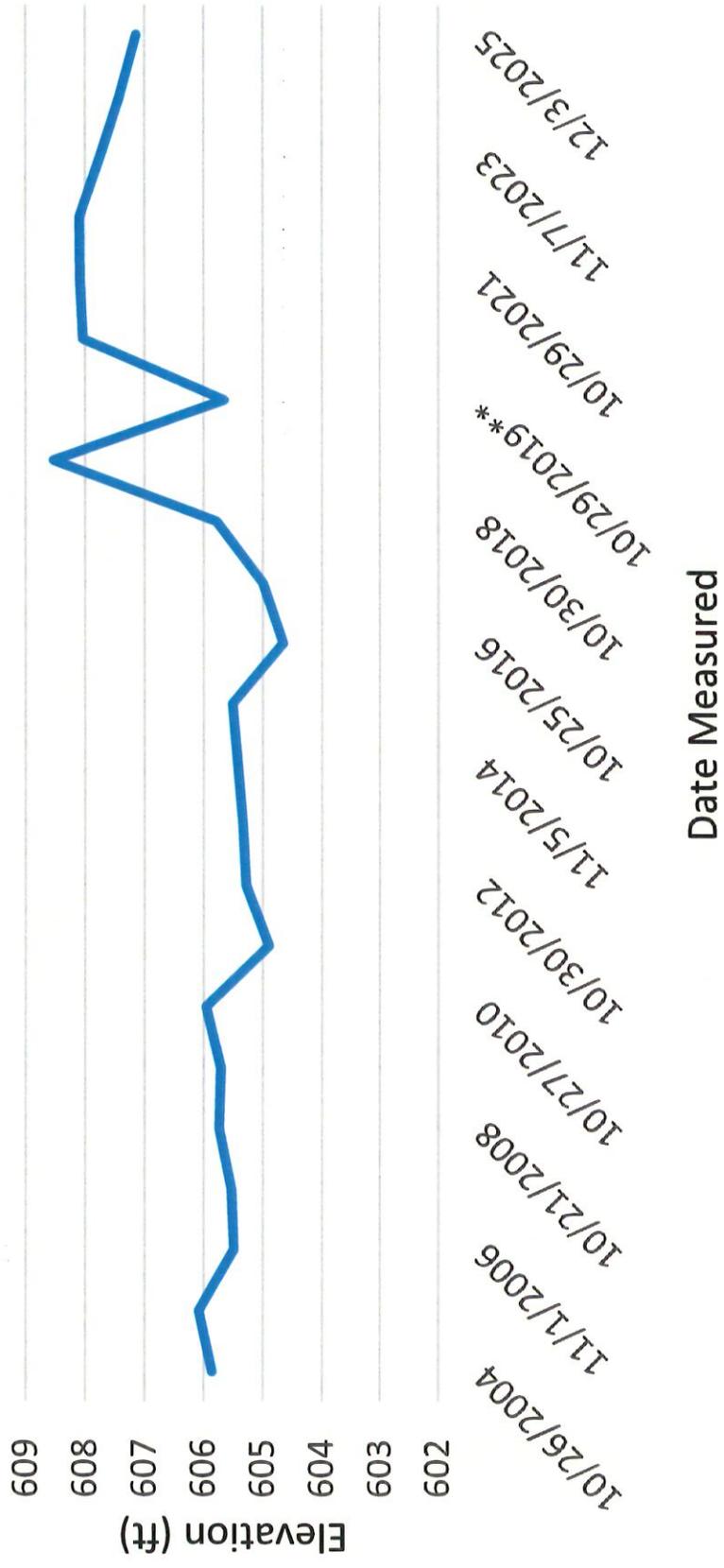
# MW4 Water Levels



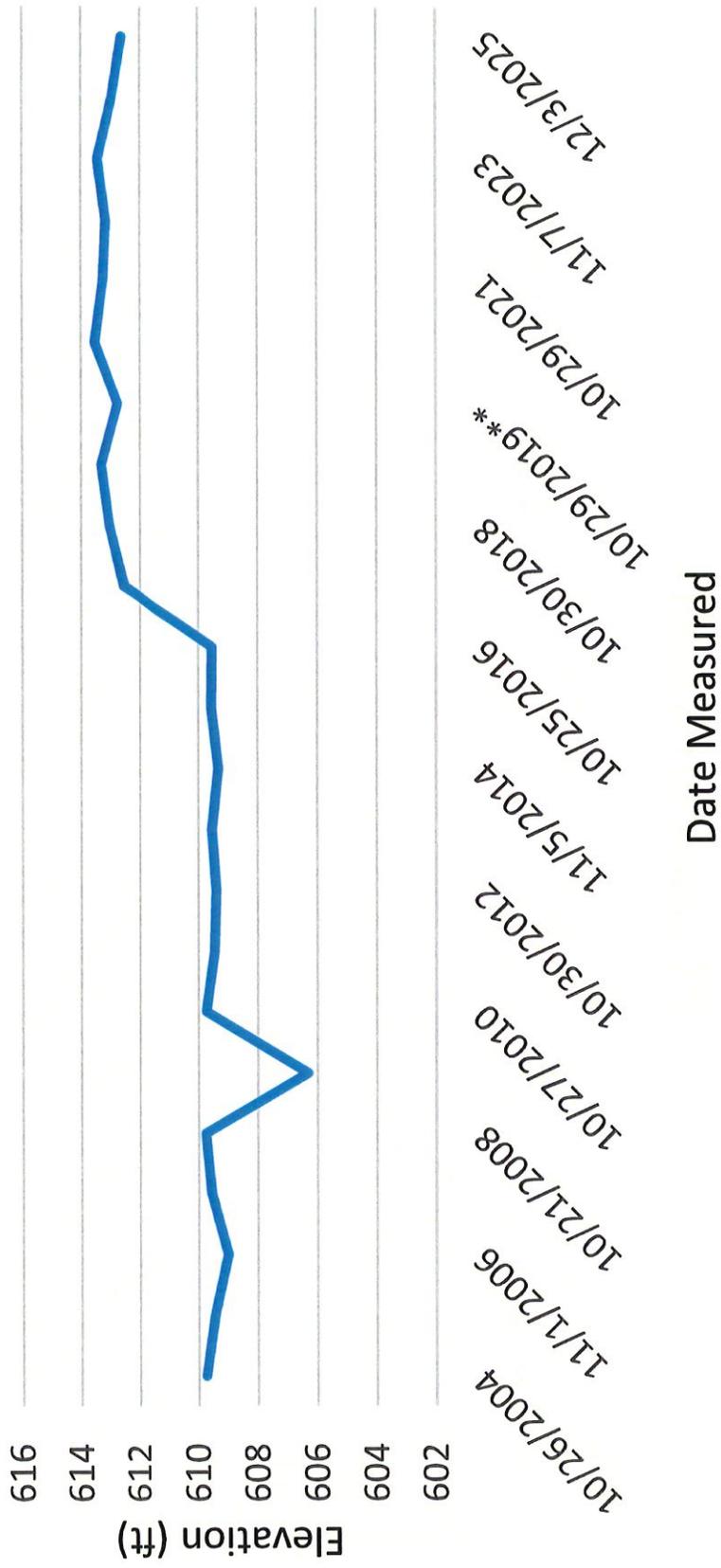
# MW5 Water Levels



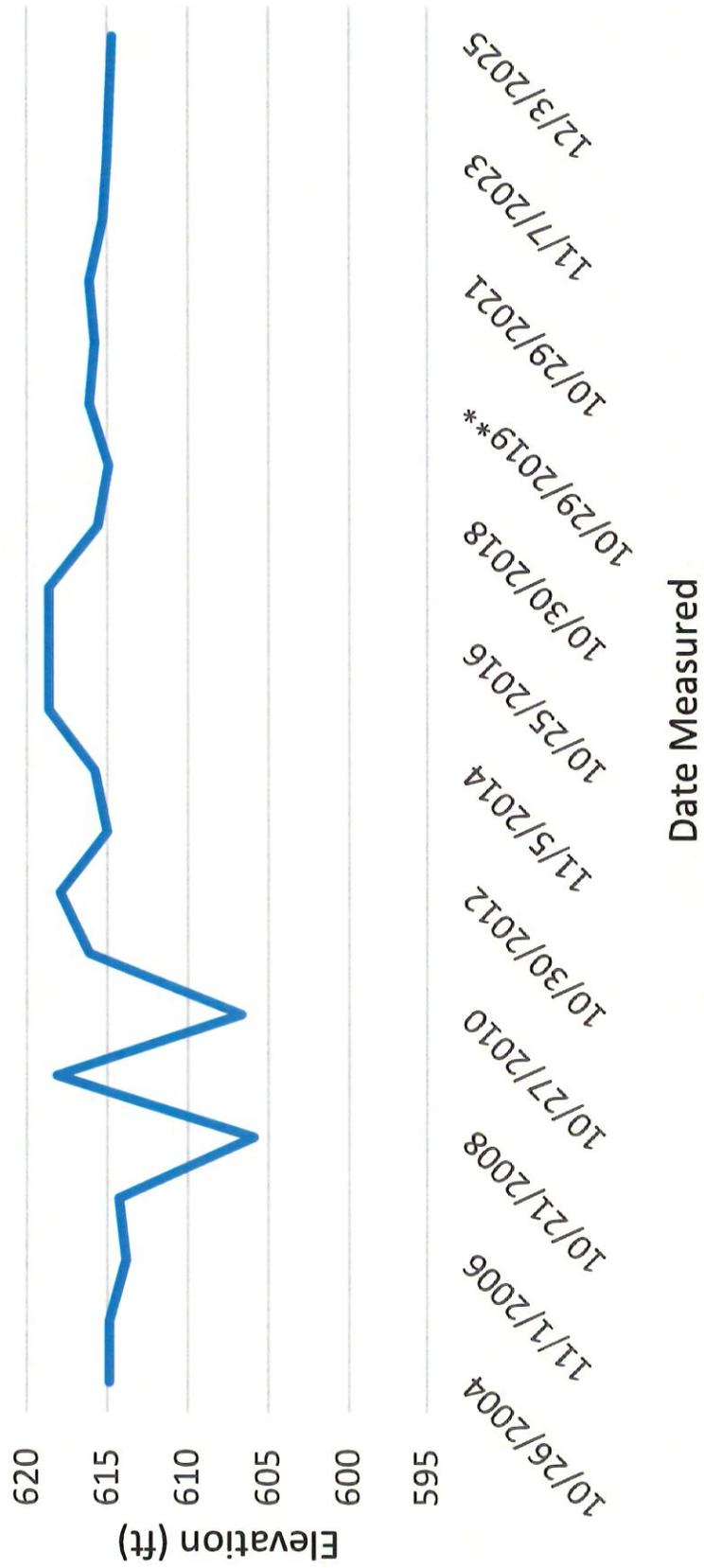
# P1 Leachate Levels



# P2 Leachate Levels



# P3 Leachate Levels



**Table 5 – Background and GWPS Summary**

MWIR		2021	2022	2023	2024	2025	Cont. Lim.
Parameters	mg/L						
Chloride		17.1000	12.8	14.70	11.40	12.4	22.903204
BOD		<6.00	4.6	<6.00	<6.00	<6.00	6.4795136
COD		6.7800	6.5	5.69	<5.00	<5.00	15.180402
Ammonia Nitrogen		<0.200	<0.200	<0.200	<0.200	<0.200	0.1385732
Total Organic Halogens		<0.010	<0.010	62.90	<40.0	<30.0	29.790629
Arsenic		<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	0.0063388
Barium		0.497	0.953	1.050	0.382		0.8061409
Cadmium		0.0	0.00	0.00	<0.000200		0.0021218
Iron							1.6725921
Magnesium							31.03821
Zinc							0.0386976
	ug/L						
Benzene		<0.500	<0.500	<0.500	<0.500	<0.500	0.5290064
Chloroethane				<4.00	<4.00	<4.00	2.3168283
1,1-Dichloroethane		<2.00	<2.00	<1.00	<1.00	<1.00	1.2091574
cis-1,2-Dichloroethene							
trans-1,2-Dichloroethene							
Tetrachloroethene							
Di-isopropyl ether							
Acetone							
Methylene Chloride		<5.00	<5.00	<5.00	<5.00	<5.00	3.7842306
Toluene		<1.00	<1.00	<1.00	<1.00	<1.00	1.9013807
Chlorobenzene		<1.00	<1.00	<1.00	<1.00	<1.00	0.5
Chloromethane		<3.00	<3.00	<3.00	<3.00	<3.00	1.9245763
1,1,1-Trichloroethane		<1.00	<1.00	<1.00	<1.00	<1.00	0.5



MW3		2021	2022	2023	2024	2025				Cont. Lim.
Parameters	mg/L									
Chloride		188	172	197	194.0	195.0				22.903204
BOD		<6.00	3.32	<3.00	3.93	<12.0				6.4795136
COD		87.9	86.3	103	115.0	118.0				15.180402
Ammonia Nitrogen		0.266	0.208	0.39	0.46	<0.200				0.1385732
Total Organic Halogens		0.12	0.104	0.259	312.0000	123.0000				29.790629
Arsenic		0.002	0.00220	0.00631	0.00263	0.00437				0.0063388
Barium			0.0235	0.0299	0.0239	0.0234				0.8061409
Cadmium			0.00125	0.0	0.0	0.0				0.0021218
Iron										1.6725921
Magnesium										31.03821
Zinc										0.0396976
	ug/L									
Benzene		<0.500	<0.500	<0.500	<0.500	<0.500				0.5290064
Chloroethane				<4.00	<4.00	<4.00				2.3168283
1,1-Dichloroethane		<2.00	<2.00	<1.00	<1.00	<1.00				1.2091574
cis-1,2-Dichloroethene										
trans-1,2-Dichloroethene										
Tetrachloroethene										
Di-isopropyl ether										
Acetone										
Methylene Chloride		<5.00	<5.00	<5.00	<5.00	<5.00				3.7842306
Toluene		<1.00	<1.00	<1.00	<1.00	<1.00				1.9013807
Chlorobenzene		<1.00	<1.00	<1.00	<1.00	<1.00				0.5
Chloromethane		<3.00	<3.00	<3.00	<3.00	<3.00				1.9245763
1,1,1 Trichloroethane		<1.00	<1.00	<1.00	<1.00	<1.00				0.5





**Table 6 – Summary of Detections**

**STATISTICAL EVALUATION and CONTROL LIMITS**

**MW1R**

Parameter	Baseline Mean <sup>1</sup>	Baseline Standard Deviation <sup>1</sup>	Control Limit <sup>2</sup>	2025 Results	MCL <sup>3</sup>
Chloride	14.413043	4.472068	22.903204	12.4	
BOD	2.705500	1.887007	6.479514	<6.00	
COD	6.256818	4.461792	15.180402	<5.00	--
Ammonia Nitrogen	0.085425	0.026574	0.138573	<0.200	
Total Organic Halogens	3.004581	13.393024	29.790629	<30.0	
Arsenic	0.002709	0.001815	0.006339	<0.00200	0.01
Barium	0.312364	0.184462	0.806141	0.382	2
Cadmium	0.000602	0.000763	0.002122	<0.000200	0.005
Iron	0.436650	0.617971	1.672592		
Magnesium	25.340000	2.849105	31.038210		
Zinc	0.014485	0.012606	0.039698		
<b>ug/L</b>					
Benzene*	0.312500	0.108253	0.529006	<0.500	5
Methylene Chloride*	2.095000	0.844615	3.784231	<5.00	
Toluene*	0.673500	0.613940	1.901381	<1.00	
Chlorobenzene*	0.500000	0.000000	0.500000	<1.00	
Chloromethane*	1.411765	0.256406	1.924576	<3.00	
1,1,1 Trichloroethane*	0.500000	0.000000	0.500000	<1.00	

**MW2**

Parameter	Baseline Mean	Baseline Standard Deviation	Control Limit <sup>2</sup>	2025 Results	MCL
Chloride	14.413043	4.472068	22.903204	<b>85.8000</b>	
BOD	2.705500	1.887007	6.479514	<12.0	
COD	6.256818	4.461792	15.180402	<b>33.8000</b>	--
Ammonia Nitrogen	0.085425	0.026574	0.138573	<0.200	
Total Organic Halogens	3.004581	13.393024	29.790629	<b>97.0000</b>	
Arsenic	0.002709	0.001815	0.006339	0.00484	0.01
Barium	0.312364	0.184462	0.806141	<b>0.7760</b>	2
Cadmium	0.000602	0.000763	0.002122	0.0009	0.005
Iron	0.436650	0.617971	1.672592		
Magnesium	25.340000	2.849105	31.038210		
Zinc	0.014485	0.012606	0.039698		
<b>ug/L</b>					
Benzene*	0.312500	0.108253	0.529006	<b>1.28</b>	5
Methylene Chloride*	2.095000	0.844615	3.784231	<5.00	
Toluene*	0.673500	0.613940	1.901381	<1.00	
Chlorobenzene*	0.500000	0.000000	0.500000	<b>4.40</b>	
Chloromethane*	1.411765	0.256406	1.924576	<3.00	
1,1,1 Trichloroethane*	0.500000	0.000000	0.500000	<1.00	

**MW3**

Parameter	Baseline Mean	Baseline Standard Deviation	Control Limit <sup>2</sup>	2025 Results	MCL
Chloride	14.413043	4.472068	22.903204	<b>195.0000</b>	
BOD	2.705500	1.887007	6.479514	<12.0	
COD	6.256818	4.461792	15.180402	<b>118.0000</b>	--
Ammonia Nitrogen	0.085425	0.026574	0.138573	<b>&lt;0.200</b>	
Total Organic Halogens	3.004581	13.393024	29.790629	<b>123.0000</b>	
Arsenic	0.002709	0.001815	0.006339	0.0044	0.01
Barium	0.312364	0.184462	0.806141	0.0234	2
Cadmium	0.000602	0.000763	0.002122	0.0028	0.005
Iron	0.436650	0.617971	1.672592		
Magnesium	25.340000	2.849105	31.038210		
Zinc	0.014485	0.012606	0.039698		
ug/L					
Benzene*	0.312500	0.108253	0.529006	<0.500	5
Methylene Chloride*	2.095000	0.844615	3.784231	<5.00	
Toluene*	0.673500	0.613940	1.901381	<1.00	
Chlorobenzene*	0.500000	0.000000	0.500000	<1.00	
Chloromethane*	1.411765	0.256406	1.924576	<3.00	
1,1,1 Trichloroethane*	0.500000	0.000000	0.500000	<1.00	

**MW4**

Parameter	Baseline Mean	Baseline Standard Deviation	Control Limit <sup>2</sup>	2025 Results	MCL
Chloride	14.413043	4.472068	22.903204	<b>182.0000</b>	
BOD	2.705500	1.887007	6.479514	<b>15.8000</b>	
COD	6.256818	4.461792	15.180402	<b>233.0000</b>	--
Ammonia Nitrogen	0.085425	0.026574	0.138573	<b>1.8300</b>	
Total Organic Halogens	3.004581	13.393024	29.790629	<b>71.6000</b>	
Arsenic	0.002709	0.001815	0.006339	<b>0.0156</b>	0.01
Barium	0.312364	0.184462	0.806141	0.5400	2
Cadmium	0.000602	0.000763	0.002122	<0.000200	0.005
Iron	0.436650	0.617971	1.672592		
Magnesium	25.340000	2.849105	31.038210		
Zinc	0.014485	0.012606	0.039698		
ug/L					
Benzene*	0.312500	0.108253	0.529006	<b>1.0100</b>	5
Methylene Chloride*	2.095000	0.844615	3.784231	<5.00	
Toluene*	0.673500	0.613940	1.901381	<1.00	
Chlorobenzene*	0.500000	0.000000	0.500000	<1.00	
Chloromethane*	1.411765	0.256406	1.924576	<3.00	
1,1,1 Trichloroethane*	0.500000	0.000000	0.500000	<1.00	

**MW5**

Parameter	Baseline Mean	Baseline Standard Deviation	Control Limit <sup>2</sup>	2025 Results	MCL
Chloride	14.413043	4.472068	22.903204	<b>106.0000</b>	
BOD	2.705500	1.887007	6.479514	<12.0	
COD	6.256818	4.461792	15.180402	<b>17.1000</b>	--
Ammonia Nitrogen	0.085425	0.026574	0.138573	<0.200	
Total Organic Halogens	3.004581	13.393024	29.790629	<30.0	
Arsenic	0.002709	0.001815	0.006339	0.0026	0.01
Barium	0.312364	0.184462	0.806141	0.0335	2
Cadmium	0.000602	0.000763	0.002122	0.0015	0.005
Iron	0.436650	0.617971	1.672592		
Magnesium	25.340000	2.849105	31.038210		
Zinc	0.014485	0.012606	0.039698		
ug/L					
Benzene*	0.312500	0.108253	0.529006	<0.500	5
Methylene Chloride*	2.095000	0.844615	3.784231	<5.00	
Toluene*	0.673500	0.613940	1.901381	<1.00	
Chlorobenzene*	0.500000	0.000000	0.500000	<1.00	
Chloromethane*	1.411765	0.256406	1.924576	<3.00	
1,1,1 Trichloroethane*	0.500000	0.000000	0.500000	<1.00	

<sup>1</sup> Values calculated using historical monitoring results from MW1/MW1R .

<sup>2</sup> Control limit is equal to baseline mean plus 2 times baseline standard deviation of upgradient

<sup>3</sup> MCL = Maximum Contaminant Level as found at 567 IAC 41

General Notes:

All results in Parts per million (mg/L) unless otherwise indicated.

\* Results in parts per billion (ug/L).

Items in **bold** are above control limits

**Table 9 – Analytical Data Summary**

**Keokuk Landfill Groundwater Monitoring Data**  
**Statistical Evaluation and Control Limits**

MWIR	1996	Mar-97	Jun-97	Oct-97	1998	2003	2004	2005	2006	2007	2008	2009
Parameters												
mg/L												
Chloride	5.5	5.3	6.6	5.5		18.0	18.5	19.3	14.1	*	16.2	20.8
BOD	<2	0.7	1.5	<2		<5	<3	<3	<6	*	<3	<3.00
COD	<20	<20	<20	<20		22.0	<5	<5	<5	*	8.0	6.60
Ammonia Nitrogen	<1	<1	0.017	<1		<1	<2	<2	<2	<2	<2	<0.200
Total Organic Halogens	<0.03	0.0052	0.0057	0.0069		<0.01	<0.01	<0.01	<0.01	0.0256	<0.01	<0.0100
Arsenic	<0.005	<0.005	<0.005	<0.010		<0.010	<0.010	<0.010	<0.010	<0.010	0.0011	<0.00100
Barium, dissolved	0.16	0.13	0.15	0.13		0.19	0.162	0.202	0.224	0.238	0.235	0.274
Cadmium	<0.0001	<0.0001	<0.0005	<0.001		<0.005	<0.0005	<0.0005	<0.0005	0.0	<0.0005	0.00110
Iron, dissolved	0.29	<1	0.024	0.024		0.054	<1	<1	<1	<1	1.97	2.17
Magnesium, dissolved	26.8	25.8	30.8	26.0		24.0	22.0	25.1	26.5	25.9	21.3	24.9
Zinc	<0.2	<0.2	<0.2	<0.1		<0.3	<0.2	<0.2	<0.2	0.0351	<0.2	0.0564
ug/L												
Benzene	<1	<1	<1	<1		<1	<0.5	<0.5	<0.5	<0.500	<0.5	<0.500
Chloroethane	<2	<2	<2	<2		<1	<5	<1	<1	<1	<1	<2.00
1,1-Dichloroethane	<1	<1	<1	<1		<1	<1	<1	<1	<1.00	<2	<2.00
cis-1,2-Dichloroethene	<1	<1	<1	<1		<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	<1	<1	<1	<1		<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	<1	<1	<1	<1		<1	<1	<1	<1	<1	<1	<1
Di-isopropyl ether	<1	<1	<1	<1		<1	<1	<1	<1	<1	<1	<1
Acetone	<50	<10	<10	<10		<50	<10	<10	<10	<10	<5	<5.00
Methylene Chloride	<5	<1	0.2	0.3		<5	<1.0	<1.0	<1.0	<1.00	<1	<1.00
Toluene	<5	0.2	0.2	<1		<1.0	<1.0	<1.0	<1.0	<1.00	<1	<1.00
Chlorobenzene				<2		<1.0	<3.0	<3.0	<3.0	<3.00	<3	<3.00
Chloroethane				<1		<1.0	<1.0	<1.0	<1.0	<1.00	<1	<1.00
1,1,1-Trichloroethane		<1	<1	<1		<1.0	<1.0	<1.0	<1.0	<1.00	<1	<1.00

\* = Not enough water to obtain sample for these chemicals of concern.

MWIR		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Cont. Lim.
Parameters	mg/L												
Chloride	16.3			15.30	15.20	11.4	15.50	17.1000	15.1000	15.3000	18.6000	17.3000	4.3456
BOD	<12.0	Well		<12.0	<12.0	<12.0	<6.0	<6.0	<3.0	<3.0	<3.0	<6.00	1.8870
COD	6.1	dry		7.90	<5.00	<5.0	<5.0	<5.0	<5.0	<5.0	5.47	5.5500	4.4618
Ammonia Nitrogen	<0.200			<0.200	<0.200	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.200	0.0266
Total Organic Halogens	<0.0100			0.01	<0.0300	<0.0300	<0.0200	<0.03	<0.03	<0.03	<0.01	<0.0400	13.3930
Arsenic	<0.00100			<0.00100	0.00268	<0.00100	<0.00200	0.0024	<0.002	<0.002	<0.002	<0.00200	0.0018
Barium, dissolved	0.114			0.315	0.394	0.438	0.429	0.3360	0.4080	0.445	0.4280		0.2301
Cadmium	<0.000500			<0.000500	<0.000500	<0.000500	<0.000500	<0.0005	<0.0005	<0.0005	<0.0001		0.0008
Iron, dissolved	<0.100			<0.100	<0.100	<0.100	1.22	<0.100	<0.100	<0.100	0.1310		0.6180
Magnesium, dissolved	20.2			28.30	26.70	29.7	28.20	20.7000	22.5000	27.2000	24.2000		2.8491
Zinc	0.0			<0.0200	0.01	<0.0200	<0.0100	<0.0100	<0.0200	<0.02	0.0264		0.0126
	ug/L												
Benzene	<0.500			<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	<0.5	<0.500	0.1085
Chloroethane													0.6227
1,1-Dichloroethane				<2.00	<2.00	<2.00	<2.00					<2.00	0.2474
cis-1,2-Dichloroethene													
trans-1,2-Dichloroethene													
Tetrachloroethene													
Di-isopropyl ether													
Acetone													
Methylene Chloride	<5.00			<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.0	<0.5	<5.00	0.8446
Toluene	<1.00			<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.00	0.6139
Chlorobenzene	<1.00			<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.00	0.0000
Chloromethane	<3.00			<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.0	<3.0	<3.00	0.2564
1,1,1 Trichloroethane	<1.00			<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.00	0.0000

MWIR		2021	2022	2023	2024	2025				Cont. Lim.
Parameters	mg/L									
Chloride		17.1000	12.8	14.70	11.40	12.4				22.903204
BOD		<6.00	4.6	<6.00	<6.00	<6.00				6.4795136
COD		6.7800	6.5	5.69	<5.00	<5.00				15.180402
Ammonia Nitrogen		<0.200	<0.200	<0.200	<0.200	<0.200				0.1385732
Total Organic Halogens		<0.010	<0.010	62.90	<40.0	<30.0				29.790629
Arsenic		<0.00200	<0.00200	<0.00200	<0.00200	<0.00200				0.0063388
Barium			0.497	0.953	1.050	0.382				0.8061409
Cadmium			0.0	0.00	0.00	<0.000200				0.0021218
Iron										1.6725921
Magnesium										31.03821
Zinc										0.0396976
	ng/L									
Benzene		<0.500	<0.500	<0.500	<0.500	<0.500				0.5290064
Chloroethane				<4.00	<4.00	<4.00				2.3168283
1,1-Dichloroethane		<2.00	<2.00	<1.00	<1.00	<1.00				1.2091574
cis-1,2-Dichloroethene										
trans-1,2-Dichloroethene										
Tetrachloroethene										
Di-isopropyl ether										
Acetone										
Methylene Chloride		<5.00	<5.00	<5.00	<5.00	<5.00				3.7842306
Toluene		<1.00	<1.00	<1.00	<1.00	<1.00				1.9013807
Chlorobenzene		<1.00	<1.00	<1.00	<1.00	<1.00				0.5
Chloromethane		<3.00	<3.00	<3.00	<3.00	<3.00				1.9245763
1,1,1-Trichloroethane		<1.00	<1.00	<1.00	<1.00	<1.00				0.5

MW2		1996	Mar-97	Jun-97	Oct-97	1998	2003	2004	2005	2006	2007	2008	2009
Parameters	mg/L												
Cadmium	0.000052	<.0005	<.0005	<.0005	<.0001		<.005	<.0005	<.0005	<.0005	<.0005	<.0005	<0.000500
Chloride	30.9	38.3	41.7	40	48.6	48.6	84	95.8	89.2	94.4	95.6	92.5	95.8
BOD	<2	1.3	2.4	1.8	<2	<2	<5	4.1	<3	<6	4.41	10.6	16.6
COD	7.8	<20	11.8	<20	<20	<20	38	72	28	25.7	40.4	45.6	44.2
Ammonia Nitrogen	<.1	<.1	0.024	<.1	0.39	0.39	<.1	<.2	<.2	<.2	0.348	0.863	1.31
Total Organic Halogens	<.06	0.055	0.0417	0.0614	0.0432	0.0432	0.034	0.029	0.041	0.031	0.0368	0.0295	0.0424
Arsenic	0.0021	<.005	<.005	<.01			<.01	<.001	0.00102	<.001	0.00139	0.00261	0.00286
Barium, dissolved	0.35	0.34	0.42	0.44			0.53	0.586	0.846	0.879	0.976	0.925	1.00
Iron, dissolved	0.33	<.1	<.1	0.038			<.05	0.12	0.321	0.58	0.384	0.458	14.0
Magnesium, dissolved	53.8	50.8	56.8	51.8			55	56	58	59.8	58.5	55.9	57.1
Zinc	<.02	0.047	<.02	<.001			<.03	<.02	0.0273	<.02	0.0669	<.02	0.0485
	ug/L												
Benzene	<.1	<.1	<.1	<.1	<.1		<.1	1.58	1.36	1.45	1.18	1.29	1.64
Chloroethane	<.1	<.2	<.2	<.2			<.1	<.5					
1,1-Dichloroethane	<.1	0.2	<.1	<.1			2.1	<.1					<2.00
cis-1,2-Dichloroethene	<.1	<.1	<.1	<.1			3.8						
trans-1,2-Dichloroethene	<.1	<.1	<.1	<.1			1.1						
Tetrachloroethene	<.1	<.1	<.1	<.1			1.3						
Di-isopropyl ether	<.1	<.1	<.1	<.1			<.1						
Acetone	<50	<10	<10	<10			<50						
Methylene Chloride	<5	<.1	<.1	<.1			<.5				<5.00	<.5	<5.00
Toluene	<5	<.1	<.1	<.1			<.5	<.10	<.10	<.10	<.100	<.1	<.100
Chlorobenzene				<.1			<.10	<.10	1.16	1.41	1.23	<.1	2.80
Chloromethane				<.2			<.10	<.30	3.37	<3.00	<3.00	<.3	<3.00
1,1,1-Trichloroethane		0.66	<.1	<.1			<.10	<.10	<.10	<.10	<.10	<.1	<.100

MW2		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Cont. Lim.
Parameters	mg/L												
Chloride	78.000	71.100	84.7	105.0	99.1	105.0	98.9	85.1000	94.3000	88.8000	77.6000	78.1000	4.3456
BOD	8.100	<3.00	<12.0	<12.0	<12.0	<12.0	<6.0	<6.0	<3.0	<3	<3	<6.00	1.8870
COD	70.400	65.800	23.2	21.0	24.5	21.0	18.3	21.1000	26.0000	26.6000	23.0000	<0.200	4.4618
Ammonia Nitrogen	1.780	0.495	0.600	0.253	0.200	0.253	<0.20	<0.20	<0.20	<0.2	<0.2	<0.200	0.0266
Total Organic Halogens	0.029	0.038	0.0622	0.0577	0.0577	0.0797	0.2190	0.0468	0.1560	0.0789	0.1660	0.1170	13.3930
Arsenic		0.0101	0.00305	0.00444	0.00377	0.00377	0.00498	0.00553	0.00791	<0.002	<0.002	0.00235	0.0018
Barium, dissolved		0.844	0.947	0.928	0.949	0.928	0.821	0.6690	0.8880	0.6470	0.5480	0.6470	0.2301
Cadmium		<0.0005	<0.000500	0.001	<0.000500	0.001	<0.000500	<0.0005	<0.0005	<0.0005	0.0002	<0.0005	0.0008
Iron, dissolved		7.42	12.4	5.1	6.8	5.1	6.3	2.6800	7.4300	<0.1	1.9000	<0.1	0.6180
Magnesium, dissolved		49.1	63.0	51.1	51.1	56.1	58.9	50.7000	51.9000	52.2000	55.5000	<0.02	2.8491
Zinc		0.0261	<0.0200	0.0	<0.0200	<0.0200	<0.0100	<0.01	<0.0200	<0.02	<0.02	<0.02	0.0126
Benzene	0.900	1.04	0.860	1.220	1.190	1.220	1.260	1.2300	1.2400	1.5700	1.6200	1.6400	0.1083
Chloroethane								<2.00				<2.00	0.6227
1,1-Dichloroethane													0.2474
cis-1,2-Dichloroethene													
trans-1,2-Dichloroethene													
Tetrachloroethene													
Di-isopropyl ether													
Acetone													
Methylene Chloride	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5	<5	<5.00	0.8446
Toluene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1	<1	<1.00	0.6139
Chlorobenzene	1.59	1.86	1.61	3.91	2.65	3.91	4.50	<1.0	3.42	6.06	4.88	3.43	0.0000
Chloromethane	<3.00	8.22	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3	8.06	<3.00	0.2564
1,1,1-Trichloroethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1	<1.0	<1.00	0.0000



