



Annual Water Quality Report for the Neal North Closed CCR Monofill




**Permit 97-SDP-24-20C
Neal North Energy Center
Sergeant Bluff, Iowa**

MidAmerican Energy Company

January 31, 2025

Certification

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Sergeant Bluff, Iowa
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	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.	
	 Michael J. Alowitz, P.E.	 Date
	License Number:	18160
	My license renewal date is:	December 31, 2026
	Pages or sheets covered by this seal:	Entire Document

Executive Summary

This Annual Water Quality Report (AWQR) was prepared by GHD on behalf of MidAmerican Energy Company (MidAmerican) for the Neal North Energy Center (Neal North) Closed Coal Combustion Residual (CCR) Monofill (Closed Monofill) located near Sergeant Bluff, Iowa. MidAmerican previously requested a variance from Paragraphs 567-103.1(2)f, 567—103.1(4)d, and 567—103.1(4)e of the Iowa Administrative Code (IAC) which was granted in Permit Amendments No. 4 and No. 5, dated November 30, 2016 and March 6, 2017, respectively.

The variance requests were made to match the groundwater monitoring and reporting requirements established under the Federal CCR rule (40 CFR Part 257). Although the Closed Monofill is not subject to the Federal CCR rules, GHD prepared this AWQR for the closed Neal North Monofill to generally reflect the Federal CCR rule monitoring and reporting requirements for consistency in the monitoring and reporting requirements used for the active Neal North Monofill and the requirements of the Hydrologic Monitoring System Plan prepared for the Closed Monofill. The closed portion of the Neal North Monofill was originally permitted under Operating Permit 97-SDP-12-95P; the closed portion of the Monofill has since been assigned Closure Permit 97-SDP-24-20C and the active Monofill cells retained the original operating permit number. The purpose of this AWQR is to summarize results of the assessment groundwater quality monitoring events completed in March 2024 and September 2024 at the Closed Monofill.

The groundwater monitoring network consists of 38 monitoring wells. Groundwater elevation data were collected from the 38 wells, and groundwater samples were collected from 10 of the 38 monitoring wells. The 10 sampled monitoring wells are screened at the water table. Sampling was conducted using dedicated bladder pumps to purge water and collect samples using low-flow sampling techniques. Groundwater samples were analyzed for the parameters specified in 40 CFR Part 257 Appendix III and Appendix IV analytes for the assessment monitoring events.

The predominant site-wide flow direction is southwest, toward the Missouri River. The Closed Monofill completed baseline monitoring events in June 2022 and conducted detection monitoring in September 2022 and March 2023. September 2023 was the first assessment monitoring event at the Closed Monofill, and the site has remained in assessment monitoring through the 2024 reporting period. No changes to the monitoring network or sampling procedures are necessary to evaluate groundwater quality upgradient and downgradient of the Closed Monofill.

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Acronyms/Abbreviations

AL = Action Level

AWQR = Annual Water Quality Report

BGS = Below ground surface

CCR = Coal combustion residue

CFR = Code of Federal Regulations

CL = Control Limit (M+/-2SD)

Closed Monofill = Neal North Closed CCR Monofill

Eurofins = Eurofins Environment Testing North Central, LLC

ft/ft = Feet per foot

GWPS = Groundwater Protection Standard

HMSP = Hydrologic System Monitoring Plan

IAC = Iowa Administrative Code

IDNR = Iowa Department of Natural Resources

K = Geometric mean hydraulic conductivity

m/day = Meter per day

MCL = EPA Maximum Contaminant Level

Methods Certification = Groundwater Statistical Methods Certification

MidAmerican = MidAmerican Energy Company

mg/L = Milligrams per liter

N/A = Not available/not applicable

NC = No Change

Neal North = Neal North Energy Center

ORP = Oxidation-reduction potential

PVC = Polyvinyl chloride

QA/QC = Quality control/quality assurance

RL = Reporting Limit

SS = Statewide Standard

SSI = Statistically significant increase

SSL = Statistically significant level

TDS = Total Dissolved Solids

USEPA = United States Environmental Protection Agency

UTL = Upper tolerance limit

V = Average horizontal linear velocity

1. Introduction

This Annual Water Quality Report (AWQR) was prepared by GHD on behalf of MidAmerican Energy Company (MidAmerican) for the Neal North Energy Center (Neal North) Closed Coal Combustion Residual (CCR) Monofill (Closed Monofill) located near Sergeant Bluff, Iowa. MidAmerican previously requested a variance from Paragraphs 567—103.1(2)f, 567—103.1(4)d, and 567—103.1(4)e of the Iowa Administrative Code (IAC) which was granted in Permit Amendments No. 4 and No. 5, dated November 30, 2016 and March 6, 2017, respectively. The variance requests were made to match the groundwater monitoring and reporting requirements established under the Federal CCR rule (40 CFR Part 257). Although the Closed Monofill is not subject to the Federal CCR rule, GHD prepared this AWQR for the closed Neal North Monofill to generally reflect the Federal CCR rule monitoring and reporting requirements for consistency in the monitoring and reporting requirements used for the active Neal North Monofill and the requirements of the Hydrologic Monitoring System Plan (HMSP; GHD, 2020) prepared for the Closed Monofill. The closed portion of the Neal North Monofill was originally permitted under Operating Permit 97 SDP-12-95P; the closed portion of the Monofill has since been assigned Closure Permit 97-SDP-24-20C and the active Monofill cells retained the original permit number. The purpose of this AWQR is to summarize results of the groundwater quality assessment monitoring events completed in March and September 2024, as well as one verification monitoring event in June 2024 at the Closed Monofill.

The Closed Monofill is located primarily in the NW $\frac{1}{4}$ of the SW $\frac{1}{4}$ of Section 30 Township 87N, Range 47W (East Cell) and the E $\frac{1}{2}$ of the SE $\frac{1}{4}$ of Section 25 Township 87N Range 48W (West Cell). Portions extend to the S $\frac{1}{4}$ of the SW $\frac{1}{4}$ of the NW $\frac{1}{4}$ of Section 30 Township 87N Range 47W (East Cell) and to the SE $\frac{1}{4}$ of the SE $\frac{1}{4}$ of the NE $\frac{1}{2}$ of Section 25 Township 87N Range 48W (West Cell). The Site Location Map (Figure 1.1) also shows the location of MidAmerican's Neal South Energy Center facility. The Closed Monofill extent and monitoring well locations are shown on Figure 1.2.

Groundwater monitoring has routinely been conducted at the Monofill since 1996 when a network of 20 monitoring wells was installed. Additional monitoring wells were installed around the now-active Monofill areas in 2006, 2009, and 2015 (with subsequent replacement of some wells due to drought conditions), creating the monitoring well network now in place at the Neal North Monofill. Prior to the Federal CCR rule, groundwater monitoring was conducted annually, and findings were documented in AWQRs submitted to the Iowa Department of Natural Resources (IDNR).

The uppermost aquifer at the Closed Monofill is the water table aquifer. Perched groundwater has been encountered at multiple locations and is included in the groundwater monitoring plan. In general, the subsurface geology at the Closed Monofill includes a layer of fine-grained materials (silts and clays) overlying predominately fine sand with some sand and gravel at depth. A layer of clay up to 55 feet thick has been found at the location of monitoring wells MW-17/MW-18, MW-19/MW-20, MW-21/MW-22, and MW-31/MW-32. Although bedrock was not encountered during hydrogeological investigations, bedrock was encountered at 137 feet below ground surface (BGS) near the Neal North generating unit during the installation of a water well.

2. Sampling Protocol

2.1 Groundwater Monitoring Network

The groundwater monitoring network consists of 38 monitoring wells (Table 1). Groundwater elevation data were collected from the 38 wells, plus monitoring wells associated with additional monitoring networks at the Neal North Energy Center. Groundwater samples were collected from 10 of the 38 monitoring wells (Table 2). The 10 sampled monitoring wells are screened at the water table (approximately 17-29 feet BGS) in the alluvial aquifer. Horizontal spacing between the downgradient alluvial aquifer monitoring wells ranges from approximately 300 to 400 feet. The

groundwater monitoring network includes monitoring wells used for collection of groundwater samples and for gauging groundwater elevations. Groundwater samples are used to assess potential impacts of the Closed Monofill on surrounding groundwater. Groundwater elevation data are used to identify upgradient and downgradient monitoring points and to determine the potential influence of the Missouri River on groundwater conditions.

All monitoring wells in the groundwater monitoring system consist of 2-inch nominal inner-diameter polyvinyl chloride (PVC) casing and screen. Monitoring well construction included placement of clean silica sand in the screened interval and an annular seal of bentonite to the near surface. Monitoring well surface completions consist of either a lockable stick-up surface casing set in a concrete pad and placement of protective bollards in locations where traffic may be of concern, or a flushmount cover with a watertight well plug in high traffic areas where a stick-up well is not suitable. Review of monitoring records and well inspections indicate the monitoring wells have been operated and maintained adequately to meet the design specifications of the monitoring program.

2.2 Monitoring Well Inspection

During each sampling event, the monitoring wells were visually inspected, and any deficient conditions of the monitoring wells were noted. The monitoring wells are subject to regular maintenance and performance evaluations as shown in Table 3. Wells are maintained with a well cap and a lockable protective casing. Observations include the condition of the protective casing/vault and surrounding ground surface. All wells were found to be in generally good condition, with no issues affecting well or sample integrity. Due to the surrounding topography, sediment has accumulated on top of some of the monitoring well pads. The sediment will be removed to inspect well pads during the next monitoring event.

On an annual basis, the total well depth of each well in the monitoring network is measured to evaluate the well condition and potential sediment accumulation in the well. Total well depth measurements from the 2024 total depth measurements are presented in Table 4. If screen occlusion greater than 10 percent is determined to be present, the well will be redeveloped prior to the next sampling event. All sampled well screens were at or below the 10 percent criterion.

2.3 Sample Collection

Sampling was conducted using dedicated bladder pumps to purge water and collect samples using low-flow sampling techniques.

Prior to sample collection, the temperature, conductivity, pH, oxidation-reduction potential (ORP), dissolved oxygen, and turbidity of the purge water were measured using a calibrated multiparameter water quality instrument and flow cell. The readings were recorded using the multiparameter meter data logger, on well sampling records, or in a field notebook. Upon stabilization, unfiltered samples were collected in laboratory-supplied containers. Copies of the groundwater sampling records for the 2024 monitoring events are included in Appendix A. During the 2024 monitoring events, field duplicate samples were collected from monitoring wells MW-1R (March and September 2024), MW-27 (September 2024), and MW-223S (March 2024) for quality assurance/quality control (QA/QC) purposes. In June 2024, a duplicate was collected from a monitoring well associated with the additional monitoring networks at Neal North.

2.4 Analytical Parameters

Groundwater samples were analyzed for the parameters specified in 40 CFR Part 257 Appendix III and Appendix IV analytes (Table 5) for the assessment monitoring events. The verification sampling event in June 2024 was analyzed for a subset of the Appendix III and IV analytes. The majority of the laboratory analyses were conducted by Eurofins Environment Testing North Central, LLC (Eurofins) in Cedar Falls, Iowa; the radium 226/228 analyses were conducted by Eurofins in St. Louis, Missouri. Analyses were conducted by the laboratory in accordance with the procedures and methods described in the United States Environmental Protection Agency (USEPA) Manual SW-846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (September 1986)," as updated and/or in accordance with other approved testing procedures. Eurofins provided prepared sample containers for each monitoring event.

Analytical reports from each sampling event report total (i.e., unfiltered) sample results in accordance with the Federal CCR rule.

Table 2 summarizes the sample history for each monitoring well and the analyte list used for each event.

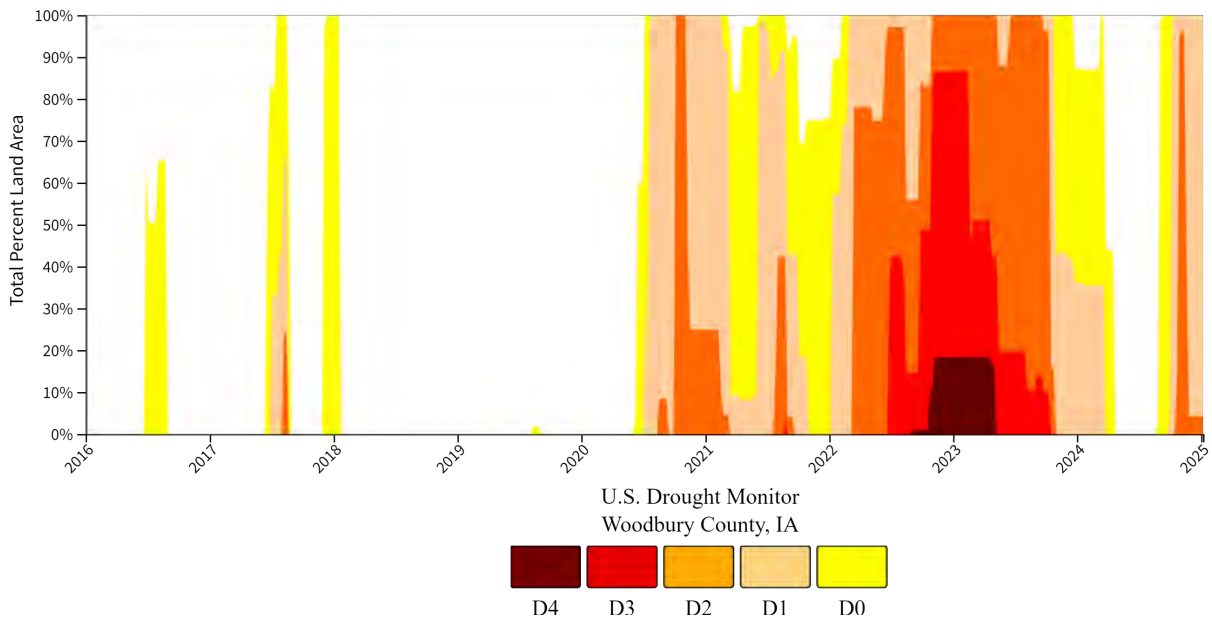
Following receipt of the final laboratory analytical reports from each round of sampling, GHD completed an analytical data quality assessment and validation for the groundwater and field quality assurance samples collected during the baseline monitoring events. Based on these assessments, the data are acceptable for use as reported by the laboratories.

3. Groundwater Flow Conditions

3.1 Drought and Flood Conditions

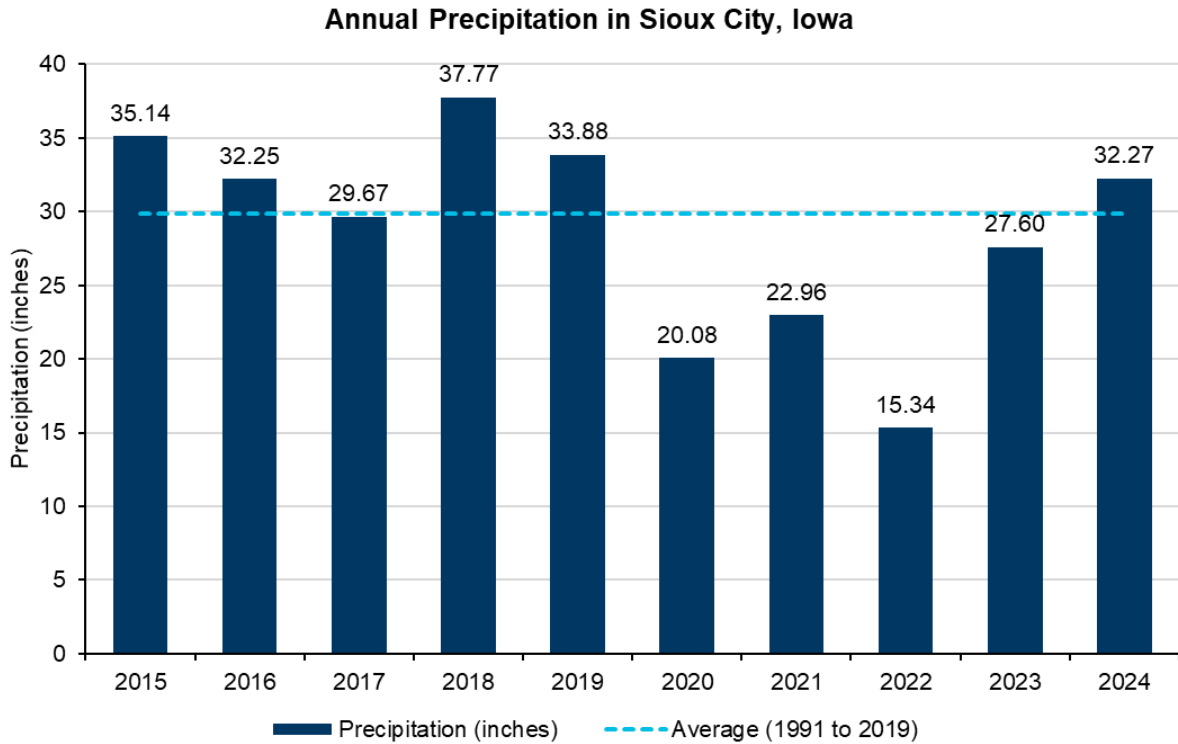
Groundwater levels at Neal North declined over the last few years due to regional drought conditions. Drought conditions for Woodbury County from 2016 through December 31, 2024 reported by the U.S. Drought Monitor are shown on Inset 1. In mid-2020, 100 percent of the area of Woodbury County was recorded as D0 Abnormally Dry, which then intensified into D1 Moderate Drought and then D2 Severe Drought for a period of time. In early 2021, approximately 80 percent of Woodbury County was in drought. Since early 2022, the entire county has been at least D1 Moderate Drought, with significant periods of time where all or most of the county is in D2 Severe Drought or D3 Extreme Drought. During late 2022 and early 2023, almost 20 percent of the county, including Neal North, was reported as D4 Exceptional Drought. Beginning mid-April 2024, all of Woodbury County was no longer under drought conditions until September 2024. Since October 2024, all of Woodbury County has been reported as D1 Moderate Drought to D2 Severe Drought.

On June 21, 2024, Woodbury County underwent a county-wide flood event. Prior to this, pressure transducers were installed at six locations at the site: MW-217S, MW-218S, MW-219S, MW-227S, MW-230S, and MW-235S. As a response to the anticipated flooding, GHD deployed additional pressure transducers on June 20, 2024 at monitoring wells MW-233S and MW-234S. These transducers will assist in monitoring groundwater elevation changes as a result of the June 2024 flooding event, as well as groundwater elevation changes between sampling events.



Inset 1. Drought conditions for Woodbury County. <https://www.drought.gov/states/iowa/county/Woodbury>

The annual precipitation for the Sioux City area is shown on Inset 2. The average annual rainfall (1991 through 2019) at Sioux City, Iowa is 29.90 inches. Annual rainfall was near normal or above average from 2015 through 2019. From 2020 through 2023, rainfall was below the annual average. The annual rainfall total was above average in 2024 for the first time since 2019. From mid-October 2023 through December 2024, the accumulated precipitation was consistently above average. The annual precipitation total for 2024 is 32.27 inches, which is approximately 3 inches above average.



Inset 2. Annual precipitation in Sioux City, Iowa, 2015 through 2024. <https://hprcc.unl.edu/stationtool/explore.php?sid=USW00014943%27>

During 2018 and 2019, releases from the Missouri River reservoir system upstream to the site were higher-than average. During 2020 through 2023, releases into the Missouri River from the reservoir system decreased river stage near the site (Inset 3) and reduced precipitation occurred (Inset 2). In mid-2024, the river stage began to increase. The flood event that occurred mid-June 2024 is recorded on Inset 3. The river stage increased to levels higher than that which was recorded in 2019. After June 2024, the river stage returned back to similar levels as those observed in 2023.

Missouri River at Sioux City, IA - 06486000

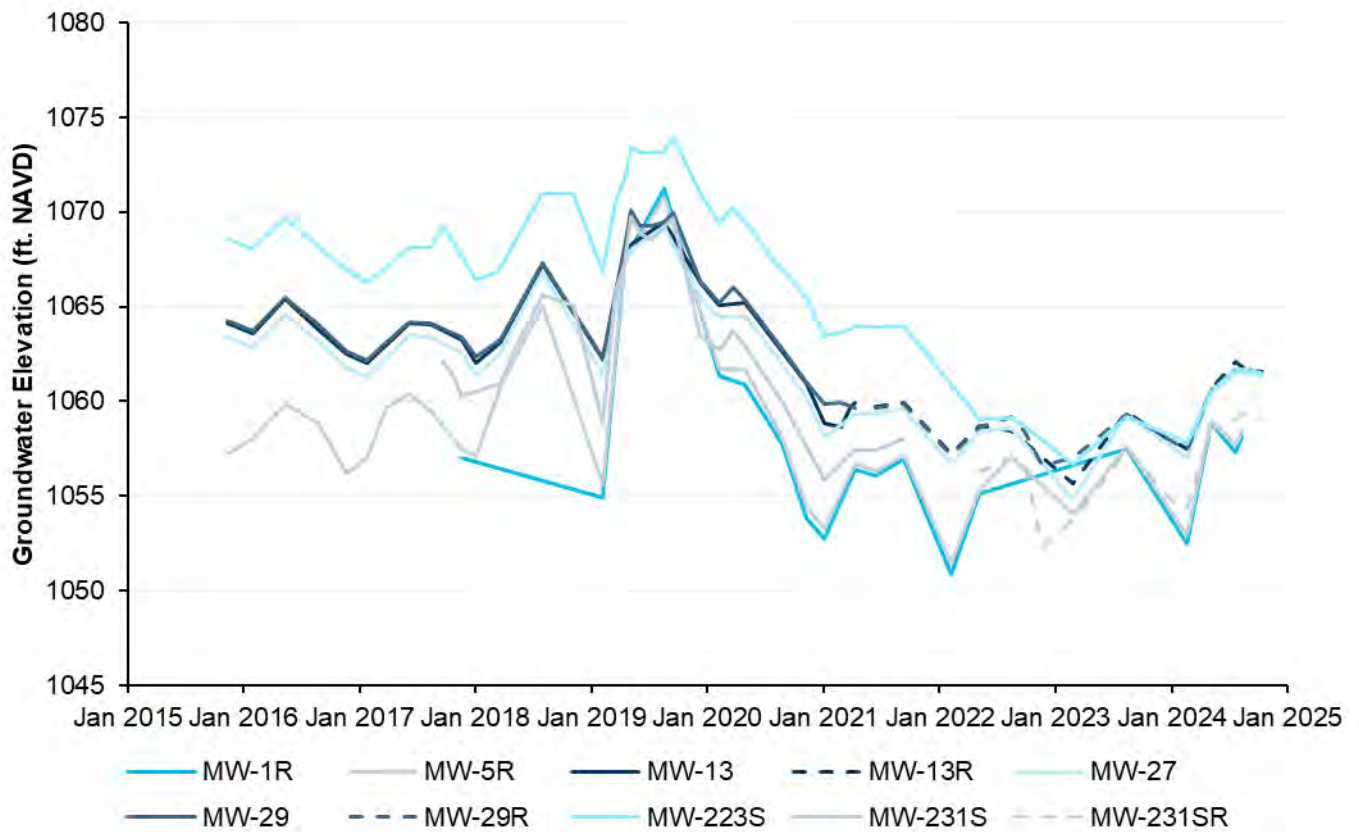
January 1, 2015 - December 31, 2024

Gage height, feet



Inset 3. Missouri River elevations at Sioux City, Iowa. <https://waterdata.usgs.gov/monitoring-location/06486000/#parameterCode=00065&period=P2742D>

Groundwater elevations since monitoring began in late 2015 are shown on Inset 4 for select monitoring wells at Neal North. The highest observed groundwater elevations occurred in 2019 and were on a generally decreasing trend though 2023, corresponding with below average precipitation in the area and reduced flows in the Missouri River. Corresponding with an increase in precipitation in the area, groundwater elevations have increased during recent gauging events.



Inset 4. Hydrograph for select wells at Neal North.

3.2 Horizontal Groundwater Flow

Groundwater levels were measured at each of the monitoring wells included in the monitoring network during each semiannual monitoring event. Many of the Closed Monofill groundwater monitoring wells are in a nested pair with one shallow and one deep well, as illustrated on Figure 1.2. Table 4 presents groundwater elevations measured in wells during the 2024 monitoring events. A groundwater flow map was prepared using water level measurements from each semiannual monitoring event for both the shallow and deep portions of the alluvial aquifer (Figures 3.1 through 3.6).

The groundwater contour maps show the groundwater flow direction in the shallow portion of the alluvial aquifer and the localized effect that an area of low permeability materials may have on the groundwater flow direction, provided on Figures 3.1, 3.3, and 3.5. Higher groundwater elevations are observed in areas of low permeability sediments that result in local variations in flow directions. However, the predominant site-wide flow direction is west-southwest, toward the Missouri River. Groundwater mounding is observed around monitoring wells MW-19 and MW-21.

Figures 3.2, 3.4, and 3.6 illustrate the southwesterly groundwater flow direction in the deeper portion of the alluvial aquifer. MW-20 is screened in fine-grained material, whereas other deep alluvial aquifer monitoring wells are screened in sand. For this reason, MW-20 was excluded from development of the deep alluvial groundwater contours (Figures 3.2, 3.4, and 3.6). Groundwater flow in the shallow and deep portions of the alluvial aquifer is generally southwest, toward the Missouri River.

3.3 Horizontal Gradient and Groundwater Flow Velocity

Hydraulic conductivity estimates for the shallow alluvial aquifer at the Neal North Monofill range from a low of approximately 0.3 meter per day (m/day) to 12.0 m/day (MWH, 2006). Hydraulic conductivity estimates for the deep alluvial aquifer at the Neal North Monofill range from a low of approximately 2.4 m/day to 28.4 m/day (MWH, 2006).

The geometric mean hydraulic conductivity for the shallow and deep portions of the alluvial aquifer is 2.3 m/day and 12.2 m/day, respectively (MWH, 2006).

The average horizontal linear groundwater velocity for both portions of the alluvial aquifer was estimated based on hydraulic conductivity, horizontal gradient, and the estimated porosity of the formation using the following equation:

$$V = Ki/n$$

Where V equals the average horizontal linear velocity; K equals the geometric mean hydraulic conductivity (2.3 m/day and 12.2 m/day for shallow and deep portions of the aquifer, respectively); i equals the average horizontal hydraulic gradient; and n equals the effective porosity (estimated at 0.3).

In order to consistently assess groundwater horizontal gradient and flow velocity, gradient was determined between well pairs that have been observed to consistently lie along flow paths. In the shallow portion of the alluvial aquifer, the horizontal gradient was estimated along the groundwater flow path between monitoring wells MW-13R and MW-11R. The gradient in the deeper portion of the alluvial aquifer was determined between monitoring wells MW-30 and MW-6 for the 2024 monitoring events.

During the three 2024 gauging events at the Neal North CCR Monofill, the average linear groundwater velocity was estimated to range between 0.006 m/day (approximately 7 feet per year) during the June 2024 monitoring event and 0.010 m/day (approximately 13 feet per year) during the March 2024 monitoring events in the shallow portion of the alluvial aquifer. The average linear groundwater velocity in the deeper portion of the alluvial aquifer was estimated to range between 0.023 m/day (approximately 27 feet per year) during the June 2024 monitoring event and 0.044 m/day (approximately 53 feet per year) during the March 2024 monitoring event.

3.4 Vertical Hydraulic Gradient

Water levels measured in monitoring well pairs during the 2024 monitoring events were used to calculate vertical hydraulic gradient using the equation listed below.

$$\frac{\text{Water Elevation in Deep Well} - \text{Water Elevation in Shallow Well}}{\text{Elevation of Middle of Saturated Zone of Shallow Well Screen} - \text{Elevation of Middle of Saturated Zone of Deep Well Screen}}$$

The difference in groundwater elevations between nested pairs of wells ranged from 0.02 to 0.72 feet at wells pairs MW-3R/MW-4, MW-5R/MW-6, MW-11/MW-12, MW-13/MW-14, MW-23/ MW-24, MW-27/MW-28, MW-29/MW-30, and MW-56/MW-57, to often in excess of several feet at well pairs MW-19/MW-20, MW-21/MW-22, MW-25/MW-26, and MW-31/MW-32, locations where shallow wells were screened in low conductivity sediments. The maximum difference of 15.21 feet was observed at the MW-21/MW-22 well pair during the June 2024 gauging event.

Vertical hydraulic gradients generally ranged from -0.041 feet/foot (ft/ft) downward to 0.016 ft/ft upward during recent gauging events at most locations with nested well pairs. However, downward gradients greater than -0.1 ft/ft were observed in several locations with significant deposits of shallow, poorly drained low permeability materials; in these locations, shallow groundwater levels were elevated relative to the surrounding higher permeability alluvial aquifer (MW-19/MW-20, MW-21/MW-22, MW-25/MW-26, and MW-31/MW-32), with downward gradients as high as -0.507 ft/ft. One well pair with significant deposits of low permeability materials (MW-25/MW-26) had an upward vertical gradient observed in June 2024 (0.019 ft/ft) and September 2024 (0.044 ft/ft).

3.5 Monitoring Well Network Assessment

The Closed Monofill monitoring network meets the Federal CCR rule requirements of having at least one upgradient monitoring well and three downgradient monitoring wells, and the groundwater monitoring network meets the design and construction requirements of 40 CFR §257.91. Shallow alluvial aquifer monitoring wells MW-13R, MW-27, MW-29R, MW-223S, and MW-231SR have been identified as upgradient background sampling locations.

3.6 Leachate and Landfill Gas

The Closed Monofill does not have a leachate collection system or landfill gas monitoring (Table 11 and Table 12).

4. Groundwater Monitoring

Groundwater sample collection records are provided in Appendix A and the associated laboratory analytical reports are provided in Appendix B. Appendix C includes time series graphs of concentration versus time for each analyte in the current monitoring program. Analytical results for groundwater samples collected during the eight baseline monitoring events (September 2020 through June 2022) are summarized in Table D.1. The analytical results from the 2024 monitoring events are summarized in Table D.2. These tables, as well as Tables D.3 through D.6, are provided in Appendix D. Further analysis of data from the Closed CCR Monofill is presented in Table 5 through Table 10 and is discussed throughout this section.

Following the assessment and reporting requirements under the Federal CCR rule, groundwater monitoring data are subjected to statistical evaluation to demonstrate compliance with monitoring goals. Evaluation components include:

- Statistical summaries for the data sets obtained (on a per-well, per-parameter basis)
- Preparation of trend plots (concentration vs. time)
- Inter-well comparisons (downgradient vs. upgradient background)
- Intra-well comparisons (vs. baseline conditions at a given well)

The statistical methods used in these evaluation steps for the Neal North Monofill are presented in the Groundwater Statistical Methods Certification (Methods Certification) (GHD, 2017). The procedures in the Methods Certification were selected in accordance with the Federal CCR rule, utilizing methodology presented in the USEPA's *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance* (Unified Guidance) (USEPA, 2009). The present evaluation utilizes the statistical methods presented therein to evaluate monitoring data from groundwater samples collected during the 2024 assessment and verification monitoring events.

Baseline monitoring under the Federal CCR rule occurred at the Neal North Closed Monofill during eight monitoring events conducted between September 2020 and June 2022. These first eight events represent the selected baseline period required for both inter-well and intra-well comparisons. Although the Closed Monofill shares the same upgradient background wells with the Neal North Impoundment 3B and Active Monofill, a new baseline monitoring period was completed (September 2020 and June 2022) to coincide with the initiation of sampling under the 2020 HMSP for the Closed Monofill.

4.1 Statistical Analysis Approach

The initial eight rounds of baseline groundwater monitoring data were collected and analyzed for the 40 CFR Part 257 Appendix III and IV constituents (Table 5). One constituent (fluoride) is listed in both the Appendix III and IV constituent lists in the Federal CCR rule. In the present evaluation, fluoride has been included with the Appendix III parameters and is not duplicated again with the other Appendix IV parameters in the various figures and tables of results.

The baseline and 2024 assessment and verification monitoring data for the Neal North Closed Monofill are presented in Tables D.1 and D.2, respectively. Statistical summary information for each data set is provided along with trend analysis results in Tables D.3 (inter-well baseline) and Table D.4 (intra-well baseline).

Groundwater monitoring at the Neal North Closed Monofill is currently conducted under Assessment Monitoring status per the Federal CCR rule. The Closed Monofill is not in an IDNR Groundwater Quality Assessment program so no trend analyses were conducted (Table 10). For downgradient wells, lithium and cobalt at MW-19 were the only confirmed detections at statistically significant levels (SSLs) above the maximum contaminant level (MCL) or

applicable groundwater protection standard (GWPS). The remaining detections above background at downgradient well locations are not confirmed and/or are below the site-specific GWPS. In Tables 6 and 7, background wells with confirmed control limit exceedances are not included but are summarized in Tables 9 and D.6.

No single method of statistical analysis is appropriate for each groundwater constituent dataset; instead, the statistical methods selected for use are dependent upon the data and distributions and should consider the specific constituents and the nature of local hydrogeologic conditions. Depending on characteristics of the site and the groundwater monitoring data, a mix of inter-well (comparison vs. upgradient background conditions) and intra-well (comparison vs. baseline) tests may be warranted. The statistical methods used for the inter-well and intra-well approaches are selected based on these factors as well as consideration of natural temporal or spatial variability of the concentrations of the groundwater constituents. Substantial natural spatial variability may necessitate intra-well methods. This statistical analysis was completed using both inter-well and intra-well approaches for the purpose of determining if a statistically significant increase (SSI) relative to baseline concentrations has occurred at the Neal North Closed Monofill.

A preliminary statistical analysis of baseline data was conducted to initially assess the constituent data and determine the most appropriate statistical approach(es) for the data. The data were examined for outliers, the percentage of non-detect values, and to determine the statistical data distribution. Time series plots, box plots of upgradient background data, and maps were used to evaluate the potential presence of temporal or spatial variations in constituent concentrations.

All of the Appendix III and IV constituents occur naturally in the environment. For constituents that occur naturally and may vary substantially in concentration across the monitoring network due to natural hydrogeologic or geochemical factors (i.e., exhibiting spatial variability), an inter-well analysis is not appropriate. Constituent concentrations greater than upgradient background conditions might be incorrectly attributed to impact from the Neal North Closed Monofill, when the differences are actually natural and unrelated to the Neal North Closed Monofill due to locally varying distributions of groundwater constituents. In such cases, an intra-well approach is appropriate.

4.1.1 Spatial Variability

The concentration of naturally occurring constituents such as the Appendix III and IV constituents can be affected by the presence of differing aquifer material or geochemistry between monitoring well locations. At the Neal North Monofill, the uppermost groundwater occurs in alluvial deposits, which consist primarily of sands with finer-grained silts and clays. The natural geochemistry of groundwater can vary between these zones and affect the detected concentrations of natural constituents. In the case of the Neal North Monofill, these differing geological materials are intersected by the screened zones of the monitoring wells and may result in spatial variability for some constituents. Box plots, provided in the 2022 AWQR (GHD, 2023), were used to evaluate spatial variability between the upgradient wells.

The presence of spatial variability among the Neal North Closed Monofill upgradient wells (MW-13R, MW-27, MW-29R, MW-223S, and MW-231SR) is evident for many detected constituents during the new baseline period. If no spatial variability is present, the mean and distribution between the upgradient wells would be similar. In contrast, there is strong evidence of spatial variability between wells where interquartile ranges do not overlap, in particular:

- MW-13R and MW-223S appear to have lower concentrations of boron than MW-29R, MW-27, and MW-231SR
- MW-223S has lower concentrations of calcium, TDS, and lithium than MW-13R, MW-27, MW-29R, and MW-231SR
- MW-231SR has higher sulfate than MW-13R, MW-27, MW-29R, and MW-223S
- MW-223S has higher pH than MW-13R, MW-27, MW-29R, and MW-231SR
- MW-27 and MW-231SR has lower barium concentrations than MW-13R, MW-29R, and MW-223S

For these constituents, there are observed substantial differences in constituent concentrations in groundwater between the upgradient background wells (MW-13R, MW-27, MW-29R, MW-223S, and MW-231SR). This spatial variability invalidates inter-well comparisons for downgradient wells, since observed differences between

downgradient and upgradient conditions could be due to natural variability or could be due to effects of the Neal North Closed Monofill. An inter-well comparison could not distinguish between these two possibilities.

4.1.2 Temporal Variability

The Federal CCR rule considers the occurrence of temporal trends in groundwater monitoring data. Where trends are observed, the statistical method selected must take these into account.

For inter-well baseline Upper Tolerance Limits (UTLs), where data from upgradient wells (MW-13R, MW-27, MW-29R, MW-223S, and MW-231SR) were combined, trends were assessed using the Regional Kendall test. This test is a modified Seasonal Kendall test described in detail in USEPA, 2009, Section 14.3.4, substituting the individual wells in the place of the separate seasons. In the test, individual Mann-Kendall statistics are calculated for each analyte at each well separately, and then summed to perform the overall test.

For these constituents, the statistically significant trends impact or invalidate inter-well comparisons, since the statistical methods presented in the Federal CCR rule (40 CFR 257.93 (f)) assume no trends are present in the upgradient data. Further analysis of temporal variability is provided in Section 4.2.1.

4.1.3 Summary of Statistical Analysis Approach

The statistical analysis included both inter-well and intra-well approaches for the purpose of determining if SSIs in constituent concentrations in groundwater have occurred at the Neal North Closed Monofill. This approach could change as additional data are collected during future monitoring. If new information warrants such a change, a modification to the statistical approach will be recommended for one or more constituents and/or monitoring wells.

4.2 Assessment of Baseline Data

Per the Methods Certification, each of the baseline data sets was subjected to initial screening and assumption checking, considering the following items:

- i. The presence of censored data (i.e., percentage of non-detect results)
- ii. The observed data distribution (i.e., normal, gamma, lognormal, or unknown)
- iii. The presence of statistical outliers
- iv. Consideration of field duplicate results

The specific methods employed are described in the Methods Certification. The assumption-checking results for each data set (constituent by well) are presented in Table D.4.

4.2.1 Stability Assessment/Baseline Period Trend Analysis

The assessment of temporal trends is included as a precursor to intra-well and inter-well comparisons, as the statistical methods for these comparisons assume that a stable condition is present in the reference data set (i.e., the baseline period for intra-well comparisons, and the upgradient background data set for inter-well comparisons). Where a trend is identified, the comparison procedures must be adjusted to take this into account. Trend tests may also be used as an alternative intra-well comparison procedure when other methods are not appropriate (as noted at the beginning of Section 17.3 of the Unified Guidance [USEPA, 2009]).

The Methods Certification selects two statistical procedures for evaluating trends in the baseline data, namely:

- i. The Mann-Kendall Trend Test
- ii. The Theil-Sen Median Slope (for data sets identified as having a statistically significant temporal trend by the Mann-Kendall Test)

The applicability and methodology for these procedures are discussed in the Methods Certification. In carrying out the trend tests, a target significance level of 0.05 (i.e., 95 percent confidence) was selected. This significance level is

applied on a per-location, per-parameter basis, for all suitable data sets. The Federal CCR rule (40 CFR 257.93 (g)(2)) specifies that a significance level no lower than 0.01 (99 percent confidence) may be applied for individual comparisons, with an overall (site-wide) minimum significance level of 0.05. For current trend screening purposes, a significance level of 0.05 was selected to increase the statistical power of detecting potential trends with data sets containing only eight baseline samples (which is the number of baseline events specified in the Federal CCR rule). Non-detects were accommodated as described in the Methods Certification, considering these to be tied and lower than non-detects in the Mann-Kendall Test, and conservatively substituting the detection limit where needed for calculating the Thiel-Sen median slope.

The baseline data sets presented in Table D.1 were subjected to trend testing as described above. The results of these tests are presented, along with summary statistics, in Table D.4. The trend test findings are also included on trend plots, which are presented in Appendix C, Figures 1 through 10. Note that in the trend plots, field duplicate results are included as discrete points, but in the trend analyses these were averaged prior to trend calculations.

There are a total of 210 baseline data sets that were considered (21 monitoring constituents at each of the 10 wells). Out of these, 74 data sets are comprised entirely of non-detect results. These occur mainly for the following constituents:

- Antimony (all 10 wells)
- Beryllium (all 10 wells)
- Chromium (all 10 wells)
- Fluoride (5 wells)
- Lead (7 wells)
- Mercury (all 10 wells)
- Selenium (7 wells)
- Thallium (8 wells)

Additional constituents with at least one well having no detected results during baseline sampling are arsenic (1 well), cadmium and molybdenum (3 wells each).

There are 23 baseline period data sets containing one or more detected results but having a non-detect frequency greater than 50 percent and were therefore not subjected to trend testing.

The remaining 113 data sets were subjected to trend analysis using the Mann-Kendall Test. The majority of the tests (103 of 113 data sets, or 91 percent) indicated that no statistically significant trends over time were present during the baseline period. Four (4) decreasing trends and six (6) increasing trends were found.

Increasing trends were found for the following wells/constituents:

- Chloride at MW-1R, MW-13R, MW-27, MW-29R, MW-223S, and MW-231SR

Decreasing trends were found for the following wells/constituents:

- Boron at MW-27
- Cobalt at MW-1R and MW-3R
- TDS at MW-3R

Additionally, there are several data sets noted where there is less confidence of a trend over time (having statistical confidence less than 95 percent but greater than 90 percent), as noted in the comments in Table D.4.

Where trends have been identified in a baseline data set, the methods for intra-well and inter-well comparisons performed below were adjusted to account for non-stationarity during the baseline period.

4.2.2 Inter-well Comparisons – Upgradient Background Values

The Federal CCR rule provides a list of alternate statistical procedures applicable to inter-well and intra-well comparisons (see 40 CFR §257.93(f)). In the Methods Certification, the use of upper tolerance limits (UTLs) was selected for assessment of groundwater monitoring data for the Neal North Closed Monofill. A UTL is a statistically-based limit above which a given sample measurement is unlikely to occur if conditions are consistent with the reference population. For inter-well comparisons, the reference population is the data set of constituent concentrations in upgradient background well(s). Since there are five upgradient background wells (MW-13R, MW-27, MW-29R, MW-223S, and MW-231SR), the data from these five wells have been pooled to calculate the upgradient background UTLs for each constituent.

Statistical UTLs have two descriptive parameters: (i) their coverage; and (ii) their confidence. Coverage refers to the percentage of the reference population that is within the tolerance limit. For example, if a coverage of 0.99 is selected, then 99 percent of the reference population will be within the tolerance limit (which in the case of a one-sided UTL, represents the 99th percentile of the reference population). Confidence refers to the probability that the specified coverage based on the samples collected will include the true value from the entire population. For example, if a 95 percent confidence level is selected, then there is no more than a 5 percent probability that the calculated UTL will not provide the selected coverage (e.g., true 99th percentile) of the population.

In Section 5 of the Methods Certification, two type of UTLs are specified:

- i. A 95/95 UTL, which has a coverage of 0.95 (i.e., 95th percentile) with 95 percent confidence
- ii. A 99/95 UTL, which has a coverage of 0.99 (i.e., 99th percentile) with 95 percent confidence

Comparisons against these UTLs are to be interpreted as follows:

- a. If a given future observation exceeds a 95/95 UTL, but not a 99/95 UTL, the next regularly scheduled monitoring event will be used as the verification resample for determining an SSI.
- b. If a given future observation exceeds both the 95/95 and 99/95 UTLs, then a verification resample or other appropriate response will be undertaken prior to the next regularly scheduled monitoring event.

An SSI is only identified after an original sample and its verification resample (either the next regularly scheduled sample or a special verification sample) exceed the given UTL.

Calculations of UTLs for inter-well comparisons were completed using the logic and methodology presented in USEPA's Technical Guide for its ProUCL software (USEPA, 2022, version 5.2). The results of the inter-well UTL calculations are provided in Table D.3.

4.2.3 Intra-well Comparisons – Well-specific Baseline Values

As noted in the Methods Certification, the statistical methods (i.e., UTLs) for intra-well comparisons are analogous to those for inter-well comparisons. In this case, the reference population is the data set of constituent concentrations in a given well observed during the baseline period. Calculation of the upgradient background 95/95 UTL and 99/95 UTL values is performed using the same methods used for the inter-well comparisons.

Where temporal trends were identified over the baseline period, tolerance limits are not calculated (due to violation of the statistical assumptions of the UTL calculations) and a baseline range is provided as a reference. For such data sets, future sample results are to be compared both against the baseline range and what would be expected based on the observed trend over the baseline period.

The calculated updated intra-well baseline values (UTLs) for each constituent at each well are provided in Table D.4.

4.3 Evaluation of 2024 Groundwater Monitoring Data

4.3.1 Appendix III Analytes

The Appendix III constituent data sets from sampling conducted during 2024 are presented in Table 8 and Table D.2 and summarized below. The historical and current Appendix III monitoring data is compared against the background level and GWPS in Table 9.

- Boron. No MCL has been established for boron. The maximum boron concentration detected in 2024 was 0.606 milligrams per liter (mg/L) at MW-19 (March 2024).
- Calcium. No MCL has been established for calcium. The maximum calcium concentration detected in 2024 was 510 mg/L at well MW-21 (March 2024).
- Chloride. No MCL has been established for chloride. The maximum chloride concentration detected in the 2024 monitoring events was 116 mg/L at upgradient location MW-231SR (September 2024). MW-1R (61.8 mg/L in September 2024) was the maximum chloride concentration detected at downgradient monitoring well locations.
- Fluoride. The MCL for fluoride is 4.0 mg/L. All wells were below the associated reporting limit (1.00 mg/L and 0.200 mg/L, depending on sample).
- pH. No MCL has been established for pH. The lowest and highest pH measurement recorded in 2024 were 6.6 J at MW-19 (September 2024) and 8.0 J at monitoring wells MW-1R (March 2024), MW-3R (March 2024), and MW-5R (March 2024), respectively.
- Sulfate. No MCL has been established for sulfate. The maximum sulfate concentration detected in 2024 was 1,590 mg/L at MW-21 (March 2024).
- Total Dissolved Solids (TDS). No MCL has been established for TDS. The maximum TDS concentration in 2024 was 2,890 mg/L at MW-21 (March 2024).

4.3.2 Appendix IV Analytes

The March, June, and September 2024 Appendix IV results are presented in Table 8 and Table D.2 and summarized below. The historical and current Appendix IV monitoring data is compared against the background level and GWPS in Table 9.

- Antimony. Antimony was not detected above the method reporting limit (0.00200 mg/L) or the established MCL (0.006 mg/L) in samples from any monitoring well during the 2024 monitoring events.
- Arsenic. The site-specific GWPS for arsenic is the maximum background concentration (0.0512 mg/L) because the background concentration is higher than arsenic MCL of 0.010 mg/L. Arsenic was detected at all wells during the 2024 monitoring events, except at MW-21 (March and September 2024) and MW-231SR (September 2024). The maximum concentration detected was 0.0955 mg/L at downgradient well MW-1R, which is above the site-specific GWPS. The subsequent sample from MW-1R in June 2024 was below the site-specific GWPS (0.0464 mg/L). The March 2024 arsenic result of 0.0521 mg/L at background well MW-13R also exceeded the site-specific GWPS and was followed by a result below the GWPS in September 2024. At background well MW-27, both March 2024 (0.0591 mg/L) and September 2024 (0.0663 mg/L) exceeded the arsenic GWPS.
- Barium. The MCL for barium is 2.0 mg/L. Barium was detected in all of the monitored wells in 2024 with a maximum concentration of 0.296 mg/L at downgradient location MW-3R in March 2024, which is below the MCL.
- Beryllium. Beryllium was not detected above the method reporting limit (0.00100 mg/L) or the established MCL (0.004 mg/L) in samples from any monitoring well during the 2024 monitoring events.
- Cadmium. The method reporting limit for cadmium is 0.000200 mg/L and the MCL is 0.005 mg/L. Cadmium was not detected above the reporting limit at any monitoring well during the 2024 monitoring events.
- Chromium. Chromium was not detected above the method reporting limit (0.00500 mg/L) or the established MCL (0.1 mg/L) in any monitoring well during the 2024 monitoring events.

- Cobalt. No MCL has been established for cobalt; the GWPS established under 40 CFR §257.95(h)(2) for cobalt is 0.006 mg/L. The maximum concentration detected was 0.0127 mg/L at MW-19 in September 2024, which is above the GWPS. The March 2024 result (0.00755) was also greater than the GWPS.
- Lead. No MCL has been established for lead; the GWPS established under 40 CFR §257.95(h)(2) for lead is 0.015 mg/L. All wells were below the method reporting limit (0.000500 mg/L) during the 2024 monitoring events.
- Lithium. No MCL has been established for lithium; the GWPS established under 40 CFR §257.95(h)(2) for lithium is 0.040 mg/L; and the background concentration in groundwater is 0.205 mg/L. Since the site-specific background concentration is higher than the 40 CFR §257.95(h)(2) value for lithium, the site-specific GWPS for lithium is 0.205 mg/L. Lithium was detected in all wells during the 2024 monitoring events. The maximum concentration detected was 0.328 mg/L at MW-21 (March 2024), which is above the background concentration and the site-specific GWPS, but the September 2024 result (0.205 mg/L) did not exceed the GWPS. The March 2024 (0.239 mg/L) and September 2024 (0.255 mg/L) results of lithium at MW-19 also exceeded the site-specific GWPS.
- Mercury. Mercury was not detected above the method reporting limit (0.000200 mg/L) or the established MCL (0.002 mg/L) in samples from any monitoring well during the 2024 monitoring events.
- Molybdenum. No MCL has been established for molybdenum; the GWPS established under 40 CFR §257.95(h)(2) for molybdenum is 0.100 mg/L. Molybdenum was detected in the majority of wells during 2024, except at MW-19, MW-21, MW-27, MW-29 (September 2024), and MW-231SR (September 2024). The maximum concentration detected was at MW-1R, which had a concentration of 0.00508 mg/L in March 2024. This concentration is below the GWPS.
- Radium 226 and 228 (combined). Radium 226 and 228 (combined) was not detected above the established MCL of 5 picocuries per liter (pCi/L) in any of the wells during the 2024 monitoring events. Radium 226 and 228 (combined) was detected in all wells during all monitoring events in 2024 except at MW-5R, MW-19, MW-21, and MW-223S in March 2024. The highest concentration detected during the 2024 events was 2.98 pCi/L at MW-231SR in March 2024.
- Selenium. The MCL for selenium is 0.05 mg/L. Majority of selenium concentrations were below the method reporting limit (0.00500 mg/L) during the 2024 monitoring events except at MW-19 (March 2024), MW-21 (September 2024), and MW-231SR (January and September 2024). The maximum detected selenium concentration was 0.191 mg/L at MW-21 in September 2024, which is above the MCL. This result will be verified during the next sampling event.
- Thallium. The MCL for thallium is 0.002 mg/L. All wells were below the method reporting limit (0.00100 mg/L) for thallium during the 2024 monitoring events.

4.3.3 Inter-well Comparisons (vs. Upgradient Background)

Inter-well comparisons of current monitoring data are conducted by comparing monitoring data from the 2024 sampling events to the upgradient background UTLs derived from the baseline period data (September 2020 through June 2022). These comparisons are presented in Table D.5. A further comparison of newly identified as well as ongoing inter-well background exceedances are presented in Table 6 and Table 7, respectively.

The results of the inter-well comparisons identify observations at the five downgradient monitoring wells where the 2024 monitoring events had a constituent concentration or measurement outside of baseline conditions represented by the upgradient background wells (MW-13R, MW-27, MW-29R, MW-223S, and MW-231SR). These include:

- Arsenic at MW-1R
- Boron at MW-1R, MW-3R, and MW-19
- Calcium at MW-19 and MW-21
- Chloride at MW-1R
- Cobalt at MW-19
- Lithium at MW-19 and MW-21

- Molybdenum at MW-1R and MW-5R
- pH at MW-1R, MW-3R, MW-5R, and MW-19
- Selenium at MW-21
- Sulfate at MW-19 and MW-21
- TDS at MW-19 and MW-21

Several concentrations exceeding the inter-well background were confirmed with two successive samples above the UTL. The following samples from March 2024 were not confirmed in the subsequent sampling event:

- Arsenic at MW-1R
- Calcium at MW-21
- Lithium at MW-21
- pH at MW-1R, MW-3R, and MW-5R
- Sulfate at MW-21
- TDS at MW-21

Remaining unconfirmed SSIs observed during the September 2024 sampling event (boron and chloride at MW-1R; selenium at MW-21) will be confirmed during the next sampling event.

4.3.4 Intra-well Comparisons (vs. Well-Specific Baseline Values)

Intra-well comparisons of current monitoring data are conducted by comparing monitoring results from the 2024 sampling events to the baseline period (September 2020 through June 2022) UTLs for each given well. These comparisons are presented in Table D.6.

The results of the intra-well comparisons indicate that the Appendix III and IV constituent concentrations were not above those observed during the baseline period with a few exceptions. These include:

- Arsenic at MW-27 (upgradient), MW-223S (upgradient), MW-231SR (upgradient), and MW-1R
- Barium at MW-27 (upgradient), MW-231SR (upgradient)
- Boron at MW-223S (upgradient)
- Calcium at MW-223S (upgradient)
- Chloride at MW-223S (upgradient) and MW-231SR (upgradient)
- Cobalt at MW-231SR (upgradient) and MW-1R
- Molybdenum at MW-231SR (upgradient)
- pH at MW-1R, MW-3R, MW-5R, MW-19, and MW-21
- Radium-226 & 228 (combined) at MW-231SR (upgradient)
- Selenium at MW-19 and MW-21
- Sulfate at MW-223S (upgradient)
- TDS at MW-223S (upgradient)

All exceedances of intra-well baseline values were at upgradient locations except arsenic (MW-1R), cobalt (MW-1R), pH (MW-1R, MW-3R, MW-5R, MW-19, and MW-21), and selenium (MW-19 and MW-21). Of these SSIs, arsenic at MW-27, barium at MW-27, boron at MW-223S, and calcium at MW-223S are confirmed with two successive samples above the UTL. Unverified SSIs that did not exceed in the immediately following sampling event include:

- Arsenic at MW-223S, MW-231SR, and MW-1R
- Barium at MW-231SR
- Molybdenum at MW-231SR
- pH at MW-1R, MW-3R, MW-5R, MW-19, and MW-21

- Radium-226 & 228 (combined) at MW-231SR
- Selenium at MW-19
- Sulfate at MW-223S
- TDS at MW-223S

The remaining unconfirmed SSIs will be verified during the next sampling event.

5. Conclusions and Recommendations

5.1 Groundwater Flow and Evaluation of the Monitoring Network

Groundwater flow in the shallow and deep portions of the alluvial aquifer in the vicinity of the Neal North Monofill is predominantly to the west-southwest, toward the Missouri River. The shallow alluvial groundwater contour maps (Figures 3.1, 3.3, and 3.5) show the localized effect an area of low permeability materials may have on the groundwater flow direction.

The groundwater flow evaluation (see Figures 3.1 through 3.6) indicates the monitoring network is sufficient and has appropriately located upgradient and downgradient well locations. The predominant flow direction was observed to be to the southwest, toward the Missouri River.

5.2 Groundwater Quality

A statistical evaluation of groundwater monitoring data collected during the baseline period (September 2020 to June 2022) has been conducted in accordance with the Federal CCR rule and Unified Guidance for assessing groundwater data (USEPA, 2009). This evaluation was successful in characterizing the baseline data sets, assessing the baseline data for trends, and generating inter-well upgradient background reference values and intra-well baseline values against which future monitoring data may be evaluated.

Additionally, an assessment of monitoring data from samples collected were analyzed for the parameters specified in 40 CFR Part 257 Appendix III and Appendix IV analytes for the monitoring events completed in March and September 2024.

Key results of the evaluation include:

- Constituent concentrations appear to vary between the upgradient background wells. Assessment of the baseline period data indicates significant spatial variability in groundwater collected at different monitoring wells at the site, requiring intra-well comparisons.
- Significant concentration trends over time were observed in some baseline data sets at both downgradient wells and upgradient wells.
- Inter-well baseline values (UTLs) have been calculated from the baseline data for five upgradient background wells (MW-13R, MW-27, MW-29R, MW-223S, and MW-231SR).
- Intra-well baseline values (UTLs) have been calculated on a per-constituent, per-well basis for Appendix III and Appendix IV constituents.
- Assessment of the 2024 monitoring events data indicates that:
 - Inter-well comparisons - The monitoring results at downgradient wells are mainly consistent with upgradient background conditions during the baseline period but remain elevated for one or more constituents at three of the five downgradient wells (molybdenum at MW-1R; boron at MW-3R;

molybdenum at MW-5R; boron, calcium, cobalt, lithium, pH, sulfate, and/or TDS at MW-19). These SSIs, as well as the unconfirmed SSIs noted in Section 4.3.3, will be assessed by future sampling.

- Intra-well comparisons – All upgradient locations, except MW-13R and MW-29R, exceeded their corresponding intra-well baseline value for one or more constituents (arsenic, barium, boron, calcium, chloride, cobalt, molybdenum, radium-226 & 228 (combined), sulfate, and/or TDS) during at least one sampling event in 2024. One unconfirmed SSI for selenium at downgradient location MW-21 will be verified during the next sampling event.
- The MCL or GWPS was exceeded for the following constituents and downgradient locations:
 - Arsenic (site-specific GWPS) at MW-1R in March 2024 but not June or September 2024
 - Cobalt (GWPS) at MW-19 in March and September 2024
 - Lithium (site-specific GWPS) at MW-19 in March and September 2024
 - Lithium (site-specific GWPS) at MW-21 in March 2024
 - Selenium (MCL) at MW-21 in September 2024
- The MCL or GWPS was exceeded for the following constituents and upgradient locations:
 - Arsenic (site-specific GWPS) at background location MW-13R in March 2024 but not September 2024
 - Arsenic (site-specific GWPS) at background location MW-27 in March and September 2024

5.3 Recommendations

Currently, the Neal North Closed Monofill remains in assessment monitoring. No changes to the monitoring network or sampling procedures are necessary.

6. References

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Tables

Table 1

Monitoring Program Summary
2024 Annual Water Quality Report
Neal North Energy Center - Closed CCR Monofill
Permit No. 97-SDP-12-95P

Monitoring Well	Formation	Current Monitoring Program	Change for next sampling event	Control Limit Exceedances	Total # of Samples in each monitoring program since December 1, 2015		
					Appendix III	Appendix IV	Corrective Measures
MW-1R	Alluvial Aquifer	Assessment	No Change	N/A	13	11	0
MW-3R	Alluvial Aquifer	Assessment	No Change	N/A	13	11	0
MW-5R	Alluvial Aquifer	Assessment	No Change	N/A	13	11	0
MW-13/13R (Background)	Alluvial Aquifer	Assessment	No Change	N/A	11	11	0
MW-19	Alluvial Aquifer	Assessment	No Change	N/A	13	11	0
MW-21	Alluvial Aquifer	Assessment	No Change	N/A	13	11	0
MW-27 (Background)	Alluvial Aquifer	Assessment	No Change	N/A	13	11	0
MW-29/29R (Background)	Alluvial Aquifer	Assessment	No Change	N/A	11	11	0
MW-223S (Background)	Alluvial Aquifer	Assessment	No Change	N/A	13	11	0
MW-231S/231SR (Background)	Alluvial Aquifer	Assessment	No Change	N/A	13	11	0
Other monitoring points							
MW-4	Deep Portion of Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-6	Deep Portion of Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-7	Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-8	Deep Portion of Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-9	Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-10	Deep Portion of Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-11/11R	Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-12	Deep Portion of Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-14	Deep Portion of Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-15R	Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-16	Deep Portion of Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-17	Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-18	Deep Portion of Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-20	Deep Portion of Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-22	Deep Portion of Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-23/23R	Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-24	Deep Portion of Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-25	Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-26	Deep Portion of Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-28	Deep Portion of Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-30	Deep Portion of Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-31	Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-32	Deep Portion of Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-56	Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-57/57R	Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-58S	Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-59S	Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0
MW-60S	Alluvial Aquifer	Gauging location	No Change	N/A	0	0	0

Comments:

None.

Table 2

**Monitoring Program Implementation Schedule
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Monitoring Well	Recent Sampling Dates and Constituents					
	9/22/2020 - 9/24/2020	12/9/2020-12/10/2020	2/2/2021-2/4/2021	5/10/2021-5/11/2021	7/13/2021-7/15/2021	10/12/2021-10/14/2021
MW-1R	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV
MW-3R	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV
MW-5R	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV
MW-13/13R	Appendix III and IV	Appendix III and IV	Not Sampled	Not Sampled	Appendix III and IV	Appendix III and IV
MW-19	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV
MW-21	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV
MW-27	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV
MW-29/29R	Appendix III and IV	Appendix III and IV	Not Sampled	Not Sampled	Appendix III and IV	Appendix III and IV
MW-223S	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV
MW-231S/231SR	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV

Monitoring Well	Recent Sampling Dates and Constituents					
	3/8/2022-3/11/2022	6/7/2022-6/9/2022	9/12/2022-9/15/2022	3/27-3/29 & 4/3/2023	9/11/2023-9/13/2023	3/18/2024-3/21/2024
MW-1R	Appendix III and IV	Appendix III and IV	Appendix III	Appendix III	Appendix III and IV	Appendix III and IV
MW-3R	Appendix III and IV	Appendix III and IV	Appendix III	Appendix III	Appendix III and IV	Appendix III and IV
MW-5R	Appendix III and IV	Appendix III and IV	Appendix III	Appendix III	Appendix III and IV	Appendix III and IV
MW-13/13R	Appendix III and IV	Appendix III and IV	Appendix III	Appendix III	Appendix III and IV	Appendix III and IV
MW-19	Appendix III and IV	Appendix III and IV	Appendix III	Appendix III	Appendix III and IV	Appendix III and IV
MW-21	Appendix III and IV	Appendix III and IV	Appendix III	Appendix III	Appendix III and IV	Appendix III and IV
MW-27	Appendix III and IV	Appendix III and IV	Appendix III	Appendix III	Appendix III and IV	Appendix III and IV
MW-29/29R	Appendix III and IV	Appendix III and IV	Appendix III	Appendix III	Appendix III and IV	Appendix III and IV
MW-223S	Appendix III and IV	Appendix III and IV	Appendix III	Appendix III	Appendix III and IV	Appendix III and IV
MW-231S/231SR	Appendix III and IV	Appendix III and IV	Appendix III	Appendix III	Appendix III and IV	Appendix III and IV

Monitoring Well	Upcoming Sampling Dates and Constituents				
	9/9/2024-9/13/2024	March 2025	September 2025	March 2026	September 2026
MW-1R	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV
MW-3R	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV
MW-5R	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV
MW-13/13R	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV
MW-19	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV
MW-21	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV
MW-27	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV
MW-29/29R	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV
MW-223S	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV
MW-231S/231SR	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV	Appendix III and IV

Comments:

Appendix III - boron, calcium, chloride, fluoride, pH, sulfate, and total dissolved solids.

Appendix IV - antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium, thallium, and radium 226 and 228 combined.

Table 3

**Monitoring Well Maintenance and Performance Reevaluation Schedule
 2024 Annual Water Quality Report
 Neal North Energy Center - Closed CCR Monofill
 Permit No. 97-SDP-12-95P**

Compliance with:					
	2020	2021	2022	2023	2024
Check well depths (annual)	Completed	Completed	Completed	Completed	Completed

Compliance with:				
	2025	2026	2027	2028
Check well depths (annual)	Scheduled	Scheduled	Scheduled	Scheduled

Comments:
None.

Table 4

**Monitoring Well Maintenance and Performance Summary
2024 Annual Water Quality Report
Neal North Energy Center - Closed CCR Monofill
Permit No. 97-SDP-12-95P**

(includes all wells, underdrains etc.)

Well	Top of Casing	Top of Screen	Total Depth		Date of Measurements			Maximum Depth Discrepancy (ft)
					3/18/2024	6/4/2024	9/9/2024	
MW-1R	1077.64	1065.69	37.00	Groundwater Level (ft)	25.19	18.82	19.46	0.02
				Groundwater Elevation (Ft MSL)	1052.45	1058.82	1058.18	
				Measured Well Depth (ft)	nm	nm	36.98	
				Submerged screen	N	N	N	
MW-3R	1075.94	1064.34	36.60	Groundwater Level (ft)	22.96	17.16	17.21	-0.03
				Groundwater Elevation (Ft MSL)	1052.98	1058.78	1058.73	
				Measured Well Depth (ft)	nm	nm	36.63	
				Submerged screen	N	N	N	
MW-4	1076.18	1035.54	45.60	Groundwater Level (ft)	23.15	17.36	17.43	-0.26
				Groundwater Elevation (Ft MSL)	1053.03	1058.82	1058.75	
				Measured Well Depth (ft)	nm	nm	45.86	
				Submerged screen	Y	Y	Y	
MW-5R	1079.54	1067.89	36.70	Groundwater Level (ft)	26.61	20.57	21.07	-0.27
				Groundwater Elevation (Ft MSL)	1052.93	1058.97	1058.47	
				Measured Well Depth (ft)	nm	nm	36.97	
				Submerged screen	N	N	N	
MW-6	1079.12	1037.25	46.90	Groundwater Level (ft)	26.16	20.19	20.59	-0.16
				Groundwater Elevation (Ft MSL)	1052.96	1058.93	1058.53	
				Measured Well Depth (ft)	nm	nm	47.06	
				Submerged screen	Y	Y	Y	
MW-7	1075.96	1067.51	18.50	Groundwater Level (ft)	dry	17.49	18.10	-0.17
				Groundwater Elevation (Ft MSL)	dry	1058.47	1057.86	
				Measured Well Depth (ft)	nm	nm	18.67	
				Submerged screen	N	N	N	
MW-8	1075.96	1035.66	45.30	Groundwater Level (ft)	23.93	17.51	18.11	0.13
				Groundwater Elevation (Ft MSL)	1052.03	1058.45	1057.85	
				Measured Well Depth (ft)	nm	nm	45.17	
				Submerged screen	Y	Y	Y	

Table 4

**Monitoring Well Maintenance and Performance Summary
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Neal North Energy Center - Closed CCR Monofill
Permit No. 97-SDP-12-95P**

(includes all wells, underdrains etc.)

Well	Top of Casing	Top of Screen	Total Depth		Date of Measurements			Maximum Depth
					3/18/2024	6/4/2024	9/9/2024	Discrepancy (ft)
MW-9	1088.63	1069.98	28.70	Groundwater Level (ft)	dry	dry	dry	-0.17
				Groundwater Elevation (Ft MSL)	dry	dry	dry	
				Measured Well Depth (ft)	nm	nm	28.87	
				Submerged screen	N	N	N	
MW-10	1088.69	1038.03	55.70	Groundwater Level (ft)	36.90	30.97	29.87	0.20
				Groundwater Elevation (Ft MSL)	1051.79	1057.72	1058.82	
				Measured Well Depth (ft)	nm	nm	55.50	
				Submerged screen	Y	Y	Y	
MW-11R	1091.23	1065.10	41.10	Groundwater Level (ft)	35.59	31.60	30.57	-0.07
				Groundwater Elevation (Ft MSL)	1055.64	1059.63	1060.66	
				Measured Well Depth (ft)	nm	nm	41.17	
				Submerged screen	N	N	N	
MW-12	1089.79	1037.58	57.20	Groundwater Level (ft)	34.01	30.03	29.00	0.10
				Groundwater Elevation (Ft MSL)	1055.78	1059.76	1060.79	
				Measured Well Depth (ft)	nm	nm	57.10	
				Submerged screen	Y	Y	Y	
MW-13R	1089.22	1066.10	38.16	Groundwater Level (ft)	31.74	28.55	27.38	0.02
				Groundwater Elevation (Ft MSL)	1057.48	1060.67	1061.84	
				Measured Well Depth (ft)	nm	nm	38.14	
				Submerged screen	N	N	N	
MW-14	1087.64	1036.94	55.70	Groundwater Level (ft)	30.06	26.86	25.54	0.10
				Groundwater Elevation (Ft MSL)	1057.58	1060.78	1062.10	
				Measured Well Depth (ft)	nm	nm	55.60	
				Submerged screen	Y	Y	Y	

Table 4

**Monitoring Well Maintenance and Performance Summary
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Neal North Energy Center - Closed CCR Monofill
Permit No. 97-SDP-12-95P**

(includes all wells, underdrains etc.)

Well	Top of Casing	Top of Screen	Total Depth		Date of Measurements			Maximum Depth Discrepancy (ft)
					3/18/2024	6/4/2024	9/9/2024	
MW-15R	1089.45	1077.25	37.20	Groundwater Level (ft)	33.01	28.99	27.95	-0.10
				Groundwater Elevation (Ft MSL)	1056.44	1060.46	1061.50	
				Measured Well Depth (ft)	nm	nm	37.30	
				Submerged screen	N	N	N	
MW-16	1089.82	1042.17	52.70	Groundwater Level (ft)	22.53	29.43	28.40	-0.12
				Groundwater Elevation (Ft MSL)	1067.29	1060.39	1061.42	
				Measured Well Depth (ft)	nm	nm	52.82	
				Submerged screen	Y	Y	Y	
MW-17	1088.34	1077.72	25.60	Groundwater Level (ft)	19.58	17.96	19.14	0.33
				Groundwater Elevation (Ft MSL)	1068.76	1070.38	1069.20	
				Measured Well Depth (ft)	nm	nm	25.27	
				Submerged screen	N	N	N	
MW-18	1088.34	1036.18	57.20	Groundwater Level (ft)	33.04	28.70	28.05	0.18
				Groundwater Elevation (Ft MSL)	1055.30	1059.64	1060.29	
				Measured Well Depth (ft)	nm	nm	57.02	
				Submerged screen	Y	Y	Y	
MW-19	1088.76	1069.85	28.90	Groundwater Level (ft)	13.79	10.37	12.94	-0.19
				Groundwater Elevation (Ft MSL)	1074.97	1078.39	1075.82	
				Measured Well Depth (ft)	nm	nm	29.09	
				Submerged screen	Y	Y	Y	
MW-20	1088.56	1036.85	56.70	Groundwater Level (ft)	26.15	24.01	23.09	-0.14
				Groundwater Elevation (Ft MSL)	1062.41	1064.55	1065.47	
				Measured Well Depth (ft)	nm	nm	56.84	
				Submerged screen	Y	Y	Y	
MW-21	1087.51	1070.90	31.60	Groundwater Level (ft)	25.05	13.15	13.37	-0.04
				Groundwater Elevation (Ft MSL)	1062.46	1074.36	1074.14	
				Measured Well Depth (ft)	nm	nm	31.64	
				Submerged screen	N	Y	Y	

Table 4

**Monitoring Well Maintenance and Performance Summary
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Neal North Energy Center - Closed CCR Monofill
Permit No. 97-SDP-12-95P**

(includes all wells, underdrains etc.)

Well	Top of Casing	Top of Screen	Total Depth		Date of Measurements			Maximum Depth Discrepancy (ft)
					3/18/2024	6/4/2024	9/9/2024	
MW-22	1087.40	1035.90	56.50	Groundwater Level (ft)	33.40	28.25	28.13	-0.90
				Groundwater Elevation (Ft MSL)	1054.00	1059.15	1059.27	
				Measured Well Depth (ft)	nm	nm	57.40	
				Submerged screen	Y	Y	Y	
MW-23R	1089.13	1062.90	41.25	Groundwater Level (ft)	36.21	31.53	29.51	-0.45
				Groundwater Elevation (Ft MSL)	1052.92	1057.60	1059.62	
				Measured Well Depth (ft)	nm	nm	41.70	
				Submerged screen	N	N	N	
MW-24	1090.00	1036.20	58.80	Groundwater Level (ft)	36.85	32.14	31.02	-0.62
				Groundwater Elevation (Ft MSL)	1053.15	1057.86	1058.98	
				Measured Well Depth (ft)	nm	nm	59.42	
				Submerged screen	Y	Y	Y	
MW-25	1089.62	1065.90	33.70	Groundwater Level (ft)	29.84	30.26	29.88	-0.21
				Groundwater Elevation (Ft MSL)	1059.78	1059.36	1059.74	
				Measured Well Depth (ft)	nm	nm	33.91	
				Submerged screen	N	N	N	
MW-26	1089.59	1036.90	57.70	Groundwater Level (ft)	33.70	29.79	28.81	-0.13
				Groundwater Elevation (Ft MSL)	1055.89	1059.80	1060.78	
				Measured Well Depth (ft)	nm	nm	57.83	
				Submerged screen	Y	Y	Y	
MW-27	1087.29	1063.90	33.40	Groundwater Level (ft)	30.27	26.89	25.84	-0.15
				Groundwater Elevation (Ft MSL)	1057.02	1060.40	1061.45	
				Measured Well Depth (ft)	nm	nm	33.55	
				Submerged screen	N	N	N	

Table 4

**Monitoring Well Maintenance and Performance Summary
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Permit No. 97-SDP-12-95P**

(includes all wells, underdrains etc.)

Well	Top of Casing	Top of Screen	Total Depth		Date of Measurements			Maximum Depth Discrepancy (ft)
					3/18/2024	6/4/2024	9/9/2024	
MW-28	1087.17	1033.90	58.30	Groundwater Level (ft)	30.06	26.84	25.55	-0.35
				Groundwater Elevation (Ft MSL)	1057.11	1060.33	1061.62	
				Measured Well Depth (ft)	nm	nm	58.65	
				Submerged screen	Y	Y	Y	
MW-29R	1088.92	1068.70	35.20	Groundwater Level (ft)	31.49	28.33	27.17	-0.06
				Groundwater Elevation (Ft MSL)	1057.43	1060.59	1061.75	
				Measured Well Depth (ft)	nm	nm	35.26	
				Submerged screen	N	N	N	
MW-30	1090.13	1040.30	54.80	Groundwater Level (ft)	33.42	29.26	28.07	-0.52
				Groundwater Elevation (Ft MSL)	1056.71	1060.87	1062.06	
				Measured Well Depth (ft)	nm	nm	55.32	
				Submerged screen	Y	Y	Y	
MW-31	1091.78	1068.30	33.50	Groundwater Level (ft)	33.37	22.13	28.71	-0.25
				Groundwater Elevation (Ft MSL)	1058.41	1069.65	1063.07	
				Measured Well Depth (ft)	nm	nm	33.75	
				Submerged screen	N	Y	N	
MW-32	1091.78	1039.30	57.50	Groundwater Level (ft)	35.24	31.54	30.57	0.21
				Groundwater Elevation (Ft MSL)	1056.54	1060.24	1061.21	
				Measured Well Depth (ft)	nm	nm	57.29	
				Submerged screen	Y	Y	Y	
MW-56	1094.60	1027.40	72.20	Groundwater Level (ft)	40.22	35.38	34.90	0.28
				Groundwater Elevation (Ft MSL)	1054.38	1059.22	1059.70	
				Measured Well Depth (ft)	nm	nm	71.92	
				Submerged screen	Y	Y	Y	
MW-57R	1094.61	1061.90	47.75	Groundwater Level (ft)	40.51	35.65	35.16	-0.03
				Groundwater Elevation (Ft MSL)	1054.10	1058.96	1059.45	
				Measured Well Depth (ft)	nm	nm	47.78	
				Submerged screen	N	N	N	

Table 4

**Monitoring Well Maintenance and Performance Summary
2024 Annual Water Quality Report
Neal North Energy Center - Closed CCR Monofill
Permit No. 97-SDP-12-95P**

(includes all wells, underdrains etc.)

Well	Top of Casing	Top of Screen	Total Depth		Date of Measurements			Maximum Depth
					3/18/2024	6/4/2024	9/9/2024	Discrepancy (ft)
MW-58S	1089.12	1070.38	34.10	Groundwater Level (ft)	31.88	28.55	27.40	0.08
				Groundwater Elevation (Ft MSL)	1057.24	1060.57	1061.72	
				Measured Well Depth (ft)	nm	nm	34.02	
				Submerged screen	N	N	N	
MW-59S	1090.33	1065.05	40.30	Groundwater Level (ft)	35.71	31.27	30.44	-0.05
				Groundwater Elevation (Ft MSL)	1054.62	1059.06	1059.89	
				Measured Well Depth (ft)	nm	nm	40.35	
				Submerged screen	N	N	N	
MW-60S	1094.85	1064.80	45.10	Groundwater Level (ft)	41.03	36.13	36.60	0.01
				Groundwater Elevation (Ft MSL)	1053.82	1058.72	1058.25	
				Measured Well Depth (ft)	nm	nm	45.09	
				Submerged screen	N	N	N	
MW-223S	1081.33	1069.59	26.74	Groundwater Level (ft)	23.56	20.77	19.65	-0.03
				Groundwater Elevation (Ft MSL)	1057.77	1060.56	1061.68	
				Measured Well Depth (ft)	nm	nm	26.77	
				Submerged screen	N	N	N	
MW-231SR	1080.09	1066.02	29.07	Groundwater Level (ft)	25.68	21.56	20.74	-0.01
				Groundwater Elevation (Ft MSL)	1054.41	1058.53	1059.35	
				Measured Well Depth (ft)	nm	nm	29.08	
				Submerged screen	N	N	N	

Comments:
nm - no measurement.

Table 5

Background Summary
2024 Annual Water Quality Report
Neal North Energy Center - Closed CCR Monofill
Permit No. 97-SDP-12-95P

Interwell Background/Control Limit (MW-13/13R, MW-27, MW-29/29R, MW-223S, and MW-231S/231SR)

Constituent	Units	Samples	Detections	Background level	Statistical Test	Action Level	Source
Appendix III							
Boron	mg/L	36	29	0.386	KM Normal	None	--
Calcium	mg/L	36	36	263.5	Normal	None	--
Chloride	mg/L	36	34	49.37	KM Approx. Lognormal	None	--
Fluoride	mg/L	36	0	< 0.500	Detection Limit	4.0	MCL ^a
pH	mg/L	36	36	7.0 J - 7.9 J	--	None	--
Sulfate	mg/L	36	36	481	WH Approx. Gamma (KM)	None	--
Total Dissolved Solids (TDS)	mg/L	36	36	1206	Normal	None	--
Appendix IV							
Antimony	mg/L	36	0	< 0.00200	Detection Limit	0.006	MCL ^a
Arsenic	mg/L	36	26	< 0.00200 - 0.0512	--	0.01	MCL ^a
Barium	mg/L	36	36	0.0508 - 0.348	--	2.0	MCL ^a
Beryllium	mg/L	36	0	< 0.00100	Detection Limit	0.004	MCL ^a
Cadmium	mg/L	36	5	0.000227	Non-parametric	0.005	MCL ^a
Chromium	mg/L	36	0	< 0.00500	Detection Limit	0.1	MCL ^a
Cobalt	mg/L	36	29	0.00456	KM Approx. Normal	0.006	GWPS ^b
Fluoride	mg/L	36	0	< 0.500	Detection Limit	4.0	MCL ^a
Lead	mg/L	36	0	< 0.000500	Detection Limit	0.015	GWPS ^b
Lithium	mg/L	36	36	0.205	Approx. Normal	0.040	GWPS ^b
Mercury	mg/L	36	0	< 0.000200	Detection Limit	0.002	MCL ^a
Molybdenum	mg/L	36	15	0.00351	KM Approx. Normal	0.100	GWPS ^b
Radium 226 and 228 combined	mg/L	36	30	1.764	KM Normal	5	MCL ^a
Selenium	mg/L	36	7	0.0332	KM Approx. Lognormal	0.05	MCL ^a
Thallium	mg/L	36	1	0.00122	Non-parametric	0.002	MCL ^a

Comments:

^a Maximum contaminant level (MCL).

^b Groundwater protection standard (GWPS) established under 40 CFR 257.95(h)(2).

Bolded constituents indicate background levels are higher than the Action Level.

Table 6

Summary of Well/Detected Constituent Pairs With No Immediately Preceding Control Limit Exceedances
2024 Annual Water Quality Report
Neal North Energy Center - Closed CCR Monofill
Permit No. 97-SDP-12-95P

Well	Constituent	Units	Most recent result	Control Limit
MW-1R	N/A	--	--	--
MW-3R	Boron	mg/L	0.405	0.386
MW-5R	N/A	--	--	--
MW-19	N/A	--	--	--
MW-21	N/A	--	--	--

Comments:

Table reflects verified new control limit exceedances in downgradient well locations only.

Any background well with verified new control limit exceedances are not included in this table.

Table 7

**Summary of Ongoing and Newly Identified Control Limit Exceedances
2024 Annual Water Quality Report
Neal North Energy Center - Closed CCR Monofill
Permit No. 97-SDP-12-95P**

Well	Constituent	Units	Most recent result	Background Standard	Groundwater Protection Standard 40 CFR §257.95(h)
MW-1R	Molybdenum	mg/L	0.00464 /0.00473	0.00351	0.100
MW-3R	Boron	mg/L	0.405	0.386	None
MW-5R	Molybdenum	mg/L	0.00357	0.00351	0.100
MW-19	Boron	mg/L	0.538	0.386	None
	Calcium	mg/L	419	263.5	None
	pH, lab	s.u.	6.6 J	7.0 J - 7.9 J	None
	Sulfate	mg/L	939	481	None
	TDS	mg/L	2070	1206	None
	Cobalt	mg/L	0.0127	0.00456	0.006
	Lithium	mg/L	0.255	0.205	0.040
MW-21	N/A	--	--	--	--

Comments:

Table reflects verified new and ongoing control limit exceedances in downgradient well locations only.
Any background well with verified control limit exceedances are not included in this table.

Table 8

Analytical Data Summary
 2024 Annual Water Quality Report
 Neal North Energy Center - Closed CCR Monofill
 Permit No. 97-SDP-12-95P

Constituent (CAS #)	Sample Date	Units	MW-1R DwnGrad	MW-3R DwnGrad	MW-5R DwnGrad	MW-13/MW-13R Bkgrnd	MW-19 DwnGrad	MW-21 DwnGrad	MW-27 Bkgrnd	MW-29/MW-29R Bkgrnd	MW-223S Bkgrnd	MW-231S/MW-231SR Bkgrnd
Antimony (7440-36-0) MCL = 0.006	9/22/2020	mg/L	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100
	12/9/2020	mg/L	< 0.00100	< 0.00100 / < 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100
	2/1/2021	mg/L	< 0.00100	< 0.00100	< 0.00100	--	< 0.00100	< 0.00400	< 0.00100	--	< 0.00100 / < 0.00100	< 0.00100
	5/10/2021	mg/L	< 0.00200	< 0.00200	< 0.00200	--	< 0.00200	< 0.00200	< 0.00200	--	< 0.00200 / < 0.00200	< 0.00200
	7/12/2021	mg/L	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200 / < 0.00200	< 0.00200
	10/5/2021	mg/L	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200 / < 0.00200	< 0.00200
	3/8/2022	mg/L	< 0.00200	< 0.00200	< 0.00200	< 0.00200 / < 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200
	6/7/2022	mg/L	< 0.00200	< 0.00200	< 0.00200	< 0.00200 / < 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200
	9/12/2022	mg/L	--	--	--	< 0.00200	--	--	< 0.00200	< 0.00200	< 0.00200 / < 0.00200	< 0.00200
	3/27/2023	mg/L	--	--	--	<0.00200	--	--	--	--	--	--
	3/28/2023	mg/L	--	--	--	--	--	--	--	--	--	<0.00200
	3/29/2023	mg/L	--	--	--	--	--	--	<0.00200	<0.00200	<0.00200 / <0.00200	--
	9/12/2023	mg/L	--	--	--	<0.00200	--	--	<0.00200	<0.00200	<0.00200 / <0.00200	--
	9/13/2023	mg/L	<0.00200 / <0.00200	<0.00200	<0.00200	--	<0.00200	<0.00200	--	--	--	<0.00200
	1/23/2024	mg/L	--	--	--	--	--	--	--	--	--	<0.00200
	2/20/2024	mg/L	--	--	--	--	--	--	--	--	--	<0.00200
	3/18/2024	mg/L	--	--	--	<0.00200	--	--	<0.00200	<0.00200	<0.00200	--
	3/19/2024	mg/L	--	--	--	--	--	--	--	--	<0.00200	<0.00200
	3/20/2024	mg/L	--	<0.00200	<0.00200	--	--	--	--	--	--	--
	3/21/2024	mg/L	<0.00200 / <0.00200	--	--	--	<0.00200	<0.00200	--	--	--	--
9/10/2024	mg/L	--	--	--	--	--	--	<0.00200 / <0.00200	<0.00200	<0.00200	<0.00200	
9/11/2024	mg/L	--	--	--	<0.00200	--	--	--	--	--	--	
9/12/2024	mg/L	<0.00200 / <0.00200	--	<0.00200	--	--	--	--	--	--	--	
9/13/2024	mg/L	--	<0.00200	--	--	<0.00200	<0.00200	--	--	--	--	
Arsenic (7440-38-2) MCL = 0.01 Site-specific GWPS = 0.0512	9/22/2020	mg/L	0.0208	0.0314	0.0335	< 0.00200	0.00413	< 0.00200	0.00527	< 0.00200	< 0.00200	< 0.00200
	12/9/2020	mg/L	0.0379	0.0368 / 0.0388	0.0279	< 0.00200	< 0.00200	< 0.00200	0.00773	0.00762	0.00206	< 0.00200
	2/1/2021	mg/L	0.0226	0.0447	0.0446	--	0.00367	< 0.00200	0.00796	--	0.00220 / 0.00219	< 0.00200
	5/10/2021	mg/L	0.0140	0.0429	0.0337	--	0.00415	< 0.00200	0.0146	--	0.00302 / 0.00347	< 0.00200
	7/12/2021	mg/L	0.0191	0.0416	0.0351	0.0382	0.00821	< 0.00200	0.0101	0.0206	0.00403 / 0.00346	< 0.00200
	10/5/2021	mg/L	0.0221	0.0448	0.0347	0.0472	0.00523	< 0.00200	0.0202	0.0273	0.00516 / 0.00698	< 0.00200
	3/8/2022	mg/L	0.0452	0.0365	0.0378	0.0512 / 0.0498	0.00357	< 0.00200	0.0310	0.0314	0.00929	0.00850
	6/7/2022	mg/L	0.0400	0.0348	0.0345	0.0441 / 0.0457	0.00340	< 0.00200	0.0414	0.0320	0.00969	0.00440
	9/12/2022	mg/L	--	--	--	0.0459	--	--	0.0359	0.0240	0.0116 / 0.0117	0.0146
	3/27/2023	mg/L	--	--	--	0.0510	--	--	--	--	--	--
	3/28/2023	mg/L	--	--	--	--	--	--	--	--	--	0.0121
	3/29/2023	mg/L	--	--	--	--	--	--	0.0513	0.0258	0.0172 / 0.0167	--
	9/12/2023	mg/L	--	--	--	0.0483 J+	--	--	0.0616 J+	0.0233 J+	0.0133 J+ / 0.0132 J+	--
	9/13/2023	mg/L	0.0436 / 0.0420	0.0418	0.0283	--	0.00298	< 0.00200	--	--	--	0.00967
	1/23/2024	mg/L	--	--	--	--	--	--	--	--	--	0.00460
	2/20/2024	mg/L	--	--	--	--	--	--	--	--	--	0.00746
	3/18/2024	mg/L	--	--	--	0.0521	--	--	0.0591	0.0311	0.0164	--
	3/19/2024	mg/L	--	--	--	--	--	--	--	--	0.0155	0.0112
	3/20/2024	mg/L	--	0.0468	0.0330	--	--	--	--	--	--	--
	3/21/2024	mg/L	0.0955 / 0.0922	--	--	--	0.00458	< 0.00200	--	--	--	--
6/5/2024	mg/L	0.0464	--	--	--	--	--	--	--	--	--	
9/10/2024	mg/L	--	--	--	--	--	--	0.0663 / 0.0675	0.0277	0.0124	< 0.00200	
9/11/2024	mg/L	--	--	--	0.0426	--	--	--	--	--	--	
9/12/2024	mg/L	0.0472 / 0.0475	--	0.0291	--	--	--	--	--	--	--	
9/13/2024	mg/L	--	0.0305	--	--	0.00666	< 0.00200	--	--	--	--	

Table 8

Analytical Data Summary
 2024 Annual Water Quality Report
 Neal North Energy Center - Closed CCR Monofill
 Permit No. 97-SDP-12-95P

Constituent (CAS #)	Sample Date	Units	MW-1R DwnGrad	MW-3R DwnGrad	MW-5R DwnGrad	MW-13/MW-13R Bkgrnd	MW-19 DwnGrad	MW-21 DwnGrad	MW-27 Bkgrnd	MW-29/MW-29R Bkgrnd	MW-223S Bkgrnd	MW-231S/MW-231SR Bkgrnd
Barium (7440-39-3) MCL = 2.0	9/22/2020	mg/L	0.0668	0.211	0.165	0.119	0.0227	0.0290	0.0847	0.195	0.203	0.0969
	12/9/2020	mg/L	0.0958	0.156 / 0.157	0.142	0.221	0.0251	0.0301	0.109	0.226	0.253	0.116
	2/1/2021	mg/L	0.0855	0.191	0.195	--	0.0208	0.0280	0.0876	--	0.233 / 0.236	0.0903
	5/10/2021	mg/L	0.0891	0.306	0.206	--	0.0221	0.0561	0.106	--	0.264 / 0.262	0.120
	7/12/2021	mg/L	0.0925	0.267	0.182	0.253	0.0214	0.0639	0.109	0.289	0.281 / 0.258	0.0508
	10/5/2021	mg/L	0.0884	0.305	0.180	0.236	0.0207	0.0372	0.103	0.271	0.314 / 0.348	0.0875
	3/8/2022	mg/L	0.118	0.209	0.278	0.272 / 0.262	0.0230	0.0222	0.107	0.268	0.282	0.125
	6/7/2022	mg/L	0.101	0.290	0.161	0.262 / 0.262	0.0229	0.0187	0.123	0.255	0.341	0.115
	9/12/2022	mg/L	--	--	--	0.211	--	--	0.124	0.226	0.330 / 0.314	0.133
	3/27/2023	mg/L	--	--	--	0.200	--	--	--	--	--	--
	3/28/2023	mg/L	--	--	--	--	--	--	--	--	--	0.136
	3/29/2023	mg/L	--	--	--	--	--	--	0.130	0.261	0.377 / 0.382	--
	9/12/2023	mg/L	--	--	--	0.210 J+	--	--	0.164 J+	0.248 J+	0.256 J+ / 0.244 J+	--
	9/13/2023	mg/L	0.0966 / 0.0917	0.292	0.100	--	0.0166	0.0139	--	--	--	0.120
	1/23/2024	mg/L	--	--	--	--	--	--	--	--	--	0.124
	2/20/2024	mg/L	--	--	--	--	--	--	--	--	--	0.166
	3/18/2024	mg/L	--	--	--	0.212	--	--	0.156	0.228	0.286	--
	3/19/2024	mg/L	--	--	--	--	--	--	--	--	0.289	0.218
	3/20/2024	mg/L	--	0.296	0.143	--	--	--	--	--	--	--
	3/21/2024	mg/L	0.110 / 0.113	--	--	--	0.0202	0.0133	--	--	--	--
9/10/2024	mg/L	--	--	--	--	--	--	0.176 / 0.181	0.206	0.186	0.127	
9/11/2024	mg/L	--	--	--	0.228	--	--	--	--	--	--	
9/12/2024	mg/L	0.0898 / 0.0904	--	0.126	--	--	--	--	--	--	--	
9/13/2024	mg/L	--	0.268	--	--	0.0197	0.0420	--	--	--	--	
Beryllium (7440-41-7) MCL = 0.004	9/22/2020	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
	12/9/2020	mg/L	< 0.00100	< 0.00100 / < 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100
	2/1/2021	mg/L	< 0.00100	< 0.00100	< 0.00100	--	< 0.00100	< 0.00100	< 0.00100	--	< 0.00100 / < 0.00100	< 0.00100
	5/10/2021	mg/L	< 0.00100	< 0.00100	< 0.00100	--	< 0.00100	< 0.00100	< 0.00100	--	< 0.00100 / < 0.00100	< 0.00100
	7/12/2021	mg/L	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100 / < 0.00100	< 0.00100
	10/5/2021	mg/L	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100 / < 0.00100	< 0.00100
	3/8/2022	mg/L	< 0.00100	< 0.00100	< 0.00100	< 0.00100 / < 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100
	6/7/2022	mg/L	< 0.00100	< 0.00100	< 0.00100	< 0.00100 / < 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100
	9/12/2022	mg/L	--	--	--	< 0.00100	--	--	< 0.00100	< 0.00100	< 0.00100 / < 0.00100	< 0.00100
	3/27/2023	mg/L	--	--	--	< 0.00100	--	--	--	--	--	--
	3/28/2023	mg/L	--	--	--	--	--	--	--	--	--	< 0.00100
	3/29/2023	mg/L	--	--	--	--	--	--	< 0.00100	< 0.00100	< 0.00100 / < 0.00100	--
	9/12/2023	mg/L	--	--	--	< 0.00100	--	--	< 0.00100	< 0.00100	< 0.00100 / < 0.00100	--
	9/13/2023	mg/L	< 0.00100 / < 0.00100	< 0.00100	< 0.00100	--	< 0.00100	< 0.00100	--	--	--	< 0.00100
	1/23/2024	mg/L	--	--	--	--	--	--	--	--	--	< 0.00100
	2/20/2024	mg/L	--	--	--	--	--	--	--	--	--	< 0.00100
	3/18/2024	mg/L	--	--	--	< 0.00100	--	--	< 0.00100	< 0.00100	< 0.00100	--
3/19/2024	mg/L	--	--	--	--	--	--	--	--	< 0.00100	< 0.00100	
3/20/2024	mg/L	--	< 0.00100	< 0.00100	--	--	--	--	--	--	--	
3/21/2024	mg/L	< 0.00100 / < 0.00100	--	--	--	< 0.00100	< 0.00100	--	--	--	--	
9/10/2024	mg/L	--	--	--	--	--	--	< 0.00100 / < 0.00100	< 0.00100	< 0.00100	< 0.00100	
9/11/2024	mg/L	--	--	--	< 0.00100	--	--	--	--	--	--	
9/12/2024	mg/L	< 0.00100 / < 0.00100	--	< 0.00100	--	--	--	--	--	--	--	
9/13/2024	mg/L	--	< 0.00100	--	--	--	< 0.00100	< 0.00100	--	--	--	

Table 8

Analytical Data Summary
 2024 Annual Water Quality Report
 Neal North Energy Center - Closed CCR Monofill
 Permit No. 97-SDP-12-95P

Constituent (CAS #)	Sample Date	Units	MW-1R DwnGrad	MW-3R DwnGrad	MW-5R DwnGrad	MW-13/MW-13R Bkgrnd	MW-19 DwnGrad	MW-21 DwnGrad	MW-27 Bkgrnd	MW-29/MW-29R Bkgrnd	MW-223S Bkgrnd	MW-231S/MW-231SR Bkgrnd
Boron (7440-42-8)	9/22/2020	mg/L	0.417	0.738	0.233	0.100 U	0.589	0.352	0.302	0.197	0.100 U	0.222
N/A	12/9/2020	mg/L	0.402	0.914 / 0.923	0.243	0.139	0.672	0.359	0.305	0.183	< 0.100	0.196
	2/1/2021	mg/L	0.398	0.629	0.289	--	0.654	0.391	0.272	--	< 0.100 / < 0.100	0.337
	5/10/2021	mg/L	0.370	0.294	0.177	--	0.701	0.299	0.271	--	< 0.100 / < 0.100	0.291
	7/12/2021	mg/L	0.412 J	0.300 J	0.182 J	0.114	0.565 J	0.297 J	0.274	0.230	< 0.100 / < 0.100	0.358
	10/5/2021	mg/L	0.342	0.289	0.189	0.134	0.466	0.301	0.243	0.194	0.112 / 0.121	0.415
	3/8/2022	mg/L	0.384	0.353	0.287	0.108 / 0.112	0.740	0.474	0.251	0.199	0.103	0.231
	6/7/2022	mg/L	0.361	0.338	0.418	0.110 / 0.105	0.634	0.345	0.203	0.144	< 0.100	0.297
	9/12/2022	mg/L	0.395 / 0.375	0.327	0.257	0.113	0.619	0.363	0.226	0.143	0.100 / 0.106	0.312
	3/27/2023	mg/L	--	--	--	0.138	--	--	--	--	--	--
	3/28/2023	mg/L	--	--	--	--	--	--	--	--	--	0.500
	3/29/2023	mg/L	--	--	--	--	--	--	0.246	0.158	0.140 / 0.137	--
	4/3/2023	mg/L	0.331 / 0.336	0.258	0.297	--	0.584	0.329	--	--	--	--
	9/12/2023	mg/L	--	--	--	0.122 J+	--	--	0.222 J+	0.184 J+	0.154 J+ / 0.149 J+	--
	9/13/2023	mg/L	0.460 / 0.476	0.352	0.427	--	0.606	0.519	--	--	--	0.253
	12/5/2023	mg/L	--	--	--	--	--	0.337	--	--	--	--
	1/23/2024	mg/L	--	--	--	--	--	--	--	--	--	0.208
	2/20/2024	mg/L	--	--	--	--	--	--	--	--	--	0.220 J
	3/18/2024	mg/L	--	--	--	0.163	--	--	0.254	0.166	0.129	--
	3/19/2024	mg/L	--	--	--	--	--	--	--	--	0.135	0.227
	3/20/2024	mg/L	--	0.400	0.298	--	--	--	--	--	--	--
	3/21/2024	mg/L	0.333 / 0.322	--	--	--	0.606	0.366	--	--	--	--
	9/10/2024	mg/L	--	--	--	--	--	--	0.182 / 0.179	0.114	0.172	0.400
	9/11/2024	mg/L	--	--	--	<0.100	--	--	--	--	--	--
	9/12/2024	mg/L	0.401 / 0.402	--	0.310	--	--	--	--	--	--	--
	9/13/2024	mg/L	--	0.405	--	--	0.538	0.333	--	--	--	--
Cadmium (7440-43-9)	9/22/2020	mg/L	0.000100 U	0.000100 U	0.000100 U	0.000100 U	0.000100 U	0.000173	0.000114	0.000100 U	0.000100 U	0.000100 U
MCL = 0.005	12/9/2020	mg/L	< 0.000100	< 0.000100 / < 0.000100	< 0.000100	0.000227	< 0.000100	< 0.000100	< 0.000100	< 0.000100	0.000123	0.000139
	2/1/2021	mg/L	0.000409	0.000776	< 0.000100	--	< 0.000100	< 0.000100	< 0.000100	--	< 0.000100 / < 0.000100	0.000119
	5/10/2021	mg/L	< 0.000100	< 0.000100	< 0.000100	--	< 0.000100	< 0.000100	< 0.000100	--	< 0.000100 / < 0.000100	< 0.000100
	7/12/2021	mg/L	< 0.000100	< 0.000100	< 0.000100	< 0.000100	< 0.000100	< 0.000100	< 0.000100	< 0.000100	< 0.000100 / < 0.000100	< 0.000100
	10/5/2021	mg/L	< 0.000100	< 0.000100	< 0.000100	< 0.000100	< 0.000100	0.000121	< 0.000100	< 0.000100	< 0.000100 / < 0.000100	< 0.000100
	3/8/2022	mg/L	< 0.000100	< 0.000100	< 0.000100	< 0.000100 / < 0.000100	< 0.000100	< 0.000100	< 0.000100	< 0.000100	< 0.000100	< 0.000100
	6/7/2022	mg/L	< 0.000100	< 0.000100	< 0.000100	< 0.000100 / < 0.000100	< 0.000100	< 0.000100	< 0.000100	< 0.000100	< 0.000100	< 0.000100
	9/12/2022	mg/L	--	--	--	< 0.000100	--	--	< 0.000100	< 0.000100	< 0.000100 / < 0.000100	< 0.000100
	3/27/2023	mg/L	--	--	--	0.000211	--	--	--	--	--	--
	3/28/2023	mg/L	--	--	--	--	--	--	--	--	--	<0.000100
	3/29/2023	mg/L	--	--	--	--	--	--	<0.000200	<0.000100	<0.000100 / <0.000100	--
	9/12/2023	mg/L	--	--	--	<0.000200	--	--	0.000207 J+	<0.000200	<0.000200 / <0.000200	--
	9/13/2023	mg/L	<0.000200 / <0.000200	<0.000200	<0.000200	--	<0.000200	0.000346	--	--	--	<0.000200
	1/23/2024	mg/L	--	--	--	--	--	--	--	--	--	<0.000200
	2/20/2024	mg/L	--	--	--	--	--	--	--	--	--	<0.000200
	3/18/2024	mg/L	--	--	--	<0.000200	--	--	<0.000200	<0.000200	<0.000200	--
	3/19/2024	mg/L	--	--	--	--	--	--	--	--	<0.000200	<0.000200
	3/20/2024	mg/L	--	<0.000200	<0.000200	--	--	--	--	--	--	--
	3/21/2024	mg/L	<0.000200 / <0.000200	--	--	--	<0.000200	<0.000200	--	--	--	--
	9/10/2024	mg/L	--	--	--	--	--	--	<0.000200 / <0.000200	<0.000200	<0.000200	<0.000200
	9/11/2024	mg/L	--	--	--	<0.000200	--	--	--	--	--	--
	9/12/2024	mg/L	<0.000200 / <0.000200	--	<0.000200	--	--	--	--	--	--	--
	9/13/2024	mg/L	--	<0.000200	--	--	<0.000200	<0.000200	--	--	--	--

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Calcium (7440-70-2) N/A	9/22/2020	mg/L	127	161	92.8	160	350	341	178	148	104	196
	12/9/2020	mg/L	155	157 / 166	112	205	301	438	212	167	127	238
	2/1/2021	mg/L	132	129	117	--	349	480	170	--	106 / 105	216
	5/10/2021	mg/L	145	142	126	--	379	188	174	--	120 / 116	234
	7/12/2021	mg/L	151	138	112	158	562	265	184	209	112 / 119	294
	10/5/2021	mg/L	137	145	109	150	424	397	162	207	126 / 129	215
	3/8/2022	mg/L	167	130	175	175 / 172	339	464	166	201	117	191
	6/7/2022	mg/L	149	130	158	126 / 129	372	509	118	136	114	178
	9/12/2022	mg/L	152 / 155	150	132	137	389	498	162	177	135 / 138	200
	3/27/2023	mg/L	--	--	--	130	--	--	--	--	--	--
	3/28/2023	mg/L	--	--	--	--	--	--	--	--	--	204
	3/29/2023	mg/L	--	--	--	--	--	--	158	200	186 / 188	--
	4/3/2023	mg/L	182 / 182	154	192	--	415	523	--	--	--	--
	9/12/2023	mg/L	--	--	--	135	--	--	169	222	122 / 126	--
	9/13/2023	mg/L	153 / 144	143	92.9	--	334	474	--	--	--	172
	1/23/2024	mg/L	--	--	--	--	--	--	--	--	--	169
	2/20/2024	mg/L	--	--	--	--	--	--	--	--	--	169
	3/18/2024	mg/L	--	--	--	119	--	--	156	166	160	--
	3/19/2024	mg/L	--	--	--	--	--	--	--	--	161	216
	3/20/2024	mg/L	--	141	145	--	--	--	--	--	--	--
	3/21/2024	mg/L	146 / 155	--	--	--	316	510	--	--	--	--
9/10/2024	mg/L	--	--	--	--	--	--	167 / 170	163	167	259	
9/11/2024	mg/L	--	--	--	138	--	--	--	--	--	--	
9/12/2024	mg/L	159 / 158	--	162	--	--	--	--	--	--	--	
9/13/2024	mg/L	--	168	--	--	419	202	--	--	--	--	
Chloride (16887-00-6) N/A	9/22/2020	mg/L	27.9	20.9	9.02	15.3	19.0	6.61	18.9	10.1	5.12	10.6
	12/9/2020	mg/L	28.4	17.3 / 18.6	8.71	15.3	17.4	7.63	28.5	10.6	7.15	12.8
	2/1/2021	mg/L	28.4	17.3	9.92	--	19.0	7.30	22.9	--	6.27 / 6.03	9.58
	5/10/2021	mg/L	27.4	19.9	8.33	--	15.9	< 5.00	16.9	--	< 5.00 / < 5.00	6.12
	7/12/2021	mg/L	31.7	18.8	8.97	35.9 J-	17.8	6.58	13.1 J-	9.75 J-	6.26 J- / 6.40 J-	9.27 J-
	10/5/2021	mg/L	68.0	21.2	8.94	42.1	19.4	6.12	17.7	9.81	5.25 / 5.24	9.62
	3/8/2022	mg/L	33.2	7.64	13.1	74.6 / 73.3	16.3	6.88	15.2	12.1	< 5.00	5.37
	6/7/2022	mg/L	40.1	10.8	11.3	42.8 / 42.5	17.8	7.11	11.8	12.0	5.58	12.8
	9/12/2022	mg/L	62.5 / 64.5	9.83	9.73	16.7	17.8	1.37	12.5	10.6	4.08 / 4.02	5.69
	3/27/2023	mg/L	--	--	--	18.9	--	--	--	--	--	--
	3/28/2023	mg/L	--	--	--	--	--	--	--	--	--	9.32
	3/29/2023	mg/L	--	--	--	--	--	--	11.9	11.9	6.06 J / <1.00 J	--
	4/3/2023	mg/L	34.6 / 34.4	10.0	13.7	--	18.0	7.94	--	--	--	--
	9/12/2023	mg/L	--	--	--	12.3	--	--	13.9	10.8	4.37 / 5.00	--
	9/13/2023	mg/L	61.9 / 61.5	9.02	10.4	--	19.1	8.18	--	--	--	<1.00
	1/23/2024	mg/L	--	--	--	--	--	--	--	--	--	7.78
	2/20/2024	mg/L	--	--	--	--	--	--	--	--	--	8.37
	3/18/2024	mg/L	--	--	--	9.26	--	--	17.3	10.3	5.43	--
	3/19/2024	mg/L	--	--	--	--	--	--	--	--	5.64	10.2
	3/20/2024	mg/L	--	8.58	11.4	--	--	--	--	--	--	--
	3/21/2024	mg/L	33.7 / 34.8	--	--	--	16.8	6.98	--	--	--	--
9/10/2024	mg/L	--	--	--	--	--	--	24.8 / 24.9	11.3	39.8	116	
9/11/2024	mg/L	--	--	--	10.5	--	--	--	--	--	--	
9/12/2024	mg/L	61.8 / 61.5	--	11.1	--	--	--	--	--	--	--	
9/13/2024	mg/L	--	10.8	--	--	19.4	<5.00	--	--	--	--	

