2023 Annual Water Quality Report

Carroll County Landfill Western Expansion Area

Carroll, Iowa

February 2024

IDNR Permit No. 14-SDP-01-74P
Project I.D.: 24C002.00

Solving our clients' toughest science and engineering challenges.

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February 22, 2024

Geoffrey Spain
Iowa Department of Natural Resources
Wallace State Office Building
502 East 9th Street
Des Moines, IA 50319-0034

Re: 2023 Annual Water Quality Report
Carroll County Landfill Western Expansion Area
Permit No. 14-SDP-01-74P

Dear Geoffrey Spain:

On behalf of the Carroll County Solid Waste Management Commission, Foth Infrastructure & Environment, LLC is submitting the 2023 Annual Water Quality Report (AWQR) as required by the Iowa Department of Natural Resources (IDNR) Permit No. 14-SDP-01-74P. The contents of this report are intended to satisfy the requirements of 567 Iowa Administrative Code (IAC) 113.10(5)c(1) and 113.10(6)d(1) related to recordkeeping and notification, and annual reporting requirements listed in IAC 113.10(10) (effective 12/10/07).

This report was prepared using the IDNR AWQR report format required by Special Provision X.4.k. The Monitoring Well Maintenance and Performance Schedule, Summary, and Evaluation; the Leachate Control System Performance Evaluation Report (LCSPER); and the Methane Monitoring Report (MMR) have been incorporated directly into the AWQR as Tables 4, 5, 6, 11, and 12.

Thank you for your attention to this matter. Please contact us at our numbers listed below if you have any questions or need additional information.

Sincerely,

Foth Infrastructure & Environment, LLC

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2023 Annual Water Quality Report

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Carroll County Landfill Western Expansion Area

Project ID: 24C002.00

Prepared for

Carroll County Solid Waste Mangement Commission

19111 Kittyhawk Avenue
Carroll, Iowa

Prepared by

Foth Infrastructure & Environment, LLC

February 22, 2024

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Certifications

I hereby certify that this document was prepared by me or under my direct supervision and that I am a qualified groundwater scientist as defined in 567 Iowa Administrative Code 113.10(1)d.



2/22/2023

Gina Wilming (date)
Iowa G.W.P. No. 2099.

My certification renewal date is
December 31, 2025

For the purposes of 567 Iowa Administrative Code 113.10(1)d, 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.

List of Abbreviations, Acronyms, and Symbols

AWQR	Annual Water Quality Report
cm/s	centimeters per second
Commission	Carroll County Solid Waste Management Commission
Foth	Foth Infrastructure & Environment, LLC
GWPS	groundwater protection standard
HIR	Hydrogeologic Investigation Report
HMSP	Hydrologic Monitoring System Plan
HRG	Howard R. Green Company
IAC	Iowa Administrative Code
IDNR	Iowa Department of Natural Resources
LCSPER	Leachate Control System Performance Evaluation Report
LEL	Lower Explosive Limit
mg/L	milligrams per liter
MMR	Methane Monitoring Report
RCRA	Resource Conservation and Recovery Act
SSI	statistically significant increase (over background)
SSL	statistically significant level (over GWPS)
TSS	total suspended solids

1. Executive Summary

Foth Infrastructure & Environment, LLC (Foth) was retained by the Carroll County Solid Waste Management Commission (Commission) to provide an annual report summarizing the groundwater quality and hydrogeologic monitoring activities at Carroll County Landfill Western Expansion Area during 2023. This 2023 Annual Water Quality Report (AWQR) was prepared using the Iowa Department of Natural Resources (IDNR) AWQR report format required by Special Provision X.4.k. The Monitoring Well Maintenance and Performance Schedule, Summary, and Evaluation; the Leachate Control System Performance Evaluation Report (LCSPER); and the Methane Monitoring Report (MMR) have been incorporated directly into the AWQR as Tables 4, 5, 6, 11, and 12.

1.1 Period of Report Coverage

This AWQR presents an evaluation of the groundwater monitoring, methane monitoring, and leachate collection system monitoring, maintenance, and performance activities conducted at Carroll County Landfill Western Expansion Area for the period of January 1 through December 31, 2023.

1.2 Report Priority

Foth requests IDNR review and approval of the following:

- Amend the Hydrologic Monitoring System Plan (HMSP) and Special Provisions X.4.a.ii and X.4.b. For Special Provision X.4.A.ii, Foth requests replacing MW-204R with MW-205 for the downgradient monitoring network. For Special Provision X.4.b, Foth requests adding MW-204RR to be retained as a water level measuring point. As reported in the *2020 AWQR* (Foth, 2021) MW-204R was removed from the groundwater monitoring network in 2020 due to a casing compromise identified during the April 2020 event. Replacement well MW-204RR was installed in July 2020 and was dry in August/September 2020. Groundwater was observed in MW-204RR from 2021-2023; however, the volumes were insufficient for sample collection. The natural confining conditions of the glacial till, which results in a low yield uppermost water-bearing unit, have been exacerbated by the clay placement and compaction activities associated with the construction of Phases 5B and 6 as well as ongoing drought conditions in western Iowa. As a result, MW-204RR has not been able to obtain static water level conditions. Similarly, MW-205 and MW-206, located 200 and 400 feet east of MW-204RR, respectively, have exhibited increasing groundwater elevations from 2020-2023 and have also not yet achieved static conditions post-installation. Due to the insufficient water column for sample collection at MW-204RR, detection monitoring samples have been collected at MW-205 as a temporary or potential replacement for MW-204RR. As recommended in the *2020, 2021, and 2022 AWQRs* (Foth, 2021, 2022, and 2023), amendment of the Permit and HMSP regarding the replacement of MW-204R has been delayed while groundwater elevations were monitored at MW-204RR, MW-205, and MW-206 for the achievement of static groundwater conditions. Even though static conditions have not yet been attained, amendment of the Permit and HMSP is now recommended. Since MW-204RR has remained insufficient for sample collection for 3.5 years, Foth recommends replacing MW-204R/MW-204RR with MW-205. MW-204RR will be retained as a water level measuring point and field staff will continue to collect semiannual water level measurements at MW-204RR. If the water column at MW-204RR increases and achieves static conditions at a level that is sufficient for sample collection, consideration will be given to adding MW-204RR as a downgradient monitoring well.

- Modify the previously approved alternate points of compliance for Phases 4A through 6 with the points of compliance consisting of groundwater underdrain GU-4A and downgradient wells MW-205 and MW-206. MW-204/MW-204R/MW-204RR was the westernmost downgradient monitoring well previously approved for monitoring theoretical releases southeast of Phases 4A through 5A. Note that static groundwater elevations have not yet been attained for the wells south of the Western Expansion Area, with MW-205 and MW-206 exhibiting post-installation increases in

groundwater elevations. The groundwater contours in this area, as depicted in Figures 2 and 3, will more likely be to the southeast or east of Phases 4A through 6 once static conditions are attained. As reported in Tables 1 and 2, MW-204RR has remained insufficient for sample collection for 3.5 years. Given that theoretical releases are more likely to the southeast or east of the currently depicted groundwater contours in Figures 2 and 3 and that hydrogeologic conditions are limiting groundwater flow into MW-204RR, replacing MW-204RR with MW-205 will adequately monitor theoretical releases southeast of Phases 4A through 5A. MW-206 will continue to monitor theoretical releases southeast of Phases 4A through 6 at a spacing of 200 feet east of MW-205.

1.3 Site Status and Applicable Rules

The Carroll County Landfill consists of the Closed Eastern Area and the active Western Expansion Area. The facility is located approximately two miles west-northwest of Carroll, Iowa, and situated in Section 22, Township 84 North, Range 35 West, in Carroll County, Iowa. A site map depicting the characteristics of the landfill and surrounding areas is provided in Figure 1.

The Western Expansion Area is an approximately 30-acre Resource Conservation and Recovery Act (RCRA) Subtitle D compliant composite lined area that opened in 2002 and continues to accept waste. The landfill operates under Permit No. 14-SDP-01-74P, reissued by the IDNR on December 18, 2023. The applicable regulatory requirements are established in the most recent revisions to 567 Iowa Administrative Code (IAC) Chapter 113 (effective 12/10/07).

Groundwater monitoring and reporting activities were conducted in accordance with Special Provision X.4 and 567 IAC 113.10. Details regarding the statistical methods utilized are included with the statistical reports in Appendix B. Monitoring well maintenance and performance was conducted in accordance with 567 IAC 113.10(2)f.

Methane monitoring and reporting activities were conducted in accordance with Special Provision X.5 and 567 IAC 113.9(2).

The leachate collection system monitoring, maintenance, and performance activities were conducted in accordance with Special Provisions X.2.b and c and 567 IAC 113.7(5)b.

2. Site Background

2.1 Site History

The Carroll County Landfill consists of approximately 230 acres and is owned and operated by the Commission. The facility has been in operation since 1972 and has accepted municipal, commercial, and industrial wastes from Buena Vista, Carroll, Crawford, Sac, and Shelby Counties and parts of Adair, Audubon, Calhoun, Guthrie, Pocahontas, and Pottawattamie Counties. The facility has been regulated by the IDNR since 1974. The adjacent Closed Eastern Area was closed in October 2007.

The Western Expansion Area's initial Phase 1A was constructed in 2002 with a clay liner, a geosynthetic liner, and a gravity-driven leachate collection system (Foth, 2002). Phase 1A is approximately 3.6 acres in size. The leachate collection system gravity drains to the north of the cell into a double-walled header liner running to the east, where it ties into the existing leachate header line north of the Closed Eastern Area. In 2006, the phased development expanded to the west with the construction of the 2.9-acre Phase 1B (Foth, 2006). Phase 1B expansion was also constructed with a clay liner, a geosynthetic liner, and a gravity-driven leachate collection system tied into Phase 1A.

During the summer of 2009, the 2.9-acre Phase 2A expansion was constructed west of Phase 1B (Foth, 2009). Phase 2A expansion was constructed with a clay liner, a geosynthetic liner, a groundwater underdrain system, and a leachate collection system. The geosynthetic liner and leachate collection

system for Phase 2A are tied into Phases 1A and 1B. The groundwater underdrain system for Phase 2A gravity drains to the drainage way north of the Western Expansion Area, where it outlets at GU-2A.

In 2011, the 5.8-acre Phases 2B and 3 expansion was constructed west of the previous phases (Foth, 2011). Phases 2B and 3 were also constructed with a clay liner, a geosynthetic liner, a groundwater underdrain system, and a leachate collection system. As with the previous cell constructions, the geosynthetic liner and leachate collection system for Phases 2B and 3 are tied into the previous phases (Phases 1A, 1B, and 2A). The groundwater underdrain for Phases 2B and 3 gravity drains to the north of the cell and is tied into the underdrain system for Phase 2A.

In 2015, the 9.3-acre Phases 4A, 4B, and 5A expansion was constructed south of Phases 2A, 2B, and 3 (Foth, 2015). Phases 4A, 4B, and 5A were also constructed with a clay liner, a geosynthetic liner, a groundwater underdrain system, and a leachate collection system. The north end of the geosynthetic liner was tied into the south end of the liner for Phases 2A, 2B, and 3. The leachate collection system for Phases 4A, 4B, and 5A gravity drains to the south of the cell into a double-walled header liner running to the east, where it ties into the existing leachate header line south of the Closed Eastern Area. Phases 4A, 4B, and 5A were constructed with an independent groundwater underdrain system that drains south through the cell to the stormwater utility structure on the sedimentation pond's south side. At the utility structure, groundwater is combined with stormwater from the sedimentation pond and outlets to the surface on the south side of the sedimentation pond.

In 2019, the 6-acre Phases 5B and 6 expansion was constructed east of Phase 5A and south of Phases 1A and 1B. Phases 5B and 6 were constructed with a clay liner, a geosynthetic liner, and a leachate collection system. The clay and geosynthetic liners were tied into the east end of the liners for Phase 5A and the south end of the liners for Phases 1A and 1B. The leachate collection system for Phases 5B and 6 gravity drains to the south of the cell into existing dual-walled maintenance holes, which are tied into the double-walled header line connecting the header line for the south side of the Western Expansion Area into the existing header line south of the Closed Eastern Area (Foth, 2019). Special Provision X.3.k approved the request to remove the requirement for the construction of a groundwater underdrain for Phases 5B and 6, given that a groundwater separation distance of greater than 5 feet was demonstrated for this area. As part of Phases 5B and 6 construction, stormwater improvements were constructed on the north side of the Western Expansion Area (Phases 1 through 3) and the south side of the soil stockpile located north of the Western Expansion Area.

2.2 Geology and Hydrogeology

A preliminary Hydrogeologic Investigation Report (HIR) for the Carroll County Sanitary Landfill was prepared in May 1991 (Howard R. Green Company [HRG], 1991). An HIR was developed for the Western Expansion Area in 2001 (Foth, 2001) and approved by IDNR in the permit renewal issued in June 2001. The site-specific geologic and hydrogeologic characteristics presented in this section are summarized from these two reports.

The Carroll County Landfill is located near the margin of the Southern Iowa Drift Plain landform. The Southern Iowa Drift Plain is characterized by gently rolling topography. The hill slopes generally have a stepped (multi-level) surface with slopes steepening near the stream valleys. The Southern Iowa Drift Plain also has well-established surface water drainage systems with obvious watershed divides. The flat upland hilltops are usually loess-capped remnants of older land surfaces that survived the erosional effects of multiple glacial advances, the most recent being the Des Moines Lobe glacial advance (Prior, 1991). The Des Moines Lobe extended into the northeastern half of Carroll County about 14,000 years ago. The Middle Raccoon River, which borders the landfill on the east and northeast, is interpreted to be the furthest western extent of the Des Moines Lobe.

The major topographic feature at the site is a ridgeline that runs approximately west to east and is an interfluve between the Middle Raccoon River, located east and northeast of the landfill, and an unnamed

tributary to the Raccoon River located south of the landfill. The landfill has been developed by excavating along the ridgeline.

The site geology generally consists of Holocene silty-colluvium/alluvium or Wisconsinian loess over a very thick Pre-Illinoian till which overlays the basal “salt and pepper sands” and Cretaceous-aged bedrock. The thickness of the Quaternary sediments (overburden) is greater than 120 feet thick at the Western Expansion Area. Regionally, these sediments range from the surface to approximately 150 to 250 feet below ground surface. The colluvium/alluvium consists of sandy to clayey silt and flanks the sides of the ridge. Loess was identified near the top of the ridgeline with a maximum thickness of about 10 feet and thinned toward the flanks of the ridge. Pre-Illinoian Till underlies the colluvium/alluvium and loess layers and was observed at a maximum thickness of 120 feet at MW-5. The uppermost bedrock unit was not encountered during the previous investigations. Based on regional studies, the upper unit is expected to be the Cretaceous-aged Dakota formation, which is composed of sandstones and shale facies.

The water table generally exists within the till along the ridge line and within the colluvium/alluvium at lower elevations. The geometric mean vertical hydraulic conductivity of the fine-grained till was 2.1x10-8 centimeters per second (cm/s). The geometric mean horizontal hydraulic conductivity calculated for the till is 5.6x10-7 cm/s, and for the colluvial/alluvial silts is 5.4x10-5 cm/s.

Flow at the water table within the Quaternary sediments generally follows a subdued version of the landscape, with recharge areas in upland positions of the ridgeline, to the floodplain, and eventual discharge to the nearby Raccoon River and unnamed streams. Groundwater elevation is seasonally dependent and is typically highest in the spring and lowest in the fall.

3. Quality Assurance/Quality Control Summary

In 2023, field blanks, field duplicates, and trip blanks were collected and analyzed at the frequencies listed in the *Hydrologic Monitoring System Plan* (Foth, 2008). Data validation reports detailing any resampling, data qualifiers added because of data validation, and an overall assessment of the data are included in Appendix A.

In 2023, resampling was not considered regarding data quality review. The overall data assessments indicated that method criteria, precision, accuracy, representativeness, comparability, completeness, and suitability for intended use were acceptable in 2023.

3.1 Sample Turbidity

Low-flow or no-purge sampling techniques were utilized in 2023, which was consistent with minimizing turbidity and total suspended solids (TSS) in the groundwater samples. Note that GU-4A and MW-204RR are not currently included in this evaluation since samples were not collected at these locations in 2023. See Table 1 for details.

In 2023, background wells MW-122R and MW-200 had TSS concentrations below the five milligrams per liter (mg/L) level for satisfactory sample quality. The 2023 background review indicated that turbidity is not impacting the representativeness of the background data set, and the 2023 background data is suitable for use in interwell statistical comparisons. Note that in addition to supplementing the background data set, MW-200 primarily serves as a downgradient monitoring location for the Western Expansion Area. As a result, the TSS at MW-200 also indicated satisfactory sample quality for downgradient compliance monitoring at this well.

TSS concentrations were also below 5 mg/L at MW-119RR and MW-121R in 2023, indicating satisfactory sample quality for these downgradient monitoring wells.

At GU-2A and MW-205, the April 2023 TSS concentrations were below 5 mg/L, indicating satisfactory sample quality. In September 2023, TSS concentrations at these locations were 15.1 and 7.25 mg/L, respectively. The September 2023 TSS concentrations were less than 20 mg/L, which indicates that

turbidity was not significantly impacting the data at these locations during the September 2023 sampling event.

At MW-206, TSS concentrations were 16.5 and 29.5 mg/L in April and September 2023, respectively. In Special Provision X.4.g, IDNR indicated it would consider higher TSS levels as representative of site groundwater conditions if sample quality does not improve with improved well construction, well development, and/or sampling methods. MW-206 was installed in August 2019. As detailed in Table 5, no maintenance activities are recommended for MW-206 based on the review of water levels, well depths, recharge rates, and well chemistry. Therefore, redevelopment is not recommended currently. Sampling is typically conducted by no purge sampling with a bladder pump. Field staff use caution during pump placement to prevent pump interaction with the bottom of the well and limit disturbance to the water column. In September 2023, the bladder pump was not working due to missing o-rings, and field staff pulled the pump after placement. The no-purge sample was subsequently collected using a bailer. The slightly elevated TSS in September 2023 may have resulted from pump placement and removal followed by sample collection using a bailer. The September 2023 metals detected in MW-206 were consistent with recent sampling events, indicating turbidity was not significantly impacting the data during the September 2023 sampling event. Therefore, no data set adjustments are recommended.

As discussed in Tables 1 and 5, post-installation groundwater elevations have been increasing at MW-205 and MW-206 and have not yet achieved static conditions. As groundwater elevations have increased and become loser to achieve static conditions, lower TSS concentrations have been identified at these two wells. Currently, no data set adjustments are recommended based on changes in the water column and/or sampling technique changes at MW-205 and MW-206. If lower TSS concentrations continue to be identified, the metals data from the earlier events with higher TSS will be reviewed for potential removal from the downgradient data sets.

4. Conclusions and Recommendations

4.1 2023 Data Evaluation Summary

4.1.1 Groundwater

As detailed in Tables 1 and 2, samples were not collected at GU-4A and MW-204RR in 2023. No statistically significant increases (SSIs) above background were identified at detection monitoring locations GU-2A, MW-119RR, MW-200, MW-205, and MW-206 during the Spring and Fall 2023 statistical evaluations. These locations will remain in the detection monitoring program in 2024. Details regarding the future sampling schedules are provided in Table 2.

SSIs continued to be identified for arsenic, benzene, and cis-1,2-dichloroethene in assessment monitoring well MW-121R during the Spring and Fall 2023 statistical evaluations. No statistically significant levels (SSLs) above the groundwater protection standard (GWPS) were identified. Since the Fall 2023 statistical evaluation did not identify all Appendix II constituents below background for three consecutive sampling events, MW-121R will not exit assessment monitoring. Details regarding the future sampling schedule for MW-121R are provided in Table 2.

4.1.2 Monitoring Well Maintenance and Performance Reevaluation

As indicated in Table 4, the complete biennial monitoring well maintenance and performance review was conducted in 2023 and consisted of a review of horizontal and vertical acceptability [567 IAC 113.10(2)f(1)], water level conditions [567 IAC 113.10(2)f(2)], well depths [567 IAC 113.10(2)f(3)], well recharge rates and chemistry [567 IAC 113.10(2)f(4)], and groundwater separation distance [567 IAC 113.6(2)i]. Results of the 2023 review are included in Tables 5 and 6. Based on the complete biennial review, no well maintenance activities are recommended. A request to amend the HMSP and Permit regarding the replacement of MW-204RR with MW-205 is discussed in Table 1 and the Report Priority in Section 1.2 above. The minimum five-foot separation distance was maintained at Phases 1-6 in 2023.

The next biennial review of the horizontal and vertical acceptability, water level conditions, and well recharge rates and chemistry will be conducted in 2024. Well depth and groundwater separation distance reviews will continue to be conducted annually.

4.1.3 Leachate Control System Performance

As detailed in Table 11, head levels at PZ-Leachate, LHMR-1B, LHMR-2B, LHMR-3, LHMR-4B, LHMR-5A, LHMR-5B, and LHMR-6 were below one foot of head over the liner in 2023, indicating compliance with 567 IAC 113.7(5)b(3) for the Western Expansion Area.

4.1.4 Methane

The quarterly methane monitoring results did not indicate concentrations in exceedance of 25% of the lower explosive limit (LEL) for facility structures, 100% LEL at subsurface monitoring locations, and 100% LEL at the facility boundary. Based on 567 IAC 113.9(2), no actions are required for this facility regarding methane control at this time. Monitoring of potential methane emissions and migration will be conducted quarterly in 2024 in accordance with the 567 IAC 113.9(2) and Special Provision X.5.

4.2 Recommendations for Future Monitoring

On behalf of the Commission, Foth presents the following recommendations for future monitoring at the Carroll County Landfill Western Expansion Area:

- Continue collecting water level and well depth measurements on a semiannual basis.
- Continue collecting TSS samples and field turbidity measurements during sampling events in 2024.
- Continue detection, assessment, and background monitoring as listed in Table 2.
- Continue to monitor groundwater elevations at MW-204RR, MW-205, and MW-206 for the achievement of static groundwater conditions.

5. References

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Tables

Table 1
Monitoring Program Summary
2023 Annual Water Quality Report
Carroll County Landfill Western Expansion Area
Permit No. 14-SDP-01-74P

Monitoring Well	Formation	Current Monitoring Program [1]	Change for Next Sampling Event	Constituents w/ SSI [2]	Constituents w/ SSL [2]	Total # of Samples in Each Monitoring Program			
						Detection	Assessment	Corrective Action	Background
Downgradient Monitoring Locations									
GU-2A	Holocene Alluvium/Colluvium and Pre-Illinoian Glacial Till	Detection	No Change	None	None	25	0	0	N/A
GU-4A [3]	Holocene Alluvium/Colluvium and Pre-Illinoian Glacial Till	Detection [3]	N/A [3]	N/A [3]	N/A [3]	0	0	0	N/A
MW-119RR	Holocene Colluvium/Alluvium - Silt, Clayey Silt, and Silty Clay	Detection	No Change	None	None	9	0	0	N/A
MW-121R	Holocene Colluvium/Alluvium - Clayey Silt, Sandy Silt	Assessment	No Change	Arsenic; Benzene; cis-1,2-Dichloroethene;	None	9	21	0	N/A
MW-200 [4]	Holocene Colluvium/Alluvium - Silty Clay	Detection	No Change	None	None	28	5	0	4
MW-204RR [5]	Pre-Illinoian Glacial Till - Clay & Sandy Clay	Detection [5]	Water-Level Only [5]	N/A [5]	N/A [5]	0	0	0	N/A
MW-205 [6]	Pre-Illinoian Glacial Till - Clay & Sandy Clay	Detection [6]	Detection [6]	None	None	10	0	0	N/A
MW-206	Pre-Illinoian Glacial Till - Clay & Sandy Clay	Detection	No Change	None	None	11	0	0	N/A
Background Monitoring Locations									
MW-122R	Pre-Illinoian Glacial Till - Silty Clay	Background	No Change	None	None	0	0	0	39
MW-200 [4]	Pre-Illinoian Glacial Till - Silty Clay	Background	No Change	None	None	0	0	0	37

Comments:

N/A= not applicable

[1] Current Monitoring Program is from the last event the location was sampled (i.e., Sep. 2023 event).

[2] SSIs and SSLs are from the Fall 2023 statistical evaluation.

[3] Baseline detection monitoring will be initiated at GU-4A once the water level in the sample location is at or above the elevation of the horizontal underdrain discharge pipe connected perpendicular to the vertical sample pipe.

[4] MW-200 primarily serves as a downgradient monitoring location; however, MW-200 is also used to supplement the background data set.

[5] Replacement well MW-204RR was installed in Jul. 2020 and was dry in Aug./Sep. 2020. Groundwater was observed in MW-204RR from 2021 through 2023; however, the volumes were insufficient for sample collection. As detailed in the request below, Foth Infrastructure and Environment, LLC (Foth) recommends an amendment of the Hydrologic Monitoring System Plan (HMSP) and Permit by replacing MW-204R/MW-204RR with MW-205. MW-204RR will be retained as a water level measuring point.

Table 1
Monitoring Program Summary
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Comments(Continued):

(6) As discussed in the *2020, 2021, and 2022 Annual Water Quality Reports (AWQRs)* [Foth, 2021, 2022, and 2023], detection monitoring samples are being collected at MW-205 as a temporary or potential replacement for MW-204RR due to dry conditions or insufficient water column for sample collection at MW-204RR. Note that MW-205 is not currently included in the permitted groundwater monitoring network for the Western Expansion Area. As detailed in the request below, Foth recommends an amendment of the HMSP and Permit by replacing MW-204R/MW-204RR with MW-205.

Requests

• On behalf of the Carroll County Solid Waste Management Commission (Commission), Foth requests Iowa Department of Natural Resources (IDNR) review and approval to amend the HMSP and Special Provisions X.4.a.ii and X.4.b. For Special Provision X.4.A.ii, Foth requests replacing MW-204R with MW-205 for the downgradient monitoring network. For Special Provision X.4.b, Foth requests adding MW-204RR to be retained as a water level measuring point. As reported in the *2020 AWQR* (Foth, 2021), MW-204R was removed from the groundwater monitoring network in 2020 due to a casing compromise identified during the Apr. 2020 event. Replacement well MW-204RR was installed in Jul. 2020 and was dry in Aug./Sep. 2020. Groundwater was observed in MW-204RR from 2021-2023; however, the volumes were insufficient for sample collection. The natural confining conditions of the glacial till, which results in a low yield uppermost water-bearing unit, have been exacerbated by the clay placement and compaction activities associated with the construction of Phases 5B and 6 as well as ongoing drought conditions in western Iowa. As a result, MW-204RR has not been able to obtain static water level conditions. Similarly, MW-205 and MW-206, located 200 and 400 feet east of MW-204RR, respectively, have exhibited increasing groundwater elevations from 2020-2023 and have also not yet achieved static conditions post-installation. Due to the insufficient water column for sample collection at MW-204RR, detection monitoring samples have been collected at MW-205 as a temporary or potential replacement for MW-204RR. As recommended in the *2020, 2021, and 2022 AWQRs* (Foth, 2021, 2022, and 2023), amendment of the Permit and HMSP regarding the replacement of MW-204R has been delayed while groundwater elevations were monitored at MW-204RR, MW-205, and MW-206 for the achievement of static groundwater conditions. Even though static conditions have not yet been attained, amendment of the Permit and HMSP is now recommended. Since MW-204RR has remained insufficient for sample collection for 3.5 years, Foth recommends replacing MW-204R/MW-204RR with MW-205. MW-204RR will be retained as a water level measuring point and field staff will continue to collect semiannual water level measurements at MW-204RR. If the water column at MW-204RR increases and achieves static conditions at a level that is sufficient for sample collection, consideration will be given to adding MW-204RR as a downgradient monitoring well.

Table 2
Monitoring Program Implementation Schedule
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Monitoring Well	Monitoring Program	Sampling Date and Constituents [1]		Upcoming Sampling Dates and Constituents [1]		Full Appendix II Sample Dates	
		Apr. 2023	Sep. 2023	Spring 2024	Fall 2024	Previously Collected	Next Event
Downgradient Monitoring Locations							
GU-2A	Detection	Appendix I, TSS	Appendix I, TSS	Appendix I, TSS	Appendix I, TSS	N/A	N/A
GU-4A	Detection	Dry [2]	Dry [2]	TBD [2]	TBD [2]	N/A	N/A
MW-119RR	Detection	Appendix I, TSS	Appendix I, TSS	Appendix I, TSS	Appendix I, TSS	N/A	N/A
MW-121R	Assessment	Appendix II, TSS	Appendix II, TSS	Appendix II, TSS	Full Appendix II, TSS	Jun. 2014, Aug. 2014, Oct. 2019	Fall 2024
MW-200 [3]	Detection	Appendix I, TSS	Appendix I, TSS	Appendix I, TSS	Appendix I, TSS	Oct. 2015, Jul. 2016, Oct. 2019, Sep. 2020	N/A
MW-204RR	Detection [4]	Insufficient Water [4]	Insufficient Water [4]	Water-Level Only [4]	Water-Level Only [4]	N/A	N/A
MW-205 [5]	Detection	Appendix I, TSS	Appendix I, TSS	Appendix I, TSS	Appendix I, TSS	N/A	N/A
MW-206	Detection	Appendix I, TSS	Appendix I, TSS	Appendix I, TSS	Appendix I, TSS	N/A	N/A
Background Monitoring Locations							
MW-122R	Background	Appendix II, TSS	Appendix II, TSS	Appendix II, TSS	Full Appendix II, TSS	Mar. 2009, Jun. 2009, Sep. 2009, Mar. 2010, Sep. 2010, Mar. 2011, Aug. 2014, Oct. 2015, Oct. 2019, Sep. 2020	Fall 2024
MW-200 [3]	Background	Appendix II, TSS	Appendix II, TSS	Appendix II, TSS	Full Appendix II, TSS	Oct. 2015, Jul. 2016, Oct. 2019, Sep. 2020	Fall 2024

Comments:
N/A = not applicable
TBD = to be determined

[1] Appendix II locations were sampled for the Appendix I and detected Appendix II constituents in Apr. and Sep. 2023, and will be sampled for the Appendix I and detected Appendix II constituents in Spring 2024. In accordance with Permit Special Provision X.4.h, the next 5-year resampling event for the full Appendix II list at the assessment and background monitoring locations is scheduled for Fall 2024.

[2] Baseline detection monitoring will be initiated at GU-4A once the water level in the sample location is at or above the elevation of the horizontal underdrain discharge pipe connected perpendicular to the vertical sample pipe. Upcoming sampling events in 2024 are contingent upon GU-4A having applicable flow for sample collection.

[3] MW-200 primarily serves as a downgradient monitoring location; however, MW-200 is also used to supplement the background dataset.

[4] Replacement well MW-204RR was installed in Jul. 2020 and was dry in Aug./Sep. 2020. Groundwater was observed in MW-204RR from 2021 through 2023; however, the volumes were insufficient for sample collection. As detailed in Table 1, Foth requests amendment of the HMSP and Permit by replacing MW-204R/MW-204RR with MW-205. MW-204RR will be retained as a water level measuring point. Upon IDNR approval of the amendment request, MW-204RR will be removed from this table in future AWQRs.

[5] As discussed in the *2020, 2021, and 2022 AWQRs* (Foth, 2021, 2022, and 2023), detection monitoring samples are being collected at MW-205 as a temporary or potential replacement for MW-204RR due to dry conditions or insufficient water column for sample collection at MW-204RR. While MW-205 is not currently included in the permitted groundwater monitoring network for the Western Expansion Area, Foth requests amendment of the HMSP and Permit in this 2023 AWQR by replacing MW-204R/MW-204RR with MW-205. See Table 1 for details.

Table 3
September 2023 Appendix II Detections
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Constituent	Sample Date	Unit	MW-121R (d)	MW-122R (b)	MW-200 (b)
Arsenic	2023-09	mg/L	0.0219		
Barium	2023-09	mg/L	0.663	0.591	0.433
Benzene	2023-09	ug/L	1.04		
Cadmium	2023-09	mg/L			0.000473
Chromium	2023-09	mg/L		0.00271 J	
cis-1,2-Dichloroethene	2023-09	ug/L	10.1		
Cobalt	2023-09	mg/L	0.00215		
Nickel	2023-09	mg/L	0.0412		0.00582
Selenium	2023-09	mg/L		0.00197 J	
Total Suspended Solids	2023-09	mg/L	4.88	3	1.25 J
Vanadium	2023-09	mg/L			0.00114 J
Vinyl Chloride	2023-09	ug/L	0.616 J		

(d) = downgradient
(b) = background

Table 4
Monitoring Well Maintenance and Performance Reevaluation Schedule
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Compliance with:	Monitoring Calendar Years									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
567 IAC 113.10(2)"f"(1): High and low water levels (semiannual)	Completed		Completed		Completed		Completed		Completed	
567 IAC 113.10(2)"f"(2): Changes in the hydrologic setting and flow paths	Completed		Completed		Completed		Completed		Completed	
567 IAC 113.10(2)"f"(3): Well depths	Completed	Completed	Completed	Completed	Completed	Completed	Completed	Completed	Completed	Scheduled
567 IAC 113.10(2)"f"(4)" Well recharge rates and chemistry	Completed		Completed		Completed		Completed		Completed	
567 IAC 113.6(2)"i": Waste separation from ground water	Completed	Completed	Completed	Completed	Completed	Completed	Completed	Completed	Completed	Scheduled

Comments:
IAC = Iowa Administrative Code
• Groundwater elevations and measured well depths are shown on Table 5 and the field sampling forms in Appendix A.
• Groundwater separation distance measurements are shown on Table 6.

Table 5
Monitoring Well Maintenance and Performance Summary
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Well	Top of Casing (feet amsl)	Top of Screen (feet amsl)	Total Depth (feet bTOC)	Measurement Description	Date of Measurements [1] Apr. 2022	Sep. 2022	Apr. 2023	Sep. 2023	Maximum Depth Discrepancy (feet)	Maximum GW Fluctuation (feet)
Downgradient Monitoring Locations										
MW-119RR	1288.29	1265.83	33.29	Groundwater Level (feet bTOC)	24.72	24.60	24.33	25.28	0.26	0.95
				Groundwater Elevation (feet amsl)	1263.57	1263.69	1263.96	1263.01		
				Measured Well Depth (feet bTOC)	33.03	33.03	33.03	33.16		
				Submerged screen	N	N	N	N		
MW-121R	1284.19	1264.97	29.22	Groundwater Level (feet bTOC)	23.35	22.96	22.62	23.62	0.38	1.00
				Groundwater Elevation (feet amsl)	1260.84	1261.23	1261.57	1260.57		
				Measured Well Depth (feet bTOC)	28.86	28.84	28.86	28.86		
				Submerged screen	N	N	N	N		
MW-200 [2]	1288.46	1264.91	33.23	Groundwater Level (feet bTOC)	21.99	21.26	21.19	21.84	-0.30	0.80
				Groundwater Elevation (feet amsl)	1266.47	1267.20	1267.27	1266.62		
				Measured Well Depth (feet bTOC)	33.50	33.53	33.50	33.53		
				Submerged screen	Y	Y	Y	Y		
MW-204RR	1292.47	1249.96	52.67	Groundwater Level (feet bTOC)	52.02	52.27	52.35	52.37	0.05	0.35
				Groundwater Elevation (feet amsl)	1240.45	1240.20	1240.12	1240.10		
				Measured Well Depth (feet bTOC)	52.66	52.66	52.66	52.62		
				Submerged screen	N	N	N	N		
MW-205 [3]	1296.46	1244.30	62.16	Groundwater Level (feet bTOC)	43.43	43.38	41.76	38.35	-0.11	5.08
				Groundwater Elevation (feet amsl)	1253.03	1253.08	1254.70	1258.11		
				Measured Well Depth (feet bTOC)	62.16	62.26	62.16	62.27		
				Submerged screen	Y	Y	Y	Y		
MW-206	1300.72	1247.57	63.15	Groundwater Level (feet bTOC)	32.73	31.96	30.21	25.64	0.03	7.09
				Groundwater Elevation (feet amsl)	1267.99	1268.76	1270.51	1275.08		
				Measured Well Depth (feet bTOC)	63.14	63.12	63.14	63.12		
				Submerged screen	Y	Y	Y	Y		
Background Monitoring Locations										
MW-122R	1317.21	1302.24	29.97	Groundwater Level (feet bTOC)	26.66	26.62	27.51	27.65	-0.51	1.03
				Groundwater Elevation (feet amsl)	1290.55	1290.59	1289.70	1289.56		
				Measured Well Depth (feet bTOC)	30.48	30.44	30.48	30.45		
				Submerged screen	N	N	N	N		

Comments:
amsl = above mean sea level
bTOC = below top of casing
GW = groundwater

Table 5
Monitoring Well Maintenance and Performance Summary
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Comments (Continued):

(1) As indicated on Table 4, the biennial monitoring well maintenance and performance review for 567 Iowa Administrative Code (IAC) 113.10(2)f(1), (2), (3), and (4) was due in 2023. Since portions of this review are only conducted biennially, measurement data from the past two years (2022 and 2023) are included in this table.

(2) MW-200 primarily serves as a downgradient monitoring location; therefore, MW-200 is listed in this table under the "downgradient monitoring locations" heading. However, MW-200 is also used to supplement the background data set.

(3) As discussed in the *2020, 2021, and 2022 AWQRs* (Foth, 2021, 2022, and 2023), detection monitoring samples are being collected at MW-205 as a temporary or potential replacement for MW-204RR due to dry conditions or insufficient water column for sample collection at MW-204RR. Note that MW-205 is not currently included in the permitted groundwater monitoring network for the Western Expansion Area. Details regarding MW-205 are provided in Table 1.

Acceptability of Well Locations:

- In accordance with 567 IAC 113.10(2)f(1), a review of the horizontal and vertical acceptability of the approved monitoring points shall be conducted every two years.
- The current horizontal placement of downgradient wells and underdrain sampling locations are acceptable for detecting and monitoring potential groundwater impacts from the Western Expansion Area. GU-2A and GU-4A serve as the underdrain sample locations for the cells constructed with a groundwater underdrain system (Phases 2A through 5A). In accordance with 567 IAC 113.10(2)e(2), monitoring wells located along the north downgradient perimeter of the Western Expansion Area are spaced 300 feet or less apart. On the south side of the Western Expansion Area, an alternate point of compliance and well spacing has been utilized for monitoring theoretical releases from Phases 4A, 4B, and 5A, and an alternate well spacing has been utilized for monitoring theoretical releases from Phases 5B & 6.
    - No monitoring wells were installed along the south downgradient perimeter of Phases 4A, 4B, and 5A since the sedimentation pond intercepts flow in this area. Post-construction theoretical releases were anticipated to migrate to the underdrain or the southeast of Phases 4A, 4B, and 5A. As a result, underdrain sample location GU-4A was constructed to monitor the groundwater underdrain discharge for Phases 4A, 4B, and 5A, and MW-204 was installed to monitor groundwater flow southeast of the expansion cell. The alternate point of compliance and well spacing for detection monitoring wells downgradient of Phases 4A, 4B, and 5A was approved through Special Provision X.4.e. In 2019, Phases 5B & 6 were constructed. An alternate spacing of 400 feet between downgradient wells MW-204R and MW-206 was requested in the *Amendments to Hydrologic Monitoring System Plan, Methane Monitoring Plan, and Permit* (Foth, 2020). The site constraints and hydrogeologic conditions supported that an alternate spacing of an additional 100 feet between downgradient wells at Phases 5B & 6 was acceptable for detecting and monitoring theoretical releases from Phases 5B & 6.
    - Due to a well casing compromise at MW-204R, MW-204RR was installed five feet east and screened across the same elevations as MW-204R in Jul. 2020. As reported in Tables 1 and 2, MW-204RR was dry in Aug./Sep. 2020, and while groundwater was observed in MW-204RR from 2021 through 2023, the volumes were insufficient for sample collection. As reported in the *2020 AWQR* (Foth, 2021), IDNR indicated that additional time would be allowed for groundwater yield to enter the casing at MW-204RR. Even though static conditions have not yet been attained at MW-204RR, MW-205, and MW-206, and since MW-204RR has remained insufficient for sample collection for 3.5 years, Foth recommends replacing MW-204R/MW-204RR with MW-205. See Table 1 for details regarding the amendment request. As detailed in the request below, Foth recommends modification of the previously approved alternate points of compliance for Phases 4A through 6.
- The 2022 and 2023 groundwater elevations were within the screened interval at MW-119RR, MW-121R, and at background well MW-122R. Although water levels were above the screened at MW-200, elevations were within the range of historical groundwater elevations. MW-200 continues to provide representative information regarding local groundwater elevation and quality. At MW-204RR, MW-205, and MW-206, post-installation static water levels have not yet been achieved as evidenced by the limited volume in MW-204RR and the increasing groundwater elevations at MW-205 and MW-206. Given the confined hydrogeologic conditions, the water table could not be identified during well installation; therefore, screened intervals were selected based on nearby groundwater elevations in conjunction with the current groundwater contour map. MW-205 and MW-206 provide representative information regarding local groundwater elevation and quality. As detailed in Table 1, MW-204RR is recommended to be retained only for water level measuring purposes. If the water column at MW-204RR increases and achieves static conditions at a level that is sufficient for sample collection, consideration will be given to adding MW-204RR as a downgradient monitoring well.
- The biennial evaluation indicates that the horizontal and vertical placement of the existing monitoring wells is acceptable upon IDNR review and approval to modify the previously approved alternate points of compliance for Phases 4A through 6. No maintenance activities are recommended based on horizontal and vertical acceptability at this time.

Table 5
Monitoring Well Maintenance and Performance Summary
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Water Level Conditions:

• In accordance with 567 IAC 113.10(2)f(2), a review of water level conditions must be conducted every two years to ensure that the effects of waste disposal or well operation have not resulted in changes in the hydrologic setting and resultant flow paths. The Apr. and Sep. 2022 water table contours are depicted in Figures 2 and 3 of the 2022 AWQR (Foth, 2023), and the Apr. and Sep. 2023 water table contours are depicted in Figures 2 and 3 of this 2023 AWQR. An examination of the water table configuration presented in Figures 2 and 3 of the 2022 AWQR (Foth, 2023) and Figures 2 and 3 of this 2023 AWQR indicates that background well MW-122R remained upgradient. The groundwater flow direction is unchanged relative to previous reviews. Note that static groundwater elevations have not yet been attained for the wells south of the Western Expansion Area, with MW-205 and MW-206 exhibiting post-installation increases in groundwater elevations. The groundwater contours in this area will more likely be to the southeast or east of Phases 4A through 6 once static conditions are attained. If limited water column continues to be measured at MW-204RR, consideration will be given to not including MW-204RR in the groundwater contours.
• During 2022 and 2023, water levels at MW-119RR, MW-121R, MW-122R, and MW-200 have remained relatively consistent and exhibited a seasonal fluctuation of less than 2 feet. Ongoing drought conditions have impacted water levels across the facility, with wells downgradient of the Western Expansion Area and Closed Eastern Area at the low end of their historical range. At MW-204RR, MW-205, and MW-206, static groundwater elevations have not yet been attained, as evidenced by the limited volume in MW-204RR and the increasing groundwater elevations at MW-205 and MW-206. The drought conditions that have prevailed from 2020-2023 have likely exacerbated the time for achieving post-installation static levels at these locations. The groundwater elevation fluctuations observed in 2022 and 2023 were not the result of waste disposal activities or well operation.
• The biennial evaluation did not identify significant impacts or changes in groundwater hydrology or groundwater flow paths. Prevailing drought conditions have resulted in lower groundwater elevations across the facility. In addition, the groundwater contours on the south side of the Western Expansion Area are expected to shift more southeast to east once static conditions have been attained at MW-204RR, MW-205, and MW-206. None of these changes were the result of waste disposal activities or well operation. No maintenance activities are recommended based on the review of the 2022 and 2023 water level information.

Well Depths:

• In accordance with 567 IAC 113.10(2)f(3), well depth measurements were collected in 2022 and 2023 to ensure the wells are physically intact and not filling with sediment. The 2022 and 2023 well depths are within one foot of the original well depths at MW-119RR, MW-121R, MW-122R, MW-200, MW-204RR, MW-205, and MW-206. The well depth measurements indicate that these wells are not filling with sediment and remain physically intact. Based on review of the well depth information, no maintenance activities are recommended for these wells.
• It is noted that the original well depths were slightly shallower than the recent well depths at MW-122R, MW-200, and MW-205. Based on review of the well depth measurements collected from 2008-2023 at MW-122R and MW-200, the discrepancy with the original well depth is attributed to an error in the well construction records for these wells. The original well depths were calculated based on the top of casing elevation and bottom of boring depth indicated on the well construction forms. The well construction forms did not include initial well depth measurements to verify the construction details. At MW-205, the maximum difference was only 0.11 feet deeper and attributed to differences in water level meters.

Well Deterioration:

• In accordance with IAC 113.10(2)f(4), a review of well recharge rates and chemistry must be conducted every two years to determine if well deterioration is occurring. Review of the water level measurements prior to and subsequent to sampling indicated that recharge rates are consistent with historically observed data. While post-installation groundwater elevations have been increasing in MW-205 and MW-206 over the past four years, recharge rates remain less than 100 mL/min due to the natural confining conditions exacerbated by the clay placement and compaction activities associated with the construction of Phases 5B and 6. The 2022 and 2023 field parameter results measured during low-flow purging and before or concurrent with low-flow or no-purge sample collection are consistent with previously observed measurements.
• The well recharge rates and field chemistry data indicate the integrity of the monitoring wells remains intact and that no deterioration is occurring. Based on review of the well recharge rates and field chemistry, no maintenance activities are recommended.

Proposed Changes to the Monitoring Network

• Based on the biennial review of water levels, well depths, horizontal and vertical acceptability of well locations, well recharge rates, and field chemistry, no well maintenance activities are recommended at this time. A request to amend the HMSP and Permit regarding replacement of MW-204RR with MW-205 is discussed in Table 1 and the Report Priority.

Table 6
Groundwater Separation Distance Evaluation
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Well	Unit	Date	Bottom of Waste Elevation (feet amsl)	Groundwater Elevation (feet amsl)	Groundwater Separation Distance (feet)	Acceptable (Yes/No)
Groundwater Separation Distance Piezometers						
MW-119RR	Phase 1A	Apr. 2023	1271.44	1263.96	7.48	Yes
		Sep. 2023	1271.44	1263.01	8.43	Yes
MW-121R	Phase 1B	Apr. 2023	1273.22	1261.57	11.65	Yes
		Sep. 2023	1273.22	1260.57	12.65	Yes
PZ-2A	Phase 2A	Mar. 2023	1275.37	Dry	>5	Yes
		Sep. 2023	1275.37	Dry	>5	Yes
PZ-2B/3	Phase 2B/3	Apr. 2023	1277.02	Dry	>5	Yes
		Sep. 2023	1277.02	Dry	>5	Yes
PZ-4A	Phase 4A	Apr. 2023	1269.04	Dry	>5	Yes
		Sep. 2023	1269.04	Dry	>5	Yes
PZ-4B	Phase 4B	Apr. 2023	1268.32	Dry	>5	Yes
		Sep. 2023	1268.32	Dry	>5	Yes
PZ-5A	Phase 5A	Apr. 2023	1267.46	Dry	>5	Yes
		Sep. 2023	1267.46	Dry	>5	Yes
PZ-5B	Phases 5B & 6	Apr. 2023	1267.68	Dry	>5	Yes
		Sep. 2023	1267.68	Dry	>5	Yes

Comments:

amsl = above mean sea level

- The contents of this table are intended to satisfy the requirements set forth in 567 IAC 113.6(2)i and Special Provision X.4.j.
- The minimum five-foot separation distance was maintained at Phases 1A, 1B, 2A, 2B, 3, 4A, 4B, 5A, 5B, and 6 in 2023.

Table 7
Background and GWPS Summary
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Constituent [1]	CAS #	Units	Samples	Detections [2]	Min [3]	Max [3]	Mean [3]	Note	Background Level	Statistical Test	GWPS	Source [4]
Interwell Background/GWPS (Apr. 2008 - Sep. 2023) [5]												
2,4-D	94-75-7	ug/L	17	1	0.152 (1/2 RL)	0.655 J	0.529	J-Flagged Only	**1.03 (RL)**	DQR	**70**	MCL
2-Butanone	78-93-3	ug/L	74	1	2.12 J	5.0 (1/2 RL)	4.96	J-Flagged Only	**10.0 (RL)**	DQR	**4,000**	SS
3-Methylcholanthrene	56-49-5	ug/L	13	1	1.23 J	7.45 (1/2 RL)	5.03	J-Flagged Only	**14.9 (RL)**	DQR	**N/A**	N/A
alpha-BHC	319-84-6	ug/L	39	2	0.00273 (1/2 RL)	0.02255 (1/2 RL)	0.01643	J-Flagged Only	**0.039 (RL)**	DQR	**0.028**	SS
Antimony	744-36-0	mg/L	71	1	0.0005 (1/2 RL)	0.0101	0.00182		**0.0101**	Non-Parametric (1-of-2)	**0.0101**	Background
Arsenic	7440-38-2	mg/L	71	7	0.0005 (1/2 RL)	0.00801	0.00097		**0.00801**	Non-Parametric (1-of-2)	**0.01**	MCL
Barium	7440-39-3	mg/L	71	71	0.107	1.05	0.495		**1.05**	Non-Parametric (1-of-2)	**2**	MCL
Beryllium	7440-41-7	mg/L	71	2	0.0005 (1/2 RL)	0.00348	0.00059		**0.00348**	Non-Parametric (1-of-2)	**0.004**	MCL
Cadmium	7440-43-9	mg/L	71	26	0.00005 (1/2 RL)	0.00179	0.00026		**0.00179**	Non-Parametric (1-of-2)	**0.005**	MCL
Chromium	7440-47-3	mg/L	71	22	0.00188 J	0.0343	0.00590		**0.0343**	Non-Parametric (1-of-2)	**0.1**	MCL
Cobalt	7440-48-4	mg/L	71	11	0.00003 J	0.026	0.00392		**0.026**	Non-Parametric (1-of-2)	**0.026**	Background
Copper	7440-50-8	mg/L	71	4	0.000866 J	0.0536	0.00641		**0.0536**	Non-Parametric (1-of-2)	**1.3**	MCL
Dieldrin	60-57-1	ug/L	13	1	0.00321 J	0.0178 (1/2 RL)	0.01525	J-Flagged Only	**0.039 (RL)**	DQR	**0.011**	SS
Endosulfan I	959-98-8	ug/L	33	12	0.00252 J	10.3	0.3949		**0.039 (RL)**	DQR	**42**	SS
Heptachlor Epoxide	1024-57-3	ug/L	39	3	0.00273 (1/2 RL)	0.02255 (1/2 RL)	0.01647	J-Flagged Only	**0.039 (RL)**	DQR	**0.2**	MCL
Lead	7439-92-1	mg/L	71	8	0.000173 J	0.0362	0.00175		**0.0362**	Non-Parametric (1-of-2)	**0.0362**	Background
Lindane (BHC, Gamma-)	58-89-9	ug/L	13	1	0.00317 (1/2 RL)	0.02255 (1/2 RL)	0.01571	J-Flagged Only	**0.0451 (RL)**	DQR	**0.2**	MCL
Methoxychlor	72-43-5	ug/L	39	1	0.00273 (1/2 RL)	0.02255 (1/2 RL)	0.01664	J-Flagged Only	**0.039 (RL)**	DQR	**40**	MCL
Methylene Chloride	75-09-2	ug/L	74	3	0.188 J	5.0 (1/2 RL)	2.448	J-Flagged Only	**5.0 (RL)**	DQR	**5**	MCL
Nickel	7440-02-0	mg/L	71	23	0.001 (1/2 RL)	0.0545	0.01235		**0.0545**	Non-Parametric (1-of-2)	**0.1**	SS
Selenium	7782-49-2	mg/L	71	11	0.00125 (1/2 RL)	0.005 (1/2 RL)	0.00243	J-Flagged Only	**0.005 (RL)**	DQR	**0.05**	MCL
Tin	7440-31-5	mg/L	53	4	0.0025 (1/2 RL)	0.376	0.0320		**0.376**	Non-Parametric (1-of-2) [6]	**4.2**	SS
Total Suspended Solids	TSS	mg/L	40	23	0.625 J	119	4.461		**N/A**	N/A	**N/A**	N/A
Vanadium	7440-62-2	mg/L	71	17	0.000304 J	0.0921	0.0128		**0.0921**	Non-Parametric (1-of-2)	**0.0921**	Background
Zinc	7440-66-6	mg/L	71	26	0.005 (1/2 RL)	0.224	0.0224		**0.224**	Non-Parametric (1-of-2)	**2**	SS
Intrawell Background/GWPS - MW-200 (Sep. 2009 - Apr. 2023) [7]												
Antimony	7440-36-0	mg/L	34	1	0.0005 (1/2 RL)	0.0101	0.00193		**0.0101**	Non-Parametric (1-of-2)	**0.0101**	Background
Arsenic	7440-38-2	mg/L	34	3	0.0005 (1/2 RL)	0.00801	0.00108		**0.00801**	Non-Parametric (1-of-2)	**0.01**	MCL
Barium	7440-39-3	mg/L	34	34	0.37	1.05	0.463		**1.05**	Non-Parametric (1-of-2)	**2**	MCL
Beryllium	7440-41-7	mg/L	34	2	0.0005 (1/2 RL)	0.00348	0.00066		**0.00348**	Non-Parametric (1-of-2)	**0.004**	MCL
Cadmium	7440-43-9	mg/L	34	25	0.000075 J	0.00179	0.00031		**0.00179**	Non-Parametric (1-of-2)	**0.005**	MCL
Chromium	7440-47-3	mg/L	34	4	0.00188 J	0.0343	0.00593		**0.0343**	Non-Parametric (1-of-2)	**0.1**	MCL
Cobalt	7440-48-4	mg/L	34	8	0.00003 J	0.026	0.00395		**0.026**	Non-Parametric (1-of-2)	**0.026**	Background
Copper	7440-50-8	mg/L	34	3	0.001 (1/2 RL)	0.0536	0.00728		**0.0536**	Non-Parametric (1-of-2)	**1.3**	MCL
Lead	7439-92-1	mg/L	34	6	0.000173 J	0.0362	0.00257		**0.0362**	Non-Parametric (1-of-2)	**0.0362**	Background
Nickel	7440-02-0	mg/L	34	22	0.00232 J	0.0545	0.01236		**0.0545**	Non-Parametric (1-of-2)	**0.1**	SS

Table 7
Background and GWPS Summary
2023 Annual Water Quality Report
Carroll County Landfill Western Expansion Area
Permit No. 14-SDP-01-74P

Constituent [1]	CAS #	Units	Samples	Detections [2]	Min [3]	Max [3]	Mean [3]	Note	Background Level	Statistical Test	GWPS	Source [4]
Intrawell Background/GWPS Continued - MW-200 (Sep. 2009 - Apr. 2023) [7]												
Vanadium	7440-62-2	mg/L	34	12	0.000529 J	0.0921	0.0137		**0.0921**	Non-Parametric (1-of-2)	**0.0921**	Background
Zinc	7440-66-6	mg/L	34	13	0.005 (1/2 RL)	0.224	0.027		**0.224**	Non-Parametric (1-of-2)	**2**	SS

Comments:

N/A = not applicable

RL = reporting limit taken as the laboratory practical quantitation limit (PQL)

GWPS = groundwater protection standard

[1] Constituents listed under the interwell background/GWPS section consist of the constituents detected above the laboratory minimum detection limit (MDL) in the combined MW-122R and MW-200 data set. Constituents listed under the intrawell background/GWPS section consist of the detected metals in MW-200, except tin. Starting with the Fall 2022 statistical evaluation, professional judgment was used to remove tin from MW-200's intrawell analysis since tin has not been detected the downgradient wells or in the background data set above the PQL since 2013.

[2] The number of detections includes J-flagged data (concentrations above the MDL but below the RL).

[3] Non-detect concentrations are included in the calculation of minimum, maximum, and mean; 1/2 the RL was utilized for non-detect concentrations.

[4] Sources are either the Maximum Contaminant Level (MCL) promulgated under Section 1412 of the Safe Drinking Water Act in 40 Code of Federal Regulations (CFR) Part 141 (MCL) or the 567 IAC Chapter 137 Statewide Standards for a Protected Groundwater Source (SS). If background is higher than the MCL or SS, the GWPS is background. Background as the GWPS is both the *two-sample* test prediction limit method and the *one-sample* test confidence limit method where the fixed GWPS is the background upper tolerance limit with 95% confidence and 95% coverage. N/A = not applicable; constituent does not have a MCL or SS, and using background as the GWPS is not applicable due to limited detections.

[5] Interwell background consists of the Apr. 2008 through Sep. 2023 combined MW-122R and MW-200 data. No background data set adjustments were recommended in 2023. The previous background data set adjustments detailed in the statistical reports provided in Appendix B and listed as crossed-out concentrations in Table 13 were maintained in 2023.

[6] Note that tin is an Appendix II parameter. In Apr. 2023, tin was analyzed at the downgradient and background monitoring locations; therefore comparisons to background were conducted using interwell prediction limits. In Sep. 2023, tin was not analyzed in the downgradient assessment monitoring location; therefore, comparisons to background were not conducted for tin in Fall 2023.

[7] MW-200 primarily serves as a downgradient monitoring location; however, MW-200 is also used to supplement the background data set. As a result, intrawell statistical comparisons for the detected metals in MW-200 are primarily conducted to evaluate for SSIs over background in detection monitoring. In addition, intrawell statistical comparisons for the detected metals in MW-200, along with a review for detection of non-metal constituents and Mann-Kendall trend tests for the detected metals, are conducted to provide ongoing documentation that MW-200 is suitable for inclusion in the background metals data set. For the Spring 2023 statistical evaluation, intrawell background consisted of the Sep. 2009 through Apr. 2021 detected metals in MW-200. During the Fall 2023 statistical evaluation, intrawell background was updated to include four additional values after the Apr. 2021 event: Sep. 2021, Apr. 2022, Sep. 2022, and Apr. 2023. Intrawell prediction limits and non-parametric Wilcoxon rank-sum tests did not identify statistical differences between the existing intrawell background data set and the Sep. 2021 through Apr. 2023 data; therefore, the intrawell background dataset was updated in the Fall 2023 statistical evaluation. The previous background data set adjustments detailed in the statistical reports provided in Appendix B and listed as crossed-out concentrations in Table 13 were maintained in 2023. In accordance with the Unified Guidance Section 5.3.2 (USEPA, 2009), the intrawell background data set is not updated semiannually, but rather periodically. The periodic update occurs after 4 to 8 new compliance observations have been collected and there are no SSIs recorded for the intrawell constituents, including since the last update. Intrawell background will be updated in the Fall 2025 statistical evaluation if there continues to be no SSIs identified at MW-200. Note that the number of samples, number of detections, min, max, and mean are calculated including the current event (i.e., calculated using all sample data: Sep. 2009 - Sep. 2023).

• The MW-200 evaluations conducted during the Spring and Fall 2023 statistical evaluations indicated that MW-200 remained suitable for inclusion in the background metals data set.

Table 8
Summary of Well/Detected Constituent Pairs With No Previous SSIs
2023 Annual Water Quality Report
Carroll County Landfill Western Expansion Area
Permit No. 14-SDP-01-74P

Well	Constituent [1]	Units	Most Recent Result (Sep. 2023)	Background Standard [2]
Detection Monitoring Locations				
GU-2A	Arsenic	mg/L	0.000769 J	0.00801
	Barium	mg/L	0.31	1.05
	Total Suspended Solids	mg/L	15.1	N/A
	Vanadium	mg/L	0.00155 J	0.0921
	Zinc	mg/L	0.0204	0.224
MW-119RR	Arsenic	mg/L	0.00155 J	0.00801
	Barium	mg/L	0.588	1.05
	Cobalt	mg/L	0.00187	0.026
	Nickel	mg/L	0.0131	0.0545
	Total Suspended Solids	mg/L	2.5	N/A
MW-200	Barium	mg/L	0.433	1.05
	Cadmium	mg/L	0.000473	0.00179
	Nickel	mg/L	0.00582	0.0545
	Total Suspended Solids	mg/L	1.25 J	N/A
	Vanadium	mg/L	0.00114 J	0.0921
MW-205	Arsenic	mg/L	0.00107 J	0.00801
	Barium	mg/L	0.0273	1.05
	Cobalt	mg/L	0.00807	0.026
	Lead	mg/L	0.000669	0.0362
	Nickel	mg/L	0.0135	0.0545
	Total Suspended Solids	mg/L	7.25	N/A
	Zinc	mg/L	0.00696 J	0.224
MW-206	Arsenic	mg/L	0.0011 J	0.00801
	Barium	mg/L	0.024	1.05
	Cobalt	mg/L	0.00672	0.026
	Lead	mg/L	0.00429	0.0362
	Nickel	mg/L	0.011	0.0545
	Total Suspended Solids	mg/L	29.5	N/A
	Zinc	mg/L	0.0165 J	0.224

* Current result is above background, if confirmed by retest sample an SSI will be

** Current result is a confirmed SSI. Appendix II sampling will be initiated within 90 days.

Comments:

N/A = Not Applicable

[1] List contains constituents detected above the laboratory MDL, including J-flagged concentrations.

[2] Source of background standards are presented in Table 7. Note that the detected metals in MW-200 were evaluated using intrawell prediction limits.

• No SSIs were identified at GU-2A, MW-119RR, MW-200, MW-205, and MW-206 during the Fall 2023 statistical evaluation. These locations will remain in the detection monitoring program in 2024. Details regarding the future sampling schedules are provided in Table 2.

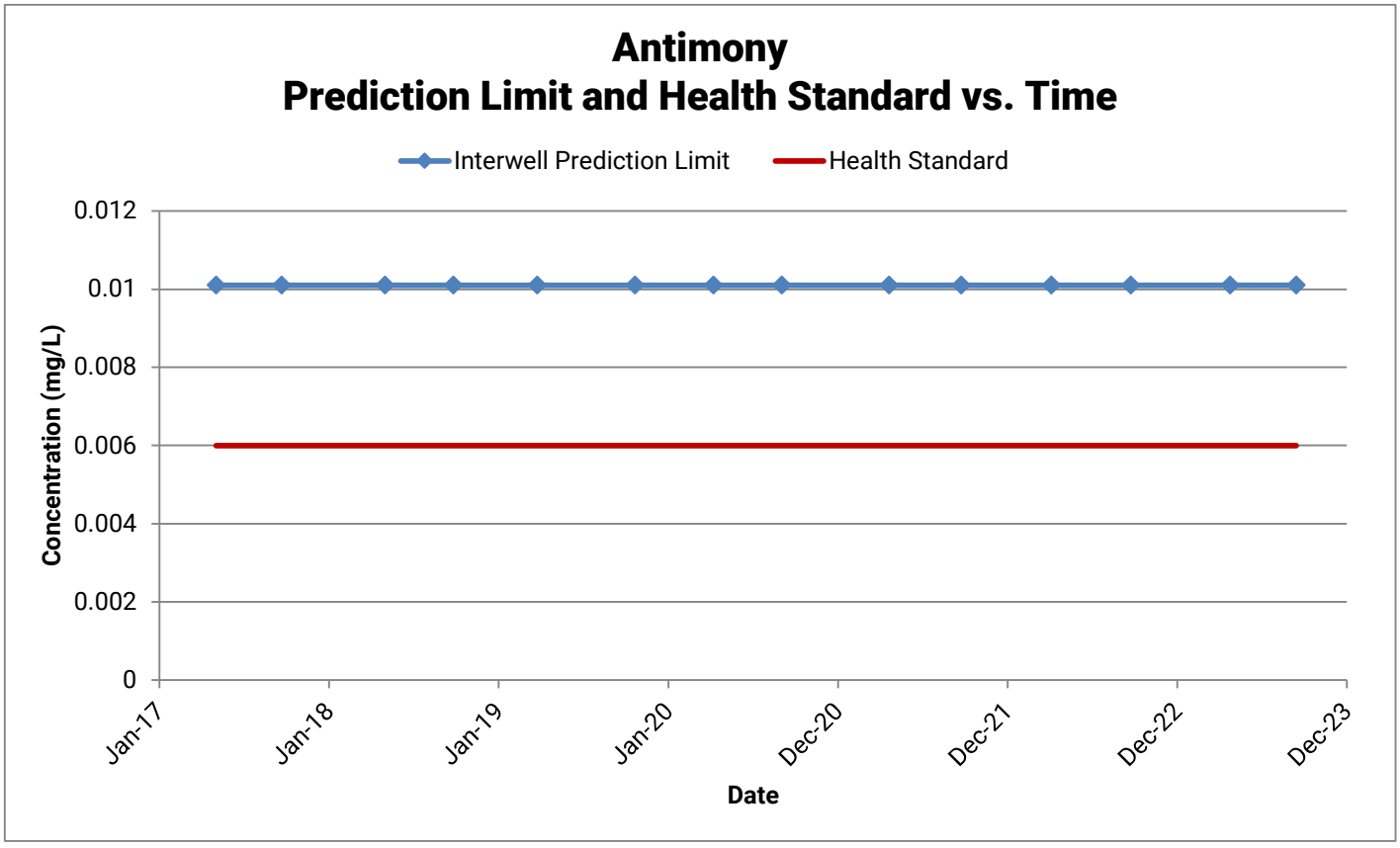
Summary of Prediction Limits and Health Standards
2023 Annual Water Quality Report
Carroll County Landfill Western Expansion Area
Permit No. 14-SDP-01-74P

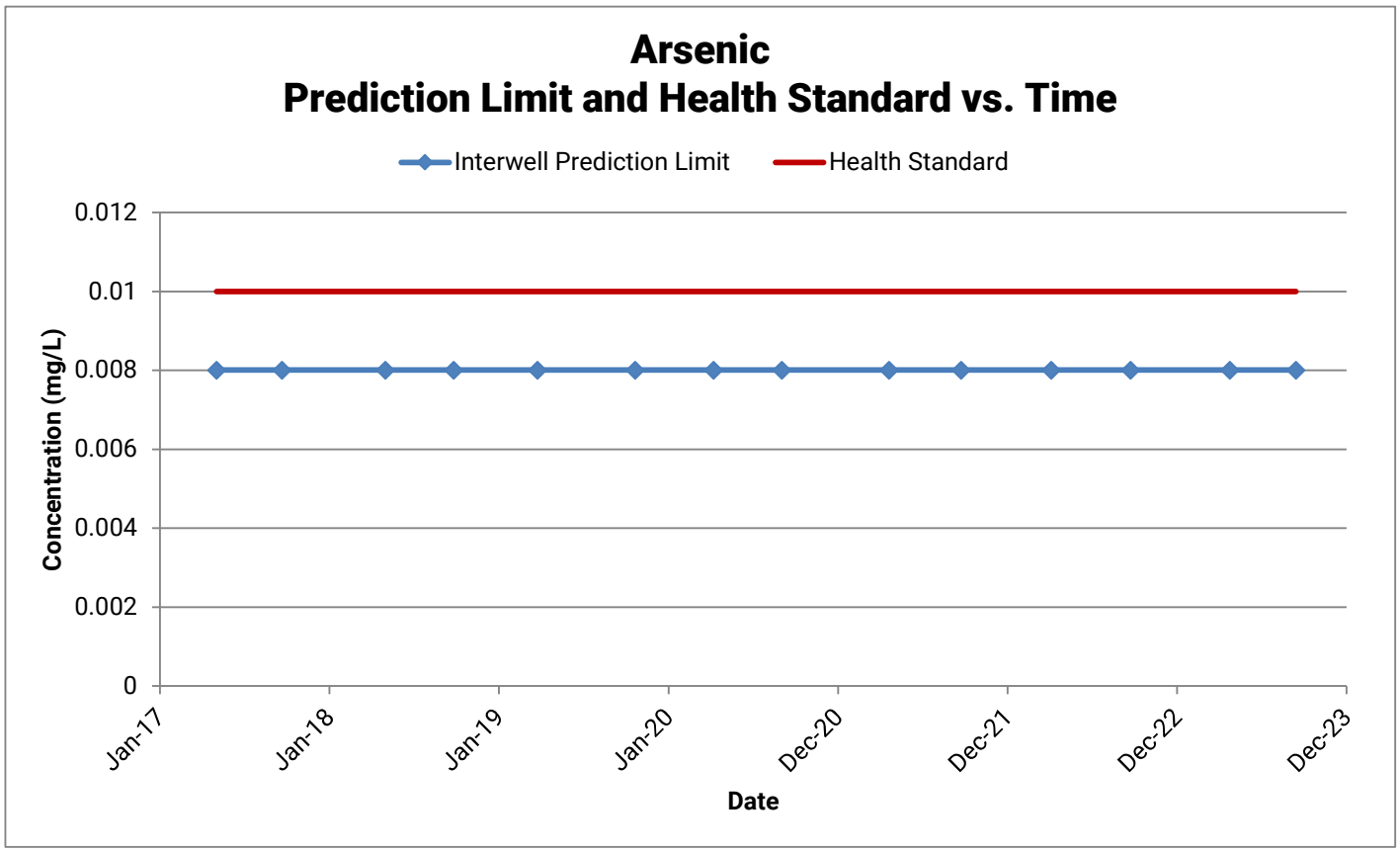
Comments:

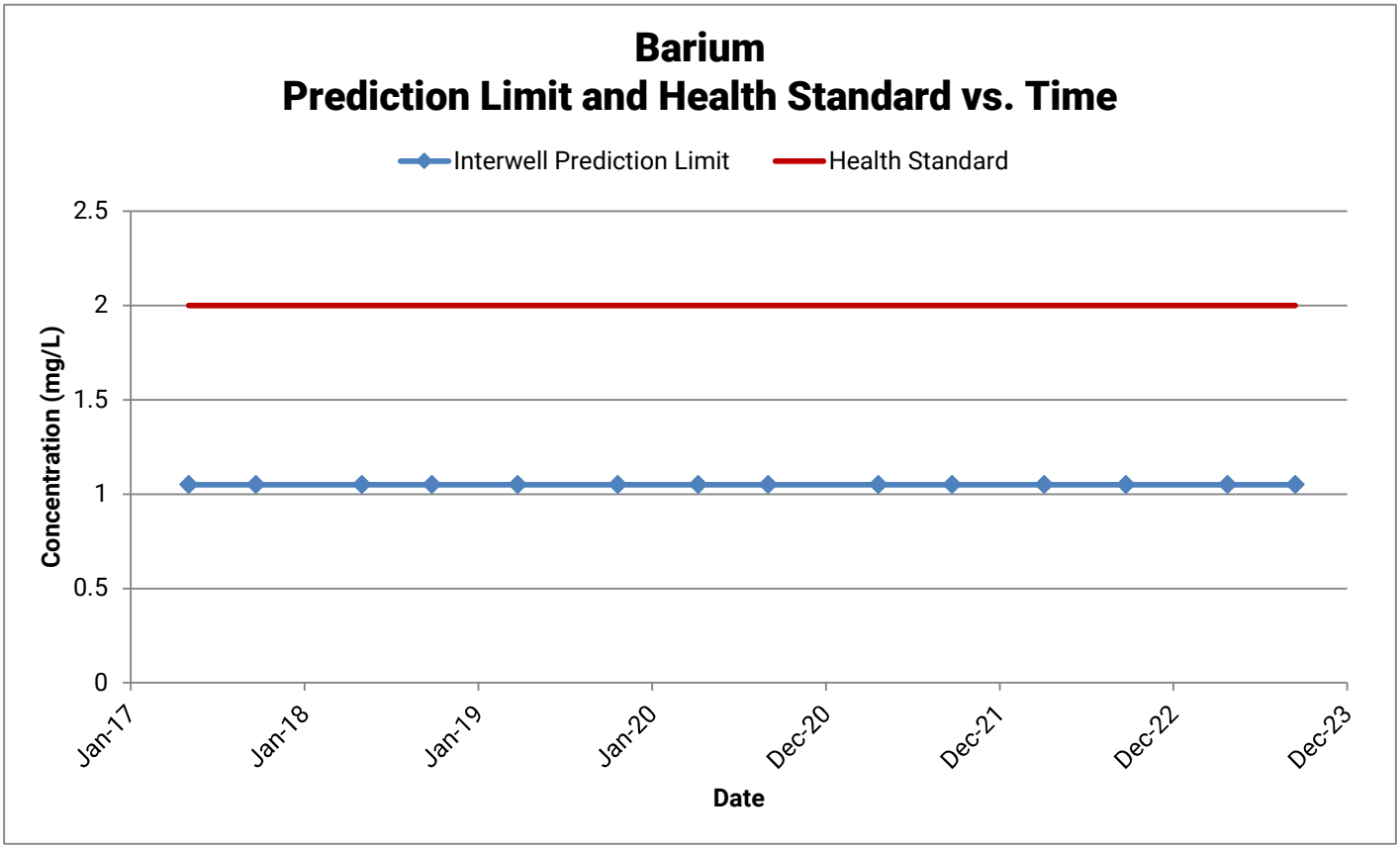
• The following graphs depict the interwell and intrawell prediction limits for statistical analysis starting with the Spring 2017 statistical evaluation.

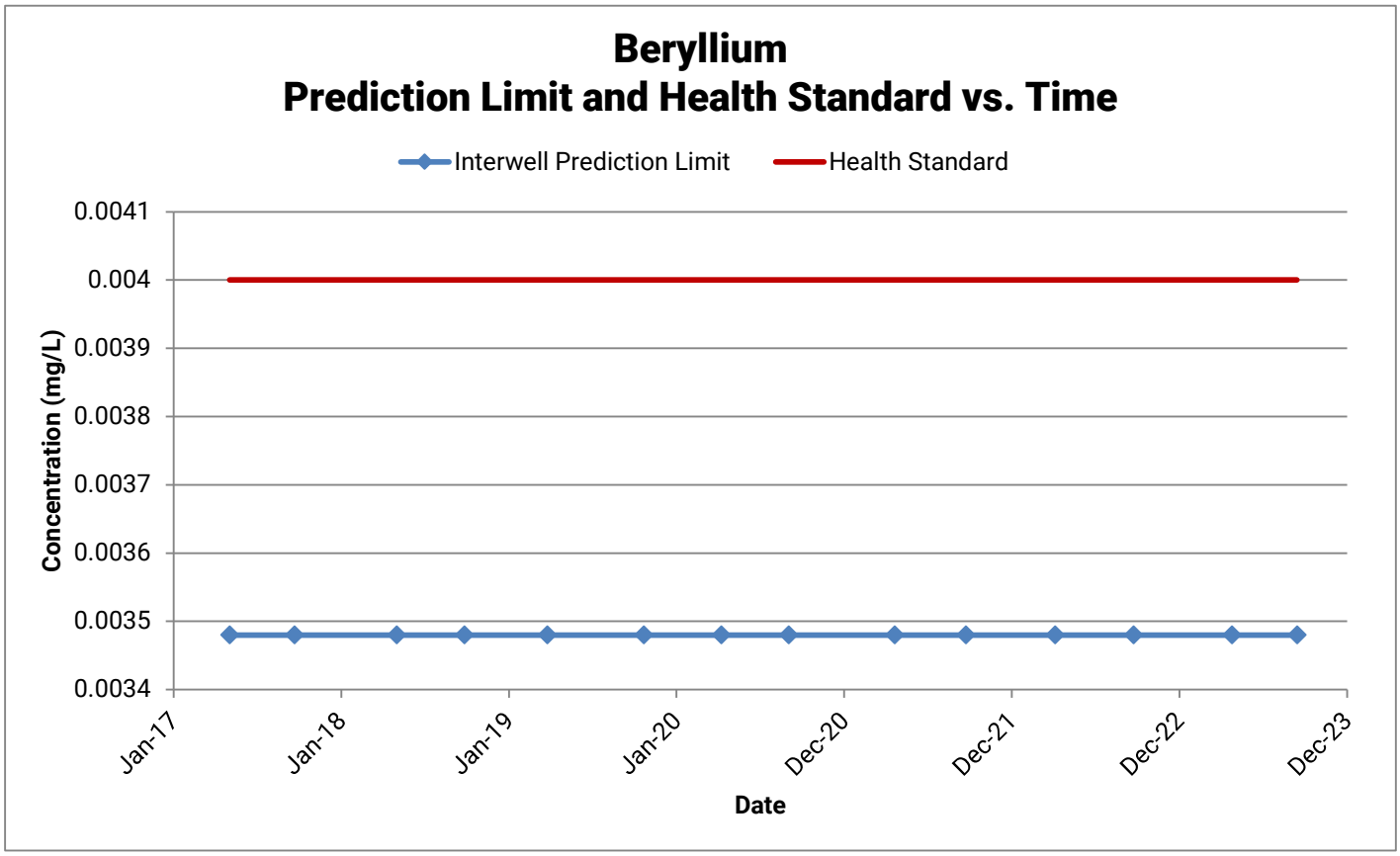
• Wells included in the background data sets and the sources of the background and health standards are presented in Table 7. As further detailed in Table 7, intrawell prediction limit comparisons are conducted at MW-200 to provide ongoing documentation that MW-200 remains suitable for inclusion in the background metals data set. In addition, intrawell prediction limits are utilized for the detection monitoring comparisons to background for the metals constituents at MW-200.

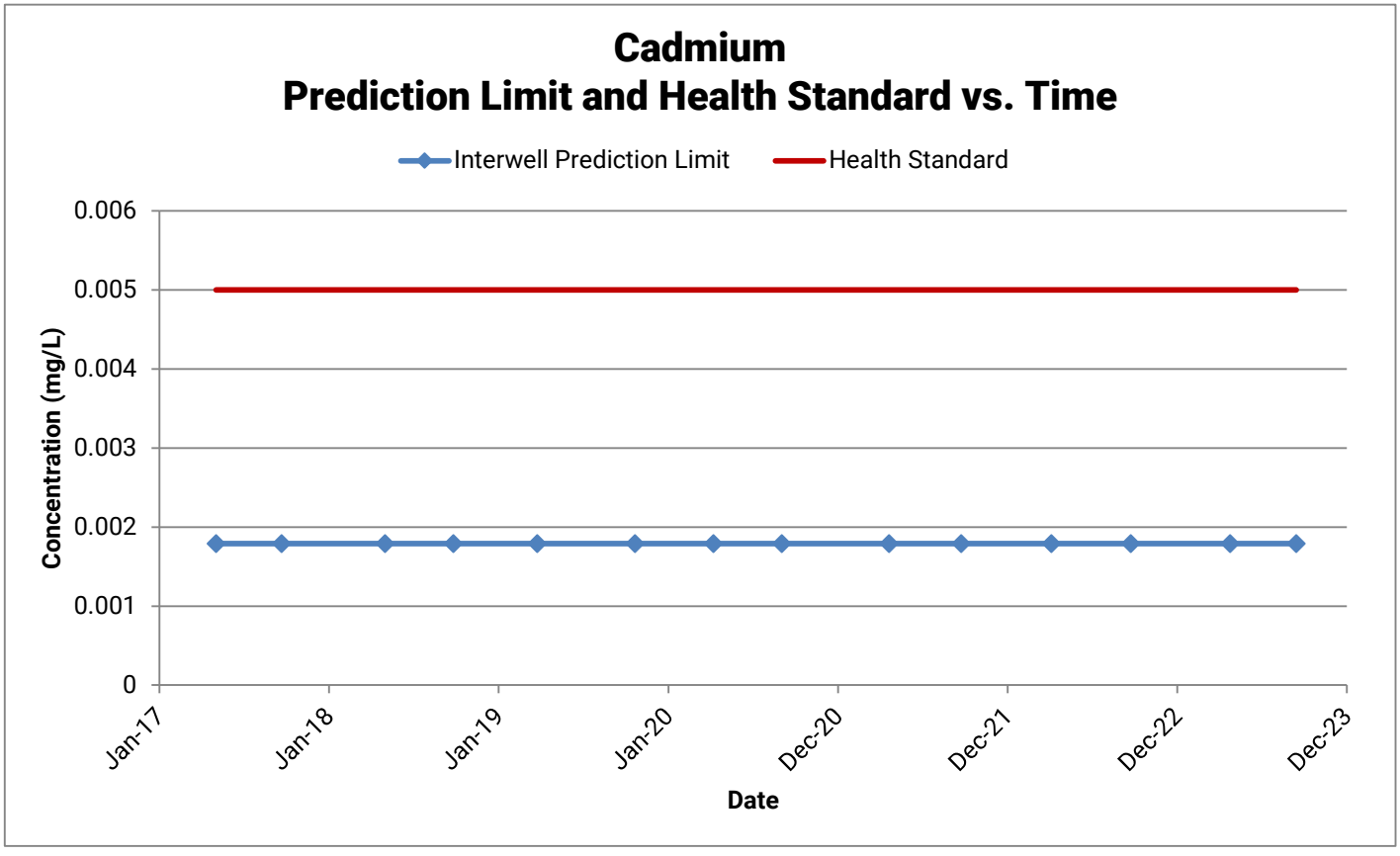
• Although tin has been detected in the background data, it has not been detected above the PQL in the downgradient data. During events when tin is not sampled in the downgradient data, the statistical evaluations do not include comparisons to background for tin. However, the prediction limit value that would have been utilized is provided on the graph.

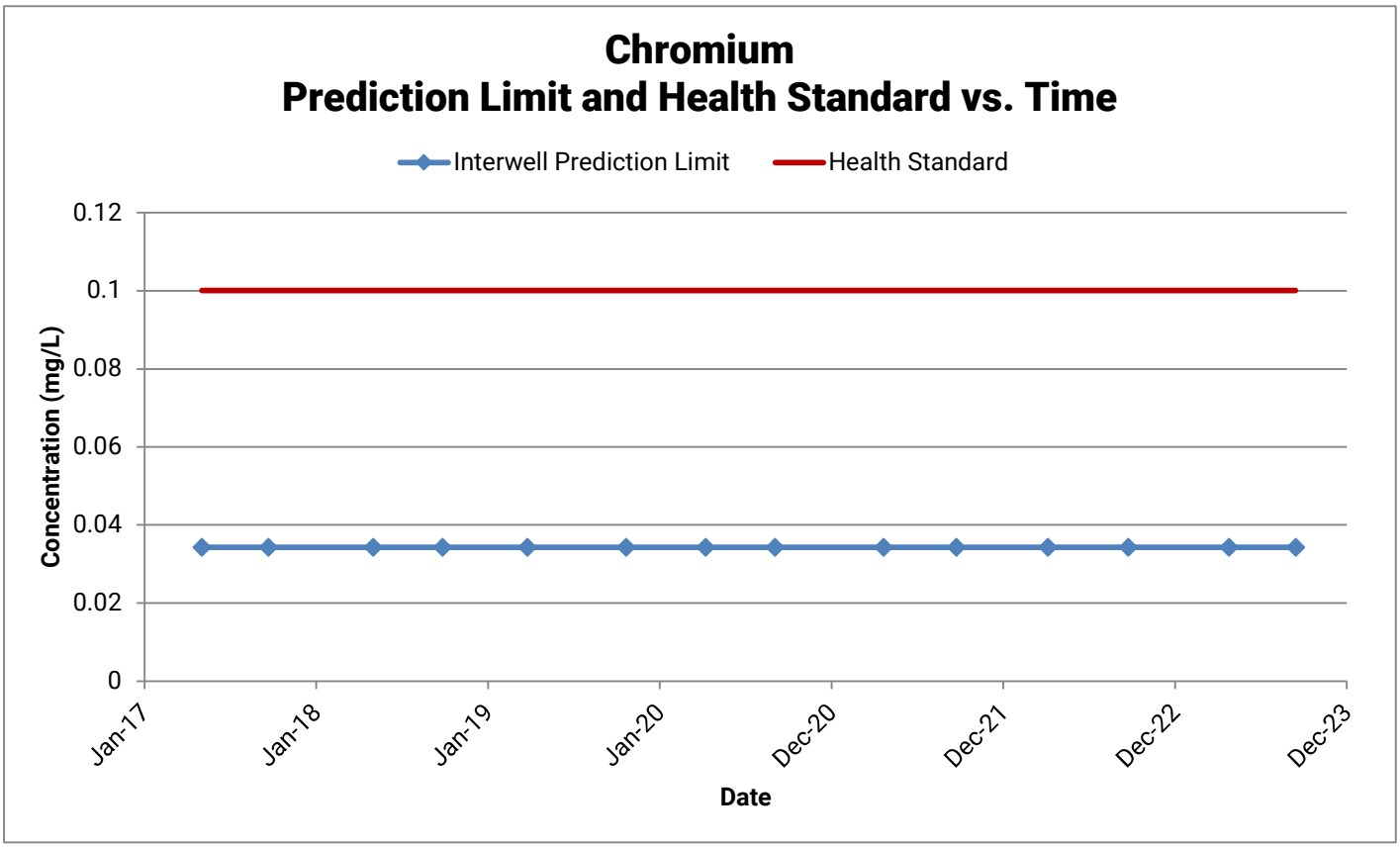


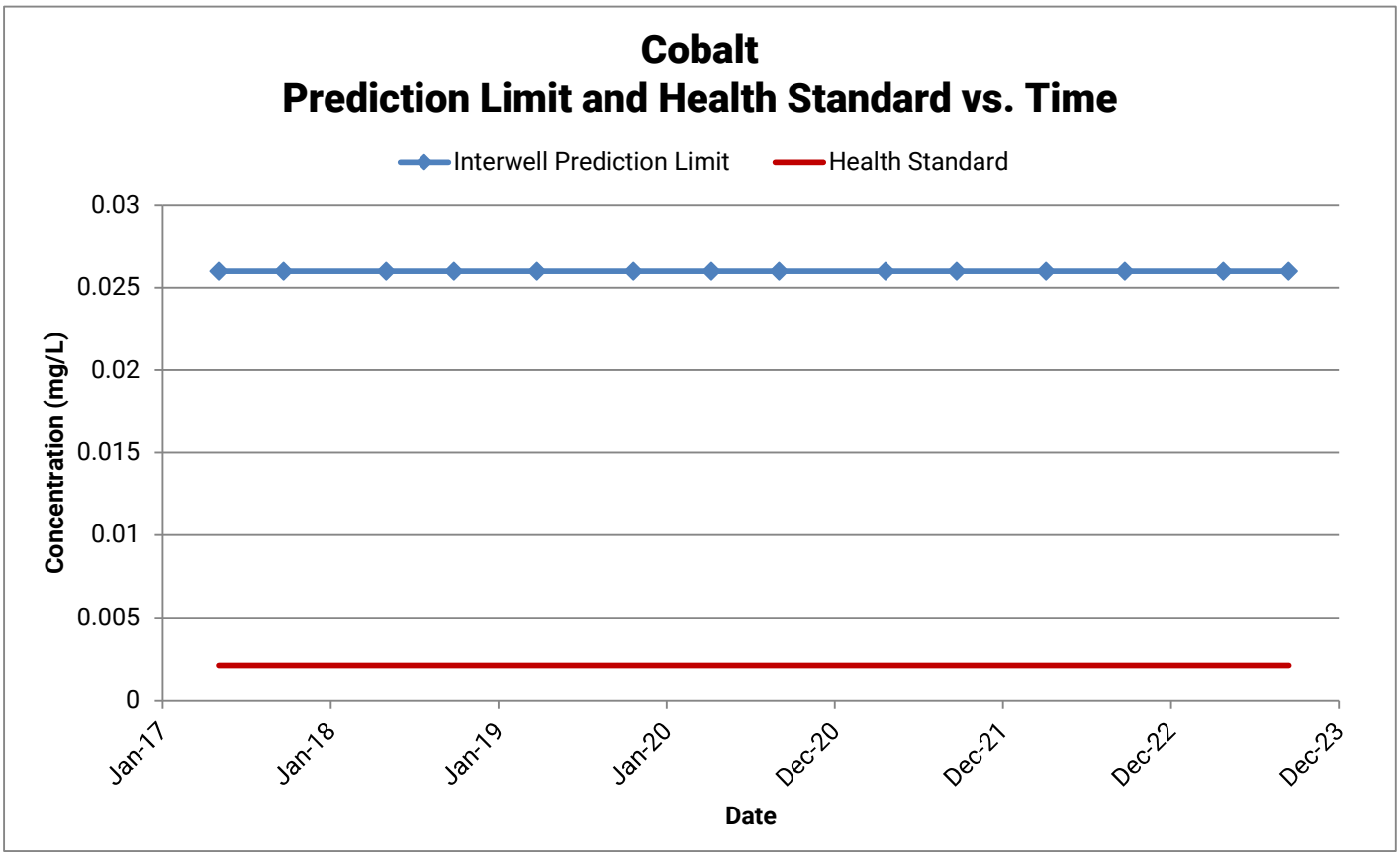

Arsenic
Prediction Limit and Health Standard vs. Time
Interwell Prediction Limit
Health Standard
0.012
0.01
0.008
0.006
0.004
0.002
0
Concentration (mg/L)
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Dec-23
Date

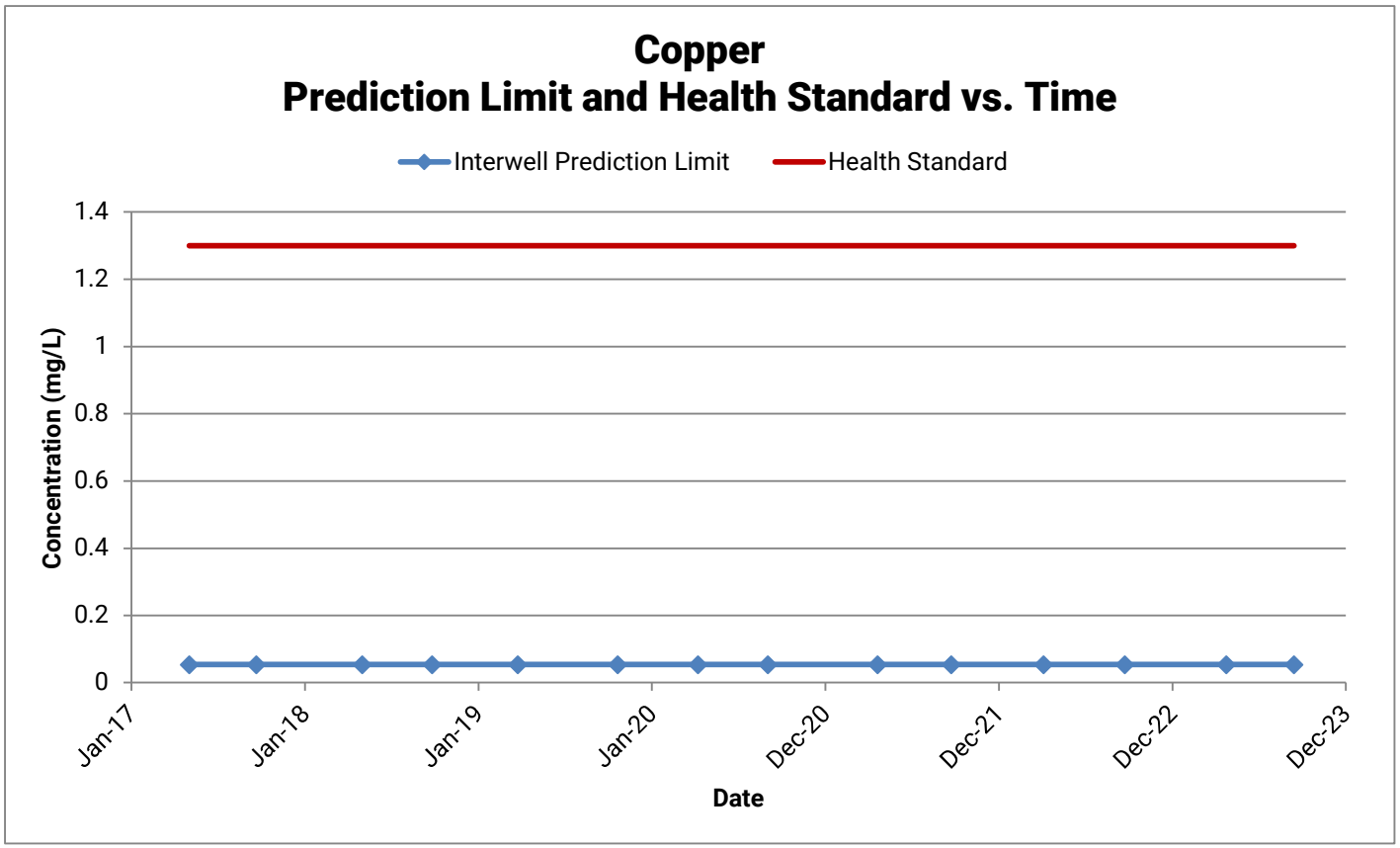

Barium
Prediction Limit and Health Standard vs. Time
Interwell Prediction Limit
Health Standard
2.5
2
1.5
1
0.5
0
Concentration (mg/L)
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Dec-23
Date

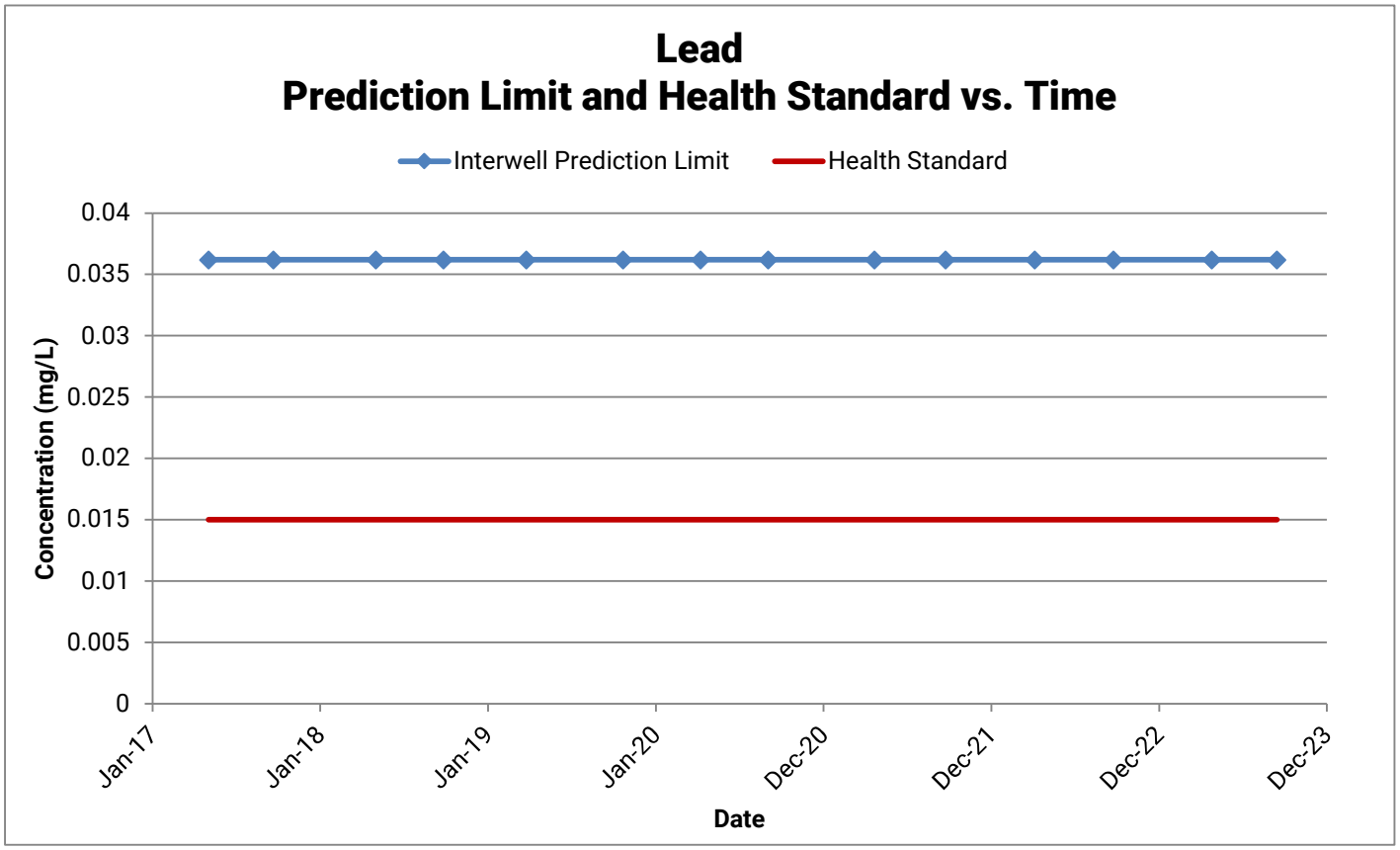

Beryllium
Prediction Limit and Health Standard vs. Time
Interwell Prediction Limit
Health Standard
0.0041
0.004
0.0039
0.0038
0.0037
0.0036
0.0035
0.0034
Concentration (mg/L)
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Dec-23
Date

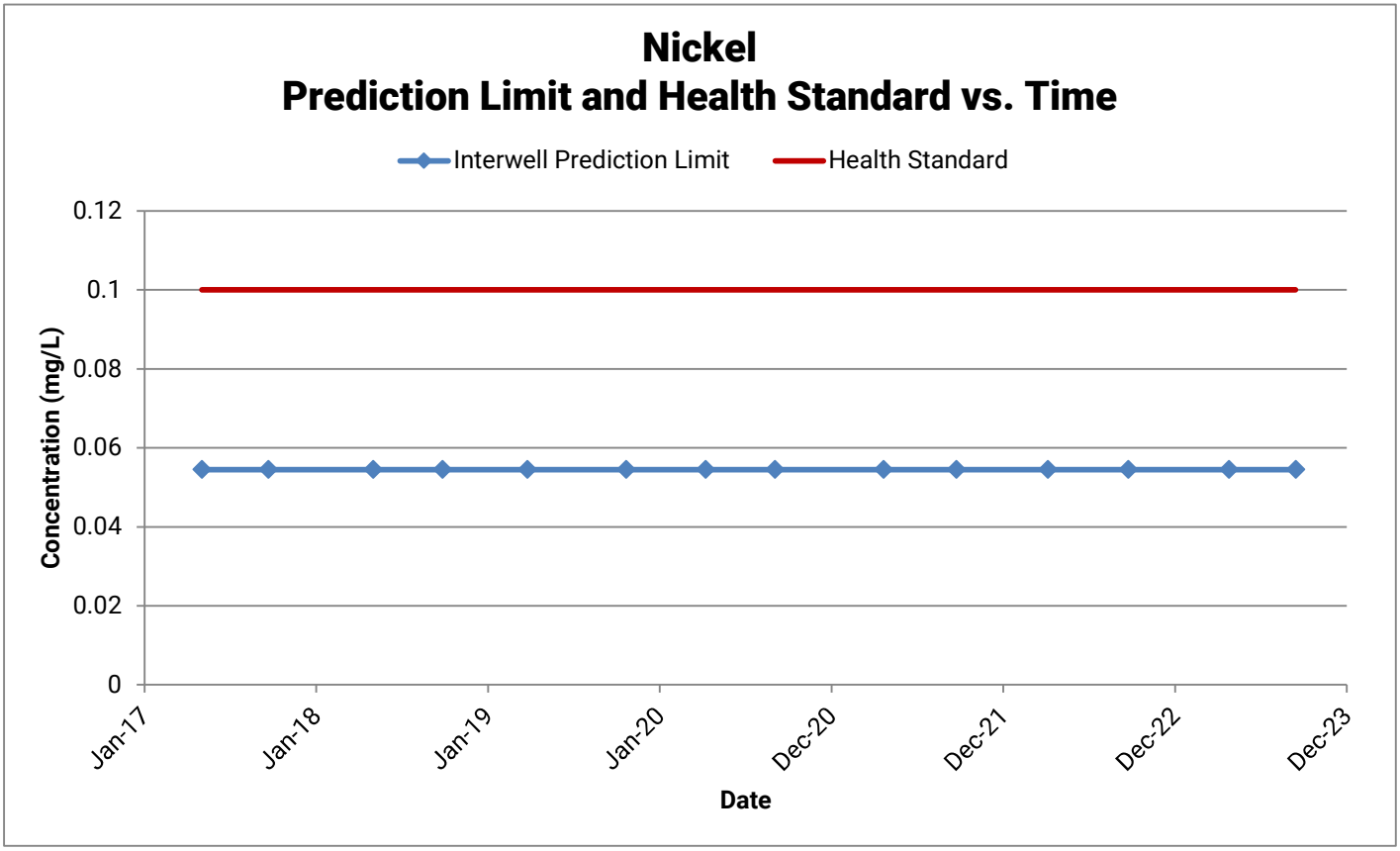

Cadmium
Prediction Limit and Health Standard vs. Time
Interwell Prediction Limit
Health Standard
0.006
0.005
0.004
0.003
0.002
0.001
0
Concentration (mg/L)
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Dec-23
Date

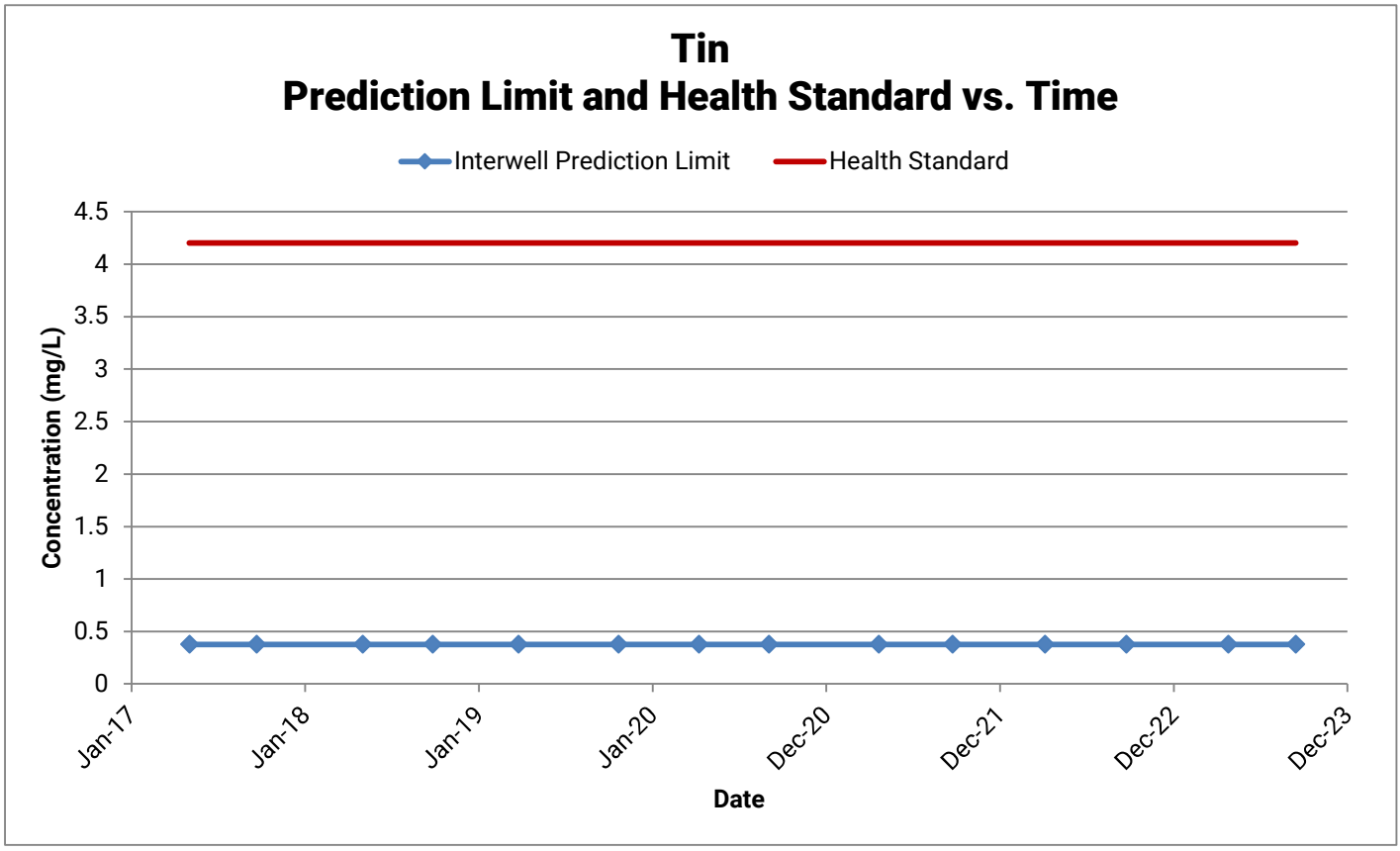

Chromium
Prediction Limit and Health Standard vs. Time
Interwell Prediction Limit
Health Standard
0.12
0.1
0.08
0.06
0.04
0.02
0
Concentration (mg/L)
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Dec-23
Date

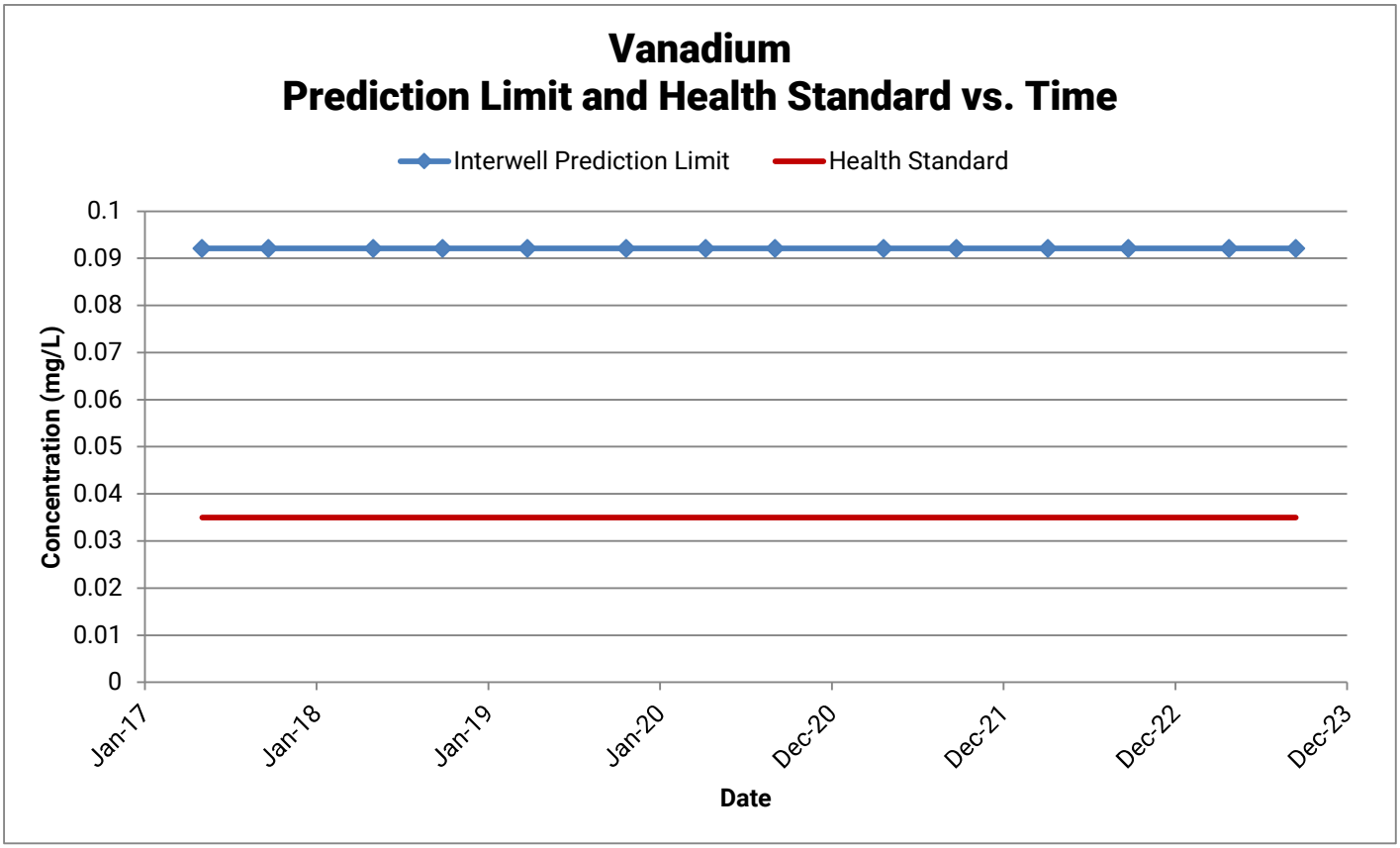

Cobalt
Prediction Limit and Health Standard vs. Time
Interwell Prediction Limit
Health Standard
0.03
0.025
0.02
0.015
0.01
0.005
0
Concentration (mg/L)
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Dec-23
Date

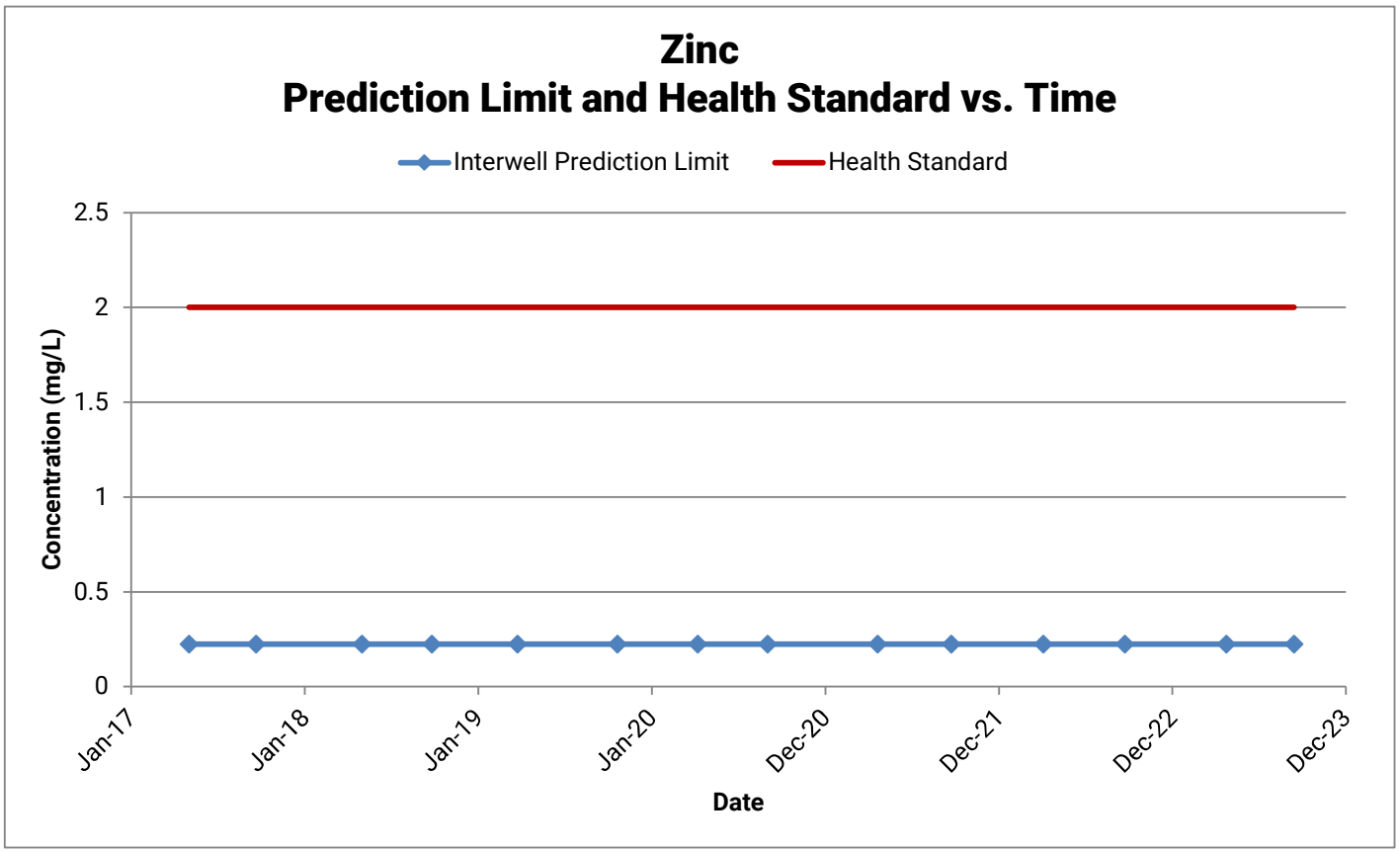

Copper
Prediction Limit and Health Standard vs. Time
Interwell Prediction Limit
Health Standard
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Concentration (mg/L)
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Dec-23
Date

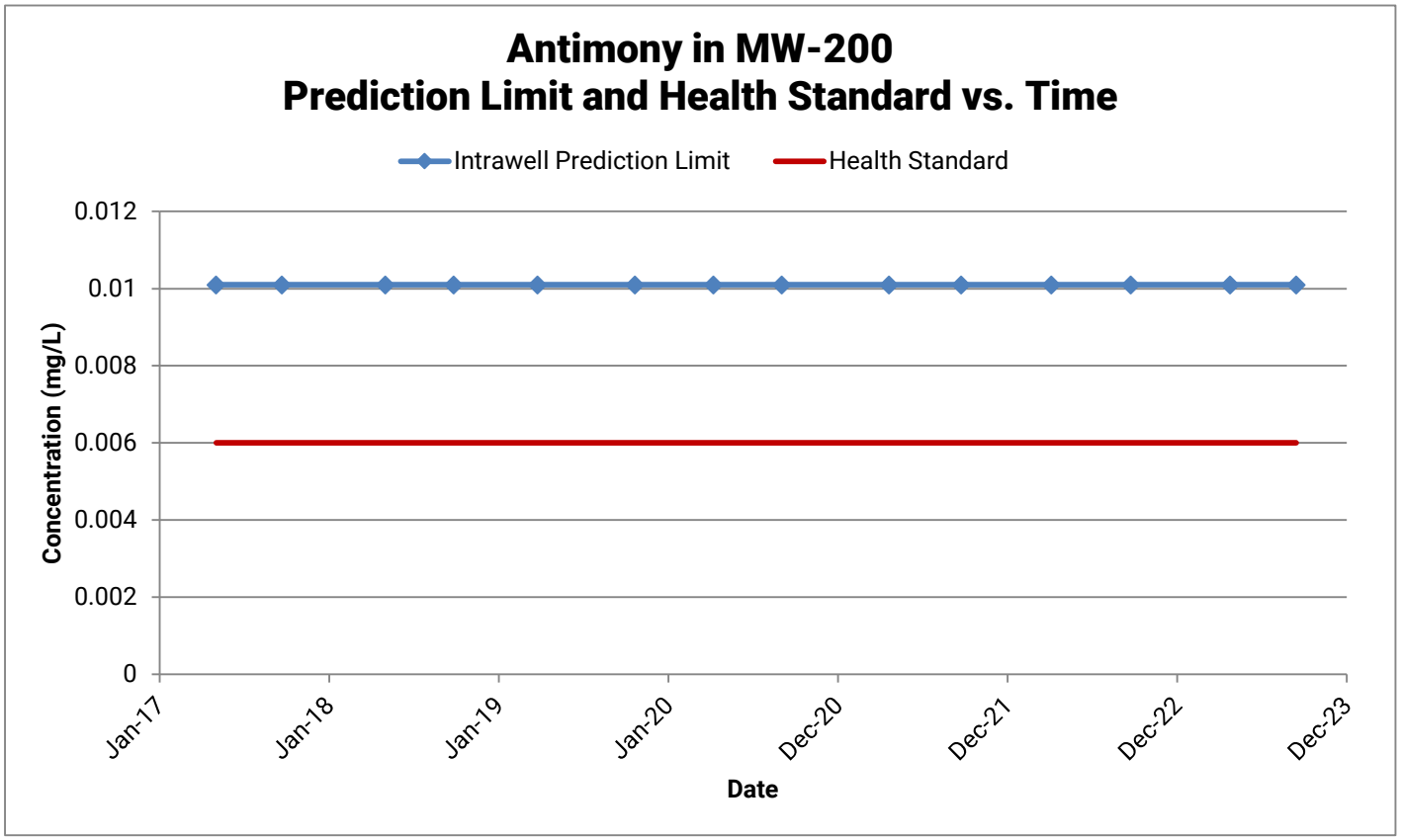

Lead
Prediction Limit and Health Standard vs. Time
Interwell Prediction Limit
Health Standard
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
Concentration (mg/L)
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Dec-23
Date

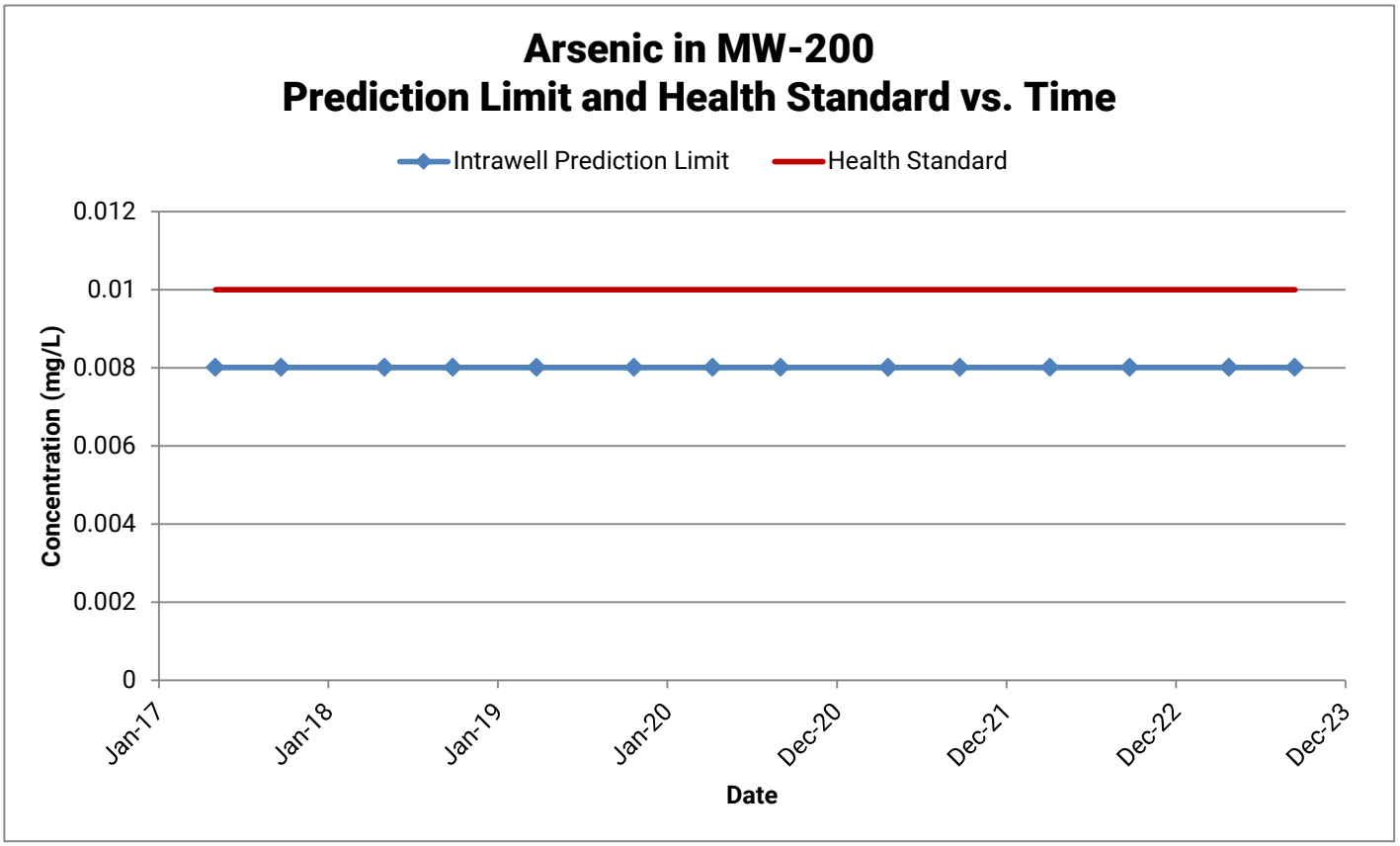

Nickel
Prediction Limit and Health Standard vs. Time
Interwell Prediction Limit
Health Standard
0.12
0.1
0.08
0.06
0.04
0.02
0
Concentration (mg/L)
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Dec-23
Date

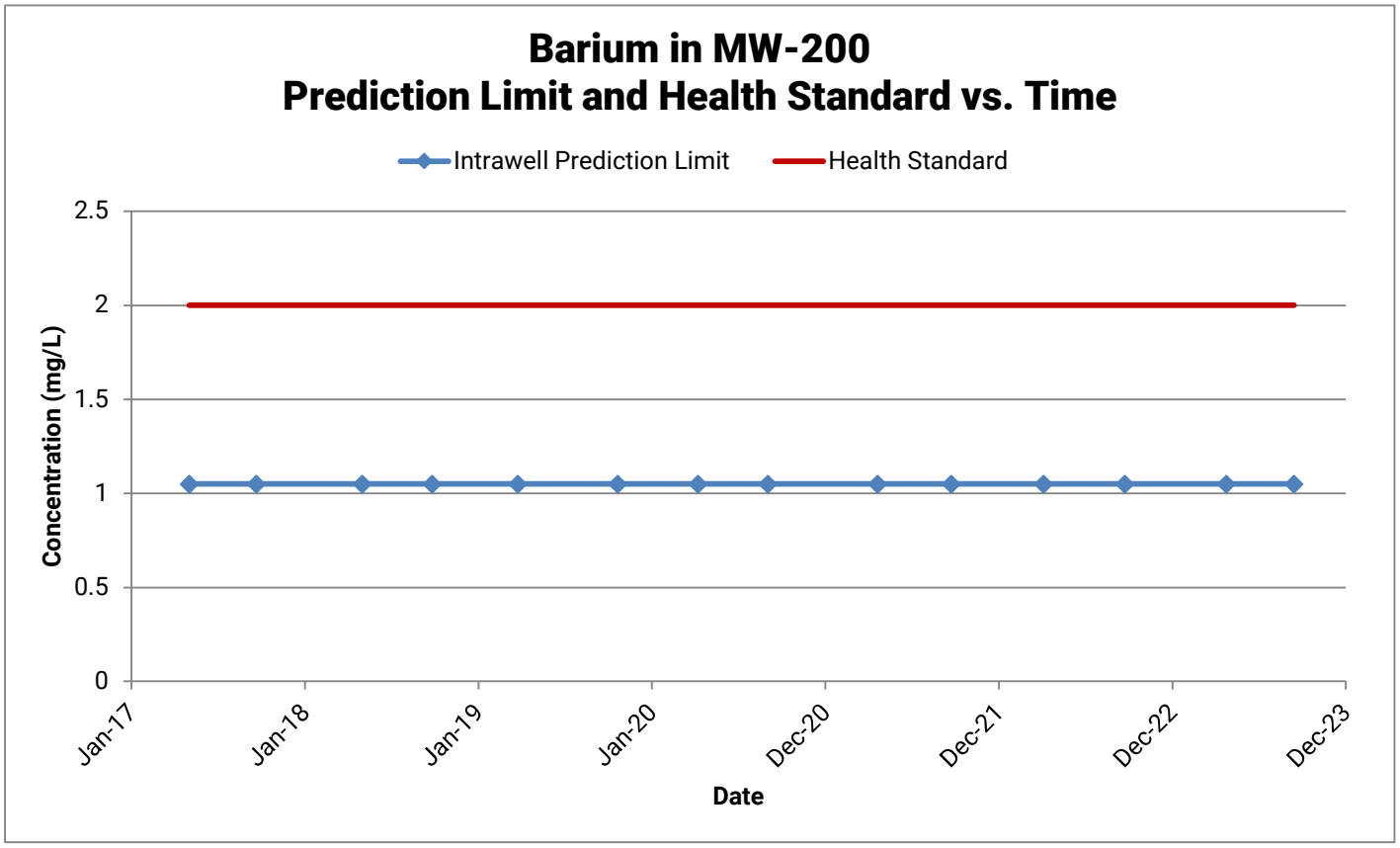

Tin
Prediction Limit and Health Standard vs. Time
Interwell Prediction Limit
Health Standard
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Concentration (mg/L)
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Dec-23
Date

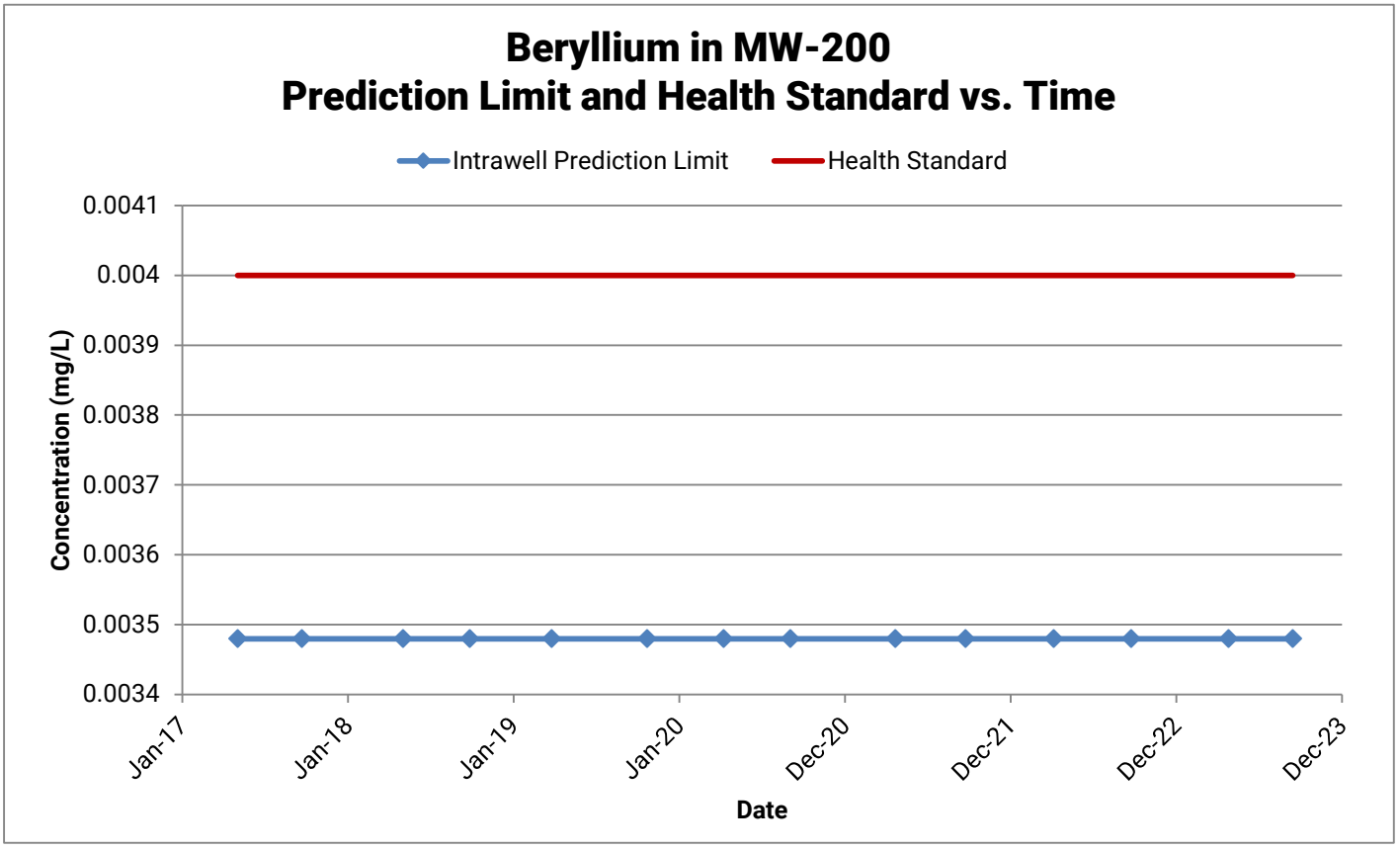

Vanadium
Prediction Limit and Health Standard vs. Time
Interwell Prediction Limit
Health Standard
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Dec-23
Date

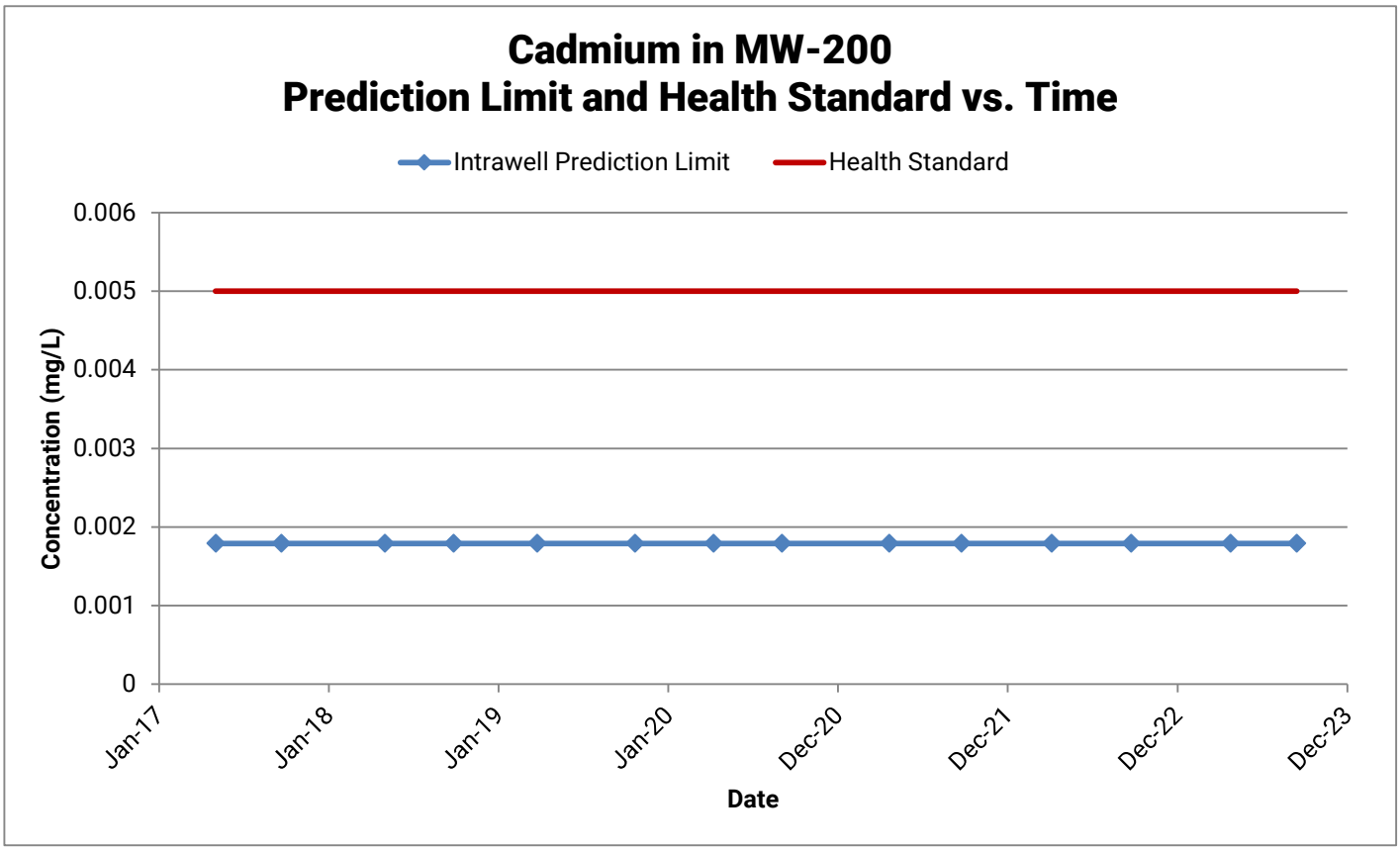

Zinc
Prediction Limit and Health Standard vs. Time
Interwell Prediction Limit
Health Standard
Concentration (mg/L)
2.5
2
1.5
1
0.5
0
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Dec-23
Date

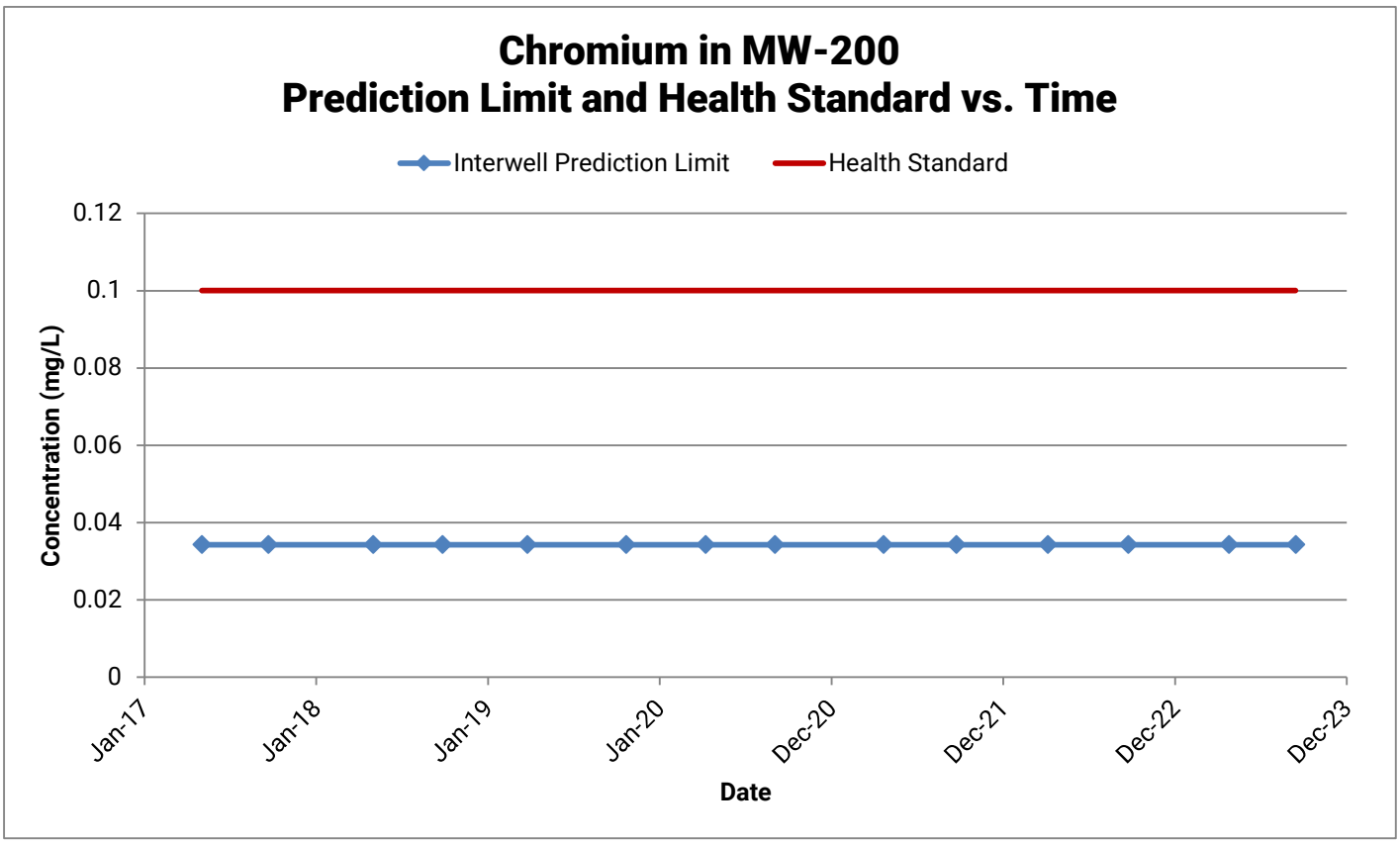

Antimony in MW-200
Prediction Limit and Health Standard vs. Time
Intrawell Prediction Limit
Health Standard
0.012
0.01
0.008
0.006
0.004
0.002
0
Concentration (mg/L)
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Dec-23
Date

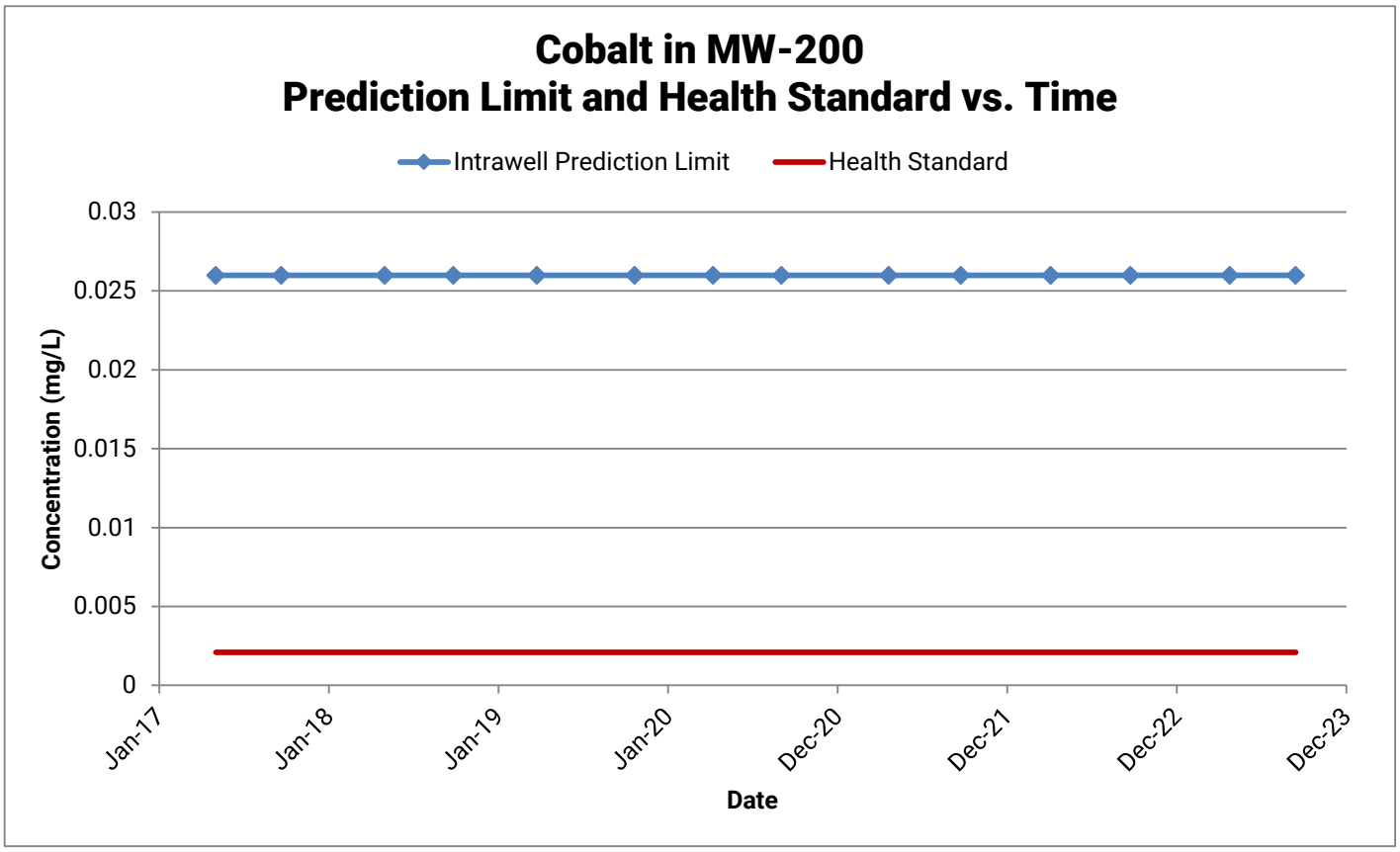

Arsenic in MW-200
Prediction Limit and Health Standard vs. Time
Intrawell Prediction Limit
Health Standard
0.012
0.01
0.008
0.006
0.004
0.002
0
Concentration (mg/L)
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Dec-23
Date

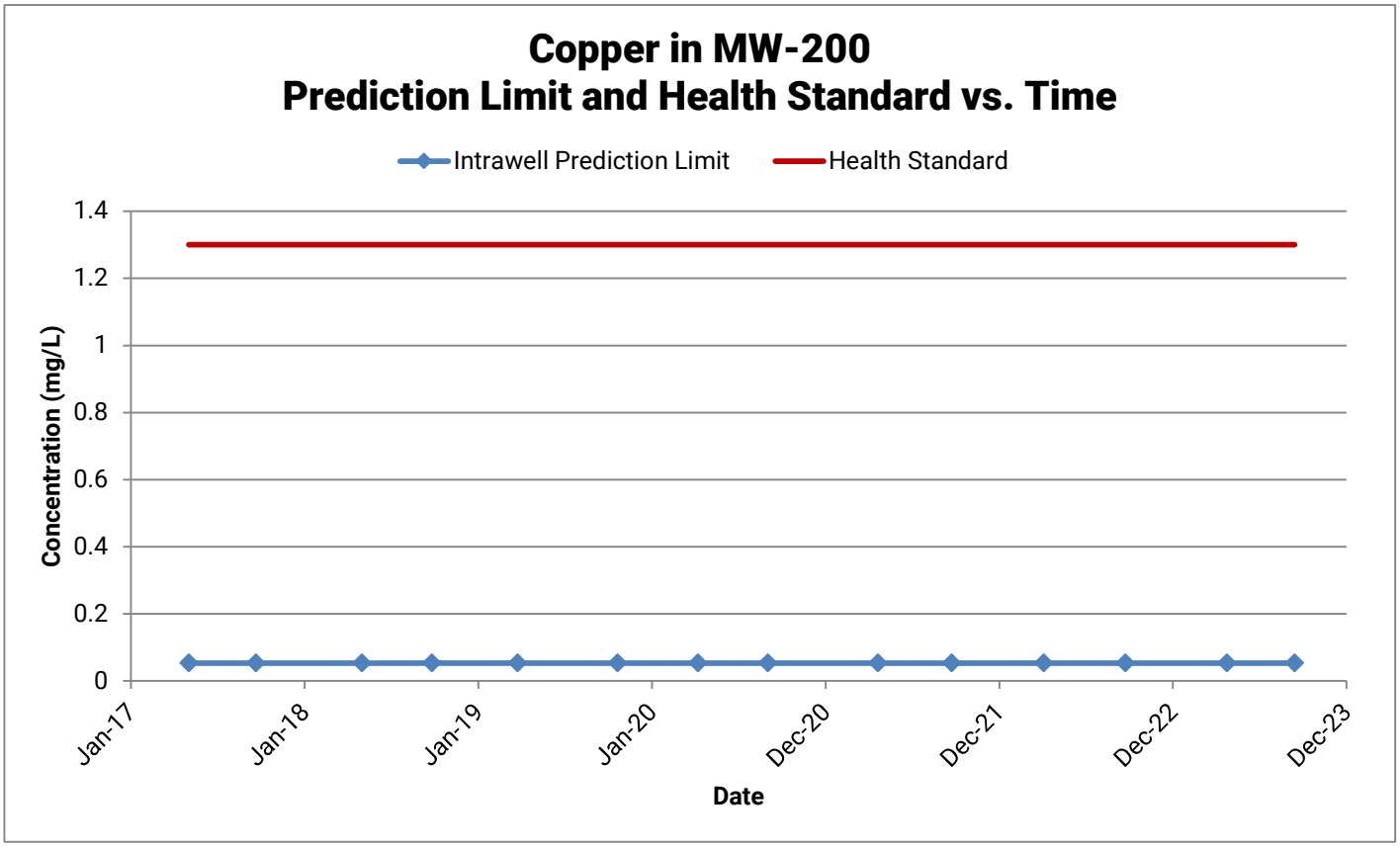

Barium in MW-200
Prediction Limit and Health Standard vs. Time
Intrawell Prediction Limit
Health Standard
2.5
2
1.5
1
0.5
0
Concentration (mg/L)
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Dec-23
Date

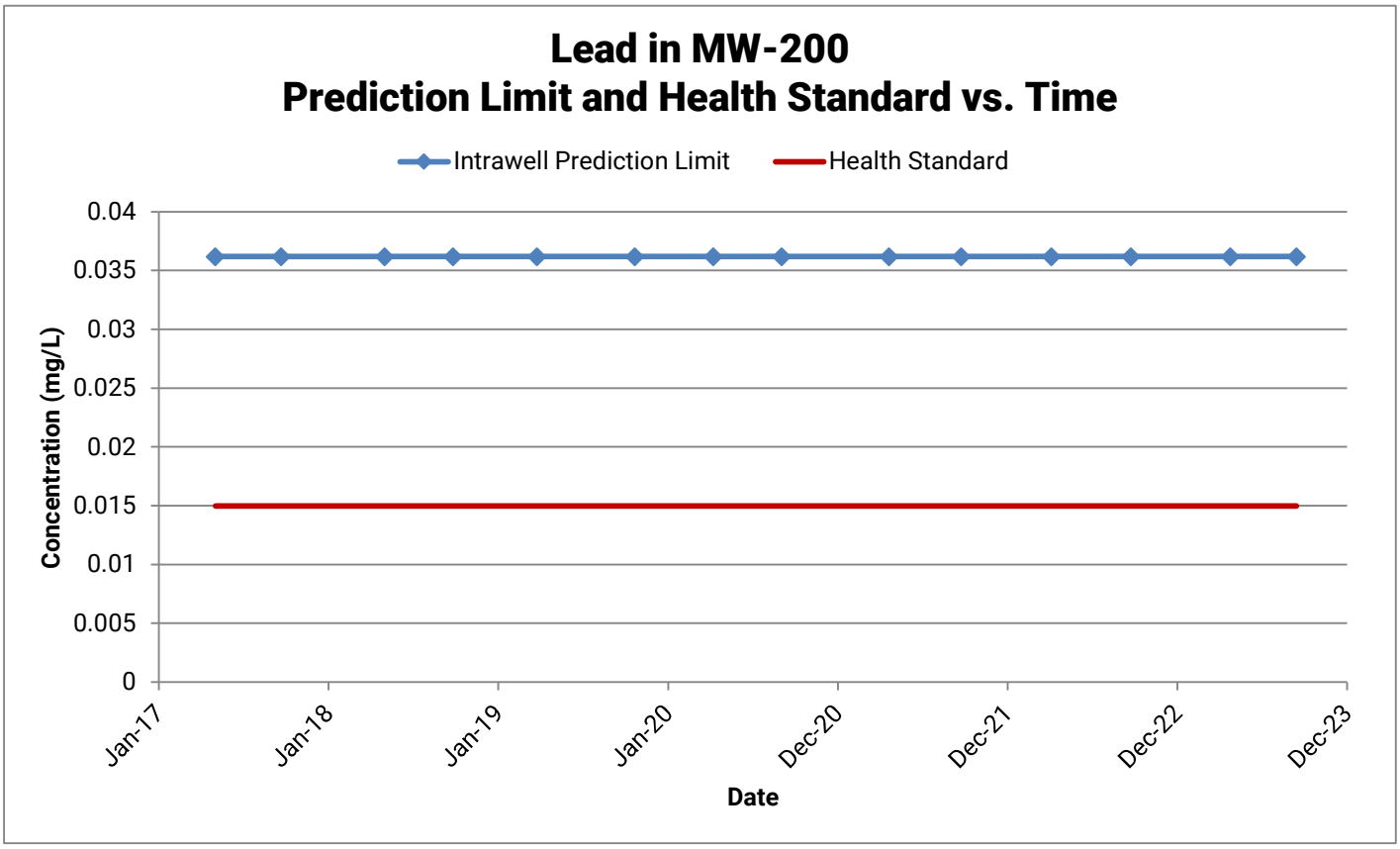

Beryllium in MW-200
Prediction Limit and Health Standard vs. Time
Intrawell Prediction Limit
Health Standard
0.0041
0.004
0.0039
0.0038
0.0037
0.0036
0.0035
0.0034
Concentration (mg/L)
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Dec-23
Date

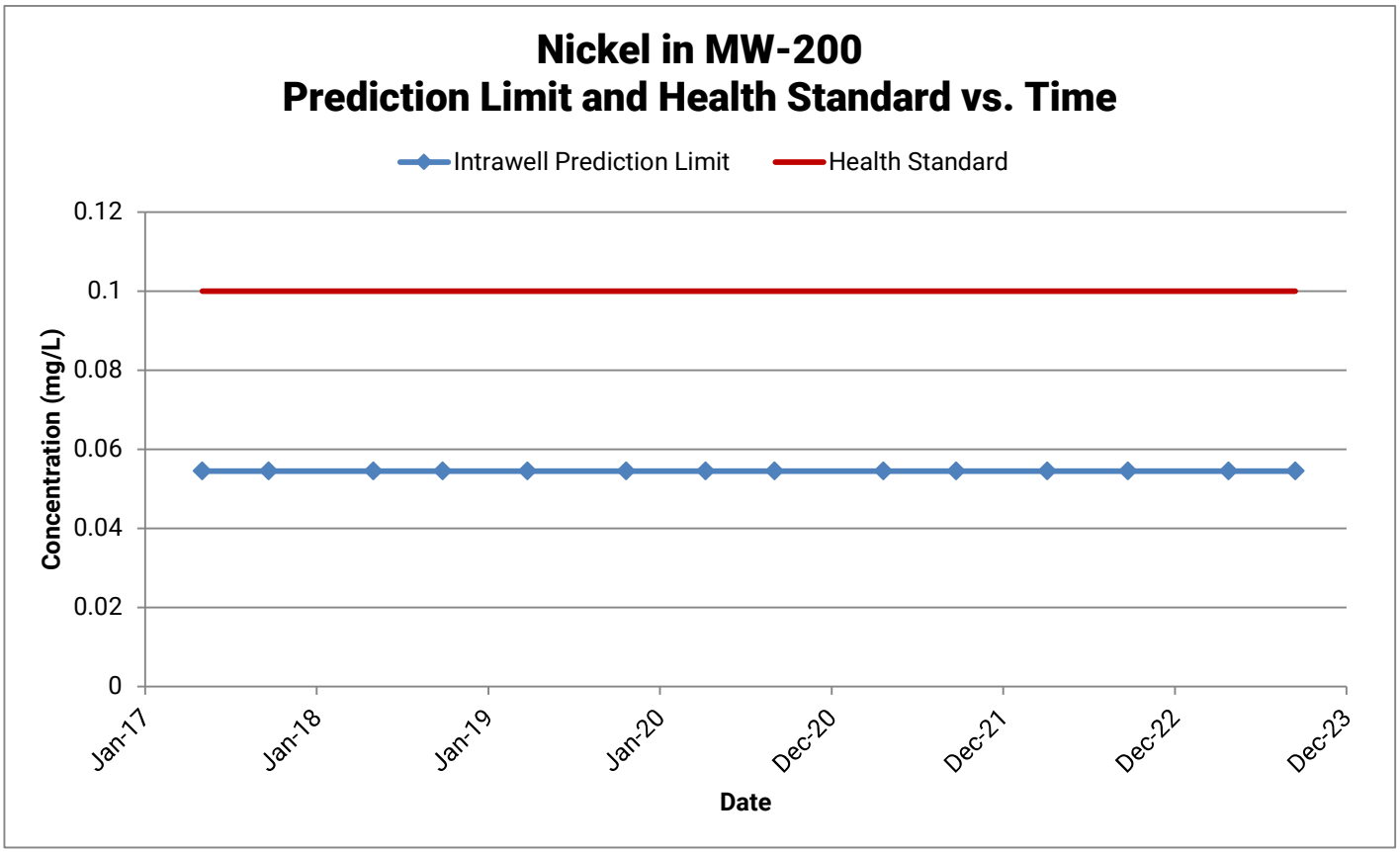

Cadmium in MW-200
Prediction Limit and Health Standard vs. Time
Intrawell Prediction Limit
Health Standard
0.006
0.005
0.004
0.003
0.002
0.001
0
Concentration (mg/L)
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Dec-23
Date

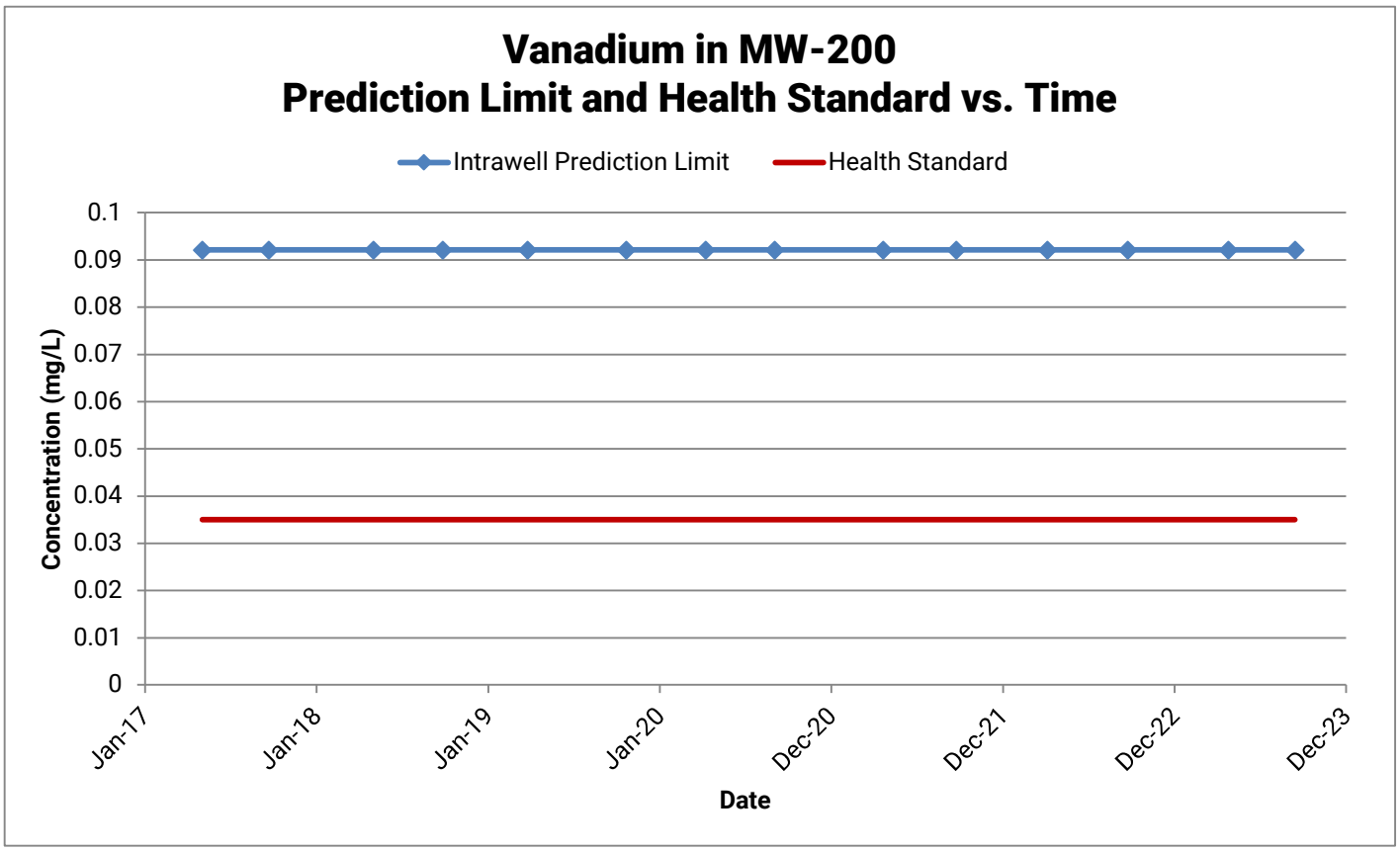

Chromium in MW-200
Prediction Limit and Health Standard vs. Time
Interwell Prediction Limit
Health Standard
0.12
0.1
0.08
0.06
0.04
0.02
0
Concentration (mg/L)
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Dec-23
Date


Cobalt in MW-200
Prediction Limit and Health Standard vs. Time
Intrawell Prediction Limit
Health Standard
0.03
0.025
0.02
0.015
0.01
0.005
0
Concentration (mg/L)
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Dec-23
Date


Copper in MW-200
Prediction Limit and Health Standard vs. Time
Intrawell Prediction Limit
Health Standard
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Concentration (mg/L)
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Dec-23
Date


Lead in MW-200
Prediction Limit and Health Standard vs. Time
Intrawell Prediction Limit
Health Standard
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
Concentration (mg/L)
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Dec-23
Date


Nickel in MW-200
Prediction Limit and Health Standard vs. Time
Intrawell Prediction Limit
Health Standard
0.12
0.1
0.08
0.06
0.04
0.02
0
Concentration (mg/L)
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Dec-23
Date


Vanadium in MW-200
Prediction Limit and Health Standard vs. Time
Intrawell Prediction Limit
Health Standard
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Dec-23
Date

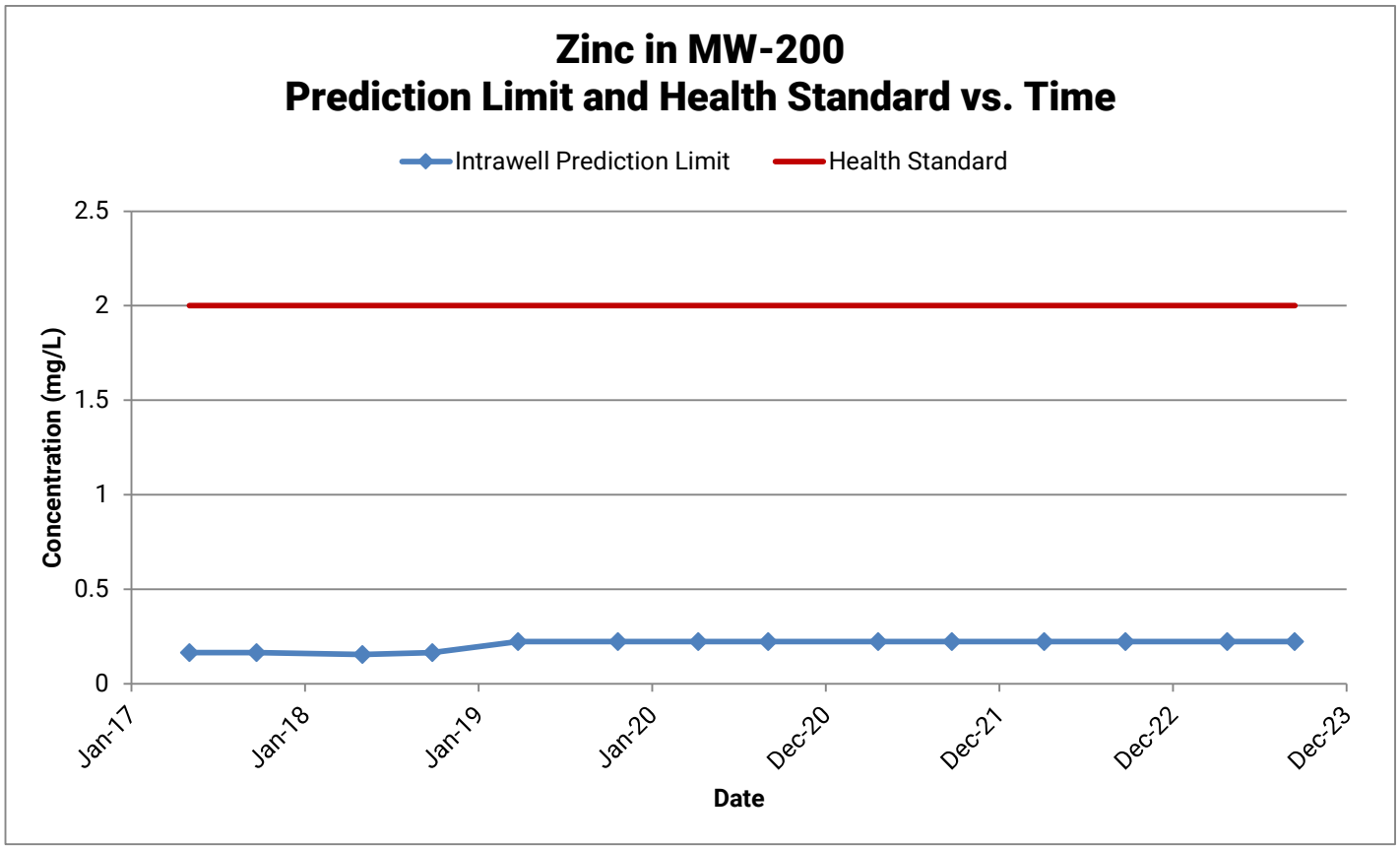

Zinc in MW-200
Prediction Limit and Health Standard vs. Time
Intrawell Prediction Limit
Health Standard
Concentration (mg/L)
2.5
2
1.5
1
0.5
0
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Dec-23
Date

Table 9
Summary of Ongoing and Newly Identified SSIs
2023 Annual Water Quality Report
Carroll County Landfill Western Expansion Area
Permit No. 14-SDP-01-74P

Well	Constituent [1]	Units	Most Recent Result (Sep. 2023)	Background Standard [2]	Lower Confidence Limit	GWPS [2]	Sample Dates		
							Initial Exceedance (above background)	Resample	5th Background Sample
Assessment Monitoring Locations									
MW-121R	Arsenic	mg/L	0.0219	0.00801	0.0051	0.01	Spring 2015	N/S	Sep. 2012
	Benzene	ug/L	1.04	0.500	0.25	5	Spring 2016	N/S	Sep. 2012
	cis-1,2-Dichloroethene	ug/L	10.1	1.00	1.9	70	Spring 2014	N/S	Sep. 2012

* For assessment monitoring locations, all current results are below background. If confirmed by a second event, the location may return to detection monitoring in accordance with IAC 113.10(6)e. However, three consecutive events will be utilized to make the determination to return to detection monitoring to limit frequent fluctuation of wells moving between the detection and assessment monitoring program.

** LCL has exceeded the GWPS. This well/constituent pair is now identified as an SSL.

*** Non-MSWLF Unit source of the SSI identified.

Comments:

N/S = Not resampled; SSI was declared in lieu of conducting resample.

[1] List contains constituents identified as SSIs during the Fall 2023 statistical evaluation. Unless otherwise noted, all current results listed in this table are above background.

[2] Source of background standards and GWPS values are presented in Table 7. If the constituent isn't listed in Table 7, indicating the constituent hasn't been detected in background, then the background standard is the laboratory RL, and the GWPS is the MCL or the SS if there's no MCL.

• SSIs continued to be identified for arsenic, benzene, and cis-1,2-dichloroethene at MW-121R in Fall 2023. No SSLs were identified at MW-121R.

• The Fall 2023 statistical evaluation did not identify all Appendix II constituents below the interwell prediction limit or laboratory reporting limit for three consecutive sampling events at MW-121R. As a result, MW-121R will not exit assessment monitoring at this time. Details regarding the future sampling schedules for MW-121R are provided in Table 2.

Table 10
Historic SSIs and SSLs
2023 Annual Water Quality Report
Carroll County Landfill Western Expansion Area
Permit No. 14-SDP-01-74P

Key: gray = SSI black = SSL Well	Constituent	April 2017	September 2017	May 2018	September 2018	March 2019	October 2019	April 2020	June 2020	August/September 2020	December 2020	February 2021	April 2021	September 2021	April 2022	September 2022	April 2023	September 2023
Downgradient Monitoring Locations																		
GU-2A	No SSIs or SSLs																	
MW-119RR	No SSIs or SSLs																	
MW-121R	Arsenic								N.S.		N.S.	N.S.						
	Benzene								N.S.		N.S.	N.S.						
	cis-1,2-Dichloroethene								N.S.		N.S.	N.S.						
	Vinyl Chloride								N.S.		N.S.	N.S.						
MW-200	No SSIs or SSLs																	
MW-204RR [(1)]	Not Sampled To Date [(1)]																	
MW-205 [(2)]	No SSIs or SSLs																	
MW-206	No SSIs or SSLs																	

Comments:

N.S. = Not sampled due to 1) Well not installed yet; 2) Location was dry or inaccessible; 3) Location was not included in quarterly baseline/retesting event; or 4) Only limited parameters analyzed during quarterly event.

(1) As further detailed in Table 1 and the AWQR Report Priority, Foth requests amendment of the HMSP and Permit in this 2023 AWQR by replacing MW-204R/MW-204RR with MW-205. Upon IDNR approval, MW-204RR will be removed from this table.

(2) As further detailed in Tables 1 and 2, detection monitoring samples have been collected at MW-205 as a temporary or potential replacement for MW-204RR, due to dry conditions or insufficient water column for sample collection at MW-204RR. Note that MW-205 is not currently included in the permitted groundwater monitoring network for the Western Expansion Area. In Table 1 and the Report Priority, Foth requests amendment of the HMSP and Permit in this 2023 AWQR by replacing MW-204R/MW-204RR with MW-205.

Table 11
Leachate Management Summary
2023 Leachate Control System Performance Evaluation Report
Carroll County Landfill Western Expansion Area
Permit No. 14-SDP-01-74P

	Maximum Head on Liner (feet)									Leachate Collected [1]	Volume Recirculated	Discharged to	Precipitation
Month	PZ-Leachate	LHMR-1B	LHMR-2B	LHMR-3	LHMR-4B	LHMR-5A	LHMR-5B	LHMR-6	Month	(gal)	(gal)	Carroll WWTP (gal)	(in)
January	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	January	46,700	0	46,700	1.91
February	0.000	0.000	0.000	0.000	0.000	0.010	0.077	0.002	February	88,800	0	88,800	2.18
March	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.029	March	86,700	0	86,700	1.48
April	0.000	0.000	0.027	0.032	0.000	0.111	0.000	0.000	April	79,100	0	79,100	1.92
May	0.000	0.000	0.000	0.011	0.000	0.093	0.000	0.000	May	68,600	0	68,600	1.6
June	0.000	0.000	0.000	0.011	0.000	0.068	0.000	0.000	June	59,900	0	59,900	2.17
July	0.000	0.000	0.000	0.014	0.000	0.087	0.000	0.000	July	76,800	0	76,800	3.98
August	0.000	0.000	0.018	0.025	0.000	0.091	0.000	0.000	August	69,500	0	69,500	2.21
September	0.000	0.000	0.009	0.012	0.000	0.092	0.000	0.000	September	59,900	0	59,900	3.47
October	0.000	0.000	0.000	0.005	0.000	0.113	0.000	0.000	October	58,900	0	58,900	2.09
November	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	November	49,200	0	49,200	0.17
December	0.000	0.000	0.032	0.045	0.000	0.119	0.000	0.000	December	52,300	0	52,300	1.9
									2023 Annual Total	796,400	0	796,400	25.08

Grey highlighted cells indicate head levels in exceedance of 1 foot of head on the liner.

Comments:

gal = gallons

in = inches

N/A = Not Applicable

WWTP = Wastewater Treatment Plant

[1] Leachate volumes are measured through a flow meter at the on-site lift station.

• The contents of this table are intended to satisfy the requirements set forth in 567 IAC 113.7(5)b and Special Provisions X.2.b and c.

• Leachate line cleaning and inspection of the on-site and off-site portions of the leachate collection system was conducted in Nov. 2021 by Superior Jetting. The next line cleaning and inspection will be performed in 2024.

• Other maintenance activities performed in 2022 included semiannual cleaning and inspection of the lift station flow meter by Commission staff.

• The 2023 precipitation total of 25.08 inches was slightly greater than 2021 and 2022 (23.79 and 22.50 inches, respectively). The 2020-2023 precipitation totals reflect ongoing drought conditions in western Iowa.

• In 2023, a correlation was not evident between precipitation and monthly leachate volumes or monthly leachate head levels in the Western Expansion Area. A total of 796,400 gallons of leachate was discharged to the WWTP in 2023, compared to 925,400 gallons in 2022 and 1,946,700 gallons in 2021. The reduction in leachate disposal volume is attributed to ongoing drought conditions and a reduction in leachate generation with continued placement of waste and daily cover in Phases 4 through 6.

• For the Western Expansion Area, effective leachate control is defined in accordance with 567 IAC 113.7(5)b(3) as maintaining less than one foot of leachate head over the liner at the system's lowest point(s) within the waste unit. In 2023, head levels at PZ-Leachate, LHMR-1B, LHMR-2B, LHMR-3, LHMR-4B, LHMR-5A, LHMR-5B, and LHMR-6 were below one foot of head over the liner, indicating compliance with 567 IAC 113.7(5)b(3) for the Western Expansion Area.

• Laboratory analytical results for leachate disposal at the City of Carroll WWTP are included in Appendix C. In accordance with the Commission's Industrial User Agreement with the City of Carroll, leachate sample frequency, parameters, and collection are the responsibility of and conducted by the City of Carroll. The City of Carroll provides a copy of the analytical results to the Commission to include in the annual LCSPER.

Table 11
Leachate Management Summary
2023 Leachate Control System Performance Evaluation Report
Carroll County Landfill Western Expansion Area
Permit No. 14-SDP-01-74P

Leachate Collection System Description:

• The active Western Expansion Area was constructed with a designed leachate collection system. Perforated gravity collection lines were installed in the drainage layer of each cell and transition to solid pipes, which penetrate the side walls of the cells through bootless pipe penetration components and terminate in maintenance holes. Leachate collected from Phases 1A through 3 gravity drain to maintenance holes located north of the Western Expansion Area. From those maintenance holes, leachate gravity flows east and connects with the leachate collection line on the north side of the Closed Eastern Area, where it continues to gravity flow to the on-site lift station. Leachate collected from Phases 4A through 6 gravity drain to maintenance holes located south of the Western Expansion Area. From the southern maintenance holes, leachate gravity flows east and connects with the leachate collection line on the south side of the Closed Eastern Area, where it continues to gravity flow to the on-site lift station. From the lift station, leachate that was collected from both the Closed Eastern Area and the Western Expansion Area is conveyed via force main to the City of Carroll sanitary sewer line.

• In 2016, the Commission replaced approximately 2,000 feet of the existing 2-inch diameter force main piping with 4-inch diameter transport piping, replaced approximately 3,000 feet of PVC gravity sanitary sewer pipe, installed or replaced 14 maintenance holes, and replaced one lift station and one valve vault maintenance hole with associated pumps, controls, valves, and fittings.

• In December 2018, JB Holland Construction replaced the entire section of leachate header between Manhole 5 and the lift station.

• Leachate head levels from the Western Expansion Area are monitored monthly via pressure transducers in the side-slope risers.

Table 12
Methane Monitoring Summary
2023 Methane Monitoring Report
Carroll County Landfill Western Expansion Area
Permit No. 14-SDP-01-74P

Monitoring Points			Methane Results (% LEL)							
Name	Type	Description	2/20/2023 - S (Y/N)		6/22/2023 - S (Y/N)		9/7/2023 - S (Y/N)		11/9/2023 - S (Y/N)	
GU-2A	Underdrain	Phases 2A, 2B, and 3	0		0		0		0	
GU-4A	Underdrain	Phases 4A, 4B, and 5A	0		0		0		0	
GP-3	Methane Monitoring Probe	Southeast of Phase 5A	0	N	0	N	0	N	0	N
MW-119RR	Monitoring Well	North of Phase 1B	0	N	0	N	0	N	0	N
MW-121R	Monitoring Well	North of Phase 1A	0	N	0	N	0	N	0	N
MW-122R	Monitoring Well	West of Phases 3 and 4A	0	N	0	N	0	N	0	N
MW-206	Monitoring Well	South of Phase 6	0	Y	0	Y	0	Y	0	Y
Western Maintenance Shop	Indoor	North of Phase 3	0		0		0		0	

S(Y/N) - Was screen submerged, yes or no or blank is non-applicable

Comments:

IAC = Iowa Administrative Code

LEL = lower explosive limit

• The contents of this table are intended to satisfy the requirements set forth in 567 IAC 113.9(2) and Special Provision X.5.

• Evaluation of screen submergence is not applicable for GU-2A, GU-4A, and Western Maintenance Shop.

• At MW-206, the screen remained submerged in 2023. As previously reported, groundwater elevations have been steadily rising at MW-206 since Aug. 2019. The water table along the southeast portion of the Western Expansion Area (i.e., in the vicinity of MW-204RR, MW-205, and MW-206) exists within glacial till, and the horizontal hydraulic conductivity calculated for the till was 5.6x10-7 cm/s or 0.0016 feet/day (Foth, 2001). The natural confining conditions of the glacial till, which results in a low yield uppermost water-bearing unit, appears to have been exacerbated by the clay placement and compaction activities associated with the construction of Phases 5B and 6 as well as ongoing drought conditions in Western Iowa. As a result, it has been taking several years for the static water levels to establish at MW-204RR, MW-205, and MW-206. Currently, MW-205 and MW-206 both have submerged screens. These confining conditions, which result in very low hydraulic conductivity, will also limit the rate of methane migration, should it occur. GP-3 currently provides adequate coverage for methane migration. At this time, MW-206 will remain in the methane monitoring network.

• The quarterly methane results did not indicate concentrations in exceedance of 25% LEL for facility structures, 100% LEL at subsurface monitoring locations, and 100% LEL at the facility boundary. Based on 567 IAC 113.9(2), no action is required for this facility with regard to methane control at this time.

• Monitoring of potential methane emissions and migration will be conducted on a quarterly basis in 2024 in accordance with the 567 IAC 113.9(2) and Special Provision X.5.

Table 13
Analytical Data Summary
2023 Annual Water Quality Report
Carroll County Landfill Western Expansion Area
Permit No. 14-SDP-01-74P

Comments:

The following tables present the groundwater Appendix II analytical data collected since Apr. 2008.

Detections above the laboratory MDL are shown in **bold**.

Bkgrnd = background monitoring location

Delin = delineation monitoring location

DwnGrad = downgradient (compliance) monitoring location

• As discussed in the *2021 AWQR* (Foth, 2022), the MW-119RR data was not combined with the abandoned MW-119R data due to statistically significant differences between the two data sets. As a result, only the MW-119RR data is provided in Table 13.

• MW-200 primarily serves as a downgradient monitoring location; however, MW-200 is also used to supplement the background data set. As a result, MW-200 is listed in Table 13 as a downgradient monitoring location and also as a background monitoring location. As discussed in the *2021 AWQR* (Foth, 2022), the Sep. 2020 data at MW-200 has been removed from the intrawell and interwell background data sets. These results are listed as crossed-out concentrations under the MW-200 background monitoring location data in Table 13.

• As discussed in the *2020, 2021, and 2022 AWQRs* (Foth, 2021, 2022, and 2023), detection monitoring samples are being collected at MW-205 as a temporary or potential replacement for MW-204RR due to dry conditions or insufficient water column for sample collection at MW-204RR. Note that MW-205 is not currently included in the permitted groundwater monitoring network for the Western Expansion Area. As detailed in Table 1, Foth recommends amendment of the HMSP and Permit by replacing MW-204RR with MW-205.