MW3		1996	Mar-97	Jun-97	Oct-97	1998	2003	2004	2005	2006	2007	2008	2009
Parameters	mg/L												
Cadmium	<0.005	<0.005	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	0.00184
Chloride	189	190	169	191	220	160	163	155	173	162	141	154	154
BOD	<2	7.3	6.9	9.1	<60	7	5.9	3.04	<6	4.89	<3	4.71	4.71
COD	158	157	179	149	119	170	84	87	79.1	94.2	92.9	76.6	76.6
Ammonia Nitrogen	<1	0.28	0.34	0.20	0.37	<1	0.26	0.375	0.289	0.244	<2	0.246	0.246
Total Organic Halogens	0.257	0.289	0.118	0.278	0.0545	0.071	0.054	0.044	0.0414	0.133	0.0993	0.0662	0.0662
Arsenic	<0.05	<0.05	<0.05	<0.1		<0.1	0.0018	0.00575	0.00294	0.00233	0.00139	0.00364	0.00364
Barium, dissolved	0.062	0.041	0.047	0.039		0.04	0.026	0.0281	0.0329	0.0322	0.0238	0.0729	0.0729
Iron, dissolved	0.54	0.041	0.27	0.35	4.4	4.4	3.2	2.99	2.6	2.48	1.05	8.68	8.68
Magnesium, dissolved	172	160	186	178	160	160	200	244	264	218	218	243	243
Zinc	<0.2	0.057	<0.2	<0.01		<0.3	<0.4	0.0332	<0.5	0.106	<0.2	0.147	0.147
ug/L													
Benzene	<1	<1	<1	<1		2.1	1.46	0.98	1.09	1	0.66	<0.500	<0.500
Chloroethane	3	5	3.7	6.6		3.6	<5			<2.00		<2.00	<2.00
1,1-Dichloroethane	<1	<1	<1	<1		<1	<1						
cis-1,2-Dichloroethene	<1	<1	<1	<1		<1	<1						
trans-1,2-Dichloroethene	<1	<1	<1	<1		<1	<1						
Tetrachloroethene	<1	<1	<1	<1		<1	<1						
Di-isopropyl ether	<1	<1	<1	<1		4.5							
Acetone	<50	4.7	<10	<10		<50							
Methylene Chloride	<5	<1	1.1	<1		<5	<1.0	<1.0	<1.0	<5.00	<5	<5.00	<5.00
Toluene	<5	<1	<1	<1		<5	<1.0	<1.0	<1.0	<1.00	<1	<1.00	<1.00
Chlorobenzene				0.38		<1.0	<1.0	<1.0	<1.0	<1.0	<1	<1.00	<1.00
Chloromethane				<2		<1.0	<3.0	<3.0	<3.0	<3.0	<3	<3.00	<3.00
1,1,1 Trichloroethane		<1	<1	<1		<1.0	<1.0	<1.0	<1.0	<1.0	<1	<1.00	<1.00

MW3		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Cont Lim
Parameters	mg/L												
Chloride	151	161	145.0	149.0	164.0	175.0	172.0000	172.0000	172.0000	158.0000	164.0000	175.0000	4,3456
BOD	<12.0	3.98	<12.0	<12.0	<12.0	3.98	<6	<6	<3	<12	<3	<6.00	1.8870
COD	70.4	61.3	65.4	72.9	72.9	77.2	89.0000	89.0000	8.0100	96.5000	76.1000	74.9000	4.4618
Ammonia Nitrogen	0.209	0.208	1.12	1.03	0.22	<0.2	0.2900	0.2900	<0.200	0.2640	0.2480	0.3800	0.0266
Total Organic Halogens	5.80	0.209	0.1770	1.1010	0.2310	0.3910	0.1800	0.1800	0.1130	0.1850	0.2330	0.1730	13.3950
Arsenic	<0.00100	0.00231	0.00188	0.00506	<0.00100	0.00207	0.0054	0.0054	0.0020	<0.002	0.00267	0.00252	0.0018
Barium, dissolved	0.0166	0.0262	0.0211	0.0150	<0.0100	0.0249	0.1430	0.1430	0.0231	0.0210	0.0235	0.00252	0.2301
Cadmium	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	0.00028	0.00028	0.0008
Iron, dissolved	0.720	1.64	1.62	2.21	1.27	1.42	1.0600	1.0600	1.1000	0.6440	1.9000	0.6180	0.6180
Magnesium, dissolved	257	245	246.0	235	259.0	318	227.0000	227.0000	212.0000	249.0000	242.0000	2.8491	2.8491
Zinc	0.0259	<0.0200	<0.0200	0.0076	<0.0200	<0.0100	<0.0100	<0.0100	<0.0200	<0.02	<0.02	0.0126	0.0126
Benzene	<0.500	<0.500	<0.500	<0.500	0.506	<0.500	<0.500	<0.500	<0.500	<0.5	<0.5	<0.500	0.1083
Chloroethane													0.6227
1,1-Dichloroethane													0.2474
cis-1,2-Dichloroethene													
trans-1,2-Dichloroethene													
Tetrachloroethene													
Di-isopropyl ether													
Acetone													
Methylene Chloride	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5	<5.00	0.8446
Toluene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1	<1.00	0.6139
Chlorobenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1	<1.00	0.0000
Chloromethane	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3	<3.00	0.2564
1,1,1 Trichloroethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1	<1.00	0.0000

MW3		2021	2022	2023	2024	2025				Cont. Lim.
Parameters										
	mg/L									
Chloride		188	172	197	194.0	195.0				22.903204
BOD		<6.00	3.32	<3.00	3.93	<12.0				6.4795136
COD		87.9	86.3	103	115.0	118.0				15.180402
Ammonia Nitrogen		0.266	0.208	0.39	0.46	<0.200				0.1385732
Total Organic Halogens		0.12	0.104	259	312.0000	123.0000				29.790629
Arsenic		0.002	0.00220	0.00631	0.00263	0.00437				0.0063388
Barium			0.0235	0.0299	0.0239	0.0234				0.8061409
Cadmium			0.00125	0.0	0.0	0.0				0.0021218
Iron										1.6725921
Magnesium										31.03821
Zinc										0.0396976
	ug/L									
Benzene		<0.500	<0.500	<0.500	<0.500	<0.500				0.5290064
Chloroethane				<4.00	<4.00	<4.00				2.3168283
1,1-Dichloroethane		<2.00	<2.00	<1.00	<1.00	<1.00				1.2091574
cis-1,2-Dichloroethene										
trans-1,2-Dichloroethene										
Tetrachloroethene										
Di-isopropyl ether										
Acetone										
Methylene Chloride		<5.00	<5.00	<5.00	<5.00	<5.00				3.7842306
Toluene		<1.00	<1.00	<1.00	<1.00	<1.00				1.9013807
Chlorobenzene		<1.00	<1.00	<1.00	<1.00	<1.00				0.5
Chloromethane		<3.00	<3.00	<3.00	<3.00	<3.00				1.9245763
1,1,1 Trichloroethane		<1.00	<1.00	<1.00	<1.00	<1.00				0.5

MW4		1996	Mar-97	Jun-97	Oct-97	1998	2003	2004	2005	2006	2007	2008	2009
Parameters	mg/L												
Cadmium	<0.0005	<0.0005	<0.0005	<0.001	<0.005	<0.005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.000500
Chloride	0.85	318	293	292	249	30.9	242	231	242	234	234	230	254
BOD	5.5	8.3	33.3	13.1	30.9	35	46	27	11	11.9	11.9	25.8	38.7
COD	214	188	150	153	183	350	180	223	147	207	207	180	160
Ammonia Nitrogen	0.85	0.86	1.3	1	0.98	0.97	1.12	1.79	1.19	1.14	1.14	1.6	3.03
Total Organic Halogens	0.255	0.344	0.292	0.262	0.19	0.11	0.103	0.094	0.0915	0.136	0.136	0.16	0.108
Arsenic	0.011	0.012	0.013	0.014		0.011	0.0188	0.0184	0.0174	0.00892	0.00892	0.0106	0.00674
Barium, dissolved	0.71	0.75	0.84	0.7	0.75	0.68	0.594	0.528	0.572	0.537	0.537	0.464	0.435
Iron, dissolved	38.3	43.3	47.5	36.8	46	46	34.7	29.6	31.6	25.3	25.3	18.6	11.9
Magnesium, dissolved	112	115	123	114	91	91	89.3	85	95.5	91.5	91.5	82.1	80.6
Zinc	<0.02	0.033	<0.02	<0.001	<0.03	<0.03	<0.03	<0.02	<0.02	0.052	0.052	<0.02	0.0345
vg/L													
Benzene	<1	<1	<1	<1	<1	<1	0.89	0.76	0.85	0.85	0.85	0.95	0.930
Chloroethane	7	7.3	7.8	8.7	9.2	9.2	<5						<2.00
1,1-Dichloroethane	<1	<1	<1	<1	<1	<1	<1						
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1						
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1						
Tetrachloroethene	<1	<1	<1	<1	<1	<1	<1						
Di-isopropyl ether	<1	<1	<1	<1	<1	<1	<1						
Acetone	<50	<10	<10	<10	<50	<50	<50						
Methylene Chloride	<5	<1	<1	<1	<5	<5	<1.0	<1.0	<1.0	<1.0	<1.0	<1	<5.00
Toluene	<5	<1	<1	<1	<1	<1	<0.5	<1.0	<1.0	<1.0	<1.0	<1	<1.00
Chlorobenzene				0.33	<1.0	<1.0	<1.0	<3.0	<3.0	<3.0	<3.00	<3	<3.00
Chloromethane				<2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00	<1	<1.00
1,1,1 Trichloroethane		<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.00	<1	<1.00

MW4		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Cont Lim
Parameters													
	mg/L												
Chloride		240	238	245.0	236.0	215.0	227.0	224.0000	216.0000	194.0000	187.0000	200.0000	4.3456
BOD		27.2	23.2	14.90	12.60	20.90	25.00	18.1000	22.6000	23.7000	<3	13.5000	1.8870
COD		81.2	167	236.0	179.0	158.0	68.7	238.0000	215.0000	188.0000	247.0000	213.0000	4.4618
Ammonia Nitrogen		2.11	1.21	3.53	1.68	2.11	1.62	3.3800	2.2100	1.4400	1.9000	1.6000	0.0266
Total Organic Halogens		3.24	0.240	0.2780	0.1360	0.2000	0.4390	0.0834	0.1870	0.1060	0.4670	0.2680	13.3950
Arsenic		0.0167	0.00934	0.0619	0.0191	0.0152	0.0298	0.0426	0.0272	0.0061	0.0227	0.0181	0.0018
Barium, dissolved		0.476	0.411	0.654	0.521	0.465	0.505	0.5430	0.5290	0.4020	0.5980	0.5980	0.2301
Cadmium		<0.000500	<0.000500	0.00121	<0.000500	<0.000500	<0.000500	<0.000500	<0.0005	<0.0005	0.0001		0.0008
Iron, dissolved		20.0	19.5	54.20	22.4	15.80	23.7	29.2000	26.1000	9.6100	26.4000		0.6180
Magnesium, dissolved		80.8	78.5	77.7	79.4	86.0	81.4	69.3000	71.2000	76.8000	77.6000		2.8491
Zinc		<0.0200	<0.0200	<0.0200	0.0059	<0.0200	<0.0100	<0.0100	<0.02	<0.02	0.0432		0.0126
	ug/L												0.0000
Benzene		0.940	1.05	0.780	0.959	1.160	0.985	1.1200	1.0400	1.0700	1.1600	1.2400	0.1083
Chloroethane												<2.00	0.6227
1,1-Dichloroethane													0.2474
cis-1,2-Dichloroethene													
trans-1,2-Dichloroethene													
Tetrachloroethene													
Di-isopropyl ether													
Acetone													
Methylene Chloride		<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5	<5.00	0.8446
Toluene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<11	<1.00	0.6139
Chlorobenzene		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1	<1.00	0.0000
Chloromethane		<3.00	3.34	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3	<3.00	0.2564
1,1,1 Trichloroethane		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1	<1.00	0.0000

MW4		2021	2022	2023	2024	2025					Cont. Lim.
Parameters	mg/L										
Chloride	207	207	202	202	201.0	182.0					22.903204
BOD	12.3	15.6	5.93	5.93	10.30	15.80					6.4795136
COD	244.0	224	246	246	205.0	233.0					15.180402
Ammonia Nitrogen	1.63	1.69	1.37	1.37	1.52	1.83					0.1385732
Total Organic Halogens	0.13	0.119	0.119	0.119	0.119	0.119					29.790629
Arsenic	0.0135	0.02310	0.0105	0.0105	0.0208	0.0156					0.0063388
Barium		0.634	0.737	0.737	0.634	0.540					0.8061409
Cadmium		0.00024	0.00024	0.00024	0.00029	<0.000200					0.0021218
Iron											1.6725921
Magnesium											31.03821
Zinc											0.0396976
	ug/L										
Benzene	0.946	1.02	1.18	1.18	1.160	1.010					0.5290064
Chloroethane			<4.00	<4.00	4.7	4.7					2.3168283
1,1-Dichloroethane	<2.00	<2.00	<1.00	<1.00	<1.00	<1.00					1.2091574
cis-1,2-Dichloroethene											
trans-1,2-Dichloroethene											
Tetrachloroethene											
Di-isopropyl ether											
Acetone											
Methylene Chloride	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00					3.7842306
Toluene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00					1.9013807
Chlorobenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00					0.5
Chloromethane	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00					1.9245763
1,1,1 Trichloroethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00					0.5

MW5		Mar-97	Jun-97	Oct-97	1998	2003	2004	2005	2006	2007	2008	2009
Parameters	mg/L											
Cadmium		<0.005	<0.001	<0.001		<0.005	<0.005	0.0012	<0.005	0.00118	<0.001	0.00256
Chloride		145	143	335	126	140	130	136	142	128	118	115
BOD		<2	0.66	<2	<2	<5	<3	<3	<6	<3	<6	<6.00
COD		<20	8.4	<20	91	<20	12	18	13.2	15	14.1	15.1
Ammonia Nitrogen		<1	0.57	<1	0.038	<1	<2	<2	<2	<2	<2	<0.200
Total Organic Halogens		0.0857	0.1	0.0506	0.0466	0.038	0.082	0.037	0.0517	0.0391	0.0377	0.0390
Arsenic		<0.05	<0.05	<0.01		>0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.00112
Barium, dissolved		0.04	0.049	0.14		0.02	0.016	0.0233	0.0348	0.0239	0.0229	0.0176
Iron, dissolved		0.021	0.2	1.7		<0.5	<1	<1	<1	<1	<1	0.119
Magnesium, dissolved		181	200	223		140	140	142	153	175	142	140
Zinc		0.083	<0.2	<0.1		<0.3	<0.4	0.0455	<0.5	0.133	0.0286	
Benzene	ng/L	<1	<1	<1		<1	<0.5	<0.500	291	<0.500	<0.5	<0.500
Chloroethane		<2	<2	<2		<1	<5					
1,1-Dichloroethane		<1	<1	<1		<1	<1					<2.00
cis-1,2-Dichloroethene		<1	<1	<1		<1						
trans-1,2-Dichloroethene		<1	<1	<1		<1						
Tetrachloroethene		<1	<1	<1		<1						
Di-isopropyl ether		<1	<1	<1		<1						
Acetone		<10	<10	<10		<50						
Methylene Chloride		<1	<1	<1		<5				<5.00	<5	<5.00
Toluene		<1	<1	<1		<5	<1.0	<1.0	45.2	<1.00	<1	<1.00
Chlorobenzene				<1		<1.0	<1.0	<1.0	<1.0	<1.00	<1	<1.00
Chloromethane				<2		<1.0	<3.0	<3.0	<3.0	<3.00	<3	<3.00
1,1,1-Trichloroethane		<1	<1	<1		<1.0	<1.0	<1.0	<1.0	<1.00	<1	<1.00

MWS		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Cont Lim
Parameters	mg/L												
Chloride	122	137	133.0	149.0	113.0	113.0	113.0	133.0000	126.0000	113.0000	187.0000	124.0000	4.3456
BOD	<12.0	<6.00	<12.00	<12.00	<12.00	<12.00	<6.0	<6.0	<3	<6	<3	<6.00	1.8870
COD	23.0	11.0	14.9	19.7	14.2	14.2	<5.0	21.1000	14.5000	17.2000	247.0000	27.1000	4.4618
Ammonia Nitrogen	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.2	<0.2	<0.2	<0.2	1.9000	<0.200	0.0266
Total Organic Halogens	0.0365	0.0401	0.0703	0.0952	0.0744	0.0744	0.1780	0.1710	0.1810	0.1360	<0.01	0.0752	13.3950
Arsenic	<0.00100	0.00147	<0.00100	0.00331	<0.00100	<0.00100	0.00301	0.0047	<0.002	<0.002	<0.002	<0.00200	0.0018
Barium, dissolved	0.0151	0.0177	0.0565	0.0388	0.0107	0.0107	0.0901	0.0216	0.0533	0.0265	0.4280	<0.00200	0.2301
Cadmium	0.000986	0.00173	<0.000500	0.00341	0.0008020	0.0008020	0.00052	0.000769	<0.000500	0.0006	<0.0001	<0.0001	0.0008
Iron, dissolved	<0.100	<0.100	<0.100	0.46	<0.100	<0.100	5.57	<0.100	<0.100	0.3390	0.1310	<0.100	0.6180
Magnesium, dissolved	153	119	131.0	149	146.0	146.0	195	125.0000	116.0000	138.0000	24.2000	2.8491	2.8491
Zinc	<0.0200	<0.0200	<0.0200	0.0126	<0.0200	<0.0200	0.0186	<0.0100	<0.0200	<0.02	0.2640	<0.0200	0.0126
	ug/L												
Benzene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	<0.5	<0.5	0.1083
Chloroethane													0.6227
1,1-Dichloroethane													0.2474
cis-1,2-Dichloroethene													
trans-1,2-Dichloroethene													
Tetrachloroethene													
Di-isopropyl ether													
Acetone													
Methylene Chloride	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5	<5.00	0.8446
Toluene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1	<1.00	0.6139
Chlorobenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1	<1.00	0.0000
Chloromethane	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3	<3.00	0.2564
1,1,1-Trichloroethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1	<1.00	0.0000

MW5	2021	2022	2023	2024	2025	Cont. Lim.
Parameters						
mg/L						
Chloride	121	108	118	110.0	106.0	22.903204
BOD	<6.00	<3.00	<12.0	<6.00	<12.0	6.4795136
COD	27.5	14.5	6.4	16.8	17.1	15.180402
Ammonia Nitrogen	<0.200	<0.200	<0.200	<0.200	<0.200	0.1385732
Total Organic Halogens	0.0570	0.0640	175	298.0	<30.0	29.790629
Arsenic	<0.00200	<0.00200	0.0023	<0.00200	0.0026	0.0063388
Barium		0.0475	0.0488	0.0536	0.0335	0.8061409
Cadmium		0.00044	0.0	0.00049	0.0015400	0.0021218
Iron						1.6725921
Magnesium						31.03821
Zinc						0.0396976
ng/L						
Benzene	<0.500	<0.500	<0.500	<0.500	<0.500	0.5290064
Chloroethane			<4.00	<4.00	<4.00	2.3166283
1,1-Dichloroethane	<2.00	<2.00	<1.00	<1.00	<1.00	1.2091574
cis-1,2-Dichloroethene						
trans-1,2-Dichloroethene						
Tetrachloroethene						
Di-isopropyl ether						
Acetone						
Methylene Chloride	<5.00	<5.00	<5.00	<5.00	<5.00	3.7842306
Toluene	<1.00	<1.00	<1.00	<1.00	<1.00	1.9013807
Chlorobenzene	<1.00	<1.00	<1.00	<1.00	<1.00	0.5
Chloroethane	<3.00	<3.00	<3.00	<3.00	<3.00	1.9245763
1,1,1-Trichloroethane	<1.00	<1.00	<1.00	<1.00	<1.00	0.5

**Table 12 – Leachate Elevation Data (Current Year)**

Leachate Depths

Keokuk Landfill

	P1	P1	P1	P1	P1	P1	P1	P1	P1	P1
	10/30/2018	10/29/2019	11/3/2020	10/26/2021	10/26/2022	11/7/2023	10/30/2024	12/3/2025		
Depth to leachate (ft.)	14.68	14.81	15.35	15.3	15.29	15.64	15.97	16.25		
Total Depth (ft.)	20.8	20.35	20.36	19.82	20.05	20.32	20.3	19.8		
Leachate Thickness (ft.)	6.12	5.54	5.01	4.52	4.76	4.68	4.33	3.55		

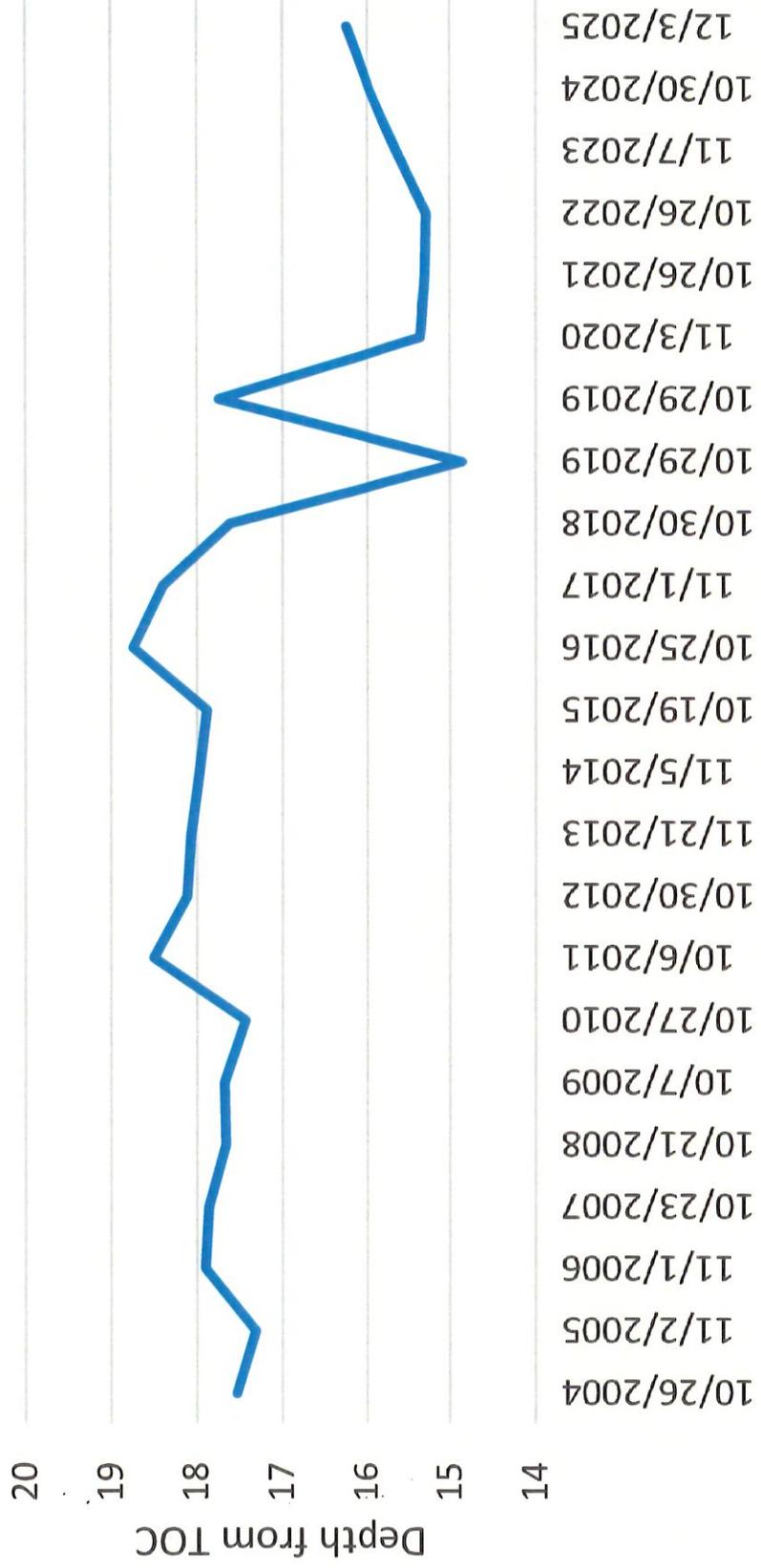
	P2	P2	P2	P2	P2	P2	P2	P2	P2
	10/30/2018	10/29/2019	11/3/2020	10/26/2021	10/26/2022	11/7/2023	10/30/2024	12/3/2025	
Depth to leachate (ft.)	11.1	11.36	11.14	11.41	11.51	11.23	11.71	12.06	
Total Depth (ft.)	38.72	38.52	38.55	38.42	38.66	38.66	38.67	38.7	
Leachate Thickness (ft.)	27.62	27.16	27.41	27.01	27.15	27.43	26.96	26.64	

	P3	P3	P3	P3	P3	P3	P3	P3
	10/30/2018	10/29/2019	11/3/2020	10/26/2021	10/26/2022	11/7/2023	10/30/2024	12/3/2025
Depth to leachate (ft.)	8.56	8.03	9.18	8.84	9.68	9.95	10.1	10.26
Total Depth (ft.)	16.24	15.9	15.77	15.95	15.95	15.97	15.95	15.96
Leachate Thickness (ft.)	7.68	7.87	6.59	7.11	6.27	6.02	5.85	5.7

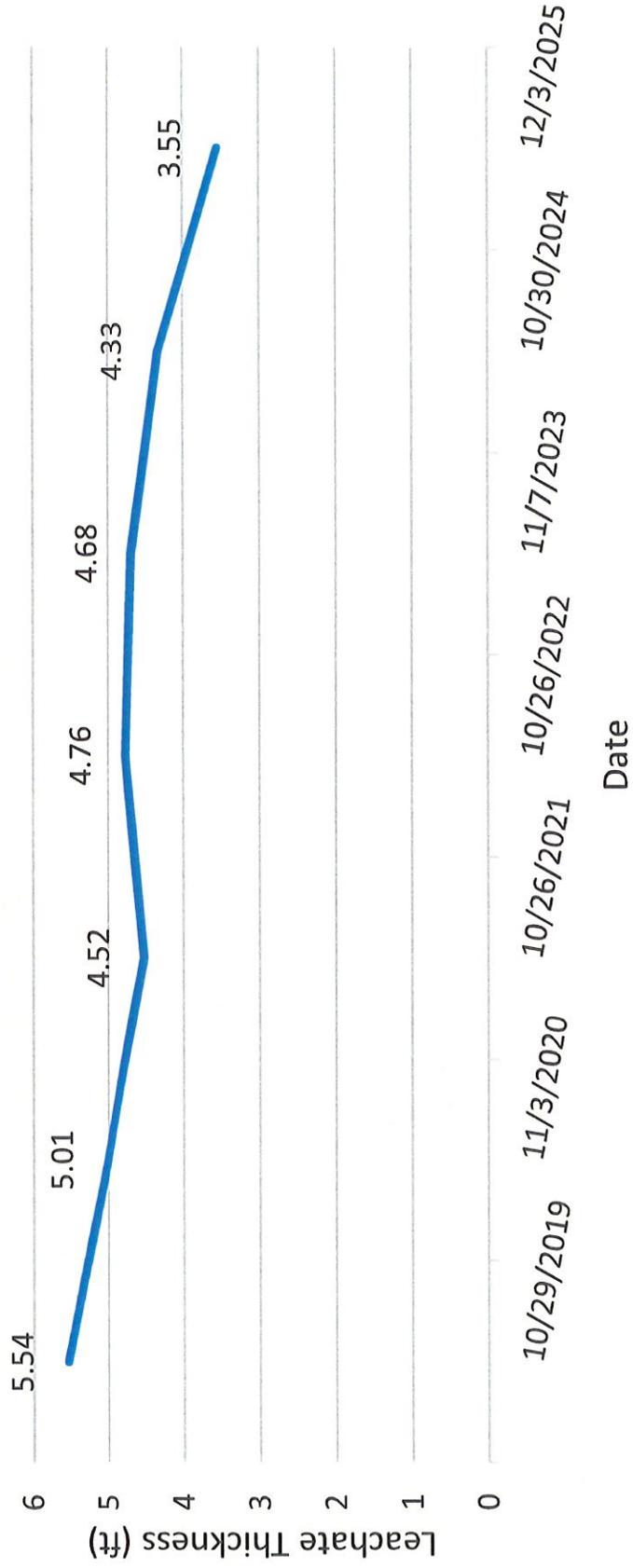
**Table 12A – Leachate Elevation Data (Over Time)**

*(The content of this table is extremely faint and illegible due to the quality of the scan. It appears to be a table with multiple columns and rows, likely containing numerical data related to leachate elevation over time.)*