Table 8

Analytical Data Summary
 2024 Annual Water Quality Report
 Neal North Energy Center - Closed CCR Monofill
 Permit No. 97-SDP-12-95P

Constituent (CAS #)	Sample Date	Units	MW-1R DwnGrad	MW-3R DwnGrad	MW-5R DwnGrad	MW-13/MW-13R Bkgrnd	MW-19 DwnGrad	MW-21 DwnGrad	MW-27 Bkgrnd	MW-29/MW-29R Bkgrnd	MW-223S Bkgrnd	MW-231S/MW-231SR Bkgrnd
Chromium (7440-47-3) MCL = 0.1	9/22/2020	mg/L	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
	12/9/2020	mg/L	< 0.00500	< 0.00500 / < 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500
	2/1/2021	mg/L	< 0.00500	< 0.00500	< 0.00500	--	< 0.00500	< 0.00500	< 0.00500	--	< 0.00500 / < 0.00500	< 0.00500
	5/10/2021	mg/L	< 0.00500	< 0.00500	< 0.00500	--	< 0.00500	< 0.00500	< 0.00500	--	< 0.00500 / < 0.00500	< 0.00500
	7/12/2021	mg/L	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500 / < 0.00500	< 0.00500
	10/5/2021	mg/L	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500 / < 0.00500	< 0.00500
	3/8/2022	mg/L	< 0.00500	< 0.00500	< 0.00500	< 0.00500 / < 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500
	6/7/2022	mg/L	< 0.00500	< 0.00500	< 0.00500	< 0.00500 / < 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500
	9/12/2022	mg/L	--	--	--	< 0.00500	--	--	< 0.00500	< 0.00500	< 0.00500 / < 0.00500	< 0.00500
	3/27/2023	mg/L	--	--	--	<0.00500	--	--	--	--	--	--
	3/28/2023	mg/L	--	--	--	--	--	--	--	--	--	<0.00500
	3/29/2023	mg/L	--	--	--	--	--	--	<0.00500	<0.00500	<0.00500 / <0.00500	--
	9/12/2023	mg/L	--	--	--	<0.00500	--	--	<0.00500	<0.00500	<0.00500 / <0.00500	--
	9/13/2023	mg/L	<0.00500 / <0.00500	<0.00500	<0.00500	--	<0.00500	<0.00500	--	--	--	<0.00500
	1/23/2024	mg/L	--	--	--	--	--	--	--	--	--	<0.00500
	2/20/2024	mg/L	--	--	--	--	--	--	--	--	--	<0.00500
	3/18/2024	mg/L	--	--	--	<0.00500	--	--	<0.00500	<0.00500	<0.00500	--
	3/19/2024	mg/L	--	--	--	--	--	--	--	--	<0.00500	<0.00500
	3/20/2024	mg/L	--	<0.00500	<0.00500	--	--	--	--	--	--	--
	3/21/2024	mg/L	<0.00500 / <0.00500	--	--	--	<0.00500	<0.00500	--	--	--	--
9/10/2024	mg/L	--	--	--	--	--	--	<0.00500 / <0.00500	<0.00500	<0.00500	<0.00500	
9/11/2024	mg/L	--	--	--	<0.00500	--	--	--	--	--	--	
9/12/2024	mg/L	<0.00500 / <0.00500	--	<0.00500	--	--	--	--	--	--	--	
9/13/2024	mg/L	--	<0.00500	--	--	<0.00500	<0.00500	--	--	--	--	
Cobalt (7440-48-4) GWPS = 0.006	9/22/2020	mg/L	0.00104	0.000848	0.000500 U	0.000500 U	0.0107	0.000510	0.00154	0.000500 U	0.000500 U	0.00225
	12/9/2020	mg/L	0.000998	0.00155 / 0.00161	0.000604	< 0.000500	0.00389	0.000956	0.00142	0.00269	< 0.000500	< 0.000500
	2/1/2021	mg/L	0.000747	0.00131	0.000550	--	0.00890	0.00664	0.00102	--	< 0.000500 / < 0.000500	0.00188
	5/10/2021	mg/L	< 0.000500	0.000526	0.000613	--	0.0103	< 0.000500	0.000977	--	0.000764 / 0.000712	0.00188
	7/12/2021	mg/L	0.000595	0.000647	0.000543	0.00335	0.0225	< 0.000500	0.000940	0.00694	0.00104 / 0.000914	0.000539
	10/5/2021	mg/L	< 0.000500	< 0.000500	< 0.000500	0.00125	0.0121	< 0.000500	0.000759	0.00442	0.00128 / 0.00118	0.00216
	3/8/2022	mg/L	< 0.000500	< 0.000500	0.000730	0.00137 / 0.00141	0.00806	0.00397	0.000666	0.00354	0.000653	0.00351
	6/7/2022	mg/L	< 0.000500	< 0.000500	0.000613	0.00110 / 0.00107	0.00845	0.00151	0.000699	0.00254	0.000969	0.00275
	9/12/2022	mg/L	--	--	--	0.000940	--	--	0.000650	0.00251	0.000905 / 0.000885	0.00323
	3/27/2023	mg/L	--	--	--	0.00105	--	--	--	--	--	--
	3/28/2023	mg/L	--	--	--	--	--	--	--	--	--	0.00330
	3/29/2023	mg/L	--	--	--	--	--	--	0.000561	0.00265	0.00107 / 0.00103	--
	9/12/2023	mg/L	--	--	--	0.000806 J+	--	--	0.000978 J+	0.00270 J+	0.000638 J+ / 0.000667 J+	--
	9/13/2023	mg/L	<0.000500 / <0.000500	<0.000500	<0.000500	--	0.00670	0.000983	--	--	--	0.00257
	1/23/2024	mg/L	--	--	--	--	--	--	--	--	--	0.00251
	2/20/2024	mg/L	--	--	--	--	--	--	--	--	--	0.00209
	3/18/2024	mg/L	--	--	--	0.000733	--	--	0.000537	0.00279	0.000901	--
	3/19/2024	mg/L	--	--	--	--	--	--	--	--	0.000913	0.00347
	3/20/2024	mg/L	--	<0.000500	0.000662	--	--	--	--	--	--	--
	3/21/2024	mg/L	<0.000500 / <0.000500	--	--	--	0.00755	<0.000500	--	--	--	--
9/10/2024	mg/L	--	--	--	--	--	--	0.000867 / 0.000849	0.00217	0.000728	0.00692	
9/11/2024	mg/L	--	--	--	0.000874	--	--	--	--	--	--	
9/12/2024	mg/L	0.00116 / 0.00112	--	0.000694	--	--	--	--	--	--	--	
9/13/2024	mg/L	--	0.000703	--	--	0.0127	<0.000500	--	--	--	--	

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Analytical Data Summary
 2024 Annual Water Quality Report
 Neal North Energy Center - Closed CCR Monofill
 Permit No. 97-SDP-12-95P

Constituent (CAS #)	Sample Date	Units	MW-1R DwnGrad	MW-3R DwnGrad	MW-5R DwnGrad	MW-13/MW-13R Bkgrnd	MW-19 DwnGrad	MW-21 DwnGrad	MW-27 Bkgrnd	MW-29/MW-29R Bkgrnd	MW-223S Bkgrnd	MW-231S/MW-231SR Bkgrnd
Fluoride (16984-48-8) MCL = 4.0	9/22/2020	mg/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
	12/9/2020	mg/L	< 0.500	< 0.500 / < 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
	2/1/2021	mg/L	< 0.500	< 0.500	< 0.500	--	< 0.500	< 0.500	< 0.500	--	< 0.500 / < 0.500	< 0.500
	5/10/2021	mg/L	0.808	0.631	0.675	--	< 0.500	< 0.500	< 0.500	--	< 0.500 / < 0.500	< 0.500
	7/12/2021	mg/L	< 0.500	< 0.500	< 0.500	< 0.500 J	< 0.500	< 0.500	< 0.500 J	< 0.500 J	< 0.500 J / < 0.500 J	< 0.500 J
	10/5/2021	mg/L	< 0.500	< 0.500	< 0.500	< 0.500	2.36	2.85	< 0.500	< 0.500	< 0.100 / < 0.100	< 0.100
	3/8/2022	mg/L	< 0.500	< 0.500	< 0.500	< 0.500 / < 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
	6/7/2022	mg/L	< 0.500	< 0.500	< 0.500	< 0.500 / < 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
	9/12/2022	mg/L	< 0.500 / < 0.500	< 0.500	0.652	< 0.500	< 0.500	< 0.100	< 0.500	< 0.500	< 0.100 / < 0.100	< 0.100
	3/27/2023	mg/L	--	--	--	<0.500	--	--	--	--	--	--
	3/28/2023	mg/L	--	--	--	--	--	--	--	--	--	0.163
	3/29/2023	mg/L	--	--	--	--	--	--	<0.500	<0.500	<0.500 / 0.269	--
	4/3/2023	mg/L	<0.500 / <0.500	<0.500	<0.500	--	<0.500	0.791	--	--	--	--
	9/12/2023	mg/L	--	--	--	<1.00	--	--	<1.00	<1.00	<0.200 / <1.00	--
	9/13/2023	mg/L	<1.00 / <1.00	<1.00	<1.00	--	<1.00	<1.00	--	--	--	<0.200
	1/23/2024	mg/L	--	--	--	--	--	--	--	--	--	<1.00
	2/20/2024	mg/L	--	--	--	--	--	--	--	--	--	<1.00
	3/18/2024	mg/L	--	--	--	<1.00	--	--	<1.00	<1.00	<1.00	--
	3/19/2024	mg/L	--	--	--	--	--	--	--	--	<0.200	<0.200
	3/20/2024	mg/L	--	<1.00	<1.00	--	--	--	--	--	--	--
3/21/2024	mg/L	<1.00 / <1.00	--	--	--	<1.00	<1.00	--	--	--	--	
9/10/2024	mg/L	--	--	--	--	--	--	<1.00 / <1.00	<1.00	<0.200	<0.200	
9/11/2024	mg/L	--	--	--	<1.00	--	--	--	--	--	--	
9/12/2024	mg/L	<1.00 / <1.00	--	<1.00	--	--	--	--	--	--	--	
9/13/2024	mg/L	--	<1.00	--	--	<1.00	<1.00	--	--	--	--	
Lead (7439-92-1) GWPS = 0.015	9/22/2020	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
	12/9/2020	mg/L	< 0.000500	< 0.000500 / < 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500
	2/1/2021	mg/L	< 0.000500	0.00160	< 0.000500	--	< 0.000500	< 0.000500	< 0.000500	--	< 0.000500 / < 0.000500	< 0.000500
	5/10/2021	mg/L	< 0.000500	< 0.000500	< 0.000500	--	< 0.000500	< 0.000500	< 0.000500	--	< 0.000500 / < 0.000500	< 0.000500
	7/12/2021	mg/L	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500 / < 0.000500	< 0.000500
	10/5/2021	mg/L	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500 / < 0.000500	< 0.000500
	3/8/2022	mg/L	< 0.000500	< 0.000500	< 0.000500	< 0.000500 / < 0.000500	0.000747	0.000899	< 0.000500	< 0.000500	< 0.000500	< 0.000500
	6/7/2022	mg/L	< 0.000500	< 0.000500	< 0.000500	< 0.000500 / < 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500
	9/12/2022	mg/L	--	--	--	< 0.000500	--	--	< 0.000500	< 0.000500	< 0.000500 / < 0.000500	< 0.000500
	3/27/2023	mg/L	--	--	--	0.000593	--	--	--	--	--	--
	3/28/2023	mg/L	--	--	--	--	--	--	--	--	--	<0.000500
	3/29/2023	mg/L	--	--	--	--	--	--	<0.000500	<0.000500	<0.000500 / <0.000500	--
	9/12/2023	mg/L	--	--	--	<0.000500	--	--	0.000513 J+	<0.000500	<0.000500 / <0.000500	--
	9/13/2023	mg/L	<0.000500 / <0.000500	<0.000500	<0.000500	--	<0.000500	<0.000500	--	--	--	<0.000500
	1/23/2024	mg/L	--	--	--	--	--	--	--	--	--	<0.000500
	2/20/2024	mg/L	--	--	--	--	--	--	--	--	--	<0.000500
	3/18/2024	mg/L	--	--	--	<0.000500	--	--	<0.000500	<0.000500	<0.000500	--
	3/19/2024	mg/L	--	--	--	--	--	--	--	--	<0.000500	<0.000500
	3/20/2024	mg/L	--	<0.000500	<0.000500	--	--	--	--	--	--	--
	3/21/2024	mg/L	<0.000500 / <0.000500	--	--	--	<0.000500	<0.000500	--	--	--	--
9/10/2024	mg/L	--	--	--	--	--	--	<0.000500 / <0.000500	<0.000500	<0.000500	<0.000500	
9/11/2024	mg/L	--	--	--	<0.000500	--	--	--	--	--	--	
9/12/2024	mg/L	<0.000500 / <0.000500	--	<0.000500	--	--	--	--	--	--	--	
9/13/2024	mg/L	--	<0.000500	--	--	<0.000500	<0.000500	--	--	--	--	

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Lithium (7439-93-2) GWPS = 0.040	9/22/2020	mg/L	0.0656	0.0854	0.0665	0.0982	0.222	0.244	0.196	0.0934	0.0418	0.0776
	12/9/2020	mg/L	0.0813	0.0982 / 0.0969	0.0649	0.130	0.239	0.316	0.243	0.112	0.0500	0.0929
Site-Specific GWPS = 0.205	2/1/2021	mg/L	0.0747	0.0877	0.0695	--	0.273	0.332	0.187	--	0.0517 / 0.0492	0.0952
	5/10/2021	mg/L	0.0711	0.0837	0.0717	--	0.245	0.188	0.169	--	0.0545 / 0.0544	0.100
	7/12/2021	mg/L	0.0755	0.0844	0.0697	0.0806	0.300	0.233	0.187	0.131	0.0572 / 0.0584	0.0994
	10/5/2021	mg/L	0.0503	0.0615	0.0489	0.0582	0.200	0.208	0.115	0.0865	0.0581 / 0.0544	0.102
	3/8/2022	mg/L	0.0812	0.0854	0.0808	0.0900 / 0.0868	0.254	0.334	0.159	0.126	0.0504	0.109
	6/7/2022	mg/L	0.0709	0.0793	0.0723	0.0841 / 0.0816	0.254	0.321	0.118	0.101	0.0581	0.0964
	9/12/2022	mg/L	--	--	--	0.0830	--	--	0.141	0.103	0.0565 / 0.0572	0.104
	3/27/2023	mg/L	--	--	--	0.0873	--	--	--	--	--	--
	3/28/2023	mg/L	--	--	--	--	--	--	--	--	--	0.110
	3/29/2023	mg/L	--	--	--	--	--	--	0.129	0.109	0.0674 / 0.0684	--
	9/12/2023	mg/L	--	--	--	0.0880 J+	--	--	0.113 J+	0.118 J+	0.0517 J+ / 0.0504 J+	--
	9/13/2023	mg/L	0.0600 / 0.0660	0.0763	0.0578	--	0.234	0.301	--	--	--	0.0851
	1/23/2024	mg/L	--	--	--	--	--	--	--	--	--	0.0905
	2/20/2024	mg/L	--	--	--	--	--	--	--	--	--	0.0805 J
	3/18/2024	mg/L	--	--	--	0.0884	--	--	0.126	0.103	0.0575	--
	3/19/2024	mg/L	--	--	--	--	--	--	--	--	0.0585	0.103
	3/20/2024	mg/L	--	0.0856	0.0734	--	--	--	--	--	--	--
	3/21/2024	mg/L	0.0705 / 0.0734	--	--	--	0.239	0.328	--	--	--	--
	9/10/2024	mg/L	--	--	--	--	--	--	0.105 / 0.105	0.0908	0.0610	0.0951
	9/11/2024	mg/L	--	--	--	0.0906	--	--	--	--	--	--
9/12/2024	mg/L	0.0765 / 0.0768	--	0.0725	--	--	--	--	--	--	--	
9/13/2024	mg/L	--	0.0875	--	--	0.255	0.205	--	--	--	--	
Mercury (7439-97-6) MCL = 0.002	9/22/2020	mg/L	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U
	12/9/2020	mg/L	< 0.000200	< 0.000200 / < 0.000200	< 0.000200	< 0.000200	< 0.000200	< 0.000200	< 0.000200	< 0.000200	< 0.000200	< 0.000200
	2/1/2021	mg/L	< 0.000200	< 0.000200	< 0.000200	--	< 0.000200	< 0.000200	< 0.000200	--	< 0.000200 / < 0.000200	< 0.000200
	5/10/2021	mg/L	< 0.000200	< 0.000200	< 0.000200	--	< 0.000200	< 0.000200	< 0.000200	--	< 0.000200 / < 0.000200	< 0.000200
	7/12/2021	mg/L	< 0.000200	< 0.000200	< 0.000200	< 0.000200	< 0.000200	< 0.000200	< 0.000200	< 0.000200	< 0.000200 / < 0.000200	< 0.000200
	10/5/2021	mg/L	< 0.000200	< 0.000200	< 0.000200	< 0.000200	< 0.000200	< 0.000200	< 0.000200	< 0.000200	< 0.000200 / < 0.000200	< 0.000200
	3/8/2022	mg/L	< 0.000200	< 0.000200	< 0.000200	< 0.000200 / < 0.000200	< 0.000200	< 0.000200	< 0.000200	< 0.000200	< 0.000200	< 0.000200
	6/7/2022	mg/L	< 0.000200	< 0.000200	< 0.000200	< 0.000200 / < 0.000200	< 0.000200	< 0.000200	< 0.000200	< 0.000200	< 0.000200	< 0.000200
	9/12/2022	mg/L	--	--	--	< 0.000200	--	--	< 0.000200	< 0.000200	< 0.000200 / < 0.000200	< 0.000200
	3/27/2023	mg/L	--	--	--	< 0.000200	--	--	--	--	--	--
	3/28/2023	mg/L	--	--	--	--	--	--	--	--	--	< 0.000200
	3/29/2023	mg/L	--	--	--	--	--	--	< 0.000200	< 0.000200	< 0.000200 / < 0.000200	--
	9/12/2023	mg/L	--	--	--	< 0.000200	--	--	< 0.000200	< 0.000200	< 0.000200 / < 0.000200	--
	9/13/2023	mg/L	< 0.000200 / < 0.000200	< 0.000200	< 0.000200	--	< 0.000200	< 0.000200	--	--	--	< 0.000200
	1/23/2024	mg/L	--	--	--	--	--	--	--	--	--	< 0.000200
	2/20/2024	mg/L	--	--	--	--	--	--	--	--	--	< 0.000200
3/18/2024	mg/L	--	--	--	< 0.000200	--	--	< 0.000200	< 0.000200	< 0.000200	--	
3/19/2024	mg/L	--	--	--	--	--	--	--	--	< 0.000200	< 0.000200	
3/20/2024	mg/L	--	< 0.000200	< 0.000200	--	--	--	--	--	--	--	
3/21/2024	mg/L	< 0.000200 / < 0.000200	--	--	--	< 0.000200	< 0.000200	--	--	--	--	
9/10/2024	mg/L	--	--	--	--	--	--	< 0.000200 / < 0.000200	< 0.000200	< 0.000200	< 0.000200	
9/11/2024	mg/L	--	--	--	< 0.000200	--	--	--	--	--	--	
9/12/2024	mg/L	< 0.000200 / < 0.000200	--	< 0.000200	--	--	--	--	--	--	--	
9/13/2024	mg/L	--	< 0.000200	--	--	< 0.000200	< 0.000200	--	--	--	--	

Table 8

Analytical Data Summary
 2024 Annual Water Quality Report
 Neal North Energy Center - Closed CCR Monofill
 Permit No. 97-SDP-12-95P

Constituent (CAS #)	Sample Date	Units	MW-1R DwnGrad	MW-3R DwnGrad	MW-5R DwnGrad	MW-13/MW-13R Bkgrnd	MW-19 DwnGrad	MW-21 DwnGrad	MW-27 Bkgrnd	MW-29/MW-29R Bkgrnd	MW-223S Bkgrnd	MW-231S/MW-231SR Bkgrnd
Molybdenum (7439-98-7) GWPS = 0.100	9/22/2020	mg/L	0.00394	0.00200 U	0.00394	0.00231	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
	12/9/2020	mg/L	0.00421	< 0.00200 / < 0.00200	0.00394	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200	0.00316	< 0.00200
	2/1/2021	mg/L	0.00554	0.00651	0.00448	--	< 0.00200	< 0.00200	< 0.00200	--	0.00221 / 0.00238	0.00200
	5/10/2021	mg/L	0.00527	0.00212	0.00401	--	< 0.00200	< 0.00200	< 0.00200	--	0.00272 / 0.00218	< 0.00200
	7/12/2021	mg/L	0.00568	0.00240	0.00423	0.00420	< 0.00200	< 0.00200	< 0.00200	0.00335	0.00258 / 0.00226	< 0.00200
	10/5/2021	mg/L	0.00464	0.00210	0.00363	0.00286	< 0.00200	< 0.00200	< 0.00200	< 0.00200	0.00240 / 0.00239	< 0.00200
	3/8/2022	mg/L	0.00425	0.00212	0.00355	0.00321 / 0.00309	< 0.00200	< 0.00200	< 0.00200	< 0.00200	0.00246	0.00242
	6/7/2022	mg/L	0.00526	0.00219	0.00383	0.00359 / 0.00407	< 0.00200	< 0.00200	< 0.00200	< 0.00200	0.00241	< 0.00200
	9/12/2022	mg/L	--	--	--	0.00395	--	--	< 0.00200	< 0.00200	0.00265 / 0.00259	0.00205
	3/27/2023	mg/L	--	--	--	0.00492	--	--	--	--	--	--
	3/28/2023	mg/L	--	--	--	--	--	--	--	--	--	0.00347
	3/29/2023	mg/L	--	--	--	--	--	--	< 0.00200	0.00232	0.00288 / 0.00296	--
	9/12/2023	mg/L	--	--	--	0.00411 J+	--	--	0.00284 J+	0.00205 J+	0.00291 J+ / 0.00305 J+	--
	9/13/2023	mg/L	0.00489 / 0.00517	0.00236	0.00393	--	< 0.00200	< 0.00200	--	--	--	0.00219
	1/23/2024	mg/L	--	--	--	--	--	--	--	--	--	0.00222
	2/20/2024	mg/L	--	--	--	--	--	--	--	--	--	0.00215
	3/18/2024	mg/L	--	--	--	0.00413	--	--	< 0.00200	0.00200	0.00238	--
	3/19/2024	mg/L	--	--	--	--	--	--	--	--	0.00228	0.00248
	3/20/2024	mg/L	--	0.00218	0.00361	--	--	--	--	--	--	--
	3/21/2024	mg/L	0.00508 / 0.00456	--	--	--	< 0.00200	< 0.00200	--	--	--	--
9/10/2024	mg/L	--	--	--	--	--	--	< 0.00200 / < 0.00200	< 0.00200	0.00237	< 0.00200	
9/11/2024	mg/L	--	--	--	0.00362	--	--	--	--	--	--	
9/12/2024	mg/L	0.00464 / 0.00473	--	0.00357	--	--	--	--	--	--	--	
9/13/2024	mg/L	--	0.00227	--	--	< 0.00200	< 0.00200	--	--	--	--	
pH, lab N/A	9/22/2020	s.u.	7.3 J	7.2 J	7.3 J	7.2 J	6.7 J	7.2 J	7.0 J	7.0 J	7.5 J	7.1 J
	12/9/2020	s.u.	7.2 J	7.1 J / 7.1 J	7.2 J	7.4 J	6.9 J	6.8 J	7.1 J	7.2 J	7.4 J	7.1 J
	2/1/2021	s.u.	7.6 J	7.5 J	7.5 J	--	7.1 J	7.2 J	7.1 J	--	7.6 J / 7.6 J	7.2 J
	5/10/2021	s.u.	7.2 J	7.3 J	7.2 J	--	6.7 J	7.1 J	7.0 J	--	7.5 J / 7.6 J	7.2 J
	7/12/2021	s.u.	7.3 J	7.4 J	7.3 J	7.2 J	6.7 J	7.0 J	7.1 J	7.0 J	7.5 J / 7.4 J	7.2 J
	10/5/2021	s.u.	7.3 J	7.4 J	7.4 J	7.2 J	6.6 J	6.9 J	7.1 J	7.1 J	7.4 J / 7.9 J	7.4 J
	3/8/2022	s.u.	7.3 J	7.3 J	7.4 J	7.2 J / 7.2 J	6.8 J	6.8 J	7.3 J	7.2 J	7.4 J	7.4 J
	6/7/2022	s.u.	7.2 J	7.3 J	7.2 J	7.3 J / 7.2 J	6.8 J	6.8 J	7.2 J	7.1 J	7.5 J	7.2 J
	9/12/2022	s.u.	7.3 J / 7.5 J	8.2 J	7.3 J	7.2 J	7.2 J	7.0 J	7.2 J	7.1 J	7.4 J / 7.5 J	7.1 J
	3/27/2023	s.u.	--	--	--	7.3 J	--	--	--	--	--	--
	3/28/2023	s.u.	--	--	--	--	--	--	--	--	--	7.2 J
	3/29/2023	s.u.	--	--	--	--	--	--	7.1 J	7.1 J	7.4 J / 7.4 J	--
	4/3/2023	s.u.	7.2 J / 7.3 J	7.4 J	7.3 J	--	6.7 J	6.8 J	--	--	--	--
	9/12/2023	s.u.	--	--	--	7.2 J	--	--	7.1 J	7.0 J	7.4 J / 7.5 J	--
	9/13/2023	s.u.	7.2 J / 7.1 J	7.2 J	7.3 J	--	6.7 J	6.7 J	--	--	--	7.1 J
	1/23/2024	s.u.	--	--	--	--	--	--	--	--	--	7.1 J
	2/20/2024	s.u.	--	--	--	--	--	--	--	--	--	7.2 J
	3/18/2024	s.u.	--	--	--	7.3 J	--	--	7.2 J	7.2 J	7.3 J	--
	3/19/2024	s.u.	--	--	--	--	--	--	--	--	7.3 J	7.1 J
	3/20/2024	s.u.	--	8.0 J	8.0 J	--	--	--	--	--	--	--
3/21/2024	s.u.	8.0 J / 8.0 J	--	--	--	7.8 J	7.8 J	--	--	--	--	
6/5/2024	s.u.	--	--	7.4 J	--	--	7.0 J	--	--	--	--	
9/10/2024	s.u.	--	--	--	--	--	--	7.0 J / 7.0 J	7.0 J	7.5 J	7.1 J	
9/11/2024	s.u.	--	--	--	7.1 J	--	--	--	--	--	--	
9/12/2024	s.u.	7.1 J / 7.1 J	--	7.2 J	--	--	--	--	--	--	--	
9/13/2024	s.u.	--	7.2 J	--	--	6.6 J	7.2 J	--	--	--	--	

Table 8

Analytical Data Summary
 2024 Annual Water Quality Report
 Neal North Energy Center - Closed CCR Monofill
 Permit No. 97-SDP-12-95P

Constituent (CAS #)	Sample Date	Units	MW-1R DwnGrad	MW-3R DwnGrad	MW-5R DwnGrad	MW-13/MW-13R Bkgrnd	MW-19 DwnGrad	MW-21 DwnGrad	MW-27 Bkgrnd	MW-29/MW-29R Bkgrnd	MW-223S Bkgrnd	MW-231S/MW-231SR Bkgrnd
Radium-226 & 228 MCL = 5.0	9/22/2020	pCi/L	1.58 ± 0.436	1.15 ± 0.473	0.683 ± 0.537 U	0.595 ± 0.409 U	0.920 ± 0.388	1.17 ± 0.397	1.02 ± 0.453	1.67 ± 0.467	1.37 ± 0.421	0.973 ± 0.416
	12/9/2020	pCi/L	< 0.460	1.23 / < 0.235	< 0.274	0.735	< 0.383	< 0.471	0.728	0.579	0.497	0.994
	2/1/2021	pCi/L	< 0.484	0.764	< -0.0292	--	0.720	< 0.120	0.675	--	< -0.0527 / < 0.0912	< 0.349
	5/10/2021	pCi/L	< -0.0461	0.707	0.732	--	< 0.123	< 0.291	0.573	--	0.618 / 0.808	< 0.429
	7/12/2021	pCi/L	0.379	0.878	0.734	1.53	0.662	0.546	0.898	1.79	< 0.270 / 0.658	< 0.291
	10/5/2021	pCi/L	< 0.0779	< 0.470	0.669	1.12	0.815	0.696	0.803	0.865	0.698 / 0.785	0.582
	3/8/2022	pCi/L	0.757	0.504	0.608	0.794 / 1.16	0.777	0.353	1.14	1.18	0.438	0.925
	6/7/2022	pCi/L	0.822	1.15	< 0.491	1.22 / 0.878	< 0.456	0.626	< 0.361	1.33	0.832	0.902
	9/12/2022	pCi/L	--	--	--	1.73	--	--	1.15	0.937	0.858 / 1.04	1.23
	3/27/2023	pCi/L	--	--	--	1.18	--	--	--	--	--	--
	3/28/2023	pCi/L	--	--	--	--	--	--	--	--	--	< 0.362
	3/29/2023	pCi/L	--	--	--	--	--	--	< 0.0863	0.842	0.877 / < 0.468	--
	9/12/2023	pCi/L	--	--	--	0.996	--	--	1.46	1.15	1.15 / 0.795	--
	9/13/2023	pCi/L	1.32 / 1.88	1.46	1.04	--	0.984	1.17	--	--	--	1.48
	1/23/2024	pCi/L	--	--	--	--	--	--	--	--	--	1.18
	2/20/2024	pCi/L	--	--	--	--	--	--	--	--	--	0.599
	3/18/2024	pCi/L	--	--	--	1.01	--	--	0.650	1.19	< 0.453	--
	3/19/2024	pCi/L	--	--	--	--	--	--	--	--	< 0.335	2.98
	3/20/2024	pCi/L	--	0.727	< 0.447	--	--	--	--	--	--	--
	3/21/2024	pCi/L	0.924 / 0.791	--	--	--	< 0.514	< 0.405	--	--	--	--
9/10/2024	pCi/L	--	--	--	--	--	--	0.848 / 0.806	1.00	0.919	1.06	
9/11/2024	pCi/L	--	--	--	1.18	--	--	--	--	--	--	
9/12/2024	pCi/L	0.0214 / 0.735	--	0.413	--	--	--	--	--	--	--	
9/13/2024	pCi/L	--	0.342	--	--	1.08	0.612	--	--	--	--	
Selenium (7782-49-2) MCL = 0.05	9/22/2020	mg/L	0.00500 U	0.00500 U	0.00500 U	0.0982	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.0174
	12/9/2020	mg/L	< 0.00500	< 0.00500 / < 0.00500	< 0.00500	0.111	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	0.0144
	2/1/2021	mg/L	< 0.00500	< 0.00500	< 0.00500	--	< 0.00500	< 0.00500	< 0.00500	--	< 0.00500 / < 0.00500	0.0165
	5/10/2021	mg/L	< 0.00500	< 0.00500	< 0.00500	--	< 0.00500	0.0398	< 0.00500	--	< 0.00500 / < 0.00500	< 0.00500
	7/12/2021	mg/L	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	0.00549	< 0.00500	< 0.00500	< 0.00500 / < 0.00500	0.00984
	10/5/2021	mg/L	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500 / < 0.00500	0.00624
	3/8/2022	mg/L	< 0.00500	< 0.00500	< 0.00500	< 0.00500 / < 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500
	6/7/2022	mg/L	< 0.00500	< 0.00500	< 0.00500	< 0.00500 / < 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500	< 0.00500
	9/12/2022	mg/L	--	--	--	< 0.00500	--	--	< 0.00500	< 0.00500	< 0.00500 / < 0.00500	< 0.00500
	3/27/2023	mg/L	--	--	--	< 0.00500	--	--	--	--	--	--
	3/28/2023	mg/L	--	--	--	--	--	--	--	--	--	< 0.00500
	3/29/2023	mg/L	--	--	--	--	--	--	< 0.00500	< 0.00500	< 0.00500 / < 0.00500	--
	9/12/2023	mg/L	--	--	--	< 0.00500	--	--	< 0.00500	< 0.00500	< 0.00500 / < 0.00500	--
	9/13/2023	mg/L	< 0.00500 / < 0.00500	< 0.00500	< 0.00500	--	< 0.00500	< 0.00500	--	--	--	< 0.00500
	1/23/2024	mg/L	--	--	--	--	--	--	--	--	--	0.00559
2/20/2024	mg/L	--	--	--	--	--	--	--	--	--	< 0.00500	
3/18/2024	mg/L	--	--	--	< 0.00500	--	--	< 0.00500	< 0.00500	< 0.00500	--	
3/19/2024	mg/L	--	--	--	--	--	--	--	--	< 0.00500	< 0.00500	
3/20/2024	mg/L	--	< 0.00500	< 0.00500	--	--	--	--	--	--	--	
3/21/2024	mg/L	< 0.00500 / < 0.00500	--	--	--	0.00932	< 0.00500	--	--	--	--	
9/10/2024	mg/L	--	--	--	--	--	--	< 0.00500 / < 0.00500	< 0.00500	< 0.00500	0.0117	
9/11/2024	mg/L	--	--	--	< 0.00500	--	--	--	--	--	--	
9/12/2024	mg/L	< 0.00500 / < 0.00500	--	< 0.00500	--	--	--	--	--	--	--	
9/13/2024	mg/L	--	< 0.00500	--	--	--	< 0.00500	0.191	--	--	--	

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Sulfate (14808-79-8) N/A	9/22/2020	mg/L	222	241	130	79.0	984	924	199	67.0	32.9	284
	12/9/2020	mg/L	220	181 / 186	138	74.9	607	1250	311	69.8	44.9	299
	2/1/2021	mg/L	217	145	169	--	851	658	259	--	34.8 / 36.1	331
	5/10/2021	mg/L	242	149	168	--	1000	299	191	--	35.7 / 36.1	287
	7/12/2021	mg/L	209	133	124	51.6	1040	393	100	191	43.1 / 43.3	485
	10/5/2021	mg/L	204	128	109	47.5	1140	1150	175	172	113 / 113	322
	3/8/2022	mg/L	262	157	340	69.5 / 68.4	769	1540	144	185	35.6	127
	6/7/2022	mg/L	215	153	315	60.8 / 61.1	911	1530	101	82.3	81.8	305
	9/12/2022	mg/L	194 / 198	184	153	56.4	828	1250	111	66.4	64.3 / 65.5	110
	3/27/2023	mg/L	--	--	--	68.4	--	--	--	--	--	--
	3/28/2023	mg/L	--	--	--	--	--	--	--	--	--	176
	3/29/2023	mg/L	--	--	--	--	--	--	96.4	121	110 / 113	--
	4/3/2023	mg/L	235 / 236	205	318	--	1020	1610	--	--	--	--
	9/12/2023	mg/L	--	--	--	58.6	--	--	97.1	205	64.3 / 61.1	--
	9/13/2023	mg/L	209 / 213	219	160	--	736	1550	--	--	--	158
	1/23/2024	mg/L	--	--	--	--	--	--	--	--	--	121
	2/20/2024	mg/L	--	--	--	--	--	--	--	--	--	154
	3/18/2024	mg/L	--	--	--	61.8	--	--	105	109	217	--
	3/19/2024	mg/L	--	--	--	--	--	--	--	--	214	287
	3/20/2024	mg/L	--	180	264	--	--	--	--	--	--	--
3/21/2024	mg/L	218 / 218	--	--	--	715	1590	--	--	--	--	
9/10/2024	mg/L	--	--	--	--	--	--	78.4 / 78.3	60.4	120	177	
9/11/2024	mg/L	--	--	--	29.0	--	--	--	--	--	--	
9/12/2024	mg/L	198 / 195	--	275	--	--	--	--	--	--	--	
9/13/2024	mg/L	--	234	--	--	939	316	--	--	--	--	
Thallium (7440-28-0) MCL = 0.002	9/22/2020	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
	12/9/2020	mg/L	< 0.00100	< 0.00100 / < 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100
	2/1/2021	mg/L	< 0.00100	0.00694	< 0.00100	--	< 0.00100	< 0.00100	< 0.00100	--	< 0.00100 / < 0.00100	0.00122
	5/10/2021	mg/L	< 0.00100	< 0.00100	< 0.00100	--	< 0.00100	< 0.00100	< 0.00100	--	< 0.00100 / < 0.00100	< 0.00100
	7/12/2021	mg/L	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100 / < 0.00100	< 0.00100
	10/5/2021	mg/L	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100 / < 0.00100	< 0.00100
	3/8/2022	mg/L	< 0.00100	< 0.00100	< 0.00100	< 0.00100 / < 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100
	6/7/2022	mg/L	< 0.00100	< 0.00100	< 0.00100	< 0.00100 / < 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100
	9/12/2022	mg/L	--	--	--	< 0.00100	--	--	< 0.00100	< 0.00100	< 0.00100 / < 0.00100	< 0.00100
	3/27/2023	mg/L	--	--	--	0.00146	--	--	--	--	--	--
	3/28/2023	mg/L	--	--	--	--	--	--	--	--	--	0.00147
	3/29/2023	mg/L	--	--	--	--	--	--	<0.00100	<0.00100	<0.00100 / <0.00100	--
	9/12/2023	mg/L	--	--	--	<0.00100	--	--	<0.00100	<0.00100	<0.00100 / <0.00100	--
	9/13/2023	mg/L	<0.00100 / <0.00100	<0.00100	<0.00100	--	<0.00100	<0.00100	--	--	--	<0.00100
	1/23/2024	mg/L	--	--	--	--	--	--	--	--	--	<0.00100
	2/20/2024	mg/L	--	--	--	--	--	--	--	--	--	<0.00100
	3/18/2024	mg/L	--	--	--	<0.00100	--	--	<0.00100	<0.00100	<0.00100	--
	3/19/2024	mg/L	--	--	--	--	--	--	--	--	<0.00100	<0.00100
	3/20/2024	mg/L	--	<0.00100	<0.00100	--	--	--	--	--	--	--
	3/21/2024	mg/L	<0.00100 / <0.00100	--	--	--	<0.00100	<0.00100	--	--	--	--
9/10/2024	mg/L	--	--	--	--	--	--	<0.00100 / <0.00100	<0.00100	<0.00100	<0.00100	
9/11/2024	mg/L	--	--	--	<0.00100	--	--	--	--	--	--	
9/12/2024	mg/L	<0.00100 / <0.00100	--	<0.00100	--	--	--	--	--	--	--	
9/13/2024	mg/L	--	<0.00100	--	--	<0.00100	<0.00100	--	--	--	--	

Table 8

Analytical Data Summary
 2024 Annual Water Quality Report
 Neal North Energy Center - Closed CCR Monofill
 Permit No. 97-SDP-12-95P

Constituent (CAS #)	Sample Date	Units	MW-1R DwnGrad	MW-3R DwnGrad	MW-5R DwnGrad	MW-13/MW-13R Bkgrnd	MW-19 DwnGrad	MW-21 DwnGrad	MW-27 Bkgrnd	MW-29/MW-29R Bkgrnd	MW-223S Bkgrnd	MW-231S/MW-231SR Bkgrnd
Total dissolved solids (TDS)	9/22/2020	mg/L	804	894	512	790	2330	2020	496	594	240	824
N/A	12/9/2020	mg/L	902	808 / 824	632	862	1570	2520	1160	676	524	1000
	2/1/2021	mg/L	830	700	640	--	1970	2790	1030	--	402 / 370	986
	5/10/2021	mg/L	824	692	626	--	2040	730	856	--	408 / 412	948
	7/12/2021	mg/L	834	712	528	506	2420	1030	662	856	392 / 352	1200
	10/5/2021	mg/L	750	642	470	548	2590	2270	760	826	464 / 470	920
	3/8/2022	mg/L	908	614	918	630 / 604	1780	2470	698	808	366	706
	6/7/2022	mg/L	816	658	892	606 / 620	1810	2490	622	704	514	932
	9/12/2022	mg/L	794 / 828	742	614	518	2030	2510	712	670	476 / 460	710
	3/27/2023	mg/L	--	--	--	502	--	--	--	--	--	--
	3/28/2023	mg/L	--	--	--	--	--	--	--	--	--	788
	3/29/2023	mg/L	--	--	--	--	--	--	634	724	606 / 600	--
	4/3/2023	mg/L	934 / 926	756	920	--	2220	3050	--	--	--	--
	9/12/2023	mg/L	--	--	--	542	--	--	716	906	456 / 474	--
	9/13/2023	mg/L	872 / 860	812	626	--	2360	3110	--	--	--	716
	1/23/2024	mg/L	--	--	--	--	--	--	--	--	--	628
	2/20/2024	mg/L	--	--	--	--	--	--	--	--	--	694
	3/18/2024	mg/L	--	--	--	522	--	--	704	698	698	--
	3/19/2024	mg/L	--	--	--	--	--	--	--	--	702	898
	3/20/2024	mg/L	--	742	868	--	--	--	--	--	--	--
	3/21/2024	mg/L	916 / 902	--	--	--	1750	2890	--	--	--	--
	9/10/2024	mg/L	--	--	--	--	--	--	682 / 638	606	594	960
	9/11/2024	mg/L	--	--	--	566	--	--	--	--	--	--
	9/12/2024	mg/L	820 / 858	--	696	--	--	--	--	--	--	--
	9/13/2024	mg/L	--	808	--	--	2070	800	--	--	--	--

Comments:

Maximum contaminant level (MCL).
 N/A - No MCL or GWPS is applicable.

Groundwater protection standard (GWPS) established under 40 CFR 257.95(h)(2).

Table 9
Historic Control Limit & GWPS Exceedances
2024 Annual Water Quality Report
Neal North Energy Center - Closed CCR Monofill
Permit No. 97-SDP-12-95P

Key: gray =CL; black =GWPS		February	May	July	October	March	June	September	March/April	September	March	June	September
Well	Constituent	2021	2021	2021	2021	2022	2022	2022	2023	2023	2024	2024	2024
MW-1R	Boron												na
	Chloride												na
	Flouride												na
	pH, lab												na
	Arsenic												
	Cadmium							na	na				na
	Molybdenum							na	na				na
	Radium-226 & 228							na	na				na
MW-3R	Boron												ns
	Flouride												ns
	pH, lab												ns
	Cadmium							na	na				ns
	Lead							na	na				ns
	Molybdenum							na	na				ns
	Thallium							na	na				ns
MW-5R	Boron												na
	Fluoride												na
	pH, lab												
	Molybdenum							na	na				na
MW-13/13R (Background)	Chloride	ns	ns										ns
	Arsenic												ns
	Lead												ns
	Molybdenum	ns	ns										ns
	Selenium	ns	ns										ns
	Thallium												ns
MW-19	Boron												na
	Calcium												na
	Flouride												na
	pH, lab												
	Sulfate												na
	TDS												na
	Cobalt							na	na				na
	Lead							na	na				na
	Lithium							na	na				na
MW-21	Boron												na
	Calcium												na
	Flouride												na
	pH, lab												
	Sulfate												na
	TDS												na
	Cadmium							na	na				na
	Cobalt							na	na				na
	Lead							na	na				na
	Lithium							na	na				na
	Selenium							na	na				na

Table 9
Historic Control Limit & GWPS Exceedances
2024 Annual Water Quality Report
Neal North Energy Center - Closed CCR Monofill
Permit No. 97-SDP-12-95P

Key: gray =CL; black =GWPS		February	May	July	October	March	June	September	March/April	September	March	June	September
Well	Constituent	2021	2021	2021	2021	2022	2022	2022	2023	2023	2024	2024	2024
MW-27 (Background)	Arsenic											<i>ns</i>	
	Lead											<i>ns</i>	
	Lithium											<i>ns</i>	
MW-29/29R	Cobalt	<i>ns</i>	<i>ns</i>									<i>ns</i>	
(Background)	Radium-226 & 228	<i>ns</i>	<i>ns</i>									<i>ns</i>	
MW-223S (Background)	Barium											<i>ns</i>	
MW-231S/231SR	Boron											<i>ns</i>	
(Background)	Calcium											<i>ns</i>	
	Chloride											<i>ns</i>	
	Sulfate											<i>ns</i>	
	TDS											<i>ns</i>	
	Cobalt											<i>ns</i>	
	Radium-226 & 228											<i>ns</i>	
	Thallium											<i>ns</i>	

Comments:

Groundwater Protection Standard (GWPS) established under 40 CFR §257.95(h).

ns - MW-13 and MW-29 were not sampled in February or May 2021 due to low water levels.

na - Constituent not analyzed.

Grey shading indicates exceedance of the 95/95 UTL background concentration; black shading indicates exceedance of the site-specific GWPS.

Table 10

**Groundwater Quality Assessment Plan Trend Analysis
2024 Annual Water Quality Report
Neal North Energy Center - Closed CCR Monofill
Permit No. 97-SDP-12-95P**

Well	Current SSL	Trend
MW-1R	None	N/A
MW-3R	None	N/A
MW-5R	None	N/A
MW-13/13R (background)	None	N/A
MW-19	None	N/A
MW-21	None	N/A
MW-27 (background)	None	N/A
MW-29/29R (background)	None	N/A
MW-223S (background)	None	N/A
MW-231S/231SR (background)	None	N/A

Comments:

Site is not in an IDNR Groundwater Quality Assessment program.

Table 11

**Leachate Management Summary
2024 Leachate Control System Performance Evaluation Report
Neal North Energy Center - Closed CCR Monofill
Permit No. 97-SDP-12-95P**

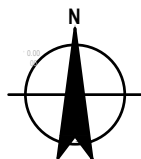
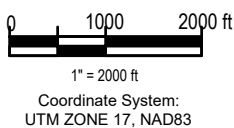
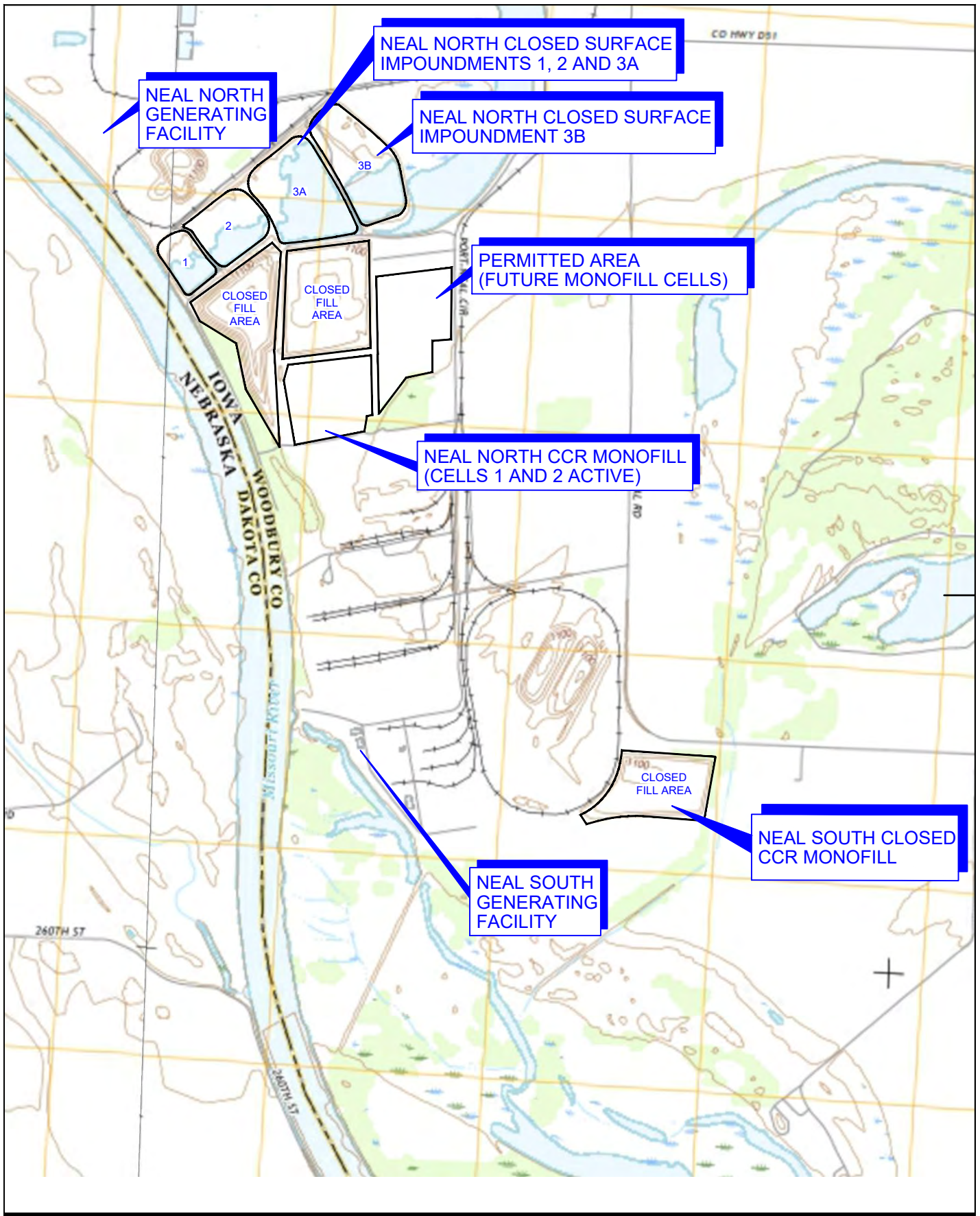
Table 11, Leachate Management Summary, is not applicable to the Closed Neal North Monofill because it does not have a leachate collection system.

Table 12

**Gas Monitoring Summary
2024 Gas Monitoring Report
Neal North Energy Center - Closed CCR Monofill
Permit No. 97-SDP-12-95P**

Table 12, Gas Monitoring Summary, is not applicable to the Closed Neal North Monofill because it is a CCR Monofill.

Figures



MIDAMERICAN ENERGY COMPANY
 NEAL NORTH CCR CLOSED MONOFILL
 SERGEANT BLUFF, IOWA

Project No. 12576482
 Date December 2024

SITE LOCATION MAP

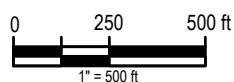
FIGURE 1.1



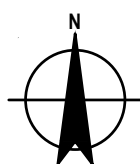
LEGEND

- MW-29 SHALLOW GROUNDWATER MONITORING WELL
- MW-30 DEEP GROUNDWATER MONITORING WELL

- △ BACKGROUND SAMPLING LOCATION
- DOWNGRADIENT SAMPLING LOCATION
- ◇ GAUGING LOCATION



Coordinate System:
STATE PLANE
IOWA NORTH NAD83

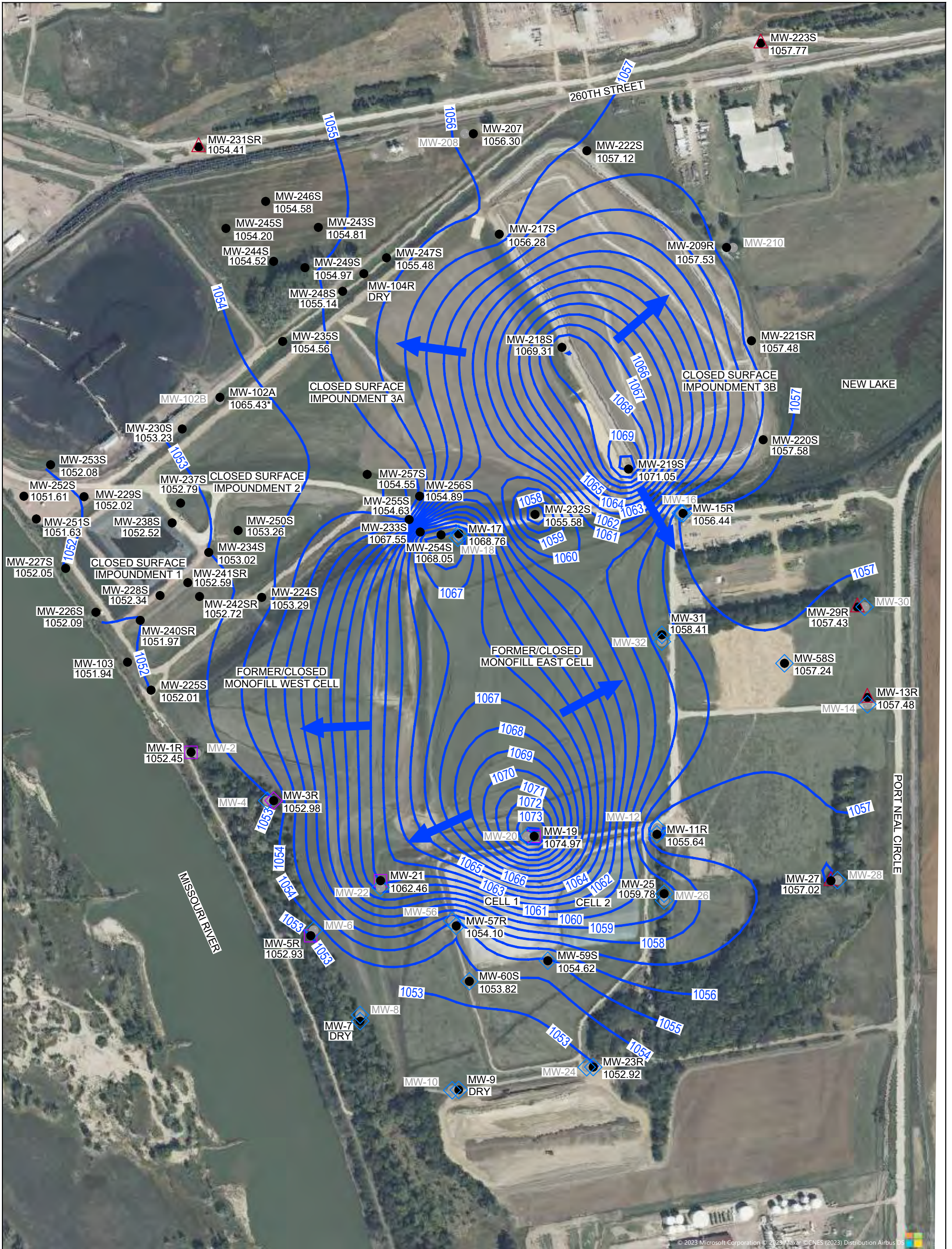


MIDAMERICAN ENERGY COMPANY
NEAL NORTH CCR CLOSED MONOFILL
SERGEANT BLUFF, IOWA

Project No. 12576482
Date December 2024

SITE MAP AND MONITORING NETWORK

FIGURE 1.2

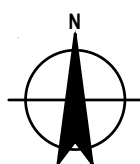


LEGEND

- MW-31 SHALLOW GROUNDWATER MONITORING WELL
- MW-30 DEEP GROUNDWATER MONITORING WELL
- 1054.10 GROUNDWATER ELEVATION (ft. NAVD88)
- 1055 — GROUNDWATER CONTOUR (ft NAVD88)
- ➔ GROUNDWATER FLOW DIRECTION
- GROUNDWATER ELEVATION NOT USED FOR CONTOURING
- △ BACKGROUND SAMPLING LOCATION
- DOWNGRADIENT SAMPLING LOCATION
- ◇ GAUGING LOCATION



Coordinate System:
NAD83 STATE PLANE
IOWA NORTH



MIDAMERICAN ENERGY COMPANY
NEAL NORTH CCR CLOSED MONOFILL
SERGEANT BLUFF, IOWA
**SHALLOW ALLUVIAL GROUNDWATER
FLOW MAP**
MARCH 18, 2024

Project No. 12576482
Date December 2024

FIGURE 3.1

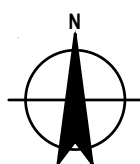


LEGEND

- MW-29 SHALLOW GROUNDWATER MONITORING WELL
- MW-10 DEEP GROUNDWATER MONITORING WELL
- 1051.79 GROUNDWATER ELEVATION (ft. NAVD88)
- 1054 — GROUNDWATER CONTOUR (ft NAVD88)
- ➔ GROUNDWATER FLOW DIRECTION
- * GROUNDWATER ELEVATION NOT USED FOR CONTOURING
- △ BACKGROUND SAMPLING LOCATION
- DOWNGRADIENT SAMPLING LOCATION
- ◇ GAUGING LOCATION



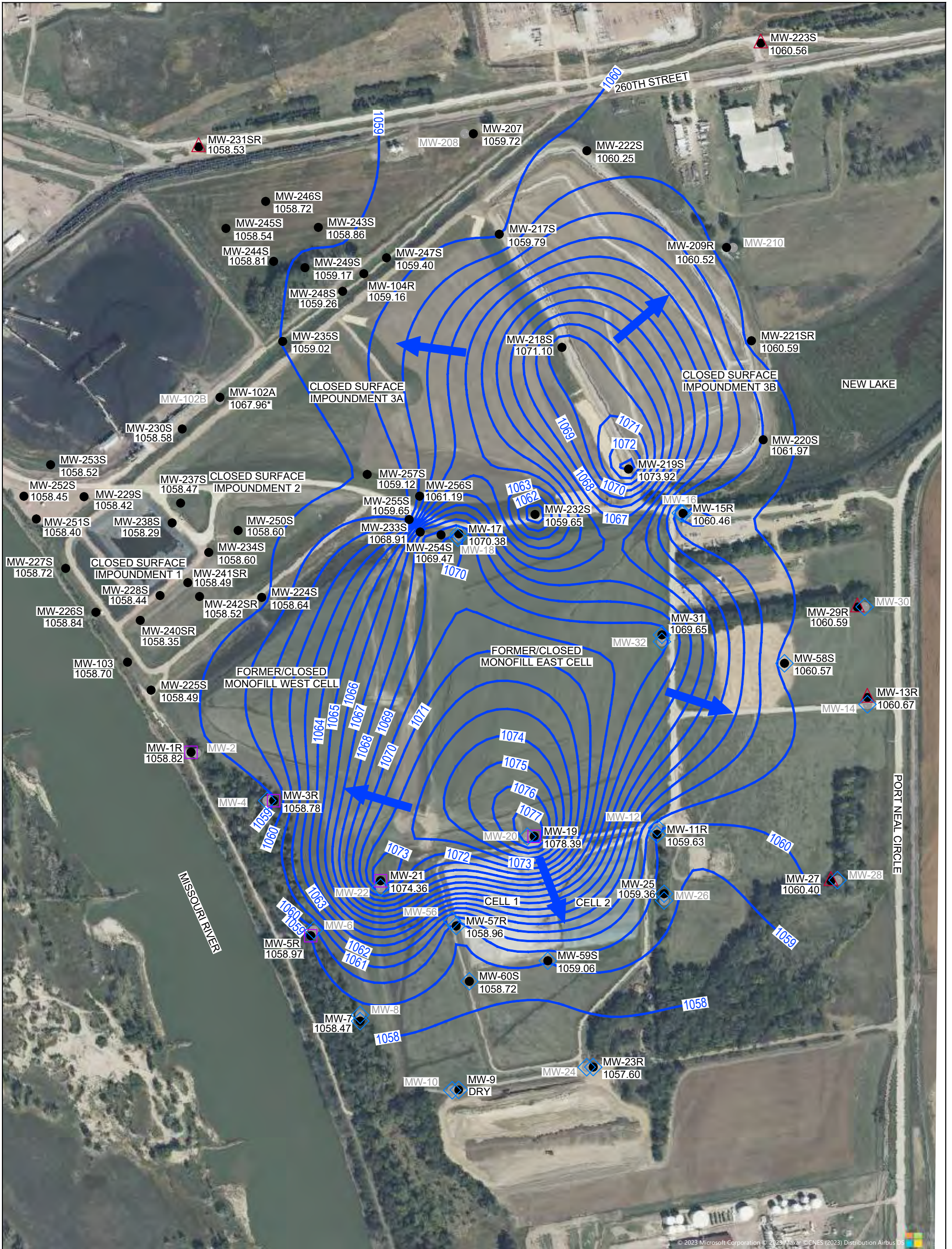
Coordinate System:
NAD83 STATE PLANE
IOWA NORTH



MIDAMERICAN ENERGY COMPANY
NEAL NORTH CCR CLOSED MONOFILL
SERGEANT BLUFF, IOWA
**DEEP ALLUVIAL GROUNDWATER
FLOW MAP**
MARCH 18, 2024

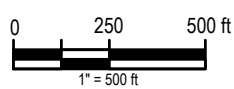
Project No. 12576482
Date December 2024

FIGURE 3.2

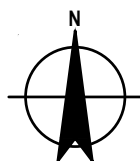


LEGEND

- MW-31 SHALLOW GROUNDWATER MONITORING WELL
- MW-30 DEEP GROUNDWATER MONITORING WELL
- 1069.65 GROUNDWATER ELEVATION (ft. NAVD88)
- 1055 — GROUNDWATER CONTOUR (ft NAVD88)
- ➔ GROUNDWATER FLOW DIRECTION
- GROUNDWATER ELEVATION NOT USED FOR CONTOURING
- △ BACKGROUND SAMPLING LOCATION
- DOWNGRADIENT SAMPLING LOCATION
- ◇ GAUGING LOCATION



Coordinate System:
NAD83 STATE PLANE
IOWA NORTH



MIDAMERICAN ENERGY COMPANY
NEAL NORTH CCR CLOSED MONOFILL
SERGEANT BLUFF, IOWA
**SHALLOW ALLUVIAL GROUNDWATER
FLOW MAP**
JUNE 4, 2024

Project No. 12576482
Date December 2024

FIGURE 3.3

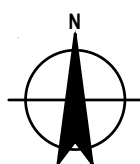


LEGEND

- MW-29 SHALLOW GROUNDWATER MONITORING WELL
- MW-10 DEEP GROUNDWATER MONITORING WELL
- 1057.72 GROUNDWATER ELEVATION (ft. NAVD88)
- 1054 — GROUNDWATER CONTOUR (ft NAVD88)
- ➔ GROUNDWATER FLOW DIRECTION
- GROUNDWATER ELEVATION NOT USED FOR CONTOURING
- △ BACKGROUND SAMPLING LOCATION
- DOWNGRADIENT SAMPLING LOCATION
- ◇ GAUGING LOCATION



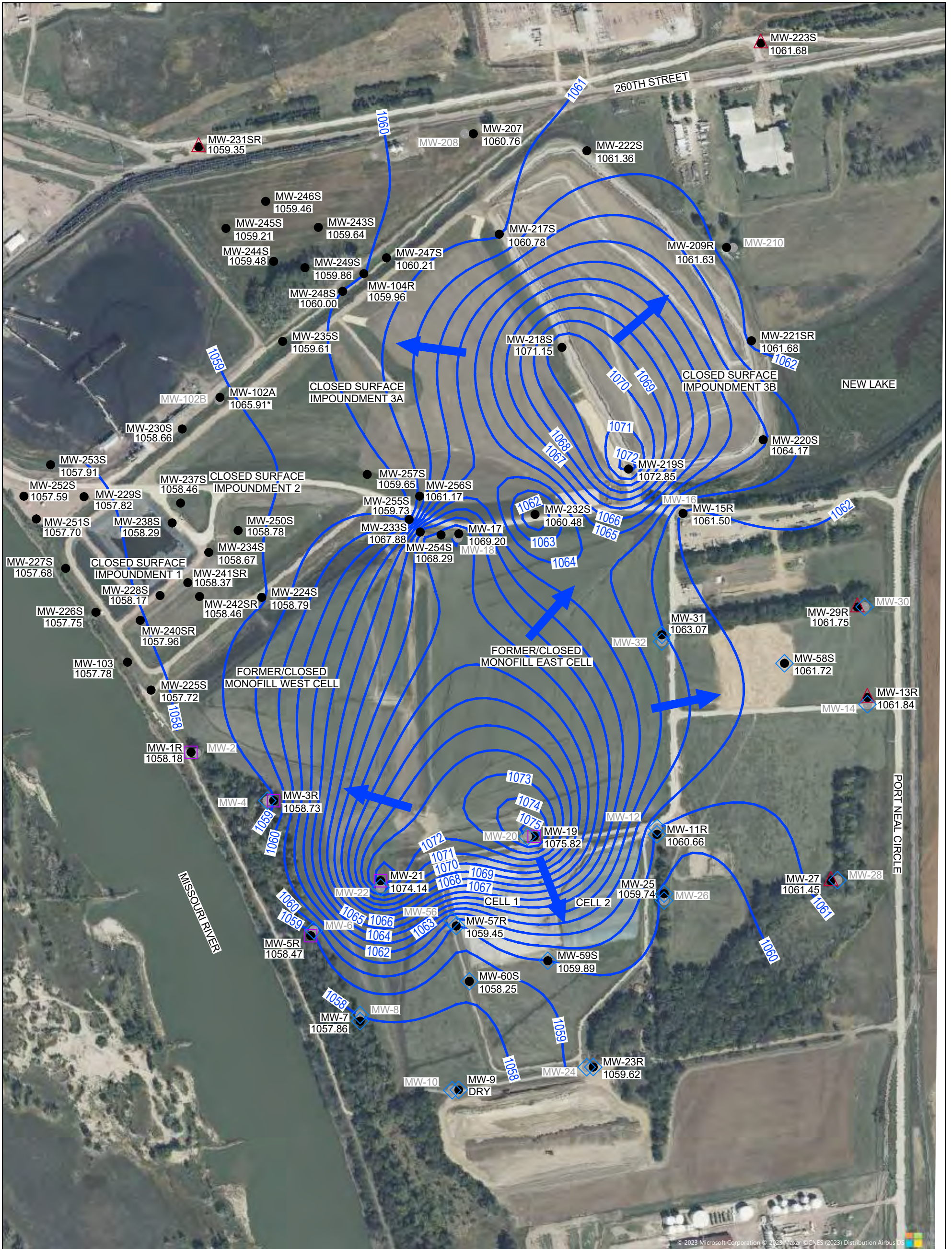
Coordinate System:
NAD83 STATE PLANE
IOWA NORTH



MIDAMERICAN ENERGY COMPANY
NEAL NORTH CCR CLOSED MONOFILL
SERGEANT BLUFF, IOWA
**DEEP ALLUVIAL GROUNDWATER FLOW
MAP**
JUNE 4, 2024

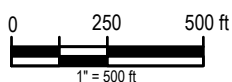
Project No. 12576482
Date December 2024

FIGURE 3.4

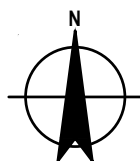


LEGEND

- MW-31 SHALLOW GROUNDWATER MONITORING WELL
- MW-30 DEEP GROUNDWATER MONITORING WELL
- 1063.15 GROUNDWATER ELEVATION (ft. NAVD88)
- 1058 — GROUNDWATER CONTOUR (ft NAVD88)
- ➔ GROUNDWATER FLOW DIRECTION
- GROUNDWATER ELEVATION NOT USED FOR CONTOURING
- △ BACKGROUND SAMPLING LOCATION
- DOWNGRADIENT SAMPLING LOCATION
- ◇ GAUGING LOCATION



Coordinate System:
NAD83 STATE PLANE
IOWA NORTH



MIDAMERICAN ENERGY COMPANY
NEAL NORTH CCR CLOSED MONOFILL
SERGEANT BLUFF, IOWA
**SHALLOW ALLUVIAL GROUNDWATER
FLOW MAP**
SEPTEMBER 9, 2024

Project No. 12576482
Date December 2024

FIGURE 3.5

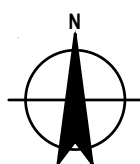


LEGEND

- MW-29 SHALLOW GROUNDWATER MONITORING WELL
- MW-10 DEEP GROUNDWATER MONITORING WELL
- 1058.82 GROUNDWATER ELEVATION (ft. NAVD88)
- 1054 — GROUNDWATER CONTOUR (ft NAVD88)
- ➔ GROUNDWATER FLOW DIRECTION
- GROUNDWATER ELEVATION NOT USED FOR CONTOURING
- △ BACKGROUND SAMPLING LOCATION
- DOWNGRADIENT SAMPLING LOCATION
- ◇ GAUGING LOCATION



Coordinate System:
NAD83 STATE PLANE
IOWA NORTH



MIDAMERICAN ENERGY COMPANY
NEAL NORTH CCR CLOSED MONOFILL
SERGEANT BLUFF, IOWA
**DEEP ALLUVIAL GROUNDWATER FLOW
MAP**
SEPTEMBER 9, 2024

Project No. 12576482
Date December 2024

FIGURE 3.6

Appendices

Appendix A

Groundwater Sample Collection Records

Low-Flow Test Report:

Test Date / Time: 3/21/2024 10:47:43 AM

Project: Neal North MW-1R

Operator Name: Thao Larson

Location Name: MW-1R Well Diameter: 2 in Casing Type: PVC Screen Length: 25 ft Top of Screen: 11.94 ft Total Depth: 36.95 ft Initial Depth to Water: 23.88 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 34.35 ft Pump Intake From TOC: 36.35 ft Estimated Total Volume Pumped: 20160 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.03 ft	Instrument Used: Aqua TROLL 600 Serial Number: 998748
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Test Notes:

Sample time 1245

Weather Conditions:

Sunny 24°F

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
3/21/2024 10:47 AM	00:00	6.99 pH	11.37 °C	1.42 mS/cm	4.11 mg/L	81.79 NTU	-50.3 mV	23.88 ft	200.00 ml/min
3/21/2024 10:49 AM	02:06	7.04 pH	11.21 °C	1.43 mS/cm	0.34 mg/L	326.84 NTU	-94.6 mV	23.88 ft	200.00 ml/min
3/21/2024 10:51 AM	04:12	7.04 pH	11.08 °C	1.43 mS/cm	0.15 mg/L	1,597.7 NTU	-103.4 mV	23.93 ft	200.00 ml/min
3/21/2024 10:54 AM	06:18	7.05 pH	11.03 °C	1.43 mS/cm	0.12 mg/L	474.49 NTU	-108.4 mV	23.91 ft	200.00 ml/min
3/21/2024 10:56 AM	08:24	7.02 pH	11.09 °C	1.43 mS/cm	0.11 mg/L	180.04 NTU	-109.7 mV	23.91 ft	200.00 ml/min
3/21/2024 10:58 AM	10:30	7.05 pH	11.11 °C	1.43 mS/cm	0.10 mg/L	110.71 NTU	-113.2 mV	23.91 ft	200.00 ml/min
3/21/2024 11:00 AM	12:36	7.05 pH	11.14 °C	1.43 mS/cm	0.08 mg/L	63.27 NTU	-115.2 mV	23.91 ft	200.00 ml/min
3/21/2024 11:02 AM	14:42	7.04 pH	11.15 °C	1.43 mS/cm	0.08 mg/L	66.68 NTU	-115.6 mV	23.91 ft	200.00 ml/min
3/21/2024 11:04 AM	16:48	7.05 pH	11.24 °C	1.43 mS/cm	0.07 mg/L	72.67 NTU	-117.3 mV	23.91 ft	200.00 ml/min
3/21/2024 11:06 AM	18:54	7.05 pH	11.19 °C	1.43 mS/cm	0.07 mg/L	53.83 NTU	-118.3 mV	23.91 ft	200.00 ml/min
3/21/2024 11:08 AM	21:00	7.05 pH	11.19 °C	1.43 mS/cm	0.07 mg/L	37.73 NTU	-118.6 mV	23.91 ft	200.00 ml/min

3/21/2024 11:10 AM	23:06	7.06 pH	11.20 °C	1.44 mS/cm	0.05 mg/L	45.15 NTU	-119.5 mV	23.91 ft	200.00 ml/min
3/21/2024 11:12 AM	25:12	7.04 pH	11.22 °C	1.44 mS/cm	0.05 mg/L	36.74 NTU	-119.0 mV	23.91 ft	200.00 ml/min
3/21/2024 11:15 AM	27:18	7.05 pH	11.29 °C	1.44 mS/cm	0.05 mg/L	36.04 NTU	-120.5 mV	23.91 ft	200.00 ml/min
3/21/2024 11:17 AM	29:24	7.06 pH	11.26 °C	1.44 mS/cm	0.05 mg/L	64.12 NTU	-121.1 mV	23.91 ft	200.00 ml/min
3/21/2024 11:19 AM	31:30	7.05 pH	11.33 °C	1.44 mS/cm	0.04 mg/L	42.09 NTU	-120.9 mV	23.91 ft	200.00 ml/min
3/21/2024 11:21 AM	33:36	7.05 pH	11.30 °C	1.44 mS/cm	0.04 mg/L	42.60 NTU	-121.7 mV	23.91 ft	200.00 ml/min
3/21/2024 11:23 AM	35:42	7.03 pH	11.35 °C	1.44 mS/cm	0.04 mg/L	44.37 NTU	-120.9 mV	23.91 ft	200.00 ml/min
3/21/2024 11:25 AM	37:48	7.05 pH	11.34 °C	1.44 mS/cm	0.04 mg/L	42.50 NTU	-122.1 mV	23.91 ft	200.00 ml/min
3/21/2024 11:27 AM	39:54	7.06 pH	11.36 °C	1.44 mS/cm	0.04 mg/L	53.84 NTU	-122.6 mV	23.91 ft	200.00 ml/min
3/21/2024 11:29 AM	42:00	7.04 pH	11.27 °C	1.44 mS/cm	0.04 mg/L	50.01 NTU	-121.8 mV	23.91 ft	200.00 ml/min
3/21/2024 11:31 AM	44:06	7.06 pH	11.12 °C	1.44 mS/cm	0.03 mg/L	72.77 NTU	-122.7 mV	23.91 ft	200.00 ml/min
3/21/2024 11:33 AM	46:12	7.06 pH	11.24 °C	1.45 mS/cm	2.30 mg/L	64.43 NTU	-115.2 mV	23.91 ft	200.00 ml/min
3/21/2024 11:36 AM	48:18	7.05 pH	11.33 °C	1.45 mS/cm	0.10 mg/L	41.07 NTU	-117.6 mV	23.91 ft	200.00 ml/min
3/21/2024 11:38 AM	50:24	7.06 pH	11.30 °C	1.45 mS/cm	0.04 mg/L	46.95 NTU	-119.5 mV	23.91 ft	200.00 ml/min
3/21/2024 11:40 AM	52:30	7.03 pH	11.35 °C	1.45 mS/cm	0.04 mg/L	41.17 NTU	-119.0 mV	23.91 ft	200.00 ml/min
3/21/2024 11:42 AM	54:36	7.05 pH	11.42 °C	1.44 mS/cm	0.04 mg/L	39.96 NTU	-121.1 mV	23.91 ft	200.00 ml/min
3/21/2024 11:44 AM	56:42	7.06 pH	11.40 °C	1.44 mS/cm	0.03 mg/L	59.28 NTU	-122.1 mV	23.91 ft	200.00 ml/min
3/21/2024 11:46 AM	58:48	7.04 pH	11.35 °C	1.44 mS/cm	0.03 mg/L	38.94 NTU	-121.7 mV	23.91 ft	200.00 ml/min
3/21/2024 11:48 AM	01:00:54	7.06 pH	11.36 °C	1.45 mS/cm	0.02 mg/L	35.60 NTU	-122.7 mV	23.91 ft	200.00 ml/min
3/21/2024 11:50 AM	01:03:00	7.06 pH	11.28 °C	1.45 mS/cm	0.02 mg/L	38.72 NTU	-123.2 mV	23.91 ft	200.00 ml/min
3/21/2024 11:52 AM	01:05:06	7.05 pH	11.28 °C	1.44 mS/cm	0.02 mg/L	50.23 NTU	-122.9 mV	23.91 ft	200.00 ml/min
3/21/2024 11:54 AM	01:07:12	7.06 pH	11.42 °C	1.45 mS/cm	0.02 mg/L	34.89 NTU	-123.7 mV	23.91 ft	200.00 ml/min
3/21/2024 11:57 AM	01:09:18	7.03 pH	11.45 °C	1.45 mS/cm	0.01 mg/L	43.01 NTU	-122.4 mV	23.91 ft	200.00 ml/min
3/21/2024 11:59 AM	01:11:24	7.06 pH	11.46 °C	1.44 mS/cm	0.02 mg/L	46.06 NTU	-124.0 mV	23.91 ft	200.00 ml/min
3/21/2024 12:01 PM	01:13:30	7.06 pH	11.42 °C	1.44 mS/cm	0.02 mg/L	45.83 NTU	-124.5 mV	23.91 ft	200.00 ml/min
3/21/2024 12:03 PM	01:15:36	7.05 pH	11.49 °C	1.45 mS/cm	0.02 mg/L	38.30 NTU	-123.9 mV	23.91 ft	200.00 ml/min
3/21/2024 12:05 PM	01:17:42	7.06 pH	11.47 °C	1.45 mS/cm	0.02 mg/L	39.42 NTU	-124.6 mV	23.91 ft	200.00 ml/min
3/21/2024 12:07 PM	01:19:48	7.07 pH	11.46 °C	1.45 mS/cm	2.11 mg/L	57.95 NTU	-113.2 mV	23.91 ft	200.00 ml/min
3/21/2024 12:09 PM	01:21:54	7.05 pH	11.53 °C	1.45 mS/cm	0.08 mg/L	40.71 NTU	-117.1 mV	23.91 ft	200.00 ml/min

3/21/2024 12:11 PM	01:24:00	7.06 pH	11.54 °C	1.45 mS/cm	0.04 mg/L	57.31 NTU	-119.6 mV	23.91 ft	200.00 ml/min
3/21/2024 12:13 PM	01:26:06	7.03 pH	11.45 °C	1.45 mS/cm	0.03 mg/L	47.78 NTU	-119.2 mV	23.91 ft	200.00 ml/min
3/21/2024 12:15 PM	01:28:12	7.05 pH	11.56 °C	1.45 mS/cm	0.02 mg/L	41.84 NTU	-121.4 mV	23.91 ft	200.00 ml/min
3/21/2024 12:18 PM	01:30:18	7.06 pH	11.38 °C	1.44 mS/cm	0.66 mg/L	47.81 NTU	-116.1 mV	23.91 ft	200.00 ml/min
3/21/2024 12:20 PM	01:32:24	7.04 pH	11.55 °C	1.43 mS/cm	0.05 mg/L	45.95 NTU	-117.9 mV	23.91 ft	200.00 ml/min
3/21/2024 12:22 PM	01:34:30	7.05 pH	11.52 °C	1.43 mS/cm	0.04 mg/L	48.30 NTU	-120.0 mV	23.91 ft	200.00 ml/min
3/21/2024 12:24 PM	01:36:36	7.03 pH	11.41 °C	1.40 mS/cm	0.05 mg/L	63.84 NTU	-119.5 mV	23.91 ft	200.00 ml/min
3/21/2024 12:26 PM	01:38:42	7.05 pH	11.44 °C	1.45 mS/cm	0.05 mg/L	52.75 NTU	-120.9 mV	23.91 ft	200.00 ml/min
3/21/2024 12:28 PM	01:40:48	6.84 pH	10.57 °C	0.00 mS/cm	10.82 mg/L	2.81 NTU	-112.2 mV	23.91 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW01R-GW-0324	

Low-Flow Test Report:

Test Date / Time: 3/20/2024 6:24:44 PM

Project: Neal North MW-3R

Operator Name: Thao Larson

Location Name: MW-3R Well Diameter: 2 in Casing Type: PVC Screen Length: 25 ft Top of Screen: 11.64 ft Total Depth: 36.6 ft Initial Depth to Water: 22.39 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 34 ft Pump Intake From TOC: 36 ft Estimated Total Volume Pumped: 21105 ml Flow Cell Volume: 130 ml Final Flow Rate: 300 ml/min Final Draw Down: 0.01 ft	Instrument Used: Aqua TROLL 600 Serial Number: 998748
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Test Notes:

Sample time 1950

Weather Conditions:

Sunny 42°F

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
3/20/2024 6:24 PM	00:00	7.39 pH	10.80 °C	1.15 mS/cm	8.68 mg/L	61.64 NTU	-36.3 mV	22.39 ft	350.00 ml/min
3/20/2024 6:26 PM	02:06	7.14 pH	11.57 °C	1.14 mS/cm	0.46 mg/L	14.06 NTU	-90.8 mV	22.39 ft	350.00 ml/min
3/20/2024 6:28 PM	04:12	7.15 pH	11.70 °C	1.12 mS/cm	0.15 mg/L	260.24 NTU	-102.9 mV	22.44 ft	350.00 ml/min
3/20/2024 6:31 PM	06:18	7.15 pH	11.73 °C	1.12 mS/cm	0.10 mg/L	615.88 NTU	-107.9 mV	22.44 ft	300.00 ml/min
3/20/2024 6:33 PM	08:24	7.15 pH	11.52 °C	1.12 mS/cm	0.37 mg/L	66.62 NTU	-108.9 mV	22.42 ft	300.00 ml/min
3/20/2024 6:35 PM	10:30	7.16 pH	11.45 °C	1.12 mS/cm	0.11 mg/L	63.30 NTU	-111.1 mV	22.42 ft	300.00 ml/min
3/20/2024 6:37 PM	12:36	7.16 pH	11.45 °C	1.11 mS/cm	0.09 mg/L	81.92 NTU	-112.6 mV	22.40 ft	300.00 ml/min
3/20/2024 6:39 PM	14:42	7.16 pH	11.45 °C	1.11 mS/cm	0.09 mg/L	116.34 NTU	-113.8 mV	22.40 ft	300.00 ml/min
3/20/2024 6:41 PM	16:48	7.16 pH	11.42 °C	1.11 mS/cm	0.07 mg/L	65.47 NTU	-114.7 mV	22.40 ft	300.00 ml/min
3/20/2024 6:43 PM	18:54	7.16 pH	11.32 °C	0.99 mS/cm	0.64 mg/L	105.52 NTU	-110.9 mV	22.40 ft	300.00 ml/min
3/20/2024 6:45 PM	21:00	7.16 pH	11.39 °C	0.88 mS/cm	0.10 mg/L	53.31 NTU	-113.1 mV	22.40 ft	300.00 ml/min

3/20/2024 6:47 PM	23:06	7.16 pH	11.37 °C	0.96 mS/cm	0.07 mg/L	41.09 NTU	-114.2 mV	22.40 ft	300.00 ml/min
3/20/2024 6:49 PM	25:12	7.16 pH	11.43 °C	0.99 mS/cm	0.07 mg/L	21.90 NTU	-115.4 mV	22.40 ft	300.00 ml/min
3/20/2024 6:52 PM	27:18	7.17 pH	11.40 °C	0.95 mS/cm	0.05 mg/L	17.80 NTU	-116.0 mV	22.40 ft	300.00 ml/min
3/20/2024 6:54 PM	29:24	7.17 pH	11.39 °C	0.95 mS/cm	0.05 mg/L	37.72 NTU	-116.5 mV	22.40 ft	300.00 ml/min
3/20/2024 6:56 PM	31:30	7.17 pH	11.45 °C	0.95 mS/cm	0.04 mg/L	17.11 NTU	-117.1 mV	22.40 ft	300.00 ml/min
3/20/2024 6:58 PM	33:36	7.17 pH	11.42 °C	0.95 mS/cm	0.04 mg/L	39.04 NTU	-117.6 mV	22.40 ft	300.00 ml/min
3/20/2024 7:00 PM	35:42	7.17 pH	11.44 °C	0.93 mS/cm	0.04 mg/L	8.86 NTU	-118.1 mV	22.40 ft	300.00 ml/min
3/20/2024 7:02 PM	37:48	7.17 pH	11.46 °C	0.93 mS/cm	0.04 mg/L	50.76 NTU	-118.3 mV	22.40 ft	300.00 ml/min
3/20/2024 7:04 PM	39:54	7.17 pH	11.41 °C	0.93 mS/cm	0.03 mg/L	57.74 NTU	-118.5 mV	22.40 ft	300.00 ml/min
3/20/2024 7:06 PM	42:00	7.17 pH	11.29 °C	1.12 mS/cm	0.85 mg/L	15.52 NTU	-114.6 mV	22.40 ft	300.00 ml/min
3/20/2024 7:08 PM	44:06	7.17 pH	11.37 °C	1.12 mS/cm	0.07 mg/L	14.10 NTU	-115.9 mV	22.40 ft	300.00 ml/min
3/20/2024 7:10 PM	46:12	7.17 pH	11.35 °C	1.12 mS/cm	0.04 mg/L	3.43 NTU	-116.9 mV	22.40 ft	300.00 ml/min
3/20/2024 7:13 PM	48:18	7.17 pH	11.37 °C	1.12 mS/cm	0.04 mg/L	19.33 NTU	-117.4 mV	22.40 ft	300.00 ml/min
3/20/2024 7:15 PM	50:24	7.17 pH	11.39 °C	1.12 mS/cm	0.03 mg/L	5.02 NTU	-118.2 mV	22.40 ft	300.00 ml/min
3/20/2024 7:17 PM	52:30	7.17 pH	11.37 °C	1.12 mS/cm	0.03 mg/L	39.78 NTU	-118.5 mV	22.40 ft	300.00 ml/min
3/20/2024 7:19 PM	54:36	7.17 pH	11.42 °C	1.12 mS/cm	0.03 mg/L	20.48 NTU	-118.7 mV	22.40 ft	300.00 ml/min
3/20/2024 7:21 PM	56:42	7.17 pH	11.34 °C	1.12 mS/cm	0.03 mg/L	6.67 NTU	-119.0 mV	22.40 ft	300.00 ml/min
3/20/2024 7:23 PM	58:48	7.17 pH	11.35 °C	1.12 mS/cm	0.02 mg/L	7.66 NTU	-119.1 mV	22.40 ft	300.00 ml/min
3/20/2024 7:25 PM	01:00:54	7.17 pH	11.35 °C	1.12 mS/cm	0.02 mg/L	23.18 NTU	-119.4 mV	22.40 ft	300.00 ml/min
3/20/2024 7:27 PM	01:03:00	7.17 pH	11.33 °C	1.12 mS/cm	0.03 mg/L	8.23 NTU	-119.5 mV	22.40 ft	300.00 ml/min
3/20/2024 7:29 PM	01:05:06	7.17 pH	11.40 °C	1.12 mS/cm	0.02 mg/L	2.45 NTU	-119.6 mV	22.40 ft	300.00 ml/min
3/20/2024 7:31 PM	01:07:12	7.18 pH	11.33 °C	1.12 mS/cm	0.02 mg/L	9.02 NTU	-119.8 mV	22.40 ft	300.00 ml/min
3/20/2024 7:34 PM	01:09:18	7.17 pH	11.29 °C	1.12 mS/cm	0.02 mg/L	1.68 NTU	-119.8 mV	22.40 ft	300.00 ml/min

Samples

Sample ID:	Description:
MW03R-GW-0324	

Low-Flow Test Report:

Test Date / Time: 3/20/2024 5:40:06 PM

Project: Neal North MW-5R

Operator Name: Thao Larson

Location Name: MW-5R Well Diameter: 2 in Casing Type: PVC Screen Length: 25 ft Top of Screen: 11.64 ft Total Depth: 36.7 ft Initial Depth to Water: 25.77 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 32.4 ft Pump Intake From TOC: 34.4 ft Estimated Total Volume Pumped: 2083.333 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.04 ft	Instrument Used: Aqua TROLL 600 Serial Number: 998748
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Test Notes:

Sample time 1815

Weather Conditions:

Sunny 42°F

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
3/20/2024 5:40 PM	00:00	7.12 pH	10.56 °C	1.14 mS/cm	6.93 mg/L	86.48 NTU	-38.5 mV	25.77 ft	200.00 ml/min
3/20/2024 5:42 PM	02:05	7.07 pH	11.00 °C	1.21 mS/cm	0.85 mg/L	17.22 NTU	-78.4 mV	25.77 ft	200.00 ml/min
3/20/2024 5:44 PM	04:10	7.07 pH	10.92 °C	1.20 mS/cm	0.24 mg/L	6.12 NTU	-89.7 mV	25.81 ft	200.00 ml/min
3/20/2024 5:46 PM	06:15	7.08 pH	10.91 °C	1.19 mS/cm	0.17 mg/L	5.62 NTU	-95.0 mV	25.81 ft	200.00 ml/min
3/20/2024 5:48 PM	08:20	7.08 pH	10.82 °C	1.19 mS/cm	0.14 mg/L	2.78 NTU	-98.0 mV	25.81 ft	200.00 ml/min
3/20/2024 5:50 PM	10:25	7.09 pH	10.57 °C	1.18 mS/cm	0.14 mg/L	0.73 NTU	-99.9 mV	25.81 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW05R-GW-0324	

Low-Flow Test Report:

Test Date / Time: 3/18/2024 3:21:35 PM

Project: Neal North MW-13R

Operator Name: Thao Larson

Location Name: MW-13R Well Diameter: 2 in Casing Type: PVC Screen Length: 15 ft Top of Screen: 23.2 ft Total Depth: 38.2 ft Initial Depth to Water: 31.75 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 35.7 ft Pump Intake From TOC: 37.7 ft Estimated Total Volume Pumped: 13758.333 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 0.01 ft	Instrument Used: Aqua TROLL 600 Serial Number: 998748
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Test Notes:

Sample time 1645

Weather Conditions:

Sunny 43°F

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
3/18/2024 3:21 PM	00:00	6.31 pH	11.69 °C	0.90 mS/cm	4.43 mg/L	46.92 NTU	53.9 mV	31.75 ft	250.00 ml/min
3/18/2024 3:23 PM	02:07	6.65 pH	11.60 °C	0.88 mS/cm	0.80 mg/L	30.66 NTU	-41.6 mV	31.75 ft	250.00 ml/min
3/18/2024 3:25 PM	04:14	6.71 pH	11.48 °C	0.88 mS/cm	0.57 mg/L	23.36 NTU	-57.3 mV	31.75 ft	250.00 ml/min
3/18/2024 3:27 PM	06:21	6.73 pH	11.63 °C	0.88 mS/cm	0.59 mg/L	21.18 NTU	-58.8 mV	31.75 ft	250.00 ml/min
3/18/2024 3:30 PM	08:28	6.75 pH	11.67 °C	0.88 mS/cm	0.53 mg/L	20.69 NTU	-60.2 mV	31.75 ft	250.00 ml/min
3/18/2024 3:32 PM	10:35	6.77 pH	11.53 °C	0.88 mS/cm	0.56 mg/L	24.46 NTU	-61.1 mV	31.76 ft	250.00 ml/min
3/18/2024 3:34 PM	12:42	6.80 pH	11.55 °C	0.87 mS/cm	0.54 mg/L	23.79 NTU	-61.1 mV	31.76 ft	250.00 ml/min
3/18/2024 3:36 PM	14:49	6.82 pH	11.49 °C	0.88 mS/cm	0.49 mg/L	23.29 NTU	-61.3 mV	31.76 ft	250.00 ml/min
3/18/2024 3:38 PM	16:56	6.83 pH	11.51 °C	0.88 mS/cm	0.48 mg/L	28.38 NTU	-61.2 mV	31.76 ft	250.00 ml/min
3/18/2024 3:40 PM	19:03	6.84 pH	11.49 °C	0.88 mS/cm	0.43 mg/L	22.26 NTU	-61.5 mV	31.76 ft	250.00 ml/min
3/18/2024 3:42 PM	21:10	6.86 pH	11.50 °C	0.88 mS/cm	0.89 mg/L	22.74 NTU	-60.9 mV	31.76 ft	250.00 ml/min

3/18/2024 3:44 PM	23:17	6.86 pH	11.45 °C	0.88 mS/cm	0.57 mg/L	19.95 NTU	-61.1 mV	31.75 ft	250.00 ml/min
3/18/2024 3:46 PM	25:24	6.86 pH	11.58 °C	0.88 mS/cm	0.51 mg/L	19.74 NTU	-63.3 mV	31.75 ft	250.00 ml/min
3/18/2024 3:49 PM	27:31	6.87 pH	11.55 °C	0.88 mS/cm	0.47 mg/L	17.19 NTU	-63.1 mV	31.75 ft	250.00 ml/min
3/18/2024 3:51 PM	29:38	6.87 pH	11.52 °C	0.88 mS/cm	0.57 mg/L	16.84 NTU	-63.1 mV	31.75 ft	250.00 ml/min
3/18/2024 3:53 PM	31:45	6.87 pH	11.59 °C	0.88 mS/cm	0.53 mg/L	14.03 NTU	-63.1 mV	31.75 ft	250.00 ml/min
3/18/2024 3:55 PM	33:52	6.87 pH	11.46 °C	0.88 mS/cm	0.50 mg/L	14.62 NTU	-62.8 mV	31.76 ft	250.00 ml/min
3/18/2024 3:57 PM	35:59	6.87 pH	11.49 °C	0.88 mS/cm	0.50 mg/L	14.25 NTU	-64.1 mV	31.76 ft	250.00 ml/min
3/18/2024 3:59 PM	38:06	6.87 pH	11.45 °C	0.88 mS/cm	0.47 mg/L	12.78 NTU	-63.0 mV	31.76 ft	250.00 ml/min
3/18/2024 4:01 PM	40:13	6.88 pH	11.52 °C	0.88 mS/cm	0.48 mg/L	10.86 NTU	-63.8 mV	31.76 ft	250.00 ml/min
3/18/2024 4:03 PM	42:20	6.88 pH	11.44 °C	0.87 mS/cm	0.51 mg/L	8.61 NTU	-63.6 mV	31.76 ft	250.00 ml/min
3/18/2024 4:06 PM	44:27	6.89 pH	11.45 °C	0.88 mS/cm	0.51 mg/L	9.24 NTU	-63.9 mV	31.76 ft	250.00 ml/min
3/18/2024 4:08 PM	46:34	6.89 pH	11.51 °C	0.87 mS/cm	0.46 mg/L	7.96 NTU	-64.8 mV	31.76 ft	250.00 ml/min
3/18/2024 4:10 PM	48:41	6.89 pH	11.44 °C	0.87 mS/cm	0.48 mg/L	7.92 NTU	-64.6 mV	31.76 ft	250.00 ml/min
3/18/2024 4:12 PM	50:48	6.89 pH	11.49 °C	0.87 mS/cm	0.46 mg/L	8.48 NTU	-65.0 mV	31.76 ft	250.00 ml/min
3/18/2024 4:14 PM	52:55	6.89 pH	11.45 °C	0.87 mS/cm	0.44 mg/L	7.72 NTU	-64.9 mV	31.76 ft	250.00 ml/min
3/18/2024 4:16 PM	55:02	6.90 pH	11.52 °C	0.88 mS/cm	0.50 mg/L	5.14 NTU	-64.6 mV	31.76 ft	250.00 ml/min

Samples

Sample ID:	Description:
MW13R-GW-0324	
MW13R-GW0324 MS	
MW13R-GW0324 MSD	

Low-Flow Test Report:

Test Date / Time: 3/21/2024 9:25:25 AM

Project: Neal North MW-19

Operator Name: Thao Larson

Location Name: MW-19 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 18.9 ft Total Depth: 28.9 ft Initial Depth to Water: 13.87 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 22.6 ft Pump Intake From TOC: 24.6 ft Estimated Total Volume Pumped: 5998.333 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 5.47 ft	Instrument Used: Aqua TROLL 600 Serial Number: 998748
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Test Notes:

Sample time 1030

Weather Conditions:

Sunny 24°F

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
3/21/2024 9:25 AM	00:00	6.39 pH	10.49 °C	3.02 mS/cm	3.25 mg/L	4.69 NTU	44.6 mV	13.87 ft	200.00 ml/min
3/21/2024 9:27 AM	01:58	6.36 pH	10.42 °C	2.85 mS/cm	0.24 mg/L	0.00 NTU	16.8 mV	15.78 ft	150.00 ml/min
3/21/2024 9:29 AM	03:56	6.37 pH	10.28 °C	2.71 mS/cm	0.13 mg/L	0.00 NTU	10.3 mV	15.78 ft	150.00 ml/min
3/21/2024 9:31 AM	05:54	6.36 pH	10.16 °C	2.62 mS/cm	0.11 mg/L	0.00 NTU	9.5 mV	16.34 ft	150.00 ml/min
3/21/2024 9:33 AM	07:52	6.39 pH	9.86 °C	2.53 mS/cm	0.11 mg/L	0.00 NTU	8.7 mV	16.34 ft	150.00 ml/min
3/21/2024 9:35 AM	09:50	6.39 pH	10.09 °C	2.49 mS/cm	0.11 mg/L	0.00 NTU	10.7 mV	16.63 ft	150.00 ml/min
3/21/2024 9:37 AM	11:48	6.39 pH	10.20 °C	2.43 mS/cm	0.10 mg/L	0.00 NTU	13.2 mV	16.63 ft	150.00 ml/min
3/21/2024 9:39 AM	13:46	6.39 pH	10.15 °C	2.39 mS/cm	0.10 mg/L	0.00 NTU	14.8 mV	17.03 ft	150.00 ml/min
3/21/2024 9:41 AM	15:44	6.39 pH	9.85 °C	2.35 mS/cm	0.09 mg/L	0.00 NTU	15.5 mV	17.03 ft	150.00 ml/min
3/21/2024 9:43 AM	17:42	6.38 pH	9.96 °C	2.34 mS/cm	0.08 mg/L	0.00 NTU	15.8 mV	17.58 ft	150.00 ml/min
3/21/2024 9:45 AM	19:40	6.40 pH	10.14 °C	2.32 mS/cm	0.08 mg/L	0.00 NTU	14.0 mV	17.58 ft	150.00 ml/min

3/21/2024 9:47 AM	21:38	6.40 pH	10.32 °C	2.31 mS/cm	0.09 mg/L	0.00 NTU	13.2 mV	18.06 ft	150.00 ml/min
3/21/2024 9:49 AM	23:36	6.41 pH	10.41 °C	2.30 mS/cm	0.11 mg/L	0.00 NTU	12.3 mV	18.06 ft	150.00 ml/min
3/21/2024 9:50 AM	25:34	6.41 pH	10.19 °C	2.30 mS/cm	0.19 mg/L	0.00 NTU	11.7 mV	18.29 ft	150.00 ml/min
3/21/2024 9:52 AM	27:32	6.41 pH	10.09 °C	2.30 mS/cm	0.29 mg/L	0.00 NTU	11.2 mV	18.29 ft	150.00 ml/min
3/21/2024 9:54 AM	29:30	6.42 pH	10.17 °C	2.28 mS/cm	0.65 mg/L	0.00 NTU	10.3 mV	18.64 ft	150.00 ml/min
3/21/2024 9:56 AM	31:28	6.43 pH	10.26 °C	2.26 mS/cm	2.31 mg/L	0.00 NTU	8.8 mV	18.64 ft	150.00 ml/min
3/21/2024 9:58 AM	33:26	6.48 pH	10.43 °C	2.26 mS/cm	3.17 mg/L	0.00 NTU	5.2 mV	18.96 ft	150.00 ml/min
3/21/2024 10:00 AM	35:24	6.48 pH	10.40 °C	2.27 mS/cm	3.37 mg/L	0.00 NTU	4.7 mV	18.96 ft	150.00 ml/min
3/21/2024 10:02 AM	37:22	6.48 pH	10.43 °C	2.29 mS/cm	3.37 mg/L	0.00 NTU	4.7 mV	19.32 ft	150.00 ml/min
3/21/2024 10:04 AM	39:20	6.47 pH	10.30 °C	2.31 mS/cm	3.34 mg/L	0.00 NTU	5.0 mV	19.34 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW19-GW-0324	

Low-Flow Test Report:

Test Date / Time: 3/21/2024 8:08:43 AM

Project: Neal North MW-21

Operator Name: Thao Larson

Location Name: MW-21 Well Diameter: 2 in Casing Type: PVC Screen Length: 15 ft Top of Screen: 8.2 ft Total Depth: 23.2 ft Initial Depth to Water: 24.88 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 27.3 ft Pump Intake From TOC: 29.3 ft Estimated Total Volume Pumped: 4537.5 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 1.36 ft	Instrument Used: Aqua TROLL 600 Serial Number: 998748
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Test Notes:

Sample time 0915

Weather Conditions:

Sunny 24°F

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
3/21/2024 8:08 AM	00:00	6.51 pH	8.47 °C	3.20 mS/cm	7.10 mg/L	2.12 NTU	146.9 mV	24.88 ft	300.00 ml/min
3/21/2024 8:10 AM	02:01	6.53 pH	9.20 °C	3.17 mS/cm	4.96 mg/L	0.00 NTU	131.0 mV	24.88 ft	300.00 ml/min
3/21/2024 8:12 AM	04:02	6.54 pH	9.03 °C	3.17 mS/cm	4.84 mg/L	0.00 NTU	122.9 mV	25.51 ft	150.00 ml/min
3/21/2024 8:14 AM	06:03	6.55 pH	8.91 °C	3.18 mS/cm	5.03 mg/L	0.00 NTU	119.3 mV	25.51 ft	150.00 ml/min
3/21/2024 8:16 AM	08:04	6.54 pH	8.83 °C	3.19 mS/cm	4.87 mg/L	0.00 NTU	116.5 mV	25.51 ft	150.00 ml/min
3/21/2024 8:18 AM	10:05	6.53 pH	8.85 °C	3.19 mS/cm	4.51 mg/L	0.00 NTU	114.7 mV	25.72 ft	150.00 ml/min
3/21/2024 8:20 AM	12:06	6.52 pH	8.80 °C	3.19 mS/cm	3.97 mg/L	0.00 NTU	113.4 mV	25.72 ft	150.00 ml/min
3/21/2024 8:22 AM	14:07	6.48 pH	8.94 °C	3.21 mS/cm	3.44 mg/L	0.00 NTU	113.2 mV	25.84 ft	150.00 ml/min
3/21/2024 8:24 AM	16:08	6.48 pH	8.80 °C	3.21 mS/cm	3.38 mg/L	0.00 NTU	111.9 mV	25.94 ft	150.00 ml/min
3/21/2024 8:26 AM	18:09	6.48 pH	8.73 °C	3.21 mS/cm	3.20 mg/L	0.00 NTU	110.8 mV	26.06 ft	150.00 ml/min
3/21/2024 8:28 AM	20:10	6.48 pH	8.59 °C	3.22 mS/cm	3.03 mg/L	0.00 NTU	110.2 mV	26.06 ft	150.00 ml/min

3/21/2024 8:30 AM	22:11	6.47 pH	8.47 °C	3.21 mS/cm	2.76 mg/L	0.00 NTU	109.5 mV	26.15 ft	150.00 ml/min
3/21/2024 8:32 AM	24:12	6.48 pH	8.54 °C	3.21 mS/cm	2.87 mg/L	0.00 NTU	108.8 mV	26.19 ft	150.00 ml/min
3/21/2024 8:34 AM	26:13	6.48 pH	8.44 °C	3.21 mS/cm	2.80 mg/L	0.81 NTU	108.3 mV	26.24 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW21-GW-0324	

Low-Flow Test Report:

Test Date / Time: 3/18/2024 3:39:17 PM

Project: Neal North MW-27

Operator Name: Paige Richards

Location Name: MW-27 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 23.7 ft Total Depth: 33.7 ft Initial Depth to Water: 30.17 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 29.4 ft Pump Intake From TOC: 31.4 ft Estimated Total Volume Pumped: 978.333 ml Flow Cell Volume: 130 ml Final Flow Rate: 25 ml/min Final Draw Down: 0.2 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 1050309
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Test Notes:

Sample time: 1800

Weather Conditions:

Sunny, 37 degrees F

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
3/18/2024 3:39 PM	00:00	6.99 pH	10.13 °C	1.12 mS/cm	9.09 mg/L	94.40 NTU	19.9 mV	30.17 ft	25.00 ml/min
3/18/2024 3:41 PM	02:03	7.04 pH	10.17 °C	1.15 mS/cm	5.33 mg/L	71.10 NTU	-61.8 mV	30.17 ft	25.00 ml/min
3/18/2024 3:43 PM	04:06	6.97 pH	10.19 °C	1.16 mS/cm	3.28 mg/L	43.09 NTU	-67.1 mV	30.17 ft	25.00 ml/min
3/18/2024 3:45 PM	06:09	6.94 pH	9.71 °C	1.16 mS/cm	2.02 mg/L	30.56 NTU	-66.5 mV	30.17 ft	25.00 ml/min
3/18/2024 3:47 PM	08:12	6.95 pH	9.82 °C	1.16 mS/cm	1.69 mg/L	27.12 NTU	-67.9 mV	30.17 ft	25.00 ml/min
3/18/2024 3:49 PM	10:15	6.94 pH	9.78 °C	1.16 mS/cm	1.32 mg/L	23.99 NTU	-68.7 mV	30.17 ft	25.00 ml/min
3/18/2024 3:51 PM	12:29	6.94 pH	9.73 °C	1.16 mS/cm	1.21 mg/L	24.70 NTU	-70.4 mV	30.34 ft	25.00 ml/min
3/18/2024 3:53 PM	14:32	6.94 pH	9.72 °C	1.16 mS/cm	1.23 mg/L	22.08 NTU	-70.9 mV	30.34 ft	25.00 ml/min
3/18/2024 3:55 PM	16:35	6.95 pH	9.83 °C	1.16 mS/cm	1.08 mg/L	18.52 NTU	-72.2 mV	30.34 ft	25.00 ml/min
3/18/2024 3:57 PM	18:38	6.96 pH	9.89 °C	1.16 mS/cm	0.99 mg/L	16.31 NTU	-73.5 mV	30.34 ft	25.00 ml/min
3/18/2024 3:59 PM	20:41	6.97 pH	9.93 °C	1.15 mS/cm	0.90 mg/L	12.86 NTU	-75.7 mV	30.37 ft	25.00 ml/min

3/18/2024 4:02 PM	22:44	6.99 pH	9.89 °C	1.16 mS/cm	0.88 mg/L	14.56 NTU	-76.6 mV	30.37 ft	25.00 ml/min
3/18/2024 4:04 PM	24:47	6.99 pH	9.93 °C	1.16 mS/cm	0.85 mg/L	13.92 NTU	-76.7 mV	30.37 ft	25.00 ml/min
3/18/2024 4:06 PM	26:50	7.00 pH	10.06 °C	1.15 mS/cm	0.81 mg/L	12.55 NTU	-77.7 mV	30.37 ft	25.00 ml/min
3/18/2024 4:08 PM	28:53	7.00 pH	10.01 °C	1.15 mS/cm	0.80 mg/L	9.89 NTU	-79.2 mV	30.37 ft	25.00 ml/min
3/18/2024 4:10 PM	30:56	7.00 pH	9.84 °C	1.15 mS/cm	0.76 mg/L	9.06 NTU	-79.1 mV	30.37 ft	25.00 ml/min
3/18/2024 4:12 PM	32:59	7.01 pH	9.55 °C	1.15 mS/cm	0.77 mg/L	8.84 NTU	-79.0 mV	30.37 ft	25.00 ml/min
3/18/2024 4:14 PM	35:02	7.00 pH	9.41 °C	1.15 mS/cm	0.74 mg/L	8.14 NTU	-78.9 mV	30.37 ft	25.00 ml/min
3/18/2024 4:16 PM	37:05	6.99 pH	9.43 °C	1.15 mS/cm	0.71 mg/L	6.03 NTU	-79.7 mV	30.37 ft	25.00 ml/min
3/18/2024 4:18 PM	39:08	7.00 pH	9.25 °C	1.15 mS/cm	0.69 mg/L	4.51 NTU	-80.4 mV	30.37 ft	25.00 ml/min

Samples

Sample ID:	Description:
MW27-GW-0324	1L plastic w/ nitric x2 1L plastic unpreserved x1 250mL plastic w/ nitric x1 250mL plastic unpreserved x1

Low-Flow Test Report:

Test Date / Time: 3/18/2024 5:22:29 PM

Project: Neal North MW-29R

Operator Name: Thao Larson

Location Name: MW-29R Well Diameter: 2 in Casing Type: PVC Screen Length: 15 ft Top of Screen: 20.2 ft Total Depth: 35.2 ft Initial Depth to Water: 31.49 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 32.7 ft Pump Intake From TOC: 34.7 ft Estimated Total Volume Pumped: 4375 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: -0.03 ft	Instrument Used: Aqua TROLL 600 Serial Number: 998748
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Test Notes:

Sample time 1830

Weather Conditions:

Sunny 45°F

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
3/18/2024 5:22 PM	00:00	6.81 pH	11.63 °C	1.22 mS/cm	4.00 mg/L	78.03 NTU	-32.5 mV	31.49 ft	150.00 ml/min
3/18/2024 5:24 PM	02:05	6.79 pH	11.13 °C	1.20 mS/cm	1.62 mg/L	44.05 NTU	-46.6 mV	31.49 ft	150.00 ml/min
3/18/2024 5:26 PM	04:10	6.78 pH	11.17 °C	1.19 mS/cm	1.21 mg/L	34.00 NTU	-49.9 mV	31.49 ft	150.00 ml/min
3/18/2024 5:28 PM	06:15	6.77 pH	11.16 °C	1.19 mS/cm	0.98 mg/L	32.18 NTU	-51.1 mV	31.48 ft	150.00 ml/min
3/18/2024 5:30 PM	08:20	6.77 pH	10.83 °C	1.18 mS/cm	0.95 mg/L	30.49 NTU	-52.4 mV	31.48 ft	150.00 ml/min
3/18/2024 5:32 PM	10:25	6.77 pH	10.81 °C	1.17 mS/cm	1.05 mg/L	23.74 NTU	-53.4 mV	31.48 ft	150.00 ml/min
3/18/2024 5:34 PM	12:30	6.77 pH	10.77 °C	1.17 mS/cm	1.05 mg/L	20.14 NTU	-53.9 mV	31.48 ft	150.00 ml/min
3/18/2024 5:37 PM	14:35	6.78 pH	10.73 °C	1.17 mS/cm	1.13 mg/L	21.09 NTU	-54.6 mV	31.48 ft	150.00 ml/min
3/18/2024 5:39 PM	16:40	6.78 pH	10.66 °C	1.16 mS/cm	1.14 mg/L	19.08 NTU	-55.1 mV	31.48 ft	150.00 ml/min
3/18/2024 5:41 PM	18:45	6.79 pH	10.59 °C	1.16 mS/cm	1.19 mg/L	14.35 NTU	-55.4 mV	31.48 ft	150.00 ml/min
3/18/2024 5:43 PM	20:50	6.79 pH	10.48 °C	1.16 mS/cm	1.21 mg/L	10.69 NTU	-55.8 mV	31.48 ft	150.00 ml/min

3/18/2024 5:45 PM	22:55	6.79 pH	10.49 °C	1.16 mS/cm	1.21 mg/L	9.78 NTU	-55.9 mV	31.48 ft	150.00 ml/min
3/18/2024 5:47 PM	25:00	6.79 pH	10.34 °C	1.16 mS/cm	1.21 mg/L	8.86 NTU	-56.0 mV	31.46 ft	150.00 ml/min
3/18/2024 5:49 PM	27:05	6.79 pH	10.48 °C	1.16 mS/cm	1.18 mg/L	7.31 NTU	-56.0 mV	31.46 ft	150.00 ml/min
3/18/2024 5:51 PM	29:10	6.78 pH	10.58 °C	1.16 mS/cm	1.01 mg/L	5.08 NTU	-55.9 mV	31.46 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW29R-GW-0324	

Low-Flow Test Report:

Test Date / Time: 3/18/2024 6:58:07 PM

Project: Neal North MW-223S

Operator Name: Thao Larson

Location Name: MW-223S Well Diameter: 2 in Casing Type: PVC Screen Length: 15 ft Top of Screen: 11.7 ft Total Depth: 26.7 ft Initial Depth to Water: 23.62 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 22.4 ft Pump Intake From TOC: 24.4 ft Estimated Total Volume Pumped: 2731.25 ml Flow Cell Volume: 130 ml Final Flow Rate: 75 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Serial Number: 998748
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Test Notes:

Stabilized 3.18.2024 @ 1945 for later sample collection

Sample time: 0955 on 3/19

Weather Conditions:

Sunny 45°F

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
3/18/2024 6:58 PM	00:00	6.91 pH	10.88 °C	0.97 mS/cm	2.80 mg/L	464.02 NTU	-6.9 mV	23.62 ft	75.00 ml/min
3/18/2024 7:00 PM	01:55	6.99 pH	10.83 °C	1.01 mS/cm	0.89 mg/L	243.11 NTU	-29.9 mV	23.62 ft	75.00 ml/min
3/18/2024 7:01 PM	03:50	7.03 pH	10.87 °C	1.02 mS/cm	0.46 mg/L	129.28 NTU	-42.8 mV	23.62 ft	75.00 ml/min
3/18/2024 7:03 PM	05:45	7.05 pH	10.73 °C	1.02 mS/cm	0.30 mg/L	124.70 NTU	-49.9 mV	23.62 ft	75.00 ml/min
3/18/2024 7:05 PM	07:40	7.06 pH	10.65 °C	1.03 mS/cm	0.25 mg/L	113.86 NTU	-54.4 mV	23.62 ft	75.00 ml/min
3/18/2024 7:07 PM	09:35	7.06 pH	10.64 °C	1.03 mS/cm	0.23 mg/L	54.29 NTU	-57.7 mV	23.62 ft	75.00 ml/min
3/18/2024 7:09 PM	11:30	7.06 pH	10.53 °C	1.03 mS/cm	0.21 mg/L	44.14 NTU	-59.7 mV	23.62 ft	75.00 ml/min
3/18/2024 7:11 PM	13:25	7.06 pH	10.49 °C	1.03 mS/cm	0.20 mg/L	30.90 NTU	-61.7 mV	23.62 ft	75.00 ml/min
3/18/2024 7:13 PM	15:20	7.07 pH	10.44 °C	1.03 mS/cm	0.20 mg/L	27.27 NTU	-63.2 mV	23.62 ft	75.00 ml/min
3/18/2024 7:15 PM	17:15	7.07 pH	10.38 °C	1.03 mS/cm	0.20 mg/L	25.30 NTU	-64.1 mV	23.62 ft	75.00 ml/min
3/18/2024 7:17 PM	19:10	7.07 pH	10.31 °C	1.03 mS/cm	0.20 mg/L	21.42 NTU	-65.1 mV	23.62 ft	75.00 ml/min

3/18/2024 7:19 PM	21:05	7.07 pH	10.26 °C	1.03 mS/cm	0.20 mg/L	12.57 NTU	-65.9 mV	23.62 ft	75.00 ml/min
3/18/2024 7:21 PM	23:00	7.07 pH	10.23 °C	1.02 mS/cm	0.20 mg/L	8.70 NTU	-66.7 mV	23.62 ft	75.00 ml/min
3/18/2024 7:23 PM	24:55	7.07 pH	10.17 °C	1.02 mS/cm	0.20 mg/L	9.58 NTU	-67.2 mV	23.62 ft	75.00 ml/min
3/18/2024 7:24 PM	26:50	7.07 pH	10.11 °C	1.02 mS/cm	0.20 mg/L	9.60 NTU	-67.5 mV	23.62 ft	75.00 ml/min
3/18/2024 7:26 PM	28:45	7.07 pH	10.08 °C	1.02 mS/cm	0.24 mg/L	10.79 NTU	-67.7 mV	23.62 ft	75.00 ml/min
3/18/2024 7:28 PM	30:40	7.07 pH	10.06 °C	1.02 mS/cm	0.20 mg/L	8.88 NTU	-67.8 mV	23.62 ft	75.00 ml/min
3/18/2024 7:30 PM	32:35	7.07 pH	10.04 °C	1.02 mS/cm	0.19 mg/L	9.70 NTU	-68.1 mV	23.62 ft	75.00 ml/min
3/18/2024 7:32 PM	34:30	7.07 pH	10.00 °C	1.02 mS/cm	0.19 mg/L	8.96 NTU	-68.3 mV	23.62 ft	75.00 ml/min
3/18/2024 7:34 PM	36:25	7.07 pH	9.97 °C	1.02 mS/cm	0.18 mg/L	5.93 NTU	-68.5 mV	23.62 ft	75.00 ml/min

Samples

Sample ID:	Description:
MW223S-GW-0324	

Low-Flow Test Report:

Test Date / Time: 3/18/2024 6:17:23 PM

Project: Neal North MW-231SR

Operator Name: Paige Richards

Location Name: MW-231SR Well Diameter: 2 in Casing Type: PVC Screen Length: 15 ft Top of Screen: 14.07 ft Total Depth: 29.07 ft Initial Depth to Water: 25.51 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 26.57 ft Pump Intake From TOC: 28.57 ft Estimated Total Volume Pumped: 5687 ml Flow Cell Volume: 130 ml Final Flow Rate: 60 ml/min Final Draw Down: 0.13 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 1050309
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Test Notes:

Sample time: 0920 on 3/19

Weather Conditions:

Sunny, 41 degrees F

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
3/18/2024 6:17 PM	00:00	6.94 pH	11.12 °C	1.19 mS/cm	5.41 mg/L	39.38 NTU	-4.1 mV	25.51 ft	75.00 ml/min
3/18/2024 6:19 PM	02:01	6.91 pH	10.80 °C	1.34 mS/cm	1.76 mg/L	33.38 NTU	-48.3 mV	25.51 ft	75.00 ml/min
3/18/2024 6:21 PM	04:02	6.87 pH	10.74 °C	1.37 mS/cm	0.78 mg/L	24.82 NTU	-51.3 mV	25.51 ft	75.00 ml/min
3/18/2024 6:23 PM	06:03	6.85 pH	10.62 °C	1.37 mS/cm	0.52 mg/L	24.23 NTU	-52.8 mV	25.54 ft	75.00 ml/min
3/18/2024 6:25 PM	08:04	6.85 pH	10.44 °C	1.38 mS/cm	0.40 mg/L	27.99 NTU	-53.6 mV	25.54 ft	60.00 ml/min
3/18/2024 6:27 PM	10:05	6.85 pH	10.30 °C	1.37 mS/cm	0.35 mg/L	34.87 NTU	-54.4 mV	25.54 ft	60.00 ml/min
3/18/2024 6:29 PM	12:06	6.85 pH	10.23 °C	1.37 mS/cm	0.34 mg/L	47.67 NTU	-55.2 mV	25.54 ft	60.00 ml/min
3/18/2024 6:31 PM	14:07	6.85 pH	10.21 °C	1.37 mS/cm	0.34 mg/L	45.12 NTU	-55.4 mV	25.54 ft	60.00 ml/min
3/18/2024 6:33 PM	16:08	6.85 pH	10.14 °C	1.36 mS/cm	0.35 mg/L	69.65 NTU	-55.0 mV	25.54 ft	60.00 ml/min
3/18/2024 6:35 PM	18:09	6.86 pH	10.07 °C	1.36 mS/cm	0.36 mg/L	60.27 NTU	-55.2 mV	25.54 ft	60.00 ml/min
3/18/2024 6:37 PM	20:10	6.86 pH	10.01 °C	1.36 mS/cm	0.37 mg/L	52.97 NTU	-54.9 mV	25.54 ft	60.00 ml/min

3/18/2024 6:39 PM	22:11	6.86 pH	9.96 °C	1.36 mS/cm	0.37 mg/L	44.27 NTU	-54.8 mV	25.54 ft	60.00 ml/min
3/18/2024 6:41 PM	24:12	6.86 pH	9.85 °C	1.36 mS/cm	0.38 mg/L	54.25 NTU	-54.9 mV	25.54 ft	60.00 ml/min
3/18/2024 6:43 PM	26:13	6.86 pH	9.72 °C	1.36 mS/cm	0.39 mg/L	43.92 NTU	-54.8 mV	25.64 ft	60.00 ml/min
3/18/2024 6:45 PM	28:14	6.87 pH	9.69 °C	1.36 mS/cm	0.39 mg/L	34.51 NTU	-55.0 mV	25.64 ft	60.00 ml/min
3/18/2024 6:47 PM	30:15	6.87 pH	9.59 °C	1.36 mS/cm	0.39 mg/L	36.73 NTU	-55.2 mV	25.64 ft	60.00 ml/min
3/18/2024 6:49 PM	32:16	6.87 pH	9.48 °C	1.35 mS/cm	0.39 mg/L	34.56 NTU	-55.9 mV	25.64 ft	60.00 ml/min
3/18/2024 6:51 PM	34:17	6.88 pH	9.45 °C	1.35 mS/cm	0.40 mg/L	50.88 NTU	-56.1 mV	25.64 ft	60.00 ml/min
3/18/2024 6:53 PM	36:18	6.88 pH	9.44 °C	1.35 mS/cm	0.40 mg/L	52.19 NTU	-55.7 mV	25.64 ft	60.00 ml/min
3/18/2024 6:55 PM	38:19	6.88 pH	9.42 °C	1.35 mS/cm	0.41 mg/L	45.70 NTU	-55.5 mV	25.64 ft	60.00 ml/min
3/18/2024 6:57 PM	40:20	6.88 pH	9.37 °C	1.35 mS/cm	0.41 mg/L	44.30 NTU	-55.4 mV	25.64 ft	60.00 ml/min
3/18/2024 6:59 PM	42:21	6.88 pH	9.36 °C	1.35 mS/cm	0.41 mg/L	31.03 NTU	-55.6 mV	25.64 ft	60.00 ml/min
3/18/2024 7:01 PM	44:22	6.88 pH	9.36 °C	1.35 mS/cm	0.41 mg/L	25.00 NTU	-55.7 mV	25.64 ft	60.00 ml/min
3/18/2024 7:03 PM	46:23	6.89 pH	9.37 °C	1.35 mS/cm	0.41 mg/L	24.92 NTU	-55.9 mV	25.64 ft	60.00 ml/min
3/18/2024 7:05 PM	48:24	6.89 pH	9.29 °C	1.35 mS/cm	0.41 mg/L	19.65 NTU	-55.8 mV	25.64 ft	60.00 ml/min
3/18/2024 7:07 PM	50:25	6.89 pH	9.24 °C	1.35 mS/cm	0.42 mg/L	16.68 NTU	-55.6 mV	25.64 ft	60.00 ml/min
3/18/2024 7:09 PM	52:26	6.89 pH	9.20 °C	1.35 mS/cm	0.42 mg/L	21.37 NTU	-55.7 mV	25.64 ft	60.00 ml/min
3/18/2024 7:11 PM	54:27	6.90 pH	9.14 °C	1.34 mS/cm	0.43 mg/L	23.86 NTU	-56.2 mV	25.64 ft	60.00 ml/min
3/18/2024 7:13 PM	56:28	6.90 pH	9.10 °C	1.34 mS/cm	0.43 mg/L	23.11 NTU	-56.1 mV	25.64 ft	60.00 ml/min
3/18/2024 7:15 PM	58:29	6.90 pH	9.05 °C	1.34 mS/cm	0.43 mg/L	23.32 NTU	-56.1 mV	25.64 ft	60.00 ml/min
3/18/2024 7:17 PM	01:00:30	6.90 pH	9.03 °C	1.34 mS/cm	0.43 mg/L	24.10 NTU	-56.2 mV	25.64 ft	60.00 ml/min
3/18/2024 7:19 PM	01:02:31	6.90 pH	9.02 °C	1.34 mS/cm	0.43 mg/L	24.50 NTU	-56.3 mV	25.64 ft	60.00 ml/min
3/18/2024 7:21 PM	01:04:32	6.91 pH	8.99 °C	1.34 mS/cm	0.44 mg/L	19.79 NTU	-56.0 mV	25.64 ft	60.00 ml/min
3/18/2024 7:23 PM	01:06:33	6.91 pH	8.94 °C	1.34 mS/cm	0.44 mg/L	17.04 NTU	-55.6 mV	25.64 ft	60.00 ml/min
3/18/2024 7:25 PM	01:08:34	6.91 pH	8.89 °C	1.34 mS/cm	0.45 mg/L	17.57 NTU	-55.2 mV	25.64 ft	60.00 ml/min
3/18/2024 7:27 PM	01:10:35	6.91 pH	8.86 °C	1.34 mS/cm	0.44 mg/L	19.02 NTU	-55.3 mV	25.64 ft	60.00 ml/min
3/18/2024 7:29 PM	01:12:36	6.91 pH	8.84 °C	1.34 mS/cm	0.45 mg/L	13.31 NTU	-55.0 mV	25.64 ft	60.00 ml/min
3/18/2024 7:32 PM	01:14:37	6.91 pH	8.83 °C	1.33 mS/cm	0.45 mg/L	13.20 NTU	-54.5 mV	25.64 ft	60.00 ml/min
3/18/2024 7:34 PM	01:16:38	6.91 pH	8.83 °C	1.33 mS/cm	0.45 mg/L	13.05 NTU	-54.4 mV	25.64 ft	60.00 ml/min
3/18/2024 7:36 PM	01:18:39	6.91 pH	8.80 °C	1.33 mS/cm	0.46 mg/L	11.94 NTU	-54.4 mV	25.64 ft	60.00 ml/min

3/18/2024 7:38 PM	01:20:40	6.91 pH	8.75 °C	1.33 mS/cm	0.46 mg/L	11.36 NTU	-54.4 mV	25.64 ft	60.00 ml/min
3/18/2024 7:40 PM	01:22:41	6.92 pH	8.72 °C	1.33 mS/cm	0.45 mg/L	10.88 NTU	-54.7 mV	25.64 ft	60.00 ml/min
3/18/2024 7:42 PM	01:24:42	6.92 pH	8.67 °C	1.33 mS/cm	0.46 mg/L	9.24 NTU	-54.9 mV	25.64 ft	60.00 ml/min
3/18/2024 7:44 PM	01:26:43	6.92 pH	8.71 °C	1.33 mS/cm	0.46 mg/L	7.79 NTU	-55.0 mV	25.64 ft	60.00 ml/min
3/18/2024 7:46 PM	01:28:44	6.92 pH	8.72 °C	1.33 mS/cm	0.46 mg/L	6.15 NTU	-54.8 mV	25.64 ft	60.00 ml/min
3/18/2024 7:48 PM	01:30:45	6.93 pH	8.71 °C	1.33 mS/cm	0.46 mg/L	6.28 NTU	-54.9 mV	25.64 ft	60.00 ml/min
3/18/2024 7:50 PM	01:32:46	6.93 pH	8.69 °C	1.33 mS/cm	0.46 mg/L	5.78 NTU	-54.9 mV	25.64 ft	60.00 ml/min

Samples

Sample ID:	Description:
MW231SR-GW-0324	Appendix III and IV MNA

Low-Flow Test Report:

Test Date / Time: 6/5/2024 7:58:21 AM

Project: Neal North MW-1R

Operator Name: Paige Richards

Location Name: MW-1R Well Diameter: 2 in Casing Type: PVC Screen Length: 25 ft Top of Screen: 11.94 ft Total Depth: 36.95 ft Initial Depth to Water: 18.85 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 34.35 ft Pump Intake From TOC: 36.35 ft Estimated Total Volume Pumped: 17329 ml Flow Cell Volume: 130 ml Final Flow Rate: 125 ml/min Final Draw Down: 0.01 ft	Instrument Used: Aqua TROLL 600 Serial Number: 809048
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Test Notes:

Sample time: 0930

Water visually clear

Weather Conditions:

Sunny, 59 degrees F

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
6/5/2024 7:58 AM	00:00	7.11 pH	13.43 °C	1.36 mS/cm	4.56 mg/L	259.85 NTU	-56.6 mV	18.85 ft	400.00 ml/min
6/5/2024 8:00 AM	02:06	7.18 pH	12.58 °C	1.29 mS/cm	0.20 mg/L	31.87 NTU	-128.8 mV	18.85 ft	400.00 ml/min
6/5/2024 8:02 AM	04:12	7.15 pH	12.36 °C	1.29 mS/cm	0.08 mg/L	50.98 NTU	-131.0 mV	18.86 ft	400.00 ml/min
6/5/2024 8:04 AM	06:18	7.12 pH	12.52 °C	1.29 mS/cm	0.06 mg/L	90.08 NTU	-131.1 mV	18.86 ft	400.00 ml/min
6/5/2024 8:06 AM	08:24	7.08 pH	12.50 °C	1.29 mS/cm	0.05 mg/L	84.20 NTU	-129.4 mV	18.86 ft	400.00 ml/min
6/5/2024 8:08 AM	10:30	7.07 pH	12.41 °C	1.29 mS/cm	0.05 mg/L	48.83 NTU	-129.4 mV	18.86 ft	400.00 ml/min
6/5/2024 8:10 AM	12:36	7.05 pH	12.50 °C	1.29 mS/cm	0.05 mg/L	53.04 NTU	-129.4 mV	18.86 ft	400.00 ml/min
6/5/2024 8:13 AM	14:42	7.04 pH	12.52 °C	1.29 mS/cm	0.05 mg/L	72.55 NTU	-130.2 mV	18.86 ft	400.00 ml/min
6/5/2024 8:15 AM	16:48	7.03 pH	12.76 °C	1.29 mS/cm	0.06 mg/L	45.01 NTU	-129.6 mV	18.86 ft	230.00 ml/min
6/5/2024 8:17 AM	18:54	7.04 pH	12.85 °C	1.29 mS/cm	0.09 mg/L	38.07 NTU	-130.3 mV	18.86 ft	230.00 ml/min

6/5/2024 8:19 AM	21:00	7.04 pH	12.77 °C	1.30 mS/cm	0.09 mg/L	32.33 NTU	-130.0 mV	18.86 ft	230.00 ml/min
6/5/2024 8:21 AM	23:06	7.05 pH	12.83 °C	1.30 mS/cm	0.08 mg/L	26.87 NTU	-130.6 mV	18.86 ft	230.00 ml/min
6/5/2024 8:23 AM	25:12	7.06 pH	12.85 °C	1.30 mS/cm	0.08 mg/L	28.18 NTU	-131.5 mV	18.86 ft	230.00 ml/min
6/5/2024 8:25 AM	27:18	7.07 pH	12.81 °C	1.30 mS/cm	0.07 mg/L	21.96 NTU	-132.5 mV	18.86 ft	230.00 ml/min
6/5/2024 8:27 AM	29:24	7.07 pH	12.86 °C	1.30 mS/cm	0.07 mg/L	23.96 NTU	-132.6 mV	18.86 ft	230.00 ml/min
6/5/2024 8:29 AM	31:30	7.08 pH	12.86 °C	1.30 mS/cm	0.06 mg/L	19.32 NTU	-133.6 mV	18.86 ft	230.00 ml/min
6/5/2024 8:31 AM	33:36	7.09 pH	13.16 °C	1.30 mS/cm	0.08 mg/L	19.05 NTU	-133.0 mV	18.86 ft	230.00 ml/min
6/5/2024 8:37 AM	39:16	7.07 pH	14.81 °C	1.30 mS/cm	0.24 mg/L	23.09 NTU	-131.8 mV	18.86 ft	125.00 ml/min
6/5/2024 8:39 AM	41:22	7.10 pH	13.97 °C	1.30 mS/cm	0.30 mg/L	18.13 NTU	-130.0 mV	18.86 ft	125.00 ml/min
6/5/2024 8:41 AM	43:28	7.12 pH	13.70 °C	1.30 mS/cm	0.19 mg/L	24.69 NTU	-131.6 mV	18.86 ft	125.00 ml/min
6/5/2024 8:43 AM	45:34	7.13 pH	13.80 °C	1.30 mS/cm	0.15 mg/L	64.21 NTU	-133.5 mV	18.86 ft	125.00 ml/min
6/5/2024 8:46 AM	47:40	7.14 pH	13.75 °C	1.30 mS/cm	0.14 mg/L	40.53 NTU	-135.1 mV	18.86 ft	125.00 ml/min
6/5/2024 8:48 AM	49:46	7.14 pH	13.89 °C	1.30 mS/cm	0.13 mg/L	54.38 NTU	-135.5 mV	18.86 ft	125.00 ml/min
6/5/2024 8:50 AM	51:52	7.14 pH	13.88 °C	1.30 mS/cm	0.13 mg/L	23.87 NTU	-136.0 mV	18.86 ft	125.00 ml/min
6/5/2024 8:52 AM	53:58	7.14 pH	13.84 °C	1.30 mS/cm	0.12 mg/L	17.43 NTU	-136.1 mV	18.86 ft	125.00 ml/min
6/5/2024 8:54 AM	56:04	7.14 pH	13.91 °C	1.30 mS/cm	0.12 mg/L	30.39 NTU	-136.1 mV	18.86 ft	125.00 ml/min
6/5/2024 8:56 AM	58:10	7.14 pH	13.96 °C	1.30 mS/cm	0.12 mg/L	26.74 NTU	-136.0 mV	18.86 ft	125.00 ml/min
6/5/2024 9:04 AM	01:06:00	7.19 pH	14.82 °C	1.24 mS/cm	2.09 mg/L	20.57 NTU	-121.0 mV	18.86 ft	125.00 ml/min
6/5/2024 9:06 AM	01:08:06	7.19 pH	14.20 °C	1.29 mS/cm	0.40 mg/L	16.84 NTU	-131.3 mV	18.86 ft	125.00 ml/min
6/5/2024 9:08 AM	01:10:12	7.18 pH	13.99 °C	1.30 mS/cm	0.20 mg/L	11.16 NTU	-134.0 mV	18.86 ft	125.00 ml/min
6/5/2024 9:10 AM	01:12:18	7.18 pH	13.94 °C	1.30 mS/cm	0.17 mg/L	11.85 NTU	-136.2 mV	18.86 ft	125.00 ml/min
6/5/2024 9:12 AM	01:14:24	7.18 pH	13.97 °C	1.30 mS/cm	0.16 mg/L	11.12 NTU	-137.3 mV	18.86 ft	125.00 ml/min
6/5/2024 9:14 AM	01:16:30	7.17 pH	13.92 °C	1.30 mS/cm	0.13 mg/L	13.60 NTU	-138.2 mV	18.86 ft	125.00 ml/min
6/5/2024 9:16 AM	01:18:36	7.17 pH	14.09 °C	1.30 mS/cm	0.13 mg/L	15.60 NTU	-138.5 mV	18.86 ft	125.00 ml/min
6/5/2024 9:19 AM	01:20:42	7.16 pH	14.12 °C	1.30 mS/cm	0.13 mg/L	10.85 NTU	-139.0 mV	18.86 ft	125.00 ml/min
6/5/2024 9:21 AM	01:22:48	7.16 pH	14.16 °C	1.31 mS/cm	0.13 mg/L	11.79 NTU	-139.2 mV	18.86 ft	125.00 ml/min

Samples

Sample ID:	Description:
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MW01R-GW-0624	250mL plastic w/ nitric x1
MS/MSD	250mL plastic w/ nitric x2

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 6/5/2024 7:22:32 AM

Project: Neal North MW-5R

Operator Name: Paige Richards

Location Name: MW-5R Well Diameter: 2 in Casing Type: PVC Screen Length: 25 ft Top of Screen: 11.64 ft Total Depth: 36.7 ft Initial Depth to Water: 20.61 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 32.4 ft Pump Intake From TOC: 34.4 ft Estimated Total Volume Pumped: 5104.167 ml Flow Cell Volume: 130 ml Final Flow Rate: 350 ml/min Final Draw Down: 0.04 ft	Instrument Used: Aqua TROLL 600 Serial Number: 809048
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Test Notes:

Sample time: 0745

Water clear, possible organics coming from groundwater (only trace amounts)

Weather Conditions:

Sunny, 55 degrees F

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
6/5/2024 7:22 AM	00:00	7.22 pH	13.03 °C	1.40 mS/cm	2.44 mg/L	60.76 NTU	-135.4 mV	20.61 ft	350.00 ml/min
6/5/2024 7:24 AM	02:05	7.17 pH	12.66 °C	1.41 mS/cm	0.30 mg/L	22.00 NTU	-151.5 mV	20.61 ft	350.00 ml/min
6/5/2024 7:26 AM	04:10	7.15 pH	12.63 °C	1.41 mS/cm	0.14 mg/L	14.69 NTU	-154.8 mV	20.61 ft	350.00 ml/min
6/5/2024 7:28 AM	06:15	7.11 pH	12.61 °C	1.40 mS/cm	0.11 mg/L	6.59 NTU	-150.4 mV	20.65 ft	350.00 ml/min
6/5/2024 7:30 AM	08:20	7.08 pH	12.58 °C	1.40 mS/cm	0.10 mg/L	10.66 NTU	-148.8 mV	20.65 ft	350.00 ml/min
6/5/2024 7:32 AM	10:25	7.05 pH	12.63 °C	1.40 mS/cm	0.09 mg/L	7.67 NTU	-145.4 mV	20.65 ft	350.00 ml/min
6/5/2024 7:35 AM	12:30	7.03 pH	12.67 °C	1.39 mS/cm	0.09 mg/L	6.91 NTU	-142.9 mV	20.65 ft	350.00 ml/min
6/5/2024 7:37 AM	14:35	7.01 pH	12.62 °C	1.39 mS/cm	0.08 mg/L	1.47 NTU	-141.3 mV	20.65 ft	350.00 ml/min

Samples

Sample ID:	Description:
MW05R-GW-0624	1L plastic unpreserved x1

Low-Flow Test Report:

Test Date / Time: 6/5/2024 3:28:16 PM

Project: Neal North MW-19

Operator Name: Paige Richards

Location Name: MW-19 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 18.9 ft Total Depth: 28.9 ft Initial Depth to Water: 10.45 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 22.6 ft Pump Intake From TOC: 24.6 ft Estimated Total Volume Pumped: 2360 ml Flow Cell Volume: 130 ml Final Flow Rate: 125 ml/min Final Draw Down: 2.59 ft	Instrument Used: Aqua TROLL 600 Serial Number: 809048
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Test Notes:

Sample time: 1555

Water visually clear

Weather Conditions:

Sunny, 81 degrees F

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
6/5/2024 3:28 PM	00:00	6.76 pH	21.10 °C	2.24 mS/cm	6.13 mg/L	14.49 NTU	37.8 mV	10.45 ft	400.00 ml/min
6/5/2024 3:30 PM	01:58	6.60 pH	13.82 °C	2.95 mS/cm	0.26 mg/L	3.83 NTU	-16.9 mV	12.08 ft	300.00 ml/min
6/5/2024 3:32 PM	03:56	6.63 pH	14.15 °C	2.74 mS/cm	0.14 mg/L	3.47 NTU	-25.8 mV	12.36 ft	125.00 ml/min
6/5/2024 3:34 PM	05:54	6.60 pH	15.71 °C	2.65 mS/cm	0.21 mg/L	1.83 NTU	-28.3 mV	12.36 ft	125.00 ml/min
6/5/2024 3:36 PM	07:52	6.55 pH	16.03 °C	2.64 mS/cm	0.22 mg/L	0.89 NTU	-25.4 mV	12.75 ft	125.00 ml/min
6/5/2024 3:38 PM	09:50	6.51 pH	15.99 °C	2.64 mS/cm	0.21 mg/L	0.48 NTU	-20.1 mV	12.75 ft	125.00 ml/min
6/5/2024 3:40 PM	11:48	6.48 pH	15.81 °C	2.59 mS/cm	0.20 mg/L	0.07 NTU	-14.5 mV	13.04 ft	125.00 ml/min

Samples

Sample ID:	Description:
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MW19-GW-0624

1L plastic unpreserved x1

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 6/5/2024 2:46:05 PM

Project: Neal North MW-21

Operator Name: Paige Richards

Location Name: MW-21 Well Diameter: 2 in Casing Type: PVC Screen Length: 15 ft Top of Screen: 16.6 ft Total Depth: 31.6 ft Initial Depth to Water: 13.15 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 27.3 ft Pump Intake From TOC: 29.3 ft Estimated Total Volume Pumped: 2621.667 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 1.33 ft	Instrument Used: Aqua TROLL 600 Serial Number: 809048
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Test Notes:

Sample time: 1515

Water visually clear

Weather Conditions:

Sunny, windy, 80 degrees F

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
6/5/2024 2:46 PM	00:00	6.93 pH	24.40 °C	2.33 mS/cm	4.75 mg/L	158.32 NTU	-64.0 mV	13.15 ft	275.00 ml/min
6/5/2024 2:48 PM	02:01	6.68 pH	15.22 °C	2.60 mS/cm	2.48 mg/L	0.00 NTU	-6.3 mV	13.94 ft	275.00 ml/min
6/5/2024 2:50 PM	04:02	6.67 pH	15.23 °C	2.59 mS/cm	2.25 mg/L	0.00 NTU	7.0 mV	13.94 ft	150.00 ml/min
6/5/2024 2:52 PM	06:03	6.65 pH	17.01 °C	2.54 mS/cm	2.43 mg/L	0.00 NTU	14.4 mV	13.94 ft	150.00 ml/min
6/5/2024 2:54 PM	08:04	6.68 pH	17.06 °C	2.38 mS/cm	3.10 mg/L	0.00 NTU	20.3 mV	13.94 ft	150.00 ml/min
6/5/2024 2:56 PM	10:05	6.67 pH	17.19 °C	2.33 mS/cm	3.34 mg/L	0.00 NTU	25.5 mV	14.19 ft	150.00 ml/min
6/5/2024 2:58 PM	12:06	6.65 pH	17.18 °C	2.31 mS/cm	3.40 mg/L	0.00 NTU	29.9 mV	14.19 ft	150.00 ml/min
6/5/2024 3:00 PM	14:07	6.64 pH	17.18 °C	2.30 mS/cm	3.41 mg/L	0.00 NTU	33.3 mV	14.48 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW21-GW-0624	1L plastic unpreserved x1

Low-Flow Test Report:

Test Date / Time: 9/12/2024 4:19:04 PM

Project: Neal North MW-1R

Operator Name: Riley Reece

Location Name: MW-1R Well Diameter: 2 in Screen Length: 25 ft Top of Screen: 11.94 ft Total Depth: 36.95 ft Initial Depth to Water: 19.44 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 34.35 ft Pump Intake From TOC: 36.35 ft Estimated Total Volume Pumped: 27000 ml Flow Cell Volume: 130 ml Final Flow Rate: 400 ml/min Final Draw Down: 0.07 ft	Instrument Used: Aqua TROLL 600 Serial Number: 955645
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Test Notes:

Sample time: 1745

DP05 collected.

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
9/12/2024 4:19 PM	00:00	7.15 pH	13.98 °C	1.32 mS/cm	0.31 mg/L	35.76 NTU	-140.7 mV	19.44 ft	400.00 ml/min
9/12/2024 4:19 PM	00:18	7.14 pH	13.90 °C	1.32 mS/cm	0.25 mg/L	35.56 NTU	-139.1 mV	19.44 ft	400.00 ml/min
9/12/2024 4:21 PM	02:24	7.12 pH	13.65 °C	1.33 mS/cm	0.08 mg/L	288.88 NTU	-136.0 mV	19.44 ft	400.00 ml/min
9/12/2024 4:23 PM	04:30	7.10 pH	13.72 °C	1.32 mS/cm	0.05 mg/L	847.91 NTU	-134.5 mV	19.44 ft	400.00 ml/min
9/12/2024 4:25 PM	06:36	7.09 pH	13.51 °C	1.33 mS/cm	0.04 mg/L	2,621.4 NTU	-135.7 mV	19.44 ft	400.00 ml/min
9/12/2024 4:27 PM	08:42	7.08 pH	13.68 °C	1.33 mS/cm	0.04 mg/L	1,173.0 NTU	-135.0 mV	19.44 ft	400.00 ml/min
9/12/2024 4:29 PM	10:48	7.08 pH	13.73 °C	1.33 mS/cm	0.04 mg/L	784.20 NTU	-138.0 mV	19.51 ft	400.00 ml/min
9/12/2024 4:31 PM	12:54	7.08 pH	13.45 °C	1.34 mS/cm	0.04 mg/L	401.11 NTU	-139.7 mV	19.51 ft	400.00 ml/min
9/12/2024 4:34 PM	15:00	7.09 pH	13.63 °C	1.33 mS/cm	0.04 mg/L	302.47 NTU	-142.3 mV	19.51 ft	400.00 ml/min
9/12/2024 4:36 PM	17:06	7.08 pH	13.81 °C	1.34 mS/cm	0.03 mg/L	926.58 NTU	-143.1 mV	19.51 ft	400.00 ml/min
9/12/2024 4:38 PM	19:12	7.09 pH	13.61 °C	1.34 mS/cm	0.03 mg/L	59.99 NTU	-145.1 mV	19.51 ft	400.00 ml/min
9/12/2024 4:40 PM	21:18	7.10 pH	13.74 °C	1.34 mS/cm	0.03 mg/L	29.45 NTU	-147.4 mV	19.51 ft	400.00 ml/min

9/12/2024 4:42 PM	23:24	7.11 pH	13.63 °C	1.34 mS/cm	0.03 mg/L	30.31 NTU	-148.4 mV	19.51 ft	400.00 ml/min
9/12/2024 4:44 PM	25:30	7.11 pH	13.69 °C	1.34 mS/cm	0.03 mg/L	14.76 NTU	-149.0 mV	19.51 ft	400.00 ml/min
9/12/2024 4:46 PM	27:36	7.11 pH	13.74 °C	1.34 mS/cm	0.03 mg/L	11.38 NTU	-149.9 mV	19.51 ft	400.00 ml/min
9/12/2024 4:48 PM	29:42	7.12 pH	13.57 °C	1.35 mS/cm	0.03 mg/L	9.05 NTU	-151.4 mV	19.51 ft	400.00 ml/min
9/12/2024 4:50 PM	31:48	7.13 pH	13.74 °C	1.34 mS/cm	0.03 mg/L	16.44 NTU	-151.8 mV	19.51 ft	400.00 ml/min
9/12/2024 4:52 PM	33:54	7.14 pH	13.65 °C	1.34 mS/cm	0.03 mg/L	12.27 NTU	-153.0 mV	19.51 ft	400.00 ml/min
9/12/2024 4:55 PM	36:00	7.16 pH	13.60 °C	1.35 mS/cm	0.03 mg/L	7.13 NTU	-153.6 mV	19.51 ft	400.00 ml/min
9/12/2024 4:57 PM	38:06	7.16 pH	13.68 °C	1.35 mS/cm	0.02 mg/L	8.85 NTU	-154.8 mV	19.51 ft	400.00 ml/min
9/12/2024 4:59 PM	40:12	7.17 pH	13.65 °C	1.35 mS/cm	0.02 mg/L	9.12 NTU	-155.8 mV	19.51 ft	400.00 ml/min
9/12/2024 5:01 PM	42:18	7.18 pH	13.57 °C	1.35 mS/cm	0.02 mg/L	8.48 NTU	-156.3 mV	19.51 ft	400.00 ml/min
9/12/2024 5:03 PM	44:24	7.19 pH	13.58 °C	1.35 mS/cm	0.02 mg/L	7.15 NTU	-157.2 mV	19.51 ft	400.00 ml/min
9/12/2024 5:05 PM	46:30	7.19 pH	13.50 °C	1.35 mS/cm	0.02 mg/L	7.52 NTU	-158.2 mV	19.51 ft	400.00 ml/min
9/12/2024 5:07 PM	48:36	7.21 pH	13.66 °C	1.35 mS/cm	0.02 mg/L	7.52 NTU	-159.1 mV	19.51 ft	400.00 ml/min
9/12/2024 5:09 PM	50:42	7.21 pH	13.68 °C	1.35 mS/cm	2.08 mg/L	5.99 NTU	-142.8 mV	19.51 ft	400.00 ml/min
9/12/2024 5:11 PM	52:48	7.23 pH	13.62 °C	1.36 mS/cm	0.04 mg/L	9.15 NTU	-153.3 mV	19.51 ft	400.00 ml/min
9/12/2024 5:13 PM	54:54	7.23 pH	13.72 °C	1.36 mS/cm	0.02 mg/L	8.48 NTU	-155.9 mV	19.51 ft	400.00 ml/min
9/12/2024 5:16 PM	57:00	7.23 pH	13.46 °C	1.36 mS/cm	0.02 mg/L	5.46 NTU	-157.2 mV	19.51 ft	400.00 ml/min
9/12/2024 5:18 PM	59:06	7.24 pH	13.64 °C	1.36 mS/cm	0.02 mg/L	9.78 NTU	-158.9 mV	19.51 ft	400.00 ml/min
9/12/2024 5:20 PM	01:01:12	7.24 pH	13.69 °C	1.35 mS/cm	0.01 mg/L	8.78 NTU	-160.3 mV	19.51 ft	400.00 ml/min
9/12/2024 5:22 PM	01:03:18	7.25 pH	13.46 °C	1.36 mS/cm	0.01 mg/L	4.50 NTU	-161.0 mV	19.51 ft	400.00 ml/min
9/12/2024 5:24 PM	01:05:24	7.25 pH	13.59 °C	1.36 mS/cm	0.01 mg/L	4.44 NTU	-161.3 mV	19.51 ft	400.00 ml/min
9/12/2024 5:26 PM	01:07:30	7.25 pH	13.47 °C	1.36 mS/cm	0.01 mg/L	6.30 NTU	-161.8 mV	19.51 ft	400.00 ml/min

Samples

Sample ID:	Description:
MW1R-GW-0924	Appendices iii and iv

Low-Flow Test Report:

Test Date / Time: 9/12/2024 6:22:35 PM

Project: Neal North MW-3R

Operator Name: Riley Reece

Location Name: MW-3R Well Diameter: 2 in Screen Length: 25 ft Top of Screen: 11.64 ft Total Depth: 36.6 ft Initial Depth to Water: 1717 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 34 ft Pump Intake From TOC: 36 ft Estimated Total Volume Pumped: 300846.656 ml Flow Cell Volume: 130 ml Final Flow Rate: 400 ml/min Final Draw Down: -1699.76 ft	Instrument Used: Aqua TROLL 600 Serial Number: 955645
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Test Notes:

Sample time: 0715 on 9/13

Stabilized on 9/12

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
9/12/2024 6:22 PM	00:00	7.15 pH	14.74 °C	1.27 mS/cm	2.27 mg/L	19.95 NTU	-134.0 mV	17.17 ft	400.00 ml/min
9/12/2024 6:22 PM	00:21	7.15 pH	13.55 °C	1.29 mS/cm	1.75 mg/L	254.23 NTU	-136.4 mV	17.17 ft	400.00 ml/min
9/12/2024 6:25 PM	02:27	7.15 pH	13.29 °C	1.29 mS/cm	1.17 mg/L	270.26 NTU	-138.7 mV	17.17 ft	400.00 ml/min
9/12/2024 6:27 PM	04:33	7.14 pH	13.26 °C	1.29 mS/cm	1.04 mg/L	31.22 NTU	-138.8 mV	17.17 ft	400.00 ml/min
9/12/2024 6:29 PM	06:39	7.13 pH	12.94 °C	1.30 mS/cm	1.00 mg/L	46.84 NTU	-138.5 mV	17.17 ft	400.00 ml/min
9/12/2024 6:31 PM	08:45	7.12 pH	13.04 °C	1.30 mS/cm	0.95 mg/L	55.63 NTU	-138.2 mV	17.17 ft	400.00 ml/min
9/12/2024 6:33 PM	10:51	7.10 pH	12.97 °C	1.29 mS/cm	0.94 mg/L	32.64 NTU	-137.6 mV	17.17 ft	400.00 ml/min
9/12/2024 6:35 PM	12:57	7.10 pH	12.92 °C	1.29 mS/cm	0.93 mg/L	30.83 NTU	-137.4 mV	17.17 ft	400.00 ml/min
9/12/2024 6:37 PM	15:03	7.09 pH	13.03 °C	1.28 mS/cm	0.92 mg/L	29.56 NTU	-136.8 mV	17.17 ft	400.00 ml/min
9/12/2024 6:39 PM	17:09	7.08 pH	12.87 °C	1.28 mS/cm	0.91 mg/L	28.21 NTU	-136.7 mV	17.17 ft	400.00 ml/min
9/12/2024 6:41 PM	19:15	7.08 pH	12.95 °C	1.28 mS/cm	0.91 mg/L	12.52 NTU	-136.3 mV	17.17 ft	400.00 ml/min
9/12/2024 6:43 PM	21:21	7.07 pH	12.98 °C	1.27 mS/cm	0.91 mg/L	10.76 NTU	-136.1 mV	17.17 ft	400.00 ml/min
9/12/2024 6:46 PM	23:27	7.07 pH	12.85 °C	1.27 mS/cm	0.90 mg/L	12.81 NTU	-136.1 mV	17.24 ft	400.00 ml/min

9/12/2024 6:48 PM	25:33	7.07 pH	12.93 °C	1.27 mS/cm	0.89 mg/L	9.83 NTU	-136.1 mV	17.24 ft	400.00 ml/min
9/12/2024 6:50 PM	27:39	7.07 pH	12.84 °C	1.27 mS/cm	0.93 mg/L	28.24 NTU	-135.8 mV	17.24 ft	400.00 ml/min
9/12/2024 6:52 PM	29:45	7.08 pH	12.98 °C	1.26 mS/cm	1.52 mg/L	44.28 NTU	-133.5 mV	17.24 ft	400.00 ml/min
9/12/2024 6:54 PM	31:51	7.07 pH	12.99 °C	1.26 mS/cm	0.59 mg/L	15.03 NTU	-136.5 mV	17.24 ft	400.00 ml/min
9/12/2024 6:56 PM	33:57	7.07 pH	12.88 °C	1.25 mS/cm	0.60 mg/L	20.60 NTU	-137.5 mV	17.24 ft	400.00 ml/min
9/12/2024 6:58 PM	36:03	7.07 pH	12.92 °C	1.25 mS/cm	0.62 mg/L	88.59 NTU	-137.9 mV	17.24 ft	400.00 ml/min
9/12/2024 7:00 PM	38:09	7.07 pH	12.90 °C	1.25 mS/cm	0.61 mg/L	16.75 NTU	-138.1 mV	17.24 ft	400.00 ml/min
9/12/2024 7:02 PM	40:15	7.08 pH	12.86 °C	1.25 mS/cm	0.56 mg/L	15.14 NTU	-138.9 mV	17.24 ft	400.00 ml/min
9/12/2024 7:04 PM	42:21	7.08 pH	12.92 °C	1.24 mS/cm	0.64 mg/L	8.20 NTU	-138.9 mV	17.24 ft	400.00 ml/min
9/12/2024 7:07 PM	44:27	7.09 pH	12.87 °C	1.24 mS/cm	0.64 mg/L	14.83 NTU	-138.9 mV	17.24 ft	400.00 ml/min
9/12/2024 7:09 PM	46:33	7.10 pH	12.89 °C	1.24 mS/cm	0.59 mg/L	28.64 NTU	-139.5 mV	17.24 ft	400.00 ml/min
9/12/2024 7:11 PM	48:39	7.10 pH	12.93 °C	1.24 mS/cm	0.60 mg/L	11.06 NTU	-139.8 mV	17.24 ft	400.00 ml/min
9/12/2024 7:13 PM	50:45	7.11 pH	12.84 °C	1.24 mS/cm	0.61 mg/L	18.67 NTU	-140.2 mV	17.24 ft	400.00 ml/min
9/12/2024 7:15 PM	52:51	7.12 pH	12.91 °C	1.23 mS/cm	0.60 mg/L	20.60 NTU	-140.6 mV	17.24 ft	400.00 ml/min
9/12/2024 7:17 PM	54:57	7.13 pH	12.91 °C	1.23 mS/cm	0.59 mg/L	33.70 NTU	-140.8 mV	17.24 ft	400.00 ml/min
9/12/2024 7:19 PM	57:03	7.14 pH	12.83 °C	1.23 mS/cm	0.56 mg/L	17.39 NTU	-141.6 mV	17.24 ft	400.00 ml/min
9/12/2024 7:21 PM	59:09	7.15 pH	12.88 °C	1.23 mS/cm	0.58 mg/L	26.96 NTU	-141.9 mV	17.24 ft	400.00 ml/min
9/12/2024 7:23 PM	01:01:15	7.16 pH	12.81 °C	1.23 mS/cm	0.60 mg/L	49.47 NTU	-142.2 mV	17.24 ft	400.00 ml/min
9/12/2024 7:28 PM	01:06:22	7.20 pH	14.53 °C	1.22 mS/cm	1.89 mg/L	28.69 NTU	-134.0 mV	17.24 ft	400.00 ml/min
9/12/2024 7:31 PM	01:08:28	7.23 pH	12.98 °C	1.22 mS/cm	0.14 mg/L	0.83 NTU	-144.8 mV	17.24 ft	400.00 ml/min
9/12/2024 7:33 PM	01:10:34	7.23 pH	12.96 °C	1.22 mS/cm	0.05 mg/L	3.25 NTU	-148.4 mV	17.24 ft	400.00 ml/min
9/12/2024 7:35 PM	01:12:40	7.23 pH	12.96 °C	1.22 mS/cm	0.03 mg/L	1.70 NTU	-150.7 mV	17.24 ft	400.00 ml/min
9/13/2024 6:54 AM	12:32:07	8.28 pH	16.76 °C	0.00 mS/cm	9.36 mg/L	0.37 NTU	18.7 mV	17.24 ft	400.00 ml/min

Samples

Sample ID:	Description:
MW3R-GW-0924	Appendices iii and iv

Low-Flow Test Report:

Test Date / Time: 9/12/2024 6:21:55 PM

Project: Neal North MW-5R

Operator Name: Paige Richards

Location Name: MW-5R Well Diameter: 2 in Casing Type: PVC Screen Length: 25 ft Top of Screen: 11.64 ft Total Depth: 36.7 ft Initial Depth to Water: 21.04 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 32.4 ft Pump Intake From TOC: 34.4 ft Estimated Total Volume Pumped: 3125 ml Flow Cell Volume: 130 ml Final Flow Rate: 300 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Serial Number: 876572
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Test Notes:

Sample time: 1850

Water visually clear

Weather Conditions:

Sunny, 83 degrees F

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
9/12/2024 6:21 PM	00:00	6.98 pH	15.70 °C	1.18 mS/cm	2.07 mg/L	25.81 NTU	-154.9 mV	21.04 ft	300.00 ml/min
9/12/2024 6:24 PM	02:05	6.99 pH	14.90 °C	1.20 mS/cm	0.54 mg/L	10.37 NTU	-158.4 mV	21.04 ft	300.00 ml/min
9/12/2024 6:26 PM	04:10	7.01 pH	14.61 °C	1.21 mS/cm	0.34 mg/L	15.35 NTU	-158.7 mV	21.04 ft	300.00 ml/min
9/12/2024 6:28 PM	06:15	7.01 pH	14.35 °C	1.22 mS/cm	0.26 mg/L	8.25 NTU	-159.3 mV	21.04 ft	300.00 ml/min
9/12/2024 6:30 PM	08:20	7.00 pH	14.27 °C	1.22 mS/cm	0.24 mg/L	7.84 NTU	-160.3 mV	21.04 ft	300.00 ml/min
9/12/2024 6:32 PM	10:25	7.04 pH	14.15 °C	1.24 mS/cm	0.22 mg/L	3.77 NTU	-160.1 mV	21.04 ft	300.00 ml/min

Samples

Sample ID:	Description:
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MW05R-GW-0924

1L plastic w/ nitric x2
1L plastic unpreserved x1
250mL plastic w/ nitric x1
250mL plastic unpreserved x1

Low-Flow Test Report:

Test Date / Time: 9/11/2024 8:10:43 AM

Project: Neal North MW-13R

Operator Name: Riley Reece

Location Name: MW-13R Well Diameter: 2 in Screen Length: 15 ft Top of Screen: 23.2 ft Total Depth: 38.2 ft Initial Depth to Water: 27.41 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 35.7 ft Pump Intake From TOC: 37.7 ft Estimated Total Volume Pumped: 5793.333 ml Flow Cell Volume: 130 ml Final Flow Rate: 400 ml/min Final Draw Down: 0.03 ft	Instrument Used: Aqua TROLL 600 Serial Number: 955645
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Test Notes:

Sample time: 0900

ms/msd was collected

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
9/11/2024 8:10 AM	00:00	6.97 pH	12.33 °C	1.01 mS/cm	0.53 mg/L	22.11 NTU	-148.3 mV	27.41 ft	400.00 ml/min
9/11/2024 8:12 AM	02:07	6.98 pH	12.34 °C	1.00 mS/cm	0.43 mg/L	16.96 NTU	-143.6 mV	27.41 ft	400.00 ml/min
9/11/2024 8:14 AM	04:14	6.99 pH	12.28 °C	1.00 mS/cm	0.40 mg/L	9.68 NTU	-142.3 mV	27.41 ft	400.00 ml/min
9/11/2024 8:17 AM	06:21	6.99 pH	12.28 °C	1.01 mS/cm	0.39 mg/L	7.04 NTU	-140.2 mV	27.41 ft	400.00 ml/min
9/11/2024 8:19 AM	08:28	7.00 pH	12.30 °C	1.00 mS/cm	0.36 mg/L	6.62 NTU	-138.9 mV	27.44 ft	400.00 ml/min
9/11/2024 8:20 AM	10:15	7.00 pH	12.31 °C	1.00 mS/cm	0.36 mg/L	5.17 NTU	-136.8 mV	27.44 ft	400.00 ml/min
9/11/2024 8:23 AM	12:22	7.00 pH	12.28 °C	1.00 mS/cm	0.36 mg/L	5.13 NTU	-135.1 mV	27.44 ft	400.00 ml/min
9/11/2024 8:25 AM	14:29	7.01 pH	12.31 °C	1.00 mS/cm	0.35 mg/L	4.32 NTU	-135.0 mV	27.44 ft	400.00 ml/min

Samples

Sample ID:	Description:
MW13R-GW-0924	Appendices iii and iv

Low-Flow Test Report:

Test Date / Time: 9/13/2024 7:09:14 AM

Project: Neal North MW-19

Operator Name: Paige Richards

Location Name: MW-19 Well Diameter: 2 in Casing Type: PVC Screen Length: 15 ft Top of Screen: 18.6 ft Total Depth: 33.6 ft Initial Depth to Water: 13.01 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 22.6 ft Pump Intake From TOC: 24.6 ft Estimated Total Volume Pumped: 4530 ml Flow Cell Volume: 130 ml Final Flow Rate: 100 ml/min Final Draw Down: 3.95 ft	Instrument Used: Aqua TROLL 600 Serial Number: 809048
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Test Notes:

Sample time: 0830

Water visually clear

Weather Conditions:

Sunny, 59 degrees F

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
9/13/2024 7:09 AM	00:00	6.32 pH	14.49 °C	2.76 mS/cm	6.31 mg/L	7.03 NTU	96.6 mV	13.01 ft	300.00 ml/min
9/13/2024 7:11 AM	01:58	6.16 pH	13.15 °C	3.31 mS/cm	0.29 mg/L	2.90 NTU	40.3 mV	13.01 ft	300.00 ml/min
9/13/2024 7:13 AM	03:56	6.20 pH	12.95 °C	3.06 mS/cm	0.13 mg/L	11.85 NTU	15.5 mV	14.78 ft	300.00 ml/min
9/13/2024 7:15 AM	05:54	6.24 pH	12.81 °C	2.84 mS/cm	0.09 mg/L	21.39 NTU	1.0 mV	14.78 ft	300.00 ml/min
9/13/2024 7:17 AM	07:52	6.26 pH	13.13 °C	2.74 mS/cm	0.13 mg/L	32.49 NTU	2.3 mV	15.56 ft	125.00 ml/min
9/13/2024 7:19 AM	09:50	6.26 pH	13.26 °C	2.75 mS/cm	0.15 mg/L	51.09 NTU	4.0 mV	15.81 ft	125.00 ml/min
9/13/2024 7:21 AM	11:48	6.26 pH	13.29 °C	2.77 mS/cm	0.18 mg/L	59.72 NTU	6.6 mV	15.81 ft	125.00 ml/min
9/13/2024 7:23 AM	13:46	6.27 pH	13.15 °C	2.73 mS/cm	0.17 mg/L	99.16 NTU	9.9 mV	15.81 ft	125.00 ml/min
9/13/2024 7:24 AM	15:44	6.29 pH	12.92 °C	2.48 mS/cm	0.12 mg/L	133.33 NTU	14.3 mV	16.52 ft	100.00 ml/min
9/13/2024 7:26 AM	17:42	6.30 pH	13.16 °C	2.41 mS/cm	0.12 mg/L	141.76 NTU	17.9 mV	16.52 ft	100.00 ml/min

9/13/2024 7:30 AM	21:42	6.23 pH	13.90 °C	2.78 mS/cm	1.82 mg/L	0.00 NTU	6.7 mV	16.52 ft	100.00 ml/min
9/13/2024 7:32 AM	23:40	6.31 pH	13.64 °C	2.79 mS/cm	0.44 mg/L	0.00 NTU	5.6 mV	16.52 ft	100.00 ml/min
9/13/2024 7:34 AM	25:38	6.32 pH	13.54 °C	2.79 mS/cm	0.30 mg/L	0.00 NTU	4.4 mV	16.87 ft	100.00 ml/min
9/13/2024 7:36 AM	27:36	6.32 pH	13.49 °C	2.82 mS/cm	0.26 mg/L	3.46 NTU	3.0 mV	16.96 ft	100.00 ml/min

Samples

Sample ID:	Description:
MW19-GW-0924	1L plastic w/ nitric x2 1L plastic unpreserved x1 250mL plastic w/ nitric x1 250mL plastic unpreserved x1

Low-Flow Test Report:

Test Date / Time: 9/13/2024 7:36:01 AM

Project: Neal North MW-21

Operator Name: Riley Reece

Location Name: MW-21 Well Diameter: 2 in Screen Length: 15 ft Top of Screen: 16.6 ft Total Depth: 31.6 ft Initial Depth to Water: 13.61 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 27.3 ft Pump Intake From TOC: 29.3 ft Estimated Total Volume Pumped: 8220 ml Flow Cell Volume: 130 ml Final Flow Rate: 400 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Serial Number: 955645
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Test Notes:

Sample time: 0810

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
9/13/2024 7:36 AM	00:00	6.54 pH	12.30 °C	2.44 mS/cm	1.84 mg/L	0.45 NTU	78.2 mV	13.61 ft	400.00 ml/min
9/13/2024 7:38 AM	02:01	6.52 pH	11.83 °C	2.45 mS/cm	0.86 mg/L	0.23 NTU	85.2 mV	13.61 ft	400.00 ml/min
9/13/2024 7:40 AM	04:02	6.53 pH	11.76 °C	2.43 mS/cm	0.75 mg/L	0.15 NTU	89.0 mV	13.61 ft	400.00 ml/min
9/13/2024 7:42 AM	06:03	6.55 pH	11.74 °C	2.29 mS/cm	0.80 mg/L	0.19 NTU	90.8 mV	13.61 ft	400.00 ml/min
9/13/2024 7:44 AM	08:04	6.63 pH	11.78 °C	1.99 mS/cm	1.21 mg/L	0.31 NTU	90.6 mV	13.61 ft	400.00 ml/min
9/13/2024 7:46 AM	10:05	6.67 pH	11.80 °C	1.87 mS/cm	1.34 mg/L	0.32 NTU	90.4 mV	13.61 ft	400.00 ml/min
9/13/2024 7:48 AM	12:06	6.76 pH	11.89 °C	1.55 mS/cm	1.52 mg/L	0.22 NTU	88.5 mV	13.61 ft	400.00 ml/min
9/13/2024 7:50 AM	14:07	6.82 pH	11.98 °C	1.44 mS/cm	1.33 mg/L	0.15 NTU	86.8 mV	13.61 ft	400.00 ml/min
9/13/2024 7:52 AM	16:08	6.83 pH	12.06 °C	1.42 mS/cm	1.88 mg/L	0.46 NTU	87.0 mV	13.61 ft	400.00 ml/min
9/13/2024 7:54 AM	18:09	6.84 pH	12.15 °C	1.40 mS/cm	2.58 mg/L	0.12 NTU	87.9 mV	13.61 ft	400.00 ml/min
9/13/2024 7:56 AM	20:10	6.85 pH	12.24 °C	1.40 mS/cm	2.47 mg/L	0.11 NTU	88.9 mV	16.99 ft	400.00 ml/min
9/13/2024 7:56 AM	20:33	6.85 pH	12.27 °C	1.40 mS/cm	2.41 mg/L	0.10 NTU	89.0 mV	13.61 ft	400.00 ml/min

Samples

Sample ID:	Description:
MW21-GW-0924	Appendices iii and iv

Low-Flow Test Report:

Test Date / Time: 9/10/2024 4:20:29 PM

Project: Neal North MW-27

Operator Name: Paige Richards

Location Name: MW-27 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 23.7 ft Total Depth: 33.7 ft Initial Depth to Water: 25.68 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 29.4 ft Pump Intake From TOC: 31.4 ft Estimated Total Volume Pumped: 6312.5 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 0.9 ft	Instrument Used: Aqua TROLL 600 Serial Number: 876572
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Test Notes:

Sample time: 1730

Water visually clear

Weather Conditions:

Sunny, 88 degrees F

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
9/10/2024 4:20 PM	00:00	7.04 pH	20.40 °C	1.12 mS/cm	7.00 mg/L	17.77 NTU	-58.7 mV	25.68 ft	250.00 ml/min
9/10/2024 4:22 PM	02:03	6.82 pH	14.37 °C	1.20 mS/cm	0.72 mg/L	3.21 NTU	-121.1 mV	25.68 ft	250.00 ml/min
9/10/2024 4:24 PM	04:06	6.83 pH	13.60 °C	1.20 mS/cm	0.29 mg/L	4.56 NTU	-126.0 mV	25.68 ft	250.00 ml/min
9/10/2024 4:26 PM	06:09	6.80 pH	13.40 °C	1.20 mS/cm	0.24 mg/L	4.61 NTU	-127.4 mV	25.68 ft	250.00 ml/min
9/10/2024 4:28 PM	08:12	6.83 pH	13.29 °C	1.20 mS/cm	0.21 mg/L	5.35 NTU	-128.6 mV	26.36 ft	250.00 ml/min
9/10/2024 4:30 PM	10:15	6.82 pH	13.05 °C	1.20 mS/cm	0.20 mg/L	7.23 NTU	-129.1 mV	26.36 ft	250.00 ml/min
9/10/2024 4:32 PM	12:18	6.82 pH	13.13 °C	1.20 mS/cm	0.20 mg/L	10.25 NTU	-129.7 mV	26.36 ft	250.00 ml/min
9/10/2024 4:34 PM	14:21	6.81 pH	13.07 °C	1.20 mS/cm	0.20 mg/L	10.90 NTU	-129.7 mV	26.36 ft	250.00 ml/min
9/10/2024 4:36 PM	16:24	6.82 pH	13.20 °C	1.20 mS/cm	0.20 mg/L	11.03 NTU	-130.0 mV	26.36 ft	250.00 ml/min
9/10/2024 4:38 PM	18:27	6.83 pH	13.27 °C	1.20 mS/cm	0.20 mg/L	9.49 NTU	-130.3 mV	26.54 ft	250.00 ml/min

9/10/2024 4:40 PM	20:30	6.82 pH	13.21 °C	1.20 mS/cm	0.19 mg/L	7.81 NTU	-130.8 mV	26.54 ft	250.00 ml/min
9/10/2024 4:41 PM	21:09	6.79 pH	13.24 °C	1.20 mS/cm	0.19 mg/L	6.66 NTU	-130.8 mV	26.54 ft	250.00 ml/min
9/10/2024 4:43 PM	23:12	6.80 pH	13.25 °C	1.20 mS/cm	0.18 mg/L	5.37 NTU	-131.3 mV	26.54 ft	250.00 ml/min
9/10/2024 4:45 PM	25:15	6.82 pH	13.25 °C	1.20 mS/cm	0.18 mg/L	1.80 NTU	-132.2 mV	26.58 ft	250.00 ml/min

Samples

Sample ID:	Description:
MW27-GW-0924	1L plastic w/ nitric x2 1L plastic unpreserved x1 250mL plastic w/ nitric x1 250mL plastic unpreserved x1
DP01-GW-0924	1L plastic w/ nitric x2 1L plastic unpreserved x1 250mL plastic w/ nitric x1 250mL plastic unpreserved x1

Low-Flow Test Report:

Test Date / Time: 9/10/2024 5:46:37 PM

Project: Neal North MW-29R

Operator Name: Riley Reece

Location Name: MW-29R Well Diameter: 2 in Casing Type: PVC Screen Length: 15 ft Top of Screen: 20.2 ft Total Depth: 35.2 ft Initial Depth to Water: 27.19 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 32.7 ft Pump Intake From TOC: 34.7 ft Estimated Total Volume Pumped: 5360.833 ml Flow Cell Volume: 130 ml Final Flow Rate: 350 ml/min Final Draw Down: 0.04 ft	Instrument Used: Aqua TROLL 600 Serial Number: 876572
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Test Notes:

Sample time: 18:20

Weather Conditions:

Sunny. 86 F

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
9/10/2024 5:46 PM	00:00	6.75 pH	15.67 °C	0.98 mS/cm	1.79 mg/L	30.94 NTU	-100.3 mV	27.19 ft	350.00 ml/min
9/10/2024 5:48 PM	02:05	6.83 pH	13.57 °C	0.97 mS/cm	0.56 mg/L	15.21 NTU	-107.1 mV	27.19 ft	350.00 ml/min
9/10/2024 5:50 PM	04:10	6.81 pH	13.26 °C	0.96 mS/cm	0.17 mg/L	52.14 NTU	-111.2 mV	27.19 ft	350.00 ml/min
9/10/2024 5:52 PM	06:15	6.83 pH	13.18 °C	0.97 mS/cm	0.15 mg/L	24.99 NTU	-112.4 mV	27.19 ft	350.00 ml/min
9/10/2024 5:54 PM	08:20	6.86 pH	12.82 °C	0.97 mS/cm	0.12 mg/L	8.92 NTU	-112.7 mV	27.23 ft	350.00 ml/min
9/10/2024 5:57 PM	10:25	6.86 pH	12.85 °C	1.02 mS/cm	0.11 mg/L	5.20 NTU	-113.3 mV	27.23 ft	350.00 ml/min
9/10/2024 5:59 PM	12:30	6.83 pH	12.85 °C	1.02 mS/cm	0.11 mg/L	2.56 NTU	-113.5 mV	27.23 ft	350.00 ml/min
9/10/2024 6:01 PM	14:35	6.84 pH	12.75 °C	1.03 mS/cm	0.11 mg/L	2.45 NTU	-113.6 mV	27.23 ft	350.00 ml/min
9/10/2024 6:01 PM	15:19	6.87 pH	12.78 °C	1.04 mS/cm	0.14 mg/L	4.80 NTU	-113.2 mV	27.23 ft	350.00 ml/min

Samples

Sample ID:	Description:
MW29R-GW-0924	Appendix 3 and 4

Low-Flow Test Report:

Test Date / Time: 9/10/2024 1:19:56 PM

Project: Neal North MW-223S

Operator Name: Paige Richards

Location Name: MW-223S Well Diameter: 2 in Casing Type: PVC Screen Length: 15 ft Top of Screen: 11.7 ft Total Depth: 26.7 ft Initial Depth to Water: 19.61 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 22.4 ft Pump Intake From TOC: 24.4 ft Estimated Total Volume Pumped: 11645.833 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 0.05 ft	Instrument Used: Aqua TROLL 600 Serial Number: 876572
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Test Notes:

Sample time: 1440

Water visually clear

Weather Conditions:

Sunny, windy, 83 degrees F

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
9/10/2024 1:19 PM	00:00	6.90 pH	18.88 °C	0.79 mS/cm	3.08 mg/L	145.77 NTU	-93.6 mV	19.61 ft	250.00 ml/min
9/10/2024 1:21 PM	01:55	6.95 pH	17.09 °C	0.76 mS/cm	0.24 mg/L	393.25 NTU	-88.2 mV	19.66 ft	250.00 ml/min
9/10/2024 1:23 PM	03:50	6.89 pH	16.25 °C	0.77 mS/cm	0.18 mg/L	301.58 NTU	-85.3 mV	19.66 ft	250.00 ml/min
9/10/2024 1:25 PM	05:45	6.89 pH	15.48 °C	0.77 mS/cm	0.16 mg/L	252.84 NTU	-80.3 mV	19.66 ft	250.00 ml/min
9/10/2024 1:27 PM	07:40	6.88 pH	15.53 °C	0.77 mS/cm	0.14 mg/L	129.87 NTU	-81.2 mV	19.66 ft	250.00 ml/min
9/10/2024 1:29 PM	09:35	6.88 pH	15.15 °C	0.78 mS/cm	0.12 mg/L	80.15 NTU	-79.5 mV	19.66 ft	250.00 ml/min
9/10/2024 1:31 PM	11:30	6.88 pH	14.95 °C	0.78 mS/cm	0.11 mg/L	67.86 NTU	-78.3 mV	19.66 ft	250.00 ml/min
9/10/2024 1:33 PM	13:25	6.81 pH	15.07 °C	0.80 mS/cm	0.11 mg/L	53.98 NTU	-77.0 mV	19.66 ft	250.00 ml/min
9/10/2024 1:35 PM	15:20	6.87 pH	14.83 °C	0.79 mS/cm	0.11 mg/L	43.32 NTU	-77.9 mV	19.66 ft	250.00 ml/min
9/10/2024 1:37 PM	17:15	6.88 pH	14.78 °C	0.84 mS/cm	0.10 mg/L	55.40 NTU	-77.4 mV	19.66 ft	250.00 ml/min

9/10/2024 1:39 PM	19:10	6.87 pH	14.76 °C	0.81 mS/cm	0.10 mg/L	38.70 NTU	-78.2 mV	19.66 ft	250.00 ml/min
9/10/2024 1:41 PM	21:05	6.85 pH	14.55 °C	0.82 mS/cm	0.10 mg/L	45.68 NTU	-76.7 mV	19.66 ft	250.00 ml/min
9/10/2024 1:42 PM	23:00	6.86 pH	14.63 °C	0.86 mS/cm	0.09 mg/L	21.60 NTU	-76.4 mV	19.66 ft	250.00 ml/min
9/10/2024 1:44 PM	24:55	6.86 pH	14.54 °C	0.81 mS/cm	0.09 mg/L	22.07 NTU	-79.2 mV	19.66 ft	250.00 ml/min
9/10/2024 1:46 PM	26:50	6.86 pH	14.38 °C	0.82 mS/cm	0.09 mg/L	52.79 NTU	-79.3 mV	19.66 ft	250.00 ml/min
9/10/2024 1:53 PM	33:10	6.94 pH	16.28 °C	0.91 mS/cm	3.53 mg/L	174.96 NTU	-72.0 mV	19.66 ft	250.00 ml/min
9/10/2024 1:55 PM	35:05	6.87 pH	14.30 °C	0.93 mS/cm	0.21 mg/L	33.43 NTU	-73.8 mV	19.66 ft	250.00 ml/min
9/10/2024 1:56 PM	37:00	6.86 pH	14.32 °C	0.93 mS/cm	0.12 mg/L	10.19 NTU	-78.0 mV	19.66 ft	250.00 ml/min
9/10/2024 1:58 PM	38:55	6.88 pH	14.26 °C	0.92 mS/cm	0.10 mg/L	10.49 NTU	-80.6 mV	19.66 ft	250.00 ml/min
9/10/2024 2:00 PM	40:50	6.86 pH	14.29 °C	0.94 mS/cm	0.10 mg/L	22.32 NTU	-78.6 mV	19.66 ft	250.00 ml/min
9/10/2024 2:02 PM	42:45	6.83 pH	14.39 °C	0.95 mS/cm	0.10 mg/L	9.91 NTU	-77.3 mV	19.66 ft	250.00 ml/min
9/10/2024 2:04 PM	44:40	6.86 pH	14.38 °C	0.96 mS/cm	0.09 mg/L	5.85 NTU	-78.9 mV	19.66 ft	250.00 ml/min
9/10/2024 2:06 PM	46:35	6.85 pH	14.27 °C	0.96 mS/cm	0.09 mg/L	4.21 NTU	-77.9 mV	19.66 ft	250.00 ml/min

Samples

Sample ID:	Description:
MW223S-GW-0924	1L plastic w/ nitric x2 1L plastic unpreserved x1 250mL plastic w/ nitric x2 250mL plastic unpreserved x1 40mL voa vials w/ sulfuric x3

Low-Flow Test Report:

Test Date / Time: 9/10/2024 2:12:25 PM

Project: Neal North MW-231SR

Operator Name: Thao Larson

Location Name: MW-231SR Well Diameter: 2 in Casing Type: PVC Screen Length: 15 ft Top of Screen: 14.07 ft Total Depth: 29.07 ft Initial Depth to Water: 20.7 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 26.57 ft Pump Intake From TOC: 28.57 ft Estimated Total Volume Pumped: 4033.333 ml Flow Cell Volume: 130 ml Final Flow Rate: 400 ml/min Final Draw Down: 0.03 ft	Instrument Used: Aqua TROLL 600 Serial Number: 955645
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Test Notes:

Sample time 1435

Weather Conditions:

Overcast 86°F

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
9/10/2024 2:12 PM	00:00	6.59 pH	15.12 °C	1.66 mS/cm	0.59 mg/L	154.35 NTU	30.6 mV	20.70 ft	400.00 ml/min
9/10/2024 2:14 PM	02:01	6.58 pH	14.47 °C	1.66 mS/cm	0.16 mg/L	53.91 NTU	7.2 mV	20.72 ft	400.00 ml/min
9/10/2024 2:16 PM	04:02	6.59 pH	14.37 °C	1.61 mS/cm	0.12 mg/L	17.79 NTU	-10.9 mV	20.72 ft	400.00 ml/min
9/10/2024 2:18 PM	06:03	6.60 pH	14.30 °C	1.59 mS/cm	0.12 mg/L	4.85 NTU	-22.8 mV	20.72 ft	400.00 ml/min
9/10/2024 2:20 PM	08:04	6.61 pH	14.29 °C	1.59 mS/cm	0.12 mg/L	2.27 NTU	-30.2 mV	20.72 ft	400.00 ml/min
9/10/2024 2:22 PM	10:05	6.62 pH	14.18 °C	1.57 mS/cm	0.11 mg/L	0.86 NTU	-33.4 mV	20.73 ft	400.00 ml/min

Samples

Sample ID:	Description:
MW231SR-GW-0924	MNA

Appendix B

Laboratory Analytical Reports



ANALYTICAL REPORT

PREPARED FOR

Attn: Kevin Armstrong
GHD Services Inc.
11228 Aurora Avenue
Des Moines, Iowa 50322-7905

Generated 4/19/2024 4:55:26 PM

JOB DESCRIPTION

MEC Neal North-Background
MEC Neal North-Background

JOB NUMBER

310-277134-1

Eurofins Cedar Falls

Job Notes

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(319)277-2401



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Case Narrative

Client: GHD Services Inc.
Project: MEC Neal North-Background

Job ID: 310-277134-1

Job ID: 310-277134-1

Eurofins Cedar Falls

Job Narrative 310-277134-1

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 3/20/2024 9:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were -0.1°C, 0.6°C, 1.8°C and 4.1°C.

HPLC/IC

Method 9056A_ORGFM_28D: The following samples were diluted due to the nature of the sample matrix: MW13R-GW-0324 (310-277134-1), MW27-GW-0324 (310-277134-2), MW29R-GW-0324 (310-277134-3) and DP01-GW-0324 (310-277134-6). Elevated reporting limits (RLs) are provided.

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.

Eurofins Cedar Falls

Case Narrative

Client: GHD Services Inc.
Project: MEC Neal North-Background

Job ID: 310-277134-1

Job ID: 310-277134-2

Eurofins Cedar Falls

Job Narrative 310-277134-2

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 3/20/2024 9:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were -0.1°C, 0.6°C, 1.8°C and 4.1°C.

Gas Flow Proportional Counter

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

Rad

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

Eurofins Cedar Falls

Case Narrative

Client: GHD Services Inc.
Project: MEC Neal North-Background

Job ID: 310-277134-1

Job ID: 310-277134-3

Eurofins Cedar Falls

Job Narrative 310-277134-3

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 3/20/2024 9:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were -0.1°C, 0.6°C, 1.8°C and 4.1°C.

HPLC/IC

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

Eurofins Cedar Falls

Sample Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-277134-1	MW13R-GW-0324	Water	03/18/24 16:45	03/20/24 09:20
310-277134-2	MW27-GW-0324	Water	03/18/24 18:00	03/20/24 09:20
310-277134-3	MW29R-GW-0324	Water	03/18/24 18:30	03/20/24 09:20
310-277134-4	MW223S-GW-0324	Water	03/19/24 09:55	03/20/24 09:20
310-277134-5	MW231SR-GW-0324	Water	03/19/24 09:20	03/20/24 09:20
310-277134-6	DP01-GW-0324	Water	03/18/24 00:00	03/20/24 09:20

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Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Client Sample ID: MW13R-GW-0324

Lab Sample ID: 310-277134-1

Date Collected: 03/18/24 16:45

Matrix: Water

Date Received: 03/20/24 09:20

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.26		5.00		mg/L			03/25/24 11:25	5
Fluoride	<1.00		1.00		mg/L			03/25/24 11:25	5
Sulfate	61.8		5.00		mg/L			03/25/24 11:25	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/21/24 10:00	03/21/24 21:00	1
Arsenic	0.0521		0.00200		mg/L		03/21/24 10:00	03/21/24 21:00	1
Barium	0.212		0.00200		mg/L		03/21/24 10:00	03/21/24 21:00	1
Beryllium	<0.00100		0.00100		mg/L		03/21/24 10:00	03/21/24 21:00	1
Boron	0.163		0.100		mg/L		03/21/24 10:00	03/21/24 21:00	1
Cadmium	<0.000200		0.000200		mg/L		03/21/24 10:00	03/21/24 21:00	1
Calcium	119		0.500		mg/L		03/21/24 10:00	03/21/24 21:00	1
Chromium	<0.00500		0.00500		mg/L		03/21/24 10:00	03/21/24 21:00	1
Cobalt	0.000733		0.000500		mg/L		03/21/24 10:00	03/21/24 21:00	1
Lithium	0.0884		0.0100		mg/L		03/21/24 10:00	03/21/24 21:00	1
Lead	<0.000500		0.000500		mg/L		03/21/24 10:00	03/21/24 21:00	1
Molybdenum	0.00413		0.00200		mg/L		03/21/24 10:00	03/21/24 21:00	1
Selenium	<0.00500		0.00500		mg/L		03/21/24 10:00	03/21/24 21:00	1
Thallium	<0.00100		0.00100		mg/L		03/21/24 10:00	03/21/24 21:00	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200	F2 F1	0.000200		mg/L		03/29/24 09:20	04/01/24 11:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	522		50.0		mg/L			03/20/24 20:05	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.3	HF	1.0		SU			03/20/24 12:23	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.340		0.177	0.180	1.00	0.204	pCi/L	03/22/24 09:33	04/17/24 09:03	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	96.6		30 - 110					03/22/24 09:33	04/17/24 09:03	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.669		0.369	0.374	1.00	0.523	pCi/L	03/22/24 09:38	04/16/24 12:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	96.6		30 - 110					03/22/24 09:38	04/16/24 12:11	1
Y Carrier	83.4		30 - 110					03/22/24 09:38	04/16/24 12:11	1

Eurofins Cedar Falls

Client Sample Results

Client: GHD Services Inc.
 Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Client Sample ID: MW13R-GW-0324

Lab Sample ID: 310-277134-1

Date Collected: 03/18/24 16:45

Matrix: Water

Date Received: 03/20/24 09:20

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.01		0.409	0.415	5.00	0.523	pCi/L		04/19/24 08:42	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Client Sample ID: MW27-GW-0324

Lab Sample ID: 310-277134-2

Date Collected: 03/18/24 18:00

Matrix: Water

Date Received: 03/20/24 09:20

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	17.3		5.00		mg/L			03/25/24 12:08	5
Fluoride	<1.00		1.00		mg/L			03/25/24 12:08	5
Sulfate	105		5.00		mg/L			03/25/24 12:08	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/21/24 10:00	03/21/24 21:11	1
Arsenic	0.0591		0.00200		mg/L		03/21/24 10:00	03/21/24 21:11	1
Barium	0.156		0.00200		mg/L		03/21/24 10:00	03/21/24 21:11	1
Beryllium	<0.00100		0.00100		mg/L		03/21/24 10:00	03/21/24 21:11	1
Boron	0.254		0.100		mg/L		03/21/24 10:00	03/21/24 21:11	1
Cadmium	<0.000200		0.000200		mg/L		03/21/24 10:00	03/21/24 21:11	1
Calcium	156		0.500		mg/L		03/21/24 10:00	03/21/24 21:11	1
Chromium	<0.00500		0.00500		mg/L		03/21/24 10:00	03/21/24 21:11	1
Cobalt	0.000537		0.000500		mg/L		03/21/24 10:00	03/21/24 21:11	1
Lithium	0.126		0.0100		mg/L		03/21/24 10:00	03/21/24 21:11	1
Lead	<0.000500		0.000500		mg/L		03/21/24 10:00	03/21/24 21:11	1
Molybdenum	<0.00200		0.00200		mg/L		03/21/24 10:00	03/21/24 21:11	1
Selenium	<0.00500		0.00500		mg/L		03/21/24 10:00	03/21/24 21:11	1
Thallium	<0.00100		0.00100		mg/L		03/21/24 10:00	03/21/24 21:11	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/29/24 09:20	04/01/24 11:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	704		50.0		mg/L			03/20/24 20:05	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.2	HF	1.0		SU			03/20/24 12:25	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.231		0.159	0.160	1.00	0.213	pCi/L	03/22/24 09:33	04/17/24 09:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	94.6		30 - 110					03/22/24 09:33	04/17/24 09:04	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	<0.577	U	0.366	0.368	1.00	0.577	pCi/L	03/22/24 09:38	04/16/24 12:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	94.6		30 - 110					03/22/24 09:38	04/16/24 12:12	1
Y Carrier	83.7		30 - 110					03/22/24 09:38	04/16/24 12:12	1

Eurofins Cedar Falls

Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Client Sample ID: MW27-GW-0324

Lab Sample ID: 310-277134-2

Date Collected: 03/18/24 18:00

Matrix: Water

Date Received: 03/20/24 09:20

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.650		0.399	0.401	5.00	0.577	pCi/L		04/19/24 08:42	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Client Sample ID: MW29R-GW-0324

Lab Sample ID: 310-277134-3

Date Collected: 03/18/24 18:30

Matrix: Water

Date Received: 03/20/24 09:20

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10.3		5.00		mg/L			03/25/24 12:22	5
Fluoride	<1.00		1.00		mg/L			03/25/24 12:22	5
Sulfate	109		5.00		mg/L			03/25/24 12:22	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/21/24 10:00	03/21/24 21:13	1
Arsenic	0.0311		0.00200		mg/L		03/21/24 10:00	03/21/24 21:13	1
Barium	0.228		0.00200		mg/L		03/21/24 10:00	03/21/24 21:13	1
Beryllium	<0.00100		0.00100		mg/L		03/21/24 10:00	03/21/24 21:13	1
Boron	0.166		0.100		mg/L		03/21/24 10:00	03/21/24 21:13	1
Cadmium	<0.000200		0.000200		mg/L		03/21/24 10:00	03/21/24 21:13	1
Calcium	166		0.500		mg/L		03/21/24 10:00	03/21/24 21:13	1
Chromium	<0.00500		0.00500		mg/L		03/21/24 10:00	03/21/24 21:13	1
Cobalt	0.00279		0.000500		mg/L		03/21/24 10:00	03/21/24 21:13	1
Lithium	0.103		0.0100		mg/L		03/21/24 10:00	03/21/24 21:13	1
Lead	<0.000500		0.000500		mg/L		03/21/24 10:00	03/21/24 21:13	1
Molybdenum	0.00200		0.00200		mg/L		03/21/24 10:00	03/21/24 21:13	1
Selenium	<0.00500		0.00500		mg/L		03/21/24 10:00	03/21/24 21:13	1
Thallium	<0.00100		0.00100		mg/L		03/21/24 10:00	03/21/24 21:13	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/29/24 09:20	04/01/24 11:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	698		50.0		mg/L			03/20/24 20:05	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.2	HF	1.0		SU			03/20/24 12:26	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.374		0.190	0.193	1.00	0.210	pCi/L	03/22/24 09:33	04/17/24 09:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	85.1		30 - 110					03/22/24 09:33	04/17/24 09:05	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.816		0.414	0.421	1.00	0.559	pCi/L	03/22/24 09:38	04/16/24 12:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	85.1		30 - 110					03/22/24 09:38	04/16/24 12:12	1
Y Carrier	77.8		30 - 110					03/22/24 09:38	04/16/24 12:12	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Client Sample ID: MW29R-GW-0324

Lab Sample ID: 310-277134-3

Date Collected: 03/18/24 18:30

Matrix: Water

Date Received: 03/20/24 09:20

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.19		0.456	0.463	5.00	0.559	pCi/L		04/19/24 08:42	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Client Sample ID: MW223S-GW-0324

Lab Sample ID: 310-277134-4

Date Collected: 03/19/24 09:55

Matrix: Water

Date Received: 03/20/24 09:20

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.64		1.00		mg/L			03/20/24 12:04	1
Nitrate as N	<0.200		0.200		mg/L			03/20/24 12:04	1
Fluoride	<0.200		0.200		mg/L			03/20/24 12:04	1
Sulfate	214		50.0		mg/L			03/21/24 14:36	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/21/24 10:00	03/21/24 21:16	1
Arsenic	0.0155		0.00200		mg/L		03/21/24 10:00	03/21/24 21:16	1
Barium	0.289		0.00200		mg/L		03/21/24 10:00	03/21/24 21:16	1
Beryllium	<0.00100		0.00100		mg/L		03/21/24 10:00	03/21/24 21:16	1
Boron	0.135		0.100		mg/L		03/21/24 10:00	03/21/24 21:16	1
Cadmium	<0.000200		0.000200		mg/L		03/21/24 10:00	03/21/24 21:16	1
Calcium	161		0.500		mg/L		03/21/24 10:00	03/21/24 21:16	1
Chromium	<0.00500		0.00500		mg/L		03/21/24 10:00	03/21/24 21:16	1
Cobalt	0.000913		0.000500		mg/L		03/21/24 10:00	03/21/24 21:16	1
Iron	6.17		0.100		mg/L		03/21/24 10:00	03/21/24 21:16	1
Lead	<0.000500		0.000500		mg/L		03/21/24 10:00	03/21/24 21:16	1
Lithium	0.0585		0.0100		mg/L		03/21/24 10:00	03/21/24 21:16	1
Manganese	4.14		0.0100		mg/L		03/21/24 10:00	03/21/24 21:16	1
Molybdenum	0.00228		0.00200		mg/L		03/21/24 10:00	03/21/24 21:16	1
Selenium	<0.00500		0.00500		mg/L		03/21/24 10:00	03/21/24 21:16	1
Thallium	<0.00100		0.00100		mg/L		03/21/24 10:00	03/21/24 21:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	5.76		0.100		mg/L		03/25/24 16:04	03/27/24 18:03	1
Manganese	4.39		0.0100		mg/L		03/25/24 16:04	03/27/24 18:03	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/29/24 09:20	04/01/24 11:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SW846 9060A)	3.00		1.00		mg/L			03/22/24 01:24	1
Total Dissolved Solids (SM 2540C)	702		50.0		mg/L			03/20/24 20:05	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.3	HF	1.0		SU			03/20/24 12:27	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	<0.202	U	0.0872	0.0872	1.00	0.202	pCi/L	03/22/24 09:33	04/17/24 09:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	93.6		30 - 110					03/22/24 09:33	04/17/24 09:06	1

Client Sample Results

Client: GHD Services Inc.
 Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Client Sample ID: MW223S-GW-0324

Lab Sample ID: 310-277134-4

Date Collected: 03/19/24 09:55

Matrix: Water

Date Received: 03/20/24 09:20

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	<0.538	U	0.337	0.339	1.00	0.538	pCi/L	03/22/24 09:38	04/16/24 12:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	93.6		30 - 110					03/22/24 09:38	04/16/24 12:12	1
Y Carrier	81.5		30 - 110					03/22/24 09:38	04/16/24 12:12	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	<0.538	U	0.348	0.350	5.00	0.538	pCi/L		04/19/24 08:42	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Client Sample ID: MW231SR-GW-0324

Lab Sample ID: 310-277134-5

Date Collected: 03/19/24 09:20

Matrix: Water

Date Received: 03/20/24 09:20

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10.2		1.00		mg/L			03/20/24 11:25	1
Nitrate as N	<0.200	F1	0.200		mg/L			03/20/24 11:25	1
Fluoride	<0.200		0.200		mg/L			03/20/24 11:25	1
Sulfate	287		50.0		mg/L			03/21/24 13:31	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/21/24 10:00	03/21/24 21:27	1
Arsenic	0.0112		0.00200		mg/L		03/21/24 10:00	03/21/24 21:27	1
Barium	0.218		0.00200		mg/L		03/21/24 10:00	03/21/24 21:27	1
Beryllium	<0.00100		0.00100		mg/L		03/21/24 10:00	03/21/24 21:27	1
Boron	0.227		0.100		mg/L		03/21/24 10:00	03/21/24 21:27	1
Cadmium	<0.000200		0.000200		mg/L		03/21/24 10:00	03/21/24 21:27	1
Calcium	216		0.500		mg/L		03/21/24 10:00	03/21/24 21:27	1
Chromium	<0.00500		0.00500		mg/L		03/21/24 10:00	03/21/24 21:27	1
Cobalt	0.00347		0.000500		mg/L		03/21/24 10:00	03/21/24 21:27	1
Iron	16.3		0.100		mg/L		03/21/24 10:00	03/21/24 21:27	1
Lead	<0.000500		0.000500		mg/L		03/21/24 10:00	03/21/24 21:27	1
Lithium	0.103		0.0100		mg/L		03/21/24 10:00	03/21/24 21:27	1
Manganese	1.88		0.0100		mg/L		03/21/24 10:00	03/21/24 21:27	1
Molybdenum	0.00248		0.00200		mg/L		03/21/24 10:00	03/21/24 21:27	1
Selenium	<0.00500		0.00500		mg/L		03/21/24 10:00	03/21/24 21:27	1
Thallium	<0.00100		0.00100		mg/L		03/21/24 10:00	03/21/24 21:27	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	13.0		0.100		mg/L		03/25/24 16:04	03/27/24 18:06	1
Manganese	1.76		0.0100		mg/L		03/25/24 16:04	03/27/24 18:06	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/29/24 09:20	04/01/24 11:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SW846 9060A)	3.14		1.00		mg/L			03/22/24 03:12	1
Total Dissolved Solids (SM 2540C)	898		50.0		mg/L			03/20/24 20:05	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.1	HF	1.0		SU			03/20/24 12:28	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.345		0.188	0.191	1.00	0.235	pCi/L	03/22/24 09:33	04/17/24 09:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	98.5		30 - 110					03/22/24 09:33	04/17/24 09:06	1

Client Sample Results

Client: GHD Services Inc.
 Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Client Sample ID: MW231SR-GW-0324

Lab Sample ID: 310-277134-5

Date Collected: 03/19/24 09:20

Matrix: Water

Date Received: 03/20/24 09:20

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.64		0.545	0.596	1.00	0.519	pCi/L	03/22/24 09:38	04/16/24 12:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	98.5		30 - 110					03/22/24 09:38	04/16/24 12:12	1
Y Carrier	86.7		30 - 110					03/22/24 09:38	04/16/24 12:12	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.98		0.577	0.626	5.00	0.519	pCi/L		04/19/24 08:42	1



Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Client Sample ID: DP01-GW-0324

Lab Sample ID: 310-277134-6

Date Collected: 03/18/24 00:00

Matrix: Water

Date Received: 03/20/24 09:20

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.43		5.00		mg/L			03/25/24 12:36	5
Fluoride	<1.00		1.00		mg/L			03/25/24 12:36	5
Sulfate	217		5.00		mg/L			03/25/24 12:36	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/21/24 10:00	03/21/24 21:29	1
Arsenic	0.0164		0.00200		mg/L		03/21/24 10:00	03/21/24 21:29	1
Barium	0.286		0.00200		mg/L		03/21/24 10:00	03/21/24 21:29	1
Beryllium	<0.00100		0.00100		mg/L		03/21/24 10:00	03/21/24 21:29	1
Boron	0.129		0.100		mg/L		03/21/24 10:00	03/21/24 21:29	1
Cadmium	<0.000200		0.000200		mg/L		03/21/24 10:00	03/21/24 21:29	1
Calcium	160		0.500		mg/L		03/21/24 10:00	03/21/24 21:29	1
Chromium	<0.00500		0.00500		mg/L		03/21/24 10:00	03/21/24 21:29	1
Cobalt	0.000901		0.000500		mg/L		03/21/24 10:00	03/21/24 21:29	1
Lithium	0.0575		0.0100		mg/L		03/21/24 10:00	03/21/24 21:29	1
Lead	<0.000500		0.000500		mg/L		03/21/24 10:00	03/21/24 21:29	1
Molybdenum	0.00238		0.00200		mg/L		03/21/24 10:00	03/21/24 21:29	1
Selenium	<0.00500		0.00500		mg/L		03/21/24 10:00	03/21/24 21:29	1
Thallium	<0.00100		0.00100		mg/L		03/21/24 10:00	03/21/24 21:29	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/29/24 09:20	04/01/24 11:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	698		50.0		mg/L			03/20/24 20:05	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.3	HF	1.0		SU			03/20/24 12:29	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-226	<0.258	U	0.156	0.156	1.00	0.258	pCi/L	03/22/24 09:33	04/17/24 09:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	98.7		30 - 110					03/22/24 09:33	04/17/24 09:19	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-228	<0.507	U	0.317	0.319	1.00	0.507	pCi/L	03/22/24 09:38	04/16/24 12:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	98.7		30 - 110					03/22/24 09:38	04/16/24 12:12	1
Y Carrier	83.7		30 - 110					03/22/24 09:38	04/16/24 12:12	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Client Sample ID: DP01-GW-0324

Lab Sample ID: 310-277134-6

Date Collected: 03/18/24 00:00

Matrix: Water

Date Received: 03/20/24 09:20

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	<0.507	U	0.353	0.355	5.00	0.507	pCi/L		04/19/24 08:42	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Qualifiers

HPLC/IC

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

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits

General Chemistry

Qualifier	Qualifier Description
HF	Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request. Sample was analyzed outside of hold time.