Table 13
Carroll County Landfill Western Expansion Area **Analytical Data Summary**
Permit No. 14-SDP-01-74P **2023 Annual Water Quality Report**

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-08	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-09	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2009-03	ug/l							< 1	
1,1,1,2-Tetrachloroethane	2009-06	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2009-09	ug/l				< 1.00			< 1.00	< 1.00
1,1,1,2-Tetrachloroethane	2009-12	ug/l				< 1.00				< 1.00
1,1,1,2-Tetrachloroethane	2010-03	ug/l							< 5.00	
1,1,1,2-Tetrachloroethane	2010-04	ug/l				< 5.00				< 5.00
1,1,1,2-Tetrachloroethane	2010-06	ug/l				< 1.00				< 1.00
1,1,1,2-Tetrachloroethane	2010-09	ug/l				< 1.00			< 1.00	< 1.00
1,1,1,2-Tetrachloroethane	2011-03	ug/l				< 1.00			< 1.00	< 1.00
1,1,1,2-Tetrachloroethane	2011-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,1,2-Tetrachloroethane	2011-11	ug/l	< 1.00		< 1.00					
1,1,1,2-Tetrachloroethane	2012-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,1,2-Tetrachloroethane	2012-06	ug/l	< 1.00		< 1.00					
1,1,1,2-Tetrachloroethane	2012-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,1,2-Tetrachloroethane	2013-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,1,2-Tetrachloroethane	2013-06	ug/l			< 1.00	< 1.00			< 1.00	< 1.00
1,1,1,2-Tetrachloroethane	2013-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,1,2-Tetrachloroethane	2013-11	ug/L				< 1.00			< 1.00	< 1.00
1,1,1,2-Tetrachloroethane	2014-03	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,1,2-Tetrachloroethane	2014-06	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
1,1,1,2-Tetrachloroethane	2014-08	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,1,2-Tetrachloroethane	2014-12	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
1,1,1,2-Tetrachloroethane	2015-04	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,1,2-Tetrachloroethane	2015-09	ug/L			< 1					
1,1,1,2-Tetrachloroethane	2015-10	ug/L	< 1			< 1			< 1	< 1
1,1,1,2-Tetrachloroethane	2016-04	ug/L	< 1		< 1	< 1			< 1	< 1
1,1,1,2-Tetrachloroethane	2016-07	ug/L				< 1				< 1
1,1,1,2-Tetrachloroethane	2016-10	ug/L	< 1		< 1	< 1			< 1	< 1
1,1,1,2-Tetrachloroethane	2017-05	ug/L	< 1		< 1	< 1			< 1	< 1
1,1,1,2-Tetrachloroethane	2017-09	ug/L	< 1		< 1	< 1			< 1	< 1
1,1,1,2-Tetrachloroethane	2018-05	ug/L			< 1	< 1			< 1	< 1
1,1,1,2-Tetrachloroethane	2018-09	ug/L	< 1		< 1	< 1			< 1	< 1
1,1,1,2-Tetrachloroethane	2019-03	ug/L	< 1		< 1	< 1			< 1	< 1
1,1,1,2-Tetrachloroethane	2019-10	ug/L		< 1	< 1	< 1		< 1	< 1	< 1
1,1,1,2-Tetrachloroethane	2020-04	ug/L		< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1,2-Tetrachloroethane	2020-06	ug/L	< 1					< 1		
1,1,1,2-Tetrachloroethane	2020-08	ug/L	< 1				< 1	< 1		
1,1,1,2-Tetrachloroethane	2020-09	ug/L		< 1	< 1	< 1			< 1	~~< 1~~
1,1,1,2-Tetrachloroethane	2020-12	ug/L					< 1	< 1		
1,1,1,2-Tetrachloroethane	2021-02	ug/L					< 1			
1,1,1,2-Tetrachloroethane	2021-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1,2-Tetrachloroethane	2021-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1

Carroll County Landfill Western Expansion Area
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Table 13
Analytical Data Summary
2023 Annual Water Quality Report

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2022-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1,2-Tetrachloroethane	2022-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1,2-Tetrachloroethane	2023-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1,2-Tetrachloroethane	2023-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1-Trichloroethane	2008-04	ug/l							< 1.00	
1,1,1-Trichloroethane	2008-06	ug/l							< 1.00	
1,1,1-Trichloroethane	2008-08	ug/l							< 1.00	
1,1,1-Trichloroethane	2008-09	ug/l							< 1.00	
1,1,1-Trichloroethane	2009-03	ug/l							< 1	
1,1,1-Trichloroethane	2009-06	ug/l							< 1.00	
1,1,1-Trichloroethane	2009-09	ug/l				< 1.00			< 1.00	< 1.00
1,1,1-Trichloroethane	2009-12	ug/l				< 1.00				< 1.00
1,1,1-Trichloroethane	2010-03	ug/l							< 4.00	
1,1,1-Trichloroethane	2010-04	ug/l				< 4.00				< 4.00
1,1,1-Trichloroethane	2010-06	ug/l				< 1.00				< 1.00
1,1,1-Trichloroethane	2010-09	ug/l				< 1.00			< 1.00	< 1.00
1,1,1-Trichloroethane	2011-03	ug/l				< 1.00			< 1.00	< 1.00
1,1,1-Trichloroethane	2011-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,1-Trichloroethane	2011-11	ug/l	< 1.00		< 1.00					
1,1,1-Trichloroethane	2012-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,1-Trichloroethane	2012-06	ug/l	< 1.00		< 1.00					
1,1,1-Trichloroethane	2012-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,1-Trichloroethane	2013-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,1-Trichloroethane	2013-06	ug/l			< 1.00	< 1.00			< 1.00	< 1.00
1,1,1-Trichloroethane	2013-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,1-Trichloroethane	2013-11	ug/L				< 1.00			< 1.00	< 1.00
1,1,1-Trichloroethane	2014-03	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,1-Trichloroethane	2014-06	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
1,1,1-Trichloroethane	2014-08	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,1-Trichloroethane	2014-12	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
1,1,1-Trichloroethane	2015-04	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,1-Trichloroethane	2015-09	ug/L			< 1					
1,1,1-Trichloroethane	2015-10	ug/L	< 1			< 1			< 1	< 1
1,1,1-Trichloroethane	2016-04	ug/L	< 1		< 1	< 1			< 1	< 1
1,1,1-Trichloroethane	2016-07	ug/L				< 1				< 1
1,1,1-Trichloroethane	2016-10	ug/L	< 1		< 1	< 1			< 1	< 1
1,1,1-Trichloroethane	2017-05	ug/L	< 1		< 1	< 1			< 1	< 1
1,1,1-Trichloroethane	2017-09	ug/L	< 1		< 1	< 1			< 1	< 1
1,1,1-Trichloroethane	2018-05	ug/L			< 1	< 1			< 1	< 1
1,1,1-Trichloroethane	2018-09	ug/L	< 1		< 1	< 1			< 1	< 1
1,1,1-Trichloroethane	2019-03	ug/L	< 1		< 1	< 1			< 1	< 1
1,1,1-Trichloroethane	2019-10	ug/L		< 1	< 1	< 1		< 1	< 1	< 1
1,1,1-Trichloroethane	2020-04	ug/L		< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1-Trichloroethane	2020-06	ug/L	< 1					< 1		

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Table 13
Analytical Data Summary
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
1,1,1-Trichloroethane	2020-08	ug/L	< 1				< 1	< 1		
1,1,1-Trichloroethane	2020-09	ug/L		< 1	< 1	< 1			< 1	~~< 1~~
1,1,1-Trichloroethane	2020-12	ug/L					< 1	< 1		
1,1,1-Trichloroethane	2021-02	ug/L					< 1			
1,1,1-Trichloroethane	2021-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1-Trichloroethane	2021-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1-Trichloroethane	2022-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1-Trichloroethane	2022-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1-Trichloroethane	2023-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1-Trichloroethane	2023-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,2,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
1,1,2,2-Tetrachloroethane	2008-08	ug/l							< 1.00	
1,1,2,2-Tetrachloroethane	2008-09	ug/l							< 1.00	
1,1,2,2-Tetrachloroethane	2009-03	ug/l							< 1	
1,1,2,2-Tetrachloroethane	2009-06	ug/l							< 1.00	
1,1,2,2-Tetrachloroethane	2009-09	ug/l				< 1.00			< 1.00	< 1.00
1,1,2,2-Tetrachloroethane	2009-12	ug/l				< 1.00				< 1.00
1,1,2,2-Tetrachloroethane	2010-03	ug/l							< 1.00	
1,1,2,2-Tetrachloroethane	2010-04	ug/l				< 1.00				< 1.00
1,1,2,2-Tetrachloroethane	2010-06	ug/l				< 1.00				< 1.00
1,1,2,2-Tetrachloroethane	2010-09	ug/l				< 1.00			< 1.00	< 1.00
1,1,2,2-Tetrachloroethane	2011-03	ug/l				< 1.00			< 1.00	< 1.00
1,1,2,2-Tetrachloroethane	2011-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,2,2-Tetrachloroethane	2011-11	ug/l	< 1.00		< 1.00					
1,1,2,2-Tetrachloroethane	2012-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,2,2-Tetrachloroethane	2012-06	ug/l	< 1.00		< 1.00					
1,1,2,2-Tetrachloroethane	2012-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,2,2-Tetrachloroethane	2013-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,2,2-Tetrachloroethane	2013-06	ug/l			< 1.00	< 1.00			< 1.00	< 1.00
1,1,2,2-Tetrachloroethane	2013-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,2,2-Tetrachloroethane	2013-11	ug/L				< 1.00			< 1.00	< 1.00
1,1,2,2-Tetrachloroethane	2014-03	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,2,2-Tetrachloroethane	2014-06	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
1,1,2,2-Tetrachloroethane	2014-08	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,2,2-Tetrachloroethane	2014-12	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
1,1,2,2-Tetrachloroethane	2015-04	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,2,2-Tetrachloroethane	2015-09	ug/L			< 1					
1,1,2,2-Tetrachloroethane	2015-10	ug/L	< 1			< 1			< 1	< 1
1,1,2,2-Tetrachloroethane	2016-04	ug/L	< 1		< 1	< 1			< 1	< 1
1,1,2,2-Tetrachloroethane	2016-07	ug/L				< 1				< 1
1,1,2,2-Tetrachloroethane	2016-10	ug/L	< 1		< 1	< 1			< 1	< 1
1,1,2,2-Tetrachloroethane	2017-05	ug/L	< 1		< 1	< 1			< 1	< 1
1,1,2,2-Tetrachloroethane	2017-09	ug/L	< 1		< 1	< 1			< 1	< 1

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Table 13
Analytical Data Summary
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
1,1,2,2-Tetrachloroethane	2018-05	ug/L			< 1	< 1			< 1	< 1
1,1,2,2-Tetrachloroethane	2018-09	ug/L	< 1		< 1	< 1			< 1	< 1
1,1,2,2-Tetrachloroethane	2019-03	ug/L	< 1		< 1	< 1			< 1	< 1
1,1,2,2-Tetrachloroethane	2019-10	ug/L		< 1	< 1	< 1		< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	2020-04	ug/L		< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	2020-06	ug/L	< 1					< 1		
1,1,2,2-Tetrachloroethane	2020-08	ug/L	< 1				< 1	< 1		
1,1,2,2-Tetrachloroethane	2020-09	ug/L		< 1	< 1	< 1			< 1	~~< 1~~
1,1,2,2-Tetrachloroethane	2020-12	ug/L					< 1	< 1		
1,1,2,2-Tetrachloroethane	2021-02	ug/L					< 1			
1,1,2,2-Tetrachloroethane	2021-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	2021-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	2022-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	2022-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	2023-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	2023-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2-Trichloroethane	2008-04	ug/l							< 1.00	
1,1,2-Trichloroethane	2008-06	ug/l							< 1.00	
1,1,2-Trichloroethane	2008-08	ug/l							< 1.00	
1,1,2-Trichloroethane	2008-09	ug/l							< 1.00	
1,1,2-Trichloroethane	2009-03	ug/l							< 1	
1,1,2-Trichloroethane	2009-06	ug/l							< 1.00	
1,1,2-Trichloroethane	2009-09	ug/l				< 1.00			< 1.00	< 1.00
1,1,2-Trichloroethane	2009-12	ug/l				< 1.00				< 1.00
1,1,2-Trichloroethane	2010-03	ug/l							< 1.00	
1,1,2-Trichloroethane	2010-04	ug/l				< 1.00				< 1.00
1,1,2-Trichloroethane	2010-06	ug/l				< 1.00				< 1.00
1,1,2-Trichloroethane	2010-09	ug/l				< 1.00			< 1.00	< 1.00
1,1,2-Trichloroethane	2011-03	ug/l				< 1.00			< 1.00	< 1.00
1,1,2-Trichloroethane	2011-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,2-Trichloroethane	2011-11	ug/l	< 1.00		< 1.00					
1,1,2-Trichloroethane	2012-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,2-Trichloroethane	2012-06	ug/l	< 1.00		< 1.00					
1,1,2-Trichloroethane	2012-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,2-Trichloroethane	2013-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,2-Trichloroethane	2013-06	ug/l			< 1.00	< 1.00			< 1.00	< 1.00
1,1,2-Trichloroethane	2013-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,2-Trichloroethane	2013-11	ug/L				< 1.00			< 1.00	< 1.00
1,1,2-Trichloroethane	2014-03	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,2-Trichloroethane	2014-06	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
1,1,2-Trichloroethane	2014-08	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,2-Trichloroethane	2014-12	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
1,1,2-Trichloroethane	2015-04	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1,2-Trichloroethane	2015-09	ug/L			< 1					

Table 13
Carroll County Landfill Western Expansion Area **Analytical Data Summary**
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
1,1,2-Trichloroethane	2015-10	ug/L	< 1			< 1			< 1	< 1
1,1,2-Trichloroethane	2016-04	ug/L	< 1		< 1	< 1			< 1	< 1
1,1,2-Trichloroethane	2016-07	ug/L				< 1				< 1
1,1,2-Trichloroethane	2016-10	ug/L	< 1		< 1	< 1			< 1	< 1
1,1,2-Trichloroethane	2017-05	ug/L	< 1		< 1	< 1			< 1	< 1
1,1,2-Trichloroethane	2017-09	ug/L	< 1		< 1	< 1			< 1	< 1
1,1,2-Trichloroethane	2018-05	ug/L			< 1	< 1			< 1	< 1
1,1,2-Trichloroethane	2018-09	ug/L	< 1		< 1	< 1			< 1	< 1
1,1,2-Trichloroethane	2019-03	ug/L	< 1		< 1	< 1			< 1	< 1
1,1,2-Trichloroethane	2019-10	ug/L		< 1	< 1	< 1		< 1	< 1	< 1
1,1,2-Trichloroethane	2020-04	ug/L		< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2-Trichloroethane	2020-06	ug/L	< 1					< 1		
1,1,2-Trichloroethane	2020-08	ug/L	< 1				< 1	< 1		
1,1,2-Trichloroethane	2020-09	ug/L		< 1	< 1	< 1			< 1	~~< 1~~
1,1,2-Trichloroethane	2020-12	ug/L					< 1	< 1		
1,1,2-Trichloroethane	2021-02	ug/L					< 1			
1,1,2-Trichloroethane	2021-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2-Trichloroethane	2021-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2-Trichloroethane	2022-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2-Trichloroethane	2022-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2-Trichloroethane	2023-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2-Trichloroethane	2023-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-Dichloroethane	2008-04	ug/l							< 1.00	
1,1-Dichloroethane	2008-06	ug/l							< 1.00	
1,1-Dichloroethane	2008-08	ug/l							< 1.00	
1,1-Dichloroethane	2008-09	ug/l							< 1.00	
1,1-Dichloroethane	2009-03	ug/l							< 1	
1,1-Dichloroethane	2009-06	ug/l							< 1.00	
1,1-Dichloroethane	2009-09	ug/l				< 1.00			< 1.00	< 1.00
1,1-Dichloroethane	2009-12	ug/l				< 1.00				< 1.00
1,1-Dichloroethane	2010-03	ug/l							< 1.00	
1,1-Dichloroethane	2010-04	ug/l				< 1.00				< 1.00
1,1-Dichloroethane	2010-06	ug/l				< 1.00				< 1.00
1,1-Dichloroethane	2010-09	ug/l				< 1.00			< 1.00	< 1.00
1,1-Dichloroethane	2011-03	ug/l				< 1.00			< 1.00	< 1.00
1,1-Dichloroethane	2011-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1-Dichloroethane	2011-11	ug/l	< 1.00		< 1.00					
1,1-Dichloroethane	2012-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1-Dichloroethane	2012-06	ug/l	< 1.00		< 1.00					
1,1-Dichloroethane	2012-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1-Dichloroethane	2013-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1-Dichloroethane	2013-06	ug/l			< 1.00	< 1.00			< 1.00	< 1.00
1,1-Dichloroethane	2013-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1-Dichloroethane	2013-11	ug/L				< 1.00			< 1.00	< 1.00

Table 13
Carroll County Landfill Western Expansion Area **Analytical Data Summary**
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
1,1-Dichloroethane	2014-03	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1-Dichloroethane	2014-06	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
1,1-Dichloroethane	2014-08	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1-Dichloroethane	2014-12	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
1,1-Dichloroethane	2015-04	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,1-Dichloroethane	2015-09	ug/L			< 1					
1,1-Dichloroethane	2015-10	ug/L	< 1			< 1			< 1	< 1
1,1-Dichloroethane	2016-04	ug/L	< 1		< 1	< 1			< 1	< 1
1,1-Dichloroethane	2016-07	ug/L				< 1				< 1
1,1-Dichloroethane	2016-10	ug/L	< 1		< 1	< 1			< 1	< 1
1,1-Dichloroethane	2017-05	ug/L	< 1		< 1	< 1			< 1	< 1
1,1-Dichloroethane	2017-09	ug/L	< 1		< 1	< 1			< 1	< 1
1,1-Dichloroethane	2018-05	ug/L			< 1	< 1			< 1	< 1
1,1-Dichloroethane	2018-09	ug/L	< 1		< 1	< 1			< 1	< 1
1,1-Dichloroethane	2019-03	ug/L	< 1		< 1	< 1			< 1	< 1
1,1-Dichloroethane	2019-10	ug/L		< 1	< 1	< 1		< 1	< 1	< 1
1,1-Dichloroethane	2020-04	ug/L		< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-Dichloroethane	2020-06	ug/L	< 1					< 1		
1,1-Dichloroethane	2020-08	ug/L	< 1				< 1	< 1		
1,1-Dichloroethane	2020-09	ug/L		< 1	< 1	< 1			< 1	~~< 1~~
1,1-Dichloroethane	2020-12	ug/L					< 1	< 1		
1,1-Dichloroethane	2021-02	ug/L					< 1			
1,1-Dichloroethane	2021-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-Dichloroethane	2021-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-Dichloroethane	2022-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-Dichloroethane	2022-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-Dichloroethane	2023-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-Dichloroethane	2023-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-Dichloroethene	2008-04	ug/l							< 2.00	
1,1-Dichloroethene	2008-06	ug/l							< 2.00	
1,1-Dichloroethene	2008-08	ug/l							< 2.00	
1,1-Dichloroethene	2008-09	ug/l							< 2.00	
1,1-Dichloroethene	2009-03	ug/l							< 2	
1,1-Dichloroethene	2009-06	ug/l							< 2.00	
1,1-Dichloroethene	2009-09	ug/l				< 2.00			< 2.00	< 2.00
1,1-Dichloroethene	2009-12	ug/l				< 2.00				< 2.00
1,1-Dichloroethene	2010-03	ug/l							< 2.00	
1,1-Dichloroethene	2010-04	ug/l				< 2.00				< 2.00
1,1-Dichloroethene	2010-06	ug/l				< 2.00				< 2.00
1,1-Dichloroethene	2010-09	ug/l				< 2.00			< 2.00	< 2.00
1,1-Dichloroethene	2011-03	ug/l				< 2.00			< 2.00	< 2.00
1,1-Dichloroethene	2011-09	ug/l	< 2.00		< 2.00	< 2.00			< 2.00	< 2.00
1,1-Dichloroethene	2011-11	ug/l	< 2.00		< 2.00					
1,1-Dichloroethene	2012-03	ug/l	< 2.00		< 2.00	< 2.00			< 2.00	< 2.00

Table 13
Carroll County Landfill Western Expansion Area **Analytical Data Summary**
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
1,1-Dichloroethene	2012-06	ug/l	< 2.00		< 2.00					
1,1-Dichloroethene	2012-09	ug/l	< 2.00		< 2.00	< 2.00			< 2.00	< 2.00
1,1-Dichloroethene	2013-03	ug/l	< 2.00		< 2.00	< 2.00			< 2.00	< 2.00
1,1-Dichloroethene	2013-06	ug/l			< 2.00	< 2.00			< 2.00	< 2.00
1,1-Dichloroethene	2013-09	ug/l	< 2.00		< 2.00	< 2.00			< 2.00	< 2.00
1,1-Dichloroethene	2013-11	ug/L				< 2.00			< 2.00	< 2.00
1,1-Dichloroethene	2014-03	ug/L	< 2.00		< 2.00	< 2.00			< 2.00	< 2.00
1,1-Dichloroethene	2014-06	ug/L			< 2.00	< 2.00			< 2.00	< 2.00
1,1-Dichloroethene	2014-08	ug/L	< 2.00		< 2.00	< 2.00			< 2.00	< 2.00
1,1-Dichloroethene	2014-12	ug/L			< 2.00	< 2.00			< 2.00	< 2.00
1,1-Dichloroethene	2015-04	ug/L	< 2.00		< 2.00	< 2.00			< 2.00	< 2.00
1,1-Dichloroethene	2015-09	ug/L			< 2					
1,1-Dichloroethene	2015-10	ug/L	< 2			< 2			< 2	< 2
1,1-Dichloroethene	2016-04	ug/L	< 2		< 2	< 2			< 2	< 2
1,1-Dichloroethene	2016-07	ug/L				< 2				< 2
1,1-Dichloroethene	2016-10	ug/L	< 2		< 2	< 2			< 2	< 2
1,1-Dichloroethene	2017-05	ug/L	< 2		< 2	< 2			< 2	< 2
1,1-Dichloroethene	2017-09	ug/L	< 2		< 2	< 2			< 2	< 2
1,1-Dichloroethene	2018-05	ug/L			< 2	< 2			< 2	< 2
1,1-Dichloroethene	2018-09	ug/L	< 2		< 2	< 2			< 2	< 2
1,1-Dichloroethene	2019-03	ug/L	< 2		< 2	< 2			< 2	< 2
1,1-Dichloroethene	2019-10	ug/L		< 2	< 2	< 2		< 2	< 2	< 2
1,1-Dichloroethene	2020-04	ug/L		< 2	< 2	< 2	< 2	< 2	< 2	< 2
1,1-Dichloroethene	2020-06	ug/L	< 2					< 2		
1,1-Dichloroethene	2020-08	ug/L	< 2				< 2	< 2		
1,1-Dichloroethene	2020-09	ug/L		< 2	< 2	< 2			< 2	~~< 2~~
1,1-Dichloroethene	2020-12	ug/L					< 2	< 2		
1,1-Dichloroethene	2021-02	ug/L					< 2			
1,1-Dichloroethene	2021-04	ug/L	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
1,1-Dichloroethene	2021-09	ug/L	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
1,1-Dichloroethene	2022-04	ug/L	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
1,1-Dichloroethene	2022-09	ug/L	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
1,1-Dichloroethene	2023-04	ug/L	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
1,1-Dichloroethene	2023-09	ug/L	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
1,1-Dichloropropene	2009-03	ug/l							< 1	
1,1-Dichloropropene	2009-06	ug/l							< 1.00	
1,1-Dichloropropene	2009-09	ug/l							< 1.00	
1,1-Dichloropropene	2010-03	ug/l							< 1.00	
1,1-Dichloropropene	2010-09	ug/l							< 1.00	
1,1-Dichloropropene	2011-03	ug/l							< 1.00	
1,1-Dichloropropene	2014-06	ug/L			< 1.00					
1,1-Dichloropropene	2014-08	ug/L			< 1.00				< 1.00	
1,1-Dichloropropene	2015-10	ug/L				< 1			< 1	< 1
1,1-Dichloropropene	2016-07	ug/L				< 1				< 1

Table 13
Carroll County Landfill Western Expansion Area **Analytical Data Summary**
Permit No. 14-SDP-01-74P **2023 Annual Water Quality Report**

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
1,1-Dichloropropene	2019-10	ug/L			< 1	< 1			< 1	< 1
1,1-Dichloropropene	2020-04	ug/L			< 1	< 1			< 1	< 1
1,1-Dichloropropene	2020-09	ug/L				< 1			< 1	~~< 1~~
1,2,3-Trichloropropane	2008-04	ug/l							< 1.00	
1,2,3-Trichloropropane	2008-06	ug/l							< 1.00	
1,2,3-Trichloropropane	2008-08	ug/l							< 1.00	
1,2,3-Trichloropropane	2008-09	ug/l							< 1.00	
1,2,3-Trichloropropane	2009-03	ug/l							< 1	
1,2,3-Trichloropropane	2009-06	ug/l							< 1.00	
1,2,3-Trichloropropane	2009-09	ug/l				< 1.00			< 1.00	< 1.00
1,2,3-Trichloropropane	2009-12	ug/l				< 1.00				< 1.00
1,2,3-Trichloropropane	2010-03	ug/l							< 1.00	
1,2,3-Trichloropropane	2010-04	ug/l				< 1.00				< 1.00
1,2,3-Trichloropropane	2010-06	ug/l				< 1.00				< 1.00
1,2,3-Trichloropropane	2010-09	ug/l				< 1.00			< 1.00	< 1.00
1,2,3-Trichloropropane	2011-03	ug/l				< 1.00			< 1.00	< 1.00
1,2,3-Trichloropropane	2011-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2,3-Trichloropropane	2011-11	ug/l	< 1.00		< 1.00					
1,2,3-Trichloropropane	2012-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2,3-Trichloropropane	2012-06	ug/l	< 1.00		< 1.00					
1,2,3-Trichloropropane	2012-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2,3-Trichloropropane	2013-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2,3-Trichloropropane	2013-06	ug/l			< 1.00	< 1.00			< 1.00	< 1.00
1,2,3-Trichloropropane	2013-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2,3-Trichloropropane	2013-11	ug/L				< 1.00			< 1.00	< 1.00
1,2,3-Trichloropropane	2014-03	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2,3-Trichloropropane	2014-06	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
1,2,3-Trichloropropane	2014-08	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2,3-Trichloropropane	2014-12	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
1,2,3-Trichloropropane	2015-04	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2,3-Trichloropropane	2015-09	ug/L			< 1					
1,2,3-Trichloropropane	2015-10	ug/L	< 1			< 1			< 1	< 1
1,2,3-Trichloropropane	2016-04	ug/L	< 1		< 1	< 1			< 1	< 1
1,2,3-Trichloropropane	2016-07	ug/L				< 1				< 1
1,2,3-Trichloropropane	2016-10	ug/L	< 1		< 1	< 1			< 1	< 1
1,2,3-Trichloropropane	2017-05	ug/L	< 1		< 1	< 1			< 1	< 1
1,2,3-Trichloropropane	2017-09	ug/L	< 1		< 1	< 1			< 1	< 1
1,2,3-Trichloropropane	2018-05	ug/L			< 1	< 1			< 1	< 1
1,2,3-Trichloropropane	2018-09	ug/L	< 1		< 1	< 1			< 1	< 1
1,2,3-Trichloropropane	2019-03	ug/L	< 1		< 1	< 1			< 1	< 1
1,2,3-Trichloropropane	2019-10	ug/L		< 1	< 1	< 1		< 1	< 1	< 1
1,2,3-Trichloropropane	2020-04	ug/L		< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,3-Trichloropropane	2020-06	ug/L	< 1					< 1		
1,2,3-Trichloropropane	2020-08	ug/L	< 1				< 1	< 1		

Carroll County Landfill Western Expansion Area
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Table 13
Analytical Data Summary
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
1,2,3-Trichloropropane	2020-09	ug/L		< 1	< 1	< 1			< 1	~~< 1~~
1,2,3-Trichloropropane	2020-12	ug/L					< 1	< 1		
1,2,3-Trichloropropane	2021-02	ug/L					< 1			
1,2,3-Trichloropropane	2021-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,3-Trichloropropane	2021-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,3-Trichloropropane	2022-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,3-Trichloropropane	2022-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,3-Trichloropropane	2023-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,3-Trichloropropane	2023-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4,5-Tetrachlorobenzene	2009-03	ug/l							< 10	
1,2,4,5-Tetrachlorobenzene	2009-06	ug/l							< 10.0	
1,2,4,5-Tetrachlorobenzene	2009-09	ug/l							< 10.0	
1,2,4,5-Tetrachlorobenzene	2010-03	ug/l							< 10.0	
1,2,4,5-Tetrachlorobenzene	2010-09	ug/l							< 10.0	
1,2,4,5-Tetrachlorobenzene	2011-03	ug/l							< 12.0	
1,2,4,5-Tetrachlorobenzene	2014-06	ug/L			< 10.5					
1,2,4,5-Tetrachlorobenzene	2014-08	ug/L			< 10.2				< 10.8	
1,2,4,5-Tetrachlorobenzene	2015-10	ug/L				< 10			< 10	< 10
1,2,4,5-Tetrachlorobenzene	2016-07	ug/L				< 10.4				< 10.4
1,2,4,5-Tetrachlorobenzene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
1,2,4,5-Tetrachlorobenzene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
1,2,4-Trichlorobenzene	2009-03	ug/l							< 5	
1,2,4-Trichlorobenzene	2009-06	ug/l							< 5.00	
1,2,4-Trichlorobenzene	2009-09	ug/l							< 5.00	
1,2,4-Trichlorobenzene	2009-09	ug/l							< 10.0	
1,2,4-Trichlorobenzene	2010-03	ug/l							< 5.00	
1,2,4-Trichlorobenzene	2010-03	ug/l							< 10.0	
1,2,4-Trichlorobenzene	2010-09	ug/l							< 5.00	
1,2,4-Trichlorobenzene	2010-09	ug/l							< 10.0	
1,2,4-Trichlorobenzene	2011-03	ug/l							< 5.00	
1,2,4-Trichlorobenzene	2011-03	ug/l							< 12.0	
1,2,4-Trichlorobenzene	2014-06	ug/L			< 5.00					
1,2,4-Trichlorobenzene	2014-08	ug/L			< 5.00				< 5.00	
1,2,4-Trichlorobenzene	2015-10	ug/L				< 5			< 5	< 5
1,2,4-Trichlorobenzene	2016-07	ug/L				< 5				< 5
1,2,4-Trichlorobenzene	2019-10	ug/L			< 5	< 5			< 5	< 5
1,2,4-Trichlorobenzene	2020-04	ug/L			< 5	< 5			< 5	< 5
1,2,4-Trichlorobenzene	2020-09	ug/L				< 5			< 5	~~< 5~~
1,2-Dibromo-3-chloropropane	2008-04	ug/l							< 10.0	
1,2-Dibromo-3-chloropropane	2008-06	ug/l							< 10.0	
1,2-Dibromo-3-chloropropane	2008-08	ug/l							< 10.0	
1,2-Dibromo-3-chloropropane	2008-09	ug/l							< 10.0	
1,2-Dibromo-3-chloropropane	2009-03	ug/l							< 10	
1,2-Dibromo-3-chloropropane	2009-06	ug/l							< 10.0	

Table 13
Carroll County Landfill Western Expansion Area **Analytical Data Summary**
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
1,2-Dibromo-3-chloropropane	2009-09	ug/l				< 10.0			< 10.0	< 10.0
1,2-Dibromo-3-chloropropane	2009-12	ug/l				< 10.0				< 10.0
1,2-Dibromo-3-chloropropane	2010-03	ug/l							< 10.0	
1,2-Dibromo-3-chloropropane	2010-04	ug/l				< 10.0				< 10.0
1,2-Dibromo-3-chloropropane	2010-06	ug/l				< 10.0				< 10.0
1,2-Dibromo-3-chloropropane	2010-09	ug/l				< 20.0			< 20.0	< 20.0
1,2-Dibromo-3-chloropropane	2011-03	ug/l				< 10.0			< 10.0	< 10.0
1,2-Dibromo-3-chloropropane	2011-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
1,2-Dibromo-3-chloropropane	2011-11	ug/l	< 10.0		< 10.0					
1,2-Dibromo-3-chloropropane	2012-03	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
1,2-Dibromo-3-chloropropane	2012-06	ug/l	< 10.0		< 10.0					
1,2-Dibromo-3-chloropropane	2012-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
1,2-Dibromo-3-chloropropane	2013-03	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
1,2-Dibromo-3-chloropropane	2013-06	ug/l			< 10.0	< 10.0			< 10.0	< 10.0
1,2-Dibromo-3-chloropropane	2013-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
1,2-Dibromo-3-chloropropane	2013-11	ug/L				< 10.0			< 10.0	< 10.0
1,2-Dibromo-3-chloropropane	2014-03	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
1,2-Dibromo-3-chloropropane	2014-06	ug/L			< 10.0	< 10.0			< 10.0	< 10.0
1,2-Dibromo-3-chloropropane	2014-08	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
1,2-Dibromo-3-chloropropane	2014-12	ug/L			< 10.0	< 10.0			< 10.0	< 10.0
1,2-Dibromo-3-chloropropane	2015-04	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
1,2-Dibromo-3-chloropropane	2015-09	ug/L			< 10					
1,2-Dibromo-3-chloropropane	2015-10	ug/L	< 10			< 10			< 10	< 10
1,2-Dibromo-3-chloropropane	2016-04	ug/L	< 10		< 10	< 10			< 10	< 10
1,2-Dibromo-3-chloropropane	2016-07	ug/L				< 5				< 5
1,2-Dibromo-3-chloropropane	2016-10	ug/L	< 5		< 5	< 5			< 5	< 5
1,2-Dibromo-3-chloropropane	2017-05	ug/L	< 5		< 5	< 5			< 5	< 5
1,2-Dibromo-3-chloropropane	2017-09	ug/L	< 5		< 5	< 5			< 5	< 5
1,2-Dibromo-3-chloropropane	2018-05	ug/L			< 5	< 5			< 5	< 5
1,2-Dibromo-3-chloropropane	2018-09	ug/L	< 5		< 5	< 5			< 5	< 5
1,2-Dibromo-3-chloropropane	2019-03	ug/L	< 5		< 5	< 5			< 5	< 5
1,2-Dibromo-3-chloropropane	2019-10	ug/L		< 5	< 5	< 5		< 5	< 5	< 5
1,2-Dibromo-3-chloropropane	2020-04	ug/L		< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,2-Dibromo-3-chloropropane	2020-06	ug/L	< 5					< 5		
1,2-Dibromo-3-chloropropane	2020-08	ug/L	< 5				< 5	< 5		
1,2-Dibromo-3-chloropropane	2020-09	ug/L		< 5	< 5	< 5			< 5	~~< 5~~
1,2-Dibromo-3-chloropropane	2020-12	ug/L					< 5	< 5		
1,2-Dibromo-3-chloropropane	2021-02	ug/L					< 5			
1,2-Dibromo-3-chloropropane	2021-04	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,2-Dibromo-3-chloropropane	2021-09	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,2-Dibromo-3-chloropropane	2022-04	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,2-Dibromo-3-chloropropane	2022-09	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,2-Dibromo-3-chloropropane	2023-04	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,2-Dibromo-3-chloropropane	2023-09	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5

Table 13
Carroll County Landfill Western Expansion Area **Analytical Data Summary**
Permit No. 14-SDP-01-74P **2023 Annual Water Quality Report**

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
1,2-Dibromoethane	2008-04	ug/l							< 10.0	
1,2-Dibromoethane	2008-06	ug/l							< 10.0	
1,2-Dibromoethane	2008-08	ug/l							< 10.0	
1,2-Dibromoethane	2008-09	ug/l							< 10.0	
1,2-Dibromoethane	2009-03	ug/l							< 10	
1,2-Dibromoethane	2009-06	ug/l							< 10.0	
1,2-Dibromoethane	2009-09	ug/l				< 10.0			< 10.0	< 10.0
1,2-Dibromoethane	2009-12	ug/l				< 10.0				< 10.0
1,2-Dibromoethane	2010-03	ug/l							< 10.0	
1,2-Dibromoethane	2010-04	ug/l				< 10.0				< 10.0
1,2-Dibromoethane	2010-06	ug/l				< 10.0				< 10.0
1,2-Dibromoethane	2010-09	ug/l				< 10.0			< 10.0	< 10.0
1,2-Dibromoethane	2011-03	ug/l				< 10.0			< 10.0	< 10.0
1,2-Dibromoethane	2011-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
1,2-Dibromoethane	2011-11	ug/l	< 10.0		< 10.0					
1,2-Dibromoethane	2012-03	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
1,2-Dibromoethane	2012-06	ug/l	< 10.0		< 10.0					
1,2-Dibromoethane	2012-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
1,2-Dibromoethane	2013-03	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
1,2-Dibromoethane	2013-06	ug/l			< 10.0	< 10.0			< 10.0	< 10.0
1,2-Dibromoethane	2013-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
1,2-Dibromoethane	2013-11	ug/L				< 10.0			< 10.0	< 10.0
1,2-Dibromoethane	2014-03	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
1,2-Dibromoethane	2014-06	ug/L			< 10.0	< 10.0			< 10.0	< 10.0
1,2-Dibromoethane	2014-08	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
1,2-Dibromoethane	2014-12	ug/L			< 10.0	< 10.0			< 10.0	< 10.0
1,2-Dibromoethane	2015-04	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
1,2-Dibromoethane	2015-09	ug/L			< 10					
1,2-Dibromoethane	2015-10	ug/L	< 10			< 10			< 10	< 10
1,2-Dibromoethane	2016-04	ug/L	< 10		< 10	< 10			< 10	< 10
1,2-Dibromoethane	2016-07	ug/L				< 1				< 1
1,2-Dibromoethane	2016-10	ug/L	< 1		< 1	< 1			< 1	< 1
1,2-Dibromoethane	2017-05	ug/L	< 1		< 1	< 1			< 1	< 1
1,2-Dibromoethane	2017-09	ug/L	< 1		< 1	< 1			< 1	< 1
1,2-Dibromoethane	2018-05	ug/L			< 1	< 1			< 1	< 1
1,2-Dibromoethane	2018-09	ug/L	< 1		< 1	< 1			< 1	< 1
1,2-Dibromoethane	2019-03	ug/L	< 1		< 1	< 1			< 1	< 1
1,2-Dibromoethane	2019-10	ug/L		< 1	< 1	< 1		< 1	< 1	< 1
1,2-Dibromoethane	2020-04	ug/L		< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dibromoethane	2020-06	ug/L	< 1					< 1		
1,2-Dibromoethane	2020-08	ug/L	< 1				< 1	< 1		
1,2-Dibromoethane	2020-09	ug/L		< 1	< 1	< 1			< 1	~~< 1~~
1,2-Dibromoethane	2020-12	ug/L					< 1	< 1		
1,2-Dibromoethane	2021-02	ug/L					< 1			

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
1,2-Dibromoethane	2021-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dibromoethane	2021-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dibromoethane	2022-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dibromoethane	2022-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dibromoethane	2023-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dibromoethane	2023-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichlorobenzene	2008-04	ug/l							< 1.00	
1,2-Dichlorobenzene	2008-06	ug/l							< 1.00	
1,2-Dichlorobenzene	2008-08	ug/l							< 1.00	
1,2-Dichlorobenzene	2008-09	ug/l							< 1.00	
1,2-Dichlorobenzene	2009-03	ug/l							< 1	
1,2-Dichlorobenzene	2009-06	ug/l							< 1.00	
1,2-Dichlorobenzene	2009-09	ug/l				< 1.00			< 1.00	< 1.00
1,2-Dichlorobenzene	2009-12	ug/l				< 1.00				< 1.00
1,2-Dichlorobenzene	2010-03	ug/l							< 1.00	
1,2-Dichlorobenzene	2010-04	ug/l				< 1.00				< 1.00
1,2-Dichlorobenzene	2010-06	ug/l				< 1.00				< 1.00
1,2-Dichlorobenzene	2010-09	ug/l				< 1.00			< 1.00	< 1.00
1,2-Dichlorobenzene	2011-03	ug/l				< 1.00			< 1.00	< 1.00
1,2-Dichlorobenzene	2011-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichlorobenzene	2011-11	ug/l	< 1.00		< 1.00					
1,2-Dichlorobenzene	2012-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichlorobenzene	2012-06	ug/l	< 1.00		< 1.00					
1,2-Dichlorobenzene	2012-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichlorobenzene	2013-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichlorobenzene	2013-06	ug/l			< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichlorobenzene	2013-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichlorobenzene	2013-11	ug/L				< 1.00			< 1.00	< 1.00
1,2-Dichlorobenzene	2014-03	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichlorobenzene	2014-06	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichlorobenzene	2014-08	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichlorobenzene	2014-12	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichlorobenzene	2015-04	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichlorobenzene	2015-09	ug/L			< 1					
1,2-Dichlorobenzene	2015-10	ug/L	< 1			< 1			< 1	< 1
1,2-Dichlorobenzene	2016-04	ug/L	< 1		< 1	< 1			< 1	< 1
1,2-Dichlorobenzene	2016-07	ug/L				< 1				< 1
1,2-Dichlorobenzene	2016-10	ug/L	< 1		< 1	< 1			< 1	< 1
1,2-Dichlorobenzene	2017-05	ug/L	< 1		< 1	< 1			< 1	< 1
1,2-Dichlorobenzene	2017-09	ug/L	< 1		< 1	< 1			< 1	< 1
1,2-Dichlorobenzene	2018-05	ug/L			< 1	< 1			< 1	< 1
1,2-Dichlorobenzene	2018-09	ug/L	< 1		< 1	< 1			< 1	< 1
1,2-Dichlorobenzene	2019-03	ug/L	< 1		< 1	< 1			< 1	< 1
1,2-Dichlorobenzene	2019-10	ug/L		< 1	< 1	< 1		< 1	< 1	< 1

Carroll County Landfill Western Expansion Area
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Table 13
Analytical Data Summary
2023 Annual Water Quality Report

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
1,2-Dichlorobenzene	2020-04	ug/L		< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichlorobenzene	2020-06	ug/L	< 1					< 1		
1,2-Dichlorobenzene	2020-08	ug/L	< 1				< 1	< 1		
1,2-Dichlorobenzene	2020-09	ug/L		< 1	< 1	< 1			< 1	~~< 1~~
1,2-Dichlorobenzene	2020-12	ug/L					< 1	< 1		
1,2-Dichlorobenzene	2021-02	ug/L					< 1			
1,2-Dichlorobenzene	2021-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichlorobenzene	2021-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichlorobenzene	2022-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichlorobenzene	2022-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichlorobenzene	2023-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichlorobenzene	2023-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichloroethane	2008-04	ug/l							< 1.00	
1,2-Dichloroethane	2008-06	ug/l							< 1.00	
1,2-Dichloroethane	2008-08	ug/l							< 1.00	
1,2-Dichloroethane	2008-09	ug/l							< 1.00	
1,2-Dichloroethane	2009-03	ug/l							< 1	
1,2-Dichloroethane	2009-06	ug/l							< 1.00	
1,2-Dichloroethane	2009-09	ug/l				< 1.00			< 1.00	< 1.00
1,2-Dichloroethane	2009-12	ug/l				< 1.00				< 1.00
1,2-Dichloroethane	2010-03	ug/l							< 1.00	
1,2-Dichloroethane	2010-04	ug/l				< 1.00				< 1.00
1,2-Dichloroethane	2010-06	ug/l				< 1.00				< 1.00
1,2-Dichloroethane	2010-09	ug/l				< 1.00			< 1.00	< 1.00
1,2-Dichloroethane	2011-03	ug/l				< 1.00			< 1.00	< 1.00
1,2-Dichloroethane	2011-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichloroethane	2011-11	ug/l	< 1.00		< 1.00					
1,2-Dichloroethane	2012-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichloroethane	2012-06	ug/l	< 1.00		< 1.00					
1,2-Dichloroethane	2012-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichloroethane	2013-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichloroethane	2013-06	ug/l			< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichloroethane	2013-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichloroethane	2013-11	ug/L				< 1.00			< 1.00	< 1.00
1,2-Dichloroethane	2014-03	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichloroethane	2014-06	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichloroethane	2014-08	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichloroethane	2014-12	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichloroethane	2015-04	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichloroethane	2015-09	ug/L			< 1					
1,2-Dichloroethane	2015-10	ug/L	< 1			< 1			< 1	< 1
1,2-Dichloroethane	2016-04	ug/L	< 1		< 1	< 1			< 1	< 1
1,2-Dichloroethane	2016-07	ug/L				< 1				< 1
1,2-Dichloroethane	2016-10	ug/L	< 1		< 1	< 1			< 1	< 1

Carroll County Landfill Western Expansion Area
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Table 13
Analytical Data Summary
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
1,2-Dichloroethane	2017-05	ug/L	< 1		< 1	< 1			< 1	< 1
1,2-Dichloroethane	2017-09	ug/L	< 1		< 1	< 1			< 1	< 1
1,2-Dichloroethane	2018-05	ug/L			< 1	< 1			< 1	< 1
1,2-Dichloroethane	2018-09	ug/L	< 1		< 1	< 1			< 1	< 1
1,2-Dichloroethane	2019-03	ug/L	< 1		< 1	< 1			< 1	< 1
1,2-Dichloroethane	2019-10	ug/L		< 1	< 1	< 1		< 1	< 1	< 1
1,2-Dichloroethane	2020-04	ug/L		< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichloroethane	2020-06	ug/L	< 1					< 1		
1,2-Dichloroethane	2020-08	ug/L	< 1				< 1	< 1		
1,2-Dichloroethane	2020-09	ug/L		< 1	< 1	< 1			< 1	~~< 1~~
1,2-Dichloroethane	2020-12	ug/L					< 1	< 1		
1,2-Dichloroethane	2021-02	ug/L					< 1			
1,2-Dichloroethane	2021-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichloroethane	2021-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichloroethane	2022-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichloroethane	2022-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichloroethane	2023-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichloroethane	2023-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichloropropane	2008-04	ug/l							< 1.00	
1,2-Dichloropropane	2008-06	ug/l							< 1.00	
1,2-Dichloropropane	2008-08	ug/l							< 1.00	
1,2-Dichloropropane	2008-09	ug/l							< 1.00	
1,2-Dichloropropane	2009-03	ug/l							< 1	
1,2-Dichloropropane	2009-06	ug/l							< 1.00	
1,2-Dichloropropane	2009-09	ug/l				< 1.00			< 1.00	< 1.00
1,2-Dichloropropane	2009-12	ug/l				< 1.00				< 1.00
1,2-Dichloropropane	2010-03	ug/l							< 1.00	
1,2-Dichloropropane	2010-04	ug/l				< 1.00				< 1.00
1,2-Dichloropropane	2010-06	ug/l				< 1.00				< 1.00
1,2-Dichloropropane	2010-09	ug/l				< 1.00			< 1.00	< 1.00
1,2-Dichloropropane	2011-03	ug/l				< 1.00			< 1.00	< 1.00
1,2-Dichloropropane	2011-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichloropropane	2011-11	ug/l	< 1.00		< 1.00					
1,2-Dichloropropane	2012-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichloropropane	2012-06	ug/l	< 1.00		< 1.00					
1,2-Dichloropropane	2012-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichloropropane	2013-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichloropropane	2013-06	ug/l			< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichloropropane	2013-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichloropropane	2013-11	ug/L				< 1.00			< 1.00	< 1.00
1,2-Dichloropropane	2014-03	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichloropropane	2014-06	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichloropropane	2014-08	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichloropropane	2014-12	ug/L			< 1.00	< 1.00			< 1.00	< 1.00

Carroll County Landfill Western Expansion Area
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Table 13
Analytical Data Summary
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
1,2-Dichloropropane	2015-04	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,2-Dichloropropane	2015-09	ug/L			< 1					
1,2-Dichloropropane	2015-10	ug/L	< 1			< 1			< 1	< 1
1,2-Dichloropropane	2016-04	ug/L	< 1		< 1	< 1			< 1	< 1
1,2-Dichloropropane	2016-07	ug/L				< 1				< 1
1,2-Dichloropropane	2016-10	ug/L	< 1		< 1	< 1			< 1	< 1
1,2-Dichloropropane	2017-05	ug/L	< 1		< 1	< 1			< 1	< 1
1,2-Dichloropropane	2017-09	ug/L	< 1		< 1	< 1			< 1	< 1
1,2-Dichloropropane	2018-05	ug/L			< 1	< 1			< 1	< 1
1,2-Dichloropropane	2018-09	ug/L	< 1		< 1	< 1			< 1	< 1
1,2-Dichloropropane	2019-03	ug/L	< 1		< 1	< 1			< 1	< 1
1,2-Dichloropropane	2019-10	ug/L		< 1	< 1	< 1		< 1	< 1	< 1
1,2-Dichloropropane	2020-04	ug/L		< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichloropropane	2020-06	ug/L	< 1					< 1		
1,2-Dichloropropane	2020-08	ug/L	< 1				< 1	< 1		
1,2-Dichloropropane	2020-09	ug/L		< 1	< 1	< 1			< 1	~~< 1~~
1,2-Dichloropropane	2020-12	ug/L					< 1	< 1		
1,2-Dichloropropane	2021-02	ug/L					< 1			
1,2-Dichloropropane	2021-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichloropropane	2021-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichloropropane	2022-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichloropropane	2022-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichloropropane	2023-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichloropropane	2023-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,3,5-Trinitrobenzene	2009-03	ug/l							< 10	
1,3,5-Trinitrobenzene	2009-06	ug/l							< 10.0	
1,3,5-Trinitrobenzene	2009-09	ug/l							< 10.0	
1,3,5-Trinitrobenzene	2010-03	ug/l							< 10.0	
1,3,5-Trinitrobenzene	2010-09	ug/l							< 10.0	
1,3,5-Trinitrobenzene	2011-03	ug/l							< 12.0	
1,3,5-Trinitrobenzene	2014-06	ug/L			< 10.5					
1,3,5-Trinitrobenzene	2014-08	ug/L			< 10.2				< 10.8	
1,3,5-Trinitrobenzene	2015-10	ug/L				< 10			< 10	< 10
1,3,5-Trinitrobenzene	2016-07	ug/L				< 10.4				< 10.4
1,3,5-Trinitrobenzene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
1,3,5-Trinitrobenzene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
1,3-Dichlorobenzene	2009-03	ug/l							< 1	
1,3-Dichlorobenzene	2009-06	ug/l							< 1.00	
1,3-Dichlorobenzene	2009-09	ug/l							< 1.00	
1,3-Dichlorobenzene	2010-03	ug/l							< 1.00	
1,3-Dichlorobenzene	2010-09	ug/l							< 1.00	
1,3-Dichlorobenzene	2011-03	ug/l							< 1.00	
1,3-Dichlorobenzene	2014-06	ug/L			< 1.00					
1,3-Dichlorobenzene	2014-08	ug/L			< 1.00				< 1.00	

Table 13
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
1,3-Dichlorobenzene	2015-10	ug/L				< 1			< 1	< 1
1,3-Dichlorobenzene	2016-07	ug/L				< 1				< 1
1,3-Dichlorobenzene	2019-10	ug/L			< 1	< 1			< 1	< 1
1,3-Dichlorobenzene	2020-04	ug/L			< 1	< 1			< 1	< 1
1,3-Dichlorobenzene	2020-09	ug/L				< 1			< 1	~~< 1~~
1,3-Dichloropropane	2009-03	ug/l							< 1	
1,3-Dichloropropane	2009-06	ug/l							< 1.00	
1,3-Dichloropropane	2009-09	ug/l							< 1.00	
1,3-Dichloropropane	2010-03	ug/l							< 1.00	
1,3-Dichloropropane	2010-09	ug/l							< 1.00	
1,3-Dichloropropane	2011-03	ug/l							< 1.00	
1,3-Dichloropropane	2014-06	ug/L			< 1.00					
1,3-Dichloropropane	2014-08	ug/L			< 1.00				< 1.00	
1,3-Dichloropropane	2015-10	ug/L				< 1			< 1	< 1
1,3-Dichloropropane	2016-07	ug/L				< 1				< 1
1,3-Dichloropropane	2019-10	ug/L			< 1	< 1			< 1	< 1
1,3-Dichloropropane	2020-04	ug/L			< 1	< 1			< 1	< 1
1,3-Dichloropropane	2020-09	ug/L				< 1			< 1	~~< 1~~
1,3-Dinitrobenzene	2009-03	ug/l							< 10	
1,3-Dinitrobenzene	2009-06	ug/l							< 10.0	
1,3-Dinitrobenzene	2009-09	ug/l							< 10.0	
1,3-Dinitrobenzene	2010-03	ug/l							< 10.0	
1,3-Dinitrobenzene	2010-09	ug/l							< 10.0	
1,3-Dinitrobenzene	2011-03	ug/l							< 12.0	
1,3-Dinitrobenzene	2014-06	ug/L			< 10.5					
1,3-Dinitrobenzene	2014-08	ug/L			< 10.2				< 10.8	
1,3-Dinitrobenzene	2015-10	ug/L				< 10			< 10	< 10
1,3-Dinitrobenzene	2016-07	ug/L				< 10.4				< 10.4
1,3-Dinitrobenzene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
1,3-Dinitrobenzene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
1,4-Dichlorobenzene	2008-04	ug/l							< 1.00	
1,4-Dichlorobenzene	2008-06	ug/l							< 1.00	
1,4-Dichlorobenzene	2008-08	ug/l							< 1.00	
1,4-Dichlorobenzene	2008-09	ug/l							< 1.00	
1,4-Dichlorobenzene	2009-03	ug/l							< 1	
1,4-Dichlorobenzene	2009-06	ug/l							< 1.00	
1,4-Dichlorobenzene	2009-09	ug/l				< 1.00			< 1.00	< 1.00
1,4-Dichlorobenzene	2009-12	ug/l				< 1.00				< 1.00
1,4-Dichlorobenzene	2010-03	ug/l							< 1.00	
1,4-Dichlorobenzene	2010-04	ug/l				< 1.00				< 1.00
1,4-Dichlorobenzene	2010-06	ug/l				< 1.00				< 1.00
1,4-Dichlorobenzene	2010-09	ug/l				< 1.00			< 1.00	< 1.00
1,4-Dichlorobenzene	2011-03	ug/l				< 1.00			< 1.00	< 1.00
1,4-Dichlorobenzene	2011-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
1,4-Dichlorobenzene	2011-11	ug/l	< 1.00		< 1.00					
1,4-Dichlorobenzene	2012-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,4-Dichlorobenzene	2012-06	ug/l	< 1.00		< 1.00					
1,4-Dichlorobenzene	2012-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,4-Dichlorobenzene	2013-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,4-Dichlorobenzene	2013-06	ug/l			< 1.00	< 1.00			< 1.00	< 1.00
1,4-Dichlorobenzene	2013-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,4-Dichlorobenzene	2013-11	ug/L				< 1.00			< 1.00	< 1.00
1,4-Dichlorobenzene	2014-03	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,4-Dichlorobenzene	2014-06	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
1,4-Dichlorobenzene	2014-08	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,4-Dichlorobenzene	2014-12	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
1,4-Dichlorobenzene	2015-04	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
1,4-Dichlorobenzene	2015-09	ug/L			< 1					
1,4-Dichlorobenzene	2015-10	ug/L	< 1			< 1			< 1	< 1
1,4-Dichlorobenzene	2016-04	ug/L	< 1		< 1	< 1			< 1	< 1
1,4-Dichlorobenzene	2016-07	ug/L				< 1				< 1
1,4-Dichlorobenzene	2016-10	ug/L	< 1		< 1	< 1			< 1	< 1
1,4-Dichlorobenzene	2017-05	ug/L	< 1		< 1	< 1			< 1	< 1
1,4-Dichlorobenzene	2017-09	ug/L	< 1		< 1	< 1			< 1	< 1
1,4-Dichlorobenzene	2018-05	ug/L			< 1	< 1			< 1	< 1
1,4-Dichlorobenzene	2018-09	ug/L	< 1		< 1	< 1			< 1	< 1
1,4-Dichlorobenzene	2019-03	ug/L	< 1		< 1	< 1			< 1	< 1
1,4-Dichlorobenzene	2019-10	ug/L		< 1	< 1	< 1		< 1	< 1	< 1
1,4-Dichlorobenzene	2020-04	ug/L		< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,4-Dichlorobenzene	2020-06	ug/L	< 1					< 1		
1,4-Dichlorobenzene	2020-08	ug/L	< 1				< 1	< 1		
1,4-Dichlorobenzene	2020-09	ug/L		< 1	< 1	< 1			< 1	~~< 1~~
1,4-Dichlorobenzene	2020-12	ug/L					< 1	< 1		
1,4-Dichlorobenzene	2021-02	ug/L					< 1			
1,4-Dichlorobenzene	2021-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,4-Dichlorobenzene	2021-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,4-Dichlorobenzene	2022-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,4-Dichlorobenzene	2022-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,4-Dichlorobenzene	2023-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,4-Dichlorobenzene	2023-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,4-Naphthoquinone	2009-03	ug/l							< 10	
1,4-Naphthoquinone	2009-06	ug/l							< 10.0	
1,4-Naphthoquinone	2009-09	ug/l							< 10.0	
1,4-Naphthoquinone	2010-03	ug/l							< 10.0	
1,4-Naphthoquinone	2010-09	ug/l							< 10.0	
1,4-Naphthoquinone	2011-03	ug/l							< 12.0	
1,4-Naphthoquinone	2014-06	ug/L			< 10.5					
1,4-Naphthoquinone	2014-08	ug/L			< 10.2				< 10.8	

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1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
1,4-Naphthoquinone	2015-10	ug/L				< 10			< 10	< 10
1,4-Naphthoquinone	2016-07	ug/L				< 10.4				< 10.4
1,4-Naphthoquinone	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
1,4-Naphthoquinone	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
1-Naphthylamine	2009-03	ug/l							< 10	
1-Naphthylamine	2009-06	ug/l							< 10.0	
1-Naphthylamine	2009-09	ug/l							< 10.0	
1-Naphthylamine	2010-03	ug/l							< 10.0	
1-Naphthylamine	2010-09	ug/l							< 10.0	
1-Naphthylamine	2011-03	ug/l							< 12.0	
1-Naphthylamine	2014-06	ug/L			< 10.5					
1-Naphthylamine	2014-08	ug/L			< 10.2				< 10.8	
1-Naphthylamine	2015-10	ug/L				< 10			< 10	< 10
1-Naphthylamine	2016-07	ug/L				< 10.4				< 10.4
1-Naphthylamine	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
1-Naphthylamine	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
2,2-Dichloropropane	2009-03	ug/l							< 4	
2,2-Dichloropropane	2009-06	ug/l							< 4.00	
2,2-Dichloropropane	2009-09	ug/l							< 4.00	
2,2-Dichloropropane	2010-03	ug/l							< 4.00	
2,2-Dichloropropane	2010-09	ug/l							< 4.00	
2,2-Dichloropropane	2011-03	ug/l							< 4.00	
2,2-Dichloropropane	2014-06	ug/L			< 4.00					
2,2-Dichloropropane	2014-08	ug/L			< 4.00				< 4.00	
2,2-Dichloropropane	2015-10	ug/L				< 4			< 4	< 4
2,2-Dichloropropane	2016-07	ug/L				< 4				< 4
2,2-Dichloropropane	2019-10	ug/L			< 4	< 4			< 4	< 4
2,2-Dichloropropane	2020-04	ug/L			< 4	< 4			< 4	< 4
2,2-Dichloropropane	2020-09	ug/L				< 4			< 4	~~< 4~~
2,2'-oxybis(1-Chloropropane)	2009-03	ug/l							< 10	
2,2'-oxybis(1-Chloropropane)	2009-06	ug/l							< 10.0	
2,2'-oxybis(1-Chloropropane)	2009-09	ug/l							< 10.0	
2,2'-oxybis(1-Chloropropane)	2010-03	ug/l							< 10.0	
2,2'-oxybis(1-Chloropropane)	2010-09	ug/l							< 10.0	
2,2'-oxybis(1-Chloropropane)	2011-03	ug/l							< 12.0	
2,2'-oxybis(1-Chloropropane)	2014-06	ug/L			< 10.5					
2,2'-oxybis(1-Chloropropane)	2014-08	ug/L			< 10.2				< 10.8	
2,2'-oxybis(1-Chloropropane)	2015-10	ug/L				< 10			< 10	< 10
2,2'-oxybis(1-Chloropropane)	2016-07	ug/L				< 10.4				< 10.4
2,2'-oxybis(1-Chloropropane)	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
2,2'-oxybis(1-Chloropropane)	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
2,3,4,6-Tetrachlorophenol	2009-03	ug/l							< 10	
2,3,4,6-Tetrachlorophenol	2009-06	ug/l							< 10.0	
2,3,4,6-Tetrachlorophenol	2009-09	ug/l							< 10.0	

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
2,3,4,6-Tetrachlorophenol	2010-03	ug/l							< 10.0	
2,3,4,6-Tetrachlorophenol	2010-09	ug/l							< 10.0	
2,3,4,6-Tetrachlorophenol	2011-03	ug/l							< 12.0	
2,3,4,6-Tetrachlorophenol	2014-06	ug/L			< 10.5					
2,3,4,6-Tetrachlorophenol	2014-08	ug/L			< 10.2				< 10.8	
2,3,4,6-Tetrachlorophenol	2015-10	ug/L				< 10			< 10	< 10
2,3,4,6-Tetrachlorophenol	2016-07	ug/L				< 10.4				< 10.4
2,3,4,6-Tetrachlorophenol	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
2,3,4,6-Tetrachlorophenol	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
2,4,5-T	2009-03	ug/l							< 0.22	
2,4,5-T	2009-06	ug/l							< 0.21	
2,4,5-T	2009-09	ug/l							< 0.21	
2,4,5-T	2010-03	ug/l							< 0.53	
2,4,5-T	2010-09	ug/l							< 0.51	
2,4,5-T	2011-03	ug/l							< 0.51	
2,4,5-T	2011-09	ug/l							< 1.0	
2,4,5-T	2012-03	ug/l							< 1.1	
2,4,5-T	2013-03	ug/l							< 1.48	
2,4,5-T	2013-09	ug/l							< 1.02	
2,4,5-T	2014-03	ug/L							< 1.12	
2,4,5-T	2014-06	ug/L			< 1.00					
2,4,5-T	2014-08	ug/L			< 1.07				< 1.05	
2,4,5-T	2015-04	ug/L							< 1.11	
2,4,5-T	2015-10	ug/L				< 1.05			< 1.06	< 1.05
2,4,5-T	2016-04	ug/L				< 1.04			< 1.03	< 1.04
2,4,5-T	2016-07	ug/L				< 1.06				< 1.06
2,4,5-T	2016-10	ug/L				< 1.13			< 1.05	< 1.13
2,4,5-T	2017-05	ug/L				< 1.2			< 1.17	< 1.2
2,4,5-T	2017-09	ug/L				< 1.01			< 1.09	< 1.01
2,4,5-T	2018-05	ug/L				< 1.01			< 1.01	< 1.01
2,4,5-T	2018-09	ug/L				< 1.05			< 1.21	< 1.05
2,4,5-T	2019-03	ug/L				< 1.18			< 1.17	< 1.18
2,4,5-T	2019-10	ug/L			< 1.07	< 1.11			< 1.16	< 1.11
2,4,5-T	2020-04	ug/L				< 1.36			< 1.09	< 1.36
2,4,5-T	2020-09	ug/L				~~< 0.154~~			< 0.152	~~< 0.154~~
2,4,5-T	2021-04	ug/L				< 1.17			< 1.23	< 1.17
2,4,5-T	2021-09	ug/L				< 1.2			< 1.03	< 1.2
2,4,5-TP (Silvex)	2009-03	ug/l							< 0.22	
2,4,5-TP (Silvex)	2009-06	ug/l							< 0.21	
2,4,5-TP (Silvex)	2009-09	ug/l							< 0.21	
2,4,5-TP (Silvex)	2010-03	ug/l							< 0.53	
2,4,5-TP (Silvex)	2010-09	ug/l							< 0.51	
2,4,5-TP (Silvex)	2011-03	ug/l							< 0.51	
2,4,5-TP (Silvex)	2011-09	ug/l							< 1.0	

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
2,4,5-TP (Silvex)	2012-03	ug/l							< 1.1	
2,4,5-TP (Silvex)	2013-03	ug/l							< 1.48	
2,4,5-TP (Silvex)	2013-09	ug/l							< 1.02	
2,4,5-TP (Silvex)	2014-03	ug/L							< 1.12	
2,4,5-TP (Silvex)	2014-06	ug/L			< 1.00					
2,4,5-TP (Silvex)	2014-08	ug/L			< 1.07				< 1.05	
2,4,5-TP (Silvex)	2015-04	ug/L							< 1.11	
2,4,5-TP (Silvex)	2015-10	ug/L				< 1.05			< 1.06	< 1.05
2,4,5-TP (Silvex)	2016-04	ug/L				< 1.04			< 1.03	< 1.04
2,4,5-TP (Silvex)	2016-07	ug/L				< 1.06				< 1.06
2,4,5-TP (Silvex)	2016-10	ug/L				< 1.13			< 1.05	< 1.13
2,4,5-TP (Silvex)	2017-05	ug/L				< 1.2			< 1.17	< 1.2
2,4,5-TP (Silvex)	2017-09	ug/L				< 1.01			< 1.09	< 1.01
2,4,5-TP (Silvex)	2018-05	ug/L				< 1.01			< 1.01	< 1.01
2,4,5-TP (Silvex)	2018-09	ug/L				< 1.05			< 1.21	< 1.05
2,4,5-TP (Silvex)	2019-03	ug/L				< 1.18			< 1.17	< 1.18
2,4,5-TP (Silvex)	2019-10	ug/L			< 1.07	< 1.11			< 1.16	< 1.11
2,4,5-TP (Silvex)	2020-04	ug/L				< 1.36			< 1.09	< 1.36
2,4,5-TP (Silvex)	2020-09	ug/L				< 0.154			< 0.152	~~< 0.154~~
2,4,5-TP (Silvex)	2021-04	ug/L				< 1.17			< 1.23	< 1.17
2,4,5-TP (Silvex)	2021-09	ug/L				< 1.2			< 1.03	< 1.2
2,4,5-Trichlorophenol	2009-03	ug/l							< 10	
2,4,5-Trichlorophenol	2009-06	ug/l							< 10.0	
2,4,5-Trichlorophenol	2009-09	ug/l							< 10.0	
2,4,5-Trichlorophenol	2010-03	ug/l							< 10.0	
2,4,5-Trichlorophenol	2010-09	ug/l							< 10.0	
2,4,5-Trichlorophenol	2011-03	ug/l							< 12.0	
2,4,5-Trichlorophenol	2014-06	ug/L			< 10.5					
2,4,5-Trichlorophenol	2014-08	ug/L			< 10.2				< 10.8	
2,4,5-Trichlorophenol	2015-10	ug/L				< 10			< 10	< 10
2,4,5-Trichlorophenol	2016-07	ug/L				< 10.4				< 10.4
2,4,5-Trichlorophenol	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
2,4,5-Trichlorophenol	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
2,4,6-Trichlorophenol	2009-03	ug/l							< 10	
2,4,6-Trichlorophenol	2009-06	ug/l							< 10.0	
2,4,6-Trichlorophenol	2009-09	ug/l							< 10.0	
2,4,6-Trichlorophenol	2010-03	ug/l							< 10.0	
2,4,6-Trichlorophenol	2010-09	ug/l							< 10.0	
2,4,6-Trichlorophenol	2011-03	ug/l							< 12.0	
2,4,6-Trichlorophenol	2014-06	ug/L			< 10.5					
2,4,6-Trichlorophenol	2014-08	ug/L			< 10.2				< 10.8	
2,4,6-Trichlorophenol	2015-10	ug/L				< 10			< 10	< 10
2,4,6-Trichlorophenol	2016-07	ug/L				< 10.4				< 10.4
2,4,6-Trichlorophenol	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
2,4,6-Trichlorophenol	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
2,4-D	2009-03	ug/l							< 1.1	
2,4-D	2009-06	ug/l							< 1.0	
2,4-D	2009-09	ug/l							< 1.1	
2,4-D	2010-03	ug/l							< 1.1	
2,4-D	2010-09	ug/l							< 1.0	
2,4-D	2011-03	ug/l							< 1.0	
2,4-D	2014-06	ug/L			< 1.00					
2,4-D	2014-08	ug/L			< 1.07				< 1.05	
2,4-D	2015-10	ug/L				**0.655 J**			< 1.06	**0.655 J**
2,4-D	2016-07	ug/L				< 1.06				< 1.06
2,4-D	2019-10	ug/L			< 1.07	< 1.11			< 1.16	< 1.11
2,4-D	2020-09	ug/L				< 0.307			< 0.304	~~< 0.307~~
2,4-D	2021-04	ug/L				< 1.17			< 1.23	< 1.17
2,4-D	2021-09	ug/L				< 1.2			< 1.03	< 1.2
2,4-Dichlorophenol	2009-03	ug/l							< 10	
2,4-Dichlorophenol	2009-06	ug/l							< 10.0	
2,4-Dichlorophenol	2009-09	ug/l							< 10.0	
2,4-Dichlorophenol	2010-03	ug/l							< 10.0	
2,4-Dichlorophenol	2010-09	ug/l							< 10.0	
2,4-Dichlorophenol	2011-03	ug/l							< 12.0	
2,4-Dichlorophenol	2014-06	ug/L			< 10.5					
2,4-Dichlorophenol	2014-08	ug/L			< 10.2				< 10.8	
2,4-Dichlorophenol	2015-10	ug/L				< 10			< 10	< 10
2,4-Dichlorophenol	2016-07	ug/L				< 10.4				< 10.4
2,4-Dichlorophenol	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
2,4-Dichlorophenol	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
2,4-Dimethylphenol	2009-03	ug/l							< 10	
2,4-Dimethylphenol	2009-06	ug/l							< 10.0	
2,4-Dimethylphenol	2009-09	ug/l							< 10.0	
2,4-Dimethylphenol	2010-03	ug/l							< 10.0	
2,4-Dimethylphenol	2010-09	ug/l							< 10.0	
2,4-Dimethylphenol	2011-03	ug/l							< 12.0	
2,4-Dimethylphenol	2014-06	ug/L			< 10.5					
2,4-Dimethylphenol	2014-08	ug/L			< 10.2				< 10.8	
2,4-Dimethylphenol	2015-10	ug/L				< 10			< 10	< 10
2,4-Dimethylphenol	2016-07	ug/L				< 10.4				< 10.4
2,4-Dimethylphenol	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
2,4-Dimethylphenol	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
2,4-Dinitrophenol	2009-03	ug/l							< 20	
2,4-Dinitrophenol	2009-06	ug/l							< 20.0	
2,4-Dinitrophenol	2009-09	ug/l							< 20.0	
2,4-Dinitrophenol	2010-03	ug/l							< 20.0	
2,4-Dinitrophenol	2010-09	ug/l							< 20.0	

Table 13
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
2,4-Dinitrophenol	2011-03	ug/l							< 24.1	
2,4-Dinitrophenol	2014-06	ug/L			< 21.1					
2,4-Dinitrophenol	2014-08	ug/L			< 20.4				< 21.5	
2,4-Dinitrophenol	2015-10	ug/L				< 20			< 20	< 20
2,4-Dinitrophenol	2016-07	ug/L				< 20.8				< 20.8
2,4-Dinitrophenol	2019-10	ug/L			< 21.1	< 20.3			< 20.9	< 20.3
2,4-Dinitrophenol	2020-09	ug/L				< 25.6			< 29.9	~~< 25.6~~
2,4-Dinitrotoluene	2009-03	ug/l							< 10	
2,4-Dinitrotoluene	2009-06	ug/l							< 10.0	
2,4-Dinitrotoluene	2009-09	ug/l							< 10.0	
2,4-Dinitrotoluene	2010-03	ug/l							< 10.0	
2,4-Dinitrotoluene	2010-09	ug/l							< 10.0	
2,4-Dinitrotoluene	2011-03	ug/l							< 12.0	
2,4-Dinitrotoluene	2014-06	ug/L			< 10.5					
2,4-Dinitrotoluene	2014-08	ug/L			< 10.2				< 10.8	
2,4-Dinitrotoluene	2015-10	ug/L				< 10			< 10	< 10
2,4-Dinitrotoluene	2016-07	ug/L				< 10.4				< 10.4
2,4-Dinitrotoluene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
2,4-Dinitrotoluene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
2,6-Dichlorophenol	2009-03	ug/l							< 10	
2,6-Dichlorophenol	2009-06	ug/l							< 10.0	
2,6-Dichlorophenol	2009-09	ug/l							< 10.0	
2,6-Dichlorophenol	2010-03	ug/l							< 10.0	
2,6-Dichlorophenol	2010-09	ug/l							< 10.0	
2,6-Dichlorophenol	2011-03	ug/l							< 12.0	
2,6-Dichlorophenol	2014-06	ug/L			< 10.5					
2,6-Dichlorophenol	2014-08	ug/L			< 10.2				< 10.8	
2,6-Dichlorophenol	2015-10	ug/L				< 10			< 10	< 10
2,6-Dichlorophenol	2016-07	ug/L				< 10.4				< 10.4
2,6-Dichlorophenol	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
2,6-Dichlorophenol	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
2,6-Dinitrotoluene	2009-03	ug/l							< 10	
2,6-Dinitrotoluene	2009-06	ug/l							< 10.0	
2,6-Dinitrotoluene	2009-09	ug/l							< 10.0	
2,6-Dinitrotoluene	2010-03	ug/l							< 10.0	
2,6-Dinitrotoluene	2010-09	ug/l							< 10.0	
2,6-Dinitrotoluene	2011-03	ug/l							< 12.0	
2,6-Dinitrotoluene	2014-06	ug/L			< 10.5					
2,6-Dinitrotoluene	2014-08	ug/L			< 10.2				< 10.8	
2,6-Dinitrotoluene	2015-10	ug/L				< 10			< 10	< 10
2,6-Dinitrotoluene	2016-07	ug/L				< 10.4				< 10.4
2,6-Dinitrotoluene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
2,6-Dinitrotoluene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
2-Acetylaminofluorene	2009-03	ug/l							< 10	

Table 13
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
2-Acetylaminofluorene	2009-06	ug/l							< 10.0	
2-Acetylaminofluorene	2009-09	ug/l							< 10.0	
2-Acetylaminofluorene	2010-03	ug/l							< 10.0	
2-Acetylaminofluorene	2010-09	ug/l							< 10.0	
2-Acetylaminofluorene	2011-03	ug/l							< 12.0	
2-Acetylaminofluorene	2014-06	ug/L			< 10.5					
2-Acetylaminofluorene	2014-08	ug/L			< 10.2				< 10.8	
2-Acetylaminofluorene	2015-10	ug/L				< 10			< 10	< 10
2-Acetylaminofluorene	2016-07	ug/L				< 10.4				< 10.4
2-Acetylaminofluorene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
2-Acetylaminofluorene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
2-Butanone	2008-04	ug/l							< 10.0	
2-Butanone	2008-06	ug/l							< 10.0	
2-Butanone	2008-08	ug/l							< 10.0	
2-Butanone	2008-09	ug/l							< 10.0	
2-Butanone	2009-03	ug/l							< 10	
2-Butanone	2009-06	ug/l							< 10.0	
2-Butanone	2009-09	ug/l				< 10.0			< 10.0	< 10.0
2-Butanone	2009-12	ug/l				< 10.0				< 10.0
2-Butanone	2010-03	ug/l							< 10.0	
2-Butanone	2010-04	ug/l				< 10.0				< 10.0
2-Butanone	2010-06	ug/l				< 10.0				< 10.0
2-Butanone	2010-09	ug/l				< 10.0			< 10.0	< 10.0
2-Butanone	2011-03	ug/l				< 10.0			< 10.0	< 10.0
2-Butanone	2011-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
2-Butanone	2011-11	ug/l	< 10.0		< 10.0					
2-Butanone	2012-03	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
2-Butanone	2012-06	ug/l	< 10.0		< 10.0					
2-Butanone	2012-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
2-Butanone	2013-03	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
2-Butanone	2013-06	ug/l			< 10.0 J	< 10.0			< 10.0	< 10.0
2-Butanone	2013-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
2-Butanone	2013-11	ug/L				< 10.0			< 10.0	< 10.0
2-Butanone	2014-03	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
2-Butanone	2014-06	ug/L			< 10.0	< 10.0			< 10.0	< 10.0
2-Butanone	2014-08	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
2-Butanone	2014-12	ug/L			< 10.0	< 10.0			< 10.0	< 10.0
2-Butanone	2015-04	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
2-Butanone	2015-09	ug/L			< 10					
2-Butanone	2015-10	ug/L	< 10			< 10			< 10	< 10
2-Butanone	2016-04	ug/L	< 10		< 10	< 10			< 10	< 10
2-Butanone	2016-07	ug/L				< 10				< 10
2-Butanone	2016-10	ug/L	< 10		< 10	< 10			< 10	< 10
2-Butanone	2017-05	ug/L	< 10		< 10	< 10			< 10	< 10

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Table 13
Analytical Data Summary
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
2-Butanone	2017-09	ug/L	< 10		< 10	< 10			< 10	< 10
2-Butanone	2018-05	ug/L			< 10	< 10			**2.12 J**	< 10
2-Butanone	2018-09	ug/L	< 10		< 10	< 10			< 10	< 10
2-Butanone	2019-03	ug/L	< 10		< 10	< 10			< 10	< 10
2-Butanone	2019-10	ug/L		< 10	< 10	< 10		< 10	< 10	< 10
2-Butanone	2020-04	ug/L		< 10	< 10	< 10	< 10	< 10	< 10	< 10
2-Butanone	2020-06	ug/L	< 10					< 10		
2-Butanone	2020-08	ug/L	< 10				< 10	< 10		
2-Butanone	2020-09	ug/L		< 10	< 10	< 10			< 10	~~< 10~~
2-Butanone	2020-12	ug/L					< 10	< 10		
2-Butanone	2021-02	ug/L					< 10			
2-Butanone	2021-04	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
2-Butanone	2021-09	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
2-Butanone	2022-04	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
2-Butanone	2022-09	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
2-Butanone	2023-04	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
2-Butanone	2023-09	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
2-Chloronaphthalene	2009-03	ug/l							< 10	
2-Chloronaphthalene	2009-06	ug/l							< 10.0	
2-Chloronaphthalene	2009-09	ug/l							< 10.0	
2-Chloronaphthalene	2010-03	ug/l							< 10.0	
2-Chloronaphthalene	2010-09	ug/l							< 10.0	
2-Chloronaphthalene	2011-03	ug/l							< 12.0	
2-Chloronaphthalene	2014-06	ug/L			< 10.5					
2-Chloronaphthalene	2014-08	ug/L			< 10.2				< 10.8	
2-Chloronaphthalene	2015-10	ug/L				< 10			< 10	< 10
2-Chloronaphthalene	2016-07	ug/L				< 10.4				< 10.4
2-Chloronaphthalene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
2-Chloronaphthalene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
2-Chlorophenol	2009-03	ug/l							< 10	
2-Chlorophenol	2009-06	ug/l							< 10.0	
2-Chlorophenol	2009-09	ug/l							< 10.0	
2-Chlorophenol	2010-03	ug/l							< 10.0	
2-Chlorophenol	2010-09	ug/l							< 10.0	
2-Chlorophenol	2011-03	ug/l							< 12.0	
2-Chlorophenol	2014-06	ug/L			< 10.5					
2-Chlorophenol	2014-08	ug/L			< 10.2				< 10.8	
2-Chlorophenol	2015-10	ug/L				< 10			< 10	< 10
2-Chlorophenol	2016-07	ug/L				< 10.4				< 10.4
2-Chlorophenol	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
2-Chlorophenol	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
2-Hexanone	2008-04	ug/l							< 10.0	
2-Hexanone	2008-06	ug/l							< 10.0	
2-Hexanone	2008-08	ug/l							< 10.0	

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
2-Hexanone	2008-09	ug/l							< 10.0	
2-Hexanone	2009-03	ug/l							< 10	
2-Hexanone	2009-06	ug/l							< 10.0	
2-Hexanone	2009-09	ug/l				< 10.0			< 10.0	< 10.0
2-Hexanone	2009-12	ug/l				< 10.0				< 10.0
2-Hexanone	2010-03	ug/l							< 10.0	
2-Hexanone	2010-04	ug/l				< 10.0				< 10.0
2-Hexanone	2010-06	ug/l				< 10.0				< 10.0
2-Hexanone	2010-09	ug/l				< 10.0			< 10.0	< 10.0
2-Hexanone	2011-03	ug/l				< 10.0			< 10.0	< 10.0
2-Hexanone	2011-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
2-Hexanone	2011-11	ug/l	< 10.0		< 10.0					
2-Hexanone	2012-03	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
2-Hexanone	2012-06	ug/l	< 10.0		< 10.0					
2-Hexanone	2012-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
2-Hexanone	2013-03	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
2-Hexanone	2013-06	ug/l			< 10.0	< 10.0			< 10.0	< 10.0
2-Hexanone	2013-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
2-Hexanone	2013-11	ug/L				< 10.0			< 10.0	< 10.0
2-Hexanone	2014-03	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
2-Hexanone	2014-06	ug/L			< 10.0	< 10.0			< 10.0	< 10.0
2-Hexanone	2014-08	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
2-Hexanone	2014-12	ug/L			< 10.0	< 10.0			< 10.0	< 10.0
2-Hexanone	2015-04	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
2-Hexanone	2015-09	ug/L			< 10					
2-Hexanone	2015-10	ug/L	< 10			< 10			< 10	< 10
2-Hexanone	2016-04	ug/L	< 10		< 10	< 10			< 10	< 10
2-Hexanone	2016-07	ug/L				< 10				< 10
2-Hexanone	2016-10	ug/L	< 10		< 10	< 10			< 10	< 10
2-Hexanone	2017-05	ug/L	< 10		< 10	< 10			< 10	< 10
2-Hexanone	2017-09	ug/L	< 10		< 10	< 10			< 10	< 10
2-Hexanone	2018-05	ug/L			< 10	< 10			< 10	< 10
2-Hexanone	2018-09	ug/L	< 10		< 10	< 10			< 10	< 10
2-Hexanone	2019-03	ug/L	< 10		< 10	< 10			< 10	< 10
2-Hexanone	2019-10	ug/L		< 10	< 10	< 10		< 10	< 10	< 10
2-Hexanone	2020-04	ug/L		< 10	< 10	< 10	< 10	< 10	< 10	< 10
2-Hexanone	2020-06	ug/L	< 10					< 10		
2-Hexanone	2020-08	ug/L	< 10				< 10	< 10		
2-Hexanone	2020-09	ug/L		< 10	< 10	< 10			< 10	~~< 10~~
2-Hexanone	2020-12	ug/L					< 10	< 10		
2-Hexanone	2021-02	ug/L					< 10			
2-Hexanone	2021-04	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
2-Hexanone	2021-09	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
2-Hexanone	2022-04	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
2-Hexanone	2022-09	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
2-Hexanone	2023-04	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
2-Hexanone	2023-09	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
2-Methylnaphthalene	2009-03	ug/l							< 10	
2-Methylnaphthalene	2009-06	ug/l							< 10.0	
2-Methylnaphthalene	2009-09	ug/l							< 10.0	
2-Methylnaphthalene	2010-03	ug/l							< 10.0	
2-Methylnaphthalene	2010-09	ug/l							< 10.0	
2-Methylnaphthalene	2011-03	ug/l							< 12.0	
2-Methylnaphthalene	2014-06	ug/L			< 10.5					
2-Methylnaphthalene	2014-08	ug/L			< 10.2				< 10.8	
2-Methylnaphthalene	2015-10	ug/L				< 10			< 10	< 10
2-Methylnaphthalene	2016-07	ug/L				< 10.4				< 10.4
2-Methylnaphthalene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
2-Methylnaphthalene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
2-Methylphenol	2009-03	ug/l							< 10	
2-Methylphenol	2009-06	ug/l							< 10.0	
2-Methylphenol	2009-09	ug/l							< 10.0	
2-Methylphenol	2010-03	ug/l							< 10.0	
2-Methylphenol	2010-09	ug/l							< 10.0	
2-Methylphenol	2011-03	ug/l							< 12.0	
2-Methylphenol	2014-06	ug/L			< 10.5					
2-Methylphenol	2014-08	ug/L			< 10.2				< 10.8	
2-Methylphenol	2015-10	ug/L				< 10			< 10	< 10
2-Methylphenol	2016-07	ug/L				< 10.4				< 10.4
2-Methylphenol	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
2-Methylphenol	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
2-Naphthylamine	2009-03	ug/l							< 10	
2-Naphthylamine	2009-06	ug/l							< 10.0	
2-Naphthylamine	2009-09	ug/l							< 10.0	
2-Naphthylamine	2010-03	ug/l							< 10.0	
2-Naphthylamine	2010-09	ug/l							< 10.0	
2-Naphthylamine	2011-03	ug/l							< 12.0	
2-Naphthylamine	2014-06	ug/L			< 10.5					
2-Naphthylamine	2014-08	ug/L			< 10.2				< 10.8	
2-Naphthylamine	2015-10	ug/L				< 10			< 10	< 10
2-Naphthylamine	2016-07	ug/L				< 10.4				< 10.4
2-Naphthylamine	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
2-Naphthylamine	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
2-Nitroaniline	2009-03	ug/l							< 10	
2-Nitroaniline	2009-06	ug/l							< 10.0	
2-Nitroaniline	2009-09	ug/l							< 10.0	
2-Nitroaniline	2010-03	ug/l							< 10.0	
2-Nitroaniline	2010-09	ug/l							< 10.0	

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Table 13
Analytical Data Summary
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
2-Nitroaniline	2011-03	ug/l							< 12.0	
2-Nitroaniline	2014-06	ug/L			< 10.5					
2-Nitroaniline	2014-08	ug/L			< 10.2				< 10.8	
2-Nitroaniline	2015-10	ug/L				< 10			< 10	< 10
2-Nitroaniline	2016-07	ug/L				< 10.4				< 10.4
2-Nitroaniline	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
2-Nitroaniline	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
2-Nitrophenol	2009-03	ug/l							< 10	
2-Nitrophenol	2009-06	ug/l							< 10.0	
2-Nitrophenol	2009-09	ug/l							< 10.0	
2-Nitrophenol	2010-03	ug/l							< 10.0	
2-Nitrophenol	2010-09	ug/l							< 10.0	
2-Nitrophenol	2011-03	ug/l							< 12.0	
2-Nitrophenol	2014-06	ug/L			< 10.5					
2-Nitrophenol	2014-08	ug/L			< 10.2				< 10.8	
2-Nitrophenol	2015-10	ug/L				< 10			< 10	< 10
2-Nitrophenol	2016-07	ug/L				< 10.4				< 10.4
2-Nitrophenol	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
2-Nitrophenol	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
3,3-Dichlorobenzidine	2009-03	ug/l							< 85	
3,3-Dichlorobenzidine	2009-06	ug/l							< 10.0	
3,3-Dichlorobenzidine	2009-09	ug/l							< 10.0	
3,3-Dichlorobenzidine	2010-03	ug/l							< 10.0	
3,3-Dichlorobenzidine	2010-09	ug/l							< 10.0	
3,3-Dichlorobenzidine	2011-03	ug/l							< 12.0	
3,3-Dichlorobenzidine	2014-06	ug/L			< 52.6					
3,3-Dichlorobenzidine	2014-08	ug/L			< 51.0				< 53.8	
3,3-Dichlorobenzidine	2015-10	ug/L				< 50			< 50	< 50
3,3-Dichlorobenzidine	2016-07	ug/L				< 52.1				< 52.1
3,3-Dichlorobenzidine	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
3,3-Dichlorobenzidine	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
3,3-Dimethylbenzidine	2009-03	ug/l							< 20	
3,3-Dimethylbenzidine	2009-06	ug/l							< 20.0	
3,3-Dimethylbenzidine	2009-09	ug/l							< 10.0	
3,3-Dimethylbenzidine	2010-03	ug/l							< 10.0	
3,3-Dimethylbenzidine	2010-09	ug/l							< 10.0	
3,3-Dimethylbenzidine	2011-03	ug/l							< 12.0	
3,3-Dimethylbenzidine	2014-06	ug/L			< 10.5					
3,3-Dimethylbenzidine	2014-08	ug/L			< 10.2				< 10.8	
3,3-Dimethylbenzidine	2015-10	ug/L				< 10			< 10	< 10
3,3-Dimethylbenzidine	2016-07	ug/L				< 10.4				< 10.4
3,3-Dimethylbenzidine	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
3,3-Dimethylbenzidine	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
3-Methylcholanthrene	2009-03	ug/l							< 10	

Table 13
Carroll County Landfill Western Expansion Area **Analytical Data Summary**
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
3-Methylcholanthrene	2009-06	ug/l							< 10.0	
3-Methylcholanthrene	2009-09	ug/l							< 10.0	
3-Methylcholanthrene	2010-03	ug/l							< 10.0	
3-Methylcholanthrene	2010-09	ug/l							< 10.0	
3-Methylcholanthrene	2011-03	ug/l							< 12.0	
3-Methylcholanthrene	2014-06	ug/L			< 10.5					
3-Methylcholanthrene	2014-08	ug/L			< 10.2				< 10.8	
3-Methylcholanthrene	2015-10	ug/L				< 10			< 10	< 10
3-Methylcholanthrene	2016-07	ug/L				**1.23 J**				**1.23 J**
3-Methylcholanthrene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
3-Methylcholanthrene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
3-Nitroaniline	2009-03	ug/l							< 10	
3-Nitroaniline	2009-06	ug/l							< 10.0	
3-Nitroaniline	2009-09	ug/l							< 10.0	
3-Nitroaniline	2010-03	ug/l							< 10.0	
3-Nitroaniline	2010-09	ug/l							< 10.0	
3-Nitroaniline	2011-03	ug/l							< 12.0	
3-Nitroaniline	2014-06	ug/L			< 10.5					
3-Nitroaniline	2014-08	ug/L			< 10.2				< 10.8	
3-Nitroaniline	2015-10	ug/L				< 10			< 10	< 10
3-Nitroaniline	2016-07	ug/L				< 10.4				< 10.4
3-Nitroaniline	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
3-Nitroaniline	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
4,4'-DDD	2009-03	ug/l							< 0.032	
4,4'-DDD	2009-06	ug/l							< 0.0320	
4,4'-DDD	2009-09	ug/l							< 0.0320	
4,4'-DDD	2010-03	ug/l							< 0.0320	
4,4'-DDD	2010-09	ug/l							< 0.0356	
4,4'-DDD	2011-03	ug/l							< 0.0320	
4,4'-DDD	2014-06	ug/L			< 0.0327					
4,4'-DDD	2014-08	ug/L			< 0.0320				< 0.0320	
4,4'-DDD	2015-10	ug/L				< 0.032			< 0.032	< 0.032
4,4'-DDD	2016-07	ug/L				< 0.032				< 0.032
4,4'-DDD	2019-10	ug/L			< 0.0335	< 0.0333			< 0.0333	< 0.0333
4,4'-DDD	2020-09	ug/L				< 0.0348			< 0.0451	~~< 0.0348~~
4,4'-DDE	2009-03	ug/l							< 0.032	
4,4'-DDE	2009-06	ug/l							< 0.0320	
4,4'-DDE	2009-09	ug/l							< 0.0320	
4,4'-DDE	2010-03	ug/l							< 0.0320	
4,4'-DDE	2010-09	ug/l							< 0.0356	
4,4'-DDE	2011-03	ug/l							< 0.0320	
4,4'-DDE	2014-06	ug/L			< 0.0327					
4,4'-DDE	2014-08	ug/L			< 0.0320				< 0.0320	
4,4'-DDE	2015-10	ug/L				< 0.032			< 0.032	< 0.032

Table 13
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
4,4'-DDE	2016-07	ug/L				< 0.032				< 0.032
4,4'-DDE	2019-10	ug/L			< 0.0335	< 0.0333			< 0.0333	< 0.0333
4,4'-DDE	2020-09	ug/L				< 0.0348			< 0.0451	~~< 0.0348~~
4,4'-DDT	2009-03	ug/l							< 0.032	
4,4'-DDT	2009-06	ug/l							< 0.0320	
4,4'-DDT	2009-09	ug/l							< 0.0320	
4,4'-DDT	2010-03	ug/l							< 0.0320	
4,4'-DDT	2010-09	ug/l							< 0.0356	
4,4'-DDT	2011-03	ug/l							< 0.0320	
4,4'-DDT	2014-06	ug/L			< 0.0327					
4,4'-DDT	2014-08	ug/L			< 0.0320				< 0.0320	
4,4'-DDT	2015-10	ug/L				< 0.032			< 0.032	< 0.032
4,4'-DDT	2016-07	ug/L				< 0.032				< 0.032
4,4'-DDT	2019-10	ug/L			< 0.0335	< 0.0333			< 0.0333	< 0.0333
4,4'-DDT	2020-09	ug/L				< 0.0348			< 0.0451	~~< 0.0348~~
4,6-Dinitro-2-methylphenol	2009-03	ug/l							< 10	
4,6-Dinitro-2-methylphenol	2009-06	ug/l							< 10.0	
4,6-Dinitro-2-methylphenol	2009-09	ug/l							< 10.0	
4,6-Dinitro-2-methylphenol	2010-03	ug/l							< 10.0	
4,6-Dinitro-2-methylphenol	2010-09	ug/l							< 10.0	
4,6-Dinitro-2-methylphenol	2011-03	ug/l							< 12.0	
4,6-Dinitro-2-methylphenol	2014-06	ug/L			< 10.5					
4,6-Dinitro-2-methylphenol	2014-08	ug/L			< 10.2				< 10.8	
4,6-Dinitro-2-methylphenol	2015-10	ug/L				< 10			< 10	< 10
4,6-Dinitro-2-methylphenol	2016-07	ug/L				< 10.4				< 10.4
4,6-Dinitro-2-methylphenol	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
4,6-Dinitro-2-methylphenol	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
4-Aminobiphenyl	2009-03	ug/l							< 20	
4-Aminobiphenyl	2009-06	ug/l							< 20.0	
4-Aminobiphenyl	2009-09	ug/l							< 10.0	
4-Aminobiphenyl	2010-03	ug/l							< 10.0	
4-Aminobiphenyl	2010-09	ug/l							< 10.0	
4-Aminobiphenyl	2011-03	ug/l							< 12.0	
4-Aminobiphenyl	2014-06	ug/L			< 10.5					
4-Aminobiphenyl	2014-08	ug/L			< 10.2				< 10.8	
4-Aminobiphenyl	2015-10	ug/L				< 10			< 10	< 10
4-Aminobiphenyl	2016-07	ug/L				< 10.4				< 10.4
4-Aminobiphenyl	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
4-Aminobiphenyl	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
4-Bromophenyl Phenyl Ether	2009-03	ug/l							< 10	
4-Bromophenyl Phenyl Ether	2009-06	ug/l							< 10.0	
4-Bromophenyl Phenyl Ether	2009-09	ug/l							< 10.0	
4-Bromophenyl Phenyl Ether	2010-03	ug/l							< 10.0	
4-Bromophenyl Phenyl Ether	2010-09	ug/l							< 10.0	

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
4-Bromophenyl Phenyl Ether	2011-03	ug/l							< 12.0	
4-Bromophenyl Phenyl Ether	2014-06	ug/L			< 10.5					
4-Bromophenyl Phenyl Ether	2014-08	ug/L			< 10.2				< 10.8	
4-Bromophenyl Phenyl Ether	2015-10	ug/L				< 10			< 10	< 10
4-Bromophenyl Phenyl Ether	2016-07	ug/L				< 10.4				< 10.4
4-Bromophenyl Phenyl Ether	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
4-Bromophenyl Phenyl Ether	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
4-Chloro-3-methylphenol	2009-03	ug/l							< 10	
4-Chloro-3-methylphenol	2009-06	ug/l							< 10.0	
4-Chloro-3-methylphenol	2009-09	ug/l							< 10.0	
4-Chloro-3-methylphenol	2010-03	ug/l							< 10.0	
4-Chloro-3-methylphenol	2010-09	ug/l							< 10.0	
4-Chloro-3-methylphenol	2011-03	ug/l							< 12.0	
4-Chloro-3-methylphenol	2014-06	ug/L			< 10.5					
4-Chloro-3-methylphenol	2014-08	ug/L			< 10.2				< 10.8	
4-Chloro-3-methylphenol	2015-10	ug/L				< 10			< 10	< 10
4-Chloro-3-methylphenol	2016-07	ug/L				< 10.4				< 10.4
4-Chloro-3-methylphenol	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
4-Chloro-3-methylphenol	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
4-Chloroaniline	2009-03	ug/l							< 10	
4-Chloroaniline	2009-06	ug/l							< 10.0	
4-Chloroaniline	2009-09	ug/l							< 10.0	
4-Chloroaniline	2010-03	ug/l							< 10.0	
4-Chloroaniline	2010-09	ug/l							< 10.0	
4-Chloroaniline	2011-03	ug/l							< 12.0	
4-Chloroaniline	2014-06	ug/L			< 10.5					
4-Chloroaniline	2014-08	ug/L			< 10.2				< 10.8	
4-Chloroaniline	2015-10	ug/L				< 10			< 10	< 10
4-Chloroaniline	2016-07	ug/L				< 10.4				< 10.4
4-Chloroaniline	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
4-Chloroaniline	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
4-Chlorophenyl Phenyl Ether	2009-03	ug/l							< 10	
4-Chlorophenyl Phenyl Ether	2009-06	ug/l							< 10.0	
4-Chlorophenyl Phenyl Ether	2009-09	ug/l							< 10.0	
4-Chlorophenyl Phenyl Ether	2010-03	ug/l							< 10.0	
4-Chlorophenyl Phenyl Ether	2010-09	ug/l							< 10.0	
4-Chlorophenyl Phenyl Ether	2011-03	ug/l							< 12.0	
4-Chlorophenyl Phenyl Ether	2014-06	ug/L			< 10.5					
4-Chlorophenyl Phenyl Ether	2014-08	ug/L			< 10.2				< 10.8	
4-Chlorophenyl Phenyl Ether	2015-10	ug/L				< 10			< 10	< 10
4-Chlorophenyl Phenyl Ether	2016-07	ug/L				< 10.4				< 10.4
4-Chlorophenyl Phenyl Ether	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
4-Chlorophenyl Phenyl Ether	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
4-Methyl-2-pentanone	2008-04	ug/l							< 10.0	

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
4-Methyl-2-pentanone	2008-06	ug/l							< 10.0	
4-Methyl-2-pentanone	2008-08	ug/l							< 10.0	
4-Methyl-2-pentanone	2008-09	ug/l							< 10.0	
4-Methyl-2-pentanone	2009-03	ug/l							< 10	
4-Methyl-2-pentanone	2009-06	ug/l							< 10.0	
4-Methyl-2-pentanone	2009-09	ug/l				< 10.0			< 10.0	< 10.0
4-Methyl-2-pentanone	2009-12	ug/l				< 10.0				< 10.0
4-Methyl-2-pentanone	2010-03	ug/l							< 10.0	
4-Methyl-2-pentanone	2010-04	ug/l				< 10.0				< 10.0
4-Methyl-2-pentanone	2010-06	ug/l				< 10.0				< 10.0
4-Methyl-2-pentanone	2010-09	ug/l				< 10.0			< 10.0	< 10.0
4-Methyl-2-pentanone	2011-03	ug/l				< 10.0			< 10.0	< 10.0
4-Methyl-2-pentanone	2011-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
4-Methyl-2-pentanone	2011-11	ug/l	< 10.0		< 10.0					
4-Methyl-2-pentanone	2012-03	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
4-Methyl-2-pentanone	2012-06	ug/l	< 10.0		< 10.0					
4-Methyl-2-pentanone	2012-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
4-Methyl-2-pentanone	2013-03	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
4-Methyl-2-pentanone	2013-06	ug/l			< 10.0	< 10.0			< 10.0	< 10.0
4-Methyl-2-pentanone	2013-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
4-Methyl-2-pentanone	2013-11	ug/L				< 10.0			< 10.0	< 10.0
4-Methyl-2-pentanone	2014-03	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
4-Methyl-2-pentanone	2014-06	ug/L			< 10.0	< 10.0			< 10.0	< 10.0
4-Methyl-2-pentanone	2014-08	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
4-Methyl-2-pentanone	2014-12	ug/L			< 10.0	< 10.0			< 10.0	< 10.0
4-Methyl-2-pentanone	2015-04	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
4-Methyl-2-pentanone	2015-09	ug/L			< 10					
4-Methyl-2-pentanone	2015-10	ug/L	< 10			< 10			< 10	< 10
4-Methyl-2-pentanone	2016-04	ug/L	< 10		< 10	< 10			< 10	< 10
4-Methyl-2-pentanone	2016-07	ug/L				< 10				< 10
4-Methyl-2-pentanone	2016-10	ug/L	< 10		< 10	< 10			< 10	< 10
4-Methyl-2-pentanone	2017-05	ug/L	< 10		< 10	< 10			< 10	< 10
4-Methyl-2-pentanone	2017-09	ug/L	< 10		< 10	< 10			< 10	< 10
4-Methyl-2-pentanone	2018-05	ug/L			< 10	< 10			< 10	< 10
4-Methyl-2-pentanone	2018-09	ug/L	< 10		< 10	< 10			< 10	< 10
4-Methyl-2-pentanone	2019-03	ug/L	< 10		< 10	< 10			< 10	< 10
4-Methyl-2-pentanone	2019-10	ug/L		< 10	< 10	< 10		< 10	< 10	< 10
4-Methyl-2-pentanone	2020-04	ug/L		< 10	< 10	< 10	< 10	< 10	< 10	< 10
4-Methyl-2-pentanone	2020-06	ug/L	< 10					< 10		
4-Methyl-2-pentanone	2020-08	ug/L	< 10				< 10	< 10		
4-Methyl-2-pentanone	2020-09	ug/L		< 10	< 10	< 10			< 10	~~< 10~~
4-Methyl-2-pentanone	2020-12	ug/L					< 10	< 10		
4-Methyl-2-pentanone	2021-02	ug/L					< 10			
4-Methyl-2-pentanone	2021-04	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
4-Methyl-2-pentanone	2021-09	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
4-Methyl-2-pentanone	2022-04	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
4-Methyl-2-pentanone	2022-09	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
4-Methyl-2-pentanone	2023-04	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
4-Methyl-2-pentanone	2023-09	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
4-Nitroaniline	2009-03	ug/l							< 10	
4-Nitroaniline	2009-06	ug/l							< 10.0	
4-Nitroaniline	2009-09	ug/l							< 10.0	
4-Nitroaniline	2010-03	ug/l							< 10.0	
4-Nitroaniline	2010-09	ug/l							< 10.0	
4-Nitroaniline	2011-03	ug/l							< 12.0	
4-Nitroaniline	2014-06	ug/L			< 10.5					
4-Nitroaniline	2014-08	ug/L			< 10.2				< 10.8	
4-Nitroaniline	2015-10	ug/L				< 10			< 10	< 10
4-Nitroaniline	2016-07	ug/L				< 10.4				< 10.4
4-Nitroaniline	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
4-Nitroaniline	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
4-Nitrophenol	2009-03	ug/l							< 10	
4-Nitrophenol	2009-06	ug/l							< 10.0	
4-Nitrophenol	2009-09	ug/l							< 10.0	
4-Nitrophenol	2010-03	ug/l							< 10.0	
4-Nitrophenol	2010-09	ug/l							< 10.0	
4-Nitrophenol	2011-03	ug/l							< 12.0	
4-Nitrophenol	2014-06	ug/L			< 10.5					
4-Nitrophenol	2014-08	ug/L			< 10.2				< 10.8	
4-Nitrophenol	2015-10	ug/L				< 10			< 10	< 10
4-Nitrophenol	2016-07	ug/L				< 10.4				< 10.4
4-Nitrophenol	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
4-Nitrophenol	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
5-Nitro-o-toluidine	2009-03	ug/l							< 10	
5-Nitro-o-toluidine	2009-06	ug/l							< 10.0	
5-Nitro-o-toluidine	2009-09	ug/l							< 10.0	
5-Nitro-o-toluidine	2010-03	ug/l							< 10.0	
5-Nitro-o-toluidine	2010-09	ug/l							< 10.0	
5-Nitro-o-toluidine	2011-03	ug/l							< 12.0	
5-Nitro-o-toluidine	2014-06	ug/L			< 10.5					
5-Nitro-o-toluidine	2014-08	ug/L			< 10.2				< 10.8	
5-Nitro-o-toluidine	2015-10	ug/L				< 10			< 10	< 10
5-Nitro-o-toluidine	2016-07	ug/L				< 10.4				< 10.4
5-Nitro-o-toluidine	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
5-Nitro-o-toluidine	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
7,12-Dimethylbenz(a)anthracene	2009-03	ug/l							< 10	
7,12-Dimethylbenz(a)anthracene	2009-06	ug/l							< 10.0	
7,12-Dimethylbenz(a)anthracene	2009-09	ug/l							< 10.0	

Table 13
Carroll County Landfill Western Expansion Area **Analytical Data Summary**
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
7,12-Dimethylbenz(a)anthracene	2010-03	ug/l							< 10.0	
7,12-Dimethylbenz(a)anthracene	2010-09	ug/l							< 10.0	
7,12-Dimethylbenz(a)anthracene	2011-03	ug/l							< 12.0	
7,12-Dimethylbenz(a)anthracene	2014-06	ug/L			< 10.5					
7,12-Dimethylbenz(a)anthracene	2014-08	ug/L			< 10.2				< 10.8	
7,12-Dimethylbenz(a)anthracene	2015-10	ug/L				< 10			< 10	< 10
7,12-Dimethylbenz(a)anthracene	2016-07	ug/L				< 10.4				< 10.4
7,12-Dimethylbenz(a)anthracene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
7,12-Dimethylbenz(a)anthracene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Acenaphthene	2009-03	ug/l							< 10	
Acenaphthene	2009-06	ug/l							< 10.0	
Acenaphthene	2009-09	ug/l							< 10.0	
Acenaphthene	2010-03	ug/l							< 10.0	
Acenaphthene	2010-09	ug/l							< 10.0	
Acenaphthene	2011-03	ug/l							< 12.0	
Acenaphthene	2014-06	ug/L			< 10.5					
Acenaphthene	2014-08	ug/L			< 10.2				< 10.8	
Acenaphthene	2015-10	ug/L				< 10			< 10	< 10
Acenaphthene	2016-07	ug/L				< 10.4				< 10.4
Acenaphthene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Acenaphthene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Acenaphthylene	2009-03	ug/l							< 10	
Acenaphthylene	2009-06	ug/l							< 10.0	
Acenaphthylene	2009-09	ug/l							< 10.0	
Acenaphthylene	2010-03	ug/l							< 10.0	
Acenaphthylene	2010-09	ug/l							< 10.0	
Acenaphthylene	2011-03	ug/l							< 12.0	
Acenaphthylene	2014-06	ug/L			< 10.5					
Acenaphthylene	2014-08	ug/L			< 10.2				< 10.8	
Acenaphthylene	2015-10	ug/L				< 10			< 10	< 10
Acenaphthylene	2016-07	ug/L				< 10.4				< 10.4
Acenaphthylene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Acenaphthylene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Acetone	2008-04	ug/l							< 10.0	
Acetone	2008-06	ug/l							< 10.0	
Acetone	2008-08	ug/l							< 10.0	
Acetone	2008-09	ug/l							< 10.0	
Acetone	2009-03	ug/l							< 10	
Acetone	2009-06	ug/l							< 10.0	
Acetone	2009-09	ug/l				< 10.0			< 10.0	< 10.0
Acetone	2009-12	ug/l				< 10.0				< 10.0
Acetone	2010-03	ug/l							< 10.0	
Acetone	2010-04	ug/l				< 10.0				< 10.0
Acetone	2010-06	ug/l				< 10.0				< 10.0

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Acetone	2010-09	ug/l				< 10.0			< 10.0	< 10.0
Acetone	2011-03	ug/l				< 10.0			< 10.0	< 10.0
Acetone	2011-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
Acetone	2011-11	ug/l	< 10.0		< 10.0					
Acetone	2012-03	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
Acetone	2012-06	ug/l	< 10.0		< 10.0					
Acetone	2012-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
Acetone	2013-03	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
Acetone	2013-06	ug/l			< 10.0 J	< 10.0			< 10.0	< 10.0
Acetone	2013-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
Acetone	2013-11	ug/L				< 10.0			< 10.0	< 10.0
Acetone	2014-03	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
Acetone	2014-06	ug/L			< 10.0	< 10.0			< 10.0	< 10.0
Acetone	2014-08	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
Acetone	2014-12	ug/L			< 10.0	< 10.0			< 10.0	< 10.0
Acetone	2015-04	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
Acetone	2015-09	ug/L			< 10					
Acetone	2015-10	ug/L	< 10			< 10			< 10	< 10
Acetone	2016-04	ug/L	< 10 J		< 10	< 10			< 10	< 10
Acetone	2016-07	ug/L				< 10				< 10
Acetone	2016-10	ug/L	< 10		< 10	< 10			< 10	< 10
Acetone	2017-05	ug/L	< 10		< 10	< 10			< 10	< 10
Acetone	2017-09	ug/L	< 10		< 10	< 10			< 10	< 10
Acetone	2018-05	ug/L			< 10	< 10			< 10	< 10
Acetone	2018-09	ug/L	< 10		< 10	< 10			< 10	< 10
Acetone	2019-03	ug/L	< 10		< 10	< 10			< 10	< 10
Acetone	2019-10	ug/L		< 10	< 10	< 10		< 10	< 10	< 10
Acetone	2020-04	ug/L		< 10	< 10	< 10	< 10	**11**	< 10	< 10
Acetone	2020-06	ug/L	< 10					< 10		
Acetone	2020-08	ug/L	< 10				< 10	< 10		
Acetone	2020-09	ug/L		< 10	< 10	< 10			< 10	~~< 10~~
Acetone	2020-12	ug/L					< 10	< 10		
Acetone	2021-02	ug/L					< 10			
Acetone	2021-04	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Acetone	2021-09	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Acetone	2022-04	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Acetone	2022-09	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Acetone	2023-04	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Acetone	2023-09	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Acetonitrile	2009-03	mg/l							< 10	
Acetonitrile	2009-06	mg/l							< 10.0	
Acetonitrile	2009-09	mg/l							< 10.0	
Acetonitrile	2010-09	mg/l							< 10.0	
Acetonitrile	2014-06	mg/L			< 10.0					

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Table 13
Analytical Data Summary
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Acetonitrile	2014-08	mg/L			< 10.0				< 10.0	
Acetonitrile	2015-10	mg/L				< 10			< 10	< 10
Acetonitrile	2016-07	mg/L				< 10				< 10
Acetonitrile	2019-10	mg/L			< 10	< 10			< 10	< 10
Acetonitrile	2020-09	mg/L				< 10			< 10	~~< 10~~
Acetophenone	2009-03	ug/l							< 10	
Acetophenone	2009-06	ug/l							< 10.0	
Acetophenone	2009-09	ug/l							< 10.0	
Acetophenone	2010-03	ug/l							< 10.0	
Acetophenone	2010-09	ug/l							< 10.0	
Acetophenone	2011-03	ug/l							< 12.0	
Acetophenone	2014-06	ug/L			< 10.5					
Acetophenone	2014-08	ug/L			< 10.2				< 10.8	
Acetophenone	2015-10	ug/L				< 10			< 10	< 10
Acetophenone	2016-07	ug/L				< 10.4				< 10.4
Acetophenone	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Acetophenone	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Acrolein	2009-03	ug/l							< 10	
Acrolein	2009-06	ug/l							< 10.0	
Acrolein	2009-09	ug/l							< 10.0	
Acrolein	2010-03	ug/l							< 10.0	
Acrolein	2010-09	ug/l							< 10.0	
Acrolein	2011-03	ug/l							< 10.0	
Acrolein	2014-06	ug/L			< 10.0					
Acrolein	2014-08	ug/L			< 10.0				< 10.0	
Acrolein	2015-10	ug/L				< 10			< 10	< 10
Acrolein	2016-07	ug/L				< 10				< 10
Acrolein	2019-10	ug/L			< 10	< 10			< 10	< 10
Acrolein	2020-04	ug/L			< 10	< 10			< 10	< 10
Acrolein	2020-09	ug/L				< 10			< 10	~~< 10~~
Acrylonitrile	2008-04	ug/l							< 10.0	
Acrylonitrile	2008-06	ug/l							< 10.0	
Acrylonitrile	2008-08	ug/l							< 10.0	
Acrylonitrile	2008-09	ug/l							< 10.0	
Acrylonitrile	2009-03	ug/l							< 10	
Acrylonitrile	2009-06	ug/l							< 10.0	
Acrylonitrile	2009-09	ug/l				< 10.0			< 10.0	< 10.0
Acrylonitrile	2009-12	ug/l				< 10.0				< 10.0
Acrylonitrile	2010-03	ug/l							< 10.0	
Acrylonitrile	2010-04	ug/l				< 10.0				< 10.0
Acrylonitrile	2010-06	ug/l				< 10.0				< 10.0
Acrylonitrile	2010-09	ug/l				< 10.0			< 10.0	< 10.0
Acrylonitrile	2011-03	ug/l				< 10.0			< 10.0	< 10.0
Acrylonitrile	2011-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0

Table 13
Carroll County Landfill Western Expansion Area **Analytical Data Summary**
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Acrylonitrile	2011-11	ug/l	< 10.0		< 10.0					
Acrylonitrile	2012-03	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
Acrylonitrile	2012-06	ug/l	< 10.0		< 10.0					
Acrylonitrile	2012-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
Acrylonitrile	2013-03	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
Acrylonitrile	2013-06	ug/l			< 10.0	< 10.0			< 10.0	< 10.0
Acrylonitrile	2013-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
Acrylonitrile	2013-11	ug/L				< 10.0			< 10.0	< 10.0
Acrylonitrile	2014-03	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
Acrylonitrile	2014-06	ug/L			< 10.0	< 10.0			< 10.0	< 10.0
Acrylonitrile	2014-08	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
Acrylonitrile	2014-12	ug/L			< 10.0	< 10.0			< 10.0	< 10.0
Acrylonitrile	2015-04	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
Acrylonitrile	2015-09	ug/L			< 10					
Acrylonitrile	2015-10	ug/L	< 10			< 10			< 10	< 10
Acrylonitrile	2016-04	ug/L	< 10		< 10	< 10			< 10	< 10
Acrylonitrile	2016-07	ug/L				< 10				< 10
Acrylonitrile	2016-10	ug/L	< 10		< 10	< 10			< 10	< 10
Acrylonitrile	2017-05	ug/L	< 5		< 5	< 5			< 5	< 5
Acrylonitrile	2017-09	ug/L	< 5		< 5	< 5			< 5	< 5
Acrylonitrile	2018-05	ug/L			< 5	< 5			< 5	< 5
Acrylonitrile	2018-09	ug/L	< 5		< 5	< 5			< 5	< 5
Acrylonitrile	2019-03	ug/L	< 5		< 5	< 5			< 5	< 5
Acrylonitrile	2019-10	ug/L		< 5	< 5	< 5		< 5	< 5	< 5
Acrylonitrile	2020-04	ug/L		< 5	< 5	< 5	< 5	< 5	< 5	< 5
Acrylonitrile	2020-06	ug/L	< 5					< 5		
Acrylonitrile	2020-08	ug/L	< 5				< 5	< 5		
Acrylonitrile	2020-09	ug/L		< 5	< 5	< 5			< 5	~~< 5~~
Acrylonitrile	2020-12	ug/L					< 5	< 5		
Acrylonitrile	2021-02	ug/L					< 5			
Acrylonitrile	2021-04	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Acrylonitrile	2021-09	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Acrylonitrile	2022-04	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Acrylonitrile	2022-09	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Acrylonitrile	2023-04	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Acrylonitrile	2023-09	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Aldrin	2009-03	ug/l							< 0.032	
Aldrin	2009-06	ug/l							< 0.0320	
Aldrin	2009-09	ug/l							< 0.0320	
Aldrin	2010-03	ug/l							< 0.0320	
Aldrin	2010-09	ug/l							< 0.0356	
Aldrin	2011-03	ug/l							< 0.0320	
Aldrin	2014-06	ug/L			< 0.0327					
Aldrin	2014-08	ug/L			< 0.0320				< 0.0320	

Table 13
Carroll County Landfill Western Expansion Area **Analytical Data Summary**
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Aldrin	2015-10	ug/L				< 0.032			< 0.032	< 0.032
Aldrin	2016-07	ug/L				< 0.032				< 0.032
Aldrin	2019-10	ug/L			< 0.0335	< 0.0333			< 0.0333	< 0.0333
Aldrin	2020-09	ug/L				< 0.0348			< 0.0451	~~< 0.0348~~
Allyl Chloride	2009-03	ug/l							< 2	
Allyl Chloride	2009-06	ug/l							< 2.00	
Allyl Chloride	2009-09	ug/l							< 2.00	
Allyl Chloride	2010-03	ug/l							< 2.00	
Allyl Chloride	2010-09	ug/l							< 2.00	
Allyl Chloride	2011-03	ug/l							< 10.0	
Allyl Chloride	2014-06	ug/L			< 2.00					
Allyl Chloride	2014-08	ug/L			< 2.00				< 2.00	
Allyl Chloride	2015-10	ug/L				< 2			< 2	< 2
Allyl Chloride	2016-07	ug/L				< 2				< 2
Allyl Chloride	2019-10	ug/L			< 2	< 2			< 2	< 2
Allyl Chloride	2020-04	ug/L			< 2	< 2			< 2	< 2
Allyl Chloride	2020-09	ug/L				< 2			< 2	~~< 2~~
alpha-BHC	2009-03	ug/l							< 0.032	
alpha-BHC	2009-06	ug/l							< 0.0320	
alpha-BHC	2009-09	ug/l							< 0.0320	
alpha-BHC	2010-03	ug/l							< 0.0320	
alpha-BHC	2010-09	ug/l							< 0.0356	
alpha-BHC	2011-03	ug/l							< 0.0320	
alpha-BHC	2011-09	ug/l							< 0.0320	
alpha-BHC	2012-03	ug/l							< 0.0320	
alpha-BHC	2013-03	ug/l							**0.00556 J**	
alpha-BHC	2013-09	ug/l							< 0.0333	
alpha-BHC	2014-03	ug/L							< 0.0376	
alpha-BHC	2014-06	ug/L			< 0.0327					
alpha-BHC	2014-08	ug/L			< 0.0320				< 0.0320	
alpha-BHC	2015-04	ug/L							< 0.0323	
alpha-BHC	2015-10	ug/L				< 0.032			< 0.032	< 0.032
alpha-BHC	2016-04	ug/L				< 0.0327			**0.0046 J**	< 0.0327
alpha-BHC	2016-07	ug/L				< 0.032				< 0.032
alpha-BHC	2016-10	ug/L				< 0.0327			< 0.032	< 0.0327
alpha-BHC	2017-05	ug/L				< 0.0327			< 0.0344	< 0.0327
alpha-BHC	2017-09	ug/L				< 0.0344			< 0.034	< 0.0344
alpha-BHC	2018-05	ug/L				< 0.0344			< 0.0344	< 0.0344
alpha-BHC	2018-09	ug/L				< 0.0352			< 0.0352	< 0.0352
alpha-BHC	2019-03	ug/L				< 0.0356			< 0.00546	< 0.0356
alpha-BHC	2019-10	ug/L			< 0.0335	< 0.0333			< 0.0333	< 0.0333
alpha-BHC	2020-04	ug/L				< 0.0451			< 0.0427	< 0.0451
alpha-BHC	2020-09	ug/L				< 0.0348			< 0.0451	~~< 0.0348~~
alpha-BHC	2021-04	ug/L				< 0.0364			< 0.0427	< 0.0364

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
alpha-BHC	2021-09	ug/L				< 0.04			< 0.039	< 0.04
Anthracene	2009-03	ug/l							< 10	
Anthracene	2009-06	ug/l							< 10.0	
Anthracene	2009-09	ug/l							< 10.0	
Anthracene	2010-03	ug/l							< 10.0	
Anthracene	2010-09	ug/l							< 10.0	
Anthracene	2011-03	ug/l							< 12.0	
Anthracene	2014-06	ug/L			< 10.5					
Anthracene	2014-08	ug/L			< 10.2				< 10.8	
Anthracene	2015-10	ug/L				< 10			< 10	< 10
Anthracene	2016-07	ug/L				< 10.4				< 10.4
Anthracene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Anthracene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Antimony	2008-04	mg/l							< 0.00600	
Antimony	2008-06	mg/l							< 0.00600	
Antimony	2008-08	mg/l							< 0.00600	
Antimony	2008-09	mg/l							< 0.00600	
Antimony	2009-03	mg/l							< 0.006	
Antimony	2009-06	mg/l							< 0.00600	
Antimony	2009-09	mg/l				< 0.00600			< 0.00600	< 0.00600
Antimony	2009-12	mg/l				< 0.00600				< 0.00600
Antimony	2010-03	mg/l							< 0.00600	
Antimony	2010-04	mg/l				< 0.00600				< 0.00600
Antimony	2010-06	mg/l				< 0.00600				< 0.00600
Antimony	2010-09	mg/l				**0.0101**			< 0.00600	**0.0101**
Antimony	2011-03	mg/l				< 0.00600			< 0.00600	< 0.00600
Antimony	2011-09	mg/l	< 0.00600		< 0.00600	< 0.00600			< 0.00600	< 0.00600
Antimony	2011-11	mg/l	< 0.00600		< 0.00600					
Antimony	2012-03	mg/l	< 0.00600		< 0.00600	< 0.00600			< 0.00600	< 0.00600
Antimony	2012-06	mg/l	< 0.00600		< 0.00600					
Antimony	2012-09	mg/l	< 0.00600		< 0.0120	< 0.00600			< 0.00600	< 0.00600
Antimony	2013-03	mg/l	**0.00434 J**		< 0.00600	< 0.00600			< 0.00600	< 0.00600
Antimony	2013-06	mg/l				< 0.00600				< 0.00600
Antimony	2013-09	mg/l	< 0.00600 J		< 0.00600 J	< 0.00600 J			< 0.00600 J	< 0.00600 J
Antimony	2013-11	mg/L				< 0.00600				< 0.00600
Antimony	2014-03	mg/L	< 0.00600		< 0.00600	< 0.00600			< 0.00600	< 0.00600
Antimony	2014-06	mg/L			< 0.00600	< 0.00600				< 0.00600
Antimony	2014-08	mg/L	< 0.00100		< 0.00100	< 0.00100			< 0.00100	< 0.00100
Antimony	2014-12	mg/L			< 0.00100	< 0.00100			< 0.00100	< 0.00100
Antimony	2015-04	mg/L	< 0.00100		< 0.00100	< 0.00100			< 0.00100	< 0.00100
Antimony	2015-09	mg/L			< 0.001					
Antimony	2015-10	mg/L	< 0.001			< 0.001			< 0.001	< 0.001
Antimony	2016-04	mg/L	< 0.001		< 0.001	< 0.001			< 0.001	< 0.001
Antimony	2016-07	mg/L				< 0.001				< 0.001

Table 13
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Antimony	2016-10	mg/L	< 0.001		< 0.001	< 0.001			< 0.001	< 0.001
Antimony	2017-05	mg/L	< 0.001		< 0.001	< 0.001			< 0.001	< 0.001
Antimony	2017-09	mg/L	**0.000227 J**		< 0.001	< 0.001			< 0.001	< 0.001
Antimony	2018-05	mg/L			< 0.001	< 0.001			< 0.001	< 0.001
Antimony	2018-09	mg/L	< 0.003		< 0.003	< 0.003			< 0.003	< 0.003
Antimony	2019-03	mg/L	< 0.001		< 0.001	< 0.001			< 0.001	< 0.001
Antimony	2019-10	mg/L		< 0.002	< 0.002	< 0.002		< 0.002	< 0.002	< 0.002
Antimony	2020-04	mg/L		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Antimony	2020-06	mg/L	< 0.001					< 0.001		
Antimony	2020-08	mg/L	< 0.001				**0.000803 J**	**0.000966 J**		
Antimony	2020-09	mg/L		< 0.001	< 0.001	< 0.001			< 0.001	~~< 0.001~~
Antimony	2020-12	mg/L					**0.00055 J**	**0.00162**		
Antimony	2021-02	mg/L					**0.00148 J**			
Antimony	2021-04	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Antimony	2021-09	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Antimony	2022-04	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Antimony	2022-09	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Antimony	2023-04	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Antimony	2023-09	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Arsenic	2008-04	mg/l							< 0.00100	
Arsenic	2008-06	mg/l							**0.00108**	
Arsenic	2008-08	mg/l							< 0.00200	
Arsenic	2008-09	mg/l							**0.00183**	
Arsenic	2009-03	mg/l							< 0.001	
Arsenic	2009-06	mg/l							< 0.00100	
Arsenic	2009-09	mg/l				< 0.00100			< 0.00100	< 0.00100
Arsenic	2009-12	mg/l				**0.00801**				**0.00801**
Arsenic	2010-03	mg/l							< 0.00100	
Arsenic	2010-04	mg/l				< 0.00200				< 0.00200
Arsenic	2010-06	mg/l				< 0.00100				< 0.00100
Arsenic	2010-09	mg/l				< 0.00100			< 0.00100	< 0.00100
Arsenic	2011-03	mg/l				< 0.00200			< 0.00100	< 0.00200
Arsenic	2011-09	mg/l	< 0.00400		**0.00755**	< 0.00100			< 0.00100	< 0.00100
Arsenic	2011-11	mg/l	< 0.00100		< 0.00100					
Arsenic	2012-03	mg/l	< 0.00100		**0.00142**	< 0.00100			< 0.00100	< 0.00100
Arsenic	2012-06	mg/l	< 0.00100		**0.0122**					
Arsenic	2012-09	mg/l	< 0.00100		< 0.00100	< 0.00200			< 0.00200	< 0.00200
Arsenic	2013-03	mg/l	< 0.00100		**0.00512**	**0.00146 J**			< 0.00100	**0.00146 J**
Arsenic	2013-06	mg/l				< 0.00100				< 0.00100
Arsenic	2013-09	mg/l	**0.000363 J**		**0.00384**	< 0.00100			**0.000737 J**	< 0.00100
Arsenic	2013-11	mg/L				< 0.00100				< 0.00100
Arsenic	2014-03	mg/L	< 0.00100		**0.000780 J**	< 0.00100			< 0.00100	< 0.00100
Arsenic	2014-06	mg/L			**0.00331**	< 0.00100 J				< 0.00100 J
Arsenic	2014-08	mg/L	< 0.00200		**0.00477**	< 0.00200			< 0.00200	< 0.00200

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Arsenic	2014-12	mg/L			**0.00526**	< 0.00200			< 0.00200	< 0.00200
Arsenic	2015-04	mg/L	< 0.00200		**0.0108**	< 0.00200			< 0.00200	< 0.00200
Arsenic	2015-09	mg/L			**0.00382**					
Arsenic	2015-10	mg/L	< 0.002			< 0.002			< 0.002	< 0.002
Arsenic	2016-04	mg/L	< 0.002		**0.00496**	< 0.002			< 0.002	< 0.002
Arsenic	2016-07	mg/L				< 0.002				< 0.002
Arsenic	2016-10	mg/L	< 0.002		**0.00695**	< 0.002			< 0.002	< 0.002
Arsenic	2017-05	mg/L	**0.000791 J**		**0.0059**	**0.000858 J**			**0.000656 J**	**0.000858 J**
Arsenic	2017-09	mg/L	**0.000877 J**		**0.00669**	< 0.002			< 0.002	< 0.002
Arsenic	2018-05	mg/L			**0.0063**	< 0.002			< 0.002	< 0.002
Arsenic	2018-09	mg/L	**0.00255**		**0.00696**	< 0.001			< 0.001	< 0.001
Arsenic	2019-03	mg/L	**0.000967 J**		**0.0109**	< 0.002			< 0.002	< 0.002
Arsenic	2019-10	mg/L		< 0.004	**0.00867**	< 0.004		**0.00202 J**	< 0.004	< 0.004
Arsenic	2020-04	mg/L		< 0.002	**0.00765**	< 0.002	**0.00249**	**0.00319**	< 0.002	< 0.002
Arsenic	2020-06	mg/L	< 0.002					**0.00517**		
Arsenic	2020-08	mg/L	< 0.002				**0.00211**	**0.00343**		
Arsenic	2020-09	mg/L		< 0.002	**0.0103**	< 0.002			< 0.002	~~< 0.002~~
Arsenic	2020-12	mg/L					< 0.002	< 0.002		
Arsenic	2021-02	mg/L					< 0.002			
Arsenic	2021-04	mg/L	< 0.002	**0.00126 J**	**0.0114**	< 0.002	< 0.002	**0.00213**	< 0.002	< 0.002
Arsenic	2021-09	mg/L	< 0.002	**0.00142 J**	**0.00842**	< 0.002	< 0.002	**0.00165 J**	< 0.002	< 0.002
Arsenic	2022-04	mg/L	< 0.002	**0.00142 J**	**0.0193**	< 0.002	**0.000766 J**	**0.00284**	< 0.002	< 0.002
Arsenic	2022-09	mg/L	< 0.002	**0.00411**	**0.00973**	< 0.002	< 0.002	**0.00197 J**	< 0.002	< 0.002
Arsenic	2023-04	mg/L	**0.000758 J**	**0.0026**	**0.00869**	< 0.002	**0.000989 J**	**0.00224**	< 0.002	< 0.002
Arsenic	2023-09	mg/L	**0.000769 J**	**0.00155 J**	**0.0219**	< 0.002	**0.00107 J**	**0.0011 J**	< 0.002	< 0.002
Barium	2008-04	mg/l							**0.107**	
Barium	2008-06	mg/l							**0.123**	
Barium	2008-08	mg/l							**0.273**	
Barium	2008-09	mg/l							**0.386**	
Barium	2009-03	mg/l							**0.404**	
Barium	2009-06	mg/l							**0.425**	
Barium	2009-09	mg/l				**0.487**			**0.433**	**0.487**
Barium	2009-12	mg/l				**1.05**				**1.05**
Barium	2010-03	mg/l							**0.508**	
Barium	2010-04	mg/l				**0.462**				**0.462**
Barium	2010-06	mg/l				**0.435**				**0.435**
Barium	2010-09	mg/l				**0.429**			**0.498**	**0.429**
Barium	2011-03	mg/l				**0.433**			**0.568**	**0.433**
Barium	2011-09	mg/l	**0.185**		**1.07**	**0.410**			**0.520**	**0.410**
Barium	2011-11	mg/l	**0.213**		**0.909**					
Barium	2012-03	mg/l	**0.182**		**0.921**	**0.466**			**0.576**	**0.466**
Barium	2012-06	mg/l	**0.206**		**1.34**					
Barium	2012-09	mg/l	**0.223**		**0.703**	**0.406**			**0.496**	**0.406**
Barium	2013-03	mg/l	**0.166**		**0.699**	**0.838**			**0.489**	**0.838**

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Barium	2013-06	mg/l				**0.434**				**0.434**
Barium	2013-09	mg/l	**0.222**		**0.766**	**0.423**			**0.561**	**0.423**
Barium	2013-11	mg/L				**0.487**				**0.487**
Barium	2014-03	mg/L	**0.208**		**0.711**	**0.452**			**0.522**	**0.452**
Barium	2014-06	mg/L			**0.641**	**0.435**				**0.435**
Barium	2014-08	mg/L	**0.229**		**0.674**	**0.435**			**0.570**	**0.435**
Barium	2014-12	mg/L			**0.767**	**0.423**			**0.576**	**0.423**
Barium	2015-04	mg/L	**0.220**		**0.729**	**0.430**			**0.619**	**0.430**
Barium	2015-09	mg/L			**0.864**					
Barium	2015-10	mg/L	**0.245**			**0.438**			**0.637**	**0.438**
Barium	2016-04	mg/L	**0.215**		**0.752**	**0.461**			**0.62**	**0.461**
Barium	2016-07	mg/L				**0.415**				**0.415**
Barium	2016-10	mg/L	**0.234**		**0.766**	**0.407**			**0.644**	**0.407**
Barium	2017-05	mg/L	**0.222**		**0.774**	**0.427**			**0.631**	**0.427**
Barium	2017-09	mg/L	**0.252**		**0.711**	**0.419**			**0.601**	**0.419**
Barium	2018-05	mg/L			**0.681**	**0.457**			**0.629**	**0.457**
Barium	2018-09	mg/L	**0.277**		**0.462**	**0.426**			**0.574**	**0.426**
Barium	2019-03	mg/L	**0.24**		**0.756**	**0.488**			**0.586**	**0.488**
Barium	2019-10	mg/L		**0.41**	**0.607**	**0.387**		**0.0483**	**0.571**	**0.387**
Barium	2020-04	mg/L		**0.441**	**0.697**	**0.385**	**0.0321**	**0.0351**	**0.553**	**0.385**
Barium	2020-06	mg/L	**0.243**					**0.0371**		
Barium	2020-08	mg/L	**0.278**				**0.0334**	**0.0323**		
Barium	2020-09	mg/L		**0.472**	**0.743**	**0.43**			**0.53**	~~**0.43**~~
Barium	2020-12	mg/L					**0.0275**	**0.0263**		
Barium	2021-02	mg/L					**0.0258**			
Barium	2021-04	mg/L	**0.229**	**0.528**	**0.737**	**0.43**	**0.0266**	**0.0348**	**0.682**	**0.43**
Barium	2021-09	mg/L	**0.241**	**0.505**	**0.562**	**0.37**	**0.0251**	**0.0255**	**0.503**	**0.37**
Barium	2022-04	mg/L	**0.251**	**0.555**	**0.66**	**0.426**	**0.0287**	**0.0263**	**0.599**	**0.426**
Barium	2022-09	mg/L	**0.288**	**0.616**	**0.679**	**0.427**	**0.029**	**0.0269**	**0.651**	**0.427**
Barium	2023-04	mg/L	**0.242**	**0.642**	**0.714**	**0.459**	**0.0273**	**0.0254**	**0.694**	**0.459**
Barium	2023-09	mg/L	**0.31**	**0.588**	**0.663**	**0.433**	**0.0273**	**0.024**	**0.591**	**0.433**
Benzene	2008-04	ug/l							< 0.500	
Benzene	2008-06	ug/l							< 0.500	
Benzene	2008-08	ug/l							< 0.500	
Benzene	2008-09	ug/l							< 0.500	
Benzene	2009-03	ug/l							< 0.5	
Benzene	2009-06	ug/l							< 0.500	
Benzene	2009-09	ug/l				< 0.500			< 0.500	< 0.500
Benzene	2009-12	ug/l				< 0.500				< 0.500
Benzene	2010-03	ug/l							< 0.500	
Benzene	2010-04	ug/l				< 0.500				< 0.500
Benzene	2010-06	ug/l				< 0.500				< 0.500
Benzene	2010-09	ug/l				< 0.500			< 0.500	< 0.500
Benzene	2011-03	ug/l				< 0.500			< 0.500	< 0.500

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Benzene	2011-09	ug/l	< 0.500		< 0.500	< 0.500			< 0.500	< 0.500
Benzene	2011-11	ug/l	< 0.500		< 0.500					
Benzene	2012-03	ug/l	< 0.500		< 0.500	< 0.500			< 0.500	< 0.500
Benzene	2012-06	ug/l	< 0.500		< 0.500					
Benzene	2012-09	ug/l	< 0.500		< 0.500	< 0.500			< 0.500	< 0.500
Benzene	2013-03	ug/l	< 0.500		< 0.500	< 0.500			< 0.500	< 0.500
Benzene	2013-06	ug/l			< 0.500	< 0.500			< 0.500	< 0.500
Benzene	2013-09	ug/l	< 0.500		< 0.500	< 0.500			< 0.500	< 0.500
Benzene	2013-11	ug/L				< 0.500			< 0.500	< 0.500
Benzene	2014-03	ug/L	< 0.500		< 0.500	< 0.500			< 0.500	< 0.500
Benzene	2014-06	ug/L			< 0.500	< 0.500			< 0.500	< 0.500
Benzene	2014-08	ug/L	< 0.500		< 0.500	< 0.500			< 0.500	< 0.500
Benzene	2014-12	ug/L			**0.183 J**	< 0.500			< 0.500	< 0.500
Benzene	2015-04	ug/L	< 0.500		**0.196 J**	< 0.500			< 0.500	< 0.500
Benzene	2015-09	ug/L			**0.781**					
Benzene	2015-10	ug/L	< 0.5			< 0.5			< 0.5	< 0.5
Benzene	2016-04	ug/L	< 0.5		**0.969**	< 0.5			< 0.5	< 0.5
Benzene	2016-07	ug/L				< 0.5				< 0.5
Benzene	2016-10	ug/L	< 0.5		**1.02**	< 0.5			< 0.5	< 0.5
Benzene	2017-05	ug/L	< 0.5		**0.833**	< 0.5			< 0.5	< 0.5
Benzene	2017-09	ug/L	< 0.5		**1.06**	< 0.5			< 0.5	< 0.5
Benzene	2018-05	ug/L			**0.798**	< 0.5			< 0.5	< 0.5
Benzene	2018-09	ug/L	< 0.5		**1.15**	< 0.5			< 0.5	< 0.5
Benzene	2019-03	ug/L	< 0.5		**1.13**	< 0.5			< 0.5	< 0.5
Benzene	2019-10	ug/L		< 0.5	**1.33**	< 0.5		< 0.5	< 0.5	< 0.5
Benzene	2020-04	ug/L		< 0.5	**1.25**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzene	2020-06	ug/L	< 0.5					< 0.5		
Benzene	2020-08	ug/L	< 0.5				< 0.5	< 0.5		
Benzene	2020-09	ug/L		< 0.5	**1.29**	< 0.5			< 0.5	~~< 0.5~~
Benzene	2020-12	ug/L					< 0.5	< 0.5		
Benzene	2021-02	ug/L					< 0.5			
Benzene	2021-04	ug/L	< 0.5	< 0.5	**0.994**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzene	2021-09	ug/L	< 0.5	< 0.5	**1.11**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzene	2022-04	ug/L	< 0.5	< 0.5	**0.622**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzene	2022-09	ug/L	< 0.5	< 0.5	**0.641 J+**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzene	2023-04	ug/L	< 0.5	< 0.5	**0.623**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzene	2023-09	ug/L	< 0.5	< 0.5	**1.04**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)anthracene	2009-03	ug/l							< 10	
Benzo(a)anthracene	2009-06	ug/l							< 10.0	
Benzo(a)anthracene	2009-09	ug/l							< 10.0	
Benzo(a)anthracene	2010-03	ug/l							< 10.0	
Benzo(a)anthracene	2010-09	ug/l							< 10.0	
Benzo(a)anthracene	2011-03	ug/l							< 12.0	
Benzo(a)anthracene	2014-06	ug/L			< 10.5					

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1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Benzo(a)anthracene	2014-08	ug/L			< 10.2				< 10.8	
Benzo(a)anthracene	2015-10	ug/L				< 10			< 10	< 10
Benzo(a)anthracene	2016-07	ug/L				< 10.4				< 10.4
Benzo(a)anthracene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Benzo(a)anthracene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Benzo(a)pyrene	2009-03	ug/l							< 10	
Benzo(a)pyrene	2009-06	ug/l							< 10.0	
Benzo(a)pyrene	2009-09	ug/l							< 10.0	
Benzo(a)pyrene	2010-03	ug/l							< 10.0	
Benzo(a)pyrene	2010-09	ug/l							< 10.0	
Benzo(a)pyrene	2011-03	ug/l							< 12.0	
Benzo(a)pyrene	2014-06	ug/L			< 10.5					
Benzo(a)pyrene	2014-08	ug/L			< 10.2				< 10.8	
Benzo(a)pyrene	2015-10	ug/L				< 10			< 10	< 10
Benzo(a)pyrene	2016-07	ug/L				< 10.4				< 10.4
Benzo(a)pyrene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Benzo(a)pyrene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Benzo(b)fluoranthene	2009-03	ug/l							< 10	
Benzo(b)fluoranthene	2009-06	ug/l							< 10.0	
Benzo(b)fluoranthene	2009-09	ug/l							< 10.0	
Benzo(b)fluoranthene	2010-03	ug/l							< 10.0	
Benzo(b)fluoranthene	2010-09	ug/l							< 10.0	
Benzo(b)fluoranthene	2011-03	ug/l							< 12.0	
Benzo(b)fluoranthene	2014-06	ug/L			< 10.5					
Benzo(b)fluoranthene	2014-08	ug/L			< 10.2				< 10.8	
Benzo(b)fluoranthene	2015-10	ug/L				< 10			< 10	< 10
Benzo(b)fluoranthene	2016-07	ug/L				< 10.4				< 10.4
Benzo(b)fluoranthene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Benzo(b)fluoranthene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Benzo(ghi)perylene	2009-03	ug/l							< 10	
Benzo(ghi)perylene	2009-06	ug/l							< 10.0	
Benzo(ghi)perylene	2009-09	ug/l							< 10.0	
Benzo(ghi)perylene	2010-03	ug/l							< 10.0	
Benzo(ghi)perylene	2010-09	ug/l							< 10.0	
Benzo(ghi)perylene	2011-03	ug/l							< 12.0	
Benzo(ghi)perylene	2014-06	ug/L			< 10.5					
Benzo(ghi)perylene	2014-08	ug/L			< 10.2				< 10.8	
Benzo(ghi)perylene	2015-10	ug/L				< 10			< 10	< 10
Benzo(ghi)perylene	2016-07	ug/L				< 10.4				< 10.4
Benzo(ghi)perylene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Benzo(ghi)perylene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Benzo(k)fluoranthene	2009-03	ug/l							< 10	
Benzo(k)fluoranthene	2009-06	ug/l							< 10.0	
Benzo(k)fluoranthene	2009-09	ug/l							< 10.0	

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Benzo(k)fluoranthene	2010-03	ug/l							< 10.0	
Benzo(k)fluoranthene	2010-09	ug/l							< 10.0	
Benzo(k)fluoranthene	2011-03	ug/l							< 12.0	
Benzo(k)fluoranthene	2014-06	ug/L			< 10.5					
Benzo(k)fluoranthene	2014-08	ug/L			< 10.2				< 10.8	
Benzo(k)fluoranthene	2015-10	ug/L				< 10			< 10	< 10
Benzo(k)fluoranthene	2016-07	ug/L				< 10.4				< 10.4
Benzo(k)fluoranthene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Benzo(k)fluoranthene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Benzyl Alcohol	2009-03	ug/l							< 10	
Benzyl Alcohol	2009-06	ug/l							< 10.0	
Benzyl Alcohol	2009-09	ug/l							< 10.0	
Benzyl Alcohol	2010-03	ug/l							< 10.0	
Benzyl Alcohol	2010-09	ug/l							< 10.0	
Benzyl Alcohol	2011-03	ug/l							< 12.0	
Benzyl Alcohol	2014-06	ug/L			< 10.5					
Benzyl Alcohol	2014-08	ug/L			< 10.2				< 10.8	
Benzyl Alcohol	2015-10	ug/L				< 10			< 10	< 10
Benzyl Alcohol	2016-07	ug/L				< 10.4				< 10.4
Benzyl Alcohol	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Benzyl Alcohol	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Beryllium	2008-04	mg/l							< 0.00100	
Beryllium	2008-06	mg/l							< 0.00100	
Beryllium	2008-08	mg/l							< 0.00100	
Beryllium	2008-09	mg/l							< 0.00100	
Beryllium	2009-03	mg/l							< 0.001	
Beryllium	2009-06	mg/l							< 0.00100	
Beryllium	2009-09	mg/l				**0.00112**			< 0.00100	**0.00112**
Beryllium	2009-12	mg/l				< 0.00400				< 0.00400
Beryllium	2010-03	mg/l							< 0.00100	
Beryllium	2010-04	mg/l				< 0.00100				< 0.00100
Beryllium	2010-06	mg/l				< 0.00100				< 0.00100
Beryllium	2010-09	mg/l				< 0.00100			< 0.00100	< 0.00100
Beryllium	2011-03	mg/l				< 0.00100			< 0.00100	< 0.00100
Beryllium	2011-09	mg/l	< 0.00100		< 0.00100	< 0.00100			< 0.00100	< 0.00100
Beryllium	2011-11	mg/l	< 0.00100		< 0.00100					
Beryllium	2012-03	mg/l	< 0.00100		< 0.00100	< 0.00100			< 0.00100	< 0.00100
Beryllium	2012-06	mg/l	< 0.00100		**0.00255**					
Beryllium	2012-09	mg/l	< 0.00100		< 0.00100	< 0.00100			< 0.00100	< 0.00100
Beryllium	2013-03	mg/l	< 0.00100		**0.000195 J**	**0.00348**			< 0.00100	**0.00348**
Beryllium	2013-06	mg/l				< 0.00100				< 0.00100
Beryllium	2013-09	mg/l	< 0.00100		< 0.00100	< 0.00100			< 0.00100	< 0.00100
Beryllium	2013-11	mg/L				< 0.00100				< 0.00100
Beryllium	2014-03	mg/L	< 0.00100		< 0.00100	< 0.00100			< 0.00100	< 0.00100

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1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Beryllium	2014-06	mg/L			< 0.00100	< 0.00100				< 0.00100
Beryllium	2014-08	mg/L	< 0.00100		< 0.00100	< 0.00100			< 0.00100	< 0.00100
Beryllium	2014-12	mg/L			< 0.00100	< 0.00100			< 0.00100	< 0.00100
Beryllium	2015-04	mg/L	< 0.00100		< 0.00100	< 0.00100			< 0.00100	< 0.00100
Beryllium	2015-09	mg/L			< 0.001					
Beryllium	2015-10	mg/L	< 0.001			< 0.001			< 0.001	< 0.001
Beryllium	2016-04	mg/L	< 0.001		< 0.001	< 0.001			< 0.001	< 0.001
Beryllium	2016-07	mg/L				< 0.001				< 0.001
Beryllium	2016-10	mg/L	< 0.001		< 0.001	< 0.001			< 0.001	< 0.001
Beryllium	2017-05	mg/L	< 0.001		< 0.001	< 0.001			< 0.001	< 0.001
Beryllium	2017-09	mg/L	< 0.001		< 0.001	< 0.001			< 0.001	< 0.001
Beryllium	2018-05	mg/L			< 0.001	< 0.001			< 0.001	< 0.001
Beryllium	2018-09	mg/L	< 0.001		< 0.001	< 0.001			< 0.001	< 0.001
Beryllium	2019-03	mg/L	< 0.001		< 0.001	< 0.001			< 0.001	< 0.001
Beryllium	2019-10	mg/L		< 0.002	< 0.002	< 0.002		< 0.002	< 0.002	< 0.002
Beryllium	2020-04	mg/L		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Beryllium	2020-06	mg/L	< 0.001					**0.000276 J**		
Beryllium	2020-08	mg/L	< 0.001				< 0.001	< 0.001		
Beryllium	2020-09	mg/L		< 0.001	< 0.001	< 0.001			< 0.001	~~< 0.001~~
Beryllium	2020-12	mg/L					< 0.001	< 0.001		
Beryllium	2021-02	mg/L					< 0.001			
Beryllium	2021-04	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Beryllium	2021-09	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Beryllium	2022-04	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001
Beryllium	2022-09	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Beryllium	2023-04	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Beryllium	2023-09	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
beta-BHC	2009-03	ug/l							< 0.032	
beta-BHC	2009-06	ug/l							< 0.0320	
beta-BHC	2009-09	ug/l							< 0.0320	
beta-BHC	2010-03	ug/l							< 0.0320	
beta-BHC	2010-09	ug/l							< 0.0356	
beta-BHC	2011-03	ug/l							< 0.0320	
beta-BHC	2011-09	ug/l							< 0.0320	
beta-BHC	2012-03	ug/l							< 0.0320	
beta-BHC	2013-03	ug/l							< 0.0344	
beta-BHC	2013-09	ug/l							< 0.0333	
beta-BHC	2014-03	ug/L							< 0.0376	
beta-BHC	2014-06	ug/L			< 0.0327					
beta-BHC	2014-08	ug/L			< 0.0320				< 0.0320	
beta-BHC	2015-04	ug/L							< 0.0323	
beta-BHC	2015-10	ug/L				< 0.032			< 0.032	< 0.032
beta-BHC	2016-04	ug/L				< 0.0327			< 0.032	< 0.0327
beta-BHC	2016-07	ug/L				< 0.032				< 0.032

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1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
beta-BHC	2016-10	ug/L				< 0.0327			< 0.032	< 0.0327
beta-BHC	2017-05	ug/L				< 0.0327			< 0.0344	< 0.0327
beta-BHC	2017-09	ug/L				< 0.0344			< 0.034	< 0.0344
beta-BHC	2018-05	ug/L				< 0.0344			< 0.0344	< 0.0344
beta-BHC	2018-09	ug/L				< 0.0352			< 0.0352	< 0.0352
beta-BHC	2019-03	ug/L				< 0.0356			< 0.00546	< 0.0356
beta-BHC	2019-10	ug/L			< 0.0335	< 0.0333			< 0.0333	< 0.0333
beta-BHC	2020-04	ug/L				< 0.0451			< 0.0427	< 0.0451
beta-BHC	2020-09	ug/L				< 0.0348			< 0.0451	~~< 0.0348~~
beta-BHC	2021-04	ug/L				< 0.0364			< 0.0427	< 0.0364
beta-BHC	2021-09	ug/L				< 0.04			< 0.039	< 0.04
bis(2-Chloroethoxy)methane	2009-03	ug/l							< 10	
bis(2-Chloroethoxy)methane	2009-06	ug/l							< 10.0	
bis(2-Chloroethoxy)methane	2009-09	ug/l							< 10.0	
bis(2-Chloroethoxy)methane	2010-03	ug/l							< 10.0	
bis(2-Chloroethoxy)methane	2010-09	ug/l							< 10.0	
bis(2-Chloroethoxy)methane	2011-03	ug/l							< 12.0	
bis(2-Chloroethoxy)methane	2014-06	ug/L			< 10.5					
bis(2-Chloroethoxy)methane	2014-08	ug/L			< 10.2				< 10.8	
bis(2-Chloroethoxy)methane	2015-10	ug/L				< 10			< 10	< 10
bis(2-Chloroethoxy)methane	2016-07	ug/L				< 10.4				< 10.4
bis(2-Chloroethoxy)methane	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
bis(2-Chloroethoxy)methane	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
bis(2-Chloroethyl)ether	2009-03	ug/l							< 10	
bis(2-Chloroethyl)ether	2009-06	ug/l							< 10.0	
bis(2-Chloroethyl)ether	2009-09	ug/l							< 10.0	
bis(2-Chloroethyl)ether	2010-03	ug/l							< 10.0	
bis(2-Chloroethyl)ether	2010-09	ug/l							< 10.0	
bis(2-Chloroethyl)ether	2011-03	ug/l							< 12.0	
bis(2-Chloroethyl)ether	2014-06	ug/L			< 10.5					
bis(2-Chloroethyl)ether	2014-08	ug/L			< 10.2				< 10.8	
bis(2-Chloroethyl)ether	2015-10	ug/L				< 10			< 10	< 10
bis(2-Chloroethyl)ether	2016-07	ug/L				< 10.4				< 10.4
bis(2-Chloroethyl)ether	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
bis(2-Chloroethyl)ether	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
bis(2-Ethylhexyl)phthalate	2009-03	ug/l							< 10	
bis(2-Ethylhexyl)phthalate	2009-06	ug/l							< 10.0	
bis(2-Ethylhexyl)phthalate	2009-09	ug/l							< 10.0	
bis(2-Ethylhexyl)phthalate	2010-03	ug/l							< 10.0	
bis(2-Ethylhexyl)phthalate	2010-09	ug/l							< 10.0	
bis(2-Ethylhexyl)phthalate	2011-03	ug/l							< 12.0	
bis(2-Ethylhexyl)phthalate	2011-09	ug/l							< 10.0	
bis(2-Ethylhexyl)phthalate	2012-03	ug/l							< 10.0	
bis(2-Ethylhexyl)phthalate	2013-03	ug/l							< 12.3 J	

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
bis(2-Ethylhexyl)phthalate	2013-09	ug/l							< 10.1	
bis(2-Ethylhexyl)phthalate	2014-03	ug/L							< 11.0	
bis(2-Ethylhexyl)phthalate	2014-06	ug/L			< 10.5					
bis(2-Ethylhexyl)phthalate	2014-08	ug/L			< 10.2				< 10.8	
bis(2-Ethylhexyl)phthalate	2015-04	ug/L							< 10.2	
bis(2-Ethylhexyl)phthalate	2015-10	ug/L				< 10			< 10	< 10
bis(2-Ethylhexyl)phthalate	2016-04	ug/L				< 10.3 J			< 10 J	< 10.3 J
bis(2-Ethylhexyl)phthalate	2016-07	ug/L				< 10.4				< 10.4
bis(2-Ethylhexyl)phthalate	2016-10	ug/L				< 10.2			< 10.2	< 10.2
bis(2-Ethylhexyl)phthalate	2017-05	ug/L				< 10.2			< 10.4	< 10.2
bis(2-Ethylhexyl)phthalate	2017-09	ug/L				< 10			< 10.9	< 10
bis(2-Ethylhexyl)phthalate	2018-05	ug/L				< 11.1			< 10.9	< 11.1
bis(2-Ethylhexyl)phthalate	2018-09	ug/L				< 11.4			< 11.1	< 11.4
bis(2-Ethylhexyl)phthalate	2019-03	ug/L				< 10.9			< 11.6	< 10.9
bis(2-Ethylhexyl)phthalate	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
bis(2-Ethylhexyl)phthalate	2020-04	ug/L				< 12.2			< 10.5	< 12.2
bis(2-Ethylhexyl)phthalate	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
bis(2-Ethylhexyl)phthalate	2021-04	ug/L				< 10.8			< 13.5	< 10.8
bis(2-Ethylhexyl)phthalate	2021-09	ug/L				< 12.3			< 12.2	< 12.3
Bromochloromethane	2008-04	ug/l							< 5.00	
Bromochloromethane	2008-06	ug/l							< 5.00	
Bromochloromethane	2008-08	ug/l							< 5.00	
Bromochloromethane	2008-09	ug/l							< 5.00	
Bromochloromethane	2009-03	ug/l							< 5	
Bromochloromethane	2009-06	ug/l							< 5.00	
Bromochloromethane	2009-09	ug/l				< 5.00			< 5.00	< 5.00
Bromochloromethane	2009-12	ug/l				< 5.00				< 5.00
Bromochloromethane	2010-03	ug/l							< 5.00	
Bromochloromethane	2010-04	ug/l				< 5.00				< 5.00
Bromochloromethane	2010-06	ug/l				< 5.00				< 5.00
Bromochloromethane	2010-09	ug/l				< 5.00			< 5.00	< 5.00
Bromochloromethane	2011-03	ug/l				< 5.00			< 5.00	< 5.00
Bromochloromethane	2011-09	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Bromochloromethane	2011-11	ug/l	< 5.00		< 5.00					
Bromochloromethane	2012-03	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Bromochloromethane	2012-06	ug/l	< 5.00		< 5.00					
Bromochloromethane	2012-09	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Bromochloromethane	2013-03	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Bromochloromethane	2013-06	ug/l			< 5.00	< 5.00			< 5.00	< 5.00
Bromochloromethane	2013-09	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Bromochloromethane	2013-11	ug/L				< 5.00			< 5.00	< 5.00
Bromochloromethane	2014-03	ug/L	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Bromochloromethane	2014-06	ug/L			< 5.00	< 5.00			< 5.00	< 5.00
Bromochloromethane	2014-08	ug/L	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Bromochloromethane	2014-12	ug/L			< 5.00	< 5.00			< 5.00	< 5.00
Bromochloromethane	2015-04	ug/L	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Bromochloromethane	2015-09	ug/L			< 5					
Bromochloromethane	2015-10	ug/L	< 5			< 5			< 5	< 5
Bromochloromethane	2016-04	ug/L	< 5		< 5	< 5			< 5	< 5
Bromochloromethane	2016-07	ug/L				< 5				< 5
Bromochloromethane	2016-10	ug/L	< 5		< 5	< 5			< 5	< 5
Bromochloromethane	2017-05	ug/L	< 5		< 5	< 5			< 5	< 5
Bromochloromethane	2017-09	ug/L	< 5		< 5	< 5			< 5	< 5
Bromochloromethane	2018-05	ug/L			< 5	< 5			< 5	< 5
Bromochloromethane	2018-09	ug/L	< 5		< 5	< 5			< 5	< 5
Bromochloromethane	2019-03	ug/L	< 5		< 5	< 5			< 5	< 5
Bromochloromethane	2019-10	ug/L		< 5	< 5	< 5		< 5	< 5	< 5
Bromochloromethane	2020-04	ug/L		< 5	< 5	< 5	< 5	< 5	< 5	< 5
Bromochloromethane	2020-06	ug/L	< 5					< 5		
Bromochloromethane	2020-08	ug/L	< 5				< 5	< 5		
Bromochloromethane	2020-09	ug/L		< 5	< 5	< 5			< 5	~~< 5~~
Bromochloromethane	2020-12	ug/L					< 5	< 5		
Bromochloromethane	2021-02	ug/L					< 5			
Bromochloromethane	2021-04	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Bromochloromethane	2021-09	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Bromochloromethane	2022-04	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Bromochloromethane	2022-09	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Bromochloromethane	2023-04	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Bromochloromethane	2023-09	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Bromodichloromethane	2008-04	ug/l							< 1.00	
Bromodichloromethane	2008-06	ug/l							< 1.00	
Bromodichloromethane	2008-08	ug/l							< 1.00	
Bromodichloromethane	2008-09	ug/l							< 1.00	
Bromodichloromethane	2009-03	ug/l							< 1	
Bromodichloromethane	2009-06	ug/l							< 1.00	
Bromodichloromethane	2009-09	ug/l				< 1.00			< 1.00	< 1.00
Bromodichloromethane	2009-12	ug/l				< 1.00				< 1.00
Bromodichloromethane	2010-03	ug/l							< 10.0	
Bromodichloromethane	2010-04	ug/l				< 10.0				< 10.0
Bromodichloromethane	2010-06	ug/l				< 5.00				< 5.00
Bromodichloromethane	2010-09	ug/l				< 1.00			< 1.00	< 1.00
Bromodichloromethane	2011-03	ug/l				< 1.00			< 1.00	< 1.00
Bromodichloromethane	2011-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Bromodichloromethane	2011-11	ug/l	< 1.00		< 1.00					
Bromodichloromethane	2012-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Bromodichloromethane	2012-06	ug/l	< 1.00		< 1.00					
Bromodichloromethane	2012-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Bromodichloromethane	2013-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00

Carroll County Landfill Western Expansion Area
Permit No. 14-SDP-01-74P

Table 13
Analytical Data Summary
2023 Annual Water Quality Report

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Bromodichloromethane	2013-06	ug/l			< 1.00	< 1.00			< 1.00	< 1.00
Bromodichloromethane	2013-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Bromodichloromethane	2013-11	ug/L				< 1.00			< 1.00	< 1.00
Bromodichloromethane	2014-03	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Bromodichloromethane	2014-06	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
Bromodichloromethane	2014-08	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Bromodichloromethane	2014-12	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
Bromodichloromethane	2015-04	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Bromodichloromethane	2015-09	ug/L			< 1					
Bromodichloromethane	2015-10	ug/L	< 1			< 1			< 1	< 1
Bromodichloromethane	2016-04	ug/L	< 1		< 1	< 1			< 1	< 1
Bromodichloromethane	2016-07	ug/L				< 1				< 1
Bromodichloromethane	2016-10	ug/L	< 1		< 1	< 1			< 1	< 1
Bromodichloromethane	2017-05	ug/L	< 1		< 1	< 1			< 1	< 1
Bromodichloromethane	2017-09	ug/L	< 1		< 1	< 1			< 1	< 1
Bromodichloromethane	2018-05	ug/L			< 1	< 1			< 1	< 1
Bromodichloromethane	2018-09	ug/L	< 1		< 1	< 1			< 1	< 1
Bromodichloromethane	2019-03	ug/L	< 1		< 1	< 1			< 1	< 1
Bromodichloromethane	2019-10	ug/L		< 1	< 1	< 1		< 1	< 1	< 1
Bromodichloromethane	2020-04	ug/L		< 1	< 1	< 1	< 1	< 1	< 1	< 1
Bromodichloromethane	2020-06	ug/L	< 1					< 1		
Bromodichloromethane	2020-08	ug/L	< 1				< 1	< 1		
Bromodichloromethane	2020-09	ug/L		< 1	< 1	< 1			< 1	~~< 1~~
Bromodichloromethane	2020-12	ug/L					< 1	< 1		
Bromodichloromethane	2021-02	ug/L					< 1			
Bromodichloromethane	2021-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Bromodichloromethane	2021-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Bromodichloromethane	2022-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Bromodichloromethane	2022-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Bromodichloromethane	2023-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Bromodichloromethane	2023-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Bromoform	2008-04	ug/l							< 5.00	
Bromoform	2008-06	ug/l							< 5.00	
Bromoform	2008-08	ug/l							< 5.00	
Bromoform	2008-09	ug/l							< 5.00	
Bromoform	2009-03	ug/l							< 5	
Bromoform	2009-06	ug/l							< 5.00	
Bromoform	2009-09	ug/l				< 5.00			< 5.00	< 5.00
Bromoform	2009-12	ug/l				< 20.0				< 20.0
Bromoform	2010-03	ug/l							< 50.0	
Bromoform	2010-04	ug/l				< 50.0				< 50.0
Bromoform	2010-06	ug/l				< 5.00				< 5.00
Bromoform	2010-09	ug/l				< 5.00			< 5.00	< 5.00
Bromoform	2011-03	ug/l				< 5.00			< 5.00	< 5.00

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Bromoform	2011-09	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Bromoform	2011-11	ug/l	< 5.00		< 5.00					
Bromoform	2012-03	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Bromoform	2012-06	ug/l	< 5.00		< 5.00					
Bromoform	2012-09	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Bromoform	2013-03	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Bromoform	2013-06	ug/l			< 5.00	< 5.00			< 5.00	< 5.00
Bromoform	2013-09	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Bromoform	2013-11	ug/L				< 5.00			< 5.00	< 5.00
Bromoform	2014-03	ug/L	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Bromoform	2014-06	ug/L			< 5.00	< 5.00			< 5.00	< 5.00
Bromoform	2014-08	ug/L	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Bromoform	2014-12	ug/L			< 5.00	< 5.00			< 5.00	< 5.00
Bromoform	2015-04	ug/L	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Bromoform	2015-09	ug/L			< 5					
Bromoform	2015-10	ug/L	< 5			< 5			< 5	< 5
Bromoform	2016-04	ug/L	< 5		< 5	< 5			< 5	< 5
Bromoform	2016-07	ug/L				< 5				< 5
Bromoform	2016-10	ug/L	< 5		< 5	< 5			< 5	< 5
Bromoform	2017-05	ug/L	< 5		< 5	< 5			< 5	< 5
Bromoform	2017-09	ug/L	< 5		< 5	< 5			< 5	< 5
Bromoform	2018-05	ug/L			< 5	< 5			< 5	< 5
Bromoform	2018-09	ug/L	< 5		< 5	< 5			< 5	< 5
Bromoform	2019-03	ug/L	< 5		< 5	< 5			< 5	< 5
Bromoform	2019-10	ug/L		< 5	< 5	< 5		< 5	< 5	< 5
Bromoform	2020-04	ug/L		< 5	< 5	< 5	< 5	< 5	< 5	< 5
Bromoform	2020-06	ug/L	< 5					< 5		
Bromoform	2020-08	ug/L	< 5				< 5	< 5		
Bromoform	2020-09	ug/L		< 5	< 5	< 5			< 5	~~< 5~~
Bromoform	2020-12	ug/L					< 5	< 5		
Bromoform	2021-02	ug/L					< 5			
Bromoform	2021-04	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Bromoform	2021-09	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Bromoform	2022-04	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Bromoform	2022-09	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Bromoform	2023-04	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Bromoform	2023-09	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Bromomethane	2008-04	ug/l							< 4.00	
Bromomethane	2008-06	ug/l							< 4.00	
Bromomethane	2008-08	ug/l							< 4.00	
Bromomethane	2008-09	ug/l							< 4.00	
Bromomethane	2009-03	ug/l							< 4	
Bromomethane	2009-06	ug/l							< 4.00	
Bromomethane	2009-09	ug/l				< 4.00			< 4.00	< 4.00

Table 13
Carroll County Landfill Western Expansion Area **Analytical Data Summary**
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Bromomethane	2009-12	ug/l				< 4.00				< 4.00
Bromomethane	2010-03	ug/l							< 4.00	
Bromomethane	2010-04	ug/l				< 4.00				< 4.00
Bromomethane	2010-06	ug/l				< 4.00				< 4.00
Bromomethane	2010-09	ug/l				< 4.00			< 4.00	< 4.00
Bromomethane	2011-03	ug/l				< 5.00			< 5.00	< 5.00
Bromomethane	2011-09	ug/l	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Bromomethane	2011-11	ug/l	< 4.00		< 4.00					
Bromomethane	2012-03	ug/l	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Bromomethane	2012-06	ug/l	< 4.00		< 4.00					
Bromomethane	2012-09	ug/l	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Bromomethane	2013-03	ug/l	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Bromomethane	2013-06	ug/l			< 4.00	< 4.00			< 4.00	< 4.00
Bromomethane	2013-09	ug/l	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Bromomethane	2013-11	ug/L				< 4.00			< 4.00	< 4.00
Bromomethane	2014-03	ug/L	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Bromomethane	2014-06	ug/L			< 4.00	< 4.00			< 4.00	< 4.00
Bromomethane	2014-08	ug/L	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Bromomethane	2014-12	ug/L			< 4.00	< 4.00			< 4.00	< 4.00
Bromomethane	2015-04	ug/L	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Bromomethane	2015-09	ug/L			< 4					
Bromomethane	2015-10	ug/L	< 4			< 4			< 4	< 4
Bromomethane	2016-04	ug/L	< 4		< 4	< 4			< 4	< 4
Bromomethane	2016-07	ug/L				< 4				< 4
Bromomethane	2016-10	ug/L	< 4		< 4	< 4			< 4	< 4
Bromomethane	2017-05	ug/L	< 4		< 4	< 4			< 4	< 4
Bromomethane	2017-09	ug/L	< 4		< 4	< 4			< 4	< 4
Bromomethane	2018-05	ug/L			< 4	< 4			< 4	< 4
Bromomethane	2018-09	ug/L	< 4		< 4	< 4			< 4	< 4
Bromomethane	2019-03	ug/L	< 4		< 4	< 4			< 4	< 4
Bromomethane	2019-10	ug/L		< 4	< 4	< 4		< 4	< 4	< 4
Bromomethane	2020-04	ug/L		< 4	< 4	< 4	< 4	< 4	< 4	< 4
Bromomethane	2020-06	ug/L	< 4					< 4		
Bromomethane	2020-08	ug/L	< 4				< 4	< 4		
Bromomethane	2020-09	ug/L		< 4	< 4	< 4			< 4	~~< 4~~
Bromomethane	2020-12	ug/L					< 4	< 4		
Bromomethane	2021-02	ug/L					< 4			
Bromomethane	2021-04	ug/L	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
Bromomethane	2021-09	ug/L	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
Bromomethane	2022-04	ug/L	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
Bromomethane	2022-09	ug/L	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
Bromomethane	2023-04	ug/L	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
Bromomethane	2023-09	ug/L	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
Butylbenzylphthalate	2009-03	ug/l							< 10	

Table 13
Carroll County Landfill Western Expansion Area **Analytical Data Summary**
Permit No. 14-SDP-01-74P **2023 Annual Water Quality Report**

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Butylbenzylphthalate	2009-06	ug/l							< 10.0	
Butylbenzylphthalate	2009-09	ug/l							< 10.0	
Butylbenzylphthalate	2010-03	ug/l							< 10.0	
Butylbenzylphthalate	2010-09	ug/l							< 10.0	
Butylbenzylphthalate	2011-03	ug/l							< 12.0	
Butylbenzylphthalate	2014-06	ug/L			< 10.5					
Butylbenzylphthalate	2014-08	ug/L			< 10.2				< 10.8	
Butylbenzylphthalate	2015-10	ug/L				< 10			< 10	< 10
Butylbenzylphthalate	2016-07	ug/L				< 10.4				< 10.4
Butylbenzylphthalate	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Butylbenzylphthalate	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Cadmium	2008-04	mg/l							< 0.000500	
Cadmium	2008-06	mg/l							< 0.000500	
Cadmium	2008-08	mg/l							< 0.000500	
Cadmium	2008-09	mg/l							< 0.000500	
Cadmium	2009-03	mg/l							< 0.0005	
Cadmium	2009-06	mg/l							< 0.000500	
Cadmium	2009-09	mg/l				**0.000556**			< 0.000500	**0.000556**
Cadmium	2009-12	mg/l				**0.00170**				**0.00170**
Cadmium	2010-03	mg/l							< 0.000500	
Cadmium	2010-04	mg/l				< 0.000500				< 0.000500
Cadmium	2010-06	mg/l				< 0.000500				< 0.000500
Cadmium	2010-09	mg/l				< 0.000500			< 0.000500	< 0.000500
Cadmium	2011-03	mg/l				< 0.000500			< 0.000500	< 0.000500
Cadmium	2011-09	mg/l	< 0.000500		< 0.000500	< 0.000500			< 0.000500	< 0.000500
Cadmium	2011-11	mg/l	< 0.000500		< 0.000500					
Cadmium	2012-03	mg/l	< 0.000500		< 0.000500	< 0.000500			< 0.000500	< 0.000500
Cadmium	2012-06	mg/l	< 0.000500		**0.00286**					
Cadmium	2012-09	mg/l	< 0.000500		< 0.000500	< 0.000500			< 0.000500	< 0.000500
Cadmium	2013-03	mg/l	< 0.000500		**0.000313 J**	**0.00179**			< 0.000500	**0.00179**
Cadmium	2013-06	mg/l				**0.000216 J**				**0.000216 J**
Cadmium	2013-09	mg/l	< 0.000500		< 0.000500	< 0.000500			< 0.000500	< 0.000500
Cadmium	2013-11	mg/L				**0.000133 J**				**0.000133 J**
Cadmium	2014-03	mg/L	< 0.000500		< 0.000500	**0.000132 J**			< 0.000500	**0.000132 J**
Cadmium	2014-06	mg/L			**0.000149 J**	**0.000111 J**				**0.000111 J**
Cadmium	2014-08	mg/L	< 0.000500		**0.000173 J**	**0.000224 J**			< 0.000500	**0.000224 J**
Cadmium	2014-12	mg/L			**0.000145 J**	**0.000193 J**			< 0.000500	**0.000193 J**
Cadmium	2015-04	mg/L	< 0.000500		< 0.000500	**0.000121 J**			< 0.000500	**0.000121 J**
Cadmium	2015-09	mg/L			**0.000289 J**					
Cadmium	2015-10	mg/L	< 0.0005			**0.000122 J**			< 0.0005	**0.000122 J**
Cadmium	2016-04	mg/L	**0.000052 J**		< 0.0005	**0.000118 J**			< 0.0005	**0.000118 J**
Cadmium	2016-07	mg/L				**0.000152 J**				**0.000152 J**
Cadmium	2016-10	mg/L	< 0.0005		< 0.0005	**0.000184 J**			< 0.0005	**0.000184 J**
Cadmium	2017-05	mg/L	< 0.0005		< 0.0005	**0.000139 J**			< 0.0005	**0.000139 J**

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Cadmium	2017-09	mg/L	< 0.0005		< 0.0005	**0.000226 J**			< 0.0005	**0.000226 J**
Cadmium	2018-05	mg/L			< 0.0005	**0.000232 J**			< 0.0005	**0.000232 J**
Cadmium	2018-09	mg/L	**0.000205 J**		< 0.0005	**0.000296 J**			< 0.0005	**0.000296 J**
Cadmium	2019-03	mg/L	< 0.0005		< 0.0005	**0.000218 J**			< 0.0005	**0.000218 J**
Cadmium	2019-10	mg/L		**0.000109**	< 0.0001	**0.000404**		< 0.0001	< 0.0001	**0.000404**
Cadmium	2020-04	mg/L		**0.000113**	< 0.0001	**0.000075 J**	**0.000133**	< 0.0001	< 0.0001	**0.000075 J**
Cadmium	2020-06	mg/L	< 0.0001					**0.000115**		
Cadmium	2020-08	mg/L	< 0.0001				**0.000383**	**0.000223**		
Cadmium	2020-09	mg/L		**0.000117**	< 0.0001	**0.000208**			< 0.0001	~~**0.000208**~~
Cadmium	2020-12	mg/L					**0.00018**	**0.000115**		
Cadmium	2021-02	mg/L					**0.000171**			
Cadmium	2021-04	mg/L	< 0.0001	< 0.0001	< 0.0001	**0.000143**	**0.000222**	**0.000065 J**	< 0.0001	**0.000143**
Cadmium	2021-09	mg/L	< 0.0001	< 0.0001	< 0.0001	**0.000256**	**0.000089 J**	**0.000051 J**	< 0.0001	**0.000256**
Cadmium	2022-04	mg/L	< 0.0001	< 0.0001	< 0.0001	**0.000196**	< 0.0001	< 0.001	< 0.0001	**0.000196**
Cadmium	2022-09	mg/L	< 0.0001	< 0.0001	< 0.0001	**0.000524**	**0.000076 J**	< 0.0001	< 0.0001	**0.000524**
Cadmium	2023-04	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Cadmium	2023-09	mg/L	< 0.0002	< 0.0002	< 0.0002	**0.000473**	< 0.0002	< 0.0002	< 0.0002	**0.000473**
Carbon Disulfide	2008-04	ug/l							< 1.00	
Carbon Disulfide	2008-06	ug/l							< 1.00	
Carbon Disulfide	2008-08	ug/l							< 1.00	
Carbon Disulfide	2008-09	ug/l							< 1.00	
Carbon Disulfide	2009-03	ug/l							< 1	
Carbon Disulfide	2009-06	ug/l							< 1.00	
Carbon Disulfide	2009-09	ug/l				< 1.00			< 1.00	< 1.00
Carbon Disulfide	2009-12	ug/l				< 1.00				< 1.00
Carbon Disulfide	2010-03	ug/l							< 1.00	
Carbon Disulfide	2010-04	ug/l				< 1.00				< 1.00
Carbon Disulfide	2010-06	ug/l				< 5.00				< 5.00
Carbon Disulfide	2010-09	ug/l				< 4.00			< 4.00	< 4.00
Carbon Disulfide	2011-03	ug/l				< 1.00			< 1.00	< 1.00
Carbon Disulfide	2011-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Carbon Disulfide	2011-11	ug/l	< 1.00		< 1.00					
Carbon Disulfide	2012-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Carbon Disulfide	2012-06	ug/l	< 1.00		< 1.00					
Carbon Disulfide	2012-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Carbon Disulfide	2013-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Carbon Disulfide	2013-06	ug/l			< 1.00	< 1.00			< 1.00	< 1.00
Carbon Disulfide	2013-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Carbon Disulfide	2013-11	ug/L				< 1.00			< 1.00	< 1.00
Carbon Disulfide	2014-03	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Carbon Disulfide	2014-06	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
Carbon Disulfide	2014-08	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Carbon Disulfide	2014-12	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
Carbon Disulfide	2015-04	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Carbon Disulfide	2015-09	ug/L			< 1					
Carbon Disulfide	2015-10	ug/L	< 1			< 1			< 1	< 1
Carbon Disulfide	2016-04	ug/L	< 1		< 1	< 1			< 1	< 1
Carbon Disulfide	2016-07	ug/L				< 1				< 1
Carbon Disulfide	2016-10	ug/L	< 1		< 1	< 1			< 1	< 1
Carbon Disulfide	2017-05	ug/L	< 1		< 1	< 1			< 1	< 1
Carbon Disulfide	2017-09	ug/L	< 1		< 1	< 1			< 1	< 1
Carbon Disulfide	2018-05	ug/L			< 1	< 1			< 1	< 1
Carbon Disulfide	2018-09	ug/L	< 1		< 1	< 1			< 1	< 1
Carbon Disulfide	2019-03	ug/L	< 1		< 1	< 1			< 1	< 1
Carbon Disulfide	2019-10	ug/L		< 1	< 1	< 1		< 1	< 1	< 1
Carbon Disulfide	2020-04	ug/L		< 1	< 1	< 1	< 1	< 1	< 1	< 1
Carbon Disulfide	2020-06	ug/L	< 1					< 1		
Carbon Disulfide	2020-08	ug/L	< 1				< 1	< 1		
Carbon Disulfide	2020-09	ug/L		< 1	< 1	< 1			< 1	~~< 1~~
Carbon Disulfide	2020-12	ug/L					< 1	< 1		
Carbon Disulfide	2021-02	ug/L					< 1			
Carbon Disulfide	2021-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Carbon Disulfide	2021-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Carbon Disulfide	2022-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Carbon Disulfide	2022-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Carbon Disulfide	2023-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Carbon Disulfide	2023-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Carbon Tetrachloride	2008-04	ug/l							< 2.00	
Carbon Tetrachloride	2008-06	ug/l							< 2.00	
Carbon Tetrachloride	2008-08	ug/l							< 2.00	
Carbon Tetrachloride	2008-09	ug/l							< 2.00	
Carbon Tetrachloride	2009-03	ug/l							< 2	
Carbon Tetrachloride	2009-06	ug/l							< 2.00	
Carbon Tetrachloride	2009-09	ug/l							< 2.00	
Carbon Tetrachloride	2009-12	ug/l				< 2.00				< 2.00
Carbon Tetrachloride	2010-03	ug/l							< 4.00	
Carbon Tetrachloride	2010-04	ug/l				< 4.00				< 4.00
Carbon Tetrachloride	2010-06	ug/l				< 4.00				< 4.00
Carbon Tetrachloride	2010-09	ug/l				< 5.00			< 5.00	< 5.00
Carbon Tetrachloride	2011-03	ug/l				< 2.00			< 2.00	< 2.00
Carbon Tetrachloride	2011-09	ug/l	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Carbon Tetrachloride	2011-11	ug/l	< 2.00		< 2.00					
Carbon Tetrachloride	2012-03	ug/l	< 2.00		< 2.00	< 2.00			< 2.00	< 2.00
Carbon Tetrachloride	2012-06	ug/l	< 2.00		< 2.00					
Carbon Tetrachloride	2012-09	ug/l	< 2.00		< 2.00	< 2.00			< 2.00	< 2.00
Carbon Tetrachloride	2013-03	ug/l	< 2.00		< 2.00	< 2.00			< 2.00	< 2.00
Carbon Tetrachloride	2013-06	ug/l			< 2.00	< 2.00			< 2.00	< 2.00
Carbon Tetrachloride	2013-09	ug/l	< 2.00		< 2.00	< 2.00			< 2.00	< 2.00

Carroll County Landfill Western Expansion Area
Permit No. 14-SDP-01-74P

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Carbon Tetrachloride	2013-11	ug/L				< 2.00			< 2.00	< 2.00
Carbon Tetrachloride	2014-03	ug/L	< 2.00		< 2.00	< 2.00			< 2.00	< 2.00
Carbon Tetrachloride	2014-06	ug/L			< 2.00	< 2.00			< 2.00	< 2.00
Carbon Tetrachloride	2014-08	ug/L	< 2.00		< 2.00	< 2.00			< 2.00	< 2.00
Carbon Tetrachloride	2014-12	ug/L			< 2.00	< 2.00			< 2.00	< 2.00
Carbon Tetrachloride	2015-04	ug/L	< 2.00		< 2.00	< 2.00			< 2.00	< 2.00
Carbon Tetrachloride	2015-09	ug/L			< 2					
Carbon Tetrachloride	2015-10	ug/L	< 2			< 2			< 2	< 2
Carbon Tetrachloride	2016-04	ug/L	< 2		< 2	< 2			< 2	< 2
Carbon Tetrachloride	2016-07	ug/L				< 2				< 2
Carbon Tetrachloride	2016-10	ug/L	< 2		< 2	< 2			< 2	< 2
Carbon Tetrachloride	2017-05	ug/L	< 2		< 2	< 2			< 2	< 2
Carbon Tetrachloride	2017-09	ug/L	< 2		< 2	< 2			< 2	< 2
Carbon Tetrachloride	2018-05	ug/L			< 2	< 2			< 2	< 2
Carbon Tetrachloride	2018-09	ug/L	< 2		< 2	< 2			< 2	< 2
Carbon Tetrachloride	2019-03	ug/L	< 2		< 2	< 2			< 2	< 2
Carbon Tetrachloride	2019-10	ug/L		< 2	< 2	< 2		< 2	< 2	< 2
Carbon Tetrachloride	2020-04	ug/L		< 2	< 2	< 2	< 2	< 2	< 2	< 2
Carbon Tetrachloride	2020-06	ug/L	< 2					< 2		
Carbon Tetrachloride	2020-08	ug/L	< 2				< 2	< 2		
Carbon Tetrachloride	2020-09	ug/L		< 2	< 2	< 2			< 2	~~< 2~~
Carbon Tetrachloride	2020-12	ug/L					< 2	< 2		
Carbon Tetrachloride	2021-02	ug/L					< 2			
Carbon Tetrachloride	2021-04	ug/L	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Carbon Tetrachloride	2021-09	ug/L	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Carbon Tetrachloride	2022-04	ug/L	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Carbon Tetrachloride	2022-09	ug/L	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Carbon Tetrachloride	2023-04	ug/L	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Carbon Tetrachloride	2023-09	ug/L	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Chlorobenzene	2008-04	ug/l							< 1.00	
Chlorobenzene	2008-06	ug/l							< 1.00	
Chlorobenzene	2008-08	ug/l							< 1.00	
Chlorobenzene	2008-09	ug/l							< 1.00	
Chlorobenzene	2009-03	ug/l							< 1	
Chlorobenzene	2009-06	ug/l							< 1.00	
Chlorobenzene	2009-09	ug/l				< 1.00			< 1.00	< 1.00
Chlorobenzene	2009-12	ug/l				< 1.00				< 1.00
Chlorobenzene	2010-03	ug/l							< 1.00	
Chlorobenzene	2010-04	ug/l				< 1.00				< 1.00
Chlorobenzene	2010-06	ug/l				< 1.00				< 1.00
Chlorobenzene	2010-09	ug/l				< 1.00			< 1.00	< 1.00
Chlorobenzene	2011-03	ug/l				< 1.00			< 1.00	< 1.00
Chlorobenzene	2011-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Chlorobenzene	2011-11	ug/l	< 1.00		< 1.00					

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1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Chlorobenzene	2012-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Chlorobenzene	2012-06	ug/l	< 1.00		< 1.00					
Chlorobenzene	2012-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Chlorobenzene	2013-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Chlorobenzene	2013-06	ug/l			< 1.00	< 1.00			< 1.00	< 1.00
Chlorobenzene	2013-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Chlorobenzene	2013-11	ug/L				< 1.00			< 1.00	< 1.00
Chlorobenzene	2014-03	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Chlorobenzene	2014-06	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
Chlorobenzene	2014-08	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Chlorobenzene	2014-12	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
Chlorobenzene	2015-04	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Chlorobenzene	2015-09	ug/L			< 1					
Chlorobenzene	2015-10	ug/L	< 1			< 1			< 1	< 1
Chlorobenzene	2016-04	ug/L	< 1		< 1	< 1			< 1	< 1
Chlorobenzene	2016-07	ug/L				< 1				< 1
Chlorobenzene	2016-10	ug/L	< 1		< 1	< 1			< 1	< 1
Chlorobenzene	2017-05	ug/L	< 1		< 1	< 1			< 1	< 1
Chlorobenzene	2017-09	ug/L	< 1		< 1	< 1			< 1	< 1
Chlorobenzene	2018-05	ug/L			< 1	< 1			< 1	< 1
Chlorobenzene	2018-09	ug/L	< 1		< 1	< 1			< 1	< 1
Chlorobenzene	2019-03	ug/L	< 1		< 1	< 1			< 1	< 1
Chlorobenzene	2019-10	ug/L		< 1	< 1	< 1		< 1	< 1	< 1
Chlorobenzene	2020-04	ug/L		< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chlorobenzene	2020-06	ug/L	< 1					< 1		
Chlorobenzene	2020-08	ug/L	< 1				< 1	< 1		
Chlorobenzene	2020-09	ug/L		< 1	< 1	< 1			< 1	~~< 1~~
Chlorobenzene	2020-12	ug/L					< 1	< 1		
Chlorobenzene	2021-02	ug/L					< 1			
Chlorobenzene	2021-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chlorobenzene	2021-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chlorobenzene	2022-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chlorobenzene	2022-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chlorobenzene	2023-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chlorobenzene	2023-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chlorobenzilate	2009-03	ug/l							< 10	
Chlorobenzilate	2009-06	ug/l							< 10.0	
Chlorobenzilate	2009-09	ug/l							< 10.0	
Chlorobenzilate	2010-03	ug/l							< 10.0	
Chlorobenzilate	2010-09	ug/l							< 10.0	
Chlorobenzilate	2011-03	ug/l							< 12.0	
Chlorobenzilate	2014-06	ug/L			< 10.5					
Chlorobenzilate	2014-08	ug/L			< 10.2				< 10.8	
Chlorobenzilate	2015-10	ug/L				< 10			< 10	< 10

Table 13
Carroll County Landfill Western Expansion Area **Analytical Data Summary**
Permit No. 14-SDP-01-74P **2023 Annual Water Quality Report**

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Chlorobenzilate	2016-07	ug/L				< 10.4				< 10.4
Chlorobenzilate	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Chlorobenzilate	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Chlorodibromomethane	2008-04	ug/l							< 5.00	
Chlorodibromomethane	2008-06	ug/l							< 5.00	
Chlorodibromomethane	2008-08	ug/l							< 5.00	
Chlorodibromomethane	2008-09	ug/l							< 5.00	
Chlorodibromomethane	2009-03	ug/l							< 5	
Chlorodibromomethane	2009-06	ug/l							< 5.00	
Chlorodibromomethane	2009-09	ug/l				< 5.00			< 5.00	< 5.00
Chlorodibromomethane	2009-12	ug/l				< 5.00				< 5.00
Chlorodibromomethane	2010-03	ug/l							< 20.0	
Chlorodibromomethane	2010-04	ug/l				< 20.0				< 20.0
Chlorodibromomethane	2010-06	ug/l				< 5.00				< 5.00
Chlorodibromomethane	2010-09	ug/l				< 10.0			< 10.0	< 10.0
Chlorodibromomethane	2011-03	ug/l				< 5.00			< 5.00	< 5.00
Chlorodibromomethane	2011-09	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Chlorodibromomethane	2011-11	ug/l	< 5.00		< 5.00					
Chlorodibromomethane	2012-03	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Chlorodibromomethane	2012-06	ug/l	< 5.00		< 5.00					
Chlorodibromomethane	2012-09	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Chlorodibromomethane	2013-03	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Chlorodibromomethane	2013-06	ug/l			< 5.00	< 5.00			< 5.00	< 5.00
Chlorodibromomethane	2013-09	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Chlorodibromomethane	2013-11	ug/L				< 5.00			< 5.00	< 5.00
Chlorodibromomethane	2014-03	ug/L	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Chlorodibromomethane	2014-06	ug/L			< 5.00	< 5.00			< 5.00	< 5.00
Chlorodibromomethane	2014-08	ug/L	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Chlorodibromomethane	2014-12	ug/L			< 5.00	< 5.00			< 5.00	< 5.00
Chlorodibromomethane	2015-04	ug/L	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Chlorodibromomethane	2015-09	ug/L			< 5					
Chlorodibromomethane	2015-10	ug/L	< 5			< 5			< 5	< 5
Chlorodibromomethane	2016-04	ug/L	< 5		< 5	< 5			< 5	< 5
Chlorodibromomethane	2016-07	ug/L				< 5				< 5
Chlorodibromomethane	2016-10	ug/L	< 5		< 5	< 5			< 5	< 5
Chlorodibromomethane	2017-05	ug/L	< 5		< 5	< 5			< 5	< 5
Chlorodibromomethane	2017-09	ug/L	< 5		< 5	< 5			< 5	< 5
Chlorodibromomethane	2018-05	ug/L			< 5	< 5			< 5	< 5
Chlorodibromomethane	2018-09	ug/L	< 5		< 5	< 5			< 5	< 5
Chlorodibromomethane	2019-03	ug/L	< 5		< 5	< 5			< 5	< 5
Chlorodibromomethane	2019-10	ug/L		< 5	< 5	< 5		< 5	< 5	< 5
Chlorodibromomethane	2020-04	ug/L		< 5	< 5	< 5	< 5	< 5	< 5	< 5
Chlorodibromomethane	2020-06	ug/L	< 5					< 5		
Chlorodibromomethane	2020-08	ug/L	< 5				< 5	< 5		

Table 13
Analytical Data Summary
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Carroll County Landfill Western Expansion Area
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Chlorodibromomethane	2020-09	ug/L		< 5	< 5	< 5			< 5	~~< 5~~
Chlorodibromomethane	2020-12	ug/L					< 5	< 5		
Chlorodibromomethane	2021-02	ug/L					< 5			
Chlorodibromomethane	2021-04	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Chlorodibromomethane	2021-09	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Chlorodibromomethane	2022-04	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Chlorodibromomethane	2022-09	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Chlorodibromomethane	2023-04	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Chlorodibromomethane	2023-09	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Chloroethane	2008-04	ug/l							< 4.00	
Chloroethane	2008-06	ug/l							< 4.00	
Chloroethane	2008-08	ug/l							< 4.00	
Chloroethane	2008-09	ug/l							< 4.00	
Chloroethane	2009-03	ug/l							< 4	
Chloroethane	2009-06	ug/l							< 4.00	
Chloroethane	2009-09	ug/l				< 4.00			< 4.00	< 4.00
Chloroethane	2009-12	ug/l				< 4.00				< 4.00
Chloroethane	2010-03	ug/l							< 4.00	
Chloroethane	2010-04	ug/l				< 4.00				< 4.00
Chloroethane	2010-06	ug/l				< 4.00				< 4.00
Chloroethane	2010-09	ug/l				< 4.00			< 4.00	< 4.00
Chloroethane	2011-03	ug/l				< 4.00			< 4.00	< 4.00
Chloroethane	2011-09	ug/l	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Chloroethane	2011-11	ug/l	< 4.00		< 4.00					
Chloroethane	2012-03	ug/l	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Chloroethane	2012-06	ug/l	< 4.00		< 4.00					
Chloroethane	2012-09	ug/l	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Chloroethane	2013-03	ug/l	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Chloroethane	2013-06	ug/l			**0.340 J**	< 4.00			< 4.00	< 4.00
Chloroethane	2013-09	ug/l	< 4.00		**0.761 J**	< 4.00			< 4.00	< 4.00
Chloroethane	2013-11	ug/L				< 4.00			< 4.00	< 4.00
Chloroethane	2014-03	ug/L	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Chloroethane	2014-06	ug/L			< 4.00	< 4.00			< 4.00	< 4.00
Chloroethane	2014-08	ug/L	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Chloroethane	2014-12	ug/L			**0.888 J**	< 4.00			< 4.00	< 4.00
Chloroethane	2015-04	ug/L	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Chloroethane	2015-09	ug/L			**1.26 J**					
Chloroethane	2015-10	ug/L	< 4			< 4			< 4	< 4
Chloroethane	2016-04	ug/L	< 4		**1.17 J**	< 4			< 4	< 4
Chloroethane	2016-07	ug/L				< 4				< 4
Chloroethane	2016-10	ug/L	< 4		**1.01 J**	< 4			< 4	< 4
Chloroethane	2017-05	ug/L	< 4		**1.19 J**	< 4			< 4	< 4
Chloroethane	2017-09	ug/L	< 4		**1.23 J**	< 4			< 4	< 4
Chloroethane	2018-05	ug/L			**0.665 J**	< 4			< 4	< 4

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Table 13
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Chloroethane	2018-09	ug/L	< 4		**0.834 J**	< 4			< 4	< 4
Chloroethane	2019-03	ug/L	< 4		< 4	< 4			< 4	< 4
Chloroethane	2019-10	ug/L		< 4	< 4	< 4		< 4	< 4	< 4
Chloroethane	2020-04	ug/L		< 4	< 4	< 4	< 4	< 4	< 4	< 4
Chloroethane	2020-06	ug/L	< 4					< 4		
Chloroethane	2020-08	ug/L	< 4				< 4	< 4		
Chloroethane	2020-09	ug/L		< 4	< 4	< 4			< 4	~~< 4~~
Chloroethane	2020-12	ug/L					< 4	< 4		
Chloroethane	2021-02	ug/L					< 4			
Chloroethane	2021-04	ug/L	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
Chloroethane	2021-09	ug/L	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
Chloroethane	2022-04	ug/L	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
Chloroethane	2022-09	ug/L	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
Chloroethane	2023-04	ug/L	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
Chloroethane	2023-09	ug/L	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
Chloroform	2008-04	ug/l							< 1.00	
Chloroform	2008-06	ug/l							< 1.00	
Chloroform	2008-08	ug/l							< 1.00	
Chloroform	2008-09	ug/l							< 1.00	
Chloroform	2009-03	ug/l							< 1	
Chloroform	2009-06	ug/l							< 1.00	
Chloroform	2009-09	ug/l				< 1.00			< 1.00	< 1.00
Chloroform	2009-12	ug/l				< 1.00				< 1.00
Chloroform	2010-03	ug/l							< 2.00	
Chloroform	2010-04	ug/l				< 2.00				< 2.00
Chloroform	2010-06	ug/l				< 1.00				< 1.00
Chloroform	2010-09	ug/l				< 1.00			< 1.00	< 1.00
Chloroform	2011-03	ug/l				< 1.00			< 1.00	< 1.00
Chloroform	2011-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Chloroform	2011-11	ug/l	< 1.00		< 1.00					
Chloroform	2012-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Chloroform	2012-06	ug/l	< 1.00		< 1.00					
Chloroform	2012-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Chloroform	2013-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Chloroform	2013-06	ug/l			< 1.00	< 1.00			< 1.00	< 1.00
Chloroform	2013-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Chloroform	2013-11	ug/L				< 1.00			< 1.00	< 1.00
Chloroform	2014-03	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Chloroform	2014-06	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
Chloroform	2014-08	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Chloroform	2014-12	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
Chloroform	2015-04	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Chloroform	2015-09	ug/L			< 1					
Chloroform	2015-10	ug/L	< 1			< 1			< 1	< 1

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Table 13
Analytical Data Summary
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Chloroform	2016-04	ug/L	< 1		< 1	< 1			< 1	< 1
Chloroform	2016-07	ug/L				< 1				< 1
Chloroform	2016-10	ug/L	< 1		< 1	< 1			< 1	< 1
Chloroform	2017-05	ug/L	< 1		< 1	< 1			< 1	< 1
Chloroform	2017-09	ug/L	< 1		< 1	< 1			< 1	< 1
Chloroform	2018-05	ug/L			< 1	< 1			< 1	< 1
Chloroform	2018-09	ug/L	< 3		< 3	< 3			< 3	< 3
Chloroform	2019-03	ug/L	< 3		< 3	< 3			< 3	< 3
Chloroform	2019-10	ug/L		< 3	< 3	< 3		< 3	< 3	< 3
Chloroform	2020-04	ug/L		< 3	< 3	< 3	< 3	< 3	< 3	< 3
Chloroform	2020-06	ug/L	< 3					< 3		
Chloroform	2020-08	ug/L	< 3				< 3	< 3		
Chloroform	2020-09	ug/L		< 3	< 3	< 3			< 3	~~< 3~~
Chloroform	2020-12	ug/L					< 3	< 3		
Chloroform	2021-02	ug/L					< 3			
Chloroform	2021-04	ug/L	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Chloroform	2021-09	ug/L	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Chloroform	2022-04	ug/L	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Chloroform	2022-09	ug/L	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Chloroform	2023-04	ug/L	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Chloroform	2023-09	ug/L	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Chloromethane	2008-04	ug/l							< 3.00	
Chloromethane	2008-06	ug/l							< 3.00	
Chloromethane	2008-08	ug/l							< 3.00	
Chloromethane	2008-09	ug/l							< 3.00	
Chloromethane	2009-03	ug/l							< 3	
Chloromethane	2009-06	ug/l							< 3.00	
Chloromethane	2009-09	ug/l				< 3.00			< 3.00	< 3.00
Chloromethane	2009-12	ug/l				< 3.00				< 3.00
Chloromethane	2010-03	ug/l							< 3.00	
Chloromethane	2010-04	ug/l				< 3.00				< 3.00
Chloromethane	2010-06	ug/l				< 3.00				< 3.00
Chloromethane	2010-09	ug/l				< 3.00			< 3.00	< 3.00
Chloromethane	2011-03	ug/l				< 3.00			< 3.00	< 3.00
Chloromethane	2011-09	ug/l	< 3.00		< 3.00	< 3.00			< 3.00	< 3.00
Chloromethane	2011-11	ug/l	< 3.00		< 3.00					
Chloromethane	2012-03	ug/l	< 3.00		< 3.00	< 3.00			< 3.00	< 3.00
Chloromethane	2012-06	ug/l	< 3.00		< 3.00					
Chloromethane	2012-09	ug/l	< 3.00		< 3.00	< 3.00			< 3.00	< 3.00
Chloromethane	2013-03	ug/l	< 3.00		< 3.00	< 3.00			< 3.00	< 3.00
Chloromethane	2013-06	ug/l			< 3.00	< 3.00			< 3.00	< 3.00
Chloromethane	2013-09	ug/l	< 3.00		< 3.00	< 3.00			< 3.00	< 3.00
Chloromethane	2013-11	ug/L				< 3.00			< 3.00	< 3.00
Chloromethane	2014-03	ug/L	< 3.00		< 3.00	< 3.00			< 3.00	< 3.00

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Chloromethane	2014-06	ug/L			< 3.00	< 3.00			< 3.00	< 3.00
Chloromethane	2014-08	ug/L	< 3.00		< 3.00	< 3.00			< 3.00	< 3.00
Chloromethane	2014-12	ug/L			< 3.00	< 3.00			< 3.00	< 3.00
Chloromethane	2015-04	ug/L	< 3.00		< 3.00	< 3.00			< 3.00	< 3.00
Chloromethane	2015-09	ug/L			< 3					
Chloromethane	2015-10	ug/L	< 3			< 3 J			< 3	< 3 J
Chloromethane	2016-04	ug/L	< 3		< 3	< 3			< 3	< 3
Chloromethane	2016-07	ug/L				< 3				< 3
Chloromethane	2016-10	ug/L	< 3		< 3	< 3			< 3	< 3
Chloromethane	2017-05	ug/L	< 3		< 3	< 3			< 3	< 3
Chloromethane	2017-09	ug/L	< 3		< 3	< 3			< 3	< 3
Chloromethane	2018-05	ug/L			< 3	< 3			< 3	< 3
Chloromethane	2018-09	ug/L	< 3		< 3	< 3			< 3	< 3
Chloromethane	2019-03	ug/L	< 3		< 3	< 3			< 3	< 3
Chloromethane	2019-10	ug/L		< 3	< 3	< 3		< 3	< 3	< 3
Chloromethane	2020-04	ug/L		< 3	< 3	< 3	< 3	< 3	< 3	< 3
Chloromethane	2020-06	ug/L	< 3					< 3		
Chloromethane	2020-08	ug/L	< 3				< 3	< 3		
Chloromethane	2020-09	ug/L		< 3	< 3	< 3			< 3	~~< 3~~
Chloromethane	2020-12	ug/L					< 3	< 3		
Chloromethane	2021-02	ug/L					< 3			
Chloromethane	2021-04	ug/L	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Chloromethane	2021-09	ug/L	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Chloromethane	2022-04	ug/L	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Chloromethane	2022-09	ug/L	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Chloromethane	2023-04	ug/L	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Chloromethane	2023-09	ug/L	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Chloroprene	2009-03	ug/l							< 1	
Chloroprene	2009-06	ug/l							< 1.00	
Chloroprene	2009-09	ug/l							< 1.00	
Chloroprene	2010-03	ug/l							< 1.00	
Chloroprene	2010-09	ug/l							< 1.00	
Chloroprene	2011-03	ug/l							< 1.00	
Chloroprene	2014-06	ug/L			< 1.00					
Chloroprene	2014-08	ug/L			< 1.00				< 1.00	
Chloroprene	2015-10	ug/L				< 1			< 1	< 1
Chloroprene	2016-07	ug/L				< 1				< 1
Chloroprene	2019-10	ug/L			< 1	< 1			< 1	< 1
Chloroprene	2020-04	ug/L			< 1	< 1			< 1	< 1
Chloroprene	2020-09	ug/L				< 1			< 1	~~< 1~~
Chromium	2008-04	mg/l							< 0.0200	
Chromium	2008-06	mg/l							< 0.0200	
Chromium	2008-08	mg/l							< 0.0200	
Chromium	2008-09	mg/l							< 0.0200	

Table 13
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Chromium	2009-03	mg/l							< 0.02	
Chromium	2009-06	mg/l							< 0.0200	
Chromium	2009-09	mg/l				< 0.0200			< 0.0200	< 0.0200
Chromium	2009-12	mg/l				**0.0343**				**0.0343**
Chromium	2010-03	mg/l							< 0.0200	
Chromium	2010-04	mg/l				< 0.0200				< 0.0200
Chromium	2010-06	mg/l				< 0.0200				< 0.0200
Chromium	2010-09	mg/l				< 0.0200			< 0.0200	< 0.0200
Chromium	2011-03	mg/l				< 0.0200			< 0.0200	< 0.0200
Chromium	2011-09	mg/l	< 0.0200		< 0.0200	< 0.0200			< 0.0200	< 0.0200
Chromium	2011-11	mg/l	< 0.0200		< 0.0200					
Chromium	2012-03	mg/l	< 0.0200		< 0.0200	< 0.0200			< 0.0200	< 0.0200
Chromium	2012-06	mg/l	< 0.0200		< 0.0200					
Chromium	2012-09	mg/l	< 0.0200		< 0.0200	< 0.0200			< 0.0200	< 0.0200
Chromium	2013-03	mg/l	< 0.0200		< 0.0200	**0.00212 J**			< 0.0200	**0.00212 J**
Chromium	2013-06	mg/l				**0.00188 J**				**0.00188 J**
Chromium	2013-09	mg/l	< 0.0200		< 0.0200	< 0.0200			< 0.0200	< 0.0200
Chromium	2013-11	mg/L				**0.00328 J**				**0.00328 J**
Chromium	2014-03	mg/L	< 0.0200		< 0.0200	< 0.0200			< 0.0200	< 0.0200
Chromium	2014-06	mg/L			< 0.0200	< 0.0200				< 0.0200
Chromium	2014-08	mg/L	< 0.00500		< 0.00500	< 0.00500			**0.00198 J**	< 0.00500
Chromium	2014-12	mg/L			< 0.00500	< 0.00500			**0.00248 J**	< 0.00500
Chromium	2015-04	mg/L	< 0.00500		< 0.00500	< 0.00500			**0.00286 J**	< 0.00500
Chromium	2015-09	mg/L			< 0.005					
Chromium	2015-10	mg/L	< 0.005			< 0.005			**0.00309 J**	< 0.005
Chromium	2016-04	mg/L	< 0.005 J		< 0.005	< 0.005			< 0.005 J	< 0.005
Chromium	2016-07	mg/L				< 0.005				< 0.005
Chromium	2016-10	mg/L	**0.000585 J**		< 0.005	< 0.005			**0.00291 J**	< 0.005
Chromium	2017-05	mg/L	**0.00129 J**		< 0.005	< 0.005			**0.00358 J**	< 0.005
Chromium	2017-09	mg/L	< 0.005		< 0.005	< 0.005			**0.0031 J**	< 0.005
Chromium	2018-05	mg/L			< 0.005	< 0.005			**0.00322 J**	< 0.005
Chromium	2018-09	mg/L	**0.00762**		< 0.005	< 0.005			< 0.005	< 0.005
Chromium	2019-03	mg/L	< 0.005		< 0.005	< 0.005			**0.00271 J**	< 0.005
Chromium	2019-10	mg/L		< 0.01	< 0.01	< 0.01		< 0.01	**0.00209 J**	< 0.01
Chromium	2020-04	mg/L		< 0.005	< 0.005	< 0.005	**0.00809**	**0.00117 J**	**0.00264 J**	< 0.005
Chromium	2020-06	mg/L	< 0.005					**0.01**		
Chromium	2020-08	mg/L	< 0.005				**0.00905**	**0.00903**		
Chromium	2020-09	mg/L		< 0.005	< 0.005	< 0.005			**0.00239 J**	~~< 0.005~~
Chromium	2020-12	mg/L					**0.00137 J**	< 0.005		
Chromium	2021-02	mg/L					< 0.005			
Chromium	2021-04	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.00334 J**	< 0.005
Chromium	2021-09	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.00243 J**	< 0.005
Chromium	2022-04	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	**0.00313 J**	< 0.005
Chromium	2022-09	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.00258 J**	< 0.005

Table 13
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Chromium	2023-04	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.00285 J**	< 0.005
Chromium	2023-09	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.00271 J**	< 0.005
Chrysene	2009-03	ug/l							< 10	
Chrysene	2009-06	ug/l							< 10.0	
Chrysene	2009-09	ug/l							< 10.0	
Chrysene	2010-03	ug/l							< 10.0	
Chrysene	2010-09	ug/l							< 10.0	
Chrysene	2011-03	ug/l							< 12.0	
Chrysene	2014-06	ug/L			< 10.5					
Chrysene	2014-08	ug/L			< 10.2				< 10.8	
Chrysene	2015-10	ug/L				< 10			< 10	< 10
Chrysene	2016-07	ug/L				< 10.4				< 10.4
Chrysene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Chrysene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
cis-1,2-Dichloroethene	2008-04	ug/l							< 1.00	
cis-1,2-Dichloroethene	2008-06	ug/l							< 1.00	
cis-1,2-Dichloroethene	2008-08	ug/l							< 1.00	
cis-1,2-Dichloroethene	2008-09	ug/l							< 1.00	
cis-1,2-Dichloroethene	2009-03	ug/l							< 1	
cis-1,2-Dichloroethene	2009-06	ug/l							< 1.00	
cis-1,2-Dichloroethene	2009-09	ug/l				< 1.00			< 1.00	< 1.00
cis-1,2-Dichloroethene	2009-12	ug/l				< 1.00				< 1.00
cis-1,2-Dichloroethene	2010-03	ug/l							< 1.00	
cis-1,2-Dichloroethene	2010-04	ug/l				< 1.00				< 1.00
cis-1,2-Dichloroethene	2010-06	ug/l				< 1.00				< 1.00
cis-1,2-Dichloroethene	2010-09	ug/l				< 1.00			< 1.00	< 1.00
cis-1,2-Dichloroethene	2011-03	ug/l				< 1.00			< 1.00	< 1.00
cis-1,2-Dichloroethene	2011-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
cis-1,2-Dichloroethene	2011-11	ug/l	< 1.00		< 1.00					
cis-1,2-Dichloroethene	2012-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
cis-1,2-Dichloroethene	2012-06	ug/l	< 1.00		< 1.00					
cis-1,2-Dichloroethene	2012-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
cis-1,2-Dichloroethene	2013-03	ug/l	< 1.00		**1.38**	< 1.00			< 1.00	< 1.00
cis-1,2-Dichloroethene	2013-06	ug/l			**0.598 J**	< 1.00			< 1.00	< 1.00
cis-1,2-Dichloroethene	2013-09	ug/l	< 1.00		**2.70**	< 1.00			< 1.00	< 1.00
cis-1,2-Dichloroethene	2013-11	ug/L				< 1.00			< 1.00	< 1.00
cis-1,2-Dichloroethene	2014-03	ug/L	< 1.00		**2.77**	< 1.00			< 1.00	< 1.00
cis-1,2-Dichloroethene	2014-06	ug/L			**1.21**	< 1.00			< 1.00	< 1.00
cis-1,2-Dichloroethene	2014-08	ug/L	< 1.00		**1.88**	< 1.00			< 1.00	< 1.00
cis-1,2-Dichloroethene	2014-12	ug/L			**8.45**	< 1.00			< 1.00	< 1.00
cis-1,2-Dichloroethene	2015-04	ug/L	**0.264 J**		**7.83**	< 1.00			< 1.00	< 1.00
cis-1,2-Dichloroethene	2015-09	ug/L			**22.4**					
cis-1,2-Dichloroethene	2015-10	ug/L	< 1			< 1			< 1	< 1
cis-1,2-Dichloroethene	2016-04	ug/L	< 1		**22.8**	< 1			< 1	< 1