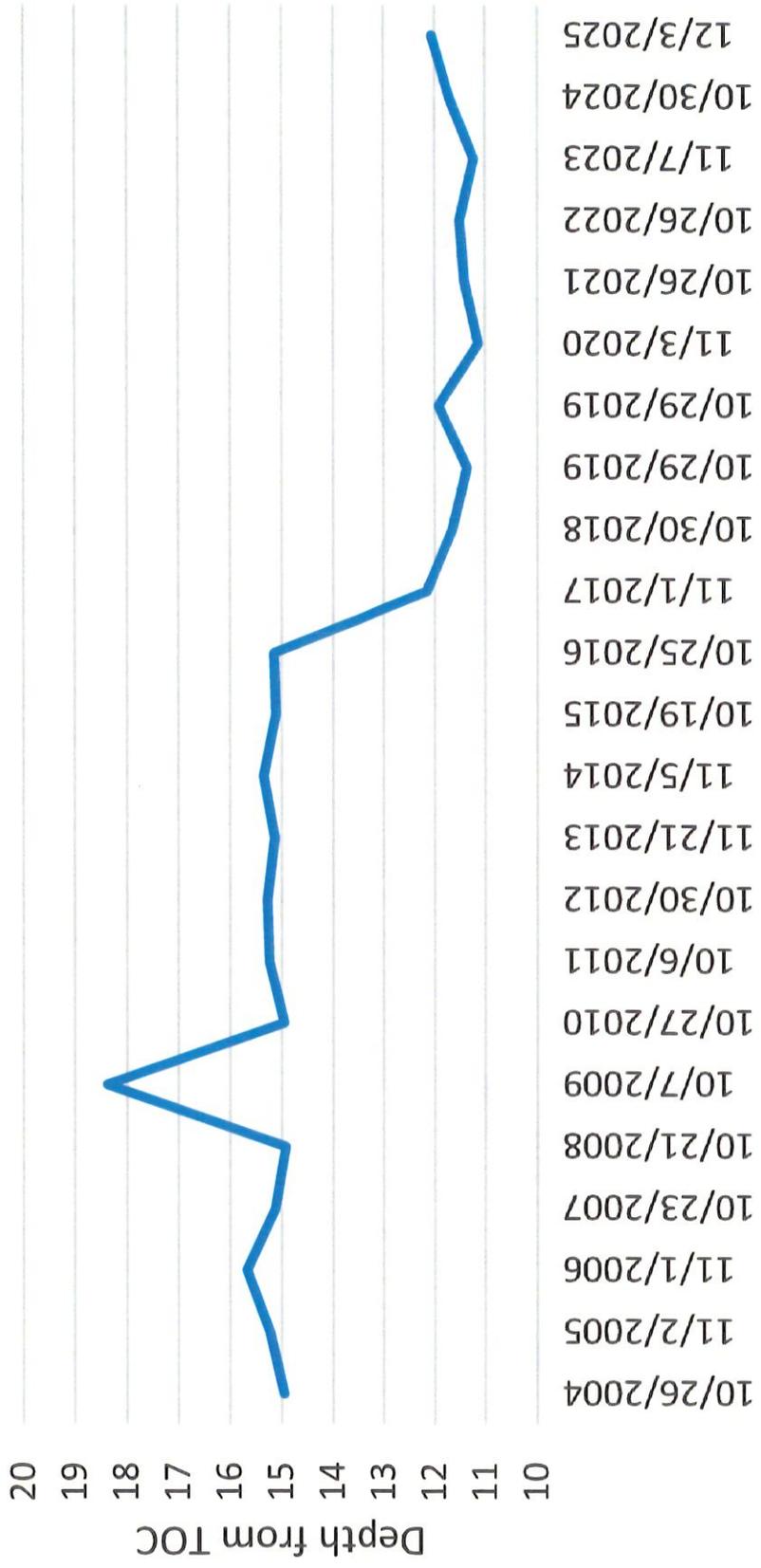
# P1 Leachate Depth



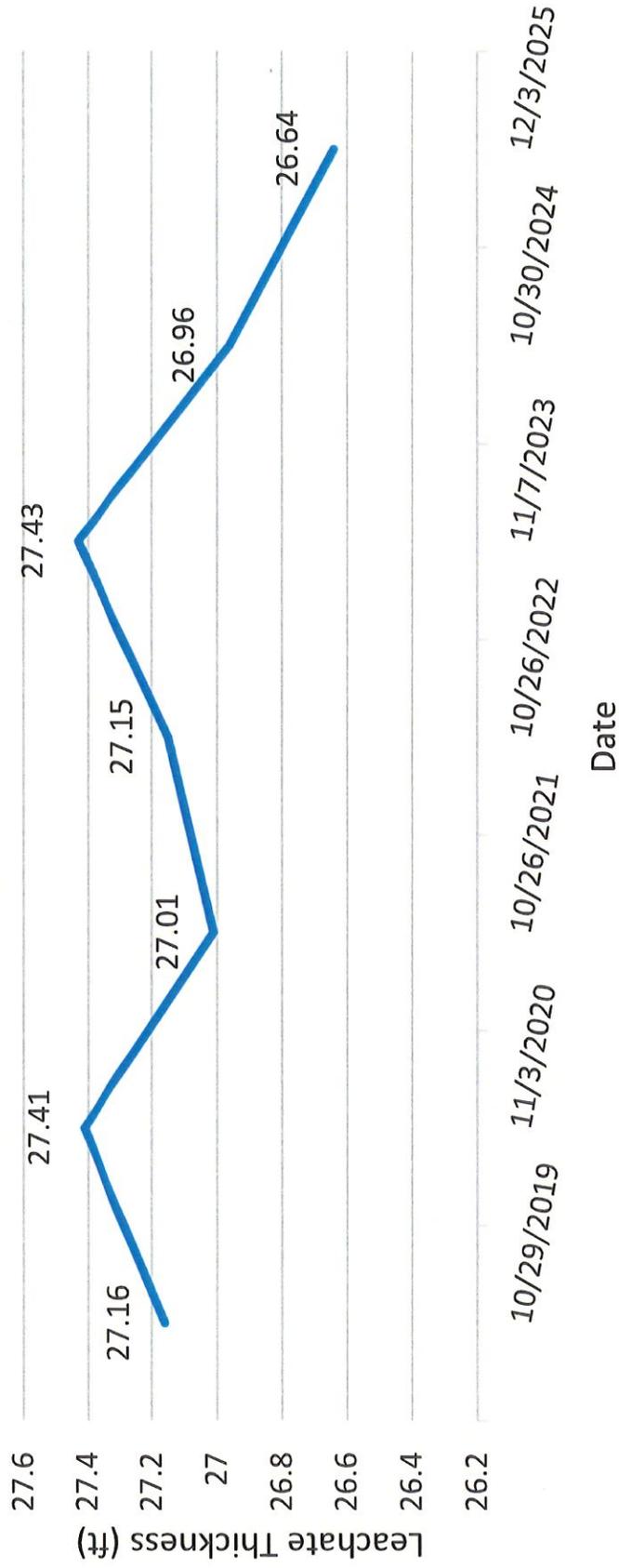
# P1 Leachate Thickness



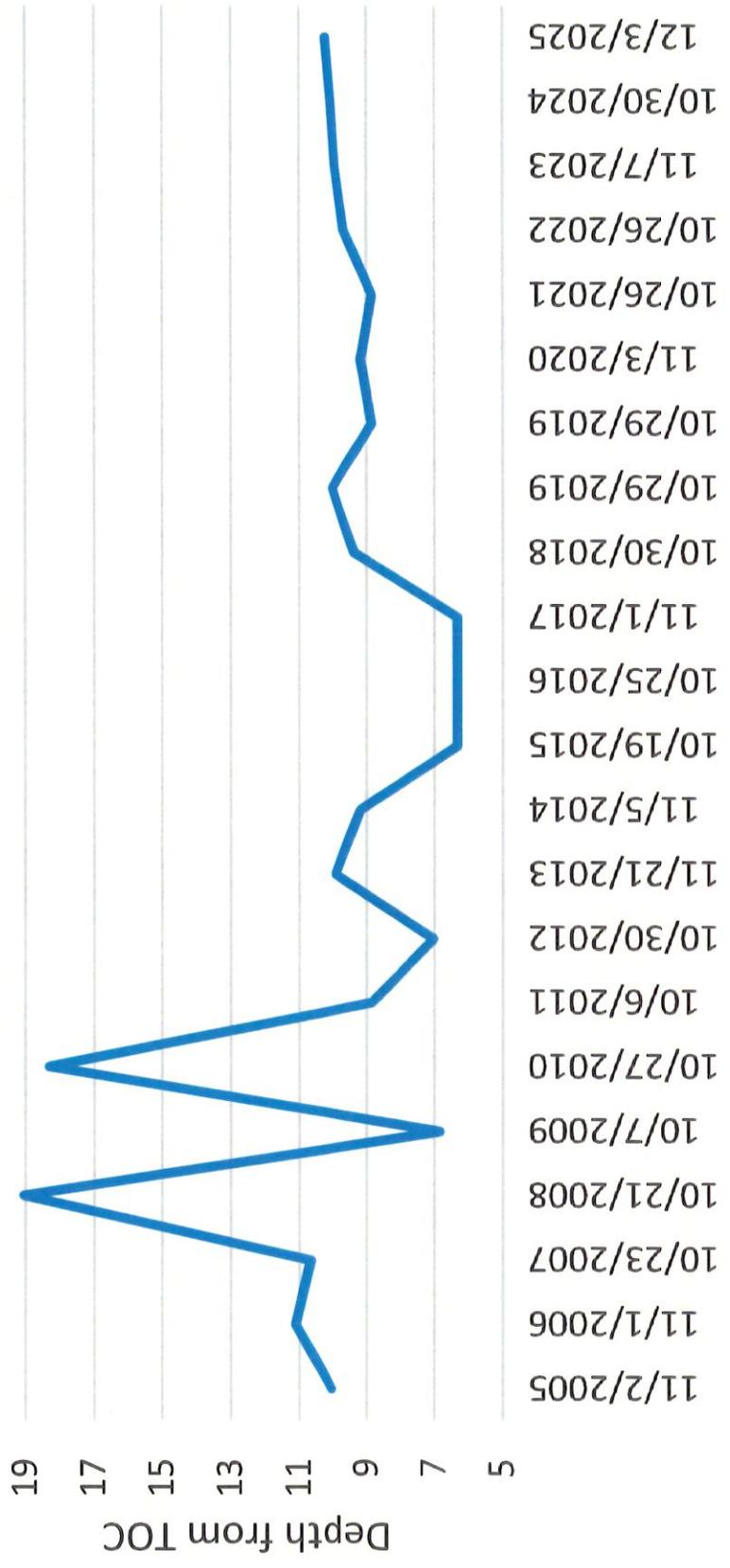
# P2 Leachate Depth



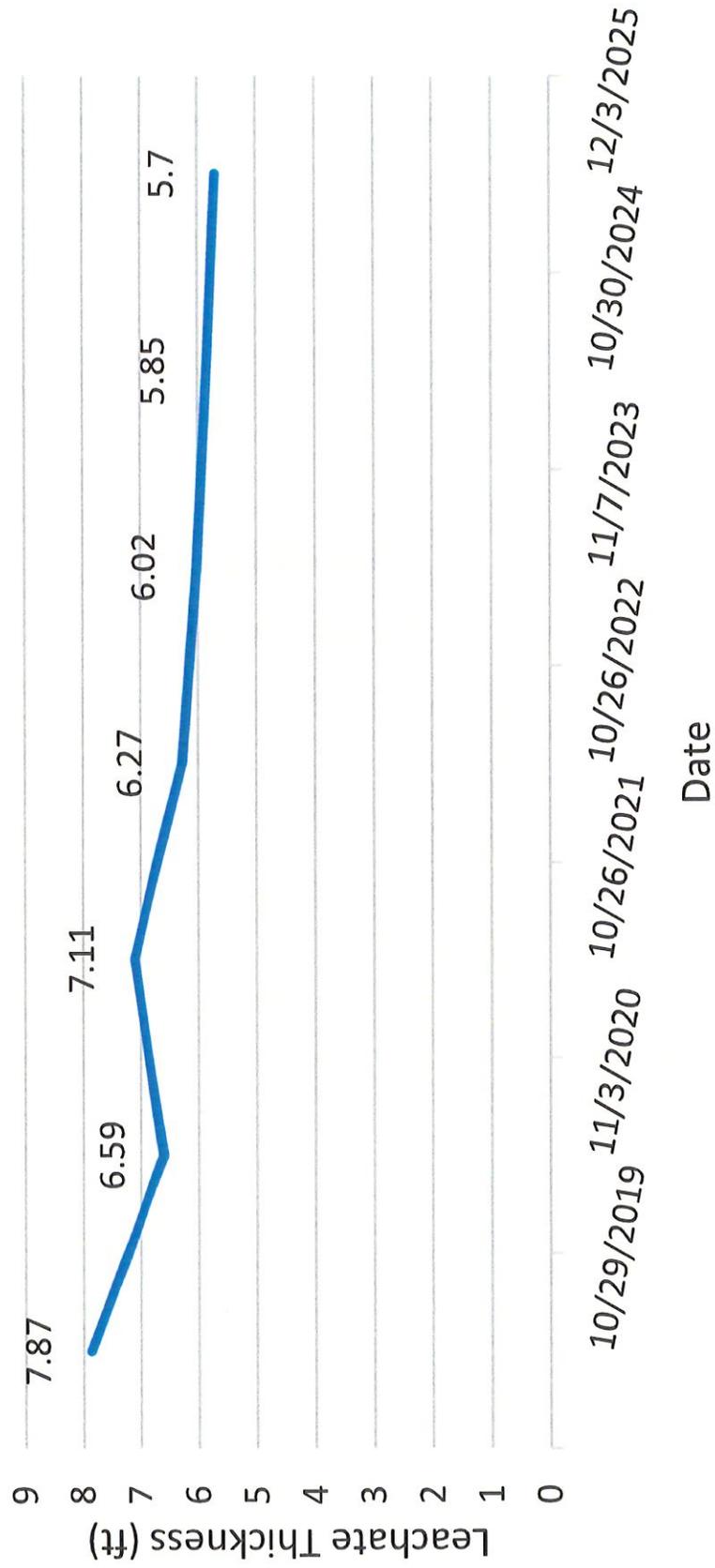
# P2 Leachate Thickness



# P3 Leachate Depth



# P3 Leachate Thickness



**Appendix 2**  
**Sampling Forms**

## GROUNDWATER SAMPLING AND/OR GROUNDWATER ELEVATION MEASUREMENT FORM

<b>Site Name</b> Roquette America - Landfill Keokuk	<b>Permit No.</b> 56-SDP-02-75C
<b>Monitoring Well/Piezometer No.</b> MW1	
<b>Upgradient</b> <input checked="" type="checkbox"/>	<b>Downgradient</b>
<b>Name of person sampling</b> William Sindelar	

A. MONITORING WELL/PIEZOMETER CONDITIONS	
<b>Well/Piezometer Properly Capped?</b> (please check)	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
If no, explain	
<b>Standing Water or Litter?</b> (please check)	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
If yes, explain	

B. GROUNDWATER ELEVATION MEASUREMENT (+ 0.01 foot, MSL)			
<b>Elevation:</b>			
<b>Top of inner well casing</b> 636.46	<b>Ground Elevation</b> 634.20		
<b>Depth of Well</b> 30.10	<b>Inside Casing Diameter (in inches)</b> <sup>2</sup>		
<b>Equipment Used</b> WLM Solonist			
Groundwater Level (+ 0.01 foot below top of inner casing, MSL):			
	Date/Time	Depth to Groundwater	Groundwater Elevation
<b>Before Purging</b>	12/03/2026 10:17	22.60	613.86
<b>*After Purging</b>	12/03/2026 10:27	29.46	607.00
<b>*Before Purging</b>	12/03/2026 10:17	22.60	613.86

*C. WELL PURGING	
<b>Quantity of Water Removed from Well (gallons)</b>	
<b>No. of Well Volumes (based on current water level)</b> <sup>3</sup>	
<b>Was well pumped/bailed dry?</b> <sup>Yes</sup>	
Equipment used:	
<b>Bailer type</b> Plastic	<b>Dedicated Bailer?</b> <sup>Yes</sup>
<b>Pump type</b>	<b>Dedicated Pump?</b>
<b>If not dedicated, method of cleaning</b>	

Please mail completed form to: Iowa Department of Natural Resources, Land Quality Bureau, 502 E. 9<sup>th</sup> St, Des Moines, IA 50319.  
 Questions? Call or Email: Nina Koger Environmental Engineer Sr., 515-725-8309, [nina.koger@dnr.iowa.gov](mailto:nina.koger@dnr.iowa.gov)



## GROUNDWATER SAMPLING AND/OR GROUNDWATER ELEVATION MEASUREMENT FORM

<b>Site Name</b> Roquette America - Landfill Keokuk	<b>Permit No.</b> 56-SDP-02-75C
<b>Monitoring Well/Piezometer No.</b> MW2	
<b>Upgradient</b>	<b>Downgradient</b> <input checked="" type="checkbox"/>
<b>Name of person sampling</b> William Sindelar	

A. MONITORING WELL/PIEZOMETER CONDITIONS	
<b>Well/Piezometer Properly Capped?</b> (please check)	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
If no, explain	
<b>Standing Water or Litter?</b> (please check)	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
If yes, explain	

B. GROUNDWATER ELEVATION MEASUREMENT ( $\pm 0.01$ foot, MSL)			
Elevation:			
<b>Top of inner well casing</b> <sup>620.48</sup>	<b>Ground Elevation</b> <sup>619.45</sup>		
<b>Depth of Well</b> <sup>29.11</sup>	<b>Inside Casing Diameter (in inches)</b> <sup>2</sup>		
<b>Equipment Used</b> WLM Solonist			
Groundwater Level ( $\pm 0.01$ foot below top of inner casing, MSL):			
	Date/Time	Depth to Groundwater	Groundwater Elevation
<b>Before Purging</b>	12/03/2026 12:08	25.66	594.82
<b>*After Purging</b>	12/03/2026 12:18	29.11	591.37
<b>*Before Purging</b>	12/03/2026 12:08	25.66	594.82

*C. WELL PURGING	
<b>Quantity of Water Removed from Well (gallons)</b>	
<b>No. of Well Volumes (based on current water level)</b> <sup>3</sup>	
<b>Was well pumped/bailed dry?</b> <sup>No</sup>	
Equipment used:	
<b>Bailer type</b> Plastic	<b>Dedicated Bailer?</b> <sup>Yes</sup>
<b>Pump type</b>	<b>Dedicated Pump?</b>
If not dedicated, method of cleaning	

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 Questions? Call or Email: Nina Koger Environmental Engineer Sr., 515-725-8309, [nina.koger@dnr.iowa.gov](mailto:nina.koger@dnr.iowa.gov)



## GROUNDWATER SAMPLING AND/OR GROUNDWATER ELEVATION MEASUREMENT FORM

<b>Site Name</b> Roquette America - Landfill Keokuk	<b>Permit No.</b> 56-SDP-02-75C
<b>Monitoring Well/Piezometer No.</b> MW3	
<b>Upgradient</b>	<b>Downgradient</b> X
<b>Name of person sampling</b> William Sindelar	

A. MONITORING WELL/PIEZOMETER CONDITIONS	
<b>Well/Piezometer Properly Capped?</b> (please check)	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<b>If no, explain</b> Well pipe is heaving upward	
<b>Standing Water or Litter?</b> (please check)	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<b>If yes, explain</b>	

B. GROUNDWATER ELEVATION MEASUREMENT ( $\pm 0.01$ foot, MSL)			
<b>Elevation:</b>			
<b>Top of inner well casing</b> 590.62	<b>Ground Elevation</b> 588.70		
<b>Depth of Well</b> 41.21	<b>Inside Casing Diameter (in inches)</b> 2		
<b>Equipment Used</b> WLM Solonist			
Groundwater Level ( $\pm 0.01$ foot below top of inner casing, MSL):			
	Date/Time	Depth to Groundwater	Groundwater Elevation
<b>Before Purging</b>	12/03/2026 11:43	18.41	572.21
<b>*After Purging</b>	12/03/2026 11:53	37.43	553.19
<b>*Before Purging</b>	12/03/2026 11:43	18.41	572.21

*C. WELL PURGING	
<b>Quantity of Water Removed from Well (gallons)</b>	
<b>No. of Well Volumes (based on current water level)</b> 3	
<b>Was well pumped/bailed dry?</b> No	
Equipment used:	
<b>Bailer type</b> Plastic	<b>Dedicated Bailer?</b> Yes
<b>Pump type</b>	<b>Dedicated Pump?</b>
<b>If not dedicated, method of cleaning</b>	

Please mail completed form to: Iowa Department of Natural Resources, Land Quality Bureau, 502 E. 9<sup>th</sup> St, Des Moines, IA 50319.  
 Questions? Call or Email: Nina Koger Environmental Engineer Sr., 515-725-8309, [nina.koger@dnr.iowa.gov](mailto:nina.koger@dnr.iowa.gov)



## GROUNDWATER SAMPLING AND/OR GROUNDWATER ELEVATION MEASUREMENT FORM

<b>Site Name</b> Roquette America - Landfill Keokuk	<b>Permit No.</b> 56-SDP-02-75C
<b>Monitoring Well/Piezometer No.</b> MW4	
<b>Upgradient</b>	<b>Downgradient</b> <input checked="" type="checkbox"/>
<b>Name of person sampling</b> William Sindelar	

A. MONITORING WELL/PIEZOMETER CONDITIONS	
<b>Well/Piezometer Properly Capped?</b> (please check)	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
If no, explain	
<b>Standing Water or Litter?</b> (please check)	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
If yes, explain	

B. GROUNDWATER ELEVATION MEASUREMENT ( $\pm$ 0.01 foot, MSL)			
Elevation:			
<b>Top of inner well casing</b> 591.47	<b>Ground Elevation</b> 589.79		
<b>Depth of Well</b> 25.75	<b>Inside Casing Diameter (in inches)</b> <sup>2</sup>		
<b>Equipment Used</b> WLM Solonist			
Groundwater Level ( $\pm$ 0.01 foot below top of inner casing, MSL):			
	Date/Time	Depth to Groundwater	Groundwater Elevation
<b>Before Purging</b>	12/03/2026 10:45	8.24	583.23
<b>*After Purging</b>	12/03/2026 10:55	20.68	570.79
<b>*Before Purging</b>	12/03/2026 10:45	8.24	583.23

*C. WELL PURGING	
<b>Quantity of Water Removed from Well (gallons)</b>	
<b>No. of Well Volumes (based on current water level)</b> <sup>3</sup>	
<b>Was well pumped/bailed dry?</b> No	
Equipment used:	
<b>Bailer type</b> Plastic	<b>Dedicated Bailer?</b> Yes
<b>Pump type</b>	<b>Dedicated Pump?</b>
<b>If not dedicated, method of cleaning</b>	

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## GROUNDWATER SAMPLING AND/OR GROUNDWATER ELEVATION MEASUREMENT FORM

<b>Site Name</b> Roquette America - Landfill Keokuk	<b>Permit No.</b> 56-SDP-02-75C
<b>Monitoring Well/Piezometer No.</b> MW5	
<b>Upgradient</b>	<b>Downgradient</b> <input checked="" type="checkbox"/>
<b>Name of person sampling</b> William Sindelar	

A. MONITORING WELL/PIEZOMETER CONDITIONS	
<b>Well/Piezometer Properly Capped?</b> (please check)	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
If no, explain	
<b>Standing Water or Litter?</b> (please check)	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
If yes, explain	

B. GROUNDWATER ELEVATION MEASUREMENT ( $\pm$ 0.01 foot, MSL)			
<b>Elevation:</b>			
<b>Top of inner well casing</b> 593.15	<b>Ground Elevation</b> 592.14		
<b>Depth of Well</b> 22.15	<b>Inside Casing Diameter (in inches)</b> 2		
<b>Equipment Used</b> WLM Solonist			
Groundwater Level ( $\pm$ 0.01 foot below top of inner casing, MSL):			
	Date/Time	Depth to Groundwater	Groundwater Elevation
<b>Before Purging</b>	12/03/2026 11:04	12.12	581.03
<b>*After Purging</b>	12/03/2026 11:14	22.15	571.00
<b>*Before Purging</b>	12/03/2026 11:04	12.12	581.03

*C. WELL PURGING	
<b>Quantity of Water Removed from Well (gallons)</b>	
<b>No. of Well Volumes (based on current water level)</b> 3	
<b>Was well pumped/bailed dry?</b> Yes	
Equipment used:	
<b>Bailer type</b> Plastic	<b>Dedicated Bailer?</b> Yes
<b>Pump type</b>	<b>Dedicated Pump?</b>
<b>If not dedicated, method of cleaning</b>	

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## GROUNDWATER SAMPLING AND/OR GROUNDWATER ELEVATION MEASUREMENT FORM

<b>Site Name</b> Roquette America - Keokuk Landfill	<b>Permit No.</b> 56-SDP-02-75C
<b>Monitoring Well/Piezometer No.</b> P1	
<b>Upgradient</b>	<b>Downgradient</b> <sup>X</sup>
<b>Name of person sampling</b> William Sindelar	

A. MONITORING WELL/PIEZOMETER CONDITIONS	
<b>Well/Piezometer Properly Capped?</b> (please check)	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
If no, explain	
<b>Standing Water or Litter?</b> (please check)	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
If yes, explain	

B. GROUNDWATER ELEVATION MEASUREMENT (+ 0.01 foot, MSL)			
Elevation:			
<b>Top of inner well casing</b> 623.39	<b>Ground Elevation</b> 620.46		
<b>Depth of Well</b> 19.80	<b>Inside Casing Diameter (in inches)</b> <sup>2</sup>		
<b>Equipment Used</b> WLM Solonist			
Groundwater Level (+ 0.01 foot below top of inner casing, MSL):			
	Date/Time	Depth to Groundwater	Groundwater Elevation
<b>Before Purging</b>	12/03/2025    12:06	16.25	607.14
<b>*After Purging</b>			
<b>*Before Purging</b>			

*C. WELL PURGING	
<b>Quantity of Water Removed from Well (gallons)</b>	
<b>No. of Well Volumes (based on current water level)</b>	
<b>Was well pumped/bailed dry?</b>	
Equipment used:	
<b>Bailer type</b>	<b>Dedicated Bailer?</b>
<b>Pump type</b>	<b>Dedicated Pump?</b>
<b>If not dedicated, method of cleaning</b>	

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## GROUNDWATER SAMPLING AND/OR GROUNDWATER ELEVATION MEASUREMENT FORM

<b>Site Name</b> Roquette America - Keokuk Landfill	<b>Permit No.</b> 56-SDP-02-75C
<b>Monitoring Well/Piezometer No.</b> P2	
<b>Upgradient</b>	<b>Downgradient</b> <sup>X</sup>
<b>Name of person sampling</b> William Sindelar	

A. MONITORING WELL/PIEZOMETER CONDITIONS	
<b>Well/Piezometer Properly Capped?</b> (please check)	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
If no, explain	
<b>Standing Water or Litter?</b> (please check)	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
If yes, explain	

B. GROUNDWATER ELEVATION MEASUREMENT ( $\pm 0.01$ foot, MSL)			
Elevation:			
<b>Top of inner well casing</b> 624.68	<b>Ground Elevation</b> 621.02		
<b>Depth of Well</b> 38.70	<b>Inside Casing Diameter (in inches)</b> <sup>2</sup>		
<b>Equipment Used</b> WLM Solonist			
Groundwater Level ( $\pm 0.01$ foot below top of inner casing, MSL):			
	Date/Time	Depth to Groundwater	Groundwater Elevation
<b>Before Purging</b>	12/03/2025    11:29	12.06	612.62
<b>*After Purging</b>			
<b>*Before Purging</b>			

*C. WELL PURGING	
<b>Quantity of Water Removed from Well (gallons)</b>	
<b>No. of Well Volumes (based on current water level)</b>	
<b>Was well pumped/bailed dry?</b>	
Equipment used:	
<b>Bailer type</b>	<b>Dedicated Bailer?</b>
<b>Pump type</b>	<b>Dedicated Pump?</b>
<b>If not dedicated, method of cleaning</b>	

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## GROUNDWATER SAMPLING AND/OR GROUNDWATER ELEVATION MEASUREMENT FORM

<b>Site Name</b> Roquette America - Keokuk Landfill	<b>Permit No.</b> 56-SDP-02-75C
<b>Monitoring Well/Piezometer No.</b> P3	
<b>Upgradient</b>	<b>Downgradient</b> <sup>X</sup>
<b>Name of person sampling</b> William Sindelar	

A. MONITORING WELL/PIEZOMETER CONDITIONS	
<b>Well/Piezometer Properly Capped?</b> (please check)	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
If no, explain	
<b>Standing Water or Litter?</b> (please check)	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
If yes, explain	

B. GROUNDWATER ELEVATION MEASUREMENT ( $\pm$ 0.01 foot, MSL)			
Elevation:			
<b>Top of inner well casing</b> 624.94	<b>Ground Elevation</b> 622.94		
<b>Depth of Well</b> 15.96	<b>Inside Casing Diameter (in inches)</b> <sup>2</sup>		
<b>Equipment Used</b> WLM Solonist			
Groundwater Level ( $\pm$ 0.01 foot below top of inner casing, MSL):			
	<b>Date/Time</b>	<b>Depth to Groundwater</b>	<b>Groundwater Elevation</b>
<b>Before Purging</b>	12/03/2025 10:39	10.26	614.68
<b>*After Purging</b>			
<b>*Before Purging</b>			

*C. WELL PURGING	
<b>Quantity of Water Removed from Well (gallons)</b>	
<b>No. of Well Volumes (based on current water level)</b>	
<b>Was well pumped/bailed dry?</b>	
Equipment used:	
<b>Bailer type</b>	<b>Dedicated Bailer?</b>
<b>Pump type</b>	<b>Dedicated Pump?</b>
<b>If not dedicated, method of cleaning</b>	

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## SURFACE WATER SAMPLING FORM

<b>Site Name</b> Roquette America - Landfill Keokuk	<b>Permit No.</b> 56-SDP-02-75C
<b>Surface Monitoring Point No.</b> SW1	<b>Date/Time</b> 12/03/2025
<b>Name of person sampling</b> William Sindelar	

A. TYPE OF MONITORING POINT	
<input checked="" type="checkbox"/> <b>Stream</b>	<input type="checkbox"/> <b>Open Tile</b>
<input type="checkbox"/> <b>Road Ditch</b>	<input type="checkbox"/> <b>Tile with Riser</b>
<input type="checkbox"/> <b>Drainage Ditch</b>	<input type="checkbox"/> <b>Other (describe)</b>

B. PURPOSE OF MONITORING POINT	
<input checked="" type="checkbox"/> <b>Upstream</b>	<input type="checkbox"/> <b>Downstream</b>
<input type="checkbox"/> <b>Within Landfill</b>	<input type="checkbox"/> <b>Other (describe)</b>

C. MONITORING POINT CONDITIONS	
<b>General description/condition of monitoring point</b>	
Upstream Monitoring - Dry	Creek Dry
<b>Was monitoring point dry?</b> Yes	<b>Too little water to sample?</b>
<b>Was water flowing?</b>	<input type="checkbox"/> YES <input type="checkbox"/> NO
<b>If yes, estimate quantity</b>	<b>If yes, estimate depth</b>
<b>Was water discolored?</b>	<input type="checkbox"/> YES <input type="checkbox"/> NO
<b>If yes, describe</b>	
<b>Does water have odor?</b>	<input type="checkbox"/> YES <input type="checkbox"/> NO
<b>If yes, describe</b>	
<b>Was ground discolored?</b>	<input type="checkbox"/> YES <input type="checkbox"/> NO
<b>If yes, describe</b>	
<b>Litter present?</b>	<input type="checkbox"/> YES <input type="checkbox"/> NO
<b>If yes, describe</b>	

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## SURFACE WATER SAMPLING FORM

<b>Site Name</b> Roquette America - Keokuk Landfill	<b>Permit No.</b> 56-SDP-02-75C
<b>Surface Monitoring Point No.</b> SW2	<b>Date/Time</b> 12/03/25
<b>Name of person sampling</b> William Sindelar	

A. TYPE OF MONITORING POINT	
<input checked="" type="checkbox"/> <b>Stream</b>	<input type="checkbox"/> <b>Open Tile</b>
<input type="checkbox"/> <b>Road Ditch</b>	<input type="checkbox"/> <b>Tile with Riser</b>
<input type="checkbox"/> <b>Drainage Ditch</b>	<input type="checkbox"/> <b>Other (describe)</b>

B. PURPOSE OF MONITORING POINT	
<input type="checkbox"/> <b>Upstream</b>	<input checked="" type="checkbox"/> <b>Downstream</b>
<input type="checkbox"/> <b>Within Landfill</b>	<input type="checkbox"/> <b>Other (describe)</b>

C. MONITORING POINT CONDITIONS	
<b>General description/condition of monitoring point</b>	
Downstreat monitoring - Dry      Creek Bed Dry	
<b>Was monitoring point dry?</b> Yes	<b>Too little water to sample?</b>
<b>Was water flowing?</b>	<input type="checkbox"/> YES <input type="checkbox"/> NO
<b>If yes, estimate quantity</b>	<b>If yes, estimate depth</b>
<b>Was water discolored?</b>	<input type="checkbox"/> YES <input type="checkbox"/> NO
<b>If yes, describe</b>	
<b>Does water have odor?</b>	<input type="checkbox"/> YES <input type="checkbox"/> NO
<b>If yes, describe</b>	
<b>Was ground discolored?</b>	<input type="checkbox"/> YES <input type="checkbox"/> NO
<b>If yes, describe</b>	
<b>Litter present?</b>	<input type="checkbox"/> YES <input type="checkbox"/> NO
<b>If yes, describe</b>	

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**D. FIELD MEASUREMENT**

**Weather Conditions**

Field Measurements (after stabilization):

Temperature | Units

Equipment Used

**D. FIELD MEASUREMENT (continued)**

pH

Equipment Used

Specific Conditions | Units

Equipment Used

**Comments**

All downstream monitoring points were dry

**CERTIFICATION**

I certify under penalty of law I believe the information reported above is true, accurate and complete.

Signature *William Sindelar*

Date *12/03/25*

Telephone 563-332-8000

Fax 563-332-9465

Email [wsindelar@senecaco.com](mailto:wsindelar@senecaco.com)

**NOTE: Attach 8 1/2" x 11" site plan showing locations of all surface and groundwater monitoring points. One map per sampling round.**

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**Appendix B**  
**Laboratory Analytical Data**

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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Todd Felderman  
Seneca Companies  
7241 Gaines Street Court  
Davenport, Iowa 52806

Generated 12/18/2025 3:33:09 PM

## JOB DESCRIPTION

Roquette America Landfill  
6247600.2

## JOB NUMBER

310-321875-1

# Eurofins Cedar Falls

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

## Authorization



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12/18/2025 3:33:09 PM

Authorized for release by  
Charlotte Collins, Project Management Assistant I  
[Charlotte.Collins@et.eurofinsus.com](mailto:Charlotte.Collins@et.eurofinsus.com)  
(319)595-2025



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# Case Narrative

Client: Seneca Companies  
Project: Roquette America Landfill

Job ID: 310-321875-1

**Job ID: 310-321875-1**

**Eurofins Cedar Falls**

## Job Narrative 310-321875-1

The analytical test results presented in this report meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page, unless otherwise noted. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable. Regulated compliance samples (e.g. SDWA, NPDES) must comply with associated agency requirements/permits.

- Matrix-specific batch QC (e.g., MS, MSD, SD) may not be reported when insufficient sample volume is available or when site-specific QC samples are not submitted. In such cases, a Laboratory Control Sample Duplicate (LCSD) may be analyzed to provide precision data for the batch.
- For samples analyzed using surrogate and/or isotope dilution analytes, any recoveries falling outside of established acceptance criteria are re-prepared and/or re-analyzed to confirm results, unless the deviation is due to sample dilution or otherwise explained in the case narrative.

### Receipt

The samples were received on 12/5/2025 8:25 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were -0.3°C and 0.5°C.

### GC/MS VOA

Method 8260D: The continuing calibration verification (CCV) associated with batch 310-475656 recovered above the upper control limit for Vinyl chloride (26%D), Dichlorodifluoromethane (27%D), and Trichlorofluoromethane (35%D). The LCS associated with this CCV passed CCV criteria for the affected analytes; therefore, the data have been reported. The associated sample is:(CCV 310-475656/4).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

### HPLC/IC

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

### Metals

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

### General Chemistry

Method 9020B\_Calc: Breakthrough exceeded 10% for the following samples:MW2 (310-321875-2) and MW3 (310-321875-3).

Method 9020B\_Calc: Breakthrough exceeded 10% for the following samples:MW4 (310-321875-4).