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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

QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-416727/3
Matrix: Water
Analysis Batch: 416727

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.200		0.200		mg/L			03/20/24 10:59	1

Lab Sample ID: LCS 310-416727/4
Matrix: Water
Analysis Batch: 416727

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	2.00	2.072		mg/L		104	90 - 110

Lab Sample ID: 310-277134-5 MS
Matrix: Water
Analysis Batch: 416727

Client Sample ID: MW231SR-GW-0324
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.2		5.00	14.48		mg/L		86	80 - 120
Nitrate as N	<0.200	F1	1.00	0.2319	F1	mg/L		23	80 - 120
Fluoride	<0.200		1.00	1.026		mg/L		103	80 - 120

Lab Sample ID: 310-277134-5 MS
Matrix: Water
Analysis Batch: 416727

Client Sample ID: MW231SR-GW-0324
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	287		250	541.0		mg/L		102	80 - 120

Lab Sample ID: 310-277134-5 MSD
Matrix: Water
Analysis Batch: 416727

Client Sample ID: MW231SR-GW-0324
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	10.2		5.00	14.55		mg/L		88	80 - 120	0	15
Nitrate as N	<0.200	F1	1.00	0.2399	F1	mg/L		24	80 - 120	3	15
Fluoride	<0.200		1.00	1.043		mg/L		104	80 - 120	2	15

Lab Sample ID: 310-277134-5 MSD
Matrix: Water
Analysis Batch: 416727

Client Sample ID: MW231SR-GW-0324
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	287		250	543.8		mg/L		103	80 - 120	1	15

Lab Sample ID: MB 310-417010/3
Matrix: Water
Analysis Batch: 417010

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			03/25/24 10:57	1
Fluoride	<0.200		0.200		mg/L			03/25/24 10:57	1
Sulfate	<1.00		1.00		mg/L			03/25/24 10:57	1

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QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 310-417010/4
Matrix: Water
Analysis Batch: 417010

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	10.19		mg/L		102	90 - 110
Fluoride	2.00	2.194		mg/L		110	90 - 110
Sulfate	10.0	10.68		mg/L		107	90 - 110

Lab Sample ID: 310-277134-1 MS
Matrix: Water
Analysis Batch: 417010

Client Sample ID: MW13R-GW-0324
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	9.26		25.0	33.19		mg/L		96	80 - 120
Fluoride	<1.00		5.00	5.578		mg/L		112	80 - 120
Sulfate	61.8		25.0	84.59		mg/L		91	80 - 120

Lab Sample ID: 310-277134-1 MSD
Matrix: Water
Analysis Batch: 417010

Client Sample ID: MW13R-GW-0324
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	9.26		25.0	33.37		mg/L		96	80 - 120	1	15
Fluoride	<1.00		5.00	5.604		mg/L		112	80 - 120	0	15
Sulfate	61.8		25.0	84.40		mg/L		90	80 - 120	0	15

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-416518/1-A
Matrix: Water
Analysis Batch: 416699

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 416518

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/21/24 10:00	03/21/24 20:14	1
Arsenic	<0.00200		0.00200		mg/L		03/21/24 10:00	03/21/24 20:14	1
Barium	<0.00200		0.00200		mg/L		03/21/24 10:00	03/21/24 20:14	1
Beryllium	<0.00100		0.00100		mg/L		03/21/24 10:00	03/21/24 20:14	1
Boron	<0.100		0.100		mg/L		03/21/24 10:00	03/21/24 20:14	1
Cadmium	<0.000200		0.000200		mg/L		03/21/24 10:00	03/21/24 20:14	1
Calcium	<0.500		0.500		mg/L		03/21/24 10:00	03/21/24 20:14	1
Chromium	<0.00500		0.00500		mg/L		03/21/24 10:00	03/21/24 20:14	1
Cobalt	<0.000500		0.000500		mg/L		03/21/24 10:00	03/21/24 20:14	1
Iron	<0.100		0.100		mg/L		03/21/24 10:00	03/21/24 20:14	1
Lead	<0.000500		0.000500		mg/L		03/21/24 10:00	03/21/24 20:14	1
Lithium	<0.0100		0.0100		mg/L		03/21/24 10:00	03/21/24 20:14	1
Manganese	<0.0100		0.0100		mg/L		03/21/24 10:00	03/21/24 20:14	1
Molybdenum	<0.00200		0.00200		mg/L		03/21/24 10:00	03/21/24 20:14	1
Selenium	<0.00500		0.00500		mg/L		03/21/24 10:00	03/21/24 20:14	1
Thallium	<0.00100		0.00100		mg/L		03/21/24 10:00	03/21/24 20:14	1

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QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

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

Lab Sample ID: LCS 310-416518/2-A
Matrix: Water
Analysis Batch: 416699

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 416518

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Antimony	0.200	0.2055		mg/L		103	80 - 120
Arsenic	0.200	0.2129		mg/L		106	80 - 120
Barium	0.100	0.1012		mg/L		101	80 - 120
Beryllium	0.100	0.1030		mg/L		103	80 - 120
Boron	0.200	0.2101		mg/L		105	80 - 120
Cadmium	0.100	0.1024		mg/L		102	80 - 120
Calcium	2.00	1.830		mg/L		92	80 - 120
Chromium	0.100	0.1052		mg/L		105	80 - 120
Cobalt	0.100	0.1015		mg/L		101	80 - 120
Iron	0.200	0.2148		mg/L		107	80 - 120
Lead	0.200	0.2122		mg/L		106	80 - 120
Lithium	0.200	0.2117		mg/L		106	80 - 120
Manganese	0.100	0.09612		mg/L		96	80 - 120
Molybdenum	0.200	0.1988		mg/L		99	80 - 120
Selenium	0.400	0.3968		mg/L		99	80 - 120
Thallium	0.100	0.1082		mg/L		108	80 - 120

Lab Sample ID: 310-277134-1 MS
Matrix: Water
Analysis Batch: 416699

Client Sample ID: MW13R-GW-0324
Prep Type: Total/NA
Prep Batch: 416518

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Antimony	<0.00200		0.200	0.2136		mg/L		107	75 - 125
Arsenic	0.0521		0.200	0.2673		mg/L		108	75 - 125
Barium	0.212		0.100	0.3159		mg/L		104	75 - 125
Beryllium	<0.00100		0.100	0.1077		mg/L		108	75 - 125
Boron	0.163		0.200	0.3314		mg/L		84	75 - 125
Cadmium	<0.000200		0.100	0.09870		mg/L		99	75 - 125
Calcium	119		2.00	120.6	4	mg/L		68	75 - 125
Chromium	<0.00500		0.100	0.1034		mg/L		103	75 - 125
Cobalt	0.000733		0.100	0.09945		mg/L		99	75 - 125
Lithium	0.0884		0.200	0.3001		mg/L		106	75 - 125
Lead	<0.000500		0.200	0.2106		mg/L		105	75 - 125
Molybdenum	0.00413		0.200	0.2062		mg/L		101	75 - 125
Selenium	<0.00500		0.400	0.3999		mg/L		100	75 - 125
Thallium	<0.00100		0.100	0.1128		mg/L		113	75 - 125

Lab Sample ID: 310-277134-1 MSD
Matrix: Water
Analysis Batch: 416699

Client Sample ID: MW13R-GW-0324
Prep Type: Total/NA
Prep Batch: 416518

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Antimony	<0.00200		0.200	0.2154		mg/L		108	75 - 125	1	20
Arsenic	0.0521		0.200	0.2700		mg/L		109	75 - 125	1	20
Barium	0.212		0.100	0.3171		mg/L		105	75 - 125	0	20
Beryllium	<0.00100		0.100	0.1074		mg/L		107	75 - 125	0	20
Boron	0.163		0.200	0.3383		mg/L		88	75 - 125	2	20
Cadmium	<0.000200		0.100	0.1002		mg/L		100	75 - 125	1	20
Calcium	119		2.00	119.5	4	mg/L		17	75 - 125	1	20

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QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

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

Lab Sample ID: 310-277134-1 MSD
Matrix: Water
Analysis Batch: 416699

Client Sample ID: MW13R-GW-0324
Prep Type: Total/NA
Prep Batch: 416518

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chromium	<0.00500		0.100	0.1040		mg/L		104	75 - 125	1	20
Cobalt	0.000733		0.100	0.09986		mg/L		99	75 - 125	0	20
Lithium	0.0884		0.200	0.3012		mg/L		106	75 - 125	0	20
Lead	<0.000500		0.200	0.2158		mg/L		108	75 - 125	2	20
Molybdenum	0.00413		0.200	0.2088		mg/L		102	75 - 125	1	20
Selenium	<0.00500		0.400	0.4044		mg/L		101	75 - 125	1	20
Thallium	<0.00100		0.100	0.1144		mg/L		114	75 - 125	1	20

Lab Sample ID: MB 310-416921/1-A
Matrix: Water
Analysis Batch: 417197

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 416921

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.100		0.100		mg/L		03/25/24 16:03	03/27/24 17:34	1
Manganese	<0.0100		0.0100		mg/L		03/25/24 16:03	03/27/24 17:34	1

Lab Sample ID: LCS 310-416921/2-A
Matrix: Water
Analysis Batch: 417197

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 416921

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Iron	0.200	0.2004		mg/L		100	80 - 120
Manganese	0.100	0.09612		mg/L		96	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-417320/1-A
Matrix: Water
Analysis Batch: 417517

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 417320

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/29/24 09:20	04/01/24 11:17	1

Lab Sample ID: LCS 310-417320/2-A
Matrix: Water
Analysis Batch: 417517

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 417320

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.001686		mg/L		101	80 - 120

Lab Sample ID: 310-277134-1 MS
Matrix: Water
Analysis Batch: 417517

Client Sample ID: MW13R-GW-0324
Prep Type: Total/NA
Prep Batch: 417320

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	<0.000200	F2 F1	0.00167	0.001470		mg/L		88	80 - 120

QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 310-277134-1 MSD
Matrix: Water
Analysis Batch: 417517

Client Sample ID: MW13R-GW-0324
Prep Type: Total/NA
Prep Batch: 417320

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	<0.000200	F2 F1	0.00167	0.001167	F2 F1	mg/L		70	80 - 120	23	20

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 310-416754/14
Matrix: Water
Analysis Batch: 416754

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<1.00		1.00		mg/L			03/21/24 16:23	1

Lab Sample ID: LCS 310-416754/15
Matrix: Water
Analysis Batch: 416754

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon	9.99	10.24		mg/L		103	85 - 115

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 310-416528/1
Matrix: Water
Analysis Batch: 416528

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<50.0		50.0		mg/L			03/20/24 20:05	1

Lab Sample ID: LCS 310-416528/2
Matrix: Water
Analysis Batch: 416528

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	904.0		mg/L		90	90 - 110

Lab Sample ID: 310-277134-1 DU
Matrix: Water
Analysis Batch: 416528

Client Sample ID: MW13R-GW-0324
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	522		500.0		mg/L		4	20

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-416408/1
Matrix: Water
Analysis Batch: 416408

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH	7.00	7.0		SU		101	98 - 102

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QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Method: SM 4500 H+ B - pH (Continued)

Lab Sample ID: 310-277134-1 DU
Matrix: Water
Analysis Batch: 416408

Client Sample ID: MW13R-GW-0324
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
pH	7.3	HF	7.3		SU		0.1	20

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-653564/1-A
Matrix: Water
Analysis Batch: 657403

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 653564

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	<0.244	U	0.142	0.142	1.00	0.244	pCi/L	03/22/24 09:33	04/17/24 07:52	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	102		30 - 110					03/22/24 09:33	04/17/24 07:52	1

Lab Sample ID: LCS 160-653564/2-A
Matrix: Water
Analysis Batch: 657403

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 653564

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226	11.3	9.732		1.19	1.00	0.213	pCi/L	86	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Barium	98.7		30 - 110						

Lab Sample ID: 310-277134-1 MS
Matrix: Water
Analysis Batch: 657398

Client Sample ID: MW13R-GW-0324
Prep Type: Total/NA
Prep Batch: 653564

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226	0.340		11.4	8.697		1.08	1.00	0.243	pCi/L	73	60 - 140
Carrier	MS %Yield	MS Qualifier	Limits								
Barium	101		30 - 110								

Lab Sample ID: 310-277134-1 MSD
Matrix: Water
Analysis Batch: 657398

Client Sample ID: MW13R-GW-0324
Prep Type: Total/NA
Prep Batch: 653564

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	Limit
Radium-226	0.340		11.2	9.858		1.19	1.00	0.227	pCi/L	85	60 - 140	0.51	1
Carrier	MSD %Yield	MSD Qualifier	Limits										
Barium	101		30 - 110										

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QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-653565/1-A
Matrix: Water
Analysis Batch: 657226

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 653565

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	<0.506	U	0.301	0.301	1.00	0.506	pCi/L	03/22/24 09:38	04/16/24 12:11	1
Carrier	MB %Yield	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac	
Barium	102		30 - 110				03/22/24 09:38	04/16/24 12:11	1	
Y Carrier	82.2		30 - 110				03/22/24 09:38	04/16/24 12:11	1	

Lab Sample ID: LCS 160-653565/2-A
Matrix: Water
Analysis Batch: 657226

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 653565

Analyte	Spike Added	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec Limits
		Result	Qual	Uncert. (2σ+/-)					
Radium-228	9.03	8.350		1.18	1.00	0.543	pCi/L	93	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Barium	98.7		30 - 110						
Y Carrier	82.6		30 - 110						

Lab Sample ID: 310-277134-1 MS
Matrix: Water
Analysis Batch: 657226

Client Sample ID: MW13R-GW-0324
Prep Type: Total/NA
Prep Batch: 653565

Analyte	Sample	Sample	Spike	MS	MS	Total	RL	MDC	Unit	%Rec	%Rec Limits
	Result	Qual	Added	Result	Qual	Uncert. (2σ+/-)					
Radium-228	0.669		9.09	9.570		1.27	1.00	0.428	pCi/L	98	60 - 140
Carrier	MS %Yield	MS Qualifier	Limits								
Barium	101		30 - 110								
Y Carrier	85.6		30 - 110								

Lab Sample ID: 310-277134-1 MSD
Matrix: Water
Analysis Batch: 657226

Client Sample ID: MW13R-GW-0324
Prep Type: Total/NA
Prep Batch: 653565

Analyte	Sample	Sample	Spike	MSD	MSD	Total	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
	Result	Qual	Added	Result	Qual	Uncert. (2σ+/-)							
Radium-228	0.669		8.95	10.05		1.32	1.00	0.495	pCi/L	105	60 - 140	0.18	1
Carrier	MSD %Yield	MSD Qualifier	Limits										
Barium	101		30 - 110										
Y Carrier	82.2		30 - 110										

QC Association Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

HPLC/IC

Analysis Batch: 416727

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277134-4	MW223S-GW-0324	Total/NA	Water	9056A	
310-277134-4	MW223S-GW-0324	Total/NA	Water	9056A	
310-277134-5	MW231SR-GW-0324	Total/NA	Water	9056A	
310-277134-5	MW231SR-GW-0324	Total/NA	Water	9056A	
MB 310-416727/3	Method Blank	Total/NA	Water	9056A	
LCS 310-416727/4	Lab Control Sample	Total/NA	Water	9056A	
310-277134-5 MS	MW231SR-GW-0324	Total/NA	Water	9056A	
310-277134-5 MS	MW231SR-GW-0324	Total/NA	Water	9056A	
310-277134-5 MSD	MW231SR-GW-0324	Total/NA	Water	9056A	
310-277134-5 MSD	MW231SR-GW-0324	Total/NA	Water	9056A	

Analysis Batch: 417010

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277134-1	MW13R-GW-0324	Total/NA	Water	9056A	
310-277134-2	MW27-GW-0324	Total/NA	Water	9056A	
310-277134-3	MW29R-GW-0324	Total/NA	Water	9056A	
310-277134-6	DP01-GW-0324	Total/NA	Water	9056A	
MB 310-417010/3	Method Blank	Total/NA	Water	9056A	
LCS 310-417010/4	Lab Control Sample	Total/NA	Water	9056A	
310-277134-1 MS	MW13R-GW-0324	Total/NA	Water	9056A	
310-277134-1 MSD	MW13R-GW-0324	Total/NA	Water	9056A	

Metals

Prep Batch: 416518

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277134-1	MW13R-GW-0324	Total/NA	Water	3005A	
310-277134-2	MW27-GW-0324	Total/NA	Water	3005A	
310-277134-3	MW29R-GW-0324	Total/NA	Water	3005A	
310-277134-4	MW223S-GW-0324	Total/NA	Water	3005A	
310-277134-5	MW231SR-GW-0324	Total/NA	Water	3005A	
310-277134-6	DP01-GW-0324	Total/NA	Water	3005A	
MB 310-416518/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-416518/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-277134-1 MS	MW13R-GW-0324	Total/NA	Water	3005A	
310-277134-1 MSD	MW13R-GW-0324	Total/NA	Water	3005A	

Analysis Batch: 416699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277134-1	MW13R-GW-0324	Total/NA	Water	6020B	416518
310-277134-2	MW27-GW-0324	Total/NA	Water	6020B	416518
310-277134-3	MW29R-GW-0324	Total/NA	Water	6020B	416518
310-277134-4	MW223S-GW-0324	Total/NA	Water	6020B	416518
310-277134-5	MW231SR-GW-0324	Total/NA	Water	6020B	416518
310-277134-6	DP01-GW-0324	Total/NA	Water	6020B	416518
MB 310-416518/1-A	Method Blank	Total/NA	Water	6020B	416518
LCS 310-416518/2-A	Lab Control Sample	Total/NA	Water	6020B	416518
310-277134-1 MS	MW13R-GW-0324	Total/NA	Water	6020B	416518
310-277134-1 MSD	MW13R-GW-0324	Total/NA	Water	6020B	416518

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QC Association Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Metals

Prep Batch: 416921

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277134-4	MW223S-GW-0324	Dissolved	Water	3005A	
310-277134-5	MW231SR-GW-0324	Dissolved	Water	3005A	
MB 310-416921/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-416921/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 417197

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277134-4	MW223S-GW-0324	Dissolved	Water	6020B	416921
310-277134-5	MW231SR-GW-0324	Dissolved	Water	6020B	416921
MB 310-416921/1-A	Method Blank	Total/NA	Water	6020B	416921
LCS 310-416921/2-A	Lab Control Sample	Total/NA	Water	6020B	416921

Prep Batch: 417320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277134-1	MW13R-GW-0324	Total/NA	Water	7470A	
310-277134-2	MW27-GW-0324	Total/NA	Water	7470A	
310-277134-3	MW29R-GW-0324	Total/NA	Water	7470A	
310-277134-4	MW223S-GW-0324	Total/NA	Water	7470A	
310-277134-5	MW231SR-GW-0324	Total/NA	Water	7470A	
310-277134-6	DP01-GW-0324	Total/NA	Water	7470A	
MB 310-417320/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-417320/2-A	Lab Control Sample	Total/NA	Water	7470A	
310-277134-1 MS	MW13R-GW-0324	Total/NA	Water	7470A	
310-277134-1 MSD	MW13R-GW-0324	Total/NA	Water	7470A	

Analysis Batch: 417517

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277134-1	MW13R-GW-0324	Total/NA	Water	7470A	417320
310-277134-2	MW27-GW-0324	Total/NA	Water	7470A	417320
310-277134-3	MW29R-GW-0324	Total/NA	Water	7470A	417320
310-277134-4	MW223S-GW-0324	Total/NA	Water	7470A	417320
310-277134-5	MW231SR-GW-0324	Total/NA	Water	7470A	417320
310-277134-6	DP01-GW-0324	Total/NA	Water	7470A	417320
MB 310-417320/1-A	Method Blank	Total/NA	Water	7470A	417320
LCS 310-417320/2-A	Lab Control Sample	Total/NA	Water	7470A	417320
310-277134-1 MS	MW13R-GW-0324	Total/NA	Water	7470A	417320
310-277134-1 MSD	MW13R-GW-0324	Total/NA	Water	7470A	417320

General Chemistry

Analysis Batch: 416408

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277134-1	MW13R-GW-0324	Total/NA	Water	SM 4500 H+ B	
310-277134-2	MW27-GW-0324	Total/NA	Water	SM 4500 H+ B	
310-277134-3	MW29R-GW-0324	Total/NA	Water	SM 4500 H+ B	
310-277134-4	MW223S-GW-0324	Total/NA	Water	SM 4500 H+ B	
310-277134-5	MW231SR-GW-0324	Total/NA	Water	SM 4500 H+ B	
310-277134-6	DP01-GW-0324	Total/NA	Water	SM 4500 H+ B	
LCS 310-416408/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-277134-1 DU	MW13R-GW-0324	Total/NA	Water	SM 4500 H+ B	

Eurofins Cedar Falls

QC Association Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

General Chemistry

Analysis Batch: 416528

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277134-1	MW13R-GW-0324	Total/NA	Water	SM 2540C	
310-277134-2	MW27-GW-0324	Total/NA	Water	SM 2540C	
310-277134-3	MW29R-GW-0324	Total/NA	Water	SM 2540C	
310-277134-4	MW223S-GW-0324	Total/NA	Water	SM 2540C	
310-277134-5	MW231SR-GW-0324	Total/NA	Water	SM 2540C	
310-277134-6	DP01-GW-0324	Total/NA	Water	SM 2540C	
MB 310-416528/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-416528/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-277134-1 DU	MW13R-GW-0324	Total/NA	Water	SM 2540C	

Analysis Batch: 416754

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277134-4	MW223S-GW-0324	Total/NA	Water	9060A	
310-277134-5	MW231SR-GW-0324	Total/NA	Water	9060A	
MB 310-416754/14	Method Blank	Total/NA	Water	9060A	
LCS 310-416754/15	Lab Control Sample	Total/NA	Water	9060A	

Rad

Prep Batch: 653564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277134-1	MW13R-GW-0324	Total/NA	Water	PrecSep-21	
310-277134-2	MW27-GW-0324	Total/NA	Water	PrecSep-21	
310-277134-3	MW29R-GW-0324	Total/NA	Water	PrecSep-21	
310-277134-4	MW223S-GW-0324	Total/NA	Water	PrecSep-21	
310-277134-5	MW231SR-GW-0324	Total/NA	Water	PrecSep-21	
310-277134-6	DP01-GW-0324	Total/NA	Water	PrecSep-21	
MB 160-653564/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-653564/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
310-277134-1 MS	MW13R-GW-0324	Total/NA	Water	PrecSep-21	
310-277134-1 MSD	MW13R-GW-0324	Total/NA	Water	PrecSep-21	

Prep Batch: 653565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277134-1	MW13R-GW-0324	Total/NA	Water	PrecSep_0	
310-277134-2	MW27-GW-0324	Total/NA	Water	PrecSep_0	
310-277134-3	MW29R-GW-0324	Total/NA	Water	PrecSep_0	
310-277134-4	MW223S-GW-0324	Total/NA	Water	PrecSep_0	
310-277134-5	MW231SR-GW-0324	Total/NA	Water	PrecSep_0	
310-277134-6	DP01-GW-0324	Total/NA	Water	PrecSep_0	
MB 160-653565/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-653565/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
310-277134-1 MS	MW13R-GW-0324	Total/NA	Water	PrecSep_0	
310-277134-1 MSD	MW13R-GW-0324	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Client Sample ID: MW13R-GW-0324

Lab Sample ID: 310-277134-1

Date Collected: 03/18/24 16:45

Matrix: Water

Date Received: 03/20/24 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	417010	QTZ5	EET CF	03/25/24 11:25
Total/NA	Prep	3005A			416518	QTZ5	EET CF	03/21/24 10:00
Total/NA	Analysis	6020B		1	416699	NFT2	EET CF	03/21/24 21:00
Total/NA	Prep	7470A			417320	A6US	EET CF	03/29/24 09:20
Total/NA	Analysis	7470A		1	417517	A6US	EET CF	04/01/24 11:32
Total/NA	Analysis	SM 2540C		1	416528	D7CP	EET CF	03/20/24 20:05
Total/NA	Analysis	SM 4500 H+ B		1	416408	W9YR	EET CF	03/20/24 12:23
Total/NA	Prep	PrecSep-21			653564	KAK	EET SL	03/22/24 09:33
Total/NA	Analysis	9315		1	657398	EMH	EET SL	04/17/24 09:03
Total/NA	Prep	PrecSep_0			653565	KAK	EET SL	03/22/24 09:38
Total/NA	Analysis	9320		1	657226	FLC	EET SL	04/16/24 12:11
Total/NA	Analysis	Ra226_Ra228		1	657675	FLC	EET SL	04/19/24 08:42

Client Sample ID: MW27-GW-0324

Lab Sample ID: 310-277134-2

Date Collected: 03/18/24 18:00

Matrix: Water

Date Received: 03/20/24 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	417010	QTZ5	EET CF	03/25/24 12:08
Total/NA	Prep	3005A			416518	QTZ5	EET CF	03/21/24 10:00
Total/NA	Analysis	6020B		1	416699	NFT2	EET CF	03/21/24 21:11
Total/NA	Prep	7470A			417320	A6US	EET CF	03/29/24 09:20
Total/NA	Analysis	7470A		1	417517	A6US	EET CF	04/01/24 11:39
Total/NA	Analysis	SM 2540C		1	416528	D7CP	EET CF	03/20/24 20:05
Total/NA	Analysis	SM 4500 H+ B		1	416408	W9YR	EET CF	03/20/24 12:25
Total/NA	Prep	PrecSep-21			653564	KAK	EET SL	03/22/24 09:33
Total/NA	Analysis	9315		1	657398	EMH	EET SL	04/17/24 09:04
Total/NA	Prep	PrecSep_0			653565	KAK	EET SL	03/22/24 09:38
Total/NA	Analysis	9320		1	657226	FLC	EET SL	04/16/24 12:12
Total/NA	Analysis	Ra226_Ra228		1	657675	FLC	EET SL	04/19/24 08:42

Client Sample ID: MW29R-GW-0324

Lab Sample ID: 310-277134-3

Date Collected: 03/18/24 18:30

Matrix: Water

Date Received: 03/20/24 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	417010	QTZ5	EET CF	03/25/24 12:22
Total/NA	Prep	3005A			416518	QTZ5	EET CF	03/21/24 10:00
Total/NA	Analysis	6020B		1	416699	NFT2	EET CF	03/21/24 21:13
Total/NA	Prep	7470A			417320	A6US	EET CF	03/29/24 09:20
Total/NA	Analysis	7470A		1	417517	A6US	EET CF	04/01/24 11:41
Total/NA	Analysis	SM 2540C		1	416528	D7CP	EET CF	03/20/24 20:05
Total/NA	Analysis	SM 4500 H+ B		1	416408	W9YR	EET CF	03/20/24 12:26

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Client Sample ID: MW29R-GW-0324

Lab Sample ID: 310-277134-3

Date Collected: 03/18/24 18:30

Matrix: Water

Date Received: 03/20/24 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			653564	KAK	EET SL	03/22/24 09:33
Total/NA	Analysis	9315		1	657398	EMH	EET SL	04/17/24 09:05
Total/NA	Prep	PrecSep_0			653565	KAK	EET SL	03/22/24 09:38
Total/NA	Analysis	9320		1	657226	FLC	EET SL	04/16/24 12:12
Total/NA	Analysis	Ra226_Ra228		1	657675	FLC	EET SL	04/19/24 08:42

Client Sample ID: MW223S-GW-0324

Lab Sample ID: 310-277134-4

Date Collected: 03/19/24 09:55

Matrix: Water

Date Received: 03/20/24 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	416727	QTZ5	EET CF	03/20/24 12:04
Total/NA	Analysis	9056A		50	416727	QTZ5	EET CF	03/21/24 14:36
Dissolved	Prep	3005A			416921	QTZ5	EET CF	03/25/24 16:04
Dissolved	Analysis	6020B		1	417197	NFT2	EET CF	03/27/24 18:03
Total/NA	Prep	3005A			416518	QTZ5	EET CF	03/21/24 10:00
Total/NA	Analysis	6020B		1	416699	NFT2	EET CF	03/21/24 21:16
Total/NA	Prep	7470A			417320	A6US	EET CF	03/29/24 09:20
Total/NA	Analysis	7470A		1	417517	A6US	EET CF	04/01/24 11:43
Total/NA	Analysis	9060A		1	416754	WZC8	EET CF	03/22/24 01:24
Total/NA	Analysis	SM 2540C		1	416528	D7CP	EET CF	03/20/24 20:05
Total/NA	Analysis	SM 4500 H+ B		1	416408	W9YR	EET CF	03/20/24 12:27
Total/NA	Prep	PrecSep-21			653564	KAK	EET SL	03/22/24 09:33
Total/NA	Analysis	9315		1	657398	EMH	EET SL	04/17/24 09:06
Total/NA	Prep	PrecSep_0			653565	KAK	EET SL	03/22/24 09:38
Total/NA	Analysis	9320		1	657226	FLC	EET SL	04/16/24 12:12
Total/NA	Analysis	Ra226_Ra228		1	657675	FLC	EET SL	04/19/24 08:42

Client Sample ID: MW231SR-GW-0324

Lab Sample ID: 310-277134-5

Date Collected: 03/19/24 09:20

Matrix: Water

Date Received: 03/20/24 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	416727	QTZ5	EET CF	03/20/24 11:25
Total/NA	Analysis	9056A		50	416727	QTZ5	EET CF	03/21/24 13:31
Dissolved	Prep	3005A			416921	QTZ5	EET CF	03/25/24 16:04
Dissolved	Analysis	6020B		1	417197	NFT2	EET CF	03/27/24 18:06
Total/NA	Prep	3005A			416518	QTZ5	EET CF	03/21/24 10:00
Total/NA	Analysis	6020B		1	416699	NFT2	EET CF	03/21/24 21:27
Total/NA	Prep	7470A			417320	A6US	EET CF	03/29/24 09:20
Total/NA	Analysis	7470A		1	417517	A6US	EET CF	04/01/24 11:45
Total/NA	Analysis	9060A		1	416754	WZC8	EET CF	03/22/24 03:12
Total/NA	Analysis	SM 2540C		1	416528	D7CP	EET CF	03/20/24 20:05
Total/NA	Analysis	SM 4500 H+ B		1	416408	W9YR	EET CF	03/20/24 12:28

Eurofins Cedar Falls

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Client Sample ID: MW231SR-GW-0324

Lab Sample ID: 310-277134-5

Date Collected: 03/19/24 09:20

Matrix: Water

Date Received: 03/20/24 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			653564	KAK	EET SL	03/22/24 09:33
Total/NA	Analysis	9315		1	657398	EMH	EET SL	04/17/24 09:06
Total/NA	Prep	PrecSep_0			653565	KAK	EET SL	03/22/24 09:38
Total/NA	Analysis	9320		1	657226	FLC	EET SL	04/16/24 12:12
Total/NA	Analysis	Ra226_Ra228		1	657675	FLC	EET SL	04/19/24 08:42

Client Sample ID: DP01-GW-0324

Lab Sample ID: 310-277134-6

Date Collected: 03/18/24 00:00

Matrix: Water

Date Received: 03/20/24 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	417010	QTZ5	EET CF	03/25/24 12:36
Total/NA	Prep	3005A			416518	QTZ5	EET CF	03/21/24 10:00
Total/NA	Analysis	6020B		1	416699	NFT2	EET CF	03/21/24 21:29
Total/NA	Prep	7470A			417320	A6US	EET CF	03/29/24 09:20
Total/NA	Analysis	7470A		1	417517	A6US	EET CF	04/01/24 11:47
Total/NA	Analysis	SM 2540C		1	416528	D7CP	EET CF	03/20/24 20:05
Total/NA	Analysis	SM 4500 H+ B		1	416408	W9YR	EET CF	03/20/24 12:29
Total/NA	Prep	PrecSep-21			653564	KAK	EET SL	03/22/24 09:33
Total/NA	Analysis	9315		1	657403	EMH	EET SL	04/17/24 09:19
Total/NA	Prep	PrecSep_0			653565	KAK	EET SL	03/22/24 09:38
Total/NA	Analysis	9320		1	657226	FLC	EET SL	04/16/24 12:12
Total/NA	Analysis	Ra226_Ra228		1	657675	FLC	EET SL	04/19/24 08:42

Laboratory References:

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

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6020B	3005A	Water	Lithium

Laboratory: Eurofins St. Louis

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	373	12-01-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
9315	PrecSep-21	Water	Radium-226
9320	PrecSep_0	Water	Radium-228
Ra226_Ra228		Water	Combined Radium 226 + 228

Method Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
7470A	Mercury (CVAA)	SW846	EET CF
9060A	Organic Carbon, Total (TOC)	SW846	EET CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CF
SM 4500 H+ B	pH	SM	EET CF
9315	Radium-226 (GFPC)	SW846	EET SL
9320	Radium-228 (GFPC)	SW846	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
3005A	Preparation, Total Metals	SW846	EET CF
7470A	Preparation, Mercury	SW846	EET CF
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

None = None

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

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

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

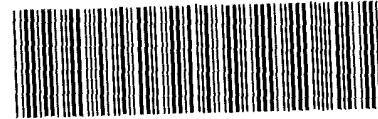
Laboratory References:

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

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



Environment Testing
America



310-277134 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>GHD</u>			
City/State:	CITY <u>Des Moines</u>	STATE <u>IA</u>	Project:
Receipt Information			
Date/Time Received:	DATE <u>3/20/24</u>	TIME <u>0900</u>	Received By: <u>J</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler ID: _____			
Multiple Coolers? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler # <u>1</u> of <u>4</u>			
Cooler Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Sample Custody Seals Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Trip Blank Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Which VOA samples are in cooler? ↓			
Temperature Record			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>X</u>		Correction Factor (°C): <u>TD</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>10.18</u>		Corrected Temp (°C): <u>10.18</u>	
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			





Environment Testing
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Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>GHD</u>			
City/State:	<u>Des Moines</u>	STATE <u>IA</u>	Project:
Receipt Information			
Date/Time Received:	DATE <u>3/20/24</u>	TIME <u>0900</u>	Received By: <u>J</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID:	
Multiple Coolers?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>2</u> of <u>4</u>	
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant:	<input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID: <u>X</u>	Correction Factor (°C): <u>TD</u>		
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>ADN 4.1</u>	Corrected Temp (°C): <u>ADN 4.1</u>		
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			





Environment Testing
America

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Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>GHD</u>			
City/State:	<u>Des Moines</u>	STATE: <u>IA</u>	Project:
Receipt Information			
Date/Time Received:	DATE: <u>3/20/24</u>	TIME: <u>0900</u>	Received By: <u>J</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID:	
Multiple Coolers?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>3</u> of <u>4</u>	
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant:	<input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID: <u>X</u>	Correction Factor (°C): <u>+0</u>		
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>-0.1</u>	Corrected Temp (°C): <u>-0.1</u>		
• Sample Container Temperature			
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE. If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			





Environment Testing
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Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>GHD</u>			
City/State:	<u>Des Moines</u>	STATE: <u>IA</u>	Project:
Receipt Information			
Date/Time Received:	DATE: <u>3/20/24</u>	TIME: <u>0920</u>	Received By: <u>J</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler ID: _____			
Multiple Coolers? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler # <u>4</u> of <u>4</u>			
Cooler Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Sample Custody Seals Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Trip Blank Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Which VOA samples are in cooler? ↓			
Temperature Record			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>X</u>		Correction Factor (°C): <u>TD</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>-24.06</u>		Corrected Temp (°C): <u>-24.06</u>	
• Sample Container Temperature			
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			



Client Information Client Contact: Kevin Armstrong Phone: 319-898-9031 E-Mail: zach.bindert@et.eurofins.com		Lab PM: Zach Bindert E-Mail: zach.bindert@et.eurofins.com		Carrier Tracking No(s): State of Origin: Iowa		COC No: Page: 1 of 1 Job #:	
Due Date Requested: TAT Requested (days): Standard		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No PO #: 340-017045 WO #: 12576482-003 01 Project #: 31017263 SSON#: 12576482-002		Field Filtered Sample (Yes or No)		Analysis Requested	
Address: 11228 Aurora Avenue City: Des Moines State, Zip: IA, 50322-7905 Phone: 515-414-3935 Email: Kevin.Armstrong@ghd.com Project Name: MEC Neal North-Background Site: Neal North CCR		Sample Date Sample Time Sample Type (C=comp, G=grab) Matrix (W=water, S=solid, O=wastewater, B=tissue, A=air)		Perform MS/MSD (Yes or No)		Preservation Codes M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 X - EDTA Y - Trizma Z - other (specify)	
Sample Identification MW13R-GW-0324 MW27-GW-0324 MW29R-GW-0324 MW223S-GW-0324 MW231SR-GW-0324 DP01-GW-0324		Sample Date Sample Time Sample Type (C=comp, G=grab) Matrix (W=water, S=solid, O=wastewater, B=tissue, A=air)		Field Filtered Sample (Yes or No)		Preservation Codes M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 X - EDTA Y - Trizma Z - other (specify)	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Date Date/Time		Method of Shipment:		Special Instructions/Note: Total Number of containers: 15 966A - TOC Duplicates 966B - Dissolved Fe and Mn (field-filtered) 966C - TOC Duplicates 966D - TOC Duplicates 966E - TOC Duplicates 966F - TOC Duplicates 966G - TOC Duplicates 966H - TOC Duplicates 966I - TOC Duplicates 966J - TOC Duplicates 966K - TOC Duplicates 966L - TOC Duplicates 966M - TOC Duplicates 966N - TOC Duplicates 966O - TOC Duplicates 966P - TOC Duplicates 966Q - TOC Duplicates 966R - TOC Duplicates 966S - TOC Duplicates 966T - TOC Duplicates 966U - TOC Duplicates 966V - TOC Duplicates 966W - TOC Duplicates 966X - TOC Duplicates 966Y - TOC Duplicates 966Z - TOC Duplicates	
Deliverable Requested I II III IV Other (specify)		Date/Time: 3/19/24 1730 Date/Time: 3/19/24 1730 Date/Time: 3/19/24 1730		Received by: GHD Company Received by: GHD Company Received by: GHD Company		Cooler Temperature(s) °C and Other Remarks:	
Empty Kit Relinquished by:		Date:		Method of Shipment:		Special Instructions/QC Requirements, Database Facility Code 11114642-GD-MidAmen	
Relinquished by:		Date/Time:		Received by:		Cooler Temperature(s) °C and Other Remarks:	
Relinquished by:		Date/Time:		Received by:		Cooler Temperature(s) °C and Other Remarks:	
Relinquished by:		Date/Time:		Received by:		Cooler Temperature(s) °C and Other Remarks:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Date/Time:		Received by:		Cooler Temperature(s) °C and Other Remarks:	



Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 310-277134-1

Login Number: 277134

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Homolar, Dana J

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	



Tracer/Carrier Summary

Client: GHD Services Inc.
 Project/Site: MEC Neal North-Background

Job ID: 310-277134-1

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)
310-277134-1	MW13R-GW-0324	96.6
310-277134-1 MS	MW13R-GW-0324	101
310-277134-1 MSD	MW13R-GW-0324	101
310-277134-2	MW27-GW-0324	94.6
310-277134-3	MW29R-GW-0324	85.1
310-277134-4	MW223S-GW-0324	93.6
310-277134-5	MW231SR-GW-0324	98.5
310-277134-6	DP01-GW-0324	98.7
LCS 160-653564/2-A	Lab Control Sample	98.7
MB 160-653564/1-A	Method Blank	102

Tracer/Carrier Legend

Ba = Barium

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)
310-277134-1	MW13R-GW-0324	96.6	83.4
310-277134-1 MS	MW13R-GW-0324	101	85.6
310-277134-1 MSD	MW13R-GW-0324	101	82.2
310-277134-2	MW27-GW-0324	94.6	83.7
310-277134-3	MW29R-GW-0324	85.1	77.8
310-277134-4	MW223S-GW-0324	93.6	81.5
310-277134-5	MW231SR-GW-0324	98.5	86.7
310-277134-6	DP01-GW-0324	98.7	83.7
LCS 160-653565/2-A	Lab Control Sample	98.7	82.6
MB 160-653565/1-A	Method Blank	102	82.2

Tracer/Carrier Legend

Ba = Barium

Y = Y Carrier

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ANALYTICAL REPORT

PREPARED FOR

Attn: Kevin Armstrong
GHD Services Inc.
11228 Aurora Avenue
Des Moines, Iowa 50322-7905

Generated 4/23/2024 7:09:26 AM

JOB DESCRIPTION

Neal North Closed CCR Monofill (IDNR)
MEC Neal North Closed Monofill

JOB NUMBER

310-277418-1

Eurofins Cedar Falls

Job Notes

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

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

Authorization



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Authorized for release by
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(319)277-2401



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Case Narrative

Client: GHD Services Inc.
Project: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Job ID: 310-277418-1

Eurofins Cedar Falls

Job Narrative 310-277418-1

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 3/22/2024 4:10 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 2.4°C and 2.9°C.

HPLC/IC

Method 9056A_ORGFM_28D: The following samples were diluted due to the nature of the sample matrix: MW01R-GW-0324 (310-277418-1), MW03R-GW-0324 (310-277418-2), MW05R-GW-0324 (310-277418-3), MW19-GW-0324 (310-277418-4) and MW21-GW-0324 (310-277418-5). Elevated reporting limits (RLs) are provided.

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.

Eurofins Cedar Falls

Case Narrative

Client: GHD Services Inc.
Project: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Job ID: 310-277418-2

Eurofins Cedar Falls

Job Narrative 310-277418-2

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 3/22/2024 4:10 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 2.4°C and 2.9°C.

Gas Flow Proportional Counter

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

Rad

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

Eurofins Cedar Falls

Sample Summary

Client: GHD Services Inc.
Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-277418-1	MW01R-GW-0324	Water	03/21/24 12:45	03/22/24 16:10
310-277418-2	MW03R-GW-0324	Water	03/20/24 19:50	03/22/24 16:10
310-277418-3	MW05R-GW-0324	Water	03/20/24 18:15	03/22/24 16:10
310-277418-4	MW19-GW-0324	Water	03/21/24 10:30	03/22/24 16:10
310-277418-5	MW21-GW-0324	Water	03/21/24 09:15	03/22/24 16:10
310-277418-6	DP05-GW-0324	Water	03/21/24 00:00	03/22/24 16:10

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Client Sample ID: MW01R-GW-0324

Lab Sample ID: 310-277418-1

Date Collected: 03/21/24 12:45

Matrix: Water

Date Received: 03/22/24 16:10

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	34.8		5.00		mg/L			03/25/24 21:03	5
Fluoride	<1.00		1.00		mg/L			03/25/24 21:03	5
Sulfate	218		5.00		mg/L			03/25/24 21:03	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/27/24 09:00	03/28/24 16:17	1
Arsenic	0.0922		0.00200		mg/L		03/27/24 09:00	03/28/24 16:17	1
Barium	0.110		0.00200		mg/L		03/27/24 09:00	03/28/24 16:17	1
Beryllium	<0.00100		0.00100		mg/L		03/27/24 09:00	03/28/24 16:17	1
Boron	0.333		0.100		mg/L		03/27/24 09:00	03/28/24 16:17	1
Cadmium	<0.000200		0.000200		mg/L		03/27/24 09:00	03/28/24 16:17	1
Calcium	155		0.500		mg/L		03/27/24 09:00	03/28/24 16:17	1
Chromium	<0.00500		0.00500		mg/L		03/27/24 09:00	03/28/24 16:17	1
Cobalt	<0.000500		0.000500		mg/L		03/27/24 09:00	03/28/24 16:17	1
Lithium	0.0734		0.0100		mg/L		03/27/24 09:00	03/28/24 16:17	1
Lead	<0.000500		0.000500		mg/L		03/27/24 09:00	03/28/24 16:17	1
Molybdenum	0.00456		0.00200		mg/L		03/27/24 09:00	03/28/24 16:17	1
Selenium	<0.00500		0.00500		mg/L		03/27/24 09:00	03/28/24 16:17	1
Thallium	<0.00100		0.00100		mg/L		03/27/24 09:00	03/28/24 16:17	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/29/24 09:07	04/01/24 10:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	902		50.0		mg/L			03/26/24 13:01	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	8.0	HF	1.0		SU			03/23/24 10:12	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	<0.434	U	0.274	0.275	1.00	0.434	pCi/L	03/27/24 08:44	04/19/24 09:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	91.3		30 - 110					03/27/24 08:44	04/19/24 09:19	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	<0.771	U	0.501	0.504	1.00	0.771	pCi/L	03/27/24 08:51	04/18/24 11:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	91.3		30 - 110					03/27/24 08:51	04/18/24 11:58	1
Y Carrier	78.1		30 - 110					03/27/24 08:51	04/18/24 11:58	1

Eurofins Cedar Falls

Client Sample Results

Client: GHD Services Inc.
Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Client Sample ID: MW01R-GW-0324

Lab Sample ID: 310-277418-1

Date Collected: 03/21/24 12:45

Matrix: Water

Date Received: 03/22/24 16:10

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.924		0.571	0.574	5.00	0.771	pCi/L		04/19/24 18:02	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Client Sample ID: MW03R-GW-0324

Lab Sample ID: 310-277418-2

Date Collected: 03/20/24 19:50

Matrix: Water

Date Received: 03/22/24 16:10

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.58		5.00		mg/L			03/25/24 21:17	5
Fluoride	<1.00		1.00		mg/L			03/25/24 21:17	5
Sulfate	180		5.00		mg/L			03/25/24 21:17	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/27/24 09:00	03/28/24 16:19	1
Arsenic	0.0468		0.00200		mg/L		03/27/24 09:00	03/28/24 16:19	1
Barium	0.296		0.00200		mg/L		03/27/24 09:00	03/28/24 16:19	1
Beryllium	<0.00100		0.00100		mg/L		03/27/24 09:00	03/28/24 16:19	1
Boron	0.400		0.100		mg/L		03/27/24 09:00	03/28/24 16:19	1
Cadmium	<0.000200		0.000200		mg/L		03/27/24 09:00	03/28/24 16:19	1
Calcium	141		0.500		mg/L		03/27/24 09:00	03/28/24 16:19	1
Chromium	<0.00500		0.00500		mg/L		03/27/24 09:00	03/28/24 16:19	1
Cobalt	<0.000500		0.000500		mg/L		03/27/24 09:00	03/28/24 16:19	1
Lithium	0.0856		0.0100		mg/L		03/27/24 09:00	03/28/24 16:19	1
Lead	<0.000500		0.000500		mg/L		03/27/24 09:00	03/28/24 16:19	1
Molybdenum	0.00218		0.00200		mg/L		03/27/24 09:00	03/28/24 16:19	1
Selenium	<0.00500		0.00500		mg/L		03/27/24 09:00	03/28/24 16:19	1
Thallium	<0.00100		0.00100		mg/L		03/27/24 09:00	03/28/24 16:19	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/29/24 09:07	04/01/24 10:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	742		50.0		mg/L			03/25/24 14:32	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	8.0	HF	1.0		SU			03/23/24 10:12	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.326		0.117	0.120	1.00	0.125	pCi/L	03/28/24 08:49	04/19/24 07:28	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	93.3		30 - 110					03/28/24 08:49	04/19/24 07:28	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	<0.549	U	0.351	0.353	1.00	0.549	pCi/L	03/28/24 08:54	04/11/24 12:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	93.3		30 - 110					03/28/24 08:54	04/11/24 12:16	1
Y Carrier	77.8		30 - 110					03/28/24 08:54	04/11/24 12:16	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Client Sample ID: MW03R-GW-0324

Lab Sample ID: 310-277418-2

Date Collected: 03/20/24 19:50

Matrix: Water

Date Received: 03/22/24 16:10

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.727		0.370	0.373	5.00	0.549	pCi/L		04/22/24 15:13	1

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Client Sample Results

Client: GHD Services Inc.
 Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Client Sample ID: MW05R-GW-0324

Lab Sample ID: 310-277418-3

Date Collected: 03/20/24 18:15

Matrix: Water

Date Received: 03/22/24 16:10

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11.4		5.00		mg/L			03/25/24 21:31	5
Fluoride	<1.00		1.00		mg/L			03/25/24 21:31	5
Sulfate	264		5.00		mg/L			03/25/24 21:31	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/27/24 09:00	03/28/24 16:24	1
Arsenic	0.0330		0.00200		mg/L		03/27/24 09:00	03/28/24 16:24	1
Barium	0.143		0.00200		mg/L		03/27/24 09:00	03/28/24 16:24	1
Beryllium	<0.00100		0.00100		mg/L		03/27/24 09:00	03/28/24 16:24	1
Boron	0.298		0.100		mg/L		03/27/24 09:00	03/28/24 16:24	1
Cadmium	<0.000200		0.000200		mg/L		03/27/24 09:00	03/28/24 16:24	1
Calcium	145		0.500		mg/L		03/27/24 09:00	03/28/24 16:24	1
Chromium	<0.00500		0.00500		mg/L		03/27/24 09:00	03/28/24 16:24	1
Cobalt	0.000662		0.000500		mg/L		03/27/24 09:00	03/28/24 16:24	1
Lithium	0.0734		0.0100		mg/L		03/27/24 09:00	03/28/24 16:24	1
Lead	<0.000500		0.000500		mg/L		03/27/24 09:00	03/28/24 16:24	1
Molybdenum	0.00361		0.00200		mg/L		03/27/24 09:00	03/28/24 16:24	1
Selenium	<0.00500		0.00500		mg/L		03/27/24 09:00	03/28/24 16:24	1
Thallium	<0.00100		0.00100		mg/L		03/27/24 09:00	03/28/24 16:24	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/29/24 09:07	04/01/24 10:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	868		50.0		mg/L			03/25/24 14:32	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	8.0	HF	1.0		SU			03/23/24 10:12	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.229		0.0985	0.101	1.00	0.113	pCi/L	03/28/24 08:49	04/19/24 07:28	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	98.8		30 - 110					03/28/24 08:49	04/19/24 07:28	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	<0.504	U	0.300	0.301	1.00	0.504	pCi/L	03/28/24 08:54	04/11/24 12:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	98.8		30 - 110					03/28/24 08:54	04/11/24 12:16	1
Y Carrier	84.5		30 - 110					03/28/24 08:54	04/11/24 12:16	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Client Sample ID: MW05R-GW-0324

Lab Sample ID: 310-277418-3

Date Collected: 03/20/24 18:15

Matrix: Water

Date Received: 03/22/24 16:10

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	<0.504	U	0.316	0.317	5.00	0.504	pCi/L		04/22/24 15:13	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Client Sample ID: MW19-GW-0324

Lab Sample ID: 310-277418-4

Date Collected: 03/21/24 10:30

Matrix: Water

Date Received: 03/22/24 16:10

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	16.8		5.00		mg/L			03/25/24 22:13	5
Fluoride	<1.00		1.00		mg/L			03/25/24 22:13	5
Sulfate	715		20.0		mg/L			03/26/24 09:41	20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/27/24 09:00	03/28/24 16:26	1
Arsenic	0.00458		0.00200		mg/L		03/27/24 09:00	03/28/24 16:26	1
Barium	0.0202		0.00200		mg/L		03/27/24 09:00	03/28/24 16:26	1
Beryllium	<0.00100		0.00100		mg/L		03/27/24 09:00	03/28/24 16:26	1
Boron	0.606		0.100		mg/L		03/27/24 09:00	03/28/24 16:26	1
Cadmium	<0.000200		0.000200		mg/L		03/27/24 09:00	03/28/24 16:26	1
Calcium	316		0.500		mg/L		03/27/24 09:00	03/28/24 16:26	1
Chromium	<0.00500		0.00500		mg/L		03/27/24 09:00	03/28/24 16:26	1
Cobalt	0.00755		0.000500		mg/L		03/27/24 09:00	03/28/24 16:26	1
Lithium	0.239		0.0100		mg/L		03/27/24 09:00	03/28/24 16:26	1
Lead	<0.000500		0.000500		mg/L		03/27/24 09:00	03/28/24 16:26	1
Molybdenum	<0.00200		0.00200		mg/L		03/27/24 09:00	03/28/24 16:26	1
Selenium	0.00932		0.00500		mg/L		03/27/24 09:00	03/28/24 16:26	1
Thallium	<0.00100		0.00100		mg/L		03/27/24 09:00	03/28/24 16:26	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/29/24 09:07	04/01/24 10:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1750		50.0		mg/L			03/26/24 13:01	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.8	HF	1.0		SU			03/23/24 10:12	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-226	<0.287	U	0.181	0.182	1.00	0.287	pCi/L	03/27/24 08:44	04/19/24 09:32	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	87.0		30 - 110					03/27/24 08:44	04/19/24 09:32	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-228	<0.570	U	0.353	0.354	1.00	0.570	pCi/L	03/27/24 08:51	04/18/24 11:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	87.0		30 - 110					03/27/24 08:51	04/18/24 11:58	1
Y Carrier	78.1		30 - 110					03/27/24 08:51	04/18/24 11:58	1

Client Sample Results

Client: GHD Services Inc.
 Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Client Sample ID: MW19-GW-0324

Lab Sample ID: 310-277418-4

Date Collected: 03/21/24 10:30

Matrix: Water

Date Received: 03/22/24 16:10

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	<0.570	U	0.397	0.398	5.00	0.570	pCi/L		04/19/24 18:02	1

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Client Sample Results

Client: GHD Services Inc.
 Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Client Sample ID: MW21-GW-0324

Lab Sample ID: 310-277418-5

Date Collected: 03/21/24 09:15

Matrix: Water

Date Received: 03/22/24 16:10

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6.98		5.00		mg/L			03/25/24 22:27	5
Fluoride	<1.00		1.00		mg/L			03/25/24 22:27	5
Sulfate	1590		50.0		mg/L			03/26/24 09:55	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/27/24 09:00	03/28/24 16:28	1
Arsenic	<0.00200		0.00200		mg/L		03/27/24 09:00	03/28/24 16:28	1
Barium	0.0133		0.00200		mg/L		03/27/24 09:00	03/28/24 16:28	1
Beryllium	<0.00100		0.00100		mg/L		03/27/24 09:00	03/28/24 16:28	1
Boron	0.366		0.100		mg/L		03/27/24 09:00	03/28/24 16:28	1
Cadmium	<0.000200		0.000200		mg/L		03/27/24 09:00	03/28/24 16:28	1
Calcium	510		2.00		mg/L		03/27/24 09:00	04/01/24 14:15	4
Chromium	<0.00500		0.00500		mg/L		03/27/24 09:00	03/28/24 16:28	1
Cobalt	<0.000500		0.000500		mg/L		03/27/24 09:00	03/28/24 16:28	1
Lithium	0.328		0.0100		mg/L		03/27/24 09:00	03/28/24 16:28	1
Lead	<0.000500		0.000500		mg/L		03/27/24 09:00	03/28/24 16:28	1
Molybdenum	<0.00200		0.00200		mg/L		03/27/24 09:00	03/28/24 16:28	1
Selenium	<0.00500		0.00500		mg/L		03/27/24 09:00	03/28/24 16:28	1
Thallium	<0.00100		0.00100		mg/L		03/27/24 09:00	03/28/24 16:28	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/29/24 09:07	04/01/24 10:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	2890		50.0		mg/L			03/26/24 13:01	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.8	HF	1.0		SU			03/23/24 10:12	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-226	<0.176	U	0.101	0.101	1.00	0.176	pCi/L	03/28/24 08:59	04/19/24 09:36	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	95.5		30 - 110					03/28/24 08:59	04/19/24 09:36	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-228	<0.560	U	0.347	0.348	1.00	0.560	pCi/L	03/28/24 09:04	04/17/24 11:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	95.5		30 - 110					03/28/24 09:04	04/17/24 11:59	1
Y Carrier	82.2		30 - 110					03/28/24 09:04	04/17/24 11:59	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Client Sample ID: MW21-GW-0324

Lab Sample ID: 310-277418-5

Date Collected: 03/21/24 09:15

Matrix: Water

Date Received: 03/22/24 16:10

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	<0.560	U	0.361	0.362	5.00	0.560	pCi/L		04/22/24 22:51	1

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Client Sample Results

Client: GHD Services Inc.
 Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Client Sample ID: DP05-GW-0324

Lab Sample ID: 310-277418-6

Date Collected: 03/21/24 00:00

Matrix: Water

Date Received: 03/22/24 16:10

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	33.7		5.00		mg/L			03/25/24 22:41	5
Fluoride	<1.00		1.00		mg/L			03/25/24 22:41	5
Sulfate	218		5.00		mg/L			03/25/24 22:41	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/27/24 09:00	03/28/24 16:30	1
Arsenic	0.0955		0.00200		mg/L		03/27/24 09:00	03/28/24 16:30	1
Barium	0.113		0.00200		mg/L		03/27/24 09:00	03/28/24 16:30	1
Beryllium	<0.00100		0.00100		mg/L		03/27/24 09:00	03/28/24 16:30	1
Boron	0.322		0.100		mg/L		03/27/24 09:00	03/28/24 16:30	1
Cadmium	<0.000200		0.000200		mg/L		03/27/24 09:00	03/28/24 16:30	1
Calcium	146		0.500		mg/L		03/27/24 09:00	03/28/24 16:30	1
Chromium	<0.00500		0.00500		mg/L		03/27/24 09:00	03/28/24 16:30	1
Cobalt	<0.000500		0.000500		mg/L		03/27/24 09:00	03/28/24 16:30	1
Lithium	0.0705		0.0100		mg/L		03/27/24 09:00	03/28/24 16:30	1
Lead	<0.000500		0.000500		mg/L		03/27/24 09:00	03/28/24 16:30	1
Molybdenum	0.00508		0.00200		mg/L		03/27/24 09:00	03/28/24 16:30	1
Selenium	<0.00500		0.00500		mg/L		03/27/24 09:00	03/28/24 16:30	1
Thallium	<0.00100		0.00100		mg/L		03/27/24 09:00	03/28/24 16:30	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/29/24 09:07	04/01/24 10:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	916		50.0		mg/L			03/26/24 13:01	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	8.0	HF	1.0		SU			03/23/24 10:12	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	<0.343	U	0.214	0.215	1.00	0.343	pCi/L	03/27/24 08:44	04/19/24 09:32	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	94.5		30 - 110					03/27/24 08:44	04/19/24 09:32	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	<0.703	U	0.457	0.460	1.00	0.703	pCi/L	03/27/24 08:51	04/18/24 11:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	94.5		30 - 110					03/27/24 08:51	04/18/24 11:58	1
Y Carrier	81.9		30 - 110					03/27/24 08:51	04/18/24 11:58	1

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Client Sample Results

Client: GHD Services Inc.
 Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Client Sample ID: DP05-GW-0324

Lab Sample ID: 310-277418-6

Date Collected: 03/21/24 00:00

Matrix: Water

Date Received: 03/22/24 16:10

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.791		0.505	0.508	5.00	0.703	pCi/L		04/19/24 18:02	1

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Definitions/Glossary

Client: GHD Services Inc.
Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
HF	Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request. Sample was analyzed outside of hold time.

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

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

QC Sample Results

Client: GHD Services Inc.
Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-417016/3
Matrix: Water
Analysis Batch: 417016

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			03/25/24 17:31	1
Fluoride	<0.200		0.200		mg/L			03/25/24 17:31	1
Sulfate	<1.00		1.00		mg/L			03/25/24 17:31	1

Lab Sample ID: LCS 310-417016/4
Matrix: Water
Analysis Batch: 417016

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	10.12		mg/L		101	90 - 110
Fluoride	2.00	2.149		mg/L		107	90 - 110
Sulfate	10.0	10.76		mg/L		108	90 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-417026/1-A
Matrix: Water
Analysis Batch: 417303

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 417026

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/27/24 09:00	03/28/24 15:30	1
Arsenic	<0.00200		0.00200		mg/L		03/27/24 09:00	03/28/24 15:30	1
Barium	<0.00200		0.00200		mg/L		03/27/24 09:00	03/28/24 15:30	1
Beryllium	<0.00100		0.00100		mg/L		03/27/24 09:00	03/28/24 15:30	1
Boron	<0.100		0.100		mg/L		03/27/24 09:00	03/28/24 15:30	1
Cadmium	<0.000200		0.000200		mg/L		03/27/24 09:00	03/28/24 15:30	1
Calcium	<0.500		0.500		mg/L		03/27/24 09:00	03/28/24 15:30	1
Chromium	<0.00500		0.00500		mg/L		03/27/24 09:00	03/28/24 15:30	1
Cobalt	<0.000500		0.000500		mg/L		03/27/24 09:00	03/28/24 15:30	1
Lithium	<0.0100		0.0100		mg/L		03/27/24 09:00	03/28/24 15:30	1
Lead	<0.000500		0.000500		mg/L		03/27/24 09:00	03/28/24 15:30	1
Molybdenum	<0.00200		0.00200		mg/L		03/27/24 09:00	03/28/24 15:30	1
Selenium	<0.00500		0.00500		mg/L		03/27/24 09:00	03/28/24 15:30	1
Thallium	<0.00100		0.00100		mg/L		03/27/24 09:00	03/28/24 15:30	1

Lab Sample ID: LCS 310-417026/2-A
Matrix: Water
Analysis Batch: 417303

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 417026

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.2116		mg/L		106	80 - 120
Arsenic	0.200	0.2131		mg/L		107	80 - 120
Barium	0.100	0.1093		mg/L		109	80 - 120
Beryllium	0.100	0.09589		mg/L		96	80 - 120
Boron	0.200	0.1801		mg/L		90	80 - 120
Cadmium	0.100	0.1046		mg/L		105	80 - 120
Calcium	2.00	1.701		mg/L		85	80 - 120
Chromium	0.100	0.1061		mg/L		106	80 - 120
Cobalt	0.100	0.1082		mg/L		108	80 - 120

Eurofins Cedar Falls

QC Sample Results

Client: GHD Services Inc.
Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

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

Lab Sample ID: LCS 310-417026/2-A
Matrix: Water
Analysis Batch: 417303

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 417026

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lithium	0.200	0.1979		mg/L		99	80 - 120
Lead	0.200	0.2184		mg/L		109	80 - 120
Molybdenum	0.200	0.1991		mg/L		100	80 - 120
Selenium	0.400	0.4073		mg/L		102	80 - 120
Thallium	0.100	0.1084		mg/L		108	80 - 120

Lab Sample ID: 310-277418-2 DU
Matrix: Water
Analysis Batch: 417303

Client Sample ID: MW03R-GW-0324
Prep Type: Total/NA
Prep Batch: 417026

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	<0.00200		<0.00200		mg/L		NC	20
Arsenic	0.0468		0.04673		mg/L		0.1	20
Barium	0.296		0.2966		mg/L		0.3	20
Beryllium	<0.00100		<0.00100		mg/L		NC	20
Boron	0.400		0.4042		mg/L		1	20
Cadmium	<0.000200		<0.000200		mg/L		NC	20
Calcium	141		138.0		mg/L		2	20
Chromium	<0.00500		<0.00500		mg/L		NC	20
Cobalt	<0.000500		<0.000500		mg/L		NC	20
Lithium	0.0856		0.08695		mg/L		2	20
Lead	<0.000500		<0.000500		mg/L		NC	20
Molybdenum	0.00218		0.002096		mg/L		4	20
Selenium	<0.00500		<0.00500		mg/L		NC	20
Thallium	<0.00100		<0.00100		mg/L		NC	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-417318/1-A
Matrix: Water
Analysis Batch: 417517

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 417318

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/29/24 09:07	04/01/24 10:18	1

Lab Sample ID: LCS 310-417318/2-A
Matrix: Water
Analysis Batch: 417517

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 417318

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.001673		mg/L		100	80 - 120

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 310-416906/1
Matrix: Water
Analysis Batch: 416906

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<50.0		50.0		mg/L			03/25/24 14:32	1

Eurofins Cedar Falls

QC Sample Results

Client: GHD Services Inc.
Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 310-416906/2
Matrix: Water
Analysis Batch: 416906

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	922.0		mg/L		92	90 - 110

Lab Sample ID: MB 310-417011/1
Matrix: Water
Analysis Batch: 417011

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<50.0		50.0		mg/L			03/26/24 13:01	1

Lab Sample ID: LCS 310-417011/2
Matrix: Water
Analysis Batch: 417011

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	940.0		mg/L		94	90 - 110

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-416793/1
Matrix: Water
Analysis Batch: 416793

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH	7.00	7.0		SU		100	98 - 102

Lab Sample ID: LCS 310-416793/27
Matrix: Water
Analysis Batch: 416793

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH	7.00	7.1		SU		101	98 - 102

Lab Sample ID: 310-277418-2 DU
Matrix: Water
Analysis Batch: 416793

Client Sample ID: MW03R-GW-0324
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	8.0	HF	8.0		SU		0.1	20

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-654157/1-A
Matrix: Water
Analysis Batch: 657688

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 654157

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	<0.276	U	0.0916	0.0927	1.00	0.276	pCi/L	03/27/24 08:44	04/19/24 07:33	1

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QC Sample Results

Client: GHD Services Inc.
Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Method: 9315 - Radium-226 (GFPC) (Continued)

Lab Sample ID: MB 160-654157/1-A
Matrix: Water
Analysis Batch: 657688

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 654157

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Barium	95.5		30 - 110	03/27/24 08:44	04/19/24 07:33	1

Lab Sample ID: LCS 160-654157/2-A
Matrix: Water
Analysis Batch: 657688

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 654157

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226	11.3	10.15		1.23	1.00	0.244	pCi/L	90	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Barium	98.0		30 - 110

Lab Sample ID: MB 160-654473/1-A
Matrix: Water
Analysis Batch: 657682

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 654473

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	<0.0996	U	0.0597	0.0599	1.00	0.0996	pCi/L	03/28/24 08:49	04/19/24 07:21	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Barium	95.5		30 - 110	03/28/24 08:49	04/19/24 07:21	1

Lab Sample ID: LCS 160-654473/2-A
Matrix: Water
Analysis Batch: 657685

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 654473

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226	11.3	9.478		1.01	1.00	0.117	pCi/L	84	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Barium	96.3		30 - 110

Lab Sample ID: MB 160-654476/1-A
Matrix: Water
Analysis Batch: 657685

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 654476

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	<0.206	U	0.112	0.112	1.00	0.206	pCi/L	03/28/24 08:59	04/19/24 09:35	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Barium	93.8		30 - 110	03/28/24 08:59	04/19/24 09:35	1

Eurofins Cedar Falls

QC Sample Results

Client: GHD Services Inc.
 Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Method: 9315 - Radium-226 (GFPC) (Continued)

Lab Sample ID: LCS 160-654476/2-A
Matrix: Water
Analysis Batch: 657685

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 654476

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Radium-226	11.3	11.12		1.27	1.00	0.224	pCi/L	98	75 - 125	
Carrier	LCS %Yield	LCS Qualifier	Limits							
Barium	93.3		30 - 110							

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-654158/1-A
Matrix: Water
Analysis Batch: 657621

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 654158

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.5312		0.345	0.348	1.00	0.510	pCi/L	03/27/24 08:51	04/18/24 12:02	1
Carrier	MB %Yield	MB Qualifier	Limits							
Barium	95.5		30 - 110							
Y Carrier	84.5		30 - 110							
								Prepared	Analyzed	Dil Fac
								03/27/24 08:51	04/18/24 12:02	1
								03/27/24 08:51	04/18/24 12:02	1

Lab Sample ID: LCS 160-654158/2-A
Matrix: Water
Analysis Batch: 657621

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 654158

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Radium-228	9.02	10.57		1.43	1.00	0.591	pCi/L	117	75 - 125	
Carrier	LCS %Yield	LCS Qualifier	Limits							
Barium	98.0		30 - 110							
Y Carrier	74.0		30 - 110							

Lab Sample ID: MB 160-654475/1-A
Matrix: Water
Analysis Batch: 656486

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 654475

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	<0.539	U	0.344	0.346	1.00	0.539	pCi/L	03/28/24 08:54	04/11/24 12:15	1
Carrier	MB %Yield	MB Qualifier	Limits							
Barium	95.5		30 - 110							
Y Carrier	80.7		30 - 110							
								Prepared	Analyzed	Dil Fac
								03/28/24 08:54	04/11/24 12:15	1
								03/28/24 08:54	04/11/24 12:15	1

QC Sample Results

Client: GHD Services Inc.
 Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-654475/2-A
Matrix: Water
Analysis Batch: 656486

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 654475

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits												
Radium-228	9.04	10.88		1.42	1.00	0.539	pCi/L	120	75 - 125												
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Carrier</th> <th>LCS %Yield</th> <th>LCS Qualifier</th> <th>Limits</th> </tr> </thead> <tbody> <tr> <td>Barium</td> <td>96.3</td> <td></td> <td>30 - 110</td> </tr> <tr> <td>Y Carrier</td> <td>83.7</td> <td></td> <td>30 - 110</td> </tr> </tbody> </table>										Carrier	LCS %Yield	LCS Qualifier	Limits	Barium	96.3		30 - 110	Y Carrier	83.7		30 - 110
Carrier	LCS %Yield	LCS Qualifier	Limits																		
Barium	96.3		30 - 110																		
Y Carrier	83.7		30 - 110																		

Lab Sample ID: MB 160-654477/1-A
Matrix: Water
Analysis Batch: 657403

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 654477

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac																					
Radium-228	<0.436	U	0.219	0.219	1.00	0.436	pCi/L	03/28/24 09:04	04/17/24 11:58	1																					
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Carrier</th> <th>MB %Yield</th> <th>MB Qualifier</th> <th>Limits</th> <th>Prepared</th> <th>Analyzed</th> <th>Dil Fac</th> </tr> </thead> <tbody> <tr> <td>Barium</td> <td>93.8</td> <td></td> <td>30 - 110</td> <td>03/28/24 09:04</td> <td>04/17/24 11:58</td> <td>1</td> </tr> <tr> <td>Y Carrier</td> <td>85.6</td> <td></td> <td>30 - 110</td> <td>03/28/24 09:04</td> <td>04/17/24 11:58</td> <td>1</td> </tr> </tbody> </table>											Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac	Barium	93.8		30 - 110	03/28/24 09:04	04/17/24 11:58	1	Y Carrier	85.6		30 - 110	03/28/24 09:04	04/17/24 11:58	1
Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac																									
Barium	93.8		30 - 110	03/28/24 09:04	04/17/24 11:58	1																									
Y Carrier	85.6		30 - 110	03/28/24 09:04	04/17/24 11:58	1																									

Lab Sample ID: LCS 160-654477/2-A
Matrix: Water
Analysis Batch: 657403

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 654477

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits												
Radium-228	9.02	9.076		1.24	1.00	0.510	pCi/L	101	75 - 125												
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Carrier</th> <th>LCS %Yield</th> <th>LCS Qualifier</th> <th>Limits</th> </tr> </thead> <tbody> <tr> <td>Barium</td> <td>93.3</td> <td></td> <td>30 - 110</td> </tr> <tr> <td>Y Carrier</td> <td>83.7</td> <td></td> <td>30 - 110</td> </tr> </tbody> </table>										Carrier	LCS %Yield	LCS Qualifier	Limits	Barium	93.3		30 - 110	Y Carrier	83.7		30 - 110
Carrier	LCS %Yield	LCS Qualifier	Limits																		
Barium	93.3		30 - 110																		
Y Carrier	83.7		30 - 110																		

QC Association Summary

Client: GHD Services Inc.
Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

HPLC/IC

Analysis Batch: 417016

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277418-1	MW01R-GW-0324	Total/NA	Water	9056A	
310-277418-2	MW03R-GW-0324	Total/NA	Water	9056A	
310-277418-3	MW05R-GW-0324	Total/NA	Water	9056A	
310-277418-4	MW19-GW-0324	Total/NA	Water	9056A	
310-277418-4	MW19-GW-0324	Total/NA	Water	9056A	
310-277418-5	MW21-GW-0324	Total/NA	Water	9056A	
310-277418-5	MW21-GW-0324	Total/NA	Water	9056A	
310-277418-6	DP05-GW-0324	Total/NA	Water	9056A	
MB 310-417016/3	Method Blank	Total/NA	Water	9056A	
LCS 310-417016/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 417026

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277418-1	MW01R-GW-0324	Total/NA	Water	3005A	
310-277418-2	MW03R-GW-0324	Total/NA	Water	3005A	
310-277418-3	MW05R-GW-0324	Total/NA	Water	3005A	
310-277418-4	MW19-GW-0324	Total/NA	Water	3005A	
310-277418-5	MW21-GW-0324	Total/NA	Water	3005A	
310-277418-6	DP05-GW-0324	Total/NA	Water	3005A	
MB 310-417026/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-417026/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-277418-2 DU	MW03R-GW-0324	Total/NA	Water	3005A	

Analysis Batch: 417303

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277418-1	MW01R-GW-0324	Total/NA	Water	6020B	417026
310-277418-2	MW03R-GW-0324	Total/NA	Water	6020B	417026
310-277418-3	MW05R-GW-0324	Total/NA	Water	6020B	417026
310-277418-4	MW19-GW-0324	Total/NA	Water	6020B	417026
310-277418-5	MW21-GW-0324	Total/NA	Water	6020B	417026
310-277418-6	DP05-GW-0324	Total/NA	Water	6020B	417026
MB 310-417026/1-A	Method Blank	Total/NA	Water	6020B	417026
LCS 310-417026/2-A	Lab Control Sample	Total/NA	Water	6020B	417026
310-277418-2 DU	MW03R-GW-0324	Total/NA	Water	6020B	417026

Prep Batch: 417318

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277418-1	MW01R-GW-0324	Total/NA	Water	7470A	
310-277418-2	MW03R-GW-0324	Total/NA	Water	7470A	
310-277418-3	MW05R-GW-0324	Total/NA	Water	7470A	
310-277418-4	MW19-GW-0324	Total/NA	Water	7470A	
310-277418-5	MW21-GW-0324	Total/NA	Water	7470A	
310-277418-6	DP05-GW-0324	Total/NA	Water	7470A	
MB 310-417318/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-417318/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 417517

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277418-1	MW01R-GW-0324	Total/NA	Water	7470A	417318

Eurofins Cedar Falls

QC Association Summary

Client: GHD Services Inc.
Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Metals (Continued)

Analysis Batch: 417517 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277418-2	MW03R-GW-0324	Total/NA	Water	7470A	417318
310-277418-3	MW05R-GW-0324	Total/NA	Water	7470A	417318
310-277418-4	MW19-GW-0324	Total/NA	Water	7470A	417318
310-277418-5	MW21-GW-0324	Total/NA	Water	7470A	417318
310-277418-6	DP05-GW-0324	Total/NA	Water	7470A	417318
MB 310-417318/1-A	Method Blank	Total/NA	Water	7470A	417318
LCS 310-417318/2-A	Lab Control Sample	Total/NA	Water	7470A	417318

Analysis Batch: 417551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277418-5	MW21-GW-0324	Total/NA	Water	6020B	417026

General Chemistry

Analysis Batch: 416793

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277418-1	MW01R-GW-0324	Total/NA	Water	SM 4500 H+ B	
310-277418-2	MW03R-GW-0324	Total/NA	Water	SM 4500 H+ B	
310-277418-3	MW05R-GW-0324	Total/NA	Water	SM 4500 H+ B	
310-277418-4	MW19-GW-0324	Total/NA	Water	SM 4500 H+ B	
310-277418-5	MW21-GW-0324	Total/NA	Water	SM 4500 H+ B	
310-277418-6	DP05-GW-0324	Total/NA	Water	SM 4500 H+ B	
LCS 310-416793/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCS 310-416793/27	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-277418-2 DU	MW03R-GW-0324	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 416906

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277418-2	MW03R-GW-0324	Total/NA	Water	SM 2540C	
310-277418-3	MW05R-GW-0324	Total/NA	Water	SM 2540C	
MB 310-416906/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-416906/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 417011

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277418-1	MW01R-GW-0324	Total/NA	Water	SM 2540C	
310-277418-4	MW19-GW-0324	Total/NA	Water	SM 2540C	
310-277418-5	MW21-GW-0324	Total/NA	Water	SM 2540C	
310-277418-6	DP05-GW-0324	Total/NA	Water	SM 2540C	
MB 310-417011/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-417011/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Rad

Prep Batch: 654157

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277418-1	MW01R-GW-0324	Total/NA	Water	PrecSep-21	
310-277418-4	MW19-GW-0324	Total/NA	Water	PrecSep-21	
310-277418-6	DP05-GW-0324	Total/NA	Water	PrecSep-21	
MB 160-654157/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-654157/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Eurofins Cedar Falls

QC Association Summary

Client: GHD Services Inc.
Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Rad

Prep Batch: 654158

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277418-1	MW01R-GW-0324	Total/NA	Water	PrecSep_0	
310-277418-4	MW19-GW-0324	Total/NA	Water	PrecSep_0	
310-277418-6	DP05-GW-0324	Total/NA	Water	PrecSep_0	
MB 160-654158/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-654158/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Prep Batch: 654473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277418-2	MW03R-GW-0324	Total/NA	Water	PrecSep-21	
310-277418-3	MW05R-GW-0324	Total/NA	Water	PrecSep-21	
MB 160-654473/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-654473/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 654475

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277418-2	MW03R-GW-0324	Total/NA	Water	PrecSep_0	
310-277418-3	MW05R-GW-0324	Total/NA	Water	PrecSep_0	
MB 160-654475/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-654475/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Prep Batch: 654476

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277418-5	MW21-GW-0324	Total/NA	Water	PrecSep-21	
MB 160-654476/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-654476/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 654477

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277418-5	MW21-GW-0324	Total/NA	Water	PrecSep_0	
MB 160-654477/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-654477/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Client Sample ID: MW01R-GW-0324

Lab Sample ID: 310-277418-1

Date Collected: 03/21/24 12:45

Matrix: Water

Date Received: 03/22/24 16:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	417016	QTZ5	EET CF	03/25/24 21:03
Total/NA	Prep	3005A			417026	QTZ5	EET CF	03/27/24 09:00
Total/NA	Analysis	6020B		1	417303	A6US	EET CF	03/28/24 16:17
Total/NA	Prep	7470A			417318	A6US	EET CF	03/29/24 09:07
Total/NA	Analysis	7470A		1	417517	A6US	EET CF	04/01/24 10:24
Total/NA	Analysis	SM 2540C		1	417011	ENB7	EET CF	03/26/24 13:01
Total/NA	Analysis	SM 4500 H+ B		1	416793	WZC8	EET CF	03/23/24 10:12
Total/NA	Prep	PrecSep-21			654157	KAK	EET SL	03/27/24 08:44
Total/NA	Analysis	9315		1	657682	SWS	EET SL	04/19/24 09:19
Total/NA	Prep	PrecSep_0			654158	KAK	EET SL	03/27/24 08:51
Total/NA	Analysis	9320		1	657623	SWS	EET SL	04/18/24 11:58
Total/NA	Analysis	Ra226_Ra228		1	657714	EMH	EET SL	04/19/24 18:02

Client Sample ID: MW03R-GW-0324

Lab Sample ID: 310-277418-2

Date Collected: 03/20/24 19:50

Matrix: Water

Date Received: 03/22/24 16:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	417016	QTZ5	EET CF	03/25/24 21:17
Total/NA	Prep	3005A			417026	QTZ5	EET CF	03/27/24 09:00
Total/NA	Analysis	6020B		1	417303	A6US	EET CF	03/28/24 16:19
Total/NA	Prep	7470A			417318	A6US	EET CF	03/29/24 09:07
Total/NA	Analysis	7470A		1	417517	A6US	EET CF	04/01/24 10:26
Total/NA	Analysis	SM 2540C		1	416906	D7CP	EET CF	03/25/24 14:32
Total/NA	Analysis	SM 4500 H+ B		1	416793	WZC8	EET CF	03/23/24 10:12
Total/NA	Prep	PrecSep-21			654473	KAK	EET SL	03/28/24 08:49
Total/NA	Analysis	9315		1	657688	SWS	EET SL	04/19/24 07:28
Total/NA	Prep	PrecSep_0			654475	KAK	EET SL	03/28/24 08:54
Total/NA	Analysis	9320		1	656483	SCB	EET SL	04/11/24 12:16
Total/NA	Analysis	Ra226_Ra228		1	658129	EMH	EET SL	04/22/24 15:13

Client Sample ID: MW05R-GW-0324

Lab Sample ID: 310-277418-3

Date Collected: 03/20/24 18:15

Matrix: Water

Date Received: 03/22/24 16:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	417016	QTZ5	EET CF	03/25/24 21:31
Total/NA	Prep	3005A			417026	QTZ5	EET CF	03/27/24 09:00
Total/NA	Analysis	6020B		1	417303	A6US	EET CF	03/28/24 16:24
Total/NA	Prep	7470A			417318	A6US	EET CF	03/29/24 09:07
Total/NA	Analysis	7470A		1	417517	A6US	EET CF	04/01/24 10:28
Total/NA	Analysis	SM 2540C		1	416906	D7CP	EET CF	03/25/24 14:32
Total/NA	Analysis	SM 4500 H+ B		1	416793	WZC8	EET CF	03/23/24 10:12

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Client Sample ID: MW05R-GW-0324

Lab Sample ID: 310-277418-3

Date Collected: 03/20/24 18:15

Matrix: Water

Date Received: 03/22/24 16:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			654473	KAK	EET SL	03/28/24 08:49
Total/NA	Analysis	9315		1	657688	SWS	EET SL	04/19/24 07:28
Total/NA	Prep	PrecSep_0			654475	KAK	EET SL	03/28/24 08:54
Total/NA	Analysis	9320		1	656483	SCB	EET SL	04/11/24 12:16
Total/NA	Analysis	Ra226_Ra228		1	658129	EMH	EET SL	04/22/24 15:13

Client Sample ID: MW19-GW-0324

Lab Sample ID: 310-277418-4

Date Collected: 03/21/24 10:30

Matrix: Water

Date Received: 03/22/24 16:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	417016	QTZ5	EET CF	03/25/24 22:13
Total/NA	Analysis	9056A		20	417016	QTZ5	EET CF	03/26/24 09:41
Total/NA	Prep	3005A			417026	QTZ5	EET CF	03/27/24 09:00
Total/NA	Analysis	6020B		1	417303	A6US	EET CF	03/28/24 16:26
Total/NA	Prep	7470A			417318	A6US	EET CF	03/29/24 09:07
Total/NA	Analysis	7470A		1	417517	A6US	EET CF	04/01/24 10:30
Total/NA	Analysis	SM 2540C		1	417011	ENB7	EET CF	03/26/24 13:01
Total/NA	Analysis	SM 4500 H+ B		1	416793	WZC8	EET CF	03/23/24 10:12
Total/NA	Prep	PrecSep-21			654157	KAK	EET SL	03/27/24 08:44
Total/NA	Analysis	9315		1	657685	SWS	EET SL	04/19/24 09:32
Total/NA	Prep	PrecSep_0			654158	KAK	EET SL	03/27/24 08:51
Total/NA	Analysis	9320		1	657623	SWS	EET SL	04/18/24 11:58
Total/NA	Analysis	Ra226_Ra228		1	657714	EMH	EET SL	04/19/24 18:02

Client Sample ID: MW21-GW-0324

Lab Sample ID: 310-277418-5

Date Collected: 03/21/24 09:15

Matrix: Water

Date Received: 03/22/24 16:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	417016	QTZ5	EET CF	03/25/24 22:27
Total/NA	Analysis	9056A		50	417016	QTZ5	EET CF	03/26/24 09:55
Total/NA	Prep	3005A			417026	QTZ5	EET CF	03/27/24 09:00
Total/NA	Analysis	6020B		1	417303	A6US	EET CF	03/28/24 16:28
Total/NA	Prep	3005A			417026	QTZ5	EET CF	03/27/24 09:00
Total/NA	Analysis	6020B		4	417551	NFT2	EET CF	04/01/24 14:15
Total/NA	Prep	7470A			417318	A6US	EET CF	03/29/24 09:07
Total/NA	Analysis	7470A		1	417517	A6US	EET CF	04/01/24 10:32
Total/NA	Analysis	SM 2540C		1	417011	ENB7	EET CF	03/26/24 13:01
Total/NA	Analysis	SM 4500 H+ B		1	416793	WZC8	EET CF	03/23/24 10:12
Total/NA	Prep	PrecSep-21			654476	KAK	EET SL	03/28/24 08:59
Total/NA	Analysis	9315		1	657685	SWS	EET SL	04/19/24 09:36
Total/NA	Prep	PrecSep_0			654477	KAK	EET SL	03/28/24 09:04
Total/NA	Analysis	9320		1	657403	EMH	EET SL	04/17/24 11:59

Eurofins Cedar Falls

Lab Chronicle

Client: GHD Services Inc.
 Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Client Sample ID: MW21-GW-0324

Lab Sample ID: 310-277418-5

Date Collected: 03/21/24 09:15

Matrix: Water

Date Received: 03/22/24 16:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Ra226_Ra228		1	658162	SCB	EET SL	04/22/24 22:51

Client Sample ID: DP05-GW-0324

Lab Sample ID: 310-277418-6

Date Collected: 03/21/24 00:00

Matrix: Water

Date Received: 03/22/24 16:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	417016	QTZ5	EET CF	03/25/24 22:41
Total/NA	Prep	3005A			417026	QTZ5	EET CF	03/27/24 09:00
Total/NA	Analysis	6020B		1	417303	A6US	EET CF	03/28/24 16:30
Total/NA	Prep	7470A			417318	A6US	EET CF	03/29/24 09:07
Total/NA	Analysis	7470A		1	417517	A6US	EET CF	04/01/24 10:39
Total/NA	Analysis	SM 2540C		1	417011	ENB7	EET CF	03/26/24 13:01
Total/NA	Analysis	SM 4500 H+ B		1	416793	WZC8	EET CF	03/23/24 10:12
Total/NA	Prep	PrecSep-21			654157	KAK	EET SL	03/27/24 08:44
Total/NA	Analysis	9315		1	657685	SWS	EET SL	04/19/24 09:32
Total/NA	Prep	PrecSep_0			654158	KAK	EET SL	03/27/24 08:51
Total/NA	Analysis	9320		1	657623	SWS	EET SL	04/18/24 11:58
Total/NA	Analysis	Ra226_Ra228		1	657714	EMH	EET SL	04/19/24 18:02

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401
 EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6020B	3005A	Water	Lithium

Laboratory: Eurofins St. Louis

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	373	12-01-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
9315	PrecSep-21	Water	Radium-226
9320	PrecSep_0	Water	Radium-228
Ra226_Ra228		Water	Combined Radium 226 + 228

Method Summary

Client: GHD Services Inc.
Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
7470A	Mercury (CVAA)	SW846	EET CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CF
SM 4500 H+ B	pH	SM	EET CF
9315	Radium-226 (GFPC)	SW846	EET SL
9320	Radium-228 (GFPC)	SW846	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
3005A	Preparation, Total Metals	SW846	EET CF
7470A	Preparation, Mercury	SW846	EET CF
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

None = None

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

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

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

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

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



Environment Testing
America



310-277418 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>CHD</u>			
City/State:	<u>Des Moines</u>	STATE: <u>IA</u>	Project:
Receipt Information			
Date/Time Received:	DATE: <u>3/22/24</u>	TIME: <u>1610</u>	Received By: <u>MRH</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID:	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>1</u> of <u>2</u>	
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID:	<u>Y</u>	Correction Factor (°C):	<u>0.0</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>2.4</u>	Corrected Temp (°C):	<u>2.4</u>
• Sample Container Temperature			
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			





Environment Testing
America

Place COC scanning label
here

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>GHD</u>			
City/State:	CITY	STATE	Project:
		<u>IA</u>	
Receipt Information			
Date/Time Received:	DATE	TIME	Received By:
	<u>3-22-24</u>	<u>1610</u>	<u>MC</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee			
<input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID:	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>2 of 2</u>	
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant:	<input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID:	<u>Y</u>	Correction Factor (°C):	<u>0</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>2.9</u>	Corrected Temp (°C):	<u>2.9</u>
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			



Client Information		Sampler: <u>Thao Larson</u>		Lab PM: <u>Zach Bindert</u>		Carrier Tracking No(s):		COC No.:	
Client Contact: Kevin Armstrong		Phone: <u>515-491-7791</u>		E-Mail: <u>zach.bindert@et.eurofins.com</u>		State of Origin: <u>Iowa</u>		Page: <u>1 of 1</u>	
Company: GHD Services Inc.		PWSID:		Analysis Requested		Job #:		Preservation Codes:	
Address: 11228 Aurora Avenue		Due Date Requested:		Perform MS(MSD) (Yes or No)		Total Number of Containers:		M - Hexane	
City: Des Moines		TAT Requested (days): Standard		Field Filtered Sample (Yes or No)				N - None	
State Zip: IA, 50322-7905		Compliance Project: <u>Δ Yes Δ No</u>		9316_Ra226 - Standard Target List				O - AsNaO2	
Phone: 515-414-3935		PO #: <u>340-017045</u>		9320_Ra228 - Standard Target List				P - Na2OAS	
Email: Kevin.Armstrong@ghd.com		WC #: <u>12576482-003 01</u>		9056A_ORGM_28D - Chloride, Fluoride & Sulfate				Q - Na2SO3	
Project Name: Neal North Closed CCR Monofill (IDNR)		Project #: <u>31017263</u>		2540C_Calcd, SM4500_H+				R - Na2SO3	
Site: Neal North Closed CCR Monofill		SSOW#: <u>12576482-002</u>		6020B_7470A - Appendix III and IV Metals				S - H2SO4	
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=Water, S=solid, O=waste, B=Blank, etc.)	Preservation Code	Field Filtered Sample (Yes or No)	Perform MS(MSD) (Yes or No)	Analysis Requested	Special Instructions/Note
MW01R-GW-0324	3/21/24	1245	G	Water		N	N		
MW03R-GW-0324	3/20/24	1950	G	Water		N	N		
MW05R-GW-0324	3/20/24	1815	G	Water		N	N		
MW19-GW-0324	3/21/24	1030	G	Water		N	N		
MW21-GW-0324	3/21/24	0915	G	Water		N	N		
DP05-GW-0324	3/21/24		G	Water		N	N		
								PP	
								PP	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested I, II, III, IV, Other (specify)									
Empty Kit Relinquished by Relinquished by: <u>Thao Larson</u>		Date/Time: <u>3/22/24 12:00</u>		Company: <u>GHD</u>		Date/Time: <u>3/22/24 13:00</u>		Company: <u>Eurofins</u>	
Relinquished by: <u>Thao Larson</u>		Date/Time: <u>3/22/24 12:00</u>		Company: <u>GHD</u>		Date/Time: <u>3/22/24 16:10</u>		Company: <u>Company</u>	
Relinquished by: <u>Thao Larson</u>		Date/Time: <u>3/22/24 12:00</u>		Company: <u>GHD</u>		Date/Time: <u>3/22/24 16:10</u>		Company: <u>Company</u>	
Relinquished by: <u>Thao Larson</u>		Date/Time: <u>3/22/24 12:00</u>		Company: <u>GHD</u>		Date/Time: <u>3/22/24 16:10</u>		Company: <u>Company</u>	
Custody Seals Intact: <u>Δ Yes Δ No</u>		Date/Time: <u>3/22/24 12:00</u>		Company: <u>GHD</u>		Date/Time: <u>3/22/24 16:10</u>		Company: <u>Company</u>	
Custody Seal No		Cooler Temperature(s) °C and Other Remarks:							



Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 310-277418-1

Login Number: 277418

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Costello, Mackenzie K

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



Tracer/Carrier Summary

Client: GHD Services Inc.
 Project/Site: Neal North Closed CCR Monofill (IDNR)

Job ID: 310-277418-1

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (30-110)	
310-277418-1	MW01R-GW-0324	91.3	
310-277418-2	MW03R-GW-0324	93.3	
310-277418-3	MW05R-GW-0324	98.8	
310-277418-4	MW19-GW-0324	87.0	
310-277418-5	MW21-GW-0324	95.5	
310-277418-6	DP05-GW-0324	94.5	
LCS 160-654157/2-A	Lab Control Sample	98.0	
LCS 160-654473/2-A	Lab Control Sample	96.3	
LCS 160-654476/2-A	Lab Control Sample	93.3	
MB 160-654157/1-A	Method Blank	95.5	
MB 160-654473/1-A	Method Blank	95.5	
MB 160-654476/1-A	Method Blank	93.8	
Tracer/Carrier Legend			
Ba = Barium			

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)
310-277418-1	MW01R-GW-0324	91.3	78.1
310-277418-2	MW03R-GW-0324	93.3	77.8
310-277418-3	MW05R-GW-0324	98.8	84.5
310-277418-4	MW19-GW-0324	87.0	78.1
310-277418-5	MW21-GW-0324	95.5	82.2
310-277418-6	DP05-GW-0324	94.5	81.9
LCS 160-654158/2-A	Lab Control Sample	98.0	74.0
LCS 160-654475/2-A	Lab Control Sample	96.3	83.7
LCS 160-654477/2-A	Lab Control Sample	93.3	83.7
MB 160-654158/1-A	Method Blank	95.5	84.5
MB 160-654475/1-A	Method Blank	95.5	80.7
MB 160-654477/1-A	Method Blank	93.8	85.6
Tracer/Carrier Legend			
Ba = Barium			
Y = Y Carrier			



ANALYTICAL REPORT

PREPARED FOR

Attn: Kevin Armstrong
GHD Services Inc.
11228 Aurora Avenue
Des Moines, Iowa 50322-7905

Generated 6/21/2024 11:00:33 AM

JOB DESCRIPTION

MEC Neal North - Additional June 2024
MEC Neal North - Additional June 2024

JOB NUMBER

310-282940-1

Eurofins Cedar Falls

Job Notes

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

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

Authorization



Generated
6/21/2024 11:00:33 AM

Authorized for release by
Zach Bindert, Client Service Manager
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(319)277-2401



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Case Narrative

Client: GHD Services Inc.
Project: MEC Neal North - Additional June 2024

Job ID: 310-282940-1

Job ID: 310-282940-1

Eurofins Cedar Falls

Job Narrative 310-282940-1

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 6/6/2024 4:10 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.1°C.

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.

Eurofins Cedar Falls

Sample Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North - Additional June 2024

Job ID: 310-282940-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-282940-1	MW05R-GW-0624	Water	06/05/24 07:45	06/06/24 16:10
310-282940-2	MW19-GW-0624	Water	06/05/24 15:55	06/06/24 16:10
310-282940-3	MW21-GW-0624	Water	06/05/24 15:15	06/06/24 16:10
310-282940-4	MW01R-GW-0624	Water	06/05/24 09:30	06/06/24 16:10
310-282940-5	MW59S-GW-0624	Water	06/05/24 16:30	06/06/24 16:10
310-282940-6	MW57R-GW-0624	Water	06/05/24 12:30	06/06/24 16:10
310-282940-7	MW233S-GW-0624	Water	06/05/24 10:40	06/06/24 16:10
310-282940-8	DP01-GW-0624	Water	06/05/24 00:00	06/06/24 16:10

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Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North - Additional June 2024

Job ID: 310-282940-1

Client Sample ID: MW05R-GW-0624

Lab Sample ID: 310-282940-1

Date Collected: 06/05/24 07:45

Matrix: Water

Date Received: 06/06/24 16:10

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.4	HF	1.0		SU			06/07/24 06:24	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
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- 9
- 10
- 11
- 12
- 13

Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North - Additional June 2024

Job ID: 310-282940-1

Client Sample ID: MW19-GW-0624

Lab Sample ID: 310-282940-2

Date Collected: 06/05/24 15:55

Matrix: Water

Date Received: 06/06/24 16:10

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	6.8	HF	1.0		SU			06/07/24 06:27	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North - Additional June 2024

Job ID: 310-282940-1

Client Sample ID: MW21-GW-0624

Lab Sample ID: 310-282940-3

Date Collected: 06/05/24 15:15

Matrix: Water

Date Received: 06/06/24 16:10

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.0	HF	1.0		SU			06/07/24 06:28	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North - Additional June 2024

Job ID: 310-282940-1

Client Sample ID: MW01R-GW-0624

Lab Sample ID: 310-282940-4

Date Collected: 06/05/24 09:30

Matrix: Water

Date Received: 06/06/24 16:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0464		0.00200		mg/L		06/10/24 09:00	06/20/24 20:11	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
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- 10
- 11
- 12
- 13

Client Sample Results

Client: GHD Services Inc.
 Project/Site: MEC Neal North - Additional June 2024

Job ID: 310-282940-1

Client Sample ID: MW59S-GW-0624

Lab Sample ID: 310-282940-5

Date Collected: 06/05/24 16:30

Matrix: Water

Date Received: 06/06/24 16:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	132		0.500		mg/L		06/10/24 09:00	06/20/24 20:15	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.2	HF	1.0		SU			06/07/24 06:26	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North - Additional June 2024

Job ID: 310-282940-1

Client Sample ID: MW57R-GW-0624

Lab Sample ID: 310-282940-6

Date Collected: 06/05/24 12:30

Matrix: Water

Date Received: 06/06/24 16:10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1270		50.0		mg/L			06/11/24 08:36	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North - Additional June 2024

Job ID: 310-282940-1

Client Sample ID: MW233S-GW-0624

Lab Sample ID: 310-282940-7

Date Collected: 06/05/24 10:40

Matrix: Water

Date Received: 06/06/24 16:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	0.265		0.00500		mg/L		06/10/24 09:00	06/20/24 20:18	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North - Additional June 2024

Job ID: 310-282940-1

Client Sample ID: DP01-GW-0624

Lab Sample ID: 310-282940-8

Date Collected: 06/05/24 00:00

Matrix: Water

Date Received: 06/06/24 16:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	0.276		0.00500		mg/L		06/10/24 09:00	06/20/24 20:22	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
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- 9
- 10
- 11
- 12
- 13

Definitions/Glossary

Client: GHD Services Inc.

Job ID: 310-282940-1

Project/Site: MEC Neal North - Additional June 2024

Qualifiers

General Chemistry

Qualifier	Qualifier Description
HF	Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request. Sample was analyzed outside of hold time.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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

QC Sample Results

Client: GHD Services Inc.
 Project/Site: MEC Neal North - Additional June 2024

Job ID: 310-282940-1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-423979/1-A
 Matrix: Water
 Analysis Batch: 425254

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 423979

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	<0.00200		0.00200		mg/L		06/10/24 09:00	06/20/24 18:47	1
Calcium	<0.500		0.500		mg/L		06/10/24 09:00	06/20/24 18:47	1
Selenium	<0.00500		0.00500		mg/L		06/10/24 09:00	06/20/24 18:47	1

Lab Sample ID: LCS 310-423979/2-A
 Matrix: Water
 Analysis Batch: 425254

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 423979

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Arsenic	0.200	0.1947		mg/L		97	80 - 120
Calcium	2.00	1.732		mg/L		87	80 - 120
Selenium	0.400	0.3754		mg/L		94	80 - 120

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 310-424127/1
 Matrix: Water
 Analysis Batch: 424127

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Dissolved Solids	<50.0		50.0		mg/L			06/11/24 08:36	1

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-423871/1
 Matrix: Water
 Analysis Batch: 423871

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

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
pH	7.00	7.1		SU		101	98 - 102

Lab Sample ID: 310-282940-1 DU
 Matrix: Water
 Analysis Batch: 423871

Client Sample ID: MW05R-GW-0624
 Prep Type: Total/NA

Analyte	Sample Sample		DU DU		Unit	D	RPD	RPD Limit
	Result	Qualifier	Result	Qualifier				
pH	7.4	HF	7.4		SU		0.1	20

QC Association Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North - Additional June 2024

Job ID: 310-282940-1

Metals

Prep Batch: 423979

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282940-4	MW01R-GW-0624	Total/NA	Water	3005A	
310-282940-5	MW59S-GW-0624	Total/NA	Water	3005A	
310-282940-7	MW233S-GW-0624	Total/NA	Water	3005A	
310-282940-8	DP01-GW-0624	Total/NA	Water	3005A	
MB 310-423979/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-423979/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 425254

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282940-4	MW01R-GW-0624	Total/NA	Water	6020B	423979
310-282940-5	MW59S-GW-0624	Total/NA	Water	6020B	423979
310-282940-7	MW233S-GW-0624	Total/NA	Water	6020B	423979
310-282940-8	DP01-GW-0624	Total/NA	Water	6020B	423979
MB 310-423979/1-A	Method Blank	Total/NA	Water	6020B	423979
LCS 310-423979/2-A	Lab Control Sample	Total/NA	Water	6020B	423979

General Chemistry

Analysis Batch: 423871

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282940-1	MW05R-GW-0624	Total/NA	Water	SM 4500 H+ B	
310-282940-2	MW19-GW-0624	Total/NA	Water	SM 4500 H+ B	
310-282940-3	MW21-GW-0624	Total/NA	Water	SM 4500 H+ B	
310-282940-5	MW59S-GW-0624	Total/NA	Water	SM 4500 H+ B	
LCS 310-423871/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-282940-1 DU	MW05R-GW-0624	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 424127

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282940-6	MW57R-GW-0624	Total/NA	Water	SM 2540C	
MB 310-424127/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-424127/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal North - Additional June 2024

Job ID: 310-282940-1

Client Sample ID: MW05R-GW-0624

Lab Sample ID: 310-282940-1

Date Collected: 06/05/24 07:45

Matrix: Water

Date Received: 06/06/24 16:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	SM 4500 H+ B		1	423871	W9YR	EET CF	06/07/24 06:24

Client Sample ID: MW19-GW-0624

Lab Sample ID: 310-282940-2

Date Collected: 06/05/24 15:55

Matrix: Water

Date Received: 06/06/24 16:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	SM 4500 H+ B		1	423871	W9YR	EET CF	06/07/24 06:27

Client Sample ID: MW21-GW-0624

Lab Sample ID: 310-282940-3

Date Collected: 06/05/24 15:15

Matrix: Water

Date Received: 06/06/24 16:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	SM 4500 H+ B		1	423871	W9YR	EET CF	06/07/24 06:28

Client Sample ID: MW01R-GW-0624

Lab Sample ID: 310-282940-4

Date Collected: 06/05/24 09:30

Matrix: Water

Date Received: 06/06/24 16:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			423979	DHM5	EET CF	06/10/24 09:00
Total/NA	Analysis	6020B		1	425254	NFT2	EET CF	06/20/24 20:11

Client Sample ID: MW59S-GW-0624

Lab Sample ID: 310-282940-5

Date Collected: 06/05/24 16:30

Matrix: Water

Date Received: 06/06/24 16:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			423979	DHM5	EET CF	06/10/24 09:00
Total/NA	Analysis	6020B		1	425254	NFT2	EET CF	06/20/24 20:15
Total/NA	Analysis	SM 4500 H+ B		1	423871	W9YR	EET CF	06/07/24 06:26

Client Sample ID: MW57R-GW-0624

Lab Sample ID: 310-282940-6

Date Collected: 06/05/24 12:30

Matrix: Water

Date Received: 06/06/24 16:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	SM 2540C		1	424127	WZC8	EET CF	06/11/24 08:36

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal North - Additional June 2024

Job ID: 310-282940-1

Client Sample ID: MW233S-GW-0624

Lab Sample ID: 310-282940-7

Date Collected: 06/05/24 10:40

Matrix: Water

Date Received: 06/06/24 16:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			423979	DHM5	EET CF	06/10/24 09:00
Total/NA	Analysis	6020B		1	425254	NFT2	EET CF	06/20/24 20:18

Client Sample ID: DP01-GW-0624

Lab Sample ID: 310-282940-8

Date Collected: 06/05/24 00:00

Matrix: Water

Date Received: 06/06/24 16:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			423979	DHM5	EET CF	06/10/24 09:00
Total/NA	Analysis	6020B		1	425254	NFT2	EET CF	06/20/24 20:22

Laboratory References:

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

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North - Additional June 2024

Job ID: 310-282940-1

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-25

- 1
- 2
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Method Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North - Additional June 2024

Job ID: 310-282940-1

Method	Method Description	Protocol	Laboratory
6020B	Metals (ICP/MS)	SW846	EET CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CF
SM 4500 H+ B	pH	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF

Protocol References:

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

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

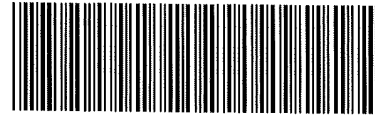
Laboratory References:

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





Environment Testing
America



310-282940 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>CHD</u>			
City/State:	CITY	STATE	Project:
Receipt Information			
Date/Time Received:	DATE	TIME	Received By:
	<u>6-6-24</u>	<u>1610</u>	<u>ce</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # _____ of _____	
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant:	<input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID:	<u>x</u>	Correction Factor (°C): <u>0.0</u>	
Temp Blank Temperature - If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>2.1</u>	Corrected Temp (°C): <u>2.1</u>	
Sample Container Temperature			
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			



Client Information		Lab PM: Bindert, Zach T		Carrier Tracking No(s):		COC No: 310-93796-25746 1						
Client Contact: Kevin Armstrong		E-Mail: Zach.Bindert@et.eurofins.com		State of Origin: IA		Page: Page 1 of 1						
Company: GHD Services Inc.		PWSID:		Analysis Requested		Job #: 10000						
Address: 11228 Aurora Avenue		Due Date Requested:		Total Number of Containers:		Preservation Codes: N - None D - HNO3						
City: Des Moines		TAT Requested (days): Standard		Total Number of Containers:		Other:						
State, Zip: IA, 50322-7905		Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Total Number of Containers:		Special Instructions/Note:						
Phone: 515-414-3935(Tel)		PO #: 340-017045		Total Number of Containers:		Special Instructions/Note:						
Email: Kevin.Armstrong@ghd.com		WO #: 12576482-003 01		Total Number of Containers:		Special Instructions/Note:						
Project Name: MEC Neal North - Additional June 2024		Project #: 31017263		Total Number of Containers:		Special Instructions/Note:						
Site: Iowa		SSOW#: 12576482-002		Total Number of Containers:		Special Instructions/Note:						
Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=soil, T=tissue, A=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SM4500_H+ - pH	6020B - Arsenic	6020B - Calcium	2540C - Colcd - Total Dissolved Solids	6020B - Selenium	Special Instructions/Note:
MW05R-GW-0624	05/24	0745	G	Water	N	N	X	N	N	N	N	1
MW19-GW-0624	05/24	1555	G	Water	N	N	X	N	N	N	N	1
MW21-GW-0624	05/24	1515	G	Water	N	N	X	N	N	N	N	1
MW01R-GW-0624	05/24	0930	G	Water	N	N	X	X	N	N	N	3
MW59S-GW-0624	05/24	1030	G	Water	N	N	X	X	N	N	N	2
MW57R-GW-0624	05/24	1230	G	Water	N	N	X	X	N	N	N	1
MW233S-GW-0624	05/24	1040	G	Water	N	N	X	X	N	N	N	1
DP01-GW-0624	05/24	-	G	Water	N	N	X	X	N	N	N	1
PR	PR	PR										
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological												
Deliverable Requested I, II, III, IV, Other (specify) _____												
Empty Kit Relinquished by _____ Date: _____ Time: _____												
Relinquished by: <i>Amy Richards</i> Date/Time: 05/10/24 Company: GHD												
Relinquished by: _____ Date/Time: _____ Company: _____												
Relinquished by: _____ Date/Time: _____ Company: _____												
Custody Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No												
Cooler Temperature(s) °C and Other Remarks: _____												

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 310-282940-1

Login Number: 282940

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Bennett, Samantha

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	





ANALYTICAL REPORT

PREPARED FOR

Attn: Kevin Armstrong
GHD Services Inc.
11228 Aurora Avenue
Des Moines, Iowa 50322-7905

Generated 10/8/2024 8:20:03 AM

JOB DESCRIPTION

MEC Neal North-Background
MEC Neal North-Background

JOB NUMBER

310-290219-1

Eurofins Cedar Falls

Job Notes

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

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

Authorization



Generated
10/8/2024 8:20:03 AM

Authorized for release by
Zach Bindert, Senior Project Manager
Zach.Bindert@et.eurofinsus.com
(319)595-2016



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Case Narrative

Client: GHD Services Inc.
Project: MEC Neal North-Background

Job ID: 310-290219-1

Job ID: 310-290219-1

Eurofins Cedar Falls

Job Narrative 310-290219-1

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 and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided 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 9/11/2024 9:10 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.8°C.

HPLC/IC

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

Metals

Method 6020B: The reference method requires samples to be preserved to a pH of <2. The following sample was received with insufficient preservation at a pH of >2: MW231SR-GW-GW-0924 (310-290219-2). The sample(s) was preserved to the appropriate pH in the laboratory.

Method 6020B - Dissolved: The reference method requires samples to be preserved to a pH of <2. The following sample was received with insufficient preservation at a pH of >2: MW223S-GW-0924 (310-290219-1). The sample(s) was preserved to the appropriate pH in the laboratory.

Method 7470A: The reference method requires samples to be preserved to a pH of <2. The following sample was received with insufficient preservation at a pH of >2: MW231SR-GW-GW-0924 (310-290219-2). The sample(s) was preserved to the appropriate pH in the laboratory.

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.

Eurofins Cedar Falls

Case Narrative

Client: GHD Services Inc.
Project: MEC Neal North-Background

Job ID: 310-290219-1

Job ID: 310-290219-2

Eurofins Cedar Falls

Job Narrative 310-290219-2

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 and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided 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 9/11/2024 9:10 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.8°C.

Gas Flow Proportional Counter

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

Rad

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

Eurofins Cedar Falls

Case Narrative

Client: GHD Services Inc.
Project: MEC Neal North-Background

Job ID: 310-290219-1

Job ID: 310-290219-3

Eurofins Cedar Falls

Job Narrative 310-290219-3

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 and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided 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 9/11/2024 9:10 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.8°C.