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
cis-1,2-Dichloroethene	2016-07	ug/L				< 1				< 1
cis-1,2-Dichloroethene	2016-10	ug/L	< 1		**22.9**	< 1			< 1	< 1
cis-1,2-Dichloroethene	2017-05	ug/L	< 1		**18**	< 1			< 1	< 1
cis-1,2-Dichloroethene	2017-09	ug/L	< 1		**23.5**	< 1			< 1	< 1
cis-1,2-Dichloroethene	2018-05	ug/L			**18.1**	< 1			< 1	< 1
cis-1,2-Dichloroethene	2018-09	ug/L	< 1		**21.8**	< 1			< 1	< 1
cis-1,2-Dichloroethene	2019-03	ug/L	< 1		**21.2**	< 1			< 1	< 1
cis-1,2-Dichloroethene	2019-10	ug/L		< 1	**23.4**	< 1		< 1	< 1	< 1
cis-1,2-Dichloroethene	2020-04	ug/L		< 1	**21.8**	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	2020-06	ug/L	< 1					< 1		
cis-1,2-Dichloroethene	2020-08	ug/L	< 1				< 1	< 1		
cis-1,2-Dichloroethene	2020-09	ug/L		< 1	**18.8**	< 1			< 1	~~< 1~~
cis-1,2-Dichloroethene	2020-12	ug/L					< 1	< 1		
cis-1,2-Dichloroethene	2021-02	ug/L					< 1			
cis-1,2-Dichloroethene	2021-04	ug/L	< 1	< 1	**15.3**	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	2021-09	ug/L	< 1	**0.422 J**	**16.6**	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	2022-04	ug/L	< 1	< 1	**11.3**	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	2022-09	ug/L	< 1	< 1	**11.8**	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	2023-04	ug/L	< 1	< 1	**10.3**	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	2023-09	ug/L	< 1	< 1	**10.1**	< 1	< 1	< 1	< 1	< 1
cis-1,3-Dichloropropene	2008-04	ug/l							< 5.00	
cis-1,3-Dichloropropene	2008-06	ug/l							< 5.00	
cis-1,3-Dichloropropene	2008-08	ug/l							< 5.00	
cis-1,3-Dichloropropene	2008-09	ug/l							< 5.00	
cis-1,3-Dichloropropene	2009-03	ug/l							< 5	
cis-1,3-Dichloropropene	2009-06	ug/l							< 5.00	
cis-1,3-Dichloropropene	2009-09	ug/l				< 5.00			< 5.00	< 5.00
cis-1,3-Dichloropropene	2009-12	ug/l				< 5.00				< 5.00
cis-1,3-Dichloropropene	2010-03	ug/l							< 20.0	
cis-1,3-Dichloropropene	2010-04	ug/l				< 20.0				< 20.0
cis-1,3-Dichloropropene	2010-06	ug/l				< 5.00				< 5.00
cis-1,3-Dichloropropene	2010-09	ug/l				< 10.0			< 10.0	< 10.0
cis-1,3-Dichloropropene	2011-03	ug/l				< 5.00			< 5.00	< 5.00
cis-1,3-Dichloropropene	2011-09	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
cis-1,3-Dichloropropene	2011-11	ug/l	< 5.00		< 5.00					
cis-1,3-Dichloropropene	2012-03	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
cis-1,3-Dichloropropene	2012-06	ug/l	< 5.00		< 5.00					
cis-1,3-Dichloropropene	2012-09	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
cis-1,3-Dichloropropene	2013-03	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
cis-1,3-Dichloropropene	2013-06	ug/l			< 5.00	< 5.00			< 5.00	< 5.00
cis-1,3-Dichloropropene	2013-09	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
cis-1,3-Dichloropropene	2013-11	ug/L				< 5.00			< 5.00	< 5.00
cis-1,3-Dichloropropene	2014-03	ug/L	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
cis-1,3-Dichloropropene	2014-06	ug/L			< 5.00	< 5.00			< 5.00	< 5.00

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
cis-1,3-Dichloropropene	2014-08	ug/L	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
cis-1,3-Dichloropropene	2014-12	ug/L			< 5.00	< 5.00			< 5.00	< 5.00
cis-1,3-Dichloropropene	2015-04	ug/L	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
cis-1,3-Dichloropropene	2015-09	ug/L			< 5					
cis-1,3-Dichloropropene	2015-10	ug/L	< 5			< 5			< 5	< 5
cis-1,3-Dichloropropene	2016-04	ug/L	< 5		< 5	< 5			< 5	< 5
cis-1,3-Dichloropropene	2016-07	ug/L				< 5				< 5
cis-1,3-Dichloropropene	2016-10	ug/L	< 5		< 5	< 5			< 5	< 5
cis-1,3-Dichloropropene	2017-05	ug/L	< 5		< 5	< 5			< 5	< 5
cis-1,3-Dichloropropene	2017-09	ug/L	< 5		< 5	< 5			< 5	< 5
cis-1,3-Dichloropropene	2018-05	ug/L			< 5	< 5			< 5	< 5
cis-1,3-Dichloropropene	2018-09	ug/L	< 5		< 5	< 5			< 5	< 5
cis-1,3-Dichloropropene	2019-03	ug/L	< 5		< 5	< 5			< 5	< 5
cis-1,3-Dichloropropene	2019-10	ug/L		< 5	< 5	< 5		< 5	< 5	< 5
cis-1,3-Dichloropropene	2020-04	ug/L		< 5	< 5	< 5	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene	2020-06	ug/L	< 5					< 5		
cis-1,3-Dichloropropene	2020-08	ug/L	< 5				< 5	< 5		
cis-1,3-Dichloropropene	2020-09	ug/L		< 5	< 5	< 5			< 5	~~< 5~~
cis-1,3-Dichloropropene	2020-12	ug/L					< 5	< 5		
cis-1,3-Dichloropropene	2021-02	ug/L					< 5			
cis-1,3-Dichloropropene	2021-04	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene	2021-09	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene	2022-04	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene	2022-09	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene	2023-04	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene	2023-09	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Cobalt	2008-04	mg/l							< 0.0200	
Cobalt	2008-06	mg/l							< 0.0200	
Cobalt	2008-08	mg/l							< 0.0200	
Cobalt	2008-09	mg/l							< 0.0200	
Cobalt	2009-03	mg/l							< 0.02	
Cobalt	2009-06	mg/l							< 0.0200	
Cobalt	2009-09	mg/l				< 0.0200			< 0.0200	< 0.0200
Cobalt	2009-12	mg/l				**0.0260**				**0.0260**
Cobalt	2010-03	mg/l							< 0.0200	
Cobalt	2010-04	mg/l				< 0.0200				< 0.0200
Cobalt	2010-06	mg/l				< 0.0200				< 0.0200
Cobalt	2010-09	mg/l				< 0.0200			< 0.0200	< 0.0200
Cobalt	2011-03	mg/l				< 0.0200			< 0.0200	< 0.0200
Cobalt	2011-09	mg/l	< 0.0200		**0.00535 J**	< 0.0200			< 0.0200	< 0.0200
Cobalt	2011-11	mg/l	< 0.0200		**0.00461 J**					
Cobalt	2012-03	mg/l	< 0.0200		**0.00896 J**	< 0.0200			< 0.0200	< 0.0200
Cobalt	2012-06	mg/l	< 0.0200		**0.0198 J**					
Cobalt	2012-09	mg/l	< 0.0200		**0.00214 J**	< 0.0200			< 0.0200	< 0.0200

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Cobalt	2013-03	mg/l	< 0.0200		**0.00366 J**	**0.00627 J**			**0.00148 J**	**0.00627 J**
Cobalt	2013-06	mg/l				< 0.00700				< 0.00700
Cobalt	2013-09	mg/l	< 0.00700		**0.00159 J**	< 0.00700			< 0.00700	< 0.00700
Cobalt	2013-11	mg/L				< 0.00700				< 0.00700
Cobalt	2014-03	mg/L	< 0.00700		< 0.00700	< 0.00700			< 0.00700	< 0.00700
Cobalt	2014-06	mg/L			< 0.00700	< 0.00700				< 0.00700
Cobalt	2014-08	mg/L	< 0.000500		**0.00131**	**0.000107 J**			< 0.000500	**0.000107 J**
Cobalt	2014-12	mg/L			**0.00121**	**0.000483 J**			< 0.000500	**0.000483 J**
Cobalt	2015-04	mg/L	< 0.000500		**0.00201**	< 0.000500			< 0.000500	< 0.000500
Cobalt	2015-09	mg/L			**0.00159**					
Cobalt	2015-10	mg/L	< 0.0005			**0.000062 J**			< 0.0005	**0.000062 J**
Cobalt	2016-04	mg/L	**0.000071 J**		**0.00187**	**0.00003 J**			**0.000036 J**	**0.00003 J**
Cobalt	2016-07	mg/L				**0.000036 J**				**0.000036 J**
Cobalt	2016-10	mg/L	**0.000048 J**		**0.00212**	**0.000045 J**			**0.000033 J**	**0.000045 J**
Cobalt	2017-05	mg/L	< 0.0005		**0.00247**	< 0.0005			< 0.0005	< 0.0005
Cobalt	2017-09	mg/L	**0.00006 J**		**0.00256**	< 0.0005			< 0.0005	< 0.0005
Cobalt	2018-05	mg/L			**0.00253**	< 0.0005			< 0.0005	< 0.0005
Cobalt	2018-09	mg/L	**0.00168**		**0.00184**	< 0.001			< 0.001	< 0.001
Cobalt	2019-03	mg/L	< 0.0005		**0.00331**	< 0.0005			< 0.0005	< 0.0005
Cobalt	2019-10	mg/L		**0.000736 J**	**0.00274**	< 0.001		**0.00837**	< 0.001	< 0.001
Cobalt	2020-04	mg/L		**0.00334**	**0.00307**	< 0.0005	**0.00674**	**0.0192**	< 0.0005	< 0.0005
Cobalt	2020-06	mg/L	< 0.0005					**0.0125**		
Cobalt	2020-08	mg/L	< 0.0005				**0.00331**	**0.0122**		
Cobalt	2020-09	mg/L		**0.0014**	**0.00341**	< 0.0005			< 0.0005	~~< 0.0005~~
Cobalt	2020-12	mg/L					**0.00145**	**0.00766**		
Cobalt	2021-02	mg/L					**0.00158**			
Cobalt	2021-04	mg/L	**0.000111 J**	**0.00381**	**0.00369**	< 0.0005	**0.00132**	**0.0091**	< 0.0005	< 0.0005
Cobalt	2021-09	mg/L	< 0.0005	**0.00281**	**0.00227**	< 0.0005	**0.00295**	**0.00852**	< 0.0005	< 0.0005
Cobalt	2022-04	mg/L	< 0.0005	**0.00225**	**0.00326**	< 0.0005	**0.00665**	**0.00813**	< 0.0005	< 0.0005
Cobalt	2022-09	mg/L	< 0.0005	**0.00359**	**0.00233**	< 0.0005	**0.00823**	**0.00746**	< 0.0005	< 0.0005
Cobalt	2023-04	mg/L	< 0.0005	**0.00314**	**0.00319**	< 0.0005	**0.0102**	**0.00691**	< 0.0005	< 0.0005
Cobalt	2023-09	mg/L	< 0.0005	**0.00187**	**0.00215**	< 0.0005	**0.00807**	**0.00672**	< 0.0005	< 0.0005
Copper	2008-04	mg/l							< 0.0200	
Copper	2008-06	mg/l							< 0.0200	
Copper	2008-08	mg/l							< 0.0200	
Copper	2008-09	mg/l							< 0.0200	
Copper	2009-03	mg/l							< 0.02	
Copper	2009-06	mg/l							< 0.0200	
Copper	2009-09	mg/l				< 0.0200			< 0.0200	< 0.0200
Copper	2009-12	mg/l				**0.0536**				**0.0536**
Copper	2010-03	mg/l							< 0.0200	
Copper	2010-04	mg/l				< 0.0200				< 0.0200
Copper	2010-06	mg/l				< 0.0200				< 0.0200
Copper	2010-09	mg/l				< 0.0200			< 0.0200	< 0.0200

Table 13
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Copper	2011-03	mg/l				< 0.0200			< 0.0200	< 0.0200
Copper	2011-09	mg/l	< 0.0200		< 0.0200	< 0.0200			< 0.0200	< 0.0200
Copper	2011-11	mg/l	< 0.0200		< 0.0200					
Copper	2012-03	mg/l	< 0.0200		**0.0338**	< 0.0200			< 0.0200	< 0.0200
Copper	2012-06	mg/l	< 0.0200		**0.0343**					
Copper	2012-09	mg/l	< 0.0200		< 0.0200	< 0.0200			< 0.0200	< 0.0200
Copper	2013-03	mg/l	< 0.0200		**0.00504 J**	**0.0176 J**			< 0.0200	**0.0176 J**
Copper	2013-06	mg/l				< 0.0200 J				< 0.0200 J
Copper	2013-09	mg/l	< 0.0200		< 0.0200	< 0.0200			< 0.0200	< 0.0200
Copper	2013-11	mg/L				< 0.0200				< 0.0200
Copper	2014-03	mg/L	< 0.0200		< 0.0200 J	< 0.0200			< 0.0200	< 0.0200
Copper	2014-06	mg/L			< 0.0200	< 0.0200				< 0.0200
Copper	2014-08	mg/L	< 0.00200		< 0.00200 J	< 0.00200 J			< 0.00200 J	< 0.00200 J
Copper	2014-12	mg/L			< 0.00200	< 0.00200 J			< 0.00200	< 0.00200 J
Copper	2015-04	mg/L	< 0.00200		< 0.00200	**0.00472**			**0.000866 J**	**0.00472**
Copper	2015-09	mg/L			< 0.002 J					
Copper	2015-10	mg/L	< 0.002 J			< 0.002 J			< 0.002	< 0.002 J
Copper	2016-04	mg/L	< 0.005		< 0.005	< 0.005			< 0.005	< 0.005
Copper	2016-07	mg/L				< 0.005				< 0.005
Copper	2016-10	mg/L	< 0.005		< 0.005	< 0.005			< 0.005	< 0.005
Copper	2017-05	mg/L	< 0.005		< 0.005	< 0.005			< 0.005	< 0.005
Copper	2017-09	mg/L	< 0.005		< 0.005	< 0.005			< 0.005	< 0.005
Copper	2018-05	mg/L			< 0.005	< 0.005			< 0.005	< 0.005
Copper	2018-09	mg/L	**0.00428**		< 0.002	< 0.002			< 0.002	< 0.002
Copper	2019-03	mg/L	< 0.005		< 0.005	< 0.005			< 0.005	< 0.005
Copper	2019-10	mg/L		< 0.01	< 0.01	< 0.01 J		< 0.01	< 0.01	< 0.01 J
Copper	2020-04	mg/L		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	2020-06	mg/L	< 0.005					**0.00379 J**		
Copper	2020-08	mg/L	< 0.005				**0.00507**	**0.00798**		
Copper	2020-09	mg/L		< 0.005	< 0.005	< 0.005			< 0.005	~~< 0.005~~
Copper	2020-12	mg/L					< 0.005	< 0.005		
Copper	2021-02	mg/L					< 0.005			
Copper	2021-04	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	2021-09	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	2022-04	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	2022-09	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	2023-04	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	2023-09	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Cyanide	2009-03	mg/l							< 0.01	
Cyanide	2009-06	mg/l							< 0.0100	
Cyanide	2009-09	mg/l							< 0.0100	
Cyanide	2010-09	mg/l							< 0.0100	
Cyanide	2014-06	mg/L			< 0.0100					
Cyanide	2014-08	mg/L			< 0.0100				< 0.0100	

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Cyanide	2015-10	mg/L				< 0.01			< 0.01	< 0.01
Cyanide	2016-07	mg/L				< 0.01				< 0.01
Cyanide	2019-10	mg/L			< 0.01	< 0.01			< 0.01	< 0.01
Cyanide	2020-04	mg/L			< 0.01					
Cyanide	2020-09	mg/L				**0.0796**			< 0.01	~~**0.0796**~~
Cyanide	2021-02	mg/L				< 0.01				< 0.01
Cyanide	2021-04	mg/L				< 0.01			< 0.01	< 0.01
Cyanide	2021-09	mg/L				< 0.01			< 0.01	< 0.01
delta-BHC	2009-03	ug/l							< 0.032	
delta-BHC	2009-06	ug/l							< 0.0320	
delta-BHC	2009-09	ug/l							< 0.0320	
delta-BHC	2010-03	ug/l							< 0.0320	
delta-BHC	2010-09	ug/l							< 0.0356	
delta-BHC	2011-03	ug/l							< 0.0320	
delta-BHC	2014-06	ug/L			< 0.0327					
delta-BHC	2014-08	ug/L			< 0.0320				< 0.0320	
delta-BHC	2015-10	ug/L				< 0.032			< 0.032	< 0.032
delta-BHC	2016-07	ug/L				< 0.032				< 0.032
delta-BHC	2019-10	ug/L			< 0.0335	< 0.0333			< 0.0333	< 0.0333
delta-BHC	2020-09	ug/L				< 0.0348			< 0.0451	~~< 0.0348~~
Diallate	2009-03	ug/l							< 10	
Diallate	2009-06	ug/l							< 10.0	
Diallate	2009-09	ug/l							< 10.0	
Diallate	2010-03	ug/l							< 10.0	
Diallate	2010-09	ug/l							< 10.0	
Diallate	2011-03	ug/l							< 12.0	
Diallate	2014-06	ug/L			< 10.5					
Diallate	2014-08	ug/L			< 10.2				< 10.8	
Diallate	2015-10	ug/L				< 10			< 10	< 10
Diallate	2016-07	ug/L				< 10.4				< 10.4
Diallate	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Diallate	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Dibenzo(a,h)anthracene	2009-03	ug/l							< 10	
Dibenzo(a,h)anthracene	2009-06	ug/l							< 10.0	
Dibenzo(a,h)anthracene	2009-09	ug/l							< 10.0	
Dibenzo(a,h)anthracene	2010-03	ug/l							< 10.0	
Dibenzo(a,h)anthracene	2010-09	ug/l							< 10.0	
Dibenzo(a,h)anthracene	2011-03	ug/l							< 12.0	
Dibenzo(a,h)anthracene	2014-06	ug/L			< 10.5					
Dibenzo(a,h)anthracene	2014-08	ug/L			< 10.2				< 10.8	
Dibenzo(a,h)anthracene	2015-10	ug/L				< 10			< 10	< 10
Dibenzo(a,h)anthracene	2016-07	ug/L				< 10.4				< 10.4
Dibenzo(a,h)anthracene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Dibenzo(a,h)anthracene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Dibenzofuran	2009-03	ug/l							< 10	
Dibenzofuran	2009-06	ug/l							< 10.0	
Dibenzofuran	2009-09	ug/l							< 10.0	
Dibenzofuran	2010-03	ug/l							< 10.0	
Dibenzofuran	2010-09	ug/l							< 10.0	
Dibenzofuran	2011-03	ug/l							< 12.0	
Dibenzofuran	2014-06	ug/L			< 10.5					
Dibenzofuran	2014-08	ug/L			< 10.2				< 10.8	
Dibenzofuran	2015-10	ug/L				< 10			< 10	< 10
Dibenzofuran	2016-07	ug/L				< 10.4				< 10.4
Dibenzofuran	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Dibenzofuran	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Dibromomethane	2008-04	ug/l							< 1.00	
Dibromomethane	2008-06	ug/l							< 1.00	
Dibromomethane	2008-08	ug/l							< 1.00	
Dibromomethane	2008-09	ug/l							< 1.00	
Dibromomethane	2009-03	ug/l							< 1	
Dibromomethane	2009-06	ug/l							< 1.00	
Dibromomethane	2009-09	ug/l				< 1.00			< 1.00	< 1.00
Dibromomethane	2009-12	ug/l				< 1.00				< 1.00
Dibromomethane	2010-03	ug/l							< 1.00	
Dibromomethane	2010-04	ug/l				< 1.00				< 1.00
Dibromomethane	2010-06	ug/l				< 1.00				< 1.00
Dibromomethane	2010-09	ug/l				< 1.00			< 1.00	< 1.00
Dibromomethane	2011-03	ug/l				< 1.00			< 1.00	< 1.00
Dibromomethane	2011-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Dibromomethane	2011-11	ug/l	< 1.00		< 1.00					
Dibromomethane	2012-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Dibromomethane	2012-06	ug/l	< 1.00		< 1.00					
Dibromomethane	2012-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Dibromomethane	2013-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Dibromomethane	2013-06	ug/l			< 1.00	< 1.00			< 1.00	< 1.00
Dibromomethane	2013-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Dibromomethane	2013-11	ug/L				< 1.00			< 1.00	< 1.00
Dibromomethane	2014-03	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Dibromomethane	2014-06	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
Dibromomethane	2014-08	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Dibromomethane	2014-12	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
Dibromomethane	2015-04	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Dibromomethane	2015-09	ug/L			< 1					
Dibromomethane	2015-10	ug/L	< 1			< 1			< 1	< 1
Dibromomethane	2016-04	ug/L	< 1		< 1	< 1			< 1	< 1
Dibromomethane	2016-07	ug/L				< 1				< 1
Dibromomethane	2016-10	ug/L	< 1		< 1	< 1			< 1	< 1

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1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Dibromomethane	2017-05	ug/L	< 1		< 1	< 1			< 1	< 1
Dibromomethane	2017-09	ug/L	< 1		< 1	< 1			< 1	< 1
Dibromomethane	2018-05	ug/L			< 1	< 1			< 1	< 1
Dibromomethane	2018-09	ug/L	< 1		< 1	< 1			< 1	< 1
Dibromomethane	2019-03	ug/L	< 1		< 1	< 1			< 1	< 1
Dibromomethane	2019-10	ug/L		< 1	< 1	< 1		< 1	< 1	< 1
Dibromomethane	2020-04	ug/L		< 1	< 1	< 1	< 1	< 1	< 1	< 1
Dibromomethane	2020-06	ug/L	< 1					< 1		
Dibromomethane	2020-08	ug/L	< 1				< 1	< 1		
Dibromomethane	2020-09	ug/L		< 1	< 1	< 1			< 1	~~< 1~~
Dibromomethane	2020-12	ug/L					< 1	< 1		
Dibromomethane	2021-02	ug/L					< 1			
Dibromomethane	2021-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Dibromomethane	2021-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Dibromomethane	2022-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Dibromomethane	2022-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Dibromomethane	2023-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Dibromomethane	2023-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Dichlorodifluoromethane	2009-03	ug/l							< 3	
Dichlorodifluoromethane	2009-06	ug/l							< 3.00	
Dichlorodifluoromethane	2009-09	ug/l							< 3.00	
Dichlorodifluoromethane	2010-03	ug/l							< 3.00	
Dichlorodifluoromethane	2010-09	ug/l							< 3.00	
Dichlorodifluoromethane	2011-03	ug/l							< 3.00	
Dichlorodifluoromethane	2011-09	ug/l							< 3.00	
Dichlorodifluoromethane	2012-03	ug/l							< 3.00	
Dichlorodifluoromethane	2013-03	ug/l							< 3.00	
Dichlorodifluoromethane	2013-09	ug/l							< 3.00	
Dichlorodifluoromethane	2014-03	ug/L							< 3.00	
Dichlorodifluoromethane	2014-06	ug/L			< 3.00					
Dichlorodifluoromethane	2014-08	ug/L			< 3.00				< 3.00	
Dichlorodifluoromethane	2015-04	ug/L							< 3.00	
Dichlorodifluoromethane	2015-10	ug/L				< 3			< 3	< 3
Dichlorodifluoromethane	2016-04	ug/L				< 3			< 3	< 3
Dichlorodifluoromethane	2016-07	ug/L				< 3				< 3
Dichlorodifluoromethane	2016-10	ug/L				< 3			< 3	< 3
Dichlorodifluoromethane	2017-05	ug/L				< 3			< 3	< 3
Dichlorodifluoromethane	2018-05	ug/L				< 3			< 3	< 3
Dichlorodifluoromethane	2018-09	ug/L				< 3			< 3	< 3
Dichlorodifluoromethane	2019-03	ug/L				< 3			< 3	< 3
Dichlorodifluoromethane	2019-10	ug/L			< 3	< 3			< 3	< 3
Dichlorodifluoromethane	2020-04	ug/L				< 3			< 3	< 3
Dichlorodifluoromethane	2020-09	ug/L				< 3			< 3	~~< 3~~
Dichlorodifluoromethane	2021-04	ug/L				< 3			< 3	< 3

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Dichlorodifluoromethane	2021-09	ug/L				< 3			< 3	< 3
Dieldrin	2009-03	ug/l							< 0.032	
Dieldrin	2009-06	ug/l							< 0.0320	
Dieldrin	2009-09	ug/l							< 0.0320	
Dieldrin	2010-03	ug/l							< 0.0320	
Dieldrin	2010-09	ug/l							< 0.0356	
Dieldrin	2011-03	ug/l							< 0.0320	
Dieldrin	2014-06	ug/L			< 0.0327					
Dieldrin	2014-08	ug/L			< 0.0320				< 0.0320	
Dieldrin	2015-10	ug/L				< 0.032			< 0.032	< 0.032
Dieldrin	2016-07	ug/L				< 0.032				< 0.032
Dieldrin	2019-10	ug/L			< 0.0335	< 0.0333			< 0.0333	< 0.0333
Dieldrin	2020-09	ug/L				< 0.0348			**0.00321 J**	~~< 0.0348~~
Diethylphthalate	2009-03	ug/l							< 10	
Diethylphthalate	2009-06	ug/l							< 10.0	
Diethylphthalate	2009-09	ug/l							< 10.0	
Diethylphthalate	2010-03	ug/l							< 10.0	
Diethylphthalate	2010-09	ug/l							< 10.0	
Diethylphthalate	2011-03	ug/l							< 12.0	
Diethylphthalate	2011-09	ug/l							< 10.0	
Diethylphthalate	2012-03	ug/l							< 10.0	
Diethylphthalate	2013-03	ug/l							< 12.3	
Diethylphthalate	2013-09	ug/l							< 10.1	
Diethylphthalate	2014-06	ug/L			< 10.5					
Diethylphthalate	2014-08	ug/L			< 10.2				< 10.8	
Diethylphthalate	2015-10	ug/L				< 10			< 10	< 10
Diethylphthalate	2016-07	ug/L				< 10.4				< 10.4
Diethylphthalate	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Diethylphthalate	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Dimethoate	2009-03	ug/l							< 10	
Dimethoate	2009-06	ug/l							< 10.0	
Dimethoate	2009-09	ug/l							< 10.0	
Dimethoate	2010-03	ug/l							< 10.0	
Dimethoate	2010-09	ug/l							< 10.0	
Dimethoate	2011-03	ug/l							< 12.0	
Dimethoate	2014-06	ug/L			< 10.5					
Dimethoate	2014-08	ug/L			< 10.2				< 10.8	
Dimethoate	2015-10	ug/L				< 10			< 10	< 10
Dimethoate	2016-07	ug/L				< 10.4				< 10.4
Dimethoate	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Dimethoate	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Dimethylphthalate	2009-03	ug/l							< 10	
Dimethylphthalate	2009-06	ug/l							< 10.0	
Dimethylphthalate	2009-09	ug/l							< 10.0	

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1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Dimethylphthalate	2010-03	ug/l							< 10.0	
Dimethylphthalate	2010-09	ug/l							< 10.0	
Dimethylphthalate	2011-03	ug/l							< 12.0	
Dimethylphthalate	2014-06	ug/L			< 10.5					
Dimethylphthalate	2014-08	ug/L			< 10.2				< 10.8	
Dimethylphthalate	2015-10	ug/L				< 10			< 10	< 10
Dimethylphthalate	2016-07	ug/L				< 10.4				< 10.4
Dimethylphthalate	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Dimethylphthalate	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Di-n-butylphthalate	2009-03	ug/l							< 10	
Di-n-butylphthalate	2009-06	ug/l							< 10.0	
Di-n-butylphthalate	2009-09	ug/l							< 10.0	
Di-n-butylphthalate	2010-03	ug/l							< 10.0	
Di-n-butylphthalate	2010-09	ug/l							< 10.0	
Di-n-butylphthalate	2011-03	ug/l							< 12.0	
Di-n-butylphthalate	2014-06	ug/L			< 10.5					
Di-n-butylphthalate	2014-08	ug/L			**0.623 J**				< 10.8	
Di-n-butylphthalate	2014-12	ug/L			< 10.4				< 10.4	
Di-n-butylphthalate	2015-04	ug/L			< 11.1				< 10.2	
Di-n-butylphthalate	2015-09	ug/L			< 10					
Di-n-butylphthalate	2015-10	ug/L				< 10 J			< 10	< 10 J
Di-n-butylphthalate	2016-07	ug/L				< 10.4				< 10.4
Di-n-butylphthalate	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Di-n-butylphthalate	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Di-n-octylphthalate	2009-03	ug/l							< 10	
Di-n-octylphthalate	2009-06	ug/l							< 10.0	
Di-n-octylphthalate	2009-09	ug/l							< 10.0	
Di-n-octylphthalate	2010-03	ug/l							< 10.0	
Di-n-octylphthalate	2010-09	ug/l							< 10.0	
Di-n-octylphthalate	2011-03	ug/l							< 12.0	
Di-n-octylphthalate	2014-06	ug/L			< 21.1					
Di-n-octylphthalate	2014-08	ug/L			< 20.4				< 21.5	
Di-n-octylphthalate	2015-10	ug/L				< 20			< 20	< 20
Di-n-octylphthalate	2016-07	ug/L				< 20.8				< 20.8
Di-n-octylphthalate	2019-10	ug/L			< 21.1	< 20.3			< 20.9	< 20.3
Di-n-octylphthalate	2020-09	ug/L				< 25.6			< 29.9	~~< 25.6~~
Dinoseb	2009-03	ug/l							< 10	
Dinoseb	2009-06	ug/l							< 10.0	
Dinoseb	2009-09	ug/l							< 10.0	
Dinoseb	2010-03	ug/l							< 10.0	
Dinoseb	2010-09	ug/l							< 10.0	
Dinoseb	2011-03	ug/l							< 12.0	
Dinoseb	2014-06	ug/L			< 10.5					
Dinoseb	2014-08	ug/L			< 10.2				< 10.8	

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Dinoseb	2015-10	ug/L				< 10			< 10	< 10
Dinoseb	2016-07	ug/L				< 10.4				< 10.4
Dinoseb	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Dinoseb	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Diphenylamine	2009-03	ug/l							< 10	
Diphenylamine	2009-06	ug/l							< 10.0	
Diphenylamine	2009-09	ug/l							< 10.0	
Diphenylamine	2010-03	ug/l							< 10.0	
Diphenylamine	2010-09	ug/l							< 10.0	
Diphenylamine	2011-03	ug/l							< 12.0	
Diphenylamine	2014-06	ug/L			< 10.5					
Diphenylamine	2014-08	ug/L			< 10.2				< 10.8	
Diphenylamine	2015-10	ug/L				< 10			< 10	< 10
Diphenylamine	2016-07	ug/L				< 10.4				< 10.4
Diphenylamine	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Diphenylamine	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Disulfoton	2009-03	ug/l							< 70	
Disulfoton	2009-06	ug/l							< 70.0	
Disulfoton	2009-09	ug/l							< 10.0	
Disulfoton	2010-03	ug/l							< 10.0	
Disulfoton	2010-09	ug/l							< 10.0	
Disulfoton	2011-03	ug/l							< 12.0	
Disulfoton	2014-06	ug/L			< 10.5					
Disulfoton	2014-08	ug/L			< 10.2				< 10.8	
Disulfoton	2015-10	ug/L				< 10			< 10	< 10
Disulfoton	2016-07	ug/L				< 10.4				< 10.4
Disulfoton	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Disulfoton	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Endosulfan I	2009-03	ug/l							< 0.032	
Endosulfan I	2009-06	ug/l							< 0.0320	
Endosulfan I	2009-09	ug/l							< 0.0320	
Endosulfan I	2010-03	ug/l							< 0.0320	
Endosulfan I	2010-09	ug/l							< 0.0356	
Endosulfan I	2011-03	ug/l							< 0.0320	
Endosulfan I	2014-06	ug/L			< 0.0327					
Endosulfan I	2014-08	ug/L			< 0.0320				< 0.0320	
Endosulfan I	2015-10	ug/L				**10.3**			< 0.032 J	**10.3**
Endosulfan I	2016-04	ug/L				**2.05**			< 0.032	**2.05**
Endosulfan I	2016-07	ug/L				**0.153**				**0.153**
Endosulfan I	2016-10	ug/L				**0.0525**			< 0.032	**0.0525**
Endosulfan I	2017-05	ug/L				**0.0269 J**			**0.00252 J**	**0.0269 J**
Endosulfan I	2017-09	ug/L				**0.0213 J**			< 0.034	**0.0213 J**
Endosulfan I	2018-05	ug/L				< 0.0344			< 0.0344	< 0.0344
Endosulfan I	2018-09	ug/L				**0.0179 J**			< 0.0352	**0.0179 J**

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Endosulfan I	2019-03	ug/L				**0.0198 J**			< 0.00546	**0.0198 J**
Endosulfan I	2019-10	ug/L			**0.00817 J**	**0.0141 J**			< 0.0333	**0.0141 J**
Endosulfan I	2020-04	ug/L				**0.00875 J**			< 0.0427	**0.00875 J**
Endosulfan I	2020-09	ug/L				< 0.0348			< 0.0451	~~< 0.0348~~
Endosulfan I	2021-04	ug/L				**0.00966 J**			< 0.0427	**0.00966 J**
Endosulfan I	2021-09	ug/L				< 0.04			< 0.039	< 0.04
Endosulfan II	2009-03	ug/l							< 0.032	
Endosulfan II	2009-06	ug/l							< 0.0320	
Endosulfan II	2009-09	ug/l							< 0.0320	
Endosulfan II	2010-03	ug/l							< 0.0320	
Endosulfan II	2010-09	ug/l							< 0.0356	
Endosulfan II	2011-03	ug/l							< 0.0320	
Endosulfan II	2014-06	ug/L			< 0.0327					
Endosulfan II	2014-08	ug/L			< 0.0320				< 0.0320	
Endosulfan II	2015-10	ug/L				< 0.032			< 0.032	< 0.032
Endosulfan II	2016-07	ug/L				< 0.032				< 0.032
Endosulfan II	2019-10	ug/L			< 0.0335	< 0.0333			< 0.0333	< 0.0333
Endosulfan II	2020-09	ug/L				< 0.0348			< 0.0451	~~< 0.0348~~
Endosulfan Sulfate	2009-03	ug/l							< 0.032	
Endosulfan Sulfate	2009-06	ug/l							< 0.0320	
Endosulfan Sulfate	2009-09	ug/l							< 0.0320	
Endosulfan Sulfate	2010-03	ug/l							< 0.0320	
Endosulfan Sulfate	2010-09	ug/l							< 0.0356	
Endosulfan Sulfate	2011-03	ug/l							< 0.0320	
Endosulfan Sulfate	2011-09	ug/l							< 0.0320	
Endosulfan Sulfate	2012-03	ug/l							< 0.0320	
Endosulfan Sulfate	2013-03	ug/l							< 0.0344	
Endosulfan Sulfate	2013-09	ug/l							< 0.0333	
Endosulfan Sulfate	2014-03	ug/L							< 0.0376	
Endosulfan Sulfate	2014-06	ug/L			< 0.0327					
Endosulfan Sulfate	2014-08	ug/L			< 0.0320				< 0.0320	
Endosulfan Sulfate	2015-04	ug/L							< 0.0323	
Endosulfan Sulfate	2015-10	ug/L				< 0.032			< 0.032	< 0.032
Endosulfan Sulfate	2016-04	ug/L				< 0.0327			< 0.032	< 0.0327
Endosulfan Sulfate	2016-07	ug/L				< 0.032				< 0.032
Endosulfan Sulfate	2016-10	ug/L				< 0.0327			< 0.032	< 0.0327
Endosulfan Sulfate	2017-05	ug/L				< 0.0327			< 0.0344	< 0.0327
Endosulfan Sulfate	2017-09	ug/L				< 0.0344			< 0.034	< 0.0344
Endosulfan Sulfate	2018-05	ug/L				< 0.0344			< 0.0344	< 0.0344
Endosulfan Sulfate	2018-09	ug/L				< 0.0352			< 0.0352	< 0.0352
Endosulfan Sulfate	2019-03	ug/L				< 0.0356			< 0.00546	< 0.0356
Endosulfan Sulfate	2019-10	ug/L			< 0.0335	< 0.0333			< 0.0333	< 0.0333
Endosulfan Sulfate	2020-04	ug/L				< 0.0451			< 0.0427	< 0.0451
Endosulfan Sulfate	2020-09	ug/L				< 0.0348			< 0.0451	~~< 0.0348~~

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Endosulfan Sulfate	2021-04	ug/L				< 0.0364			< 0.0427	< 0.0364
Endosulfan Sulfate	2021-09	ug/L				< 0.04			< 0.039	< 0.04
Endrin	2009-03	ug/l							< 0.032	
Endrin	2009-06	ug/l							< 0.0320	
Endrin	2009-09	ug/l							< 0.0320	
Endrin	2010-03	ug/l							< 0.0320	
Endrin	2010-09	ug/l							< 0.0356	
Endrin	2011-03	ug/l							< 0.0320	
Endrin	2014-06	ug/L			< 0.0327					
Endrin	2014-08	ug/L			< 0.0320				< 0.0320	
Endrin	2015-10	ug/L				< 0.032			< 0.032	< 0.032
Endrin	2016-07	ug/L				< 0.032				< 0.032
Endrin	2019-10	ug/L			< 0.0335	< 0.0333			< 0.0333	< 0.0333
Endrin	2020-09	ug/L				< 0.0348			< 0.0451	~~< 0.0348~~
Endrin Aldehyde	2009-03	ug/l							< 0.032	
Endrin Aldehyde	2009-06	ug/l							< 0.0320	
Endrin Aldehyde	2009-09	ug/l							< 0.0320	
Endrin Aldehyde	2010-03	ug/l							< 0.0320	
Endrin Aldehyde	2010-09	ug/l							< 0.0356	
Endrin Aldehyde	2011-03	ug/l							< 0.0320	
Endrin Aldehyde	2014-06	ug/L			< 0.0327					
Endrin Aldehyde	2014-08	ug/L			< 0.0320				< 0.0320	
Endrin Aldehyde	2015-10	ug/L				< 0.032			< 0.032	< 0.032
Endrin Aldehyde	2016-07	ug/L				< 0.032				< 0.032
Endrin Aldehyde	2019-10	ug/L			< 0.0335	< 0.0333			< 0.0333	< 0.0333
Endrin Aldehyde	2020-09	ug/L				< 0.0348			< 0.0451	~~< 0.0348~~
Ethyl Methacrylate	2009-03	ug/l							< 2	
Ethyl Methacrylate	2009-06	ug/l							< 2.00	
Ethyl Methacrylate	2009-09	ug/l							< 2.00	
Ethyl Methacrylate	2010-03	ug/l							< 10.0	
Ethyl Methacrylate	2010-09	ug/l							< 20.0	
Ethyl Methacrylate	2011-03	ug/l							< 2.00	
Ethyl Methacrylate	2014-06	ug/L			< 2.00					
Ethyl Methacrylate	2014-08	ug/L			< 2.00				< 2.00	
Ethyl Methacrylate	2015-10	ug/L				< 2			< 2	< 2
Ethyl Methacrylate	2016-07	ug/L				< 2				< 2
Ethyl Methacrylate	2019-10	ug/L			< 2	< 2			< 2	< 2
Ethyl Methacrylate	2020-04	ug/L			< 2	< 2			< 2	< 2
Ethyl Methacrylate	2020-09	ug/L				< 2			< 2	~~< 2~~
Ethyl Methanesulfonate	2009-03	ug/l							< 10	
Ethyl Methanesulfonate	2009-06	ug/l							< 10.0	
Ethyl Methanesulfonate	2009-09	ug/l							< 10.0	
Ethyl Methanesulfonate	2010-03	ug/l							< 10.0	
Ethyl Methanesulfonate	2010-09	ug/l							< 10.0	

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Ethyl Methanesulfonate	2011-03	ug/l							< 12.0	
Ethyl Methanesulfonate	2014-06	ug/L			< 10.5					
Ethyl Methanesulfonate	2014-08	ug/L			< 10.2				< 10.8	
Ethyl Methanesulfonate	2015-10	ug/L				< 10			< 10	< 10
Ethyl Methanesulfonate	2016-07	ug/L				< 10.4				< 10.4
Ethyl Methanesulfonate	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Ethyl Methanesulfonate	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Ethylbenzene	2008-04	ug/l							< 1.00	
Ethylbenzene	2008-06	ug/l							< 1.00	
Ethylbenzene	2008-08	ug/l							< 1.00	
Ethylbenzene	2008-09	ug/l							< 1.00	
Ethylbenzene	2009-03	ug/l							< 1	
Ethylbenzene	2009-06	ug/l							< 1.00	
Ethylbenzene	2009-09	ug/l				< 1.00			< 1.00	< 1.00
Ethylbenzene	2009-12	ug/l				< 1.00				< 1.00
Ethylbenzene	2010-03	ug/l							< 1.00	
Ethylbenzene	2010-04	ug/l				< 1.00				< 1.00
Ethylbenzene	2010-06	ug/l				< 1.00				< 1.00
Ethylbenzene	2010-09	ug/l				< 1.00			< 1.00	< 1.00
Ethylbenzene	2011-03	ug/l				< 1.00			< 1.00	< 1.00
Ethylbenzene	2011-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Ethylbenzene	2011-11	ug/l	< 1.00		< 1.00					
Ethylbenzene	2012-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Ethylbenzene	2012-06	ug/l	< 1.00		< 1.00					
Ethylbenzene	2012-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Ethylbenzene	2013-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Ethylbenzene	2013-06	ug/l			< 1.00	< 1.00			< 1.00	< 1.00
Ethylbenzene	2013-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Ethylbenzene	2013-11	ug/L				< 1.00			< 1.00	< 1.00
Ethylbenzene	2014-03	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Ethylbenzene	2014-06	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
Ethylbenzene	2014-08	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Ethylbenzene	2014-12	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
Ethylbenzene	2015-04	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Ethylbenzene	2015-09	ug/L			< 1					
Ethylbenzene	2015-10	ug/L	< 1			< 1			< 1	< 1
Ethylbenzene	2016-04	ug/L	< 1		< 1	< 1			< 1	< 1
Ethylbenzene	2016-07	ug/L				< 1				< 1
Ethylbenzene	2016-10	ug/L	< 1		< 1	< 1			< 1	< 1
Ethylbenzene	2017-05	ug/L	< 1		< 1	< 1			< 1	< 1
Ethylbenzene	2017-09	ug/L	< 1		< 1	< 1			< 1	< 1
Ethylbenzene	2018-05	ug/L			< 1	< 1			< 1	< 1
Ethylbenzene	2018-09	ug/L	< 1		< 1	< 1			< 1	< 1
Ethylbenzene	2019-03	ug/L	< 1		< 1	< 1			< 1	< 1

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1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Ethylbenzene	2019-10	ug/L		< 1	< 1	< 1		< 1	< 1	< 1
Ethylbenzene	2020-04	ug/L		< 1	< 1	< 1	< 1	< 1	< 1	< 1
Ethylbenzene	2020-06	ug/L	< 1					< 1		
Ethylbenzene	2020-08	ug/L	< 1				< 1	< 1		
Ethylbenzene	2020-09	ug/L		< 1	< 1	< 1			< 1	~~< 1~~
Ethylbenzene	2020-12	ug/L					< 1	< 1		
Ethylbenzene	2021-02	ug/L					< 1			
Ethylbenzene	2021-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Ethylbenzene	2021-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Ethylbenzene	2022-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Ethylbenzene	2022-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Ethylbenzene	2023-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Ethylbenzene	2023-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Famphur	2009-03	ug/l							< 20	
Famphur	2009-06	ug/l							< 20.0	
Famphur	2009-09	ug/l							< 20.0	
Famphur	2010-03	ug/l							< 20.0	
Famphur	2010-09	ug/l							< 20.0	
Famphur	2011-03	ug/l							< 24.1	
Famphur	2014-06	ug/L			< 21.1					
Famphur	2014-08	ug/L			< 20.4				< 21.5	
Famphur	2015-10	ug/L				< 20			< 20	< 20
Famphur	2016-07	ug/L				< 20.8				< 20.8
Famphur	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Famphur	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Fluoranthene	2009-03	ug/l							< 10	
Fluoranthene	2009-06	ug/l							< 10.0	
Fluoranthene	2009-09	ug/l							< 10.0	
Fluoranthene	2010-03	ug/l							< 10.0	
Fluoranthene	2010-09	ug/l							< 10.0	
Fluoranthene	2011-03	ug/l							< 12.0	
Fluoranthene	2014-06	ug/L			< 10.5					
Fluoranthene	2014-08	ug/L			< 10.2				< 10.8	
Fluoranthene	2015-10	ug/L				< 10			< 10	< 10
Fluoranthene	2016-07	ug/L				< 10.4				< 10.4
Fluoranthene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Fluoranthene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Fluorene	2009-03	ug/l							< 10	
Fluorene	2009-06	ug/l							< 10.0	
Fluorene	2009-09	ug/l							< 10.0	
Fluorene	2010-03	ug/l							< 10.0	
Fluorene	2010-09	ug/l							< 10.0	
Fluorene	2011-03	ug/l							< 12.0	
Fluorene	2014-06	ug/L			< 10.5					

Table 13
Carroll County Landfill Western Expansion Area **Analytical Data Summary**
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Fluorene	2014-08	ug/L			< 10.2				< 10.8	
Fluorene	2015-10	ug/L				< 10			< 10	< 10
Fluorene	2016-07	ug/L				< 10.4				< 10.4
Fluorene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Fluorene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Fluorotrichloromethane	2008-04	ug/l							< 4.00	
Fluorotrichloromethane	2008-06	ug/l							< 4.00	
Fluorotrichloromethane	2008-08	ug/l							< 4.00	
Fluorotrichloromethane	2008-09	ug/l							< 4.00	
Fluorotrichloromethane	2009-03	ug/l							< 4	
Fluorotrichloromethane	2009-06	ug/l							< 4.00	
Fluorotrichloromethane	2009-09	ug/l				< 4.00			< 4.00	< 4.00
Fluorotrichloromethane	2009-12	ug/l				< 4.00				< 4.00
Fluorotrichloromethane	2010-03	ug/l							< 4.00	
Fluorotrichloromethane	2010-04	ug/l				< 4.00				< 4.00
Fluorotrichloromethane	2010-06	ug/l				< 4.00				< 4.00
Fluorotrichloromethane	2010-09	ug/l				< 4.00			< 4.00	< 4.00
Fluorotrichloromethane	2011-03	ug/l				< 4.00			< 4.00	< 4.00
Fluorotrichloromethane	2011-09	ug/l	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Fluorotrichloromethane	2011-11	ug/l	< 4.00		< 4.00					
Fluorotrichloromethane	2012-03	ug/l	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Fluorotrichloromethane	2012-06	ug/l	< 4.00		< 4.00					
Fluorotrichloromethane	2012-09	ug/l	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Fluorotrichloromethane	2013-03	ug/l	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Fluorotrichloromethane	2013-06	ug/l			< 4.00	< 4.00			< 4.00	< 4.00
Fluorotrichloromethane	2013-09	ug/l	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Fluorotrichloromethane	2013-11	ug/L				< 4.00			< 4.00	< 4.00
Fluorotrichloromethane	2014-03	ug/L	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Fluorotrichloromethane	2014-06	ug/L			< 4.00	< 4.00			< 4.00	< 4.00
Fluorotrichloromethane	2014-08	ug/L	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Fluorotrichloromethane	2014-12	ug/L			< 4.00	< 4.00			< 4.00	< 4.00
Fluorotrichloromethane	2015-04	ug/L	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Fluorotrichloromethane	2015-09	ug/L			< 4					
Fluorotrichloromethane	2015-10	ug/L	< 4			< 4			< 4	< 4
Fluorotrichloromethane	2016-04	ug/L	< 4		< 4	< 4			< 4	< 4
Fluorotrichloromethane	2016-07	ug/L				< 4				< 4
Fluorotrichloromethane	2016-10	ug/L	< 4		< 4	< 4			< 4	< 4
Fluorotrichloromethane	2017-05	ug/L	< 4		< 4	< 4			< 4	< 4
Fluorotrichloromethane	2017-09	ug/L	< 4		< 4	< 4			< 4	< 4
Fluorotrichloromethane	2018-05	ug/L			< 4	< 4			< 4	< 4
Fluorotrichloromethane	2018-09	ug/L	< 4		< 4	< 4			< 4	< 4
Fluorotrichloromethane	2019-03	ug/L	< 4		< 4	< 4			< 4	< 4
Fluorotrichloromethane	2019-10	ug/L		< 4	< 4	< 4		< 4	< 4	< 4
Fluorotrichloromethane	2020-04	ug/L		< 4	< 4	< 4	< 4	< 4	< 4	< 4

Table 13
Carroll County Landfill Western Expansion Area **Analytical Data Summary**
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Fluorotrichloromethane	2020-06	ug/L	< 4					< 4		
Fluorotrichloromethane	2020-08	ug/L	< 4				< 4	< 4		
Fluorotrichloromethane	2020-09	ug/L		< 4	< 4	< 4			< 4	~~< 4~~
Fluorotrichloromethane	2020-12	ug/L					< 4	< 4		
Fluorotrichloromethane	2021-02	ug/L					< 4			
Fluorotrichloromethane	2021-04	ug/L	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
Fluorotrichloromethane	2021-09	ug/L	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
Fluorotrichloromethane	2022-04	ug/L	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
Fluorotrichloromethane	2022-09	ug/L	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
Fluorotrichloromethane	2023-04	ug/L	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
Fluorotrichloromethane	2023-09	ug/L	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
Heptachlor	2009-03	ug/l							< 0.032	
Heptachlor	2009-06	ug/l							< 0.0320	
Heptachlor	2009-09	ug/l							< 0.0320	
Heptachlor	2010-03	ug/l							< 0.0320	
Heptachlor	2010-09	ug/l							< 0.0356	
Heptachlor	2011-03	ug/l							< 0.0320	
Heptachlor	2014-06	ug/L			< 0.0327					
Heptachlor	2014-08	ug/L			< 0.0320				< 0.0320	
Heptachlor	2015-10	ug/L				< 0.032			< 0.032	< 0.032
Heptachlor	2016-07	ug/L				< 0.032				< 0.032
Heptachlor	2019-10	ug/L			< 0.0335	< 0.0333			< 0.0333	< 0.0333
Heptachlor	2020-09	ug/L				< 0.0348			< 0.0451	~~< 0.0348~~
Heptachlor Epoxide	2009-03	ug/l							< 0.032	
Heptachlor Epoxide	2009-06	ug/l							< 0.0320	
Heptachlor Epoxide	2009-09	ug/l							< 0.0320	
Heptachlor Epoxide	2010-03	ug/l							< 0.0320	
Heptachlor Epoxide	2010-09	ug/l							< 0.0356	
Heptachlor Epoxide	2011-03	ug/l							< 0.0320	
Heptachlor Epoxide	2011-09	ug/l							< 0.0320	
Heptachlor Epoxide	2012-03	ug/l							< 0.0320	
Heptachlor Epoxide	2013-03	ug/l							< 0.0344	
Heptachlor Epoxide	2013-09	ug/l							< 0.0333	
Heptachlor Epoxide	2014-03	ug/L							< 0.0376	
Heptachlor Epoxide	2014-06	ug/L			< 0.0327					
Heptachlor Epoxide	2014-08	ug/L			< 0.0320				**0.0115 J**	
Heptachlor Epoxide	2015-04	ug/L							< 0.0323	
Heptachlor Epoxide	2015-10	ug/L				< 0.032			< 0.032	< 0.032
Heptachlor Epoxide	2016-04	ug/L				< 0.0327			< 0.032	< 0.0327
Heptachlor Epoxide	2016-07	ug/L				< 0.032				< 0.032
Heptachlor Epoxide	2016-10	ug/L				< 0.0327			< 0.032	< 0.0327
Heptachlor Epoxide	2017-05	ug/L				< 0.0327			< 0.0344	< 0.0327
Heptachlor Epoxide	2017-09	ug/L				< 0.0344			**0.00912 J**	< 0.0344
Heptachlor Epoxide	2018-05	ug/L				< 0.0344			**0.00792 J**	< 0.0344

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Heptachlor Epoxide	2018-09	ug/L				< 0.0352			< 0.0352	< 0.0352
Heptachlor Epoxide	2019-03	ug/L				< 0.0356			< 0.00546	< 0.0356
Heptachlor Epoxide	2019-10	ug/L			< 0.0335	< 0.0333			< 0.0333	< 0.0333
Heptachlor Epoxide	2020-04	ug/L				< 0.0451			< 0.0427	< 0.0451
Heptachlor Epoxide	2020-09	ug/L				< 0.0348			< 0.0451	~~< 0.0348~~
Heptachlor Epoxide	2021-04	ug/L				< 0.0364			< 0.0427	< 0.0364
Heptachlor Epoxide	2021-09	ug/L				< 0.04			< 0.039	< 0.04
Hexachlorobenzene	2009-03	ug/l							< 10	
Hexachlorobenzene	2009-06	ug/l							< 10.0	
Hexachlorobenzene	2009-09	ug/l							< 10.0	
Hexachlorobenzene	2010-03	ug/l							< 10.0	
Hexachlorobenzene	2010-09	ug/l							< 10.0	
Hexachlorobenzene	2011-03	ug/l							< 12.0	
Hexachlorobenzene	2014-06	ug/L			< 10.5					
Hexachlorobenzene	2014-08	ug/L			< 10.2				< 10.8	
Hexachlorobenzene	2015-10	ug/L				< 10			< 10	< 10
Hexachlorobenzene	2016-07	ug/L				< 10.4				< 10.4
Hexachlorobenzene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Hexachlorobenzene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Hexachlorobutadiene	2009-03	ug/l							< 10	
Hexachlorobutadiene	2009-06	ug/l							< 10.0	
Hexachlorobutadiene	2009-09	ug/l							< 10.0	
Hexachlorobutadiene	2010-03	ug/l							< 10.0	
Hexachlorobutadiene	2010-09	ug/l							< 10.0	
Hexachlorobutadiene	2011-03	ug/l							< 12.0	
Hexachlorobutadiene	2014-06	ug/L			< 10.5					
Hexachlorobutadiene	2014-08	ug/L			< 10.2				< 10.8	
Hexachlorobutadiene	2015-10	ug/L				< 10			< 10	< 10
Hexachlorobutadiene	2016-07	ug/L				< 10.4				< 10.4
Hexachlorobutadiene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Hexachlorobutadiene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Hexachlorocyclopentadiene	2009-03	ug/l							< 10	
Hexachlorocyclopentadiene	2009-06	ug/l							< 10.0	
Hexachlorocyclopentadiene	2009-09	ug/l							< 10.0	
Hexachlorocyclopentadiene	2010-03	ug/l							< 10.0	
Hexachlorocyclopentadiene	2010-09	ug/l							< 10.0	
Hexachlorocyclopentadiene	2011-03	ug/l							< 12.0	
Hexachlorocyclopentadiene	2014-06	ug/L			< 21.1					
Hexachlorocyclopentadiene	2014-08	ug/L			< 20.4				< 21.5	
Hexachlorocyclopentadiene	2015-10	ug/L				< 20			< 20	< 20
Hexachlorocyclopentadiene	2016-07	ug/L				< 20.8				< 20.8
Hexachlorocyclopentadiene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Hexachlorocyclopentadiene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Hexachloroethane	2009-03	ug/l							< 10	

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Hexachloroethane	2009-06	ug/l							< 10.0	
Hexachloroethane	2009-09	ug/l							< 10.0	
Hexachloroethane	2010-03	ug/l							< 10.0	
Hexachloroethane	2010-09	ug/l							< 10.0	
Hexachloroethane	2011-03	ug/l							< 12.0	
Hexachloroethane	2014-06	ug/L			< 10.5					
Hexachloroethane	2014-08	ug/L			< 10.2				< 10.8	
Hexachloroethane	2015-10	ug/L				< 10			< 10	< 10
Hexachloroethane	2016-07	ug/L				< 10.4				< 10.4
Hexachloroethane	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Hexachloroethane	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Hexachloropropene	2009-03	ug/l							< 10	
Hexachloropropene	2009-06	ug/l							< 10.0	
Hexachloropropene	2009-09	ug/l							< 10.0	
Hexachloropropene	2010-03	ug/l							< 10.0	
Hexachloropropene	2010-09	ug/l							< 10.0	
Hexachloropropene	2011-03	ug/l							< 12.0	
Hexachloropropene	2014-06	ug/L			< 10.5					
Hexachloropropene	2014-08	ug/L			< 10.2				< 10.8	
Hexachloropropene	2015-10	ug/L				< 10			< 10	< 10
Hexachloropropene	2016-07	ug/L				< 10.4				< 10.4
Hexachloropropene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Hexachloropropene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Indeno(1,2,3-cd)pyrene	2009-03	ug/l							< 10	
Indeno(1,2,3-cd)pyrene	2009-06	ug/l							< 10.0	
Indeno(1,2,3-cd)pyrene	2009-09	ug/l							< 10.0	
Indeno(1,2,3-cd)pyrene	2010-03	ug/l							< 10.0	
Indeno(1,2,3-cd)pyrene	2010-09	ug/l							< 10.0	
Indeno(1,2,3-cd)pyrene	2011-03	ug/l							< 12.0	
Indeno(1,2,3-cd)pyrene	2014-06	ug/L			< 10.5					
Indeno(1,2,3-cd)pyrene	2014-08	ug/L			< 10.2				< 10.8	
Indeno(1,2,3-cd)pyrene	2015-10	ug/L				< 10			< 10	< 10
Indeno(1,2,3-cd)pyrene	2016-07	ug/L				< 10.4				< 10.4
Indeno(1,2,3-cd)pyrene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Indeno(1,2,3-cd)pyrene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Iodomethane	2008-04	ug/l							< 10.0	
Iodomethane	2008-06	ug/l							< 10.0	
Iodomethane	2008-08	ug/l							< 10.0	
Iodomethane	2008-09	ug/l							< 10.0	
Iodomethane	2009-03	ug/l							< 10	
Iodomethane	2009-06	ug/l							< 20.0	
Iodomethane	2009-09	ug/l				< 20.0			< 20.0	< 20.0
Iodomethane	2009-12	ug/l				< 20.0				< 20.0
Iodomethane	2010-03	ug/l							< 10.0	

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Iodomethane	2010-04	ug/l				< 10.0				< 10.0
Iodomethane	2010-06	ug/l				< 50.0				< 50.0
Iodomethane	2010-09	ug/l				< 10.0			< 10.0	< 10.0
Iodomethane	2011-03	ug/l				< 10.0			< 10.0	< 10.0
Iodomethane	2011-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
Iodomethane	2011-11	ug/l	< 20.0		< 20.0					
Iodomethane	2012-03	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
Iodomethane	2012-06	ug/l	< 10.0		< 10.0					
Iodomethane	2012-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
Iodomethane	2013-03	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
Iodomethane	2013-06	ug/l			< 10.0	< 10.0			< 10.0	< 10.0
Iodomethane	2013-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
Iodomethane	2013-11	ug/L				< 10.0			< 10.0	< 10.0
Iodomethane	2014-03	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
Iodomethane	2014-06	ug/L			< 10.0	< 10.0			< 10.0	< 10.0
Iodomethane	2014-08	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
Iodomethane	2014-12	ug/L			< 10.0	< 10.0			< 10.0	< 10.0
Iodomethane	2015-04	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
Iodomethane	2015-09	ug/L			< 10					
Iodomethane	2015-10	ug/L	< 10			< 10			< 10	< 10
Iodomethane	2016-04	ug/L	< 10		< 10	< 10			< 10	< 10
Iodomethane	2016-07	ug/L				< 10				< 10
Iodomethane	2016-10	ug/L	< 10		< 10	< 10			< 10	< 10
Iodomethane	2017-05	ug/L	< 10		< 10	< 10			< 10	< 10
Iodomethane	2017-09	ug/L	< 10		< 10	< 10			< 10	< 10
Iodomethane	2018-05	ug/L			< 10	< 10			< 10	< 10
Iodomethane	2018-09	ug/L	< 10		< 10	< 10			< 10	< 10
Iodomethane	2019-03	ug/L	< 10		< 10	< 10			< 10	< 10
Iodomethane	2019-10	ug/L		< 10	< 10	< 10		< 10	< 10	< 10
Iodomethane	2020-04	ug/L		< 10	< 10	< 10	< 10	< 10	< 10	< 10
Iodomethane	2020-06	ug/L	< 10					< 10		
Iodomethane	2020-08	ug/L	< 10				< 10	< 10		
Iodomethane	2020-09	ug/L		< 10	< 10	< 10			< 10	~~< 10~~
Iodomethane	2020-12	ug/L					< 10	< 10		
Iodomethane	2021-02	ug/L					< 10			
Iodomethane	2021-04	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Iodomethane	2021-09	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Iodomethane	2022-04	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Iodomethane	2022-09	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Iodomethane	2023-04	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Iodomethane	2023-09	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Isobutanol	2009-03	mg/l							< 10	
Isobutanol	2009-06	mg/l							< 10.0	
Isobutanol	2009-09	mg/l							< 10.0	

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Isobutanol	2010-09	mg/l							< 10.0	
Isobutanol	2014-06	mg/L			< 10.0					
Isobutanol	2014-08	mg/L			< 10.0				< 10.0	
Isobutanol	2015-10	mg/L				< 10			< 10	< 10
Isobutanol	2016-07	mg/L				< 10				< 10
Isobutanol	2019-10	mg/L			< 10	< 10			< 10	< 10
Isobutanol	2020-09	mg/L				< 10			< 10	~~< 10~~
Isodrin	2009-03	ug/l							< 10	
Isodrin	2009-06	ug/l							< 10.0	
Isodrin	2009-09	ug/l							< 10.0	
Isodrin	2010-03	ug/l							< 10.0	
Isodrin	2010-09	ug/l							< 10.0	
Isodrin	2011-03	ug/l							< 12.0	
Isodrin	2014-06	ug/L			< 10.5					
Isodrin	2014-08	ug/L			< 10.2				< 10.8	
Isodrin	2015-10	ug/L				< 10			< 10	< 10
Isodrin	2016-07	ug/L				< 10.4				< 10.4
Isodrin	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Isodrin	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Isophorone	2009-03	ug/l							< 10	
Isophorone	2009-06	ug/l							< 10.0	
Isophorone	2009-09	ug/l							< 10.0	
Isophorone	2010-03	ug/l							< 10.0	
Isophorone	2010-09	ug/l							< 10.0	
Isophorone	2011-03	ug/l							< 12.0	
Isophorone	2014-06	ug/L			< 10.5					
Isophorone	2014-08	ug/L			< 10.2				< 10.8	
Isophorone	2015-10	ug/L				< 10			< 10	< 10
Isophorone	2016-07	ug/L				< 10.4				< 10.4
Isophorone	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Isophorone	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Isosafrole	2009-03	ug/l							< 10	
Isosafrole	2009-06	ug/l							< 10.0	
Isosafrole	2009-09	ug/l							< 10.0	
Isosafrole	2010-03	ug/l							< 10.0	
Isosafrole	2010-09	ug/l							< 10.0	
Isosafrole	2011-03	ug/l							< 12.0	
Isosafrole	2014-06	ug/L			< 10.5					
Isosafrole	2014-08	ug/L			< 10.2				< 10.8	
Isosafrole	2015-10	ug/L				< 10			< 10	< 10
Isosafrole	2016-07	ug/L				< 10.4				< 10.4
Isosafrole	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Isosafrole	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Kepone	2009-03	ug/l							< 10	

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Table 13
Analytical Data Summary
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Kepone	2009-06	ug/l							< 10.0	
Kepone	2009-09	ug/l							< 10.0	
Kepone	2010-03	ug/l							< 10.0	
Kepone	2010-09	ug/l							< 10.0	
Kepone	2011-03	ug/l							< 12.0	
Kepone	2014-06	ug/L			< 10.5					
Kepone	2014-08	ug/L			< 10.2				< 10.8	
Kepone	2015-10	ug/L				< 10			< 10	< 10
Kepone	2016-07	ug/L				< 10.4				< 10.4
Kepone	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Kepone	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Lead	2008-04	mg/l							< 0.00400	
Lead	2008-06	mg/l							< 0.00400	
Lead	2008-08	mg/l							< 0.00400	
Lead	2008-09	mg/l							< 0.00400	
Lead	2009-03	mg/l							< 0.004	
Lead	2009-06	mg/l							< 0.00400	
Lead	2009-09	mg/l				**0.00868**			< 0.00400	**0.00868**
Lead	2009-12	mg/l				**0.0362**				**0.0362**
Lead	2010-03	mg/l							< 0.00400	
Lead	2010-04	mg/l				< 0.00400				< 0.00400
Lead	2010-06	mg/l				< 0.00400				< 0.00400
Lead	2010-09	mg/l				< 0.00400			< 0.00400	< 0.00400
Lead	2011-03	mg/l				< 0.00400			< 0.00400	< 0.00400
Lead	2011-09	mg/l	< 0.00400		< 0.00400	< 0.00400			< 0.00400	< 0.00400
Lead	2011-11	mg/l	< 0.00400		< 0.00400					
Lead	2012-03	mg/l	< 0.00400		< 0.00400	< 0.00400			< 0.00400	< 0.00400
Lead	2012-06	mg/l	< 0.00400		**0.0392**					
Lead	2012-09	mg/l	< 0.00400		< 0.00400	< 0.00400			< 0.00400	< 0.00400
Lead	2013-03	mg/l	**0.00148 J**		**0.00514**	**0.0127**			**0.00120 J**	**0.0127**
Lead	2013-06	mg/l				< 0.00400				< 0.00400
Lead	2013-09	mg/l	< 0.00400		< 0.00400	< 0.00400			< 0.00400	< 0.00400
Lead	2013-11	mg/L				< 0.00400				< 0.00400
Lead	2014-03	mg/L	< 0.00400		< 0.00400	< 0.00400			< 0.00400	< 0.00400
Lead	2014-06	mg/L			< 0.00400	< 0.00400				< 0.00400
Lead	2014-08	mg/L	< 0.000500		**0.000542**	**0.000173 J**			< 0.000500	**0.000173 J**
Lead	2014-12	mg/L			< 0.000500	**0.000935**			< 0.000500	**0.000935**
Lead	2015-04	mg/L	< 0.000500		**0.000198 J**	< 0.000500			**0.000616**	< 0.000500
Lead	2015-09	mg/L			**0.000534**					
Lead	2015-10	mg/L	< 0.0005			< 0.0005			< 0.0005	< 0.0005
Lead	2016-04	mg/L	**0.000244 J**		< 0.0005	< 0.0005			< 0.0005	< 0.0005
Lead	2016-07	mg/L				< 0.0005				< 0.0005
Lead	2016-10	mg/L	< 0.0005		< 0.0005	< 0.0005			< 0.0005	< 0.0005
Lead	2017-05	mg/L	< 0.0005		< 0.0005	< 0.0005			< 0.0005	< 0.0005

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Lead	2017-09	mg/L	< 0.0005		**0.000394 J**	< 0.0005			< 0.0005	< 0.0005
Lead	2018-05	mg/L			< 0.0005	< 0.0005			< 0.0005	< 0.0005
Lead	2018-09	mg/L	**0.00234**		< 0.0005	< 0.0005			< 0.0005	< 0.0005
Lead	2019-03	mg/L	< 0.0005		< 0.0005	< 0.0005			< 0.0005	< 0.0005
Lead	2019-10	mg/L		< 0.0005	< 0.0005	< 0.001		< 0.0005	< 0.0005	< 0.001
Lead	2020-04	mg/L		< 0.0005	< 0.0005	< 0.0005	**0.0035**	**0.000418 J**	< 0.0005	< 0.0005
Lead	2020-06	mg/L	< 0.0005					**0.00398**		
Lead	2020-08	mg/L	< 0.0005				**0.00385**	**0.00644**		
Lead	2020-09	mg/L		< 0.0005	< 0.0005	**0.000145 J**			< 0.0005	~~**0.000145 J**~~
Lead	2020-12	mg/L					**0.000429 J**	**0.000861**		
Lead	2021-02	mg/L					< 0.0005			
Lead	2021-04	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	**0.000515**	< 0.0005	< 0.0005
Lead	2021-09	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	**0.000322 J**	**0.000971**	< 0.0005	< 0.0005
Lead	2022-04	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	**0.00118**	< 0.0005	< 0.0005
Lead	2022-09	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	**0.000532**	< 0.0005	< 0.0005
Lead	2023-04	mg/L	< 0.0005	< 0.0005	< 0.0005	**0.000378 J**	< 0.0005	**0.000809**	< 0.0005	**0.000378 J**
Lead	2023-09	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	**0.000669**	**0.00429**	< 0.0005	< 0.0005
Lindane (BHC, Gamma-)	2009-03	ug/l							< 0.032	
Lindane (BHC, Gamma-)	2009-06	ug/l							< 0.0320	
Lindane (BHC, Gamma-)	2009-09	ug/l							< 0.0320	
Lindane (BHC, Gamma-)	2010-03	ug/l							< 0.0320	
Lindane (BHC, Gamma-)	2010-09	ug/l							< 0.0356	
Lindane (BHC, Gamma-)	2011-03	ug/l							< 0.0320	
Lindane (BHC, Gamma-)	2014-06	ug/L			< 0.0327					
Lindane (BHC, Gamma-)	2014-08	ug/L			< 0.0320				< 0.0320	
Lindane (BHC, Gamma-)	2015-10	ug/L				< 0.032			< 0.032	< 0.032
Lindane (BHC, Gamma-)	2016-07	ug/L				< 0.032				< 0.032
Lindane (BHC, Gamma-)	2019-10	ug/L			**0.00373 J**	< 0.0333			**0.00317 J**	< 0.0333
Lindane (BHC, Gamma-)	2020-09	ug/L				< 0.0348			< 0.0451	~~< 0.0348~~
m/p-Cresol	2009-03	ug/l							< 10	
m/p-Cresol	2009-06	ug/l							< 10.0	
m/p-Cresol	2009-09	ug/l							< 10.0	
m/p-Cresol	2010-03	ug/l							< 10.0	
m/p-Cresol	2010-09	ug/l							< 10.0	
m/p-Cresol	2011-03	ug/l							< 12.0	
m/p-Cresol	2014-06	ug/L			< 10.5					
m/p-Cresol	2014-08	ug/L			< 10.2				< 10.8	
m/p-Cresol	2015-10	ug/L				< 10			< 10	< 10
m/p-Cresol	2016-07	ug/L				< 10.4				< 10.4
m/p-Cresol	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
m/p-Cresol	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Mercury	2009-03	mg/l							< 0.0002	
Mercury	2009-06	mg/l							< 0.000200	
Mercury	2009-09	mg/l							< 0.000200	

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Mercury	2010-09	mg/l							< 0.000200	
Mercury	2011-03	mg/l							< 0.000200	
Mercury	2013-06	mg/l				< 0.000200				< 0.000200
Mercury	2013-09	mg/l				< 0.000200				< 0.000200
Mercury	2013-11	mg/L				< 0.000200				< 0.000200
Mercury	2014-03	mg/L				< 0.000200			< 0.000200	< 0.000200
Mercury	2014-06	mg/L			< 0.000200	< 0.000200				< 0.000200
Mercury	2014-08	mg/L			< 0.000200				< 0.000200	
Mercury	2015-10	mg/L				< 0.0002			< 0.0002	< 0.0002
Mercury	2016-07	mg/L				< 0.0002				< 0.0002
Mercury	2019-10	mg/L			< 0.0002	< 0.0002			< 0.0002	< 0.0002
Mercury	2020-09	mg/L				< 0.0002			< 0.0002	~~< 0.0002~~
Methacrylonitrile	2009-03	ug/l							< 1	
Methacrylonitrile	2009-06	ug/l							< 1.00	
Methacrylonitrile	2009-09	ug/l							< 1.00	
Methacrylonitrile	2010-03	ug/l							< 1.00	
Methacrylonitrile	2010-09	ug/l							< 1.00	
Methacrylonitrile	2011-03	ug/l							< 1.00	
Methacrylonitrile	2014-06	ug/L			< 1.00					
Methacrylonitrile	2014-08	ug/L			< 10.0				< 10.0	
Methacrylonitrile	2015-10	ug/L				< 10			< 10	< 10
Methacrylonitrile	2016-07	ug/L				< 10				< 10
Methacrylonitrile	2019-10	ug/L			< 10	< 10			< 10	< 10
Methacrylonitrile	2020-04	ug/L			< 10	< 10			< 10	< 10
Methacrylonitrile	2020-09	ug/L				< 10			< 10	~~< 10~~
Methapyrilene	2009-03	ug/l							< 10	
Methapyrilene	2009-06	ug/l							< 10.0	
Methapyrilene	2009-09	ug/l							< 10.0	
Methapyrilene	2010-03	ug/l							< 10.0	
Methapyrilene	2010-09	ug/l							< 10.0	
Methapyrilene	2011-03	ug/l							< 12.0	
Methapyrilene	2014-06	ug/L			< 10.5					
Methapyrilene	2014-08	ug/L			< 10.2				< 10.8	
Methapyrilene	2015-10	ug/L				< 10			< 10	< 10
Methapyrilene	2016-07	ug/L				< 10.4				< 10.4
Methapyrilene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Methapyrilene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Methoxychlor	2009-03	ug/l							< 0.032	
Methoxychlor	2009-06	ug/l							< 0.0320	
Methoxychlor	2009-09	ug/l							< 0.0320	
Methoxychlor	2010-03	ug/l							< 0.0320	
Methoxychlor	2010-09	ug/l							< 0.0356	
Methoxychlor	2011-03	ug/l							< 0.0320	
Methoxychlor	2011-09	ug/l							< 0.0320	

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Methoxychlor	2012-03	ug/l							< 0.0320	
Methoxychlor	2013-03	ug/l							< 0.0344	
Methoxychlor	2013-09	ug/l							< 0.0333	
Methoxychlor	2014-03	ug/L							< 0.0376	
Methoxychlor	2014-06	ug/L			< 0.0327					
Methoxychlor	2014-08	ug/L			< 0.0320				< 0.0320	
Methoxychlor	2015-04	ug/L							< 0.0323	
Methoxychlor	2015-10	ug/L				< 0.032			< 0.032	< 0.032
Methoxychlor	2016-04	ug/L				< 0.0327			< 0.032	< 0.0327
Methoxychlor	2016-07	ug/L				< 0.032				< 0.032
Methoxychlor	2016-10	ug/L				< 0.0327			< 0.032	< 0.0327
Methoxychlor	2017-05	ug/L				< 0.0327			< 0.0344	< 0.0327
Methoxychlor	2017-09	ug/L				< 0.0344			< 0.034	< 0.0344
Methoxychlor	2018-05	ug/L				< 0.0344			< 0.0344	< 0.0344
Methoxychlor	2018-09	ug/L				< 0.0352			< 0.0352	< 0.0352
Methoxychlor	2019-03	ug/L				< 0.0356			< 0.00546	< 0.0356
Methoxychlor	2019-10	ug/L			< 0.0335	< 0.0333			< 0.0333	< 0.0333
Methoxychlor	2020-04	ug/L				< 0.0451			< 0.0427	< 0.0451
Methoxychlor	2020-09	ug/L				< 0.0348			< 0.0451	~~< 0.0348~~
Methoxychlor	2021-04	ug/L				< 0.0364			**0.00642 J**	< 0.0364
Methoxychlor	2021-09	ug/L				< 0.04			< 0.039	< 0.04
Methyl Methacrylate	2009-03	ug/l							< 2	
Methyl Methacrylate	2009-06	ug/l							< 2.00	
Methyl Methacrylate	2009-09	ug/l							< 2.00	
Methyl Methacrylate	2010-03	ug/l							< 2.00	
Methyl Methacrylate	2010-09	ug/l							< 20.0	
Methyl Methacrylate	2011-03	ug/l							< 2.00	
Methyl Methacrylate	2014-06	ug/L			< 2.00					
Methyl Methacrylate	2014-08	ug/L			< 2.00				< 2.00	
Methyl Methacrylate	2015-10	ug/L				< 2			< 2	< 2
Methyl Methacrylate	2016-07	ug/L				< 2				< 2
Methyl Methacrylate	2019-10	ug/L			< 2	< 2			< 2	< 2
Methyl Methacrylate	2020-04	ug/L			< 2	< 2			< 2	< 2
Methyl Methacrylate	2020-09	ug/L				< 2			< 2	~~< 2~~
Methyl Methanesulfonate	2009-03	ug/l							< 10	
Methyl Methanesulfonate	2009-06	ug/l							< 10.0	
Methyl Methanesulfonate	2009-09	ug/l							< 10.0	
Methyl Methanesulfonate	2010-03	ug/l							< 10.0	
Methyl Methanesulfonate	2010-09	ug/l							< 10.0	
Methyl Methanesulfonate	2011-03	ug/l							< 12.0	
Methyl Methanesulfonate	2014-06	ug/L			< 10.5					
Methyl Methanesulfonate	2014-08	ug/L			< 10.2				< 10.8	
Methyl Methanesulfonate	2015-10	ug/L				< 10			< 10	< 10
Methyl Methanesulfonate	2016-07	ug/L				< 10.4				< 10.4

Table 13
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Methyl Methanesulfonate	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Methyl Methanesulfonate	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Methyl Parathion	2009-03	ug/l							< 10	
Methyl Parathion	2009-06	ug/l							< 10.0	
Methyl Parathion	2009-09	ug/l							< 10.0	
Methyl Parathion	2010-03	ug/l							< 10.0	
Methyl Parathion	2010-09	ug/l							< 10.0	
Methyl Parathion	2011-03	ug/l							< 12.0	
Methyl Parathion	2014-06	ug/L			< 10.5					
Methyl Parathion	2014-08	ug/L			< 10.2				< 10.8	
Methyl Parathion	2015-10	ug/L				< 10			< 10	< 10
Methyl Parathion	2016-07	ug/L				< 10.4				< 10.4
Methyl Parathion	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Methyl Parathion	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Methylene Chloride	2008-04	ug/l							< 5.00	
Methylene Chloride	2008-06	ug/l							< 10.0	
Methylene Chloride	2008-08	ug/l							< 5.00	
Methylene Chloride	2008-09	ug/l							< 5.00	
Methylene Chloride	2009-03	ug/l							**0.71 J**	
Methylene Chloride	2009-06	ug/l							< 5.00	
Methylene Chloride	2009-09	ug/l				< 5.00			< 5.00	< 5.00
Methylene Chloride	2009-12	ug/l				< 5.00				< 5.00
Methylene Chloride	2010-03	ug/l							< 5.00	
Methylene Chloride	2010-04	ug/l				< 5.00				< 5.00
Methylene Chloride	2010-06	ug/l				< 5.00				< 5.00
Methylene Chloride	2010-09	ug/l				< 5.00			< 5.00	< 5.00
Methylene Chloride	2011-03	ug/l				< 5.00			< 5.00	< 5.00
Methylene Chloride	2011-09	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Methylene Chloride	2011-11	ug/l	< 5.00		< 5.00					
Methylene Chloride	2012-03	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Methylene Chloride	2012-06	ug/l	< 5.00		< 5.00					
Methylene Chloride	2012-09	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Methylene Chloride	2013-03	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Methylene Chloride	2013-06	ug/l			**0.229 J**	**0.188 J**			< 5.00	**0.188 J**
Methylene Chloride	2013-09	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Methylene Chloride	2013-11	ug/L				< 5.00			< 5.00	< 5.00
Methylene Chloride	2014-03	ug/L	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
Methylene Chloride	2014-06	ug/L			< 5.00	< 5.00 J			< 5.00 J	< 5.00 J
Methylene Chloride	2014-08	ug/L	< 5.00		< 5.00 J	< 5.00			< 5.00	< 5.00
Methylene Chloride	2014-12	ug/L			< 5.00	< 5.00			< 5.00	< 5.00
Methylene Chloride	2015-04	ug/L	< 5.00		< 5.00 J	< 5.00			< 5.00 J	< 5.00
Methylene Chloride	2015-09	ug/L			< 5					
Methylene Chloride	2015-10	ug/L	< 5 J			< 5 J			< 5 J	< 5 J
Methylene Chloride	2016-04	ug/L	< 5 J		< 5	< 5			< 5	< 5

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Table 13
Analytical Data Summary
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Methylene Chloride	2016-07	ug/L				< 5				< 5
Methylene Chloride	2016-10	ug/L	< 5		< 5	< 5			< 5	< 5
Methylene Chloride	2017-05	ug/L	< 5		< 5	< 5			< 5	< 5
Methylene Chloride	2017-09	ug/L	< 5		**0.176 J**	< 5			**0.22 J**	< 5
Methylene Chloride	2018-05	ug/L			< 5	< 5			< 5	< 5
Methylene Chloride	2018-09	ug/L	< 5		< 5	< 5			< 5	< 5
Methylene Chloride	2019-03	ug/L	< 5		< 5	< 5			< 5	< 5
Methylene Chloride	2019-10	ug/L		< 5	< 5	< 5		< 5	< 5	< 5
Methylene Chloride	2020-04	ug/L		< 5	< 5	< 5	< 5	< 5	< 5	< 5
Methylene Chloride	2020-06	ug/L	< 5					< 5		
Methylene Chloride	2020-08	ug/L	< 5				< 5	< 5		
Methylene Chloride	2020-09	ug/L		< 5	< 5	< 5			< 5	~~< 5~~
Methylene Chloride	2020-12	ug/L					< 5	< 5		
Methylene Chloride	2021-02	ug/L					< 5			
Methylene Chloride	2021-04	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Methylene Chloride	2021-09	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Methylene Chloride	2022-04	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Methylene Chloride	2022-09	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Methylene Chloride	2023-04	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Methylene Chloride	2023-09	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Naphthalene	2009-03	ug/l							< 5	
Naphthalene	2009-06	ug/l							< 5.00	
Naphthalene	2009-09	ug/l							< 5.00	
Naphthalene	2010-03	ug/l							< 10.0	
Naphthalene	2010-09	ug/l							< 5.00	
Naphthalene	2011-03	ug/l							< 5.00	
Naphthalene	2014-06	ug/L			< 5.00					
Naphthalene	2014-08	ug/L			< 5.00				< 5.00	
Naphthalene	2015-10	ug/L				< 5			< 5	< 5
Naphthalene	2016-07	ug/L				< 5				< 5
Naphthalene	2019-10	ug/L			< 5	< 5			< 5	< 5
Naphthalene	2020-04	ug/L			< 5	< 5			< 5	< 5
Naphthalene	2020-09	ug/L				< 5			< 5	~~< 5~~
Nickel	2008-04	mg/l							< 0.0500	
Nickel	2008-06	mg/l							< 0.0500	
Nickel	2008-08	mg/l							< 0.0500	
Nickel	2008-09	mg/l							< 0.0500	
Nickel	2009-03	mg/l							< 0.05	
Nickel	2009-06	mg/l							< 0.0500	
Nickel	2009-09	mg/l				< 0.0500			< 0.0500	< 0.0500
Nickel	2009-12	mg/l				**0.0545**				**0.0545**
Nickel	2010-03	mg/l							< 0.0500	
Nickel	2010-04	mg/l				< 0.0500				< 0.0500
Nickel	2010-06	mg/l				< 0.0500				< 0.0500

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Nickel	2010-09	mg/l				< 0.0500			< 0.0500	< 0.0500
Nickel	2011-03	mg/l				< 0.0500			< 0.0500	< 0.0500
Nickel	2011-09	mg/l	< 0.0500		< 0.0500	< 0.0500			< 0.0500	< 0.0500
Nickel	2011-11	mg/l	< 0.0500		< 0.0500					
Nickel	2012-03	mg/l	< 0.0500		< 0.0500	< 0.0500			< 0.0500	< 0.0500
Nickel	2012-06	mg/l	< 0.0500		**0.0680**					
Nickel	2012-09	mg/l	< 0.0500		< 0.0500	< 0.0500			< 0.0500	< 0.0500
Nickel	2013-03	mg/l	< 0.0500		**0.0134 J**	**0.0118 J**			< 0.0500	**0.0118 J**
Nickel	2013-06	mg/l				**0.00447 J**				**0.00447 J**
Nickel	2013-09	mg/l	< 0.0500		< 0.0500 J	< 0.0500			< 0.0500	< 0.0500
Nickel	2013-11	mg/L				**0.00294 J**				**0.00294 J**
Nickel	2014-03	mg/L	< 0.0500		**0.0158 J**	< 0.0500			< 0.0500	< 0.0500
Nickel	2014-06	mg/L			**0.0136 J**	< 0.0500				< 0.0500
Nickel	2014-08	mg/L	< 0.00500		**0.0156**	**0.00426 J**			< 0.00500	**0.00426 J**
Nickel	2014-12	mg/L			**0.0205**	< 0.00500 J			< 0.00500	< 0.00500 J
Nickel	2015-04	mg/L	< 0.00500		**0.0219**	**0.00337 J**			< 0.00500	**0.00337 J**
Nickel	2015-09	mg/L			**0.0274**					
Nickel	2015-10	mg/L	< 0.005			**0.00247 J**			< 0.005	**0.00247 J**
Nickel	2016-04	mg/L	< 0.005		**0.0296**	**0.00352 J**			< 0.005	**0.00352 J**
Nickel	2016-07	mg/L				**0.00232 J**				**0.00232 J**
Nickel	2016-10	mg/L	< 0.005		**0.0319**	**0.00413 J**			< 0.005	**0.00413 J**
Nickel	2017-05	mg/L	< 0.005		**0.0367**	**0.00328 J**			< 0.005	**0.00328 J**
Nickel	2017-09	mg/L	< 0.005		**0.0342**	**0.00388 J**			< 0.005	**0.00388 J**
Nickel	2018-05	mg/L			**0.0354**	**0.00336 J**			< 0.005	**0.00336 J**
Nickel	2018-09	mg/L	**0.00475**		**0.0268**	**0.00491**			< 0.002	**0.00491**
Nickel	2019-03	mg/L	< 0.005		**0.0495**	**0.00439 J**			< 0.005	**0.00439 J**
Nickel	2019-10	mg/L		**0.00457 J**	**0.0448**	**0.005 J**		**0.0178**	< 0.01	**0.005 J**
Nickel	2020-04	mg/L		**0.00794**	**0.0453**	**0.00247 J**	**0.0191**	**0.0347**	< 0.005	**0.00247 J**
Nickel	2020-06	mg/L	< 0.005					**0.0318**		
Nickel	2020-08	mg/L	< 0.005				**0.0275**	**0.0342**		
Nickel	2020-09	mg/L		**0.00685**	**0.0487**	**0.0028 J**			< 0.005	~~**0.0028 J**~~
Nickel	2020-12	mg/L					**0.0202**	**0.0211**		
Nickel	2021-02	mg/L					**0.018**			
Nickel	2021-04	mg/L	< 0.005	**0.0106**	**0.0495**	**0.00416 J**	**0.0189**	**0.0198**	< 0.005	**0.00416 J**
Nickel	2021-09	mg/L	< 0.005	**0.0108**	**0.038**	**0.00439 J**	**0.015**	**0.0129**	< 0.005	**0.00439 J**
Nickel	2022-04	mg/L	< 0.005	**0.0144**	**0.0424**	**0.00431 J**	**0.0154**	**0.0127**	< 0.005	**0.00431 J**
Nickel	2022-09	mg/L	< 0.005	**0.0112**	**0.0423**	**0.00631**	**0.0146**	**0.0117**	< 0.005	**0.00631**
Nickel	2023-04	mg/L	< 0.005	**0.0154**	**0.0448**	**0.00235 J**	**0.0145**	**0.0114**	< 0.005	**0.00235 J**
Nickel	2023-09	mg/L	< 0.005	**0.0131**	**0.0412**	**0.00582**	**0.0135**	**0.011**	< 0.005	**0.00582**
Nitrobenzene	2009-03	ug/l							< 10	
Nitrobenzene	2009-06	ug/l							< 10.0	
Nitrobenzene	2009-09	ug/l							< 10.0	
Nitrobenzene	2010-03	ug/l							< 10.0	
Nitrobenzene	2010-09	ug/l							< 10.0	

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Nitrobenzene	2011-03	ug/l							< 12.0	
Nitrobenzene	2014-06	ug/L			< 10.5					
Nitrobenzene	2014-08	ug/L			< 10.2				< 10.8	
Nitrobenzene	2015-10	ug/L				< 10			< 10	< 10
Nitrobenzene	2016-07	ug/L				< 10.4				< 10.4
Nitrobenzene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Nitrobenzene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
N-Nitrosodiethylamine	2009-03	ug/l							< 10	
N-Nitrosodiethylamine	2009-06	ug/l							< 10.0	
N-Nitrosodiethylamine	2009-09	ug/l							< 10.0	
N-Nitrosodiethylamine	2010-03	ug/l							< 10.0	
N-Nitrosodiethylamine	2010-09	ug/l							< 10.0	
N-Nitrosodiethylamine	2011-03	ug/l							< 12.0	
N-Nitrosodiethylamine	2014-06	ug/L			< 10.5					
N-Nitrosodiethylamine	2014-08	ug/L			< 10.2				< 10.8	
N-Nitrosodiethylamine	2015-10	ug/L				< 10			< 10	< 10
N-Nitrosodiethylamine	2016-07	ug/L				< 10.4				< 10.4
N-Nitrosodiethylamine	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
N-Nitrosodiethylamine	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
N-Nitrosodimethylamine	2009-03	ug/l							< 10	
N-Nitrosodimethylamine	2009-06	ug/l							< 10.0	
N-Nitrosodimethylamine	2009-09	ug/l							< 10.0	
N-Nitrosodimethylamine	2010-03	ug/l							< 10.0	
N-Nitrosodimethylamine	2010-09	ug/l							< 10.0	
N-Nitrosodimethylamine	2011-03	ug/l							< 12.0	
N-Nitrosodimethylamine	2014-06	ug/L			< 10.5					
N-Nitrosodimethylamine	2014-08	ug/L			< 10.2				< 10.8	
N-Nitrosodimethylamine	2015-10	ug/L				< 10			< 10	< 10
N-Nitrosodimethylamine	2016-07	ug/L				< 10.4				< 10.4
N-Nitrosodimethylamine	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
N-Nitrosodimethylamine	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
N-Nitrosodi-n-butylamine	2009-03	ug/l							< 10	
N-Nitrosodi-n-butylamine	2009-06	ug/l							< 10.0	
N-Nitrosodi-n-butylamine	2009-09	ug/l							< 10.0	
N-Nitrosodi-n-butylamine	2010-03	ug/l							< 10.0	
N-Nitrosodi-n-butylamine	2010-09	ug/l							< 10.0	
N-Nitrosodi-n-butylamine	2011-03	ug/l							< 12.0	
N-Nitrosodi-n-butylamine	2014-06	ug/L			< 10.5					
N-Nitrosodi-n-butylamine	2014-08	ug/L			< 10.2				< 10.8	
N-Nitrosodi-n-butylamine	2015-10	ug/L				< 10			< 10	< 10
N-Nitrosodi-n-butylamine	2016-07	ug/L				< 10.4				< 10.4
N-Nitrosodi-n-butylamine	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
N-Nitrosodi-n-butylamine	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
N-Nitrosodi-n-propylamine	2009-03	ug/l							< 10	

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1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
N-Nitrosodi-n-propylamine	2009-06	ug/l							< 10.0	
N-Nitrosodi-n-propylamine	2009-09	ug/l							< 10.0	
N-Nitrosodi-n-propylamine	2010-03	ug/l							< 10.0	
N-Nitrosodi-n-propylamine	2010-09	ug/l							< 10.0	
N-Nitrosodi-n-propylamine	2011-03	ug/l							< 12.0	
N-Nitrosodi-n-propylamine	2014-06	ug/L			< 10.5					
N-Nitrosodi-n-propylamine	2014-08	ug/L			< 10.2				< 10.8	
N-Nitrosodi-n-propylamine	2015-10	ug/L				< 10			< 10	< 10
N-Nitrosodi-n-propylamine	2016-07	ug/L				< 10.4				< 10.4
N-Nitrosodi-n-propylamine	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
N-Nitrosodi-n-propylamine	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
N-Nitrosodiphenylamine	2009-03	ug/l							< 10	
N-Nitrosodiphenylamine	2009-06	ug/l							< 10.0	
N-Nitrosodiphenylamine	2009-09	ug/l							< 10.0	
N-Nitrosodiphenylamine	2010-03	ug/l							< 10.0	
N-Nitrosodiphenylamine	2010-09	ug/l							< 10.0	
N-Nitrosodiphenylamine	2011-03	ug/l							< 12.0	
N-Nitrosodiphenylamine	2014-06	ug/L			< 10.5					
N-Nitrosodiphenylamine	2014-08	ug/L			< 10.2				< 10.8	
N-Nitrosodiphenylamine	2015-10	ug/L				< 10			< 10	< 10
N-Nitrosodiphenylamine	2016-07	ug/L				< 10.4				< 10.4
N-Nitrosodiphenylamine	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
N-Nitrosodiphenylamine	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
N-Nitrosomethylethylamine	2009-03	ug/l							< 10	
N-Nitrosomethylethylamine	2009-06	ug/l							< 10.0	
N-Nitrosomethylethylamine	2009-09	ug/l							< 10.0	
N-Nitrosomethylethylamine	2010-03	ug/l							< 10.0	
N-Nitrosomethylethylamine	2010-09	ug/l							< 10.0	
N-Nitrosomethylethylamine	2011-03	ug/l							< 12.0	
N-Nitrosomethylethylamine	2014-06	ug/L			< 10.5					
N-Nitrosomethylethylamine	2014-08	ug/L			< 10.2				< 10.8	
N-Nitrosomethylethylamine	2015-10	ug/L				< 10			< 10	< 10
N-Nitrosomethylethylamine	2016-07	ug/L				< 10.4				< 10.4
N-Nitrosomethylethylamine	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
N-Nitrosomethylethylamine	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
N-Nitrosopiperidine	2009-03	ug/l							< 10	
N-Nitrosopiperidine	2009-06	ug/l							< 10.0	
N-Nitrosopiperidine	2009-09	ug/l							< 10.0	
N-Nitrosopiperidine	2010-03	ug/l							< 10.0	
N-Nitrosopiperidine	2010-09	ug/l							< 10.0	
N-Nitrosopiperidine	2011-03	ug/l							< 12.0	
N-Nitrosopiperidine	2014-06	ug/L			< 10.5					
N-Nitrosopiperidine	2014-08	ug/L			< 10.2				< 10.8	
N-Nitrosopiperidine	2015-10	ug/L				< 10			< 10	< 10

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1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
N-Nitrosopiperidine	2016-07	ug/L				< 10.4				< 10.4
N-Nitrosopiperidine	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
N-Nitrosopiperidine	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
N-Nitrosopyrrolidine	2009-03	ug/l							< 10	
N-Nitrosopyrrolidine	2009-06	ug/l							< 10.0	
N-Nitrosopyrrolidine	2009-09	ug/l							< 10.0	
N-Nitrosopyrrolidine	2010-03	ug/l							< 10.0	
N-Nitrosopyrrolidine	2010-09	ug/l							< 10.0	
N-Nitrosopyrrolidine	2011-03	ug/l							< 12.0	
N-Nitrosopyrrolidine	2014-06	ug/L			< 10.5					
N-Nitrosopyrrolidine	2014-08	ug/L			< 10.2				< 10.8	
N-Nitrosopyrrolidine	2015-10	ug/L				< 10			< 10	< 10
N-Nitrosopyrrolidine	2016-07	ug/L				< 10.4				< 10.4
N-Nitrosopyrrolidine	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
N-Nitrosopyrrolidine	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
o,o,o-Triethylphosphorothioate	2009-03	ug/l							< 30	
o,o,o-Triethylphosphorothioate	2009-06	ug/l							< 30.0	
o,o,o-Triethylphosphorothioate	2009-09	ug/l							< 10.0	
o,o,o-Triethylphosphorothioate	2010-03	ug/l							< 10.0	
o,o,o-Triethylphosphorothioate	2010-09	ug/l							< 10.0	
o,o,o-Triethylphosphorothioate	2011-03	ug/l							< 12.0	
o,o,o-Triethylphosphorothioate	2014-06	ug/L			< 10.5					
o,o,o-Triethylphosphorothioate	2014-08	ug/L			< 10.2				< 10.8	
o,o,o-Triethylphosphorothioate	2015-10	ug/L				< 10			< 10	< 10
o,o,o-Triethylphosphorothioate	2016-07	ug/L				< 10.4				< 10.4
o,o,o-Triethylphosphorothioate	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
o,o,o-Triethylphosphorothioate	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
o-Toluidine	2009-03	ug/l							< 10	
o-Toluidine	2009-06	ug/l							< 10.0	
o-Toluidine	2009-09	ug/l							< 10.0	
o-Toluidine	2010-03	ug/l							< 10.0	
o-Toluidine	2010-09	ug/l							< 10.0	
o-Toluidine	2011-03	ug/l							< 12.0	
o-Toluidine	2014-06	ug/L			< 10.5					
o-Toluidine	2014-08	ug/L			< 10.2				< 10.8	
o-Toluidine	2015-10	ug/L				< 10			< 10	< 10
o-Toluidine	2016-07	ug/L				< 10.4				< 10.4
o-Toluidine	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
o-Toluidine	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
p-(Dimethylamino)azobenzene	2009-03	ug/l							< 10	
p-(Dimethylamino)azobenzene	2009-06	ug/l							< 10.0	
p-(Dimethylamino)azobenzene	2009-09	ug/l							< 10.0	
p-(Dimethylamino)azobenzene	2010-03	ug/l							< 10.0	
p-(Dimethylamino)azobenzene	2010-09	ug/l							< 10.0	

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
p-(Dimethylamino)azobenzene	2011-03	ug/l							< 12.0	
p-(Dimethylamino)azobenzene	2014-06	ug/L			< 10.5					
p-(Dimethylamino)azobenzene	2014-08	ug/L			< 10.2				< 10.8	
p-(Dimethylamino)azobenzene	2015-10	ug/L				< 10			< 10	< 10
p-(Dimethylamino)azobenzene	2016-07	ug/L				< 10.4				< 10.4
p-(Dimethylamino)azobenzene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
p-(Dimethylamino)azobenzene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Parathion	2009-03	ug/l							< 10	
Parathion	2009-06	ug/l							< 10.0	
Parathion	2009-09	ug/l							< 10.0	
Parathion	2010-03	ug/l							< 10.0	
Parathion	2010-09	ug/l							< 10.0	
Parathion	2011-03	ug/l							< 12.0	
Parathion	2014-06	ug/L			< 10.5					
Parathion	2014-08	ug/L			< 10.2				< 10.8	
Parathion	2015-10	ug/L				< 10			< 10	< 10
Parathion	2016-07	ug/L				< 10.4				< 10.4
Parathion	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Parathion	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
PCBs - Aroclor 1016	2009-03	ug/l							< 0.8	
PCBs - Aroclor 1016	2009-06	ug/l							< 0.800	
PCBs - Aroclor 1016	2009-09	ug/l							< 0.800	
PCBs - Aroclor 1016	2010-09	ug/l							< 0.800	
PCBs - Aroclor 1016	2014-06	ug/L			< 0.816					
PCBs - Aroclor 1016	2014-08	ug/L			< 0.825				< 0.800	
PCBs - Aroclor 1016	2015-10	ug/L				< 0.8			< 0.8	< 0.8
PCBs - Aroclor 1016	2016-07	ug/L				< 0.816				< 0.816
PCBs - Aroclor 1016	2019-10	ug/L			< 0.816	< 0.833			< 0.829	< 0.833
PCBs - Aroclor 1016	2020-09	ug/L				< 0.87			< 1.13	~~< 0.87~~
PCBs - Aroclor 1221	2009-03	ug/l							< 0.8	
PCBs - Aroclor 1221	2009-06	ug/l							< 0.800	
PCBs - Aroclor 1221	2009-09	ug/l							< 0.800	
PCBs - Aroclor 1221	2010-09	ug/l							< 0.800	
PCBs - Aroclor 1221	2014-06	ug/L			< 0.816					
PCBs - Aroclor 1221	2014-08	ug/L			< 0.825				< 0.800	
PCBs - Aroclor 1221	2015-10	ug/L				< 0.8			< 0.8	< 0.8
PCBs - Aroclor 1221	2016-07	ug/L				< 0.816				< 0.816
PCBs - Aroclor 1221	2019-10	ug/L			< 0.816	< 0.833			< 0.829	< 0.833
PCBs - Aroclor 1221	2020-09	ug/L				< 0.87			< 1.13	~~< 0.87~~
PCBs - Aroclor 1232	2009-03	ug/l							< 0.8	
PCBs - Aroclor 1232	2009-06	ug/l							< 0.800	
PCBs - Aroclor 1232	2009-09	ug/l							< 0.800	
PCBs - Aroclor 1232	2010-09	ug/l							< 0.800	
PCBs - Aroclor 1232	2014-06	ug/L			< 0.816					

Table 13
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
PCBs - Aroclor 1232	2014-08	ug/L			< 0.825				< 0.800	
PCBs - Aroclor 1232	2015-10	ug/L				< 0.8			< 0.8	< 0.8
PCBs - Aroclor 1232	2016-07	ug/L				< 0.816				< 0.816
PCBs - Aroclor 1232	2019-10	ug/L			< 0.816	< 0.833			< 0.829	< 0.833
PCBs - Aroclor 1232	2020-09	ug/L				< 0.87			< 1.13	~~< 0.87~~
PCBs - Aroclor 1242	2009-03	ug/l							< 0.8	
PCBs - Aroclor 1242	2009-06	ug/l							< 0.800	
PCBs - Aroclor 1242	2009-09	ug/l							< 0.800	
PCBs - Aroclor 1242	2010-09	ug/l							< 0.800	
PCBs - Aroclor 1242	2014-06	ug/L			< 0.816					
PCBs - Aroclor 1242	2014-08	ug/L			< 0.825				< 0.800	
PCBs - Aroclor 1242	2015-10	ug/L				< 0.8			< 0.8	< 0.8
PCBs - Aroclor 1242	2016-07	ug/L				< 0.816				< 0.816
PCBs - Aroclor 1242	2019-10	ug/L			< 0.816	< 0.833			< 0.829	< 0.833
PCBs - Aroclor 1242	2020-09	ug/L				< 0.87			< 1.13	~~< 0.87~~
PCBs - Aroclor 1248	2009-03	ug/l							< 0.8	
PCBs - Aroclor 1248	2009-06	ug/l							< 0.800	
PCBs - Aroclor 1248	2009-09	ug/l							< 0.800	
PCBs - Aroclor 1248	2010-09	ug/l							< 0.800	
PCBs - Aroclor 1248	2014-06	ug/L			< 0.816					
PCBs - Aroclor 1248	2014-08	ug/L			< 0.825				< 0.800	
PCBs - Aroclor 1248	2015-10	ug/L				< 0.8			< 0.8	< 0.8
PCBs - Aroclor 1248	2016-07	ug/L				< 0.816				< 0.816
PCBs - Aroclor 1248	2019-10	ug/L			< 0.816	< 0.833			< 0.829	< 0.833
PCBs - Aroclor 1248	2020-09	ug/L				< 0.87			< 1.13	~~< 0.87~~
PCBs - Aroclor 1254	2009-03	ug/l							< 0.8	
PCBs - Aroclor 1254	2009-06	ug/l							< 0.800	
PCBs - Aroclor 1254	2009-09	ug/l							< 0.800	
PCBs - Aroclor 1254	2010-09	ug/l							< 0.800	
PCBs - Aroclor 1254	2014-06	ug/L			< 0.816					
PCBs - Aroclor 1254	2014-08	ug/L			< 0.825				< 0.800	
PCBs - Aroclor 1254	2015-10	ug/L				< 0.8			< 0.8	< 0.8
PCBs - Aroclor 1254	2016-07	ug/L				< 0.816				< 0.816
PCBs - Aroclor 1254	2019-10	ug/L			< 0.816	< 0.833			< 0.829	< 0.833
PCBs - Aroclor 1254	2020-09	ug/L				< 0.87			< 1.13	~~< 0.87~~
PCBs - Aroclor 1260	2009-03	ug/l							< 0.8	
PCBs - Aroclor 1260	2009-06	ug/l							< 0.800	
PCBs - Aroclor 1260	2009-09	ug/l							< 0.800	
PCBs - Aroclor 1260	2010-09	ug/l							< 0.800	
PCBs - Aroclor 1260	2014-06	ug/L			< 0.816					
PCBs - Aroclor 1260	2014-08	ug/L			< 0.825				< 0.800	
PCBs - Aroclor 1260	2015-10	ug/L				< 0.8			< 0.8	< 0.8
PCBs - Aroclor 1260	2016-07	ug/L				< 0.816				< 0.816
PCBs - Aroclor 1260	2019-10	ug/L			< 0.816	< 0.833			< 0.829	< 0.833

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Table 13
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
PCBs - Aroclor 1260	2020-09	ug/L				< 0.87			< 1.13	~~< 0.87~~
Pentachlorobenzene	2009-03	ug/l							< 10	
Pentachlorobenzene	2009-06	ug/l							< 10.0	
Pentachlorobenzene	2009-09	ug/l							< 10.0	
Pentachlorobenzene	2010-03	ug/l							< 10.0	
Pentachlorobenzene	2010-09	ug/l							< 10.0	
Pentachlorobenzene	2011-03	ug/l							< 12.0	
Pentachlorobenzene	2014-06	ug/L			< 10.5					
Pentachlorobenzene	2014-08	ug/L			< 10.2				< 10.8	
Pentachlorobenzene	2015-10	ug/L				< 10			< 10	< 10
Pentachlorobenzene	2016-07	ug/L				< 10.4				< 10.4
Pentachlorobenzene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Pentachlorobenzene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Pentachloronitrobenzene	2009-03	ug/l							< 10	
Pentachloronitrobenzene	2009-06	ug/l							< 10.0	
Pentachloronitrobenzene	2009-09	ug/l							< 10.0	
Pentachloronitrobenzene	2010-03	ug/l							< 10.0	
Pentachloronitrobenzene	2010-09	ug/l							< 10.0	
Pentachloronitrobenzene	2011-03	ug/l							< 12.0	
Pentachloronitrobenzene	2014-06	ug/L			< 10.5					
Pentachloronitrobenzene	2014-08	ug/L			< 10.2				< 10.8	
Pentachloronitrobenzene	2015-10	ug/L				< 10			< 10	< 10
Pentachloronitrobenzene	2016-07	ug/L				< 10.4				< 10.4
Pentachloronitrobenzene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Pentachloronitrobenzene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Pentachlorophenol	2009-03	ug/l							< 10	
Pentachlorophenol	2009-06	ug/l							< 10.0	
Pentachlorophenol	2009-09	ug/l							< 10.0	
Pentachlorophenol	2010-03	ug/l							< 10.0	
Pentachlorophenol	2010-09	ug/l							< 10.0	
Pentachlorophenol	2011-03	ug/l							< 12.0	
Pentachlorophenol	2014-06	ug/L			< 10.5					
Pentachlorophenol	2014-08	ug/L			< 10.2				< 10.8	
Pentachlorophenol	2015-10	ug/L				< 10			< 10	< 10
Pentachlorophenol	2016-07	ug/L				< 10.4				< 10.4
Pentachlorophenol	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Pentachlorophenol	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Phenacetin	2009-03	ug/l							< 10	
Phenacetin	2009-06	ug/l							< 10.0	
Phenacetin	2009-09	ug/l							< 10.0	
Phenacetin	2010-03	ug/l							< 10.0	
Phenacetin	2010-09	ug/l							< 10.0	
Phenacetin	2011-03	ug/l							< 12.0	
Phenacetin	2014-06	ug/L			< 10.5					

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Phenacetin	2014-08	ug/L			< 10.2				< 10.8	
Phenacetin	2015-10	ug/L				< 10			< 10	< 10
Phenacetin	2016-07	ug/L				< 10.4				< 10.4
Phenacetin	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Phenacetin	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Phenanthrene	2009-03	ug/l							< 10	
Phenanthrene	2009-06	ug/l							< 10.0	
Phenanthrene	2009-09	ug/l							< 10.0	
Phenanthrene	2010-03	ug/l							< 10.0	
Phenanthrene	2010-09	ug/l							< 10.0	
Phenanthrene	2011-03	ug/l							< 12.0	
Phenanthrene	2014-06	ug/L			< 10.5					
Phenanthrene	2014-08	ug/L			< 10.2				< 10.8	
Phenanthrene	2015-10	ug/L				< 10			< 10	< 10
Phenanthrene	2016-07	ug/L				< 10.4				< 10.4
Phenanthrene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Phenanthrene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Phenol	2009-03	ug/l							< 20	
Phenol	2009-06	ug/l							< 20.0	
Phenol	2009-09	mg/l							< 0.0180	
Phenol	2009-09	ug/l							< 10.0	
Phenol	2010-03	ug/l							< 10.0	
Phenol	2010-09	ug/l							< 10.0	
Phenol	2011-03	ug/l							< 12.0	
Phenol	2014-06	ug/L			< 10.5					
Phenol	2014-08	ug/L			< 10.2				< 10.8	
Phenol	2015-10	ug/L				< 10			< 10	< 10
Phenol	2016-07	ug/L				< 10.4				< 10.4
Phenol	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Phenol	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Phorate	2009-03	ug/l							< 60	
Phorate	2009-06	ug/l							< 60.0	
Phorate	2009-09	ug/l							< 10.0	
Phorate	2010-03	ug/l							< 10.0	
Phorate	2010-09	ug/l							< 10.0	
Phorate	2011-03	ug/l							< 12.0	
Phorate	2014-06	ug/L			< 10.5					
Phorate	2014-08	ug/L			< 10.2				< 10.8	
Phorate	2015-10	ug/L				< 10			< 10	< 10
Phorate	2016-07	ug/L				< 10.4				< 10.4
Phorate	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Phorate	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
p-Phenylenediamine	2009-03	ug/l							< 10	
p-Phenylenediamine	2009-06	ug/l							< 10.0	

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
p-Phenylenediamine	2009-09	ug/l							< 10.0	
p-Phenylenediamine	2010-03	ug/l							< 10.0	
p-Phenylenediamine	2010-09	ug/l							< 10.0	
p-Phenylenediamine	2011-03	ug/l							< 12.0	
p-Phenylenediamine	2014-06	ug/L			< 10.5					
p-Phenylenediamine	2014-08	ug/L			< 10.2				< 10.8	
p-Phenylenediamine	2015-10	ug/L				< 10			< 10	< 10
p-Phenylenediamine	2016-07	ug/L				< 10.4				< 10.4
p-Phenylenediamine	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
p-Phenylenediamine	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Pronamide	2009-03	ug/l							< 10	
Pronamide	2009-06	ug/l							< 10.0	
Pronamide	2009-09	ug/l							< 10.0	
Pronamide	2010-03	ug/l							< 10.0	
Pronamide	2010-09	ug/l							< 10.0	
Pronamide	2011-03	ug/l							< 12.0	
Pronamide	2014-06	ug/L			< 10.5					
Pronamide	2014-08	ug/L			< 10.2				< 10.8	
Pronamide	2015-10	ug/L				< 10			< 10	< 10
Pronamide	2016-07	ug/L				< 10.4				< 10.4
Pronamide	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Pronamide	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Propionitrile	2009-03	ug/l							< 10	
Propionitrile	2009-06	ug/l							< 10.0	
Propionitrile	2009-09	ug/l							< 10.0	
Propionitrile	2010-03	ug/l							< 10.0	
Propionitrile	2010-09	ug/l							< 10.0	
Propionitrile	2011-03	ug/l							< 10.0	
Propionitrile	2014-06	ug/L			< 10.0					
Propionitrile	2014-08	ug/L			< 10.0				< 10.0	
Propionitrile	2015-10	ug/L				< 10			< 10	< 10
Propionitrile	2016-07	ug/L				< 10				< 10
Propionitrile	2019-10	ug/L			< 10	< 10			< 10	< 10
Propionitrile	2020-04	ug/L			< 10	< 10			< 10	< 10
Propionitrile	2020-09	ug/L				< 10			< 10	~~< 10~~
Pyrene	2009-03	ug/l							< 10	
Pyrene	2009-06	ug/l							< 10.0	
Pyrene	2009-09	ug/l							< 10.0	
Pyrene	2010-03	ug/l							< 10.0	
Pyrene	2010-09	ug/l							< 10.0	
Pyrene	2011-03	ug/l							< 12.0	
Pyrene	2014-06	ug/L			< 10.5					
Pyrene	2014-08	ug/L			< 10.2				< 10.8	
Pyrene	2015-10	ug/L				< 10			< 10	< 10

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Pyrene	2016-07	ug/L				< 10.4				< 10.4
Pyrene	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Pyrene	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Safrole	2009-03	ug/l							< 10	
Safrole	2009-06	ug/l							< 10.0	
Safrole	2009-09	ug/l							< 10.0	
Safrole	2010-03	ug/l							< 10.0	
Safrole	2010-09	ug/l							< 10.0	
Safrole	2011-03	ug/l							< 12.0	
Safrole	2014-06	ug/L			< 10.5					
Safrole	2014-08	ug/L			< 10.2				< 10.8	
Safrole	2015-10	ug/L				< 10			< 10	< 10
Safrole	2016-07	ug/L				< 10.4				< 10.4
Safrole	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Safrole	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Selenium	2008-04	mg/l							< 0.00500	
Selenium	2008-06	mg/l							< 0.00500	
Selenium	2008-08	mg/l							< 0.00500	
Selenium	2008-09	mg/l							< 0.00500	
Selenium	2009-03	mg/l							< 0.005	
Selenium	2009-06	mg/l							< 0.00500	
Selenium	2009-09	mg/l				< 0.00500			< 0.00500	< 0.00500
Selenium	2009-12	mg/l				< 0.00500				< 0.00500
Selenium	2010-03	mg/l							< 0.00500	
Selenium	2010-04	mg/l				< 0.00500				< 0.00500
Selenium	2010-06	mg/l				< 0.00500				< 0.00500
Selenium	2010-09	mg/l				< 0.00500			< 0.00500	< 0.00500
Selenium	2011-03	mg/l				< 0.00500			< 0.00500	< 0.00500
Selenium	2011-09	mg/l	< 0.00500		< 0.00500	< 0.00500			< 0.00500	< 0.00500
Selenium	2011-11	mg/l	< 0.00500		< 0.00500					
Selenium	2012-03	mg/l	< 0.00500		< 0.00500	< 0.00500			< 0.00500	< 0.00500
Selenium	2012-06	mg/l	< 0.00500		< 0.00500					
Selenium	2012-09	mg/l	< 0.00500		< 0.00500	< 0.00500			< 0.00500	< 0.00500
Selenium	2013-03	mg/l	< 0.00500		< 0.00500	< 0.00500			< 0.00500	< 0.00500
Selenium	2013-06	mg/l				< 0.00500				< 0.00500
Selenium	2013-09	mg/l	< 0.00500		< 0.00500	< 0.00500			< 0.00500	< 0.00500
Selenium	2013-11	mg/L				< 0.00500				< 0.00500
Selenium	2014-03	mg/L	< 0.00500		< 0.00500	< 0.00500			< 0.00500	< 0.00500
Selenium	2014-06	mg/L			< 0.00500 J	< 0.00500 J				< 0.00500 J
Selenium	2014-08	mg/L	< 0.00500		< 0.00500	< 0.00500			< 0.00500	< 0.00500
Selenium	2014-12	mg/L			< 0.00500	< 0.00500			< 0.00500	< 0.00500
Selenium	2015-04	mg/L	< 0.00500		< 0.00500	< 0.00500			< 0.00500	< 0.00500
Selenium	2015-09	mg/L			< 0.005					
Selenium	2015-10	mg/L	< 0.005			< 0.005			< 0.005	< 0.005

Table 13
Carroll County Landfill Western Expansion Area **Analytical Data Summary**
Permit No. 14-SDP-01-74P **2023 Annual Water Quality Report**

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Selenium	2016-04	mg/L	**0.0016 J**		< 0.005	< 0.005			**0.00212 J**	< 0.005
Selenium	2016-07	mg/L				< 0.005				< 0.005
Selenium	2016-10	mg/L	**0.00102 J**		< 0.005	< 0.005			**0.00189 J**	< 0.005
Selenium	2017-05	mg/L	**0.00186 J**		< 0.005	< 0.005			**0.00196 J**	< 0.005
Selenium	2017-09	mg/L	< 0.005		< 0.005	< 0.005			**0.00136 J**	< 0.005
Selenium	2018-05	mg/L			< 0.005	< 0.005			**0.00129 J**	< 0.005
Selenium	2018-09	mg/L	**0.00133 J**		< 0.0025	< 0.0025			**0.00161 J**	< 0.0025
Selenium	2019-03	mg/L	**0.0011 J**		< 0.005	< 0.005			< 0.005	< 0.005
Selenium	2019-10	mg/L		< 0.01	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01
Selenium	2020-04	mg/L		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Selenium	2020-06	mg/L	**0.00123 J**					< 0.005		
Selenium	2020-08	mg/L	**0.00104 J**				**0.00209 J**	< 0.005		
Selenium	2020-09	mg/L		< 0.005	< 0.005	< 0.005			< 0.005	~~< 0.005~~
Selenium	2020-12	mg/L					< 0.005	< 0.005		
Selenium	2021-02	mg/L					< 0.005			
Selenium	2021-04	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Selenium	2021-09	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.00135 J**	< 0.005
Selenium	2022-04	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	**0.0018 J**	< 0.005
Selenium	2022-09	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.00153 J**	< 0.005
Selenium	2023-04	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.0018 J**	< 0.005
Selenium	2023-09	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.00197 J**	< 0.005
Silver	2008-04	mg/l							< 0.0200	
Silver	2008-06	mg/l							< 0.0200	
Silver	2008-08	mg/l							< 0.0200	
Silver	2008-09	mg/l							< 0.0200	
Silver	2009-03	mg/l							< 0.02	
Silver	2009-06	mg/l							< 0.0200	
Silver	2009-09	mg/l				< 0.0200			< 0.0200	< 0.0200
Silver	2009-12	mg/l				< 0.0200				< 0.0200
Silver	2010-03	mg/l							< 0.0200	
Silver	2010-04	mg/l				< 0.0200				< 0.0200
Silver	2010-06	mg/l				< 0.0200				< 0.0200
Silver	2010-09	mg/l				< 0.0200			< 0.0200	< 0.0200
Silver	2011-03	mg/l				< 0.0200			< 0.0200	< 0.0200
Silver	2011-09	mg/l	< 0.0200		< 0.0200	< 0.0200			< 0.0200	< 0.0200
Silver	2011-11	mg/l	< 0.0200		< 0.0200					
Silver	2012-03	mg/l	< 0.0200		< 0.0200	< 0.0200			< 0.0200	< 0.0200
Silver	2012-06	mg/l	< 0.0200		< 0.0200					
Silver	2012-09	mg/l	< 0.0200		< 0.0200	< 0.0200			< 0.0200	< 0.0200
Silver	2013-03	mg/l	< 0.0200		< 0.0200	< 0.0200			< 0.0200	< 0.0200
Silver	2013-06	mg/l				< 0.0200				< 0.0200
Silver	2013-09	mg/l	< 0.0200		< 0.0200	< 0.0200			< 0.0200	< 0.0200
Silver	2013-11	mg/L				< 0.0200				< 0.0200
Silver	2014-03	mg/L	< 0.0200		< 0.0200	< 0.0200			< 0.0200	< 0.0200

Table 13
Carroll County Landfill Western Expansion Area **Analytical Data Summary**
Permit No. 14-SDP-01-74P **2023 Annual Water Quality Report**

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Silver	2014-06	mg/L			< 0.0200	< 0.0200				< 0.0200
Silver	2014-08	mg/L	< 0.00100		< 0.00100	< 0.00100			< 0.00100	< 0.00100
Silver	2014-12	mg/L			< 0.00100	< 0.00100			< 0.00100	< 0.00100
Silver	2015-04	mg/L	< 0.00100		< 0.00100	< 0.00100			< 0.00100	< 0.00100
Silver	2015-09	mg/L			< 0.001					
Silver	2015-10	mg/L	< 0.001			< 0.001			< 0.001	< 0.001
Silver	2016-04	mg/L	< 0.001		< 0.001	< 0.001			< 0.001	< 0.001
Silver	2016-07	mg/L				< 0.001				< 0.001
Silver	2016-10	mg/L	< 0.001		< 0.001	< 0.001			< 0.001	< 0.001
Silver	2017-05	mg/L	< 0.001		< 0.001	< 0.001			< 0.001	< 0.001
Silver	2017-09	mg/L	**0.000206 J**		**0.000168 J**	< 0.001			< 0.001	< 0.001
Silver	2018-05	mg/L			< 0.001	< 0.001			< 0.001	< 0.001
Silver	2018-09	mg/L	< 0.0005		< 0.0005	< 0.0005			< 0.0005	< 0.0005
Silver	2019-03	mg/L	< 0.001		< 0.001	< 0.001			< 0.001	< 0.001
Silver	2019-10	mg/L		< 0.001	< 0.001	< 0.002		< 0.001	< 0.001	< 0.002
Silver	2020-04	mg/L		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	2020-06	mg/L	< 0.001					< 0.001		
Silver	2020-08	mg/L	< 0.001				< 0.001	< 0.001		
Silver	2020-09	mg/L		< 0.001	< 0.001	< 0.001			< 0.001	~~< 0.001~~
Silver	2020-12	mg/L					< 0.001	< 0.001		
Silver	2021-02	mg/L					< 0.001			
Silver	2021-04	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	2021-09	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	2022-04	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001
Silver	2022-09	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	2023-04	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	2023-09	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	2008-04	ug/l							< 1.00	
Styrene	2008-06	ug/l							< 1.00	
Styrene	2008-08	ug/l							< 1.00	
Styrene	2008-09	ug/l							< 1.00	
Styrene	2009-03	ug/l							< 1	
Styrene	2009-06	ug/l							< 1.00	
Styrene	2009-09	ug/l				< 1.00			< 1.00	< 1.00
Styrene	2009-12	ug/l				< 2.00				< 2.00
Styrene	2010-03	ug/l							< 4.00	
Styrene	2010-04	ug/l				< 4.00				< 4.00
Styrene	2010-06	ug/l				< 1.00				< 1.00
Styrene	2010-09	ug/l				< 4.00			< 4.00	< 4.00
Styrene	2011-03	ug/l				< 1.00			< 1.00	< 1.00
Styrene	2011-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Styrene	2011-11	ug/l	< 1.00		< 1.00					
Styrene	2012-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Styrene	2012-06	ug/l	< 1.00		< 1.00					

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Styrene	2012-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Styrene	2013-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Styrene	2013-06	ug/l			< 1.00	< 1.00			< 1.00	< 1.00
Styrene	2013-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Styrene	2013-11	ug/L				< 1.00			< 1.00	< 1.00
Styrene	2014-03	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Styrene	2014-06	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
Styrene	2014-08	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Styrene	2014-12	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
Styrene	2015-04	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Styrene	2015-09	ug/L			< 1					
Styrene	2015-10	ug/L	< 1			< 1			< 1	< 1
Styrene	2016-04	ug/L	< 1		< 1	< 1			< 1	< 1
Styrene	2016-07	ug/L				< 1				< 1
Styrene	2016-10	ug/L	< 1		< 1	< 1			< 1	< 1
Styrene	2017-05	ug/L	< 1		< 1	< 1			< 1	< 1
Styrene	2017-09	ug/L	< 1		< 1	< 1			< 1	< 1
Styrene	2018-05	ug/L			< 1	< 1			< 1	< 1
Styrene	2018-09	ug/L	< 1		< 1	< 1			< 1	< 1
Styrene	2019-03	ug/L	< 1		< 1	< 1			< 1	< 1
Styrene	2019-10	ug/L		< 1	< 1	< 1		< 1	< 1	< 1
Styrene	2020-04	ug/L		< 1	< 1	< 1	< 1	< 1	< 1	< 1
Styrene	2020-06	ug/L	< 1					< 1		
Styrene	2020-08	ug/L	< 1				< 1	< 1		
Styrene	2020-09	ug/L		< 1	< 1	< 1			< 1	~~< 1~~
Styrene	2020-12	ug/L					< 1	< 1		
Styrene	2021-02	ug/L					< 1			
Styrene	2021-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Styrene	2021-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Styrene	2022-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Styrene	2022-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Styrene	2023-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Styrene	2023-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Sulfide	2009-03	mg/l							< 5	
Sulfide	2009-06	mg/l							< 1.0	
Sulfide	2009-09	mg/l							< 1.0	
Sulfide	2010-09	mg/l							< 1.0	
Sulfide	2013-03	mg/l			< 1.00				< 1.00	
Sulfide	2013-06	mg/l			< 1.00	< 1.00			< 1.00	< 1.00
Sulfide	2013-09	mg/l			< 1.00	< 1.00			< 1.00	< 1.00
Sulfide	2013-11	mg/L				< 1.00			< 1.00	< 1.00
Sulfide	2014-03	mg/L				< 1.00			< 1.00 J	< 1.00
Sulfide	2014-06	mg/L			< 1.00	< 1.00			< 1.00	< 1.00
Sulfide	2014-08	mg/L			< 1.00	< 1.00			< 1.00	< 1.00

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Sulfide	2014-12	mg/L				< 1.00			< 1.00	< 1.00
Sulfide	2015-04	mg/L				< 1.00			< 1.00	< 1.00
Sulfide	2015-10	mg/L				< 1			< 1	< 1
Sulfide	2016-07	mg/L				< 1				< 1
Sulfide	2019-10	mg/L			< 1	< 1			< 1	< 1
Sulfide	2020-09	mg/L				< 10			< 10	~~< 10~~
Technical Chlordane	2009-03	ug/l							< 2	
Technical Chlordane	2009-06	ug/l							< 2.00	
Technical Chlordane	2009-09	ug/l							< 2.00	
Technical Chlordane	2010-03	ug/l							< 2.00	
Technical Chlordane	2010-09	ug/l							< 2.22	
Technical Chlordane	2011-03	ug/l							< 2.00	
Technical Chlordane	2014-06	ug/L			< 2.04					
Technical Chlordane	2014-08	ug/L			< 2.00				< 2.00	
Technical Chlordane	2015-10	ug/L				< 2			< 2	< 2
Technical Chlordane	2016-07	ug/L				< 2				< 2
Technical Chlordane	2019-10	ug/L			< 2.09	< 2.08			< 2.08	< 2.08
Technical Chlordane	2020-09	ug/L				< 2.17			< 2.82	~~< 2.17~~
Tetrachloroethene	2008-04	ug/l							< 1.00	
Tetrachloroethene	2008-06	ug/l							< 1.00	
Tetrachloroethene	2008-08	ug/l							< 1.00	
Tetrachloroethene	2008-09	ug/l							< 1.00	
Tetrachloroethene	2009-03	ug/l							< 1	
Tetrachloroethene	2009-06	ug/l							< 1.00	
Tetrachloroethene	2009-09	ug/l				< 1.00			< 1.00	< 1.00
Tetrachloroethene	2009-12	ug/l				< 1.00				< 1.00
Tetrachloroethene	2010-03	ug/l							< 1.00	
Tetrachloroethene	2010-04	ug/l				< 1.00				< 1.00
Tetrachloroethene	2010-06	ug/l				< 1.00				< 1.00
Tetrachloroethene	2010-09	ug/l				< 1.00			< 1.00	< 1.00
Tetrachloroethene	2011-03	ug/l				< 1.00			< 1.00	< 1.00
Tetrachloroethene	2011-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Tetrachloroethene	2011-11	ug/l	< 1.00		< 1.00					
Tetrachloroethene	2012-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Tetrachloroethene	2012-06	ug/l	< 1.00		< 1.00					
Tetrachloroethene	2012-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Tetrachloroethene	2013-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Tetrachloroethene	2013-06	ug/l			< 1.00	< 1.00			< 1.00	< 1.00
Tetrachloroethene	2013-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Tetrachloroethene	2013-11	ug/L				< 1.00			< 1.00	< 1.00
Tetrachloroethene	2014-03	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Tetrachloroethene	2014-06	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
Tetrachloroethene	2014-08	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Tetrachloroethene	2014-12	ug/L			< 1.00	< 1.00			< 1.00	< 1.00

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Table 13
Analytical Data Summary
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Tetrachloroethene	2015-04	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Tetrachloroethene	2015-09	ug/L			< 1					
Tetrachloroethene	2015-10	ug/L	< 1			< 1			< 1	< 1
Tetrachloroethene	2016-04	ug/L	< 1		< 1	< 1			< 1	< 1
Tetrachloroethene	2016-07	ug/L				< 1				< 1
Tetrachloroethene	2016-10	ug/L	< 1		< 1	< 1			< 1	< 1
Tetrachloroethene	2017-05	ug/L	< 1		< 1	< 1			< 1	< 1
Tetrachloroethene	2017-09	ug/L	< 1		< 1	< 1			< 1	< 1
Tetrachloroethene	2018-05	ug/L			< 1	< 1			< 1	< 1
Tetrachloroethene	2018-09	ug/L	< 1		< 1	< 1			< 1	< 1
Tetrachloroethene	2019-03	ug/L	< 1		< 1	< 1			< 1	< 1
Tetrachloroethene	2019-10	ug/L		< 1	< 1	< 1		< 1	< 1	< 1
Tetrachloroethene	2020-04	ug/L		< 1	< 1	< 1	< 1	< 1	< 1	< 1
Tetrachloroethene	2020-06	ug/L	< 1					< 1		
Tetrachloroethene	2020-08	ug/L	< 1				< 1	< 1		
Tetrachloroethene	2020-09	ug/L		< 1	< 1	< 1			< 1	~~< 1~~
Tetrachloroethene	2020-12	ug/L					< 1	< 1		
Tetrachloroethene	2021-02	ug/L					< 1			
Tetrachloroethene	2021-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Tetrachloroethene	2021-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Tetrachloroethene	2022-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Tetrachloroethene	2022-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Tetrachloroethene	2023-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Tetrachloroethene	2023-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Thallium	2008-04	mg/l							< 0.00200	
Thallium	2008-06	mg/l							< 0.00200	
Thallium	2008-08	mg/l							< 0.00200	
Thallium	2008-09	mg/l							< 0.00200	
Thallium	2009-03	mg/l							< 0.002	
Thallium	2009-06	mg/l							< 0.00200	
Thallium	2009-09	mg/l				< 0.00200			< 0.00200	< 0.00200
Thallium	2009-12	mg/l				< 0.00200				< 0.00200
Thallium	2010-03	mg/l							< 0.00200	
Thallium	2010-04	mg/l				< 0.00200				< 0.00200
Thallium	2010-06	mg/l				< 0.00200				< 0.00200
Thallium	2010-09	mg/l				< 0.00200			< 0.00200	< 0.00200
Thallium	2011-03	mg/l				< 0.00200			< 0.00200	< 0.00200
Thallium	2011-09	mg/l	< 0.00200		< 0.00200	< 0.00200			< 0.00200	< 0.00200
Thallium	2011-11	mg/l	< 0.00200		< 0.00200					
Thallium	2012-03	mg/l	< 0.00200		< 0.00200	< 0.00200			< 0.00200	< 0.00200
Thallium	2012-06	mg/l	< 0.00200		< 0.00200					
Thallium	2012-09	mg/l	< 0.00200		< 0.00200	< 0.00200			< 0.00200	< 0.00200
Thallium	2013-03	mg/l	< 0.00200		< 0.00200	< 0.00200			< 0.00200	< 0.00200
Thallium	2013-06	mg/l				< 0.00200				< 0.00200

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Table 13
Analytical Data Summary
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Thallium	2013-09	mg/l	< 0.00200		< 0.00200	< 0.00200			< 0.00200 J	< 0.00200
Thallium	2013-11	mg/L				< 0.00200				< 0.00200
Thallium	2014-03	mg/L	< 0.00200		< 0.00200	< 0.00200			< 0.00200	< 0.00200
Thallium	2014-06	mg/L			< 0.00200	< 0.00200				< 0.00200
Thallium	2014-08	mg/L	< 0.00100		< 0.00100	< 0.00100			< 0.00100	< 0.00100
Thallium	2014-12	mg/L			< 0.00100	< 0.00100			< 0.00100	< 0.00100
Thallium	2015-04	mg/L	< 0.00100		< 0.00100	< 0.00100			< 0.00100	< 0.00100
Thallium	2015-09	mg/L			< 0.001					
Thallium	2015-10	mg/L	< 0.001			< 0.001			< 0.001	< 0.001
Thallium	2016-04	mg/L	< 0.001		< 0.001	< 0.001			< 0.001	< 0.001
Thallium	2016-07	mg/L				< 0.001				< 0.001
Thallium	2016-10	mg/L	< 0.001		< 0.001	< 0.001			< 0.001	< 0.001
Thallium	2017-05	mg/L	< 0.001		< 0.001	< 0.001			< 0.001	< 0.001
Thallium	2017-09	mg/L	< 0.001		< 0.001	< 0.001			< 0.001	< 0.001
Thallium	2018-05	mg/L			< 0.001	< 0.001			< 0.001	< 0.001
Thallium	2018-09	mg/L	< 0.002		< 0.002	< 0.002			< 0.002	< 0.002
Thallium	2019-03	mg/L	< 0.001		< 0.001	< 0.001			< 0.001	< 0.001
Thallium	2019-10	mg/L		< 0.001	< 0.001	< 0.002		< 0.001	< 0.001	< 0.002
Thallium	2020-04	mg/L		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Thallium	2020-06	mg/L	< 0.001					< 0.001		
Thallium	2020-08	mg/L	< 0.001				< 0.001	< 0.001		
Thallium	2020-09	mg/L		< 0.001	< 0.001	< 0.001			< 0.001	~~< 0.001~~
Thallium	2020-12	mg/L					< 0.001	< 0.001		
Thallium	2021-02	mg/L					< 0.001			
Thallium	2021-04	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Thallium	2021-09	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Thallium	2022-04	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Thallium	2022-09	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Thallium	2023-04	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Thallium	2023-09	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Thionazin	2009-03	ug/l							< 10	
Thionazin	2009-06	ug/l							< 10.0	
Thionazin	2009-09	ug/l							< 10.0	
Thionazin	2010-03	ug/l							< 10.0	
Thionazin	2010-09	ug/l							< 10.0	
Thionazin	2011-03	ug/l							< 12.0	
Thionazin	2014-06	ug/L			< 10.5					
Thionazin	2014-08	ug/L			< 10.2				< 10.8	
Thionazin	2015-10	ug/L				< 10			< 10	< 10
Thionazin	2016-07	ug/L				< 10.4				< 10.4
Thionazin	2019-10	ug/L			< 10.5	< 10.2			< 10.5	< 10.2
Thionazin	2020-09	ug/L				< 12.8			< 14.9	~~< 12.8~~
Tin	2009-03	mg/l							< 0.1	
Tin	2009-06	mg/l							< 0.100	

Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Tin	2009-09	mg/l							< 0.100	
Tin	2010-03	mg/l							< 0.100	
Tin	2010-09	mg/l							< 0.100	
Tin	2011-03	mg/l							**0.141**	
Tin	2011-09	mg/l							< 0.100	
Tin	2012-03	mg/l							< 0.100	
Tin	2012-09	mg/l							< 0.100	
Tin	2013-03	mg/l							< 0.100	
Tin	2013-06	mg/l				< 0.100				< 0.100
Tin	2013-09	mg/l				< 0.100			< 0.100	< 0.100
Tin	2013-11	mg/L				**0.376**				**0.376**
Tin	2014-03	mg/L				< 0.100			< 0.100	< 0.100
Tin	2014-06	mg/L			< 0.100	< 0.100				< 0.100
Tin	2014-08	mg/L			**0.0999 J**	**0.0791 J**			**0.0670 J**	**0.0791 J**
Tin	2014-12	mg/L			< 0.100	< 0.100			< 0.100	< 0.100
Tin	2015-04	mg/L			< 0.100	< 0.100			< 0.100	< 0.100
Tin	2015-09	mg/L			< 0.005					
Tin	2015-10	mg/L				< 0.005			< 0.005	< 0.005
Tin	2016-04	mg/L				< 0.005			< 0.005	< 0.005
Tin	2016-07	mg/L				< 0.005				< 0.005
Tin	2016-10	mg/L				< 0.005			< 0.005	< 0.005
Tin	2017-05	mg/L				< 0.005			< 0.005	< 0.005
Tin	2017-09	mg/L				< 0.005			< 0.005	< 0.005
Tin	2018-05	mg/L				< 0.005			< 0.005	< 0.005
Tin	2018-09	mg/L				< 0.005			< 0.005	< 0.005
Tin	2019-03	mg/L				< 0.005			< 0.005	< 0.005
Tin	2019-10	mg/L			< 0.01	< 0.01			< 0.01	< 0.01
Tin	2020-04	mg/L				< 0.005			< 0.005	< 0.005
Tin	2020-09	mg/L				< 0.005			< 0.005	~~< 0.005~~
Tin	2021-04	mg/L				< 0.005			< 0.005	< 0.005
Tin	2021-09	mg/L			< 0.005	< 0.005			< 0.005	< 0.005
Tin	2022-04	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Tin	2023-04	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Toluene	2008-04	ug/l							< 1.00	
Toluene	2008-06	ug/l							< 1.00	
Toluene	2008-08	ug/l							< 1.00	
Toluene	2008-09	ug/l							< 1.00	
Toluene	2009-03	ug/l							< 1	
Toluene	2009-06	ug/l							< 1.00	
Toluene	2009-09	ug/l				< 1.00			< 1.00	< 1.00
Toluene	2009-12	ug/l				< 1.00				< 1.00
Toluene	2010-03	ug/l							< 1.00	
Toluene	2010-04	ug/l				< 1.00				< 1.00
Toluene	2010-06	ug/l				< 1.00				< 1.00

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Table 13
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Toluene	2010-09	ug/l				< 1.00			< 1.00	< 1.00
Toluene	2011-03	ug/l				< 1.00			< 1.00	< 1.00
Toluene	2011-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Toluene	2011-11	ug/l	< 1.00		< 1.00					
Toluene	2012-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Toluene	2012-06	ug/l	< 1.00		< 1.00					
Toluene	2012-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Toluene	2013-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Toluene	2013-06	ug/l			< 1.00	< 1.00			< 1.00	< 1.00
Toluene	2013-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Toluene	2013-11	ug/L				< 1.00			< 1.00	< 1.00
Toluene	2014-03	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Toluene	2014-06	ug/L			< 1.00	< 1.00			< 1.00 J	< 1.00
Toluene	2014-08	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Toluene	2014-12	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
Toluene	2015-04	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Toluene	2015-09	ug/L			< 1					
Toluene	2015-10	ug/L	< 1			< 1			< 1	< 1
Toluene	2016-04	ug/L	< 1		< 1	< 1			< 1	< 1
Toluene	2016-07	ug/L				< 1				< 1
Toluene	2016-10	ug/L	< 1		< 1	< 1			< 1	< 1
Toluene	2017-05	ug/L	< 1		< 1	< 1			< 1	< 1
Toluene	2017-09	ug/L	< 1		< 1	< 1			< 1	< 1
Toluene	2018-05	ug/L			< 1	< 1			< 1	< 1
Toluene	2018-09	ug/L	< 1		< 1	< 1			< 1	< 1
Toluene	2019-03	ug/L	< 1		< 1	< 1			< 1	< 1
Toluene	2019-10	ug/L		< 1	< 1	< 1		< 1	< 1	< 1
Toluene	2020-04	ug/L		< 1	< 1	< 1	< 1	< 1	< 1	< 1
Toluene	2020-06	ug/L	< 1					< 1		
Toluene	2020-08	ug/L	< 1				< 1	< 1		
Toluene	2020-09	ug/L		< 1	< 1	< 1			< 1	~~< 1~~
Toluene	2020-12	ug/L					< 1	< 1		
Toluene	2021-02	ug/L					< 1			
Toluene	2021-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Toluene	2021-09	ug/L	< 1	< 1	< 1	< 1	**0.485 J**	< 1	< 1	< 1
Toluene	2022-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Toluene	2022-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Toluene	2023-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Toluene	2023-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Total Suspended Solids	2014-08	mg/L			**13.0**	**11.3**			< 5.00	**11.3**
Total Suspended Solids	2014-12	mg/L			**3.00**	**119**			< 2.50	**119**
Total Suspended Solids	2015-04	mg/L			**7.40**	< 2.50			< 1.88	< 2.50
Total Suspended Solids	2015-09	mg/L			**15.3**					
Total Suspended Solids	2015-10	mg/L	< 1.88			**5.37**			< 1.88	**5.37**

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Total Suspended Solids	2016-04	mg/L	**1.25 J**		**1.75 J**	**1.38 J**			**1 J**	**1.38 J**
Total Suspended Solids	2016-07	mg/L				**1.25 J**				**1.25 J**
Total Suspended Solids	2016-10	mg/L	**2.38**		**4.25**	**0.625 J**			**1.88**	**0.625 J**
Total Suspended Solids	2017-05	mg/L	**2.88**		**4.88**	< 1.88			**0.875 J**	< 1.88
Total Suspended Solids	2017-09	mg/L	**72.7**		**2.5**	**0.875 J**			< 1.88	**0.875 J**
Total Suspended Solids	2018-05	mg/L			**3.5**	**1.13 J**			**0.875 J**	**1.13 J**
Total Suspended Solids	2018-09	mg/L	**35**		**2.5**	**1.13 J**			< 1.88	**1.13 J**
Total Suspended Solids	2019-03	mg/L	**1.25 J**		**3.38**	**1 J**			**0.75 J**	**1 J**
Total Suspended Solids	2019-10	mg/L		**6**	**3.5**	**1.13 J**		**313**	< 1.88	**1.13 J**
Total Suspended Solids	2020-04	mg/L		**1.38 J**	**2.25**	**1.63 J**	**222**	**114**	< 1.88	**1.63 J**
Total Suspended Solids	2020-06	mg/L	**1.63 J**					**316**		
Total Suspended Solids	2020-08	mg/L	**4.13**				**474**	**202**		
Total Suspended Solids	2020-09	mg/L		< 1.88	**3.75**	< 2			< 2.05	~~< 2~~
Total Suspended Solids	2020-12	mg/L					**70.5**	**16.8**		
Total Suspended Solids	2021-02	mg/L					**13**			
Total Suspended Solids	2021-04	mg/L	**0.875 J**	**4.75**	**3.25**	< 1.88	**264**	**10.5**	**1 J**	< 1.88
Total Suspended Solids	2021-09	mg/L	**2**	**1.38 J**	**1.5 J**	**1.88**	**3.63**	**14**	< 1.88	**1.88**
Total Suspended Solids	2022-04	mg/L	< 1.88	**1.38 J**	**14.1**	< 1.88	**0.75 J**	**12.8**	< 1.88	< 1.88
Total Suspended Solids	2022-09	mg/L	**2.63**	**6.25**	**3.25**	**1.13 J**	**6.25**	**16.5**	**0.75 J**	**1.13 J**
Total Suspended Solids	2023-04	mg/L	< 5	**1.88**	< 1.88	< 1.88	**2.38**	**16.5**	< 1.88	< 1.88
Total Suspended Solids	2023-09	mg/L	**15.1**	**2.5**	**4.88**	**1.25 J**	**7.25**	**29.5**	**3**	**1.25 J**
Toxaphene	2009-03	ug/l							< 2	
Toxaphene	2009-06	ug/l							< 2.00	
Toxaphene	2009-09	ug/l							< 2.00	
Toxaphene	2010-03	ug/l							< 2.00	
Toxaphene	2010-09	ug/l							< 2.22	
Toxaphene	2011-03	ug/l							< 2.00	
Toxaphene	2011-09	ug/l							< 2.00	
Toxaphene	2012-03	ug/l							< 2.00	
Toxaphene	2013-03	ug/l							< 2.15	
Toxaphene	2013-09	ug/l							< 2.08	
Toxaphene	2014-03	ug/L							< 2.35	
Toxaphene	2014-06	ug/L			< 2.04					
Toxaphene	2014-08	ug/L			< 2.00				< 2.00	
Toxaphene	2015-04	ug/L							< 2.02	
Toxaphene	2015-10	ug/L				< 2			< 2	< 2
Toxaphene	2016-04	ug/L				< 2.04			< 2	< 2.04
Toxaphene	2016-07	ug/L				< 2				< 2
Toxaphene	2016-10	ug/L				< 2.04			< 2	< 2.04
Toxaphene	2017-05	ug/L				< 2.04			< 2.15	< 2.04
Toxaphene	2017-09	ug/L				< 2.15			< 2.13	< 2.15
Toxaphene	2018-05	ug/L				< 2.15			< 2.15	< 2.15
Toxaphene	2018-09	ug/L				< 2.2			< 2.2	< 2.2
Toxaphene	2019-03	ug/L				< 2.22			< 0.341	< 2.22

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Toxaphene	2019-10	ug/L			< 2.09	< 2.08			< 2.08	< 2.08
Toxaphene	2020-04	ug/L				< 2.82			< 2.67	< 2.82
Toxaphene	2020-09	ug/L				< 2.17			< 2.82	~~< 2.17~~
Toxaphene	2021-04	ug/L				< 2.27			< 2.67	< 2.27
Toxaphene	2021-09	ug/L				< 2.5			< 2.44	< 2.5
trans-1,2-Dichloroethene	2008-04	ug/l							< 1.00	
trans-1,2-Dichloroethene	2008-06	ug/l							< 1.00	
trans-1,2-Dichloroethene	2008-08	ug/l							< 1.00	
trans-1,2-Dichloroethene	2008-09	ug/l							< 1.00	
trans-1,2-Dichloroethene	2009-03	ug/l							< 1	
trans-1,2-Dichloroethene	2009-06	ug/l							< 1.00	
trans-1,2-Dichloroethene	2009-09	ug/l				< 1.00			< 1.00	< 1.00
trans-1,2-Dichloroethene	2009-12	ug/l				< 1.00				< 1.00
trans-1,2-Dichloroethene	2010-03	ug/l							< 1.00	
trans-1,2-Dichloroethene	2010-04	ug/l				< 1.00				< 1.00
trans-1,2-Dichloroethene	2010-06	ug/l				< 1.00				< 1.00
trans-1,2-Dichloroethene	2010-09	ug/l				< 1.00			< 1.00	< 1.00
trans-1,2-Dichloroethene	2011-03	ug/l				< 1.00			< 1.00	< 1.00
trans-1,2-Dichloroethene	2011-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
trans-1,2-Dichloroethene	2011-11	ug/l	< 1.00		< 1.00					
trans-1,2-Dichloroethene	2012-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
trans-1,2-Dichloroethene	2012-06	ug/l	< 1.00		< 1.00					
trans-1,2-Dichloroethene	2012-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
trans-1,2-Dichloroethene	2013-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
trans-1,2-Dichloroethene	2013-06	ug/l			< 1.00	< 1.00			< 1.00	< 1.00
trans-1,2-Dichloroethene	2013-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
trans-1,2-Dichloroethene	2013-11	ug/L				< 1.00			< 1.00	< 1.00
trans-1,2-Dichloroethene	2014-03	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
trans-1,2-Dichloroethene	2014-06	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
trans-1,2-Dichloroethene	2014-08	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
trans-1,2-Dichloroethene	2014-12	ug/L			**0.281 J**	< 1.00			< 1.00	< 1.00
trans-1,2-Dichloroethene	2015-04	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
trans-1,2-Dichloroethene	2015-09	ug/L			**0.986 J**					
trans-1,2-Dichloroethene	2015-10	ug/L	< 1			< 1			< 1	< 1
trans-1,2-Dichloroethene	2016-04	ug/L	< 1		**0.509 J**	< 1			< 1	< 1
trans-1,2-Dichloroethene	2016-07	ug/L				< 1				< 1
trans-1,2-Dichloroethene	2016-10	ug/L	< 1		**0.443 J**	< 1			< 1	< 1
trans-1,2-Dichloroethene	2017-05	ug/L	< 1		**0.458 J**	< 1			< 1	< 1
trans-1,2-Dichloroethene	2017-09	ug/L	< 1		**0.535 J**	< 1			< 1	< 1
trans-1,2-Dichloroethene	2018-05	ug/L			**0.338 J**	< 1			< 1	< 1
trans-1,2-Dichloroethene	2018-09	ug/L	< 1		**0.342 J**	< 1			< 1	< 1
trans-1,2-Dichloroethene	2019-03	ug/L	< 1		< 1	< 1			< 1	< 1
trans-1,2-Dichloroethene	2019-10	ug/L		< 1	**0.462 J**	< 1		< 1	< 1	< 1
trans-1,2-Dichloroethene	2020-04	ug/L		< 1	**0.362 J**	< 1	< 1	< 1	< 1	< 1

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
trans-1,2-Dichloroethene	2020-06	ug/L	< 1					< 1		
trans-1,2-Dichloroethene	2020-08	ug/L	< 1				< 1	< 1		
trans-1,2-Dichloroethene	2020-09	ug/L		< 1	**0.386 J**	< 1			< 1	~~< 1~~
trans-1,2-Dichloroethene	2020-12	ug/L					< 1	< 1		
trans-1,2-Dichloroethene	2021-02	ug/L					< 1			
trans-1,2-Dichloroethene	2021-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
trans-1,2-Dichloroethene	2021-09	ug/L	< 1	< 1	**0.326 J**	< 1	< 1	< 1	< 1	< 1
trans-1,2-Dichloroethene	2022-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
trans-1,2-Dichloroethene	2022-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
trans-1,2-Dichloroethene	2023-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
trans-1,2-Dichloroethene	2023-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
trans-1,3-Dichloropropene	2008-04	ug/l							< 5.00	
trans-1,3-Dichloropropene	2008-06	ug/l							< 5.00	
trans-1,3-Dichloropropene	2008-08	ug/l							< 5.00	
trans-1,3-Dichloropropene	2008-09	ug/l							< 5.00	
trans-1,3-Dichloropropene	2009-03	ug/l							< 5	
trans-1,3-Dichloropropene	2009-06	ug/l							< 5.00	
trans-1,3-Dichloropropene	2009-09	ug/l				< 5.00			< 5.00	< 5.00
trans-1,3-Dichloropropene	2009-12	ug/l				< 5.00				< 5.00
trans-1,3-Dichloropropene	2010-03	ug/l							< 20.0	
trans-1,3-Dichloropropene	2010-04	ug/l				< 20.0				< 20.0
trans-1,3-Dichloropropene	2010-06	ug/l				< 5.00				< 5.00
trans-1,3-Dichloropropene	2010-09	ug/l				< 10.0			< 10.0	< 10.0
trans-1,3-Dichloropropene	2011-03	ug/l				< 5.00			< 5.00	< 5.00
trans-1,3-Dichloropropene	2011-09	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
trans-1,3-Dichloropropene	2011-11	ug/l	< 5.00		< 5.00					
trans-1,3-Dichloropropene	2012-03	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
trans-1,3-Dichloropropene	2012-06	ug/l	< 5.00		< 5.00					
trans-1,3-Dichloropropene	2012-09	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
trans-1,3-Dichloropropene	2013-03	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
trans-1,3-Dichloropropene	2013-06	ug/l			< 5.00	< 5.00			< 5.00	< 5.00
trans-1,3-Dichloropropene	2013-09	ug/l	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
trans-1,3-Dichloropropene	2013-11	ug/L				< 5.00			< 5.00	< 5.00
trans-1,3-Dichloropropene	2014-03	ug/L	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
trans-1,3-Dichloropropene	2014-06	ug/L			< 5.00	< 5.00			< 5.00	< 5.00
trans-1,3-Dichloropropene	2014-08	ug/L	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
trans-1,3-Dichloropropene	2014-12	ug/L			< 5.00	< 5.00			< 5.00	< 5.00
trans-1,3-Dichloropropene	2015-04	ug/L	< 5.00		< 5.00	< 5.00			< 5.00	< 5.00
trans-1,3-Dichloropropene	2015-09	ug/L			< 5					
trans-1,3-Dichloropropene	2015-10	ug/L	< 5			< 5			< 5	< 5
trans-1,3-Dichloropropene	2016-04	ug/L	< 5		< 5	< 5			< 5	< 5
trans-1,3-Dichloropropene	2016-07	ug/L				< 5				< 5
trans-1,3-Dichloropropene	2016-10	ug/L	< 5		< 5	< 5			< 5	< 5
trans-1,3-Dichloropropene	2017-05	ug/L	< 5		< 5	< 5			< 5	< 5

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
trans-1,3-Dichloropropene	2017-09	ug/L	< 5		< 5	< 5			< 5	< 5
trans-1,3-Dichloropropene	2018-05	ug/L			< 5	< 5			< 5	< 5
trans-1,3-Dichloropropene	2018-09	ug/L	< 5		< 5	< 5			< 5	< 5
trans-1,3-Dichloropropene	2019-03	ug/L	< 5		< 5	< 5			< 5	< 5
trans-1,3-Dichloropropene	2019-10	ug/L		< 5	< 5	< 5		< 5	< 5	< 5
trans-1,3-Dichloropropene	2020-04	ug/L		< 5	< 5	< 5	< 5	< 5	< 5	< 5
trans-1,3-Dichloropropene	2020-06	ug/L	< 5					< 5		
trans-1,3-Dichloropropene	2020-08	ug/L	< 5				< 5	< 5		
trans-1,3-Dichloropropene	2020-09	ug/L		< 5	< 5	< 5			< 5	~~< 5~~
trans-1,3-Dichloropropene	2020-12	ug/L					< 5	< 5		
trans-1,3-Dichloropropene	2021-02	ug/L					< 5			
trans-1,3-Dichloropropene	2021-04	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
trans-1,3-Dichloropropene	2021-09	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
trans-1,3-Dichloropropene	2022-04	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
trans-1,3-Dichloropropene	2022-09	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
trans-1,3-Dichloropropene	2023-04	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
trans-1,3-Dichloropropene	2023-09	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
trans-1,4-Dichloro-2-butene	2008-04	ug/l							< 10.0	
trans-1,4-Dichloro-2-butene	2008-06	ug/l							< 10.0	
trans-1,4-Dichloro-2-butene	2008-08	ug/l							< 10.0	
trans-1,4-Dichloro-2-butene	2008-09	ug/l							< 10.0	
trans-1,4-Dichloro-2-butene	2009-03	ug/l							< 10	
trans-1,4-Dichloro-2-butene	2009-06	ug/l							< 10.0	
trans-1,4-Dichloro-2-butene	2009-09	ug/l				< 10.0			< 10.0	< 10.0
trans-1,4-Dichloro-2-butene	2009-12	ug/l				< 10.0				< 10.0
trans-1,4-Dichloro-2-butene	2010-03	ug/l							< 10.0	
trans-1,4-Dichloro-2-butene	2010-04	ug/l				< 10.0				< 10.0
trans-1,4-Dichloro-2-butene	2010-06	ug/l				< 10.0				< 10.0
trans-1,4-Dichloro-2-butene	2010-09	ug/l				< 10.0			< 10.0	< 10.0
trans-1,4-Dichloro-2-butene	2011-03	ug/l				< 10.0			< 10.0	< 10.0
trans-1,4-Dichloro-2-butene	2011-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
trans-1,4-Dichloro-2-butene	2011-11	ug/l	< 10.0		< 10.0					
trans-1,4-Dichloro-2-butene	2012-03	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
trans-1,4-Dichloro-2-butene	2012-06	ug/l	< 10.0		< 10.0					
trans-1,4-Dichloro-2-butene	2012-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
trans-1,4-Dichloro-2-butene	2013-03	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
trans-1,4-Dichloro-2-butene	2013-06	ug/l			< 10.0	< 10.0			< 10.0	< 10.0
trans-1,4-Dichloro-2-butene	2013-09	ug/l	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
trans-1,4-Dichloro-2-butene	2013-11	ug/L				< 10.0			< 10.0	< 10.0
trans-1,4-Dichloro-2-butene	2014-03	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
trans-1,4-Dichloro-2-butene	2014-06	ug/L			< 10.0	< 10.0			< 10.0	< 10.0
trans-1,4-Dichloro-2-butene	2014-08	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
trans-1,4-Dichloro-2-butene	2014-12	ug/L			< 10.0	< 10.0			< 10.0	< 10.0
trans-1,4-Dichloro-2-butene	2015-04	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
trans-1,4-Dichloro-2-butene	2015-09	ug/L			< 10					
trans-1,4-Dichloro-2-butene	2015-10	ug/L	< 10			< 10			< 10	< 10
trans-1,4-Dichloro-2-butene	2016-04	ug/L	< 10		< 10	< 10			< 10	< 10
trans-1,4-Dichloro-2-butene	2016-07	ug/L				< 10				< 10
trans-1,4-Dichloro-2-butene	2016-10	ug/L	< 10		< 10	< 10			< 10	< 10
trans-1,4-Dichloro-2-butene	2017-05	ug/L	< 10		< 10	< 10			< 10	< 10
trans-1,4-Dichloro-2-butene	2017-09	ug/L	< 10		< 10	< 10			< 10	< 10
trans-1,4-Dichloro-2-butene	2018-05	ug/L			< 10	< 10			< 10	< 10
trans-1,4-Dichloro-2-butene	2018-09	ug/L	< 10		< 10	< 10			< 10	< 10
trans-1,4-Dichloro-2-butene	2019-03	ug/L	< 10		< 10	< 10			< 10	< 10
trans-1,4-Dichloro-2-butene	2019-10	ug/L		< 10	< 10	< 10		< 10	< 10	< 10
trans-1,4-Dichloro-2-butene	2020-04	ug/L		< 10	< 10	< 10	< 10	< 10	< 10	< 10
trans-1,4-Dichloro-2-butene	2020-06	ug/L	< 10					< 10		
trans-1,4-Dichloro-2-butene	2020-08	ug/L	< 10				< 10	< 10		
trans-1,4-Dichloro-2-butene	2020-09	ug/L		< 10	< 10	< 10			< 10	~~< 10~~
trans-1,4-Dichloro-2-butene	2020-12	ug/L					< 10	< 10		
trans-1,4-Dichloro-2-butene	2021-02	ug/L					< 10			
trans-1,4-Dichloro-2-butene	2021-04	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
trans-1,4-Dichloro-2-butene	2021-09	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
trans-1,4-Dichloro-2-butene	2022-04	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
trans-1,4-Dichloro-2-butene	2022-09	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
trans-1,4-Dichloro-2-butene	2023-04	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
trans-1,4-Dichloro-2-butene	2023-09	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Trichloroethene	2008-04	ug/l							< 1.00	
Trichloroethene	2008-06	ug/l							< 1.00	
Trichloroethene	2008-08	ug/l							< 1.00	
Trichloroethene	2008-09	ug/l							< 1.00	
Trichloroethene	2009-03	ug/l							< 1	
Trichloroethene	2009-06	ug/l							< 1.00	
Trichloroethene	2009-09	ug/l				< 1.00			< 1.00	< 1.00
Trichloroethene	2009-12	ug/l				< 1.00				< 1.00
Trichloroethene	2010-03	ug/l							< 1.00	
Trichloroethene	2010-04	ug/l				< 1.00				< 1.00
Trichloroethene	2010-06	ug/l				< 1.00				< 1.00
Trichloroethene	2010-09	ug/l				< 1.00			< 1.00	< 1.00
Trichloroethene	2011-03	ug/l				< 1.00			< 1.00	< 1.00
Trichloroethene	2011-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Trichloroethene	2011-11	ug/l	< 1.00		< 1.00					
Trichloroethene	2012-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Trichloroethene	2012-06	ug/l	< 1.00		< 1.00					
Trichloroethene	2012-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Trichloroethene	2013-03	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Trichloroethene	2013-06	ug/l			< 1.00	< 1.00			< 1.00	< 1.00
Trichloroethene	2013-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Trichloroethene	2013-11	ug/L				< 1.00			< 1.00	< 1.00
Trichloroethene	2014-03	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Trichloroethene	2014-06	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
Trichloroethene	2014-08	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Trichloroethene	2014-12	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
Trichloroethene	2015-04	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Trichloroethene	2015-09	ug/L			< 1					
Trichloroethene	2015-10	ug/L	< 1			< 1			< 1	< 1
Trichloroethene	2016-04	ug/L	< 1		< 1	< 1			< 1	< 1
Trichloroethene	2016-07	ug/L				< 1				< 1
Trichloroethene	2016-10	ug/L	< 1		< 1	< 1			< 1	< 1
Trichloroethene	2017-05	ug/L	< 1		< 1	< 1			< 1	< 1
Trichloroethene	2017-09	ug/L	< 1		< 1	< 1			< 1	< 1
Trichloroethene	2018-05	ug/L			< 1	< 1			< 1	< 1
Trichloroethene	2018-09	ug/L	< 1		< 1	< 1			< 1	< 1
Trichloroethene	2019-03	ug/L	< 1		< 1	< 1			< 1	< 1
Trichloroethene	2019-10	ug/L		< 1	< 1	< 1		< 1	< 1	< 1
Trichloroethene	2020-04	ug/L		< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethene	2020-06	ug/L	< 1					< 1		
Trichloroethene	2020-08	ug/L	< 1				< 1	< 1		
Trichloroethene	2020-09	ug/L		< 1	< 1	< 1			< 1	~~< 1~~
Trichloroethene	2020-12	ug/L					< 1	< 1		
Trichloroethene	2021-02	ug/L					< 1			
Trichloroethene	2021-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethene	2021-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethene	2022-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethene	2022-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethene	2023-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethene	2023-09	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Vanadium	2008-04	mg/l							< 0.0500	
Vanadium	2008-06	mg/l							< 0.0500	
Vanadium	2008-08	mg/l							< 0.0500	
Vanadium	2008-09	mg/l							< 0.0500	
Vanadium	2009-03	mg/l							< 0.05	
Vanadium	2009-06	mg/l							< 0.0500	
Vanadium	2009-09	mg/l				< 0.0500			< 0.0500	< 0.0500
Vanadium	2009-12	mg/l				**0.0921**				**0.0921**
Vanadium	2010-03	mg/l							< 0.0500	
Vanadium	2010-04	mg/l				< 0.0500				< 0.0500
Vanadium	2010-06	mg/l				< 0.0500				< 0.0500
Vanadium	2010-09	mg/l				< 0.0500			< 0.0500	< 0.0500
Vanadium	2011-03	mg/l				< 0.0500			< 0.0500	< 0.0500
Vanadium	2011-09	mg/l	< 0.0500		< 0.0500	< 0.0500			< 0.0500	< 0.0500
Vanadium	2011-11	mg/l	< 0.0500		< 0.0500					

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Vanadium	2012-03	mg/l	< 0.0500		< 0.0500	< 0.0500			< 0.0500	< 0.0500
Vanadium	2012-06	mg/l	< 0.0500		< 0.0500					
Vanadium	2012-09	mg/l	< 0.0500		< 0.0500	< 0.0500			< 0.0500	< 0.0500
Vanadium	2013-03	mg/l	< 0.0500		**0.00334 J**	**0.0151 J**			< 0.0500	**0.0151 J**
Vanadium	2013-06	mg/l				< 0.0500				< 0.0500
Vanadium	2013-09	mg/l	< 0.0500		< 0.0500	< 0.0500			< 0.0500	< 0.0500
Vanadium	2013-11	mg/L				< 0.0500				< 0.0500
Vanadium	2014-03	mg/L	< 0.0500		< 0.0500	< 0.0500			< 0.0500	< 0.0500
Vanadium	2014-06	mg/L			< 0.0500	< 0.0500				< 0.0500
Vanadium	2014-08	mg/L	**0.000943 J**		**0.000631 J**	**0.000915 J**			< 0.00500	**0.000915 J**
Vanadium	2014-12	mg/L			< 0.00500	**0.00166 J**			**0.000487 J**	**0.00166 J**
Vanadium	2015-04	mg/L	**0.000741 J**		< 0.00500	**0.000687 J**			**0.000465 J**	**0.000687 J**
Vanadium	2015-09	mg/L			**0.000622 J**					
Vanadium	2015-10	mg/L	**0.00113 J**			**0.000765 J**			< 0.005	**0.000765 J**
Vanadium	2016-04	mg/L	**0.000871 J**		< 0.005	**0.000629 J**			**0.000304 J**	**0.000629 J**
Vanadium	2016-07	mg/L				**0.000529 J**				**0.000529 J**
Vanadium	2016-10	mg/L	**0.00117 J**		**0.00032 J**	**0.000612 J**			**0.00045 J**	**0.000612 J**
Vanadium	2017-05	mg/L	**0.00137 J**		< 0.005	**0.00115 J**			< 0.005	**0.00115 J**
Vanadium	2017-09	mg/L	**0.00105 J**		< 0.005	< 0.005			< 0.005	< 0.005
Vanadium	2018-05	mg/L			< 0.005	**0.000641 J**			< 0.005	**0.000641 J**
Vanadium	2018-09	mg/L	**0.0136**		< 0.005	< 0.005			< 0.005	< 0.005
Vanadium	2019-03	mg/L	**0.0012 J**		< 0.005	**0.00112 J**			< 0.005	**0.00112 J**
Vanadium	2019-10	mg/L		< 0.005	< 0.005	< 0.01		< 0.005	< 0.005	< 0.01
Vanadium	2020-04	mg/L		< 0.005	< 0.005	< 0.005	**0.00157 J**	< 0.005	< 0.005	< 0.005
Vanadium	2020-06	mg/L	**0.00102 J**					**0.0036 J**		
Vanadium	2020-08	mg/L	**0.00165 J**				**0.00436 J**	**0.003 J**		
Vanadium	2020-09	mg/L		< 0.005	< 0.005	**0.00093 J**			< 0.005	~~**0.00093 J**~~
Vanadium	2020-12	mg/L					< 0.005	< 0.005		
Vanadium	2021-02	mg/L					< 0.005			
Vanadium	2021-04	mg/L	**0.00114 J**	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Vanadium	2021-09	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Vanadium	2022-04	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Vanadium	2022-09	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Vanadium	2023-04	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Vanadium	2023-09	mg/L	**0.00155 J**	< 0.005	< 0.005	**0.00114 J**	< 0.005	< 0.005	< 0.005	**0.00114 J**
Vinyl Acetate	2008-04	ug/l							< 2.00	
Vinyl Acetate	2008-06	ug/l							< 2.00	
Vinyl Acetate	2008-08	ug/l							< 2.00	
Vinyl Acetate	2008-09	ug/l							< 2.00	
Vinyl Acetate	2009-03	ug/l							< 2	
Vinyl Acetate	2009-06	ug/l							< 2.00	
Vinyl Acetate	2009-09	ug/l				< 2.00			< 2.00	< 2.00
Vinyl Acetate	2009-12	ug/l				< 2.00				< 2.00
Vinyl Acetate	2010-03	ug/l							< 2.00	

Table 13
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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Vinyl Acetate	2010-04	ug/l				< 2.00				< 2.00
Vinyl Acetate	2010-06	ug/l				< 2.00				< 2.00
Vinyl Acetate	2010-09	ug/l				< 2.00			< 2.00	< 2.00
Vinyl Acetate	2011-03	ug/l				< 2.00			< 2.00	< 2.00
Vinyl Acetate	2011-09	ug/l	< 2.00		< 2.00	< 2.00			< 2.00	< 2.00
Vinyl Acetate	2011-11	ug/l	< 20.0		< 20.0					
Vinyl Acetate	2012-03	ug/l	< 2.00		< 10.0	< 10.0			< 10.0	< 10.0
Vinyl Acetate	2012-06	ug/l	< 2.00		< 2.00					
Vinyl Acetate	2012-09	ug/l	< 4.00		< 4.00	< 4.00			< 4.00	< 4.00
Vinyl Acetate	2013-03	ug/l	< 2.00		< 2.00	< 2.00			< 2.00	< 2.00
Vinyl Acetate	2013-06	ug/l			< 2.00	< 2.00			< 2.00	< 2.00
Vinyl Acetate	2013-09	ug/l	< 2.00		< 2.00	< 2.00			< 2.00	< 2.00
Vinyl Acetate	2013-11	ug/L				< 2.00			< 2.00	< 2.00
Vinyl Acetate	2014-03	ug/L	< 2.00		< 2.00	< 2.00			< 2.00	< 2.00
Vinyl Acetate	2014-06	ug/L			< 2.00	< 2.00			< 2.00	< 2.00
Vinyl Acetate	2014-08	ug/L	< 2.00		< 2.00	< 2.00			< 2.00	< 2.00
Vinyl Acetate	2014-12	ug/L			< 10.0	< 10.0			< 10.0	< 10.0
Vinyl Acetate	2015-04	ug/L	< 10.0		< 10.0	< 10.0			< 10.0	< 10.0
Vinyl Acetate	2015-09	ug/L			< 10					
Vinyl Acetate	2015-10	ug/L	< 10			< 10			< 10	< 10
Vinyl Acetate	2016-04	ug/L	< 10		< 10	< 10			< 10	< 10
Vinyl Acetate	2016-07	ug/L				< 10				< 10
Vinyl Acetate	2016-10	ug/L	< 10		< 10	< 10			< 10	< 10
Vinyl Acetate	2017-05	ug/L	< 10		< 10	< 10			< 10	< 10
Vinyl Acetate	2017-09	ug/L	< 10		< 10	< 10			< 10	< 10
Vinyl Acetate	2018-05	ug/L			< 10	< 10			< 10	< 10
Vinyl Acetate	2018-09	ug/L	< 10		< 10	< 10			< 10	< 10
Vinyl Acetate	2019-03	ug/L	< 10		< 10	< 10			< 10	< 10
Vinyl Acetate	2019-10	ug/L		< 10	< 10	< 10		< 10	< 10	< 10
Vinyl Acetate	2020-04	ug/L		< 10	< 10	< 10	< 10	< 10	< 10	< 10
Vinyl Acetate	2020-06	ug/L	< 10					< 10		
Vinyl Acetate	2020-08	ug/L	< 10				< 10	< 10		
Vinyl Acetate	2020-09	ug/L		< 10	< 10	< 10			< 10	~~< 10~~
Vinyl Acetate	2020-12	ug/L					< 10	< 10		
Vinyl Acetate	2021-02	ug/L					< 10			
Vinyl Acetate	2021-04	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Vinyl Acetate	2021-09	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Vinyl Acetate	2022-04	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Vinyl Acetate	2022-09	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Vinyl Acetate	2023-04	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Vinyl Acetate	2023-09	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Vinyl Chloride	2008-04	ug/l							< 1.00	
Vinyl Chloride	2008-06	ug/l							< 1.00	
Vinyl Chloride	2008-08	ug/l							< 1.00	

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Vinyl Chloride	2008-09	ug/l							< 1.00	
Vinyl Chloride	2009-03	ug/l							< 1	
Vinyl Chloride	2009-06	ug/l							< 1.00	
Vinyl Chloride	2009-09	ug/l				< 1.00			< 1.00	< 1.00
Vinyl Chloride	2009-12	ug/l				< 1.00				< 1.00
Vinyl Chloride	2010-03	ug/l							< 1.00	
Vinyl Chloride	2010-04	ug/l				< 1.00				< 1.00
Vinyl Chloride	2010-06	ug/l				< 1.00				< 1.00
Vinyl Chloride	2010-09	ug/l				< 1.00			< 1.00	< 1.00
Vinyl Chloride	2011-03	ug/l				< 1.00			< 1.00	< 1.00
Vinyl Chloride	2011-09	ug/l	< 1.00		**1.18**	< 1.00			< 1.00	< 1.00
Vinyl Chloride	2011-11	ug/l	< 1.00		**1.52**					
Vinyl Chloride	2012-03	ug/l	< 1.00		**1.34**	< 1.00			< 1.00	< 1.00
Vinyl Chloride	2012-06	ug/l	< 1.00		< 1.00					
Vinyl Chloride	2012-09	ug/l	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Vinyl Chloride	2013-03	ug/l	< 1.00		**0.891 J**	< 1.00			< 1.00	< 1.00
Vinyl Chloride	2013-06	ug/l			**0.205 J**	< 1.00			< 1.00	< 1.00
Vinyl Chloride	2013-09	ug/l	< 1.00		**0.488 J**	< 1.00			< 1.00	< 1.00
Vinyl Chloride	2013-11	ug/L				< 1.00			< 1.00	< 1.00
Vinyl Chloride	2014-03	ug/L	< 1.00		< 1.00 J	< 1.00			< 1.00	< 1.00
Vinyl Chloride	2014-06	ug/L			< 1.00	< 1.00			< 1.00	< 1.00
Vinyl Chloride	2014-08	ug/L	< 1.00		< 1.00	< 1.00			< 1.00	< 1.00
Vinyl Chloride	2014-12	ug/L			**1.85**	< 1.00			< 1.00	< 1.00
Vinyl Chloride	2015-04	ug/L	< 1.00		**0.812 J**	< 1.00			< 1.00	< 1.00
Vinyl Chloride	2015-09	ug/L			**4.62**					
Vinyl Chloride	2015-10	ug/L	< 1			< 1			< 1	< 1
Vinyl Chloride	2016-04	ug/L	< 1		**4.28**	< 1			< 1	< 1
Vinyl Chloride	2016-07	ug/L				< 1				< 1
Vinyl Chloride	2016-10	ug/L	< 1		**3.48**	< 1			< 1	< 1
Vinyl Chloride	2017-05	ug/L	< 1		**2.59**	< 1			< 1	< 1
Vinyl Chloride	2017-09	ug/L	< 1		**3.36**	< 1			< 1	< 1
Vinyl Chloride	2018-05	ug/L			**1.39**	< 1			< 1	< 1
Vinyl Chloride	2018-09	ug/L	< 1		**3.08**	< 1			< 1	< 1
Vinyl Chloride	2019-03	ug/L	< 1		**2.13**	< 1			< 1	< 1
Vinyl Chloride	2019-10	ug/L		**0.609 J**	**1.93**	< 1		< 1	< 1	< 1
Vinyl Chloride	2020-04	ug/L		**0.333 J**	**1.51**	< 1	< 1	< 1	< 1	< 1
Vinyl Chloride	2020-06	ug/L	< 1					< 1		
Vinyl Chloride	2020-08	ug/L	< 1				< 1	< 1		
Vinyl Chloride	2020-09	ug/L		**0.307 J**	**2.12**	< 1			< 1	~~< 1~~
Vinyl Chloride	2020-12	ug/L					< 1	< 1		
Vinyl Chloride	2021-02	ug/L					< 1			
Vinyl Chloride	2021-04	ug/L	< 1	< 1	**1.05**	< 1	< 1	< 1	< 1	< 1
Vinyl Chloride	2021-09	ug/L	< 1	< 1	**1.04**	< 1	< 1	< 1	< 1	< 1
Vinyl Chloride	2022-04	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1

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Constituent	Date	Units	GU-2A (DwnGrad)	MW-119RR (DwnGrad)	MW-121R (DwnGrad)	MW-200 (DwnGrad	MW-205 (DwnGrad)	MW-206 (DwnGrad)	MW-122R (Bkgrnd)	MW-200* (Bkgrnd)
1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Vinyl Chloride	2022-09	ug/L	< 1	< 1	**0.773 J**	< 1	< 1	< 1	< 1	< 1
Vinyl Chloride	2023-04	ug/L	< 1	< 1	**0.327 J**	< 1	< 1	< 1	< 1	< 1
Vinyl Chloride	2023-09	ug/L	< 1	< 1	**0.616 J**	< 1	< 1	< 1	< 1	< 1
Xylenes, Total	2008-04	ug/l							< 3.00	
Xylenes, Total	2008-06	ug/l							< 3.00	
Xylenes, Total	2008-08	ug/l							< 3.00	
Xylenes, Total	2008-09	ug/l							< 3.00	
Xylenes, Total	2009-03	ug/l							< 3	
Xylenes, Total	2009-06	ug/l							< 3.00	
Xylenes, Total	2009-09	ug/l				< 3.00			< 3.00	< 3.00
Xylenes, Total	2009-12	ug/l				< 4.00				< 4.00
Xylenes, Total	2010-03	ug/l							< 6.00	
Xylenes, Total	2010-04	ug/l				< 6.00				< 6.00
Xylenes, Total	2010-06	ug/l				< 3.00				< 3.00
Xylenes, Total	2010-09	ug/l				< 3.00			< 3.00	< 3.00
Xylenes, Total	2011-03	ug/l				< 3.00			< 3.00	< 3.00
Xylenes, Total	2011-09	ug/l	< 3.00		< 3.00	< 3.00			< 3.00	< 3.00
Xylenes, Total	2011-11	ug/l	< 3.00		< 3.00					
Xylenes, Total	2012-03	ug/l	< 3.00		< 3.00	< 3.00			< 3.00	< 3.00
Xylenes, Total	2012-06	ug/l	< 3.00		< 3.00					
Xylenes, Total	2012-09	ug/l	< 3.00		< 3.00	< 3.00			< 3.00	< 3.00
Xylenes, Total	2013-03	ug/l	< 3.00		< 3.00	< 3.00			< 3.00	< 3.00
Xylenes, Total	2013-06	ug/l			< 3.00	< 3.00			< 3.00	< 3.00
Xylenes, Total	2013-09	ug/l	< 3.00		< 3.00	< 3.00			< 3.00	< 3.00
Xylenes, Total	2013-11	ug/L				< 3.00			< 3.00	< 3.00
Xylenes, Total	2014-03	ug/L	< 3.00		< 3.00	< 3.00			< 3.00	< 3.00
Xylenes, Total	2014-06	ug/L			< 3.00	< 3.00			< 3.00	< 3.00
Xylenes, Total	2014-08	ug/L	< 3.00		< 2.00	< 3.00			< 2.00	< 3.00
Xylenes, Total	2014-12	ug/L			< 3.00	< 3.00			< 3.00	< 3.00
Xylenes, Total	2015-04	ug/L	< 3.00		< 3.00	< 3.00			< 3.00	< 3.00
Xylenes, Total	2015-09	ug/L			< 3					
Xylenes, Total	2015-10	ug/L	< 3			< 3			< 3	< 3
Xylenes, Total	2016-04	ug/L	< 3		< 3	< 3			< 3	< 3
Xylenes, Total	2016-07	ug/L				< 3				< 3
Xylenes, Total	2016-10	ug/L	< 3		< 3	< 3			< 3	< 3
Xylenes, Total	2017-05	ug/L	< 3		< 3	< 3			< 3	< 3
Xylenes, Total	2017-09	ug/L	< 3		< 3	< 3			< 3	< 3
Xylenes, Total	2018-05	ug/L			< 3	< 3			< 3	< 3
Xylenes, Total	2018-09	ug/L	< 3		< 3	< 3			< 3	< 3
Xylenes, Total	2019-03	ug/L	< 3		< 3	< 3			< 3	< 3
Xylenes, Total	2019-10	ug/L		< 3	< 3	< 3		< 3	< 3	< 3
Xylenes, Total	2020-04	ug/L		< 3	< 3	< 3	< 3	< 3	< 3	< 3
Xylenes, Total	2020-06	ug/L	< 3					< 3		
Xylenes, Total	2020-08	ug/L	< 3				< 3	< 3		

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1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Xylenes, Total	2020-09	ug/L		< 3	< 3	< 3			< 3	~~< 3~~
Xylenes, Total	2020-12	ug/L					< 3	< 3		
Xylenes, Total	2021-02	ug/L					< 3			
Xylenes, Total	2021-04	ug/L	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Xylenes, Total	2021-09	ug/L	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Xylenes, Total	2022-04	ug/L	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Xylenes, Total	2022-09	ug/L	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Xylenes, Total	2023-04	ug/L	< 3 J	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Xylenes, Total	2023-09	ug/L	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Zinc	2008-04	mg/l							**0.0227**	
Zinc	2008-06	mg/l							**0.0579**	
Zinc	2008-08	mg/l							**0.0756**	
Zinc	2008-09	mg/l							**0.0370**	
Zinc	2009-03	mg/l							**0.0303**	
Zinc	2009-06	mg/l							**0.0360**	
Zinc	2009-09	mg/l				**0.0651**			**0.0283**	**0.0651**
Zinc	2009-12	mg/l				**0.224**				**0.224**
Zinc	2010-03	mg/l							**0.0232**	
Zinc	2010-04	mg/l				**0.0232**				**0.0232**
Zinc	2010-06	mg/l				**0.0296**				**0.0296**
Zinc	2010-09	mg/l				**0.0326**			**0.0241**	**0.0326**
Zinc	2011-03	mg/l				< 0.0200			< 0.0200	< 0.0200
Zinc	2011-09	mg/l	< 0.0200		< 0.0200	< 0.0200			< 0.0200	< 0.0200
Zinc	2011-11	mg/l	< 0.0200		< 0.0200					
Zinc	2012-03	mg/l	< 0.0200		< 0.0200	< 0.0200			< 0.0200	< 0.0200
Zinc	2012-06	mg/l	< 0.0200		**0.0436**					
Zinc	2012-09	mg/l	< 0.0200		< 0.0200	< 0.0200			< 0.0200	< 0.0200
Zinc	2013-03	mg/l	**0.0284**		**0.0733**	**0.0853**			**0.0313**	**0.0853**
Zinc	2013-06	mg/l				**0.0546**				**0.0546**
Zinc	2013-09	mg/l	**0.0360**		**0.0389**	**0.0369**			**0.0383**	**0.0369**
Zinc	2013-11	mg/L				**0.0986**				**0.0986**
Zinc	2014-03	mg/L	< 0.0200		< 0.0200	**0.0206**			< 0.0200	**0.0206**
Zinc	2014-06	mg/L			< 0.0600	< 0.0200				< 0.0200
Zinc	2014-08	mg/L	< 0.0100		< 0.0100	< 0.0100			< 0.0100	< 0.0100
Zinc	2014-12	mg/L			**0.00749 J**	**0.0114**			**0.0137**	**0.0114**
Zinc	2015-04	mg/L	< 0.0100		< 0.0100	< 0.0100			< 0.0100	< 0.0100
Zinc	2015-09	mg/L			< 0.01					
Zinc	2015-10	mg/L	< 0.01			**0.0238**			< 0.01	**0.0238**
Zinc	2016-04	mg/L	**0.0897**		< 0.01	< 0.01			< 0.01	< 0.01
Zinc	2016-07	mg/L				< 0.01				< 0.01
Zinc	2016-10	mg/L	< 0.01		< 0.01	< 0.01			< 0.01	< 0.01
Zinc	2017-05	mg/L	< 0.02		< 0.02	< 0.02			< 0.02	< 0.02
Zinc	2017-09	mg/L	< 0.02		< 0.02	< 0.02			< 0.02	< 0.02
Zinc	2018-05	mg/L			**0.0146 J**	< 0.02			**0.0255**	< 0.02

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1,1,1,2-Tetrachloroethane	2008-04	ug/l							< 1.00	
1,1,1,2-Tetrachloroethane	2008-06	ug/l							< 1.00	
Zinc	2018-09	mg/L	**0.0174 J**		< 0.02	< 0.02			< 0.02	< 0.02
Zinc	2019-03	mg/L	< 0.02		< 0.02	< 0.02			< 0.02	< 0.02
Zinc	2019-10	mg/L		< 0.04	< 0.04	< 0.04		< 0.04	< 0.04	< 0.04
Zinc	2020-04	mg/L		< 0.02	< 0.02	< 0.02	**0.0116 J**	< 0.02	< 0.02	< 0.02
Zinc	2020-06	mg/L	< 0.02					**0.0242**		
Zinc	2020-08	mg/L	< 0.02				**0.018 J**	**0.0294**		
Zinc	2020-09	mg/L		< 0.02	< 0.02	< 0.02			< 0.02	~~< 0.02~~
Zinc	2020-12	mg/L					< 0.02	**0.0211**		
Zinc	2021-02	mg/L					**0.0111 J**			
Zinc	2021-04	mg/L	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	**0.0165 J**	< 0.02	< 0.02
Zinc	2021-09	mg/L	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	**0.0149 J**	< 0.02	< 0.02
Zinc	2022-04	mg/L	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.2	< 0.02	< 0.02
Zinc	2022-09	mg/L	< 0.02	< 0.02	< 0.02	**0.0207**	< 0.02	**0.0136 J**	< 0.02	**0.0207**
Zinc	2023-04	mg/L	< 0.02	< 0.02	< 0.02	< 0.02	**0.00815 J**	**0.0166 J**	< 0.02	< 0.02
Zinc	2023-09	mg/L	**0.0204**	< 0.02	< 0.02	< 0.02	**0.00696 J**	**0.0165 J**	< 0.02	< 0.02

Figures



NOTES:

1. Coordinate System: IA83-NF
2. Datum: NAD83
3. Imagery: Foth (October 2021)
4. MW-205 - Temporary or Replacement for MW-204RR
5. MW-204RR -Insufficient groundwater for sample collection in 2023.