Method SM5210B\_Calc: All the dilutions failed to deplete the method-required 2 mgO<sub>2</sub>/L for the following samples: MW1 (310-321875-1), MW2 (310-321875-2), MW3 (310-321875-3) and MW5 (310-321875-5). Only a "less than" result could be calculated from the least dilute preparation.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Eurofins Cedar Falls



# Sample Summary

Client: Seneca Companies  
Project/Site: Roquette America Landfill

Job ID: 310-321875-1  
SDG: 6247600.2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Sample Origin
310-321875-1	MW1	Water	12/03/25 14:00	12/05/25 08:25	Iowa
310-321875-2	MW2	Water	12/03/25 14:20	12/05/25 08:25	Iowa
310-321875-3	MW3	Water	12/03/25 14:40	12/05/25 08:25	Iowa
310-321875-4	MW4	Water	12/03/25 14:55	12/05/25 08:25	Iowa
310-321875-5	MW5	Water	12/03/25 15:20	12/05/25 08:25	Iowa
310-321875-6	Trip Blanks	Water	12/03/25 00:00	12/05/25 08:25	Iowa



# Client Sample Results

Client: Seneca Companies  
Project/Site: Roquette America Landfill

Job ID: 310-321875-1  
SDG: 6247600.2

**Client Sample ID: MW1**  
**Date Collected: 12/03/25 14:00**  
**Date Received: 12/05/25 08:25**

**Lab Sample ID: 310-321875-1**  
**Matrix: Water**

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			12/05/25 19:41	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			12/05/25 19:41	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			12/05/25 19:41	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			12/05/25 19:41	1
1,1-Dichloroethane	<1.00		1.00		ug/L			12/05/25 19:41	1
1,1-Dichloroethene	<2.00		2.00		ug/L			12/05/25 19:41	1
1,1-Dichloropropene	<1.00		1.00		ug/L			12/05/25 19:41	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			12/05/25 19:41	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			12/05/25 19:41	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			12/05/25 19:41	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			12/05/25 19:41	1
1,2-Dibromo-3-chloropropane	<5.00		5.00		ug/L			12/05/25 19:41	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			12/05/25 19:41	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			12/05/25 19:41	1
1,2-Dichloroethane	<1.00		1.00		ug/L			12/05/25 19:41	1
1,2-Dichloropropane	<1.00		1.00		ug/L			12/05/25 19:41	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			12/05/25 19:41	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			12/05/25 19:41	1
1,3-Dichloropropane	<1.00		1.00		ug/L			12/05/25 19:41	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			12/05/25 19:41	1
2,2-Dichloropropane	<4.00		4.00		ug/L			12/05/25 19:41	1
2-Butanone (MEK)	<10.0		10.0		ug/L			12/05/25 19:41	1
2-Chlorotoluene	<1.00		1.00		ug/L			12/05/25 19:41	1
4-Chlorotoluene	<1.00		1.00		ug/L			12/05/25 19:41	1
Acetone	<10.0		10.0		ug/L			12/05/25 19:41	1
Benzene	<0.500		0.500		ug/L			12/05/25 19:41	1
Bromobenzene	<1.00		1.00		ug/L			12/05/25 19:41	1
Bromochloromethane	<5.00		5.00		ug/L			12/05/25 19:41	1
Bromodichloromethane	<1.00		1.00		ug/L			12/05/25 19:41	1
Bromoform	<5.00		5.00		ug/L			12/05/25 19:41	1
Bromomethane	<4.00		4.00		ug/L			12/05/25 19:41	1
Carbon disulfide	<1.00		1.00		ug/L			12/05/25 19:41	1
Carbon tetrachloride	<2.00		2.00		ug/L			12/05/25 19:41	1
Chlorobenzene	<1.00		1.00		ug/L			12/05/25 19:41	1
Chlorodibromomethane	<5.00		5.00		ug/L			12/05/25 19:41	1
Chloroethane	<4.00		4.00		ug/L			12/05/25 19:41	1
Chloroform	<3.00		3.00		ug/L			12/05/25 19:41	1
Chloromethane	<3.00		3.00		ug/L			12/05/25 19:41	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			12/05/25 19:41	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			12/05/25 19:41	1
Dibromomethane	<1.00		1.00		ug/L			12/05/25 19:41	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			12/05/25 19:41	1
Ethylbenzene	<1.00		1.00		ug/L			12/05/25 19:41	1
Hexachlorobutadiene	<5.00		5.00		ug/L			12/05/25 19:41	1
Hexane	<1.00		1.00		ug/L			12/05/25 19:41	1
Isopropylbenzene	<1.00		1.00		ug/L			12/05/25 19:41	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			12/05/25 19:41	1
Methylene Chloride	<5.00		5.00		ug/L			12/05/25 19:41	1
Naphthalene	<5.00		5.00		ug/L			12/05/25 19:41	1



# Client Sample Results

Client: Seneca Companies  
Project/Site: Roquette America Landfill

Job ID: 310-321875-1  
SDG: 6247600.2

**Client Sample ID: MW1**

**Lab Sample ID: 310-321875-1**

**Date Collected: 12/03/25 14:00**

**Matrix: Water**

**Date Received: 12/05/25 08:25**

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
n-Butylbenzene	<1.00		1.00		ug/L			12/05/25 19:41	1
n-Propylbenzene	<1.00		1.00		ug/L			12/05/25 19:41	1
p-Isopropyltoluene	<1.00		1.00		ug/L			12/05/25 19:41	1
sec-Butylbenzene	<1.00		1.00		ug/L			12/05/25 19:41	1
Styrene	<1.00		1.00		ug/L			12/05/25 19:41	1
tert-Butylbenzene	<1.00		1.00		ug/L			12/05/25 19:41	1
Tetrachloroethene	<1.00		1.00		ug/L			12/05/25 19:41	1
Toluene	<1.00		1.00		ug/L			12/05/25 19:41	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			12/05/25 19:41	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			12/05/25 19:41	1
Trichloroethene	<1.00		1.00		ug/L			12/05/25 19:41	1
Trichlorofluoromethane	<4.00		4.00		ug/L			12/05/25 19:41	1
Vinyl chloride	<1.00		1.00		ug/L			12/05/25 19:41	1
Xylenes, Total	<3.00		3.00		ug/L			12/05/25 19:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	103		76 - 130					12/05/25 19:41	1
Toluene-d8 (Surr)	98		80 - 120					12/05/25 19:41	1
4-Bromofluorobenzene (Surr)	98		80 - 120					12/05/25 19:41	1

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	12.4		5.00		mg/L			12/08/25 13:19	5

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		12/08/25 08:00	12/12/25 19:26	1
Barium	0.382		0.00200		mg/L		12/08/25 08:00	12/12/25 19:26	1
Cadmium	<0.000200		0.000200		mg/L		12/08/25 08:00	12/12/25 19:26	1
Chromium	0.00511		0.00500		mg/L		12/08/25 08:00	12/12/25 19:26	1
Lead	0.00175		0.000500		mg/L		12/08/25 08:00	12/12/25 19:26	1
Selenium	<0.00500		0.00500		mg/L		12/08/25 08:00	12/12/25 19:26	1
Silver	<0.00100		0.00100		mg/L		12/08/25 08:00	12/12/25 19:26	1

**Method: SW846 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/08/25 12:55	12/10/25 09:41	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200	F1	0.200		mg/L			12/11/25 18:14	1
Phenols, Total (EPA 420.4)	<0.0200		0.0200		mg/L		12/09/25 09:22	12/09/25 20:05	1
Chemical Oxygen Demand (SM 5220D LL)	<5.00		5.00		mg/L			12/10/25 10:53	1
TOX Dup (SW846 9020B)	<30.0		30.0		ug/L			12/17/25 12:20	1
Total Suspended Solids (USGS I-3765-85)	406		15.0		mg/L			12/08/25 10:41	1
Biochemical Oxygen Demand (SM 5210B)	<6.00		6.00		mg/L			12/05/25 08:56	2

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# Client Sample Results

Client: Seneca Companies  
Project/Site: Roquette America Landfill

Job ID: 310-321875-1  
SDG: 6247600.2

**Client Sample ID: MW2**  
**Date Collected: 12/03/25 14:20**  
**Date Received: 12/05/25 08:25**

**Lab Sample ID: 310-321875-2**  
**Matrix: Water**

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			12/05/25 20:02	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			12/05/25 20:02	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			12/05/25 20:02	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			12/05/25 20:02	1
<b>1,1-Dichloroethane</b>	<b>2.04</b>		1.00		ug/L			12/05/25 20:02	1
1,1-Dichloroethene	<2.00		2.00		ug/L			12/05/25 20:02	1
1,1-Dichloropropene	<1.00		1.00		ug/L			12/05/25 20:02	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			12/05/25 20:02	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			12/05/25 20:02	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			12/05/25 20:02	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			12/05/25 20:02	1
1,2-Dibromo-3-chloropropane	<5.00		5.00		ug/L			12/05/25 20:02	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			12/05/25 20:02	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			12/05/25 20:02	1
1,2-Dichloroethane	<1.00		1.00		ug/L			12/05/25 20:02	1
1,2-Dichloropropane	<1.00		1.00		ug/L			12/05/25 20:02	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			12/05/25 20:02	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			12/05/25 20:02	1
1,3-Dichloropropane	<1.00		1.00		ug/L			12/05/25 20:02	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			12/05/25 20:02	1
2,2-Dichloropropane	<4.00		4.00		ug/L			12/05/25 20:02	1
2-Butanone (MEK)	<10.0		10.0		ug/L			12/05/25 20:02	1
<b>2-Chlorotoluene</b>	<b>16.5</b>		1.00		ug/L			12/05/25 20:02	1
4-Chlorotoluene	<1.00		1.00		ug/L			12/05/25 20:02	1
Acetone	<10.0		10.0		ug/L			12/05/25 20:02	1
<b>Benzene</b>	<b>1.28</b>		0.500		ug/L			12/05/25 20:02	1
Bromobenzene	<1.00		1.00		ug/L			12/05/25 20:02	1
Bromochloromethane	<5.00		5.00		ug/L			12/05/25 20:02	1
Bromodichloromethane	<1.00		1.00		ug/L			12/05/25 20:02	1
Bromoform	<5.00		5.00		ug/L			12/05/25 20:02	1
Bromomethane	<4.00		4.00		ug/L			12/05/25 20:02	1
Carbon disulfide	<1.00		1.00		ug/L			12/05/25 20:02	1
Carbon tetrachloride	<2.00		2.00		ug/L			12/05/25 20:02	1
<b>Chlorobenzene</b>	<b>4.40</b>		1.00		ug/L			12/05/25 20:02	1
Chlorodibromomethane	<5.00		5.00		ug/L			12/05/25 20:02	1
Chloroethane	<4.00		4.00		ug/L			12/05/25 20:02	1
Chloroform	<3.00		3.00		ug/L			12/05/25 20:02	1
Chloromethane	<3.00		3.00		ug/L			12/05/25 20:02	1
<b>cis-1,2-Dichloroethene</b>	<b>1.59</b>		1.00		ug/L			12/05/25 20:02	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			12/05/25 20:02	1
Dibromomethane	<1.00		1.00		ug/L			12/05/25 20:02	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			12/05/25 20:02	1
Ethylbenzene	<1.00		1.00		ug/L			12/05/25 20:02	1
Hexachlorobutadiene	<5.00		5.00		ug/L			12/05/25 20:02	1
Hexane	<1.00		1.00		ug/L			12/05/25 20:02	1
Isopropylbenzene	<1.00		1.00		ug/L			12/05/25 20:02	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			12/05/25 20:02	1
Methylene Chloride	<5.00		5.00		ug/L			12/05/25 20:02	1
Naphthalene	<5.00		5.00		ug/L			12/05/25 20:02	1

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# Client Sample Results

Client: Seneca Companies  
Project/Site: Roquette America Landfill

Job ID: 310-321875-1  
SDG: 6247600.2

**Client Sample ID: MW2**

**Lab Sample ID: 310-321875-2**

Date Collected: 12/03/25 14:20

Matrix: Water

Date Received: 12/05/25 08:25

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
n-Butylbenzene	<1.00		1.00		ug/L			12/05/25 20:02	1
n-Propylbenzene	<1.00		1.00		ug/L			12/05/25 20:02	1
p-Isopropyltoluene	<1.00		1.00		ug/L			12/05/25 20:02	1
sec-Butylbenzene	<1.00		1.00		ug/L			12/05/25 20:02	1
Styrene	<1.00		1.00		ug/L			12/05/25 20:02	1
tert-Butylbenzene	<1.00		1.00		ug/L			12/05/25 20:02	1
Tetrachloroethene	<1.00		1.00		ug/L			12/05/25 20:02	1
Toluene	<1.00		1.00		ug/L			12/05/25 20:02	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			12/05/25 20:02	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			12/05/25 20:02	1
Trichloroethene	<1.00		1.00		ug/L			12/05/25 20:02	1
Trichlorofluoromethane	<4.00		4.00		ug/L			12/05/25 20:02	1
Vinyl chloride	<1.00		1.00		ug/L			12/05/25 20:02	1
Xylenes, Total	<3.00		3.00		ug/L			12/05/25 20:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	101		76 - 130		12/05/25 20:02	1
Toluene-d8 (Surr)	99		80 - 120		12/05/25 20:02	1
4-Bromofluorobenzene (Surr)	96		80 - 120		12/05/25 20:02	1

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	85.8		5.00		mg/L			12/08/25 13:30	5

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00484		0.00200		mg/L		12/08/25 08:00	12/12/25 19:34	1
Barium	0.776		0.00200		mg/L		12/08/25 08:00	12/12/25 19:34	1
Cadmium	0.000890		0.000200		mg/L		12/08/25 08:00	12/12/25 19:34	1
Chromium	<0.00500		0.00500		mg/L		12/08/25 08:00	12/12/25 19:34	1
Lead	0.00511		0.000500		mg/L		12/08/25 08:00	12/12/25 19:34	1
Selenium	<0.00500		0.00500		mg/L		12/08/25 08:00	12/12/25 19:34	1
Silver	<0.00100		0.00100		mg/L		12/08/25 08:00	12/12/25 19:34	1

**Method: SW846 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/08/25 12:55	12/10/25 09:43	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200		mg/L			12/11/25 18:16	1
Phenols, Total (EPA 420.4)	<0.0200		0.0200		mg/L		12/09/25 09:22	12/09/25 20:05	1
Chemical Oxygen Demand (SM 5220D LL)	33.8		5.00		mg/L			12/10/25 10:53	1
TOX Dup (SW846 9020B)	97.0		30.0		ug/L			12/17/25 12:20	1
Total Suspended Solids (USGS I-3765-85)	550		30.0		mg/L			12/09/25 08:38	1
Biochemical Oxygen Demand (SM 5210B)	<12.0		12.0		mg/L			12/05/25 09:00	4

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# Client Sample Results

Client: Seneca Companies  
Project/Site: Roquette America Landfill

Job ID: 310-321875-1  
SDG: 6247600.2

**Client Sample ID: MW3**

**Lab Sample ID: 310-321875-3**

**Date Collected: 12/03/25 14:40**

**Matrix: Water**

**Date Received: 12/05/25 08:25**

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			12/05/25 20:24	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			12/05/25 20:24	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			12/05/25 20:24	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			12/05/25 20:24	1
1,1-Dichloroethane	<1.00		1.00		ug/L			12/05/25 20:24	1
1,1-Dichloroethene	<2.00		2.00		ug/L			12/05/25 20:24	1
1,1-Dichloropropene	<1.00		1.00		ug/L			12/05/25 20:24	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			12/05/25 20:24	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			12/05/25 20:24	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			12/05/25 20:24	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			12/05/25 20:24	1
1,2-Dibromo-3-chloropropane	<5.00		5.00		ug/L			12/05/25 20:24	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			12/05/25 20:24	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			12/05/25 20:24	1
1,2-Dichloroethane	<1.00		1.00		ug/L			12/05/25 20:24	1
1,2-Dichloropropane	<1.00		1.00		ug/L			12/05/25 20:24	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			12/05/25 20:24	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			12/05/25 20:24	1
1,3-Dichloropropane	<1.00		1.00		ug/L			12/05/25 20:24	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			12/05/25 20:24	1
2,2-Dichloropropane	<4.00		4.00		ug/L			12/05/25 20:24	1
2-Butanone (MEK)	<10.0		10.0		ug/L			12/05/25 20:24	1
<b>2-Chlorotoluene</b>	<b>1.11</b>		1.00		ug/L			12/05/25 20:24	1
4-Chlorotoluene	<1.00		1.00		ug/L			12/05/25 20:24	1
Acetone	<10.0		10.0		ug/L			12/05/25 20:24	1
Benzene	<0.500		0.500		ug/L			12/05/25 20:24	1
Bromobenzene	<1.00		1.00		ug/L			12/05/25 20:24	1
Bromochloromethane	<5.00		5.00		ug/L			12/05/25 20:24	1
Bromodichloromethane	<1.00		1.00		ug/L			12/05/25 20:24	1
Bromoform	<5.00		5.00		ug/L			12/05/25 20:24	1
Bromomethane	<4.00		4.00		ug/L			12/05/25 20:24	1
Carbon disulfide	<1.00		1.00		ug/L			12/05/25 20:24	1
Carbon tetrachloride	<2.00		2.00		ug/L			12/05/25 20:24	1
Chlorobenzene	<1.00		1.00		ug/L			12/05/25 20:24	1
Chlorodibromomethane	<5.00		5.00		ug/L			12/05/25 20:24	1
Chloroethane	<4.00		4.00		ug/L			12/05/25 20:24	1
Chloroform	<3.00		3.00		ug/L			12/05/25 20:24	1
Chloromethane	<3.00		3.00		ug/L			12/05/25 20:24	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			12/05/25 20:24	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			12/05/25 20:24	1
Dibromomethane	<1.00		1.00		ug/L			12/05/25 20:24	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			12/05/25 20:24	1
Ethylbenzene	<1.00		1.00		ug/L			12/05/25 20:24	1
Hexachlorobutadiene	<5.00		5.00		ug/L			12/05/25 20:24	1
Hexane	<1.00		1.00		ug/L			12/05/25 20:24	1
Isopropylbenzene	<1.00		1.00		ug/L			12/05/25 20:24	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			12/05/25 20:24	1
Methylene Chloride	<5.00		5.00		ug/L			12/05/25 20:24	1
Naphthalene	<5.00		5.00		ug/L			12/05/25 20:24	1

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# Client Sample Results

Client: Seneca Companies  
Project/Site: Roquette America Landfill

Job ID: 310-321875-1  
SDG: 6247600.2

**Client Sample ID: MW3**

**Lab Sample ID: 310-321875-3**

**Date Collected: 12/03/25 14:40**

**Matrix: Water**

**Date Received: 12/05/25 08:25**

### Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
n-Butylbenzene	<1.00		1.00		ug/L			12/05/25 20:24	1
n-Propylbenzene	<1.00		1.00		ug/L			12/05/25 20:24	1
p-Isopropyltoluene	<1.00		1.00		ug/L			12/05/25 20:24	1
sec-Butylbenzene	<1.00		1.00		ug/L			12/05/25 20:24	1
Styrene	<1.00		1.00		ug/L			12/05/25 20:24	1
tert-Butylbenzene	<1.00		1.00		ug/L			12/05/25 20:24	1
Tetrachloroethene	<1.00		1.00		ug/L			12/05/25 20:24	1
Toluene	<1.00		1.00		ug/L			12/05/25 20:24	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			12/05/25 20:24	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			12/05/25 20:24	1
Trichloroethene	<1.00		1.00		ug/L			12/05/25 20:24	1
Trichlorofluoromethane	<4.00		4.00		ug/L			12/05/25 20:24	1
Vinyl chloride	<1.00		1.00		ug/L			12/05/25 20:24	1
Xylenes, Total	<3.00		3.00		ug/L			12/05/25 20:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	100		76 - 130					12/05/25 20:24	1
Toluene-d8 (Surr)	102		80 - 120					12/05/25 20:24	1
4-Bromofluorobenzene (Surr)	98		80 - 120					12/05/25 20:24	1

### Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	195		5.00		mg/L			12/08/25 13:42	5

### Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00437		0.00200		mg/L		12/08/25 08:00	12/12/25 19:36	1
Barium	0.0234		0.00200		mg/L		12/08/25 08:00	12/12/25 19:36	1
Cadmium	0.00280		0.000200		mg/L		12/08/25 08:00	12/12/25 19:36	1
Chromium	<0.00500		0.00500		mg/L		12/08/25 08:00	12/12/25 19:36	1
Lead	0.0151		0.000500		mg/L		12/08/25 08:00	12/12/25 19:36	1
Selenium	<0.00500		0.00500		mg/L		12/08/25 08:00	12/12/25 19:36	1
Silver	<0.00100		0.00100		mg/L		12/08/25 08:00	12/12/25 19:36	1

### Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/08/25 12:55	12/10/25 09:46	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200		mg/L			12/11/25 18:17	1
Phenols, Total (EPA 420.4)	<0.0200		0.0200		mg/L		12/09/25 09:22	12/09/25 20:06	1
Chemical Oxygen Demand (SM 5220D LL)	118		5.00		mg/L			12/10/25 10:53	1
TOX Dup (SW846 9020B)	123		30.0		ug/L			12/17/25 12:20	1
Total Suspended Solids (USGS I-3765-85)	2360		150		mg/L			12/08/25 10:41	1
Biochemical Oxygen Demand (SM 5210B)	<12.0		12.0		mg/L			12/05/25 09:05	4

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# Client Sample Results

Client: Seneca Companies  
 Project/Site: Roquette America Landfill

Job ID: 310-321875-1  
 SDG: 6247600.2

**Client Sample ID: MW4**

**Lab Sample ID: 310-321875-4**

**Date Collected: 12/03/25 14:55**

**Matrix: Water**

**Date Received: 12/05/25 08:25**

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			12/05/25 20:46	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			12/05/25 20:46	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			12/05/25 20:46	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			12/05/25 20:46	1
1,1-Dichloroethane	<1.00		1.00		ug/L			12/05/25 20:46	1
1,1-Dichloroethene	<2.00		2.00		ug/L			12/05/25 20:46	1
1,1-Dichloropropene	<1.00		1.00		ug/L			12/05/25 20:46	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			12/05/25 20:46	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			12/05/25 20:46	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			12/05/25 20:46	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			12/05/25 20:46	1
1,2-Dibromo-3-chloropropane	<5.00		5.00		ug/L			12/05/25 20:46	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			12/05/25 20:46	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			12/05/25 20:46	1
1,2-Dichloroethane	<1.00		1.00		ug/L			12/05/25 20:46	1
1,2-Dichloropropane	<1.00		1.00		ug/L			12/05/25 20:46	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			12/05/25 20:46	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			12/05/25 20:46	1
1,3-Dichloropropane	<1.00		1.00		ug/L			12/05/25 20:46	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			12/05/25 20:46	1
2,2-Dichloropropane	<4.00		4.00		ug/L			12/05/25 20:46	1
2-Butanone (MEK)	<10.0		10.0		ug/L			12/05/25 20:46	1
2-Chlorotoluene	<1.00		1.00		ug/L			12/05/25 20:46	1
4-Chlorotoluene	<1.00		1.00		ug/L			12/05/25 20:46	1
Acetone	<10.0		10.0		ug/L			12/05/25 20:46	1
<b>Benzene</b>	<b>1.01</b>		0.500		ug/L			12/05/25 20:46	1
Bromobenzene	<1.00		1.00		ug/L			12/05/25 20:46	1
Bromochloromethane	<5.00		5.00		ug/L			12/05/25 20:46	1
Bromodichloromethane	<1.00		1.00		ug/L			12/05/25 20:46	1
Bromoform	<5.00		5.00		ug/L			12/05/25 20:46	1
Bromomethane	<4.00		4.00		ug/L			12/05/25 20:46	1
Carbon disulfide	<1.00		1.00		ug/L			12/05/25 20:46	1
Carbon tetrachloride	<2.00		2.00		ug/L			12/05/25 20:46	1
Chlorobenzene	<1.00		1.00		ug/L			12/05/25 20:46	1
Chlorodibromomethane	<5.00		5.00		ug/L			12/05/25 20:46	1
<b>Chloroethane</b>	<b>4.68</b>		4.00		ug/L			12/05/25 20:46	1
Chloroform	<3.00		3.00		ug/L			12/05/25 20:46	1
Chloromethane	<3.00		3.00		ug/L			12/05/25 20:46	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			12/05/25 20:46	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			12/05/25 20:46	1
Dibromomethane	<1.00		1.00		ug/L			12/05/25 20:46	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			12/05/25 20:46	1
Ethylbenzene	<1.00		1.00		ug/L			12/05/25 20:46	1
Hexachlorobutadiene	<5.00		5.00		ug/L			12/05/25 20:46	1
Hexane	<1.00		1.00		ug/L			12/05/25 20:46	1
<b>Isopropylbenzene</b>	<b>11.0</b>		1.00		ug/L			12/05/25 20:46	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			12/05/25 20:46	1
Methylene Chloride	<5.00		5.00		ug/L			12/05/25 20:46	1
Naphthalene	<5.00		5.00		ug/L			12/05/25 20:46	1



# Client Sample Results

Client: Seneca Companies  
Project/Site: Roquette America Landfill

Job ID: 310-321875-1  
SDG: 6247600.2

**Client Sample ID: MW4**

**Lab Sample ID: 310-321875-4**

Date Collected: 12/03/25 14:55

Matrix: Water

Date Received: 12/05/25 08:25

### Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
n-Butylbenzene	<1.00		1.00		ug/L			12/05/25 20:46	1
n-Propylbenzene	<1.00		1.00		ug/L			12/05/25 20:46	1
p-Isopropyltoluene	<1.00		1.00		ug/L			12/05/25 20:46	1
sec-Butylbenzene	<1.00		1.00		ug/L			12/05/25 20:46	1
Styrene	<1.00		1.00		ug/L			12/05/25 20:46	1
tert-Butylbenzene	<1.00		1.00		ug/L			12/05/25 20:46	1
Tetrachloroethene	<1.00		1.00		ug/L			12/05/25 20:46	1
Toluene	<1.00		1.00		ug/L			12/05/25 20:46	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			12/05/25 20:46	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			12/05/25 20:46	1
Trichloroethene	<1.00		1.00		ug/L			12/05/25 20:46	1
Trichlorofluoromethane	<4.00		4.00		ug/L			12/05/25 20:46	1
Vinyl chloride	<1.00		1.00		ug/L			12/05/25 20:46	1
Xylenes, Total	<3.00		3.00		ug/L			12/05/25 20:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	101		76 - 130		12/05/25 20:46	1
Toluene-d8 (Surr)	101		80 - 120		12/05/25 20:46	1
4-Bromofluorobenzene (Surr)	101		80 - 120		12/05/25 20:46	1

### Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	182		5.00		mg/L			12/08/25 13:53	5

### Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0156		0.00200		mg/L		12/08/25 08:00	12/12/25 19:42	1
Barium	0.540		0.00200		mg/L		12/08/25 08:00	12/12/25 19:42	1
Cadmium	<0.000200		0.000200		mg/L		12/08/25 08:00	12/12/25 19:42	1
Chromium	<0.00500		0.00500		mg/L		12/08/25 08:00	12/12/25 19:42	1
Lead	0.000611		0.000500		mg/L		12/08/25 08:00	12/12/25 19:42	1
Selenium	<0.00500		0.00500		mg/L		12/08/25 08:00	12/12/25 19:42	1
Silver	<0.00100		0.00100		mg/L		12/08/25 08:00	12/12/25 19:42	1

### Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/08/25 12:55	12/10/25 09:52	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	1.83		0.200		mg/L			12/11/25 18:17	1
Phenols, Total (EPA 420.4)	<0.0216		0.0216		mg/L		12/09/25 09:22	12/09/25 20:06	1
Chemical Oxygen Demand (SM 5220D LL)	233		50.0		mg/L			12/11/25 13:43	10
TOX Dup (SW846 9020B)	71.6		30.0		ug/L			12/17/25 11:50	1
Total Suspended Solids (USGS I-3765-85)	1030		150		mg/L			12/08/25 10:41	1
Biochemical Oxygen Demand (SM 5210B)	15.8		3.00		mg/L			12/05/25 09:10	1

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# Client Sample Results

Client: Seneca Companies  
 Project/Site: Roquette America Landfill

Job ID: 310-321875-1  
 SDG: 6247600.2

**Client Sample ID: MW5**  
**Date Collected: 12/03/25 15:20**  
**Date Received: 12/05/25 08:25**

**Lab Sample ID: 310-321875-5**  
**Matrix: Water**

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			12/09/25 01:41	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			12/09/25 01:41	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			12/09/25 01:41	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			12/09/25 01:41	1
1,1-Dichloroethane	<1.00		1.00		ug/L			12/09/25 01:41	1
1,1-Dichloroethene	<2.00		2.00		ug/L			12/09/25 01:41	1
1,1-Dichloropropene	<1.00		1.00		ug/L			12/09/25 01:41	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			12/09/25 01:41	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			12/09/25 01:41	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			12/09/25 01:41	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			12/09/25 01:41	1
1,2-Dibromo-3-chloropropane	<5.00		5.00		ug/L			12/09/25 01:41	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			12/09/25 01:41	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			12/09/25 01:41	1
1,2-Dichloroethane	<1.00		1.00		ug/L			12/09/25 01:41	1
1,2-Dichloropropane	<1.00		1.00		ug/L			12/09/25 01:41	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			12/09/25 01:41	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			12/09/25 01:41	1
1,3-Dichloropropane	<1.00		1.00		ug/L			12/09/25 01:41	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			12/09/25 01:41	1
2,2-Dichloropropane	<4.00		4.00		ug/L			12/09/25 01:41	1
2-Butanone (MEK)	<10.0		10.0		ug/L			12/09/25 01:41	1
2-Chlorotoluene	<1.00		1.00		ug/L			12/09/25 01:41	1
4-Chlorotoluene	<1.00		1.00		ug/L			12/09/25 01:41	1
Acetone	<10.0		10.0		ug/L			12/09/25 01:41	1
Benzene	<0.500		0.500		ug/L			12/09/25 01:41	1
Bromobenzene	<1.00		1.00		ug/L			12/09/25 01:41	1
Bromochloromethane	<5.00		5.00		ug/L			12/09/25 01:41	1
Bromodichloromethane	<1.00		1.00		ug/L			12/09/25 01:41	1
Bromoform	<5.00		5.00		ug/L			12/09/25 01:41	1
Bromomethane	<4.00		4.00		ug/L			12/09/25 01:41	1
Carbon disulfide	<1.00		1.00		ug/L			12/09/25 01:41	1
Carbon tetrachloride	<2.00		2.00		ug/L			12/09/25 01:41	1
Chlorobenzene	<1.00		1.00		ug/L			12/09/25 01:41	1
Chlorodibromomethane	<5.00		5.00		ug/L			12/09/25 01:41	1
Chloroethane	<4.00		4.00		ug/L			12/09/25 01:41	1
Chloroform	<3.00		3.00		ug/L			12/09/25 01:41	1
Chloromethane	<3.00		3.00		ug/L			12/09/25 01:41	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			12/09/25 01:41	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			12/09/25 01:41	1
Dibromomethane	<1.00		1.00		ug/L			12/09/25 01:41	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			12/09/25 01:41	1
Ethylbenzene	<1.00		1.00		ug/L			12/09/25 01:41	1
Hexachlorobutadiene	<5.00		5.00		ug/L			12/09/25 01:41	1
Hexane	<1.00		1.00		ug/L			12/09/25 01:41	1
Isopropylbenzene	<1.00		1.00		ug/L			12/09/25 01:41	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			12/09/25 01:41	1
Methylene Chloride	<5.00		5.00		ug/L			12/09/25 01:41	1
Naphthalene	<5.00		5.00		ug/L			12/09/25 01:41	1

Eurofins Cedar Falls



# Client Sample Results

Client: Seneca Companies  
Project/Site: Roquette America Landfill

Job ID: 310-321875-1  
SDG: 6247600.2

**Client Sample ID: MW5**  
**Date Collected: 12/03/25 15:20**  
**Date Received: 12/05/25 08:25**

**Lab Sample ID: 310-321875-5**  
**Matrix: Water**

### Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
n-Butylbenzene	<1.00		1.00		ug/L			12/09/25 01:41	1
n-Propylbenzene	<1.00		1.00		ug/L			12/09/25 01:41	1
p-Isopropyltoluene	<1.00		1.00		ug/L			12/09/25 01:41	1
sec-Butylbenzene	<1.00		1.00		ug/L			12/09/25 01:41	1
Styrene	<1.00		1.00		ug/L			12/09/25 01:41	1
tert-Butylbenzene	<1.00		1.00		ug/L			12/09/25 01:41	1
Tetrachloroethene	<1.00		1.00		ug/L			12/09/25 01:41	1
Toluene	<1.00		1.00		ug/L			12/09/25 01:41	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			12/09/25 01:41	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			12/09/25 01:41	1
Trichloroethene	<1.00		1.00		ug/L			12/09/25 01:41	1
Trichlorofluoromethane	<4.00		4.00		ug/L			12/09/25 01:41	1
Vinyl chloride	<1.00		1.00		ug/L			12/09/25 01:41	1
Xylenes, Total	<3.00		3.00		ug/L			12/09/25 01:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	111		76 - 130		12/09/25 01:41	1
Toluene-d8 (Surr)	91		80 - 120		12/09/25 01:41	1
4-Bromofluorobenzene (Surr)	103		80 - 120		12/09/25 01:41	1

### Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	106		5.00		mg/L			12/08/25 14:05	5

### Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00257		0.00200		mg/L		12/08/25 08:00	12/12/25 19:44	1
Barium	0.0335		0.00200		mg/L		12/08/25 08:00	12/12/25 19:44	1
Cadmium	0.00154		0.000200		mg/L		12/08/25 08:00	12/12/25 19:44	1
Chromium	<0.00500		0.00500		mg/L		12/08/25 08:00	12/12/25 19:44	1
Lead	0.00158		0.000500		mg/L		12/08/25 08:00	12/12/25 19:44	1
Selenium	<0.00500		0.00500		mg/L		12/08/25 08:00	12/12/25 19:44	1
Silver	<0.00100		0.00100		mg/L		12/08/25 08:00	12/12/25 19:44	1

### Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000209		0.000200		mg/L		12/08/25 12:55	12/10/25 09:54	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200		mg/L			12/11/25 18:19	1
Phenols, Total (EPA 420.4)	<0.0200		0.0200		mg/L		12/09/25 09:22	12/09/25 20:07	1
Chemical Oxygen Demand (SM 5220D LL)	17.1		5.00		mg/L			12/10/25 10:53	1
TOX Dup (SW846 9020B)	<30.0		30.0		ug/L			12/18/25 11:17	1
Total Suspended Solids (USGS 1-3765-85)	1560		30.0		mg/L			12/08/25 10:41	1
Biochemical Oxygen Demand (SM 5210B)	<12.0		12.0		mg/L			12/05/25 09:14	4

Eurofins Cedar Falls

# Client Sample Results

Client: Seneca Companies  
Project/Site: Roquette America Landfill

Job ID: 310-321875-1  
SDG: 6247600.2

**Client Sample ID: Trip Blanks**

**Lab Sample ID: 310-321875-6**

**Date Collected: 12/03/25 00:00**

**Matrix: Water**

**Date Received: 12/05/25 08:25**

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			12/08/25 23:26	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			12/08/25 23:26	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			12/08/25 23:26	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			12/08/25 23:26	1
1,1-Dichloroethane	<1.00		1.00		ug/L			12/08/25 23:26	1
1,1-Dichloroethene	<2.00		2.00		ug/L			12/08/25 23:26	1
1,1-Dichloropropene	<1.00		1.00		ug/L			12/08/25 23:26	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			12/08/25 23:26	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			12/08/25 23:26	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			12/08/25 23:26	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			12/08/25 23:26	1
1,2-Dibromo-3-chloropropane	<5.00		5.00		ug/L			12/08/25 23:26	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			12/08/25 23:26	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			12/08/25 23:26	1
1,2-Dichloroethane	<1.00		1.00		ug/L			12/08/25 23:26	1
1,2-Dichloropropane	<1.00		1.00		ug/L			12/08/25 23:26	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			12/08/25 23:26	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			12/08/25 23:26	1
1,3-Dichloropropane	<1.00		1.00		ug/L			12/08/25 23:26	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			12/08/25 23:26	1
2,2-Dichloropropane	<4.00		4.00		ug/L			12/08/25 23:26	1
2-Butanone (MEK)	<10.0		10.0		ug/L			12/08/25 23:26	1
2-Chlorotoluene	<1.00		1.00		ug/L			12/08/25 23:26	1
4-Chlorotoluene	<1.00		1.00		ug/L			12/08/25 23:26	1
Acetone	<10.0		10.0		ug/L			12/08/25 23:26	1
Benzene	<0.500		0.500		ug/L			12/08/25 23:26	1
Bromobenzene	<1.00		1.00		ug/L			12/08/25 23:26	1
Bromochloromethane	<5.00		5.00		ug/L			12/08/25 23:26	1
Bromodichloromethane	<1.00		1.00		ug/L			12/08/25 23:26	1
Bromoform	<5.00		5.00		ug/L			12/08/25 23:26	1
Bromomethane	<4.00		4.00		ug/L			12/08/25 23:26	1
Carbon disulfide	<1.00		1.00		ug/L			12/08/25 23:26	1
Carbon tetrachloride	<2.00		2.00		ug/L			12/08/25 23:26	1
Chlorobenzene	<1.00		1.00		ug/L			12/08/25 23:26	1
Chlorodibromomethane	<5.00		5.00		ug/L			12/08/25 23:26	1
Chloroethane	<4.00		4.00		ug/L			12/08/25 23:26	1
Chloroform	<3.00		3.00		ug/L			12/08/25 23:26	1
Chloromethane	<3.00		3.00		ug/L			12/08/25 23:26	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			12/08/25 23:26	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			12/08/25 23:26	1
Dibromomethane	<1.00		1.00		ug/L			12/08/25 23:26	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			12/08/25 23:26	1
Ethylbenzene	<1.00		1.00		ug/L			12/08/25 23:26	1
Hexachlorobutadiene	<5.00		5.00		ug/L			12/08/25 23:26	1
Hexane	<1.00		1.00		ug/L			12/08/25 23:26	1
Isopropylbenzene	<1.00		1.00		ug/L			12/08/25 23:26	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			12/08/25 23:26	1
Methylene Chloride	<5.00		5.00		ug/L			12/08/25 23:26	1
Naphthalene	<5.00		5.00		ug/L			12/08/25 23:26	1

Eurofins Cedar Falls



# Client Sample Results

Client: Seneca Companies  
 Project/Site: Roquette America Landfill

Job ID: 310-321875-1  
 SDG: 6247600.2

**Client Sample ID: Trip Blanks**

**Lab Sample ID: 310-321875-6**

**Date Collected: 12/03/25 00:00**

**Matrix: Water**

**Date Received: 12/05/25 08:25**

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
n-Butylbenzene	<1.00		1.00		ug/L			12/08/25 23:26	1
n-Propylbenzene	<1.00		1.00		ug/L			12/08/25 23:26	1
p-Isopropyltoluene	<1.00		1.00		ug/L			12/08/25 23:26	1
sec-Butylbenzene	<1.00		1.00		ug/L			12/08/25 23:26	1
Styrene	<1.00		1.00		ug/L			12/08/25 23:26	1
tert-Butylbenzene	<1.00		1.00		ug/L			12/08/25 23:26	1
Tetrachloroethene	<1.00		1.00		ug/L			12/08/25 23:26	1
Toluene	<1.00		1.00		ug/L			12/08/25 23:26	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			12/08/25 23:26	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			12/08/25 23:26	1
Trichloroethene	<1.00		1.00		ug/L			12/08/25 23:26	1
Trichlorofluoromethane	<4.00		4.00		ug/L			12/08/25 23:26	1
Vinyl chloride	<1.00		1.00		ug/L			12/08/25 23:26	1
Xylenes, Total	<3.00		3.00		ug/L			12/08/25 23:26	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Dibromofluoromethane (Surr)	106		76 - 130					12/08/25 23:26	1
Toluene-d8 (Surr)	88		80 - 120					12/08/25 23:26	1
4-Bromofluorobenzene (Surr)	105		80 - 120					12/08/25 23:26	1

# Lab Chronicle

Client: Seneca Companies  
Project/Site: Roquette America Landfill

Job ID: 310-321875-1  
SDG: 6247600.2

**Client Sample ID: MW1**  
**Date Collected: 12/03/25 14:00**  
**Date Received: 12/05/25 08:25**

**Lab Sample ID: 310-321875-1**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	475656	WSE8	EET CF	12/05/25 19:41
Total/NA	Analysis	9056A		5	475935	HE7K	EET CF	12/08/25 13:19
Total/NA	Prep	3005A			475700	RLT9	EET CF	12/08/25 08:00
Total/NA	Analysis	6020B		1	476385	ZRI4	EET CF	12/12/25 19:26
Total/NA	Prep	7470A			475772	RLT9	EET CF	12/08/25 12:55
Total/NA	Analysis	7470A		1	476080	RLT9	EET CF	12/10/25 09:41
Total/NA	Analysis	350.1		1	476238	ZJX4	EET CF	12/11/25 18:14
Total/NA	Prep	Distill/Phenol			475893	ENB7	EET CF	12/09/25 09:22
Total/NA	Analysis	420.4		1	475976	ZJX4	EET CF	12/09/25 20:05
Total/NA	Analysis	5220D LL		1	476051	ENB7	EET CF	12/10/25 10:53
Total/NA	Analysis	9020B		1	727356	CAI	EET DEN	12/17/25 12:20
Total/NA	Analysis	I-3765-85		1	475776	DGU1	EET CF	12/08/25 10:41
Total/NA	Analysis	SM 5210B		2	475614	W9YR	EET CF	12/05/25 08:56

**Client Sample ID: MW2**  
**Date Collected: 12/03/25 14:20**  
**Date Received: 12/05/25 08:25**

**Lab Sample ID: 310-321875-2**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	475656	WSE8	EET CF	12/05/25 20:02
Total/NA	Analysis	9056A		5	475935	HE7K	EET CF	12/08/25 13:30
Total/NA	Prep	3005A			475700	RLT9	EET CF	12/08/25 08:00
Total/NA	Analysis	6020B		1	476385	ZRI4	EET CF	12/12/25 19:34
Total/NA	Prep	7470A			475772	RLT9	EET CF	12/08/25 12:55
Total/NA	Analysis	7470A		1	476080	RLT9	EET CF	12/10/25 09:43
Total/NA	Analysis	350.1		1	476238	ZJX4	EET CF	12/11/25 18:16
Total/NA	Prep	Distill/Phenol			475893	ENB7	EET CF	12/09/25 09:22
Total/NA	Analysis	420.4		1	475976	ZJX4	EET CF	12/09/25 20:05
Total/NA	Analysis	5220D LL		1	476051	ENB7	EET CF	12/10/25 10:53
Total/NA	Analysis	9020B		1	727356	CAI	EET DEN	12/17/25 12:20
Total/NA	Analysis	I-3765-85		1	475878	DGU1	EET CF	12/09/25 08:38
Total/NA	Analysis	SM 5210B		4	475614	W9YR	EET CF	12/05/25 09:00

**Client Sample ID: MW3**  
**Date Collected: 12/03/25 14:40**  
**Date Received: 12/05/25 08:25**

**Lab Sample ID: 310-321875-3**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	475656	WSE8	EET CF	12/05/25 20:24
Total/NA	Analysis	9056A		5	475935	HE7K	EET CF	12/08/25 13:42
Total/NA	Prep	3005A			475700	RLT9	EET CF	12/08/25 08:00
Total/NA	Analysis	6020B		1	476385	ZRI4	EET CF	12/12/25 19:36



# Lab Chronicle

Client: Seneca Companies  
 Project/Site: Roquette America Landfill

Job ID: 310-321875-1  
 SDG: 6247600.2

## Client Sample ID: MW3

## Lab Sample ID: 310-321875-3

Date Collected: 12/03/25 14:40

Matrix: Water

Date Received: 12/05/25 08:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	7470A			475772	RLT9	EET CF	12/08/25 12:55
Total/NA	Analysis	7470A		1	476080	RLT9	EET CF	12/10/25 09:46
Total/NA	Analysis	350.1		1	476238	ZJX4	EET CF	12/11/25 18:17
Total/NA	Prep	Distill/Phenol			475893	ENB7	EET CF	12/09/25 09:22
Total/NA	Analysis	420.4		1	475976	ZJX4	EET CF	12/09/25 20:06
Total/NA	Analysis	5220D LL		1	476051	ENB7	EET CF	12/10/25 10:53
Total/NA	Analysis	9020B		1	727356	CAI	EET DEN	12/17/25 12:20
Total/NA	Analysis	I-3765-85		1	475776	DGU1	EET CF	12/08/25 10:41
Total/NA	Analysis	SM 5210B		4	475614	W9YR	EET CF	12/05/25 09:05

## Client Sample ID: MW4

## Lab Sample ID: 310-321875-4

Date Collected: 12/03/25 14:55

Matrix: Water

Date Received: 12/05/25 08:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	475656	WSE8	EET CF	12/05/25 20:46
Total/NA	Analysis	9056A		5	475935	HE7K	EET CF	12/08/25 13:53
Total/NA	Prep	3005A			475700	RLT9	EET CF	12/08/25 08:00
Total/NA	Analysis	6020B		1	476385	ZRI4	EET CF	12/12/25 19:42
Total/NA	Prep	7470A			475772	RLT9	EET CF	12/08/25 12:55
Total/NA	Analysis	7470A		1	476080	RLT9	EET CF	12/10/25 09:52
Total/NA	Analysis	350.1		1	476238	ZJX4	EET CF	12/11/25 18:17
Total/NA	Prep	Distill/Phenol			475893	ENB7	EET CF	12/09/25 09:22
Total/NA	Analysis	420.4		1	475976	ZJX4	EET CF	12/09/25 20:06
Total/NA	Analysis	5220D LL		10	476051	ENB7	EET CF	12/11/25 13:43
Total/NA	Analysis	9020B		1	727347	CAI	EET DEN	12/17/25 11:50
Total/NA	Analysis	I-3765-85		1	475776	DGU1	EET CF	12/08/25 10:41
Total/NA	Analysis	SM 5210B		1	475614	W9YR	EET CF	12/05/25 09:10

## Client Sample ID: MW5

## Lab Sample ID: 310-321875-5

Date Collected: 12/03/25 15:20

Matrix: Water

Date Received: 12/05/25 08:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	475790	WSE8	EET CF	12/09/25 01:41
Total/NA	Analysis	9056A		5	475935	HE7K	EET CF	12/08/25 14:05
Total/NA	Prep	3005A			475700	RLT9	EET CF	12/08/25 08:00
Total/NA	Analysis	6020B		1	476385	ZRI4	EET CF	12/12/25 19:44
Total/NA	Prep	7470A			475772	RLT9	EET CF	12/08/25 12:55
Total/NA	Analysis	7470A		1	476080	RLT9	EET CF	12/10/25 09:54
Total/NA	Analysis	350.1		1	476238	ZJX4	EET CF	12/11/25 18:19
Total/NA	Prep	Distill/Phenol			475893	ENB7	EET CF	12/09/25 09:22
Total/NA	Analysis	420.4		1	475976	ZJX4	EET CF	12/09/25 20:07

# Lab Chronicle

Client: Seneca Companies  
 Project/Site: Roquette America Landfill

Job ID: 310-321875-1  
 SDG: 6247600.2

**Client Sample ID: MW5**

**Lab Sample ID: 310-321875-5**

**Date Collected: 12/03/25 15:20**

**Matrix: Water**

**Date Received: 12/05/25 08:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	5220D LL		1	476051	ENB7	EET CF	12/10/25 10:53
Total/NA	Analysis	9020B		1	727347	CAI	EET DEN	12/18/25 11:17
Total/NA	Analysis	I-3765-85		1	475776	DGU1	EET CF	12/08/25 10:41
Total/NA	Analysis	SM 5210B		4	475614	W9YR	EET CF	12/05/25 09:14

**Client Sample ID: Trip Blanks**

**Lab Sample ID: 310-321875-6**

**Date Collected: 12/03/25 00:00**

**Matrix: Water**

**Date Received: 12/05/25 08:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	475790	WSE8	EET CF	12/08/25 23:26

**Laboratory References:**

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100



## Definitions/Glossary

Client: Seneca Companies  
Project/Site: Roquette America Landfill

Job ID: 310-321875-1  
SDG: 6247600.2

### Qualifiers

#### General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Accreditation/Certification Summary

Client: Seneca Companies  
 Project/Site: Roquette America Landfill

Job ID: 310-321875-1  
 SDG: 6247600.2

## Laboratory: Eurofins Cedar Falls

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-25 *
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8260D		Water	1,2,3-Trichlorobenzene
8260D		Water	1,2,4-Trichlorobenzene
8260D		Water	Bromobenzene
8260D		Water	Hexane
8260D		Water	p-Isopropyltoluene
8260D		Water	sec-Butylbenzene
8260D		Water	tert-Butylbenzene

## Laboratory: Eurofins Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-26
A2LA	ISO/IEC 17025	2907.01	10-31-26
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	11-30-26
Arizona	State	AZ0713	12-19-25
Arkansas DEQ	State	88-00687	04-02-26
California	State	2513	01-08-26
Colorado	Petroleum Storage Tank Program	2907.01 (A2LA)	10-31-26
Colorado	State	CO00026	06-30-26
Connecticut	State	PH-0686	09-30-26
Florida	NELAP	E87667	06-30-26
Georgia	State	4025	01-08-26
Illinois	NELAP	200017	05-31-26
Iowa	State	370	12-01-26
Kansas	NELAP	E-10166	04-30-26
Kentucky (WW)	State	KY98047	12-31-25
Louisiana	NELAP	30785	06-30-14 *
Louisiana (All)	NELAP	30785	06-30-26
Minnesota	NELAP	1788752	12-31-25
Montana (DWW)	State	CERT0117	01-01-26
Nevada	State	CO00026	07-31-26
New Hampshire	NELAP	2053	04-28-26
New Jersey	NELAP	CO004	06-30-26
New York	NELAP	11964	04-01-26
North Dakota	State	R-034	07-25-25 *
Oklahoma	NELAP	8614	12-31-25
Oregon	NELAP	4025	01-08-26
Pennsylvania	NELAP	68-00664	07-31-26
South Carolina	State	72002001	01-18-26
Texas	NELAP	TX104704183-08-TX	09-30-09 *
Texas	NELAP	T104704183	09-30-26
US Fish & Wildlife	US Federal Programs	058448	07-31-26
USDA	US Federal Programs	P330-20-00065	12-19-25
Utah	NELAP	QUAN5	06-30-13 *

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.



## Accreditation/Certification Summary

Client: Seneca Companies  
Project/Site: Roquette America Landfill

Job ID: 310-321875-1  
SDG: 6247600.2

### Laboratory: Eurofins Denver (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Utah	NELAP	CO00026	07-31-26
Virginia	NELAP	460232	06-14-26
Washington	State	C583	08-03-26
Wisconsin	State	999615430	08-31-26
Wyoming (UST)	A2LA	2907.01	10-31-26



## Method Summary

Client: Seneca Companies  
 Project/Site: Roquette America Landfill

Job ID: 310-321875-1  
 SDG: 6247600.2

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
7470A	Mercury (CVAA)	SW846	EET CF
350.1	Nitrogen, Ammonia	EPA	EET CF
420.4	Phenolics, Total Recoverable	EPA	EET CF
5220D LL	COD	SM	EET CF
9020B	Organic Halides, Total (TOX)	SW846	EET DEN
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
SM 5210B	BOD, 5-Day	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF
7470A	Preparation, Mercury	SW846	EET CF
Distill/Phenol	Distillation, Phenolics	None	EET CF

**Protocol References:**

EPA = US Environmental Protection Agency

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

USGS = "Methods For Analysis Of Water And Fluvial Sediments", USGS, 1989

**Laboratory References:**

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100





Environment Testing  
America



Cooler/Sample Receipt and Temperature Log Form

<b>Client Information</b>			
Client: <u>Seneca</u>			
City/State	CITY	STATE	Project.
		<u>IA</u>	
<b>Receipt Information</b>			
Date/Time Received:	DATE	TIME	Received By:
	<u>12-5-25</u>	<u>0825</u>	<u>M</u>
Delivery Type <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee			
<input type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
<b>Condition of Cooler/Containers</b>			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes Cooler ID.	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes Cooler # <u>1</u> of <u>2</u>	
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes Which VOA samples are in cooler? ↓	
<b>Temperature Record</b>			
Coolant	<input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID:	<u>CC</u>	Correction Factor (°C): <u>+0.0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C).	<u>-0.3</u>	Corrected Temp (°C). <u>-0.3</u>	
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C)			
<b>Exceptions Noted</b>			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE If yes, contact PM before proceeding If no, proceed with login			
<b>Additional Comments</b>			





Environment Testing  
America

Place COC scanning label  
here

**Cooler/Sample Receipt and Temperature Log Form**

<b>Client Information</b>			
Client. <u>Seneca</u>			
City/State.	<small>CITY</small>	<small>STATE</small>	Project.
		<u>VA</u>	
<b>Receipt Information</b>			
Date/Time Received:	<small>DATE</small>	<small>TIME</small>	Received By:
	<u>12-5-25</u>	<u>0825</u>	<u>[Signature]</u>
Delivery Type	<input checked="" type="checkbox"/> UPS	<input type="checkbox"/> FedEx	<input type="checkbox"/> FedEx Ground
	<input type="checkbox"/> Lab Courier	<input type="checkbox"/> Lab Field Services	<input type="checkbox"/> Client Drop-off
		<input type="checkbox"/> US Mail	<input type="checkbox"/> Spee-Dee
		<input type="checkbox"/> Other:	
<b>Condition of Cooler/Containers</b>			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	If yes Cooler ID.
Multiple Coolers?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	If yes: Cooler # <u>2 of 2</u>
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓
<b>Temperature Record</b>			
Coolant.	<input checked="" type="checkbox"/> Wet ice	<input type="checkbox"/> Blue ice	<input type="checkbox"/> Dry ice
		<input type="checkbox"/> Other	<input type="checkbox"/> NONE
Thermometer ID:	<u>CC</u>	Correction Factor (°C):	<u>+0.0</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>0.5</u>	Corrected Temp (°C):	<u>0.5</u>
• Sample Container Temperature			
Container(s) used	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C).			
Corrected Temp (°C)			
<b>Exceptions Noted</b>			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
<b>Additional Comments</b>			



**Eurofins Cedar Falls**  
 3019 Venture Way  
 Cedar Falls, IA 50613  
 Phone (319) 277-2401 Phone (319) 277-2425

**Eurofins**  
 Davenport SC 212



Environment Testing

**Client Information**

Company: Seneca Companies  
 Address: 7241 Gaines Street Court  
 City: Davenport  
 State, Zip: IA, 52806  
 Phone: 563-332-8000  
 Email Report To: +felderman@senecaco.com  
 Project Name: Roquette America Landfill

Sampler: William Indelek  
 Sampler Phone: 563-332-8000

Send Report To: Todd Felderman

Results Needed By (Date): SWA TAT  
 Circle if RUSH TAT (must pre-authorize with lab) Surcharges may apply

Your PO #: R-ORD033096  
 W/O #:

Project #: 6247600.2

COC No: \_\_\_\_\_  
 Page: 1 of 1  
 Job #: 6247600.2

Analysis Requested: 8260 VOCs, Total Metals & Risk, Ammonia as Nitrogen, COD, HOP, Chloride, Phenol, Tox, Total Arsenic, TSS

Preservation Codes: A-HCl, B-NaOH, C-Zn Acetate, D-Nitric Acid, E-NaHSO4, F-MeOH, I-Ice, J-DI Water, K-EDTA, L-EDA

Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid)	Total Number of Containers	OA-1 GC - (BTEX)	OA-2	8260 GC/MS - (BTEX w/MTBE)	Analysis Requested	Special Instructions/Note:
MW1	12/3/25	1400	G	W	9				8260 VOCs, Total Metals & Risk, Ammonia as Nitrogen, COD, HOP, Chloride, Phenol, Tox, Total Arsenic, TSS	
MW2	12/3/25	1420	G	W	9				8260 VOCs, Total Metals & Risk, Ammonia as Nitrogen, COD, HOP, Chloride, Phenol, Tox, Total Arsenic, TSS	
MW3	12/3/25	1440	G	W	9				8260 VOCs, Total Metals & Risk, Ammonia as Nitrogen, COD, HOP, Chloride, Phenol, Tox, Total Arsenic, TSS	
MW4	12/3/25	1455	G	W	9				8260 VOCs, Total Metals & Risk, Ammonia as Nitrogen, COD, HOP, Chloride, Phenol, Tox, Total Arsenic, TSS	
MW5	12/3/25	1520	G	W	9				8260 VOCs, Total Metals & Risk, Ammonia as Nitrogen, COD, HOP, Chloride, Phenol, Tox, Total Arsenic, TSS	

Possible Sample Hazard Identification:  
 Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown  Radiological

Deliverable Requested: I, II, III, IV, Other (specify)

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month):  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months

Special Instructions/QC Requirements

Received by: [Signature] Company: Seneca Co.  
 Date/Time: 12/4/25 0632  
 Received by: [Signature] Company: [Signature]  
 Date/Time: 12/4/25 1500  
 Received by: [Signature] Company: [Signature]  
 Date/Time: 12/4/25 0800



**Eurofins Cedar Falls**

3019 Venture Way  
Cedar Falls, IA 50613  
Phone: 319-277-2401 Fax: 319-277-2425

**Chain of Custody Record**



eurofins

Environment Testing

<b>Client Information (Sub Contract Lab)</b>		Sampler: N/A	Lab PM: Collins, Charlotte G	Carrier Tracking No(s): N/A	COC No: 310-89699-1	
Client Contact: N/A		Phone: N/A	E-Mail: Charlotte.Collins@et.eurofins.com	State of Origin: Iowa	Page: Page 1 of 1	
<b>Shipping/Receiving</b>		Company: TestAmerica Laboratories, Inc.				
Address: 4955 Yarrow Street,		Accreditations Required (See note): State Program - Iowa				
City: Anvada		Due Date Requested: 12/18/2025				
State, Zip: CO, 80002		TAT Requested (days): N/A				
Phone: 303-736-0100(Tel) 303-431-7171(Fax)		PO #: N/A				
Email: N/A		WO #: N/A				
Project Name: Roquette America Landfill		Project #: 31004259				
Site: N/A		SSOW#: N/A				
<b>Analysis Requested</b>						
<b>Sample Identification - Client ID (Lab ID)</b>		<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type (C=Comp, G=grab)</b>	<b>Matrix (W=water, S=solid, O=soil, W=water, A=air)</b>	<b>Preservation Code:</b>
MW1 (310-321875-1)	12/3/25	14:00 Central	G	Water	X	Field Filtered Sample (Yes or No)
MW2 (310-321875-2)	12/3/25	14:20 Central	G	Water	X	Perform MS/MSD (Yes or No)
MW3 (310-321875-3)	12/3/25	14:40 Central	G	Water	X	9020B_CaTeOX in duplicate
MW4 (310-321875-4)	12/3/25	14:55 Central	G	Water	X	
MW5 (310-321875-5)	12/3/25	15:20 Central	G	Water	X	
Total Number of Containers						1
Special Instructions/Note:						

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.

**Possible Hazard Identification**  
 Return To Client     Disposal By Lab     Archive For \_\_\_\_\_ Months  
 Deliverable Requested: I, II, III, IV, Other (specify) \_\_\_\_\_  
 Primary Deliverable Rank: 1  
 Empty Kit Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date/Time: 12/5 2:5 12:40 Company  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company  
 Custody Seals Intact: \_\_\_\_\_ Custody Seal No.: \_\_\_\_\_  
 Δ Yes Δ No

Received by: *[Signature]* Date/Time: 12/18/25 09:45 Company  
 Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company  
 Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company  
 Cooler Temperature(s) °C and Other Remarks: *[Handwritten notes]*



## Login Sample Receipt Checklist

Client: Seneca Companies

Job Number: 310-321875-1

SDG Number: 6247600.2

Login Number: 321875

List Number: 1

Creator: Homolar, Dana J

List Source: Eurofins Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: Seneca Companies

Job Number: 310-321875-1

SDG Number: 6247600.2

Login Number: 321875

List Number: 2

Creator: Roehsner, Karen P

List Source: Eurofins Denver

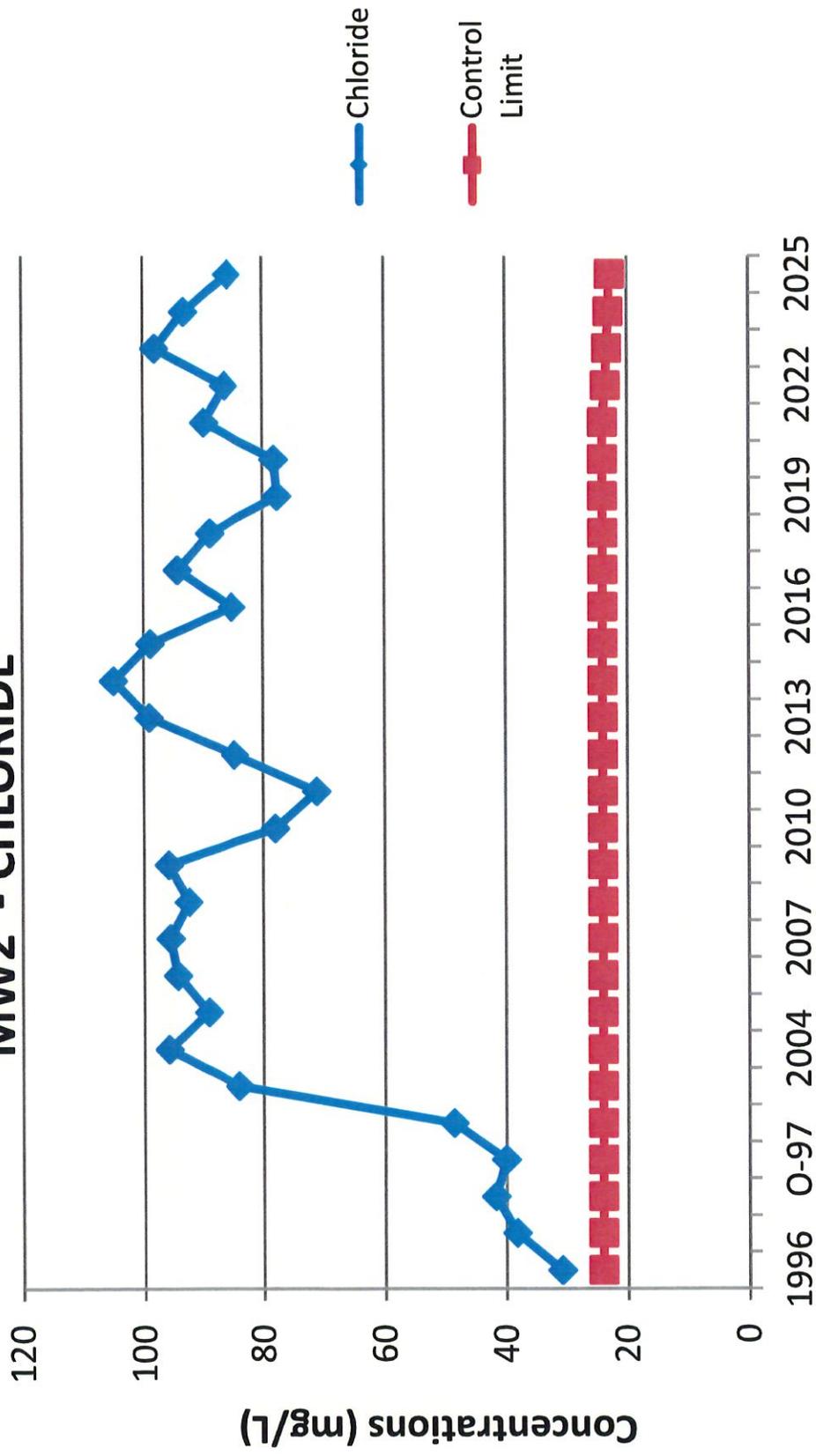
List Creation: 12/06/25 12:03 PM

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\neq</math> background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