HPLC/IC

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

Eurofins Cedar Falls

Sample Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-290219-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-290219-1	MW223S-GW-0924	Water	09/10/24 14:40	09/11/24 09:10
310-290219-2	MW231SR-GW-GW-0924	Water	09/10/24 14:35	09/11/24 09:10

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Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-290219-1

Client Sample ID: MW223S-GW-0924

Lab Sample ID: 310-290219-1

Date Collected: 09/10/24 14:40

Matrix: Water

Date Received: 09/11/24 09:10

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	39.8		1.00		mg/L			09/11/24 12:38	1
Nitrate as N	0.699		0.200		mg/L			09/11/24 12:38	1
Fluoride	<0.200		0.200		mg/L			09/11/24 12:38	1
Sulfate	120		10.0		mg/L			09/11/24 16:03	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		09/12/24 09:00	09/19/24 14:45	1
Arsenic	0.0124		0.00200		mg/L		09/12/24 09:00	09/19/24 14:45	1
Barium	0.186		0.00200		mg/L		09/12/24 09:00	09/19/24 14:45	1
Beryllium	<0.00100		0.00100		mg/L		09/12/24 09:00	09/20/24 14:37	1
Boron	0.172		0.100		mg/L		09/12/24 09:00	09/20/24 14:37	1
Cadmium	<0.000200		0.000200		mg/L		09/12/24 09:00	09/23/24 15:42	1
Calcium	167		0.500		mg/L		09/12/24 09:00	09/19/24 14:45	1
Chromium	<0.00500		0.00500		mg/L		09/12/24 09:00	09/19/24 14:45	1
Cobalt	0.000728		0.000500		mg/L		09/12/24 09:00	09/19/24 14:45	1
Iron	3.58		0.100		mg/L		09/12/24 09:00	09/19/24 14:45	1
Lead	<0.000500		0.000500		mg/L		09/12/24 09:00	09/19/24 14:45	1
Lithium	0.0610		0.0100		mg/L		09/12/24 09:00	09/20/24 14:37	1
Manganese	2.92		0.0100		mg/L		09/12/24 09:00	09/20/24 14:37	1
Molybdenum	0.00237		0.00200		mg/L		09/12/24 09:00	09/20/24 14:37	1
Selenium	<0.00500		0.00500		mg/L		09/12/24 09:00	09/19/24 14:45	1
Thallium	<0.00100		0.00100		mg/L		09/12/24 09:00	09/19/24 14:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	2.85		0.100		mg/L		09/12/24 09:00	09/20/24 15:50	1
Manganese	2.73		0.0100		mg/L		09/12/24 09:00	09/20/24 15:50	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/17/24 14:05	09/18/24 12:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SW846 9060A)	2.89		1.00		mg/L			09/18/24 01:07	1
Total Dissolved Solids (SM 2540C)	594		50.0		mg/L			09/13/24 13:34	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.5	HF	1.0		SU			09/11/24 11:57	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.210		0.122	0.124	1.00	0.162	pCi/L	09/13/24 08:10	10/07/24 09:57	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	92.8		30 - 110					09/13/24 08:10	10/07/24 09:57	1

Client Sample Results

Client: GHD Services Inc.
 Project/Site: MEC Neal North-Background

Job ID: 310-290219-1

Client Sample ID: MW223S-GW-0924

Lab Sample ID: 310-290219-1

Date Collected: 09/10/24 14:40

Matrix: Water

Date Received: 09/11/24 09:10

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.710		0.408	0.413	1.00	0.593	pCi/L	09/13/24 08:20	10/03/24 13:46	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	92.8		30 - 110					09/13/24 08:20	10/03/24 13:46	1
Y Carrier	77.0		30 - 110					09/13/24 08:20	10/03/24 13:46	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.919		0.426	0.431	5.00	0.593	pCi/L		10/08/24 07:30	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-290219-1

Client Sample ID: MW231SR-GW-GW-0924

Lab Sample ID: 310-290219-2

Date Collected: 09/10/24 14:35

Matrix: Water

Date Received: 09/11/24 09:10

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	116		10.0		mg/L			09/11/24 16:15	10
Nitrate as N	1.03		0.200		mg/L			09/11/24 12:50	1
Fluoride	<0.200		0.200		mg/L			09/11/24 12:50	1
Sulfate	177		10.0		mg/L			09/11/24 16:15	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		09/12/24 09:00	09/19/24 14:49	1
Arsenic	<0.00200		0.00200		mg/L		09/12/24 09:00	09/19/24 14:49	1
Barium	0.127		0.00200		mg/L		09/12/24 09:00	09/19/24 14:49	1
Beryllium	<0.00100		0.00100		mg/L		09/12/24 09:00	09/20/24 14:41	1
Boron	0.400		0.100		mg/L		09/12/24 09:00	09/20/24 14:41	1
Cadmium	<0.000200		0.000200		mg/L		09/12/24 09:00	09/23/24 15:49	1
Calcium	259		0.500		mg/L		09/12/24 09:00	09/19/24 14:49	1
Chromium	<0.00500		0.00500		mg/L		09/12/24 09:00	09/19/24 14:49	1
Cobalt	0.00692		0.000500		mg/L		09/12/24 09:00	09/19/24 14:49	1
Iron	2.24		0.100		mg/L		09/12/24 09:00	09/19/24 14:49	1
Lead	<0.000500		0.000500		mg/L		09/12/24 09:00	09/19/24 14:49	1
Lithium	0.0951		0.0100		mg/L		09/12/24 09:00	09/20/24 14:41	1
Manganese	1.10		0.0100		mg/L		09/12/24 09:00	09/20/24 14:41	1
Molybdenum	<0.00200		0.00200		mg/L		09/12/24 09:00	09/20/24 14:41	1
Selenium	0.0117		0.00500		mg/L		09/12/24 09:00	09/19/24 14:49	1
Thallium	<0.00100		0.00100		mg/L		09/12/24 09:00	09/19/24 14:49	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	2.43		0.100		mg/L		09/12/24 09:00	09/20/24 15:54	1
Manganese	1.10		0.0100		mg/L		09/12/24 09:00	09/20/24 15:54	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/19/24 13:55	09/20/24 15:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SW846 9060A)	2.57		1.00		mg/L			09/18/24 01:43	1
Total Dissolved Solids (SM 2540C)	960		50.0		mg/L			09/14/24 08:52	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.1	HF	1.0		SU			09/11/24 11:59	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.336		0.143	0.147	1.00	0.164	pCi/L	09/13/24 08:10	10/07/24 09:57	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	90.6		30 - 110					09/13/24 08:10	10/07/24 09:57	1

Client Sample Results

Client: GHD Services Inc.
 Project/Site: MEC Neal North-Background

Job ID: 310-290219-1

Client Sample ID: MW231SR-GW-GW-0924

Lab Sample ID: 310-290219-2

Date Collected: 09/10/24 14:35

Matrix: Water

Date Received: 09/11/24 09:10

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.724		0.383	0.389	1.00	0.531	pCi/L	09/13/24 08:20	10/03/24 13:46	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	90.6		30 - 110					09/13/24 08:20	10/03/24 13:46	1
Y Carrier	80.7		30 - 110					09/13/24 08:20	10/03/24 13:46	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.06		0.409	0.416	5.00	0.531	pCi/L		10/08/24 07:30	1

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Definitions/Glossary

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-290219-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
HF	Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request. Sample was analyzed outside of hold time.

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

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

QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-290219-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-432954/3
Matrix: Water
Analysis Batch: 432954

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			09/11/24 08:48	1
Nitrate as N	<0.200		0.200		mg/L			09/11/24 08:48	1
Fluoride	<0.200		0.200		mg/L			09/11/24 08:48	1
Sulfate	<1.00		1.00		mg/L			09/11/24 08:48	1

Lab Sample ID: LCS 310-432954/4
Matrix: Water
Analysis Batch: 432954

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.831		mg/L		98	90 - 110
Nitrate as N	2.00	2.041		mg/L		102	90 - 110
Fluoride	2.00	1.933		mg/L		97	90 - 110
Sulfate	10.0	10.08		mg/L		101	90 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-432857/1-A
Matrix: Water
Analysis Batch: 433771

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432857

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		09/12/24 09:00	09/19/24 13:52	1
Arsenic	<0.00200		0.00200		mg/L		09/12/24 09:00	09/19/24 13:52	1
Barium	<0.00200		0.00200		mg/L		09/12/24 09:00	09/19/24 13:52	1
Calcium	<0.500		0.500		mg/L		09/12/24 09:00	09/19/24 13:52	1
Chromium	<0.00500		0.00500		mg/L		09/12/24 09:00	09/19/24 13:52	1
Cobalt	<0.000500		0.000500		mg/L		09/12/24 09:00	09/19/24 13:52	1
Iron	<0.100		0.100		mg/L		09/12/24 09:00	09/19/24 13:52	1
Lead	<0.000500		0.000500		mg/L		09/12/24 09:00	09/19/24 13:52	1
Molybdenum	<0.00200		0.00200		mg/L		09/12/24 09:00	09/19/24 13:52	1
Selenium	<0.00500		0.00500		mg/L		09/12/24 09:00	09/19/24 13:52	1
Thallium	<0.00100		0.00100		mg/L		09/12/24 09:00	09/19/24 13:52	1

Lab Sample ID: MB 310-432857/1-A
Matrix: Water
Analysis Batch: 433906

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432857

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	<0.00100		0.00100		mg/L		09/12/24 09:00	09/20/24 13:48	1
Boron	<0.100		0.100		mg/L		09/12/24 09:00	09/20/24 13:48	1
Lithium	<0.0100		0.0100		mg/L		09/12/24 09:00	09/20/24 13:48	1
Manganese	<0.0100		0.0100		mg/L		09/12/24 09:00	09/20/24 13:48	1

Lab Sample ID: MB 310-432857/1-A
Matrix: Water
Analysis Batch: 434059

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432857

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	<0.000200		0.000200		mg/L		09/12/24 09:00	09/23/24 15:03	1

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QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-290219-1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: LCS 310-432857/2-A
Matrix: Water
Analysis Batch: 433771

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432857

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.2183		mg/L		109	80 - 120
Arsenic	0.200	0.2284		mg/L		114	80 - 120
Barium	0.100	0.1060		mg/L		106	80 - 120
Calcium	2.00	2.071		mg/L		104	80 - 120
Chromium	0.100	0.09925		mg/L		99	80 - 120
Cobalt	0.100	0.1027		mg/L		103	80 - 120
Iron	0.200	0.2183		mg/L		109	80 - 120
Lead	0.200	0.2178		mg/L		109	80 - 120
Molybdenum	0.200	0.2224		mg/L		111	80 - 120
Selenium	0.400	0.4212		mg/L		105	80 - 120
Thallium	0.100	0.1106		mg/L		111	80 - 120

Lab Sample ID: LCS 310-432857/2-A
Matrix: Water
Analysis Batch: 433906

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432857

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Beryllium	0.100	0.09948		mg/L		99	80 - 120
Boron	0.200	0.1899		mg/L		95	80 - 120
Lithium	0.200	0.2054		mg/L		103	80 - 120
Manganese	0.100	0.09771		mg/L		98	80 - 120

Lab Sample ID: LCS 310-432857/2-A
Matrix: Water
Analysis Batch: 434059

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432857

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	0.100	0.09563		mg/L		96	80 - 120

Lab Sample ID: 310-290219-1 DU
Matrix: Water
Analysis Batch: 433771

Client Sample ID: MW223S-GW-0924
Prep Type: Total/NA
Prep Batch: 432857

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Antimony	<0.00200		<0.00200		mg/L		NC	20
Arsenic	0.0124		0.01271		mg/L		2	20
Barium	0.186		0.1913		mg/L		3	20
Calcium	167		165.4		mg/L		1	20
Chromium	<0.00500		<0.00500		mg/L		NC	20
Cobalt	0.000728		0.0007310		mg/L		0.4	20
Iron	3.58		3.631		mg/L		1	20
Lead	<0.000500		<0.000500		mg/L		NC	20
Selenium	<0.00500		<0.00500		mg/L		NC	20
Thallium	<0.00100		<0.00100		mg/L		NC	20

QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-290219-1

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

Lab Sample ID: 310-290219-1 DU
Matrix: Water
Analysis Batch: 433906

Client Sample ID: MW223S-GW-0924
Prep Type: Total/NA
Prep Batch: 432857

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Beryllium	<0.00100		<0.00100		mg/L		NC	20
Boron	0.172		0.1603		mg/L		7	20
Lithium	0.0610		0.06297		mg/L		3	20
Manganese	2.92		3.001		mg/L		3	20
Molybdenum	0.00237		0.002181		mg/L		8	20

Lab Sample ID: 310-290219-1 DU
Matrix: Water
Analysis Batch: 434059

Client Sample ID: MW223S-GW-0924
Prep Type: Total/NA
Prep Batch: 432857

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Cadmium	<0.000200		<0.000200		mg/L		NC	20

Lab Sample ID: MB 310-432867/1-A
Matrix: Water
Analysis Batch: 433906

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432867

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Iron	<0.100		0.100		mg/L		09/12/24 09:00	09/20/24 15:10	1
Manganese	<0.0100		0.0100		mg/L		09/12/24 09:00	09/20/24 15:10	1

Lab Sample ID: LCS 310-432867/2-A
Matrix: Water
Analysis Batch: 433906

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432867

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Manganese	0.100	0.09476		mg/L		95	80 - 120

Lab Sample ID: 310-290219-1 DU
Matrix: Water
Analysis Batch: 433906

Client Sample ID: MW223S-GW-0924
Prep Type: Dissolved
Prep Batch: 432867

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Iron	2.85		2.716		mg/L		5	20
Manganese	2.73		2.610		mg/L		5	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-433372/1-A
Matrix: Water
Analysis Batch: 433591

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433372

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	<0.000200		0.000200		mg/L		09/17/24 14:05	09/18/24 12:22	1

QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-290219-1

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 310-433372/2-A
Matrix: Water
Analysis Batch: 433591

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433372

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.001757		mg/L		105	80 - 120

Lab Sample ID: MB 310-433662/1-A
Matrix: Water
Analysis Batch: 433861

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433662

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/19/24 13:55	09/20/24 15:06	1

Lab Sample ID: LCS 310-433662/2-A
Matrix: Water
Analysis Batch: 433861

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433662

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.001682		mg/L		101	80 - 120

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 310-433482/11
Matrix: Water
Analysis Batch: 433482

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<1.00		1.00		mg/L			09/17/24 13:42	1

Lab Sample ID: LCS 310-433482/12
Matrix: Water
Analysis Batch: 433482

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon	9.99	11.30		mg/L		113	85 - 115

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 310-433145/1
Matrix: Water
Analysis Batch: 433145

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<50.0		50.0		mg/L			09/13/24 13:34	1

Lab Sample ID: LCS 310-433145/2
Matrix: Water
Analysis Batch: 433145

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	956.0		mg/L		96	88 - 110

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QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-290219-1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: MB 310-433202/1
Matrix: Water
Analysis Batch: 433202

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<50.0		50.0		mg/L			09/14/24 08:52	1

Lab Sample ID: LCS 310-433202/2
Matrix: Water
Analysis Batch: 433202

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	958.0		mg/L		96	88 - 110

Lab Sample ID: 310-290219-2 DU
Matrix: Water
Analysis Batch: 433202

Client Sample ID: MW231SR-GW-GW-0924
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	960		964.0		mg/L		0.4	16

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-432774/13
Matrix: Water
Analysis Batch: 432774

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH	7.00	7.0		SU		100	98 - 102

Lab Sample ID: LCS 310-432774/44
Matrix: Water
Analysis Batch: 432774

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH	7.00	7.0		SU		100	98 - 102

Lab Sample ID: 310-290219-1 DU
Matrix: Water
Analysis Batch: 432774

Client Sample ID: MW223S-GW-0924
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.5	HF	7.5		SU		0.1	20

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-679302/1-A
Matrix: Water
Analysis Batch: 682296

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 679302

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	<0.125	U	0.0660	0.0660	1.00	0.125	pCi/L	09/13/24 08:10	10/07/24 09:52	1

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QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-290219-1

Method: 9315 - Radium-226 (GFPC) (Continued)

Lab Sample ID: MB 160-679302/1-A
Matrix: Water
Analysis Batch: 682296

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 679302

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Barium	99.5		30 - 110	09/13/24 08:10	10/07/24 09:52	1

Lab Sample ID: LCS 160-679302/2-A
Matrix: Water
Analysis Batch: 682296

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 679302

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226	9.58	10.61		1.16	1.00	0.151	pCi/L	111	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Barium	87.6		30 - 110

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-679303/1-A
Matrix: Water
Analysis Batch: 682005

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 679303

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	<0.426	U	0.218	0.218	1.00	0.426	pCi/L	09/13/24 08:20	10/03/24 13:45	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Barium	99.5		30 - 110	09/13/24 08:20	10/03/24 13:45	1
Y Carrier	82.6		30 - 110	09/13/24 08:20	10/03/24 13:45	1

Lab Sample ID: LCS 160-679303/2-A
Matrix: Water
Analysis Batch: 682005

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 679303

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228	8.46	10.41		1.41	1.00	0.566	pCi/L	123	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Barium	87.6		30 - 110
Y Carrier	82.6		30 - 110

QC Association Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-290219-1

HPLC/IC

Analysis Batch: 432954

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290219-1	MW223S-GW-0924	Total/NA	Water	9056A	
310-290219-1	MW223S-GW-0924	Total/NA	Water	9056A	
310-290219-2	MW231SR-GW-GW-0924	Total/NA	Water	9056A	
310-290219-2	MW231SR-GW-GW-0924	Total/NA	Water	9056A	
MB 310-432954/3	Method Blank	Total/NA	Water	9056A	
LCS 310-432954/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 432857

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290219-1	MW223S-GW-0924	Total/NA	Water	3005A	
310-290219-2	MW231SR-GW-GW-0924	Total/NA	Water	3005A	
MB 310-432857/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-432857/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-290219-1 DU	MW223S-GW-0924	Total/NA	Water	3005A	

Prep Batch: 432867

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290219-1	MW223S-GW-0924	Dissolved	Water	3005A	
310-290219-2	MW231SR-GW-GW-0924	Dissolved	Water	3005A	
MB 310-432867/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-432867/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-290219-1 DU	MW223S-GW-0924	Dissolved	Water	3005A	

Prep Batch: 433372

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290219-1	MW223S-GW-0924	Total/NA	Water	7470A	
MB 310-433372/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-433372/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 433591

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290219-1	MW223S-GW-0924	Total/NA	Water	7470A	433372
MB 310-433372/1-A	Method Blank	Total/NA	Water	7470A	433372
LCS 310-433372/2-A	Lab Control Sample	Total/NA	Water	7470A	433372

Prep Batch: 433662

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290219-2	MW231SR-GW-GW-0924	Total/NA	Water	7470A	
MB 310-433662/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-433662/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 433771

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290219-1	MW223S-GW-0924	Total/NA	Water	6020B	432857
310-290219-2	MW231SR-GW-GW-0924	Total/NA	Water	6020B	432857
MB 310-432857/1-A	Method Blank	Total/NA	Water	6020B	432857
LCS 310-432857/2-A	Lab Control Sample	Total/NA	Water	6020B	432857
310-290219-1 DU	MW223S-GW-0924	Total/NA	Water	6020B	432857

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QC Association Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-290219-1

Metals

Analysis Batch: 433861

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290219-2	MW231SR-GW-GW-0924	Total/NA	Water	7470A	433662
MB 310-433662/1-A	Method Blank	Total/NA	Water	7470A	433662
LCS 310-433662/2-A	Lab Control Sample	Total/NA	Water	7470A	433662

Analysis Batch: 433906

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290219-1	MW223S-GW-0924	Dissolved	Water	6020B	432867
310-290219-1	MW223S-GW-0924	Total/NA	Water	6020B	432857
310-290219-2	MW231SR-GW-GW-0924	Dissolved	Water	6020B	432867
310-290219-2	MW231SR-GW-GW-0924	Total/NA	Water	6020B	432857
MB 310-432857/1-A	Method Blank	Total/NA	Water	6020B	432857
MB 310-432867/1-A	Method Blank	Total/NA	Water	6020B	432867
LCS 310-432857/2-A	Lab Control Sample	Total/NA	Water	6020B	432857
LCS 310-432867/2-A	Lab Control Sample	Total/NA	Water	6020B	432867
310-290219-1 DU	MW223S-GW-0924	Dissolved	Water	6020B	432867
310-290219-1 DU	MW223S-GW-0924	Total/NA	Water	6020B	432857

Analysis Batch: 434059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290219-1	MW223S-GW-0924	Total/NA	Water	6020B	432857
310-290219-2	MW231SR-GW-GW-0924	Total/NA	Water	6020B	432857
MB 310-432857/1-A	Method Blank	Total/NA	Water	6020B	432857
LCS 310-432857/2-A	Lab Control Sample	Total/NA	Water	6020B	432857
310-290219-1 DU	MW223S-GW-0924	Total/NA	Water	6020B	432857

General Chemistry

Analysis Batch: 432774

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290219-1	MW223S-GW-0924	Total/NA	Water	SM 4500 H+ B	
310-290219-2	MW231SR-GW-GW-0924	Total/NA	Water	SM 4500 H+ B	
LCS 310-432774/13	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCS 310-432774/44	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-290219-1 DU	MW223S-GW-0924	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 433145

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290219-1	MW223S-GW-0924	Total/NA	Water	SM 2540C	
MB 310-433145/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-433145/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 433202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290219-2	MW231SR-GW-GW-0924	Total/NA	Water	SM 2540C	
MB 310-433202/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-433202/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-290219-2 DU	MW231SR-GW-GW-0924	Total/NA	Water	SM 2540C	

Analysis Batch: 433482

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290219-1	MW223S-GW-0924	Total/NA	Water	9060A	

Eurofins Cedar Falls

QC Association Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-290219-1

General Chemistry (Continued)

Analysis Batch: 433482 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290219-2	MW231SR-GW-GW-0924	Total/NA	Water	9060A	
MB 310-433482/11	Method Blank	Total/NA	Water	9060A	
LCS 310-433482/12	Lab Control Sample	Total/NA	Water	9060A	

Rad

Prep Batch: 679302

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290219-1	MW223S-GW-0924	Total/NA	Water	PrecSep-21	
310-290219-2	MW231SR-GW-GW-0924	Total/NA	Water	PrecSep-21	
MB 160-679302/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-679302/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 679303

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290219-1	MW223S-GW-0924	Total/NA	Water	PrecSep_0	
310-290219-2	MW231SR-GW-GW-0924	Total/NA	Water	PrecSep_0	
MB 160-679303/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-679303/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-290219-1

Client Sample ID: MW223S-GW-0924

Lab Sample ID: 310-290219-1

Date Collected: 09/10/24 14:40

Matrix: Water

Date Received: 09/11/24 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	432954	HE7K	EET CF	09/11/24 12:38
Total/NA	Analysis	9056A		10	432954	HE7K	EET CF	09/11/24 16:03
Dissolved	Prep	3005A			432867	QTZ5	EET CF	09/12/24 09:00
Dissolved	Analysis	6020B		1	433906	NFT2	EET CF	09/20/24 15:50
Total/NA	Prep	3005A			432857	QTZ5	EET CF	09/12/24 09:00
Total/NA	Analysis	6020B		1	434059	NFT2	EET CF	09/23/24 15:42
Total/NA	Prep	3005A			432857	QTZ5	EET CF	09/12/24 09:00
Total/NA	Analysis	6020B		1	433771	NFT2	EET CF	09/19/24 14:45
Total/NA	Prep	3005A			432857	QTZ5	EET CF	09/12/24 09:00
Total/NA	Analysis	6020B		1	433906	NFT2	EET CF	09/20/24 14:37
Total/NA	Prep	7470A			433372	DHM5	EET CF	09/17/24 14:05
Total/NA	Analysis	7470A		1	433591	DHM5	EET CF	09/18/24 12:37
Total/NA	Analysis	9060A		1	433482	DGU1	EET CF	09/18/24 01:07
Total/NA	Analysis	SM 2540C		1	433145	DGU1	EET CF	09/13/24 13:34
Total/NA	Analysis	SM 4500 H+ B		1	432774	W9YR	EET CF	09/11/24 11:57
Total/NA	Prep	PrecSep-21			679302	BCE	EET SL	09/13/24 08:10
Total/NA	Analysis	9315		1	682449	CMM	EET SL	10/07/24 09:57
Total/NA	Prep	PrecSep_0			679303	BCE	EET SL	09/13/24 08:20
Total/NA	Analysis	9320		1	682006	FLC	EET SL	10/03/24 13:46
Total/NA	Analysis	Ra226_Ra228		1	682564	FLC	EET SL	10/08/24 07:30

Client Sample ID: MW231SR-GW-GW-0924

Lab Sample ID: 310-290219-2

Date Collected: 09/10/24 14:35

Matrix: Water

Date Received: 09/11/24 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	432954	HE7K	EET CF	09/11/24 12:50
Total/NA	Analysis	9056A		10	432954	HE7K	EET CF	09/11/24 16:15
Dissolved	Prep	3005A			432867	QTZ5	EET CF	09/12/24 09:00
Dissolved	Analysis	6020B		1	433906	NFT2	EET CF	09/20/24 15:54
Total/NA	Prep	3005A			432857	QTZ5	EET CF	09/12/24 09:00
Total/NA	Analysis	6020B		1	434059	NFT2	EET CF	09/23/24 15:49
Total/NA	Prep	3005A			432857	QTZ5	EET CF	09/12/24 09:00
Total/NA	Analysis	6020B		1	433771	NFT2	EET CF	09/19/24 14:49
Total/NA	Prep	3005A			432857	QTZ5	EET CF	09/12/24 09:00
Total/NA	Analysis	6020B		1	433906	NFT2	EET CF	09/20/24 14:41
Total/NA	Prep	7470A			433662	DHM5	EET CF	09/19/24 13:55
Total/NA	Analysis	7470A		1	433861	QTZ5	EET CF	09/20/24 15:45
Total/NA	Analysis	9060A		1	433482	DGU1	EET CF	09/18/24 01:43
Total/NA	Analysis	SM 2540C		1	433202	WZC8	EET CF	09/14/24 08:52
Total/NA	Analysis	SM 4500 H+ B		1	432774	W9YR	EET CF	09/11/24 11:59
Total/NA	Prep	PrecSep-21			679302	BCE	EET SL	09/13/24 08:10
Total/NA	Analysis	9315		1	682449	CMM	EET SL	10/07/24 09:57

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-290219-1

Client Sample ID: MW231SR-GW-GW-0924

Lab Sample ID: 310-290219-2

Date Collected: 09/10/24 14:35

Matrix: Water

Date Received: 09/11/24 09:10

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Prep	PrecSep_0			679303	BCE	EET SL	09/13/24 08:20
Total/NA	Analysis	9320		1	682006	FLC	EET SL	10/03/24 13:46
Total/NA	Analysis	Ra226_Ra228		1	682564	FLC	EET SL	10/08/24 07:30

Laboratory References:

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

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-290219-1

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6020B	3005A	Water	Lithium

Laboratory: Eurofins St. Louis

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	373	12-01-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
9315	PrecSep-21	Water	Radium-226
9320	PrecSep_0	Water	Radium-228
Ra226_Ra228		Water	Combined Radium 226 + 228

Method Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-290219-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
7470A	Mercury (CVAA)	SW846	EET CF
9060A	Organic Carbon, Total (TOC)	SW846	EET CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CF
SM 4500 H+ B	pH	SM	EET CF
9315	Radium-226 (GFPC)	SW846	EET SL
9320	Radium-228 (GFPC)	SW846	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
3005A	Preparation, Total Metals	SW846	EET CF
7470A	Preparation, Mercury	SW846	EET CF
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

None = None

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

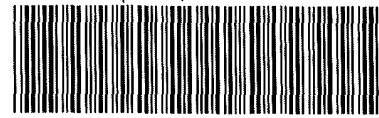
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

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

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>AAD Services</u>			
City/State:	CITY	STATE	Project:
Receipt Information			
Date/Time Received:	DATE <u>11-24</u>	TIME <u>0910</u>	Received By: <u>SM</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # ____ of ____	
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>Y</u>		Correction Factor (°C): <u>0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>0.8</u>		Corrected Temp (°C): <u>0.8</u>	
• Sample Container Temperature			
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE If yes, contact PM before proceeding If no, proceed with login			
Additional Comments			



Chain of Custody Record

esturmanca Des Moines SC
 21-

eurofins

Client Information		Sampler: Paul Richards Knowl		Lab PM: Zach Bindert		Carrier Tracking No(s):		COC No:								
Client Contact: Kevin Armstrong		Phone: 712-898-9103		E-Mail: zach.bindert@eurofins.com		State of Origin: Iowa		Page: 1 of 1								
Company: GHD Services Inc.		PWSID:				Job #:										
Address: 11228 Aurora Avenue		City: Des Moines		State: IA		Zip: 50322-7905		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 X - EDTA Y - Trizma Z - other (specify) Other:								
TAT Requested (days): Standard		Compliance Project: Δ Yes Δ No		PO #: 940-017045		WO #: 12576482-003 01		Total Number of Containers: 9								
Project Name: MEC Neal North-Background		Project #: 31017263		SSOW#: 12576482-002				Special Instructions/Note:								
Site: Neal North CCR																
Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=water, A=air)	Field Filtered Sample (Yes or No)	Performance (MS/MSD) (Yes or No)	9316_Ra226 - Standard Target List	9320_Ra228 - Standard Target List	9058A_ORGM_28D - Chloride, Fluoride & Sulfate	6020B_7470A - Appendix III and IV Metals	2400C_Calcd, SM4500_H+	6020B - Dissolved Fe and Mn	9080A - TOC Duplicates	9058A_ORGM_48H	6020B_7470A - Appendix III and IV Metals + Iron and Manganese	
MW43R-GW-0924			G	Water	N	X	X	X	X	X	X	X	X	X	X	
MW27-GW-0924			G	Water	N	X	X	X	X	X	X	X	X	X	X	
MW29R-GW-0924			G	Water	N	X	X	X	X	X	X	X	X	X	X	
MW223S-GW-0924	9/10/24	1440	G	Water	Y	N	X	X	X	X	X	X	X	X	X	Short Hold
MW231SR-GW-0924	9/10/24	1435	G	Water	Y	N	X	X	X	X	X	X	X	X	X	Short Hold
DE01-GW-0924			G	Water	N	X	X	X	X	X	X	X	X	X	X	
PPZ																
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested I, II, III, IV, Other (specify)																
Empty Kit Relinquished by: _____ Date: _____ Relinquished by: Paul Richards Date Time: 9/10/24 1550 Company: GHD Relinquished by: _____ Date Time: _____ Company: _____ Relinquished by: _____ Date Time: _____ Company: _____																
Custody Seals Intact: Δ Yes Δ No Custody Seal No: _____ Cooler Temperature(s) °C and Other Remarks: _____																

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 310-290219-1

Login Number: 290219

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Miller, Samuel

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	

Tracer/Carrier Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North-Background

Job ID: 310-290219-1

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)
310-290219-1	MW223S-GW-0924	92.8
310-290219-2	MW231SR-GW-GW-0924	90.6
LCS 160-679302/2-A	Lab Control Sample	87.6
MB 160-679302/1-A	Method Blank	99.5

Tracer/Carrier Legend

Ba = Barium

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)
310-290219-1	MW223S-GW-0924	92.8	77.0
310-290219-2	MW231SR-GW-GW-0924	90.6	80.7
LCS 160-679303/2-A	Lab Control Sample	87.6	82.6
MB 160-679303/1-A	Method Blank	99.5	82.6

Tracer/Carrier Legend

Ba = Barium

Y = Y Carrier



ANALYTICAL REPORT

PREPARED FOR

Attn: Kevin Armstrong
GHD Services Inc.
11228 Aurora Avenue
Des Moines, Iowa 50322-7905

Generated 10/10/2024 10:05:11 AM

JOB DESCRIPTION

MEC Neal North Energy Center CCR

JOB NUMBER

310-290339-1

Eurofins Cedar Falls

Job Notes

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

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

Authorization



Generated
10/10/2024 10:05:11 AM

Authorized for release by
Zach Bindert, Senior Project Manager
Zach.Bindert@et.eurofinsus.com
(319)595-2016



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Case Narrative

Client: GHD Services Inc.
Project: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

Job ID: 310-290339-1

Eurofins Cedar Falls

Job Narrative 310-290339-1

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 and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided 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 9/12/2024 9:15 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 4.0°C and 4.5°C.

HPLC/IC

Method 9056A_ORGFM_28D: The following samples were diluted due to the nature of the sample matrix: MW13R-GW-0924 (310-290339-1), MW27-GW-0924 (310-290339-2), MW29R-GW-0924 (310-290339-3) and DP01-GW-0924 (310-290339-4). Elevated reporting limits (RLs) are provided.

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.

Eurofins Cedar Falls

Case Narrative

Client: GHD Services Inc.
Project: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

Job ID: 310-290339-2

Eurofins Cedar Falls

Job Narrative 310-290339-2

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 and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided 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 9/12/2024 9:15 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 4.0°C and 4.5°C.

Gas Flow Proportional Counter

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

Rad

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

Eurofins Cedar Falls

Sample Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-290339-1	MW13R-GW-0924	Water	09/11/24 09:00	09/12/24 09:15
310-290339-2	MW27-GW-0924	Water	09/10/24 17:30	09/12/24 09:15
310-290339-3	MW29R-GW-0924	Water	09/10/24 18:20	09/12/24 09:15
310-290339-4	DP01-GW-0924	Water	09/10/24 00:00	09/12/24 09:15

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

Client Sample ID: MW13R-GW-0924

Lab Sample ID: 310-290339-1

Date Collected: 09/11/24 09:00

Matrix: Water

Date Received: 09/12/24 09:15

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10.5		5.00		mg/L			09/18/24 09:26	5
Fluoride	<1.00		1.00		mg/L			09/18/24 09:26	5
Sulfate	29.0		5.00		mg/L			09/18/24 09:26	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		09/13/24 09:30	09/23/24 21:46	1
Arsenic	0.0426		0.00200		mg/L		09/13/24 09:30	09/23/24 21:46	1
Barium	0.228		0.00200		mg/L		09/13/24 09:30	09/23/24 21:46	1
Beryllium	<0.00100		0.00100		mg/L		09/13/24 09:30	09/23/24 21:46	1
Boron	<0.100		0.100		mg/L		09/13/24 09:30	09/23/24 21:46	1
Cadmium	<0.000200		0.000200		mg/L		09/13/24 09:30	09/24/24 19:47	1
Calcium	138		0.500		mg/L		09/13/24 09:30	09/23/24 21:46	1
Chromium	<0.00500		0.00500		mg/L		09/13/24 09:30	09/23/24 21:46	1
Cobalt	0.000874		0.000500		mg/L		09/13/24 09:30	09/23/24 21:46	1
Lithium	0.0906		0.0100		mg/L		09/13/24 09:30	09/23/24 21:46	1
Lead	<0.000500		0.000500		mg/L		09/13/24 09:30	09/23/24 21:46	1
Molybdenum	0.00362		0.00200		mg/L		09/13/24 09:30	09/23/24 21:46	1
Selenium	<0.00500		0.00500		mg/L		09/13/24 09:30	09/23/24 21:46	1
Thallium	<0.00100		0.00100		mg/L		09/13/24 09:30	09/23/24 21:46	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/17/24 14:05	09/18/24 13:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	566		50.0		mg/L			09/14/24 08:52	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.1	HF	1.0		SU			09/12/24 10:48	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.316		0.120	0.123	1.00	0.130	pCi/L	09/16/24 08:41	10/08/24 08:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	87.9		30 - 110					09/16/24 08:41	10/08/24 08:07	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.862		0.405	0.413	1.00	0.541	pCi/L	09/16/24 08:46	09/30/24 12:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	87.9		30 - 110					09/16/24 08:46	09/30/24 12:05	1
Y Carrier	83.4		30 - 110					09/16/24 08:46	09/30/24 12:05	1

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Client Sample Results

Client: GHD Services Inc.
 Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

Client Sample ID: MW13R-GW-0924

Lab Sample ID: 310-290339-1

Date Collected: 09/11/24 09:00

Matrix: Water

Date Received: 09/12/24 09:15

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.18		0.422	0.431	5.00	0.541	pCi/L		10/08/24 07:30	1

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Client Sample Results

Client: GHD Services Inc.
 Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

Client Sample ID: MW27-GW-0924

Lab Sample ID: 310-290339-2

Date Collected: 09/10/24 17:30

Matrix: Water

Date Received: 09/12/24 09:15

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	24.9		5.00		mg/L			09/18/24 10:03	5
Fluoride	<1.00		1.00		mg/L			09/18/24 10:03	5
Sulfate	78.4		5.00		mg/L			09/18/24 10:03	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		09/13/24 09:30	09/23/24 21:55	1
Arsenic	0.0663		0.00200		mg/L		09/13/24 09:30	09/23/24 21:55	1
Barium	0.176		0.00200		mg/L		09/13/24 09:30	09/23/24 21:55	1
Beryllium	<0.00100		0.00100		mg/L		09/13/24 09:30	09/23/24 21:55	1
Boron	0.179		0.100		mg/L		09/13/24 09:30	09/23/24 21:55	1
Cadmium	<0.000200		0.000200		mg/L		09/13/24 09:30	09/24/24 20:12	1
Calcium	167		0.500		mg/L		09/13/24 09:30	09/23/24 21:55	1
Chromium	<0.00500		0.00500		mg/L		09/13/24 09:30	09/23/24 21:55	1
Cobalt	0.000849		0.000500		mg/L		09/13/24 09:30	09/23/24 21:55	1
Lithium	0.105		0.0100		mg/L		09/13/24 09:30	09/23/24 21:55	1
Lead	<0.000500		0.000500		mg/L		09/13/24 09:30	09/23/24 21:55	1
Molybdenum	<0.00200		0.00200		mg/L		09/13/24 09:30	09/23/24 21:55	1
Selenium	<0.00500		0.00500		mg/L		09/13/24 09:30	09/23/24 21:55	1
Thallium	<0.00100		0.00100		mg/L		09/13/24 09:30	09/23/24 21:55	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/17/24 14:05	09/18/24 13:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	682		50.0		mg/L			09/13/24 13:34	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.0	HF	1.0		SU			09/12/24 10:50	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.242		0.112	0.114	1.00	0.136	pCi/L	09/16/24 08:41	10/08/24 08:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	81.3		30 - 110					09/16/24 08:41	10/08/24 08:12	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	<0.647	U	0.427	0.431	1.00	0.647	pCi/L	09/16/24 08:46	09/30/24 11:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	81.3		30 - 110					09/16/24 08:46	09/30/24 11:58	1
Y Carrier	80.0		30 - 110					09/16/24 08:46	09/30/24 11:58	1

Client Sample Results

Client: GHD Services Inc.
 Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

Client Sample ID: MW27-GW-0924

Lab Sample ID: 310-290339-2

Date Collected: 09/10/24 17:30

Matrix: Water

Date Received: 09/12/24 09:15

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.848		0.441	0.446	5.00	0.647	pCi/L		10/08/24 07:30	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

Client Sample ID: MW29R-GW-0924

Lab Sample ID: 310-290339-3

Date Collected: 09/10/24 18:20

Matrix: Water

Date Received: 09/12/24 09:15

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11.3		5.00		mg/L			09/18/24 10:15	5
Fluoride	<1.00		1.00		mg/L			09/18/24 10:15	5
Sulfate	60.4		5.00		mg/L			09/18/24 10:15	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		09/13/24 09:30	09/23/24 21:57	1
Arsenic	0.0277		0.00200		mg/L		09/13/24 09:30	09/23/24 21:57	1
Barium	0.206		0.00200		mg/L		09/13/24 09:30	09/23/24 21:57	1
Beryllium	<0.00100		0.00100		mg/L		09/13/24 09:30	09/23/24 21:57	1
Boron	0.114		0.100		mg/L		09/13/24 09:30	09/23/24 21:57	1
Cadmium	<0.000200		0.000200		mg/L		09/13/24 09:30	09/24/24 20:15	1
Calcium	163		0.500		mg/L		09/13/24 09:30	09/23/24 21:57	1
Chromium	<0.00500		0.00500		mg/L		09/13/24 09:30	09/23/24 21:57	1
Cobalt	0.00217		0.000500		mg/L		09/13/24 09:30	09/23/24 21:57	1
Lithium	0.0908		0.0100		mg/L		09/13/24 09:30	09/23/24 21:57	1
Lead	<0.000500		0.000500		mg/L		09/13/24 09:30	09/23/24 21:57	1
Molybdenum	<0.00200		0.00200		mg/L		09/13/24 09:30	09/23/24 21:57	1
Selenium	<0.00500		0.00500		mg/L		09/13/24 09:30	09/23/24 21:57	1
Thallium	<0.00100		0.00100		mg/L		09/13/24 09:30	09/23/24 21:57	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/17/24 14:05	09/18/24 13:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	606		50.0		mg/L			09/13/24 13:34	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.0	HF	1.0		SU			09/12/24 10:51	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.318		0.114	0.118	1.00	0.117	pCi/L	09/16/24 08:41	10/08/24 08:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	88.9		30 - 110					09/16/24 08:41	10/08/24 08:12	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.682		0.379	0.385	1.00	0.541	pCi/L	09/16/24 08:46	09/30/24 11:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	88.9		30 - 110					09/16/24 08:46	09/30/24 11:58	1
Y Carrier	86.4		30 - 110					09/16/24 08:46	09/30/24 11:58	1

Client Sample Results

Client: GHD Services Inc.
 Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

Client Sample ID: MW29R-GW-0924

Lab Sample ID: 310-290339-3

Date Collected: 09/10/24 18:20

Matrix: Water

Date Received: 09/12/24 09:15

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.00		0.396	0.403	5.00	0.541	pCi/L		10/08/24 07:30	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

Client Sample ID: DP01-GW-0924

Lab Sample ID: 310-290339-4

Date Collected: 09/10/24 00:00

Matrix: Water

Date Received: 09/12/24 09:15

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	24.8		5.00		mg/L			09/18/24 10:27	5
Fluoride	<1.00		1.00		mg/L			09/18/24 10:27	5
Sulfate	78.3		5.00		mg/L			09/18/24 10:27	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		09/13/24 09:30	09/23/24 21:59	1
Arsenic	0.0675		0.00200		mg/L		09/13/24 09:30	09/23/24 21:59	1
Barium	0.181		0.00200		mg/L		09/13/24 09:30	09/23/24 21:59	1
Beryllium	<0.00100		0.00100		mg/L		09/13/24 09:30	09/23/24 21:59	1
Boron	0.182		0.100		mg/L		09/13/24 09:30	09/23/24 21:59	1
Cadmium	<0.000200		0.000200		mg/L		09/13/24 09:30	09/24/24 20:19	1
Calcium	170		0.500		mg/L		09/13/24 09:30	09/23/24 21:59	1
Chromium	<0.00500		0.00500		mg/L		09/13/24 09:30	09/23/24 21:59	1
Cobalt	0.000867		0.000500		mg/L		09/13/24 09:30	09/23/24 21:59	1
Lithium	0.105		0.0100		mg/L		09/13/24 09:30	09/23/24 21:59	1
Lead	<0.000500		0.000500		mg/L		09/13/24 09:30	09/23/24 21:59	1
Molybdenum	<0.00200		0.00200		mg/L		09/13/24 09:30	09/23/24 21:59	1
Selenium	<0.00500		0.00500		mg/L		09/13/24 09:30	09/23/24 21:59	1
Thallium	<0.00100		0.00100		mg/L		09/13/24 09:30	09/23/24 21:59	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/17/24 14:05	09/18/24 13:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	638		50.0		mg/L			09/13/24 13:34	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.0	HF	1.0		SU			09/12/24 10:52	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.328		0.119	0.123	1.00	0.121	pCi/L	09/16/24 08:41	10/08/24 08:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	84.2		30 - 110					09/16/24 08:41	10/08/24 08:12	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	<0.573	U	0.372	0.375	1.00	0.573	pCi/L	09/16/24 08:46	09/30/24 11:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	84.2		30 - 110					09/16/24 08:46	09/30/24 11:58	1
Y Carrier	84.5		30 - 110					09/16/24 08:46	09/30/24 11:58	1

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Client Sample Results

Client: GHD Services Inc.
 Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

Client Sample ID: DP01-GW-0924

Lab Sample ID: 310-290339-4

Date Collected: 09/10/24 00:00

Matrix: Water

Date Received: 09/12/24 09:15

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.806		0.391	0.395	5.00	0.573	pCi/L		10/08/24 07:30	1

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Definitions/Glossary

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

Qualifiers

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

General Chemistry

Qualifier	Qualifier Description
HF	Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request. Sample was analyzed outside of hold time.

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

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

QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-433706/3
Matrix: Water
Analysis Batch: 433706

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			09/18/24 09:02	1
Fluoride	<0.200		0.200		mg/L			09/18/24 09:02	1
Sulfate	<1.00		1.00		mg/L			09/18/24 09:02	1

Lab Sample ID: LCS 310-433706/4
Matrix: Water
Analysis Batch: 433706

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.739		mg/L		97	90 - 110
Fluoride	2.00	2.042		mg/L		102	90 - 110
Sulfate	10.0	10.27		mg/L		103	90 - 110

Lab Sample ID: 310-290339-1 MS
Matrix: Water
Analysis Batch: 433706

Client Sample ID: MW13R-GW-0924
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.5		25.0	33.16		mg/L		91	80 - 120
Fluoride	<1.00		5.00	5.454		mg/L		109	80 - 120
Sulfate	29.0		25.0	54.42		mg/L		102	80 - 120

Lab Sample ID: 310-290339-1 MSD
Matrix: Water
Analysis Batch: 433706

Client Sample ID: MW13R-GW-0924
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	10.5		25.0	33.49		mg/L		92	80 - 120	1	15
Fluoride	<1.00		5.00	5.483		mg/L		110	80 - 120	1	15
Sulfate	29.0		25.0	55.22		mg/L		105	80 - 120	1	15

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-433031/1-A
Matrix: Water
Analysis Batch: 434057

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433031

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		09/13/24 09:30	09/23/24 21:33	1
Arsenic	<0.00200		0.00200		mg/L		09/13/24 09:30	09/23/24 21:33	1
Barium	<0.00200		0.00200		mg/L		09/13/24 09:30	09/23/24 21:33	1
Beryllium	<0.00100		0.00100		mg/L		09/13/24 09:30	09/23/24 21:33	1
Boron	<0.100		0.100		mg/L		09/13/24 09:30	09/23/24 21:33	1
Calcium	<0.500		0.500		mg/L		09/13/24 09:30	09/23/24 21:33	1
Chromium	<0.00500		0.00500		mg/L		09/13/24 09:30	09/23/24 21:33	1
Cobalt	<0.000500		0.000500		mg/L		09/13/24 09:30	09/23/24 21:33	1
Lithium	<0.0100		0.0100		mg/L		09/13/24 09:30	09/23/24 21:33	1
Lead	<0.000500		0.000500		mg/L		09/13/24 09:30	09/23/24 21:33	1
Molybdenum	<0.00200		0.00200		mg/L		09/13/24 09:30	09/23/24 21:33	1
Selenium	<0.00500		0.00500		mg/L		09/13/24 09:30	09/23/24 21:33	1

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QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

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

Lab Sample ID: MB 310-433031/1-A
Matrix: Water
Analysis Batch: 434057

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433031

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	<0.00100		0.00100		mg/L		09/13/24 09:30	09/23/24 21:33	1

Lab Sample ID: MB 310-433031/1-A
Matrix: Water
Analysis Batch: 434205

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433031

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	<0.000200		0.000200		mg/L		09/13/24 09:30	09/24/24 19:40	1
Lead	<0.000500		0.000500		mg/L		09/13/24 09:30	09/24/24 19:40	1

Lab Sample ID: LCS 310-433031/2-A
Matrix: Water
Analysis Batch: 434057

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433031

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.2317		mg/L		116	80 - 120
Arsenic	0.200	0.2103		mg/L		105	80 - 120
Barium	0.100	0.1049		mg/L		105	80 - 120
Beryllium	0.100	0.09055		mg/L		91	80 - 120
Boron	0.200	0.1787		mg/L		89	80 - 120
Calcium	2.00	1.902		mg/L		95	80 - 120
Chromium	0.100	0.1003		mg/L		100	80 - 120
Cobalt	0.100	0.09556		mg/L		96	80 - 120
Lithium	0.200	0.1942		mg/L		97	80 - 120
Lead	0.200	0.2092		mg/L		105	80 - 120
Molybdenum	0.200	0.1909		mg/L		95	80 - 120
Selenium	0.400	0.3953		mg/L		99	80 - 120
Thallium	0.100	0.09899		mg/L		99	80 - 120

Lab Sample ID: LCS 310-433031/2-A
Matrix: Water
Analysis Batch: 434205

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433031

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	0.100	0.09638		mg/L		96	80 - 120
Lead	0.200	0.2099		mg/L		105	80 - 120

Lab Sample ID: 310-290339-1 MS
Matrix: Water
Analysis Batch: 434057

Client Sample ID: MW13R-GW-0924
Prep Type: Total/NA
Prep Batch: 433031

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	<0.00200		0.200	0.2317		mg/L		116	75 - 125
Arsenic	0.0426		0.200	0.2635		mg/L		110	75 - 125
Barium	0.228		0.100	0.3424		mg/L		114	75 - 125
Beryllium	<0.00100		0.100	0.09711		mg/L		97	75 - 125
Boron	<0.100		0.200	0.2881		mg/L		101	75 - 125
Calcium	138		2.00	143.3	4	mg/L		281	75 - 125
Chromium	<0.00500		0.100	0.09979		mg/L		100	75 - 125
Cobalt	0.000874		0.100	0.09424		mg/L		93	75 - 125

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QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

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

Lab Sample ID: 310-290339-1 MS
Matrix: Water
Analysis Batch: 434057

Client Sample ID: MW13R-GW-0924
Prep Type: Total/NA
Prep Batch: 433031

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	
	Result	Qualifier	Added	Result	Qualifier				Limits	
Lithium	0.0906		0.200	0.2950		mg/L		102	75 - 125	
Lead	<0.000500		0.200	0.2130		mg/L		106	75 - 125	
Molybdenum	0.00362		0.200	0.2054		mg/L		101	75 - 125	
Selenium	<0.00500		0.400	0.4056		mg/L		101	75 - 125	
Thallium	<0.00100		0.100	0.1014		mg/L		101	75 - 125	

Lab Sample ID: 310-290339-1 MS
Matrix: Water
Analysis Batch: 434205

Client Sample ID: MW13R-GW-0924
Prep Type: Total/NA
Prep Batch: 433031

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	
	Result	Qualifier	Added	Result	Qualifier				Limits	
Cadmium	<0.000200		0.100	0.09956		mg/L		100	75 - 125	

Lab Sample ID: 310-290339-1 MSD
Matrix: Water
Analysis Batch: 434057

Client Sample ID: MW13R-GW-0924
Prep Type: Total/NA
Prep Batch: 433031

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec		RPD	
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD	Limit	
Antimony	<0.00200		0.200	0.2358		mg/L		118	75 - 125	2	20	
Arsenic	0.0426		0.200	0.2595		mg/L		108	75 - 125	2	20	
Barium	0.228		0.100	0.3369		mg/L		109	75 - 125	2	20	
Beryllium	<0.00100		0.100	0.09935		mg/L		99	75 - 125	2	20	
Boron	<0.100		0.200	0.2956		mg/L		105	75 - 125	3	20	
Calcium	138		2.00	144.6	4	mg/L		344	75 - 125	1	20	
Chromium	<0.00500		0.100	0.1010		mg/L		101	75 - 125	1	20	
Cobalt	0.000874		0.100	0.09542		mg/L		95	75 - 125	1	20	
Lithium	0.0906		0.200	0.3012		mg/L		105	75 - 125	2	20	
Lead	<0.000500		0.200	0.2214		mg/L		111	75 - 125	4	20	
Molybdenum	0.00362		0.200	0.2050		mg/L		101	75 - 125	0	20	
Selenium	<0.00500		0.400	0.4065		mg/L		102	75 - 125	0	20	
Thallium	<0.00100		0.100	0.09931		mg/L		99	75 - 125	2	20	

Lab Sample ID: 310-290339-1 MSD
Matrix: Water
Analysis Batch: 434205

Client Sample ID: MW13R-GW-0924
Prep Type: Total/NA
Prep Batch: 433031

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec		RPD	
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD	Limit	
Cadmium	<0.000200		0.100	0.1019		mg/L		102	75 - 125	2	20	

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-433372/1-A
Matrix: Water
Analysis Batch: 433591

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433372

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	<0.000200		0.000200		mg/L		09/17/24 14:05	09/18/24 12:22	1

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QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 310-433372/2-A
Matrix: Water
Analysis Batch: 433591

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433372

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.001757		mg/L		105	80 - 120

Lab Sample ID: 310-290339-1 MS
Matrix: Water
Analysis Batch: 433591

Client Sample ID: MW13R-GW-0924
Prep Type: Total/NA
Prep Batch: 433372

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	<0.000200		0.00167	0.001840		mg/L		110	80 - 120

Lab Sample ID: 310-290339-1 MSD
Matrix: Water
Analysis Batch: 433591

Client Sample ID: MW13R-GW-0924
Prep Type: Total/NA
Prep Batch: 433372

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Mercury	<0.000200		0.00167	0.001804		mg/L		108	80 - 120	2	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 310-433145/1
Matrix: Water
Analysis Batch: 433145

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<50.0		50.0		mg/L			09/13/24 13:34	1

Lab Sample ID: LCS 310-433145/2
Matrix: Water
Analysis Batch: 433145

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	956.0		mg/L		96	88 - 110

Lab Sample ID: MB 310-433202/1
Matrix: Water
Analysis Batch: 433202

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<50.0		50.0		mg/L			09/14/24 08:52	1

Lab Sample ID: LCS 310-433202/2
Matrix: Water
Analysis Batch: 433202

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	958.0		mg/L		96	88 - 110

QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-432920/1
Matrix: Water
Analysis Batch: 432920

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH	7.00	7.1		SU		101	98 - 102

Lab Sample ID: 310-290339-1 DU
Matrix: Water
Analysis Batch: 432920

Client Sample ID: MW13R-GW-0924
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.1	HF	7.1		SU		0.1	20

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-679567/1-A
Matrix: Water
Analysis Batch: 682562

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 679567

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	<0.113	U	0.0656	0.0657	1.00	0.113	pCi/L	09/16/24 08:41	10/08/24 07:51	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	87.7		30 - 110					09/16/24 08:41	10/08/24 07:51	1

Lab Sample ID: LCS 160-679567/2-A
Matrix: Water
Analysis Batch: 682562

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 679567

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226	9.58	9.006		0.977	1.00	0.107	pCi/L	94	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Barium	87.9		30 - 110						

Lab Sample ID: 310-290339-1 MS
Matrix: Water
Analysis Batch: 682633

Client Sample ID: MW13R-GW-0924
Prep Type: Total/NA
Prep Batch: 679567

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226	0.316		9.61	9.860		1.06	1.00	0.156	pCi/L	99	60 - 140
Carrier	MS %Yield	MS Qualifier	Limits								
Barium	86.5		30 - 110								

QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

Method: 9315 - Radium-226 (GFPC) (Continued)

Lab Sample ID: 310-290339-1 MSD
Matrix: Water
Analysis Batch: 682633

Client Sample ID: MW13R-GW-0924
Prep Type: Total/NA
Prep Batch: 679567

Analyte	Sample	Sample	Spike	MSD	MSD	Total	RL	MDC	Unit	%Rec	%Rec	RER	RER
	Result	Qual		Result	Qual								
Radium-226	0.316		9.61	9.109		1.00	1.00	0.161	pCi/L	92	60 - 140	0.36	1
Carrier	MSD	MSD	Limits										
Barium	86.0		30 - 110										

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-679569/1-A
Matrix: Water
Analysis Batch: 681571

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 679569

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Radium-228	0.6062		0.382	0.387	1.00	0.563	pCi/L	09/16/24 08:46	09/30/24 12:02	1
Carrier	MB	MB	Limits							
Barium	87.7		30 - 110							
Y Carrier	84.5		30 - 110							

Lab Sample ID: LCS 160-679569/2-A
Matrix: Water
Analysis Batch: 681571

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 679569

Analyte	Spike	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec
		Result	Qual						
Radium-228	8.47	9.646		1.34	1.00	0.540	pCi/L	114	75 - 125
Carrier	LCS	LCS	Limits						
Barium	87.9		30 - 110						
Y Carrier	83.4		30 - 110						

Lab Sample ID: 310-290339-1 MS
Matrix: Water
Analysis Batch: 681571

Client Sample ID: MW13R-GW-0924
Prep Type: Total/NA
Prep Batch: 679569

Analyte	Sample	Sample	Spike	MS	MS	Total	RL	MDC	Unit	%Rec	%Rec
	Result	Qual		Result	Qual						
Radium-228	0.862		8.50	10.17		1.43	1.00	0.776	pCi/L	110	60 - 140
Carrier	MS	MS	Limits								
Barium	86.5		30 - 110								
Y Carrier	81.9		30 - 110								

QC Sample Results

Client: GHD Services Inc.
 Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: 310-290339-1 MSD
Matrix: Water
Analysis Batch: 681572

Client Sample ID: MW13R-GW-0924
Prep Type: Total/NA
Prep Batch: 679569

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228	0.862		8.49	8.620		1.23	1.00	0.606	pCi/L	91	60 - 140	0.58	1
Carrier	%Yield	MSD Qualifier	MSD Limits										
Barium	86.0		30 - 110										
Y Carrier	87.5		30 - 110										

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- 2
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- 14

QC Association Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

HPLC/IC

Analysis Batch: 433706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290339-1	MW13R-GW-0924	Total/NA	Water	9056A	
310-290339-2	MW27-GW-0924	Total/NA	Water	9056A	
310-290339-3	MW29R-GW-0924	Total/NA	Water	9056A	
310-290339-4	DP01-GW-0924	Total/NA	Water	9056A	
MB 310-433706/3	Method Blank	Total/NA	Water	9056A	
LCS 310-433706/4	Lab Control Sample	Total/NA	Water	9056A	
310-290339-1 MS	MW13R-GW-0924	Total/NA	Water	9056A	
310-290339-1 MSD	MW13R-GW-0924	Total/NA	Water	9056A	

Metals

Prep Batch: 433031

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290339-1	MW13R-GW-0924	Total/NA	Water	3005A	
310-290339-2	MW27-GW-0924	Total/NA	Water	3005A	
310-290339-3	MW29R-GW-0924	Total/NA	Water	3005A	
310-290339-4	DP01-GW-0924	Total/NA	Water	3005A	
MB 310-433031/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-433031/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-290339-1 MS	MW13R-GW-0924	Total/NA	Water	3005A	
310-290339-1 MSD	MW13R-GW-0924	Total/NA	Water	3005A	

Prep Batch: 433372

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290339-1	MW13R-GW-0924	Total/NA	Water	7470A	
310-290339-2	MW27-GW-0924	Total/NA	Water	7470A	
310-290339-3	MW29R-GW-0924	Total/NA	Water	7470A	
310-290339-4	DP01-GW-0924	Total/NA	Water	7470A	
MB 310-433372/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-433372/2-A	Lab Control Sample	Total/NA	Water	7470A	
310-290339-1 MS	MW13R-GW-0924	Total/NA	Water	7470A	
310-290339-1 MSD	MW13R-GW-0924	Total/NA	Water	7470A	

Analysis Batch: 433591

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290339-1	MW13R-GW-0924	Total/NA	Water	7470A	433372
310-290339-2	MW27-GW-0924	Total/NA	Water	7470A	433372
310-290339-3	MW29R-GW-0924	Total/NA	Water	7470A	433372
310-290339-4	DP01-GW-0924	Total/NA	Water	7470A	433372
MB 310-433372/1-A	Method Blank	Total/NA	Water	7470A	433372
LCS 310-433372/2-A	Lab Control Sample	Total/NA	Water	7470A	433372
310-290339-1 MS	MW13R-GW-0924	Total/NA	Water	7470A	433372
310-290339-1 MSD	MW13R-GW-0924	Total/NA	Water	7470A	433372

Analysis Batch: 434057

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290339-1	MW13R-GW-0924	Total/NA	Water	6020B	433031
310-290339-2	MW27-GW-0924	Total/NA	Water	6020B	433031
310-290339-3	MW29R-GW-0924	Total/NA	Water	6020B	433031
310-290339-4	DP01-GW-0924	Total/NA	Water	6020B	433031
MB 310-433031/1-A	Method Blank	Total/NA	Water	6020B	433031

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QC Association Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

Metals (Continued)

Analysis Batch: 434057 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-433031/2-A	Lab Control Sample	Total/NA	Water	6020B	433031
310-290339-1 MS	MW13R-GW-0924	Total/NA	Water	6020B	433031
310-290339-1 MSD	MW13R-GW-0924	Total/NA	Water	6020B	433031

Analysis Batch: 434205

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290339-1	MW13R-GW-0924	Total/NA	Water	6020B	433031
310-290339-2	MW27-GW-0924	Total/NA	Water	6020B	433031
310-290339-3	MW29R-GW-0924	Total/NA	Water	6020B	433031
310-290339-4	DP01-GW-0924	Total/NA	Water	6020B	433031
MB 310-433031/1-A	Method Blank	Total/NA	Water	6020B	433031
LCS 310-433031/2-A	Lab Control Sample	Total/NA	Water	6020B	433031
310-290339-1 MS	MW13R-GW-0924	Total/NA	Water	6020B	433031
310-290339-1 MSD	MW13R-GW-0924	Total/NA	Water	6020B	433031

General Chemistry

Analysis Batch: 432920

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290339-1	MW13R-GW-0924	Total/NA	Water	SM 4500 H+ B	
310-290339-2	MW27-GW-0924	Total/NA	Water	SM 4500 H+ B	
310-290339-3	MW29R-GW-0924	Total/NA	Water	SM 4500 H+ B	
310-290339-4	DP01-GW-0924	Total/NA	Water	SM 4500 H+ B	
LCS 310-432920/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-290339-1 DU	MW13R-GW-0924	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 433145

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290339-2	MW27-GW-0924	Total/NA	Water	SM 2540C	
310-290339-3	MW29R-GW-0924	Total/NA	Water	SM 2540C	
310-290339-4	DP01-GW-0924	Total/NA	Water	SM 2540C	
MB 310-433145/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-433145/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 433202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290339-1	MW13R-GW-0924	Total/NA	Water	SM 2540C	
MB 310-433202/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-433202/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Rad

Prep Batch: 679567

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290339-1	MW13R-GW-0924	Total/NA	Water	PrecSep-21	
310-290339-2	MW27-GW-0924	Total/NA	Water	PrecSep-21	
310-290339-3	MW29R-GW-0924	Total/NA	Water	PrecSep-21	
310-290339-4	DP01-GW-0924	Total/NA	Water	PrecSep-21	
MB 160-679567/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-679567/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
310-290339-1 MS	MW13R-GW-0924	Total/NA	Water	PrecSep-21	
310-290339-1 MSD	MW13R-GW-0924	Total/NA	Water	PrecSep-21	

Eurofins Cedar Falls

QC Association Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

Rad

Prep Batch: 679569

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290339-1	MW13R-GW-0924	Total/NA	Water	PrecSep_0	
310-290339-2	MW27-GW-0924	Total/NA	Water	PrecSep_0	
310-290339-3	MW29R-GW-0924	Total/NA	Water	PrecSep_0	
310-290339-4	DP01-GW-0924	Total/NA	Water	PrecSep_0	
MB 160-679569/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-679569/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
310-290339-1 MS	MW13R-GW-0924	Total/NA	Water	PrecSep_0	
310-290339-1 MSD	MW13R-GW-0924	Total/NA	Water	PrecSep_0	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Lab Chronicle

Client: GHD Services Inc.
 Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

Client Sample ID: MW13R-GW-0924

Lab Sample ID: 310-290339-1

Date Collected: 09/11/24 09:00

Matrix: Water

Date Received: 09/12/24 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	433706	HE7K	EET CF	09/18/24 09:26
Total/NA	Prep	3005A			433031	F5MW	EET CF	09/13/24 09:30
Total/NA	Analysis	6020B		1	434205	NFT2	EET CF	09/24/24 19:47
Total/NA	Prep	3005A			433031	F5MW	EET CF	09/13/24 09:30
Total/NA	Analysis	6020B		1	434057	NFT2	EET CF	09/23/24 21:46
Total/NA	Prep	7470A			433372	DHM5	EET CF	09/17/24 14:05
Total/NA	Analysis	7470A		1	433591	DHM5	EET CF	09/18/24 13:00
Total/NA	Analysis	SM 2540C		1	433202	WZC8	EET CF	09/14/24 08:52
Total/NA	Analysis	SM 4500 H+ B		1	432920	W9YR	EET CF	09/12/24 10:48
Total/NA	Prep	PrecSep-21			679567	MLT	EET SL	09/16/24 08:41
Total/NA	Analysis	9315		1	682633	FLC	EET SL	10/08/24 08:07
Total/NA	Prep	PrecSep_0			679569	MLT	EET SL	09/16/24 08:46
Total/NA	Analysis	9320		1	681571	SCB	EET SL	09/30/24 12:05
Total/NA	Analysis	Ra226_Ra228		1	682564	FLC	EET SL	10/08/24 07:30

Client Sample ID: MW27-GW-0924

Lab Sample ID: 310-290339-2

Date Collected: 09/10/24 17:30

Matrix: Water

Date Received: 09/12/24 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	433706	HE7K	EET CF	09/18/24 10:03
Total/NA	Prep	3005A			433031	F5MW	EET CF	09/13/24 09:30
Total/NA	Analysis	6020B		1	434205	NFT2	EET CF	09/24/24 20:12
Total/NA	Prep	3005A			433031	F5MW	EET CF	09/13/24 09:30
Total/NA	Analysis	6020B		1	434057	NFT2	EET CF	09/23/24 21:55
Total/NA	Prep	7470A			433372	DHM5	EET CF	09/17/24 14:05
Total/NA	Analysis	7470A		1	433591	DHM5	EET CF	09/18/24 13:07
Total/NA	Analysis	SM 2540C		1	433145	DGU1	EET CF	09/13/24 13:34
Total/NA	Analysis	SM 4500 H+ B		1	432920	W9YR	EET CF	09/12/24 10:50
Total/NA	Prep	PrecSep-21			679567	MLT	EET SL	09/16/24 08:41
Total/NA	Analysis	9315		1	682635	FLC	EET SL	10/08/24 08:12
Total/NA	Prep	PrecSep_0			679569	MLT	EET SL	09/16/24 08:46
Total/NA	Analysis	9320		1	681572	SCB	EET SL	09/30/24 11:58
Total/NA	Analysis	Ra226_Ra228		1	682564	FLC	EET SL	10/08/24 07:30

Client Sample ID: MW29R-GW-0924

Lab Sample ID: 310-290339-3

Date Collected: 09/10/24 18:20

Matrix: Water

Date Received: 09/12/24 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	433706	HE7K	EET CF	09/18/24 10:15
Total/NA	Prep	3005A			433031	F5MW	EET CF	09/13/24 09:30
Total/NA	Analysis	6020B		1	434205	NFT2	EET CF	09/24/24 20:15

Lab Chronicle

Client: GHD Services Inc.
 Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

Client Sample ID: MW29R-GW-0924

Lab Sample ID: 310-290339-3

Date Collected: 09/10/24 18:20

Matrix: Water

Date Received: 09/12/24 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			433031	F5MW	EET CF	09/13/24 09:30
Total/NA	Analysis	6020B		1	434057	NFT2	EET CF	09/23/24 21:57
Total/NA	Prep	7470A			433372	DHM5	EET CF	09/17/24 14:05
Total/NA	Analysis	7470A		1	433591	DHM5	EET CF	09/18/24 13:09
Total/NA	Analysis	SM 2540C		1	433145	DGU1	EET CF	09/13/24 13:34
Total/NA	Analysis	SM 4500 H+ B		1	432920	W9YR	EET CF	09/12/24 10:51
Total/NA	Prep	PrecSep-21			679567	MLT	EET SL	09/16/24 08:41
Total/NA	Analysis	9315		1	682635	FLC	EET SL	10/08/24 08:12
Total/NA	Prep	PrecSep_0			679569	MLT	EET SL	09/16/24 08:46
Total/NA	Analysis	9320		1	681572	SCB	EET SL	09/30/24 11:58
Total/NA	Analysis	Ra226_Ra228		1	682564	FLC	EET SL	10/08/24 07:30

Client Sample ID: DP01-GW-0924

Lab Sample ID: 310-290339-4

Date Collected: 09/10/24 00:00

Matrix: Water

Date Received: 09/12/24 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	433706	HE7K	EET CF	09/18/24 10:27
Total/NA	Prep	3005A			433031	F5MW	EET CF	09/13/24 09:30
Total/NA	Analysis	6020B		1	434205	NFT2	EET CF	09/24/24 20:19
Total/NA	Prep	3005A			433031	F5MW	EET CF	09/13/24 09:30
Total/NA	Analysis	6020B		1	434057	NFT2	EET CF	09/23/24 21:59
Total/NA	Prep	7470A			433372	DHM5	EET CF	09/17/24 14:05
Total/NA	Analysis	7470A		1	433591	DHM5	EET CF	09/18/24 13:11
Total/NA	Analysis	SM 2540C		1	433145	DGU1	EET CF	09/13/24 13:34
Total/NA	Analysis	SM 4500 H+ B		1	432920	W9YR	EET CF	09/12/24 10:52
Total/NA	Prep	PrecSep-21			679567	MLT	EET SL	09/16/24 08:41
Total/NA	Analysis	9315		1	682635	FLC	EET SL	10/08/24 08:12
Total/NA	Prep	PrecSep_0			679569	MLT	EET SL	09/16/24 08:46
Total/NA	Analysis	9320		1	681572	SCB	EET SL	09/30/24 11:58
Total/NA	Analysis	Ra226_Ra228		1	682564	FLC	EET SL	10/08/24 07:30

Laboratory References:

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

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6020B	3005A	Water	Lithium

Laboratory: Eurofins St. Louis

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	373	12-01-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
9315	PrecSep-21	Water	Radium-226
9320	PrecSep_0	Water	Radium-228
Ra226_Ra228		Water	Combined Radium 226 + 228



Method Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
7470A	Mercury (CVAA)	SW846	EET CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CF
SM 4500 H+ B	pH	SM	EET CF
9315	Radium-226 (GFPC)	SW846	EET SL
9320	Radium-228 (GFPC)	SW846	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
3005A	Preparation, Total Metals	SW846	EET CF
7470A	Preparation, Mercury	SW846	EET CF
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

None = None

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

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

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

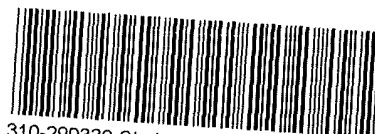
Laboratory References:

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

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



Environment Testing
America



310-290339 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>GHD</u>			
City/State:	CITY <u>Des Moines</u>	STATE <u>IA</u>	Project:
Receipt Information			
Date/Time Received:	DATE <u>9/12/24</u>	TIME <u>9:15</u>	Received By <u>PH</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID:
Multiple Coolers?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>1</u> of <u>2</u>
Cooler Custody Seals Present?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓
Temperature Record			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>P</u>		Correction Factor (°C): <u>0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>4.5</u>		Corrected Temp (°C): <u>4.5</u>	
• Sample Container Temperature			
Container(s) used.	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
a) If yes: Is there evidence that the chilling process began?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?)		<input type="checkbox"/> Yes	<input type="checkbox"/> No
NOTE If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			





Environment Testing
America

Place COC scanning label
here

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>GHD</u>			
City/State:	<u>Des Moines</u>	<u>IA</u>	Project:
Receipt Information			
Date/Time Received:	<u>9/2/24</u>	<u>9:15</u>	Received By: <u>PH</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # <u>2</u> of <u>2</u>	
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant:	<input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID: <u>P</u>	Correction Factor (°C): <u>0</u>		
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>RAW 4.0</u>	Corrected Temp (°C): <u>RAW 4.0</u>		
• Sample Container Temperature			
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			



Client Information Client Contact: Kevin Armstrong Company: GHD Services Inc. Address: 11228 Aurora Avenue City: Des Moines State, Zip: IA, 50322-7905 Phone: 515-414-3935 Email: Kevin.Armstrong@ghd.com Project Name: MEC Neal North-Background Site: Neal North CCR		Lab PM Zach Bindert E-Mail: zach.bindert@et.eurofins.com PMSID:		Carrier Tracking No(s): State of Origin: Iowa Page: Page 1 of 1 Job #:		COC No: Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)	
Due Date Requested: TAT Requested (days): Standard Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No PO #: 340-017045 WO #: 12576482-003 01 Project #: 31017263 SSO#: 12576482-002		Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> 9315_Ra228 - Standard Target List 9356_Ra228 - Standard Target List 9056A_ORGM_28D - Chloride, Fluoride & Sulfate 6020B_7470A - Appendix III and IV Metals 2640C_Calcd_SMA500_H+ 9020B - Dissolved Fe and Mn 9080A - TOC Duplicates 9068A_ORGM_48H 6020B_7470A - Appendix III and IV Metals + Iron and Manganese		Analysis Requested Total Number of Containers:		Special Instructions/Note: Short Hold Short Hold	
Sample Identification MW13R-GW-0924 MW27-GW-0924 MW29R-GW-0924 MW236S-GW-0924 MW234SR-GW-0924 DP01-GW-0924	Sample Date 9/11/24 9/10/24 9/10/24 9/10/24 9/10/24 9/10/24	Sample Time 0900 1730 1820 - - -	Sample Type (C=Comp, G=grab) G G G G G G	Matrix (W=water, S=solid, O=volatile, T=tissue, A=air) Water Water Water Water Water Water	Preservation Code N N N Y Y N	Special Instructions/Note: Short Hold Short Hold Short Hold Short Hold Short Hold	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Deliverable Requested 1, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Special Instructions/QC Requirements. Database Facility Code 11114642-GD-MidAmeri	
Relinquished by: <u>Angie Richardson</u> Date/Time: 9/11/24 11:05 Company: GHD		Relinquished by: <u>pt</u> Date/Time: 9/12/24 9:15 Company:		Relinquished by: <u>pt</u> Date/Time: 9/12/24 9:15 Company:		Relinquished by: <u>pt</u> Date/Time: 9/12/24 9:15 Company:	
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks:		Custody Seal No		Ver: 01/16/2019	

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 310-290339-1

Login Number: 290339

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Hirsch, Preston

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	



Tracer/Carrier Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290339-1

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)
310-290339-1	MW13R-GW-0924	87.9
310-290339-1 MS	MW13R-GW-0924	86.5
310-290339-1 MSD	MW13R-GW-0924	86.0
310-290339-2	MW27-GW-0924	81.3
310-290339-3	MW29R-GW-0924	88.9
310-290339-4	DP01-GW-0924	84.2
LCS 160-679567/2-A	Lab Control Sample	87.9
MB 160-679567/1-A	Method Blank	87.7

Tracer/Carrier Legend

Ba = Barium

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)
310-290339-1	MW13R-GW-0924	87.9	83.4
310-290339-1 MS	MW13R-GW-0924	86.5	81.9
310-290339-1 MSD	MW13R-GW-0924	86.0	87.5
310-290339-2	MW27-GW-0924	81.3	80.0
310-290339-3	MW29R-GW-0924	88.9	86.4
310-290339-4	DP01-GW-0924	84.2	84.5
LCS 160-679569/2-A	Lab Control Sample	87.9	83.4
MB 160-679569/1-A	Method Blank	87.7	84.5

Tracer/Carrier Legend

Ba = Barium

Y = Y Carrier



ANALYTICAL REPORT

PREPARED FOR

Attn: Kevin Armstrong
GHD Services Inc.
11228 Aurora Avenue
Des Moines, Iowa 50322-7905

Generated 10/10/2024 3:00:05 PM

JOB DESCRIPTION

MEC Neal North Energy Center CCR
MEC Neal North Closed Monofill

JOB NUMBER

310-290597-1

Eurofins Cedar Falls

Job Notes

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

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

Authorization



Generated
10/10/2024 3:00:05 PM

Authorized for release by
Zach Bindert, Senior Project Manager
Zach.Bindert@et.eurofinsus.com
(319)595-2016



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Case Narrative

Client: GHD Services Inc.
Project: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Job ID: 310-290597-1

Eurofins Cedar Falls

Job Narrative 310-290597-1

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 and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided 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 9/13/2024 4:26 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 3.8°C and 5.1°C.

HPLC/IC

Method 9056A_ORGFM_28D: The following samples were diluted due to the nature of the sample matrix: MW01R-GW-0924 (310-290597-1), MW03R-GW-0924 (310-290597-2), MW05R-GW-0924 (310-290597-3), MW19-GW-0924 (310-290597-4), MW21-GW-0924 (310-290597-5) and DP05-GW-0924 (310-290597-6). Elevated reporting limits (RLs) are provided.

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.

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Case Narrative

Client: GHD Services Inc.
Project: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Job ID: 310-290597-2

Eurofins Cedar Falls

Job Narrative 310-290597-2

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 and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided 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 9/13/2024 4:26 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 3.8°C and 5.1°C.

Gas Flow Proportional Counter

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

Rad

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

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Sample Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-290597-1	MW01R-GW-0924	Water	09/12/24 17:45	09/13/24 16:26
310-290597-2	MW03R-GW-0924	Water	09/13/24 07:15	09/13/24 16:26
310-290597-3	MW05R-GW-0924	Water	09/12/24 18:50	09/13/24 16:26
310-290597-4	MW19-GW-0924	Water	09/13/24 08:30	09/13/24 16:26
310-290597-5	MW21-GW-0924	Water	09/13/24 08:10	09/13/24 16:26
310-290597-6	DP05-GW-0924	Water	09/12/24 00:00	09/13/24 16:26

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Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Client Sample ID: MW01R-GW-0924

Lab Sample ID: 310-290597-1

Date Collected: 09/12/24 17:45

Matrix: Water

Date Received: 09/13/24 16:26

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	61.5		5.00		mg/L			09/20/24 16:38	5
Fluoride	<1.00		1.00		mg/L			09/20/24 16:38	5
Sulfate	198		5.00		mg/L			09/20/24 16:38	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		09/17/24 09:30	10/02/24 14:36	1
Arsenic	0.0475		0.00200		mg/L		09/17/24 09:30	09/30/24 15:55	1
Barium	0.0898		0.00200		mg/L		09/17/24 09:30	09/30/24 15:55	1
Beryllium	<0.00100		0.00100		mg/L		09/17/24 09:30	09/30/24 15:55	1
Boron	0.401		0.100		mg/L		09/17/24 09:30	09/30/24 15:55	1
Cadmium	<0.000200		0.000200		mg/L		09/17/24 09:30	09/30/24 15:55	1
Calcium	159		0.500		mg/L		09/17/24 09:30	09/30/24 15:55	1
Chromium	<0.00500		0.00500		mg/L		09/17/24 09:30	09/30/24 15:55	1
Cobalt	0.00112		0.000500		mg/L		09/17/24 09:30	09/30/24 15:55	1
Lithium	0.0765		0.0100		mg/L		09/17/24 09:30	09/30/24 15:55	1
Lead	<0.000500		0.000500		mg/L		09/17/24 09:30	09/30/24 15:55	1
Molybdenum	0.00473		0.00200		mg/L		09/17/24 09:30	09/30/24 15:55	1
Selenium	<0.00500		0.00500		mg/L		09/17/24 09:30	09/30/24 15:55	1
Thallium	<0.00100		0.00100		mg/L		09/17/24 09:30	09/30/24 15:55	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/17/24 14:05	09/18/24 14:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	820		50.0		mg/L			09/16/24 21:05	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.1	HF	1.0		SU			09/13/24 17:14	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	<0.129	U	0.0893	0.0899	1.00	0.129	pCi/L	09/18/24 08:38	10/10/24 08:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	90.1		30 - 110					09/18/24 08:38	10/10/24 08:11	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	<0.700	U	0.354	0.355	1.00	0.700	pCi/L	09/18/24 08:41	10/02/24 14:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	90.1		30 - 110					09/18/24 08:41	10/02/24 14:04	1
Y Carrier	81.5		30 - 110					09/18/24 08:41	10/02/24 14:04	1

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Client Sample Results

Client: GHD Services Inc.
 Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Client Sample ID: MW01R-GW-0924

Lab Sample ID: 310-290597-1

Date Collected: 09/12/24 17:45

Matrix: Water

Date Received: 09/13/24 16:26

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	<0.700	U	0.365	0.366	5.00	0.700	pCi/L		10/10/24 14:19	1

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Client Sample Results

Client: GHD Services Inc.
 Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Client Sample ID: MW03R-GW-0924

Lab Sample ID: 310-290597-2

Date Collected: 09/13/24 07:15

Matrix: Water

Date Received: 09/13/24 16:26

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10.8		5.00		mg/L			09/20/24 16:50	5
Fluoride	<1.00		1.00		mg/L			09/20/24 16:50	5
Sulfate	234		5.00		mg/L			09/20/24 16:50	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		09/17/24 09:30	10/02/24 14:38	1
Arsenic	0.0305		0.00200		mg/L		09/17/24 09:30	09/30/24 15:59	1
Barium	0.268		0.00200		mg/L		09/17/24 09:30	09/30/24 15:59	1
Beryllium	<0.00100		0.00100		mg/L		09/17/24 09:30	09/30/24 15:59	1
Boron	0.405		0.100		mg/L		09/17/24 09:30	09/30/24 15:59	1
Cadmium	<0.000200		0.000200		mg/L		09/17/24 09:30	09/30/24 15:59	1
Calcium	168		0.500		mg/L		09/17/24 09:30	09/30/24 15:59	1
Chromium	<0.00500		0.00500		mg/L		09/17/24 09:30	09/30/24 15:59	1
Cobalt	0.000703		0.000500		mg/L		09/17/24 09:30	09/30/24 15:59	1
Lithium	0.0875		0.0100		mg/L		09/17/24 09:30	09/30/24 15:59	1
Lead	<0.000500		0.000500		mg/L		09/17/24 09:30	09/30/24 15:59	1
Molybdenum	0.00227		0.00200		mg/L		09/17/24 09:30	09/30/24 15:59	1
Selenium	<0.00500		0.00500		mg/L		09/17/24 09:30	09/30/24 15:59	1
Thallium	<0.00100		0.00100		mg/L		09/17/24 09:30	09/30/24 15:59	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/17/24 14:05	09/18/24 15:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	808		50.0		mg/L			09/18/24 19:55	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.2	HF	1.0		SU			09/13/24 17:13	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.258		0.108	0.111	1.00	0.118	pCi/L	09/18/24 08:38	10/10/24 08:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	85.4		30 - 110					09/18/24 08:38	10/10/24 08:12	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	<0.907	U	0.497	0.497	1.00	0.907	pCi/L	09/18/24 08:41	10/02/24 14:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	85.4		30 - 110					09/18/24 08:41	10/02/24 14:05	1
Y Carrier	70.7		30 - 110					09/18/24 08:41	10/02/24 14:05	1

Eurofins Cedar Falls

Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Client Sample ID: MW03R-GW-0924

Lab Sample ID: 310-290597-2

Date Collected: 09/13/24 07:15

Matrix: Water

Date Received: 09/13/24 16:26

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	<0.907	U	0.509	0.509	5.00	0.907	pCi/L		10/10/24 14:19	1

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Client Sample Results

Client: GHD Services Inc.
 Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Client Sample ID: MW05R-GW-0924

Lab Sample ID: 310-290597-3

Date Collected: 09/12/24 18:50

Matrix: Water

Date Received: 09/13/24 16:26

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11.1		5.00		mg/L			09/20/24 17:26	5
Fluoride	<1.00		1.00		mg/L			09/20/24 17:26	5
Sulfate	275		5.00		mg/L			09/20/24 17:26	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		09/17/24 09:30	10/02/24 14:49	1
Arsenic	0.0291		0.00200		mg/L		09/17/24 09:30	09/30/24 16:02	1
Barium	0.126		0.00200		mg/L		09/17/24 09:30	09/30/24 16:02	1
Beryllium	<0.00100		0.00100		mg/L		09/17/24 09:30	09/30/24 16:02	1
Boron	0.310		0.100		mg/L		09/17/24 09:30	09/30/24 16:02	1
Cadmium	<0.000200		0.000200		mg/L		09/17/24 09:30	09/30/24 16:02	1
Calcium	162		0.500		mg/L		09/17/24 09:30	09/30/24 16:02	1
Chromium	<0.00500		0.00500		mg/L		09/17/24 09:30	09/30/24 16:02	1
Cobalt	0.000694		0.000500		mg/L		09/17/24 09:30	09/30/24 16:02	1
Lithium	0.0725		0.0100		mg/L		09/17/24 09:30	09/30/24 16:02	1
Lead	<0.000500		0.000500		mg/L		09/17/24 09:30	09/30/24 16:02	1
Molybdenum	0.00357		0.00200		mg/L		09/17/24 09:30	09/30/24 16:02	1
Selenium	<0.00500		0.00500		mg/L		09/17/24 09:30	09/30/24 16:02	1
Thallium	<0.00100		0.00100		mg/L		09/17/24 09:30	09/30/24 16:02	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/17/24 14:05	09/18/24 15:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	696		50.0		mg/L			09/16/24 21:05	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.2	HF	1.0		SU			09/13/24 17:15	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.170		0.0980	0.0992	1.00	0.130	pCi/L	09/18/24 08:38	10/10/24 08:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	86.6		30 - 110					09/18/24 08:38	10/10/24 08:12	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	<0.774	U	0.448	0.448	1.00	0.774	pCi/L	09/18/24 08:41	10/02/24 14:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	86.6		30 - 110					09/18/24 08:41	10/02/24 14:05	1
Y Carrier	78.1		30 - 110					09/18/24 08:41	10/02/24 14:05	1

Eurofins Cedar Falls

Client Sample Results

Client: GHD Services Inc.
 Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Client Sample ID: MW05R-GW-0924

Lab Sample ID: 310-290597-3

Date Collected: 09/12/24 18:50

Matrix: Water

Date Received: 09/13/24 16:26

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	<0.774	U	0.459	0.459	5.00	0.774	pCi/L		10/10/24 14:19	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Client Sample ID: MW19-GW-0924

Lab Sample ID: 310-290597-4

Date Collected: 09/13/24 08:30

Matrix: Water

Date Received: 09/13/24 16:26

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	19.4		5.00		mg/L			09/20/24 17:38	5
Fluoride	<1.00		1.00		mg/L			09/20/24 17:38	5
Sulfate	939		50.0		mg/L			09/20/24 17:50	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		09/17/24 09:30	10/02/24 14:51	1
Arsenic	0.00666		0.00200		mg/L		09/17/24 09:30	09/30/24 16:06	1
Barium	0.0197		0.00200		mg/L		09/17/24 09:30	09/30/24 16:06	1
Beryllium	<0.00100		0.00100		mg/L		09/17/24 09:30	09/30/24 16:06	1
Boron	0.538		0.100		mg/L		09/17/24 09:30	09/30/24 16:06	1
Cadmium	<0.000200		0.000200		mg/L		09/17/24 09:30	09/30/24 16:06	1
Calcium	419		0.500		mg/L		09/17/24 09:30	09/30/24 16:06	1
Chromium	<0.00500		0.00500		mg/L		09/17/24 09:30	09/30/24 16:06	1
Cobalt	0.0127		0.000500		mg/L		09/17/24 09:30	09/30/24 16:06	1
Lithium	0.255		0.0100		mg/L		09/17/24 09:30	09/30/24 16:06	1
Lead	<0.000500		0.000500		mg/L		09/17/24 09:30	09/30/24 16:06	1
Molybdenum	<0.00200		0.00200		mg/L		09/17/24 09:30	09/30/24 16:06	1
Selenium	<0.00500		0.00500		mg/L		09/17/24 09:30	09/30/24 16:06	1
Thallium	<0.00100		0.00100		mg/L		09/17/24 09:30	09/30/24 16:06	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/17/24 14:05	09/18/24 15:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	2070		250		mg/L			09/19/24 20:37	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	6.6	HF	1.0		SU			09/13/24 17:16	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.208		0.127	0.129	1.00	0.178	pCi/L	09/18/24 08:38	10/10/24 08:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	73.4		30 - 110					09/18/24 08:38	10/10/24 08:12	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	<0.984	U	0.646	0.651	1.00	0.984	pCi/L	09/18/24 08:41	10/02/24 14:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	73.4		30 - 110					09/18/24 08:41	10/02/24 14:05	1
Y Carrier	73.3		30 - 110					09/18/24 08:41	10/02/24 14:05	1

Eurofins Cedar Falls

Client Sample Results

Client: GHD Services Inc.
 Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Client Sample ID: MW19-GW-0924

Lab Sample ID: 310-290597-4

Date Collected: 09/13/24 08:30

Matrix: Water

Date Received: 09/13/24 16:26

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.08		0.658	0.664	5.00	0.984	pCi/L		10/10/24 14:19	1

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Client Sample Results

Client: GHD Services Inc.
 Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Client Sample ID: MW21-GW-0924

Lab Sample ID: 310-290597-5

Date Collected: 09/13/24 08:10

Matrix: Water

Date Received: 09/13/24 16:26

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			09/20/24 18:02	5
Fluoride	<1.00		1.00		mg/L			09/20/24 18:02	5
Sulfate	316		5.00		mg/L			09/20/24 18:02	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		09/17/24 09:30	10/02/24 14:53	1
Arsenic	<0.00200		0.00200		mg/L		09/17/24 09:30	09/30/24 16:10	1
Barium	0.0420		0.00200		mg/L		09/17/24 09:30	09/30/24 16:10	1
Beryllium	<0.00100		0.00100		mg/L		09/17/24 09:30	09/30/24 16:10	1
Boron	0.333		0.100		mg/L		09/17/24 09:30	09/30/24 16:10	1
Cadmium	<0.000200		0.000200		mg/L		09/17/24 09:30	09/30/24 16:10	1
Calcium	202		0.500		mg/L		09/17/24 09:30	09/30/24 16:10	1
Chromium	<0.00500		0.00500		mg/L		09/17/24 09:30	09/30/24 16:10	1
Cobalt	<0.000500		0.000500		mg/L		09/17/24 09:30	09/30/24 16:10	1
Lithium	0.205		0.0100		mg/L		09/17/24 09:30	09/30/24 16:10	1
Lead	<0.000500		0.000500		mg/L		09/17/24 09:30	09/30/24 16:10	1
Molybdenum	<0.00200		0.00200		mg/L		09/17/24 09:30	09/30/24 16:10	1
Selenium	0.191		0.00500		mg/L		09/17/24 09:30	09/30/24 16:10	1
Thallium	<0.00100		0.00100		mg/L		09/17/24 09:30	09/30/24 16:10	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/17/24 14:05	09/18/24 15:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	800		250		mg/L			09/19/24 20:37	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.2	HF	1.0		SU			09/13/24 17:17	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.203		0.112	0.114	1.00	0.151	pCi/L	09/18/24 08:38	10/10/24 08:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	92.1		30 - 110					09/18/24 08:38	10/10/24 08:12	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	<0.757	U	0.462	0.464	1.00	0.757	pCi/L	09/18/24 08:41	10/02/24 14:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	92.1		30 - 110					09/18/24 08:41	10/02/24 14:05	1
Y Carrier	77.4		30 - 110					09/18/24 08:41	10/02/24 14:05	1

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Client Sample Results

Client: GHD Services Inc.
 Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Client Sample ID: MW21-GW-0924

Lab Sample ID: 310-290597-5

Date Collected: 09/13/24 08:10

Matrix: Water

Date Received: 09/13/24 16:26

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	<0.757	U	0.475	0.478	5.00	0.757	pCi/L		10/10/24 14:19	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Client Sample ID: DP05-GW-0924

Lab Sample ID: 310-290597-6

Date Collected: 09/12/24 00:00

Matrix: Water

Date Received: 09/13/24 16:26

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	61.8		5.00		mg/L			09/20/24 18:26	5
Fluoride	<1.00		1.00		mg/L			09/20/24 18:26	5
Sulfate	195		5.00		mg/L			09/20/24 18:26	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		09/17/24 09:30	10/02/24 14:56	1
Arsenic	0.0472		0.00200		mg/L		09/17/24 09:30	09/30/24 16:13	1
Barium	0.0904		0.00200		mg/L		09/17/24 09:30	09/30/24 16:13	1
Beryllium	<0.00100		0.00100		mg/L		09/17/24 09:30	09/30/24 16:13	1
Boron	0.402		0.100		mg/L		09/17/24 09:30	09/30/24 16:13	1
Cadmium	<0.000200		0.000200		mg/L		09/17/24 09:30	09/30/24 16:13	1
Calcium	158		0.500		mg/L		09/17/24 09:30	09/30/24 16:13	1
Chromium	<0.00500		0.00500		mg/L		09/17/24 09:30	09/30/24 16:13	1
Cobalt	0.00116		0.000500		mg/L		09/17/24 09:30	09/30/24 16:13	1
Lithium	0.0768		0.0100		mg/L		09/17/24 09:30	09/30/24 16:13	1
Lead	<0.000500		0.000500		mg/L		09/17/24 09:30	09/30/24 16:13	1
Molybdenum	0.00464		0.00200		mg/L		09/17/24 09:30	09/30/24 16:13	1
Selenium	<0.00500		0.00500		mg/L		09/17/24 09:30	09/30/24 16:13	1
Thallium	<0.00100		0.00100		mg/L		09/17/24 09:30	09/30/24 16:13	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/17/24 14:05	09/18/24 15:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	858		50.0		mg/L			09/16/24 21:05	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.1	HF	1.0		SU			09/13/24 17:18	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.215		0.104	0.106	1.00	0.130	pCi/L	09/18/24 08:38	10/10/24 08:18	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	87.3		30 - 110					09/18/24 08:38	10/10/24 08:18	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	<0.820	U	0.511	0.513	1.00	0.820	pCi/L	09/18/24 08:41	10/02/24 14:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	87.3		30 - 110					09/18/24 08:41	10/02/24 14:05	1
Y Carrier	78.5		30 - 110					09/18/24 08:41	10/02/24 14:05	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Client Sample ID: DP05-GW-0924

Lab Sample ID: 310-290597-6

Date Collected: 09/12/24 00:00

Matrix: Water

Date Received: 09/13/24 16:26

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	<0.820	U	0.521	0.524	5.00	0.820	pCi/L		10/10/24 14:19	1

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Definitions/Glossary

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
HF	Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request. Sample was analyzed outside of hold time.