LEGEND

- HMSP Monitoring Well
- Upgradient Monitoring Well
- Water Level Only
- Underdrain
- 10' Topographic Contour
- Cell Boundary
- Waste Limits
- Property Boundary

Foth

N

0 225 450 Feet

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

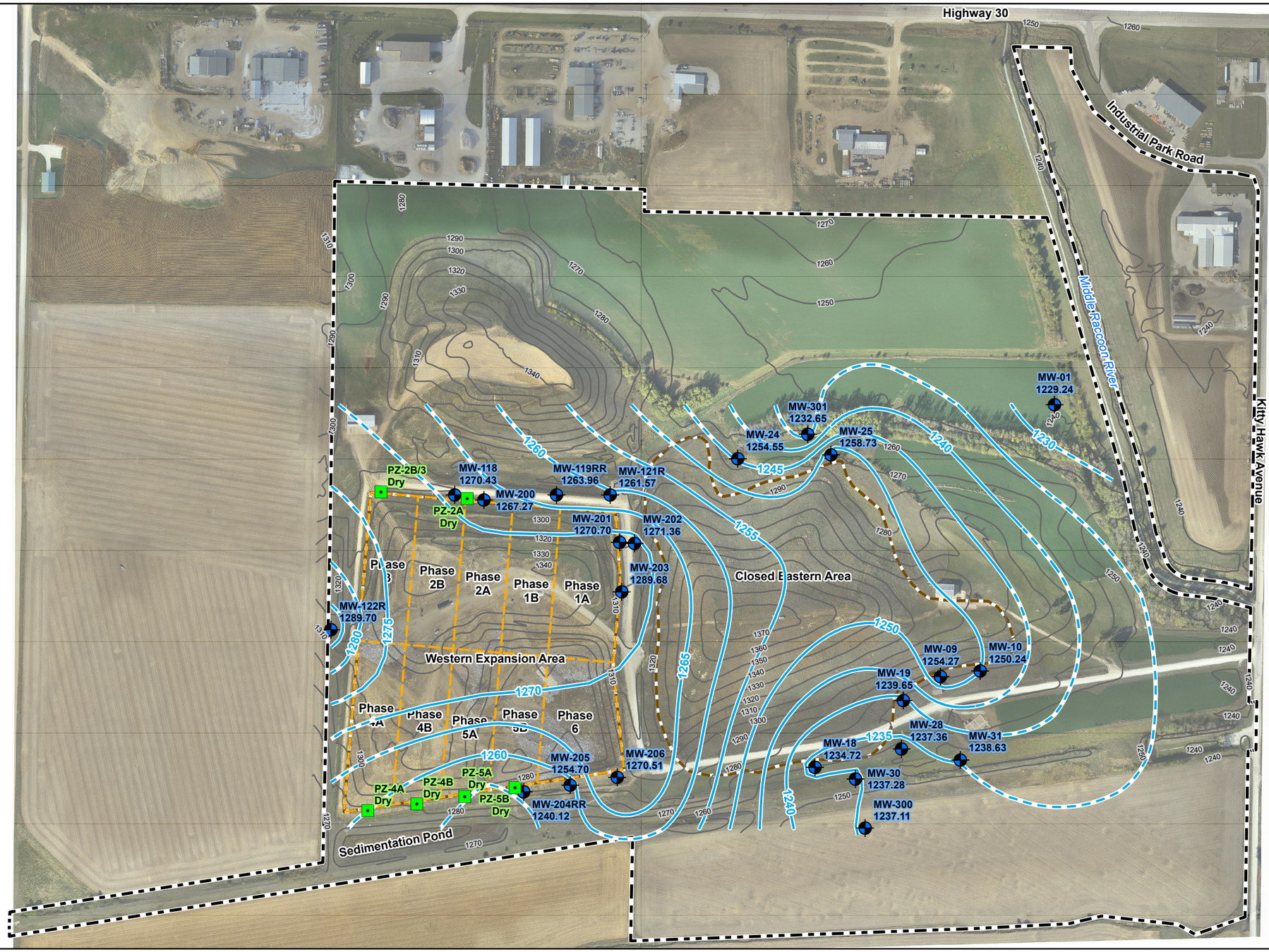
CARROLL COUNTY SOLID WASTE MANAGEMENT COMMISSION

FIGURE 1

GROUNDWATER MONITORING NETWORK
WESTERN EXPANSION AREA

Date: FEBRUARY 2024	Revision Date:	
Drawn By: DAT	Checked By: HED	Project: 24C002.00

Path: Q:\Carroll Co SWMC IA\24C002.00\GIS\aprx\2023 AWQR\2023 AWQR.aprx Date: 2/14/2024



NOTES:

1. Coordinate System: IA83-NF
2. Datum: NAD83
3. Imagery: Foth (October 2021)

LEGEND

- 10' Topographic Contour
- Cell Boundary
- Waste Limits
- Groundwater Table Contour (April 2023)
- Inferred Groundwater Table Contour (April 2023)
- Monitoring Well with April 2023 Water Table Elevation
- Piezometer with April 2023 Water Table Elevation
- Property Boundary

Foth

N

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0 225 450 Feet

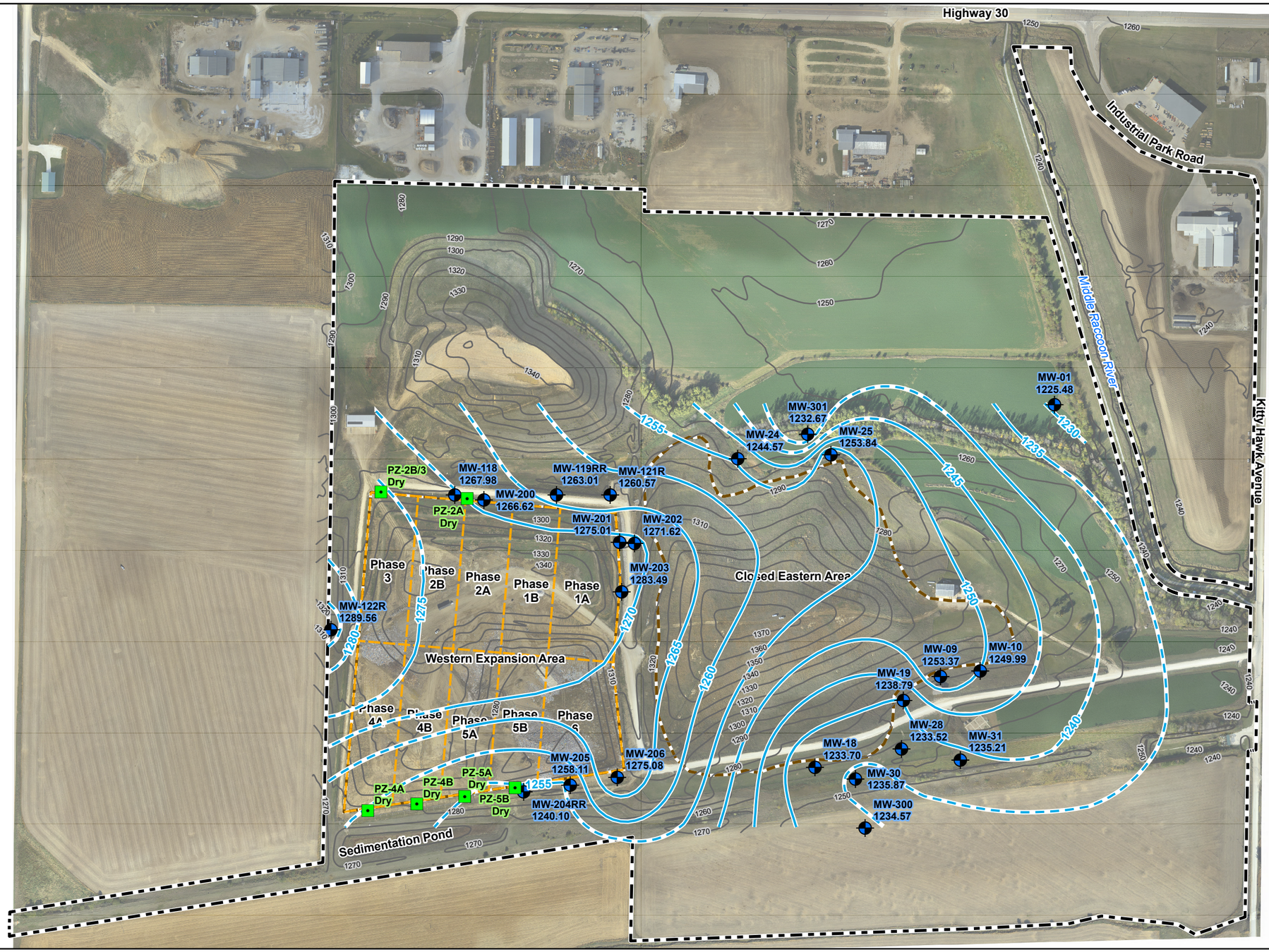
CARROLL COUNTY SOLID WASTE MANAGEMENT COMMISSION

FIGURE 2

WATER TABLE CONTOUR MAP - APRIL 2023

Date: FEBRUARY 2024	Revision Date:	
Drawn By: DAT	Checked By: HED	Project: 24C002.00

Path: Q:\Carroll Co SWMC IA\24C002.00\GIS\aprx\2023 AWQR\2023 AWQR.aprx Date: 2/22/2024



NOTES:

1. Coordinate System: IA83-NF
2. Datum: NAD83
3. Imagery: Foth (October 2021)

LEGEND

- 10' Topographic Contour
- Cell Boundary
- Waste Limits
- Monitoring Well with September 2023 Water Table Elevation
- Piezometer with September 2023 Water Table Elevation
- Groundwater Table Contour (September 2023)
- Inferred Groundwater Table Contour (September 2023)
- Property Boundary

Foth

N

0 225 450 Feet

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

CARROLL COUNTY SOLID WASTE MANAGEMENT COMMISSION

FIGURE 3

WATER TABLE CONTOUR MAP
- SEPTEMBER 2023

Date: FEBRUARY 2024	Revision Date:	
Drawn By: DAT	Checked By: HED	Project: 24C002.00

Path: Q:\Carroll Co SWMC IA\24C002.00\GIS\aprx\2023 AWQR\2023 AWQR.aprx Date: 2/21/2024



NOTES:

1. Coordinate System: IA83-NF
2. Datum: NAD83
3. Imagery: Foth (October 2021)

LEGEND

- Leachate Monitoring Location
- 10' Topographic Contour
- Cell Boundary
- Waste Limits
- Property Boundary

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Foth

N

0 225 450 Feet

CARROLL COUNTY SOLID WASTE MANAGEMENT COMMISSION

FIGURE 4

LEACHATE MONITORING LOCATION MAP
WESTERN EXPANSION AREA

Date: FEBRUARY 2024	Revision Date:	
Drawn By: DAT	Checked By: HED	Project: 24C002.00

Path: Q:\Carroll Co SWMC IA\24C002.00\GIS\aprx\2023 AWQR\2023 AWQR.aprx Date: 2/14/2024



NOTES:

1. Coordinate System: IA83-NF
2. Datum: NAD83
3. Imagery: Foth (October 2021)

LEGEND

- Methane Monitoring Location
- 10' Topographic Contour
- Cell Boundary
- Waste Limits
- Property Boundary

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

0 225 450 Feet

N

CARROLL COUNTY SOLID WASTE MANAGEMENT COMMISSION

FIGURE 5

METHANE MONITORING NETWORK
WESTERN EXPANSION AREA

Date: FEBRUARY 2024	Revision Date:	
Drawn By: DAT	Checked By: HED	Project: 24C002.00

Path: Q:\Carroll Co SWMC IA\24C002.00\GIS\aprx\2023 AWQR\2023 AWQR.aprx Date: 2/14/2024

Appendix A

Reporting Period Monitoring Documentation

April and September 2023

IDNR Forms 542-1322
Laboratory Analytical Reports (with Chain of Custody)
Data Validation Reports

April 2023 Sampling Event

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	GU-2A	Weather:	Clear, 64°F, ENE wind @ 5 mph
Date:	4/24/2023	Personnel:	Tyler Merritt (OA Tech)

Location Details

Description of Sample Location: GU-2A is the compliance point for the groundwater underdrains for Phases 2A and 2B/3. The underdrain systems beneath Phases 2A and 2B/3 gravity drain to the north of the cells where they tie together. From there, groundwater gravity drains to the drainage way north of the Western Expansion Area, where it outlets at GU-2A. Sample is collected directly from the GU-2A discharge pipe.

Conditions commentary:

Sampling Details

Sampling Method: ___ Pump (low flow) ___ No-purge (specify sample interval): ___
___ Bailer X Other (specify): Grab sample from discharge pipe

Equipment type: ___ Submersible pump ___ Peristaltic pump ___ Bladder pump
___ Inertial lift pump ___ Bailer ___ No-purge (specify): ___
___ Other (specify): ___

Equipment name/description: Not Applicable Dedicated? (Y/N): N/A Disposable? (Y/N): N/A
Decontamination method: Not Applicable

Equipment depth (ft. MSL:)	Flow Rate (mL/min):	Volume removed (gal):	Volume sampled (L):
N/A	N/A	N/A	1.37

Well dry? (Y/N): No Odor? (Y/N): No Color? (Y/N): No

Sample Name(s)	Method(s)	Container(s)	Filtered? (if yes, filter size)
GU-2A_23_04	EPA 8260D - Appendix I VOCs	(3) VOA Vial 40 mL - HCl	No
	EPA 6020A - Appendix I Total Metals	(1) Plastic 250 mL - HNO_3	No
	General Chemistry - TSS	(1) Plastic 1 Liter - Unpreserved	No

Field Analysis

	Final Reading
Time	16:59
Temp (°C)	13.04
Sp. Cond (umhos/cm)	722.06
pH	7.73
DO (mg/l)	2.14
ORP (mV)	63
Turbidity (NTU)	0.81

Comments:

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	GU-4A	Weather:	Partly Cloudy, 52°F, SE wind @ 10 mph
Date:	4/24/2023	Personnel:	Tyler Merritt (OA Tech)

Location Details

Description of Sample Location: GU-4A is the compliance point for the groundwater underdrain for Phase 4A/4B/5A. Phase 4A/4B/5A was constructed with an independent groundwater underdrain system that drains south through the cell to the stormwater maintenance hole located on the south side of the sedimentation pond. At the maintenance hole, groundwater is combined with stormwater from the sedimentation pond and outlets to the surface on the south side of the sedimentation pond. The sample is collected from the vertical sample riser located prior to the maintenance hole. Samples will be collected when the depth to groundwater in the vertical riser is at or above 11.27' (the bottom of pipe elevation for the perpendicular underdrain discharge line). This will ensure that samples are collected when the underdrain is flowing.

Conditions commentary:

Sampling Details

Sampling Method: ___ Pump (low flow) ___ No-purge (specify sample interval): ___
___ Bailer X Other (specify): Sample not collected

Equipment type: ___ Submersible pump ___ Peristaltic pump ___ Bladder pump
___ Inertial lift pump ___ Bailer ___ No-purge (specify): ___
___ Other (specify): ___

Equipment name/description: ___ Dedicated? (Y/N): ___ Disposable? (Y/N): ___
Decontamination method: ___

Equipment depth (ft. MSL:) N/A | Flow Rate (mL/min): N/A | Volume removed (gal): N/A | Volume sampled (L): N/A
Well dry? (Y/N): Yes | Odor? (Y/N): N/A | Color? (Y/N): N/A

Sample Name(s)	Method(s)	Container(s)	Filtered? (if yes, filter size)
	Sample not collected	N/A	N/A

Field Analysis

	Final Reading
Time	N/A
Temp (°C)	N/A
Sp. Cond (umhos/cm)	N/A
pH	N/A
DO (mg/l)	N/A
ORP (mV)	N/A
Turbidity (NTU)	N/A

Comments: Insufficient water in casing for sample collection.

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-118	Weather:	Partly Cloudy, 52°F, SE wind @ 10 mph
Date:	4/24/2023	Personnel:	Tyler Merritt (OA Tech)

Monitoring Well Details

Borehole diameter (in): 8 Casing Diameter (in): 2 Ground surface elevation (ft. MSL): 1286.25

Top of screen (ft. MSL): 1268.68 Materials: PVC Top of Casing elevation (ft. MSL): 1289.25

Locked (Y/N): Yes

	Static WL	Before purging	Before sampling
Water Level (ft. TOC):	18.82	N/A	N/A
Water elevation (ft. MSL)	1270.43	N/A	N/A

3 Well Volumes (gal): 5.75 Screen submerged? (Y/N): Yes

	Constructed	Measured	Difference
Well Depth (ft. TOC):	30.57	30.57	0.00

Well conditions commentary: Well conditions inpection scheduled for Fall 2023.

Sampling Details

Sampling Method: ___ Pump (low flow) ___ No-purge (specify sample interval): ___

___ Bailer X Other (specify): Water Level Only - No Sample

Equipment type: ___ Submersible pump ___ Peristaltic pump ___ Bladder pump

___ Inertial lift pump ___ Bailer ___ No-purge (specify): ___

___ Other (specify): ___

Equipment name/description: ___ Dedicated? (Y/N): ___ Disposable? (Y/N): ___

Decontamination method: ___

Equipment depth (ft. MSL:)	N/A	Flow Rate (mL/min):	N/A	Volume removed (gal):	N/A
Well dry? (Y/N):	No	Odor? (Y/N):	N/A	Volume sampled (L):	N/A
				Color? (Y/N):	N/A

Sample Name(s)	Method(s)	Container(s)	Filtered? (if yes, filter size)
	Sample not collected	N/A	N/A

Field Analysis

	Final Reading
Time	N/A
Temp (°C)	N/A
Sp. Cond (umhos/cm)	N/A
pH	N/A
DO (mg/l)	N/A
ORP (mV)	N/A
Turbidity (NTU)	N/A

Comments: Water level monitoring location only.

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-119RR	Weather:	Partly cloudy, 36°F, NNE wind @ 6 mph
Date:	4/25/2023	Personnel:	Tyler Merritt (OA Tech)

Monitoring Well Details

Borehole diameter (in):	8.25	Casing Diameter (in):	2	Ground surface elevation (ft. MSL):	1285.33
Top of screen (ft. MSL):	1265.83	Materials:	PVC	Top of Casing elevation (ft. MSL):	1288.29
Locked (Y/N):	Yes				

	Static WL	Before purging	Before sampling
Water Level (ft. TOC):	24.33	24.33	25.15
Water elevation (ft. MSL)	1263.96	1263.96	1263.14

3 Well Volumes (gal): 4.38 Screen submerged? (Y/N): No

	Constructed	Measured	Difference
Well Depth (ft. TOC):	33.29	33.03	0.26

Well conditions commentary: Well conditions inpection scheduled for Fall 2023.

Sampling Details

Sampling Method: X Pump (low flow) ___ No-purge (specify sample interval): ___
___ Bailer ___ Other (specify): ___

Equipment type: ___ Submersible pump X Peristaltic pump ___ Bladder pump
___ Inertial lift pump ___ Bailer ___ No-purge (specify): ___
___ Other (specify): ___

Equipment name/description: GeoTech Peristaltic Dedicated? (Y/N): No Disposable? (Y/N): No
Decontamination method: disposable tubing

Equipment depth (ft. MSL:)	1258.29	Flow Rate (mL/min):	200	Volume removed (gal):	1.2
Well dry? (Y/N):	No	Odor? (Y/N):	No	Volume sampled (L):	1.37
				Color? (Y/N):	No

Sample Name(s)	Method(s)	Container(s)	Filtered? (if yes, filter size)
MW-119RR_23_04	EPA 8260D - Appendix I VOCs	(3) VOA Vial 40 mL - HCl	No
	EPA 6020A - Appendix I Total Metals	(1) Plastic 250 mL - HNO_3	No
	General Chemistry - TSS	(1) Plastic 1 Liter - Unpreserved	No

Field Analysis

			Final Reading
Time	7:47	7:49	7:51
Temp (°C)	8.96	9.01	8.96
Sp. Cond (umhos/cm)	1072.1	1078.4	1075.4
pH	6.74	6.74	6.74
DO (mg/l)	0.13	0.11	0.09
ORP (mV)	79.4	74.7	72.2
Turbidity (NTU)	0.20	0.00	0.64

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-119RR	Weather:	Partly cloudy, 36°F, NNE wind @ 6 mph
Date:	4/25/2023	Personnel:	Tyler Merritt (OA Tech)

Comments: Collected field duplicate (FD-1_23_04) at MW-119RR.

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-121R	Weather:	Partly cloudy, 38°F, NE wind @ 8 mph
Date:	4/25/2023	Personnel:	Tyler Merritt (OA Tech)

Monitoring Well Details

Borehole diameter (in): 8.25 Casing Diameter (in): 2 Ground surface elevation (ft. MSL): 1279.97

Top of screen (ft. MSL): 1264.97 Materials: PVC Top of Casing elevation (ft. MSL): 1284.19

Locked (Y/N): Yes

	Static WL	Before purging	Before sampling
Water Level (ft. TOC):	22.62	22.62	23.36
Water elevation (ft. MSL)	1261.57	1261.57	1260.83

3 Well Volumes (gal): 3.23 Screen submerged? (Y/N): No

	Constructed	Measured	Difference
Well Depth (ft. TOC):	29.22	28.86	0.36

Well conditions commentary: Well conditions inpection scheduled for Fall 2023.

Sampling Details

Sampling Method: X Pump (low flow) ___ No-purge (specify sample interval): ___

___ Bailer ___ Other (specify): ___

Equipment type: ___ Submersible pump X Peristaltic pump ___ Bladder pump

___ Inertial lift pump ___ Bailer ___ No-purge (specify): ___

___ Other (specify): ___

Equipment name/description: GeoTech Peristaltic Dedicated? (Y/N): No Disposable? (Y/N): No

Decontamination method: disposable tubing

Equipment depth (ft. MSL):	Flow Rate (mL/min):	Volume removed (gal):	Volume sampled (L):
1259.19	200	1.2	1.37

Well dry? (Y/N): No Odor? (Y/N): No Color? (Y/N): No

Sample Name(s)	Method(s)	Container(s)	Filtered? (if yes, filter size)
MW-121R_23_04	EPA 8260D - Appendix I VOCs	(3) VOA Vial 40 mL - HCl	No
	EPA 6020A - Appendix I Total Metals	(1) Plastic 250 mL - HNO_3	No
	General Chemistry - TSS	(1) Plastic 1 Liter - Unpreserved	No

Field Analysis

			Final Reading
Time	8:56	8:58	9:00
Temp (°C)	9.46	9.40	9.47
Sp. Cond (umhos/cm)	1290.3	1293.6	1294.1
pH	6.56	6.56	6.56
DO (mg/l)	0.57	0.50	0.43
ORP (mV)	100.0	96.9	92.3
Turbidity (NTU)	0.00	0.00	0.43

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-121R	Weather:	Partly cloudy, 38°F, NE wind @ 8 mph
Date:	4/25/2023	Personnel:	Tyler Merritt (OA Tech)

Comments: Collected field blank (FB-1_23_04) at 8:30.

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-122R	Weather:	Clear, 61°F, ESE wind @ 4 mph
Date:	4/24/2023	Personnel:	Tyler Merritt (OA Tech)

Monitoring Well Details

Borehole diameter (in): 8 Casing Diameter (in): 4 Ground surface elevation (ft. MSL): 1314.24

Top of screen (ft. MSL): 1302.24 Materials: PVC Top of Casing elevation (ft. MSL): 1317.21

Locked (Y/N): Yes

	Static WL	Before purging	Before sampling
Water Level (ft. TOC):	27.51	N/A	N/A
Water elevation (ft. MSL)	1289.70	N/A	N/A

3 Well Volumes (gal): 4.82 Screen submerged? (Y/N): No

	Constructed	Measured	Difference
Well Depth (ft. TOC)	29.97	30.48	0.51

Well conditions commentary: Well conditions inpection scheduled for Fall 2023.

Sampling Details

Sampling Method: ___ Pump (low flow) X No-purge (specify sample interval): Mid-Screen

___ Bailer ___ Other (specify): ___

Equipment type: ___ Submersible pump X Peristaltic pump ___ Bladder pump

___ Inertial lift pump ___ Bailer ___ No-purge (specify): ___

___ Other (specify): ___

Equipment name/description: GeoTech Peristaltic Dedicated? (Y/N): No Disposable? (Y/N): No

Decontamination method: disposable tubing

Equipment depth (ft. MSL:) 1288.21 Flow Rate (mL/min): 100 Volume removed (gal): N/A Volume sampled (L): 1.37

Well dry? (Y/N): No Odor? (Y/N): No Color? (Y/N): No

Sample Name(s)	Method(s)	Container(s)	Filtered? (if yes, filter size)
MW-122R_23_04	EPA 8260D - Appendix I VOCs	(3) VOA Vial 40 mL - HCl	No
	EPA 6020A - Appendix I Total Metal	(1) Plastic 250 mL - HNO_3	No
	General Chemistry - TSS	(1) Plastic 1 Liter - Unpreserved	No

Field Analysis

	Final Reading
Time	14:14
Temp (°C)	17.21
Sp. Cond (umhos/cm)	787.39
pH	7.89
DO (mg/l)	8.10
ORP (mV)	164.7
Turbidity (NTU)	0.16

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-122R	Weather:	Clear, 61°F, ESE wind @ 4 mph
Date:	4/24/2023	Personnel:	Tyler Merritt (OA Tech)

Comments: No purge sampling conducted since well recharge rate is less than 100 mL/min. Field measurements collected prior to sample collection using flow-through cell.

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-200	Weather:	Partly cloudy, 43°F, ENE wind @ 11 mph
Date:	4/25/2023	Personnel:	Tyler Merritt (OA Tech)

Monitoring Well Details

Borehole diameter (in):	8	Casing Diameter (in):	2	Ground surface elevation (ft. MSL):	1285.91
Top of screen (ft. MSL):	1264.91	Materials:	PVC	Top of Casing elevation (ft. MSL):	1288.46
Locked (Y/N):	Yes				

	Static WL	Before purging	Before sampling
Water Level (ft. TOC):	21.19	22.93	22.93
Water elevation (ft. MSL)	1267.27	1265.53	1265.53

3 Well Volumes (gal): 5.89 Screen submerged? (Y/N): Yes

	Constructed	Measured	Difference
Well Depth (ft. TOC)	33.23	33.50	0.27

Well conditions commentary: Well conditions inpection scheduled for Fall 2023.

Sampling Details

Sampling Method: X Pump (low flow) ___ No-purge (specify sample interval): ___
___ Bailer ___ Other (specify): ___

Equipment type: ___ Submersible pump X Peristaltic pump ___ Bladder pump
___ Inertial lift pump ___ Bailer ___ No-purge (specify): ___
___ Other (specify): ___

Equipment name/description: GeoTech Peristaltic Dedicated? (Y/N): No Disposable? (Y/N): No
Decontamination method: disposable tubing

Equipment depth (ft. MSL:)	1260.46	Flow Rate (mL/min):	200	Volume removed (gal):	0.7
Well dry? (Y/N):	No	Odor? (Y/N):	No	Volume sampled (L):	1.37
				Color? (Y/N):	No

Sample Name(s)	Method(s)	Container(s)	Filtered? (if yes, filter size)
MW-200_23_04	EPA 8260D - Appendix I VOCs	(3) VOA Vial 40 mL - HCl	No
	EPA 6020A - Appendix I Total Metals	(1) Plastic 250 mL - HNO_3	No
	General Chemistry - TSS	(1) Plastic 1 Liter - Unpreserved	No

Field Analysis

			Final Reading
Time	9:45	9:47	9:49
Temp (°C)	11.08	11.14	11.29
Sp. Cond (umhos/cm)	1080.1	1081.5	1081.1
pH	6.99	7.00	7.00
DO (mg/l)	0.43	0.37	0.34
ORP (mV)	85.3	82.7	81.9
Turbidity (NTU)	1.24	0.31	0.03

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-200	Weather:	Partly cloudy, 43°F, ENE wind @ 11 mph
Date:	4/25/2023	Personnel:	Tyler Merritt (OA Tech)

Comments:

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-201	Weather:	Partly Cloudy, 52°F, SE wind @ 10 mph
Date:	4/24/2023	Personnel:	Tyler Merritt (OA Tech)

Monitoring Well Details

Borehole diameter (in):	8	Casing Diameter (in):	2	Ground surface elevation (ft. MSL):	1288.86
Top of screen (ft. MSL):	1258.86	Materials:	PVC	Top of Casing elevation (ft. MSL):	1291.98
Locked (Y/N):	Yes				

	Static WL	Before purging	Before sampling
Water Level (ft. TOC):	21.28	N/A	N/A
Water elevation (ft. MSL)	1270.70	N/A	N/A

3 Well Volumes (gal): 12.85 Screen submerged? (Y/N): Yes

	Constructed		Difference
Well Depth (ft. TOC):	48.12	47.55	0.57

Well conditions commentary: Well conditions inpection scheduled for Fall 2023.

Sampling Details

Sampling Method: ___ Pump (low flow) ___ No-purge (specify sample interval): ___
___ Bailer X Other (specify): Water Level Only - No Sample

Equipment type: ___ Submersible pump ___ Peristaltic pump ___ Bladder pump
___ Inertial lift pump ___ Bailer ___ No-purge (specify): ___
___ Other (specify): ___

Equipment name/description: ___ Dedicated? (Y/N): ___ Disposable? (Y/N): ___
Decontamination method: ___

Equipment depth (ft. MSL:)	N/A	Flow Rate (mL/min):	N/A	Volume removed (gal):	N/A
Well dry? (Y/N):	No	Odor? (Y/N):	N/A	Volume sampled (L):	N/A
				Color? (Y/N):	N/A

Sample Name(s)	Method(s)	Container(s)	Filtered? (if yes, filter size)
	Sample not collected	N/A	N/A

Field Analysis

	Final Reading
Time	N/A
Temp (°C)	N/A
Sp. Cond (umhos/cm)	N/A
pH	N/A
DO (mg/l)	N/A
ORP (mV)	N/A
Turbidity (NTU)	N/A

Comments: Water level monitoring location only.

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-203	Weather:	Partly Cloudy, 52°F, SE wind @ 10 mph
Date:	4/24/2023	Personnel:	Tyler Merritt (OA Tech)

Monitoring Well Details

Borehole diameter (in):	8	Casing Diameter (in):	2	Ground surface elevation (ft. MSL):	1301.73
Top of screen (ft. MSL):	1286.73	Materials:	PVC	Top of Casing elevation (ft. MSL):	1304.29
Locked (Y/N):	Yes				

	Static WL	Before purging	Before sampling
Water Level (ft. TOC):	14.61	N/A	N/A
Water elevation (ft. MSL)	1289.68	N/A	N/A

3 Well Volumes (gal): 11.44 Screen submerged? (Y/N): Yes

	Constructed	Measured	Difference
Well Depth (ft. TOC):	37.56	38.00	0.44

Well conditions commentary: Well conditions inpection scheduled for Fall 2023.

Sampling Details

Sampling Method: ___ Pump (low flow) ___ No-purge (specify sample interval): ___
___ Bailer X Other (specify): Water Level Only - No Sample

Equipment type: ___ Submersible pump ___ Peristaltic pump ___ Bladder pump
___ Inertial lift pump ___ Bailer ___ No-purge (specify): ___
___ Other (specify): ___

Equipment name/description: ___ Dedicated? (Y/N): ___ Disposable? (Y/N): ___
Decontamination method: ___

Equipment depth (ft. MSL:)	N/A	Flow Rate (mL/min):	N/A	Volume removed (gal):	N/A
Well dry? (Y/N):	No	Odor? (Y/N):	N/A	Volume sampled (L):	N/A
				Color? (Y/N):	N/A

Sample Name(s)	Method(s)	Container(s)	Filtered? (if yes, filter size)
	Sample not collected	N/A	N/A

Field Analysis

	Final Reading
Time	N/A
Temp (°C)	N/A
Sp. Cond (umhos/cm)	N/A
pH	N/A
DO (mg/l)	N/A
ORP (mV)	N/A
Turbidity (NTU)	N/A

Comments: Water level monitoring location only.

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-204RR	Weather:	Partly Cloudy, 52°F, SE wind @ 10 mph
Date:	4/24/2023	Personnel:	Tyler Merritt (OA Tech)

Monitoring Well Details

Borehole diameter (in):	8.25	Casing Diameter (in):	2	Ground surface elevation (ft. MSL):	1289.96
Top of screen (ft. MSL):	1249.96	Materials:	PVC	Top of Casing elevation (ft. MSL):	1292.47
Locked (Y/N):	Yes				

	Static WL	Before purging	Before sampling
Water Level (ft. TOC):	52.35	N/A	N/A
Water elevation (ft. MSL)	1240.12	N/A	N/A

3 Well Volumes (gal): N/A Screen submerged? (Y/N): No

	Constructed	Measured	Difference
Well Depth (ft. TOC):	52.67	52.66	0.01

Well conditions commentary: Well conditions inpection scheduled for Fall 2023.

Sampling Details

Sampling Method: ___ Pump (low flow) ___ No-purge (specify sample interval): ___
___ Bailer X Other (specify): Sample not collected*

Equipment type: ___ Submersible pump ___ Peristaltic pump ___ Bladder pump
___ Inertial lift pump ___ Bailer ___ No-purge (specify): ___
___ Other (specify): ___

Equipment name/description: ___ Dedicated? (Y/N): No Disposable? (Y/N): No
Decontamination method: ___

Equipment depth (ft. MSL:)	N/A	Flow Rate (mL/min):	N/A	Volume removed (gal):	N/A
Volume sampled (L):	N/A				
Well dry? (Y/N):	No	Odor? (Y/N):	N/A	Color? (Y/N):	N/A

Sample Name(s)	Method(s)	Container(s)	Filtered? (if yes, filter size)
	Sample not collected*	N/A	N/A

Field Analysis

	Final Reading
Time	N/A
Temp (°C)	N/A
Sp. Cond (umhos/cm)	N/A
pH	N/A
DO (mg/l)	N/A
ORP (mV)	N/A
Turbidity (NTU)	N/A

Comments: * Replacement well MW-204RR was installed on July 8, 2020 to replace MW-204R. MW-204RR was dry at the time of installation and remained dry through the Winter 2020 sampling event. Groundwater was measured in the casing in 2021 - 2023; however, the volumes were insufficient for sample collection. The confining hydrogeologic conditions have been exacerbated by clay placement and compaction activities from construction of Phases 5B and 6 and by drought conditions. Quarterly baseline monitoring will be initiated when there is adequate water column.

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-205	Weather:	Clear, 61°F, ESE wind @ 4 mph
Date:	4/24/2023	Personnel:	Tyler Merritt (OA Tech)

Monitoring Well Details

Borehole diameter (in):	8.25	Casing Diameter (in):	2	Ground surface elevation (ft. MSL):	1293.47
Top of screen (ft. MSL):	1244.30	Materials:	PVC	Top of Casing elevation (ft. MSL):	1296.46
Locked (Y/N):	Yes				

	Static WL	Before purging	Before sampling
Water Level (ft. TOC):	41.76	N/A	N/A
Water elevation (ft. MSL)	1254.70	N/A	N/A

3 Well Volumes (gal): 9.98 Screen submerged? (Y/N): Yes

	Constructed	Measured	Difference
Well Depth (ft. TOC):	62.16	62.16	0.00

Well conditions commentary: Well conditions inpection scheduled for Fall 2023.

Sampling Details

Sampling Method: ___ Pump (low flow) X No-purge (specify sample interval): Mid-Screen
___ Bailer ___ Other (specify):

Equipment type: ___ Submersible pump ___ Peristaltic pump X Bladder pump
___ Inertial lift pump ___ Bailer ___ No-purge (specify):
___ Other (specify):

Equipment name/description: QED Sample Pro Bladder Pump Dedicated? (Y/N): No Disposable? (Y/N): No
Decontamination method: disposable tubing/bladder; Alconox/DI rinse on pump

Equipment depth (ft. MSL:)	1241.46	Flow Rate (mL/min):	100	Volume removed (gal):	N/A
Well dry? (Y/N):	No	Odor? (Y/N):	No	Volume sampled (L):	1.37
				Color? (Y/N):	No

Sample Name(s)	Method(s)	Container(s)	Filtered? (if yes, filter size)
MW-205_23_04	EPA 8260D - Appendix I VOCs	(3) VOA Vial 40 mL - HCl	No
	EPA 6020A - Appendix I Total Metals	(1) Plastic 250 mL - HNO_3	No
	General Chemistry - TSS	(1) Plastic 1 Liter - Unpreserved	No

Field Analysis

	Final Reading
Time	16:00
Temp (°C)	16.31
Sp. Cond (umhos/cm)	3522.4
pH	7.34
DO (mg/l)	1.86
ORP (mV)	1.1
Turbidity (NTU)	0.75

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-205	Weather:	Clear, 61°F, ESE wind @ 4 mph
Date:	4/24/2023	Personnel:	Tyler Merritt (OA Tech)

Comments: No purge sampling conducted since well recharge rate is less than 100 mL/min. Field parameters collected prior to sample collection using flow-through cell.

Note that MW-205 is not currently included in the permitted groundwater monitoring network for the Western Expansion Area. Due to dry conditions or insufficient water column for sample collection at replacement well MW-204RR, detection monitoring samples are being collected at MW-205 as a temporary or potential replacement for MW-204RR. If insufficient water column remains at MW-204RR, semiannual detection monitoring will be continued at MW-205.

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-206	Weather:	Partly cloudy, 61°F, WE wind @ 4 mph
Date:	4/24/2023	Personnel:	Tyler Merritt (OA Tech)

Monitoring Well Details

Borehole diameter (in): 8.25 Casing Diameter (in): 2 Ground surface elevation (ft. MSL): 1297.51
Top of screen (ft. MSL): 1247.51 Materials: PVC Top of Casing elevation (ft. MSL): 1300.72
Locked (Y/N): Yes

	Static WL	Before purging	Before sampling
Water Level (ft. TOC):	30.21	N/A	N/A
Water elevation (ft. MSL)	1270.51	N/A	N/A

3 Well Volumes (gal): 16.11 Screen submerged? (Y/N): Yes

	Constructed	Measured	Difference
Well Depth (ft. TOC):	63.15	63.14	0.01

Well conditions commentary: Well conditions inpection scheduled for Fall 2023.

Sampling Details

Sampling Method: ___ Pump (low flow) X No-purge (specify sample interval): Mid-Screen
___ Bailer ___ Other (specify): ___

Equipment type: ___ Submersible pump ___ Peristaltic pump X Bladder pump
___ Inertial lift pump ___ Bailer ___ No-purge (specify): ___
___ Other (specify): ___

Equipment name/description: QED Sample Pro Bladder Pump Dedicated? (Y/N): No Disposable? (Y/N): No
Decontamination method: disposable tubing/bladder; Alconox/DI rinse on pump

Equipment depth (ft. MSL:) 1244.72 Flow Rate (mL/min): 100 Volume removed (gal): N/A Volume sampled (L): 1.37
Well dry? (Y/N): No Odor? (Y/N): No Color? (Y/N): No

Sample Name(s)	Method(s)	Container(s)	Filtered? (if yes, filter size)
MW-206_23_04	EPA 8260D - Appendix I VOCs	(3) VOA Vial 40 mL - HCl	No
	EPA 6020A - Appendix I Total Metals	(1) Plastic 250 mL - HNO_3	No
	General Chemistry - TSS	(1) Plastic 1 Liter - Unpreserved	No

Field Analysis

	Final Reading
Time	15:12
Temp (°C)	16.19
Sp. Cond (umhos/cm)	3457.9
pH	7.43
DO (mg/l)	1.79
ORP (mV)	31.2
Turbidity (NTU)	12.14

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-206	Weather:	Partly cloudy, 61°F, WE wind @ 4 mph
Date:	4/24/2023	Personnel:	Tyler Merritt (OA Tech)

Comments: No purge sampling conducted since well recharge rate is less than 100 mL/min. Field parameters collected prior to sample collection using flow-through cell.

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ANALYTICAL REPORT

PREPARED FOR

Attn: Gina Wilming
Foth Infrastructure & Environment, LLC
411 6th Avenue SE
Suite 400
Cedar Rapids, Iowa 52401

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JOB DESCRIPTION

Carroll County Landfill
SDG NUMBER 23C002_23_04

JOB NUMBER

310-254320-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

myEOL

Job Notes

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Job ID: 310-254320-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative
310-254320-1

Receipt
The samples were received on 4/25/2023 4:53 PM. 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 -0.1°C and 0.1°C

GC/MS VOA
Method 8260D: The initial calibration verification (ICV) result for batch 310-385846 was above the upper control limit for Dichlorodifluoromethane and Chloromethane. Sample results were non-detects for associated analytes, and have been reported as qualified data.

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

Metals
Method 6020B: The laboratory control sample (LCS) for preparation batch 310-385625 and analytical batch 310-385897 recovered outside control limits for the following analytes: Silver & Antimony. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

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

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

Sample Summary

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill

Job ID: 310-254320-1
SDG: 23C002_23_04

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-254320-1	GU-2A_23_04	Water	04/24/23 16:50	04/25/23 16:53
310-254320-2	MW-119RR_23_04	Water	04/25/23 07:55	04/25/23 16:53
310-254320-3	MW-121R_23_04	Water	04/25/23 09:05	04/25/23 16:53
310-254320-4	MW-122R_23_04	Water	04/24/23 14:15	04/25/23 16:53
310-254320-5	MW-200_23_04	Water	04/25/23 09:50	04/25/23 16:53
310-254320-6	MW-205_23_04	Water	04/24/23 16:05	04/25/23 16:53
310-254320-7	MW-206_23_04	Water	04/24/23 15:15	04/25/23 16:53
310-254320-8	FB-1_23_04	Water	04/25/23 08:30	04/25/23 16:53
310-254320-9	FD-1_23_04	Water	04/25/23 00:00	04/25/23 16:53
310-254320-10	TB-1_23_04	Water	04/25/23 00:00	04/25/23 16:53

Detection Summary

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill

Job ID: 310-254320-1
SDG: 23C002_23_04

Client Sample ID: GU-2A_23_04 — Lab Sample ID: 310-254320-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.000758	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.242		0.00200	0.000640	mg/L	1		6020B	Total/NA

Client Sample ID: MW-119RR_23_04 — Lab Sample ID: 310-254320-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00260		0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.642		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.00314		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.0154		0.00500	0.00190	mg/L	1		6020B	Total/NA
Total Suspended Solids	1.88		1.88	0.638	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-121R_23_04 — Lab Sample ID: 310-254320-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.623		0.500	0.220	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	10.3		1.00	0.210	ug/L	1		8260D	Total/NA
Vinyl chloride	0.327	J	1.00	0.180	ug/L	1		8260D	Total/NA
Arsenic	0.00869		0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.714		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.00319		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.0448		0.00500	0.00190	mg/L	1		6020B	Total/NA

Client Sample ID: MW-122R_23_04 — Lab Sample ID: 310-254320-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.694		0.00200	0.000640	mg/L	1		6020B	Total/NA
Chromium	0.00285	J	0.00500	0.00110	mg/L	1		6020B	Total/NA
Selenium	0.00180	J	0.00500	0.00140	mg/L	1		6020B	Total/NA

Client Sample ID: MW-200_23_04 — Lab Sample ID: 310-254320-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.459		0.00200	0.000640	mg/L	1		6020B	Total/NA
Lead	0.000378	J	0.000500	0.000240	mg/L	1		6020B	Total/NA
Nickel	0.00235	J	0.00500	0.00190	mg/L	1		6020B	Total/NA

Client Sample ID: MW-205_23_04 — Lab Sample ID: 310-254320-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.000989	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.0273		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.0102		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.0145		0.00500	0.00190	mg/L	1		6020B	Total/NA
Zinc	0.00815	J	0.0200	0.00640	mg/L	1		6020B	Total/NA
Total Suspended Solids	2.38		1.88	0.638	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-206_23_04 — Lab Sample ID: 310-254320-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00224		0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.0254		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.00691		0.000500	0.000170	mg/L	1		6020B	Total/NA
Lead	0.000809		0.000500	0.000240	mg/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-206_23_04 (Continued)

Lab Sample ID: 310-254320-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nickel	0.0114		0.00500	0.00190	mg/L	1		6020B	Total/NA
Zinc	0.0166	J	0.0200	0.00640	mg/L	1		6020B	Total/NA
Total Suspended Solids	16.5		3.75	1.28	mg/L	1		I-3765-85	Total/NA

Client Sample ID: FB-1_23_04

Lab Sample ID: 310-254320-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Toluene	0.763	J	1.00	0.430	ug/L	1		8260D	Total/NA

Client Sample ID: FD-1_23_04

Lab Sample ID: 310-254320-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00254		0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.649		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.00316		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.0158		0.00500	0.00190	mg/L	1		6020B	Total/NA

Client Sample ID: TB-1_23_04

Lab Sample ID: 310-254320-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	3.14	J	10.0	3.10	ug/L	1		8260D	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill

Job ID: 310-254320-1
SDG: 23C002_23_04

Client Sample ID: GU-2A_23_04
Date Collected: 04/24/23 16:50
Date Received: 04/25/23 16:53

Lab Sample ID: 310-254320-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<3.10		10.0	3.10	ug/L			04/28/23 18:36	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			04/28/23 18:36	1
Benzene	<0.220		0.500	0.220	ug/L			04/28/23 18:36	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			04/28/23 18:36	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			04/28/23 18:36	1
Bromoform	<0.780		5.00	0.780	ug/L			04/28/23 18:36	1
Bromomethane	<1.10		4.00	1.10	ug/L			04/28/23 18:36	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			04/28/23 18:36	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			04/28/23 18:36	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			04/28/23 18:36	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			04/28/23 18:36	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			04/28/23 18:36	1
Chloroethane	<0.790		4.00	0.790	ug/L			04/28/23 18:36	1
Chloroform	<1.30		3.00	1.30	ug/L			04/28/23 18:36	1
Chloromethane	<0.610		3.00	0.610	ug/L			04/28/23 18:36	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			04/28/23 18:36	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			04/28/23 18:36	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			04/28/23 18:36	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			04/28/23 18:36	1
Dibromomethane	<0.330		1.00	0.330	ug/L			04/28/23 18:36	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			04/28/23 18:36	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			04/28/23 18:36	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			04/28/23 18:36	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			04/28/23 18:36	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			04/28/23 18:36	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			04/28/23 18:36	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			04/28/23 18:36	1
2-Hexanone	<2.00		10.0	2.00	ug/L			04/28/23 18:36	1
Iodomethane	<7.00		10.0	7.00	ug/L			04/28/23 18:36	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			04/28/23 18:36	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			04/28/23 18:36	1
Styrene	<0.370		1.00	0.370	ug/L			04/28/23 18:36	1
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			04/28/23 18:36	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			04/28/23 18:36	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			04/28/23 18:36	1
Toluene	<0.430		1.00	0.430	ug/L			04/28/23 18:36	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			04/28/23 18:36	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			04/28/23 18:36	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			04/28/23 18:36	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			04/28/23 18:36	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			04/28/23 18:36	1
Trichloroethene	<0.430		1.00	0.430	ug/L			04/28/23 18:36	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			04/28/23 18:36	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			04/28/23 18:36	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			04/28/23 18:36	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			04/28/23 18:36	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/01/23 14:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*04/28/23 18:36*	*1*

Client Sample ID: GU-2A_23_04
Date Collected: 04/24/23 16:50
Date Received: 04/25/23 16:53

Lab Sample ID: 310-254320-1
Matrix: Water

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*80 - 120*		*05/01/23 14:45*	*1*
Dibromofluoromethane (Surr)	*114*		*80 - 128*		*04/28/23 18:36*	*1*
Dibromofluoromethane (Surr)	*92*		*80 - 128*		*05/01/23 14:45*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*04/28/23 18:36*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*05/01/23 14:45*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100	*+	0.00200	0.00100	mg/L		04/27/23 08:10	04/28/23 17:38	1
Arsenic	**0.000758**	**J**	0.00200	0.000530	mg/L		04/27/23 08:10	04/28/23 17:38	1
Barium	**0.242**		0.00200	0.000640	mg/L		04/27/23 08:10	04/28/23 17:38	1
Beryllium	<0.000330		0.00100	0.000330	mg/L		04/27/23 08:10	04/28/23 17:38	1
Cadmium	<0.000100		0.000200	0.000100	mg/L		04/27/23 08:10	04/28/23 17:38	1
Chromium	<0.00110		0.00500	0.00110	mg/L		04/27/23 08:10	04/28/23 17:38	1
Cobalt	<0.000170		0.000500	0.000170	mg/L		04/27/23 08:10	04/28/23 17:38	1
Copper	<0.00180		0.00500	0.00180	mg/L		04/27/23 08:10	04/28/23 17:38	1
Lead	<0.000240		0.000500	0.000240	mg/L		04/27/23 08:10	04/28/23 17:38	1
Nickel	<0.00190		0.00500	0.00190	mg/L		04/27/23 08:10	04/28/23 17:38	1
Selenium	<0.00140		0.00500	0.00140	mg/L		04/27/23 08:10	04/28/23 17:38	1
Silver	<0.000500	*+	0.00100	0.000500	mg/L		04/27/23 08:10	04/28/23 17:38	1
Thallium	<0.000260		0.00100	0.000260	mg/L		04/27/23 08:10	04/28/23 17:38	1
Vanadium	<0.00110		0.00500	0.00110	mg/L		04/27/23 08:10	04/28/23 17:38	1
Zinc	<0.00640		0.0200	0.00640	mg/L		04/27/23 08:10	04/28/23 17:38	1
Tin	<0.00230		0.00500	0.00230	mg/L		04/27/23 08:10	04/28/23 17:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<1.70		5.00	1.70	mg/L			04/26/23 14:40	1

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill

Job ID: 310-254320-1
SDG: 23C002_23_04

Client Sample ID: MW-119RR_23_04
Date Collected: 04/25/23 07:55
Date Received: 04/25/23 16:53

Lab Sample ID: 310-254320-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<3.10		10.0	3.10	ug/L			04/28/23 18:59	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			04/28/23 18:59	1
Benzene	<0.220		0.500	0.220	ug/L			04/28/23 18:59	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			04/28/23 18:59	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			04/28/23 18:59	1
Bromoform	<0.780		5.00	0.780	ug/L			04/28/23 18:59	1
Bromomethane	<1.10		4.00	1.10	ug/L			04/28/23 18:59	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			04/28/23 18:59	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			04/28/23 18:59	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			04/28/23 18:59	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			04/28/23 18:59	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			04/28/23 18:59	1
Chloroethane	<0.790		4.00	0.790	ug/L			04/28/23 18:59	1
Chloroform	<1.30		3.00	1.30	ug/L			04/28/23 18:59	1
Chloromethane	<0.610		3.00	0.610	ug/L			04/28/23 18:59	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			04/28/23 18:59	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			04/28/23 18:59	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			04/28/23 18:59	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			04/28/23 18:59	1
Dibromomethane	<0.330		1.00	0.330	ug/L			04/28/23 18:59	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			04/28/23 18:59	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			04/28/23 18:59	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			04/28/23 18:59	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			04/28/23 18:59	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			04/28/23 18:59	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			04/28/23 18:59	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			04/28/23 18:59	1
2-Hexanone	<2.00		10.0	2.00	ug/L			04/28/23 18:59	1
Iodomethane	<7.00		10.0	7.00	ug/L			04/28/23 18:59	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			04/28/23 18:59	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			04/28/23 18:59	1
Styrene	<0.370		1.00	0.370	ug/L			04/28/23 18:59	1
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			04/28/23 18:59	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			04/28/23 18:59	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			04/28/23 18:59	1
Toluene	<0.430		1.00	0.430	ug/L			04/28/23 18:59	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			04/28/23 18:59	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			04/28/23 18:59	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			04/28/23 18:59	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			04/28/23 18:59	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			04/28/23 18:59	1
Trichloroethene	<0.430		1.00	0.430	ug/L			04/28/23 18:59	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			04/28/23 18:59	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			04/28/23 18:59	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			04/28/23 18:59	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			04/28/23 18:59	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/01/23 15:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*04/28/23 18:59*	*1*

Client Sample ID: MW-119RR_23_04
Date Collected: 04/25/23 07:55
Date Received: 04/25/23 16:53

Lab Sample ID: 310-254320-2
Matrix: Water

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*80 - 120*		*05/01/23 15:06*	*1*
Dibromofluoromethane (Surr)	*116*		*80 - 128*		*04/28/23 18:59*	*1*
Dibromofluoromethane (Surr)	*95*		*80 - 128*		*05/01/23 15:06*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*04/28/23 18:59*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*05/01/23 15:06*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100	*+	0.00200	0.00100	mg/L		04/27/23 08:10	04/28/23 17:41	1
Arsenic	**0.00260**		0.00200	0.000530	mg/L		04/27/23 08:10	04/28/23 17:41	1
Barium	**0.642**		0.00200	0.000640	mg/L		04/27/23 08:10	04/28/23 17:41	1
Beryllium	<0.000330		0.00100	0.000330	mg/L		04/27/23 08:10	04/28/23 17:41	1
Cadmium	<0.000100		0.000200	0.000100	mg/L		04/27/23 08:10	04/28/23 17:41	1
Chromium	<0.00110		0.00500	0.00110	mg/L		04/27/23 08:10	04/28/23 17:41	1
Cobalt	**0.00314**		0.000500	0.000170	mg/L		04/27/23 08:10	04/28/23 17:41	1
Copper	<0.00180		0.00500	0.00180	mg/L		04/27/23 08:10	04/28/23 17:41	1
Lead	<0.000240		0.000500	0.000240	mg/L		04/27/23 08:10	04/28/23 17:41	1
Nickel	**0.0154**		0.00500	0.00190	mg/L		04/27/23 08:10	04/28/23 17:41	1
Selenium	<0.00140		0.00500	0.00140	mg/L		04/27/23 08:10	04/28/23 17:41	1
Silver	<0.000500	*+	0.00100	0.000500	mg/L		04/27/23 08:10	04/28/23 17:41	1
Thallium	<0.000260		0.00100	0.000260	mg/L		04/27/23 08:10	04/28/23 17:41	1
Vanadium	<0.00110		0.00500	0.00110	mg/L		04/27/23 08:10	04/28/23 17:41	1
Zinc	<0.00640		0.0200	0.00640	mg/L		04/27/23 08:10	04/28/23 17:41	1
Tin	<0.00230		0.00500	0.00230	mg/L		04/27/23 08:10	04/28/23 17:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**1.88**		1.88	0.638	mg/L			04/26/23 14:40	1

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill

Job ID: 310-254320-1
SDG: 23C002_23_04

Client Sample ID: MW-121R_23_04
Date Collected: 04/25/23 09:05
Date Received: 04/25/23 16:53

Lab Sample ID: 310-254320-3
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<3.10		10.0	3.10	ug/L			04/28/23 19:22	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			04/28/23 19:22	1
Benzene	**0.623**		0.500	0.220	ug/L			04/28/23 19:22	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			04/28/23 19:22	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			04/28/23 19:22	1
Bromoform	<0.780		5.00	0.780	ug/L			04/28/23 19:22	1
Bromomethane	<1.10		4.00	1.10	ug/L			04/28/23 19:22	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			04/28/23 19:22	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			04/28/23 19:22	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			04/28/23 19:22	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			04/28/23 19:22	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			04/28/23 19:22	1
Chloroethane	<0.790		4.00	0.790	ug/L			04/28/23 19:22	1
Chloroform	<1.30		3.00	1.30	ug/L			04/28/23 19:22	1
Chloromethane	<0.610		3.00	0.610	ug/L			04/28/23 19:22	1
cis-1,2-Dichloroethene	**10.3**		1.00	0.210	ug/L			04/28/23 19:22	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			04/28/23 19:22	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			04/28/23 19:22	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			04/28/23 19:22	1
Dibromomethane	<0.330		1.00	0.330	ug/L			04/28/23 19:22	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			04/28/23 19:22	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			04/28/23 19:22	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			04/28/23 19:22	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			04/28/23 19:22	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			04/28/23 19:22	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			04/28/23 19:22	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			04/28/23 19:22	1
2-Hexanone	<2.00		10.0	2.00	ug/L			04/28/23 19:22	1
Iodomethane	<7.00		10.0	7.00	ug/L			04/28/23 19:22	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			04/28/23 19:22	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			04/28/23 19:22	1
Styrene	<0.370		1.00	0.370	ug/L			04/28/23 19:22	1
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			04/28/23 19:22	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			04/28/23 19:22	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			04/28/23 19:22	1
Toluene	<0.430		1.00	0.430	ug/L			04/28/23 19:22	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			04/28/23 19:22	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			04/28/23 19:22	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			04/28/23 19:22	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			04/28/23 19:22	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			04/28/23 19:22	1
Trichloroethene	<0.430		1.00	0.430	ug/L			04/28/23 19:22	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			04/28/23 19:22	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			04/28/23 19:22	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			04/28/23 19:22	1
Vinyl chloride	**0.327**	**J**	1.00	0.180	ug/L			04/28/23 19:22	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/01/23 15:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*04/28/23 19:22*	*1*

Client Sample ID: MW-121R_23_04
Date Collected: 04/25/23 09:05
Date Received: 04/25/23 16:53

Lab Sample ID: 310-254320-3
Matrix: Water

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*80 - 120*		*05/01/23 15:26*	*1*
Dibromofluoromethane (Surr)	*114*		*80 - 128*		*04/28/23 19:22*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 128*		*05/01/23 15:26*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*04/28/23 19:22*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*05/01/23 15:26*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100	*+	0.00200	0.00100	mg/L		04/27/23 08:10	04/28/23 17:47	1
Arsenic	**0.00869**		0.00200	0.000530	mg/L		04/27/23 08:10	04/28/23 17:47	1
Barium	**0.714**		0.00200	0.000640	mg/L		04/27/23 08:10	04/28/23 17:47	1
Beryllium	<0.000330		0.00100	0.000330	mg/L		04/27/23 08:10	04/28/23 17:47	1
Cadmium	<0.000100		0.000200	0.000100	mg/L		04/27/23 08:10	04/28/23 17:47	1
Chromium	<0.00110		0.00500	0.00110	mg/L		04/27/23 08:10	04/28/23 17:47	1
Cobalt	**0.00319**		0.000500	0.000170	mg/L		04/27/23 08:10	04/28/23 17:47	1
Copper	<0.00180		0.00500	0.00180	mg/L		04/27/23 08:10	04/28/23 17:47	1
Lead	<0.000240		0.000500	0.000240	mg/L		04/27/23 08:10	04/28/23 17:47	1
Nickel	**0.0448**		0.00500	0.00190	mg/L		04/27/23 08:10	04/28/23 17:47	1
Selenium	<0.00140		0.00500	0.00140	mg/L		04/27/23 08:10	04/28/23 17:47	1
Silver	<0.000500	*+	0.00100	0.000500	mg/L		04/27/23 08:10	04/28/23 17:47	1
Thallium	<0.000260		0.00100	0.000260	mg/L		04/27/23 08:10	04/28/23 17:47	1
Vanadium	<0.00110		0.00500	0.00110	mg/L		04/27/23 08:10	04/28/23 17:47	1
Zinc	<0.00640		0.0200	0.00640	mg/L		04/27/23 08:10	04/28/23 17:47	1
Tin	<0.00230		0.00500	0.00230	mg/L		04/27/23 08:10	04/28/23 17:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<0.638		1.88	0.638	mg/L			04/26/23 14:40	1

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill

Job ID: 310-254320-1
SDG: 23C002_23_04

Client Sample ID: MW-122R_23_04
Date Collected: 04/24/23 14:15
Date Received: 04/25/23 16:53

Lab Sample ID: 310-254320-4
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<3.10		10.0	3.10	ug/L			04/28/23 19:44	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			04/28/23 19:44	1
Benzene	<0.220		0.500	0.220	ug/L			04/28/23 19:44	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			04/28/23 19:44	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			04/28/23 19:44	1
Bromoform	<0.780		5.00	0.780	ug/L			04/28/23 19:44	1
Bromomethane	<1.10		4.00	1.10	ug/L			04/28/23 19:44	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			04/28/23 19:44	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			04/28/23 19:44	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			04/28/23 19:44	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			04/28/23 19:44	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			04/28/23 19:44	1
Chloroethane	<0.790		4.00	0.790	ug/L			04/28/23 19:44	1
Chloroform	<1.30		3.00	1.30	ug/L			04/28/23 19:44	1
Chloromethane	<0.610		3.00	0.610	ug/L			04/28/23 19:44	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			04/28/23 19:44	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			04/28/23 19:44	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			04/28/23 19:44	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			04/28/23 19:44	1
Dibromomethane	<0.330		1.00	0.330	ug/L			04/28/23 19:44	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			04/28/23 19:44	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			04/28/23 19:44	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			04/28/23 19:44	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			04/28/23 19:44	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			04/28/23 19:44	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			04/28/23 19:44	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			04/28/23 19:44	1
2-Hexanone	<2.00		10.0	2.00	ug/L			04/28/23 19:44	1
Iodomethane	<7.00		10.0	7.00	ug/L			04/28/23 19:44	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			04/28/23 19:44	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			04/28/23 19:44	1
Styrene	<0.370		1.00	0.370	ug/L			04/28/23 19:44	1
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			04/28/23 19:44	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			04/28/23 19:44	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			04/28/23 19:44	1
Toluene	<0.430		1.00	0.430	ug/L			04/28/23 19:44	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			04/28/23 19:44	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			04/28/23 19:44	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			04/28/23 19:44	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			04/28/23 19:44	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			04/28/23 19:44	1
Trichloroethene	<0.430		1.00	0.430	ug/L			04/28/23 19:44	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			04/28/23 19:44	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			04/28/23 19:44	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			04/28/23 19:44	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			04/28/23 19:44	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/01/23 15:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*04/28/23 19:44*	*1*

Client Sample ID: MW-122R_23_04
Date Collected: 04/24/23 14:15
Date Received: 04/25/23 16:53

Lab Sample ID: 310-254320-4
Matrix: Water

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*80 - 120*		*05/01/23 15:47*	*1*
Dibromofluoromethane (Surr)	*112*		*80 - 128*		*04/28/23 19:44*	*1*
Dibromofluoromethane (Surr)	*91*		*80 - 128*		*05/01/23 15:47*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*04/28/23 19:44*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*05/01/23 15:47*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100	*+	0.00200	0.00100	mg/L		04/27/23 08:10	04/28/23 17:50	1
Arsenic	<0.000530		0.00200	0.000530	mg/L		04/27/23 08:10	04/28/23 17:50	1
Barium	**0.694**		0.00200	0.000640	mg/L		04/27/23 08:10	04/28/23 17:50	1
Beryllium	<0.000330		0.00100	0.000330	mg/L		04/27/23 08:10	04/28/23 17:50	1
Cadmium	<0.000100		0.000200	0.000100	mg/L		04/27/23 08:10	04/28/23 17:50	1
Chromium	**0.00285**	**J**	0.00500	0.00110	mg/L		04/27/23 08:10	04/28/23 17:50	1
Cobalt	<0.000170		0.000500	0.000170	mg/L		04/27/23 08:10	04/28/23 17:50	1
Copper	<0.00180		0.00500	0.00180	mg/L		04/27/23 08:10	04/28/23 17:50	1
Lead	<0.000240		0.000500	0.000240	mg/L		04/27/23 08:10	04/28/23 17:50	1
Nickel	<0.00190		0.00500	0.00190	mg/L		04/27/23 08:10	04/28/23 17:50	1
Selenium	**0.00180**	**J**	0.00500	0.00140	mg/L		04/27/23 08:10	04/28/23 17:50	1
Silver	<0.000500	*+	0.00100	0.000500	mg/L		04/27/23 08:10	04/28/23 17:50	1
Thallium	<0.000260		0.00100	0.000260	mg/L		04/27/23 08:10	04/28/23 17:50	1
Vanadium	<0.00110		0.00500	0.00110	mg/L		04/27/23 08:10	04/28/23 17:50	1
Zinc	<0.00640		0.0200	0.00640	mg/L		04/27/23 08:10	04/28/23 17:50	1
Tin	<0.00230		0.00500	0.00230	mg/L		04/27/23 08:10	04/28/23 17:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<0.638		1.88	0.638	mg/L			04/26/23 14:40	1

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill

Job ID: 310-254320-1
SDG: 23C002_23_04

Client Sample ID: MW-200_23_04
Date Collected: 04/25/23 09:50
Date Received: 04/25/23 16:53

Lab Sample ID: 310-254320-5
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<3.10		10.0	3.10	ug/L			04/28/23 20:07	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			04/28/23 20:07	1
Benzene	<0.220		0.500	0.220	ug/L			04/28/23 20:07	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			04/28/23 20:07	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			04/28/23 20:07	1
Bromoform	<0.780		5.00	0.780	ug/L			04/28/23 20:07	1
Bromomethane	<1.10		4.00	1.10	ug/L			04/28/23 20:07	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			04/28/23 20:07	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			04/28/23 20:07	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			04/28/23 20:07	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			04/28/23 20:07	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			04/28/23 20:07	1
Chloroethane	<0.790		4.00	0.790	ug/L			04/28/23 20:07	1
Chloroform	<1.30		3.00	1.30	ug/L			04/28/23 20:07	1
Chloromethane	<0.610		3.00	0.610	ug/L			04/28/23 20:07	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			04/28/23 20:07	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			04/28/23 20:07	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			04/28/23 20:07	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			04/28/23 20:07	1
Dibromomethane	<0.330		1.00	0.330	ug/L			04/28/23 20:07	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			04/28/23 20:07	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			04/28/23 20:07	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			04/28/23 20:07	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			04/28/23 20:07	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			04/28/23 20:07	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			04/28/23 20:07	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			04/28/23 20:07	1
2-Hexanone	<2.00		10.0	2.00	ug/L			04/28/23 20:07	1
Iodomethane	<7.00		10.0	7.00	ug/L			04/28/23 20:07	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			04/28/23 20:07	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			04/28/23 20:07	1
Styrene	<0.370		1.00	0.370	ug/L			04/28/23 20:07	1
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			04/28/23 20:07	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			04/28/23 20:07	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			04/28/23 20:07	1
Toluene	<0.430		1.00	0.430	ug/L			04/28/23 20:07	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			04/28/23 20:07	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			04/28/23 20:07	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			04/28/23 20:07	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			04/28/23 20:07	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			04/28/23 20:07	1
Trichloroethene	<0.430		1.00	0.430	ug/L			04/28/23 20:07	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			04/28/23 20:07	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			04/28/23 20:07	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			04/28/23 20:07	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			04/28/23 20:07	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/01/23 16:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*04/28/23 20:07*	*1*

Client Sample ID: MW-200_23_04
Date Collected: 04/25/23 09:50
Date Received: 04/25/23 16:53

Lab Sample ID: 310-254320-5
Matrix: Water

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*80 - 120*		*05/01/23 16:07*	*1*
Dibromofluoromethane (Surr)	*116*		*80 - 128*		*04/28/23 20:07*	*1*
Dibromofluoromethane (Surr)	*92*		*80 - 128*		*05/01/23 16:07*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*04/28/23 20:07*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*05/01/23 16:07*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100	*+	0.00200	0.00100	mg/L		04/27/23 08:10	04/28/23 17:52	1
Arsenic	<0.000530		0.00200	0.000530	mg/L		04/27/23 08:10	04/28/23 17:52	1
Barium	**0.459**		0.00200	0.000640	mg/L		04/27/23 08:10	04/28/23 17:52	1
Beryllium	<0.000330		0.00100	0.000330	mg/L		04/27/23 08:10	04/28/23 17:52	1
Cadmium	<0.000100		0.000200	0.000100	mg/L		04/27/23 08:10	04/28/23 17:52	1
Chromium	<0.00110		0.00500	0.00110	mg/L		04/27/23 08:10	04/28/23 17:52	1
Cobalt	<0.000170		0.000500	0.000170	mg/L		04/27/23 08:10	04/28/23 17:52	1
Copper	<0.00180		0.00500	0.00180	mg/L		04/27/23 08:10	04/28/23 17:52	1
Lead	**0.000378**	**J**	0.000500	0.000240	mg/L		04/27/23 08:10	04/28/23 17:52	1
Nickel	**0.00235**	**J**	0.00500	0.00190	mg/L		04/27/23 08:10	04/28/23 17:52	1
Selenium	<0.00140		0.00500	0.00140	mg/L		04/27/23 08:10	04/28/23 17:52	1
Silver	<0.000500	*+	0.00100	0.000500	mg/L		04/27/23 08:10	04/28/23 17:52	1
Thallium	<0.000260		0.00100	0.000260	mg/L		04/27/23 08:10	04/28/23 17:52	1
Vanadium	<0.00110		0.00500	0.00110	mg/L		04/27/23 08:10	04/28/23 17:52	1
Zinc	<0.00640		0.0200	0.00640	mg/L		04/27/23 08:10	04/28/23 17:52	1
Tin	<0.00230		0.00500	0.00230	mg/L		04/27/23 08:10	04/28/23 17:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<0.638		1.88	0.638	mg/L			04/26/23 14:40	1

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill

Job ID: 310-254320-1
SDG: 23C002_23_04

Client Sample ID: MW-205_23_04
Date Collected: 04/24/23 16:05
Date Received: 04/25/23 16:53

Lab Sample ID: 310-254320-6
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<3.10		10.0	3.10	ug/L			04/28/23 20:30	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			04/28/23 20:30	1
Benzene	<0.220		0.500	0.220	ug/L			04/28/23 20:30	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			04/28/23 20:30	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			04/28/23 20:30	1
Bromoform	<0.780		5.00	0.780	ug/L			04/28/23 20:30	1
Bromomethane	<1.10		4.00	1.10	ug/L			04/28/23 20:30	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			04/28/23 20:30	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			04/28/23 20:30	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			04/28/23 20:30	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			04/28/23 20:30	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			04/28/23 20:30	1
Chloroethane	<0.790		4.00	0.790	ug/L			04/28/23 20:30	1
Chloroform	<1.30		3.00	1.30	ug/L			04/28/23 20:30	1
Chloromethane	<0.610		3.00	0.610	ug/L			04/28/23 20:30	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			04/28/23 20:30	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			04/28/23 20:30	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			04/28/23 20:30	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			04/28/23 20:30	1
Dibromomethane	<0.330		1.00	0.330	ug/L			04/28/23 20:30	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			04/28/23 20:30	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			04/28/23 20:30	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			04/28/23 20:30	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			04/28/23 20:30	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			04/28/23 20:30	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			04/28/23 20:30	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			04/28/23 20:30	1
2-Hexanone	<2.00		10.0	2.00	ug/L			04/28/23 20:30	1
Iodomethane	<7.00		10.0	7.00	ug/L			04/28/23 20:30	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			04/28/23 20:30	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			04/28/23 20:30	1
Styrene	<0.370		1.00	0.370	ug/L			04/28/23 20:30	1
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			04/28/23 20:30	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			04/28/23 20:30	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			04/28/23 20:30	1
Toluene	<0.430		1.00	0.430	ug/L			04/28/23 20:30	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			04/28/23 20:30	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			04/28/23 20:30	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			04/28/23 20:30	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			04/28/23 20:30	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			04/28/23 20:30	1
Trichloroethene	<0.430		1.00	0.430	ug/L			04/28/23 20:30	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			04/28/23 20:30	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			04/28/23 20:30	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			04/28/23 20:30	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			04/28/23 20:30	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/01/23 16:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*04/28/23 20:30*	*1*

Client Sample ID: MW-205_23_04
Date Collected: 04/24/23 16:05
Date Received: 04/25/23 16:53

Lab Sample ID: 310-254320-6
Matrix: Water

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*80 - 120*		*05/01/23 16:27*	*1*
Dibromofluoromethane (Surr)	*114*		*80 - 128*		*04/28/23 20:30*	*1*
Dibromofluoromethane (Surr)	*91*		*80 - 128*		*05/01/23 16:27*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*04/28/23 20:30*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*05/01/23 16:27*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100	*+	0.00200	0.00100	mg/L		04/27/23 08:10	04/28/23 17:55	1
Arsenic	**0.000989**	**J**	0.00200	0.000530	mg/L		04/27/23 08:10	04/28/23 17:55	1
Barium	**0.0273**		0.00200	0.000640	mg/L		04/27/23 08:10	04/28/23 17:55	1
Beryllium	<0.000330		0.00100	0.000330	mg/L		04/27/23 08:10	04/28/23 17:55	1
Cadmium	<0.000100		0.000200	0.000100	mg/L		04/27/23 08:10	04/28/23 17:55	1
Chromium	<0.00110		0.00500	0.00110	mg/L		04/27/23 08:10	04/28/23 17:55	1
Cobalt	**0.0102**		0.000500	0.000170	mg/L		04/27/23 08:10	04/28/23 17:55	1
Copper	<0.00180		0.00500	0.00180	mg/L		04/27/23 08:10	04/28/23 17:55	1
Lead	<0.000240		0.000500	0.000240	mg/L		04/27/23 08:10	04/28/23 17:55	1
Nickel	**0.0145**		0.00500	0.00190	mg/L		04/27/23 08:10	04/28/23 17:55	1
Selenium	<0.00140		0.00500	0.00140	mg/L		04/27/23 08:10	04/28/23 17:55	1
Silver	<0.000500	*+	0.00100	0.000500	mg/L		04/27/23 08:10	04/28/23 17:55	1
Thallium	<0.000260		0.00100	0.000260	mg/L		04/27/23 08:10	04/28/23 17:55	1
Vanadium	<0.00110		0.00500	0.00110	mg/L		04/27/23 08:10	04/28/23 17:55	1
Zinc	**0.00815**	**J**	0.0200	0.00640	mg/L		04/27/23 08:10	04/28/23 17:55	1
Tin	<0.00230		0.00500	0.00230	mg/L		04/27/23 08:10	04/28/23 17:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**2.38**		1.88	0.638	mg/L			04/26/23 14:40	1

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill

Job ID: 310-254320-1
SDG: 23C002_23_04

Client Sample ID: MW-206_23_04
Date Collected: 04/24/23 15:15
Date Received: 04/25/23 16:53

Lab Sample ID: 310-254320-7
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<3.10		10.0	3.10	ug/L			04/28/23 20:52	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			04/28/23 20:52	1
Benzene	<0.220		0.500	0.220	ug/L			04/28/23 20:52	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			04/28/23 20:52	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			04/28/23 20:52	1
Bromoform	<0.780		5.00	0.780	ug/L			04/28/23 20:52	1
Bromomethane	<1.10		4.00	1.10	ug/L			04/28/23 20:52	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			04/28/23 20:52	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			04/28/23 20:52	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			04/28/23 20:52	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			04/28/23 20:52	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			04/28/23 20:52	1
Chloroethane	<0.790		4.00	0.790	ug/L			04/28/23 20:52	1
Chloroform	<1.30		3.00	1.30	ug/L			04/28/23 20:52	1
Chloromethane	<0.610		3.00	0.610	ug/L			04/28/23 20:52	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			04/28/23 20:52	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			04/28/23 20:52	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			04/28/23 20:52	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			04/28/23 20:52	1
Dibromomethane	<0.330		1.00	0.330	ug/L			04/28/23 20:52	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			04/28/23 20:52	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			04/28/23 20:52	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			04/28/23 20:52	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			04/28/23 20:52	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			04/28/23 20:52	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			04/28/23 20:52	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			04/28/23 20:52	1
2-Hexanone	<2.00		10.0	2.00	ug/L			04/28/23 20:52	1
Iodomethane	<7.00		10.0	7.00	ug/L			04/28/23 20:52	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			04/28/23 20:52	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			04/28/23 20:52	1
Styrene	<0.370		1.00	0.370	ug/L			04/28/23 20:52	1
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			04/28/23 20:52	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			04/28/23 20:52	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			04/28/23 20:52	1
Toluene	<0.430		1.00	0.430	ug/L			04/28/23 20:52	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			04/28/23 20:52	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			04/28/23 20:52	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			04/28/23 20:52	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			04/28/23 20:52	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			04/28/23 20:52	1
Trichloroethene	<0.430		1.00	0.430	ug/L			04/28/23 20:52	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			04/28/23 20:52	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			04/28/23 20:52	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			04/28/23 20:52	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			04/28/23 20:52	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/01/23 22:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*04/28/23 20:52*	*1*

Client Sample ID: MW-206_23_04
Date Collected: 04/24/23 15:15
Date Received: 04/25/23 16:53

Lab Sample ID: 310-254320-7
Matrix: Water

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*80 - 120*		*05/01/23 22:33*	*1*
Dibromofluoromethane (Surr)	*116*		*80 - 128*		*04/28/23 20:52*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 128*		*05/01/23 22:33*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*04/28/23 20:52*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*05/01/23 22:33*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100	*+	0.00200	0.00100	mg/L		04/27/23 08:10	04/28/23 18:12	1
Arsenic	**0.00224**		0.00200	0.000530	mg/L		04/27/23 08:10	04/28/23 18:12	1
Barium	**0.0254**		0.00200	0.000640	mg/L		04/27/23 08:10	04/28/23 18:12	1
Beryllium	<0.000330		0.00100	0.000330	mg/L		04/27/23 08:10	04/28/23 18:12	1
Cadmium	<0.000100		0.000200	0.000100	mg/L		04/27/23 08:10	04/28/23 18:12	1
Chromium	<0.00110		0.00500	0.00110	mg/L		04/27/23 08:10	04/28/23 18:12	1
Cobalt	**0.00691**		0.000500	0.000170	mg/L		04/27/23 08:10	04/28/23 18:12	1
Copper	<0.00180		0.00500	0.00180	mg/L		04/27/23 08:10	04/28/23 18:12	1
Lead	**0.000809**		0.000500	0.000240	mg/L		04/27/23 08:10	04/28/23 18:12	1
Nickel	**0.0114**		0.00500	0.00190	mg/L		04/27/23 08:10	04/28/23 18:12	1
Selenium	<0.00140		0.00500	0.00140	mg/L		04/27/23 08:10	04/28/23 18:12	1
Silver	<0.000500	*+	0.00100	0.000500	mg/L		04/27/23 08:10	04/28/23 18:12	1
Thallium	<0.000260		0.00100	0.000260	mg/L		04/27/23 08:10	04/28/23 18:12	1
Vanadium	<0.00110		0.00500	0.00110	mg/L		04/27/23 08:10	04/28/23 18:12	1
Zinc	**0.0166**	**J**	0.0200	0.00640	mg/L		04/27/23 08:10	04/28/23 18:12	1
Tin	<0.00230		0.00500	0.00230	mg/L		04/27/23 08:10	04/28/23 18:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**16.5**		3.75	1.28	mg/L			04/26/23 14:40	1

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill

Job ID: 310-254320-1
SDG: 23C002_23_04

Client Sample ID: FB-1_23_04
Date Collected: 04/25/23 08:30
Date Received: 04/25/23 16:53

Lab Sample ID: 310-254320-8
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<3.10		10.0	3.10	ug/L			04/28/23 16:43	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			04/28/23 16:43	1
Benzene	<0.220		0.500	0.220	ug/L			04/28/23 16:43	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			04/28/23 16:43	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			04/28/23 16:43	1
Bromoform	<0.780		5.00	0.780	ug/L			04/28/23 16:43	1
Bromomethane	<1.10		4.00	1.10	ug/L			04/28/23 16:43	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			04/28/23 16:43	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			04/28/23 16:43	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			04/28/23 16:43	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			04/28/23 16:43	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			04/28/23 16:43	1
Chloroethane	<0.790		4.00	0.790	ug/L			04/28/23 16:43	1
Chloroform	<1.30		3.00	1.30	ug/L			04/28/23 16:43	1
Chloromethane	<0.610		3.00	0.610	ug/L			04/28/23 16:43	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			04/28/23 16:43	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			04/28/23 16:43	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			04/28/23 16:43	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			04/28/23 16:43	1
Dibromomethane	<0.330		1.00	0.330	ug/L			04/28/23 16:43	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			04/28/23 16:43	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			04/28/23 16:43	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			04/28/23 16:43	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			04/28/23 16:43	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			04/28/23 16:43	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			04/28/23 16:43	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			04/28/23 16:43	1
2-Hexanone	<2.00		10.0	2.00	ug/L			04/28/23 16:43	1
Iodomethane	<7.00		10.0	7.00	ug/L			04/28/23 16:43	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			04/28/23 16:43	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			04/28/23 16:43	1
Styrene	<0.370		1.00	0.370	ug/L			04/28/23 16:43	1
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			04/28/23 16:43	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			04/28/23 16:43	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			04/28/23 16:43	1
Toluene	**0.763**	**J**	1.00	0.430	ug/L			04/28/23 16:43	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			04/28/23 16:43	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			04/28/23 16:43	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			04/28/23 16:43	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			04/28/23 16:43	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			04/28/23 16:43	1
Trichloroethene	<0.430		1.00	0.430	ug/L			04/28/23 16:43	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			04/28/23 16:43	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			04/28/23 16:43	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			04/28/23 16:43	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			04/28/23 16:43	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/01/23 12:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*04/28/23 16:43*	*1*

Client Sample ID: FB-1_23_04
Date Collected: 04/25/23 08:30
Date Received: 04/25/23 16:53

Lab Sample ID: 310-254320-8
Matrix: Water

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*80 - 120*		*05/01/23 12:23*	*1*
Dibromofluoromethane (Surr)	*115*		*80 - 128*		*04/28/23 16:43*	*1*
Dibromofluoromethane (Surr)	*91*		*80 - 128*		*05/01/23 12:23*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*04/28/23 16:43*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*05/01/23 12:23*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100	*+	0.00200	0.00100	mg/L		04/27/23 08:10	04/28/23 18:15	1
Arsenic	<0.000530		0.00200	0.000530	mg/L		04/27/23 08:10	04/28/23 18:15	1
Barium	<0.000640		0.00200	0.000640	mg/L		04/27/23 08:10	04/28/23 18:15	1
Beryllium	<0.000330		0.00100	0.000330	mg/L		04/27/23 08:10	04/28/23 18:15	1
Cadmium	<0.000100		0.000200	0.000100	mg/L		04/27/23 08:10	04/28/23 18:15	1
Chromium	<0.00110		0.00500	0.00110	mg/L		04/27/23 08:10	04/28/23 18:15	1
Cobalt	<0.000170		0.000500	0.000170	mg/L		04/27/23 08:10	04/28/23 18:15	1
Copper	<0.00180		0.00500	0.00180	mg/L		04/27/23 08:10	04/28/23 18:15	1
Lead	<0.000240		0.000500	0.000240	mg/L		04/27/23 08:10	04/28/23 18:15	1
Nickel	<0.00190		0.00500	0.00190	mg/L		04/27/23 08:10	04/28/23 18:15	1
Selenium	<0.00140		0.00500	0.00140	mg/L		04/27/23 08:10	04/28/23 18:15	1
Silver	<0.000500	*+	0.00100	0.000500	mg/L		04/27/23 08:10	04/28/23 18:15	1
Thallium	<0.000260		0.00100	0.000260	mg/L		04/27/23 08:10	04/28/23 18:15	1
Vanadium	<0.00110		0.00500	0.00110	mg/L		04/27/23 08:10	04/28/23 18:15	1
Zinc	<0.00640		0.0200	0.00640	mg/L		04/27/23 08:10	04/28/23 18:15	1
Tin	<0.00230		0.00500	0.00230	mg/L		04/27/23 08:10	04/28/23 18:15	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<0.638		1.88	0.638	mg/L			04/26/23 14:40	1

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill

Job ID: 310-254320-1
SDG: 23C002_23_04

Client Sample ID: FD-1_23_04
Date Collected: 04/25/23 00:00
Date Received: 04/25/23 16:53

Lab Sample ID: 310-254320-9
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<3.10		10.0	3.10	ug/L			04/28/23 21:15	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			04/28/23 21:15	1
Benzene	<0.220		0.500	0.220	ug/L			04/28/23 21:15	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			04/28/23 21:15	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			04/28/23 21:15	1
Bromoform	<0.780		5.00	0.780	ug/L			04/28/23 21:15	1
Bromomethane	<1.10		4.00	1.10	ug/L			04/28/23 21:15	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			04/28/23 21:15	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			04/28/23 21:15	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			04/28/23 21:15	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			04/28/23 21:15	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			04/28/23 21:15	1
Chloroethane	<0.790		4.00	0.790	ug/L			04/28/23 21:15	1
Chloroform	<1.30		3.00	1.30	ug/L			04/28/23 21:15	1
Chloromethane	<0.610		3.00	0.610	ug/L			04/28/23 21:15	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			04/28/23 21:15	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			04/28/23 21:15	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			04/28/23 21:15	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			04/28/23 21:15	1
Dibromomethane	<0.330		1.00	0.330	ug/L			04/28/23 21:15	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			04/28/23 21:15	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			04/28/23 21:15	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			04/28/23 21:15	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			04/28/23 21:15	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			04/28/23 21:15	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			04/28/23 21:15	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			04/28/23 21:15	1
2-Hexanone	<2.00		10.0	2.00	ug/L			04/28/23 21:15	1
Iodomethane	<7.00		10.0	7.00	ug/L			04/28/23 21:15	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			04/28/23 21:15	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			04/28/23 21:15	1
Styrene	<0.370		1.00	0.370	ug/L			04/28/23 21:15	1
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			04/28/23 21:15	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			04/28/23 21:15	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			04/28/23 21:15	1
Toluene	<0.430		1.00	0.430	ug/L			04/28/23 21:15	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			04/28/23 21:15	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			04/28/23 21:15	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			04/28/23 21:15	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			04/28/23 21:15	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			04/28/23 21:15	1
Trichloroethene	<0.430		1.00	0.430	ug/L			04/28/23 21:15	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			04/28/23 21:15	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			04/28/23 21:15	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			04/28/23 21:15	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			04/28/23 21:15	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/01/23 22:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*04/28/23 21:15*	*1*

Client Sample ID: FD-1_23_04
Date Collected: 04/25/23 00:00
Date Received: 04/25/23 16:53

Lab Sample ID: 310-254320-9
Matrix: Water

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*111*		*80 - 120*		*05/01/23 22:53*	*1*
Dibromofluoromethane (Surr)	*113*		*80 - 128*		*04/28/23 21:15*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 128*		*05/01/23 22:53*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*04/28/23 21:15*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*05/01/23 22:53*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100	*+	0.00200	0.00100	mg/L		04/27/23 08:10	04/28/23 18:18	1
Arsenic	**0.00254**		0.00200	0.000530	mg/L		04/27/23 08:10	04/28/23 18:18	1
Barium	**0.649**		0.00200	0.000640	mg/L		04/27/23 08:10	04/28/23 18:18	1
Beryllium	<0.000330		0.00100	0.000330	mg/L		04/27/23 08:10	04/28/23 18:18	1
Cadmium	<0.000100		0.000200	0.000100	mg/L		04/27/23 08:10	04/28/23 18:18	1
Chromium	<0.00110		0.00500	0.00110	mg/L		04/27/23 08:10	04/28/23 18:18	1
Cobalt	**0.00316**		0.000500	0.000170	mg/L		04/27/23 08:10	04/28/23 18:18	1
Copper	<0.00180		0.00500	0.00180	mg/L		04/27/23 08:10	04/28/23 18:18	1
Lead	<0.000240		0.000500	0.000240	mg/L		04/27/23 08:10	04/28/23 18:18	1
Nickel	**0.0158**		0.00500	0.00190	mg/L		04/27/23 08:10	04/28/23 18:18	1
Selenium	<0.00140		0.00500	0.00140	mg/L		04/27/23 08:10	04/28/23 18:18	1
Silver	<0.000500	*+	0.00100	0.000500	mg/L		04/27/23 08:10	04/28/23 18:18	1
Thallium	<0.000260		0.00100	0.000260	mg/L		04/27/23 08:10	04/28/23 18:18	1
Vanadium	<0.00110		0.00500	0.00110	mg/L		04/27/23 08:10	04/28/23 18:18	1
Zinc	<0.00640		0.0200	0.00640	mg/L		04/27/23 08:10	04/28/23 18:18	1
Tin	<0.00230		0.00500	0.00230	mg/L		04/27/23 08:10	04/28/23 18:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<1.70		5.00	1.70	mg/L			04/26/23 14:40	1

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill

Job ID: 310-254320-1
SDG: 23C002_23_04

Client Sample ID: TB-1_23_04
Date Collected: 04/25/23 00:00
Date Received: 04/25/23 16:53

Lab Sample ID: 310-254320-10
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	3.14	J	10.0	3.10	ug/L			04/28/23 17:06	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			04/28/23 17:06	1
Benzene	<0.220		0.500	0.220	ug/L			04/28/23 17:06	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			04/28/23 17:06	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			04/28/23 17:06	1
Bromoform	<0.780		5.00	0.780	ug/L			04/28/23 17:06	1
Bromomethane	<1.10		4.00	1.10	ug/L			04/28/23 17:06	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			04/28/23 17:06	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			04/28/23 17:06	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			04/28/23 17:06	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			04/28/23 17:06	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			04/28/23 17:06	1
Chloroethane	<0.790		4.00	0.790	ug/L			04/28/23 17:06	1
Chloroform	<1.30		3.00	1.30	ug/L			04/28/23 17:06	1
Chloromethane	<0.610		3.00	0.610	ug/L			04/28/23 17:06	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			04/28/23 17:06	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			04/28/23 17:06	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			04/28/23 17:06	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			04/28/23 17:06	1
Dibromomethane	<0.330		1.00	0.330	ug/L			04/28/23 17:06	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			04/28/23 17:06	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			04/28/23 17:06	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			04/28/23 17:06	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			04/28/23 17:06	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			04/28/23 17:06	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			04/28/23 17:06	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			04/28/23 17:06	1
2-Hexanone	<2.00		10.0	2.00	ug/L			04/28/23 17:06	1
Iodomethane	<7.00		10.0	7.00	ug/L			04/28/23 17:06	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			04/28/23 17:06	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			04/28/23 17:06	1
Styrene	<0.370		1.00	0.370	ug/L			04/28/23 17:06	1
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			04/28/23 17:06	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			04/28/23 17:06	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			04/28/23 17:06	1
Toluene	<0.430		1.00	0.430	ug/L			04/28/23 17:06	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			04/28/23 17:06	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			04/28/23 17:06	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			04/28/23 17:06	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			04/28/23 17:06	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			04/28/23 17:06	1
Trichloroethene	<0.430		1.00	0.430	ug/L			04/28/23 17:06	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			04/28/23 17:06	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			04/28/23 17:06	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			04/28/23 17:06	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			04/28/23 17:06	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/01/23 12:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*04/28/23 17:06*	*1*

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill

Job ID: 310-254320-1
SDG: 23C002_23_04

Client Sample ID: TB-1_23_04
Date Collected: 04/25/23 00:00
Date Received: 04/25/23 16:53

Lab Sample ID: 310-254320-10
Matrix: Water

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		80 - 120		05/01/23 12:44	1
Dibromofluoromethane (Surr)	118		80 - 128		04/28/23 17:06	1
Dibromofluoromethane (Surr)	93		80 - 128		05/01/23 12:44	1
Toluene-d8 (Surr)	97		80 - 120		04/28/23 17:06	1
Toluene-d8 (Surr)	99		80 - 120		05/01/23 12:44	1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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

Surrogate Summary

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill

Job ID: 310-254320-1
SDG: 23C002_23_04

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

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)								
		BFB	DBFM	TOL						
Lab Sample ID	Client Sample ID	(80-120)	(80-128)	(80-120)						
310-254320-1	GU-2A_23_04	100	114	98						
310-254320-1	GU-2A_23_04	107	92	100						
310-254320-1 MS	GU-2A_23_04	100	97	99						
310-254320-1 MSD	GU-2A_23_04	99	97	100						
310-254320-2	MW-119RR_23_04	100	116	97						
310-254320-2	MW-119RR_23_04	108	95	101						
310-254320-3	MW-121R_23_04	100	114	98						
310-254320-3	MW-121R_23_04	109	94	102						
310-254320-4	MW-122R_23_04	99	112	97						
310-254320-4	MW-122R_23_04	108	91	101						
310-254320-5	MW-200_23_04	100	116	98						
310-254320-5	MW-200_23_04	108	92	99						
310-254320-6	MW-205_23_04	100	114	97						
310-254320-6	MW-205_23_04	108	91	101						
310-254320-7	MW-206_23_04	101	116	96						
310-254320-7	MW-206_23_04	110	94	102						
310-254320-8	FB-1_23_04	101	115	97						
310-254320-8	FB-1_23_04	110	91	101						
310-254320-9	FD-1_23_04	100	113	97						
310-254320-9	FD-1_23_04	111	94	100						
310-254320-10	TB-1_23_04	100	118	97						
310-254320-10	TB-1_23_04	110	93	99						
LCS 310-385846/6	Lab Control Sample	97	95	99						
LCS 310-385846/7	Lab Control Sample	98	119	97						
LCS 310-385982/6	Lab Control Sample	101	106	99						
LCS 310-385982/7	Lab Control Sample	109	97	102						
LCS 310-385998/6	Lab Control Sample	101	102	99						
LCS 310-385998/7	Lab Control Sample	109	98	99						
MB 310-385846/5	Method Blank	101	116	98						
MB 310-385982/5	Method Blank	106	94	101						
MB 310-385998/5	Method Blank	109	94	101						

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

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

Lab Sample ID: MB 310-385846/5
Matrix: Water
Analysis Batch: 385846

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<3.10		10.0	3.10	ug/L			04/28/23 14:28	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			04/28/23 14:28	1
Benzene	<0.220		0.500	0.220	ug/L			04/28/23 14:28	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			04/28/23 14:28	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			04/28/23 14:28	1
Bromoform	<0.780		5.00	0.780	ug/L			04/28/23 14:28	1
Bromomethane	<1.10		4.00	1.10	ug/L			04/28/23 14:28	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			04/28/23 14:28	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			04/28/23 14:28	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			04/28/23 14:28	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			04/28/23 14:28	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			04/28/23 14:28	1
Chloroethane	<0.790		4.00	0.790	ug/L			04/28/23 14:28	1
Chloroform	<1.30		3.00	1.30	ug/L			04/28/23 14:28	1
Chloromethane	<0.610		3.00	0.610	ug/L			04/28/23 14:28	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			04/28/23 14:28	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			04/28/23 14:28	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			04/28/23 14:28	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			04/28/23 14:28	1
Dibromomethane	<0.330		1.00	0.330	ug/L			04/28/23 14:28	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			04/28/23 14:28	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			04/28/23 14:28	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			04/28/23 14:28	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			04/28/23 14:28	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			04/28/23 14:28	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			04/28/23 14:28	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			04/28/23 14:28	1
2-Hexanone	<2.00		10.0	2.00	ug/L			04/28/23 14:28	1
Iodomethane	<7.00		10.0	7.00	ug/L			04/28/23 14:28	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			04/28/23 14:28	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			04/28/23 14:28	1
Styrene	<0.370		1.00	0.370	ug/L			04/28/23 14:28	1
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			04/28/23 14:28	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			04/28/23 14:28	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			04/28/23 14:28	1
Toluene	<0.430		1.00	0.430	ug/L			04/28/23 14:28	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			04/28/23 14:28	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			04/28/23 14:28	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			04/28/23 14:28	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			04/28/23 14:28	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			04/28/23 14:28	1
Trichloroethene	<0.430		1.00	0.430	ug/L			04/28/23 14:28	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			04/28/23 14:28	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			04/28/23 14:28	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			04/28/23 14:28	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			04/28/23 14:28	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			04/28/23 14:28	1

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

Lab Sample ID: MB 310-385846/5
Matrix: Water
Analysis Batch: 385846

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		80 - 120		04/28/23 14:28	1
Dibromofluoromethane (Surr)	116		80 - 128		04/28/23 14:28	1
Toluene-d8 (Surr)	98		80 - 120		04/28/23 14:28	1

Lab Sample ID: LCS 310-385846/6
Matrix: Water
Analysis Batch: 385846

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acetone	40.0	35.82		ug/L		90	50 - 150
Acrylonitrile	200	191.4		ug/L		96	50 - 150
Benzene	20.0	20.28		ug/L		101	73 - 122
Bromochloromethane	20.0	19.21		ug/L		96	68 - 132
Bromodichloromethane	20.0	19.96		ug/L		100	72 - 121
Bromoform	20.0	20.14		ug/L		101	55 - 129
2-Butanone (MEK)	40.0	37.16		ug/L		93	50 - 150
Carbon disulfide	20.0	19.14		ug/L		96	58 - 131
Carbon tetrachloride	20.0	19.77		ug/L		99	67 - 132
Chlorobenzene	20.0	19.64		ug/L		98	69 - 121
Chlorodibromomethane	20.0	20.54		ug/L		103	69 - 122
Chloroform	20.0	19.04		ug/L		95	72 - 120
cis-1,2-Dichloroethene	20.0	18.86		ug/L		94	74 - 120
cis-1,3-Dichloropropene	20.0	21.20		ug/L		106	71 - 126
1,2-Dibromo-3-Chloropropane	20.0	19.36		ug/L		97	50 - 150
1,2-Dibromoethane (EDB)	20.0	20.89		ug/L		104	73 - 125
Dibromomethane	20.0	18.82		ug/L		94	72 - 123
1,2-Dichlorobenzene	20.0	19.54		ug/L		98	68 - 120
1,4-Dichlorobenzene	20.0	19.73		ug/L		99	67 - 120
1,1-Dichloroethane	20.0	19.09		ug/L		95	71 - 123
1,2-Dichloroethane	20.0	19.22		ug/L		96	70 - 124
1,1-Dichloroethene	20.0	19.45		ug/L		97	61 - 129
1,2-Dichloropropane	20.0	20.76		ug/L		104	73 - 121
Ethylbenzene	20.0	20.57		ug/L		103	69 - 122
2-Hexanone	40.0	41.49		ug/L		104	60 - 132
Iodomethane	20.0	15.95		ug/L		80	10 - 150
Methylene Chloride	20.0	20.31		ug/L		102	50 - 150
4-Methyl-2-pentanone (MIBK)	40.0	40.40		ug/L		101	62 - 130
Styrene	20.0	20.17		ug/L		101	67 - 125
1,1,1,2-Tetrachloroethane	20.0	20.71		ug/L		104	68 - 123
1,1,2,2-Tetrachloroethane	20.0	20.42		ug/L		102	64 - 124
Tetrachloroethene	20.0	20.45		ug/L		102	69 - 131
Toluene	20.0	19.79		ug/L		99	72 - 121
trans-1,4-Dichloro-2-butene	20.0	21.09		ug/L		105	48 - 150
trans-1,2-Dichloroethene	20.0	19.06		ug/L		95	68 - 125
trans-1,3-Dichloropropene	20.0	20.25		ug/L		101	68 - 124
1,1,1-Trichloroethane	20.0	20.38		ug/L		102	71 - 128
1,1,2-Trichloroethane	20.0	20.84		ug/L		104	70 - 124
Trichloroethene	20.0	21.31		ug/L		107	73 - 126

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

Lab Sample ID: LCS 310-385846/6
Matrix: Water
Analysis Batch: 385846

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,2,3-Trichloropropane			20.0	20.61		ug/L		103	64 - 125		
Vinyl acetate			40.0	37.98		ug/L		95	50 - 150		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*
Dibromofluoromethane (Surr)	*95*		*80 - 128*
Toluene-d8 (Surr)	*99*		*80 - 120*

Lab Sample ID: LCS 310-385846/7
Matrix: Water
Analysis Batch: 385846

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Bromomethane			20.0	15.51		ug/L		78	24 - 150		
Chloroethane			20.0	18.71		ug/L		94	51 - 137		
Chloromethane			20.0	18.36		ug/L		92	37 - 150		
Trichlorofluoromethane			20.0	17.44		ug/L		87	56 - 144		
Vinyl chloride			20.0	18.38		ug/L		92	57 - 136		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*
Dibromofluoromethane (Surr)	*119*		*80 - 128*
Toluene-d8 (Surr)	*97*		*80 - 120*

Lab Sample ID: 310-254320-1 MS
Matrix: Water
Analysis Batch: 385846

Client Sample ID: GU-2A_23_04
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Acetone	<3.10		40.0	38.30		ug/L		96	35 - 150		
Acrylonitrile	<2.20		200	190.9		ug/L		95	50 - 150		
Benzene	<0.220		20.0	18.38		ug/L		92	47 - 130		
Bromochloromethane	<0.540		20.0	18.15		ug/L		91	54 - 132		
Bromodichloromethane	<0.390		20.0	18.07		ug/L		90	58 - 130		
Bromoform	<0.780		20.0	17.08		ug/L		85	42 - 130		
2-Butanone (MEK)	<2.10		40.0	39.84		ug/L		100	47 - 150		
Carbon disulfide	<0.450		20.0	18.60		ug/L		93	39 - 131		
Carbon tetrachloride	<0.650		20.0	16.42		ug/L		82	45 - 132		
Chlorobenzene	<0.400		20.0	17.36		ug/L		87	54 - 130		
Chlorodibromomethane	<0.750		20.0	18.16		ug/L		91	53 - 130		
Chloroform	<1.30		20.0	17.44		ug/L		87	55 - 130		
cis-1,2-Dichloroethene	<0.210		20.0	17.60		ug/L		88	52 - 130		
cis-1,3-Dichloropropene	<0.250		20.0	18.60		ug/L		93	55 - 130		
1,2-Dibromo-3-Chloropropane	<1.20		20.0	17.88		ug/L		89	45 - 150		
1,2-Dibromoethane (EDB)	<0.340		20.0	19.02		ug/L		95	59 - 130		
Dibromomethane	<0.330		20.0	18.16		ug/L		91	61 - 130		
1,2-Dichlorobenzene	<0.370		20.0	17.62		ug/L		88	53 - 130		
1,4-Dichlorobenzene	<0.230		20.0	17.60		ug/L		88	53 - 130		

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

Lab Sample ID: 310-254320-1 MS
Matrix: Water
Analysis Batch: 385846

Client Sample ID: GU-2A_23_04
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethane	<0.220		20.0	17.21		ug/L		86	53 - 130
1,2-Dichloroethane	<0.390		20.0	18.21		ug/L		91	57 - 130
1,1-Dichloroethene	<0.560		20.0	17.31		ug/L		87	39 - 130
1,2-Dichloropropane	<0.270		20.0	19.16		ug/L		96	60 - 130
Ethylbenzene	<0.310		20.0	17.27		ug/L		86	48 - 130
2-Hexanone	<2.00		40.0	37.78		ug/L		94	45 - 132
Iodomethane	<7.00		20.0	16.11		ug/L		81	10 - 150
Methylene Chloride	<1.70		20.0	18.96		ug/L		95	50 - 150
4-Methyl-2-pentanone (MIBK)	<2.10		40.0	37.68		ug/L		94	46 - 132
Styrene	<0.370		20.0	17.63		ug/L		88	46 - 130
1,1,1,2-Tetrachloroethane	<0.380		20.0	17.37		ug/L		87	52 - 130
1,1,2,2-Tetrachloroethane	<0.470		20.0	18.42		ug/L		92	51 - 130
Tetrachloroethene	<0.480		20.0	16.61		ug/L		83	42 - 131
Toluene	<0.430		20.0	17.23		ug/L		86	48 - 130
trans-1,4-Dichloro-2-butene	<1.10		20.0	18.37		ug/L		92	33 - 150
trans-1,2-Dichloroethene	<0.270		20.0	17.52		ug/L		88	54 - 130
trans-1,3-Dichloropropene	<0.560		20.0	17.99		ug/L		90	51 - 130
1,1,1-Trichloroethane	<0.190		20.0	17.31		ug/L		87	49 - 130
1,1,2-Trichloroethane	<0.450		20.0	18.93		ug/L		95	56 - 130
Trichloroethene	<0.430		20.0	18.93		ug/L		95	55 - 130
1,2,3-Trichloropropane	<0.590		20.0	17.85		ug/L		89	50 - 130
Vinyl acetate	<2.50		40.0	33.75		ug/L		84	34 - 150
Xylenes, Total	<0.400	*- F1	40.0	17.09	F1	ug/L		43	44 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*97*		*80 - 128*
Toluene-d8 (Surr)	*99*		*80 - 120*

Lab Sample ID: 310-254320-1 MSD
Matrix: Water
Analysis Batch: 385846

Client Sample ID: GU-2A_23_04
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Acetone	<3.10		40.0	38.80		ug/L		97	35 - 150	1	26
Acrylonitrile	<2.20		200	190.9		ug/L		95	50 - 150	0	21
Benzene	<0.220		20.0	17.91		ug/L		90	47 - 130	3	20
Bromochloromethane	<0.540		20.0	17.66		ug/L		88	54 - 132	3	20
Bromodichloromethane	<0.390		20.0	18.20		ug/L		91	58 - 130	1	20
Bromoform	<0.780		20.0	17.52		ug/L		88	42 - 130	3	20
2-Butanone (MEK)	<2.10		40.0	38.99		ug/L		97	47 - 150	2	20
Carbon disulfide	<0.450		20.0	16.92		ug/L		85	39 - 131	9	32
Carbon tetrachloride	<0.650		20.0	16.47		ug/L		82	45 - 132	0	20
Chlorobenzene	<0.400		20.0	17.08		ug/L		85	54 - 130	2	20
Chlorodibromomethane	<0.750		20.0	18.22		ug/L		91	53 - 130	0	20
Chloroform	<1.30		20.0	17.32		ug/L		87	55 - 130	1	20
cis-1,2-Dichloroethene	<0.210		20.0	17.08		ug/L		85	52 - 130	3	20
cis-1,3-Dichloropropene	<0.250		20.0	18.46		ug/L		92	55 - 130	1	20

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

Lab Sample ID: 310-254320-1 MSD
Matrix: Water
Analysis Batch: 385846

Client Sample ID: GU-2A_23_04
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	<1.20		20.0	18.13		ug/L		91	45 - 150	1	20
1,2-Dibromoethane (EDB)	<0.340		20.0	18.62		ug/L		93	59 - 130	2	20
Dibromomethane	<0.330		20.0	17.98		ug/L		90	61 - 130	1	20
1,2-Dichlorobenzene	<0.370		20.0	17.37		ug/L		87	53 - 130	1	20
1,4-Dichlorobenzene	<0.230		20.0	17.24		ug/L		86	53 - 130	2	20
1,1-Dichloroethane	<0.220		20.0	16.77		ug/L		84	53 - 130	3	20
1,2-Dichloroethane	<0.390		20.0	17.95		ug/L		90	57 - 130	1	21
1,1-Dichloroethene	<0.560		20.0	16.99		ug/L		85	39 - 130	2	28
1,2-Dichloropropane	<0.270		20.0	18.98		ug/L		95	60 - 130	1	31
Ethylbenzene	<0.310		20.0	16.95		ug/L		85	48 - 130	2	20
2-Hexanone	<2.00		40.0	37.33		ug/L		93	45 - 132	1	20
Iodomethane	<7.00		20.0	16.89		ug/L		84	10 - 150	5	35
Methylene Chloride	<1.70		20.0	18.50		ug/L		93	50 - 150	2	24
4-Methyl-2-pentanone (MIBK)	<2.10		40.0	38.14		ug/L		95	46 - 132	1	20
Styrene	<0.370		20.0	17.34		ug/L		87	46 - 130	2	20
1,1,1,2-Tetrachloroethane	<0.380		20.0	17.55		ug/L		88	52 - 130	1	20
1,1,2,2-Tetrachloroethane	<0.470		20.0	18.63		ug/L		93	51 - 130	1	20
Tetrachloroethene	<0.480		20.0	16.54		ug/L		83	42 - 131	0	20
Toluene	<0.430		20.0	16.88		ug/L		84	48 - 130	2	20
trans-1,4-Dichloro-2-butene	<1.10		20.0	18.53		ug/L		93	33 - 150	1	20
trans-1,2-Dichloroethene	<0.270		20.0	16.90		ug/L		85	54 - 130	4	24
trans-1,3-Dichloropropene	<0.560		20.0	17.96		ug/L		90	51 - 130	0	20
1,1,1-Trichloroethane	<0.190		20.0	17.31		ug/L		87	49 - 130	0	20
1,1,2-Trichloroethane	<0.450		20.0	18.74		ug/L		94	56 - 130	1	20
Trichloroethene	<0.430		20.0	18.43		ug/L		92	55 - 130	3	20
1,2,3-Trichloropropane	<0.590		20.0	18.11		ug/L		91	50 - 130	1	20
Vinyl acetate	<2.50		40.0	34.14		ug/L		85	34 - 150	1	27
Xylenes, Total	<0.400	*- F1	40.0	16.78	F1	ug/L		42	44 - 130	2	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*
Dibromofluoromethane (Surr)	*97*		*80 - 128*
Toluene-d8 (Surr)	*100*		*80 - 120*

Lab Sample ID: MB 310-385982/5
Matrix: Water
Analysis Batch: 385982

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<3.10		10.0	3.10	ug/L			05/01/23 10:21	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/01/23 10:21	1
Benzene	<0.220		0.500	0.220	ug/L			05/01/23 10:21	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/01/23 10:21	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/01/23 10:21	1
Bromoform	<0.780		5.00	0.780	ug/L			05/01/23 10:21	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/01/23 10:21	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/01/23 10:21	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/01/23 10:21	1

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

Lab Sample ID: MB 310-385982/5
Matrix: Water
Analysis Batch: 385982

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/01/23 10:21	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/01/23 10:21	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/01/23 10:21	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/01/23 10:21	1
Chloroform	<1.30		3.00	1.30	ug/L			05/01/23 10:21	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/01/23 10:21	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/01/23 10:21	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/01/23 10:21	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/01/23 10:21	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/01/23 10:21	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/01/23 10:21	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/01/23 10:21	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/01/23 10:21	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/01/23 10:21	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/01/23 10:21	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/01/23 10:21	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/01/23 10:21	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/01/23 10:21	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/01/23 10:21	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/01/23 10:21	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/01/23 10:21	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/01/23 10:21	1
Styrene	<0.370		1.00	0.370	ug/L			05/01/23 10:21	1
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			05/01/23 10:21	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/01/23 10:21	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/01/23 10:21	1
Toluene	<0.430		1.00	0.430	ug/L			05/01/23 10:21	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/01/23 10:21	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/01/23 10:21	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/01/23 10:21	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/01/23 10:21	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/01/23 10:21	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/01/23 10:21	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/01/23 10:21	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/01/23 10:21	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/01/23 10:21	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/01/23 10:21	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/01/23 10:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*80 - 120*		*05/01/23 10:21*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 128*		*05/01/23 10:21*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*05/01/23 10:21*	*1*

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

Lab Sample ID: LCS 310-385982/6
Matrix: Water
Analysis Batch: 385982

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acetone	40.0	47.56		ug/L		119	50 - 150
Acrylonitrile	200	216.3		ug/L		108	50 - 150
Benzene	20.0	20.28		ug/L		101	73 - 122
Bromochloromethane	20.0	21.58		ug/L		108	68 - 132
Bromodichloromethane	20.0	21.09		ug/L		105	72 - 121
Bromoform	20.0	21.78		ug/L		109	55 - 129
2-Butanone (MEK)	40.0	44.25		ug/L		111	50 - 150
Carbon disulfide	20.0	18.76		ug/L		94	58 - 131
Carbon tetrachloride	20.0	20.10		ug/L		101	67 - 132
Chlorobenzene	20.0	19.44		ug/L		97	69 - 121
Chlorodibromomethane	20.0	22.50		ug/L		112	69 - 122
Chloroform	20.0	20.69		ug/L		103	72 - 120
cis-1,2-Dichloroethene	20.0	20.12		ug/L		101	74 - 120
cis-1,3-Dichloropropene	20.0	23.33		ug/L		117	71 - 126
1,2-Dibromo-3-Chloropropane	20.0	22.05		ug/L		110	50 - 150
1,2-Dibromoethane (EDB)	20.0	21.78		ug/L		109	73 - 125
Dibromomethane	20.0	21.51		ug/L		108	72 - 123
1,2-Dichlorobenzene	20.0	19.40		ug/L		97	68 - 120
1,4-Dichlorobenzene	20.0	19.04		ug/L		95	67 - 120
1,1-Dichloroethane	20.0	21.79		ug/L		109	71 - 123
1,2-Dichloroethane	20.0	20.36		ug/L		102	70 - 124
1,1-Dichloroethene	20.0	18.22		ug/L		91	61 - 129
1,2-Dichloropropane	20.0	20.48		ug/L		102	73 - 121
Ethylbenzene	20.0	19.28		ug/L		96	69 - 122
2-Hexanone	40.0	49.73		ug/L		124	60 - 132
Iodomethane	20.0	11.61		ug/L		58	10 - 150
Methylene Chloride	20.0	17.04		ug/L		85	50 - 150
4-Methyl-2-pentanone (MIBK)	40.0	47.82		ug/L		120	62 - 130
Styrene	20.0	19.87		ug/L		99	67 - 125
1,1,1,2-Tetrachloroethane	20.0	21.92		ug/L		110	68 - 123
1,1,2,2-Tetrachloroethane	20.0	21.92		ug/L		110	64 - 124
Tetrachloroethene	20.0	18.68		ug/L		93	69 - 131
Toluene	20.0	19.70		ug/L		99	72 - 121
trans-1,4-Dichloro-2-butene	20.0	22.00		ug/L		110	48 - 150
trans-1,2-Dichloroethene	20.0	19.04		ug/L		95	68 - 125
1,1,1-Trichloroethane	20.0	20.06		ug/L		100	71 - 128
1,1,2-Trichloroethane	20.0	21.21		ug/L		106	70 - 124
Trichloroethene	20.0	18.71		ug/L		94	73 - 126
1,2,3-Trichloropropane	20.0	20.73		ug/L		104	64 - 125
Vinyl acetate	40.0	31.66		ug/L		79	50 - 150
Xylenes, Total	40.0	38.81		ug/L		97	68 - 124

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*
Dibromofluoromethane (Surr)	*106*		*80 - 128*
Toluene-d8 (Surr)	*99*		*80 - 120*

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

Lab Sample ID: LCS 310-385982/7
Matrix: Water
Analysis Batch: 385982

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bromomethane	20.0	15.35		ug/L		77	24 - 150
Chloroethane	20.0	23.43		ug/L		117	51 - 137
Chloromethane	20.0	22.02		ug/L		110	37 - 150
Trichlorofluoromethane	20.0	20.26		ug/L		101	56 - 144
Vinyl chloride	20.0	19.86		ug/L		99	57 - 136

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*80 - 120*
Dibromofluoromethane (Surr)	*97*		*80 - 128*
Toluene-d8 (Surr)	*102*		*80 - 120*

Lab Sample ID: MB 310-385998/5
Matrix: Water
Analysis Batch: 385998

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<3.10		10.0	3.10	ug/L			05/01/23 20:10	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/01/23 20:10	1
Benzene	<0.220		0.500	0.220	ug/L			05/01/23 20:10	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/01/23 20:10	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/01/23 20:10	1
Bromoform	<0.780		5.00	0.780	ug/L			05/01/23 20:10	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/01/23 20:10	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/01/23 20:10	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/01/23 20:10	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/01/23 20:10	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/01/23 20:10	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/01/23 20:10	1
Chloroform	<1.30		3.00	1.30	ug/L			05/01/23 20:10	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/01/23 20:10	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/01/23 20:10	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/01/23 20:10	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/01/23 20:10	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/01/23 20:10	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/01/23 20:10	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/01/23 20:10	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/01/23 20:10	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/01/23 20:10	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/01/23 20:10	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/01/23 20:10	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/01/23 20:10	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/01/23 20:10	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/01/23 20:10	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/01/23 20:10	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/01/23 20:10	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/01/23 20:10	1
Styrene	<0.370		1.00	0.370	ug/L			05/01/23 20:10	1
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			05/01/23 20:10	1

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

Lab Sample ID: MB 310-385998/5
Matrix: Water
Analysis Batch: 385998

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/01/23 20:10	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/01/23 20:10	1
Toluene	<0.430		1.00	0.430	ug/L			05/01/23 20:10	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/01/23 20:10	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/01/23 20:10	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/01/23 20:10	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/01/23 20:10	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/01/23 20:10	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/01/23 20:10	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/01/23 20:10	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/01/23 20:10	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/01/23 20:10	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/01/23 20:10	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/01/23 20:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*80 - 120*		*05/01/23 20:10*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 128*		*05/01/23 20:10*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*05/01/23 20:10*	*1*

Lab Sample ID: LCS 310-385998/6
Matrix: Water
Analysis Batch: 385998

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acetone	40.0	42.34		ug/L		106	50 - 150
Acrylonitrile	200	208.4		ug/L		104	50 - 150
Benzene	20.0	19.16		ug/L		96	73 - 122
Bromochloromethane	20.0	20.69		ug/L		103	68 - 132
Bromodichloromethane	20.0	20.28		ug/L		101	72 - 121
Bromoform	20.0	20.35		ug/L		102	55 - 129
2-Butanone (MEK)	40.0	40.31		ug/L		101	50 - 150
Carbon disulfide	20.0	17.76		ug/L		89	58 - 131
Carbon tetrachloride	20.0	19.69		ug/L		98	67 - 132
Chlorobenzene	20.0	18.22		ug/L		91	69 - 121
Chlorodibromomethane	20.0	21.42		ug/L		107	69 - 122
Chloroform	20.0	19.53		ug/L		98	72 - 120
cis-1,2-Dichloroethene	20.0	19.03		ug/L		95	74 - 120
cis-1,3-Dichloropropene	20.0	21.25		ug/L		106	71 - 126
1,2-Dibromo-3-Chloropropane	20.0	19.71		ug/L		99	50 - 150
1,2-Dibromoethane (EDB)	20.0	20.49		ug/L		102	73 - 125
Dibromomethane	20.0	20.55		ug/L		103	72 - 123
1,2-Dichlorobenzene	20.0	17.92		ug/L		90	68 - 120
1,4-Dichlorobenzene	20.0	17.44		ug/L		87	67 - 120
1,1-Dichloroethane	20.0	20.83		ug/L		104	71 - 123
1,2-Dichloroethane	20.0	19.07		ug/L		95	70 - 124
1,1-Dichloroethene	20.0	17.18		ug/L		86	61 - 129
1,2-Dichloropropane	20.0	19.73		ug/L		99	73 - 121

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

Lab Sample ID: LCS 310-385998/6
Matrix: Water
Analysis Batch: 385998

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	20.0	17.92		ug/L		90	69 - 122
2-Hexanone	40.0	44.32		ug/L		111	60 - 132
Iodomethane	20.0	10.17		ug/L		51	10 - 150
Methylene Chloride	20.0	16.12		ug/L		81	50 - 150
4-Methyl-2-pentanone (MIBK)	40.0	42.84		ug/L		107	62 - 130
Styrene	20.0	18.21		ug/L		91	67 - 125
1,1,1,2-Tetrachloroethane	20.0	20.36		ug/L		102	68 - 123
1,1,2,2-Tetrachloroethane	20.0	20.67		ug/L		103	64 - 124
Tetrachloroethene	20.0	17.94		ug/L		90	69 - 131
Toluene	20.0	18.79		ug/L		94	72 - 121
trans-1,4-Dichloro-2-butene	20.0	18.15		ug/L		91	48 - 150
trans-1,2-Dichloroethene	20.0	18.66		ug/L		93	68 - 125
trans-1,3-Dichloropropene	20.0	22.06		ug/L		110	68 - 124
1,1,1-Trichloroethane	20.0	19.15		ug/L		96	71 - 128
1,1,2-Trichloroethane	20.0	20.18		ug/L		101	70 - 124
Trichloroethene	20.0	18.02		ug/L		90	73 - 126
1,2,3-Trichloropropane	20.0	19.44		ug/L		97	64 - 125
Vinyl acetate	40.0	34.48		ug/L		86	50 - 150
Xylenes, Total	40.0	36.69		ug/L		92	68 - 124

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*
Dibromofluoromethane (Surr)	*102*		*80 - 128*
Toluene-d8 (Surr)	*99*		*80 - 120*

Lab Sample ID: LCS 310-385998/7
Matrix: Water
Analysis Batch: 385998

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bromomethane	20.0	13.94		ug/L		70	24 - 150
Chloroethane	20.0	21.61		ug/L		108	51 - 137
Chloromethane	20.0	20.11		ug/L		101	37 - 150
Trichlorofluoromethane	20.0	19.28		ug/L		96	56 - 144
Vinyl chloride	20.0	18.62		ug/L		93	57 - 136

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*80 - 120*
Dibromofluoromethane (Surr)	*98*		*80 - 128*
Toluene-d8 (Surr)	*99*		*80 - 120*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-385625/1-A
Matrix: Water
Analysis Batch: 385897

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 385625

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00200	0.00100	mg/L		04/27/23 08:10	04/28/23 16:48	1
Arsenic	<0.000530		0.00200	0.000530	mg/L		04/27/23 08:10	04/28/23 16:48	1
Barium	<0.000640		0.00200	0.000640	mg/L		04/27/23 08:10	04/28/23 16:48	1
Beryllium	<0.000330		0.00100	0.000330	mg/L		04/27/23 08:10	04/28/23 16:48	1
Cadmium	<0.000100		0.000200	0.000100	mg/L		04/27/23 08:10	04/28/23 16:48	1
Chromium	<0.00110		0.00500	0.00110	mg/L		04/27/23 08:10	04/28/23 16:48	1
Cobalt	<0.000170		0.000500	0.000170	mg/L		04/27/23 08:10	04/28/23 16:48	1
Copper	<0.00180		0.00500	0.00180	mg/L		04/27/23 08:10	04/28/23 16:48	1
Lead	<0.000240		0.000500	0.000240	mg/L		04/27/23 08:10	04/28/23 16:48	1
Nickel	<0.00190		0.00500	0.00190	mg/L		04/27/23 08:10	04/28/23 16:48	1
Selenium	<0.00140		0.00500	0.00140	mg/L		04/27/23 08:10	04/28/23 16:48	1
Silver	<0.000500		0.00100	0.000500	mg/L		04/27/23 08:10	04/28/23 16:48	1
Thallium	<0.000260		0.00100	0.000260	mg/L		04/27/23 08:10	04/28/23 16:48	1
Vanadium	<0.00110		0.00500	0.00110	mg/L		04/27/23 08:10	04/28/23 16:48	1
Zinc	<0.00640		0.0200	0.00640	mg/L		04/27/23 08:10	04/28/23 16:48	1
Tin	<0.00230		0.00500	0.00230	mg/L		04/27/23 08:10	04/28/23 16:48	1

Lab Sample ID: LCS 310-385625/2-A
Matrix: Water
Analysis Batch: 385897

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 385625

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.2516	*+	mg/L		126	80 - 120
Arsenic	0.200	0.2147		mg/L		107	80 - 120
Barium	0.100	0.1082		mg/L		108	80 - 120
Beryllium	0.100	0.1157		mg/L		116	80 - 120
Cadmium	0.100	0.1060		mg/L		106	80 - 120
Chromium	0.100	0.1028		mg/L		103	80 - 120
Cobalt	0.100	0.1200		mg/L		120	80 - 120
Copper	0.200	0.2388		mg/L		119	80 - 120
Lead	0.200	0.2252		mg/L		113	80 - 120
Nickel	0.200	0.2275		mg/L		114	80 - 120
Selenium	0.400	0.4355		mg/L		109	80 - 120
Silver	0.100	0.1228	*+	mg/L		123	80 - 120
Thallium	0.200	0.1836		mg/L		92	80 - 120
Vanadium	0.100	0.1024		mg/L		102	80 - 120
Zinc	0.200	0.2026		mg/L		101	80 - 120
Tin	0.200	0.2149		mg/L		107	80 - 120

Lab Sample ID: 310-254320-2 DU
Matrix: Water
Analysis Batch: 385897

Client Sample ID: MW-119RR_23_04
Prep Type: Total/NA
Prep Batch: 385625

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	<0.00100	*+	<0.00100	*+	mg/L		NC	20
Arsenic	0.00260		0.002663		mg/L		2	20
Barium	0.642		0.6585		mg/L		3	20
Beryllium	<0.000330		<0.000330		mg/L		NC	20
Cadmium	<0.000100		<0.000100		mg/L		NC	20

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 310-254320-2 DU
Matrix: Water
Analysis Batch: 385897

Client Sample ID: MW-119RR_23_04
Prep Type: Total/NA
Prep Batch: 385625

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chromium	<0.00110			<0.00110		mg/L				NC	20
Cobalt	0.00314			0.003207		mg/L				2	20
Copper	<0.00180			<0.00180		mg/L				NC	20
Lead	<0.000240			<0.000240		mg/L				NC	20
Nickel	0.0154			0.01592		mg/L				3	20
Selenium	<0.00140			<0.00140		mg/L				NC	20
Silver	<0.000500	*+		<0.000500	*+	mg/L				NC	20
Thallium	<0.000260			<0.000260		mg/L				NC	20
Vanadium	<0.00110			<0.00110		mg/L				NC	20
Zinc	<0.00640			<0.00640		mg/L				NC	20
Tin	<0.00230			<0.00230		mg/L				NC	20

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-385602/1
Matrix: Water
Analysis Batch: 385602

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<1.70		5.00	1.70	mg/L			04/26/23 14:40	1

Lab Sample ID: LCS 310-385602/2
Matrix: Water
Analysis Batch: 385602

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Suspended Solids			100	102.0		mg/L		102	75 - 116		

GC/MS VOA

Analysis Batch: 385846

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254320-1	GU-2A_23_04	Total/NA	Water	8260D	
310-254320-2	MW-119RR_23_04	Total/NA	Water	8260D	
310-254320-3	MW-121R_23_04	Total/NA	Water	8260D	
310-254320-4	MW-122R_23_04	Total/NA	Water	8260D	
310-254320-5	MW-200_23_04	Total/NA	Water	8260D	
310-254320-6	MW-205_23_04	Total/NA	Water	8260D	
310-254320-7	MW-206_23_04	Total/NA	Water	8260D	
310-254320-8	FB-1_23_04	Total/NA	Water	8260D	
310-254320-9	FD-1_23_04	Total/NA	Water	8260D	
310-254320-10	TB-1_23_04	Total/NA	Water	8260D	
MB 310-385846/5	Method Blank	Total/NA	Water	8260D	
LCS 310-385846/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-385846/7	Lab Control Sample	Total/NA	Water	8260D	
310-254320-1 MS	GU-2A_23_04	Total/NA	Water	8260D	
310-254320-1 MSD	GU-2A_23_04	Total/NA	Water	8260D	

Analysis Batch: 385982

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254320-1	GU-2A_23_04	Total/NA	Water	8260D	
310-254320-2	MW-119RR_23_04	Total/NA	Water	8260D	
310-254320-3	MW-121R_23_04	Total/NA	Water	8260D	
310-254320-4	MW-122R_23_04	Total/NA	Water	8260D	
310-254320-5	MW-200_23_04	Total/NA	Water	8260D	
310-254320-6	MW-205_23_04	Total/NA	Water	8260D	
310-254320-8	FB-1_23_04	Total/NA	Water	8260D	
310-254320-10	TB-1_23_04	Total/NA	Water	8260D	
MB 310-385982/5	Method Blank	Total/NA	Water	8260D	
LCS 310-385982/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-385982/7	Lab Control Sample	Total/NA	Water	8260D	

Analysis Batch: 385998

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254320-7	MW-206_23_04	Total/NA	Water	8260D	
310-254320-9	FD-1_23_04	Total/NA	Water	8260D	
MB 310-385998/5	Method Blank	Total/NA	Water	8260D	
LCS 310-385998/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-385998/7	Lab Control Sample	Total/NA	Water	8260D	

Metals

Prep Batch: 385625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254320-1	GU-2A_23_04	Total/NA	Water	3005A	
310-254320-2	MW-119RR_23_04	Total/NA	Water	3005A	
310-254320-3	MW-121R_23_04	Total/NA	Water	3005A	
310-254320-4	MW-122R_23_04	Total/NA	Water	3005A	
310-254320-5	MW-200_23_04	Total/NA	Water	3005A	
310-254320-6	MW-205_23_04	Total/NA	Water	3005A	
310-254320-7	MW-206_23_04	Total/NA	Water	3005A	
310-254320-8	FB-1_23_04	Total/NA	Water	3005A	
310-254320-9	FD-1_23_04	Total/NA	Water	3005A	

Metals (Continued)

Prep Batch: 385625 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-385625/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-385625/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-254320-2 DU	MW-119RR_23_04	Total/NA	Water	3005A	

Analysis Batch: 385897

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254320-1	GU-2A_23_04	Total/NA	Water	6020B	385625
310-254320-2	MW-119RR_23_04	Total/NA	Water	6020B	385625
310-254320-3	MW-121R_23_04	Total/NA	Water	6020B	385625
310-254320-4	MW-122R_23_04	Total/NA	Water	6020B	385625
310-254320-5	MW-200_23_04	Total/NA	Water	6020B	385625
310-254320-6	MW-205_23_04	Total/NA	Water	6020B	385625
310-254320-7	MW-206_23_04	Total/NA	Water	6020B	385625
310-254320-8	FB-1_23_04	Total/NA	Water	6020B	385625
310-254320-9	FD-1_23_04	Total/NA	Water	6020B	385625
MB 310-385625/1-A	Method Blank	Total/NA	Water	6020B	385625
LCS 310-385625/2-A	Lab Control Sample	Total/NA	Water	6020B	385625
310-254320-2 DU	MW-119RR_23_04	Total/NA	Water	6020B	385625

General Chemistry

Analysis Batch: 385602

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254320-1	GU-2A_23_04	Total/NA	Water	I-3765-85	
310-254320-2	MW-119RR_23_04	Total/NA	Water	I-3765-85	
310-254320-3	MW-121R_23_04	Total/NA	Water	I-3765-85	
310-254320-4	MW-122R_23_04	Total/NA	Water	I-3765-85	
310-254320-5	MW-200_23_04	Total/NA	Water	I-3765-85	
310-254320-6	MW-205_23_04	Total/NA	Water	I-3765-85	
310-254320-7	MW-206_23_04	Total/NA	Water	I-3765-85	
310-254320-8	FB-1_23_04	Total/NA	Water	I-3765-85	
310-254320-9	FD-1_23_04	Total/NA	Water	I-3765-85	
MB 310-385602/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-385602/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Lab Chronicle

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill

Job ID: 310-254320-1
SDG: 23C002_23_04

Client Sample ID: GU-2A_23_04

Lab Sample ID: 310-254320-1

Date Collected: 04/24/23 16:50
Matrix: Water
Date Received: 04/25/23 16:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	385846	WSE8	EET CF	04/28/23 18:36
Total/NA	Analysis	8260D		1	385982	WSE8	EET CF	05/01/23 14:45
Total/NA	Prep	3005A			385625	DHM5	EET CF	04/27/23 08:10
Total/NA	Analysis	6020B		1	385897	ZRI4	EET CF	04/28/23 17:38
Total/NA	Analysis	I-3765-85		1	385602	ENB7	EET CF	04/26/23 14:40

Client Sample ID: MW-119RR_23_04

Lab Sample ID: 310-254320-2

Date Collected: 04/25/23 07:55
Matrix: Water
Date Received: 04/25/23 16:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	385846	WSE8	EET CF	04/28/23 18:59
Total/NA	Analysis	8260D		1	385982	WSE8	EET CF	05/01/23 15:06
Total/NA	Prep	3005A			385625	DHM5	EET CF	04/27/23 08:10
Total/NA	Analysis	6020B		1	385897	ZRI4	EET CF	04/28/23 17:41
Total/NA	Analysis	I-3765-85		1	385602	ENB7	EET CF	04/26/23 14:40

Client Sample ID: MW-121R_23_04

Lab Sample ID: 310-254320-3

Date Collected: 04/25/23 09:05
Matrix: Water
Date Received: 04/25/23 16:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	385846	WSE8	EET CF	04/28/23 19:22
Total/NA	Analysis	8260D		1	385982	WSE8	EET CF	05/01/23 15:26
Total/NA	Prep	3005A			385625	DHM5	EET CF	04/27/23 08:10
Total/NA	Analysis	6020B		1	385897	ZRI4	EET CF	04/28/23 17:47
Total/NA	Analysis	I-3765-85		1	385602	ENB7	EET CF	04/26/23 14:40

Client Sample ID: MW-122R_23_04

Lab Sample ID: 310-254320-4

Date Collected: 04/24/23 14:15
Matrix: Water
Date Received: 04/25/23 16:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	385846	WSE8	EET CF	04/28/23 19:44
Total/NA	Analysis	8260D		1	385982	WSE8	EET CF	05/01/23 15:47
Total/NA	Prep	3005A			385625	DHM5	EET CF	04/27/23 08:10
Total/NA	Analysis	6020B		1	385897	ZRI4	EET CF	04/28/23 17:50
Total/NA	Analysis	I-3765-85		1	385602	ENB7	EET CF	04/26/23 14:40

Lab Chronicle

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill

Job ID: 310-254320-1
SDG: 23C002_23_04

Client Sample ID: MW-200_23_04

Lab Sample ID: 310-254320-5

Date Collected: 04/25/23 09:50
Matrix: Water
Date Received: 04/25/23 16:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	385846	WSE8	EET CF	04/28/23 20:07
Total/NA	Analysis	8260D		1	385982	WSE8	EET CF	05/01/23 16:07
Total/NA	Prep	3005A			385625	DHM5	EET CF	04/27/23 08:10
Total/NA	Analysis	6020B		1	385897	ZRI4	EET CF	04/28/23 17:52
Total/NA	Analysis	I-3765-85		1	385602	ENB7	EET CF	04/26/23 14:40

Client Sample ID: MW-205_23_04

Lab Sample ID: 310-254320-6

Date Collected: 04/24/23 16:05
Matrix: Water
Date Received: 04/25/23 16:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	385846	WSE8	EET CF	04/28/23 20:30
Total/NA	Analysis	8260D		1	385982	WSE8	EET CF	05/01/23 16:27
Total/NA	Prep	3005A			385625	DHM5	EET CF	04/27/23 08:10
Total/NA	Analysis	6020B		1	385897	ZRI4	EET CF	04/28/23 17:55
Total/NA	Analysis	I-3765-85		1	385602	ENB7	EET CF	04/26/23 14:40

Client Sample ID: MW-206_23_04

Lab Sample ID: 310-254320-7

Date Collected: 04/24/23 15:15
Matrix: Water
Date Received: 04/25/23 16:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	385846	WSE8	EET CF	04/28/23 20:52
Total/NA	Analysis	8260D		1	385998	WSE8	EET CF	05/01/23 22:33
Total/NA	Prep	3005A			385625	DHM5	EET CF	04/27/23 08:10
Total/NA	Analysis	6020B		1	385897	ZRI4	EET CF	04/28/23 18:12
Total/NA	Analysis	I-3765-85		1	385602	ENB7	EET CF	04/26/23 14:40

Client Sample ID: FB-1_23_04

Lab Sample ID: 310-254320-8

Date Collected: 04/25/23 08:30
Matrix: Water
Date Received: 04/25/23 16:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	385846	WSE8	EET CF	04/28/23 16:43
Total/NA	Analysis	8260D		1	385982	WSE8	EET CF	05/01/23 12:23
Total/NA	Prep	3005A			385625	DHM5	EET CF	04/27/23 08:10
Total/NA	Analysis	6020B		1	385897	ZRI4	EET CF	04/28/23 18:15
Total/NA	Analysis	I-3765-85		1	385602	ENB7	EET CF	04/26/23 14:40

Lab Chronicle

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill

Job ID: 310-254320-1
SDG: 23C002_23_04

Client Sample ID: FD-1_23_04

Lab Sample ID: 310-254320-9

Date Collected: 04/25/23 00:00
Matrix: Water
Date Received: 04/25/23 16:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	385846	WSE8	EET CF	04/28/23 21:15
Total/NA	Analysis	8260D		1	385998	WSE8	EET CF	05/01/23 22:53
Total/NA	Prep	3005A			385625	DHM5	EET CF	04/27/23 08:10
Total/NA	Analysis	6020B		1	385897	ZRI4	EET CF	04/28/23 18:18
Total/NA	Analysis	I-3765-85		1	385602	ENB7	EET CF	04/26/23 14:40

Client Sample ID: TB-1_23_04

Lab Sample ID: 310-254320-10

Date Collected: 04/25/23 00:00
Matrix: Water
Date Received: 04/25/23 16:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	385846	WSE8	EET CF	04/28/23 17:06
Total/NA	Analysis	8260D		1	385982	WSE8	EET CF	05/01/23 12:44

Laboratory References:

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

Accreditation/Certification Summary

Client: Foth Infrastructure & Environment, LLC
Job ID: 310-254320-1
Project/Site: Carroll County Landfill
SDG: 23C002_23_04

Laboratory: Eurofins Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

Method Summary

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill

Job ID: 310-254320-1
SDG: 23C002_23_04

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF

Protocol References:

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

eurofins | Environment Testing America

310-254320 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Foth

City/State: CITY | STATE IA | Project:

Receipt Information

Date/Time Received: DATE 4-25-23 | TIME 1653 | Received By: MC

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ Lab Courier ☐ Lab Field Services ☒ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID:

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 1 of 2

Cooler Custody Seals Present? ☐ Yes ☒ No *If yes:* Cooler custody seals intact? ☐ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☒ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: W | Correction Factor (°C): 0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): -0.1 | Corrected Temp (°C): -0.1

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

eurofins | Environment Testing America

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Foth

City/State: CITY | STATE IA | Project:

Receipt Information

Date/Time Received: DATE 4-25-23 | TIME 1653 | Received By: MC

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ Lab Courier ☐ Lab Field Services ☒ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID:

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 2 of 2

Cooler Custody Seals Present? ☐ Yes ☒ No *If yes:* Cooler custody seals intact? ☐ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☒ Yes ☐ No *If yes:* Which VOA samples are in cooler? ↓

MW-119RR FD-1 FB-1 MW-200 MW-121R

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: W | Correction Factor (°C): 0

Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 0.1 | Corrected Temp (°C): 0.1

Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

Foth

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT All relevant fields must be completed accurately

Page: 1 of 1

COC Number: 1-3865545471-031323-568436

Company: Foth Infrastructure & Environment, LLC	Report To: Gina Wilming/Hannah Dubbs (Foth)	Requested Due Date:	Quote Reference:
Address: 411 6th Avenue SE, Suite 400	Copy To:	*TAT: Standard	Project Manager: Gina Wimling
Cedar Rapids, IA 52401	Invoice To: Mary Wittry (CCSWMC)		Project #: 23C002.00
Phone: (319) 365-9565	P O.		Profile #:
Email Addresses: gina.wilming@foth.com	Project Name: Carroll County Landfill	Regulatory Agency: Iowa DNR	Sampling Team Members: Tyler Merritt
hannah.dubbs@foth.com	Task #: 23C002_23_04	State Location: Iowa	

ITEM NUMBER	SAMPLE ID	Sample Location	MATRIX CODE	SAMPLE TYPE G = Grab C = Composite	DATE COLLECTED MM/DD/YYYY	TIME COLLECTED (Military time)	Preservatives: Total # Containers	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Requested Analysis: N	N	N	Filtered (Y/N)	REMARKS / Lab ID
															IA Appendix I List	TSS	IA App I VOCs Only		
1	GU-2A_23_04	GU-2A	WG	G	4/24/2023	16:50	5	1		1	3				X	X			
2	GU-4A_23_04	GU-4A	WG	G	—	—									X	X			No Sample Submitted
3	MW-119RR_23_04	MW-119RR	WG	G	4/25/2023	7:55	5	1		1	3				X	X			
4	MW-121R_23_04	MW-121R	WG	G	4/25/2023	9:05	5	1		1	3				X	X			
5	MW-122R_23_04	MW-122R	WG	G	4/24/2023	14:15	5	1		1	3				X	X			
6	MW-200_23_04	MW-200	WG	G	4/25/2023	9:50	5	1		1	3				X	X			
7	MW-204RR_23_04	MW-204RR	WG	G	—	—									X	X			No Sample Submitted
8	MW-205_23_04	MW-205	WG	G	4/24/2023	16:05	5	1		1	3				X	X			
9	MW-206_23_04	MW-206	WG	G	4/24/2023	15:15	5	1		1	3				X	X			
10	FB-1_23_04	FB-1	WQ	G	4/25/2023	8:30	5	1		1	3				X	X			
11	FD-1_23_04		WG	G	4/25/2023	—	5	1		1	3				X	X			
12	TB-1_23_04	Trip Blank	WQ	G	—	—	3				3						X		

			O.A.Tech Tyler Merritt	16:53	SJ 4/25/23 16:53

SAMPLE CONDITION:		SAMPLE NOTES:
Temp in C		
Received on Ice	Y / N	
Sealed Cooler	Y / N	
Sample Intact	Y / N	

Additional Comments:

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Tyler Merritt

SIGNATURE of SAMPLER: Tyler Merritt

DATE Signed 4/25/23

5/18/2023

Login Sample Receipt Checklist

Client: Foth Infrastructure & Environment, LLC

Job Number: 310-254320-1
SDG Number: 23C002_23_04

Login Number: 254320
List Number: 1
Creator: Costello, Mackenzie K

List Source: Eurofins Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
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 <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Data Validation Report

Project Name:	Carroll County Landfill Western Expansion Area (23C002.00)
Task Name:	23C002_23_04
Data Set Description:	Spring 2023 Groundwater Event
Laboratory(s):	Eurofins – Cedar Falls, IA
Laboratory Sample Delivery Group (SDG) ID(s):	310-254320-1
Sample Collection Dates:	4/24/2023 – 4/25/2023
Sample Analysis Dates:	4/26/2023 – 5/1/2023
Sample Matrices:	Groundwater
Sample IDs Reviewed:	See Table 1
Verification and Validation Stage, 100% data:	☐ 1 ☒ 2A ☐ 2B ☐ 3 ☐ 4
Verified and Validated By:	Hannah Dubbs, Project Environmental Scientist 6/19/2023

The analytical data were validated to verify that laboratory quality assurance and quality control (QA/QC) procedures were documented and to evaluate the overall quality of the data reported. Analytical reports include seven investigative groundwater samples collected via low-flow or no-purge sampling techniques at the Carroll County Landfill Western Expansion Area on April 24 and 25, 2023; samples are listed in Table 1. The data were collected in accordance with the Hydrologic Monitoring System Plan (HMSP) for the Carroll County Landfill Western Expansion Area (Foth, 2008), Iowa Department of Natural Resources (IDNR) Sanitary Disposal Permit Number 14-SDP-01-74P (including Permit Revisions), and 567 Iowa Administrative Code (IAC) 113.10.

Validation Summary

Stage 2A data validation was performed on 100% of the data from this SDG, with review tasks and items of note documented in the summary table below.

Validation Task and Description	Review Notes	Action
Chain of Custody (COC) and Sample Receipt Form Confirm relinquish & receipt signatures. Confirm parameters and analytical methods match COC and HMSP.	All appropriate relinquish and receipt signatures were present. The parameters and analytical methods requested were analyzed; however, Eurofins reported tin results for the investigative, field duplicate, and field blank samples although tin analysis was not requested. Since tin was an additional analyte, no additional actions are required.	Not applicable
Case Narrative Review for items noted by the laboratory that may impact the validation process.	The quality control issues noted in the case narratives were reviewed and found acceptable. Issues either were addressed in the comments below, had no impact on investigative samples, or were corrected/qualified by the laboratory. No additional actions are required. Note: continuing calibration verification (CCV) evaluation is not part of Stage 2A validation.	Not applicable

Validation Task and Description	Review Notes	Action
Sample Condition Upon Receipt (SCUR) Confirm samples in acceptable condition and no discrepancies noted. Confirm preservation meets method requirements.	Samples were received by Eurofins – Cedar Falls, IA in acceptable conditions.	Not applicable
Methods Requested Confirm methods match project requirements and lab provided all methods ordered.	The methods ordered and analyzed were performed in accordance with the project requirements. Methods include United States Environmental Protection Agency (USEPA) 8260D Volatile Organic Compounds (VOCs), USEPA 6020B Total Metals, and United States Geological Survey (USGS) I-3765-85 Total Suspended Solids.	Not applicable
Analytes Requested Confirm analytes ordered match project requirements and lab provided all analytes ordered.	The analytes requested were analyzed in accordance with the project requirements. The laboratory provided all analytes ordered. As noted in the COC and Sample Receipt Form Review Notes, Eurofins reported tin results for the investigative, field duplicate, and field blank samples although tin analysis was not requested.	Not applicable
Holding Times Confirm laboratory performed extractions and analyses within method-required holding times.	Eurofins performed analysis within the method-required holding times.	Not applicable
Blanks Confirm no detections in laboratory method blanks, field blanks, and trip blanks.	Table 3 presents analytes detected in the method, field blanks, and trip blanks. No detections were found in the method blanks. No qualifiers were assigned associated with the detects in the field and trip blanks. Toluene was detected in the field blank (FB-1_23_04) at a concentration of 0.763 J ug/L. In accordance with the *National Functional Guidelines for Organic Superfund Methods Data Review* (USEPA, 2020a) for VOCs, when the blank contamination concentration is J-flagged, associated non-detect sample results are not qualified. Acetone was detected in the trip blank (TB-1_23_04) at a concentration of 3.14 J ug/L. In accordance with the *National Functional Guidelines for Organic Superfund Methods Data Review* (USEPA, 2020a) for VOCs, when the blank contamination concentration is J-flagged, associated non-detect results are not qualified.	No qualifiers assigned No qualifiers assigned
Surrogates or Deuterated Monitoring Compounds For *organic analyses only*, confirm surrogates analyzed and surrogate recovery within QC limits.	Table 4 is intended to present surrogate recoveries that were outside the control limits. Surrogate recoveries were within control limits for this SDG.	Not applicable

Validation Task and Description	Review Notes	Action
Matrix Spike/Matrix Spike Duplicates (MS/MSDs) Confirm MS/MSDs analyzed at frequency specified by project requirements and MS/MSD percent recovery within lab specified limits. Confirm, for Organic analytes, MSD relative percent difference (RPD) within limits. For inorganic analytes, lab replicate RPD within limits.	MS/MSD quality control samples are not required for this project. As a result, no MS/MSD samples were collected or submitted for analysis. Where analyzed and reported by the laboratory, MS/MSD results associated with the samples in 310-254320-1are reviewed under Stage 2A validation guidelines. Table 5 presents MS/MSD recoveries and RPDs that were outside the control limits. Qualifiers are assigned in Table 9. The xylenes, total MS/MSD recoveries associated with GU-2A_23_04 were below the recovery limit (44%-130%), indicating potential low bias. In accordance with the *National Functional Guidelines for Organic Superfund Methods Data Review* (USEPA, 2020a) for VOCs, when MS/MSD recoveries are above the expanded lower acceptance limit but below the lower acceptance limit, associated non-detects are qualified UJ.	No qualifiers assigned
Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Confirm LCS analyzed and LCS/LCSD recovery and RPD within lab specified limits.	LCS/LCSD quality control samples are not required for this project. Where analyzed and reported by the laboratory, LCS/LCSD results associated with method batches in 310-254320-1 are reviewed under Stage 2A validation guidelines. Table 6 presents the LCS/LCSD recoveries and RPDs that were outside the control limits. No qualifiers were assigned due to the LCS/LCSD recovery exceedances. The antimony and silver LCS recoveries associated with prep batch 385625 were above the recovery limit (80%-120%), indicating potential high bias. In accordance with the *National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA, 2020b) for inductively coupled plasma mass spectrometry (ICP-MS) metals, when LSC recovery is above the specified recovery limit but within 70%-130% (and no LCSD recovery is reported), qualifiers are not assigned for non-detect and detected sample results from the same prep batch.	Not applicable
Laboratory Duplicates Confirm lab duplicates analyzed and RPD within lab specified limits.	Laboratory duplicate quality control samples are not required for this project. Where analyzed and reported by the laboratory, laboratory duplicate results associated with the samples in 310-254320-1 are reviewed under Stage 2A validation guidelines. Table 7 is intended to present the lab duplicate sample RPDs that were outside the RPD limits. RPDs were within the lab specified RPD limits for this SDG where calculated.	Not applicable
Field Duplicates Confirm field duplicates collected at required frequency and field duplicate RPD within acceptable limits.	Field duplicate samples were collected at 1 per 10 frequencies, in accordance with the project requirements. Table 8 contains the precision evaluation of the parent/field duplicate samples. The RPDs between the investigative and field duplicate sample were within the duplicate sample validation criteria.	Not applicable

Abbreviations:
COC = chain of custody
CCV = continuing calibration verification
HMSP = Hydrologic Monitoring System Plan
ICP-MS = inductively coupled plasma mass spectrometry
LCS = laboratory control sample
LCSD = laboratory control sample duplicate
MS = matrix spike
MSD = matrix spike duplicate
RPD = relative percent difference
SCUR = sample condition upon receipt
SDG = sample delivery group
SOP = Standard Operating Procedure
ug/L = micrograms per liter
USEPA = United States Environmental Protection Agency
USGS = United States Geological Survey
VOC = volatile organic compound

Overall Assessment of Data

Item	Acceptable		Comments
	Yes	No	
1. Method Criteria	X		Samples were collected, preserved, shipped/delivered, and analyzed within the method protocols.
2. Precision	X		Field precision was evaluated through investigative and field duplicate RPDs. The RPDs between the investigative and field duplicate samples were within the duplicate sample validation criteria. Laboratory precision is evaluated through MS/MSD, LCS/LCSD, and laboratory duplicate RPDs. Where analyzed and reported by the laboratory, MS/MSD, LCS/LCSD, and laboratory duplicate RPDs were within control limits; therefore, were found acceptable.
3. Accuracy	X		Accuracy was evaluated through surrogate, MS/MSD, and LCS/LCD recovery. The % recoveries for surrogate samples were within control limits. With the exceptions identified below, MS/MSD and LCS/LCSD recoveries were within control limits. The xylenes, total MS/MSD recoveries associated with GU-2A_23_04 were below the recovery limit. Details are provided in the MS/MSD Review Notes of the Validation Summary above. A qualifier was assigned for xylenes, total in GU-2A_23_04 as shown in Table 9. The antimony and silver LCS recoveries associated with prep batch 385625 were above the recovery limit. Details are provided in the LCS/LCSD Review Notes of the Validation Summary above. No qualifiers were assigned.
4. Representativeness	X		Sampling was conducted in accordance with the sample collection procedures described in the approved HMSP, approved HMSP revisions, and standard operating procedures (SOPs).
5. Comparability	X		Collection techniques, measurement procedures, methods, and reporting were equivalent to currently approved procedures and are comparable to historical data.

Item	Acceptable		Comments
	Yes	No	
6. Completeness	X		Valid analytical results exceeded 90%.
7. Suitability for Intended Use	X		No evidence of gross contamination or significant issues with the method criteria, precision, accuracy, representativeness, comparability, or completeness were identified.

Overall, the data reported are of good quality and the results for the applicable (QA/QC) measurements that were used by the laboratories during the analysis of the samples were generally acceptable. Some sample results required qualification during data validation because method-specific QA/QC criteria were not met; results may be qualified for more than one reason. These qualified data are usable, represent data of good quality and reasonable confidence, and have an acceptable degree of uncertainty (i.e., may be less precise or less accurate than unqualified data). Table 2 provides a definition of the qualifiers that may be assigned by the validator and/or retained from the laboratory. A summary of the validation qualifiers is provided below.

- No results were qualified as estimated (assigned as J qualifiers), biased low (assigned as J- qualifier), biased high (assigned as J+ qualifiers), non-detect with the reporting limit an estimated value biased high or low (assigned as UJ+ or UJ- qualifiers), non-detect at a concentration less than the reporting limit or less than the sample result (assigned as U qualifier), presumptive evidence of presence of an analyte (assigned as N or NJ qualifiers), or not usable and rejected (assigned as R qualifier).
- One result (0.16%) was qualified as non-detect with the reporting limit an estimated value (assigned as UJ qualifier).
- 100% of the data is usable for project data quality objectives.

Attachment 1

Tables

Table 1
Sample IDs Reviewed

Project Sample ID	Analyzed Lab Sample ID	Project Sample ID Matches Lab Client Sample ID	Lab Sample Date/Time Match COC/Logbook	Parameters and Analytical Methods Match COC	Sample Type
GU-2A_23_04	310-254320-1	Yes	Yes	Yes	Normal
MW-119RR_23_04	310-254320-2	Yes	Yes	Yes	Normal
MW-121R_23_04	310-254320-3	Yes	Yes	Yes	Normal
MW-122R_23_04	310-254320-4	Yes	Yes	Yes	Normal
MW-200_23_04	310-254320-5	Yes	Yes	Yes	Normal
MW-205_23_04	310-254320-6	Yes	Yes	Yes	Normal
MW-206_23_04	310-254320-7	Yes	Yes	Yes	Normal
FB-1_23_04	310-254320-8	Yes	Yes	Yes	FB
FD-1_23_04	310-254320-9	Yes	Yes	Yes	FD
TB-1_23_04	310-254320-10	Yes	Yes	Yes	TB

Notes:
FB = field blank
FD = field duplicate
TB = trip blank

Table 2
Explanation of Qualifiers

Qualifier	Explanation
U	The analyte was analyzed for and was not detected above the numerical quantitation limit.
J	The analyte was analyzed for and was positively identified, but the analytical result (i.e., quantitation) is an estimated value. In some cases it is recognized that the estimated value is biased high (J+) suggesting the actual value is lower than estimated; or biased low (J-) suggesting the actual value is higher than estimated.
UJ	The analyte was analyzed for and was not detected above the reporting limit, but the reporting limit is an estimated value.
R	The analyte was analyzed for but may or may not be present and/or quantifiable due to quality control issues. The analytical result is not usable and should be rejected.
N	The analysis indicates presumptive evidence of the presence of the analyte.
NJ	The analysis indicates presumptive evidence of the presence of the analyte, but the numerical value is an estimated quantity.

Notes:
Results qualified as “J” or “UJ” are of acceptable data quality and may be used quantitatively per United States Environmental Protection Agency guidelines.

Table 3
Method, Field, and Trip Blank Exceedances

Lab Report	Blank Type	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Parameter	Result	Units	Lab Qualifier	MDL	PQL	Associated Samples
310-254320-1	FB	310-254320-8	FB-1_23_04	385846	N/A	Toluene	0.763	ug/L	J	0.430	1.00	Investigative and FD samples in 310-254320-1
310-254320-1	TB	310-254320-10	TB-1_23_04	385846	N/A	Acetone	3.14	ug/L	J	3.10	10.0	Investigative and FD samples in 310-254320-1

Notes:
FB = field blank
FD = field duplicate
MDL = minimum detection limit
N/A = not applicable
PQL = practical quantitation limit
TB = trip blank
ug/L =micrograms per liter

Table 4
Surrogate Recovery Exceedances

Lab Sample ID	Parent Sample	Parameter	Surrogate % Recovery	% Recovery Limits
Surrogate recoveries were within control limits for this Sample Delivery Group.				

Notes:
% = percent

Table 5
Matrix Spike - Matrix Spike Duplicate Exceedances

Lab Sample ID	Parent Sample	Parameter	MS % Recovery	MSD % Recovery	% Recovery Limits	RPD	RPD Limit
310-254320-1 MS	GU-2A_23_04	Xylenes, Total	43	42	44-130	2	20
310-254320-1 MSD							

Notes:
% = percent
MS = matrix spike
MSD = matrix spike duplicate
RPD = relative percent difference

Table 6
Laboratory Control Sample and Laboratory Control Sample Duplicate Exceedances

Lab Sample ID	Associated SDG Batch	Parameter	LCS % Recovery	LCSD % Recovery	% Recovery Limits		RPD	RPD Limit
LCS 310-385625/2-A	385625	Antimony	126	N/A	80	120	N/A	N/A
No LCSD Reported								
LCS 310-385625/2-A	385625	Silver	123	N/A	80	120	N/A	N/A
No LCSD Reported								

Notes:
% = percent
LCS = laboratory control sample
LSCD = laboratory control sample duplicate
N/A = not applicable
RPD = relative percent difference

Table 7
Laboratory Duplicate Sample Exceedances

Lab Sample ID	Client Sample ID	Parameter	RPD	RPD Limit
Lab duplicate sample RPDs were within the RPD limits for this Sample Delivery Group.				

Notes:
RPD = relative percent difference

Table 8
Relative Percent Difference (RPD) Analysis for Field Duplicate Samples
Appendix I Constituents & TSS

RPD = $\frac{\text{absolute value (a - b)}}{\text{(a + b)/2}}$ **x 100%**

Acceptance Criteria*: 35%

* Unless otherwise noted in project planning documents, the acceptance criteria for field duplicates RPD is as follows:
- For analytes with concentrations greater than 5x (2x for soil matrices) the reporting limit, the RPD should be within 35% for water matrices (50% for soil matrices).
- For analytes with either or both concentrations less than 5x (2x for soil matrices) the reporting limit (indicated below by "low-level"), the absolute difference between the sample and field duplicate should not exceed 5x the reporting limit.

Duplicate Result Analysis:

Parameter	Unit	Parent	Duplicate Sample	RPD	Acceptable?
		MW-119RR_23_04	FD-1_23_04		
Arsenic	mg/L	0.00260	0.00254	low-level	Yes
Barium	mg/L	0.642	0.649	1.1%	Yes
Cobalt	mg/L	0.00314	0.00316	0.6%	Yes
Nickel	mg/L	0.0154	0.0158	low-level	Yes
Total Suspended Solids	mg/L	1.88	< 1.70	low-level	Yes

Table 9
Qualified Results from Data Validation

Sample ID	Lab Sample ID	Method	Parameter	Result	Lab Qualifier	Units	Qualified Result	Validator Qualifier	Explanation
GU-2A_23_04	310-253320-1	USEPA 8260	Xylenes, Total	<0.400	U	ug/L	<0.400	UJ	Associated MS/MSD recoveries were below lower acceptance limit, indicating potential low bias.

Notes:
This table only lists validator qualified data. Not all laboratory qualified data are listed; only the laboratory qualified data that was validator qualified are included.
< = less than
MS = matrix spike
MSD = matrix spike duplicate
ug/L = micrograms per liter
USEPA = United States Environmental Protection Agency

Attachment 2

References

References

Foth, 2008. *Hydrologic Monitoring System and Gas Monitoring Plan, Carroll County Sanitary Landfill Western Expansion Area*. January. [Doc #16450].

United States Environmental Protection Agency (USEPA), 2020a. *National Functional Guidelines for Organic Superfund Methods Data Review.* EPA-540-R-20-005. Office of Superfund Remediation and Technology Innovation, Washington, D.C. Revised November 2020.

USEPA, 2020b. *National Functional Guidelines for Inorganic Superfund Methods Data Review.* EPA-542-R-20-006. Office of Superfund Remediation and Technology Innovation, Washington, D.C. Revised November 2020.

September 2023 Sampling Event

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	GU-2A	Weather:	Fair, 52 - 72°F, winds vairiable @ 0 -10 mph
Date:	9/13/2023	Personnel:	Hannah Dubbs (Foth)

Location Details

Description of Sample Location: GU-2A is the compliance point for the groundwater underdrains for Phases 2A and 2B/3. The underdrain systems beneath Phases 2A and 2B/3 gravity drain to the north of the cells where they tie together. From there, groundwater gravity drains to the drainage way north of the Western Expansion Area, where it outlets at GU-2A. Sample is collected directly from the GU-2A discharge pipe.

Conditions commentary:

Sampling Details

Sampling Method: ___ Pump (low flow) ___ No-purge (specify sample interval): ___
___ Bailer X Other (specify): Grab sample from discharge pipe

Equipment type: ___ Submersible pump ___ Peristaltic pump ___ Bladder pump
___ Inertial lift pump ___ Bailer ___ No-purge (specify): ___
___ Other (specify): ___

Equipment name/description: Not Applicable Dedicated? (Y/N): N/A Disposable? (Y/N): N/A
Decontamination method: Not Applicable

Equipment depth (ft. MSL:)	Flow Rate (mL/min):	Volume removed (gal):	Volume sampled (L):
N/A	N/A	N/A	1.37

Well dry? (Y/N): No Odor? (Y/N): No Color? (Y/N): No

Sample Name(s)	Method(s)	Container(s)	Filtered? (if yes, filter size)
GU-2A_23_09	EPA 8260D - Appendix I VOCs	(3) VOA Vial 40 mL - HCl	No
	EPA 6020B - Appendix I Total Metals	(1) Plastic 250 mL - HNO_3	No
	USGS I-3765-85 - TSS	(1) Plastic 1 Liter - Unpreserved	No

Field Analysis

	Final Reading
Time	12:46
Temp (°C)	21.92
Sp. Cond (umhos/cm)	712.90
pH	7.21
DO (mg/l)	4.23
ORP (mV)	171.1
Turbidity (NTU)	0.51

Comments:

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	GU-4A	Weather:	Fair, 52 - 75°F, winds variable @ 0 - 10 mph
Date:	9/12/2023	Personnel:	Hannah Dubbs (Foth)

Location Details

Description of Sample Location: GU-4A is the compliance point for the groundwater underdrain for Phase 4A/4B/5A. Phase 4A/4B/5A was constructed with an independent groundwater underdrain system that drains south through the cell to the stormwater maintenance hole located on the south side of the sedimentation pond. At the maintenance hole, groundwater is combined with stormwater from the sedimentation pond and outlets to the surface on the south side of the sedimentation pond. The sample is collected from the vertical sample riser located prior to the maintenance hole. Samples will be collected when the depth to groundwater in the vertical riser is at or above 11.27' (the bottom of pipe elevation for the perpendicular underdrain discharge line). This will ensure that samples are collected when the underdrain is flowing.

Conditions commentary:

Sampling Details

Sampling Method: ___ Pump (low flow) ___ No-purge (specify sample interval): ___
___ Bailer X Other (specify): Sample not collected

Equipment type: ___ Submersible pump ___ Peristaltic pump ___ Bladder pump
___ Inertial lift pump ___ Bailer ___ No-purge (specify): ___
___ Other (specify): ___

Equipment name/description: ___ Dedicated? (Y/N): ___ Disposable? (Y/N): ___
Decontamination method: ___

Equipment depth (ft. MSL:) N/A | Flow Rate (mL/min): N/A | Volume removed (gal): N/A | Volume sampled (L): N/A
Well dry? (Y/N): Yes | Odor? (Y/N): N/A | Color? (Y/N): N/A

Sample Name(s)	Method(s)	Container(s)	Filtered? (if yes, filter size)
	Sample not collected	N/A	N/A

Field Analysis

	Final Reading
Time	N/A
Temp (°C)	N/A
Sp. Cond (umhos/cm)	N/A
pH	N/A
DO (mg/l)	N/A
ORP (mV)	N/A
Turbidity (NTU)	N/A

Comments: Insufficient water in casing for sample collection.

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-118	Weather:	Fair, 52 - 75°F, winds variable @ 0 - 10 mph
Date:	9/12/2023	Personnel:	Hannah Dubbs (Foth)

Monitoring Well Details

Borehole diameter (in): 8 Casing Diameter (in): 2 Ground surface elevation (ft. MSL): 1286.25

Top of screen (ft. MSL): 1268.68 Materials: PVC Top of Casing elevation (ft. MSL): 1289.25

Locked (Y/N): Yes

	Static WL	Before purging	Before sampling
Water Level (ft. TOC):	21.27	N/A	N/A
Water elevation (ft. MSL)	1267.98	N/A	N/A

3 Well Volumes (gal): 4.52 Screen submerged? (Y/N): No

	Constructed	Measured	Difference
Well Depth (ft. TOC):	30.57	30.52	0.05

Well conditions commentary: See Well Maintenance Evaluation Form for details.

Sampling Details

Sampling Method: ___ Pump (low flow) ___ No-purge (specify sample interval): ___

___ Bailer X Other (specify): Water Level Only - No Sample

Equipment type: ___ Submersible pump ___ Peristaltic pump ___ Bladder pump

___ Inertial lift pump ___ Bailer ___ No-purge (specify): ___

___ Other (specify): ___

Equipment name/description: ___ Dedicated? (Y/N): ___ Disposable? (Y/N): ___

Decontamination method: ___

Equipment depth (ft. MSL:)	N/A	Flow Rate (mL/min):	N/A	Volume removed (gal):	N/A
Volume sampled (L):	N/A				
Well dry? (Y/N):	No	Odor? (Y/N):	N/A	Color? (Y/N):	N/A

Sample Name(s)	Method(s)	Container(s)	Filtered? (if yes, filter size)
	Sample not collected	N/A	N/A

Field Analysis

	Final Reading
Time	N/A
Temp (°C)	N/A
Sp. Cond (umhos/cm)	N/A
pH	N/A
DO (mg/l)	N/A
ORP (mV)	N/A
Turbidity (NTU)	N/A

Comments: Water level monitoring location only.

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-119RR	Weather:	Fair, 52 - 72°F, winds vairiable @ 0 -10 mph
Date:	9/13/2023	Personnel:	Hannah Dubbs (Foth)

Monitoring Well Details

Borehole diameter (in):	8.25	Casing Diameter (in):	2	Ground surface elevation (ft. MSL):	1285.33
Top of screen (ft. MSL):	1265.83	Materials:	PVC	Top of Casing elevation (ft. MSL):	1288.29
Locked (Y/N):	Yes				

	Static WL	Before purging	Before sampling
Water Level (ft. TOC):	25.28	25.28	25.79
Water elevation (ft. MSL)	1263.01	1263.01	1262.50

3 Well Volumes (gal): 3.92 Screen submerged? (Y/N): No

	Constructed	Measured	Difference
Well Depth (ft. TOC):	33.29	33.16	0.13

Well conditions commentary: See Well Maintenance Evaluation Form for details.

Sampling Details

Sampling Method: X Pump (low flow) ___ No-purge (specify sample interval): ___
___ Bailer ___ Other (specify): ___

Equipment type: ___ Submersible pump X Peristaltic pump ___ Bladder pump
___ Inertial lift pump ___ Bailer ___ No-purge (specify): ___
___ Other (specify): ___

Equipment name/description: GeoTech Peristaltic Dedicated? (Y/N): No Disposable? (Y/N): No
Decontamination method: disposable tubing

Equipment depth (ft. MSL:)	1258.29	Flow Rate (mL/min):	200	Volume removed (gal):	0.5	Volume sampled (L):	1.37
Well dry? (Y/N):	No	Odor? (Y/N):	No			Color? (Y/N):	No

Sample Name(s)	Method(s)	Container(s)	Filtered? (if yes, filter size)
MW-119RR_23_09	EPA 8260D - Appendix I VOCs	(3) VOA Vial 40 mL - HCl	No
	EPA 6020B - Appendix I Total Metals	(1) Plastic 250 mL - HNO_3	No
	USGS I-3765-85 - TSS	(1) Plastic 1 Liter - Unpreserved	No

Field Analysis

			Final Reading
Elapsed Time	3:04	4:36	6:08
Temp (°C)	13.95	13.85	13.77
Sp. Cond (umhos/cm)	990.03	993.89	997.33
pH	6.29	6.27	6.27
DO (mg/l)	0.14	0.11	0.10
ORP (mV)	65.5	62.5	56.4
Turbidity (NTU)	0.00	0.00	0.00

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-119RR	Weather:	Fair, 52 - 72°F, winds vairiable @ 0 -10 mph
Date:	9/13/2023	Personnel:	Hannah Dubbs (Foth)

Comments: Collected field duplicate (FD-1_23_09) at MW-119RR.

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-121R	Weather:	Fair, 52 - 72°F, winds vairiable @ 0 -10 mph
Date:	9/13/2023	Personnel:	Hannah Dubbs (Foth)

Monitoring Well Details

Borehole diameter (in):	8.25	Casing Diameter (in):	2	Ground surface elevation (ft. MSL):	1279.97
Top of screen (ft. MSL):	1264.97	Materials:	PVC	Top of Casing elevation (ft. MSL):	1284.19
Locked (Y/N):	Yes				

	Static WL	Before purging	Before sampling
Water Level (ft. TOC):	23.62	23.62	24.03
Water elevation (ft. MSL)	1260.57	1260.57	1260.16

3 Well Volumes (gal): 2.74 Screen submerged? (Y/N): No

	Constructed	Measured	Difference
Well Depth (ft. TOC):	29.22	28.86	0.36

Well conditions commentary: See Well Maintenance Evaluation Form for details.

Sampling Details

Sampling Method: X Pump (low flow) ____ No-purge (specify sample interval): ____
____ Bailer ____ Other (specify): ____

Equipment type: ____ Submersible pump X Peristaltic pump ____ Bladder pump
____ Inertial lift pump ____ Bailer ____ No-purge (specify): ____
____ Other (specify): ____

Equipment name/description: GeoTech Peristaltic Dedicated? (Y/N): No Disposable? (Y/N): No
Decontamination method: disposable tubing

Equipment depth (ft. MSL):	Flow Rate (mL/min):	Volume removed (gal):	Volume sampled (L):
1258.19	190	0.6	1.37

Well dry? (Y/N): No Odor? (Y/N): No Color? (Y/N): No

Sample Name(s)	Method(s)	Container(s)	Filtered? (if yes, filter size)
MW-121R_23_09	EPA 8260D - Appendix I VOCs	(3) VOA Vial 40 mL - HCl	No
	EPA 6020B - Appendix I Total Metals	(1) Plastic 250 mL - HNO_3	No
	USGS I-3765-85 - TSS	(1) Plastic 1 Liter - Unpreserved	No

Field Analysis

			Final Reading
Elapsed Time	4:30	6:00	7:30
Temp (°C)	15.21	15.14	14.99
Sp. Cond (umhos/cm)	1170.7	1171.0	1172.3
pH	6.08	6.08	6.08
DO (mg/l)	0.25	0.22	0.19
ORP (mV)	39.5	42.4	45.8
Turbidity (NTU)	1.34	3.04	0.00

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-121R	Weather:	Fair, 52 - 72°F, winds vairiable @ 0 -10 mph
Date:	9/13/2023	Personnel:	Hannah Dubbs (Foth)

Comments:

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-122R	Weather:	Fair, 52 - 72°F, winds vairiable @ 0 -10 mph
Date:	9/13/2023	Personnel:	Hannah Dubbs (Foth)

Monitoring Well Details

Borehole diameter (in):	8	Casing Diameter (in):	4	Ground surface elevation (ft. MSL):	1314.24
Top of screen (ft. MSL):	1302.24	Materials:	PVC	Top of Casing elevation (ft. MSL):	1317.21
Locked (Y/N):	Yes				

	Static WL	Before purging	Before sampling
Water Level (ft. TOC):	27.65	N/A	N/A
Water elevation (ft. MSL)	1289.56	N/A	N/A

3 Well Volumes (gal): 4.54 Screen submerged? (Y/N): No

	Constructed	Measured	Difference
Well Depth (ft. TOC)	29.97	30.45	0.48

Well conditions commentary: See Well Maintenance Evaluation Form for details.

Sampling Details

Sampling Method: ___ Pump (low flow) X No-purge (specify sample interval): Mid-Screen
___ Bailer ___ Other (specify):

Equipment type: ___ Submersible pump ___ Peristaltic pump ___ Bladder pump
___ Inertial lift pump X* Bailer ___ No-purge (specify):
___ Other (specify):

Equipment name/description: Bailer Dedicated? (Y/N): No Disposable? (Y/N): Yes
Decontamination method: disposable bailer and string

Equipment depth (ft. MSL:)	1287.21	Flow Rate (mL/min):	100	Volume removed (gal):	N/A
Well dry? (Y/N):	No	Odor? (Y/N):	No	Volume sampled (L):	1.37
				Color? (Y/N):	No

Sample Name(s)	Method(s)	Container(s)	Filtered? (if yes, filter size)
MW-122R_23_09	EPA 8260D - Appendix I VOCs	(3) VOA Vial 40 mL - HCl	No
	EPA 6020B - Appendix I Total Metals	(1) Plastic 250 mL - HNO_3	No
	USGS I-3765-85 - TSS	(1) Plastic 1 Liter - Unpreserved	No

Field Analysis

	Final Reading
Time	13:35
Temp (°C)	17.62
Sp. Cond (umhos/cm)	710.60
pH	7.44
DO (mg/l)	8.87
ORP (mV)	145.7
Turbidity (NTU)	2.48

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-122R	Weather:	Fair, 52 - 72°F, winds vairiable @ 0 -10 mph
Date:	9/13/2023	Personnel:	Hannah Dubbs (Foth)

Comments: *The sample was collected with a bailer since the water column head was insufficient for the use of a peristaltic pump.

No purge sampling conducted since the well recharge rate is less than 100 mL/min. Field measurements were collected after the sample was collected by placing the device in a bag filled with the sample collected from the bailer.

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-200	Weather:	Partly cloudy, 43°F, ENE wind @ 11 mph
Date:	9/13/2023	Personnel:	Hannah Dubbs (Foth)

Monitoring Well Details

Borehole diameter (in): 8 Casing Diameter (in): 2 Ground surface elevation (ft. MSL): 1285.91
Top of screen (ft. MSL): 1264.91 Materials: PVC Top of Casing elevation (ft. MSL): 1288.46
Locked (Y/N): Yes

	Static WL	Before purging	Before sampling
Water Level (ft. TOC):	21.84	21.84	25.16
Water elevation (ft. MSL)	1266.62	1266.62	1263.30

3 Well Volumes (gal): 5.57 Screen submerged? (Y/N): Yes

	Constructed	Measured	Difference
Well Depth (ft. TOC)	33.23	33.53	0.30

Well conditions commentary: See Well Maintenance Evaluation Form for details.

Sampling Details

Sampling Method: X Pump (low flow) ___ No-purge (specify sample interval): ___
___ Bailer ___ Other (specify): ___

Equipment type: ___ Submersible pump X Peristaltic pump ___ Bladder pump
___ Inertial lift pump ___ Bailer ___ No-purge (specify): ___
___ Other (specify): ___

Equipment name/description: GeoTech Peristaltic Dedicated? (Y/N): No Disposable? (Y/N): No
Decontamination method: disposable tubing

Equipment depth (ft. MSL:) 1262.46 Flow Rate (mL/min): 200 Volume removed (gal): 0.5 Volume sampled (L): 1.37
Well dry? (Y/N): No Odor? (Y/N): No Color? (Y/N): No

Sample Name(s)	Method(s)	Container(s)	Filtered? (if yes, filter size)
MW-200_23_09	EPA 8260D - Appendix I VOCs	(3) VOA Vial 40 mL - HCl	No
	EPA 6020B - Appendix I Total Metals	(1) Plastic 250 mL - HNO_3	No
	USGS I-3765-85 - TSS	(1) Plastic 1 Liter - Unpreserved	No

Field Analysis

			Final Reading
Elasped Time	2:44	4:06	5:28
Temp (°C)	14.94	14.83	14.77
Sp. Cond (umhos/cm)	966.26	965.26	968.79
pH	6.63	6.61	6.59
DO (mg/l)	3.69	3.48	3.17
ORP (mV)	256.1	255.7	255.3
Turbidity (NTU)	4.75	2.83	2.45

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-200	Weather:	Partly cloudy, 43°F, ENE wind @ 11 mph
Date:	9/13/2023	Personnel:	Hannah Dubbs (Foth)

Comments:

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-201	Weather:	Fair, 52 - 75°F, winds variable @ 0 - 10 mph
Date:	9/12/2023	Personnel:	Hannah Dubbs (Foth)

Monitoring Well Details

Borehole diameter (in): 8 Casing Diameter (in): 2 Ground surface elevation (ft. MSL): 1288.86
Top of screen (ft. MSL): 1258.86 Materials: PVC Top of Casing elevation (ft. MSL): 1291.98
Locked (Y/N): Yes

	Static WL	Before purging	Before sampling
Water Level (ft. TOC):	16.97	N/A	N/A
Water elevation (ft. MSL)	1275.01	N/A	N/A

3 Well Volumes (gal): 14.93 Screen submerged? (Y/N): Yes

	Constructed		Difference
Well Depth (ft. TOC):	48.12	47.51	0.61

Well conditions commentary: See Well Maintenance Evaluation Form for details.

Sampling Details

Sampling Method: ___ Pump (low flow) ___ No-purge (specify sample interval): ___
___ Bailer X Other (specify): Water Level Only - No Sample

Equipment type: ___ Submersible pump ___ Peristaltic pump ___ Bladder pump
___ Inertial lift pump ___ Bailer ___ No-purge (specify): ___
___ Other (specify): ___

Equipment name/description: ___ Dedicated? (Y/N): ___ Disposable? (Y/N): ___
Decontamination method: ___

Equipment depth (ft. MSL:) N/A Flow Rate (mL/min): N/A Volume removed (gal): N/A Volume sampled (L): N/A
Well dry? (Y/N): No Odor? (Y/N): N/A Color? (Y/N): N/A

Sample Name(s)	Method(s)	Container(s)	Filtered? (if yes, filter size)
	Sample not collected	N/A	N/A

Field Analysis

	Final Reading
Time	N/A
Temp (°C)	N/A
Sp. Cond (umhos/cm)	N/A
pH	N/A
DO (mg/l)	N/A
ORP (mV)	N/A
Turbidity (NTU)	N/A

Comments: Water level monitoring location only.

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-203	Weather:	Fair, 52 - 75°F, winds variable @ 0 - 10 mph
Date:	9/12/2023	Personnel:	Hannah Dubbs (Foth)

Monitoring Well Details

Borehole diameter (in):	8	Casing Diameter (in):	2	Ground surface elevation (ft. MSL):	1301.73
Top of screen (ft. MSL):	1286.73	Materials:	PVC	Top of Casing elevation (ft. MSL):	1304.29
Locked (Y/N):	Yes				

	Static WL	Before purging	Before sampling
Water Level (ft. TOC):	20.80	N/A	N/A
Water elevation (ft. MSL)	1283.49	N/A	N/A

3 Well Volumes (gal): 8.39 Screen submerged? (Y/N): No

	Constructed	Measured	Difference
Well Depth (ft. TOC):	37.56	37.96	0.4

Well conditions commentary: See Well Maintenance Evaluation Form for details.

Sampling Details

Sampling Method: ___ Pump (low flow) ___ No-purge (specify sample interval): ___
___ Bailer X Other (specify): Water Level Only - No Sample

Equipment type: ___ Submersible pump ___ Peristaltic pump ___ Bladder pump
___ Inertial lift pump ___ Bailer ___ No-purge (specify): ___
___ Other (specify): ___

Equipment name/description: ___ Dedicated? (Y/N): ___ Disposable? (Y/N): ___
Decontamination method: ___

Equipment depth (ft. MSL:)	N/A	Flow Rate (mL/min):	N/A	Volume removed (gal):	N/A
Well dry? (Y/N):	No	Odor? (Y/N):	N/A	Volume sampled (L):	N/A
				Color? (Y/N):	N/A

Sample Name(s)	Method(s)	Container(s)	Filtered? (if yes, filter size)
	Sample not collected	N/A	N/A

Field Analysis

	Final Reading
Time	N/A
Temp (°C)	N/A
Sp. Cond (umhos/cm)	N/A
pH	N/A
DO (mg/l)	N/A
ORP (mV)	N/A
Turbidity (NTU)	N/A

Comments: Water level monitoring location only.

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-204RR	Weather:	Fair, 52 - 75°F, winds variable @ 0 - 10 mph
Date:	9/12/2023	Personnel:	Hannah Dubbs (Foth)

Monitoring Well Details

Borehole diameter (in):	8.25	Casing Diameter (in):	2	Ground surface elevation (ft. MSL):	1289.96
Top of screen (ft. MSL):	1249.96	Materials:	PVC	Top of Casing elevation (ft. MSL):	1292.47
Locked (Y/N):	Yes				

	Static WL	Before purging	Before sampling
Water Level (ft. TOC):	52.37	N/A	N/A
Water elevation (ft. MSL)	1240.10	N/A	N/A

3 Well Volumes (gal): N/A Screen submerged? (Y/N): No

	Constructed	Measured	Difference
Well Depth (ft. TOC):	52.67	52.62	0.05

Well conditions commentary: See Well Maintenance Evaluation Form for details.

Sampling Details

Sampling Method: ___ Pump (low flow); ___ No-purge (specify sample interval): ___
___ Bailer; X Other (specify): Sample not collected*

Equipment type: ___ Submersible pump; ___ Peristaltic pump; ___ Bladder pump
___ Inertial lift pump; ___ Bailer; ___ No-purge (specify): ___
___ Other (specify): ___

Equipment name/description: ___ Dedicated? (Y/N): No Disposable? (Y/N): No
Decontamination method: ___

Equipment depth (ft. MSL:)	N/A	Flow Rate (mL/min):	N/A	Volume removed (gal):	N/A
Volume sampled (L):	N/A				
Well dry? (Y/N):	No	Odor? (Y/N):	N/A	Color? (Y/N):	N/A

Sample Name(s)	Method(s)	Container(s)	Filtered? (if yes, filter size)
	Sample not collected*	N/A	N/A

Field Analysis

	Final Reading
Time	N/A
Temp (°C)	N/A
Sp. Cond (umhos/cm)	N/A
pH	N/A
DO (mg/l)	N/A
ORP (mV)	N/A
Turbidity (NTU)	N/A

Comments: * Replacement well MW-204RR was installed on July 8, 2020 to replace MW-204R. MW-204RR was dry at the time of installation and remained dry through the Winter 2020 sampling event. Groundwater was measured in the casing in 2021 - 2023; however, the volumes were insufficient for sample collection. The confining hydrogeologic conditions have been exacerbated by clay placement and compaction activities from construction of Phases 5B and 6 and by drought conditions.

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-205	Weather:	Fair, 52 - 75°F, winds variable @ 0 - 10 mph
Date:	9/12/2023	Personnel:	Hannah Dubbs (Foth)

Monitoring Well Details

Borehole diameter (in):	8.25	Casing Diameter (in):	2	Ground surface elevation (ft. MSL):	1293.47
Top of screen (ft. MSL):	1244.30	Materials:	PVC	Top of Casing elevation (ft. MSL):	1296.46
Locked (Y/N):	Yes				

	Static WL	Before purging	Before sampling
Water Level (ft. TOC):	38.35	N/A	N/A
Water elevation (ft. MSL)	1258.11	N/A	N/A

3 Well Volumes (gal): 11.64 Screen submerged? (Y/N): Yes

	Constructed	Measured	Difference
Well Depth (ft. TOC):	62.16	62.27	0.11

Well conditions commentary: See Well Maintenance Evaluation Form for details.

Sampling Details

Sampling Method: ___ Pump (low flow) X No-purge (specify sample interval): Mid-Screen
___ Bailer ___ Other (specify):

Equipment type: ___ Submersible pump ___ Peristaltic pump ___ Bladder pump
___ Inertial lift pump X* Bailer ___ No-purge (specify):
___ Other (specify):

Equipment name/description: Bailer Dedicated? (Y/N): No Disposable? (Y/N): Yes
Decontamination method: disposable bailer and string

Equipment depth (ft. MSL:)	1241.46	Flow Rate (mL/min):	100	Volume removed (gal):	N/A
Well dry? (Y/N):	No	Odor? (Y/N):	No	Volume sampled (L):	1.37
				Color? (Y/N):	No

Sample Name(s)	Method(s)	Container(s)	Filtered? (if yes, filter size)
MW-205_23_09	EPA 8260D - Appendix I VOCs	(3) VOA Vial 40 mL - HCl	No
	EPA 6020B - Appendix I Total Metals	(1) Plastic 250 mL - HNO_3	No
	USGS I-3765-85 - TSS	(1) Plastic 1 Liter - Unpreserved	No

Field Analysis

	Final Reading
Time	19:05
Temp (°C)	15.42
Sp. Cond (umhos/cm)	2874.7
pH	7.34
DO (mg/l)	9.85
ORP (mV)	230.1
Turbidity (NTU)	13.21

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-205	Weather:	Fair, 52 - 75°F, winds variable @ 0 - 10 mph
Date:	9/12/2023	Personnel:	Hannah Dubbs (Foth)

Comments: *The sample was collected with a bailer since the rented bladder pump was missing parts.

No purge sampling conducted since well recharge rate is less than 100 mL/min. Field measurements were collected after the sample was collected by placing the device in a bag filled with the sample collected from the bailer.

Note that MW-205 is not currently included in the permitted groundwater monitoring network for the Western Expansion Area. Due to dry conditions or insufficient water column for sample collection at replacement well MW-204RR, detection monitoring samples are being collected at MW-205 as a temporary or potential replacement for MW-204RR.

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-206	Weather:	Fair, 52 - 75°F, winds variable @ 0 - 10 mph
Date:	9/12/2023	Personnel:	Hannah Dubbs (Foth)

Monitoring Well Details

Borehole diameter (in): 8.25 Casing Diameter (in): 2 Ground surface elevation (ft. MSL): 1297.51
Top of screen (ft. MSL): 1247.51 Materials: PVC Top of Casing elevation (ft. MSL): 1300.72
Locked (Y/N): Yes

	Static WL	Before purging	Before sampling
Water Level (ft. TOC):	25.64	N/A	N/A
Water elevation (ft. MSL)	1275.08	N/A	N/A

3 Well Volumes (gal): 18.34 Screen submerged? (Y/N): Yes

	Constructed	Measured	Difference
Well Depth (ft. TOC):	63.15	63.12	0.03

Well conditions commentary: See Well Maintenance Evaluation Form for details.

Sampling Details

Sampling Method: ___ Pump (low flow) X No-purge (specify sample interval): Mid-Screen
___ Bailer ___ Other (specify): ___

Equipment type: ___ Submersible pump ___ Peristaltic pump ___ Bladder pump
___ Inertial lift pump X* Bailer ___ No-purge (specify): ___
___ Other (specify): ___

Equipment name/description: Bailer Dedicated? (Y/N): No Disposable? (Y/N): Yes
Decontamination method: disposable bailer and string

Equipment depth (ft. MSL):	Flow Rate (mL/min):	Volume removed (gal):	Volume sampled (L):
1244.72	100	N/A	1.37

Well dry? (Y/N): No Odor? (Y/N): No Color? (Y/N): No

Sample Name(s)	Method(s)	Container(s)	Filtered? (if yes, filter size)
MW-206_23_09	EPA 8260D - Appendix I VOCs	(3) VOA Vial 40 mL - HCl	No
	EPA 6020B - Appendix I Total Metals	(1) Plastic 250 mL - HNO_3	No
	USGS I-3765-85 - TSS	(1) Plastic 1 Liter - Unpreserved	No

Field Analysis

	Final Reading
Time	18:40
Temp (°C)	16.53
Sp. Cond (umhos/cm)	3239.3
pH	7.69
DO (mg/l)	10.45
ORP (mV)	233.4
Turbidity (NTU)	14.86

Groundwater Sampling Field Sheet

Site Name:	Carroll County Landfill-Western Expansion Area	Permit No.:	14-SDP-01-74P
Well/Piezometer:	MW-206	Weather:	Fair, 52 - 75°F, winds variable @ 0 - 10 mph
Date:	9/12/2023	Personnel:	Hannah Dubbs (Foth)

Comments: *The sample was collected with a bailer since the rented bladder pump was missing parts.

No purge sampling conducted since well recharge rate is less than 100 mL/min. Field measurements were collected after the sample was collected by placing the device in a bag filled with the sample collected from the bailer.

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ANALYTICAL REPORT

PREPARED FOR

Attn: Gina Wilming
Foth Infrastructure & Environment, LLC
411 6th Avenue SE
Suite 400
Cedar Rapids, Iowa 52401

Generated 9/27/2023 8:03:13 AM

JOB DESCRIPTION

Carroll County Landfill Fall Groundwater
SDG NUMBER 23C002.00

JOB NUMBER

310-264699-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

myEOL

Job Notes

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Authorization



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9/27/2023 8:03:13 AM

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Job ID: 310-264699-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative
310-264699-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 9/13/2023 5:25 PM. 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 1.0°C and 1.1°C

GC/MS VOA
Method 8260D: The continuing calibration verification (CCV) associated with batch 310-399556 recovered above the upper control limit for Trichlorofluoromethane (35.8%D). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 310-399556/4).

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

Sample Summary

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill Fall Groundwater

Job ID: 310-264699-1
SDG: 23C002.00

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-264699-1	GU-2A_23_09	Water	09/13/23 12:38	09/13/23 17:25
310-264699-2	MW-119RR_23_09	Water	09/13/23 11:19	09/13/23 17:25
310-264699-3	MW-121R_23_09	Water	09/13/23 12:08	09/13/23 17:25
310-264699-4	MW-122R_23_09	Water	09/13/23 13:25	09/13/23 17:25
310-264699-5	MW-200_23_09	Water	09/13/23 09:22	09/13/23 17:25
310-264699-6	MW-205_23_09	Water	09/12/23 19:05	09/13/23 17:25
310-264699-7	MW-206_23_09	Water	09/12/23 19:05	09/13/23 17:25
310-264699-8	FB-1_23_09	Water	09/12/23 19:20	09/13/23 17:25
310-264699-9	FD-1_23_09	Water	09/13/23 00:00	09/13/23 17:25
310-264699-10	TB-1_23_09	Water	09/13/23 00:00	09/13/23 17:25

Detection Summary

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill Fall Groundwater

Job ID: 310-264699-1
SDG: 23C002.00

Client Sample ID: GU-2A_23_09 — Lab Sample ID: 310-264699-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.000769	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.310		0.00200	0.000640	mg/L	1		6020B	Total/NA
Vanadium	0.00155	J	0.00500	0.00110	mg/L	1		6020B	Total/NA
Zinc	0.0204		0.0200	0.00640	mg/L	1		6020B	Total/NA
Total Suspended Solids	15.1		1.88	0.638	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-119RR_23_09 — Lab Sample ID: 310-264699-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00155	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.588		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.00187		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.0131		0.00500	0.00190	mg/L	1		6020B	Total/NA
Total Suspended Solids	2.50		1.88	0.638	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-121R_23_09 — Lab Sample ID: 310-264699-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1.04		0.500	0.220	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	10.1		1.00	0.210	ug/L	1		8260D	Total/NA
Vinyl chloride	0.616	J	1.00	0.180	ug/L	1		8260D	Total/NA
Arsenic	0.0219		0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.663		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.00215		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.0412		0.00500	0.00190	mg/L	1		6020B	Total/NA
Total Suspended Solids	4.88		1.88	0.638	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-122R_23_09 — Lab Sample ID: 310-264699-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.591		0.00200	0.000640	mg/L	1		6020B	Total/NA
Chromium	0.00271	J	0.00500	0.00110	mg/L	1		6020B	Total/NA
Selenium	0.00197	J	0.00500	0.00140	mg/L	1		6020B	Total/NA
Total Suspended Solids	3.00		1.88	0.638	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-200_23_09 — Lab Sample ID: 310-264699-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.433		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cadmium	0.000473		0.000200	0.000100	mg/L	1		6020B	Total/NA
Nickel	0.00582		0.00500	0.00190	mg/L	1		6020B	Total/NA
Vanadium	0.00114	J	0.00500	0.00110	mg/L	1		6020B	Total/NA
Total Suspended Solids	1.25	J	1.88	0.638	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-205_23_09 — Lab Sample ID: 310-264699-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00107	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.0273		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.00807		0.000500	0.000170	mg/L	1		6020B	Total/NA
Lead	0.000669		0.000500	0.000240	mg/L	1		6020B	Total/NA
Nickel	0.0135		0.00500	0.00190	mg/L	1		6020B	Total/NA
Zinc	0.00696	J	0.0200	0.00640	mg/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-205_23_09 (Continued)
Lab Sample ID: 310-264699-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	7.25		1.88	0.638	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-206_23_09
Lab Sample ID: 310-264699-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00110	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.0240		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.00672		0.000500	0.000170	mg/L	1		6020B	Total/NA
Lead	0.00429		0.000500	0.000240	mg/L	1		6020B	Total/NA
Nickel	0.0110		0.00500	0.00190	mg/L	1		6020B	Total/NA
Zinc	0.0165	J	0.0200	0.00640	mg/L	1		6020B	Total/NA
Total Suspended Solids	29.5		1.88	0.638	mg/L	1		I-3765-85	Total/NA

Client Sample ID: FB-1_23_09
Lab Sample ID: 310-264699-8

No Detections.

Client Sample ID: FD-1_23_09
Lab Sample ID: 310-264699-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00175	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.594		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.00206		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.0135		0.00500	0.00190	mg/L	1		6020B	Total/NA
Total Suspended Solids	2.50		1.88	0.638	mg/L	1		I-3765-85	Total/NA

Client Sample ID: TB-1_23_09
Lab Sample ID: 310-264699-10

No Detections.

This Detection Summary does not include radiochemical test results.