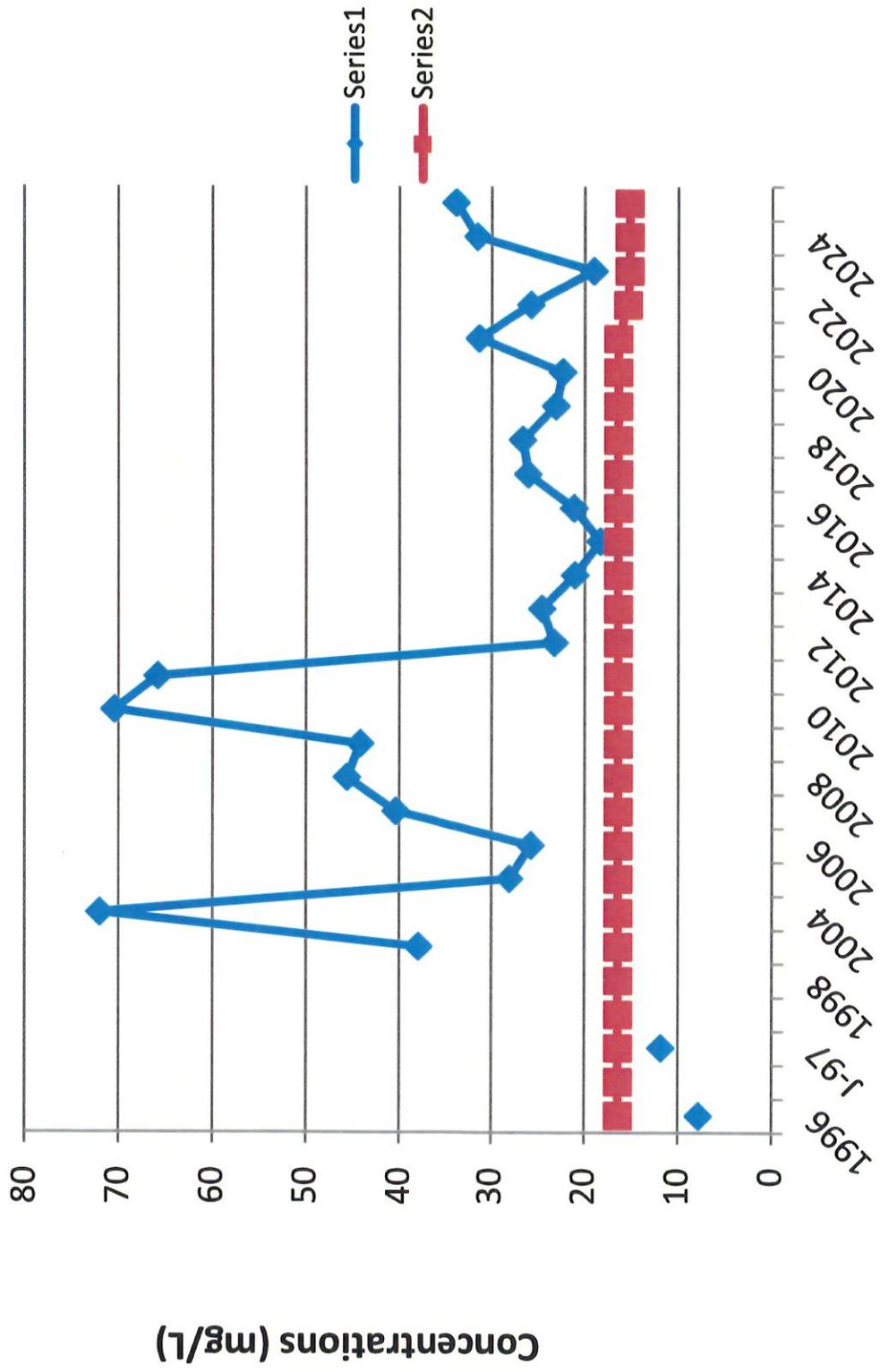


**Appendix C**  
**Statistical Reports**

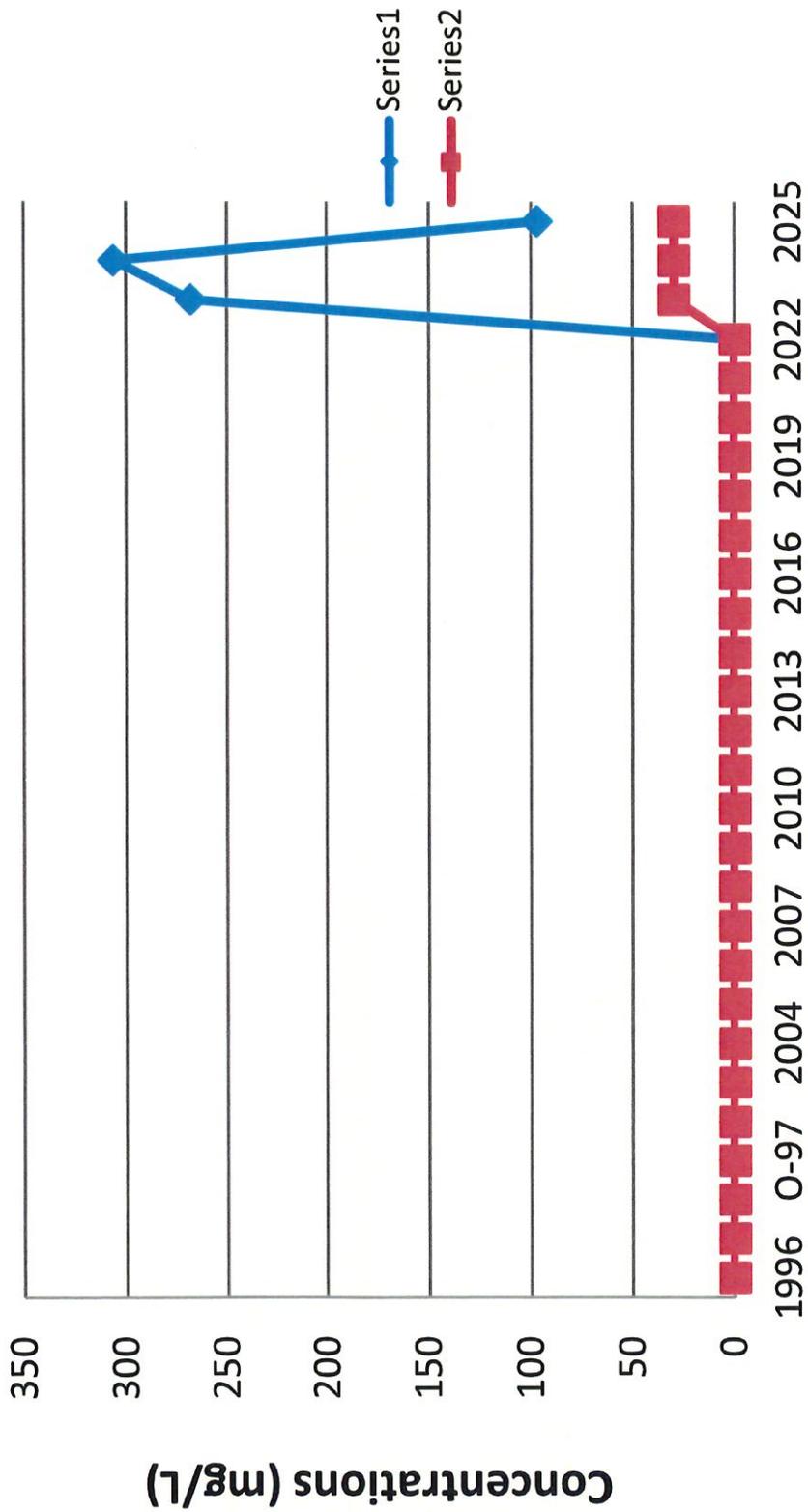
# MW2 - CHLORIDE



# MW2-COD

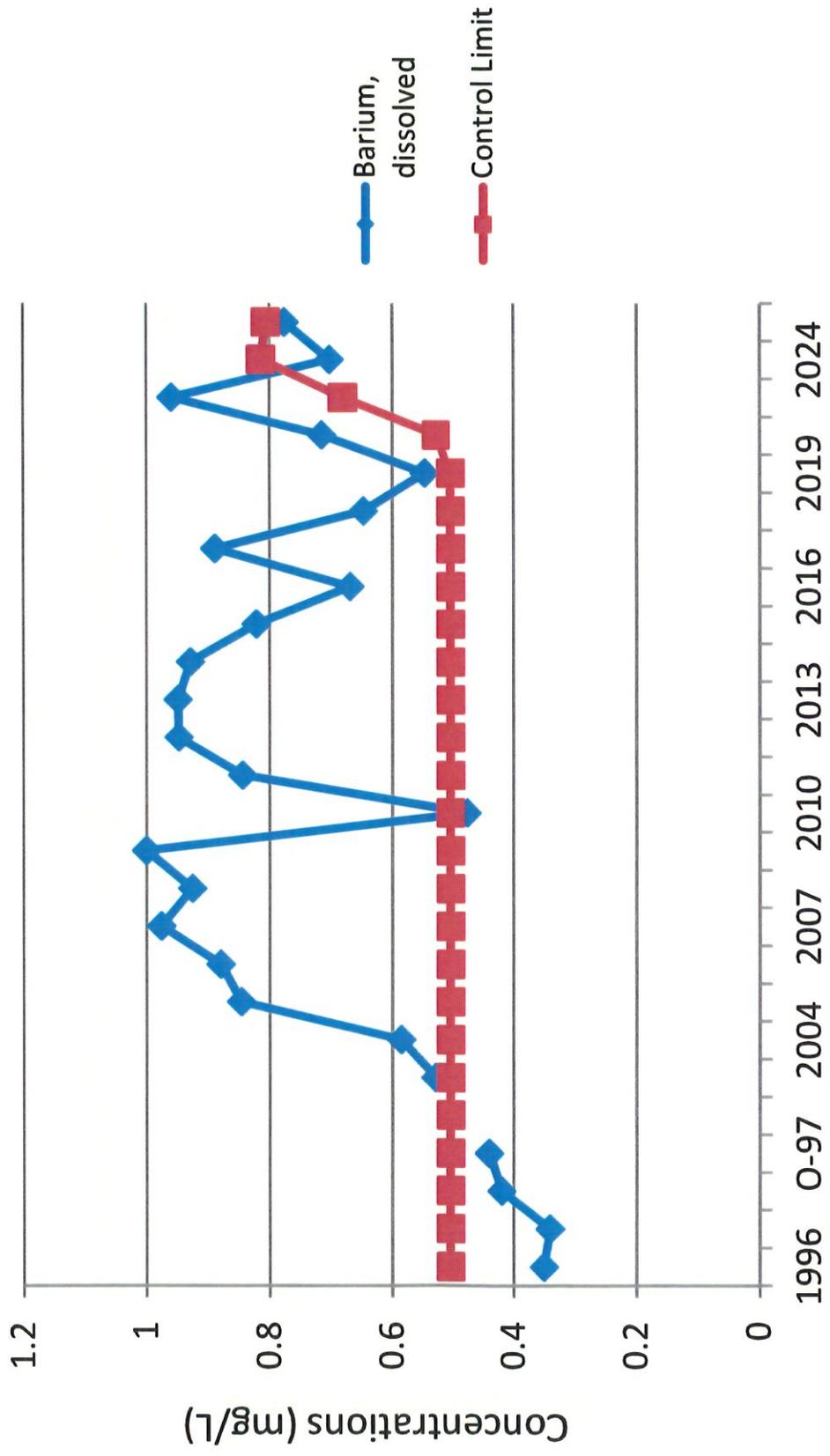


# MW2-TOH

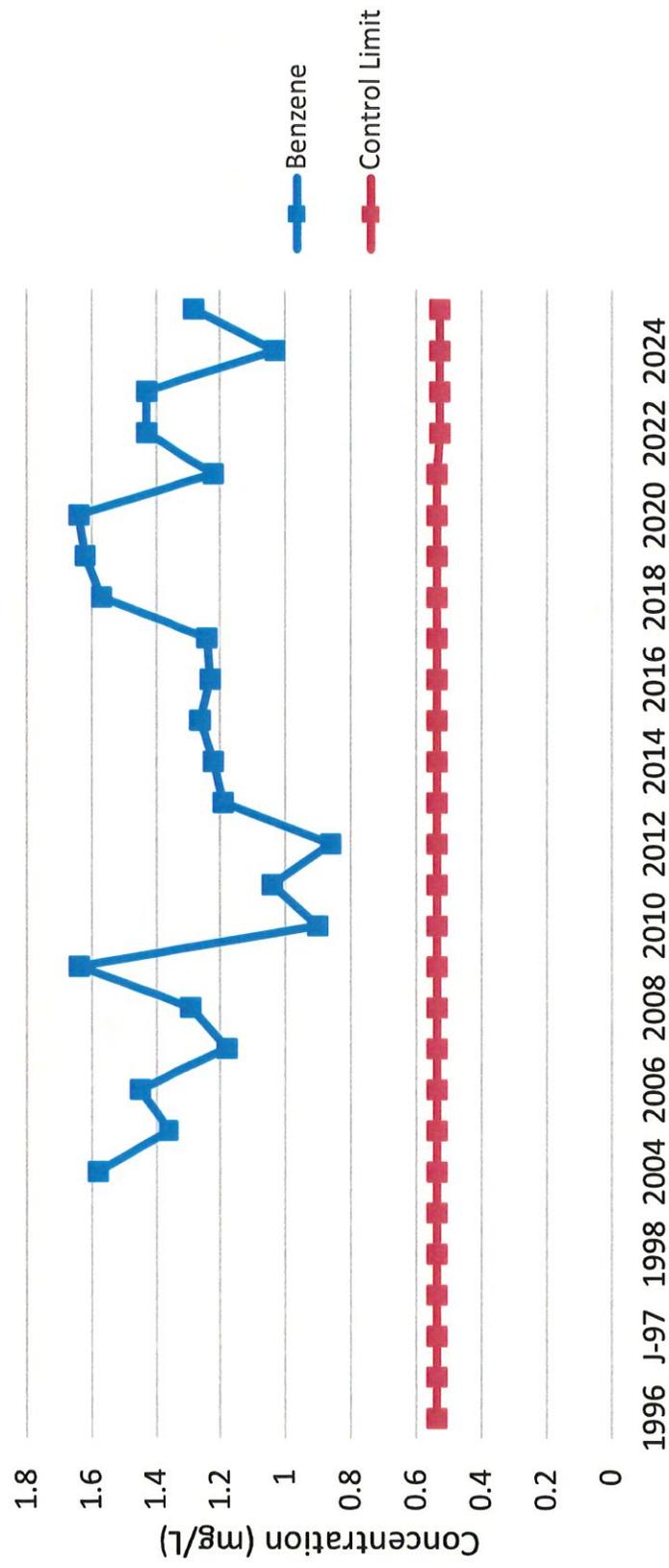


Sample Dates

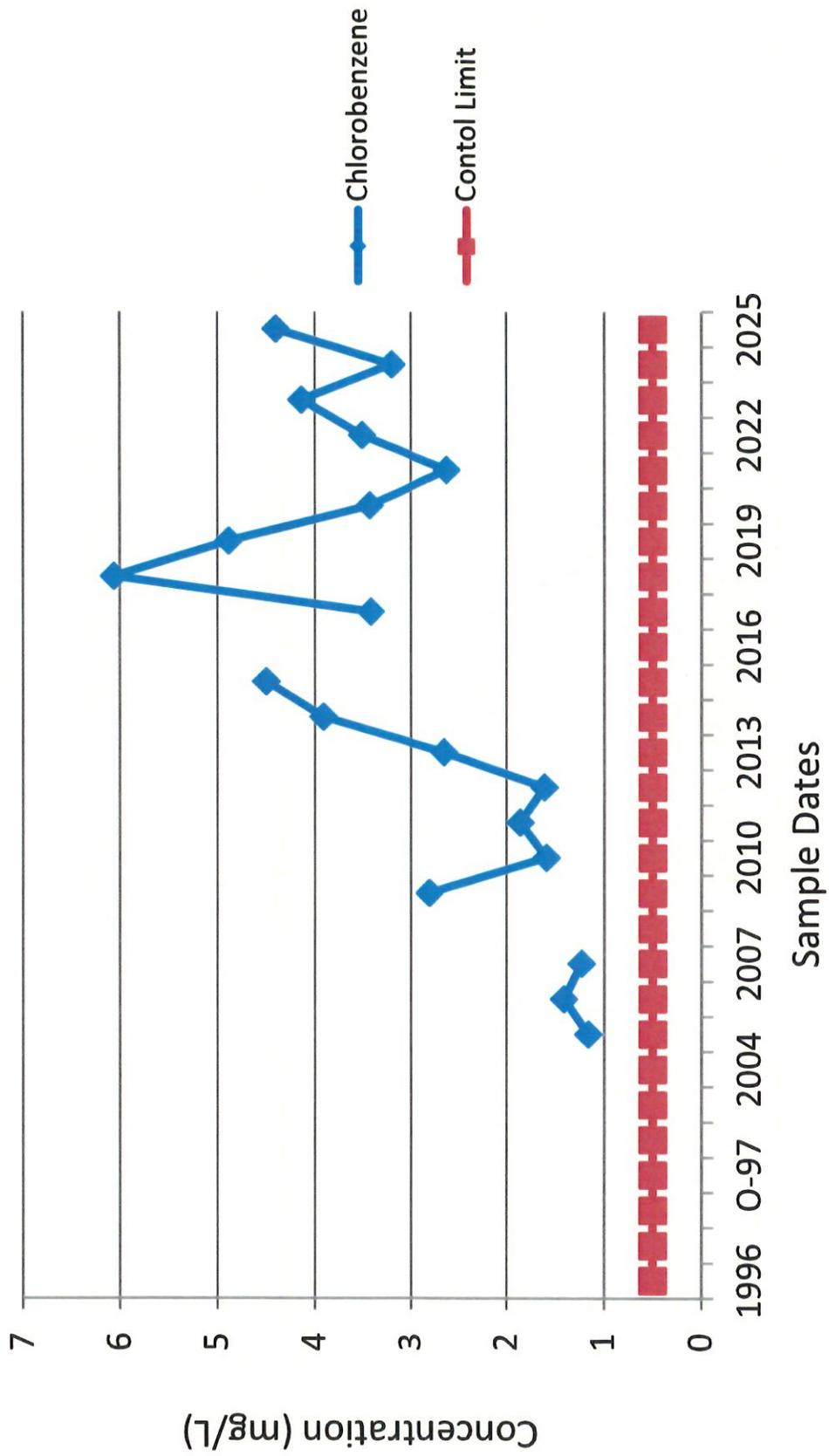
# MW2 - BARIUM



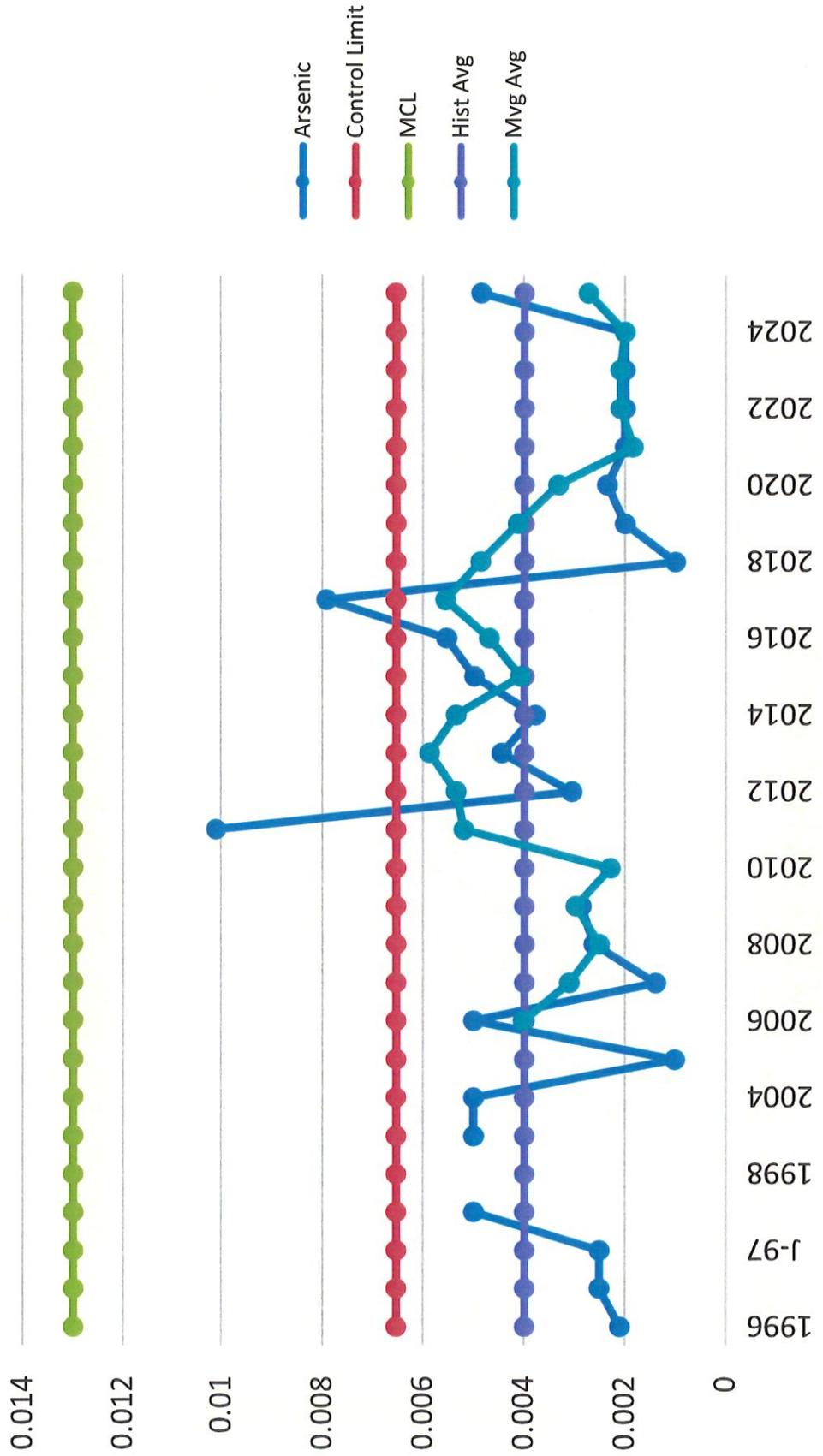
# MW2 - Benzene



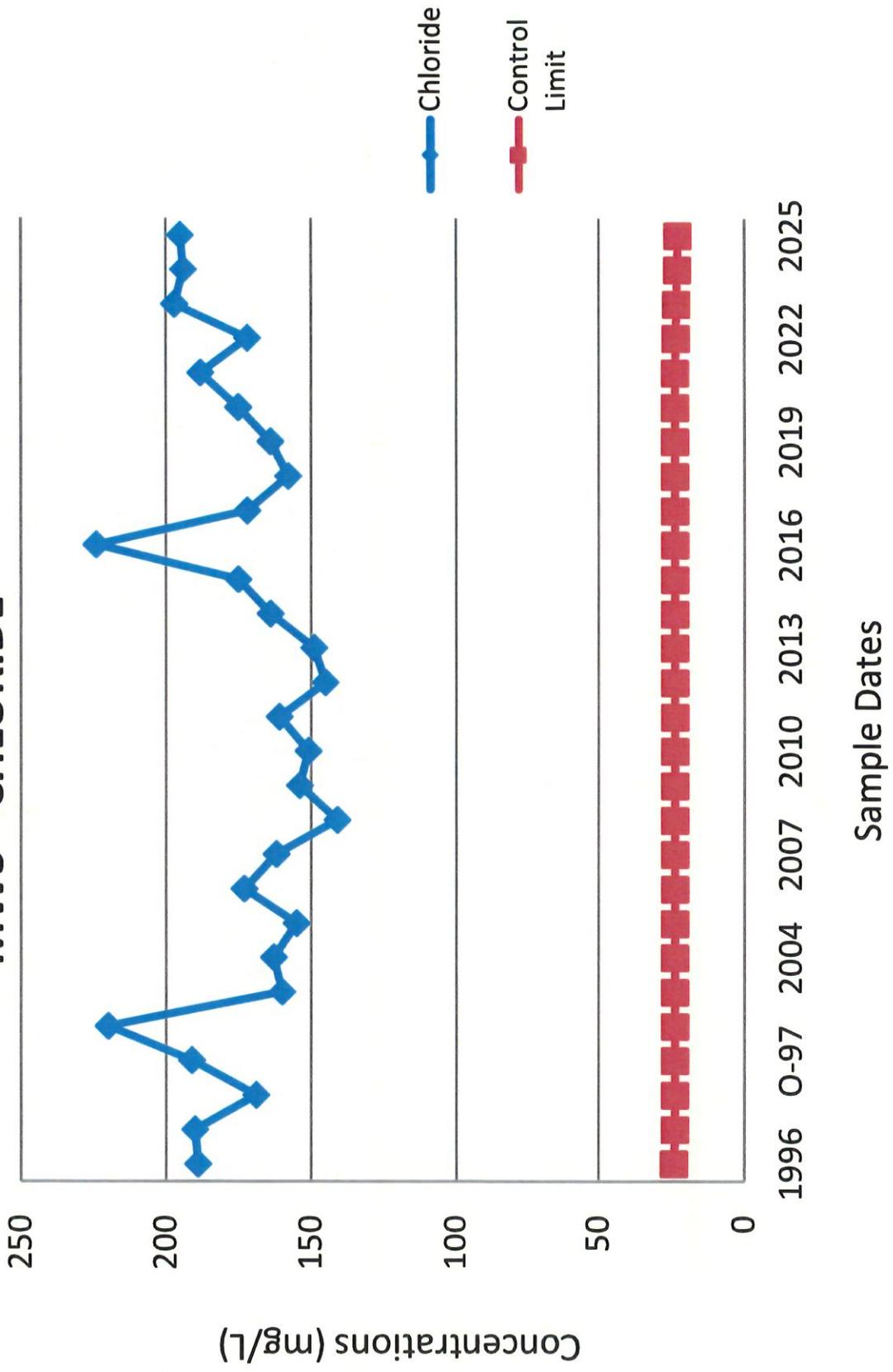
# MW2 - Chlorobenzene



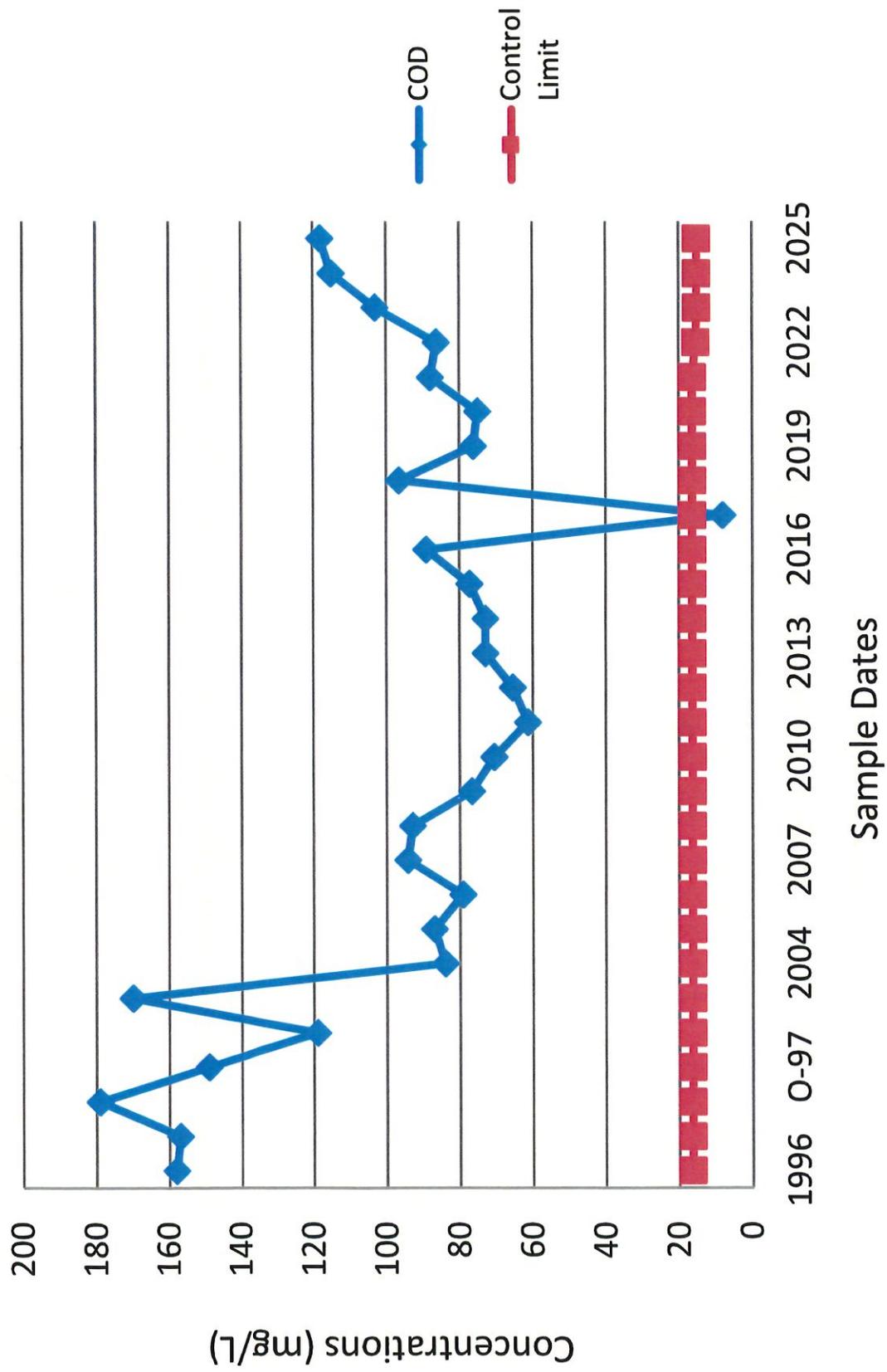
# MW2-Arsenic



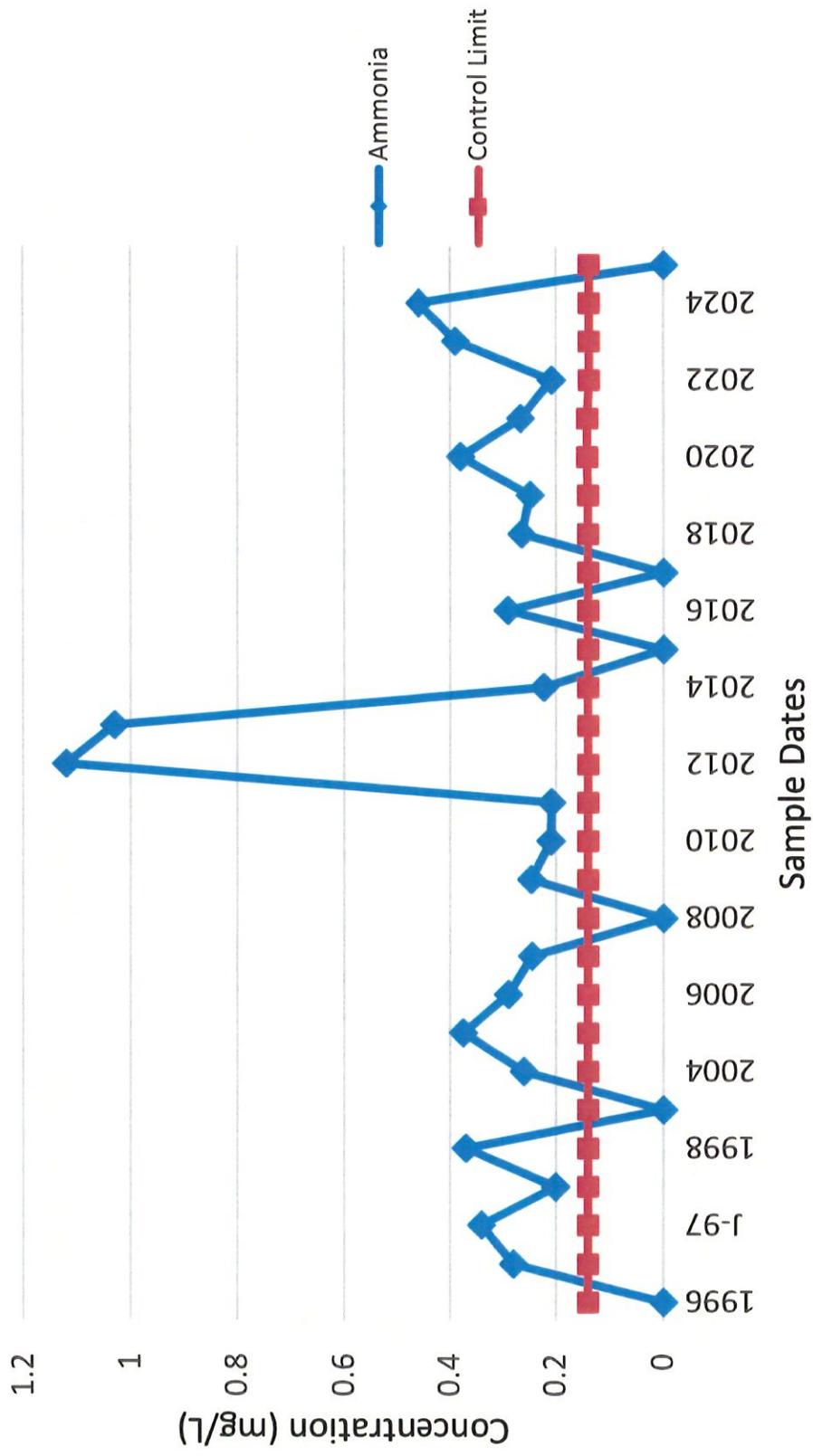
# MW3 - CHLORIDE



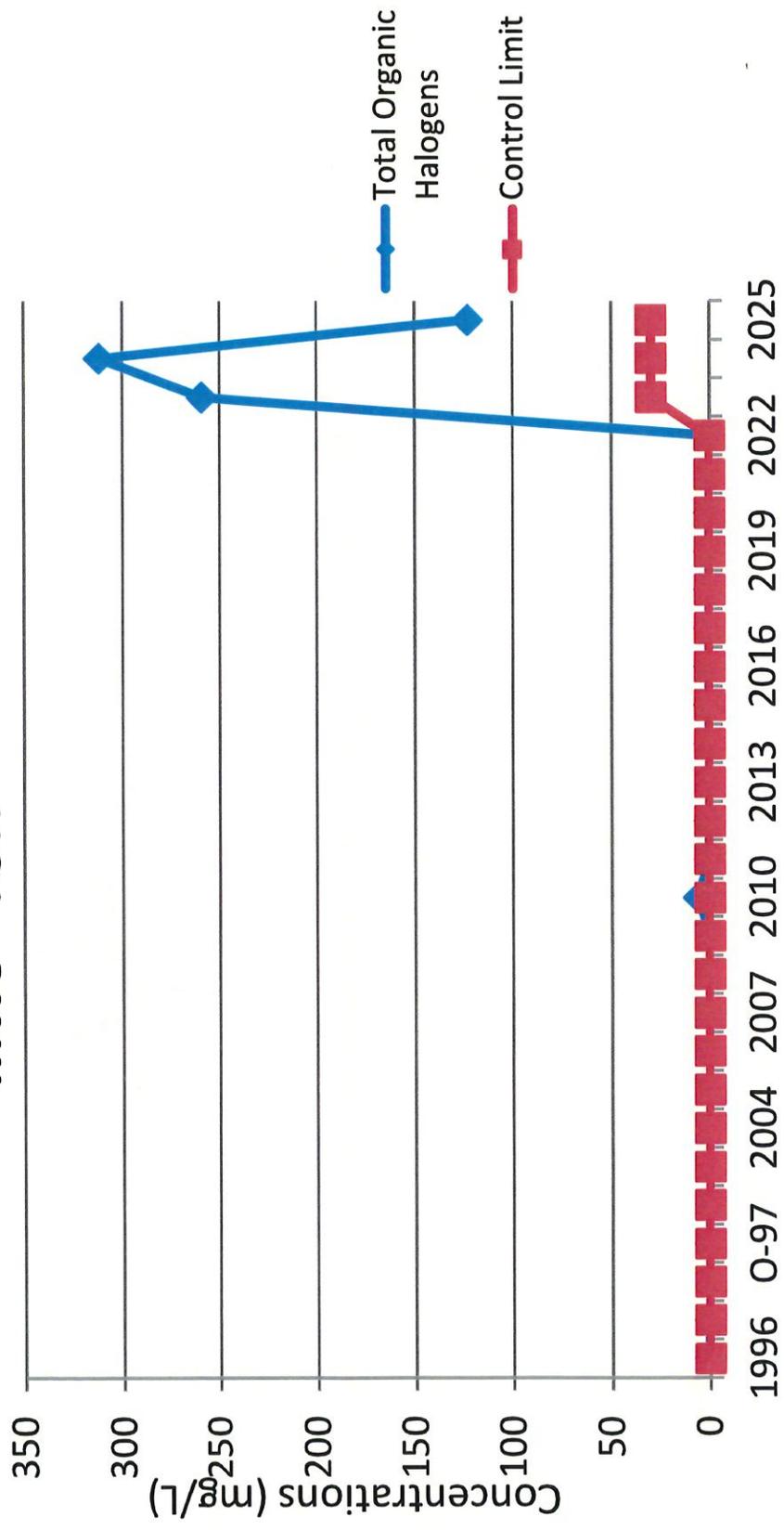
# MW3 - COD



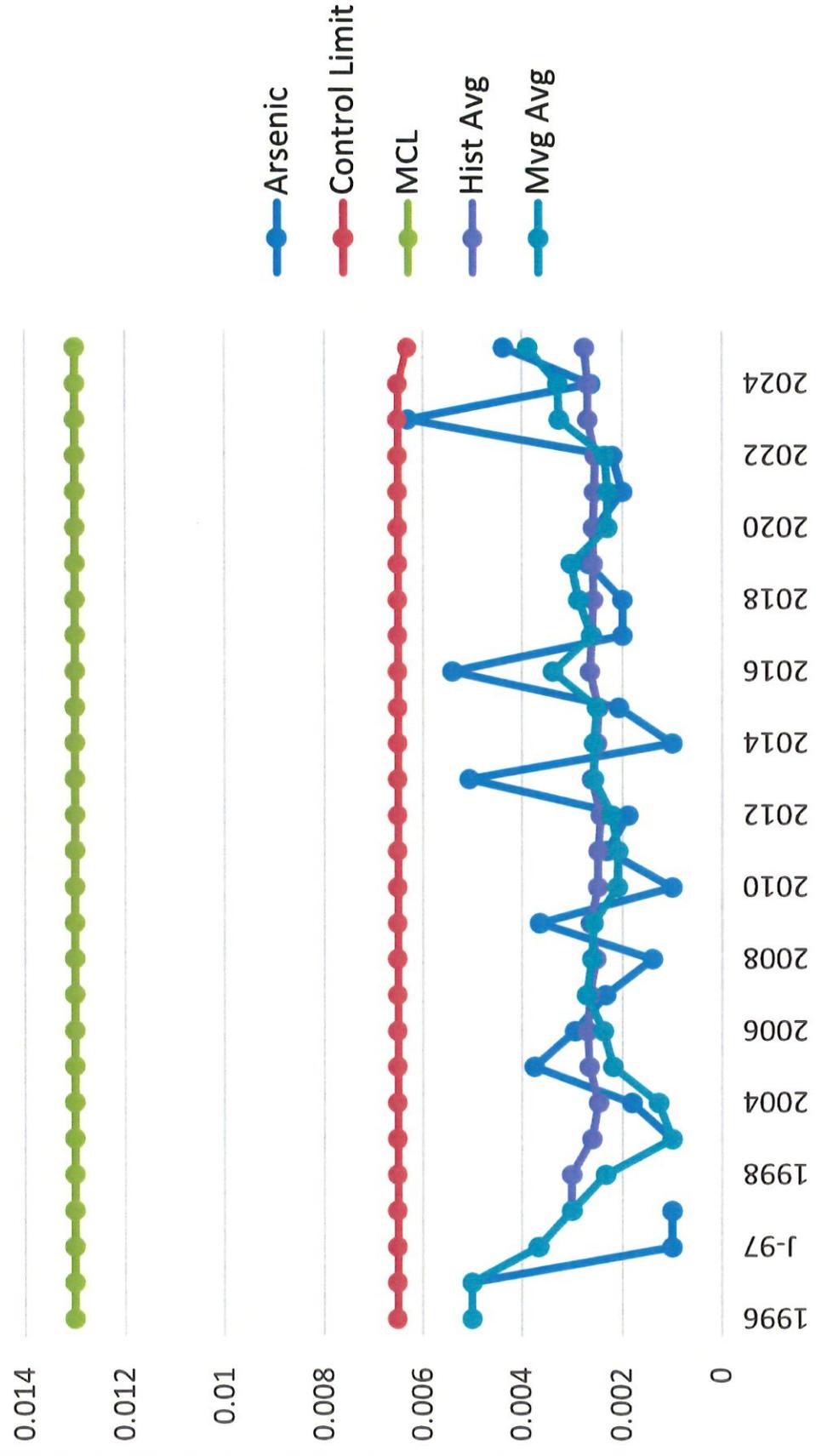
# MW3-Ammonia as N



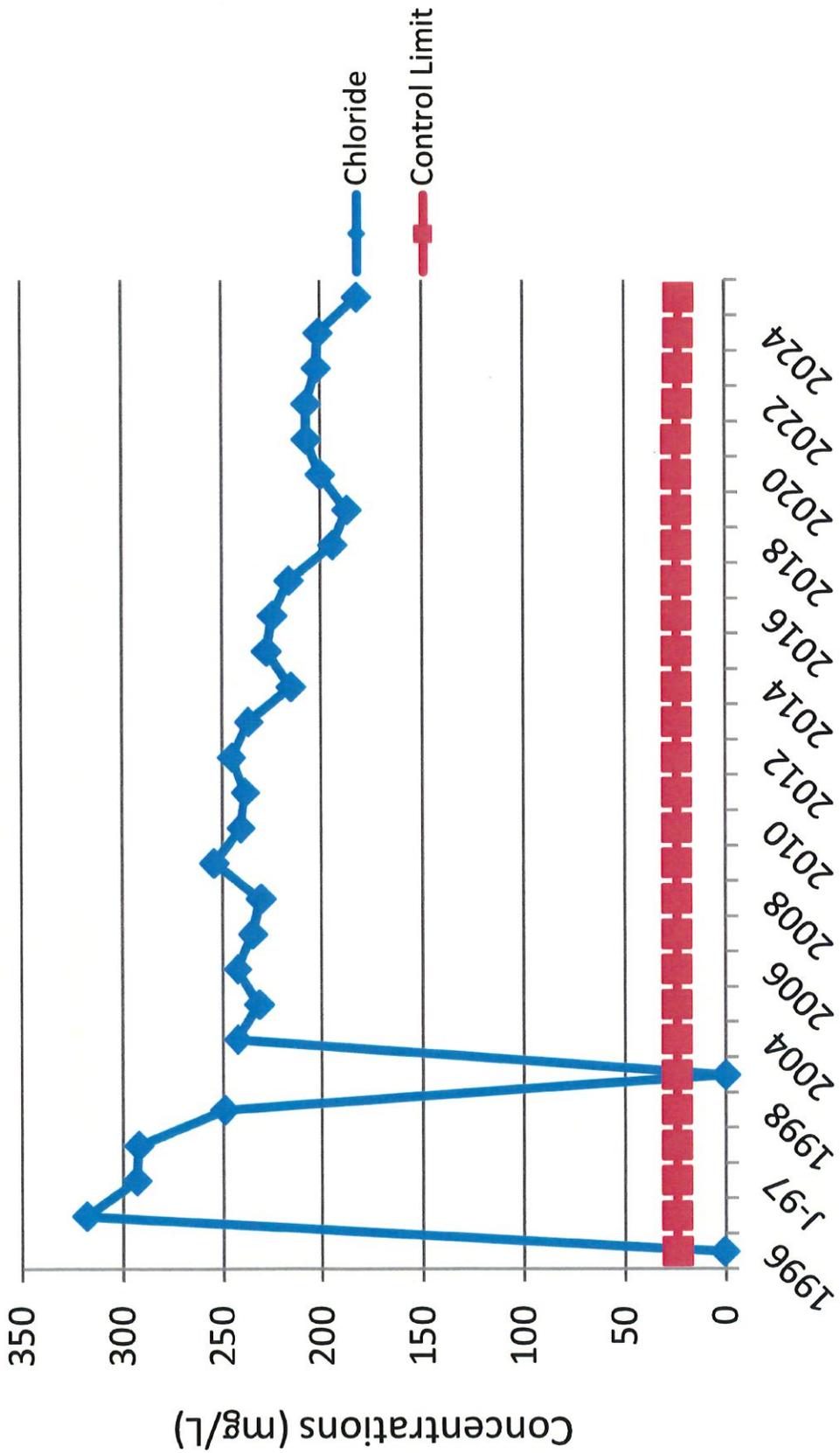
# MW3 - TOH



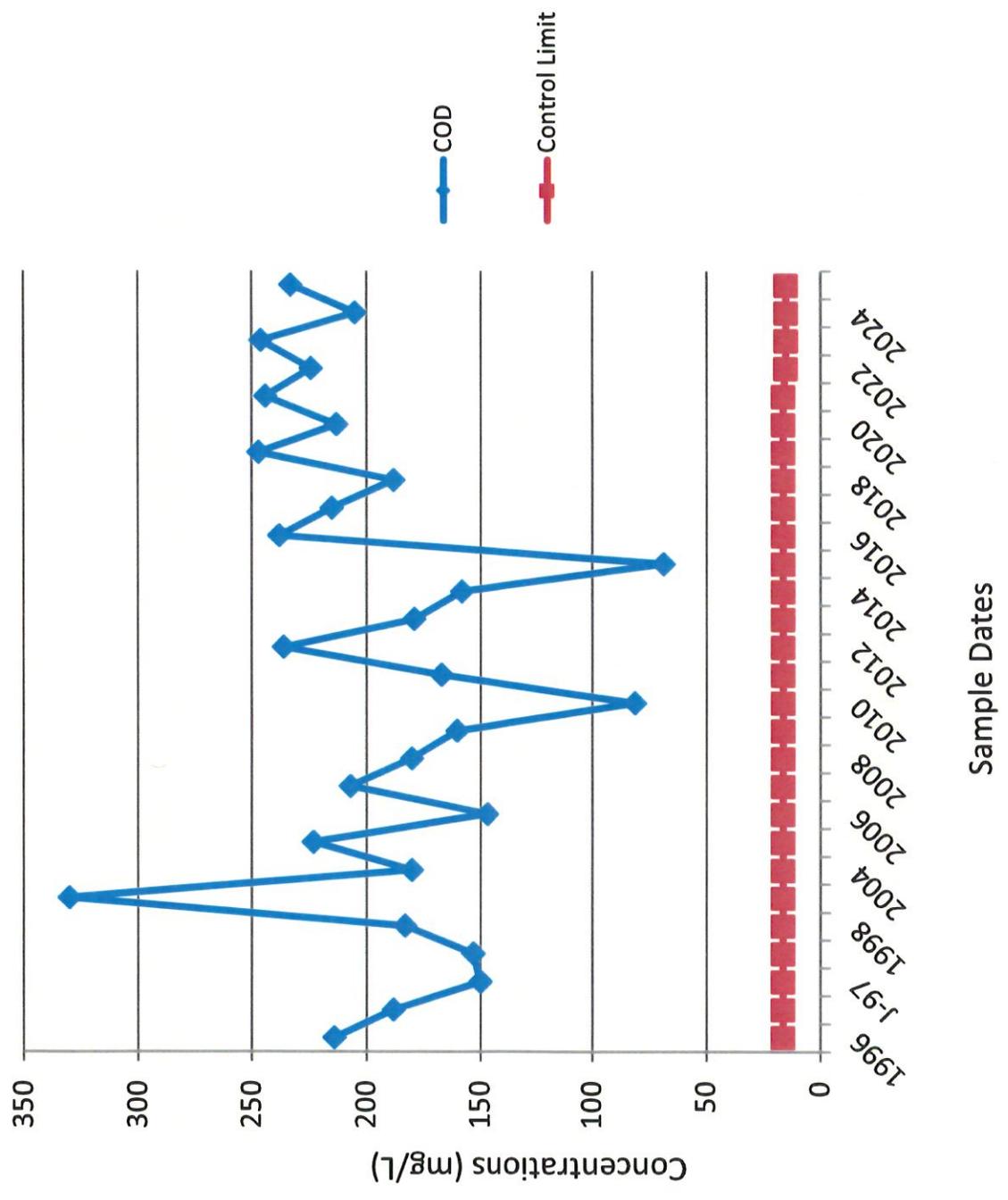
# MW3-Arsenic



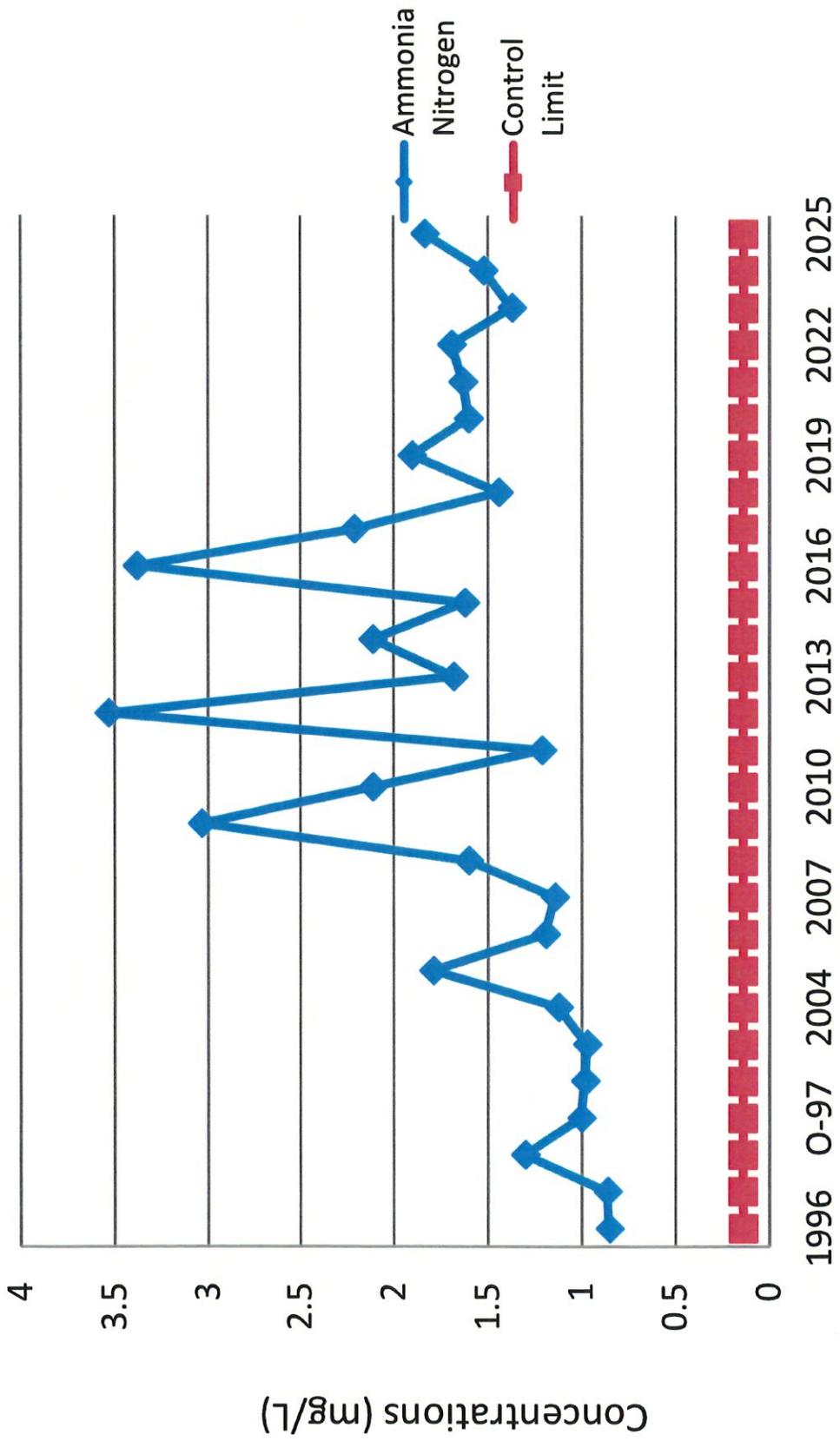
# MW4 - CHLORIDE



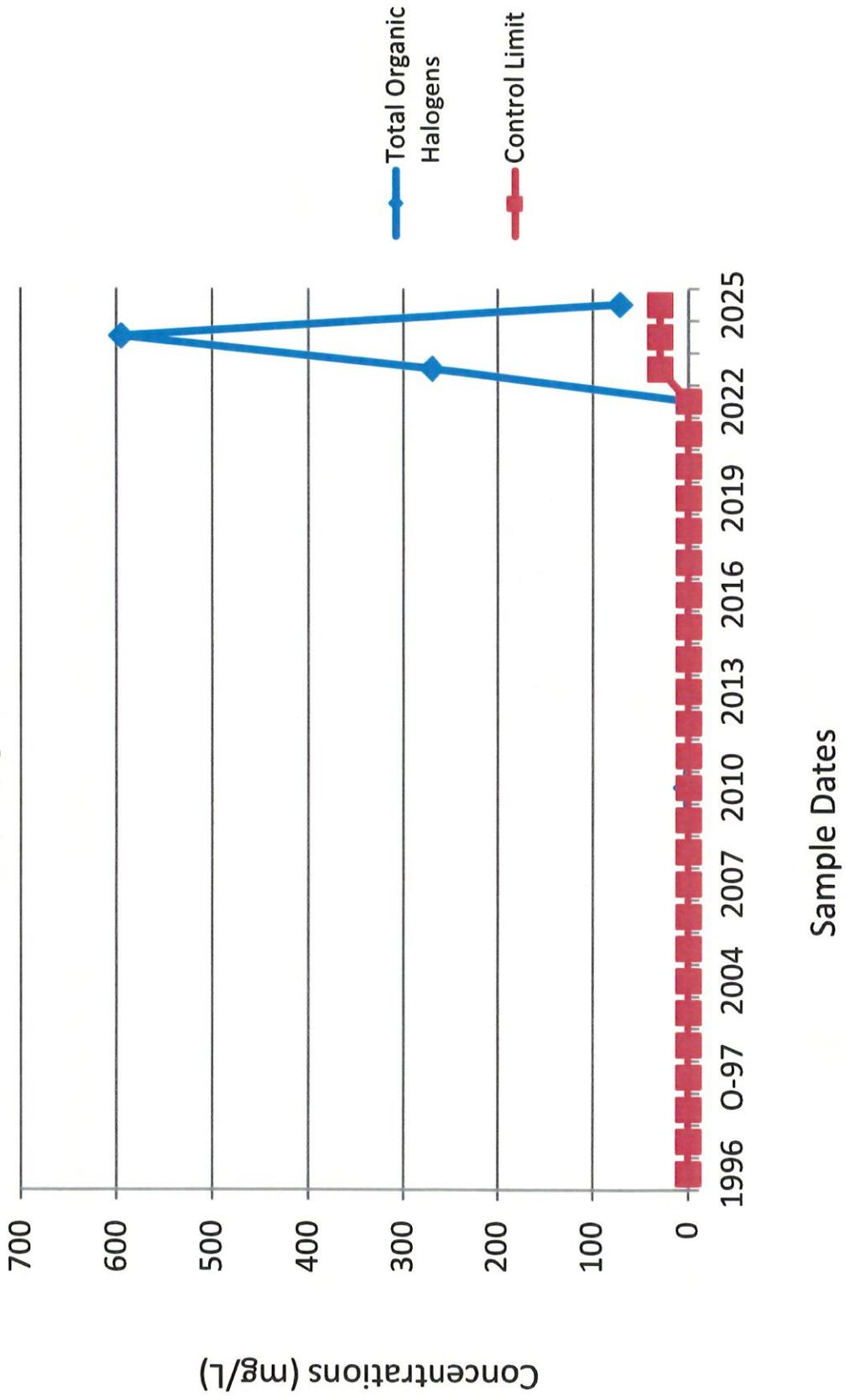
# MW4 - COD



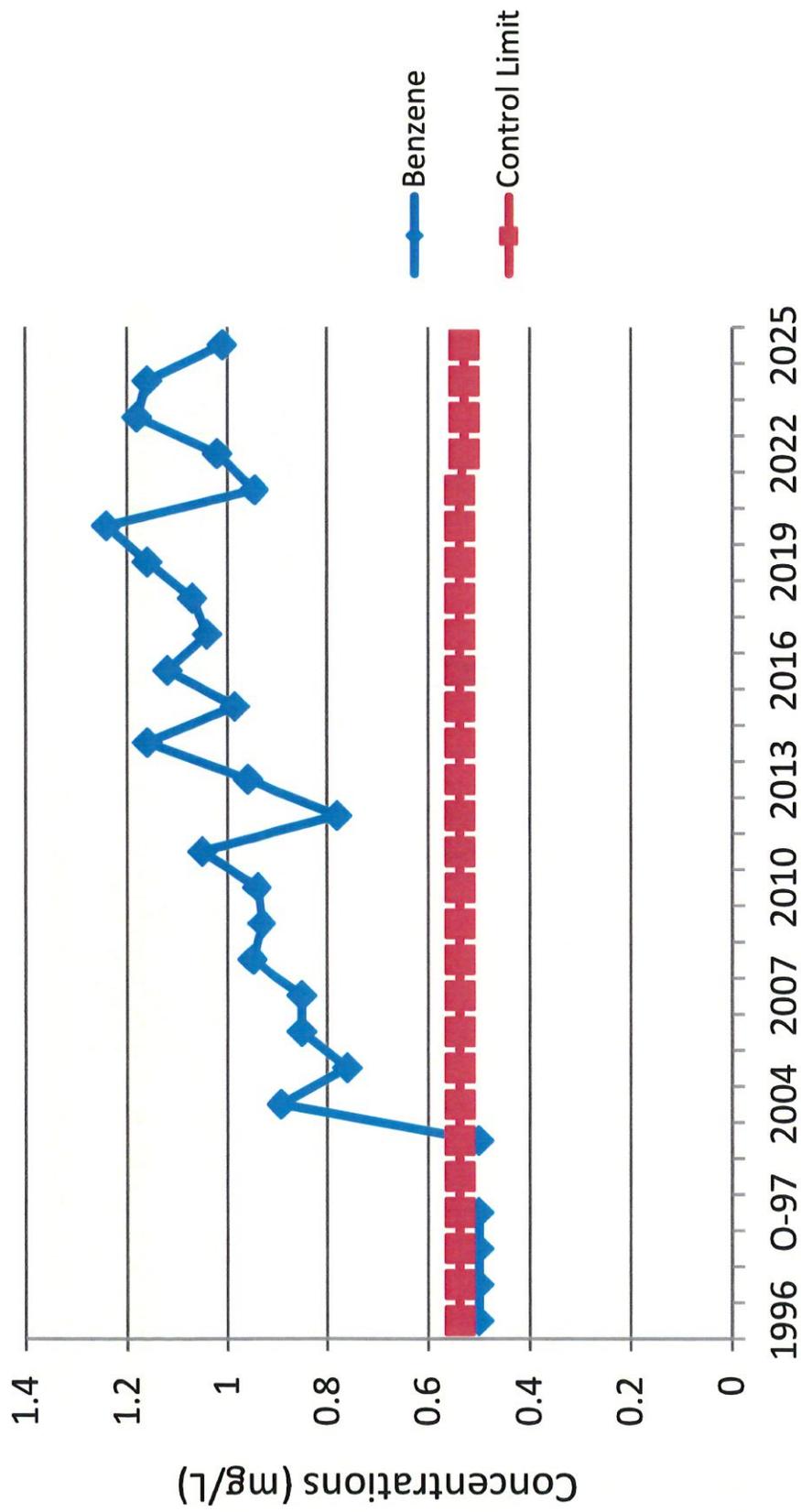
# MW4 - AMMONIA AS N



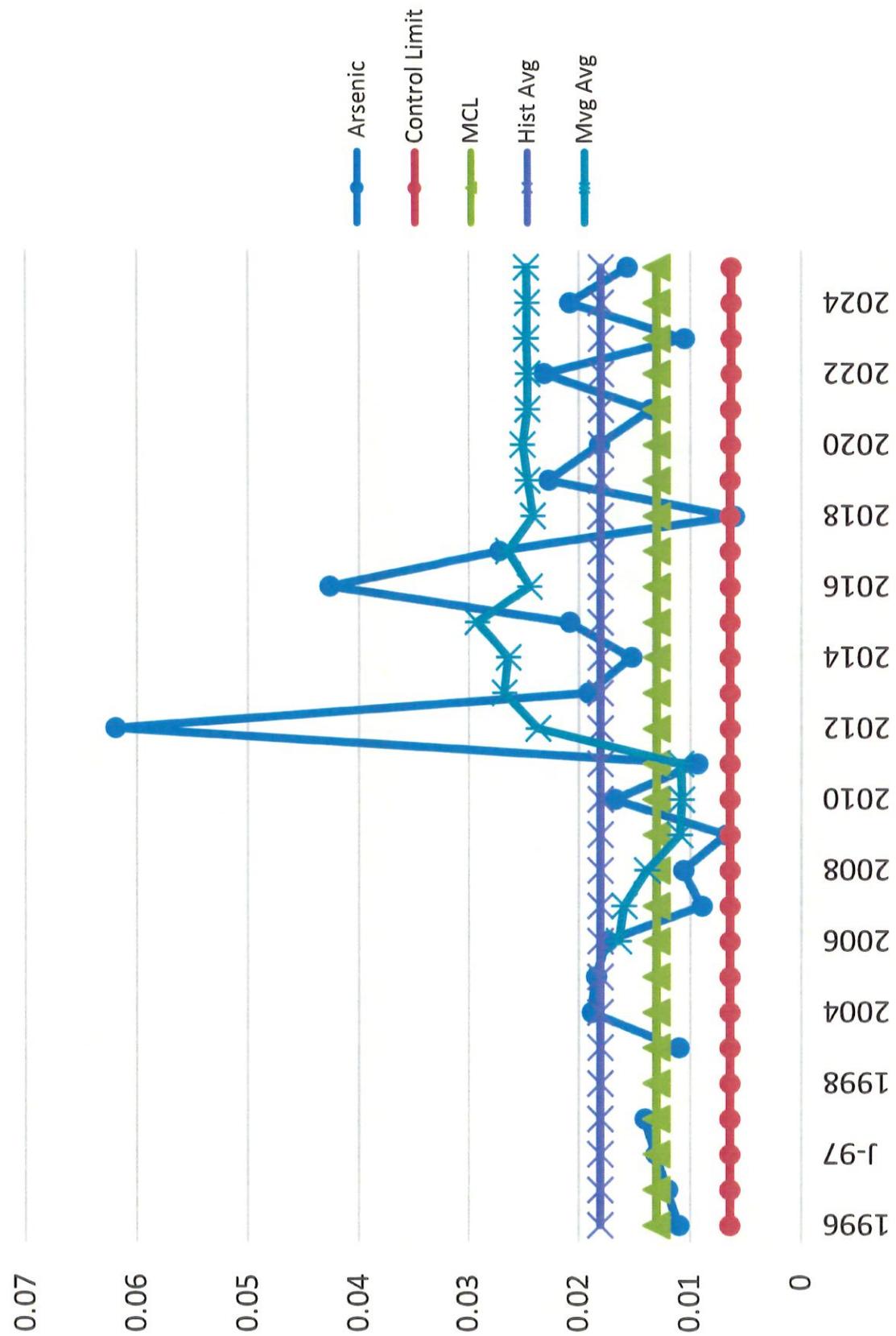
# MW4 - TOH



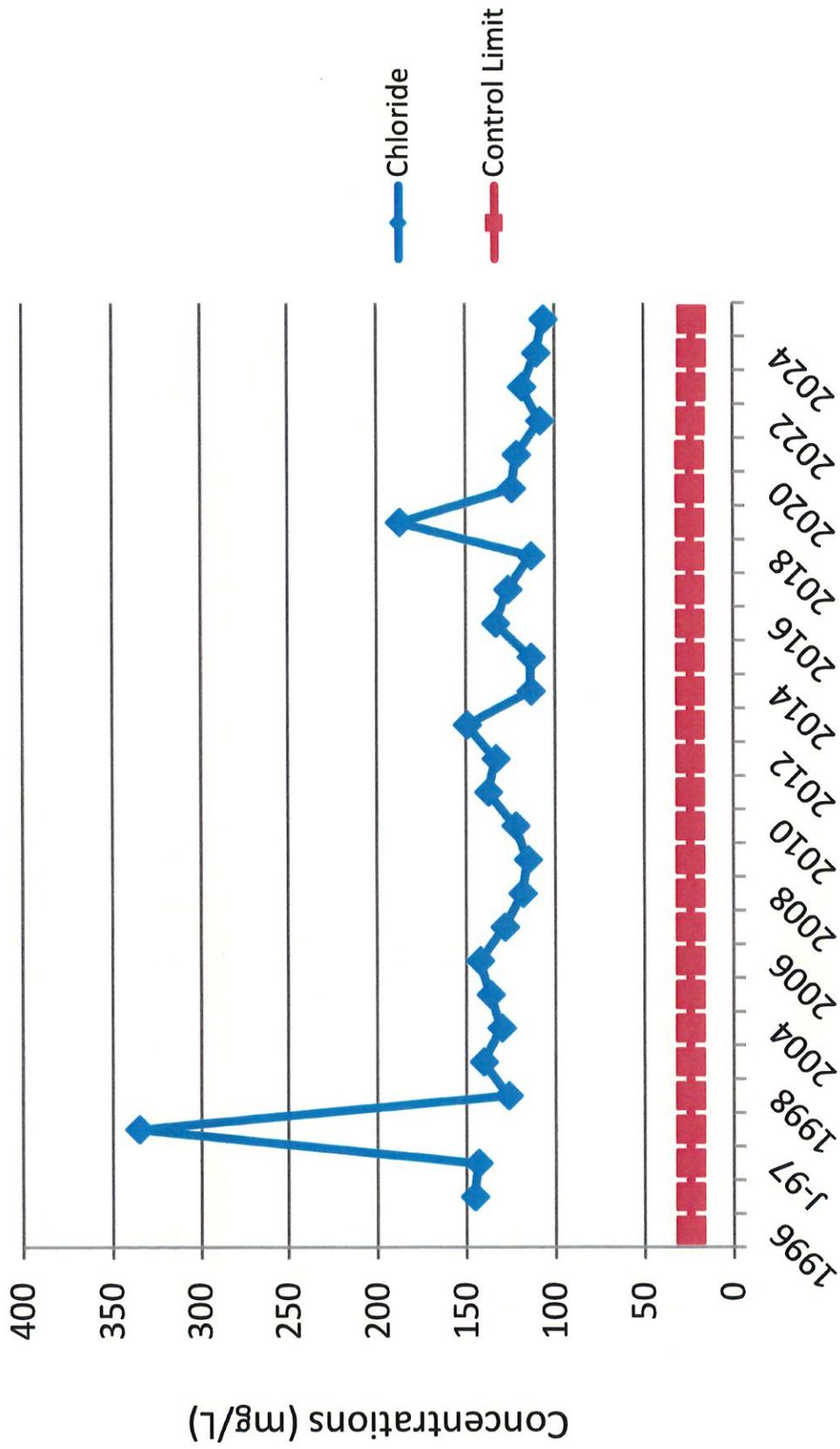
# MW4 - Benzene



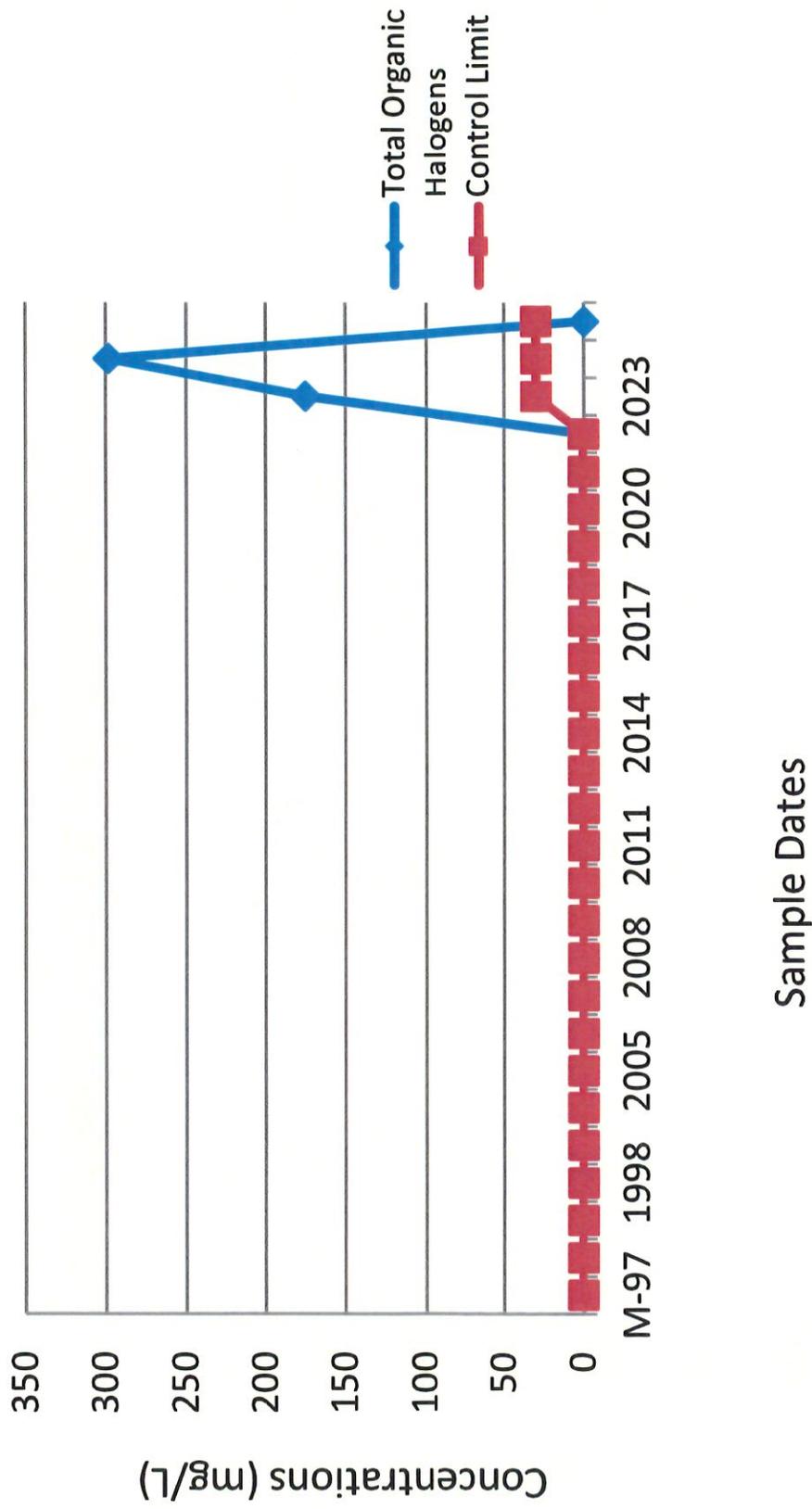
# MW 4 - Arsenic



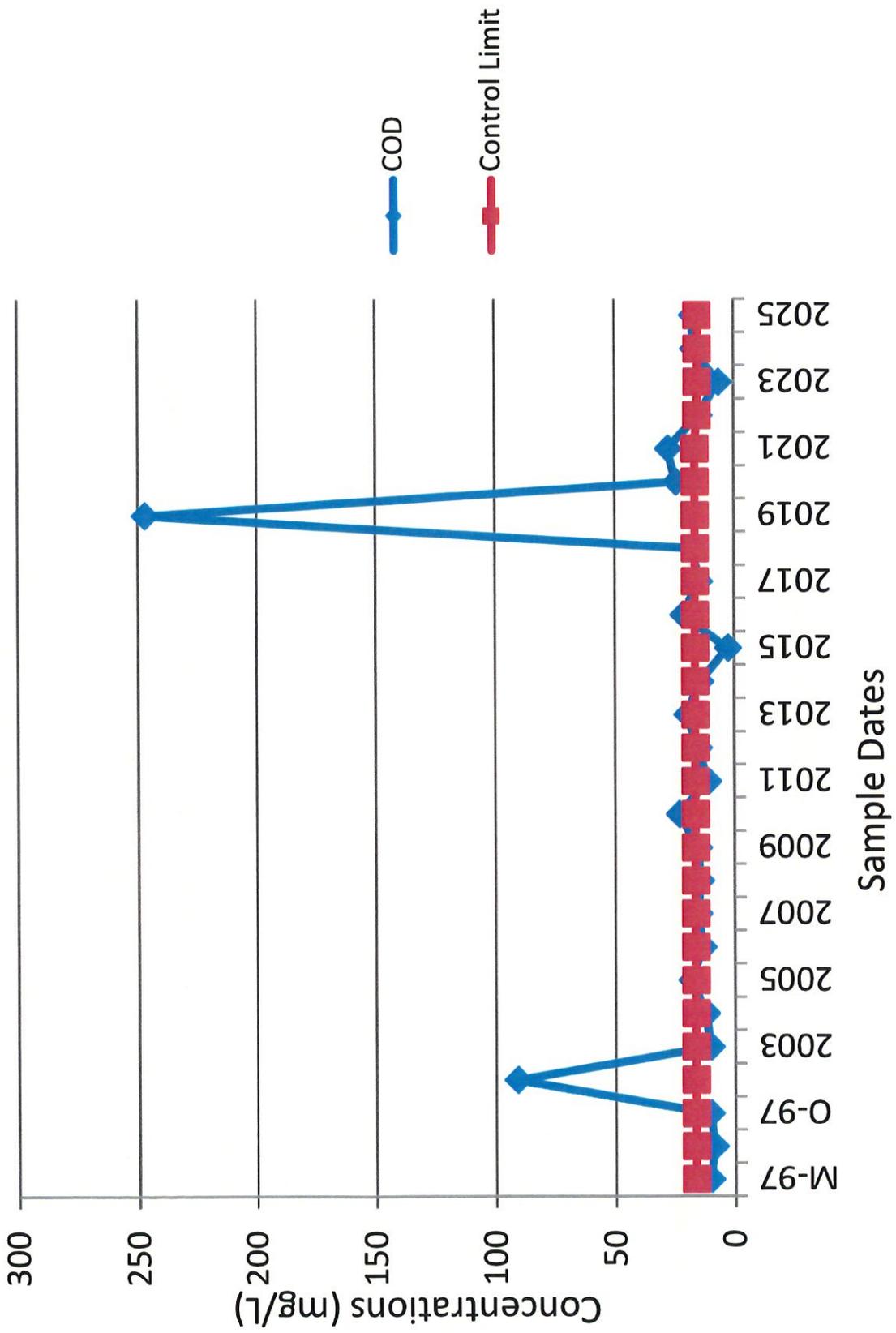
# MW5 - CHLORIDE



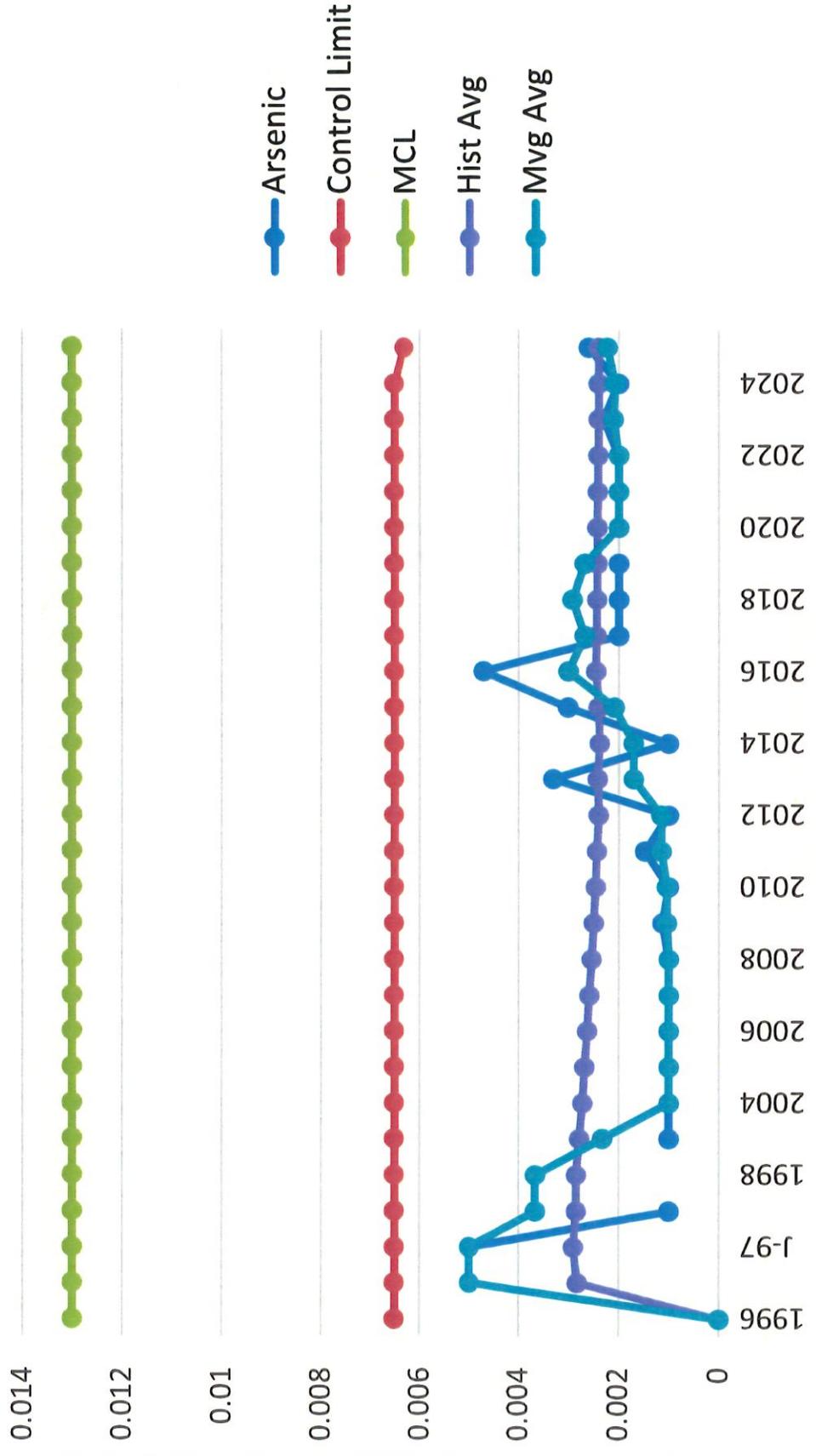
# MW5 - TOH



# MW5 - COD



# MW5-Arsenic

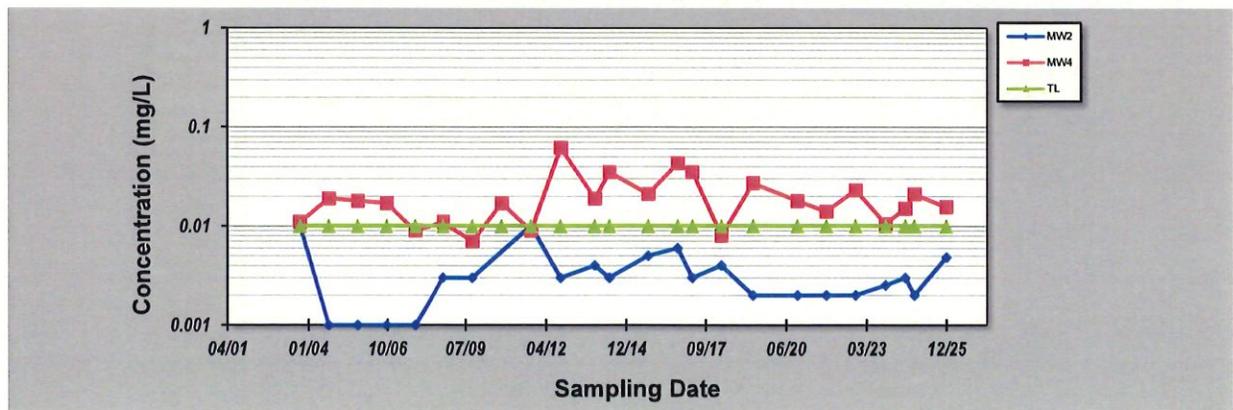


# GSI MANN-KENDALL TOOLKIT for Constituent Trend Analysis

Evaluation Date: **15-Jan-26** Job ID: **6247600**  
 Facility Name: **Keokuk Landfill** Constituent: **Arsenic**  
 Conducted By: **Todd Felderman** Concentration Units: **mg/L**

Sampling Point ID: **MW2** **MW4** **TL**

Sampling Event	Sampling Date	ARSENIC CONCENTRATION (mg/L)		
1	1-Oct-03	0.01	0.011	0.010
2	1-Oct-04	0.001	0.019	0.010
3	1-Oct-05	0.001	0.018	0.010
4	1-Oct-06	0.001	0.017	0.010
5	1-Oct-07	0.001	0.009	0.010
6	1-Oct-08	0.003	0.011	0.010
7	1-Oct-09	0.003	0.007	0.010
8	1-Oct-10		0.017	0.010
9	1-Oct-11	0.01	0.009	0.010
10	1-Oct-12	0.003	0.062	0.010
11	1-Dec-13	0.004	0.019	0.010
12	1-Jun-14	0.003	0.035	0.010
13	1-Oct-15	0.005	0.021	0.010
14	1-Oct-16	0.006	0.043	0.010
15	1-Apr-17	0.003	0.035	0.010
16	1-Apr-18	0.004	0.008	0.010
17	1-May-19	0.002	0.027	0.010
18	1-Nov-20	0.002	0.018	0.010
19	26-Oct-21	0.002	0.014	0.010
20	26-Oct-22	0.002	0.0231	0.010
21	7-Nov-23	0.00252	0.0105	0.010
22	7-Jul-24	0.003	0.015	0.010
23	30-Oct-24	0.002	0.021	0.010
24	3-Dec-25	0.00484	0.0156	0.01
25				
Coefficient of Variation:		0.72	0.63	0.00
Mann-Kendall Statistic (S):		12	23	0
Confidence Factor:		61.3%	70.6%	49.0%
Concentration Trend:		No Trend	No Trend	Stable



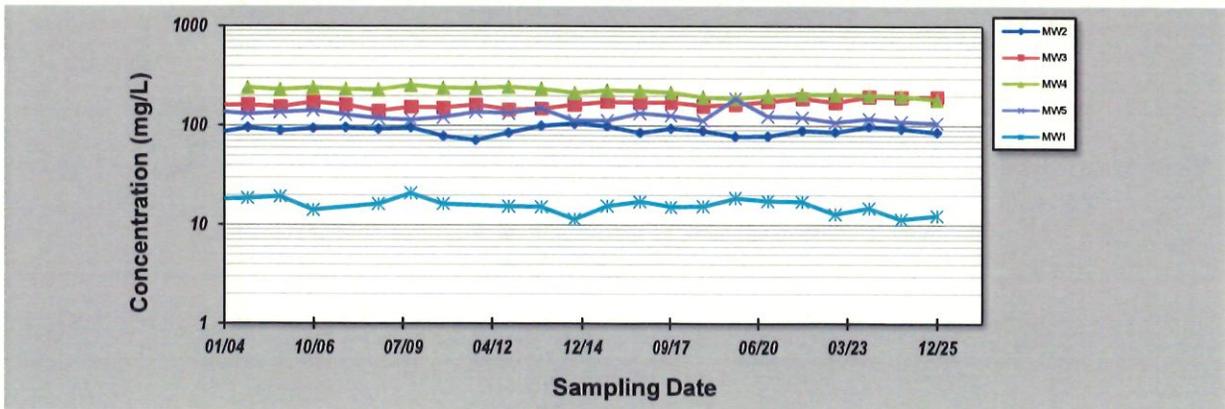
- Notes:**
- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
  - Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
  - Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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## GSI MANN-KENDALL TOOLKIT for Constituent Trend Analysis

Evaluation Date: <b>15-Jan-26</b>	Job ID: <b>6247600</b>
Facility Name: <b>Keokuk Landfill</b>	Constituent: <b>Chloride</b>
Conducted By: <b>Todd Felderman</b>	Concentration Units: <b>mg/L</b>

Sampling Point ID:		MW2	MW3	MW4	MW5	MW1		
Sampling Event	Sampling Date	CHLORIDE CONCENTRATION (mg/L)						
1	1-Oct-03	84.0	160.0		140.0	18.0		
2	1-Oct-04	95.8	163.0	242.0	130.00	18.5		
3	1-Oct-05	89.2	155.0	231.0	136.0	19.3		
4	1-Oct-06	94.4	173.0	242.0	142.0	14.1		
5	1-Oct-07	95.6	162.0	234.0	128.0			
6	1-Oct-08	92.5	141.0	230.0	118.0	16.2		
7	1-Oct-09	95.8	154.0	254.0	115.0	20.8		
8	1-Oct-10	78.0	151.0	240.0	122.0	16.3		
9	1-Oct-11	71.1	161.0	238.0	137.0			
10	1-Oct-12	84.7	145.0	245.0	133.0	15.3		
11	1-Oct-13	99.1	149.0	236.0	149.0	15.2		
12	1-Oct-14	105.0	164.0	215.0	113.0	11.4		
13	1-Oct-15	98.9	175.0	227.0	113.0	15.5		
14	1-Oct-16	85.1	172.0	224.0	133.0	17.1		
15	1-Oct-17	94.3	172.0	216.0	126.0	15.1		
16	1-Oct-18	88.8	158.0	194.0	113.0	15.3		
17	1-Oct-19	77.6	164.0	187.0	187.0	18.6		
18	1-Oct-20	78.1	175.0	200.0	124.0	17.3		
19	26-Oct-21	89.8	188.0	207.0	121.0	17.1		
20	26-Oct-22	86.4	172.0	207.0	108.0	12.8		
21	7-Nov-23	98.1	197.0	202.0	118.0	14.7		
22	30-Oct-24	93.2	194.0	201.0	110.0	11.4		
23	3-Dec-25	85.8	195.0	182.0	106.0	12.4		
24								
25								
<b>Coefficient of Variation:</b>		0.09	0.09	0.09	0.14	0.16		
<b>Mann-Kendall Statistic (S):</b>		-12	122	-149	-104	-73		
<b>Confidence Factor:</b>		61.3%	>99.9%	>99.9%	99.7%	98.6%		
<b>Concentration Trend:</b>		Stable	Increasing	Decreasing	Decreasing	Decreasing		



**Notes:**

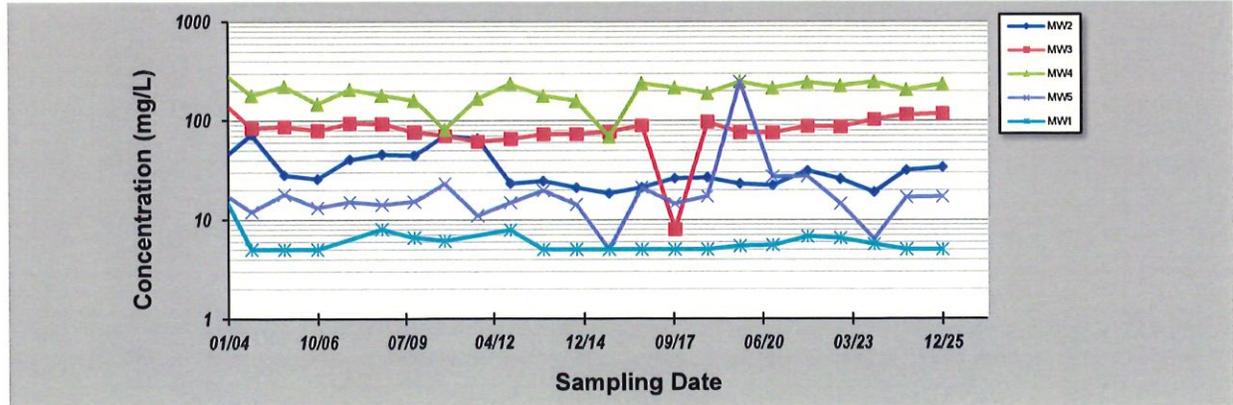
- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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## GSI MANN-KENDALL TOOLKIT for Constituent Trend Analysis

Evaluation Date: <b>15-Jan-26</b>	Job ID: <b>6247600</b>
Facility Name: <b>Keokuk Landfill</b>	Constituent: <b>COD</b>
Conducted By: <b>Todd Felderman</b>	Concentration Units: <b>mg/L</b>

Sampling Point ID:		MW2	MW3	MW4	MW5	MW1		
Sampling Event	Sampling Date	COD CONCENTRATION (mg/L)						
1	1-Oct-03	38.0	170.0	330.0	20.0	22.0		
2	1-Oct-04	72.0	84.0	180.0	12.0	5.0		
3	1-Oct-05	28.0	87.0	223.0	18.0	5.0		
4	1-Oct-06	25.7	79.1	147.0	13.2	5.0		
5	1-Oct-07	40.4	94.2	207.0	15.0			
6	1-Oct-08	45.6	92.9	180.0	14.1	8.0		
7	1-Oct-09	44.2	76.6	160.0	15.1	6.6		
8	1-Oct-10	70.4	70.4	81.2	23.0	6.1		
9	1-Oct-11	65.8	61.3	167.0	11.0			
10	1-Oct-12	23.2	65.4	236.0	14.9	7.9		
11	1-Oct-13	24.5	72.9	179.0	19.7	5.0		
12	1-Oct-14	21.0	72.9	158.0	14.2	5.0		
13	1-Oct-15	18.3	77.2	68.7	5.0	5.0		
14	1-Oct-16	21.1	89.0	238.0	21.1	5.0		
15	1-Oct-17	26	8.0	215.0	14.5	5.0		
16	1-Oct-18	26.6	96.5	188.0	17.2	5.0		
17	1-Oct-19	23	76.1	247.0	247.0	5.47		
18	1-Oct-20	22.3	74.9	213.0	27.1	5.55		
19	26-Oct-21	31.1	87.9	244.0	27.5	6.78		
20	26-Oct-22	25.7	86.3	224.0	14.5	6.53		
21	7-Nov-23	19.0	103.0	246.0	6.4	5.69		
22	30-Oct-24	31.5	115.0	205.0	16.8	5.0		
23	3-Dec-25	33.8	118.0	233.0	17.1	5.0		