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

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

QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-433888/3
Matrix: Water
Analysis Batch: 433888

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			09/20/24 12:36	1
Fluoride	<0.200		0.200		mg/L			09/20/24 12:36	1
Sulfate	<1.00		1.00		mg/L			09/20/24 12:36	1

Lab Sample ID: LCS 310-433888/4
Matrix: Water
Analysis Batch: 433888

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.697		mg/L		97	90 - 110
Fluoride	2.00	2.043		mg/L		102	90 - 110
Sulfate	10.0	10.23		mg/L		102	90 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-433329/1-A
Matrix: Water
Analysis Batch: 434788

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433329

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		09/17/24 09:30	09/30/24 14:21	1
Barium	<0.00200		0.00200		mg/L		09/17/24 09:30	09/30/24 14:21	1
Beryllium	<0.00100		0.00100		mg/L		09/17/24 09:30	09/30/24 14:21	1
Boron	<0.100		0.100		mg/L		09/17/24 09:30	09/30/24 14:21	1
Cadmium	<0.000200		0.000200		mg/L		09/17/24 09:30	09/30/24 14:21	1
Calcium	<0.500		0.500		mg/L		09/17/24 09:30	09/30/24 14:21	1
Chromium	<0.00500		0.00500		mg/L		09/17/24 09:30	09/30/24 14:21	1
Cobalt	<0.000500		0.000500		mg/L		09/17/24 09:30	09/30/24 14:21	1
Lithium	<0.0100		0.0100		mg/L		09/17/24 09:30	09/30/24 14:21	1
Lead	<0.000500		0.000500		mg/L		09/17/24 09:30	09/30/24 14:21	1
Molybdenum	<0.00200		0.00200		mg/L		09/17/24 09:30	09/30/24 14:21	1
Selenium	<0.00500		0.00500		mg/L		09/17/24 09:30	09/30/24 14:21	1
Thallium	<0.00100		0.00100		mg/L		09/17/24 09:30	09/30/24 14:21	1

Lab Sample ID: MB 310-433329/1-A
Matrix: Water
Analysis Batch: 435065

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433329

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		09/17/24 09:30	10/02/24 13:51	1

Lab Sample ID: LCS 310-433329/2-A
Matrix: Water
Analysis Batch: 434788

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433329

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.200	0.2288		mg/L		114	80 - 120
Barium	0.100	0.1070		mg/L		107	80 - 120
Beryllium	0.100	0.1038		mg/L		104	80 - 120
Boron	0.200	0.2037		mg/L		102	80 - 120

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QC Sample Results

Client: GHD Services Inc.
 Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

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

Lab Sample ID: LCS 310-433329/2-A
 Matrix: Water
 Analysis Batch: 434788

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 433329

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	0.100	0.09901		mg/L		99	80 - 120
Calcium	2.00	2.067		mg/L		103	80 - 120
Chromium	0.100	0.1030		mg/L		103	80 - 120
Cobalt	0.100	0.1097		mg/L		110	80 - 120
Lithium	0.200	0.2132		mg/L		107	80 - 120
Lead	0.200	0.2165		mg/L		108	80 - 120
Molybdenum	0.200	0.2135		mg/L		107	80 - 120
Selenium	0.400	0.3949		mg/L		99	80 - 120
Thallium	0.100	0.09703		mg/L		97	80 - 120

Lab Sample ID: LCS 310-433329/2-A
 Matrix: Water
 Analysis Batch: 435065

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 433329

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.2302		mg/L		115	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-433386/1-A
 Matrix: Water
 Analysis Batch: 433591

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 433386

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/17/24 14:05	09/18/24 14:25	1

Lab Sample ID: LCS 310-433386/2-A
 Matrix: Water
 Analysis Batch: 433591

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 433386

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.001762		mg/L		106	80 - 120

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 310-433337/1
 Matrix: Water
 Analysis Batch: 433337

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<50.0		50.0		mg/L			09/16/24 21:05	1

Lab Sample ID: LCS 310-433337/2
 Matrix: Water
 Analysis Batch: 433337

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	1000		mg/L		100	88 - 110

QC Sample Results

Client: GHD Services Inc.
 Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: MB 310-433602/1
Matrix: Water
Analysis Batch: 433602

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<50.0		50.0		mg/L			09/18/24 19:55	1

Lab Sample ID: LCS 310-433602/2
Matrix: Water
Analysis Batch: 433602

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	1038		mg/L		104	88 - 110

Lab Sample ID: MB 310-433742/1
Matrix: Water
Analysis Batch: 433742

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<50.0		50.0		mg/L			09/19/24 20:37	1

Lab Sample ID: LCS 310-433742/2
Matrix: Water
Analysis Batch: 433742

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	1028		mg/L		103	88 - 110

Lab Sample ID: 310-290597-4 DU
Matrix: Water
Analysis Batch: 433742

Client Sample ID: MW19-GW-0924
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	2070		2040		mg/L		1	16

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-433184/1
Matrix: Water
Analysis Batch: 433184

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH	7.00	7.0		SU		100	98 - 102

Lab Sample ID: 310-290597-6 DU
Matrix: Water
Analysis Batch: 433184

Client Sample ID: DP05-GW-0924
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.1	HF	7.1		SU		0	20

QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-680020/1-A
Matrix: Water
Analysis Batch: 682913

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 680020

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.1179		0.0751	0.0759	1.00	0.0994	pCi/L	09/18/24 08:38	10/10/24 07:58	1
Carrier	MB	MB	Limits		Prepared	Analyzed	Dil Fac			
	%Yield	Qualifier								
Barium	99.0		30 - 110		09/18/24 08:38	10/10/24 07:58	1			

Lab Sample ID: LCS 160-680020/2-A
Matrix: Water
Analysis Batch: 682913

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 680020

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	9.58	9.842		1.04	1.00	0.103	pCi/L	103	75 - 125
Carrier	LCS	LCS	Limits		Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier							
Barium	98.5		30 - 110						

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-680022/1-A
Matrix: Water
Analysis Batch: 681767

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 680022

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	<0.565	U	0.360	0.362	1.00	0.565	pCi/L	09/18/24 08:41	10/02/24 11:56	1
Carrier	MB	MB	Limits		Prepared	Analyzed	Dil Fac			
	%Yield	Qualifier								
Barium	99.0		30 - 110		09/18/24 08:41	10/02/24 11:56	1			
Y Carrier	72.1		30 - 110		09/18/24 08:41	10/02/24 11:56	1			

Lab Sample ID: LCS 160-680022/2-A
Matrix: Water
Analysis Batch: 681767

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 680022

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-228	8.46	10.10		1.36	1.00	0.528	pCi/L	119	75 - 125
Carrier	LCS	LCS	Limits		Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier							
Barium	98.5		30 - 110						
Y Carrier	77.8		30 - 110						

QC Association Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

HPLC/IC

Analysis Batch: 433888

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290597-1	MW01R-GW-0924	Total/NA	Water	9056A	
310-290597-2	MW03R-GW-0924	Total/NA	Water	9056A	
310-290597-3	MW05R-GW-0924	Total/NA	Water	9056A	
310-290597-4	MW19-GW-0924	Total/NA	Water	9056A	
310-290597-4	MW19-GW-0924	Total/NA	Water	9056A	
310-290597-5	MW21-GW-0924	Total/NA	Water	9056A	
310-290597-6	DP05-GW-0924	Total/NA	Water	9056A	
MB 310-433888/3	Method Blank	Total/NA	Water	9056A	
LCS 310-433888/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 433329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290597-1	MW01R-GW-0924	Total/NA	Water	3005A	
310-290597-2	MW03R-GW-0924	Total/NA	Water	3005A	
310-290597-3	MW05R-GW-0924	Total/NA	Water	3005A	
310-290597-4	MW19-GW-0924	Total/NA	Water	3005A	
310-290597-5	MW21-GW-0924	Total/NA	Water	3005A	
310-290597-6	DP05-GW-0924	Total/NA	Water	3005A	
MB 310-433329/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-433329/2-A	Lab Control Sample	Total/NA	Water	3005A	

Prep Batch: 433386

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290597-1	MW01R-GW-0924	Total/NA	Water	7470A	
310-290597-2	MW03R-GW-0924	Total/NA	Water	7470A	
310-290597-3	MW05R-GW-0924	Total/NA	Water	7470A	
310-290597-4	MW19-GW-0924	Total/NA	Water	7470A	
310-290597-5	MW21-GW-0924	Total/NA	Water	7470A	
310-290597-6	DP05-GW-0924	Total/NA	Water	7470A	
MB 310-433386/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-433386/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 433591

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290597-1	MW01R-GW-0924	Total/NA	Water	7470A	433386
310-290597-2	MW03R-GW-0924	Total/NA	Water	7470A	433386
310-290597-3	MW05R-GW-0924	Total/NA	Water	7470A	433386
310-290597-4	MW19-GW-0924	Total/NA	Water	7470A	433386
310-290597-5	MW21-GW-0924	Total/NA	Water	7470A	433386
310-290597-6	DP05-GW-0924	Total/NA	Water	7470A	433386
MB 310-433386/1-A	Method Blank	Total/NA	Water	7470A	433386
LCS 310-433386/2-A	Lab Control Sample	Total/NA	Water	7470A	433386

Analysis Batch: 434788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290597-1	MW01R-GW-0924	Total/NA	Water	6020B	433329
310-290597-2	MW03R-GW-0924	Total/NA	Water	6020B	433329
310-290597-3	MW05R-GW-0924	Total/NA	Water	6020B	433329
310-290597-4	MW19-GW-0924	Total/NA	Water	6020B	433329

Eurofins Cedar Falls

QC Association Summary

Client: GHD Services Inc.
 Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Metals (Continued)

Analysis Batch: 434788 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290597-5	MW21-GW-0924	Total/NA	Water	6020B	433329
310-290597-6	DP05-GW-0924	Total/NA	Water	6020B	433329
MB 310-433329/1-A	Method Blank	Total/NA	Water	6020B	433329
LCS 310-433329/2-A	Lab Control Sample	Total/NA	Water	6020B	433329

Analysis Batch: 435065

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290597-1	MW01R-GW-0924	Total/NA	Water	6020B	433329
310-290597-2	MW03R-GW-0924	Total/NA	Water	6020B	433329
310-290597-3	MW05R-GW-0924	Total/NA	Water	6020B	433329
310-290597-4	MW19-GW-0924	Total/NA	Water	6020B	433329
310-290597-5	MW21-GW-0924	Total/NA	Water	6020B	433329
310-290597-6	DP05-GW-0924	Total/NA	Water	6020B	433329
MB 310-433329/1-A	Method Blank	Total/NA	Water	6020B	433329
LCS 310-433329/2-A	Lab Control Sample	Total/NA	Water	6020B	433329

General Chemistry

Analysis Batch: 433184

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290597-1	MW01R-GW-0924	Total/NA	Water	SM 4500 H+ B	
310-290597-2	MW03R-GW-0924	Total/NA	Water	SM 4500 H+ B	
310-290597-3	MW05R-GW-0924	Total/NA	Water	SM 4500 H+ B	
310-290597-4	MW19-GW-0924	Total/NA	Water	SM 4500 H+ B	
310-290597-5	MW21-GW-0924	Total/NA	Water	SM 4500 H+ B	
310-290597-6	DP05-GW-0924	Total/NA	Water	SM 4500 H+ B	
LCS 310-433184/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-290597-6 DU	DP05-GW-0924	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 433337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290597-1	MW01R-GW-0924	Total/NA	Water	SM 2540C	
310-290597-3	MW05R-GW-0924	Total/NA	Water	SM 2540C	
310-290597-6	DP05-GW-0924	Total/NA	Water	SM 2540C	
MB 310-433337/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-433337/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 433602

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290597-2	MW03R-GW-0924	Total/NA	Water	SM 2540C	
MB 310-433602/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-433602/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 433742

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290597-4	MW19-GW-0924	Total/NA	Water	SM 2540C	
310-290597-5	MW21-GW-0924	Total/NA	Water	SM 2540C	
MB 310-433742/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-433742/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-290597-4 DU	MW19-GW-0924	Total/NA	Water	SM 2540C	

QC Association Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Rad

Prep Batch: 680020

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290597-1	MW01R-GW-0924	Total/NA	Water	PrecSep-21	
310-290597-2	MW03R-GW-0924	Total/NA	Water	PrecSep-21	
310-290597-3	MW05R-GW-0924	Total/NA	Water	PrecSep-21	
310-290597-4	MW19-GW-0924	Total/NA	Water	PrecSep-21	
310-290597-5	MW21-GW-0924	Total/NA	Water	PrecSep-21	
310-290597-6	DP05-GW-0924	Total/NA	Water	PrecSep-21	
MB 160-680020/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-680020/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 680022

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-290597-1	MW01R-GW-0924	Total/NA	Water	PrecSep_0	
310-290597-2	MW03R-GW-0924	Total/NA	Water	PrecSep_0	
310-290597-3	MW05R-GW-0924	Total/NA	Water	PrecSep_0	
310-290597-4	MW19-GW-0924	Total/NA	Water	PrecSep_0	
310-290597-5	MW21-GW-0924	Total/NA	Water	PrecSep_0	
310-290597-6	DP05-GW-0924	Total/NA	Water	PrecSep_0	
MB 160-680022/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-680022/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: GHD Services Inc.
 Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Client Sample ID: MW01R-GW-0924

Lab Sample ID: 310-290597-1

Date Collected: 09/12/24 17:45

Matrix: Water

Date Received: 09/13/24 16:26

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	433888	HE7K	EET CF	09/20/24 16:38
Total/NA	Prep	3005A			433329	QTZ5	EET CF	09/17/24 09:30
Total/NA	Analysis	6020B		1	434788	NFT2	EET CF	09/30/24 15:55
Total/NA	Prep	3005A			433329	QTZ5	EET CF	09/17/24 09:30
Total/NA	Analysis	6020B		1	435065	NFT2	EET CF	10/02/24 14:36
Total/NA	Prep	7470A			433386	DHM5	EET CF	09/17/24 14:05
Total/NA	Analysis	7470A		1	433591	DHM5	EET CF	09/18/24 14:58
Total/NA	Analysis	SM 2540C		1	433337	MDU9	EET CF	09/16/24 21:05
Total/NA	Analysis	SM 4500 H+ B		1	433184	A3GU	EET CF	09/13/24 17:14
Total/NA	Prep	PrecSep-21			680020	BCE	EET SL	09/18/24 08:38
Total/NA	Analysis	9315		1	683026	FLC	EET SL	10/10/24 08:11
Total/NA	Prep	PrecSep_0			680022	BCE	EET SL	09/18/24 08:41
Total/NA	Analysis	9320		1	681767	SWS	EET SL	10/02/24 14:04
Total/NA	Analysis	Ra226_Ra228		1	683076	CAH	EET SL	10/10/24 14:19

Client Sample ID: MW03R-GW-0924

Lab Sample ID: 310-290597-2

Date Collected: 09/13/24 07:15

Matrix: Water

Date Received: 09/13/24 16:26

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	433888	HE7K	EET CF	09/20/24 16:50
Total/NA	Prep	3005A			433329	QTZ5	EET CF	09/17/24 09:30
Total/NA	Analysis	6020B		1	434788	NFT2	EET CF	09/30/24 15:59
Total/NA	Prep	3005A			433329	QTZ5	EET CF	09/17/24 09:30
Total/NA	Analysis	6020B		1	435065	NFT2	EET CF	10/02/24 14:38
Total/NA	Prep	7470A			433386	DHM5	EET CF	09/17/24 14:05
Total/NA	Analysis	7470A		1	433591	DHM5	EET CF	09/18/24 15:00
Total/NA	Analysis	SM 2540C		1	433602	MDU9	EET CF	09/18/24 19:55
Total/NA	Analysis	SM 4500 H+ B		1	433184	A3GU	EET CF	09/13/24 17:13
Total/NA	Prep	PrecSep-21			680020	BCE	EET SL	09/18/24 08:38
Total/NA	Analysis	9315		1	683026	FLC	EET SL	10/10/24 08:12
Total/NA	Prep	PrecSep_0			680022	BCE	EET SL	09/18/24 08:41
Total/NA	Analysis	9320		1	681767	SWS	EET SL	10/02/24 14:05
Total/NA	Analysis	Ra226_Ra228		1	683076	CAH	EET SL	10/10/24 14:19

Client Sample ID: MW05R-GW-0924

Lab Sample ID: 310-290597-3

Date Collected: 09/12/24 18:50

Matrix: Water

Date Received: 09/13/24 16:26

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	433888	HE7K	EET CF	09/20/24 17:26
Total/NA	Prep	3005A			433329	QTZ5	EET CF	09/17/24 09:30
Total/NA	Analysis	6020B		1	434788	NFT2	EET CF	09/30/24 16:02

Lab Chronicle

Client: GHD Services Inc.
 Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Client Sample ID: MW05R-GW-0924

Lab Sample ID: 310-290597-3

Date Collected: 09/12/24 18:50

Matrix: Water

Date Received: 09/13/24 16:26

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			433329	QTZ5	EET CF	09/17/24 09:30
Total/NA	Analysis	6020B		1	435065	NFT2	EET CF	10/02/24 14:49
Total/NA	Prep	7470A			433386	DHM5	EET CF	09/17/24 14:05
Total/NA	Analysis	7470A		1	433591	DHM5	EET CF	09/18/24 15:02
Total/NA	Analysis	SM 2540C		1	433337	MDU9	EET CF	09/16/24 21:05
Total/NA	Analysis	SM 4500 H+ B		1	433184	A3GU	EET CF	09/13/24 17:15
Total/NA	Prep	PrecSep-21			680020	BCE	EET SL	09/18/24 08:38
Total/NA	Analysis	9315		1	683026	FLC	EET SL	10/10/24 08:12
Total/NA	Prep	PrecSep_0			680022	BCE	EET SL	09/18/24 08:41
Total/NA	Analysis	9320		1	681767	SWS	EET SL	10/02/24 14:05
Total/NA	Analysis	Ra226_Ra228		1	683076	CAH	EET SL	10/10/24 14:19

Client Sample ID: MW19-GW-0924

Lab Sample ID: 310-290597-4

Date Collected: 09/13/24 08:30

Matrix: Water

Date Received: 09/13/24 16:26

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	433888	HE7K	EET CF	09/20/24 17:38
Total/NA	Analysis	9056A		50	433888	HE7K	EET CF	09/20/24 17:50
Total/NA	Prep	3005A			433329	QTZ5	EET CF	09/17/24 09:30
Total/NA	Analysis	6020B		1	434788	NFT2	EET CF	09/30/24 16:06
Total/NA	Prep	3005A			433329	QTZ5	EET CF	09/17/24 09:30
Total/NA	Analysis	6020B		1	435065	NFT2	EET CF	10/02/24 14:51
Total/NA	Prep	7470A			433386	DHM5	EET CF	09/17/24 14:05
Total/NA	Analysis	7470A		1	433591	DHM5	EET CF	09/18/24 15:04
Total/NA	Analysis	SM 2540C		1	433742	MDU9	EET CF	09/19/24 20:37
Total/NA	Analysis	SM 4500 H+ B		1	433184	A3GU	EET CF	09/13/24 17:16
Total/NA	Prep	PrecSep-21			680020	BCE	EET SL	09/18/24 08:38
Total/NA	Analysis	9315		1	683026	FLC	EET SL	10/10/24 08:12
Total/NA	Prep	PrecSep_0			680022	BCE	EET SL	09/18/24 08:41
Total/NA	Analysis	9320		1	681767	SWS	EET SL	10/02/24 14:05
Total/NA	Analysis	Ra226_Ra228		1	683076	CAH	EET SL	10/10/24 14:19

Client Sample ID: MW21-GW-0924

Lab Sample ID: 310-290597-5

Date Collected: 09/13/24 08:10

Matrix: Water

Date Received: 09/13/24 16:26

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	433888	HE7K	EET CF	09/20/24 18:02
Total/NA	Prep	3005A			433329	QTZ5	EET CF	09/17/24 09:30
Total/NA	Analysis	6020B		1	434788	NFT2	EET CF	09/30/24 16:10
Total/NA	Prep	3005A			433329	QTZ5	EET CF	09/17/24 09:30
Total/NA	Analysis	6020B		1	435065	NFT2	EET CF	10/02/24 14:53

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Client Sample ID: MW21-GW-0924

Lab Sample ID: 310-290597-5

Date Collected: 09/13/24 08:10

Matrix: Water

Date Received: 09/13/24 16:26

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	7470A			433386	DHM5	EET CF	09/17/24 14:05
Total/NA	Analysis	7470A		1	433591	DHM5	EET CF	09/18/24 15:10
Total/NA	Analysis	SM 2540C		1	433742	MDU9	EET CF	09/19/24 20:37
Total/NA	Analysis	SM 4500 H+ B		1	433184	A3GU	EET CF	09/13/24 17:17
Total/NA	Prep	PrecSep-21			680020	BCE	EET SL	09/18/24 08:38
Total/NA	Analysis	9315		1	683026	FLC	EET SL	10/10/24 08:12
Total/NA	Prep	PrecSep_0			680022	BCE	EET SL	09/18/24 08:41
Total/NA	Analysis	9320		1	681767	SWS	EET SL	10/02/24 14:05
Total/NA	Analysis	Ra226_Ra228		1	683076	CAH	EET SL	10/10/24 14:19

Client Sample ID: DP05-GW-0924

Lab Sample ID: 310-290597-6

Date Collected: 09/12/24 00:00

Matrix: Water

Date Received: 09/13/24 16:26

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	433888	HE7K	EET CF	09/20/24 18:26
Total/NA	Prep	3005A			433329	QTZ5	EET CF	09/17/24 09:30
Total/NA	Analysis	6020B		1	434788	NFT2	EET CF	09/30/24 16:13
Total/NA	Prep	3005A			433329	QTZ5	EET CF	09/17/24 09:30
Total/NA	Analysis	6020B		1	435065	NFT2	EET CF	10/02/24 14:56
Total/NA	Prep	7470A			433386	DHM5	EET CF	09/17/24 14:05
Total/NA	Analysis	7470A		1	433591	DHM5	EET CF	09/18/24 15:12
Total/NA	Analysis	SM 2540C		1	433337	MDU9	EET CF	09/16/24 21:05
Total/NA	Analysis	SM 4500 H+ B		1	433184	A3GU	EET CF	09/13/24 17:18
Total/NA	Prep	PrecSep-21			680020	BCE	EET SL	09/18/24 08:38
Total/NA	Analysis	9315		1	683028	FLC	EET SL	10/10/24 08:18
Total/NA	Prep	PrecSep_0			680022	BCE	EET SL	09/18/24 08:41
Total/NA	Analysis	9320		1	681767	SWS	EET SL	10/02/24 14:05
Total/NA	Analysis	Ra226_Ra228		1	683076	CAH	EET SL	10/10/24 14:19

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401
EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6020B	3005A	Water	Lithium

Laboratory: Eurofins St. Louis

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	373	12-01-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
9315	PrecSep-21	Water	Radium-226
9320	PrecSep_0	Water	Radium-228
Ra226_Ra228		Water	Combined Radium 226 + 228

Method Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
7470A	Mercury (CVAA)	SW846	EET CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CF
SM 4500 H+ B	pH	SM	EET CF
9315	Radium-226 (GFPC)	SW846	EET SL
9320	Radium-228 (GFPC)	SW846	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
3005A	Preparation, Total Metals	SW846	EET CF
7470A	Preparation, Mercury	SW846	EET CF
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

None = None

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

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

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

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

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



Environment Testing
America



Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>GHP</u>			
City/State.	CITY	STATE	Project:
Receipt Information			
Date/Time Received:	DATE <u>9/13/24</u>	TIME <u>1626</u>	Received By: <u>PH</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>1</u> of <u>2</u>	
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant:	<input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____	<input type="checkbox"/> NONE	
Thermometer ID: <u>P</u>	Correction Factor (°C): <u>0</u>		
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>3.8</u>	Corrected Temp (°C): <u>3.8</u>		
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			





Environment Testing
America

Place COC scanning label
here

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>GHO</u>			
City/State:	CITY	STATE	Project:
Receipt Information			
Date/Time Received:	DATE <u>9/13/24</u>	TIME <u>1626</u>	Received By: <u>PH</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>2</u> of <u>2</u>	
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>P</u>		Correction Factor (°C): <u>0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>6.1</u>		Corrected Temp (°C) <u>5.1</u>	
• Sample Container Temperature			
Container(s) used.	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE If yes, contact PM before proceeding If no, proceed with login			
Additional Comments			



Client Information Client Contact: Kevin Armstrong Company: GHD Services Inc. Address: 11228 Aurora Avenue City: Des Moines State, Zip: IA, 50322-7905 Phone: 515-414-3935 Email: Kevin.Armstrong@ghd.com Project Name: Neal North Closed CCR Monofill (IDNR) Site: Neal North Closed CCR Monofill		Lab PM: Zach Bindert E-Mail: zachb@eurofins.com Carrier Tracking No(s): State of Origin: Iowa Page: Page 1 of 1 Job #:	
Due Date Requested: TAT Requested (days): Standard Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No PO #: 340-017045 IWO #: 12576482-003 01 Project #: 31017263 SOW #: 12576482-002		Analysis Requested Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> <input type="checkbox"/> Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> <input type="checkbox"/> 9316_Ra228 - Standard Target List <input checked="" type="checkbox"/> <input type="checkbox"/> 9320_Ra228 - Standard Target List <input checked="" type="checkbox"/> <input type="checkbox"/> 9056A_ORGFM_28D - Chloride, Fluoride & Sulfate <input checked="" type="checkbox"/> <input type="checkbox"/> 6020B_7470A - Appendix III and IV Metals <input checked="" type="checkbox"/> <input type="checkbox"/> 2540C_Calcd, SM4500_H+ <input checked="" type="checkbox"/> <input type="checkbox"/>	
Sample Identification MW01R-GW-0924 MW03R-GW-0924 MW05R-GW-0924 MW19-GW-0924 MW21-GW-0924 DP05-GW-0924		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Anchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
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Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
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Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
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Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 0810 —	
Sample Type (C=Comp, G=grab) G G G G G G		Matrix (Water, Solid, Organic, Inorganic) Water Water Water Water Water Water	
Sample Date 9/12/24 9/12/24 9/12/24 9/13/24 9/13/24 9/12/24		Sample Time 1745 0715 1850 0830 08	

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 310-290597-1

Login Number: 290597

List Number: 1

Creator: Hirsch, Preston

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	



Tracer/Carrier Summary

Client: GHD Services Inc.
Project/Site: MEC Neal North Energy Center CCR

Job ID: 310-290597-1

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)
310-290597-1	MW01R-GW-0924	90.1
310-290597-2	MW03R-GW-0924	85.4
310-290597-3	MW05R-GW-0924	86.6
310-290597-4	MW19-GW-0924	73.4
310-290597-5	MW21-GW-0924	92.1
310-290597-6	DP05-GW-0924	87.3
LCS 160-680020/2-A	Lab Control Sample	98.5
MB 160-680020/1-A	Method Blank	99.0

Tracer/Carrier Legend

Ba = Barium

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)
310-290597-1	MW01R-GW-0924	90.1	81.5
310-290597-2	MW03R-GW-0924	85.4	70.7
310-290597-3	MW05R-GW-0924	86.6	78.1
310-290597-4	MW19-GW-0924	73.4	73.3
310-290597-5	MW21-GW-0924	92.1	77.4
310-290597-6	DP05-GW-0924	87.3	78.5
LCS 160-680022/2-A	Lab Control Sample	98.5	77.8
MB 160-680022/1-A	Method Blank	99.0	72.1

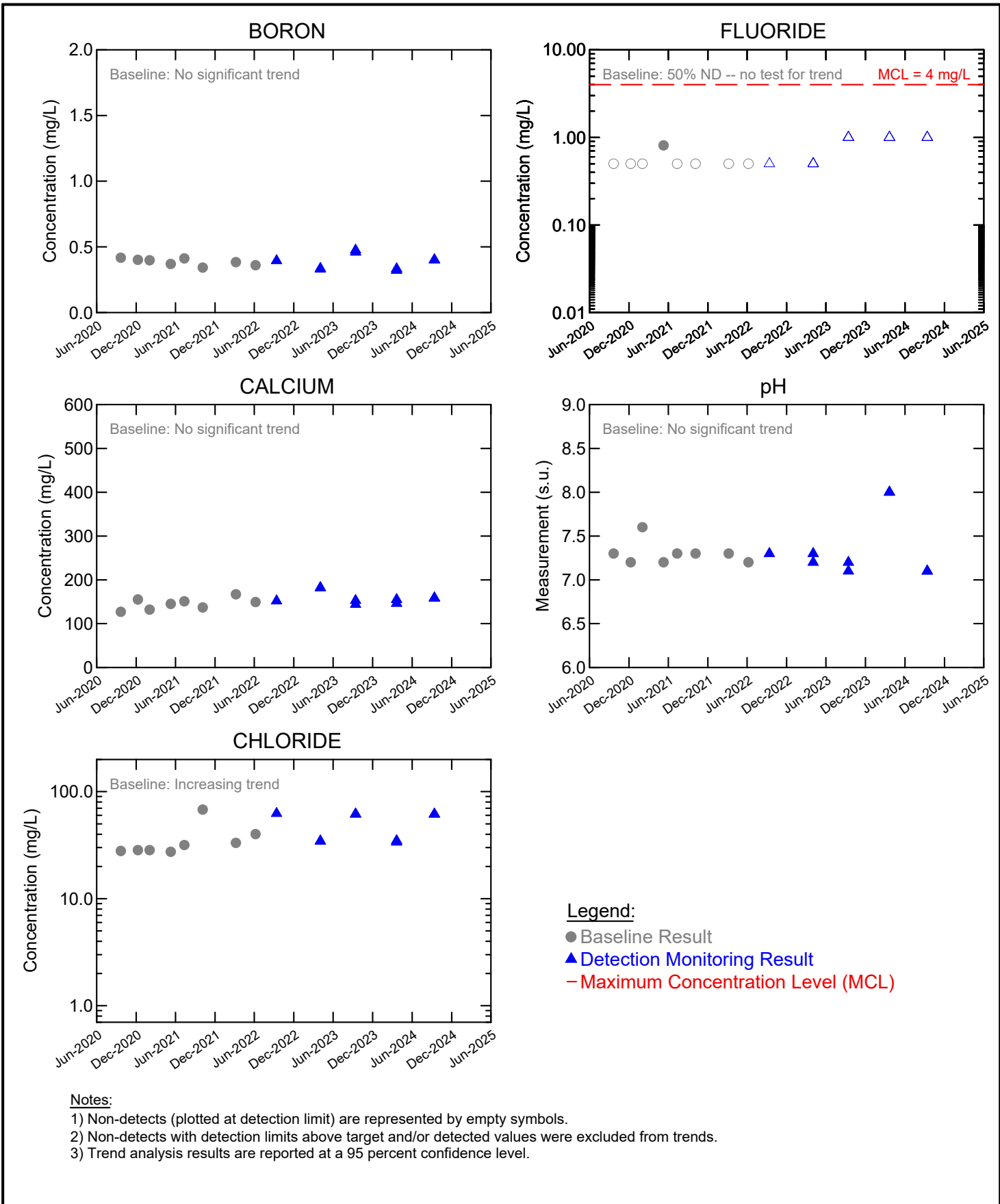
Tracer/Carrier Legend

Ba = Barium

Y = Y Carrier

Appendix C

Time Series Graphs

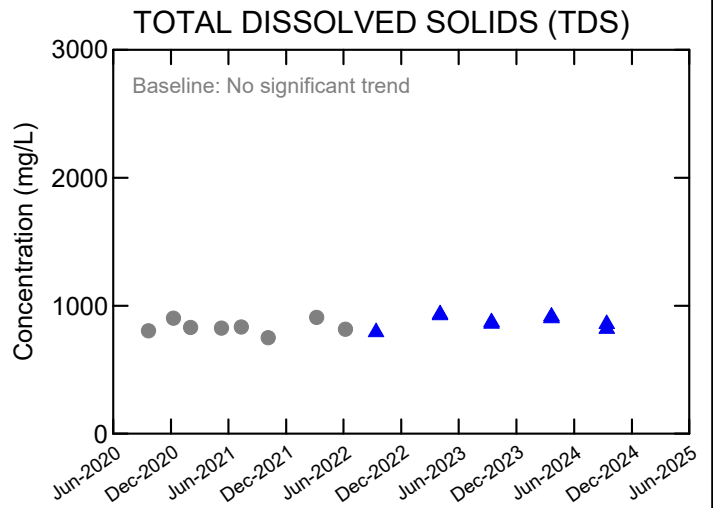
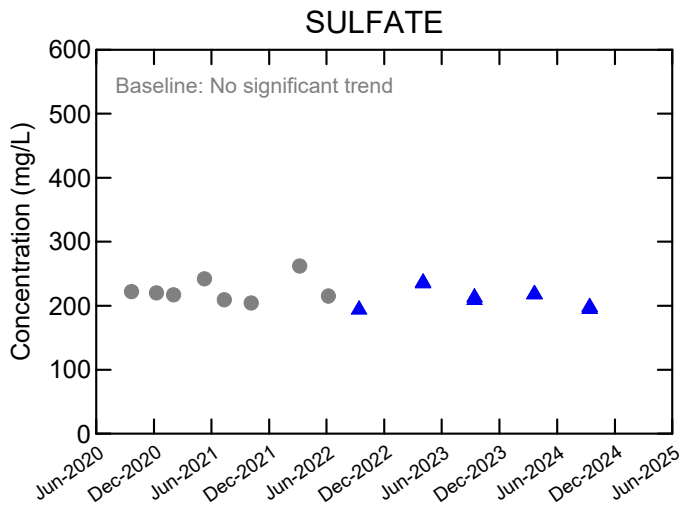


MidAmerican Energy Company
 Neal North CCR Closed Monofill
 Sergeant Bluff, Iowa

Project No. 12576482
 Date: Nov 27, 2024

**MW-1R -- APPENDIX III PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 1.a



Legend:

- Baseline Result
- ▲ Detection Monitoring Result

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

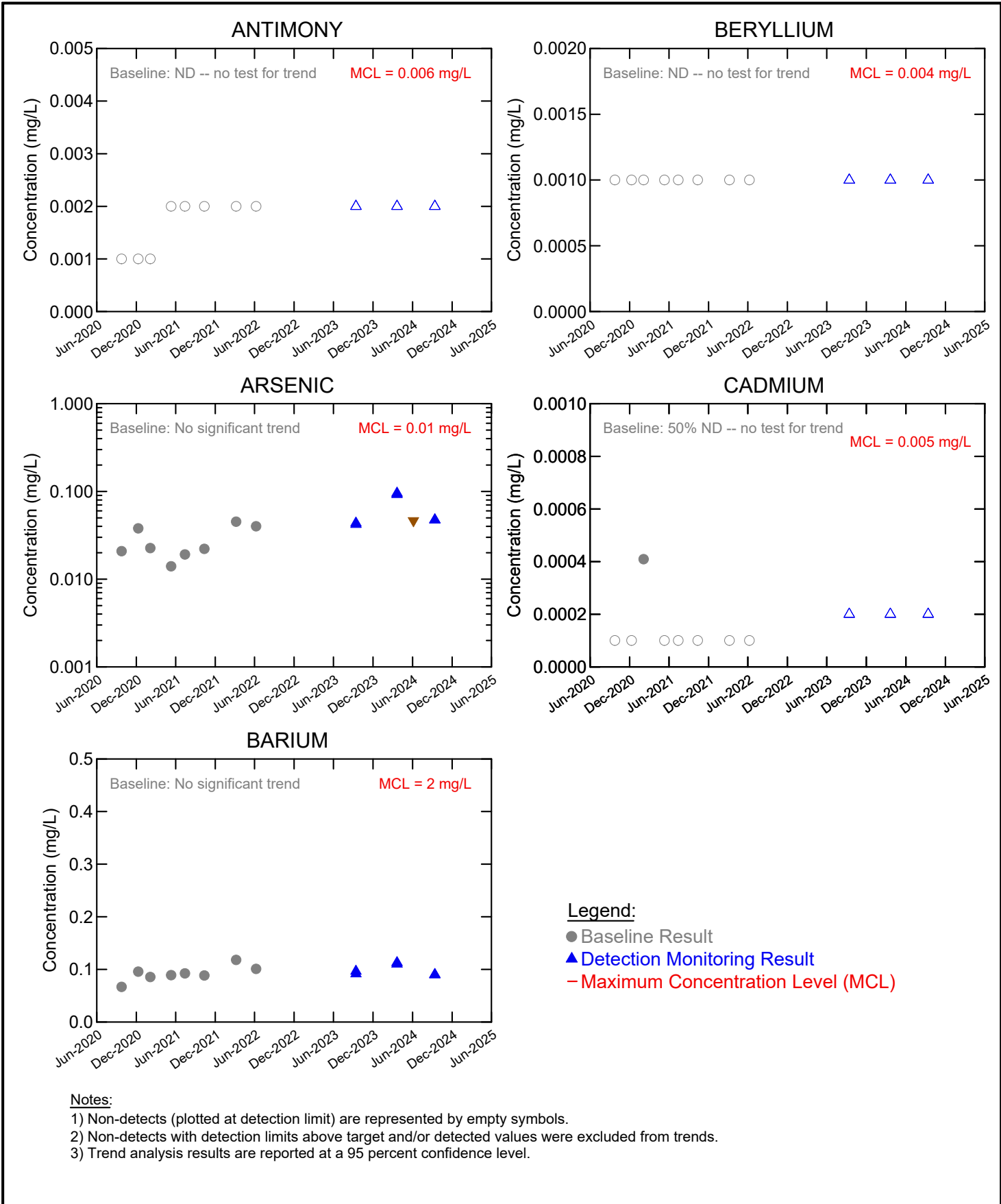


MidAmerican Energy Company
 Neal North CCR Closed Monofill
 Sergeant Bluff, Iowa

Project No. 12576482
 Date: Nov 25, 2024

**MW-1R -- APPENDIX III PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 1.b

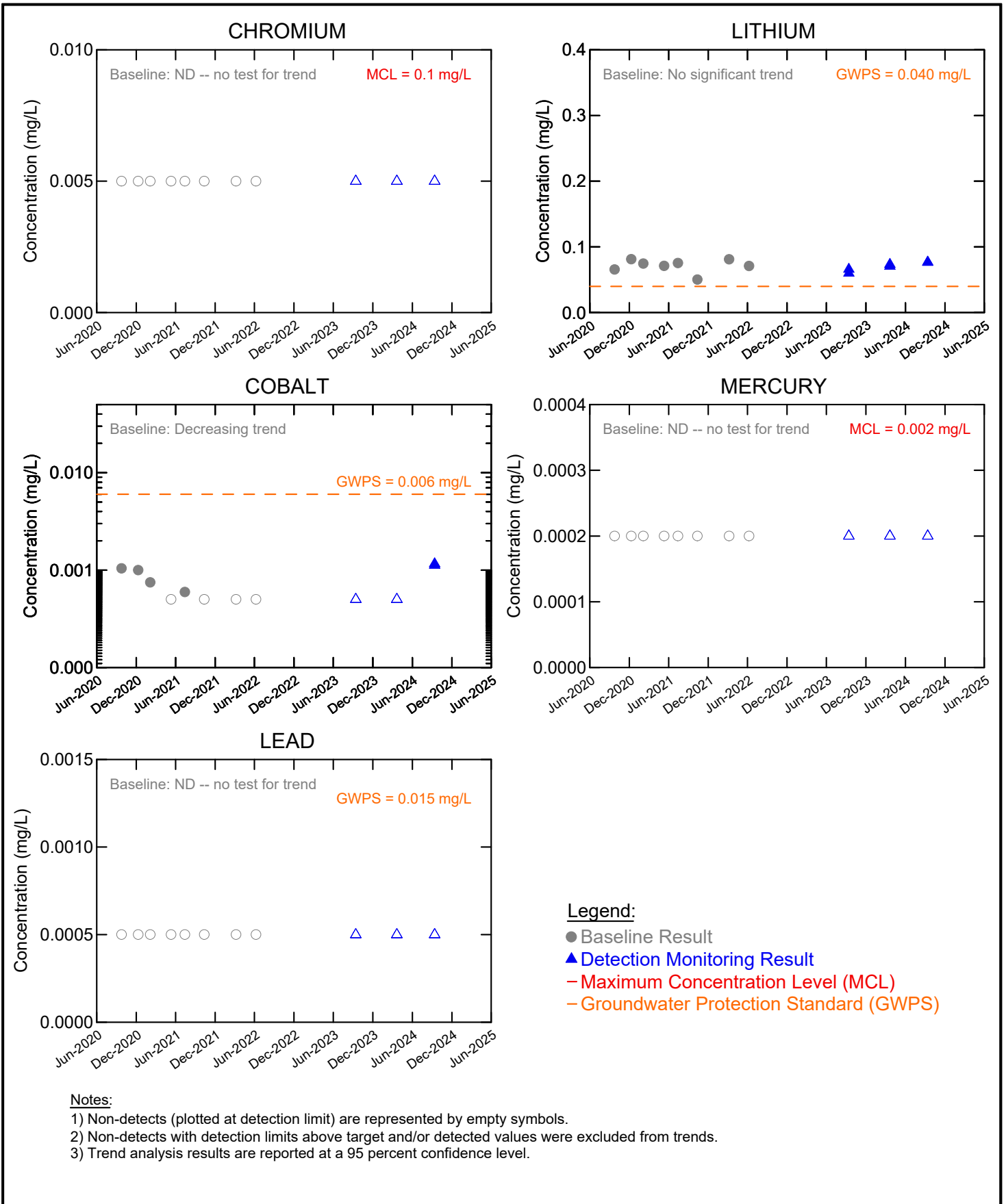


MidAmerican Energy Company
 Neal North CCR Closed Monofill
 Sergeant Bluff, Iowa

Project No. 12576482
 Date: Nov 26, 2024

**MW-1R -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 1.c

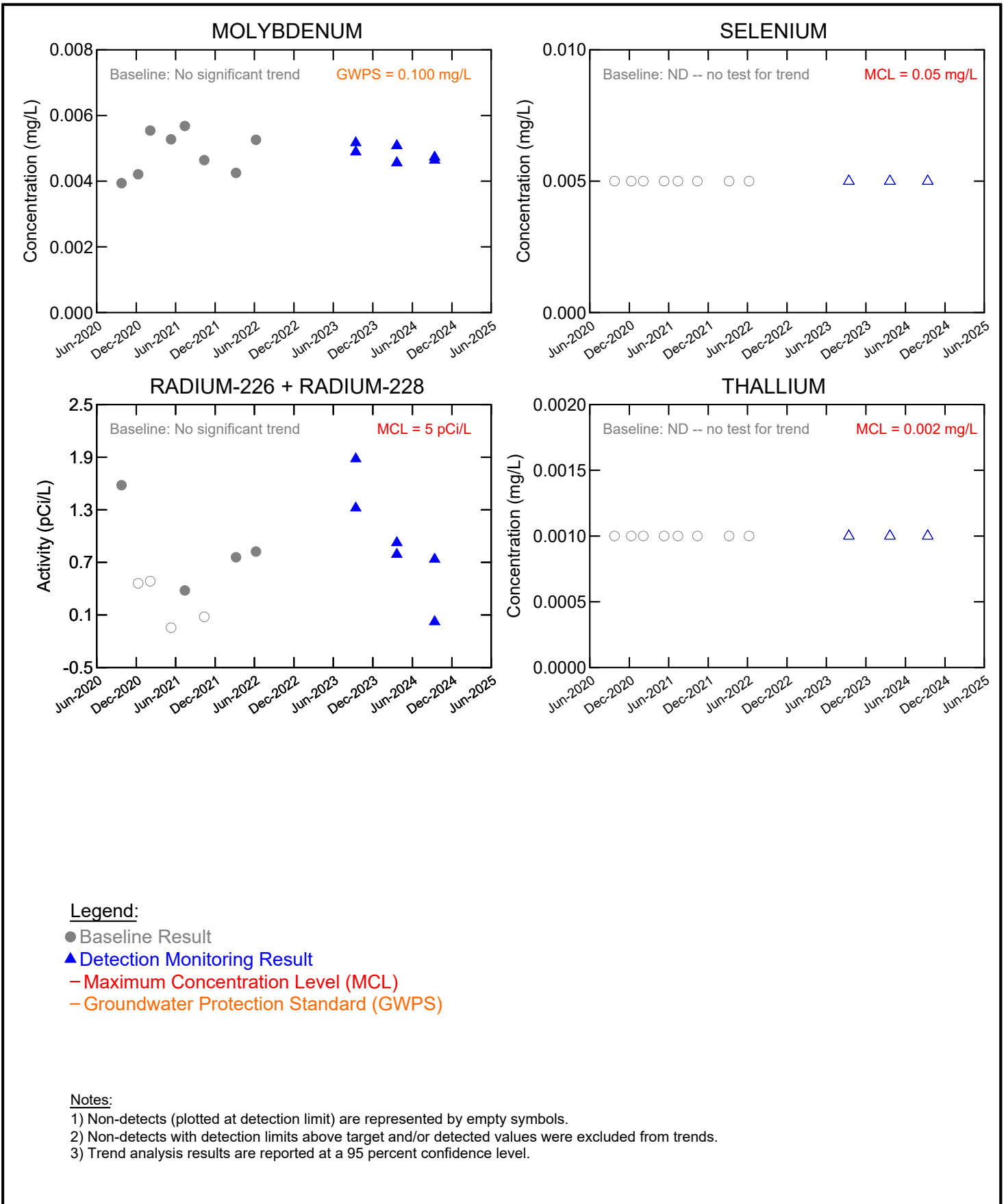


MidAmerican Energy Company
 Neal North CCR Closed Monofill
 Sergeant Bluff, Iowa

Project No. 12576482
 Date: Nov 26, 2024

**MW-1R -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 1.d

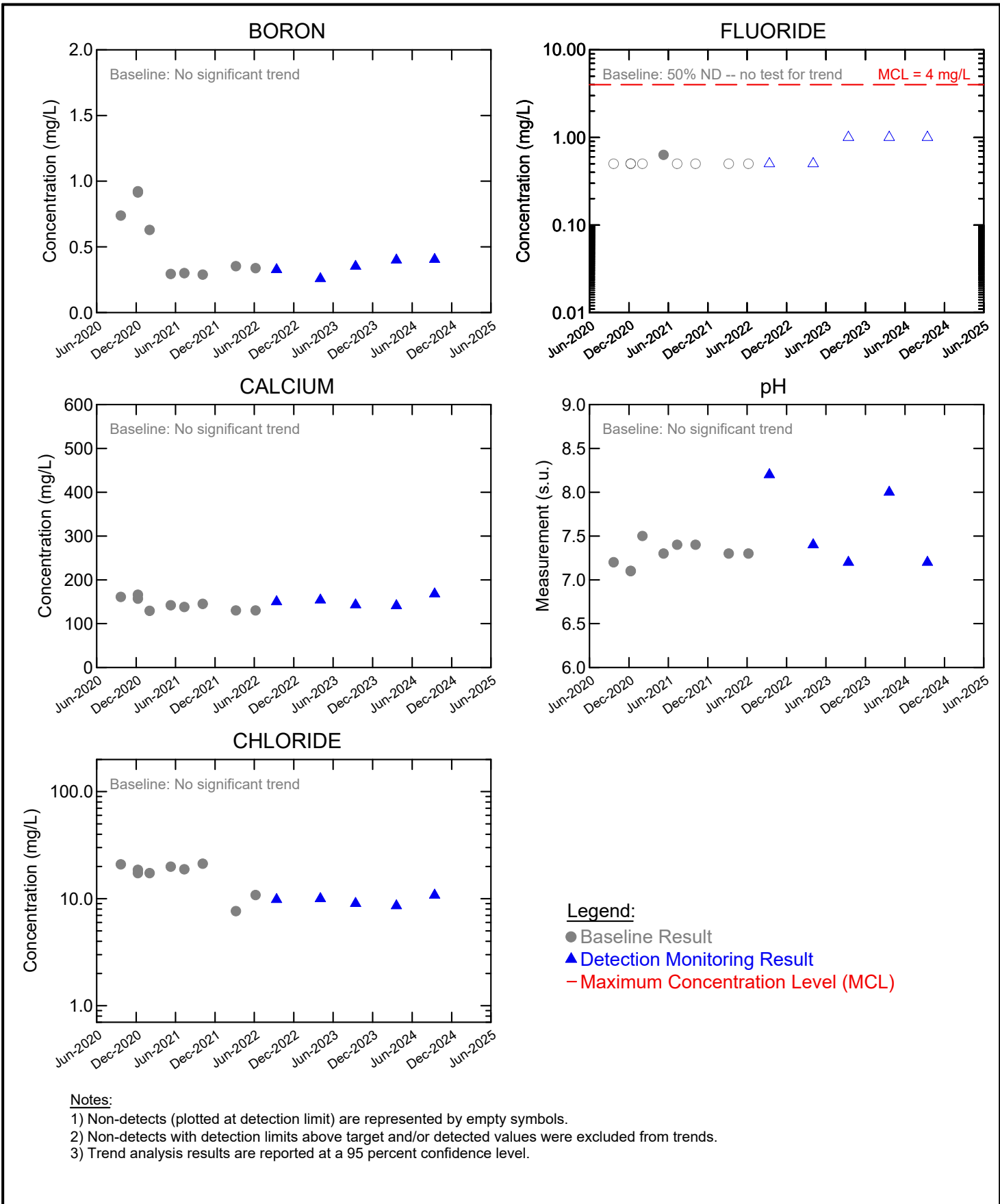


MidAmerican Energy Company
 Neal North CCR Closed Monofill
 Sergeant Bluff, Iowa

Project No. 12576482
 Date: Nov 26, 2024

**MW-1R -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 1.e

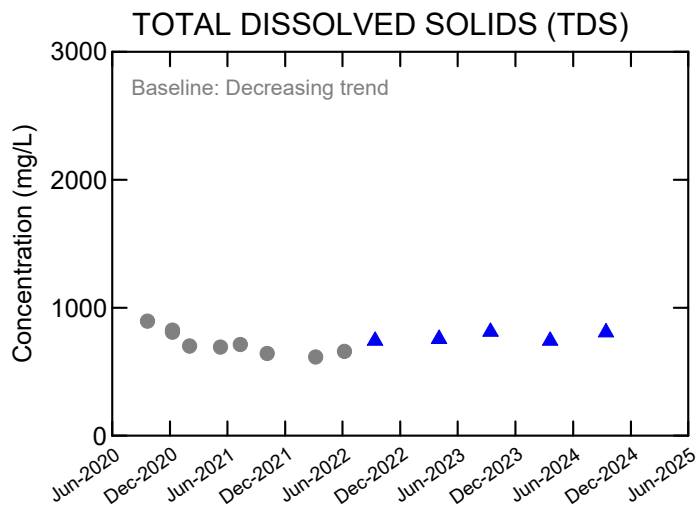
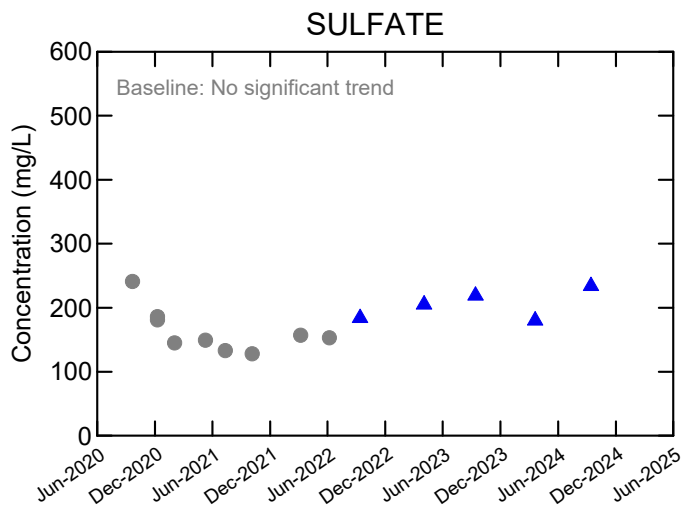


MidAmerican Energy Company
 Neal North CCR Closed Monofill
 Sergeant Bluff, Iowa

**MW-3R -- APPENDIX III PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

Project No. 12576482
 Date: Nov 27, 2024

FIGURE 2.a



Legend:

- Baseline Result
- ▲ Detection Monitoring Result

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

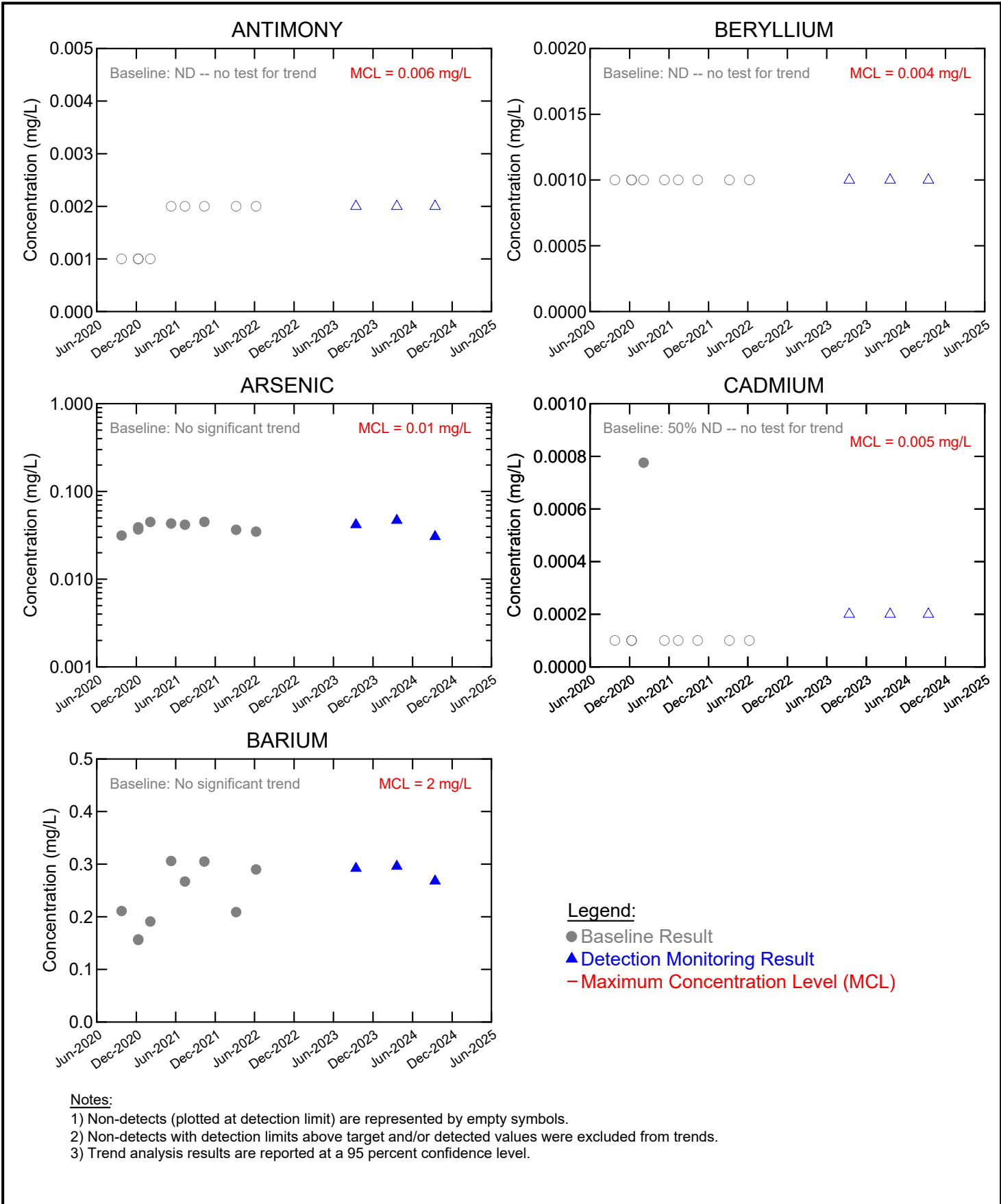


MidAmerican Energy Company
Neal North CCR Closed Monofill
Sergeant Bluff, Iowa

**MW-3R -- APPENDIX III PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. 12576482
Date: Nov 25, 2024

FIGURE 2.b

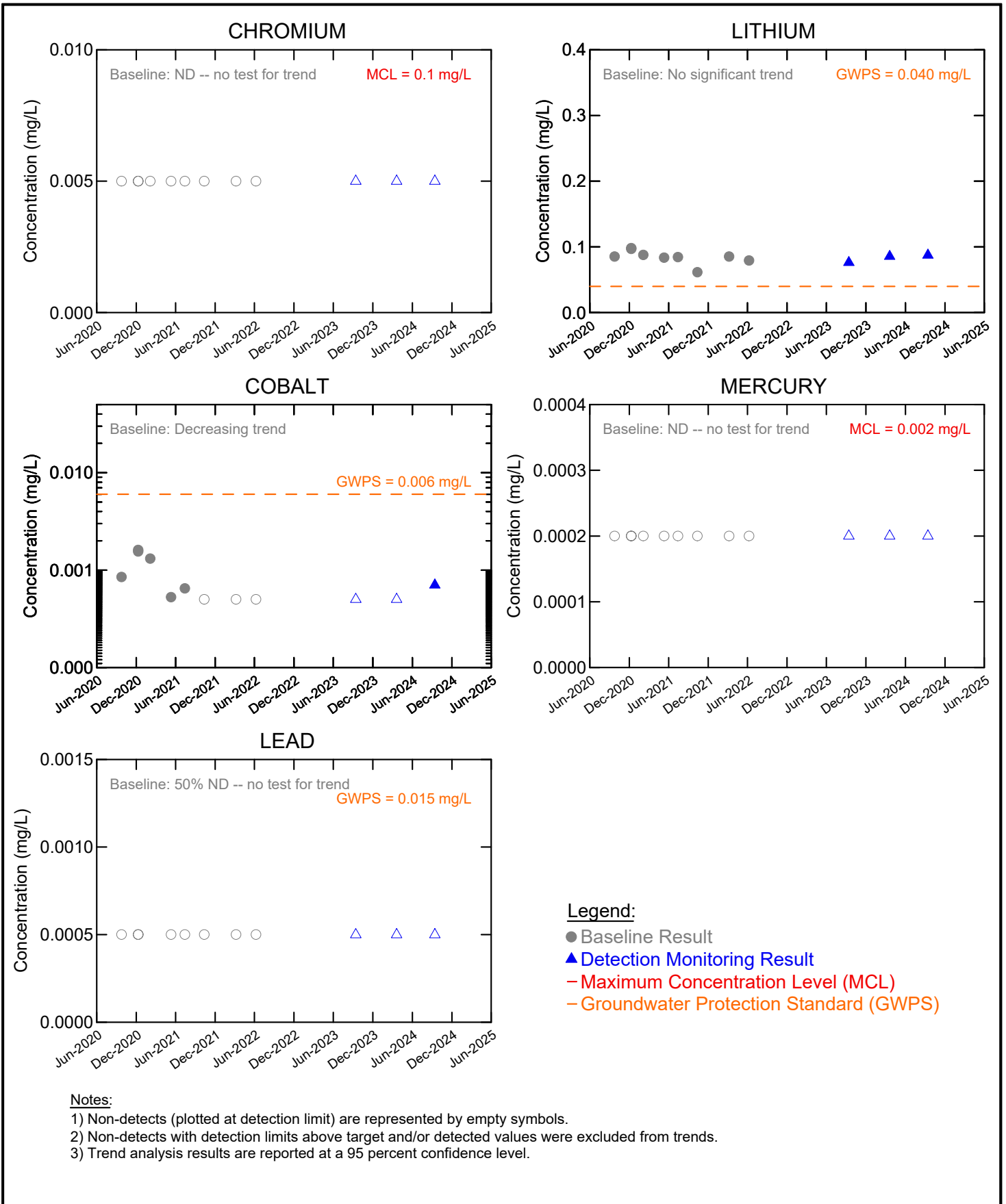


MidAmerican Energy Company
 Neal North CCR Closed Monofill
 Sergeant Bluff, Iowa

Project No. 12576482
 Date: Nov 26, 2024

**MW-3R -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 2.c

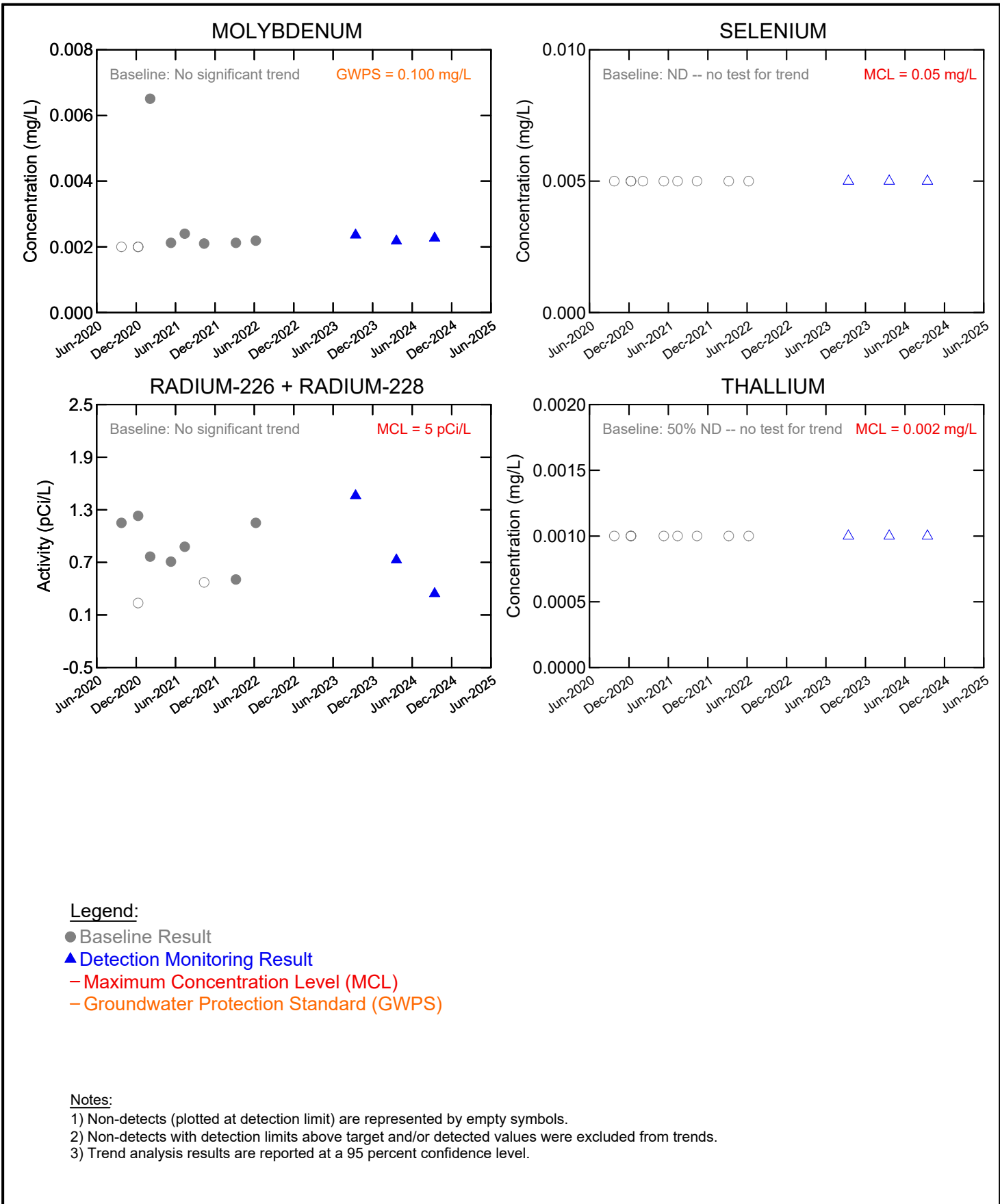


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**MW-3R -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 2.d

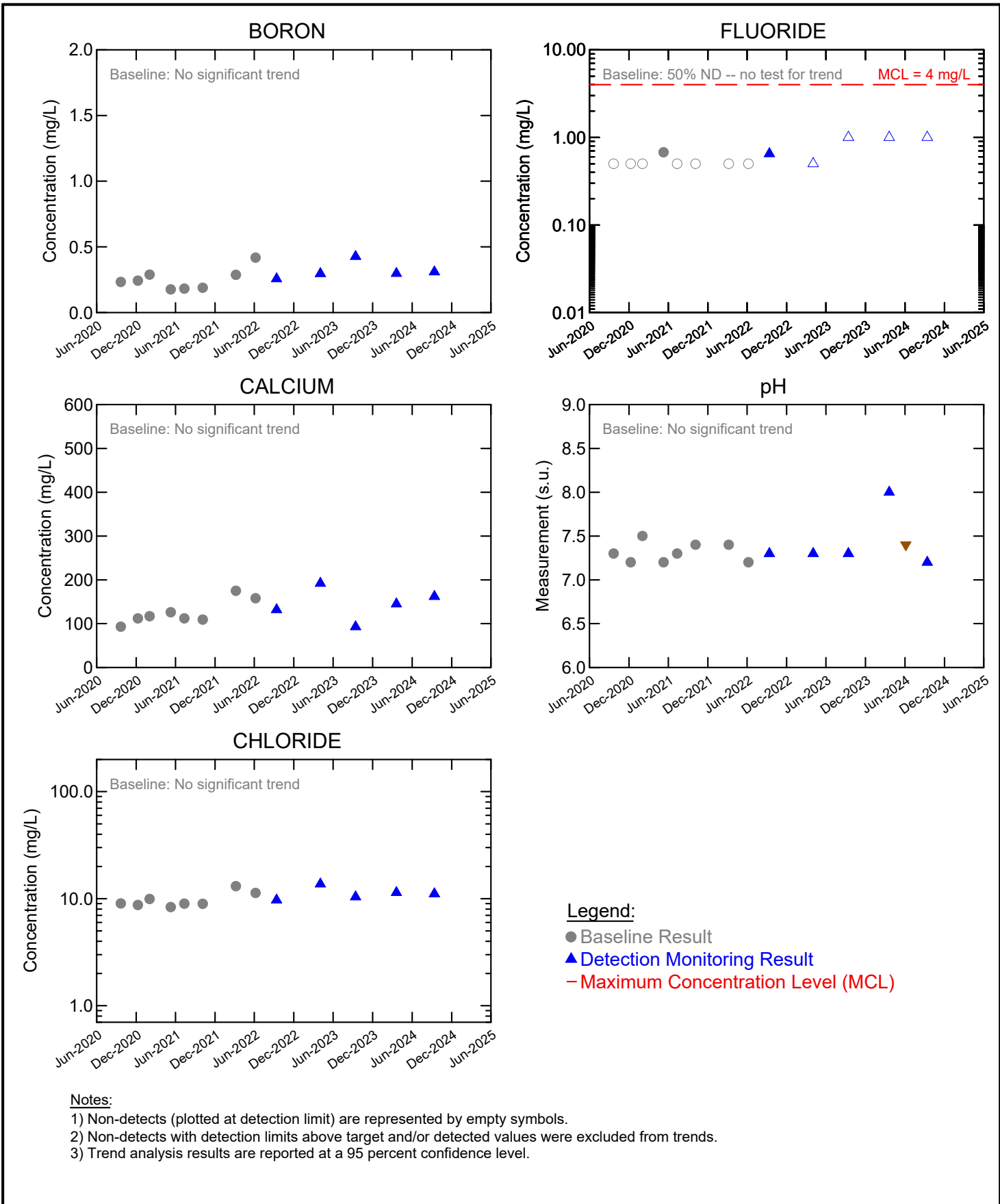


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**MW-3R -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 2.e

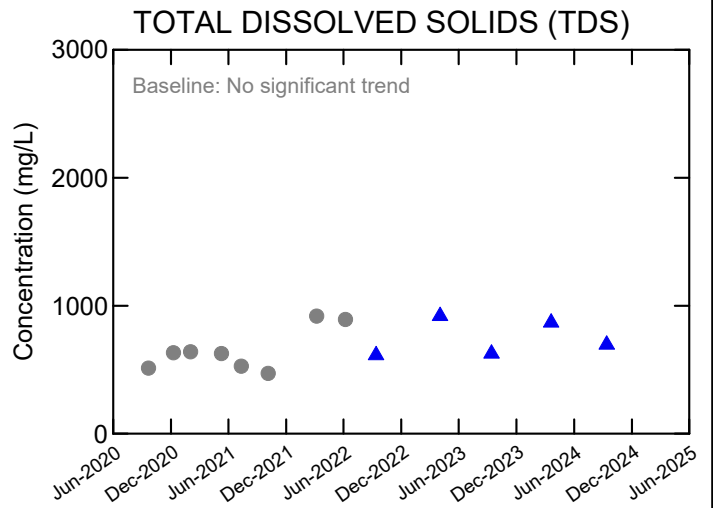
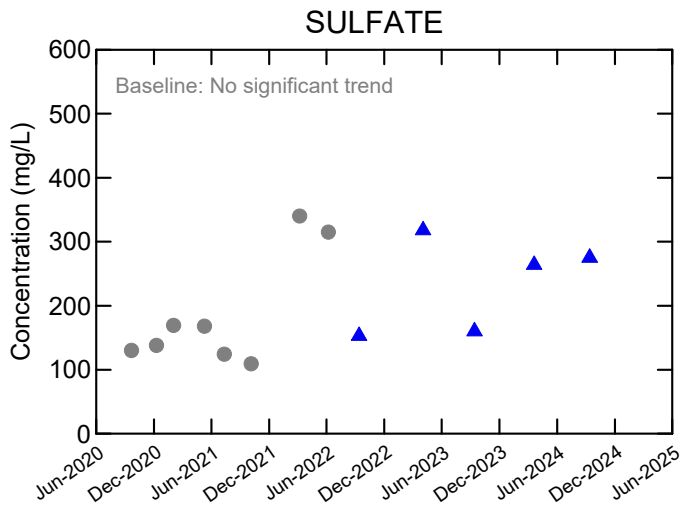


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**MW-5R -- APPENDIX III PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

Project No. 12576482
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FIGURE 3.a



Legend:

- Baseline Result
- ▲ Detection Monitoring Result

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

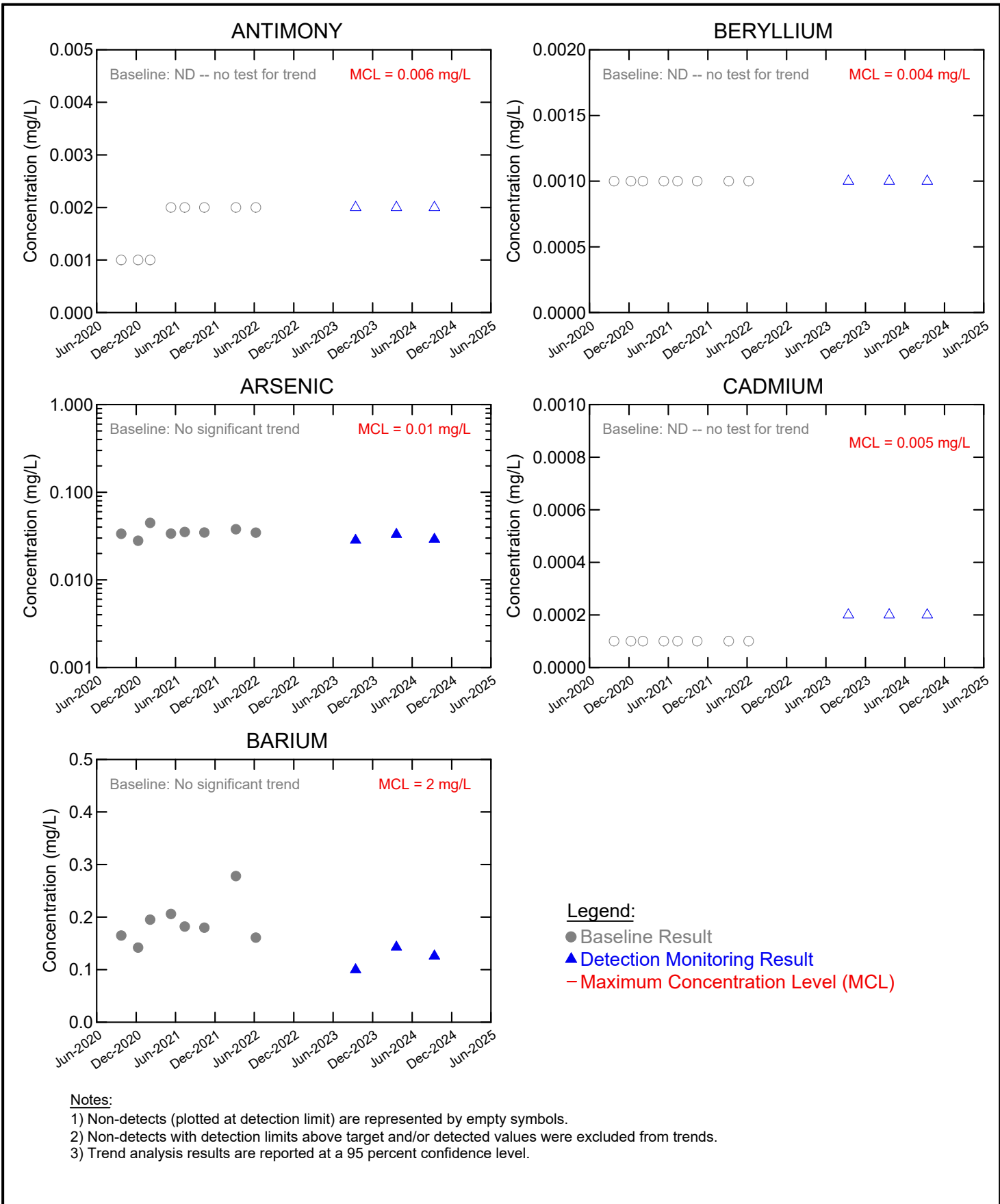


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**MW-5R -- APPENDIX III PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. 12576482
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FIGURE 3.b

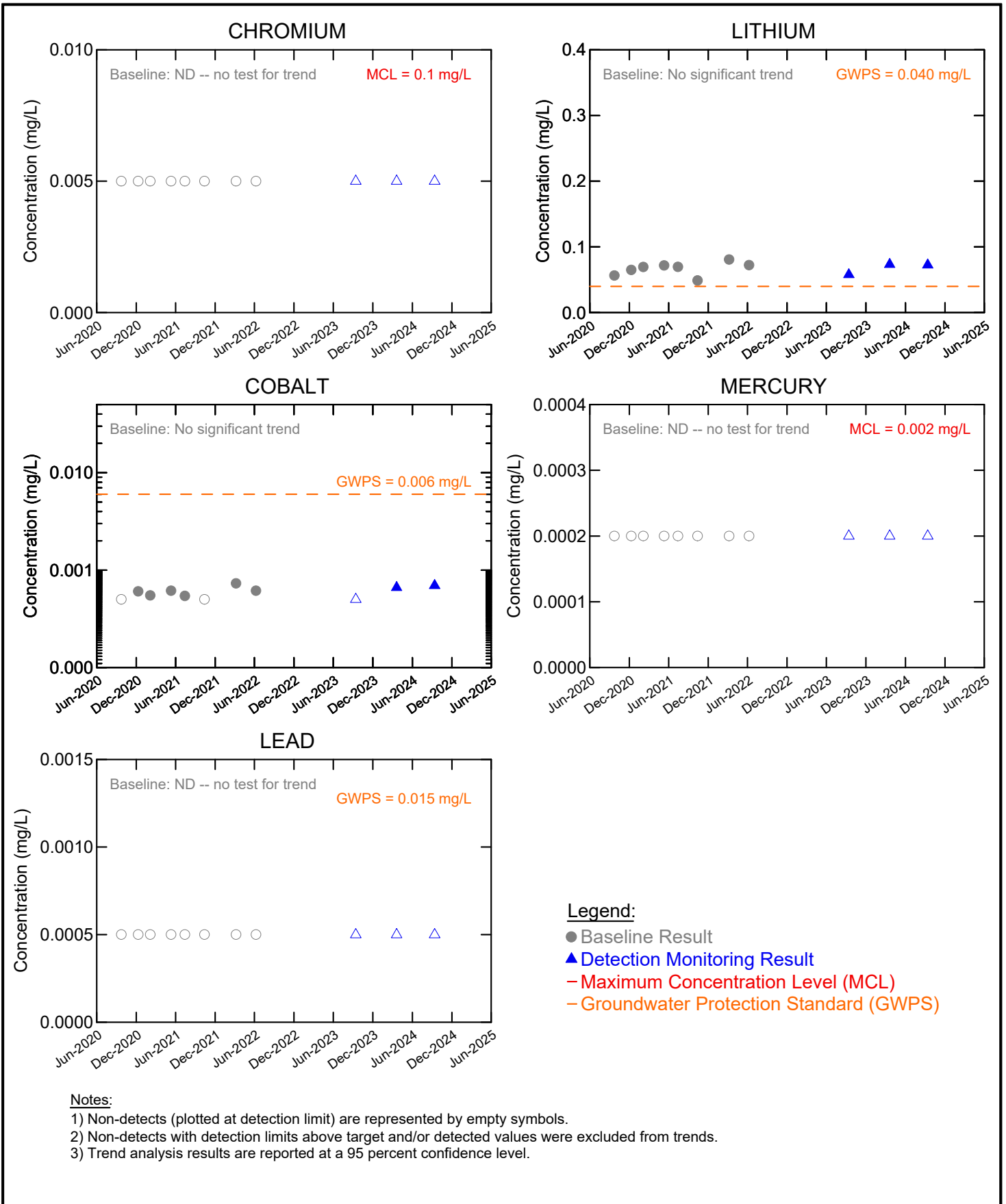


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**MW-5R -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

Project No. 12576482
 Date: Nov 26, 2024

FIGURE 3.c



Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

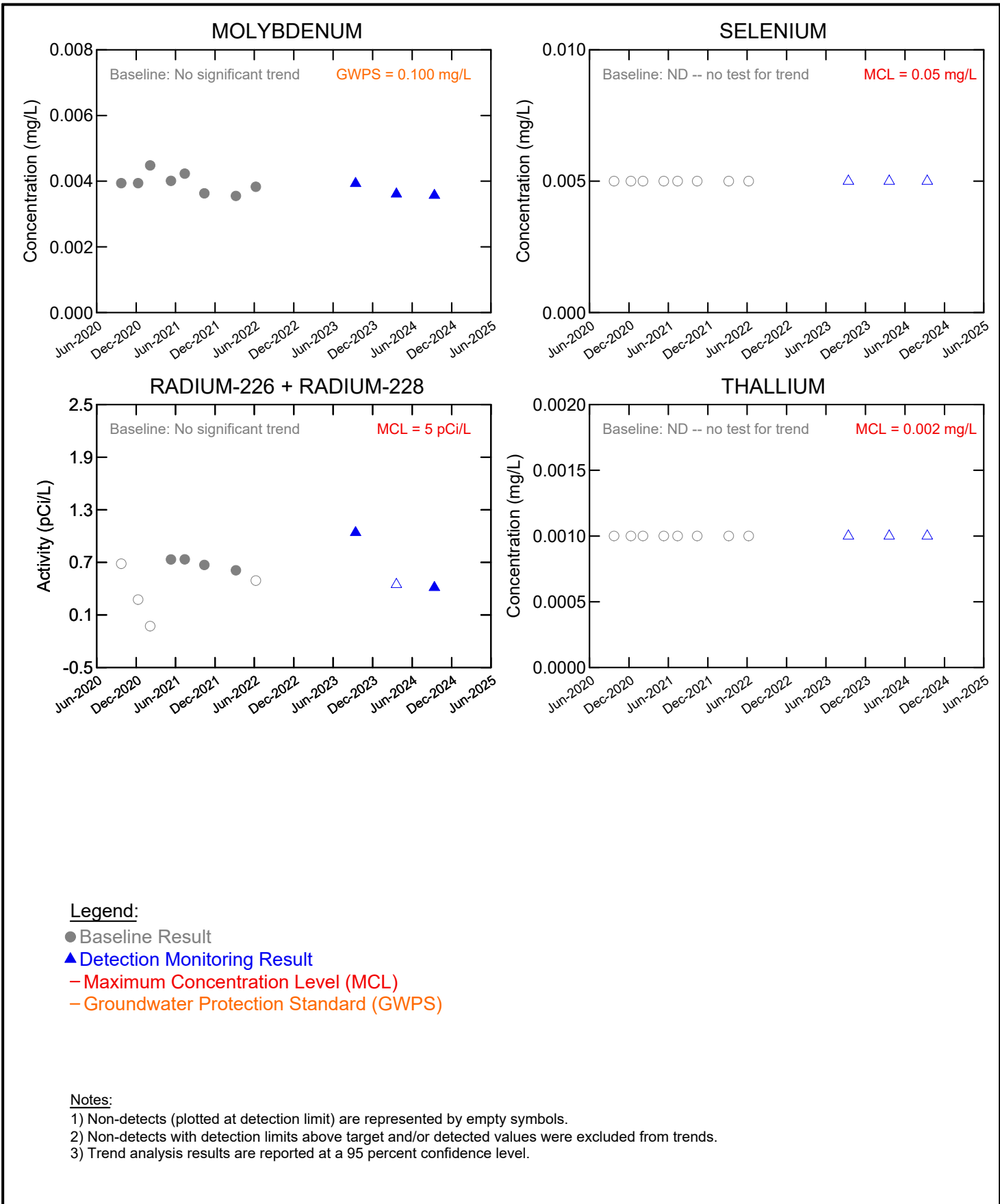


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**MW-5R -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

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FIGURE 3.d

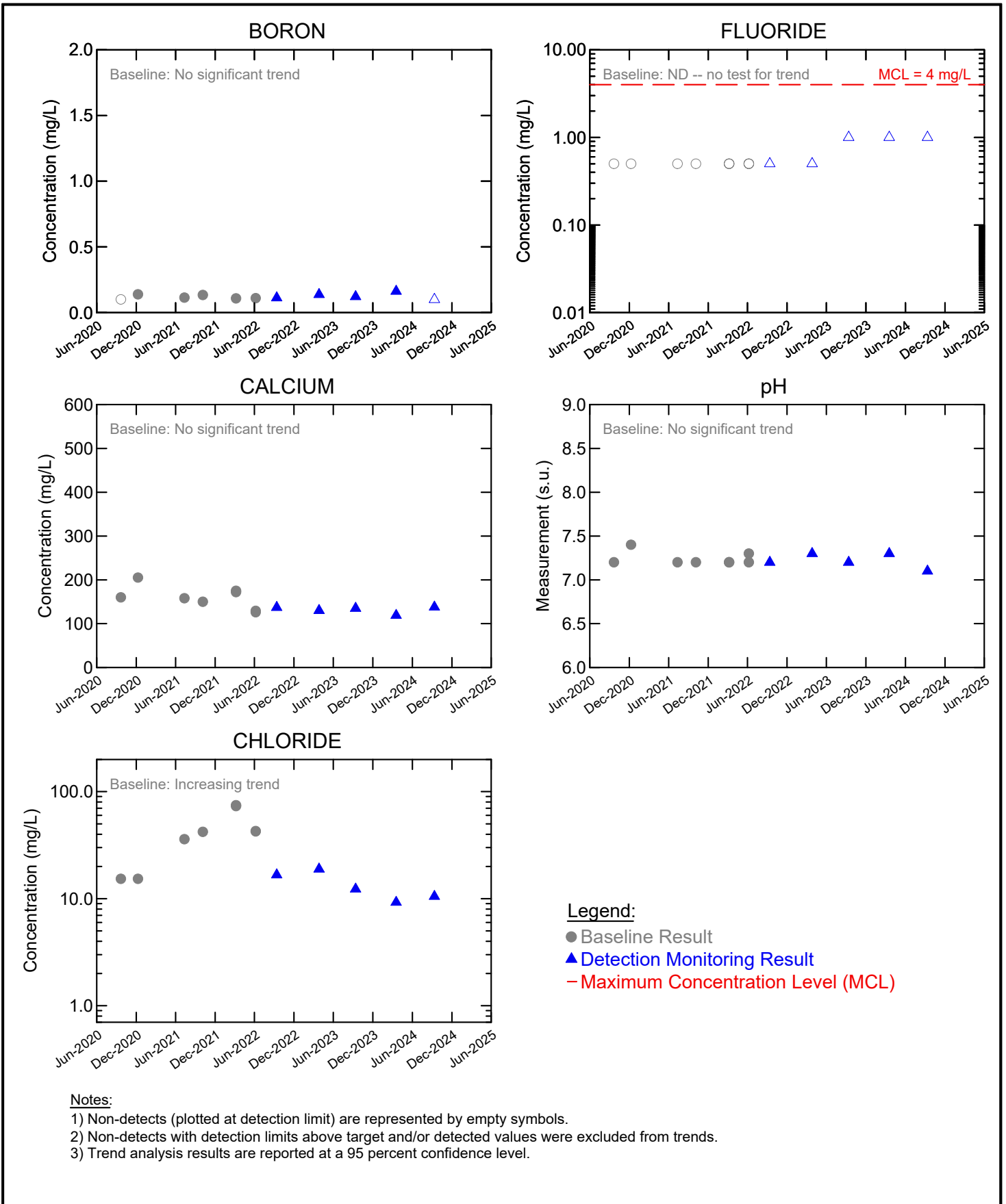


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**MW-5R -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 3.e

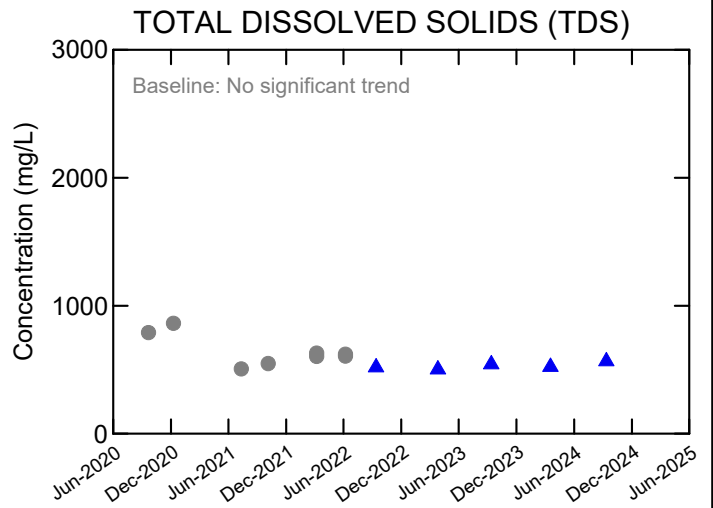
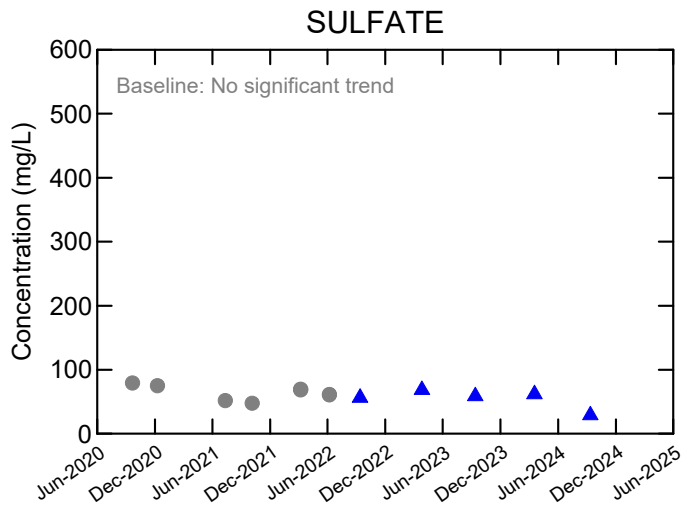


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**MW-13 -- APPENDIX III PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

Project No. 12576482
 Date: Nov 27, 2024

FIGURE 4.a



Legend:

- Baseline Result
- ▲ Detection Monitoring Result

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

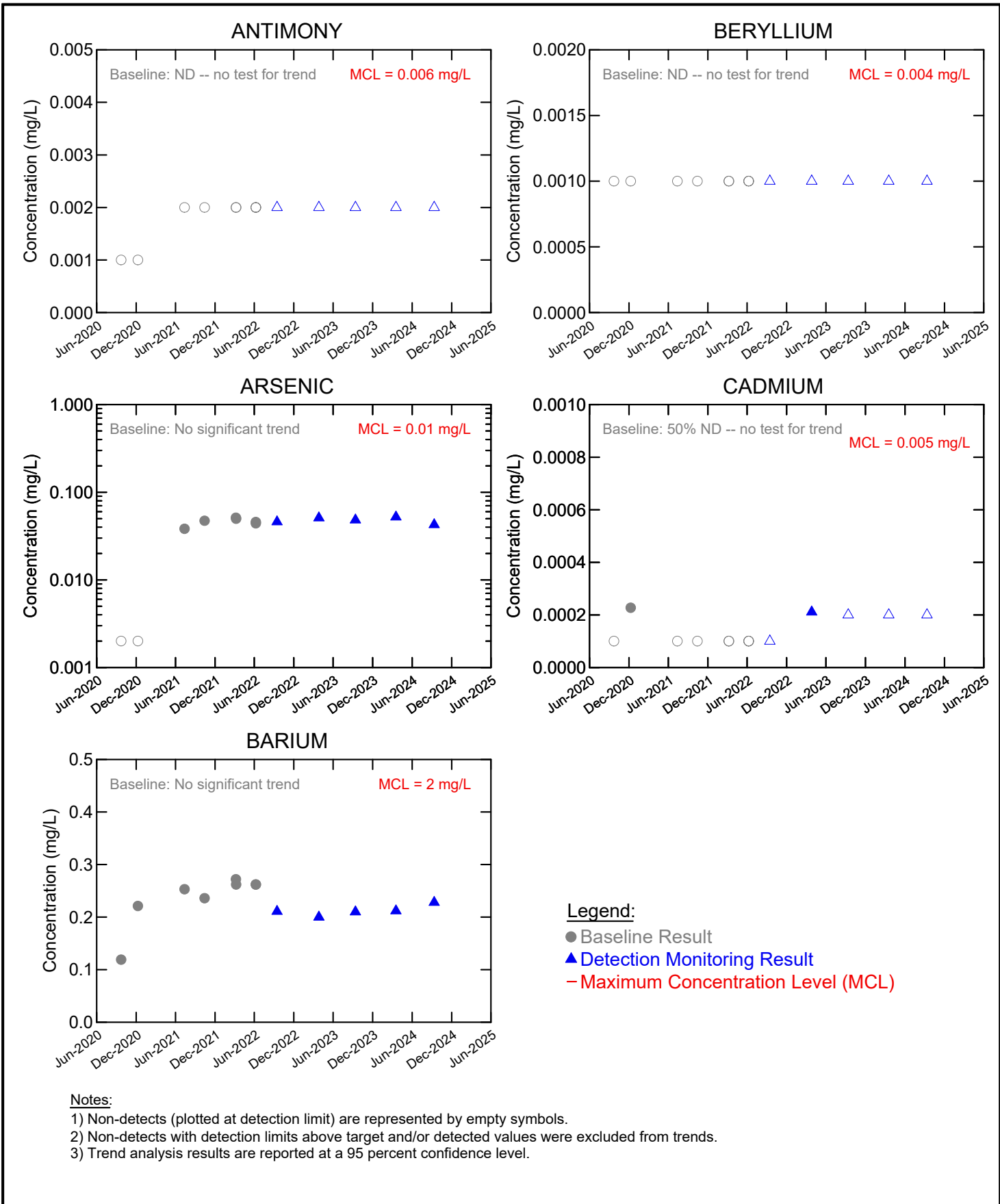


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**MW-13 -- APPENDIX III PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

FIGURE 4.b

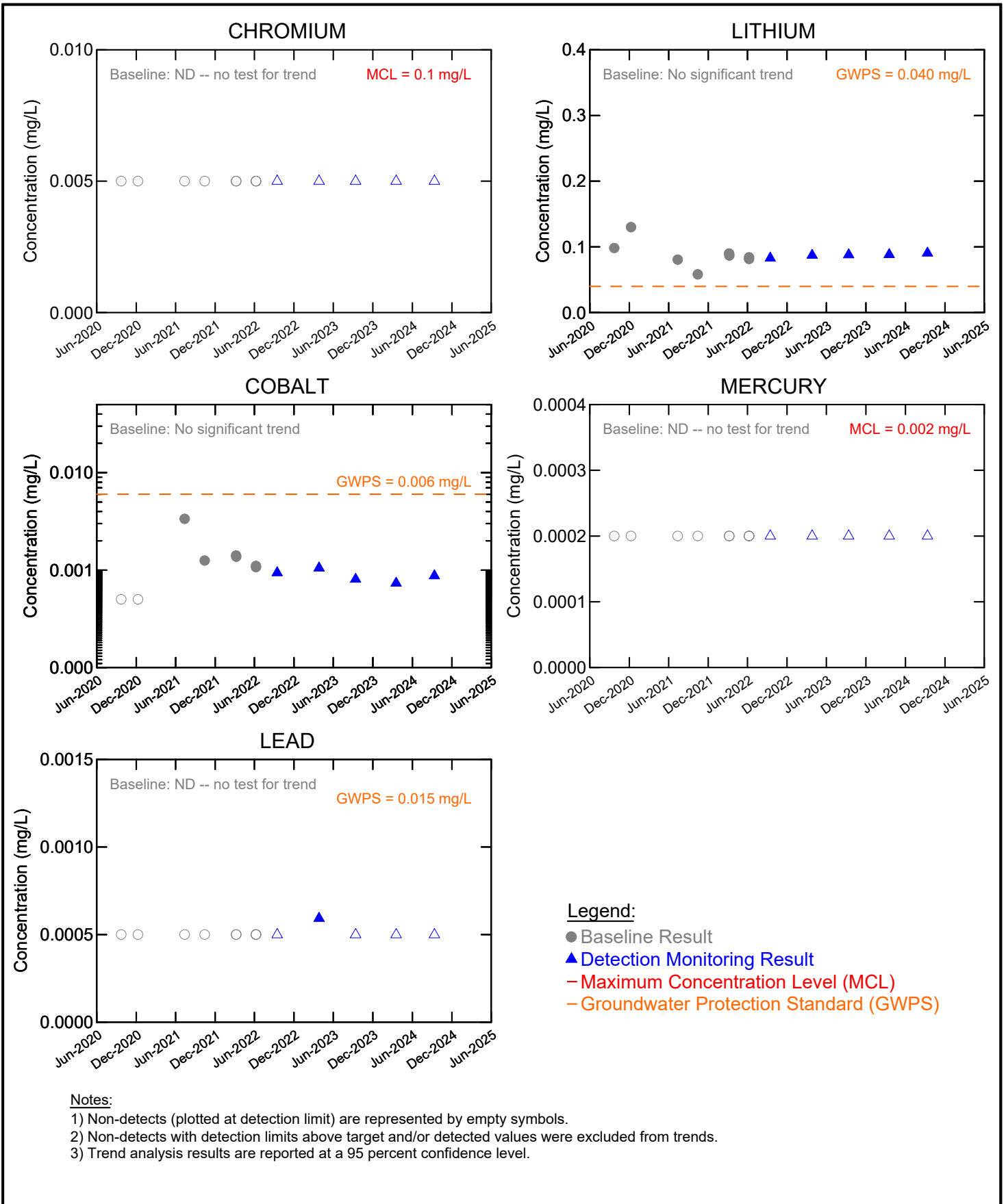


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**MW-13 -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 4.c

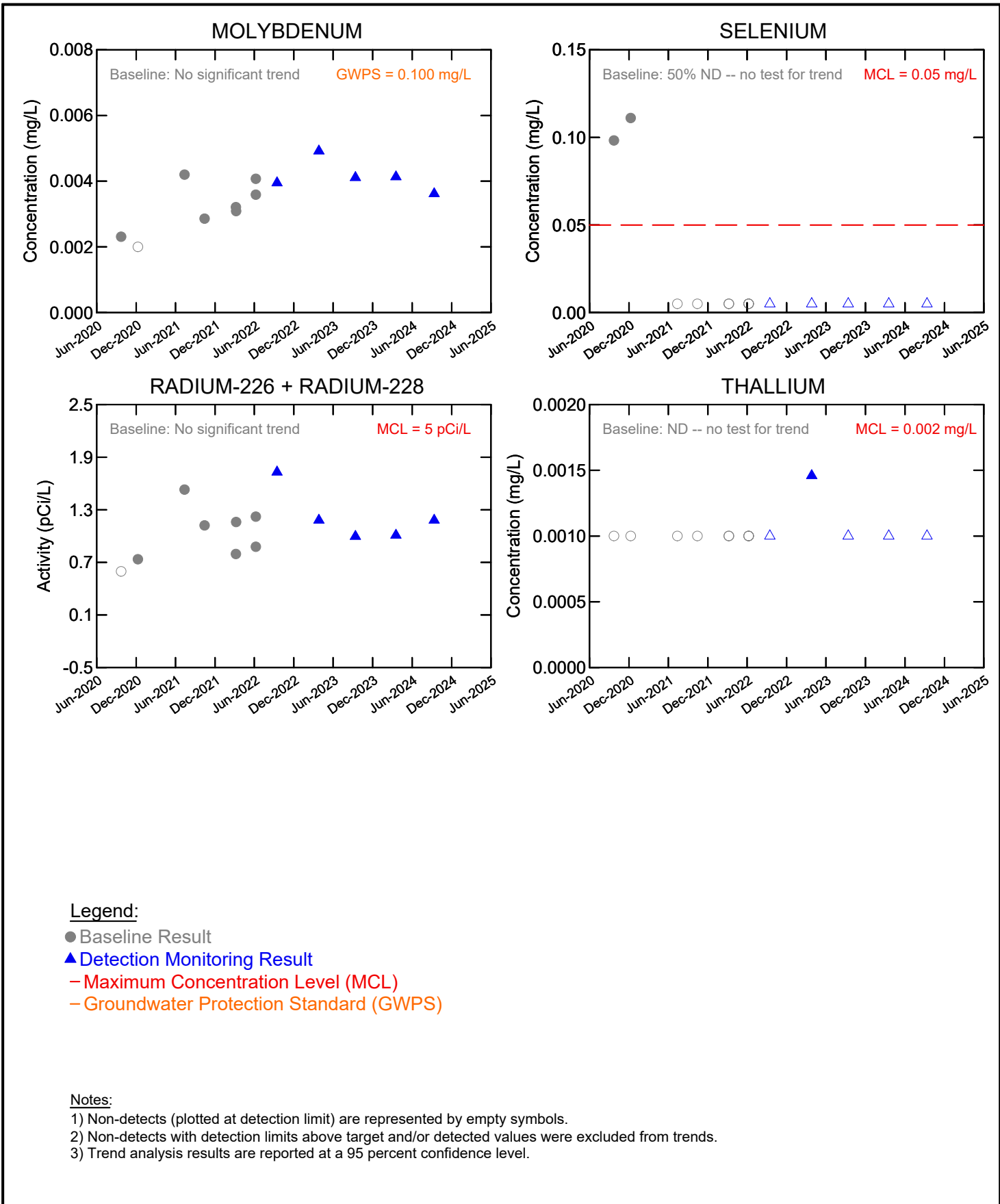


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**MW-13 -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 4.d



Legend:

- Baseline Result
- ▲ Detection Monitoring Result
- Maximum Concentration Level (MCL)
- Groundwater Protection Standard (GWPS)

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

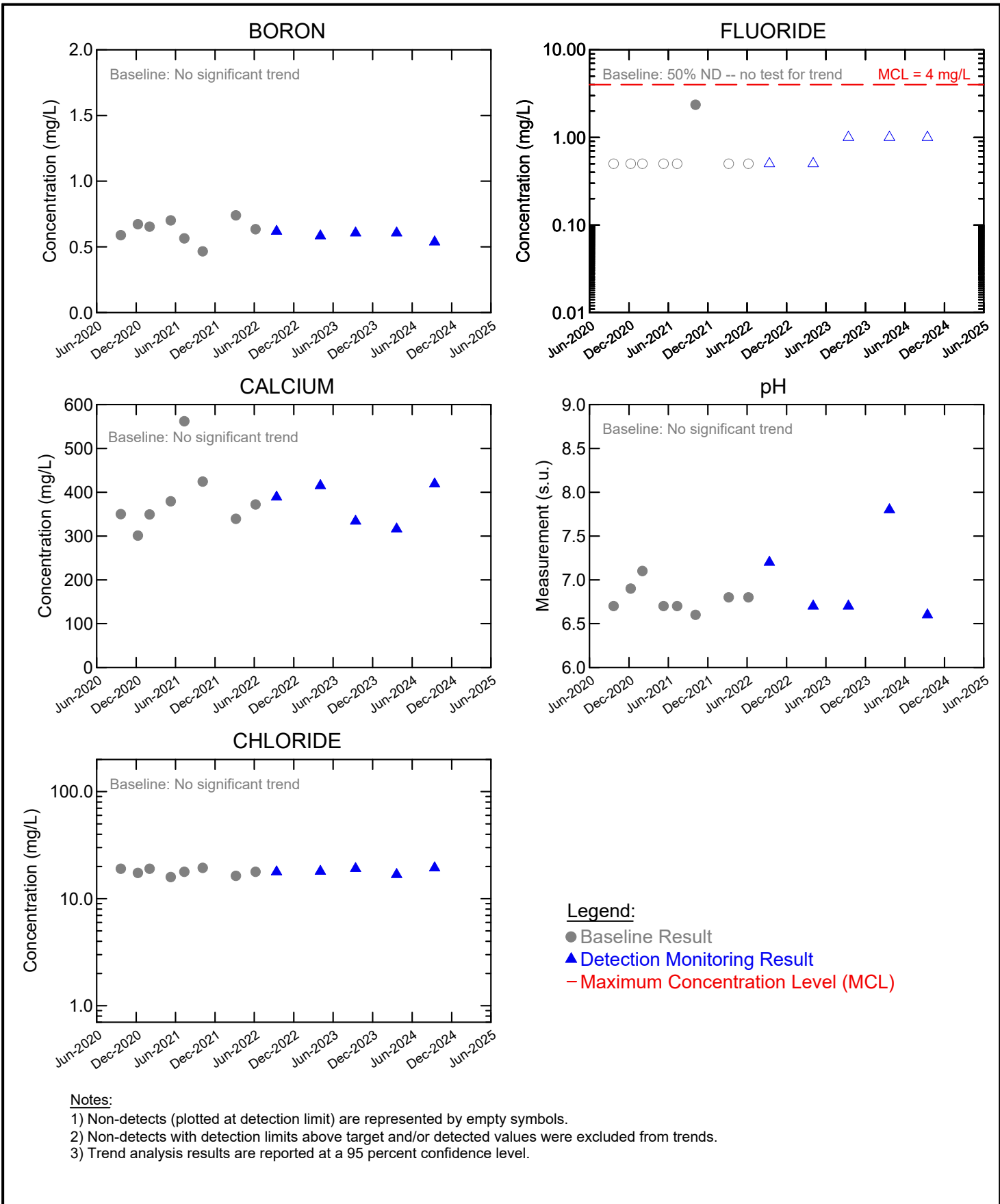


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**MW-13 -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

Project No. 12576482
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FIGURE 4.e

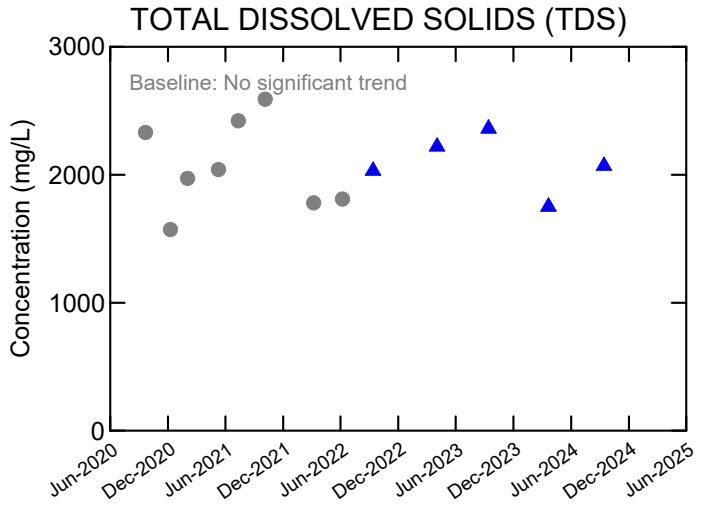
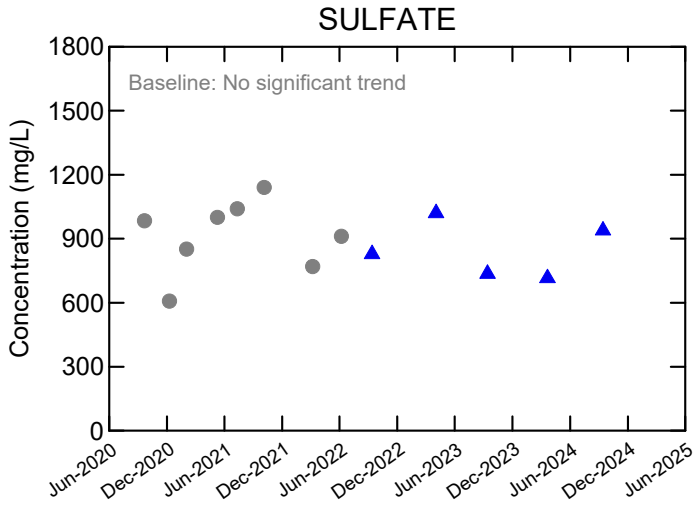


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**MW-19 -- APPENDIX III PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 5.a



Legend:

- Baseline Result
- ▲ Detection Monitoring Result

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

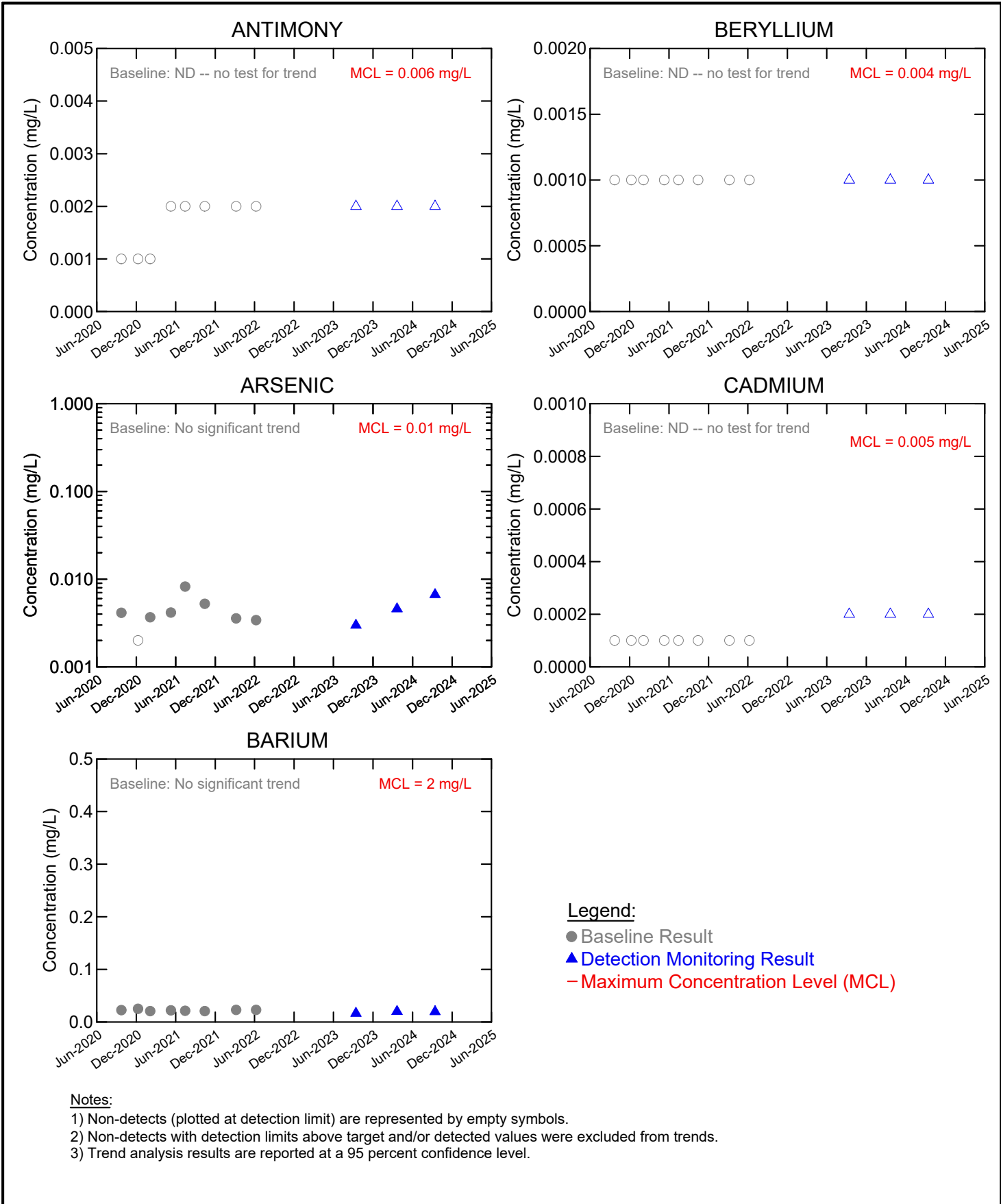


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**MW-19 -- APPENDIX III PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 5.b

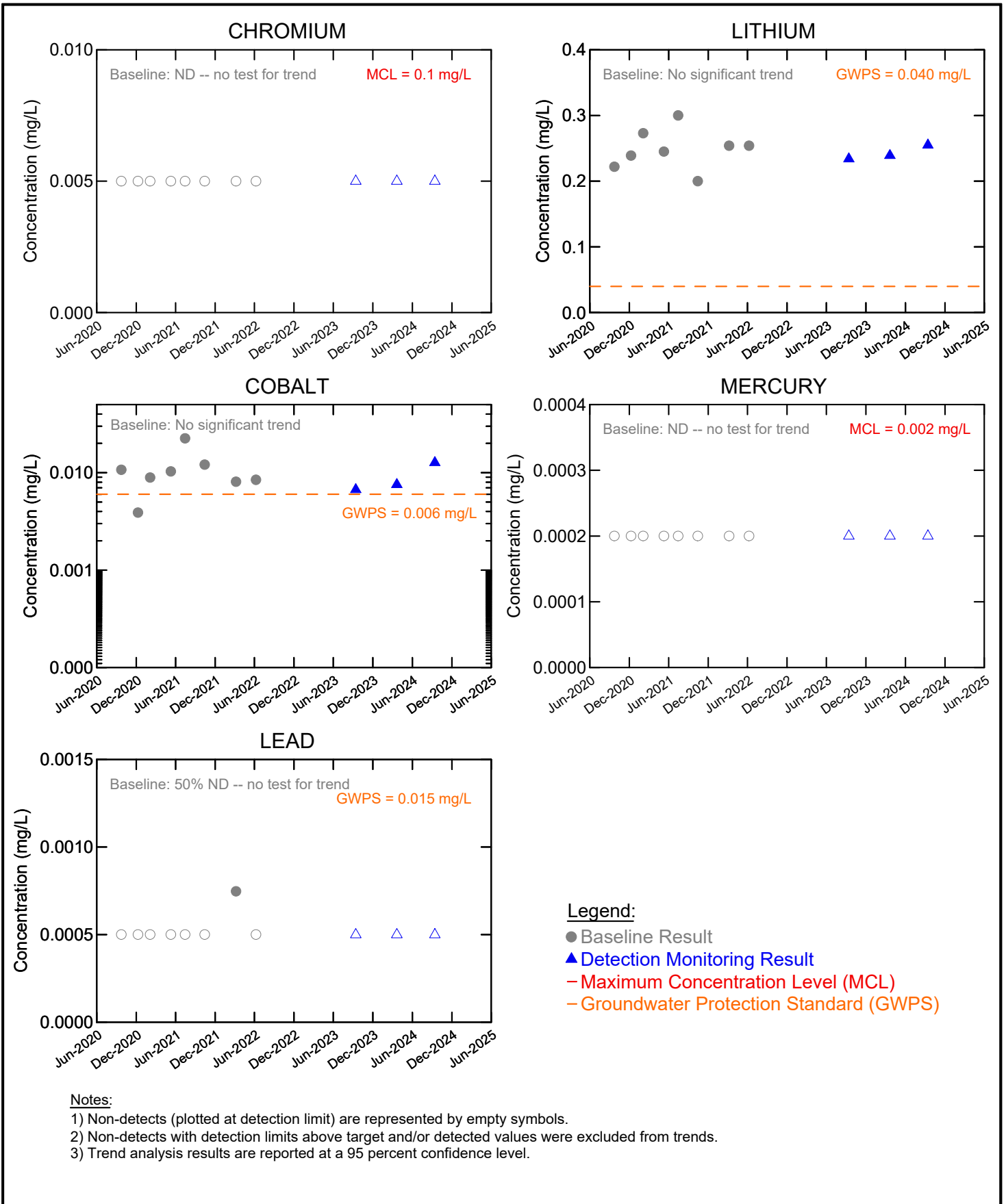


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**MW-19 -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 5.c

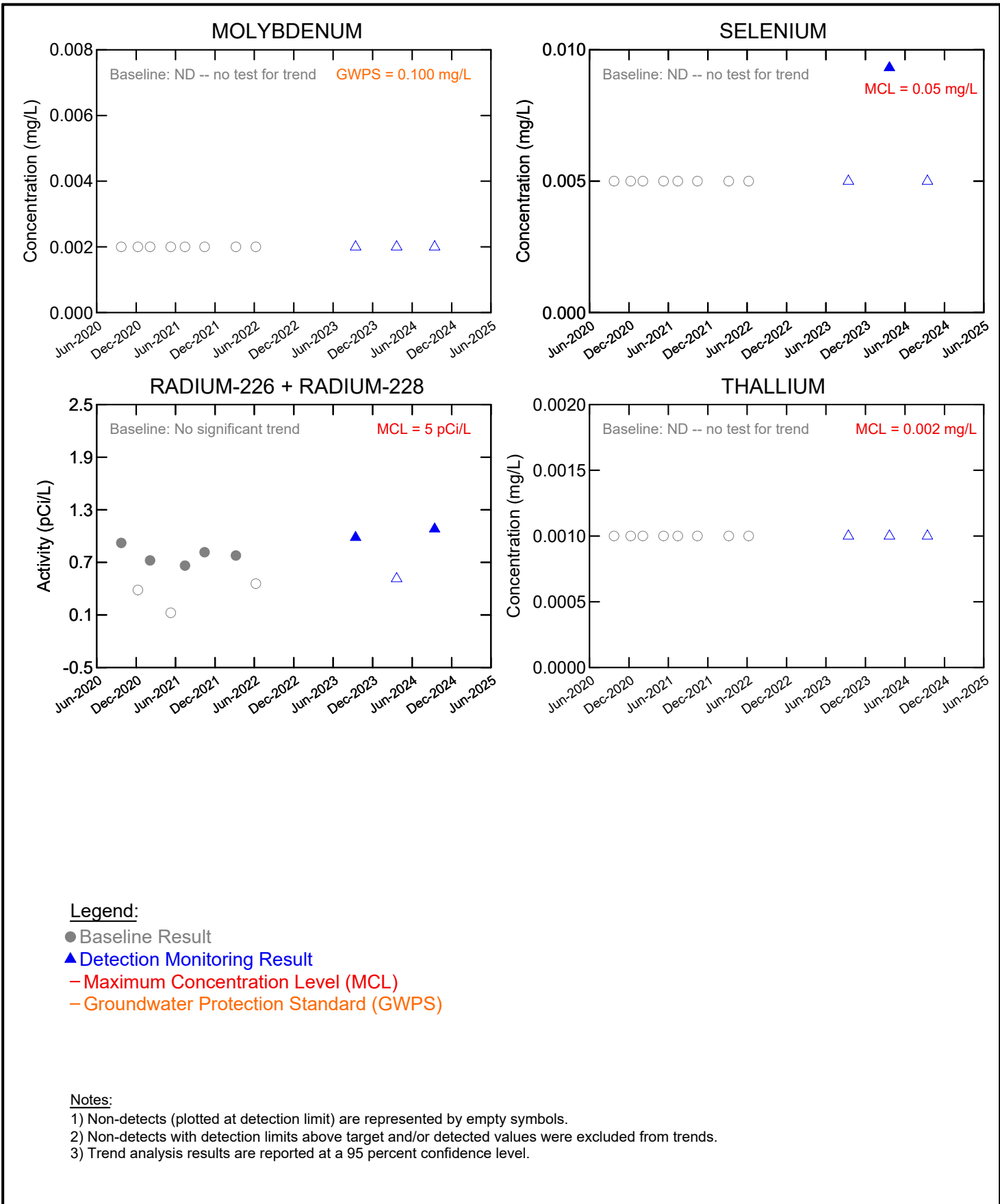


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**MW-19 -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 5.d