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill Fall Groundwater

Job ID: 310-264699-1
SDG: 23C002.00

Client Sample ID: GU-2A_23_09
Date Collected: 09/13/23 12:38
Date Received: 09/13/23 17:25

Lab Sample ID: 310-264699-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<3.10		10.0	3.10	ug/L			09/15/23 03:07	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			09/15/23 03:07	1
Benzene	<0.220		0.500	0.220	ug/L			09/15/23 03:07	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			09/15/23 03:07	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			09/15/23 03:07	1
Bromoform	<0.780		5.00	0.780	ug/L			09/15/23 03:07	1
Bromomethane	<1.10		4.00	1.10	ug/L			09/15/23 03:07	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			09/15/23 03:07	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			09/15/23 03:07	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			09/15/23 03:07	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			09/15/23 03:07	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			09/15/23 03:07	1
Chloroethane	<0.790		4.00	0.790	ug/L			09/15/23 03:07	1
Chloroform	<1.30		3.00	1.30	ug/L			09/15/23 03:07	1
Chloromethane	<0.610		3.00	0.610	ug/L			09/15/23 03:07	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			09/15/23 03:07	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			09/15/23 03:07	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			09/15/23 03:07	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			09/15/23 03:07	1
Dibromomethane	<0.330		1.00	0.330	ug/L			09/15/23 03:07	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			09/15/23 03:07	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			09/15/23 03:07	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			09/15/23 03:07	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			09/15/23 03:07	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			09/15/23 03:07	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			09/15/23 03:07	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			09/15/23 03:07	1
2-Hexanone	<2.00		10.0	2.00	ug/L			09/15/23 03:07	1
Iodomethane	<7.00		10.0	7.00	ug/L			09/15/23 03:07	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			09/15/23 03:07	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			09/15/23 03:07	1
Styrene	<0.370		1.00	0.370	ug/L			09/15/23 03:07	1
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			09/15/23 03:07	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			09/15/23 03:07	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			09/15/23 03:07	1
Toluene	<0.430		1.00	0.430	ug/L			09/15/23 03:07	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			09/15/23 03:07	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			09/15/23 03:07	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			09/15/23 03:07	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			09/15/23 03:07	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			09/15/23 03:07	1
Trichloroethene	<0.430		1.00	0.430	ug/L			09/15/23 03:07	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			09/15/23 03:07	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			09/15/23 03:07	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			09/15/23 03:07	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			09/15/23 03:07	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			09/15/23 03:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*09/15/23 03:07*	*1*

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill Fall Groundwater

Job ID: 310-264699-1
SDG: 23C002.00

Client Sample ID: GU-2A_23_09
Date Collected: 09/13/23 12:38
Date Received: 09/13/23 17:25

Lab Sample ID: 310-264699-1
Matrix: Water

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*80 - 128*		*09/15/23 03:07*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*09/15/23 03:07*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00200	0.00100	mg/L		09/15/23 09:30	09/22/23 18:14	1
Arsenic	**0.000769**	**J**	0.00200	0.000530	mg/L		09/15/23 09:30	09/22/23 18:14	1
Barium	**0.310**		0.00200	0.000640	mg/L		09/15/23 09:30	09/22/23 18:14	1
Beryllium	<0.000330		0.00100	0.000330	mg/L		09/15/23 09:30	09/22/23 18:14	1
Cadmium	<0.000100		0.000200	0.000100	mg/L		09/15/23 09:30	09/22/23 18:14	1
Chromium	<0.00110		0.00500	0.00110	mg/L		09/15/23 09:30	09/22/23 18:14	1
Cobalt	<0.000170		0.000500	0.000170	mg/L		09/15/23 09:30	09/22/23 18:14	1
Copper	<0.00180		0.00500	0.00180	mg/L		09/15/23 09:30	09/22/23 18:14	1
Lead	<0.000240		0.000500	0.000240	mg/L		09/15/23 09:30	09/22/23 18:14	1
Nickel	<0.00190		0.00500	0.00190	mg/L		09/15/23 09:30	09/22/23 18:14	1
Selenium	<0.00140		0.00500	0.00140	mg/L		09/15/23 09:30	09/22/23 18:14	1
Silver	<0.000500		0.00100	0.000500	mg/L		09/15/23 09:30	09/22/23 18:14	1
Thallium	<0.000260		0.00100	0.000260	mg/L		09/15/23 09:30	09/22/23 18:14	1
Vanadium	**0.00155**	**J**	0.00500	0.00110	mg/L		09/15/23 09:30	09/22/23 18:14	1
Zinc	**0.0204**		0.0200	0.00640	mg/L		09/15/23 09:30	09/22/23 18:14	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**15.1**		1.88	0.638	mg/L			09/14/23 11:01	1

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill Fall Groundwater

Job ID: 310-264699-1
SDG: 23C002.00

Client Sample ID: MW-119RR_23_09
Date Collected: 09/13/23 11:19
Date Received: 09/13/23 17:25

Lab Sample ID: 310-264699-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<3.10		10.0	3.10	ug/L			09/15/23 03:30	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			09/15/23 03:30	1
Benzene	<0.220		0.500	0.220	ug/L			09/15/23 03:30	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			09/15/23 03:30	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			09/15/23 03:30	1
Bromoform	<0.780		5.00	0.780	ug/L			09/15/23 03:30	1
Bromomethane	<1.10		4.00	1.10	ug/L			09/15/23 03:30	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			09/15/23 03:30	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			09/15/23 03:30	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			09/15/23 03:30	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			09/15/23 03:30	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			09/15/23 03:30	1
Chloroethane	<0.790		4.00	0.790	ug/L			09/15/23 03:30	1
Chloroform	<1.30		3.00	1.30	ug/L			09/15/23 03:30	1
Chloromethane	<0.610		3.00	0.610	ug/L			09/15/23 03:30	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			09/15/23 03:30	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			09/15/23 03:30	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			09/15/23 03:30	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			09/15/23 03:30	1
Dibromomethane	<0.330		1.00	0.330	ug/L			09/15/23 03:30	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			09/15/23 03:30	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			09/15/23 03:30	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			09/15/23 03:30	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			09/15/23 03:30	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			09/15/23 03:30	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			09/15/23 03:30	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			09/15/23 03:30	1
2-Hexanone	<2.00		10.0	2.00	ug/L			09/15/23 03:30	1
Iodomethane	<7.00		10.0	7.00	ug/L			09/15/23 03:30	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			09/15/23 03:30	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			09/15/23 03:30	1
Styrene	<0.370		1.00	0.370	ug/L			09/15/23 03:30	1
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			09/15/23 03:30	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			09/15/23 03:30	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			09/15/23 03:30	1
Toluene	<0.430		1.00	0.430	ug/L			09/15/23 03:30	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			09/15/23 03:30	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			09/15/23 03:30	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			09/15/23 03:30	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			09/15/23 03:30	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			09/15/23 03:30	1
Trichloroethene	<0.430		1.00	0.430	ug/L			09/15/23 03:30	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			09/15/23 03:30	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			09/15/23 03:30	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			09/15/23 03:30	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			09/15/23 03:30	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			09/15/23 03:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*80 - 120*		*09/15/23 03:30*	*1*

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill Fall Groundwater

Job ID: 310-264699-1
SDG: 23C002.00

Client Sample ID: MW-119RR_23_09
Date Collected: 09/13/23 11:19
Date Received: 09/13/23 17:25

Lab Sample ID: 310-264699-2
Matrix: Water

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*80 - 128*		*09/15/23 03:30*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*09/15/23 03:30*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00200	0.00100	mg/L		09/15/23 09:30	09/22/23 18:18	1
Arsenic	**0.00155**	**J**	0.00200	0.000530	mg/L		09/15/23 09:30	09/22/23 18:18	1
Barium	**0.588**		0.00200	0.000640	mg/L		09/15/23 09:30	09/22/23 18:18	1
Beryllium	<0.000330		0.00100	0.000330	mg/L		09/15/23 09:30	09/22/23 18:18	1
Cadmium	<0.000100		0.000200	0.000100	mg/L		09/15/23 09:30	09/22/23 18:18	1
Chromium	<0.00110		0.00500	0.00110	mg/L		09/15/23 09:30	09/22/23 18:18	1
Cobalt	**0.00187**		0.000500	0.000170	mg/L		09/15/23 09:30	09/22/23 18:18	1
Copper	<0.00180		0.00500	0.00180	mg/L		09/15/23 09:30	09/22/23 18:18	1
Lead	<0.000240		0.000500	0.000240	mg/L		09/15/23 09:30	09/22/23 18:18	1
Nickel	**0.0131**		0.00500	0.00190	mg/L		09/15/23 09:30	09/22/23 18:18	1
Selenium	<0.00140		0.00500	0.00140	mg/L		09/15/23 09:30	09/22/23 18:18	1
Silver	<0.000500		0.00100	0.000500	mg/L		09/15/23 09:30	09/22/23 18:18	1
Thallium	<0.000260		0.00100	0.000260	mg/L		09/15/23 09:30	09/22/23 18:18	1
Vanadium	<0.00110		0.00500	0.00110	mg/L		09/15/23 09:30	09/22/23 18:18	1
Zinc	<0.00640		0.0200	0.00640	mg/L		09/15/23 09:30	09/22/23 18:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**2.50**		1.88	0.638	mg/L			09/14/23 11:01	1

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill Fall Groundwater

Job ID: 310-264699-1
SDG: 23C002.00

Client Sample ID: MW-121R_23_09
Date Collected: 09/13/23 12:08
Date Received: 09/13/23 17:25

Lab Sample ID: 310-264699-3
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<3.10		10.0	3.10	ug/L			09/15/23 03:52	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			09/15/23 03:52	1
Benzene	**1.04**		0.500	0.220	ug/L			09/15/23 03:52	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			09/15/23 03:52	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			09/15/23 03:52	1
Bromoform	<0.780		5.00	0.780	ug/L			09/15/23 03:52	1
Bromomethane	<1.10		4.00	1.10	ug/L			09/15/23 03:52	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			09/15/23 03:52	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			09/15/23 03:52	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			09/15/23 03:52	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			09/15/23 03:52	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			09/15/23 03:52	1
Chloroethane	<0.790		4.00	0.790	ug/L			09/15/23 03:52	1
Chloroform	<1.30		3.00	1.30	ug/L			09/15/23 03:52	1
Chloromethane	<0.610		3.00	0.610	ug/L			09/15/23 03:52	1
cis-1,2-Dichloroethene	**10.1**		1.00	0.210	ug/L			09/15/23 03:52	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			09/15/23 03:52	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			09/15/23 03:52	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			09/15/23 03:52	1
Dibromomethane	<0.330		1.00	0.330	ug/L			09/15/23 03:52	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			09/15/23 03:52	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			09/15/23 03:52	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			09/15/23 03:52	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			09/15/23 03:52	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			09/15/23 03:52	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			09/15/23 03:52	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			09/15/23 03:52	1
2-Hexanone	<2.00		10.0	2.00	ug/L			09/15/23 03:52	1
Iodomethane	<7.00		10.0	7.00	ug/L			09/15/23 03:52	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			09/15/23 03:52	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			09/15/23 03:52	1
Styrene	<0.370		1.00	0.370	ug/L			09/15/23 03:52	1
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			09/15/23 03:52	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			09/15/23 03:52	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			09/15/23 03:52	1
Toluene	<0.430		1.00	0.430	ug/L			09/15/23 03:52	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			09/15/23 03:52	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			09/15/23 03:52	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			09/15/23 03:52	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			09/15/23 03:52	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			09/15/23 03:52	1
Trichloroethene	<0.430		1.00	0.430	ug/L			09/15/23 03:52	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			09/15/23 03:52	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			09/15/23 03:52	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			09/15/23 03:52	1
Vinyl chloride	**0.616**	**J**	1.00	0.180	ug/L			09/15/23 03:52	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			09/15/23 03:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*80 - 120*		*09/15/23 03:52*	*1*

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill Fall Groundwater

Job ID: 310-264699-1
SDG: 23C002.00

Client Sample ID: MW-121R_23_09
Date Collected: 09/13/23 12:08
Date Received: 09/13/23 17:25

Lab Sample ID: 310-264699-3
Matrix: Water

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*80 - 128*		*09/15/23 03:52*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*09/15/23 03:52*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00200	0.00100	mg/L		09/15/23 09:30	09/22/23 18:20	1
Arsenic	**0.0219**		0.00200	0.000530	mg/L		09/15/23 09:30	09/22/23 18:20	1
Barium	**0.663**		0.00200	0.000640	mg/L		09/15/23 09:30	09/22/23 18:20	1
Beryllium	<0.000330		0.00100	0.000330	mg/L		09/15/23 09:30	09/22/23 18:20	1
Cadmium	<0.000100		0.000200	0.000100	mg/L		09/15/23 09:30	09/22/23 18:20	1
Chromium	<0.00110		0.00500	0.00110	mg/L		09/15/23 09:30	09/22/23 18:20	1
Cobalt	**0.00215**		0.000500	0.000170	mg/L		09/15/23 09:30	09/22/23 18:20	1
Copper	<0.00180		0.00500	0.00180	mg/L		09/15/23 09:30	09/22/23 18:20	1
Lead	<0.000240		0.000500	0.000240	mg/L		09/15/23 09:30	09/22/23 18:20	1
Nickel	**0.0412**		0.00500	0.00190	mg/L		09/15/23 09:30	09/22/23 18:20	1
Selenium	<0.00140		0.00500	0.00140	mg/L		09/15/23 09:30	09/22/23 18:20	1
Silver	<0.000500		0.00100	0.000500	mg/L		09/15/23 09:30	09/22/23 18:20	1
Thallium	<0.000260		0.00100	0.000260	mg/L		09/15/23 09:30	09/22/23 18:20	1
Vanadium	<0.00110		0.00500	0.00110	mg/L		09/15/23 09:30	09/22/23 18:20	1
Zinc	<0.00640		0.0200	0.00640	mg/L		09/15/23 09:30	09/22/23 18:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**4.88**		1.88	0.638	mg/L			09/14/23 11:49	1

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill Fall Groundwater

Job ID: 310-264699-1
SDG: 23C002.00

Client Sample ID: MW-122R_23_09
Date Collected: 09/13/23 13:25
Date Received: 09/13/23 17:25

Lab Sample ID: 310-264699-4
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<3.10		10.0	3.10	ug/L			09/15/23 04:15	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			09/15/23 04:15	1
Benzene	<0.220		0.500	0.220	ug/L			09/15/23 04:15	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			09/15/23 04:15	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			09/15/23 04:15	1
Bromoform	<0.780		5.00	0.780	ug/L			09/15/23 04:15	1
Bromomethane	<1.10		4.00	1.10	ug/L			09/15/23 04:15	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			09/15/23 04:15	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			09/15/23 04:15	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			09/15/23 04:15	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			09/15/23 04:15	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			09/15/23 04:15	1
Chloroethane	<0.790		4.00	0.790	ug/L			09/15/23 04:15	1
Chloroform	<1.30		3.00	1.30	ug/L			09/15/23 04:15	1
Chloromethane	<0.610		3.00	0.610	ug/L			09/15/23 04:15	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			09/15/23 04:15	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			09/15/23 04:15	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			09/15/23 04:15	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			09/15/23 04:15	1
Dibromomethane	<0.330		1.00	0.330	ug/L			09/15/23 04:15	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			09/15/23 04:15	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			09/15/23 04:15	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			09/15/23 04:15	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			09/15/23 04:15	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			09/15/23 04:15	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			09/15/23 04:15	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			09/15/23 04:15	1
2-Hexanone	<2.00		10.0	2.00	ug/L			09/15/23 04:15	1
Iodomethane	<7.00		10.0	7.00	ug/L			09/15/23 04:15	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			09/15/23 04:15	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			09/15/23 04:15	1
Styrene	<0.370		1.00	0.370	ug/L			09/15/23 04:15	1
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			09/15/23 04:15	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			09/15/23 04:15	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			09/15/23 04:15	1
Toluene	<0.430		1.00	0.430	ug/L			09/15/23 04:15	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			09/15/23 04:15	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			09/15/23 04:15	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			09/15/23 04:15	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			09/15/23 04:15	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			09/15/23 04:15	1
Trichloroethene	<0.430		1.00	0.430	ug/L			09/15/23 04:15	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			09/15/23 04:15	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			09/15/23 04:15	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			09/15/23 04:15	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			09/15/23 04:15	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			09/15/23 04:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*09/15/23 04:15*	*1*

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill Fall Groundwater

Job ID: 310-264699-1
SDG: 23C002.00

Client Sample ID: MW-122R_23_09

Date Collected: 09/13/23 13:25
Date Received: 09/13/23 17:25

Lab Sample ID: 310-264699-4

Matrix: Water

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*80 - 128*		*09/15/23 04:15*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*09/15/23 04:15*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00200	0.00100	mg/L		09/15/23 09:30	09/22/23 18:23	1
Arsenic	<0.000530		0.00200	0.000530	mg/L		09/15/23 09:30	09/22/23 18:23	1
Barium	**0.591**		0.00200	0.000640	mg/L		09/15/23 09:30	09/22/23 18:23	1
Beryllium	<0.000330		0.00100	0.000330	mg/L		09/15/23 09:30	09/22/23 18:23	1
Cadmium	<0.000100		0.000200	0.000100	mg/L		09/15/23 09:30	09/22/23 18:23	1
Chromium	**0.00271**	**J**	0.00500	0.00110	mg/L		09/15/23 09:30	09/22/23 18:23	1
Cobalt	<0.000170		0.000500	0.000170	mg/L		09/15/23 09:30	09/22/23 18:23	1
Copper	<0.00180		0.00500	0.00180	mg/L		09/15/23 09:30	09/22/23 18:23	1
Lead	<0.000240		0.000500	0.000240	mg/L		09/15/23 09:30	09/22/23 18:23	1
Nickel	<0.00190		0.00500	0.00190	mg/L		09/15/23 09:30	09/22/23 18:23	1
Selenium	**0.00197**	**J**	0.00500	0.00140	mg/L		09/15/23 09:30	09/22/23 18:23	1
Silver	<0.000500		0.00100	0.000500	mg/L		09/15/23 09:30	09/22/23 18:23	1
Thallium	<0.000260		0.00100	0.000260	mg/L		09/15/23 09:30	09/22/23 18:23	1
Vanadium	<0.00110		0.00500	0.00110	mg/L		09/15/23 09:30	09/22/23 18:23	1
Zinc	<0.00640		0.0200	0.00640	mg/L		09/15/23 09:30	09/22/23 18:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**3.00**		1.88	0.638	mg/L			09/14/23 11:49	1

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill Fall Groundwater

Job ID: 310-264699-1
SDG: 23C002.00

Client Sample ID: MW-200_23_09
Date Collected: 09/13/23 09:22
Date Received: 09/13/23 17:25

Lab Sample ID: 310-264699-5
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<3.10		10.0	3.10	ug/L			09/15/23 04:37	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			09/15/23 04:37	1
Benzene	<0.220		0.500	0.220	ug/L			09/15/23 04:37	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			09/15/23 04:37	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			09/15/23 04:37	1
Bromoform	<0.780		5.00	0.780	ug/L			09/15/23 04:37	1
Bromomethane	<1.10		4.00	1.10	ug/L			09/15/23 04:37	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			09/15/23 04:37	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			09/15/23 04:37	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			09/15/23 04:37	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			09/15/23 04:37	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			09/15/23 04:37	1
Chloroethane	<0.790		4.00	0.790	ug/L			09/15/23 04:37	1
Chloroform	<1.30		3.00	1.30	ug/L			09/15/23 04:37	1
Chloromethane	<0.610		3.00	0.610	ug/L			09/15/23 04:37	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			09/15/23 04:37	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			09/15/23 04:37	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			09/15/23 04:37	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			09/15/23 04:37	1
Dibromomethane	<0.330		1.00	0.330	ug/L			09/15/23 04:37	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			09/15/23 04:37	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			09/15/23 04:37	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			09/15/23 04:37	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			09/15/23 04:37	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			09/15/23 04:37	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			09/15/23 04:37	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			09/15/23 04:37	1
2-Hexanone	<2.00		10.0	2.00	ug/L			09/15/23 04:37	1
Iodomethane	<7.00		10.0	7.00	ug/L			09/15/23 04:37	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			09/15/23 04:37	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			09/15/23 04:37	1
Styrene	<0.370		1.00	0.370	ug/L			09/15/23 04:37	1
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			09/15/23 04:37	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			09/15/23 04:37	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			09/15/23 04:37	1
Toluene	<0.430		1.00	0.430	ug/L			09/15/23 04:37	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			09/15/23 04:37	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			09/15/23 04:37	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			09/15/23 04:37	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			09/15/23 04:37	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			09/15/23 04:37	1
Trichloroethene	<0.430		1.00	0.430	ug/L			09/15/23 04:37	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			09/15/23 04:37	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			09/15/23 04:37	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			09/15/23 04:37	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			09/15/23 04:37	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			09/15/23 04:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*		*09/15/23 04:37*	*1*

Client Sample ID: MW-200_23_09
Lab Sample ID: 310-264699-5
Date Collected: 09/13/23 09:22
Matrix: Water
Date Received: 09/13/23 17:25

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*80 - 128*		*09/15/23 04:37*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*09/15/23 04:37*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00200	0.00100	mg/L		09/15/23 09:30	09/22/23 18:25	1
Arsenic	<0.000530		0.00200	0.000530	mg/L		09/15/23 09:30	09/22/23 18:25	1
Barium	**0.433**		0.00200	0.000640	mg/L		09/15/23 09:30	09/22/23 18:25	1
Beryllium	<0.000330		0.00100	0.000330	mg/L		09/15/23 09:30	09/22/23 18:25	1
Cadmium	**0.000473**		0.000200	0.000100	mg/L		09/15/23 09:30	09/22/23 18:25	1
Chromium	<0.00110		0.00500	0.00110	mg/L		09/15/23 09:30	09/22/23 18:25	1
Cobalt	<0.000170		0.000500	0.000170	mg/L		09/15/23 09:30	09/22/23 18:25	1
Copper	<0.00180		0.00500	0.00180	mg/L		09/15/23 09:30	09/22/23 18:25	1
Lead	<0.000240		0.000500	0.000240	mg/L		09/15/23 09:30	09/22/23 18:25	1
Nickel	**0.00582**		0.00500	0.00190	mg/L		09/15/23 09:30	09/22/23 18:25	1
Selenium	<0.00140		0.00500	0.00140	mg/L		09/15/23 09:30	09/22/23 18:25	1
Silver	<0.000500		0.00100	0.000500	mg/L		09/15/23 09:30	09/22/23 18:25	1
Thallium	<0.000260		0.00100	0.000260	mg/L		09/15/23 09:30	09/22/23 18:25	1
Vanadium	**0.00114**	**J**	0.00500	0.00110	mg/L		09/15/23 09:30	09/22/23 18:25	1
Zinc	<0.00640		0.0200	0.00640	mg/L		09/15/23 09:30	09/22/23 18:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**1.25**	**J**	1.88	0.638	mg/L			09/14/23 11:49	1

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill Fall Groundwater

Job ID: 310-264699-1
SDG: 23C002.00

Client Sample ID: MW-205_23_09
Date Collected: 09/12/23 19:05
Date Received: 09/13/23 17:25

Lab Sample ID: 310-264699-6
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<3.10		10.0	3.10	ug/L			09/15/23 05:00	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			09/15/23 05:00	1
Benzene	<0.220		0.500	0.220	ug/L			09/15/23 05:00	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			09/15/23 05:00	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			09/15/23 05:00	1
Bromoform	<0.780		5.00	0.780	ug/L			09/15/23 05:00	1
Bromomethane	<1.10		4.00	1.10	ug/L			09/15/23 05:00	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			09/15/23 05:00	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			09/15/23 05:00	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			09/15/23 05:00	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			09/15/23 05:00	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			09/15/23 05:00	1
Chloroethane	<0.790		4.00	0.790	ug/L			09/15/23 05:00	1
Chloroform	<1.30		3.00	1.30	ug/L			09/15/23 05:00	1
Chloromethane	<0.610		3.00	0.610	ug/L			09/15/23 05:00	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			09/15/23 05:00	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			09/15/23 05:00	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			09/15/23 05:00	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			09/15/23 05:00	1
Dibromomethane	<0.330		1.00	0.330	ug/L			09/15/23 05:00	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			09/15/23 05:00	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			09/15/23 05:00	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			09/15/23 05:00	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			09/15/23 05:00	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			09/15/23 05:00	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			09/15/23 05:00	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			09/15/23 05:00	1
2-Hexanone	<2.00		10.0	2.00	ug/L			09/15/23 05:00	1
Iodomethane	<7.00		10.0	7.00	ug/L			09/15/23 05:00	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			09/15/23 05:00	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			09/15/23 05:00	1
Styrene	<0.370		1.00	0.370	ug/L			09/15/23 05:00	1
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			09/15/23 05:00	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			09/15/23 05:00	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			09/15/23 05:00	1
Toluene	<0.430		1.00	0.430	ug/L			09/15/23 05:00	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			09/15/23 05:00	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			09/15/23 05:00	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			09/15/23 05:00	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			09/15/23 05:00	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			09/15/23 05:00	1
Trichloroethene	<0.430		1.00	0.430	ug/L			09/15/23 05:00	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			09/15/23 05:00	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			09/15/23 05:00	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			09/15/23 05:00	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			09/15/23 05:00	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			09/15/23 05:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*		*09/15/23 05:00*	*1*

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill Fall Groundwater

Job ID: 310-264699-1
SDG: 23C002.00

Client Sample ID: MW-205_23_09

Lab Sample ID: 310-264699-6

Date Collected: 09/12/23 19:05

Matrix: Water

Date Received: 09/13/23 17:25

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*102*		*80 - 128*		*09/15/23 05:00*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*09/15/23 05:00*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00200	0.00100	mg/L		09/15/23 09:30	09/22/23 18:27	1
Arsenic	**0.00107**	**J**	0.00200	0.000530	mg/L		09/15/23 09:30	09/22/23 18:27	1
Barium	**0.0273**		0.00200	0.000640	mg/L		09/15/23 09:30	09/22/23 18:27	1
Beryllium	<0.000330		0.00100	0.000330	mg/L		09/15/23 09:30	09/22/23 18:27	1
Cadmium	<0.000100		0.000200	0.000100	mg/L		09/15/23 09:30	09/22/23 18:27	1
Chromium	<0.00110		0.00500	0.00110	mg/L		09/15/23 09:30	09/22/23 18:27	1
Cobalt	**0.00807**		0.000500	0.000170	mg/L		09/15/23 09:30	09/22/23 18:27	1
Copper	<0.00180		0.00500	0.00180	mg/L		09/15/23 09:30	09/22/23 18:27	1
Lead	**0.000669**		0.000500	0.000240	mg/L		09/15/23 09:30	09/22/23 18:27	1
Nickel	**0.0135**		0.00500	0.00190	mg/L		09/15/23 09:30	09/22/23 18:27	1
Selenium	<0.00140		0.00500	0.00140	mg/L		09/15/23 09:30	09/22/23 18:27	1
Silver	<0.000500		0.00100	0.000500	mg/L		09/15/23 09:30	09/22/23 18:27	1
Thallium	<0.000260		0.00100	0.000260	mg/L		09/15/23 09:30	09/22/23 18:27	1
Vanadium	<0.00110		0.00500	0.00110	mg/L		09/15/23 09:30	09/22/23 18:27	1
Zinc	**0.00696**	**J**	0.0200	0.00640	mg/L		09/15/23 09:30	09/22/23 18:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**7.25**		1.88	0.638	mg/L			09/14/23 11:49	1

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill Fall Groundwater

Job ID: 310-264699-1
SDG: 23C002.00

Client Sample ID: MW-206_23_09
Date Collected: 09/12/23 19:05
Date Received: 09/13/23 17:25

Lab Sample ID: 310-264699-7
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<3.10		10.0	3.10	ug/L			09/15/23 05:22	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			09/15/23 05:22	1
Benzene	<0.220		0.500	0.220	ug/L			09/15/23 05:22	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			09/15/23 05:22	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			09/15/23 05:22	1
Bromoform	<0.780		5.00	0.780	ug/L			09/15/23 05:22	1
Bromomethane	<1.10		4.00	1.10	ug/L			09/15/23 05:22	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			09/15/23 05:22	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			09/15/23 05:22	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			09/15/23 05:22	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			09/15/23 05:22	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			09/15/23 05:22	1
Chloroethane	<0.790		4.00	0.790	ug/L			09/15/23 05:22	1
Chloroform	<1.30		3.00	1.30	ug/L			09/15/23 05:22	1
Chloromethane	<0.610		3.00	0.610	ug/L			09/15/23 05:22	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			09/15/23 05:22	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			09/15/23 05:22	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			09/15/23 05:22	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			09/15/23 05:22	1
Dibromomethane	<0.330		1.00	0.330	ug/L			09/15/23 05:22	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			09/15/23 05:22	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			09/15/23 05:22	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			09/15/23 05:22	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			09/15/23 05:22	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			09/15/23 05:22	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			09/15/23 05:22	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			09/15/23 05:22	1
2-Hexanone	<2.00		10.0	2.00	ug/L			09/15/23 05:22	1
Iodomethane	<7.00		10.0	7.00	ug/L			09/15/23 05:22	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			09/15/23 05:22	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			09/15/23 05:22	1
Styrene	<0.370		1.00	0.370	ug/L			09/15/23 05:22	1
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			09/15/23 05:22	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			09/15/23 05:22	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			09/15/23 05:22	1
Toluene	<0.430		1.00	0.430	ug/L			09/15/23 05:22	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			09/15/23 05:22	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			09/15/23 05:22	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			09/15/23 05:22	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			09/15/23 05:22	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			09/15/23 05:22	1
Trichloroethene	<0.430		1.00	0.430	ug/L			09/15/23 05:22	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			09/15/23 05:22	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			09/15/23 05:22	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			09/15/23 05:22	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			09/15/23 05:22	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			09/15/23 05:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*09/15/23 05:22*	*1*

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill Fall Groundwater

Job ID: 310-264699-1
SDG: 23C002.00

Client Sample ID: MW-206_23_09

Lab Sample ID: 310-264699-7

Date Collected: 09/12/23 19:05

Matrix: Water

Date Received: 09/13/23 17:25

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*98*		*80 - 128*		*09/15/23 05:22*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*09/15/23 05:22*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00200	0.00100	mg/L		09/15/23 09:30	09/22/23 18:29	1
Arsenic	**0.00110**	**J**	0.00200	0.000530	mg/L		09/15/23 09:30	09/22/23 18:29	1
Barium	**0.0240**		0.00200	0.000640	mg/L		09/15/23 09:30	09/22/23 18:29	1
Beryllium	<0.000330		0.00100	0.000330	mg/L		09/15/23 09:30	09/22/23 18:29	1
Cadmium	<0.000100		0.000200	0.000100	mg/L		09/15/23 09:30	09/22/23 18:29	1
Chromium	<0.00110		0.00500	0.00110	mg/L		09/15/23 09:30	09/22/23 18:29	1
Cobalt	**0.00672**		0.000500	0.000170	mg/L		09/15/23 09:30	09/22/23 18:29	1
Copper	<0.00180		0.00500	0.00180	mg/L		09/15/23 09:30	09/22/23 18:29	1
Lead	**0.00429**		0.000500	0.000240	mg/L		09/15/23 09:30	09/22/23 18:29	1
Nickel	**0.0110**		0.00500	0.00190	mg/L		09/15/23 09:30	09/22/23 18:29	1
Selenium	<0.00140		0.00500	0.00140	mg/L		09/15/23 09:30	09/22/23 18:29	1
Silver	<0.000500		0.00100	0.000500	mg/L		09/15/23 09:30	09/22/23 18:29	1
Thallium	<0.000260		0.00100	0.000260	mg/L		09/15/23 09:30	09/22/23 18:29	1
Vanadium	<0.00110		0.00500	0.00110	mg/L		09/15/23 09:30	09/22/23 18:29	1
Zinc	**0.0165**	**J**	0.0200	0.00640	mg/L		09/15/23 09:30	09/22/23 18:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**29.5**		1.88	0.638	mg/L			09/14/23 11:49	1

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill Fall Groundwater

Job ID: 310-264699-1
SDG: 23C002.00

Client Sample ID: FB-1_23_09
Date Collected: 09/12/23 19:20
Date Received: 09/13/23 17:25

Lab Sample ID: 310-264699-8
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<3.10		10.0	3.10	ug/L			09/14/23 23:45	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			09/14/23 23:45	1
Benzene	<0.220		0.500	0.220	ug/L			09/14/23 23:45	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			09/14/23 23:45	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			09/14/23 23:45	1
Bromoform	<0.780		5.00	0.780	ug/L			09/14/23 23:45	1
Bromomethane	<1.10		4.00	1.10	ug/L			09/14/23 23:45	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			09/14/23 23:45	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			09/14/23 23:45	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			09/14/23 23:45	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			09/14/23 23:45	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			09/14/23 23:45	1
Chloroethane	<0.790		4.00	0.790	ug/L			09/14/23 23:45	1
Chloroform	<1.30		3.00	1.30	ug/L			09/14/23 23:45	1
Chloromethane	<0.610		3.00	0.610	ug/L			09/14/23 23:45	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			09/14/23 23:45	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			09/14/23 23:45	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			09/14/23 23:45	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			09/14/23 23:45	1
Dibromomethane	<0.330		1.00	0.330	ug/L			09/14/23 23:45	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			09/14/23 23:45	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			09/14/23 23:45	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			09/14/23 23:45	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			09/14/23 23:45	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			09/14/23 23:45	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			09/14/23 23:45	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			09/14/23 23:45	1
2-Hexanone	<2.00		10.0	2.00	ug/L			09/14/23 23:45	1
Iodomethane	<7.00		10.0	7.00	ug/L			09/14/23 23:45	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			09/14/23 23:45	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			09/14/23 23:45	1
Styrene	<0.370		1.00	0.370	ug/L			09/14/23 23:45	1
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			09/14/23 23:45	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			09/14/23 23:45	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			09/14/23 23:45	1
Toluene	<0.430		1.00	0.430	ug/L			09/14/23 23:45	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			09/14/23 23:45	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			09/14/23 23:45	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			09/14/23 23:45	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			09/14/23 23:45	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			09/14/23 23:45	1
Trichloroethene	<0.430		1.00	0.430	ug/L			09/14/23 23:45	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			09/14/23 23:45	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			09/14/23 23:45	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			09/14/23 23:45	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			09/14/23 23:45	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			09/14/23 23:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*		*09/14/23 23:45*	*1*

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill Fall Groundwater

Job ID: 310-264699-1
SDG: 23C002.00

Client Sample ID: FB-1_23_09
Date Collected: 09/12/23 19:20
Date Received: 09/13/23 17:25

Lab Sample ID: 310-264699-8
Matrix: Water

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*80 - 128*		*09/14/23 23:45*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*09/14/23 23:45*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00200	0.00100	mg/L		09/15/23 09:30	09/22/23 18:31	1
Arsenic	<0.000530		0.00200	0.000530	mg/L		09/15/23 09:30	09/22/23 18:31	1
Barium	<0.000640		0.00200	0.000640	mg/L		09/15/23 09:30	09/22/23 18:31	1
Beryllium	<0.000330		0.00100	0.000330	mg/L		09/15/23 09:30	09/22/23 18:31	1
Cadmium	<0.000100		0.000200	0.000100	mg/L		09/15/23 09:30	09/22/23 18:31	1
Chromium	<0.00110		0.00500	0.00110	mg/L		09/15/23 09:30	09/22/23 18:31	1
Cobalt	<0.000170		0.000500	0.000170	mg/L		09/15/23 09:30	09/22/23 18:31	1
Copper	<0.00180		0.00500	0.00180	mg/L		09/15/23 09:30	09/22/23 18:31	1
Lead	<0.000240		0.000500	0.000240	mg/L		09/15/23 09:30	09/22/23 18:31	1
Nickel	<0.00190		0.00500	0.00190	mg/L		09/15/23 09:30	09/22/23 18:31	1
Selenium	<0.00140		0.00500	0.00140	mg/L		09/15/23 09:30	09/22/23 18:31	1
Silver	<0.000500		0.00100	0.000500	mg/L		09/15/23 09:30	09/22/23 18:31	1
Thallium	<0.000260		0.00100	0.000260	mg/L		09/15/23 09:30	09/22/23 18:31	1
Vanadium	<0.00110		0.00500	0.00110	mg/L		09/15/23 09:30	09/22/23 18:31	1
Zinc	<0.00640		0.0200	0.00640	mg/L		09/15/23 09:30	09/22/23 18:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<0.638		1.88	0.638	mg/L			09/14/23 11:49	1

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill Fall Groundwater

Job ID: 310-264699-1
SDG: 23C002.00

Client Sample ID: FD-1_23_09
Date Collected: 09/13/23 00:00
Date Received: 09/13/23 17:25

Lab Sample ID: 310-264699-9
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<3.10		10.0	3.10	ug/L			09/15/23 05:45	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			09/15/23 05:45	1
Benzene	<0.220		0.500	0.220	ug/L			09/15/23 05:45	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			09/15/23 05:45	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			09/15/23 05:45	1
Bromoform	<0.780		5.00	0.780	ug/L			09/15/23 05:45	1
Bromomethane	<1.10		4.00	1.10	ug/L			09/15/23 05:45	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			09/15/23 05:45	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			09/15/23 05:45	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			09/15/23 05:45	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			09/15/23 05:45	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			09/15/23 05:45	1
Chloroethane	<0.790		4.00	0.790	ug/L			09/15/23 05:45	1
Chloroform	<1.30		3.00	1.30	ug/L			09/15/23 05:45	1
Chloromethane	<0.610		3.00	0.610	ug/L			09/15/23 05:45	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			09/15/23 05:45	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			09/15/23 05:45	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			09/15/23 05:45	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			09/15/23 05:45	1
Dibromomethane	<0.330		1.00	0.330	ug/L			09/15/23 05:45	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			09/15/23 05:45	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			09/15/23 05:45	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			09/15/23 05:45	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			09/15/23 05:45	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			09/15/23 05:45	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			09/15/23 05:45	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			09/15/23 05:45	1
2-Hexanone	<2.00		10.0	2.00	ug/L			09/15/23 05:45	1
Iodomethane	<7.00		10.0	7.00	ug/L			09/15/23 05:45	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			09/15/23 05:45	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			09/15/23 05:45	1
Styrene	<0.370		1.00	0.370	ug/L			09/15/23 05:45	1
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			09/15/23 05:45	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			09/15/23 05:45	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			09/15/23 05:45	1
Toluene	<0.430		1.00	0.430	ug/L			09/15/23 05:45	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			09/15/23 05:45	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			09/15/23 05:45	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			09/15/23 05:45	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			09/15/23 05:45	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			09/15/23 05:45	1
Trichloroethene	<0.430		1.00	0.430	ug/L			09/15/23 05:45	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			09/15/23 05:45	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			09/15/23 05:45	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			09/15/23 05:45	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			09/15/23 05:45	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			09/15/23 05:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*		*09/15/23 05:45*	*1*

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill Fall Groundwater

Job ID: 310-264699-1
SDG: 23C002.00

Client Sample ID: FD-1_23_09
Date Collected: 09/13/23 00:00
Date Received: 09/13/23 17:25

Lab Sample ID: 310-264699-9
Matrix: Water

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*99*		*80 - 128*		*09/15/23 05:45*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*09/15/23 05:45*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00200	0.00100	mg/L		09/15/23 09:30	09/22/23 18:43	1
Arsenic	**0.00175**	**J**	0.00200	0.000530	mg/L		09/15/23 09:30	09/22/23 18:43	1
Barium	**0.594**		0.00200	0.000640	mg/L		09/15/23 09:30	09/22/23 18:43	1
Beryllium	<0.000330		0.00100	0.000330	mg/L		09/15/23 09:30	09/22/23 18:43	1
Cadmium	<0.000100		0.000200	0.000100	mg/L		09/15/23 09:30	09/22/23 18:43	1
Chromium	<0.00110		0.00500	0.00110	mg/L		09/15/23 09:30	09/22/23 18:43	1
Cobalt	**0.00206**		0.000500	0.000170	mg/L		09/15/23 09:30	09/22/23 18:43	1
Copper	<0.00180		0.00500	0.00180	mg/L		09/15/23 09:30	09/22/23 18:43	1
Lead	<0.000240		0.000500	0.000240	mg/L		09/15/23 09:30	09/22/23 18:43	1
Nickel	**0.0135**		0.00500	0.00190	mg/L		09/15/23 09:30	09/22/23 18:43	1
Selenium	<0.00140		0.00500	0.00140	mg/L		09/15/23 09:30	09/22/23 18:43	1
Silver	<0.000500		0.00100	0.000500	mg/L		09/15/23 09:30	09/22/23 18:43	1
Thallium	<0.000260		0.00100	0.000260	mg/L		09/15/23 09:30	09/22/23 18:43	1
Vanadium	<0.00110		0.00500	0.00110	mg/L		09/15/23 09:30	09/22/23 18:43	1
Zinc	<0.00640		0.0200	0.00640	mg/L		09/15/23 09:30	09/22/23 18:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**2.50**		1.88	0.638	mg/L			09/14/23 11:49	1

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill Fall Groundwater

Job ID: 310-264699-1
SDG: 23C002.00

Client Sample ID: TB-1_23_09
Date Collected: 09/13/23 00:00
Date Received: 09/13/23 17:25

Lab Sample ID: 310-264699-10
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<3.10		10.0	3.10	ug/L			09/15/23 00:08	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			09/15/23 00:08	1
Benzene	<0.220		0.500	0.220	ug/L			09/15/23 00:08	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			09/15/23 00:08	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			09/15/23 00:08	1
Bromoform	<0.780		5.00	0.780	ug/L			09/15/23 00:08	1
Bromomethane	<1.10		4.00	1.10	ug/L			09/15/23 00:08	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			09/15/23 00:08	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			09/15/23 00:08	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			09/15/23 00:08	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			09/15/23 00:08	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			09/15/23 00:08	1
Chloroethane	<0.790		4.00	0.790	ug/L			09/15/23 00:08	1
Chloroform	<1.30		3.00	1.30	ug/L			09/15/23 00:08	1
Chloromethane	<0.610		3.00	0.610	ug/L			09/15/23 00:08	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			09/15/23 00:08	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			09/15/23 00:08	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			09/15/23 00:08	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			09/15/23 00:08	1
Dibromomethane	<0.330		1.00	0.330	ug/L			09/15/23 00:08	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			09/15/23 00:08	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			09/15/23 00:08	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			09/15/23 00:08	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			09/15/23 00:08	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			09/15/23 00:08	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			09/15/23 00:08	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			09/15/23 00:08	1
2-Hexanone	<2.00		10.0	2.00	ug/L			09/15/23 00:08	1
Iodomethane	<7.00		10.0	7.00	ug/L			09/15/23 00:08	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			09/15/23 00:08	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			09/15/23 00:08	1
Styrene	<0.370		1.00	0.370	ug/L			09/15/23 00:08	1
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			09/15/23 00:08	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			09/15/23 00:08	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			09/15/23 00:08	1
Toluene	<0.430		1.00	0.430	ug/L			09/15/23 00:08	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			09/15/23 00:08	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			09/15/23 00:08	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			09/15/23 00:08	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			09/15/23 00:08	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			09/15/23 00:08	1
Trichloroethene	<0.430		1.00	0.430	ug/L			09/15/23 00:08	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			09/15/23 00:08	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			09/15/23 00:08	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			09/15/23 00:08	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			09/15/23 00:08	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			09/15/23 00:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*80 - 120*		*09/15/23 00:08*	*1*

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill Fall Groundwater

Job ID: 310-264699-1
SDG: 23C002.00

Client Sample ID: TB-1_23_09
Date Collected: 09/13/23 00:00
Date Received: 09/13/23 17:25

Lab Sample ID: 310-264699-10
Matrix: Water

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	*103*		*80 - 128*		*09/15/23 00:08*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*09/15/23 00:08*	*1*

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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

Surrogate Summary

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill Fall Groundwater

Job ID: 310-264699-1
SDG: 23C002.00

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

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)		
		BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(80-120)	(80-128)	(80-120)
310-264699-1	GU-2A_23_09	104	101	97
310-264699-2	MW-119RR_23_09	106	101	96
310-264699-3	MW-121R_23_09	106	101	97
310-264699-4	MW-122R_23_09	104	101	97
310-264699-5	MW-200_23_09	105	100	98
310-264699-6	MW-205_23_09	105	102	96
310-264699-7	MW-206_23_09	103	98	97
310-264699-8	FB-1_23_09	105	101	98
310-264699-9	FD-1_23_09	105	99	97
310-264699-10	TB-1_23_09	106	103	99
LCS 310-399556/6	Lab Control Sample	99	98	100
LCS 310-399556/7	Lab Control Sample	105	101	98
MB 310-399556/5	Method Blank	103	102	98

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

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

Lab Sample ID: MB 310-399556/5
Matrix: Water
Analysis Batch: 399556

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<3.10		10.0	3.10	ug/L			09/14/23 22:15	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			09/14/23 22:15	1
Benzene	<0.220		0.500	0.220	ug/L			09/14/23 22:15	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			09/14/23 22:15	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			09/14/23 22:15	1
Bromoform	<0.780		5.00	0.780	ug/L			09/14/23 22:15	1
Bromomethane	<1.10		4.00	1.10	ug/L			09/14/23 22:15	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			09/14/23 22:15	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			09/14/23 22:15	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			09/14/23 22:15	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			09/14/23 22:15	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			09/14/23 22:15	1
Chloroethane	<0.790		4.00	0.790	ug/L			09/14/23 22:15	1
Chloroform	<1.30		3.00	1.30	ug/L			09/14/23 22:15	1
Chloromethane	<0.610		3.00	0.610	ug/L			09/14/23 22:15	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			09/14/23 22:15	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			09/14/23 22:15	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			09/14/23 22:15	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			09/14/23 22:15	1
Dibromomethane	<0.330		1.00	0.330	ug/L			09/14/23 22:15	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			09/14/23 22:15	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			09/14/23 22:15	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			09/14/23 22:15	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			09/14/23 22:15	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			09/14/23 22:15	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			09/14/23 22:15	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			09/14/23 22:15	1
2-Hexanone	<2.00		10.0	2.00	ug/L			09/14/23 22:15	1
Iodomethane	<7.00		10.0	7.00	ug/L			09/14/23 22:15	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			09/14/23 22:15	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			09/14/23 22:15	1
Styrene	<0.370		1.00	0.370	ug/L			09/14/23 22:15	1
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			09/14/23 22:15	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			09/14/23 22:15	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			09/14/23 22:15	1
Toluene	<0.430		1.00	0.430	ug/L			09/14/23 22:15	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			09/14/23 22:15	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			09/14/23 22:15	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			09/14/23 22:15	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			09/14/23 22:15	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			09/14/23 22:15	1
Trichloroethene	<0.430		1.00	0.430	ug/L			09/14/23 22:15	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			09/14/23 22:15	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			09/14/23 22:15	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			09/14/23 22:15	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			09/14/23 22:15	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			09/14/23 22:15	1

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

Lab Sample ID: MB 310-399556/5
Matrix: Water
Analysis Batch: 399556

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*09/14/23 22:15*	*1*
Dibromofluoromethane (Surr)	*102*		*80 - 128*		*09/14/23 22:15*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*09/14/23 22:15*	*1*

Lab Sample ID: LCS 310-399556/6
Matrix: Water
Analysis Batch: 399556

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acetone	40.0	37.32		ug/L		93	50 - 150
Acrylonitrile	200	179.4		ug/L		90	50 - 150
Benzene	20.0	20.02		ug/L		100	73 - 122
Bromochloromethane	20.0	20.27		ug/L		101	68 - 132
Bromodichloromethane	20.0	20.36		ug/L		102	72 - 121
Bromoform	20.0	21.24		ug/L		106	55 - 129
2-Butanone (MEK)	40.0	35.83		ug/L		90	50 - 150
Carbon disulfide	20.0	22.34		ug/L		112	58 - 131
Carbon tetrachloride	20.0	22.54		ug/L		113	67 - 132
Chlorobenzene	20.0	21.43		ug/L		107	69 - 121
Chlorodibromomethane	20.0	19.67		ug/L		98	69 - 122
Chloroform	20.0	20.63		ug/L		103	72 - 120
cis-1,2-Dichloroethene	20.0	21.17		ug/L		106	74 - 120
cis-1,3-Dichloropropene	20.0	20.19		ug/L		101	71 - 126
1,2-Dibromo-3-Chloropropane	20.0	20.91		ug/L		105	50 - 150
1,2-Dibromoethane (EDB)	20.0	20.94		ug/L		105	73 - 125
Dibromomethane	20.0	19.16		ug/L		96	72 - 123
1,2-Dichlorobenzene	20.0	21.29		ug/L		106	68 - 120
1,4-Dichlorobenzene	20.0	21.50		ug/L		108	67 - 120
1,1-Dichloroethane	20.0	20.07		ug/L		100	71 - 123
1,2-Dichloroethane	20.0	18.79		ug/L		94	70 - 124
1,1-Dichloroethene	20.0	23.33		ug/L		117	61 - 129
1,2-Dichloropropane	20.0	20.20		ug/L		101	73 - 121
Ethylbenzene	20.0	21.40		ug/L		107	69 - 122
2-Hexanone	40.0	36.58		ug/L		91	60 - 132
Iodomethane	20.0	16.64		ug/L		83	10 - 150
Methylene Chloride	20.0	20.27		ug/L		101	50 - 150
4-Methyl-2-pentanone (MIBK)	40.0	39.28		ug/L		98	62 - 130
Styrene	20.0	21.21		ug/L		106	67 - 125
1,1,1,2-Tetrachloroethane	20.0	20.95		ug/L		105	68 - 123
1,1,2,2-Tetrachloroethane	20.0	20.92		ug/L		105	64 - 124
Tetrachloroethene	20.0	23.82		ug/L		119	69 - 131
Toluene	20.0	21.20		ug/L		106	72 - 121
trans-1,4-Dichloro-2-butene	20.0	18.86		ug/L		94	48 - 150
trans-1,2-Dichloroethene	20.0	21.39		ug/L		107	68 - 125
trans-1,3-Dichloropropene	20.0	19.43		ug/L		97	68 - 124
1,1,1-Trichloroethane	20.0	21.73		ug/L		109	71 - 128
1,1,2-Trichloroethane	20.0	20.49		ug/L		102	70 - 124
Trichloroethene	20.0	22.33		ug/L		112	73 - 126

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

Lab Sample ID: LCS 310-399556/6
Matrix: Water
Analysis Batch: 399556

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2,3-Trichloropropane	20.0	18.41		ug/L		92	64 - 125
Vinyl acetate	40.0	43.03		ug/L		108	50 - 150
Xylenes, Total	40.0	43.96		ug/L		110	68 - 124

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*
Dibromofluoromethane (Surr)	*98*		*80 - 128*
Toluene-d8 (Surr)	*100*		*80 - 120*

Lab Sample ID: LCS 310-399556/7
Matrix: Water
Analysis Batch: 399556

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bromomethane	20.0	17.15		ug/L		86	24 - 150
Chloroethane	20.0	23.00		ug/L		115	51 - 137
Chloromethane	20.0	20.66		ug/L		103	37 - 150
Trichlorofluoromethane	20.0	26.22		ug/L		131	56 - 144
Vinyl chloride	20.0	23.15		ug/L		116	57 - 136

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*
Dibromofluoromethane (Surr)	*101*		*80 - 128*
Toluene-d8 (Surr)	*98*		*80 - 120*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-399607/1-A
Matrix: Water
Analysis Batch: 400462

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 399607

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00200	0.00100	mg/L		09/15/23 09:30	09/22/23 17:22	1
Arsenic	<0.000530		0.00200	0.000530	mg/L		09/15/23 09:30	09/22/23 17:22	1
Barium	<0.000640		0.00200	0.000640	mg/L		09/15/23 09:30	09/22/23 17:22	1
Beryllium	<0.000330		0.00100	0.000330	mg/L		09/15/23 09:30	09/22/23 17:22	1
Cadmium	<0.000100		0.000200	0.000100	mg/L		09/15/23 09:30	09/22/23 17:22	1
Chromium	<0.00110		0.00500	0.00110	mg/L		09/15/23 09:30	09/22/23 17:22	1
Cobalt	<0.000170		0.000500	0.000170	mg/L		09/15/23 09:30	09/22/23 17:22	1
Copper	<0.00180		0.00500	0.00180	mg/L		09/15/23 09:30	09/22/23 17:22	1
Lead	<0.000240		0.000500	0.000240	mg/L		09/15/23 09:30	09/22/23 17:22	1
Nickel	<0.00190		0.00500	0.00190	mg/L		09/15/23 09:30	09/22/23 17:22	1
Selenium	<0.00140		0.00500	0.00140	mg/L		09/15/23 09:30	09/22/23 17:22	1
Silver	<0.000500		0.00100	0.000500	mg/L		09/15/23 09:30	09/22/23 17:22	1
Thallium	<0.000260		0.00100	0.000260	mg/L		09/15/23 09:30	09/22/23 17:22	1
Vanadium	<0.00110		0.00500	0.00110	mg/L		09/15/23 09:30	09/22/23 17:22	1
Zinc	<0.00640		0.0200	0.00640	mg/L		09/15/23 09:30	09/22/23 17:22	1

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 310-399607/2-A
Matrix: Water
Analysis Batch: 400462

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 399607

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.200	0.2252		mg/L		113	80 - 120
Barium	0.100	0.1158		mg/L		116	80 - 120
Beryllium	0.100	0.1114		mg/L		111	80 - 120
Cadmium	0.100	0.1125		mg/L		112	80 - 120
Chromium	0.100	0.1163		mg/L		116	80 - 120
Cobalt	0.100	0.1129		mg/L		113	80 - 120
Copper	0.200	0.2264		mg/L		113	80 - 120
Nickel	0.200	0.2310		mg/L		115	80 - 120
Selenium	0.400	0.4433		mg/L		111	80 - 120
Silver	0.100	0.09426		mg/L		94	80 - 120
Thallium	0.200	0.1728		mg/L		86	80 - 120
Vanadium	0.100	0.1090		mg/L		109	80 - 120
Zinc	0.200	0.2230		mg/L		111	80 - 120

Lab Sample ID: LCS 310-399607/2-A
Matrix: Water
Analysis Batch: 400668

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 399607

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chromium	0.100	0.1057		mg/L		106	80 - 120
Lead	0.200	0.2226		mg/L		111	80 - 120

Lab Sample ID: 310-264699-1 DU
Matrix: Water
Analysis Batch: 400462

Client Sample ID: GU-2A_23_09
Prep Type: Total/NA
Prep Batch: 399607

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	<0.00100		<0.00100		mg/L		NC	20
Arsenic	0.000769	J	0.0008620	J	mg/L		11	20
Barium	0.310		0.3040		mg/L		2	20
Beryllium	<0.000330		<0.000330		mg/L		NC	20
Cadmium	<0.000100		<0.000100		mg/L		NC	20
Chromium	<0.00110		<0.00110		mg/L		NC	20
Cobalt	<0.000170		<0.000170		mg/L		NC	20
Copper	<0.00180		<0.00180		mg/L		NC	20
Lead	<0.000240		<0.000240		mg/L		NC	20
Nickel	<0.00190		<0.00190		mg/L		NC	20
Selenium	<0.00140		<0.00140		mg/L		NC	20
Silver	<0.000500		<0.000500		mg/L		NC	20
Thallium	<0.000260		<0.000260		mg/L		NC	20
Vanadium	0.00155	J	0.001759	J	mg/L		13	20
Zinc	0.0204		0.02099		mg/L		3	20

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-399567/1
Matrix: Water
Analysis Batch: 399567

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<1.70		5.00	1.70	mg/L			09/14/23 11:01	1

Lab Sample ID: LCS 310-399567/2
Matrix: Water
Analysis Batch: 399567

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	99.00		mg/L		99	75 - 116

Lab Sample ID: MB 310-399572/1
Matrix: Water
Analysis Batch: 399572

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<1.70		5.00	1.70	mg/L			09/14/23 11:49	1

Lab Sample ID: LCS 310-399572/2
Matrix: Water
Analysis Batch: 399572

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	99.00		mg/L		99	75 - 116

GC/MS VOA

Analysis Batch: 399556

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264699-1	GU-2A_23_09	Total/NA	Water	8260D	
310-264699-2	MW-119RR_23_09	Total/NA	Water	8260D	
310-264699-3	MW-121R_23_09	Total/NA	Water	8260D	
310-264699-4	MW-122R_23_09	Total/NA	Water	8260D	
310-264699-5	MW-200_23_09	Total/NA	Water	8260D	
310-264699-6	MW-205_23_09	Total/NA	Water	8260D	
310-264699-7	MW-206_23_09	Total/NA	Water	8260D	
310-264699-8	FB-1_23_09	Total/NA	Water	8260D	
310-264699-9	FD-1_23_09	Total/NA	Water	8260D	
310-264699-10	TB-1_23_09	Total/NA	Water	8260D	
MB 310-399556/5	Method Blank	Total/NA	Water	8260D	
LCS 310-399556/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-399556/7	Lab Control Sample	Total/NA	Water	8260D	

Metals

Prep Batch: 399607

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264699-1	GU-2A_23_09	Total/NA	Water	3005A	
310-264699-2	MW-119RR_23_09	Total/NA	Water	3005A	
310-264699-3	MW-121R_23_09	Total/NA	Water	3005A	
310-264699-4	MW-122R_23_09	Total/NA	Water	3005A	
310-264699-5	MW-200_23_09	Total/NA	Water	3005A	
310-264699-6	MW-205_23_09	Total/NA	Water	3005A	
310-264699-7	MW-206_23_09	Total/NA	Water	3005A	
310-264699-8	FB-1_23_09	Total/NA	Water	3005A	
310-264699-9	FD-1_23_09	Total/NA	Water	3005A	
MB 310-399607/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-399607/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-264699-1 DU	GU-2A_23_09	Total/NA	Water	3005A	

Analysis Batch: 400462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264699-1	GU-2A_23_09	Total/NA	Water	6020B	399607
310-264699-2	MW-119RR_23_09	Total/NA	Water	6020B	399607
310-264699-3	MW-121R_23_09	Total/NA	Water	6020B	399607
310-264699-4	MW-122R_23_09	Total/NA	Water	6020B	399607
310-264699-5	MW-200_23_09	Total/NA	Water	6020B	399607
310-264699-6	MW-205_23_09	Total/NA	Water	6020B	399607
310-264699-7	MW-206_23_09	Total/NA	Water	6020B	399607
310-264699-8	FB-1_23_09	Total/NA	Water	6020B	399607
310-264699-9	FD-1_23_09	Total/NA	Water	6020B	399607
MB 310-399607/1-A	Method Blank	Total/NA	Water	6020B	399607
LCS 310-399607/2-A	Lab Control Sample	Total/NA	Water	6020B	399607
310-264699-1 DU	GU-2A_23_09	Total/NA	Water	6020B	399607

Analysis Batch: 400668

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-399607/2-A	Lab Control Sample	Total/NA	Water	6020B	399607

General Chemistry

Analysis Batch: 399567

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264699-1	GU-2A_23_09	Total/NA	Water	I-3765-85	
310-264699-2	MW-119RR_23_09	Total/NA	Water	I-3765-85	
MB 310-399567/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-399567/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 399572

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264699-3	MW-121R_23_09	Total/NA	Water	I-3765-85	
310-264699-4	MW-122R_23_09	Total/NA	Water	I-3765-85	
310-264699-5	MW-200_23_09	Total/NA	Water	I-3765-85	
310-264699-6	MW-205_23_09	Total/NA	Water	I-3765-85	
310-264699-7	MW-206_23_09	Total/NA	Water	I-3765-85	
310-264699-8	FB-1_23_09	Total/NA	Water	I-3765-85	
310-264699-9	FD-1_23_09	Total/NA	Water	I-3765-85	
MB 310-399572/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-399572/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Lab Chronicle

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill Fall Groundwater

Job ID: 310-264699-1
SDG: 23C002.00

Client Sample ID: GU-2A_23_09

Lab Sample ID: 310-264699-1

Date Collected: 09/13/23 12:38
Matrix: Water
Date Received: 09/13/23 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	399556	FE5V	EET CF	09/15/23 03:07
Total/NA	Prep	3005A			399607	KCK5	EET CF	09/15/23 09:30
Total/NA	Analysis	6020B		1	400462	DHM5	EET CF	09/22/23 18:14
Total/NA	Analysis	I-3765-85		1	399567	DGU1	EET CF	09/14/23 11:01

Client Sample ID: MW-119RR_23_09

Lab Sample ID: 310-264699-2

Date Collected: 09/13/23 11:19
Matrix: Water
Date Received: 09/13/23 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	399556	FE5V	EET CF	09/15/23 03:30
Total/NA	Prep	3005A			399607	KCK5	EET CF	09/15/23 09:30
Total/NA	Analysis	6020B		1	400462	DHM5	EET CF	09/22/23 18:18
Total/NA	Analysis	I-3765-85		1	399567	DGU1	EET CF	09/14/23 11:01

Client Sample ID: MW-121R_23_09

Lab Sample ID: 310-264699-3

Date Collected: 09/13/23 12:08
Matrix: Water
Date Received: 09/13/23 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	399556	FE5V	EET CF	09/15/23 03:52
Total/NA	Prep	3005A			399607	KCK5	EET CF	09/15/23 09:30
Total/NA	Analysis	6020B		1	400462	DHM5	EET CF	09/22/23 18:20
Total/NA	Analysis	I-3765-85		1	399572	DGU1	EET CF	09/14/23 11:49

Client Sample ID: MW-122R_23_09

Lab Sample ID: 310-264699-4

Date Collected: 09/13/23 13:25
Matrix: Water
Date Received: 09/13/23 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	399556	FE5V	EET CF	09/15/23 04:15
Total/NA	Prep	3005A			399607	KCK5	EET CF	09/15/23 09:30
Total/NA	Analysis	6020B		1	400462	DHM5	EET CF	09/22/23 18:23
Total/NA	Analysis	I-3765-85		1	399572	DGU1	EET CF	09/14/23 11:49

Client Sample ID: MW-200_23_09

Lab Sample ID: 310-264699-5

Date Collected: 09/13/23 09:22
Matrix: Water
Date Received: 09/13/23 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	399556	FE5V	EET CF	09/15/23 04:37
Total/NA	Prep	3005A			399607	KCK5	EET CF	09/15/23 09:30
Total/NA	Analysis	6020B		1	400462	DHM5	EET CF	09/22/23 18:25
Total/NA	Analysis	I-3765-85		1	399572	DGU1	EET CF	09/14/23 11:49

Lab Chronicle

Client: Foth Infrastructure & Environment, LLC
Job ID: 310-264699-1
Project/Site: Carroll County Landfill Fall Groundwater
SDG: 23C002.00

Client Sample ID: MW-205_23_09
Lab Sample ID: 310-264699-6
Date Collected: 09/12/23 19:05
Matrix: Water
Date Received: 09/13/23 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	399556	FE5V	EET CF	09/15/23 05:00
Total/NA	Prep	3005A			399607	KCK5	EET CF	09/15/23 09:30
Total/NA	Analysis	6020B		1	400462	DHM5	EET CF	09/22/23 18:27
Total/NA	Analysis	I-3765-85		1	399572	DGU1	EET CF	09/14/23 11:49

Client Sample ID: MW-206_23_09
Lab Sample ID: 310-264699-7
Date Collected: 09/12/23 19:05
Matrix: Water
Date Received: 09/13/23 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	399556	FE5V	EET CF	09/15/23 05:22
Total/NA	Prep	3005A			399607	KCK5	EET CF	09/15/23 09:30
Total/NA	Analysis	6020B		1	400462	DHM5	EET CF	09/22/23 18:29
Total/NA	Analysis	I-3765-85		1	399572	DGU1	EET CF	09/14/23 11:49

Client Sample ID: FB-1_23_09
Lab Sample ID: 310-264699-8
Date Collected: 09/12/23 19:20
Matrix: Water
Date Received: 09/13/23 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	399556	FE5V	EET CF	09/14/23 23:45
Total/NA	Prep	3005A			399607	KCK5	EET CF	09/15/23 09:30
Total/NA	Analysis	6020B		1	400462	DHM5	EET CF	09/22/23 18:31
Total/NA	Analysis	I-3765-85		1	399572	DGU1	EET CF	09/14/23 11:49

Client Sample ID: FD-1_23_09
Lab Sample ID: 310-264699-9
Date Collected: 09/13/23 00:00
Matrix: Water
Date Received: 09/13/23 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	399556	FE5V	EET CF	09/15/23 05:45
Total/NA	Prep	3005A			399607	KCK5	EET CF	09/15/23 09:30
Total/NA	Analysis	6020B		1	400462	DHM5	EET CF	09/22/23 18:43
Total/NA	Analysis	I-3765-85		1	399572	DGU1	EET CF	09/14/23 11:49

Client Sample ID: TB-1_23_09
Lab Sample ID: 310-264699-10
Date Collected: 09/13/23 00:00
Matrix: Water
Date Received: 09/13/23 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	399556	FE5V	EET CF	09/15/23 00:08

Laboratory References:

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

Accreditation/Certification Summary

Client: Foth Infrastructure & Environment, LLC
Job ID: 310-264699-1
Project/Site: Carroll County Landfill Fall Groundwater
SDG: 23C002.00

Laboratory: Eurofins Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

Method Summary

Client: Foth Infrastructure & Environment, LLC
Project/Site: Carroll County Landfill Fall Groundwater

Job ID: 310-264699-1
SDG: 23C002.00

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF

Protocol References:

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

eurofins | Environment Testing America

310-264699 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Foth

City/State: CITY | STATE NM | Project:

Receipt Information

Date/Time Received: DATE 9/13/23 | TIME 1725 | Received By: ST

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ Lab Courier ☐ Lab Field Services ☒ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID:

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 1 of 2

Cooler Custody Seals Present? ☐ Yes ☒ No *If yes:* Cooler custody seals intact? ☐ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☒ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: T | Correction Factor (°C): 0

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 1.0 | Corrected Temp (°C): 1.0

• Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE. If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

eurofins | Environment Testing America

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Foth

City/State: CITY | STATE WI | Project:

Receipt Information

Date/Time Received: DATE 9/13/23 | TIME 1725 | Received By: ST

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ Lab Courier ☐ Lab Field Services ☒ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID:

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 2 of 2

Cooler Custody Seals Present? ☐ Yes ☒ No *If yes:* Cooler custody seals intact? ☐ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☒ Yes ☐ No *If yes:* Which VOA samples are in cooler? ↓

MW12IR_23_09, GW-2A_23_09, MW12ZR_23_09

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: T | Correction Factor (°C): 0

Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 1.1 | Corrected Temp (°C): 1.1

Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

Foth

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT All relevant fields must be completed accurately

Page: 1 of 1 | **COC Number:** 1-3865545471-082223-256842

Company: Foth Infrastructure & Environment, LLC	Report To: Gina Wilming/Hannah Dubbs (Foth)	Requested Due Date:	Quote Reference:
Address: 411 6th Avenue SE, Suite 400	Copy To.	TAT: Standard	Project Manager: Gina Wimling
Cedar Rapids, IA 52401	Invoice To: Mary Wittry (CCSWMC)		Project #: 23C002.00
Phone: (319) 365-9565	P.O		Profile #:
Email Addresses: gina.wilming@foth.com	Project Name: Carroll County Landfill	Regulatory Agency: Iowa DNR	Sampling Team Members: Hannah Dubbs
hannah.dubbs@foth.com	Task #: 23C002_23_09	State Location: Iowa	

ITEM NUMBER	SAMPLE ID	Sample Location	MATRIX CODE	SAMPLE TYPE G = Grab C = Composite	DATE COLLECTED MM/DD/YYYY	TIME COLLECTED (Military time)	Preservatives: Total # Containers	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Requested Analysis: N	N	N	Filtered (Y/N)	REMARKS / Lab ID
															IA Appendix I List	TSS	IA App. I VOCs Only		
1	GU-2A_23_09	GU-2A	WG	G	9/13/23	1238									X	X			
2	~~GU-4A_23_09~~	~~GU-4A~~	~~WG~~	~~G~~											~~X~~	~~X~~			
3	MW-119RR_23_09	MW-119RR	WG	G	9/13/23	1119									X	X			
4	MW-121R_23_09	MW-121R	WG	G	9/13/23	1258									X	X			
5	MW-122R_23_09	MW-122R	WG	G	9/13/23	1325									X	X			
6	MW-200_23_09	MW-200	WG	G	9/13/23	0922									X	X			
7	~~MW-204RR_23_09~~	~~MW-204RR~~	~~WG~~	~~G~~											~~X~~	~~X~~			
8	MW-205_23_09	MW-205	WG	G	9/12/23	1905									X	X			
9	MW-206_23_09	MW-206	WG	G	9/12/23	1905									X	X			
10	FB-1_23_09	FB-1	WQ	G	9/12/23	1920									X	X			
11	FD-1_23_09		WG	G	9/13/23	0000									X	X			
12	TB-1_23_09	Trip Blank	WQ	G	9/13/23	0000											X		

Relinquished by: [signature] 9/13/23 1725

SAMPLE CONDITION:

Temp in C	
Received on Ice	Y / N
Sealed Cooler	Y / N
Sample Intact	Y / N

SAMPLE NOTES:

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Hannah Dubbs

SIGNATURE of SAMPLER: [signature]

DATE Signed: 9/13/23

Additional Comments:

2nd ST 9/13/23 1725

9/27/2023

Login Sample Receipt Checklist

Client: Foth Infrastructure & Environment, LLC

Job Number: 310-264699-1
SDG Number: 23C002.00

Login Number: 264699
List Number: 1
Creator: Homolar, Dana J

List Source: Eurofins Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= 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 <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Data Validation Report

Project Name:	Carroll County Landfill Western Expansion Area (23C002.00)
Task Name:	23C002_23_09
Data Set Description:	Fall 2023 Groundwater Event
Laboratory(s):	Eurofins – Cedar Falls, IA
Laboratory Sample Delivery Group (SDG) ID(s):	310-264699-1
Sample Collection Dates:	9/12/2023 – 9/13/2023
Sample Analysis Dates:	9/14/2023 – 9/22/2023
Sample Matrices:	Groundwater
Sample IDs Reviewed:	See Table 1
Verification and Validation Stage, 100% data:	☐ 1 ☒ 2A ☐ 2B ☐ 3 ☐ 4
Verified and Validated By:	Hannah Dubbs, Project Environmental Scientist 10/24/2023

The analytical data were validated to verify that laboratory quality assurance and quality control (QA/QC) procedures were documented and to evaluate the overall quality of the data reported. The analytical report includes seven investigative groundwater samples collected via low-flow or no-purge sampling techniques at the Carroll County Landfill Western Expansion Area on September 12 and 13, 2023; samples are listed in Table 1. The data were collected in accordance with the Hydrologic Monitoring System Plan (HMSP) for the Carroll County Landfill Western Expansion Area (Foth, 2008), Iowa Department of Natural Resources (IDNR) Sanitary Disposal Permit Number 14-SDP-01-74P (including Permit Revisions), and 567 Iowa Administrative Code (IAC) 113.10.

Validation Summary

Stage 2A data validation was performed on 100% of the data from this SDG, with review tasks and items of note documented in the summary table below.

Validation Task and Description	Review Notes	Action
Chain of Custody (COC) and Sample Receipt Form Confirm relinquish & receipt signatures. Confirm parameters and analytical methods match COC and Hydrologic Monitoring System Plan (HMSP).	All appropriate relinquish and receipt signatures were present. However, field staff had 19:05 for the sample time for MW-206_23_09 on the COC. The sample time for MW-206_23_09 was 18:40. A revised laboratory report was not requested. The sample time for MW-206_23_09 will be updated prior to upload. Parameters and analytical methods match the COC and HMSP.	Sample time for MW-206_23_09 will be updated in the field and lab EDDs prior to data upload.
Case Narrative Review for items noted by the laboratory that may impact the validation process.	The quality control issues noted in the case narratives were reviewed and found acceptable. Issues either were addressed in the comments below, had no impact on investigative samples, or were corrected/qualified by the laboratory. No additional actions are required. Note: continuing calibration verification (CCV) evaluation is not part of Stage 2A validation.	Not applicable

Validation Task and Description	Review Notes	Action
Sample Condition Upon Receipt (SCUR) Confirm samples in acceptable condition and no discrepancies noted. Confirm preservation meets method requirements.	Samples were received by Eurofins – Cedar Falls, IA in acceptable conditions.	Not applicable
Methods Requested Confirm methods match project requirements and lab provided all methods ordered.	The methods ordered and analyzed were performed in accordance with the project requirements. Methods include United States Environmental Protection Agency (USEPA) 8260D Volatile Organic Compounds (VOCs), USEPA 6020B Total Metals, and United States Geological Survey (USGS) I-3765-85 Total Suspended Solids.	Not applicable
Analytes Requested Confirm analytes ordered match project requirements and lab provided all analytes ordered.	The analytes requested were analyzed in accordance with the project requirements. The laboratory provided all the analytes ordered.	Not applicable
Holding Times Confirm laboratory performed extractions and analyses within method-required holding times.	Eurofins performed analysis within the method-required holding times.	Not applicable
Blanks Confirm no detections in laboratory method blanks, field blanks, and trip blanks.	Table 3 is intended to present analytes detected in the method, field, and trip blanks. No detections were found in the method, field, and trip blanks for this SDG.	Not applicable
Surrogates or Deuterated Monitoring Compounds For *organic analyses only*, confirm surrogates analyzed and surrogate recovery within QC limits.	Table 4 is intended to present surrogate recoveries that were outside the control limits. Surrogate recoveries were within control limits for this SDG.	Not applicable
Matrix Spike/Matrix Spike Duplicates (MS/MSDs) Confirm MS/MSDs analyzed at frequency specified by project requirements and MS/MSD percent recovery within lab specified limits. Confirm, for Organic analytes, MSD relative percent difference (RPD) within limits. For inorganic analytes, lab replicate RPD within limits.	MS/MSD quality control samples are not required for this project. As a result, no MS/MSD samples were collected or submitted for analysis. Where analyzed and reported by the laboratory, MS/MSD results associated with the samples in 310-264699-1 are reviewed under Stage 2A validation guidelines. Table 5 is intended to present MS/MSD recoveries and RPDs that were outside the control limits. Eurofins did not analyze or report MS/MSD results.	Not applicable

Validation Task and Description	Review Notes	Action
Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Confirm LCS analyzed and LCS/LCSD recovery and RPD within lab specified limits.	LCS/LCSD quality control samples are not required for this project. Where analyzed and reported by the laboratory, LCS/LCSD results associated with method batches in 310-264699-1 are reviewed under Stage 2A validation guidelines. Table 6 is intended to present the LCS/LCSD recoveries and RPDs that were outside the control limits. LCS/LCSD recoveries and RPDs were within control limits for this SDG.	Not applicable
Laboratory Duplicates Confirm lab duplicates analyzed and RPD within lab specified limits.	Laboratory duplicate quality control samples are not required for this project. Where analyzed and reported by the laboratory, laboratory duplicate results associated with the samples in 310-264699-1 are reviewed under Stage 2A validation guidelines. Table 7 is intended to present the lab duplicate sample RPDs that were outside the RPD limits. RPDs were within the lab-specified RPD limits for this SDG where calculated.	Not applicable
Field Duplicates Confirm field duplicates collected at required frequency and field duplicate RPD within acceptable limits.	Field duplicate samples were collected at 1 per 10 frequencies, in accordance with the project requirements. Table 8 contains the precision evaluation of the parent/field duplicate samples. The RPDs between the investigative and field duplicate samples were within the duplicate sample validation criteria.	Not applicable

Abbreviations:
COC = chain of custody
CCV = continuing calibration verification
HMSP = Hydrologic Monitoring System Plan
LCS = laboratory control sample
LCSD = laboratory control sample duplicate
MS = matrix spike
MSD = matrix spike duplicate
RPD = relative percent difference
SCUR = sample condition upon receipt
SDG = sample delivery group
SOP = Standard Operating Procedure
USEPA = United States Environmental Protection Agency
USGS = United States Geological Survey
VOC = volatile organic compound

Overall Assessment of Data

Item	Acceptable Yes	Acceptable No	Comments
1. Method Criteria	X		Samples were collected, preserved, shipped/delivered, and analyzed within the method protocols.
2. Precision	X		Field precision was evaluated through investigative and field duplicate RPDs. The RPDs between the investigative and field duplicate samples were within the duplicate sample validation criteria. Laboratory precision was evaluated through MS/MSD, LCS/LCSD, and laboratory duplicate RPDs. Eurofins did not analyze or report MS/MSD results. Where analyzed and reported by the laboratory, LCS/LCSD and laboratory duplicate RPDs were within control limits.
3. Accuracy	X		Accuracy was evaluated through surrogate, MS/MSD, and LCS/LCD recovery. The percent recoveries for surrogate samples were within control limits. Eurofins did not analyze or report MS/MSD results. Where analyzed and reported by the laboratory, LCS/LCSD percent recoveries and RPDs were within control limits.
4. Representativeness	X		Sampling was conducted in accordance with the sample collection procedures described in the approved HMSP, approved HMSP revisions, and standard operating procedures (SOPs).
5. Comparability	X		Collection techniques, measurement procedures, methods, and reporting were equivalent to currently approved procedures and are comparable to historical data.
6. Completeness	X		Valid analytical results exceeded 90%.
7. Suitability for Intended Use	X		No evidence of gross contamination or significant issues with the method criteria, precision, accuracy, representativeness, comparability, or completeness were identified.

Overall, the data reported are of good quality and the results for the applicable quality assurance/quality control (QA/QC) measurements that were used by the laboratories during the analysis of the samples were generally acceptable. No sample results were qualified during data validation because method-specific QA/QC criteria were met. Table 2 provides a definition of the qualifiers that may be assigned by the validator and/or retained from the laboratory. No validation qualifiers were assigned. 100% of the data is usable for project data quality objectives.

Attachment 1

Tables

Table 1
Sample IDs Reviewed

Project Sample ID	Analyzed Lab Sample ID	Project Sample ID Matches Lab Client Sample ID	Lab Sample Date/Time Match COC/Logbook	Parameters and Analytical Methods Match COC	Sample Type
GU-2A_23_09	310-264699-1	Yes	Yes	Yes	Normal
MW-119RR_23_09	310-264699-2	Yes	Yes	Yes	Normal
MW-121R_23_09	310-264699-3	Yes	Yes	Yes	Normal
MW-122R_23_09	310-264699-4	Yes	Yes	Yes	Normal
MW-200_23_09	310-264699-5	Yes	Yes	Yes	Normal
MW-205_23_09	310-264699-6	Yes	Yes	Yes	Normal
MW-206_23_09	310-264699-7	Yes	**No**	Yes	Normal
FB-1_23_09	310-264699-8	Yes	Yes	Yes	FB
FD-1_23_09	310-264699-9	Yes	Yes	Yes	FD
TB-1_23_09	310-264699-10	Yes	Yes	Yes	TB

Notes:
FB = field blank
FD = field duplicate
TB = trip blank

Table 2
Explanation of Qualifiers

Qualifier	Explanation
U	The analyte was analyzed for and was not detected above the numerical quantitation limit.
J	The analyte was analyzed for and was positively identified, but the analytical result (i.e., quantitation) is an estimated value. In some cases it is recognized that the estimated value is biased high (J+) suggesting the actual value is lower than estimated; or biased low (J-) suggesting the actual value is higher than estimated.
UJ	The analyte was analyzed for and was not detected above the reporting limit, but the reporting limit is an estimated value.
R	The analyte was analyzed for but may or may not be present and/or quantifiable due to quality control issues. The analytical result is not usable and should be rejected.
N	The analysis indicates presumptive evidence of the presence of the analyte.
NJ	The analysis indicates presumptive evidence of the presence of the analyte, but the numerical value is an estimated quantity.

Notes:
Results qualified as “J” or “UJ” are of acceptable data quality and may be used quantitatively per United States Environmental Protection Agency guidelines.

Table 3
Method, Field, and Trip Blank Exceedances

Lab Report	Blank Type	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Parameter	Result	Units	Lab Qualifier	MDL	PQL	Associated Samples
No analytes were detected in the method, field, and trip blanks in this Sample Delivery Group.												

Notes:
MDL = minimum detection limit
PQL = practical quantitation limit

Table 4
Surrogate Recovery Exceedances

Lab Sample ID	Parent Sample	Parameter	Surrogate % Recovery	% Recovery Limits
Surrogate recoveries were within control limits for this Sample Delivery Group.				

Notes:
% = percent

Table 5
Matrix Spike - Matrix Spike Duplicate Exceedances

Lab Sample ID	Parent Sample	Parameter	MS % Recovery	MSD % Recovery	% Recovery Limits	RPD	RPD Limit
MS/MSD recoveries were not analyzed for this Sample Delivery Group.							

Notes:
% = percent
MS = matrix spike
MSD = matrix spike duplicate
RPD = relative percent difference

Table 6
Laboratory Control Sample and Laboratory Control Sample Duplicate Exceedances

Lab Sample ID	Associated SDG Batch	Parameter	LCS % Recovery	LCSD % Recovery	% Recovery Limits	RPD	RPD Limit
LCS/LCSD recoveries and RPDs were within control limits for this Sample Delivery Group.							

Notes:
% = percent
LCS = laboratory control sample
LSCD = laboratory control sample duplicate
RPD = relative percent difference

Table 7
Laboratory Duplicate Sample Exceedances

Lab Sample ID	Client Sample ID	Parameter	RPD	RPD Limit
Lab duplicate sample RPDs were within the RPD limits for this Sample Delivery Group.				

Notes:
RPD = relative percent difference

Table 8
Relative Percent Difference (RPD) Analysis for Field Duplicate Samples
Appendix I Constituents & TSS

RPD = $\frac{\text{absolute value (a - b)}}{\text{(a + b)/2}}$ **x 100%**

Acceptance Criteria*: 35%

* Unless otherwise noted in project planning documents, the acceptance criteria for field duplicates RPD is as follows:
- For analytes with concentrations greater than 5x (2x for soil matrices) the reporting limit, the RPD should be within 35% for water matrices (50% for soil matrices).
- For analytes with either or both concentrations less than 5x (2x for soil matrices) the reporting limit (indicated below by "low-level"), the absolute difference between the sample and field duplicate should not exceed 5x the reporting limit.

Duplicate Result Analysis:

Parameter	Unit	Parent	Duplicate Sample	RPD	Acceptable?
		MW-119RR_23_09	FD-1_23_09		
Arsenic	mg/L	J 0.00155	J 0.00175	low-level	Yes
Barium	mg/L	0.588	0.594	1.0%	Yes
Cobalt	mg/L	0.00187	0.00206	low-level	Yes
Nickel	mg/L	0.0131	0.0135	low-level	Yes
Total Suspended Solids	mg/L	2.50	2.50	low-level	Yes

Table 9
Qualified Results from Data Validation

Sample ID	Lab Sample ID	Method	Parameter	Result	Lab Qualifier	Units	Qualified Result	Validator Qualifier	Explanation
No qualifiers were signed to data in this Sample Delivery Group.									

Attachment 2

References

References

Foth, 2008. *Hydrologic Monitoring System and Gas Monitoring Plan, Carroll County Sanitary Landfill Western Expansion Area*. January. [Doc #16450].

Appendix B

Statistical Reports

Carroll County Western Expansion Area – Spring 2023 Evaluation
Carroll County Western Expansion Area – Fall 2023 Evaluation

Memorandum

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June 30, 2023

TO: Iowa Department of Natural Resources

FR: Gina Wilming, CGP; Hannah Dubbs; Stephen Lehrke, PhD

RE: Carroll County Western Expansion Area - Spring 2023 Statistical Evaluation

1. Memorandum Organization

This memo addresses the statistical analysis of the groundwater monitoring data collected during April 2023. The statistical methods and results are summarized, with the memo organization given as follows:

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Table 3 Apr. 2023 Prediction Limit Exceedances
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Attachments

Attachment 1 Detailed Discussion of Statistical Methods
Attachment 2 MW-200 Intrawell Statistics
Attachment 3 Sanitas Report Output for Interwell Prediction Limit Calculations
Attachment 4 Sanitas Report Output for Double Quantification Rule Evaluations
Attachment 5 Sanitas Report Output for Confidence Interval Calculations
Attachment 6 Effective Power and Site-Wide False Positive Rate Discussion
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2. Background

The groundwater monitoring locations and the status of the Appendix I and II sampling schedules are summarized in Table 1. The Appendix I and II analytical results will be provided in Table 13 of the 2023 Annual Water Quality Report (AWQR).

Table 1
Groundwater Monitoring Locations & Sampling Schedules
Apr. 2008 – Apr. 2023 Appendix I and II Data

Monitoring Location	Monitoring Program	Current Schedule (Apr. 2023) [1]	Appendix I Initiated	# Events to Complete Baseline Appendix I or Completion Date [113.10(5)b]	Appendix II Initiated	# Events to Complete Baseline Appendix II or Completion Date [113.10(6)b]	Returned to Detection Monitoring
Downgradient Monitoring Locations							
GU-2A	Detection	Appendix I	Sep-11	Sep-12	N/A	N/A	N/A
GU-4A	Detection	Dry	---	5	N/A	N/A	N/A
MW-119RR	Detection	Appendix I	Oct-19	Sep-21	N/A	N/A	N/A
MW-121R	Assessment	Appendix II	Sep-11	Sep-12	Jun-14	Apr-15	No
MW-200 [2]	Detection	Appendix I	Sep-09	Sep-10	Jul-16	Jul-16 [3]	Sep-18
MW-204RR	Detection	- - [4]	N/A	N/A	N/A	N/A	N/A
MW-205 [5]	Detection	Appendix I	Apr-20	Apr-21	N/A	N/A	N/A
MW-206	Detection	Appendix I	Oct-19	Dec-20	N/A	N/A	N/A
Background Monitoring Locations							
MW-122R	Background	Appendix II	Apr-08	Mar-09	Mar-09	Mar-10	N/A
MW-200 [2]	Background	Appendix II	Sep-09	Sep-10	Jul-16 [6]	Jul-16 [6]	N/A

N/A = Not applicable

[1] In Apr. 2023, the Appendix II locations were sampled for the Appendix I and detected Appendix II constituents. The next 5-year resampling for the full Appendix II list at the assessment and background monitoring wells is scheduled for Fall 2024.

[2] MW-200 primarily serves as a downgradient monitoring location; however, MW-200 is also used to supplement the background data set.

[3] MW-200 triggered assessment monitoring in Jul. 2016. Note that one round of background monitoring for the full Appendix II list had previously been conducted at MW-200 in October 2015 as part of the five-year full Appendix II resampling at the Closed Eastern Area. In accordance with Special Provision X.4.e, baseline assessment monitoring was complete after the June 2016 event since at least two rounds of analysis using the entire Appendix II list were completed in October 2015 and June 2016.

[4] Replacement well MW-204RR had insufficient groundwater for sample collection in Apr. 2023; therefore, a sample was not collected. Baseline sampling for the Appendix I list will be initiated when there is adequate water column.

[5] A sample was collected at MW-205 as a temporary or potential replacement for MW-204RR.

In April 2023, semiannual detection, assessment, and background monitoring were conducted at the downgradient and background monitoring locations as indicated in Table 1. Assessment monitoring well MW-121R and background wells MW-122R and MW-200 were sampled for the Appendix I and detected Appendix II constituents. As discussed in the *2021 AWQR* (Foth, 2022), detection monitoring samples are being collected at MW-205 as a temporary or potential replacement for MW-204RR due to the dry to limited water depths at MW-204RR. Note that MW-205 is not currently included in the permitted groundwater monitoring network for the Western Expansion Area.

Underdrain sample location GU-4A remained dry in April 2023. Baseline detection monitoring will be initiated once the water level is at or above the elevation of the horizontal underdrain discharge pipe connected perpendicular to the vertical sample pipe.

Under the detection and assessment monitoring programs of 567 Iowa Administrative Code (IAC) 113.10(5) and 113.10(6), Appendix I and II monitoring results are statistically compared to background levels as given in 567 IAC 113.10(5)c and 113.10(6)e and to the groundwater protection standard (GWPS) as given in 567 IAC 113.10(6)g and h. A well may return to detection monitoring when all Appendix II constituents are "shown to be at or below background values, using the statistical procedures in 567 IAC 113.10(4)g for two consecutive sampling events." Consequently, to return to detection monitoring in accordance with 567 IAC 113.10(6)e, all Appendix II constituents must be below the interwell prediction limit (for constituents which are detected in the background data set) or below the laboratory reporting limit (for constituents which are not detected in the background data set) during two consecutive sampling events. Three consecutive sampling events may be utilized to make the determination to return to detection monitoring to limit the frequent fluctuation of wells moving between the detection and assessment monitoring programs. Assessment monitoring continues when Appendix II concentrations are above background values but below the GWPS using the statistical procedures in 567 IAC 113.10(4)g.

If Appendix II constituents are detected at statistically significant levels (SSLs) above the GWPS, characterization [567 IAC 113.10(6)g] is initiated, and the owners or operators are required to initiate an assessment of corrective measures, select a remedy, and implement a remedy in accordance with 567 IAC 113.10(7), (8), and (9). For remedy completion [567 IAC 113.10(9)e(2)], compliance with the GWPS is considered achieved by demonstrating that concentrations of Appendix II constituents have not exceeded the GWPS for a period of three consecutive years or an alternate length of time established by the Department.

Based on the April 2008 through April 2023 results, this memo presents an evaluation of statistically significant increases (SSIs) and SSLs under the requirements of 567 IAC 113.10(4)g and h.

3. Statistical Methodology

The statistical methods utilized for locations in detection and assessment monitoring were consistent with the methods used in previous statistical evaluations. Detailed descriptions of the statistical methods are provided in Attachment 1. Sanitas® v9.6 (Sanitas Technologies) software was utilized to complete the statistical comparisons.

Note that statistical comparisons were not conducted at GU-4A and MW-204RR since GU-4A was dry and MW-204RR had insufficient groundwater for sample collection in April 2023. While not currently included in the permitted groundwater monitoring network, statistical comparisons

were conducted at MW-205 in this memo as a temporary or potential replacement for MW-204RR.

In addition, tin was inadvertently analyzed for the investigative, field duplicate, and field blank samples although tin analysis was not requested. Note that tin has only been detected in the background data, it has not been detected above the practical quantitation limit (PQL) in the downgradient assessment monitoring data, and therefore, the analysis is not requested in the downgradient assessment monitoring wells. However, tin will be included in this statistical evaluation since the data is available.

3.1 Background Data Set

The combined background data set of MW-122R and MW-200 was utilized to evaluate SSIs over background for metals. The background data set for non-metal constituents is defined by MW-122R only.

3.1.1 Turbidity and the Background Data Set

No background data set adjustments are recommended based on a review of the field turbidity and total suspended solids (TSS) data from the April 2023 sampling event. TSS concentrations in MW-122R and MW-200 were below the 5 mg/L level for acceptable sample quality in April 2023. A detailed discussion regarding compliance with Permit Special Provision X.4.g will be provided in the 2023 AWQR.

3.1.2 Background Data Set Review for Prediction Limits

The practical quantitation limit (PQL) has been lowered for several metal constituents since the start of Appendix I monitoring in March 2008. This lowering of the PQL has enabled laboratory quantitation limits to be lower than the GWPS. As a result of the shifting PQLs, the background datasets were reviewed to determine whether some of the earlier non-detect data with elevated PQLs may need to be removed from the background data due to the increased uncertainty this adds. For example, removing earlier non-detect data with elevated PQLs when that value is larger than any existing detected values ensures that the maximum order statistic is a quantified concentration for non-parametric prediction limits. However, data set adjustments are typically not recommended if detections are identified at concentrations above the earlier elevated PQLs, or in cases where the PQL remains relatively consistent over time. Also, consideration is given as to whether the elevated PQL is greater than or less than the GWPS. No background data set adjustments have been previously or are currently recommended based on shifting PQLs.

3.2 MW-200 Evaluation

The following statistical comparisons were conducted to provide ongoing documentation that MW-200 is suitable for inclusion in the background metals data set.

- Review MW-200 data for detection of non-metal constituents.
- Conduct Mann-Kendall trend tests on detected metals constituents.
- Conduct intrawell prediction limits on detected metals constituents.

3.2.1 Detection of Non-Metal Constituents in MW-200

No non-metal Appendix I or II constituents were detected above the laboratory PQL at MW-200 in April 2023.

The background data set adjustments previously recommended and incorporated based on a review of single background detections include:

- Removal of the September 2020 metals concentrations in MW-200 from interwell statistical comparisons (initiated with the Fall 2020 statistical evaluation) and intrawell statistical comparisons (initiated with the Fall 2021 statistical evaluation).

These data set adjustments were maintained in the current statistical evaluation.

3.2.2 Trend Tests and Intrawell Prediction Limits – MW-200

3.2.2.1 Updating Intrawell Background

Intrawell background was not updated during this statistical evaluation. Intrawell background was last updated during the Fall 2021 statistical evaluation. The Unified Guidance (Section 5.3.2) recommends that the intrawell background data set be updated periodically, after 4 to 8 new compliance observations have been collected. The guidance also states that "a potential update is predicated on there being no statistically significant increase [SSI] recorded for that well constituent, including since the last update." Intrawell background will be updated in Fall 2023 if there continue to be no SSIs identified at MW-200.

3.2.2.2 Trend Tests and Intrawell Prediction Limits

Mann-Kendall trend tests and intrawell prediction limits were used to statistically compare the detected metals concentrations in MW-200. These analytes are antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, nickel, tin, vanadium, and zinc. In Fall 2022, tin was not sampled and included in the trend test and intrawell prediction limit analysis for MW-200 because tin has not been detected in any downgradient wells or in the background data set above the PQL since 2013. However, tin was inadvertently analyzed in Spring 2023; therefore, tin was included in MW-200's intrawell analysis. The trend test and prediction limit statistical outputs are included in Attachment 2.

For constituents where notable changes in the reporting limit have occurred (i.e., antimony, chromium, cobalt, copper, lead, nickel, and vanadium), the earlier non-detect values with higher reporting limits were not included in the Mann-Kendall trend tests since this may artificially introduce variation into the trend test. Trends are not significant at the 98% confidence level for the detected metals constituents in MW-200.

The April 2023 results were below their respective intrawell prediction limits. Based on the Mann-Kendall trend test and intrawell prediction limit results, MW-200 remains suitable for inclusion in the background metals data set.

3.3 Abandoned and Replacement Well Data Sets

MW-119R and MW-204 were abandoned in April 2019, and replacement wells MW-119RR and MW-204R were installed in August 2019. The first round of detection monitoring for the Appendix I list was conducted at replacement wells MW-119RR and MW-204R in October 2019.

As discussed in the Spring 2021 Statistical Evaluation, the MW-119RR data was not combined with the abandoned well MW-119R data. Only the MW-119RR data was utilized to conduct statistical comparisons in the current evaluation.

MW-204R has been abandoned and removed from the groundwater monitoring network due to a well compromise identified during the April 2020 event. Replacement well MW-204RR was installed in July 2020. MW-204RR was dry at the time of installation and remained dry through the Winter 2020 sampling event. Groundwater was measured in the casing from 2021 through 2023; however, the volumes were insufficient for sample collection. The confining hydrogeologic conditions have been exacerbated by clay placement and compaction activities from the construction of Phases 5B and 6 and ongoing drought conditions. Quarterly baseline monitoring will be initiated when there is adequate water column. As discussed in the *2021 AWQR* (Foth, 2022), detection monitoring samples are being collected at MW-205 as a temporary or potential replacement for MW-204RR due to the dry to limited water depths at MW-204RR.

4. Comparison to Background

Comparisons to background levels were conducted using interwell prediction limits and the Double Quantification Rule (DQR).

4.1 Interwell Prediction Limits

Interwell prediction limits were used to formally assess SSIs over background for analytes that have been detected above the reporting limit in the background data set (MW-122R and MW-200). These analytes were antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, nickel, vanadium, tin, and zinc. In Fall 2022, tin was not sampled and included in the interwell prediction limit analysis because tin has not been detected in any downgradient wells or in the background data set above the PQL since 2013. However, tin was inadvertently analyzed in Spring 2023; therefore, tin was included in the interwell prediction limit analysis.

Prediction limits calculated utilizing background sample data collected from April 2008 through April 2023 are summarized in Table 2. The MW-200 background data set adjustments discussed in Section 3.2.1 were utilized.

Non-parametric prediction limits were used since either normality assumptions could not be met, or there were less than 50% detects in the combined background data.

Table 2
Interwell Prediction Limit Summary
Apr. 2008 – Apr. 2023 Interwell Data [1]

Chemical Name	Prediction Limit	Units	Prediction Limit Type	Retesting Plan	Prediction Limit Method
Antimony	0.0101	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic
Arsenic	0.00801	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic
Barium	1.05	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic
Beryllium	0.00348	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic
Cadmium	0.00179	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic
Chromium	0.0343	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic
Cobalt	0.026	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic
Copper	0.0536	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic
Lead	0.0362	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic
Nickel	0.0545	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic
Tin	0.376	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic
Vanadium	0.0921	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic
Zinc	0.224	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic

[1] Interwell data consists of the Appendix I and II parameters that have been detected in the combined background data set (MW-122R and MW-200). Note that the MW-200 background data set adjustments were incorporated in accordance with Section 3.2.1.

Interwell prediction limit output is included in Attachment 3. The monitoring locations exhibiting a prediction limit exceedance during the April 2023 event are listed in Table 3.

Table 3
Apr. 2023 Prediction Limit Exceedances

	Arsenic (mg/L)
Prediction Limit	**0.00801**
Detection Monitoring Locations	
None	
Assessment Monitoring Locations	
MW-121R	0.00869

4.2 Double Quantification Rule

The DQR was used to evaluate SSIs over background for the Appendix I and II metal constituents which have not been detected above the reporting limit in the combined background data set (MW-122R and MW-200), and for the non-metal constituents which have not been detected above the reporting limit in MW-122R (i.e., DQR is applied to constituents which have not been evaluated using interwell prediction limits.)

The DQR output is included in Attachment 4, with a summary of the April 2023 DQR detections listed in Table 4. No DQR detections were identified at detection monitoring locations GU-2A, MW-119RR, MW-200, MW-205, and MW-206.

Table 4
Double Quantification Rule
Apr. 2023 Detections

Well	Constituent(s)
Detection Monitoring Locations	
None	
Assessment Monitoring Locations	
MW-121R	Benzene; cis-1,2-Dichloroethene

4.3 Summary of Comparison to Background

4.3.1 Detection Monitoring Locations

No interwell prediction limit exceedances or DQR detections were identified at GU-2A, MW-119RR, MW-200, MW-205, and MW-206.

4.3.2 Assessment Monitoring Locations

An interwell prediction limit exceedance was identified for arsenic in MW-121R. DQR detections were identified for benzene and cis-1,2-dichloroethene in MW-121R. In lieu of retesting for the prediction limit exceedance and DQR detections, SSIs were declared and evaluated for SSLs in Section 5.

4.3.2.1 Exiting Assessment Monitoring

Table 5 presents a summary of the assessment monitoring locations and statistical comparisons required for exiting assessment monitoring. As discussed in Section 2, assessment monitoring locations may return to detection monitoring when Appendix II constituents fall below the current interwell prediction limit (for constituents which are detected in the background data set) and below the laboratory reporting limit (for constituents which are not detected in the background data set) for three consecutive sampling events.

Table 5
Evaluation to Exit Assessment Monitoring

Monitoring Location	Apr. 2022	Sep. 2022	Apr. 2023
MW-121R			
Constituents Detected in Background are Below Prediction Limits	No	No	No
DQR Constituents are Below Reporting Limit	No	No	No

All Appendix II constituents were not below the interwell prediction limit or laboratory reporting limit for three consecutive sampling events at MW-121R. As a result, MW-121R will not exit assessment monitoring at this time.

5. Comparison to Groundwater Protection Standard

The prediction limit exceedances and DQR detections listed in Tables 3 and 4 were evaluated for SSLs over the GWPS per IAC 113.10(6)f and g. Comparisons to the GWPS were evaluated through statistical confidence intervals under the assessment monitoring null hypothesis. SSLs are declared to exist with statistical certainty when the lower confidence limit exceeds the GWPS.

Confidence interval output is included in Attachment 5 and summarized in Table 6. SSLs were not identified at MW-121R.

Table 6
SSL Summary

Chemical Name	Wells with SSL [1]	Wells without SSL	Groundwater Protection Standard [2]
Assessment Monitoring Locations			
Arsenic (mg/L)		MW-121R	0.01
Benzene (ug/L)		MW-121R	5
cis-1,2-Dichloroethene (ug/L)		MW-121R	70

[1] Under assessment mode, an SSL is indicated when the lower confidence limit exceeds the GWPS.
[2] Values are the 40 CFR Part 141 Safe Drinking Water Act MCL or IAC 567 Chapter 137 Statewide Standard for a Protected Groundwater Source.

6. Effective Power and Site-Wide False Positive Rate

Statistical power calculations, effective power curves for the 1-of-2 prediction limit plan, and the current SWFPR are discussed in detail in Attachment 6. The intrawell and interwell non-parametric prediction limits currently have good power ratings. The current cumulative annual SWFPR for the plan is 10.6%. The current annual SWFPR is slightly above the Unified Guidance target 10% false positive rate due to the additional tin tests. Future statistics will not include tin, and the SWFPR of 10% will be achieved.

Statistical power calculations for confidence intervals in assessment mode are included in the confidence interval output of Attachment 5. Details regarding the purpose and procedures for these calculations are provided in Attachment 1. Confidence limits are calculated to meet statistical power levels of 50% for increases in the true concentration mean of 1.5 times a fixed standard, and 80% for increases in the true concentration mean of 2.0 times a fixed standard, as discussed in the Unified Guidance Chapter 22 (EPA, 2009).

7. Conclusions

The methodology described in Attachment 1 was utilized to conduct the statistical evaluations for locations in the detection and assessment monitoring programs. The combined background data set of MW-122R and MW-200 was utilized to evaluate SSIs over background for metals. The background data set for non-metal constituents is defined by MW-122R only.

A summary of the Spring 2023 statistical results is presented in Table 7 and detailed in the following subsections.

Table 7
Summary of the Spring 2023 Evaluation

Monitoring Location	Monitoring Program	Current Schedule (Apr. 2023) [1]	Current SSIs	Current SSLs	Retesting Parameter [2]	Monitoring Program Changes
Downgradient Monitoring Locations						
GU-2A	Detection	Appendix I				
GU-4A	Detection	Dry				
MW-119RR	Detection	Appendix I				
MW-121R	Assessment	Appendix II	Arsenic; Benzene; cis-1,2-Dichloroethene			
MW-200 [3]	Detection	Appendix I				
MW-204RR	Detection	- - [4]				
MW-205 [5]	Detection	Appendix I				
MW-206	Detection	Appendix I				
Background Monitoring Locations						
MW-122R	Background	Appendix II				
MW-200 [2]	Background	Appendix II				

[1] In Apr. 2023, the Appendix II locations were sampled for the Appendix I and detected Appendix II constituents. The next 5-year resampling for the full Appendix II list at the assessment and background monitoring wells is scheduled for Fall 2024.
[2] Retest samples will be collected prior to the next semiannual event and will be utilized to determine if any monitoring program changes will be initiated.
[3] MW-200 primarily serves as a downgradient monitoring location; however, MW-200 is also used to supplement the background data set.
[4] Replacement well MW-204RR had insufficient groundwater for sample collection in Apr. 2023; therefore, a sample was not collected. Baseline sampling for the Appendix I list will be initiated when there is adequate water column.
[5] A sample was collected at MW-205 as a temporary or potential replacement for MW-204RR.

7.1 Detection Monitoring

Semiannual detection monitoring for the Appendix I list was conducted at GU-2A, MW-119RR, MW-200, and MW-206 in April 2023. As discussed in the *2021 AWQR* (Foth, 2022), detection monitoring samples are being collected at MW-205 as a temporary or potential replacement for MW-204RR due to the dry to limited water depths at MW-204RR. Note that MW-205 is not currently included in the permitted groundwater monitoring network for the Western Expansion Area.

At GU-4A, baseline detection monitoring will be initiated once the water level is at or above the elevation of the horizontal underdrain discharge pipe connected perpendicular to the vertical sample pipe.

No SSIs were identified at GU-2A, MW-119RR, MW-200, MW-205, and MW-206. Semiannual detection monitoring for the Appendix I list will be conducted at GU-2A, MW-119RR, MW-200, and MW-206 in Fall 2023. If an adequate water column is measured at MW-204RR, detection monitoring for the Appendix I list will be initiated. If insufficient groundwater for sample collection remains at MW-204RR in Fall 2023, detection monitoring will be continued at temporary or replacement well MW-205.

7.2 Assessment Monitoring

Semiannual assessment monitoring for the Appendix I and detected Appendix II constituents was conducted at MW-121R in April 2023. SSIs were identified for arsenic, benzene, and cis-1,2-dichloroethene at MW-121R. SSLs were not identified.

The Spring 2023 statistical evaluation did not identify all Appendix II constituents below the interwell prediction limit or laboratory reporting limit for three consecutive sampling events at MW-121R. As a result, MW-121R will not exit assessment monitoring at this time. Semiannual assessment monitoring for the Appendix I and detected Appendix II constituents will be continued at MW-121R in Fall 2023. In accordance with Permit Special Provision X.4.e, the next resampling event for the full set of Appendix II constituents is scheduled for Fall 2024.

7.3 Background Monitoring

Semiannual background monitoring for the Appendix I and detected Appendix II constituents was conducted at MW-122R and MW-200 in April 2023. Note that while MW-200 primarily serves as a downgradient monitoring location, MW-200 is also used to supplement the background data set. Mann-Kendall trend tests and intrawell prediction limit results indicated that MW-200 remains suitable for inclusion in the background metals data set.

Semiannual background monitoring for the Appendix I and detected Appendix II constituents will be continued at MW-122R and MW-200 in Fall 2023. In accordance with Permit Special Provision X.4.e, the next resampling event for the full set of Appendix II constituents is scheduled for Fall 2024.

Attachment 1
Detailed Discussion of Statistical Methods

Statistical Methodology

1. Comparison to Background

For determining which parameters will need a formal statistical treatment, the Unified Guidance (EPA, 2009) suggests splitting monitoring parameters into three distinct groups: a) reliable indicators selected for formal testing; b) other analytes which are monitored for general groundwater quality information but not statistically tested; and c) those meeting the "never-detected" criteria. Only those parameters with some historically detected presence in background need to be included in the first group and treated with a formal statistical test. Any parameter that has never been detected in background is eligible for the third group of "never-detected" constituents. Constituents with detection below the reporting limit (J-flagged data) will be considered "never-detected." As a means of evaluating the third group, the Unified Guidance suggests the Double Quantification Rule (DQR). The DQR is stated in the Unified Guidance as:

"A confirmed exceedance is registered if any well-constituent pair in the '100% non-detect' group exhibits quantified measurements (i.e., at or above the reporting limit [RL]) in two consecutive sample and resample events."

The Unified Guidance also recommends establishing background sample sizes as large as feasible. The guidance recognizes that small sample sizes in background can be "particularly" troublesome, especially in controlling statistical test false positive and negative rates. With parametric tests (such as parametric prediction limits), the false positive rate may be controlled, but at the expense of statistical power. With non-parametric tests (such as non-parametric prediction limits or the "quasi-statistical" DQR), the false positive rate may be unacceptably high. The Unified Guidance suggests that generally at least 8 to 10 separate background measurements be available, recognizing that statistical power continues to increase with larger sample sizes.

In reports prior to the *2011 AWQR* (Foth, 2012), the ANOVA and a "2x2 contingency table" methods were used to evaluate SSIs over background. These methods met the criteria of IAC 113.10(4)g and h. The ANOVA and "2x2 contingency table" methods were used to maximize the statistical power while minimizing potentially large false positive rates as a result of the smaller sample sizes.

Starting with the *2011 AWQR* (Foth, 2012), the statistical analysis methods utilized for comparison to background were the DQR and "1-of-2" interwell prediction limits as recommended in the Unified Guidance (EPA, 2009).

Expansion of the Background Data Set

During the statistical evaluation for the 2012 Annual Water Quality Report, the Commission elected to expand the background metals data set by including metals data from MW-200 with upgradient well MW-122R data. The Department approved the secondary use of MW-200 for interwell background providing the sampling results are assessed using intrawell statistics to justify its suitability. The suitability of MW-200 for inclusion in the background data set will be verified by review of volatile organic compound data, Mann-Kendal trend tests, and intrawell prediction limits (further discussed below).

Double Quantification Rule

The DQR will be used to evaluate SSIs over background for the Appendix I and II constituents that have not been detected above the reporting limit in the background data set. An SSI will be indicated for any well-constituent pair with quantified measurements at or above the reporting limit noted for two consecutive sample and resample events. If applicable, the resample will be collected prior to next semiannual sampling event.

Interwell Prediction Limits

Interwell prediction limits will be used to statistically evaluate SSIs over background for the Appendix I and II constituents which have been detected above the reporting limit in the background data set. A "1-of-2" retesting plan will be utilized on individual sample results. The 1-of-2 retesting plan as defined in the Unified Guidance concludes that an SSI has occurred when two out of two sample results exceed the prediction limit, while no SSI is concluded if 1-of-2 is below the limit. If applicable, resamples will be collected prior to next semiannual sampling event. The prediction limit for each constituent will be recalculated semiannually.

For interwell constituents with less than or equal to 50% detects in the background data set, a non-parametric prediction limit will be utilized. The non-parametric prediction limit will be taken as the maximum order statistic (maximum value) of the background data. The background data set will consist of data collected from April 2008 through the current sampling event.

For interwell constituents with greater than 50% detects in the background data set, normality assumptions will be verified using the Shapiro-Wilk normality test. If the background data is not normally distributed, a non-parametric prediction limit will be utilized (as described in the paragraph above). If the background data is normally distributed or can be fit to a normal distribution utilizing a normalizing transformation, then a normal-based parametric prediction limit will be applied.

When considering a lognormal prediction limit, a comparison will be made to the maximum order statistic for the background data set. Lognormal prediction limits can be sensitive to smaller departures from lognormality. That is, if data are not truly lognormal, but also not rejected as lognormal, the prediction limit may be inflated because of the transformation. In choosing a lognormal limit, in addition to the percent detections and lognormal goodness of fit criteria, an additional convention will be applied. If the lognormal limit exceeds the level of twice the maximum background concentration, it is assumed that the lognormal model does not adequately fit the background distribution and a non-parametric prediction limit will be selected.

For interwell constituents with 50% to 85% detects in the background data set, Kaplan-Meier estimation will be applied to manage statistical bias introduced by non-detects. For interwell constituents with over 85% detects in the background data set, half the reporting limit will be used for non-detect data. These estimation methods follow Unified Guidance recommendations and are given in detail in Unified Guidance Chapter 15 (EPA, 2009).

The parametric prediction limit will be calculated as:

$$PL = \bar{x} + k \cdot s$$

where $\bar{x}$ is the sample mean of the April 2008 through current event background data, *s* is the sample standard deviation, and *k* is the multiplier obtained from the Unified Guidance Table 19-1 (EPA, 2009) for 1-of-2 interwell prediction limits on observations. In determining *k*, the number of constituents of concern (COCs) for formal statistical evaluation along with the number of

downgradient wells need to be identified. Per the basic subdivision discussion presented in Section 19.2.1 of the Unified Guidance, along with the discussion regarding the use of the appendix tables for parametric retesting plans given on pages 19-13 through 19-15 of the Unified Guidance (EPA, 2009), the *k*-multiplier is chosen based on the number of constituents, wells and evaluations performed annually. When an exact well and COC configuration is not given in the appendix tables, the *k*-multiplier is linearly interpolated as described on page 19-14 of the Unified Guidance (EPA, 2009).

Sanitas v9.6 software (Sanitas Technologies) is used to check distributional assumptions, perform Kaplan-Meier estimation in the case of 50% to 85% detects in the upgradient well, and calculate the *k*-multipliers and subsequent prediction limits.

Intrawell Prediction Limits

Intrawell prediction limits are calculated in a similar manner to that described above for the interwell case. A main difference between the two methods is the intrawell limit is calculated from a collection of background measurements within the compliance well. A minimum of eight compliance well background samples will be used when calculating the limit.

A second difference is for the parametric prediction limit, in which the *k*-multiplier is modified from the interwell case, as given in Appendix D Tables 19-10 through 19-18 of the Unified Guidance (EPA, 2009).

Updating intrawell background is performed periodically. The Unified Guidance (Section 5.3.2) recommends that 4 to 8 new compliance observations be collected prior to updating the background dataset. The guidance also states that "a potential update is predicated on there being no statistically significant increase [SSI] recorded for that well constituent, including since the last update." A two-sample t-test or Wilcoxon rank-sum test between existing intrawell background data and the potential set of newer background data is performed, and a non-significant result (α = 0.05) implies that the newer compliance data can be re-classified as background measurements.

For Wilcoxon rank-sum tests, non-detect results cannot be ranked with certainty and the problem is compounded with multiple PQLs and/or J-flagged values (EPA, 2009). In comparisons where a substantial fraction of non-detect and/or J-flagged measurements or changing PQLs occur, professional judgment will be utilized for evaluating significant differences between the existing intrawell background data and the potential newer set of background data. Consideration will be given to whether significant differences are due to artificial variation introduced by censored data.

2. Comparison to Groundwater Protection Standard – Assessment Monitoring

According to IAC 113.10(6)f and g, under the assessment monitoring program Appendix II results which have been determined to be statistically above background are also statistically compared to the GWPS. If "Appendix II constituents are detected at statistically significant levels above the GWPS" a notice is placed in the operating record and characterization is begun.

Under IAC 113.10(6)h, the GWPS is the maximum contaminant level (MCL) promulgated under Section 1412 of the Safe Drinking Water Act in 40 Code of Federal Regulations (CFR) Part 141. If no MCL exists, or if background concentrations are higher than the MCL, the GWPS is defined as background. Also, per IAC 113.10(6)i, an alternative GWPS may be established by the Department for constituents for which there is no MCL such as the "health-based

concentrations that comply with the statewide standards for groundwater established pursuant to 567-Chapter 137."

When the GWPS is background concentrations, the statistical methods discussed in the above "1. Comparison to Background" are used. When the GWPS is the MCL or an alternative health-based concentration, per the Unified Guidance (EPA, 2009), "confidence intervals are the recommended general statistical strategy in compliance/assessment or corrective action monitoring." In the case of normally distributed data, a normal-based parametric confidence interval is used. If the data are not normally distributed a non-parametric confidence interval on the median is used. A lower 99% confidence limit falling above the GWPS implies that concentrations are detected at statistically significant levels above the GWPS with an α-level of 0.01, which is the minimum RCRA regulatory limit from §264.97(i)(2) for an individual test false positive error rate.

The Unified Guidance recognizes that statistical power is also of prime concern to EPA and that there "should be a high probability that the statistical test will positively identify concentrations that have exceeded a fixed regulatory standard." In compliance/assessment monitoring, instead of pre-specifying the false positive rate prior to computing confidence interval limits, the Unified Guidance suggests the desired level of power (1-β) should be set as an initial target.

For compliance/assessment monitoring purposes, the Unified Guidance (Chapter 22) suggests evaluating increases in the true concentration mean of 1.5 and 2.0 times a fixed standard. (This is similar in concept to the critical power targets in detection monitoring, i.e., 55-60% power at 3σ above background and 80-85% power at 4σ over background). As a general guide, the Unified Guidance suggests there should be at least 70-80% statistical power for detecting increases of 2 times a fixed standard. Specifically, the Unified Guidance recommends there be 50% power of detecting increases in the true concentration mean of 1.5 times a fixed standard (risk ratio of 1.5) and 80% power of detecting increases in the true concentration mean of 2.0 times a fixed standard (risk ratio of 2.0).

To meet these levels of statistical power, α is chosen based on either Unified Guidance Equation 22.1:

$$1-\beta = G_{T,n-1}\left(t_{1-\alpha,n-1}\middle|\Delta-\sqrt{n}(R-1)\right);$$

where R is the desired risk ratio, $t_{(1-\alpha,n-1)}$ is the (1−α) Student's t-quantile with (n−1) degrees of freedom and *G* represents the cumulative non-central t-distribution with (n−1) degrees of freedom and noncentrality parameter Δ;

or Unified Guidance Equation 22.2:

$$\alpha \sim 1-F_{T,n-1}\left(\frac{(R-1)\sqrt{n}}{R\cdot\widehat{CV}}-t_{1-\beta,n-1}\right);$$

where R is the desired risk ratio, n is the sample size, CV is the estimated sample coefficient of variation, $t_{(1-\beta,n-1)}$ is the (1−β) Student's t-quantile with (n−1) degrees of freedom, and *F* is the cumulative (central) Student's t-distribution function.

The first equation (Unified Guidance Equation 22.1) assumes a coefficient of variation (CV) =1. This version is used if only poorer estimates of the true CV are available. In practice, a convention has been adopted with the statistical updates to utilize Unified Guidance Equation

22.2 in all cases where a parametric confidence interval is calculated and use Unified Guidance Equation 22.1 when non-parametric confidence intervals are calculated. Since a non-parametric confidence interval is based on the median, it is not as sensitive to departures from normality, and the assumption of a CV=1 in Unified Guidance Equation 22.1 should provide a conservative estimate.

Since 0.01 is the minimum RCRA regulatory limit for α, it is never set lower than this. Conversely, the Unified Guidance recognizes the "difficulty of simultaneously attaining the recommended level of power while controlling the false positive rate, especially for small sample sizes and highly variable data." The Unified Guidance suggests a maximum false positive rate of α=0.2 is a reasonable upper bound.

Finally, like the need for defining a SWFPR under detection monitoring, the Unified Guidance (Chapter 7) recognizes there may be concern about the "use of relatively high individual test-wise false positive rates (α) in order to meet a pre-specified power, especially when considering the cumulative false positive error rate across multiple wells and/or constituents." However, "the Unified Guidance considers computation of cumulative SWFPRs in compliance/assessment testing to be problematic, and reliance on individual test false positive rates preferable." Notwithstanding, if several confidence limit calculations are compared to the GWPS with high α-levels, caution should be taken in the interpretation.

For calculation of confidence intervals, Sanitas® v9.6 software is again used to check distributional assumptions, perform Kaplan-Meier estimation in the case of 50% to 85% detects, and calculate either parametric or nonparametric confidence limits.

3. Comparison to Groundwater Protection Standard – Corrective Action Monitoring

As stated above, if "Appendix II constituents are detected at statistically significant levels above the GWPS" a notice is placed in the operating record and characterization is begun. Owners or operators are required to initiate an assessment of corrective measures, select a remedy, and implement a remedy in accordance with IAC 113.10(7), (8), and (9). For remedy completion in accordance with IAC 113.10(9)e(2), compliance with the GWPS is considered achieved by demonstrating that concentrations of Appendix II constituents have not exceeded the GWPS for a period of three consecutive years or an alternate length of time established by the Department.

Starting with the Fall 2019 statistical evaluation, individual analyte/well pairs may return to assessment constituents (at the corrective action monitoring location) once compliance with the GWPS has been achieved for a period of 3 years. Note that monitoring wells will not move out of the corrective action monitoring program until all Appendix II constituents have achieved compliance with the GWPS for a period of three consecutive years.

Confidence Intervals in Corrective Action Mode

In the case of the GWPS being a fixed standard as either the 40 CFR Part 141 Safe Drinking Water Act MCL or the IAC 567 Chapter 137 Statewide Standard for a Protected Groundwater Source, "confidence intervals are the recommended general statistical strategy in compliance/assessment or corrective action monitoring" (EPA, 2009). However, a primary difference between confidence intervals as used under assessment monitoring and confidence intervals used under corrective action is reversal of the null hypothesis. As detailed in Section 7.2 of the Unified Guidance (EPA, 2009), the hypothesis testing structure under assessment

monitoring is to presume compliance point concentrations do not to exceed the fixed standard unless sampling data indicates otherwise. As a formal statistical hypothesis, this is written as:

$$H_0: \Theta \leq G \quad \text{vs.} \quad H_A: \Theta > G$$

In corrective action mode, the hypothesis is reversed. Namely, compliance point concentrations are presumed to exceed the fixed standard and evidence must be presented to demonstrate regulatory compliance. In the case of corrective action, the statistical hypothesis is written as:

$$H_0: \Theta > G \quad \text{vs.} \quad H_A: \Theta \leq G$$

For testing under assessment monitoring, a lower confidence limit (LCL) is compared to the compliance standard *G*. If the LCL is larger than the standard *G*, it is concluded that the compliance standard has been violated.

However, under corrective action monitoring, the upper confidence limit (UCL) is compared to the compliance standard *G*. In this case, the UCL should lie below the standard to accept the alternative hypothesis that concentration levels are in compliance.

The UCL α-level under corrective action monitoring is set so that a high degree of confidence is achieved in declaring successful remediation. Per the Unified Guidance (Section 7.4.2) "EPA's overriding concern in corrective action is that remediation efforts are not declared successful without sufficient statistical proof." The Unified Guidance "recommends the use of a reasonably low, fixed test-wide false positive rate (e.g., α = 0.05 or 0.10)." In this case, α = 0.10 corresponds to a 90% UCL.

<u>GWPS as Background</u>

Pursuant to IAC 113.10(6)h, when background concentrations of an analyte exceed the applicable MCL or IAC Statewide Standard for a Protected Groundwater Source, the GWPS is the background concentration. In this case, the GWPS is not a fixed standard but based on a distribution of background sample results.

Section 7.5 of the Unified Guidance (EPA, 2009) details statistical hypothesis testing under corrective action when the GWPS is background. The Unified Guidance offers two alternative statistical approaches to hypothesis testing in this case. These alternatives are as follows:

A. The first represents a *two-sample* test of two distinct populations, namely the compliance well to background populations. Similar to the statistical tests used under detection and assessment monitoring, with this alternative under corrective action, the Unified Guidance states that "one highly recommended statistical test approach is a prediction limit." The Unified Guidance also states, "whatever the critical value for a selected background test, it becomes the GWPS under compliance/assessment or corrective action monitoring." Further, "the only allowable hypothesis test structure for the two-sample approach follows that of detection and compliance monitoring. Once exceeded and in corrective action, a return to compliance is through evidence that future samples lie below the GWPS using the same hypothesis structure." Therefore, with this approach in corrective action, prediction limits are calculated similarly as in assessment monitoring. Compliance well concentrations below a prediction limit indicate a return to concentrations below the background GWPS.

B. The second involves computation of a fixed statistic from the background data as the GWPS. The Unified Guidance recommendation in this case is to define a fixed GWPS based on a background upper tolerance limit with 95% confidence and 95% coverage. This is designed to be a "reasonable maximum on the likely range of background concentrations." This upper tolerance limit based on background data is then used as a fixed standard in statistical comparisons with 90% or 95% UCLs from compliance wells as discussed previously. Also, with the UCL method, the null hypothesis is reversed from that of assessment monitoring, assuming contamination is above the GWPS. A UCL falling below the background GWPS offers evidence of a return to concentrations below the GWPS. The Unified Guidance refers to this approach as a *single-sample* testing method, since the compliance well population is tested against a defined fixed standard.

The Unified Guidance discusses tradeoffs between the two approaches and does not necessarily prescribe either approach over the other. The Unified Guidance suggests that both approaches may be used, where "the background GWPS would be a range based on the two testing methods rather than a single value."

Normality

For calculation of confidence intervals, Sanitas® v9.6 software is again used to check distributional assumptions, perform Kaplan-Meier estimation in the case of 50% to 85% detects, and calculate either parametric or nonparametric confidence limits. "Corrective Action Mode" is selected for this analysis.

Non-Corrective Action Constituents

As recommended in the Unified Guidance (EPA, 2009), confidence intervals in corrective action mode will be utilized to evaluate only constituents and monitoring locations with previously identified SSLs over the GWPS. Other compliance constituents (i.e., those without SSLs over the GWPS during prior statistical evaluations) will continue to be evaluated using the "1. Comparison to Background" and "2. Comparison to Groundwater Protection Standard – Assessment Monitoring" methods described above.

Note: The Unified Guidance (EPA, 2009) states: "it should be recognized that once corrective action or remediation activities are initiated, there will be a considerable time during which the GWPS may still be exceeded. As provided in the RCRA regulations, it is at the conclusion of remediation activities that formal corrective action monitoring evaluation is appropriate. However, in the intervening period of remedial activity, well constituents can still be monitored, and the relative efficacy of remediation measures tracked. The same corrective action hypothesis can be assumed for the targeted constituents; techniques such as trend testing may be appropriate interim applications." Given the statement above and the intentions of IAC 113.10(6)g, as soon as an SSL is identified for an assessment monitoring constituent/location, then the next statistical evaluation will utilize corrective action monitoring (confidence intervals in corrective action mode).

Data Concentration Shifts During Corrective Action

Confidence intervals assume that the population is stable over time. As a result, confidence intervals may not accurately represent the current well concentrations if increasing or decreasing trends are observed (i.e., during a release or under active remediation). Per the Unified Guidance (EPA, 2009), lower or upper confidence limits constructed on accumulated data may be overly wide (due to high sample variability caused by combining pre- and post-shift data) and may not be reflective of more recent upward/downward shifts in the contaminant distribution.

Alternative procedures may be applied to data sets with shifting distributions. For example, where trends tests are significant, pre-shift data may be removed from the well/parameter data set for the purposes of constructing the confidence interval. “The reduction in sample size will often be more than offset by the gain in statistical power. More recent measurements may exhibit less variation around the shifted mean value, resulting in a shorter confidence interval” (EPA, 2009).

Another alternative is to construct confidence bands around the trend line to track progress towards exceeding or meeting a fixed standard. As suggested in the Unified Guidance (Chapter 22), if a trend is present, a 90% confidence band (upper 95% confidence limit) is placed on the linear trend line. If the upper 95% confidence limit on the trend line falls below the GWPS, the well is found to have reduced to levels statistically below the GWPS.

As the discussed in the Unified Guidance, “inferences concerning a linear regression are generally appropriate when two conditions hold: 1) the residuals from the regression are approximately normal or at least reasonably symmetric in distribution; and 2) a plot of residuals versus concentrations indicates a scatter cloud of essentially uniform vertical thickness or width.” These conditions are assessed through normal probability plots of the regression residuals and plots of residuals against the predicted concentrations.

Data Adjustments Due to Exiting Corrective Action

When analyte/well pairs exit corrective action and return to assessment constituents, the hypothesis testing structure is reversed again. In corrective action mode, compliance point concentrations were presumed to exceed the GWPS, and evidence must be presented to demonstrated regulatory compliance (i.e., UCLs below the GWPS for three consecutive years). With the return to assessment constituents, analyte/well pairs have demonstrated regulatory compliance. The hypothesis testing structure reverts to the assessment monitoring structure where compliance point concentrations are presumed to not exceed the GWPS unless sampling data indicates otherwise (i.e., LCL is above the GWPS). With this reversion in hypothesis, the focus shifts to evaluating concentration changes in the analyte/well pair that would indicate an increase over the GWPS and re-trigger corrective action. For constituents with historical SSLs, earlier concentrations that had previously triggered corrective action are no longer providing useful information regarding the current assessment monitoring hypothesis. Retaining the historical data during the timeframe in which the GWPS was exceeded will result in the regression or confidence interval methods being slower to respond to new increases. As a result, the historical data prior to when statistical compliance with the GWPS was first achieved will be removed when analyte/well pairs exit corrective action and return to assessment constituents.

Attachment 2
MW-200 Intrawell Statistics

Attachment 3
Sanitas Report Output for Interwell Prediction Limit Calculations

Attachment 4

Sanitas Report Output for Double Quantification Rule Evaluations

Attachment 5
Sanitas Report Output for Confidence Interval Calculations
Assessment Mode

Attachment 6
Effective Power and Site-Wide False Positive Rate Discussion
Power Curve Evaluation

Effective Power and Site-Wide False Positive Rate

Statistical power refers to the ability of a test to identify real increases in concentration levels given they exist. The Unified Guidance defines the effective power as the "probability of detecting contamination in the monitoring network when one and only one well-constituent pair is contaminated." It further states that any statistical test procedure with effective power at least as high as the appropriate EPA Reference Power Curve (ERPC) should be considered to have reasonable power.

The Unified Guidance gives the following criteria for comparing the effective power to the ERPC:

If the effective power first exceeds the ERPC at a mean concentration increase no greater than 3 background standard deviations, the power is labeled 'good;' if the effective power first exceeds the ERPC at a mean increase between 3 and 4 standard deviations, the power is considered 'acceptable;' and if the first exceedance of the ERPC does not occur until an increase greater than 4 standard deviations, the power is considered 'low.'

Effective power curves were developed with Sanitas for the 1-of-2 prediction limit plan, with power curves illustrated below. Based on the power curves, the intrawell and interwell non-parametric prediction limits currently have good power ratings.

The Unified Guidance "strongly encourages use of a comprehensive design strategy to account for both the cumulative site-wide false positive rate (SWFPR) and effective power to identify real exceedances." The Unified Guidance recommends and uses an annual SWFPR target of 10%. The current annual SWFPR based on the 1-of-2 prediction limit plan may be calculated using the basic subdivision principle discussed in Unified Guidance Sections 6.2.2, 19.2.1 and 19.4.

Currently, comparisons are made at 6 compliance locations and semiannually with a total of 150 single tests annually. Note that MW-205 is being statistically evaluated as a temporary or potential replacement for MW-204RR.

The Sanitas prediction limit report output of Attachment 3 includes annual individual test α-levels for each well/constituent pair. The α-levels reported by Sanitas account for the 1-of-2 plan, as well as two semiannual events conducted at the site.

The cumulative annual SWFPR can be approximated directly from the α-levels reported in the Sanitas output as SWFPR $= 1 - \prod_{i=1}^{78}(1-\alpha_i)^2 = 0.106 \approx 10.6\%$. The current annual SWFPR is slightly above the Unified Guidance target 10% false positive rate due to the additional tin tests. Future statistics will not include tin, and the SWFPR of 10% will be achieved.

Attachment 7
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Attachment 1
Detailed Discussion of Statistical Methods

Statistical Methodology

1. Comparison to Background

For determining which parameters will need a formal statistical treatment, the Unified Guidance (EPA, 2009) suggests splitting monitoring parameters into three distinct groups: a) reliable indicators selected for formal testing; b) other analytes which are monitored for general groundwater quality information but not statistically tested; and c) those meeting the "never-detected" criteria. Only those parameters with some historically detected presence in background need to be included in the first group and treated with a formal statistical test. Any parameter that has never been detected in background is eligible for the third group of "never-detected" constituents. Constituents with detection below the reporting limit (J-flagged data) will be considered "never-detected." As a means of evaluating the third group, the Unified Guidance suggests the Double Quantification Rule (DQR). The DQR is stated in the Unified Guidance as:

"A confirmed exceedance is registered if any well-constituent pair in the '100% non-detect' group exhibits quantified measurements (i.e., at or above the reporting limit [RL]) in two consecutive sample and resample events."

The Unified Guidance also recommends establishing background sample sizes as large as feasible. The guidance recognizes that small sample sizes in background can be "particularly" troublesome, especially in controlling statistical test false positive and negative rates. With parametric tests (such as parametric prediction limits), the false positive rate may be controlled, but at the expense of statistical power. With non-parametric tests (such as non-parametric prediction limits or the "quasi-statistical" DQR), the false positive rate may be unacceptably high. The Unified Guidance suggests that generally at least 8 to 10 separate background measurements be available, recognizing that statistical power continues to increase with larger sample sizes.

In reports prior to the *2011 AWQR* (Foth, 2012), the ANOVA and a "2x2 contingency table" methods were used to evaluate SSIs over background. These methods met the criteria of IAC 113.10(4)g and h. The ANOVA and "2x2 contingency table" methods were used to maximize the statistical power while minimizing potentially large false positive rates as a result of the smaller sample sizes.

Starting with the *2011 AWQR* (Foth, 2012), the statistical analysis methods utilized for comparison to background were the DQR and "1-of-2" interwell prediction limits as recommended in the Unified Guidance (EPA, 2009).

Expansion of the Background Data Set

During the statistical evaluation for the 2012 Annual Water Quality Report, the Commission elected to expand the background metals data set by including metals data from MW-200 with upgradient well MW-122R data. The Department approved the secondary use of MW-200 for interwell background providing the sampling results are assessed using intrawell statistics to justify its suitability. The suitability of MW-200 for inclusion in the background data set will be verified by review of volatile organic compound data, Mann-Kendal trend tests, and intrawell prediction limits (further discussed below).

Double Quantification Rule

The DQR will be used to evaluate SSIs over background for the Appendix I and II constituents that have not been detected above the reporting limit in the background data set. An SSI will be indicated for any well-constituent pair with quantified measurements at or above the reporting limit noted for two consecutive sample and resample events. If applicable, the resample will be collected prior to next semiannual sampling event.

Interwell Prediction Limits

Interwell prediction limits will be used to statistically evaluate SSIs over background for the Appendix I and II constituents which have been detected above the reporting limit in the background data set. A "1-of-2" retesting plan will be utilized on individual sample results. The 1-of-2 retesting plan as defined in the Unified Guidance concludes that an SSI has occurred when two out of two sample results exceed the prediction limit, while no SSI is concluded if 1-of-2 is below the limit. If applicable, resamples will be collected prior to next semiannual sampling event. The prediction limit for each constituent will be recalculated semiannually.

For interwell constituents with less than or equal to 50% detects in the background data set, a non-parametric prediction limit will be utilized. The non-parametric prediction limit will be taken as the maximum order statistic (maximum value) of the background data. The background data set will consist of data collected from April 2008 through the current sampling event.

For interwell constituents with greater than 50% detects in the background data set, normality assumptions will be verified using the Shapiro-Wilk normality test. If the background data is not normally distributed, a non-parametric prediction limit will be utilized (as described in the paragraph above). If the background data is normally distributed or can be fit to a normal distribution utilizing a normalizing transformation, then a normal-based parametric prediction limit will be applied.

When considering a lognormal prediction limit, a comparison will be made to the maximum order statistic for the background data set. Lognormal prediction limits can be sensitive to smaller departures from lognormality. That is, if data are not truly lognormal, but also not rejected as lognormal, the prediction limit may be inflated because of the transformation. In choosing a lognormal limit, in addition to the percent detections and lognormal goodness of fit criteria, an additional convention will be applied. If the lognormal limit exceeds the level of twice the maximum background concentration, it is assumed that the lognormal model does not adequately fit the background distribution and a non-parametric prediction limit will be selected.

For interwell constituents with 50% to 85% detects in the background data set, Kaplan-Meier estimation will be applied to manage statistical bias introduced by non-detects. For interwell constituents with over 85% detects in the background data set, half the reporting limit will be used for non-detect data. These estimation methods follow Unified Guidance recommendations and are given in detail in Unified Guidance Chapter 15 (EPA, 2009).

The parametric prediction limit will be calculated as:

$$PL = \bar{x} + k \cdot s$$

where $\bar{x}$ is the sample mean of the April 2008 through current event background data, *s* is the sample standard deviation, and *k* is the multiplier obtained from the Unified Guidance Table 19-1 (EPA, 2009) for 1-of-2 interwell prediction limits on observations. In determining *k*, the number of constituents of concern (COCs) for formal statistical evaluation along with the number of

downgradient wells need to be identified. Per the basic subdivision discussion presented in Section 19.2.1 of the Unified Guidance, along with the discussion regarding the use of the appendix tables for parametric retesting plans given on pages 19-13 through 19-15 of the Unified Guidance (EPA, 2009), the *k*-multiplier is chosen based on the number of constituents, wells and evaluations performed annually. When an exact well and COC configuration is not given in the appendix tables, the *k*-multiplier is linearly interpolated as described on page 19-14 of the Unified Guidance (EPA, 2009).

Sanitas v9.6 software (Sanitas Technologies) is used to check distributional assumptions, perform Kaplan-Meier estimation in the case of 50% to 85% detects in the upgradient well, and calculate the *k*-multipliers and subsequent prediction limits.

Intrawell Prediction Limits

Intrawell prediction limits are calculated in a similar manner to that described above for the interwell case. A main difference between the two methods is the intrawell limit is calculated from a collection of background measurements within the compliance well. A minimum of eight compliance well background samples will be used when calculating the limit.

A second difference is for the parametric prediction limit, in which the *k*-multiplier is modified from the interwell case, as given in Appendix D Tables 19-10 through 19-18 of the Unified Guidance (EPA, 2009).

Updating intrawell background is performed periodically. The Unified Guidance (Section 5.3.2) recommends that 4 to 8 new compliance observations be collected prior to updating the background dataset. The guidance also states that "a potential update is predicated on there being no statistically significant increase [SSI] recorded for that well constituent, including since the last update." A two-sample t-test or Wilcoxon rank-sum test between existing intrawell background data and the potential set of newer background data is performed, and a non-significant result ($\alpha = 0.05$) implies that the newer compliance data can be re-classified as background measurements.

For Wilcoxon rank-sum tests, non-detect results cannot be ranked with certainty and the problem is compounded with multiple PQLs and/or J-flagged values (EPA, 2009). In comparisons where a substantial fraction of non-detect and/or J-flagged measurements or changing PQLs occur, professional judgment will be utilized for evaluating significant differences between the existing intrawell background data and the potential newer set of background data. Consideration will be given to whether significant differences are due to artificial variation introduced by censored data.

2. Comparison to Groundwater Protection Standard – Assessment Monitoring

According to IAC 113.10(6)f and g, under the assessment monitoring program Appendix II results which have been determined to be statistically above background are also statistically compared to the GWPS. If "Appendix II constituents are detected at statistically significant levels above the GWPS" a notice is placed in the operating record and characterization is begun.

Under IAC 113.10(6)h, the GWPS is the maximum contaminant level (MCL) promulgated under Section 1412 of the Safe Drinking Water Act in 40 Code of Federal Regulations (CFR) Part 141. If no MCL exists, or if background concentrations are higher than the MCL, the GWPS is defined as background. Also, per IAC 113.10(6)i, an alternative GWPS may be established by the Department for constituents for which there is no MCL such as the "health-based

concentrations that comply with the statewide standards for groundwater established pursuant to 567-Chapter 137."

When the GWPS is background concentrations, the statistical methods discussed in the above "1. Comparison to Background" are used. When the GWPS is the MCL or an alternative health-based concentration, per the Unified Guidance (EPA, 2009), "confidence intervals are the recommended general statistical strategy in compliance/assessment or corrective action monitoring." In the case of normally distributed data, a normal-based parametric confidence interval is used. If the data are not normally distributed a non-parametric confidence interval on the median is used. A lower 99% confidence limit falling above the GWPS implies that concentrations are detected at statistically significant levels above the GWPS with an α-level of 0.01, which is the minimum RCRA regulatory limit from §264.97(i)(2) for an individual test false positive error rate.

The Unified Guidance recognizes that statistical power is also of prime concern to EPA and that there "should be a high probability that the statistical test will positively identify concentrations that have exceeded a fixed regulatory standard." In compliance/assessment monitoring, instead of pre-specifying the false positive rate prior to computing confidence interval limits, the Unified Guidance suggests the desired level of power (1-β) should be set as an initial target.

For compliance/assessment monitoring purposes, the Unified Guidance (Chapter 22) suggests evaluating increases in the true concentration mean of 1.5 and 2.0 times a fixed standard. (This is similar in concept to the critical power targets in detection monitoring, i.e., 55-60% power at 3σ above background and 80-85% power at 4σ over background). As a general guide, the Unified Guidance suggests there should be at least 70-80% statistical power for detecting increases of 2 times a fixed standard. Specifically, the Unified Guidance recommends there be 50% power of detecting increases in the true concentration mean of 1.5 times a fixed standard (risk ratio of 1.5) and 80% power of detecting increases in the true concentration mean of 2.0 times a fixed standard (risk ratio of 2.0).

To meet these levels of statistical power, α is chosen based on either Unified Guidance Equation 22.1:

$$1 - \beta = G_{T,n-1}\left(t_{1-\alpha,n-1}\middle|\Delta - \sqrt{n}(R-1)\right);$$

where R is the desired risk ratio, $t_{(1-\alpha,n-1)}$ is the (1−α) Student's t-quantile with (n−1) degrees of freedom and G represents the cumulative non-central t-distribution with (n−1) degrees of freedom and noncentrality parameter Δ;

or Unified Guidance Equation 22.2:

$$\alpha \sim 1 - F_{T,n-1}\left(\frac{(R-1)\sqrt{n}}{R\cdot\widehat{CV}} - t_{1-\beta,n-1}\right);$$

where R is the desired risk ratio, n is the sample size, CV is the estimated sample coefficient of variation, $t_{(1-\beta,n-1)}$ is the (1−β) Student's t-quantile with (n−1) degrees of freedom, and F is the cumulative (central) Student's t-distribution function.

The first equation (Unified Guidance Equation 22.1) assumes a coefficient of variation (CV) =1. This version is used if only poorer estimates of the true CV are available. In practice, a convention has been adopted with the statistical updates to utilize Unified Guidance Equation

22.2 in all cases where a parametric confidence interval is calculated and use Unified Guidance Equation 22.1 when non-parametric confidence intervals are calculated. Since a non-parametric confidence interval is based on the median, it is not as sensitive to departures from normality, and the assumption of a CV=1 in Unified Guidance Equation 22.1 should provide a conservative estimate.

Since 0.01 is the minimum RCRA regulatory limit for α, it is never set lower than this. Conversely, the Unified Guidance recognizes the "difficulty of simultaneously attaining the recommended level of power while controlling the false positive rate, especially for small sample sizes and highly variable data." The Unified Guidance suggests a maximum false positive rate of α=0.2 is a reasonable upper bound.

Finally, like the need for defining a SWFPR under detection monitoring, the Unified Guidance (Chapter 7) recognizes there may be concern about the "use of relatively high individual test-wise false positive rates (α) in order to meet a pre-specified power, especially when considering the cumulative false positive error rate across multiple wells and/or constituents." However, "the Unified Guidance considers computation of cumulative SWFPRs in compliance/assessment testing to be problematic, and reliance on individual test false positive rates preferable." Notwithstanding, if several confidence limit calculations are compared to the GWPS with high α-levels, caution should be taken in the interpretation.

For calculation of confidence intervals, Sanitas® v9.6 software is again used to check distributional assumptions, perform Kaplan-Meier estimation in the case of 50% to 85% detects, and calculate either parametric or nonparametric confidence limits.

3. Comparison to Groundwater Protection Standard – Corrective Action Monitoring

As stated above, if "Appendix II constituents are detected at statistically significant levels above the GWPS" a notice is placed in the operating record and characterization is begun. Owners or operators are required to initiate an assessment of corrective measures, select a remedy, and implement a remedy in accordance with IAC 113.10(7), (8), and (9). For remedy completion in accordance with IAC 113.10(9)e(2), compliance with the GWPS is considered achieved by demonstrating that concentrations of Appendix II constituents have not exceeded the GWPS for a period of three consecutive years or an alternate length of time established by the Department.

Starting with the Fall 2019 statistical evaluation, individual analyte/well pairs may return to assessment constituents (at the corrective action monitoring location) once compliance with the GWPS has been achieved for a period of 3 years. Note that monitoring wells will not move out of the corrective action monitoring program until all Appendix II constituents have achieved compliance with the GWPS for a period of three consecutive years.

Confidence Intervals in Corrective Action Mode

In the case of the GWPS being a fixed standard as either the 40 CFR Part 141 Safe Drinking Water Act MCL or the IAC 567 Chapter 137 Statewide Standard for a Protected Groundwater Source, "confidence intervals are the recommended general statistical strategy in compliance/assessment or corrective action monitoring" (EPA, 2009). However, a primary difference between confidence intervals as used under assessment monitoring and confidence intervals used under corrective action is reversal of the null hypothesis. As detailed in Section 7.2 of the Unified Guidance (EPA, 2009), the hypothesis testing structure under assessment

monitoring is to presume compliance point concentrations do not to exceed the fixed standard unless sampling data indicates otherwise. As a formal statistical hypothesis, this is written as:

$$H_0: \Theta \leq G \quad \text{vs.} \quad H_A: \Theta > G$$

In corrective action mode, the hypothesis is reversed. Namely, compliance point concentrations are presumed to exceed the fixed standard and evidence must be presented to demonstrate regulatory compliance. In the case of corrective action, the statistical hypothesis is written as:

$$H_0: \Theta > G \quad \text{vs.} \quad H_A: \Theta \leq G$$

For testing under assessment monitoring, a lower confidence limit (LCL) is compared to the compliance standard *G*. If the LCL is larger than the standard *G*, it is concluded that the compliance standard has been violated.

However, under corrective action monitoring, the upper confidence limit (UCL) is compared to the compliance standard *G*. In this case, the UCL should lie below the standard to accept the alternative hypothesis that concentration levels are in compliance.

The UCL α-level under corrective action monitoring is set so that a high degree of confidence is achieved in declaring successful remediation. Per the Unified Guidance (Section 7.4.2) "EPA's overriding concern in corrective action is that remediation efforts are not declared successful without sufficient statistical proof." The Unified Guidance "recommends the use of a reasonably low, fixed test-wide false positive rate (e.g., α = 0.05 or 0.10)." In this case, α = 0.10 corresponds to a 90% UCL.

<u>GWPS as Background</u>

Pursuant to IAC 113.10(6)h, when background concentrations of an analyte exceed the applicable MCL or IAC Statewide Standard for a Protected Groundwater Source, the GWPS is the background concentration. In this case, the GWPS is not a fixed standard but based on a distribution of background sample results.

Section 7.5 of the Unified Guidance (EPA, 2009) details statistical hypothesis testing under corrective action when the GWPS is background. The Unified Guidance offers two alternative statistical approaches to hypothesis testing in this case. These alternatives are as follows:

A. The first represents a *two-sample* test of two distinct populations, namely the compliance well to background populations. Similar to the statistical tests used under detection and assessment monitoring, with this alternative under corrective action, the Unified Guidance states that "one highly recommended statistical test approach is a prediction limit." The Unified Guidance also states, "whatever the critical value for a selected background test, it becomes the GWPS under compliance/assessment or corrective action monitoring." Further, "the only allowable hypothesis test structure for the two-sample approach follows that of detection and compliance monitoring. Once exceeded and in corrective action, a return to compliance is through evidence that future samples lie below the GWPS using the same hypothesis structure." Therefore, with this approach in corrective action, prediction limits are calculated similarly as in assessment monitoring. Compliance well concentrations below a prediction limit indicate a return to concentrations below the background GWPS.

B. The second involves computation of a fixed statistic from the background data as the GWPS. The Unified Guidance recommendation in this case is to define a fixed GWPS based on a background upper tolerance limit with 95% confidence and 95% coverage. This is designed to be a "reasonable maximum on the likely range of background concentrations." This upper tolerance limit based on background data is then used as a fixed standard in statistical comparisons with 90% or 95% UCLs from compliance wells as discussed previously. Also, with the UCL method, the null hypothesis is reversed from that of assessment monitoring, assuming contamination is above the GWPS. A UCL falling below the background GWPS offers evidence of a return to concentrations below the GWPS. The Unified Guidance refers to this approach as a *single-sample* testing method, since the compliance well population is tested against a defined fixed standard.

The Unified Guidance discusses tradeoffs between the two approaches and does not necessarily prescribe either approach over the other. The Unified Guidance suggests that both approaches may be used, where "the background GWPS would be a range based on the two testing methods rather than a single value."

Normality

For calculation of confidence intervals, Sanitas® v9.6 software is again used to check distributional assumptions, perform Kaplan-Meier estimation in the case of 50% to 85% detects, and calculate either parametric or nonparametric confidence limits. "Corrective Action Mode" is selected for this analysis.

Non-Corrective Action Constituents

As recommended in the Unified Guidance (EPA, 2009), confidence intervals in corrective action mode will be utilized to evaluate only constituents and monitoring locations with previously identified SSLs over the GWPS. Other compliance constituents (i.e., those without SSLs over the GWPS during prior statistical evaluations) will continue to be evaluated using the "1. Comparison to Background" and "2. Comparison to Groundwater Protection Standard – Assessment Monitoring" methods described above.

Note: The Unified Guidance (EPA, 2009) states: "it should be recognized that once corrective action or remediation activities are initiated, there will be a considerable time during which the GWPS may still be exceeded. As provided in the RCRA regulations, it is at the conclusion of remediation activities that formal corrective action monitoring evaluation is appropriate. However, in the intervening period of remedial activity, well constituents can still be monitored, and the relative efficacy of remediation measures tracked. The same corrective action hypothesis can be assumed for the targeted constituents; techniques such as trend testing may be appropriate interim applications." Given the statement above and the intentions of IAC 113.10(6)g, as soon as an SSL is identified for an assessment monitoring constituent/location, then the next statistical evaluation will utilize corrective action monitoring (confidence intervals in corrective action mode).

Data Concentration Shifts During Corrective Action

Confidence intervals assume that the population is stable over time. As a result, confidence intervals may not accurately represent the current well concentrations if increasing or decreasing trends are observed (i.e., during a release or under active remediation). Per the Unified Guidance (EPA, 2009), lower or upper confidence limits constructed on accumulated data may be overly wide (due to high sample variability caused by combining pre- and post-shift data) and may not be reflective of more recent upward/downward shifts in the contaminant distribution.

Alternative procedures may be applied to data sets with shifting distributions. For example, where trends tests are significant, pre-shift data may be removed from the well/parameter data set for the purposes of constructing the confidence interval. “The reduction in sample size will often be more than offset by the gain in statistical power. More recent measurements may exhibit less variation around the shifted mean value, resulting in a shorter confidence interval” (EPA, 2009).

Another alternative is to construct confidence bands around the trend line to track progress towards exceeding or meeting a fixed standard. As suggested in the Unified Guidance (Chapter 22), if a trend is present, a 90% confidence band (upper 95% confidence limit) is placed on the linear trend line. If the upper 95% confidence limit on the trend line falls below the GWPS, the well is found to have reduced to levels statistically below the GWPS.

As the discussed in the Unified Guidance, “inferences concerning a linear regression are generally appropriate when two conditions hold: 1) the residuals from the regression are approximately normal or at least reasonably symmetric in distribution; and 2) a plot of residuals versus concentrations indicates a scatter cloud of essentially uniform vertical thickness or width.” These conditions are assessed through normal probability plots of the regression residuals and plots of residuals against the predicted concentrations.

Data Adjustments Due to Exiting Corrective Action

When analyte/well pairs exit corrective action and return to assessment constituents, the hypothesis testing structure is reversed again. In corrective action mode, compliance point concentrations were presumed to exceed the GWPS, and evidence must be presented to demonstrated regulatory compliance (i.e., UCLs below the GWPS for three consecutive years). With the return to assessment constituents, analyte/well pairs have demonstrated regulatory compliance. The hypothesis testing structure reverts to the assessment monitoring structure where compliance point concentrations are presumed to not exceed the GWPS unless sampling data indicates otherwise (i.e., LCL is above the GWPS). With this reversion in hypothesis, the focus shifts to evaluating concentration changes in the analyte/well pair that would indicate an increase over the GWPS and re-trigger corrective action. For constituents with historical SSLs, earlier concentrations that had previously triggered corrective action are no longer providing useful information regarding the current assessment monitoring hypothesis. Retaining the historical data during the timeframe in which the GWPS was exceeded will result in the regression or confidence interval methods being slower to respond to new increases. As a result, the historical data prior to when statistical compliance with the GWPS was first achieved will be removed when analyte/well pairs exit corrective action and return to assessment constituents.

Attachment 2
MW-200 Intrawell Statistics

Trend Tests

Sep. 2009 Through Apr. 2023 Data [1]

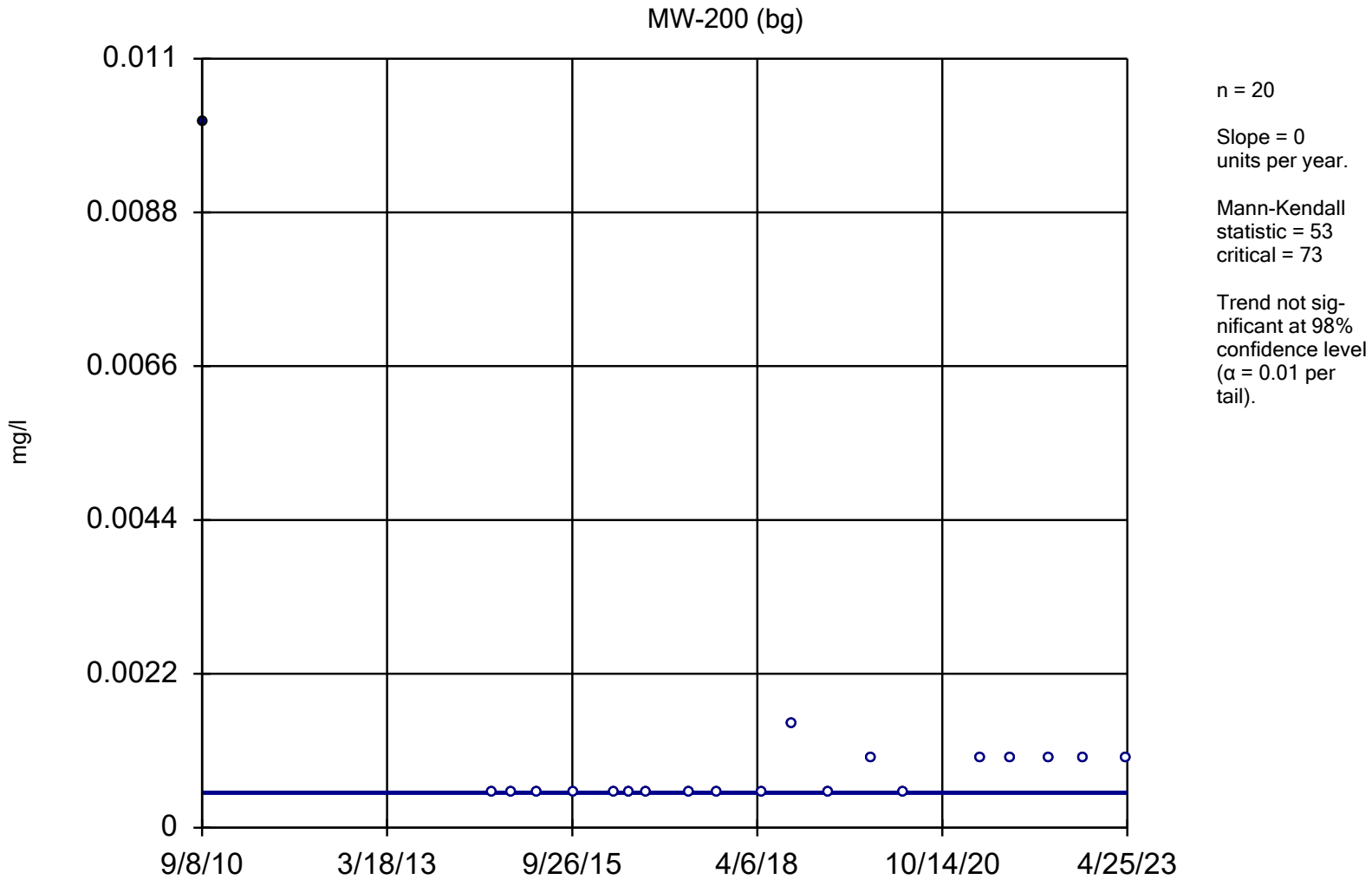
Constituent Name	Well	Slope	Mann-Kendall	Critical Value	Trend	N	Alpha
Antimony (mg/L) [2]	MW-200	0	53	73	No	20	0.02
Arsenic (mg/L)	MW-200	0	125	158	No	34	0.02
Barium (mg/L)	MW-200	-0.002961	-153	-158	No	34	0.02
Beryllium (mg/L)	MW-200	0	-58	-158	No	34	0.02
Cadmium (mg/L)	MW-200	-0.000006581	-137	-158	No	34	0.02
Chromium (mg/L) [2]	MW-200	0	6	89	No	23	0.02
Cobalt (mg/L) [2]	MW-200	0	-2	-78	No	21	0.02
Copper (mg/L) [2]	MW-200	0	-6	-78	No	21	0.02
Lead (mg/L) [2]	MW-200	0	-36	-84	No	22	0.02
Nickel (mg/L) [2]	MW-200	-0.000003259	-3	-89	No	23	0.02
Tin (mg/L) [2]	MW-200	0	-27	-58	No	17	0.02
Vanadium (mg/L) [2]	MW-200	0.00005302	34	78	No	21	0.02
Zinc (mg/L)	MW-200	-0.0009878	-156	-158	No	34	0.02

[1] Per Section 3.2, the Sep. 2020 metals data in MW-200 were removed from the intrawell background data set.

[2] By default, Sanitas software utilizes half the reporting limit for non-detected values. In the case of changing reporting limits, this may artificially introduce variation into the trend test. For constituents where notable changes in the reporting limit have occurred, the earlier non-detect values with higher report limits were not included in the trend evaluation.

Sanitas™ v.9.6.37 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

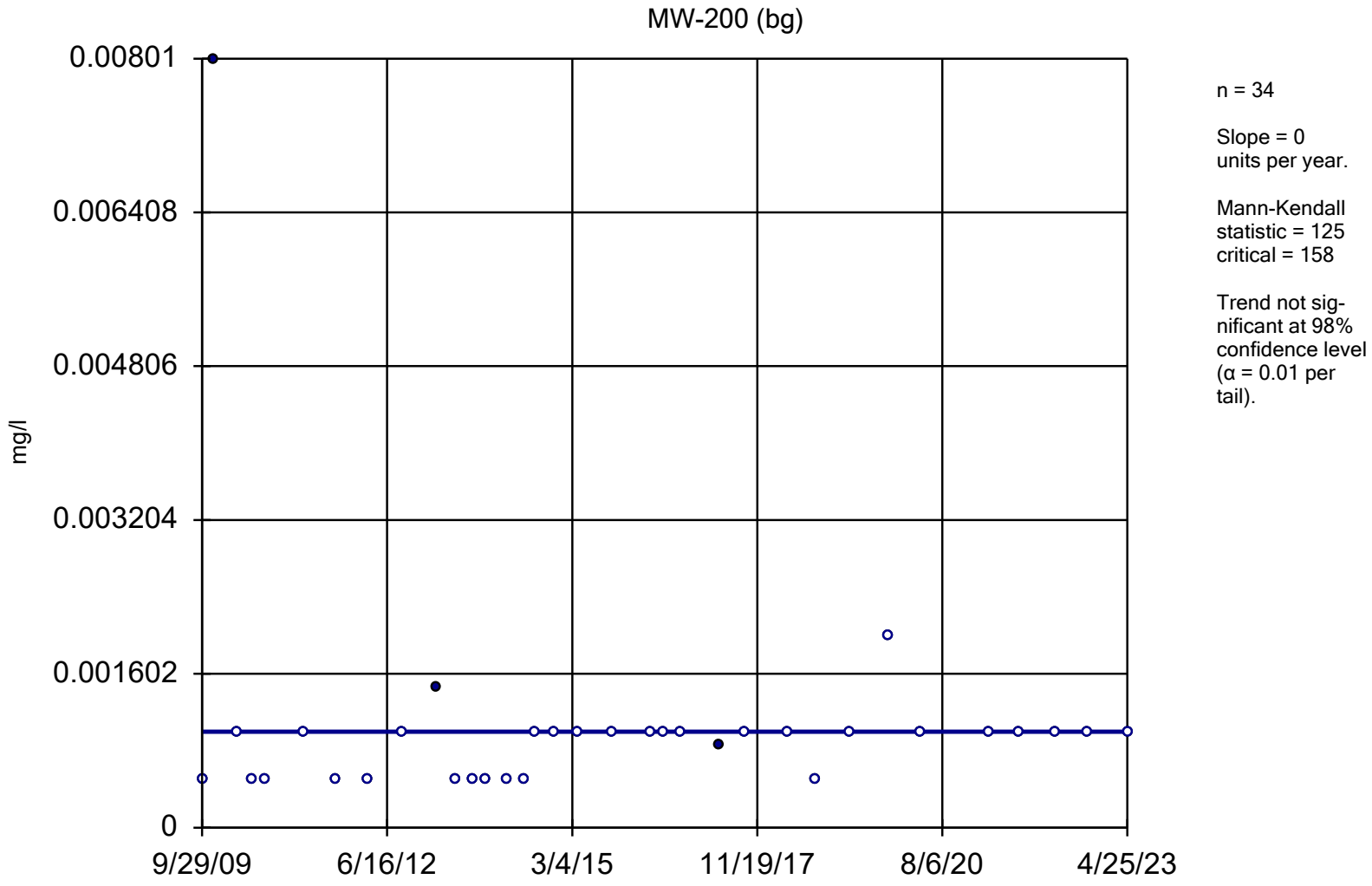


Constituent: Antimony Analysis Run 6/23/2023 9:53 AM

Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Sen's Slope Estimator



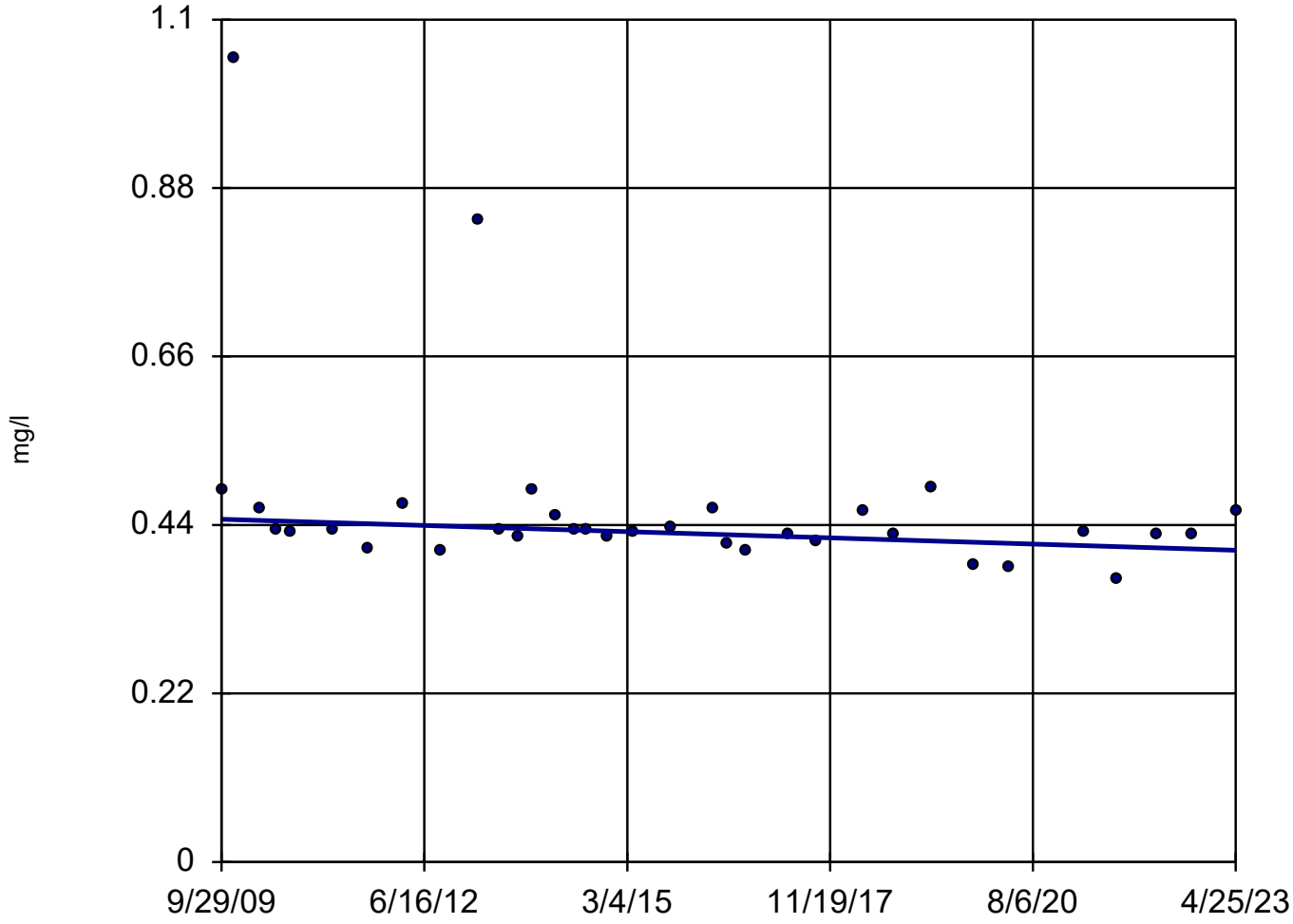
Constituent: Arsenic Analysis Run 6/23/2023 9:37 AM

Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Sen's Slope Estimator

MW-200 (bg)



n = 34

Slope = -0.002961 units per year.

Mann-Kendall statistic = -153
critical = -158

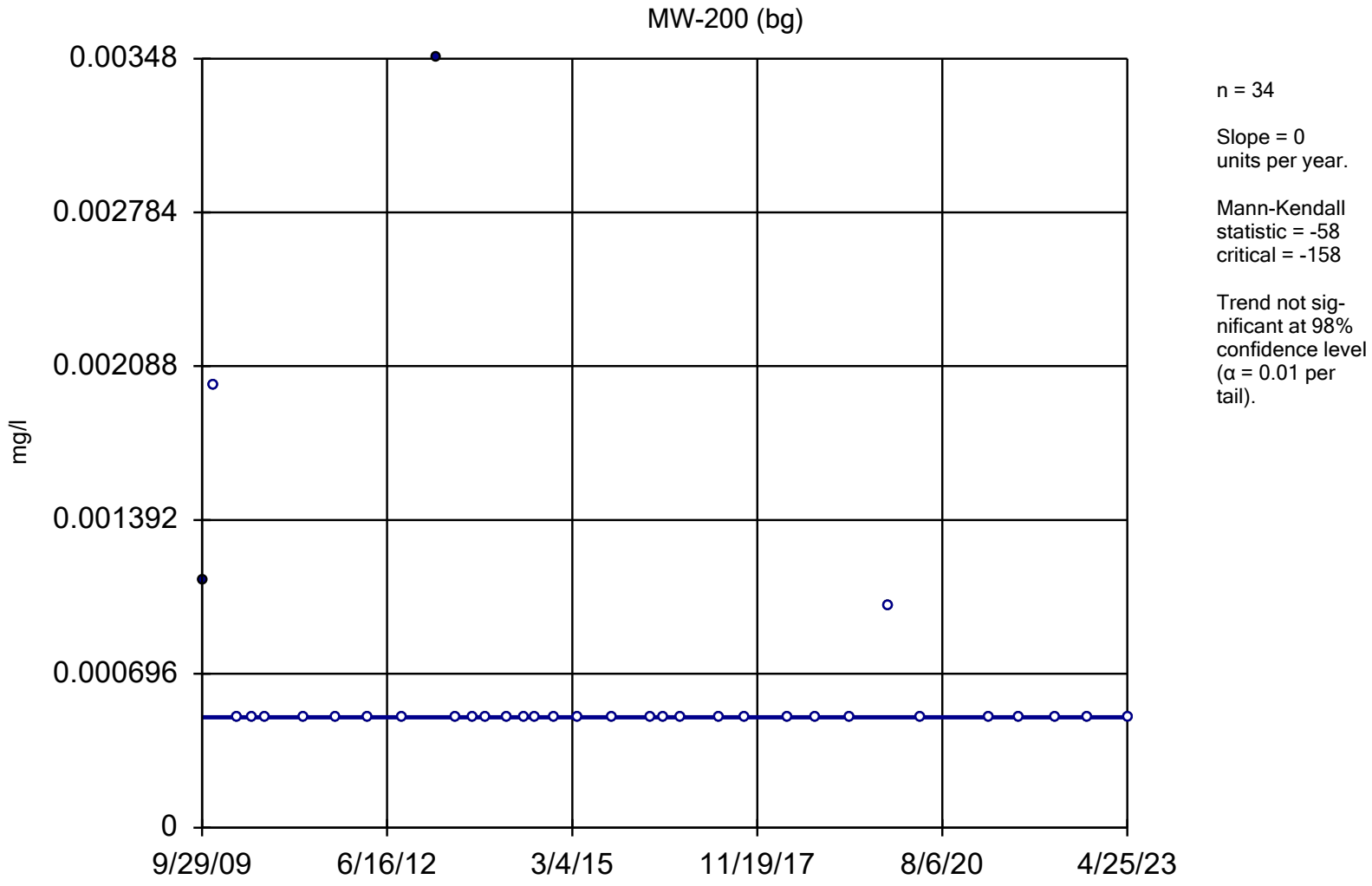
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Barium Analysis Run 6/23/2023 9:37 AM

Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

Sanitas™ v.9.6.37 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

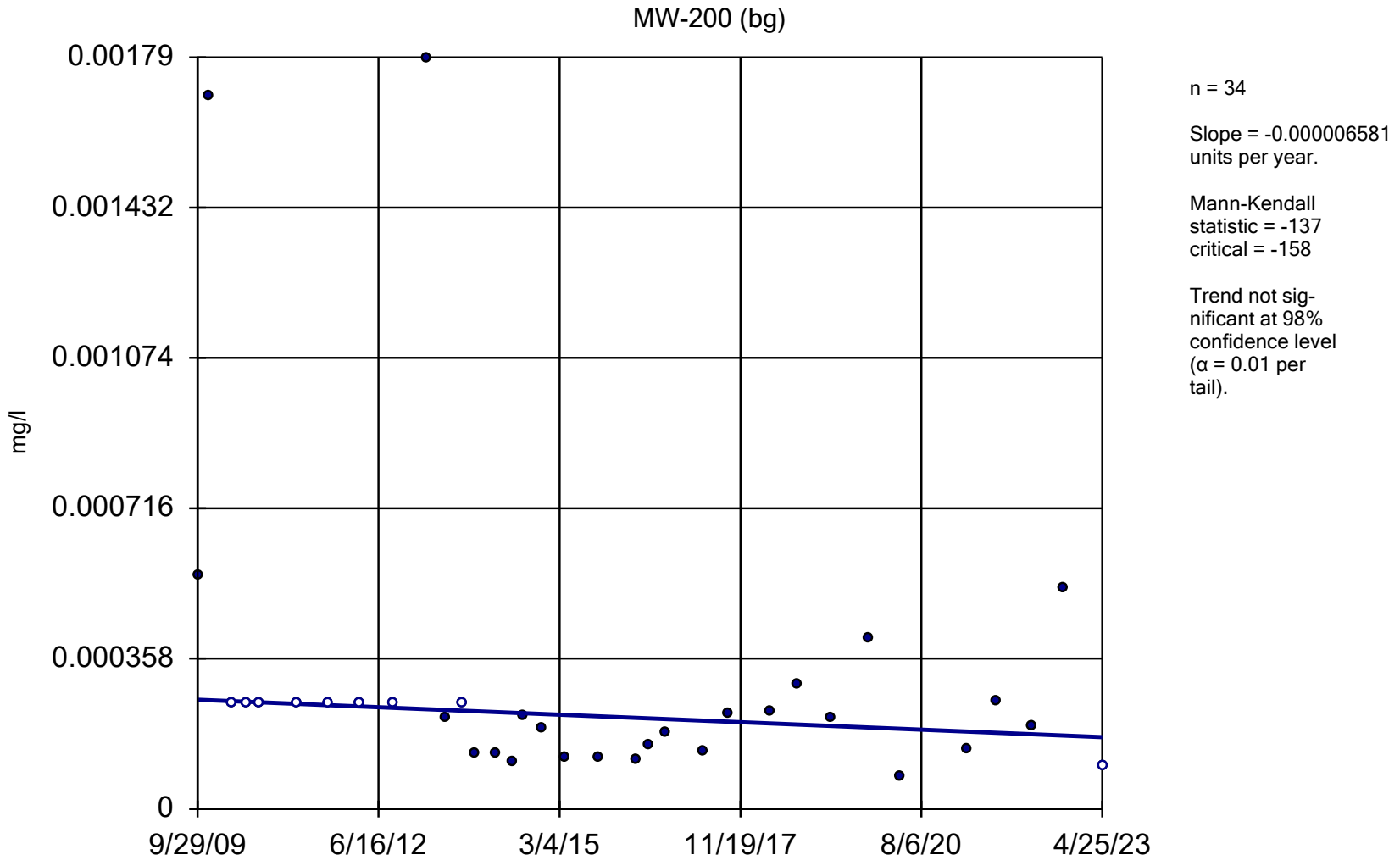


Constituent: Beryllium Analysis Run 6/23/2023 9:37 AM

Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

Sanitas™ v.9.6.37 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator



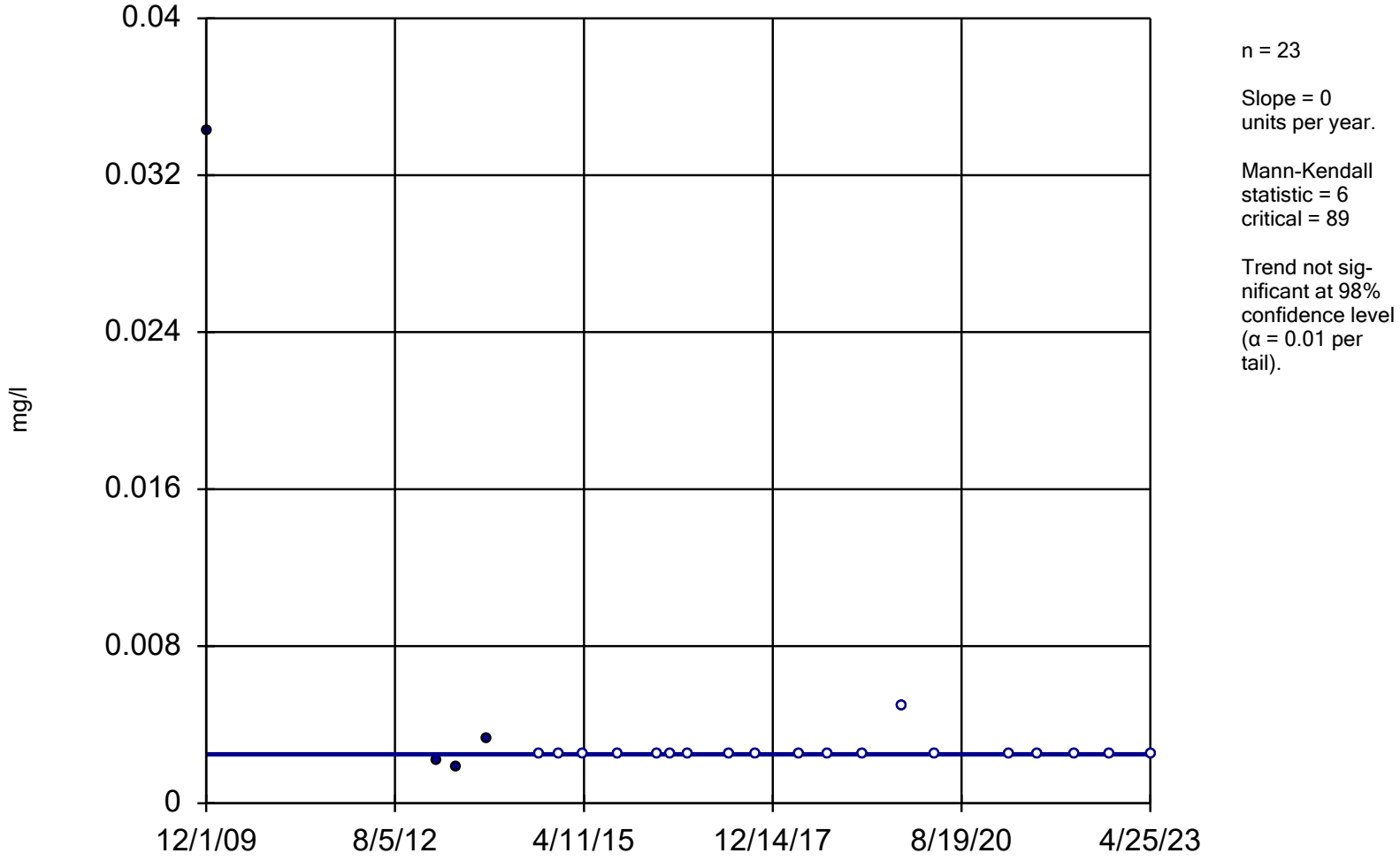
Constituent: Cadmium Analysis Run 6/23/2023 9:37 AM

Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

Sanitas™ v.9.6.37 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-200 (bg)



n = 23

Slope = 0
units per year.

Mann-Kendall
statistic = 6
critical = 89

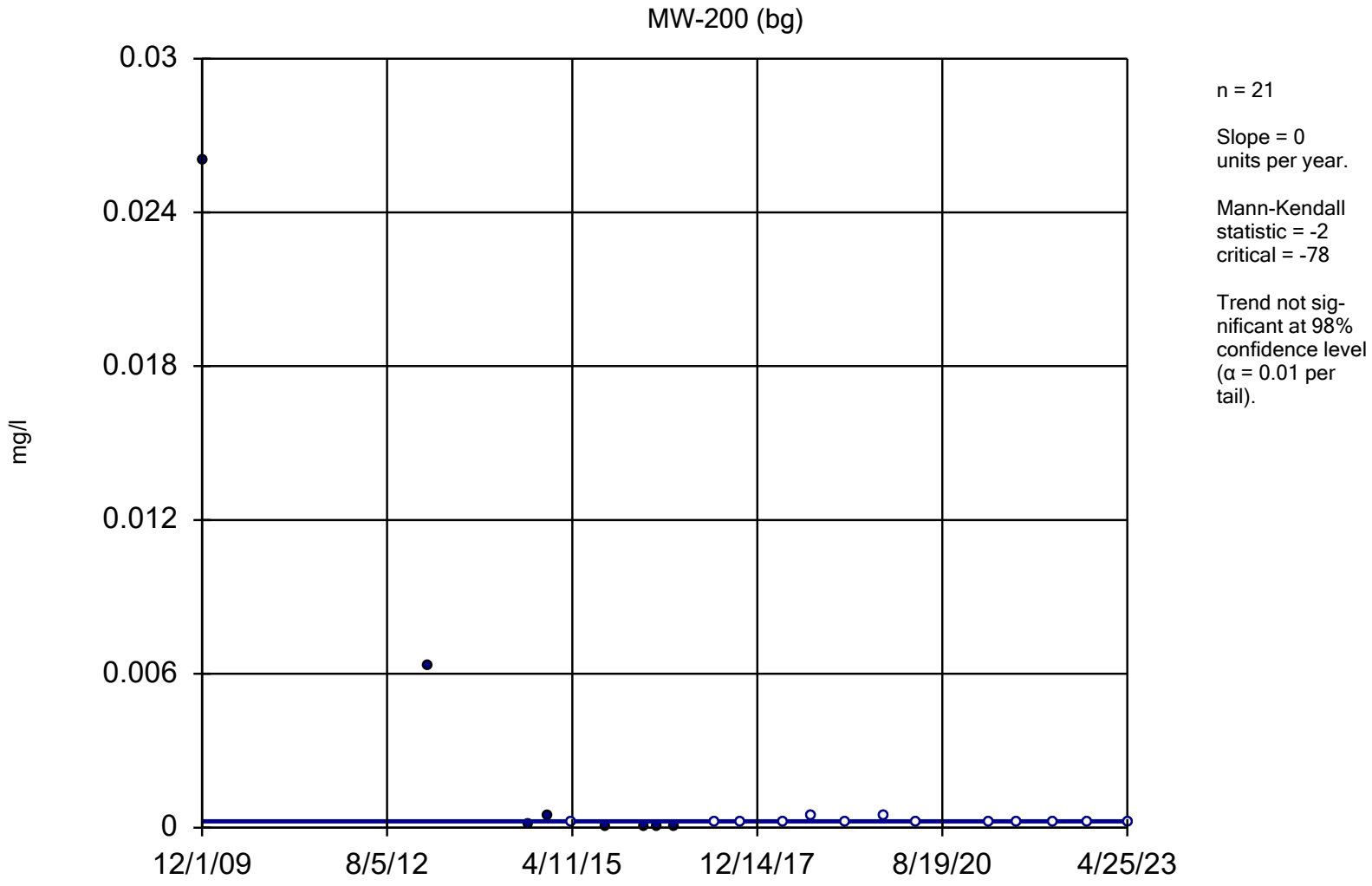
Trend not sig-
nificant at 98%
confidence level
(α = 0.01 per
tail).

Constituent: Chromium Analysis Run 6/23/2023 10:06 AM

Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

Sanitas™ v.9.6.37 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator



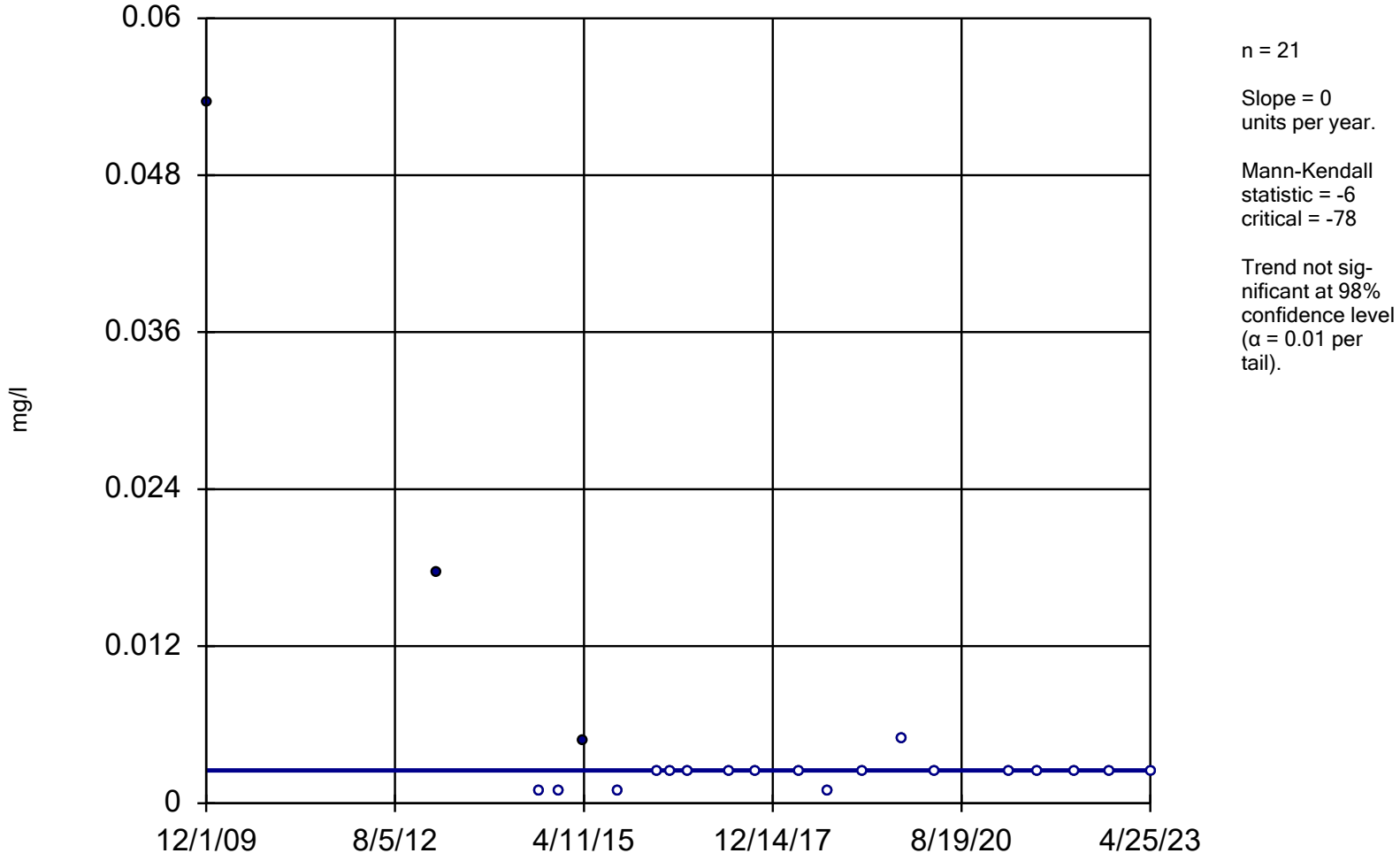
Constituent: Cobalt Analysis Run 6/23/2023 10:10 AM

Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

Sanitas™ v.9.6.37 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-200 (bg)



n = 21

Slope = 0
units per year.

Mann-Kendall
statistic = -6
critical = -78

Trend not sig-
nificant at 98%
confidence level
(α = 0.01 per
tail).

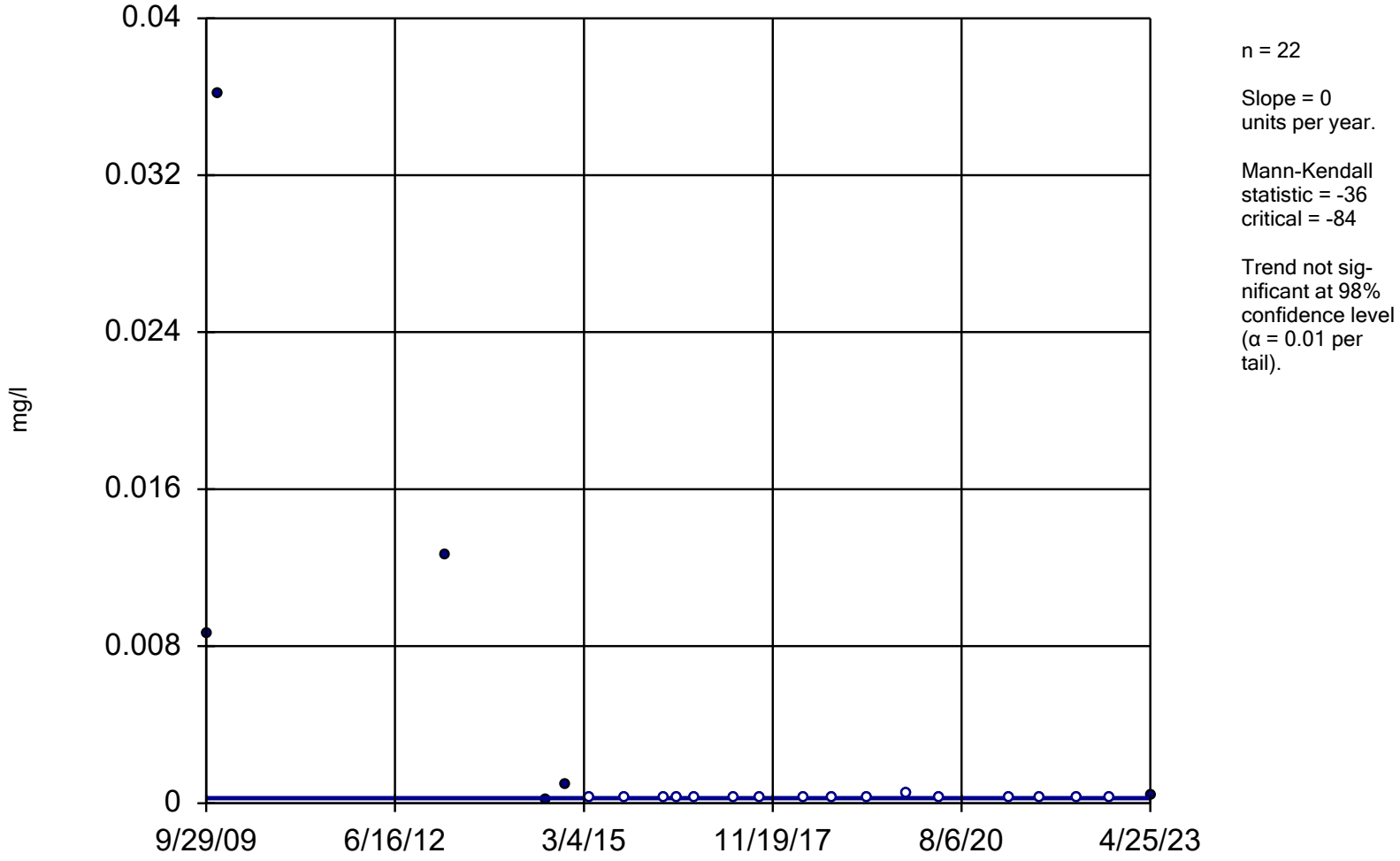
Constituent: Copper Analysis Run 6/23/2023 10:18 AM

Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

Sanitas™ v.9.6.37 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-200 (bg)



n = 22

Slope = 0
units per year.

Mann-Kendall
statistic = -36
critical = -84

Trend not sig-
nificant at 98%
confidence level
(α = 0.01 per
tail).

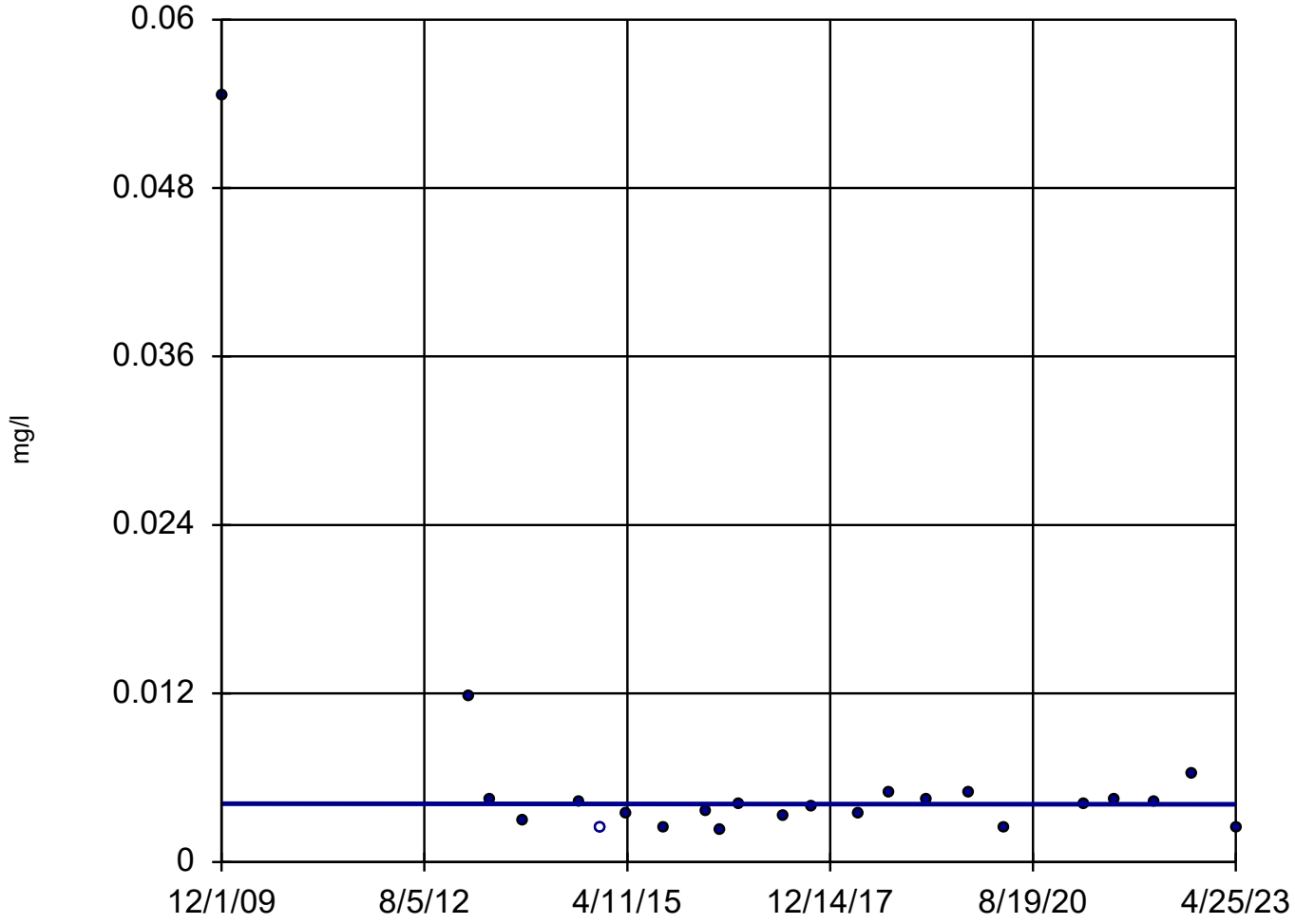
Constituent: Lead Analysis Run 6/23/2023 10:30 AM

Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-200 (bg)



n = 23

Slope = -0.000003259 units per year.