24								
25								
<b>Coefficient of Variation:</b>		0.47	0.33	0.28	1.84	0.57		
<b>Mann-Kendall Statistic (S):</b>		-64	30	54	32	-17		
<b>Confidence Factor:</b>		95.2%	77.6%	91.8%	79.2%	68.4%		
<b>Concentration Trend:</b>		Decreasing	No Trend	Prob. Increasing	No Trend	Stable		



- Notes:**
- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
  - Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S=0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
  - Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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**Appendix D**  
**Semi-Annual Landfill Inspection Report**

**Semi-Annual Landfill Inspection Report  
Keokuk Landfill**

**Keokuk, Iowa**

**December 28, 2025**

**IDNR Permit #56-SDP-2-75C**

**1.0 Overview**

The Iowa Department of Natural Resources (IDNR) issued an operations permit (#56 SDP-2-75P) for the Keokuk Landfill on May 29, 1975. There are two known generators of materials placed in the landfill, they are: Lear Corporation Automotive Systems, who is the successor of United Technologies Automotive Systems, who is the successor of Sheller-Globe Corporation; and Roquette America, Inc. (Roquette) who is the successor of the Hubinger Company. The landfill was operated by Keokuk Land Fill, Inc. and/or Keokuk Contractors, Inc. on land owned by Charles and Gale Peters.

The landfill received materials until 1987, at which time the fill areas were covered with compacted soil. A Post Closure Hydrologic Monitoring System Plan was prepared by others dated November 5, 1996. The IDNR issued a Site Closure and Post-Closure Authorization dated June 10, 1999. Roquette and Keokuk Landfill Inc. and Keokuk Contracts, Inc. are responsible for post-closure care for a minimum period of five years and a maximum of thirty years. Specifically, Roquette is responsible for providing the semi-annual site inspections and the annual water quality monitoring.

**2.0 Purpose**

The purpose of this Semi-Annual Landfill Inspection Report for Roquette America, Inc. (Roquette) in Keokuk, IA is to describe the general conditions and maintenance activities at the existing landfill. According to Iowa Department of Natural resources (IDNR) Administrative Order No. 2001-SW-06, signed in 2001, Roquette shall be responsible for “site inspections of the integrity of the landfill cover and vegetative cover, condition of the landfill slopes, storm water appurtenances, and groundwater monitoring wells”. In addition, Roquette shall also be responsible for groundwater “Monitoring and reporting to the Department as specified in Sections 4.0 and 5.0 of the Closure and Post-closure Plan and the Site Closure and Post-closure Authorization issued by the Department on June 10, 1999”.

**3.0 Site Inspection Requirements**

Seneca Companies, Inc. (Seneca) was contracted to perform a semi-annual site inspection. The landfill is in the SE ¼, SW ¼ Section 27, T65N, R5W in Lee County, Iowa. The following general conditions were checked during the site inspection:

- Integrity of the landfill soil cover;
  - Checked for presence of exposed waste materials;
- Integrity of vegetation;
  - Checked for presence of bare ground; dead, sparse or unhealthy appearing vegetation;
- Condition of the landfill slopes;
  - Checked for erosion gullies or rills;
  - Checked for leachate or groundwater seeps;
- Storm water appurtenances;
  - Checked for presence and adequate maintenance of storm water and erosion control features;
- Groundwater monitoring wells;
  - Checked wellheads for proper locks and caps and for signs of abuse or vandalism.

Additionally, supplemental semi-annual monitoring of total metal arsenic levels in MW2 and MW4 was completed, and leachate elevations were measured in piezometers P2 and P3.

According to the previously mentioned Administrative Order, the Keokuk Landfill has been granted variances for leachate control and/or treatment, side slopes over 25 percent and landfill gas management. Therefore, the inspection did not include checking for these items.

#### **4.0 Site Inspection**

Due to responsible party having new management, the semi-annual site inspection didn't occur until December 3, 2025

Seneca inspected the integrity of the landfill soil cover by checking for the presence of exposed waste materials. Exposed waste materials were not observed.

Seneca checked the integrity of vegetation by checking for the presence of bare ground or dead, sparse, or unhealthy appearing vegetation. In general, a layer of snow-covered vegetation throughout the landfill area. Storm damaged trees and limbs have fallen in a few locations along the perimeter of the cap. The landfill cells are covered with approximately 4 inches of snow, with numerous signs of healthy wildlife.

Seneca checked the condition of the landfill slopes by checking for erosion gullies or rills. In locations noted in previous inspections where tree falls have exposed areas of bare soil on the wooded slopes below the landfill cap, undergrowth that will likely prevent the formation of large gullies has started growing.

Seneca checked for leachate or groundwater seeps along the slopes. Seeps with active water flow were not noted. At this time there were no small pools of standing water observed in the ephemeral creek below the landfill during this inspection.

Seneca checked stormwater appurtenances. In the case of the Keokuk Landfill, the surface runoff is controlled by a diversion ditch that circumvents runoff around the landfill, rather than flowing across the landfill. The ditch was inspected for signs of erosion or blockage and none of which were observed. Surface runoff is also controlled by the placement of limestone riprap in the runoff conveyance channels to dissipate runoff energy and prevent erosion. The rip rap conveyance linings and dense vegetation appears to be adequately controlling runoff and preventing erosion.