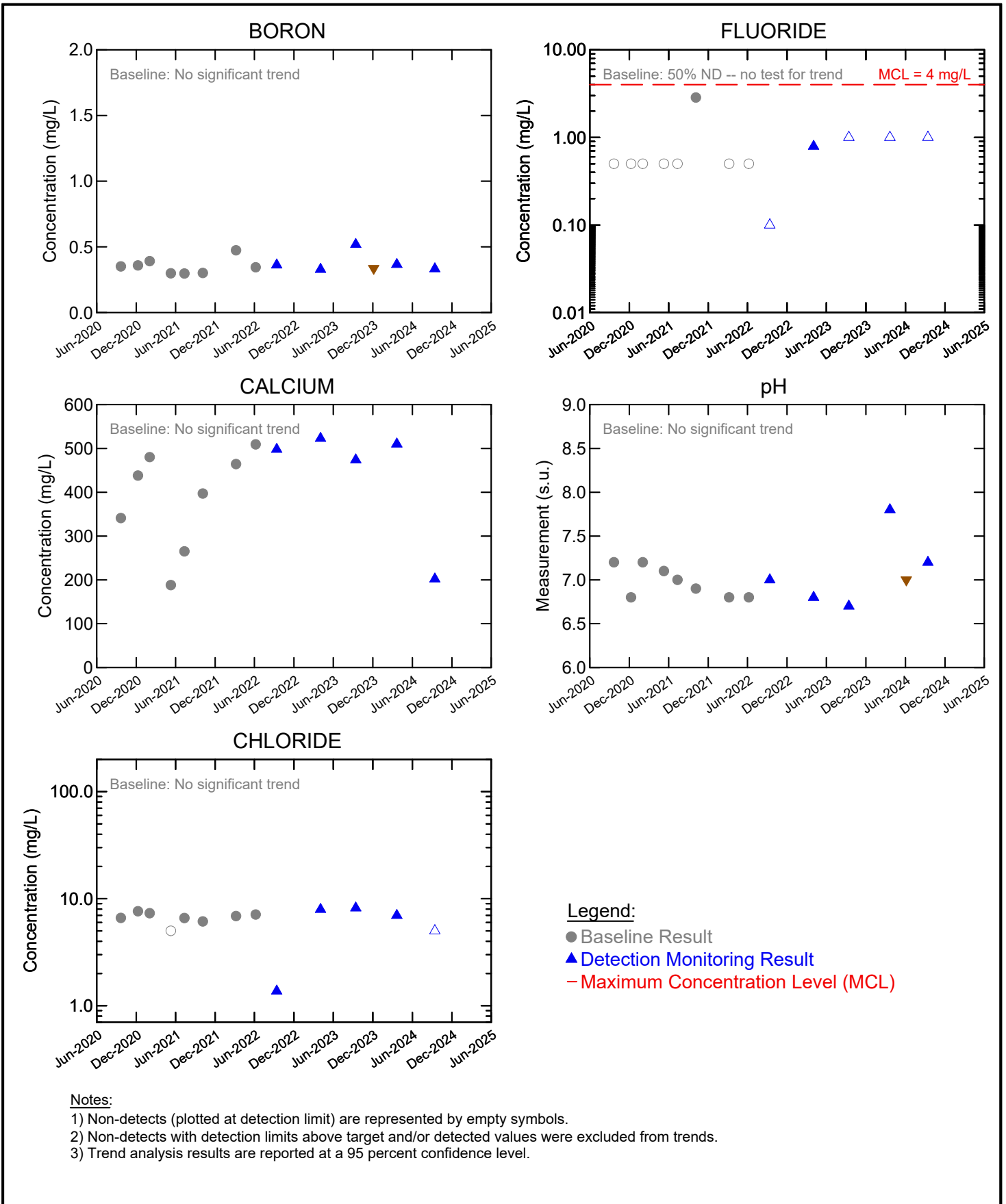


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**MW-19 -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 5.e

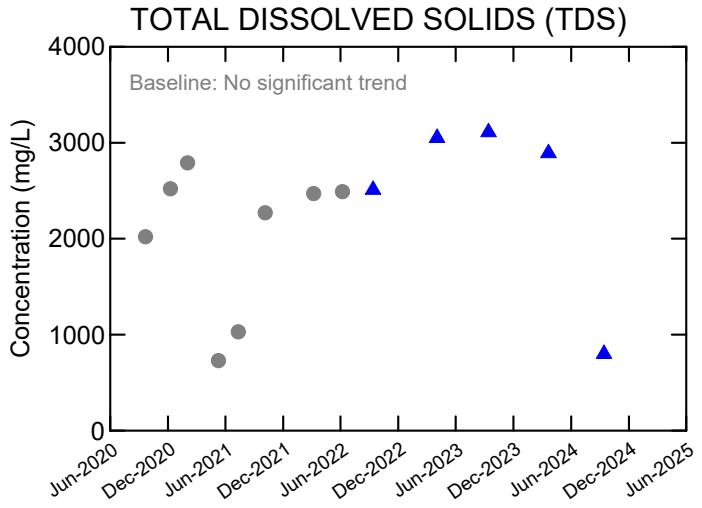
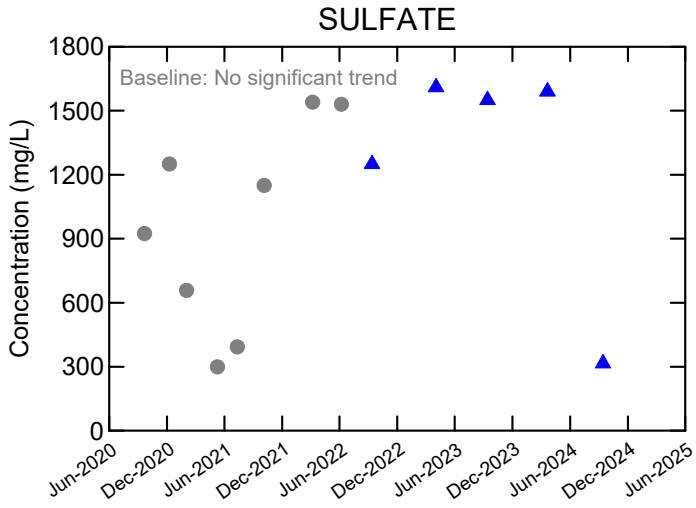


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**MW-21 -- APPENDIX III PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 6.a



Legend:

- Baseline Result
- ▲ Detection Monitoring Result

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

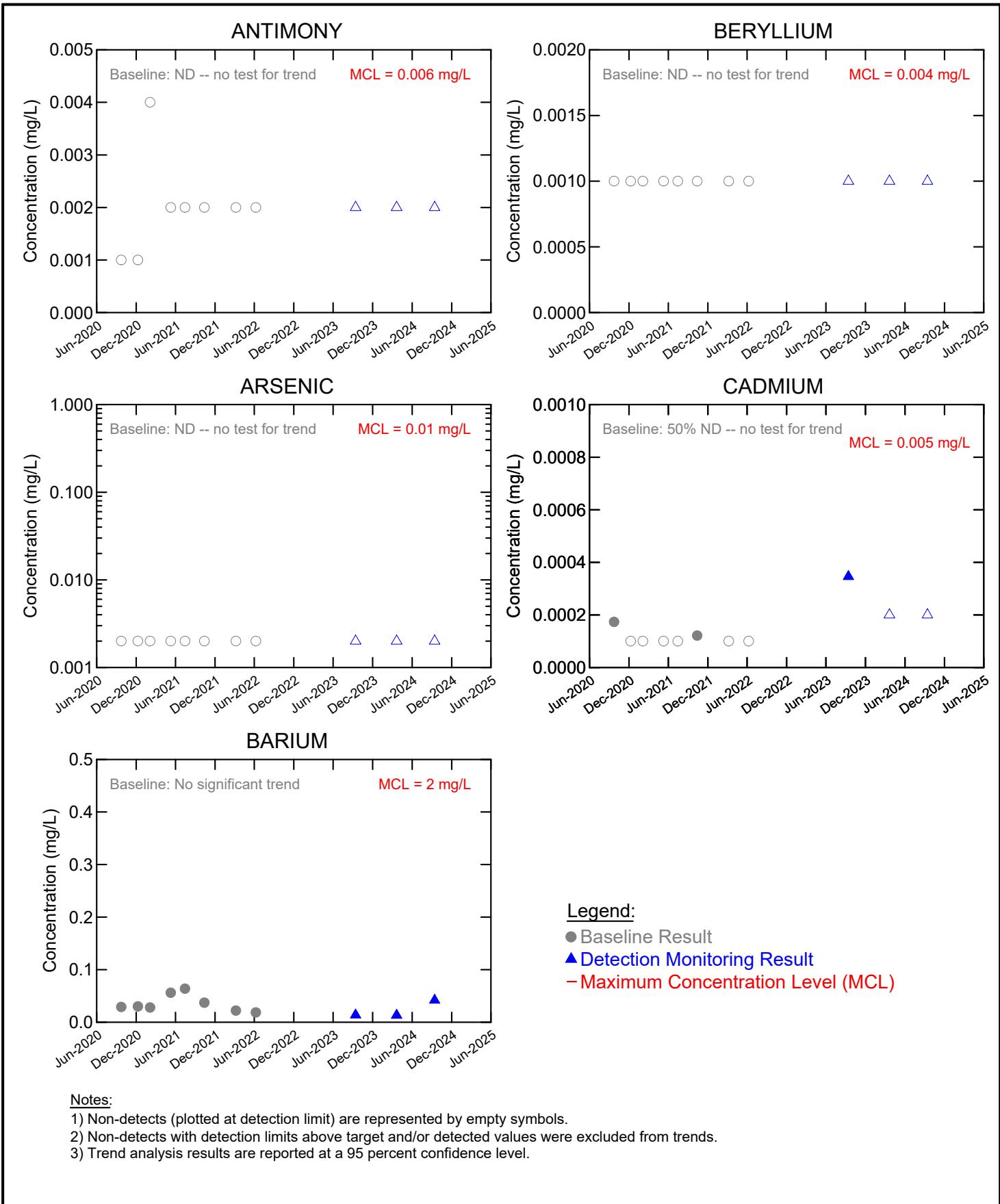


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**MW-21 -- APPENDIX III PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 6.b

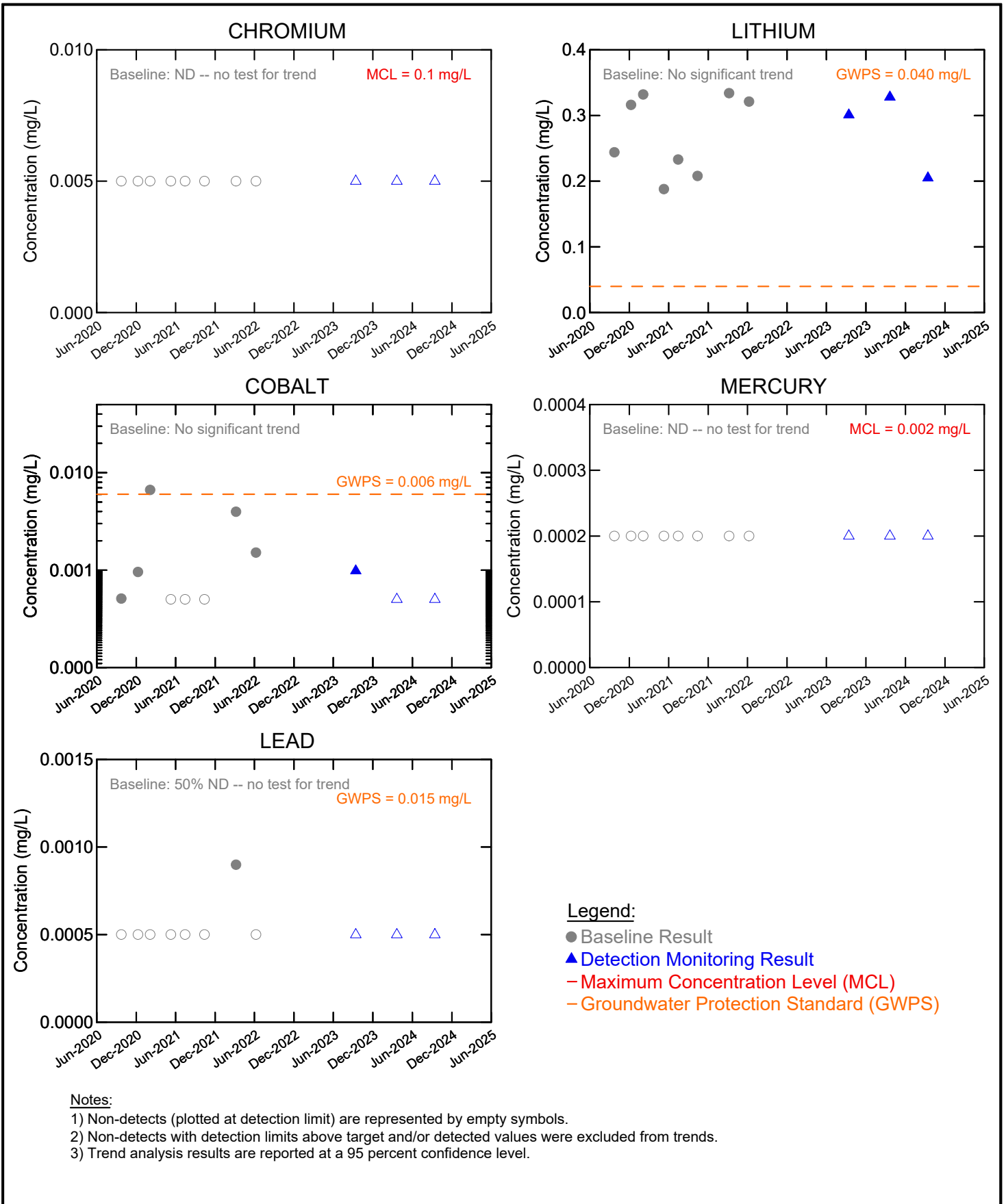


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**MW-21 -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

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FIGURE 6.c

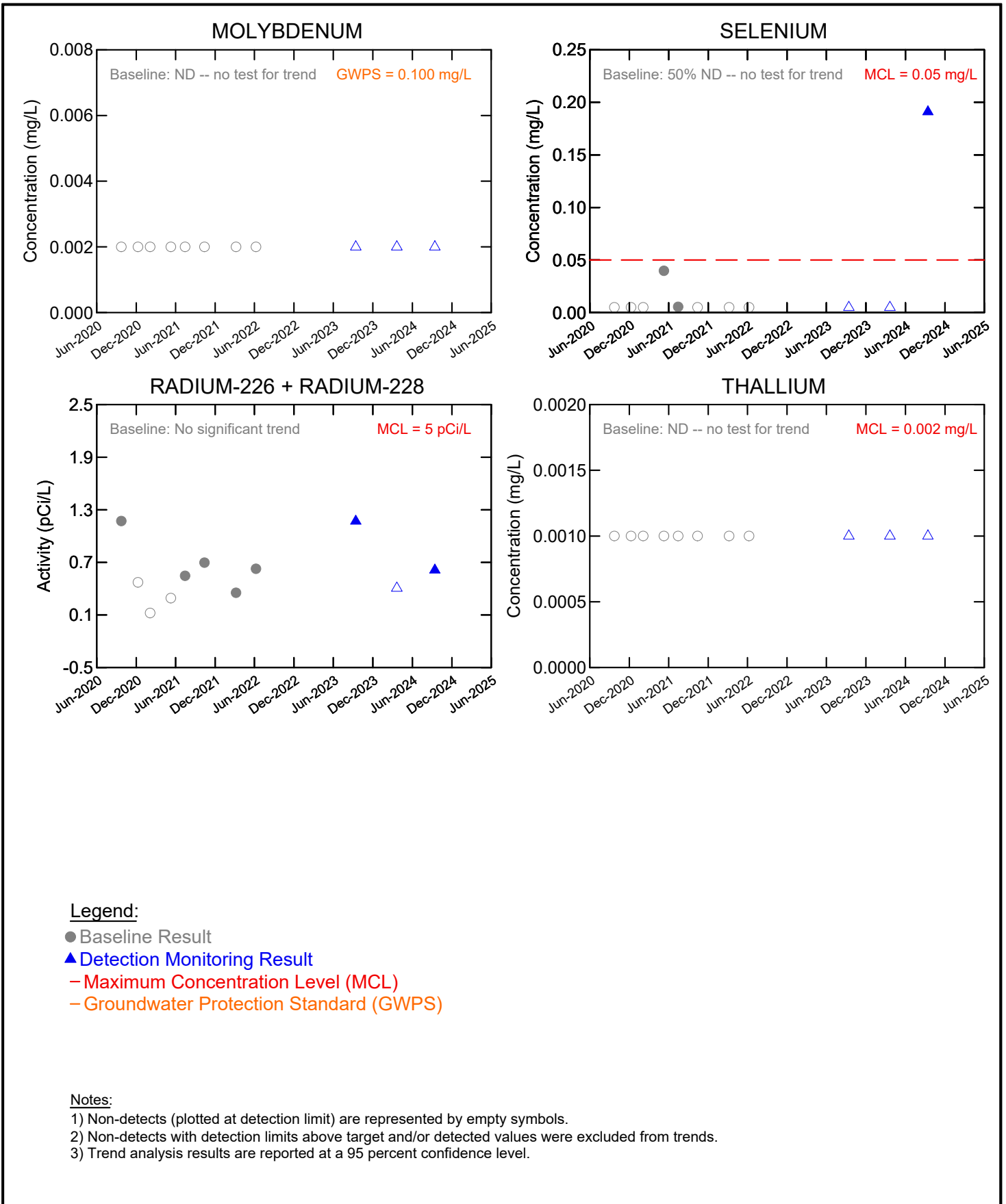


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**MW-21 -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 6.d



Legend:

- Baseline Result
- ▲ Detection Monitoring Result
- Maximum Concentration Level (MCL)
- Groundwater Protection Standard (GWPS)

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

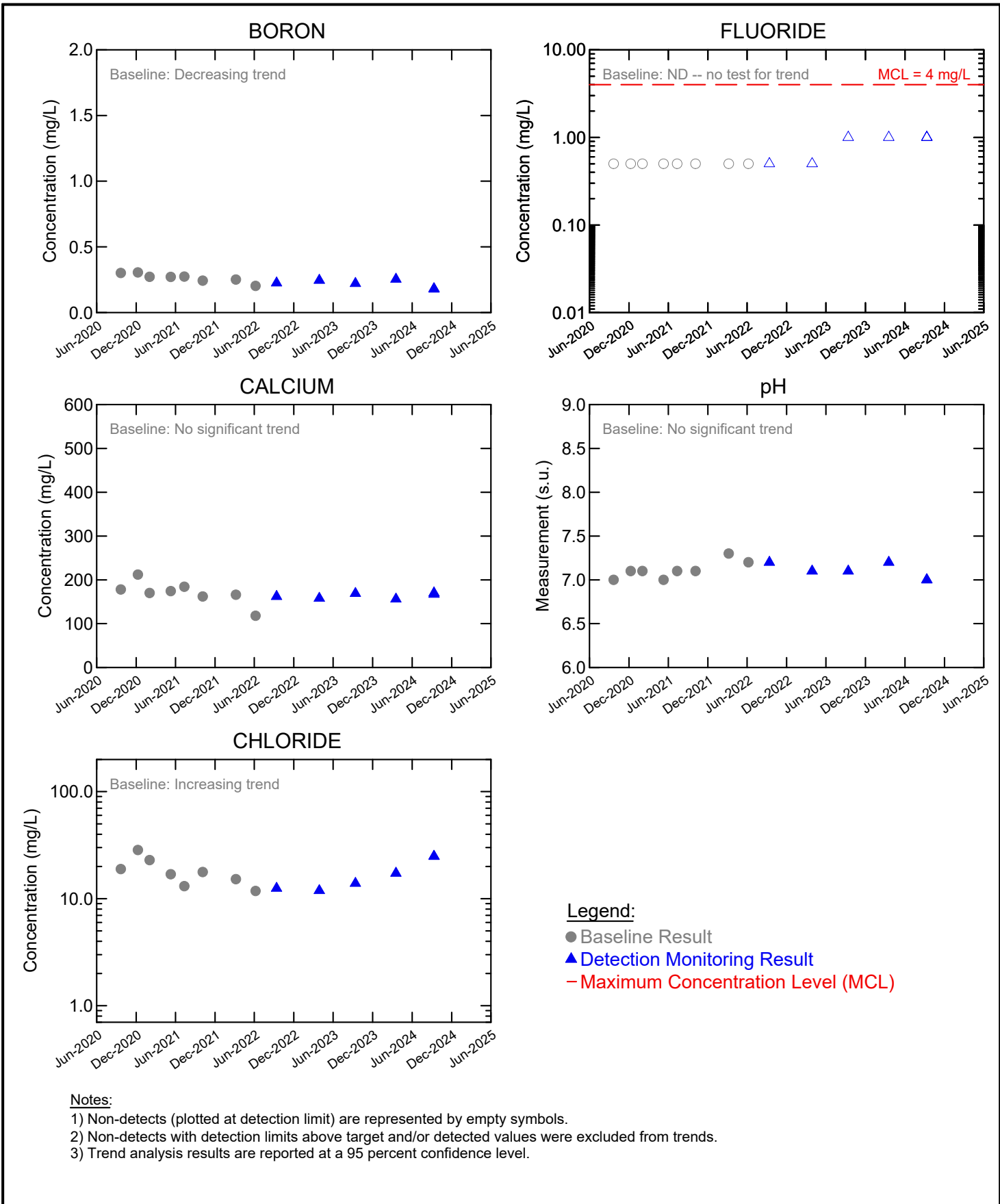


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**MW-21 -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

Project No. 12576482
 Date: Nov 26, 2024

FIGURE 6.e

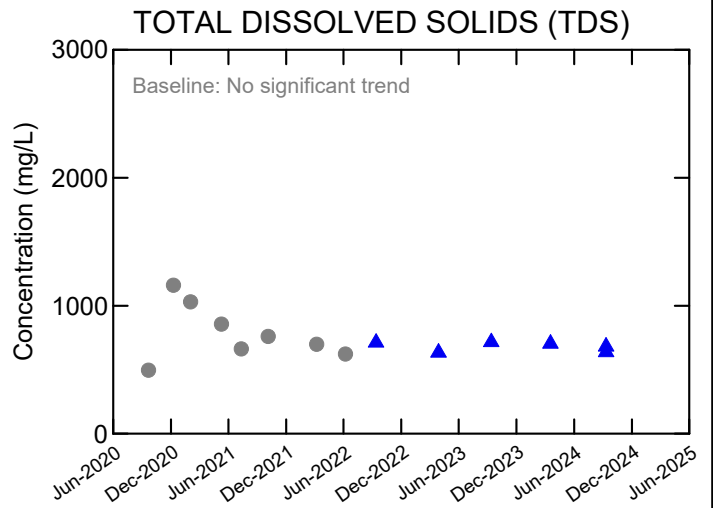
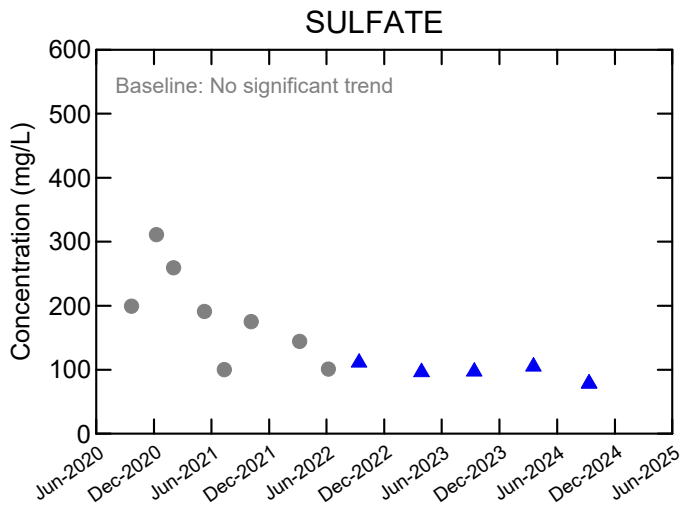


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**MW-27 -- APPENDIX III PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 7.a



Legend:

- Baseline Result
- ▲ Detection Monitoring Result

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

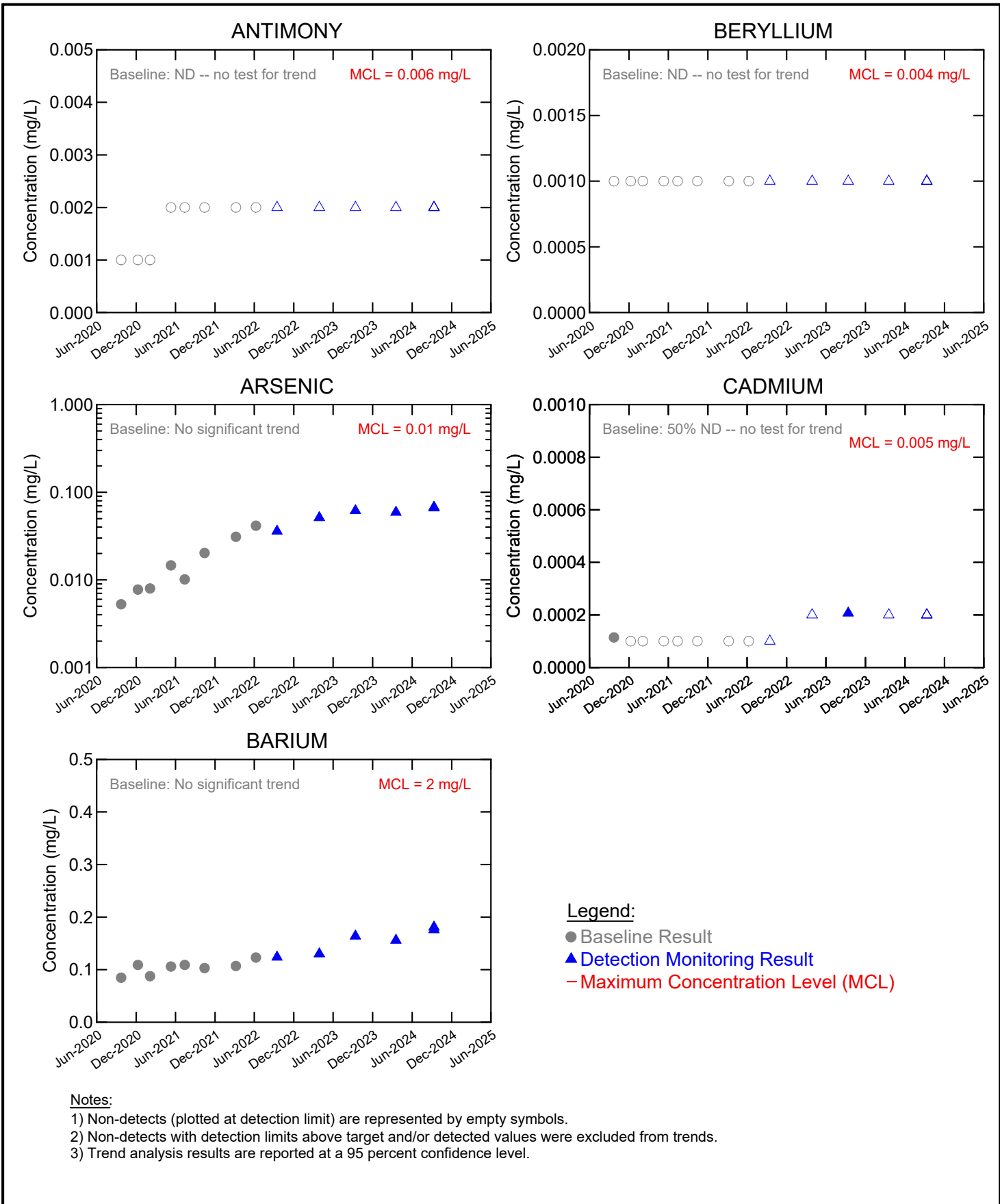


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**MW-27 -- APPENDIX III PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. 12576482
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FIGURE 7.b

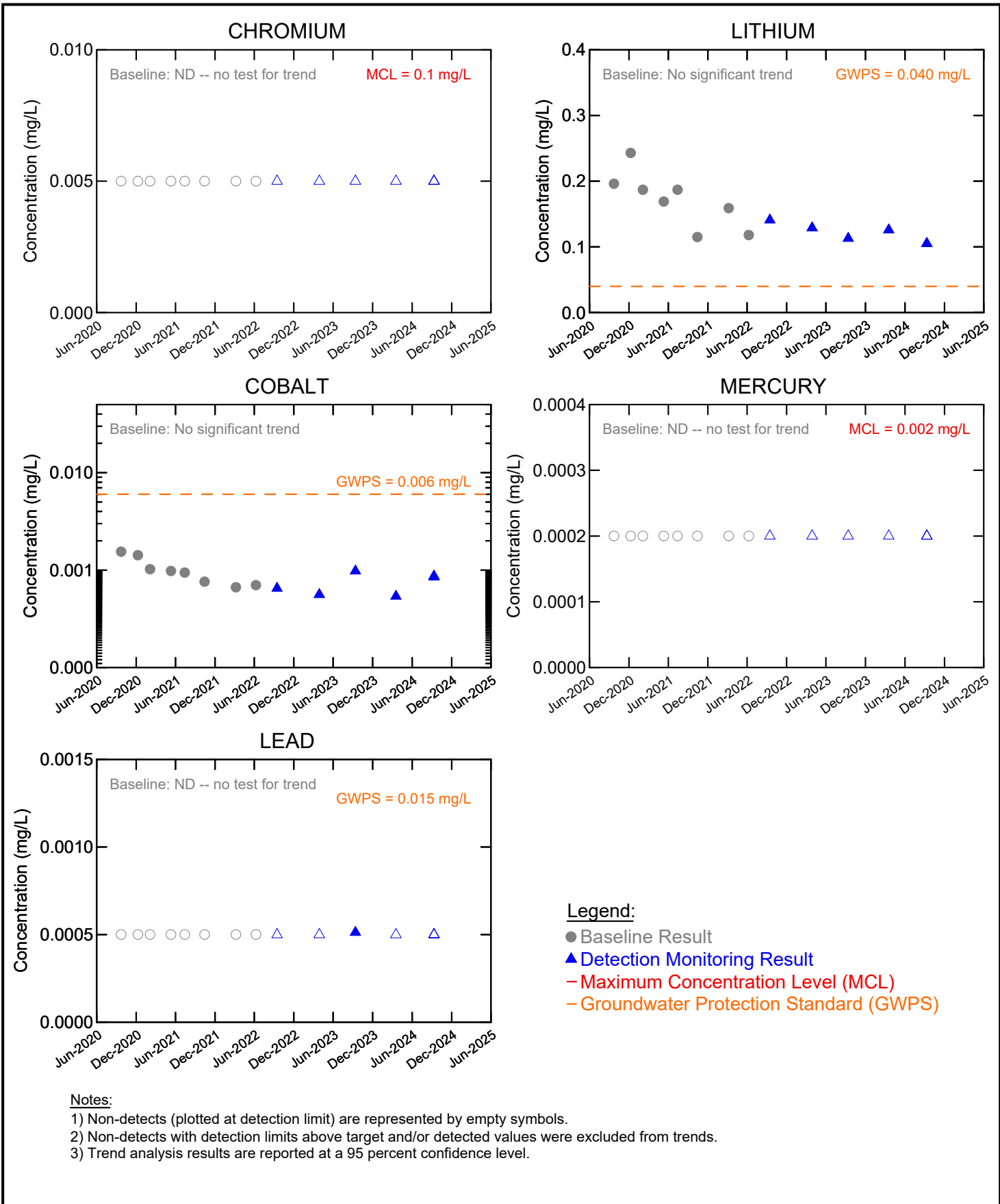


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**MW-27 -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 7.c

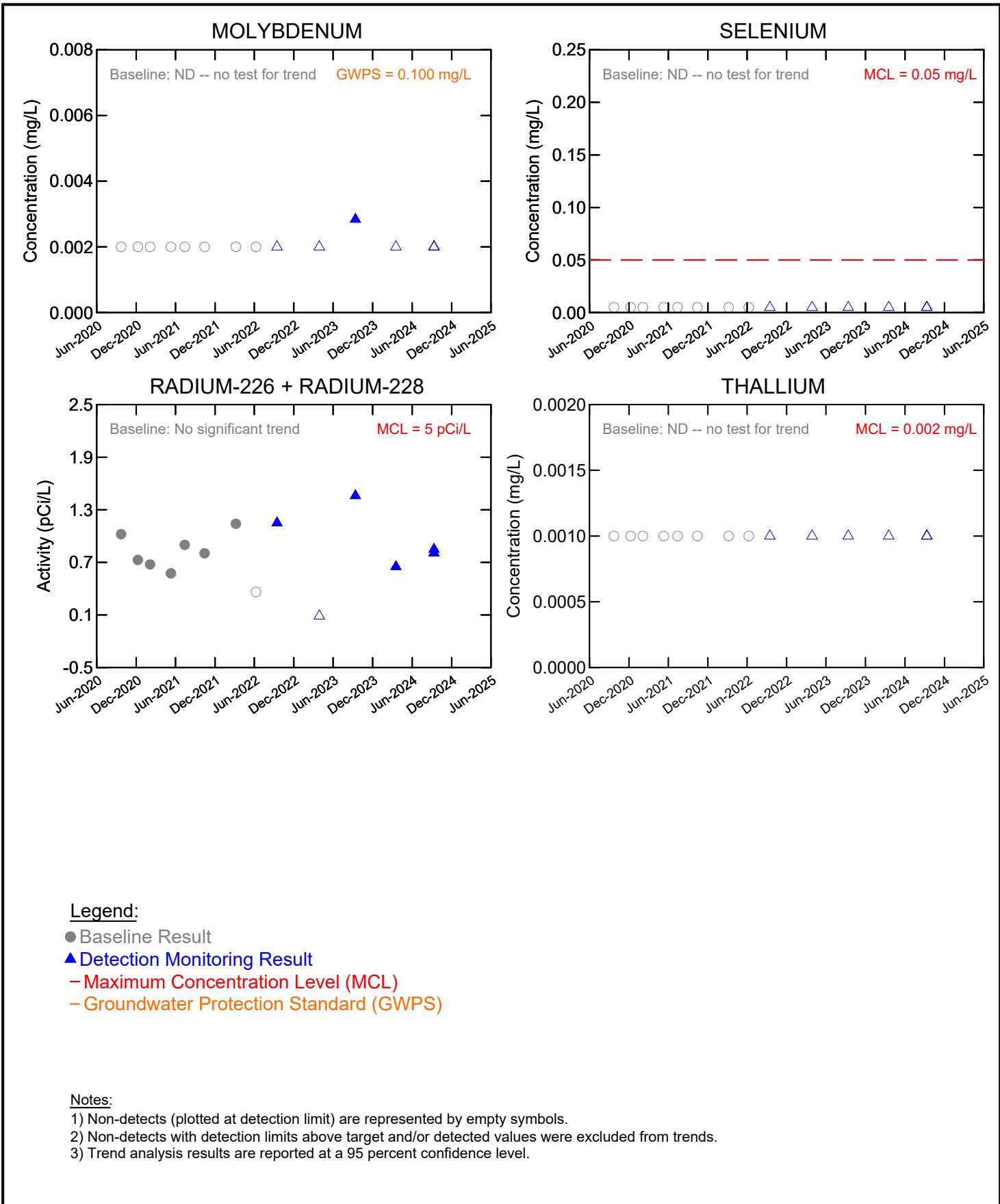


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**MW-27 -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 7.d

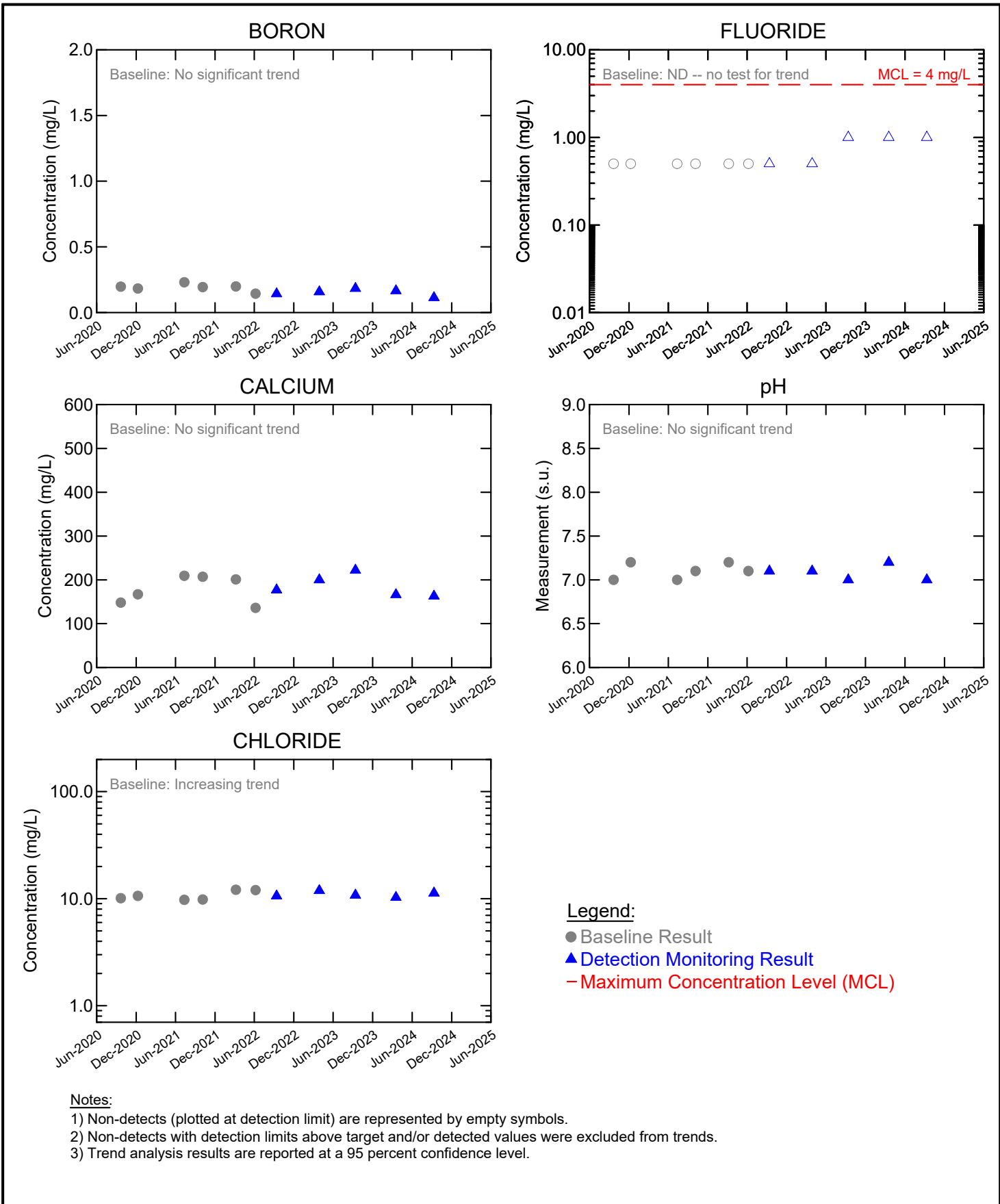


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**MW-27 -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 7.e

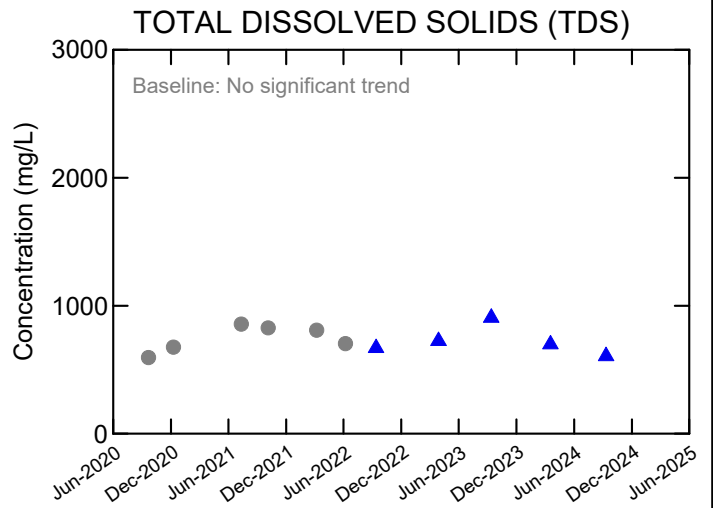
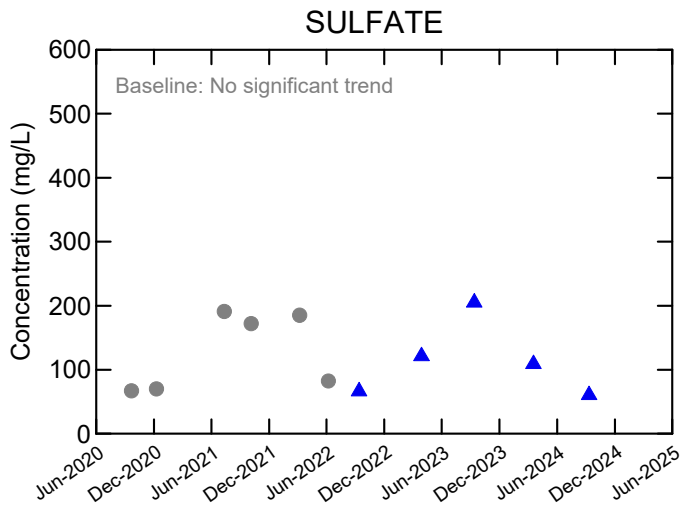


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**MW-29 -- APPENDIX III PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

Project No. 12576482
 Date: Nov 27, 2024

FIGURE 8.a



Legend:

- Baseline Result
- ▲ Detection Monitoring Result

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

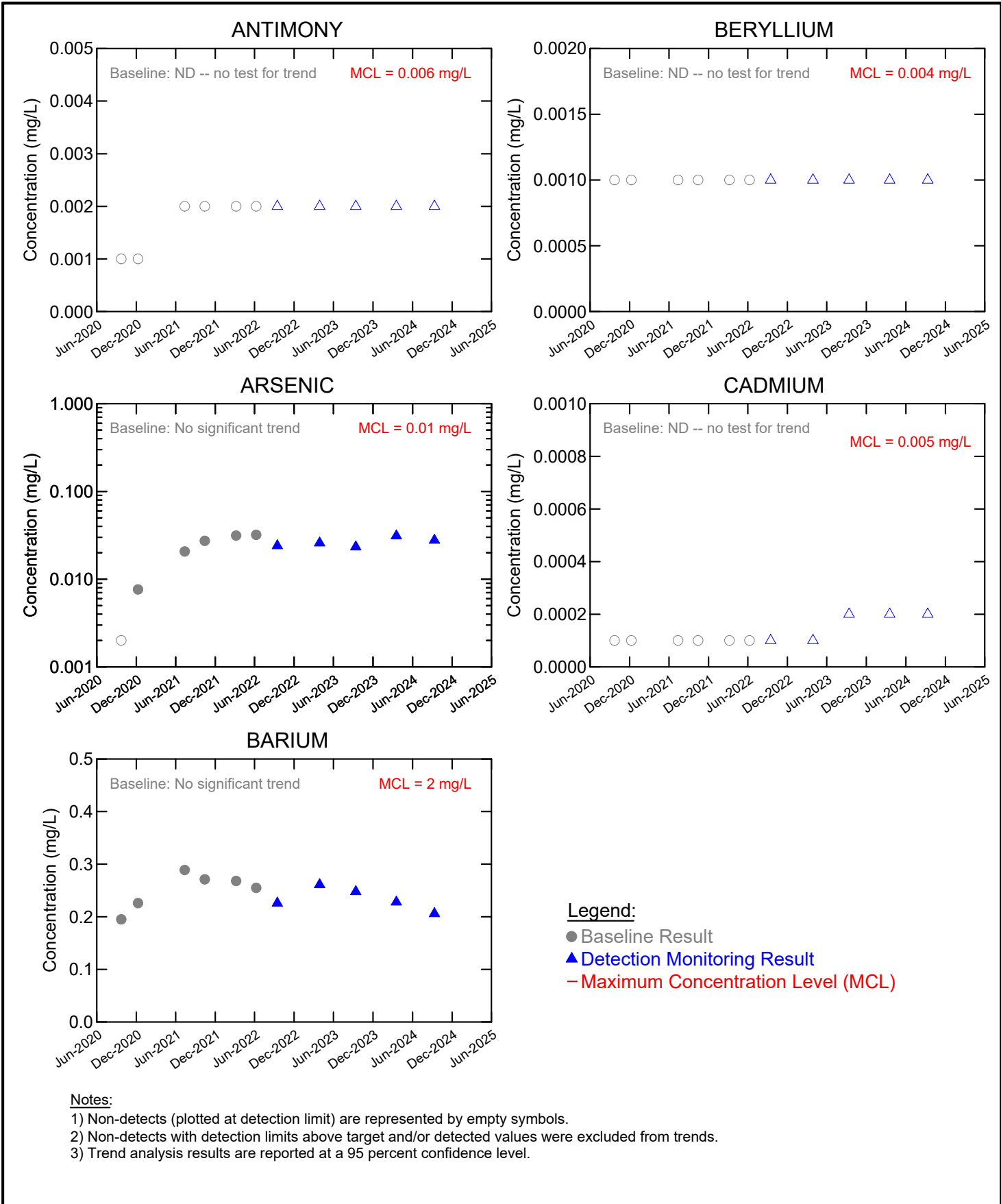


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**MW-29 -- APPENDIX III PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. 12576482
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FIGURE 8.b

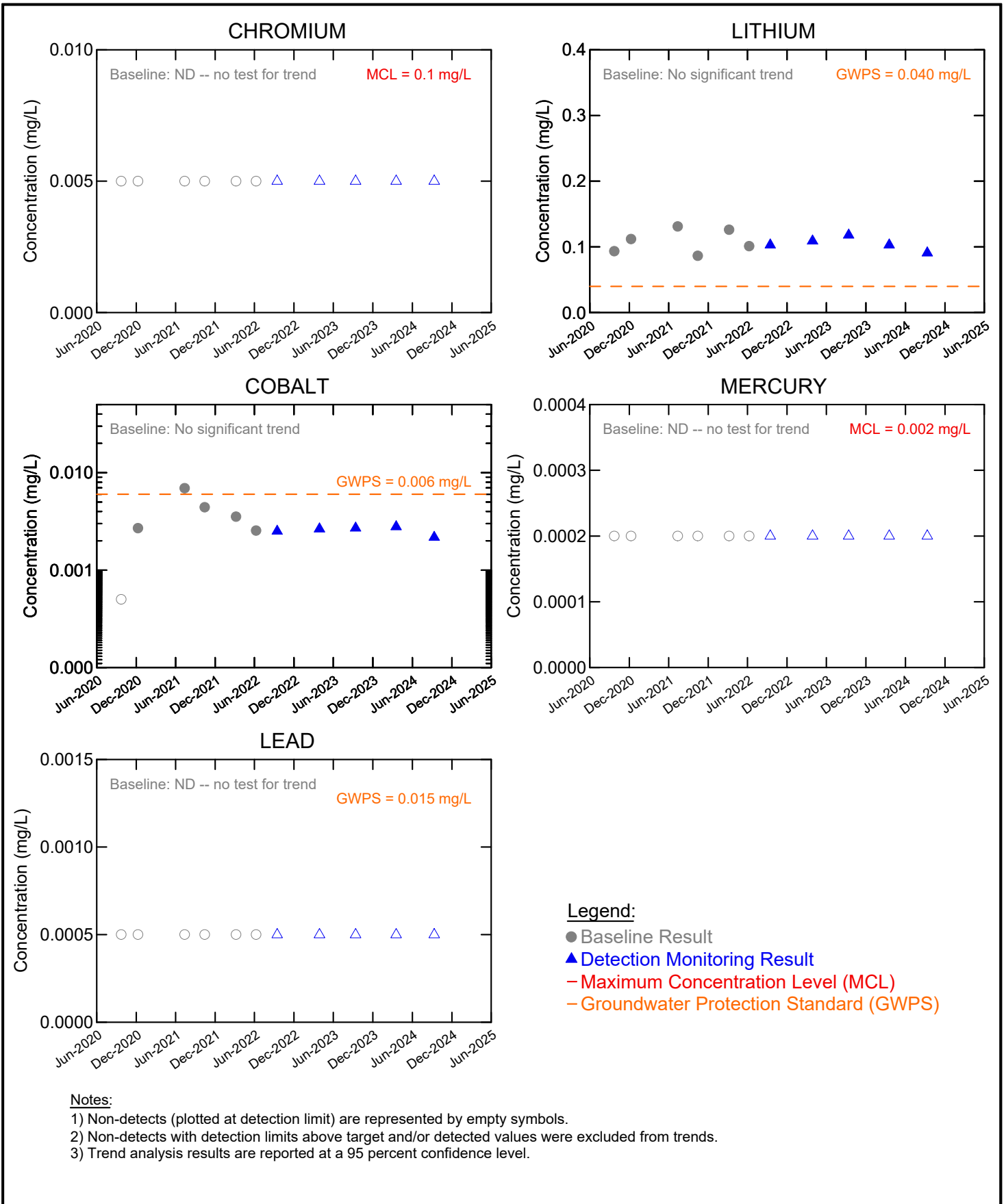


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**MW-29 -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

Project No. 12576482
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FIGURE 8.c

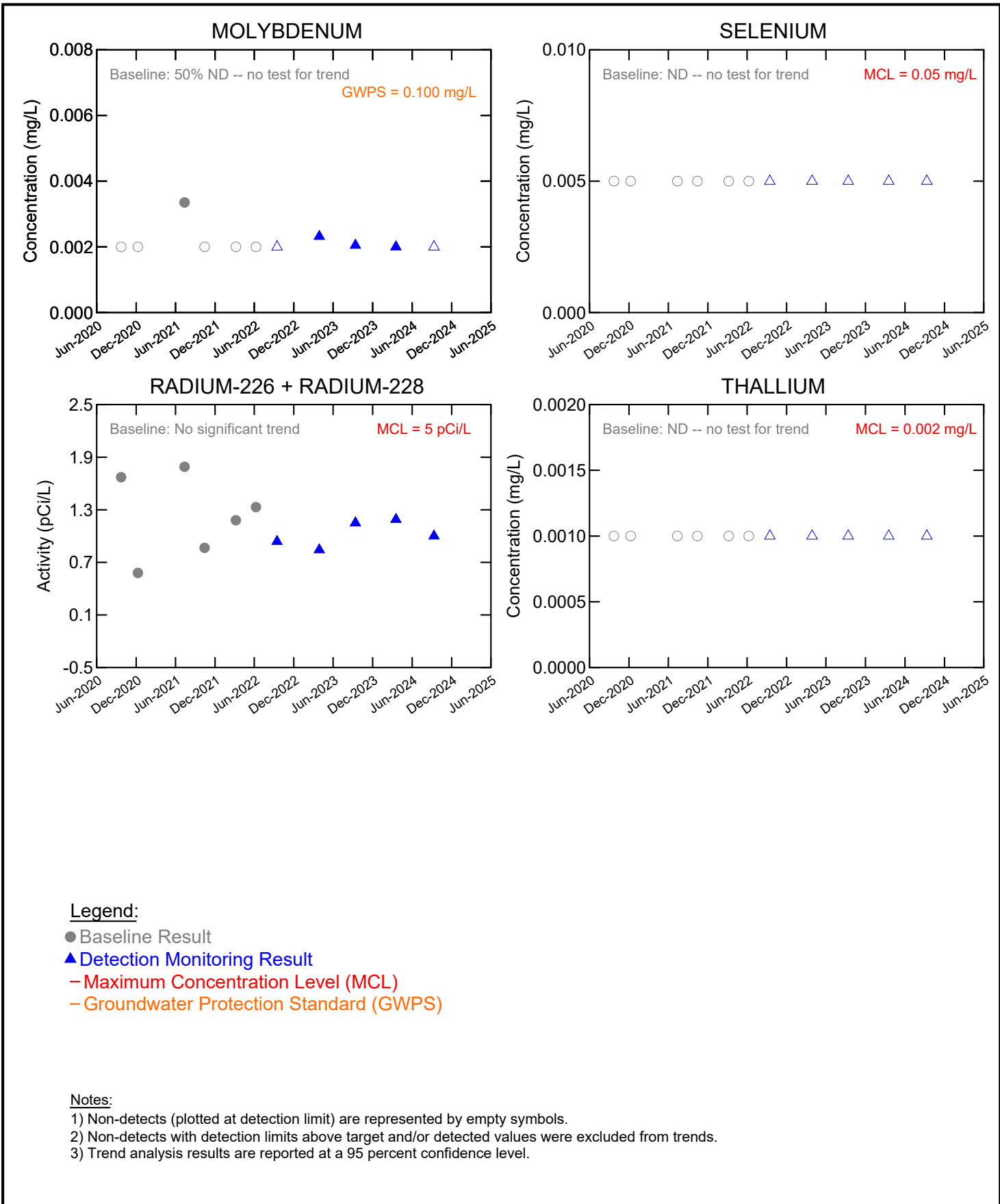


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**MW-29 -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 8.d



Legend:

- Baseline Result
- ▲ Detection Monitoring Result
- Maximum Concentration Level (MCL)
- Groundwater Protection Standard (GWPS)

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

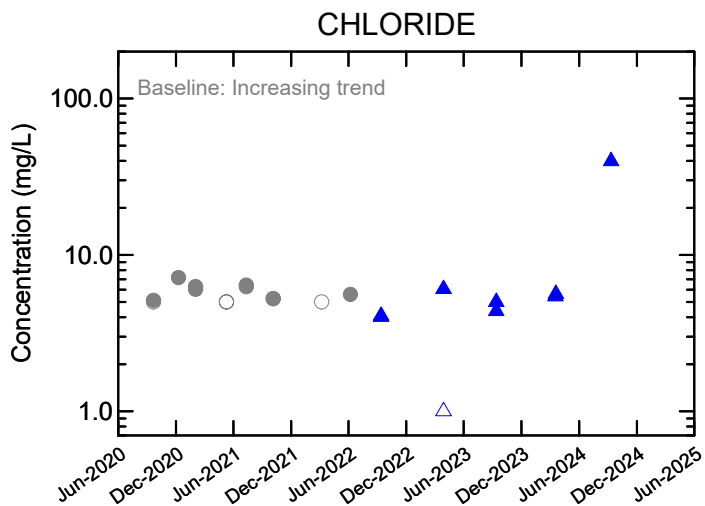
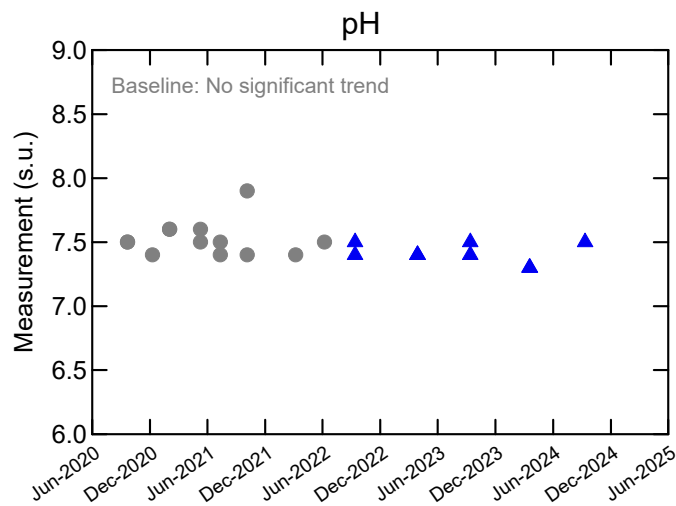
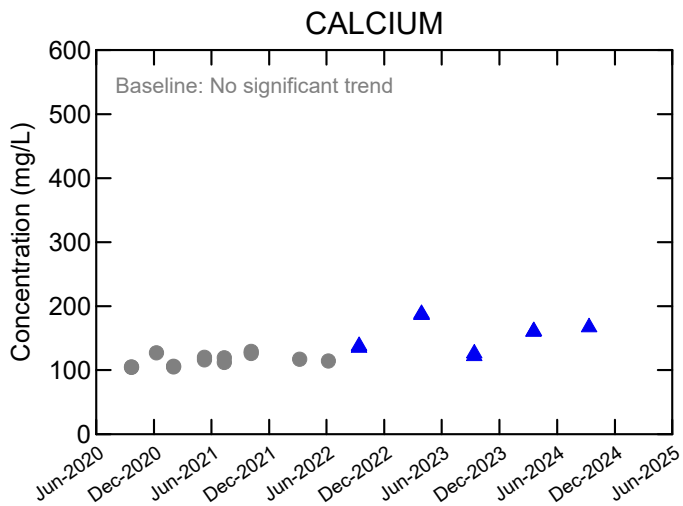
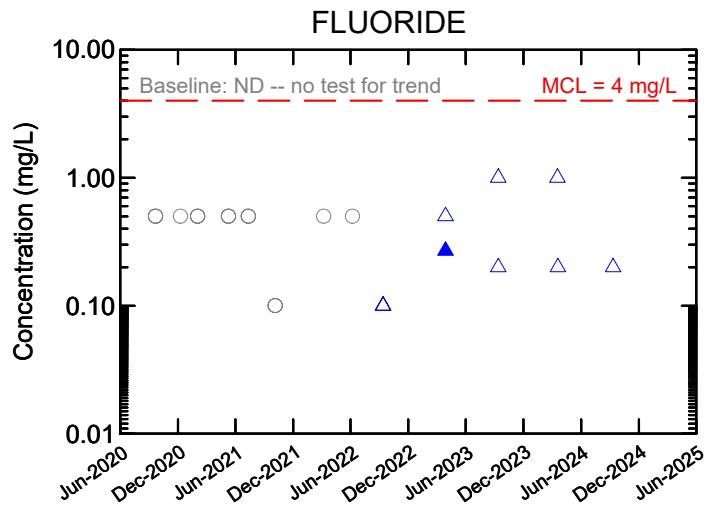
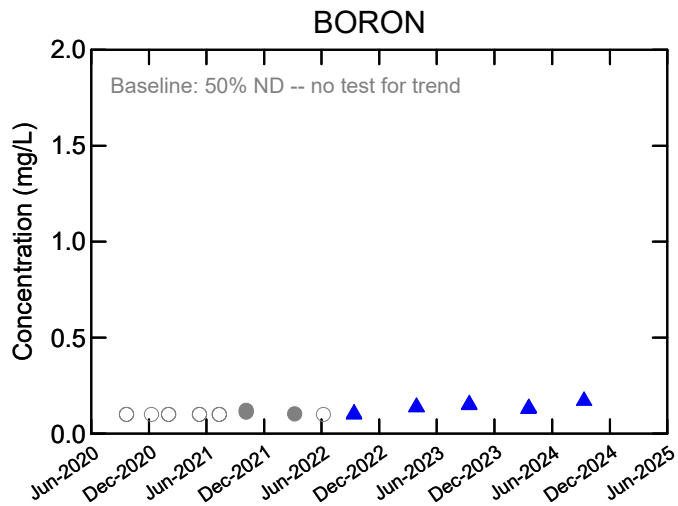


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**MW-29 -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

Project No. 12576482
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FIGURE 8.e



Legend:
 ● Baseline Result
 ▲ Detection Monitoring Result
 - Maximum Concentration Level (MCL)

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

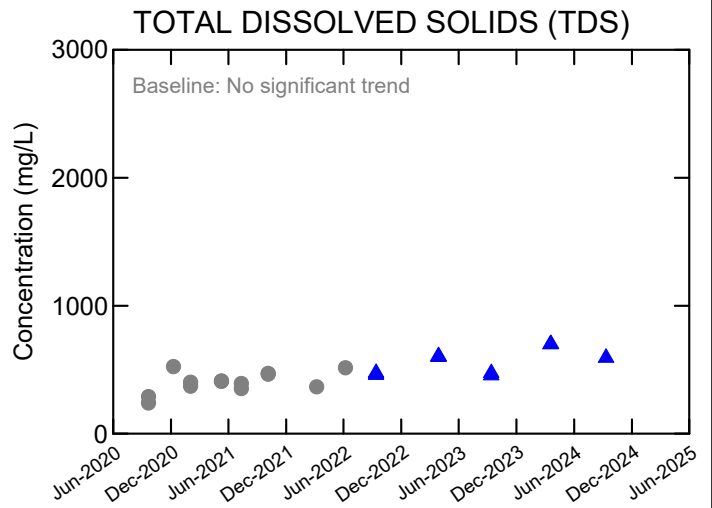
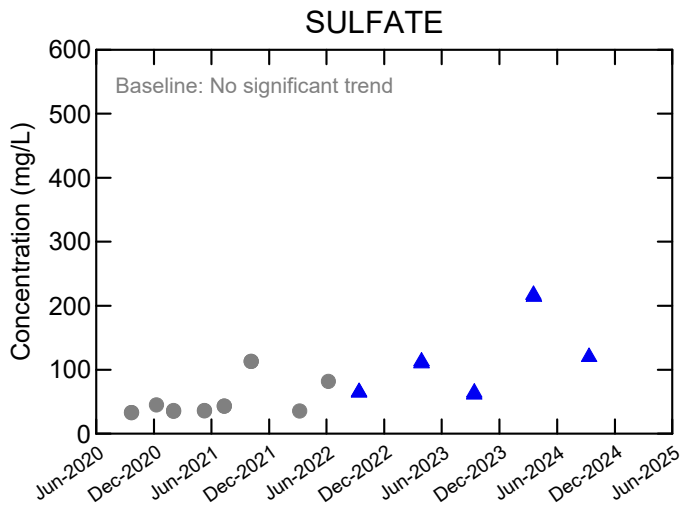


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**MW-223S -- APPENDIX III PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

Project No. 12576482
 Date: Nov 27, 2024

FIGURE 9.a



Legend:

- Baseline Result
- ▲ Detection Monitoring Result

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

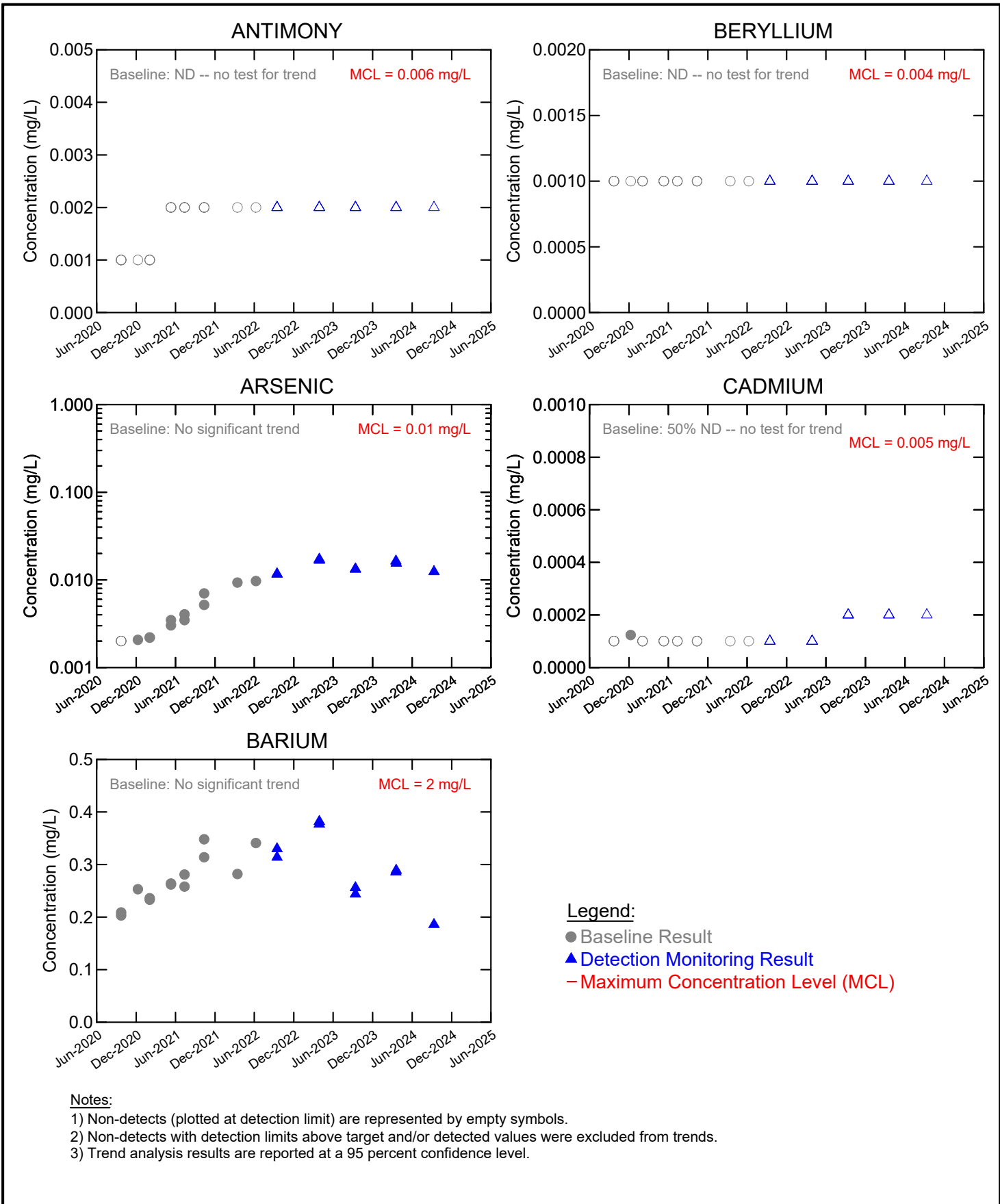


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**MW-223S -- APPENDIX III PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

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Date: Nov 25, 2024

FIGURE 9.b

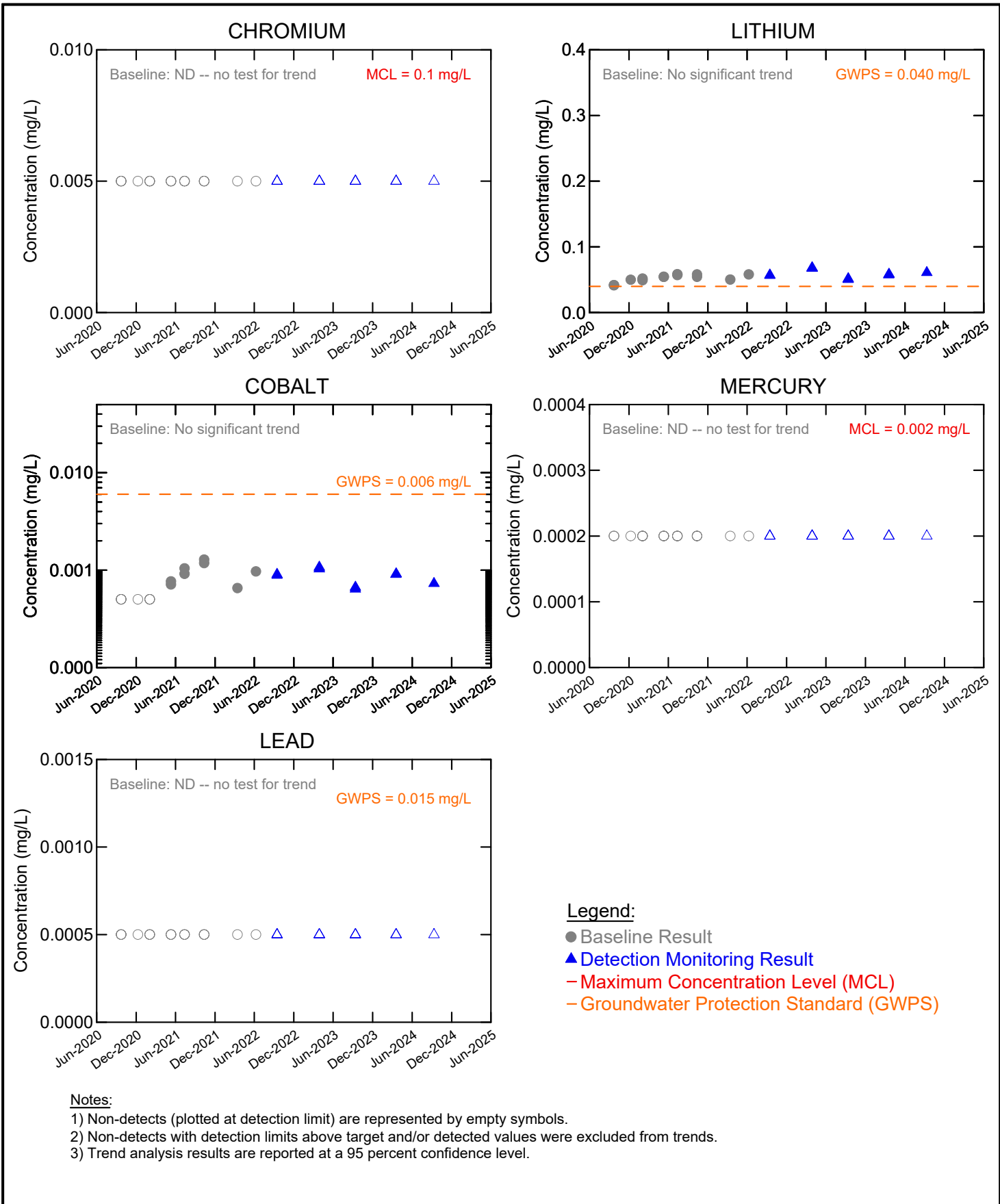


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**MW-223S -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 9.c

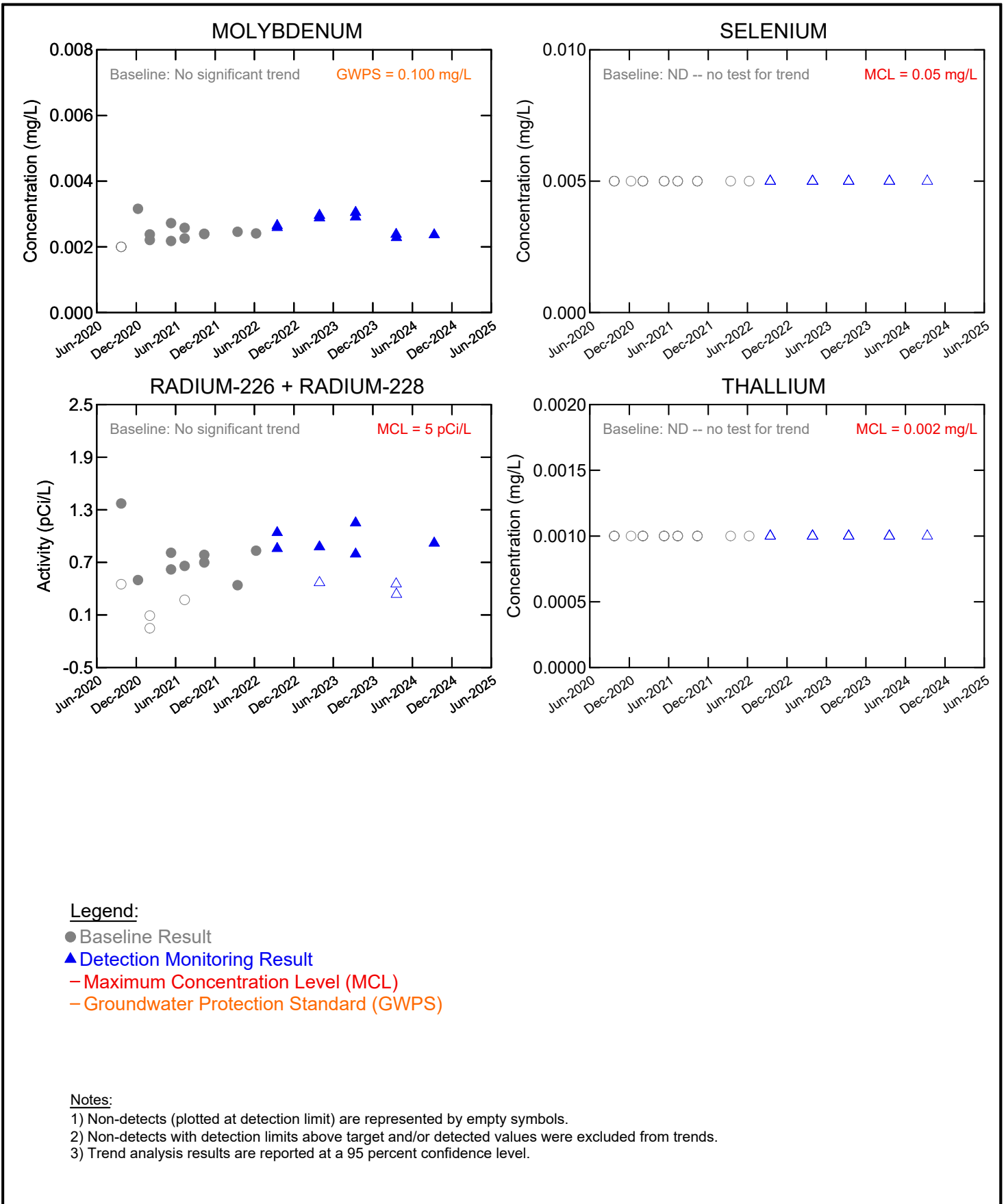


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**MW-223S -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 9.d

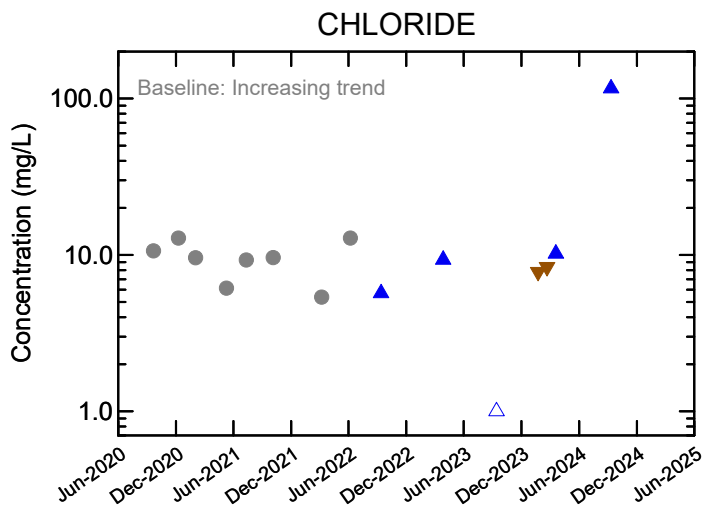
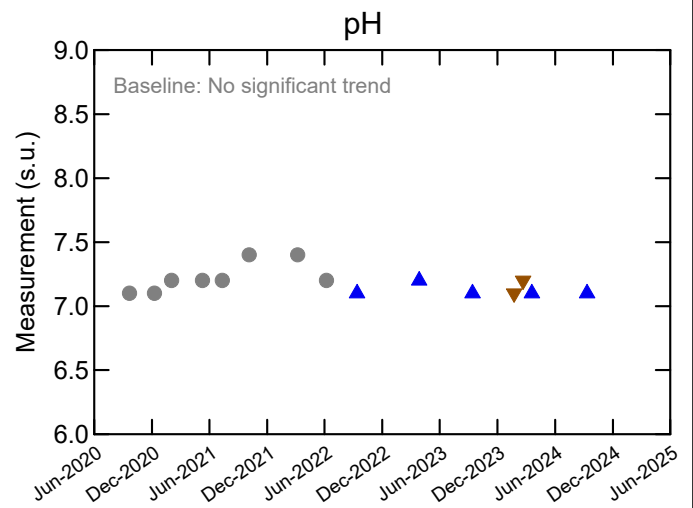
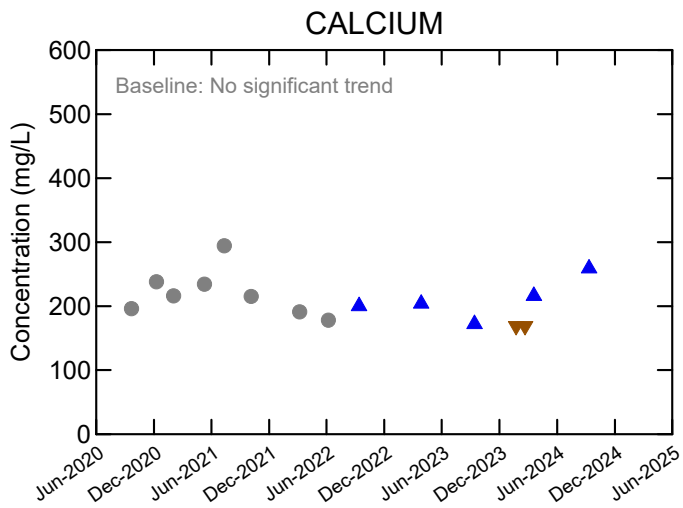
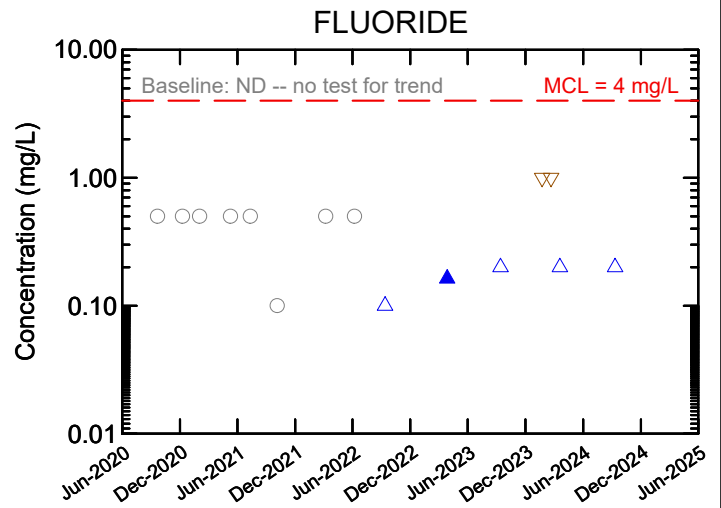
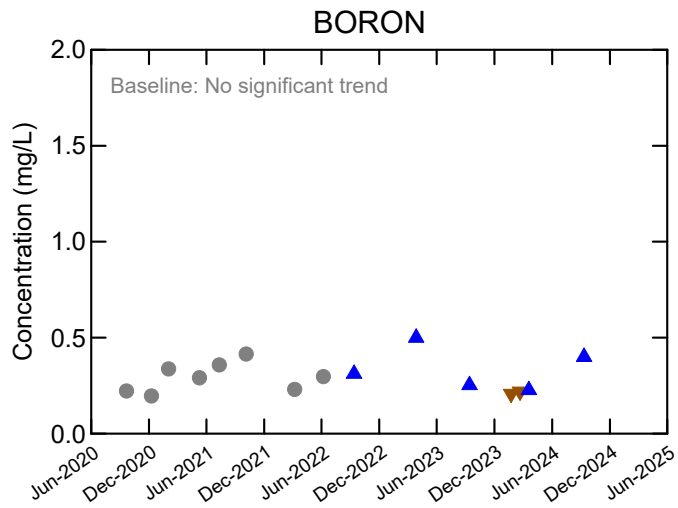


MidAmerican Energy Company
 Neal North CCR Closed Monofill
 Sergeant Bluff, Iowa

Project No. 12576482
 Date: Nov 26, 2024

**MW-223S -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 9.e



Legend:

- Baseline Result
- ▲ Detection Monitoring Result
- Maximum Concentration Level (MCL)

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

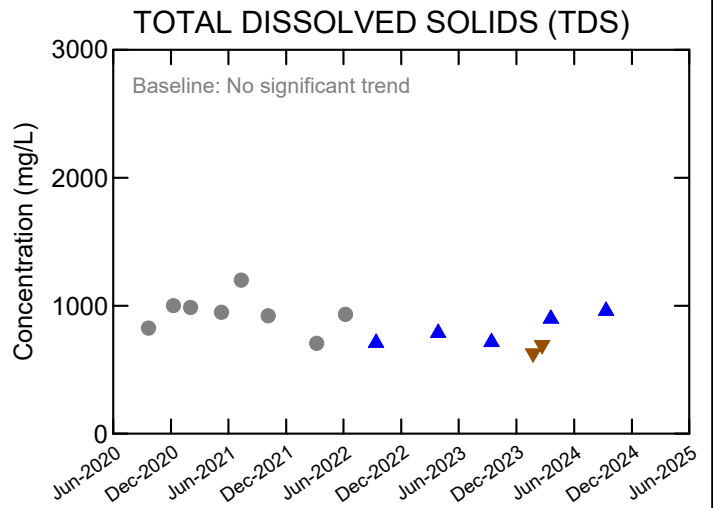
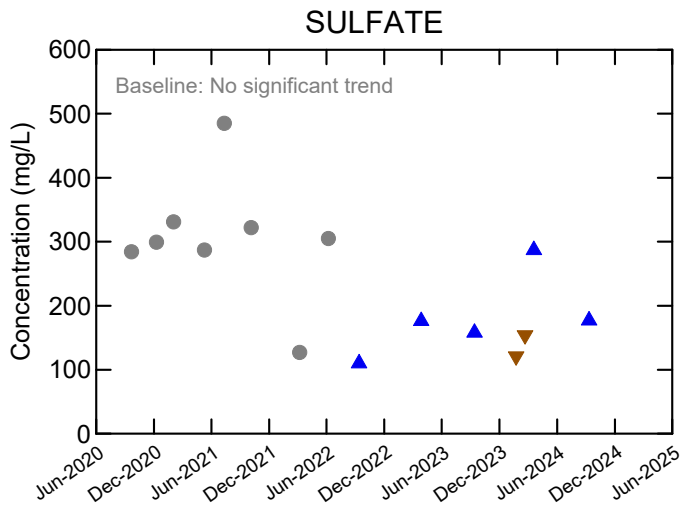


MidAmerican Energy Company
Neal North CCR Closed Monofill
Sergeant Bluff, Iowa

**MW-231S -- APPENDIX III PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. 12576482
Date: Nov 27, 2024

FIGURE 10.a



Legend:

- Baseline Result
- ▲ Detection Monitoring Result

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

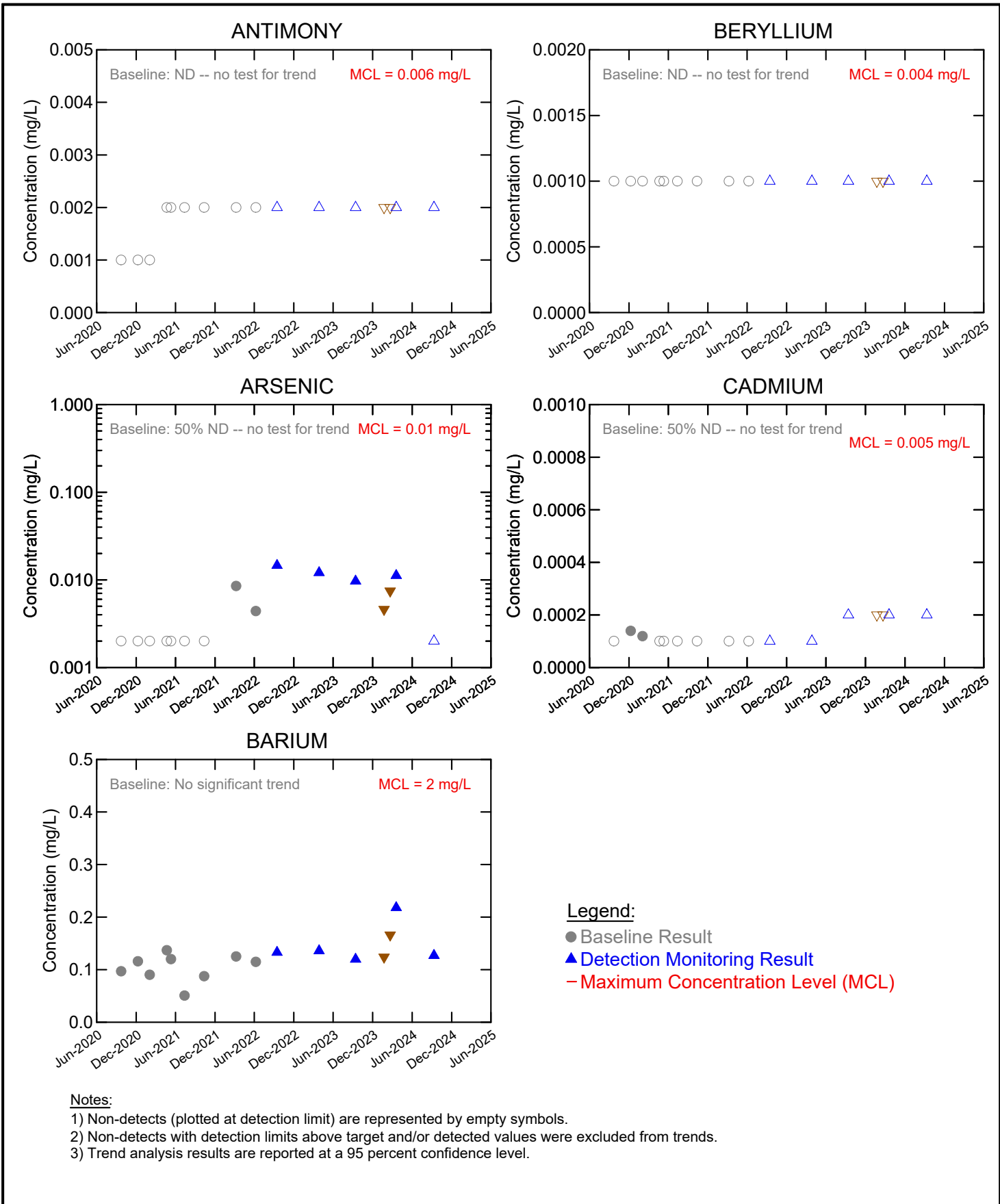


MidAmerican Energy Company
Neal North CCR Closed Monofill
Sergeant Bluff, Iowa

**MW-231S -- APPENDIX III PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. 12576482
Date: Nov 25, 2024

FIGURE 10.b

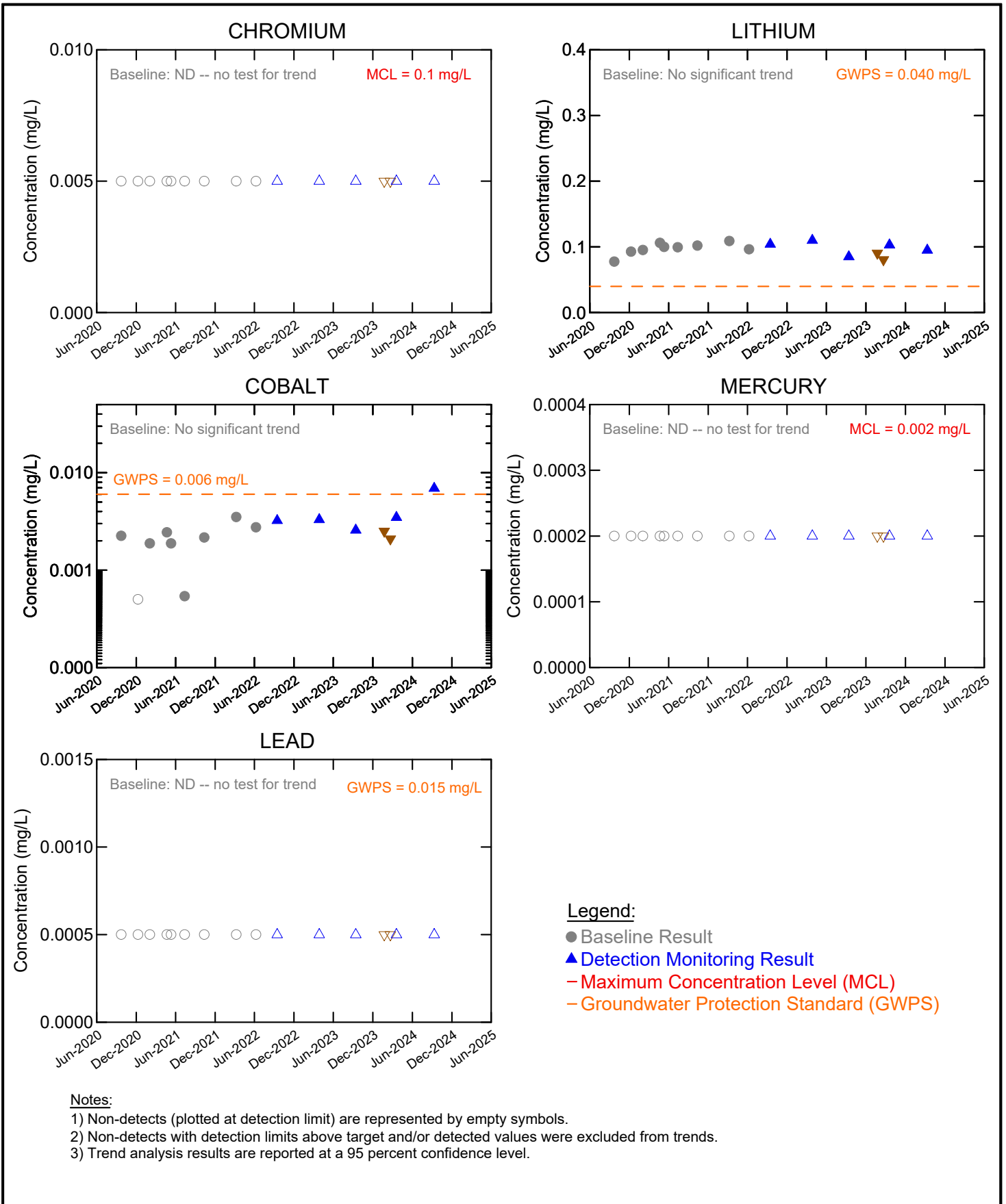


MidAmerican Energy Company
 Neal North CCR Closed Monofill
 Sergeant Bluff, Iowa

Project No. 12576482
 Date: Nov 26, 2024

**MW-231S -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 10.c

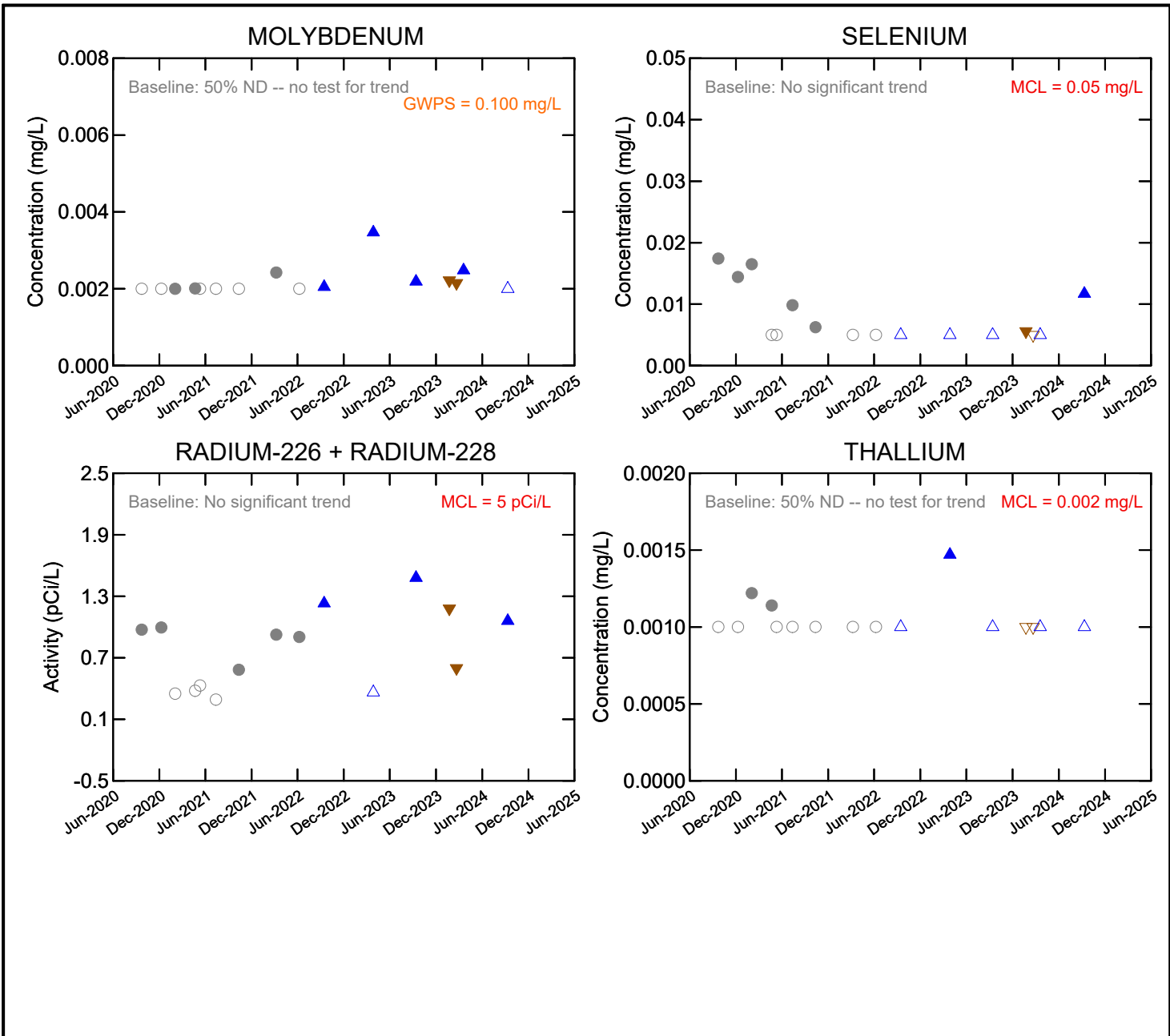


MidAmerican Energy Company
 Neal North CCR Closed Monofill
 Sergeant Bluff, Iowa

Project No. 12576482
 Date: Nov 26, 2024

**MW-231S -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

FIGURE 10.d



Legend:

- Baseline Result
- ▲ Detection Monitoring Result
- Maximum Concentration Level (MCL)
- Groundwater Protection Standard (GWPS)

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.