Mann-Kendall statistic = -3
critical = -89

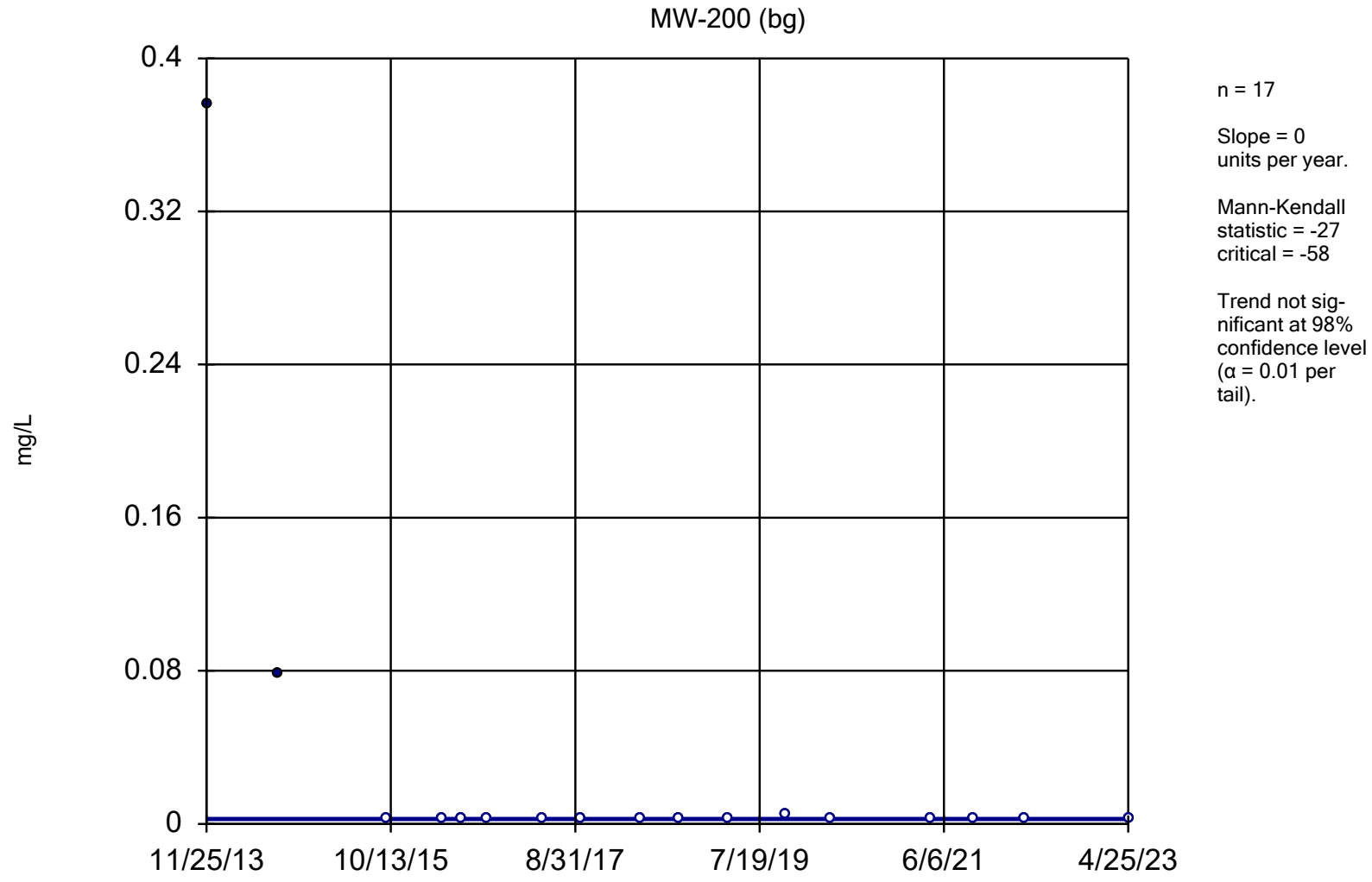
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Nickel Analysis Run 6/23/2023 10:45 AM

Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Sen's Slope Estimator

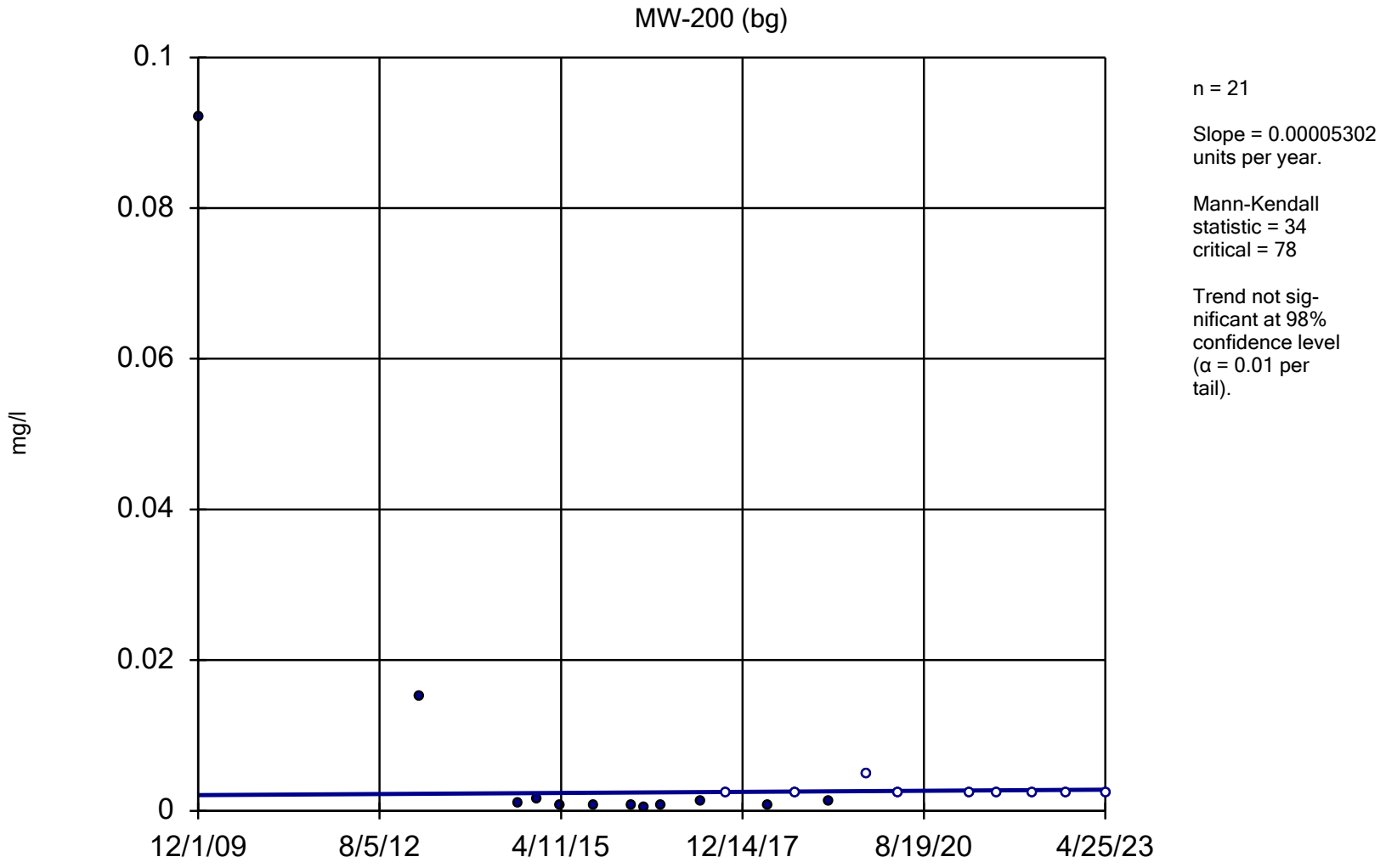


Constituent: Tin Analysis Run 6/23/2023 10:49 AM

Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Sen's Slope Estimator

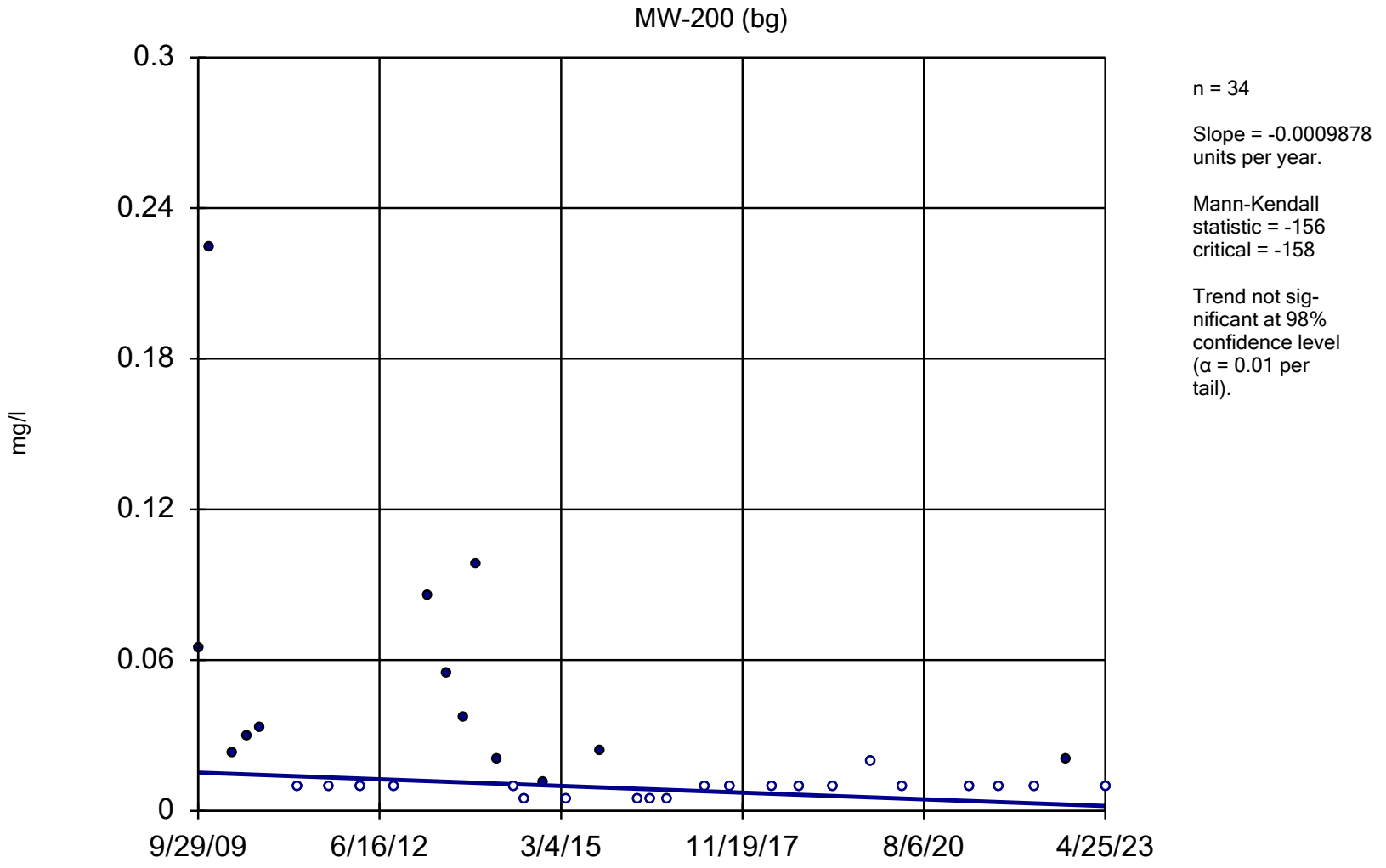


Constituent: Vanadium Analysis Run 6/23/2023 11:07 AM

Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Sen's Slope Estimator



Constituent: Zinc Analysis Run 6/23/2023 9:37 AM

Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

Intrawell Prediction Limit

Utilizing Background Data from Sep. 2009 Through Apr. 2021 [1]

Constituent Name	Well	Upper Limit	Date	Observation	Exceeds	Background N	Background Wells	Background Mean	Standard Deviation	% Non-detects	Non-detect Adjustment	Transformation	Alpha	Method
Antimony (mg/l)	MW-200	0.0101	4/25/2023	0.001ND	No	30	n/a	n/a	n/a	97	n/a	n/a	0.002008	NP Intra (NDs) 1 of 2
Arsenic (mg/l)	MW-200	0.00801	4/25/2023	0.001ND	No	30	n/a	n/a	n/a	90	n/a	n/a	0.002008	NP Intra (NDs) 1 of 2
Barium (mg/l)	MW-200	1.05	4/25/2023	0.459	No	30	n/a	n/a	n/a	0	n/a	n/a	0.002008	NP Intra (normality) 1 of 2
Beryllium (mg/l)	MW-200	0.00348	4/25/2023	0.0005ND	No	30	n/a	n/a	n/a	93	n/a	n/a	0.002008	NP Intra (NDs) 1 of 2
Cadmium (mg/l)	MW-200	0.00179	4/25/2023	0.0001ND	No	30	n/a	n/a	n/a	27	n/a	n/a	0.002008	NP Intra (normality) 1 of 2
Chromium (mg/l)	MW-200	0.0343	4/25/2023	0.0025ND	No	30	n/a	n/a	n/a	87	n/a	n/a	0.002008	NP Intra (NDs) 1 of 2
Cobalt (mg/l)	MW-200	0.026	4/25/2023	0.00025ND	No	30	n/a	n/a	n/a	73	n/a	n/a	0.002008	NP Intra (NDs) 1 of 2
Copper (mg/l)	MW-200	0.0536	4/25/2023	0.0025ND	No	30	n/a	n/a	n/a	90	n/a	n/a	0.002008	NP Intra (NDs) 1 of 2
Lead (mg/l)	MW-200	0.0362	4/25/2023	0.000378J	No	30	n/a	n/a	n/a	83	n/a	n/a	0.002008	NP Intra (NDs) 1 of 2
Nickel (mg/l)	MW-200	0.0545	4/25/2023	0.00235J	No	30	n/a	n/a	n/a	40	n/a	n/a	0.002008	NP Intra (normality) 1 of 2
Tin (mg/L)	MW-200	0.376	4/25/2023	0.0025ND	No	20	n/a	n/a	n/a	90	n/a	n/a	0.004291	NP Intra (NDs) 1 of 2
Vanadium (mg/l)	MW-200	0.0921	4/25/2023	0.0025ND	No	30	n/a	n/a	n/a	60	n/a	n/a	0.002008	NP Intra (NDs) 1 of 2
Zinc (mg/l)	MW-200	0.224	4/25/2023	0.01ND	No	30	n/a	n/a	n/a	60	n/a	n/a	0.002008	NP Intra (NDs) 1 of 2

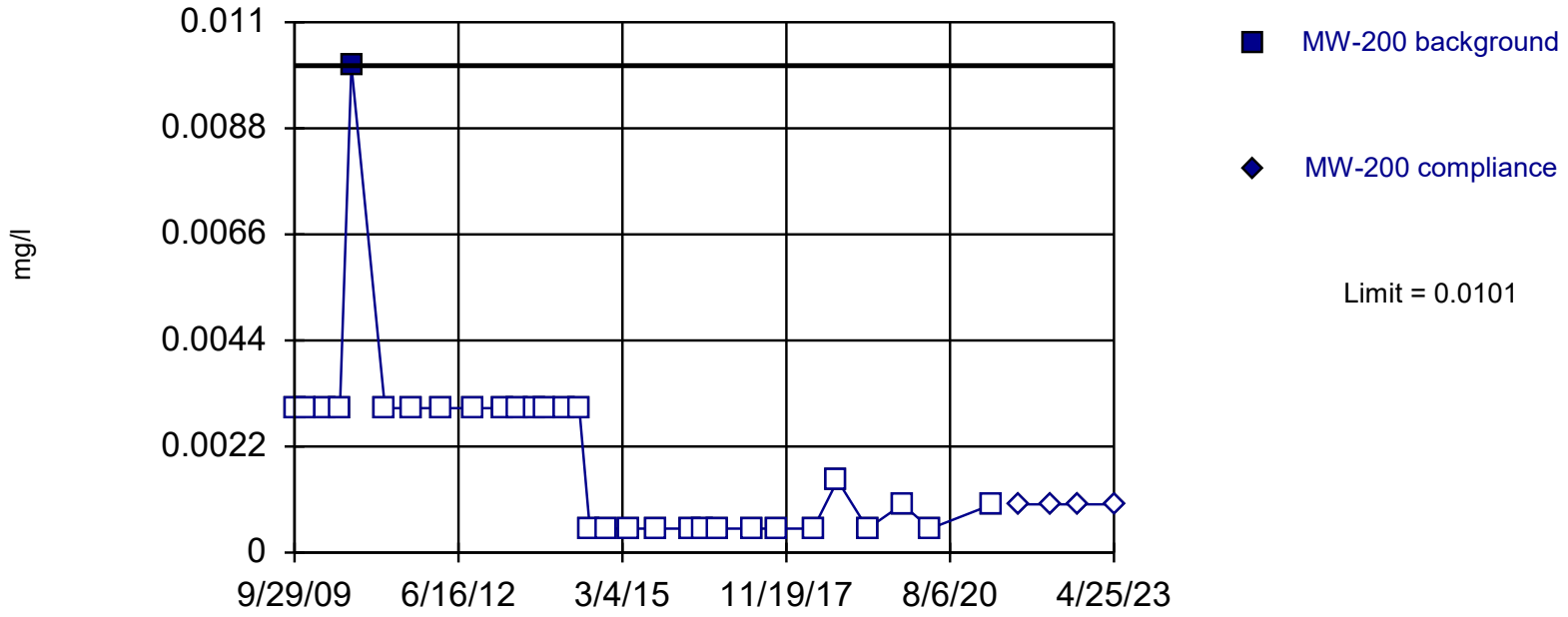
[1] Per Section 3.2, the Sep. 2020 metals data in MW-200 were removed from the intrawell background data set.

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 30 background values. 96.67% NDs. Well-constituent pair annual alpha = 0.004011. Individual comparison alpha = 0.002008 (1 of 2).

Constituent: Antimony Analysis Run 6/23/2023 11:17 AM

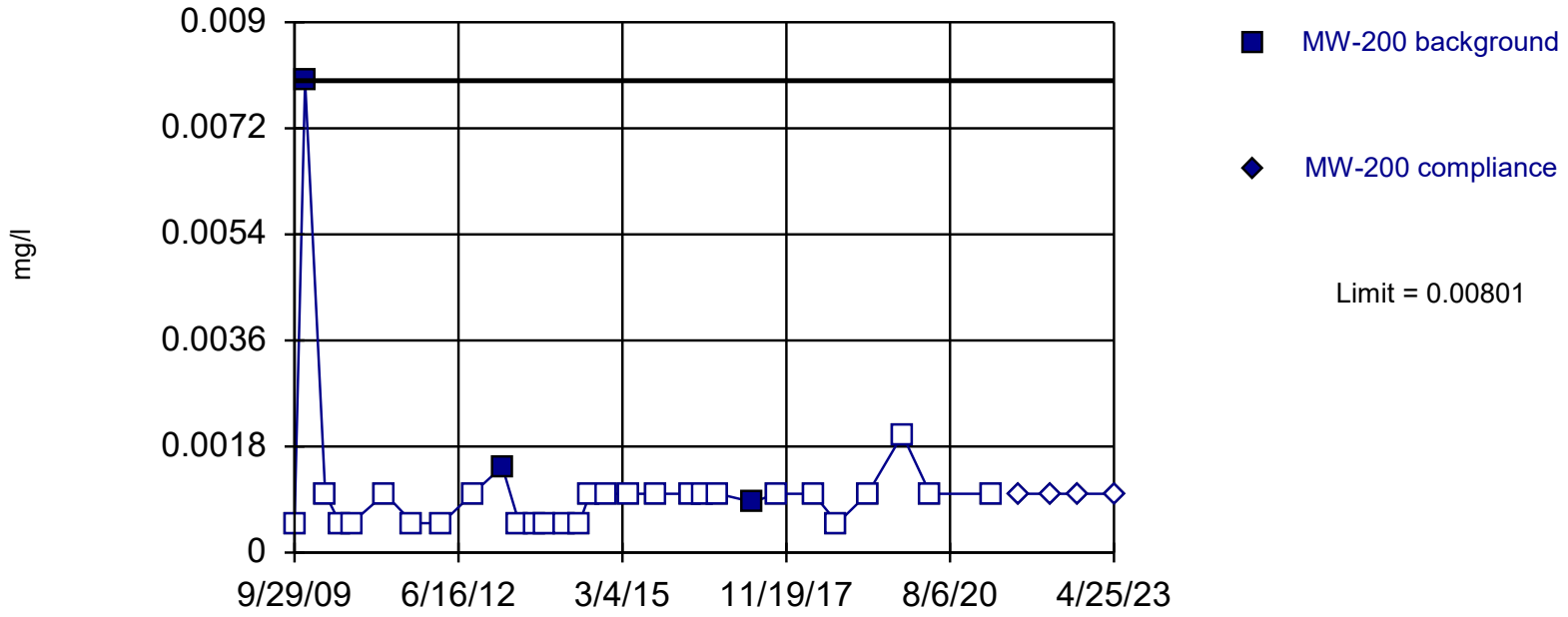
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 30 background values. 90% NDs. Well-constituent pair annual alpha = 0.004011. Individual comparison alpha = 0.002008 (1 of 2).

Constituent: Arsenic Analysis Run 6/23/2023 11:17 AM

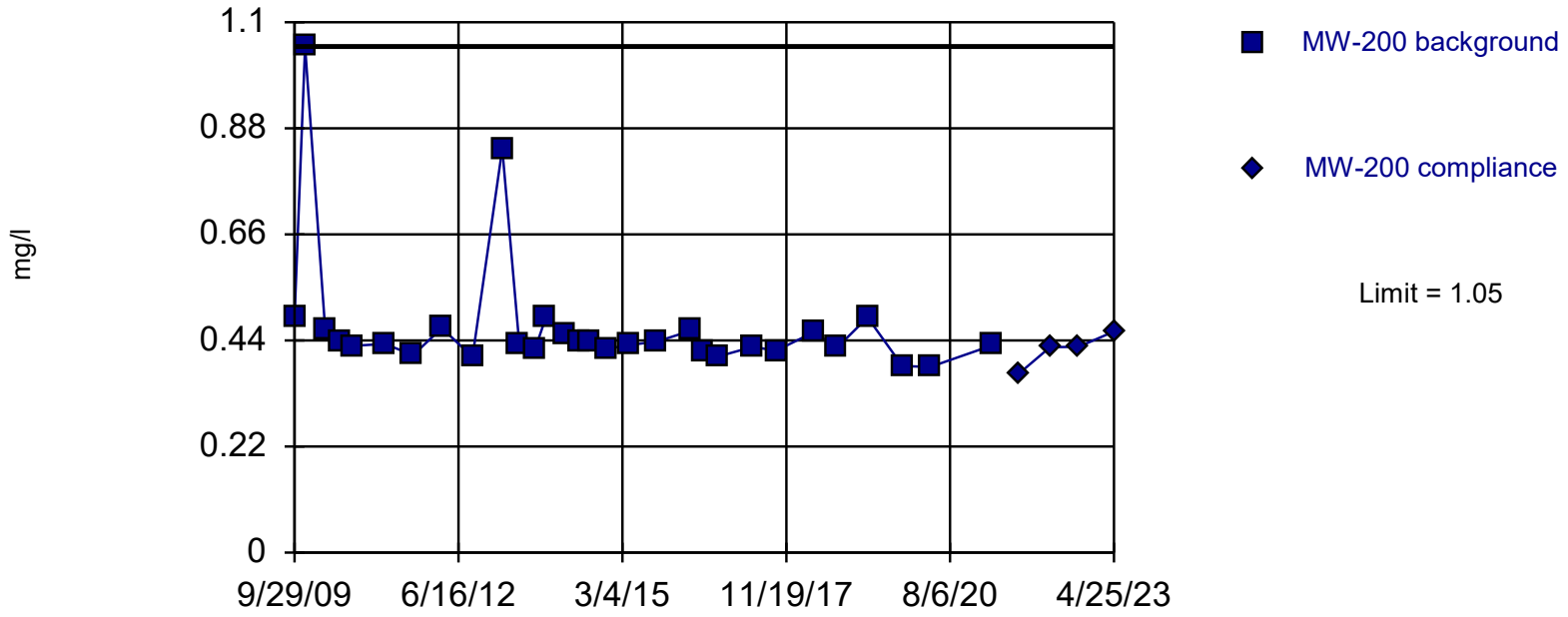
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 30 background values. Well-constituent pair annual alpha = 0.004011. Individual comparison alpha = 0.002008 (1 of 2).

Constituent: Barium Analysis Run 6/23/2023 11:17 AM

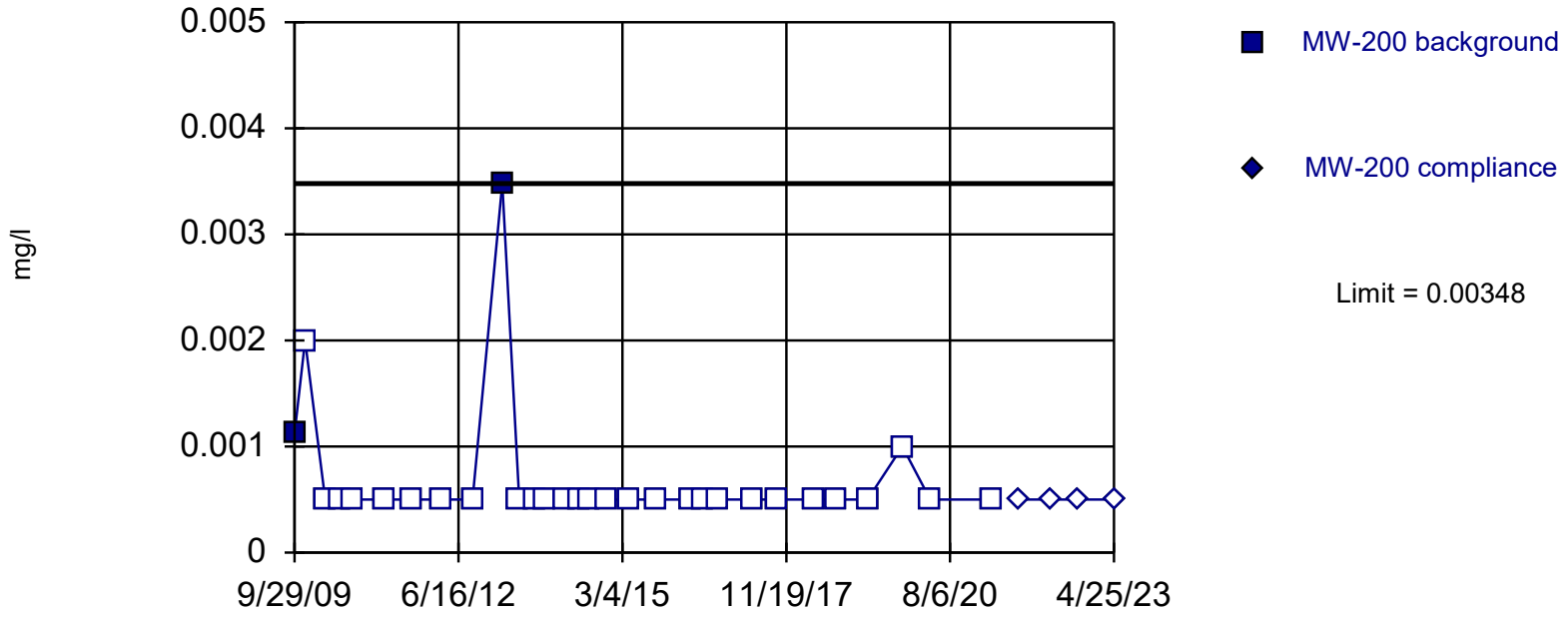
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

Sanitas™ v.9.6.37 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 30 background values. 93.33% NDs. Well-constituent pair annual alpha = 0.004011. Individual comparison alpha = 0.002008 (1 of 2).

Constituent: Beryllium Analysis Run 6/23/2023 11:17 AM

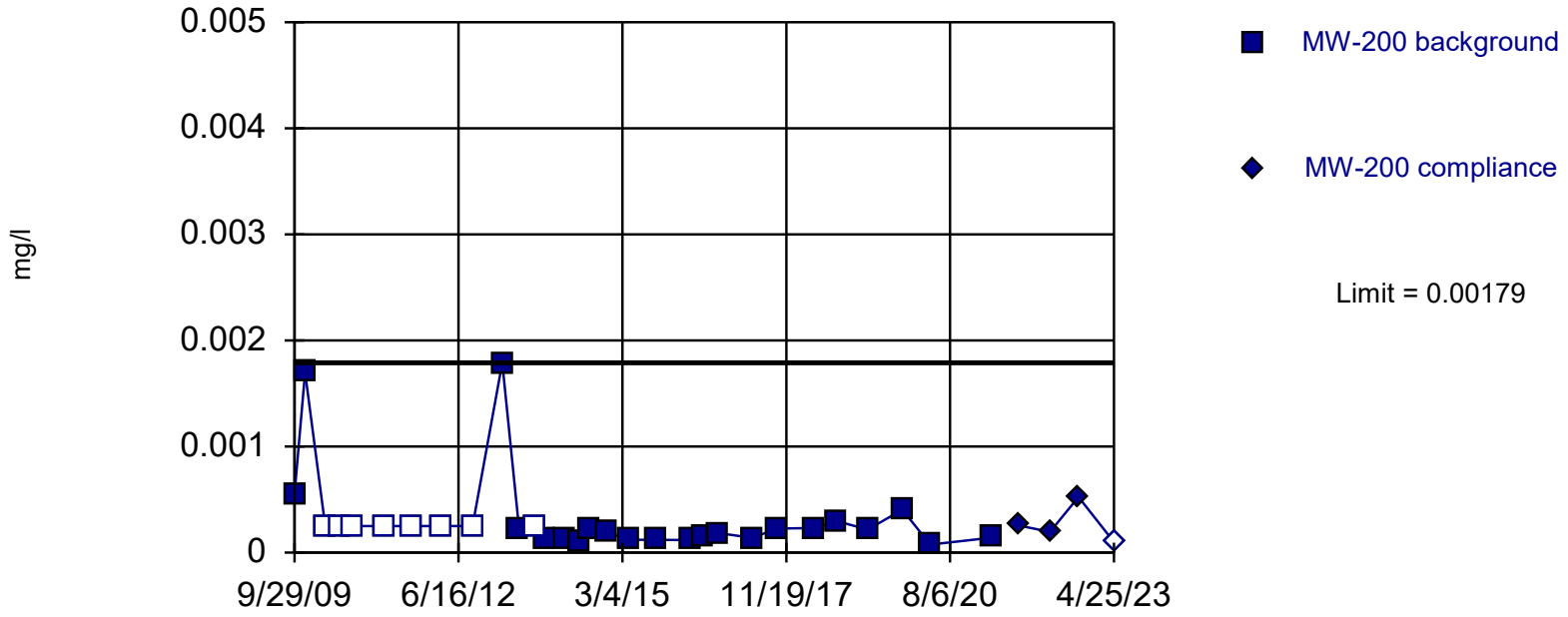
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 30 background values. 26.67% NDs. Well-constituent pair annual alpha = 0.004011. Individual comparison alpha = 0.002008 (1 of 2).

Constituent: Cadmium Analysis Run 6/23/2023 11:17 AM

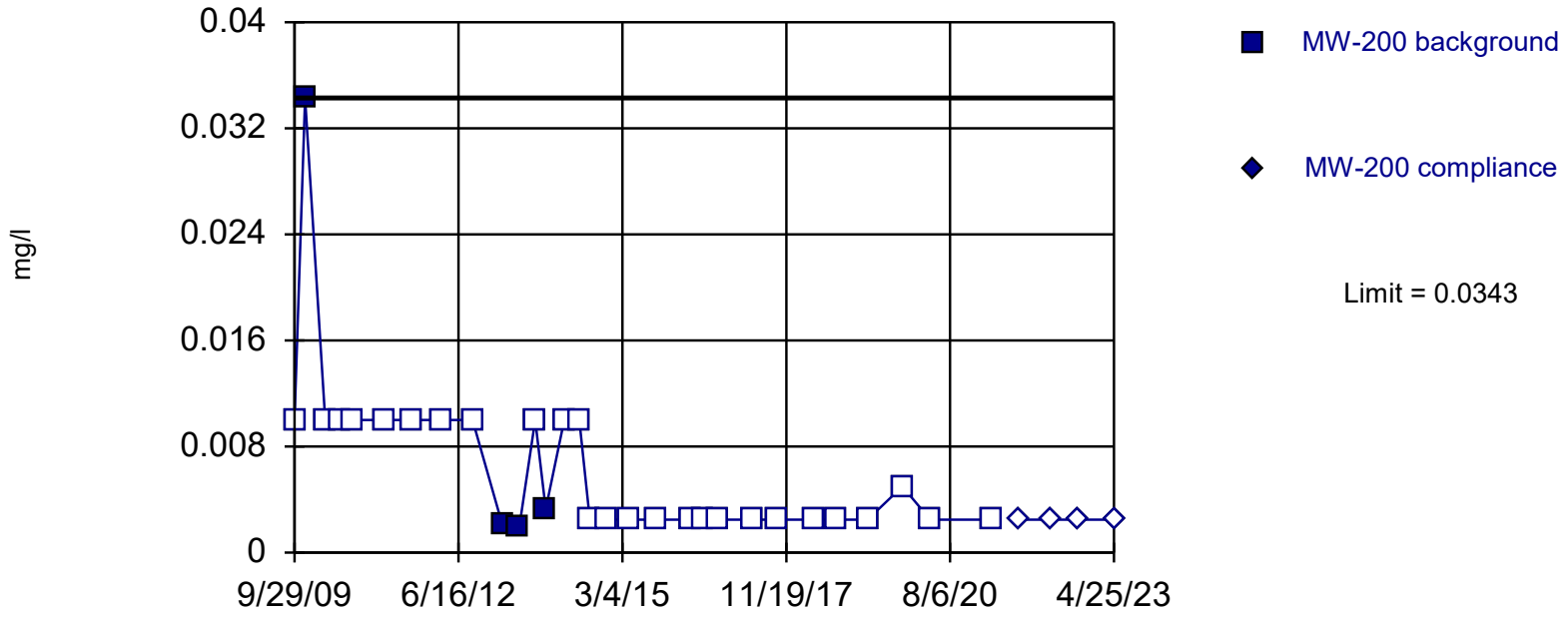
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 30 background values. 86.67% NDs. Well-constituent pair annual alpha = 0.004011. Individual comparison alpha = 0.002008 (1 of 2).

Constituent: Chromium Analysis Run 6/23/2023 11:17 AM

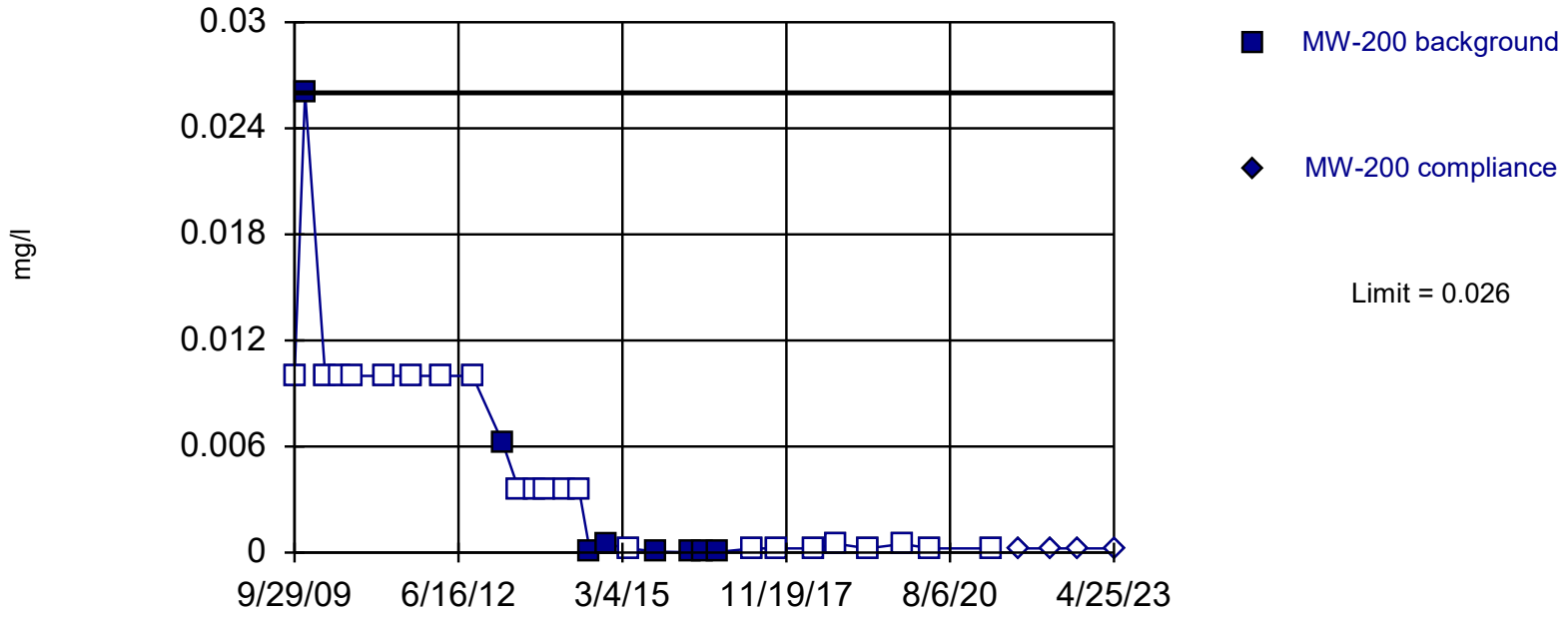
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 30 background values. 73.33% NDs. Well-constituent pair annual alpha = 0.004011. Individual comparison alpha = 0.002008 (1 of 2).

Constituent: Cobalt Analysis Run 6/23/2023 11:17 AM

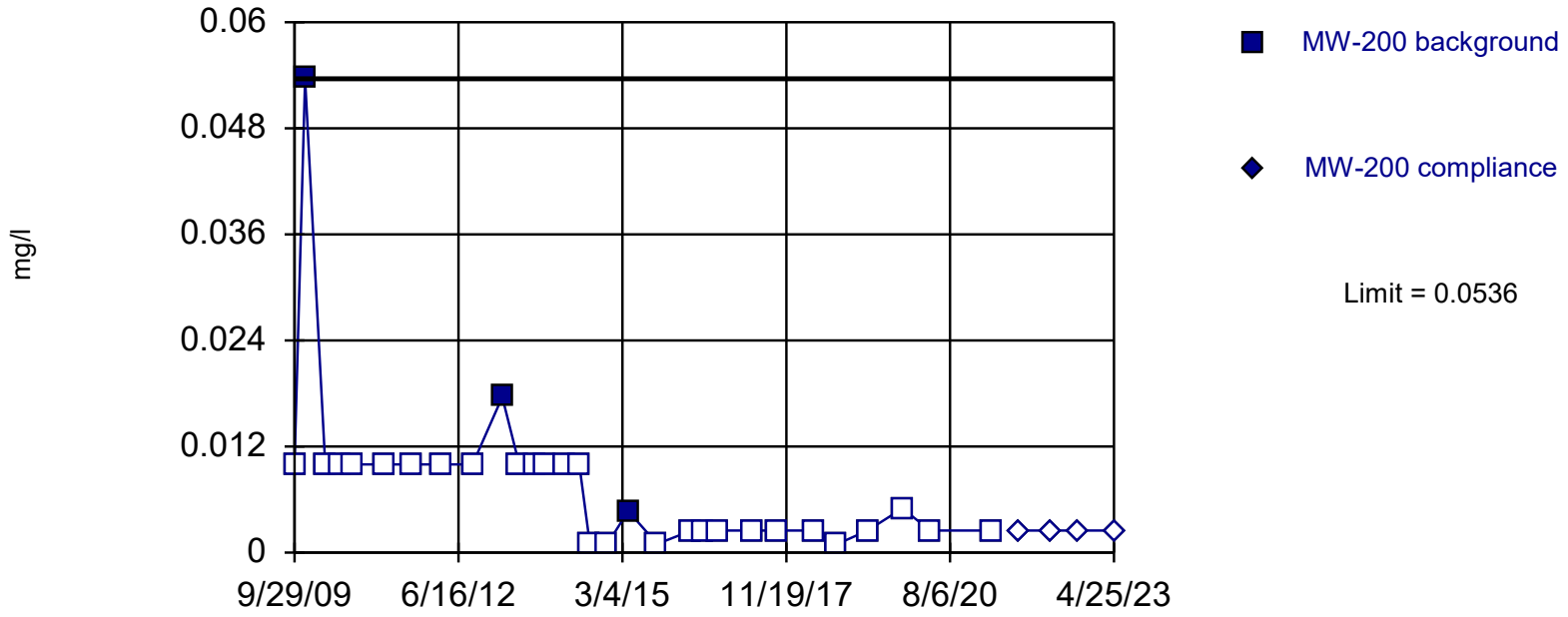
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

Sanitas™ v.9.6.37 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 30 background values. 90% NDs. Well-constituent pair annual alpha = 0.004011. Individual comparison alpha = 0.002008 (1 of 2).

Constituent: Copper Analysis Run 6/23/2023 11:17 AM

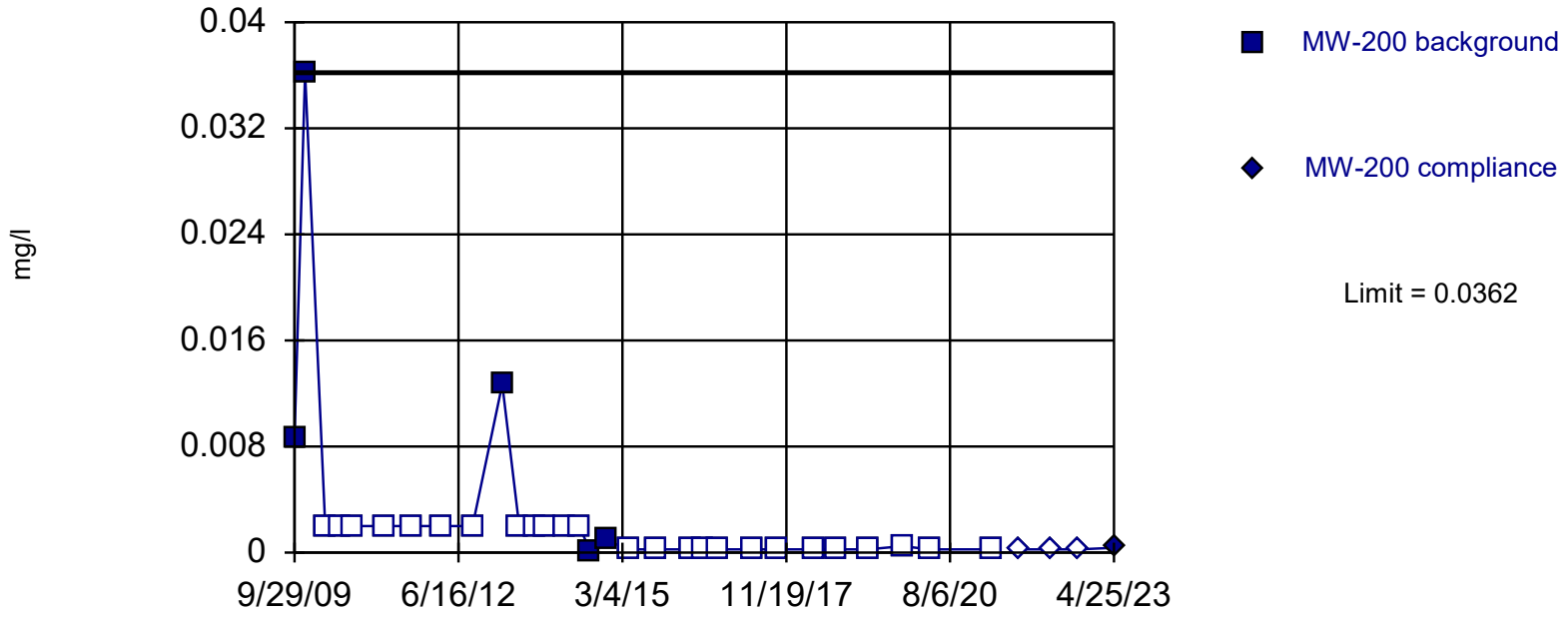
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 30 background values. 83.33% NDs. Well-constituent pair annual alpha = 0.004011. Individual comparison alpha = 0.002008 (1 of 2).

Constituent: Lead Analysis Run 6/23/2023 11:17 AM

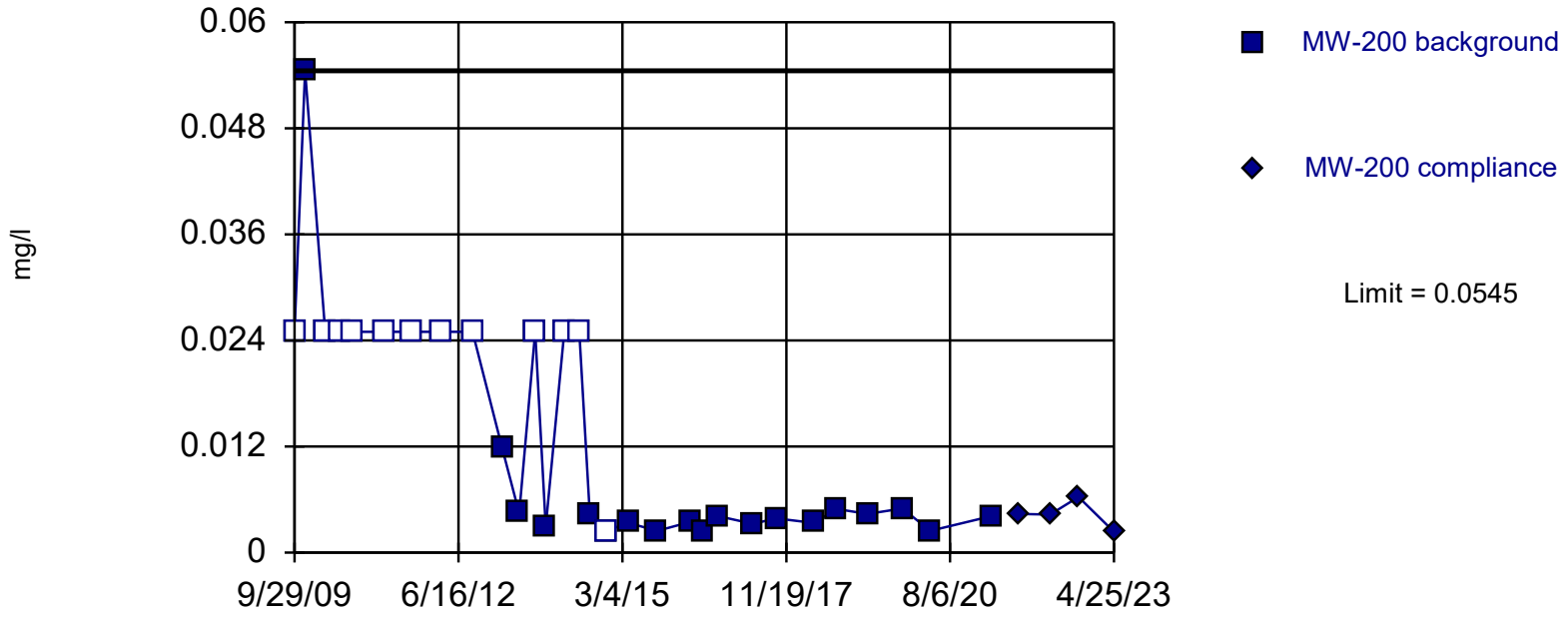
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

Sanitas™ v.9.6.37 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 30 background values. 40% NDs. Well-constituent pair annual alpha = 0.004011. Individual comparison alpha = 0.002008 (1 of 2).

Constituent: Nickel Analysis Run 6/23/2023 11:17 AM

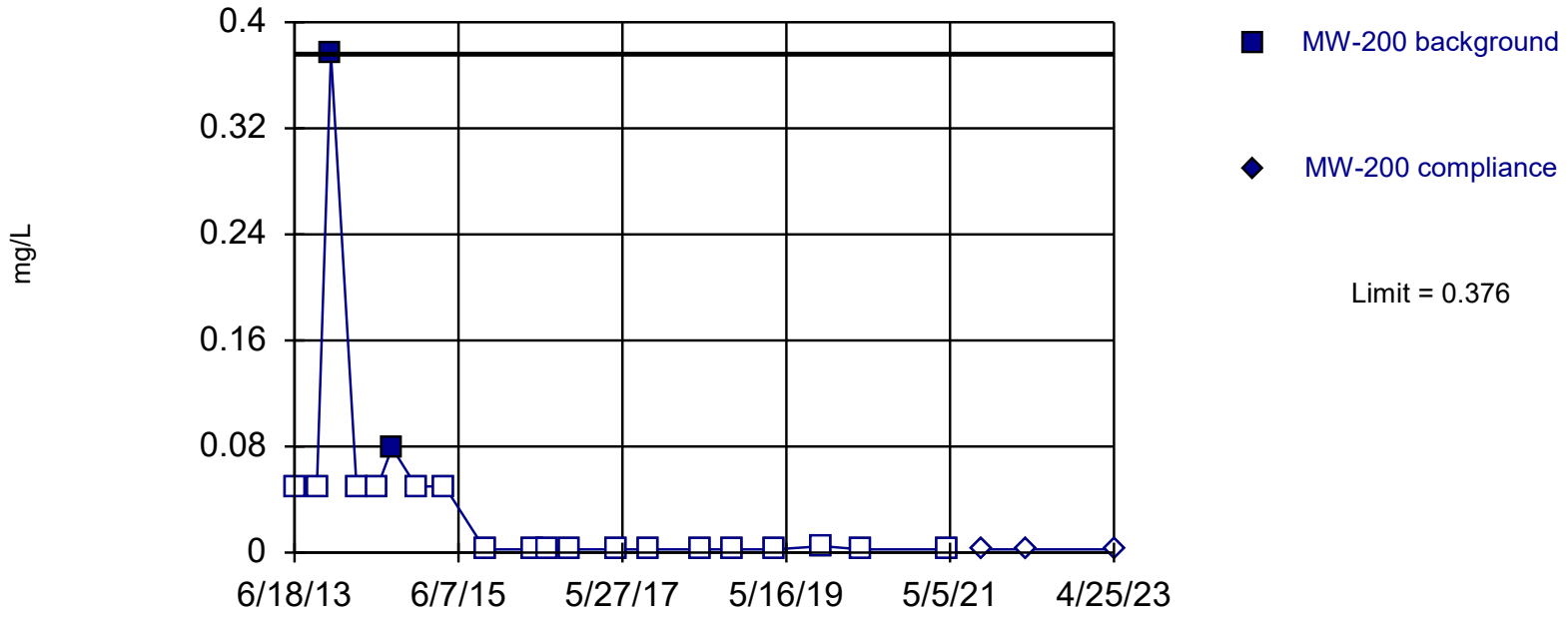
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 20 background values. 90% NDs. Well-constituent pair annual alpha = 0.008564. Individual comparison alpha = 0.004291 (1 of 2).

Constituent: Tin Analysis Run 6/23/2023 11:17 AM

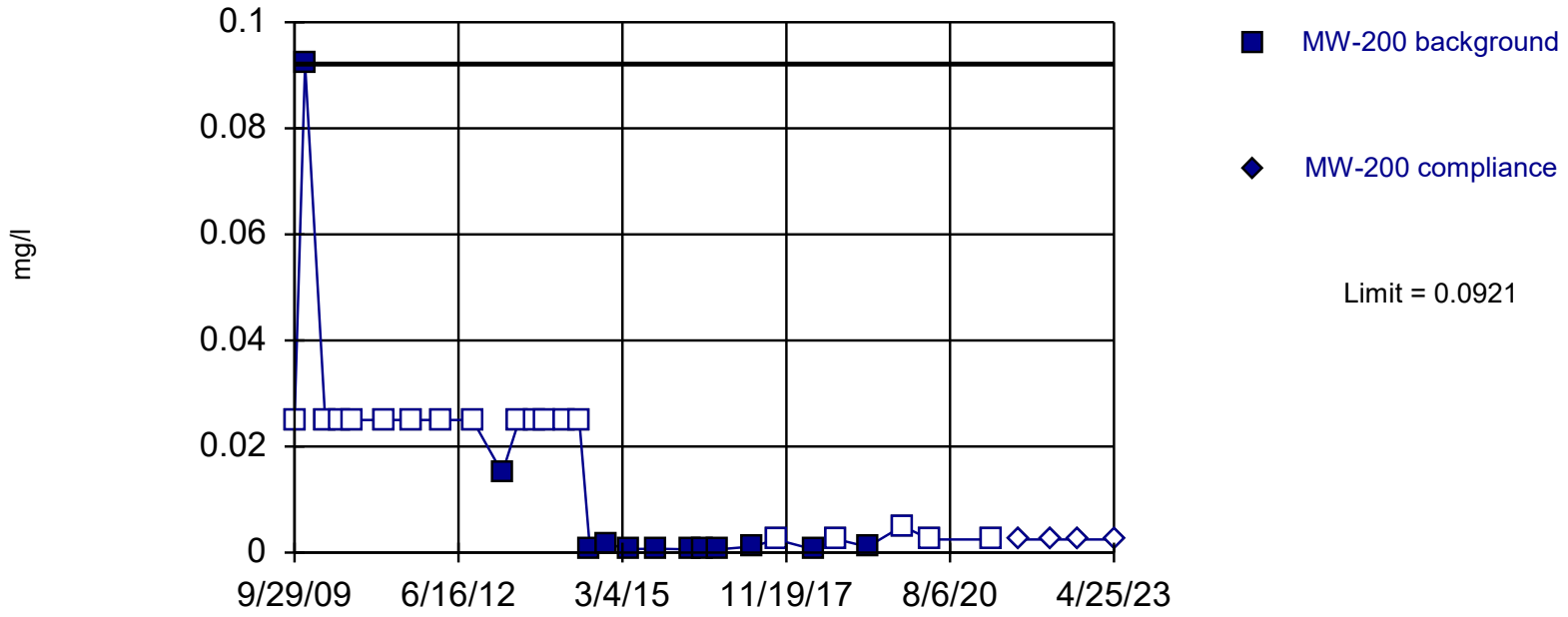
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 30 background values. 60% NDs. Well-constituent pair annual alpha = 0.004011. Individual comparison alpha = 0.002008 (1 of 2).

Constituent: Vanadium Analysis Run 6/23/2023 11:17 AM

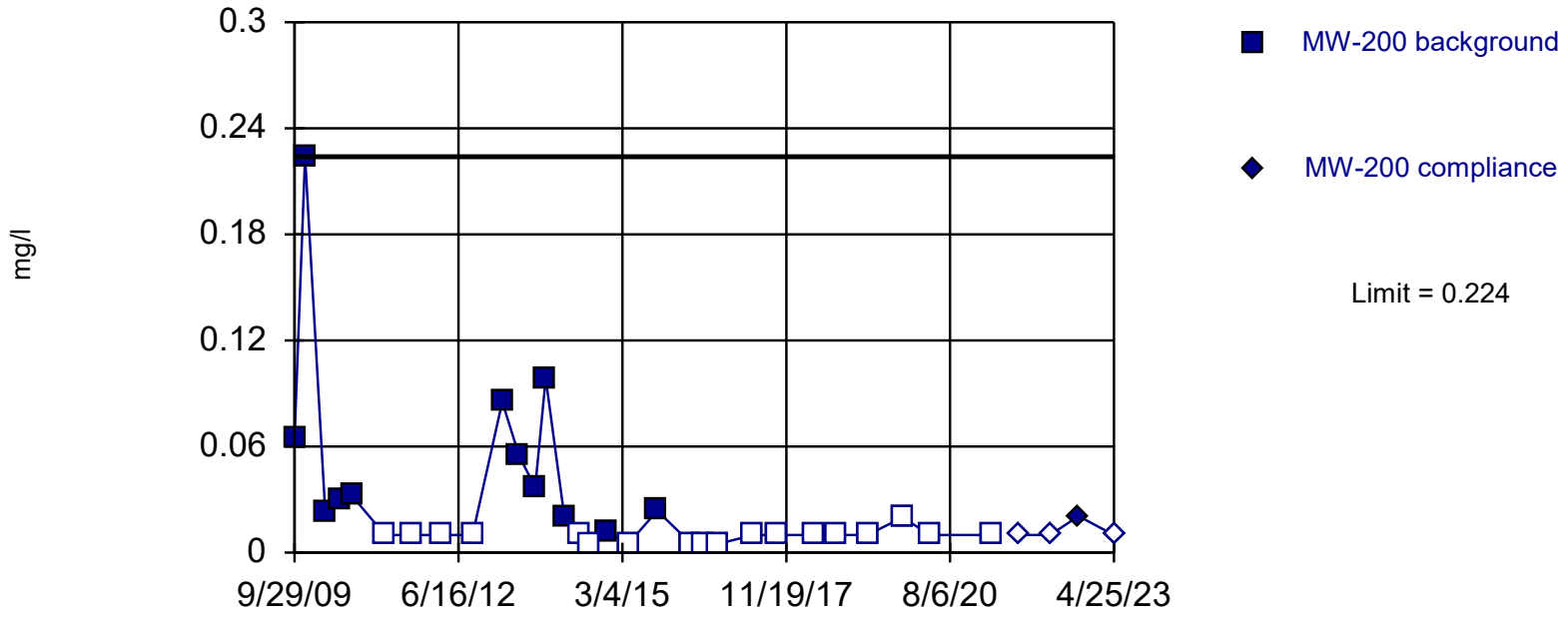
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 30 background values. 60% NDs. Well-constituent pair annual alpha = 0.004011. Individual comparison alpha = 0.002008 (1 of 2).

Constituent: Zinc Analysis Run 6/23/2023 11:17 AM

Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

Attachment 3
Sanitas Report Output for Interwell Prediction Limit Calculations

Interwell Prediction Limit

Constituent Name	Well	Upper Limit	Date	Observation	Exceed	Background N	Background Wells	Background Mean	Standard Deviation	% Non-detects	Non-detect Adjustment	Transformation	Alpha	Method
Detection Monitoring Locations														
Antimony (mg/l)	GU-2A	0.0101	4/24/2023	0.001ND	No	69	122R, 200	n/a	n/a	99	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Antimony (mg/l)	MW-119RR	0.0101	4/25/2023	0.001ND	No	69	122R, 200	n/a	n/a	99	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Antimony (mg/l)	MW-205	0.0101	4/24/2023	0.001ND	No	69	122R, 200	n/a	n/a	99	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Antimony (mg/l)	MW-206	0.0101	4/24/2023	0.001ND	No	69	122R, 200	n/a	n/a	99	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Arsenic (mg/l)	GU-2A	0.00801	4/24/2023	0.000758J	No	69	122R, 200	n/a	n/a	90	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Arsenic (mg/l)	MW-119RR	0.00801	4/25/2023	0.0026	No	69	122R, 200	n/a	n/a	90	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Arsenic (mg/l)	MW-205	0.00801	4/24/2023	0.000989J	No	69	122R, 200	n/a	n/a	90	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Arsenic (mg/l)	MW-206	0.00801	4/24/2023	0.00224	No	69	122R, 200	n/a	n/a	90	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Barium (mg/l)	GU-2A	1.05	4/24/2023	0.242	No	69	122R, 200	n/a	n/a	0	n/a	n/a	0.0004008	NP Inter (normality) 1 of 2
Barium (mg/l)	MW-119RR	1.05	4/25/2023	0.642	No	69	122R, 200	n/a	n/a	0	n/a	n/a	0.0004008	NP Inter (normality) 1 of 2
Barium (mg/l)	MW-205	1.05	4/24/2023	0.0273	No	69	122R, 200	n/a	n/a	0	n/a	n/a	0.0004008	NP Inter (normality) 1 of 2
Barium (mg/l)	MW-206	1.05	4/24/2023	0.0254	No	69	122R, 200	n/a	n/a	0	n/a	n/a	0.0004008	NP Inter (normality) 1 of 2
Beryllium (mg/l)	GU-2A	0.00348	4/24/2023	0.0005ND	No	69	122R, 200	n/a	n/a	97	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Beryllium (mg/l)	MW-119RR	0.00348	4/25/2023	0.0005ND	No	69	122R, 200	n/a	n/a	97	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Beryllium (mg/l)	MW-205	0.00348	4/24/2023	0.0005ND	No	69	122R, 200	n/a	n/a	97	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Beryllium (mg/l)	MW-206	0.00348	4/24/2023	0.0005ND	No	69	122R, 200	n/a	n/a	97	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Cadmium (mg/l)	GU-2A	0.00179	4/24/2023	0.0001ND	No	69	122R, 200	n/a	n/a	64	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Cadmium (mg/l)	MW-119RR	0.00179	4/25/2023	0.0001ND	No	69	122R, 200	n/a	n/a	64	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Cadmium (mg/l)	MW-205	0.00179	4/24/2023	0.0001ND	No	69	122R, 200	n/a	n/a	64	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Cadmium (mg/l)	MW-206	0.00179	4/24/2023	0.0001ND	No	69	122R, 200	n/a	n/a	64	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Chromium (mg/l)	GU-2A	0.0343	4/24/2023	0.0025ND	No	69	122R, 200	n/a	n/a	70	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Chromium (mg/l)	MW-119RR	0.0343	4/25/2023	0.0025ND	No	69	122R, 200	n/a	n/a	70	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Chromium (mg/l)	MW-205	0.0343	4/24/2023	0.0025ND	No	69	122R, 200	n/a	n/a	70	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Chromium (mg/l)	MW-206	0.0343	4/24/2023	0.0025ND	No	69	122R, 200	n/a	n/a	70	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Cobalt (mg/l)	GU-2A	0.026	4/24/2023	0.00025ND	No	69	122R, 200	n/a	n/a	84	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Cobalt (mg/l)	MW-119RR	0.026	4/25/2023	0.00314	No	69	122R, 200	n/a	n/a	84	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Cobalt (mg/l)	MW-205	0.026	4/24/2023	0.0102	No	69	122R, 200	n/a	n/a	84	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Cobalt (mg/l)	MW-206	0.026	4/24/2023	0.00691	No	69	122R, 200	n/a	n/a	84	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Copper (mg/l)	GU-2A	0.0536	4/24/2023	0.0025ND	No	69	122R, 200	n/a	n/a	94	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Copper (mg/l)	MW-119RR	0.0536	4/25/2023	0.0025ND	No	69	122R, 200	n/a	n/a	94	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Copper (mg/l)	MW-205	0.0536	4/24/2023	0.0025ND	No	69	122R, 200	n/a	n/a	94	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Copper (mg/l)	MW-206	0.0536	4/24/2023	0.0025ND	No	69	122R, 200	n/a	n/a	94	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Lead (mg/l)	GU-2A	0.0362	4/24/2023	0.00025ND	No	69	122R, 200	n/a	n/a	88	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Lead (mg/l)	MW-119RR	0.0362	4/25/2023	0.00025ND	No	69	122R, 200	n/a	n/a	88	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Lead (mg/l)	MW-205	0.0362	4/24/2023	0.00025ND	No	69	122R, 200	n/a	n/a	88	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Lead (mg/l)	MW-206	0.0362	4/24/2023	0.000809	No	69	122R, 200	n/a	n/a	88	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Nickel (mg/l)	GU-2A	0.0545	4/24/2023	0.0025ND	No	69	122R, 200	n/a	n/a	68	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Nickel (mg/l)	MW-119RR	0.0545	4/25/2023	0.0154	No	69	122R, 200	n/a	n/a	68	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Nickel (mg/l)	MW-205	0.0545	4/24/2023	0.0145	No	69	122R, 200	n/a	n/a	68	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Nickel (mg/l)	MW-206	0.0545	4/24/2023	0.0114	No	69	122R, 200	n/a	n/a	68	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Tin (mg/L)	GU-2A	0.376	4/24/2023	0.0025ND	No	53	122R, 200	n/a	n/a	92	n/a	n/a	0.0006747	NP Inter (NDs) 1 of 2
Tin (mg/L)	MW-119RR	0.376	4/25/2023	0.0025ND	No	53	122R, 200	n/a	n/a	92	n/a	n/a	0.0006747	NP Inter (NDs) 1 of 2
Tin (mg/L)	MW-205	0.376	4/24/2023	0.0025ND	No	53	122R, 200	n/a	n/a	92	n/a	n/a	0.0006747	NP Inter (NDs) 1 of 2
Tin (mg/L)	MW-206	0.376	4/24/2023	0.0025ND	No	53	122R, 200	n/a	n/a	92	n/a	n/a	0.0006747	NP Inter (NDs) 1 of 2
Vanadium (mg/l)	GU-2A	0.0921	4/24/2023	0.0025ND	No	69	122R, 201	n/a	n/a	77	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Vanadium (mg/l)	MW-119RR	0.0921	4/25/2023	0.0025ND	No	69	122R, 202	n/a	n/a	77	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Vanadium (mg/l)	MW-205	0.0921	4/24/2023	0.0025ND	No	69	122R, 203	n/a	n/a	77	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2

Interwell Prediction Limit

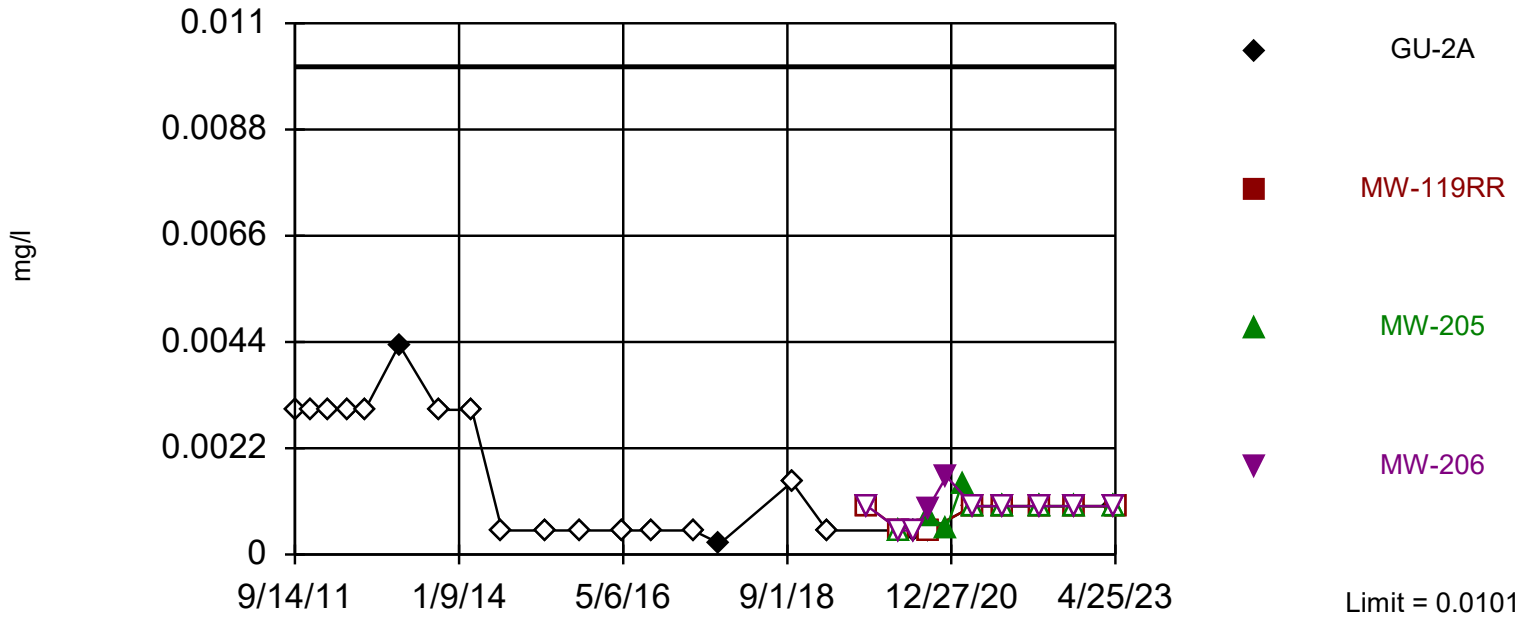
Constituent Name	Well	Upper Limit	Date	Observation	Exceed	Background N	Background Wells	Background Mean	Standard Deviation	% Non-detects	Non-detect Adjustment	Transformation	Alpha	Method
Detection Monitoring Locations Continued														
Vanadium (mg/l)	MW-206	0.0921	4/24/2023	0.0025ND	No	69	122R, 204	n/a	n/a	77	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Zinc (mg/l)	GU-2A	0.224	4/24/2023	0.01ND	No	69	122R, 205	n/a	n/a	62	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Zinc (mg/l)	MW-119RR	0.224	4/25/2023	0.01ND	No	69	122R, 206	n/a	n/a	62	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Zinc (mg/l)	MW-205	0.224	4/24/2023	0.00815J	No	69	122R, 207	n/a	n/a	62	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Zinc (mg/l)	MW-206	0.224	4/24/2023	0.0166J	No	69	122R, 208	n/a	n/a	62	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Assessment Monitoring Locations														
Antimony (mg/l)	MW-121R	0.0101	4/25/2023	0.001ND	No	69	122R, 200	n/a	n/a	99	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Arsenic (mg/l)	MW-121R	0.00801	4/25/2023	0.00869	Yes	69	122R, 200	n/a	n/a	90	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Barium (mg/l)	MW-121R	1.05	4/25/2023	0.714	No	69	122R, 200	n/a	n/a	0	n/a	n/a	0.0004008	NP Inter (normality) 1 of 2
Beryllium (mg/l)	MW-121R	0.00348	4/25/2023	0.0005ND	No	69	122R, 200	n/a	n/a	97	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Cadmium (mg/l)	MW-121R	0.00179	4/25/2023	0.0001ND	No	69	122R, 200	n/a	n/a	64	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Chromium (mg/l)	MW-121R	0.0343	4/25/2023	0.0025ND	No	69	122R, 200	n/a	n/a	70	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Cobalt (mg/l)	MW-121R	0.026	4/25/2023	0.00319	No	69	122R, 200	n/a	n/a	84	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Copper (mg/l)	MW-121R	0.0536	4/25/2023	0.0025ND	No	69	122R, 200	n/a	n/a	94	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Lead (mg/l)	MW-121R	0.0362	4/25/2023	0.00025ND	No	69	122R, 200	n/a	n/a	88	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Nickel (mg/l)	MW-121R	0.0545	4/25/2023	0.0448	No	69	122R, 200	n/a	n/a	68	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Tin (mg/L)	MW-121R	0.376	4/25/2023	0.0025ND	No	53	122R, 200	n/a	n/a	92	n/a	n/a	0.0006747	NP Inter (NDs) 1 of 2
Vanadium (mg/l)	MW-121R	0.0921	4/25/2023	0.0025ND	No	69	122R, 200	n/a	n/a	77	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2
Zinc (mg/l)	MW-121R	0.224	4/25/2023	0.01ND	No	69	122R, 200	n/a	n/a	62	n/a	n/a	0.0004008	NP Inter (NDs) 1 of 2

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 69 background values. 98.55% NDs. Annual per-constituent alpha = 0.004799. Individual comparison alpha = 0.0004008 (1 of 2).

Constituent: Antimony Analysis Run 6/23/2023 12:34 PM

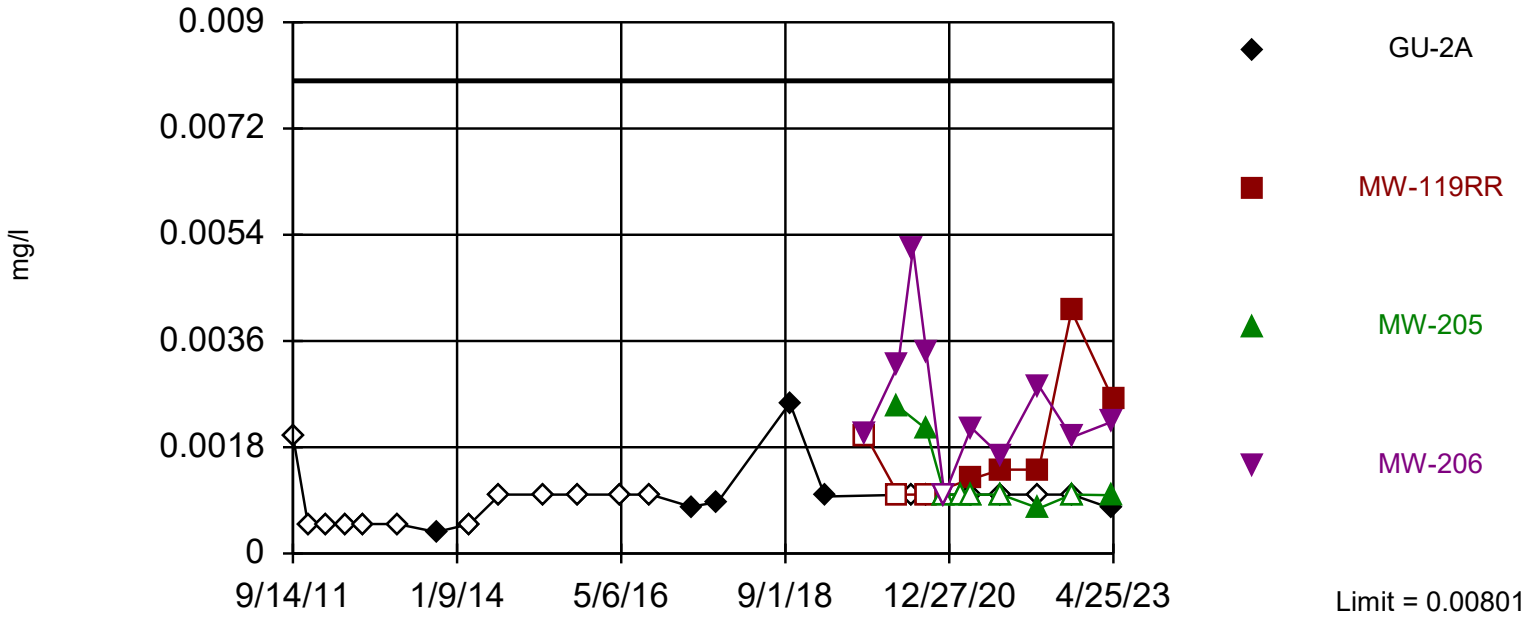
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 69 background values. 89.86% NDs. Annual per-constituent alpha = 0.004799. Individual comparison alpha = 0.0004008 (1 of 2).

Constituent: Arsenic Analysis Run 6/23/2023 12:34 PM

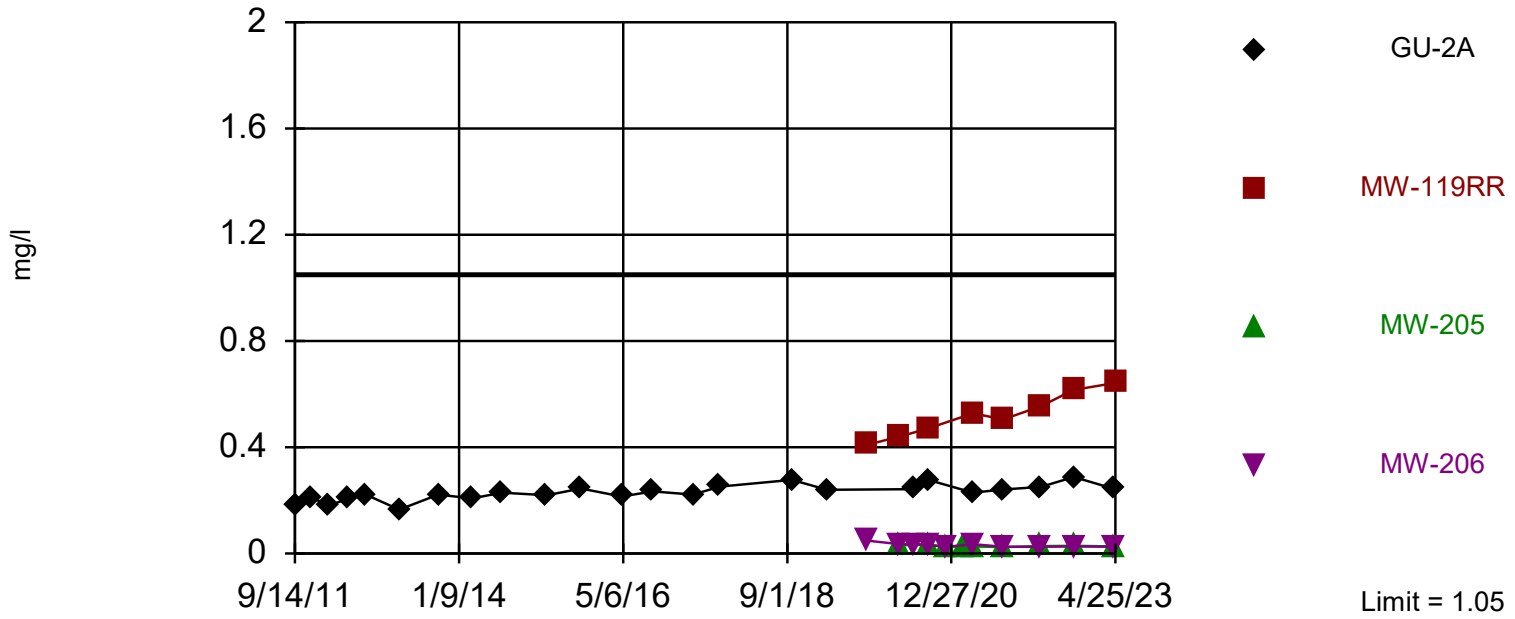
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 69 background values. Annual per-constituent alpha = 0.004799. Individual comparison alpha = 0.0004008 (1 of 2).

Constituent: Barium Analysis Run 6/23/2023 12:34 PM

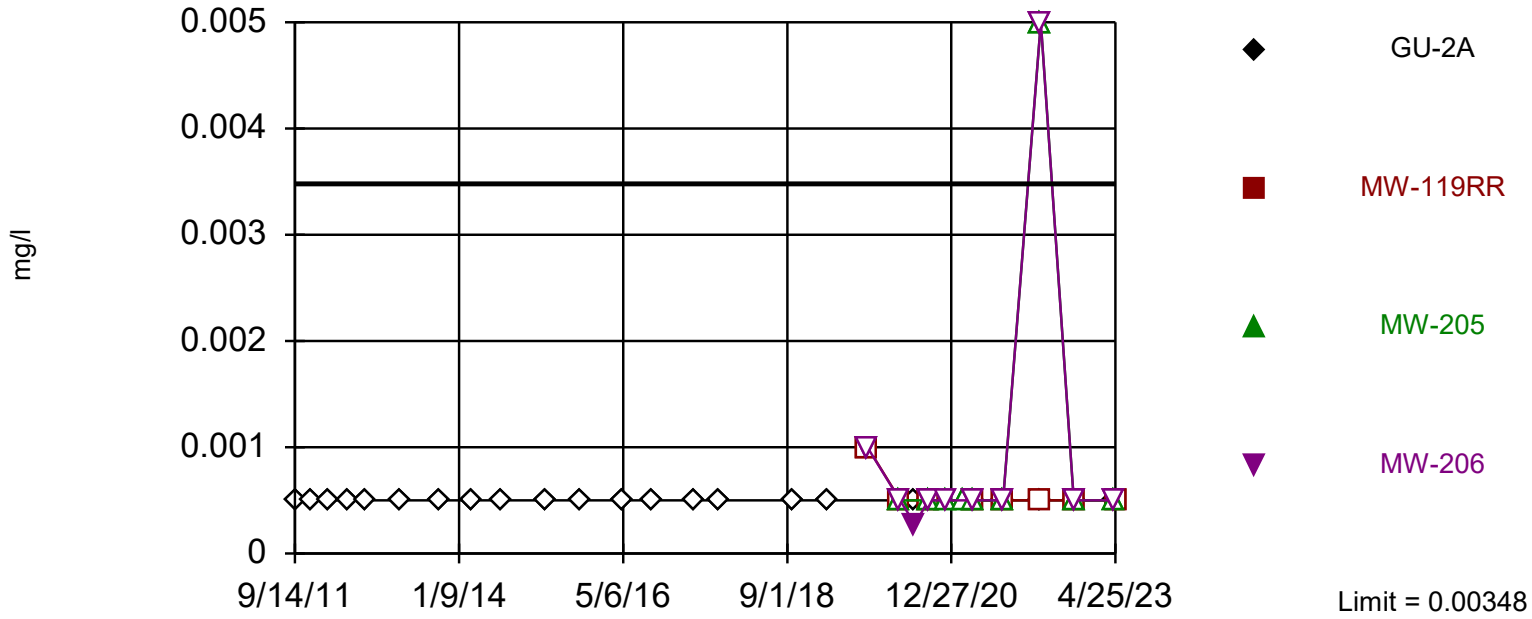
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 69 background values. 97.1% NDs. Annual per-constituent alpha = 0.004799. Individual comparison alpha = 0.0004008 (1 of 2).

Constituent: Beryllium Analysis Run 6/23/2023 12:34 PM

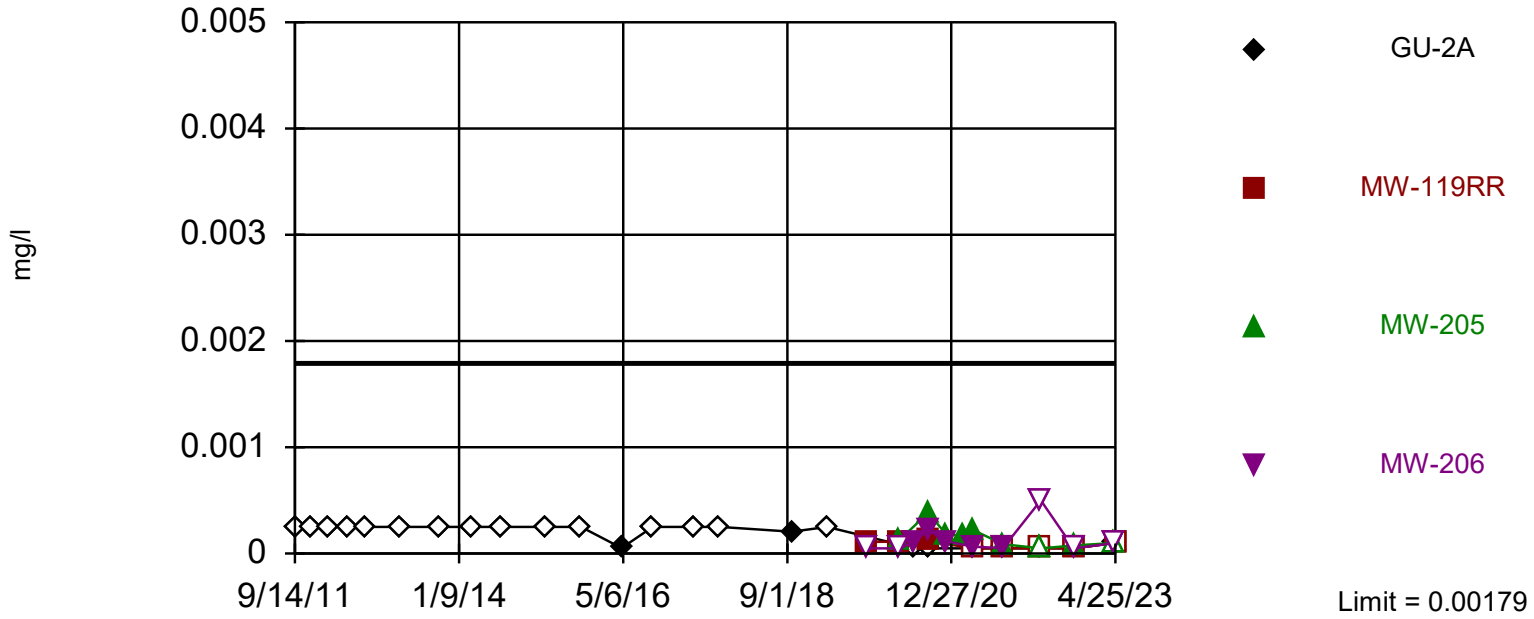
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 69 background values. 63.77% NDs. Annual per-constituent alpha = 0.004799. Individual comparison alpha = 0.0004008 (1 of 2).

Constituent: Cadmium Analysis Run 6/23/2023 12:34 PM

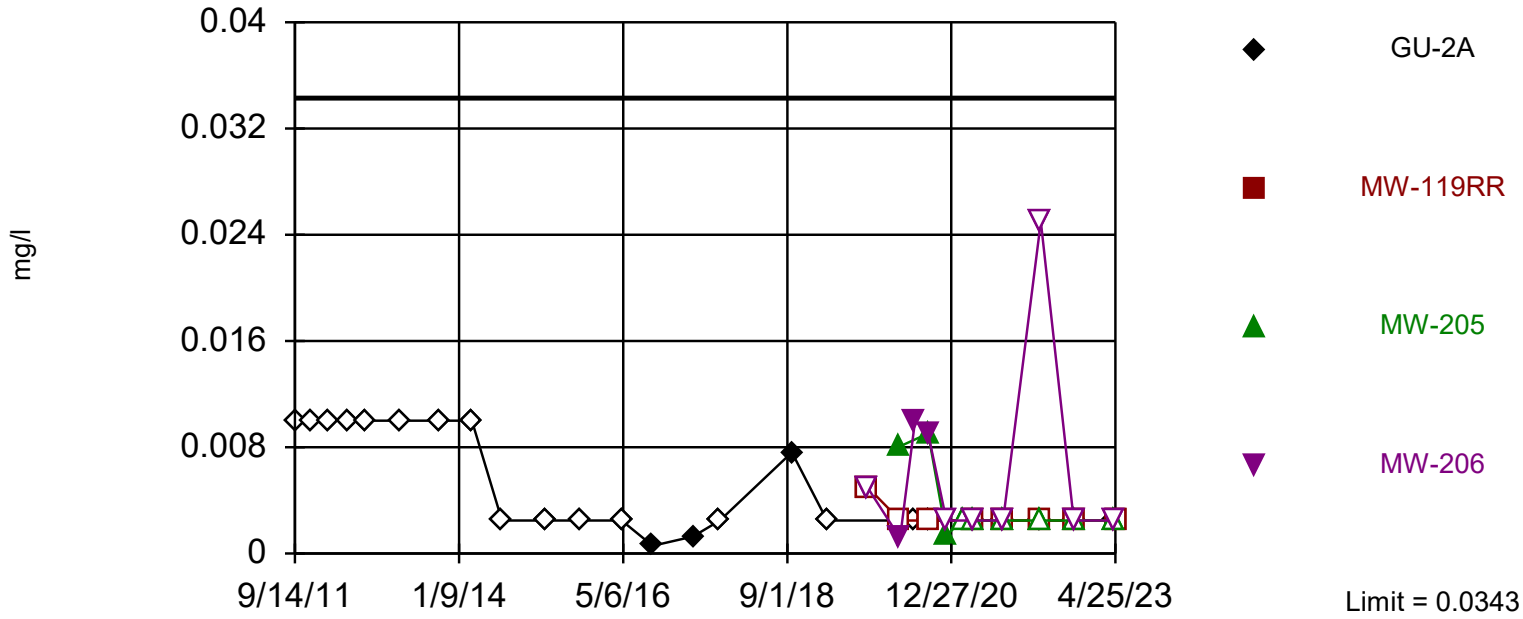
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 69 background values. 69.57% NDs. Annual per-constituent alpha = 0.004799. Individual comparison alpha = 0.0004008 (1 of 2).

Constituent: Chromium Analysis Run 6/23/2023 12:34 PM

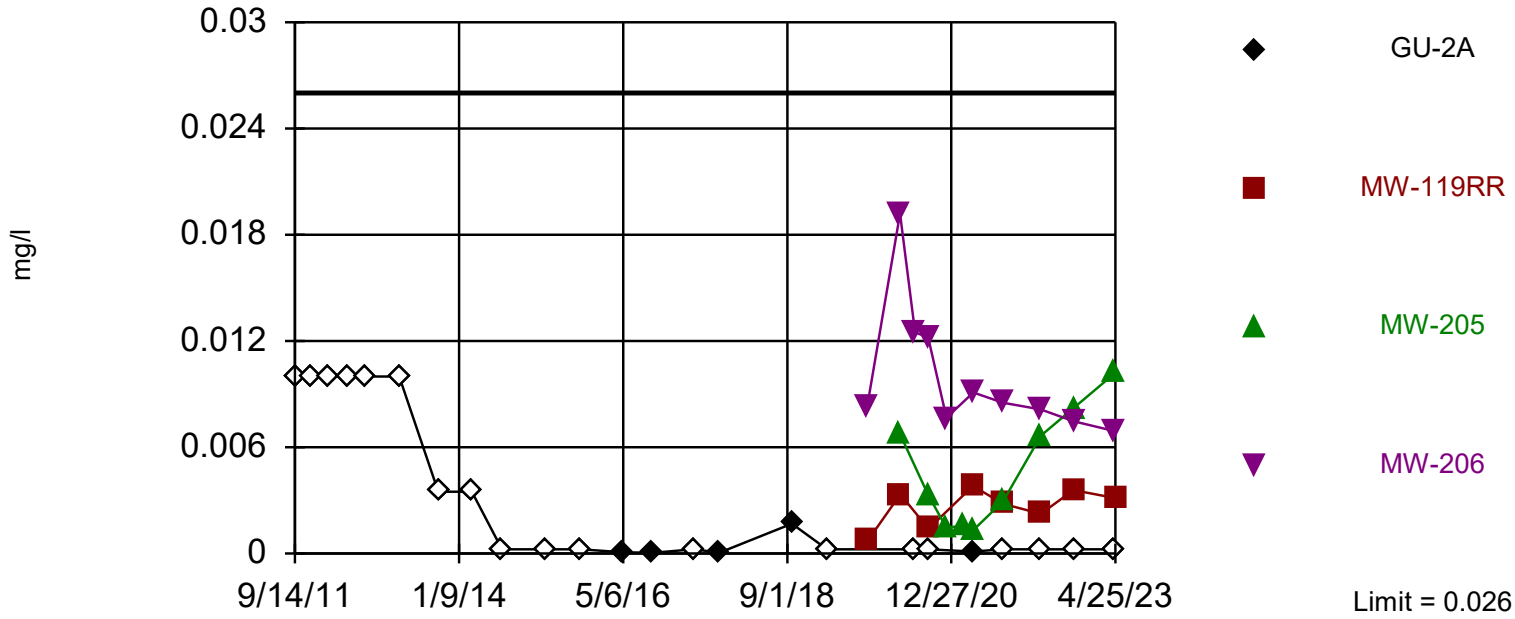
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 69 background values. 84.06% NDs. Annual per-constituent alpha = 0.004799. Individual comparison alpha = 0.0004008 (1 of 2).

Constituent: Cobalt Analysis Run 6/23/2023 12:34 PM

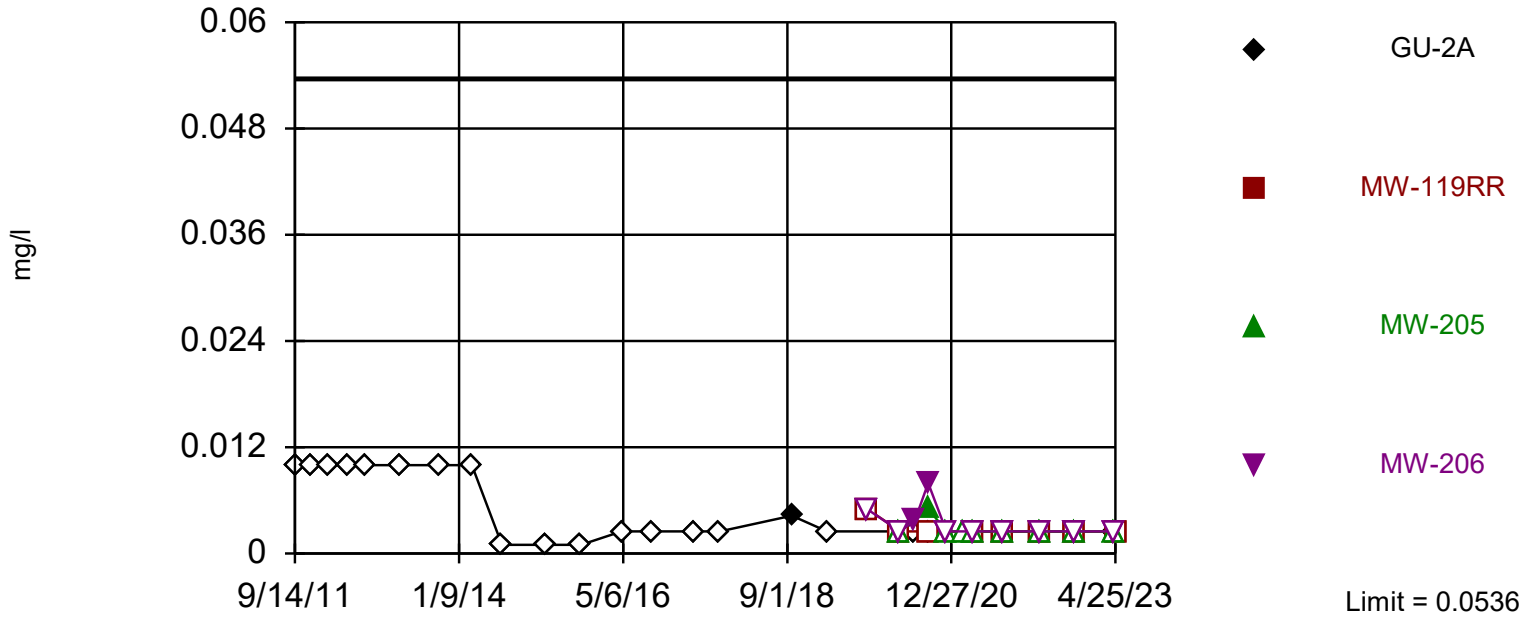
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 69 background values. 94.2% NDs. Annual per-constituent alpha = 0.004799. Individual comparison alpha = 0.0004008 (1 of 2).

Constituent: Copper Analysis Run 6/23/2023 12:34 PM

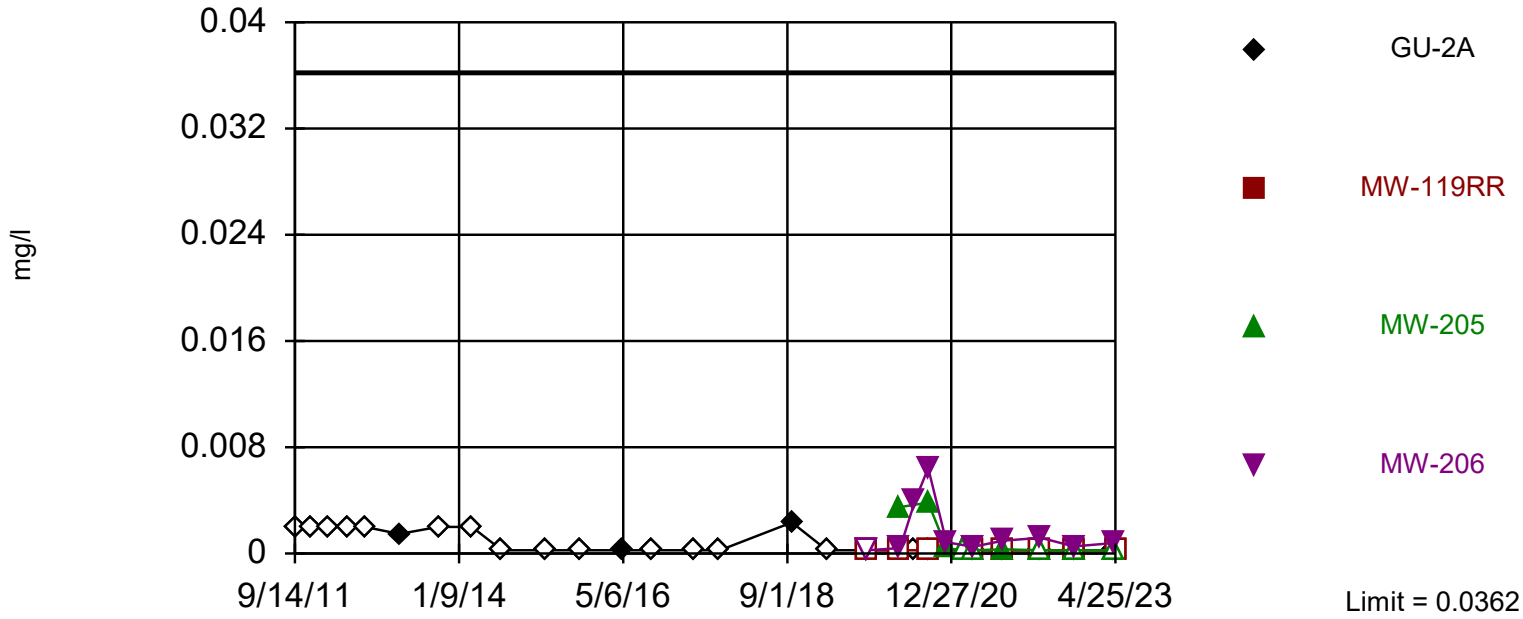
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 69 background values. 88.41% NDs. Annual per-constituent alpha = 0.004799. Individual comparison alpha = 0.0004008 (1 of 2).

Constituent: Lead Analysis Run 6/23/2023 12:34 PM

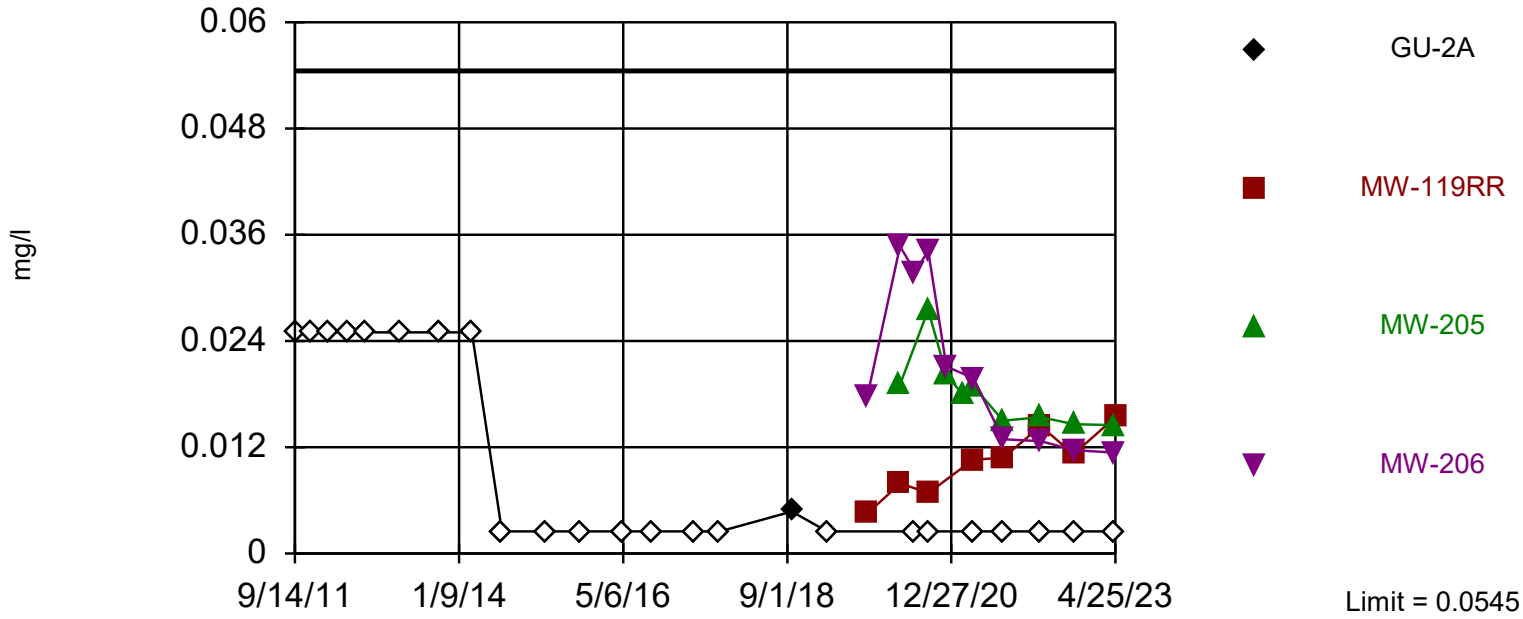
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 69 background values. 68.12% NDs. Annual per-constituent alpha = 0.004799. Individual comparison alpha = 0.0004008 (1 of 2).

Constituent: Nickel Analysis Run 6/23/2023 12:34 PM

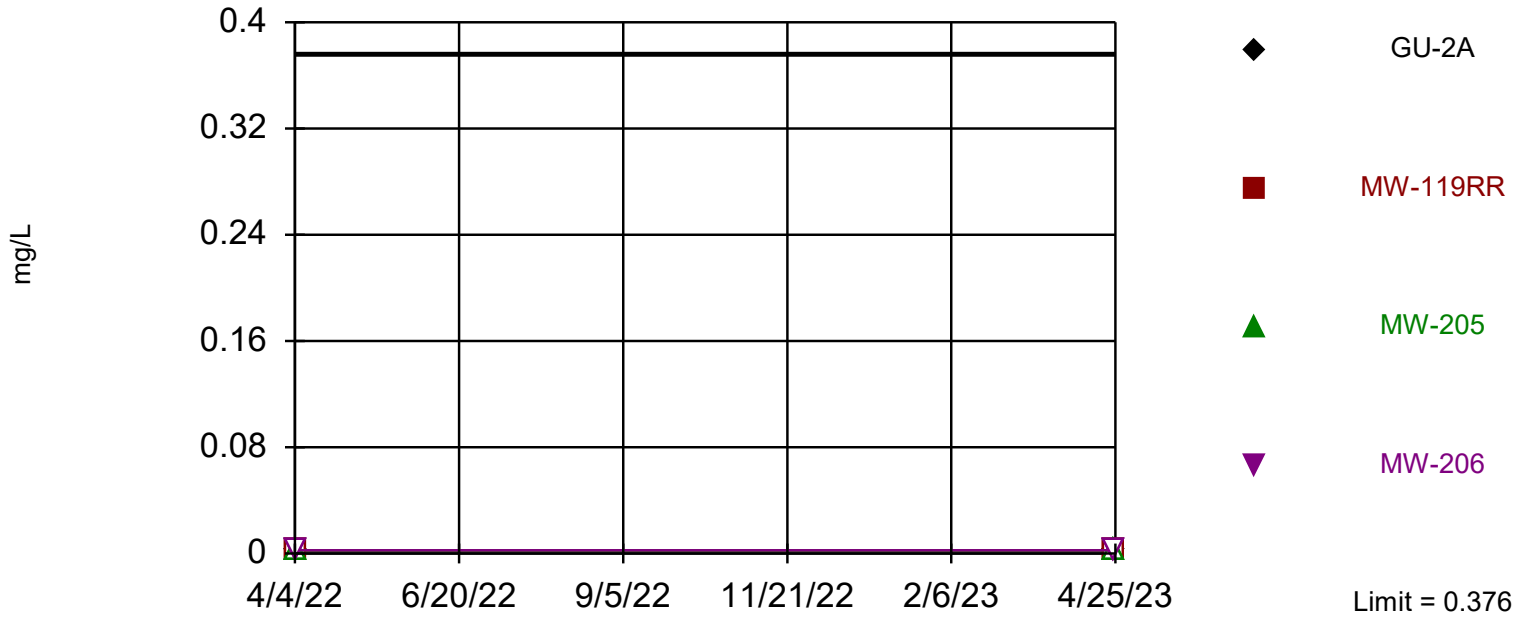
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 53 background values. 92.45% NDs. Annual per-constituent alpha = 0.008067. Individual comparison alpha = 0.0006747 (1 of 2).

Constituent: Tin Analysis Run 6/23/2023 12:34 PM

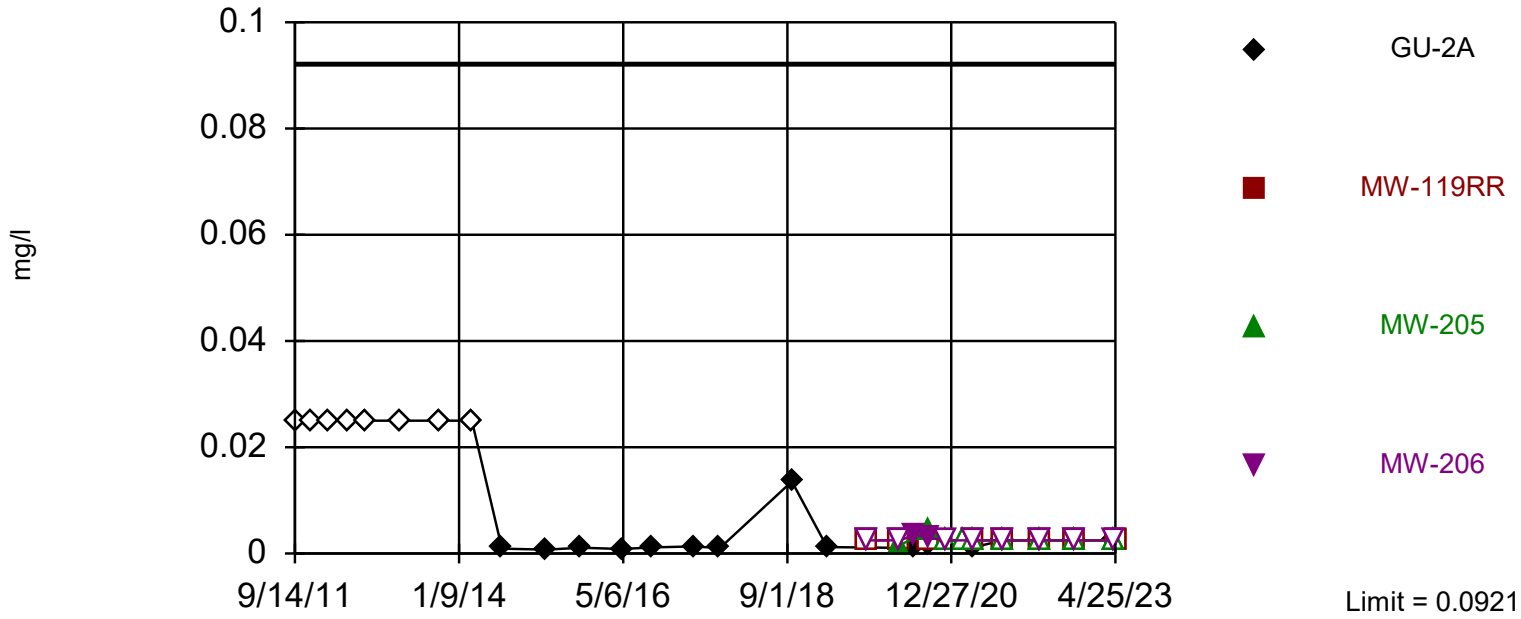
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 69 background values. 76.81% NDs. Annual per-constituent alpha = 0.004799. Individual comparison alpha = 0.0004008 (1 of 2).

Constituent: Vanadium Analysis Run 6/23/2023 12:34 PM

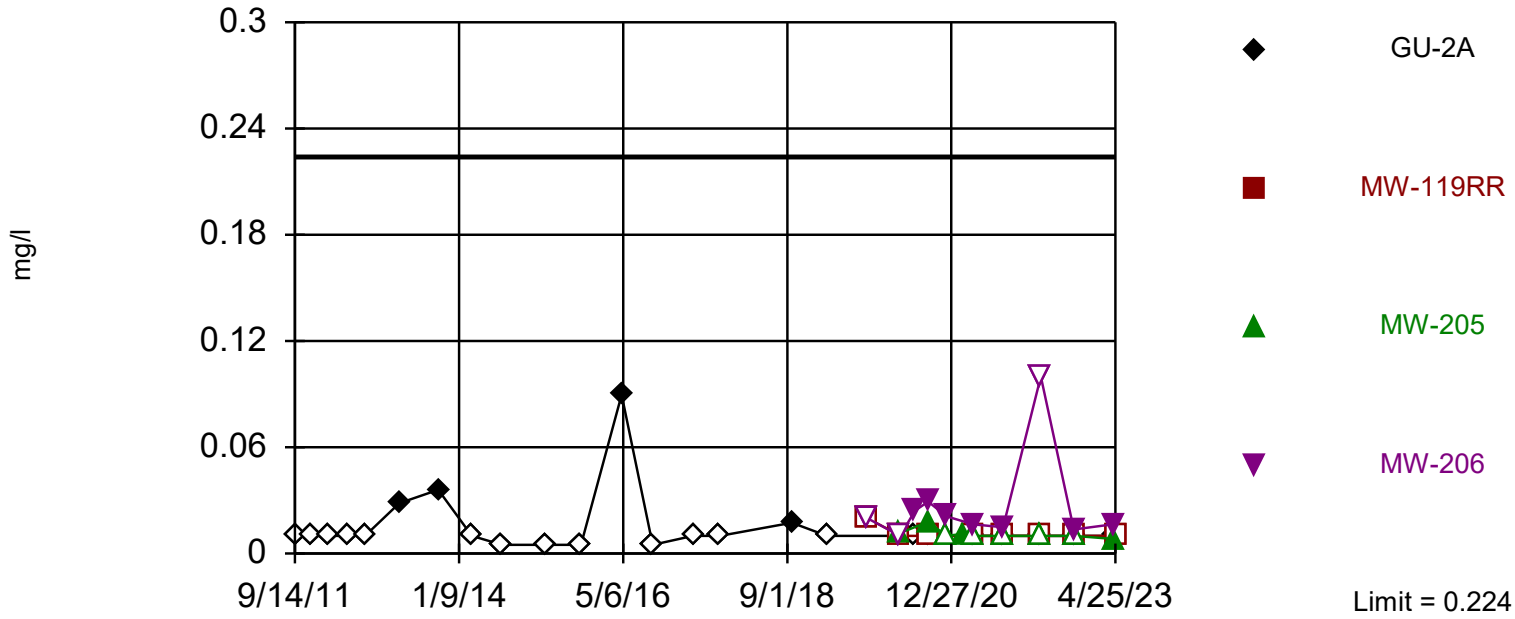
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 69 background values. 62.32% NDs. Annual per-constituent alpha = 0.004799. Individual comparison alpha = 0.0004008 (1 of 2).

Constituent: Zinc Analysis Run 6/23/2023 12:34 PM

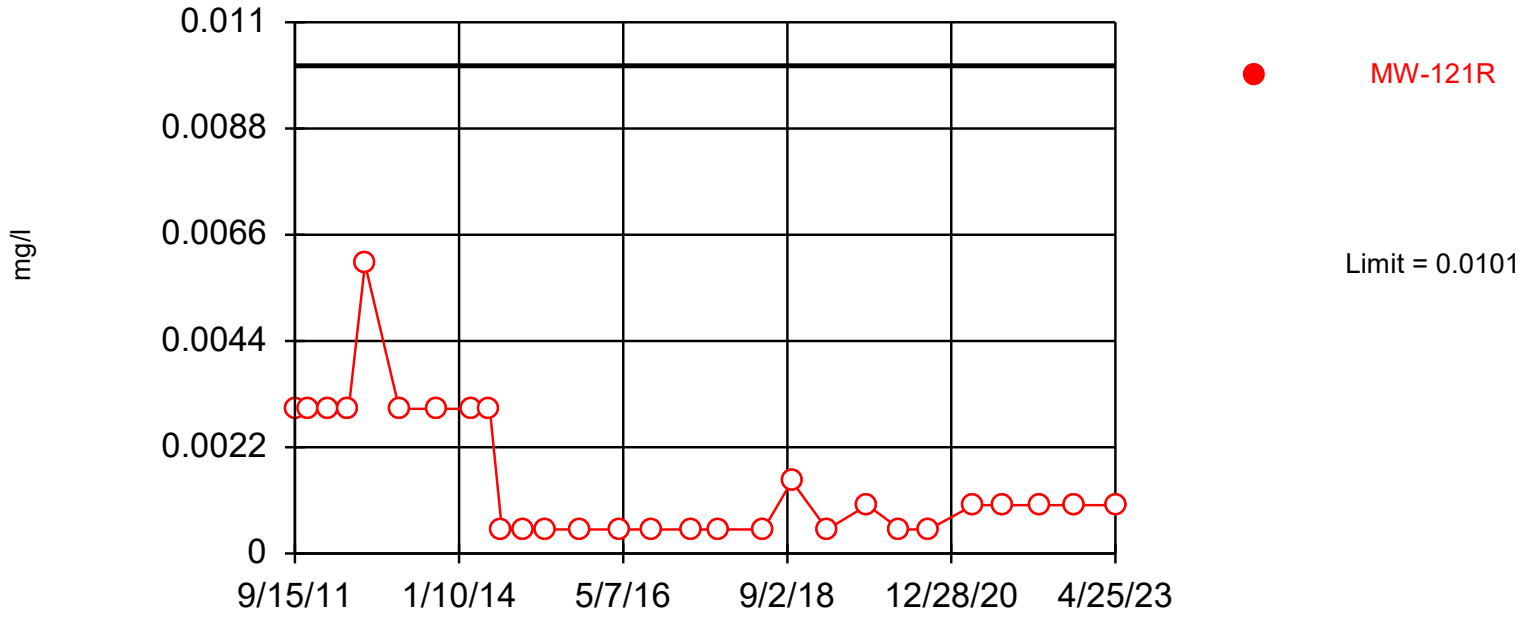
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

Sanitas™ v.9.6.37 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 69 background values. 98.55% NDs. Annual per-constituent alpha = 0.004799. Individual comparison alpha = 0.0004008 (1 of 2).

Constituent: Antimony Analysis Run 6/23/2023 12:42 PM

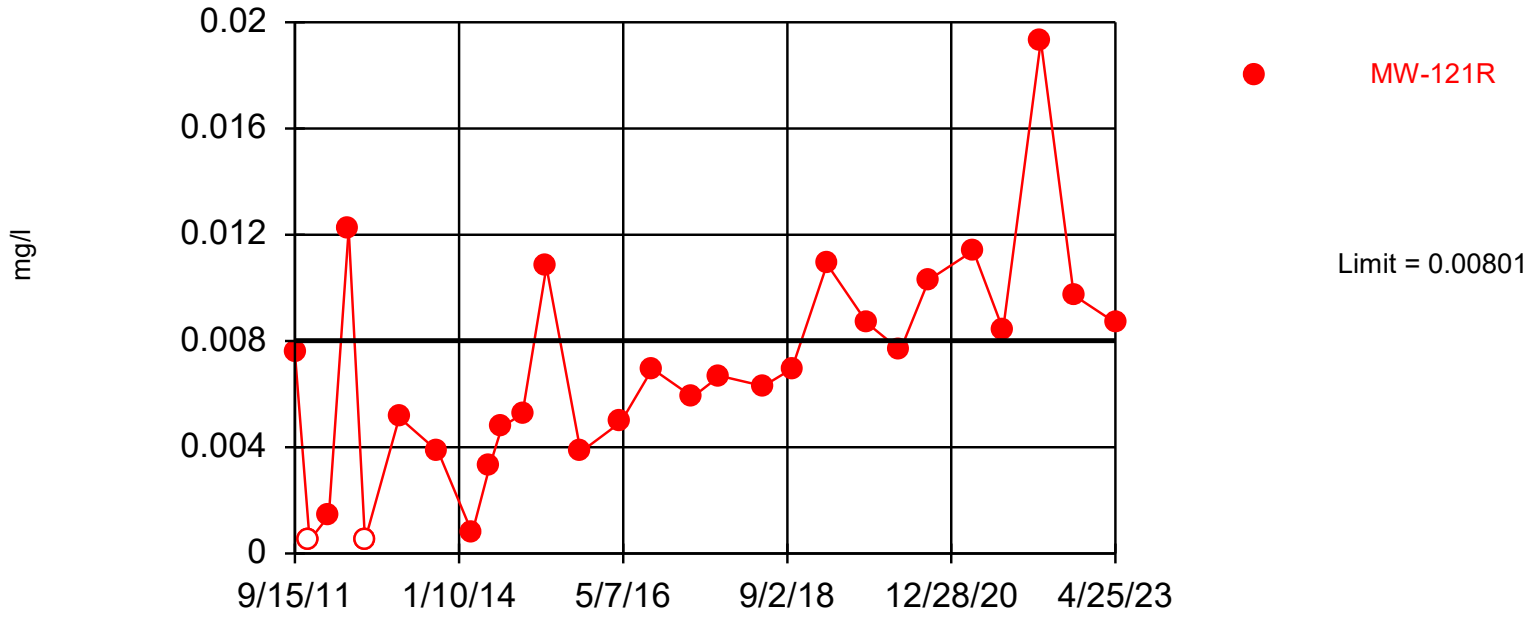
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Exceeds Limit: MW-121R

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 69 background values. 89.86% NDs. Annual per-constituent alpha = 0.004799. Individual comparison alpha = 0.0004008 (1 of 2).

Constituent: Arsenic Analysis Run 6/23/2023 12:42 PM

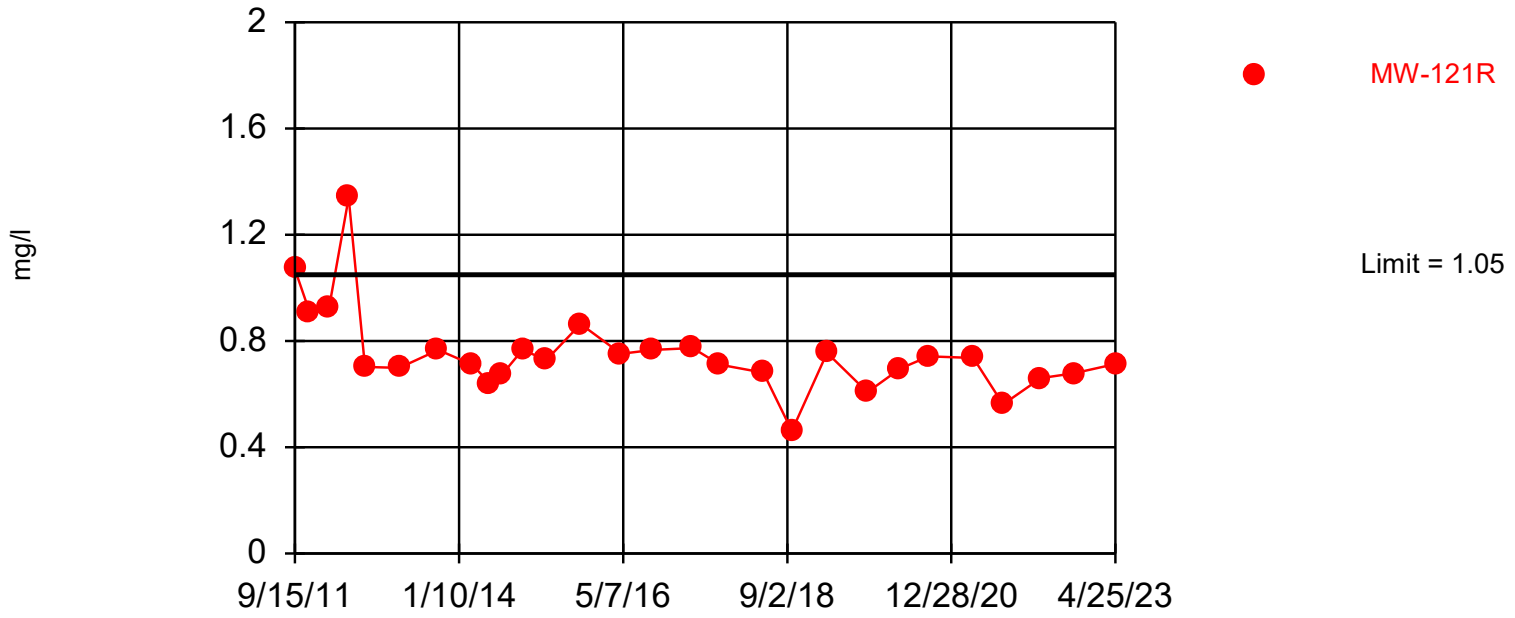
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Within Limit

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 69 background values. Annual per-constituent alpha = 0.004799. Individual comparison alpha = 0.0004008 (1 of 2).

Constituent: Barium Analysis Run 6/23/2023 12:42 PM

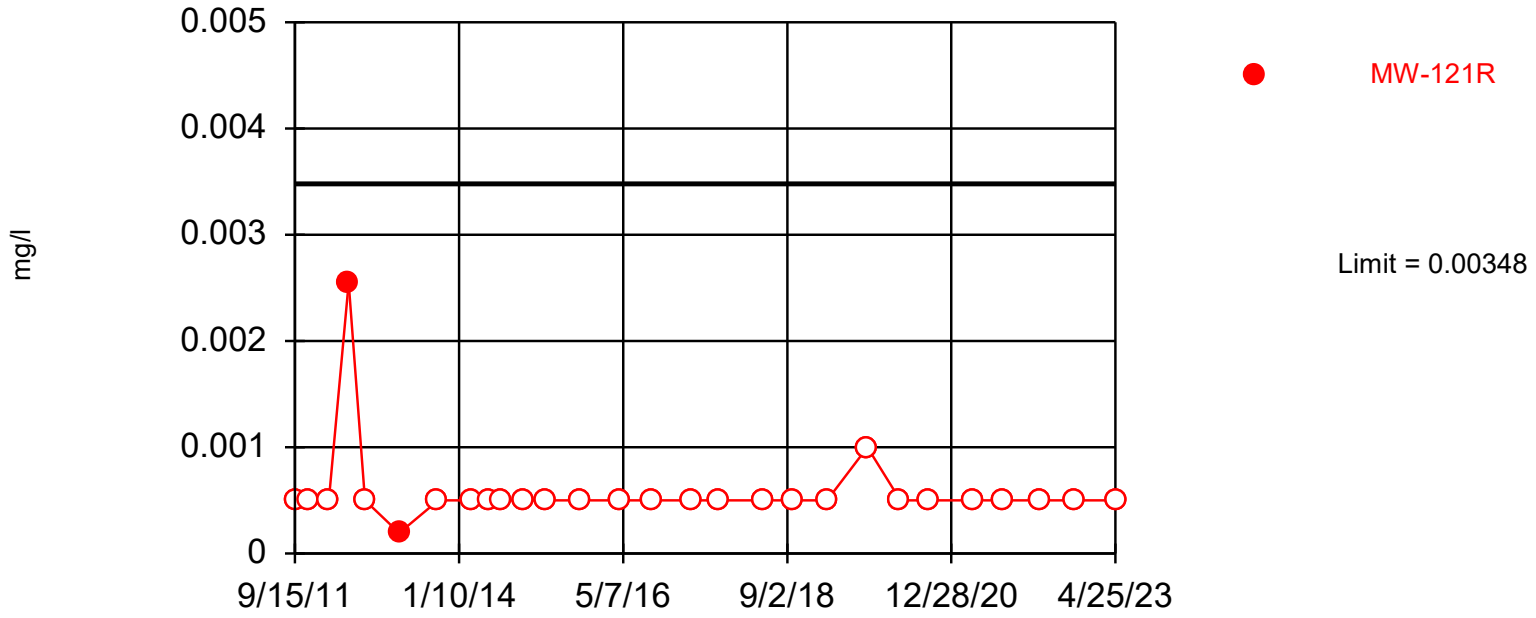
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 69 background values. 97.1% NDs. Annual per-constituent alpha = 0.004799. Individual comparison alpha = 0.0004008 (1 of 2).

Constituent: Beryllium Analysis Run 6/23/2023 12:42 PM

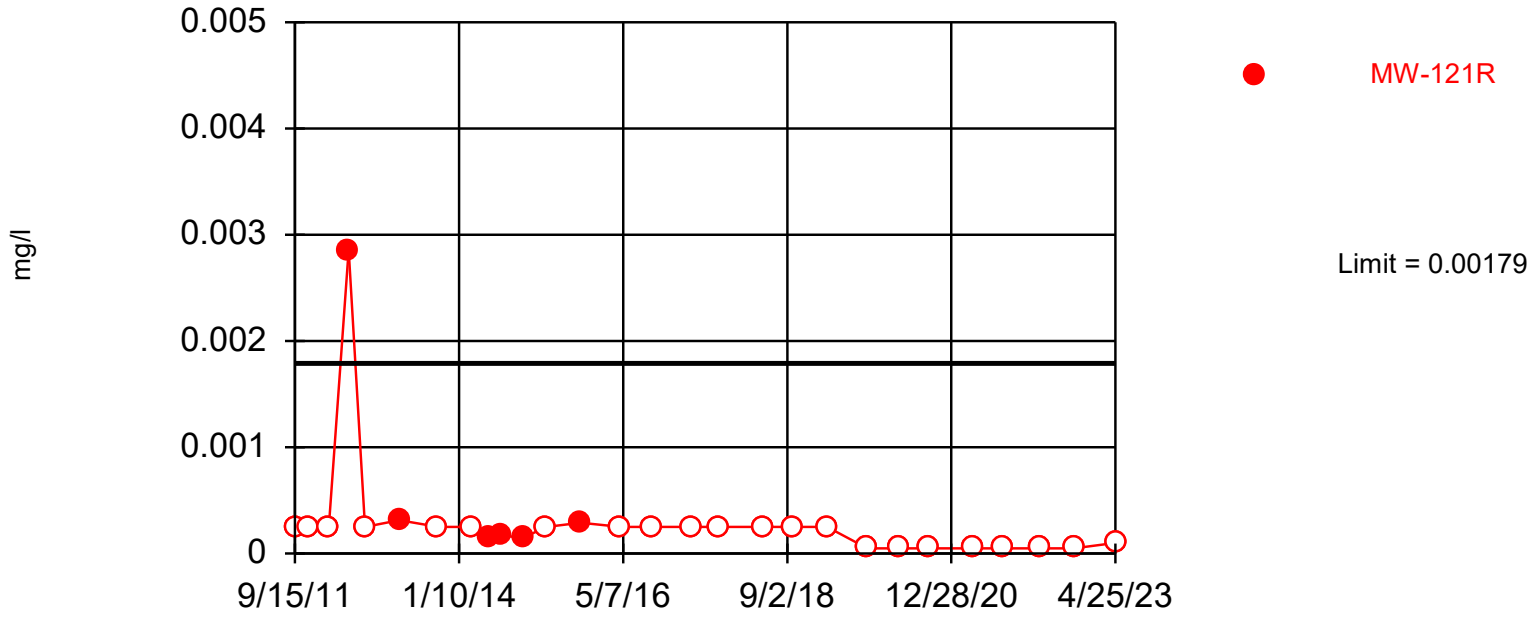
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

Sanitas™ v.9.6.37 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 69 background values. 63.77% NDs. Annual per-constituent alpha = 0.004799. Individual comparison alpha = 0.0004008 (1 of 2).

Constituent: Cadmium Analysis Run 6/23/2023 12:42 PM

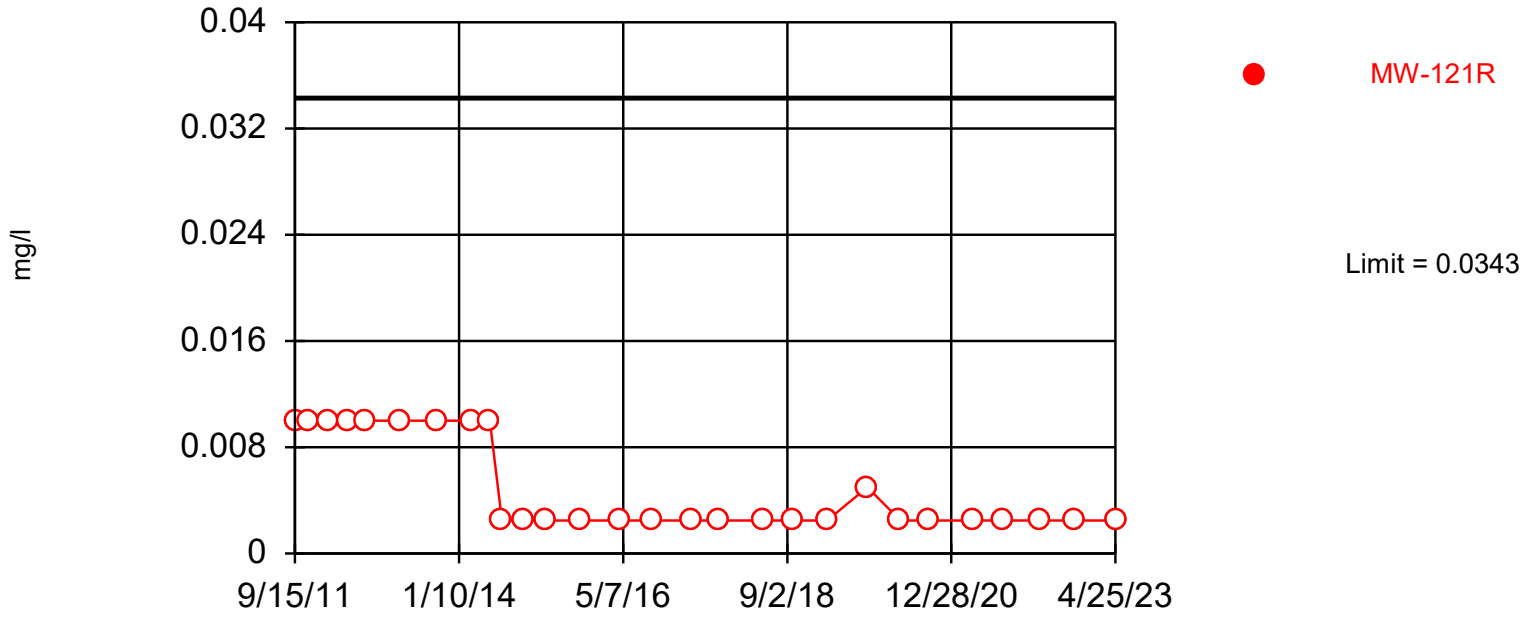
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 69 background values. 69.57% NDs. Annual per-constituent alpha = 0.004799. Individual comparison alpha = 0.0004008 (1 of 2).

Constituent: Chromium Analysis Run 6/23/2023 12:42 PM

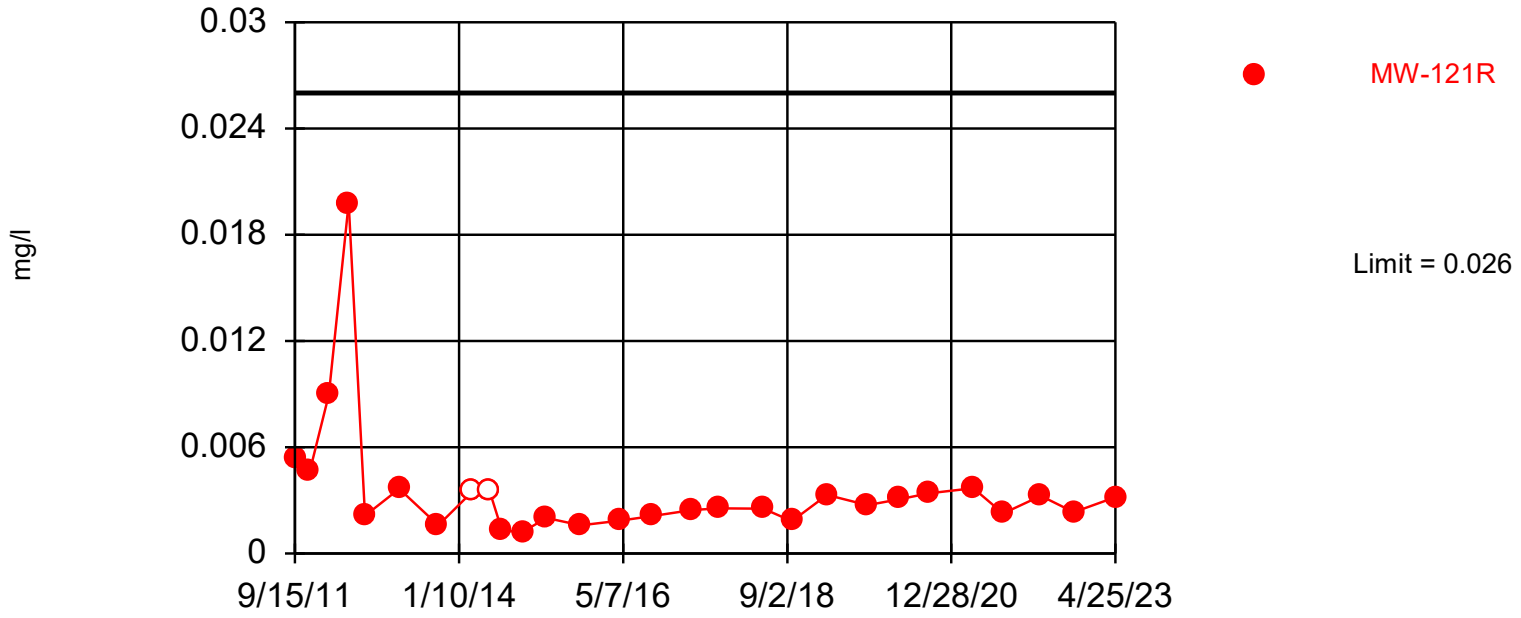
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 69 background values. 84.06% NDs. Annual per-constituent alpha = 0.004799. Individual comparison alpha = 0.0004008 (1 of 2).

Constituent: Cobalt Analysis Run 6/23/2023 12:42 PM

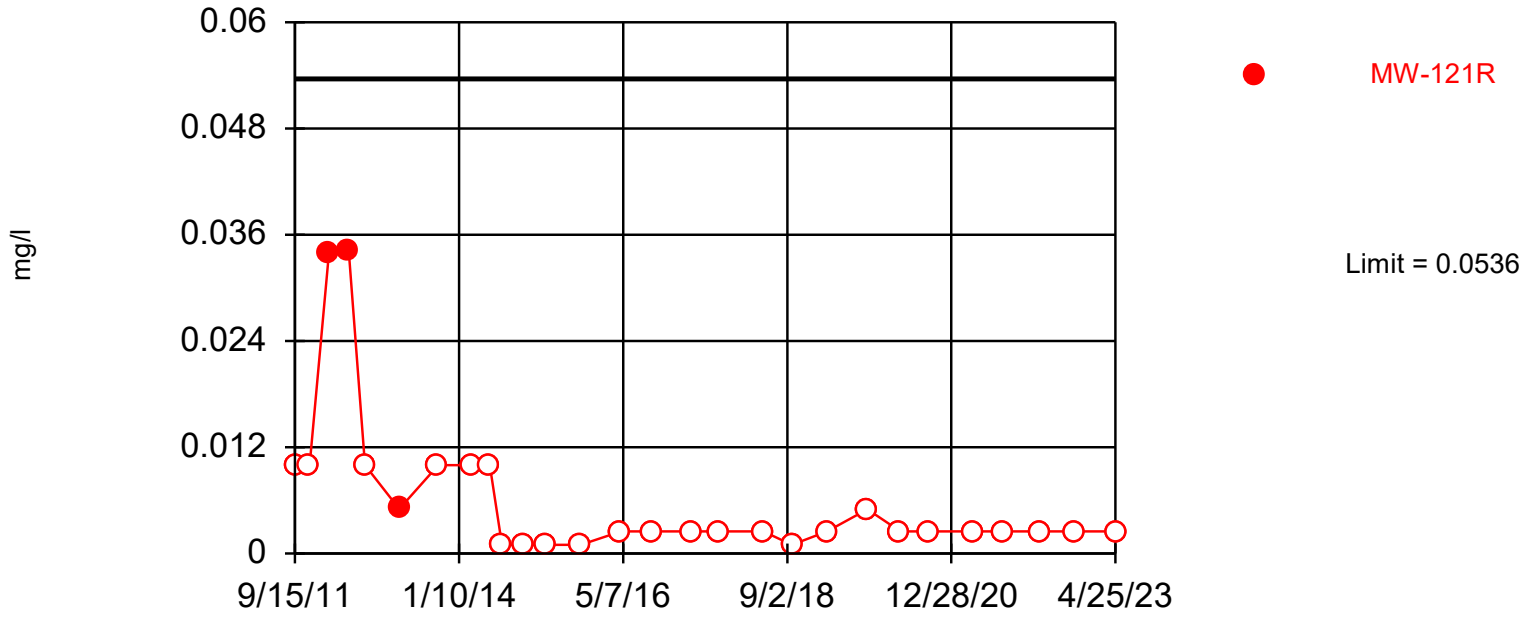
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 69 background values. 94.2% NDs. Annual per-constituent alpha = 0.004799. Individual comparison alpha = 0.0004008 (1 of 2).

Constituent: Copper Analysis Run 6/23/2023 12:42 PM

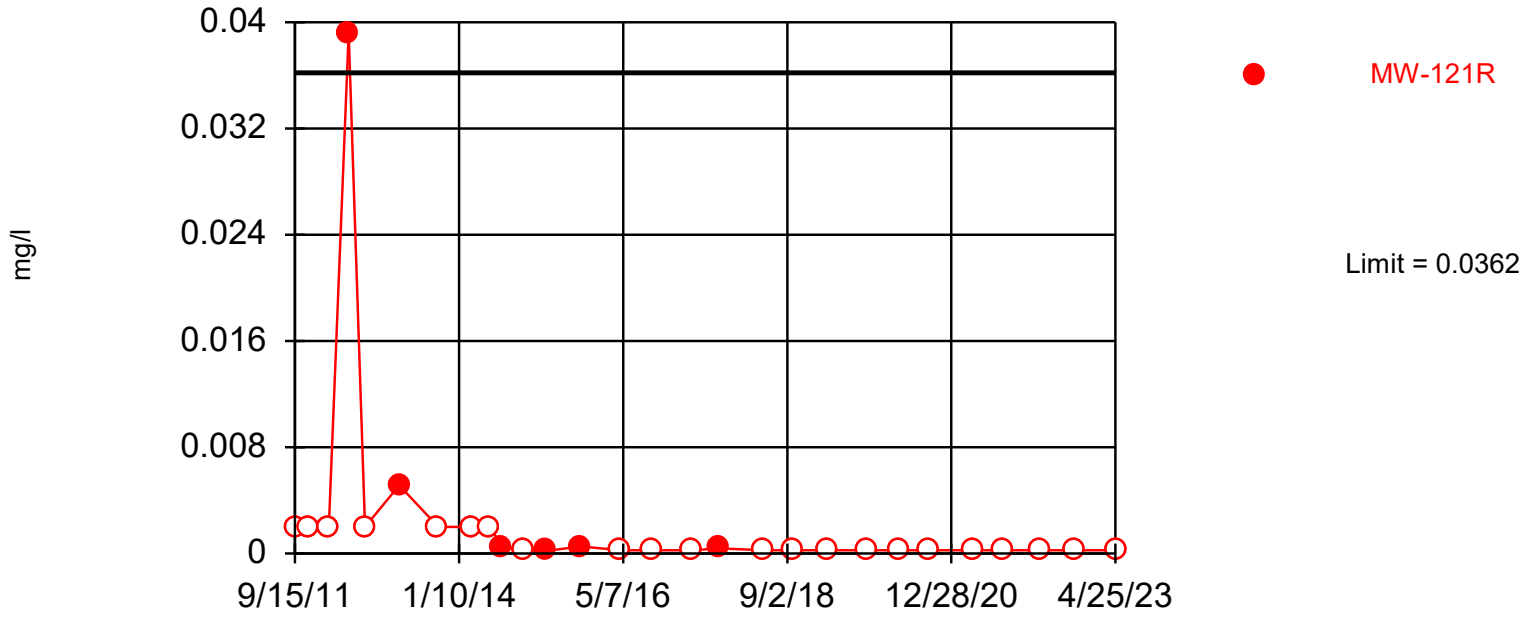
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 69 background values. 88.41% NDs. Annual per-constituent alpha = 0.004799. Individual comparison alpha = 0.0004008 (1 of 2).

Constituent: Lead Analysis Run 6/23/2023 12:42 PM

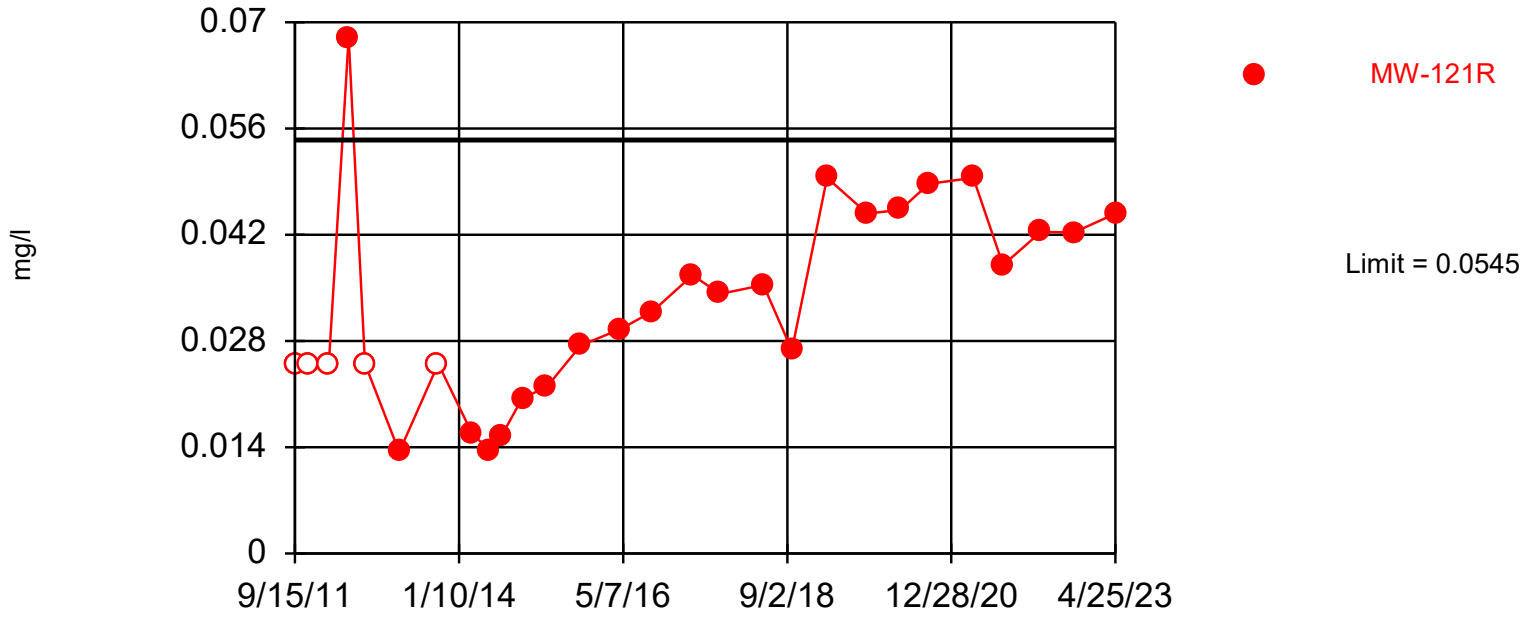
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 69 background values. 68.12% NDs. Annual per-constituent alpha = 0.004799. Individual comparison alpha = 0.0004008 (1 of 2).

Constituent: Nickel Analysis Run 6/23/2023 12:42 PM

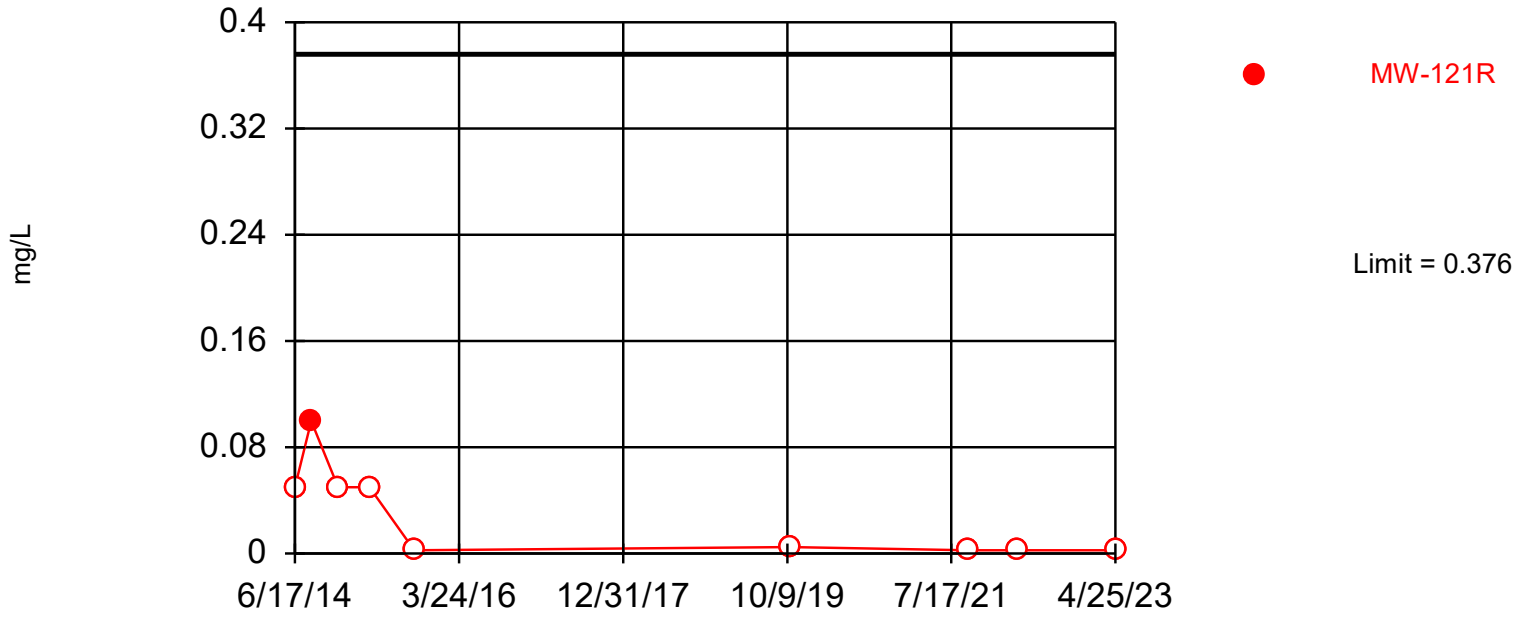
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 53 background values. 92.45% NDs. Annual per-constituent alpha = 0.008067. Individual comparison alpha = 0.0006747 (1 of 2).

Constituent: Tin Analysis Run 6/23/2023 12:42 PM

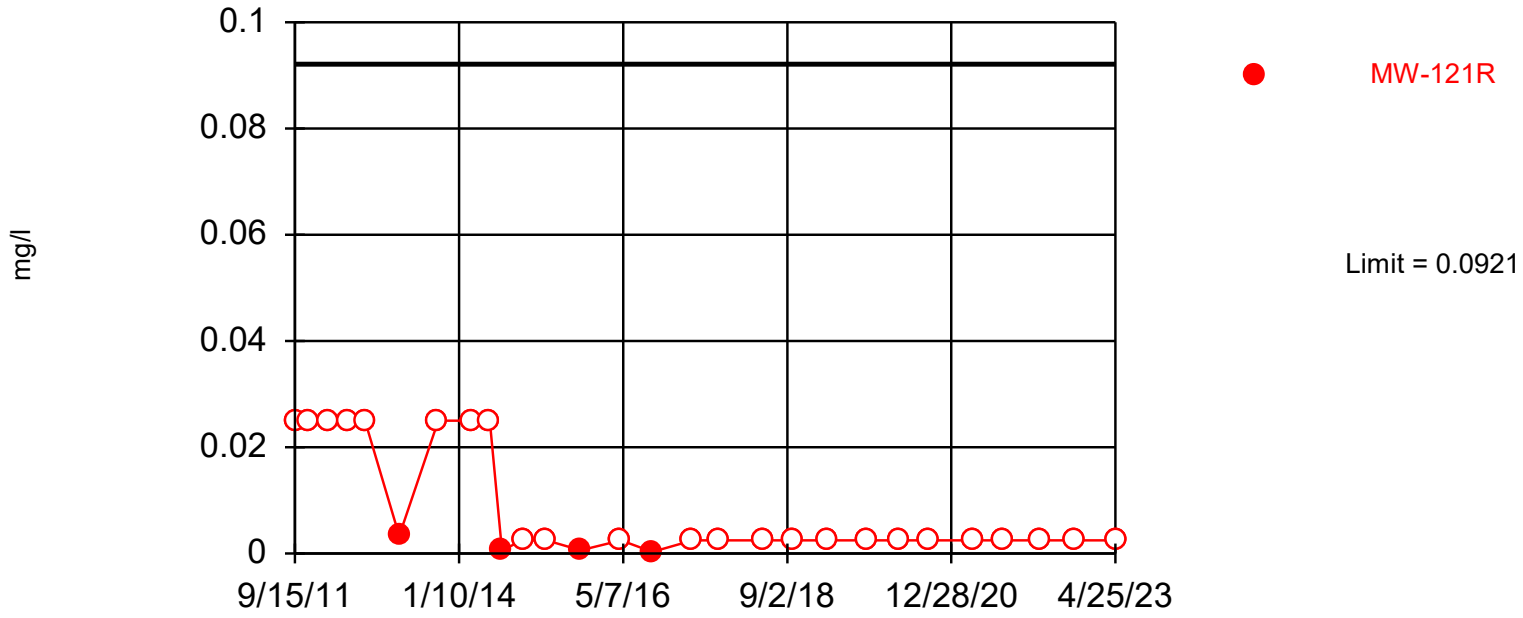
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 69 background values. 76.81% NDs. Annual per-constituent alpha = 0.004799. Individual comparison alpha = 0.0004008 (1 of 2).

Constituent: Vanadium Analysis Run 6/23/2023 12:42 PM

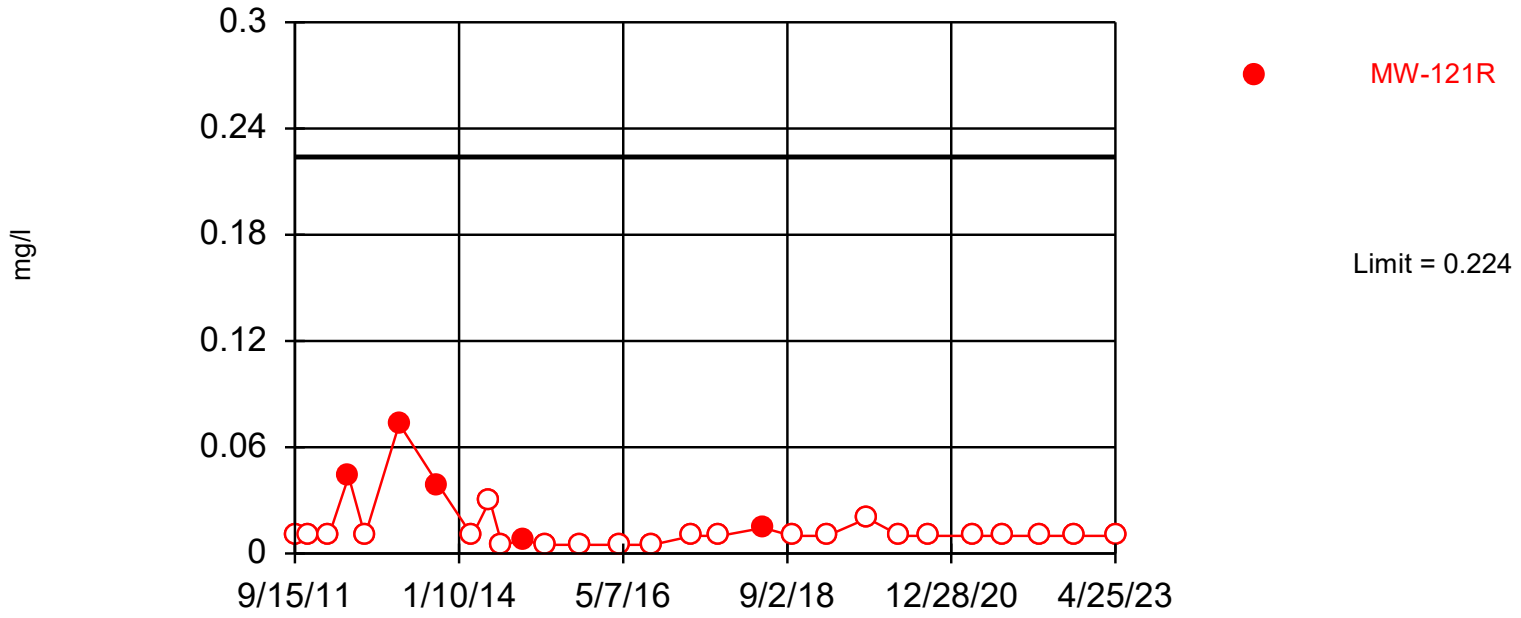
Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 69 background values. 62.32% NDs. Annual per-constituent alpha = 0.004799. Individual comparison alpha = 0.0004008 (1 of 2).

Constituent: Zinc Analysis Run 6/23/2023 12:42 PM

Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

Attachment 4

Sanitas Report Output for Double Quantification Rule Evaluations

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Detect Screening - Detection Monitoring

Analysis Run 6/23/2023 1:52 PM

Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

A listing of detects for 205 constituents in GU-2A, MW-119RR, MW-200, MW-205, and MW-206 in April 2023:

-none-

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Detect Screening - Assessment Monitoring

Analysis Run 6/23/2023 1:50 PM

Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

A listing of detects for 205 constituents in MW-121R on April 25, 2023:

Benzene, MW-121R, 4/25/2023: 0.623
cis-1,2-Dichloroethene, MW-121R, 4/25/2023: 10.3

Attachment 5
Sanitas Report Output for Confidence Interval Calculations
Assessment Mode

Confidence Interval - Assessment Mode [1]

Constituent Name	Well	Upper Limit	Lower Limit	Compliance Limit [2]	Exceed	N	Mean	Standard Deviation	CV	a to Achieve 50% Power at R=1.5 [3,4]	a to Achieve 80% Power at R=2.0 [3,4]	% Non-detects	Non-detect Adjustment	Transformation	Alpha	Method
Assessment Monitoring Locations																
Arsenic (mg/l)	MW-121R	0.0088	0.0050	0.01	No	28	0.0069	0.0041	0.60	<0.01	<0.01	7	None	No	0.01	Param.
Benzene (ug/l)	MW-121R	1.02	0.25	5	No	29	0.65	0.41	0.63	<0.01	<0.01	38	None	No	0.01	NP (normality)
cis-1,2-Dichloroethene (ug/l)	MW-121R	21.2	1.4	70	No	29	11.4	9.2	0.81	<0.01	<0.01	17	None	No	0.01	NP (normality)

[1] Under assessment mode, an SSL is indicated when the lower confidence limit exceeds the groundwater protection standard (compliance limit).

[2] Value is the 40 CFR Part 141 Safe Drinking Water Act MCL or the IAC 567 Chapter 137 Statewide Standard for a Protected Groundwater Source.

[3] For parametric confidence intervals: Except where otherwise indicated, based on Unified Guidance Equation 22.2, i.e., $\alpha \sim 1 - F_{T,n-1}\left(\frac{(R-1)\sqrt{n}}{R \cdot \widehat{CV}} - t_{1-\beta,n-1}\right)$

where R is the desired risk ratio, *n* is the sample size, CV is the estimated sample coefficient of variation, $t_{1-b,n-1}$ is the (1–b) Student's t-quantile with (n–1) degrees of freedom, and F is the cumulative (central) Student's t-distribution function.

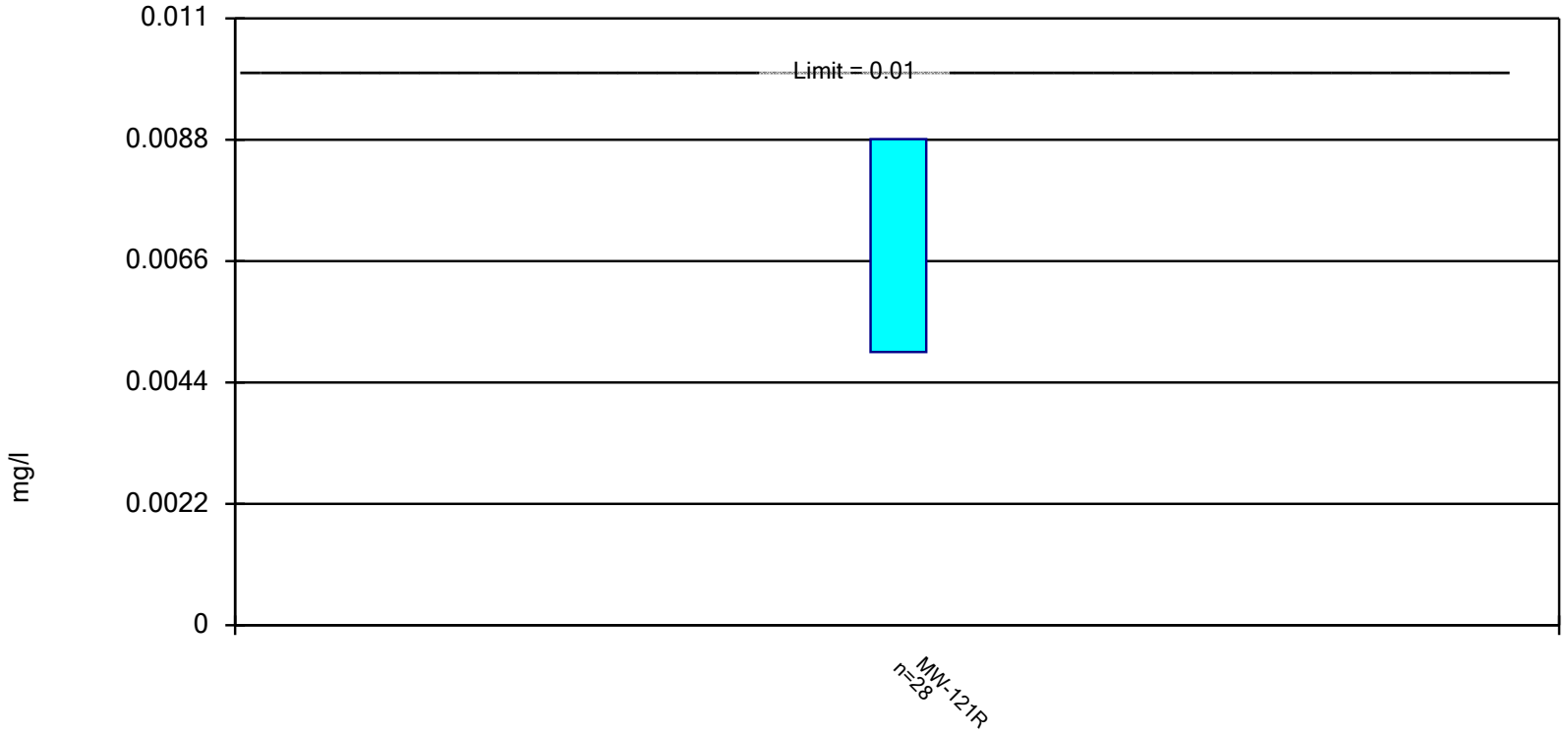
[4] For non-parametric confidence intervals: Based on Unified Guidance Equation 22.1, i.e., $1-\beta = G_{T:n-1}(t_{1-\alpha,n-1}|\Delta = \sqrt{n}(R-1))$

where R is the desired risk ratio, $t_{1-a,n-1}$ is the (1–a) Student's t-quantile with (n–1) degrees of freedom and G represents the cumulative non-central t-distribution with (n–1) degrees of freedom and noncentrality parameter D.

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Parametric Confidence Interval - Assessment Monitoring

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



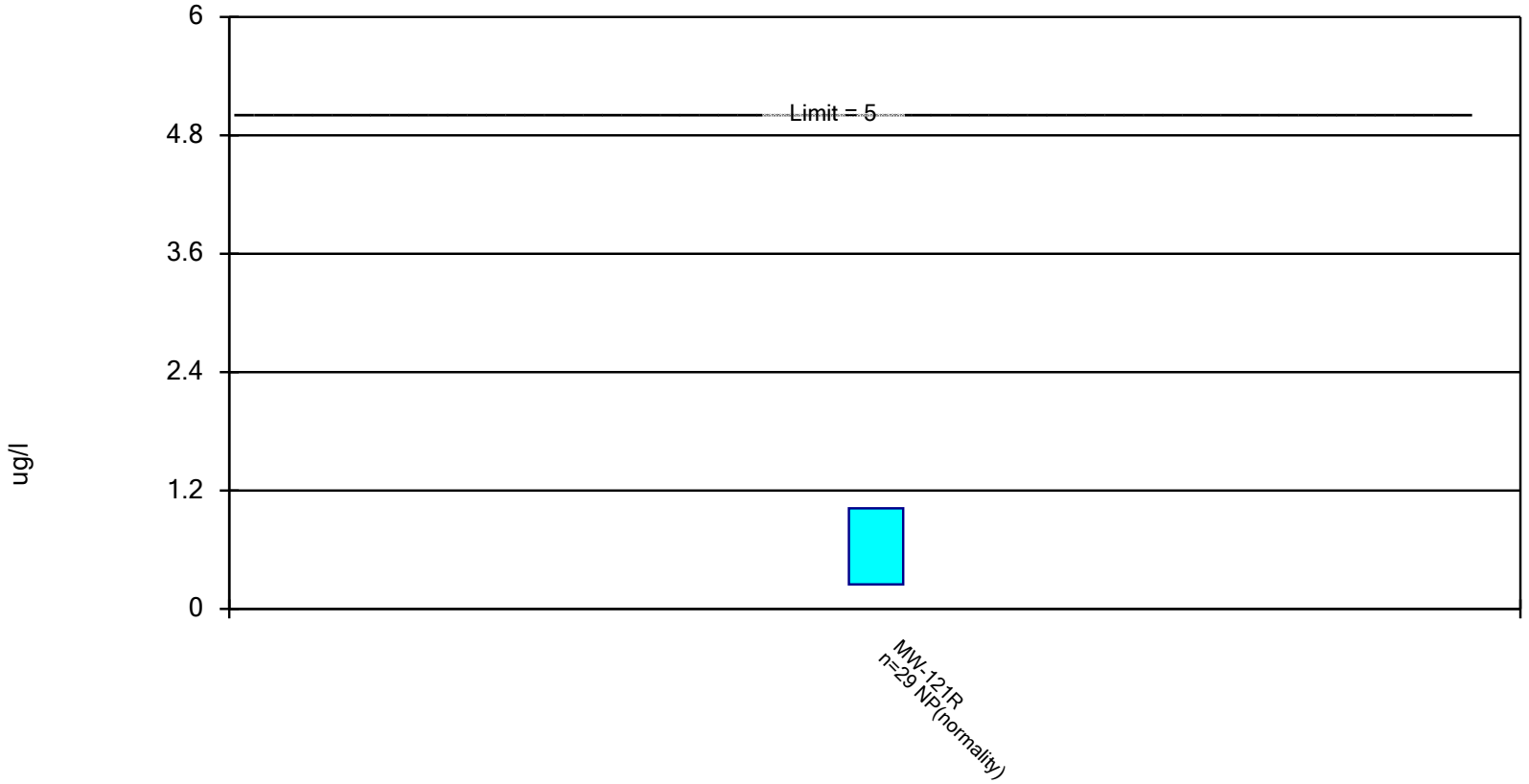
Constituent: Arsenic Analysis Run 6/23/2023 2:41 PM

Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Non-Parametric Confidence Interval - Assessment Monitoring

Compliance Limit is not exceeded. Per-well alpha = 0.01.



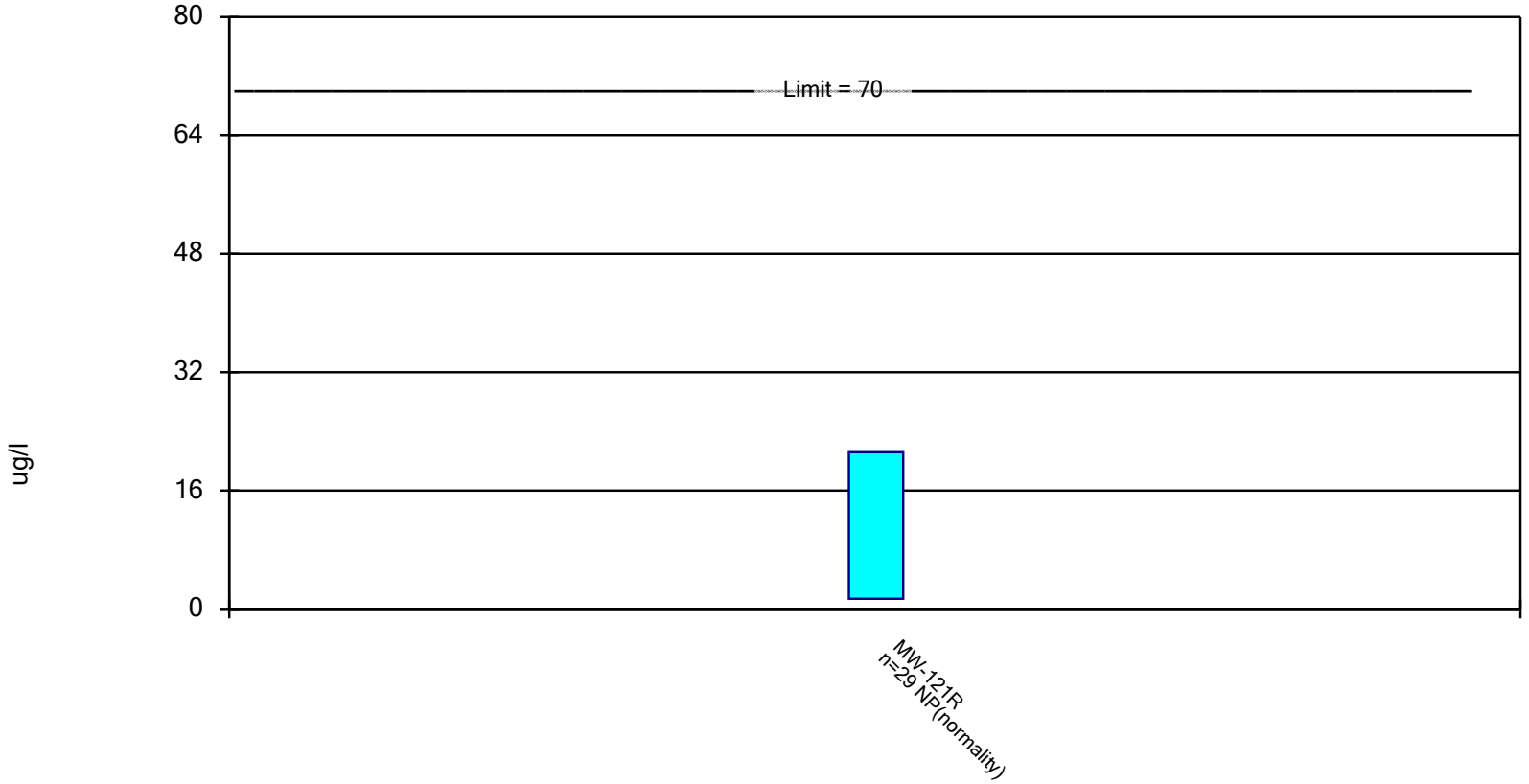
Constituent: Benzene Analysis Run 6/23/2023 2:40 PM

Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

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Non-Parametric Confidence Interval - Assessment Monitoring

Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: cis-1,2-Dichloroethene Analysis Run 6/23/2023 2:42 PM

Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

Attachment 6
Effective Power and Site-Wide False Positive Rate Discussion
Power Curve Evaluation

Effective Power and Site-Wide False Positive Rate

Statistical power refers to the ability of a test to identify real increases in concentration levels given they exist. The Unified Guidance defines the effective power as the "probability of detecting contamination in the monitoring network when one and only one well-constituent pair is contaminated." It further states that any statistical test procedure with effective power at least as high as the appropriate EPA Reference Power Curve (ERPC) should be considered to have reasonable power.

The Unified Guidance gives the following criteria for comparing the effective power to the ERPC:

If the effective power first exceeds the ERPC at a mean concentration increase no greater than 3 background standard deviations, the power is labeled 'good;' if the effective power first exceeds the ERPC at a mean increase between 3 and 4 standard deviations, the power is considered 'acceptable;' and if the first exceedance of the ERPC does not occur until an increase greater than 4 standard deviations, the power is considered 'low.'

Effective power curves were developed with Sanitas for the 1-of-2 prediction limit plan, with power curves illustrated below. Based on the power curves, the intrawell and interwell non-parametric prediction limits currently have good power ratings.

The Unified Guidance "strongly encourages use of a comprehensive design strategy to account for both the cumulative site-wide false positive rate (SWFPR) and effective power to identify real exceedances." The Unified Guidance recommends and uses an annual SWFPR target of 10%. The current annual SWFPR based on the 1-of-2 prediction limit plan may be calculated using the basic subdivision principle discussed in Unified Guidance Sections 6.2.2, 19.2.1 and 19.4.

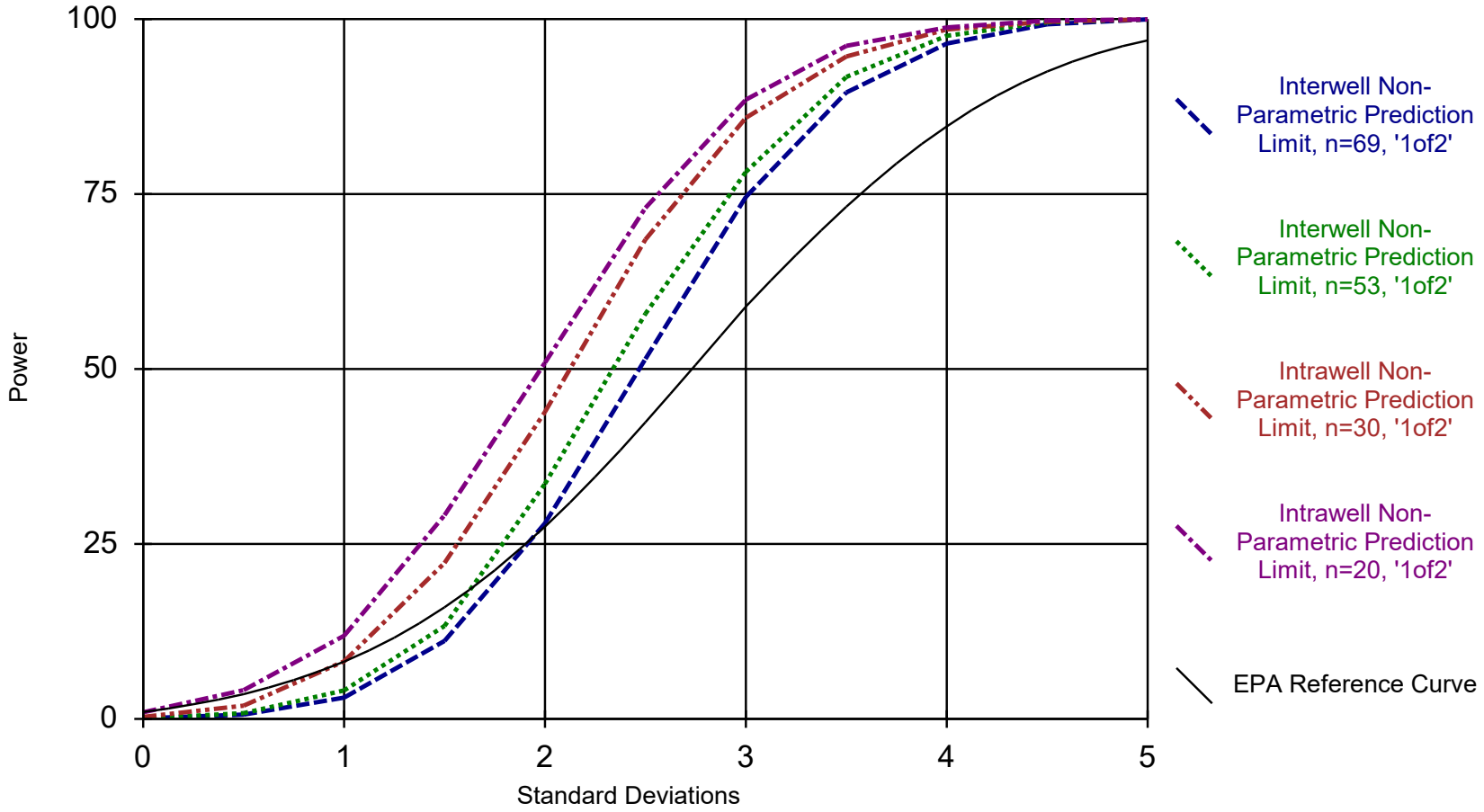
Currently, comparisons are made at 6 compliance locations and semiannually with a total of 150 single tests annually. Note that MW-205 is being statistically evaluated as a temporary or potential replacement for MW-204RR.

The Sanitas prediction limit report output of Attachment 3 includes annual individual test α-levels for each well/constituent pair. The α-levels reported by Sanitas account for the 1-of-2 plan, as well as two semiannual events conducted at the site.

The cumulative annual SWFPR can be approximated directly from the α-levels reported in the Sanitas output as SWFPR $= 1 - \prod_{i=1}^{78}(1-\alpha_i)^2 = 0.106 \approx 10.6\%$. The current annual SWFPR is slightly above the Unified Guidance target 10% false positive rate due to the additional tin tests. Future statistics will not include tin, and the SWFPR of 10% will be achieved.

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Power Curve



Analysis Run 6/23/2023 3:59 PM

Carroll County Landfill Client: Foth Data: Carroll West Spring 2023 Evaluation

Attachment 7
References

References

Foth Infrastructure & Environment, LLC (Foth), 2012. *2011 Annual Water Quality Report, Carroll County Landfill Western Expansion Area, IDNR Permit No. 14-SDP-01-74P, Project I.D.: 12C005.00.* January 17. [Doc. No. 68254].

Foth, 2022. *2021 Annual Water Quality Report, Carroll County Landfill Western Expansion Area, IDNR Permit No. 14-SDP-01-74P, Project I.D.: 22C001.00.* February 28. [Doc. No. 102447].

United States Environmental Protection Agency (EPA), 1997. *The Lognormal Distribution in Environmental Applications*. EPA/600/R97/006. Office of Solid Waste and Emergency Response, Washington, D.C.

EPA, 2006. *On the Computation of a 95% Upper Confidence Limit of the Unknown Population Mean Based Upon Data Sets with Below Detection Limit Observations*. EPA/600/R-06/022. Office of Research and Development, Washington, D.C.

EPA, 2009. *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance*. EPA 530-R-09-007. Office of Resource Conservation and Recovery, Program Implementation and Information Division, Washington, D.C.

Memorandum

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November 10, 2023

TO: Iowa Department of Natural Resources

FR: Gina Wilming, CGP; Hannah Dubbs; Stephen Lehrke, PhD

RE: Carroll County Western Expansion Area - Fall 2023 Statistical Evaluation

1. Memorandum Organization

This memo addresses the statistical analysis of the groundwater monitoring data collected during September 2023. The statistical methods and results are summarized, with the memo organization given as follows:

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1. Memorandum Organization 1
2. Background 2
3. Statistical Methodology 3
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      3.1.2 Background Data Set Review for Prediction Limits 4
   3.2 MW-200 Evaluation 4
      3.2.1 Detection of Non-Metal Constituents in MW-200 4
      3.2.2 Trend Tests and Intrawell Prediction Limits – MW-200 5
         3.2.2.1 Updating Intrawell Background 5
         3.2.2.2 Trend Tests and Intrawell Prediction Limits 5
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Tables

Table 1 Groundwater Monitoring Locations & Sampling Schedules
Table 2 Interwell Prediction Limit Summary

Tables (Continued)

Table 3 Sep. 2023 Prediction Limit Exceedances
Table 4 Double Quantification Rule – Sep. 2023 Detections
Table 5 Evaluation to Exit Assessment Monitoring
Table 6 SSL Summary
Table 7 Summary of the Fall 2023 Evaluation

Attachments

Attachment 1 Detailed Discussion of Statistical Methods
Attachment 2 MW-200 Intrawell Statistics
Attachment 3 Sanitas Report Output for Interwell Prediction Limit Calculations
Attachment 4 Sanitas Report Output for Double Quantification Rule Evaluations
Attachment 5 Sanitas Report Output for Confidence Interval Calculations
Attachment 6 Effective Power and Site-Wide False Positive Rate Discussion
Attachment 7 References

2. Background

The groundwater monitoring locations and the status of the Appendix I and II sampling schedules are summarized in Table 1. The Appendix I and II analytical results will be provided in Table 13 of the 2023 Annual Water Quality Report (AWQR).

Table 1
Groundwater Monitoring Locations & Sampling Schedules
Apr. 2008 – Sep. 2023 Appendix I and II Data

Monitoring Location	Monitoring Program	Current Schedule (Sep. 2023) [1]	Appendix I Initiated	# Events to Complete Baseline Appendix I or Completion Date [113.10(5)b]	Appendix II Initiated	# Events to Complete Baseline Appendix II or Completion Date [113.10(6)b]	Returned to Detection Monitoring
Downgradient Monitoring Locations							
GU-2A	Detection	Appendix I	Sep-11	Sep-12	N/A	N/A	N/A
GU-4A	Detection	Dry	---	5	N/A	N/A	N/A
MW-119RR	Detection	Appendix I	Oct-19	Sep-21	N/A	N/A	N/A
MW-121R	Assessment	Appendix II	Sep-11	Sep-12	Jun-14	Apr-15	No
MW-200 [2]	Detection	Appendix I	Sep-09	Sep-10	Jul-16	Jul-16 [3]	Sep-18
MW-204RR	Detection	- - [4]	N/A	N/A	N/A	N/A	N/A
MW-205 [5]	Detection	Appendix I	Apr-20	Apr-21	N/A	N/A	N/A
MW-206	Detection	Appendix I	Oct-19	Dec-20	N/A	N/A	N/A
Background Monitoring Locations							
MW-122R	Background	Appendix II	Apr-08	Mar-09	Mar-09	Mar-10	N/A
MW-200 [2]	Background	Appendix II	Sep-09	Sep-10	Jul-16 [6]	Jul-16 [6]	N/A

N/A = Not applicable

[1] In Sep. 2023, the Appendix II locations were sampled for the Appendix I and detected Appendix II constituents. The next 5-year resampling for the full Appendix II list at the assessment and background monitoring wells is scheduled for Fall 2024.

[2] MW-200 primarily serves as a downgradient monitoring location; however, MW-200 is also used to supplement the background data set.

[3] MW-200 triggered assessment monitoring in Jul. 2016. Note that one round of background monitoring for the full Appendix II list had previously been conducted at MW-200 in October 2015 as part of the five-year full Appendix II resampling at the Closed Eastern Area. In accordance with Special Provision X.4.e, baseline assessment monitoring was completed after the June 2016 event since at least two rounds of analysis using the entire Appendix II list were completed in October 2015 and June 2016.

[4] Replacement well MW-204RR had insufficient groundwater for sample collection in Sep. 2023; therefore, a sample was not collected. Baseline sampling for the Appendix I list will be initiated when there is adequate water column.

[5] A sample was collected at MW-205 as a temporary or potential replacement for MW-204RR.

In September 2023, semiannual detection, assessment, and background monitoring were conducted at the downgradient and background monitoring locations as indicated in Table 1. Assessment monitoring well MW-121R and background wells MW-122R and MW-200 were sampled for the Appendix I and detected Appendix II constituents. As discussed in the *2021 AWQR* (Foth, 2022), detection monitoring samples are being collected at MW-205 as a temporary or potential replacement for MW-204RR due to the dry to limited water depths at MW-204RR. Note that MW-205 is not currently included in the permitted groundwater monitoring network for the Western Expansion Area.

Underdrain sample location GU-4A remained dry in September 2023. Baseline detection monitoring will be initiated once the water level is at or above the elevation of the horizontal underdrain discharge pipe connected perpendicular to the vertical sample pipe.

Under the detection and assessment monitoring programs of 567 Iowa Administrative Code (IAC) 113.10(5) and 113.10(6), Appendix I and II monitoring results are statistically compared to background levels as given in 567 IAC 113.10(5)c and 113.10(6)e and to the groundwater protection standard (GWPS) as given in 567 IAC 113.10(6)g and h. A well may return to detection monitoring when all Appendix II constituents are "shown to be at or below background values, using the statistical procedures in 567 IAC 113.10(4)g for two consecutive sampling events." Consequently, to return to detection monitoring in accordance with 567 IAC 113.10(6)e, all Appendix II constituents must be below the interwell prediction limit (for constituents which are detected in the background data set) or below the laboratory reporting limit (for constituents which are not detected in the background data set) during two consecutive sampling events. Three consecutive sampling events may be utilized to make the determination to return to detection monitoring to limit the frequent fluctuation of wells moving between the detection and assessment monitoring programs. Assessment monitoring continues when Appendix II concentrations are above background values but below the GWPS using the statistical procedures in 567 IAC 113.10(4)g.

If Appendix II constituents are detected at statistically significant levels (SSLs) above the GWPS, characterization [567 IAC 113.10(6)g] is initiated, and the owners or operators are required to initiate an assessment of corrective measures, select a remedy, and implement a remedy in accordance with 567 IAC 113.10(7), (8), and (9). For remedy completion [567 IAC 113.10(9)e(2)], compliance with the GWPS is considered achieved by demonstrating that concentrations of Appendix II constituents have not exceeded the GWPS for a period of three consecutive years or an alternate length of time established by the Department.

Based on the April 2008 through September 2023 results, this memo presents an evaluation of statistically significant increases (SSIs) and SSLs under the requirements of 567 IAC 113.10(4)g and h.

3. Statistical Methodology

The statistical methods utilized for locations in detection and assessment monitoring were consistent with the methods used in previous statistical evaluations. Detailed descriptions of the statistical methods are provided in Attachment 1. Sanitas® v9.6 (Sanitas Technologies) software was utilized to complete the statistical comparisons.

Note that statistical comparisons were not conducted at GU-4A and MW-204RR since GU-4A was dry and MW-204RR had insufficient groundwater for sample collection in September 2023. While not currently included in the permitted groundwater monitoring network, statistical

comparisons were conducted at MW-205 in this memo as a temporary or potential replacement for MW-204RR.

3.1 Background Data Set

The combined background data set of MW-122R and MW-200 was utilized to evaluate SSIs over background for metals. The background data set for non-metal constituents is defined by MW-122R only.

3.1.1 Turbidity and the Background Data Set

No background data set adjustments are recommended based on a review of the field turbidity and total suspended solids (TSS) data from the September 2023 sampling event. TSS concentrations in MW-122R and MW-200 were below the 5 mg/L level for acceptable sample quality in September 2023. A detailed discussion regarding compliance with Permit Special Provision X.4.g will be provided in the 2023 AWQR.

3.1.2 Background Data Set Review for Prediction Limits

The practical quantitation limit (PQL) has been lowered for several metal constituents since the start of Appendix I monitoring in March 2008. This lowering of the PQL has enabled laboratory quantitation limits to be lower than the GWPS. As a result of the shifting PQLs, the background datasets were reviewed to determine whether some of the earlier non-detect data with elevated PQLs may need to be removed from the background data due to the increased uncertainty this adds. For example, removing earlier non-detect data with elevated PQLs when that value is larger than any existing detected values ensures that the maximum order statistic is a quantified concentration for non-parametric prediction limits. However, data set adjustments are typically not recommended if detections are identified at concentrations above the earlier elevated PQLs, or in cases where the PQL remains relatively consistent over time. Also, consideration is given as to whether the elevated PQL is greater than or less than the GWPS. No background data set adjustments have been previously or are currently recommended based on shifting PQLs.

3.2 MW-200 Evaluation

The following statistical comparisons were conducted to provide ongoing documentation that MW-200 is suitable for inclusion in the background metals data set.

- Review MW-200 data for detection of non-metal constituents.
- Conduct Mann-Kendall trend tests on detected metals constituents.
- Conduct intrawell prediction limits on detected metals constituents.

3.2.1 Detection of Non-Metal Constituents in MW-200

No non-metal Appendix I or II constituents were detected above the laboratory PQL at MW-200 in September 2023.

The background data set adjustments previously recommended and incorporated based on a review of single background detections include:

- Removal of the September 2020 metals concentrations in MW-200 from interwell statistical comparisons (initiated with the Fall 2020 statistical evaluation) and intrawell statistical comparisons (initiated with the Fall 2021 statistical evaluation).

These data set adjustments were maintained in the current statistical evaluation.

3.2.2 Trend Tests and Intrawell Prediction Limits – MW-200

3.2.2.1 Updating Intrawell Background

Intrawell background was updated during this statistical evaluation. In the Fall 2021 through Spring 2023 statistical evaluations, the intrawell prediction limits for the MW-200 metals constituents were constructed with the 30 background values (or 20 background values for tin) collected from September 2009 through April 2021. Note: tin was not sampled and included in the analysis for MW-200 because tin has not been detected in any downgradient wells or in the background data set above the PQL since 2013. The Unified Guidance (Section 5.3.2) recommends that the intrawell background data set be updated periodically, after 4 to 8 new compliance observations have been collected. The guidance also states that "a potential update is predicated on there being no statistically significant increase [SSI] recorded for that well constituent, including since the last update."

Four additional values subsequent to the April 2021 event (i.e., September 2021, April 2022, September 2022, and April 2023) were statistically compared to the previous MW-200 background data to determine if the background dataset could be updated. The statistical comparisons utilized for determining if the intrawell background data set can be updated included non-parametric Wilcoxon rank-sum tests and statistical prediction limits. Results of the statistical comparisons are included in Attachment 2.

The prediction limits did not identify statistical differences between the existing intrawell background data set and the September 2021 through April 2023 data. The Wilcoxon rank-sum tests did not identify statistical differences between the existing intrawell background data set and the September 2021 through April 2023 data. Based on the results of the Wilcoxon rank-sum and prediction limit results, the MW-200 background data set for the metals constituents was updated to include the September 2021, April 2022, September 2022, and April 2023 data.

3.2.2.2 Trend Tests and Intrawell Prediction Limits

Mann-Kendall trend tests and intrawell prediction limits were used to statistically compare the detected metals concentrations in MW-200. These analytes are antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, nickel, vanadium, and zinc. Note: tin was not sampled and included in the analysis for MW-200 because tin has not been detected in any downgradient wells or in the background data set above the PQL since 2013. The trend test and prediction limit statistical outputs are included in Attachment 2.

For constituents where notable changes in the reporting limit have occurred (i.e., antimony, chromium, cobalt, copper, lead, nickel, and vanadium), the earlier non-detect values with higher reporting limits were not included in the Mann-Kendall trend tests since this may artificially introduce variation into the trend test. Trends are not significant at the 98% confidence level for the detected metals constituents in MW-200.

The September 2023 results were below their respective intrawell prediction limits. Based on the Mann-Kendall trend test and intrawell prediction limit results, MW-200 remains suitable for inclusion in the background metals data set.

3.3 Abandoned and Replacement Well Data Sets

MW-119R and MW-204 were abandoned in April 2019, and replacement wells MW-119RR and MW-204R were installed in August 2019. The first round of detection monitoring for the Appendix I list was conducted at replacement wells MW-119RR and MW-204R in October 2019.

As discussed in the Spring 2021 Statistical Evaluation, the MW-119RR data was not combined with the abandoned well MW-119R data. Only the MW-119RR data was utilized to conduct statistical comparisons in the current evaluation.

MW-204R has been abandoned and removed from the groundwater monitoring network due to a well compromise identified during the April 2020 event. Replacement well MW-204RR was installed in July 2020. MW-204RR was dry at the time of installation and remained dry through the Winter 2020 sampling event. Groundwater was measured in the casing from 2021 through 2023; however, the volumes were insufficient for sample collection. The confining hydrogeologic conditions have been exacerbated by clay placement and compaction activities from the construction of Phases 5B and 6 and ongoing drought conditions. Quarterly baseline monitoring will be initiated when there is an adequate water column. As discussed in the *2021 AWQR* (Foth, 2022), detection monitoring samples are being collected at MW-205 as a temporary or potential replacement for MW-204RR due to the dry to limited water depths at MW-204RR.

4. Comparison to Background

Comparisons to background levels were conducted using interwell prediction limits and the Double Quantification Rule (DQR).

4.1 Interwell Prediction Limits

Interwell prediction limits were used to formally assess SSIs over background for analytes that have been detected above the reporting limit in the background data set (MW-122R and MW-200). These analytes were antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, nickel, vanadium, and zinc. Note: tin was not sampled and included in the interwell prediction limit analysis because tin has not been detected in any downgradient wells or in the background data set above the PQL since 2013.

Prediction limits calculated utilizing background sample data collected from April 2008 through September 2023 are summarized in Table 2. The MW-200 background data set adjustments discussed in Section 3.2.1 were utilized.

Non-parametric prediction limits were used since either normality assumptions could not be met, or there were less than 50% detects in the combined background data.

Table 2
Interwell Prediction Limit Summary
Apr. 2008 – Sep. 2023 Interwell Data [1]

Chemical Name	Prediction Limit	Units	Prediction Limit Type	Retesting Plan	Prediction Limit Method
Antimony	0.0101	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic
Arsenic	0.00801	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic
Barium	1.05	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic
Beryllium	0.00348	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic
Cadmium	0.00179	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic
Chromium	0.0343	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic
Cobalt	0.026	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic
Copper	0.0536	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic
Lead	0.0362	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic
Nickel	0.0545	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic
Vanadium	0.0921	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic
Zinc	0.224	mg/L	Non-Parametric	1-of-2	Maximum Order Statistic

[1] Interwell data consists of the Appendix I and II parameters that have been detected in the combined background data set (MW-122R and MW-200). Note that the MW-200 background data set adjustments were incorporated in accordance with Section 3.2.1.

Interwell prediction limit output is included in Attachment 3. The monitoring locations exhibiting a prediction limit exceedance during the September 2023 event are listed in Table 3.

Table 3
Sep. 2023 Prediction Limit Exceedances

	Arsenic (mg/L)
Prediction Limit	**0.00801**
Detection Monitoring Locations	
None	
Assessment Monitoring Locations	
MW-121R	0.0219

4.2 Double Quantification Rule

The DQR was used to evaluate SSIs over background for the Appendix I and II metal constituents which have not been detected above the reporting limit in the combined background data set (MW-122R and MW-200), and for the non-metal constituents which have not been detected above the reporting limit in MW-122R (i.e., DQR is applied to constituents which have not been evaluated using interwell prediction limits.)

The DQR output is included in Attachment 4, with a summary of the September 2023 DQR detections listed in Table 4.

Table 4
Double Quantification Rule
Sep. 2023 Detections

Well	Constituent(s)
Detection Monitoring Locations	
None	
Assessment Monitoring Locations	
MW-121R	Benzene; cis-1,2-Dichloroethene

4.3 Summary of Comparison to Background

4.3.1 Detection Monitoring Locations

No interwell prediction limit exceedances or DQR detections were identified at GU-2A, MW-119RR, MW-200, MW-205, and MW-206.

4.3.2 Assessment Monitoring Locations

An interwell prediction limit exceedance was identified for arsenic in MW-121R. DQR detections were identified for benzene and cis-1,2-dichloroethene in MW-121R. In lieu of retesting for the prediction limit exceedance and DQR detections, SSIs were declared and evaluated for SSLs in Section 5.

4.3.2.1 Exiting Assessment Monitoring

Table 5 presents a summary of the assessment monitoring locations and statistical comparisons required for exiting assessment monitoring. As discussed in Section 2, assessment monitoring locations may return to detection monitoring when Appendix II constituents fall below the current interwell prediction limit (for constituents which are detected in the background data set) and below the laboratory reporting limit (for constituents which are not detected in the background data set) for three consecutive sampling events.

Table 5
Evaluation to Exit Assessment Monitoring

Monitoring Location	Sep. 2022	Apr. 2023	Sep. 2023
MW-121R			
Constituents Detected in Background are Below Prediction Limits	No	No	No
DQR Constituents are Below Reporting Limit	No	No	No

All Appendix II constituents were not below the interwell prediction limit or laboratory reporting limit for three consecutive sampling events at MW-121R. As a result, MW-121R will not exit assessment monitoring at this time.

5. Comparison to Groundwater Protection Standard

The prediction limit exceedances and DQR detections listed in Tables 3 and 4 were evaluated for SSLs over the GWPS per IAC 113.10(6)f and g. Comparisons to the GWPS were evaluated through statistical confidence intervals under the assessment monitoring null hypothesis. SSLs are declared to exist with statistical certainty when the lower confidence limit exceeds the GWPS.