Seneca checked the groundwater monitoring wells. MW-1R, MW2, MW-3, MW-4, and MW-5 were in good condition. P-1 and P3 were in good condition. Collision protection around the wells and piezometers appeared adequate, and there were no indications of abuse, tampering or vandalism.

Seneca collected groundwater from monitoring wells MW-2 and MW-4 which was analyzed for total metals arsenic by Eurofins Test America. The result from MW-4 depicted arsenic levels remained within historical levels. The most recent sample at MW-4 just exceeded the arsenic mcl concentration. The arsenic concentration at MW-2 remained below the MCL. Refer to table 1 below for historical arsenic results for these two wells. Please refer to Appendices 2 and 3 for copies of the groundwater sampling forms and laboratory reports.

Table 1: Historical Arsenic Concentrations in MW-2 and MW-4:

Year	MW-2 (mg/L)	MW-4 (mg/L)	MCL (mg/L)
1996	0.0021	<b>0.011</b>	0.01
1997 (March)	<0.005	<b>0.012</b>	0.01
1997 (June)	<0.005	<b>0.013</b>	0.01
1997 (October)	<0.01	<b>0.014</b>	0.01
1998	No Data	No Data	0.01
2003	<0.01	<b>0.011</b>	0.01
2004	<0.001	<b>0.0188</b>	0.01
2005	0.00102	<b>0.0184</b>	0.01
2006	<0.001	<b>0.0174</b>	0.01
2007	0.00139	0.00892	0.01
2008	0.00261	<b>0.0106</b>	0.01
2009	0.00286	0.00674	0.01
2010	No Data	<b>0.0167</b>	0.01
2011	<b>0.0101</b>	0.00934	0.01

2012	0.00305	<b>0.0619</b>	0.01
2013 (July)	0.00268	<b>0.0105</b>	0.01
2013 (Dec.)	0.00444	<b>0.0191</b>	0.01
2014 (June)	0.00254	<b>0.0346</b>	0.01
2014 (Nov.)	0.00377	<b>0.0152</b>	0.01
2015(May)	0.00398	<b>0.0164</b>	0.01
2015(Oct.)	0.00498	<b>0.0208</b>	0.01
2016(May)	0.00326	<b>0.0377</b>	0.01
2016(Oct.)	0.00553	<b>0.0426</b>	0.01
2017(April)	0.00288	<b>0.0349</b>	0.01
2017(Oct.)	0.00791	<b>0.0272</b>	0.01
2018(April)	0.00384	0.00849	0.01
2019(May)	<0.00200	<b>0.0273</b>	0.01
2019 (Oct.)	<0.002	<b>0.0227</b>	0.01
2020 (April)	<0.002	0.0108	0.01
2020 (Nov.)	0.00235	<b>0.0181</b>	0.01
Total Metals Arsenic Sampling started 2021			
2021 (April)	<0.002	0.00347	0.01
2022 (April)	<0.002	<b>0.0143</b>	0.01
2022 (Oct)	<0.002	<b>0.0231</b>	0.01
2023 (April)	0.00206	<b>0.0145</b>	0.01
2023 (Nov)	0.00252	<b>0.0105</b>	0.01
2024 (July)	0.00326	<b>0.0150</b>	0.01
2024 (Oct)	<0.00200	<b>0.0208</b>	0.01
2025 (Dec)	0.00484	<b>0.0156</b>	0.01

**Bolded:** Value at or above the MCL.

Table 2: Recent leachate elevations in P2 and P3

Well I.D.	TOC Elev (Feet, NGVD)	Leachate Elev. (Feet, NGVD) 10/30/12	Leachate Elev. (Feet, NGVD) 11/21/13	Leachate Elev. (Feet, NGVD) 11/5/14	Leachate Elev. (Feet, NGVD) 10/19/15	Leachate Elev. (Feet, NGVD) 10/25/16	Leachate Elev. (Feet, NGVD) 11/1/17	Leachate Elev. (Feet, NGVD) 4/25/18	Leachate Elev. (Feet, NGVD) 5/02/19	Leachate Elev. (Feet, NGVD) 10/29/19
P2	621.06	609.40	609.54	609.33	609.56	609.53	612.53	609.50	609.72	609.70
P3	624.13	617.92	615.01	615.75	618.63	Dry at 617.20	Dry at 617.20	615.23	618.08	614.91

Well I.D.	TOC Elev (Feet, NGVD)	Leachate Elev. (Feet, NGVD) 4/28/20	Leachate Elev. (Feet, NGVD) 11/03/20	Leachate Elev. (Feet, NGVD) 04/29/21	Leachate Elev. (Feet, NGVD) 04/25/22	Leachate Elev. (Feet, NGVD) 10/26/22	Leachate Elev. (Feet, NGVD) 04/27/23	Leachate Elev. (Feet, NGVD) 11/07/23	Leachate Elev. (Feet, NGVD) 07/18/24	Leachate Elev. (Feet, NGVD) 10/30/24
P2	624.68	610.16	613.54	615.09	613.12	613.17	613.65	613.45	612.88	612.97
P3	622.94	617.07	613.76	615.46	616.54	615.26	615.09	614.99	613.63	614.84

\*Ground surface and TOC resurveyed in Oct. 2019

Well I.D.	TOC Elev (Feet, NGVD)	Leachate Elev. (Feet, NGVD) 12/03/25								
P2	624.68	612.62								
P3	622.94	614.68								

The site’s access lane is chained and locked, but no fencing prevents unauthorized access from the public highway. There was no evidence of unwanted vehicles in the area. There is a fence that defines the south property line, the no Trespassing sign was replaced on the southwest corner of the property.

**5.0 Summary**

The Keokuk Landfill was inspected on December 03, 2025. The inspection was performed to observe for:

- Integrity of the landfill soil cover; Snow covered
- Integrity of vegetation; Snow covered
- Condition of the landfill slopes;
- Storm water appurtenances; and
- Condition of groundwater monitoring wells.

Items noted:

- Areas of the slope below the landfill cap where previous tree have fallen and didn’t form new gullies.

- Arsenic concentrations were below the MCL in MW-2. MW-4 arsenic concentrations decreased and were slightly above target levels but remained within its historical range.
- MW4 indicated 1% LEL Methane.
- The previously eroded gully in the southwest corner of the property was filled in with rip rap to stop erosion. Further erosion was not noted.

SEMIANNUAL INSPECTION CHECKLIST

Landfill Roquette America - Keokuk, IA

Date 12/03/2025

Item	Observation	Remedial Activity/Date
Gate	Closed an Locked	12/03/2025
Sign Posted	Clearly Posted	12/03/2025
Access Road Maintenance	Open and Accessible	12/03/2025
Fence line intact	Standing and Sturdy	12/03/2025
Vegetation	Snow covered, some vegetation observed	12/03/2025
Erosion Gullies	Maintained	12/03/2025
Drainageways	Working as Intended	12/03/2025
Seeps	None Observed	12/03/2025
Wells	In Good Condition	12/03/2025

Comments:

Site remains properly maintained

Inspector: William Sindelar

1



Monitoring Well 1

2



Landscape surrounding MW1

3



Close up P3

4



Area Foliage

5



Monitoring Well 4

6



Down Gradient of MW4

7



Drainage rock gully

8



Monitoring Well 5

9



Growth around MW5

10



Low area of Landfill Levee

11



Monitoring Well 3

12



Levee on top of Landfill above Gully

13



Monitoring Well 2

14



Private Property sign South side of Property

15



Gully Rip Rap South side of Property