MidAmerican Energy Company
 Neal North CCR Closed Monofill
 Sergeant Bluff, Iowa

**MW-231S -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

Project No. 12576482
 Date: Nov 26, 2024

FIGURE 10.e

Appendix D

Statistical Summary Tables

**Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Neal North Closed CCR Monofill
Sergeant Bluff, Iowa**

Well	Date	Appendix III Parameters						
		Boron mg/L	Calcium mg/L	Chloride mg/L	Fluoride mg/L	pH, lab s.u.	Sulfate mg/L	TDS mg/L
<i>j) Upgradient Wells</i>								
MW-13/	09/21/2020	< 0.100	160	15.3	< 0.500	7.2 J	79.0	790
MW-13R	12/09/2020	0.139	205	15.3	< 0.500	7.4 J	74.9	862
	02/01/2021	--	--	--	--	--	--	--
	05/10/2021	--	--	--	--	--	--	--
	07/12/2021	0.114	158	35.9 J-	< 0.500 J	7.2 J	51.6	506
	10/05/2021	0.134	150	42.1	< 0.500	7.2 J	47.5	548
	03/08/2022	0.108 / 0.112	175 / 172	74.6 / 73.3	< 0.500 / < 0.500	7.2 J / 7.2 J	69.5 / 68.4	630 / 604
	06/07/2022	0.110 / 0.105	126 / 129	42.8 / 42.5	< 0.500 / < 0.500	7.3 J / 7.2 J	60.8 / 61.1	606 / 620
MW-27	09/21/2020	0.302	178	18.9	< 0.500	7.0 J	199	496
	12/09/2020	0.305	212	28.5	< 0.500	7.1 J	311	1160
	02/01/2021	0.272	170	22.9	< 0.500	7.1 J	259	1030
	05/10/2021	0.271	174	16.9	< 0.500	7.0 J	191	856
	07/12/2021	0.274	184	13.1 J-	< 0.500 J	7.1 J	100	662
	10/05/2021	0.243	162	17.7	< 0.500	7.1 J	175	760
	03/08/2022	0.251	166	15.2	< 0.500	7.3 J	144	698
	06/07/2022	0.203	118	11.8	< 0.500	7.2 J	101	622
MW-29/	09/21/2020	0.197	148	10.1	< 0.500	7.0 J	67.0	594
MW-29R	12/09/2020	0.183	167	10.6	< 0.500	7.2 J	69.8	676
	02/01/2021	--	--	--	--	--	--	--
	05/10/2021	--	--	--	--	--	--	--
	07/12/2021	0.230	209	9.75 J-	< 0.500 J	7.0 J	191	856
	10/05/2021	0.194	207	9.81	< 0.500	7.1 J	172	826
	03/08/2022	0.199	201	12.1	< 0.500	7.2 J	185	808
	06/07/2022	0.144	136	12.0	< 0.500	7.1 J	82.3	704
MW-223S	09/21/2020	< 0.100 / < 0.100	105 / 104	5.12 / < 5.00	< 0.500 / < 0.500	7.5 J / 7.5 J	32.9 / 32.9	240 / 290
	12/09/2020	< 0.100	127	7.15	< 0.500	7.4 J	44.9	524
	02/01/2021	< 0.100 / < 0.100	106 / 105	6.03 / 6.27	< 0.500 / < 0.500	7.6 J / 7.6 J	34.8 / 36.1	402 / 370
	05/10/2021	< 0.100 / < 0.100	120 / 116	< 5.00 / < 5.00	< 0.500 / < 0.500	7.6 J / 7.5 J	36.1 / 35.7	408 / 412
	07/12/2021	< 0.100 / < 0.100	112 / 119	6.40 J- / 6.26 J-	< 0.500 J / < 0.500 J	7.4 J / 7.5 J	43.3 / 43.1	352 / 392
	10/05/2021	0.112 / 0.121	129 / 126	5.25 / 5.24	< 0.100 / < 0.100	7.4 J / 7.9 J	113 / 113	470 / 464
	03/08/2022	0.103	117	< 5.00	< 0.500	7.4 J	35.6	366
	06/07/2022	< 0.100	114	5.58	< 0.500	7.5 J	81.8	514
MW-231S/	09/21/2020	0.222	196	10.6	< 0.500	7.1 J	284	824
MW-231SR	12/09/2020	0.196	238	12.8	< 0.500	7.1 J	299	1000
	02/01/2021	0.337	216	9.58	< 0.500	7.2 J	331	986
	05/10/2021	0.291	234	6.12	< 0.500	7.2 J	287	948
	07/12/2021	0.358	294	9.27 J-	< 0.500 J	7.2 J	485	1200
	10/05/2021	0.415	215	9.62	< 0.100	7.4 J	322	920
	03/08/2022	0.231	191	5.37	< 0.500	7.4 J	127	706
	06/07/2022	0.297	178	12.8	< 0.500	7.2 J	305	932

**Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Neal North Closed CCR Monofill
Sergeant Bluff, Iowa**

Well	Date	Appendix III Parameters						
		Boron mg/L	Calcium mg/L	Chloride mg/L	Fluoride mg/L	pH, lab s.u.	Sulfate mg/L	TDS mg/L
<i>ii) Downgradient Wells</i>								
MW-1R	09/21/2020	0.417	127	27.9	< 0.500	7.3 J	222	804
	12/09/2020	0.402	155	28.4	< 0.500	7.2 J	220	902
	02/01/2021	0.398	132	28.4	< 0.500	7.6 J	217	830
	05/10/2021	0.370	145	27.4	0.808	7.2 J	242	824
	07/12/2021	0.412 J	151	31.7	< 0.500	7.3 J	209	834
	10/05/2021	0.342	137	68.0	< 0.500	7.3 J	204	750
	03/08/2022	0.384	167	33.2	< 0.500	7.3 J	262	908
	06/07/2022	0.361	149	40.1	< 0.500	7.2 J	215	816
MW-3R	09/21/2020	0.738	161	20.9	< 0.500	7.2 J	241	894
	12/09/2020	0.923 / 0.914	166 / 157	18.6 / 17.3	< 0.500 / < 0.500	7.1 J / 7.1 J	186 / 181	808 / 824
	02/01/2021	0.629	129	17.3	< 0.500	7.5 J	145	700
	05/10/2021	0.294	142	19.9	0.631	7.3 J	149	692
	07/12/2021	0.300 J	138	18.8	< 0.500	7.4 J	133	712
	10/05/2021	0.289	145	21.2	< 0.500	7.4 J	128	642
	03/08/2022	0.353	130	7.64	< 0.500	7.3 J	157	614
	06/07/2022	0.338	130	10.8	< 0.500	7.3 J	153	658
MW-5R	09/21/2020	0.233	92.8	9.02	< 0.500	7.3 J	130	512
	12/09/2020	0.243	112	8.71	< 0.500	7.2 J	138	632
	02/01/2021	0.289	117	9.92	< 0.500	7.5 J	169	640
	05/10/2021	0.177	126	8.33	0.675	7.2 J	168	626
	07/12/2021	0.182 J	112	8.97	< 0.500	7.3 J	124	528
	10/05/2021	0.189	109	8.94	< 0.500	7.4 J	109	470
	03/08/2022	0.287	175	13.1	< 0.500	7.4 J	340	918
	06/07/2022	0.418	158	11.3	< 0.500	7.2 J	315	892
MW-19	09/21/2020	0.589	350	19.0	< 0.500	6.7 J	984	2330
	12/09/2020	0.672	301	17.4	< 0.500	6.9 J	607	1570
	02/01/2021	0.654	349	19.0	< 0.500	7.1 J	851	1970
	05/10/2021	0.701	379	15.9	< 0.500	6.7 J	1000	2040
	07/12/2021	0.565 J	562	17.8	< 0.500	6.7 J	1040	2420
	10/05/2021	0.466	424	19.4	2.36	6.6 J	1140	2590
	03/08/2022	0.740	339	16.3	< 0.500	6.8 J	769	1780
	06/07/2022	0.634	372	17.8	< 0.500	6.8 J	911	1810
MW-21	09/21/2020	0.352	341	6.61	< 0.500	7.2 J	924	2020
	12/09/2020	0.359	438	7.63	< 0.500	6.8 J	1250	2520
	02/01/2021	0.391	480	7.30	< 0.500	7.2 J	658	2790
	05/10/2021	0.299	188	< 5.00	< 0.500	7.1 J	299	730
	07/12/2021	0.297 J	265	6.58	< 0.500	7.0 J	393	1030
	10/05/2021	0.301	397	6.12	2.85	6.9 J	1150	2270
	03/08/2022	0.474	464	6.88	< 0.500	6.8 J	1540	2470
	06/07/2022	0.345	509	7.11	< 0.500	6.8 J	1530	2490

**Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Neal North Closed CCR Monofill
Sergeant Bluff, Iowa**

Well	Date	Appendix IV Parameters				
		Antimony mg/L	Arsenic mg/L	Barium mg/L	Beryllium mg/L	Cadmium mg/L
<i>j) Upgradient Wells</i>						
MW-13/	09/21/2020	< 0.00100	< 0.00200	0.119	< 0.00100	< 0.000100
MW-13R	12/09/2020	< 0.00100	< 0.00200	0.221	< 0.00100	0.000227
	02/01/2021	--	--	--	--	--
	05/10/2021	--	--	--	--	--
	07/12/2021	< 0.00200	0.0382	0.253	< 0.00100	< 0.000100
	10/05/2021	< 0.00200	0.0472	0.236	< 0.00100	< 0.000100
	03/08/2022	< 0.00200 / < 0.00200	0.0512 / 0.0498	0.272 / 0.262	< 0.00100 / < 0.00100	< 0.000100 / < 0.000100
	06/07/2022	< 0.00200 / < 0.00200	0.0441 / 0.0457	0.262 / 0.262	< 0.00100 / < 0.00100	< 0.000100 / < 0.000100
MW-27	09/21/2020	< 0.00100	0.00527	0.0847	< 0.00100	0.000114
	12/09/2020	< 0.00100	0.00773	0.109	< 0.00100	< 0.000100
	02/01/2021	< 0.00100	0.00796	0.0876	< 0.00100	< 0.000100
	05/10/2021	< 0.00200	0.0146	0.106	< 0.00100	< 0.000100
	07/12/2021	< 0.00200	0.0101	0.109	< 0.00100	< 0.000100
	10/05/2021	< 0.00200	0.0202	0.103	< 0.00100	< 0.000100
	03/08/2022	< 0.00200	0.0310	0.107	< 0.00100	< 0.000100
	06/07/2022	< 0.00200	0.0414	0.123	< 0.00100	< 0.000100
MW-29/	09/21/2020	< 0.00100	< 0.00200	0.195	< 0.00100	< 0.000100
MW-29R	12/09/2020	< 0.00100	0.00762	0.226	< 0.00100	< 0.000100
	02/01/2021	--	--	--	--	--
	05/10/2021	--	--	--	--	--
	07/12/2021	< 0.00200	0.0206	0.289	< 0.00100	< 0.000100
	10/05/2021	< 0.00200	0.0273	0.271	< 0.00100	< 0.000100
	03/08/2022	< 0.00200	0.0314	0.268	< 0.00100	< 0.000100
	06/07/2022	< 0.00200	0.0320	0.255	< 0.00100	< 0.000100
MW-223S	09/21/2020	< 0.00100 / < 0.00100	< 0.00200 / < 0.00200	0.203 / 0.209	< 0.00100 / < 0.00100	< 0.000100 / < 0.000100
	12/09/2020	< 0.00100	0.00206	0.253	< 0.00100	0.000123
	02/01/2021	< 0.00100 / < 0.00100	0.00219 / 0.00220	0.233 / 0.236	< 0.00100 / < 0.00100	< 0.000100 / < 0.000100
	05/10/2021	< 0.00200 / < 0.00200	0.00302 / 0.00347	0.264 / 0.262	< 0.00100 / < 0.00100	< 0.000100 / < 0.000100
	07/12/2021	< 0.00200 / < 0.00200	0.00346 / 0.00403	0.258 / 0.281	< 0.00100 / < 0.00100	< 0.000100 / < 0.000100
	10/05/2021	< 0.00200 / < 0.00200	0.00698 / 0.00516	0.348 / 0.314	< 0.00100 / < 0.00100	< 0.000100 / < 0.000100
	03/08/2022	< 0.00200	0.00929	0.282	< 0.00100	< 0.000100
	06/07/2022	< 0.00200	0.00969	0.341	< 0.00100	< 0.000100
MW-231S/	09/21/2020	< 0.00100	< 0.00200	0.0969	< 0.00100	< 0.000100
MW-231SR	12/09/2020	< 0.00100	< 0.00200	0.116	< 0.00100	0.000139
	02/01/2021	< 0.00100	< 0.00200	0.0903	< 0.00100	0.000119
	05/10/2021	< 0.00200	< 0.00200	0.120	< 0.00100	< 0.000100
	07/12/2021	< 0.00200	< 0.00200	0.0508	< 0.00100	< 0.000100
	10/05/2021	< 0.00200	< 0.00200	0.0875	< 0.00100	< 0.000100
	03/08/2022	< 0.00200	0.00850	0.125	< 0.00100	< 0.000100
	06/07/2022	< 0.00200	0.00440	0.115	< 0.00100	< 0.000100

**Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Neal North Closed CCR Monofill
Sergeant Bluff, Iowa**

Well	Date	Appendix IV Parameters				
		Antimony mg/L	Arsenic mg/L	Barium mg/L	Beryllium mg/L	Cadmium mg/L
<i>ii) Downgradient Wells</i>						
MW-1R	09/21/2020	< 0.00100	0.0208	0.0668	< 0.00100	< 0.000100
	12/09/2020	< 0.00100	0.0379	0.0958	< 0.00100	< 0.000100
	02/01/2021	< 0.00100	0.0226	0.0855	< 0.00100	0.000409
	05/10/2021	< 0.00200	0.0140	0.0891	< 0.00100	< 0.000100
	07/12/2021	< 0.00200	0.0191	0.0925	< 0.00100	< 0.000100
	10/05/2021	< 0.00200	0.0221	0.0884	< 0.00100	< 0.000100
	03/08/2022	< 0.00200	0.0452	0.118	< 0.00100	< 0.000100
	06/07/2022	< 0.00200	0.0400	0.101	< 0.00100	< 0.000100
MW-3R	09/21/2020	< 0.00100	0.0314	0.211	< 0.00100	< 0.000100
	12/09/2020	< 0.00100 / < 0.00100	0.0368 / 0.0388	0.156 / 0.157	< 0.00100 / < 0.00100	< 0.000100 / < 0.000100
	02/01/2021	< 0.00100	0.0447	0.191	< 0.00100	0.000776
	05/10/2021	< 0.00200	0.0429	0.306	< 0.00100	< 0.000100
	07/12/2021	< 0.00200	0.0416	0.267	< 0.00100	< 0.000100
	10/05/2021	< 0.00200	0.0448	0.305	< 0.00100	< 0.000100
	03/08/2022	< 0.00200	0.0365	0.209	< 0.00100	< 0.000100
	06/07/2022	< 0.00200	0.0348	0.290	< 0.00100	< 0.000100
MW-5R	09/21/2020	< 0.00100	0.0335	0.165	< 0.00100	< 0.000100
	12/09/2020	< 0.00100	0.0279	0.142	< 0.00100	< 0.000100
	02/01/2021	< 0.00100	0.0446	0.195	< 0.00100	< 0.000100
	05/10/2021	< 0.00200	0.0337	0.206	< 0.00100	< 0.000100
	07/12/2021	< 0.00200	0.0351	0.182	< 0.00100	< 0.000100
	10/05/2021	< 0.00200	0.0347	0.180	< 0.00100	< 0.000100
	03/08/2022	< 0.00200	0.0378	0.278	< 0.00100	< 0.000100
	06/07/2022	< 0.00200	0.0345	0.161	< 0.00100	< 0.000100
MW-19	09/21/2020	< 0.00100	0.00413	0.0227	< 0.00100	< 0.000100
	12/09/2020	< 0.00100	< 0.00200	0.0251	< 0.00100	< 0.000100
	02/01/2021	< 0.00100	0.00367	0.0208	< 0.00100	< 0.000100
	05/10/2021	< 0.00200	0.00415	0.0221	< 0.00100	< 0.000100
	07/12/2021	< 0.00200	0.00821	0.0214	< 0.00100	< 0.000100
	10/05/2021	< 0.00200	0.00523	0.0207	< 0.00100	< 0.000100
	03/08/2022	< 0.00200	0.00357	0.0230	< 0.00100	< 0.000100
	06/07/2022	< 0.00200	0.00340	0.0229	< 0.00100	< 0.000100
MW-21	09/21/2020	< 0.00100	< 0.00200	0.0290	< 0.00100	0.000173
	12/09/2020	< 0.00100	< 0.00200	0.0301	< 0.00100	< 0.000100
	02/01/2021	< 0.00400	< 0.00200	0.0280	< 0.00100	< 0.000100
	05/10/2021	< 0.00200	< 0.00200	0.0561	< 0.00100	< 0.000100
	07/12/2021	< 0.00200	< 0.00200	0.0639	< 0.00100	< 0.000100
	10/05/2021	< 0.00200	< 0.00200	0.0372	< 0.00100	0.000121
	03/08/2022	< 0.00200	< 0.00200	0.0222	< 0.00100	< 0.000100
	06/07/2022	< 0.00200	< 0.00200	0.0187	< 0.00100	< 0.000100

**Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Neal North Closed CCR Monofill
Sergeant Bluff, Iowa**

Well	Date	Appendix IV Parameters			
		Chromium mg/L	Cobalt mg/L	Lead mg/L	Lithium mg/L
<i>i) Upgradient Wells</i>					
MW-13/	09/21/2020	< 0.00500	< 0.000500	< 0.000500	0.0982
MW-13R	12/09/2020	< 0.00500	< 0.000500	< 0.000500	0.130
	02/01/2021	--	--	--	--
	05/10/2021	--	--	--	--
	07/12/2021	< 0.00500	0.00335	< 0.000500	0.0806
	10/05/2021	< 0.00500	0.00125	< 0.000500	0.0582
	03/08/2022	< 0.00500 / < 0.00500	0.00137 / 0.00141	< 0.000500 / < 0.000500	0.0900 / 0.0868
	06/07/2022	< 0.00500 / < 0.00500	0.00110 / 0.00107	< 0.000500 / < 0.000500	0.0841 / 0.0816
MW-27	09/21/2020	< 0.00500	0.00154	< 0.000500	0.196
	12/09/2020	< 0.00500	0.00142	< 0.000500	0.243
	02/01/2021	< 0.00500	0.00102	< 0.000500	0.187
	05/10/2021	< 0.00500	0.000977	< 0.000500	0.169
	07/12/2021	< 0.00500	0.000940	< 0.000500	0.187
	10/05/2021	< 0.00500	0.000759	< 0.000500	0.115
	03/08/2022	< 0.00500	0.000666	< 0.000500	0.159
	06/07/2022	< 0.00500	0.000699	< 0.000500	0.118
MW-29/	09/21/2020	< 0.00500	< 0.000500	< 0.000500	0.0934
MW-29R	12/09/2020	< 0.00500	0.00269	< 0.000500	0.112
	02/01/2021	--	--	--	--
	05/10/2021	--	--	--	--
	07/12/2021	< 0.00500	0.00694	< 0.000500	0.131
	10/05/2021	< 0.00500	0.00442	< 0.000500	0.0865
	03/08/2022	< 0.00500	0.00354	< 0.000500	0.126
	06/07/2022	< 0.00500	0.00254	< 0.000500	0.101
MW-223S	09/21/2020	< 0.00500 / < 0.00500	< 0.000500 / < 0.000500	< 0.000500 / < 0.000500	0.0416 / 0.0418
	12/09/2020	< 0.00500	< 0.000500	< 0.000500	0.0500
	02/01/2021	< 0.00500 / < 0.00500	< 0.000500 / < 0.000500	< 0.000500 / < 0.000500	0.0492 / 0.0517
	05/10/2021	< 0.00500 / < 0.00500	0.000712 / 0.000764	< 0.000500 / < 0.000500	0.0544 / 0.0545
	07/12/2021	< 0.00500 / < 0.00500	0.00104 / 0.000914	< 0.000500 / < 0.000500	0.0584 / 0.0572
	10/05/2021	< 0.00500 / < 0.00500	0.00128 / 0.00118	< 0.000500 / < 0.000500	0.0544 / 0.0581
	03/08/2022	< 0.00500	0.000653	< 0.000500	0.0504
	06/07/2022	< 0.00500	0.000969	< 0.000500	0.0581
MW-231S/	09/21/2020	< 0.00500	0.00225	< 0.000500	0.0776
MW-231SR	12/09/2020	< 0.00500	< 0.000500	< 0.000500	0.0929
	02/01/2021	< 0.00500	0.00188	< 0.000500	0.0952
	05/10/2021	< 0.00500	0.00188	< 0.000500	0.100
	07/12/2021	< 0.00500	0.000539	< 0.000500	0.0994
	10/05/2021	< 0.00500	0.00216	< 0.000500	0.102
	03/08/2022	< 0.00500	0.00351	< 0.000500	0.109
	06/07/2022	< 0.00500	0.00275	< 0.000500	0.0964

Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Neal North Closed CCR Monofill
Sergeant Bluff, Iowa

Well	Date	Appendix IV Parameters			
		Chromium mg/L	Cobalt mg/L	Lead mg/L	Lithium mg/L
<i>ii) Downgradient Wells</i>					
MW-1R	09/21/2020	< 0.00500	0.00104	< 0.000500	0.0656
	12/09/2020	< 0.00500	0.000998	< 0.000500	0.0813
	02/01/2021	< 0.00500	0.000747	< 0.000500	0.0747
	05/10/2021	< 0.00500	< 0.000500	< 0.000500	0.0711
	07/12/2021	< 0.00500	0.000595	< 0.000500	0.0755
	10/05/2021	< 0.00500	< 0.000500	< 0.000500	0.0503
	03/08/2022	< 0.00500	< 0.000500	< 0.000500	0.0812
	06/07/2022	< 0.00500	< 0.000500	< 0.000500	0.0709
MW-3R	09/21/2020	< 0.00500	0.000848	< 0.000500	0.0854
	12/09/2020	< 0.00500 / < 0.00500	0.00161 / 0.00155	< 0.000500 / < 0.000500	0.0982 / 0.0969
	02/01/2021	< 0.00500	0.00131	0.00160	0.0877
	05/10/2021	< 0.00500	0.000526	< 0.000500	0.0837
	07/12/2021	< 0.00500	0.000647	< 0.000500	0.0844
	10/05/2021	< 0.00500	< 0.000500	< 0.000500	0.0615
	03/08/2022	< 0.00500	< 0.000500	< 0.000500	0.0854
	06/07/2022	< 0.00500	< 0.000500	< 0.000500	0.0793
MW-5R	09/21/2020	< 0.00500	< 0.000500	< 0.000500	0.0565
	12/09/2020	< 0.00500	0.000604	< 0.000500	0.0649
	02/01/2021	< 0.00500	0.000550	< 0.000500	0.0695
	05/10/2021	< 0.00500	0.000613	< 0.000500	0.0717
	07/12/2021	< 0.00500	0.000543	< 0.000500	0.0697
	10/05/2021	< 0.00500	< 0.000500	< 0.000500	0.0489
	03/08/2022	< 0.00500	0.000730	< 0.000500	0.0808
	06/07/2022	< 0.00500	0.000613	< 0.000500	0.0723
MW-19	09/21/2020	< 0.00500	0.0107	< 0.000500	0.222
	12/09/2020	< 0.00500	0.00389	< 0.000500	0.239
	02/01/2021	< 0.00500	0.00890	< 0.000500	0.273
	05/10/2021	< 0.00500	0.0103	< 0.000500	0.245
	07/12/2021	< 0.00500	0.0225	< 0.000500	0.300
	10/05/2021	< 0.00500	0.0121	< 0.000500	0.200
	03/08/2022	< 0.00500	0.00806	0.000747	0.254
	06/07/2022	< 0.00500	0.00845	< 0.000500	0.254
MW-21	09/21/2020	< 0.00500	0.000510	< 0.000500	0.244
	12/09/2020	< 0.00500	0.000956	< 0.000500	0.316
	02/01/2021	< 0.00500	0.00664	< 0.000500	0.332
	05/10/2021	< 0.00500	< 0.000500	< 0.000500	0.188
	07/12/2021	< 0.00500	< 0.000500	< 0.000500	0.233
	10/05/2021	< 0.00500	< 0.000500	< 0.000500	0.208
	03/08/2022	< 0.00500	0.00397	0.000899	0.334
	06/07/2022	< 0.00500	0.00151	< 0.000500	0.321

**Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Neal North Closed CCR Monofill
Sergeant Bluff, Iowa**

Well	Date	Appendix IV Parameters				
		Mercury mg/L	Molybdenum mg/L	Radium-226 & 228 pCi/L	Selenium mg/L	Thallium mg/L
<i>i) Upgradient Wells</i>						
MW-13/	09/21/2020	< 0.000200	0.00231	< 0.595	0.0982	< 0.00100
MW-13R	12/09/2020	< 0.000200	< 0.00200	0.735	0.111	< 0.00100
	02/01/2021	--	--	--	--	--
	05/10/2021	--	--	--	--	--
	07/12/2021	< 0.000200	0.00420	1.53	< 0.00500	< 0.00100
	10/05/2021	< 0.000200	0.00286	1.12	< 0.00500	< 0.00100
	03/08/2022	< 0.000200 / < 0.000200	0.00321 / 0.00309	0.794 / 1.16	< 0.00500 / < 0.00500	< 0.00100 / < 0.00100
	06/07/2022	< 0.000200 / < 0.000200	0.00359 / 0.00407	1.22 / 0.878	< 0.00500 / < 0.00500	< 0.00100 / < 0.00100
MW-27	09/21/2020	< 0.000200	< 0.00200	1.02	< 0.00500	< 0.00100
	12/09/2020	< 0.000200	< 0.00200	0.728	< 0.00500	< 0.00100
	02/01/2021	< 0.000200	< 0.00200	0.675	< 0.00500	< 0.00100
	05/10/2021	< 0.000200	< 0.00200	0.573	< 0.00500	< 0.00100
	07/12/2021	< 0.000200	< 0.00200	0.898	< 0.00500	< 0.00100
	10/05/2021	< 0.000200	< 0.00200	0.803	< 0.00500	< 0.00100
	03/08/2022	< 0.000200	< 0.00200	1.14	< 0.00500	< 0.00100
	06/07/2022	< 0.000200	< 0.00200	< 0.361	< 0.00500	< 0.00100
MW-29/	09/21/2020	< 0.000200	< 0.00200	1.67	< 0.00500	< 0.00100
MW-29R	12/09/2020	< 0.000200	< 0.00200	0.579	< 0.00500	< 0.00100
	02/01/2021	--	--	--	--	--
	05/10/2021	--	--	--	--	--
	07/12/2021	< 0.000200	0.00335	1.79	< 0.00500	< 0.00100
	10/05/2021	< 0.000200	< 0.00200	0.865	< 0.00500	< 0.00100
	03/08/2022	< 0.000200	< 0.00200	1.18	< 0.00500	< 0.00100
	06/07/2022	< 0.000200	< 0.00200	1.33	< 0.00500	< 0.00100
MW-223S	09/21/2020	< 0.000200 / < 0.000200	< 0.00200 / < 0.00200	1.37 / < 0.449	< 0.00500 / < 0.00500	< 0.00100 / < 0.00100
	12/09/2020	< 0.000200	0.00316	0.497	< 0.00500	< 0.00100
	02/01/2021	< 0.000200 / < 0.000200	0.00238 / 0.00221	< 0.0912 / < -0.0527	< 0.00500 / < 0.00500	< 0.00100 / < 0.00100
	05/10/2021	< 0.000200 / < 0.000200	0.00218 / 0.00272	0.618 / 0.808	< 0.00500 / < 0.00500	< 0.00100 / < 0.00100
	07/12/2021	< 0.000200 / < 0.000200	0.00226 / 0.00258	0.658 / < 0.270	< 0.00500 / < 0.00500	< 0.00100 / < 0.00100
	10/05/2021	< 0.000200 / < 0.000200	0.00239 / 0.00240	0.698 / 0.785	< 0.00500 / < 0.00500	< 0.00100 / < 0.00100
	03/08/2022	< 0.000200	0.00246	0.438	< 0.00500	< 0.00100
	06/07/2022	< 0.000200	0.00241	0.832	< 0.00500	< 0.00100
MW-231S/	09/21/2020	< 0.000200	< 0.00200	0.973	0.0174	< 0.00100
MW-231SR	12/09/2020	< 0.000200	< 0.00200	0.994	0.0144	< 0.00100
	02/01/2021	< 0.000200	0.00200	< 0.349	0.0165	0.00122
	05/10/2021	< 0.000200	< 0.00200	< 0.429	< 0.00500	< 0.00100
	07/12/2021	< 0.000200	< 0.00200	< 0.291	0.00984	< 0.00100
	10/05/2021	< 0.000200	< 0.00200	0.582	0.00624	< 0.00100
	03/08/2022	< 0.000200	0.00242	0.925	< 0.00500	< 0.00100
	06/07/2022	< 0.000200	< 0.00200	0.902	< 0.00500	< 0.00100

**Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Neal North Closed CCR Monofill
Sergeant Bluff, Iowa**

Well	Date	Appendix IV Parameters				
		Mercury mg/L	Molybdenum mg/L	Radium-226 & 228 pCi/L	Selenium mg/L	Thallium mg/L
<i>ii) Downgradient Wells</i>						
MW-1R	09/21/2020	< 0.000200	0.00394	1.58	< 0.00500	< 0.00100
	12/09/2020	< 0.000200	0.00421	< 0.460	< 0.00500	< 0.00100
	02/01/2021	< 0.000200	0.00554	< 0.484	< 0.00500	< 0.00100
	05/10/2021	< 0.000200	0.00527	< -0.0461	< 0.00500	< 0.00100
	07/12/2021	< 0.000200	0.00568	0.379	< 0.00500	< 0.00100
	10/05/2021	< 0.000200	0.00464	< 0.0779	< 0.00500	< 0.00100
	03/08/2022	< 0.000200	0.00425	0.757	< 0.00500	< 0.00100
	06/07/2022	< 0.000200	0.00526	0.822	< 0.00500	< 0.00100
MW-3R	09/21/2020	< 0.000200	< 0.00200	1.15	< 0.00500	< 0.00100
	12/09/2020	< 0.000200 / < 0.000200	< 0.00200 / < 0.00200	< 0.235 / 1.23	< 0.00500 / < 0.00500	< 0.00100 / < 0.00100
	02/01/2021	< 0.000200	0.00651	0.764	< 0.00500	0.00694
	05/10/2021	< 0.000200	0.00212	0.707	< 0.00500	< 0.00100
	07/12/2021	< 0.000200	0.00240	0.878	< 0.00500	< 0.00100
	10/05/2021	< 0.000200	0.00210	< 0.470	< 0.00500	< 0.00100
	03/08/2022	< 0.000200	0.00212	0.504	< 0.00500	< 0.00100
	06/07/2022	< 0.000200	0.00219	1.15	< 0.00500	< 0.00100
MW-5R	09/21/2020	< 0.000200	0.00394	< 0.683	< 0.00500	< 0.00100
	12/09/2020	< 0.000200	0.00394	< 0.274	< 0.00500	< 0.00100
	02/01/2021	< 0.000200	0.00448	< -0.0292	< 0.00500	< 0.00100
	05/10/2021	< 0.000200	0.00401	0.732	< 0.00500	< 0.00100
	07/12/2021	< 0.000200	0.00423	0.734	< 0.00500	< 0.00100
	10/05/2021	< 0.000200	0.00363	0.669	< 0.00500	< 0.00100
	03/08/2022	< 0.000200	0.00355	0.608	< 0.00500	< 0.00100
	06/07/2022	< 0.000200	0.00383	< 0.491	< 0.00500	< 0.00100
MW-19	09/21/2020	< 0.000200	< 0.00200	0.920	< 0.00500	< 0.00100
	12/09/2020	< 0.000200	< 0.00200	< 0.383	< 0.00500	< 0.00100
	02/01/2021	< 0.000200	< 0.00200	0.720	< 0.00500	< 0.00100
	05/10/2021	< 0.000200	< 0.00200	< 0.123	< 0.00500	< 0.00100
	07/12/2021	< 0.000200	< 0.00200	0.662	< 0.00500	< 0.00100
	10/05/2021	< 0.000200	< 0.00200	0.815	< 0.00500	< 0.00100
	03/08/2022	< 0.000200	< 0.00200	0.777	< 0.00500	< 0.00100
	06/07/2022	< 0.000200	< 0.00200	< 0.456	< 0.00500	< 0.00100
MW-21	09/21/2020	< 0.000200	< 0.00200	1.17	< 0.00500	< 0.00100
	12/09/2020	< 0.000200	< 0.00200	< 0.471	< 0.00500	< 0.00100
	02/01/2021	< 0.000200	< 0.00200	< 0.120	< 0.00500	< 0.00100
	05/10/2021	< 0.000200	< 0.00200	< 0.291	0.0398	< 0.00100
	07/12/2021	< 0.000200	< 0.00200	0.546	0.00549	< 0.00100
	10/05/2021	< 0.000200	< 0.00200	0.696	< 0.00500	< 0.00100
	03/08/2022	< 0.000200	< 0.00200	0.353	< 0.00500	< 0.00100
	06/07/2022	< 0.000200	< 0.00200	0.626	< 0.00500	< 0.00100

Table D.2

**2024 Monitoring Analytical Results Summary
MidAmerican Energy Company
Neal North Closed CCR Monofill
Sergeant Bluff, Iowa**

Sample Location:	MW-1R	MW-1R	MW-1R	MW-1R	MW-1R	MW-3R	MW-3R	MW-5R	MW-5R	MW-5R	MW-13	MW-13	
Sample ID:	MW01R-GW-0324	DP05-GW-0324	MW01R-GW-0624	MW01R-GW-0924	DP05-GW-0924	MW03R-GW-0324	MW03-GW-0924	MW05R-GW-0324	MW05R-GW-0624	MW05R-GW-0924	MW13R-GW-0324	MW13R-GW-0924	
Sample Date:	3/21/2024	3/21/2024 (Duplicate)	6/5/2024	9/12/2024	9/12/2024 (Duplicate)	3/20/2024	9/13/2024	3/20/2024	6/5/2024	9/12/2024	3/18/2024	9/11/2024	
Parameters	Units												
Appendix III													
Boron	mg/L	0.333	0.322	--	0.401	0.402	0.400	0.405	0.298	--	0.310	0.163	0.100 U
Calcium	mg/L	146	155	--	159	158	141	168	145	--	162	119	138
Chloride	mg/L	33.7	34.8	--	61.8	61.5	8.58	10.8	11.4	--	11.1	9.26	10.5
Fluoride	mg/L	1.00 U	1.00 U	--	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	--	1.00 U	1.00 U	1.00 U
pH, lab	s.u.	8.0 J	8.0 J	--	7.1 J	7.1 J	8.0 J	7.2 J	8.0 J	7.4 J	7.2 J	7.3 J	7.1 J
Sulfate	mg/L	218	218	--	198	195	180	234	264	--	275	61.8	29.0
Total dissolved solids (TDS)	mg/L	916	902	--	820	858	742	808	868	--	696	522	566
Appendix IV													
Antimony	mg/L	0.00200 U	0.00200 U	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	--	0.00200 U	0.00200 U	0.00200 U
Arsenic	mg/L	0.0955	0.0922	0.0464	0.0472	0.0475	0.0468	0.0305	0.0330	--	0.0291	0.0521	0.0426
Barium	mg/L	0.110	0.113	--	0.0898	0.0904	0.296	0.268	0.143	--	0.126	0.212	0.228
Beryllium	mg/L	0.00100 U	0.00100 U	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	--	0.00100 U	0.00100 U	0.00100 U
Cadmium	mg/L	0.000200 U	0.000200 U	--	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	--	0.000200 U	0.000200 U	0.000200 U
Chromium	mg/L	0.00500 U	0.00500 U	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	--	0.00500 U	0.00500 U	0.00500 U
Cobalt	mg/L	0.000500 U	0.000500 U	--	0.00116	0.00112	0.000500 U	0.000703	0.000662	--	0.000694	0.000733	0.000874
Lead	mg/L	0.000500 U	0.000500 U	--	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	--	0.000500 U	0.000500 U	0.000500 U
Lithium	mg/L	0.0705	0.0734	--	0.0765	0.0768	0.0856	0.0875	0.0734	--	0.0725	0.0884	0.0906
Mercury	mg/L	0.000200 U	0.000200 U	--	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	--	0.000200 U	0.000200 U	0.000200 U
Molybdenum	mg/L	0.00508	0.00456	--	0.00464	0.00473	0.00218	0.00227	0.00361	--	0.00357	0.00413	0.00362
Selenium	mg/L	0.00500 U	0.00500 U	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	--	0.00500 U	0.00500 U	0.00500 U
Thallium	mg/L	0.00100 U	0.00100 U	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	--	0.00100 U	0.00100 U	0.00100 U
Radium-226 & 228	pCi/L	0.924	0.791	--	0.0214	0.735	0.727	0.342	0.447 U	--	0.413	1.01	1.18
Other													
Aluminum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--
Iron (dissolved)	mg/L	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	--	--	--
Manganese (dissolved)	mg/L	--	--	--	--	--	--	--	--	--	--	--	--
Radium-226	pCi/L	--	--	--	--	--	--	--	0.229	--	0.170	0.340	0.316
Radium-228	pCi/L	--	--	--	--	--	--	--	0.217 U	--	0.243	0.669	0.862
Nitrate (as N)	mg/L	--	--	--	--	--	--	--	--	--	--	--	--
TOC average duplicates	mg/L	--	--	--	--	--	--	--	--	--	--	--	--
Total organic carbon (TOC)	mg/L	--	--	--	--	--	--	--	--	--	--	--	--

Table D.2

**2024 Monitoring Analytical Results Summary
MidAmerican Energy Company
Neal North Closed CCR Monofill
Sergeant Bluff, Iowa**

Sample Location:	MW-19	MW-19	MW-19	MW-21	MW-21	MW-21	MW-27	MW-27	MW-27	MW-29	MW-29	MW-223S	
Sample ID:	MW19-GW-0324	MW19-GW-0624	MW19-GW-0924	MW21-GW-0324	MW21-GW-0624	MW21-GW-0924	MW27-GW-0324	MW27-GW-0924	DP01-GW-0924	MW29R-GW-0324	MW29R-GW-0924	MW223S-GW-0324	
Sample Date:	3/21/2024	6/5/2024	9/13/2024	3/21/2024	6/5/2024	9/13/2024	3/18/2024	9/10/2024	9/10/2024 (Duplicate)	3/18/2024	9/10/2024	3/19/2024	
Parameters	Units												
Appendix III													
Boron	mg/L	0.606	--	0.538	0.366	--	0.333	0.254	0.179	0.182	0.166	0.114	0.135
Calcium	mg/L	316	--	419	510	--	202	156	167	170	166	163	161
Chloride	mg/L	16.8	--	19.4	6.98	--	5.00 U	17.3	24.9	24.8	10.3	11.3	5.64
Fluoride	mg/L	1.00 U	--	1.00 U	1.00 U	--	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	0.200 U
pH, lab	s.u.	7.8 J	6.8 J	6.6 J	7.8 J	7.0 J	7.2 J	7.2 J	7.0 J	7.0 J	7.2 J	7.0 J	7.3 J
Sulfate	mg/L	715	--	939	1590	--	316	105	78.4	78.3	109	60.4	214
Total dissolved solids (TDS)	mg/L	1750	--	2070	2890	--	800	704	682	638	698	606	702
Appendix IV													
Antimony	mg/L	0.00200 U	--	0.00200 U	0.00200 U	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Arsenic	mg/L	0.00458	--	0.00666	0.00200 U	--	0.00200 U	0.0591	0.0663	0.0675	0.0311	0.0277	0.0155
Barium	mg/L	0.0202	--	0.0197	0.0133	--	0.0420	0.156	0.176	0.181	0.228	0.206	0.289
Beryllium	mg/L	0.00100 U	--	0.00100 U	0.00100 U	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Cadmium	mg/L	0.000200 U	--	0.000200 U	0.000200 U	--	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Chromium	mg/L	0.00500 U	--	0.00500 U	0.00500 U	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Cobalt	mg/L	0.00755	--	0.0127	0.000500 U	--	0.000500 U	0.000537	0.000849	0.000867	0.00279	0.00217	0.000913
Lead	mg/L	0.000500 U	--	0.000500 U	0.000500 U	--	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Lithium	mg/L	0.239	--	0.255	0.328	--	0.205	0.126	0.105	0.105	0.103	0.0908	0.0585
Mercury	mg/L	0.000200 U	--	0.000200 U	0.000200 U	--	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Molybdenum	mg/L	0.00200 U	--	0.00200 U	0.00200 U	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200	0.00200 U	0.00228
Selenium	mg/L	0.00932	--	0.00500 U	0.00500 U	--	0.191	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Thallium	mg/L	0.00100 U	--	0.00100 U	0.00100 U	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Radium-226 & 228	pCi/L	0.514 U	--	1.08	0.405 U	--	0.612	0.650	0.848	0.806	1.19	1.00	0.335 U
Other													
Aluminum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/L	--	--	--	--	--	--	--	--	--	--	--	6.17
Iron (dissolved)	mg/L	--	--	--	--	--	--	--	--	--	--	--	5.76
Manganese	mg/L	--	--	--	--	--	--	--	--	--	--	--	4.14
Manganese (dissolved)	mg/L	--	--	--	--	--	--	--	--	--	--	--	4.39
Radium-226	pCi/L	0.176 U	--	0.208	0.0642 U	--	0.203	0.231	0.242	0.328	0.374	0.318	-0.0135 U
Radium-228	pCi/L	0.338 U	--	0.872	0.340 U	--	0.409	0.419 U	0.606	0.478	0.816	0.682	0.349 U
Nitrate (as N)	mg/L	--	--	--	--	--	--	--	--	--	--	--	0.200 UJ
TOC average duplicates	mg/L	--	--	--	--	--	--	--	--	--	--	--	--
Total organic carbon (TOC)	mg/L	--	--	--	--	--	--	--	--	--	--	--	3.00

Table D.2

**2024 Monitoring Analytical Results Summary
MidAmerican Energy Company
Neal North Closed CCR Monofill
Sergeant Bluff, Iowa**

Sample Location:	MW-223S	MW-223S	MW-231S	MW-231S	MW-231S	MW-231S	
Sample ID:	DP01-GW-0324	MW223S-GW-0924	MW231SR-GW-0124	MW231SR-GW-0224	MW231SR-GW-0324	MW231SR-GW-0924	
Sample Date:	3/18/2024 (Duplicate)	9/10/2024	1/23/2024	2/20/2024	3/19/2024	9/10/2024	
Parameters	Units						
Appendix III							
Boron	mg/L	0.129	0.172	0.208	0.220 J	0.227	0.400
Calcium	mg/L	160	167	169	169	216	259
Chloride	mg/L	5.43	39.8	7.78	8.37	10.2	116
Fluoride	mg/L	1.00 U	0.200 U	1.00 U	1.00 U	0.200 U	0.200 U
pH, lab	s.u.	7.3 J	7.5 J	7.1 J	7.2 J	7.1 J	7.1 J
Sulfate	mg/L	217	120	121	154	287	177
Total dissolved solids (TDS)	mg/L	698	594	628	694	898	960
Appendix IV							
Antimony	mg/L	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Arsenic	mg/L	0.0164	0.0124	0.00460	0.00746	0.0112	0.00200 U
Barium	mg/L	0.286	0.186	0.124	0.166	0.218	0.127
Beryllium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Cadmium	mg/L	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Chromium	mg/L	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Cobalt	mg/L	0.000901	0.000728	0.00251	0.00209	0.00347	0.00692
Lead	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Lithium	mg/L	0.0575	0.0610	0.0905	0.0805 J	0.103	0.0951
Mercury	mg/L	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Molybdenum	mg/L	0.00238	0.00237	0.00222	0.00215	0.00248	0.00200 U
Selenium	mg/L	0.00500 U	0.00500 U	0.00559	0.00500 U	0.00500 U	0.0117
Thallium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Radium-226 & 228	pCi/L	0.453 U	0.919	1.18	0.599	2.98	1.06
Other							
Aluminum	mg/L	--	--	--	--	--	--
Iron	mg/L	--	3.58	--	--	16.3	2.24
Iron (dissolved)	mg/L	--	2.85	--	--	13.0	2.43
Manganese	mg/L	--	2.92	--	--	1.88	1.10
Manganese (dissolved)	mg/L	--	2.73	--	--	1.76	1.10
Radium-226	pCi/L	0.125 U	0.210	0.316	0.327	0.345	0.336
Radium-228	pCi/L	0.328 U	0.710	0.866	0.273 U	2.64	0.724
Nitrate (as N)	mg/L	--	0.699	--	--	0.200 UJ	1.03
TOC average duplicates	mg/L	--	--	--	--	--	--
Total organic carbon (TOC)	mg/L	--	2.89	--	--	3.14	2.57

Notes:
 U - Not detected at the associated reporting limit.
 J - Estimated concentration.
 UJ - Not detected; associated reporting limit is estimated.

Table D.3

Inter-Well Comparison Values
(Statistical Upper Tolerance Limits based on Data from Upgradient Wells)
MidAmerican Energy Company
Neal North Closed CCR Monofill
Sergeant Bluff, Iowa

Analyte	Unit	Date Range	N	%ND	Summary Statistics		Statistical	Data	Mann-Kendal Trend Test			Method	Upper Tolerance Limits	
					Minimum (mg/L)	Maximum (mg/L)			Outliers	Distribution	Stat.		Prob.	Conclusion
Appendix III														
Boron	mg/L	9/2020 - 6/2022	36	19%	< 0.100	0.415	0	Normal	-0.67	0.748	No trend	KM Normal	0.386	0.457
Calcium	mg/L	9/2020 - 6/2022	36	0%	104	294	0	Normal	-1.95	0.974	No trend	Normal	264	300
Chloride	mg/L	9/2020 - 6/2022	36	6%	< 5.00	74.6	2	Lognormal	-0.76	0.776	No trend	KM Approx. Lognormal	49.4	84.9
Fluoride	mg/L	9/2020 - 6/2022	36	100%	< 0.100	< 0.500	3	--	--	--	100% ND	Detection Limit	< 0.500	< 0.500
pH, lab	s.u.	9/2020 - 6/2022	36	0%	7.0 J	7.9 J	0	--	2.36	0.009	Increasing	--	7.0 J - 7.9 J	7.0 J - 7.9 J
Sulfate	mg/L	9/2020 - 6/2022	36	0%	32.9	485	1	Gamma	-0.44	0.670	No trend	WH Approx. Gamma (KM)	481	708
TDS	mg/L	9/2020 - 6/2022	36	0%	240	1200	0	Normal	-0.82	0.793	No trend	Normal	1206	1397
Appendix IV														
Antimony	mg/L	9/2020 - 6/2022	36	100%	< 0.00100	< 0.00200	0	--	--	--	100% ND	Detection Limit	< 0.00200	< 0.00200
Arsenic	mg/L	9/2020 - 6/2022	36	28%	< 0.00200	0.0512	0	--	5.96	1E-09	Increasing	--	< 0.00200 - 0.0512	< 0.00200 - 0.0512
Barium	mg/L	9/2020 - 6/2022	36	0%	0.0508	0.348	0	--	3.28	0.001	Increasing	--	0.0508 - 0.348	0.0508 - 0.348
Beryllium	mg/L	9/2020 - 6/2022	36	100%	< 0.00100	< 0.00100	0	--	--	--	100% ND	Detection Limit	< 0.00100	< 0.00100
Cadmium	mg/L	9/2020 - 6/2022	36	86%	< 0.000100	0.000227	3	Not Normal	--	--	>50% ND	Non-parametric	0.000227	0.000227
Chromium	mg/L	9/2020 - 6/2022	36	100%	< 0.00500	< 0.00500	0	--	--	--	100% ND	Detection Limit	< 0.00500	< 0.00500
Cobalt	mg/L	9/2020 - 6/2022	36	19%	< 0.000500	0.00694	0	Normal	0.25	0.400	No trend	KM Approx. Normal	0.00456	0.00568
Lead	mg/L	9/2020 - 6/2022	36	100%	< 0.000500	< 0.000500	0	--	--	--	100% ND	Detection Limit	< 0.000500	< 0.000500
Lithium	mg/L	9/2020 - 6/2022	36	0%	0.0416	0.243	0	Normal	0.76	0.225	No trend	Approx. Normal	0.205	0.244
Mercury	mg/L	9/2020 - 6/2022	36	100%	< 0.000200	< 0.000200	0	--	--	--	100% ND	Detection Limit	< 0.000200	< 0.000200
Molybdenum	mg/L	9/2020 - 6/2022	36	58%	< 0.00200	0.0042	0	Normal	--	--	No trend	KM Approx. Normal	0.00351	0.00396
Radium-226 & 228	pCi/L	9/2020 - 6/2022	36	17%	< -0.0527	1.79	0	Normal	0.06	0.475	No trend	KM Normal	1.76	2.14
Selenium	mg/L	9/2020 - 6/2022	36	81%	< 0.00500	0.111	3	Lognormal	--	--	No trend	KM Approx. Lognormal	0.033	0.061
Thallium	mg/L	9/2020 - 6/2022	36	97%	< 0.00100	0.00122	0	Not Normal	--	--	>50% ND	Non-parametric	0.00122	0.00122

Notes:

< 100 - Not detected at the associated reporting limit.

7.0 J - Estimated concentration.

Data distribution was determined by ProUCL using detects only.

Statistic: calculated as the sum of the signs of all possible pair-wise data comparisons.

Probability of significance: A value less than 0.05 indicates greater than 95 percent confidence of a statistically significant trend.

UTLs were calculated using pooled data from Upgradient wells MW-13, MW-27, MW-29, MW-223S, and MW-231S.

Non-parametric UTLs with 36 baseline samples have an actual confidence coefficient of 0.84 (i.e., 84 percent confidence) at 95 percent coverage.

Non-parametric UTLs with 36 baseline samples have an actual confidence coefficient of 0.304 (i.e., 30 percent confidence) at 99 percent coverage.

KM - UTLs were calculated using Kaplan-Meyer estimates for non-detects.

WH - UTLs were calculated using gamma distribution and the Wilson-Hilferty method.

TDS - Total dissolved solids.

Intra-Well Comparison Values
(Upper Tolerance Limits based on Baseline Period Data at each Well)
MidAmerican Energy Company
Neal North Closed CCR Monofill
Sergeant Bluff, Iowa

Well	Analyte	Date Range	N	%ND	Summary Statistics		Statistical Outliers	Data Distribution	Mann-Kendall Trend Test			Sen's Slope	Upper Tolerance Limits			
					Minimum	Maximum			Stat.	Prob.	Conclusion		Method	95/95 UTL	99/95 UTL	
MW-13/MW-13R (Upgradient)	Appendix III															
	Boron	9/2020 - 6/2022	6	17%	< 0.100	0.139	1	Normal	-3	0.72	No trend	--	KM Normal	0.17	0.189	
	Calcium	9/2020 - 6/2022	6	0%	127.5	205	0	Normal	-7	0.272	No trend	--	Normal	258	293	
	Chloride	9/2020 - 6/2022	6	0%	15.3	73.95	0	Normal	12	0.036	Increasing	0.07	--	15.3 - 73.9	15.3 - 73.9	
	Fluoride	9/2020 - 6/2022	6	100%	< 0.500	< 0.500	0	--	--	--	100% ND	--	Detection Limit	< 0.500	< 0.500	
	pH, lab	9/2020 - 6/2022	6	0%	7.2 J	7.4 J	1	Normal	1	1.000	No trend	--	Normal	6.94 - 7.54	6.84 - 7.65	
	Sulfate	9/2020 - 6/2022	6	0%	47.5	79	0	Normal	-7	0.272	No trend	--	Normal	111	128	
	TDS	9/2020 - 6/2022	6	0%	506	862	0	Normal	-3	0.72	No trend	--	Normal	1175	1364	
	Appendix IV															
	Antimony	9/2020 - 6/2022	6	100%	< 0.00100	< 0.00200	0	--	--	--	100% ND	--	Detection Limit	< 0.00200	< 0.00200	
	Arsenic	9/2020 - 6/2022	6	33%	< 0.00200	0.0505	0	Normal	10	0.096	No trend	--	KM Normal	0.108	0.136	
	Barium	9/2020 - 6/2022	6	0%	0.119	0.267	1	Normal	11	0.056	No trend	--	Normal	0.431	0.506	
	Beryllium	9/2020 - 6/2022	6	100%	< 0.00100	< 0.00100	0	--	--	--	100% ND	--	Detection Limit	< 0.00100	< 0.00100	
	Cadmium	9/2020 - 6/2022	6	83%	< 0.000100	0.000227	1	Not Normal	--	--	>50% ND	--	Non-parametric	0.000227	0.000227	
	Chromium	9/2020 - 6/2022	6	100%	< 0.00500	< 0.00500	0	--	--	--	100% ND	--	Detection Limit	< 0.00500	< 0.00500	
	Cobalt	9/2020 - 6/2022	6	33%	< 0.000500	0.00335	1	Normal	4	0.595	No trend	--	KM Normal	0.0049	0.0062	
	Lead	9/2020 - 6/2022	6	100%	< 0.000500	< 0.000500	0	--	--	--	100% ND	--	Detection Limit	< 0.000500	< 0.000500	
	Lithium	9/2020 - 6/2022	6	0%	0.0582	0.13	0	Normal	-5	0.470	No trend	--	Normal	0.178	0.210	
	Mercury	9/2020 - 6/2022	6	100%	< 0.000200	< 0.000200	0	--	--	--	100% ND	--	Detection Limit	< 0.000200	< 0.000200	
	Molybdenum	9/2020 - 6/2022	6	17%	< 0.00200	0.0042	0	Normal	7	0.272	No trend	--	KM Normal	0.00594	0.00699	
	Radium-226 & 228	9/2020 - 6/2022	6	17%	< 0.595	1.53	0	Normal	5	0.470	No trend	--	KM Normal	2.11	2.51	
	Selenium	9/2020 - 6/2022	6	67%	< 0.00500	0.111	0	Not Normal	--	--	>50% ND	--	Non-parametric	0.111	0.111	
	Thallium	9/2020 - 6/2022	6	100%	< 0.00100	< 0.00100	0	--	--	--	100% ND	--	Detection Limit	< 0.00100	< 0.00100	
	MW-27 (Upgradient)	Appendix III														
		Boron	9/2020 - 6/2022	8	0%	0.203	0.305	0	Normal	-20	0.014	Decreasing	-0.0001	--	0.203 - 0.305	0.203 - 0.305
		Calcium	9/2020 - 6/2022	8	0%	118	212	2	Normal	-7	0.272	No trend	--	Normal	254	285
Chloride		9/2020 - 6/2022	8	0%	11.8	28.5	0	Normal	12	0.036	Increasing	0.07	--	11.8 - 28.5	11.8 - 28.5	
Fluoride		9/2020 - 6/2022	8	100%	< 0.500	< 0.500	0	--	--	--	100% ND	--	Detection Limit	< 0.500	< 0.500	
pH, lab		9/2020 - 6/2022	8	0%	7.0 J	7.3 J	0	Normal	1	1.000	No trend	--	Normal	6.80 - 7.43	6.68 - 7.54	
Sulfate		9/2020 - 6/2022	8	0%	100	311	0	Normal	-7	0.272	No trend	--	Normal	419	504	
TDS		9/2020 - 6/2022	8	0%	496	1160	0	Normal	-3	0.720	No trend	--	Normal	1487	1744	
Appendix IV																
Antimony		9/2020 - 6/2022	8	100%	< 0.00100	< 0.00200	0	--	--	--	100% ND	--	Detection Limit	< 0.00200	< 0.00200	
Arsenic		9/2020 - 6/2022	8	0%	0.00527	0.0414	0	Normal	10	0.096	No trend	--	Normal	0.058	0.073	
Barium		9/2020 - 6/2022	8	0%	0.0847	0.123	0	Normal	11	0.056	No trend	--	Normal	0.143	0.157	
Beryllium		9/2020 - 6/2022	8	100%	< 0.00100	< 0.00100	0	--	--	--	100% ND	--	Detection Limit	< 0.00100	< 0.00100	
Cadmium		9/2020 - 6/2022	8	88%	< 0.000100	0.000114	1	Not Normal	--	--	>50% ND	--	Non-parametric	0.000114	0.000114	
Chromium		9/2020 - 6/2022	8	100%	< 0.00500	< 0.00500	0	--	--	--	100% ND	--	Detection Limit	< 0.00500	< 0.00500	
Cobalt		9/2020 - 6/2022	8	0%	0.000666	0.00154	0	Normal	4	0.595	No trend	--	Normal	0.00203	0.00241	
Lead		9/2020 - 6/2022	8	100%	< 0.000500	< 0.000500	0	--	--	--	100% ND	--	Detection Limit	< 0.000500	< 0.000500	
Lithium		9/2020 - 6/2022	8	0%	0.115	0.243	0	Normal	-5	0.470	No trend	--	Normal	0.306	0.355	
Mercury		9/2020 - 6/2022	8	100%	< 0.000200	< 0.000200	0	--	--	--	100% ND	--	Detection Limit	< 0.000200	< 0.000200	
Molybdenum		9/2020 - 6/2022	8	100%	< 0.00200	< 0.00200	0	--	--	--	100% ND	--	Detection Limit	< 0.00200	< 0.00200	
Radium-226 & 228	9/2020 - 6/2022	8	13%	< 0.361	1.14	0	Normal	5	0.470	No trend	--	KM Normal	1.52	1.79		
Selenium	9/2020 - 6/2022	8	100%	< 0.00500	< 0.00500	0	--	--	--	100% ND	--	Detection Limit	< 0.00500	< 0.00500		
Thallium	9/2020 - 6/2022	8	100%	< 0.00100	< 0.00100	0	--	--	--	100% ND	--	Detection Limit	< 0.00100	< 0.00100		

Table D.4

Intra-Well Comparison Values
(Upper Tolerance Limits based on Baseline Period Data at each Well)
MidAmerican Energy Company
Neal North Closed CCR Monofill
Sergeant Bluff, Iowa

MW-29/MW-29R
(Upgradient)

Appendix III

Boron	9/2020 - 6/2022	6	0%	0.144	0.23	0	Normal	-3	0.720	No trend	--	Normal	0.295	0.333
Calcium	9/2020 - 6/2022	6	0%	136	209	0	Normal	-7	0.272	No trend	--	Normal	297	340
Chloride	9/2020 - 6/2022	6	0%	9.75 J-	12.1	0	Normal	12	0.036	Increasing	0.071	--	9.75 J - 12.1	9.75 J - 12.1
Fluoride	9/2020 - 6/2022	6	100%	< 0.500	< 0.500	0	--	--	--	100% ND	--	Detection Limit	< 0.500	< 0.500
pH, lab	9/2020 - 6/2022	6	0%	7.0 J	7.2 J	0	Normal	1	1	No trend	--	Normal	6.77 - 7.43	6.65 - 7.55
Sulfate	9/2020 - 6/2022	6	0%	67	191	0	Normal	-7	0.272	No trend	--	Normal	353	435
TDS	9/2020 - 6/2022	6	0%	594	856	0	Normal	-3	0.720	No trend	--	Normal	1122	1261

Appendix IV

Antimony	9/2020 - 6/2022	6	100%	< 0.00100	< 0.00200	0	--	--	--	100% ND	--	Detection Limit	< 0.00200	< 0.00200
Arsenic	9/2020 - 6/2022	6	17%	< 0.00200	0.032	0	Normal	10	0.096	No trend	--	KM Normal	0.0631	0.0788
Barium	9/2020 - 6/2022	6	0%	0.195	0.289	0	Normal	11	0.056	No trend	--	Normal	0.378	0.425
Beryllium	9/2020 - 6/2022	6	100%	< 0.00100	< 0.00100	0	--	--	--	100% ND	--	Detection Limit	< 0.00100	< 0.00100
Cadmium	9/2020 - 6/2022	6	100%	< 0.000100	< 0.000100	0	--	--	--	100% ND	--	Detection Limit	< 0.000100	< 0.000100
Chromium	9/2020 - 6/2022	6	100%	< 0.00500	< 0.00500	0	--	--	--	100% ND	--	Detection Limit	< 0.00500	< 0.00500
Cobalt	9/2020 - 6/2022	6	17%	< 0.000500	0.00694	0	Normal	4	0.595	No trend	--	KM Normal	0.0107	0.0134
Lead	9/2020 - 6/2022	6	100%	< 0.000500	< 0.000500	0	--	--	--	100% ND	--	Detection Limit	< 0.000500	< 0.000500
Lithium	9/2020 - 6/2022	6	0%	0.0865	0.131	0	Normal	-5	0.470	No trend	--	Normal	0.17449258	0.198664857
Mercury	9/2020 - 6/2022	6	100%	< 0.000200	< 0.000200	0	--	--	--	100% ND	--	Detection Limit	< 0.000200	< 0.000200
Molybdenum	9/2020 - 6/2022	6	83%	< 0.00200	0.00335	1	Not Normal	7	0.272	>50% ND	--	Non-parametric	0.00335	0.00335
Radium-226 & 228	9/2020 - 6/2022	6	0%	0.579	1.79	0	Normal	5	0.470	No trend	--	Normal	2.96	3.58
Selenium	9/2020 - 6/2022	6	100%	< 0.00500	< 0.00500	0	--	--	--	100% ND	--	Detection Limit	< 0.00500	< 0.00500
Thallium	9/2020 - 6/2022	6	100%	< 0.00100	< 0.00100	0	--	--	--	100% ND	--	Detection Limit	< 0.00100	< 0.00100

MW-223S
(Upgradient)

Appendix III

Boron	9/2020 - 6/2022	8	75%	ND(0.1)	0.1165	0	Not Normal	--	--	>50% ND	--	Non-parametric	0.1165	0.1165
Calcium	9/2020 - 6/2022	8	0%	104.5	127.5	0	Normal	-7	0.272	No trend	--	Normal	143	153
Chloride	9/2020 - 6/2022	8	25%	< 5.00	7.15	0	Normal	12	0.036	Increasing	0.071	--	< 5.00 - 7.15	< 5.00 - 7.15
Fluoride	9/2020 - 6/2022	8	100%	< 0.100	< 0.500	1	--	--	--	100% ND	--	Detection Limit	< 0.500	< 0.500
pH, lab	9/2020 - 6/2022	8	0%	7.4 J	7.65	0	Normal	1	1.00	No trend	--	Normal	7.22 - 7.79	7.11 - 7.90
Sulfate	9/2020 - 6/2022	8	0%	32.9	113	0	Normal	-7	0.272	No trend	--	Normal	145	179
TDS	9/2020 - 6/2022	8	0%	265	524	0	Normal	-3	0.720	No trend	--	Normal	688	788

Appendix IV

Antimony	9/2020 - 6/2022	8	100%	< 0.00100	< 0.00200	0	--	--	--	100% ND	--	Detection Limit	< 0.00200	< 0.00200
Arsenic	9/2020 - 6/2022	8	13%	< 0.00200	0.00969	0	Normal	10	0.096	No trend	--	KM Normal	0.0143	0.0178
Barium	9/2020 - 6/2022	8	0%	0.206	0.341	0	Normal	11	0.056	No trend	--	Normal	0.418	0.471
Beryllium	9/2020 - 6/2022	8	100%	< 0.00100	< 0.00100	0	--	--	--	100% ND	--	Detection Limit	< 0.00100	< 0.00100
Cadmium	9/2020 - 6/2022	8	88%	< 0.000100	0.000123	1	Not Normal	--	--	>50% ND	--	Non-parametric	0.000123	0.000123
Chromium	9/2020 - 6/2022	8	100%	< 0.00500	< 0.00500	0	--	--	--	100% ND	--	Detection Limit	< 0.00500	< 0.00500
Cobalt	9/2020 - 6/2022	8	38%	< 0.000500	0.00123	0	Normal	4	0.595	No trend	--	KM Normal	0.00158	0.00188
Lead	9/2020 - 6/2022	8	100%	< 0.000500	< 0.000500	0	--	--	--	100% ND	--	Detection Limit	< 0.000500	< 0.000500
Lithium	9/2020 - 6/2022	8	0%	0.0417	0.0581	0	Normal	-5	0.470	No trend	--	Normal	0.070	0.076
Mercury	9/2020 - 6/2022	8	100%	< 0.000200	< 0.000200	0	--	--	--	100% ND	--	Detection Limit	< 0.000200	< 0.000200
Molybdenum	9/2020 - 6/2022	8	13%	< 0.00200	0.00316	2	Not Normal	7	0.272	No trend	--	Non-parametric	0.00316	0.00316
Radium-226 & 228	9/2020 - 6/2022	8	13%	< 0.01925	1.37	1	Normal	5	0.470	No trend	--	KM Normal	1.80	2.22
Selenium	9/2020 - 6/2022	8	100%	< 0.00500	< 0.00500	0	--	--	--	100% ND	--	Detection Limit	< 0.00500	< 0.00500
Thallium	9/2020 - 6/2022	8	100%	< 0.00100	< 0.00100	0	--	--	--	100% ND	--	Detection Limit	< 0.00100	< 0.00100

Table D.4

**Intra-Well Comparison Values
(Upper Tolerance Limits based on Baseline Period Data at each Well)
MidAmerican Energy Company
Neal North Closed CCR Monofill
Sergeant Bluff, Iowa**

**MW-231S/MW-231SR
(Upgradient)**

Appendix III

Boron	9/2020 - 6/2022	8	0%	0.196	0.415	0	Normal	10	0.276	No trend	--	Normal	0.532	0.620
Calcium	9/2020 - 6/2022	8	0%	178	294	0	Normal	-7	0.272	No trend	--	Normal	336	378
Chloride	9/2020 - 6/2022	8	0%	5.37	12.8	0	Normal	12	0.036	Increasing	0.071	--	5.37 - 12.8	5.37 - 12.8
Fluoride	9/2020 - 6/2022	8	100%	< 0.100	< 0.500	1	--	--	--	100% ND	--	Detection Limit	< 0.500	< 0.500
pH, lab	9/2020 - 6/2022	8	0%	7.1 J	7.4 J	0	Not Normal	1	1.00	No trend	--	Non-parametric	7.1 J - 7.4 J	7.1 J - 7.4 J
Sulfate	9/2020 - 6/2022	8	0%	127	485	2	Normal	-7	0.272	No trend	--	Normal	614	727
TDS	9/2020 - 6/2022	8	0%	706	1200	0	Normal	-3	0.720	No trend	--	Normal	1394	1560

Appendix IV

Antimony	9/2020 - 6/2022	8	100%	< 0.00100	< 0.00200	0	--	--	--	100% ND	--	Detection Limit	< 0.00200	< 0.00200
Arsenic	9/2020 - 6/2022	8	75%	< 0.00200	0.0085	0	Not Normal	10	0.096	>50% ND	--	Non-parametric	0.0085	0.0085
Barium	9/2020 - 6/2022	8	0%	0.0508	0.125	0	Normal	11	0.056	No trend	--	Normal	0.178	0.207
Beryllium	9/2020 - 6/2022	8	100%	< 0.00100	< 0.00100	0	--	--	--	100% ND	--	Detection Limit	< 0.00100	< 0.00100
Cadmium	9/2020 - 6/2022	8	75%	< 0.000100	0.000139	0	Not Normal	--	--	>50% ND	--	Non-parametric	0.000139	0.000139
Chromium	9/2020 - 6/2022	8	100%	< 0.00500	< 0.00500	0	--	--	--	100% ND	--	Detection Limit	< 0.00500	< 0.00500
Cobalt	9/2020 - 6/2022	8	13%	< 0.000500	0.00351	0	Normal	4	0.595	No trend	--	KM Normal	0.00498	0.0061
Lead	9/2020 - 6/2022	8	100%	< 0.000500	< 0.000500	0	--	--	--	100% ND	--	Detection Limit	< 0.000500	< 0.000500
Lithium	9/2020 - 6/2022	8	0%	0.0776	0.109	1	Normal	-5	0.470	No trend	--	Normal	0.126	0.136
Mercury	9/2020 - 6/2022	8	100%	< 0.000200	< 0.000200	0	--	--	--	100% ND	--	Detection Limit	< 0.000200	< 0.000200
Molybdenum	9/2020 - 6/2022	8	75%	< 0.00200	0.00242	0	Not Normal	7	0.272	>50% ND	--	Non-parametric	0.00242	0.00242
Radium-226 & 228	9/2020 - 6/2022	8	38%	< 0.291	0.994	0	Normal	5	0.470	No trend	--	KM Normal	1.63	1.99
Selenium	9/2020 - 6/2022	8	38%	< 0.00500	0.0174	0	Normal	--	--	No trend	--	KM Normal	0.0261	0.032
Thallium	9/2020 - 6/2022	8	88%	< 0.00100	0.00122	1	Not Normal	--	--	>50% ND	--	Non-parametric	0.00122	0.00122

MW-1R

Appendix III

Boron	9/2020 - 6/2022	8	0%	0.342	0.417	0	Normal	-16	0.062	No trend	--	Normal	0.470	0.500
Calcium	9/2020 - 6/2022	8	0%	127	167	0	Normal	10	0.276	No trend	--	Normal	187	202
Chloride	9/2020 - 6/2022	8	0%	27.4	68	1	Not Normal	17	0.047	Increasing	0.017	--	27.4 - 68	27.4 - 68
Fluoride	9/2020 - 6/2022	8	88%	< 0.500	0.808	1	Not Normal	--	--	>50% ND	--	Non-parametric	0.808	0.808
pH, lab	9/2020 - 6/2022	8	0%	7.2 J	7.6 J	1	Normal	-3	0.812	No trend	--	Normal	6.88 - 7.72	6.73 - 7.87
Sulfate	9/2020 - 6/2022	8	0%	204	262	0	Normal	-6	0.548	No trend	--	Normal	285	307
TDS	9/2020 - 6/2022	8	0%	750	908	0	Normal	0	1.000	No trend	--	Normal	997	1057

Appendix IV

Antimony	9/2020 - 6/2022	8	100%	< 0.00100	< 0.00200	0	--	--	--	100% ND	--	Detection Limit	< 0.00200	< 0.00200
Arsenic	9/2020 - 6/2022	8	0%	0.014	0.0452	0	Normal	8	0.398	No trend	--	Normal	0.064	0.078
Barium	9/2020 - 6/2022	8	0%	0.0668	0.118	0	Normal	14	0.108	No trend	--	Normal	0.138	0.155
Beryllium	9/2020 - 6/2022	8	100%	< 0.00100	< 0.00100	0	--	--	--	100% ND	--	Detection Limit	< 0.00100	< 0.00100
Cadmium	9/2020 - 6/2022	8	88%	< 0.000100	0.000409	1	Not Normal	--	--	>50% ND	--	Non-parametric	0.000409	0.000409
Chromium	9/2020 - 6/2022	8	100%	< 0.00500	< 0.00500	0	100% ND	--	--	100% ND	--	Detection Limit	< 0.00500	< 0.00500
Cobalt	9/2020 - 6/2022	8	50%	< 0.000500	0.00104	0	Not Normal	-20	0.014	Decreasing	-2E-06	--	< 0.000500 - 0.00104	< 0.000500 - 0.00104
Lead	9/2020 - 6/2022	8	100%	< 0.000500	< 0.000500	0	--	--	--	100% ND	--	Detection Limit	< 0.000500	< 0.000500
Lithium	9/2020 - 6/2022	8	0%	0.0503	0.0813	0	Normal	-2	0.904	No trend	--	Normal	0.103	0.115
Mercury	9/2020 - 6/2022	8	100%	< 0.000200	< 0.000200	0	--	--	--	100% ND	--	Detection Limit	< 0.000200	< 0.000200
Molybdenum	9/2020 - 6/2022	8	0%	0.00394	0.00568	0	Normal	6	0.548	No trend	--	Normal	0.00699	0.00777
Radium-226 & 228	9/2020 - 6/2022	8	50%	< -0.0461	1.58	0	Normal	6	0.548	No trend	--	KM Normal	2.18	2.81
Selenium	9/2020 - 6/2022	8	100%	< 0.00500	< 0.00500	0	--	--	--	100% ND	--	Detection Limit	< 0.00500	< 0.00500
Thallium	9/2020 - 6/2022	8	100%	< 0.00100	< 0.00100	0	--	--	--	100% ND	--	Detection Limit	< 0.00100	< 0.00100

Table D.4

**Intra-Well Comparison Values
(Upper Tolerance Limits based on Baseline Period Data at each Well)
MidAmerican Energy Company
Neal North Closed CCR Monofill
Sergeant Bluff, Iowa**

MW-3R

Appendix III

Boron	9/2020 - 6/2022	8	0%	0.289	0.9185	0	Normal	-12	0.178	No trend	--	Normal	1.26	1.55
Calcium	9/2020 - 6/2022	8	0%	129	161.5	0	Normal	-11	0.227	No trend	--	Normal	184	200
Chloride	9/2020 - 6/2022	8	0%	7.64	21.2	0	Normal	-8	0.398	No trend	--	Normal	32.6	38.3
Fluoride	9/2020 - 6/2022	8	88%	< 0.500	0.631	1	Not Normal	--	--	>50% ND	--	Non-parametric	0.631	0.631
pH, lab	9/2020 - 6/2022	8	0%	7.1	7.5 J	0	Normal	4	0.72	No trend	--	Normal	6.92 - 7.71	6.77 - 7.86
Sulfate	9/2020 - 6/2022	8	0%	128	241	0	Gamma	-10	0.276	No trend	--	Normal	277	320
TDS	9/2020 - 6/2022	8	0%	614	894	0	Normal	-20	0.014	Decreasing	-0.36	--	614 - 894	614 - 894

Appendix IV

Antimony	9/2020 - 6/2022	8	100%	< 0.00100	< 0.00200	0	--	--	--	100% ND	--	Detection Limit	< 0.00200	< 0.00200
Arsenic	9/2020 - 6/2022	8	0%	0.0314	0.0448	0	Normal	0	1.000	No trend	--	Normal	0.0550	0.0608
Barium	9/2020 - 6/2022	8	0%	0.1565	0.306	0	Normal	8	0.398	No trend	--	Normal	0.4245	0.4913
Beryllium	9/2020 - 6/2022	8	100%	< 0.00100	< 0.00100	0	--	--	--	100% ND	--	Detection Limit	< 0.00100	< 0.00100
Cadmium	9/2020 - 6/2022	8	88%	< 0.000100	0.000776	1	Not Normal	--	--	>50% ND	--	Non-parametric	0.000776	0.000776
Chromium	9/2020 - 6/2022	8	100%	< 0.00500	< 0.00500	0	--	--	--	100% ND	--	Detection Limit	< 0.00500	< 0.00500
Cobalt	9/2020 - 6/2022	8	38%	< 0.000500	0.00158	0	Normal	-19	0.023	Decreasing	-2E-06	--	< 0.000500 - 0.00158	< 0.000500 - 0.00158
Lead	9/2020 - 6/2022	8	88%	< 0.000500	0.0016	1	Not Normal	--	--	>50% ND	--	Non-parametric	0.0016	0.0016
Lithium	9/2020 - 6/2022	8	0%	0.0615	0.0976	1	Normal	-13	0.143	No trend	--	Normal	0.116	0.127
Mercury	9/2020 - 6/2022	8	100%	< 0.000200	< 0.000200	0	--	--	--	100% ND	--	Detection Limit	< 0.000200	< 0.000200
Molybdenum	9/2020 - 6/2022	8	25%	< 0.00200	0.00651	1	Not Normal	8	0.398	No trend	--	Non-parametric	0.00651	0.00651
Radium-226 & 228	9/2020 - 6/2022	8	13%	< 0.470	1.23	0	Normal	-9	0.337	No trend	--	KM Normal	1.74	2.07
Selenium	9/2020 - 6/2022	8	100%	< 0.00500	< 0.00500	0	--	--	--	100% ND	--	Detection Limit	< 0.00500	< 0.00500
Thallium	9/2020 - 6/2022	8	88%	< 0.00100	0.00694	1	Not Normal	--	--	>50% ND	--	Non-parametric	0.00694	0.00694

MW-5R

Appendix III

Boron	9/2020 - 6/2022	8	0%	0.177	0.418	0	Normal	8	0.398	No trend	--	Normal	0.508	0.602
Calcium	9/2020 - 6/2022	8	0%	92.8	175	0	Normal	13	0.143	No trend	--	Normal	213	245
Chloride	9/2020 - 6/2022	8	0%	8.33	13.1	0	Normal	8	0.398	No trend	--	Normal	15.0	16.9
Fluoride	9/2020 - 6/2022	8	88%	< 0.500	0.675	1	Not Normal	--	--	>50% ND	--	Non-parametric	0.675	0.675
pH, lab	9/2020 - 6/2022	8	0%	7.2 J	7.5 J	0	Normal	1	1.00	No trend	--	Normal	6.95 - 7.67	6.82 - 7.80
Sulfate	9/2020 - 6/2022	8	0%	109	340	0	Normal	6	0.548	No trend	--	Normal	472	577
TDS	9/2020 - 6/2022	8	0%	470	918	0	Normal	6	0.548	No trend	--	Normal	1188	1384

Appendix IV

Antimony	9/2020 - 6/2022	8	100%	< 0.00100	< 0.00200	0	--	--	--	100% ND	--	Detection Limit	< 0.00200	< 0.00200
Arsenic	9/2020 - 6/2022	8	0%	0.0279	0.0446	2	Normal	8	0.398	No trend	--	Normal	0.0502	0.0557
Barium	9/2020 - 6/2022	8	0%	0.142	0.278	1	Normal	4	0.720	No trend	--	Normal	0.320	0.368
Beryllium	9/2020 - 6/2022	8	100%	< 0.00100	< 0.00100	0	--	--	--	100% ND	--	Detection Limit	< 0.00100	< 0.00100
Cadmium	9/2020 - 6/2022	8	100%	< 0.000100	< 0.000100	0	--	--	--	100% ND	--	Detection Limit	< 0.000100	< 0.000100
Chromium	9/2020 - 6/2022	8	100%	< 0.00500	< 0.00500	0	--	--	--	100% ND	--	Detection Limit	< 0.00500	< 0.00500
Cobalt	9/2020 - 6/2022	8	25%	< 0.000500	0.00073	0	Normal	8	0.398	No trend	--	KM Normal	0.00081	0.00089
Lead	9/2020 - 6/2022	8	100%	< 0.000500	< 0.000500	0	--	--	--	100% ND	--	Detection Limit	< 0.000500	< 0.000500
Lithium	9/2020 - 6/2022	8	0%	0.0489	0.0808	0	Normal	14	0.108	No trend	--	Normal	0.0986	0.1102
Mercury	9/2020 - 6/2022	8	100%	< 0.000200	< 0.000200	0	--	--	--	100% ND	--	Detection Limit	< 0.000200	< 0.000200
Molybdenum	9/2020 - 6/2022	8	0%	0.00355	0.00448	0	Normal	-9	0.337	No trend	--	Normal	0.00491	0.00527
Radium-226 & 228	9/2020 - 6/2022	8	50%	< -0.0292	0.734	0	Normal	4	0.720	No trend	--	KM Normal	1.50	1.91
Selenium	9/2020 - 6/2022	8	100%	< 0.00500	< 0.00500	0	--	--	--	100% ND	--	Detection Limit	< 0.00500	< 0.00500
Thallium	9/2020 - 6/2022	8	100%	< 0.00100	< 0.00100	0	--	--	--	100% ND	--	Detection Limit	< 0.00100	< 0.00100

Table D.4

Intra-Well Comparison Values
(Upper Tolerance Limits based on Baseline Period Data at each Well)
MidAmerican Energy Company
Neal North Closed CCR Monofill
Sergeant Bluff, Iowa

MW-19

Appendix III

Boron	9/2020 - 6/2022	8	0%	0.466	0.74	0	Normal	0	1.00	No trend	--	Normal	0.903	1.00
Calcium	9/2020 - 6/2022	8	0%	301	562	1	Normal	6	0.548	No trend	--	Normal	639	733
Chloride	9/2020 - 6/2022	8	0%	15.9	19.4	0	Normal	-2	0.904	No trend	--	Normal	21.9	23.4
Fluoride	9/2020 - 6/2022	8	88%	< 0.500	2.36	1	Not Normal	--	--	>50% ND	--	Non-parametric	2.36	2.36
pH, lab	9/2020 - 6/2022	8	0%	6.6 J	7.1 J	0	Normal	-2	0.904	No trend	--	Normal	6.29 - 7.28	6.11 - 7.46
Sulfate	9/2020 - 6/2022	8	0%	607	1140	0	Normal	6	0.548	No trend	--	Normal	1449	1646
TDS	9/2020 - 6/2022	8	0%	1570	2590	0	Normal	2	0.904	No trend	--	Normal	3189	3601

Appendix IV

Antimony	9/2020 - 6/2022	8	100%	< 0.00100	< 0.00200	0	--	--	--	100% ND	--	Detection Limit	< 0.00200	< 0.00200
Arsenic	9/2020 - 6/2022	8	13%	< 0.00200	0.00821	2	Normal	0	1.00	No trend	--	KM Normal	0.00973	0.0117
Barium	9/2020 - 6/2022	8	0%	0.0207	0.0251	0	Normal	-2	0.904	No trend	--	Normal	0.0269	0.0286
Beryllium	9/2020 - 6/2022	8	100%	< 0.00100	< 0.00100	0	--	--	--	100% ND	--	Detection Limit	< 0.00100	< 0.00100
Cadmium	9/2020 - 6/2022	8	100%	< 0.000100	< 0.000100	0	--	--	--	100% ND	--	Detection Limit	< 0.000100	< 0.000100
Chromium	9/2020 - 6/2022	8	100%	< 0.00500	< 0.00500	0	--	--	--	100% ND	--	Detection Limit	< 0.00500	< 0.00500
Cobalt	9/2020 - 6/2022	8	0%	0.00389	0.0225	1	Normal	0	1.00	No trend	--	Normal	0.0278	0.0341
Lead	9/2020 - 6/2022	8	88%	< 0.000500	0.000747	1	Not Normal	--	--	>50% ND	--	Non-parametric	0.000747	0.000747
Lithium	9/2020 - 6/2022	8	0%	0.200	0.300	0	Normal	7	0.473	No trend	--	Normal	0.345	0.381
Mercury	9/2020 - 6/2022	8	100%	< 0.000200	< 0.000200	0	--	--	--	100% ND	--	Detection Limit	< 0.000200	< 0.000200
Molybdenum	9/2020 - 6/2022	8	100%	< 0.00200	< 0.00200	0	--	--	--	100% ND	--	Detection Limit	< 0.00200	< 0.00200
Radium-226 & 228	9/2020 - 6/2022	8	38%	< 0.123	0.92	0	Normal	-3	0.812	No trend	--	KM Normal	1.57	1.95
Selenium	9/2020 - 6/2022	8	100%	< 0.00500	< 0.00500	0	--	--	--	100% ND	--	Detection Limit	< 0.00500	< 0.00500
Thallium	9/2020 - 6/2022	8	100%	< 0.00100	< 0.00100	0	--	--	--	100% ND	--	Detection Limit	< 0.00100	< 0.00100

MW-21

Appendix III

Boron	9/2020 - 6/2022	8	0%	0.297 J	0.474	0	Normal	0	1	No trend	--	Normal	0.542	0.612
Calcium	9/2020 - 6/2022	8	0%	188	509	0	Normal	10	0.276	No trend	--	Normal	744	875
Chloride	9/2020 - 6/2022	8	13%	< 5.00	7.63	1	Normal	-2	0.904	No trend	--	KM Normal	9.09	9.98
Fluoride	9/2020 - 6/2022	8	88%	< 0.500	2.85	1	Not Normal	--	--	>50% ND	--	Non-parametric	2.85	2.85
pH, lab	9/2020 - 6/2022	8	0%	6.8 J	7.2 J	0	Normal	-16	0.062	No trend	--	Normal	6.42 - 7.53	6.21 - 7.74
Sulfate	9/2020 - 6/2022	8	0%	299	1540	0	Normal	8	0.398	No trend	--	Normal	2507	3070
TDS	9/2020 - 6/2022	8	0%	730	2790	0	Normal	4	0.720	No trend	--	Normal	4440	5319

Appendix IV

Antimony	9/2020 - 6/2022	8	100%	< 0.00100	< 0.00400	1	--	--	--	100% ND	--	Detection Limit	< 0.00400	< 0.00400
Arsenic	9/2020 - 6/2022	8	100%	< 0.00200	< 0.00200	0	--	--	--	100% ND	--	Detection Limit	< 0.00200	< 0.00200
Barium	9/2020 - 6/2022	8	0%	0.0187	0.0639	0	Normal	-6	0.548	No trend	--	Normal	0.0870	0.106
Beryllium	9/2020 - 6/2022	8	100%	< 0.00100	< 0.00100	0	--	--	--	100% ND	--	Detection Limit	< 0.00100	< 0.00100
Cadmium	9/2020 - 6/2022	8	75%	< 0.000100	0.000173	0	Not Normal	--	--	>50% ND	--	Non-parametric	0.000173	0.000173
Chromium	9/2020 - 6/2022	8	100%	< 0.00500	< 0.00500	0	--	--	--	100% ND	--	Detection Limit	< 0.00500	< 0.00500
Cobalt	9/2020 - 6/2022	8	38%	< 0.000500	0.00664	0	Normal	1	1.000	No trend	--	KM Normal	0.00861	0.0111
Lead	9/2020 - 6/2022	8	88%	< 0.000500	0.000899	1	Not Normal	--	--	>50% ND	--	Non-parametric	0.000899	0.000899
Lithium	9/2020 - 6/2022	8	0%	0.188	0.334	0	Normal	4	0.720	No trend	--	Normal	0.463	0.533
Mercury	9/2020 - 6/2022	8	100%	< 0.000200	< 0.000200	0	--	--	--	100% ND	--	Detection Limit	< 0.000200	< 0.000200
Molybdenum	9/2020 - 6/2022	8	100%	< 0.00200	< 0.00200	0	--	--	--	100% ND	--	Detection Limit	< 0.00200	< 0.00200
Radium-226 & 228	9/2020 - 6/2022	8	38%	< 0.120	1.17	0	Normal	5	0.634	No trend	--	KM Normal	1.56	1.95
Selenium	9/2020 - 6/2022	8	75%	< 0.00500	0.0398	1	Not Normal	--	--	>50% ND	--	Non-parametric	0.0398	0.0398
Thallium	9/2020 - 6/2022	8	100%	< 0.00100	< 0.00100	0	--	--	--	100% ND	--	Detection Limit	< 0.00100	< 0.00100

Table D.4

Intra-Well Comparison Values
(Upper Tolerance Limits based on Baseline Period Data at each Well)
MidAmerican Energy Company
Neal North Closed CCR Monofill
Sergeant Bluff, Iowa

Notes:

N - number of samples

%ND - percent non-detects

Data distribution was determined by ProUCL using detects only.

Statistic: calculated as the sum of the signs of all possible pair-wise data comparisons.

Probability of significance: A value less than 0.05 indicates greater than 95 percent confidence of a statistically significant trend.
< 100 - Not detected at the associated reporting limit.

7.0 J - Estimated concentration.

When a trend is present during the baseline period, no UTL was calculated. Instead, the baseline range is listed for comparison.

Non-parametric UTLs with 6 baseline samples have an actual confidence coefficient of 0.27 (i.e., 27 percent confidence) and
8 baseline samples have an actual confidence coefficient of 0.34 (i.e., 34 percent confidence), at 95 percent coverage.Non-parametric UTLs with 6 baseline samples have an actual confidence coefficient of 0.059 (i.e., 5.9 percent confidence) and
8 baseline samples have an actual confidence coefficient of 0.077 (i.e., 7.7 percent confidence), at 99 percent coverage.

KM - UTLs were calculated using Kaplan-Meyer estimates for non-detects.

WH - UTLs were calculated using gamma distribution and the Wilson-Hilferty method.

TDS - Total dissolved solids

Table D.5

**Inter-Well Comparisons for 2024 Monitoring Data vs. Upgradient Background UTLs
MidAmerican Energy Company
Neal North Closed CCR Monofill
Sergeant Bluff, Iowa**

Well	Observation	Monitoring Event	Appendix III Analytes							Appendix IV Analytes				
			Boron mg/L	Calcium mg/L	Chloride mg/L	Fluoride mg/L	pH, lab s.u.	Sulfate mg/L	TDS mg/L	Antimony mg/L	Arsenic mg/L	Barium mg/L	Beryllium mg/L	Cadmium mg/L
Combined Upgradient	Baseline 95/95 UTL		0.386	264	49.4	0.500 U	7.0 J - 7.9 J †	481	1206	0.00200 U	0.00200 U - 0.0512 †	0.0508 - 0.348 †	0.00100 U	0.000227
	Baseline 99/95 UTL		0.457	300	84.9	0.500 U	7.0 J - 7.9 J †	708	1397	0.00200 U	0.00200 U - 0.0512 †	0.0508 - 0.348 †	0.00100 U	0.000227
	MCL/GWPS		None	None	None	4.0^a	None	None	None	0.006^a	0.01^a	2.0^a	0.004^a	0.005^a
MW-1R	3/21/2024	Assessment	0.333 /0.322	146 /155	33.7 /34.8	1.00 U /1.00 U	8.0 J /8.0 J	218 /218	916 /902	0.00200 U /0.00200 U	0.0955 /0.0922	0.110 /0.113	0.00100 U /0.00100 U	0.000200 U /0.000200 U
	6/5/2024	Verification	--	--	--	--	--	--	--	--	0.0464	--	--	--
	9/12/2024	Assessment	0.401 /0.402	159 /158	61.8 /61.5	1.00 U /1.00 U	7.1 J /7.1 J	198 /195	820 /858	0.00200 U /0.00200 U	0.0472 /0.0475	0.0898 /0.0904	0.00100 U /0.00100 U	0.000200 U /0.000200 U
MW-3R	3/20/2024	Assessment	0.400	141	8.58	1.00 U	8.0 J	180	742	0.00200 U	0.0468	0.296	0.00100 U	0.000200 U
	9/13/2024	Assessment	0.405	168	10.8	1.00 U	7.2 J	234	808	0.00200 U	0.0305	0.268	0.00100 U	0.000200 U
MW-5R	3/20/2024	Assessment	0.298	145	11.4	1.00 U	8.0 J	264	868	0.00200 U	0.0330	0.143	0.00100 U	0.000200 U
	6/5/2024	Verification	--	--	--	--	7.4 J	--	--	--	--	--	--	--
	9/12/2024	Assessment	0.310	162	11.1	1.00 U	7.2 J	275	696	0.00200 U	0.0291	0.126	0.00100 U	0.000200 U
MW-19	3/21/2024	Assessment	0.606	316	16.8	1.00 U	7.8 J	715	1750	0.00200 U	0.00458	0.0202	0.00100 U	0.000200 U
	6/5/2024	Verification	--	--	--	--	6.8 J	--	--	--	--	--	--	--
	9/13/2024	Assessment	0.538	419	19.4	1.00 U	6.6 J	939	2070	0.00200 U	0.00666	0.0197	0.00100 U	0.000200 U
MW-21	3/21/2024	Assessment	0.366	510	6.98	1.00 U	7.8 J	1590	2890	0.00200 U	0.00200 U	0.0133	0.00100 U	0.000200 U
	6/5/2024	Verification	--	--	--	--	7.0 J	--	--	--	--	--	--	--
	9/13/2024	Assessment	0.333	202	5.00 U	1.00 U	7.2 J	316	800	0.00200 U	0.00200 U	0.0420	0.00100 U	0.000200 U

**Inter-Well Comparisons for 2024 Monitoring Data vs. Upgradient Background UTLs
MidAmerican Energy Company
Neal North Closed CCR Monofill
Sergeant Bluff, Iowa**

Well	Observation	Monitoring Event	Appendix IV Analytes								
			Chromium mg/L	Cobalt mg/L	Lead mg/L	Lithium mg/L	Mercury mg/L	Molybdenum mg/L	Radium-226 & 228 pCi/L	Selenium mg/L	Thallium mg/L
Combined	Baseline 95/95 UTL		0.00500 U	0.00456	0.000500 U	0.205	0.000200 U	0.00351	1.76	0.033	0.00122
Upgradient	Baseline 99/95 UTL		0.00500 U	0.00568	0.000500 U	0.244	0.000200 U	0.00396	2.14	0.061	0.00122
	MCL/GWPS		0.1^a	0.006^b	0.015^b	0.040^b	0.002^a	0.100^b	5^a	0.05^a	0.002^a
MW-1R	3/21/2024	Assessment	0.00500 U / 0.00500 U	0.000500 U / 0.000500 U	0.000500 U / 0.000500 U	0.0705 / 0.0734	0.000200 U / 0.000200 U	0.00508 / 0.00456	0.924 / 0.791	0.00500 U / 0.00500 U	0.00100 U / 0.00100 U
	6/5/2024	Verification	--	--	--	--	--	--	--	--	--
	9/12/2024	Assessment	0.00500 U / 0.00500 U	0.00116 / 0.00112	0.000500 U / 0.000500 U	0.0765 / 0.0768	0.000200 U / 0.000200 U	0.00464 / 0.00473	0.0214 / 0.735	0.00500 U / 0.00500 U	0.00100 U / 0.00100 U
MW-3R	3/20/2024	Assessment	0.00500 U	0.000500 U	0.000500 U	0.0856	0.000200 U	0.00218	0.727	0.00500 U	0.00100 U
	9/13/2024	Assessment	0.00500 U	0.000703	0.000500 U	0.0875	0.000200 U	0.00227	0.342	0.00500 U	0.00100 U
MW-5R	3/20/2024	Assessment	0.00500 U	0.000662	0.000500 U	0.0734	0.000200 U	0.00361	0.447 U	0.00500 U	0.00100 U
	6/5/2024	Verification	--	--	--	--	--	--	--	--	--
	9/12/2024	Assessment	0.00500 U	0.000694	0.000500 U	0.0725	0.000200 U	0.00357	0.413	0.00500 U	0.00100 U
MW-19	3/21/2024	Assessment	0.00500 U	0.00755	0.000500 U	0.239	0.000200 U	0.00200 U	0.514 U	0.00932	0.00100 U
	6/5/2024	Verification	--	--	--	--	--	--	--	--	--
	9/13/2024	Assessment	0.00500 U	0.0127	0.000500 U	0.255	0.000200 U	0.00200 U	1.08	0.00500 U	0.00100 U
MW-21	3/21/2024	Assessment	0.00500 U	0.000500 U	0.000500 U	0.328	0.000200 U	0.00200 U	0.405 U	0.00500 U	0.00100 U
	6/5/2024	Verification	--	--	--	--	--	--	--	--	--
	9/13/2024	Assessment	0.00500 U	0.000500 U	0.000500 U	0.205	0.000200 U	0.00200 U	0.612	0.191	0.00100 U

Notes:

0.395 / 0.375 - Field duplicate results.

U - Not detected at the associated reporting limit.

62.5 / 64.5 Value exceeds inter-well baseline 95/95 UTL or is outside of baseline range.

0.619 Value exceeds inter-well baseline 99/95 UTL.

† - Trend present during baseline period, no UTL values calculated (baseline range listed for comparison).

Pooled Background consists of MW-13, MW-27, MW-29, MW-223S, and MW-231S.

None - No MCL established.

^a Maximum contaminant level (MCL).

^b Groundwater protection standard (GWPS) established under 40 CFR 257.95(h)(2).

Table D.6

Intra-Well Comparisons for 2024 Monitoring Data
 MidAmerican Energy Company
 Neal North Closed CCR Monofill - Sergeant Bluff, Iowa

Well	Observation	Monitoring Event	Appendix III Analytes							Appendix IV Analytes			
			Boron mg/L	Calcium mg/L	Chloride mg/L	Fluoride mg/L	pH, lab s.u.	Sulfate mg/L	TDS mg/L	Antimony mg/L	Arsenic mg/L	Barium mg/L	Beryllium mg/L
	MCL/GWPS		None	None	None	4.0^a	None	None	None	0.006^a	0.01^a	2.0^a	0.004^a
MW-13/MW-13R (Upgradient)	Baseline 95/95 UTL		0.170	258	15.3 - 73.9 †	< 0.500	6.94 - 7.54	111	1175	0.00200 U	0.108	0.431	0.00100 U
	Baseline 99/95 UTL		0.189	293	15.3 - 73.9 †	< 0.500	6.84 - 7.65	128	1364	0.00200 U	0.136	0.506	0.00100 U
	3/18/2024	Assessment	0.163	119	9.26	1.00 U	7.3 J	61.8	522	0.00200 U	0.0521	0.212	0.00100 U
	9/11/2024	Assessment	0.100 U	138	10.5	1.00 U	7.1 J	29.0	566	0.00200 U	0.0426	0.228	0.00100 U
MW-27 (Upgradient)	Baseline 95/95 UTL		0.203 - 0.305 †	254	11.8 - 28.5 †	< 0.500	6.80 - 7.43	419	1487	0.00200 U	0.058	0.143	0.00100 U
	Baseline 99/95 UTL		0.203 - 0.305 †	285	11.8 - 28.5 †	< 0.500	6.68 - 7.54	504	1744	0.00200 U	0.073	0.157	0.00100 U
	3/18/2024	Assessment	0.254	156	17.3	1.00 U	7.2 J	105	704	0.00200 U	0.0591	0.156	0.00100 U
	9/10/2024	Assessment	0.179 /0.182	167 /170	24.9 /24.8	1.00 U /1.00 U	7.0 J /7.0 J	78.4 /78.3	682 /638	0.00200 U /0.00200 U	0.0663 /0.0675	0.176 /0.181	0.00100 U /0.00100 U
MW-29/MW-29R (Upgradient)	Baseline 95/95 UTL		0.295	297	9.75 J - 12.1 †	< 0.500	6.77 - 7.43	353	1122	0.00200 U	0.0631	0.378	0.00100 U
	Baseline 99/95 UTL		0.333	340	9.75 J - 12.1 †	< 0.500	6.65 - 7.55	435	1261	0.00200 U	0.0788	0.425	0.00100 U
	3/18/2024	Assessment	0.166	166	10.3	1.00 U	7.2 J	109	698	0.00200 U	0.0311	0.228	0.00100 U
	9/10/2024	Assessment	0.114	163	11.3	1.00 U	7.0 J	60.4	606	0.00200 U	0.0277	0.206	0.00100 U
MW-223S (Upgradient)	Baseline 95/95 UTL		0.117	143	< 5.00 - 7.15 †	< 0.500	7.22 - 7.79	145	688	0.00200 U	0.0143	0.418	0.00100 U
	Baseline 99/95 UTL		0.117	153	< 5.00 - 7.15 †	< 0.500	7.11 - 7.90	179	788	0.00200 U	0.0178	0.471	0.00100 U
	3/19/2024	Assessment	0.135 /0.129	161 /160	5.64 /5.43	0.200 U /1.00 U	7.3 J /7.3 J	214 /217	702 /698	0.00200 U /0.00200 U	0.0155 /0.0164	0.289 /0.286	0.00100 U /0.00100 U
	9/10/2024	Assessment	0.172	167	39.8	0.200 U	7.5 J	120	594	0.00200 U	0.0124	0.186	0.00100 U
MW-231S/MW-231SR (Upgradient)	Baseline 95/95 UTL		0.532	336	5.37 - 12.8 †	< 0.500	7.1 J - 7.4 J	614	1394	0.00200 U	0.0085	0.178	0.00100 U
	Baseline 99/95 UTL		0.620	378	5.37 - 12.8 †	< 0.500	7.1 J - 7.4 J	727	1560	0.00200 U	0.0085	0.207	0.00100 U
	1/23/2024	Supplemental	0.208	169	7.78	1.00 U	7.1 J	121	628	0.00200 U	0.00460	0.124	0.00100 U
	2/20/2024	Supplemental	0.220 J	169	8.37	1.00 U	7.2 J	154	694	0.00200 U	0.00746	0.166	0.00100 U
	3/19/2024	Assessment	0.227	216	10.2	0.200 U	7.1 J	287	898	0.00200 U	0.0112	0.218	0.00100 U
	9/10/2024	Assessment	0.400	259	116	0.200 U	7.1 J	177	960	0.00200 U	0.00200 U	0.127	0.00100 U

Table D.6

Intra-Well Comparisons for 2024 Monitoring Data
 MidAmerican Energy Company
 Neal North Closed CCR Monofill - Sergeant Bluff, Iowa

Well	Observation	Monitoring Event	Appendix III Analytes							Appendix IV Analytes			
			Boron mg/L	Calcium mg/L	Chloride mg/L	Fluoride mg/L	pH, lab s.u.	Sulfate mg/L	TDS mg/L	Antimony mg/L	Arsenic mg/L	Barium mg/L	Beryllium mg/L
	MCL/GWPS		None	None	None	4.0^a	None	None	None	0.006^a	0.01^a	2.0^a	0.004^a
MW-1R	Baseline 95/95 UTL		0.470	187	27.4 - 68 †	0.808	6.88 - 7.72	285	997	0.00200 U	0.064	0.138	0.00100 U
	Baseline 99/95 UTL		0.500	202	27.4 - 68 †	0.808	6.73 - 7.87	307	1057	0.00200 U	0.078	0.155	0.00100 U
	3/21/2024	Assessment	0.333 /0.322	146 /155	33.7 /34.8	1.00 U /1.00 U	8.0 J /8.0 J	218 /218	916 /902	0.00200 U /0.00200 U	0.0955 /0.0922	0.110 /0.113	0.00100 U /0.00100 U
	6/5/2024	Verification	--	--	--	--	--	--	--	--	0.0464	--	--
	9/12/2024	Assessment	0.401 /0.402	159 /158	61.8 /61.5	1.00 U /1.00 U	7.1 J /7.1 J	198 /195	820 /858	0.00200 U /0.00200 U	0.0472 /0.0475	0.0898 /0.0904	0.00100 U /0.00100 U
MW-3R	Baseline 95/95 UTL		1.26	184	32.6	0.631	6.92 - 7.71	277	614 - 894 †	0.00200 U	0.055	0.4245	0.00100 U
	Baseline 99/95 UTL		1.55	200	38.3	0.631	6.77 - 7.86	320	614 - 894 †	0.00200 U	0.0608	0.4913	0.00100 U
	3/20/2024	Assessment	0.400	141	8.58	1.00 U	8.0 J	180	742	0.00200 U	0.0468	0.296	0.00100 U
	9/13/2024	Assessment	0.405	168	10.8	1.00 U	7.2 J	234	808	0.00200 U	0.0305	0.268	0.00100 U
MW-5R	Baseline 95/95 UTL		0.508	213	15.0	0.675	6.95 - 7.67	472	1188	0.00200 U	0.0502	0.32	0.00100 U
	Baseline 99/95 UTL		0.602	245	16.9	0.675	6.82 - 7.80	577	1384	0.00200 U	0.0557	0.368	0.00100 U
	3/20/2024	Assessment	0.298	145	11.4	1.00 U	8.0 J	264	868	0.00200 U	0.0330	0.143	0.00100 U
	6/5/2024	Verification	--	--	--	--	7.4 J	--	--	--	--	--	--
	9/12/2024	Assessment	0.310	162	11.1	1.00 U	7.2 J	275	696	0.00200 U	0.0291	0.126	0.00100 U
MW-19	Baseline 95/95 UTL		0.903	639	21.9	2.36	6.29 - 7.28	1449	3189	0.00200 U	0.00973	0.0269	0.00100 U
	Baseline 99/95 UTL		1.00	733	23.4	2.36	6.11 - 7.46	1646	3601	0.00200 U	0.0117	0.0286	0.00100 U
	3/21/2024	Assessment	0.606	316	16.8	1.00 U	7.8 J	715	1750	0.00200 U	0.00458	0.0202	0.00100 U
	6/5/2024	Verification	--	--	--	--	6.8 J	--	--	--	--	--	--
	9/13/2024	Assessment	0.538	419	19.4	1.00 U	6.6 J	939	2070	0.00200 U	0.00666	0.0197	0.00100 U
MW-21	Baseline 95/95 UTL		0.542	744	9.09	2.85	6.42 - 7.53	2507	4440	0.00400 U	0.00200 U	0.087	0.00100 U
	Baseline 99/95 UTL		0.612	875	10.0	2.85	6.21 - 7.74	3070	5319	0.00400 U	0.00200 U	0.106	0.00100 U
	3/21/2024	Assessment	0.366	510	6.98	1.00 U	7.8 J	1590	2890	0.00200 U	0.00200 U	0.0133	0.00100 U
	6/5/2024	Verification	--	--	--	--	7.0 J	--	--	--	--	--	--
	9/13/2024	Assessment	0.333	202	5.00 U	1.00 U	7.2 J	316	800	0.00200 U	0.00200 U	0.0420	0.00100 U

Table D.6

Intra-Well Comparisons for 2024 Monitoring Data
MidAmerican Energy Company
Neal North Closed CCR Monofill - Sergeant Bluff, Iowa

Well	Observation	Monitoring Event	Appendix IV Analytes									
			Cadmium mg/L	Chromium mg/L	Cobalt mg/L	Lead mg/L	Lithium mg/L	Mercury mg/L	Molybdenum mg/L	Radium-226 & 228 pCi/L	Selenium mg/L	Thallium mg/L
	MCL/GWPS		0.005 ^a	0.1 ^a	0.006 ^b	0.015 ^b	0.040 ^b	0.002 ^a	0.100 ^b	5 ^a	0.05 ^a	0.002 ^a
MW-13/MW-13R (Upgradient)	Baseline 95/95 UTL		0.000227	0.00500 U	0.0049	0.000500 U	0.178	0.000200 U	0.00594	2.11	0.111	0.00100 U
	Baseline 99/95 UTL		0.000227	0.00500 U	0.0062	0.000500 U	0.210	0.000200 U	0.00699	2.51	0.111	0.00100 U
	3/18/2024	Assessment	0.000200 U	0.00500 U	0.000733	0.000500 U	0.0884	0.000200 U	0.00413	1.01	0.00500 U	0.00100 U
	9/11/2024	Assessment	0.000200 U	0.00500 U	0.000874	0.000500 U	0.0906	0.000200 U	0.00362	1.18	0.00500 U	0.00100 U
MW-27 (Upgradient)	Baseline 95/95 UTL		0.000114	0.00500 U	0.00203	0.000500 U	0.306	0.000200 U	0.00200 U	1.52	0.00500 U	0.00100 U
	Baseline 99/95 UTL		0.000114	0.00500 U	0.00241	0.000500 U	0.355	0.000200 U	0.00200 U	1.79	0.00500 U	0.00100 U
	3/18/2024	Assessment	0.000200 U	0.00500 U	0.000537	0.000500 U	0.126	0.000200 U	0.00200 U	0.650	0.00500 U	0.00100 U
	9/10/2024	Assessment	0.000200 U / 0.000200 U	0.00500 U / 0.00500 U	0.000849 / 0.000867	0.000500 U / 0.000500 U	0.105 / 0.105	0.000200 U / 0.000200 U	0.00200 U / 0.00200 U	0.848 / 0.806	0.00500 U / 0.00500 U	0.00100 U / 0.00100 U
MW-29/MW-29R (Upgradient)	Baseline 95/95 UTL		0.000100 U	0.00500 U	0.0107	0.000500 U	0.174	0.000200 U	0.00335	2.96	0.00500 U	0.00100 U
	Baseline 99/95 UTL		0.000100 U	0.00500 U	0.0134	0.000500 U	0.199	0.000200 U	0.00335	3.58	0.00500 U	0.00100 U
	3/18/2024	Assessment	0.000200 U	0.00500 U	0.00279	0.000500 U	0.103	0.000200 U	0.00200	1.19	0.00500 U	0.00100 U
	9/10/2024	Assessment	0.000200 U	0.00500 U	0.00217	0.000500 U	0.0908	0.000200 U	0.00200 U	1.00	0.00500 U	0.00100 U
MW-223S (Upgradient)	Baseline 95/95 UTL		0.000123	0.00500 U	0.00158	0.000500 U	0.07	0.000200 U	0.00316	1.8	0.00500 U	0.00100 U
	Baseline 99/95 UTL		0.000123	0.00500 U	0.00188	0.000500 U	0.076	0.000200 U	0.00316	2.22	0.00500 U	0.00100 U
	3/19/2024	Assessment	0.000200 U / 0.000200 U	0.00500 U / 0.00500 U	0.000913 / 0.000901	0.000500 U / 0.000500 U	0.0585 / 0.0575	0.000200 U / 0.000200 U	0.00228 / 0.00238	0.335 U / 0.453 U	0.00500 U / 0.00500 U	0.00100 U / 0.00100 U
	9/10/2024	Assessment	0.000200 U	0.00500 U	0.000728	0.000500 U	0.0610	0.000200 U	0.00237	0.919	0.00500 U	0.00100 U
MW-231S/MW-231SR (Upgradient)	Baseline 95/95 UTL		0.000139	0.00500 U	0.00498	0.000500 U	0.126	0.000200 U	0.00242	1.63	0.0261	0.00122
	Baseline 99/95 UTL		0.000139	0.00500 U	0.0061	0.000500 U	0.136	0.000200 U	0.00242	1.99	0.032	0.00122
	1/23/2024	Supplementa	0.000200 U	0.00500 U	0.00251	0.000500 U	0.0905	0.000200 U	0.00222	1.18	0.00559	0.00100 U
	2/20/2024	Supplementa	0.000200 U	0.00500 U	0.00209	0.000500 U	0.0805 J	0.000200 U	0.00215	0.599	0.00500 U	0.00100 U
	3/19/2024	Assessment	0.000200 U	0.00500 U	0.00347	0.000500 U	0.103	0.000200 U	0.00248	2.98	0.00500 U	0.00100 U
	9/10/2024	Assessment	0.000200 U	0.00500 U	0.00692	0.000500 U	0.0951	0.000200 U	0.00200 U	1.06	0.0117	0.00100 U

Table D.6

Intra-Well Comparisons for 2024 Monitoring Data
MidAmerican Energy Company
Neal North Closed CCR Monofill - Sergeant Bluff, Iowa

Well	Observation	Monitoring Event	Appendix IV Analytes									
			Cadmium mg/L	Chromium mg/L	Cobalt mg/L	Lead mg/L	Lithium mg/L	Mercury mg/L	Molybdenum mg/L	Radium-226 & 228 pCi/L	Selenium mg/L	Thallium mg/L
MCL/GWPS			0.005 ^a	0.1 ^a	0.006 ^b	0.015 ^b	0.040 ^b	0.002 ^a	0.100 ^b	5 ^a	0.05 ^a	0.002 ^a
MW-1R	Baseline 95/95 UTL		0.000409	0.00500 U	0.000500 U - 0.00104 †	0.000500 U	0.103	0.000200 U	0.00699	2.18	0.00500 U	0.00100 U
	Baseline 99/95 UTL		0.000409	0.00500 U	0.000500 U - 0.00104 †	0.000500 U	0.115	0.000200 U	0.00777	2.81	0.00500 U	0.00100 U
	3/21/2024	Assessment	0.000200 U / 0.000200 U	0.00500 U / 0.00500 U	0.000500 U / 0.000500 U	0.000500 U / 0.000500 U	0.0705 / 0.0734	0.000200 U / 0.000200 U	0.00508 / 0.00456	0.924 / 0.791	0.00500 U / 0.00500 U	0.00100 U / 0.00100 U
	6/5/2024	Verification	--	--	--	--	--	--	--	--	--	--
	9/12/2024	Assessment	0.000200 U / 0.000200 U	0.00500 U / 0.00500 U	0.00116 / 0.00112	0.000500 U / 0.000500 U	0.0765 / 0.0768	0.000200 U / 0.000200 U	0.00464 / 0.00473	0.0214 / 0.735	0.00500 U / 0.00500 U	0.00100 U / 0.00100 U
MW-3R	Baseline 95/95 UTL		0.000776	0.00500 U	0.000500 U - 0.00158 †	0.0016	0.116	0.000200 U	0.00651	1.74	0.00500 U	0.00694
	Baseline 99/95 UTL		0.000776	0.00500 U	0.000500 U - 0.00158 †	0.0016	0.127	0.000200 U	0.00651	2.07	0.00500 U	0.00694
	3/20/2024	Assessment	0.000200 U	0.00500 U	0.000500 U	0.000500 U	0.0856	0.000200 U	0.00218	0.727	0.00500 U	0.00100 U
	9/13/2024	Assessment	0.000200 U	0.00500 U	0.000703	0.000500 U	0.0875	0.000200 U	0.00227	0.342	0.00500 U	0.00100 U
MW-5R	Baseline 95/95 UTL		0.000100 U	0.00500 U	0.00081	0.000500 U	0.0986	0.000200 U	0.00491	1.5	0.00500 U	0.00100 U
	Baseline 99/95 UTL		0.000100 U	0.00500 U	0.00089	0.000500 U	0.1102	0.000200 U	0.00527	1.91	0.00500 U	0.00100 U
	3/20/2024	Assessment	0.000200 U	0.00500 U	0.000662	0.000500 U	0.0734	0.000200 U	0.00361	0.447 U	0.00500 U	0.00100 U
	6/5/2024	Verification	--	--	--	--	--	--	--	--	--	--
	9/12/2024	Assessment	0.000200 U	0.00500 U	0.000694	0.000500 U	0.0725	0.000200 U	0.00357	0.413	0.00500 U	0.00100 U
MW-19	Baseline 95/95 UTL		0.000100 U	0.00500 U	0.0278	0.000747	0.345	0.000200 U	0.00200 U	1.57	0.00500 U	0.00100 U
	Baseline 99/95 UTL		0.000100 U	0.00500 U	0.0341	0.000747	0.381	0.000200 U	0.00200 U	1.95	0.00500 U	0.00100 U
	3/21/2024	Assessment	0.000200 U	0.00500 U	0.00755	0.000500 U	0.239	0.000200 U	0.00200 U	0.514 U	0.00932	0.00100 U
	6/5/2024	Verification	--	--	--	--	--	--	--	--	--	--
	9/13/2024	Assessment	0.000200 U	0.00500 U	0.0127	0.000500 U	0.255	0.000200 U	0.00200 U	1.08	0.00500 U	0.00100 U
MW-21	Baseline 95/95 UTL		0.000173	0.00500 U	0.00861	0.000899	0.463	0.000200 U	0.00200 U	1.56	0.0398	0.00100 U
	Baseline 99/95 UTL		0.000173	0.00500 U	0.0111	0.000899	0.533	0.000200 U	0.00200 U	1.95	0.0398	0.00100 U
	3/21/2024	Assessment	0.000200 U	0.00500 U	0.000500 U	0.000500 U	0.328	0.000200 U	0.00200 U	0.405 U	0.00500 U	0.00100 U
	6/5/2024	Verification	--	--	--	--	--	--	--	--	--	--
	9/13/2024	Assessment	0.000200 U	0.00500 U	0.000500 U	0.000500 U	0.205	0.000200 U	0.00200 U	0.612	0.191	0.00100 U

Notes:

0.100 / 0.106 - Field duplicate results.

< 0.500 - Not detected at the associated reporting limit.

J - Estimated concentration.

0.888 Value exceeds intra-well baseline 95/95 UTL or is outside of baseline range (for baseline data sets with temporal trends).

None - No MCL established.

^a Maximum contaminant level (MCL).

^b Groundwater protection standard (GWPS) established under 40 CFR 257.95(h)(2).

8.2 J Value exceeds intra-well baseline 99/95 UTL.

† - Trend present during baseline period, no UTL values calculated (baseline range listed for comparison).



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