Confidence interval output is included in Attachment 5 and summarized in Table 6. SSLs were not identified at MW-121R.

Table 6
SSL Summary

Chemical Name	Wells with SSL [1]	Wells without SSL	Groundwater Protection Standard [2]
Assessment Monitoring Locations			
Arsenic (mg/L)		MW-121R	0.01
Benzene (ug/L)		MW-121R	5
cis-1,2-Dichloroethene (ug/L)		MW-121R	70

[1] Under assessment mode, an SSL is indicated when the lower confidence limit exceeds the GWPS.
[2] Values are the 40 CFR Part 141 Safe Drinking Water Act MCL or IAC 567 Chapter 137 Statewide Standard for a Protected Groundwater Source.

6. Effective Power and Site-Wide False Positive Rate

Statistical power calculations, effective power curves for the 1-of-2 prediction limit plan, and the current SWFPR are discussed in detail in Attachment 6. The intrawell and interwell non-parametric prediction limits currently have good power ratings. The current cumulative annual SWFPR for the plan is 8%. The current annual SWFPR is in compliance with the Unified Guidance target 10% false positive.

Statistical power calculations for confidence intervals in assessment mode are included in the confidence interval output of Attachment 5. Details regarding the purpose and procedures for these calculations are provided in Attachment 1. Confidence limits are calculated to meet statistical power levels of 50% for increases in the true concentration mean of 1.5 times a fixed standard, and 80% for increases in the true concentration mean of 2.0 times a fixed standard, as discussed in the Unified Guidance Chapter 22 (USEPA, 2009).

7. Conclusions

The methodology described in Attachment 1 was utilized to conduct the statistical evaluations for locations in the detection and assessment monitoring programs. The combined background data set of MW-122R and MW-200 was utilized to evaluate SSIs over background for metals. The background data set for non-metal constituents is defined by MW-122R only.

A summary of the Fall 2023 statistical results is presented in Table 7 and detailed in the following subsections.

Table 7
Summary of the Fall 2023 Evaluation

Monitoring Location	Monitoring Program	Current Schedule (Sep. 2023) [1]	Current SSIs	Current SSLs	Retesting Parameter [2]	Monitoring Program Changes
Downgradient Monitoring Locations						
GU-2A	Detection	Appendix I				
GU-4A	Detection	Dry				
MW-119RR	Detection	Appendix I				
MW-121R	Assessment	Appendix II	Arsenic; Benzene; cis-1,2-Dichloroethene			
MW-200 [3]	Detection	Appendix I				
MW-204RR	Detection	- - [4]				
MW-205 [5]	Detection	Appendix I				
MW-206	Detection	Appendix I				
Background Monitoring Locations						
MW-122R	Background	Appendix II				
MW-200 [2]	Background	Appendix II				

[1] In Sep. 2023, the Appendix II locations were sampled for the Appendix I and detected Appendix II constituents. The next 5-year resampling for the full Appendix II list at the assessment and background monitoring wells is scheduled for Fall 2024.
[2] Retest samples will be collected prior to the next semiannual event and will be utilized to determine if any monitoring program changes will be initiated.
[3] MW-200 primarily serves as a downgradient monitoring location; however, MW-200 is also used to supplement the background data set.
[4] Replacement well MW-204RR had insufficient groundwater for sample collection in Apr. 2023; therefore, a sample was not collected. Baseline sampling for the Appendix I list will be initiated when there is adequate water column.
[5] A sample was collected at MW-205 as a temporary or potential replacement for MW-204RR.

7.1 Detection Monitoring

Semiannual detection monitoring for the Appendix I list was conducted at GU-2A, MW-119RR, MW-200, and MW-206 in September 2023. As discussed in the *2021 AWQR* (Foth, 2022), detection monitoring samples are being collected at MW-205 as a temporary or potential replacement for MW-204RR due to the dry to limited water depths at MW-204RR. Note that MW-205 is not currently included in the permitted groundwater monitoring network for the Western Expansion Area.

At GU-4A, baseline detection monitoring will be initiated once the water level is at or above the elevation of the horizontal underdrain discharge pipe connected perpendicular to the vertical sample pipe.

No SSIs were identified at GU-2A, MW-119RR, MW-200, MW-205, and MW-206. Semiannual detection monitoring for the Appendix I list will be conducted at GU-2A, MW-119RR, MW-200, and MW-206 in Spring 2024. If adequate water column is measured at MW-204RR, detection monitoring for the Appendix I list will be initiated. If insufficient groundwater for sample collection remains at MW-204RR in Fall 2023, detection monitoring will be continued at temporary or replacement well MW-205.

7.2 Assessment Monitoring

Semiannual assessment monitoring for the Appendix I and detected Appendix II constituents was conducted at MW-121R in September 2023. SSIs were identified for arsenic, benzene, and cis-1,2-dichloroethene at MW-121R. SSLs were not identified.

The Fall 2023 statistical evaluation did not identify all Appendix II constituents below the interwell prediction limit or laboratory reporting limit for three consecutive sampling events at MW-121R. As a result, MW-121R will not exit assessment monitoring at this time. Semiannual assessment monitoring for the Appendix I and detected Appendix II constituents will be continued at MW-121R in Spring 2024. In accordance with Permit Special Provision X.4.e, the next resampling event for the full set of Appendix II constituents is scheduled for Fall 2024.

7.3 Background Monitoring

Semiannual background monitoring for the Appendix I and detected Appendix II constituents was conducted at MW-122R and MW-200 in September 2023. Note that while MW-200 primarily serves as a downgradient monitoring location, MW-200 is also used to supplement the background data set.

Intrawell background was updated during this statistical evaluation. The September 2021, April 2022, September 2022, and April 2023 results were statically compared to the previous MW-200 background data using the Wilconox rank-sum test and statistical prediction limits. Based on the results of the Wilcoxon rank-sum and prediction limit results, the MW-200 background data set for the metals constituents was updated to include the September 2021, April 2022, September 2022, and April 2023 data.

Review of MW-200 for detection of non-metal constituents, Mann-Kendall trend tests, and intrawell prediction limit results indicated that MW-200 remains suitable for inclusion in the background metals data set.

Semiannual background monitoring for the Appendix I and detected Appendix II constituents will be continued at MW-122R and MW-200 in Spring 2024. In accordance with Permit Special Provision X.4.e, the next resampling event for the full set of Appendix II constituents is scheduled for Fall 2024.

Attachment 1
Detailed Discussion of Statistical Methods

Statistical Methodology

1. Comparison to Background

For determining which parameters will need a formal statistical treatment, the Unified Guidance (USEPA, 2009) suggests splitting monitoring parameters into three distinct groups: a) reliable indicators selected for formal testing; b) other analytes which are monitored for general groundwater quality information but not statistically tested; and c) those meeting the "never-detected" criteria. Only those parameters with some historically detected presence in background need to be included in the first group and treated with a formal statistical test. Any parameter that has never been detected in background is eligible for the third group of "never-detected" constituents. Constituents with detection below the reporting limit (J-flagged data) will be considered "never-detected." As a means of evaluating the third group, the Unified Guidance suggests the Double Quantification Rule (DQR). The DQR is stated in the Unified Guidance as:

"A confirmed exceedance is registered if any well-constituent pair in the '100% non-detect' group exhibits quantified measurements (i.e., at or above the reporting limit [RL]) in two consecutive sample and resample events."

The Unified Guidance also recommends establishing background sample sizes as large as feasible. The guidance recognizes that small sample sizes in background can be "particularly" troublesome, especially in controlling statistical test false positive and negative rates. With parametric tests (such as parametric prediction limits), the false positive rate may be controlled, but at the expense of statistical power. With non-parametric tests (such as non-parametric prediction limits or the "quasi-statistical" DQR), the false positive rate may be unacceptably high. The Unified Guidance suggests that generally at least 8 to 10 separate background measurements be available, recognizing that statistical power continues to increase with larger sample sizes.

In reports prior to the *2011 AWQR* (Foth, 2012), the ANOVA and a "2x2 contingency table" methods were used to evaluate SSIs over background. These methods met the criteria of IAC 113.10(4)g and h. The ANOVA and "2x2 contingency table" methods were used to maximize the statistical power while minimizing potentially large false positive rates as a result of the smaller sample sizes.

Starting with the *2011 AWQR* (Foth, 2012), the statistical analysis methods utilized for comparison to background were the DQR and "1-of-2" interwell prediction limits as recommended in the Unified Guidance (USEPA, 2009).

Expansion of the Background Data Set

During the statistical evaluation for the 2012 Annual Water Quality Report, the Commission elected to expand the background metals data set by including metals data from MW-200 with upgradient well MW-122R data. The Department approved the secondary use of MW-200 for interwell background providing the sampling results are assessed using intrawell statistics to justify its suitability. The suitability of MW-200 for inclusion in the background data set will be verified by review of volatile organic compound data, Mann-Kendal trend tests, and intrawell prediction limits (further discussed below).

Double Quantification Rule

The DQR will be used to evaluate SSIs over background for the Appendix I and II constituents that have not been detected above the reporting limit in the background data set. An SSI will be indicated for any well-constituent pair with quantified measurements at or above the reporting limit noted for two consecutive sample and resample events. If applicable, the resample will be collected prior to next semiannual sampling event.

Interwell Prediction Limits

Interwell prediction limits will be used to statistically evaluate SSIs over background for the Appendix I and II constituents which have been detected above the reporting limit in the background data set. A "1-of-2" retesting plan will be utilized on individual sample results. The 1-of-2 retesting plan as defined in the Unified Guidance concludes that an SSI has occurred when two out of two sample results exceed the prediction limit, while no SSI is concluded if 1-of-2 is below the limit. If applicable, resamples will be collected prior to next semiannual sampling event. The prediction limit for each constituent will be recalculated semiannually.

For interwell constituents with less than or equal to 50% detects in the background data set, a non-parametric prediction limit will be utilized. The non-parametric prediction limit will be taken as the maximum order statistic (maximum value) of the background data. The background data set will consist of data collected from April 2008 through the current sampling event.

For interwell constituents with greater than 50% detects in the background data set, normality assumptions will be verified using the Shapiro-Wilk normality test. If the background data is not normally distributed, a non-parametric prediction limit will be utilized (as described in the paragraph above). If the background data is normally distributed or can be fit to a normal distribution utilizing a normalizing transformation, then a normal-based parametric prediction limit will be applied.

When considering a lognormal prediction limit, a comparison will be made to the maximum order statistic for the background data set. Lognormal prediction limits can be sensitive to smaller departures from lognormality. That is, if data are not truly lognormal, but also not rejected as lognormal, the prediction limit may be inflated because of the transformation. In choosing a lognormal limit, in addition to the percent detections and lognormal goodness of fit criteria, an additional convention will be applied. If the lognormal limit exceeds the level of twice the maximum background concentration, it is assumed that the lognormal model does not adequately fit the background distribution and a non-parametric prediction limit will be selected.

For interwell constituents with 50% to 85% detects in the background data set, Kaplan-Meier estimation will be applied to manage statistical bias introduced by non-detects. For interwell constituents with over 85% detects in the background data set, half the reporting limit will be used for non-detect data. These estimation methods follow Unified Guidance recommendations and are given in detail in Unified Guidance Chapter 15 (USEPA, 2009).

The parametric prediction limit will be calculated as:

$$PL = \bar{x} + k \cdot s$$

where $\bar{x}$ is the sample mean of the April 2008 through current event background data, *s* is the sample standard deviation, and *k* is the multiplier obtained from the Unified Guidance Table 19-1 (USEPA, 2009) for 1-of-2 interwell prediction limits on observations. In determining *k*, the number of constituents of concern (COCs) for formal statistical evaluation along with the

number of downgradient wells need to be identified. Per the basic subdivision discussion presented in Section 19.2.1 of the Unified Guidance, along with the discussion regarding the use of the appendix tables for parametric retesting plans given on pages 19-13 through 19-15 of the Unified Guidance (USEPA, 2009), the *k*-multiplier is chosen based on the number of constituents, wells and evaluations performed annually. When an exact well and COC configuration is not given in the appendix tables, the *k*-multiplier is linearly interpolated as described on page 19-14 of the Unified Guidance (USEPA, 2009).

Sanitas v9.6 software (Sanitas Technologies) is used to check distributional assumptions, perform Kaplan-Meier estimation in the case of 50% to 85% detects in the upgradient well, and calculate the *k*-multipliers and subsequent prediction limits.

Intrawell Prediction Limits

Intrawell prediction limits are calculated in a similar manner to that described above for the interwell case. A main difference between the two methods is the intrawell limit is calculated from a collection of background measurements within the compliance well. A minimum of eight compliance well background samples will be used when calculating the limit.

A second difference is for the parametric prediction limit, in which the *k*-multiplier is modified from the interwell case, as given in Appendix D Tables 19-10 through 19-18 of the Unified Guidance (USEPA, 2009).

Updating intrawell background is performed periodically. The Unified Guidance (Section 5.3.2) recommends that 4 to 8 new compliance observations be collected prior to updating the background dataset. The guidance also states that "a potential update is predicated on there being no statistically significant increase [SSI] recorded for that well constituent, including since the last update." A two-sample t-test or Wilcoxon rank-sum test between existing intrawell background data and the potential set of newer background data is performed, and a non-significant result (α = 0.05) implies that the newer compliance data can be re-classified as background measurements.

For Wilcoxon rank-sum tests, non-detect results cannot be ranked with certainty and the problem is compounded with multiple PQLs and/or J-flagged values (USEPA, 2009). In comparisons where a substantial fraction of non-detect and/or J-flagged measurements or changing PQLs occur, professional judgment will be utilized for evaluating significant differences between the existing intrawell background data and the potential newer set of background data. Consideration will be given to whether significant differences are due to artificial variation introduced by censored data.

2. Comparison to Groundwater Protection Standard – Assessment Monitoring

According to IAC 113.10(6)f and g, under the assessment monitoring program Appendix II results which have been determined to be statistically above background are also statistically compared to the GWPS. If "Appendix II constituents are detected at statistically significant levels above the GWPS" a notice is placed in the operating record and characterization is begun.

Under IAC 113.10(6)h, the GWPS is the maximum contaminant level (MCL) promulgated under Section 1412 of the Safe Drinking Water Act in 40 Code of Federal Regulations (CFR) Part 141. If no MCL exists, or if background concentrations are higher than the MCL, the GWPS is defined as background. Also, per IAC 113.10(6)i, an alternative GWPS may be established by the Department for constituents for which there is no MCL such as the "health-based

concentrations that comply with the statewide standards for groundwater established pursuant to 567-Chapter 137."

When the GWPS is background concentrations, the statistical methods discussed in the above "1. Comparison to Background" are used. When the GWPS is the MCL or an alternative health-based concentration, per the Unified Guidance (USEPA, 2009), "confidence intervals are the recommended general statistical strategy in compliance/assessment or corrective action monitoring." In the case of normally distributed data, a normal-based parametric confidence interval is used. If the data are not normally distributed a non-parametric confidence interval on the median is used. A lower 99% confidence limit falling above the GWPS implies that concentrations are detected at statistically significant levels above the GWPS with an α-level of 0.01, which is the minimum RCRA regulatory limit from §264.97(i)(2) for an individual test false positive error rate.

The Unified Guidance recognizes that statistical power is also of prime concern to USEPA and that there "should be a high probability that the statistical test will positively identify concentrations that have exceeded a fixed regulatory standard." In compliance/assessment monitoring, instead of pre-specifying the false positive rate prior to computing confidence interval limits, the Unified Guidance suggests the desired level of power (1-β) should be set as an initial target.

For compliance/assessment monitoring purposes, the Unified Guidance (Chapter 22) suggests evaluating increases in the true concentration mean of 1.5 and 2.0 times a fixed standard. (This is similar in concept to the critical power targets in detection monitoring, i.e., 55-60% power at 3σ above background and 80-85% power at 4σ over background). As a general guide, the Unified Guidance suggests there should be at least 70-80% statistical power for detecting increases of 2 times a fixed standard. Specifically, the Unified Guidance recommends there be 50% power of detecting increases in the true concentration mean of 1.5 times a fixed standard (risk ratio of 1.5) and 80% power of detecting increases in the true concentration mean of 2.0 times a fixed standard (risk ratio of 2.0).

To meet these levels of statistical power, α is chosen based on either Unified Guidance Equation 22.1:

$$1-\beta = G_{T,n-1}\left(t_{1-\alpha,n-1}\middle|\Delta-\sqrt{n}(R-1)\right);$$

where R is the desired risk ratio, $t_{(1-\alpha,n-1)}$ is the (1–α) Student's t-quantile with (n–1) degrees of freedom and G represents the cumulative non-central t-distribution with (n–1) degrees of freedom and noncentrality parameter Δ;

or Unified Guidance Equation 22.2:

$$\alpha \sim 1-F_{T,n-1}\left(\frac{(R-1)\sqrt{n}}{R\cdot\widehat{CV}}-t_{1-\beta,n-1}\right);$$

where R is the desired risk ratio, n is the sample size, CV is the estimated sample coefficient of variation, $t_{(1-\beta,n-1)}$ is the (1–β) Student's t-quantile with (n–1) degrees of freedom, and F is the cumulative (central) Student's t-distribution function.

The first equation (Unified Guidance Equation 22.1) assumes a coefficient of variation (CV) =1. This version is used if only poorer estimates of the true CV are available. In practice, a

convention has been adopted with the statistical updates to utilize Unified Guidance Equation 22.2 in all cases where a parametric confidence interval is calculated and use Unified Guidance Equation 22.1 when non-parametric confidence intervals are calculated. Since a non-parametric confidence interval is based on the median, it is not as sensitive to departures from normality, and the assumption of a CV=1 in Unified Guidance Equation 22.1 should provide a conservative estimate.

Since 0.01 is the minimum RCRA regulatory limit for α, it is never set lower than this. Conversely, the Unified Guidance recognizes the "difficulty of simultaneously attaining the recommended level of power while controlling the false positive rate, especially for small sample sizes and highly variable data." The Unified Guidance suggests a maximum false positive rate of α=0.2 is a reasonable upper bound.

Finally, like the need for defining a SWFPR under detection monitoring, the Unified Guidance (Chapter 7) recognizes there may be concern about the "use of relatively high individual test-wise false positive rates (α) in order to meet a pre-specified power, especially when considering the cumulative false positive error rate across multiple wells and/or constituents." However, "the Unified Guidance considers computation of cumulative SWFPRs in compliance/assessment testing to be problematic, and reliance on individual test false positive rates preferable." Notwithstanding, if several confidence limit calculations are compared to the GWPS with high α-levels, caution should be taken in the interpretation.

For calculation of confidence intervals, Sanitas® v9.6 software is again used to check distributional assumptions, perform Kaplan-Meier estimation in the case of 50% to 85% detects, and calculate either parametric or nonparametric confidence limits.

3. Comparison to Groundwater Protection Standard – Corrective Action Monitoring

As stated above, if "Appendix II constituents are detected at statistically significant levels above the GWPS" a notice is placed in the operating record and characterization is begun. Owners or operators are required to initiate an assessment of corrective measures, select a remedy, and implement a remedy in accordance with IAC 113.10(7), (8), and (9). For remedy completion in accordance with IAC 113.10(9)e(2), compliance with the GWPS is considered achieved by demonstrating that concentrations of Appendix II constituents have not exceeded the GWPS for a period of three consecutive years or an alternate length of time established by the Department.

Starting with the Fall 2019 statistical evaluation, individual analyte/well pairs may return to assessment constituents (at the corrective action monitoring location) once compliance with the GWPS has been achieved for a period of 3 years. Note that monitoring wells will not move out of the corrective action monitoring program until all Appendix II constituents have achieved compliance with the GWPS for a period of three consecutive years.

Confidence Intervals in Corrective Action Mode

In the case of the GWPS being a fixed standard as either the 40 CFR Part 141 Safe Drinking Water Act MCL or the IAC 567 Chapter 137 Statewide Standard for a Protected Groundwater Source, "confidence intervals are the recommended general statistical strategy in compliance/assessment or corrective action monitoring" (USEPA, 2009). However, a primary difference between confidence intervals as used under assessment monitoring and confidence intervals used under corrective action is reversal of the null hypothesis. As detailed in Section 7.2 of the Unified Guidance (USEPA, 2009), the hypothesis testing structure under assessment

monitoring is to presume compliance point concentrations do not to exceed the fixed standard unless sampling data indicates otherwise. As a formal statistical hypothesis, this is written as:

$$H_0: \Theta \leq G \quad \text{vs.} \quad H_A: \Theta > G$$

In corrective action mode, the hypothesis is reversed. Namely, compliance point concentrations are presumed to exceed the fixed standard and evidence must be presented to demonstrate regulatory compliance. In the case of corrective action, the statistical hypothesis is written as:

$$H_0: \Theta > G \quad \text{vs.} \quad H_A: \Theta \leq G$$

For testing under assessment monitoring, a lower confidence limit (LCL) is compared to the compliance standard *G*. If the LCL is larger than the standard *G*, it is concluded that the compliance standard has been violated.

However, under corrective action monitoring, the upper confidence limit (UCL) is compared to the compliance standard *G*. In this case, the UCL should lie below the standard to accept the alternative hypothesis that concentration levels are in compliance.

The UCL α-level under corrective action monitoring is set so that a high degree of confidence is achieved in declaring successful remediation. Per the Unified Guidance (Section 7.4.2) "EPA's overriding concern in corrective action is that remediation efforts are not declared successful without sufficient statistical proof." The Unified Guidance "recommends the use of a reasonably low, fixed test-wide false positive rate (e.g., α = 0.05 or 0.10)." In this case, α = 0.10 corresponds to a 90% UCL.

<u>GWPS as Background</u>
Pursuant to IAC 113.10(6)h, when background concentrations of an analyte exceed the applicable MCL or IAC Statewide Standard for a Protected Groundwater Source, the GWPS is the background concentration. In this case, the GWPS is not a fixed standard but based on a distribution of background sample results.

Section 7.5 of the Unified Guidance (USEPA, 2009) details statistical hypothesis testing under corrective action when the GWPS is background. The Unified Guidance offers two alternative statistical approaches to hypothesis testing in this case. These alternatives are as follows:

A. The first represents a *two-sample* test of two distinct populations, namely the compliance well to background populations. Similar to the statistical tests used under detection and assessment monitoring, with this alternative under corrective action, the Unified Guidance states that "one highly recommended statistical test approach is a prediction limit." The Unified Guidance also states, "whatever the critical value for a selected background test, it becomes the GWPS under compliance/assessment or corrective action monitoring." Further, "the only allowable hypothesis test structure for the two-sample approach follows that of detection and compliance monitoring. Once exceeded and in corrective action, a return to compliance is through evidence that future samples lie below the GWPS using the same hypothesis structure." Therefore, with this approach in corrective action, prediction limits are calculated similarly as in assessment monitoring. Compliance well concentrations below a prediction limit indicate a return to concentrations below the background GWPS.

B. The second involves computation of a fixed statistic from the background data as the GWPS. The Unified Guidance recommendation in this case is to define a fixed GWPS based on a background upper tolerance limit with 95% confidence and 95% coverage. This is designed to be a "reasonable maximum on the likely range of background concentrations." This upper tolerance limit based on background data is then used as a fixed standard in statistical comparisons with 90% or 95% UCLs from compliance wells as discussed previously. Also, with the UCL method, the null hypothesis is reversed from that of assessment monitoring, assuming contamination is above the GWPS. A UCL falling below the background GWPS offers evidence of a return to concentrations below the GWPS. The Unified Guidance refers to this approach as a *single-sample* testing method, since the compliance well population is tested against a defined fixed standard.

The Unified Guidance discusses tradeoffs between the two approaches and does not necessarily prescribe either approach over the other. The Unified Guidance suggests that both approaches may be used, where "the background GWPS would be a range based on the two testing methods rather than a single value."

Normality

For calculation of confidence intervals, Sanitas® v9.6 software is again used to check distributional assumptions, perform Kaplan-Meier estimation in the case of 50% to 85% detects, and calculate either parametric or nonparametric confidence limits. "Corrective Action Mode" is selected for this analysis.

Non-Corrective Action Constituents

As recommended in the Unified Guidance (USEPA, 2009), confidence intervals in corrective action mode will be utilized to evaluate only constituents and monitoring locations with previously identified SSLs over the GWPS. Other compliance constituents (i.e., those without SSLs over the GWPS during prior statistical evaluations) will continue to be evaluated using the "1. Comparison to Background" and "2. Comparison to Groundwater Protection Standard – Assessment Monitoring" methods described above.

Note: The Unified Guidance (USEPA, 2009) states: "it should be recognized that once corrective action or remediation activities are initiated, there will be a considerable time during which the GWPS may still be exceeded. As provided in the RCRA regulations, it is at the conclusion of remediation activities that formal corrective action monitoring evaluation is appropriate. However, in the intervening period of remedial activity, well constituents can still be monitored, and the relative efficacy of remediation measures tracked. The same corrective action hypothesis can be assumed for the targeted constituents; techniques such as trend testing may be appropriate interim applications." Given the statement above and the intentions of IAC 113.10(6)g, as soon as an SSL is identified for an assessment monitoring constituent/location, then the next statistical evaluation will utilize corrective action monitoring (confidence intervals in corrective action mode).

Data Concentration Shifts During Corrective Action

Confidence intervals assume that the population is stable over time. As a result, confidence intervals may not accurately represent the current well concentrations if increasing or decreasing trends are observed (i.e., during a release or under active remediation). Per the Unified Guidance (USEPA, 2009), lower or upper confidence limits constructed on accumulated data may be overly wide (due to high sample variability caused by combining pre- and post-shift data) and may not be reflective of more recent upward/downward shifts in the contaminant distribution.

Alternative procedures may be applied to data sets with shifting distributions. For example, where trends tests are significant, pre-shift data may be removed from the well/parameter data set for the purposes of constructing the confidence interval. “The reduction in sample size will often be more than offset by the gain in statistical power. More recent measurements may exhibit less variation around the shifted mean value, resulting in a shorter confidence interval” (USEPA, 2009).

Another alternative is to construct confidence bands around the trend line to track progress towards exceeding or meeting a fixed standard. As suggested in the Unified Guidance (Chapter 22), if a trend is present, a 90% confidence band (upper 95% confidence limit) is placed on the linear trend line. If the upper 95% confidence limit on the trend line falls below the GWPS, the well is found to have reduced to levels statistically below the GWPS.

As the discussed in the Unified Guidance, “inferences concerning a linear regression are generally appropriate when two conditions hold: 1) the residuals from the regression are approximately normal or at least reasonably symmetric in distribution; and 2) a plot of residuals versus concentrations indicates a scatter cloud of essentially uniform vertical thickness or width.” These conditions are assessed through normal probability plots of the regression residuals and plots of residuals against the predicted concentrations.

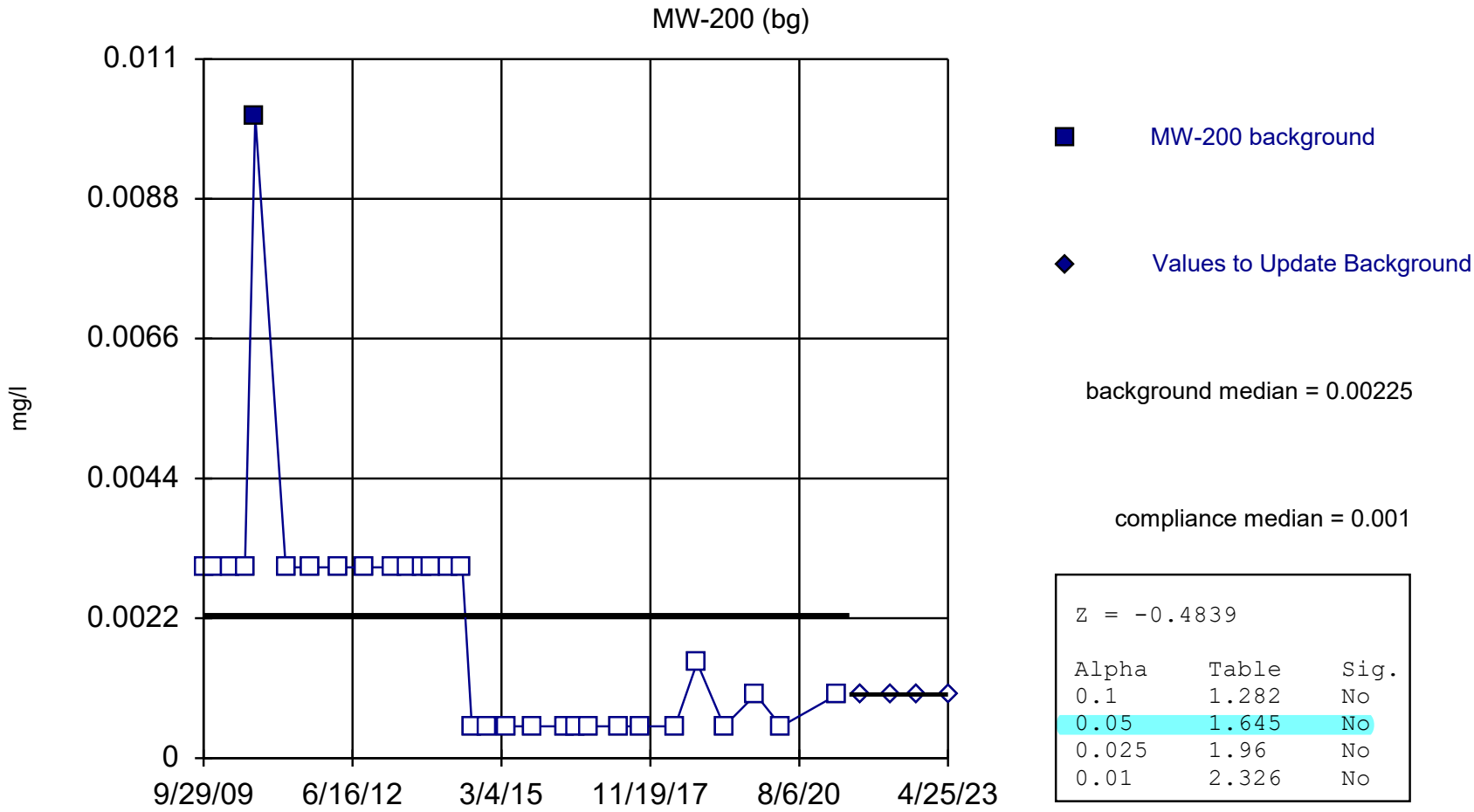
Data Adjustments Due to Exiting Corrective Action

When analyte/well pairs exit corrective action and return to assessment constituents, the hypothesis testing structure is reversed again. In corrective action mode, compliance point concentrations were presumed to exceed the GWPS, and evidence must be presented to demonstrated regulatory compliance (i.e., UCLs below the GWPS for three consecutive years). With the return to assessment constituents, analyte/well pairs have demonstrated regulatory compliance. The hypothesis testing structure reverts to the assessment monitoring structure where compliance point concentrations are presumed to not exceed the GWPS unless sampling data indicates otherwise (i.e., LCL is above the GWPS). With this reversion in hypothesis, the focus shifts to evaluating concentration changes in the analyte/well pair that would indicate an increase over the GWPS and re-trigger corrective action. For constituents with historical SSLs, earlier concentrations that had previously triggered corrective action are no longer providing useful information regarding the current assessment monitoring hypothesis. Retaining the historical data during the timeframe in which the GWPS was exceeded will result in the regression or confidence interval methods being slower to respond to new increases. As a result, the historical data prior to when statistical compliance with the GWPS was first achieved will be removed when analyte/well pairs exit corrective action and return to assessment constituents.

Attachment 2
MW-200 Intrawell Statistics

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Mann-Whitney (Wilcoxon Rank Sum) - Updating Intrawell Background

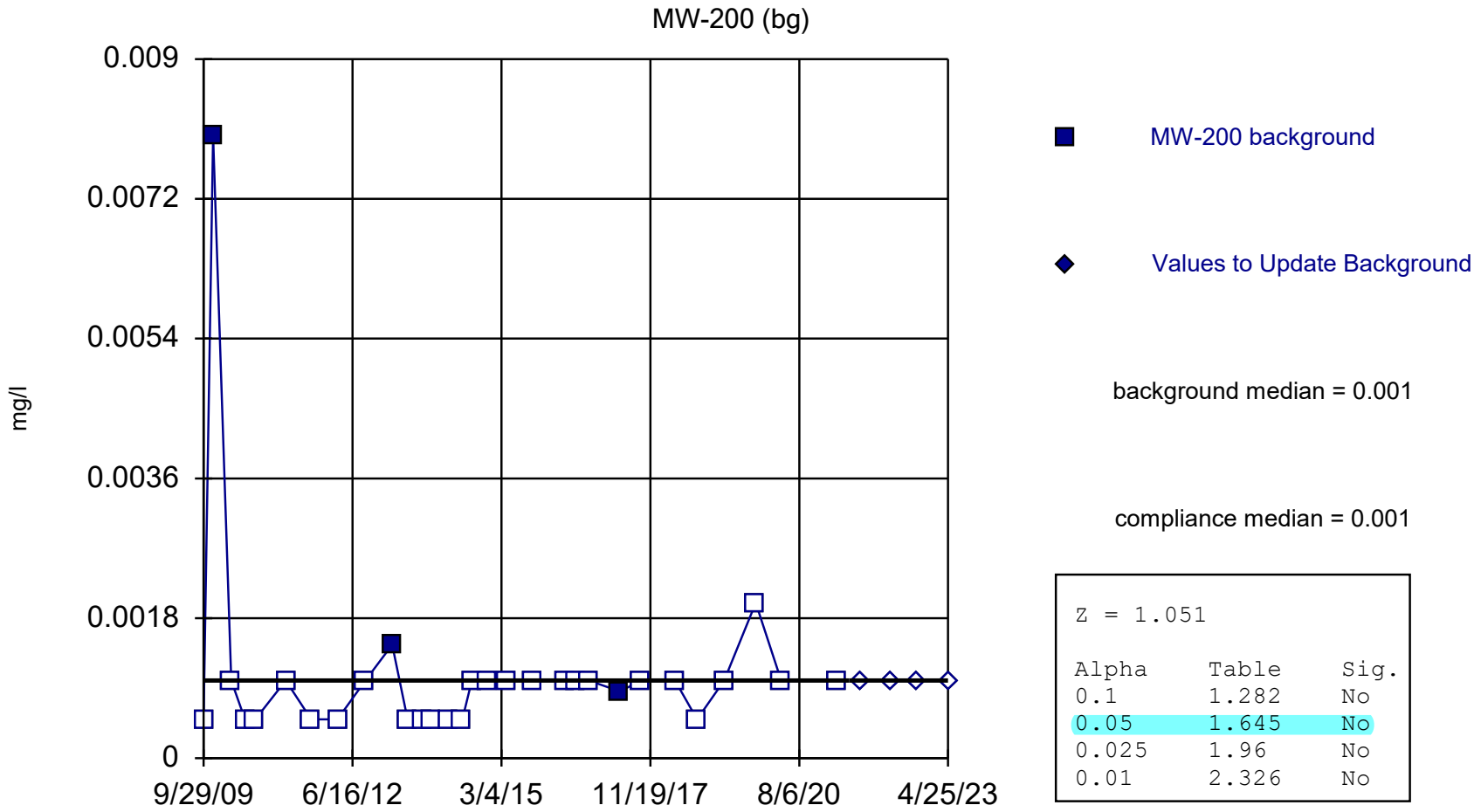


Constituent: Antimony Analysis Run 11/3/2023 9:22 AM

Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Mann-Whitney (Wilcoxon Rank Sum) - Updating Intrawell Background



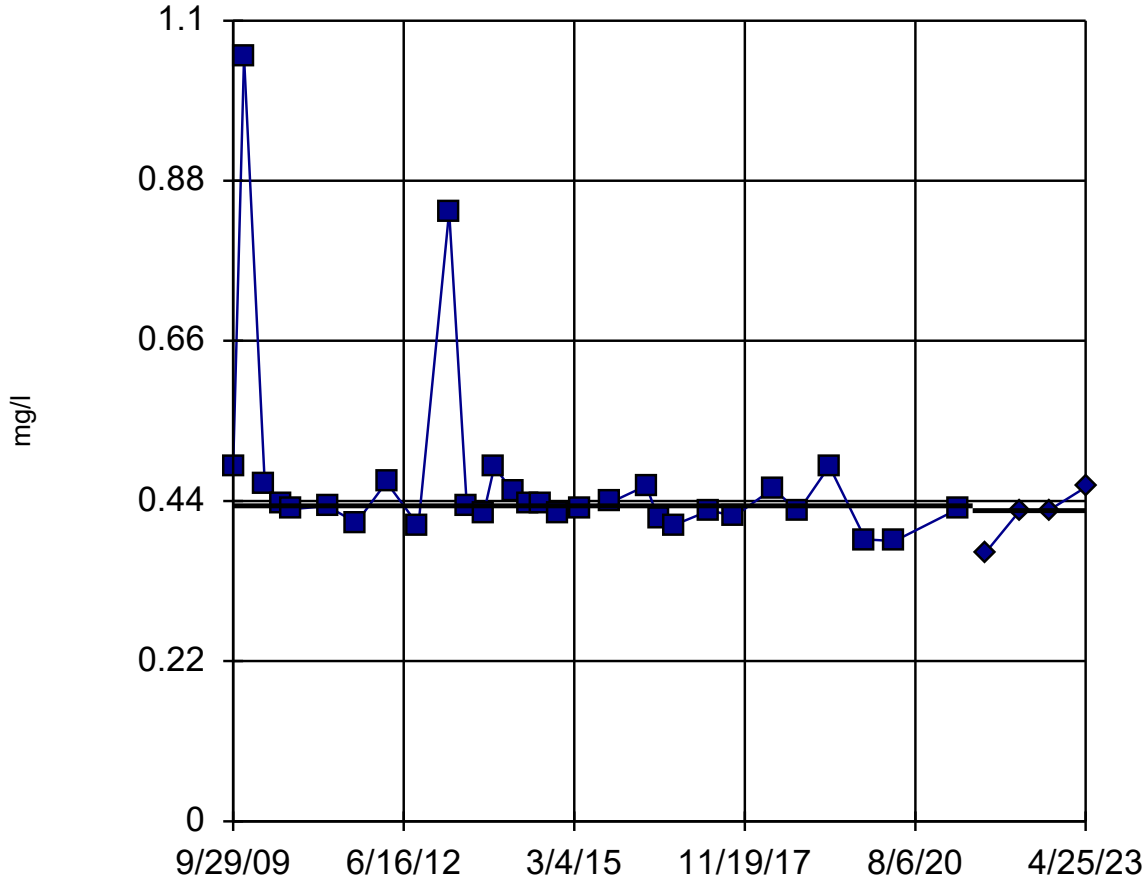
Constituent: Arsenic Analysis Run 11/3/2023 9:22 AM

Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG

Mann-Whitney (Wilcoxon Rank Sum) - Updating Intrawell Background

MW-200 (bg)



MW-200 background

Values to Update Background

background median = 0.4335

compliance median = 0.4265

Z = -0.9895

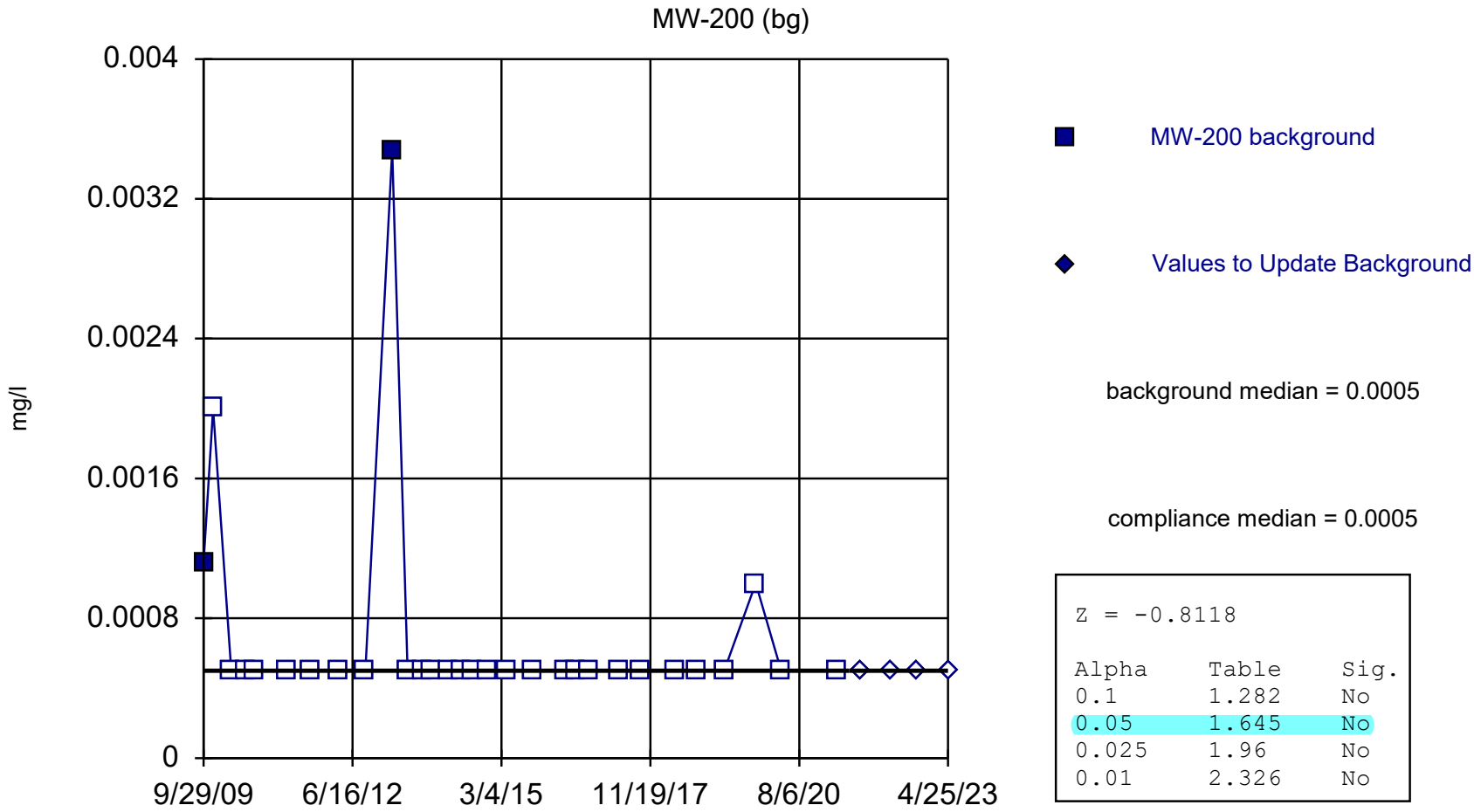
Alpha	Table	Sig.
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0.05	1.645	No
0.025	1.96	No
0.01	2.326	No

Constituent: Barium Analysis Run 11/3/2023 9:22 AM

Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Mann-Whitney (Wilcoxon Rank Sum) - Updating Intrawell Background

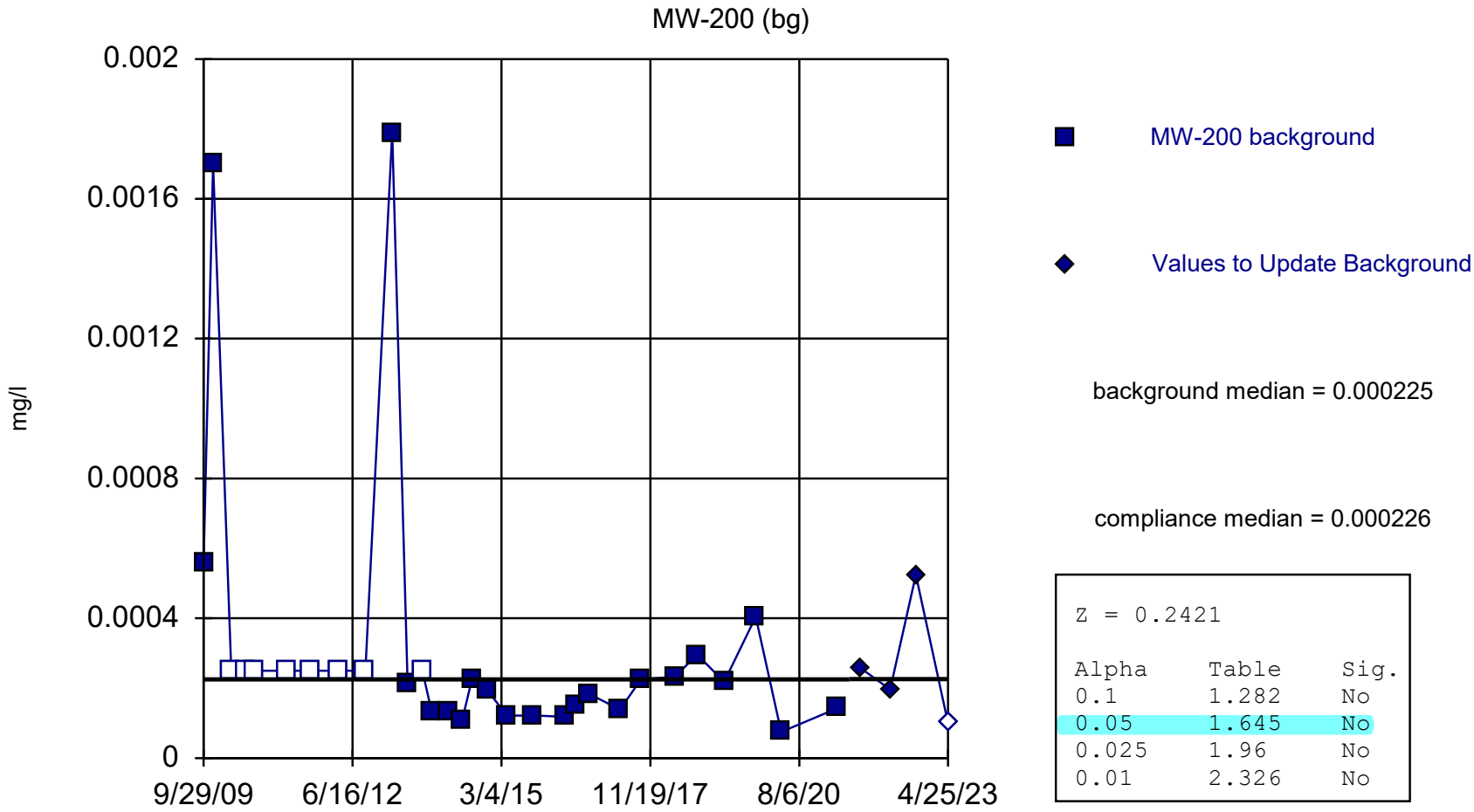


Constituent: Beryllium Analysis Run 11/3/2023 9:22 AM

Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

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Hollow symbols indicate censored values.

Mann-Whitney (Wilcoxon Rank Sum) - Updating Intrawell Background

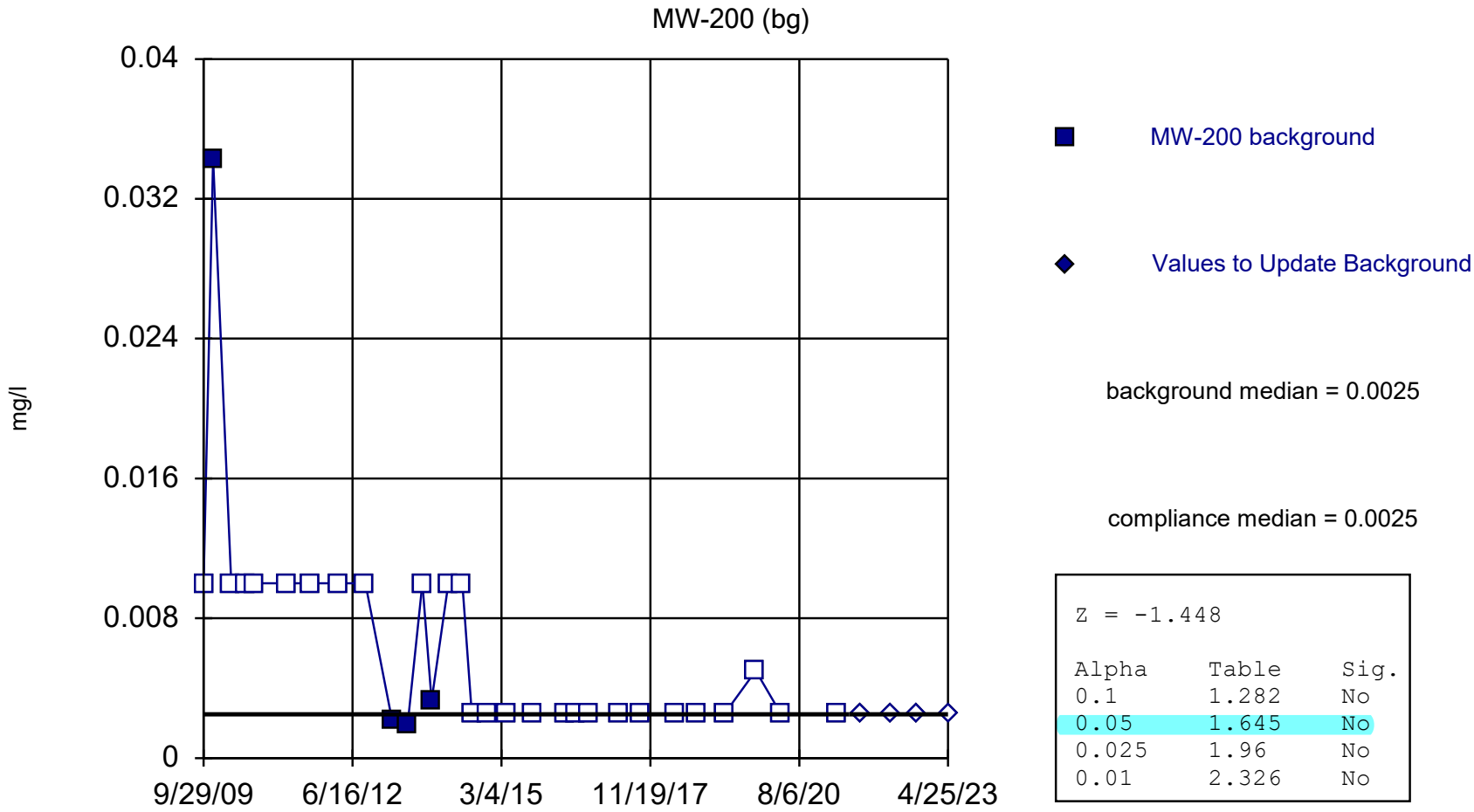


Constituent: Cadmium Analysis Run 11/3/2023 9:22 AM

Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Mann-Whitney (Wilcoxon Rank Sum) - Updating Intrawell Background

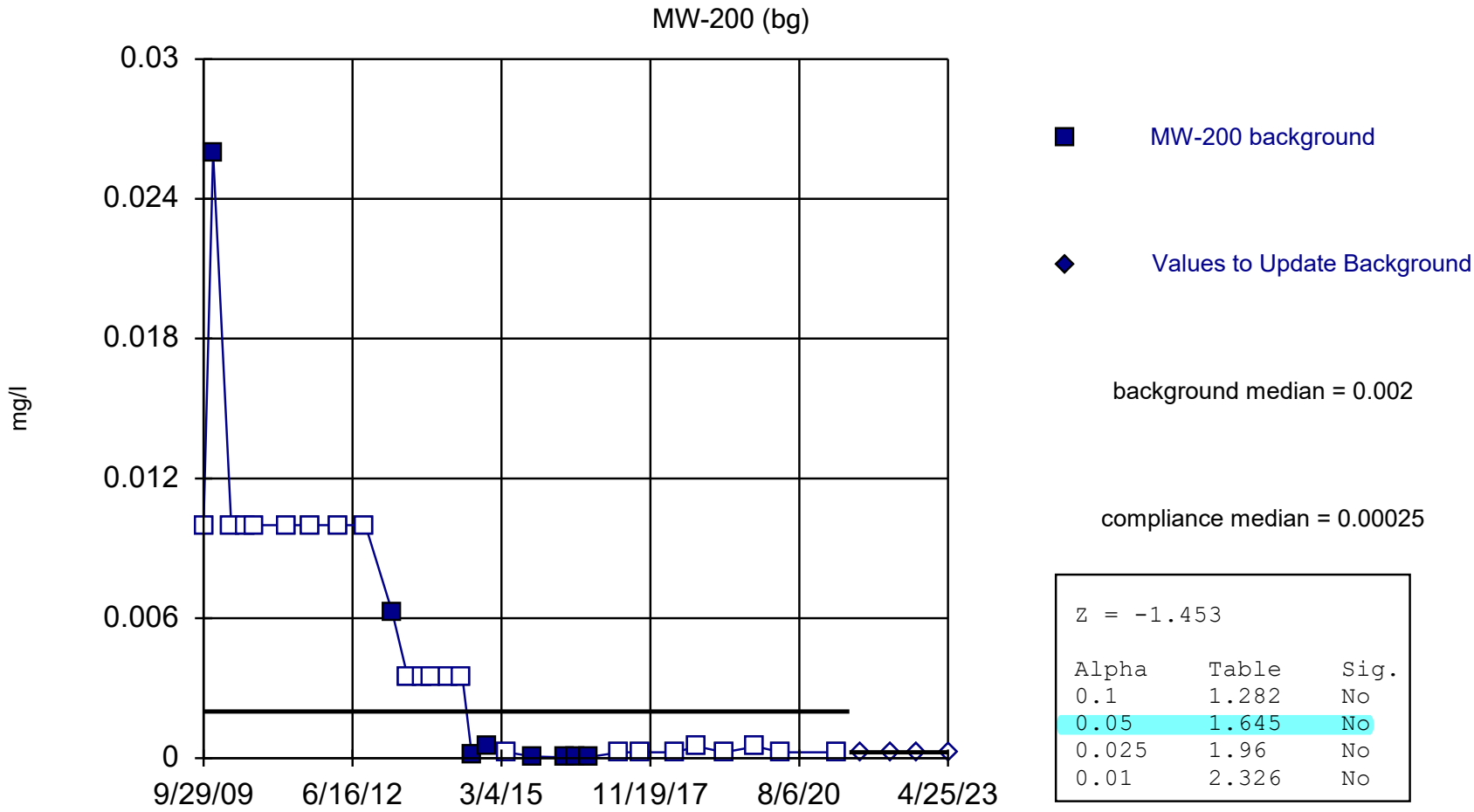


Constituent: Chromium Analysis Run 11/3/2023 9:22 AM

Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Mann-Whitney (Wilcoxon Rank Sum) - Updating Intrawell Background

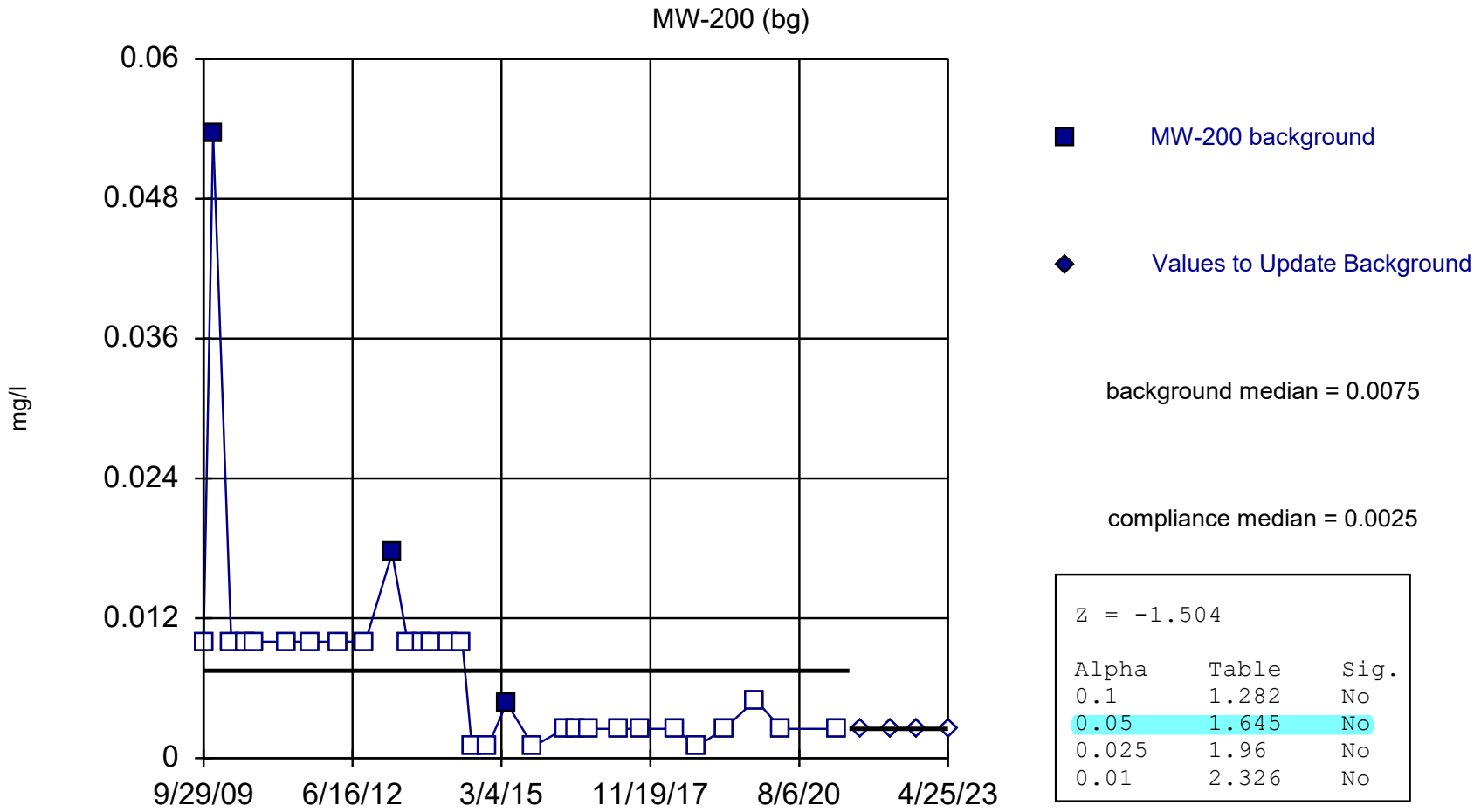


Constituent: Cobalt Analysis Run 11/3/2023 9:22 AM

Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Mann-Whitney (Wilcoxon Rank Sum) - Updating Intrawell Background

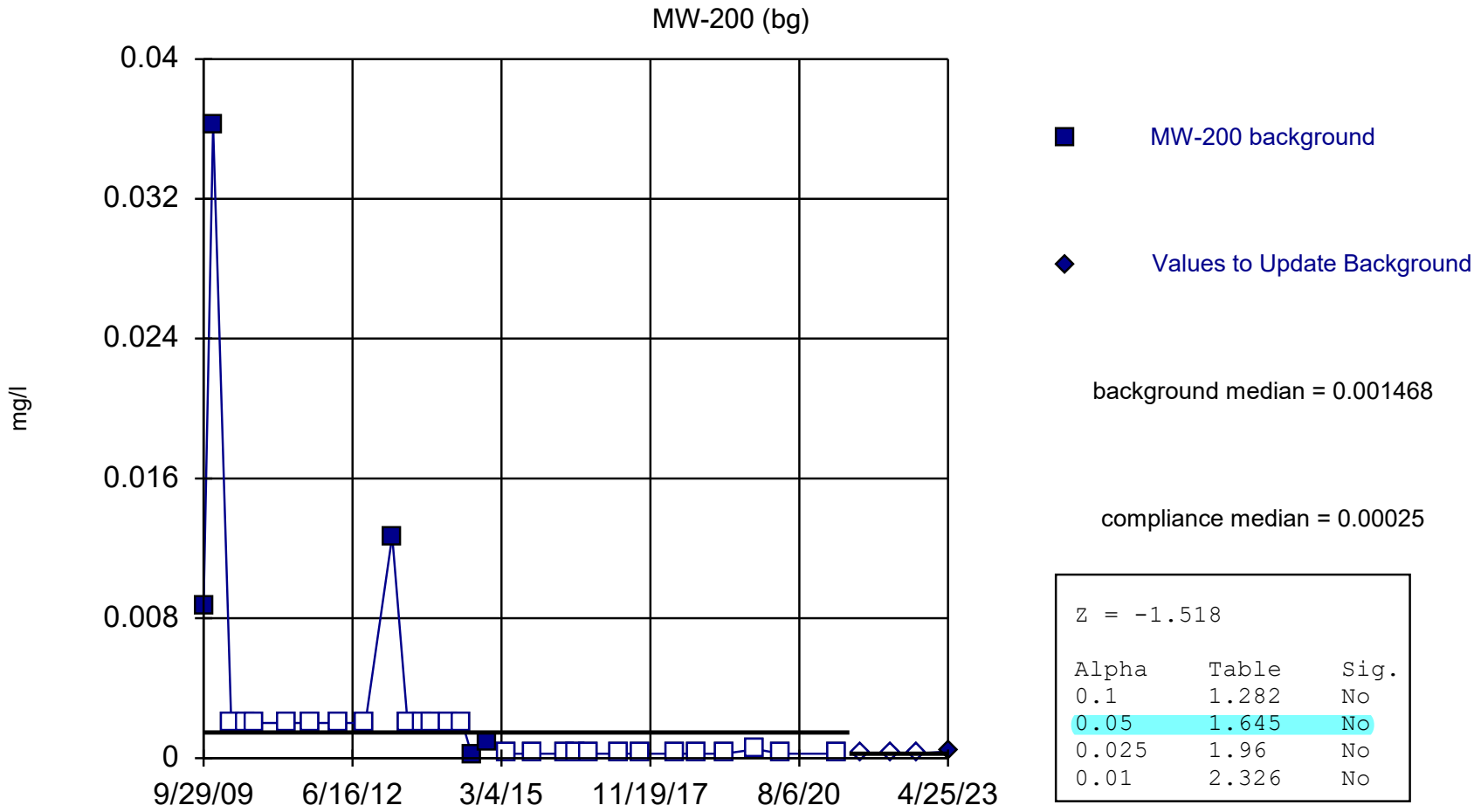


Constituent: Copper Analysis Run 11/3/2023 9:22 AM

Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Mann-Whitney (Wilcoxon Rank Sum) - Updating Intrawell Background

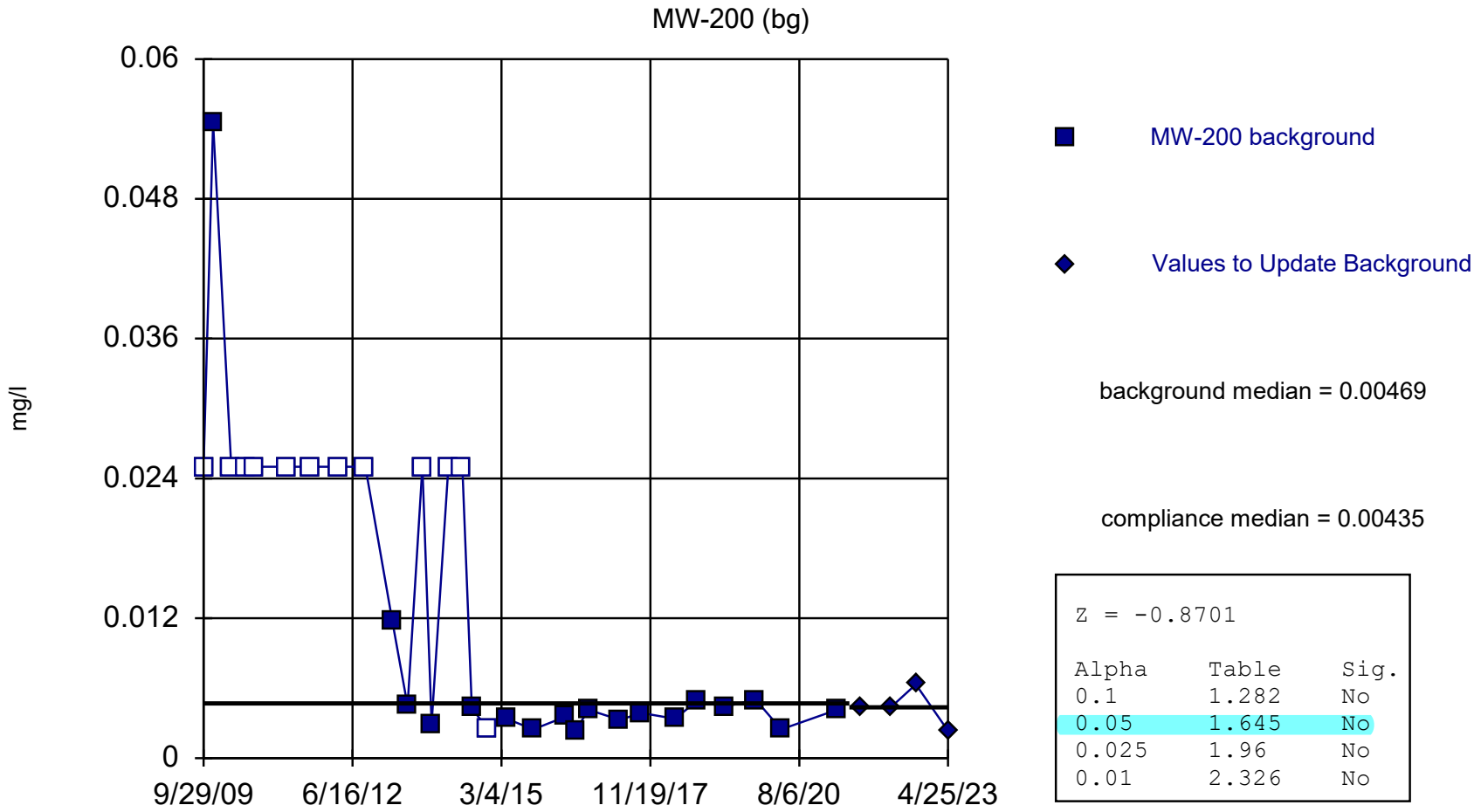


Constituent: Lead Analysis Run 11/3/2023 9:22 AM

Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

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Hollow symbols indicate censored values.

Mann-Whitney (Wilcoxon Rank Sum) - Updating Intrawell Background

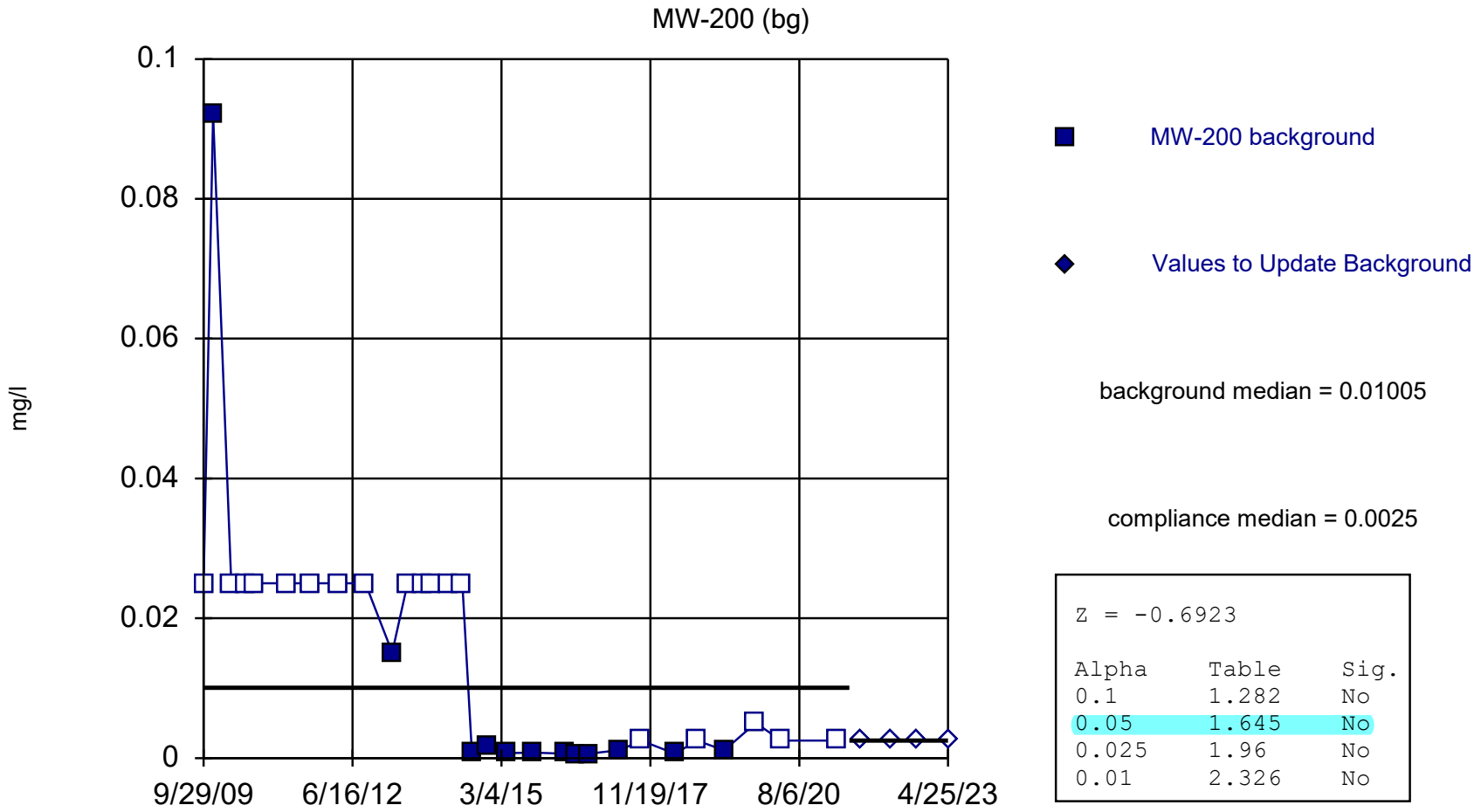


Constituent: Nickel Analysis Run 11/3/2023 9:22 AM

Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

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Hollow symbols indicate censored values.

Mann-Whitney (Wilcoxon Rank Sum) - Updating Intrawell Background

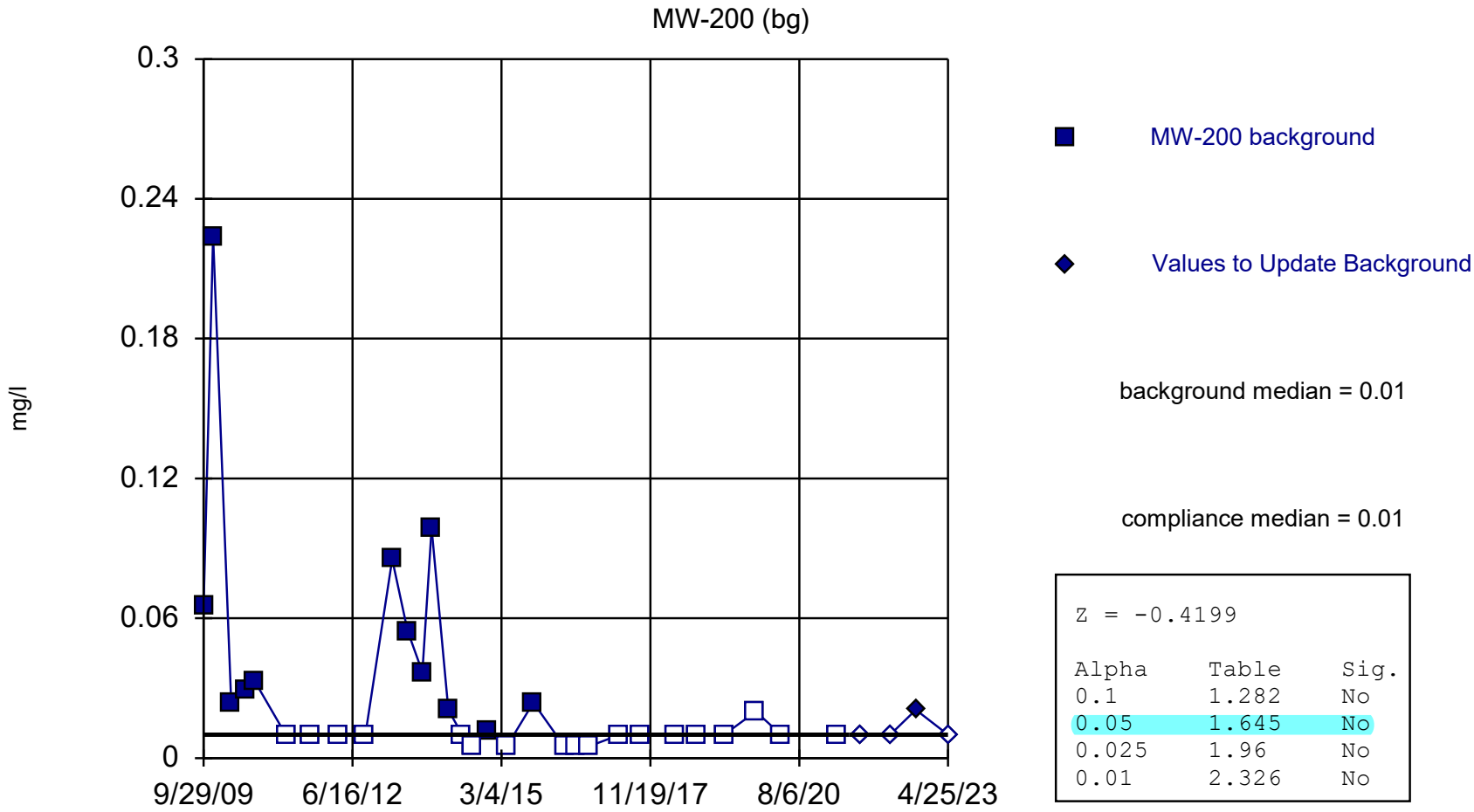


Constituent: Vanadium Analysis Run 11/3/2023 9:22 AM

Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Mann-Whitney (Wilcoxon Rank Sum) - Updating Intrawell Background



Constituent: Zinc Analysis Run 11/3/2023 9:22 AM

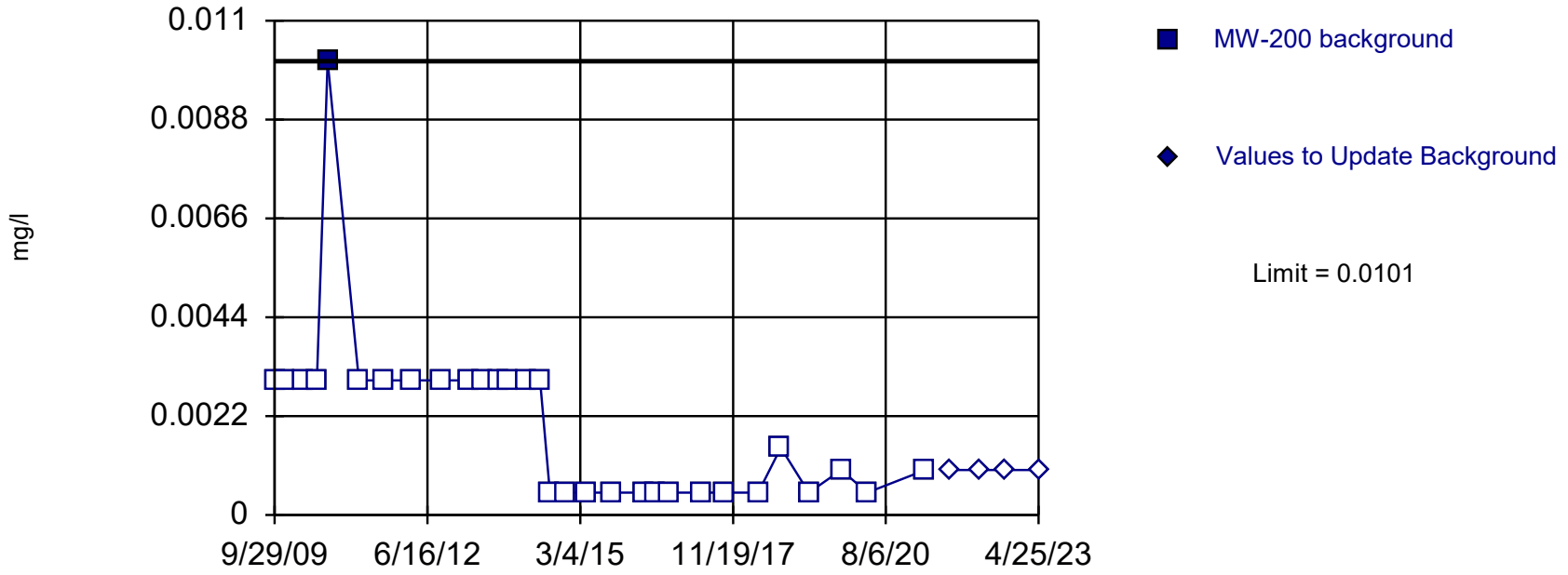
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Updating Intrawell Background

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 30 background values. 96.67% NDs. Well-constituent pair annual alpha = 0.004011. Individual comparison alpha = 0.002008 (1 of 2).

Constituent: Antimony Analysis Run 11/3/2023 9:34 AM

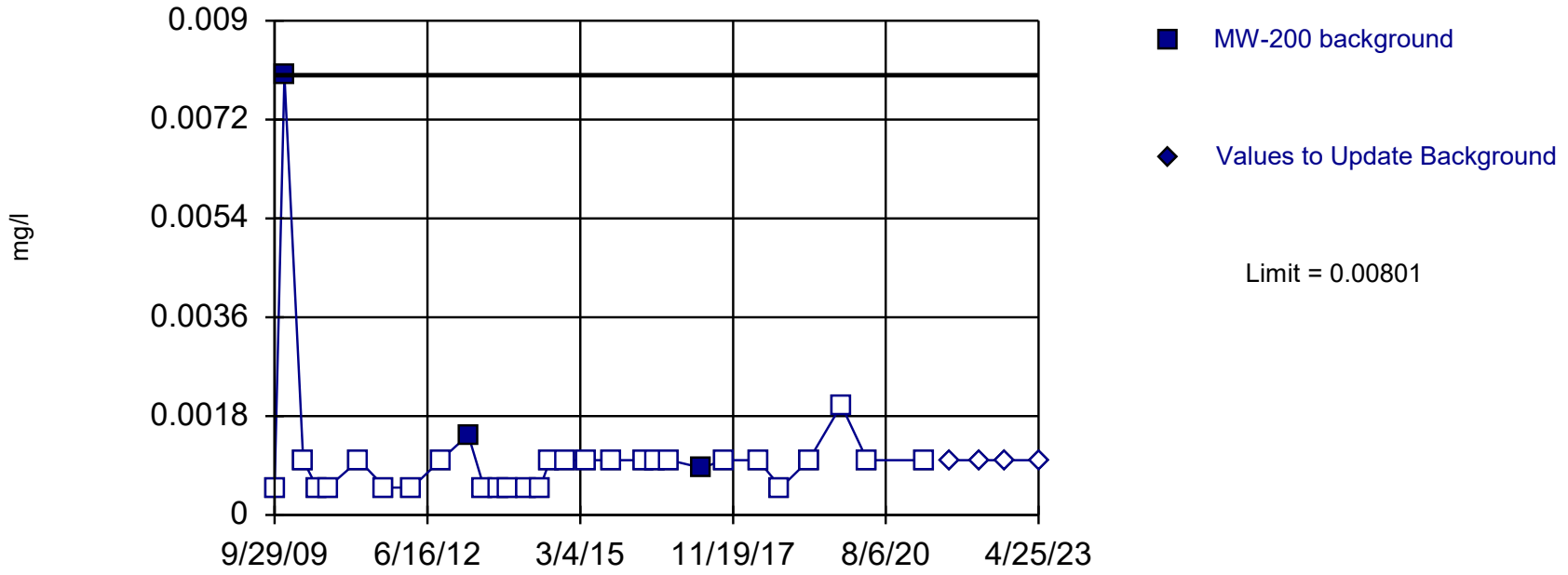
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Updating Intrawell Background

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 30 background values. 90% NDs. Well-constituent pair annual alpha = 0.004011. Individual comparison alpha = 0.002008 (1 of 2).

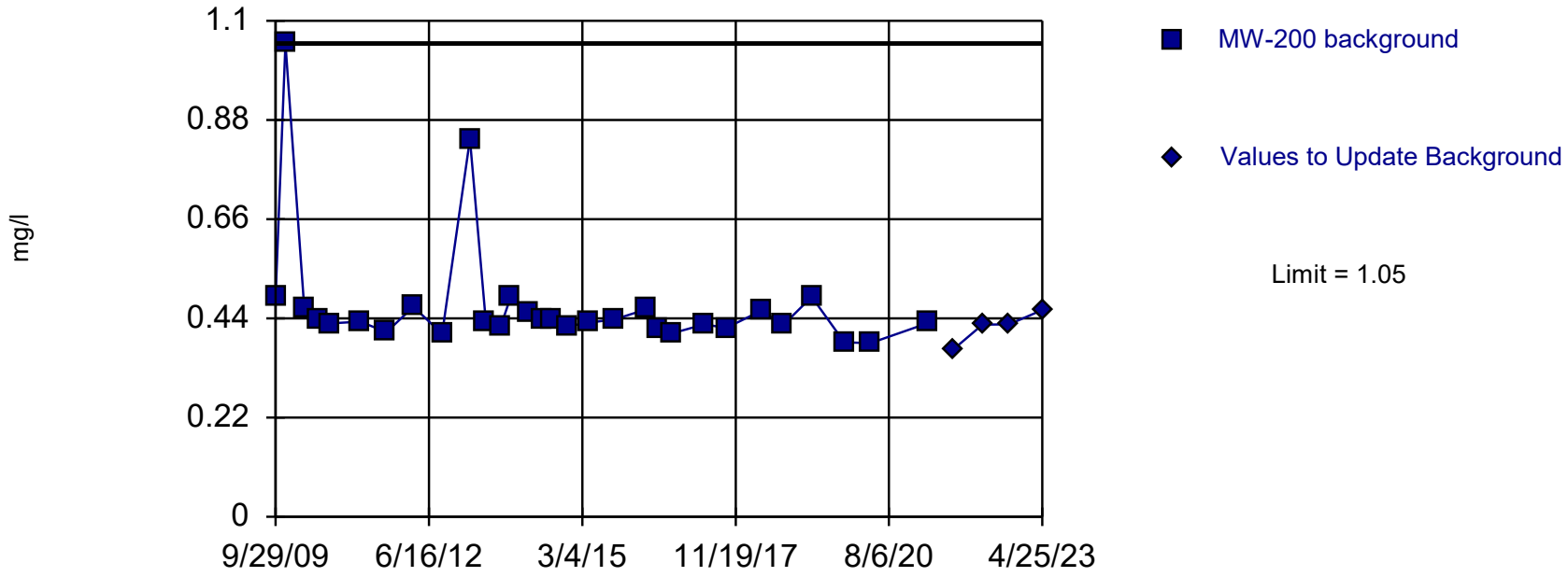
Constituent: Arsenic Analysis Run 11/3/2023 9:34 AM

Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Within Limit

Prediction Limit - Updating Intrawell Background

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 30 background values. Well-constituent pair annual alpha = 0.004011. Individual comparison alpha = 0.002008 (1 of 2).

Constituent: Barium Analysis Run 11/3/2023 9:34 AM

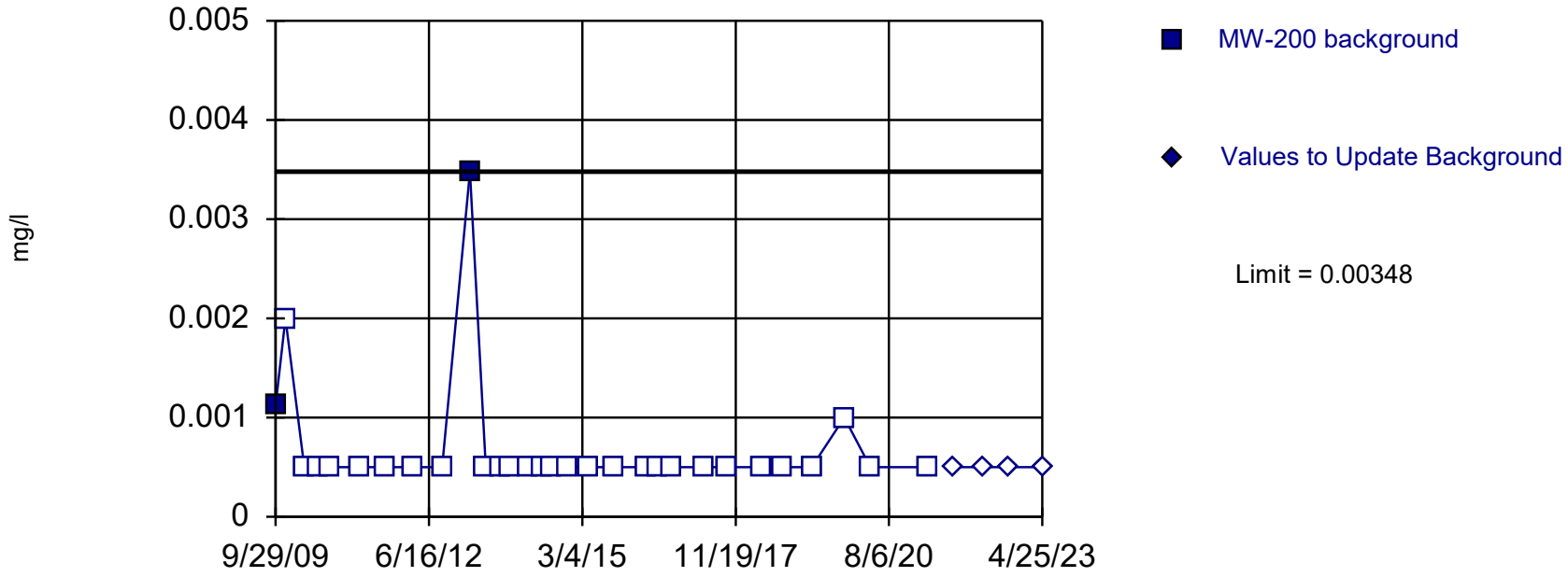
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Updating Intrawell Background

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 30 background values. 93.33% NDs. Well-constituent pair annual alpha = 0.004011. Individual comparison alpha = 0.002008 (1 of 2).

Constituent: Beryllium Analysis Run 11/3/2023 9:34 AM

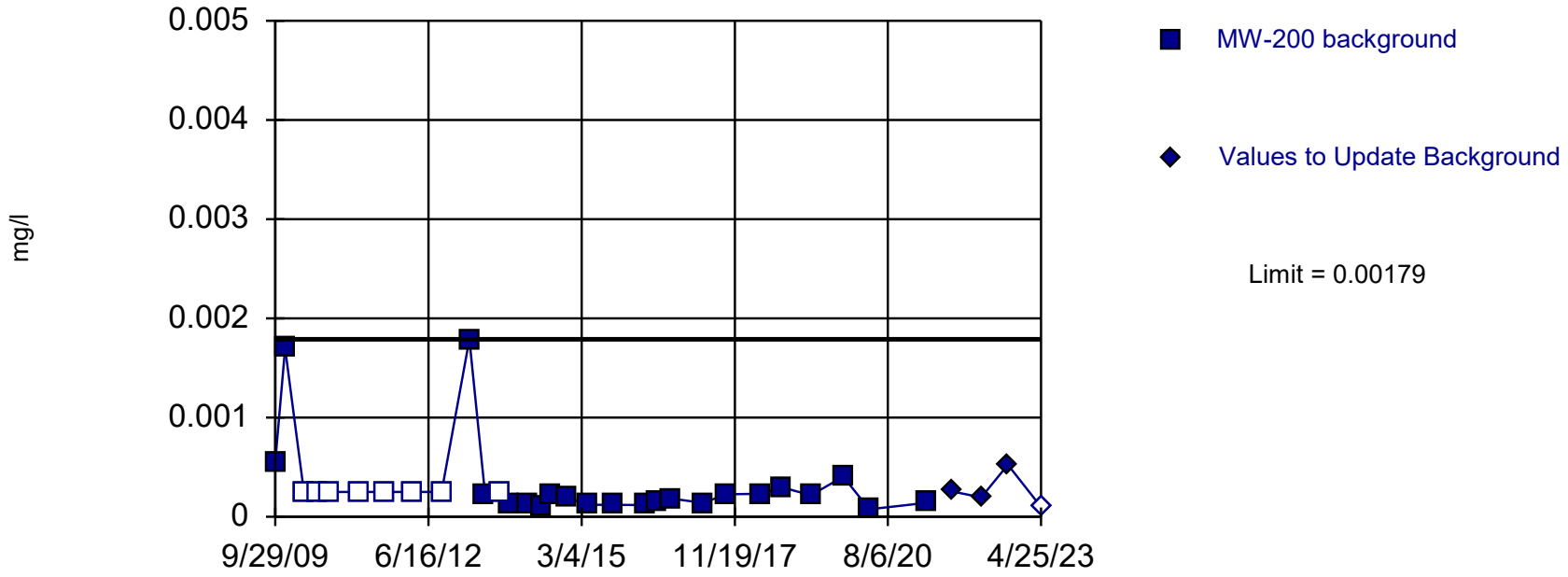
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Updating Intrawell Background

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 30 background values. 26.67% NDs. Well-constituent pair annual alpha = 0.004011. Individual comparison alpha = 0.002008 (1 of 2).

Constituent: Cadmium Analysis Run 11/3/2023 9:34 AM

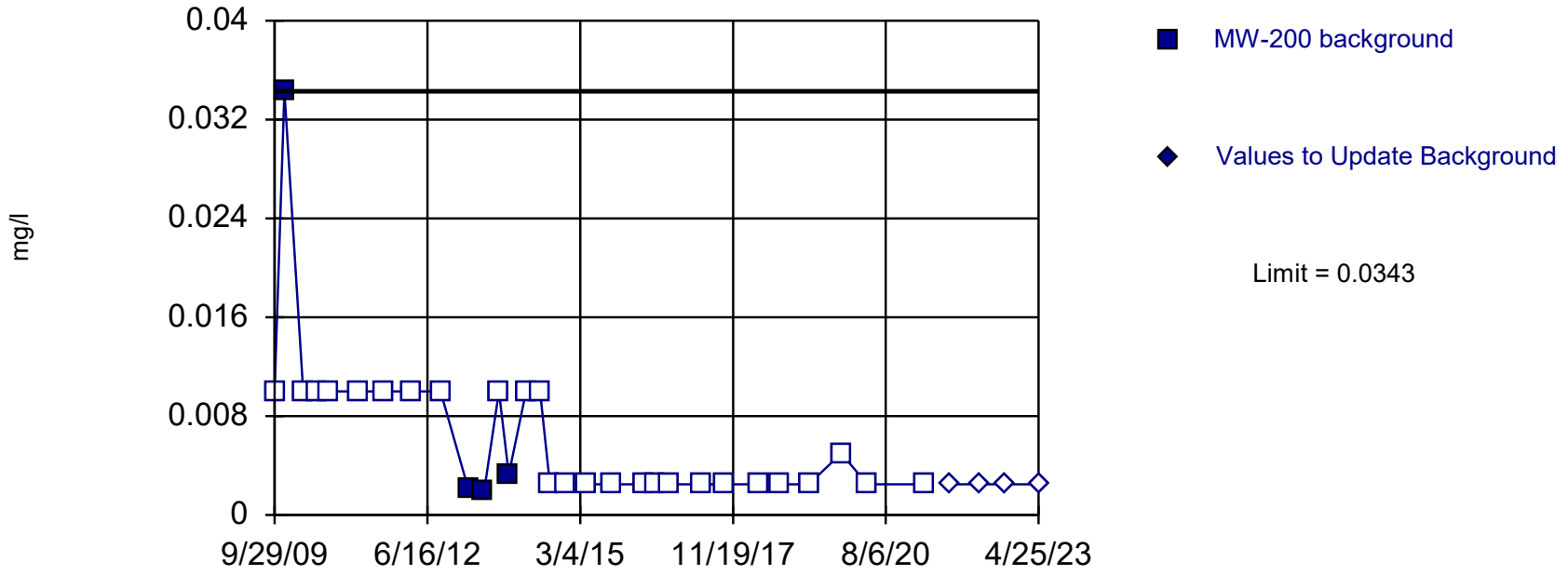
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Updating Intrawell Background

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 30 background values. 86.67% NDs. Well-constituent pair annual alpha = 0.004011. Individual comparison alpha = 0.002008 (1 of 2).

Constituent: Chromium Analysis Run 11/3/2023 9:34 AM

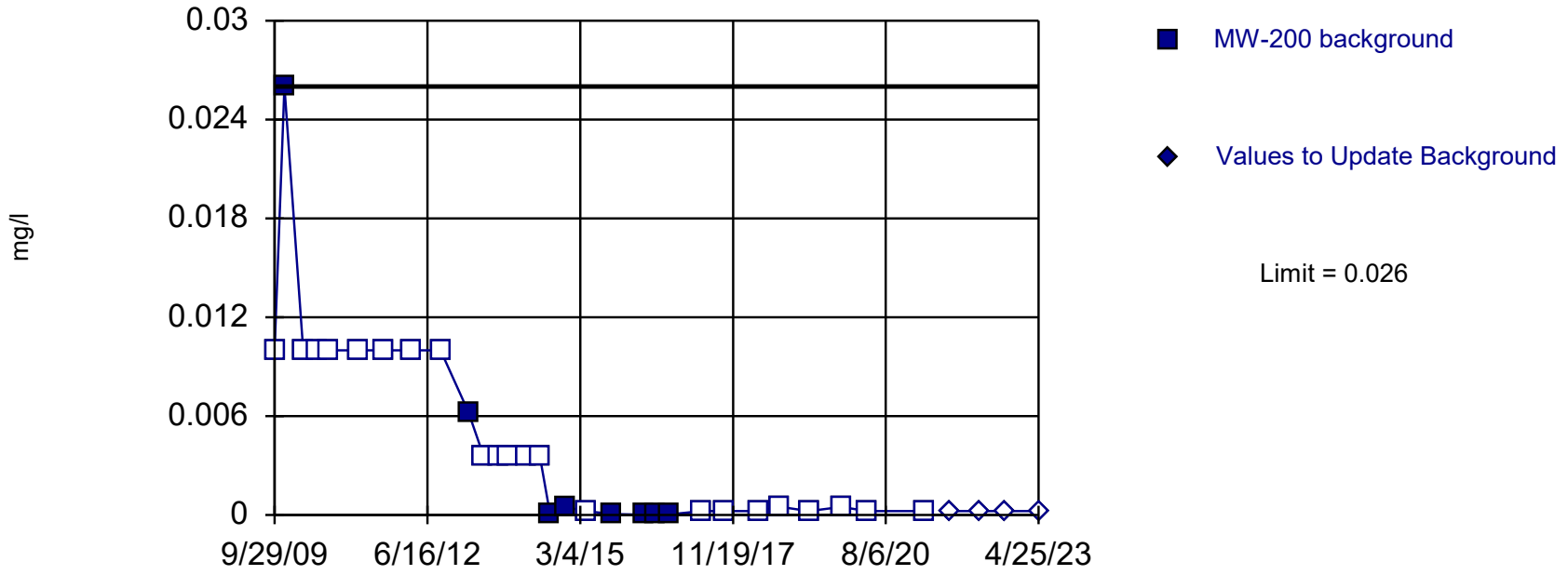
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Updating Intrawell Background

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 30 background values. 73.33% NDs. Well-constituent pair annual alpha = 0.004011. Individual comparison alpha = 0.002008 (1 of 2).

Constituent: Cobalt Analysis Run 11/3/2023 9:34 AM

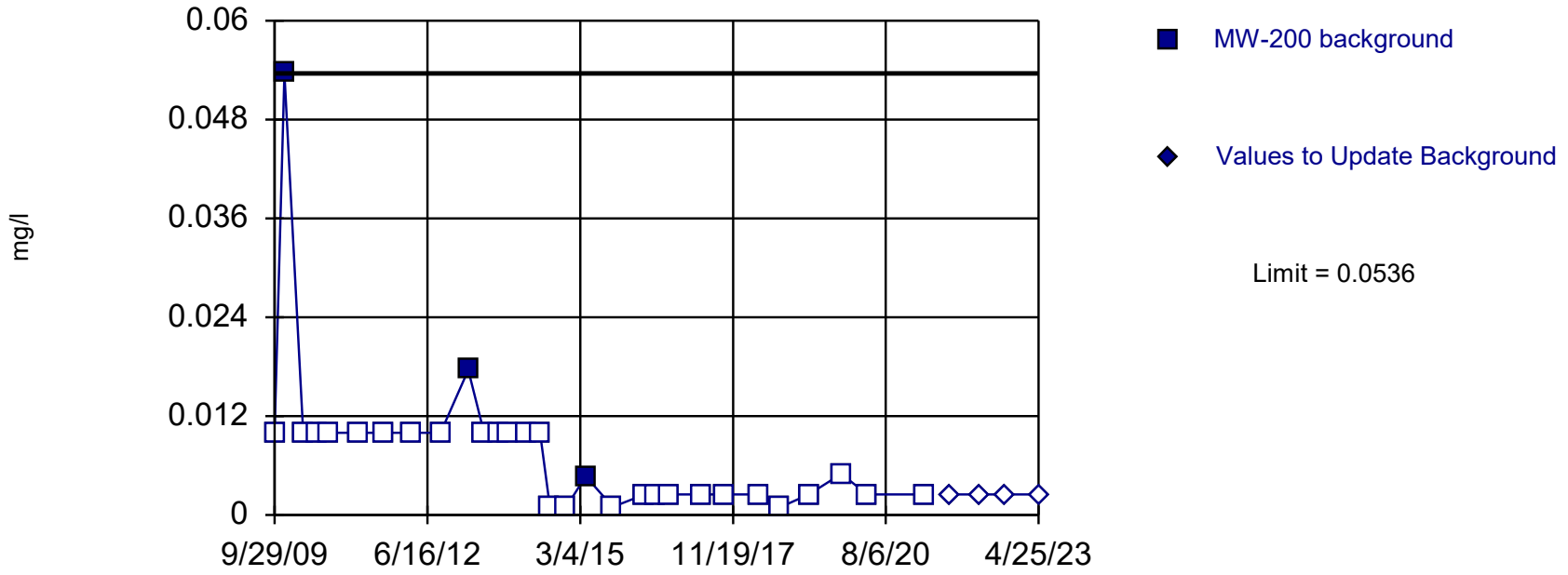
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Updating Intrawell Background

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 30 background values. 90% NDs. Well-constituent pair annual alpha = 0.004011. Individual comparison alpha = 0.002008 (1 of 2).

Constituent: Copper Analysis Run 11/3/2023 9:34 AM

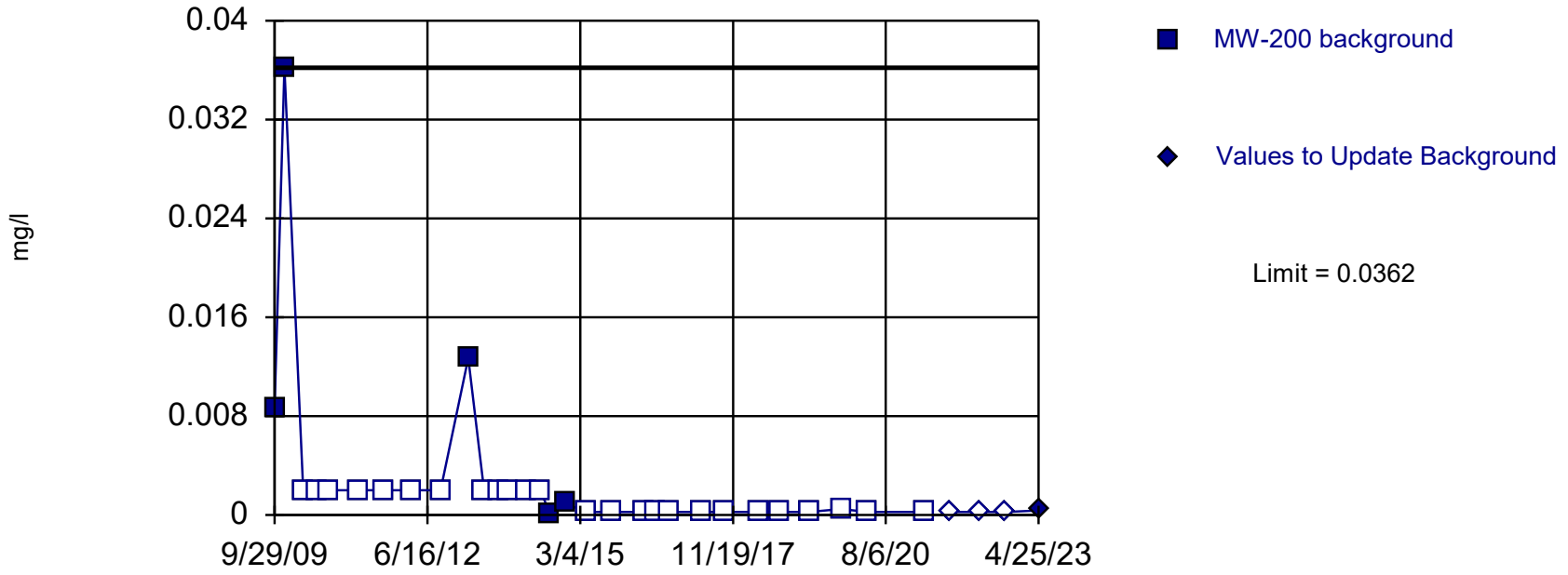
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Updating Intrawell Background

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 30 background values. 83.33% NDs. Well-constituent pair annual alpha = 0.004011. Individual comparison alpha = 0.002008 (1 of 2).

Constituent: Lead Analysis Run 11/3/2023 9:34 AM

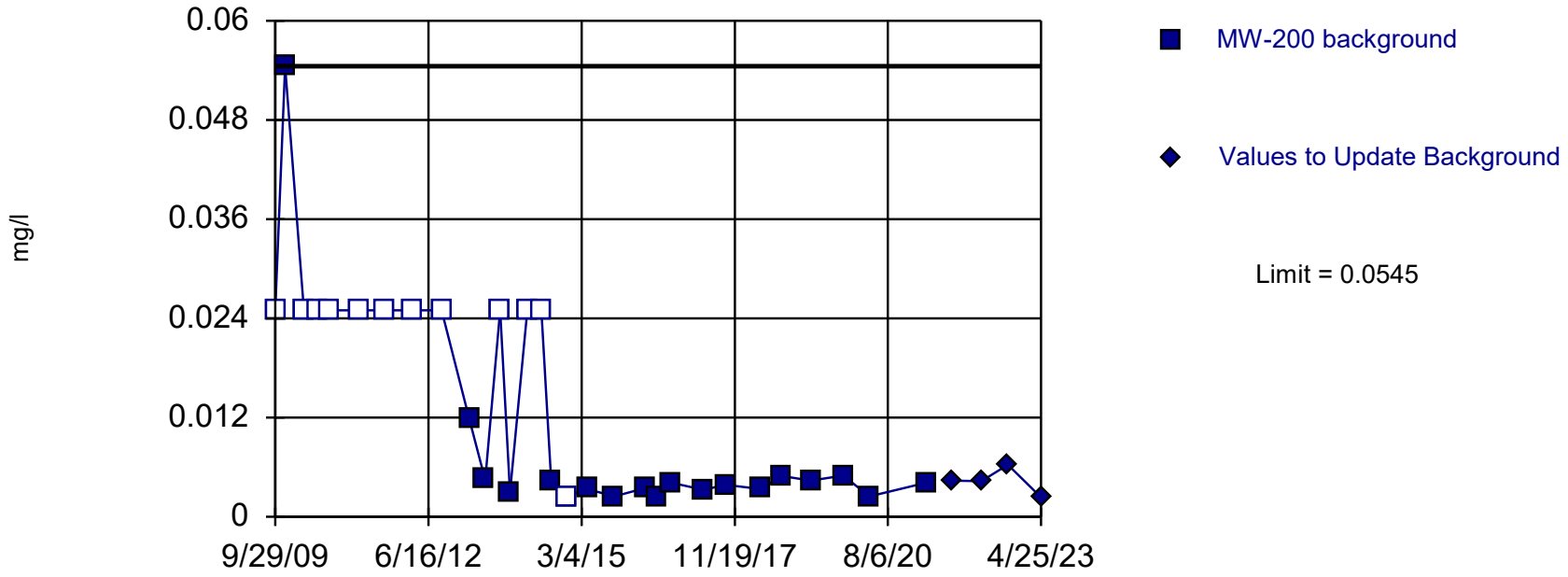
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Updating Intrawell Background

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 30 background values. 40% NDs. Well-constituent pair annual alpha = 0.004011. Individual comparison alpha = 0.002008 (1 of 2).

Constituent: Nickel Analysis Run 11/3/2023 9:34 AM

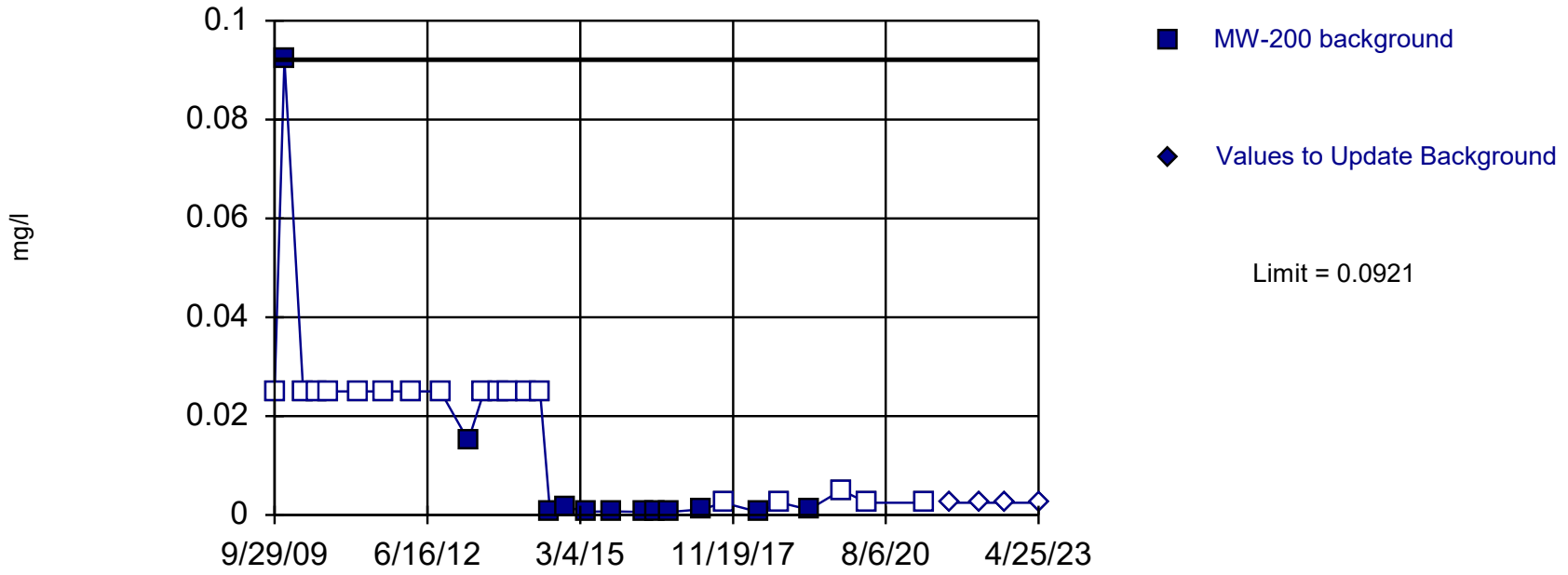
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Updating Intrawell Background

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 30 background values. 60% NDs. Well-constituent pair annual alpha = 0.004011. Individual comparison alpha = 0.002008 (1 of 2).

Constituent: Vanadium Analysis Run 11/3/2023 9:34 AM

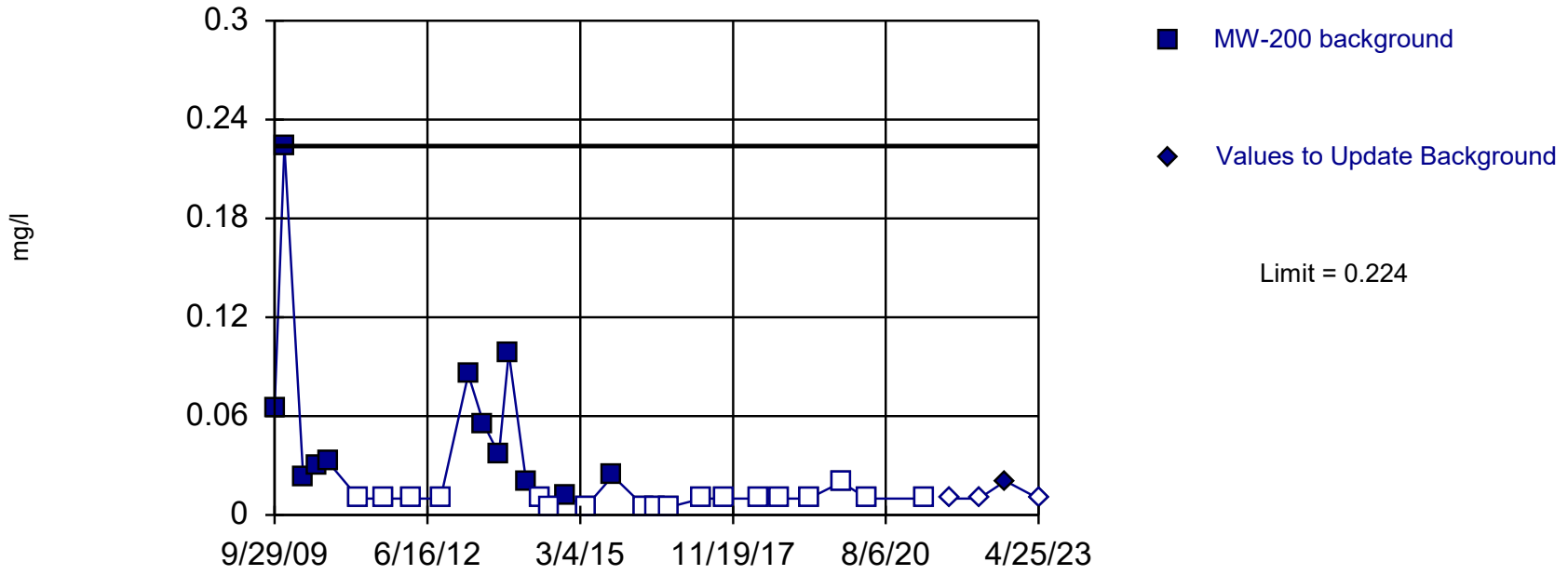
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Updating Intrawell Background

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 30 background values. 60% NDs. Well-constituent pair annual alpha = 0.004011. Individual comparison alpha = 0.002008 (1 of 2).

Constituent: Zinc Analysis Run 11/3/2023 9:34 AM

Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Trend Tests
Sep. 2009 Through Sep. 2023 Data [1]

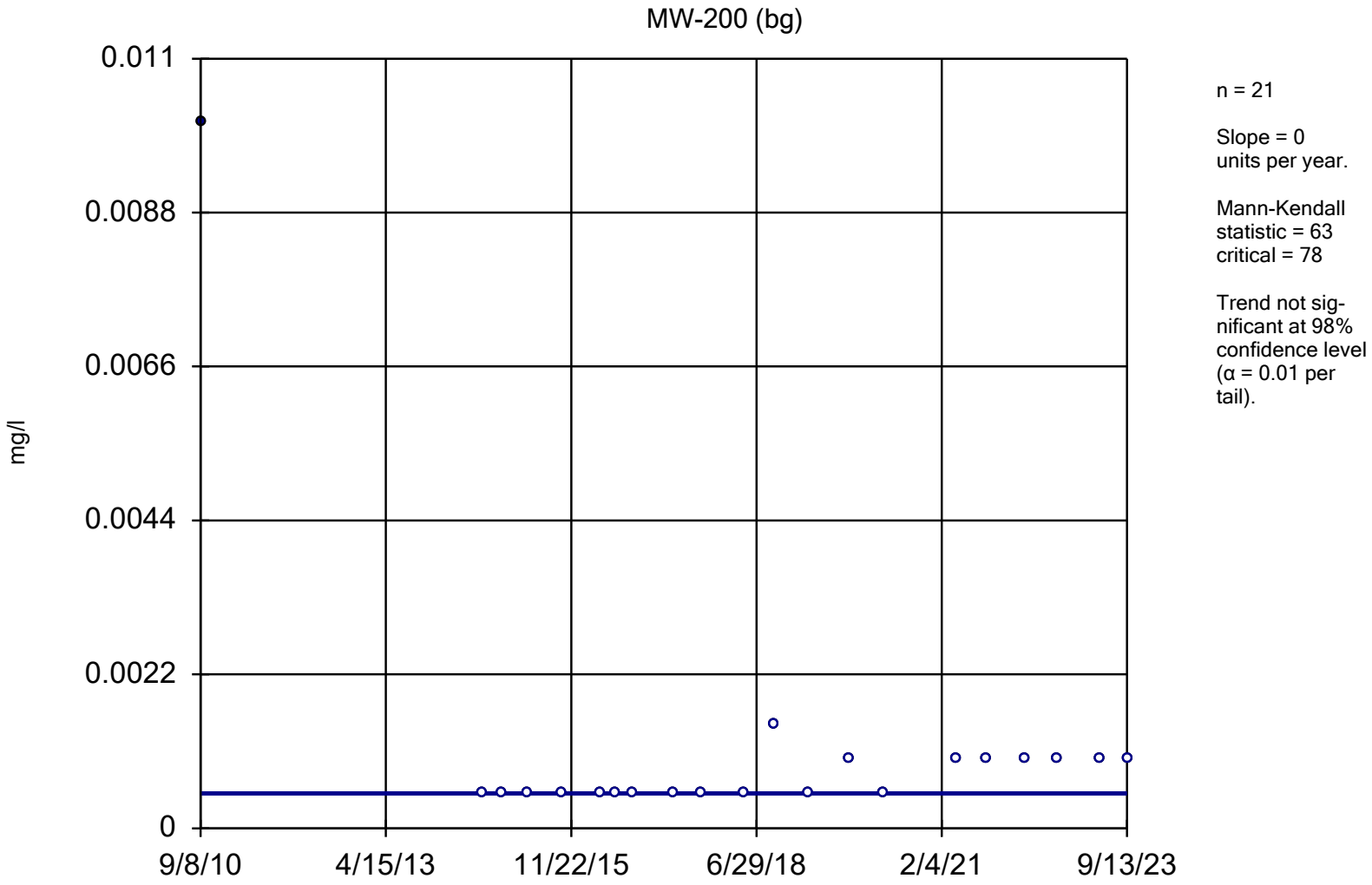
Constituent Name	Well	Slope	Mann-Kendall	Critical Value	Trend	N	Alpha
Antimony (mg/L) [2]	MW-200	0	63	78	No	21	0.02
Arsenic (mg/L)	MW-200	0	134	166	No	35	0.02
Barium (mg/L)	MW-200	-0.00277	-152	-166	No	35	0.02
Beryllium (mg/L)	MW-200	0	-62	-166	No	35	0.02
Cadmium (mg/L)	MW-200	-0.000005290	-111	-166	No	35	0.02
Chromium (mg/L) [2]	MW-200	0	5	95	No	24	0.02
Cobalt (mg/L) [2]	MW-200	0	-2	-84	No	22	0.02
Copper (mg/L) [2]	MW-200	0	-6	-84	No	22	0.02
Lead (mg/L) [2]	MW-200	0	-41	-89	No	23	0.02
Nickel (mg/L) [2]	MW-200	0.00003632	14	95	No	24	0.02
Vanadium (mg/L) [2]	MW-200	0.000004473	29	84	No	22	0.02
Zinc (mg/L)	MW-200	-0.0009048	-165	-166	No	35	0.02

[1] Per Section 3.2, the Sep. 2020 metals data in MW-200 were removed from the intrawell background data set.

[2] By default, Sanitas software utilizes half the reporting limit for non-detected values. In the case of changing reporting limits, this may artificially introduce variation into the trend test. For constituents where notable changes in the reporting limit have occurred, the earlier non-detect values with higher report limits were not included in the trend evaluation.

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Hollow symbols indicate censored values.

Sen's Slope Estimator



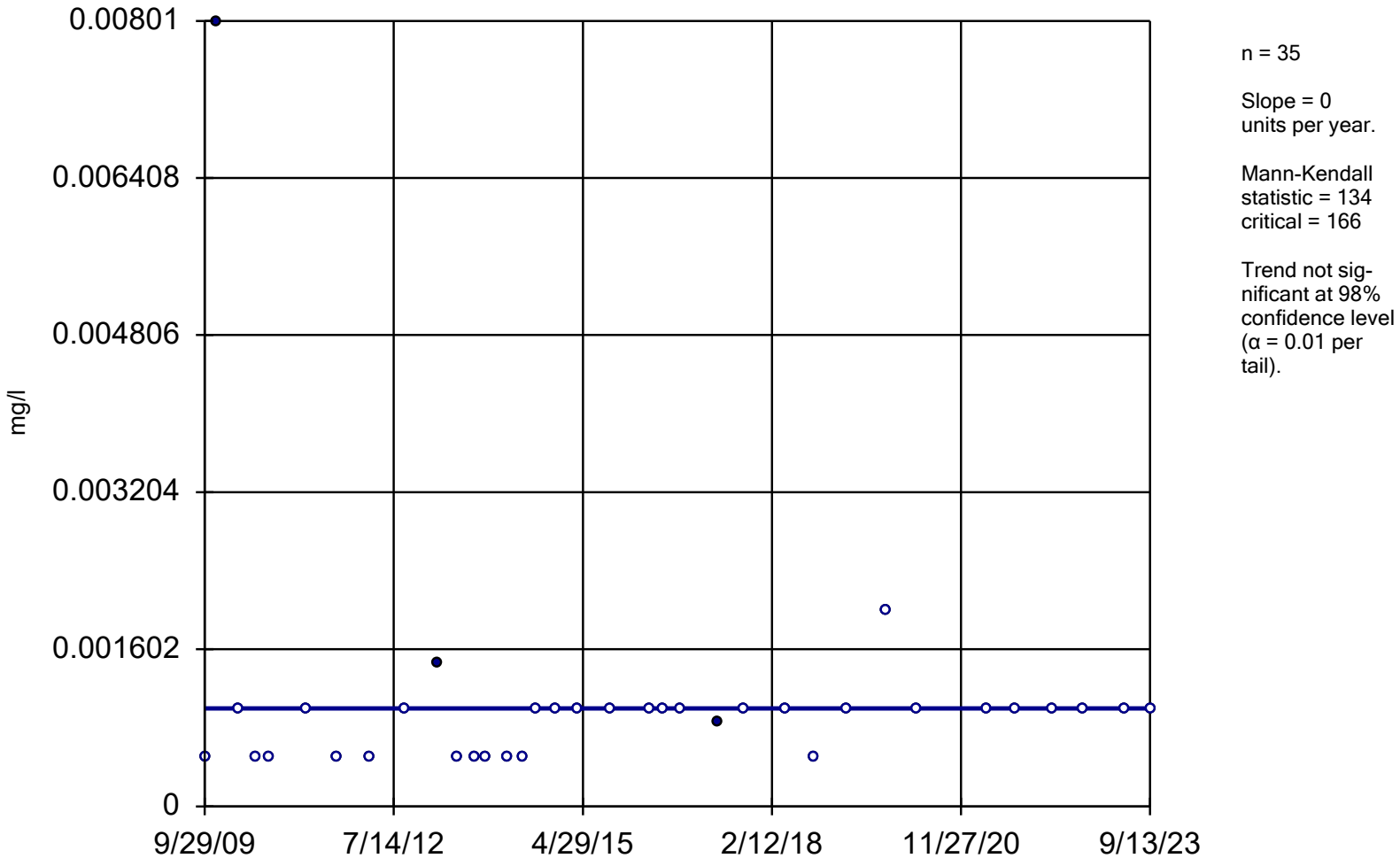
Constituent: Antimony Analysis Run 11/2/2023 2:31 PM

Carroll County Landfill Data: Carroll West Fall 2023 Evaluation

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Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-200 (bg)



n = 35

Slope = 0
units per year.

Mann-Kendall
statistic = 134
critical = 166

Trend not sig-
nificant at 98%
confidence level
(α = 0.01 per
tail).

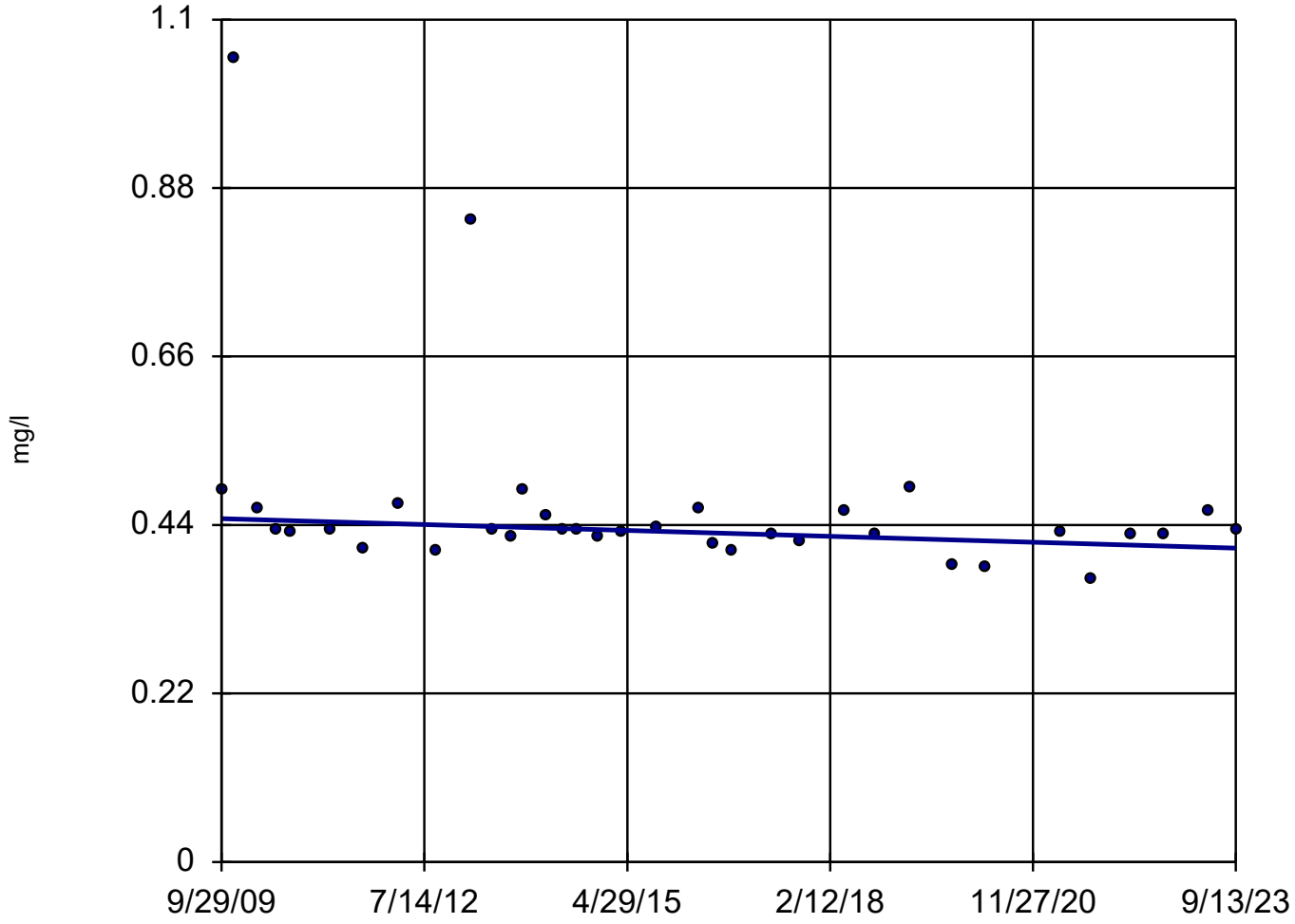
Constituent: Arsenic Analysis Run 11/2/2023 2:44 PM

Carroll County Landfill Data: Carroll West Fall 2023 Evaluation

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Sen's Slope Estimator

MW-200 (bg)



n = 35

Slope = -0.00277 units per year.

Mann-Kendall statistic = -152
critical = -166

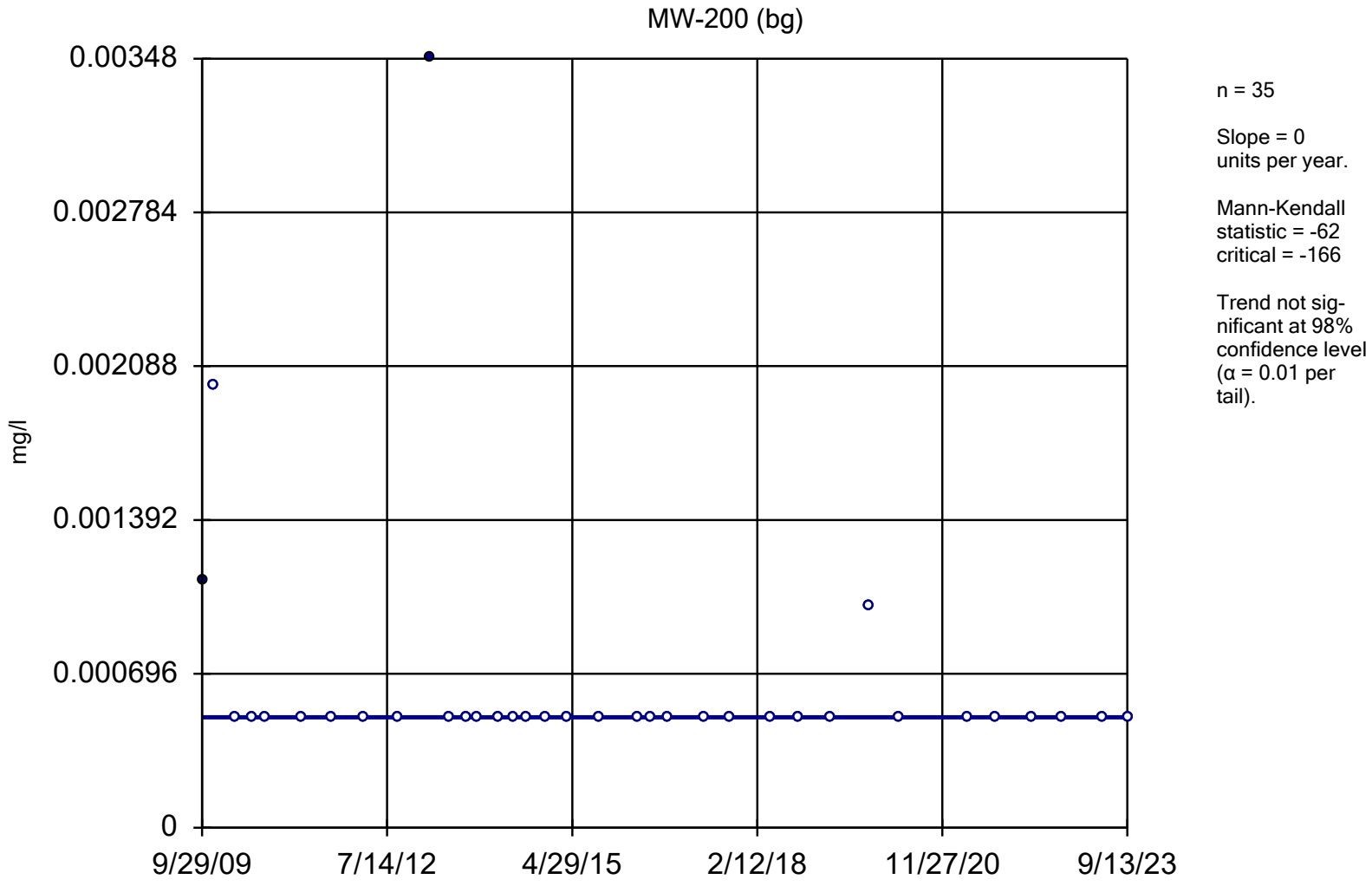
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Barium Analysis Run 11/2/2023 2:57 PM

Carroll County Landfill Data: Carroll West Fall 2023 Evaluation

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Hollow symbols indicate censored values.

Sen's Slope Estimator

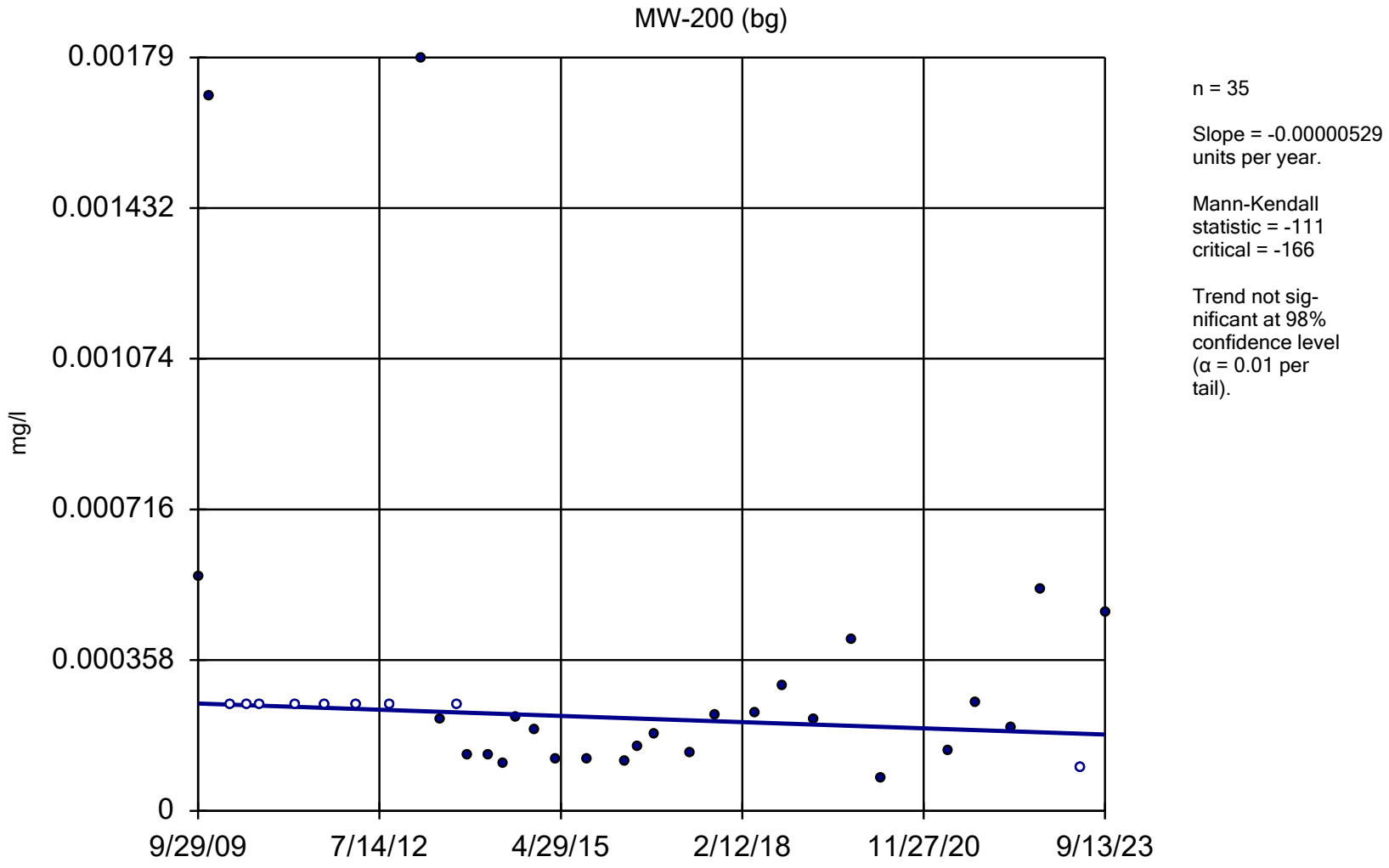


Constituent: Beryllium Analysis Run 11/2/2023 2:59 PM

Carroll County Landfill Data: Carroll West Fall 2023 Evaluation

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Hollow symbols indicate censored values.

Sen's Slope Estimator



n = 35

Slope = -0.00000529 units per year.

Mann-Kendall statistic = -111
critical = -166

Trend not significant at 98% confidence level (α = 0.01 per tail).

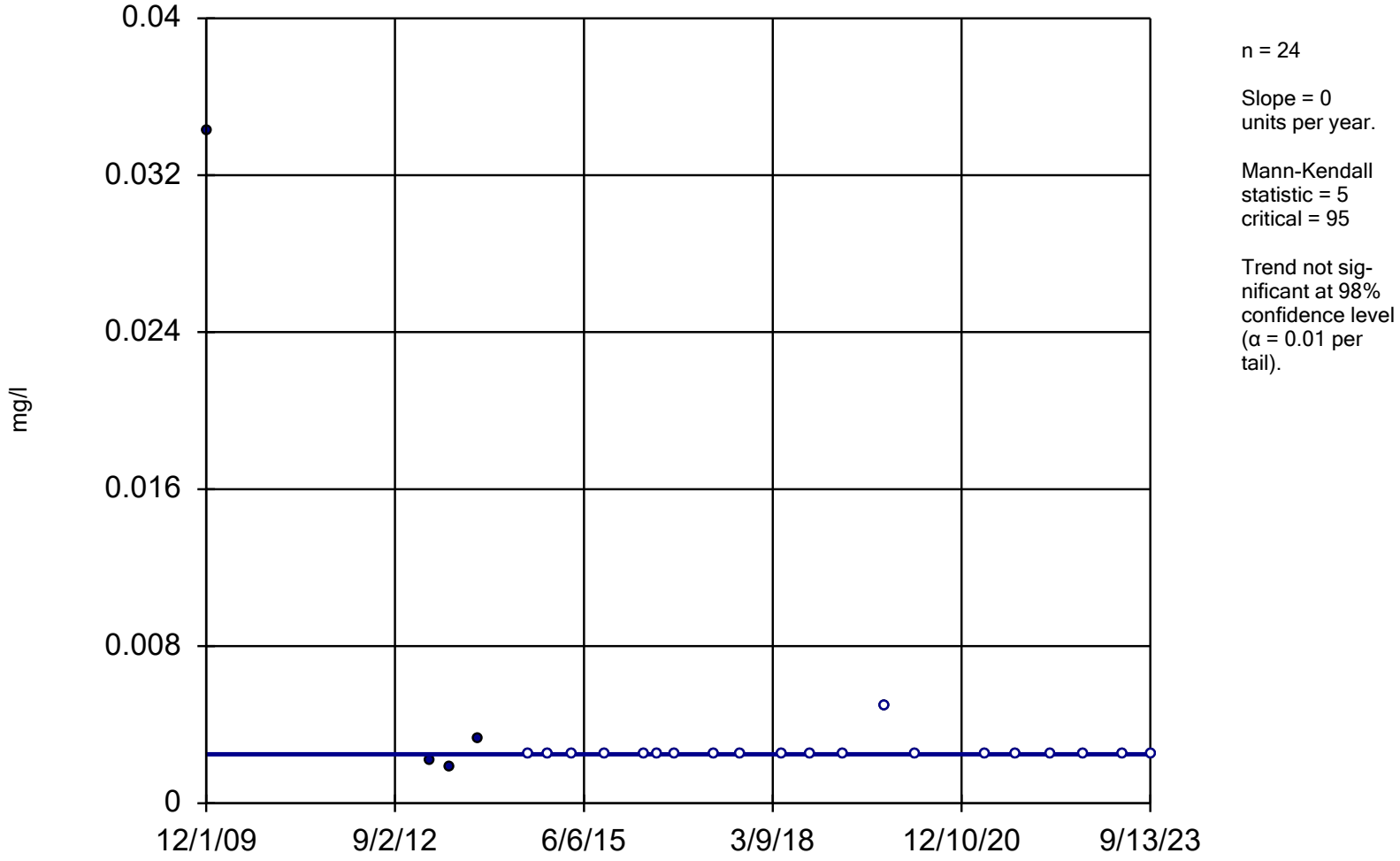
Constituent: Cadmium Analysis Run 11/2/2023 3:09 PM

Carroll County Landfill Data: Carroll West Fall 2023 Evaluation

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Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-200 (bg)



n = 24

Slope = 0
units per year.

Mann-Kendall
statistic = 5
critical = 95

Trend not sig-
nificant at 98%
confidence level
(α = 0.01 per
tail).

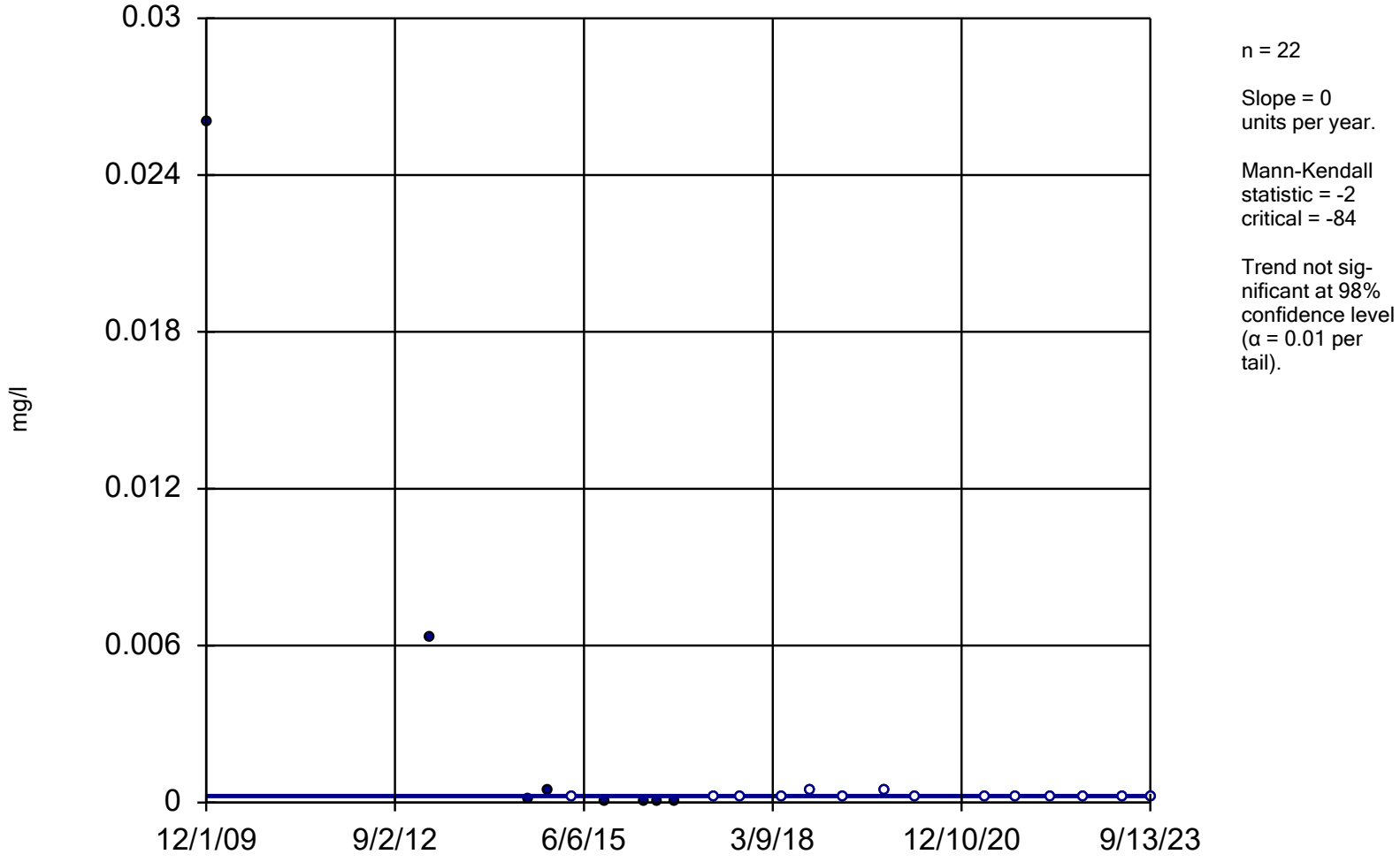
Constituent: Chromium Analysis Run 11/2/2023 3:11 PM

Carroll County Landfill Data: Carroll West Fall 2023 Evaluation

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Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-200 (bg)



n = 22

Slope = 0
units per year.

Mann-Kendall
statistic = -2
critical = -84

Trend not sig-
nificant at 98%
confidence level
(α = 0.01 per
tail).

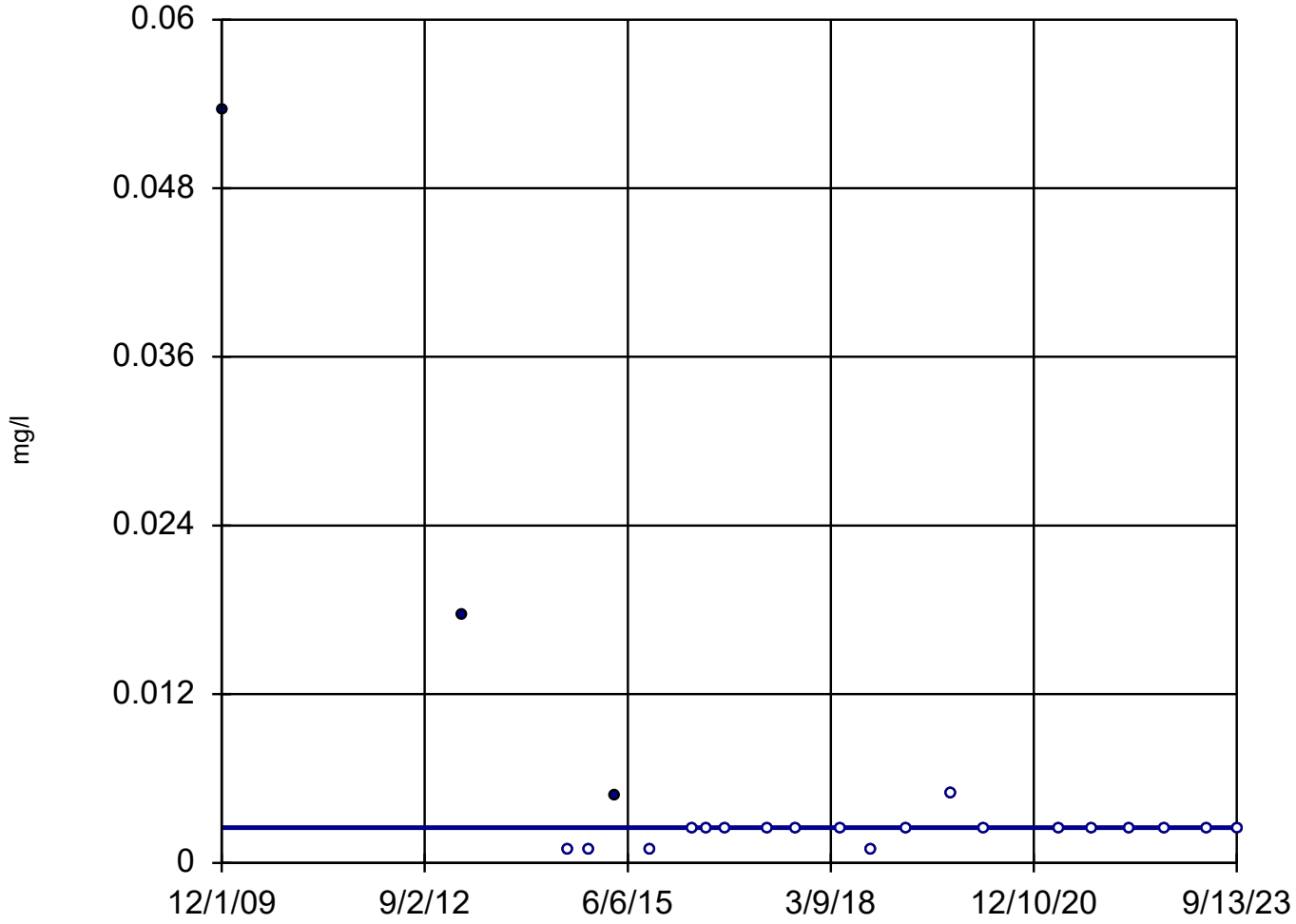
Constituent: Cobalt Analysis Run 11/2/2023 3:15 PM

Carroll County Landfill Data: Carroll West Fall 2023 Evaluation

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Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-200 (bg)



n = 22

Slope = 0
units per year.

Mann-Kendall
statistic = -6
critical = -84

Trend not sig-
nificant at 98%
confidence level
(α = 0.01 per
tail).

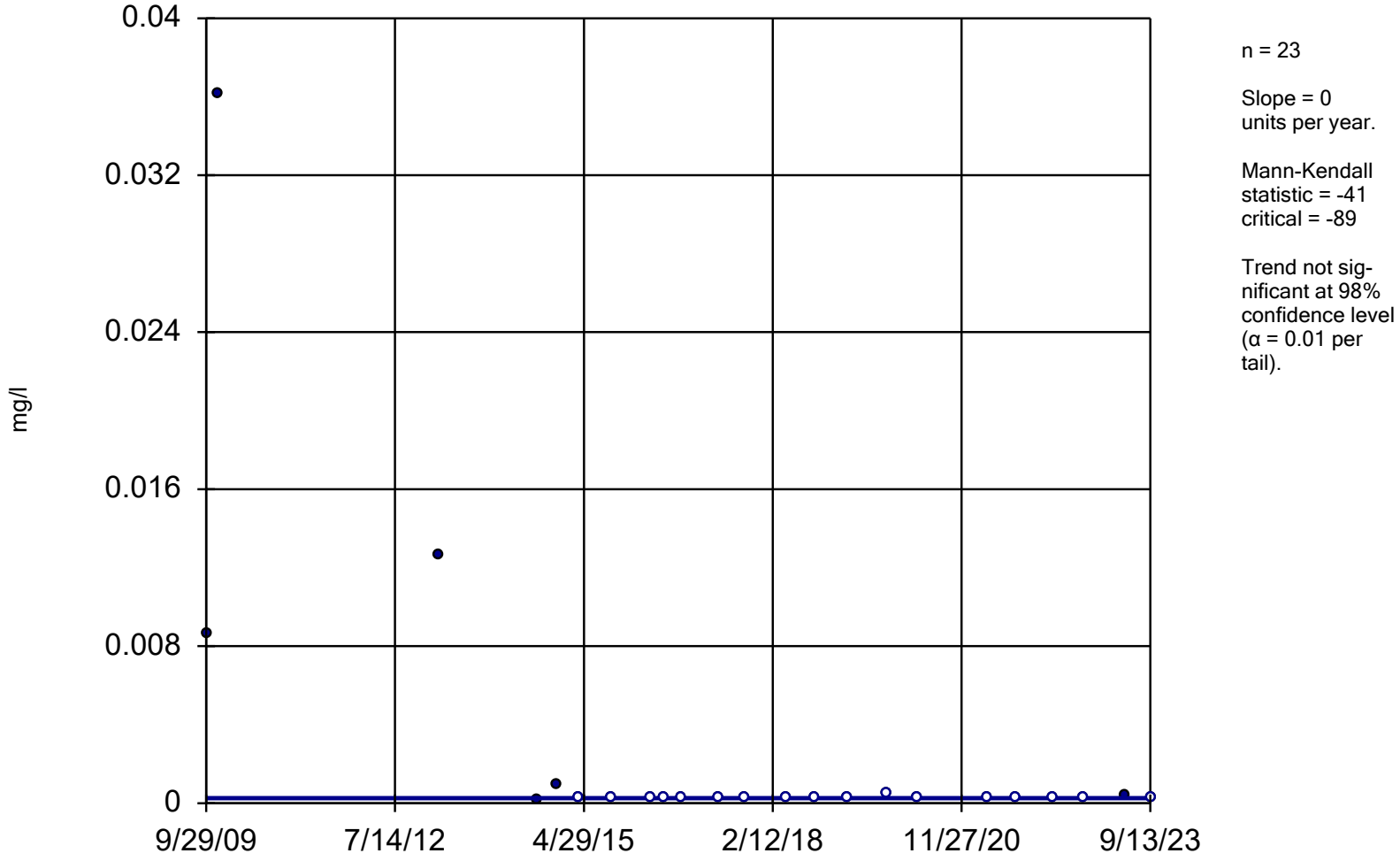
Constituent: Copper Analysis Run 11/2/2023 3:18 PM

Carroll County Landfill Data: Carroll West Fall 2023 Evaluation

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Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-200 (bg)



n = 23

Slope = 0
units per year.

Mann-Kendall
statistic = -41
critical = -89

Trend not sig-
nificant at 98%
confidence level
(α = 0.01 per
tail).

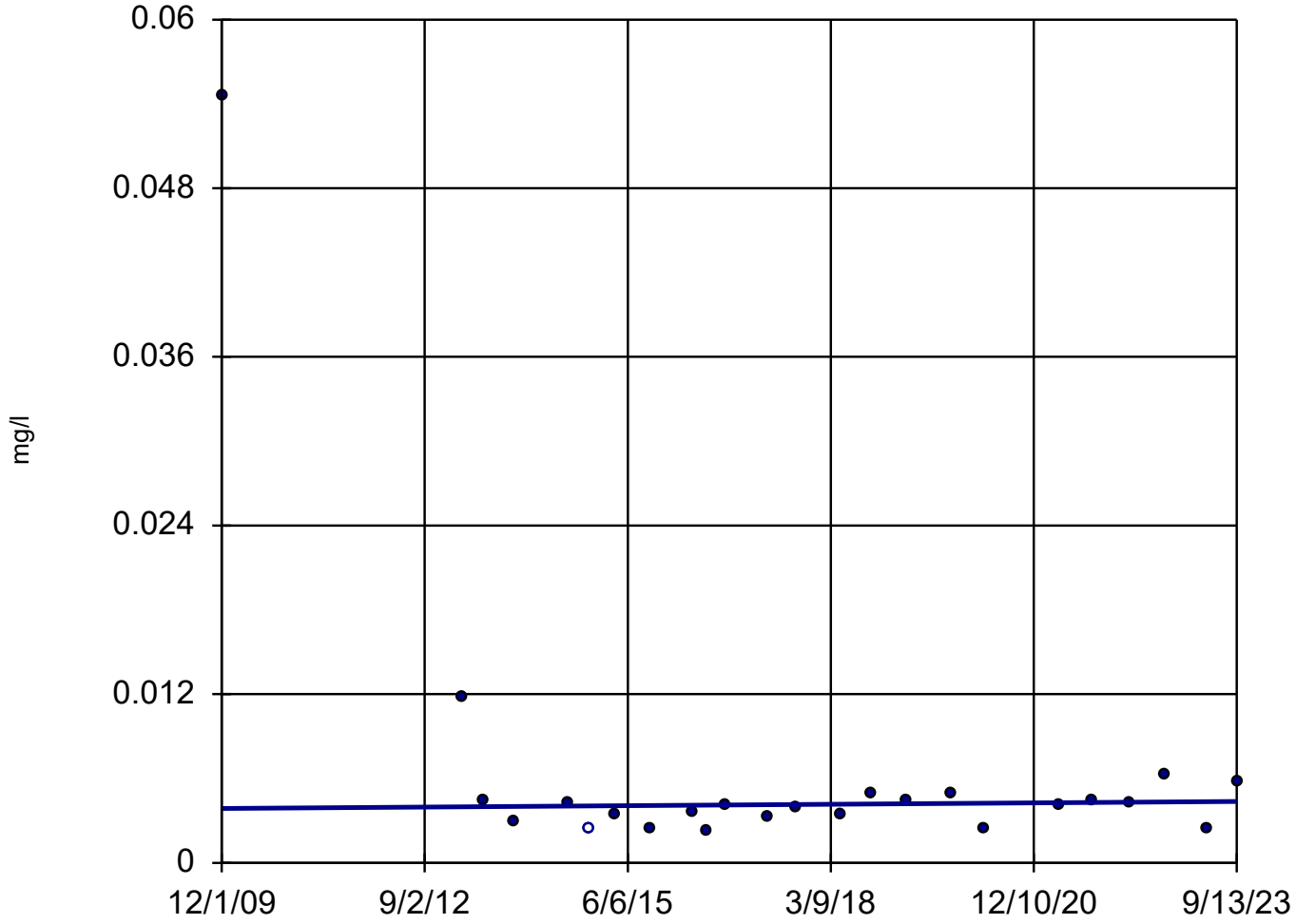
Constituent: Lead Analysis Run 11/2/2023 3:21 PM

Carroll County Landfill Data: Carroll West Fall 2023 Evaluation

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Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-200 (bg)



n = 24

Slope = 0.00003632 units per year.

Mann-Kendall statistic = 14
critical = 95

Trend not significant at 98% confidence level (α = 0.01 per tail).

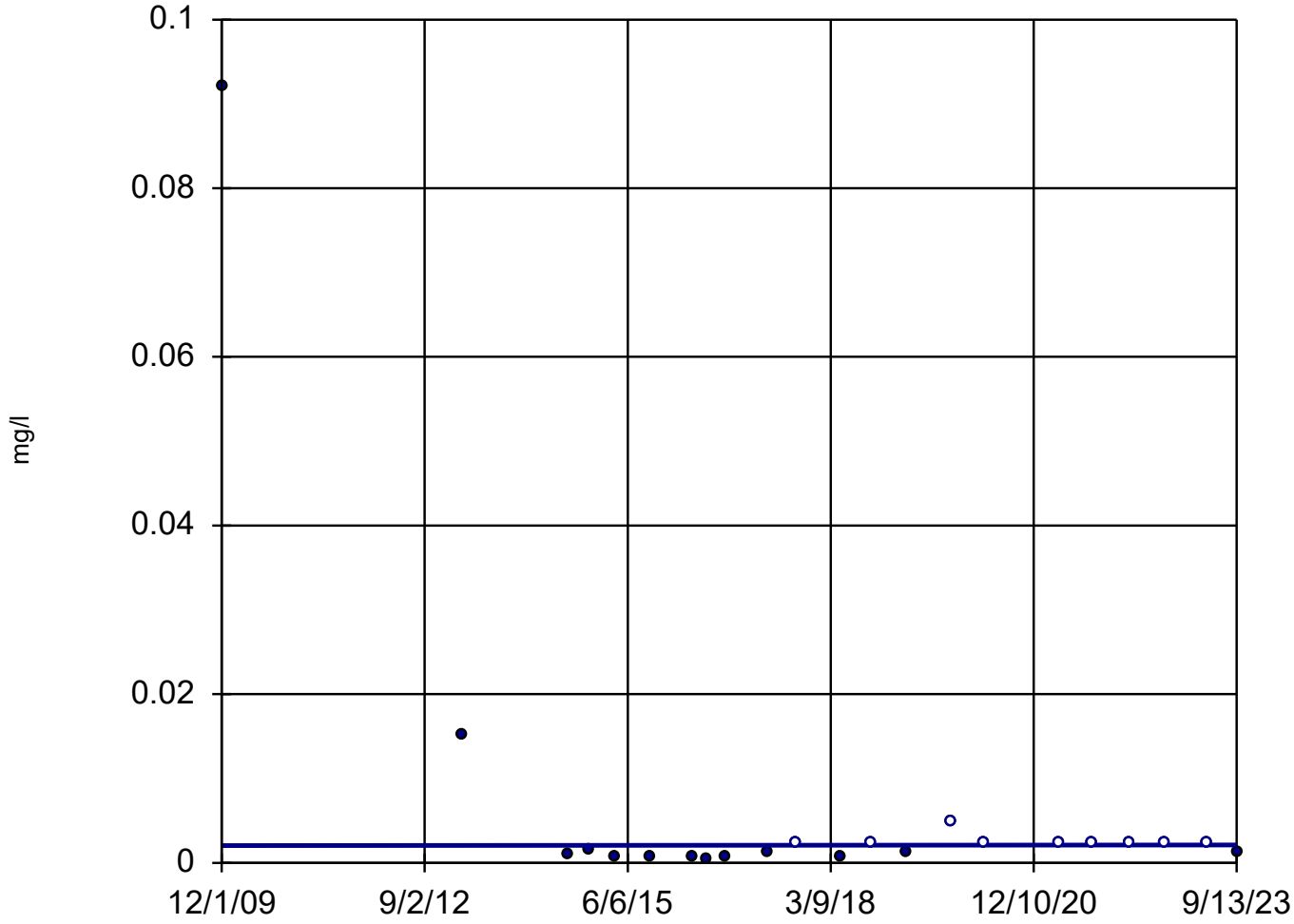
Constituent: Nickel Analysis Run 11/2/2023 3:23 PM

Carroll County Landfill Data: Carroll West Fall 2023 Evaluation

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Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-200 (bg)



n = 22

Slope = 0.000004473 units per year.

Mann-Kendall statistic = 29
critical = 84

Trend not significant at 98% confidence level (α = 0.01 per tail).

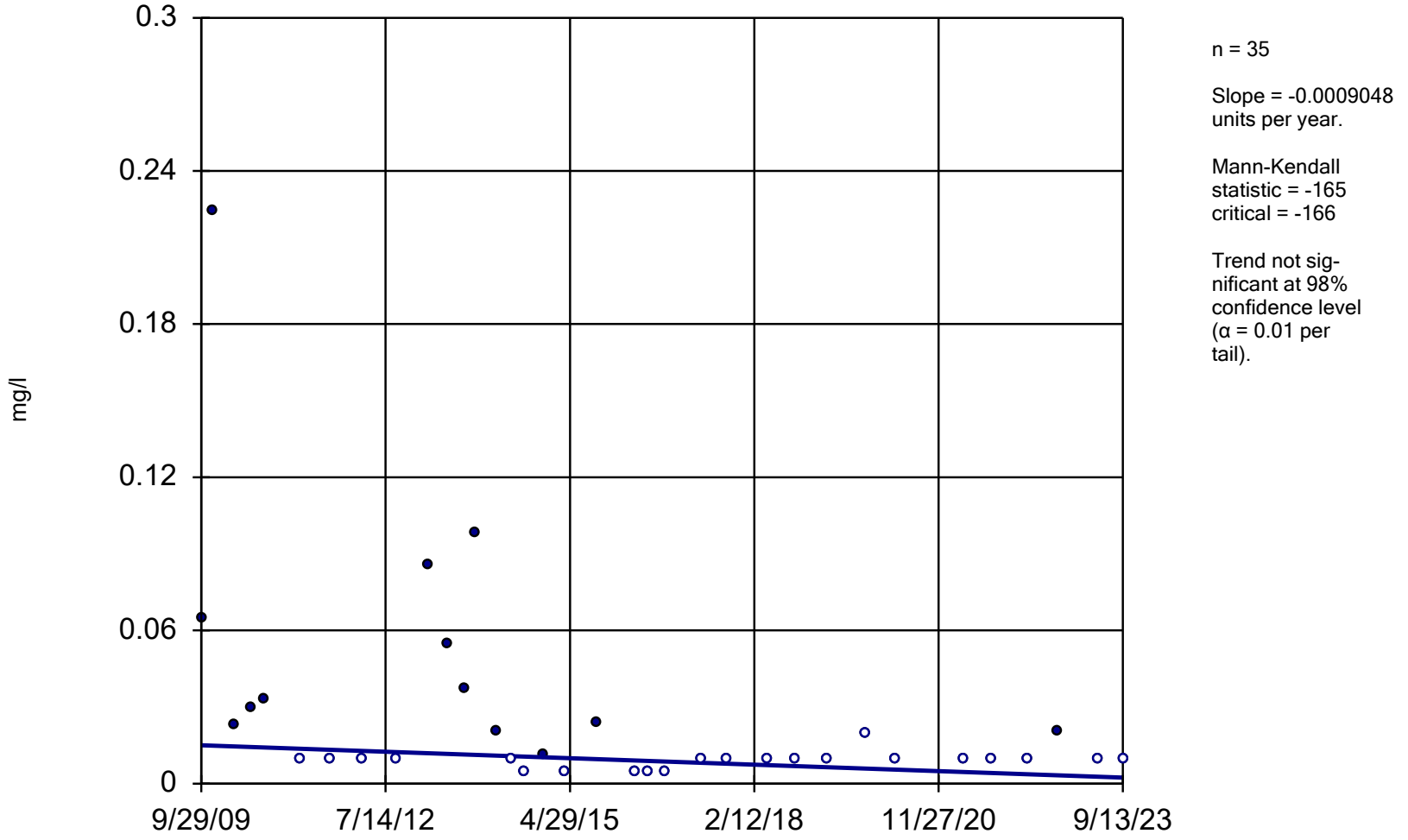
Constituent: Vanadium Analysis Run 11/2/2023 3:25 PM

Carroll County Landfill Data: Carroll West Fall 2023 Evaluation

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Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-200 (bg)



n = 35

Slope = -0.0009048 units per year.

Mann-Kendall statistic = -165
critical = -166

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Zinc Analysis Run 11/2/2023 3:27 PM

Carroll County Landfill Data: Carroll West Fall 2023 Evaluation

Intrawell Prediction Limit

Utilizing Background Data from Sep. 2009 Through Apr. 2023 [1]

Constituent Name	Well	Upper Limit	Date	Observation	Exceeds	Background N	Background Wells	Background Mean	Standard Deviation	% Non-detects	Non-detect Adjustment	Transformation	Alpha	Method
Antimony (mg/l)	MW-200	0.0101	9/13/2023	0.001ND	No	34	n/a	n/a	n/a	97	n/a	n/a	0.001599	NP Intra (NDs) 1 of 2
Arsenic (mg/l)	MW-200	0.00801	9/13/2023	0.001ND	No	34	n/a	n/a	n/a	91	n/a	n/a	0.001599	NP Intra (NDs) 1 of 2
Barium (mg/l)	MW-200	1.05	9/13/2023	0.433	No	34	n/a	n/a	n/a	0	n/a	n/a	0.001599	NP Intra (normality) 1 of 2
Beryllium (mg/l)	MW-200	0.00348	9/13/2023	0.0005ND	No	34	n/a	n/a	n/a	94	n/a	n/a	0.001599	NP Intra (NDs) 1 of 2
Cadmium (mg/l)	MW-200	0.00179	9/13/2023	0.000473	No	34	n/a	n/a	n/a	26	n/a	n/a	0.001599	NP Intra (normality) 1 of 2
Chromium (mg/l)	MW-200	0.0343	9/13/2023	0.0025ND	No	34	n/a	n/a	n/a	88	n/a	n/a	0.001599	NP Intra (NDs) 1 of 2
Cobalt (mg/l)	MW-200	0.026	9/13/2023	0.00025ND	No	34	n/a	n/a	n/a	76	n/a	n/a	0.001599	NP Intra (NDs) 1 of 2
Copper (mg/l)	MW-200	0.0536	9/13/2023	0.0025ND	No	34	n/a	n/a	n/a	91	n/a	n/a	0.001599	NP Intra (NDs) 1 of 2
Lead (mg/l)	MW-200	0.0362	9/13/2023	0.00025ND	No	34	n/a	n/a	n/a	82	n/a	n/a	0.001599	NP Intra (NDs) 1 of 2
Nickel (mg/l)	MW-200	0.0545	9/13/2023	0.00582	No	34	n/a	n/a	n/a	35	n/a	n/a	0.001599	NP Intra (normality) 1 of 2
Vanadium (mg/l)	MW-200	0.0921	9/13/2023	0.00114J	No	34	n/a	n/a	n/a	65	n/a	n/a	0.001599	NP Intra (NDs) 1 of 2
Zinc (mg/l)	MW-200	0.224	9/13/2023	0.01ND	No	34	n/a	n/a	n/a	62	n/a	n/a	0.001599	NP Intra (NDs) 1 of 2

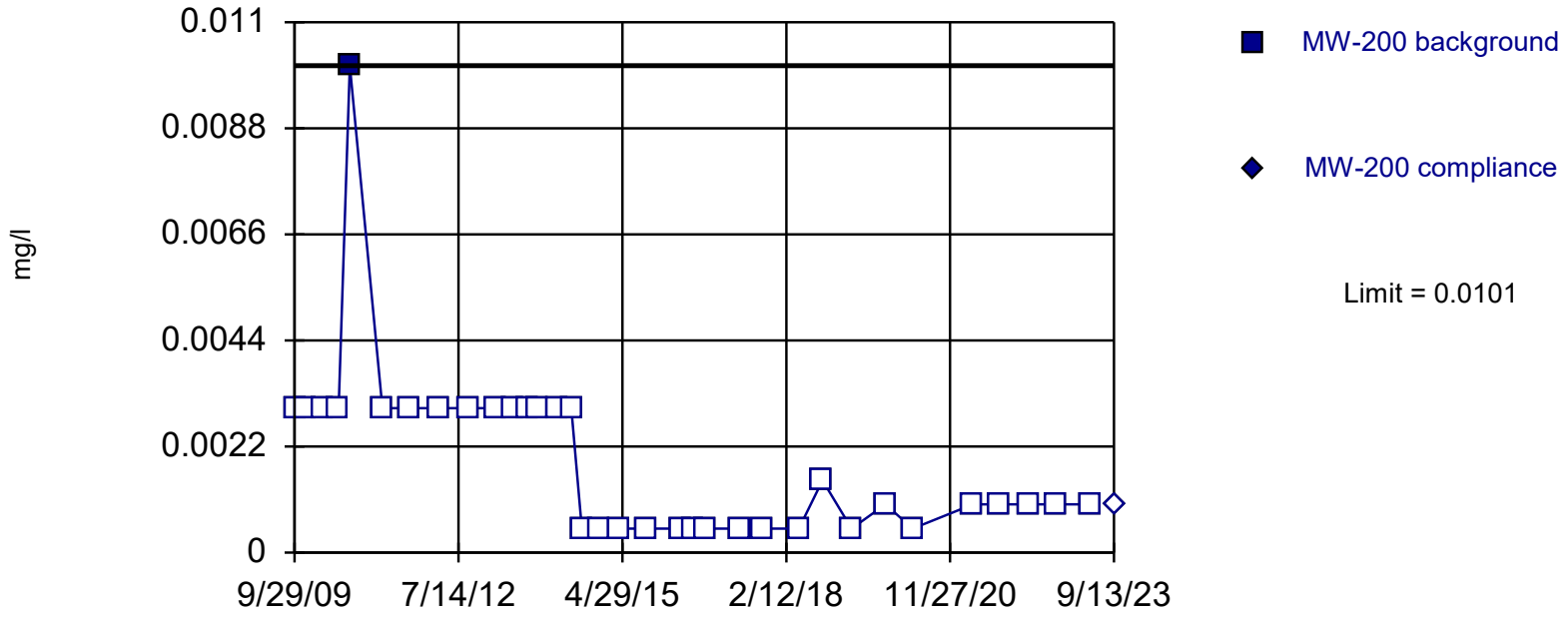
[1] Per Section 3.2, the Sep. 2020 metals data in MW-200 were removed from the intrawell background data set.

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 34 background values. 97.06% NDs. Well-constituent pair annual alpha = 0.003195. Individual comparison alpha = 0.001599 (1 of 2).

Constituent: Antimony Analysis Run 11/2/2023 2:07 PM

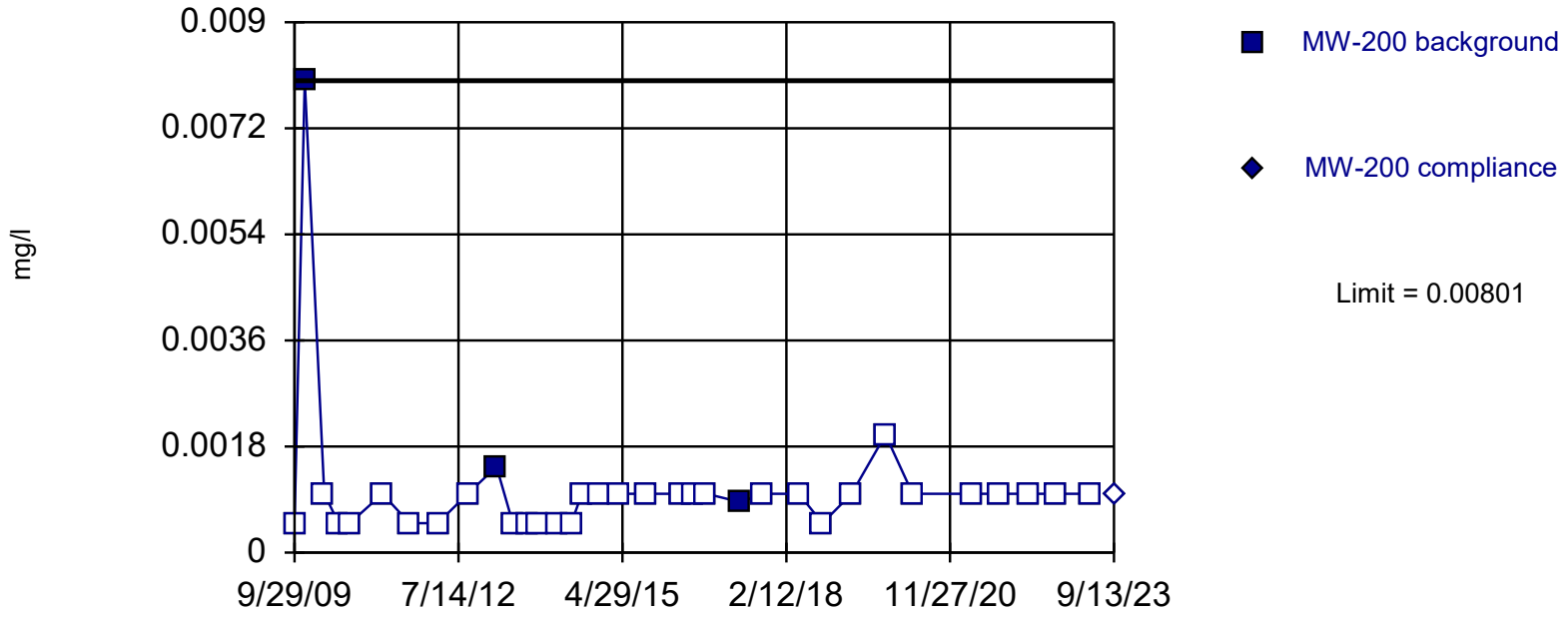
Carroll County Landfill Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 34 background values. 91.18% NDs. Well-constituent pair annual alpha = 0.003195. Individual comparison alpha = 0.001599 (1 of 2).

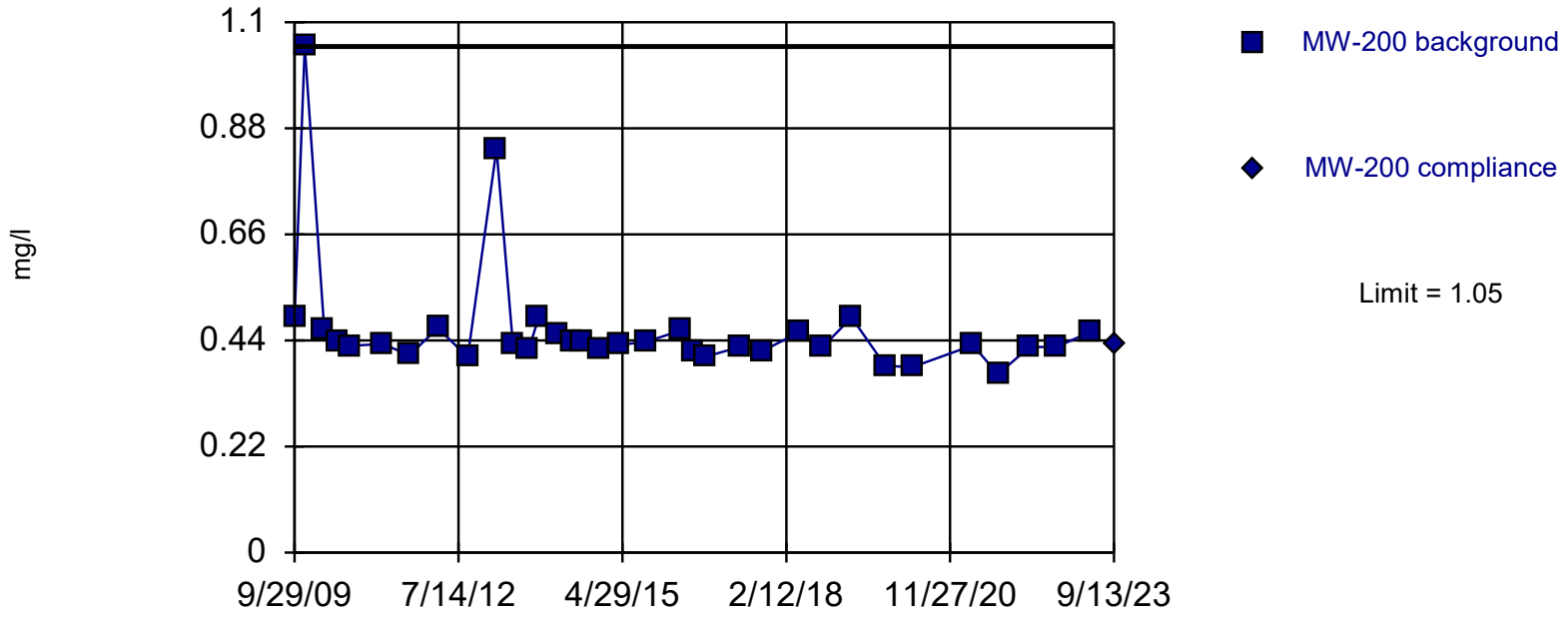
Constituent: Arsenic Analysis Run 11/2/2023 2:07 PM

Carroll County Landfill Data: Carroll West Fall 2023 Evaluation

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 34 background values. Well-constituent pair annual alpha = 0.003195. Individual comparison alpha = 0.001599 (1 of 2).

Constituent: Barium Analysis Run 11/2/2023 2:07 PM

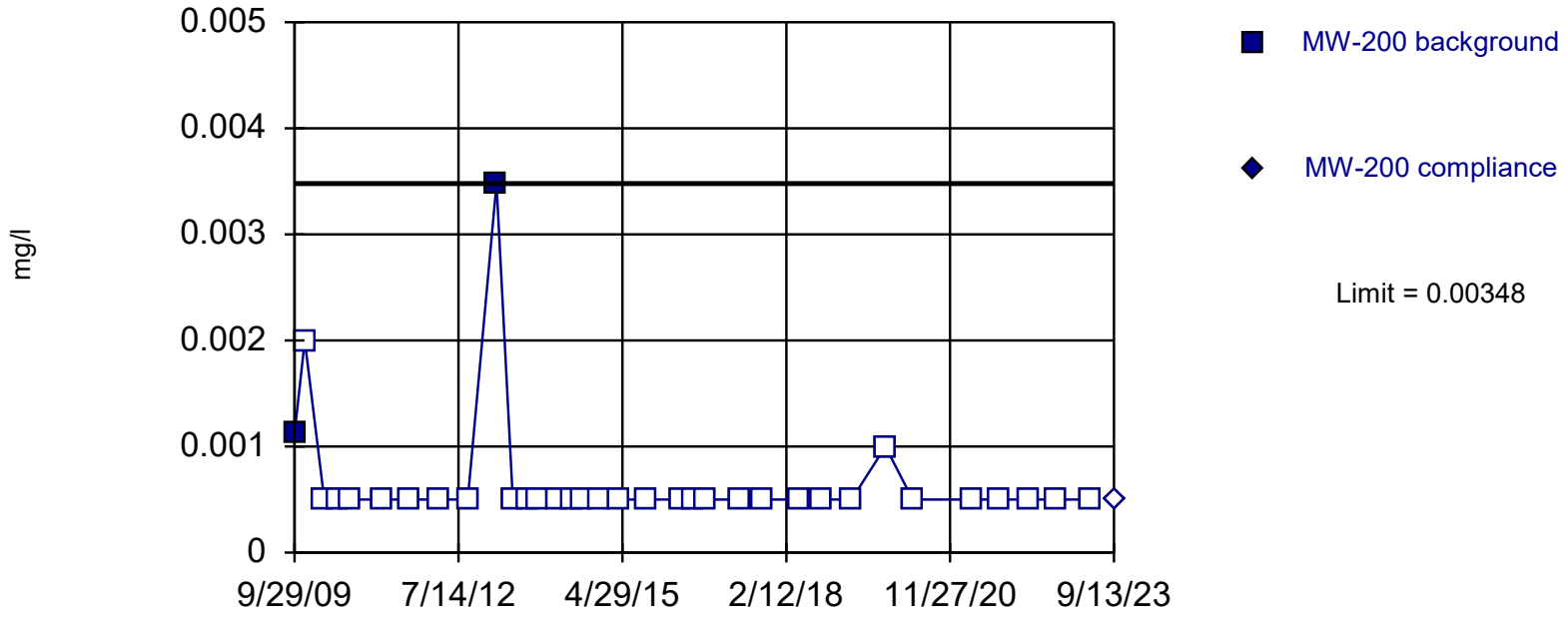
Carroll County Landfill Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 34 background values. 94.12% NDs. Well-constituent pair annual alpha = 0.003195. Individual comparison alpha = 0.001599 (1 of 2).

Constituent: Beryllium Analysis Run 11/2/2023 2:07 PM

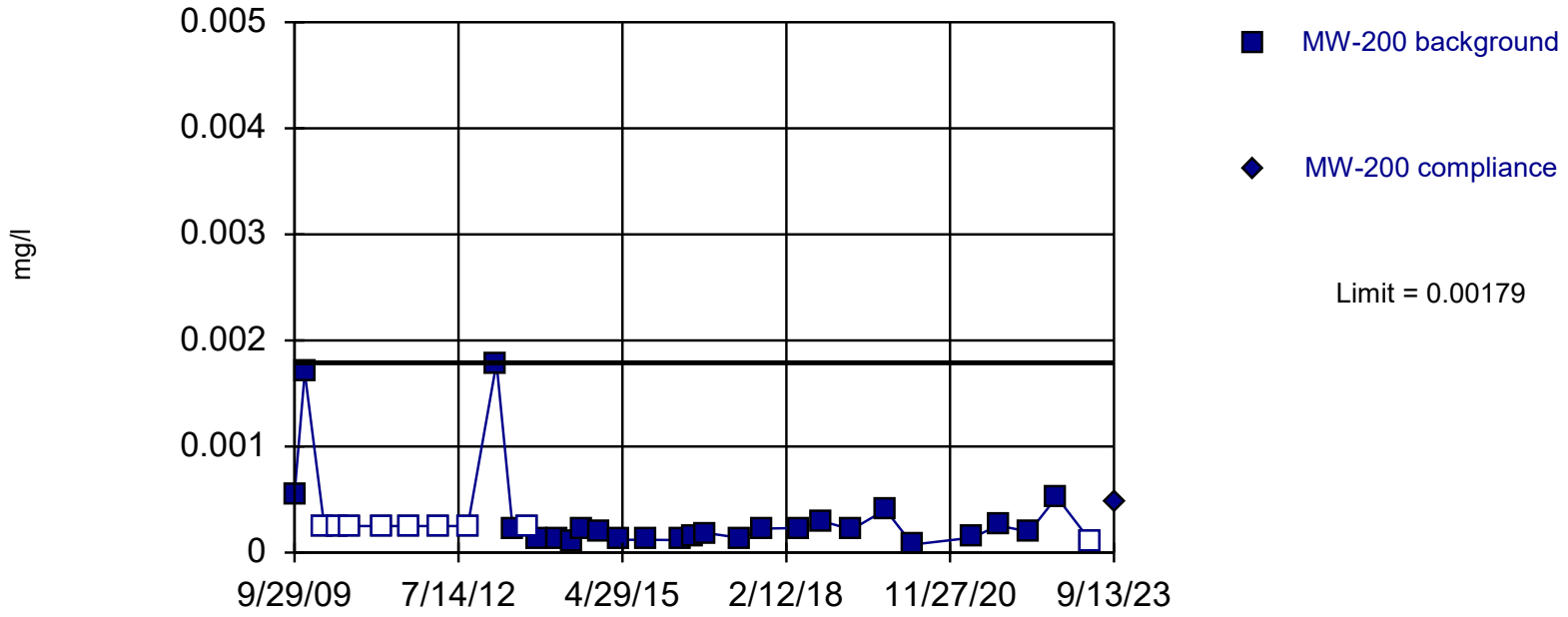
Carroll County Landfill Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 34 background values. 26.47% NDs. Well-constituent pair annual alpha = 0.003195. Individual comparison alpha = 0.001599 (1 of 2).

Constituent: Cadmium Analysis Run 11/2/2023 2:07 PM

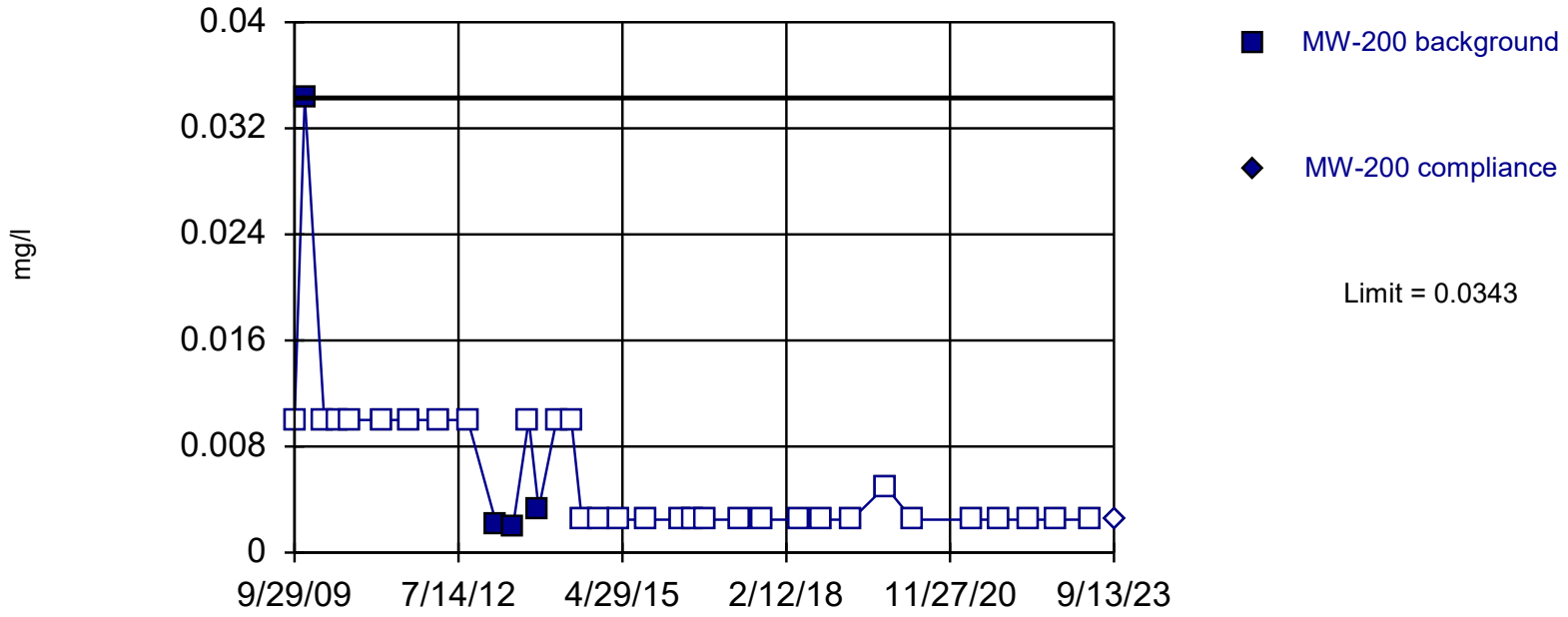
Carroll County Landfill Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 34 background values. 88.24% NDs. Well-constituent pair annual alpha = 0.003195. Individual comparison alpha = 0.001599 (1 of 2).

Constituent: Chromium Analysis Run 11/2/2023 2:07 PM

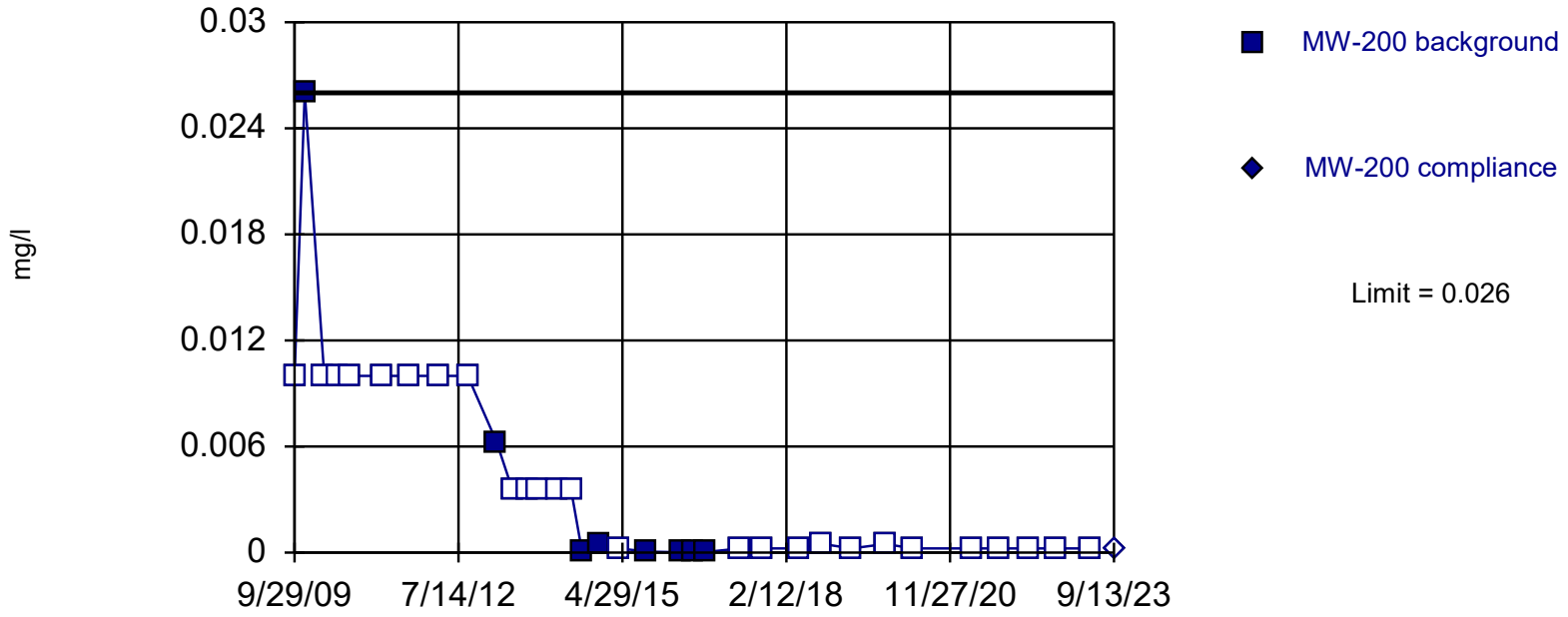
Carroll County Landfill Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 34 background values. 76.47% NDs. Well-constituent pair annual alpha = 0.003195. Individual comparison alpha = 0.001599 (1 of 2).

Constituent: Cobalt Analysis Run 11/2/2023 2:07 PM

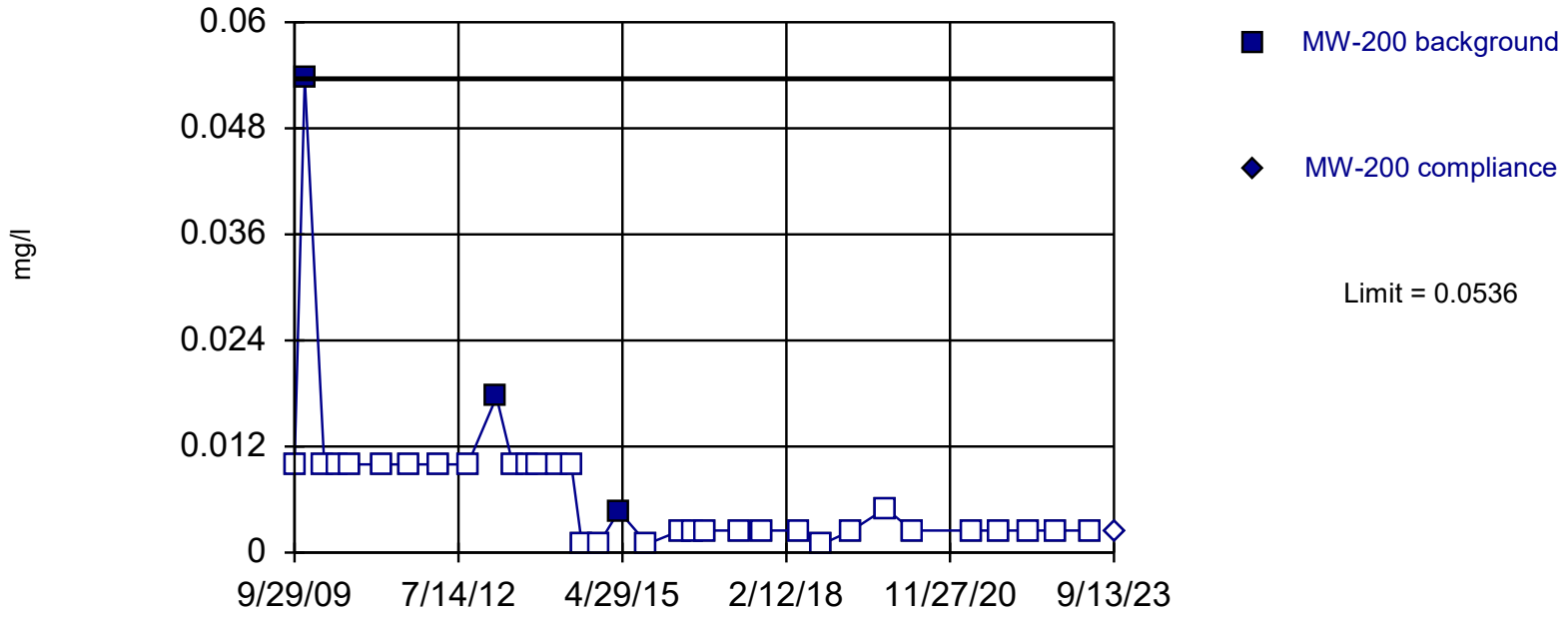
Carroll County Landfill Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 34 background values. 91.18% NDs. Well-constituent pair annual alpha = 0.003195. Individual comparison alpha = 0.001599 (1 of 2).

Constituent: Copper Analysis Run 11/2/2023 2:07 PM

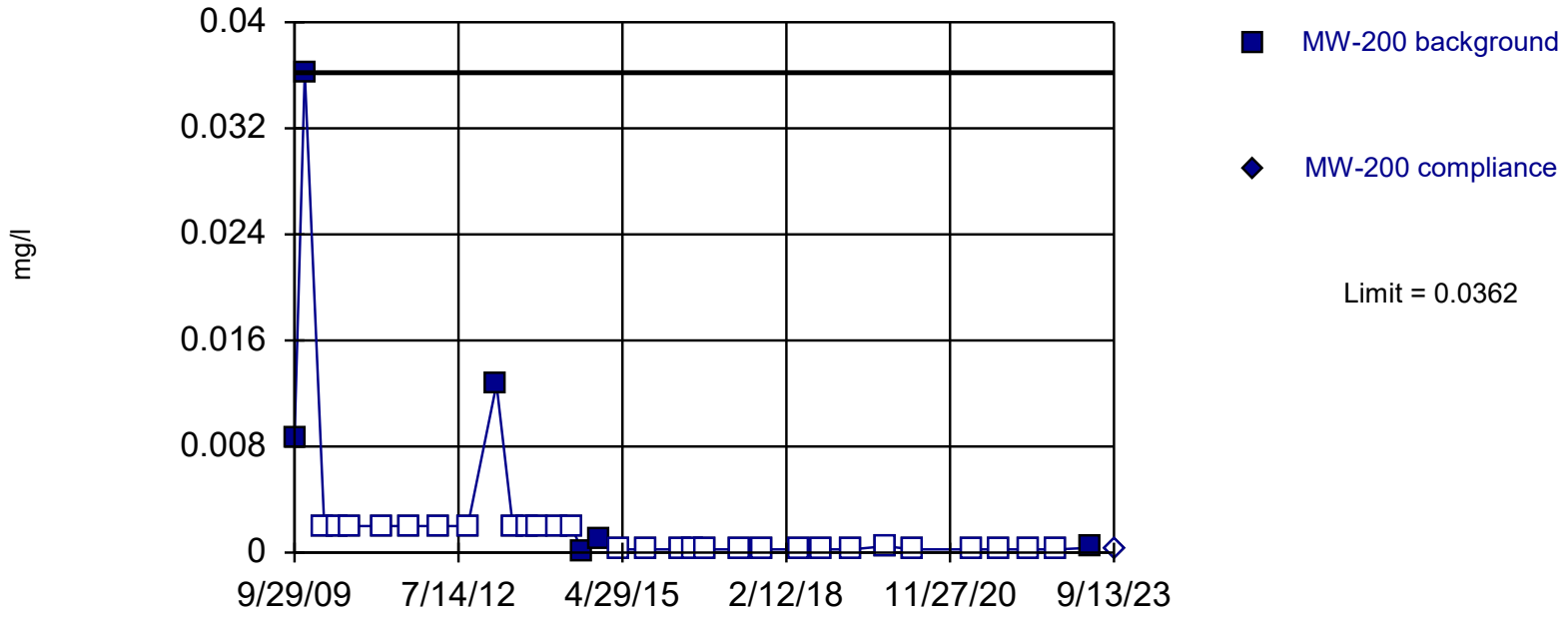
Carroll County Landfill Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 34 background values. 82.35% NDs. Well-constituent pair annual alpha = 0.003195. Individual comparison alpha = 0.001599 (1 of 2).

Constituent: Lead Analysis Run 11/2/2023 2:07 PM

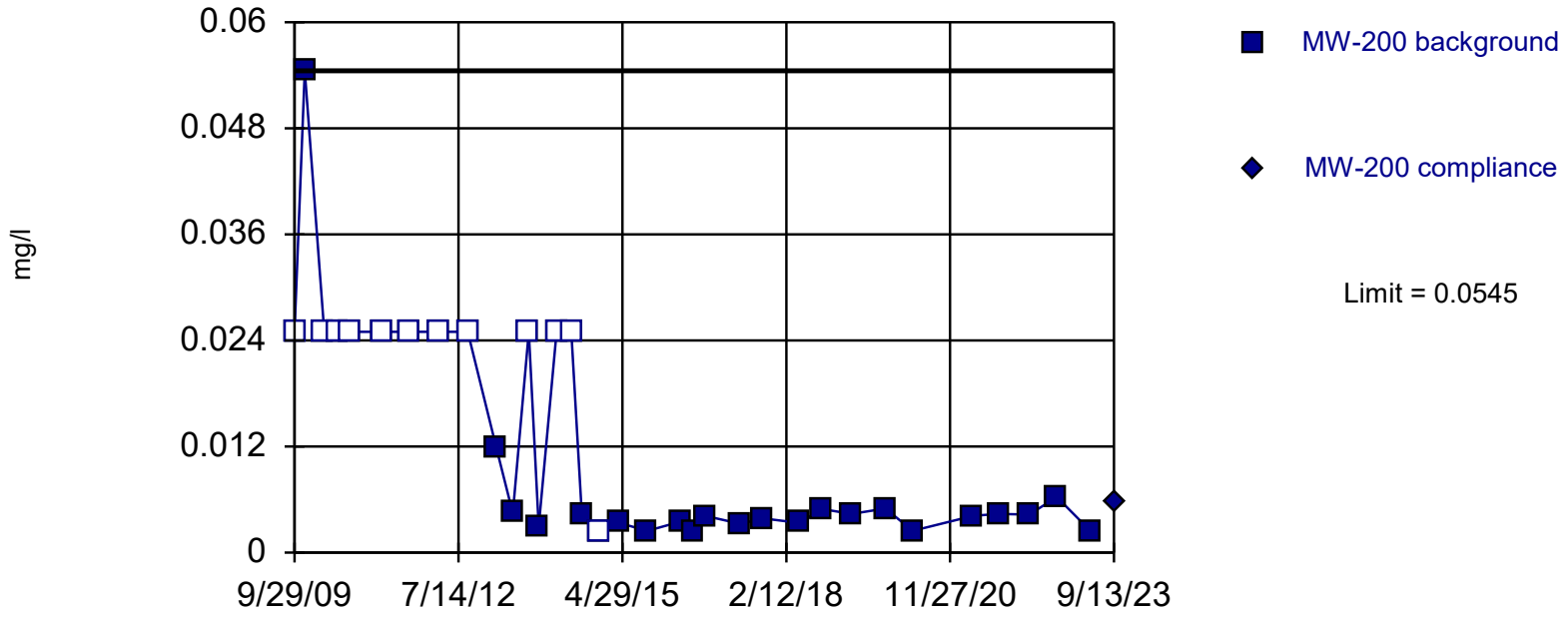
Carroll County Landfill Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 34 background values. 35.29% NDs. Well-constituent pair annual alpha = 0.003195. Individual comparison alpha = 0.001599 (1 of 2).

Constituent: Nickel Analysis Run 11/2/2023 2:07 PM

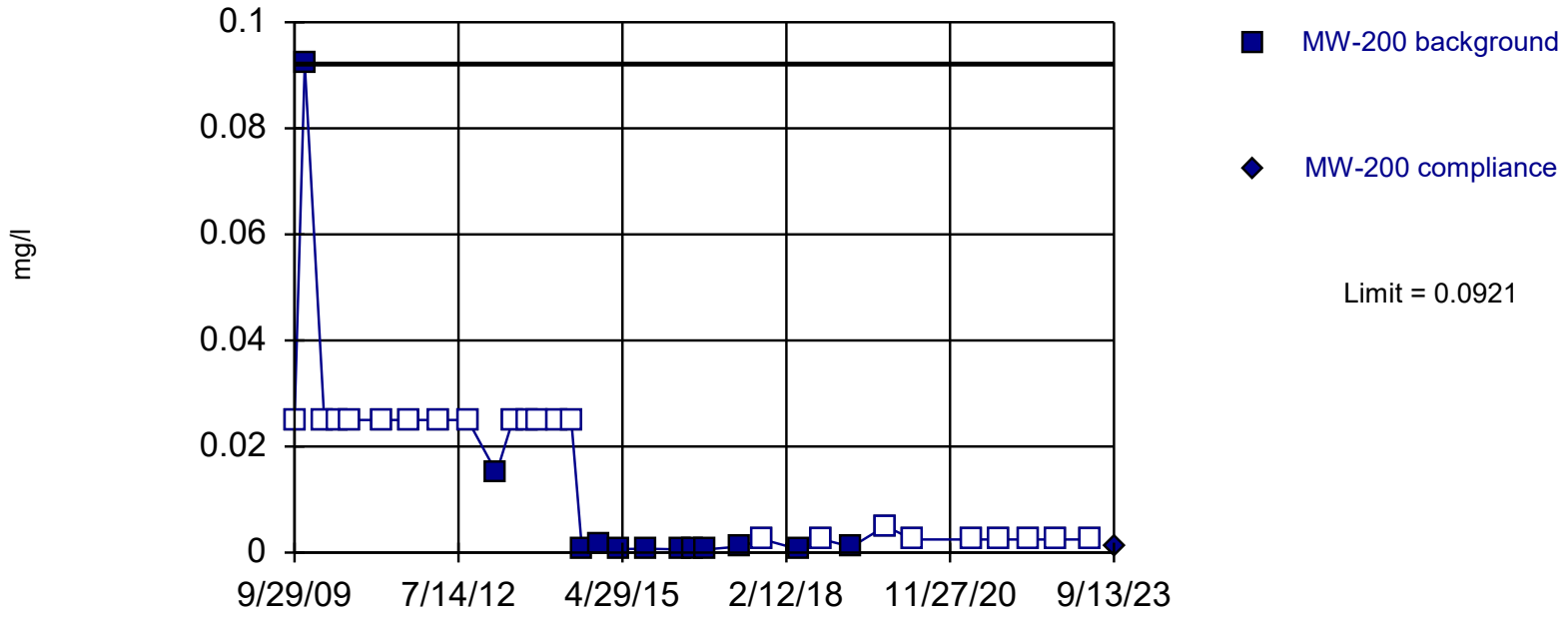
Carroll County Landfill Data: Carroll West Fall 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 34 background values. 64.71% NDs. Well-constituent pair annual alpha = 0.003195. Individual comparison alpha = 0.001599 (1 of 2).

Constituent: Vanadium Analysis Run 11/2/2023 2:07 PM

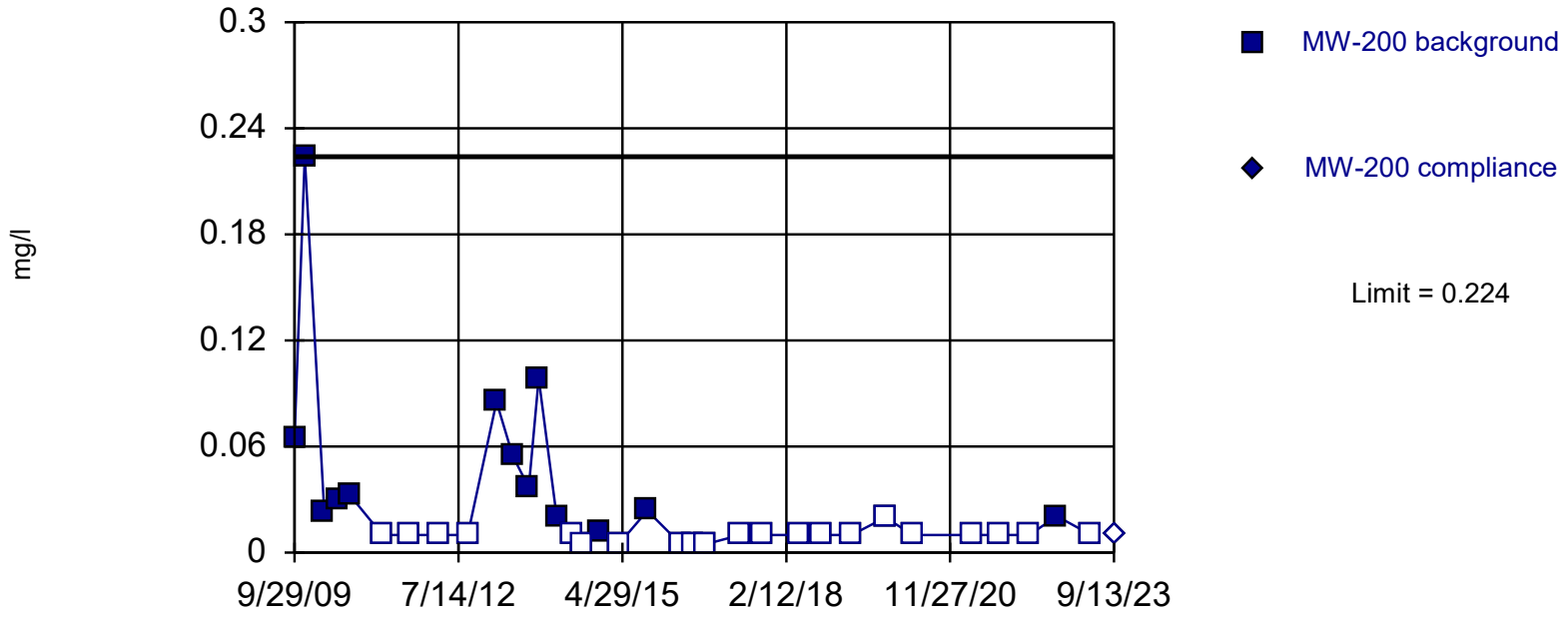
Carroll County Landfill Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 34 background values. 61.76% NDs. Well-constituent pair annual alpha = 0.003195. Individual comparison alpha = 0.001599 (1 of 2).

Constituent: Zinc Analysis Run 11/2/2023 2:07 PM

Carroll County Landfill Data: Carroll West Fall 2023 Evaluation

Attachment 3
Sanitas Report Output for Interwell Prediction Limit Calculations

Interwell Prediction Limit

Constituent Name	Well	Upper Limit	Date	Observation	Exceed	Background N	Background Wells	Background Mean	Standard Deviation	% Non-detects	Non-detect Adjustment	Transformation	Alpha	Method
Detection Monitoring Locations														
Antimony (mg/l)	GU-2A	0.0101	9/13/2023	0.001ND	No	71	122R, 200	n/a	n/a	99	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Antimony (mg/l)	MW-119RR	0.0101	9/13/2023	0.001ND	No	71	122R, 200	n/a	n/a	99	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Antimony (mg/l)	MW-205	0.0101	9/12/2023	0.001ND	No	71	122R, 200	n/a	n/a	99	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Antimony (mg/l)	MW-206	0.0101	9/12/2023	0.001ND	No	71	122R, 200	n/a	n/a	99	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Arsenic (mg/l)	GU-2A	0.00801	9/13/2023	0.000769J	No	71	122R, 200	n/a	n/a	90	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Arsenic (mg/l)	MW-119RR	0.00801	9/13/2023	0.00155J	No	71	122R, 200	n/a	n/a	90	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Arsenic (mg/l)	MW-205	0.00801	9/12/2023	0.00107J	No	71	122R, 200	n/a	n/a	90	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Arsenic (mg/l)	MW-206	0.00801	9/12/2023	0.0011J	No	71	122R, 200	n/a	n/a	90	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Barium (mg/l)	GU-2A	1.05	9/13/2023	0.31	No	71	122R, 200	n/a	n/a	0	n/a	n/a	0.0003785	NP Inter (normality) 1 of 2
Barium (mg/l)	MW-119RR	1.05	9/13/2023	0.588	No	71	122R, 200	n/a	n/a	0	n/a	n/a	0.0003785	NP Inter (normality) 1 of 2
Barium (mg/l)	MW-205	1.05	9/12/2023	0.0273	No	71	122R, 200	n/a	n/a	0	n/a	n/a	0.0003785	NP Inter (normality) 1 of 2
Barium (mg/l)	MW-206	1.05	9/12/2023	0.024	No	71	122R, 200	n/a	n/a	0	n/a	n/a	0.0003785	NP Inter (normality) 1 of 2
Beryllium (mg/l)	GU-2A	0.00348	9/13/2023	0.0005ND	No	71	122R, 200	n/a	n/a	97	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Beryllium (mg/l)	MW-119RR	0.00348	9/13/2023	0.0005ND	No	71	122R, 200	n/a	n/a	97	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Beryllium (mg/l)	MW-205	0.00348	9/12/2023	0.0005ND	No	71	122R, 200	n/a	n/a	97	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Beryllium (mg/l)	MW-206	0.00348	9/12/2023	0.0005ND	No	71	122R, 200	n/a	n/a	97	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Cadmium (mg/l)	GU-2A	0.00179	9/13/2023	0.0001ND	No	71	122R, 200	n/a	n/a	63	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Cadmium (mg/l)	MW-119RR	0.00179	9/13/2023	0.0001ND	No	71	122R, 200	n/a	n/a	63	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Cadmium (mg/l)	MW-205	0.00179	9/12/2023	0.0001ND	No	71	122R, 200	n/a	n/a	63	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Cadmium (mg/l)	MW-206	0.00179	9/12/2023	0.0001ND	No	71	122R, 200	n/a	n/a	63	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Chromium (mg/l)	GU-2A	0.0343	9/13/2023	0.0025ND	No	71	122R, 200	n/a	n/a	69	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Chromium (mg/l)	MW-119RR	0.0343	9/13/2023	0.0025ND	No	71	122R, 200	n/a	n/a	69	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Chromium (mg/l)	MW-205	0.0343	9/12/2023	0.0025ND	No	71	122R, 200	n/a	n/a	69	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Chromium (mg/l)	MW-206	0.0343	9/12/2023	0.0025ND	No	71	122R, 200	n/a	n/a	69	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Cobalt (mg/l)	GU-2A	0.026	9/13/2023	0.00025ND	No	71	122R, 200	n/a	n/a	85	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Cobalt (mg/l)	MW-119RR	0.026	9/13/2023	0.00187	No	71	122R, 200	n/a	n/a	85	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Cobalt (mg/l)	MW-205	0.026	9/12/2023	0.00807	No	71	122R, 200	n/a	n/a	85	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Cobalt (mg/l)	MW-206	0.026	9/12/2023	0.00672	No	71	122R, 200	n/a	n/a	85	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Copper (mg/l)	GU-2A	0.0536	9/13/2023	0.0025ND	No	71	122R, 200	n/a	n/a	94	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Copper (mg/l)	MW-119RR	0.0536	9/13/2023	0.0025ND	No	71	122R, 200	n/a	n/a	94	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Copper (mg/l)	MW-205	0.0536	9/12/2023	0.0025ND	No	71	122R, 200	n/a	n/a	94	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Copper (mg/l)	MW-206	0.0536	9/12/2023	0.0025ND	No	71	122R, 200	n/a	n/a	94	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Lead (mg/l)	GU-2A	0.0362	9/13/2023	0.00025ND	No	71	122R, 200	n/a	n/a	89	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Lead (mg/l)	MW-119RR	0.0362	9/13/2023	0.00025ND	No	71	122R, 200	n/a	n/a	89	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Lead (mg/l)	MW-205	0.0362	9/12/2023	0.000669	No	71	122R, 200	n/a	n/a	89	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Lead (mg/l)	MW-206	0.0362	9/12/2023	0.00429	No	71	122R, 200	n/a	n/a	89	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Nickel (mg/l)	GU-2A	0.0545	9/13/2023	0.0025ND	No	71	122R, 200	n/a	n/a	68	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Nickel (mg/l)	MW-119RR	0.0545	9/13/2023	0.0131	No	71	122R, 200	n/a	n/a	68	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Nickel (mg/l)	MW-205	0.0545	9/12/2023	0.0135	No	71	122R, 200	n/a	n/a	68	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Nickel (mg/l)	MW-206	0.0545	9/12/2023	0.011	No	71	122R, 200	n/a	n/a	68	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Vanadium (mg/l)	GU-2A	0.0921	9/13/2023	0.00155J	No	71	122R, 200	n/a	n/a	76	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Vanadium (mg/l)	MW-119RR	0.0921	9/13/2023	0.0025ND	No	71	122R, 200	n/a	n/a	76	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Vanadium (mg/l)	MW-205	0.0921	9/12/2023	0.0025ND	No	71	122R, 200	n/a	n/a	76	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Vanadium (mg/l)	MW-206	0.0921	9/12/2023	0.0025ND	No	71	122R, 200	n/a	n/a	76	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Zinc (mg/l)	GU-2A	0.224	9/13/2023	0.0204	No	71	122R, 201	n/a	n/a	63	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Zinc (mg/l)	MW-119RR	0.224	9/13/2023	0.01ND	No	71	122R, 202	n/a	n/a	63	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Zinc (mg/l)	MW-205	0.224	9/12/2023	0.00696J	No	71	122R, 203	n/a	n/a	63	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2

Interwell Prediction Limit

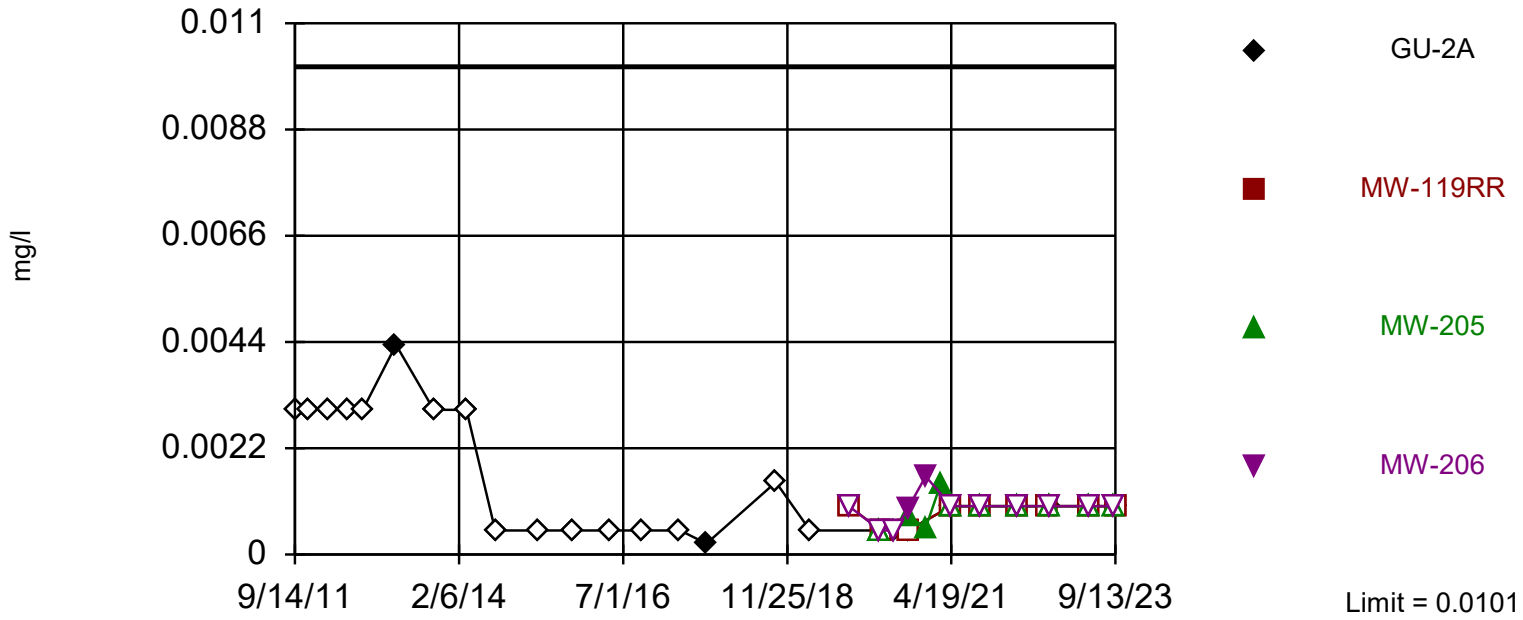
Constituent Name	Well	Upper Limit	Date	Observation	Exceed	Background N	Background Wells	Background Mean	Standard Deviation	% Non-detects	Non-detect Adjustment	Transformation	Alpha	Method
Detection Monitoring Locations Continued														
Zinc (mg/l)	MW-206	0.224	9/12/2023	0.0165J	No	71	122R, 204	n/a	n/a	63	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Assessment Monitoring Locations														
Antimony (mg/l)	MW-121R	0.0101	9/13/2023	0.001ND	No	71	122R, 200	n/a	n/a	99	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Arsenic (mg/l)	MW-121R	0.00801	9/13/2023	0.0219	Yes	71	122R, 200	n/a	n/a	90	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Barium (mg/l)	MW-121R	1.05	9/13/2023	0.663	No	71	122R, 200	n/a	n/a	0	n/a	n/a	0.0003785	NP Inter (normality) 1 of 2
Beryllium (mg/l)	MW-121R	0.00348	9/13/2023	0.0005ND	No	71	122R, 200	n/a	n/a	97	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Cadmium (mg/l)	MW-121R	0.00179	9/13/2023	0.0001ND	No	71	122R, 200	n/a	n/a	63	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Chromium (mg/l)	MW-121R	0.0343	9/13/2023	0.0025ND	No	71	122R, 200	n/a	n/a	69	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Cobalt (mg/l)	MW-121R	0.026	9/13/2023	0.00215	No	71	122R, 200	n/a	n/a	85	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Copper (mg/l)	MW-121R	0.0536	9/13/2023	0.0025ND	No	71	122R, 200	n/a	n/a	94	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Lead (mg/l)	MW-121R	0.0362	9/13/2023	0.00025ND	No	71	122R, 200	n/a	n/a	89	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Nickel (mg/l)	MW-121R	0.0545	9/13/2023	0.0412	No	71	122R, 200	n/a	n/a	68	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Vanadium (mg/l)	MW-121R	0.0921	9/13/2023	0.0025ND	No	71	122R, 200	n/a	n/a	76	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2
Zinc (mg/l)	MW-121R	0.224	9/13/2023	0.01ND	No	71	122R, 200	n/a	n/a	63	n/a	n/a	0.0003785	NP Inter (NDs) 1 of 2

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 71 background values. 98.59% NDs. Annual per-constituent alpha = 0.004532. Individual comparison alpha = 0.0003785 (1 of 2).

Constituent: Antimony Analysis Run 11/3/2023 2:26 PM

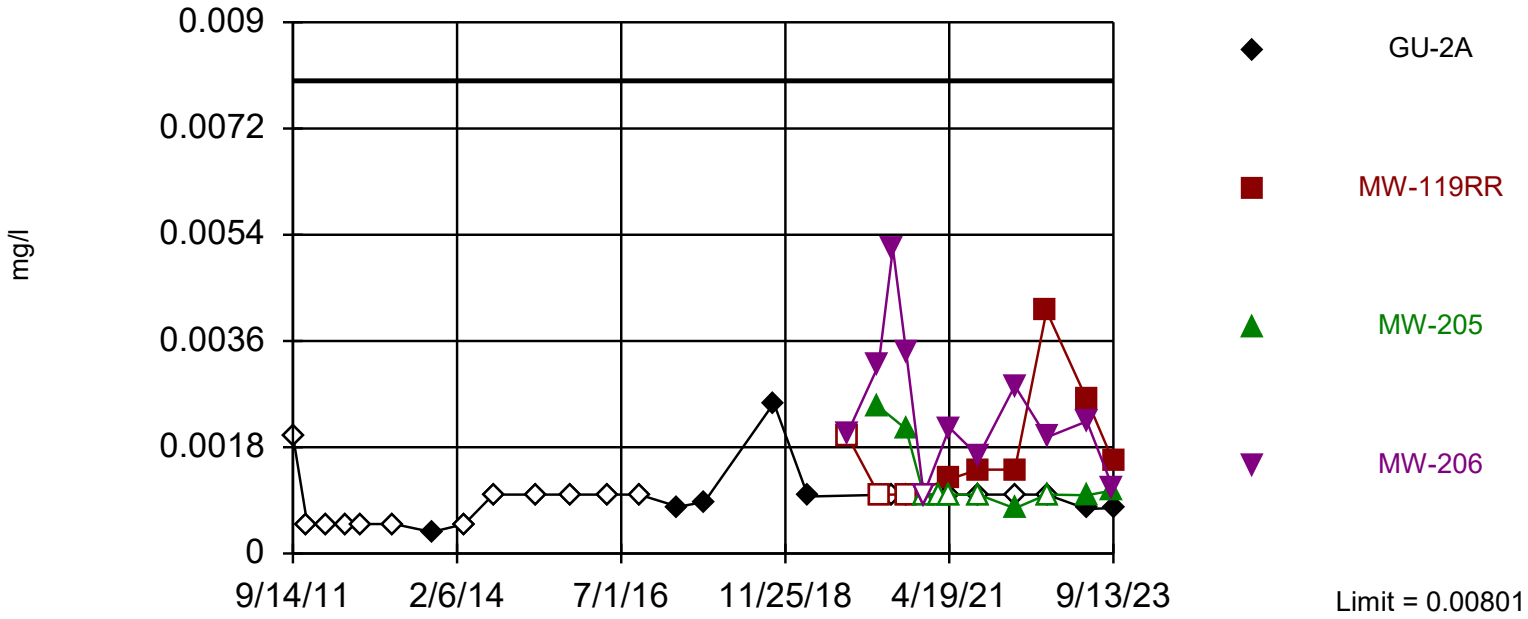
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 71 background values. 90.14% NDs. Annual per-constituent alpha = 0.004532. Individual comparison alpha = 0.0003785 (1 of 2).

Constituent: Arsenic Analysis Run 11/3/2023 2:26 PM

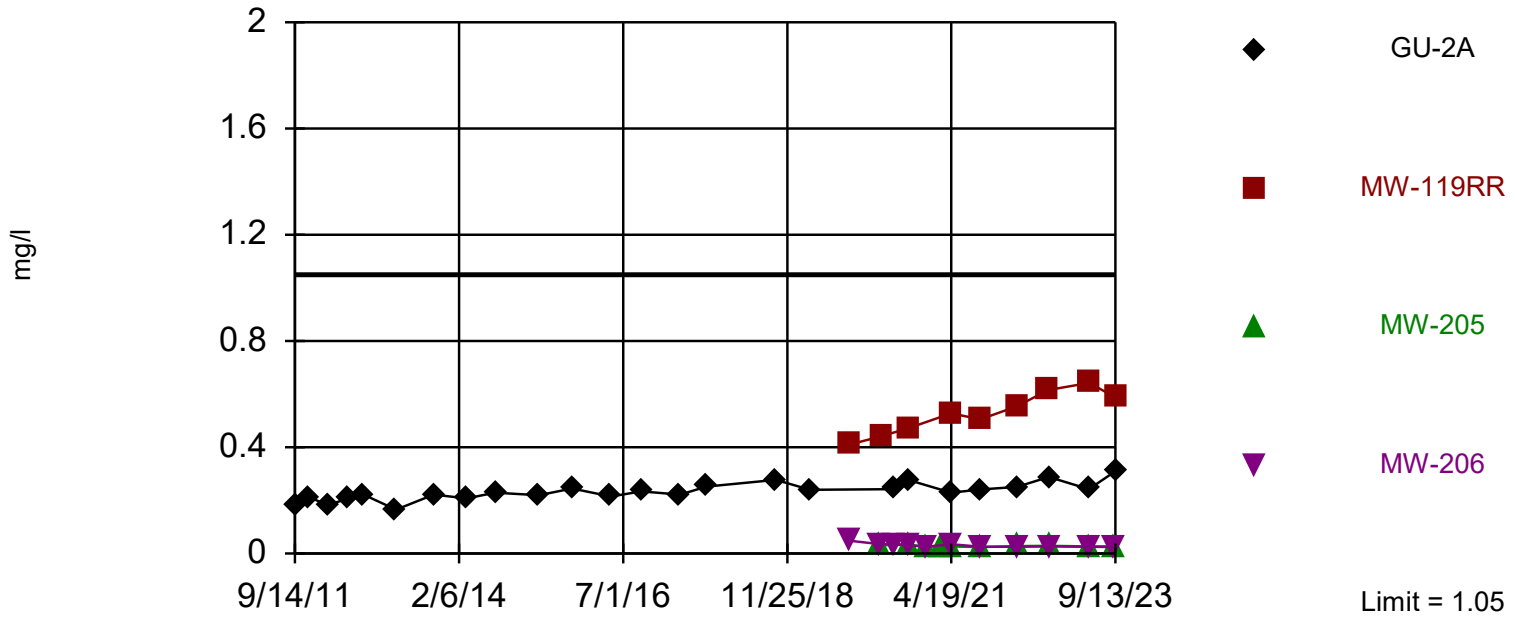
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

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Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 71 background values. Annual per-constituent alpha = 0.004532. Individual comparison alpha = 0.0003785 (1 of 2).

Constituent: Barium Analysis Run 11/3/2023 2:26 PM

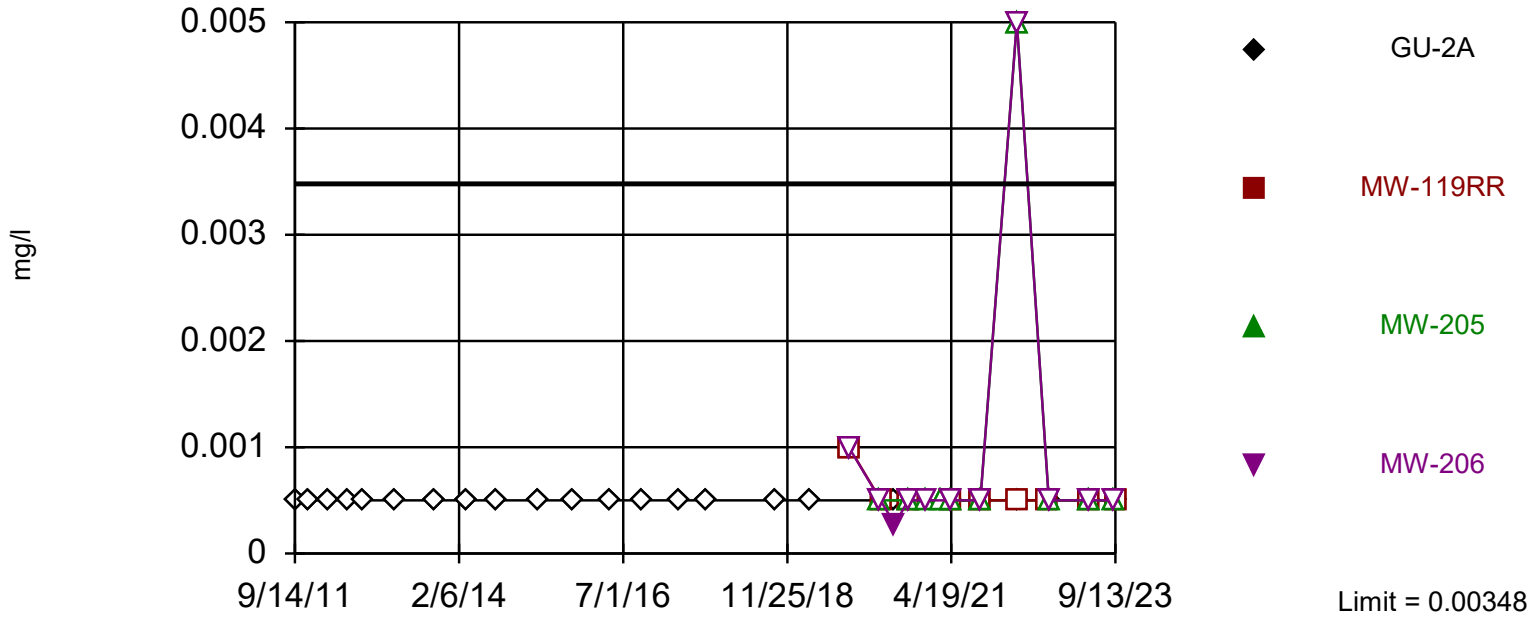
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 71 background values. 97.18% NDs. Annual per-constituent alpha = 0.004532. Individual comparison alpha = 0.0003785 (1 of 2).

Constituent: Beryllium Analysis Run 11/3/2023 2:26 PM

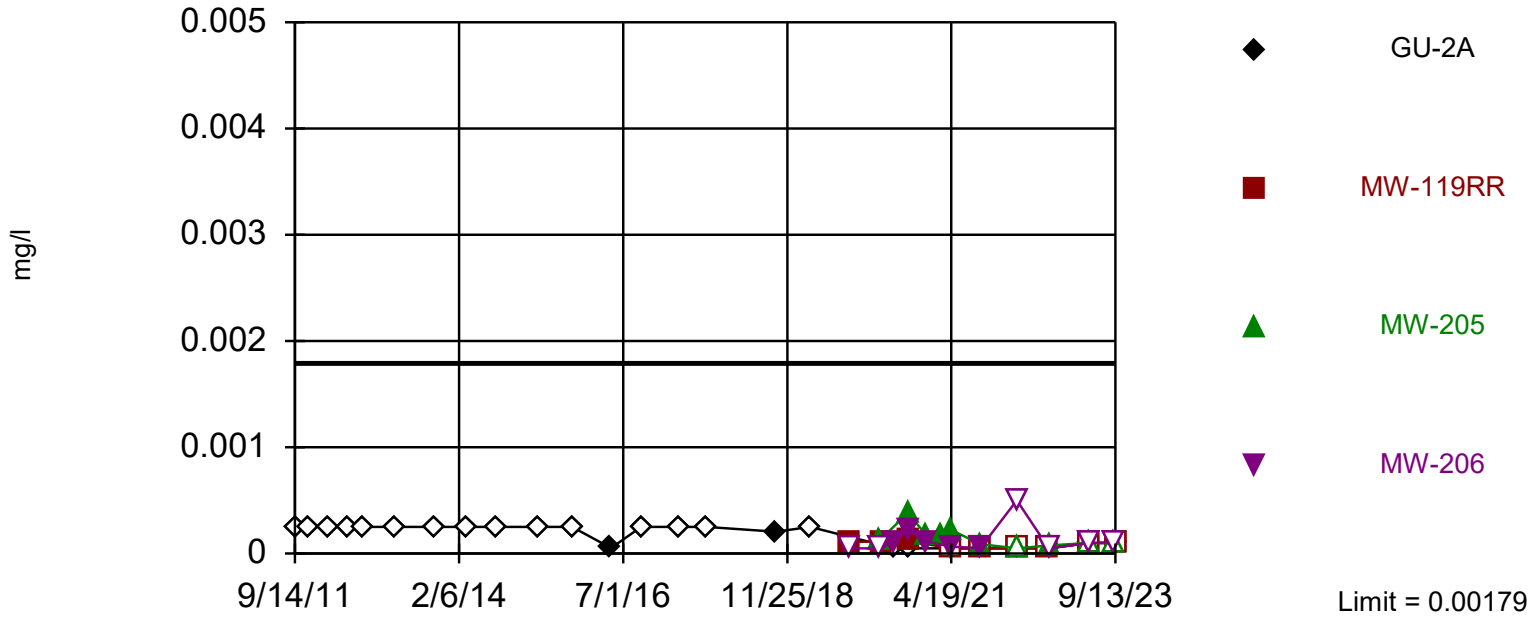
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 71 background values. 63.38% NDs. Annual per-constituent alpha = 0.004532. Individual comparison alpha = 0.0003785 (1 of 2).

Constituent: Cadmium Analysis Run 11/3/2023 2:26 PM

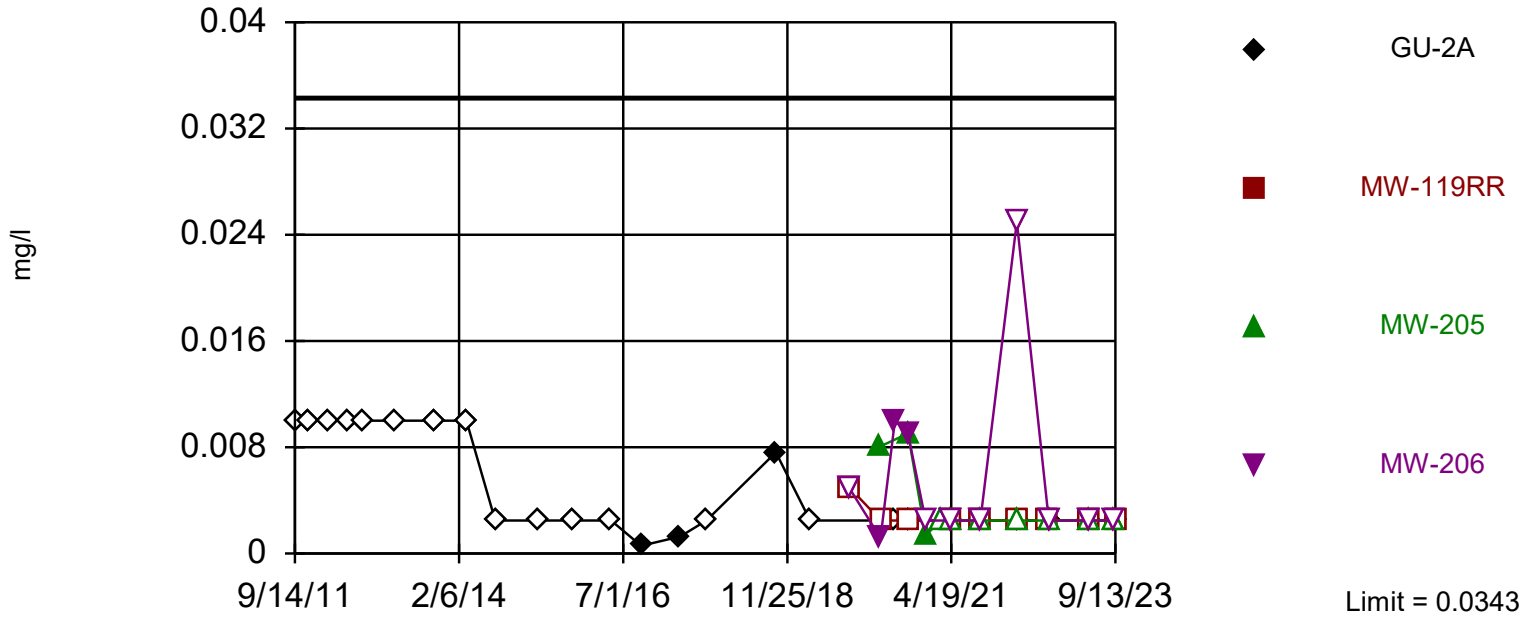
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 71 background values. 69.01% NDs. Annual per-constituent alpha = 0.004532. Individual comparison alpha = 0.0003785 (1 of 2).

Constituent: Chromium Analysis Run 11/3/2023 2:26 PM

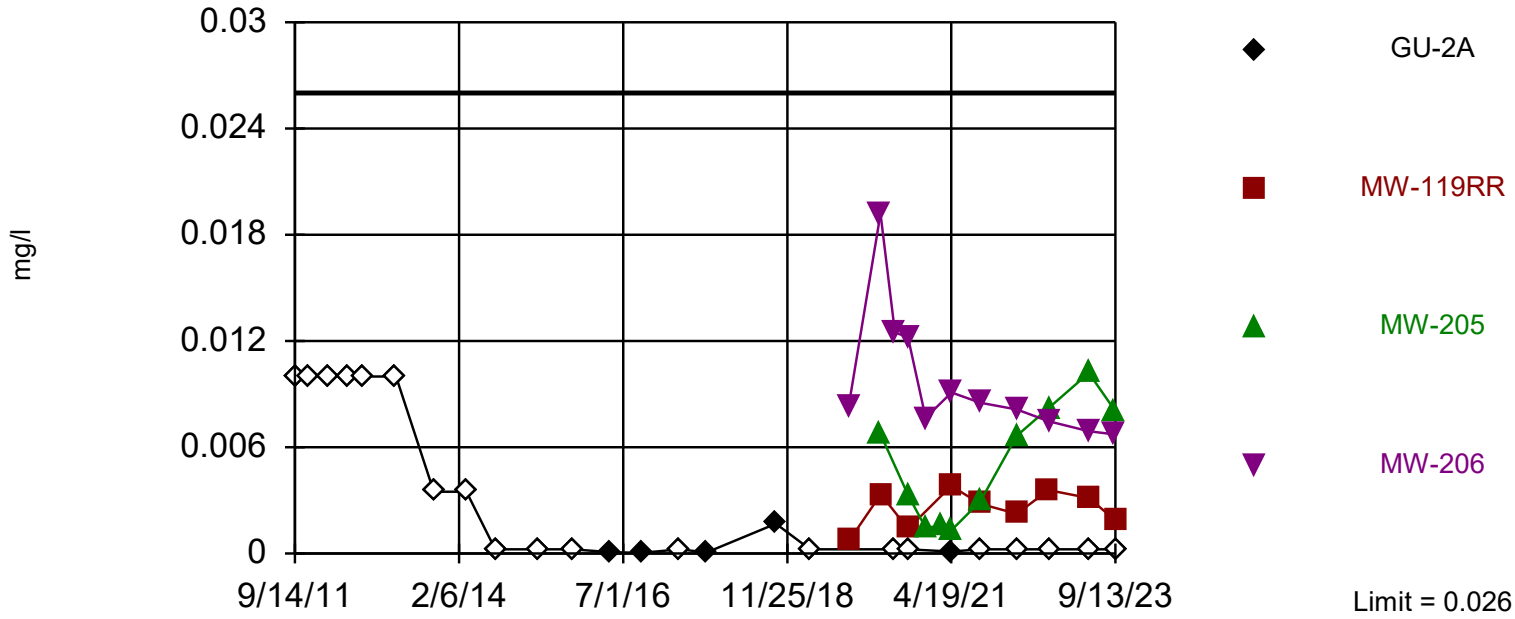
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 71 background values. 84.51% NDs. Annual per-constituent alpha = 0.004532. Individual comparison alpha = 0.0003785 (1 of 2).

Constituent: Cobalt Analysis Run 11/3/2023 2:26 PM

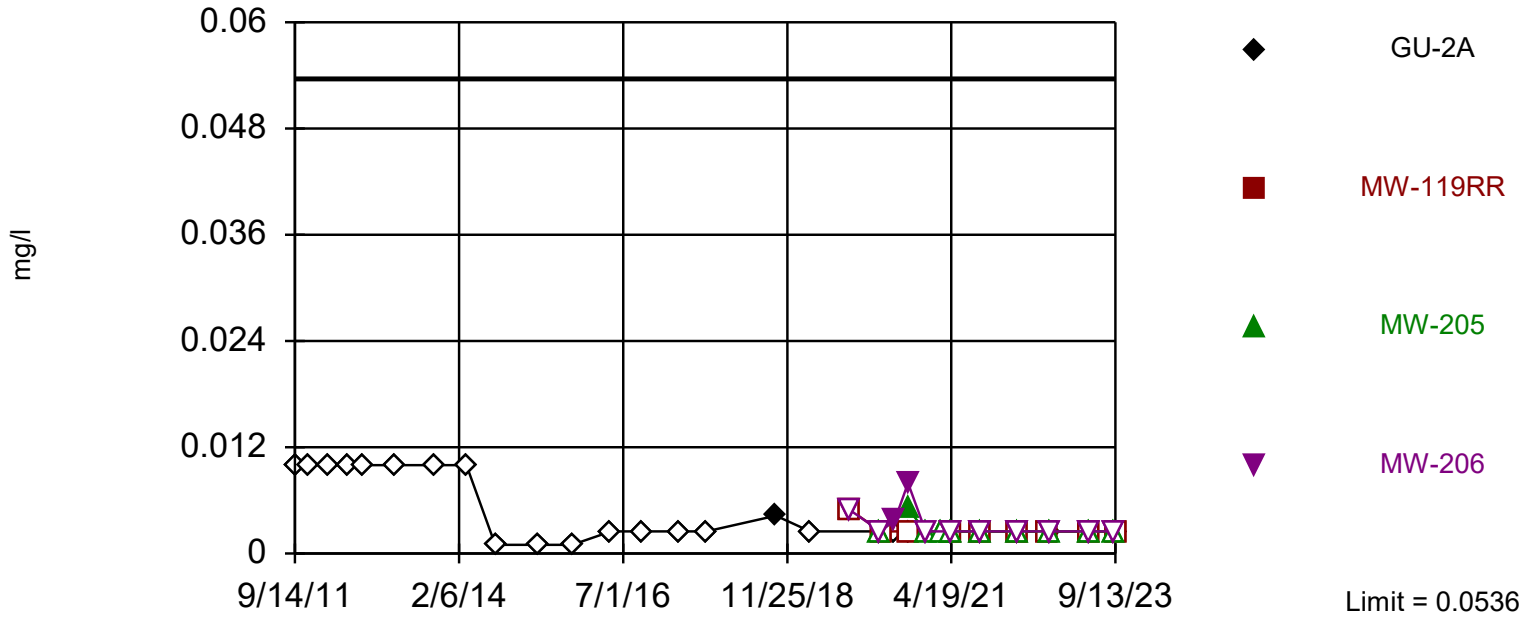
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 71 background values. 94.37% NDs. Annual per-constituent alpha = 0.004532. Individual comparison alpha = 0.0003785 (1 of 2).

Constituent: Copper Analysis Run 11/3/2023 2:27 PM

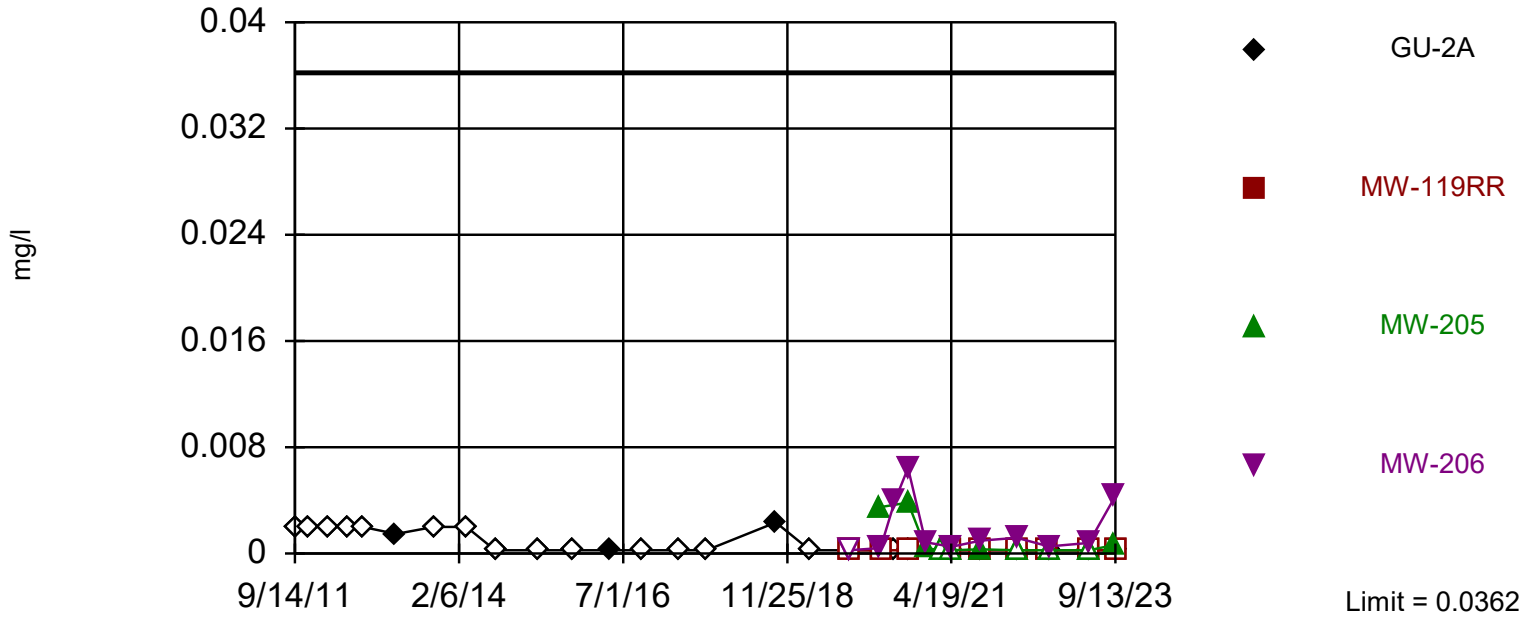
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 71 background values. 88.73% NDs. Annual per-constituent alpha = 0.004532. Individual comparison alpha = 0.0003785 (1 of 2).

Constituent: Lead Analysis Run 11/3/2023 2:27 PM

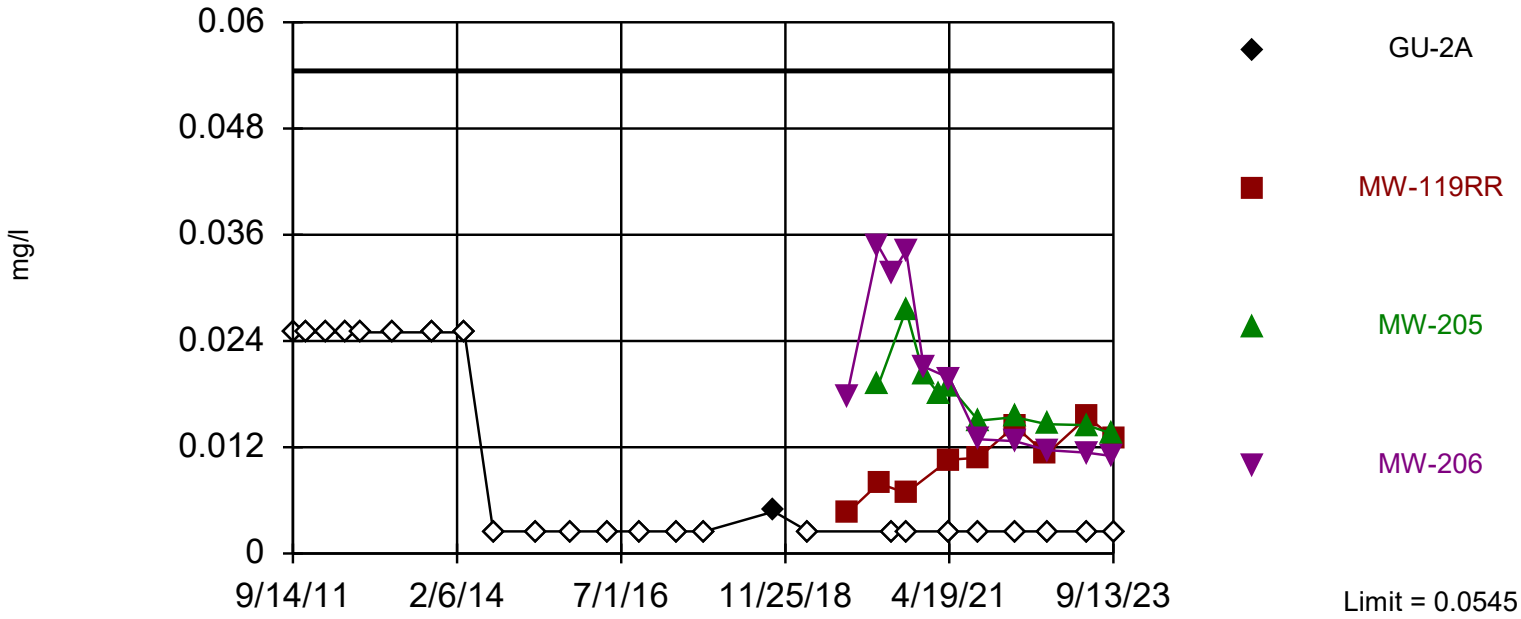
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 71 background values. 67.61% NDs. Annual per-constituent alpha = 0.004532. Individual comparison alpha = 0.0003785 (1 of 2).

Constituent: Nickel Analysis Run 11/3/2023 2:27 PM

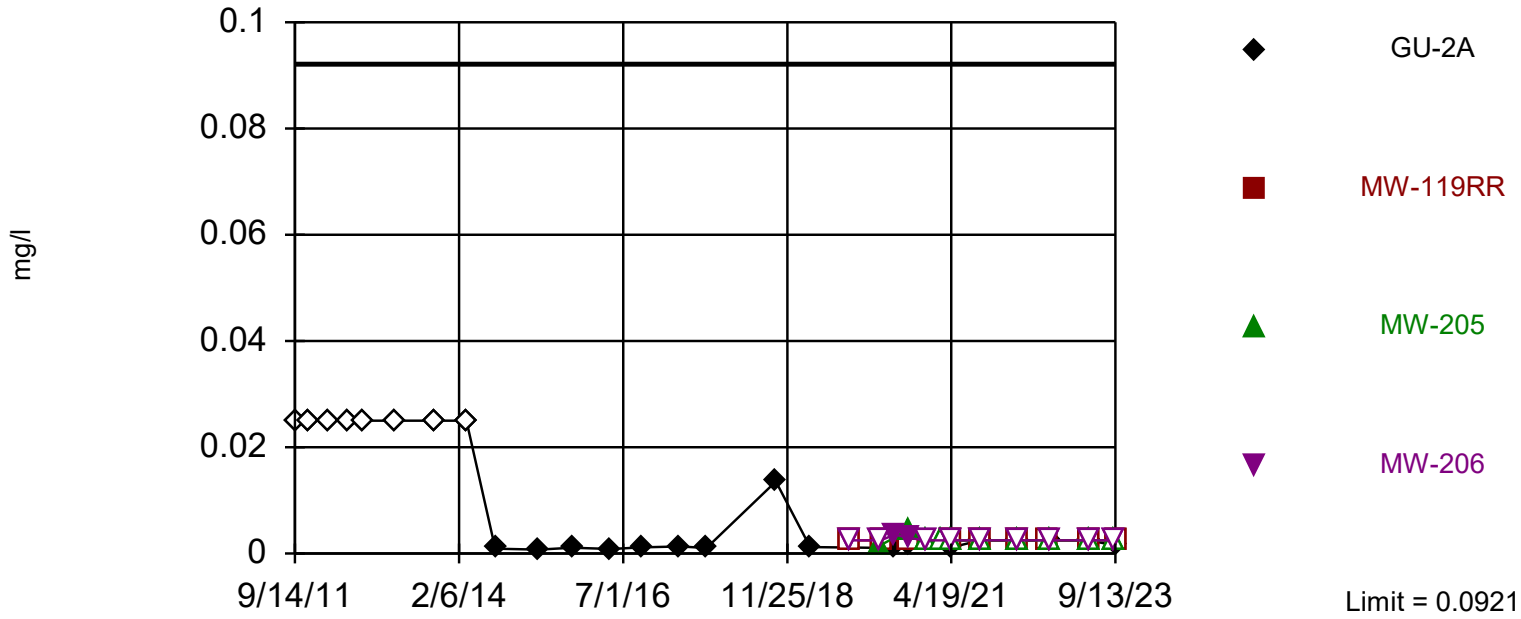
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 71 background values. 76.06% NDs. Annual per-constituent alpha = 0.004532. Individual comparison alpha = 0.0003785 (1 of 2).

Constituent: Vanadium Analysis Run 11/3/2023 2:27 PM

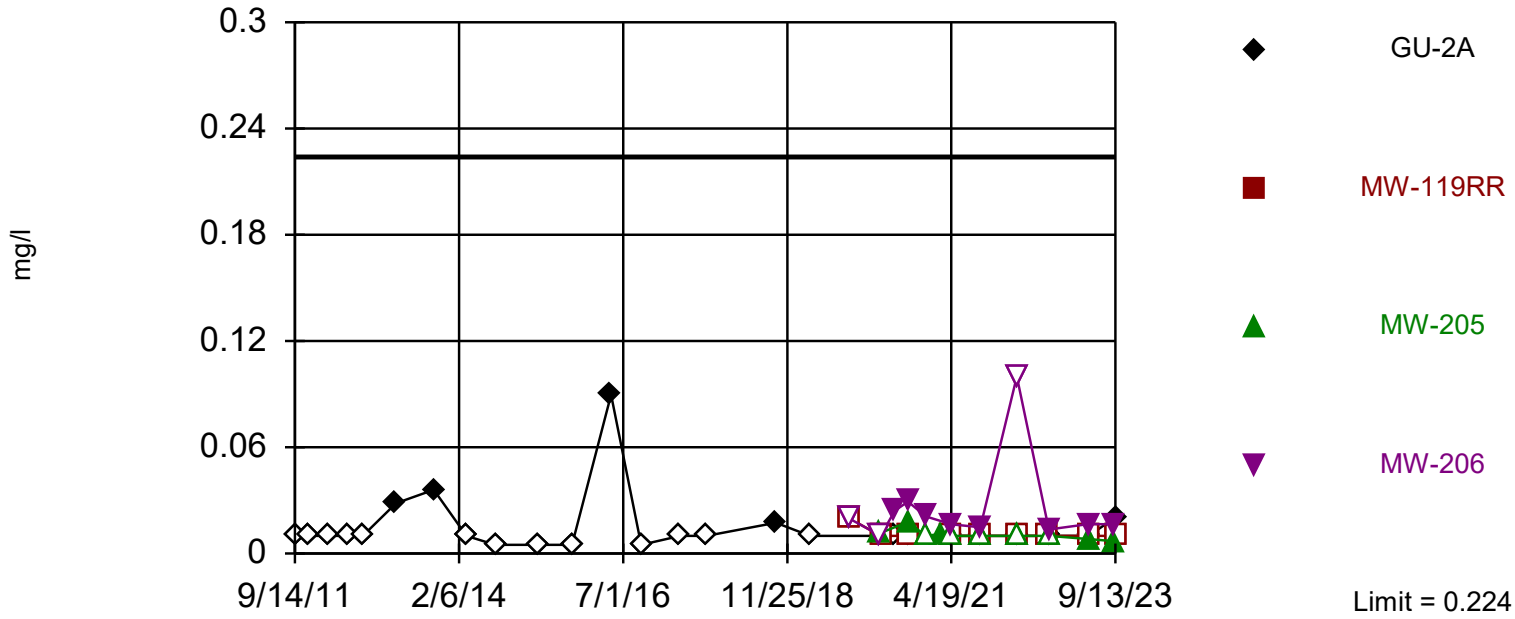
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Detection Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 71 background values. 63.38% NDs. Annual per-constituent alpha = 0.004532. Individual comparison alpha = 0.0003785 (1 of 2).

Constituent: Zinc Analysis Run 11/3/2023 2:27 PM

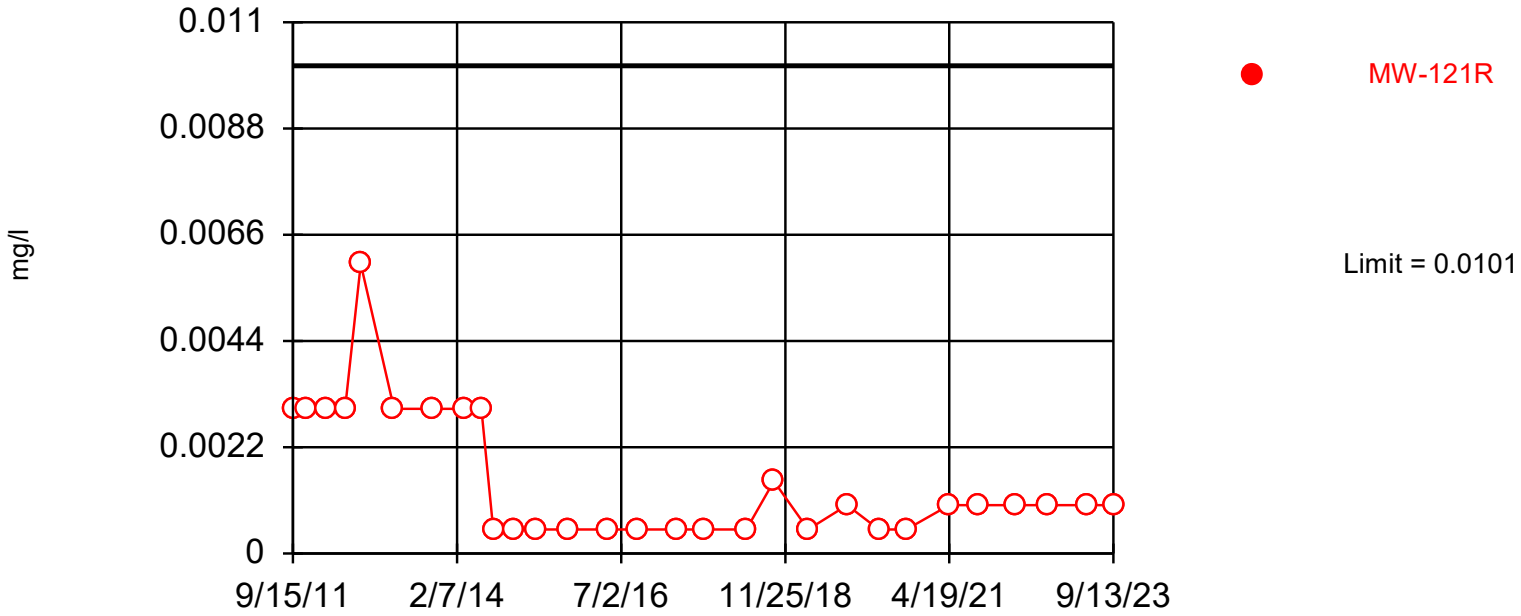
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 71 background values. 98.59% NDs. Annual per-constituent alpha = 0.004532. Individual comparison alpha = 0.0003785 (1 of 2).

Constituent: Antimony Analysis Run 11/3/2023 3:11 PM

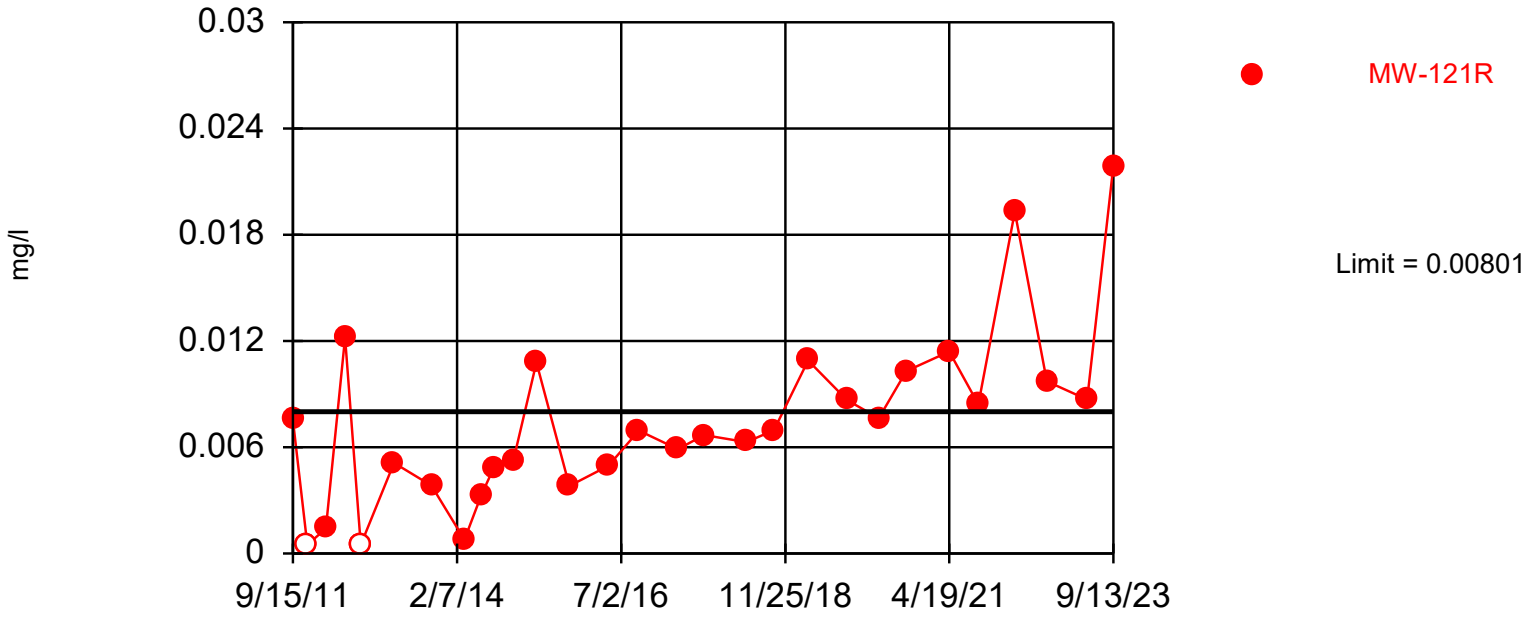
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Exceeds Limit: MW-121R

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 71 background values. 90.14% NDs. Annual per-constituent alpha = 0.004532. Individual comparison alpha = 0.0003785 (1 of 2).

Constituent: Arsenic Analysis Run 11/3/2023 3:11 PM

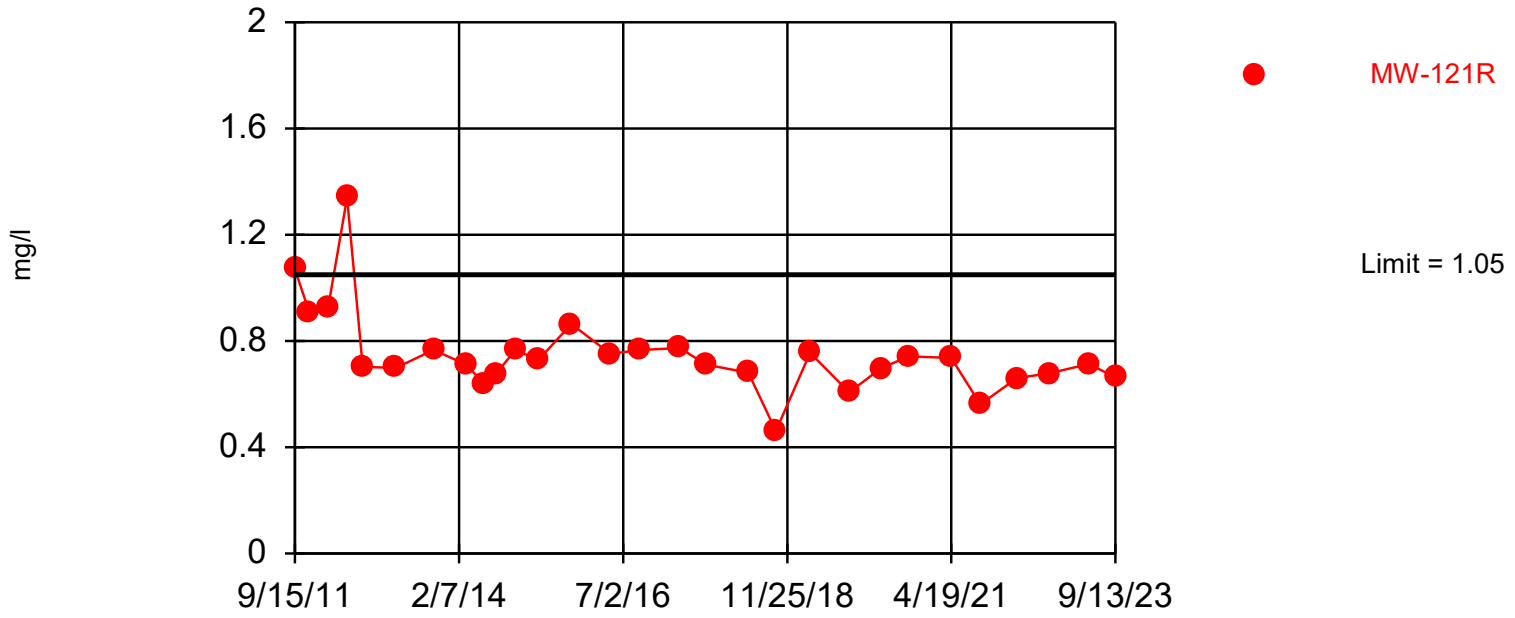
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG

Within Limit

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 71 background values. Annual per-constituent alpha = 0.004532. Individual comparison alpha = 0.0003785 (1 of 2).

Constituent: Barium Analysis Run 11/3/2023 3:11 PM

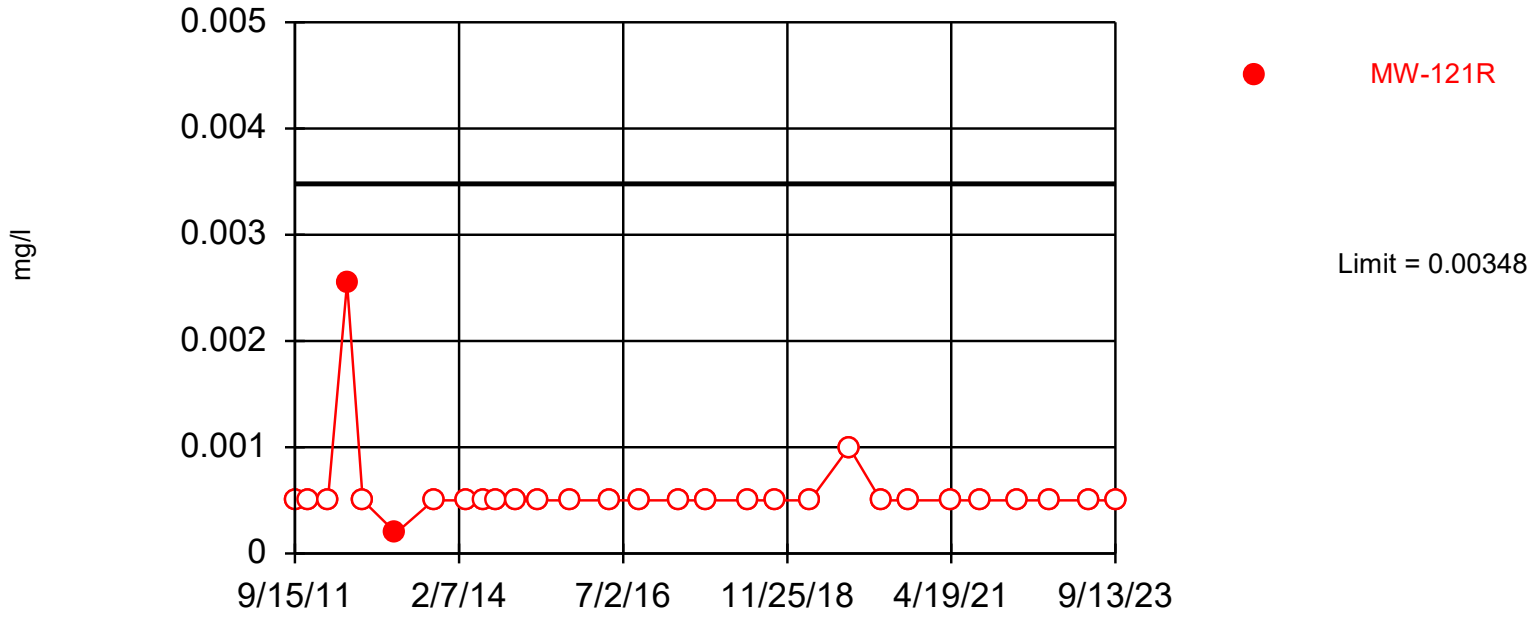
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 71 background values. 97.18% NDs. Annual per-constituent alpha = 0.004532. Individual comparison alpha = 0.0003785 (1 of 2).

Constituent: Beryllium Analysis Run 11/3/2023 3:11 PM

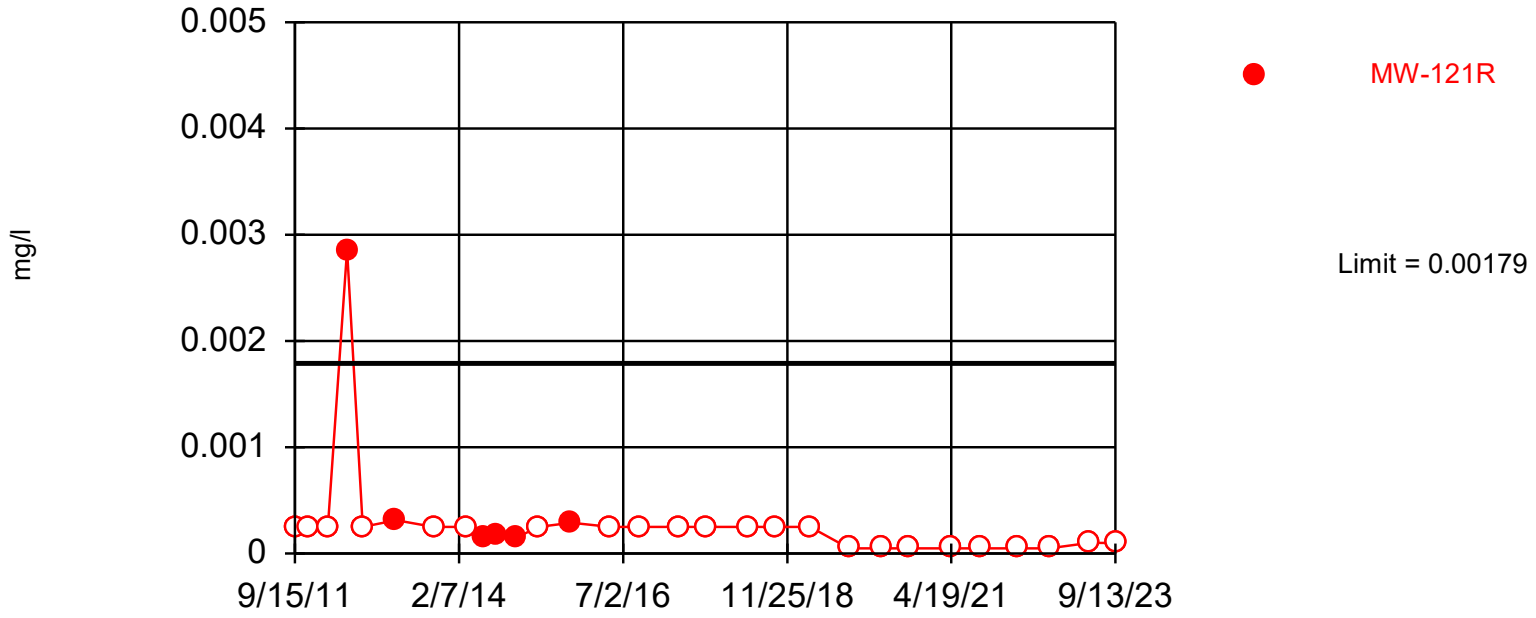
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 71 background values. 63.38% NDs. Annual per-constituent alpha = 0.004532. Individual comparison alpha = 0.0003785 (1 of 2).

Constituent: Cadmium Analysis Run 11/3/2023 3:11 PM

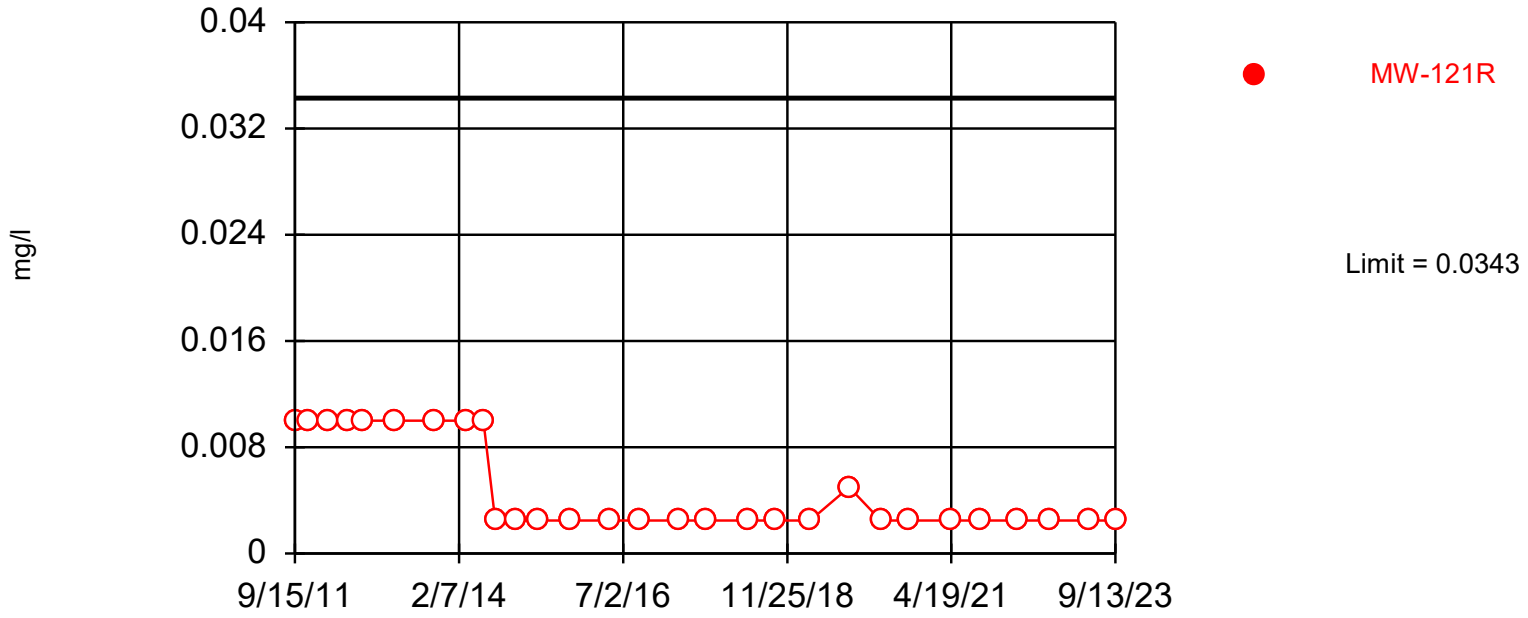
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 71 background values. 69.01% NDs. Annual per-constituent alpha = 0.004532. Individual comparison alpha = 0.0003785 (1 of 2).

Constituent: Chromium Analysis Run 11/3/2023 3:11 PM

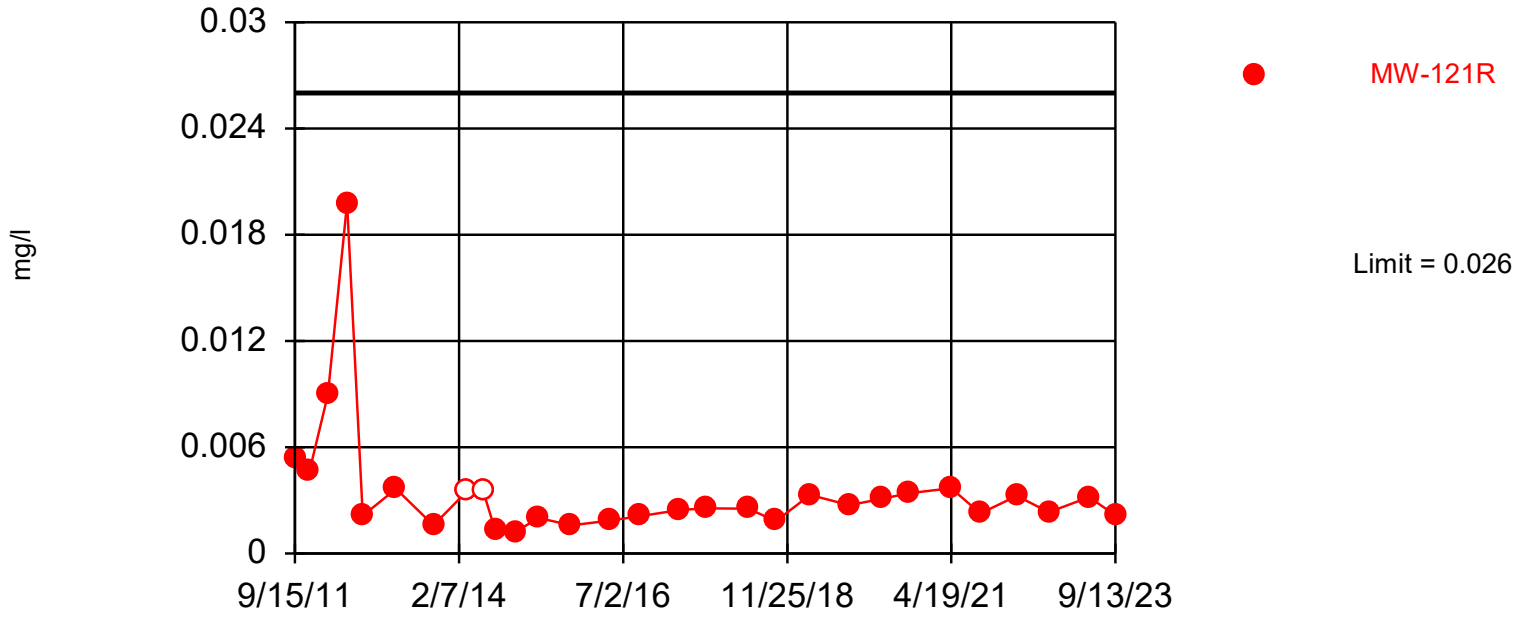
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 71 background values. 84.51% NDs. Annual per-constituent alpha = 0.004532. Individual comparison alpha = 0.0003785 (1 of 2).

Constituent: Cobalt Analysis Run 11/3/2023 3:11 PM

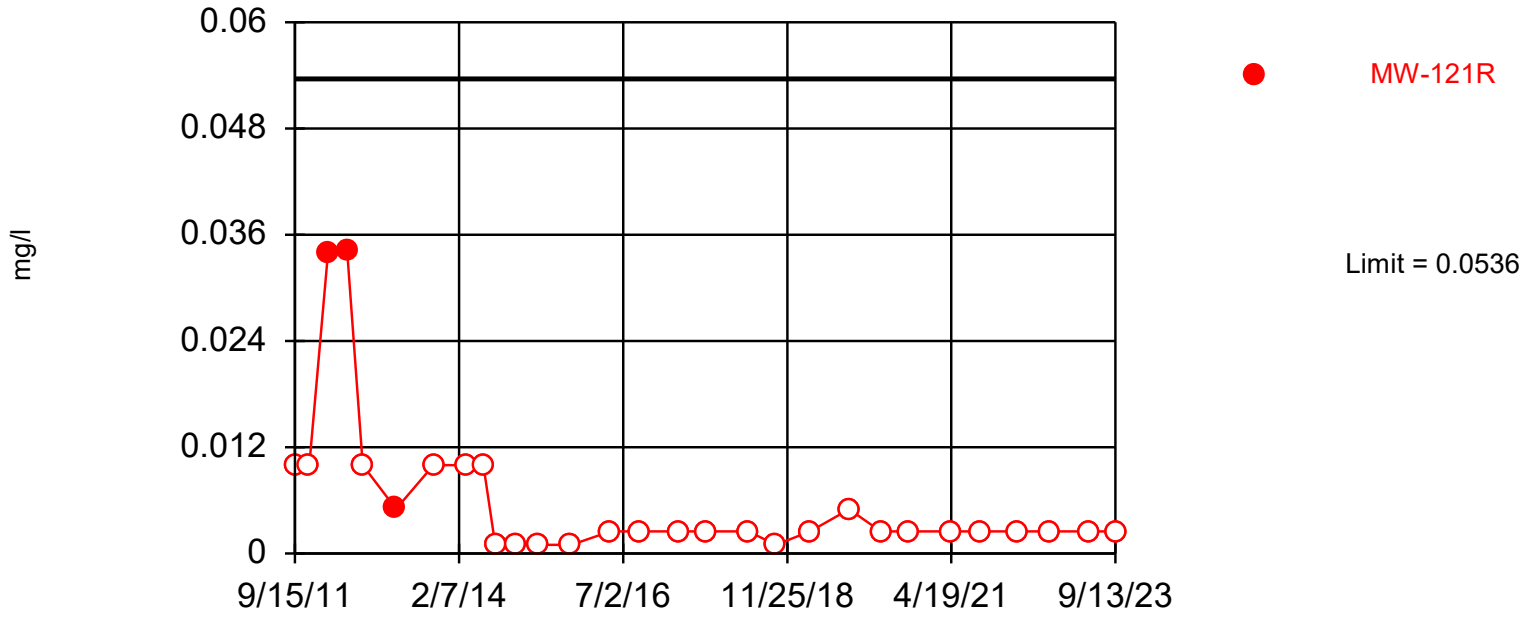
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 71 background values. 94.37% NDs. Annual per-constituent alpha = 0.004532. Individual comparison alpha = 0.0003785 (1 of 2).

Constituent: Copper Analysis Run 11/3/2023 3:11 PM

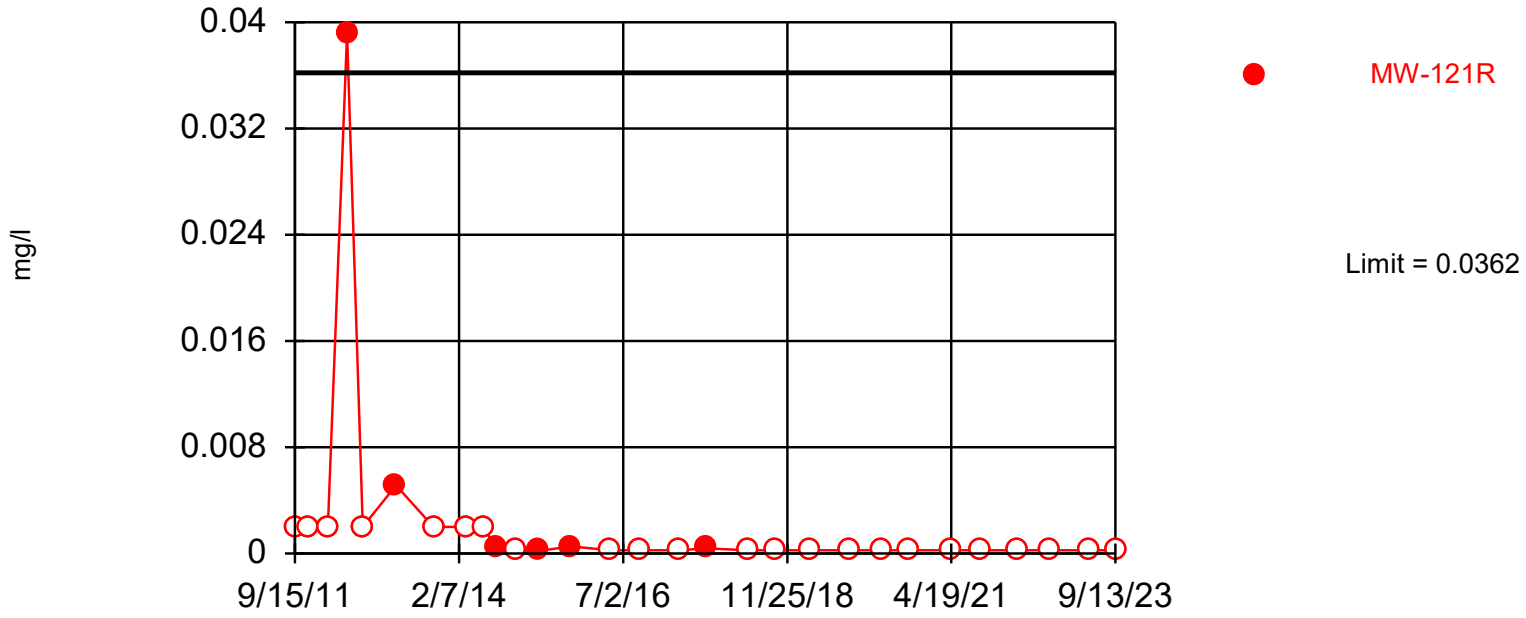
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 71 background values. 88.73% NDs. Annual per-constituent alpha = 0.004532. Individual comparison alpha = 0.0003785 (1 of 2).

Constituent: Lead Analysis Run 11/3/2023 3:11 PM

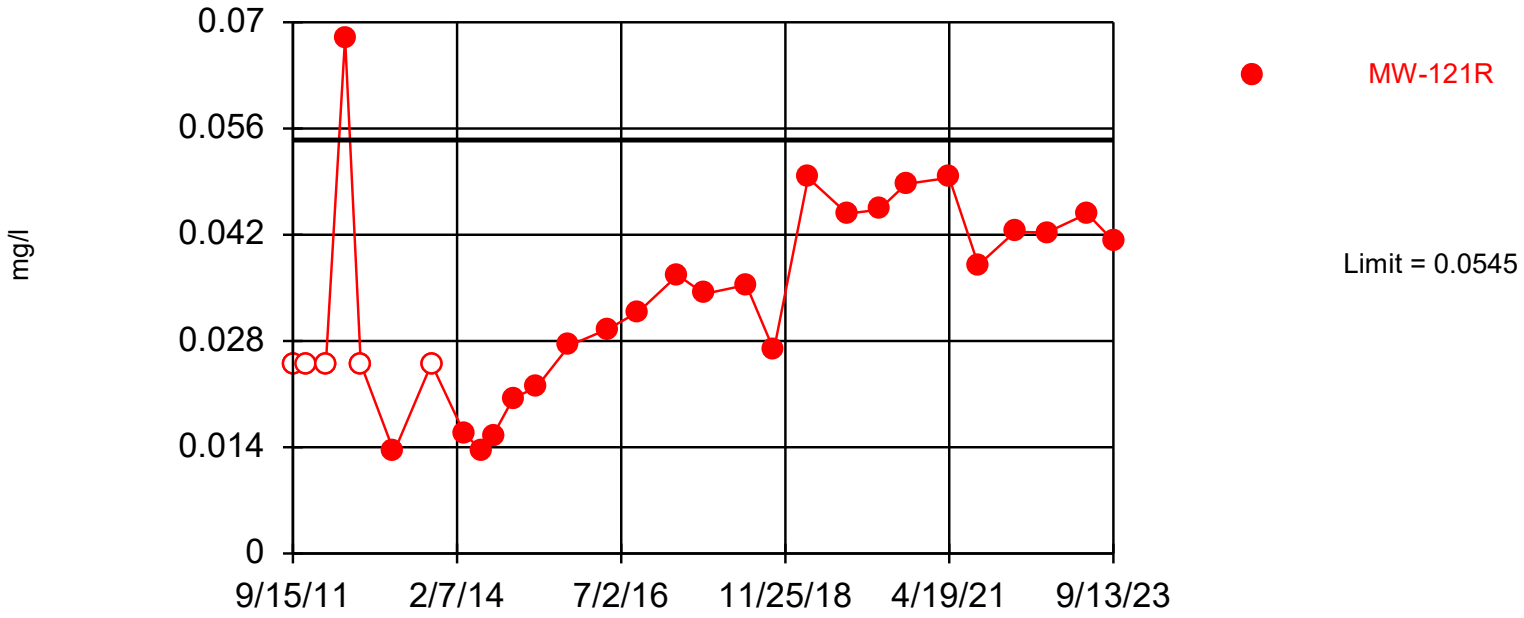
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 71 background values. 67.61% NDs. Annual per-constituent alpha = 0.004532. Individual comparison alpha = 0.0003785 (1 of 2).

Constituent: Nickel Analysis Run 11/3/2023 3:11 PM

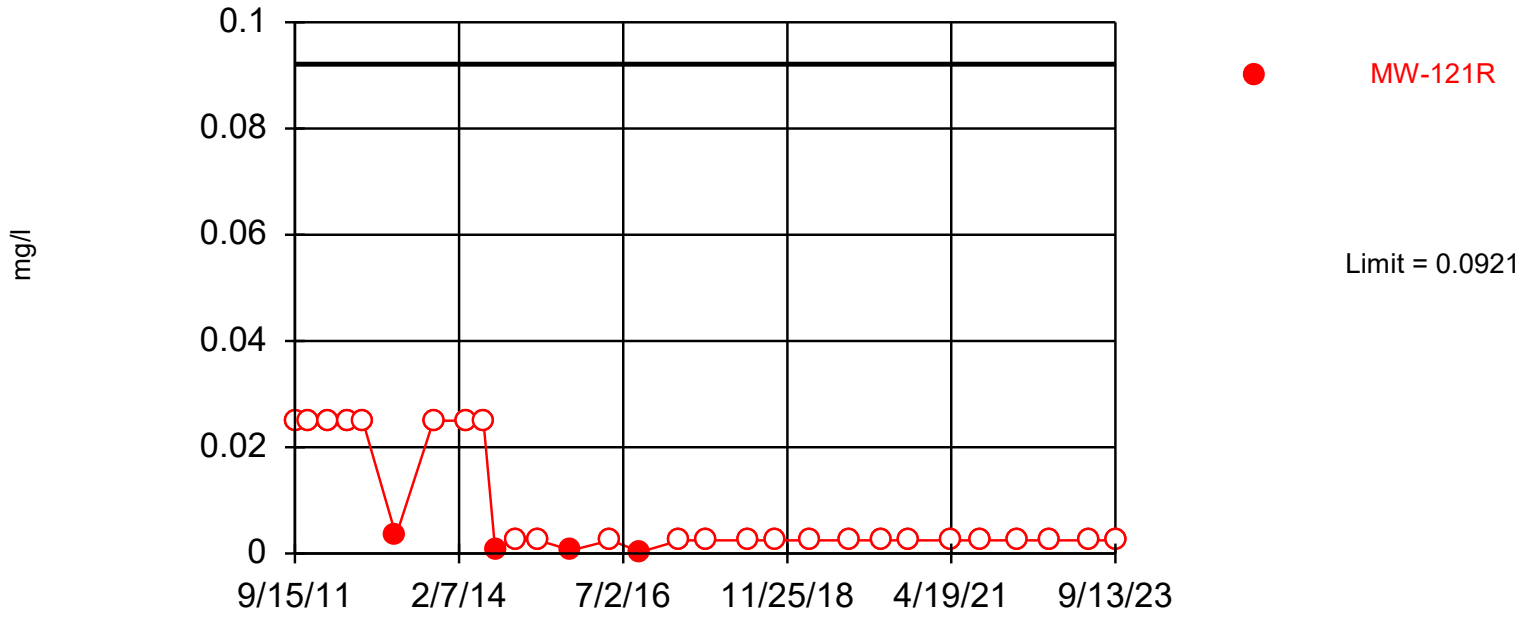
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 71 background values. 76.06% NDs. Annual per-constituent alpha = 0.004532. Individual comparison alpha = 0.0003785 (1 of 2).

Constituent: Vanadium Analysis Run 11/3/2023 3:11 PM

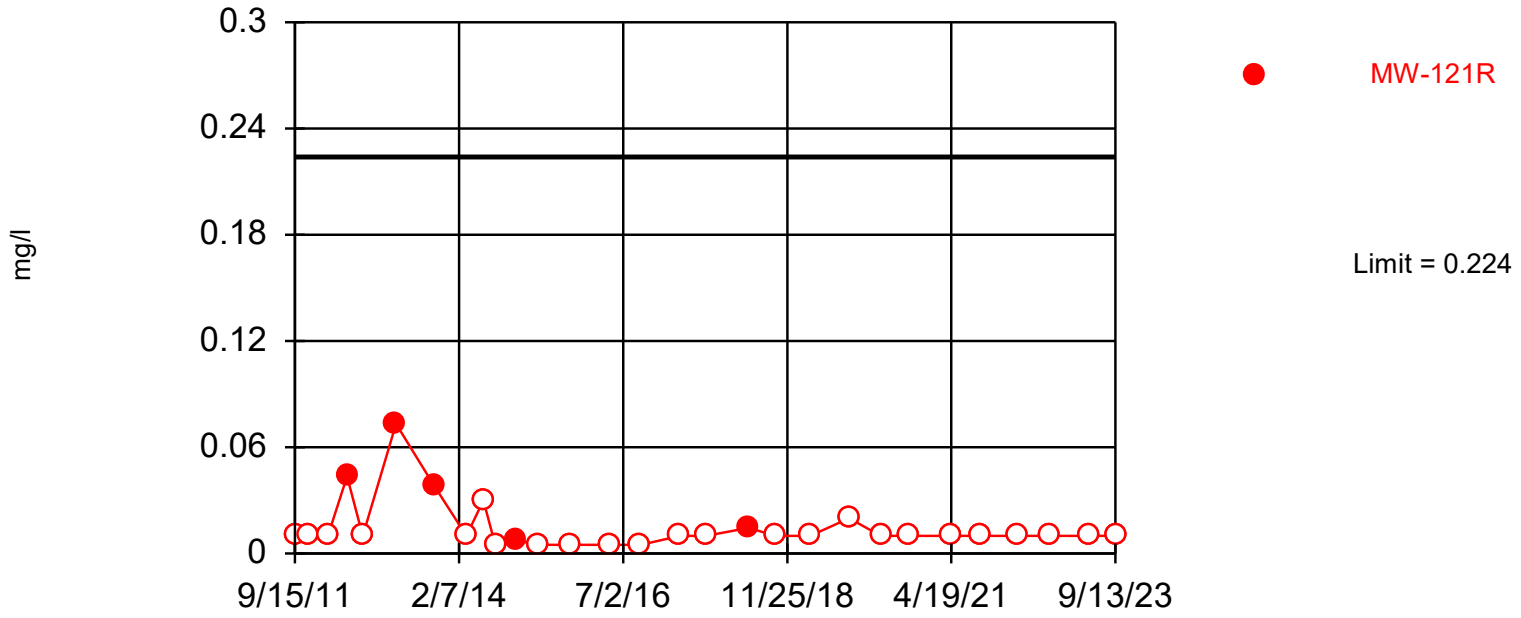
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit - Assessment Monitoring

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 71 background values. 63.38% NDs. Annual per-constituent alpha = 0.004532. Individual comparison alpha = 0.0003785 (1 of 2).

Constituent: Zinc Analysis Run 11/3/2023 3:11 PM

Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Attachment 4

Sanitas Report Output for Double Quantification Rule Evaluations

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG

Detect Screening - Detection Monitoring

Analysis Run 11/3/2023 3:25 PM

Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

A listing of detects for 205 constituents in GU-2A, MW-119RR, MW-200, MW-205, and MW-206 in September 2023:

-none-

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG

Detect Screening - Assessment Monitoring

Analysis Run 11/3/2023 3:23 PM
Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

A listing of detects for 205 constituents in MW-121R In September 2023:

Benzene, MW-121R, 9/13/2023: 1.04 ug/l
cis-1,2-Dichloroethene, MW-121R, 9/13/2023: 10.1 ug/l

Attachment 5
Sanitas Report Output for Confidence Interval Calculations
Assessment Mode

Confidence Interval - Assessment Mode [1]

Constituent Name	Well	Upper Limit	Lower Limit	Compliance Limit [2]	Exceed	N	Mean	Standard Deviation	CV	a to Achieve 50% Power at R=1.5 [3,4]	a to Achieve 80% Power at R=2.0 [3,4]	% Non-detects	Non-detect Adjustment	Transformation	Alpha	Method
Assessment Monitoring Locations																
Arsenic (mg/l)	MW-121R	0.0097	0.0051	0.01	No	29	0.0074	0.0049	0.66	<0.01	<0.01	7	None	No	0.01	Param.
Benzene (ug/l)	MW-121R	1.02	0.25	5	No	30	0.66	0.41	0.62	<0.01	<0.01	37	None	No	0.01	NP (normality)
cis-1,2-Dichloroethene (ug/l)	MW-121R	18.8	1.9	70	No	30	11.3	9.0	0.80	<0.01	<0.01	17	None	No	0.01	NP (normality)

[1] Under assessment mode, an SSL is indicated when the lower confidence limit exceeds the groundwater protection standard (compliance limit).

[2] Value is the 40 CFR Part 141 Safe Drinking Water Act MCL or the IAC 567 Chapter 137 Statewide Standard for a Protected Groundwater Source.

[3] For parametric confidence intervals: Except where otherwise indicated, based on Unified Guidance Equation 22.2, i.e., $\alpha \sim 1 - F_{T,n-1}\left(\frac{(R-1)\sqrt{n}}{R \cdot \widehat{CV}} - t_{1-\beta,n-1}\right)$

where R is the desired risk ratio, n is the sample size, CV is the estimated sample coefficient of variation, $t_{1-b,n-1}$ is the (1−b) Student's t-quantile with (n−1) degrees of freedom, and F is the cumulative (central) Student's t-distribution function.

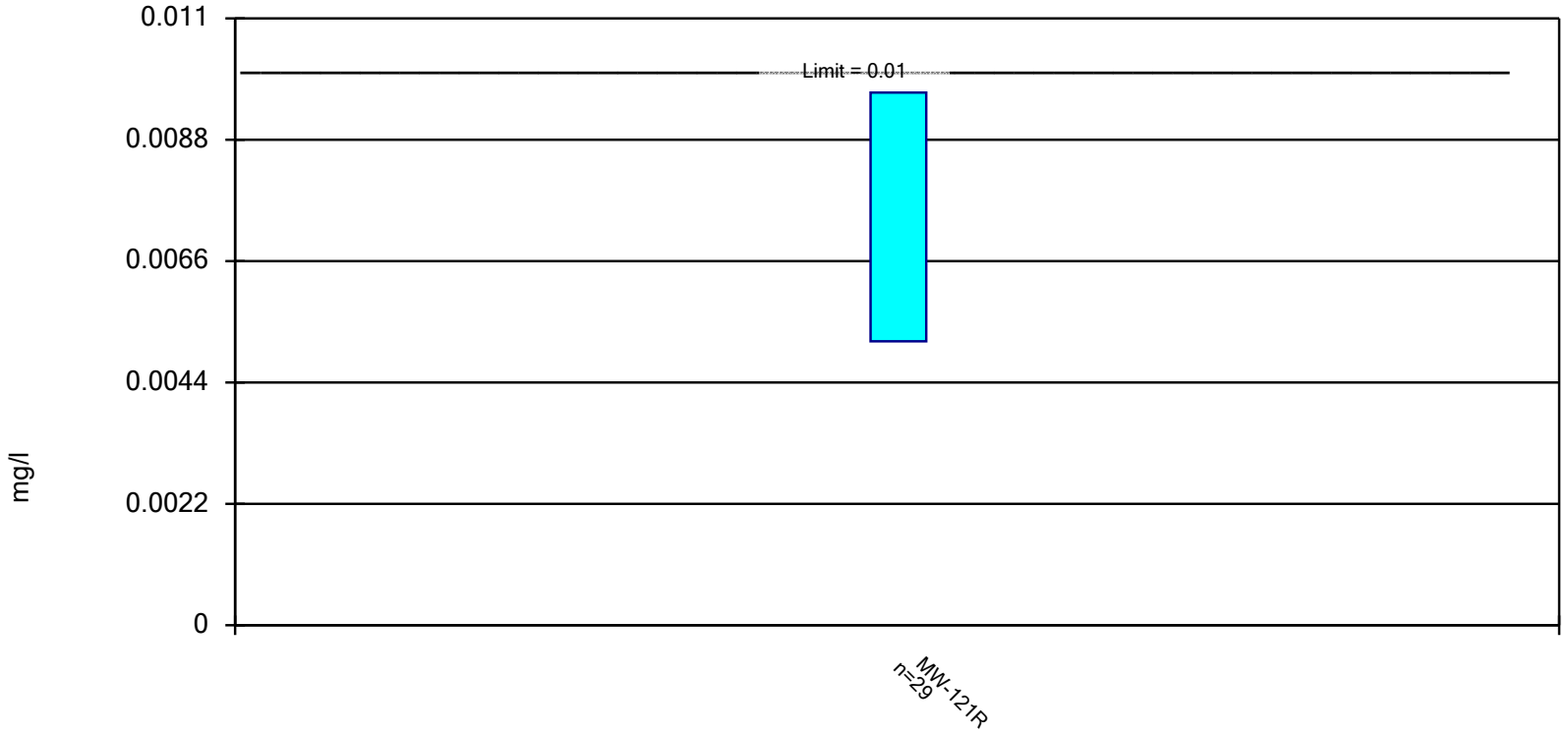
[4] For non-parametric confidence intervals: Based on Unified Guidance Equation 22.1, i.e., $1 - \beta = G_{T,n-1}\left(t_{1-\alpha,n-1} \middle| \Delta = \sqrt{n}(R-1)\right)$

where R is the desired risk ratio, $t_{1-a,n-1}$ is the (1−a) Student's t-quantile with (n−1) degrees of freedom and G represents the cumulative non-central t-distribution with (n−1) degrees of freedom and noncentrality parameter D.

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Parametric Confidence Interval - Assessment Monitoring

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



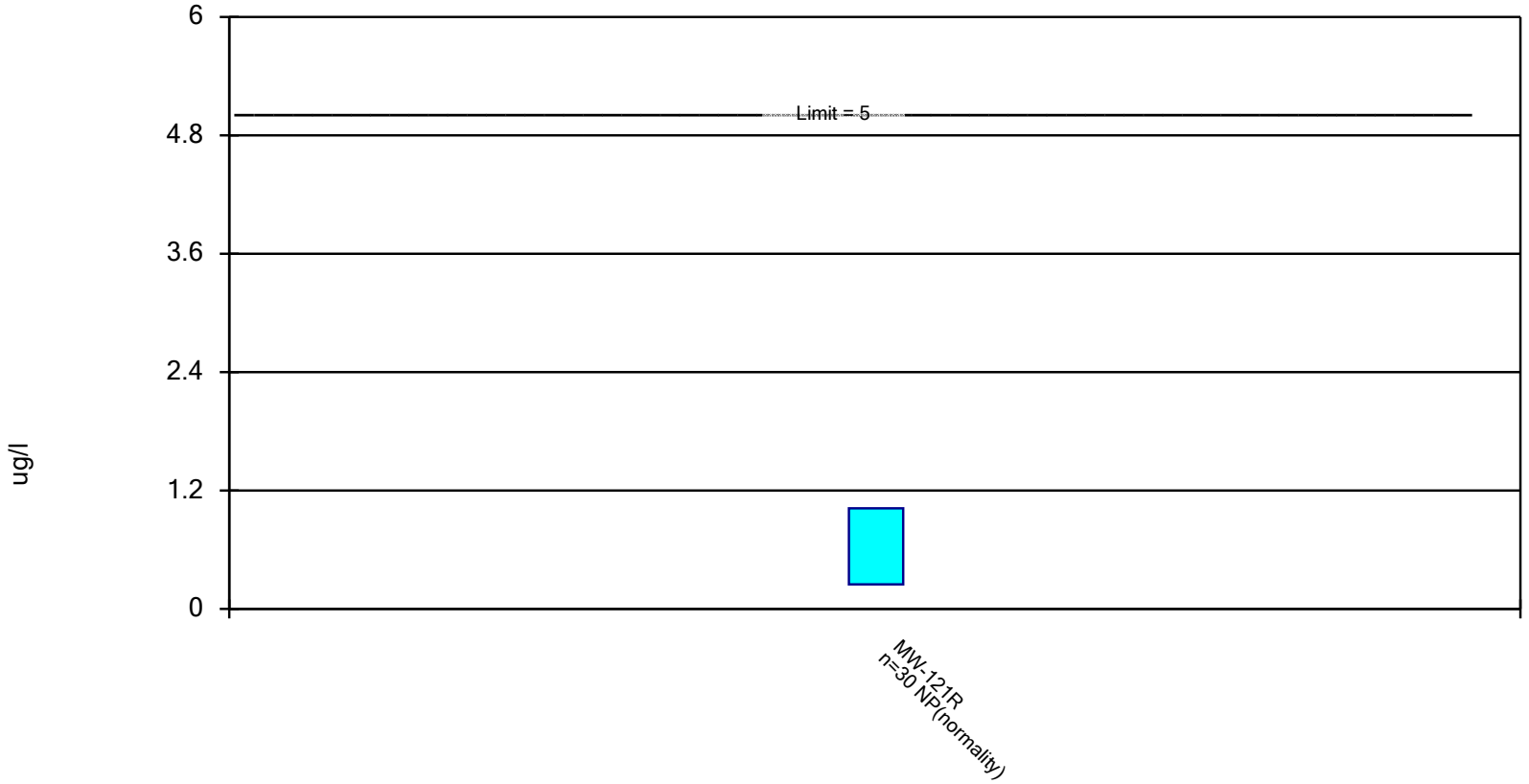
Constituent: Arsenic Analysis Run 11/6/2023 9:21 AM

Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG

Non-Parametric Confidence Interval - Assessment Monitoring

Compliance Limit is not exceeded. Per-well alpha = 0.01.



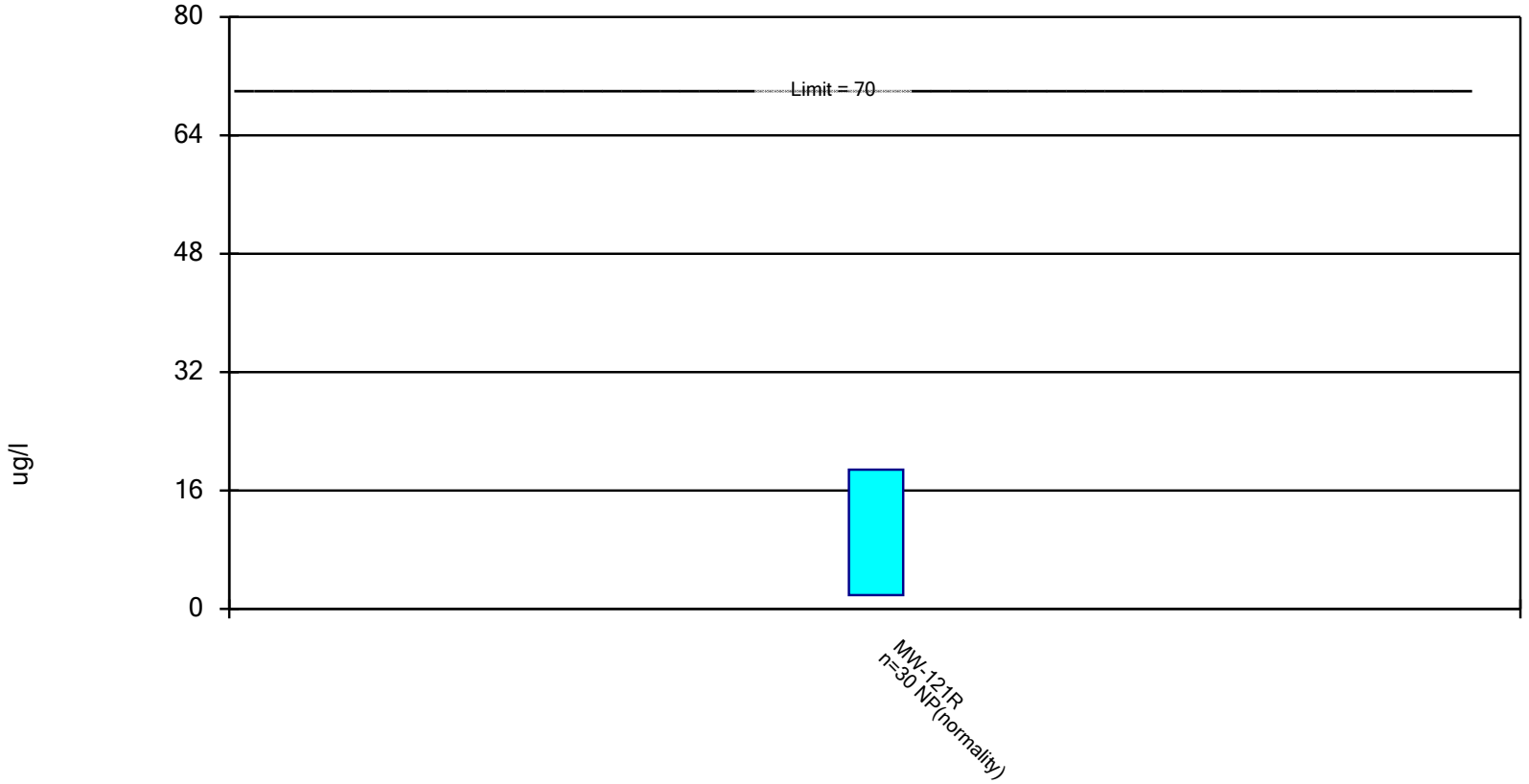
Constituent: Benzene Analysis Run 11/6/2023 9:22 AM

Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Sanitas™ v.10.0.15 Software licensed to Foth Infrastructure & Environment, LLC. UG

Non-Parametric Confidence Interval - Assessment Monitoring

Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: cis-1,2-Dichloroethene Analysis Run 11/6/2023 9:22 AM

Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Attachment 6
Effective Power and Site-Wide False Positive Rate Discussion
Power Curve Evaluation

Effective Power and Site-Wide False Positive Rate

Statistical power refers to the ability of a test to identify real increases in concentration levels given they exist. The Unified Guidance defines the effective power as the "probability of detecting contamination in the monitoring network when one and only one well-constituent pair is contaminated." It further states that any statistical test procedure with effective power at least as high as the appropriate USEPA Reference Power Curve (ERPC) should be considered to have reasonable power.

The Unified Guidance gives the following criteria for comparing the effective power to the ERPC:

If the effective power first exceeds the ERPC at a mean concentration increase no greater than 3 background standard deviations, the power is labeled 'good;' if the effective power first exceeds the ERPC at a mean increase between 3 and 4 standard deviations, the power is considered 'acceptable;' and if the first exceedance of the ERPC does not occur until an increase greater than 4 standard deviations, the power is considered 'low.'

Effective power curves were developed with Sanitas for the 1-of-2 prediction limit plan, with power curves illustrated below. Based on the power curves, the intrawell and interwell non-parametric prediction limits currently have good power ratings.

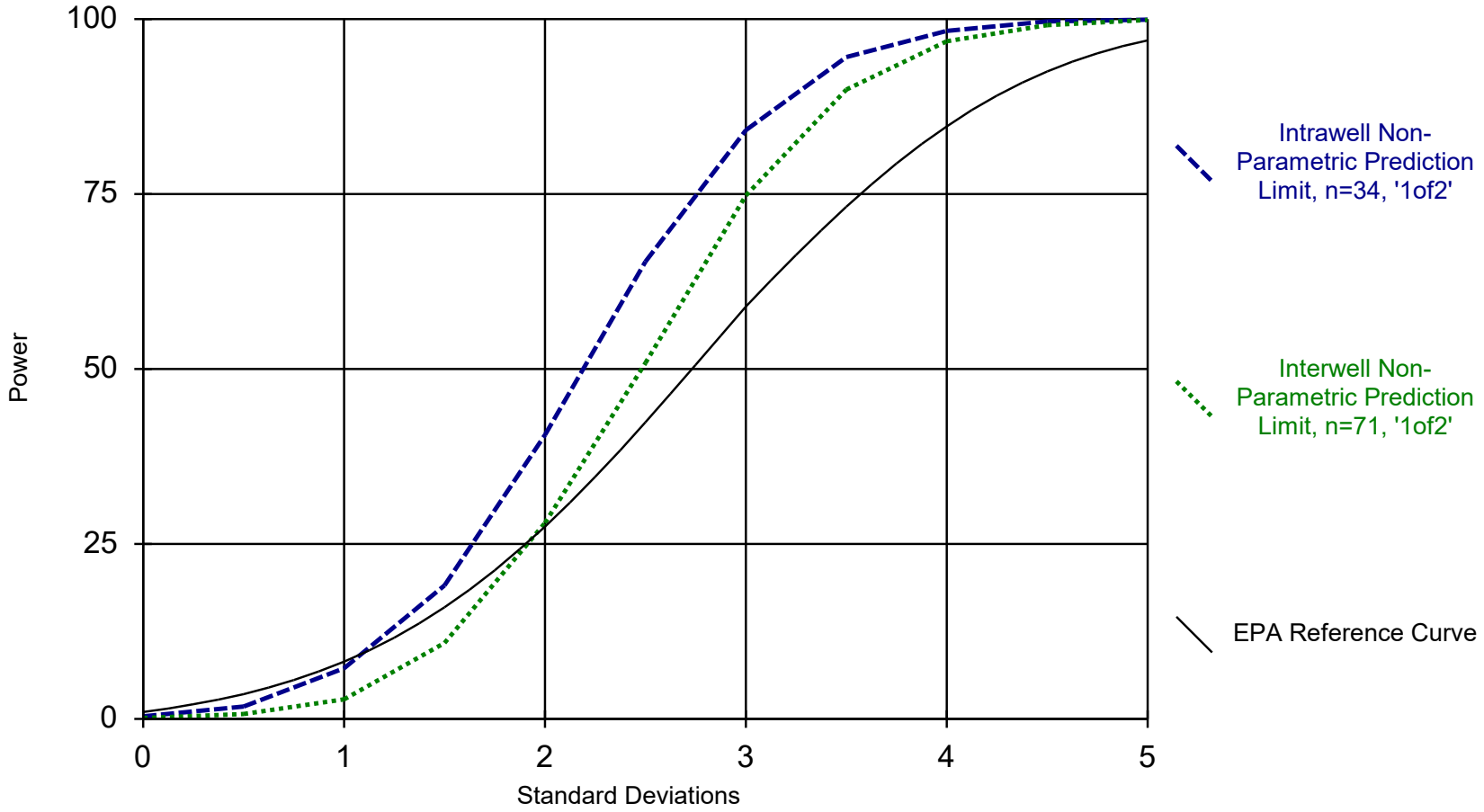
The Unified Guidance "strongly encourages use of a comprehensive design strategy to account for both the cumulative site-wide false positive rate (SWFPR) and effective power to identify real exceedances." The Unified Guidance recommends and uses an annual SWFPR target of 10%. The current annual SWFPR based on the 1-of-2 prediction limit plan may be calculated using the basic subdivision principle discussed in Unified Guidance Sections 6.2.2, 19.2.1 and 19.4.

Currently, comparisons are made at 6 compliance locations and semiannually with a total of 150 single tests annually. Note that MW-205 is being statistically evaluated as a temporary or potential replacement for MW-204RR.

The Sanitas prediction limit report output of Attachment 3 includes annual individual test α-levels for each well/constituent pair. The α-levels reported by Sanitas account for the 1-of-2 plan, as well as two semiannual events conducted at the site.

The cumulative annual SWFPR can be approximated directly from the α-levels reported in the Sanitas output as SWFPR $= 1 - \prod_{i=1}^{72}(1-\alpha_i)^2 = 0.080 \approx 8\%$. The current annual SWFPR is in compliance with the Unified Guidance target 10% false positive.

Power Curve



Analysis Run 11/6/2023 11:54 AM

Carroll County Landfill Client: Foth Data: Carroll West Fall 2023 Evaluation

Attachment 7
References

References

Foth Infrastructure & Environment, LLC (Foth), 2012. *2011 Annual Water Quality Report, Carroll County Landfill Western Expansion Area, IDNR Permit No. 14-SDP-01-74P, Project I.D.: 12C005.00.* January 17. [Doc. No. 68254].

Foth, 2022. *2021 Annual Water Quality Report, Carroll County Landfill Western Expansion Area, IDNR Permit No. 14-SDP-01-74P, Project I.D.: 22C001.00.* February 28. [Doc. No. 102447].

United States Environmental Protection Agency (USEPA), 1997. *The Lognormal Distribution in Environmental Applications*. EPA/600/R97/006. Office of Solid Waste and Emergency Response, Washington, D.C.

USEPA, 2006. *On the Computation of a 95% Upper Confidence Limit of the Unknown Population Mean Based Upon Data Sets with Below Detection Limit Observations*. EPA/600/R-06/022. Office of Research and Development, Washington, D.C.

USEPA, 2009. *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance*. EPA 530-R-09-007. Office of Resource Conservation and Recovery, Program Implementation and Information Division, Washington, D.C.

Appendix C

Leachate Collection System Data

Leachate Sample Analytical Results

CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

JANUARY, 2023

DATE	FLOW (mgd)	TSS (lds/day act.)	TSS (mg/l act.)	TSS (lbs./day avg.)
1	0.00170	0		2
2	0.00160	0		2
3	0.00280	0		4
4	0.00220	2	119	3
5	0.00160	0		2
6	0.00140	0		2
7	0.00130	0		2
8	0.00130	0		2
9	0.00150	0		2
10	0.00140	0		2
11	0.00150	0		2
12	0.00110	2	194	2
13	0.00150	0		2
14	0.00130	0		2
15	0.00140	0		2
16	0.00160	0		2
17	0.00150	0		2
18	0.00150	2	196	2
19	0.00140	0		2
20	0.00130	0		2
21	0.00150	0		2
22	0.00140	0		2
23	0.00130	0		2
24	0.00150	0		2
25	0.00150	2	149	2
26	0.00140	0		2
27	0.00150	0		2
28	0.00130	0		2
29	0.00130	0		2
30	0.00130	0		2
31	0.00180	0		2
AVG.		0	165	2
TOTAL	0.046700	9	658	64.07

Sean Kleespies
Project Mananger
Grade IV Cert #7768 W.W.T

CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

JANUARY, 2023

DATE	FLOW (mgd)	NH3 (lbs./day act.)	NH3 (mg/l)	NH3 (lbs./day avg.)
1	0.001700	0		15
2	0.001600	0		14
3	0.002800	0		24
4	0.002200	15	834	19
5	0.001600	0		14
6	0.001400	0		12
7	0.001300	0		11
8	0.001300	0		11
9	0.001500	0		13
10	0.001400	0		12
11	0.001500	0		13
12	0.001100	9	953	9
13	0.001500	0		13
14	0.001300	0		11
15	0.001400	0		12
16	0.001600	0		14
17	0.001500	0		13
18	0.001500	17	1320	13
19	0.001400	0		12
20	0.001300	0		11
21	0.001500	0		13
22	0.001400	0		12
23	0.001300	0		11
24	0.001500	0		13
25	0.001500	13	1030	13
26	0.001400	0		12
27	0.001500	0		13
28	0.001300	0		11
29	0.001300	0		11
30	0.001300	0		11
31	0.001800	0		16
AVG.	0.001506	2	1034	13
TOTAL	0.046700	53	4137	403

Sean Kleespies
Project Mananger
Grade IV Cert #7768 W.W.T

OPERATIONAL PERMIT SYSTEM

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

JANUARY, 2023 CARROLL COUNTY SOLID WASTE MANAGEMENT COMMISSION

		WASTEWATER PARAMETERS ANALYZED							
DATE	FLOW (MGD)	PH SU	TEMP 0C	TSS LBS/DAY	BOD5 LBS/DAY	NH3 LBS/DAY	TKN MG/L	TKN LBS/DAY	COPPER MG/L
1	0.001700			0	0.00	0		0	
2	0.001600			0	0.00	0		0	
3	0.002800			0	0.00	0		0	
4	0.002200	8.7	5.3	2	1.61	15	1027	19	0.00648
5	0.001600			0	0.00	0		0	
6	0.001400			0	0.00	0		0	
7	0.001300			0	0.00	0		0	
8	0.001300			0	0.00	0		0	
9	0.001500			0	0.00	0		0	
10	0.001400			0	0.00	0		0	
11	0.001500			0	0.00	0		0	
12	0.001100	8.7	8.9	2	1.48	9	1317	12	0.0182
13	0.001500			0	0.00	0		0	
14	0.001300			0	0.00	0		0	
15	0.001400			0	0.00	0		0	
16	0.001600			0	0.00	0		0	
17	0.001500			0	0.00	0		0	
18	0.001500	8.6	10.6	2	1.36	17	1381	17	0.0285
19	0.001400			0	0.00	0		0	
20	0.001300			0	0.00	0		0	
21	0.001500			0	0.00	0		0	
22	0.001400			0	0.00	0		0	
23	0.001300			0	0.00	0		0	
24	0.001500			0	0.00	0		0	
25	0.001500	8.4	47.7	2	2.60	13	1252	16	<.002
26	0.001400			0	0.00	0		0	
27	0.001500			0	0.00	0		0	
28	0.001300			0	0.00	0		0	
29	0.001300			0	0.00	0		0	
30	0.001300			0	0.00	0		0	
31	0.001800			0	0.00	0		0	
TOT	0.046700			8	7.06	53		64	
AVG	0.001506	8.6	18.1	0	0.23	2	1244.3	2	0.017727
MAX	0.002800	8.7	47.7	2	2.60	17	1381	19	0.0285

Sean Kleespies
Project Mananger
Grade IV Cert #7768 W.W.T

CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

JANUARY, 2023

DATE	FLOW (mgd)	BOD5 (lbs./day act.)	BOD5 (mg/l)	BOD5 (lbs./day avg.)
1	0.001700	0		2.006
2	0.001600	0		1.888
3	0.002800	0		3.304
4	0.002200	2	88	2.596
5	0.001600	0		1.888
6	0.001400	0		1.652
7	0.001300	0		1.534
8	0.001300	0		1.534
9	0.001500	0		1.770
10	0.001400	0		1.652
11	0.001500	0		1.770
12	0.001100	1	161	1.298
13	0.001500	0		1.770
14	0.001300	0		1.534
15	0.001400	0		1.652
16	0.001600	0		1.888
17	0.001500	0		1.770
18	0.001500	1	109	1.770
19	0.001400	0		1.652
20	0.001300	0		1.534
21	0.001500	0		1.770
22	0.001400	0		1.652
23	0.001300	0		1.534
24	0.001500	0		1.770
25	0.001500	3	208	1.770
26	0.001400	0		1.652
27	0.001500	0		1.770
28	0.001300	0		1.534
29	0.001300	0		1.534
30	0.001300	0		1.534
31	0.001800	0		2.124
AVG.	0.001506	0	142	1.778
TOTAL	0.046700	7	566	55.111

Sean Kleespies
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Grade IV Cert #7768 W.W.T

CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

February, 2023

DATE	FLOW (mgd)	TSS (lds/day act.)	TSS (mg/l act.)	TSS (lbs./day avg.)
1	0.00150	1	97	2
2	0.00130	0		2
3	0.00130	0		2
4	0.00150	0		2
5	0.00210	0		3
6	0.00250	0		4
7	0.00320	0		5
8	0.00360	6	201	5
9	0.00360	0		5
10	0.00250	0		4
11	0.00230	0		3
12	0.00250	0		4
13	0.00250	0		4
14	0.00750	0		11
15	0.00690	12	201	10
16	0.00370	0		5
17	0.00300	0		4
18	0.00280	0		4
19	0.00270	0		4
20	0.00290	0		4
21	0.00260	0		4
22	0.00250	4	197	4
23	0.00220	0		3
24	0.00220	0		3
25	0.00230	0		3
26	0.00240	0		3
27	0.00840	0		12
28	0.00630	0		9
29		0		0
30		0		0
31		0		0
AVG.		1	174	4
TOTAL	0.088800	24	696	128.86

Sean Kleespies
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CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

February, 2023

DATE	FLOW (mgd)	NH3 (lbs./day act.)	NH3 (mg/l)	NH3 (lbs./day avg.)
1	0.001500	8	657	8
2	0.001300	0		7
3	0.001300	0		7
4	0.001500	0		8
5	0.002100	0		11
6	0.002500	0		13
7	0.003200	0		17
8	0.003600	20	679	19
9	0.003600	0		19
10	0.002500	0		13
11	0.002300	0		12
12	0.002500	0		13
13	0.002500	0		13
14	0.007500	0		40
15	0.006900	32	548	37
16	0.003700	0		20
17	0.003000	0		16
18	0.002800	0		15
19	0.002700	0		14
20	0.002900	0		15
21	0.002600	0		14
22	0.002500	14	672	13
23	0.002200	0		12
24	0.002200	0		12
25	0.002300	0		12
26	0.002400	0		13
27	0.008400	0		45
28	0.006300	0		34
29	0.000000	0		0
30	0.000000	0		0
31	0.000000	0		0
AVG.	0.002865	2	639	15
TOTAL	0.088800	74	2556	473

Sean Kleespies
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CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

February, 2023

DATE	FLOW (mgd)	BOD5 (lbs./day act.)	BOD5 (mg/l)	BOD5 (lbs./day avg.)
1	0.001500	2	153	3.600
2	0.001300	0		3.120
3	0.001300	0		3.120
4	0.001500	0		3.600
5	0.002100	0		5.040
6	0.002500	0		6.000
7	0.003200	0		7.679
8	0.003600	3	95	8.639
9	0.003600	0		8.639
10	0.002500	0		6.000
11	0.002300	0		5.520
12	0.002500	0		6.000
13	0.002500	0		6.000
14	0.007500	0		17.999
15	0.006900	26	455	16.559
16	0.003700	0		8.879
17	0.003000	0		7.200
18	0.002800	0		6.720
19	0.002700	0		6.480
20	0.002900	0		6.960
21	0.002600	0		6.240
22	0.002500	9	448	6.000
23	0.002200	0		5.280
24	0.002200	0		5.280
25	0.002300	0		5.520
26	0.002400	0		5.760
27	0.008400	0		20.159
28	0.006300	0		15.119
29	0.000000	0		0.000
30	0.000000	0		0.000
31	0.000000	0		0.000
AVG.	0.002865	1	288	6.874
TOTAL	0.088800	40	1151	213.105

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OPERATIONAL PERMIT SYSTEM

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

February, 2023 CARROLL COUNTY SOLID WASTE MANAGEMENT COMMISSION

		WASTEWATER PARAMETERS ANALYZED							
DATE	FLOW (MGD)	PH SU	TEMP 0F	TSS LBS/DAY	BOD5 LBS/DAY	NH3 LBS/DAY	TKN MG/L	TKN LBS/DAY	COPPER MG/L
1	0.001500	8.7	40.6	1	1.91	8	1442	18	0.0474
2	0.001300			0	0.00	0		0	
3	0.001300			0	0.00	0		0	
4	0.001500			0	0.00	0		0	
5	0.002100			0	0.00	0		0	
6	0.002500			0	0.00	0		0	
7	0.003200			0	0.00	0		0	
8	0.003600	8.3	47.3	6	2.85	20	949	28	0.0255
9	0.003600			0	0.00	0		0	
10	0.002500			0	0.00	0		0	
11	0.002300			0	0.00	0		0	
12	0.002500			0	0.00	0		0	
13	0.002500			0	0.00	0		0	
14	0.007500			0	0.00	0		0	
15	0.006900	8.3	47.7	12	26.18	32	672	39	0.0029
16	0.003700			0	0.00	0		0	
17	0.003000			0	0.00	0		0	
18	0.002800			0	0.00	0		0	
19	0.002700			0	0.00	0		0	
20	0.002900			0	0.00	0		0	
21	0.002600			0	0.00	0		0	
22	0.002500	8	49.3	4	9.34	14	1188	25	0.0217
23	0.002200			0	0.00	0		0	
24	0.002200			0	0.00	0		0	
25	0.002300			0	0.00	0		0	
26	0.002400			0	0.00	0		0	
27	0.008400			0	0.00	0		0	
28	0.006300			0	0.00	0		0	
29	0.000000			0	0.00	0		0	
30	0.000000			0	0.00	0		0	
31	0.000000			0	0.00	0		0	
TOT	0.088800			23	40.29	74		110	
AVG	0.002865	8.3	46.2	1	1.30	2	1062.8	4	0.024375
MAX	0.008400	8.7	49.3	12	26.18	32	1442	39	0.0474

Sean Kleespies
Project Mananger
Grade IV Cert #7768 W.W.T

OPERATIONAL PERMIT SYSTEM

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

March, 2023 CARROLL COUNTY SOLID WASTE MANAGEMENT COMMISSION

		WASTEWATER PARAMETERS ANALYZED							
DATE	FLOW (MGD)	PH SU	TEMP 0C	TSS LBS/DAY	BOD5 LBS/DAY	NH3 LBS/DAY	TKN MG/L	TKN LBS/DAY	COPPER MG/L
1	0.004000	8.3	9.7	11	19.78	35	761	25	0.0452
2	0.003600			0	0.00	0		0	
3	0.003700			0	0.00	0		0	
4	0.003100			0	0.00	0		0	
5	0.003000			0	0.00	0		0	
6	0.002800			0	0.00	0		0	
7	0.002500			0	0.00	0		0	
8	0.002800	8.2	10.5	5	13.92	20	1241	29	0.0617
9	0.002700			0	0.00	0		0	
10	0.003100			0	0.00	0		0	
11	0.003300			0	0.00	0		0	
12	0.003100			0	0.00	0		0	
13	0.002700			0	0.00	0		0	
14	0.002800			0	0.00	0		0	
15	0.002900	8.3	11.1	3	6.46	16	1085	26	0.00264
16	0.002900			0	0.00	0		0	
17	0.002900			0	0.00	0		0	
18	0.002600			0	0.00	0		0	
19	0.002500			0	0.00	0		0	
20	0.002800			0	0.00	0		0	
21	0.002500			0	0.00	0		0	
22	0.002400	8.2	7.8	2	5.00	23	1223	24	0.0162
23	0.002400			0	0.00	0		0	
24	0.002400			0	0.00	0		0	
25	0.002300			0	0.00	0		0	
26	0.002200			0	0.00	0		0	
27	0.002400			0	0.00	0		0	
28	0.002600			0	0.00	0		0	
29	0.002200	8.5	4.7	2	3.14	17	1134	21	0.0149
30	0.002700			0	0.00	0		0	
31	0.002800			0	0.00	0		0	
TOT	0.086700			23	48.30	110		126	
AVG	0.002797	8.3	8.8	1	1.56	4	1088.8	4	0.028128
MAX	0.004000	8.5	11.1	11	19.78	35	1241	29	0.0617

Sean Kleespies
Project Mananger
Grade IV Cert #7768 W.W.T

CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

March, 2023

DATE	FLOW (mgd)	BOD5 (lbs./day act.)	BOD5 (mg/l)	BOD5 (lbs./day avg.)
1	0.004000	20	593	12.523
2	0.003600	0		11.271
3	0.003700	0		11.584
4	0.003100	0		9.706
5	0.003000	0		9.393
6	0.002800	0		8.766
7	0.002500	0		7.827
8	0.002800	14	596	8.766
9	0.002700	0		8.453
10	0.003100	0		9.706
11	0.003300	0		10.332
12	0.003100	0		9.706
13	0.002700	0		8.453
14	0.002800	0		8.766
15	0.002900	6	267	9.079
16	0.002900	0		9.079
17	0.002900	0		9.079
18	0.002600	0		8.140
19	0.002500	0		7.827
20	0.002800	0		8.766
21	0.002500	0		7.827
22	0.002400	5	250	7.514
23	0.002400	0		7.514
24	0.002400	0		7.514
25	0.002300	0		7.201
26	0.002200	0		6.888
27	0.002400	0		7.514
28	0.002600	0		8.140
29	0.002200	3	171	6.888
30	0.002700	0		8.453
31	0.002800	0		8.766
AVG.	0.002797	2	375	8.756
TOTAL	0.086700	48	1877	271.443

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CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

March, 2023

DATE	FLOW (mgd)	TSS (lds/day act.)	TSS (mg/l act.)	TSS (lbs./day avg.)
1	0.00400	11	330	6
2	0.00360	0		5
3	0.00370	0		5
4	0.00310	0		5
5	0.00300	0		4
6	0.00280	0		4
7	0.00250	0		4
8	0.00280	5	196	4
9	0.00270	0		4
10	0.00310	0		5
11	0.00330	0		5
12	0.00310	0		5
13	0.00270	0		4
14	0.00280	0		4
15	0.00290	3	120	4
16	0.00290	0		4
17	0.00290	0		4
18	0.00260	0		4
19	0.00250	0		4
20	0.00280	0		4
21	0.00250	0		4
22	0.00240	2	106	4
23	0.00240	0		4
24	0.00240	0		4
25	0.00230	0		3
26	0.00220	0		3
27	0.00240	0		4
28	0.00260	0		4
29	0.00220	2	127	3
30	0.00270	0		4
31	0.00280	0		4
AVG.		1	176	4
TOTAL	0.086700	24	879	127.12

Sean Kleespies
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Grade IV Cert #7768 W.W.T

CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

March, 2023

DATE	FLOW (mgd)	NH3 (lbs./day act.)	NH3 (mg/l)	NH3 (lbs./day avg.)
1	0.004000	35	1040	31
2	0.003600	0		28
3	0.003700	0		28
4	0.003100	0		24
5	0.003000	0		23
6	0.002800	0		22
7	0.002500	0		19
8	0.002800	20	866	22
9	0.002700	0		21
10	0.003100	0		24
11	0.003300	0		25
12	0.003100	0		24
13	0.002700	0		21
14	0.002800	0		22
15	0.002900	16	655	22
16	0.002900	0		22
17	0.002900	0		22
18	0.002600	0		20
19	0.002500	0		19
20	0.002800	0		22
21	0.002500	0		19
22	0.002400	23	1140	18
23	0.002400	0		18
24	0.002400	0		18
25	0.002300	0		18
26	0.002200	0		17
27	0.002400	0		18
28	0.002600	0		20
29	0.002200	17	906	17
30	0.002700	0		21
31	0.002800	0		22
AVG.	0.002797	4	921	21
TOTAL	0.086700	110	4607	666

Sean Kleespies
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OPERATIONAL PERMIT SYSTEM

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

April, 2023 CARROLL COUNTY SOLID WASTE MANAGEMENT COMMISSION

		WASTEWATER PARAMETERS ANALYZED							
DATE	FLOW (MGD)	PH SU	TEMP 0F	TSS LBS/DAY	BOD5 LBS/DAY	NH3 LBS/DAY	TKN MG/L	TKN LBS/DAY	COPPER MG/L
1	0.002600			0	0.00	0		0	
2	0.002600			0	0.00	0		0	
3	0.002700			0	0.00	0		0	
4	0.002900			0	0.00	0		0	
5	0.002900	8.5	5.8	4	3.46	18	1152	28	0.0203
6	0.002800			0	0.00	0		0	
7	0.003300			0	0.00	0		0	
8	0.003300			0	0.00	0		0	
9	0.003600			0	0.00	0		0	
10	0.006400			0	0.00	0		0	
11	0.005100			0	0.00	0		0	
12	0.002200	7.9	16.2	2	4.26	10	1233	23	0.0246
13	0.002000			0	0.00	0		0	
14	0.002100			0	0.00	0		0	
15	0.002100			0	0.00	0		0	
16	0.002100			0	0.00	0		0	
17	0.002300			0	0.00	0		0	
18	0.002200			0	0.00	0		0	
19	0.002400	8.2	11.2	2	3.96	22	1247	25	0.0152
20	0.002200			0	0.00	0		0	
21	0.002000			0	0.00	0		0	
22	0.002100			0	0.00	0		0	
23	0.002000			0	0.00	0		0	
24	0.001900			0	0.00	0		0	
25	0.002000			0	0.00	0		0	
26	0.002000	8.1	11.4	4	3.84	0	1107	18	0.0484
27	0.002400			0	0.00	0		0	
28	0.002400			0	0.00	0		0	
29	0.002200			0	0.00	0		0	
30	0.002300			0	0.00	0		0	
31	0.000000			0	0.00	0		0	
TOT	0.079100			11	15.51	50		94	
AVG	0.002552	8.2	11.2	0	0.50	2	1184.8	3	0.027125
MAX	0.006400	8.5	16.2	4	4.26	22	1247	28	0.0484

Sean Kleespies
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CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

April, 2023

DATE	FLOW (mgd)	NH3 (lbs./day act.)	NH3 (mg/l)	NH3 (lbs./day avg.)
1	0.002600	0		17
2	0.002600	0		17
3	0.002700	0		18
4	0.002900	0		19
5	0.002900	18	754	19
6	0.002800	0		19
7	0.003300	0		22
8	0.003300	0		22
9	0.003600	0		24
10	0.006400	0		43
11	0.005100	0		34
12	0.002200	10	565	15
13	0.002000	0		13
14	0.002100	0		14
15	0.002100	0		14
16	0.002100	0		14
17	0.002300	0		15
18	0.002200	0		15
19	0.002400	22	1090	16
20	0.002200	0		15
21	0.002000	0		13
22	0.002100	0		14
23	0.002000	0		13
24	0.001900	0		13
25	0.002000	0		13
26	0.002000	0		13
27	0.002400	0		16
28	0.002400	0		16
29	0.002200	0		15
30	0.002300	0		15
31	0.000000	0		0
AVG.	0.002552	2	803	17
TOTAL	0.079100	50	2409	530

Sean Kleespies
Project Mananger
Grade IV Cert #7768 W.W.T

CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

April, 2023

DATE	FLOW (mgd)	BOD5 (lbs./day act.)	BOD5 (mg/l)	BOD5 (lbs./day avg.)
1	0.002600	0		4.353
2	0.002600	0		4.353
3	0.002700	0		4.520
4	0.002900	0		4.855
5	0.002900	3	143	4.855
6	0.002800	0		4.688
7	0.003300	0		5.525
8	0.003300	0		5.525
9	0.003600	0		6.027
10	0.006400	0		10.715
11	0.005100	0		8.539
12	0.002200	4	232	3.683
13	0.002000	0		3.349
14	0.002100	0		3.516
15	0.002100	0		3.516
16	0.002100	0		3.516
17	0.002300	0		3.851
18	0.002200	0		3.683
19	0.002400	4	198	4.018
20	0.002200	0		3.683
21	0.002000	0		3.349
22	0.002100	0		3.516
23	0.002000	0		3.349
24	0.001900	0		3.181
25	0.002000	0		3.349
26	0.002000	4	230	3.349
27	0.002400	0		4.018
28	0.002400	0		4.018
29	0.002200	0		3.683
30	0.002300	0		3.851
31	0.000000	0		0.000
AVG.	0.002552	1	201	4.272
TOTAL	0.079100	16	803	132.434

Sean Kleespies
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Grade IV Cert #7768 W.W.T

CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

April, 2023

DATE	FLOW (mgd)	TSS (lds/day act.)	TSS (mg/l act.)	TSS (lbs./day avg.)
1	0.00260	0		3
2	0.00260	0		3
3	0.00270	0		3
4	0.00290	0		3
5	0.00290	4	152	3
6	0.00280	0		3
7	0.00330	0		4
8	0.00330	0		4
9	0.00360	0		4
10	0.00640	0		8
11	0.00510	0		6
12	0.00220	2	85	3
13	0.00200	0		2
14	0.00210	0		2
15	0.00210	0		2
16	0.00210	0		2
17	0.00230	0		3
18	0.00220	0		3
19	0.00240	2	115	3
20	0.00220	0		3
21	0.00200	0		2
22	0.00210	0		2
23	0.00200	0		2
24	0.00190	0		2
25	0.00200	0		2
26	0.00200	4	212	2
27	0.00240	0		3
28	0.00240	0		3
29	0.00220	0		3
30	0.00230	0		3
31		0		0
AVG.		0	141	3
TOTAL	0.079100	11	564	93.02

Sean Kleespies
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CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

May, 2023

DATE	FLOW (mgd)	BOD5 (lbs./day act.)	BOD5 (mg/l)	BOD5 (lbs./day avg.)
1	0.002500	0		3.907
2	0.002400	0		3.751
3	0.002400	4	177	3.751
4	0.002400	0		3.751
5	0.002400	0		3.751
6	0.002700	0		4.220
7	0.002600	0		4.064
8	0.002200	0		3.438
9	0.002200	0		3.438
10	0.002400	5	248	3.751
11	0.002300	0		3.595
12	0.002200	0		3.438
13	0.002300	0		3.595
14	0.002000	0		3.126
15	0.002000	0		3.126
16	0.002300	0		3.595
17	0.002200	0		3.438
18	0.002000	3	179	3.126
19	0.002000	0		3.126
20	0.002100	0		3.282
21	0.002000	0		3.126
22	0.002200	0		3.438
23	0.002000	0		3.126
24	0.002000	3	169	3.126
25	0.002100	0		3.282
26	0.002000	0		3.126
27	0.002200	0		3.438
28	0.002200	0		3.438
29	0.002000	0		3.126
30	0.002200	0		3.438
31	0.002100	3	164	3.282
AVG.	0.002213	1	187	3.459
TOTAL	0.068600	17	937	107.216

Sean Kleespies
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Grade IV Cert #7768 W.W.T

CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

May, 2023

DATE	FLOW (mgd)	TSS (lds/day act.)	TSS (mg/l act.)	TSS (lbs./day avg.)
1	0.00250	0		4
2	0.00240	0		3
3	0.00240	3	159	3
4	0.00240	0		3
5	0.00240	0		3
6	0.00270	0		4
7	0.00260	0		4
8	0.00220	0		3
9	0.00220	0		3
10	0.00240	4	209	3
11	0.00230	0		3
12	0.00220	0		3
13	0.00230	0		3
14	0.00200	0		3
15	0.00200	0		3
16	0.00230	0		3
17	0.00220	0		3
18	0.00200	4	234	3
19	0.00200	0		3
20	0.00210	0		3
21	0.00200	0		3
22	0.00220	0		3
23	0.00200	0		3
24	0.00200	2	118	3
25	0.00210	0		3
26	0.00200	0		3
27	0.00220	0		3
28	0.00220	0		3
29	0.00200	0		3
30	0.00220	0		3
31	0.00210	2	126	3
AVG.		0	169	3
TOTAL	0.068600	16	846	96.80

Sean Kleespies
Project Mananger
Grade IV Cert #7768 W.W.T

CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION
INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

May, 2023

DATE	FLOW (mgd)	NH3 (lbs./day act.)	NH3 (mg/l)	NH3 (lbs./day avg.)
1	0.002500	0		18
2	0.002400	0		17
3	0.002400	16	780	17
4	0.002400	0		17
5	0.002400	0		17
6	0.002700	0		19
7	0.002600	0		19
8	0.002200	0		16
9	0.002200	0		16
10	0.002400	14	684	17
11	0.002300	0		17
12	0.002200	0		16
13	0.002300	0		17
14	0.002000	0		14
15	0.002000	0		14
16	0.002300	0		17
17	0.002200	0		16
18	0.002000	11	666	14
19	0.002000	0		14
20	0.002100	0		15
21	0.002000	0		14
22	0.002200	0		16
23	0.002000	0		14
24	0.002000	15	883	14
25	0.002100	0		15
26	0.002000	0		14
27	0.002200	0		16
28	0.002200	0		16
29	0.002000	0		14
30	0.002200	0		16
31	0.002100	23	1290	15
AVG.	0.002213	3	861	16
TOTAL	0.068600	78	4303	492

Sean Kleespies
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Grade IV Cert #7768 W.W.T

OPERATIONAL PERMIT SYSTEM

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

May, 2023 CARROLL COUNTY SOLID WASTE MANAGEMENT COMMISSION

		WASTEWATER PARAMETERS ANALYZED							
DATE	FLOW (MGD)	PH SU	TEMP 0C	TSS LBS/DAY	BOD5 LBS/DAY	NH3 LBS/DAY	TKN MG/L	TKN LBS/DAY	COPPER MG/L
1	0.002500			0	0.00	0		0	
2	0.002400			0	0.00	0		0	
3	0.002400	8.1	13.8	3	3.54	16	1357	27	0.0548
4	0.002400			0	0.00	0		0	
5	0.002400			0	0.00	0		0	
6	0.002700			0	0.00	0		0	
7	0.002600			0	0.00	0		0	
8	0.002200			0	0.00	0		0	
9	0.002200			0	0.00	0		0	
10	0.002400	8.1	19	4	4.96	14	1231	25	0.051
11	0.002300			0	0.00	0		0	
12	0.002200			0	0.00	0		0	
13	0.002300			0	0.00	0		0	
14	0.002000			0	0.00	0		0	
15	0.002000			0	0.00	0		0	
16	0.002300			0	0.00	0		0	
17	0.002200			0	0.00	0		0	
18	0.002000	7.7	18.8	4	2.99	11	1419	24	0.0273
19	0.002000			0	0.00	0		0	
20	0.002100			0	0.00	0		0	
21	0.002000			0	0.00	0		0	
22	0.002200			0	0.00	0		0	
23	0.002000			0	0.00	0		0	
24	0.002000	8	19	2	2.82	15	1313	22	0.0396
25	0.002100			0	0.00	0		0	
26	0.002000			0	0.00	0		0	
27	0.002200			0	0.00	0		0	
28	0.002200			0	0.00	0		0	
29	0.002000			0	0.00	0		0	
30	0.002200			0	0.00	0		0	
31	0.002100	7.5	20.1	2	2.87	23	1402	25	0.0315
TOT	0.068600			15	17.18	78		122	
AVG	0.002213	7.9	18.1	0	0.55	3	1344.4	4	0.04084
MAX	0.002700	8.1	20.1	4	4.96	23	1419	27	0.0548

Sean Kleespies
Project Mananger
Grade IV Cert #7768 W.W.T

OPERATIONAL PERMIT SYSTEM

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

June, 2023 CARROLL COUNTY SOLID WASTE MANAGEMENT COMMISSION

		WASTEWATER PARAMETERS ANALYZED							
DATE	FLOW (MGD)	PH SU	TEMP 0C	TSS LBS/DAY	BOD5 LBS/DAY	NH3 LBS/DAY	TKN MG/L	TKN LBS/DAY	COPPER MG/L
1	0.002000			0	0.00	0		0	
2	0.001700			0	0.00	0		0	
3	0.002200			0	0.00	0		0	
4	0.001900			0	0.00	0		0	
5	0.001900			0	0.00	0		0	
6	0.001900			0	0.00	0		0	
7	0.002000	7.8	18.4	3	3.50	12	1259	21	0.0334
8	0.002000			0	0.00	0		0	
9	0.002000			0	0.00	0		0	
10	0.002100			0	0.00	0		0	
11	0.001900			0	0.00	0		0	
12	0.001800			0	0.00	0		0	
13	0.002000			0	0.00	0		0	
14	0.002100	7.8	21.2	4	5.67	7	1472	26	0.034
15	0.002000			0	0.00	0		0	
16	0.001900			0	0.00	0		0	
17	0.002400			0	0.00	0		0	
18	0.002800			0	0.00	0		0	
19	0.002100			0	0.00	0		0	
20	0.002100			0	0.00	0		0	
21	0.002000	7.9	21.1	2	5.04	19	1547	26	0.0261
22	0.001900			0	0.00	0		0	
23	0.002200			0	0.00	0		0	
24	0.000700			0	0.00	0		0	
25	0.002200			0	0.00	0		0	
26	0.002200			0	0.00	0		0	
27	0.002000			0	0.00	0		0	
28	0.002000	8.2	19.6	5	0.00	17	1667	28	0.0051
29	0.002000			0	0.00	0		0	
30	0.001900			0	0.00	0		0	
31	0.000000			0	0.00	0		0	
TOT	0.059900			14	14.21	55		100	
AVG	0.001932	7.9	20.1	0	0.46	2	1486.3	3	0.02465
MAX	0.002800	8.2	21.2	5	5.67	19	1667	28	0.034

Sean Kleespies
Project Mananger
Grade IV Cert #7768 W.W.T

CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

June, 2023

DATE	FLOW (mgd)	TSS (lds/day act.)	TSS (mg/l act.)	TSS (lbs./day avg.)
1	0.00200	0		4
2	0.00170	0		3
3	0.00220	0		4
4	0.00190	0		3
5	0.00190	0		3
6	0.00190	0		3
7	0.00200	3	174	4
8	0.00200	0		4
9	0.00200	0		4
10	0.00210	0		4
11	0.00190	0		3
12	0.00180	0		3
13	0.00200	0		4
14	0.00210	4	245	4
15	0.00200	0		4
16	0.00190	0		3
17	0.00240	0		4
18	0.00280	0		5
19	0.00210	0		4
20	0.00210	0		4
21	0.00200	2	134	4
22	0.00190	0		3
23	0.00220	0		4
24	0.00070	0		1
25	0.00220	0		4
26	0.00220	0		4
27	0.00200	0		4
28	0.00200	5	298	4
29	0.00200	0		4
30	0.00190	0		3
31		0		0
AVG.		0	213	3
TOTAL	0.059900	15	851	106.28

Sean Kleespies
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CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

June, 2023

DATE	FLOW (mgd)	BOD5 (lbs./day act.)	BOD5 (mg/l)	BOD5 (lbs./day avg.)
1	0.002000	0		4.648
2	0.001700	0		3.951
3	0.002200	0		5.113
4	0.001900	0		4.416
5	0.001900	0		4.416
6	0.001900	0		4.416
7	0.002000	4	210	4.648
8	0.002000	0		4.648
9	0.002000	0		4.648
10	0.002100	0		4.881
11	0.001900	0		4.416
12	0.001800	0		4.183
13	0.002000	0		4.648
14	0.002100	6	324	4.881
15	0.002000	0		4.648
16	0.001900	0		4.416
17	0.002400	0		5.578
18	0.002800	0		6.507
19	0.002100	0		4.881
20	0.002100	0		4.881
21	0.002000	5	302	4.648
22	0.001900	0		4.416
23	0.002200	0		5.113
24	0.000700	0		1.627
25	0.002200	0		5.113
26	0.002200	0		5.113
27	0.002000	0		4.648
28	0.002000	0		4.648
29	0.002000	0		4.648
30	0.001900	0		4.416
31	0.000000	0		0.000
AVG.	0.001932	0	279	4.491
TOTAL	0.059900	14	836	139.212

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CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

June, 2023

DATE	FLOW (mgd)	NH3 (lbs./day act.)	NH3 (mg/l)	NH3 (lbs./day avg.)
1	0.002000	0		14
2	0.001700	0		12
3	0.002200	0		15
4	0.001900	0		13
5	0.001900	0		13
6	0.001900	0		13
7	0.002000	12	705	14
8	0.002000	0		14
9	0.002000	0		14
10	0.002100	0		14
11	0.001900	0		13
12	0.001800	0		12
13	0.002000	0		14
14	0.002100	7	387	14
15	0.002000	0		14
16	0.001900	0		13
17	0.002400	0		16
18	0.002800	0		19
19	0.002100	0		14
20	0.002100	0		14
21	0.002000	19	1140	14
22	0.001900	0		13
23	0.002200	0		15
24	0.000700	0		5
25	0.002200	0		15
26	0.002200	0		15
27	0.002000	0		14
28	0.002000	17	1040	14
29	0.002000	0		14
30	0.001900	0		13
31	0.000000	0		0
AVG.	0.001932	2	818	13
TOTAL	0.059900	55	3272	409

Sean Kleespies
Project Mananger
Grade IV Cert #7768 W.W.T

July

May, 2023

OPERATIONAL PERMIT SYSTEM
INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT
CARROLL COUNTY SOLID WASTE MANAGEMENT COMMISSION

		WASTEWATER PARAMETERS ANALYZED							
DATE	FLOW (MGD)	PH SU	TEMP 0C	TSS LBS/DAY	BOD5 LBS/DAY	NH3 LBS/DAY	TKN MG/L	TKN LBS/DAY	COPPER MG/L
1	0.002000			0	0.00	0		0	
2	0.001800			0	0.00	0		0	
3	0.001900			0	0.00	0		0	
4	0.001800			0	0.00	0		0	
5	0.002900			0	0.00	0		0	
6	0.002000	7.9	18.9	1	3.70	12	1403	23	0.0206
7	0.002600			0	0.00	0		0	
8	0.001900			0	0.00	0		0	
9	0.002400			0	0.00	0		0	
10	0.002200			0	0.00	0		0	
11	0.002200			0	0.00	0		0	
12	0.005800	7.9	18.8	6	12.29	33	1539	74	0.0342
13	0.003800			0	0.00	0		0	
14	0.003200			0	0.00	0		0	
15	0.002900			0	0.00	0		0	
16	0.002900			0	0.00	0		0	
17	0.002700			0	0.00	0		0	
18	0.002600			0	0.00	0		0	
19	0.002500	7.8	23.3	2	14.18	16	1638	34	0.0322
20	0.002500			0	0.00	0		0	
21	0.002400			0	0.00	0		0	
22	0.002300			0	0.00	0		0	
23	0.002200			0	0.00	0		0	
24	0.002600			0	0.00	0		0	
25	0.002200			0	0.00	0		0	
26	0.002100	7.8	23.3	5	4.90	15	1586	28	0.042
27	0.002200			0	0.00	0		0	
28	0.002200			0	0.00	0		0	
29	0.002000			0	0.00	0		0	
30	0.002000			0	0.00	0		0	
31	0.002000			0	0.00	0		0	
TOT	0.076800			13	35.07	76		160	
AVG	0.002477	7.9	21.1	0	1.13	2	1541.5	5	0.03225
MAX	0.005800	7.9	23.3	6	14.18	33	1638	74	0.042

Sean Kleespies
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Grade IV Cert #7768 W.W.T

CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

July

May, 2023

DATE	FLOW (mgd)	TSS (lds/day act.)	TSS (mg/l act.)	TSS (lbs./day avg.)
1	0.00200	0		2
2	0.00180	0		2
3	0.00190	0		2
4	0.00180	0		2
5	0.00290	0		3
6	0.00200	1	45	2
7	0.00260	0		3
8	0.00190	0		2
9	0.00240	0		3
10	0.00220	0		2
11	0.00220	0		2
12	0.00580	6	121	6
13	0.00380	0		4
14	0.00320	0		3
15	0.00290	0		3
16	0.00290	0		3
17	0.00270	0		3
18	0.00260	0		3
19	0.00250	2	83	3
20	0.00250	0		3
21	0.00240	0		3
22	0.00230	0		3
23	0.00220	0		2
24	0.00260	0		3
25	0.00220	0		2
26	0.00210	5	273	2
27	0.00220	0		2
28	0.00220	0		2
29	0.00200	0		2
30	0.00200	0		2
31	0.00200	0		2
AVG.		0	131	3
TOTAL	0.076800	14	522	83.59

Sean Kleespies
Project Mananger
Grade IV Cert #7768 W.W.T

CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION
INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT
July ~~May~~, 2023

DATE	FLOW (mgd)	BOD5 (lbs./day act.)	BOD5 (mg/l)	BOD5 (lbs./day avg.)
1	0.002000	0		5.988
2	0.001800	0		5.389
3	0.001900	0		5.689
4	0.001800	0		5.389
5	0.002900	0		8.683
6	0.002000	4	222	5.988
7	0.002600	0		7.785
8	0.001900	0		5.689
9	0.002400	0		7.186
10	0.002200	0		6.587
11	0.002200	0		6.587
12	0.005800	12	254	17.366
13	0.003800	0		11.377
14	0.003200	0		9.581
15	0.002900	0		8.683
16	0.002900	0		8.683
17	0.002700	0		8.084
18	0.002600	0		7.785
19	0.002500	14	680	7.485
20	0.002500	0		7.485
21	0.002400	0		7.186
22	0.002300	0		6.886
23	0.002200	0		6.587
24	0.002600	0		7.785
25	0.002200	0		6.587
26	0.002100	5	280	6.288
27	0.002200	0		6.587
28	0.002200	0		6.587
29	0.002000	0		5.988
30	0.002000	0		5.988
31	0.002000	0		5.988
AVG.	0.002477	1	359	7.418
TOTAL	0.076800	35	1436	229.944

Sean Kleespies
Project Mananger
Grade IV Cert #7768 W.W.T

CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

May, 2023

DATE	FLOW (mgd)	NH3 (lbs./day act.)	NH3 (mg/l)	NH3 (lbs./day avg.)
1	0.002000	0		13
2	0.001800	0		11
3	0.001900	0		12
4	0.001800	0		11
5	0.002900	0		18
6	0.002000	12	726	13
7	0.002600	0		16
8	0.001900	0		12
9	0.002400	0		15
10	0.002200	0		14
11	0.002200	0		14
12	0.005800	33	684	37
13	0.003800	0		24
14	0.003200	0		20
15	0.002900	0		18
16	0.002900	0		18
17	0.002700	0		17
18	0.002600	0		16
19	0.002500	16	752	16
20	0.002500	0		16
21	0.002400	0		15
22	0.002300	0		14
23	0.002200	0		14
24	0.002600	0		16
25	0.002200	0		14
26	0.002100	15	857	13
27	0.002200	0		14
28	0.002200	0		14
29	0.002000	0		13
30	0.002000	0		13
31	0.002000	0		13
AVG.	0.002477	2	755	16
TOTAL	0.076800	76	3019	483

Sean Kleespies
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Grade IV Cert #7768 W.W.T

OPERATIONAL PERMIT SYSTEM

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

August, 2023 CARROLL COUNTY SOLID WASTE MANAGEMENT COMMISSION

		WASTEWATER PARAMETERS ANALYZED							
DATE	FLOW (MGD)	PH SU	TEMP 0C	TSS LBS/DAY	BOD5 LBS/DAY	NH3 LBS/DAY	TKN MG/L	TKN LBS/DAY	COPPER MG/L
1	0.002000			0	0.00	0		0	
2	0.002000	8.1	20.2	2	2.14	13	1622	27	0.0317
3	0.002000			0	0.00	0		0	
4	0.002000			0	0.00	0		0	
5	0.002000			0	0.00	0		0	
6	0.003300			0	0.00	0		0	
7	0.003100			0	0.00	0		0	
8	0.002900			0	0.00	0		0	
9	0.002700	7.8	19.4	4	5.81	12	1387	31	0.0363
10	0.002500			0	0.00	0		0	
11	0.002600			0	0.00	0		0	
12	0.002300			0	0.00	0		0	
13	0.002400			0	0.00	0		0	
14	0.002300			0	0.00	0		0	
15	0.002200			0	0.00	0		0	
16	0.002500	7.9	20.1	5	6.11	34	1663	35	0.0308
17	0.002200			0	0.00	0		0	
18	0.002300			0	0.00	0		0	
19	0.002300			0	0.00	0		0	
20	0.002000			0	0.00	0		0	
21	0.002000			0	0.00	0		0	
22	0.002000			0	0.00	0		0	
23	0.002200	7.9	24.8	5	5.65	11	1585	29	0.0291
24	0.002000			0	0.00	0		0	
25	0.002000			0	0.00	0		0	
26	0.002000			0	0.00	0		0	
27	0.001800			0	0.00	0		0	
28	0.002100			0	0.00	0		0	
29	0.002200			0	0.00	0		0	
30	0.001800	8.1	20	2	3.87	6	1553	23	0.0313
31	0.001800			0	0.00	0		0	
TOT	0.069500			18	23.58	77		145	
AVG	0.002242	8.0	20.9	1	0.76	2	1562	5	0.03184
MAX	0.003300	8.1	24.8	5	6.11	34	1663	35	0.0363

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Grade IV Cert #7768 W.W.T

CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

August, 2023

DATE	FLOW (mgd)	BOD5 (lbs./day act.)	BOD5 (mg/l)	BOD5 (lbs./day avg.)
1	0.002000	0		4.153
2	0.002000	2	128	4.153
3	0.002000	0		4.153
4	0.002000	0		4.153
5	0.002000	0		4.153
6	0.003300	0		6.853
7	0.003100	0		6.438
8	0.002900	0		6.022
9	0.002700	6	258	5.607
10	0.002500	0		5.192
11	0.002600	0		5.399
12	0.002300	0		4.776
13	0.002400	0		4.984
14	0.002300	0		4.776
15	0.002200	0		4.569
16	0.002500	6	293	5.192
17	0.002200	0		4.569
18	0.002300	0		4.776
19	0.002300	0		4.776
20	0.002000	0		4.153
21	0.002000	0		4.153
22	0.002000	0		4.153
23	0.002200	6	308	4.569
24	0.002000	0		4.153
25	0.002000	0		4.153
26	0.002000	0		4.153
27	0.001800	0		3.738
28	0.002100	0		4.361
29	0.002200	0		4.569
30	0.001800	4	258	3.738
31	0.001800	0		3.738
AVG.	0.002242	1	249	4.656
TOTAL	0.069500	24	1245	144.328

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CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

August, 2023

DATE	FLOW (mgd)	TSS (lds/day act.)	TSS (mg/l act.)	TSS (lbs./day avg.)
1	0.00200	0		3
2	0.00200	2	123	3
3	0.00200	0		3
4	0.00200	0		3
5	0.00200	0		3
6	0.00330	0		5
7	0.00310	0		5
8	0.00290	0		5
9	0.00270	4	185	4
10	0.00250	0		4
11	0.00260	0		4
12	0.00230	0		4
13	0.00240	0		4
14	0.00230	0		4
15	0.00220	0		3
16	0.00250	5	253	4
17	0.00220	0		3
18	0.00230	0		4
19	0.00230	0		4
20	0.00200	0		3
21	0.00200	0		3
22	0.00200	0		3
23	0.00220	5	254	3
24	0.00200	0		3
25	0.00200	0		3
26	0.00200	0		3
27	0.00180	0		3
28	0.00210	0		3
29	0.00220	0		3
30	0.00180	2	127	3
31	0.00180	0		3
AVG.		1	188	4
TOTAL	0.069500	19	942	109.20

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CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

August, 2023

DATE	FLOW (mgd)	NH3 (lbs./day act.)	NH3 (mg/l)	NH3 (lbs./day avg.)
1	0.002000	0		13
2	0.002000	13	768	13
3	0.002000	0		13
4	0.002000	0		13
5	0.002000	0		13
6	0.003300	0		22
7	0.003100	0		21
8	0.002900	0		19
9	0.002700	12	538	18
10	0.002500	0		17
11	0.002600	0		17
12	0.002300	0		15
13	0.002400	0		16
14	0.002300	0		15
15	0.002200	0		15
16	0.002500	34	1640	17
17	0.002200	0		15
18	0.002300	0		15
19	0.002300	0		15
20	0.002000	0		13
21	0.002000	0		13
22	0.002000	0		13
23	0.002200	11	618	15
24	0.002000	0		13
25	0.002000	0		13
26	0.002000	0		13
27	0.001800	0		12
28	0.002100	0		14
29	0.002200	0		15
30	0.001800	6	412	12
31	0.001800	0		12
AVG.	0.002242	2	795	15
TOTAL	0.069500	77	3976	461

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Grade IV Cert #7768 W.W.T

OPERATIONAL PERMIT SYSTEM

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

September, 2023 CARROLL COUNTY SOLID WASTE MANAGEMENT COMMISSION

		WASTEWATER PARAMETERS ANALYZED							
DATE	FLOW (MGD)	PH SU	TEMP 0C	TSS LBS/DAY	BOD5 LBS/DAY	NH3 LBS/DAY	TKN MG/L	TKN LBS/DAY	COPPER MG/L
1	0.001900			0	0.00	0		0	
2	0.001800			0	0.00	0		0	
3	0.002000			0	0.00	0		0	
4	0.001900			0	0.00	0		0	
5	0.001800			0	0.00	0		0	
6	0.001700	8.5	18.5	3	2.99	13	1617	23	0.0392
7	0.001800			0	0.00	0		0	
8	0.001700			0	0.00	0		0	
9	0.001700			0	0.00	0		0	
10	0.001500			0	0.00	0		0	
11	0.001600			0	0.00	0		0	
12	0.001700			0	0.00	0		0	
13	0.001800	8.2	17	3	3.78	18	1599	24	0.0366
14	0.001700			0	0.00	0		0	
15	0.001700			0	0.00	0		0	
16	0.001600			0	0.00	0		0	
17	0.001700			0	0.00	0		0	
18	0.001600			0	0.00	0		0	
19	0.003800			0	0.00	0		0	
20	0.002700	7.9	19.9	2	3.38	20	1297	29	0.0352
21	0.002000			0	0.00	0		0	
22	0.002200			0	0.00	0		0	
23	0.002200			0	0.00	0		0	
24	0.002700			0	0.00	0		0	
25	0.002200			0	0.00	0		0	
26	0.002200			0	0.00	0		0	
27	0.002000	7.8	18.3	3	3.94	10	1444	24	0.0211
28	0.002700			0	0.00	0		0	
29	0.002000			0	0.00	0		0	
30	0.002000			0	0.00	0		0	
31	0.000000			0	0.00	0		0	
TOT	0.059900			11	14.09	60		100	
AVG	0.001932	8.1	18.4	0	0.45	2	1489.3	3	0.033025
MAX	0.003800	8.5	19.9	3	3.94	20	1617	29	0.0392

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CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

September, 2023

DATE	FLOW (mgd)	BOD5 (lbs./day act.)	BOD5 (mg/l)	BOD5 (lbs./day avg.)
1	0.001900	0		3.363
2	0.001800	0		3.186
3	0.002000	0		3.540
4	0.001900	0		3.363
5	0.001800	0		3.186
6	0.001700	3	211	3.009
7	0.001800	0		3.186
8	0.001700	0		3.009
9	0.001700	0		3.009
10	0.001500	0		2.655
11	0.001600	0		2.832
12	0.001700	0		3.009
13	0.001800	4	252	3.186
14	0.001700	0		3.009
15	0.001700	0		3.009
16	0.001600	0		2.832
17	0.001700	0		3.009
18	0.001600	0		2.832
19	0.003800	0		6.727
20	0.002700	3	150	4.779
21	0.002000	0		3.540
22	0.002200	0		3.894
23	0.002200	0		3.894
24	0.002700	0		4.779
25	0.002200	0		3.894
26	0.002200	0		3.894
27	0.002000	4	236	3.540
28	0.002700	0		4.779
29	0.002000	0		3.540
30	0.002000	0		3.540
31	0.000000	0		0.000
AVG.	0.001932	0	212	3.420
TOTAL	0.059900	14	849	106.033

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CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

September, 2023

DATE	FLOW (mgd)	TSS (lds/day act.)	TSS (mg/l act.)	TSS (lbs./day avg.)
1	0.00190	0		3
2	0.00180	0		3
3	0.00200	0		3
4	0.00190	0		3
5	0.00180	0		3
6	0.00170	3	214	3
7	0.00180	0		3
8	0.00170	0		3
9	0.00170	0		3
10	0.00150	0		2
11	0.00160	0		2
12	0.00170	0		3
13	0.00180	3	221	3
14	0.00170	0		3
15	0.00170	0		3
16	0.00160	0		2
17	0.00170	0		3
18	0.00160	0		2
19	0.00380	0		6
20	0.00270	2	91	4
21	0.00200	0		3
22	0.00220	0		3
23	0.00220	0		3
24	0.00270	0		4
25	0.00220	0		3
26	0.00220	0		3
27	0.00200	3	183	3
28	0.00270	0		4
29	0.00200	0		3
30	0.00200	0		3
31		0		0
AVG.		0	177	3
TOTAL	0.059900	12	709	88.55

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Grade IV Cert #7768 W.W.T

CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

September, 2023

DATE	FLOW (mgd)	NH3 (lbs./day act.)	NH3 (mg/l)	NH3 (lbs./day avg.)
1	0.001900	0		14
2	0.001800	0		13
3	0.002000	0		15
4	0.001900	0		14
5	0.001800	0		13
6	0.001700	13	896	13
7	0.001800	0		13
8	0.001700	0		13
9	0.001700	0		13
10	0.001500	0		11
11	0.001600	0		12
12	0.001700	0		13
13	0.001800	18	1220	13
14	0.001700	0		13
15	0.001700	0		13
16	0.001600	0		12
17	0.001700	0		13
18	0.001600	0		12
19	0.003800	0		28
20	0.002700	20	871	20
21	0.002000	0		15
22	0.002200	0		16
23	0.002200	0		16
24	0.002700	0		20
25	0.002200	0		16
26	0.002200	0		16
27	0.002000	10	591	15
28	0.002700	0		20
29	0.002000	0		15
30	0.002000	0		15
31	0.000000	0		0
AVG.	0.001932	2	895	14
TOTAL	0.059900	60	3578	447

Sean Kleespies
Project Mananger
Grade IV Cert #7768 W.W.T

October

CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION
INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT
September, 2023

DATE	FLOW (mgd)	BOD5 (lbs./day act.)	BOD5 (mg/l)	BOD5 (lbs./day avg.)
1	0.001800	0		3.513
2	0.001900	0		3.708
3	0.002000	0		3.903
4	0.001800	3	198	3.513
5	0.001900	0		3.708
6	0.001600	0		3.122
7	0.001700	0		3.318
8	0.002000	0		3.903
9	0.001600	0		3.122
10	0.001800	0		3.513
11	0.002000	4	228	3.903
12	0.001800	0		3.513
13	0.002700	0		5.269
14	0.002500	0		4.879
15	0.002000	0		3.903
16	0.001900	0		3.708
17	0.002000	0		3.903
18	0.002000	5	271	3.903
19	0.002000	0		3.903
20	0.002000	0		3.903
21	0.001800	0		3.513
22	0.001900	0		3.708
23	0.001900	0		3.708
24	0.001900	0		3.708
25	0.001600	3	239	3.122
26	0.002000	0		3.903
27	0.001800	0		3.513
28	0.001800	0		3.513
29	0.001700	0		3.318
30	0.001800	0		3.513
31	0.001700	0		3.318
AVG.	0.001900	0	234	3.708
TOTAL	0.058900	14	936	114.947

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October

CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION
INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT
~~September~~, 2023

DATE	FLOW (mgd)	TSS (lds/day act.)	TSS (mg/l act.)	TSS (lbs./day avg.)
1	0.00180	0		3
2	0.00190	0		3
3	0.00200	0		3
4	0.00180	3	172	3
5	0.00190	0		3
6	0.00160	0		2
7	0.00170	0		3
8	0.00200	0		3
9	0.00160	0		2
10	0.00180	0		3
11	0.00200	4	215	3
12	0.00180	0		3
13	0.00270	0		4
14	0.00250	0		4
15	0.00200	0		3
16	0.00190	0		3
17	0.00200	0		3
18	0.00200	2	111	3
19	0.00200	0		3
20	0.00200	0		3
21	0.00180	0		3
22	0.00190	0		3
23	0.00190	0		3
24	0.00190	0		3
25	0.00160	3	215	2
26	0.00200	0		3
27	0.00180	0		3
28	0.00180	0		3
29	0.00170	0		3
30	0.00180	0		3
31	0.00170	0		3
AVG.		0	178	3
TOTAL	0.058900	11	713	87.56

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CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

September, 2023

DATE	FLOW (mgd)	NH3 (lbs./day act.)	NH3 (mg/l)	NH3 (lbs./day avg.)
1	0.001800	0		18
2	0.001900	0		19
3	0.002000	0		20
4	0.001800	8	554	18
5	0.001900	0		19
6	0.001600	0		16
7	0.001700	0		17
8	0.002000	0		20
9	0.001600	0		16
10	0.001800	0		18
11	0.002000	14	855	20
12	0.001800	0		18
13	0.002700	0		26
14	0.002500	0		24
15	0.002000	0		20
16	0.001900	0		19
17	0.002000	0		20
18	0.002000	30	1800	20
19	0.002000	0		20
20	0.002000	0		20
21	0.001800	0		18
22	0.001900	0		19
23	0.001900	0		19
24	0.001900	0		19
25	0.001600	20	1490	16
26	0.002000	0		20
27	0.001800	0		18
28	0.001800	0		18
29	0.001700	0		17
30	0.001800	0		18
31	0.001700	0		17
AVG.	0.001900	2	1175	19
TOTAL	0.058900	72	4699	577

Sean Kleespies
Project Mananger
Grade IV Cert #7768 W.W.T

October

September, 2023

OPERATIONAL PERMIT SYSTEM
INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT
CARROLL COUNTY SOLID WASTE MANAGEMENT COMMISSION

		WASTEWATER PARAMETERS ANALYZED							
DATE	FLOW (MGD)	PH SU	TEMP 0C	TSS LBS/DAY	BOD5 LBS/DAY	NH3 LBS/DAY	TKN MG/L	TKN LBS/DAY	COPPER MG/L
1	0.001800			0	0.00	0		0	
2	0.001900			0	0.00	0		0	
3	0.002000			0	0.00	0		0	
4	0.001800	8.3	18	3	2.97	8	1525	23	0.0341
5	0.001900			0	0.00	0		0	
6	0.001600			0	0.00	0		0	
7	0.001700			0	0.00	0		0	
8	0.002000			0	0.00	0		0	
9	0.001600			0	0.00	0		0	
10	0.001800			0	0.00	0		0	
11	0.002000	8.2	14.4	4	3.80	14	1469	25	0.0353
12	0.001800			0	0.00	0		0	
13	0.002700			0	0.00	0		0	
14	0.002500			0	0.00	0		0	
15	0.002000			0	0.00	0		0	
16	0.001900			0	0.00	0		0	
17	0.002000			0	0.00	0		0	
18	0.002000	8.3	16.1	2	4.52	30	1521	25	0.00363
19	0.002000			0	0.00	0		0	
20	0.002000			0	0.00	0		0	
21	0.001800			0	0.00	0		0	
22	0.001900			0	0.00	0		0	
23	0.001900			0	0.00	0		0	
24	0.001900			0	0.00	0		0	
25	0.001600	8.2	16.1	3	3.19	20	1826	24	0.0393
26	0.002000			0	0.00	0		0	
27	0.001800			0	0.00	0		0	
28	0.001800			0	0.00	0		0	
29	0.001700			0	0.00	0		0	
30	0.001800			0	0.00	0		0	
31	0.001700			0	0.00	0		0	
TOT	0.058900			11	14.48	72		97	
AVG	0.001900	8.3	16.2	0	0.47	2	1585.3	3	0.028083
MAX	0.002700	8.3	18.0	4	4.52	30	1826	25	0.0393

Sean Kleespies
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OPERATIONAL PERMIT SYSTEM

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

November, 2023 CARROLL COUNTY SOLID WASTE MANAGEMENT COMMISSION

		WASTEWATER PARAMETERS ANALYZED							
DATE	FLOW (MGD)	PH SU	TEMP 0C	TSS LBS/DAY	BOD5 LBS/DAY	NH3 LBS/DAY	TKN MG/L	TKN LBS/DAY	COPPER MG/L
1	0.001800	8.7	11.6	2	3.11	10	1574	24	
2	0.001900			0	0.00	0		0	
3	0.001900			0	0.00	0		0	
4	0.001600			0	0.00	0		0	
5	0.001900			0	0.00	0		0	
6	0.001800			0	0.00	0		0	
7	0.001600			0	0.00	0		0	
8	0.002000	8.2	13.8	1	4.72	22	1716	29	0.0235
9	0.001600			0	0.00	0		0	
10	0.001300			0	0.00	0		0	
11	0.001600			0	0.00	0		0	
12	0.001600			0	0.00	0		0	
13	0.001600			0	0.00	0		0	
14	0.001600			0	0.00	0		0	
15	0.001600	8.5	12.7	3	3.12	17	1760	23	0.021
16	0.002000			0	0.00	0		0	
17	0.001600			0	0.00	0		0	
18	0.001600			0	0.00	0		0	
19	0.001600			0	0.00	0		0	
20	0.001600			0	0.00	0		0	
21	0.001200	8.5	12.9	2	2.55	7	1526	15	0.0398
22	0.002000			0	0.00	0		0	
23	0.001200			0	0.00	0		0	
24	0.001600			0	0.00	0		0	
25	0.001600			0	0.00	0		0	
26	0.001600			0	0.00	0		0	
27	0.001400			0	0.00	0		0	
28	0.001200	8.7	11.5	0	2.10	14		0	0.0388
29	0.002000			0	0.00	0		0	
30	0.001600			0	0.00	0		0	
31	0.000000			0	0.00	0		0	
TOT	0.049200			8	15.60	70		91	
AVG	0.001587	8.5	12.5	0	0.50	2	1644	3	0.030775
MAX	0.002000	8.7	13.8	3	4.72	22	1760	29	0.0398

Sean Kleespies
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Grade IV Cert #7768 W.W.T

CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

November, 2023

DATE	FLOW (mgd)	BOD5 (lbs./day act.)	BOD5 (mg/l)	BOD5 (lbs./day avg.)
1	0.001800	3	207	3.570
2	0.001900	0		3.768
3	0.001900	0		3.768
4	0.001600	0		3.173
5	0.001900	0		3.768
6	0.001800	0		3.570
7	0.001600	0		3.173
8	0.002000	5	283	3.967
9	0.001600	0		3.173
10	0.001300	0		2.578
11	0.001600	0		3.173
12	0.001600	0		3.173
13	0.001600	0		3.173
14	0.001600	0		3.173
15	0.001600	3	234	3.173
16	0.002000	0		3.967
17	0.001600	0		3.173
18	0.001600	0		3.173
19	0.001600	0		3.173
20	0.001600	0		3.173
21	0.001200	3	255	2.380
22	0.002000	0		3.967
23	0.001200	0		2.380
24	0.001600	0		3.173
25	0.001600	0		3.173
26	0.001600	0		3.173
27	0.001400	0		2.777
28	0.001200	2	210	2.380
29	0.002000	0		3.967
30	0.001600	0		3.173
31	0.000000	0		0.000
AVG.	0.001587	1	238	3.148
TOTAL	0.049200	16	1189	97.576

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CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

November, 2023

DATE	FLOW (mgd)	TSS (lds/day act.)	TSS (mg/l act.)	TSS (lbs./day avg.)
1	0.00180	2	114	2
2	0.00190	0		2
3	0.00190	0		2
4	0.00160	0		2
5	0.00190	0		2
6	0.00180	0		2
7	0.00160	0		2
8	0.00200	1	89	2
9	0.00160	0		2
10	0.00130	0		1
11	0.00160	0		2
12	0.00160	0		2
13	0.00160	0		2
14	0.00160	0		2
15	0.00160	3	200	2
16	0.00200	0		2
17	0.00160	0		2
18	0.00160	0		2
19	0.00160	0		2
20	0.00160	0		2
21	0.00120	2	220	1
22	0.00200	0		2
23	0.00120	0		1
24	0.00160	0		2
25	0.00160	0		2
26	0.00160	0		2
27	0.00140	0		2
28	0.00120	0	21.3	1
29	0.00200	0		2
30	0.00160	0		2
31		0		0
AVG.		0	129	2
TOTAL	0.049200	9	644	52.87

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CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

November, 2023

DATE	FLOW (mgd)	NH3 (lbs./day act.)	NH3 (mg/l)	NH3 (lbs./day avg.)
1	0.001800	10	662	16
2	0.001900	0		17
3	0.001900	0		17
4	0.001600	0		14
5	0.001900	0		17
6	0.001800	0		16
7	0.001600	0		14
8	0.002000	22	1340	18
9	0.001600	0		14
10	0.001300	0		12
11	0.001600	0		14
12	0.001600	0		14
13	0.001600	0		14
14	0.001600	0		14
15	0.001600	17	1260	14
16	0.002000	0		18
17	0.001600	0		14
18	0.001600	0		14
19	0.001600	0		14
20	0.001600	0		14
21	0.001200	7	711	11
22	0.002000	0		18
23	0.001200	0		11
24	0.001600	0		14
25	0.001600	0		14
26	0.001600	0		14
27	0.001400	0		13
28	0.001200	14	1391	11
29	0.002000	0		18
30	0.001600	0		14
31	0.000000	0		0
AVG.	0.001587	2	1073	14
TOTAL	0.049200	70	5364	440

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OPERATIONAL PERMIT SYSTEM

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

December, 2023 CARROLL COUNTY SOLID WASTE MANAGEMENT COMMISSION

		WASTEWATER PARAMETERS ANALYZED							
DATE	FLOW (MGD)	PH SU	TEMP 0C	TSS LBS/DAY	BOD5 LBS/DAY	NH3 LBS/DAY	TKN MG/L	TKN LBS/DAY	COPPER MG/L
1	0.001200			0	0.00	0		0	
2	0.001600			0	0.00	0		0	
3	0.001600			0	0.00	0		0	
4	0.001600			0	0.00	0		0	
5	0.001400			0	0.00	0		0	
6	0.001200	8.7	10.8	2	2.11	7	1687	17	0.0484
7	0.001600			0	0.00	0		0	
8	0.001600			0	0.00	0		0	
9	0.001600			0	0.00	0		0	
10	0.001000			0	0.00	0		0	
11	0.001600			0	0.00	0		0	
12	0.001400			0	0.00	0		0	
13	0.001300	8.8	8.2	2	1.97	8	1647	18	0.0025
14	0.001000			0	0.00	0		0	
15	0.001600			0	0.00	0		0	
16	0.001600			0	0.00	0		0	
17	0.001400			0	0.00	0		0	
18	0.001200			0	0.00	0		0	
19	0.001400			0	0.00	0		0	
20	0.001300	8.7	12.3	2	2.19	10	1719	19	0.039
21	0.001500			0	0.00	0		0	
22	0.001100			0	0.00	0		0	
23	0.001600			0	0.00	0		0	
24	0.001400			0	0.00	0		0	
25	0.004600			0	0.00	0		0	
26	0.003800			0	0.00	0		0	
27	0.002300	8.2	8.3	4	2.99	18	1075	21	0.0156
28	0.002100			0	0.00	0		0	
29	0.002100			0	0.00	0		0	
30	0.001600			0	0.00	0		0	
31	0.002000			0	0.00	0		0	
TOT	0.052300			9	9.27	45		74	
AVG	0.001687	8.6	9.9	0	0.30	1	1532	2	0.026375
MAX	0.004600	8.8	12.3	4	2.99	18	1719	21	0.0484

Sean Kleespies
Project Mananger
Grade IV Cert #7768 W.W.T

CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

December, 2023

DATE	FLOW (mgd)	BOD5 (lbs./day act.)	BOD5 (mg/l)	BOD5 (lbs./day avg.)
1	0.001200	0		1.879
2	0.001600	0		2.505
3	0.001600	0		2.505
4	0.001600	0		2.505
5	0.001400	0		2.192
6	0.001200	2	211	1.879
7	0.001600	0		2.505
8	0.001600	0		2.505
9	0.001600	0		2.505
10	0.001000	0		1.566
11	0.001600	0		2.505
12	0.001400	0		2.192
13	0.001300	2	182	2.036
14	0.001000	0		1.566
15	0.001600	0		2.505
16	0.001600	0		2.505
17	0.001400	0		2.192
18	0.001200	0		1.879
19	0.001400	0		2.192
20	0.001300	2	202	2.036
21	0.001500	0		2.349
22	0.001100	0		1.722
23	0.001600	0		2.505
24	0.001400	0		2.192
25	0.004600	0		7.203
26	0.003800	0		5.950
27	0.002300	3	156	3.601
28	0.002100	0		3.288
29	0.002100	0		3.288
30	0.001600	0		2.505
31	0.002000	0		3.132
AVG.	0.001687	0	188	2.642
TOTAL	0.052300	9	751	81.893

Sean Kleespies
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CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

December, 2023

DATE	FLOW (mgd)	TSS (lds/day act.)	TSS (mg/l act.)	TSS (lbs./day avg.)
1	0.00120	0		2
2	0.00160	0		2
3	0.00160	0		2
4	0.00160	0		2
5	0.00140	0		2
6	0.00120	2	183	2
7	0.00160	0		2
8	0.00160	0		2
9	0.00160	0		2
10	0.00100	0		1
11	0.00160	0		2
12	0.00140	0		2
13	0.00130	2	176	2
14	0.00100	0		1
15	0.00160	0		2
16	0.00160	0		2
17	0.00140	0		2
18	0.00120	0		2
19	0.00140	0		2
20	0.00130	2	160	2
21	0.00150	0		2
22	0.00110	0		2
23	0.00160	0		2
24	0.00140	0		2
25	0.00460	0		7
26	0.00380	0		6
27	0.00230	4	185	3
28	0.00210	0		3
29	0.00210	0		3
30	0.00160	0		2
31	0.00200	0		3
AVG.		0	176	2
TOTAL	0.052300	9	704	76.77

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CARROLL COUNTY SOLID WASTE MANAGEMENT COMISSION

INDUSTRIAL/COMMERCIAL CONTRIBUTOR MONITORING REPORT

December, 2023

DATE	FLOW (mgd)	NH3 (lbs./day act.)	NH3 (mg/l)	NH3 (lbs./day avg.)
1	0.001200	0		9
2	0.001600	0		11
3	0.001600	0		11
4	0.001600	0		11
5	0.001400	0		10
6	0.001200	7	735	9
7	0.001600	0		11
8	0.001600	0		11
9	0.001600	0		11
10	0.001000	0		7
11	0.001600	0		11
12	0.001400	0		10
13	0.001300	8	780	9
14	0.001000	0		7
15	0.001600	0		11
16	0.001600	0		11
17	0.001400	0		10
18	0.001200	0		9
19	0.001400	0		10
20	0.001300	10	941	9
21	0.001500	0		11
22	0.001100	0		8
23	0.001600	0		11
24	0.001400	0		10
25	0.004600	0		33
26	0.003800	0		27
27	0.002300	18	964	16
28	0.002100	0		15
29	0.002100	0		15
30	0.001600	0		11
31	0.002000	0		14
AVG.	0.001687	1	855	12
TOTAL	0.052300	45	3420	373

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